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Table S1: Identification of P450s that are part of secondary metabolite biosynthesis tic gene clusters (smBGCs) in *Salinispora* species. Cluster-ID and BGC type is retrieved from Integrated Microbial Genomes & Microbiomes (IMG/M) database [57,58]. smBGC Type was indicated for consistency with the standard BGC Type name terminology available in the anti-SMASH database [33].

Sample Name	Genome ID	No of P450s part of clusters	P450 name	CLUSTER ID	BGC TYPE
<i>Salinispora arenicola</i> CNR107	2519103194	1	CYP166A4	2519124058.c00001_F583DRA...region1	T1PKS
<i>Salinispora pacifica</i> CNS801	2561511036	3	CYP107AW9	2561515277.c00001_T435DRA...region3	Bacteriocin
			CYP1223A5	2561515279.c00003_T435DRA...region1	lipolanthine
			CYP211C4	2561515286.c00010_T435DRA...region1	T2PKS
<i>Salinispora arenicola</i> CNY011	2517572153	12	CYP208A12	2517596201.c00001_C576DRA...region2	T1PKS
			CYP244A4	2517596206.c00006_C576DRA...region1	Indole
			CYP245A7	2517596206.c00006_C576DRA...region1	Indole
			CYP1051A1	2517596207.c00007_C576DRA...region1	Terpene

			CYP105G5	2517596207.c00007_C576DRA...region2	T1PKS
			CYP107Q4	2517596207.c00007_C576DRA...region2	T1PKS
			CYP166A4	2517596209.c00009_C576DRA...region1	T1PKS
			CYP154M15	2517596211.c00011_C576DRA...region1	ladderane
			CYP125G6	2517596211.c00011_C576DRA...region1	ladderane
			CYP107FS2	2517596211.c00011_C576DRA...region1	ladderane
			CYP105CN1	2517596211.c00011_C576DRA...region1	ladderane
			CYP105CP2	2517596211.c00011_C576DRA...region1	ladderane
<i>Salinispora arenicola</i> CNX508	2515154188	14	CYP244A4	2515169292.c00005_B111DRA...region1	Indole
			CYP245A7	2515169292.c00005_B111DRA...region1	Indole
			CYP154M5	2515169296.c00009_B111DRA...region1	T1PKS

			CYP105CT1	2515169296.c00009_B111DRA...region1	T1PKS
			CYP1051A1	2515169297.c00010_B111DRA...region1	Terpene
			CYP105G5	2515169297.c00010_B111DRA...region2	T1PKS
			CYP107Q4	2515169297.c00010_B111DRA...region2	T1PKS
			CYP105CP2	2515169300.c00013_B111DRA...region2	NRPS
			CYP105CN1	2515169300.c00013_B111DRA...region2	NRPS
			CYP107FS2	2515169300.c00013_B111DRA...region2	NRPS
			CYP208A12	2515169301.c00014_B111DRA...region1	T1PKS
			CYP211C1	2515169303.c00016_B111DRA...region1	T2PKS
			CYP105W2	2515169305.c00018_B111DRA...region1	NRPS
			CYP248A2	2515169312.c00025_B111DRA...region1	oligosaccharid

<i>Salinispora arenicola</i> CNY 237	2517572163	17	CYP211C1	2517597048.c00002_C586DRA...region1	T2PKS
			CYP245A7	2517597050.c00004_C586DRA...region2	Indole
			CYP244A4	2517597050.c00004_C586DRA...region2	Indole
			CYP105CP2	2517597050.c00004_C586DRA...region4	NRPS
			CYP105CN1	2517597050.c00004_C586DRA...region4	NRPS
			CYP107FS2	2517597050.c00004_C586DRA...region4	NRPS
			CYP166A4	2517597054.c00008_C586DRA...region1	T1PKS
			CYP1051A1	2517597055.c00009_C586DRA...region1	Terpene
			CYP105G5	2517597055.c00009_C586DRA...region2	T1PKS
			CYP107Q4	2517597055.c00009_C586DRA...region2	T1PKS
			CYP208A12	2517597057.c00011_C586DRA...region1	T1PKS

			CYP107AY2	2517597063.c00017_C586DRA...region1	NRPS
			CYP105CT1	2517597063.c00017_C586DRA...region1	NRPS
			CYP154M5	2517597063.c00017_C586DRA...region1	NRPS
			CYP107EU1	2517597073.c00027_C586DRA...region1	T1PKS
			CYP248A2	2517597074.c00028_C586DRA...region1	oligosaccharide
			CYP105CH1	2517597075.c00029_C586DRA...region1	T1PKS
<i>Salinispora arenicola</i> CNT005	2517572137	9	CYP211C1	2517589297.c00005_B110DRA...region2	T2PKS
			CYP105W2	2517589298.c00006_B110DRA...region1	oligosaccharide
			CYP107FS2	2517589298.c00006_B110DRA...region1	oligosaccharide
			CYP105CN1	2517589298.c00006_B110DRA...region1	oligosaccharide
			CYP105CP2	2517589298.c00006_B110DRA...region1	oligosaccharide

			CYP244A4	2517589299.c00007_B110DRA...region1	Indole
			CYP245A7	2517589299.c00007_B110DRA...region1	Indole
			CYP113D13	2517589300.c00008_B110DRA...region1	NRPS
			CYP163B22	2517589300.c00008_B110DRA...region1	NRPS
<i>Salinispora tropica</i> CNS416	2517572164	9	CYP107AY1	2517597114.c00001_C590DRA...region2	NRPS
			CYP163B1	2517597115.c00002_C590DRA...region1	NRPS
			CYP211C1	2517597116.c00003_C590DRA...region1	T2PKS
			CYP208A4	2517597116.c00003_C590DRA...region3	NRPS
			CYP154M1	2517597116.c00003_C590DRA...region3	NRPS
			CYP107AW1	2517597117.c00004_C590DRA...region2	Bacteriocin
			CYP1004B1	2517597136.c00023_C590DRA...region1	NRPS

			CYP1004A1	2517597136.c00023_C590DRA...region1	NRPS
			CYP125G1	2517597148.c00035_C590DRA...region1	T1PKS
<i>Salinispora arenicola</i> CNH996	2561511104	21	CYP211C1	2571043777.c00002_T327DRA...region2	T2PKS
			CYP244A4	2571043781.c00006_T327DRA...region1	Indole
			CYP245A7	2571043781.c00006_T327DRA...region1	Indole
			CYP107AW7	2571043783.c00008_T327DRA...region1	Bacteriocin
			CYP166A4	2571043788.c00013_T327DRA...region1	NRPS-like
			CYP107AX-fragment9	2571043791.c00016_T327DRA...region1	ladderane
			CYP208A12	2571043796.c00021_T327DRA...region1	T1PKS
			CYP107AY2	2571043799.c00024_T327DRA...region1	NRPS
			CYP163B21	2571043804.c00029_T327DRA...region1	NRPS

			CYP154M5	2571043808.c00033_T327DRA...region1	T1PKS
			CYP105CT1	2571043808.c00033_T327DRA...region1	T1PKS
			CYP105G5	2571043810.c00035_T327DRA...region1	T1PKS
			CYP105CP2	2571043810.c00035_T327DRA...region1	T1PKS
			CYP105CN1	2571043815.c00040_T327DRA...region1	NRPS
			CYP107FS2	2571043815.c00040_T327DRA...region1	NRPS
			CYP247A7	2571043815.c00040_T327DRA...region1	NRPS
			CYP248A2	2571043818.c00043_T327DRA...region1	NRPS
			CYP105W2	2571043825.c00050_T327DRA...region1	oligosaccharide
			CYP107NH1	2571043825.c00050_T327DRA...region1	oligosaccharide
			CYP247A8	2571043840.c00065_T327DRA...region1	NRPS

			CYP1051A1	2571043857.c00082_T327DRA...region1	Terpene
<i>Salinispora arenicola</i> CNH996B		18	CYP211C1	2561538853.c00002_CC96DRA...region2	T2PKS
			CYP107AX-fragment9	2561538858.c00007_CC96DRA...region1	ladderane
			CYP166A4	2561538858.c00007_CC96DRA...region2	T1PKS
			CYP244A4	2561538859.c00008_CC96DRA...region1	Indole
			CYP245A7	2561538859.c00008_CC96DRA...region1	Indole
			CYP107AW7	2561538861.c00010_CC96DRA...region1	Bacteriocin
			CYP208A12	2561538871.c00020_CC96DRA...region1	T1PKS
			CYP163B21	2561538876.c00025_CC96DRA...region1	NRPS
			CYP154M5	2561538881.c00030_CC96DRA...region1	T1PKS
			CYP105CT1	2561538881.c00030_CC96DRA...region1	T1PKS

			CYP105G5	2561538883.c00032_CC96DRA...region1	T1PKS
			CYP107Q4	2561538883.c00032_CC96DRA...region1	T1PKS
			CYP107FS2	2561538884.c00033_CC96DRA...region1	NRPS
			CYP105CN1	2561538887.c00036_CC96DRA...region1	NRPS
			CYP105CP2	2561538887.c00036_CC96DRA...region1	NRPS
			CYP247A7	2561538892.c00041_CC96DRA...region1	other
			CYP105W2	2561538896.c00045_CC96DRA...region1	oligosaccharide
			CYP248A2	2561538896.c00045_CC96DRA...region1	oligosaccharide
<i>Salinispora pacifica</i> CNT138	2516143118	7	CYP245A11	2516156462.c00001_B173DRA...region4	NRPS
			CYP107AW6	2516156462.c00001_B173DRA...region5	Bacteriocin
			CYP244A5	2516156462.c00001_B173DRA...region9	T2PKS

			CYP211C6	2516156462.c00001_B173DRA...region9	T2PKS
			CYP154M16	2516156462.c00001_B173DRA...region6	NRPS
			CYP107AY7	2516156476.c00015_B173DRA...region1	terpene
			CYP1278A4	2516156480.c00019_B173DRA...region1	NRPS
<i>Salinispora pacifica</i> CNT001	2515154184	9	CYP107AW7	2515168971.c00001_B169DRA...region2	Bacteriocin
			CYP208A22	2515168973.c00003_B169DRA...region2	T1PKS
			CYP161N4	2515168995.c00025_B169DRA...region1	T3PKS
			CYP2054A3	2515168995.c00025_B169DRA...region1	T3PKS
			CYP107FH3	2515168995.c00025_B169DRA...region1	T3PKS
			CYP107AY9	2515168997.c00027_B169DRA...region1	terpene
			CYP244A10	2515168997.c00027_B169DRA...region1	terpene

			CYP107E37	2515169026.c00056_B169DRA...region1	T1PKS
			CYP294A4	2515169033.c00063_B169DRA...region1	T1PKS
<i>Salinispora pacifica</i> DSM 45547	2516493032	7	CYP107AY7	2516493519.c00001_SALPAC4...region6	NRPS
			CYP244A5	2516493519.c00001_SALPAC4...region14	NRPS
			CYP245A11	2516493519.c00001_SALPAC4...region14	NRPS
			CYP107AW6	2516493519.c00001_SALPAC4...region15	Bacteriocin
			CYP154M16	2516493519.c00001_SALPAC4...region16	NRPS
			CYP211C6	2516493519.c00001_SALPAC4...region16	NRPS
			CYP1278A4	2516493519.c00001_SALPAC4...region22	NRPS
<i>Salinispora pacifica</i> DSM 45548	2517287023	4	CYP1278B4	2517287721.c00001_Salpac2...region1	NRPS
			CYP107AW9	2517287721.c00001_Salpac2...region3	Bacteriocin

			CYP211C4	2517287721.c00001_Salpac2...region 6	T2PKS
			CYP1223A5	2517287721.c00001_Salpac2...region 11	lipolanthine
<i>Salinispora pacifica</i> CNH732	257104200 6	9	CYP107AW7	2571042892.c00004_T392DRA...regi on2	Bacteriocin
			CYP208A22	2571042893.c00005_T392DRA...regi on1	T1PKS
			CYP107FH3	2571042907.c00019_T392DRA...regi on1	NRPS-like
			CYP2054A3	2571042907.c00019_T392DRA...regi on1	NRPS-like
			CYP161N4	2571042907.c00019_T392DRA...regi on1	NRPS-like
			CYP107AY9	2571042909.c00021_T392DRA...regi on1	terpene
			CYP244A10	2571042909.c00021_T392DRA...regi on1	terpene
			CYP1278B- fragment2	2571042915.c00027_T392DRA...regi on1	T1PKS
			CYP107E37	2571042934.c00046_T392DRA...regi on1	T1PKS

<i>Salinispora pacifica</i> CNT584	2517572160	11	CYP154AJ2	2517596773.c00001_C582DRA...region1	terpene
			CYP211C9	2517596773.c00001_C582DRA...region2	T2PKS
			CYP244A5	2517596774.c00002_C582DRA...region1	NRPS
			CYP245A11	2517596774.c00002_C582DRA...region1	NRPS
			CYP107AW6	2517596774.c00002_C582DRA...region2	Bacteriocin
			CYP161T1	2517596782.c00010_C582DRA...region1	T2PKS
			CYP208A27	2517596785.c00013_C582DRA...region1	T1PKS
			CYP161N4	2517596793.c00021_C582DRA...region1	NRPS-like
			CYP2054A3	2517596793.c00021_C582DRA...region1	NRPS-like
			CYP107FH3	2517596793.c00021_C582DRA...region1	NRPS-like
			CYP107AY8	2517596807.c00035_C582DRA...region1	NRPS

<i>Salinispora pacifica</i> CNS237	2524614807	14	CYP211C7	2524706086.c00001_H303DRA...region1	T2PKS
			CYP285D2	2524706086.c00001_H303DRA...region3	NRPS
			CYP245A12	2524706086.c00001_H303DRA...region4	indole
			CYP244A5	2524706086.c00001_H303DRA...region4	indole
			CYP163B17	2524706086.c00001_H303DRA...region5	transAT-PKS-like
			CYP244A8	2524706087.c00002_H303DRA...region3	NRPS
			CYP107AY-fragment1	2524706087.c00002_H303DRA...region3	NRPS
			CYP107NE1	2524706091.c00006_H303DRA...region1	T1PKS
			CYP154M18	2524706091.c00006_H303DRA...region3	NRPS
			CYP208A28	2524706091.c00006_H303DRA...region3	NRPS
			CYP107AW4	2524706097.c00012_H303DRA...region2	Bacteriocin

			CYP113E2	2524706101.c00016_H303DRA...region1	T1PKS
			CYP107EP2	2524706101.c00016_H303DRA...region1	T1PKS
			CYP105AH4	2524706103.c00018_H303DRA...region1	other
<i>Salinispora pacifica</i> CNT045	2517572158	12	CYP154M16	2517596646.c00001_C554DRA...region1	NRPS
			CYP208A21	2517596646.c00001_C554DRA...region1	NRPS
			CYP107AW6	2517596646.c00001_C554DRA...region2	Bacteriocin
			CYP245A11	2517596646.c00001_C554DRA...region3	indole
			CYP244A5	2517596646.c00001_C554DRA...region3	indole
			CYP211C6	2517596647.c00002_C554DRA...region4	T2PKS
			CYP162A8	2517596652.c00007_C554DRA...region1	NRPS-like
			CYP107CL2	2517596656.c00011_C554DRA...region1	NRPS

			CYP1056B2	2517596656.c00011_C554DRA...region1	NRPS
			CYP163B20	2517596659.c00014_C554DRA...region1	transAT-PKS-like
			CYP107AY7	2517596665.c00020_C554DRA...region1	NRPS
			CYP107CT3	2517596667.c00022_C554DRA...region1	NRPS
<i>Salinispora pacifica</i> CNY330	2518645626	9	CYP107FH3	2518683698.c00002_C587DRA...region1	NRPS-like
			CYP2054A3	2518683698.c00002_C587DRA...region1	NRPS-like
			CYP161N4	2518683698.c00002_C587DRA...region1	NRPS-like
			CYP107AW7	2518683706.c00010_C587DRA...region2	bacteriocin
			CYP208A22	2518683716.c00020_C587DRA...region1	T1PKS
			CYP105H11	2518683723.c00027_C587DRA...region1	T1PKS
			CYP244A10	2518683730.c00034_C587DRA...region1	NRPS

			CYP107AY9	2518683730.c00034_C587DRA...region1	NRPS
			CYP107E37	2518683751.c00055_C587DRA...region1	T1PKS
<i>Salinispora arenicola</i> CNH964	2515154125	1	CYP208A12	2515164749.c00002_B164DRA...region2	T1PKS
<i>Salinispora pacifica</i> CNT403	2561511034	12	CYP244A5	2561515055.c00005_T427DRA...region1	NRPS
			CYP245A11	2561515055.c00005_T427DRA...region1	NRPS
			CYP107AW6	2561515055.c00005_T427DRA...region2	Bacteriocin
			CYP211C6	2561515058.c00008_T427DRA...region2	T2PKS
			CYP208A26	2561515061.c00011_T427DRA...region2	T1PKS
			CYP163B20	2561515063.c00013_T427DRA...region1	transAT-PKS-like
			CYP162A8	2561515066.c00016_T427DRA...region1	NRPS-like
			CYP1269A2	2561515068.c00018_T427DRA...region1	oligosaccharide

			CYP107AY7	2561515072.c00022_T427DRA...region1	NRPS
			CYP208A21	2561515087.c00037_T427DRA...region1	NRPS
			CYP154M16	2561515087.c00037_T427DRA...region1	NRPS
			CYP107CT3	2561515091.c00041_T427DRA...region1	NRPS
<i>Salinispora pacifica</i> CNT-133	2548876971	1	CYP163B20	2582697582.HQ215062.region1	transAT-PKS-like
<i>Salinispora pacifica</i> CNQ768	2517572155	8	CYP208A22	2517596374.c00003_C581DRA...region1	T1PKS
			CYP107AW7	2517596379.c00008_C581DRA...region3	Bacteriocin
			CYP107FH3	2517596392.c00021_C581DRA...region1	NRPS-like
			CYP2054A3	2517596392.c00021_C581DRA...region1	NRPS-like
			CYP161N4	2517596392.c00021_C581DRA...region1	NRPS-like
			CYP107AY9	2517596394.c00023_C581DRA...region1	terpene

			CYP244A10	2517596394.c00023_C581DRA...region1	terpene
			CYP107E37	2517596430.c00059_C581DRA...region1	T1PKS
<i>Salinispora arenicola</i> CNS325	2571042009	19	CYP208A12	2571043105.c00002_T371DRA...region2	T1PKS
			CYP107AY2	2571043107.c00004_T371DRA...region1	NRPS
			CYP105CT1	2571043107.c00004_T371DRA...region2	terpene
			CYP154M5	2571043107.c00004_T371DRA...region2	terpene
			CYP211C1	2571043108.c00005_T371DRA...region2	T2PKS
			CYP105CH1	2571043110.c00007_T371DRA...region2	T1PKS
			CYP244A4	2571043111.c00008_T371DRA...region1	Indole
			CYP245A7	2571043111.c00008_T371DRA...region1	Indole
			CYP166A4	2571043112.c00009_T371DRA...region2	T1PKS

			CYP105W2	2571043114.c00011_T371DRA...regi on1	oligosaccharide
			CYP248A2	2571043114.c00011_T371DRA...regi on1	oligosaccharide
			CYP107FS2	2571043114.c00011_T371DRA...regi on1	oligosaccharide
			CYP105CN1	2571043118.c00015_T371DRA...regi on1	T1PKS
			CYP105CP2	2571043114.c00011_T371DRA...regi on1	oligosaccharide
			CYP105BN4	2571043118.c00015_T371DRA...regi on1	T1PKS
			CYP107Q4	2571043120.c00017_T371DRA...regi on1	T1PKS
			CYP105G5	2571043120.c00017_T371DRA...regi on1	T1PKS
			CYP1051A1	2571043120.c00017_T371DRA...regi on2	Terpene
			CYP107EU1	2571043135.c00032_T371DRA...regi on1	NRPS-like
<i>Salinispora arenicola</i> CNS296	256595652 7	19	CYP105CH1	2565959858.c00001_T319DRA...regi on2	T1PKS

			CYP107Q4	2565959861.c00004_T319DRA...region1	T1PKS
			CYP105G5	2565959861.c00004_T319DRA...region1	T1PKS
			CYP1051A1	2565959861.c00004_T319DRA...region2	Terpene
			CYP107AY2-fragment	2565959862.c00005_T319DRA...region1	NRPS
			CYP105CT1	2565959862.c00005_T319DRA...region2	butyrolactone
			CYP154M5	2565959862.c00005_T319DRA...region2	butyrolactone
			CYP208A12	2565959863.c00006_T319DRA...region2	T1PKS
			CYP244A4	2565959865.c00008_T319DRA...region1	Indole
			CYP245A7	2565959865.c00008_T319DRA...region1	Indole
			CYP166A4	2565959867.c00010_T319DRA...region2	T1PKS
			CYP105CP2	2565959868.c00011_T319DRA...region2	NRPS

			CYP105CN1	2565959868.c00011_T319DRA...region2	NRPS
			CYP107FS2	2565959868.c00011_T319DRA...region2	NRPS
			CYP248A2	2565959868.c00011_T319DRA...region2	NRPS
			CYP105W2	2565959868.c00011_T319DRA...region2	NRPS
			CYP211C1	2565959873.c00016_T319DRA...region1	T2PKS
			CYP247A7	2565959874.c00017_T319DRA...region1	other
			CYP107EU1	2565959885.c00028_T319DRA...region1	T1PKS
<i>Salinispora pacifica</i> DSM 45549	2517434008	4	CYP105AH4	2517434628.c00001_Salpac6...region1	other
			CYP245A13	2517434628.c00001_Salpac6...region2	Indole
			CYP244A5	2517434628.c00001_Salpac6...region2	Indole
			CYP113E2	2517434628.c00001_Salpac6...region3	T1PKS

<i>Salinispora arenicola</i> CNY231	251828555 8	3	CYP166A4	2518290717.c00001_C577DRA...regi on1	T1PKS
			CYP211C1	2518290720.c00004_C577DRA...regi on1	T2PKS
			CYP244A4	2518290721.c00005_C577DRA...regi on1	Indole
<i>Salinispora arenicola</i> CNS744	251828555 4	10	CYP166A4	2518290334.c00002_C573DRA...regi on1	T1PKS
			CYP211C1	2518290335.c00003_C573DRA...regi on4	T2PKS
			CYP244A4	2518290338.c00006_C573DRA...regi on1	Indole
			CYP245A7	2518290338.c00006_C573DRA...regi on1	Indole
			CYP107AY2	2518290339.c00007_C573DRA...regi on1	NRPS
			CYP105CP2	2518290341.c00009_C573DRA...regi on2	NRPS
			CYP105CN1	2518290341.c00009_C573DRA...regi on2	NRPS
			CYP107FS2	2518290341.c00009_C573DRA...regi on2	NRPS

			CYP248A2	2518290341.c00009_C573DRA...region2	NRPS
			CYP105W2	2518290341.c00009_C573DRA...region2	NRPS
<i>Salinispora tropica</i> CNB-476	651717007	1	CYP163B1	651717006.EF397502.region1	NRPS
<i>Salinispora arenicola</i> CNS342	2571042016	17	CYP208A12	2571043981.c00002_T366DRA...region2	T1PKS
			CYP211C1	2571043982.c00003_T366DRA...region4	T2PKS
			CYP105W2	2571043986.c00007_T366DRA...region1	oligosaccharide
			CYP248A2	2571043986.c00007_T366DRA...region1	oligosaccharide
			CYP107FS2	2571043986.c00007_T366DRA...region1	oligosaccharide
			CYP105CN1	2571043986.c00007_T366DRA...region1	oligosaccharide
			CYP105CP2	2571043986.c00007_T366DRA...region1	oligosaccharide
			CYP244A4	2571043987.c00008_T366DRA...region1	Indole
			CYP245A7	2571043987.c00008_T366DRA...region1	Indole

			CYP166A4	2571043988.c00009_T366DRA...region1	T1PKS
			CYP154M5	2571043989.c00010_T366DRA...region1	T1PKS
			CYP105CT1	2571043989.c00010_T366DRA...region1	T1PKS
			CYP107AY2-fragment	2571043989.c00010_T366DRA...region1	T1PKS
			CYP107Q4	2571043991.c00012_T366DRA...region1	T1PKS
			CYP105G5	2571043991.c00012_T366DRA...region1	T1PKS
			CYP1051A1	2571043991.c00012_T366DRA...region2	Terpene
			CYP105CH1	2571043997.c00018_T366DRA...region1	T1PKS
<i>Salinispora pacifica</i> CNT796	2515154182	9	CYP161N4	2515168768.c00002_B120DRA...region1	T3PKS
			CYP2054A3	2515168768.c00002_B120DRA...region1	T3PKS
			CYP107FH3	2515168768.c00002_B120DRA...region1	T3PKS

			CYP107AW7	2515168769.c00003_B120DRA...region2	Bacteriocin
			CYP208A22	2515168792.c00026_B120DRA...region1	T1PKS
			CYP244A13	2515168803.c00037_B120DRA...region1	NRPS
			CYP107AY9	2515168803.c00037_B120DRA...region1	NRPS
			CYP107NG1	2515168817.c00051_B120DRA...region1	T2PKS
			CYP107E37	2515168821.c00055_B120DRA...region1	T1PKS
<i>Salinispora pacifica</i> CNR114	2515154178	11	CYP107AW7	2515168496.c00002_B118DRA...region2	Bacteriocin
			CYP208A22	2515168497.c00003_B118DRA...region2	T1PKS
			CYP161N4	2515168517.c00023_B118DRA...region1	NRPS-like
			CYP2054A3	2515168517.c00023_B118DRA...region1	NRPS-like
			CYP107FH3	2515168517.c00023_B118DRA...region1	NRPS-like

			CYP1437C1	2515168521.c00027_B118DRA...region1	NRPS
			CYP163A10	2515168528.c00034_B118DRA...region1	NRPS
			CYP162K1	2515168528.c00034_B118DRA...region1	NRPS
			CYP107AY9	2515168530.c00036_B118DRA...region1	NRPS
			CYP294A4	2515168548.c00054_B118DRA...region1	T1PKS
			CYP107E37	2515168552.c00058_B118DRA...region1	T1PKS
<i>Salinispora arenicola</i> CNY282	2521172655	7	CYP211C1	2521193357.c00003_F585DRA...region1	T2PKS
			CYP107AY2	2521193358.c00004_F585DRA...region1	NRPS
			CYP105CT1	2521193358.c00004_F585DRA...region1	NRPS
			CYP154M5	2521193358.c00004_F585DRA...region1	NRPS
			CYP245A7	2521193362.c00008_F585DRA...region1	Indole

			CYP244A4	2521193362.c00008_F585DRA...region1	Indole
			CYP208A12	2521193364.c00010_F585DRA...region1	T1PKS
<i>Salinispora arenicola</i> CNT798	2515154186	21	CYP244A4	2515169136.c00007_B103DRA...region1	Indole
			CYP245A7	2515169136.c00007_B103DRA...region1	Indole
			CYP105CP2	2515169137.c00008_B103DRA...region2	NRPS
			CYP105CN1	2515169137.c00008_B103DRA...region2	NRPS
			CYP107FS2	2515169137.c00008_B103DRA...region2	NRPS
			CYP125G6	2515169137.c00008_B103DRA...region2	NRPS
			CYP154M15	2515169137.c00008_B103DRA...region2	NRPS
			CYP107AY2	2515169138.c00009_B103DRA...region1	NRPS
			CYP208A12	2515169139.c00010_B103DRA...region1	T1PKS

			CYP105CH1	2515169141.c00012_B103DRA...region2	T1PKS
			CYP107Q4	2515169143.c00014_B103DRA...region1	T1PKS
			CYP105G5	2515169143.c00014_B103DRA...region1	T1PKS
			CYP1051A1	2515169143.c00014_B103DRA...region2	Terpene
			CYP211C1	2515169144.c00015_B103DRA...region1	T2PKS
			CYP166A4	2515169145.c00016_B103DRA...region1	T1PKS
			CYP107AX13	2515169146.c00017_B103DRA...region1	ladderane
			CYP154M20	2515169150.c00021_B103DRA...region1	oligosaccharide
			CYP248A2	2515169150.c00021_B103DRA...region1	oligosaccharide
			CYP105W2	2515169150.c00021_B103DRA...region1	oligosaccharide
			CYP154M13	2515169150.c00021_B103DRA...region1	oligosaccharide

			CYP154M21	2515169150.c00021_B103DRA...region1	oligosaccharide
<i>Salinispora pacifica</i> CNS860	2518285563	10	CYP211C6	2518291047.c00006_C551DRA...region2	T2PKS
			CYP244A5	2518291050.c00009_C551DRA...region1	indole
			CYP107CT3	2518291051.c00010_C551DRA...region1	NRPS
			CYP163B20	2518291054.c00013_C551DRA...region1	NRPS
			CYP208A26	2518291055.c00014_C551DRA...region1	T1PKS
			CYP154M16	2518291056.c00015_C551DRA...region1	NRPS
			CYP208A21	2518291056.c00015_C551DRA...region1	NRPS
			CYP107AW6	2518291056.c00015_C551DRA...region2	Bacteriocin
			CYP107AY7	2518291057.c00016_C551DRA...region1	terpene
			CYP162A8	2518291067.c00026_C551DRA...region1	NRPS-like

<i>Salinispora arenicola</i> CNY694	2561511114	23	CYP154M5	2561539735.c00002_T378DRA...region1	T1PKS
			CYP105CT2	2561539735.c00002_T378DRA...region1	T1PKS
			CYP211C1	2561539736.c00003_T378DRA...region2	T2PKS
			CYP107AX-fragment8	2561539738.c00005_T378DRA...region1	ladderane
			CYP166A4	2561539738.c00005_T378DRA...region2	NRPS-like
			CYP208A12	2561539742.c00009_T378DRA...region1	T1PKS
			CYP105W3	2561539744.c00011_T378DRA...region1	oligosaccharide
			CYP248A2	2561539744.c00011_T378DRA...region1	oligosaccharide
			CYP107FS2	2561539744.c00011_T378DRA...region1	oligosaccharide
			CYP105CN1	2561539744.c00011_T378DRA...region1	oligosaccharide
			CYP105CP2	2561539744.c00011_T378DRA...region1	oligosaccharide

			CYP1051A4	2561539746.c00013_T378DRA...region1	Terpene
			CYP244A4	2561539748.c00015_T378DRA...region1	Indole
			CYP245A7	2561539748.c00015_T378DRA...region1	Indole
			CYP244A-fragment2	2561539752.c00019_T378DRA...region1	NRPS
			CYP107EU2	2561539763.c00030_T378DRA...region1	NRPS-like
			CYP107Q4	2561539765.c00032_T378DRA...region1	T1PKS
			CYP105G7	2561539765.c00032_T378DRA...region1	T1PKS
			CYP105CH2	2561539772.c00039_T378DRA...region1	T1PKS
			CYP285A9-fragment	2561539788.c00055_T378DRA...region1	NRPS-like
			CYP285A9-fragment	2561539788.c00055_T378DRA...region1	NRPS-like
			CYP107AW7	2561539796.c00063_T378DRA...region1	Bacteriocin

			CYP1198B2	2561539809.c00076_T378DRA...region1	T1PKS
<i>Salinispora arenicola</i> CNP193	2518285552	19	CYP105CP2	2518290163.c00003_C571DRA...region2	NRPS
			CYP105CN1	2518290163.c00003_C571DRA...region2	NRPS
			CYP107FS2	2518290163.c00003_C571DRA...region2	NRPS
			CYP125G6	2518290163.c00003_C571DRA...region2	NRPS
			CYP154M15	2518290163.c00003_C571DRA...region2	NRPS
			CYP154M20	2518290163.c00003_C571DRA...region3	oligosaccharide
			CYP248A2	2518290163.c00003_C571DRA...region3	oligosaccharide
			CYP105W2	2518290163.c00003_C571DRA...region3	oligosaccharide
			CYP154M13	2518290163.c00003_C571DRA...region3	oligosaccharide
			CYP154M21	2518290163.c00003_C571DRA...region3	oligosaccharide

			CYP208A12	2518290164.c00004_C571DRA...region1	T1PKS
			CYP245A7	2518290166.c00006_C571DRA...region1	Indole
			CYP244A4	2518290166.c00006_C571DRA...region1	Indole
			CYP166A4	2518290171.c00011_C571DRA...region1	T1PKS
			CYP1051A1	2518290172.c00012_C571DRA...region1	Terpene
			CYP105G5	2518290172.c00012_C571DRA...region2	T1PKS
			CYP107Q4	2518290172.c00012_C571DRA...region2	T1PKS
			CYP107AY2	2518290192.c00032_C571DRA...region1	NRPS
			CYP163B16	2518290193.c00033_C571DRA...region1	NRPS
<i>Salinispora pacifica</i> CNS103	2515154129	5	CYP107AW7	2515165134.c00004_B117DRA...region2	Bacteriocin
			CYP107FH3	2515165152.c00022_B117DRA...region1	NRPS-like

			CYP161N4	2515165152.c00022_B117DRA...region1	NRPS-like
			CYP107AY9	2515165152.c00022_B117DRA...region1	NRPS-like
			CYP107E37	2515165153.c00023_B117DRA...region1	terpene
<i>Salinispora arenicola</i> CNP105	2518285551	1	CYP208A12	2518290094.c00003_C572DRA...region2	T1PKS
<i>Salinispora arenicola</i> CNX482	2515154137	16	CYP245A7	2515165687.c00004_B168DRA...region2	Indole
			CYP244A4	2515165687.c00004_B168DRA...region2	Indole
			CYP208A12	2515165688.c00005_B168DRA...region1	T1PKS
			CYP154M5	2515165690.c00007_B168DRA...region1	T1PKS
			CYP105CT1	2515165690.c00007_B168DRA...region1	T1PKS
			CYP107Q4	2515165694.c00011_B168DRA...region1	T1PKS
			CYP105G5	2515165694.c00011_B168DRA...region1	T1PKS

			CYP1051A1	2515165694.c00011_B168DRA...region2	Terpene
			CYP211C1	2515165696.c00013_B168DRA...region1	T2PKS
			CYP107FS2	2515165698.c00015_B168DRA...region1	NRPS
			CYP105CN1	2515165698.c00015_B168DRA...region1	NRPS
			CYP105CP2	2515165698.c00015_B168DRA...region1	NRPS
			CYP105W2	2515165699.c00016_B168DRA...region1	oligosaccharide
			CYP248A2	2515165699.c00016_B168DRA...region1	oligosaccharide
			CYP166A4	2515165701.c00018_B168DRA...region1	T1PKS
			CYP107AY2-fragment	2515165702.c00019_B168DRA...region1	NRPS
<i>Salinispora arenicola</i> CNS299	2524614529	18	CYP211C1	2524618012.c00001_H279DRA...region4	T2PKS
			CYP208A12	2524618014.c00003_H279DRA...region2	T1PKS

			CYP105W2	2524618017.c00006_H279DRA...region1	oligosaccharide
			CYP248A2	2524618017.c00006_H279DRA...region1	oligosaccharide
			CYP107FS2	2524618017.c00006_H279DRA...region1	oligosaccharide
			CYP105CN1	2524618017.c00006_H279DRA...region1	oligosaccharide
			CYP105CP2	2524618017.c00006_H279DRA...region1	oligosaccharide
			CYP244A4	2524618019.c00008_H279DRA...region1	Indole
			CYP245A7	2524618019.c00008_H279DRA...region1	Indole
			CYP166A4	2524618020.c00009_H279DRA...region1	NRPS-like
			CYP1051A1	2524618024.c00013_H279DRA...region1	Terpene
			CYP105G5	2524618024.c00013_H279DRA...region2	T1PKS
			CYP107Q4	2524618024.c00013_H279DRA...region2	T1PKS

			CYP105CT1	2524618025.c00014_H279DRA...region1	terpene
			CYP154M5	2524618025.c00014_H279DRA...region1	terpene
			CYP107AY2-fragment	2524618030.c00019_H279DRA...region1	NRPS
			CYP247A7	2524618033.c00022_H279DRA...region1	NRPS
			CYP105CH1	2524618035.c00024_H279DRA...region1	T1PKS
<i>Salinispora pacifica</i> CNT003	2515154126	10	CYP208A22	2515164822.c00005_B167DRA...region1	T1PKS
			CYP107AW7	2515164823.c00006_B167DRA...region1	Bacteriocin
			CYP107FH3	2515164831.c00014_B167DRA...region1	NRPS-like
			CYP2054A3	2515164831.c00014_B167DRA...region1	NRPS-like
			CYP161N4	2515164831.c00014_B167DRA...region1	NRPS-like
			CYP107AY9	2515164850.c00033_B167DRA...region1	NRPS

			CYP162B3	2515164854.c00037_B167DRA...region1	NRPS
			CYP162G1	2515164867.c00050_B167DRA...region1	NRPS
			CYP107E37	2515164880.c00063_B167DRA...region1	T1PKS
			CYP107FH4	2515164904.c00087_B167DRA...region1	T1PKS
<i>Salinispora pacifica</i> CNT569	2515154124	7	CYP211C5	2515164709.c00001_B116DRA...region2	T1PKS
			CYP125G4	2515164709.c00001_B116DRA...region4	T2PKS
			CYP1004A3	2515164716.c00008_B116DRA...region1	other
			CYP1004B4	2515164716.c00008_B116DRA...region1	other
			CYP113E2	2515164716.c00008_B116DRA...region1	other
			CYP163B18	2515164716.c00008_B116DRA...region1	other
			CYP107AY3	2515164718.c00010_B116DRA...region2	NRPS

<i>Salinispora arenicola</i> CNH643	2561511037	22	CYP107Q4	2561515316.c00001_T339DRA...region1	T1PKS
			CYP105G5	2561515316.c00001_T339DRA...region1	T1PKS
			CYP1051A1	2561515316.c00001_T339DRA...region2	Terpene
			CYP211C1	2561515317.c00002_T339DRA...region5	T2PKS
			CYP208A12	2561515318.c00003_T339DRA...region1	T1PKS
			CYP244A4	2561515323.c00008_T339DRA...region1	Indole
			CYP245A7	2561515323.c00008_T339DRA...region1	Indole
			CYP105CP2	2561515324.c00009_T339DRA...region2	NRPS
			CYP105CN1	2561515324.c00009_T339DRA...region2	NRPS
			CYP107FS2	2561515324.c00009_T339DRA...region2	NRPS
			CYP125G6	2561515324.c00009_T339DRA...region2	NRPS

			CYP154M15	2561515324.c00009_T339DRA...region2	NRPS
			CYP166A4	2561515326.c00011_T339DRA...region1	T1PKS
			CYP107AX14P	2561515329.c00014_T339DRA...region1	ladderane
			CYP107EU1	2561515333.c00018_T339DRA...region2	NRPS-like
			CYP162P1	2561515337.c00022_T339DRA...region1	NRPS
			CYP154M21	2561515338.c00023_T339DRA...region1	NRPS
			CYP154M13	2561515338.c00023_T339DRA...region1	NRPS
			CYP105W2	2561515338.c00023_T339DRA...region1	NRPS
			CYP248A2	2561515338.c00023_T339DRA...region1	NRPS
			CYP154M20	2561515338.c00023_T339DRA...region1	NRPS
			CYP107AY13	2561515348.c00033_T339DRA...region1	NRPS

<i>Salinispora arenicola</i> CNH962	2519103193	17	CYP211C1	2519123975.c00005_F582DRA...region2	T2PKS
			CYP244A4	2519123976.c00006_F582DRA...region1	Indole
			CYP245A7	2519123976.c00006_F582DRA...region1	Indole
			CYP107AX-fragment9	2519123978.c00008_F582DRA...region1	ladderane
			CYP166A4	2519123978.c00008_F582DRA...region2	T1PKS
			CYP154M14	2519123979.c00009_F582DRA...region2	NRPS
			CYP107FS2	2519123985.c00015_F582DRA...region1	NRPS
			CYP105CN1	2519123985.c00015_F582DRA...region1	NRPS
			CYP105CP2	2519123985.c00015_F582DRA...region1	NRPS
			CYP107AY2	2519123992.c00022_F582DRA...region1	NRPS
			CYP208A12	2519123993.c00023_F582DRA...region1	T1PKS

			CYP107Q4	2519123996.c00026_F582DRA...region1	T1PKS
			CYP105G5	2519123996.c00026_F582DRA...region1	T1PKS
			CYP1051A1	2519123996.c00026_F582DRA...region2	Terpene
			CYP105CT1	2519124007.c00037_F582DRA...region1	Terpene
			CYP105W2	2519124009.c00039_F582DRA...region1	oligosaccharide
			CYP248A2	2519124009.c00039_F582DRA...region1	oligosaccharide
<i>Salinispora arenicola</i> CNX481	2518285555	18	CYP211C1	2518290422.c00001_C574DRA...region1	T2PKS
			CYP245A7	2518290425.c00004_C574DRA...region2	Indole
			CYP244A4	2518290425.c00004_C574DRA...region2	Indole
			CYP166A4	2518290426.c00005_C574DRA...region1	T1PKS
			CYP105CP2	2518290430.c00009_C574DRA...region2	NRPS

			CYP105CN1	2518290430.c00009_C574DRA...region2	NRPS
			CYP107FS2	2518290430.c00009_C574DRA...region2	NRPS
			CYP1051A1	2518290431.c00010_C574DRA...region1	Terpene
			CYP105G5	2518290431.c00010_C574DRA...region2	T1PKS
			CYP107Q4	2518290431.c00010_C574DRA...region2	T1PKS
			CYP208A12	2518290433.c00012_C574DRA...region1	T1PKS
			CYP107AY2	2518290440.c00019_C574DRA...region1	NRPS
			CYP105CH2-fragment	2518290443.c00022_C574DRA...region1	NRPS
			CYP105CH1-fragment	2518290443.c00022_C574DRA...region1	NRPS
			CYP248A2	2518290449.c00028_C574DRA...region1	oligosaccharide
			CYP105W2	2518290449.c00028_C574DRA...region1	oligosaccharide

			CYP154M5	2518290452.c00031_C574DRA...region1	T1PKS
			CYP105CT1	2518290452.c00031_C574DRA...region1	T1PKS
<i>Salinispora pacifica</i> CNT148	2517572145	2	CYP107AW9	2517595798.c00002_B159DRA...region2	Bacteriocin
			CYP1223A5	2517595810.c00014_B159DRA...region1	lanthipeptide
<i>Salinispora arenicola</i> CNH713	2571042007	22	CYP211C1	2571042957.c00001_T341DRA...region3	T2PKS
			CYP166A4	2571042957.c00001_T341DRA...region7	NRPS-like
			CYP105CH1	2571042958.c00002_T341DRA...region1	T1PKS
			CYP162P1	2571042958.c00002_T341DRA...region3	NRPS
			CYP208A12	2571042962.c00006_T341DRA...region1	T1PKS
			CYP105CP2	2571042963.c00007_T341DRA...region2	NRPS
			CYP105CN1	2571042963.c00007_T341DRA...region2	NRPS

			CYP107FS2	2571042963.c00007_T341DRA...region2	NRPS
			CYP125G6	2571042963.c00007_T341DRA...region2	NRPS
			CYP154M15	2571042963.c00007_T341DRA...region2	NRPS
			CYP154M20	2571042963.c00007_T341DRA...region3	oligosaccharide
			CYP248A2	2571042963.c00007_T341DRA...region3	oligosaccharide
			CYP105W2	2571042963.c00007_T341DRA...region3	oligosaccharide
			CYP154M13	2571042963.c00007_T341DRA...region3	oligosaccharide
			CYP154M21	2571042963.c00007_T341DRA...region3	oligosaccharide
			CYP107Q4	2571042964.c00008_T341DRA...region1	T1PKS
			CYP105G5	2571042964.c00008_T341DRA...region1	T1PKS
			CYP1051A1	2571042964.c00008_T341DRA...region2	Terpene

			CYP244A4	2571042965.c00009_T341DRA...region1	Indole
			CYP245A7	2571042965.c00009_T341DRA...region1	Indole
			CYP107EU1	2571042966.c00010_T341DRA...region1	T1PKS
			CYP107AY2	2571042967.c00011_T341DRA...region1	NRPS
<i>Salinispora arenicola</i> CNH963	2524023246	17	CYP107AX-fragment9	2524041079.c00004_H278DRA...region1	ladderane
			CYP166A4	2524041079.c00004_H278DRA...region2	NRPS-like
			CYP107Q4	2524041079.c00004_H278DRA...region2	NRPS-like
			CYP105G5	2524041079.c00004_H278DRA...region2	NRPS-like
			CYP1051A1	2524041079.c00004_H278DRA...region3	Terpene
			CYP211C1	2524041081.c00006_H278DRA...region1	T2PKS
			CYP245A7	2524041083.c00008_H278DRA...region1	Indole

			CYP244A4	2524041083.c00008_H278DRA...region1	Indole
			CYP154M14	2524041084.c00009_H278DRA...region2	NRPS
			CYP105CP2	2524041089.c00014_H278DRA...region2	NRPS
			CYP105CN1	2524041089.c00014_H278DRA...region2	NRPS
			CYP107FS2	2524041089.c00014_H278DRA...region2	NRPS
			CYP208A12	2524041096.c00021_H278DRA...region1	T1PKS
			CYP107AY2	2524041100.c00025_H278DRA...region1	NRPS
			CYP105CT1	2524041114.c00039_H278DRA...region1	Terpene
			CYP248A2	2524041115.c00040_H278DRA...region1	oligosaccharide
			CYP105W2	2524041115.c00040_H278DRA...region1	oligosaccharide
<i>Salinispora pacifica</i> CNS863	2517572156	11	CYP162A8	2517596463.c00001_C552DRA...region2	NRPS-like

			CYP211C6	2517596468.c00006_C552DRA...region2	T2PKS
			CYP245A11	2517596470.c00008_C552DRA...region1	indole
			CYP244A5	2517596470.c00008_C552DRA...region1	indole
			CYP208A26	2517596472.c00010_C552DRA...region1	T1PKS
			CYP107AW6	2517596477.c00015_C552DRA...region1	Bacteriocin
			CYP163B20	2517596484.c00022_C552DRA...region1	NRPS
			CYP107AY7	2517596488.c00026_C552DRA...region1	terpene
			CYP208A21	2517596493.c00031_C552DRA...region1	NRPS
			CYP154M16	2517596493.c00031_C552DRA...region1	NRPS
			CYP107CT3	2517596497.c00035_C552DRA...region1	NRPS
<i>Salinispora tropica</i> CNB476	251757221 1	10	CYP163B1	2517600244.c00001_B098DRA...region1	NRPS

			CYP154M1	2517600245.c00002_B098DRA...region1	NRPS
			CYP208A4	2517600245.c00002_B098DRA...region1	NRPS
			CYP211C1	2517600245.c00002_B098DRA...region3	T2PKS
			CYP107AW1	2517600246.c00003_B098DRA...region2	Bacteriocin
			CYP1004B1	2517600258.c00015_B098DRA...region1	NRPS
			CYP1004A1	2517600258.c00015_B098DRA...region1	NRPS
			CYP125G1	2517600258.c00015_B098DRA...region1	NRPS
			CYP107AY1	2517600260.c00017_B098DRA...region1	terpene
			CYP107E3	2517600285.c00042_B098DRA...region1	T1PKS
<i>Salinispora tropica</i> CNT261	2524614530	13	CYP163B1	2524618075.c00001_H301DRA...region1	NRPS
			CYP107NH1	2524618075.c00001_H301DRA...region3	NRPS

			CYP247A8	2524618075.c00001_H301DRA...region3	NRPS
			CYP107Z27	2524618075.c00001_H301DRA...region3	NRPS
			CYP154M1	2524618077.c00003_H301DRA...region1	NRPS
			CYP208A4	2524618077.c00003_H301DRA...region1	NRPS
			CYP211C1	2524618077.c00003_H301DRA...region3	T2PKS
			CYP107AW1	2524618079.c00005_H301DRA...region1	Bacteriocin
			CYP107AY1	2524618092.c00018_H301DRA...region1	NRPS
			CYP1004B1	2524618096.c00022_H301DRA...region1	NRPS
			CYP1004A1	2524618096.c00022_H301DRA...region1	NRPS
			CYP125G1	2524618096.c00022_H301DRA...region1	NRPS
			CYP107E3	2524618115.c00041_H301DRA...region1	T1PKS

<i>Salinispora tropica</i> CNR699	2518645624	11	CYP107AY1	2518683438.c00001_C589DRA...region1	terpene
			CYP163B1	2518683439.c00002_C589DRA...region1	NRPS
			CYP154M1	2518683440.c00003_C589DRA...region2	NRPS
			CYP208A4	2518683440.c00003_C589DRA...region2	NRPS
			CYP211C1	2518683440.c00003_C589DRA...region4	T2PKS
			CYP107AW1	2518683441.c00004_C589DRA...region2	Bacteriocin
			CYP113E1	2518683455.c00018_C589DRA...region1	T1PKS
			CYP1004B1	2518683459.c00022_C589DRA...region1	NRPS
			CYP1004A1	2518683459.c00022_C589DRA...region1	NRPS
			CYP125G1	2518683459.c00022_C589DRA...region1	NRPS
			CYP107E3	2518683471.c00034_C589DRA...region1	T1PKS

<i>Salinispora arenicola</i> CNQ748	2515154180	15	CYP107AY2	2515168620.c00002_B106DRA...region1	NRPS
			CYP105CT1	2515168620.c00002_B106DRA...region1	NRPS
			CYP154M5	2515168620.c00002_B106DRA...region1	NRPS
			CYP105CP2	2515168622.c00004_B106DRA...region2	lanthipeptide
			CYP105CN1	2515168622.c00004_B106DRA...region2	lanthipeptide
			CYP107FS2	2515168622.c00004_B106DRA...region2	lanthipeptide
			CYP248A2	2515168622.c00004_B106DRA...region2	lanthipeptide
			CYP105W2	2515168622.c00004_B106DRA...region2	lanthipeptide
			CYP211C1	2515168625.c00007_B106DRA...region1	T2PKS
			CYP245A7	2515168627.c00009_B106DRA...region1	Indole
			CYP244A4	2515168627.c00009_B106DRA...region1	Indole

			CYP208A12	2515168631.c00013_B106DRA...region1	T1PKS
			CYP107Q4	2515168634.c00016_B106DRA...region1	T1PKS
			CYP105G5	2515168634.c00016_B106DRA...region1	T1PKS
			CYP1051A1	2515168634.c00016_B106DRA...region2	Terpene
<i>Salinispora arenicola</i> CNS-991, DSM 45545	2516143022	12	CYP154M21	2516144862.scaffold1.region2	NRPS
			CYP154M13	2516144862.scaffold1.region2	NRPS
			CYP105W2	2516144862.scaffold1.region2	NRPS
			CYP248A2	2516144862.scaffold1.region2	NRPS
			CYP154M20	2516144862.scaffold1.region2	NRPS
			CYP154M15	2516144862.scaffold1.region3	ladderane
			CYP125G6	2516144862.scaffold1.region3	ladderane
			CYP107FS2	2516144862.scaffold1.region3	ladderane
			CYP105CN1	2516144862.scaffold1.region3	ladderane
			CYP105CP2	2516144862.scaffold1.region3	ladderane
			CYP244A4	2516144862.scaffold1.region5	Indole
			CYP245A7	2516144862.scaffold1.region5	Indole

<i>Salinispora pacifica</i> CNT854	2515154170	10	CYP154AJ2	2515167898.c00002_B115DRA...region2	LAP
			CYP211C9	2515167898.c00002_B115DRA...region3	T2PKS
			CYP107AW6	2515167899.c00003_B115DRA...region1	Bacteriocin
			CYP245A11	2515167899.c00003_B115DRA...region2	indole
			CYP244A5	2515167899.c00003_B115DRA...region2	indole
			CYP208A27	2515167909.c00013_B115DRA...region1	T1PKS
			CYP107FH3	2515167910.c00014_B115DRA...region1	NRPS-like
			CYP2054A3	2515167910.c00014_B115DRA...region1	NRPS-like
			CYP161N4	2515167910.c00014_B115DRA...region1	NRPS-like
			CYP1196A2	2515167921.c00025_B115DRA...region1	NRPS
<i>Salinispora pacifica</i> DSM 45543	2517572194	11	CYP162A8	2517598672.c00001_SALPACD...region2	NRPS-like

			CYP244A5	2517598672.c00001_SALPACD...region7	NRPS
			CYP245A11	2517598672.c00001_SALPACD...region7	NRPS
			CYP107AW6	2517598672.c00001_SALPACD...region8	Bacteriocin
			CYP208A21	2517598672.c00001_SALPACD...region9	NRPS
			CYP154M16	2517598672.c00001_SALPACD...region9	NRPS
			CYP211C6	2517598672.c00001_SALPACD...region13	T2PKS
			CYP208A26	2517598672.c00001_SALPACD...region15	T1PKS
			CYP163B20	2517598672.c00001_SALPACD...region20	transAT-PKS-like
			CYP107CT3	2517598672.c00001_SALPACD...region21	NRPS
			CYP107AY7	2517598672.c00001_SALPACD...region24	NRPS
<i>Salinispora arenicola</i> CNY260	2518285560	17	CYP107Q4	2518290865.c00001_C579DRA...region1	T1PKS

			CYP105G5	2518290865.c00001_C579DRA...region1	T1PKS
			CYP1051A1	2518290865.c00001_C579DRA...region2	Terpene
			CYP211C1	2518290867.c00003_C579DRA...region5	T2PKS
			CYP208A12	2518290870.c00006_C579DRA...region2	T1PKS
			CYP105W2	2518290872.c00008_C579DRA...region1	oligosaccharide
			CYP248A2	2518290872.c00008_C579DRA...region1	oligosaccharide
			CYP107FS2	2518290872.c00008_C579DRA...region1	oligosaccharide
			CYP105CN1	2518290872.c00008_C579DRA...region1	oligosaccharide
			CYP105CP2	2518290872.c00008_C579DRA...region1	oligosaccharide
			CYP107AY2	2518290873.c00009_C579DRA...region1	NRPS
			CYP105CT1	2518290873.c00009_C579DRA...region1	NRPS

			CYP154M5	2518290873.c00009_C579DRA...region1	NRPS
			CYP166A4	2518290874.c00010_C579DRA...region1	T1PKS
			CYP245A7	2518290875.c00011_C579DRA...region2	Indole
			CYP244A4	2518290875.c00011_C579DRA...region2	Indole
			CYP105CH1	2518290883.c00019_C579DRA...region1	T1PKS
<i>Salinispora arenicola</i> CNT799	2526164509	23	CYP208A12	2526165619.c00001_K389DRA...region2	T1PKS
			CYP105CH1	2526165620.c00002_K389DRA...region2	T1PKS
			CYP107AX13	2526165621.c00003_K389DRA...region4	ladderane
			CYP166A4	2526165621.c00003_K389DRA...region5	NRPS-like
			CYP105CP2	2526165625.c00007_K389DRA...region2	NRPS
			CYP105CN1	2526165625.c00007_K389DRA...region2	NRPS

			CYP107FS2	2526165625.c00007_K389DRA...region2	NRPS
			CYP125G6	2526165625.c00007_K389DRA...region2	NRPS
			CYP154M15	2526165625.c00007_K389DRA...region2	NRPS
			CYP107Q4	2526165628.c00010_K389DRA...region1	T1PKS
			CYP105G5	2526165628.c00010_K389DRA...region1	T1PKS
			CYP1051A1	2526165628.c00010_K389DRA...region2	Terpene
			CYP244A4	2526165630.c00012_K389DRA...region1	Indole
			CYP245A7	2526165630.c00012_K389DRA...region1	Indole
			CYP162P1	2526165633.c00015_K389DRA...region1	NRPS
			CYP211C1	2526165636.c00018_K389DRA...region1	T2PKS
			CYP154M20	2526165638.c00020_K389DRA...region1	oligosaccharide

			CYP248A2	2526165638.c00020_K389DRA...region1	oligosaccharide
			CYP105W2	2526165638.c00020_K389DRA...region1	oligosaccharide
			CYP154M13	2526165638.c00020_K389DRA...region1	oligosaccharide
			CYP154M21	2526165638.c00020_K389DRA...region1	oligosaccharide
			CYP107AY2	2526165640.c00022_K389DRA...region1	NRPS
			CYP1198B1	2526165640.c00022_K389DRA...region1	NRPS
<i>Salinispora arenicola</i> CNH646	25154181	6	CYP211C1	2515168709.c00001_B163DRA...region3	T2PKS
			CYP162P1	2515168711.c00003_B163DRA...region1	NRPS
			CYP208A12	2515168712.c00004_B163DRA...region2	T1PKS
			CYP107Q4	2515168715.c00007_B163DRA...region1	T1PKS
			CYP105G5	2515168715.c00007_B163DRA...region1	T1PKS

			CYP1051A1	2515168715.c00007_B163DRA...region2	Terpene
<i>Salinispora arenicola</i> CNY280	2517572154	14	CYP245A7	2517596283.c00001_C580DRA...region1	Indole
			CYP244A4	2517596283.c00001_C580DRA...region1	Indole
			CYP105CP2	2517596283.c00001_C580DRA...region3	NRPS
			CYP105CN1	2517596283.c00001_C580DRA...region3	NRPS
			CYP107FS2	2517596283.c00001_C580DRA...region3	NRPS
			CYP125G6	2517596283.c00001_C580DRA...region3	NRPS
			CYP154M15	2517596283.c00001_C580DRA...region3	NRPS
			CYP154M20	2517596283.c00001_C580DRA...region4	oligosaccharide
			CYP248A2	2517596283.c00001_C580DRA...region4	oligosaccharide
			CYP105W2	2517596283.c00001_C580DRA...region4	oligosaccharide

			CYP154M13	2517596283.c00001_C580DRA...region4	oligosaccharide
			CYP154M21	2517596283.c00001_C580DRA...region4	oligosaccharide
			CYP211C1	2517596285.c00003_C580DRA...region3	T2PKS
			CYP208A12	2517596287.c00005_C580DRA...region1	T1PKS
<i>Salinispora pacifica</i> CNY202	2528311034	4	CYP154M19	2528320063.c00001_K228DRA...region1	NRPS
			CYP154AJ3	2528320085.c00023_K228DRA...region1	NRPS
			CYP211C3	2528320095.c00033_K228DRA...region1	T2PKS
			CYP107AY4	2528320103.c00041_K228DRA...region1	NRPS
<i>Salinispora arenicola</i> CNX891	2515154187	14	CYP245A7	2515169201.c00006_B108DRA...region2	Indole
			CYP244A4	2515169201.c00006_B108DRA...region2	Indole
			CYP105CP2	2515169204.c00009_B108DRA...region2	NRPS

			CYP105CN1	2515169204.c00009_B108DRA...region2	NRPS
			CYP107FS2	2515169204.c00009_B108DRA...region2	NRPS
			CYP248A2	2515169204.c00009_B108DRA...region2	NRPS
			CYP105W2	2515169204.c00009_B108DRA...region2	NRPS
			CYP107Q4	2515169207.c00012_B108DRA...region1	T1PKS
			CYP105G5	2515169207.c00012_B108DRA...region1	T1PKS
			CYP1051A1	2515169207.c00012_B108DRA...region2	Terpene
			CYP211C1	2515169209.c00014_B108DRA...region1	T2PKS
			CYP107AY2-fragment	2515169210.c00015_B108DRA...region1	NRPS
			CYP105CT1	2515169210.c00015_B108DRA...region1	NRPS
			CYP154M5	2515169210.c00015_B108DRA...region1	NRPS

<i>Salinispora pacifica</i> CNT855	2515154128	7	CYP107AW7	2515165046.c00001_B113DRA...region2	Bacteriocin
			CYP107FH3	2515165058.c00013_B113DRA...region1	NRPS-like
			CYP2054A3	2515165058.c00013_B113DRA...region1	NRPS-like
			CYP161N4	2515165058.c00013_B113DRA...region1	NRPS-like
			CYP208A22	2515165059.c00014_B113DRA...region1	T1PKS
			CYP107AY9	2515165080.c00035_B113DRA...region1	NRPS
			CYP107E37	2515165095.c00050_B113DRA...region1	T1PKS
<i>Salinispora pacifica</i> CNS996	2517572157	13	CYP244A5	2517596538.c00006_C553DRA...region1	NRPS
			CYP245A11	2517596538.c00006_C553DRA...region1	NRPS
			CYP211C6	2517596539.c00007_C553DRA...region1	T2PKS
			CYP107CL2	2517596540.c00008_C553DRA...region1	NRPS

			CYP1056B2	2517596540.c00008_C553DRA...region1	NRPS
			CYP107AW6	2517596542.c00010_C553DRA...region1	Bacteriocin
			CYP208A21	2517596542.c00010_C553DRA...region2	NRPS
			CYP154M16	2517596542.c00010_C553DRA...region2	NRPS
			CYP163B20	2517596543.c00011_C553DRA...region1	NRPS
			CYP162A8	2517596549.c00017_C553DRA...region1	NRPS-like
			CYP107AY7	2517596554.c00022_C553DRA...region1	NRPS
			CYP2091A1	2517596560.c00028_C553DRA...region1	oligosaccharide
			CYP107CT3	2517596564.c00032_C553DRA...region1	NRPS
<i>Salinispora arenicola</i> CNT850	2515154135	22	CYP208A12	2515165460.c00004_B165DRA...region1	T1PKS
			CYP166A4	2515165462.c00006_B165DRA...region1	T1PKS

			CYP105CP2	2515165463.c00007_B165DRA...region2	NRPS
			CYP105CN1	2515165463.c00007_B165DRA...region2	NRPS
			CYP107FS2	2515165463.c00007_B165DRA...region2	NRPS
			CYP125G6	2515165463.c00007_B165DRA...region2	NRPS
			CYP154M15	2515165463.c00007_B165DRA...region2	NRPS
			CYP1051A1	2515165467.c00011_B165DRA...region1	Terpene
			CYP105G5	2515165467.c00011_B165DRA...region2	T1PKS
			CYP107Q4	2515165467.c00011_B165DRA...region2	T1PKS
			CYP244A4	2515165468.c00012_B165DRA...region1	Indole
			CYP245A7	2515165468.c00012_B165DRA...region1	Indole
			CYP211C1	2515165472.c00016_B165DRA...region1	T2PKS

			CYP154M21	2515165474.c00018_B165DRA...region1	NRPS
			CYP154M13	2515165474.c00018_B165DRA...region1	NRPS
			CYP105W2	2515165474.c00018_B165DRA...region1	NRPS
			CYP248A2	2515165474.c00018_B165DRA...region1	NRPS
			CYP154M20	2515165474.c00018_B165DRA...region1	NRPS
			CYP162P1	2515165477.c00021_B165DRA...region1	NRPS
			CYP107AY2	2515165478.c00022_B165DRA...region1	NRPS
			CYP105CH1	2515165485.c00029_B165DRA...region1	T1PKS
			CYP107EU1	2515165489.c00033_B165DRA...region1	T1PKS
<i>Salinispora pacifica</i> CNT133A	2561511035	6	CYP107AW10	2561515153.c00003_T436DRA...region2	Bacteriocin
			CYP244A12	2561515162.c00012_T436DRA...region2	NRPS

			CYP107AY8	2561515162.c00012_T436DRA...region2	NRPS
			CYP208A30	2561515165.c00015_T436DRA...region2	T1PKS
			CYP163B20	2561515195.c00045_T436DRA...region1	NRPS
			CYP107E37	2561515204.c00054_T436DRA...region1	T1PKS
<i>Salinispora arenicola</i> CNH941	2515154193	16	CYP105CP2	2515169666.c00003_B109DRA...region2	NRPS
			CYP105CN1	2515169666.c00003_B109DRA...region2	NRPS
			CYP107FS2	2515169666.c00003_B109DRA...region2	NRPS
			CYP125G6	2515169666.c00003_B109DRA...region2	NRPS
			CYP154M15	2515169666.c00003_B109DRA...region2	NRPS
			CYP154M20	2515169666.c00003_B109DRA...region3	oligosaccharide
			CYP248A2	2515169666.c00003_B109DRA...region3	oligosaccharide

			CYP105W2	2515169666.c00003_B109DRA...region3	oligosaccharide
			CYP154M13	2515169666.c00003_B109DRA...region3	oligosaccharide
			CYP154M21	2515169666.c00003_B109DRA...region3	oligosaccharide
			CYP208A12	2515169667.c00004_B109DRA...region1	T1PKS
			CYP245A7	2515169670.c00007_B109DRA...region1	Indole
			CYP244A4	2515169670.c00007_B109DRA...region1	Indole
			CYP107Q4	2515169674.c00011_B109DRA...region1	T1PKS
			CYP105G5	2515169674.c00011_B109DRA...region1	T1PKS
			CYP1051A1	2515169674.c00011_B109DRA...region2	Terpene
<i>Salinispora pacifica</i> CNY239	2524614561	7	CYP161N4	2524661751.c00016_H304DRA...region1	T3PKS
			CYP2054A3	2524661751.c00016_H304DRA...region1	T3PKS

			CYP107FH3	2524661751.c00016_H304DRA...region1	T3PKS
			CYP208A22	2524661756.c00021_H304DRA...region1	T1PKS
			CYP244A10	2524661759.c00024_H304DRA...region1	NRPS
			CYP107AY9	2524661759.c00024_H304DRA...region1	NRPS
			CYP107E37	2524661790.c00055_H304DRA...region1	T1PKS
<i>Salinispora arenicola</i> CNR425	2528311033	1	CYP211C1	2528319994.c00002_I008DRA...region4	T2PKS
<i>Salinispora pacifica</i> CNR942	2518285561	9	CYP1004B4	2518290928.c00001_C549DRA...region1	NRPS
			CYP1004A3	2518290928.c00001_C549DRA...region1	NRPS
			CYP125G4	2518290928.c00001_C549DRA...region1	NRPS
			CYP208A24	2518290928.c00001_C549DRA...region2	T1PKS
			CYP211C5	2518290928.c00001_C549DRA...region4	T2PKS

			CYP163B18	2518290934.c00007_C549DRA...region1	NRPS
			CYP1207A12	2518290936.c00009_C549DRA...region2	NRPS
			CYP107AY3	2518290951.c00024_C549DRA...region1	NRPS
			CYP113X1	2518290937.c00010_C549DRA...region1	transAT-PKS
<i>Salinispora pacifica</i> CNT029 :	2515154177	8	CYP154J2	2515168458.c00001_B170DRA...region2	NRPS
			CYP244A5	2515168458.c00001_B170DRA...region3	NRPS
			CYP245A11	2515168458.c00001_B170DRA...region3	NRPS
			CYP107AW6	2515168458.c00001_B170DRA...region4	Bacteriocin
			CYP208A21	2515168458.c00001_B170DRA...region5	NRPS
			CYP154M16	2515168458.c00001_B170DRA...region5	NRPS
			CYP211C6	2515168458.c00001_B170DRA...region9	T2PKS

			CYP107AY7	2515168473.c00016_B170DRA...region1	terpene
<i>Salinispora arenicola</i> CNX814	2517572152	16	CYP208A12	2517596139.c00004_C575DRA...region1	T1PKS
			CYP245A7	2517596141.c00006_C575DRA...region2	Indole
			CYP244A4	2517596141.c00006_C575DRA...region2	Indole
			CYP166A4	2517596142.c00007_C575DRA...region2	T1PKS
			CYP107AY2-fragment	2517596144.c00009_C575DRA...region1	NRPS
			CYP105CT1	2517596144.c00009_C575DRA...region1	NRPS
			CYP154M5	2517596144.c00009_C575DRA...region1	NRPS
			CYP107FS2	2517596146.c00011_C575DRA...region1	NRPS
			CYP105CN1	2517596146.c00011_C575DRA...region1	NRPS
			CYP105CP2	2517596146.c00011_C575DRA...region1	NRPS

			CYP1051A1	2517596147.c00012_C575DRA...region1	Terpene
			CYP105G5	2517596147.c00012_C575DRA...region2	T1PKS
			CYP107Q4	2517596147.c00012_C575DRA...region2	T1PKS
			CYP211C1	2517596151.c00016_C575DRA...region1	T2PKS
			CYP105W2	2517596157.c00022_C575DRA...region1	oligosaccharide
			CYP248A2	2517596157.c00022_C575DRA...region1	oligosaccharide
<i>Salinispora pacifica</i> CNR894	2515154194	9	CYP107AW7	2515169737.c00001_B119DRA...region2	Bacteriocin
			CYP164C2	2515169739.c00003_B119DRA...region1	NRPS
			CYP208A22	2515169754.c00018_B119DRA...region1	T1PKS
			CYP161N4	2515169756.c00020_B119DRA...region1	T3PKS
			CYP2054A3	2515169756.c00020_B119DRA...region1	T3PKS

			CYP107FH3	2515169756.c00020_B119DRA...region1	T3PKS
			CYP107AY9	2515169760.c00024_B119DRA...region1	terpene
			CYP244A10	2515169760.c00024_B119DRA...region1	terpene
			CYP107E37	2515169793.c00057_B119DRA...region1	T1PKS
<i>Salinispora pacifica</i> CNT150	2515154136	12	CYP211C8	2515165525.c00002_B174DRA...region2	T2PKS
			CYP244A5	2515165532.c00009_B174DRA...region1	Indole
			CYP245A13	2515165532.c00009_B174DRA...region1	Indole
			CYP208A28	2515165533.c00010_B174DRA...region1	T1PKS
			CYP154M18	2515165533.c00010_B174DRA...region1	T1PKS
			CYP107Z27	2515165536.c00013_B174DRA...region1	NRPS
			CYP247A8	2515165536.c00013_B174DRA...region1	NRPS

			CYP107NH1	2515165536.c00013_B174DRA...region1	NRPS
			CYP105AH4	2515165538.c00015_B174DRA...region1	T1PKS
			CYP113E2	2515165542.c00019_B174DRA...region1	T1PKS
			CYP244A9	2515165550.c00027_B174DRA...region1	NRPS
			CYP107NG1	2515165562.c00039_B174DRA...region1	T2PKS
<i>Salinispora tropica</i> CNS197	2515154163	11	CYP163B1	2515167485.c00002_B123DRA...region2	transAT-PKS-like,
			CYP154M1	2515167486.c00003_B123DRA...region2	NRPS
			CYP208A4	2515167486.c00003_B123DRA...region2	NRPS
			CYP211C1	2515167486.c00003_B123DRA...region4	T2PKS
			CYP107AW1	2515167488.c00005_B123DRA...region2	Bacteriocin
			CYP107AY1	2515167489.c00006_B123DRA...region2	NRPS

			CYP113E1	2515167500.c00017_B123DRA...region2	T1PKS
			CYP1004B1	2515167505.c00022_B123DRA...region1	NRPS
			CYP1004A1	2515167505.c00022_B123DRA...region1	NRPS
			CYP125G1	2515167505.c00022_B123DRA...region1	NRPS
			CYP107E3	2515167515.c00032_B123DRA...region1	T1PKS
<i>Salinispora arenicola</i> CNS848	2571042345	16	CYP162P1	2571067352.c00001_T422DRA...region1	NRPS
			CYP211C1	2571067353.c00002_T422DRA...region1	T2PKS
			CYP166A4	2571067354.c00003_T422DRA...region1	T1PKS
			CYP208A12	2571067355.c00004_T422DRA...region1	T1PKS
			CYP107AY2	2571067357.c00006_T422DRA...region1	NRPS
			CYP245A7	2571067358.c00007_T422DRA...region1	Indole

			CYP244A4	2571067358.c00007_T422DRA...region1	Indole
			CYP105CP2	2571067360.c00009_T422DRA...region2	NRPS
			CYP105CN1	2571067360.c00009_T422DRA...region2	NRPS
			CYP107FS2	2571067360.c00009_T422DRA...region2	NRPS
			CYP125G6	2571067360.c00009_T422DRA...region2	NRPS,
			CYP154M15	2571067360.c00009_T422DRA...region2	NRPS
			CYP154M21	2571067367.c00016_T422DRA...region1	NRPS
			CYP154M13	2571067367.c00016_T422DRA...region1	NRPS
			CYP105W2	2571067367.c00016_T422DRA...region1	NRPS
			CYP248A2	2571067367.c00016_T422DRA...region1	NRPS
<i>Salinispora arenicola</i> CNH905	2515154183	22	CYP1051A1	2515168866.c00001_B102DRA...region1	Terpene

			CYP105G5	2515168866.c00001_B102DRA...region2	T1PKS
			CYP107Q4	2515168866.c00001_B102DRA...region2	T1PKS
			CYP208A12	2515168867.c00002_B102DRA...region2	T1PKS
			CYP211C1	2515168868.c00003_B102DRA...region1	T2PKS
			CYP162P1	2515168871.c00006_B102DRA...region1	NRPS
			CYP244A4	2515168873.c00008_B102DRA...region1	Indole
			CYP245A7	2515168873.c00008_B102DRA...region1	Indole
			CYP107EU1	2515168877.c00012_B102DRA...region1	NRPS-like
			CYP166A4	2515168880.c00015_B102DRA...region1	T1PKS
			CYP154M20	2515168881.c00016_B102DRA...region1	oligosaccharide
			CYP248A2	2515168881.c00016_B102DRA...region1	oligosaccharide

			CYP105W2	2515168881.c00016_B102DRA...regi on1	oligosaccharide
			CYP154M13	2515168881.c00016_B102DRA...regi on1	oligosaccharide
			CYP154M21	2515168881.c00016_B102DRA...regi on1	oligosaccharide
			CYP105CP2	2515168882.c00017_B102DRA...regi on2	NRPS
			CYP105CN1	2515168882.c00017_B102DRA...regi on2	NRPS
			CYP107FS2	2515168882.c00017_B102DRA...regi on2	NRPS
			CYP125G6	2515168886.c00021_B102DRA...regi on1	NRPS
			CYP154M15	2515168886.c00021_B102DRA...regi on1	NRPS
			CYP107AY13	2515168892.c00027_B102DRA...regi on1	T1PKS
			CYP1198B1	2515168902.c00037_B102DRA...regi on1	NRPS
<i>Salinispora arenicola</i> CNY256	251828555 9	15	CYP208A12	2518290787.c00002_C578DRA...regi on1	T1PKS

			CYP107AY2	2518290789.c00004_C578DRA...region1	NRPS
			CYP105CT1	2518290789.c00004_C578DRA...region1	NRPS
			CYP154M5	2518290789.c00004_C578DRA...region1	NRPS
			CYP211C1	2518290790.c00005_C578DRA...region1	T2PKS
			CYP1051A1	2518290791.c00006_C578DRA...region1	Terpene
			CYP105G5	2518290791.c00006_C578DRA...region2	T1PKS
			CYP107Q4	2518290791.c00006_C578DRA...region2	T1PKS
			CYP245A7	2518290795.c00010_C578DRA...region1	Indole
			CYP244A4	2518290795.c00010_C578DRA...region1	Indole
			CYP105W2	2518290796.c00011_C578DRA...region1	oligosaccharide
			CYP248A2	2518290796.c00011_C578DRA...region1	oligosaccharide

			CYP107FS2	2518290796.c00011_C578DRA...region1	oligosaccharide
			CYP105CN1	2518290796.c00011_C578DRA...region1	oligosaccharide
			CYP105CP2	2518290796.c00011_C578DRA...region1	oligosaccharide
<i>Salinispora arenicola</i> CNS820	2565956528	14	CYP211C1	2565959905.c00001_T365DRA...region5	T2PKS
			CYP208A12	2565959907.c00003_T365DRA...region2	T1PKS
			CYP105CT1	2565959908.c00004_T365DRA...region1	terpene
			CYP154M5	2565959908.c00004_T365DRA...region1	terpene
			CYP244A4	2565959911.c00007_T365DRA...region1	Indole
			CYP245A7	2565959911.c00007_T365DRA...region1	Indole
			CYP166A4	2565959913.c00009_T365DRA...region1	T1PKS
			CYP107FS2	2565959916.c00012_T365DRA...region1	NRPS

			CYP105CN1	2565959916.c00012_T365DRA...region1	NRPS
			CYP105CP2	2565959916.c00012_T365DRA...region1	NRPS
			CYP107Q4	2565959917.c00013_T365DRA...region1	T1PKS
			CYP105G5	2565959917.c00013_T365DRA...region1	T1PKS
			CYP1051A1	2565959917.c00013_T365DRA...region2	Terpene
			CYP107AY2	2565959922.c00018_T365DRA...region1	NRPS
<i>Salinispora arenicola</i> CNS243	2524614515	16	CYP211C1	2524617272.c00002_H302DRA...region5	T2PKS
			CYP166A4	2524617274.c00004_H302DRA...region2	NRPS-like
			CYP244A4	2524617277.c00007_H302DRA...region1	Indole
			CYP245A7	2524617277.c00007_H302DRA...region1	Indole
			CYP208A12	2524617278.c00008_H302DRA...region1	T1PKS

			CYP107AY2-fragment	2524617279.c00009_H302DRA...region1	NRPS
			CYP105CT1	2524617279.c00009_H302DRA...region2	terpene
			CYP154M5	2524617279.c00009_H302DRA...region2	terpene
			CYP1051A1	2524617285.c00015_H302DRA...region1	Terpene
			CYP105G5	2524617285.c00015_H302DRA...region2	T1PKS
			CYP107Q4	2524617285.c00015_H302DRA...region2	T1PKS
			CYP248A2	2524617286.c00016_H302DRA...region1	NRPS
			CYP105W2	2524617286.c00016_H302DRA...region1	NRPS
			CYP105CP2	2524617288.c00018_H302DRA...region2	NRPS
			CYP105CN1	2524617288.c00018_H302DRA...region2	NRPS
			CYP107FS2	2524617288.c00018_H302DRA...region2	NRPS

<i>Salinispora tropica</i> CNB536	251752212	13	CYP163B1	2517600344.c00001_B099DRA...region1	NRPS
			CYP107NH1	2517600344.c00001_B099DRA...region3	NRPS
			CYP247A8	2517600344.c00001_B099DRA...region3	NRPS
			CYP107Z27	2517600344.c00001_B099DRA...region3	NRPS
			CYP211C1	2517600350.c00007_B099DRA...region1	T2PKS
			CYP125G1	2517600362.c00019_B099DRA...region1	NRPS
			CYP1004A1	2517600362.c00019_B099DRA...region1	NRPS
			CYP1004B1	2517600362.c00019_B099DRA...region1	NRPS
			CYP107AY1	2517600365.c00022_B099DRA...region1	NRPS
			CYP208A22	2517600379.c00036_B099DRA...region1	T1PKS
			CYP107AW1	2517600390.c00047_B099DRA...region1	Bacteriocin

			CYP107E3	2517600398.c00055_B099DRA...region1	T1PKS
			CYP283A2	2517600408.c00065_B099DRA...region1	bacteriocin
<i>Salinispora pacifica</i> CNT084	2515154202	6	CYP107AW10	2515170504.c00006_B171DRA...region2	Bacteriocin
			CYP208A30	2515170512.c00014_B171DRA...region1	T1PKS
			CYP244A12	2515170513.c00015_B171DRA...region1	NRPS
			CYP107AY8	2515170513.c00015_B171DRA...region1	NRPS
			CYP163B20	2515170545.c00047_B171DRA...region1	NRPS
			CYP107E37	2515170551.c00053_B171DRA...region1	T1PKS
<i>Salinispora arenicola</i> CNT857	2515154127	21	CYP208A12	2515164954.c00001_B107DRA...region2	T1PKS
			CYP105CP2	2515164957.c00004_B107DRA...region2	NRPS
			CYP105CN1	2515164957.c00004_B107DRA...region2	NRPS

			CYP107FS2	2515164957.c00004_B107DRA...region2	NRPS
			CYP125G6	2515164957.c00004_B107DRA...region2	NRPS
			CYP154M15	2515164957.c00004_B107DRA...region2	NRPS
			CYP154M20	2515164957.c00004_B107DRA...region3	oligosaccharide
			CYP248A2	2515164957.c00004_B107DRA...region3	oligosaccharide
			CYP105W2	2515164957.c00004_B107DRA...region3	oligosaccharide
			CYP154M13	2515164957.c00004_B107DRA...region3	oligosaccharide
			CYP154M21	2515164957.c00004_B107DRA...region3	oligosaccharide
			CYP211C1	2515164959.c00006_B107DRA...region2	T2PKS
			CYP105CH1	2515164962.c00009_B107DRA...region2	T1PKS
			CYP107Q4	2515164963.c00010_B107DRA...region1	T1PKS

			CYP105G5	2515164963.c00010_B107DRA...region1	T1PKS
			CYP1051A1	2515164963.c00010_B107DRA...region2	Terpene
			CYP245A7	2515164965.c00012_B107DRA...region1	Indole
			CYP244A4	2515164965.c00012_B107DRA...region1	Indole
			CYP166A4	2515164966.c00013_B107DRA...region1	T1PKS
			CYP107AX13	2515164968.c00015_B107DRA...region1	ladderane
			CYP162N1	2515164976.c00023_B107DRA...region1	NRPS
<i>Salinispora pacifica</i> DSM 45546	2516653042	7	CYP107AY7	2516665583.c00001_Salpac5...region6	NRPS
			CYP244A5	2516665583.c00001_Salpac5...region14	NRPS
			CYP245A11	2516665583.c00001_Salpac5...region14	NRPS
			CYP107AW6	2516665583.c00001_Salpac5...region15	Bacteriocin

			CYP154M16	2516665583.c00001_Salpac5...region 16	NRPS
			CYP211C6	2516665583.c00001_Salpac5...region 19	T2PKS
			CYP1278A4	2516665583.c00001_Salpac5...region 22	NRPS
<i>Salinispora tropica</i> CNY012	254034119 2	12	CYP163B1	2540348493.c00003_K262DRA...regi on1	NRPS
			CYP107NH1	2540348496.c00006_K262DRA...regi on1	T2PKS
			CYP247A8	2540348493.c00003_K262DRA...regi on3	NRPS
			CYP107Z27	2540348493.c00003_K262DRA...regi on3	NRPS
			CYP211C1	2540348494.c00004_K262DRA...regi on1	T2PKS
			CYP208A22	2540348494.c00004_K262DRA...regi on4	T1PKS
			CYP107AW1	2540348496.c00006_K262DRA...regi on2	Bacteriocin

			CYP107AY1	2540348497.c00007_K262DRA...region2	NRPS
			CYP1004B1	2540348506.c00016_K262DRA...region1	NRPS
			CYP1004A1	2540348506.c00016_K262DRA...region1	NRPS
			CYP125G1	2540348506.c00016_K262DRA...region1	NRPS
			CYP107E3	2540348528.c00038_K262DRA...region1	T1PKS
<i>Salinispora arenicola</i> CNY234	2519103195	12	CYP1051A1	2519124107.c00002_F584DRA...region1	Terpene
			CYP211C1	2519124108.c00003_F584DRA...region4	T2PKS
			CYP166A4	2519124110.c00005_F584DRA...region2	T1PKS
			CYP105W2	2519124112.c00007_F584DRA...region1	oligosaccharide
			CYP248A2	2519124112.c00007_F584DRA...region1	oligosaccharide
			CYP107FS2	2519124112.c00007_F584DRA...region1	oligosaccharide

			CYP105CN1	2519124112.c00007_F584DRA...region1	oligosaccharide
			CYP105CP2	2519124112.c00007_F584DRA...region1	oligosaccharide
			CYP245A7	2519124114.c00009_F584DRA...region1	Indole
			CYP244A4	2519124114.c00009_F584DRA...region1	Indole
			CYP107AY2-fragment	2519124115.c00010_F584DRA...region1	NRPS
			CYP208A12	2519124117.c00012_F584DRA...region1	T1PKS
<i>Salinispora tropica</i> CNT250	2540341193	11	CYP163B1	2540348645.c00001_K261DRA...region1	NRPS
			CYP154M1	2540348646.c00002_K261DRA...region2	NRPS
			CYP208A4	2540348646.c00002_K261DRA...region2	NRPS
			CYP211C1	2540348646.c00002_K261DRA...region4	T2PKS
			CYP107AY1	2540348648.c00004_K261DRA...region2	NRPS

			CYP107AW1	2540348649.c00005_K261DRA...region1	Bacteriocin
			CYP1004B1	2540348659.c00015_K261DRA...region1	NRPS
			CYP1004A1	2540348659.c00015_K261DRA...region1	NRPS
			CYP125G1	2540348659.c00015_K261DRA...region1	NRPS
			CYP113E1	2540348662.c00018_K261DRA...region2	T1PKS
			CYP107E3	2540348677.c00033_K261DRA...region1	T1PKS
<i>Salinispora pacifica</i> CNR510	2571042008	7	CYP107AW7	2571043004.c00005_T377DRA...region2	Bacteriocin
			CYP107AY9	2571043021.c00022_T377DRA...region1	terpene
			CYP161N4	2571043023.c00024_T377DRA...region1	T3PKS
			CYP2054A3	2571043023.c00024_T377DRA...region1	T3PKS
			CYP107FH3	2571043023.c00024_T377DRA...region1	T3PKS

			CYP208A22	2571043030.c00031_T377DRA...region1	T1PKS
			CYP107E37	2571043063.c00064_T377DRA...region1	T1PKS
<i>Salinispora arenicola</i> CNT800	2515154088	21	CYP208A12	2515161955.c00001_B040DRA...region2	T1PKS
			CYP107AY2	2515161960.c00006_B040DRA...region1	NRPS
			CYP245A7	2515161961.c00007_B040DRA...region1	Indole
			CYP244A4	2515161961.c00007_B040DRA...region1	Indole
			CYP166A4	2515161962.c00008_B040DRA...region1	T1PKS
			CYP107AX13	2515161962.c00008_B040DRA...region2	ladderane
			CYP154M15	2515161964.c00010_B040DRA...region1	ladderane
			CYP125G6	2515161964.c00010_B040DRA...region1	ladderane

			CYP107FS2	2515161964.c00010_B040DRA...region1	ladderane
			CYP105CN1	2515161964.c00010_B040DRA...region1	ladderane
			CYP105CP2	2515161964.c00010_B040DRA...region1	ladderane
			CYP105CH1	2515161967.c00013_B040DRA...region2	T1PKS
			CYP1051A1	2515161968.c00014_B040DRA...region1	Terpene
			CYP105G5	2515161968.c00014_B040DRA...region2	T1PKS
			CYP107Q4	2515161968.c00014_B040DRA...region2	T1PKS
			CYP211C1	2515161972.c00018_B040DRA...region	T2PKS
			CYP154M21	2515161974.c00020_B040DRA...region1	NRPS
			CYP154M13	2515161974.c00020_B040DRA...region1	NRPS
			CYP105W2	2515161974.c00020_B040DRA...region1	NRPS

			CYP248A2	2515161974.c00020_B040DRA...region1	NRPS
			CYP154M20	2515161974.c00020_B040DRA...region1	NRPS
<i>Salinispora pacifica</i> CNS055	2518285562	10	CYP107AW8	2518290980.c00001_C550DRA...region6	Bacteriocin
			CYP162H1	2518290980.c00001_C550DRA...region8	NRPS
			CYP1611B1	2518290987.c00008_C550DRA...region1	T1PKS
			CYP2098A1	2518290987.c00008_C550DRA...region1	T1PKS
			CYP1004B3	2518290997.c00018_C550DRA...region1	NRPS
			CYP1004A4	2518290997.c00018_C550DRA...region1	NRPS
			CYP125G4	2518290997.c00018_C550DRA...region1	NRPS
			CYP107AY12	2518290998.c00019_C550DRA...region1	NRPS
			CYP162J1	2518291009.c00030_C550DRA...region1	NRPS

			CYP107E38	2518291018.c00039_C550DRA...region1	T1PKS
<i>Salinispora arenicola</i> CNS051	2518285553	10	CYP211C1	2518290242.c00003_C570DRA...region1	T2PKS
			CYP245A7	2518290244.c00005_C570DRA...region1	Indole
			CYP244A4	2518290244.c00005_C570DRA...region1	Indole
			CYP166A4	2518290245.c00006_C570DRA...region2	T1PKS
			CYP105W2	2518290246.c00007_C570DRA...region1	oligosaccharide
			CYP248A2	2518290246.c00007_C570DRA...region1	oligosaccharide
			CYP107FS2	2518290246.c00007_C570DRA...region1	oligosaccharide
			CYP105CN1	2518290246.c00007_C570DRA...region1	oligosaccharide
			CYP105CP2	2518290246.c00007_C570DRA...region1	oligosaccharide
			CYP208A12	2518290248.c00009_C570DRA...region1	T1PKS

<i>Salinispora arenicola</i> CNB527	2515154093	21	CYP208A12	2515162172.c00001_B033DRA...region1	T1PKS
			CYP2296A2	2515162173.c00002_B033DRA...region1	T2PKS
			CYP166A4	2515162173.c00002_B033DRA...region1	T2PKS
			CYP173K1	2515162173.c00002_B033DRA...region1	T2PKS
			CYP245A7	2515162174.c00003_B033DRA...region1	Indole
			CYP244A4	2515162174.c00003_B033DRA...region1	Indole
			CYP166A4	2515162177.c00006_B033DRA...region1	T1PKS
			CYP107AX-fragment7	2515162177.c00006_B033DRA...region2	ladderane
			CYP154M5	2515162182.c00011_B033DRA...region1	terpene
			CYP211C1	2515162183.c00012_B033DRA...region1	T2PKS
			CYP105CP2	2515162187.c00016_B033DRA...region2	NRPS

			CYP105CN1	2515162187.c00016_B033DRA...region2	NRPS
			CYP107FS2	2515162187.c00016_B033DRA...region2	NRPS
			CYP244A-fragment2	2515162191.c00020_B033DRA...region1	NRPS
			CYP107AY14	2515162191.c00020_B033DRA...region1	NRPS
			CYP107EU2	2515162195.c00024_B033DRA...region1	T1PKS
			CYP248A2	2515162196.c00025_B033DRA...region1	oligosaccharide
			CYP105W3	2515162196.c00025_B033DRA...region1	oligosaccharide
			CYP107Q4	2515162200.c00029_B033DRA...region1	T1PKS
			CYP105G7	2515162200.c00029_B033DRA...region1	T1PKS
			CYP1051A4	2515162200.c00029_B033DRA...region2	Terpene
<i>Salinispora arenicola</i> CNS-205	641228504	22	CYP208A12	641228495.NC_009953.region2	T1PKS
			CYP166A4	641228495.NC_009953.region6	T1PKS
			CYP107Q4	641228495.NC_009953.region6	T1PKS

			CYP105G5	641228495.NC_009953.region6	T1PKS
			CYP1051A1	641228495.NC_009953.region7	Terpene
			CYP105W2	641228495.NC_009953.region9	oligosaccharide
			CYP248A2	641228495.NC_009953.region9	oligosaccharide
			CYP107FS2	641228495.NC_009953.region10	NRPS
			CYP105CN1	641228495.NC_009953.region10	NRPS
			CYP105CP2	641228495.NC_009953.region10	NRPS
			CYP244A4	641228495.NC_009953.region12	Indole
			CYP245A7	641228495.NC_009953.region12	Indole
			CYP211C1	641228495.NC_009953.region17	T2PKS
			CYP107EU1	641228495.NC_009953.region22	NRPS-like
			CYP1198B1	641228495.NC_009953.region22	NRPS-like
			CYP105CH1	641228495.NC_009953.region22	NRPS-like
			CYP162A6	641228495.NC_009953.region24	betalactone
			CYP107HF1	641228495.NC_009953.region24	betalactone
			CYP113S1	641228495.NC_009953.region24	betalactone
			CYP107AY2	641228495.NC_009953.region26	NRPS
			CYP105CT1	641228495.NC_009953.region27	terpene
			CYP154M5	641228495.NC_009953.region27	terpene

<i>Salinispora pacifica</i> CNT131	251515420 0	10	CYP107AW7	2515170263.c00002_B172DRA...regi on2	Bacteriocin
			CYP164C2	2515170265.c00004_B172DRA...regi on1	NRPS
			CYP208A22	2515170281.c00020_B172DRA...regi on1	T1PKS
			CYP107FH3	2515170283.c00022_B172DRA...regi on1	NRPS-like
			CYP2054A3	2515170283.c00022_B172DRA...regi on1	NRPS-like
			CYP161N4	2515170283.c00022_B172DRA...regi on1	NRPS-like
			CYP107AY9	2515170296.c00035_B172DRA...regi on1	NRPS
			CYP244A10	2515170296.c00035_B172DRA...regi on1	NRPS
			CYP107E37	2515170317.c00056_B172DRA...regi on1	T1PKS
			CYP107FH4	2515170325.c00064_B172DRA...regi on1	T1PKS
<i>Salinispora pacifica</i> CNT609	251757216 1	7	CYP244A12	2517596856.c00005_C584DRA...regi on2	NRPS

			CYP107AY8	2517596856.c00005_C584DRA...region2	NRPS
			CYP163B20	2517596858.c00007_C584DRA...region1	transAT-PKS-like
			CYP208A30	2517596869.c00018_C584DRA...region1	T1PKS
			CYP107AW10	2517596870.c00019_C584DRA...region2	Bacteriocin
			CYP1207A12	2517596888.c00037_C584DRA...region1	NRPS
			CYP107E37	2517596898.c00047_C584DRA...region1	T1PKS
<i>Salinispora tropica</i> CNB-440	640427140	11	CYP113E1	640427133.NC_009380.region1	T1PKS
			CYP163B1	640427133.NC_009380.region4	transAT-PKS-like
			CYP107AW1	640427133.NC_009380.region7	Bacteriocin
			CYP211C1	640427133.NC_009380.region10	T2PKS
			CYP208A4	640427133.NC_009380.region12	NRPS
			CYP154M1	640427133.NC_009380.region12	NRPS
			CYP107E3	640427133.NC_009380.region13	T1PKS
			CYP125G1	640427133.NC_009380.region13	T1PKS
			CYP1004A1	640427133.NC_009380.region13	T1PKS

			CYP1004B1	640427133.NC_009380.region13	T1PKS
			CYP107AY1	640427133.NC_009380.region17	NRPS
<i>Salinispora arenicola</i> CNY690	256151111 1	21	CYP211C1	2561539429.c00003_T393DRA...region2	T2PKS
			CYP244A4	2561539430.c00004_T393DRA...region1	Indole
			CYP245A7	2561539430.c00004_T393DRA...region1	Indole
			CYP107AX-fragment8	2561539434.c00008_T393DRA...region1	ladderane
			CYP105W3	2561539435.c00009_T393DRA...region1	oligosaccharide
			CYP248A2	2561539435.c00009_T393DRA...region1	oligosaccharide
			CYP107FS2	2561539435.c00009_T393DRA...region1	oligosaccharide
			CYP105CN1	2561539435.c00009_T393DRA...region1	oligosaccharide
			CYP105CP2	2561539435.c00009_T393DRA...region1	oligosaccharide
			CYP105CT2	2561539436.c00010_T393DRA...region1	terpene

			CYP154M5	2561539436.c00010_T393DRA...region1	terpene
			CYP208A12	2561539442.c00016_T393DRA...region1	T1PKS
			CYP107EU2	2561539448.c00022_T393DRA...region1	T1PKS
			CYP107AY14	2561539454.c00028_T393DRA...region1	NRPS
			CYP244A-fragment2	2561539454.c00028_T393DRA...region1	NRPS
			CYP105CH2	2561539469.c00043_T393DRA...region1	T1PKS
			CYP105G7	2561539476.c00050_T393DRA...region1	T1PKS
			CYP107Q4	2561539476.c00050_T393DRA...region1	T1PKS
			CYP166A4	2561539482.c00056_T393DRA...region1	T1PKS
			CYP1051A4	2561539495.c00069_T393DRA...region1	Terpene
			CYP1198B2	2561539533.c00107_T393DRA...region1	T1PKS

<i>Salinispora pacifica</i> CNT603	251515418 5	9	CYP107AW7	2515169054.c00002_B175DRA...regi on2	Bacteriocin
			CYP164C2	2515169055.c00003_B175DRA...regi on1	NRPS
			CYP208A22	2515169081.c00029_B175DRA...regi on1	T1PKS
			CYP244A10	2515169083.c00031_B175DRA...regi on1	NRPS
			CYP107AY9	2515169083.c00031_B175DRA...regi on1	NRPS
			CYP161N4	2515169086.c00034_B175DRA...regi on1	T3PKS
			CYP2054A3	2515169086.c00034_B175DRA...regi on1	T3PKS
			CYP107FH3	2515169086.c00034_B175DRA...regi on1	T3PKS
			CYP107E37	2515169101.c00049_B175DRA...regi on1	T1PKS
<i>Salinispora pacifica</i> CNY331	251864562 7	10	CYP208A22	2518683836.c00002_C588DRA...regi on1	T1PKS
			CYP107AW7	2518683839.c00005_C588DRA...regi on2	bacteriocin

			CYP105H11	2518683861.c00027_C588DRA...regi on1	T1PKS
			CYP244A10	2518683868.c00034_C588DRA...regi on1	NRPS
			CYP107AY9	2518683868.c00034_C588DRA...regi on1	NRPS
			CYP161N4	2518683871.c00037_C588DRA...regi on1	T3PKS
			CYP2054A3	2518683871.c00037_C588DRA...regi on1	T3PKS
			CYP107FH3	2518683871.c00037_C588DRA...regi on1	T3PKS
			CYP247A7	2518683873.c00039_C588DRA...regi on1	NRPS
			CYP107E37	2518683908.c00074_C588DRA...regi on1	T1PKS
<i>Salinispora arenicola</i> CNT859	251757223 3	13	CYP211C1	2517601328.c00003_D462DRA...regi on1	T2PKS
			CYP154M15	2517601333.c00008_D462DRA...regi on1	ladderane
			CYP125G6	2517601333.c00008_D462DRA...regi on1	ladderane

			CYP107FS2	2517601333.c00008_D462DRA...region1	ladderane
			CYP105CN1	2517601333.c00008_D462DRA...region1	ladderane
			CYP105CP2	2517601333.c00008_D462DRA...region1	ladderane
			CYP208A12	2517601335.c00010_D462DRA...region1	T1PKS
			CYP166A4	2517601338.c00013_D462DRA...region1	T1PKS
			CYP1051A1	2517601340.c00015_D462DRA...region1	Terpene
			CYP105G5	2517601340.c00015_D462DRA...region2	T1PKS
			CYP107Q4	2517601340.c00015_D462DRA...region2	T1PKS
			CYP154M21	2517601344.c00019_D462DRA...region1	NRPS
			CYP154M13	2517601344.c00019_D462DRA...region1	NRPS
<i>Salinispora arenicola</i> CNB458	2517572210	15	CYP208A12	2517600114.c00003_B162DRA...region1	T1PKS

			CYP211C1	2517600115.c00004_B162DRA...region1	T2PKS
			CYP245A7	2517600117.c00006_B162DRA...region1	Indole
			CYP244A4	2517600117.c00006_B162DRA...region1	Indole
			CYP1051A4	2517600118.c00007_B162DRA...region1	Terpene
			CYP107AX-fragment8	2517600119.c00008_B162DRA...region1	ladderane
			CYP107FS2	2517600120.c00009_B162DRA...region1	NRPS
			CYP105CN1	2517600120.c00009_B162DRA...region1	NRPS
			CYP105CP2	2517600120.c00009_B162DRA...region1	NRPS
			CYP105CT2	2517600121.c00010_B162DRA...region1	terpene
			CYP154M5	2517600121.c00010_B162DRA...region1	terpene
			CYP105CH2	2517600135.c00024_B162DRA...region1	T1PKS

			CYP105G7	2517600137.c00026_B162DRA...region1	T1PKS
			CYP107Q4	2517600137.c00026_B162DRA...region1	T1PKS
			CYP107EU2	2517600138.c00027_B162DRA...region1	T1PKS
<i>Salinispora arenicola</i> CNH877	2519103192	23	CYP208A12	2519123878.c00001_F581DRA...region2	T1PKS
			CYP211C1	2519123882.c00005_F581DRA...region1	T2PKS
			CYP245A7	2519123884.c00007_F581DRA...region1	Indole
			CYP244A4	2519123884.c00007_F581DRA...region1	Indole
			CYP1051A1	2519123885.c00008_F581DRA...region1	Terpene
			CYP105G5	2519123885.c00008_F581DRA...region2	T1PKS
			CYP107Q4	2519123885.c00008_F581DRA...region2	T1PKS
			CYP105CP2	2519123887.c00010_F581DRA...region2	NRPS

			CYP105CN1	2519123887.c00010_F581DRA...region2	NRPS
			CYP107FS2	2519123887.c00010_F581DRA...region2	NRPS
			CYP125G6	2519123887.c00010_F581DRA...region2	NRPS
			CYP154M15	2519123887.c00010_F581DRA...region2	NRPS
			CYP107AX14P	2519123888.c00011_F581DRA...region1	ladderane
			CYP166A4	2519123889.c00012_F581DRA...region1	T1PKS
			CYP105CH1	2519123898.c00021_F581DRA...region1	T1PKS
			CYP154M20	2519123900.c00023_F581DRA...region1	oligosaccharide
			CYP248A2	2519123900.c00023_F581DRA...region1	oligosaccharide
			CYP105W2	2519123900.c00023_F581DRA...region1	oligosaccharide
			CYP154M13	2519123900.c00023_F581DRA...region1	oligosaccharide

			CYP154M21	2519123900.c00023_F581DRA...region1	oligosaccharide
			CYP107EU1	2519123905.c00028_F581DRA...region1	NRPS-like
			CYP162P1	2519123908.c00031_F581DRA...region1	NRPS
			CYP107AY2	2519123913.c00036_F581DRA...region1	NRPS
<i>Salinispora arenicola</i> CNS673	2519103185	17	CYP208A12	2519123544.c00003_B127DRA...region2	T1PKS
			CYP154M5	2519123545.c00004_B127DRA...region1	T1PKS
			CYP105CT1	2519123545.c00004_B127DRA...region1	T1PKS
			CYP107AY2	2519123545.c00004_B127DRA...region2	NRPS
			CYP211C1	2519123546.c00005_B127DRA...region1	T2PKS
			CYP245A7	2519123547.c00006_B127DRA...region1	Indole
			CYP244A4	2519123547.c00006_B127DRA...region1	Indole

			CYP105W2	2519123549.c00008_B127DRA...region1	oligosaccharide
			CYP248A2	2519123549.c00008_B127DRA...region1	oligosaccharide
			CYP107FS2	2519123549.c00008_B127DRA...region1	oligosaccharide
			CYP105CN1	2519123549.c00008_B127DRA...region1	oligosaccharide
			CYP105CP2	2519123549.c00008_B127DRA...region1	oligosaccharide
			CYP1051A1	2519123553.c00012_B127DRA...region1	Terpene
			CYP105G5	2519123553.c00012_B127DRA...region2	T1PKS
			CYP107Q4	2519123553.c00012_B127DRA...region2	T1PKS
			CYP105CH1	2519123561.c00020_B127DRA...region1	T1PKS
			CYP107EU1	2519123566.c00025_B127DRA...region1	T1PKS

At the JGI IMG/M database, two strains of *Salinispora arenicola* CNH996 are available. Thus we provided the genome ID available for one species. The second species is indicated with B at the end of its name.

Information on species with no smBGCs

Genome Name / Sample Name	Genome ID
<i>Salinispora arenicola</i> CNY685	2563366734
<i>Salinispora arenicola</i> CNY230	2561511115
<i>Salinispora arenicola</i> CNQ884	2561511039
<i>Salinispora pacifica</i> CNY498	2563366539
<i>Salinispora pacifica</i> CNY703	2563366517
<i>Salinispora arenicola</i> ATCC BAA-917	2548876908
<i>Salinispora arenicola</i> CNR921	2515154203
<i>Salinispora pacifica</i> CNT851	2517572162
<i>Salinispora pacifica</i> CNT124	2517572159
<i>Salinispora pacifica</i> DSM 45544	2517287019
<i>Salinispora pacifica</i> CNY646	2563366531
<i>Salinispora pacifica</i> CNY673	2563366533
<i>Salinispora arenicola</i> CNY281	2561511103
<i>Salinispora pacifica</i> CNR909	2561511038
<i>Salinispora arenicola</i> CNY244	2561511110
<i>Salinispora tropica</i> CNY681	2561511108
<i>Salinispora arenicola</i> CNH718	2561511105
<i>Salinispora arenicola</i> CNY679	2561511113
<i>Salinispora arenicola</i> CNT-088	2548876909
<i>Salinispora pacifica</i> CNY666	2563366532
<i>Salinispora tropica</i> CNY678	2561511109
<i>Salinispora pacifica</i> CNY363	2563366534
<i>Salinispora arenicola</i> CNY486	2561511107

Table S2: P450 sequences identified and annotated in *Salinispora* species. Each P450 is presented with its assigned name followed by gene ID (in parenthesis) and species name

Full-length P450s

>CYP166A4 (2519873113) *Salinispora arenicola* CNR107

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHVEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHCCLGQN
LARVELRAGLSALLRAFPNRLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP105BL2 (2519874224) *Salinispora arenicola* CNR107

MSSHSAAPDPETATPLHTLAPELTFPQFERSTPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLDPRFSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPSPRVACHLVGIPLSYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHDRDDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIGLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP105AB8 (2519874485) *Salinispora arenicola* CNR107

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHRADLVKA
LSLPVPSLVICELLGVADHDFFQEHTATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDDDLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP211C1 (2519874594) *Salinispora arenicola* CNR107

VVDVEELLTRLISAQGRQDPFPVYADLHAQGPIAALPPEPERRRVAAVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAELEAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPIPGQQNVLLLLIAAANRDPAHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP1005A1 (2519875045) *Salinispora arenicola* CNR107

VS AVLF RSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLT DQATY
RPD NAL EAVTPVPVAALRVLAGHRFRLLPPTLANNGGASHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLDSSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAV KQFARA ALELFWAPLDADRQLALADEVGRFHQVLR EFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSSSVADVVEEGLRLEPPIVTWRRVAAVDSTLGGTTVAAGTS
VLLW LARAGRDP AVVAAPDEF RPPGQ RGSRRHLAFGAGAHRC LGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP208A12 (2519875628) *Salinispora arenicola* CNR107

MTLDTITPRVPLGPPRTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGD LWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAE L TG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELET LNAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTL SLIDRH PGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGGLPLVVRP
VS

>CYP245A7 (2519876214) *Salinispora arenicola* CNR107

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGESGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRSLLNRSFSPRIVTEL RPRIARIAQELL SRLGQQVDVDLVE SFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDEL RGA EGLTTDAVEEFLRYDPPVQ
AVTRWAHQD T TLGGCDIPRGSRVVALLGSANRDPARFPSPDVL DVRRPAD
RHLSFGLGIHYCLGATLARA E L EIGLQALLDGVP T L GYGTQHVDYADDLV
FHGPSRLVLVNLGERCT

>CYP244A4 (2519876218) *Salinispora arenicola* CNR107

MSTTTNTELTEAPETNMPVDPLGDFDCMPDLIAAARVAPVVRIPYLGRHAW
VVC DREL VKQAL THPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRNTERWGERVADKVEGF LDELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAITG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGS LISTS LYEAI RPPHERPKTDEDITAWIEETLRVHPPFPHPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGE GADSFDAERRGHGHLSF
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP1051A1 (2519876836) *Salinispora arenicola* CNR107

MATDAAITRARTVPAWKALPAAVRDTHRAFVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAE GDAWAA
SRRVLAPMFRPARINAMVDTMADA IAGAVDDLHGAATAGT PIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSID DILLPVLRQAQRQPDDGDDLLSRLVRARADDGRALSE
KRM RDDLVSMVAVTTETSTVVL TWLWPLL ANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLD ELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRM TAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH

RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMI
LKPVAPVPAR

>CYP105G5 (2519876858) *Salinispora arenicola* CNR107

LTIIETTETPPADDSLRAPLPRQFMQRDDPSKLPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFNMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQORRAAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDDELVGIA
TLLLFLAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIFAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQRLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTF

>CYP107Q4 (2519876859) *Salinispora arenicola* CNR107

MTTTAETSATIDLFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRFLTNPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIAKRAEPQDDLVLTALVQAQAEQONRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLAANTDPRRFPDPNKLI
DRLAVGSEHGLGFGKGIHRCLGQHLAYQEAVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP154M5 (2519876900) *Salinispora arenicola* CNR107

VEQSCPYKLDVTGRDVHAEGEAIRARGPVAQVELPGGVQGSVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPPNWPLIGWLLMDNMTTNDGADHQRLR
KLVSHGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNVTSISGEEAEANVEQWHRELLELV
EAKREKPDDEMASLLIAAKEEDGSTLTQEEVVGTLLHMLGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDPVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPNMTLAVRPDQLEPQGTFFIMNGHREL
PVRLGQPATVLA

>CYP105CP2 (2519877182) *Salinispora arenicola* CNR107

MTKSMPVQDLPAFFIPRECPYRPSAQHVSLRSGGPMKVRVLYNGRTAWLV
TDSAHARAVLSDYRRVSIKPYHGNYPLLNEEFKVVDSGYADVLFVGDPP
EHTRQRQMIMPSFTLRRRTAVLRPDIQRIVDDKLDMMRHGAPGDLVTEFA
QPVPMSVMSFLLGVPWEDHEEFETPAHKLFVPELAEEATELGAYLERLI
QKKEQPGGTPGGTGLLDDLIIRDHLRAGALSRDELVHIAMAMLVAGTDTT
NVISLGTALALLDNPQWAAALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRATAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105W2 (2519877313) *Salinispora arenicola* CNR107

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRAHADVRLSDPRMSADRRRPGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFSVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVYPYGEHEFFERRSTLMFRR

STPADERARCAREIRDFLDVVVTDKERRPGDDVLSRLLYRQRRAGGVDHE
AVVSMAFVLLVAGHVTTSNMIALSVLALLTHPARLARLRAEPERFPAAVE
ELLRYFTVVEAATARTTTAEVTIGGVTTAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAHAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP105J3 (2519877756) *Salinispora arenicola* CNR107

MTDSVAFPQGRVCPHQAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRTNPAWPAIVPIVAAAVNDAQQKVLKIATLVGTDGPE
HKAQRKMLIPSFTRRMNALRPMIQEIVDQQLDEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGLVDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDAVTRLAADDIEVE
GTIIRQGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP211B2 (2519877904) *Salinispora arenicola* CNR107

MDVSEAI AVLISPSGRLDPYPTYEQ LRAHG PVSQTTAGLFVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIKSIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTAQADELVDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVLTRPEAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPADSWLLVLLGAANRDP RRFDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGT PAGVAPGTP

>CYP125A41 (2519874742) *Salinispora arenicola* CNR107

MTEPRIPAGFDFTDPEVL AHRVPREEF AELRR TAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPP EHTKLRAIVSRGFTPRAINALRGSLAERA EHIVRDAAVRGVGD FV
TDVACELPLQAI AELIGVPQHRRKVFDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMA EERQ RSPSDDLVTKL VNAQIDGEHLTTDEF GFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEE IIRWATPVNVFQR
TALVDTV LGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FEGSGAHFCLGANLARLEIELIFNSIADHL PDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP105CT1 (2519876883) *Salinispora arenicola* CNR107

MNSPNHMPADRSLTAPASGCPMALS RGRVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFN VAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTD SHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGVLHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLTLDG

>CYP107FS2 (2519877179) *Salinispora arenicola* CNR107

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGM PAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV

ISEMLGVPPFADRSEFERHAEVLTGINASSGFDAlIAAGRWFDEYLAELVQ
QRRREPQDDLI SGMLAAQDKGDRLTDVELRSNALLLSAGFETTVNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFKIRSGEHVVIAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRRLAGLRLAVPADSLVWKASFVLHRLERLPV
TFTPDRAPNPIDSVHTV

>CYP105CN1 (2519877180) *Salinispora arenicola* CNR107

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVGTAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQLLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVYPYQDRTRFEPVAVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTTHPDRLDVALP
PTNHLAFSHGIIHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPITYFAGDVPRLACLPVTW

>CYP248A2 (2519877306) *Salinispora arenicola* CNR107

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERMLA
ERREDGADLLALMLAAHRSQLMRNEIVSTVVTFIFTGHETVASQLGNGL
LSLLDHPEQLELMRRQPHLVPAVEECLRFDPVQSNTQRLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLACSPNELAYQPRMTFRGLTRLFVAFTPAG

>CYP107AY2 (2519877799) *Salinispora arenicola* CNR107

MTAEPTPIPRSGARLGQEYDQLRKTDGVHQVLLPDASLAWLVTNPEVAAR
ALADPRLALNRRNSRGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAP
SPQRVAALRPGIRRAAEHLLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRWTDMTLTSYPPDRDAIRQAVTELHGYYVDLIDIKQQQPG
DDLSSALVTIEQDGDRLSRDELTSLAFLILFAGYENTANLIASAVLWLLD
HGGLNVVPSSEAIEGTLRHEPPAPVAIRRFPTEDIIIGGV TIPAGDTVLL
SIAAATRGADGNAARLAFNGPHYCLGAALARVEAEEALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP107AW9 (2561677780) *Salinispora pacifica* CNS801

VETVTGTSAPPPVPYIADPYPTLARIRANGPVSIHLSDEGLPMWVIARYQ
DVRAALADPRFGQDSRRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLAGRTTVDLVQDFAFPLPMLV
ICELLGFPAEERNVYRSWSTAILTHDDPTAFATALREMTDYIAVQLRIR
QTRPGDDLLTELLAARDAGQLTDDEIIGMVFLLLIGGHETTVNLLGTATL
ALMRNPDQHRWLLANQPALPEAIDEFLRYESPVAMATLRFTTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILNRHDTGHFAFGHGLHRCLGA
LLGKLEGEVALGALLRRYPRLALAAEVRQLRWRDTIMLRGLES LPVSLHG

>CYP107AX11 (2561677791) *Salinispora pacifica* CNS801

MTSPAPVFDQLLL RDPHRRYNALRDEAPVHHIRTPDGAPAWLVTRYDDV
RAAFTDPRLSVDKRLSSTDGEHGSSLPELDAHLLNRDPPDHTRLRRFAA
AAFTPRRVADLRPAVERIVSTLLDGLAGNDHAELIGSLASPLPLQVMQEL
LGLPTQTSVDFRTWTNTLLSADANQPAQSRSAMASMRRLIEQLAHRAR

PGDDLLTGLLAPHADGDRLSDDELVAMLFLLMFAGYDNTAALIGNVAHAL
LTNAELAEAVRTGSLAVDELVDGVLRWNPSPFLAVRRFAREFVPTIAGQLI
PAGDRIWLCLASANRDPAQFTEPDTLGTTGMRCPHLSFGHGIHYCLGAPL
ARLQTTVAITSLLDRFPGIRLAVPAQDIRWRESFRLRGLVALPVFLSDGC
GSGGTYG

>CYP1223A5 (2561678741) *Salinispora pacifica* CNS801

MREVGRAVQALFGPAGCAEPYPHYEALRRAAPVCPLPDNIVLVSRYAEAE
RVIRDPRFLMEDAAWIGQSHPGWTEHPSFRSLMLEMVNHNPPDHARLRRL
VSRAFTPRRVAELRPAVEQLIDDLDDQMAAREGGTADFMADFALPLPVTV
IGELLGIPPADRIWFAPRVEAFTDAIEESMRGPSLAEADQAVKELWARLG
ELADERRRNPRNDMVSELVSVSDSGDDRLSHDELLANLVLLYAAGYETTS
NLLGNGLAALLERPALKERLRQNPTQASAFVEEMLRFDPPIQIATRYTAQ
ATTLGGLNIDAGTQIIIVLIGSANRDPDRFADPDEFDPDRADGGSMVFGVG
AHYCLGAALARMEAEIAFPRLLDRFPAITGHAPGVRRRKSLRGFTQLPIS
LS

>CYP105AB33 (2561678948) *Salinispora pacifica* CNS801

MTETASITTAGASSTATSGPGSGEVTDAEFPVERGCPFSTPAEYEQIREH
APLAKVRLTTGREAWWIAGHELARAVLADRRFSSDRRRDNFPFVSTDPET
RKQLQDQPTSMGLMDGAEHAQARRALMGFTVRRMAGLRPRIQQIVDQHI
DEMLSSEQRSADLVEALSPLVPVSLVICELLGVYPYADHDFQAHGTPLVRH
NTPSQVRVRIQEELNTYLGGLIDRKVADPTDDLRSRQIAKQRAAGTFDRT
SMVSMAFLLLIAGHETTANMISLGVVGLLQHPDQLAKIKEDPEKTPPAVE
ELLRYFSITDVTARVATEDVQLGDTTINAGDGVVISGLAADHDPTVFTD
PNQIDLERGARHHVAFGFQPHQCIGQTLARLELQIVFDTLFRRIPTLRLA
APLDDIPFKSDAIYGAEEELPVAW

>CYP211B13 (2561679662) *Salinispora pacifica* CNS801

MDASEAVALLMSPFGRLDPYPTYERLRAHGTVVPTAAGFFVVTGYTEADT
VLRNPRFGVMDDEEREGVFPHWQESPAMMSISQSMIRANPPDHSRMRLA
AKAFTPRRVAALREVVAQAADGLVDGMIRAGRGGAPVDFLGSFAYPLPVA
VICALLGVPAADWAQFRRWASDLTGVLEPEITPQELAVADAGARELRDYF
TELVAQRRRTPADDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVLLNHPDSATALRDQPELAPGYVEELLRYDSPVQLTTRTVR
ESVPLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPRAQSPPLSFGA
GAHYCLGAGLARLEAQAFAFPLLRRLPELALAGEPTRRNRLTLRGYETLP
VTVGAVAADHGTAPGVALGTP

>CYP211C4 (2561680802) *Salinispora pacifica* CNS801

VPDIEGLLTRLYSAPGRQDPYPVYADLHAQAAIAALAPRPERQRVAAVAV
GYDLVAAVLRDPEWGKQPPPGWTDQEILRTLQSSMMFINPPDHGRMRHVF
AGTFTPRRLGALAPVINRVTDDELDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPATELTWYRERVDRIDAFLDVAGKTPERLAAANAAGAE LRAFYR
ELLAHRRRMPGEDLISGLVEAVDAGGVELTEEELISNLIVLFNASFVTTV
YLLSNGLPVLLAEPKVAALADDPELTAGAVDEILRLQTPVHLLARAAPR
DTVLGGVSIPQGQNVLLLIAAANRDPAHFPDPDRFDPRRSGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRILEQPVYSGSLFLRGIDRLSV
SPGGRSIRE

>CYP125A66 (2561680927) *Salinispora pacifica* CNS801

MTEPRIPKGFDFTDPAVLERRVPREEFAELRRTPVWWNAQPKGSAGFDD
DGYWVVTRYADVMAVSRDSEYSTRENTAIARFQPGTTQADREMQRVIMI

NVDPPEHTKLRAIVSRGFTTPRAINALRGSLAERAERIVRDAAARDTGDFV
TDVACELPLQAI AELIGVPQHRRKVFDWSNQLIGYDDPAYGVDPMASA
ELLAYAMEMAHERQRNPSSDDLVTQLVNAQIDGEHLTADEFGFFVMLLAVA
GNETTRNAITHGMLAFLENPEQWELFKAERPRSAVEEII RWATFPVNVFQR
TALVDTTLAQQAISAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGSGVHFCLGANLARLEIELIFNSIADHMPDIRQLADPQRLRSGWINGI
RELFPVQYH

>CYP1005A6 (2561681064) *Salinispora pacifica* CNS801

VSAVLFRSWTKTAGTRWPAVTRVADRQGT EHLVVTEHALVRQVLT DQVTY
RPDNALDAVTPIPV TALRVLAGHRFRLPPTLANNGGVNHPAIRALVADAL
HPAKVAAQRFPWLT ELVAERVAAIRATLDSGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAALFWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFL TLLHRLAGEP
TVRAALRDGSVSVTSVVEEGLRLEPPIV TWRRVA AVDSTLGGTAVPAGTS
VLLWLARAGRDPAIVPAPDEF RPPGQRGSRRLAFGAGAHRC LGDQLARME
AAVVVEQATPLLDGVTVV RAPWYPDNL TFRMPDAFVIRR

>CYP107AY10 (2561681613) *Salinispora pacifica* CNS801

MYQDQPTRAQLAPI PRSGALLGQEYDQLRKTGDVHQVLLPDT SMAWLVT S
PELVSRALADPRLALNRKHSRGWSGFALPPALDANLLNLDAPDHTRLRR
LVGPAFSPQRVAALRPRIQRTAEELADTVLATGSPVDLVTGYCTPLSVQV
IADLLGVPEAGRTDLRAWTDMLTSYPPDRDAIRRAVVELHGYV VNLIDA
KQQRPGDDLLSALVATEQEGDRLTRDELTS LAFLILFAGYENTANLIAS T
VLRLLDHGSLRGVQASEAVEETLRLEPPAPA AAVRRFPTEEMTIGGATIPA
GDTVLLSIAAATR GADGNSARLAFGNGPHFCLGAALARVEAE EAITVLAR
RLPSLALAVPGAPVRWRPTFRTHGPAELLVTW

>CYP1278B4 (2561682054) *Salinispora pacifica* CNS801

MPSPVGAVVHPNPYPYAAAMVAERPFFHFDEQLDTWVAASAAAAQAVLTAP
GCRVRPPHEPVPQGITGT PAGDVFGNLVRMTDGE PQHRLKAIVTQTLGAV
DRSTVAATAMRHARQVLNDSVRTPYEQLMFELPAQVVATLCGLDPAAGGE
ATRLVGHFVQCIPATASPEQQQRAARAAAGLQELLGSKLDDTQHGLLGDL
VRMATHVGWTDQAPLLANGVGFLSQTYDATAALMGNTLLALSQQECELP I
SEMALQRFVREVIRHDAPIQNTRRFTATPIRHGDVEVPAGQAVLVLLAAA
NRDPAANPDPHMF RADRTAPNVFTFSAGAHHC PGETLAVTIVTTVVEQLL
RVGFDPAKLSTQVSYRPSPNARIPVLT D

>CYP166A4 (2563829763) *Salinispora arenicola* CNY685

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHIGWIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRSRLTGHVGVAAEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFAEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPADLDIDRETS GHVAFGFGI HQCLGQN
LARVELRAGLSALLRAFPNRLAVPADEVPLRLQGSVF AVKNLPVCW

>CYP208A12 (2563830041) *Salinispora arenicola* CNY685

MTLDTITPRVPLGPPTAALRMLLV MKRDLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGLDWR

KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAELTG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETINAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGSLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHGPGWVERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWPNERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP211B2 (2563830260) *Salinispora arenicola* CNY685

MDVSEAVAVLTSPSGRLDPYPTYEQLRAGHPVSRRTAGLFVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIKSIARSMRLTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTAQADELVDDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVLLTRPEAAAAALRDQPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPAWSWLLVLLGAANRDPRRFPDPARFDPWRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
VTVGAVTADRGTAPGVAPGTP

>CYP1051A4 (2563830543) *Salinispora arenicola* CNY685

MATDAAITRARTVPAWKALPAAVRDTHRALVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLEHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAWAA
SRRVLAPMFRPVRINAMVDTMADAIAGAVDDLHGAAVAGTPIVDGRELSR
IVCSAIMRVFFADRIAMTVQDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRTAVRSIDNILLPVLRQAQRQPDGDDLLSRLVRRARADDGQVLSE
KMRDDLVSMVAVTTETSTVVLTWLVPLLANHPDVADRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDLRLYPAGWILPRRAAATDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFVAGQEAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASRTPARTVEMI
LKPVAPIPAR

>CYP244A4 (2563830921) *Salinispora arenicola* CNY685

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQALTHPKMGKDITLVPEWMRQPGMLVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGFLDELSQAGSGSTEVN
VVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIGG
LFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIITG
YETTGSLISTSLYEAIRPPHERPKTDEDITAWIEETLRVHPPFPHPPTWR
FPLEDIELGGYLIPKGSVPQVSIAAANRKPGEAGDSFEAERRGHGHLISFG
LGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAESAVQWESEWMIRMS
VLPAVLS

>CYP245A7 (2563830925) *Salinispora arenicola* CNY685

MPSATLPRFALTGWNRENIVNPYPVYQRYREVAPVHRGEPGGDAPDTFYV
FSYDEVVQVLSSSCFGRGRSLDAAQASVPVPAEQKALRAIVENWLVFMDP
PRHTELRSLLNRSFSPRIVTELPRPRIARIAQELL SRLGQQADVDLVESFA
APLPILVISELLGIPEERRAWLRANAMALQEASSRAGRDVDGYARAEVA
AQEFTEYFREQVRLRRGSAGGDLITILANAQERGA PVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGADGLTTDAVEEFRLYDPPVQ
AVTRWAHQDTTLGGCDIPRGSRVVALLGSANRDPARFPLPDVLDVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVP TLYGTQHVDYADDLV
FHGPSRLVLINLGER

>CYP125A41 (2563831037) *Salinispora arenicola* CNY685

MTEPRIPAGFDFTDPEVLAHRVPREEF AELRR TAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPD TTREDIEMQRVIML
NVDPP EHTKLRAIVSRGFTPRAINALRGSLAERA EHIVRDAAVRGV GDFV
TDVACELPLQAIAELIGVPQHRRKVF DWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQRSPSDDLVT KL VNAQIDGEHLTTDEF GFFVMLLAVA
GNETTRNAITHGMVAF L DNPEQWELFKAERP KSAVEE IIRWATPVNVFQR
TALVDTVLGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211C1 (2563831184) *Salinispora arenicola* CNY685

VVDVEGLLARLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADEL LDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLAHRRRTPEGDLISGLVEAVDAGGVALTEDELISNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAA LATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTV LGGVPI PQGQNV LLLIAAANRDP AHFPDPDRFDPRRSGPPSLAFGLG
LHYCLGA AVSRLEGR LALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP154M5 (2563831558) *Salinispora arenicola* CNY685

VEQSCPYKLDVTGRDIHAEGEAI RARGPVAQVELPGGVQGSV TGYQAAR
QVLADPRFAKDPQKWPAYTSGAIPPTWPLIGWLLMDNM TTNDGADHQRLR
KLVSHGFTPRQVERTRPLIVKIVNDLLDGLSTAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNV TSSISGEEAEANVEQWHRELLELV
EAKREKPD EMDASLLIAAKEEDGSTLSQEEVVGTLHLM LGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDP AVHGETAGDYDITRADKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPNMTLAVRPDQLEPQGT FIMNGHREL
PVRLGQPATVLA

>CYP105CT2 (2563831574) *Salinispora arenicola* CNY685

MNSPNHMPADSSSTAPARGCPMALS RGRVGLDVTDEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSAVFN VAGVSPPPVLVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTARRVERLRPRVVEIINAALDEMER
NGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAASASAVSTP
LDELRLRLREAGWVSRELIEYHRENPSDDIIGMLLREHGADSHDDGITDDE
LVGLANALLIAGHETTTQMLSMGT LALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGVLHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRL LTDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAF PALLRRFPGLRLAV
PDSELEFTQGT TVYSLRGLPVTW

>CYP107FS2 (2563832156) *Salinispora arenicola* CNY685

MPVPQGEQNLTTTEVFADPKALFATLGS RQPLHRISLPDGMPAVLVTGYRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVVA AKGEADLVEALALPLPIAV
ISEMLGVFPFADRSEFERHA EVLTGINASSGFDAIIAAGRWFDEYLAGLVQ
QRRREPQDDLISGMLAAQDKGDR L TDVELRSNALLLLSAGFETT VNLVAN
GLLALLRHPEAMAALRSEPNLMTSAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAANHDPTVFADPSRLDLRREGSGQILSF SHGIHF

CLGAPLARLEGEIAFGTVLRRLAGLRLAVPTDSLIVWKASFVLHRLERLPV
TFTPDRDPNPIDSVHTV

>CYP105CN1 (2563832157) *Salinispora arenicola* CNY685

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVTGAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRLQLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVPHYQDRTRFEPAVAGLFEPDRAD
AAMAELTAYLRQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIHHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPTW

>CYP105CP2 (2563832159) *Salinispora arenicola* CNY685

MTKSMPVQDLPAFPIPRECPYRPSAQHVSLRSGGPMARVRLYNGRTAWLV
TDSAHAARAVLSYRRVSIKPYHGNYPILLNEEFKVVDSGYADVLFVGDPP
EHTRQRMIMPSFTLRRTAVLRPDIQRIVDDKLDDEMTRHGAPGDLVTEFA
QPVPMSMVSFLLGVFWEDHEEFETPAHKLFPVELAEETELGAYLERLI
QKKEQPGGTGGTGLLDDLRDHLRAGALSDELVHIAMAMLVAGTDTTT
NVISLGLTALLDNDPQWEALRDNDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPFRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRATAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CH2 (2563832507) *Salinispora arenicola* CNY685

VSSLPLPTYPKLRDPADPFLPPADYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRKHNPFPYPVNPDAVVAQVARWTYILLGDDPPL
HTERRRLLISEFSVRQAQAMRPRIQQLVDFHLDQLIAAGPGADFSKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVAVADQKQAIDELLAYFE
QLIQKSSHPGDDLRLIVSNRETEAFDHEALVALGLLLLLVGGHETTAN
TLTLATATMLERPEVAEQLRTDPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGDLVRAGESMLLVNLTARDGTVPFEPHRLDIHRNARNHLAFSHGI
HOCMGQNLARVEMQIALDTVLRLPGLHLVTPFEELPFKYRHLVWGIEEL
KVAW

>CYP107Q4 (2563832868) *Salinispora arenicola* CNY685

MTTTAETSATIDLFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRFLTNPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRLKLVSYALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRAHWRAWGDSMATMNGER
IPTTLVKCIELARELIEKRAEPQDDLVTALVQAQAEQONRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI
DRLAVGSESHLGFKGKGIHRCCLGQHLAYQEAVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105G7 (2563832869) *Salinispora arenicola* CNY685

LTIETTETTPADDTLRAPLPRQFMQRDDPSKLPPALAALAEQAPVGRSTL
PDGDPFWMVSGYDEARAVLSDFRFSDFRYHPRFKKLSGQLGERLRNDK

ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQLDVMLA
KGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRNPADDMISGLVHHAGADPPLTDDDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPPRIGDAVEELLRYL
TVVSAGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQQLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPIRWDTF

>CYP105BL2 (2563832960) *Salinispora arenicola* CNY685

MSSHAAAPDPETATPLHTLAPELTFPQFERSTFPDPPQAYTELSGRCPV
APVMSDVGKPSWLITSFEGVRTTLLSDPRFSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVALVVPSPRVAYHLVGIPSSDYELFTGMATTLMESTSSADQFA
ALQNMVSYFDTLVTDREHHRDDLLGRMVRRYLATGELTRDMLITLVWTT
LAAGQETTAHMIIGLVAALLRHPDQLELLRREPHLLPGAVDELMRYLPMI
QFGIPRVAMDDVKVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVR
DEDIMYRVSELAVTW

>CYP107EU2 (2563833241) *Salinispora arenicola* CNY685

VTVGQTLPLDVYSPEFTRDPYAVFARLREQAPVCRVTTHRGMSAWMVTRY
ADVRALLADSRLAKDGNRIGELMPRHSKLTGAATGFPPGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVESLRPRIEEIVDDLLDGVAACGDEADLAEILS
RRLPIAVIGELLGVPEADRAGFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDVPADDLLTALVQVSADEDRLSREELVSMALLLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPALAAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPQKFPDPDRLDITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQLQLAVAADDLEWLVSFFRAPL
HLPVSLGR

>CYP1005A1 (2563833337) *Salinispora arenicola* CNY685

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTDAQTY
RPDNALAEAVTPVPVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTTELVA DRVATIRTTLDSSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVVKQFARAALFLWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLTDEP
TIRAALRAGSTSVADVVEEGLRLEPPIVTVRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFPRPGQRGSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP107AY14 (2563833425) *Salinispora arenicola* CNY685

MKAELTPIPRSGARLGQEYDQLRKTDGVHQVLLPDASLAWLITNPEVAAR
ALADPRLALNRRNSRGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAF
SPQRVAGLRPGIRRAAEHLLDTLVATSRPTDLVTGYCNPLSVQVIADLMG
VPDAGRNTLRAWTDMLTSYPPDRDAIRQAVTELHGYYVDLIDLKQQQPG
DDLSSVLVTIEQDGDRLTRDELTSLAFLILFAGYENTANLIASAVLWLLD
HGGLNEVPPIAEAEIEGTLRDEPPAPVAIRRFPTEDIIIRGLTIPAGDTVLL
SIAATRGAAGNARLAFGNGPHYCLGAALARVEAEAEALTVLARRLPGLTL
AVPPAQVRWRPFTFTHGPAELLVGW

>CYP105W3 (2563833538) *Salinispora arenicola* CNY685

MTGYQDPPTGDQPGAPVPSGSTDPGLDAFFPLPRRCFFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRRHADVRQVLGDPRMSADRRRPGFPKFAPTTEGQ

RQASFANFRPPLNWMDPPEHAICRRQIVDEFSARRVRQLRTLVERVVDAL
LDALAAAAPGADLVSTFAYPVPSQVICEVLGVVPYGEHGFFERRSTLMFRR
STPADERARCAREIREFLDVVVTDKERRPGDDVLSRLLYRQRSAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPKRFPAAVE
ELLRYFTVVEAATARTATAEVTIGGVTTIAAGEGVVALGQAANRDPRVFEH
PDEFDPDRDARAHAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MKVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2563833546) *Salinispora arenicola* CNY685

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRAFADV
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLGL
LGLPAGDADAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQLMRNEIVSTVVTFIFTGHETVASQLGNGL
LSLLDHPEQSELVRRQPHLVSQAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDEFDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCSPNELAYQPRTMFRGLTRLPAFTPA
G

>CYP105AB35 (2563833710) *Salinispora arenicola* CNY685

MTETASSRLTDTEFPVQRQCPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFISTDPATRKRLYAQPLSMISMDG
AEHAQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHCVDLVKA
LSLPVPSLVCELLGVPPYDDHDFEQEHTATLVRRNTAPEVRQHSIDELNA
YLGALIDRKLANPDDDLLGRQIARQHQQDGTFRSSIVSLAFLLLVAGHET
TANMISLGVVGLLQHPDQLTMIKNDPDKMPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHIAF
GFGPHQCIGQNLARLELQIVFDTLFRRIPTLRLAASLDKIPFKTDAAIYG
ARELPVAW

>CYP107AX1 (2563834207) *Salinispora arenicola* CNY685

MTSRPTAVFDQCLLRDPHSRYNALRDQAPVHHVLTDPGAPAWLVTRYNDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLHPAVERIVSTLLDGLAGHDRAELIGSLASPLPLQVMHKL
LGLPTQANIDFRTWTNTLLSADANQPAQSRAAMANMRRFLIEQLAHKRAQ
PGDDLLTGLLAAREDDRLTDELVAMVFLLMFAGYDNTAALIGTVTHSL
LTNAELHEAVRGGSLALDELIDEVLRWNPAFPLAVRRFAREPITIAGQTI
PAGDRIWLCLASANRDPAQFTQPDDELGIVGLRRPHLSFGHGIHYCLGAPL
ARLQTTIAVTSLNRFPEMRLAVPAHDIRWRESFRLRGLIALPVYL

>CYP163B23 (2563834754) *Salinispora arenicola* CNY685

MTEAWYDLSELDSLDPDTYSRYDQHQIWRQLRSEGGIHRQPGTADKPSFW
VVTKYNDVKAVLGDTERFTSERGNVFATLLAGGDTASGQMLAVTDGQRHK
DIRTILTKAFSPRALNYAERVGRNASRLVSEAVGKESCDFATEVAERIP
ISTICDLLGVPSGDHDILLGLTKSTLGSDRPGYDELEARLARNEILLYFG
DLVERRRKDPQEDVISVLATAVVDGARLPEDTVVLNCYSLLLGGDETSRL
SMIGAVQAFIDSPTEWRRLKNEEVTLTATEEILRWTSAMHFGRRRAVVK
SVIREHVIEAGDIVTVWLSSANRDEEVFDRADEMDLARSFNKHITFGHGR
HFCIGSYLGRAEVSAMIEALRSQVNNIERVGEPRPLHSNFFSGLRSLPVK
LAAS

>CYP1198B2 (2563834806) *Salinispora arenicola* CNY685

MSGELTDQRAAPDVGGNPLRSLLDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQRKLVSKSFTPRIVQSFGPQITRIVDGLFEDFQDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRNKPNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMTVLRENPGVITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGSIVVVLMAAGNRDPRAYENPDV
FDVNRKIKNVSLAFGAGAHFCIGSGLAKLEAEIAISAFARLKNPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP105BL6 (2516634423) *Salinispora pacifica* DSM 45547

MSSHPAAAPGPETATPLHTLAPELTFPQFERATPFDPEAYTELSGRCPV
APVRMADGKPSWLITSFEGVRAALSDPRLSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVALVVPSPRVACHLVGIPLSEYELFTGMAAKLMEATSSADQIA
ALQDMVSYFDKLVTDREHHDRDDLGHMVRRYLSTGELTREMLIRLAWTT
MAAGQETTAHMIIGLVAALLRHPDQLELLRREPHLMPGAVDELMRYLPMI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDEL DVRRN
ARQHLSFGYGPQHCPAHALARLELEVVSRLLEFPFTLRLADGDADLKVQ
DEDIMYNVSELAVAW

>CYP107AY7 (2516636062) *Salinispora pacifica* DSM 45547

MRAEPAPIPRSGARLGQEYDQLRKTDGVHQVLLPDTSLAWLVTSPELVSR
ALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAP
SPQ RVAALRPRIERTAEELVDTVATGSPVDLVTGYCTPLSVQVIADLLG
VPEARRTDLRAWTDTMLTSYPPDRDAIRQAVVELHGYYVNLIEAKRQRP
DDL SALVATEQEGDRLTRDELTSLAFLILFAGYENTANLIAS TVLRLLG
HGSLRGARASEAIEETLRLEPPAPAAIRRFPIEEMTIGGATIPAGDTVLL
SIAAATRGTDGNSARLAFNGPHFCLGAALARVEAEEAITVLARRLP SLA
LAAPGAPVRWRPTFRTHGPAELLVTW

>CYP105AB34 (2516637484) *Salinispora pacifica* DSM 45547

MTETASITTPGTSSTATSGPGSGEVTDTTEFPVERGCPFSTPAEYEQIREH
SPLTKVRLTTGREAWWIAGHELARAVLADRRFSSDRRRDNFPFVSTD PET
RKQLQDQPTSM LGMDGAEHAQTRRALMGFTVRRMAGLRPRIQQIVDQHI
DEMLSSEQRSADLVEALS LPVPSLVICELLGVYPYADHDFQARS GPLVRH
HTPSKVRVRIQEELNTYLGG LIDRKVADPTDDL SRQIAKQHAAGTFDRT
SLVSMAFLLLIAGHETTANMISLG VVGLLQHPDQLAMIKDDPEKTPPAVE
ELLRYFTTITDVTARVATEDVQLGDTTITAGDGVVISGLAADHDPTVFTD
PNQIDLERGARHHVAFGFGPHQCIGQTLARLELQIVFDTLFRRIPTLRLA
APLDDIPFKSDAI IYGAEELPVAW

>CYP1005A8 (2516637726) *Salinispora pacifica* DSM 45547

MSAVLFRSWTKTAGPHWPAVTRVADQQGTEHLVVTEHELVRQVLT DQVTY
RPDNALDAVTPIPV PALRVLAGHGFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLT KLVAERVAAIGATLDSGGSADLHAELNADLPLLVLAR
LVELPDAPVSAVKQFARA ALELFWAPLDADRQLALADEVGRFHQVLR EFA
DTGGGLAAALRTTGHPDVLVGALFFLLVAGQETTSQFLTLLHRLAGEP
TVRAALRDGGVSVANVVEEGLRLEPPIV TWRRVAAVDSTLGGTAVPAGTS
VLLWLARAGRDPAIVPAPDEF RFGQSGSRRLAFGAGAHRC LGDQLARME
AAVVVEQAAPLLDGISVVRAPWYPDNLTFRMPDAFVIRR

>CYP211B14 (2516638071) *Salinispora pacifica* DSM 45547

MDASEAVALLMSPPGRLLDPYPTYERLRAHGFPVVPPTAAGFFVVTGYTEADA
VLRNPRFGVMDDEERDGVFPHWQDSPAMMSISQSMIRANPPDHSRMRRLA
AGVFTPRRVAALREVVAQADELIDEMIRAGRGGAPVDFLGSFAYPLPVT
VICALLGVPAADWAQFRRWASDLTGVLEPEITPQELAIADAGATELRDYF
TELIAQRRRDPTDDLTTALVQTHDADGDRLSGEELLANLVLLLAVAGFETT
TNLLGNGLFVLLTHPESATALRDQPELAPGYVDELLRYDSPVQLTTRTVR
ESVPLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPGRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPIRRNRLTLRGYETLP
VTVGAVAVDHGTPAGAALSTP

> CYP244A5 (2516638466) *Salinispora pacifica* DSM 45547

MSATTNAELGEAPETSMPVDPGLFDCMPDLIAAARIAPVVRIPYLGRHAW
VVCDELVKQALTHPKMGKDITLVPPEWMRQPGMLMVTQPPPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGEQVATKVEGFLELSKAAAGSNAEV
DVVTNYTHKIPLAFISEMLGLPPAAEHRLRSITDIMLYSSDYAARREAIG
GLFGAVEEWVRNPDGLRDGVITGLLAGSDGPGAAVTEGEVIVWTLGMIIT
GYETTGSLLISTSLYEALRRPPHERPRTDEDITAWIEETLRVHPPFPHPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRQPGEGADSFDTERRGHGHLSE
GLGMHYCIGAPLVRLEAKIAVRGFLRRFPQARLSADAAVQWESEWMIRRM
SFLPAVLS

>CYP245A11 (2516638470) *Salinispora pacifica* DSM 45547

MSSTTLPRFTLTGWNREDIVNPYPVYRRYREVAAVHRGEAGGDAPETFYV
FSYDQVAQVLSSSCFGRGRSLDATAASVPVPADQKALRAVVENWLVMFMDP
PRHTELRSLLNRSFSPRIVTGLRPRIARIAQELLSRLGRQVETDLVEGFA
APLPILVIAELLGIPAERHGWLRTNALALQEASSSRARRDTAGYARAEAA
AQEFTEYFREQVRLRRGSAGDDLLTILANAQLRGAPVSLDAVVGTGVHLL
TAGHETTTNSLAKAVLALQHPAVLEELRGADGLTADSIEEFLRYDPPVQ
AVTRWTHQDITLGGWEVPRGSRVALLGSANRDPARFPLPDALDVHRPAD
RQLGFGLGIHYCLGATLARAELEIGLQTLNGLPTLGYPAYVDYADDMV
FHGPSRLILVNPGERFCQ

>CYP107AW6 (2516638559) *Salinispora pacifica* DSM 45547

METVTGTSAFFFFPYIADPYPTLARIRANGPVSIHLSDEGVPMWVIARYR
EVRAALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLAGRKTVDLVQDLAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAVFATALREMTDYIAVQLRIR
RSRPGDDLLTELLAARDAGQLTDDEIVGMVFLLLIGGHETTNNLLGTATL
ALLRNPDQHRWLLANRHALPEAIDEFLRYESPVAMATLRFTTTTPVTVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLLAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPKLALATEVRQLQWRDTIMLRGLESPLVSLHG

>CYP107AX9 (2516638575) *Salinispora pacifica* DSM 45547

MTAQAPPVFDQRLLRDPHRRYNALRDQAPVHRVRTPDGAPAWLVTRYDDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVEKTVSTLLDGLAGNDHAELIGSLASPLPLQVMHEL
LGLPTQTSVDFTWTNTLLSADANQPAQSRSAMNMRRFLIEQVAHKRAQ
PGDDLLTGLLCVREDDDGLTDELVAMLFLLMFAGYDNTAALIGNAIHAL
LTNVELAEAVRTGSLAVDELVDGVLRWNPSPFLAVRRFAREPITIAGQTI
PAGDRIWLCLASANRDPAHFTEPDEIGIADMRRPHLSFGHGIHYCLGAPL

ARLQTTVAVASLFD RFP GIRLAVPVQDIQWRESFRLRGLVALPVSL

>CYP208A21 (2516638588) *Salinispora pacifica* DSM 45547

MTTTSIDRRRPFPFPRAAALSMLLTMSRDRLGMMTAAARAYGDAAWLPVG
HKALYFFNHPDYAKHVLT DNSDNYTKGIGLVHARRALGDGLLTSEGELWR
EQRRVIRPSFRSGRAPDQASVIAEEVASLVERLRARAGGPPVNVVTEFTG
LTLGLVLRRTLLDVDLTALATVGDFAAAVQDQAMFELVTL SAVPTWIPLTR
QRRFRRAEALERIVDDLVARRGDVSGRDDVLSRLILSTGAEPDARVRRQ
RLRDELVTLLLAGHETTASTLGWTLYLIDRHPPVRERLRAEAAEVLGDRL
PAYRDL PDLRFTTMVVQEAMRLYPPVWLLPRRSRRADRVGPYWPAGSDV
VVSPYTMHRHPGFWEPEPDRFDPLRFDPRNAADRPRYAYLPFGAGPRVCVG
SNLGMTEAVIAVAMLCRELRLVRVPTHAAVPEPMLSLRIRGGLPMSVHLA
D

>CYP154M16 (2516638605) *Salinispora pacifica* DSM 45547

MPDRCPVLDP SG RDIHAEADRLRAQAPAVKVELPGGVHAW SITSYDV VRR
LLLDNRNVTKNARNHWPKFINDEIPPDWEMISWVAMDNMVTAYGKHLVRLR
RLIAKAFTAQRVETVRPQVEKLVDEL LDGLAAETGEVVDLREKFCYPLPA
LLIADLIGMTEQQRAQTAKAMDLMVDTTVSPEQAQAILTGWRTAMDELIA
AKRREPGKD IASDLIAARDDENGGQLT DSELTD TIFAILGAGSETTINFL
DNAVTALVTHPGQLELVRSGRAGWDDVIDEVL RVQCPLASLPLRYAVTDI
ELDGV TI PQGDPILIN YAAAAGRDPALHGDTAGEFDVTRENKEHVSFGHGP
HYCLGAGIARLVATIGLSRLFERFPDLRLAVPAEELQPLPTFIMNGHRAL
PVRLVPAPAAATAV

>CYP211C6 (2516638846) *Salinispora pacifica* DSM 45547

MPDIEGLLARLYSAQGRQDPYPVYADLHAKAAIAALEPRPERQ RVA AVAV
GYDLVA AVL RDPEWFKQPPPGWRDQEILRILQSSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVINRV TDELLDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPATELAWYRERVDRVDAFLDVAGKTPERLAAANAAGAE LRFFYR
ELLAHRRRTPEGDLISGLVEAVDAGGVELTEDELISNLIVLFNASFVTTV
YLLSNGLPVLLAHPEVAAAALTSSPELAAGAVDEILRLQTPVHLLARAAPR
DTV LGGVSI PQGQNVLLLIAAANRDP AHFPDPDRFDPRRSGPPSLAFGLG
LHYCLGAAVSRL EGR LALPRLLSRFPRLRILEQPVYSGSLFLRGIDKLSV
SPGGREHP

>CYP125A66 (2516638982) *Salinispora pacifica* DSM 45547

MTEPRIPVGFDFTDPAVLERRVPREEFAELRR TAPVWWNAQPKGSAGFDD
DGYWVVTRYADVMAVSRDSETYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPP EHTKLRAIVSRGFTPRAINALRGSLGERAERIVRDAAGRGAGDFV
TDVACELPLQAI AELIGVPQHRRKVFDWSNQLIGYDDPAYGVDPLAASA
ELLAYAMEMAHERQRNPSDDLVTKL VNAQIDGEHLTAD EFGFFVMLLAVA
GNETTRNAITHGMLAFLENPEQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLAGQAI SAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REL PVQYH

>CYP1278A4 (2516639204) *Salinispora pacifica* DSM 45547

MPSPVGAVVHPNPYPYYAAMVAERPFFHFDEQLDTWVAASAAAAQAVLAAP

GCRVRPPHEPVPQGITGTPAGDVFGNLVRMTDGE PQHRLKAIVTQTLGAI
DRSAVAATAMQRRARQVLNDSVRTPYEQLMFELPAQVVATLCGLDPAAGGE
ATRLVGHFVQCIPATASPEQQQRAAQAAGLQELLGPKLDDTQHGLLGEL
VRMATHVGWTDRAPLLANGIGFLSQTYDATAALMGNTLLALSQQECELPT
SEMALQRFVREVIRHDAPIQNTRRFTATPIRHGDVEVPAGQAVLVLLAAA
NRDPAANPDPHMFADRTTPNVFTFSAGAHHCGETLAVTIVTTVVEQLL
RVGFDPAKLSTRVTYRPSPNARIPVLTE

>CYP105BL2 (2562134718) *Salinispora arenicola* CNY230

MSSHSAAPDPETATPLHTLAPELTFPQFERSTPFDPPQAYTELSGRCPV
APVSMADGKPSWLI TSFEGVRTT LSDPRFSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVP SRVACHLVGIP LSYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHRDDLLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRLAMDDVEVDGQTVTAGEGVVALPPLANRDPAVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP105CH1 (2562134793) *Salinispora arenicola* CNY230

VSSLPLPTYPKLRDPADPLLPAPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHFNFPYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRRL LISEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEMHGVFPADHDYFQERTALQLRRDVPVAAQQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLL LVGGHETTAN
TLTLATATMLERPEIAEQLRTPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVNTIARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALD TVLRRLPGLHLVAPFEELPFKYRHLVWGIEEL
RVAW

>CYP125A41 (2562134950) *Salinispora arenicola* CNY230

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPP EHTKLRAIVSRGFTPRAINALRGSLAERA EHIVRDAAVRGVGFV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAEERQRSPSDDLVTKL VNAQIDGEHLTDEFGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTVLGGQAI SAGQRV ALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211C1 (2562135099) *Salinispora arenicola* CNY230

VVDVEELLTRLYSAQGRQDPFFVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVS NLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTV LGGVPI PQGQNVLLLVA AANRDP AHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGA AVSRLEGR LALPRLLSRF PRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP105AB8 (2562136149) *Salinispora arenicola* CNY230

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQRRADLVKT
LSLPVPVSLVICELLGVYPYADHDFEQEHTATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDDDLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVVSGLSADWDPTVFADPDRLDLERGARRHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPLKDIPFKTDAAIYG
ARELPVAW

>CYP1005A1 (2562136417) *Salinispora arenicola* CNY230

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTQATY
RPDNALAEAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLDSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVVKQFARAALFWAPLDADRQLALADEVGRFHQVLRFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSSSVADVVEEGLRLEPPIVWRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFPRPGQRGSRRLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP245A7 (2562136635) *Salinispora arenicola* CNY230

MPSATLPRFALTGWSRENIVNYPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVMFMDP
PRHTDLRSLNRSFSRPRIVTELPRPRIARIAQELLRLGQQVDVDLVESEA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGAEGLTTDAVEEFLRYDPPVQ
AVTRWAHQDITLGGCDIPRGSRVVALLGSANRDPARFPSPDVLVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPRTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP244A4 (2562136639) *Salinispora arenicola* CNY230

MSTTTNTELTEAPETNMPVDPLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVLKQALHTPKMGKDIALVPEWMRQPLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGFLDELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEAIRRPPHERPKTDEDITAWIEETLRVHPPFPHPPTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEAGDSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP166A4 (2562137334) *Salinispora arenicola* CNY230

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGWIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHVEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVLGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHCCLGQN
LARVELRAGLSALLRAFPNLRALVPADEVPLRLQGSVFAVKNLPVCW

>CYP208A12 (2562137442) *Salinispora arenicola* CNY230

MTLDTITPRVPLGPPRTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAEITG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETINAVPMWIPLPR
QIRFRRARRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGGLPLVVRP
VS

>CYP285A9 (2562137483) *Salinispora arenicola* CNY230

MKLTKPAEHEPVDLEKADLVDPVHGEEDPHAIWHAMRERDPVHWQQVDE
RLGYWSATRYEDVARVLRDHRVFTSEHGTLNLLGKKDPASRKQLPVTDP
PRHTKMRSFPVQALNSKVLERHREQIREEAQRLLASVPDGEFFDFAEMVG
KLPMAVTGTLMGLDREDWPQLTYLTSQAIAPDDPEFVLPEGGEAALARAH
RELFAAFEQSLSRKKGKNGDLIDVLRTEMDDGRKLRPGEISNSYSLLL
GANVTTPHVPNAAMGELAKDGKYADWASHPELFESGINEALRWSSPASHF
LRYAKTDVELSGVTIRQGEVAAWIGSANRDATVFPDPYEFDIRRDPRNH
LAFGELPCRATSEAFISLRPPDGRRRRPAEEEEAFTQSRRLASAPFRSNA
DVKDRSAGDTLSTTSEPVSPPIREGNPR

>CYP107FS2 (2562137536) *Salinispora arenicola* CNY230

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVPFADRSEFERHAEVLTGINASSGFDALIAAGRWFDEYLAELVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLLSAGFETTUNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVIVAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRLLAGLRLAVPTDSLWVKASFVLHRLRLPV
TFTPDRAPNPIDSVHTV

>CYP105CN1 (2562137537) *Salinispora arenicola* CNY230

MAAPAPQATQSTTPHAPSYPPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVTGAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQLLLPRFTVVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVYPYQDRTRFEPVAVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVGAUNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTHPDRLDVALP
PTNHAFASHGIIHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPTVW

>CYP105CP2 (2562137539) *Salinispora arenicola* CNY230

MTKSMPVQDLPAFFIPRECPYRPSAQHVSLRSGGPMKVRVLYNGRTAWLV

TDSA HARAVLS DYRRVSIKPYHGNYPLLN EEF EKVVDSGYADV LFGVDPP
EHTRQRQMIMPSFTLRRTAVLRPD IQRIVDDKLD EMMRHGAPGDLVTEFA
QPVP SMVMSFLLGVPWEDHEEFETPAHKLFVPELAE EATTEL GAYLERLI
QKKEQPGGTPGGTG LLDLIRDHLRAGALS RDELVHIAMAMLVAGTD TTT
NVISLGT LALLDNPDQWAALRDN PDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRP RPSPFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRTAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP107Q4 (2562137639) *Salinispora arenicola* CNY230

MTTTAETS AETID LFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDP RFLTNP PADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVS YALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDE PDRPHWRAGDSMATMNGER
IPTTLVKCIELARELIAKRRAEPQDDLVTALVQAQAE DQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI I
DRLAVGSEGLHGF GKGIHRCLGQH LAYQEA E VALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105G5 (2562137640) *Salinispora arenicola* CNY230

LTIETTETTPADDSLRAPLPRQFMQRDDPSKLP PALAALAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLS DPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKL LTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRR AAGLLQTDLP IKQ
AVENLEAQRAF MQRLVTDKR RTPADDMISGLVHHAGAE PPLTDDELVGIA
TLLLFLAGLDTTASMLGLGMFMLLQRP EQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEH IPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQ LARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTF

>CYP1051A1 (2562137666) *Salinispora arenicola* CNY230

MATDAAITRARTVPAWKALPAAVRDTHRAFVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAWAA
SRRVLAPMFRPARINAMVD TMADA IAGAVDDLHGAGTAGTPIDVGRELSR
IVCSAIMRVFFADRITVQDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDNILLPVLRLQAQRQPDDGDDL SRLVVRARADDGRALSE
KRMRDDLVSMVAVT TETSTVVL TWLWPLL ANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYPMVLDELLRLYPAGWILPRRAAATDVLGGVRINKGAT
VILSPYVTQRMTAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVA ASTRPARTVEMI
LKPVAPVPAR

>CYP211B2 (2562138554) *Salinispora arenicola* CNY230

MDVSEAI AVLISPSGRLDPYPTYEQ LRAHG PVSRTTAGL FVVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPA IKS IARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTAQADELVDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVL LTRPEAAAALRDEPDLAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPADSWLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLT LRGYETLP
ITVGAVTADRGT PAGVAPGTP

>CYP105CT1 (2562138893) *Salinispora arenicola* CNY230

MNSPNHMPADRSLTAPTSGCPMALSRGRVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTDSDHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGVHLHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLLEDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELEAFALLRRFPGLRLAV
PDSELEFTQGTTVYSLRGLPVTW

>CYP154M5 (2562138910) *Salinispora arenicola* CNY230

VEQSCPYKLDVTGRDVHAEGEAIARARGPVAQVELPGGVQGWSVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPPNWPLIGWLLMDNMTNDGADHQRLR
KLVSHGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNVTSISGEEAEANVEQWHRELLELV
EAKREKPEDMASLLIAAKEEDGSTLTQEEVVGTLHLMLGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDPVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPNMTLAVRPDQLEPQGTFFIMNGHREL
PVRLGQPATVLA

>CYP105J3 (2562139009) *Salinispora arenicola* CNY230

MTDSVAFPQGRVCPHPAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLDVDPRISSDRNTNPAWPAIVPIVAAAVNDAQQKVLKIATALVGTGPE
HKAQRKMLIPSFTFRRMNALRPMIQEIVDQQLEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPEGGLVDDLAAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP1902A1 (2562139172) *Salinispora arenicola* CNY230

MVAIGRITYNPVGPFAFFIDPYPHYAQLRAENPVHHTKYGFVVLTRQKQIV
EAYRHPALSRNTMLWEDFATWRRGSTDGPLERMMANWLV MIDPPRHTPLR
AIHEQVFTRRLLDAATSVVESIVSELLAPGRAAGGMDLVGEFADRIPVYL
INHLLDLPRADWDRIWEWSRAIALTNEPMLTSKVL RAGEDARTAMGEYFD
PLIACRRATPGDDVLSGLAVTEVDGVRLTSEELQDSLAFLYQAGHPTSTH
LISLAVHSLLRHPDQLDRLRADPSLIPDAVEELHRYDGPVQMNDRVAVED
VHLFGEHLHRGQLVRLCVASANRDEDHHPQAARLDVTRTVTDQLGYGHGL
HHCVG AHLGRVQAQAALRALLAAAPGLRLTGDRLRFLPSASNRGLVALPV
AF

>CYP107NF1 (2562139188) *Salinispora arenicola* CNY230

MPGYSLDSPARLDTDDFVADAHGVFATLREVAPAVPVIINGGIHAWLITR
YDVAKQAFSTDMAKDVAAHWRAFHAGEVPFTGDVAVAAARRNILSTDPPDH
TRLRSALAAAFTPRRVEALRGWIGRIVADLLNSIASAGSADLVADFALPI
PMTVICELFGVPEEHRPHIRSWTETLFHGAEPDRMRQASDDIDSLLAEVI
ASRRARP GDDFTSTLVRAQDEGQLSTVELVMLLRAMLAGGNETTINLLGN

AAAALLRWPDPQRATLTADPQRWPDATIEEVLRRDGPIQNSIWRFATTDIKI
GEVTIPCGDAIIIALAAAGRDGRRFADPDRFDIGRTDQAHLAFGRGIIHHC
IGAPLARLEAAVALPALFARLPDLRLATSWEQLRYRRSTMSRSLVSLPVK
FTPASPDHPAHP

>CYP1223D1 (2562139189) *Salinispora arenicola* CNY230

MSTVVSAMQTLRSEAGRADPFFPIYAEHLKLGAVCAVDDPAERYQFVVHGY
DAVNHVLRDPAYRVTDAEMLERGGLRWREHPSLVAVLTSMFFTNEPRHAR
LRGMYSRIVTSRRVNALRQIIVAIVDDLLARMAERGAGGEPLDFMAEFAP
PMPGNVICEMMGVDPDGRSWFIPRAHIFGDLDDLKGSSAELLRTADEATV
ELTEYFGKLIARLQKDPDDMISGFAQLQATAERIPEPELLASLLTFFNA
GFASTSHLLGNGVPLLQGPRTIEAIQRDDVAARHVEEILRVAPPTHMAV
RVTGEDRTVAGLTMPAGSLLLVLAAANHDPARFPDPGRFDPNRPDNRPL
TFGAGAHFCLGAPLTRLEGQVAFPMFLFDRFPKLAPVGEATKTNRLTSLGY
QTLPVALS

>CYP248A2 (2562139215) *Salinispora arenicola* CNY230

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQMLSRNEIVSTVVTFTFTGHETVASQLGNGL
LSLLDHPEQMELMRRQPHLVPQAVEECLRFDPVQSNTRQLVADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCSPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP105W2 (2562139223) *Salinispora arenicola* CNY230

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCFFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRHADVRQVLS DPRMSADRRRP GPFKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEF SVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVYPYGEHEFFERRSTLMFRR
STPADERARCAIREDFLD MVVTDKERRPGDDVLSRLLYRQRAGGMDHE
AVVSMAFVLLVAGHVTTSNMIALSVLALLTHPARLARLRAEPERFPAAVE
ELLRYFTVVEAATARTTTAEVTIGGVTTAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAHLAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP107AY2 (2562139297) *Salinispora arenicola* CNY230

MTAEPTPIPRSGARLGQEYDQLRKTDGVHQVLLPDASLAWLVTNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAF
SPQ RVAALRPGIRRAAEHLLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRAWTDMLTSYPPDRDAIRRAVTELHG YVVDLIDIKQQQPG
DDLSTLVTIEQDGRLSRDELTS LAFLILFAGYENTANLIASAVLWLLD
HGGLNVVPISEAIEGTLRHEPPAPVAIRRFPTEDIIIGGVTI PAGDTVLL
SVAAATRGADGKAARLAFNGNPHYCLGAALARVEAEEALTVLARRLPGLT
LAVPPSQVRWRPTFRTHTGPAELLVGW

>CYP247A7 (2562139379) *Salinispora arenicola* CNY230

VRLTPGAARDIDLDSVNLFDLDLYTSGDPHP IWDVMRAQSPLHHQVLADG
REFWSVTRYDDVCRVLGDYREFTSERGT VVTHLGEDDIAAGKLLTSTDPP

RHTQVRRRAIGAKLTARAVASWQDRIRDAIVRFLEPALDGDTFDLAEQALL
LPAIVTGPLLGI PERDWQELVQLTAMVTAPSDPHFQHGSEAATLAISHHE
LVTVVTEWVKQRRSAGGGDGSLLDHLMSVRVGGAPLTDEEIALDGYSILL
GANVTTTPHTVSGTVLALIERPEQFEKAQADPSLLANLVEEGLRWTSACN
FMRVALNDTRIGGGTVPAGGAVVAWIGSANRDESYFPDPHQFDITRSGAN
RQVAFGFGPHYCIGAPLARMTLGIFFFEELVQRFSGSIELAGEPQHLSYFI
AGMTHLPIVAQKRKTP

>CYP107EU1 (2562139582) *Salinispora arenicola* CNY230

VTIGQTLPLDVYSPEFTRDPYAIFARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPVADDLLTALVQVSADEDRLSREELVSMALLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRLDITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQMQLAVEADDLEWLVNSFFRAPL
HLPVSLRR

>CYP1198B1 (2562139836) *Salinispora arenicola* CNY230

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGGEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQKRLVSKSFTPRIVKSFGPQITHIVDGLFEDFRDRGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVMAAHAYFADLIHRRRNKPGDDLVSLLATESNGERLTRFEV
TSVLATLFLVAAHESTNLISGGILALLRNQDQMAVLRENPGIITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVVMAAGNRDPAYENPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKHPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP105BL2 (2561692682) *Salinispora arenicola* CNQ884

MSSHSAAPDPETATPLHTLAPELTFPQFERSTPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLSDPRFSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPSPRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHDRDDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP105CT1 (2561693279) *Salinispora arenicola* CNQ884

MNSPNHMPADRSLTAPTSGCPMALSRRVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNVAGVSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTDSDHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGVLHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLITDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRRFPGLRLAV
PDSELEFTQGTTVYSLRGLPVTW

>CYP166A4 (2561693433) *Salinispora arenicola* CNQ884

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIVPTHQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHVEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHCQLGQN
LARVELRAGLSALLRAFPNLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP125A41 (2561693850) *Salinispora arenicola* CNQ884

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPHETKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGVDFV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLYAMEMAEERQSPSDDLVTKLUNAQIDGELTDEFGGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTV LGGQAI SAGQ RVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLDPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211C1 (2561693998) *Salinispora arenicola* CNQ884

VVDVEELLTRLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVVIDAFLDVAGKTPQRLAAAANAAGAE LRAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPI PQGQNVLLLIAAANRDP AHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGAAVSRLEGR LALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGGREYP

>CYP211B2 (2561694498) *Salinispora arenicola* CNQ884

MDVSEAI AVLISPSGR LDPYPTYEQ LRAHG PVSRTTAGLFVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIXIARSMLRTNPPDH SRIRRLA
AGAFTPRRVAAMREV VTAQADELVD EMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADR SRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLVAGFETT
TNLLGNGLVLLTRPEAAAALRDEPD LAPGYVDELLRYDSPVQLTRTVR
ESVSFAGTEL PADSWLLVLLGAANRDP RRFDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTIRGYETLP
ITVGAVTADRGT PAGVAPGTP

>CYP208A12 (2561694824) *Salinispora arenicola* CNQ884

MTLDTITPRVPLGPRTAALRMLLVMKRDR LGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGDLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAE L TG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETINAVPMWIP LPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTL SLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRV PANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGGLPLVVRP

VS

>CYP107FS2 (2561694931) *Salinispora arenicola* CNQ884

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPFADRSEFERHAEVLTGINASSGFDTIIAAGRWFDEYLAELVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETTVNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRLAGLRLAVPTDSLWKASFVLHRLERLPV
TFTPDRAFPNIDSVHTV

>CYP105CN1 (2561694932) *Salinispora arenicola* CNQ884

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVGTAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVQYQDRTRFEPVAGLFEPRAD
AAMAEALTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVPGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIHHCIGQNALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRACLPPVTW

>CYP105CP2 (2561694934) *Salinispora arenicola* CNQ884

MTKSMPVQDLPAFFPIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHAARAVLSDYRRVSIKPYHGNYPPLLNEEFKVVDSGYADVLFGVDP
EHTRQRQMIMPSFTLRRTAVLRPDIQIRIVDDKLDMMRHGAPGDLVTEFA
QPVPMSMVSFLLGVFWEDHEEFETPAHKLFVPELAEAEATTELGAYLERLI
QKKEQPGGTPGGTGLLDDLRDHLRAGALSRDELVHIAMAMLVAGTDTT
NVISLGTALLDNPQWAAALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRATAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP245A7 (2561695815) *Salinispora arenicola* CNQ884

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENNLVFMDF
PRHTELRLSLNRSFSPRIVTELPRPRIARIAQELLSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYAQAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELGAEGLTDDAVEEFLRYDPPVQ
AVTRWAHQDITLGGCDIPRGSRVALLGSANRDPARFSPDVLVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP244A4 (2561695819) *Salinispora arenicola* CNQ884

MSTTTNTELTEAPETNMPVDPLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQALHTPKMGKDIALVPEWMMRQPGLMVTAQPDPEYARAMIMS

DGENHARIRRIHAPVLSPRNTERWGERVADKVEGFLELDELSQLAGSGGSAEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEAIRRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEAGDSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP105AB8 (2561696028) *Salinispora arenicola* CNQ884

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHRADLVKT
LSLPVPSLVICELLGVADHDFFQEHTATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDLLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRLGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP1005A1 (2561696065) *Salinispora arenicola* CNQ884

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTDDQATY
RPDNALAEAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLDSSGPPVDLYADLTADLPLLVLAR
LVELPDAPVNAVQKFARAALFVAPLDADRQLALADEVGRFHVQLREFA
DTGGGLAAALRATGHSPDVLVGFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSISVADVVEEGLRLEPPIVWRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFPRPGQRGSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP105CH1 (2561696407) *Salinispora arenicola* CNQ884

VSSLPLPTYPKLRDPADPLLPAPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTTEPCVSVDRRHNPFPYPVNPDAVVAQVARWTYILLGDDPPL
HTERRRLLI SEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADF SKHFAM
QVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLL VGGHETTAN
TLTLATATMLERPEIAEQLRDPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVNLTARDGTVFPEPHRLDIRRNARNHLAFSHGI
HOCMGQNLARVEMQIALDTVLRRLPGLHLVAPFEELPFKYRHLVWGIEEL
RVAW

>CYP105G5 (2561696678) *Salinispora arenicola* CNQ884

LTIETTETPPADDSLAPLPRQFMQRDDPSKLPPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDELVGIA
TLLLFAGLDTTASMLGLGMFMMLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHI PAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTF

>CYP105W2 (2561696713) *Salinispora arenicola* CNQ884

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRRHADVRQVLSDFRMSADRRRPGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVSRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDVVVTDKERRPGDDVLSRLLYRQRAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPPERFPAAVE
ELLRYFTVVEAATARTTTAEVTIGGVTTAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAHLAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2561696721) *Salinispora arenicola* CNQ884

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHGSQLMRNEIVSTVVTFIFTGHETVASQLGNGL
LSLLDHPEQLELMRRQPHLVPAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLACNPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP105J3 (2561696873) *Salinispora arenicola* CNQ884

MTDSVAFPGQGRVCPHPAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVGPRISSDRNTNPAWPAIVPIVAAA VND AQQKVLKIATALVGT DGPE
HKAQRKMLIPSFTFRMNALRPMIQEIVDQQLD EMIQSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIF EKL SHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGVLDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDAVTRLAADDIEVE
GTIIRKGDGVFFITS LINRDTDVHDAPNSLGWHHASAADHLTFGF GAHQ
LGQSLARITMEIALGALIDRLPSRLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP107EU1 (2561696954) *Salinispora arenicola* CNQ884

VTIGQTLPLDLYSPEFTRDPYAI FARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDVPADDLLTALVQVSADEDRLSREELVSMALLLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRLDITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQMQLAVEADDLEWLVNSFFRAPL
HLPVSLRR

>CYP1051A1 (2561697067) *Salinispora arenicola* CNQ884

MATDAAITRARTVPAWKALPAAVRDTHRAFVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAVDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLPWWIPMP
GDRRFRAAVRSIDDILLPVLRLQAQRQPDDGDDLLSRLVRARADDGRALSE
KRMRDDLVSMVAVTTETSTVVLTWLWPLL ANHPDVANRLYDEIDRVVGGG

PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASSTRPARTVEMI
LKPVAPVPAR

>CYP105EJ1 (2561697271) *Salinispora arenicola* CNQ884

MAGGNSDLPSFPMARRCPHHPPEYAEMRARGAAVRVNFLGTPVWAITRH
AEARDLLTDSRVSTDPASPGHPFGALAATAERMAGQLTMDPPEHSAHRR
MLISEFGVRRVREMRPAIERSVDDLLDGMAGAAADLVEAYGLPLASAIM
CQLLGVPERDHAFFHDRACAMLGGVFSSRDADVARMEMLAYLDDLVRGHK
PGQDGVIDRLLTIRHDTGEPTEAIVGMCFMLLLGHHTTATMIPLGVHT
LLDHPDQLAQLRAEPALWPVAVDELRLRFHSIVDWMSFDRVATADIDVGDE
RIHAGEGIFVLGAAANRDERAFERPDDFNIHRRSRHHLAFGVGIHQCLGQ
SLARTELEISYRRLFDRFPTIRIQPPAAGLSFKYDAAMFGLQELPVTW

>CYP1198B1 (2561697425) *Salinispora arenicola* CNQ884

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQRKLVSFSFTPRIVKSFGPQITHIVDGLFEDFRDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKPNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGITNVVDES
LRYDPPVHLAARMARATTIGGYDLDPGTIVVVLMAAGNRDPRAYESPDV
FDVNRKIKNVSLAFGAGAHFCIGSLAKLEAEIAISAFQRLKNPEVDES
SLEYRRHIVVRGLEHMKVVSFQP

>CYP208A12 (2517938111) *Salinispora arenicola* CNY011

MTLDTITPRVPLGPRTAALRMLLVMKRDLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGLDWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAELTG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNLAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGHRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP245A7 (2517939270) *Salinispora arenicola* CNY011

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGDDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENNLVFMDF
PRHTELRSLLNRSFSPRIVTELPRPRIARIAQELLSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRVDVGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELGAEGLTDDAVEEFLRYDPPVQ
AVTRWAHQDCTLGGCDIPRGSRVALLGSANRDPARFSPDVLVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCT

>CYP244A4 (2517939266) *Salinispora arenicola* CNY011

MSTTTNTELTEAPETNMPVDPLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQALHTPKMGKDIALVPEWWMRQPGLMVTAQPDPEYARAMIMS

DGENHARIRRIHAPVLSPRNTERWGERVADKVEGFLELSRAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLSLISTSLYEAIRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEAGDSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP1051A1 (2517939531) *Salinispora arenicola* CNY011

MATDAAITRARTVPAWKALPAAVRDTHRALVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAAWAA
SRRVLAPMFRPARINAMVDTMADAIAAGVDGLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDDILLPVLQRQAQRQPDDGDDLLSRLVRARADDGQALSE
KRMRDDLVSMAVATTETSTVVLTWLVPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMV
LKPVAPVPAR

>CYP105G5 (2517939551) *Salinispora arenicola* CNY011

LTIETTETPPADDSLAPLPRQFMQRDDPSKLPALAAALAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDFRFSDDFRYHPRFKKLSGQLGERLRNDK
ARAGSFINDPPEHTRYRKLITGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRVEDRTEFQRRAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDDELVGIA
TLLLLFAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTF

>CYP107Q4 (2517939552) *Salinispora arenicola* CNY011

MTTTAETSATIDLFSPEVVADPFGWYARLREETGPTTGTNLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRFLTNPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRLKLVSYALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPRPHWRAGDSMATMNGER
IPTTLVKCIELARELIAKRAEPQDDLVTALVQAQAEQDNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLII
DRLAVGSEHGLGFGKGIHRCCLGQHLAYQEAEEVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP125A41 (2517939652) *Salinispora arenicola* CNY011

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGDV
TDVACELPLQAIAGELIGVPQHRRKVFWDNSQLIGYDDPAYGTDPLTASA
ELLAYAMEMAEERQSPSDDLVTKLVAQIDGELHTTDEFGGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERPKSAVEEIIRWATPVNVFQR
TALVDTVLGGQAISAGQRFALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP166A4 (2517940000) *Salinispora arenicola* CNY011

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHCQLGQN
LARVELRAGLSALLRAFPNRLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP154M15 (2517940234) *Salinispora arenicola* CNY011

MNDKCPFAALDVTGQDLHGEAARLREQGPAVLVELPGGVKAWSINRYEVI
RELLMDRRVTKNARKHWPFIKGEIPPDWEMISWVAMDNMVTAYGKDHVR
LRKLVGRAFTQRRADALRPQVVALSTKLLDDLGGATPPGEVVDLRERFAYP
LPAMLVASLIGMSEAALAACSKVIDMMVHTNVSPEEAQAVLRGWRAAMAD
LIESKRRTPGEDITTDLIAAREEDGSRLSEAEADTIFAILGAGSETTIN
FFDNAITALLSRPGQLQLLRTGAVTWDDVIDEVLRVESPLAHLPLRYAVE
DIELDGVTIPQGDPIILVNYAAAGRDPALHGGTADEFDLARGDKTHLSFGY
GPHYCLGAGIARMVATIGLSMLFERFPDLSLAVPVTELKRLPTFIMNGHQ
TLPVRLTAHAR

>CYP125G6 (2517940259) *Salinispora arenicola* CNY011

VPTLLNEHVSYDGAIAIVDSGATSWIRLAERVNRWVHLLRAHGLDTGD
RLACVTGNRRETFFEVLLAALHTGVTVPVNVNHLTVTEIGHILSDSGSRVV
ITEELHVKAVAAAADGTAGPVAGLVLGDRVEVEGFAAVEPLLAASPAEPE
GQVCGATMLYTSGETTGRPKGVVNNLFVTGAPYARVGRLCDYARSVLGVPR
RERMLLDGPWYHSSQLFFALLSLLQGSRLVIRPYFDPAATLKTIDDHRT
VTHLVPTQLVRLLRVDALTRQMFSGASLRRVWHGGGCPPEVKRSMIDWW
GPVLVEYYGATEGGVVTLIDSAEWLARPGSVGRAVPPSEVVVVDDGGQPV
AAGQTGQVFFRRRTGNRFHYHNAPEKTQAAYLAPDTFTYGEVGHVDEG
LFLTGRAQDMIVSGGVNVYPAEVEAALLRHPVVRDAAVIGVADDEFGERV
VGIVVPETAVDPDDLATHLDAHCRVSLAGFKVPRTYRVVESLPRDETGKL
RKDALRSKFGWLSGAAMTVPRPATGQPTAHRPDIAHPTTYVSGVPHDEFA
RRRRDEPVGWAEPLVTRHTAAGRTATRGSGFWAVTRYEDVVAASRRVTD
FSSAAKGAFLLTDPRTPADLQQAQQLLVNMDDPHHARLRKLVTSTVFTPRAV
RGLLASIDAHAAALVAKVVAAGEFDVVTDLAAELPLLVLADLLGVPKQDR
ALLYGWSNHLVGFDPDFGGGDIDAYRTAMAEAFQYALNLGVERRARPTD
DLVSLLANAEVDGTRLTDREFCNFWLLLTVVAGNETTRHLIAGTMQALTEH
PGECARLVEGRVPMESAVEELLRWVTPIMQFRRTATRDTEIGGQAVTAGE
KVVLYYTSANRDATVFAEPDRLDLGRTPNRQLSFGIGPHYCLGAHLARAE
L

>CYP105CN1 (2517940298) *Salinispora arenicola* CNY011

MAAPAPQATPSTTPHPPSYPLPRECPYRPSAGTAHLRDAGPVSTVRLYDG
RTAWLVGTAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQLLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVYPYQDRTRFEPVAVAGLFEPDRAD
AAMAEALTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTALALLTAPGQYTALVDNPDLPVGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIIHCIGQNALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPTW
TALLRVMSPHLGLSLQLTGPVSRLASNFVNGVKAMPAVIGSR

>CYP105CP2 (2517940300) *Salinispora arenicola*_CNY011

MTKSMPVQDLPAFPIPRECYPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHAARAVLSDYRRVSIKPYHGNYPILLNEEFKVVDSGYADVLFVGDPP
EHTRQRQMIMPSFTLRRRTAVLRPDIQRIVDDKLDEMRRHGAPGDLVTEFA
QPVPSPMVISFLLGVPWEDHEEFETPAHKLFVPELAEEATELGAYLERLI
QKKEQPGGTPGGTGLLDDDLIRDHLRAGALSDELVHIAMAMLVAGTDTT
NVISLGTALLDNPDQWAALRDNDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPFRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRATAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105BL2 (2517940822) *Salinispora arenicola* CNY011

MSSHSAAAPDPETATPLHTLAPELAFFPQFERSAPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLDPHFSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPSPRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDRHHDRDDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIIGLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP105AB8 (2517940873) *Salinispora arenicola* CNY011

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHCADLVKT
LSLPVPVSLVICELLGVADHDFQEHATLVRRTASEVRQHSIDELNA
YLGALIDRKLASPDLLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARRHHLAF
GFGPHQCLGQNLARLELQIVFDTLFRHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP154M21 (2517941061) *Salinispora arenicola* CNY011

MEKCPYVLDRAGSDIHKEASNLARGPVTLVELHGGYTAVSVTSYEVAKQ
LLMDPRISKKTAKHWPEFRDGNVPQDWELYTWVAMDNMQTRDGKEHDLRL
KLVAFAFTGRQAVKSRPIIEEIVNRLDDLETAPRGQAVDIKARYFYPLS
TILVCDLLGIAEEDRDVILHGNVVNSKTTNTAESEANLHQWQTALGRV
ETKRRDPGDDLTTVIIKAGEDEQTPLTDDEVIGSLHLLIGGGTETTANVL
CHTVVDMLTHTPDQLAMVRSGAVSWESAWEEEVKRDGAVGSMFPFCATDDV
EIGGVTTIAKGLVILINYAAAGRDPERYGDAAAEFDITRADKANLSFGYGR
HRCLGPALATMEAMVALPALFDRFPNLALAVPPNELKPPQGTFFNGYAEV
PLLLRS

>CYP154M13 (2517941062) *Salinispora arenicola* CNY011

MSTGRPVVLDPTGRDIHGEADHLRALGPATLVELPGGVLAWSINSYEVGK
ALLSAPNVSKSARRHWPAYNGEIPPDWEMISWVAMDNISTTFGGDHRRRL
RRLTAKAFGSRRAEQVRPMATHMVNTLLDRMADAADAGEVVDLKAAFAYP
LPGMLVAELIGMSEEARVAAKVIDMMTATNITPEQAQGVLLGWRDAITD
LIAALKRAQPGDDITSDLIAARDEDGSLLTEQELVDTIFAILGAGSETTIN
FFDNAITQLLTHPEQLELVKSGQVSWDDVIEEVLRLSPLASLPMRFVE
DIQLDGVTIHRGDPILINYAALGRDPALHGESAGVFDVTRQHKEHLSFGH

GAHYCLGAGIARMVAKTGLSALFERFPRMTLAVSATDLVPYPTFIMNGNR
QLPVHLSGALTWREGEQSALGRA

>CYP105W2 (2517941075) *Salinispora arenicola* CNY011

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRHADVRQVLSDPRMSADRRRPFGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVSRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVYPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDVVVTDKEHRPGDDVLSRLLYRQRAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPPERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGVTTAAGEGVVAVGQAANRDPRVFEH
PDEFDPDRDARAHAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2517941083) *Salinispora arenicola* CNY011

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSREFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQLMRNEIVSTVVTFFITGHETVASQLGNGL
LSLLDHPEQLELVRRQPHLVPOAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDVPVSMFSGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCNPNELAYQPRMTMFRGLTRLPVAFTPA
G

>CYP154M20 (2517941106) *Salinispora arenicola* CNY011

MERCPYVLDRAGRDLHGEAKALRARGPVTLVELHGGETAWSVTSYEIAKQ
LLVDPRISKNTKETWPEFREGKVPQDWELYTWVAMDNMQTRDGEHDLRL
KLVAQAFTTRQVAKVRPMIEDIVDRLLDDLEKVPAGEVVDIKGRIFYPLS
TILVCDLLGIPEADRAEALHGTVVNARTTNSAESEANLHQWQSALSKLV
ETKRREPGNDITTLIIKAREDEQAPLTDDEVIGSLHLLIGGETTETSNVL
CNTLIDLLTHPDQMAMIRSGAVGWEEAWEVEVRKDGAVGSMPFRCANADI
EIGGVTTIAKGDVLINIAAAGRDPERYGDTTAEFDITRADKTNLSFGYGR
HRCLGPALATMEAMISLPALFERFPDLVLAVPRDELKPQGTFFVNGYAEV
PMLLRS

>CYP107FJ2 (2517941113) *Salinispora arenicola* CNY011

MSETLSTSVLLADAAEQRAWRAKLRGAGPVHRITTQSGETGWLIVGHEEA
RNALVDLRLQGRTATVGHGRMPEDLERALNSHMLNVGPPDHTRLRLRVS
AAFTRRRIEQMRPRIQELTDELDDGLAGADEADLVAGLALPLPMRVLVDL
FGIPAEDCADFNWTKVLTSAGAVDLDRLTAAAGEMVAYLRGLLDRKRQV
PESDLSALVAVRDGADRLSDDELTSMVYLLLTAGYETTVNLIGNGLLNL
LANPEQLVAFKADPDLLPQVVEEAMRFDSPVQIAVRHSTEPVEIAGQAIP
SGALILVSLWANRDPDRFTEPEVFRVDRQDNPQLGFGYGFHHHCIGAPLA
RMEGTVAIGTVIRRFAPALRLAHPAGSLTWRASMVMHGLTALPVHLR

>CYP211C1 (2517941320) *Salinispora arenicola* CNY011

VVDVEELLTRYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVAHAV
GYDLVGAVLRDPEWSKAPSPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELLDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAELEAFYG

ELLARRRRTPGEDLITGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPIPIQGQNVLLLIAAANRDPAHFPDPDRFDPWRS GPPSLAFGLG
LHYCLGAAVSRLEGR LALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP162P1 (2517941387) *Salinispora arenicola* CNY011

MGLPSEVDLADPDLYAEGDPDAEWAWLRAHRPVYRNPAGATAEFWALTRY
RDALQVYRDPSTFSSERGMVLGVDPVAGDPAAGRMLVVTDPPRHPKLRI
VSGIFVPRTMHRLEGRVRS LVDQLLHRVVDGAGRCDFVNDVAARLPVAII
CELLGVPADQDWMYHLTSTAFGGGDPAGSAEVS AVERAEAYGDILLYYG
ELAAERRRRPGDDLVTLLVHADLDGEPLDVEDVLVNCTNLIIGGNETTRH
AASGGLLALAQRPELWRRLRETPTAVPTAVEEVLRWTTPGMHVLRATRD
TEIGGVPIRAGERVVVWNAANRDEDVFADPQRFIDRSPNRHIAFGQGG
HHCLGAALARLELTILFEEMAKQVTNVRLTG PVRVRVRS CVLRGIRALPVE
LVT

>CYP1005A1 (2517941816) *Salinispora arenicola* CNY011

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLT DQATY
RPDNAL EAVTPVPVAALRVLAGHRFRLPPTLANNGGASHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVATIRTTLD SGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAV KQFARAAL ELFWAPLDADRQLALADEVGRFHQV LREFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLL LHRLSGEP
TIRAALRAGSSSVADVVEEGLRLEPPIV TWRRVA AVDSTLGGTTVAAGTS
VLLW LARAGRDP AVVAAPDEF RPGQRGSRRLAFAGAGAHRC LGDQLARME
AAVVVEQATPLLDGVT VVRPPWYPDNL TFRMPDAFV VRR

>CYP107EU1 (2517941892) *Salinispora arenicola* CNY011

VTIGQTL PDLVYSPEFTRDPYAIFARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDVPADDLLTALVQVSADEDRLSREELVSMALLLLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRLDITRYTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPMQLAVEADDLEWLVNSFFRAPL
HLPVSLRR

>CYP211B2 (2517942066) *Salinispora arenicola* CNY011

MDVSEAI AVLISPSGR LDPYPTYEQLRAHG PVSQTTAGLFVV TG YAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPA IKS IARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTAQADEL VDEMIRAGR DGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLS GEELLANLVVLLVAGFETT
TNLLGNGLV VLLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTRTVR
ESVSFAGTEL PAGSWLLVLLGAANRDP RRFDPARFDPGRAQS QPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLT LRGYETLP
ITVGAVTADRGT PAGVAPGTP

>CYP105CH1 (2517942153) *Salinispora arenicola* CNY011

VSSLPLPTYPKLRDPADPLLPAPAEYLAIQSEKPIAKVLLPSGRPTWLITG

HALARQVLTEPCVSVDRRHFNFPYPVNPDAVVAQVARWTYILLGDDPPL
HTERRRLLISEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRTPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVNLTARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALDTVLRRLPGLHLVTPFEELPFKYRHLVWGIEEL
RVAW

>CYP107AX14P (2517942162) *Salinispora arenicola* CNY011

VTSPPHVAFGHLLLRDPHGQYNALRGQAPVHHIRTPDGAPAWLVMRYHDV
QAALTDLRLSVDKRFSDDTGEHGSSLPPELDAHLLNRDPPDHTRLRRLAA
AAFTPRRVADQAPAVATIVDALLDGIADQDQAEILGALASPLPLQVMHEL
LGLPTQTSVDFRNWTNTLLSADANQPAQSRSAMATMRRFLMGQLARKRAQ
PGDDLVTGLLAARDDDDRFTDDELLAMVFLLMFAGYDNTAALIGNVTHAL
LTDAGLHDAVRAGSVDDLSDVDEVLRWNPSFPLAVRRFAREFVTPSRQAI
ASGSAWPARTATPHSSPNPTN

>CYP105J3 (2517942370) *Salinispora arenicola* CNY011

MTDSVAFFPQGRVCPHQAPAGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRTNPAWPAIVPIVAAAVNDAQQKVLKIATALVGTGPE
HKAQRKMLIPSFTRFRMNALRPMIQEIVDQQLDEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPEGVLDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDAVTRLAADDIEVE
GTVIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP107AY2 (2517942663) *Salinispora arenicola* CNY011

MTAEPTPIPRSGARLGQEYDQLRKTDGVHQVLLPDASLAWLVTNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAPF
SPQRVAALRPGIRRAAEHLLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRATDTMLTSYPPDRDAIRRAVTELHGYYVDLIDLKQQQPG
DDLLSALVTIEQDGDRLSRDELTSLAFLILFAGYENTANLIASAVLWLLD
HGGLNVVPISEAIEATLRHEPPAPVAIRRFPTEDIIIGGV TIPAGDTVLL
SIAAATRGADGNAARLAFGNPHYCLGAALARVEAEALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP244A7 (2517942816) *Salinispora arenicola* CNY011

VRVTSSNLAEAPEVTMPVDLRPTDCLPELLAAARVAPVVRTRYLDQHAW
IVCDRELVKQALTHPKLGKDITLAPDWMRKPGQMTAMPPEYARMMITS
DGENHSRIRRLHAPVLSRNTERWGKRVATLADELLDELDSGDNAEVNVV
TDYTHKVPLAFTSEMLGLPPGAERRLHDITEVMLYSADYALRQQAEEELF
EAVQDWVRNPAGLYDGVITGLLASSDEEDVTVTEGEVIVWTLISLVINGYE
TTGSLISAALYEALRRPVRERPHTDEEDIAAWIEEALRVQPPVPHTTWRFA
LEDLSLGGYLIIPKGAQVQSIAAANRDPNEDTDGFD AERRGRGHL SFGRG
VHYCIGAPLARLQAQIALHGFLQRFPRARLSADTAPQWESEWMIRMSVL
PALLA

>CYP1198B1 (2517942937) *Salinispora arenicola* CNY011

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQRKLVSQSFTPRIVKSFGPQITHIVDGLFEDFRDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKPNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGELITNVVDES
LRYDPPVHLAARMARATTIGGYDLDPGTIVVVLMAAGNRDPAYENPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKHPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP105BL2 (2516011863) *Salinispora arenicola* CNX508

MSSHSAAPDPETATPLHTLAPELTFPQFERSTPFDPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLSDPRFSSDMSHPGFPNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPVSRVACHLVGIPFSDYERFTGMAATLMDSTSSADQFA
ALQNMVSYFDTLVTDREHHRDDLLGHMVRRYLASGELTRDMLIRLAWTT
MAAGQETTAHMIIGLVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVTLPPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP125A41 (2516012414) *Salinispora arenicola* CNX508

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGDV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQRSPSDDLVTCLVNAQIDGEHLTTDEFGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTVLGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP244A4 (2516012801) *Salinispora arenicola* CNX508

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQALTHPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGDVADKVEGFLDELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGLISTSLYEAIRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEAGDSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP245A7 (2516012805) *Salinispora arenicola* CNX508

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRSLLNRSFSPRIVTEL RPRIARIAQELLSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYARADVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGADGLTTDAVEEFFLYDPPVQ
AVTRWAHQDATLGGCDIPGRSRVVALLG SANRDPARFPSPDVL D VRRPAD
RHLSFGLGIHYCLGATLARAEEIIGLQALLDGVP T L GYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP154M5 (2516013607) *Salinispora arenicola* CNX508

VEQSCPYKLDVTGRDVAEAGEAIRARGPVAQVELPGGVQGSVGTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPPNWPLIGWLLMDNMTTNDGADHQRLR
KLVSHGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNVNTSSISGEEAEANVEQWHRELLELV
EAKREKPEDMASLLIAAKEEDGSTLTQEEVVGTLHLMLGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDPVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPNMTLAVRPAQLEPQGTIFMNGHREL
PVRLGQPATVLA

>CYP105CT1 (2516013624) *Salinispora arenicola* CNX508

MNSPNHMPADRSLTAPTSGCPMALSRGRVGLDVADEIGELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTDSDHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGVLHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLITDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRRFPGLRLAV
PDSELEFTQGTTVYSLRGLPVTW

>CYP1051A1 (2516013722) *Salinispora arenicola* CNX508

MATDAAITRARTVPAWKALPAAVRGAHRALVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLEHRAAIYPRGDDTTLWRSVRKLVGDGILAEGDAWAA
SRRVLAPMFRPARINAMVDTMADAIAAGVDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDILLPVLQRQAQRQPDDGDDLLSRLVRARADDGRTLSE
KMRDDLVSMVAVTTTETSTVVLTWLWPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDVLGGVRIDKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMV
LKPVAPVPAR

>CYP105G5 (2516013755) *Salinispora arenicola* CNX508

LTITETTETPPADDSLRAPLPRQFMQRDDPSKLPALAAALAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDRPFSSDRFRYHPRFKKLSGELGERLRNDK
ARAGSFINDPPEHTRYRKLTTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRRAAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQRLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTF

>CYP107Q4 (2516013756) *Salinispora arenicola* CNX508

MTTTAETSATIDLFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRFLTNPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSALTAKHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPRPHWRWAGDSMATMNGER
IPTTLVKCIELARELIAKRAEPQDDLVTALVQAQAEQNRVSDDEIIGI

LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLII
DRLAVGSEGLHGFKGKIHRCCLGQHLAYQEAEEVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105CP2 (2516014123) *Salinispora arenicola* CNX508

MTKSMPVQDLPAFFIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHARAVLSDYRRVSIKPYHGNYPLLNEEFKVVDSGYADVLFGVDPP
EHTRQRMIMPSFTLRRRTAVLRPDVQRIVDDKLDMMRHGAPGDLVTEFA
QPVPMSMVSFLLGVPWEDHEEFETPAHKLFVPELAEEATTELGAYLERLI
QKKEQPGGTGGTGLLDDLIIRDHLRAGALSDELVHIAMAMLVAGTDTT
NVISLGTALLLDNPQWAAALRDDPDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRATAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2516014125) *Salinispora arenicola* CNX508

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVGTAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVPHYQDRTRFEPVAGLFEPRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVPGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHAFSHGIIHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPTVW

>CYP107FS2 (2516014126) *Salinispora arenicola* CNX508

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVPPFADRSEFERHAEVLGTINASSGFDALIAAGRWFEYLAELVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETTUNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELRLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAANHDPTVFADPSRLDLRREGSGQILSFSHGIHF
CLGAPLARLEGEIAFGTVLRLRAGLTLAVPTDSLWVKASFVLHRLRLPV
TFTPDRAFPNIDSVHTV

>CYP208A12 (2516014158) *Salinispora arenicola* CNX508

MTLDTITPRVPLGPRTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAEITG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHGVPWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPVWLLPRRALAPDTIGEYRVANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGPLVVRP
VS

>CYP1005A1 (2516014320) *Salinispora arenicola* CNX508

VSAVLFERSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTQATY
RPDNAMEAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLDSSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVVKQFARAALFLWAPLDADRQLALADEVGRFHQVLRFEFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSISVADVVEEGLRLEPPIVTVRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFRRPGQRGSRRLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP211C1 (2516014419) *Salinispora arenicola* CNX508

VVDVEELLTRLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVAAVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAELEAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPIPIQGQNVLLLIAAANRDPAHFPDPDRFDPWRS GPPLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP107AY2 (2516014671) *Salinispora arenicola* CNX508

MTAEPTPIPRSGARLGQEYDQLRKTGDVHQVLLPDASLAWLVTNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAP
SPQRVAALRPGIRRAAEHLLDTLVATSGPTDLVTGYCNPLSVRVIADLMG
VPEAGRNTLRAWTDMLTSYPPDRDAIRQAVTELHGYYVDLIDIKQQQPG
DDLLSALVTIEQDGDRLSRDELTSLAFLILFAGYENTANLIASAVLWLLD
HGGLNVVPISEAIEATLRHEPPAPVAIRRFPTEDIIIGGLTIPAGDTVLL
SVAAATRGADGNAARLAFNGPHYCLGAALARVEAEEALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP105AB8 (2516014717) *Salinispora arenicola* CNX508

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHCADLVKA
LSLPVPSLVICELLGVPYADHDFEQEHTATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDDDLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKNDPDKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARRHHLAF
GFGPHQCLGQNLARLELQIVFDTLFRHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP105W2 (2516015234) *Salinispora arenicola* CNX508

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSADVRQVLS DPRMSADRRRP GPFKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVYPYGEHEFFERRSTLMFRR
STPADERARCAIREDFLDVVVTDKERRPGDDVLSRLLYRQRSAGGMDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPPERFPAAVE
ELLRYFTVVEAATARTTTAEVTIGGVTTIAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAHAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2516015241) *Salinispora arenicola* CNX508

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQMSRNEIVSTVVTFIFTGHETVASQLGNGL
LSLLDHPEQLELVRRQPHLVFPQAVEECLRFDPFAVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDVPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRVVCSPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP211B2 (2516015494) *Salinispora arenicola* CNX508

MDVSEAI AVLISPSGRLDPYPTYEQ LRAHG PVSRTTAGL FVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIKSIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTQADELVDDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEDLAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVLLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPA GSWLLVLLGAANRDP RRFDPARFDPWRAQS QPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGTPAGVAPGTP

>CYP166A4 (2516016425) *Salinispora arenicola* CNX508

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGWIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGGGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGI HQCLGQN
LARVELRAGLSALLRAFPNRLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP105BL2 (2517989361) *Salinispora arenicola* CNY237

MSSHSAAAPDPETATPLHTLAPELTFPQFERSTPFDPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLDPRFSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKKHVAFFVPSRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHDRDDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAMMIGLVGAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVAFERPDDELVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP211C1 (2517989908) *Salinispora arenicola* CNY237

VVDVEELLTRLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHV
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPATELDWYRERVVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPI PQGQNVLLLLIAAANRDP AHFPDPDRFDPWRS GPPSLAFGLG
LHYCLGAAVSRL EGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP125A41 (2517990056) *Salinispora arenicola* CNY237

MTEPRIPAGFDFTDPEVLAHVRVPREEFAELRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPHEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGVDFV
SDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQSRSPSDDLVTCLVNAQIDGHELTDEFGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTV LGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHL PDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP105J3 (2517990232) *Salinispora arenicola* CNY237

MTDSVAFFPQGRVCPHQ PAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRNTNPAWPAIVPIVAAVND AQQKVLKIATALVGTGPE
HKAQRKMLIPSF TFRMNALRPMIQEIVDQQ LDEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIF EKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGLVDDLQAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP245A7 (2517990711) *Salinispora arenicola* CNY237

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENNLVFM DP
PRHTELRSLLNRSFSPRIVTEL RPRIARIAQELL SRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDEL RGAEGLTDDAVEEFLRYDPPVQ
AVTRWAHQD TTLGGCDIPRGSRVVALLGSANRDPARFPSPDVL DVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP244A4 (2517990715) *Salinispora arenicola* CNY237

MSTTTNTELTEAPETNMPVDPLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQAL THPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLS PRNTERWGERVADKVEGFLDELSQAGSGGSAEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGS LISTSLEYAIRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGE GADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETA VQWESEWMIRRM
SVLPAVLS

>CYP105CP2 (2517990935) *Salinispora arenicola* CNY237

MTKSMPVQDLPAFPPIPREC PYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHARAVLS DYRRVSIKPYHGNYP LLNEEF EKVVDSGYADVLFVDP
EHTRQRQMIMPSFTLRRTAVLRPD IQRIVDDKLDEM MRHGAPGDLVTEFA
QPVPMSMVSFLLGV PWEDHEEFETPAHKL FVPELAEEATTEL GAYLERLI
QKKEQPGGTPGGTGLLDDLIRDHLRAGALS RDELVHIAMAMLVAGTDTT
NVISLGT LALLDNPDQWAALRDNPD ELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRPPRPSFSFSH

GIHRCPGDNLARLELEIAFRSLVTRMPNLRRTAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2517990937) *Salinispora arenicola* CNY237

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVTGAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRLPRFTVRQVAARRPAIQIRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVPPYQDRTRFEPVAVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIHHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPVTW

>CYP107FS2 (2517990938) *Salinispora arenicola* CNY237

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPFADRSEFERHAEVLTGINASSGFDIAAAGRWFDEYLAELVQ
QRRREPQDDLISGMLAAQDKGDRITDVELRSNALLLSAGFETTVNLVAN
GLLALLRHPEAAMALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSLWVKASFVLRHRLERLPV
TFTPDRAPNPIDSVHTV

>CYP166A4 (2517991631) *Salinispora arenicola* CNY237

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHCCLGQN
LARVELRAGLSALLRAFPNRLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP1051A1 (2517991881) *Salinispora arenicola* CNY237

MATDAAITRARTVPAWKALPAAVRDTHRAFDVGNWSDGDVVRVSLGVSR
PYLVTPNAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGLAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAVDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLPWWIPMP
GDRRFRAAVRSIDDILLPVLRLQAQRQPDDGDDLLSRLVRARADDGRALSE
KMRDDLVSMAVTTETSTVVLTLWLPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVDELRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYFPFGVMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASRTPARTVEMI
LKPVPVPPAR

>CYP105G5 (2517991905) *Salinispora arenicola* CNY237

LTIETTETTPADDSLRAPLPRQFMQRDDPSKLPPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDFRFSDFRYHPRFKKLSGQLGERLRNDK

ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRRAAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDDELVGIA
TLLLLFAGLDTTASMLGLGMFMILLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQQLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTL

>CYP107Q4 (2517991906) *Salinispora arenicola* CNY237

MTTTAETS AETIDLFSPEVVADPFGWYARLREETGPTTGTNLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPFRFLTNPFPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRLKLVSYALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIAKRRAEPQDDLVTALVQAQAEQDNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI
DRLAVGSEGLHGFKGKGIHRCLGQHLAYQEAVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP1005A1 (2517992030) *Salinispora arenicola* CNY237

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTQATY
RPDNAL EAVTPVPVAAALRVLAGHRFRLPPTLANNGGASHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLDSSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVQFARAALFWAPLDADRQLALADEVGRFHQVLRFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSISVADVVEEGLRLEPPIVTVRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVAVVAAPDEFPRPGQRGSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP208A12 (2517992137) *Salinispora arenicola* CNY237

MTLDTITPRVPLGPPTAALRMLLVMKRDRLGMLSSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGDLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAEITG
LTLGLVLGRSLLDADLAGFDSIGDSFARVQDQAMFELETNLAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLAGRVDVLSRLILSARGEADPRVGH
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGPLVVRP
VS

>CYP105AB8 (2517992846) *Salinispora arenicola* CNY237

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTTDQHRADLVKT
LSLPVPSLVICELLGVPPYADHDFEQEHTATLVRRNTASEVRQHSIDELNA
YL GALIDRKLASPDDDLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARRHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTRLRLAAPLDKIPFKTDAAIYG
ARELPVAV

>CYP107AY2 (2517992949) *Salinispora arenicola* CNY237

MTAEPTPIPRSGARLGQEYDQLRKTGDVHQVLLPDASLAWLVNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAP
SPQORVAALRPGIRRAAEHLLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRAWTDMLTSYPPDRDAIRRAVTELHGYVVDLIDIKQQQPG
DDLSTLVITIEQDGDRLSRDELTSLAFLILFAGYENTANLIASAVLWLLD
HGGLNVVPISEAIEATLRHEPPAPVAIRRFPTEDIIIGGV TIPAGDTVLL
SVAAATRGADGNAARLAFGNPHYCLGAALARVEAEALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP105CT1 (2517992980) *Salinispora arenicola* CNY237

MNSPNHMPADRSLTAPTSGCPMALSRGRVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPI TVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTD SHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVARAVEE
LLRYVGV LHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLITDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRRFPGLRLAV
PDSELEFTQGT TVYSLRGLPVTW

>CYP154M5 (2517992997) *Salinispora arenicola* CNY237

VEQSCPYKLDVTGRDVHAEGEAI RARGPVAQVELPGGVQGSVVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPP NWPLIGWLLMDNM TNDGADHQRLR
KLVS HGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNV TSSISGEEAEANVEQWHRELLELV
EAKREKPEDMASLLIAAKEEDGSTLTQEEVVGTLHLM LGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDP AVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPNM TLAVRPDQLEPQGT FIMNGHREL
PVR LGQPATVLA

>CYP211B2 (2517993465) *Salinispora arenicola* CNY237

MDVSEAI AVLISPSGR LDPYPTYEQ LRAHG PVSRTTAGLFVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPA IKS IARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREV VTAQADEL VDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLS GEE LLANLVVLLVAGFETT
TNLLGNGLVVL TRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTEL PADSWLLVLLGAANRDP RRFDPARFDPGRAQS QPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGT PAGVAPGTP

>CYP107EU1 (2517993823) *Salinispora arenicola* CNY237

VTIGQTL PDLVYSPEFTRDPYAIFARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPADDLLTALVQVSADEDRLSREELVSMALLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRLDITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQMQLAVEADDLEWLVNSFFRAPL

HLPVSLRR

>CYP105W2 (2517993866) *Salinispora arenicola* CNY237

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRRHADVRQVLSDFRMSADRRRPFGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVSRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVYPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDMVVTDKHRPGDDVLSRLLYRQRRAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPPERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGVTIAAGEGVVALGQAANRDPRVFEH
PDEFDPDRDARAHAFGYGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2517993874) *Salinispora arenicola* CNY237

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSREFADV
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQLMsrNEIVSTVVTFFITGHETVASQLGNGL
LSLLDHPEQMELMRRQPHLLPHAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCSPNELAYQPRMTMFRGLTRLFPVAFTPA
G

>CYP105CH1 (2517993920) *Salinispora arenicola* CNY237

VSSLPLPTYPKLRDPADPFLPPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHFNFPYPVNPDAVVAQVARWTYILLGDDPPL
HTERRRLLI SEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
QVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRTPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVNLTARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQCMMQNLARVEMQIALDTVLRRLPGLHLVTPFEELPFKYRHLVWGIEEL
RVAW

>CYP1005A1 (2517867720) *Salinispora arenicola* CNT005

VSAVLFRSWTKTAGTRWPDVTRVADQNGTEHLVVTRHALVRQVLTDAQTY
RPDNAMEAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLDSSGFPVDLYADLTADLPLLVLAR
LVELPDAPVNAVKKQFARAALFWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSSSVADVVEEGLRLEPPIVTVRRVAAVDSTLGGTTVAAGTS
VLLWLRAGRDPVAVAAPDEFPRPGQRGSRRLAFAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTVVRRPPWYPDNLTFRMPDAFVVRR

>CYP125A41 (2517869090) *Salinispora arenicola* CNT005

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGDV

TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLYAMEMAERQSPSDDLVTKL VNAQIDGHELT TDEF GFFVMLLAVA
GNETTRNAITHGMVAF LDNPEQWELFKAERP KSAVEE IIRWATPVNVFQR
TALVDTVLGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211C1 (2517869238) *Salinispora arenicola* CNT005

VVDVEELLTRLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVS NLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTV LGGVPI PQGQNVLLLI AAANRDP AHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGAAVSRLEGR LALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGGREYP

>CYP105W2 (2517869353) *Salinispora arenicola* CNT005

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVS RHADVRQVLS DPRMSADRRRP GF PKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEF SVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDMVVT DKEHRPGDDVLSRLLYQQRSAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAE PERFPAAVE
ELLRYFTTVVEAATARTATAEVTIGGV TIAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAHLAFGYGRHVCPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2517869361) *Salinispora arenicola* CNT005

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVS RFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGR LRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQ LMSRNEIVSTVVT FIFTGHETVASQLGNGL
LSLLDHPEQMELVRRQPHLV PQAVEECLRFDP AVQSNT RQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCSPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP107FS2 (2517869424) *Salinispora arenicola* CNT005

MPVPQGEQNL TTEVFADPKALFATLGSRQPLHRISLPDGM PAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPADRSEFERHAEVLTGINASSGFD AIIAAGRWFDEYLAELVQ
QRRREPQDDLISGMLAAQDKGDR LTDVELRSNALLLSAGFETT VNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDEL LRYDSPVSCV TYHFAQEPVEI
GGFEIRSGEHV VIAAAAANHDPTVFADPSRLDLRREGSGQILSF SHGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSL VWKASFVLHRLERLPV
TFTPD RAPNPIDSVHTV

>CYP105CN1 (2517869425) *Salinispora arenicola* CNT005

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVGTGAEEARALLADSRVSNRADFPNYPVMDEHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQQLLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVYPYQDRTRFEPAVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHAFSHGIHHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPTW

>CYP105CP2 (2517869427) *Salinispora arenicola* CNT005

MTKSMVPQDLPAFPIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHAARVLSYRRVSIKPYHGNYPILLNEEFKVVDSGYADVLFVDP
EHTRQRQMIMPSFTLRRTAVLRPDIQRIVDDKLDEMRRHGAPGDLVTEFA
QPVPMSMVSFLLGVFWEDHEEFETPAHKLFPVPELAEEATELGAYLERLI
QKKEQPGGTGGTGLLDDLRDHLRAGALSDELVHIAMAMLVAGTDTT
NVISLGTALLDNPDQWAALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRRTAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP244A4 (2517869650) *Salinispora arenicola* CNT005

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPLYGRHAW
VVCDELVKQALTHPKMGKDIALVPEWMRQPGMLVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGFLDELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLLISTSLYEAIRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEAGDSFDAERRGHGHLF
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP245A7 (2517869654) *Salinispora arenicola* CNT005

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGESGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVMFDP
PRHTELRSLLNRSFSPRIVTELPRPRIARIAQELLSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRVDVGYAQAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELGAEGLTDAVEEFLRYDPPVQ
AVTRWAHQDTTLGGCDIPRGSRVALLGSANRDPARFPSPDVLVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP113D13 (2517869917) *Salinispora arenicola* CNT005

VNLADKLGFNQAQFWLRGVRPEELVSYQEQAAGLWNVYGYPEIAEALSDPV
AFSSETQRLAGEWESFTEGNIVAMDPPAHKKLRKLVSQAFTPKVVADLEP
RIAVVTGDLDDKVSGRMELVADLAYPLPVIVIADLLGVPSDDHPLFKQWV
EAMFSTGTQISLKDPSPEQQEHFEQGMQVENLTGYLKVHIRERRVQPRD
DLLTKLVAEVDDGQRLTDVEASNFAMALLVAGHLTTTMLLGNTIILCLDAF
PDQRAKVQADRTLVPGAIEEAMRFLSPSGAVARVTTREVKLGGRITIPANQ
MVIMWVAAANRDPQFTDPDVFDLTRDPNTQMSFGRGIHFCLGAPLARLE
SRVALNILLDRFPDLRTSDDDPPEVMPHPTMAGAKRLPLLL

>CYP163B22 (2517869920) *Salinispora arenicola* CNT005

MPVTMQEGFRRTERRREDIVVSAFATGHTVLDLTDPATFVNHEPGFEFWAGV
RDHDPVFWHESGAGRPGFVWVSRHADVLACYADPVRLSSARGTVLDDVLLR
GPDSAGGRMLAVSDRPRHRDLRAVMLRAFSPRVLGEVSDLVHRRAGELIS
RVTQGGAFDFAAAVAEHIPMGITICDLLSIPHADRPAMLGWNKEALSSDDA
EADPFPAALAAARNEILLYFTDLAAWRRARPGDDVISLIATAVVGDELLSLE
DVALNCYSLILGGDESSRVSAICAVEAFADFPDQWRAVRDGTVSIDTAVE
EVLRWATPALHFARTATTDLDLAGHRIRAGEIVTLWNISANFDERSFASP
NRFDVGRRPNKHVSFGHGPHFCLGAYLGRAELHALLTALAGHVTHIERAG
PARRIYSNFLNGHSSLPVSFTGR

>CYP105AB8 (2517870058) *Salinispora arenicola* CNT005

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHHLVKT
LSLPVPSLVICELLGVPPYADHDFQEHATLVRRTASEVRQHSIDELNA
YLGALIDRKLASPDLLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDDPDKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARRHHLAF
GFGPHQCLGQNLARLELQIVFDTLFRHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP208A12 (2517870310) *Salinispora arenicola* CNT005

MTLDTITPRVPLGPRTAALRMLLVMKRDRLGMLSSAAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGLDWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAELTG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPFVWLLPRRALAPDTIGEYRVANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP105BL2 (2517870542) *Salinispora arenicola* CNT005

MSSHSAAPDPETATPLHTLAPELTFPQFERSTPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTLSDPRFSSDMSHPGFPNRTGKPVDDL
KDTLGAMDGERHRYRRMLTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPSPRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDRHHDRDDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIIGLVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPQCFAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP166A4 (2517870718) *Salinispora arenicola* CNT005

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHVGEVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA

LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHQCLGQN
LARVELRAGLSALLQAFPNRLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP1051A1 (2517870815) *Salinispora arenicola* CNT005

MATDAAITRARTVPAWKALPAAVRDTHRAFVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLEHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAAA
SRRVLAPMFRPARINAMVDTMADAIAGAIDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDILLPVLRQAQRQPDGDDLLSRLVHARADDGRALSE
KMRDDLVSMVAVTTETSTVVLTWLVPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDLRLYPAGWILPRRAATTDILGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEVI
LKPVPAPVPAR

>CYP105G5 (2517870841) *Salinispora arenicola* CNT005

LTIETTETPPADDSLRAPLPRQFMQRDDPSKLPPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDFRFSDDRFYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRPQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQQLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTP

>CYP107Q4 (2517870842) *Salinispora arenicola* CNT005

MTTTAETSATIDLFSPEVVADPFGWYARLREETGPTTGTNLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPFRFLTNPADSPLEDIRAGVFKRDLFPDLPW
MANLLNVSDGEDHTRLRKLVSALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIAKRAEPQDDLVTALVQAQAEQDNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLAANTDPRRFPDPNKLI
DRLAVGSEHGLGFGKGIHRCLGQHLAYQEAVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP107AY2 (2517871581) *Salinispora arenicola* CNT005

MTAEPTPIPRSGARLGQEYDQLRKTGDVHQVLLPDASLAWLVNPEVAAR
ALADPRLALNRRNSRGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAP
SPQRVAALRPGIRRAAEHLLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRNLRAWTDMLTSYPPDRDAIRRAVTELHGYYVDLIDIKQQQPG
DDLLSTLVETIEQDGRLSRDELTSALFLILFAGYENTANLIASAVLWLLD
HGGLNVVPISEAIEATLRHEPPAPVAIRRFPTEDIIIGGVTIAGDTVLL
SVAAATRGADGNAARLAFNGNGPHYCLGAALARVEAEALTVLARRLPGLT
LAVPPSQVRWRPTFRTTHGPAELLVGW

>CYP154M5 (2517871690) *Salinispora arenicola* CNT005

VEQSCPYPKLDVTGRDVHAEGEAIIRARGPVAQVELPGGVQGWSVTGYQAAR

QVLADPRFAKDPKKWPAYTSGAIPPNWPLIGWLLMDNMTTNDGADHQRLR
KLVSHGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNVTSISGEEAEANVEQWHRELLELV
EAKREKPDDEMASLLIAAKEEDGSTLTQEEVVGTLLHMLGAGSETLMNAL
SYAVLGMLSNGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDPVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPNMTLAVRPDQLEPQGTFFIMNGHREL
PVRLGQPATVLA

>CYP105CT1 (2517871707) *Salinispora arenicola* CNT005

MNSPNHMPADRSLTAPTSGCPMALSRGRVGLDVADEISELRDGGRLGRIT
TAFGQEAMLITRYDEVRAQMADSVVFNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTDSDHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGVVLHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLITDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRRFPGLRLAV
PDSELEFTQGTTVYSLRGLPVTW

>CYP105CH1 (2517871762) *Salinispora arenicola* CNT005

VSSLPLPTYPKLRDPADPLLPAPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHFNFPYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRRLLISEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEMLGVFPADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRTPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVNLTARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALDTVLRRLPGLHLVAPFEELPFKYRHLVWGIEEL
RVAW

>CYP211B2 (2517871999) *Salinispora arenicola* CNT005

MDVSEAI AVLISPSGRLDPYPTYEQLRAHGVPVSRTTAGLFVVVTGYAEADM
VLRDPRFVVLDLDDLRDDVFPWHQDSPAIXSIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTAQADELVDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLVAGFETT
TNLLGNGLVLLTRPEAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPADSWLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRTLRGTETLP
ITVGAVTADRGTAPGAVPGTP

>CYP247A7 (2517872040) *Salinispora arenicola* CNT005

VRLTPGAARDIDLDSVNLFDLDLYTSGDPHPIWDVMRAQSPLHHQVLADG
REFWSVTRYDDVCRVLGDYREFTSERGTVVTHLGEDDIAAGKLLTSTDPP
RHTQVRRRAIGAKLTARAVASWQDRIRDAIVRFLEPALDGDTFDLAEQALL
LPAIVTGPLLGIPEWDQELVQLTAMVTAPSDPHFQHGSEAAATLAISHHE
LVTYVTEWVKQRRSAGGGDGSLLDHLMSVRVGGAPLTDEEIALDGYISILL
GANVTTPTVSGTVLALIERPEQFEKAQADPSLLANLVEEGLRWASAACN
FMRYAVNDTRIGGGTVPAGGAVVAWIGSANRDESYFPDPHQFDITRSGAN
RQVAFGFGPHYCIGAPLARMTLGIFFEEELVQRFSGSIELAGEPQHLSYFI
AGMTHLPPIVAQKRKTP

>CYP105J3 (2517872124) *Salinispora arenicola* CNT005

MTDSVAFPPQGRVCPHQAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRTPAWPAIVPIVAAVNDAAQQKVLKIATALVGTGPE
HKAQRKMLIPSFTEFRMNALRPMIQEIVDQQLDEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGLVDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDVAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP107EU1 (2517872439) *Salinispora arenicola* CNT005

VTIGQTLPLDVYSPEFTRDPYAI FARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFPFGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPVADDLLTALVQVSADEDRLSREELVSMALLLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFDPDRDLITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQMQLAVEADDLEWLNVNSFFRAPL
HLPVSLRR

>CYP1198B1 (2517872723) *Salinispora arenicola* CNT005

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQRKLVSQSFTPRIVKSFGPQITHIVDGLFEDFRDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRNKPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGELITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDPRAYESPDV
FDVNRKIKNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKNPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP107AY1 (2517994832) *Salinispora tropica* CNS416

MRAELAPIPRSGARLGQEYDQLRNAGDVHQVLLPDSSSLAWLVNPKLVSR
ALTDPRALNRRHSRGSWSGFALPPALDANLLNLDAPDHTRLRLRVGPAPF
SPQRVSALRPRIIRRTAEHLDDLTVATSGPVDLVTGYCTPLSVQVIADLMG
VPEAGRDLRTWTDMLTSYPPDRDAIRQAVVELHGYVVDLIDTKRQQPG
DDLALVLTIEQDGDRLRDELTSLAFLILFAGYENTANLIASVLRLLD
HGGLRGVQLPEAIEETLRLEPPAPAAVRRFPTEEMTIGGATIPAGDIVLL
SIAAATRGTAGNAARLAFGNGPHFCLGAALARVEAEEALTVLARRLPDLA
LALPVAQVRWRPTFRTHGPAELLVTW

>CYP163B1 (2517995108) *Salinispora tropica* CNS416

VTAADTGRVSGESQTPAHTVDLADPATFANHDLTGFWQQLRDEEPIHWN
PPTAGRRGFVVVSRYADILDVYRDDVTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHAELRKLLLRALGPRVLAPVCAAVRTNTRQMIREAVTKGEC
FASDIASRIPMMTISNLLGVPDADRAFLSLTKTALSADDESISETESAM
ARNEILLYFQDLMEFRRDHPGEDVVSMLVNSSIDGAPLSDDDIVLNCYSL
IIGGDETSRLTMIDSVNTLAAHPQQWRRLKDGQCEIDKAVDEVLRWASPS
MHFGRVAARDTILHGVRIRADDIVTLWHASGNRDERVFHRPEVFDLGRTP
NRHLSFGHGPHYICIGSYLAKVEISELLIALRDLTSGFETTGEFQIRSNL
LTGFATMPVRFPVDRAGLARDALDG

>CYP211C1 (2517995453) *Salinispora tropica* CNS416

VLDVEGLLTRLYSEQGRQDPYPVYADLHAQGAIAALAPRPEGQRVA AVAV
GYDLVGAVLRDPEWSKQPPPGWMEQEILRTLQSSMMFINPPDHGRMRKVF
AGTFTPRRLGTLEPVINRVADELDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPATELAWYRDRVDRIDAFLDVAGKTPERLAAANAAAAELRVFYA
DLLARRRRTPGEDLISGLVEAVDAGGVQLTEDELINNLIVLFNASFVTTV
YMLSNGLPVLLHEHPEVAAALADDPELTAGAIDEILRLQTPVHLLARAAPR
DTVLGGVPI PQGQNVLLLI AAANRDP AHFPDPDRFDP RRP GPPSLAFGLG
LHYCLGAAVSRLEGR LALPRLLSRFPRLRIMEQP VYSGSLFLRGIDKLSV
SPGGRMHP

>CYP125A15 (2517995586) *Salinispora tropica* CNS416

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMASRSDSTYSTRENTAIARFQPGTTRADLEMQRVIML
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
ADVACELPLQAI AELIGVPQHHRKVF DWSNQLIGYDDPAYGVDP L TAAA
ELLAYAMEMANERQLNPSDDLVT KL VNAQIDGEHLTTDEFGFFVMLLAVA
GNETTRNAITHGMLAFLEHPEQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLGGQAI SAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGSGAHFCLGANLARLEIELIFHSIADHMPDIRKVAEPRRLRSGWINGI
REMPVRYR

>CYP208A4 (2517995664) *Salinispora tropica* CNS416

VTVAAAGRTFSGPTGAALLRSLWQLGQDRLGLMTSAAARYGDAVRLGVGSR
SLYFFNHPDHAKHVLADNSGNYTKGLGLVHARRALGDGLLTSEGELWREQ
RRVIQPVFQAKRVAGQAHAVAEADRLIARLRARRGRGPVNLTDEFTALT
LGVLGRTLLDANLDAFTTVGA AFEEMQNQAMFEMASMSMVMWVPLPQQL
RFRRARRELERIVGRLVADRTARGE GTGADDALSRLIASTRDEPDGVAR
RRMRDELVTLLLAGHETTASTLGWTFHLINQDPRVRVRLREEAIDVLGGR
LPEYADLARLTYTKMVVSEAMRLYPPVWMLSRLARDADVVDGYVP PARAD
VLICPYTLHRHPAFWPEPERFDPERFDPEVTTDRPRYAYVPFGAGPRFCV
GNHLGLMEAVFVAMVSREFDLVAPVGQPVVAEPMLSLRVRGGLSMTVEP
VS

>CYP154M1 (2517995692) *Salinispora tropica* CNS416

MRRRCPVVIDPAGTDIHAEGARIRANGSVSQVELPGGVLAWSVTGQQVAR
KVLSDQRFSDPRKHWTDYLEGRIGQDFPLIGWVLMNDLTTAYGSDHSRL
RKPCANAFTPRRVEALRPAVERAAVELLGELATVSPTESVDLKARYAHPL
PSRVICDLFGVPEEDREEMLRGGEVNVDTRVSAEEAAAANVERWHQQMLDF
IEEKRRNPGPDLTSDLIAAQQAEGSRLTDSEMVGTLHIMLATGTEPVKNL
IGNAVFALLTHPEQLDLVRSGRAGWDDVIQETLRMQAPVAHL PFRFAVED
VDIDGVTIRRGDPLLNVFAAIGRDPDVHGD TAAEFDITRADKEHLSFGHG
VYRCIGQPLALREAEIALRMLFQRFPNLVLAVPPEEVTPQPTFIMNGLDT
LPVLLKGRA

>CYP107AW1 (2517995954) *Salinispora tropica* CNS416

MESVTSTSAPPPVPYIADPYPALARIRANGPVSI LHSDEGIPMWVIARYR
NVRAALADPRFGQDARRAQTLADNRVAGVTLGGDVIHMLNSDPPDHTRLR
HLVQGAFTARRVAAMRPLVERITTSLLDGVGGRQTVDLVQDFAFPLPMLV
ICELLGFPAEERDAYRSWSTAILTHND DPAAAFATALRDMTDYIEVQLRHR
RARPGEDLLTELLAARDAGQLTDEIVGMVFLLLIGGHETT VNNLLGTATL

ALVRNPDQHRWLLANPHALSEAIDEFLRYESPVAMATLRFTTAPVTVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTHGLAFGHGLHRCLGA
FLGKLEGEVALGALLGRYPGLTLAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP211B1 (2517996017) *Salinispora tropica* CNS416

MDASEAVALLMSPLGRIDPYPTYERLRAHGFPVVQTAAGFFVVTGYTEADT
VLRNARLAFEVMDDELRDDVFPHWQDSPAMKSIARSMIRANPPNHGRMRR
LAAGAFTPRRIAALREVVTQAQADELADEMIRAGRDGAPVDFMGSFAYPLP
VAVICALLGVPAADWARFRGWASDLTAVLEPEITPQELTVADAGASELRD
YFTELIAQRRRAPADDLTALVQTHDADGDRLSGEELLANLVLLLVAGFE
TTTNLLGNGLVVLLAHPDSATALRDQPELAPGYVDELLRYDSPVQLTTRT
VRESVLLAGVELPAGSWVLVLLGAANRDPERFTDPTRFDPGRAQSPPLSF
GAGAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRNRLTLRGYET
LPVTVSAIAADHGTPAGVARGTP

>CYP107AX1 (2517997454) *Salinispora tropica* CNS416

MTSRPTAVFDQCLLRDPHSRYNALRDQAPVHHVLTDPGAPAWLVTRYNDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AACTPRRVADLHPAVERIVSTLLDGLAGHDRAELIGSLASPLPLQVMHEL
LGLPTQANIDFRTWTNTLLSADANQPAQSRAAMANMRRFLIEQLAHKRAQ
PGDDLLTGLLAAREDDDLTDELVAMVFLLMFAGYDNTAALIGTVTHAL
LTNAELHEAVRGGSLALDELIDEVLRWNPAFPLAVRRFAREPITIAGQTI
PAGDRIWLCLASANRDPAQFTQPDDELGIIGLRSHLSFGHGIHYCLGAPL
ARLQTTIAVTSLNRRPFEMRLAVPAHDIRWRESFRLRGLIALPVYL

>CYP1005A1 (2517997727) *Salinispora tropica* CNS416

VSAVLFRSWTKTAGTHWPAITRVADQQGTEHLVVQHALVRQVLTQDQTY
RPDNALDAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRFPWLTGLVAERVAAIRRTLDSGGSTDHLAELNADLPLLVLAR
LVELPDAPVSAVKQFARAALFWAPLDADRQLALADEVGRFHQVLRFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLADEP
TVRAALRADSVSVADVVEEGLRLEPPIVWRRVAAVDSTLGGSTVAAGTS
VLLWLARAGRDPAVVPAPDEFPRPGQRGSRRLAFGAGAHRCCLGDQLARME
AAVVVEQVTPLLDGVTVVRPPWYPDNLTFRMPDAFVVR

>CYP105AB2 (2517997972) *Salinispora tropica* CNS416

MTETASIAATTRTASGQLTDAEFFVQRCFPFTTPTEYEQIREESSIAKVRL
KNGGEAWWIAGHELGRSVLADRRFSSDRRRDNFFVSTDPETRAQLQSQP
TSMLGMDGAEHAQTRRALMGFTVRRMAGLRPRIQQIVDQHIDEMLATPQ
RSVDLVEALSLPVPSLVICELLGVYADHDFQGLTGPLLRLHTTPPEVRL
RIQEELNTYLGTLIDHKLTDPTDDLRSRQIAKHRDNGTFDRASMVSLAFL
LLVAGHETTANMISLGVVGLLQHPDQLVLIKDDDPDKTPLAVEELLRYFTI
ADSVTARVATEDVQLGDTTINAGDGVVISGLAADRDPTVFAEPDRDLER
GARHHVAFGFQPHQCIGQTLARMELRIVFDTLFRHRIPTLRLAAPLDDIPF
KSDAFVYGIEELPVAW

>CYP1004B1 (2517998671) *Salinispora tropica* CNS416

MTTSALAPRFDALDPNVVEDPYPEYARLRAAGPLCRLGPGSWGVTREFADV
TNLQHDPRLGSEFPAGYHEISVGDGPASAFFQRVMLYRDPPDHIRLRLRM
SGAFTPAVVRRLRSHIEDLVDELLAPALAAGRMDLVPELAYPLPVRVVC
LMGIPPESTEDVRHHATNIGRAFTAVVPEQARTEADEAVSWLREHLGALL
EQRRSHRGDDLRLSRLDAAESGDNLDAEIVDNTVFSFFAGFETTVHMIT

TGTAALLAHPDQLARLRADPSLVTTAVDEFRLRWDAPIQGTARYVREPIEI
GGRTIRRGRVLVLMIGSANHDERRFAQPDRLDVGRQDNPHVAFGGGAHL
LGAFIARMEGAVVFDRLARLAVLEPDGPTVREPNTFFRAYASVPVRIGDR

>CYP1004A1 (2517998675) *Salinispora tropica* CNS416

MRANTARPHLSAAFLATKDDPYPAYAELRARGPLTRAELGQWLVTGHGAV
SALLRDGRLESRMPEYTRTLGLGDSPGVDFLHRIVLTRTPPEHTRLRRFI
GRALGTPVVRRLHDRIAAATDALLEPALDRGRLDVVTELAVPLPVGVVCD
LIGIPTGDRPAVLTRVTALAKVFDAANLSPADLADINTALPWLHDYFGDL
LAVRRAGSGGPTLTREMYWEESASDRLAVADFVDNMLFLFHAGFETTMGLV
SNGVAALLNNPEQLGRRLRADPALVPSAVEEFLRYDAPIQNVIRVARKPVE
VAGQKIRAGRTVLLLLGAANRDEEVFADAERLDVGRDPNPHLGFGGGLHH
CVGTALARLMAVVVFERLVDRVTVLGPAAPVRRRHASLSYDHLPLAVA
AR

>CYP125G1 (2517998714) *Salinispora tropica* CNS416

MSTEVVSTGNRADIHPATYAAGVPYAEFARLRRDKPVSWVPEAALWRRS
GEGRIISQGGPFWAVTTHEGVVAASRQPEVFSSGRQGAFLADPRTTADLE
QARQLLVNMDAPQHARVRKLVTAFTTPRAIRALGDSVTAHARNLVERAVR
QEECDVVADLAAELPLLVLADLLGLPREDRHLLYQWSNNLVGFDDPEYGG
GDVEAYRKTFEAFQYALSVAGERRRAPREDLMTLLATSEVDGRRLTDRE
FCNFWLLLVLVAGNETTRHLITGSVLALVDNPMQRERLVADDTLLPSAVDE
LLRWVSPIMQFRRTAIVDTLTCGTPIAAGDKVVLWYTSANRDAAVFEAPD
ELRLHRNPNPHLSFGMGPHFCLGAHLARLEARTMLRELAPHLSRFRLTGP
VVRLESNFVNGVKSLLPGSFTGQ

>CYP107E3 (2517999187) *Salinispora tropica* CNS416

VTIDQEIRKYPFCESPGIGIDPTYGLLRSTEPLARVQLPYGEVSWLATRY
EDVKTVLTDPRFSRAAAQGKDQPRTREEMTYEGIIIGLDPPDHTRLRKL
KALTARRVNAIRADAQRIANEYVDEMIAGSPGDLVELFALPYPVTVICE
LLGVPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFGYMGKLVAQRREEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTGVEVTVSTHIPNFVYALLT
HPELMAQLRADRSIVPAAVEELLRMIPLNPAAMFFRYAVEDVTLSGITVR
AGEPVLVSLPGANRDPEVFENPETFDFTREQNPHVAFGHGPHHCLGAQLA
RMELQVALHTVLDRFPDLSLADGDEGVSWKSGLLVRGPSRLLVAW

>CYP163B1 (2527070068) *Salinispora tropica* CNR416

VTAADTGRVSGESQTPAHTVDLADPATFANHDLTGFWQQLRDEEPIHWN
PPTAGRRGFVVVSRYADILDVYRDDVTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHAELRKLLLRALGPRVLAPVCAAVRTNTRQMIREAVTKGEC
FASDIASRIPMMTISNLLGVPDADRAFLLSLTKTALSADDESISETESAM
ARNEILLYFQDLMEFRRDHPGEDVVSMLVNSSIDGAPLSDDDIVLNCYSL
IIGGETSRLTMIDSVNTLAAHPQQWRRLKDGQCEIDKAVDEVLRWASPS
MHFGRVAARDTILHGVRIRADDIVTLWHASGNRDERVFHRPEVFDLGRTP
NRHLSFGHGPHYICISYLAKVEISELLIALRDLTSGFETTGEFQIRSNL
LTGFATMPVRFPVDRAGLARDALDG

>CYP154M1 (2527070702) *Salinispora tropica* CNR416

MRRRCPVVIDPAGTDIHAEGARIRANGSVSQVELPGGVLAWSVTGQQVAR
KVLSDQRFKSKDPRKHWTDYLEGRIGQDFPLIGWVLMNLTAYGSDHSRL
RKPCANAFTPRRVEALRPAVERAAVELLGELATVSPTESVDLKARYAHPL

PSRVICDLFGVPEEDREEMLRGGEVNVVDTRVSAAEEAAANVERWHQQMLDF
IEEKRRNPGPDLTSDLIAAQQAEGSRLTDSEMVGTLHIMLATGTEPVKNL
IGNAVFALLTHPEQLDLVRSRAGWDDVIQETLRMQAPVAHLPFREFVED
VDIDGVTIRRGDPLLNVFAAIGRDPDVHGDAAEFDITRADKEHLSFGHG
VYRCIGQPLALREAEIALRMLFQRFPNLVLAVPPEEVTQPQTFIMNGLDT
LPVLLKGRA

>CYP208A4 (2527070730) *Salinispora tropica* CNR416

VTVAAAGRTFSGPTGAALLRSLWQLGQDRLGLMTSAARYGDAVRLGVGSR
SLYFFNHDPDHAKHVLADNSGNYTKGLGLVHARRALGDGLLTSEGELWREQ
RRVIQPVFQAKRVAGQAHAVAEADRLIARLRARRGRGPVNLTDEFTALT
LGVLGRTLDDANLDAFTTVGAAFEEMQNQAMFEMASMSMVPWVPLPQQ
RFRRARRELERIVGRLVADRTARGEETGADDALSRLIASTRDEPDGVAR
RRMRDELVTLLLAGHETTASTLGWTFHLINQDPRVRVRLREEAIDVLGGR
LPEYADLARLTYTKMVVSEAMRLYPPVWMLSRLARDADVVDGYVPV
PARADVLICPYTLHRHPAFWPEPERFDPERFDPEVTTDRPRYAYV
PFGAGPRFCVGNHLGLMEAVFVAMVSREFDLVAPVGQPVVAEPMLSLRVRGGLSMTVEP
VS

>CYP125A15 (2527070808) *Salinispora tropica* CNR416

MTEPRIPVGFDFDTPAVLERRVPREEFAELRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMASRSDTYSTRENTAIARFQPGTTRADLEMQRVIML
NVDPPEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
ADVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGVDPLTAAA
ELAYAMEMANERQINPSDDLVTKLVAQIDGEHLTTDEFGFFVMLLAVA
GNETTRNAITHGMLAFLEHPEQWELFKAERPRSAVEEIIRWATPVNVFQR
TALVDTTLGGQAI SAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFHSIADHMPDIRKVAEPRRLRSGWINGI
REMPVRYR

>CYP211C1 (2527070941) *Salinispora tropica* CNR416

VLDVEGLLTRLYSEQRQDPYPVYADLHAQGAIAALAPRPEGQRVAAVAV
GYDLVGAVLRDPEWSKQPPPGWMEQEILRTLQSSMMFINPPDHGRMRKVF
AGTFTPRRLGLEPVINRVADELDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPATELAWYRDRVDRIDAFLDVAGKTPERLAAANAAAAELRVFYA
DLLARRRRTPGEDLISGLVEAVDAGGVQLTEDELINNLI VLFNASFVTTV
YMLSNGLPVLLHEPEVAAALADDPELTAGAIDEILRLQTPVHLLARAAPR
DTVLGGVPI PQGQNVLLLLIAAANRDP AHFPDPDRFDPRRPGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGGRMHP

>CYP107AY1 (2527071010) *Salinispora tropica* CNR416

MRAELAPIPRSGARLGQEYDQLRNAGDVHQVLLPDSSLAWLVTNPKLVS
RALTDPRLALNRRHSRGSWSGFALPPALDANLLNLDAPDHTRLRLRVGPAF
SPQRVSA LRPRIRRTAEHLLDTLVATSGPVDLVTGYCTPLSVQVIADLMG
VPEAGRADLRWTDTMLTSYPPDRDAIRQAVVELHGYVVDLIDTKRQQPG
DDL LSALVTIEQDGDRLRDELTS LAFLILFAGYENTANLIAS TVLRLLD
HGGLRGVQLPEAIEETLRLEPPAPA AAVRRFPTEEMTIGGATIPAGDIVLL
SIAAATRGTAGNAARLAFGNP HFC LGAALARVEAEEALTVLARRLPDLA
LALPVAQVRWRPTFRTHGPAELLVTW

>CYP107AW1 (2527071254) *Salinispora tropica* CNR416

MESVTSTSAPPPVPYIADPYPALARIRANGPVSILHSDEGIPMWVIARYR
NVRAALADPRFGQDARRAQTLADNRVAGVTLLGGDVIHMLNSDPPDHTRLR
HLVQGAFTARRVAAMRPLVERITTSLLDGVGGRQTVDLVQDFAFPLPMLV
ICELLGFPAEERDAYRSWSTAILTHNDDPAAFATALRDMTDYIEVQLRHR
RARPGEDLLTELLAARDAGQLTDDEIVGMVFLLLIIGGHETTVNLLGTATL
ALVRNPDQHRWLLANPHALSEAIDEFLRYESPVAMATLRFTTAPVTVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLGRYPGLTLAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP211B1 (2527071555) *Salinispora tropica* CNR416

MDASEAVALLMSPGRIDPYPTYERLRAHGPVVQTAAGFFVVTGYTEADT
VLRNARLAFEVMDDELRDDVFPHWQDSPAMKSIARSMIRANPPNHGRMR
LAAGFTPRRIAALREVVTQADELADEMIRAGRDGAPVDFMGSFAYPLP
VAVICALLGVPAADWARFRGWASDLTAVLEPEITPQELTVADAGASELRD
YFTELIAQRRRAPADDLTALVQTHDADGDRLSGEELLANLVLLLVAGFE
TTTNLLGNGLVLLLAHPDSATALRDQPELAPGYVDELLRYDSPVQLTTRT
VRESVLLAGVELPAGSWVLVLLGAANRDPERFTDPTRFDPGRAQSPPLSF
GAGAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRNRRLTLRGYET
LPVTVSAIAADHGTPAGVARGTP

>CYP1005A1 (2527071860) *Salinispora tropica* CNR416

VSAVLFRSWTKTAGTHWPAITRVADQQGTEHLVVQTQHALVRQVLTQDQTY
RPDNALDAVTPIPVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTGLVAERVAAIRRTLDSGGSTDLHAELNADLPLLVLAR
LVELPDAPVSAVKQFARAALFVWAPLDADRQLALADEVGRFHQVLRFEA
DTGGGLAAALRATGHPPDVLVVGALFFLLVAGQETTSQFLTLLHRLADEP
TVRAALRADSVSVADVVEEGLRLEPPIVTVRRVAAVDSTLGGSTVAAGTS
VLLWLARAGRDPAVVPAPDEFPRPGQRGSRRHLAFGAGAHRC LGDQLARME
AAVVVEQVTPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP107AX1 (2527073163) *Salinispora tropica* CNR416

MTSRPTAVFDQCLLRDPHSRYNALRDQAPVHHVLTDPDGAPAWLVTRYNDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AACTPRRVADLHPAVERIVSTLLDGLAGHDRAELIGSLASPLPLQVMHEL
LGLPTQANIDFRTWTNTLLSADANQPAQSRAAMANMRRFLIEQLAHKRAQ
PGDDLLTGLLAAREDDRLTDDELVAMVFLLMFAGYDNTAALIGTVTHAL
LTNAELHEAVRGGSLALDELIDEVLRWNPAFPLAVRRFAREPITIAGQTI
PAGDRIWLCLASANRDPAQFTQPDDELGIIGLRRSHLSFGHGIHYCLGAPL
ARLQTTIAVTSLLNRFPEMRLAVPAHDIRWRESFRLRGLIALPVYL

>CYP105AB2 (2527073541) *Salinispora tropica* CNR416

MTETASIATTRTASGQLTDAEFFVQRCFPFTTPTEYEQIREESSIAKVRL
KNGGEAWWIAGHELGRSVLADRRFSSDRRRDNFPFVSTDPETRAQLQSQP
TSMLGMDGAEHAQTRRALMGFTVRRMAGLRPRIQQIVDQHIDEMLATPQ
RSVDLVEALSPLVPVSLVICELLGVADHDFQGLTGPLLRLHTTPPEVRL
RIQEELNTYLGLTIDHKLTDPTDDLRSRQIAKHRDNGTFDRASMVSLAFL
LLVAGHETTANMISLGVVGLLQHPDQLVLIKDDPKTPLAVEELLRYFTI
ADSVTARVATEDVQLGDTTINAGDGVVISGLAADRDPTVFAEPDRDLDER
GARHHVAFGFGPHQCIGQTLARMELRIVFDTLFHRIPTLRLAAPLDDIPF
KSDAFVYGIEELPVAW

>CYP125G1 (2527074094) *Salinispora tropica* CNR416

FCNFWLLLLVVAGNETTRHLITGSVLALVDNPMQRERLVADDTLLPSAVDE
LLRWVSPIMQFRRTAIVDTELCGTPIAAGDKVVLWYTSANRDAAVFEAPD
ELRLHRNPNPHLSFGMGPHFCLGAHLARLEARTMLRELAPHLSRFRLTGP
VVRLESNFVNGVKSPLPGSFTGQ

>CYP1004A1 (2527074133) *Salinispora tropica* CNR416

MRANTARPHLSAAFLATKDDPYPAYAELRARGPLTRAELGQWLVTGHGAV
SALLRDGRLESMPAEYTRLTLGDSPGVDFLHRIVLTRTPPEHTRLRRI
GRALGTPVVRRLHDRIAAATDALLEPALDRGRLDVVTELAVPLPVGVVCD
LIGIPTGDRPAVLTRVTALAKVFDAANLSPADLADINTALPWLHDYFGDL
LAVRRAGSGGPTLTEMYWEESASDRLAVADFVDNMLFLFHAGFETTMGLV
SNGVAALLNNPEQLGRLRADPALVPSAVEEFLRYDAPIQNVRVARKPVE
VAGQKIRAGRTVLLLLGAANRDEEVFADAERLDVGRDPNPHLGFGGGLHH
CVGTALARLMAVVVFERLVDRTVLGPAAPAVRRRHASLRSYDHLPLAVA
AR

>CYP1004B1 (2527074137) *Salinispora tropica* CNR416

MTTSALAPRFDALDPNVVEDPYPEYARLRAAGPLCRLGPGSWGVTREFADV
TNLQHDPRLGSEFPAGYHEISVGDGPASAFFQVRMLYRDPPDHIRLRRLM
SGAFTPAVVRRLRSHIEDLVDELLAPALAAGRMDLVPELAYPLPVRVVC
LMGIPPESTEDVRHHATNIGRAFTAVVPEQARTEADEAVSWLREHLGALL
EQRRSHRGDDLRLSRLDAEESGDNLDAEIVDNTVFSFFAGFETTVHMIT
TGTAALLAHPDQLARLRADPSLVTTAVDEFRLWDAPIQGTARYVREPIEI
GGRTIRRGRVLVLMIGSANHDERRFAQPDRLDVGRQDNPHVAFGGGAHL
LGAFLARMEGAVVFDRLARLAVLEPDGPTVREPNTFFRAYASVPVRIGDR

>CYP125A41 (2571107809) *Salinispora arenicola* CNH996B

MTEPRIPAGFDFTDPEVLAHVRVPREEFAELRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGFV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQSPSDDLVTCLVNAQIDGELTTDEFGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTVLGGQAI SAGQ RVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211C1 (2571107958) *Salinispora arenicola* CNH996B

VVDVEELLTRYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLAHRRRTPEGEDLISGLLEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTV LGGVPI PQGQNVLLLLIAAANRDP AHFPDPDRFDPRRSGPPSLAFGLG
LHYCLGA AVSRLEGR LALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP211B2 (2571108288) *Salinispora arenicola* CNH996B

MDVSEAVAVLISPSGRLDPYPTYEQ LRAHG PVSRTTAGLFVVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIKSIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTAQADELVDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPAGSWLLVLLGAANRDP RRFDPARFDPWRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGT PAGVAPGTP

>CYP244A4 (2571108768) *Salinispora arenicola* CNH996B

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLG RHAW
VVC DRELVKQALTHPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGF LDELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEAIRRPPHERPKTDEDITAWIEETLRVHPPFPHPPTW
RFPLEDIELGGYLI PKGAPVQVSI AAANRKPGE GADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP245A7 (2571108772) *Salinispora arenicola* CNH996B

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWL VFM DP
PRHTELRSLNRSFSPRIVTELRPRIARIAQELL SRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANAMALQEASSSRAGRDVDGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGADGLTDDAVEEFLRYDPPVQ
AVTRWAHQD TTLGGYDIPRGSRVVALLGSANRDPARFPSPDVL D VRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP107AW7 (2571109023) *Salinispora arenicola* CNH996B

VETVTGTSTPPPVPYIADPYPTLARIRANGPVSI LHSDEGIPMWVIARYR
DVRAALADPRFGQDARRAQALADNRVAGVT LGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFFPLMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAA FATALREMTDYIAVQLRIR
QTQPGDDILTELLAARDAGQLTDDEIIGMVFLLLIGGHETT VNLGTATL
ALMRNPDQHRWLLANQH ALPEAIDEFLRYESP VAMATLRFTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILD RRD TGHLAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPRLALAAEVRQLRWRDTIMLRGLES LPVSLHG

>CYP166A4 (2571109828) *Salinispora arenicola* CNH996B

MTYAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGWIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTG HVEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLYHEDQLARLRADPTKIDAAIEELLRYLT VNYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPADLDIDRETSGHVAFGFGI HQCLGQN
LARVELRAGLSALLRAFPNLR LAVPADEVPLRLQGSVF AVKNLPVCW

>CYP125A41 (2571107809) *Salinispora arenicola* CNH996B

MTEPRIPAGFDFTDPEVLAHVRVPREEFAELRRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPHEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGDV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQSRSPSDDLVTCLVNAQIDGHELTDEFGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTVLGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP208A12 (2571110450) *Salinispora arenicola* CNH996B

MTLDTITPRVPLGPPRTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAEITG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETINAVPMWIP LPR
QIRFRARRRKLQAVVDTLVDGRAGNLANRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTL SLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP105BL2 (2571110549) *Salinispora arenicola* CNH996B

MSSHSAAPDPVTATPLHTLAPELTFPQFERSTPFPDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTLSDPRFSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITRITDEALDQLAAAG
PGADLVKHVAFVVP SRVACHLVGIP LSYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDRHHDRDDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAMHIGLVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVATDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDEL DVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP1005A1 (2571110589) *Salinispora arenicola* CNH996B

MTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTQATYRPD NALEAVT
PVPVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADALHPTKVAAQRP
WLTGLVADRVATIRTTLDSSGPVDLYADLTADLPLLVLARLVELPDAPVN
AVKQFARAAL ELFWAPLDADRQLALADEVGRFHQV LREFADTGGGLAAAL
RATGHSPDVLVGALFFLLVAGQETTSQFL TLLHRLSGEPTIRAALRAGS
ISVADVVEEGLRLEPPIV TWRRVA AVDSTLGGTTVAAGTSVLLWLARAGR
DPAVVAAPDEF RFGQRGSRRLAFGAGAHRC LGDQLARMEAAVVVEQATP
LLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP107AY2 (2571110692) *Salinispora arenicola* CNH996B

MTAEPTPIPRSGTRLGPEYDQLRKTGDVHQVLLPDASLAWLV TNPEVAAR
ALADPRLALNRNRSRGWSGFALPPALDANLLNDAPDHTRLRLRVGP AF
SRQ RVAALRPGIRRAAEHLLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRAWTDMLTSYPPDRDAIRQAVTELHG YVVDLIDIKQQQPG
DDL LSALVTIEQDGDRLSRDELTS LAFLILFAGYENTANLIASAVRWLLD

HGGLNVVPISEAIEGTLRHEPPAPVAIRRFPTEDIIIGGV TIPAGDTVLL
SIAAATRGADGNAARLAFGNPHYCLGAALARVEAEEALTVLARRLPGLT
LAVPPAQVRWRPTFRTHGPAELLVGW

>CYP163B21 (2571110985) *Salinispora arenicola* CNH996B

MNLSLDLTD PATFVENDPHEFWRQVRREQPTYWHPSTAGRPGFWV VAGYE
EVRACYGNWKQLSSARGNVLDVLLHGGDSAGGKMLAVTDRPRHRHLRNL
LRAFSPRVMG EVVRKVEERAAELIRT VTERGSFDFATEVAEHI PMNTICD
LLSIPPNDRKQLLVWTKAALSSADPQSDTLDALEARNEIVLYLMDLAFER
RSTPGNDVISMIAGAEVDGRPLTPEEVALNCYSLILGGDESSRITAISSV
LAFTEYPDQWHALREGTVSVETTTEELLRWATPGMHFARTALCDLSIQGQ
RIQTGDIVTFWNTSANNDET VFAAPRRLDLSRDPNKHLTLGHGPHFCVGA
ALGRAELGALLRALIASVGEIEIHGAPQRIYSNLLHGYSSLPVTFHPLST
GKAT

>CYP154M5 (2571111264) *Salinispora arenicola* CNH996B

VEQSCP YKLDVTGRDVHAEGEAIRARGPVAQVELPGGVQGWSVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPP NWPLIGWLLMDNM TNDGADHQRLR
KLVS HGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNV TSSISGEEAEANVEQWHRELLELV
EAKREKPD EDDMASLLIAAKEEDGSTLTQEEVVGTLHLMLGAGSETLMNAL
SYAVLGMLS NPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDP AVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERF PNM TLAVRPDQLEPQGT FIMNGHREL
PVRLGQPATVLA

>CYP105CT1 (2571111281) *Salinispora arenicola* CNH996B

MNSPNHMPADRSLTAPASGCPMALS RGRVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVV FNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTDSHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGV LHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRL LTDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRRFPGLRLAV
PDSELEFTQGT TVYSLRGLPVTW

>CYP105G5 (2571111362) *Salinispora arenicola* CNH996B

LTIETTETPAADD SLRAPLPRQFMQRDDPSKLPALAAALAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQLDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRAGLLQTDLP IKQ
AVENLEAQRAFMQRLVTDKRTTPADDMISGLVHHAGAEPPLTDDELVGIA
TLLLFAGLD TTASMLGLGMFMLLQRP EQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQ LARIELTVGITELL CRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWGTP

>CYP107Q4 (2571111363) *Salinispora arenicola* CNH996B

MTTTAETSAETIDLFSPEVVADPFGWYARLREETGPNTGT LNIGTMMGGP
EMWLVTREYEDVRQVLTDPRFLTNP PADSPLEDIRAGVFRRLDFPPDLIPW

MANLLNVSDGEDHTRLRKLVSYALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIAKRRAEPQDDLVTALVQAQAEQDNRVSDDEIIGI
LFSLVTAGHQTTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI I
DRLAVGSEHGLGFGKGIHRCLGQHLLAYQEAQVALQGLFTRFPDLTLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105AB36 (2571111465) *Salinispora arenicola* CNH996B

MTEAASSRLTDTEFPVQRQCPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTD PATRKRLHAQPLSMISMDG
AEHAQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHCVDLVKA
LSLPVPSLVICELLGVPYDDHDFQEHATLVRRNTAPEVRQHCVDELNA
YLGALIDRKLANPDDDLLGRQIARQHODGTFDRASIVSLAFLLLVAGHET
TANMISLGVVGLLQHPDQLTMIKKDPDKVPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHIAF
GFGPHQCIGQNLARLELQIVFDTLFRRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP105CP2 (2571111611) *Salinispora arenicola* CNH996B

MTKSMPVQDLPAFFIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSA HARAVLS DYRRVSIKPYHGNYP LLNEEF EKVVDSGYADVLFGVDPP
EHTRQRMIMPSFTLRRTAVLRPDIQRIVDDKLDEM MRHGAPGDLVTEFA
QPVPMSMVSFLLGVPWEDHEEFETPAHKLFVPELAEEATEL GAYLERLI
QKKEQPGGTPGGTGLLDD LIRDHLRAGALSRDELVHIAMAMLVAGTDTT
NVISLGT LALLDNPDQWAALRDNPDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLR TATPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2571111613) *Salinispora arenicola* CNH996B

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLV TGAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGF AAALFGMDPPEHTRQRQLLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVPYQDRTRFEP AVAGLFEPDRAD
AAMAELTAYLHQ LIETRQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNH LAFSHGIHHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQ LPTY
FAGDVPR LACL PVTW

>CYP107FS2 (2571111614) *Salinispora arenicola* CNH996B

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGM PAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPFADRSEFERHAEVLTGINASSGFD AIIAAGRWFDEYLAGLVQ
QRRREPQDDLISGM LAAQDKGDRLTDVELRSNALLLLSAGFETT VNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCV TYHFAQEPVEI
GGFEIRSGEHVVIAAAAANHDPTVFADPSRLDLRREGSGQILSF SHGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSL VVKASFVLHRLERLPV
TFTPD RAPNPIDSVHTV

>CYP247A7 (2571111746) *Salinispora arenicola* CNH996B

VRLTPGAARDIDLDSVNLFDLDLYTSGDPHPIDVDMRAQSPLHHQVLADG
REFWVS TRYDDVCRVLGDYREFTSERGT VVTHLGEDDIAAGKLLTSTDPP
RHTQVRRRAIGAKLTARAVASWQDRIRDAIVRFLEPALDGDTFDLAEQALL
LPAIVTGPLLGPIDRWQELVQLTAMVTAPSDPHFQHGSEAATLAISHHE
LVITYVTEWVKQRRSAGGGDGSLLDHLMSVRVGGAPLTDEEIALDGYSILL
GANVTTPTHVSGTVLALIERPEQFEKAQADPSLLANLVEEGLRWTSAAACN
FMRYALNDTRIGGGTVPAGGAVVAWIGSANRDESYFPDPHQFDITRSGAN
RQVAFGFGPHYCIGAPLARMTLGIFFEELVQRFGSIELAGEPQHLSYFI
AGMTHLP IVAQKRKTP

>CYP248A2 (2571112055) *Salinispora arenicola* CNH996B

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVS RFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAITEFADYVERALA
ERREDGADLLALMLAAHRSQMLSRNEIVSTVVTFIFTGHETVASQLGNGL
LSLLDHPEQLELVRRQPHLVPQAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCNPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP105W2 (2571112063) *Salinispora arenicola* CNH996B

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVS RHADVQVLSDPRMSADRRRPGF PKFAPTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEF SVRRVRQSRALVERVVDTH
LDALTAGAPGADLVSTFAYPVPSQVICEVLGVPYGEHEFFERRSTLMFRR
STPADERARYAREIRDFLDMVVTDKERRPGDDVLSRLLYRQRSAGGMDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAE PERFPAAVE
ELLRYFTVVEAATARTTTAEIMIGGVTTAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAHLAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP107NH1 (2571112462) *Salinispora arenicola* CNH996B

MTEPVVSLMDPEFWNDPVSAYERLRGSGPLIRMGLPGVPPVWLVTSCHEV
KSALSDPRFVVDAAANVP GHGPGIVDQMM AASGMPDEF RDYMTNMMFTDG
KDHSRLRLRLVTPGFSARRIRAMRPRVDQIAEELVESLAEKGSGELIADFS
TPLTTTVICELIGVDRADQAQMGAWMHDYTTGERVVSGRAMVNYTRDLIE
RRRAEPADDMISAMIRSGDEAGDRLSDAEI IAMALLLINAGHHSTAQFIP
NAVLVLLDHPEQLARLRAEPGQLPGAMDELMRLANPVPIATPRYATEDME
FAGVAVRRGEALTGSLEAANFDPERFPAPRQLDTGRDLGRGDGHL SFGAG
PHYCPGAALARLEGEIALDHLLLRDSLRLAVERDEVYVDVSLGLRMLS
SLPVRL

>CYP247A8 (2571112467) *Salinispora arenicola* CNH996B

VRLTPEAGRPVALGSIDLFD PDLFASGDPHSVWDV MRSEAPLHRQVLPDG
RVFWSVTRYEDVCRVLGDHRAFTSERGT VFTQLGADDIAAGKLLTSTDPP
RHTEVRRRAIGGRLTARAVAHWQDLVRRAVVRFLEPALDGGCWDLAERAQQ
LPLIIAGSLLGPIDSDWEKLVQLTGMVTAPSDSMFGLGSEAATLAIAHHE
IFDYLSDLVRRRRSAGTGGDSLLDHLMTVRAGAGPLPDEEVVYDSYSLIL
GANATTPHTLSGIVLTLVERPEQCDKVRADPSLIPSMVEEGLRWTSAAACN
FMRYATVDTRLTG GTVPAGEAVVAWIASANRDESQFADPHTFDVTRGENR
HVAFGFGPHYCIGAPLARMTARIFFEELFRRFWSIEIDGEPQHLSNFIA
GMTHLPVVTRKRAQV

>CYP1051A1 (2571112745) *Salinispora arenicola* CNH996B

MATDAPITRARTVPAWKALPAAVRDTHRALVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAAW
SRRVLAPMFRPARINAMVDTMADAIAGAVDDLHEAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDDILLPVLQRQAQRQPDGDDLLSRLVRARADDGRALSE
KMRDDLVSMAVTTETSTVVLTWLWPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMI
LKPVAPVPAR

>CYP211C1 (2562074143) *Salinispora arenicola* CNH996

VVDVEELLTRLISAQGRQDFFPVYADLHAQGPIAALPPEPERRRVAAVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHV
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAELEAFY
ELLAHRRRTPEGDLISGLLEAVDAGGVELTEDELVSNLIVLFNASFVTT
YMLSNGLPVLLAHPEVAAAALATDPVLTAGAVDEILRLQAPVHLLARAA
DTVLGGVPIPPQGQNVLLLIAAAANRDPAHFPDPDRFDPRRSGPPSLAFGL
LHYCLGAAVSRLEGRLLPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP125A41 (2562074292) *Salinispora arenicola* CNH996

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPHEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGDV
TDVACELPLQAIABELIGVPQHRRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAEERQSPSDDLVTKLVAQIDGEHLTTDEFGGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERPKSAAVEEIIRWATPVNVFQ
TALVDTVLGGQAIASAGQVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211B2 (2562074960) *Salinispora arenicola* CNH996

MDVSEAVAVLISPGRLDPTYTYEQLRAHGPPVSRTTAGLFVVVTGYAEADM
VLRDPRFVVLLDDDLRDDVFPHWQDSPAIXIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTQADELVDDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVLLTRPEAAAALRDEPDLAGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPAGSWLLVLLGAANRDPRRFPDPARFDPWRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGTAGVAPGTP

>CYP166A4 (2562075386) *Salinispora arenicola* CNH996

MTYAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE

RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLYHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPADLDIDRETSGHVAFGFGIHQCLGQN
LARVELRAGLSALLRAFPNLRRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP244A4 (2562075503) *Salinispora arenicola* CNH996

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQALTHPKMGKDIALVPEWMRQPGLMVTAPDPPEYARAMIMS
DGENHARIRRIHAPVLSRNTERWGERVADKVEGFLDELSQLAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVVTLGMIIT
GYETTGLSLISTSLYEAIIRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEAGDSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP245A7 (2562075507) *Salinispora arenicola* CNH996

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRSLLNRSFSPRIVTELPRPRIARIAQELLSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANAMALQEASSSRAGRVDVGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGADGLTTDAVEEFLRYDPPVQ
AVTRWAHQDRTLGGYDIPRGSRVALLGSANRDPARFPSPDVLVRRPAD
RHLSFGLGIHYCLGATLARAELIIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP107AW7 (2562075735) *Salinispora arenicola* CNH996

VETVTGTSTPPPVPYIADPYPTLARIRANGPVSILHSDEGIPMWVIARYR
DVRAALADPRFGQDARRAQALADNRVAGVTLLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFPPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAAAFATALREMTDYIAVQLRIR
QTQPGDDILTELLAARDAGQLTDEIIGMVFLLLIGGHETTVNLLGTATL
ALMRNPDQHRWLLANQHALPEAIDEFLRYESPVAMATLRFTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLAFGHGLHRCCLGA
FLGKLEGEVALGALLRRHPRLALAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP105BL2 (2562076171) *Salinispora arenicola* CNH996

MSSHSAAPDPVTATPLHTLAPELTFPQFERSTFPDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTLSDPRFSSDMSHPGFPNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITRITDEALDQLAAAG
PGADLVKHVAFVVPSPRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHRDRLDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIIGLVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVATDDVEVDGQTVTAGEGVVALPPLANRDPVAFERPDELDVRRN
ARQHLLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP208A12 (2562076896) *Salinispora arenicola* CNH996

MTLDTITPRVPLGPPRTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG

HKALWFFNHPRYAKHVADNSANYHKGIGLVHARRALGDGLLTSEGLDWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAEITG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNLAVPMWIPLPR
QIRFRRARRKLQAVVDTLVDGRAGNLANRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGPLPLVVRP
VS

>CYP1005A1 (2562076978) *Salinispora arenicola* CNH996

MTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTQATYRPDNAMEAVT
PVPVAALRVLAGHRFLRPPTLANNGGVSHPAIRALVADALHPTKVAAQRP
WLTGLVADRVATIRTTLDSSGPVDLYADLTADLPLLVLARLVELPDAPVN
AVKQFARAALFELFWAPLDADRQLALADEVGRFHQVLRREFADTGGGLAAAL
RATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEPTIRAALRAGS
ISVADVVEEGLRLEPPIVTVRRVAAVDSTLGGTTVAAGTSVLLWLARAGR
DPAVVAAPDEFPRPGQGRSRRHLAFGAGAHRCCLGDQLARMEAAVVVEQATP
LLDGVTVVRPPWYPDNLTFRMPDAFVVR

>CYP163B21 (2562077256) *Salinispora arenicola* CNH996

MNLSLDLTDPATFVENDPHEFWRQVRREQPTYWHPSTAGRPGFWVAGYE
EVRACYGNWKQLSSARGNVLDVLLHGGDSAGGKMLAVTDRPRHRHLRLNM
LRAFSPRVMGEVVRKEAAELIRTVTERGSFDFATEVAEHI PMNTICD
LLSIPPNDVISMIAEVDGRPLTPEEVALNCYSLILGGDESSRITAISV
LAFTEYPDQWHALREGTVSVETTTEELLRWATPGMHFARTALCDLSIQGQ
RIQTGDIVTFWNTSANNDETVFAPRRLDLSRDPNKHLTLGHGPHFCVGA
ALGRAELGALLRALIASVGEIEIHGAPQRIYSNLLHGYSSLPVTTFHPLST
GKAT

>CYP154M5 (2562077577) *Salinispora arenicola* CNH996

VEQSCPYKLDVTGRDVHAEGEAIARARGPVAQVELPGGVQGWSVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPPNWPLIGWLLMDNMTNDGADHQRLR
KLVSHGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNVTTSSISGEEAEANVEQWHRELLELV
EAKREKPEDMASLLIAAKEEDGSTLTQEEVVGTLHLMLGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDPVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPMNTLAVRPDQLEPQGTIFIMNGHREL
PVRLGQPATVLA

>CYP105CT1 (2562077594) *Salinispora arenicola* CNH996

MNSPNHMPADRSLTAPASGCPMALSRGRVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPIITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTDSDHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGVLLHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLTLDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALRRFPGLRLAV
PDSELEFTQGTTVYSLRGLPVTW

>CYP105G5 (2562077675) *Salinispora arenicola* CNH996

LTIIETTETPAADDSLRAPLPRQFMQRDDPSKLPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDFRFSDDRFYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQLDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQORRAAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRTTPADDMISGLVHHAGAEPPLTDDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQQLARIELTVGITELLCLPLNVRSLAVPPADV
PLRNDMITYGVHRLPILWGTP

>CYP107Q4 (2562077676) *Salinispora arenicola* CNH996

MTTTAETSATIDLFSPEVVADPFGWYARLREETGPNTGTNLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRFLTNPADSPLEDIRAGVFRRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSALTAKHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIAKRAEPQDDLVLTALVQAQAEQDNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLAANTDPRRFPDPNKLI
DRLAVGSEHGLGFGKGIHRCGLGHLAYQEAEEVALQGLFTRFPDLTLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP107AY2 (2562077701) *Salinispora arenicola* CNH996

MTAEPTPIPRSGTRLGPEYDQLRKTGDVHQVLLPDASLAWLVTNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLADPDHTRLRRLVGPAP
SRQ RVAALRPGIRRAAEHLLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRATDTMLTSYPPDRDAIRQAVTELHGYYVDLIDIKQQQPG
DDLALSVTIEQDGDRLSRDELTSALFLILFAGYENTANLIASAVRWLLD
HGGLNVVPISEAIEGTLRHEPPAPVAIRRFPTEDIIIGGV TIPAGDTVLL
SIAAATRGADGNAARLAFGNPHYCLGAALARVEAEALTVLARRLPGLT
LAVPPAQVRWRPTFRTHGPAELLVGW

>CYP105AB36 (2562077817) *Salinispora arenicola* CNH996

MTEAASSRLTDTEFPVQRQCPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPATRKRLHAQPLSMISMDG
AEHAQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHCVDLVKA
LSLPVPSLVICELLGVPPYDDHDFQEHATLVRRNTAPEVRQHCVDELNA
YLGALIDRKLANPDDDLGRQIARQHGDGTFDRASIVSLAFLLLVAGHET
TANMISLGVVGLLQHPDQLTMIKKDPDKVPLAIEELLRFFITIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARRHHIAF
GFGPHQCIGQNLARLELQIVFDTLFRRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP107FS2 (2562077871) *Salinispora arenicola* CNH996

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSATFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVPPFADRSEFERHAEVLTGINASSGFDAIIAAGRWFDEYLAGLVQ
QRRREPQDDLISGMLAAQDKGDRRLTDVELRSNALLLSAGFETTVNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELRLYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSLWVKASFVLRRLERLPV

TFTPDRAPNPIDSVHTV

>CYP105CN1 (2562077872) *Salinispora arenicola* CNH996

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVTGAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPFEHTRQRQQLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVFPYQDRTRFEPVAVAGLFEPDRAD
AAMAELTAYLHQLIETRQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPNDLVPGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIHHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPTW

>CYP105CP2 (2562077874) *Salinispora arenicola* CNH996

MTKSMPVQDLPAFPIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHAARAVLSDYRRVSIKPYHGNYPLLNEEFKVVDSGYADVLFGVDP
EHTRQRQMIMPSFTLRRTAVLRPDIQRIVDDKLDMMRHGAPGDLVTEFA
QPVPSPMVSFLLGVFWEDHEEFETPAHKLFPVPELAEAEATTELGAYLERLI
QKKEQPGGTPGGTGLLDDLRDHLRAGALSDELVHIAMAMLVAGTDTT
NVISLGLTALLDNPQWAALRDNDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRATATPIDQIPSNNDGTLQRL
YELPVVW

>CYP247A7 (2562078127) *Salinispora arenicola* CNH996

VRLTPGAARDIDLDSVNLFDLDLYTSGDPHPIWDMRAQSPLHHQVLADG
REFWSVTRYDDVCRVLGDYREFTSERGTVVTHLGEDDIAAGKLLTSTDPP
RHTQVRRRAIGAKLTARAVASWQDRIRDAIVRFLEPALDGDTFDLAEQALL
LPAIVTGPLLGIPEWDQELVQLTAMVTAPSDPHFQHGSEAATLAISHHE
LVITYVTEWVKQRRSAGGGDGSLLDHLMSVRVGGAPLTDEEIALDGYSILL
GANVTTPTVSGTVLALIERPEQFEKAQADPSLLANLVEEGLRWTSACN
FMRYALNDTRIGGGTVPAGGAVVAWIGSANRDESYFPDPHQFDITRSGAN
RQVAFGFGPHYCIGAPLARMTLGIFFEEELVQRFSGSIELAGEPQHLSYFI
AGMTHLPIVAQKRKTP

>CYP105W2 (2562078265) *Salinispora arenicola* CNH996

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCFFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRAHADRQVLS DPRMSADRRRP GPFKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVRRVRQSRALVERVVDTH
LDALTAGAPGADLVSTFAYPVPSQVICEVLGVYPYGEHEFFERRSTLMFRR
STPADERARYAREIRDFLDMVVTDKERRPGDDVLSRLLYRQRSAGGMDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPPERFPAAVE
ELLRYFTVVEAATARTTTAEIMIGGVTTAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAHAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2562078273) *Salinispora arenicola* CNH996

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVS RFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG

PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAITEFADYVERALA
ERREDGADLLALMLAAHRSQMLSRNEIVSTVVTFIFTGHETVASQLGNGL
LSLLDHPEQLELVRRQPHLVPQAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCNPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP107NH1 (2562078695) *Salinispora arenicola* CNH996

MTEPVVSLMDPEFWNDPVSAYERLRGSGPLIRMGLPGVPPVWLVTSCHEV
KSALSDPRFVVDAANVPGHHGPGIVDQMMASGMPDEFRDYMTNMMFTDG
KDHSRLRRLVTPGFSARRIRAMRPRVDQIAEELVESLAEKSGGELIADFS
TPLTTTVCICELIGVDRADQAQMGAWMHDTTGERVVSGRAMVNYTRDLIE
RRRAEPADDMISAMIRSGDEAGDRLSDAEIIAMALLLINAGHHSTAQFIP
NAVLVLLDHPEQLARLRAEPGQLPGAMDELMRLANPVPIATPRYATEDME
FAGVAVRRGEALTGSLEAANFDPERFFAPRQLDTGRDLGRGDGHLSTFGAG
PHYCPGAALARLEGEIALDHLLLRDSLRLAVERDEVYVDVSLGLRMLS
SLPVRL

>CYP247A8 (2562078700) *Salinispora arenicola* CNH996

VRLTPEAGRPVALGSIDLFDPDFLASFDPHSVWDVMRSEAPLHRQVLPDG
RVFWSVTRYEDVCRVLGDHRAFTSERGTVFTQLGADDIAAGKLLTSTDPP
RHTEVRRRAIGRLTARAVAHWQDLVRRRAVVRFLPALDGGCWDLAERAQQ
LPLIIAGSLLGIPDSDEKLVQLTGMVTAPSDSMFGLGSEAATLAIHHE
IFDYLSDLVRRRRSAGTGGDSLDDHMLTVRAGAGPLPDEEVVYDSYSLIL
GANATTPHTLSGIVLTLVERPEQCDKVRADPSLIPSMVEEGLRWTSACN
FMRYATVDTRLTGGTVPAGEAVVAWIASANRDESQFADPHTFDVTRGENR
HVAFGFGPHYCIGAPLARMTARIFFEELFRRFWSIEIDGEPQHLSNFIA
GMTHLPVVTRKRAQV

>CYP1051A1 (2562079004) *Salinispora arenicola* CNH996

MATDAPITRARTVPAWKALPAAVRDTHRALVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAVDDLHEAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDILLPVLRQAQRQPDDGDDLLSRLVRARADDGRALSE
KRMRDDLVSMAVTTETSTVVLTWLWPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMI
LKPVAPVPAR

>CYP244A5 (2516451488) *Salinispora pacifica* CNT138

MSATTNAELGEAPETSMPVDPGLFDCMPDLIAAARIAPVVRIPYLGRHAW
VVCDELVKQALTHPKMGKDITLVPEWMRQPGLMVTAQPPPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGEQVATKVEGFLELSKAAAGSNAEV
DVVTNYTHKIPLAFISEMLGLPPAAEHRLRSITDIMLYSSDYAARREAIG
GLFGAVEEWVRNPDGLRDGVITGLLAGSDGPGAAVTEGEVIVWTLGMIIT
GYETTGSLLISTSLYEALRRPPHERPRTDEDITAWIEETLRVHPPFPHPWTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRQPGEGADSFDTERRGHGHLSTF
GLGMHYCIGAPLVRLEAKIAVRGFLRRFPQARLSADAQWESEWMIRRM
SFLPAVLS

>CYP245A11 (2516451492) *Salinispora pacifica* CNT138

MSSTTLPRFTLTGWNREDIVNPYPVYRRYREVA AVHRGEAGGDAPETFYV
FSYDQVAQVLSSSCFGRGRSLDATAASVPVPADQKALRAVVENWLVFMDP
PRHTELRSLLNRSFSPRIVTGLRPRIARIAQELL SRLGRQVETDLVEGFA
APLPILVIAELLGIPAERHGWLRTNALALQEASSSRARRDTAGYARAEAA
AQEFTEYFREQVRLRRGSAGDDLLTILANAQLRGAPVSLDAVVGTGVHLL
TAGHETTTNSLAKAVLALQAHPAVLEELRGADGLTADSIEEF LRYDPPVQ
AVTRWTHQDTTLGGWEVPRGSRVVAL LGSANRDPARFPLPDALDVHRPAD
RQLGFGLGIHYCLGATLARAELEIGLQTLLNGLPTLGYPAQYVDYADDMV
FHGPSRLILVNPGERFCQ

>CYP107AW6 (2516451579) *Salinispora pacifica* CNT138

VETVTGTSAPPPVPYIADPYPTLARIRANGPV SILHSDEGVPMWVIARYR
EVRAALADPRFGQDARRAQALADNRVAGVT LGGDIVHMLNSDPPDHTRLR
RHHVQGAFTARRVAAMRPLVERITTSLLDGLAGRKTVDLVQDLAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDP AVFATALREMTDYIAVQLRIR
RSRPGDDLLTELLAARDAGQLTDDEIVGMVFLLLIGGHETTVNLLGTATL
ALLRNPDQHRWLLANRHALPEAIDEFLRYESP VAMATLRFTTTPTVTDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPKLALATEVRQLQWRDTIMLRGLES LPPVSLHG

>CYP107AX9 (2516451594) *Salinispora pacifica* CNT138

MTAQPA PVFDQRLLRDPHRRYNALRDQAPVHRVRTPDGAPAWLVTRYDDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVEKTVSTLLDGLAGNDHAELIGSLASPLPLQVMHEL
LGLPTQTSVDFRTWTNTLLSADANQPAQSR SAMANMRRFLIEQVAHKRAQ
PGDDLLTGLLCVREDDDGLTDDELVAMLFLLMFAGYDNTAALIGNAIHAL
LTNVELAEAVRTGSLAVDELVDGVLRWNPSFPLAVRRFA REPIT IAGQTI
PAGDRIWLCLASANRDPAHFTEPDEIGIADMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVASLFDRFPGIRLAVPVQDIQWRESFRLRGLVALPVSL

>CYP208A21 (2516451606) *Salinispora pacifica* CNT138

MTTTSIDRRRPPGPPRAAALSMLLTMSRDR LGMMTAAARAYGDAAWLPVG
HKALYFFNHPDYAKHVLTDNSDNYTKGIGLVHARRALGDGLLTSEGELWR
EQRRVIRPSFRSGRAPDQASVIAEEVASLVERLRARAGGPPVNVVTEFTG
LTLGVLGR TLLDVDLTALATVGDAFAAVQDQAMFELVTL SAVPTWIPLTR
QRRFRRARAELE RIVDDLVARRGDVSGRDDVLSRLILSTGAEPDARVRRQ
RLRDELVTLLLAGHETTASTLGWTLYLIDRHPPVRERLRAEAAEVLGDRL
PAYRDLPLRFTTMVVQEAMRLYPPVWLLPRRSRRADRVGPYWPAGSDV
VVSPYTMHRHPGFWEPEPDRFDPLRFDPRNAADRPRYAYLPFGAGPRVCVG
SNLGMTEAVIAVAMLCRELRLVRVPTHAAVPEPMLS LRIRGGLPMSVHLA
D

>CYP154M16 (2516451623) *Salinispora pacifica* CNT138

MPDRCPVLDP SGRDIHAEADRLRAQAPAVKVELPGGVHAW SITSYDVVRR
LLLDNRVTKNARNHWPKF INDEIPPDWEMISWVAMDNMVTAYGKHLVRLR
RLIAKAFTAQRVETVRPQVEKLVD ELLDGLAAETGEVVDLREKFCYPLPA
LLIADLIGMTEQQRAQTAKAMDLMVDTTVSPEQAQAILTGWRTAMDELIA
AKRREP GKDIASDLIAARD DENGGLTDSELTD TIFAILGAGSETTINFL
DNAVTALVTHPGQLELVRSGRAGWDDVIDEVL RVQCPLASLPLRYAVTDI
ELDGVTIPQGDPI LINYAAAGRDPALHGDTAGEFDVTRENKEHVSFGHGP
HYCLGAGIARLVATIGLSRLFERFPDLRLAVPAEELQPLPTFIMNGHRAL
PVRLVPAPAAATAV

>CYP211C6 (2516451858) *Salinispora pacifica* CNT138

VPDIEGLLARLYSAQGRQDPYPVYADLHAKAAIAALEPRPERQRVAAVAV
GYDLVAAVLRDPEWFKQPPPGWRDQEILRILQSSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVINRVTDLELLDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPATELAWYRERVDRVDAFLDVAGKTPERLAAAANAAGAE LRFFYR
ELLAHRRRTPEGEDLISGLVEAVDAGGVELTEDELISNLIVLFNASFVTTV
YLLSNGLPVLLAHPEVAAAALTSSPELAAGAVDEILRLQTPVHLLARAAPR
DTVLGGVSIPOGQONVLLLIAAANRDP AHFPDPDRFDPRRSGPPSLAFGLG
LHYCLGAAVSRLEGRALAPRLLSRFPRRLRILEQPVYSGSLFLRGIDKLSV
SPGGREHP

>CYP125A66 (2516451993) *Salinispora pacifica* CNT138

MTEPRIPVGFDFDTPAVLERRVPREEFAELRRTPVWVNAQPKGSAGFDD
DGYWVVTRYADVMASRDSETYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPP EHTKLRAIVSRGFTPRAINALRGSLGERAERIVRDAAGRGAGDFV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGVDPLAASA
ELLYAMEMAHERQRNPSDDLVTKL VNAQIDGEHLTADEF GFFVMLLAVA
GNETTRNAITHGMLAFLENPEQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLAGQAI SAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
RELPVQYH

>CYP1005A8 (2516452658) *Salinispora pacifica* CNT138

VSAVLFRSWTKTAGPHWPAVTRVADQQGTEHLVVTEHELVRQVLTDQVTY
RPDNALDAVTPIPV PALRVLAGHGFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQR PWLTKLVAERVA AIGATLDSGGSADLHAELNADLPLLVLAR
LVLELPDAPVS AVKQFARA ALELFWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRTTGHPDPVLVGALFFLLVAGQETTSQFLTLLLHRLAGEP
TVRAALRDGGVSVANVVEEGLRLEPPIV TWRRVA AVDSTLGGTAVPAGTS
VLLWLARAGRDP AIVPAPDEF RFGQRGSRRLAFGAGAHRC LGDQLARME
AAVVVEQAAPLLDGISVVRAPWYPDNLTFRMPDAFVIRR

>CYP211B14 (2516452863) *Salinispora pacifica* CNT138

MDASEAVALLMSPPGRLDPYPTYERLRAHGPPVPTAAGFFVVTGYTEADA
VLRNPRFGVMDDEERDGVFPHWQDSPAMMSISQSMIRANPPDH SRMRRLA
AGVFTPRRVAALREVVAQADELIDEMIRAGRGGAPVDFLG SFAYPLPVT
VICALLGVPAADWAQFRRWASDLTG VLEPEITPQELAIADAGATELRDYF
TELIAQRRRDPTDDLTTALVQTHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLFVLLTHPESATALRDQPELAPGYVDELLRYDSPVQLTTRTVR
ESVPLAGVELPAGSWLLVLLGAANRDPARFTD PARFDPGRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPIRRNRLTLRGYETLP
VTVGAVAVDHGTPAGAALSTP

>CYP105AB34 (2516453251) *Salinispora pacifica* CNT138

MTETASITTPGTSSTATSGPGSGEVDTEFPVERGCPFSTPAEYEQIREH
SPLTKVRLTTGREAWWIAGHELARAVLADRRFSSDRRDNF PFVSTD PET
RKQLQDQPTSM LGMDGA EHAQTRRALMG EFTVRRMAGLRPRIQQIVDQHI
DEMLSSEQRSADLVEALS LPVPSLVICELLGV PYADHDFQARS GPLVRH
HTPSKVRVRIQEELNTYLGG LIDRKVADPTDDL LSRQIAKQHAAGTFDRT
SLVSM AFLLLIAGHETTANMISLG VVGLLQHPDQLAMIKDDPEKTPPAVE
ELLRYFTITD TVTARVATEDVQLGDTTITAGDGVVISGLAADHDPTVFTD
PNQIDLERGARHHVAFGFGPHQCIGQTLARLELQIVFDTLFRR IPTLRLA
APLDDIPFKSDAIIYGAEELPVAW

>CYP107AY7 (2516455216) *Salinispora pacifica* CNT138

MRAEPAPIPRSGARLGQEYDQLRKTGDVHQVLLPDTSLAWLVTSPELVSR
ALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAP
SPQORVAALRPRIERTAEELVDVTVVATGSPVDLVTGYCTPLSVQVIADLLG
VPEARRTDLRAWTDMLTSYPPDRDAIRQAVVELHGYVVNLIEAKRQRP
DDLLSALVATEQEGDRLTRDELTSIAFLILFAGYENTANLIASTVLRLLG
HGSLRGARASEAIEETLRLEPPAPAAIRRFPIEEMTIGGATIPAGDTVLL
SIAAATRGTDGNSARLAFNGPHFCLGAALARVEAEEAITVLARRLPSLA
LAAPGAPVRWRPTFRTHGPAELLVTW

>CYP1278A4 (2516455594) *Salinispora pacifica* CNT138

MPSPVGAVVHPNPYPYAAAMVAERPFHFDEQLDWTVAASAAAAQAVLAAP
GCRVRPPHEPVPQGITGTGPDVFGNLVRMTDGEFQHRKAIIVTQTLGAI
DRSAVAATAMQRRARQVLNDSVRTPYEQLMFELPAQVVATLCGLDPAAGGE
ATRLVGHFVQCIPATASPEQQQRAAQAAGLQELLGPKLDDTQHGLLGEL
VRMATHVGWTDRAPLLANGIGFLSQTYDATAALMGNTLLALSQQECELPT
SEMALQRFVREVIRHDAPIQNTRRFTATPIRHGDVEVPAGQAVLVLLAAA
NRDPAANPDPHMFADRTTPNVFTFSAGAHHCGETLAVTIVTTVVEQLL
RVGFDPAKLSTRVTYRPSPNARIPVLTE

>CYP105BL6 (2516455659) *Salinispora pacifica* CNT138

MSSHPAAAPGPETATPLHTLAPELTFPQFERATPFDPPEAYTELSGRCPV
APVRMADGKPSWLI TSFEGVRAALSDPRLSSDM SHPGFPNRTGKPVDDL
KDTLGAMDGERHRYRRLTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVALVVP SRVACHLVGIP LSEYELFTGMAAKLMEATSSADQIA
ALQDMVSYFDKLVTDREHHRDDLLGHMVRRYLSTGELTREMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHLM PGAVDELMRYLPMI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDP AVFERPDELDVRRN
ARQHLSFGYGP HQCPAHALARLELEVYSRLLERFPTLRLADGDADLKVQ
DEDIMYNVSELAVAW

>CYP107AX4 (2515991134) *Salinispora pacifica* CNT001

MTSQPAPVFDQLLLLRDPHRRYNALRDEAPVHHIRTPDGAPAWLVTRYDDV
RAAFIDPRLSVDKRLSSTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVERIVSTLLDGLVGHDQAELIGSLASPLPLQVMQEL
LGLPTQTSVDFFRRWTNTLLSADANQPAQSR SAMANMRRFLVEQLAHKRAR
PGDDLLTGLLAAREDDRLTDDELVAMFLMLMFAGYDNTAALIGNVVHAL
LTNTELPAAVTRGSLALDELVDGVLWRNPSFPLAVRRFAREPIITAGQTI
PAGDRIWLCLASANRDPAQFTAPETLGTTGMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVTILLDRFP GIRLAVPAHDIRWRESFRLRGLVALPVFL

>CYP107AW7 (2515991149) *Salinispora pacifica* CNT001

VETVTGTSTPPFPYIADPYPTLARIRANGPVSILHSDEGIPMWVIARYR
DVRAALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFPPLMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAAFATALREMTDYIAVQLRIR
QTRPGDDILTELLAARDAGQLTDEIIGMVFLLLIGGHETT VNLGTATL
ALMRNPDQHRWLLANQH ALPEAIDEFLRYESP VAMATLRFTTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRTGHLAFGHGLHRC LG
FLGKLEGEVALGALLRRHPRLALAAEVRQLRWRDTIMLRGLES LPVSLHG

>CYP125A65 (2515991951) *Salinispora pacifica* CNT001

MTEPRIPVGFDFTDPAVLERRVPREEFAELRR TAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMAVSRDSETYSTRENTA IARFQPGTTQADREMQRVIMI
NVDPPEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV

TDVACELPLQAI AELIGVPQHRRKVF DWSNQLIGYDDPAYGVDPMAAAA
ELLAYAMEMANERQRNPSDDLVTQLVNAQIDG EHLTTDEF GFFVMLLAVA
GNETTRNAITHGMLAFLEHPDQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLGGQAITAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REMPVRYR

>CYP208A22 (2515992033) *Salinispora pacifica* CNT001

MTVIADRGGRI PPGPPVTAGLRLL LALGRDRLGMMTSAAA EYGDVARLPV
GPKKLYFFNHPDHAKHVLADNHANYQKGIGLVHARRALGDGLLTSE GELW
RKQRRVIQPAFQNRRLAQYAGAVGQEATRLVARLATRV DGPVVDLDEMT
RLTLGVLGRTL LDDAELTGFGHVGESFAAVQDQAMFELET LNTVPTWIPLR
RQRRFRRARQHLQEVDVLA AERGQAVEGRDDVLSRLILSTRAEADPQLG
RERLRDELVTLLLAGHETTASTLGWSLHLLDQHPELRERVRHEARTVLGD
RVPAYEDLHQLRYTAMVVEEAIRLYPPVWILTRKARAEDEIGGYRVPAGA
DILICPYTLHRHPRFWAE PERFDPERFDPSRTTDRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLA VLLRDLRLEGLPGRAVVPEPMLS LRVRGGGLPMTVR
RVD

>CYP211B11 (2515992548) *Salinispora pacifica* CNT001

MDASEAVALLTSPPGRLDPYPTYERLRAHG P VVSTAAGFFVVTGYTEADT
VLRNPRFEVMDDEERDGVFPHWQDSPAMISISRSMIRANPPDH SRMRRLA
AGVFTPRRVAALREVVA AQADGLVDEMIRAGRGGAAVDFMG SFAYPLPVT
VICALLGVPTADWARFRHWASDLTG VLEPEITPQELAIADAGASELRDYF
TELIAQRRRAPADDLT TALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVVL LTHPDSATALRGQPELAPGYVEEF LRYDSPVQLTSRTVR
ESVSLAGVELPAGSWLLVLLGAANRDPARFTD PARFDP RRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRHRLTLRGYETLP
VTVGAVPADPGTPAGVALGTP

>CYP1005A6 (2515994036) *Salinispora pacifica* CNT001

VSAVLFRSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLT DQVTY
RPDNALDAVTPI PVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQR PWLTELVAERVA AIRATLDSGGSADLHAE LSADLPLLVLAR
LVELPDAPVSAVKQFARVALELFWAPLDADRQLALADEVGRFHQV LREFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFL TLLLHRLAGEP
TVRAALRDGSVSVPNVVEEGLRLEPPIV TWRRVA AVDSTLGGTAVPAGTS
VLLWLARAGRDPAIVSAPDEF RFGQ RGSRRHLAFGAGAHRC LGDQLARME
AAVVVERVSPLLDGVTVVRAPWYPDNL TFRMPDAFVIRRG PAGAAER

>CYP161N4 (2515994691) *Salinispora pacifica* CNT001

VNTVAQLPFTQT HVL DVAPALRLLQSRGKVHRVRTPEGVPAWLVTGHAEV
QQLLDDDRLSRSDPGGRDG GTALLNKLLGPLADDPRLRSLL EPQFTPER
LEPLRAVVEKLTEQHLDELATRTPPVDLRPTLAMS LPIILVLC EWLGVPAE
DKGRFSVWTQDAAGVQDPERSQRGLAELFGYCRQLVAAKRQDPGDDVISR
LIATAGIGDTEVVALTALLLFGGYETTVARIGTG VLLLLTNPDQWAAVRA
DPALVPATVDELLRRSMPNPHNGGMPRFAVTGFEIDGAAIRAGDLVLLNI
IAANHDETAFPDPDRLDITRPTAGSLAFGYGRHSCVGAPLARMVLRVALS
RLITRFPDLRLAVGVDELKLRHETLVGG LVELPVTWGPR

>CYP2054A3 (2515994696) *Salinispora pacifica* CNT001

MSISADSEQVQGRPFDPYGAHRDDPYTF LAGLVFYAPLLDAWCVTRRED
MVAVLRDDRSFSARDHNPRPAVALPDDVNQMFR TWRGAGAVAVGSLDPPA
HAKIRDVLNIGFTPARVRAFEPTMRAVAADLADRIGDAPEFDFIADFAVP
FALEVIGRRLGV PDDYLDRCRTWSEQRIELMMAQGDADHDRLREFARGLM
EFGEFARS LVRDRVADPRDDLISELLHDGKAGRTLTAD E VAVQIPTLIFA

GHMTCAEALGTIFYQQLRSPGGWARVVDRITIPVGDLVEEGLRFDSPLAGM
YRTATRDVTVGGIRLTAGSRLLLLYGAAGRDSRAHACPAAFRPGDGSSGH
LAFGHGHIHFCLGAGFARAELRVAVEVLAARMPDLGLAPGRPPRFRPVFPL
RALTEL RVTRSGGSGP

>CYP107FH3 (2515994701) *Salinispora pacifica* CNT001

VPIELDEAFVQDPYAVYEKLRAEGPAHRVRMPPGVPLIGGLPVWLITGYD
AVRAALADSRLSTDLHRIDGLFAQKDPDCSHRGGFSSALASHMMHTDPPD
HTRLRKLVSKAFTTRRAIEALRPRIQQTDELTAADLAGHDTVLDLDAFAFP
LPIRVICLLLGVPVAEQENFRSWSRALVSGHSPEAAATAATEVAAYLGDL
VERKRHATTDVLTALVAAHVDVDDRLTHTELVSTAYLLFIAGFETTLNAL
NGTLLHMLHRDQWTALRADRALLDNAVEEFLRLESPLKHATFRCATESL
RIGDAEIAAGDFVLLAIASANRDPRRFPDPHTLDVRRPAAGHLAFGHGHIH
HCLGAPLARVEVRMAFDALLDAFPDMRLATDPAGLRWRNSTIIRGLDSL
VHLNN

>CYP107AY9 (2515994839) *Salinispora pacifica* CNT001

MSQDQPTRAELAPIPRSGTRIGPEYDQLRKTDGVDVHQQVLLPDTSMWLVT
PDLVSRALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPDHTRLR
LVGPAFSPQORVAALRPRIQRTAEELAETMVATGSPVDLVTGYCTPLSVQV
IADLLGVDPAGRTDLRAWTDMLTSYPPDRDAIRQAVVELHGYVNLIEA
KQORPGDILLSALVATEQEGDRLTRDELTSALFLILFAGYENTANLIAS
VLRLLDHGSLRGVRVSEAIETLRLEPPAPAAIRRFTEEMTIGGATIPA
GDTVLLSIAAATRGADGNPARLAFNGPHYCLGAALARVEAEEAITVLAR
RLPGLALAVPGAPVRWRPTFRTHGPAELLVAW

>CYP244A10 (2515994859) *Salinispora pacifica* CNT001

MQDTAQANLAEAPEVRMPIELRPTDCLPELLAAARVAPVVRTPYLDQHAW
VVCDELVKQALTHPKLGKDVALAPDWMRQPGQMTAMPPEYARMMVMS
DGEHHARIRRIHAPVLSRPNTERWSERVAALVDGFLDNLDSADGTEVNLI
TDYTHKIPLAFTAEMGLPPGAERRLHDITEVMLYSADYALRQQAVGELF
EAVQEWVRDPAGLRDGVITGLLASADGPDATVTKGEAIVWTLSLIINGYE
TTGSLISAALYEALRRPARERPHTDEAVAAWIEETLRVQPPVPHTTWRF
LADLDLGGYLIIPRGAPVQISLAAANLDPDEDADSFDAQRRGRGHLSFGLG
AHYCIGAPLARVQTKIALRGFLRRFPQARLSLDTAPRWESEWMIRMSVL
PVLLA

>CYP105AB28 (2515995297) *Salinispora pacifica* CNT001

MTETASTTTPGISSTTTSGPASGEVTDAEFFLERGCFFSTPTEYEQIREH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFFVSTDPE
RKQLQDQPTSMIGMDGAHAQARRALMGFTVRRMAGLRPRIQQIVDQHI
DEMLSSDQRTADLVEALSPLVPVSLVICELLGVYPYADHDFQARSGPLIRH
TTPTEVRLRIQKELNTYLGALIDRKVADPTDDLRSRQIAKHHAAGTFDRT
SLVSMAFLLLIAGHETTANMISLGVVGLLQHPDQLAMIKEDPEKTAPAVE
ELLRYFTIADTVTARVATEDVQLGGTTINAGDGVVISGLAADHDPTVFTD
PDRDLERGARHHVAFGFGPHQCIGQTLARMELQIVFDTLFRRIPTLRLA
APLDDIPFKSDAFVYGAERLPVAW

>CYP107E37 (2515995943) *Salinispora pacifica* CNT001

VTIDQEIREYPPFRESRGIGIDPTYELLRRTEPLARVQLPYGEVSWLVTRY
EDVKTVLTDPRFSRAAAQKDKQPRTRAEMTYEGIIGLDPPDHTRLRLLAG
KALTARRVNARADAQRIANEYVDEMIAGKSPGDLVELFALPYPVTVICE
LLGVPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFDYMGKLVQRRRAEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTGIVETVSTHIPPVYALLT

HPELMAQLRADRS LVPAAVEELLRMIPLNPAAMFPRYAVEDVTLSGITVR
AGQPVLVSLPGANRDPEVFENPETFDFTREQNPHVAFGHGPHHCLGAQLA
RMELQVALHTVLD RFPDLRLADGDEGVSWKSGLLVRGPSRLLVGW

>CYP124M3 (2515995969) *Salinispora pacifica* CNT001

MTVPIELDAVDLS DNDFWTKPLEYRHAVFNALRAQPGLPHFASPEFGSAP
RGRGYYALTRMDDVLAVSRNPSVFI SGKGNVAMEVPAEFLDQSLITMDNP
RHARLRIVSRGFTMKAVTALMDNASQMAKQIVDEVVERGECDAVVDISA
KLPLGIIICNMGI PDSQQQFVFEQTNVMLGVQDPEYVGEQNDAMLAMSVA
SQELADLMHELATLR AKNPTDDLISKLLSAEVNGEALTPSELAHFFILLT
GAGTETTRNAISWGIQLLTQSPEQREAWLS DIDGVTPPTAVEEIVRWSSPV
ISQRRTVAEDAEPVKLAGQLLGPGDKVLMFYGAANRDPNYFVHPEGFDVR
RSPNPHVGYGGPGPHFCLGAHLARLEISVMFRELLTRIPDIHATGEPARL
KSPLINGIKRLPVAFTPGAR

>CYP294A4 (2515996040) *Salinispora pacifica* CNT001

MTLLDTAGLGPLPSFLQQQGAGAVLP IVSPAGNTMWLV RDYTLARKVLT D
PRFSRAAAVTPQAPKFND AQPAA DSMMSMDGA EHARLRRLVSGAFTTGRV
AAIAPWVERWVDERLDR LERRGTGADLIGDLAAPLSVSVLCTLLGIPAAD
SERFRGWVEVLF DITASSPHEKGRRRLELLDYMGTIEQKRRQPDDALLT
VLIKAQERGEMSMAELLT LGLTLLMAGYETTVGQIGLAALVILSDEVVYD
ALKRQPERLPGTVEELLRLTPATPLSF SRVATRQVQLGEVTVRAGEGVV
SLLHGNRDPATFPDPQRLLPQGRDAGHLTFGHGVHRCLGAPLARLQIQTV
LNRLIGHFPRRLVDALEPVAWKHGLATRGLSRLSVEWR

>CYP163B1 (2515515979) *Salinispora tropica* CNH898

VTAADTGRVSGESQTPAHTVDLADPATFANHDLTGFWQQLRDEEPIHWN
PPTAGRRGFVVVSRYADIL DVYRDDVTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHAELRKLLLRALGPRVLAPVCAAVRTNTRQMIREAVTKGEC D
FASDIASRIPMMTISNLLGVPDADRAFLSLTKTALSADDESISETESAM
ARNEILLYFQDLMEFR RDHPGEDVVSMLVNSSIDGAPLSDDDIVLNCYSL
IIGGDETSRLTMIDSVNTLAAHPQQWRR LKDGQCEIDKAADEVLRWASPS
MHFGRVAARDTILHGVRI RADDIVTLWHASGNRDERVFHRPEVFDLGRTP
NRHLSFGHGHPHYCIGSYLAKVEISELLIALRDLTSGFETTGE PQIRSNL
LTGFATMPVRFPVDRAGLARDALDG

>CYP107NH1 (2515516273) *Salinispora tropica* CNH898

MTEPVVSLMDPEFWNDPVSAYERLRGSGPLIRMGLPGVPPVWLVTSC EHV
KSALSDPRFVVDAANVPGHHGPGIVDKMMAASGMPDEF RDYMTNMMFTDG
KDHSRLRLRLVTPGFSARRIRAMRPRVNQIAEELVESLAEKGS GELIADFS
APLT TTVICELIGVDRADQAQMGAWMHDYTTGERVVSGRAMVNYTRDLIE
RRRAEPADDMISAMIRSGDEAGDRLSDAEIIAMALLLINAGHHSTAQFIP
NAVLVLLDHPEQLARLR AEPGQLPGAMDELMRLANPVPIATPRYATEDME
FAGVAVRRGEALTGSLEAANFDPERFPAPRQLDTGRDLGRGDGHL SFGAG
PHYCPGAALARLEGEI ALDHLLLRDNLRLAVERDEVYVDVSLGLRMLS
SLPVRL

>CYP247A8 (2515516279) *Salinispora tropica* CNH898

VRLNPEAGRPVALGSIDLFPDLLASGDPHSVWDV MRSEAPLHRQVLPDG
RVFWSVTRYEDVCRVLGDHRAFTSERGTVFTQLGADDIAAGKLLTSTDPP
RHTEVRR AIGGRLTARAVAHWEDLVRRAVVRFL E PALDGGCWDLAERAQH
LPLIIAGSLLGIPDS DWEKLVQLTGMVTAPSDPMFGLDSEAATLAI AHHE
IFDYLSDLVRRRRSVGTGGDSL LDHLMTVRAGAGPLPDEEVVYDSYSLIL
GANATT PHTLSGIVLTLAERPEQCDKVRADASLIPSMVEEGLRWTSACN
FMRYATVDTRLTGGTVPAGEAVVAWIASANRDESQFADPHTFDVTRGENR
HVAFGFGPHYCIGAPLARM TARIFFEELFRLFW SIEIDGEPQHLSNFIA

GMTHLPVVTRKRAQV

>CYP107Z27 (2515516289) *Salinispora tropica* CNH898

MSCTHPCHSLMDPTLIDDPAGGFSRIRDESPLAHAMVPGVDGPVWLVTRH
ESVRKVLGDRRFVNDPTNPVPGSSTPDLWAHAALAQQVPHEYLEHVRSMLO
LDGEVHARLRRLVSRAFTMRRITALRPRMMQLTEELLDLLPAKAEDGVVD
LVEHFNYVQPISVICALVGVPAADRAAWIRWSRALTSMESGTIGDAVTGM
VDNIRALIEQRRAEAADDLLTDLVRVRDADGDRLSEREMITMVITLVTAG
HDSTGLLLSNGLAALLTHPDQLAKLRADPSLGPQAFDELMRWCSAIVAAR
PRYATEDVELEDGLVRRGDVVI PVLVSANYDPEVFEDPHRLDISRVHEQR
RFHHVGFGDGLHYCLGAALAKHEAAIAITALLERYPGLELAVPAQRLRRA
RLPLTWRLDSLPRVLGIGG

>CYP211C1 (2515516685) *Salinispora tropica* CNH898

VLDVEGLLTRLYSEQGRQDPYPVYADLHAQGAIAALAPRPEGQRVA AVAV
GYDLVGAVLRDPEWSKQPPPGWMEQEILRTLQSSMMFINPPDHGRMRKVF
AGTFTPRRLGTLEPVINRVADELDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPATELAWYRDRVDRIDAFLDVAGKTPERLAAAANAAAAELRVFYA
DLLARRRRTPGEDLISGLVEAVDAGGVQLTEDELINNLIIVLFNASFVTTV
YMLSNGLPVLLHEPEVAAAALADDPELTAGAIDEILRLQTPVHLLARAAAPR
DTVLGGVPIPPQGQNVLLLIAAAANRDPAHFPDPDRFDPRRPGPPSLAFGLG
LHYCLGA AVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGGRMHP

>CYP125A15 (2515516818) *Salinispora tropica* CNH898

MTEPRIPVGFDFDTPAVLERRVPREEFAELRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMASRSDSTYSTRENTAIARFQPGTTRADLEMQRVIML
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
ADVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGVDPLTAAA
ELLAYAMEMANERQLNPSDDLVTKL VNAQIDGEHLTTDEF GFFVMLLAVA
GNETTRNAITHGMLAFLEHPEQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLGGQAI SAGQRV ALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFHSIADHMPDIRKVAEPRRLRSGWINGI
REMPVRYR

>CYP208A4 (2515516897) *Salinispora tropica* CNH898

VTVAAAGRTFSGPTGAALLRSLWQLGQDRLGLMTSAARYGDAVRLGVGSR
SLYFFNHPDHAKHVLADNSGNYTKGLGLVHARRALGDGLLTSEGELWREQ
RRVIQPVFQAKRVAGQAHAVAEEADRLIARLRARRGRGPVNLTDEFTALT
LGVLGRITLLDANLDAFTTVGA AFEEMQNQAMFEMASMSMVPWVPLPQQ
RFRRARRELERIVGRIVADRTARGE GTGADDALSRLIASTRDEPDGVAR
RRMRDELVTLLLAGHETTASTLGWTFHLINQDPRVRVRLREEAIDVLGGR
LPEYADLARLTYTKMVVSEAMRLYPPVWMLSRLARDADVVDGYPPV PARAD
VLICPYTLHRHPAFWPEPERFDPERFDPEVTTDRPRYAYVPFGAGPRFCV
GNHLGLMEAVFVAMVSREFDLVAPVGQPVVAEPMLSLRVRGGLSMTVEP
VS

>CYP154M1 (2515516926) *Salinispora tropica* CNH898

MRRRC SVVIDPAGTDIHAEGARIRANGSVSQVELPGGVLAWSVTGQQVAR
KVLSDQRF SKDPRKHWT DYLEGRIGQDFPLIGWV LMDNLT TAYGSDHSRL
RKPCANAFTPRRVEALRPAVERAAVELL GELATVSPTESVDLKARYAHPL
PSRVICDLFGVPEEDREEMLRGGEVNV DTRVSAEEAAAANVERWHQQMLDF
IEEKRRNPGPDLTSDLIAAQQAEGSRLTDSEMVGTLHIMLATGT EPVKNL
IGNAVFALLTHPEQLDLVRSGRAGWDDVIQETLRMQAPVAHL PFRFAVED

VDIDGVTIRRGDPLLNVNFAAIGRDPDVHGDAAEFDITRADKEHLSFGHG
VYRCIGQPLALREAEIALRMLFQRFPNLVLAVPPEEVTPOPTFIMNGLDT
LPVLLKGRA

>CYP211B1 (2515517356) *Salinispora tropica* CNH898

MDASEAVALLMSPLGRIDPYPTYERLRAHGPFVVQTAAGFFVVTGYTEADT
VLRNARLAFEVMDDELRDDVFPHWQDSPAMKSIARSMIRANPPNHGRMRR
LAAGAFTPRRIAALREVVTQADELADDEMIRAGRDGAPVDFMGSFAYPLP
VAVICALLGVPAADWARFRGWASDLTAVLEPEITPQELTVADAGASELRD
YFTELIAQRRRAPADDLTALVQTHDADGDRLSGEELLANLVLLLVAGFE
TTTNLLGNGLVVLLAHPDSATALRGQPELAPGYVDELLRYDSPVQLTTRT
VRESVLLAGVELPAGSWVLVLLGAANRDPERFTDPTRFDPGRAQSPPLSF
GAGAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRNRLTLRGYET
LPVTVSAIAADHGTPAGVARGTP

> CYP107AX1 (2515518410) *Salinispora tropica* CNH898

MTSRPTAVFDQCLLRDPHSRYNALRDQAPVHHVLTDPGAPAWLVTRYNDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPPELDAHLLNRDPPDHTRLRLAA
AACTPRRVADLHPAVERIVSTLLDGLAGHDRAELIGSLASPLPLQVMHEL
LGLPTQANIDFRTWTNTLLSADANQPAQSRAAMANMRRFLIEQLAHKRAQ
PGDDLLTGLLAAREDDDLTDELVAMVFLLMFAGYDNTAALIGTVTHAL
LTNAELHEAVRGGSALDELIDEVLRWNPFAFPLAVRRFAREPITIAQGTI
PAGDRIWLCLASANRDPAQFTQPDDELGIIGLRRPHLSFGHGIHYCLGAPL
ARLQTTIAVTSLNRFPEMRLAVSAHDIRWRESFRLRGLIALPVYL

>CYP107AW1 (2515518632) *Salinispora tropica* CNH898

MESVTSTSAPPPVPYIADPYPALARIRANGPVSILHSDEGIPMWVIARYR
NVRAALADPRFGQDARRAQTLADNRVAGVTLLGGDVIHMLNSDPPDHTRLR
HLVQGAFTARRVAAMRPLVERITTSLLDGVGGRQTVDLVQDFAFPLPMLV
ICELLGFPAEERDAYRSWSTAILTHNDDPAAFATALRDMTDYIEVQLRHR
RARPGEDLLTELLAARDAGQLTDDEIVGMVFLLLIGGHETTNNLLGTATL
ALVRNPDQHRWLLANPHALSEAIDEFLRYESPVAMATLRFTTAPVTVDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRDRTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLGRYPGLTLAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP105AB2 (2515519026) *Salinispora tropica* CNH898

MTETASIATTRTASGQLTDAEFFVQRCFPFTAPTEYEQIREESSIAKVRL
KNGGEAWWIAGHELGRSVLADRRFSSDRRRDNFPFVSTDPETRAQLQSQP
TSM LGMDGAEHAQTRRALMGEFTVRRMAGLRPRIQQIVDQHIDEMPLATPQ
RSVDLVEALSPLVPVSLVICELLGVADHDFQGLTGPLLRRHTTPPEVRL
RIQEELNTYLGTLIDHKLTDPDILLSRQIAKHRDNGTFDRASMVSLAFL
LLVAGHETTANMISLGVVGLLQHPDQLVLIKDDPKTPLAVEELLRYFTI
ADSVTARVATEDVQLGDTTINAGDGVVISGLAADRDPTVFAEPDRDLER
GARHHVAFGFQHCIGQTLARMELRIVFDTLFHRIPTLRLAAPLDDIPF
KSDAFVYGIEELPVAW

>CYP1005A1 (2515519055) *Salinispora tropica* CNH898

VSAVLFRSWTKTAGTHWPAITRVADQQGTEHLVVTOHALVRQVLTQDQTY
RPDNALDAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTGLVAERVAAIRRTLDSSGSTDLHAELNADLPLLVLAR
LVELPDAPVSAVKQFARAALFWAPLDADRQLALADEVGRFHHQVLRFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLADEP

TVRAALRADSVSVADVVEEGLRLEPPIVTWRRVAAVDSTLGGSTVAAGTS
VLLWLARAGRDPVVVPAPDEFRRPGQGRSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQVTPLLDGVTVVRPPWYPDNLTFRMPDAFVVR

>CYP1004B1 (2515519521) *Salinispora tropica* CNH898

MTTSALAPRFDALDPNVVEDPYPEYARLRAAGPLCRLGPGSWGVTREFADV
TNLQHDPRLGSEFFPAGYHEISVGDGPASAFFQRMVLYRDPDPHIRLRRLM
SGAFTPAVVRRLRSHIEDLVDELLAPALAAGRMDLVPELAYPLPVRVVC
LMGIPPESTEDVRHHATNIGRAFTAVVPEQARTEADEAVSWLREHLGALL
EQRRSHRGDDLLSRLLEDAEESGDNLDAEIVDNTVFSFFAGFETTVHMIT
TGTAALLAHDPQLARLRADPSLVTTAVDEFWRWDAPIQGTARYVREPIEI
GGRTIRRGRLVLMIGSANHDERRFAQPDRLDVGRQDNPHVAFGGGAHL
LGAFLARMEGAVVFDRLARLAVLEPDGPTVREPNTPFRAVASVPVRIGDR

>CYP1004A1 (2515519525) *Salinispora tropica* CNH898

MRANTARPHLSAAFLATKDDPYPAYAELRARGPLTRAELGQWLVTGHGAV
SALLRDGRLESMPAEYTRLTGLGDSGVDLHRLVLTTRTPPEHTRLRRI
GRALGTPVVRRLHDRIAAATDALLEPALDRGRLDVVTELAVALPVGVC
LIGIPTGDRPAVLTRVTALAKVFDAANLSPADLADINTALPWLHDYFGDL
LAVRRAGSGGPTLTEMWEEASDRLAVADFVDNMLFLFHAGFETTMGLV
SNGVAALLNNPEQLGRRLRADPALVPSAVEEFLRYDAPIQNVIRVARKPVE
VAGQKIRAGRTVLLLLGAANRDEEVFADAERLDVGRDPNPHLGFGGGLHH
CVGTALARLMMAVVVFERLVDRTVLGPAAPAVRRRHSLSYDHLPLAVA
AR

>CYP107AY1 (2515519736) *Salinispora tropica* CNH898

MRAELAPIPRSGARLGQEYDQLRNAGDVHQVLLPDSSLAWLVTNPCLVSR
ALTDPRALNRRHSRGSWSGFALPPALDANLLNLDAPDHTRLRLRVGP
SPQRVSAALRPRIIRTAEHLLDTLVATSGPVDLVTGYCTPLSVQVIADLMG
VPEAGRDLRTWTDMLTSYPPDRDAIRQAVVELHGYVVDLIDTKRQQPG
DDLSSALVTIEQDGDRLTRDELTSALFLILFAGYENTANLIASVLRLLD
HGGLRGVQLPEAIEETLRLEPPAPAAVRRFPTEEMTIGGATIPAGDIVLL
SIAAATRGTAGNAARLAFNGPHFCLGAALARVEAEEALTVLARRLPD
LALPVAQVRWRPTFRTHGPAELLVTW

>CYP107E3 (2515520828) *Salinispora tropica* CNH898

VTIDQEIRKYPFCESPGIGIDPTYGLLRSTEPLARVQLPYGEVSWLATRY
EDVKTVLTDPRFSRAAAQKQDQPRTREEMTYEGIIGLDPPDHTRLRKL
KALTARRVNIAIRADAQRIANEYVDGMIAGKSPGDLVELFALPYPVTVICE
LLGVPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFGYMGKLVAQRREEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTGVEVTVSTHINPFVYALLT
HPELMAQLRADRSVPAAVEELLRMIPLNPAAMFPYAVEDVTLSGITVR
AGEPVLVSLPGANRDPEVFENPETFDFTREQNPHVAFGHGPHHCLGAQLA
RMELQVALHTVLDLRFDPDLADGDEGVSWKSGLLVGRGPSRLLLAW

>CYP107AY17 (2515520887) *Salinispora tropica* CNH898

MTGNPTPIPRSGAQLGQQYDHLRKTGDVHEVLLPDASLAWLVTNPVEAAR
ALADPRALNRRHSRGGWSGFALPPSLDANLLNLDAPDHTRLRLRVGP
SPQRVAAALRPGIRRAAEHLLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
IPEAGRTNLRAWTDMLTSYPPDRDAIRQAVVELHGYVVDLIDVKQQQPG
DDLSSALVTIEQDGDRLTRDELTSALFLILFAGYENTANLIASVLRLLN

HGGLNEVPISEAIEEALRHEPPAPVAIRRFPTEDIIIGDVTIPAGDTVLL
SIAAATRGLDGNAAARLAFGNPHYCLGAALARAEEAALAVLARRLPGLT
LAVPVAQVRWRPTFRTHGPAELLVSR

>CYP107AW7 (2563541222) *Salinispora pacifica* CNY498

VETVTGTSTPPFPYIADPYPTLARIRANGPVSILHSDEGIPMWVIARYR
DVRAALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAAAFATALREMTDYIAVQLRIR
QTRPGDDILTELLAARDAGQLTDDEIIGMVFLLLIGGHETTNNLLGTATL
ALMRNPDQHRWLLANQHALLPEVIDEFLRYESPVAMATLRFTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLLAFGHGLHRCCLGA
FLGKLEGEVALGALLRRHPRLALAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP107AX4 (2563541236) *Salinispora pacifica* CNY498

MTSQPAPVFDQLLLRLDPHRRYNALRDEAPVHHIRTPDGAPAWLVTRYDDV
RAAFTDPRLSVDKRLSSTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVERIVSTLLDGLVGHDAQELIGSLASPLPLQVMQEL
LGLPTQTSVDFRRWTNTLLSADANQPAQSRSAMANMRRFLVEQLAHKRAR
PGDDLLTGLLAAREDDRLTDDELVAMLFLLMFAGYDNTAALIGNVVHAL
LTNTELPAAVRTGSLALDELVDGVLWRNPSFPLAVRRFAREPITIAGQTI
PAGDRIWLCLASANRDPAQFTAPDTLGTGMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVTILLDRFPGIRLAVPAHDIRWRESFRLRGLVALPVFL

>CYP211B11 (2563541657) *Salinispora pacifica* CNY498

MDASEAVALLTSPPGRLDPYPTYERLRAHGPPVSTAAGFFVVTGYTEADT
VLRNPRFEVMDDEERDGVFPHWQDSPAMISISRSMIRANPPDHSMRRLA
AGVFTPRRVAALREVVAQAADGLVDEMIRAGRGAADVDFMGSFAYPLPVT
VICALLGVPTADWARFRHWASDLTGVLPEEITPQELAIADAGASELRDYF
TELIAQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVLLTHPDSATALRGQPELAPGYVEEFLRYDSPVQLTSRTVR
ESVSLAGVELPAGSWLLVLLGAANRDPARFTDPAFDPRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRHRLTLRGYETLP
VTVGAVPADPGTPAGVALGTP

>CYP125A65 (2563541866) *Salinispora pacifica* CNY498

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMAVSRDSEYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPPEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGVDPMAAAA
ELLAYAMEMANERQRNPSSDLLVTKLVNAQIDGEHLTTDEFGFFVMLLAVA
GNETTRNAITHGMLAFLEHPDQWELFKAERPRSAVEEIIIRWATPVNVFQR
TALVDTTLGGQAITAGQORVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REMPVRYR

>CYP208A22 (2563541964) *Salinispora pacifica* CNY498

MTVIADRGGRIPPGPPVTAGLRLLLLALGRDRLGMMTSAAA EYGDVARLPV
GPKKLYFFNHPDHAKHVLADNHANYQKGIGLVHARRALGDGLLTSEGEW
RKQRRVIQPAFQNRRLAQYAGAVGQEATRLVARLATRVDPGPPVDVLDEMT
RLTLGVLGRTLLDAELTGFGHVGESFAAVQDQAMFELETNTVPTWIPLR

RQRRFRRARQHLQEVDVLAERGQAVEGRDDVLSRLILSTRAEADPQLG
RERLRDELVTLLLAGHETTASTLGWSLHLLDQHPELRERVRHEARTVLGD
RVPAYEDLHQLRYTAMVVEEAIRLYPPVWILTRKARAEDIEGGYRVPAGA
DILICPYTLHRHPRFWAEPERFDPERFDPSTTDRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLAVLLRDLRLEGLPGRAVVPEPMLSLRVRGGLPMTVR
RVD

>CYP124M3 (2563541985) *Salinispora pacifica* CNY498

MTVPIELDAVDLSDNDFWTKPLEYRHAVFNALRAQPGLPHFASPEFGSAP
RGRGYALTRMDDVLAVSRNPSVVISGKGNVAMEVPAEFLDQSLITMDNP
RHARLRRIVSRGFTMKAVTALMDNASQMAKQIVDEVVERGECDAVVDISA
KLPLGIIICNMMGIPDSQQQFVFEQTNVMLGVQDPEYVGEQNDAMLAMSV
SQELADLMHELATLRAKNPTDDLISKLLSAEVNGEALTPSELAHFFILLT
GAGTETTRNAISWGIQLLTQSPEQREAWLSIDGVTPTAVEEIVRWSSPV
ISQRTVAEDAEPVKLAGQLLGPDKVLMFYGAANRDPNYFVHPEGFDVR
RSPNPHVGYGGPGPHFCLGAHLARLEISVMFRELLTRIPDIHATGEPARL
KSPLINGIKRLPVAFTPGAR

>CYP1207A12 (2563542371) *Salinispora pacifica* CNY498

MITVPLTDRYLLDEDLVADPYPYLAELRVAEPVRWSPVHRAWLVTGYEAA
ASCYAEPAISADRIGPMLAQTPLELLSPEAARAFTIMAGWMVFVDPPEHR
RLRSVFRGAFGARQVRNRPMVQEAVTRLTARTGTGTVGDTVDLVAEFARPL
PATVAASWMMGVVEDTAVFQRWAIQVGDALGTVQSPEEHRSQQALLDL
FDYLRMLVTRRATPGEDLISAALANGLVGDSVSEDEFVAMLTHVAFAGG
ETTSNLIAVGTWNLLRHPDQLALLRAEPELAPVAIEELLRFDGPSKMSIR
HVKNDELAVAGQRLRAGQRLYVVVTAGANRDPDYFDHPNELDVRRHPNPHLG
FGQGGHFCLGAPLARLVAGAALTDLLAAAPGLALATAEVRWQPSLLNRS
LQALPVR

>CYP105AB28 (2563543200) *Salinispora pacifica* CNY498

MTETASTTTPGISSTTTSGPASGEVTDAEFPLERGCFFSTPTEYEQIREH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFPFVSTDPE
RKQLQDQPTSMIGMDGAHAQARRALMGEFTVRRMAGLRPRIQQIVDQHI
DEMLSSDQRTADLVEALSPLVPVSLVICELLGVYADHDFQARSGLIRH
TTPTEVRLRIQKELNTYLGALIDRKVADPTDDLRSRQIAKHHAAGTFDRT
SLVSMAFLLLIAGHETTANMISLGVVGLLQHPDQLAMIKEDPEKTAPAVE
ELLRYFTIADTVTARVATEDVQLGDTTINAGDGVVISGLAADHDPTVFTD
PDRDLERGARHHVAFGFGPHQCIGQTLARMELQIVFDTLFRRIPTRLRLA
APLDDIPFKSDAFVYGAERLPVAV

>CYP1005A6 (2563544025) *Salinispora pacifica* CNY498

VSAVLFRSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLTQV
TYRPDNALDAVTPIPVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVAD
ALHPAKVAAQRPWLTELVAERVAAIRATLDSGGSADLHAELSADLPLLV
LARLVELPDAPVSAVKQFARAALFWAPLDADRQLALADEVGRFHQVLR
EFADTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLSHRL
AGEPTVRAALRDGSVSPNVVEEGLRLEPPIVWRRVAAVDSTLGGTAVP
AGTSVLLWLARAGRDPAIVSAPDEFPRPGQRGSRRLAFGAGAHRC
LGDQLARMEAAVVVERVSPLLDGVTVVRAPWYPDNLTFRMPDAFVIR
RGPAAGAAER

>CYP244A10 (2563544348) *Salinispora pacifica* CNY498

MQDTAQANLAEAPEVRMPIELRPTDCLPELLAAARVAPVVRTPYLDQHAW
VVCDELVKQALHTPKLGKDVALAPDWMRQPGQMVTAMPPEYARMMVMS
DGEHHARIRRIHAPVLSRPNTERWSERVAALVDGFLDNLDSADGTEVNLI
TDYTHKIPLAFTAEMGLPPGAERRLHDITEVMLYSADYALRQQAVGELF
EAVQEWVRDPAGLREGVITGLLASADGPDATVTKGEAIVWTLSLIINGYE
TTGSLISAALYEALRRPARERPHTDEAVAAWIEETLRVQPPVPHTTWRF
LADLDLGGYLIPRGAPVQISLAAANLDPDEDADSFDAQRRGRGHLISFGLG
AHYCIGAPLARVQTKIALRGFLRRFPQARLSPDTAPRWESEWMIRRM SVL
PALLA

>CYP107AY9 (2563544368) *Salinispora pacifica* CNY498

MSQDQPTRAELAPIPRSGARIGPEYDQLRKTDGVHQVLLPDTSMWLVT
PDLVSRALADPRLALNRKHSRGGWSGFALPPALDANLLNLDPDHTRLRR
LVGPAFSPQRVAALRPRIQRTAEELAETMVATGSPVDLVTGYCTPLSVQV
IADLLGVPDAGRTDLRAWTDMLTSYPPDRDAIRQAVVELHGYVNLIEA
KQQRPGDDLSSALVATEQEGDRLTRDELTSLAFLILFAGYENTANLIAS
VLRLLDHGSLRGVRVSEAIETLRLEPPAPAAIRRFPTTEMTIGGATIPA
GDTVLLSIAAATRGADGNPARLAFGNGPHYCLGAALARVEAEEAITVLAR
RLPGLALAVPGAPVRWRPTFRTHGPAELLVAW

>CYP107FH3 (2563544564) *Salinispora pacifica* CNY498

VPIELDEAFVQDPYAVYEKLRAEGPAHRVRMPPGVPLIGGLPVWLITGYD
AVRAALADSRSLTDLHRIDGLFAQKDPDRSHRGGFSSALASHMMHTDPPD
HTRLRKLVSKAFTLRRAIEALRPRIQQTDELTELTGHDTVDLLDAFAFP
LPIRVICLLLGVPVAEQENFRSWSRALVSGHSPEAAATAATEVAAYLGDL
VERKRHATTDDVLTALVAHDVDDRLTHTELVSTAYLLFVAGFETTLNAL
GNGTLHLMLHRDQWTALRADRALLDNAVEEFLRLESPLKHATFRCATESL
RIGDAEIAAGDFVLLAIASANRDPRRFPDPHTLDVRRPAAGHLAFGHGIH
HCLGAPLARVEVRMAFDALLDAFPDMRLATDPAGLRWRNSTIIRGLDSL
P VHLNN

>CYP2054A3 (2563544570) *Salinispora pacifica* CNY498

MSISADSEQVQGRPFDPYGAHRDDPYTFLAGLGVFYAPLLDAWCVTRRED
MVAVLRDDRSFSARDHNPRPAVALPDDVNQMFRWTRGAGAVAVGSLDPPA
HAKIRDVLNIGFTPARVRAFEPTMRAVAADLADRIGDAPEFDFIADFAPV
FALEVIGRRLGVPDYLDRCRTWSEQRIELMMAQGDADHDRLREFARGLM
EFGEFARSLVRDRVADPRDDLISELLHDGKAGRTLTADEVAVQIPTLIFA
GHMTCAEALGTIFYQQLRSPGGWARVVDRTIPVGDVVEEGLRFDSPLAGM
YRTATRDVTVGGIRLTAGSRLLLLLYGAAGRDSRAHACPAAFRPGDGSSGH
LAFGHGIHFCLGAGFARAELRVAVEVLAARMPDLGLAPGRPPRFRPVFPL
RALTEL RVTRSGGSGP

>CYP161N4 (2563544575) *Salinispora pacifica* CNY498

VNTVAQLPFTQTHVLDVAPALRLLQSRGKVHRVRTPEGVPAWLVTGHAEV
QQLLDDDRLSRSDPGGRDGGTALLNKLLGPLADDPRLRSLLEPQFTPER
LEPLRAVVEKLTEQHLDELATRTPPVDLRPTLAMSPLILVLCEWLGVPAE
DKGRFSVWTQDAAGVQDPERSQRGLAELFGYCRQLVAAKRQDPGDDVISR
LIATAGIGDTEVVALTALLLFGGYETTVARIGTGVLTLTNPQWAAVRA
DPALVPATVDELLRRSMPNPNHNGMPRFAVTGFEIDGAAIRAGDLVLLNI
IAANHDETAFFDPDRDLITRPTAGSLAFGYGRHSCVGAPLARMVLRVALS
RLITRFPDLRLAVGVDELKLRHETLVGGLVELPVTWGPR

>CYP107E37 (2563545402) *Salinispora pacifica* CNY498

VTIDQEIREYPPFRESRGIGIDPTYELLRRTEPLARVQLPYGEVSWLVTRY
EDVKTVLTDPRFSRAAAQGKDQPRTRAEMTYEGIIIGLDPPDHTRLRRLAG
KALTARRVNAI RADAQRIANEYVDEMI AKGSPGDLVELFALPYPVTVICE
LLGVPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFDYMGKLVAQRRAEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTG VETVSTH IPNFVYALLT
HPELMAQLRADRS LVPAAVEELLRMIPLNPAAMFPRYAVEDVTLSGITVR
AGQPVLVSLPGANRDPEVFENPETFDFTRDQNP HVAFGHGPHHCLGAQLA
RMELQVALHTV LDRFPDLRLADGDEGVSWKSGLLVRGPSRLLVGW

>CYP154AJ2 (2517974478) *Salinispora pacifica* CNT584

VDES L FVIDPAGADIHGEGARLRASGPITRVLLPGGVEAWSVTGYHAAR
QVLADARFAKNARQHWPAYVNGDLGPDFPLI AWARDNMSTADGES HARQ
RRLVAGAFSPQRI AALQPRVERAVARALDELA AQA AERPGEPI DLKERYA
HPVAARVIGELLGVPDGD PDGILDRAGYIESTPQRAAE EFALLRSKIETL
VAAKRRAPGEDLISDLIAAQPSGCPVAGAGAGSDAELVGLAQLMLNTGAE
PARNLITNTVLALLTRPGQRAQVMSGEVSWGDVVEETLR TDAPVAHL PFR
FATEDVTIAGTTISRGDPVLVG YAATGRDPELHGATAGEFDARRADKRHL
AFGHGVHRCVGPALTRMEVRIAVEALFTRFPGVRLAVEPKELVGQGT FVM
NGRREL PVQGLCAQP

>CYP211C9 (2517974539) *Salinispora pacifica* CNT584

VPDIEGLLARLYSARGRQDPYPVYADLHAQAAIAALRLGPGRQ RVA AVAV
GYDLVA AVL RDPEWCKQPPPGWRDQEILRILQSSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVINRVTD ELLDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPTTELAWYRERVDRVDAFLDVAGKTPERLAAAANAAGAE LRAFYR
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELISNLIVLFNASFVTTV
YLLSNGLPVLLAHPEVAAALADNP ELAAGAVDEILRLQTPVHLLARA APR
DTVLGGVSI PQGQNVLLLI AAANRDP AHFPDPDRFDPRRSGPSSLA FGLG
LHYCLGAAVSRLEGR LALPRLLSRFPRLRILEQPVYSGSLFLRGIDKLSV
SPGGKEYP

>CYP125A65 (2517974672) *Salinispora pacifica* CNT584

MTEPRIPVGFDFTDPTVLERRVPREEFAELRR TAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMAVSRDSETYSTRENTAIARFQPGTTRADLEMQRVIML
NVDPP EHTKLRAIVSRGFTPRAIHALRGSLAERAERIVRDAAVRG TGDFV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGVDPMAAAA
ELLGYAMEMADERQRNPSDDLVT KL VNAQIDGEHLTTDEFGFFVMLLAVA
GNETTRNAITHGMLAFLEHPEQWELFKAERPRSAVEE IIRWATPVNVFQR
TALVDTTLGQQAISAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REMPVRYR

>CYP244A5 (2517974834) *Salinispora pacifica* CNT584

MSATTNAELHEAPETAMPVDPGLFDCMPDLIAAARIAPVVRIPYLG RHAW
VVC DRELVKQAL THPKMGKDITLVPEWMRQPGLMVTAQPPPEYARAMIMS
DGENHARIRRIHAPVLS PRNTERWGEQVADKVEGF LDEL SQAAAGSSAEV
DVVTNYTHKIPLAFISEMLGLPPVAEHRLRSITDIMLYSSDYAARREAIG
GLFGAVEEWVRNPAGLRDGVITGLLAGSDGP GAAVTEGEVIVWTLGMIIT
GYETTGS LISTS LYEALRRPPHERPRTDEDITAWIEETLRVHPPFP HPTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRQPGEGADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAKIAVRGFLRRFPQARLSADTAVQWESEWMIRRM

SFLPAVLS

>CYP245A11 (2517974838) *Salinispora pacifica* CNT584

MSSTTLPRFTLTGWTTREDIVNPYPVYRRYREVAAVHRGEAGGDAPETFYV
FSYDEVAQVLSSSCFGRGRSLDATAASVPVPADQKALRAVVENWLVFMDP
PRHTELRSLLNRSFSFPRIVTGLRPRIARIAQELLSRLGQQVETDLVEGFA
APLPILVIAELLGIPAERHGWLRNTAIALQEASSSRARRDTDGYARAEAA
AQEFTEYFREQVCLRRGSTGDDLLTILANAQLRGAPVSLDAVVGTAVHLL
TAGHETTTNSLAKAVLALQAHPAVLEELRGADRLTADSIEEFRLRYDPPVQ
AVTRWTHQDITLGGWDVPRGSRVVALLGSANRDPARFPLPDALDVRFPAD
RHLGFGGLGIHYCLGATLARAEEIGLQTLNLGLPTLGYPAQYVDYADDMV
FHGPSRLILVNPGERFC

>CYP107AW6 (2517974921) *Salinispora pacifica* CNT584

VETVTGTSAPPPVPYIADPYPTLARIRANGPVSILHSDEGVPMWVIARYR
EVRTALADPRFGQDARRAQALADNRVAGVTLLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLAGRKTVDLVQDLAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAVFATALREMTDYIAVQLRLR
RSRPGDDLLTELLTARDAGQLTDDDEIVGMVFLLLLIGGHETTNNLLGTATL
ALLRNPQHRWLLANQHALPEAIDEFLRYESPVAMATLRFTTTTPVTVDDV
VIPAGELVLVSLGGANRDPDRFPAADRLILDRRDTGHLAFGHGLHRCCLGA
FLGKLEGEVALGALLRRHPKLALAAEVRQLQWRDTIMLRGLESPLVSLHG

>CYP107AX10 (2517974934) *Salinispora pacifica* CNT584

MTAQAPPVFDQRLRLDPHRRYNALRDQAPVHHVRTPDGAPAWLVTRYDDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVERTVSTLLDGLAGNDHAELIGSLASPLPLQVMHEL
LGLPTQTSVDFRTWTNTLLSADANQPAQSRSAMANMRRFLVEQVAHKRAR
PGDDLLTGLLCVREDDDGTLTDELVAMLFLLMFAGYDNTAALIGNVIHAL
LTNAELAEAVRTRSLALDELVDGVLRWNPSFPLAVRRFAREPITIAGQAI
PAGDRIWLCLASANRDPAHFTEPDEIGIADMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVASLFDRFPGIRLAMPVQDIQWRESFRLRGLVALPVFL

>CYP105AB27 (2517975149) *Salinispora pacifica* CNT584

MTETASITTPGTSSTTTSEPASGQVTDAEFFPVERGCPFSTPVEYEQIRDH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFFVSTDPEP
RKQLQDQPTSMIGMDGAEHAQARRALMGEFTVRRMAGLRPRIQQIVDQHI
DEMLSSDQRTADLVDALSPLVPVSLVICELLGVYPYADHDFQARSGLIRH
TTPTEVRLRIQEELNTYLGALIDRKVTEPTDDLLSRQIAKQRAAGTFDRT
SLVSMAFLLLIAGHETTANMISLGVVGLLQHPDQLAMIKDDPEKTPPAVE
ELLRYFTIADTVTARVATEDVQLGGTTINAGDGVVISGLAADHDPTVFTD
PDRDLERGARHHVAFGFGPHQCIGQTLARMELQIVFDTLFRRIPTLRLA
APLDDIPFKSDAFVYGAEKLPVAW

>CYP211B16 (2517976031) *Salinispora pacifica* CNT584

MDASEAVALLMSPGRDPYPTYERLRAHGPPVATAAGFFVVTGYAEADT
VLRNPRFAVMDDEERDGVFFHWQDSPAMMSISQSMIRANPPDHSRMRLA
AGVFTPRRVAALREVVAQADELIDEMIRAGRGGAPVDFLGGFAYPLPVT
VICALLGVPAADWAQFRRWAGDLTGVLPEEITPQELAVADAGATELRDYF

TELIAQRRRDPADDLTALVQTHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLFVLLTHPESATALRDQPELAPSYVDELLRYDSPVQLTSRTVR
ESVPLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPGRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPVRRSRLTLRGYETLP
VTVGAVAADHGTPAGAALGTP

>CYP105BL3 (2517976240) *Salinispora pacifica* CNT584

MSSHSAAPDPETATPLHTLAPELTFFQFERATPFPDPPEAYTELSGRCPV
APVRMADGKPSWLITSFEGVRAALSDPRLSSDMSPGFPNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVTHVALVPSRVACHLVGIPLSEYELFTGMAAKLMDSTSSADQIA
ALQDMVSYFDTLVTDREHHDRDDLGHMVRRYLATGELDREMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHLMPGAVDELMRYLPMI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLSFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DEDIMYRVSELAVAW

>CYP161T1 (2517976498) *Salinispora pacifica* CNT584

VTTQVFRTKTPIGHPAWLVTDYESVRDLLSDPRLRLTHERPGEAARLSNS
VIFGRPQPSSETEAADHTRMRKLAQWFSARRLATFRPRLRELVDGLLDE
LAATPKPADFHQVVSFPLPALVICEL LGVPYADREQFRWSDDAADMYDQ
ERSVGGYQALRDYIAELAQVRLRMPGTDLISDLVESHRTPEGFTLDQVV
ELGLTLLFAGHETTVAIDNGAVLLATHPEQRDLRAGDPSLLDAAVEEIL
RGSVPRMNFARPD DTPAGALPRWANTDLVIGDVTVRAGELVLLGLAHA
NVDERFFAKSARFDVGRVPNRHLTFGIGPHFCAGAPLARLELQELFVALL
ERFPGLRLAVPAERLEPRANLLTGGMTRVPVTW

>CYP208A27 (2517976903) *Salinispora pacifica* CNT584

MTVITKRGGRVPPGPPVTAGLRLLALGRDRLGMLTSAATEYGDVARLPV
GPKRLYFFNHPDHAKHVLADNHANYAKGIGLVNARRALGDGLLTS DGELW
RRQRRVIQPAFLNRRLTQYAGVVGQEATRLAERLATRVDPVPVDVLEMT
RLTLGVLGRTLLDAELTGFGHVGESFAAVQDQAMFELETLSAVPTWIPLR
RQRRFRARRHLQEVVDVLA AERGQDVEGRDDVLSRLILSTRAEADPALG
RQRLRDELVTLLLAGHETTASTLGWSLYLLDKHPQLRERVRHEATSVLGD
RVPGYADLHQLYTAMVVQEAIRLYPPVWILTRKARAEDEVGGYRV PAGA
DLLICPYTLHRHPRFWEEPGRFDPERFDPARLANRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLA VLLRDLRLEGLPGRAVVPEPMLS LRVRGGLPMMVR
RAD

>CYP1005A8 (2517977568) *Salinispora pacifica* CNT584

VSAVLFRSWTKTAGTHWPPVTRVADQQGTEHLVVTEHELVRQVLT DQVTY
RPDNALDAVTPIPV PALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTKLVAERVAAIGATLD SGG SADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARA ALELFWAPLDADRQLALADEVGRFHQV LREFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLAGEP
TVRAALRDGSVSVANVVEEGLRLEPPIV TWRRVA AVDSTLGGTAVPAGTS
MLLWLARAGRDP AIVPAPEEF RPGQRGSRRHLAFGAGAHRC LGDQLARME
AAVVVEQATPLLDGTSVVRAPWYPDNLTFRMPDAFVIRR

>CYP161N4 (2517977794) *Salinispora pacifica* CNT584

VNTVAQLPFTQTHVLDVAPALRLLQSRGKVHRVRTPEGVPAWLVTGHAEV

QQLDDDDRLSRSDPGGRDGGTALLNKLLGPLADDDHPRLRSLLLEPQFTPER
LEPLRAIVEKLTEQHLDELATRTPVVDLRPALAMSLPILVLCEWLGVP
DKDRFSAWTQDAAGVQDPERSQRLAELFGYCRQLVAAKRQDPGDDVISR
LIATAGIGDTEVVALTALLLFGGYETTVARIGTGVLNPDQWAAVRA
DPALMPATVDELLRRSMPNPNHNGMPRFALTGFEIDGAAIRAGDLVLLNI
IAANHDETAFFDPDRLDVTRPTAGSLAFGYGRHSCVGAFLARMVLRVTLS
RLITRFPDLCLAVGVDELKLRHETLVGGVLVELPVTWGPR

>CYP205A3 (2517977799) *Salinispora pacifica* CNT584

MPISADSEQVQGRFPDPYGAHRDDPYAFLAGLVFYAPLLDAWCVTRED
MVAVLRDDRSFSARDHNPRPAVALPDDVNQMFRTWRGAGAVAVGSLDPPA
HAKIRDVLNIGFTPARVRAFEPTMRAVATDLADRIGDAPEFDFIADFVAP
FALEVIGRRLGVPDDYLDRCRTWSEQRIELMMAQGDADHDRLREFARGLM
EFGEFARSLVRDRVADPRDDLISELLHDGKAGRTLTADEVAVQIPTLIFA
GHMTCAEALGTIFYQQLRSPGGWARVVDRTIPVGDVVEEGLRFDSPLAGM
YRTATRDVTVGGIRLTAGSRLLLLYGAAGRDSRAHACPAAFRPGDGSSGH
LAFGHGHIHFCLGAGFARAELRVAVEVLATRMPDLGLAPGRPPRFRPVFPL
RALTELVRVTRSGGGCGP

>CYP107FH3 (2517977804) *Salinispora pacifica* CNT584

VPIELDEAFVQDPYAVYERLRAEGPAHRVRMPPGVPLIGGLPVWLITGYD
AVRAALADSRLSTDLHRIDGLFAQKDPDRSHRGGFSSALASHMMHTDPPD
HTRLRKLVSQAFTTRAIEALRPRIQQTDELIADLAGHDTVLDLDAFAFP
LPIRVICLLLGVPVAEQENFRSWSRALVSGHSPEAAATAATEVAAYLGDL
VERKRQATTDDVLTALVTAHDVDDRLTHTELVSTAYLLFIAGFETTLNAL
GNGTLHMLHRDQWTALRADRALLDNAVEEFLRLESPLKHATFRCATESL
RIGDAEIAAGDFVLLAIASANRDPRRFPDPHTLDVRRPAAGHLAFGHGHI
HCLGAPLARVEVRMAFDALLDAFPDLRLATDPAGLRWRNSTIIRGLDSLP
VHLNN

>CYP107AY8 (2517978692) *Salinispora pacifica* CNT584

MRAEPAPIPRSGARLGQEYDQLRKTDGVHQVLLPDTSLAWLVTSPELVSR
ALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAP
SPQ RVAALRPRIQRVAEELADTVVATGSPVDLVTGYCTPLSVQVIADLLG
VPEAGRTDLRAWTDMLTSYPPDRDAIRQAVVELHGYVNNLIEAKQQRPG
DDLSSALVATEQEGDRLTRDELTSLAFLILFAGYENTANLIASVLRLLD
HGSLRGVRASEEIEETLRLEPPAPAAIRRFPTTEMTIGGATIPAGDTVLL
SIAAATRGTDHESARLAFNGPHFCLGAALARVEAEEAITVLARRLP
LAVPGAPVRWRPTFRTHGPAELLVTW

>CYP211B14 (2563445754) *Salinispora pacifica* CNY703

MDASEAVALLMSPGRLDPYPTYERLRAHGPPVPTAAGFFVVTGYTEADA
VLRNPRFGVMDDEERDGVFPHWQDSPAMMSISQSMIRANPPDHSRMRRLA
AGVFTPRRVAALREVVAQADELIDEMIRAGRGGAPVDFLGSFAYPLPVT
VICALLGVPAADWAQFRRWASDLTGVLPEITPQELAIADAGATELRDIF
TELIAQRRRDPTDDLTTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLFVLLTHPESATALRDQPELAPGYVDELLRYDSPVQLTTRTVR
ESVPLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPGRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPIRRNRLTLRGYETLP
VTVGAVAVDHGTPAGAALGTP

>CYP245A11 (2563445926) *Salinispora pacifica* CNY703

MSSTTLPRFTLTGWNREDIVNPYPVYRRYREVAAVHRGEAGGDAPETFYV
FSYDQVAQVLSSSCFGRGRSLDATAASVPVPADQKALRAVVENWLVFMDP
PRHTELRSLNRSFSFSPRIVTGLRPRIARIAQELLSSRLGRQVETDLVEGFA
APLPILVIAELLGIPAERHGWLRNLAALQEASSSRARRDTAGYARAEAA
AQEFTEYFREQVRLRRGSAGDDLLTILANAQLRGAPVSLDAVVGTVGHLL
TAGHETTTNSLAKAVLALQAHPAVLEELRGADGLTADSIEELLRYDPPVQ
AVTRWTHQDCTLGGWEVPRGSRVVALLG SANRDPARFPLPDALDVHRPAD
RQLGFGGLGIHYCLGATLARAELEIGLQTLLKGLPTLGYPAQYVDYADDMV
FHGFSRLILVNPGERFCQ

>CYP244A5 (2563445930) *Salinispora pacifica* CNY703

MSATTNAELGEAPETSMPVDPGLFDCMPDLIAAARIAPVVRIPYLGRHAW
VVCDELVKQALTHPKMGKDITLVPEWMRQPGLMVTAQPPPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGEQVAAKVEGFLELSKAAAAGSNAEV
DVVTNYTHKIPLAFISEMLGLPPAAEHRLRSITDIMLYSSDYAARREAIG
GLFGAVEEWVRNPDLRGVITGLLAGSDGPGAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEALRRPPHERPRTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLI PKGAPVQVSIAAANRQPGEGADSFDTERRGHGHLST
GLGMHYCIGAPLVRLEAKIAVRGFLRRFPQARLSADTAVQWESEWMIRRM
SFLPAVLS

>CYP208A26 (2563446796) *Salinispora pacifica* CNY703

MTVIADQGGRVPPGPPVTAGLRLLLLALGRDRLGMLTSAATEYGDVARLPV
GPKRLYFFNHDPDHAKHVLADNHANYAKGIGLVHARRALGDGLLTS DGELW
RKQRRVIQPAFLNRRLAQYAGVVGQEATRLAERLATRVDPGPPVDVLEMT
RLTLGVLGRTLLDAELTGFGHVGESFAAVQDQAMFELETLSAVPTWIPLR
RQRRFRARRRHLQEVVDVLA AERGQNV EGRDDVLSRLILSIRAEADPALG
RQRLRDELVTLLLAGHETTASTLGWSLYLLDQHPQLRERVRHEATSVLGD
RVPGYADLHQLYQTAMVVQEAIRLYPPVWILTRKARAEDEVGGYRV PAGA
DLLICPYTLHRHPRFWEEPGRFDPERFDPARLTNRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLA VLLRDLRLEGLPGRAVVPEPMLSRLVRGGGLPMMVR
RAD

>CYP125A66 (2563447121) *Salinispora pacifica* CNY703

MTEPRIPVGFDFTDPAVLERRVPREEFAELRR TAPVWVNAQPKGSAGFDD
DGYWVVTRYADVMAVSRDSEYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPP EHTKLRAIVSRGFTPRAINALRGSLGERAERIVRDAAGRAGDFV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGVDPLAASA
ELLAYAMEMAHERQRNPSDDLVTKL VNAQIDGEHLTADEF GFFVMLLAVA
GNETTRNAITHGMLAFLENPEQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLAGQAI SAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
RELVPQYH

>CYP105BL6 (2563447739) *Salinispora pacifica* CNY703

MSSHPAAAPGPETATPLHTLAPELTFPQFERATPFDPPEAYTELSGRCPV
APVRMADGKPSWLITSFEGVRAALSDPRLSSDM SHPGFPNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVALVVP SRVACHLVGIP LSYELFTGMAAKLMEATSSADQIA
ALQDMVSYFDKLVTDREHHDRDDLGHMVRRYLSTGELTREMLIRLAWTT
MAAGQETT AHMIGLVAALLRHPDQLELLRREPHLM PGAVDELMRYLPMI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDP AVFERPDELDVRRN
ARQHLSFGYGP HQCPAHALARLELEVVSRLLERFPTLRLADGDADLKVQ
DEDIMYNVSELAVAW

>CYP107AY7 (2563447844) *Salinispora pacifica* CNY703

MRAEPAPIPRSGARLGQEYDQLRKTDGVHQVLLPDTSLAWLVTSTELVSR
ALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAPF
SPQORVAALRPRIERTAEELVDTLVATGSPVDLVTGYCTPLSVQVIADLLG
VPEARRTDLRAWTDTMLTSYPPDRDAIRQAVVELHGYVVNLEAKRQRPG
DDLSSALVATEQEGDRLTRDELTSALFLILFAGYENTANLIASVLRLLG
HGSLRGARASEAIEETLRLEPPAPAAIRRFPIEEMTIGGATIPAGDTVLL
SIAAATRGTDGNSARLAFGNPHFCLGAALARVEAEEAITVLARRLPPLA
LAAPGAPVRWRPTFRTHGPAELLVTW

>CYP211C6 (2563448227) *Salinispora pacifica* CNY703

VPDIEGLLARLYSAQGRQDPYPVYADLHAQAAIATLEPRPERQRVAAVAV
GYDLVAAVLRDPEWFKQPPPGWRDQEILRILQSSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVINRVTDDELDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPATELAWYRERVDRVDAFLDVAGKTPERLAAANAAGAELSFYR
ELLAHRRRTPGDDLISGLVEAVDAGGVELTEDELISNLVVLFNASFVTTV
YLLSNGLPVLLAHPEVAAAALASSPELAAGAVDEILRLQTPVHLLARAAPR
DTVLGGVSIPQGNVLLLIAAAANRDPAHFPDPDRFDPRRSGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRILEQPVYSGSLFLRGIDKLSV
SPGGREHP

>CYP1005A8 (2563449209) *Salinispora pacifica* CNY703

VSAVLFERSWTKTAGPHWPAVTRVADQQGTEHLVVTEHELVRQVLTQVITY
RPDNALDAVTPIPVPAALRVLAGHGFRLLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTKLVAERVAAIGATLDSGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAALFWAPLDADRQLALADEVGRFHQVLRFEFA
DTGGGLAAALRTTGHPDVLVGALFFLLVAGQETTSQFLTLLHRLAGEP
TVRAALRDGGVSVANVVEEGLRLEPPIVTVRRVAAVDSTLGGTAVPAGTS
VLLWLARAGRDPAIVPAPNEFRPGQQRGSRRLAFGAGAHRCCLGDQLARME
AAVVVEQAAPLLDGISVVRAPWYPDNLTFRMPDAFVIRR

>CYP154M16 (2563449289) *Salinispora pacifica* CNY703

MPDRCPVLDPSEGRDIHAEADRLRAQAPAVKVELPGGVHAWISITSYDVVRR
LLLDNRNVTKNARNHWPKFINDEIPPDWEMISWVAMDNMVTAYGKHLVRLR
RLIAKAFTVQRVETVRPQVEKLVDLGLAAETGEVVDLREKFCYPLPA
LLIADLIGMTEQQRAQTAKAMDLMVDTTVSPEQAQAILTGWRTAMDELIA
AKRREPCKDIASDLIAARDDENGGQLTDSSELTDITFAILGAGSETTINFL
DNAVTALVTHPGQLELVRSRGRAGWDDVIDEVLRVQCPLASLPLRYAVTDI
ELDGVTIPQGDPIILINYAAAAGRDPALHGDGTAGEFDVTRENKEHVSFGHGP
HYCLGAGIARLVATIGLSRLFERFPDLRLAVPAEELQPLPTFIMNGHRAL
PIRLVPAPAAATAV

>CYP107AW6 (2563449613) *Salinispora pacifica* CNY703

VETVTGTSAPLPVPYIADPYPTLARIRANGPVSIHLSDEGVPMWVIARYR
EVRAALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLAGRKTVDLVQDLAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAVFATALREMTDYIAVQLRIR
RSRPGDDLLELLAARDAGQLTDDEIVGMVFLLLIGGHETTIVNLLGTATL
ALLRNPQHRWLLANRHALPEAIDEFLRYESPVAMATLRFTTTPVTVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRDGTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPKLALATEVRQLQWRDTIMLRGLESPLVSLHG

>CYP107AX9 (2563449628) *Salinispora pacifica* CNY703

VTAQPAPVFDQRLLRDPHRRYNALRDQAPVHRVRTPDGAPAWLVTRYDDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPPELDAHLLNRDPPDHTRLRRLAA
AAFTPRRVADLRPAVEKTVSTLLDGLAGNDHAELIDSLASPLPLQVMHEL
LGLPTQTSVDFRTWTNTLLSADANQPAQSRSAMANMRRFLIEQVAHKRAQ
PGDDLTLGLLCVREDDDGLTDELVAMLFLLMFAGYDNTAALIGNVIHAL
LTNVELAEAVRTGSLAVDELVDGVLRWNPFSFPLAVRRFAREFITIAQGTI
PAGDRIWLCLASANRDPAHFTEPDEIGIADMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVASLFDRFPGIRLAVPVQDIQWRESFRLRGLVALPVSL

>CYP208A21 (2563449639) *Salinispora pacifica* CNY703

MTTTSIERRRPPGPPRAAALSMLLTMSRDRLGMMTAAARAYGDAAWLPVG
HKALYFFNHPDYAKHVLTDNSDNYTKGIGLVHARRALGDGLLTSEGELWR
EQRRVIRPSFRSGRAPDQASVIAEEVASLVERLRARAGGPPVNVVTEFTG
LTLGVLGRITLLDVDTALATVGDFAFAVQDQAMFELVTL SAVPTWIPLTR
QRRFRRARAELEIRIVDDLVARRGDVSGRDDVLSRLILSTGAEPDARVRQ
RLRDELVTLLLAGHETTASTLGWTLYLIDRHPPVRELRAEAAEVLGDRL
PAYRDLPLDRFTTMVVQEAMRLYPPVWLLPRRSRRADRVGPYVWPAGSDV
VVSPYTMHRHPGFWEPEPDRFDPLRFDPRNAADRPRYAYLPFGAGPRVCVG
SNLGMTEAVIAVAMLCRELRLVRVPTHAAVPEPMLSLRIRGGLPMSVHLA
D

>CYP105AB34 (2563450179) *Salinispora pacifica* CNY703

MTETASITTPGTSSSTATSGPGSGEVTDTTEFPVERGC PFSTPAEYEQIREH
SPLTKVRLTTGREAWWIAGHELARAVLADRRFSSDRRRDNFFVSTD PET
RKQLQDQPTSM LGMDGAEHAQTRRALMGFTVRRMAGLRPRIQQIVDQHI
DEMLSSEQRSADLVEALS LPVPSLVICELLGV PYADHDFQARSGPLVRH
HTPSKVRVRIQEELNTYLGGLIDRKVADPTDDLRSRQIAKQHAAGTFDRT
SLVSMAFLLLIAGHETTANMISLGVVGLLQHPDQLAMIKNDPEKTPPAVE
ELLRYFTITDVTARVATEDVQLGDTTITAGDGVVISGLAADHDPTVFTD
PNQIDLERGARHHVAFGFGPHQCIGQTLARLELQIVFDTLFRRIPTLR LA
APLDDIPFKSDAI IYGAEELPVAW

>CYP244A4 (2550291184) *Salinispora arenicola* ATCC BAA-917

YLGRHAWVVCDELVKQALTHPKMGKDIALVPEWMRQPGMLMVTAQPDPEY
ARAMIMSDGENHARIRRIHAPVLSPRNTERWGERVADKVEGFLDELSRAG
SGGSTEVNVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYA
ARREAI GGLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVW
TLGMIITGYETTGLISTSLYEAIRRPPHERPKTDEDITAWIEETLRVHP
PFPHTWRFPLEDIELGGYLIPKGAPVQVSI AAANRKPGE GADSFDAERR
GHGHL SFGLGMHYCIGAPLVRLEAQIAVRGFLQRFPRARLSAETAPQWES
EWMIRMSVLPVAVLS

>CYP208A12 (2550291209) *Salinispora arenicola* ATCC BAA-917

MTLDTITPRVPLGPRTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGDLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAE L TG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETINAVPMWIPLPR
QIRFRRAR RKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTL SLIDRH PGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPVWLLPRRALAPDTIGEYRV PANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVP GHRLVPEPMLSLRIRGGLPLVVRP

VS

>CYP107Q4 (2550291692) *Salinispora arenicola* ATCC BAA-917

TAGHQTTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRLGPIQF
AQPRFPSEDIELGGVTIPRGAPVAPLLLLAANTDPRRFPDPNKLIIDRLAV
GSEGHLLGFGKGIHRCLGQHLAYQEAEEVALQGLFTRFPDLSLAVPREEIPW
ILRPGFTTRTRLPLKLV

>CYP105CH1 (2550291726) *Salinispora arenicola* ATCC BAA-917

VSSLPLPTYPKLRDPADPLLPAPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHPNFYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRRLLI SEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRDTPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVNLTARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALDTVLRRLPGLHLVTPFEELPFKYRHLVWGI EEL
RVAW

>CYP154M15 (2550291987) *Salinispora arenicola* ATCC BAA-917

RGDKTHLSFGYGYPHYCLGAGIARMVATIGLSMLFERFPDLSLAVPVTELK
RLPTFIMNGHQTLPVRLTAHAR

>CYP105W2 (2550292427) *Salinispora arenicola* ATCC BAA-917

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVS RHADVRQVLS DPRMSADRRRP GF PKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEF SVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGV PYGEHEFFERRSTLMFRR
STPADERAR CAREIRDFLDVVVTDREHRPGDDVLSRLLYRQRR

>CYP1051A1 (2550292648) *Salinispora arenicola* ATCC BAA-917

MATDAAITRARTVPAWKALPAAVRDTHR ALVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAVDGLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDDILLPVLRQAQRQPDDGDDL SRLVVRARADDGQALSE
KMRRDDLVSMVAVTTETSTVVL TWLWPLL ANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMTAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMV
LKPVAPVPAR

>CYP105BL2 (2550292654) *Salinispora arenicola* ATCC BAA-917

MSSHSAAPDPETATPLHTLAPELAFFQFERSAPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTT LSDPHFSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVP SRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHDRDDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDP AVFERPDELDVRRN

ARQHLLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP105J3 (2550292749) *Salinispora arenicola* ATCC BAA-917

APGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLARRLLVDPRISSDRTNPA
WPAIVPIVAAVNDAQQKVLKIATALVGTGPEHKAQRKMLIPSFTRRM
NALRPMIQEIVDQQLDEMIKSGAPTDLIPAFASAVPVTVLYRLMGIPDDD
HGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIAERRRNPGEGVLDDLLAQ
HGANDDADHDELVSTLVVQVAG

>CYP105W2 (2550293871) *Salinispora arenicola* ATCC BAA-917

LLVAGHVTTSNMLALSVLALLTHPARLARLRAEPPERFPAAVEELLRYFTV
VEAATARTATAEVTIGGVTTAAGEGVVALGQAANRDPVFEHPDEFDPDR
DARAHLAFGHSRHICPGQHLARLEMEVALSRLFRRLPGLRLTMEVSDLPL
KEDSNIFGLYALPVAW

>CYP107Q4 (2550294304) *Salinispora arenicola* ATCC BAA-917

RAWGDSMATMNGERIPPTLVKCIELARELIAKRRAEPQDDLVTALVQAQA
EDQNRVSDDEIIGILF

>CYP245A7 (2550295164) *Salinispora arenicola* ATCC BAA-917

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENNLVFMDF
PRHTELRSLLNRSFSPRIVTELRPRIARIAQELLSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGAEGLTTDAVEEFLRYDPPVQ
AVTRWAHQD

>CYP107FS2 (2550295471) *Salinispora arenicola* ATCC BAA-917

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPFADRSEFERHAEVLGTINASSGFDIAAAGRWFDEYLAGLVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETTVNLIAN
GLLALLRHPEAMAAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAAANHDPTVFAPSRDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRRLAGLRLAVPTDSLWKASFVLHRLERLPV
TFTPDRDPNPIDSVHTV

>CYP105CN1 (2550295472) *Salinispora arenicola* ATCC BAA-917

MAAPAPQATPSTTPHPPSYPLPRECPYRPSAGTAHLRDAGPVSTVRLYDG
RTAWLVTGAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQQLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVYPYQDRTRFEPVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYTALVDNPDLPVGAUNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHAFSGHIHHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY

FAGDVPRLACLPTW

>CYP105CP2 (2550295474) *Salinispora arenicola* ATCC BAA-917

MTKSMPVQDLPAFPIPRECYPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHARAVLSDYRRVSIKPYHGNYPLLNEEFKVVDSGYADVLFVGDPP
EHTRQRMIMPSFTLRRTAVLRPDIQRIVDDKLDEMRRHGAPGDLVTEFA
QPVPMSVISFLLGVFWEDHEEFETPAHKLFVPELAEEATELGAYLERLI
QKKEQPGGTPGGTGLLDDLRDHLRAGALSRLDELVHIAMAMLVAGTDTT
NVISLGLTALLDNPDQWAAALRDNDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRATAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP211B2 (2550295749) *Salinispora arenicola* ATCC BAA-917

MDVSEAI AVLISPSGRLDPYPTYEQ LRAHG PVSQTTAGLFVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIKSIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTQADELVDLMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVLLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPAGSWLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLAR

>CYP1198B1 (2550296193) *Salinispora arenicola* ATCC BAA-917

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFG EYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQRKLVS KSFTPRIVKSFGPQITHIVDGLFEDFRDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDPRAYENPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKHPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP107EU1 (2550296197) *Salinispora arenicola* ATCC BAA-917

MVNSDPPDHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLDDGVAACGDEA
DLAETLARRLP IAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAY
NAIVDYLGRLCDAKRDVPADDLLTALVQVSADEDRLSREELVSMALLLV
AGHETTSKQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLS
ASLRFTTEPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRLDITRSTQ
GNLAMGHGIHHCVGAAALARLELEIVLIRLVARFPQMQLAVEADDLEWLVN
SFFRAPLHLPVSLRR

>CYP125A41 (2550296387) *Salinispora arenicola* ATCC BAA-917

MTEPRIPAGFDFTDPEVLAHVRVPREEFAELRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPP EHTKLRAIVSRGFTPRAINALRGSLAERA EHIVRDAAVRGVGFV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQ RSPSDDLVTKL VNAQIDG EHLTTDEF GFFVM LLA
VAGNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR

TALVDTVLGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211C1 (2550296523) *Salinispora arenicola* ATCC BAA-917

VAVGYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMR
HVFAGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPA
RVMAEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAE LRA
FYGELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFV
TTVYMLSNGLPVLLAHPEVAAALATDPV

>CYP105AB8 (2550296688) *Salinispora arenicola* ATCC BAA-917

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHCADLVKT
LSLPVPVSLVICELLGVYPYADHDFEQEHTATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDDDLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDDPDKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARRHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTRLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP154M15 (2550296740) *Salinispora arenicola* ATCC BAA-917

MNDKCPFAALDVTGQDLHGEEAARLREQGPAVLVELPGGVKAWSINRYEVI
RELLMDRRVTKNARKHWPAFIKGEIPPDWEMISWVAMDNMVTAYGKDHVR
LRKLVGRAFTQRRADALRPQVVALSTKLLDDL GATPPGEVVDLRRERFAYP
LPAMLVASLIGMSEAAQAACSKVIDMMVHTNVSPEEAQAVLRGWRAAMAD
LIESKRRTPGEDITTDLIAAREEDGSRLSEAELADTIFAILGAGSETTIN
FFDNAITALLSRPGQLQLLRTGGVTWDDMIDEVLRVESPLAHLPLRYAVE
DI

>CYP245A7 (2550296933) *Salinispora arenicola* ATCC BAA-917

GCDIPGRSRVVALLSANRDPARFPSPDVLDVRRPADRHLSFGLGIHYCL
GATLARAELEIGLQALLDGVPTLG YGTQHVDYADDLVFHGPSRLVLVNLG
ERCT

>CYP248A2 (2550297291) *Salinispora arenicola* ATCC BAA-917

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVS RFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVA

>CYP248A2 (2550297325) *Salinispora arenicola* ATCC BAA-917

GAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGSYLARLQLRTALG
AMVALPDLRLVCNPNELAYQPRTMFRGLTRL PVAFTPAG

>CYP107Q4 (2550297801) *Salinispora arenicola* ATCC BAA-917

MTTTAETSAETIDLFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGPEMWLVTRYEDVRQVLTDPRFLTNP
ADSPLEDIRAGVFKRLDFPPDLIPW

MANLLNVSDGEDHTRLRKQVSYALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVSLRAGRHR

>CYP105G5 (2550297802) *Salinispora arenicola* ATCC BAA-917

LTIIETTETPPADDSLRAPLPRQFMQRDDPSKLPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDFRFSDDFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRRAAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDEDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHI PAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQRLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTF

>CYP154M16 (2517964207) *Salinispora pacifica* CNT045

MPDRCPVLDPSSGRDIHAEADRLRAQAPAVKVELPGGVHAWISITSYDVVKR
LLLDRNVTKNARNHWPKFINDIIPPDWEMISWVAMDNMVTAYGKHLVRLR
RLIAKAFTAQRVETVRPQVEKLVDELDDGLAAETGEVVDLREKFCYPLPA
LLIAELIGMTEQQRAQTAKAMDLMVDTTVSPDQAQAILTGWRTAMDELIA
AKRREPGKDIASDLIAARDDENGGQLTDSLELDTIFAILGAGSETTINFL
DNAVTALVTHPGQLELVRSGRAGWDDVIDEVLRVQCPLASPLRYAVTDI
ELDGVTIPQGDPIILINYAAAGRDPALHGDGTAGEFDVFRNKEHVSFGHGP
HYCLGAGIARLVATIGLSRLFERFPDLRLAVPVEELQPLPTFIMNGHRAL
PVRLVPAPAAATAV

>CYP208A21 (2517964219) *Salinispora pacifica* CNT045

MTTTSIDRRRPPGPPRAAALSMLLTMSRDRLGMMTAAARAYGDAAWLPGV
HKALYFFNHPDYAKHVLTDNSDNYTKGIGLVHARRALGDGLLTSEGELWR
EQRRVIRPSFRSGRAPDQASVIAEEVASLVERLRARAGGPPVNVVTEFTG
LTLGVLGRITLLDVLDTALATVGDAFAAVQDQAMFELVTL SAVPTWIPLTR
QRRFRRARAELEIRIVDDL VAGRGDVSGRDDVLSRLILSTGAEPDARVRQ
RLRDELVTLLLAGHETTASTLGWTLYLIDRHPPVRERLRAEAVEVLGDRL
PAYRDLPLRFTTMVVQEAMRLYPPVWLLPRRSRRADRVGPYRV PAGSDV
VVSPYTMHRHPGFWEPEPDRFDPLRFDPRNAADRPRYAYLPFGAGPRVCVG
SNLGMMEAVIAVAMLCRELRLVRVPTHAAVPEPMLSLRIRGGLPMSVHLA
D

>CYP107AX9 (2517964232) *Salinispora pacifica* CNT045

VTAQPAPVFDQRLRLRDPHRRYNALRDQAPVHRVRTPDGAPAWLVTRYDDV
RAAFIDPRLSVDKRFSGTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVEKTVSTLLDGLAGNDHAELIGSLASPLPLQVMHEL
LGLPTQTSVDFRTWTNTLLSADANQPAQSRSAMANMRRFLIEQVAHKRAQ
PGDDLLTGLLCVREDDDGLTDEELVAMLFLLMFAGYDNTAALIGNVIHAL
LTNVELAEAVRTGSLAVDELVDGVLRWNPSFPLAVRRFAREPITIAGRTI
PAGDRIWLCLASANRDP AHFTEPDEIGIADMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVASLFD RFPGVRLAVPVQDIQWRESFRLRGLVALPVSL

>CYP107AW6 (2517964245) *Salinispora pacifica* CNT045

VETVTGTSAPPPVPYIADPYPTLARIRANGPVSILHSDEGVPMWVIARYR
EVRAALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLAGRKTVDLVQDLAFPLPMLV

ICELLGFPAEERNAYRSWSTAILTHDDDPVAFATALREMTDYIAVQLRLR
RSRPGDDLLTELLAARDAGQLTDDEIVGMVFLLLIGGHETTVNLLGTATL
ALLRNPQHRWLLANGHALPEAIDEFLRYESPVAMATLRFTTTPVTVDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPKLALATEVRQLQWRDTIMLRGLESLEPVS LHG

>CYP245A11 (2517964335) *Salinispora pacifica* CNT045

MSSTTLPRFTLTGWNREDIVNPYPVYRRYREVAAVHRGEAGGDAPETFYV
FSYDQVAQVLSSSCFGRGRSLDATAASVPVPADQKALRAVVENWLVMFMDP
PRHTELRSLNRSFSRIVTGLRPRIARIAQELLSRLGGQVETDLVEGFA
APLPILVIAELLGIPAGRHWLRTNALALQEASSSRARRDTAGYARAEAA
AQEFTEYFREQVRLRRGSTGDDLLTILANAKLRGVPVSLDAVVGTA VHLL
TAGHETTTNSLAKAVLALQAHPAVLEELRGADGLTADSIEEFRLYDPPVQ
AVTRWTHQDRTLGGWEVPRGSRVVALG SANRDPARFPLPDALDVHRPAD
RHLGFGGLGIHYCLGATLARAELEIGLQTLNGLPTLGYPAQYVDYADDMV
FHGPSRLILVNPGERFCQ

>CYP244A5 (2517964339) *Salinispora pacifica* CNT045

MSATTNAELGEAPETSMPIDPGLFDCMPDLIAAARIAPVVRIPYLGRHAW
VVCDELVKQALTHPKMGKDIALVPEWMRQPGMLVTAQPPPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGEQVADKVEGFLDELSKAAAGSNAEV
DVVTNYTHKIPLAFISEMLGLPPAAEHRLRSITDIMLYSSDYAARREAIG
GLFGAVEEWVRNPDGLRDGVITGLLAGSDGPGAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEALRRPPHERPRTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRQPGEGADSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAKIAVRGFLRRFPQARLSADTAVQWESEWMIRRM
SSLPAVLS

>CYP211C6 (2517964690) *Salinispora pacifica* CNT045

VPDIEGLLTRLYSAQGRQDPYPVYADLHAQAAIAALEPRPERQRVAAVAV
GYDLVAAVLRDPDFWKQPPPDWRDQEILRILQSSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVINRVTDELLDRMADAGPGEVDFVAEFAYPLPARVM
AEFVGIPATELAWYRERVDRVDAFLDVAGKTPERLAAANAAGAE LRSFYR
ELLAHRRRTPGEDLISGLVEAVDAGGVELTEDELISNLIVLFNASFVTTV
YLLSNGLPVLLAHPEVAAALASSPELAAGAVDEILRLQTPVHLLARAAPR
DMVLGGVSIPOGQSVLLLLIAAANRDP AHFPDPDRFDPRRSSPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRILEQPVYSGSLFLRGIDKLSV
SPGGREHP

>CYP125A66 (2517964820) *Salinispora pacifica* CNT045

MTEPRIPVGFDFTDPAVLERRVPREEFAELRR TAPVWNAQPKGSAGFDD
DGYWVVTRYADVMASRDSETYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPP EHTKLRAIVSRGFTPRAINALRGSLGERAERIVRDAAGRGAGDFV
TDVACELPLQAI AELIGVPQHRRKVFDWSNQLIGYDDPAYGVDPLAASA
ELLAYAMEMAHERQRNPSDDLVTQLVNAQIDGEHLTADEFGFFVMLLAVA
GNETTRNAITHGMLAFLENPEQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTALAGQAI SAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
RELPRVRYH

>CYP162A8 (2517965916) *Salinispora pacifica* CNT045

MISPDLSDPFTFYQNGDPLPVWAE LRREHPVYDNRRADGTRI WAVMTHKLC
TDMLTNPKVFSSANGMRLDSNPRVLARAAGKMLNVTDP PQHDKIRKLVSS
AFTPRTIRRLEANMRATAGRAIDTAIADGGCELTRLAHKLPVSVICDLLG
VPEQDWDFMAERTRFAWGSTAADDREEVEKVA AHTEIMAYFLDLAADRRK
RPMEDLVSALVHGEVDGRSLTDEDVLYNCDALLSGGNETTRHATVGGFLA
FVMNPDEWSAIRQNRDLLPSAIQEIVRYTSPVMHSLRTATRDVEFGGINI
RAGEYVVAWLPSANRDEQLFDDPDRFNIRRS PNRHLGFIQGNHYCIGAGL
ATMELRVMFDELLNRVSEVRLAGPARRLR SNLLWGFDSL PVTFFHVGAGR

>CYP211B19 (2517966055) *Salinispora pacifica* CNT045

MDASEAVALLTSPPGRRDPYPTYERLRAHG PVVATAAGFVVTGYTEADTV
LRSPRFGVMDDEERDGVFPHWQDSPAMMSISQSMIRANPPDHSRMRRLAA
GVFTPRRVAALREVVAQADELIDELIRAGRG GAPVDFLGSFAYPLPVTV
ICALLGVPAADWAQFRRWASELTAVLEPEITPQELAVADAGATELRDYFT
ELIAQRRRDPADDLT TALVQAHAAGDRLSGEELLANLVLLL VAGFETTT
NLLGNGLFVLLTHPDSATALRGQPELAPSYVEELLRYDSPVQLTSRTVRE
SVTLGGVELPAGSWLLVLLGAANRDPARFTD PARFDPGRAQSPPLSFGAG
AHYCLGAGLARLEAQVAFPLLLRRLPELSLAGEPVRRSRLTLRGYETLPV
TVGAVAADHGTPAGAALGTP

>CYP107CL2 (2517966583) *Salinispora pacifica* CNT045

LQITPEFMHDPYPVYVGM RDSAPIHLS DANAGRTW FVPRYHDVIDVLRDD
RFS AALKAPAFINQFPPEQRAQFQPFNQSIAGWVVLQDPPAHRQLRQLMN
KGFTRLHVAALRPKVTEIATGLVD TMATRRSGDFMTDFAQFPFAAVIATM
FGVPAADLSAFISWSDDIVLFA GSLRPTVEVARAAQHGLLSMTEFFRQLL
PQRRADPGDDVISLLVSVRDNGEQLTDEQVLANCAQLIVAGHETTRNLVA
NGLWTLSSHDPQLAKLRADPSLMTSAIREMMRFESPLQFVRRVARDDFDY
LGVRIQAQDGVVMTLGSANRDPAFFTEPDRFDITRNPTGHVALGYGPHIC
LGAALAEMETEVALGLLLERFPDLRAVDEQPERVMNPMLRGFAELRLSW

>CYP1056B2 (2517966592) *Salinispora pacifica* CNT045

LRHVDFLSPELGDELWRVVFARYRREQPVVWVSSVRMFCVFRHADIR TALT
SPDFTVDYPFRVSRQVFGPTLLDFD GTRHTILRRRLGGLLVGRDDNVAFT
GPIERSVADVLDGLDG VAGFDFVPTVARRLPEAVTAAFLGIPQADREWVY
AHLRYLLDHLDGSSRDFAVATELRREVSALVGRL LADPGQAEHTVLGR LG
NARRAGELDPEDAVGMALLVLAAGVETSTGMLANTMATLARFPRWATAGR
DDDAVLGRVVREVLRWQPPQMDTVRFARRDTTLAGVPI PAGRPLKLLLAS
GNRDEDVFTEAEFFRPDREERASLSFGHGAHSC LGTHLAVAVATRFFAAF
LRRHPGATVPGPVPPIGGWTFRQPVTL PVRLGGPD PVGATATEGGQR

>CYP105BL1 (2517967083) *Salinispora pacifica* CNT045

MSAHPAATPD SGPA PSLNELTPELTYPQFDRPNPFDPPETYTELSSRCPV
APVRMPSGQSSWLITSFEGARKVLS DPRFSADMSRPGFPNLNDKPVDVVL
KDTLRHVDGEEHMHYRRTLTGEFSVKRMEALRPVITQFTDDALDQLAAAG
SGADLIKHV ARVVPSRVVCHLIGVPFSDFEFFNEMVSTLMDTSSSADQIR
SAKQGLDSYFDQLITDREHHDQDDLLGRM VRRYLATGELTREEVAELAWI
TLAGGQETTPHMI GLGVATLLRHPDQLKLLQQEPALLPGAMDELLRYLTV
VHLGMPRVAVADVEIDGQTVAAGEGVVAL LPLANRDP SVFERPNELDIRR
NARQHLTFSYGPHQCPGH TLARLELEVVFGR LMERFPNLRLADENTELKT
RDKAIVYGLTELAVAW

>CYP163B20 (2517967117) *Salinispora pacifica* CNT045

VTATEAKYVGQVGNRNVASTIDLADPATFAGHDLTNFWQRLRDEEPIYWN
PPTGGRRGFVLSRHADILEVYRDDMTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHAELRKLLLRALGPRVLGPVCRAVRANTRQMIGEAAAANGECD
FATDIASRIPMITISNLLGVPEADRASLLKMTKTALSADDESISDSTDSEM
ARNEILLYFQDFVEFRKNPGEDEVVSMVLVNSSIDGVPLSDDDIVLNCYSL
IIGGDETSRLTMIDSINTLAANPGQWRRLKEGRCDIDKAVDEVLRWASPS
MHFGRTAVRETVIHGERIQVDDIVTLWGASGNRDERAFKRPEVFDLDRAP
NRHLSFGHGPHYCIGSYLAKVEISELLIALRDLILGFVIGVFPQIRSNL
LSGFSTMPVRFADRTGLASEAREG

>CYP113R3 (2517967173) *Salinispora pacifica* CNT045

MTSSAGQKDPSEELFSWLRTMLETRPVYRDEENGWQVFGYADISRTLADT
TTFSSDTARAFNPPQPDLDFFDMGNLVTDDPPRHRKLRSVISSMFTPRAV
AGLSARIERITHSLDSVDGEERFELVETLTLYALPITVICELIGLPMQDE
PLFRVWGDALGTIDAATVPPEQLENEVAPAIREMNEYLLAHARKRRRQPA
DDVISRLANAKIDDRPLEDGEIVGVIGLTMFAGHATTMALTGNAVLLFDS
HPEVDAAVRADRDLLPGAIEEILRLKPPFPRLARITTTDTEIGSHAVPAG
ELVTPWIAAANRDATRFPDPETFDIHRNTGGHLVFGQGSHFCLGAPLRL
EGRIALNALLDRYAKISIDHDCGLEFENPWQLISPRRLPVAVKPL

>CYP1005A8 (2517967384) *Salinispora pacifica* CNT045

VSAVLFRSWTKTVGTHWPAVTRVADQQGTEHLVVTEHELVRQVLTQVQTY
RPDNALDAVTPIPVPAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTKLVAERVAAIGATLDSGGAADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAALALFWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLAGEP
AVRAALRDGDVSVANVVEEGLRLEPPIVWRRVAAVDSTLGGTAVPAGTS
VLLWLARAGRDPAIVPAPDEFPRPGQGRSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQAAPLLDGISVVRAPWYPDNLTFRMPDAFVIRR

>CYP107AY7 (2517967745) *Salinispora pacifica* CNT045

MRAEPAPIPRSGARLGQEYDQLRKTDGVHQVLLPDTSLAWLVTSPELVSR
ALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPDHTRLRLRVGPAF
SPQ RVAALRPRIERTAAELVDVTVVATGSPVDLVTGYCTPLSVQVIADLLG
VPEAGRTDLRAWTDMLTSYPPDRDAIRQAVVELHDYVVNLIEAKQQRPG
DDL SALVATEQEGDRLTRDELTSLAFLILFAGYENTANLIASTVLRLLD
HGSLRGVRASEAIEETLRLEPPAPAAIRRFPIEETTIGGATIPAGDTVLL
SIAAATRGTDGNSARLAFGNP HFCLGAALARVEAEEAITVLARRLP SLA
LAVPGAPVRWRPTFRTHGPAELLVTW

>CYP107CT3 (2517967958) *Salinispora pacifica* CNT045

MIGASGDRTGQCPIALDHDYADPHPAYRVIKENGKNKPTPIVLKTGMAYL
PPGLEAWLV TAYEDVEFVLRDPRFRK SIDEAMPLFAAQSGGTVAARGSL
YNNMANNDPPVHTRLRKPLNAMFTARSVAGRRDVVSAALETLEKVAGSQ
TFDLVQDFAFPFSISVISRTLGVDPADRGT FHGWVQTITGDAPPEILRRD
AGLMVEYLRGLIRGRRESAGNGTDDVLTLLATSLAEDEAVAQAYALLAAG
YETTANLIVTGFLTAAHPEQLRRLWSDPGLVPDAVEEMLRHQSPFNLSL
YRYVTEPVELNGVRI PRGAIVFLAFAAANRDECRFTEPD SFDITQPHRDH
LAFGGGIHNCIGKHLARMEAQVAFETLIERCPGLAVHTPDEEFDWKASPT
FRGLRTL RVGPGPAPGGWEREQ

>CYP105AB29 (2517968776) *Salinispora pacifica* CNT045

MTETASITTPGTSSTTTSGPASGQVTDAEFPVERGCPFSTPVEYEQIRDH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFFVSTDPE
RKQLQDQPTSMIGMDGAHAQARRALMGEFTVRRMAGLRPRIQQIVDQHI
DEMLSSEQRSADLVEALSPLVPSLVICELLGVVPYADHDFQAHSGPLIRH
TTPSEVRLRIQEELNTYLGALIDRKVTDPTDDLLSRQIAKQHAAGTFNRT
SLVSMAFLLLIAGHETTANMISLGVVGLLQHPDQLAMIKEDPEKTPPAVE
ELLRYFTIADTVTARVATEDVQLGDTTINAGDGVVISGLAADHDPTVFTD
PDRIDLERGARHHVAFGFGPHQCIGQTLARLELQIVFDTLFRRIPTLRRLA
APLDDIPFKSDAFVYGAEKLPVAW

>CYP107FH3 (2519092413) *Salinispora pacifica* CNY330

VPIELDEAFVQDPYAVYEKLRAEGPAHRVRMPPGVPLIGGLPVWLITGYD
AVRAALADSRLSTD LHRIDGLFAQKDPDRSHRGGFSSALASHMMHTDPPD
HTRLRKLVSKAFTTRAIEALRPRIQQTDELTAELAGHDTV DLLDAFAFP
LPIRVICLLLGVPVAEQENFRSWSRALVSGHSPEAAATAATEVAAYLGDL
VERKRHATTDDVLTALVAHDVDDRLTHTELVSTAYLLFIAGFETTLNAL
GNGTLHMLHRDQWTALRADRALLDNAVEEFLRLESPLKHATFRCATESL
RIGDAEIAAGDFVLLAIASANDPRRFPDPHTLDVRRPAAGHLAFGHGIH
HCLGAPLARVEVRMAFDALLDAFPDMRLATDPAGLRWRNSTIIRGLDSL
VHLNN

>CYP2054A3 (2519092418) *Salinispora pacifica* CNY330

MSISADSEQVQGRFPDPYGAHRDDPYTFLAGLGVFYAPLLDAWCVTRRED
MVAVLRDDRSFSARDHNPRPAVALPDDVNQMFRTWRGAGAVAVGSLDPPA
HAKIRDVLNIGFTPARVRAFEPTMRAVAADLADRIGDEPEFDFIADFAVP
FALEVIGRRLGVPDDYLDRCRTWSEQRIELMMAQGDADHDRLREFARGLM
EFGEFARSLVRDRVADPRDDLISELLHDGKAGRTLTADEVAVQIPTLIFA
GHMTCAEALGTIFYQQLRSPGGWARVVDRTIPVGD LVEEGLRFDSPLAGM
YRTATRDVTVGGIRLTAGSRLLLLYGAAGRDSRAHACPAAFRPGDGSSGH
LAFGHGIHFCLGAGFARAELRVAVEVLAARMPDLGLAPGRPPRFRPVFPL
RALTEL RVTRSGGGSGP

>CYP161N4 (2519092423) *Salinispora pacifica* CNY330

VNTVAQLPFTQTHVLDVAPALRLLQSRGKVHRVRTPEGVPAWLVTGHAEV
QQLLDDDRLSRSDPGGRDGGTALLNKLLGPLADDDHPRLRSLLEPQFTPER
LEPLRAVVEKLTEQHLDELAARTPPVDLRPTLAMSLPILVLCEWLGVPAE
DKGRFSVWTQDAAGVQDPERSQRLAELFGYCRQLVAAKRQDPGDDVISR
LIATAGIGDTEVVALTALLLFGGYETTVARIGTGVL LLLTNPDQWAAVRA
DPALVPATVDELLRRSMNPNGGMPRFAVTGFEIDGAAIRAGDLVLLNI
IAANHDETAFPDPDRLDITRPTAGSLAFGYGRHSCVGAPLARMVLRVALS
RLITRFPDLRLAVGVDELKLRHETLVGGGLVELPVWTWGPR

>CYP211B11 (2519092665) *Salinispora pacifica* CNY330

MDASEAVALLMSPPGRLDPYPTYERLRAHGPPVSTAAGFFVVTGYTEADT
VLRSPRFGVMDDEERDGAFFHWQDSPAMTISRSMIRANPPDHSRMRLA
AGVFTPRRVAALREVVAQAADGLVDEMIRAGRGAAVDFMGSFAYPLPVT
VICALLGVPTADWARFRHWASDLTGVLPELTPQELAIADAGASELRDYF
TELIAQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVLLTHPDSATALRGQPELAPDYVEEFLRYDSPVQLTSRTVR
ESVSLAGVELPAGSWLLVLLGAANRDPARFTDPARFDARRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELVLAGEPTRRHRLTLRGYETLP
VTVGAVPADPGTPAEVALGTP

>CYP125A65 (2519093469) *Salinispora pacifica* CNY330

MTEPRIPVGFDFDTDAVLERRVPREEFAELRRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMASRDSEYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGVDPMAAAA
ELLAYAMEMANERQRNPSDDLVTKL VNAQIDGEHLTTDEF GFFVMLLAVA
GNETTRNAITHGMLAFLEHPDQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLGGQAITAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REMPVRYR

>CYP107AW7 (2519093796) *Salinispora pacifica* CNY330

VETVTGTSTPPPVPYIADPYPTLARIRANGPVSILHSDEGIPMWVIARYR
DVRAALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAAAFATALREMTDYIAVQLRIR
QTRPGDDILTELLAARDAGQLTDEEII GMVFLLLLIGGHETT VNLGTATL
ALMRNPDQHRWLLANQH ALPEAIDEFLRYESP VAMATLRFTTTPVAVDDV
VIPAGELVLVSLGGANRDHDFPDADRLILD RRDTGH LAFGHGLHRC LGA
FLGKLEGEVALGALLRQH PKLALAAEVRQLRWRDTIMLRGLDSL PVS LHG

>CYP208A22 (2519094762) *Salinispora pacifica* CNY330

MTVIADRGGRIPPGPPVTAGLRLLLLALGRDRLGMMTSAAA EYGDVARLPV
GPKKLYFFNHPDHAKHVLADNHANYQKGIGLVHARRALGDGLLTSEGE LW
RKQRRVIQPAFQNRRLAQYAGAVGQEATRLVARLATRV DGPPVDVLDEMT
RLTLGVLGRTL LLD AELTG FGHVGESFAAVQDQAMFELET LNTVPTWIPLR
RQRRFRRARQHLQEVVDVLA AERGQAVEGRDDVLSRLIL STRAEADPQLG
RERLRDELVTLLLAGHETTASTLGWSLHLLDQHPELRERVRHEARTVLGD
RVPAYEDLHQLRYTAMVVEEAIRLYPPVWILTRKARAEDEIGGYRVPAGA
DILICPYTLHRHPRFWAE PERFDPERFDPSRTTDRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLAVLLRDLRLLEGLPGRAVVPEPMLS LRVRGGLPMTVR
RVD

>CYP105H11 (2519095246) *Salinispora pacifica* CNY330

MIDTAGQLVVDFPLRKEGESFPPPRYAEYRQRDGLVLSYLPDGKPVWLVT
RHAAVREILTSRKVSSNP DHKGFPNIGETMGVPRQDQIPGW FVGMDSPDH
DRFRRALIPEFTVRRVREMRPAIQGVIDTVIDDLLANGPQADLINDFALP
IPSLVISALLGVPTVDREFFESRTRTLVAVRASTDQERDTASRELLRYIN
RLIEIKSKWPADDLPSRLLANGVLHPQELSGVLLLLLLIAGHETTANNIGL
GIVSLENPQWIGDERVVEELLRLHSVADLVSLRVAVEDVEICGQVIRAG
EGLVPLVAAANHDES VFACPHMFNPERSARQHVAFGYGVHQCLGQNLVRV
EMELAYRTL FERIPGLRLTV DDEGLP FKYDGV LHGLHALPVRW

>CYP1005A6 (2519095318) *Salinispora pacifica* CNY330

VSAVLFRSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLT DQMTY
RPDNALDAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRARVADAL
HPAKVAAQRPWLT ELVAERVAAIRATLDSGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARA ALELFWAPLDADRQLALADEV GQFHQV LREFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFL TLLLHRLAGEP

TVRAALRDGSVSVPNVVEEGLRLEPPIVTWRRVAAVDSTLGGTAVPAGTS
VLLWLARAGRDP AIVSAPDEF RFGQGSRRHLAFGAGAHRC LGDQLARME
AAVVVEQVSPLLDGVTVVRAPWYPDNL TFRMPDAFVIRRG PAGAAER

>CYP244A10 (2519095571) *Salinispora pacifica* CNY330

MQDTAQANLAEAEVVRMP IELRPTDCLPELLAAARVAPVVRTPYLDQHAW
VVC DREL VKQAL THPKLGKDVALAPDWMRQPGQMV TAMPPPEYARMMVMS
DGEHHARIRRIHAPVLS PQNTERWSERVAALVDGFLDNLDSADGTEVNLI
TDYTHKIPLAFTAEMLGLPPGAQRRLHDITEVMLYSADYALRQQAVGELF
EAVQE WVRDPAGLRDGVITGLLASTDGP DATVTKGEAIVWTL SLIINGYE
TTGSLISAALYEALRRPARERPHTDEAVAAWIEETLRVQPPVPHTTWRF A
LADLDLGGYLIPRGAPVQISLAAANLDPDE DADSFD AQRGRGHL SFGLG
AHYCIGAPLARVQTKIALRGFLRRFPQARLSPDTAPRWESEWMIRMSVL
PALLA

>CYP107AY9 (2519095591) *Salinispora pacifica* CNY330

MSSQDQPTRAELAPIPRSGARVGPEYDQLRKTGDVHQVLLPDTSMAWLVT
SPDLVSRALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPDHTRLR
RLVGPAFSPQRVAALRPRIQRTAEELAETMVATGSPVDLVTGYCTPLSVQ
VIADLLGVPEAGRTDLRAWTD TMLTSYPPDRDAVRQAVVELHGYVVNLIE
AKQQRPGDDL SALVATEQEGDRLTRDEL TSLAFLILFAGYENTANLIAS
TVLRLLDHGSLRGVRVSEAIEETLRLEPPAPAAIRRFPT EEMTIGGATIP
AGDTVLLSIAAATRGADGNPARLAFGNGPHYCLGAALARVEAEEAITVLA
RRLPGLALAVPGAPVRWRPTFRTHGPAELLVAV

>CYP105AB28 (2519096309) *Salinispora pacifica* CNY330

MTETASTTTPGISSTTTSGPASGEVTD AEFFPVERGCPFSTPSEYEQIREH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRDNF PFVSTD PET
RKQLQDQPI SMIGMDGAEHAQERRALMG EFTVRRMAGLRPRIQQIVDQHI
DEMLSSDQRTADLVEALS LPVPSLVICELLGV PYADHDF FQARSGPLIRH
TTPTEVRLRIQKELNTYLGALIDRKVADPTDDLLSRQIAKHHAAGTFDRT
SLVSM AFLLLIAGHETTANMISLG VVGLLQH PDQLAMIKEDPEKTAPAVE
ELLRYFTIADTVTARVATEDVQLGGTTINAGDGVVISGLAADHDPKVFTD
PDRLDL ERGARHHVAFGF GPHQCIGQTLARMELQIVFDTLFRRIPTLRLA
APLDDIPFKSDAFVYGAERLPVAV

>CYP107E37 (2519096342) *Salinispora pacifica* CNY330

VTIDQEIREYPPFRESRGIGIDPTYELLRRTEPLARVQLPYGEVSWLVTRY
EDVKT VLTDP RFSRAAAQ GKDQPRTRAEMTYEGII GLDPPDHTRLRLLAG
KALTARRVN AIRADAQRIANEYVDEMI AKGSPGDLVELFALPY PVTVICE
LLGV PFEDRAQFRIWTEGLTSTSEQLMVYAEQLFDYMGKLVAQRRAEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTG VETVSTHIPNFVYALLT
HPELMAQLRADRS LVPAAVEELLRMIPLNPAAMFP RYAVEDVTLSGITVR
AGQPVLVSLPGANRDPEVFENPETFDFTRDQNP HVAFGHGPHHCLGAQLA
RMELQVALHTVLD RFPDLRLADGDEGVSWKSGLLVRGPSRLLVGV

>CYP245A7 (2516088114) *Salinispora arenicola* CNR921

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWL VFMDP
PRHTELRSLLNRSFSPRIVTEL RPRIARIAQELLSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYARAEVA

AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPTVLDELRGAEGLTTDAVEEFLRYDPPVQ
AVTRWAHQDITLGGCDIPRGSRVVALLGSANRDPARFPSPDVLVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP244A4 (2516088118) *Salinispora arenicola* CNR921

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPIYLGRHAW
VVCDELVKQALTHPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRNTERWGERVADKVEGFLDELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEAIRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEADSFAERRGHGHLSE
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP105BL2 (2516088347) *Salinispora arenicola* CNR921

MSSHSAAAPDPETATPLHTLAPELTFPQFERSTPFDPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTLSDPRFSSDMSHPGFPNRTGKPVDDL
KDTLGAMDGERHRYRRLTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPVSRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHRDRLGLHGMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIGLGVAALLRHPDQLELLRREPHELLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELVRRN
ARQHLLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP211C1 (2516088779) *Salinispora arenicola* CNR921

VVDVEELLTRLISAQGRQDPFPVYADLHAQGPIAALPPEPERRRVAAVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAANAAGAELEAFY
ELLARRRRTPEGDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLLGGVPIPOGQNVLLLIAAANRDPAHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP125A41 (2516088928) *Salinispora arenicola* CNR921

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGDV
SDVACELPLQAIAGELIGVPQHRRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQSPSDDLVTCLVNAQIDGELHTTDEFGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERPKSAVEEIIIRWATPVNVFQR
TALVDTVLLGGQAIASAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP105J3 (2516089101) *Salinispora arenicola* CNR921

MTDSVAFPQGRVCPHQAPAGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRTPAWPAIVPIVAAVNDAAQQKVLKIATALVGTGPE
HKAQRKMLIPSFTRRMNALRPMIQEIVDQQLDDEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGLVDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDVATRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP208A12 (2516089830) *Salinispora arenicola* CNR921

MTLDTITPRVPLGPPRTAALRMLLVMKRDLGMLSSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGLDWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAEITG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHGPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPVWLLPRRALAPDTIGEYRVANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP211B2 (2516090187) *Salinispora arenicola* CNR921

MDVSEAI AVLISPSGRLDPYPTYEQLRVHGPVSRRTAGLFVVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPWHQDSPAIXSIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTAQADELVDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVLLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPADSWLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRTLRGTETLP
ITVGAVTADRGTAGVAPGTP

>CYP166A4 (2516090233) *Salinispora arenicola* CNR921

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIK
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPAFACPAELDIDRETSGHVAFGFGI HQCLGQN
LARVELRAGLSALLRAFPNLRALVPADEVPLRLQGSVFAVKNLPVCW

>CYP1005A1 (2516090468) *Salinispora arenicola* CNR921

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTDAQATY
RPDNAL EAVTPVPVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVATIRTTLDSSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVQKFARAALELFWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSISAADVVEEGLRLEPPIVTVRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFPRPGQRGSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP105CT1 (2516090974) *Salinispora arenicola* CNR921

MNSPNHMPADRSLTAPTSGCPMALSRGRVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRRRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTDSDHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGV LHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLTLDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALRRFPGLRLAV
PDSELEFTQGTTVYSLRGLPVTW

>CYP154M5 (2516090991) *Salinispora arenicola* CNR921

VEQSCPYKLDVTGRDVHAEGEAI RARGPVAQVELPGGVQGWSVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPPNWPLIGWLLMDNMTTNDGADHQRLR
KLVSHGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNVTSISGEEAEANVEQWHRELELV
EAKREKPEDMASLLIAAKEEDGSTLTQEEVVGTLHMLGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDPVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPNMTLAVRPDQLEPQGTFFIMNGHREL
PVRLGQPATVLA

>CYP107Q4 (2516091132) *Salinispora arenicola* CNR921

MTTTAETS AETIDLFSPEVVADPF GWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDP RFLTNPPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVS YALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPRPHWRAGDSMATMNGER
IPTTLVKCIELARELIAKRRAEPQDDLVTALVQAQAEQDNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI
DRLAVGSEGLHGF GKGIHRCLGQHLAYQEA E VALQGLFTRFPDLSLAVPR
EEIPWILRPGFTTRTTLPLKLV

>CYP105G5 (2516091133) *Salinispora arenicola* CNR921

LTIETTETPPADDSLRAPLPRQFMQRDDPSKLPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRRAAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDDELVGIA
TLLLFLAGLDTTASMLGLGMFMLLQRPQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQ LARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTF

>CYP1051A1 (2516091154) *Salinispora arenicola* CNR921

MATDAAITRARTVPAWKALPAAVRDTHRAFVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAWAA
SRRVLAPMFRPARINAMVDTMADA IAGAIDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIMP

GDRRFRAAVRSIDDILLPVLRQAQRQPDDGDDLLSRLVHARADDGRALSE
KMRDDLVSMVAVTTETSTVVLTLWLPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEVI
LKPVAPVPAR

>CYP248A2 (2516091293) *Salinispora arenicola* CNR921

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERVLA
ERREDGADLLALMLAAHRSQLMRNEIVSTVVTFFITGHETVASQLGNGL
LSLLDHPEQMELMRQPHELLPHAVEECLRFDPVQSNTROLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCSPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP105W2 (2516091301) *Salinispora arenicola* CNR921

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRRHADVRQVLSDFRMSADRRRPFGPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVYPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDMVVTDKHRPGDDVLSRLLYRQRRAGGVDHE
AVVSMAFVLLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGVTIAAGEGVVALGQAANRDPRVFEH
PDEFDPDRDARAHAFGYGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP105CP2 (2516091725) *Salinispora arenicola* CNR921

MTKSMPVQDLPAFPIPRECPYRPSAQHVSLRSGGPMAKVRLYNGRTAWLV
TDSAHAVALSDYRRVSIKPYHGNYPILLNEEFKVVDSGYADVLFGVDPP
EHTRQRQMIMPSFTLRRTAVLRPDIQRIVDDKLDEMRRHGAPGDLVTEFA
QPVPMSMVSFLLGVFWEDHEEFETPAHKLFVPELAEETELGAYLERLI
QKKEQPGGTPGGTGLLDDLIRDHLRAGALSDELVHIAMAMLVAGTDTT
NVISLGLTALLDNPDQWAALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRATAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2516091727) *Salinispora arenicola* CNR921

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVGTAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQLLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVYPYQDRTRFEPVAGLFEPDRAD
AAMAEALTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVGAUNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIIHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPTW

>CYP107FS2 (2516091728) *Salinispora arenicola* CNR921

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVPFADRSEFERHAEVLTGINASSGFDIAAAGRWFDEYLAELVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETTVNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELRLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRRLAGLRLAVPTDSLWVKASFVLHRLERLPV
TFTPDRAPNPIDSVHTV

>CYP107AY2 (2516091879) *Salinispora arenicola* CNR921

MTAEPTPIPRSGARLGQEYDQLRKTDGVHQVLLPDTSLAWLVTNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRLRVGPAF
SPQ RVAALRPGIRRAAEHLDDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRNTLRAWTDMLTSYPPDRDAIRRAVTELHGYYVDLIDIKQQQPG
DDL SALVTIEQDGDRLSRDELTSLAFLILFAGYENTANLIASAVLWLLD
HGGLNVVPSSEAIEGTLRHEPPAPVAIRRFPTEDIIIGGV TIPAGDTVLL
SVAAATRGADGNAARLAFGNGPHYCLGAALARVEAEALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP105AB8 (2516092014) *Salinispora arenicola* CNR921

MTETASSRLTDTEFPVQRECPFAEPVEYEQIRERSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAVRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTTDQHRADLVKT
LSLPVPSLVICELLGVYPYADHDFQEHATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDLLGRQIARQHRDGTDFDRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP208A12 (2515698251) *Salinispora arenicola* CNH964

MTLDTITPRVPLGPPRTAALRMLLVMKRDRLGMLTSAAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGDLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAELTG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHGPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGHRLVPEPMLSLRIRGGGLPLVVRP
VS

>CYP105AB8 (2515698783) *Salinispora arenicola* CNH964

MTETASSRHTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTTDQHRADLVKT
LSLPVPSLVICELLGVYPYADHDFQEHATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDLLGRQIARQHRDGTDFDRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPLDKIPFKTDAAIYG

ARELPVAW

>CYP105BL2 (2515699196) *Salinispora arenicola* CNH964

MSSHSAAAPDPETATPLHTLAPELAFFQFERSAPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTLSDPHFSSDMSHPGFNRTGKPVDDLL
KDTLGAMDGERHRYRRLTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPVSRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDRHHDRDDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIGLGVAALLRHPDQLELLRREPHELLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVAFERPDDELVRRN
ARQHLLTFGYGPHQC PAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP211B2 (2515699438) *Salinispora arenicola* CNH964

MDVSEAI AVLISPSGRLDPYPTYEQ LRAHG PVSQTTAGLFVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIKSIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTQADELVDemiQAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPAGSWLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGTPAGVAPGTP

>CYP125A41 (2515699566) *Salinispora arenicola* CNH964

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGDV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAEERQSPSDDLVTKL VNAQIDGEHLTTDEF GFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTVLGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP105J3 (2515699716) *Salinispora arenicola* CNH964

MTDSVAFPPQGRVCPHQ PAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRTPAWPAIVPIVAAAVNDAQQKVLKIATALVGTGPE
HKAQRKMLIPSF TFRMNALRPMIQEIVDQQLDEMIKSGAPTDLIPAFAS
AVPVTVL YRLMGIPDDDHGIF EKL SHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGVLDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSV PDAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHSAADHLTFGFGAHQC
LGQSLARITMEIALGALIERLPSLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP244A4 (2515699873) *Salinispora arenicola* CNH964

MSTTTNTELTEAPETNMPVD PGLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQAL THPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLS PRNTERWGERVADKVEGF LDELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG

GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLLISTSLYEAIRRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSI AAANRKPGE GADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP245A7 (2515699877) *Salinispora arenicola* CNH964

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVMFMDP
PRHTELRSLLNRSFSPRIVTEL RPRIARIAQELL SRLSQQVDV DLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSRAGR DVDGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGAEGLTTDAVEEFLRYDPPVQ
AVTRWAHQDATLGGCDIPRGSRVVALLGSANRDPARFPSPDVLDVRRPAD
RHLSFGLGIHYCLGATLARVELEIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP105CP2 (2515700040) *Salinispora arenicola* CNH964

MTKSMPVQDLPAFPIPRECYPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSA HARAVLS DYRRVSIKPYHGNYP LLNEEF EKVVDSGYADVLFGVDPP
EHTRQRQMIMPSFTLRRTAVLRPDIQRIVDDKLDEMMRHGAPGDLVTEFA
QPVP SMVISFLLGVPWEDHEEFETPAHKLFVPELAEEATELGAYLERLI
QKKEQPGGTGGTGLLDD LIRDHLRAGALS RDELVHIAMAMLVAGTDTT
NVISLGLTALLDNPDQWAALRDNPD ELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRP RPSPFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRTAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2515700042) *Salinispora arenicola* CNH964

MAAPAPQATTSTTPHPPSYPLPRECYPYRPSAGTAHLRDAGPVSTVRLYDG
RTAWLV TGAAEARALLADSRVSNRADFPNYPVM DERHLSMRATREMAREE
EGGF AAALFGMDPPEHTRQRQLLLPRFTVRQVAARRPAIQRMVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGV PYPQDRTRFEPAVAGLFE PD RAD
AAMAELTAYLHQ LIETKQSEPGDGV IDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYTALVDNPD LVP GAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNH LAFSHGIHHCIGQN LALLELDIAFRALVSRFP TLR LAVPAEQ LPT Y
FAGDVPR LACL PVTW

>CYP107FS2 (2515700043) *Salinispora arenicola* CNH964

MPVPQGEQNLTTTEVFADPKALIATLGSRQPLHRISLPDGM PAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRP RIIQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPADRSEFERHAEVLTGINASSGFD AIIAAGRWFDEYLAGLVQ
QRRREPQDDLISGMLAAQDKGDR LTDVELRSNALLLSAGFETT VNLIAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAANHDPTVFADPSRLDLRREGSGQILSF SHGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSL VWKASFVLHRLERLPV
TFTPDRDPNPIDSVHTV

>CYP125G6 (2515700084) *Salinispora arenicola* CNH964

VPTLLNEHVSYDGAIAIVDSGATSWIRLAERVNVRWVHLLRAHGLDTGD
RLACVTGNRRTEFEVLLAALHTGVTVPVNVHLLTVTEIGHILSDSGSRVV
ITEELHVKAFAAAADGMAGPVAGLVLDREIEGFAAVEPLAAASPAEPE
GQVCGATMLYTSGETTGRPKGVVNNLFVTGAPYARVGRLCDYARSVLGVP
RERMLLDGPWYHSSQLFFALLSLLQGSRLVIRPYFDPAATLKTIDDHRIT
VTHLVPTQLVRLLRVDALTRQMFSGASLRRVWHGGGPPPEVKRSMIDWW
GPVLVEYYGATEGGVVTLIDSAEWLARPGSVGRAVPPSEVVVVDDGGQPV
AAGQTGQVFFRRRTGNRFHYHNAPEKTQAAYLAPDTFTTYGEVGHVDEEDGY
LFLTGRAQDMIVSGGVNVYPAEVEAALLRHPVVRDAAVIGVADDEFGERV
VGIVVPETAVDPDDLATHLDAHCRVSLAGFKVPRTYRVVESLPRDETGKL
RKDALRSKFGWLSGAAMTVPRPATGQPTAHRPDIAHPTTYVSGVPHDEFA
RRRDEPVGWVAEPVLTTRHTAAGRTATRGSGFWAVTRYEDVVAASRRVTD
FSSAAKGAFLLTDPRTPADLQQARQLLVNMDDPHHARLRKLVTSVFTPRAV
RGLLASIDAHAAALVAKVVAAGEFDVVTDLAAELPLLVLADLLGVPKQDR
ALLYGWSNHLVGFDPDFGGDIDAYRTAMAEAFQYALNLGVERRARPTD
DLVSLLANAEVDGTRLTDREFCNFWLLLTVAGNETTRHLVAGTMQALTEH
PGEARLVEGRVPTESAVEELLRWVTPIMQFRRTATRDTEIGGQAVTAGE
KVVLYYTSANRDATVFAEPDRDLGRTPNRQLSFGIGPHYCLGAHLARAE
LTALLRVMSPHLGLSLQLTGVPVSRLASNFVNGVKAMPAVIGSR

>CYP154M15 (2515700109) *Salinispora arenicola* CNH964

MNDKCPFAALDVTGQDLHGEEARLREQGPAVLVELPGGVKAWSINRYEVI
RELLMDRRVTKNARKHWPFAIKGEIPPDWEMISWVAMDNMVTAYGKDHVR
LRKLVGRAFTQRRADALRPQVVALSTKLLDDLGGATPPGEVVDLRERFAYP
LPAMLVASLIGMSEAALAACSKVIDMMVHTNVSPEEAQAVLRGWRAAMAD
LIESKRRTPGEDITTDLIAAREEDGSRLSEAELADTIFAILGAGSETTIN
FFDNAITALLSRPQQLQLLRTGAVTWDDVIDEVLRVESPLAHLPLRYAVE
DIELDGVTIPQGDPIILVNYAAAGRDPALHGGTADEFDLARGDKTHLSFGY
GPHYCLGAGIARMVATIGLSMLFERFPDLSLAVPATELKRLPTFIMNGHQ
TLPVRLTAHAR

>CYP107Q4 (2515700322) *Salinispora arenicola* CNH964

MTTTAETSATIDLFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRLFNTNPPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSYALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIAKRAEPQDDLVTALVQAQAEQDNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI
DRLAVGSEHGLGFGKGIHRCLGQHLAYQEAQAEVALQGLFTRFPDLAVPR
EIPWILRPGFTRTRTLPLKLV

>CYP105G5 (2515700323) *Salinispora arenicola* CNH964

LTIETTETPPADDSLAPLPRQFMQRDDPSKLPPALAALAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRAGLLQTDLPKQ
AVENLEAQRAFMRQLVTDKRRTPADDMISGLVHHAGAEPPLTDDDELVGIA
TLLLFLAGLDTTASMLGLGMFMLLQRPQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHAFGHGVHQCLGQQARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTF

> CYP1051A1 (2515700343) *Salinispora arenicola* CNH964

MATDAAITRARTVPAWKALPAAVRDTHRALVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAVDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDDILLPVLQRQAQRQPDDGDDLLSRLVRARADDGQALSE
KRMRDDLVSMVAVTTETSTVVLTWLVPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDDELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMI
LKPVAPVPPAR

>CYP211C1 (2515701173) *Salinispora arenicola* CNH964

VVDVEELLTRLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVAAVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAELEAFYF
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPIPPQGQNVLLLIAAAANRDPAHFPDPRFDPWRSGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP107FJ2 (2515701419) *Salinispora arenicola* CNH964

MSETLSTSVLLADAAEQRAWRAKLRGAGPVHRITTSGETGWLIVGHEEA
RNALVDLRLQGRATATVGHGRMPEDLERALNSHMLNVGPPDHTRLRLVS
AAFTRRRIEQMRPRIQELTDELLDGLAGADEADLVAGLALPLPMRVLDL
FGIPAEDCADFNVTKVLTSAGAVDLRLTTAAGEMVAYLRGLLDRKRQV
PESDLSALVAVRDGADRLSDDELTSMVYLLLTAGYETTVNLIGNGLLNL
LANPEQLVAFKADPDLQPQVVEEAMRFDSPVQIAVRHSTEPVEIAGQAIP
SGALILVSLWANRDPDRFTEPEAFRVDRQDNPQLGFGYGFHHHCIGAPLA
RMEGTIAIGTVIRRFAPALRLAHPAGSLTWRASMVMHGLTALPVHLR

>CYP154M20 (2515701426) *Salinispora arenicola* CNH964

MERCPYVLDRAGRDLHGEAKALRARGPVTLVELHGGYTAVSVTSYEIAKQ
LLVDPRISKNTKETWPEFREGKVPQDWELYTWVAMDNMQTRDGEEDRLR
KLVAQAFTTRQVAKVRPMIEDIVDRLDDLEKVPAGEVVDIKGRYFYPLS
TILVCDLLGIPEADRAEALHGTVVNARTTNSAESEANLHQWQSALSKLV
ETKRREPGNDITTLIIKAREDEQAPLTDDEVIGSLHLLIGGGTETTSNVL
CNTLIDLTHPDQMAMIRSGAVGWEEAWEVEVRKDGAVGSMPPFRCANADI
EIGGVTIAGKDLVLINYAAAGRDPERYGDTTAEFDITRADKTNLSFGYGR
HRCGLPALATMEAMISLPALFERFPDLVLAVPREELKPQGTFFVFNHYAEV
PMLLRS

>CYP248A2 (2515701448) *Salinispora arenicola* CNH964

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRAFADVR
AVLGDKRFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAIGRWSRAVGRTLDRGATAEDMRRGHAAIAEFTDYVERALA
ERREDGADLLALMLAAHRSQIMSRNEIVSTVVTFTFTGHETVASQLGNGL
LSLLDHPEQLELVRRQPHLVPAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCNPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP105W2 (2515701455) *Salinispora arenicola* CNH964

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRRHADVRQVLSDFRMSADRRRPGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVSRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVSSQVICEVLGVPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDVVVTDKEHRPGDDLLSRLLYRQRAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPPERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGVTIAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAHLAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP154M13 (2515701468) *Salinispora arenicola* CNH964

MSTGRPVVLDPTGRDIHGEADHLRALGPATLVELPGGILAWSINSYEVGK
ALLSAPNVSKSARRHWPAFYNGEIPPDWEMISWVAMDNISTTFGGDHRRL
RRLTAKAFGSRRAEQVRPMATHMVNTLLDRMADAADAGEVVDLKAAFAYP
LPGMLVAELIGMSEEARVAAAKVIDMMTATNITPEQAQGVLLGWRDAITD
LIAALKRAQPGDDITSDLIAARDEDGSLLTEQELVDITIFAILGAGSETTIN
FFDNAITQLLTHPEQLELVKSGQVSWDDVIEEVLRLSPLASLPMRFAVE
DIQLDGVTIHKGDPIILINYAALGRDPALHGESAGVFDVTRQHKEHLSFGH
GAHYCLGAGIARMVAKTGLSALFERFPRMTLAVSAKDLVPYPTFIMNGNR
QLPVHLSGALTWREGEQSALGRA

>CYP154M21 (2515701469) *Salinispora arenicola* CNH964

MEKCPYVLDRAAGSDIHKEASNLARGPVTLVELHGGYTAVSVTSYEVAKQ
LLMDPRISKNTKAHWPEFRDGNVPQDWELYTWVAMDNMQTRDGKEHDLRL
KLVAFAFTGRQAVKSRPIIEEIVNRLDDLETAAPRGQAVDIKARYFYPLS
TILVCDLLGIAEEDRDVILHGNVNSKTTNTAESEANLHQWQTALGRLV
ETKRDPGDDLTTVIIKAGEDEQTPLTDDEVIGSLHLLIGGGTETTANVL
CHTVVDMLTHPDQLAMVRSGAVSWESAWEEEVKDGAVGSMFPFCATDDV
EIGGVTIKAGDLVLINYAAAGRDPERYGDAAAEFDITRADKANLSFGYGR
HRCLGPALATMEAMVALPALFDRFPNLALAVPPNELKPKQGTIFNGYAEV
PLLLRS

>CYP166A4 (2515701500) *Salinispora arenicola* CNH964

MTDAISFELPWARTDKFDPPTVFDALREQRPLARMRYPDGHVGWIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLYHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIERETS GHVAFGFGIHQCLGQN
LARVELRAGLSALLRAFPNLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP1005A1 (2515701659) *Salinispora arenicola* CNH964

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTDAQTY
RPDNALAEAVTPVPVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVATIRTTLDSSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVKKQFARAALFWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP

TIRAALRAGSISVADVVEEGLRLEPPIVTWRRVAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFRRPGQGRSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVR

>CYP107AY2 (2515702293) *Salinispora arenicola* CNH964

MTAEPTPIPRSGARLGQEYDQLRKTGDVHQVLLPDTSLAWLVTNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAPF
SPQRVAALRPGIRRAAEHLDDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRAWDTMLTSYPPDRDAIRQAVTELHGYYVVDLIDIKQQQPG
DDLLSALVTIEQDGDRLSRDELTSALFLILFAGYENTANLIASAVLWLLD
HGGLNVVPSSEAIEGTLRHEPPAPVAIRRFPTEDIIIGGVTI PAGDTVLL
SIAAATRGADGNAARLAFNGPHYCLGAALARVEAEALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP163B16 (2515702571) *Salinispora arenicola* CNH964

VTAADPGRVSGESQTPAHTVDLADPATFANRDLTGFWQQLRDEEPIHWN
PPTSGRRGFVVVSRADILDVYRDDVTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHAELRKLRLRALGPRVLAPVCAAVRANTRQMVREAVTKGEC
FASDIASRIPMMTISNLLGVPDADRAFLSLTKTALSADDESISETESAM
ARNEILLYFQDLMEFRRDHPGEDVVSMLVNSTIDGAPLSDDDIVLNCYSL
IIGGDETSRLTMIDSVNTLAAHPKQWRRLKDGQCEIDKAVDEVLRWASPS
MHFGRVAAKDTILRGVQIRADDIVTLWHASGNRDERVFHRPEVFDLGRTP
NRHLSFGHGPHYCIGSYLAKVEISELLIALRDLTSGFETTGEFQIRSNL
LTGFSTMPVRFVDPDRAGLARDALDG

>CYP162P1 (2515702817) *Salinispora arenicola* CNH964

MGLPSEVDLAEPDLADPDLYAEGDPDAEWAWLRAHRPVYRNPAGATAEFW
ALTRYRDALQVYRDPSTFSSERGMVLGVDPVAGDPAAGRMLVVTDPPRHP
KLRRIVSGIFVPRMTMRLEGRVRSVLDQLLHRVVDGAGRCDFANDVAARL
PVAIIICELLGVPADQDWMYHLTSTAFFFFGDPAGSAEVS AVERAEAYGDI
LLYYGELAAERRRRPGDDLVTLLVHADLDGEPLDVEDVLVNCTNLIIGGN
ETTRHAASGGLLALAQRPELWRRRLRETPTAVPTAVEEVLRWTTPGMHVLR
TATRDTEIGGVPIRAGERVVVWNAANRDEDVFADPQRFIDIRSPNRHIA
FGQGGHHLGGAALARLELTILFEEMAKQVTNVRLTGVPVRRVRS CVLRGIR
ALPVELVT

>CYP211B19 (2561667155) *Salinispora pacifica* CNT403

MDASEAVALLMSPGRRDPYPTYERLRAHGPPVATAAGFVVVTGYTEADTV
LRNPRFGVMDDEERDGVFPDWQDSPAMMSISQSMIRANPPDH SRMRRLAA
GVFTPRRVAALREVVAQADELIDELIRAGRGAPVDFLG SFAYPLPVT
ICALLGVPAADWAQFRRWASELTAVLEPEITPQELAVADAGATELRDYFT
ELIAQRRRDPADDLTALVQAHDADGDRLSGEELLANLVLLL VAGFETTT
NLLGNGLFVLLTHPDSATALRGQPELAPSYVEELLRYDSPVQLTSRTVRE
SVSLGGVELPAGSWLLVLLGAANRDPARFTDPARFDPGRAQSPPLSFGAG
AHYCLGAGLARLEAQVAFPLLLRRLPELSLAGEPVRRSRRLTLRGYETLPV
TVGAVAADHGTPAGAALGTP

>CYP105AB29 (2561667974) *Salinispora pacifica* CNT403

MTETASITTPGTSSTTTSGPASGQVTDAEFFPVERGCPFSTPVEYEQIRDH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFPFVSTD PET
RKQLQDQPTSMIGMDGAEHAQARRALMGFTVRRMAGLRPRIQQIVDQHI
DEMLSSEQRSADLVEALS LPVPSLVICELLGVFPYADHDFQAHSGPLIRH

TTPSEVRLRIQEELNTYL GALIDRKVTDPTDDLLSRQIAKHHAAGTFNRT
SLVSM AFLLLLIAGHETTANMISLGVVGLLQHPDQLAMIKEDPEKTPPAVE
ELLRYFTTIADTVTARVATEDVQLGDTTINAGDGVVISGLAADHDPTVFTD
PDRIDLERGARRHHVAFGFGPHQCIGQTLARLELQIVFDTLFRRIPTLRLA
APLDDIPFKSDAFVYGAEKLPVAV

>CYP244A5 (2561668267) *Salinispora pacifica* CNT403

MSATTNAELGEAPETSMPIDPGLFDCMPDLIAAARIAPVVRIPIYLGRHAW
VVCDELVKQALHTHPKMGKDIALVPEWMRQPGLMVT AQPPPEYARAMIMS
DGENHARIRRIHAPVLSRNTERWGEQVADKVEGFLDELSKAAAGSNAEV
DVVTNYTHKIPLAFISEMLGLPPAAEHRLRSITDIMLYSSDYAARREAIG
GLFGAVEEWVRNPDGLRDGVITGLLAGSDGPGAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEALRRPPHERPRTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSI AAANRQPGEGADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAKIAVRGFLRRFPQARLSADTAVQWESEWMIRRM
SSLPVLS

>CYP245A11 (2561668271) *Salinispora pacifica* CNT403

MSSTTLPRFTLTGWNREDIVNPYPVYRRYREVA AVHRGEAGSDAPETFYV
FSYDQVAQVLSSSCFGRGRSLDATAASVPVPADQKALRAVVENWL VFMDP
PRHTELRSLLNRSFSPRIVTGLRPRIARIAQELLSRLGRQVETDLVEGFA
APLPILVIAELLGIPAGRHWLRTNALALQEASSSRARRDTAGYARAEAA
AQEFTEYFREQVRLRRGSTGDDLLTILANAQLRGVPVSLDAVVGTA VHLL
TAGHETTNTSLAKAVLALQAHPAVLEELRGADGLTADSIEEFLRYDPPVQ
AVTRWTHQD TTLGGWEVPRGSRVVALLG SANRDPARFPLPDALDVHRPAD
RHLGFGGLGIHYCLGATLARA ELEIGLQTLLNGLPTLGHPAQYVDYADDMV
FHGPSRLILVNPGERFCQ

>CYP107AW6 (2561668354) *Salinispora pacifica* CNT403

VETVTGTSAPPPVPYIADPYPTLARIRANGPV SILHSDEGVPMWVIARYR
EVRAALADPRFGQDARRAQALADNRVAGVT LGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLAGRKSVDLVQDLAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDP AVFATALREMTDYIAVQLRLR
RSRPGDDLLTELLAERDAGQLTDDEIVGMVFLLLIGGHETTVNLLGTATL
ALLRNPDQHRWLLANGHALPEAIDEFLRYESPVAMATLRFTTTPVTVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILD RRDTGH LAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPKLALATEVRQLQWRDTIMLRGLES LPVSLHG

>CYP107AX9 (2561668367) *Salinispora pacifica* CNT403

VTAQPAPVFDQRLLRDPHRRYNALRDQAPVHRVRTPDGAPAWLVTRYDDV
RAAFIDPRLSVDKRFSGTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVEKTVSTLLDGLAGNDHAELIGSLASPLPLQVMHEL
LGLPTQTSVDFRTWTNTLLSADANQPAQSR SAMANMRRFLIEQLAHKRAQ
PGDDLLTGFLCVREDDDGLTDDELVAMLFLLMFAGYDNTAALIGNVIHAL
LTNVELAEAVRTGSLAVDELVDGVLRWNP SFPLAVRRFAREPITIAGQTI
PAGDRIWLCLASANRDP AHFTEPDEIGIADMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVASLFD RFPGIRLAVPVQDLQWRESFRLRGLVALPVSL

>CYP125A66 (2561668783) *Salinispora pacifica* CNT403

MTEPRI PVGFDFTDPAVLERRVPREEFAELRR TAPVWWNAQPKGSAGFDD
DGYWVVTRYADVMAVSRDSEYSTRENTAIARFQPGTTQADREMQRVIMI

NVDPPEHTKLRAIVSRGFTTPRAINALRGS LGERAERIVRDAAGRGTGDFV
TDVACELPLQAI AELIGVPQHRRKVFDWSNQLIGYDDPAYGVDPLAASA
ELLAYAMEMAHERQRNPSDDLVT KL VNAQIDG EHLTADEF GFFVMLLAVA
GNETTRNAITHGMLAFLENPEQWELFK AERPRSAVEE IIRWATPVNVFQR
TALVDTTLAGQAISAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REL PVR YH

>CYP211C6 (2561668914) *Salinispora pacifica* CNT403

VPDIEGLLTRLYSAQGRQDPYPVYADLHAQAAIAALEPRPERQRVA AVAV
GYDLVA AVL RDPEWFKQPPPDWRDQEILRLIQSSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVINRV TDELLDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPATELAWYRDRVDRVDAFLDVAGKTPERLAAAANAAGAE LRSFYR
ELLAHRRRTPEGDLISGLVEAVDAGGVELTEDELISNLIVLFNASFVTTV
YLLSNGLPVLLAHPEVAAALASSPELAAGAVDEILRLQTPVHLLARAAPR
DMVLGGVSI PQGQSVLLLLIAAANRDP AHFPDPDRFDRPRSSPPSLAFGLG
LHYCLGATVSRLEGR LALPRLLSRFPRLRILEQPVYSGSLFLRGIDKLSV
SPGGREHP

>CYP208A26 (2561669302) *Salinispora pacifica* CNT403

MTVIADRGGRVPPGPPV TAGLRLLLLALGRDRLGMLTSAATEFGDVARLPV
GPKRLYFFNHPDHAKHVLADNHANYAKGIGLVHARRALGDGLLTSDGELW
RKQRRVIQPAFLSRRLAQYAGVVGQEATRLAERLATRV DGPPVDVLDEMT
RLTLGVLGR TLLDAELTG F HGVGESFAAVQDQAMFELETLSAVPTWIPLR
RQRRFRRRARRHLQEVVDVLA AERGQNV EGRDDVLSRLILSTRAEADAALG
RQRLRDELVTLLLAGHETTASTLGWSLYLLDQHPQLRERVRHEATSVLGD
RVPGYADLHQLQYTAMVVQEAIRLYPPVWILTRKARAEDEVGGYRV PAGA
DLLICPYTLHRHPRFWEEPGRFDPERFDPARLTNRPRYAYVPFGAGPRFC
VGNNLGMLEATLVLA VLLRDLRLEGLPGRAVVPEPMLS LRVRGGLPMMVR
RAD

>CYP105BL3 (2561669578) *Salinispora pacifica* CNT403

MSSHSAAPGPETATPLHTLAPELTFPQFERATPFDPPEAYTELSGRCPV
APVRMADGKPSW LITSFEGVRAALSDPRLSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVTHVALVVP SRVACHLVGIP LSEYELFTGMAAKLMDSTSNADQIA
ALQDMVSYFDTLVT DREHHRDDLLGHMVRRYLATGELDREMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHLM PGAVDELMRYLPMI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDP AVFERPDELDVRRN
ARQHL SFGY GPHQC PAHALARLELEV VYGRLLERFPTLRLADSDADLKVQ
DEDIMYSVSELAVAW

>CYP163B20 (2561669611) *Salinispora pacifica* CNT403

VTATEAKYVGQVGSRNAASTIDLADPATFAGHDLTNFWQRLRDEEPIYWN
PPTGGRRGFVWLSRHADILEVYRDDMTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHAELRKLLLRALGPRVLGPVCRAVRANTRQMIG EAAAANG ECD
FATDIASRIPMITISNLLGVPEADRASLLKMTKTALSADDESISD TDSEM
ARNEILLYFQDFVEFRKNPGE DVVSM LVNSSIDGVPLSDDDIVLNCYSL
IIGGDETSRLTMIDSINTLAANPGQWRR LKEGRCDIDKAVDEVLRWASPS
MHFGRTAVRETVIHGERIQVDDIVTLWGASGNRDERAFKRPEVFDLDRAP
NRHLSFGHGPHYCIGSYLAKVEISELLIALRDLILGFEVIGEPQQRIRSNL
LSGFSTMPVRFHADRTGLASEAREG

>CYP162A8 (2561670030) *Salinispora pacifica* CNT403

MISPDLSDPFTFYQNDDPLPVWAE LRREHPVYDNRRADGTRI WAVMTHKLC
TDMLTNPKVFSSANGMRLDSNPRVLARAAGKMLNVTDP PQHDKIRKLVSS
AFTPRTIRRLEANMRATAGRAIDTAIADGGCELTRLAHKLPVSVICDLLG
VPEQDWD FMAERTRFAWGSTAADDREEVEKVA AHT EIMAYFLDLAADRRK
RPMEDLVSALVHGEVDGRALTD EDVLYNCDALLSGGNETTRHATVGGFLA
FVMNPDEWSAIRQNRDLLPSAIQEIVRYTSPVMHSLRTATRDVEFGGINI
RAGEYVVAWLPSANRDEQLFDDPDRFNIRRS PNRHLGFIQGNHYCIGAGL
ATMELRVMFDELLNRVSEVRLAGPARRLR SNLLWGFDSLPVT FHVAGAGR

>CYP1269A2 (2561670223) *Salinispora pacifica* CNT403

MTTPRTDRPYGTPGIGSAVLERGTVRTEGMALDAGQRRRLQLAQGLLWLR
AASGDPFAALLRDHDEDEEAALYARLG GGAPIWRSSTGTWVVRHRTATAL
TADPAVEDRIVGWRPLGIPVMP LGEQDLGLHPENREALLSLARA EVAKDA
LVERRPRWAVAVRRRLDRAGDGRIDLAELAAGISV DMLAEQLDLPGTEMG
WFSDLASHAGLAADGLLCPQDMRRT HDMLAGIAELRERFAGRPFAMILAV
FGVRVCADLLRNALAALLAEPAGWAGLRAEPASAAAVVDEILRHDP PVRV
QLLEAVADTTAHGVPITAGDQIAVLLAVANRDAEVFPEPDVYRPGRPVSP
DRPVLLPGWPAGPVLPLARAQTVTALTELAGRFPVLEAAGPVIREVRAPV
TRAIREL PARADRRVRRP

>CYP107AY7 (2561670567) *Salinispora pacifica* CNT403

MRAEPAPIPRSGARLGQEYDQLRKAGDVHQVLLPDTSLAWLVTSP ELVSR
ALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGP AF
SPQRVAALRPRIERTAELVDTVVATGSPVDLVTGYCTPLSVQVIADLLG
VPEAGRTDLRAWDTMLTSYPPDRDAIRQAVVELHG YVVNLIEAKQKRPG
DDL LSALVATEQEGDRLTRDELTS LAFLILFAGYENTANLIAS TVLRLLD
HGSLRGVRASEAIEETLRLEPPAPVAIRRFPIEETTIGGATIPAGDTVLL
SIAAATRGTDGNSARLAFGNPHFCLGAALARVEAEEAITVLARRLP SLA
LAVPGAPVRWRP TFRTHGPAELLVTW

>CYP208A21 (2561671387) *Salinispora pacifica* CNT403

MTTTSIDHRRPPGPPRAAALSMLLTMSRDRLGMMTAAARAYGDAAWLPVG
HKALYFFNHPDYAKHVLTDNSDNYTKGIGLVHARRALGDGLLTSEGELWR
KQRRVIRPSFRSGRAPDQASVIAEEVASLVERLRARAGGPPVNVVTEFTG
LTGLVGLGRTLDDVLTALATVGDAFAAVQDQAMFELVTL SAVPTWIPLRR
QRRFRRARAELE RIVDDLVARRGDVSGRDDVLSRLILSTGAEPDARVRRQ
RLRDELVTLLLAGHETTASTLGWTLYLIDRHPPVRERLRAEAVEVLGDRL
PAYRDLPLRFTTMVVQEAMRLYPPVWLLPRRSRRADRVGPYRVPAGSDV
VVSPYTMHRHPGFWEPEPDRFDPLRFDPRNAADRPRYAYLPFGAGPRVCVG
SNLGMMEAVIAVAMLCRELRLVRVP THAAVPEPMLS LRIRGGLPMSVHLA
D

>CYP154M16 (2561671398) *Salinispora pacifica* CNT403

MPDRCPVLDP SGRDIHAEADRLRAQAPAVKVELPGGVHAW SITSYDVVKR
LLLDRNVTKNARNHWPKF INDEIPPDWEMISWVAMDNMVTAYGKHLVRLR
RLIAKAFTAQRVETVRPQVEKLVDEL LDGLAAETGEVVDLREKFCYPLPA
LLIAELIGMTEQQRAQTAKAMDLMVDTTVSPDQAQAILTGWRTAMDELIA
AKRREP GKDIASDLIAARDDENGGQLTDSELTD TIFAILGAGSETTINFL
DNAVTALVTHPGQLELVRSGRAGWDDVIDEVL RVQCPLASLPLRYAVTDI
ELDGVTIPQGDPI LINYAAAGRDPALHGDTAGEFDVFRENKEHVSFGHGP
HYCLGAGIARLVATIGLSRLFERFPDLRLAVPAEELQPLPTFIMNGHRAL
PVRLVPAPAAATAV

>CYP1005A8 (2561671476) *Salinispora pacifica* CNT403

VS AVLFRSWTKTVGTHWPAVTRVADQQGTEHLVVTEHELVRQVLTDQVTY
RPDNALDAVTPIPVPA LRVLAGHRFRLLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQR PWLTKLVAERVAAIGATLDSGGAADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAALALFWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHLRLAGEP
TVRAALRDGGVSVANVVEEGLRLEPPIVTWRRVAAVDSTLGGTAVPAGTN
VLLWLARAGRDP AIVPAPDEF RPRGQGRSRRHLAFGAGAHRC LGDQLARME
AAVVVEQAAPLLDGISVVRAPWYPDNLTFRMPDAFVIRR

>CYP107CT3 (2561671528) *Salinispora pacifica* CNT403

MTGASGDRGTGQCPIALDHDFYADPHPAYRVIKENG NKPTPIVLKTGMAYL
PPGLEAWLVTAYEDVEFVLRDPRFRKSID EAMPLFAAQSGGTVAARGSL
YNNMANNDPPVHTRLRKPLNAMFTSR SVAGRRDVRSAALETLEKVAGSQ
TFDLVQDFAFPFSSISVISRTLGVPDADRGT FHGWVQTITGAAPPEILRRD
AGLMVEYLRGLIRGRRESAGNGTDDVLTLLATSLAEDEAVAQAYALLAAG
YETTANLIVTGFLTAAHPEQLRRLWSDPGLVPDAVEEMLRHQSPFNLSL
YRYVTEPVELNGVRI PRGAIVFLAFAAANRDECRFTEPDSFDITQPHRDH
LAFGGGIHNCIGKHLARMEAQVAFETLIERCPGLAVHTPDEEFDWKASPT
FRGLRTL RVGPGPAPGGWEREQ

>CYP1005A6 (2550580746) *Salinispora pacifica* CNT-133

IVPAPDEF RPRGQGRSRRHLAFGAGAHRC LGDQLARMEAAVVVERVTLLDG
VTVVRAPWYPDNLTFRMPDAFVG

>CYP1005A6 (2550581507) *Salinispora pacifica* CNT-133

ADEVGRFHQVLRIFA DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETT
SQFLTLLHLRLAGEPTVRAALRDGSVSVPNVVEEGLRLEPPIVTWRRV

>CYP208A30 (2550581741) *Salinispora pacifica* CNT-133

MTVTAAGRTFSGPTGSALLRSLWQLGRDRLGLMTSAARYGDAVRLGVGSR
SLYFFNHPDHAKHVLADNSGNYTKGIGLVHARRALGDGLLTSEGE LWREQ
RRVMQPVFQAKRIAGQAHAVAEADRLRLARRRG GGPVNLTDEFTALT
LGVLRGTLLDAKLDAFASVGAAFEEMQNQAMFEMASMSLVPMWVPLPQQ
RFRRARRELERIVGRVLADRTARGEVTGADDALSRLIAATQDEPDPGFAR
RRMRDELVTLLLAGHETTASTLSWTFHLVNQHPWVRGRLRKEAIEVLGDR
LPEYADLARLTYTKMVVSEAMRLYPVWML SRLARDADVVDGYPVPARAD
VLICPYTLHRHPAFWPEPERFDPERFDPGAVTDRPRYAYVPFGAGPRFCI
GNHLGLMEAVFVVMVSREFELVAPVGQPVVAEPMLSLRIRGGLSMTVEP
VS

>CYP107AW10 (2550583049) *Salinispora pacifica* CNT-133

VETVTGTSTPPPPMPYIADPYPTLARIRANGPV SILHSDEGIPMWVIARYR
DVRTALADPRFGQDARRAQALADNRVAGVT LGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFPLPMLV
ICELLGFPAEERNAYRSWSTTILTHDDDPAA FATALREMTDYIAVQLRIR
QTRPGDDILTELLAARDAGQLTDEEII GMVFLLLIGGHETTVNLLGTAIL
ALMRNPDQHRWLLANQHALPKAIDEFLRYESP VAMATLRF TTTPTTIDDV
VIPAGELVLVSLGGANRDPDRFPEADRLILD RRD TGHLAFGHGLHRC LGA

FLGKLEGEVALGALLRRHPRLALAAEVRQLRWRDTIMLRGLESIPVSLHG

>CYP105AB37 (2550583866) *Salinispora pacifica* CNT-133

RHTTSTEVRLRIQKELNTYLALIDRKVTDPTDDLLSRQIAKHHAAGTFD
RTSLVSM AFLLLIAGHETTANMISLGVVGLLQHPDQLVMIKE

>CYP125A65 (2550584638) *Salinispora pacifica* CNT-133

MTEPRIPVGFDFDTPAVLERRVPREEFAELRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMASRDSEYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPP EHTKLRAIVSRGFTPRAINALRGSLAERA EHIVRDA AVRGTGDFV
TDVACELPLQAIAELIGVPQHRRKVFDWSNQLIGYDDPAYGVDPMAAAA
ELLAYAMEMANERQRNPSDDLVTKL VNAQIDG EHLTTDEF GFFVMLLAVA
GNETTRNAITHGMLAFLEHPDQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLGGQAITAGQ RVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REMPVRYR

>CYP1005A6 (2550585481) *Salinispora pacifica* CNT-133

VSAVLFRSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLT DQVTY
RPDNALDAVTPIPVAAALRVLAGHRFRLPPTLANNGGTSHPAIRALVADAL
HPAKVAAQR PWLT ELVAERIAAIRATLDSGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARA ALELFWA

>CYP113B7 (2550585872) *Salinispora pacifica* CNT-133

MTQTDNAPMPPLDL PKGADAQGLLDWFAYMREHSPVSWDETRQAWHVFN
QDYLTVTTNPLIFSSDFS PVFPVPPELALLMGPGTIGGIDPPRHGPMRKL
VSQAFTPRRIAQMEARIETITADIFEQVRGQERIDIAADLAYPLPVTVIA
DMLGIPNEDHEKFREWVDIILSNEGLEYPNLPDDFTETVGP AIAEWSEFL
YAQIAEKRAR PQDDLMSGLLAVEVEGRRLTDEEVVNIVALLLTAGHISSA
TLLSNLFLVLEEHP EALAAVRADRS LVPGVVEETLRWRSPFNCIFRLLAQ
DTEIFGQP

>CYP107LA2 (2550586648) *Salinispora pacifica* CNT-133

CSGAILARSYPRLSIAAGAGRDVPRASPRIQEAEGLMGMPPEAHARLRRL
VATAFTPRRVRDIAPRVAE IADRLVNDVIETGPPADLVRQIALPVPIITII
CELMGVPAEDQH VFRVFS DALMSSTRYTDDEVDQAVQEFTAYLGGLLTQR
RAHRTDDLIGALIEARDDGERLSEEE LIMLTGGLLVGGHETTASQIASHL
LVLLRDRARYETLSARPELIPTAVEELLRVAPMWVTVGP TRIATEDLELN
GVTIRAGDAVIFSLSSANLDEDAFPDATDVVLDREPNPHIAFGHGPHFCI
GANLARLEIQSTIGALVRR

>CYP107E37 (2550587493) *Salinispora pacifica* CNT-133

VTIDQEIRKYPFRES PGIGIDPTYELLRRTEPLARVQLPYGEVSWLVTRY
EDVKTVLTDPRFSRAAAQ GKDQPRTRAEMTYEGII GLDPPDHTRLRRLAG
KALTARRVN AIRADAQRIANEYVDEMI AKGSPGDLVELFALPYPVTVICE
LLGVPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFGYMGKLVAQRRAEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTG VETVSTHIPNFVYALLT
HPELMAQLRADRS LVPAAVEELLRMIPLNPAAMFPRYAVEDVTLSGITVR

AGQPVLVSLPGANRDPEVFENPETFDFTRDQNPVAFGHGPHHCLGAQLA
RMELQVALHTVLDRFPDLRLADGDEGVSWKSGLLVRGPSRLLVGW

>CYP163B20 (2585373130) *Salinispora pacifica* CNT-133

MTATDAKDVGVGSRNVASTIDLADPATFAGHDLTNFWQRLRDEEPIYWN
PPTSGRRGFWVLSRHADILEVYRDDMTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHTELKLLLRALGPRVLGPVCRAVRANTRQMIGEAAAANGCED
FATDIASRIPMITISNLLGVPEADRASLLKMTKTALSADDESISD TDSEM
ARNEIILLYFQDFVEFRRKNPGEDVVSMLVNSSIDGVPLSDDDIVLNCYSL
IIGGDETSRLTMIDSINTLAANPGQWRRRLKEGRCDIDKAVDEVLRWASPS
MHFGRTAVRETVIHGERIQVDDIVTLWGASGNRDERAFKQPEVFDLGRVP
NRHLSFGHGPHYCIGSYLAKVEISELLIALRDLILGFEEVIGEPQQRIRSNL
LSGFSTMPVRFDADRTGLASEAREG

>CYP211B11 (2517949349) *Salinispora pacifica* CNQ768

MDASEAVALLTSPPGRLDPYPTYERLRAHGPPVSTAAGFFVVTGYTEADT
VLRNPRFEVMDDEERDGVFPHWQDSPAMISISRSMIRANPPDHSRMRLA
AGVFTPRRVAALREVVAQAADGLVDEMIRAGRGGAAVDFMGSFAYPLPVT
VICALLGVPTADWARFRHWASDLTGVLPEEITPQELAIADAGASELRDYF
TELIAQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVLLTHPDSATALRGQPELAPGYVEEFLRYDSPVQLTSRTVR
ESVSLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRHRLTLRGYETLP
VTVGAVPADPGTPAGVALGTP

>CYP124M3 (2517949393) *Salinispora pacifica* CNQ768

MTVPIELDAVDLSDNDFWTKPLEYRHAVFNALRAQPGLPHFASPEFGSAP
RGRGYALTRMDDVLAVSRNPSVVISGKGNVAMEVPAEFLDQSLITMDNP
RHARLRRIVSRGFTMKAVTALMDNASQMAKQIVDEVVERGECDVAVDISA
KLPLGIIICNMGIIPDSQQQFVFEQTNVMLGVQDPEYVGEQNDAMLAMSV
SQELADLMHELATLRAKNPTDDLISKLLSAEVNGEALTPSELAHFFILLT
GAGTETTRNAISWGIQLLTQSPEQREAWLSDIDGVTPTAVEEIVRWSSPV
ISQRR TVAEDAEPVKLAGQLLGPDKVLMFYGAANRDPNYFVHPEGFDVR
RSPNPHVGYGGPGPHFCLGAHLARLEISVMFRELLTRIPDIHATGEPARL
KSPLINGIKRLPVAFTPGAR

>CYP208A22 (2517949414) *Salinispora pacifica* CNQ768

MTVIADRGGRIPPGPPVTAGLRLLALLGRDRLGMMTSAAA EYGDVARLPV
GPKKLYFFNHPDHAKHVLADNHANYQKGIGLVHARRALGDGLLTSEGELW
RKQRRVIQPAFQNRRLAQYAGAVGQEATRLVARLATRVDPVPDVLDEMT
RLTLGVLGRTLDDAELTGFGHVGESFAAVQDQAMFELETINTVPTWIPLR
RQRRFRRARQHLQEVVDVLA AERGQAVEGRDDVLSRLILSTRAEADPQLG
RERLRDELVTLLLAGHETTASTLGWSLHLLDQHPELRERVRHEARTVLGD
RVPAYEDLHQLRYTAMVVEEAIRLYPPVWILTRKARAEDEIGGYRVPAGA
DILICPYTLHRHPRFWAEPPERFDPERFDPSRTTDRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLA VLLRDLRLEGLPGRAVVPEPMLSLRVRGGLPMTVR
RVD

>CYP125A65 (2517949509) *Salinispora pacifica* CNQ768

MTEPRIPVGFDFTDPAVLERRVPREEFAELRR TAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMAVSRDSETYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPP EHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
TDVACELPLQAIAELIGVPQHHRKVFWDWSNQLIGYDDPAYGVDPMAAAA

ELLAYAMEMANERQORNPSDDLVTCLVNAQIDGHEHLTTDEFGFFVMLLAVA
GNETTRNAITHGMLAFLEHPDQWELFKAERPRSAVEEIIIRWATPVNVFQR
TALVDTTLGGQAITAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REMPVRYR

>CYP105AB28 (2517949985) *Salinispora pacifica* CNQ768

MTETASTTTTPGISSTTTSGPASGEVTDAEFFPLERGCFFSTPTEYEQIREH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFFVSTDPE
RKQLQDQPTSMIGMDGAEHAQARRALMGFTVRRMAGLRPRIQQIVDQHI
DEMLSSDQRTADLVEALSLPVPSLVICELLGVYPYADHDFQARSGPLIRH
TTPTEVRLRIQKELNTYLGALIDRKVADPTDDLLSRQIAKHHAAGTFDRT
SLVSMAFLLLIAGHETTANMISLGVVGLLQHPDQLAMIKEDPEKTAPAVE
ELLRYFTIADTVTARVATEDVQLGDTTINAGDGVVISGLAADHDPTVFTD
PDRDLERGARHHVAFGFGPHQCIGQTLARMELQIVFDTLFRRIPTLRLA
APLDDIPFKSDAFVYGAERLPVAW

>CYP107AX4 (2517950449) *Salinispora pacifica* CNQ768

MTSQPAPVFDQLLLLRDPHRRYNALRDEAPVHHIRTPDGAPAWLVTRYDDV
RAAFTDPRLSVDKRLSSTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVERIVSTLLDGLVGHDAQELIGSLASPLPLQVMQEL
LGLPTQTSVDFFRRWTNTLLSADANQPAQSRSAMANMRRFLVEQLAHKRAR
PGDDLLTGLLAAREDDRLTDDELVAMLFLLMFAGYDNTAALIGNVVHAL
LTNTELPAAVRTGSLALDELVDGVLRWNPSPFLAVRRFAREPIITAGQTI
PAGDRIWLCLASANRDPAQFTAPDTLGTTGMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVTILLDRFPGIRLAVPAHDIRWRESFRLRGLVALPVFL

>CYP107AW7 (2517950463) *Salinispora pacifica* CNQ768

VETVTGTSTPPPVPIADPYPTLARIRANGPVSILHSDEGIPMWVIARYR
DVRAALADPRFGQDARRAQALADNRVAGVTGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFPPLMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAAFATALREMTDYIAVQLRIR
QTRPGDDILTELLAARDAGQLTDDEIIGMVFLLLIGGHETTVNLLGTATL
ALMRNPDQHRWLLANQHALPEAIDEFLRYESPVAMATLRFTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPRLALAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP1005A6 (2517951251) *Salinispora pacifica* CNQ768

VSAVLFRSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLTQVQTY
RPDNALDAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTELVAERVAAIRATLDSGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAALFWAPLDADRQLALADEVGRFHQVLREFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLAGEP
TVRAALRDGSVSVPNVVEEGLRLEPPIVTVRRVAAVDSTLGGTAVPAGTS
VLLWLARAGRDPAIVSAPDEFPRPGQRGSRRLAFAGAHRLGDQLARME
AAVVVERVSPLLDGVTVVRAPWYPDNLTFRMPDAFVIRRGPAAGAAER

>CYP107FH3 (2517951870) *Salinispora pacifica* CNQ768

VPIELDEAFVQDPYAVYEKLRAEGPAHRVRMPPGVPLIGGLPVWLITGYD
AVRAALADSRLSTDHLRIDGLFAQKDPDRSHRGGFSSALASHMMHTDPPD
HTRLRKLVSKAFTTRAIEALRPRIQQTTDELTAADLAGYDVTVDLLDAFAFP

LPIRVICLLLGVPVAEQENFRSWSRALVSGHSPEAAATAATEVAAYLGDL
VERKRHATTDVLTALVAAHVDVDDRLTHTELVSTAYLLFIAGFETTLNAL
GNGTLHLMLHRDQWTALRADRALLDNAVEEFLRLESPLKHATFRCATESL
RIGDAEIAAGDFVLLAIASANRDPRRFPDPHTLDVRRPAAGHLAFGHGHIH
HCLGAPLARVEVRMAFDALLDAFPDMRLATDPAGLRWRNSTIIRGLDSLPL
VHLNN

>CYP2054A3 (2517951875) *Salinispora pacifica* CNQ768

MSISADSEQVQGRFPDPYGAHRDDPYTFLAGLGVFYAPLLDAWCVTRED
MVAVLRDDRSFSARDHNPRPAVALPDDVNQMFRTWRGAGAVAVGSLDPPA
HAKIRDVLNIGFTP PARVRAFEPTMRAVAADLADRIDGAPEFDFIADFAPV
FALEVIGRRLGVPDDYLDRCRTWSEQRIELMMAQGDADHDRLREFARGLM
EFGEFARSLVRDRVADPRDDLISELLHDGKAGRTLTADEVAVQIPTLIFA
GHMTCAEALGTIFYQQLRSPGGWARVVDRTIPVGD LVEEGLRFDSPLAGM
YRTATRDVTVGGIRLTAGSRLLLLYGAAGRDSRAHACPAAFRPGDGSSGH
LAFGHGHIHFCLGAGFARAE LRVAVEVLAARMPDLGLAPGRPPRFRPVFPL
RALTEL RVTRSGGSGP

>CYP161N4 (2517951880) *Salinispora pacifica* CNQ768

VNTVAQLPFTQTHVLDVAPALRLLQSRGKVHRVRTPEGVPAWLVTGHAEV
QQLLDDDRLSRSDPGGRDGGTALLNKLLGPLADDHPRLRSLLEPQFTPER
LEPLRAVVEKLTEQHLDELATRTPPVDLRPALAMSLPILVLCEWLGVP AE
DKGRFSVWTQDAAGVQDPERSQRLAELFGYCRQLVAAKRQDPGDDVISR
LIATAGIGDTEVVALTALLLFGGYETTVARIGTGVL LLLTNPDQWAAVRA
DPALVPATVDELLRRSMPNPHNGGMPRFAVTGF EIDGAAIRAGDLVLLNI
IAANHDETAFPDPDRLDITRPTAGSLAFGYGRHSCV GAPLARMVLRVALS
RLITRFPDLRLAVGVDELKLRHETLVGGGLVELPVTWGPR

>CYP107AY9 (2517952012) *Salinispora pacifica* CNQ768

MSQDQPTRAELAPIPRSGARIGPEYDQLRKTDGVHQVLLPDTSMWLVT
PDLVSRALADPRLALNRKHSRGGWSGFALPPALDANLLNL DAPDHTRLRR
LVGPAFSPQORVAALRPRIQRTAEELAETMVATGSPVDLVTGYCTPLSVQV
IADLLGVPDAGRTDLRAWTDMLTSYPPDRDAIRQAVVELHGYVVNLIEA
KQQRPGDDL LSALVATEQEGDRLTRDELTS LAFLILFAGYENTANLIAST
VLRLLDHGSLRGVRVSEAIEETLRLEPPAPAAIRRFPT EEMTIGGATIPA
GDTVLLSIAAATRGADGNPARLAFGNPHYCLGAALARVEAE EAITVLAR
RLPGLALAVPGAPVRWRPTFRTHGPAELLVAW

>CYP244A10 (2517952032) *Salinispora pacifica* CNQ768

MQDTAQANLAEAPEVRMPIELRPTDCLPELLAAARVAPVVRTPYLDQHAW
VVCDRELVKQALTHPKLGKDVALAPDWMRQPGQMVTAMP PPEYARMMVMS
DGEHHARIRRIHAPVLSRNTERWSERVAALVDGFLDNLDSADGTEVNLI
TDYTHKIPLAFTAEMLGPPGAERRLHDITEVMLYSADYALRQQAVGELF
EAVQEWVRDPAGLRDGVVTGLLASADGPDATVTKGEAIVWTL SLIINGYE
TTGSLISAALYEALRRPARERPHTDEAVA AWIEETLRVQPPVPHTTWRF A
LADLDLGGYLIPRGAPVQISLAAANLDPDEDADS FDAQRRGRGHLSFGLG
AHYCIGAPLARVQTKIALRGFLRRFPQARLSLDTAPRWESEWMIRMSVL
PVLLA

>CYP107E37 (2517953525) *Salinispora pacifica* CNQ768

VTIDQEIREYPFRESRGIGIDPTYELLRRTEPLARVQLPYGEVSWLVTRY
EDVKTVLTDPRFSRAAAQGKDQPRTRAEMTYEGII GLDPPDHTRLRLRLAG

KALTARRVNAIRADAQRIANEYVDEMIAGSPGDLVELFALPYPVTVICE
LLGVPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFDYMGKLV AQRRAEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTG VETVSTHIPNFVYALLT
HPELMAQLRADRSILVPAAVEELLRMIPLNPAAMFFPRYAVEDVTLSGITVR
AGQPVLVSLPGANRDPEVFENPETFDFTREQNPHVAFGHGPHHCLGAQLA
RMELQVALHTVLDRFPDLRLADGDEGVSWKSGLLVRGPSRLLVGW

>CYP208A12 (2571086696) *Salinispora arenicola* CNS325

MTLDTITPRVPLGPPTAALRMLLVMKRDRLGMLSSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGD LWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAELTG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELET LNAVPMWIPLPR
QIRFRRARRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTL SLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP107AY2 (2571087154) *Salinispora arenicola* CNS325

MTAEPTPIPRSGARLGQEYDQLRKTGDVHQVLLPDASLAWLV TNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGP AF
SPQRVAALRPGIRRAAEHLDDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRAWDTMLTSYPPDRDAIRRAVTE LHGYVVDLIDIKQQQPG
DDLSTLVLTIEQDGDRLSRDELTSLAFLILFAGYENTANLIASAVLWLLD
HGGLNVVPISEAIEATLRHEPPAPVAIRRFPTEDIIIGGVTI PAGDTVLL
SVAAATRGADGNAARLAFGNPHYCLGAALARVEAE EALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP105CT1 (2571087186) *Salinispora arenicola* CNS325

MNSPNHMPADRSLTAPTSGCPMALSRGRVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAA LDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTD SYDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGVLHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRL LTDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAF FALLRRFPGLRLAV
PDSELEFTQGTTVYSLRGLPVTW

>CYP154M5 (2571087203) *Salinispora arenicola* CNS325

VEQSCPYKLDVTGRDVHAEGEAI RARGPVAQVELPGGVQGWSVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPPNWPLIGWLLMDNMTNDGADHQRLR
KLVS HGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLGAQVNV TSSISGEEAEANVEQWHRELLELV
EAKREKPEDMASLLIAAKEEDGSTLTQEEVVGTLHMLMGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDP AVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPHMTLAVRPDQLEPQGT FIMNGHREL
PVRLGQPATVLA

>CYP125A41 (2571087405) *Salinispora arenicola* CNS325

MTEPRIPAGFDFTDPEVLAHVRPREEFAELRRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPEHTKLRAIVSRGFTPRAINALRGLAERAHIVRDAAVRGVGFV
TDVACELPLQAI AELIGVPKHHRRKVFDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQRSPSDDLVTCLVNAQIDGHELTDEFGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTVLGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLDPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211C1 (2571087554) *Salinispora arenicola* CNS325

VVDVEELLTRLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPI PQGQNVLLLVAANRDP AHFPDPDRFDPWRS GPPSLAFGLG
LHYCLGA AVSRLEGR LALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP211B2 (2571087644) *Salinispora arenicola* CNS325

MDVSEAI AVLISPSGR LDPYPTYEQLRAHG PVSRTTAGLFVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIKSIARSM LRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTAQADELVD EMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADR SRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVL LTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPADSWLLVLLGAANRDP RRFDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGA VTADRGTPAGVAPGTP

>CYP105BL2 (2571087965) *Salinispora arenicola* CNS325

MSSHSAAPDPETATPLHTLAPELTFPQFERSTPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTT LSDPRFSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVP SRVACHLVGIP LSYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHRD DLLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDP AVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEV VYGRLLERFPTLR LADSADLKVQ
DKDIMYRVSELAVTW

>CYP105CH1 (2571088044) *Salinispora arenicola* CNS325

VSSLPLPTYPKLRDPADPLLPAPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVD RRRHPNFYPVPNPDAVVAQVARW TYILLGDDPPL
HTERRRLLISEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
QVPSAVICEM LGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALG LLLL VGGHETTAN
TLTLATATMLERPEIAEQLR TDP SLMPSAVEEF LRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLV LNTIARDGT VFP EPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALD TVLRRLPGLHLVAPFEELPFKYRHLVWGIEEL
RVAW

>CYP244A4 (2571088188) *Salinispora arenicola* CNS325

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPLYLGRHAW
VVCDELVKQALTHPKMGKDIALVPEWMRQPGMLMVTAPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGFDELDSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEAIRRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEAGDSFDAERRGHGHLST
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP245A7 (2571088192) *Salinispora arenicola* CNS325

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAADTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRLSLNRSFSPRIVTELPRPRIARIAQELLSRLGQQVDVDLIVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRVDGYAQAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGAEGLTTDAVEEFRLYDPPVQ
AVTRWAHQDITLGGCDIPGRSRVVALLGSA NRDPARFPSPDVLDVRRPAD
RHLSFGLGIHYCLGATLARAEEIIGLQALLDGVPITLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP166A4 (2571088462) *Salinispora arenicola* CNS325

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGWIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHCCLGQN
LARVELRAGLSALLRAFPNRLRLAVPADEVPLRLQGSVFVKNLPVCW

>CYP105W2 (2571088687) *Salinispora arenicola* CNS325

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCFPSPPAEYARLRAEH
PVVRLPMLGGDTAWVVS RHADVRQVLSDFRMSADRRRPGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVSRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVYPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDMVVTDKHRPGDDVLSRLLYRQRRAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGVTIAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAHLAFGYGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2571088695) *Salinispora arenicola* CNS325

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWVVS RFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANTVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERVLA
ERREDGADLLALMLAAHRSQ LMSRNEIVSTVVTFFITGHETVASQLGNGL
LSLLDHPEQLELVRRQPHLVPAVEECLRFDPVQSNTROLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCSPNELAYQPRMTFRGLTRLPVAFTPA

>CYP107FS2 (2571088758) *Salinispora arenicola* CNS325

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFFADRSEFERHAEVLTGINASSGFDALIAAGRWFEYLAELVQ
QRRREPQDDLISGMLAAQDKGDRITDVELRSNALLLSAGFETTVNLVAN
GLLALLRHPEAMAAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSLWVKASFVLHRLERLPV
TFTPDRAPNPIDSVHTV

>CYP105CN1 (2571088759) *Salinispora arenicola* CNS325

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVTGAEEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRLQLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVYPYQDRTRFEPVAVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAAALVDNPDLPVGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHAFSHGIIHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQQLPTY
FAGDVPRLACLPTVW

>CYP105CP2 (2571088761) *Salinispora arenicola* CNS325

MTKSMPVQDLPAFPPIPRECPYRPSAQHVSLRSVGPMAKVRLYNGRTAWLV
TDSAHAARAVLSDYRRVSIKPYHGNYPLLNEEFKVVDSGYADVLFVGDPP
EHTRQRMIMPSFTLRRTAVLRPDIQRIVDDKLDEMRRHGAPGDLVTEFA
QPVPMSMVSFLLGVFWEDHEEFETPAHKLFPVPELAEAEATELGAYLERLI
QKKEQPGGTGGTGLLDDLIIRDHLRAGALSDELVHIAMAMLVAGTDTT
NVISLGLTALLDNDPDQWAALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRRTAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP1005A1 (2571088899) *Salinispora arenicola* CNS325

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTDQATY
RPDNAMEAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLDSSGPDLYADLTADLPLLVLAR
LVELPDAPVNAVQKFARAALELFWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSISVADVVEEGLRLEPPIVWRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFRRPGQGRSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP105BN4 (2571089532) *Salinispora arenicola* CNS325

MTATADNPVSTEPFPYTRQGPFAEPPQYPAMVEQKVCVPTLANTGLRTWA
VTGHERVRRILTDPRASASRKHENFFPYFVAPPQARTETSFIGYDAPAHA
QARRKVAAAFTRQVRQVTRPRIEAIVDEHIDRLLSMPPPVDFHRLFSLSL
PTTIIICEMLGIPQDDHDMIIEHSTNMFGGHSTPQQRVAAIVEMNAYLDTL
IAQREKEPAAGLISTIIDEYRTSGEDFTRTDVVNMVRMLMNGGHETTASM

LSLGTACLLDNPDELAELLADPENRIEAAATEELLRMVTIGDVGVPVRALE
DIEIDGVTIPAGDGILCLLLTANRDPEVFFPEPDRLNLSRGSRKHLAFGHG
AHL CIGAE LARLEMQVAWLSLFRRIPGLRLATPLQHIPRKEGAIVYGVWN
MPITWDA

>CYP105J3 (2571089687) *Salinispora arenicola* CNS325

MTDSVAFFPQGRVCPHQAPAGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRTNPAWPAIVPIVAAAVNDAQQKVLKIATALVGTGPE
HKAQRKMLIPSFTRFRMNALRPMIQEIVDQQLDDEMIQSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGLVDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDVTRLAADDIEVE
GTIIRQGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP107Q4 (2571089729) *Salinispora arenicola* CNS325

MTTTAETS AETIDLFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPFRFLTNPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSALT AHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPRPHWRAGDSMATMNGER
IPTTLVKCIELARELIAKRAEPQDDLVTALVQAQAEQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPL LLAANTDPRRFDPNKLII
DRLAVGSEGLHGFKGKIHRC LGQHLAYQEA E VALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPKLV

>CYP105G5 (2571089730) *Salinispora arenicola* CNS325

LTIETTETTPPADDSLAPLPRQFMQRDDPSKLPPALAALAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRR AAGLLQTDLP IKQ
AVENLEAQRAFMQRLVTDKR RTPADDMISGLVHHAGAEPLTDDELVGIA
TLLL FAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQ LARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTF

>CYP1051A1 (2571089754) *Salinispora arenicola* CNS325

MATDAAITRARTVPAWKALPAAVRDTHRALVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAVDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSID DILLPVLRQAQRQPDDGDDL SRLVRARADDGRALSE
KRMRDDLVSMVAVTTTETSTVVLTWLWPLL ANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPAAAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMI
LKPVAVPPAR

>CYP105AB8 (2571090269) *Salinispora arenicola* CNS325

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW

ISGHEQGRAVLADRRFSSDRRKANFFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRRLAALRPRIQQIVDQCIDEMLTDDQHRADLVKT
LSLPVPSLVICELLGVVPYADHDFQEHATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDDDLLGRQIARQHRDGTDFDRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDDPDKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHLLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP107EU1 (2571090877) *Salinispora arenicola* CNS325

VTIGQTLPLDVYSPEFTRDPYAI FARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPADDLLTALVQVSADEDRLSREELVSMALLLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRLDITRSTQGNLAMGH
GIHHCVGAAALARLELEIVLSRLVARFPQMQLAVEADDLEWLVNSFFRAPL
HLPVSLRR

>CYP1198B1 (2571091025) *Salinispora arenicola* CNS325

MSGELTDQRTAPGAGGNPLRSLMDHGI RANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQRLKLVSKSFTPRIVKSGFPQITHIVDGLFEDFRDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAHAHYFADLIHRRRKNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGIITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDPRAYENPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKHPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP105BL2 (2566058131) *Salinispora arenicola* CNS296

MSSHSAAAPDPETATPLHTLAPELTFPQFERSTPFDPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLSDPRFSSDMSHPGFPNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPVSRVACHLVGIPLSYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHRDRLDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP105CH1 (2566058206) *Salinispora arenicola* CNS296

VSSLPLPTYPKLRDPADPLLPAPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHPNFYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRRLLISEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAI DELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRTPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVNLT IARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQC MGQNLARVEMQIALD TVLRRLPGLHLVTPFEELPFKYRHLVWGIEEL
RVAW

>CYP107Q4 (2566059072) *Salinispora arenicola* CNS296

MTTTAETSAETIDLFSPEVVADPFPGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPFRFLTNPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRLKLVSYALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIAKRRAEPODDLVTALVQAQAEQNRVSDDEIIGI
LFSLVTAGHQTTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI
DRLAVGSEHGLGFGKGIHRCLGQHLAYQEAEEVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105G5 (2566059073) *Salinispora arenicola* CNS296

LTiETTETFPADDSLRAPLPRQFMQRDDPSKLPPALAALAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDEELVGLA
TLLLFLAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTF

>CYP1051A1 (2566059098) *Salinispora arenicola* CNS296

MATDAAITRARTVPAWKALPAAVRDTHRAFDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAIDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDILLPVLQRQAQRQPDDGDDLLSRLVRARADDGRALSE
KMRDDLVSMVAVTTTETSTVVLTWLWPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDILGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMI
LQPVAPVPAR

>CYP1005A1 (2566059348) *Salinispora arenicola* CNS296

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTQATY
RPDNAMEAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLDSSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVKQFARAALFELFWAPLDADCQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSSSVADVVEEGLRLEPPIVWRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFPRPGQSGRRHLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP105CT1 (2566059568) *Salinispora arenicola* CNS296

MNSPNHMPADRSLTAPTSGCPMALSRGRVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNVAGVSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTDSDHDDGITDDE

LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGV LHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLTLDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRRFSGLRLAV
PDSELEFTQGT TVYSLRGLPVTW

>CYP154M5 (2566059585) *Salinispora arenicola* CNS296

VEQSCPYKLDVTGRDVHAEGEAIRARGPVAQVELPGGVQGSVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPPNWPLIGWLLMDNMTTNDGADHQRLR
KLVSHGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNVNTSSISGEEAEANVEQWHRELLELV
EAKREKPEDDMASLLIAAKEEDGSTLTQEEVVGT LHLMLGAGSETLMNAL
SYAVLGMLS NPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDP AVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPNM TLAVRPDQLEPQGT FIMNGHREL
PVRLGQPATVLA

>CYP208A12 (2566059954) *Salinispora arenicola* CNS296

MTLDTITPRVPLGPPRTAALRMLLV MKRDR LGMLSSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGD LWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAE L TG
LTGLV LGRSLLDADLAGFDSIGDSFATVQDQAMFELET LNAVPMWIPLPR
QIRFRARRRKLQAVVD TLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTL SLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGGLPLVVRP
VS

>CYP125A41 (2566060078) *Salinispora arenicola* CNS296

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRR TAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPD TTREDIEMQRVIML
NVDPP EHTKLRAIVSRGFTPRAINALRGSLAERA EHV RDAAVRGVGFV
SDVACELPLQAI AELIGVPQHHRKVF DWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMA EERQ RSPSDDLVT KL VNAQIDGEHLTTDEF GFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEE IIRWATPVNVFQR
TALVDTVLGGQAI SAGQ RVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP244A4 (2566060370) *Salinispora arenicola* CNS296

MSTTTNTELTEAPETNMPVD PGLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVC DRELVKQAL THPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLS PRNTERWGERVADKVEGF LDELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGS LISTS LYEAI RPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGE GADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP245A7 (2566060374) *Salinispora arenicola* CNS296

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGESGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENNWLVMFMDP
PRHTELRSLLNRSFSPRIVTELRPRIARIAQELLSSRLGQQVDVDLVE SFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRVDVGYAQAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGAEGLTTDAVEEFLRYDPPVQ
AVTRWAHQDCTLGGCDIPRGSRVVALLGSANRDPARFPSPDVLDVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP166A4 (2566060868) *Salinispora arenicola* CNS296

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHCQLGQN
LARVELRAGLSALLRAFPNLRRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP105CP2 (2566060956) *Salinispora arenicola* CNS296

MTKSMPVQDLPAFPIPRECYPYRPSAQHVSLRSGGPMKVRVLYNGRTAWLV
TDSAHAARAVLSDYRRVSIKPYHGNYPLLNEEFEKVVDVSGYADVLFGVDPP
EHTRQQRQMIMPSFTLRRATAVLRPDIQRIVDDKLDMMMRHGAPGDLVTEFA
QPVPMSMVSFLLGVFWEDHEEFETPAHKLFVPELAEEATTELGAYLERLI
QKKEQPGGTPGGTGLLDDLRDHLRAGALSRLDELVHIAMAMLVAGTDTT
NVISLGLTALLDNPQWAALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRP RPSPFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRRTAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2566060958) *Salinispora arenicola* CNS296

MAAPAPQATQSTTPHPPSYPLPRECYPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVGTAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRLQLLPRFTVRQVAARRPAIQIRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVVPYQDRTRFEPVAVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPDAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVPGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFVSHGIHHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLP
TYFAGDVPRLACLPTW

>CYP107FS2 (2566060959) *Salinispora arenicola* CNS296

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPFADRSEFERHAEVLTGINASSGFDALIAAGRWFDEYLAELVQ
QRRREPQDDLISGMLAAQDKGDRITDVELRSNALLLSAGFETT VNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELRLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRLRAGLRLAVPTDSLWVKASFVLRHRLERLPV
TFTPDRAFPNIDSVHTV

>CYP248A2 (2566061019) *Salinispora arenicola* CNS296

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATINDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQMSRNEIVSTVVTFIFTGHETVASQLGNGL
LSLLDHPEQLELMRRQPHLVPQAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDVPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCSPNELAYQPRMTMFRGLTRLPVAFTPA
G

>CYP105W2 (2566061027) *Salinispora arenicola* CNS296

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRAHADVRLSDPRMSADRRRPGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVYPYGEHEFFERRSTLMFRR
STPADERARCAIREIRDFLDVVTDKERRPGDDVLSRLLYRQRSAGGMDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPPERFPAAVE
ELLRYFTVVEAATARTTTAEVTIGGVTTAAGEGVVALGQAANRDPVFEH
PDEFDPDRDARAHLAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP105AB8 (2566061536) *Salinispora arenicola* CNS296

MTETASSRLTDTTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHRADLVKT
LSLPVPVSLVICELLGVYPYADHDFQEHATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDLLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTLFRHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP211C1 (2566061659) *Salinispora arenicola* CNS296

VVDVEELLTRLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEMLRLQAPVHLLARAAPR
DTVLGGVPPIPGQNVLLLI AAANRDP AHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGAAVSRLEGRALALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP247A7 (2566061833) *Salinispora arenicola* CNS296

VRLTPGAARDIDLDSVNLFDLDLYTSGDPHPIWDMRAQSPLHHQVLADG
REFWSVTRYDDVCRVLGDYREFTSERGTVVTHLGEDDIAAGKLLTSTDPP
RHTQVRRRAIGAKLTARAVASWQDRIRDAIVRFLEPALDGDTFDLAEQALL
LPAIVTGPLLGI PERDWQELVQLTAMVTAPSDPHFQHGSEAATLAISHHE

LVTYVTEWVKQRRSAGGGDGSLLDHLMSVRVGGAPLTDEEIALDGYSILL
GANVTTPTHTVSGTVLALIERPEQFEKAQADPSLLANLVEEGLRWASAACN
FMRVAVNDTRIGGGTVPAGGAVVAWIGSANRDESYFPDPHQFDITRSGAN
RQVAFGFGPHYCIGAPLARMTLGIFFFEELVQRFSGSIELAGEPQHLSYFI
AGMTHLPIVAQKRKTP

>CYP211B2 (2566062180) *Salinispora arenicola* CNS296

MDVSEAI AVLISPSGRLDPYPTYEQ LRAHG PVSRTTAGL FVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIKSIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTAQADELVDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLVAGFETT
TNLLGNGLVLLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPADSWLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGTAGVAPGTP

>CYP107EU1 (2566062569) *Salinispora arenicola* CNS296

VTIGQTL PDLVYSPEFTRDPYAIFARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFPFGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPADDLLTALVQVSADEDRLSREELVSMALLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFDPDRDLITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQMQLAVEADDLEWL VNSFFRAPL
HLPVSLRR

>CYP105J3 (2566062867) *Salinispora arenicola* CNS296

MTDSVAFPQGRVCPHQ PAPGYRPLAVQRPLAQLTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRTNPAWPAIVPIVAAAVNDAQQKVLKIATALVGTGPE
HKAQRKMLIPSFTRFRMNALRPMIQEIVDQQLEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGFFFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGLVDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPAVTRSAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSRLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP1198B1 (2566062920) *Salinispora arenicola* CNS296

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQRKLVKSFTPRIVKSFGPQITHIVDGLFEDFRDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVMAAHAYFADLIHRRRKNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGELITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDPRAYENPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKHPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP105AH4 (2517455912) *Salinispora pacifica* DSM 45549

MTLLQAE EKVL TWPFARTEWGT PPPILAQLRQAPPCAVII PAGAASERRA
WLVT RYPDVRQALMDPRLSADELLPGAPVRIQVPQEERPSSFLRMDDPEH
GRLRGMIASQFTARRVRQLVPAVQRRTDLLDAFVAGPCPADLHDAFSRK

LPTLVIASLLGVPDEDSAFFVEKTRVTLSDQDDPEVSFAAYREMTDYLGLQL
AARKAKEPQDDLMSQLAVNNLAVGDITMDELVGIARLVLVAGHETTTNQI
ALNILSLLLDPLRAQVLADDGRLLPEYIEEAMRYWSISQDGIVRLVTE
LVLGEVQMRAQDAVVISIPAANHDPTVFPEPNRIDVTRSPRDHLQWNGP
HYCQGAPLARLEMVIALRTLFLARLPGLRLATDDVPSLFRRGTVFHGVENL
PVAW

>CYP245A13 (2517456708) *Salinispora pacifica* DSM 45549

MPSATLPRFTLTGWAREDIINPYPVYQRYREAAAVHRGEASGDAPETFYV
FSYDEVAQVLSSNCFGRGRSLDAAAAAVPVPTDQKALRAIVENWLVFMDP
PRHTELRLALLNRSFSPRIVTGLRPRIARIAQELLTRLGQQVETDLVAGFA
APLPILVIAELLGIPAERHGWLRANAMALQEASSSRARRDVG YARAESA
AQEFTEYFREQVYLRRGSTGDDLMTILANAQLRGAPVGLEAVVGTVCVHLL
TAGHETTTNSLAKAVLALRAHPAVLEELRSADGLTADSIAEFLRYDPPVQ
AVTRWTHQD TTLGDWEVPRGSRVVALLG SANRDPARFPLPDALDVRRTAD
RHLGFGLGIHYCLGATLARAELEIGLQTL DGLPALDYSVQYVDYADDMV
FHGPSRLLLLVNPGERFCS

>CYP244A5 (2517456712) *Salinispora pacifica* DSM 45549

MSVTTNAELGEAPETNMPVDPGLFDCLPDLIAAARIAPVVRIPYLGRHAW
VVCDELVRQALTHPKMGKDITLVPEWMRQPGMLVTAQPPPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGEQVADKVEGFLDELGQAASGGNAEV
DVVTNYTHKIPLAFISEMLGLPPEAEHRLRSITDIMLYSSDYAARREAIG
GLFGAVEEWVRDPAGLRDGVITGLLAASDGPGA AVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEALRRPPHERPKTDEDIAAWIEETLRVHPPFPHTW
RFPLEDIELGGYLI PKGAPVQVSIAAANRKPDEGADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAKIAVRGFLRRFP RARLSADTAVQWESEWMIRRM
SLLPAVLS

>CYP113E2 (2517456885) *Salinispora pacifica* DSM 45549

MAAVPRLTFADGGKRVLPWFRMRDDQPVWYDQGTKSWNVFRYADIAQIL
KDPVTFSSDPGRSMPELAEAEAGSLVAVDPPRHTRLRGLISAAFTPRLV
EQLAPRVRSIGELLNRA FVDRRVEGEFDIIGDLAYLLPVYVIGELLGLP
ESDRGYLVRAADEFYAI SADDPF DGAYMASMQSTLDELGSYMLDHAERRR
AKPGDDLISALAHAEIDGERLNDREIRNF AILLTLAGHITTTALLGNTLL
ALGERQDIMLRWRQGQVDTAILLEEVL RHRTPFTEVYRFTTTEVTIGNQV
VPGDQLRLRWIASGNRDERQFADPDTFVLGRDSKHLGFGGLGIHYCLGASL
ARMESVVVLGLLAERTTSLAPAVEALSYYDAPGIFCLRSLPVSYRRT

>CYP211B18 (2517457068) *Salinispora pacifica* DSM 45549

MDASEAVALLMSPGRLDPYPTYEQ LRAHGFPVPTAAGFFVVTGYTEADT
VLRNPRFGVMDDEERADVFPHWQDSPAMMSISRSMIRANPPDHSRMRLA
AGVFTPRRVAALREVVAQADELIDEMTRAGRGGAPVDFMG SFAYPLPVT
VICALLGVPAADWAQFRRWASELTGVLEPEITPEELAVADAGASGLRDYF
TELIAERRRTPAEDLT TALVQAHDADGDRLSGEELLANLVLLL VAGFETT
TNLLGNGLVLLNQPGSATALRDQPELAPRYVDELLRYDSPVQLTTRTVR
ESMPLAGVELPAGSWLLVLLGAANRDPARFTD PARFDPGRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRNRLTLRGYETLP
VTVG AAPADHGT PAGAALGTP

>CYP1005A6 (2517457395) *Salinispora pacifica* DSM 45549

MSAVLFRSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLT DQVTY
RPDNALDAVTPI PVAALRVLTGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQR PWTGLVAERVAAIRATLD SGG SADLHAELSADLPLLVLAR

LVELPDAPVSAVKQFARAALFWAPLDAGRQLALADEVGRFHQVIREFA
DTGGGLAAALRATGHPPDVLVVGALFFLLVAGQETTSQFLTLHRLAGEP
TVRAALRDGSVSVTNVVEEGLRLEPPIVWRRVAVDSTLGGTAVPAGTS
VLLWLARAGRDP AIVPAPDEF RFGQ RGSRRHLAFGAGAHRC LGDQLARME
AAVVVEQVTPLLDGITVVRAPWYPDNLTFRMPDAFVIRR

>CYP105AB24 (2517457638) *Salinispora pacifica* DSM 45549

MPETASITTTGTASTATTGAASGKVTDAEFFVARGCPFFSTPAEYEQIREH
SPIAKVRLTTGREAWWIAGHELGRTVLADRRFSSDRRRDNFFVSTDPET
RKQLQDQPTSM LGMDGA EHAQT RRALMG EFTVRRMAGLRPRIQQIVDQHI
DEMLSSEQRSADLVEALS LPVP SLVICELLGV PYADH DFFQGLTG PLLRH
TTPPEAR GRIQEELNTYLGTLIDRKLT DPTDDLLGRQIAKQHAAGTFDRT
SLVSM AFLLLIAGHETTANMISLG VVGLLQHPDQLAMIKNDPEKTPPAVE
ELLRYFTIADTVTARVATEDVQLGDTTINAGDG VVISGLAADHDPTVFTD
PDRIDLERGARHHVAFGFGPHQCIGQTLARMELQIVFDTLFRRIPTLRRLA
APLDDIPFKSDAFVYGA EKLPVAW

>CYP107NH1 (2517458341) *Salinispora pacifica* DSM 45549

MTEPVVSLMDPEFWNDPVSAYERLRGSGPLIRMGLPGVPPVWLVTSCHEV
KSALSDPRFVVD AANVPGHHGPGIVDQ MMAASGMPDEF RDYMTNMMFTDG
KDHSRLRLVTPGFSARRIRAMRPRVDQIAGELVESLAEKSGGELIADFS
APLTTT VICELIGVDRADQAQMGAWMRDYTTGERVVSGRAMVNYTRDLIE
RRRAEPADDMISAMIRSGDEAGDRLSDAEIIAMALLLINAGHHSTAQFIP
NAVLVLLDHPEQLARLRAEPGQLPGAMDELMRLANPVPIATPRYATEDME
FAGVAVRRGEALTGSLEAANFDPERFFAPRQLDTGRDLGRGDGHLSFGAG
PHYCPGAALARLEGEIALDHLLLRDSLRLAVERDEVYDVVSLGLRMLS
SLPVRL

>CYP247A8 (2517458347) *Salinispora pacifica* DSM 45549

MRLTPEAGRPVALGSIDLFDPDLLASGDPHSVWDVMRSEAPLHRQVLPDG
RVFWSVTRYEDVCRVLGDHRAFTSERGT VFTQLGADDIAAGKLLTSTDPP
RHTEVRRRAIGGRLTARAVAHWQDLVRRAVVRFLEPALDGGCWDLAERAQQ
LPLIIAGSLLGIPESDWEKLVQLTGMVTAPSDPMFGLGSEATLAI AHHE
IFDYLSDLVRRRRSAGTGGDSLLDHLMTVRAGAGPLPDEEVVYDSYSLIL
GANATTPHTLSGIVLTLVEWPEQC DKVRADPSLIPSMVEEGLRWTS AACN
FMRYATVDTRLTGGTVPAGEAVVAWIASANRDESQFTDPHTFDVTRGENR
HVAFGFGPHYCIGAPLARM TARIFFEELFRLFWSIEIDGEPQH LRSNFIA
GMTHLPVVTRKRAQV

>CYP107Z27 (2517458357) *Salinispora pacifica* DSM 45549

MSRTLPCHS LMDPTLIDDPAGGFSRIRDESPLAHAMVPGVDGPVWL VTRH
ESVRKVLGDRRFVNDPTNVP GSSTPDLWAHAALAQGV PHEYLEHVRSMLQ
LDGEVHARLRRLVSRAFTMR RITALRPRMMQLTEELLDLLPAKAEDGVVD
LVEHFNYVQPI SVICALVGVPAAADRAAWIRWSRVLTSMESGTIGDAVTGM
VDNIRALIEQRRAEAA DDLTDLVRVRDADGDRLSEREMITLVITLV TAG
HDSTGLLLSNGLAALLTHPDQLAKLRADPSLGPQAFDELMRWCSAIVAAR
PRYATEDVELEDGLVRRGDAVIPVLVSANYDPEVFEDPHRLDITRVHEQR
RFHHVGF GDGLHYCLGAALAKHEAAIAITALLERYPGLELAVPAQRLRRA
RLPLTWRLDSL PVRLGIGG

>CYP107AY6 (2517459214) *Salinispora pacifica* DSM 45549

MRAELAPIPRSGVRLGQEYDEF RKTGDVHQVLLPDSSLAWLVTDP ELVSR
ALADPRLALNRRHSRGW SGFALPPALDANLLNLDAPDHTRLRRLVGP AF

SPQ RVAALRPRI RRTAEHL LDALVTAGGPVDLVTGYCTPLSVQVIADLMG
VPEGGR TD LRTWTD TMLTSYPPDRAAIRRTVVELHG YVVNLIAAKQQQPG
DDL LSALVTIEQDGDRLTRDEL TSLAFLILFAGYENTANLIAS TVLRLLD
RGGIREARILEAIEETLRLEPPAPVAVRRFPTEEMAIGGATIPAGDTVLL
SIAAATRGVDGSATRLAFNGPHFCLGAALARVEAE EALTVLGRRLPGLA
LAVPVAQVRWRPTFRTHGPAELLVTW

> CYP244A9 (2517459227) *Salinispora pacifica* DSM 45549

MQNTAHTNLAEAPEVTMPIELRPTDCLPELLAAARVAPVVRIPYLDQHAW
VVC DREL VKQAL THPKLGKDVTLAPDWMRQPGQMVTAI PPPEYARMMVMS
DGEHHARIRRIHAPVLSPRNAERWSE RVAALVDGFLDNLDSTAGAQVDLI
TDYTHKIPLAFTSEMLGLPPGAERRLHDITEVMLYSADYALRQQAVGELF
EAVQEWVRNPAGLREGVITGLLASSDGP DATVTEGEAIVWTL SLIINGYE
TTGSLISAALYEALRRPARERPHTDEAIAAWIEETLRVQPPVPHTTWRF A
LADLDLGGYLIPKGAPVQISLAAANLDPDEDADSF DARRRGRGHLSFGRG
AHYCIGAPLARVQTKIALRGFLRRFPQARLSADTAPQWESEWMIRMSVL
PVLLA

>CYP107NG1 (2517459604) *Salinispora pacifica* DSM 45549

MTIPAGHSAAVCDFPVVQPDRLAVEPLFADLR SRTPIVRVRLPFGGTAWL
LTRYRDIRAVLASAQCCRAATDPDTPRILPRAGGEGLLMSLDAPEHTRL
RGLVTAWFTTRRVESLRPATEQAARQLIADMRGTGRADLVEQFSQKLSAT
VIGDLLGVPRSDRET FQRWSEALLSSTSYTQTQVQQATAELNNYFGYLID
QRDSHP SDDL VGTLVRNMQAGKLSRREVLALVTDLLVAGFETTAGQLTNS
VYTLSTIPGAWAWLAADRTRIPA AVEELLRALPLGAGGFRARVTTAPITL
GGDTRPTTIPAGHVIIAPTIAANTDPEAFDEPLTIRLDRPRNQHLAFGH
GAHRC LGAPLARMELTTALDELIEAFPSLT LAAPETDLQWKSGLQIRGPR
ALPVTW

>CYP154M18 (2517459672) *Salinispora pacifica* DSM 45549

MHETCPVLDTAGRDIHGESDRLRQRGA AVKVKLPGGVLA WAVTGHSAIKK
VLLDPNVTKNARAHWPAFINGEIPMDWELISWVAMDNMVTAYGAHLLQLR
KLSAKAFTPHRVEMMRPRVVALVNQLLDDL TAGGDEVVDLRERFCYPLPA
LTVADLIGMSEEHRQQTAKAMDMVDTTVT PAQAQETLAGWRGAMAELIA
EKRRNP GEDIASDLIAARD DENGAKLTDTELTDTIFAILGAGSETTINFI
DNAVTALLSHPDQLAMVRSGQISWAEVIEETLRVECP LGSPLRYAVTDI
ELEGVTIPKGDPILVNYAAAGRDPALHGETAGQFDVTRPDKEHISFGRGP
HYCLGAGIARMVATVGLSTL FERFPDLALAVPKGELQPLPTFIMNGHRAL
PVRLGVHRRRAVAG

>CYP208A28 (2517459698) *Salinispora pacifica* DSM 45549

MTVIADRGGRVPPGPPVTAGLRLL LALGRDRLGMMTSAASEYGDVARLPV
GPKRLYFFNHPDHAKHVLADNNANYQKGIGLVHARRALGDGLLTS DGELW
RKQRRVIQPAFLNRRLAQYAGVVGQEATRLAERLATRV DGPPVDVLDEMT
RLTLGVLGRTL LLD AELTGFRGVGESFAAVQDQAMFELETLSAVPTWIPLR
RQRRFRARRRHLQEVVDVLA AERGQEV EGRDDVLSRLILSTRAEADPQLG
RQRLRDELVTLLLAGHETTASTLGWSLHLLDQHPRLRERVRHEATSVLGG
RVPVYEDLHQ LRYTAMVVQETIRLYPPVWILTRRARADDEVGGYRVPAGA
DLLICPYTLHRHPRFWEEPERFDPERFDPAGLTNRPRYAYIPFGAGPRFC
VGTNLGMLEATLVLA VLLRDLRLLEGLPGRAVTPEPMLSLRVRGGLPMTVR
RAD

>CYP125A15 (2517459788) *Salinispora pacifica* DSM 45549

MTEPRIPVGFDFTDPAVLERRVPREEFAELRR TAPVWWNVQPRGSAGFDD

DGYWVVTRYADVMAVSRDSEYTYSTRENTAIARFQPGTTRADLEMQRVIML
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPTYGVDPLTAAA
ELLAYAMEMADERQRNPSSDDLVTCLVNAQIDGHELTDEFGFFVMLLAVA
GNETTRNAITHGMLAFLEHPEQWELFKAERPRSAVEEIIIRWATPVNVFQR
TALVDTTLGGQAI SAGQRVALFYGSANFDES VFEEPD RFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHMPDIRKAAEPQRLRSGWINGI
REMPVRYR

>CYP211C8 (2517459912) *Salinispora pacifica* DSM 45549

MLDVEGLLARLYSAQGRQEPYPVYADLHAQGAIAALASRPERQ RVAAVAV
GYDLVASVLRDPEWFKQPPPDWTEQEILRTLQSSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVISRVTD ELLDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPAAELAWYRERVDRIDAFLDVAGKTPERLAAANVAGAE LRAFYG
ELLAHRRRTPEGDLISGLVQAVDSGGVELTEDELISNLIVLFNASFVTTV
YLLSNGLPVLLAHPEVAAAMADDP ELAAGAVDEILRLQTPVHLLARAAPR
DTVLGGVSIPQGSVLLLI AAANRDP AHFPDPDRFDPRRSGPPSLAFGLG
LHYCLGA AVSRLEGR LALPRLLSRFPRLRILEQPVYSGSLFLRGIDKLSV
SPGGREHP

>CYP105AB28 (2517984974) *Salinispora pacifica* CNT851

MTETASTTTPGISSTTTSGPASGEVTD AEFPLERGCPFSTPTEYEQIREH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFFVSTD PET
RKQLQDQPTSMIGMDGA EHAQARRALMG EFTVRRMAGLRPRIQQIVDQHI
DEMLSSDQRTADLVEALS LPVPSLVICELLGV PYADHDFQARSGLPIRH
TTPTEVRLRIQKELNTYLGALIDRKVTDPTDDL SRQIAKHHAAGTFDRT
SLVSM AFLLLIAGHETTANMISLG VVGLLQHPDQLAMIKEDPEKTAPAVE
ELLRYFTIADTVTARVATEDVQLGGTTINAGDGVVISGLAADHDPTVFTD
PDRDL LERGARHHVAFGFGPHQCIGQTLARMELQIVFDTLFRRIPTLR LA
APLDDIPFKSDAFVYGAERLPVAW

>CYP107FH3 (2517985263) *Salinispora pacifica* CNT851

VPIELDEAFVQDPYAVYEKLRAEGPAHRVRMPPGVPLIGGLPVWLITGYD
AVRAALADSRLSTD LRRIDGLFAQKDPDRSHRGGFSSALASHMMHTDPPD
HTRLRKLVS KAFTTRAIEALRPRIQQTTDELTAEMAGHDTVDLLDAFAFP
LPIRVICLLLGV PVAEQENFRSWSRALVSGHSPEAAATAATEVAAYLGDL
VERKRHATTDDVLTALVA AHDVDDRLTHTELVSTAYLLFIAGFETTLNAL
NGT LHLMLHRDQWTALRADRALLDNAVEEFRLRESPLKHATFRCATESL
RIGDAEIAAGDFVLLAIASANRDP RRFDPHTLDVRRPAAGHLAFGHGHIH
HCLGAPLARVEVRMAFDALLDAFPDMRLATDPAGLRWRNSTIIRGLDSL P
VHLNN

>CYP2054A3 (2517985267) *Salinispora pacifica* CNT851

MSISADSEQVQGRFPDPYGAHRDDPYTFLAGLGVFYAPLLDAWCVT RRED
MVAVLRDDRSFSARDHNPRPAVALPDDVNQMFR TWRGAGAVAVGSLDPPA
HAKIRDVLNLGFTPARVRAFEPTMRAVATDLADRIGDAPEFDFIADFAVP
FALEVIGRRLGV PDDYLDRCRTWSEQRIELMMAQGDADHDRLREFARGLM
EFGEFARSLVRDRVADPRDDLISELLHDGKAGRTLTADEVAVQIPTLI FA
GHMTCAEALGTIFYQQLRSPGGWARVVDRTIPVGD LVEEGLRFDSPLAGM
YRTATRDVTVGGIRLTAGSRLLLLYGAAGRDSRAHACPAAFRPGDGSSGH
LAFGHGHIHFCLGAGFARAELRVAVEVLAARMPDLGLAPGRPPRFRPVFPL
RALTEL RVTRSGGGSGP

>CYP161N4 (2517985273) *Salinispora pacifica* CNT851

VNTVAQLPFTQTHVLVDVAPALRLLQSRGKVHRVRTPEGVPAWLVTGHAEV
QQLLDDDRLSRSDPGGRDGGTALLNKLLGPLADDDHPRLRSLLEPQFTPER
LKPLRAVVEKLTEQHLDELATRTPPVDLR PALAMSLPILVLCEWLGVP AE
DKGRFSVWTQDAAGVQDPERSQRGLAELFGYCRQLVAAKRQDPGDDVISR
LIATAGIGDTEAVALTALLLFGGYETTVARIGTGVL LLLLTNPDQWAAVRA
DPALVPATVDELLRRSMPNPNHNGGMPRFAVTGFEIDGAAIRAGDLVLLNI
IAANHDETAFPDPDRLDITRPTAGSLAFGHGRHSCVGAPLARMVLRVVL S
RLITRLPDLRLAVGVDELKLRHETLVGGLVELPVTWGPR

>CYP107AW7 (2517985556) *Salinispora pacifica* CNT851

VETVTGTSTPPPVPIADPYPTLARIRANGPVSILHSDEGIPMWVIARYR
DVRAALADPRFGQDARRAQALADNRVAGVALGGDIVHMLNSDPPDHTRLR
RHHVQRAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFPLPLV
ICELLGFP AEERNAYRSWSTAILTHDDDPAAFATALREMTDYIAVQLRIR
QTRPGDDILTELLAARDAGQLTDEIIGMVFLLLIGGHETTVNLLGTATL
ALMRNPDQHQLLANQHALPEAIDEFLRYESPVAMATLRFTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRDGTGHLAFGHGLHRC LGA
FLGKLEGEVALGALLRRHPRLALAAEVRQLRWRDTIMLRGLES LPSVLHG

>CYP211B11 (2517985899) *Salinispora pacifica* CNT851

MDASEAVALLTSPFGRLDPYPTYERLRAHGPVVSTAPGFFVVTGYTEADT
VLRNPRFEVMEDEERDGVFPHWQDSPAMISISRSMIRANPPDHSRMRR LA
AGVFTPRRVAALREVVAQAADGLVDEMIRAGRGA AVDFMG SFAYPLPVT
VICALLGVPTADWARFRHWASDLTG VLEPEITPQELAIADAGASELRDYF
TELIAQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVVL LTHPDSATALRGQPELAPGYVEEFLRYDSPVQLTSRTVR
ESVSLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRHRLTLRGYETLP
VTVGAVPADPGTPAGVALGTP

>CYP125A65 (2517986732) *Salinispora pacifica* CNT851

MTEPRIPVGFDFTDPAVLEHRVPREEFAELRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMAVSRDSETYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPP EHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGVDPMAAAA
ELLAYAMEMANERQNRNSDDLVTKL VNAQIDGEHLTDEFGFFVM LLA
VAGNETTRNAITHGMLAFLEHPDQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLGGAITAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REMPVRYR

>CYP208A22 (2517987587) *Salinispora pacifica* CNT851

MTVIADRGGRI PPGPPV TAGLRLLLALGRDRLGMMTSAAA EYGDVARLPV
GPKKLYFFNHPDHAKHVLADNHANYQKGIGLVHARRALGDGLLTSEGELW
RKQRRVIQPAFQNRRLAQYAGAVGQEATRLVARLATRV DGPPVDVLDEMT
RLTLGVLGR TLLDAELTG FHG VGESFAAVQDQAMFELET LNTVPTWIPLR
RQRRFRRARQHLQE VVDVLA AERGQAVEGRDDVLSRLILSTRAEADPQLG
RERLRDELVTLLLAGHETTASTLGWSLHLLDQHPELRERVRHEARTVLGD
RVPAYEDLHQ LRYTAMVVEEAIRLYPPVWILTRKARAEDEIGGYRVPAGA
DILICPYTLHRHPRFWAE PERFDPERFDPSRTTDRPRYAYIPFGAGPRFC

VGNNLGMLEATLVLA VLLRDLRLEGLPGRAVVPEPMLSLRVRGGLPMTVR
RVD

>CYP244A13 (2517988563) *Salinispora pacifica* CNT851

MQDTAQAKLAEAPEVTMPIELRPTDCLPELLAAARVAPVVRTPYLDQHAW
VVC DRELVKQAL THPKLGKDVALAPDWMRQPGQMTAMPPPEYARMMVMS
DGEHHARIRRIHAPVLS PRNTERWSERVAALIDGFLDNLDSADGTEVNLI
TDYTHKIPLAFTAEMGLPPGAERRLHDITEVTLYSADYALRQQAVGELF
EAVQEWVRDPAGLRDGVVTGLLACTDGPDATVTESEAI VWTLSLIINGYE
TTGSLISAALYEALRRPARERPHTDEAVA AWIEETLRVQPPVPNTTWRFA
LADLDLGGYLIPRGAPVQISLAAANLNPDEDADSFDAQRRGRGHL SFGLG
AHYCIGAPLARVQTKIALRGFLRRFPQARLSPDTPRWESEWMIRRM SVL
PVLLA

>CYP107AY9 (2517988584) *Salinispora pacifica* CNT851

MSQDQPTRAELAPIPRSGARIGPEYDQLRKTDGVHQVLLPDTSM AVLTS
PELVSRALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPDHTRLRR
LVGPAFSPQRVAALRPRIQRTAEELAETVVATGSPVDLVTGYCTPLSVQV
IADLLGVPEAGRTDLRAWTD TMLTSYPPDRDAIRQAVVELHGYV VNLIEA
KQQRPGDDLLSALVATEQEGDRLTRDELTS LAFLILFAGYENTANLI AST
VLRLLDHGSLRGVRASEAIEETLRLEPPAPAAIRRFPT EEMTIGGATIPA
GDTVLLSIAAATRGADGNPARLAFGNPHYCLGAALARA EAEAAITVLAR
RLPGLALVVP GAVRWRPTFRTHGPAELLVAV

>CYP1005A6 (2517988959) *Salinispora pacifica* CNT851

VSVVLFERSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLT DQVTY
RPDNALDAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQR PWLT ELVAERVA AIRATLDSGGSADLHAE LSADLPLLVLAR
LVELPDAPVA AVKQFARA ALELFWAPLDADRQLALADEVGRFHQV LREFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFL TLLLHRLAGEP
TVRAALRDGSVSVTNVVEEGLRLEPPIV TWRRVAAVDSTLGGTAVPAGTS
VLLWLARAGRDPAIVSAPDEF RPGQRGSRRLAFGAGAHRC LGDQLARME
AAVVVERVSPLLDGVAVVRAPWYPDNLTFRMPDAFVIRRG PAGSAER

>CYP107NG1 (2517989055) *Salinispora pacifica* CNT851

VTIPAGHSPAVCDFPVVQPDRLAVEPLFADLRSRTPIVRVRLPFGGTAWL
LTRYRDIRAVLASAQCCRAATDPDTPRILPRAGGEGLLMSLDAP EHTRL
RGLVTAWFTTRRVESLRPATEQAARQLIADMRGTGRADLVEQFSQKLSAT
VIGDLLGVPRSDRET FQRWSEALLSSTSYTQTQVQQATAELNNYFGYLID
QRDSHP SDDL VGTLVRNMKAGKLSRREVLALVTDLLVAGFETTAGQLTNS
VYTLSTTPGAWAWLAADRTRIPAAVEELLRALPLGAGGFRARVTTAPLTL
GGDTRPTTIPAGHVIIAPTIAANTDPEAFDEPLTIRLDRPRNQHLAFGH
GAHRC LGAPLARMELTTALGELIEAFPSLTLVAPETDLQWKSGLQIRGPR
ALPVTW

>CYP107E37 (2517989167) *Salinispora pacifica* CNT851

VTIDQEIREYPFRESSGIGIDPTYELLRRTEPLARVQLPYGEVSWLVTRY
EDVKTVLTDPRFSRAAAQ GKDQPRTRAEMTYEGII GLDPPDHTRLRLLAG
KALTARRVN AIRADAQRIAHEYVDEMI AKGSPGDLVELVALPYPVTVICE
LLGVPFEDRAQFRIWTEGLTSTSEQLMAYAEQLFDYMGKLVAQRR AEPTD

DLLGALVKARDEGDRLTEQELLSIAGVGLLLTGIVETVSTHIPNFVYALLT
HPELMAQLRADRSLVPAAVEELLRMIPLNPAAMFPRYAVEDVTLSGFTVR
AGQPVLVSLPGANRDPEVFENPETFDFTRDQNPVAFGHGPHHCLGAQLA

>CYP125A65 (2517969954) *Salinispora pacifica* CNT124

MTEPRIPVGFDFDPTVLERRVPREEFAELRRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMASRDSEYSTRENTAIARFQPGTTRADLEMQRVIML
NVDPPHEHTKLRAIVSRGFTPRAIHALRGSLAERAERIVRDAAVRGTGDFV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGVDPMAAAA
ELLGYAMEMADERQNRNPSDDLVTKLVNQAIDGHEHLTTDEFGFFVMLLAVA
GNETTRNAITHGMLAFLEHPEQWELFKAERPRSAVEEIIRWATPVNVFQR
TALVDTTLGGQAI SAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REMPVRYR

>CYP211C9 (2517970085) *Salinispora pacifica* CNT124

VPDIEGLLARLYSARGRQDPYPVYADLHAQAAIAALTPGPGRQRVAAVAV
GYDLIAAVLRDPEWCKQPPPGWRDQEILRILQSSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVINRVTDDELDRMADAEPGEVDFVAEFAYPLPARVM
AEFIGIPTTELAWYRERVDRVDAFLDVAGKTPERLAAANAAGAE LRAFYR
ELLARRRRTPEGDLISGLVEAVDAGGVELTEDELISNLIVLFNASFVTTV
YLLSNGLPVLLAHPEVAAALADNP ELAAGAVDEILRLQTPVHLLARAAPR
DTVLGGSVIPQGNVLLLI AAANRDP AHFPDPDRFDPRRSGPSSLA FGLG
LHYCLGA AVSRLEGR LALPRLLSRFPRLRILEQPVYSGSLFLRGIDKLSV
SPGGRSIRE

>CYP154AJ2 (2517970143) *Salinispora pacifica* CNT124

VDDESLFVIDPAGADIHGEGARLRASGPITRVLLPGGVEAWSVTGYHAAR
QVLADARFAKNARQHWPAYVNGDLGPDFPLIAWARMDNMSTADGES HARQ
RRLVAGAFSPQRI AALQPRVERAVARALDELAQA AERPGEPIDLKERYA
HPVAARVIGELLGVPDGD PDGILDRAGYIESTPQRAAE EFALLRSKIETL
VAAKRRAPGEDLISDLIAAQPSGCPVAGAGAGSDAELVGLAQLMLNTGAE
PARNLITNTVLALLTRPGQRAQVMSGEVSWGDVVEETLRTDAPVAHLPFR
FATEDVTIAGTTISRGD PVLVGYAATGRDPELHGATAGEFDARRADKRHL
AFGHGVHRCVGPALTRMEVRI AVEALFTRFPGVRLAVEPKELVGQGT FVM
NGRREL PVQGLCAQP

>CYP107AX10 (2517970262) *Salinispora pacifica* CNT124

MTAQPA PVFDQRLLRDPHRRYNALRDQAPVHHVTRPDGAPAWLVTRYDDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVERTVSTLLDGLAGNDHAELIGSLASPLPLQVMHEL
LGLPTQTSVDFRTWTNTLLSADANQPAQSRSAMANMRRFLVEQVAHKRAR
PGDDLLTGLLCVREDDDG LTTDELVAMLFLLMFAGYDNTAALIGNVIHAL
LTNAELAEAVRTRSLALDELVDGVLRWNP SFPLAVRRFA REPIT IAGQAI
PAGDRIWLCLASANRDP AHFTEPDEIGIADMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVASL FDRFP GIRLAMPVQDIQWRESFRLRGLVALPVFL

>CYP107AW6 (2517970276) *Salinispora pacifica* CNT124

VETVTGTSAPPPVPYIADPYPTLARIRANGPVSI LHSDEGVPMWVIARYR
EVRAALADPRFGQDARRAQALADNRVAGVT LGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLAGRKTVDLVQDLAFPLPMLV

ICELLGFP AEERNAYRSWSTAILTHDDDP AVFATALREMTDYIAVQLRLR
RSRPGDDLLELLTARDAGQLTDDEIVGMVFLLLIGGHETTVNLLGTATL
ALLRNPDQHRWLLANQHALPEAIDEFLRYESPVAMATLRFTTTPVTVDV
VIPAGELVLVSLGGANRDPDRFPAADRLLDRLDRDTHGLAFGHGLHRCGLGA
FLGKLEGEVALGALLRRHPKLALAAEVRQLQWRDTIMLRGLESPLVSLHG

>CYP245A11 (2517970360) *Salinispora pacifica* CNT124

MSSTTLPRFTLTGWTRDIVNPYPVYRRYREVA AVHRGEAGGDAPETFYV
FSYDEVAQVLSSSCFGRGRSLDATAASVPVPADQKALRAVVENWLVFMDP
PRHTELRSLNRSFSPRIVTGLRPRIARIAQELL SRLGQQVETDLVEGFA
APLPILVIAELLGIPAERHGWLRNTAIALQEASSSRARRD TDGYARAEAA
AQEFTEYFREQVCLRRGSTGDDLLTILANAQLRGAPVSLDAVVGTA VHLL
TAGHETTTNSLAKAVLALQAHPAVLEELRGADRLTADSIEEFLRYDPPVQ
AVTRWTHQD TTLGGWDVPRGSRVVAL LGSANRDPARFPLPDALDVRRPAD
RHLGFGLGIHYCLGATLARAELEIGLQTLLNGLPTLGYPAQYVDYADDMV
FHGPSRLILVNPGERFC

>CYP244A5 (2517970364) *Salinispora pacifica* CNT124

MSATTNAELHEAPETAMPVDPGLFDCMPDLIAAARIAPVVRIPYLGRHAW
VVCDELVKQALTHPKMGKDITLVPEWMRQPGLMVTAQPPPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGEQVADKVEGFLDELSQAAAGSSAEV
DVVTNYTHKIPLAFISEMLGLPPVAEHRLRSITDIMLYSSDYAARREAIG
GLFGAVEEWVRNPAGLRDGVITGLLAGSDGPAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEALRRPPHERPRTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLI PKGAPVQVSI AAANRQPGEGADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAKIAVRGFLRRFPQARLSADTAVQWESEWMIRRM
SFLPAVLS

>CYP105AB27 (2517970968) *Salinispora pacifica* CNT124

MTETASITTPGTSSTTTSEPASGQVTD AEFFPVERGCPFSTPVEYEQIRDH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFFVSTDPET
RRQLQDQPTSMIGMDGAEHAQARRALMGFTVRRMAGLRPRIQQIVDQHI
DEMLSSDQRTADLVEALS LPVPSLVICELLGV PYADHDFQARSGLIRH
TTPTEVRLRIQEELNTYLGALIDRKVTEPTD DLLSRQIAKQRAAGTFDRT
SLVSM AFLLLIAGHETTANMISLG VVGLLQHPDQLAMIKDDPEKTPPAVE
ELLRYFTIADTVTARVATEDVQLGGTTINAGDGVVISGLAADHDPTVFTA
PDRDLERGARHHVAFGFGPHQCIGQTLARMELQIVFDTLFRRIPTLRRLA
APLDDIPFKSDAFVYGA EKLPVAW

>CYP211B16 (2517971959) *Salinispora pacifica* CNT124

MDASEAVALLMSPGRDPYPTYERLRAHGPPVATAAGFFVVTGYAEADT
VLRNPRFAVMDDEERDGVFPHWQDSPAMMSISQSMIRANPPDHSRMRLA
AGVFTPRRVAALREVVAQADELIDEMIRAGRGGAPVDFLGGFAYPLPVT
VICALLGVPAADWAQFRRWAGDLTG VLEPEITPQELAVADAGATELRDYF
TELIAQRRRDPADDLTALVQTHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLFVLLTHPESATALRDQPELAPSYVDELLRYDSPVQLTSRTVR
ESVPLAGVELPAGSWLLVLLGAANRDPARFTD PARFDPGRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPVRRSRLTLRGYETLP
VTVGAVAADHGTPAGAALGTP

>CYP105BL3 (2517972294) *Salinispora pacifica* CNT124

MSSHSAAPDPETATPLHTLAPELTFPQFERATPFDPPEAYTELSGRCPV
APVRMADGKPSWLITSFEGVRAALSDPRLSSDMSHPGFPNRTGKPVDDL

KDTLGAMDGERHRYRRMLTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVTHVALVVPSPRVACHLVGIPLSEYELFTGMAAKLMDSTSSADQIA
ALQDMVSYFDTLVTDREHHDRDDLLGHMVRRYLATGELDREMLIRLAWTT
MAAGQETTAHMIIGLGVAALLRHPDQLELLRREPHLMPGAVDELMRYLPMI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLSFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADGDADLKVQ
DEDIMYRVSELAVAW

>CYP208A27 (2517972399) *Salinispora pacifica* CNT124

MTVITKRGGRVPPGPPVTAGLRLLALGRDRLGMLTSAATEYGDVARLPV
GPKRLYFFNHPDHAKHVLADNHANYAKGIGLVNARRALGDGLLTS DGELW
RRQRRVIQPAFLNRRLTQYAGVVGQEATRLAERLATRVDPGPVDVLD
RLTLGVLGRTLDDAELTGFGHVGESFAAVQDQAMFELETLSAVPTWIPLR
RQRRFRARRRHLQEVVDVLAERGQDVEGRDDVLSRLILSTRAEADPALG
RQRLDELVTLLLAGHETTASTLGWSLYLLDKHPQLRERVRHEATSVLGD
RVPGYADLHQLQYTAMVVQEAIRLYPPVWILTRKARAEDEVGGYRVPAGA
DLLICPYTLHRHPRFWEEPGRFDPERFDPARLANRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLAVLLRDLRLLEGLPGRAVVPEPMLSLRVRGGLPMMVR
RAD

>CYP107FH3 (2517972807) *Salinispora pacifica* CNT124

VPIELDEAFVQDPYAVYERLRAEGPAHRVRMPPGVPLIGGLPVWLITGYD
AVRAALADSRSLSTDLHRIDGLFAQKDPDRSHRGGFSSALASHMMHTDPPD
HTRLRKLVSQAFTRAIEALRPRIQQTDELIADLAGHDTVDDLDAFAFP
LPIRVICLLLGVPVAEQENFRSWSRALVSGHSPEAAATAATEVAAYLGDL
VERKRQATTDDVLTALVTAHDVDDRLTHTELVSTAYLLFIAGFETTLNAL
GNGTLHLMLHRDQWTALRADRALLDNAVEEFLRLESPLKHATFRCATESL
RIGDAEIAAGDFVLLAIASANRDPRRFPDPHTLDVRRPAAGHLAFGHGIH
HCLGAPLARVEVRMAFDALLDAFPDLRLATDPAGLRWRNSTIIRGLDSL
VHLNN

>CYP2054A3 (2517972811) *Salinispora pacifica* CNT124

MPISADSEQVQGRPFDPYGAHRDDPYAFLAGLGVFYAPLLDAWCVTRRED
MVAVLRDDRSFSARDHNPRPAVALPDDVNQMFRWTRGAGAVAVGSLDPPA
HAKIRDVLNIGFTPARVRAFEPTMRAVATDLADRIGDAPEFDFIADFAPV
FALEVIGRRLGVFPDDYLDRCRTWSEQRIELMMAQGDADHDRLREFARGLM
EFGEFARSLVRDRVADPRDDLISELLHDGKAGRTLTADEVAVQIPTLIFA
GHMTCAEALGTIFYQQLRSPGGWARVVDRTIPVGDVVEEGLRFDSPLAGM
YRTATRDVTVGGIRLTAGSRLLLLLYGAAGRDSRAHACPAAFRPGDGSSGH
LAFGHGIHFCLGAGFARAELRVAVEVLAARMPDLGLAPGRPPRFRPVFPL
RALTELVRVTRSGGCGP

>CYP161N4 (2517972816) *Salinispora pacifica* CNT124

VNTVAQLPFTQTHVLDVAPALRLLQSRGKVHRVRTPEGVPAWLVTGHAEV
QQLLDDDRLSRSDPGGRDGGTALLNKLLGPLADDDHPRLSLLEPQFTPER
LEPLRAIVEKLTEQHLDELATRTPPVDLRPALAMSLPILVLCWLVGP
DKDRFSAWTQDAAGVQDPERSQRGLAELFGYCRQLVAAKRQDPGDDVISR
LIATAGIGDTEVVALTALLLFGGYETTVARIGTGVLTLTNPQWAAVRA
DPALMPATVDELLRRSMPNPNHNGGMPRFALTGFEIDGAAIRAGDLVLLNI
IAANHDETAFPDPDLVDVTRPTAGSLAFGYGRHSCVGAPLARMVLRVALS
RLITRFPDLCLAVGVDELKLRHETLVGGLVELPVWTWGPR

>CYP1226A3 (2517972976) *Salinispora pacifica* CNT124

MTRTLRTPTSAPGRLPVLGHGLHMKRRPAEFLLELQSGEPVVTIALGRRP
AYVVNDHTLMRELLRDGDTFVRGGPMTERFRSMFGNGLGISEGEFHRRQR
ALIQPAFHRNKVIHYTELSRTVAGTRDSWRDQQLAVEKEMDELALTNV
VEVIFAGDRSVDRARFMAATTTVLGGLFRRITDVTGVLTRLPTQANRDYD
AAAEYLRAITIRRVIAEYRAAGTDHGDLLSMMLFARDEDGRPAMSDQQVHD
EVMTEFFIAGSNTIANTLCWALHQIGADAEVERRLYAEDRVLDGRAAGYA
DVANLEYTRQVLSETLRLRTQGLFNNRVTARDAELGGYLIPAGSAVLYSF
HAVHHNPRIYPEPERFDPDRWRPERARALPHGAFMPFATGVHGCIGDQFA
WTEMIIVSLASIVARWRLEPVPGHQPKPVPAMTMPVDSLPMTVRLRSC

>CYP285D2 (2517973049) *Salinispora pacifica* CNT124

MSVSNETVGAVRLAEVNLFDPAFHTGDPHPLWRVMRERAPLHRQVLADGR
MFWNVTRYHDVCRVLGNHRQFTSERGSLISQLGTVDAAAGRMLVSTDPPR
HLQLRRPLASLFAQPAEALRGRLQHGVRLINAAAPVDESWDLAVDVQQL
PMVAAAAMVDLPESDWPDLIRWTGMAAAPSDPAFSVGSTAATLAIHHHEL
FDYFAGQVRDRRKHPGDDVISHLLSMHAGDGPLTREEVIFNCYSILLGAN
ATTPHTVSGTVLALVERPGLLGELTGHPEAATDLVEEGLRWTSAASSFMR
HAVVDTELSGGVVVRAGDAVAAWVGAANRDPVFPDPERFDPARRNNRHVA
FGHGPHYCLGAALARVTLREFFAEFLQTFVSVQLAGQLQRLASNFIAGLT
HLPLSVRRRA

>CYP1005A8 (2517973631) *Salinispora pacifica* CNT124

VSAVLFERSWTKTAGTHWPPVTRVADQQGTEHLVVTEHELVRQILTDQVTY
RPDNALDAVTPIPVPALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTKLVAERVAAIGATLDSGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAALFWAPLDADRQLALADEVGRFHQVLREFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHLRLAGEP
TVRAALRDGSVSVANVVEEGLRLEPPIVTVRRVAAVDSTLGGTAVPAGTS
MLLWLARAGRDPAIVPAPDEFPRPGQGRSRRHLAFGAGAHRC LGDQLARME
AAVVVEQATPLLDGTSVVRAPWYPDNLTFRMPDAFVIRR

>CYP161T1 (2517973853) *Salinispora pacifica* CNT124

VTTQVFRTKTPIGHPAWLVTDYESVRDLLSDPRLRLTHERPGEAARLSNS
VIFGRPQPSSETEAADHTRMRKLAQWFSARRLATFRPRLRELVDGLLDE
LAATPKPADFHQVVSFPLPALVICELLGVPIADREQFRWSDDAADMYDQ
ERSVGGYQALRDYIAELAQVRLRMPGTDLISDLVESHRTPEGFTLDQVV
ELGLTLLFAGHETTVAIDNGAVLLATHPEQRDLRAGDPSLLDAAVEEIL
RGSVPRMNFFARPDDTD PAGALPRWANTDLVIGDVTVRAGELVLLGLAHA
NVDERFFAESACFDVGRVPPNRHLTFGIGPHFCAGAPLARLELQELFVALL
ERFPGRLRLAVPAERLEPRANLLTGGMTRVPVTW

>CYP107AY8 (2517974011) *Salinispora pacifica* CNT124

MRAEPAPIPRSGARLGQEYDQLRKTGDVHQVLLPDTSLAWLVTSPELVSR
ALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAF
SPQ RVAALRPRIQRVAEELADTVVATGSPVDLVTGYCTPLSVQVIADLLG
VPEAGRTDLRAWTDMLTSYPPDRDAIRQAVVELHGYYVNLIEAKQQRPG
DDL LSALVATEQEGDRLTRDELTS LAFLILFAGYENTANLIASTVLRLLD
HGSLRGVRASEEIEETLRLEPPAPAAIRRFPTTEMTIGGATIPAGDTVLL
SIAAATRGTD EHSARLA FGN GPHFCLGAALARVEAEEAITV LARRLP SLA
LAVPGAPVRWRPTFRTHGPAELLVTW

>CYP107E37 (2517360952) *Salinispora pacifica* DSM 45544

MTIDQEIREYPPFRESRGIGIDPTYELLRRTEPLARVQLPYGEVSWLVTRY
EDVKTVLTDPRFSRAAAQGKDQPRTRAEMTYEGIIIGLDPDPDHTRLRLRLAG
KALTARRVNAI RADAQRIANEYVDEMIAKGSPGDLVEAFALPYPVTVICE
LLGVPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFDYMGKLV AQRRAEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTG VETVSTHIPNFVYALLT
HPELMAQLRADRS LVPAAVEELLRMIPLNPAAMFPRYAVEDVTLSGITVR
AGQPVLVSLPGANRDPEVFENPETFDFTREQNPHVAFGHGPHHCLGAQLA
RMELQVALHTVLDRFPDLRLADGDEGVSWKSGLLVRGPSRLLVGW

>CYP208A22 (2517361049) *Salinispora pacifica* DSM 45544

MTVIADRGGRI PPGPPV TAGLRLLLALGRDRLGMMTSAAA EYGDVARLPV
GPKKLYFFNHPDHAKHVLADNHANYQKGIGLVHARRALGDGLLTSEGELW
RKQRRVIQPAFQNRRLAQYAGAVGQEATRLVARLATRVDGPPVDVLDEMT
RLTLGLVLRGRTLLDAELTGFGHVGESFAAVQDQAMFELET LNTVPTWIPLR
RQRRFRRARQHLQEVVDVLA AERGQAVEGRDDVLSRLILSTRAEADPQLG
RERLRDELVTLLLAGHETTASTLGWSLHLLDQHPELRRERV RHEARTVLGD
RVPAYEDLHQLRYTAMVVEEAIRLYPPVWILTRRARA EDEIGGYRVPAGA
DILICPYTLHRHPRFWAEPERFDPERFDPSRTTDRPRYAYIPFGAGPRFC
VGNNLGMLEATLV LAVLLRDLRLEGLPGRAVVPEPMLS LRVRGGLPMTVR
RVD

>CYP125A65 (2517361139) *Salinispora pacifica* DSM 45544

MTEPRIPVGFDFTDPAVLERRVPREEFAELRR TAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMASRDSETYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPP EHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDA AVRGTGDFV
TDVACELPLQAI AELIGVPQHHRKVF DWSNQLIGYDDPAYGVDPMAAAA
ELLAYAMEMANERQ RNPSSDDLVTQLVNAQIDGEHLTTDEF GFFVMLLAVA
GNETTRNAITHGMLAFLEHPDQWELFKAERPRSAVEE IIRWATPVNVFQR
TALVDTTLGGQAITAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REMPVRYR

>CYP107AX4 (2517361499) *Salinispora pacifica* DSM 45544

MTSQPAPVFDQ LLLRDPHRRYNALRDEAPVHHIRTPDGAPAWLVTRYDDV
RAAFTDPRLSVDKRLSSTDGEHGSSLPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVERIVSTLLDGLVGH DQAE LIGSLASPLPLQVMQEL
LGLPTQTSVDFRRWNTLLSADANQPAQSR SAMANMRRFLVEQLAHKRAR
PGDDLTLGLLAAREDDRLTDDELVAMLFLLMFAGYDNTAALIGNVVHAL
LTNTELPAAVRTGSLALDELVDGVL RWNPSFPLAVRRFA REPIT IAGQTI
PAGDRIWLCLASANRDPAQFTAPDTLGTTGMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVTILLDRFP GIRLAVPAHDIRWRESFRLRGLVALPVFL

>CYP107AW7 (2517361512) *Salinispora pacifica* DSM 45544

METVTGTSTPPPVPYIADPYPTLARIRANGPV SILHSDEGIPMWVIARYR
DVRAALADPRFGQDARRAQALADNRVAGVT LGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPA AFATALREMTDYIAVQLRIR
QTRPGDDILTELLAARDAGQLTDDEIIGMVFLLLIGGHETT VNNLLGTATL

ALMRNPDQHRWLLANQHALLPEAIDEFLRYESPVAMATLRFTTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPRLALAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP211B11 (2517361951) *Salinispora pacifica* DSM 45544

MDASEAVALLTSPPGRLDPYPTYERLRAHGFPVVSTAAGFFVVTGYTEADT
VLRNPRFEVMDDEERDGVFFPHWQDSPAMISISRSMIRANPPDHSRMRLA
AGVFTPRRVAALREVVAQAADGLVDEMIRAGRGAADVDFMGSFAYPLPVT
VICALLGVPAADWARFRHWASDLTGVLPEEITPQELAIADAGASELRDYF
TELIAQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVLLTHPDSATALRGQPELAPGYVEEFLRYDSPVQLTSRTVR
ESVSLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRHRLTLRGYETLP
VTVGAVPADPGTPAGVALGTP

>CYP1005A6 (2517362283) *Salinispora pacifica* DSM 45544

MSAVLFRSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLTQVQTY
RPDNALDAVTPIPVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTTELVAERVAAIRATLDSGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAALFLWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLAGEP
TVRAALRDGSVSVPNVVEEGLRLEPPIVTVRRVAAVDSTLGGTAVPAGTS
VLLWLARAGRDPATVSAPDEFPRPGQGRSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQVSPLLDGVTVVRAPWYPDNLTFRMPDAFVIRRGPAAGVAER

>CYP105AB28 (2517362537) *Salinispora pacifica* DSM 45544

MTETASTTTPGISSTTTSGPASGEVTDAEFPLERGCPFSTPTEYEQIREH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRDNFPPVSTDPEP
RKQLQDQPTSMIGMDGAEHAQARRALMGFTVRRMAGLRPRIQQIVDQHI
DEMLSSDQRTADLVEALSPLVPVSLVICELLGVVPYADHDFQARSGPLIRH
TTPTEVRLRIQKELNTYLALIDRKVTDPTDDLRSRQIAKHHAAGTFDRT
SLVSMAFLLLIAGHETTANMISLGVVGLLQHPDQLAMIKEDPEKTPPAVE
ELLRYFTIADTVTARVATEDVQLGGTTINAGDGVVISGLAADHDPTVFTD
PDRDLDERGARHHVAFGFQPHQCIGQTLARMELQIVFDTLFRRIPTLRLA
APLDDIPFKSDAFVYGAERLPVAV

>CYP164C2 (2517362738) *Salinispora pacifica* DSM 45544

MTARAGSAAEDIIQLADRMGREDPYPVLHRMRQASPYVALPGLVVAGTHA
TCSAVLRDPGMSSERQRATLAPAARGPRTNRLHLDPPDHTRLRLRVSKV
FTPRVVATMEPHIRRTTDDLTAARGSMEEVADLAYPLPLRIICEVLG
VPAEDHHLVQHSARLSEALEPPIPLVSTTTSTEAARARAGFIAYFQAL
IADRRRSRADLVSQLVAVEDASERLDSSDILATCILLINAGHETTVNLI
ANGVLALLRHPEQLADLRAEPGLAAATVDEVRLYDAPVQITSRVAKHDTR
LGAADVVRAGDMVLLLGAAANRDPVYPDPDRFDIRRRSPVPHLAFSAGAH
FCLGAGLARLEAQIALSAVAARLREPRLRAGGVSYKPNLSLRGPDVLTVD
FDDVLAPGRRDQGEANG

>CYP107FH3 (2517362830) *Salinispora pacifica* DSM 45544

MPIELDEAFVQDPYAVYEKLRAEGPAHRVRMPGPVPLIGGLPVWLITGYD
AVRAALADSRLSTDHLRIDGLFAQKDPDRSHRGGFSSALASHMMHTDPPD
HTRLRKLVSKAFTTRAIEALRPRIQQTDELTAADLAGHDTVLDLDAFAFP
LPIRVICLLLVGPVVAEQENFRSWSRALVSGHSPEAAATAATEVAAYLGDL

VERKRHATTDDVLTALVAAHDVDDRLTHTELVSTAYLLFIAGFETTLNAL
GNGTLHLMLHRDQWTALRADRALLDNAVEEFLRLESPLKHATFRCATESL
RIGDAEIAAGDFVLLAIASANRDPRRFPDPHTLDVRRPAAGHLAFGHGHIH
HCLGAPLARVEVRMAFDALLDAFPDMRLATDPAGLRWRNSTIIRGLDSL
P
VHLNN

>CYP2054A3 (2517362835) *Salinispora pacifica* DSM 45544

MSISADSEQVQGRFPDPYGAHRDDPYTFLAGLGVFYAPLLDAWCVTRED
MVAVLRDDRSFSARDHNPRPAVALPDDVNQMFRTWRGAGAVAVGSLDPPA
HAKIRDVLNIGFTP PARVRAFEPTMRAVAADLADRIDGAPEFDFIADFAPV
FALEVIGRRLGVPDDYLDRCRTWSEQRIELMMAQGDADHDRLREFARGLM
EFGEFARSLVRDRVADPRDDLISELLHDGKAGRTLTADEVAVQIPTLIFA
GHMTCAEALGTIFYQQLRSPGGWARVVDRTIPVGD LVEEGLRFDSPLAGM
YRTATRDVTVG GIRLTAGSRLLLLYGAAGRDSRAHACPAAFRPGDGSSGH
LAFGHGHIHFCLGAGFARAE LRVAVEVLAARMPDLGLAPGRPPRFRPVFPL
RALTEL RVTRSGGSGP

>CYP161N4 (2517362841) *Salinispora pacifica* DSM 45544

MNTVAQLPFTQTHVLDVAPALRLLQSRGKVHRVRTPEGVPAWLVTGHAEV
QQLDDDDRLSRSDPGGRDGGTALLNKLLGPLADDDHPRLRSLLEPQFTPER
LEPLRAVVEKLTEQHLDELATRTPPVDLRPTLAMSLPILVLCEWLGVP AE
DKGRFSVWTQDAAGVQDPERSQRLAELFGYCRQLVAAKRQDPGDDVISR
LIATAGIGDTEVVALTALLLFGGYETTVARIGTGVL LLLTNPDQWAAVRA
DPALVPATVDELLRRSMPNPHNGGMPRFAVTGFEIDGAAIRAGDLVLLNI
IAANHDETAFPDPDRLDITRPTAGSLAFGYGRHSCV GAPLARMVLRVALS
RLITRFPDLRLAVGVDELKLRHETLVGG LVELPVWTWGPR

>CYP107AY9 (2517363981) *Salinispora pacifica* DSM 45544

MSQDQPTRAELAPIPRSGARIGPEYDQLRKTDGVHQVLLPDTSMAWLVTS
PDLVSRALADPR LALNRKHSRGGWSGFALPPALDANLLNL DAPDHTRLRR
LVGPAFSPQORVAALRPRIQRTAEELAETMVATGSPVDLVTGYCTPLSVQV
IADLLGVPDAGRTDLRAWTDMLTSYPPDRDAIRQAVVELHGYVVNLIEA
KQQRPGDDL LSALVATEQEGDRLTRDELTS LAFLILFAGYENTANLIAS
TLRLLDHGSLRGVRVSEAIEETLRLEPPAPAAIRRFPT EEMTIGGATIPA
GDTVLLSIAAATRGADGNPARLAFGNPHYCLGAALARVEAE EAITVLAR
RLPGLALAVPGAPVRWRPTFRTHGPAELLVAV

>CYP244A10 (2517364001) *Salinispora pacifica* DSM 45544

MQDTAQANLAEAPEVRMPIELRPTDCLPELLAAARVAPVVRTPYLDQHAW
VVCDRELVKQALTHPKLGKDVALAPDWMRQPGQMVTAMP PPEYARMMVMS
DGEHHARIRRIHAPVLSRNTERWSERVAALVDGFLDNLDSADGTEVNLI
TDYTHKIPLAFTAEMLG LPPGAERRLHDITEVM LYSADYALRQQAVGELF
EAVQEWVRDPAGLRDGVITGLLASADGPDATVTKGEAIVWTL SLIINGYE
TTGSLISAALYEALRRPARERPHTDEAVA AWIEETLRVQPPVPHTTWRF
A
LADLDLGGYLIPRGAPVQISLAAANLDPDEDADS FDAQRRGRGHLSFGLG
AHYCIGAPLARVQTKIALRGFLRRFPQARLSLDTAPRWESEWMIRMSVL
PVLLA

>CYP107N4 (2517364343) *Salinispora pacifica* DSM 45544

MTTRDLRFGAFLSPLHPPGSDPTWLIANDLALVEHVDR LGFDEFWIGEHH
SGGWGIVSSPEVFLAAAAERTRHLRLGTGVVSLPYHNP FFMVASRIVQLDH

MTRGRVMLGVGAGSLPSDAHMGVEPGQQRPRTAELDAVLHLLRSDEPL
TMSTDWFDLRDARLQLRPYQHDLEVAISSAASPFSMRLAGRHGLSPLSFS
AGLPGVGVANLPRQWAHAETATGAGRVVSRDDWRLVVSVHVAPTTEQAY
AEVRSGRHRLQGYFGDLIGLPVTPEGVEPGEELEAMVESGGAIVGSPRD
CIEAIERLQEVTTGGFGTLLVTVQDWAGPQQVRNSFELLASEVVPHFRGSL
RRIEDSRRWVTQQRGVLPKAVTALQAVLAPEPPTPETRPEAAPAPSGAP
AYPFGPPDKLEPDPHARLREHEPVSRVTLPPFGGEAWLATRYKDVRTVFA
DRRFSRAAAVAEGAPRFFSQQPPPDAILSMDDPDHTRLRLRVGKAFGPKR
MEQLRPRVQQITDELLAEMERRHPVVDLVEDFSIPLSVTVICELLGVPT
DRDRFRVWSNAVLSTTAFTPEQAARYQAEHLTYLGELVARHRAKPGDNLL
GQLASNQDEDVLSSELLRLGESILIAGHETTASHIPNFVYTLRLHPEAL
EKLRGEPALIPDAVQELLRFVPIGAVDGMPRVATEDLQLQGVLIIRKGDV
LPSMGSAHDERAFADPDRLDITRGSNPVAFGNGPHHCLGAPLAVVELE
IALSSLLTRFTGLRLAVPEDELRWKNGLIVRGLEAMPVTW

>CYP1278B5 (2517365860) *Salinispora pacifica* DSM 45544

MPSPVGAVVHPNPYPYYAAMVAERPLHFDEQLDTWVAESAAAVQAVLTAP
GCRVRPPHEPVPQGITGTGAPGVFGNLVRMTDGEPOQNRKAIVTQTLGAV
DRDDRRRDGRTARPADPQRSQPHAVRQLMFELPAQVVAMLCGLDPAAGGE
ASRLVGRFVQCIPAAASPEQQQRAARAAAGLQELLGPKLDDTQHGLLGDL
VRMATQVNWTDRAPLLANGIGFLSQTYDATAALMGNTLLALSQQERERPA
GETTLERFVREVIRHDAVPQNTRRFTTTPIRHGAVEVPAGQAILVLLAAA
NRDPAANPNPHTFRADRTAPTFTFSAGAHRRPGEMLAVTVVTTVVEQLL
KVGFEFASLSTQVTYRPSNPTRIPVLTDQAGT

>CYP166A4 (2518480913) *Salinispora arenicola* CNY231

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRSRLTGHEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHQCLGQN
LARVELRAGLSALLQAFPNLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP211B2 (2518481964) *Salinispora arenicola* CNY231

MDVSEAIAVLISPSGRLDPYPTYEQRLAHGPVSRRTAGLFVVVTGYAEADM
VLRDPRFVVLDLDDLRDDVFPWQDSPAIXIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTQADELVDDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVLLTRPEAAAAALRDEPDLAGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPADSWLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGTAGVAPGTP

>CYP105BL2 (2518482031) *Salinispora arenicola* CNY231

MSSHSAAPDPETATPLHTLAPELTFPQFERSTPFDPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTLSDPRFSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPVSRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA

ALQNMVSYFDTLVTDREHHDRDDLLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDEL DVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP211C1 (2518482492) *Salinispora arenicola* CNY231

VVDVEELLTRLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVVIDAFLDVAGKTPQRLAAAANAAGAE LRAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVS NLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPI PQGQNVLLLVA AANRDP AHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGAAVSRLEGR LALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP125A41 (2518482640) *Salinispora arenicola* CNY231

MTEPRIPAGFDFTDPEVL AHRVPREEFAELRR TAPVWWNAQPRGSAGFDD
DGYWVVTRYADVM TVSRSDTYSTRENTAIARLRPD TTREDIEMQRVIML
NVDPP EHTKLRAIVSRGFTPRAINALRGSLA ERAEHIVRDAAVRGV GDFV
TDVACELPLQAI AELIGVPQHRRKVF DWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMA EERQ RSPSDDLVT KL VNAQIDG EHLTTDEF GFFV MLLAVA
GNETTRNAITHGMVAF L DNPEQWELFK AERP KSAVEE IIRWATPVNVFQR
TALVDTVLGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP244A4 (2518482859) *Salinispora arenicola* CNY231

MSTTTNTELTEAPETNMPVD PGLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVC DREL VKQAL THPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLS PRNTERWGERVADKVEGFLDELSQAGSGGSAEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGS LISTS LYEAI RPPHERPKTDEDITAWIEETLRVHPPFPHPPTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGE GADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLP AVL S

>CYP245A7 (2518482863) *Salinispora arenicola* CNY231

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVP AEQKALRAIVENWLVFMDP
PRHTELRSLLNRSFS PRIVTEL RPRIARIAQELLSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYAQAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDEL RGA EGLTTDAVEEF LRYDPPVQ
AVTRWAHQD TT LGGCDIPRGSRVALLGSANRDPARFPSPDVL DVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVP T LGYGTQHVDYADDLV
FHGPSRLVLVNLGERCT

>CYP105CP2 (2518483310) *Salinispora arenicola* CNY231

MTKSMPVQDLPAFPPIPRECYPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSA HARAVLS DYRRVSIKPYHGNYPLLN EEF EKVVDSGYADVLFGVDPP
EHTRQRQMIMPSFTLRR TAVLRPDIQRIVDDKLD EMMRHGAPGDLVTEFA
QPVP SMVMSFLLGVPWEDHEEFETPA HKLFVPELAEEATTEL GAYLERLI
QKKEQPGGTPGGTGLLDD LIRDHLRAGALS RDELVHIAMAMLVAGTD TTT
NVISLGT LALLDNP DQWAALRDN PDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRP RPSPFSFSH
GIHRC PGDNLARLELEIAFRSLVTRMPNLRTAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2518483312) *Salinispora arenicola* CNY231

MAAPAPQATQSTTPHPPSYPLPRECYPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLV TGAAEARALLADSRVSNRADFPNYPVM DERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQLLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVPYQDRTRFEPAVAGLFEPDRAD
AAMAE LTAYLHQ LIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPV GAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNH LAFSHGIIHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQ LPTY
FAGDVPRLACL PVTW

>CYP107FS2 (2518483313) *Salinispora arenicola* CNY231

MPVPQGEQNLTTTEVFADPKALFATLGS RQPLHRISLPDGM PAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVS TAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVPFADRSEFERHAEVLTGINASSGFD AIIAAGRWFDEYLAELVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETT VNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCV TYHF AQEPVEI
GGFEIRSGEHV VIAAAAANHDPTVFADPSRLDLRREGSGQILSF SHGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSL VWKASFVLHRLERLPV
TFTPD RAPNPIDSVHTV

>CYP248A2 (2518483376) *Salinispora arenicola* CNY231

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVS RFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERMLA
ERREDGADLLALMLAAHRSQ LMSRNEIVSTVVTFI FTGHETVASQLGNGL
LSLLDHPEQLELMRRQPHLV PQAVEECLRFDP AVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYARPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLACSPNELAYQPR TMFRGLTRLPVAFTPA
G

>CYP105W2 (2518483383) *Salinispora arenicola* CNY231

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRC PFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVS RHADV RQVLS DPRMSADRRRP GF PKFAPTTEGQ
RQASFANFRPPLNWLD PPEHAICRRQIVDEF SVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQV ICEVLGVPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDVVVTDKERRPGDDVLSRLLYRQRRAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALS V LALLTHPARLARLRAE PERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGV TIAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAHLAFGYGRHICPGQH LARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP107AY2 (2518483833) *Salinispora arenicola* CNY231

MTAEPTPIPRSGARLGQEYDQLRKTGDVHQVLLPDASLAWLVTNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAF
SPQRVAALRPGIRRAAEHLLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRATDTMLTSYPPDRDAIRRAVTELHGYVVDLIDIKQQQPG
DDLSTLVITIEQDGDRLSRDELTSALFLILFAGYENTANLIASAVLWLLD
HGGLNVVPISEAIEATLRHEPPAPVAIRRFPTEDIIIGGV TIPAGDTVLL
SVAAATR GADGNAARLAFGNPHYCLGAALARVEAEEALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP105CT1 (2518483864) *Salinispora arenicola* CNY231

MNSPNHMPADRSLTAPTSGCPMALSRGRVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTD SHDDGITDDE
LVGLANALLIAGHETTTQMLSMGALALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGV LHGGFVRVATRDTRLGGHRIHAGELVVPALTVANRDPRLTDTG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRRFPGLRLAV
PDSELEFTQGT TVYSLRGLPVTW

>CYP154M5 (2518483881) *Salinispora arenicola* CNY231

VEQSCPKLDVTGRDVHAEGEAI RARGPVAQVELPGGVQGSVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPPNWPLIGWLLMDNMTTNDGADHQRLR
KLVS HGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNVTSISGEEAEANVEQWHRELLLV
EAKREKPEDMASLLIAAKEEDGSTLTQEEVVGTLHLMLGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDP AVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPNMTLAVRPDQLEPQGT FIMNGHREL
PVRLGQPATVLA

>CYP208A12 (2518484011) *Salinispora arenicola* CNY231

MTLDTITPRVPLGPPTAALRMLLV MKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHV LADNSANYHKGIGLVHARRALGDGLLTSEGD LWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPV ELTAE L TG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELET LNAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTL SLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP107Q4 (2518484089) *Salinispora arenicola* CNY231

MTTTAETS AETIDLFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRFLTNP PADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSYALTAHRIGKLRPRVEKITADLLDKLAED

GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIAKRRAEPQDDLVLTALVQAQAEQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI
DRLAVGSEHGLGFGKGIHRCLGQHLAYQEAEEVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105G5 (2518484090) *Salinispora arenicola* CNY231

LTIETTETPPADDSLRAPLPRQFMQRDDPSKLPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRRAAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTP

>CYP1051A1 (2518484115) *Salinispora arenicola* CNY231

MATDAAITRARTVPAWKALPAAVRDTHRAFVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLEHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAIDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDILLPVLQRQAQRQPDGDDLLSRLVHARADDGRALSE
KMRDDLVSMVAVTTETSTVVLTWLWPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFELTDTSMPGVKVAASRPARTVEMI
LKPVPAPVPAR

>CYP105AB8 (2518484447) *Salinispora arenicola* CNY231

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHRADLVKT
LSLPVPSLVICELLGVYPADHDFQEHATLVRRTASEVRQHSIDELNA
YLGALIDRKLASPDLLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARRHHLAF
GFGPHQCLGQNLARLELQIVFDTLFRHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP105J3 (2518484615) *Salinispora arenicola* CNY231

MTDSVAFFQGRVCPHQAPAGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRNTNPAWPAIVPIVAAAVNDAQQKVLKIATALVGTGPE
HKAQRKMLIPSFTFRMNALRPMIQEIVDQQLEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGLVDDLAAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDVAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP247A7 (2518485033) *Salinispora arenicola* CNY231

VRLTPGAARDIDLDSVNLFDLDLYTSGDPHPFIWDVMRAQSPLHHQVLADG
REFWSVTRYDDVCRVLGDYREFTSERGTVVTHLGEDDIAAGKLLTSTDPP
RHTQVRRRAIGAKLTARAVASWQDRIRDAIVRFLEPALDGDTFDLAEQALL
LPAIVTGPLLGIPELDWQELVQLTAMVTAPSDPHFQHGSEAATLAISHHE
LVITYVTEWVKQRRSAGGGDGSLLDHLMSVRVGGAPLTDEEIALDGYSILL
GANVTTTPHTVSGTVLALIERPEQFEKAQADPSLLANLVEEGLRWASAACN
FMRYAVNDTRIGGGTVPAGGAVVAWIGSANRDESYFPDPHQFDITRSGAN
RQVAFGFGPHYCIGAPLARMTLGIFFEELVQRFGSIELAGEPQHLSYFI
AGMTHLPIVAQKRKTP

>CYP105CH1 (2518485248) *Salinispora arenicola* CNY231

VSSLPLPTYPKLRDPADPLLPAPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHPNFPYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRRLLI SEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
QVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRDTPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVNLTARDGTVPFEPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALDTVLRLPGLHLVTPFEELPFKYRHLVWGIEEL
RVAV

>CYP107EU1 (2518485490) *Salinispora arenicola* CNY231

VTIGQTLPLDVYSPEFTRDPYAI FARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTTNMVNSDPP
DHTRLRLHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPADDLLTALVQVSADEDRLSREELVSMALLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRDLITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQMQLAVEADDLEWLVNSFFRAPL
HLPVSLRR

>CYP1198B1 (2518486132) *Salinispora arenicola* CNY231

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQKRLVSKSFTPRIVKSFGPQITHIVDGLFEDFRDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVMAAHAYFADLIHRRRNKPNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTNNLISGGILALLRNQDQMAVLRENPGELITNVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDPRAYENPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQAQRLKHPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP105BL2 (2518464025) *Salinispora arenicola* CNS744

MSSHSAAPDPETATPLHTLAPELTFPQFERSTPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLDPRFSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVP SRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHDRDDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ

DKDIMYRVSELAVTW

>CYP166A4 (2518464405) *Salinispora arenicola* CNS744

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHERVATEQIEVMRGGHAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHQCLGQN
LARVELRAGLSALLRAFPNLRRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP125A41 (2518464899) *Salinispora arenicola* CNS744

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRDSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGDV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQRSPSDDLVTCLVNAQIDGELTDEFGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTVLGGQAI SAGQ RVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLDPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211C1 (2518465048) *Salinispora arenicola* CNS744

VVDVEELLTRLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEMLRLQAPVHLLARAAPR
DTV LGGVPI PQGQNVLLLI AAANRDP AHFPDPDRFDPWRS GPPSLAFGLG
LHYCLGAAVSRLEGR LALPRLLSRFPRLRIMEQPVYSGSLF LRGIDKLSV
SPGEGSTRE

>CYP211B2 (2518465135) *Salinispora arenicola* CNS744

MDVSEAI AVLISPSGR LDPYPTYEQ LRAHG PVSRTTAGLFVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIXIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREV VTAQADELVDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVLLTRPEAAAALRDEPDLAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPADSWLLVLLGAANRDPRRFDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGT PAGVAPGTP

>CYP244A4 (2518465784) *Salinispora arenicola* CNS744

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQAL THPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGFLDELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG

GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEAIRRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEAGDSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP245A7 (2518465788) *Salinispora arenicola* CNS744

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRSLNRSFSPIRVTELRPRIARIAQELLSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGAEGLTTDAVEEFLRYDPPVQ
AVTRWAHQDCTLGGCDIPGRSRVVALLGSRNDRPARFSPDVLVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP107AY2 (2518465889) *Salinispora arenicola* CNS744

MTAEPTPIPRSGARLGQEYDQLRKTDGVHQLLPDTSALWLVNPEVAAR
ALADPRLALNRRNSRGGWGFALPPALDANLLNLDAPDHTRLRLRVGPFAF
SPQ RVAALRPGIRRAAEHLLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRNTLRAWTDMLTSYPPDRDAIRQAVTELHGYYVDLIDIKQQQPG
DDL SALVTIEQDGDRLSRDELTSALFLILFAGYENTANLIASAVLWLLD
HGGLNVVPSSEAIEGTLRHEPPAPVAIRRFPTEDIIGGV TIPAGDTVLL
SIAAATRGADGNAARLAFNGPHYCLGAALARVEAEEALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP105CP2 (2518466380) *Salinispora arenicola* CNS744

MTKSMPVQDLPAFPIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSA HARAVLS DYRRVSIKPYHGNYPLLNEEFKVVDSGYADVLFVDP
EHTRQRMIMPSFTLRRTAVLRPDIQRIVDDKLDMMRHGAPGDLVTEFA
QPVP SMVMSFLLGVPWEDHEEFETPAHKLFVPELAEAEATTEL GAYLERLI
QKKEQPGGTPGGTGLLDDLIRDHLRAGALSDELVHIAMAMLVAGTDTT
NVISLGLTALLDNPQWAALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLR TAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2518466382) *Salinispora arenicola* CNS744

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLV TGAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRLQLLPRFTVVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVYPYQDRTRFEPVAVAGLFEPDRAD
AAMAE LTAYLHQ LIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPV GAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTHPDRLDVALP
PTNHLAFSHGIIHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLP
TYFAGDVPRLACLPTVW

>CYP107FS2 (2518466383) *Salinispora arenicola* CNS744

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVPFADRSEFERHAEVLTGINASSGFDALIAAGRWFDEYLAELVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETTIVNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSLWVKASFVLHRLERLPV
TFTPDRAFPNIDSVHTV

>CYP248A2 (2518466444) *Salinispora arenicola* CNS744

VLADAVTAFDPTAVDVRDPYPSYHWLLRHDPVHRGAHQVWYVSRAFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERVLA
ERREDGADLLALMLAAHRSQILMSRNEIVSTVVTFIFTGHETVASQLGNGL
LSLLDHPEQMELMRQPHLLPHAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCSPNELAYQPRTMFRGLTRLPAFTPA
G

>CYP105W2 (2518466452) *Salinispora arenicola* CNS744

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCFFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRHADVRQVLSDPMSADRRRPGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVPYGEHEFFERRSTLMFR
STPADERARCAREIRDFLDMVVTDKERRPGDDVLSRLLYRQRRAGMDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPPERFPAAVE
ELLRYFTVVEAATARTTTAEVTIGGVTTAAGEGVVALGQAANRDPRVFEH
PDEFDPDRDARAHAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP105AB8 (2518466972) *Salinispora arenicola* CNS744

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHHLVKT
LSLPVPSLVICELLGVYPYADHDFQEHATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDDDLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHSEQLAMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVVSGLSADWDPTVFADPDRLDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTLFRHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP154M5 (2518467172) *Salinispora arenicola* CNS744

VEQSCPYKLDVTGRDVHAEGEAIARARGPVAQVELPGGVQGWSVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPPNWPLIGWLLMDNMTNDGADHQRLR
KLVSHGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNVTSISGEEAEANVEQWHRELLELV
EAKREKPEDMASLLIAAKEEDGSTLTQEEVVGTLHMLGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDPVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPNMTLAVRPDQLEPQGTTFIMNGHREL
PVRLGQPATVLA

>CYP105CT1 (2518467189) *Salinispora arenicola* CNS744

MNSPNHMPADRSLTAPTSGCPMALSRGRVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTDSDHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGV LHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLTLDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFALLRRFPGLRLAV
PDSELEFTQGTTVYSLRGLPVTW

>CYP107Q4 (2518467215) *Salinispora arenicola* CNS744

MTTTAETS AETIDLFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRLTNPPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSALT AHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIAKRAEPQDDLVTALVQAQAEQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLAANTDPRRFPDPNKLI I
DRLAVGSEHGLGFGKGIHRC LGQHLAYQEA E VALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105G5 (2518467216) *Salinispora arenicola* CNS744

LTIETTETPPADDSLAPLPRQFMQRDDPSKLPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKL LTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRR AAGLLQTDLP IKQ
AVENLEAQRAFMQRLVTDKR RTPADDMISGLVHHAGAEPPLTDDELVGIA
TLLL FAGLDTTASMLGLGMFMLLQRP EQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDAVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQ LARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTP

>CYP1051A1 (2518467241) *Salinispora arenicola* CNS744

MATDAAITRARTVPAWKALPAAVRDT HRAFVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAWAA
SRRVLAPMFRPARINAMVDTMADA IAGAIDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSID DILLPVL RQAQRQPDDGDDL SRLV HARADDGRALSE
KMRDDLVSMAVVT TETSTVVL TWLWPLL ANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRM TTWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVA ASTRPARTVEMV
LKPVAPVPAR

>CYP208A12 (2518467422) *Salinispora arenicola* CNS744

MTLDTITPRVPLGPPRTAALRMLLVMKRDRLGMLSSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGDLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELT AELTG
LTGLV LGRSLLDADLAGFDSIGDSFATVQDQAMFELET LNAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTL SLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPFVWLLPRRALAPDTIGEYRVPANAD

VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP1005A1 (2518467552) *Salinispora arenicola* CNS744

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTDQATY
RPDNALAEAVTPVPVAAALRVLAGHRFRLPPTLANNGGASHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLDSGGPVDLYADLTADLPLLVLAR
LVLELPDAPVNAVQKFARAALELFWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSSSVADVVEEGLRLEPPIVTWRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFPRPGQRGSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVR

>CYP107GU2 (2518468343) *Salinispora arenicola* CNS744

MSSTSTTDLPAPFPIPSFPGEPPAAAFARLREEEPVARVRLPTGDEAWLVT
GHAENRIVLTDARFSRAAAAAAPGAPRLQPIPPDPGSMNMDPPEHTRLRR
LVGPAFTPRRIEDLRSALRRDVDALLDEMLAAGPPADLVAGFARRLPVAV
ICELLGVPGPDRRRITEWVDLLSLTTHPPQVRVAGARREMKAYLAGLVRA
TRERPSDGLLSRVIEAYDESGGTDDEEVVMLAATILTGGFLTAGEIALS
VLTLLRHPEQLATLRREPETLPGAVEELLRYNVLTGGGLIRVATEDVPL
GGVTIRAGEAVLPAISANRDPRVHDDPDVLDFRRPDPNPHITFGLGVHYC
LGARLARIELEEALAGVLRRLPPTLHLASDVTALAVHPGHLVRGLPELPV
TW

>CYP105CH1 (2518468468) *Salinispora arenicola* CNS744

VSSLPLPTYPKLRDPADPLLPAPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHFNFPYPVNPDAVVAQVARWTYILLGDDPPL
HTERRRLLI SEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVAVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRTPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVNLTARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALDTVLRRLPGLHLVTPFEELPFKYRHLVWGIEEL
RVAW

>CYP105J3 (2518468597) *Salinispora arenicola* CNS744

MTDSVAFPQGRVCPHQAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRTNPAWPAIVPIVAAAVNDAQQKVLKIATALVGTGPE
HKAQRKMLIPSFTFRMNALRPMIQEIVDQQLDDEMIKSGAPTDLIAPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGVLDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDVATRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIERLPSRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP107EU1 (2518468966) *Salinispora arenicola* CNS744

VTIGQTLPLVYSPEFTRDPYAI FARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPLTNNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA

RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPVADDLLTALVQVSADEDRLSREELVSMALLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRDLITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQMQLAVEADDLEWLVNSFFRAPL
HLPVSLRR

>CYP1198B1 (2518469105) *Salinispora arenicola* CNS744

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQRKLVSKSFTPRIVKSFGPQITHIVDGLFEDFRDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDPAYESP
FDVNRKIKNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKNPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP208A12 (2571117093) *Salinispora arenicola* CNS342

MTLDTITPRVPLGPPRTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGLDWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAEITG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNAVPMWIPLPR
QIRFRARRKQLQAVVDTLVDGRAGNLANRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHGPVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGGLPLVVRP
VS

>CYP125A41 (2571117374) *Salinispora arenicola* CNS342

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTAPVWVNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPHEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGD
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQSPSDDLVTCLVNAQIDGHELTDEFGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERPKSAREVEEIRWATPVNVFQR
TALVDTVLGGQAI SAGQRFALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211C1 (2571117524) *Salinispora arenicola* CNS342

VVDVEELLTRLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAE
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARA
APRDTVLGGVPIPPQGNVLLLI AAAANRDP AHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGA AVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGGKGVPVSEPTNRPGGGMGLHPEAEAYRAAAAAAGTPPLYTQT
LAEARAADLAAIQAGAGAVEPVHEVRDGYVPGPDGDI PVRVYRPA
GAGPLPTLLYFFGGGWTLSIDTADGICRRLANAVPCQVVTVGYRLA
PEHPFPAAVHDCH

AALRHVAAHPAEFDADPERLAVGGDSAGGNLAAAVTLLARDGGPRLAAQV
LVYPNTDQTIIEPPGGEDPLLFNRRSVTWYRSHYLADPADARHPLASPLLA
DDLAGLPALVITAHDPLCAEGERYADRLRAAGVPTVLTRYPGMVHGFF
AMPGTFDAGRRAQAAAATFLGTRFDRTAADDG

>CYP211B2 (2571118518) *Salinispora arenicola* CNS342

MDVSEAI AVLISPSGRLDPYPTYEQLRAHG PVSRTTAGLFVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPA IKS IARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTQAQADELVDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVLLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPADSWLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGTPAGVAPGTP

>CYP105W2 (2571118655) *Salinispora arenicola* CNS342

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRC PFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVS RHADVRQVLS DPRMSADRRRPGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEF SVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQV ICEVLGVPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDMVVT DKERRPGDDVLSRLLYQQRAGGMDHE
AVVSMAFVLLVAGHVTTSNMIALSVLALLTHPARLARLRAE PERFPAAVE
ELLRYFTVVEAATARTTTAEVTIGGV TIAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAHLAFGHGRHICPGQHLARLEMEVALGRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2571118662) *Salinispora arenicola* CNS342

VLADAVTAFDPTAVDVRRDPYPSYHWWLLRHDPVHRGAHQVWYVS RFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERMLA
ERREDGADLLALMLAAHRSQ LMSRNEIVSTVVT FIFTGHETVASQLGNGL
LSLLDHPEQLELMRRQPHLVPQAVEECLRFDP AVQSNT RQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLACSPNELAYQPR TMFRGLTRLPVAFTPA
G

>CYP107FS2 (2571118722) *Salinispora arenicola* CNS342

MPVPQGEQNLTTTEVFADPKALFATLGS RQPLHRISLPDGMPAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPADRSEFERHAEVLTGINASSGFD AIIAAGRWFDEYLAELVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETT VNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSL VWKASFVLHRLERLPV
TFTPD RAPNPIDSVHTV

>CYP105CN1 (2571118723) *Salinispora arenicola* CNS342

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVTGAAEARALLADSRVSNRADFPNY PVM DERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQ RQLLLPRFTVRQVAARRPAIQ RIVDEHLDAM

EANGSPADLVSAFATPVPTMVVCTHLGVPHYQDRTRFEPVAVAGLFEPDRAD
AAMAEALTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVGA VNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTHPDRLDVALP
PTNHLAFSHGIIHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQQLPTY
FAGDVPRLACLPVTW

>CYP105CP2 (2571118725) *Salinispora arenicola* CNS342

MTKSMPVQDLPAFPPIPRECYPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSA HARAVLSDYRRVSIKPYHGNYPLLNEEFKVVDSGYADVLFGVDPP
EHTRQRQMIMPSFTLRR TAVLRPDIQRIVDDKLDMMRHGAPGDLVTEFA
QPVPMSMVSFLLGV PWEDHEEFETPAHKLFVPELAEEATTEL GAYLERLI
QKKEQPGGTPGGTGLLDD LIRDHLRAGALS RDELVHIAMAMLVAGTDTT
NVISLGT LALLDNPDQWAALRDNPD ELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRP RPSPSFSF
GIHRC PGDNLARLELEIAFRSLVTRMPNLRTAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP244A4 (2571118944) *Salinispora arenicola* CNS342

MSTTTNTELTEAPETNMPVD PGLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVC DRELVKQAL THPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLS PRNTERWGERVADKVEGFLDELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDVWRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGS LISTSLEYAIRRPPHERPKTDEDITAWIEETLRVHPPFPHP
RFPLEDIELGGYLIPK GAPVQVSIAAANRKPGE GADSFDAERRGHGHL
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP245A7 (2571118948) *Salinispora arenicola* CNS342

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRSLNRSFSPRIVTELRPRIARIAQELL SRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGAEGLTTDAVEEFLRYDPPVQ
AVTRWAHQDTTLGGCDIPRGSRVVALLGSANRDPARFPSPDVL DVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP166A4 (2571119030) *Salinispora arenicola* CNS342

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTG HVEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLYHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGI HQCLGQN
LARVELRAGLSALLRAFPNLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP154M5 (2571119349) *Salinispora arenicola* CNS342

VEQSCPYKLDVTGRDVAEAGEAIRARGPVAQVELPGGVQGWSVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPPNWPLIGWLLMDNMTTNDGADHQRLR
KLVSHGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNVTSISGEEAEANVEQWHRELLLELV
EAKREKPEDEDMASLLIAAKEEDGSTLTQEEVVGTLHLMLGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDPVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPMNMTLAVRPDQLEPQGTFFIMNGHREL
PVRLGQPATVLA

>CYP105CT1 (2571119366) *Salinispora arenicola* CNS342

MNSPNHMPADRSLTAPTSGCPMALSRGRVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTDSDHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGVLHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLLTG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRFPGLRLAV
PDSELEFTQGGTTVYSLRGLPVTW

>CYP107Q4 (2571119594) *Salinispora arenicola* CNS342

MTTTAETSATIDLFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRLTNPPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSYALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIAKRAEPQDDLVLTALVQAQAEQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI
DRLAVGSEHGLGFGKGIHRCLGQHLAYQEAVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105G5 (2571119595) *Salinispora arenicola* CNS342

LTIETTETPPADDSLRAPLPRQFMQRDDPSKLPPALAALAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFORRAAGLLQTDLPKQ
AVENLEAQRAFMRQLVTDKRRTPADDMISGLVHHAGAEPPLTDDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRPQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTP

>CYP1051A1 (2571119624) *Salinispora arenicola* CNS342

MATDAAITRARTVPAWKALPAAVRDTHRAFDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLEHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAIDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDDILLPVLRQAQRQPDDGDDLLSRLVRARADDGRALSE
KMRDLDLVSMVAVTTETSTVVLTWLWPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPAAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASRTPARTVEMV

LKPIAPVPAR

>CYP105AB8 (2571120254) *Salinispora arenicola* CNS342

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHRADLVKT
LSLPVPSLVICELLGVFPYADHDFQEHATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDDDLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDDPDKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP105CH1 (2571120385) *Salinispora arenicola* CNS342

VSSLPLPTYPKLRDPADPLLPPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHFNFPYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRRLLISEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
QVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRDPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVNLTARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQCIMGQNLARVEMQIALDTVLRRLPGLHLVTPFEELPFKYRHLVWGIEEL
RVAW

>CYP1005A1 (2571120445) *Salinispora arenicola* CNS342

VSAVLFRSWTKTAGTRWPDVTRVADQNGTEHLVVTRHALVRQVLTQATY
RPDNAMEAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLDSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVQKFARAALFWAPLDADRQLALADEVGRFHQVLREFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSSSVADVVEEGLRLEPPIVWRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFRRPGQRGSRRLAFGAGAHRC LGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP105BL2 (2571120553) *Salinispora arenicola* CNS342

MSSHSAAPDPETATPLHTLAPELTFPQFERSTFPDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTLDSPRFSDDMSHPGFPDRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPSPRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHRDDLLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLVKQ
DKDIMYRVSELAVTW

>CYP107EU1 (2571121147) *Salinispora arenicola* CNS342

VTIGQTLPLVYSPEFTRDPYAI FARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDL LDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL

GRLCDAKRDPVADDLLTALVQVSADEDRLSREELVSMALLLLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFDPDPRLDITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQMQLAVEADDLEWLVNSFFRAPL
HLPVSLRR

>CYP105J3 (2571121188) *Salinispora arenicola* CNS342

MTDSVAFPPQGRVCPHQPAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRTNPAWPAIVPIVAAVNDAAQQKVLKIATALVGTGPE
HKAQRKMLIPSTFRMRNALRPMIQEIVDQQLEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPEGVLDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP1198B1 (2571121390) *Salinispora arenicola* CNS342

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQRKLVSFSFTPRIVKSFGPQITHIVDGLFEDFRDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVMAAHAYFADLIHRRRNKPNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTNLISSGILALLRNQDQMAVLRENPGELITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAGNRDPRAYENPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQAQLKHPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP161N4 (2515981532) *Salinispora pacifica* CNT796

VNTVAQLPFTQTHVLDVAPALRLLQSRGKVHRVRTPEGVPAWLVTGHAEV
QQLLDDDRLSRSDPGGRDGGTALLNKLLGPLADDHPRLRSLLEPQFTPER
LKPLRAVVEKLTEQHLDELATRTPPVDLRPALAMSLPILVLCEWLGVPAE
DKGRFSVWTQDAAGVQDPERSQRGLAELFGYCRQLVAAKRQDPGDDVISR
LIATAGIGDTEAVALTALLLFGGYETTVARIGTGVLNLLTNPDQWAAVRA
DPALVPATVDELLRRSMPNPNHNGMPRFVAVTGFEIDGAAIRAGDLVLLNI
IAANHDETAFFDPDPRLDITRPTAGSLAFGHGRHSCVGAPLARMVLRVVLS
RLITRLPDLRLAVGVDELKLRHETLVGGLVELPVWTWGPR

>CYP2054A3 (2515981538) *Salinispora pacifica* CNT796

MSISADSEVQGRFPDPYGAHRDDPYTFLAGLGVFYAPLLDAWCVTRRED
MVAVLRDDRSFSARDHNPRPAVALPDDVNQMFRWTRGAGAVAVGSLDPPA
HAKIRDVLNLGFTPARVRAFEPTMRAVATDLADRIGDAPEFDFIADFAPV
FALEVIGRRLGVPDDYLDRCRTWSEQRIELMMAQGDADHDRLREFARGLM
EFGEFARSLVRDRVADPRDDLISELLHDGKAGRTLTADEVAVQIPTLIFA
GHMTCAEALGTIFYQQLRSPGGWARVVDRTIPVGDVVEEGLRFDSPLAGM
YRTATRDVTVGGIRLTAGSRLLLLYGAAGRDSRAHACPAAFRPGDGSSGH
LAFGHGHIHFCLGAGFARAELRVAVEVLAARMPDLGLAPGRPPRFRPVFPL
RALTEL RVTRSGGSGP

>CYP107FH3 (2515981542) *Salinispora pacifica* CNT796

VPIELDEAFVQDPYAVYEKLRAEGPAHRVRMPPGVPLIGGLPVWLITGYD

AVRAALADSRLSTDLRRIDGLFAQKDPDRSHRGGFSSALASHMMHTDPPD
HTRLRKLVSKAFTTRRAIEALRPRIQQTDELTAEMAGHDTVDLDDAFAP
LPIRVICLLLGVPAEQENFRSWSRALVSGHSPEAAATAATEVAAYLGDL
VERKRHATTDDVLTALVAAHDVDDRLTHTELVSTAYLLFIAGFETTLNAL
GNGTLHMLHRDQWTALRADRALLDNAVEEFLRLESPLKHATFRCATESL
RIGDAEIAAGDFVLLAIASANDPRRFPDPHTLDVRRPAAGHLAFGHGIH
HCLGAPLARVEVRMAFDALLDAFPDMRLATDPAGLRWRNSTIIRGLDSL
P
VHLNN

>CYP107AW7 (2515982065) *Salinispora pacifica* CNT796

VETVTGTSTPPPVPYIADPYPTLARIRANGPVSIHLSDEGIPMWVIARYR
DVRAALADPRFGQDARRAQALADNRVAGVALGGDIVHMLNSDPPDHTRLR
RHVQRAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFPLPLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAAFATALREMTDYIAVQLRIR
QTRPGDDILTELLAARDAGQLTDEIIGMVFLLLIGGHETTVNLLGTATL
ALMRNPDQHQWLLANQHALPEAIDEFLRYESPVAMATLRFTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPRLALAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP211B11 (2515982408) *Salinispora pacifica* CNT796

MDASEAVALLTSPPGRLDPYPTYERLRAHGPPVSTAPGFFVVTGYTEADT
VLRNPRFEVMEDEERDGVFPHWQDSPAMISISRSMIRANPPDHSRMRLA
AGVFTPRRVAALREVVAQAADGLVDEMIRAGRGAADVDFMGSFAYPLPVT
VICALLGVPTADWFLRHWASDLTGVLPEEITPQELAIADAGASELRDYF
TELIAQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVLLTHPDSATALRGQPELAPGYVEEFLRYDSPVQLTSRTVR
ESVSLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRHRLTLRGYETLP
VTVGAVPADPGTPAGVALGTP

>CYP208A22 (2515984521) *Salinispora pacifica* CNT796

MTVIADRGGRIPPGPPVTAGLRLLLLALGRDRLGMMTSAAA EYGDVARLPV
GPKKLYFFNHPDHAKHVLADNHANYQKGIGLVHARRALGDGLLTSEGELW
RKQRRVIQPAFQNRRLAQYAGAVGQEATRLVARLATRVDPVPDVLDEMT
RLTLGVLGRTLDDAELTGFGHVGESFAAVQDQAMFELETINTVPTWIPLR
RQRRFRRARQHLQEVVDVLA AERGQAVEGRDDVLSRLILSTRAEADPQLG
RERLRDELVTLLLAGHETTASTLGWSLHLLDQHPELRERVRHEARTVLGD
RVPAYEDLHQLRYTAMVVEEAIRLYPPVWILTRKARAEDEIGGYRVPAGA
DILICPYTLHRHPRFWAEPERFDPERFDPSTTDRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLA VLLRDLRLLEGLPGRAVVPEPMLSRLVRGGLPMTVR
RVD

>CYP244A13 (2515985070) *Salinispora pacifica* CNT796

MQDTAQAKLAEAPEVTMPIELRPTDCLPELLAAARVAPVVRTPYLDQHAW
VVCDELVKQALTHPKLGKDVALAPDWMRQPGQMVMTAMPPPEYARMMVMS
DGEHHARIRRIHAPVLSRPNTERWSERVAALIDGFLDNLDSADGTEVNLI
TDYTHKIPLAFTAEMGLPPGAERRLHDITEVTLYSADYALRQQAVGELF
EAVQEWVRDPAGLRDGVVTGLLACTDGPDATVTESEAIWVTLSLIINGYE
TTGSLISAALYEALRRPARERPHTDEAVAAWIEETLRVQPPVPNTTWRF
LADLDLGGYLIPRGAPVQISLAAANLNPDDEADSFDAQRRGRGHL SFG
LGH
AHYCIGAPLARVQTKIALRGFLRRFPQARLSPDTPRWESEWMIRMSVL
PVLLA

>CYP107AY9 (2515985091) *Salinispora pacifica* CNT796

MSQDQPTRAEIAPIPRSGARIGPEYDQLRKTDGVHQQVLLPDTSMWLVT
PELVSRALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPDHTRLRR
LVGPAFSPQORVAALRPRIQRTAEELAETVVATGSPVDLVTGYCTPLSVQV
IADLLGVPEAGRTDLRAWTDMLTSYPPDRDAIRQAVVELHGYVNLIEA
KQQRPGDDLSSALVATEQEGDRLTRDELTSALFLILFAGYENTANLIAST
VLRLLDHGSLRGVRASEAIEETLRLEPPAPAAIRRFPTTEMTIGGATIPA
GDTVLLSIAAATRGADGNPARLAFGNPHYCLGAALARAEEAIEITVLAR
RLPGLALVVPVGPVVRWRPTFRTHGPAELLVAW

>CYP125A65 (2515985161) *Salinispora pacifica* CNT796

MTEPRIPVGFDFTDPAVLEHRVPREEFAELRRAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMASRDSETYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
TDVACELPLQAIAGELIGVPQHRRKVFWDWSNQLIGYDDPAYGVDPMAAAA
ELLYAMEMANERQRNPSDDLVTKLVAQIDGHELTDEFGFFVMLLAVA
GNETTRNAITHGMLAFLEHPDQWELFKAERPRSAVEEIIIRWATPVNVFQR
TALVDTTLGGQAITAGQRVALFYGSANFDESVEEPPERFDITRSPNPHLG
FGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REMPVRYR

>CYP105AB28 (2515985353) *Salinispora pacifica* CNT796

MTETASTTTPGISSTTTSGPASGEVTDAEFPLERGCFFSTPTEYEQIREH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFPFVSTDPE
RKQLQDQPTSMIGMDGAHAQARRALMGEFTVRRMAGLRPRIQQIVDQHI
DEMLSSDQRTADLVEALSPLVPSLVICELLGVADHDFFQARSGPLIRH
TTPTEVRLRIQKELNTYLGALIDRKVTDPTDDLRSRQIAKHHAAGTFDRT
SLVSMAFLLLIAGHETTANMISLGVVGLLQHPDQLAMIKEDPEKTAPAVE
ELLRYFTIADTVTARVATEDVQLGGTTINAGDGVVISGLAADHDPTVFTD
PDRDLERGARHHVAFGFQPHQCIGQTLARMELQIVFDTLFRRIPTLRRLA
APLDDIPFKSDAFVYGAERLPVAW

>CYP1005A6 (2515985400) *Salinispora pacifica* CNT796

VSVVLFERSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLTQV
RPDNALDAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTELVAERVAAIRATLDSSGSADLHAELSADLPLLVLAR
LVELPDAPVAAVKQFARAALFELFWAPLDADRQLALADEVGRFHQVLRFA
DTGGGLAAALRATGHPPDVLVGFALFFLLVAGQETTSQFLTLHRLAGEP
TVRAALRDGVSVDNVEEGLRLEPPIVTVRRVAAVDSTLGGTAVPAGTS
VLLWALARAGRDPAIVSAPDEFPRPGQRGSRRHLAFGAGAHRCCLGDQLARME
AAVVVERVSPLLDGVAVVRAPWYPDNLTFRMPDAFVIRRGPAAGSAER

>CYP107NG1 (2515985550) *Salinispora pacifica* CNT796

VTIPAGHSPAVCDFPVVQPDRLAVEPLFADLRSRTPIVRVRLPFGGTAWL
LTRYRDIRAVLASAQCCRAATDPDTPRILPRAGGEGLLMSLDAPEHTRL
RGLVTAWFTTRRVESLRPATEQAARQLIADMRGTGRADLVEQFSQKLSAT
VIGDLLGVPRSDRETFQRWSEALLSSTSYTQTQVQQATAELNNYFGYLID
QRDSHPSSDDLVTGLVRNMKAGKLSRREVLALVTDLLVAGFETTAGQLTNS
VYTLSTTPGAWAWLAADRTRIPAAVEELLRALPLGAGGFRARVTTAPLTL
GGDTRPTTIPAGHVIIAPTIAANTDPEAFDEPLTIRLDRPRNQHLAFGH
GAHRCGLGAFLARMELTTALGELIEAFPSLTLVAPETDLQWKSGLQIRGPR
ALPVTW

>CYP107E37 (2515985633) *Salinispora pacifica* CNT796

VTIDQEIREYPPRESSGIGIDPTYELLRRTEPLARVQLPYGEVSWLVTRY
EDVKTVLTDPRFSRAAAQGKDQPRTRAEMTYEGIIIGLDPPDHTRLRLRLAG
KALTARRVNAIRADAQRIAHEYVDEMIAKGSPGDLVELVALPYPTVICE
LLGVPPFEDRAQFRIWTEGLTSTSEQLMAYAEQLFDYMGKLVQRRAEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTG VETVSTHIPNFVYALLT
HPELMAQLRADRSLVPAAVEELLRMIPLNPAAMFPRYAVEDVTLSGFTVR
AGQPVLVSLPGANRDPEVFENPETFDFTRDQNPVAFGHGPHHCLGAQLA
RMELQVALHTVLD RFPDLRLADGDEGVSWKSGLLVRGPSRLLVGW

>CYP107AW7 (2515961521) *Salinispora pacifica* CNR114

VETVTGTSTPPFPYIADPYPTLARIRANGPVSILHSDEGIPMWVIARYR
DVRAALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHLVQGAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFPPLMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAAFATALREMTDYIAVQLRIR
QTRPGDDILTELLAARDAGQLTDDEIIGMVFLLLIGGHETTVNLLGTATL
ALMRNPDQHRWLLANQHALPEAIDEFLRYESPVAMATLRFTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPRLALAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP107AX4 (2515961536) *Salinispora pacifica* CNR114

MTSQPAPVFDQLLLLRDPHRRYNALRDEAPVHHIRTPDGAPAWLVTRYDDV
RAAFIDPRLSVDKRLSSTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVERIVSTLLDGLVGHDAQAELIGSLASPLPLQVMQEL
LGLPTQTSVD FRRWTNTLLSADANQPAQSRSAMANMRRFLVEQLAHKRAR
PGDDLLTGLLAAREDDRLTDDELVAMLFLLMFAGYDNTAALIGNVVHAL
LTNTELPAAVRTGSLALDELVDGVLRWNPSFPLAVRRFAREPITIAGQTI
PAGDRIWLCLASANRDPAQFTAPDTLGTTGMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVTILLDRFPGIRLAVPAHDIRWRESFRLRGLVALPVFL

>CYP125A65 (2515961832) *Salinispora pacifica* CNR114

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMAVS RDSETYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPP EHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGVDPMAAAA
ELLAYAMEMANERQRNPSDDLVTKL VNAQIDGEHLTTDEF GFFVMLLAVA
GNETTRNAITHGMLAFLEHPDQWELFKAERPRSAVEEIIRWATPVNVFQR
TALVDTTLGGQAITAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REMPVRYR

>CYP208A22 (2515961928) *Salinispora pacifica* CNR114

MTVIADRGGRIPPGPPVTAGLRLLLLALGRDRLGMMTSAAA EYGDVARLPV
GPKKLYFFNHPDHAKHVLADNHANYQKGIGLVHARRALGDGLLTSEGELW
RKQRRVIQPAFQNRRLAQYAGAVGQEATRLVARLATRVDPGVLDVDEMT
RLTLGVLGRTL LLD AELTGFGHVGESFAAVQDQAMFELETINTVPTWIPLR
RQRRFRRARQHLQEVVDVLA AERGQAVEGRDDVLSRLILSTRAEADPQLG
RERLRDELVTLLLAGHETTASTLGWSLHLLDQHPELRERVRHEARTVLGD
RVPAYEDLHQLRYTAMVVEEAIRLYPPVWILTRKARAEDEIGGYRVPAGA
DILICPYTLHRHPRFWAE PERFDPERFDPSRITDRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLA VLLRDLRLEGLPGRAVVPEPMLSRLVRGGLPMTVR

RVD

>CYP124M3 (2515961949) *Salinispora pacifica* CNR114

MTVPIELDAVDLSDNDFWTKPLEYRHAVFNALRAQPGLPHFASPEFGSAP
RGRGYYALTRMDDVLAVSRNPSVFIISGKGNVAMEVPAEFLLDQSLITMDNP
RHARLRIRIVSRGFSMKAVTALMDNASQMAKQIVDEVVERGECDVAVDISA
KLPLGIIICNMMGIPDSQQQFVFEQTNVMLGVQDPEYVGEQNDAMLAMSVA
SQELADLMHELATLRAKNPTDDLISKLLSAEVNGEALTPSELAHFFILLT
GAGTETTRNAISWGIQLLTQSPEQREAWLSIDIDGVTPTAVEEIVRWSSPV
ISQRRTVAEADAEPVKLAGQLLGPDKVLMFYGAANRDPNYFVHPEGFDVR
RSPNPHVGYGGPGPHFCLGAHLARLEISVMFRELLTRIPDIHATGEPARL
KSPLINGIKRLPVAFTPGAR

>CYP211B11 (2515962968) *Salinispora pacifica* CNR114

MDASEAVALLTSPPGRLDPYPTYERLRAHGPPVSTAAGFFVVTGYTEADT
VLRNPRFEVMDDEERDGVFPHWQDSPAMISISRSMIRANPPDHSRMRRLA
AGVFTPRRVAALREVVAQAADGLVDEMIRAGRGAADVDFMGSFAYPLPVT
VICALLGVPAADWARFRHWASDLTGVLPEEITPQELAIADAGASELRDYF
TELIAQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVLLTHPDSATALRGQPELAPGYVEEFLRYDSPVQLTSRTVR
ESVSLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRHRLTLRGYETLP
VTVGAVPADPGTPAGVALGTP

>CYP1005A6 (2515964409) *Salinispora pacifica* CNR114

VSAVLFRSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLTQVQTY
RPDNALDAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTELVAERVAAIRATLDSGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAALFWAPLDADRQLALADEVGRFHQVLRFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLAGEP
TVRAALRDGSVSVPNVVEEGLRLEPPIVTVRRVAAVDSTLGGTAVPAGTS
VLLWLARAGRDPVVSAPDEFRRPGQQGSRRHLAFGAGAHRCIGDQLARME
AAVVVEQVSPLLDGVTVVRAPWYPDNLTFRMPDAFVIRRGPAAGAAER

>CYP161N4 (2515964725) *Salinispora pacifica* CNR114

VNTVAQLPFTQTTHVLDVAPALRLLQSRGKVHRVRTPEGVPAWLVTGHAEV
QQLLDDRLSRSDPGGRDGGTALLNKLLGPLADDHPRLRSLLPQFTPER
LEPLRAVVEKLTEQHLDELATRTPPVDLRPALAMSLPIILVCEWLGVPAE
DKGRFSVWTQDAAGVQDPERSQRGLAELFGYCRQLVAAKRQDPGDDVISR
LIATAGIGDTEVVALTALLLFGGYETTVARIGTGVLTTNPDQWAAVRA
DPALVPATVDELLRRSMPNPNHNGMPRFAVTGFEIDGAAIRAGDLVLLNI
IAANHDETAFFDPDRDLITRPTAGSLAFGYGRHSCVGAPLARMVLRVALS
RLITRFPDLRLAVGVDELKLRHETLVGGLVELPVTWGPR

>CYP2054A3 (2515964730) *Salinispora pacifica* CNR114

MSISADSEQVQGRPFDPYGAHRDDPYTFLAGLGVFYAPLLDAWCVTTRRED
MVAVLRDDRSFSARDHNPRPAVALPDDVNQMFRTRWRGAGAVAVGSLDPPA
HAKIRDVLNIGFTPARVRAFEPTMRAVAADLADRIGDAPEFDFIADFAPV
FALEVIGRRLGVFPDDYLDRCRTWSEQRIELMMAQGDADHDRLREFARGLM
EFGEFARSLSVRDRVADPRDDLISELLHDGKAGRTLTADEVAVQIPTLIFA

GHMTCAEALGTIFYQQLRSPGGWARVVDRTIPVGDLVEEGLRFDSPLAGM
YRTATRDVTVGGIRLTAGSRLLLLYGAAGRDSRAHACPAAFRPGDGSSGH
LAFGHGHIHFCLGAGFARAELRVAVEVLAARMPDLGLAPGRPPRFRPVFPL
RALTEL RVTRSGGSGP

>CYP107FH3 (2515964735) *Salinispora pacifica* CNR114

VPIELDEAFVQDPYAVYEKLRAEGPAHRVRMPPGVPLIGGLPVWLITGYD
AVRAALADSRLSTDLHRIDGLFAQKDPDRSHRGGFSSALASHMMHTDPPD
HTRLRKLVSKAFTTRRAIEALRPRIQQTDELTAELAGHDTVDDLDAFAFP
LPIRVICLLLGVPVAEQENFRSWSRALVSGHSPEAAATAATEVAAAYLGDL
VERKRHATTDDVLTALVAAHDVDDRLTHTELVSTAYLLFIAGFETTLNAL
GNGTLHMLHRDQWTALRADRALLDNAVEEFLRLESPLKHATFRCATESL
RIGDAEIAAGDFVLLAIASANRDPRRFPDPHTLDVRRPAAGHLAFGHGHIH
HCLGAPLARVEVRMAFDALLDAFPDMRLATDPAGLRWRNSTIIRGLDSL
VHLNN

>CYP1437C1 (2515964971) *Salinispora pacifica* CNR114

VNAEPGPPTADDRRTPAVCPVAHPAPHYRISRERDVRAVLTDTTWPSRL
GPGLVHAQPGGVLVASDPPLHTRQRAALLAPAFRPAAVAGLGGSVQELVDS
LVDGLAPRGHADLMADLAVPLSMTVTCRMLGAEVEHAPRYWSWVLALAE
LSRPRGSLDHRVAPAYRSFHLHFD AHLRRRRRAHL DAGGT PPPDLLTTLMT
AEPDGRPLSHAELLGFCQFLLVAGSS TALLIGNVVHRLLTDPDQLDLVR
RDPGLVAAAVEESLRVDAPLRGLFRTAGRATELAGVAIPERAKVLP LLAA
ANRDPEHWPD PDRFDVTRPPAQLRRHLAFGHGVHYCLGASLARLEATTAV
RAVLDRLPGLRPDGV PDRVRAELLNGFERLPVAWRV

>CYP163A10 (2515965383) *Salinispora pacifica* CNR114

MPSPTDALTRPAAEPYLPDPTVHAEQDL SGYFRQMRVHQPVAVRQSV DGP
GFWLVSRHADVLTVCRESDSFVSTGGNVIDTLLNGGDTGAGRMLAVMDGP
KHTSMRKLWRSFTPGALT TYAERIRAATRELLRTALLAGTCDFARDVAA
HIPLAAICDLLGVPAADRQFILQRTSKALGSEGA AHAPGAARLAKGELL
YFAKLARARRDEPADDLVTLSTGLVEGDRLTDDEVVLN CYSLILGGDET
TRLALIGAVQALIQHPDQWKALKTGEVSTASATEEVLRWTS PALHVGRTA
VRDVELGGHKIHSGDAVVAWTASANFDEAEFDEPERFDLARQPNRHLSFA
HGPHYCLGVHLARIEIAALLDGLRET VNVLEPAGPTQRVHSNFLSGLSSL
PLRLGA

>CYP162K1 (2515965391) *Salinispora pacifica* CNR114

MHLGGNRPGEGHFDLTDPTMFAGDRFIDALSYLREHEPVHFQTEENGPGF
WIVTRHADVSHVYANADLFSSRLGMRLGANPD AVKAVADRMLIVTDNPEH
TYVRRLVGS AFTPPVVRTLETHVKT VVRELMDRAIADAPREFVSSVARPL
PTHII CSFMGLPRSDWERIGQLTTDGIDSDDDDVRLTANSEFLYFTEAI
EERRQNPGQDLITILIRAAAEAEASGAPQLGDVDLVNLAGILIGANETT
RYAVAGGLVALAKDRNQWMLRQQDQELVTPAVEEILRWTS PAVHAMRTVT
QETRLGERTLAPGDRVTLWTYAANRDP SVFTEPDRFDITRHPNRHLSFGN
GRHICVGARLARMEIAAFLEELRTRVQQIRLVEPVKWSPSNFTRGPLSVM
AQLDPIGSPTAHQKGGNSNND CDARR

>CYP107AY9 (2515965478) *Salinispora pacifica* CNR114

MSQDQPTRAELAPIPRSGARIGPEYDQLRKTDGVHQVLLPDTSM AVLTS
PDLVSRALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPDHTRLRR

LVGPAFSPQORVAALRPRIQRTAEELAETMVATGSPVDLVTGYCTPLSVQV
IADLLGVDPDAGRDTLRAWTDMLTSYPPDRDAIRQAVVELHGYYVNLIEA
KQQRPGDDLLSALVATEQEGDRLTRDELTSALFLILFAGYENTANLIAS
VLRLLDHGSLRGVRVSEAIEETLRLEPPAPAAIRRFTEEMTIGGATIPA
GDTVLLSIAAATRGADGNPARLAFNGPHYCLGAALARVEAEEAITVLAR
RLPGLALAVPGAPVRWRPTFRTHGPAELLVAW

>CYP105AB28 (2515965967) *Salinispora pacifica* CNR114

MTETASTTTPGISSTTTSGPASGEVTDAEFPLERGCFFSTPTEYEQIREH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFFVSTDPE
RKQLQDQPTSMIGMDGAHAQARRALMGEFTVRRMAGLRPRIQQIVDQHI
DEMLSSDQRTADLVEALSPLVPVSLVICELLGVADHDFQARSGPLIRH
TTPTEVRLRIQKELNTYLGALIDRKVTDPTDDLLSRQIAKHHAAGTFDRT
SLVSMAFLLLIAGHETTANMISLGVVGLLQHPDQLAMIKEDPEKTPPAVE
ELLRYFTIADTVTARVATEDVQLGDTTINAGDGVVISGLAADHDPTVFTD
PDRDLERGARHHVAFGFGPHQCIGQTLARMELQIVFDTLFRRIPTLR
LAAPLDDIPFKSDAFVYGAERLPVAV

>CYP294A4 (2515966081) *Salinispora pacifica* CNR114

MTLLDTAGLGPLPSFLQQQGAGAVLPVSPAGNTMWLVRDYLARKVLT
PRFSRAAAVTPQAPKFNDQAADSMMSMDGAEHARLRRLVSGAFTTGRV
AAIAPWVERWVDERLDRLERRGTGADLIGDLAAPLSVSVLCTLLGIPAA
SERFRGWVEVLFDITASSPHEKGRRRLELLDYMGTIEQKRRQPDDALL
VLIKAQERGEMSMALLTLGLTLLMAGYETTVGQIGLAALVILSDEVVYD
ALKRQPERLPGTVEELLRLTPATPLSFSRVATRQVQLGEVTVRAGEGVV
VLLHGNRDPATFPDPQRLLPQGRDAGHLTFGHGVHRCGLGAPLARLQIQ
TVLNRLIGHFPRRLRLVDALEPVAVKHGLATRGLSRLSVEWR

>CYP107E37 (2515966157) *Salinispora pacifica* CNR114

VTIDQEIREYPPFRESRGIGIDPTYELLRRTEPLARVQLPYGEVSWLV
TRYEDVKTVLTDPRFSRAAAQGKDQPRTRAEMTYEGIIIGLDPDHTLRRL
LAGKALTARRVNARADAQRIANEYVDEMIAGSPGDLVELFALPYPVTVI
CELLGVPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFDYMGKLVAQRRAE
PTDLLGALVKARDEGDRLTEQELLSIAGVGLLLTGVEVTVSTHINPFVY
ALLTHPELMAQLRADRSVPAAVEELLRMIPLNPAAMFPRYAVEDVTLSGI
TVRAGQPVVLVSLPGANRDPEVFENPETFDFTREQNPHVAFGHGPHHCL
GAQLARMELOVALHTVLDRFPDLRLADGDEGVSWKSGLLVRGPSRLLV
GW

>CYP105BL2 (2521820902) *Salinispora arenicola* CNY282

MSSHSAAPDPETATPLHTLAPELTFPQFERSTFPDPPQAYTELSGRCP
VAPVSMADGKPSWLITSFEGVRTTLSDPRFSSDMSPGFPNRTGKPVDDL
LKDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPVSRVACHLVGIPLSYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHDRDDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIIGLVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRRLADSDADLKV
QDKDIMYRVSELAVTW

>CYP211C1 (2521821747) *Salinispora arenicola* CNY282

VVDVEELLTRYLSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA
AVAGYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGR
MRHVAGTFTPRRLGALEPVVNRVADELLDRMADAGAGGLDFVAEFAYPL
PARVM

AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPI PQGQNVLLLLIAAANRDP AHFPD PD RFD PWRSGPPSLAFGLG
LHYCLGAAVSRLEGR LALPRLLSRFPR LRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP125A41 (2521821896) *Salinispora arenicola* CNY282

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRR TAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRDS DTYSTRENTAIARLRPD TTREDIEMQRVIML
NVDPPEHTKLRAIVSRGFTPRAINALRGSLAERA EHIVRDAAVRGV GDFV
SDVACELPLQAI AELIGVPQHRRKVF DWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAEERQRSPSDDLVT KL VNAQIDGEHLTTDEF GFFVMLLAVA
GNETTRNAITHGMAAFLDNPEQWELFKAERP KSAVEE IIRWATPVNVFQR
TALVDTVLGGQAI SAGQ RVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP107AY2 (2521822122) *Salinispora arenicola* CNY282

MTAEPTPIPRSGARLGQEYDQLRK TGDVHQVLLPD TSLAWLVTNPEVAAR
ALADPRLALNRRNSRGGS GFALPPALDANLLNLDAPDHTRLRRLVGP AF
SPQRVAALRPGIRRAAEHLLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGR TNLRATD TMLTSYPPDRDAIRQAVTELHG YVVDLIDIKQQQPG
DDL LSALVTIEQDGDRLSRDELTS LAFLILFAGYENTANLIASAVLWLLD
HGGLNVVPSS EAIEGTLRHEPPAPVAIRRFPTEDIIIGGV TIPAGDTVLL
SIAAATRGADGNAARLAFGNGPHYCLGAALARVEAE EALT VLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP105CT1 (2521822150) *Salinispora arenicola* CNY282

MNSPNHMPADRSLTAPTSGCPMALSRGRVGLDVADEISELRDGGRLGRIT
TAFGQEAMLITRYDEVRAQMADSVVFN VAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTD SHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGV LHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRL LTDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAF PALLRFPGLRLAV
PDSELEFTQGT TVYSLRGLPVTW

>CYP154M5 (2521822167) *Salinispora arenicola* CNY282

VEQSCP YKLDVTGRDVHAEGE AIRARGPVAQVELPGGVQGWSVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPP NWPLIGWLLMDNMTTNDGADHQRLR
KLVS HGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNV TSSISGEEAEANVEQWHRELLELV
EAKREKPD EDMA SL LIAAKEEDGSTLTQEEVVGT LHLMLGAGSETLMNAL
SYAVLGMLS NPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDP AVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPNMTLAVRPDQLEPQGT FIMNGHREL
PVRLGQPATVLA

>CYP211B2 (2521822939) *Salinispora arenicola* CNY282

MDVSEAI AVLISPSGR LDPYPTYEQ LRAHG PVSRTTAGLFVVTGYAEADM

VLRDPRFVVLLDDDLRDDVFPWHQDSPAIKSIARSMRLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTAQADELVDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPTGSWLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRRLTLRGYETLP
ITVGAVTADRGTPAGVAPGTP

>CYP1005A1 (2521823030) *Salinispora arenicola* CNY282

VSAVLFRSWTKTAGTRWPDVTRVADQNGTEHLVVTRHALVRQVLTDQATY
RPDNAMEAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRFPWLTGLVADRVASIRTTLDSSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVKKQFARAALFWAPLDADRQLALADEVGRFHQVLREFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSSSVADVVEEGLRLEPPIVTVRRVAAVDSTLGGTTVAAGTS
VLLWLLARAGRDPVVAAPDEFPRPGQGRSRRHLAFGAGAHRC LGDQLARME
AAVVVEQATPLLDGVTVVRRPPWYPDNLTFRMPDAFVVRR

>CYP245A7 (2521823336) *Salinispora arenicola* CNY282

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRLSLNRSFSFPRIVTELPRPRIARIAQELL SRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRVDVGYARA EVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDEL RGAEGLTDDAVEEFLRYDPPVQ
AVTRWAHQD TT LGGCDIPRGSRVVALLGSANRDPARFPSPDVL DVRRPAD
RHLSFGLGIHYCLGATLARA ELEIGLQALLDGVP T LGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP244A4 (2521823340) *Salinispora arenicola* CNY282

MSTTTNTELTEAPETNMPVD PGLFDCMPDLIAAARVAPVVRI PYLGRHAW
VVC DREL VKQAL THPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGF LDEL SQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGS LISTS LYEAIRPPHERPKTDEDITAWIEETLRVHPPFPHPPTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGE GADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP208A12 (2521823779) *Salinispora arenicola* CNY282

MTLDTITPRVPLGPPTAALRMLLV MKRDLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAELTG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELET LNAVPMWIPLPR
QIRFRRARRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTL SLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPFVWLLPRRALAPDTIGEYRV PANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGG LPLVVRP
VS

>CYP105AB8 (2521823934) *Salinispora arenicola* CNY282

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHRADLVKA
LSLPVPVSLVICELLGVFPYADHDFEQEHTATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDDDLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRLGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARRHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPLKDIPFKTDAAIYG
ARELPVAW

>CYP107FS2 (2521824232) *Salinispora arenicola* CNY282

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPFADRSEFERHAEVLTGINASSGFDAAIAAGRWFDEYLAELVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLLSAGFETTNNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPEI
GGFEIRSGEHVVIAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSLWVKASFVLHRLERLPV
TFTPDRAFPNIDSVHTV

>CYP105CN1 (2521824233) *Salinispora arenicola* CNY282

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVGTAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQORQLLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVQYQDRTRFEPVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIIHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRCLACPVTW

>CYP105CP2 (2521824235) *Salinispora arenicola* CNY282

MTKSMPVQDLPAFFIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHAVALSDYRRVSIKPYHGNYPILLNEEFKVVDSGYADVLFGVDPP
EHTRQORQMIMPSFTLRRTAVLRPDQIRIVDDKLDEMRRHGAPGDLVTEFA
QPVPMSVMVSFLLGVFWEDHEEFETPAHKLFPVELAEEATTELGAYLERLI
QKKEQPGGTPGGTGLLDDLIRDHLRAGALSDELVHIAMAMLVAGTDTT
NVISLGTALLLDNPDQWAALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRRTAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105J3 (2521824638) *Salinispora arenicola* CNY282

MTDSVAFPQGRVCPHQAPAGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLDVDPRISSDRNTNPAWPAIVPIVAAVNDAAQKVLKIATLVGTDGPE
HKAQRKMLIPSFTRRMNALRPMIQEIVDQQLEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGLVDDLQAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP107Q4 (2521824883) *Salinispora arenicola* CNY282

MTTTAETS AETID LFSPEVVAD PFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDP RFLTNPPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVS YALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIAKRRAEPQDDLVTALVQAQAEQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFDPNKLII
DRLAVGSEGHLGFGKGIHRCLGQHLAYQEA E VALQGLFTRFPDLSLAVPR
EEIPWILRPGFTTRRTLPLKLV

>CYP105G5 (2521824884) *Salinispora arenicola* CNY282

LTIETTETTPPADDSLRAPLPRQFMQRDDPSKLPPALAALAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRRAAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKR RTPADDMISGLVHHAGAEPLTDDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAMEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQ LARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTF

>CYP1051A1 (2521824913) *Salinispora arenicola* CNY282

MATDAAITRARTVPAWKALPAAVRDTHR ALVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAVDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLPWWIPMP
GDRRFRAAVRSID DILLPVLRQAQRQPDDGDDL SRLVRARADGRALSEK
RMRDDLVSMAVTTETSTVVL TWLWPLL ANHPDVANRLYDEIDRVVGGGP
VRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDVLGGVRINKGATV
ILSPYVTQRMTAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMHR
CLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMIL
KPVAPVPAR

>CYP166A4 (2521825104) *Salinispora arenicola* CNY282

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGWIVSSYE
LVREVLGDPRF SHSCAVGHFPVTHQGQVIP THPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTG HVEGVATEQIEVMRGGH GAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLH AVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGGGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGI HQCLGQN
LARVELRAGLSALLRAFPNRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP105CH1 (2521825290) *Salinispora arenicola* CNY282

VSSLPLPTYPKLRDPADPLLPAPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHFNFPYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRLLI SEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE

QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRTPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVNLTARDGTVPFEPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALDTVLRRLPGLHLVAPFEELPFKYRHLVWGIEEL
RVAW

>CYP107EU1 (2521825429) *Salinispora arenicola* CNY282

VTIGQTLPLDVYSPEFTRDPYAI FARLREQAPVCRVTT HRGMSAWMVTRH
ADVRALLADNRLAKDGNRI GELMPRHSTLTGAATGFP PGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDVPADDLLTALVQVSADEDRLSREELVSMALLLLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRLDITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQMLAVEADDLEWLVNSFFRAPL
HLPVSLRR

>CYP248A2 (2521825513) *Salinispora arenicola* CNY282

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHGSQLMRNEIVSTVVTFFIFTGHETVASQLGNGL
LSLLDHPEQLELMRRQPHLVPQAVEECLRFDPVQSNTROLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLACNPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP105W2 (2521825521) *Salinispora arenicola* CNY282

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCFPSPPAEYARLRAEH
PVVRLPMLGGDTAWVVS RHADVRQVLS DPRMSADRRRP GF PKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEF SVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQV ICEVLGVVPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDMVVTDKEHRPGDDVLSRLLYRQRRAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAE PERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGV TIAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAHLAFGYGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP1198B1 (2521826052) *Salinispora arenicola* CNY282

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSI FFM DQP
GHGRQRKLVS KSFTPRIVKS FGPQIAHIVDGLFEDFRDRGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVMAAHAYFADLIHRRRKNP GDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPG LITNVVDES
LRYDPPVHLAARMARATTIGGYDLDPGTIVVVLMAAGNRDP RAYESP DV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAF AQRLKHPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP211B2 (2516002328) *Salinispora arenicola* CNT798

MDVSEAI AVLISPSGR LDPYPT YEQ LRAHG PVSQT TAGLFV VVTGYAEADM
VLRDPR FVVLDDDLRDDVFPHWQDSPAIKSIARSM LRTNPPDHSRI RRLA
AGAFTPRRVAAMREV VTAQADELVD EMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLT TALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLV VLLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPA GSWLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGT PAGVAPGTP

>CYP125A41 (2516002751) *Salinispora arenicola* CNT798

MTEPRIPAGFDFTDPEVL AHRVPREEFAELRR TAPVWWNAQPRGSAGFDD
DGYWVVTRYAD VMTVSRSDTYSTRENTAIARLRPDTTREDIEMQ RVIML
NVDPP EHTKLRAIVSRGFTPRAINALRGSLAERA EHIVRDAAVRGV GDFV
TDVACELPLQAI AELIGVPQHRRKVFDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAEERQ RSPSDDLVT KLVNAQIDG EHLTTDEF GFFVMLLAVA
GNETTRNAITHGMVAF L DNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTV LGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIE LIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP244A4 (2516003264) *Salinispora arenicola* CNT798

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQAL THPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLS PRNTERWGERVADKVEGF LDELSQAGSGGSTEV
NVVTNYTHKIPLAFI SEMGLPPEAEHRLRGITDIMLYSSDYAARREAI G
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGS LISTS LYEAIRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGE GADSFDAERRGHGHLSF
GLGMHYCIGAPLVRLEAQI AVRGF LRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP245A7 (2516003268) *Salinispora arenicola* CNT798

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWL VFMDP
PRHTELRSLLNRSFS PRIVTEL RPRIARIAQELL SRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGR DVDGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL
TAGHETTNSLAKAVLALREHPTVLDELRGAEGLTTDAVEEFLRYDPPVQ
AVTRWAHQD TTLGGCDIPRGSRVALLGSANRD PARFSPDVL DVRRPAD
RHLSFGLGIHYCLGATLARA ELEIGLQALLDG VPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP105CP2 (2516003431) *Salinispora arenicola* CNT798

MTKSMPVQDLPAFFIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSA HARAVLS DYRRVSIKPYHGNYPLLNEEF EKVVDSGYADV LFGVDPP
EHTRQRQMIMPSFTLRRTAVLRPDIQRIVDDKLDEM MRPGAPGDLVTEFA
QPVP SMVISFLLGVPWEDHEEFETPA HKLFVPELAE EATTEL GAYLERLI
QKKEQPGGTPGGTGLLDD LIRDHLRAGALS RDELVHIAMAMLVAGTDTT
NVISLGT LALLDNPDQWAAALRDNPD ELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRTAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2516003433) *Salinispora arenicola* CNT798

MAAPAPQATPSTTPHPPSYPLPRECPYRPSAGTAHLRDAGPVSTVRLYDG
RTAWLVTGAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQQLLPRFTVRQVAARRPAIQIRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVPYQDRTRFEPVAVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYTALVDNPDLPVPGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHAFSHGIHHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPVTW

>CYP107FS2 (2516003434) *Salinispora arenicola* CNT798

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMPAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVPFADRSEFERHAEVLTGINASSGFDIAAAGRWFDEYLAGLVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETTUNLIAN
GLLALLRHPEAAMALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVIVAAAAANHDPTVFAAPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRLLAGLRLAVPTDSLWKASFVLHRLERLPV
TFTPDRDPNPIDSVHTV

>CYP125G6 (2516003473) *Salinispora arenicola* CNT798

VPTLLNEHVSYDGAIAIVDSGATSWIRLAERVNRWVHLLRAHGLDGTGD
RLACVTGNRRTEFEVLLAALHTGVTVPVNWHLTVTEIGHILSDSGSRVV
ITEELHVKAFAAAADGTAGPVAGLVLGDRVEGFAAVEPLLAASPAEPE
GQVCGATMLYTSGTTGRPKGVVNNLFVTGAPYARVGRLCDYARSVLGVP
RERMLLDGPWYHSSQLFFALLSLLQGSRLVIRPYFDPAATLKTIDDHRIT
VTHLVPTQLVRLLRVDALTRQMFSGASLRRVWHGGGCPPEVKRSMIDWW
GPVLVEYYGATEGGVVTLIDSAEWLARP GSVGRAVPPSEVVVVDDGGQSV
AAGQTGQVFFRRRTGNRFHYHNAPEKTQAAYLAPDTFTTYGEVGHVDEG
LFLTGRAQDMIVSGGVNVYPAEVEAALLRHPVVRDAAVIGVADDEFGERV
VGIVVPETAVDPDDLATHLDAHCRVSLAGFKVPRTYRVVESLPRDETGL
RKDALRSKFGWLSGAAMTVPRPATGQPTAHRPDIAHPTTYVSGVPHDEFA
RRRRDEPVGWAEFVLTRHTAAGRTATRGSGFWAVTRYEDVVAASRRVTD
FSSAAKGAFLLTDPRTPADLQQAQQLLVNMDDPHHARLRKLVTSTVFTPRV
RGLLASIDAHAAALVAKVVAAGEFDVVTDLAAELPLLVLADLLGVPKQDR
ALLYGWSNHLVGFDPDFGGGDIDAYRTAMAEAFQYALNLGVERRARPTD
DLVSLLANAEVDGTRLTDREFCNFWLLL VVAGNETTRHLVAGTMQALTEH
PGECARLVEGRVPMESAVEELLRWVTPIMQFRRTATRDTEIGGQAVTAGE
KVVLYYTSANRDATVFAEPERLDLGRTPNRQLSFGIGPHYCLGAHLARAE
LTALLRVMSPHLGSLLQLTGPVSRLASNFVNGVKAMPAVIGSR

>CYP154M15 (2516003498) *Salinispora arenicola* CNT798

MNDKCPFAALDVTGQDLHGAAARLREQGPAVLVELPGGVKAWSINRYEVI
RELLMDRRVTKNARKHWPFAFIKGEIPPDWEMISWVAMDNMVTAYGKDHR
LRKLVGRAFTQRRADALRPQVVALSTKLDDLGATPPGEVVDLRERFAYP
LPAMLVASLIGMSEAALAACSKVIDMMVHTNVSPEEAQAVLRGWRAAMAD
LIESKRRTPGEDITTDLIAAREEDGSRLSEAEADTIFAILGAGSETTIN
FFDNAITALLSRPGQLQLLRTGAVTWDDVIDEVLRVESPLAHLPLRYAVE
DIELDGVTIPQGDPILVNYAAAGRDPALHGGTADEFDLARGDKTHLSFGY
GPHYCLGAGIARMVATIGLSMLFERFPDL SLAVPATELKRLP TFIMNGHQ
TLPVRLTAHAR

>CYP107AY2 (2516003550) *Salinispora arenicola* CNT798

MTAEPTPIPRSGARLGQEYDQLRKTDGDVHQVLLPDASLAWLVNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAPF
SPQRVAALRPGIRRAAEHLLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRATDTMLTSYPPDRDAIRRAVTELHGYYVDLIDIKQQQPG
DDLLSALVTIEQDGDRLSRDELTSALFLILFAGYENTANLIASAVLWLLD
HGGLNVVPSSEAEIEGTLRHEPPAPVAIRRFPTEDTIIGDVTIPAGDTVLL
SVAAATRGAADGNAARLAFGNPHYCLGAALARVEAEAEALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP208A12 (2516003795) *Salinispora arenicola* CNT798

MTLDTITPRVPLGPPRTAALRMLLVMKRDLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGDLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAEITG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETINAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHGPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPFVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWPNERFDPERFAPGQAADRPYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGHRLVPEPMLSLRIRGGGLPLVVRP
VS

>CYP105BL2 (2516004105) *Salinispora arenicola* CNT798

MSSHSAAPDPETATPLHTLAPELAFFPQFERSAPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTLSDPRFSSDMSHPGFPNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPSPRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHDRDDLLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIIGLGAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP105CH1 (2516004180) *Salinispora arenicola* CNT798

VSSLPLPTYPKLRDPADPLLPAPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSDRRHPNFPYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRRLLISEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRDPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVNLTARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALDTVLRLPLGLHLVAPFEELPFKYRHLVWGIEEL
RVAW

>CYP107Q4 (2516004337) *Salinispora arenicola* CNT798

MTTTAETSATIDLFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTREYEDVRQVLTDPRFLTNPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSYALTAHRIGKLRPRVEKITADLLDKLAED

GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIANRRAEPQDDLVLTALVQAQAEQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKDNPSPMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI
DRLAVGSEHGLGFGKGIHRCLGQHLAYQEAEEVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105G5 (2516004338) *Salinispora arenicola* CNT798

LTIETTETPPADDSLRAPLPRQFMQRDDPSKLPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRRAAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDDELVGIA
TLLLFLAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGAAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPDPETLDV
TRVRSSHLAFGHGVHQCLGQQLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTP

>CYP1051A1 (2516004358) *Salinispora arenicola* CNT798

MATDAAITRARTVPAWKALPAAVRDTHRAFVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAVDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDILLPVLQRQAQRQPDGDDLRLSRVLRARADDGQALSE
KMRDDLVSMVAVTETSTVVLTLWLWPLLANHPDVANRLYDEIDRVVGGG
PVRGGHLAELTYTRMVLDELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASRPARTVEMI
LKPVPAPVPAR

>CYP211C1 (2516004510) *Salinispora arenicola* CNT798

VVDVEELLTRLYSAQGRQDPFPVYADLHARGPIAALPPEPERRRVAAVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAELEAFYF
ELLARRRRTPEGDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLLGGVPPIQGNVLLLIIAANRDPAHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP166A4 (2516004671) *Salinispora arenicola* CNT798

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHEVERVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLYHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEHIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHCCLGQN
LARVELRAGLSALLRAFPNRLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP107AX13 (2516004707) *Salinispora arenicola* CNT798

VTSPPHVAFGHLLLRDPHGQYNALRGQAPVHHIRTPDEAPAWLVMRYDDV
RAALTDPRLSVDKRFSDTDGEHGSSLPPELDAHLLNRDPPDHTRLRRLAA
AAFTPRRVADQAPAVATIVDALLDGIAGQDQAEIIGGLASPLPLQVMHEL
LGLPTQTSVDFRNWTNTLLSADANQPAQSRSAMATMRQFLMGQLARKRAQ
PGDDLLTGLLAARDDDDRFTDDELLAMVFLLMFAGYDNTAALIGNVTHAL
LTDAGLHDAVRAGSVDLDSVVDEVLRWNPSFPLAVRRFAREPVAIAGHTI
PAGDRVWLCLASANRDPAQFTEPDELGITPARRPHLAFGHGIHYCLGAPL
ARLQTTVAVASLLDRCPGIRLAVPAHELRLWRESFRVRGLAALPVRL

>CYP1005A1 (2516004744) *Salinispora arenicola* CNT798

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTQATY
RPDNAMEAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLDSSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVKKQFARAALFWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFTLLHRLSGEP
TIRAALRAGSISVADVVEEGLRLEPPIVWRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVAVAAPDEFPRPGQRGSRRLAFGAGAHRLGDLARME
AAVVVEQATPLLDGVTIVRPPWYPDNLTFRMPDAFVVR

>CYP107FJ2 (2516005090) *Salinispora arenicola* CNT798

MSETLSTSVLLADAAEQRAWRAKLRGAGPVHRITTSGETGWLIVGHEEA
RNALVDLRLQGRATATVGHGRRMPEDLERALNSHMLNVGPPDHTRLRLRLVS
AAFTRRRIEQMRPRIQELTDELLDGLAGADEADLVAGLALPLPMRVLVDL
FGIPAEDCADFNWTKVLTSAGAVDLDRLTAAAGEMVAYLRGLLDRKRQV
PESDLLSALVAVRDGADRLSDDELTSMVYLLLTAGYETTVNLIGNGLNL
LANPEQLVAFKADPDLQVVEEAMRFDSPVQIAVRHSTEPVEIAGQAIP
SGALILVSLWANRDPDRFTEPEAFRVDRQDNPLGFGYGFHHCIGAPLA
RMEGTIAIGTVIRRFAPALRLAHPAGSLTWRASMVMHGLTALPVHLR

>CYP154M20 (2516005097) *Salinispora arenicola* CNT798

MERCPYVLDRAGRDLHGAEAKALRARGPVTLEVELHGGYTAVSVTSYEIAKQ
LLVDPRISKNTKETWPEFREGKVPQDWELYTWVAMDNMQTRDGEHDLRL
KLVAQAFTTRQVAKVRPMIEDIVDRLDDLEKVPAGEVVDIKGRYFYPLS
TILVCDLLGIPEADRAEALHGTVVNARTTNSAESEANLHQWQSALSKLV
ETKRREPGNDITTLIIKAREDEQAPLTDDEVIGSLHLLIGGGTETTSNVL
CNTLIDLTHPDQMAMIRSGAVGWEEAWEVEVRKDGAVGSMPPFRCANADI
EIGGVTIAGKDLVLINAAAGRDPERYGDTTAEFDITRADKTNLSFGYGR
HRCGLPALATMEAMISLPALFERFPDLVLAVPRDELKPKQGTFFVNGYAEV
PMLLRS

>CYP248A2 (2516005121) *Salinispora arenicola* CNT798

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRAFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQLMRNEIVSTVVTFTFTGHETVASQLGNGL
LSLLDHPEQLELMRRQPHLVPQAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDVPVSMFSGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCNPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP105W2 (2516005129) *Salinispora arenicola* CNT798

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCFFSPPAEYARLRAEH
SVVRLPMLGGDTAWVVSRRHADVRQVLS DPRMSADRRRP GPFKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEF SVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVSSQVICEVLGVPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDVVVTDKEHRPGDDLLSRLLYRQRRAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPPERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGVTIAAGEGVVALGQAANRDPRVFEH
PDEFDPDRDARAHLAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP154M13 (2516005142) *Salinispora arenicola* CNT798

MSTGRPVVLDPTGRDIHGEADHLRALGPATLVELPGGVLAWSINSYEVGK
ALLSAPNVSKSARRHWPAFYNGEIPPDWEMISWVAMDNISTTFGGDHRRL
RRLTAKAFGSRRAEQVRPMATHMVNTLLDRMADAADAGEVVDLKAAFAYP
LPGMLVAELIGMSEEARVAAAKVIDMMTATNITPEQAQGVLLGWRDAITD
LIALKRAQPGDDITSDLIAARDEDGSLLTEQELVDITIFAILGAGSETTIN
FFDNAITQLLTHPEQLELVKSGQVSWDDVIEEVLRLSPLASLPMRFAVE
DIQLDGVTIHRGDPIILINYAALGRDPELHGESAGVFDVTRQHKEHLSFGH
GAHYCLGAGIARMVAKTGLSALFERFPRMTLAVSAKDLVPYPTFIMNGNR
QLPVHLSGALKWREGEQSALGRA

>CYP154M21 (2516005143) *Salinispora arenicola* CNT798

MEKCPYVLDRAGSDIHKEASNLRRARGPVTLEVELHGGYTAWSVTSYEVAKQ
LLMDPRISKNTKAHWPEFRDGNVPQDWELYTWVAMDNMQTRDGKEHDLRL
KLVAFAFTGRQAVKSRPIIEEIVNRLDDLETA PRGQAVDIKARYFYPLS
TILVCDLLGIAEEDRDVILHGNVNSKTTNTAESEANLHQWQTALGRLV
ETKRRDPGDDLTTVIIKAGEDEQTPLTDDEVIGSLHLLIGGGTETTANVL
CHTVVDMLTHPDQLAMVRSGAVSWESAWEEVVRKDGAVGSMPFRCATDDV
EIGGVTTIAKGDVLVLINYAAAGRDPERYGDAAAEFDITRADKANLSFGYGR
HRCLGPALATMEAMVALPALFDRFPNLALAVPPNELKPGQGTFFNGYAEV
PLLLRS

>CYP105AB8 (2516005308) *Salinispora arenicola* CNT798

MTETASSRHTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHRADLVKT
LSLPVPSLVICELLGVPPYADHDFEQEHTATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDDDLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLTMIKDDPKTPLAIEELLRFFTTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPLKDIPFKTDAAIYG
ARELPVAW

>CYP105J3 (2516005486) *Salinispora arenicola* CNT798

MTDSVAFPQGRVCPHQAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRTNPAWPAIVPIVAAA VND AQQKVLKIATALVGTDGPE
HKAQRKMLIPSFTFRMNALRPMIQEIVDQQLD EMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGLVDDLQAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDVAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSL GWHHASAADHLTFGFGAHQC

LGQSLARITMEIALGALIDRLPSRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP107EU1 (2516005963) *Salinispora arenicola* CNT798

VTIGQTLPLDVYSPEFTRDPYAIFARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTNNMVNSDPP
DHTRLRHVLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDVPADDLLTALVQVSADEDRLSREELVSMALLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFDPDPRLDITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQMQLAVEADDLEWLNVNSFFRAPL
HLPVSLRR

>CYP162P1 (2516006053) *Salinispora arenicola* CNT798

MGLPSEVDLAEPDLADPDLYAEGDPDAEWAWLRAHRPVYRNPAGATAEFW
ALTRYRDALQVYRDPSTFSSERGMVLGVDPVAGDPAAGRMLVVTDPPRHP
KLRRIVSGIFVPRTMHRLEGRVRSIVDQLLHRVVDGAGRCDVFNDVAARL
PVAIIICELLGVPADEQDWMYHLTSTAFGGGDPAGSAEVS AVERAEAYGDI
LLYYGELAAERRRRPGDDLVTLLVHADLDGEPLDVEDVLVNCTNLIIGGN
ETTRHAASGGLLALAQRPELWRRLRETPTAVPTAVEEVLRWTTPGMHVLR
TATRDTEIGGVPIRAGERVVVWNAANRDEDVFADPQHFDIDRSPNRHIA
FGQGGHHCLGAALARLELTILFEEMAKQVTNVRLTGPVRRVRSCVLRGIR
ALPVELVT

>CYP1198B1 (2516006178) *Salinispora arenicola* CNT798

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQRKLVSFSFTPRIVKSFGPQITHIVDGLFEDFRDRGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVMAAHAYFADLIHRRRKNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGIITNVVDES
LRYDPPVHLAARMARATTIGGYDLDPGTIVVVLMAAGNRDPRAYENPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKHPEVDES
SLEYRRHIVVRGLEHMKVAFQP

>CYP211B19 (2518507718) *Salinispora pacifica* CNS860

MDASEAVALLMSPPGRRDPYPTYERLRAHGPPVATAAGFVVVTGYTEADTV
LRNPRFGVMDDEERDGVFPHWQDSPAMMSISQSMIRANPPDHSRMRLAA
GVFTPRRVAALREVVAQADELIDELIRAGRGGAPVDFLGSFAYPLPVTV
ICALLGVPAADWAQFRRWASELTAVLEPEITPQELAVADAGATELRDYFT
ELIAQRRRDPADDLTALVQAHDADGDRLSGEELLANLVLLL VAGFETTT
NLLGNGLFVLLTHPDSATALRGQPELAPSYVEELLRYDSPVQLTSRTVRE
SVTLGGVELPAGSWLLVLLGAANRDPARFTDPARFDPGRAQSPPLSFGAG
AHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPVRRSRLTLRGYETLPV
TVGAVAADHGTPAGAALGTP

>CYP211C6 (2518508210) *Salinispora pacifica* CNS860

VPDIEGLLTRLYSAQGRQDPYPVYADLHAQAAIAALEPRPERQRVAAVAV
GYDLVAAVLRDPEWFKQPPPDWRDQEILRILQSSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVINRVTDLELLDRMADAGPGEVDFVAEFAYPLPARVM

AEFIGIPATELAWYRERVDRVDAFLDVAGKTPERLAAANAAGAEIERSFYR
ELLAHRRRTPEGEDLISGLVEAVDAGGVELTEDELISNLIVLFNASFVTTV
YLLSNGLPVLLAHPEVAAALASSPELAAGAVDEILRLQTPVHLLARAAPR
DMVLGGVSI PQGQSVLLLLIAAANRDPAHFPDPDRFDPRRSSPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRILEQPVYSGSLFLRGIDKLSV
SPGGREHP

>CYP125A66 (2518508341) *Salinispora pacifica* CNS860

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRTAPVWWNAQPKGSAGFDD
DGYWVVTRYADVMAVSRDSEYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPPEHTKLRAIVSRGFTPRAINALRGSLGERAERIVRDAAGRGTGDFV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGVDPLAASA
ELLAYAMEMAHERQRNPSDDLVTQLVNAQIDGEHLTADEFGFFVMLLAVA
GNETTRNAITHGMLAFLENPEQWELFKAERPRSAVEEIIIRWATPVNVFQR
TALVDTTLAQAI SAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REL PVR YH

>CYP245A11 (2518508780) *Salinispora pacifica* CNS860

MSSTTLPRFTLTGWNREDIVNPYPVYRRYREVA AVHRGEAGGDAPETFYV
FSYDQVAQVLSSSCFGRGRSLDATAASVPVPADQKALRAVVENWLVMFDP
PRHTELRSLLNRSFS PRIVTGLRPRIARIAQELLSRLGRQVETDLVEGFA
APLPILVIAELLGIPAGRHWLRTNALALQEASSSRAGRDTAGYARAEAA
AQEFTEYFREQVRLRRGSTGDDLLTILANAQLRGVPVSLDAVVGTA VHLL
TAGHETTTNSLAKAVLALQAHPAVLEELRGADGLTADSIEEF LRYDPPVQ
AVTRWTHQD TTLGGWEVPRGSRVVAL LGSANRDPARFPLPDALDVHRPAD
RHLGFGLGIHYCLGATLARAELEIGLQTLLNGLPTLGYPAQYVDYADDMV
FHGPSRLILVNPGERFCQ

>CYP244A5 (2518508784) *Salinispora pacifica* CNS860

MSATTNAELGEAPETSMPIDPGLFDCMPDLIAAARIAPVVRIPYLGRHAW
VVCDELVKQAL THPKMGKDIALVPEWMRQPGLMVT AQPPPEYARAMIMS
DGENHARIRRIHAPVLS PRNTERWGEQVADKVEGFLDELSKAAAGSNAEV
DVVTNYTHKIPLAFISEMLGLPPAAEHRLRSITDIMLYSSDYAARREAIG
GLFGAVEEWVRNP DGLRDGVITGLLAGSDGPAAVTEGEVIVWTLGMIIT
GYETTGS LISTS LYEALRRPPHERPRTDEDITAWIEETLRVHPPFP HPTW
RFPLEDIELGGYLIPKGAPVQV SIAAANRQPGEGADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAKIAVRGFLRRFPQARLSADTAVQWESEWMIRRM
SSLPAVLS

>CYP107CT3 (2518509114) *Salinispora pacifica* CNS860

MTGASGDRTGQCPIALDHD FYADPHPAYRVIKENG NKPTPIVLKTGMAYL
PPGLEAWLV TAYEDVEFVLRDPRFRK SIDEAMPLFAAQSGGTAAARGSL
YNNMANNDPPVHTRLRKPLNAMFTSR SVAGRRDVRSAALETLEKVAGSQ
TFDLVQDFAFPFSISVISRTLGVPDADRGT FHGWVQTITGDAPPEILRRD
AGLMVEYLRGLIRGRRESAGNGTDDVLTLLATSLAEDEAVAQAYALLAAG
YETTANLIVTGFLT LA AHPEQLRRLWSDPGLVPDAVEEMLRHQS PFNLSL
YRYVTEPVELNGVRI PRGAIVFLAF AAAANRDECRFTEPDSFDITQPHRDH
LAFGGGIHNCIGKHLARMEAQVAFETLIERCPGLAVHTPDEEFDWKASPT
FRGLRTL RVGPGPAPGGWEREQ

>CYP163B20 (2518509518) *Salinispora pacifica* CNS860

VTATEAKYVGQVGSRNAPSTIDLADPATFAGHDLTNFWQRLRDEEPIYWN
PPTGGRRGFWVLSRHADILEVYRDDTTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHAELRKLRLRALGPRVLGPVCRAVRANTRQMIGEAAAANGECD
FATDIASRIPMITISNLLGVPEADRASLLKMTKTALSADDESVSDTDSEM
ARNEILLYFQDFVEFRKNPGEDVVSMLVNSSIDGVPLSDDDIVLNCYSL
IIGGDETSRLTMIDSINTLAANPGQWRQLKEGRCDIDKAVDEVLRWASPS
MHFGRTAVRETVIHGERIQVDDIVTLWGASGNRDERAFKRPEVFDLDRAP
NRHLSFGHGHPHYCIGSYLAKVEISELLIALRDLILGFVIGAPQIRIRSNL
LSGFSTMPVRFDADRTGLASEAREG

>CYP105BL3 (2518509551) *Salinispora pacifica* CNS860

MSSHSAAAPGPETATPLHTLAPELTFPQFERATPFDPPEAYTELSGRCPV
APVRMADGKPSWLITSFEGVRAALSDPRLSSDMSPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLTGTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVTHVALVVPSPRVACHLVGIPLSEYELFTGMAAKLMDSTSNADQIA
ALQDMVSYFDTLVTDREHHDRDDLGHMVRRYLATGELDREMLIRLAWTT
MAAGQETTAHMIIGLVAALLRHPDQLELLRREPHLMPGAVDELMRYLPMI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLSFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DEDIMYSVSELAVAW

>CYP208A26 (2518509643) *Salinispora pacifica* CNS860

MTVIADRGGVRPPGPPVTAGLRLLALLALGRDRLGMLTSAATEFGDVARLPV
GPKRLYFFNHPDHAKHVLADNHANYAKGIGLVHARRALGDGLLTSGGELW
RKQRRVIQPAFLNRRLAQYAGVVQGEATRLAERLATRVDPGPPVDVLDEMT
RLTLGVLGRTLDDAELTGFGHVGESFAAVQDQAMFELETLSAVPTWIPLR
RQRRFRARRRHLQEVVDVLAERGQNVGRDDVLSRLILSTRAEADAALG
RQRLDELVTLLLAGHETTASTLGWSLYLLDQHPQLRERVRHEATSVLGD
RVPGYADLHQLQYTAMVVQEAIRLYPPVWILTRKARAEDEVGGYRVPAGA
DLLICPYTLHRHPRFWEEPGRFDPERFDPARLTNRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLAVLLRDLRLLEGLPGRAVVPEPMLSLRVRGGLPMMVR
RAD

>CYP154M16 (2518509744) *Salinispora pacifica* CNS860

MPDRCPVLDPSGRDIHAEADRLRAQAPAVKVELPGGVHAWSSITSYDVVKR
LLLDRNVTKNARNHWPKFINDIIPPDWEMISWVAMDNMVTAYGKHLVRLR
RLIAKAFTAQRVETVRPQVEKLVDELDDGLAAETGEVVDLREKFCYPLPA
LLIAELIGMTEQQRAQTAKAMDLMVDTTVSPDQAQAILTGWRTAMDELIA
AKRREPGKDIASDLIAARDDENGGQLTDSELTDITIFAILGAGSETTINFL
DNAVTALVTHPGQLELVRSRAGWDDVIDEVLRVQCPLASLPLRYAVTDI
ELDGVTIPQGDPIILINYAAAGRDPALHGDGTAGEFDVFRENKEHVSFGHGP
HYCLGAGIARLVATIGLSRLFERFDPDLRLAVPAEELQPLPTFIMNGHRAL
PVRLVPAPAAATAV

>CYP208A21 (2518509756) *Salinispora pacifica* CNS860

MTTTSIDRRRPPGPPRAAALSMLLTMSRDRLGMMTAAARAYGDAAWLPVG
HKALYFFNHPDYAKHVLTDNSDNYTKGIGLVHARRALGDGLLTSEGELWR
EQRRVIRPSFRSGRAPDQASVIAEEVASLVERLRARAGGPPVNVVTEFTG
LTLGVLGRTLDDVDLTALATVGDAFAAVQDQAMFELVTLTSAVPTWIPLTR
QRRFRRARAELEIRIVDDLVARRGDVSGRDDVLSRLILSTGAEPDARVRRQ

RLRDELVTLLLAGHETTASTLGWTLYLIDGHPPVRERLRAEAVEVLGDRL
PAYRDLPLDRFTTMVVQEAMRLYPVWLLPRRSRRADRVGPYRVFAGSDV
VVSPYTMHRHPGFWEPEPDRFDPLRFDPNAADRPRYAYLPFGAGPRVCVG
SNLGMMEAVIAVAMLCRELRLVRVPHTAAVPEPMLSLRIRGGLPMSVHLT
D

>CYP107AX9 (2518509769) *Salinispora pacifica* CNS860

VTAQPAPVFDQRLLRDPHRRYNALRDQAPVHRVRTPDGAPAWLVTRYDDV
RAAFIDPRLSVDKRFSGTGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVEKTVSTLLDGLAGNDHAELIGSLASPLPLQVMHEL
LGLPTQTSVDFRTWTNTLLSADANQPAQSRSAMANMRRFLIEQVAHKRAQ
PGDDLLTGLLCVREDDDGLTDDDELVAMLFLLMFAGYDNTAALIGNVIHAL
LTDVELAEAVRTGSLAVDELVDGVLRWNPSPFLAVRRFAREPIITAGQTI
PAGDRIWLCLASANRDPAHFTEPDEIGIADMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVAILFDRFPGIRLAVPVQDIQWRESFRLRGLVALPVSL

>CYP107AW6 (2518509782) *Salinispora pacifica* CNS860

VETVTGTSAPPPVPYIADPYPTLARIRANGPVSIHLSDEGVPMWVIARYR
EVRAALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLAGRKSVDLVQDLAFPLPLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAVFATALREMTDYIAVQLRLR
RSRPGDDLLTELLAARDAGQLTDDDEIVGMVFLLLIGGHETTVNLLGTATL
ALLRNPQDHRWLLANGHALPEAIDEFLRYESPVAMATLRFTTTPVTVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPKLALATEVRQLQWRDTIMLRGLESPLVSLHG

>CYP107AY7 (2518509966) *Salinispora pacifica* CNS860

MRAEPAPIPRSGARLGQEYDQLRKTGDVHQVLLPDTSLAWLVTSPELVSR
ALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPDHTRLRLRLVGP
SPQ RVAALRPRIERTAEELVDTVVATGSPVDLVTGYCTPLSVQVIADLLG
VPEAGRTDLRAWTDMLTSYPPDRDAIRQAVVELHGYYVNLIEAKQQRPG
DDL LSALVATEQEGDRLTRDELTSALFLILFAGYENTANLIAS TVLRLLD
HGSLRGVRASEAIEETLRLEPPAPAAIRRFPIEETTIGGATIPAGDTVLL
SIAAATRGTDGNSARLAFNGPHFCLGAALARVEAEEAITVLARRLPSLA
LAVPGAPVRWRPTFRTHGPAELLVTW

>CYP162A8 (2518511013) *Salinispora pacifica* CNS860

MISPDLSDPFTFYQNGDPLPVWAE LRREHPVYDNRRADGTRI WAVMTHKLC
TDMLTNPKVFSSANGMRLDSNPRVLARAAGKMLNVTDPQHDKIRKLVSS
AFTPRTIRRLANMRATAGRAIDTAIADGGCELTRLAHKL PVS VICDLLG
VPEQDWDFMAERTRFAWGSTAADDREEVEKVA AHT EIMAYFLDLAADRRK
RPMEDLVSALVHGEVDGRALTD EDVLYNCDALLSGGNETTRHATVGGFLA
FVMNPDEWSAIRQNRDLLPSAIQEIVRYTSPVMHSLRTATRDVEFGGINI
RAGEYVVAWLPSANRDEQLFDDPDRFNIRRS PNRHLGFIQGNHYCIGAGL
AAMELRVMFDELLNRVSEVRLAGPARRLR SNLLWGFDSL PVT FHV GAGR

>CYP105AB29 (2518511586) *Salinispora pacifica* CNS860

MTETASITTPGTSSTTTSGPASGQVTD AEFPVERGCPFSTPVEYEQIRDH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFPFVSTD PET
RKQLQDQPTSMIGMDGA EHAQARRALMG EFTVRRMAGLRPRIQQIVDQHI
DEMLSSEQRSADLVEALS LPVPSLVICELLGV PYADHDF FQAHSGLPIRH

TTPSEVRLRIQEELNTYL GALIDRKVTDPTDDLRSQIAKHHAAGTFNRT
SLVSM AFLLLIAGHETTANMISLGVVGLLQHPDQLAMIKEDPEKTPPAVE
ELLRYFTIADTVTARVATEDVQLGDTTINAGDGVVISGLAADHDPVFTD
PDRIDLERGARRHHVAFGFGPHQCIGQTLARMELQIVFDTLFRRIPTLRLA
APLDDIPFKSDAFVYGAEKLPVAW

>CYP161T2P (2518511063) *Salinispora pacifica* CNS860

MARCWAGVPYANWEQFRRWSDDAADMYDQERSVGGYQALRDYIAELAQVR
LRVSGTDLISDLMESHRTEPEGFTLNQVVELGLTLLFAGHETTVTAIDNG
AVLPATHPEQRRARLAGDPSLLDAAVEEILRGSVPRMNFARPD DTPAGA
PPRWANTDLVIGDVTVRAGELVLLGLAHANADERFFAESARFDVGRV PNR
HLTFGNPHFCAGAPLARLEL

>CYP1005A8 (2518511657) *Salinispora pacifica* CNS860

VSAVLFRSWTKTVGTHWPAVTRVADQQGTEHLVVTEHELVRQVLT DQVTY
RPDNALDAVTPIPV PALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQR PWLTKLVAERVAAIGATLDSGGATDLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAALALFWAPLDADRQLALADEVGRFHQVLR EFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLL LHLRLAGEP
TVRAALRDGGVSVANVVEEGLRLEPPIVWRRVAAVDSTLGGTAVPAGTN
VLLWLARAGRDPAIVPAPDEF RFGQRGSRRLAFAFGAGAHRC LGDQLARME
AAVVVEQAAPLLDGISVVRAPWYPDNLTFRMPDAFVIRR

>CYP154M5 (2562129576) *Salinispora arenicola* CNY694

VEQSCPYKLDVTGRDIAEAGEAIRARGPVAQVELPGGVQGWSVTGYQAAR
QVLADPRFAKDPQKWPAYTSGAIPPTWPLIGWLLMDNM TNDGADHQRLR
KLVS HGFTPRQVERTRPLIVKIVNDLLDGLSTAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNV TSSISGEEAEANVEQWHRELL ELV
EAKREKPD EMDASLLIAAKEEDGSTLSQEEVVGT LHLMLGAGSETLMNAL
SYAVLGMLS NPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDP AVHGETAGDYDITRADKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPNM TLAVRPDQLEPQGT FIMNGHREL
PVRLGQPATVLA

>CYP105CT2 (2562129592) *Salinispora arenicola* CNY694

MNSPNHMPADSSSTAPARGCPMALSRGRVGLDVTDEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSAVFN VAGVSP PVLVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIINAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAASASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGADSHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGVLHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRL LDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRRFPGLRLAV
PDSELEFTQGT TVYSLRGLPVTW

>CYP125A41 (2562129657) *Salinispora arenicola* CNY694

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRR TAPVWWNAQPRGSAGFDD
DGYWVVTRYADVM TVSRSDTYSTRENTAIARLRPD TTREDIEMQRVIML
NVDPP EHTKLRAIVSRGFTPRAINALRGSLAERA EHIVRDAAVRGVGD FV

TDVACELPLQAI AELIGVPQHRRKVF DWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQRSPSDDLVT KL VNAQIDG EHLTTDEF GFFVMLLAVA
GNETTRNAITHGMVAF L DNPEQWERFKAERP KSAVEE IIRWATPVNVFQR
TALVDTV LGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHL PDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211C1 (2562129803) *Salinispora arenicola* CNY694

VVDVEGLLARLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELLDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAF L DVAGKTPQRLAANAAGAE LRAFYG
ELLAHRRRTPEGDLISGLVEAVDAGGVALTEDELISNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTV LGGVPI PQGQNVLLLI AAANRDP AHFPDPDRFDPRRSGPPSLAFGLG
LHYCLGAAVSRLEGR LALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP166A4 (2562130285) *Salinispora arenicola* CNY694

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHIGWIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHVEGVAAEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAYEQAGAYFAEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLT VNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFVCPADLDIDRETSGHVAFGFGI HQCLGQN
LARVELRAGLSALLRAFPNLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP1005A1 (2562130462) *Salinispora arenicola* CNY694

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLT DQATY
RPDNAL EAVTPVPVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQR PWLTEL VADRVATIRTTLD SGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAV KQFARA ALELFWAPLDADRQLALADEVGRFHQVLR EFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLL LHRLTDEP
TIRAALRAGSISVADVVEEGLRLEPPIV TWRRVA AVDSTLGGTTVAAGTS
VLLWLARAGRDP AVVAAPDEF RFGQRGSRRLAFGAGAHRC LGDQLARME
ATVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP208A12 (2562131030) *Salinispora arenicola* CNY694

MTLDTITPRVPLGPRTAALRMLLV MKRDR LGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGD LWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGTGPVELTAE L TG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELET LNAVPMWIPLPR
QIRFRKARRKLQAVVDTLVDGRAGSLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTL SLIDRH PGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRV PANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP211B2 (2562131096) *Salinispora arenicola* CNY694

MDVSEAVAVLTSPSGRLDPYPTYEQ LRAHG PVSRTTAGL FVV TGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPA IKS IARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTAQADELVD EMI RAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTG ILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVL LTRPEAAAALRDQPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPAGSWLLVLLGAANRDP RRFPDPARFDPWRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRRLTLRGYETLP
VTVGAVTADRGT PAGVAPGTP

>CYP105W3 (2562131246) *Salinispora arenicola* CNY694

MTGYQDPPTGDQPGAPVPSGSTDPGLDAFPLPRRC PFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVS RHADVRQVLGDPRMSADRRRP GFKFAPTTEGQ
RQASFANFRPPLNWM DPPEHAICRRQIVDEFSARRVRQLRTLVERVVD A H
LNALAAAAPGADLVSTFAYPVPSQV ICEVLGV PYGEHGF FERRSTLMFRR
STPADERARCAREIREFLDVVVT DKERRPGDDVLSRLLYRQRSAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLARAE PKRFPAAVE
ELLRYFTVVEAATARTATAEVTIGGV TIAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAH LAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2562131254) *Salinispora arenicola* CNY694

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVS RFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGR LRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLGL
LGLPAGDADAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQ LMSRNEIVSTVVT FIFTGHETVASQLGNGL
LSLLDHPEQSELVRRQPHLVSQAVEECLRFDP AVQSNT RQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDEFDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCSPNELAYQPR TMFRGLTRLPVAFTPA
G

>CYP107FS2 (2562131316) *Salinispora arenicola* CNY694

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGM PAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLTVSTAFTRRRVEQMRPRIQQITDDLIDVVA AKGEADLVEALALPLPIAV
ISEMLGVFPADRSEFERHA EVL TGINASSGFDAIIAAGRWFDEYLAGLVQ
QRRREPQDDLISGMLAAQDKGDR L TDVELRSNALLLLSAGFETT VNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQE PVEI
GGFEIRSGEHVVI AAAAAANHDPTVFADPSRLDLRRQGSQILSF SHGIHF
CLGAPLARLEGEIAFGTVLRRLAGLRLAVPTDSL VWKASFVLHRLERLPV
TFTPDRDPNPIDSVHTV

>CYP105CN1 (2562131317) *Salinispora arenicola* CNY694

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVTGAAEARALLADSRVSNRADFPNYPVM DERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQ LLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGV PYQDRTRFEPAVAGLFE PD RAD
AAMAELTAYLHQ LIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIIHHCIGQN LALLELDIAFRALVNRFP TLR LAVPAEQLP TY
FAGDVPRLACL PVTW

>CYP105CP2 (2562131319) *Salinispora arenicola* CNY694

MTKSMPVQDLPAFPIPRECPYRPSAQHVSLRSGGPMARVRLYNGRTAWLV
TDSA HARAVLS DYRRVSIKPYHGNYPLLNEEFKVVDSGYADVLFVGDPP
EHTRQ RQMIMPSFTLRR TAVLRPDIQRIVDDKLDEMMRHGAPGDLVTEFA
QPVP SPMVMSFLLGVFWEDHEEFETPAHKLFVPELAEEATELGAYLERLI
QKKEQ PGGT PGGTGLLDD LIRDHLRAGALSRDELVHIAMAMLVAGTDTT
NVISL GTLALLDNPDQWEALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRP RPSPSFSFSH
GIHRC PGDNLARLELEIAFRSLVTRMPNLRTAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105BL2 (2562131414) *Salinispora arenicola* CNY694

MSSHAAAAPDPETATPLHTLAPELTFPQFERSTPFDPQAYTELSGRCPV
APVMS SDGKPSWLITSFEGVRTT LSDPRFSSDM SHPGFPNRTGKPVDDL
KDTLG AMDGERHRYRRLTGELTVRRAKAMRPVITQITDEALDQLAAVG
PGADLVKHVALVVP SRVAYHLVGIPSSDYELFTGMATTLMESTSSADQFA
ALQNMVSYFDTLVTDREHHDRDDLGRMVRRYLATGELTRDMLITLVWTT
LAAGQ ETTAHMIGLVAALLRHPDQLELLRREPHLLPGAVDELMRYLPMI
QFGIP RVAMDDVKVDGQTVTAGEGVVALPPLANRDP AVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVR
DEDIMYRVSELAVTW

>CYP1051A4 (2562131535) *Salinispora arenicola* CNY694

MATDAAITRARTVPAWKALPAAVRDTHRALVDVGNWSDGDVVRVSLGVSR
PYVVTNPAHVQEV LHERAAIYPRGDDTALWRSVRKLVGDGILAEGDVWAA
SRRVLAPMFRPVRINAMVD TMADA IAGAVDDLHGAAVAGTPIDVGRELSR
IVCSAIMRVFFADRITVQDALRIMKAQETIVTAMAPRILAPLPWWIPMP
GDRRFRTAVRSIDNILLPVL RQAQRQPDDGDDL SRLVRARADDGQILSE
KMRDDLVSMVAVTTETSTVVL TWLWPLL ANHPDVADRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATDILGGVRINKGAT
VILSPYVTQRMTAWWGPTAEAFDPERFAAGQEAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSM PGVKVAASTRPARTVEMI
LKPVAPIPAR

>CYP244A4 (2562131806) *Salinispora arenicola* CNY694

MSTTTNTDLTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDRELVKQALTHPKMGKDITLVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLS PRNTERWGERVADKVEGF LDELSQAGSGGSAEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGS LISTS LYEAIRRPPHERPKTDEDITAWIEETLRVHPPFPHP
RFPLEDIELGGYLIPKGSVPQVSIAAANRKPGE GADSFEAERRGHGHL
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAESAVQWESEWMIRRM
SVLPAVLS

>CYP245A7 (2562131810) *Salinispora arenicola* CNY694

MPSATLPRFALTGWNRENIVNPYPVYQRYREVAPVHRGEPGGDAPDTFYV
FSYDEVVQVLSSSCFGRGRSLDAAQASVPVPAEQKALRAIVENWLVFMDP
PRHTELRSLNRSFSPRIVTELRPRIARIAQELLSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANAMALQEASSSRAGRVDVDGYARAEVA

AQEFTEYFREQVRLRRGSAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGADGLTTDAVEEFLRYDPPVQ
AVTRWAHQDQTTLGGCDVPRGSRVVALLGSRNDPARFPLPDVLDVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGER

>CYP105AB35 (2562132491) *Salinispora arenicola* CNY694

MTETASSRLTDTEFPVQRQCPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFISTDPATRKRLYAQPLSMISMDG
AEHAQARRALIGEFTVRRRLAALRPRIQQIVDQCIDEMLTDDQHCVDLVKA
LSLPVPSLVICELLGVYDDHDFQEHATLVRRNAAPEVRQHSIDELNA
YLGALIDRKLADPDDDLLGRQIARQHQDGTFRSSIVSLAFLLLLVAGHET
TANMISLGVVGLLQHPDQLTMKNPDPMPLAIEELLRFFTIVDSVTSRV
ATEDVRFQDGTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARRHHIAF
GFGPHQCIGQNLARLELQIVFDTLFRRIPTLRRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP107EU2 (2562133277) *Salinispora arenicola* CNY694

VTVGQTLPLVYSPEFTRDPYAVFARLREQAPVCRVTTHRGMSAWMVTRY
ADVRALLADSRLAKDGNRIGELMPRHSLKTGAATGFPFGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVESLRPRIEEIVDDLLDGVAAACGDEADLAEILS
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPADLLTALVQVSADEDRLSREELVSMALLLVAGHETTS
KQISNGVLALLLDPEQLKLLKAQPALAAAEEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPQKFPDPDRLDITRSTQGNLAMGH
GIHHCVGAAALARLELEIVLSRLVARFPQLQLAVAADDLEWLVNSFFRAPL
HLPVSLGR

>CYP107Q4 (2562133401) *Salinispora arenicola* CNY694

MTTTAETSATIDLFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRLTNPPADSPLEDIRAGVFKRDLFPDLPW
MANLLNVSDGEDHTRLRKLVSYALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRAHWRAWGDSMATMNGER
IPTTLVKCIELARELIEKRAEPQDDLVTALVQAQAEQDNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLAANTDPRRFPDPNKLII
DRLAVGSESHLGFQKGIHRCQHLAYQEAQVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105G7 (2562133402) *Salinispora arenicola* CNY694

LTIIETTETPPADDTLRAPLPRQFMQRDDPSKLPALAAALAEQAPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQLDVMLA
KGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRAGLLQTDLPKIQ
AVENLEAQRAFMRQLVTDKRRNPADDMISGLVHHAGADPPLTDDDELVGIA
TLLLFLAGLDTTASMLGLGMFMLLQRPQMAVLRDDPPRIGDAVEELLRYL
TVVSAGLFRFAKEDVVLGDEHIIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPIRWDTF

>CYP105CH2 (2562133674) *Salinispora arenicola* CNY694

VSSLPLPTYPKLRDPADPLLPADYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRKHNFYPYPVNPDAVVAQVARWTYILLGDDPPL

HTERRRLLISEFSVRQAQAMRPRIQQLVDFHLDQLIAAGPGADFSKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVAVADQKQAIDELLAYFE
QLIQRKSSHPGDDLLSRLIVSNRETEAFDHEALVALGLLLLLVGGHETTAN
TLTLATATMLERPEVAEQLRTPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGDLVRAGESMLLVNLTARDGTVFPEPHRLDIHRNARNHLAFSHGI
HQCMGQNLARVEMQIALDTVLRRLPGLHLVTPFEELPFKYRHLVWGIEEL
KVAW

>CYP107AX1 (2562133835) *Salinispora arenicola* CNY694

MTSRPTAVFDQCLLRDPHSRYNALRDQAPVHHVLTDPGAPAWLVTRYNDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLHPAVERIVSTLLDGLAGHDRAELIGSLASPLPLQVMHEL
LGLPTQANIDFRTWTNTLLSADANQPAQSRAAMANMRRFLIEQLAHKRAQ
PGDDLLTGLLAAREDDRLTDELVAMVFLLMFAGYDNTAALIGTVTHAL
LTNAELHEAVRGGSLALDELIDEVLRWNPAFPLAVRRFAREPIAIAQGTI
PAGDRIWLCLASANRDPAQFTQPDELGIVGLRRPHLSFGHGIHYCLGAPL
ARLQTTIAVTSLNRFPEMRLAVPAHDIRWRESFRLRGLIALPVYL

>CYP107AY14 (2562134081) *Salinispora arenicola* CNY694

MKAEPPTPIPRSGAGLGQEYDQLRKTDGVHQVLLPDASLAWLITNPEVAAR
ALADPRLALNRNRNSRGGWSGFALPPALDANLLNLDAPDHTRLRLRVGPAF
SPQRVAGLRPGIRRAAEHLLDTLVATSRPTNLVTGYCNPLSVQVIADLMG
VPEAGRTNLRAWTDMLTSYPPDRDAIRQAVTELHGYYVDLIDLKQQQPG
DDLLSALVTIEQDGDRLRDELTSLAFLILFAGYENTANLIASAVLWLLD
HGGLNEVPPIAEAEIEGTLRDEPPAPVAIRRFPTEDIIIRGLTIPAGDTVLL
SIAAATRGADGNAARLAFGNGPHYCLGAALARVEAEALTVLARRLPGLT
LAVPPAQVRWRPTFRTHGPAELLVGW

>CYP107AW7 (2562134226) *Salinispora arenicola* CNY694

VETVTGTSTPPPVPIADPYPTLARIRANGPVSIHSDGIPMWVIARYR
DVRAALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAAFATALREMTDYIAVQLRIR
QTQPGDDILTELLAARDAGQLTDEEIIIGMVFLLLIGGHETTNNLLGTATL
ALMRNPDQHRWLLANQHALPEAIDEFLRYESPVAMATLRFTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRDRTGHAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPRALALAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP1198B2 (2562134326) *Salinispora arenicola* CNY694

MSGELTDQRAAPDVGGNPLRSLLDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQRKLVSQSFTPRIVQSFGPQITRIVDGLFEDFQDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMTVLRENPGVITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGSIVVVLMAAGNRDPRAYENPDV
FDVNRKIKNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKNPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP105CP2 (2518454126) *Salinispora arenicola* CNP193

MTKSMPVQDLPAFFIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV

TDSA HARAVLS DYRRVSIKPYHGNYPLLN EEF EKVVDSGYADV LFGVDPP
EHTRQRQMIMPSFTLRRTAVLRPD IQRIVDDKLD EMMRHGAPGDLVTEFA
QPVP SMVISFLLGVPWEDHEEFETPA HKLFVPELAE EATTEL GAYLERLI
QKKEQPGGTPGGTG LLDLIRDHLRAGALS RDELVHIAMAMLVAGTD TTT
NVISLGT LALLDNP DQWAALRDN PDELIPGAVEEIL RYTS LIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRP RPSPFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRTAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2518454128) *Salinispora arenicola* CNP193

MAAPAPQATTSTTPHPPSYPLPRECPYRPSAGTAHLRDAGPVSTVRLYDG
RTAWLV TGAAEARALLADSRVSNRADFPNYPVM DERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQLLLPRFTVRQVAARRPAIQRMVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVPYQDRTRFEPAVAGLFEPDRAD
AAMAE L TAYLHQ LIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYTALVDNPD LVP GAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIHHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQ LPTY
FAGDVPR LACLPVTW

>CYP107FS2 (2518454129) *Salinispora arenicola* CNP193

MPVPQGEQNLTTTEVFADPKALIATLGSRQPLHRISLPDGM PAVLVTGNRE
ARQALSDPRLVRSITAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPFADRSEFERHA EVL TGINASSGFDAIIAAGRWFDEYLAGLVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLLSAGFETTVNLIAN
GLLALLRHPEAMAALRSEPNLMTTAVDEL LRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHV VIAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSL VWKASFV LHR LERLPV
TFTPDRDPNPIDSVHTV

>CYP125G6 (2518454168) *Salinispora arenicola* CNP193

VPTLLNEHVS YDGA AIAIVDS DGATSWIRLA ERVNRVHLLRAHGLDTGD
RLACVTGNRRETF EVLLAALHTGVTVPVNWHLTVTEIGHILSDSGSRVV
ITEELHV KAVAAAADGMAGPVAGLV LGDREIEGF AAVEP LLAASPAEPE
GOVCGATMLYTS GTTGRPKGVVNNLFVTGAPYARVGRLCDYARSVLGVPR
RERMLLDGPWYHSSQLFFALLSL LQGSRLVIRPYFDPAATLKTIDDHRIT
VTHLVPTQLVRLLRVDALTRQMFSGASLR RVWHGGGPCPPEVKRSMIDWW
GPVLVEYYGATEGGVVT LIDSAEWLARPGSVGRAVPPSEVVVVDDGGQPV
AAGQTGQVFFRRRTGNRFHYHNAPEKTQAAYLAPDTFTYGEVGHVDEDDGY
LFLTGRAQDMIVSGGVNVYPAEVEAALLRHPVVRDAAVIGVADDEFGERV
VGIVVPETAVDPDDLATHLDAHCRVSLAGFKVPRTYRVVESLPRDETGKL
RKDALRSKFGWLSGAAMTVPRPATGQPTAHRPDIAHPTTYVSGVPHDEFA
RRRRDEPVGWVAEPVLTRHTAAGRTATRGSGFWAVTRYEDVVAASRRVTD
FSSAAKGAF LTPRT PADLQQA RQLLVNMDDPHHARLRKLVT SVFTPRAV
RGLLASIDAHA AALVAKVVAAGEFDVVTDLAAELPLLVLADLLGV PKQDR
ALLYGWSNHLVGFD DPDFGGGDIDAYRTAMAEAFQYALNLGVERRARPTD
DLVSLLANAEVDGTR L TDREFCNFWLLL VVAGNETTRHLVAGTMQALTEH
PGE CARLVEGRVP TESAVEELLRWVTPIMQFRRTATRDTEIGGQAVTAGE
KVVLYYTSANRDATVFAEPDRLDLGRTPNRQLSFGIGPHYCLGAHLARAE
LTALLRVMSPHLGSLQLTG PVSRLASNFVNGVKAMPAVIGSR

>CYP154M15 (2518454193) *Salinispora arenicola* CNP193

MNDKCPFAALDVTGQDLHGEEARLREQGPAVLVELPGGVKAWSINRYEVI
RELLMDRRVTKNARKHWPAPFIKGEIPPDWEMISWVAMDNMVTAYGKDHVR
LRKLVGRAFTQRRADALRPQVVALSTKLLDDL GATPPGEVVDLRERFAYP
LPAMLVASLIGMSEAALAACSKVIDMMVHTNVSPEEAQAVLRGWRAAMAD
LIESKRRTPGEDITTDLIAAREEDGSRLSEAELADTIFAILGAGSETTIN
FFDNAITALLSRPGQLQLLRTGAVTWDDVIDEVLRVESPLAHLPLRYAVE
DIELDGVTI PQGDPILVNYAAAGRDPALHGGTADEFDLARGDKTHLSFGY
GPHYCLGAGIARMVATIGLSMLFERFPDL SLAVPATELKRLPTFIMNGHQ
TLPVRLTAHAR

>CYP107FJ2 (2518454212) *Salinispora arenicola* CNP193

MSETLSTSVLLADAAEQRAWRAKLRGAGPVHRITTSGETGWLIVGHEEA
RNALVDLRLQGRATATVGHGRMPEDLERALNSHMLNVGPPDHTRLRRLVS
AAFTRRRIEQMRPRIQELTDELLDGLAGADEADLVAGLALPLPMRVLVDL
FGIPAEDCADFNWTKVLTSAGAVDLDRLTAAAGEMVAYLRGLLDRKRQV
PESDLLSALVAVRDGADRLSDELTSMVYLLLTAGYETTVNLIGNGLLNL
LANPEQLVAFKADPDLLPQVVEEAMRFDSPVQIAVRHSTEPVEIAGQAIP
SGALILVSLWANRDPDRFTEPEAFRVD RQDNPQLGFGYGFHHCIGAPLA
RMEGTIAIGTVIRRFPALRLAHPAGSLTWRASMVMHGLTALPVHLR

>CYP154M20 (2518454219) *Salinispora arenicola* CNP193

MERCPYVLDRAGRDLHGEEAKALRARGPVTLVELHGGYTAWSVTSYEIAKQ
LLVDPRI SKNKTETWPEFREGKVPQDWELYTWVAMDNMQTRDGEEHDLRL
KLVAQAF TTRQVAKVRPMIEDIVDRLLDDLEKVPAGEVVDIKGRYFYPLS
TILVCDLLGIPEADRAEALHGT VVNARTTNSAESEANLHQWQSALSKLV
ETKRREPGNDITTLIIKAREDEQAPLTDDEVIGSLHLLIGGGTETTSNVL
CNTLIDLLTHPDQMAMIRSGAVGWEEAWEVEVRKDGAVGSMPFRCANADI
EIGGV TIAKGDVLIN YAAAGRDPERYGDTTAEFDITRADKTNLSFGYGR
HRCLGPALATMEAMISLPALFERFPDLVLAVPREELKPQGT FVFNGYAEV
PMLLRS

>CYP248A2 (2518454241) *Salinispora arenicola* CNP193

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWVVS RFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAIGRSRAVGRTLDRGATAEDMRRGHAAIAEFTDYVERALA
ERREDGADLLALMLAAHRSQ LMSRNEIVSTVVT FIFTGHETVASQLGNGL
LSLLDHPEQLELVRRQPHLVPQAVEECLRFDP AVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDVPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCNPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP105W2 (2518454248) *Salinispora arenicola* CNP193

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVS RHADV RQVLS DPRMSADRRRP GF PKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEF SVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVSSQVICEVLGVYPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDVVVTDKEHRPGDDL S RLLYRQRAGGVDHE
AVVSMAFVLLVAGHVTTSNM LALSVLALLTHPARLARLRAE PERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGV TIAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAH LAFGHGRHICPGQH LARLEMEVALSRLFRRLPGLRLT

MEVSDLPLKEDSNIFGLYALPVAW

>CYP154M13 (2518454261) *Salinispora arenicola* CNP193

MSTGRPVVLDPTGRDIHGEADHLRALGPATLVLELPGGVLAWSINSYEVGK
ALLSAPNVSKSARRHWPAFYNGEIPPDWEMISWVAMDNISTTFGGDHRRL
RRLTAKAFGSRRAEQVRPMATHMVNTLLDRMADAADAGEVVDLKAFAFYP
LPGMLVAELIGMSEEARVAAKVIDMMTATNITPEQAQGVLLGWRDAITD
LIALKRAQPGDDITSDLIAARDEDGSLLTEQELVDTIFAILGAGSETTIN
FFDNAITQLLTHPEQLELVKSGQVSWDDVIEEVLRLSPLASLPMRFAVE
DIQLDGVTIHKGDPIILINYAALGRDPALHGESAGVFDVTRQHKEHLSFGH
GAHYCLGAGIARMVAKTGLSALFERFPRMTLAVSAKDLVPYPTFIMNGNR
QLPVHLSGALTWREGEQSALGRA

>CYP154M21 (2518454262) *Salinispora arenicola* CNP193

MEKCPYVLDRAGSDIHKEASNLRRARGPVTLVLELHGGYTASVTSYEVAEQ
LLMDPRISKNTKAHWPEFRDGNVPQDWELYTWVAMDNMQTRDGKEHDLRL
KLVAFAFTGRQAVKSRPIIEEIVNRLDDLETAPRGQAVDIKARYFYPLS
TILVCDLLGIAEEDRDVILHGNVNVNSKTTNTAESEANLHQWQTALGRLV
ETKRRDPGDDLTTVVIKAGEDEQTPLTDDEVIGSLHLLIGGGTETTANVL
CHTVVDMLTHTPDQLAMVRSGAVSWESAWEEEVRKDGAVGSMPPFRCATDDV
EIGGVITIAKGDVLVLINAAAAGRDPERYGDAAAEFDITRADKANLSFGYGR
HRCGLPALATMEAMVALPALFDRFPNLALAVPPNELKPKQGTFFNGYAEV
PLLLRS

>CYP208A12 (2518454426) *Salinispora arenicola* CNP193

MTLDTITPRVPLGPPTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGD LWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAEITG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNLAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHGPVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGHRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP245A7 (2518455015) *Salinispora arenicola* CNP193

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRSLLNRSFSPRIVTELRPRIARIAQELLSRLSQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELGAEGLTTDAVEEFLRYDPPVQ
AVTRWAHQDATLGGC DIPRGSRVVALLGSANRDPARFPSPDVLDVRRPAD
RHLSFGLGIHYCLGATLARVELEIGLQALLDGVPPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERC

>CYP244A4 (2518455019) *Salinispora arenicola* CNP193

MSTTTNTELTEAPETNMPVDPLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQALHTHPKMGKDIALVPEWMMRQPGLMVTAQPDPEYARAMIMS

DGENHARIRRIHAPVLSPRNTERWGERVADKVEGFLELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEAIRRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEAGDSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP125A41 (2518455290) *Salinispora arenicola* CNP193

MTEPRIPAGFDFTDPEVLAHVRPREEFAELRRTAPVWVNAQPRGSAGFDD
DGYWVVTRYADVMTVSRDSSTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPHEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGDV
TDVACELPLQAI AELIGVPQHRRKVFWDNSQLIGYDDPAYGTDPLTASA
ELLYAMEMAEERQRSPSDDLVTCLVNAQIDGHELTDEFGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTVLGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP107AX13 (2518455866) *Salinispora arenicola* CNP193

VTSPPHVAFGHLLRDPHGGYNALRGQAPVHHIRTPDGAPAWLVMRYDDV
RAALTDPRLSVDKRFSDTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADQAPAVATIVDALLDGIADQDQAEIIGALASPLPLQVMHEL
LGLPTQTSVDFRNWTNTLLSADANQPAQSR SAMATMRFLMGQLARKRAQ
PGDDLTLGLLAARDDDDRFTDDELLAMVFLLMFAGYDNTAALIGNVTHAL
LTDAGLHDAVRAGSVLDLSDVDEVLRWNPSFPLAVRRFAREPVTIAGHTI
PAGDRVWLCLASANRDPAQFTEPDELGITPARRPHLAFGHGIHYCLGAPL
ARLQTTVAVASLLDRYPGIRLAVPAHEL RWRESFRVRGLAALPVRL

>CYP166A4 (2518456022) *Salinispora arenicola* CNP193

MTDAISFELPWARTDKFDPPTVFDALREQRPLARMRYPDGHVGWIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRSRLTGHEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVLGPLYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLYHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIERETS GHVAFGFGI HQCLGQN
LARVELRAGLSALLRAFPNLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP1051A1 (2518456150) *Salinispora arenicola* CNP193

MATDAAITRARTVPAWKALPAAVRDTHRALVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGLAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAVDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDILLPVL RQAQRQPDDGDDL SRLVRARADDGQALSE
KMRDDLVSMAVTTTETSTVVLTWLWPLL ANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMTAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASSTRPARTVEMI
LKPVAPVPAR

>CYP105G5 (2518456170) *Salinispora arenicola* CNP193

LTIIETTETPPADDSLRAPLPRQFMQRDDPSKLPALAAALAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRRAAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTP

>CYP107Q4 (2518456171) *Salinispora arenicola* CNP193

MTTTAETS AETIDLFSPEVVADPFGWYARLREETGPTTGTNLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRFLTNPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSALT AHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIAKRR AEPQDDLV TALVQAQ AEDQNRVSDDEIIGI
LFSLV TAGHQTTTYLIGNSVILLLENPDQLARLKENPSMW PQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI I
DRLAVGSEGLHGF GKGIHRCLGQH LAYQEA E VALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLP LKLV

>CYP105J3 (2518456892) *Salinispora arenicola* CNP193

MTDSVAFPQGRVCPHQPAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRTNPAWPAIVPIVAAAVNDAQQKVLKIATALVGTDGPE
HKAQRKMLIPSF TFRMNALRPMIQEIVDQQ LDEM I KSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIF EKL SHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPEGVLDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSV PDAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHSAADHLTFGFGAHQC
LGQSLARITMEIALGALIERLPSLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP105BL2 (2518457284) *Salinispora arenicola* CNP193

MSSHSAAAPDPETATPLHTLAPELAFFPQFERSAPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTT LSDPHFSSDM SHPGFPNRTGKPVDDL
KDTL GAMDGERHRYRRLTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHFVAFVVP SRVACHLVGIP L S DYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHRDRLD LGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETT AHMIGLVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDP AVFERPDELDVRRN
ARQH LTFGYGPHQCPAHALARLELEV VYGRLLERFPTLR LADSDADLKVQ
DKDIMYRVSELAVTW

>CYP211B2 (2518457440) *Salinispora arenicola* CNP193

MDVSEAI AVLISPSGR LDPYPTYEQ LRAHG PVSQTTAGLFVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIKSIARSMRLTNPPDHSRIRRLA
AGAFTPRRVAAMREV VTAQADELVDEMIQAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLVAGFETT
TNLLGNGLVLLTRPEAAAALRDEPDLAPGHVDELLRYDSPVQLTTRTVR
ESVSFAGTELPA GSWLLVLLGAANRDP RRFPDPARFDPGRAQSQPLSFGA

GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGTAGVAPGTP

>CYP211C1 (2518457849) *Salinispora arenicola* CNP193

VVDVEELLTRYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVAHAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAELEAFY
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPI PQGQNVLLLLIAAANRDPAHFPDPDRFDPWRS GPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP107AY2 (2518457922) *Salinispora arenicola* CNP193

MTAEPTPIPRSGARLGQEYDQLRKTGDVHQVLLPDTSLAWLVTNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDPDHTLRLRLVGPAP
SPQ RVAALRPGIRRAAEHLLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRAWTDMLTSYPPDRDAIRQAVTELHGYYVDLIDIKQQQPG
DDL LSALVTIEQDGDRLSRDELTSLAFLILFAGYENTANLIASAVLWLLD
HGGLNVVPSSEAEIEGTLRHEPPAPVAIRRFPTEDIIIGGV TIPAGDTVLL
SIAAATRGADGNAARLAFGNPPLLPRCGPGPGRGRGGTHRAGPSATRS
ARRAPFPGPVASDVSHPRPRRTPGRLVAVRDDR MAGHYLGNGQREVADA
R

>CYP163B16 (2518457980) *Salinispora arenicola* CNP193

VTAADPGRVSGESQTPAHTVDLADPATFANRDLTGFWQQLRDEEPIHWN
PPTSGRRGFVVVSRYADILDVYRDDVTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHAELRKLLLRALGPRVLAPVCAAVRANTRQMVREAVTKGEC
FASDIASRIPMMTISNLLGVPDADRAFLSLTKTALSADDES ISETESAM
ARNEILLYFQDLMEFRRDHPGEDVVSMLVNSTIDGAPLSDDDIVLNCYSL
IIIGGETSRLTMIDSVNTLAAHPKQWRRLKDGQCEIDKAVDEVLRWASPS
MHFGRVAAKDTILRGVQIRADDIVTLWHASGNRDERVFHRPEVFDLGRTP
NRHLSFGHGPHYCIGSYLAKVEISELLIALRDLTSGFETTGE PQRIRSNL
LTGFSTMPVRFPVDRAGLARDALDG

>CYP162P1 (2518458360) *Salinispora arenicola* CNP193

MGLPSEVDLAEPDLADPDLYAEGDPDAEWAWLRAHRPVYRNPAGATAEFW
ALTRYRDALQVYRDPSTFSSERGMVLGVDPVAGDPAAGRMLVVTDP PRHP
KLRRIVSGIFVPRTMHRLEGRVRS LVDQLLHRVVDGAGRCDFANDVAARL
PVAIIICELLGVPADEQDWMYHLTSTAFGGGDPAGSAEVS AVERAEAYGDI
LLYYGELAAERRRRPGDDLVTLLVHADLDGEPLDVEDVLVNCTNLIIGGN
ETTRHAASGGLLALAQRP ELWRRLRETPTAVPTAVEEVLRWTT PGMHVLR
TATRDTEIGGVPIRAGERVVVWNAANRDEDFADPQRFDIDRSPNRHIA
FGQGGHHCLGAALARLELTILFEEMAKQVTNVRLTG PVRVRVRS CVLRGIR
ALPVELVT

>CYP1005A1 (2518458384) *Salinispora arenicola* CNP193

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLT DQATY
RPDNAL EAVTPVPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQR PWTGLVADRVATIRTTLD SGGPVDLYADLTADL PLLVLAR

LVELPDAPVNAVVKQFARAALFVWAPLDADRQLALADEVGRFHQVLRFA
DTGGGLAAALRATGHSPDVLVGLFLLVAGQETTSQFLTLHRLSGEP
TIRAALRAGSISVADVVEEGLRLEPPIVWRRVAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFPRPGQRGSRRHLAFGAGAHRCGLGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVR

>CYP211B11 (2515718889) *Salinispora pacifica* CNS103

MDASEAVALLTSPGRLDPYPTIERLRAHGPPVSTAAGFFVVTGYTEADT
VLRNPRFEVMDDEERDGVFPHWQDSPAMISISRSMIRANPPDHSMRRLA
AGVFTPRRVAALREVVAQADGLVDEMIRAGRGAAVDFMGSFAYPLPVT
VICALLGVPTADWARFRHWASDLTGVLPEITPQELAIADAGASELRDYF
TELIAQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVLLTHPDSATALRGQPELAPGYVEEFLRYDSPVQLTSRTVR
ESVSLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLRRLPELALAGEPTRRHRLTLRGYETLP
VTVGAVPADPGTPAGVALGTP

>CYP107AW7 (2515719471) *Salinispora pacifica* CNS103

VETVTGTSTPPVPYIADPYPTLARIRANGPVSILHSDEGIPMWVIARYR
DVRAALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHHVQGAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFPLPLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAAFATALREMTDYIAVQLRIR
QTRPGDDILTELLAARDAGQLTDEIIGMVFLLLIGGHETTVNLLGTATL
ALMRNPDQHRWLLANQHALPEAIDEFLRYESPAMATLRFTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPRLALAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP125A65 (2515719632) *Salinispora pacifica* CNS103

MTEPRIIPVGFDFTDPAVLERRVPREEFAELRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMASRDSEYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
TDVACELPLQAIAGELIGVPQHHRKVFWDNSQLIGYDDPAYGVDPMAAAA
ELLAYAMEMANERQRNPSDDLVTKLVAQIDGEHLTTDEFGGFFVMLLAVA
GNETTRNAITHGMLAFLEHPDQWELFKAERPRSAVEEIIRWATPVNVFQR
TALVDTTLGGQAITAGQRVALFYGSANFDESVEEPERFDITRSPNPHLG
FGSGGVHFCGLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REMPVRYR

>CYP208A22 (2515719724) *Salinispora pacifica* CNS103

MTVIADRGGRIPPGPPVTAGLRLLALGRDRLGMMTSAAAEGDVARLPV
GPKKLYFFNHPDHAKHVLADNHANYQKGIGLVHARRALGDGLLTSEGELW
RKQRRVIQPAFQNRRLAQYAGAVGQEATRLVARLATRVDPVPVLDLDMT
RLTLGVLGRTLDAELTGFGVGVGESFAAVQDQAMFELETNTVPTWIPLR
RQRRFRRARQHLQEVVDVLAERGQAVEGRDDVLSRLILSTRAEADPQLG
RERLRDELVTLLLAGHETTASTLGWSLHLLDQHPERLRRVRHEARTVLGD
RVPAYEDLHQLRYTAMVVEEAIRLYPPVWILTRKARAEDEIGGYRVPAGA
DILICPYTLHRHPRFWAEPERFDPERFDPSRITDRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLAVLLRDLRLGLELPGRAVVPEPMLSLRVRGGLPMTVR
RVD

>CYP124M3 (2515719745) *Salinispora pacifica* CNS103

MTVPIELDAVDLSDNDFWTKPLEYRHAVFNALRAQPGLPHFASPEFGSAP
RGRGYYALTRMDDVLAVSRNPSVFI SGKGNVAMEVPAEF LDQSLITMDNP
RHARLRRI VSRGFTMKAVTALMDNASQMAKQIVDEVVERGECDAVVDISA
KLPLGI ICNMMGIPDSQQQFVFEQTNVMLGVQDPEYVGEQNDAMLAMSV
SQELADLMHELATLRKNPTDDLI SKLLSAEVNGEALTPSEL AHFFILLT
GAGTETTRNAISWGIQLLTQSPEQREAWLS DIDGVTPTAVEEIVRWSSPV
ISQRR TVAEDAEPVKLAGQLLGP GDKVLMFYGAANRDPNYFVHPEGFDVR
RSPNPHVGYGGPGPHFCLGAHLARLEISVMFRELLTRIPDIHATGEPARL
KSPLINGIKRLPVAFTPGAR

>CYP105AB28 (2515719771) *Salinispora pacifica* CNS103

MTETASTTTPGISSTTTSGPASGEVTD AEFPLERGC PFSTPTEYEQIREH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFPFVSTD PET
RKQLQDQPTSMIGMDGA EHAQARRALMG EFTVRRMAGLRPRIQQIVDQHI
DEMLSSDQRTADLVEALS LVPVSLVICELLGV PYADHDFQARSGLIRH
TTPTEVRLRIQKELNTYLGALIDRKVADPTDDLLSRQIAKHHAAGTFDRT
SLVSM AFLLLIAGHETTANMISLG VVGLLQHDPQLAMIKEDPEKTPPAVE
ELLRYFTIADTVTARVATEDVQLGGTTINAGDGVVISGLAADHDPTVFTD
PDRLDLERGARHHVAFGF GPHQCIGQTLARMELQIVFDTLFRRIPTLRLA
APLDDIPFKSDAFVYGAERLPVAW

>CYP107FH3 (2515721683) *Salinispora pacifica* CNS103

VPIELDEAFVQDPYAVYEKLRAEGPAHRVRMP PGVPLIGGLPVWLITGYD
AVRAALADSR LSTDLHRIDGLFAQKDPDRSHRGGFSSALASHMMHTDPPD
HTRLRKLVS KAFTTRAIEALRPRIQQTDELTAELAGHDTV DLLDAFAFP
LPIRVICLLLGVPVAEQENFRSWSRALVSGHSPEAAAATAATEVAAYLGDL
VERKRHATTD DVLTA LVAHDVDDRLTHTELVSTAYLLFIAGFETTLNAL
GNGTLHLM LHRDQWTALRADRALLDNAVEEFLRLESPLKHATFRCATESL
RIGDAEIAAGDFVLLA IASANRDPRRFPDPHTLDVRRPAAGHLAFGHGIH
HCLGAPLARVEVRMAFDALLDAFPDMRLATDPAGLRWRNSTIIRGLDSL P
VHLNN

>CYP2054A3 (2515721688) *Salinispora pacifica* CNS103

MSISADSEQVQGRFPDPYGAHRDDPYTFLAGLG VFYAPLLDAWCVTRRED
MVAVLRDDRSFSARDHNPRPAVALPDDVNQMFR TWRGAGAVAVGSLDPPA
HAKIRDVLNIGFTPARVRAFEPTMRAVAADLADRIGDAPEFDFIADFAVP
FALEVIGRRLGV PDDYLDR CRTWSEQRIELMMAQGDADHDRLREFARGLM
EFGEFARS LVRDRVADPRDDLISELLHDGKAGRTLTADEVAVQIPTLIFA
GHMTCAEALGTIFYQQLRSPGGWARVVDRTIPV GDLVEEGLRFDSPLAGM
YRTATRDVTVGGIRLTAGSRLLLLYGAAGRDSRAHACPAAFRPGDGSSGH
LAFGHGIHFCLGAGFARAELRVAVEVLAARMPDLGLAPGRPPRF RVPFPL
RALTEL RVTRSGGGSGP

>CYP161N4 (2515721693) *Salinispora pacifica* CNS103

VNTVAQLPFTQTHVLDVAPALRLLQSRGKVHRVRTPEGVPAWLVTGHAEV
QQLLDDDRLSRSDPGGRDGGTALLNKLLG PLADHDHPRLSLLEPQFTPER
LEPLRAVVEKLTEQHLDELATRTPPVDLRPALAMSLPIILVLC EWLGVPAE
DKGRFSVWTQDAAGVQDPERSQRGLAELFGYCRQLVAAKRQDPGDDVISR
LIATAGIGDTEVVALTALLLFGGYETTVARIGTG VLLLLTNPDQWAAVRA
DPALVPATVDELLRRSMPNPHNGGMPRFAVTGFEIDGAAIRAGDLVLLNI
IAANHDETAFFDPDRLDITRPTAGSLAFGYGRHSCVGAPLARMVLRVALS
RLITRFPDLRLAVGVDELKLRHETLVGGLVELPV TWGPR

>CYP107AY9 (2515721764) *Salinispora pacifica* CNS103

MSQDQPTRAELAPIPRSGARIGPEYDQLRKTDGDVHQVLLPDTSMWLVTSPDLVSRALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAFSPQORVAALRPRIQRTAEELAETMVATGSPVDLVTGYCTPLSVQVIADLLGVPDAGRTDLRAWTDMLTSYPPDRDAIRQAVVELHGYVNLIEAKQQRPGDDLSSALVATEQEGDRLTRDELTSLAFLILFAGYENTANLIAS TVLRLLDHGSLRGVRASEAIEETLRLEPPAPAAIRRFPTTEMTIGGATIPAGDTVLLSIAAATRGADVNPARLAFGNPHYCLGAALARVEAEEAITVLARRLPGLALAVPGAPVRWRPTFRTHGPAELLVAW

>CYP1005A6 (2515722044) *Salinispora pacifica* CNS103

VSAVLFRSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLTQVTRYRPDNALDAVTPIFVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADALHPAKVAAQRPWLTELVAERVAAIRATLDSGGSADLHAELSADLPLLVLARLVELPDAPVSAVKQFARAALFELFWAPLDADRQLALADEVGRFHQVLRFA DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLAGEPTVRAALRDGSVSVPNVVEEGLRLEPPIVTWRRVAAVDSTLGGTAVPAGTSVLLWLARAGRDPPIVSAPDEFPRPGQRGSRRLAFAGAHRCCLGDQLARMEA AAVVVERVSPLLDGVTVVRAPWYPDNLTFRMPDAFVIRRGPAAGAAER

>CYP107E37 (2515723071) *Salinispora pacifica* CNS103

VTIDQEIREYPPFRESRGIGIDPTYELLRRTEPLARVQLPYGEVSWLVTRYEDVKTVLTDPFRFSRAAAQGKDQPRTRAEMTYEGIIGLDPPDHTRLRRLAGKALTARRVNAIRADAQRIANEYVDEMIAKGSPGDLVELFALPYPVTVICE LLGVPFEDRAQFQIWTGELTSTSEQLMVYAEQLFDYMGKLVAQRRAEPTD DLLGALVKARDEGDRLTEQELLSIAGVGLLLTG VETVSTHIPNFVYALLTHPELMAQLRADRS LVPAAVEELLRMIPLNPAAMFPRYAVDDVTLSGITVRAGQPVLVSLPGANRDPEVFENPETFDFTREQNPHVAFGHGPHHCLGAQLAR MELQVALHTVLD RFPDLRLADGDEGVSWKSGLLVRGPSRLLVGV

>CYP107AX4 (2515723208) *Salinispora pacifica* CNS103

MTSQPAPVFDQLLL RDPHRRYNALRDEAPVHHIRTPDGAPAWLVTRYDDVRAAFTDPRLSVDKRLSSTDGEHGSSLPPELDAHLLNRDPPDHTRLRRLAA AAFTPRRVADLRPAVERIVSTLLDGLVGHDAQELIGSLASPLPLQVMQEL LGLPTQTSVDFFRRWTNTLLSADANQPAQSRSAMANMRRFLVEQLAHKRAR PGDDL TGLLAAREDDRLTDDELVAMLFLLMFAGYDNTAALIGNVVHAL LTNTELPAAVRTGSLALDELVDGVLRWNP SFPLAVRRFAREPITIAGQTI PAGDRIWLCLASANRDPAQFTAPDTLGT TGMRRPHLSFGHGIHYCLGAPL ARLQTTVAVTILLDRFPGIRMAVPAHDIRWRESFRLRGLVALPVFL

>CYP208A12 (2518448907) *Salinispora arenicola* CNP105

MTLDTITPRVPLGPRTAALRMLLV MKRDRLGMLTSAAARYGDASRLPVG HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGDLWR KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAE LTGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELET LNAVPMWIPLPR QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR ERLRDELVTLLLAGHETTASTLGWTL SLIDRHPGVWERLHAEAVEVLGDR LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVPANAD VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRIAYLPFGAGPRFCV

GNNLGMMEAVFVIALLCRHLRLTGVPGHRLVPEPMLSLRIRGGGLPLVVRP
VS

>CYP105BL2 (2518449049) *Salinispora arenicola* CNP105

MSSHSAAAPDPETATPLHTLAPELAFFPQFERSAPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLDPHFSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHAVFVVPVSRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHRDDLLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIGLVAAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVAFERPDDELVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP211B2 (2518449480) *Salinispora arenicola* CNP105

MDVSEAI AVLISPSGRLDPYPTYEQ LRAHG PVSQTTAGLFVVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIXIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTQADELVDemiQAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLVAGFETT
TNLLGNGLVLLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPAGSWLLVLLGAANRDP RRFDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRTLRGYETLP
ITVGAVTADRGTPAGVAPGTP

>CYP125A41 (2518449849) *Salinispora arenicola* CNP105

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRR TAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPP EHTKLRAIVSRGFTPRAINALRGSLAERA EHIVRDAAVRGVGD FV
TDVACELPLQAI AELIGVPQHRRKVF DWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMA EERQ RSPSDDLVT KL VNAQIDG EHLTTDEF GFFVMLLAVA
GNETTRNAITHGMVAF LDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTVLGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP105J3 (2518449999) *Salinispora arenicola* CNP105

MTDSVAFPPQGRVCPHQ PAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDR TNPAWPAIVPIVAAA VND AQQKVLKIATALVGT DGPE
HKAQRKMLIPSF TFRMNALRPMIQEIVDQQLD EMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIF EKLSHQ LLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGVLDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSV PDAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHSAADHLTFGFGAHQC
LGQSLARITMEIALGALIERLPSRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP244A4 (2518450156) *Salinispora arenicola* CNP105

MSTTTNTELTEAPETNMPVD PGLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQAL THPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLS PRNTERWGERVADKVEGF LDELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG

GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEAIRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEAGDSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP245A7 (2518450160) *Salinispora arenicola* CNP105

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVMFMDP
PRHTELRSLNRSFSRIVTELPRPRIARIAQELLSRLSQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGAEGLTTDAVEEFLRYDPPVQ
AVTRWAHQDATLGGCDIPRGSRVVALLGSANRDPARFSPDVLDVRRPAD
RHLSFGLGIHYCLGATLARVELEIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP1005A1 (2518450312) *Salinispora arenicola* CNP105

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTQATY
RPDNALAEAVTPVPVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVATIRTTLDSSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVKKQFARAALFELFWAPLDADRQLALADEVGRFHQVLRFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLHRLSGEP
TIRAALRAGSISVADVVEEGLRLEPPIVWRRVAAVDSTLGGTTVAAGTS
VLLWLRAGRDPVAVAAPDEFPRPGQGRSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTVVRRPPWYPDNLTFRMPDAFVVRR

>CYP105CP2 (2518450548) *Salinispora arenicola* CNP105

MTKSMPVQDLPAFFIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHAARAVLSDYRRVSIKPYHGNYPILLNEEFKVVDSGYADVLFVGDPP
EHTRQRMIMPSFTLRRTAVLRPDIQRIVDDKLDMMMRHGAPGDLVTEFA
QPVPSPMVISFLLGVPWEDHEEFETPAHKLFVPELAEAEATTELGAYLERLI
QKKEQPGGTPGGTGLLDDLIRDHLRAGALSDELVHIAMAMLVAGTDTT
NVISLGLTALLDNPQWAAALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRATAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2518450550) *Salinispora arenicola* CNP105

MAAPAPQATTSTTPHPPSYPLPRECPYRPSAGTAHLRDAGPVSTVRLYDG
RTAWLVGTGAEEARALLADSRVSNRADFPNYPVMDEHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRLQLLPRFTVRQVAARRPAIQRMVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVYPYQDRTRFEPVAVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYTALVDNPDLPVAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHAFSHGIIHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQQLPTY
FAGDVPRCLACLPVTW

>CYP107FS2 (2518450551) *Salinispora arenicola* CNP105

MPVPQGEQNLTTTEVFADPKALIATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR

KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVPPFADRSEFERHAEVLTGINASSGFDALIAAGRWFDEYLAGLVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETTVNLIAN
GLLALLRHPEAMAAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPEI
GGFEIRSGEHVVIAAAAAANHDP TVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSLWVKASFVLHRLERLPV
TFTPDRDPNPIDSVHTV

>CYP125G6 (2518450591) *Salinispora arenicola* CNP105

VPTLLNEHVSYDGAIAIVDS DGATSWIRLAERVNRWVHLLRAHGLDTGD
RLACVTGNRRETFFVLLAALHTGVTVPVNWHLTVTEIGHILSDSGSRVV
ITEELHVKAVAAAADGMAGPVAGLVLG DREIEGFAAVEPLLAASPAEPE
GQVCGATMLYTS GTTGRPKG VVNNLFVTGAPYARVGRLCDYARSVLG VPR
RERMLLDGPWYHSSQLFFALLSLLQGSRLVIRPYFDPAATLKTIDDHRIT
VTHLVPTQLVRLLRVDALTRQMFSGASLRRVWHGGGCPPEVKRSMIDWW
GPVLVEYYGATEGGVVTLIDSAEWLARPGSVGRAVPPSEVVVVDDGGQP
AAGQTGQVFFRRRTGNRFHYHNAPEKTQAAYLAPDTFTTYGEVGHVDE
GYLFLTGRAQDMIVSGGVNVYPAEVEAALLRHPVVRDAAVIGVADDEF
GERVVGIVVPETAVDPDDLATHLDAHCRVSLAGFKVPRTYRVVESLPR
DETGKL RKDALRSKFGWLSGAAMTVPRPATGQPTAHRPDIAHPTTYV
SGVPHDEFA RRRRDEPVGWAE PVLTRHTAAGRTATRGSGFWAVTRY
EDVVAASRRVTD FSSAAKGAF LTPRTPADLQQA RQLLVNMDDPH
HARLRKLVT SVFTPRAV RGLLASIDAHAAALVAKVVAAGEFDV
VTDLAAELPLLVLADLLGV PKQDR ALLYGWSNHLVGFD DPDFG
GGDIDAYRTAMAEAFQYALNLGVERRARPTD DLVSLLANAEVDG
TRLTDREFCNFWLLLVVAGNETTRHLVAGTMQALTEH PGECARL
VEGRVPTESAVEELLRWVTPIMQFRRTATRDTEIGGQAVTAGE
KVVLYYTSANRDATVFAEPDRDLGRTPNRQLSFGIGPHYCLGAHL
ARAE LTALLRVMSPHLGS LQLTG PVSRLASN FVNGVKAMPAVIGSR

>CYP154M15 (2518450616) *Salinispora arenicola* CNP105

MNDKCPFAALDVTGQDLHG EAARLREQGPAVLVELPGGVKAWSINRYEVI
RELLMDRRVTKNARKHWP AFIKGEIPPDWEMISWVAMDNMVTAYGKD
HVR LRKLVGRAFTQRRADALRPQVVALSTKLDDLGATPPGEVVDLRE
RFAYP LPAMLVASLIGMSEAAALACSKVIDMMVHTNVSP EEAQAVL
RGWRAAMAD LIESKRRTPGEDITTDLIAAREEDGSRLSEAEADTI
FAILGAGSETTIN FFDNAITALLSRPGQLQLLRTGAVTWDDVIDE
VLRVESPLAHLPLRYAVE DIELDGV T I PQGDPILVNYAAAGRDP
ALHGGTADEFDLARGDKTHLSFGY GPHYCLGAGIARMVATIGLSM
L FERFPDLSLAVPATELKR LPTFIMNGHQ TLPVRLTAHAR

>CYP107Q4 (2518450828) *Salinispora arenicola* CNP105

MTTTAETS AETIDLFSP EVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDP RFLTNPPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVS YALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIAKRAEPQDDLVTALVQAQAEQDNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI
IDRLAVGSEGLHGF GKGIHRCLGQH LAYQEA E VALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLP LKLV

>CYP105G5 (2518450829) *Salinispora arenicola* CNP105

LTIIETTETPPADDSLRAPLPRQFMQRDDPSKLPALAAALAEQSPVGRSTL

PDGDPFWMVSGYDEARAVLSDFRFSDDRFYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPLTDDDELVGIA
TLLLFAGLDDTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTF

>CYP1051A1 (2518450849) *Salinispora arenicola* CNP105

MATDAAITRARTVPAWKALPAAVRDTHRALVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAVDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDDILLPVLQRQAQRQPDDGDDLLSRLVRARADDGQALSE
KRMRDDLVSMVAVTTETSTVVLTWLWPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMI
LKPVAVPPAR

>CYP105AB8 (2518451465) *Salinispora arenicola* CNP105

MTETASSRHTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTTDQHRADLVKT
LSLPVPSLVICELLGVYPADHDFQEHATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDLLGRQIARQHRDGTDFDRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDDPDKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP211C1 (2518451745) *Salinispora arenicola* CNP105

VVDVEELLTRLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVAAVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELLDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAELEAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPIPPQGQNVLLLIAAANRDPAHFPDPRDFPWRSGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP107FJ2 (2518451901) *Salinispora arenicola* CNP105

MSETLSTSVLLADAAEQRAWRAKLRGAGPVHRITTSGETGWLIVGHEEA
RNALVDLRLQGRATVGHGRMPEDLERALNSHMLNVGPPDHTRLRLRVS
AAFTRRRIEQMRPIQELTDELLDGLAGADEADLVAGLALPLPMRVLVDL
FGIPAEDCADFNVTWKVLTSAAGVLDRLTTAAGEMVAYLRGLLDRKRQV
PESDLLSALVAVRDGADRLSDDELTSMVYLLLTAGYETTVNLIGNGLLNL
LANPEQLVAFKADPDLQPQVVEAMRFDSPVQIAVRHSTEPVEIAGQAIP
SGALILVSLWANRDPDRFTEPEAFRVDRQDNPQLGFGYGFHHHCIGAPLA
RMEGTIAIGTVIRRFALRLAHPAGSLTWRASMVMHGLTALPVHLR

>CYP154M20 (2518451908) *Salinispora arenicola* CNP105

MERCPYVLDRAGRDLHGEAKALRARGPVTLVELHGGYTAWSVTSYEIAKQ
LLVDPRI SKNTKETWPEFREGKVPQDWELYTWVAMDNMQTRDGEEDRLR
KLVAQAFTTRQVAKVRPMIEDIVDRLLDDLEKVPAGEVVDIKGRYFYPLS
TILVCDLLGIPEADRAEALHGTVVNARTTNSAESEANLHQWSALSCLV
ETKRREPGNDITTLIIKAREDEQAPLTDDEVIGSLHLLIGGGTETTSNVL
CNTLIDLLTHPDQMAMIRSGAVGWEEAWEVEVRKDGAVGSMPPFRCANADI
EIGGVTTAKGDLVLINAAAAGRDPERYGDTTAEFDITRADKTNLSFGYGR
HRCGLPALATMEAMISLPALFERFPDLVLAVPREELKPQGTFFVFNHYAEV
PMLLRS

>CYP248A2 (2518451930) *Salinispora arenicola* CNP105

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWVVS RFADVR
AVLGDKRFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAIGRSRAVGRTLDRGATAEDMRRGHAAIAEFTDYVERALA
ERREDGADLLALMLAAHRSQLMRNEIVSTVVTFFITGHE TVASQLGNGL
LSLLDHPEQLELVRRQPHLVPPQAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCNPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP105W2 (2518451937) *Salinispora arenicola* CNP105

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVS RHADVRQVLS DPRMSADRRRP GF PKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEF SVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVSSQV ICEVLGVVPYGEHEFFERRSTLMFRR
STPADERARCAREIRD FLDVVVTDKEHRPGDDL S RLLYRQRRAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALS VLALLTHPARLARLRAE PERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGVTTAAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAH LAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP154M13 (2518451950) *Salinispora arenicola* CNP105

MSTGRPVVLDPTGRDIHGEADHLRALGPATLVELPGGVLAWSINSYEVGK
ALLSAPNVSKSARRHWP AFYNGEIPPDWEMISWVAMDNISTTFGGDHRR
RRLTAKAFGSRRAEQVRPMATHMVNTLLDRMADAADAGEVVDLKAAFAYP
LPGMLVAELIGMSEEARVAAAKVIDMMTATNITPEQAQGVLLGWRDAITD
LIALKRAQPGDDITS DLIARDEDGSLLTEQELVDTIFAILGAGSETTIN
FFDNAITQLLTHPEQLELVKSGQVSWDDVIEEVLRLSPLASLPMRFAVE
DIQLDGVTIHKGDPI LINYAALGRDPALHGESAGVFDVTRQHKEHLSFGH
GAHYCLGAGIARMVAKTGLSALFERFPRMTLAVSAKDLVPYPTFIMNGNR
QLPVHLSGALTWREGEQSALGRA

>CYP154M21 (2518451951) *Salinispora arenicola* CNP105

MEKCPYVLDRAGSDIHKEASNL RARGPVTLVELHGGYTAWSVTSYEVAKQ
LLMDPRI SKNTKAHWPEFRDGNVPQDWELYTWVAMDNMQTRDGKEHDRLR
KLVAFAFTGRQAVKSRPIIEEIVNRLDDLETA PRGQAVDIKARYFYPLS

TILVCDLLGIAEEDRDVILHGNVNSKTTNTAESEANLHQWQTALGRLV
ETKRRDPGDDLTTVIIKAGEDEQTPLTDDEVIGSLHLLIGGGTETTANVL
CHTVVMDLTHPDQLAMVRSGAVSWESAWEEEVKRDGAVGSMFRCATDDV
EIGGVTTIAKGDVLVLINYAAAGRDPERYGDAAAEFDITRADKANLSFGYGR
HRCGLPALATMEAMVALPALFDRFPNLALAVPPNELKPQGTFFNGYAEV
PLLLRS

>CYP166A4 (2518452066) *Salinispora arenicola* CNP105

MTDAISFELPWARTDKFDPPTVFDALREQRPLARMRYPDGHVGVWIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGFTVRRTSRLTGHVEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLYHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIERETS GHVAFGFGI HQCLGQN
LARVELRAGLSALLRAFPNRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP163B16 (2518452456) *Salinispora arenicola* CNP105

VTAADPGRVSGESQTPAHTVDLADPATFANRDLTGFWQQLRDEEPIHWN
PPTSGRRGFVVVSRYADILDVYRDDVTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHAELRKLLLRALGPRVLAPVCAAVRANTRQMVREAVTKGEC
FASDIASRIPMMTISNLLGVPDADRAFLSLTKTALSADDESISETESAM
ARNEILLYFQDLMEFRDHPGEDVVSMLVNSTIDGAPLSDDDIVLNCYSL
IIGGDETSRLTMIDSVNTLAAHPKQWRRLKDGQCEIDKAVDEVLRWASPS
MHFGRVAAKDTILRGVQIRADDIVTLWHASGNRDERVFHRPEVFDLGRTP
NRHLSFGHGPHYCIGSYLAKVEISELLIALRDLTSGFETTGEFPQIRSNL
LTGFSTMPVRFPDRAGLARDALDG

>CYP107AY2 (2518452677) *Salinispora arenicola* CNP105

MTAEPTPIPRSGARLGQEYDQLRKTGDVHQVLLPDTSLAWLVTNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRLVGPAPF
SPQRVAALRPGIRRAAEHLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRATDMLTSYPPDRDAIRQAVTELHGYYVVDLIDIKQQQPG
DDLSSALVTIEQDGDRLSRDELTSALFLILFAGYENTANLIASAVLWLLD
HGGLNVVPSSEAIEGTLRHEPPAPVAIRRFPTEDIIIGGV TIPAGDTVLL
SIAAATRGADGNAARLAFNGPHYCLGAALARVEAEALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP162P1 (2518453047) *Salinispora arenicola* CNP105

MGLPSEVDLAEPDLADPDLYAEGDPDAEWAWLRAHRPVYRNPAGATAAEFW
ALTRYRDALQVYRDPSTFSSERGMVLGVDPVAGDPAAGRMLVVTDPPRHP
KLRRIVSGIFVPRTMHRLEGRVRS LVDQLLHRVVDGAGRCDFANDVAARL
PVAIIICELLGVPADEQDWMYHLTSTAFGGGDPAGSAEVS AVERAEAYGDI
LLYYGELAAERRRRPGDDLVTLLVHADLDGEPLDVEDVLVNCTNLIIGGN
ETTRHAASGGLLALAQRPELWRRRLRETPTAVPTAVEEVL RWTTPGMHVLR
TATRDTEIGGVPIRAGERVVVWNAANRDEDFADPQRFIDRSPNRHIA
FGQGGHHCLGAALARLELTILFEEMAKQVTNVRLTGPVRRVRSCVLRGIR
ALPVELVT

>CYP105BL2 (2515754706) *Salinispora arenicola* CNX482

MSSHSAAPDPETATPLHTLAPELTFPQFERSTPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLSDPRFSSDMSHPGFNRTGKPVDDL

KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPSPRVACHLVGIPFSDYERFTGMAATLMDSTSSADQFA
ALQNMVSYFDTLVTDREHHDRDDLLGHMVRRYLASGELTRDMLIRLAWTT
MAAGQETTAHMIIGLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVTLPPPLANRDPVFERPDELDVRRN
ARQHLLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP211B2 (2515755548) *Salinispora arenicola* CNX482

MDVSEAI AVLISPSGRLDPYPTYEQLRAHGVPVSRTTAGLFVV TG YAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIXIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTAQADELVDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLVAGFETT
TNLLGNGLVLLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPAGSWLLVLLGAANRDP RRFPD PARFDPWRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLT LRGYETLP
ITVGAVTADRGT PAGVAPGTP

>CYP245A7 (2515755668) *Salinispora arenicola* CNX482

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRSLNRSFSFPRIVTELRPRIARIAQELL SRLGQQVDVDLVESFA
APLPILVISSELLGPIEERRAWLRANALALQEASSSRAGRVDVDGYARADVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDEL RGAEGLTDDAVEEFLRYDPPVQ
AVTRWAHQD TT LGGCDIPRGRSVVALLGSANRDPARFPSPDVLDVRRPAD
RHLSFGLGIHYCLGATLARAEEIGLQALLDGVP T L GYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP244A4 (2515755672) *Salinispora arenicola* CNX482

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQALTHPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGF LDELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEAIRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGE GADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP208A12 (2515755837) *Salinispora arenicola* CNX482

MTLDTITPRVPLGPPTAALRMLLV MKRDR LGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHV LADNSANYHKGIGLVHARRALGDGLLTSEGLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAE LTG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELET LNAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLL AGHETTASTLGWTL SLIDRH PGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRV PANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGGLPLVVRP
VS

>CYP154M5 (2515756365) *Salinispora arenicola* CNX482

VEQSCPYKLDVTGRDVAEAGEAIRARGPVAQVELPGGVQGWSVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPPNWPLIGWLLMDNMTTNDGADHQRLR
KLVSHGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNVNTSSISGEEAEANVEQWHRELLELV
EAKREKPEDDMASLLIAAKEEDGSTLTQEEVVGTLHLMLGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDPVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPNMTLAVRPAQLEPQGTIFMNGHREL
PVRLGQPATVLA

>CYP105CT1 (2515756382) *Salinispora arenicola* CNX482

MNSPNHMPADRSLTAPTSGCPMALSRGRVGLDVADEIGELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTDSHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGVVLHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLITDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRRFPGLRLAV
PDSELEFTQGTTVYSLRGLPVTW

>CYP105J3 (2515756773) *Salinispora arenicola* CNX482

MTDSVAFPQGRVCPHQAPAGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRNTNPAWPAIVPIVAAAVNDAQQKVLKIATALVGTDGPE
HKAQRKMLIPSFTRRMNALRPMIQEIVDQQLDDEMIKSGAPTDLI PAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPEGVLDLLAQHGANDDADHDGLVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPGLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP107Q4 (2515756986) *Salinispora arenicola* CNX482

MTTTAETS AETIDLFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRLTNPPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSYALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPRPHWRWAGDSMATMNGER
IPTTLVKCIELARELIAKRAEPQDDLVTALVQAQAEQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWFPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLII
DRLAVGSEHGLGFGKGIHRCLGQHLYQEAEEVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTTRTRLPLKLV

>CYP105G5 (2515756987) *Salinispora arenicola* CNX482

LTIETTETTPPADDSLAPLPRQFMQRDDPSKLPPALAALAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGELGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRRAAGLLQTDLP IKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQQLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTF

>CYP1051A1 (2515757011) *Salinispora arenicola* CNX482

MATDAAITRARTVPAWKALPAAVRDTHRAFDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEV LHERAAIYPRGDDTALWRSVRKLVGDGILAEGDWAAA
SRRVLAPMFRPARINAMVDTMADAIAGAIDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDDILLPVLRQAQRQPDDGDDLLSRLVRARADDGRALSE
KRMRDDLVSMVAVTETSTVVLTLWLWPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDILGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMI
LKPVAPVPAR

>CYP211C1 (2515757308) *Salinispora arenicola* CNX482

VVDVEELLTRLISAQGRQDPFPVYADLHAQGPIAALPPEPERHRVAAVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELLDRMTDAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPI PQGQNVLLLLIAAANRDP AHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP125A41 (2515757449) *Salinispora arenicola* CNX482

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERA EHIVRDAAVRGVGDV
TDVACELPLQAIAELIGVPQHRRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQ RSPSDDLVT KL VNAQIDG EHLTTDEF GFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEE IIRWATPVNVFQR
TALVDTVLGGQAISAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLDPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP107FS2 (2515757515) *Salinispora arenicola* CNX482

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVPPFADRSEFERHAEVLTGINASSGFDAIIAAGRWFDEYLAELVQ
QRRREPQDDLISGMLAAQDKGDR LTDVELRSNALLLSAGFETTVNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELRLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRRLAGLTLAVPTDSL VWKASFVLHRLERLPV
TFTPDRA NPIDSVHTV

>CYP105CN1 (2515757516) *Salinispora arenicola* CNX482

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVTGAAEARALLADSRVSNRADFPNYPVM DERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQLLLPRFTVRQVAARRPAIQRIVDEHLDAM

EANGSPADLVSAFATPVPTMVVCTHLGVPHYQDRTRFEPVAVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVGA VNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTHPDRLDVALP
PTNHIAFSHGIIHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPVTW

>CYP105CP2 (2515757518) *Salinispora arenicola* CNX482

MTKSMPVQDLPAFPIPRECYPYRPSAQHVSLRSGGPMKVRVLYNGRTAWLV
TDSAHARAVLSDYRRVSIKPYHGNYPLLNEEFEKVVD SGYADVLFGVDP
EHTRQRQMIMPSFTLRRTAVLRPDVQRIVDDKLDMMRHGAPGDLVTEFA
QPVPSMVM SFL LGVPWEDHEEFETPAHKLFVPELAEEATTEL GAYLERLI
QKKEQPGGTGGTGLLDDLRDHLRAGALSRDELVHIAMAMLVAGTDTT
NVISLGTALLDNPDQWAALRDDPDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLR TAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105W2 (2515757672) *Salinispora arenicola* CNX482

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVS RHADVRQVLS DPRMSADRRRP GPFKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEF SVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQV ICEVLGVPHYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDMVVTDKERRPGDDVLSRLLYRQRSAGGMDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAE PERFPAAVE
ELLRYFTVVEAATARTTTAEVTIGGV TIAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAHIAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2515757680) *Salinispora arenicola* CNX482

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWVSRFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQ LMSRNEIVSTVVT FIFTGHETVASQLGNGL
LSLLDHPEQMELVRRQPHLIPQAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDVPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRVVCS PNELAYQPR TMFRGLTRLPVAFTPA
G

>CYP166A4 (2515757834) *Salinispora arenicola* CNX482

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTG HVEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEE LRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLT VNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGI HQCLGQN
LARVELRAGLSALLRAFPNLR LAVPADEVPLRLQGSVFAVKNLPVCW

>CYP1005A1 (2515758103) *Salinispora arenicola* CNX482

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTQATY
RPDNAMEAVTPIPVAVLRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLDSSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVKKQFARAALFLWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSISVADVVEEGLRLEPPIVTWRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFPRPGQRGSRRLAFGAGAHRCGLGDLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVR

>CYP105AB8 (2515758684) *Salinispora arenicola* CNX482

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHCADLVKA
LSLPVPVSLVICELLGVADHDFFQEHTATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDLLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKNDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARRHLAF
GFGPHQCLGQNLARLELQIVFDTLFRHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP244A11 (2563509557) *Salinispora pacifica* CNY646

MQDPAHTNLAEAPEVTMPTEWRPTDCLPELLAAARVAPVVRTPYLDQHAW
VVCDELKQALTHPKLGKDVSLAPDWMRQPGQMTAMPPEYARMMVMS
DGEHHARIRRIHTPVLSQRNAERWSERVAALVDGFLDDLDSTAGVEVNL
TDYTHKIPLAFTAEMGLPPGAERRLHDITEVMLYSADYALRQQAVGELF
EAVQEWVRNPAGLREGVITGLLASSDGPDATVTEGEAIVWTLSLIINGYE
TTGSLISAALYEALRRPARERPHTDEAVAAWIEETLRVQPPVPHTTWRF
LADLDLGGYLIPKGAQVQISLAAANLDPDEDTDKFDAQRRGRGHLISFGLG
AHYCIGAPLARVQTKIALRGFLRRFPQARLSADTAPQWESEWMIRRMVSL
PVLLA

>CYP107AY5 (2563509572) *Salinispora pacifica* CNY646

MRAELASIPRSGVRLGQEYDEFRIAGDVHQVLLPDSSMAWLVTDPVLVSR
ALADPRLALNRKHSRGWGSFALPPALDANLLNLDAPDHTRLRLRVGPFAF
SPQVRATLRPRIIRRTAEHLDDTLVAAGGPVDLVTGYCTPLSVQVIADLMG
VPEAGRDLRTWTDMLTTPPDRAAIRRAVELHGYVNLITAKQQQPG
DDLSSALVTIEQDGRDLRDELTSALFLILFAGYENTANLIASVLRLLD
RGGIREVRVPEAIEETLRLEPPAPAAVRRFPTEELTIGSATVPAGDTVLL
SIAAATRGTDGNATRLAFGNPHFCLGAALARVEAEEALSVALARRLPGLA
LAVPVAQVRWRPTFRTHGPAELLVTW

>CYP211B20 (2563509908) *Salinispora pacifica* CNY646

MDATEAVTLLMSPLGRLDPYPTYERLRAHGPVVPTAAGYFVVTGYTEADT
VLRNPRFGVMDDEERDDVFPWHQDSPAMMSISRS MIRANPPDHSRMRRLA
AGVFTPRRVAALREVVAQAANELIDEMTRAGRGAADVDFMGSFAYPLPVT
VICALLGVPAADWAQFRRWAGALTGILEPEITHEELAVADAGASGLRDYF
TELIAERRRAPADDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVLLNQESATALRDQPELAPRYVDELLRYDSPVQLTTRTVR
ESVPLAGVELPAGSWLLVLLGAANRDPERFTDPAFDPGRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRDLTLRGYETLP
VTVGAAPADHGT PAGAALGTP

>CYP107AX5 (2563509949) *Salinispora pacifica* CNY646

MTARPAVVFDQRLLRDPYRRYNALRDQAPVHHVTRTPDGAPAWLVTRYDDV
RAAFTDPRLSVDKRFSTRDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVERTVSTLLDGLAGDGHAEIIGSLAAPLPLRVMHEL
LGLPTQASVDFRMWTNTLLSADANQPAQSRSAMANMRRFLIEQVAHKRAR
PGNDLLTGLLAAREDDRLTDDELVAMLFLLMFAGYDNTAALIGNVVHAL
LTNAELPAAVRTGSLALDELVDGVLRWNPFSFPLAVRRFARESITIAGQKI
PAGDRIWLCLASANRDPEQFTKPDELGIVDMRRPHLSFGHGIHYCLGAPL
ARLQTI VAVTSLDRFPGIRLAVPAHTIRWRESFRLRGLVALPVFL

>CYP107AW5 (2563509969) *Salinispora pacifica* CNY646

MEPVTGTPSPPPVPYVADPYPALARIRANGPVSI LHSDEGMAMWVIARYR
NVRAALADPRFGQDARRAQTLADNRVSGVTLGGDIVHMLNSDPPDHTRLR
RLVQGAFTARRVAAMRPLVERITTSLLDGLAGRRTVDLVQDFAFPLPMLV
ICELLGFPAEERSAYRSWSTAILTHNDDPAAFATALREMTDYIAVQLRIR
QTHPGDDLLTELLAARDAGQLTDDEIVGMVFLLLIGGHETTNNLLGTATL
ALLRNPDQHRWLLANPHALPEAIDEFLRYESPVAMATLRFTTTSVTVDDV
VIPADELVLVSLGGANRDPDRFPDADRLILDRGDTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPGLTLAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP245A14 (2563510040) *Salinispora pacifica* CNY646

MPSVTLPFRFTLTGWTREDIINPYPVYQRYREVAAVHRVEANGDAPETFYV
FSYDEVAQVLSSKCFGRGRSLDAAAASVPVPTDQKALRAIVENWLVFMDP
PQHTELRSLNRSFSPRIVTGLQPRIARIAQELLGRLGQQVEADLVAGFA
APLPILVIAELLGIPAERHGWLRANAMALQEASSARARRDVG YARAEAA
AQEFTEYFREQVRLRRGSAGDDLMTILANAQLRGAPVALEAVVGTGVHLL
TAGHETTTNALAKAVLALRAHPAVLEELRNADGLTAASIAEFLRYDPPVQ
AVTRWTHQD T T L G D W D V P R G S R V V A L L G S A N R D P A R F P L P D A L D V R R P A D
RHLGFGGLGIHYCLGATLARAELEIGLQMLLEGLPALGYS AQRV DYADDMV
FHGPSRLILVNPGERFCS

>CYP244A6 (2563510044) *Salinispora pacifica* CNY646

MSATTNTELGEAPETTMPVDPLFDCMPDLIAAAARIAPVVRIPYLGRHAW
VVCDELVKQALTHPRMGKDITLVPEWMRQPGLMVTAQPPPEYAQAMIMS
DGDTHARIRRIHAPVLSRPNTERWGEQVADKVEGFLDELSQAASGSNAEV
DVVTNYTHKIPLAFISEMLGLPPEAEHRLRSITDIMLYSSDYAARREAIG
GLFGAVQEWRNPAGLRDGVITGLLAAVDGPAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEALRRPPHERPKTDADITAWIEETLRVHPPFPHPPTW
RFPLEDIELGGYRIPKGAPVQVSIAAANKPKGEGADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAKIAVRGFLRRFPRLRSADTAVQWESEWMIRRM
SLLPAVLS

>CYP125A15 (2563510215) *Salinispora pacifica* CNY646

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMASRDSESYSTRENTAIARFQPGTTKADLEMQRVIML
NVDPPHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGAGDFV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGVDPLTAAA
ELLAYAMEMADERQRNPSDDLVTCLVNAQIDGEHLTTDEF GFFVMLLAVA
GNETTRNAITHGMLAFLEHPEQWELFKAERPRSAVEEII RWATPVNVFQR
TALVD T T L G G Q A I S A G Q R V A L F Y G S A N F D E S V F E E P D R F D I T R S P N P H L G
FGGSGAHFCLGANLARLEIELIFNSIADHIPDIRKAAEPQRLRSGWINGI

REMPVRYR

>CYP208A25 (2563510299) *Salinispora pacifica* CNY646

MTVIADRGGRVPPGPPATAGLRLLLLALGRDRLGMMTSAATEYGDVARLPV
GPKRLYFFNHPDHAKHVLADNNANYQKGIGLVHARRALGDGLLTSDGELW
RKQRRVIQPAFQNRRLTQYAGVVGQEATRLAERLATRVDPGPPVDVLDEMT
RLTLGLVLRGRTLLDAELTGFRGVGESFAAVQDQAMFELETLSAVPTWIPLR
RQRRFRARRRHLQEVVDVLA AERGQEV EGRDDVLSRLILSTRAEADPQVG
RQRLRDELVTLLLAGHETTASTLGWSLHLLDQHPRLRDRVRHEATSVLGG
RVPGYEDLHRLRYTAMVVQEAIRLYPPVWILTRKARGEDEVGGYRVPAGA
DLLICPYTLHRHPRFWEDPERFDPERFDPAGLTNRPTYAYIPFGAGPRFC
VGNNLGMLEATLVLAVLLRDLRLEGLPGRAVIPEPMLSLRVRGGLPMTVR
RAD

>CYP154M17 (2563510325) *Salinispora pacifica* CNY646

MHETCPVLDTAGRDIHGEADRLRERGA AVKVKLPGGVLAWTVTGHSAIKK
VLLDPNVTKNARTHWP AFINGEIPMDWELISWVAMDNMVTAYGAHLLQLR
KLSAKAFTPRRVEMMRPRVVALVNQLLDDLAAAGDEVVDLRERFCYPLPA
RTVADLIGMSEEHRQQTAKAMDMVDTTVTTPAQAEETLAGWRGAMAELIA
EKRRSPGEDIASDLIAARDDENGAKLTDTELTDTIFAILGAGSETTINFI
DNAVTALLSHPDQLAMVRSGQISWAEVIEETLRVECPLGNLPLRYAVTDI
EIEGVTIPKGDPILVNYAAAGRDPALHGETAGQFDVTRPDKEHLSFGRGP
HYCLGAGIARMVATVGLSTL FERFPDLALAVPKGELQPLPTFIMNGHRAL
PVR LAAHREAAVAG

>CYP211C10 (2563511023) *Salinispora pacifica* CNY646

VLDVEGLLARLYSVQGRQDPYPVYADLHAQGAIAALAPRPERQ RVA AVAV
GYDLVASVLRDPEWFKQPPLDWTEQEILRTLQSSMMFINPPDHGRMRHVF
ARAFTPRRLGALEPVINRVTD ELLDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPEPELAWYRERVDRIDAFLDVAGKTPERLAAANVAGAE LRA FYG
ELLGHRRRTPGEDLISGLVQAVDAGGVELTEDELISNLIVLFNASFVTTV
YLLSNGLPVLLAHPEVAAAASANDPGLAAGAVDEILRLQTPVHLLSRAAPR
DTVLGGVSI PQGQSVLLLLIAAANRDP AHFPDPDRFDPRRSGPSSIAFGLG
LHYCLGAAVSRLEGR LALPRLLSRFPRLRILEQP VYSGSLFLRGIDKLSV
SPGGREHP

>CYP113B6 (2563511306) *Salinispora pacifica* CNY646

MTQTDNAPAPPIDLPKGADAQGLLDWFAYMRKHWPVSWDESRQAWHVFN
RDYLTVTTNPLIFSSDFSPVFPVPELALLMGPGTIGGIDPPRHGPMRKL
VSQAFTPRRIAQMEARIETITADILEQVRNQDRIDIAADLAYPLPVSVIA
DMLGIPNEDHEKFREWVDIILSNEGLEYPNLPDDFTETVGP AIAEWSEFL
YAQIAEKRARPQDDLMSGLLGVEVEGRKLTDEEVVNIVALLLTAGHISSA
TLLSNLFLVLEQHPEALAAVRADRS LVPGVVEETLRYRSPFNCVFRLLAQ
DTEIFGQPMRKGQMVIAWIASANRDTEMFSDPDFTDIRRESNKHLAFGYG
IHHCLGAFLARQEAKVFLNKVLDEFSEYTIHHDGVEFYDPDQLTARRLPV
DVIRH

>CYP107LA4 (2563511307) *Salinispora pacifica* CNY646

MECPVTAEFSRSYPFSNRDTLTVDPTYAELRSKEPVARVRMPYGGGDAWL
VTRHADARKALSDPRLSIAAGAGRDVPRASPRIQEAEGLMGMPPEAHARL
RRLVATAFTPKRIRDIAPRVAGIVDGLVDDLIHADPPADLVRQVARVPV
KTICALMGVPTEDQHIFRVFSEVLMSSTRYTDDQVEQAVQDFTGYLGGLL

AQRRANRTEDLIGAMLEARDNDDRLSEDELIMLTGGLLVGGHETTASQIA
SHIFVLLRERTRYEKLCAQPELIPTAVEELLRVSPMWATVGPTRVATEDL
ELNGASIRAGDAVIFSLTSANLDEDAFPDATEVVLDREPNPHIAFGHGPH
FCVGASLARLEIQATIEALVRRLPGLRLAVKEDELEWHQGMIIIRSLVSLP
VKW

>CYP1207A12 (2563511774) *Salinispora pacifica* CNY646

MITVPPTDRYLLDEDLVADPYPYLAELRVAEPVRWSPVHRAWLVTGYEAA
ASCYAEPAISADRIGPMLAQTPLELLSPEAARAFTIMAGWMVFVDPPEHR
RLRSVFRGAFGARQVRRNRPMVQEAVTRLTARTGTVGDTVDLVAEFARPL
PATVAASWMGVPEEDTAMFQRWAIQVGDLAGTVQSPEEHERSQQALLDL
FDYLRMLVRTRRATPGEDLISAALANGLVGDSVSEDEFVAMLTHVAFAGG
ETTSNLIAGVTWNLLRRPDQLALLRAEPELAPVAIEELLRFDGPSKMSIR
HVKNDVELAGQRLRAGQRLYVVVTAGANRDPDYFDHPNELDVRRHPNPHLG
FGQGGHFCLGAPLARLVAGAALTDLLAAAPGLALATAEVRWQPSLLNRSL
QELPVRF

>CYP162A9 (2563511873) *Salinispora pacifica* CNY646

MISPDLSDPITYQDGDPLPIWAELRREHPVFENRRADGSRFWAVMTHHLC
TEVLTNPKVFSSANGMRLDSNPQVLARAAGKMLNVTDPQHDKIRKVSS
AFTPRTIRRLEANMRATAGRAIDTAIADGGCELTRLAHTLPVSVICDLLG
VPEQDWEFMAERTRFAWGSTAADDREEVEKVAHAITEIMAYFLDLAADRRK
HPTEDLVSAHVHGEVDGRALTDDEVLYNCDALLSGGNETTRHATVGGFLA
FMMNPGEWSAIRQNRDLISSAIQEIYRYTSPVMHSLRTATRDIDFGGMEI
RSGEYVVAWLPSANRDEQVFEDSDRFNIRRSNRLHGLFIQGNHYCIGAGL
ATMELRVMFDELLDRVSEVRLAGPVRRLRSNLLWGFDSVPVTFRLAATGG

>CYP163B19 (2563511989) *Salinispora pacifica* CNY646

VSATDPGRVGQDGGQNLARTVDLADPATFAEHDLTNFWQRLRDEEPIYWN
PPTDGRRGFWVLSRHADILEVYRDDVTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGARHAELRKLLLRALGPRVLGPVCSAVRMNTRQMVGEAAASGECD
FATDIASRIPMITISNLLGVPETDRAFLKLTKTALSADDESISETESEM
ARSEILLYFQDLVEFRKKPGEDVVSMLVSSSIDGVPLSDDDVVLNCSYL
IIGGDETSRLTMIDSIYTLAANPEQWMRLKDGQCDDIDKAVDEVLRWASPS
MHFGRTAVRETVIHGERIRVDDIVTLWHSSGNRDERAFSQPEVFDLGRAP
NRHISFGHGPHYCIGSYLAKVEISELLMALRDLTLGFEVTGEPQIRSNL
LTGFSTMPVRFVSA

>CYP1005A8 (2563512671) *Salinispora pacifica* CNY646

VSAVLFRSWTKTAGTHWPAVTRVADQQGTDHLVVTAHALVRQVLTQVQTY
RPDNAMEAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTAALVAERVAAIRATLDSGGSADLHADLSADLPLLVLAR
LVELPDAPISAVKQFARAALFWAPLDADRQLALADEVGRFHQVLRFA
DTGGGLAAALRAAGHPPDVLVGVLFFLLVAGQETTSQFTLLHRLAGEP
TVRAALRDGSVSVPHVVEEGLRLEPPIVWRRVAAVDSTLGGTAVPAGTS
VLLWLARAGRDPAIVPAPDEFPRPGQRGSRRLAFGAGAHRLCLGDQLARME
AAVVVEQVTPLLDGITVVRAPWYPDNLTFRMPDAFVIRR

>CYP105AB30 (2563512849) *Salinispora pacifica* CNY646

MTETASITTPGTSSTTTTTRAASGELTDAEFFVERGCPFSTPAEYEQIREH
SPIAKVRLTNGGEAWWIAGHELGRAVLADRRFSSDRRRDNFFVSTDPET

RKQLQDQPTSM LGMDGTEHAQARRALMGEFTVRRMAGLRPRIQQIVNQHI
DEMLSSDQRTADLVEALSLPVPSLVICELLGVVPYADHDFQAHSGPLVRH
TTPPEVRVRIQRELNTYL GALIDRKVTDPTDDLLSRQIAKQRAAGTFDRT
SLVSM AFLLLIAGHETTANMISLGVMGLLQHPDQLAMIKDDPEKTPPAVE
ELLRYFTIADTVTARVATEDVQLGDTTINAGDGVVVSGLAADHDPTVFVD
PDRIDLERGARHHVAFGFGPHQCIGQTLARLELQIVFDTLFRRIPTLRLA
APLDDIPFKSDAIVYGA EKLPVAV

>CYP105AH4 (2563512965) *Salinispora pacifica* CNY646

MTLLQAE EKVLNWPFA RTEWGTPPPILAQLRQAPPCAVIIPAGAASERRA
WLVTRYPDVRQALMDPRLSADELLPGAPVRIQVPQEERPSSFLRMDDPEH
GRLRGMIA SQFTARRVRQLVPAVQRRTDELLDAFVAGPCPADLHDAFSRK
LPTLV IASLLGVPEDESAFFVEKTRVTL SQDDLERSFAAYREMTDYLGQL
AARKAREPQDDLMSQLAVNNLAVGDITMDELVGIARLVLVAGHETTTNQI
ALNILSLLLDPLRAQVLADDGRLLPQYVEEAMRYWSISQDAIVRLVTE
LVLGEVQMRAGDAVVISIPAANHDPTVFPEPDRIDVTRSPRDHLQWNGP
HYCQGAPLARLEMI IALRTL FARLPGLRLATDDVPSLFRRGTVFHGVENL
PVTW

>CYP105EJ1 (2563513576) *Salinispora pacifica* CNY646

MTGGNSDLPSFPMARRCPHHPPEYAEMRVRGAAVRVNFLGTPVWAITRH
AEARDLLTDSRVSTDPASPGHPFGALAATAERMAGQLTMDPPEHSAHRR
MLISEFGVRRVREMRPAIERSVDDLLDGMAGAAADLVEAYGLPLASAIM
CQLLGVPERDHAFFHDRACAMLGGVFSSRDADVARMEMLAYLDDLVRGHK
PGQDGVIDRLLTIRHDTGEP THEAIVGMCFM LLLAGHHTTATMIPLGVHT
LLDHPDQLAQLRAEPALWPVAVDELLRFHSIVDWMSFDRVAIADIDVGDE
RIHAGEGIFVLGAAANRDERAFERPDDEFNIHRRSRHHLAFGVGIHQCLGQ
SLARTELEISYRRLFRFPTIRIQPPAAGLSFKYDAAMFGLQELPVTW

>CYP125A41 (2524763461) *Salinispora arenicola* CNS299

MTEPRIPAGFDFTDPEVL AHRVPREEFAELRR TAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGD FV
TDVACELPLQAI AELIGVPQHHRKVF DWSNQLIGYDDPAYGTDPLTASA
ELLYAMEMAERQRSPSDDLVT KLVNAQIDGEHLTTDEF GFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTVLGGQAI SAGQ RVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211C1 (2524763610) *Salinispora arenicola* CNS299

VVDVEELLTRLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELLDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVS NLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPI PQGQNVLLLI AAANRDP AHFPDPDRFDPWRS GPPSLAFGLG
LHYCLGAAVSRLEGR LALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP208A12 (2524764303) *Salinispora arenicola* CNS299

MTLDTITPRVPLGPPRTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVVLADNSANYHKGIGLVHARRALGDGLLTSEGLDWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAEITG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETINAVPMWIPLPR
QIRFRRARRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGGLPLVVRP
VS

>CYP1005A1 (2524764527) *Salinispora arenicola* CNS299

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTQATY
RPDNAMEAVTPVPVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAQAQRPWLTGLVADRVASIRTTLDSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVQKFARAALELFWAPLDADRQLALADEVGRFHQVLRFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSISVADVVEEGLRLEPPIVTWRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFPRPGQRGSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVR

>CYP105W2 (2524765081) *Salinispora arenicola* CNS299

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCFFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRRHADVRQVLSDPMSADRRRPGFPKFAPTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVYPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDMMVTDKERRPGDDVLSRLLYRQRSAGGMDHE
AVVSMFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPPERFPAAVE
ELLRYFTVVEAATARTTTAEVTIGGVTTAAGEGVVALGQAANRDPRVFEH
PDEFDPDRDARAHAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2524765089) *Salinispora arenicola* CNS299

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRAFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQMLSRNEIVSTVVTFTFTGHETVASQLGNGL
LSLLDHPEQMELMRQPHLVPPQAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCSPNELAYQPRMTMFRGLTRLPVAFTPA
G

>CYP107FS2 (2524765151) *Salinispora arenicola* CNS299

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPFADRSEFERHAEVLTGINASSGFDAIIAAGRWFDEYLAELVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETTNNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELRLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRLLAGLRLAVPTDSLWKASFVLHRLRLPV
TFTPDRAPNPIDSVHTV

>CYP105CN1 (2524765152) *Salinispora arenicola* CNS299

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVTGAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQLLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVVPYQDRTRFEPVAVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAVASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVPGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTTHPDRLDVALP
PTNHAFSHGIIHHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPITY
FAGDVPRLACLPTW

>CYP105CP2 (2524765154) *Salinispora arenicola* CNS299

MTKSMPVQDLPAFFIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHARAVLSDYRRVSIKPYHGNYPILLNEEFKVVDSGYADVLFGVDPP
EHTRQRQMIMPSFTLRRTAVLRPDIQRIVDDKLDMMRHGAPGDLVTEFA
QPVPSPMVSFLLGVPWDHEEFETPAHKLFVPELAEAEATTELGAYLERLI
QKKEQPGGTPGGTGLLDDLIRDHLRAGALSDELVHIAMAMLVAGTDTT
NVISLGTALLDNPDQWAALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRKAPIDQIPSNNDGTLQRL
YELPVVW

>CYP244A4 (2524765615) *Salinispora arenicola* CNS299

MSTTTNTELTEAPETNMPVDPLGDFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQALTHPKMGKDIALVPEWMRQPGMLVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGFLDELSQAGSGGSAEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEAIRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEGADSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPVLS

>CYP245A7 (2524765619) *Salinispora arenicola* CNS299

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVMFMDP
PRHTDLRSLNRSFSPRIVTELPRPRIARIAQELLSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANALERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPTVLDELGAEGLTDAVEEFLRYDPPVQ
AVTRWAHQDITLGGCDIPGRSRVALLGSANRDPARFSPDVLVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP166A4 (2524765701) *Salinispora arenicola* CNS299

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGWIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHEGVATEQIEVMREHGAPADLVATFARPLVL

RVLSSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHQCLGQN
LARVELRAGLSALLRAFPNRLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP211B2 (2524766122) *Salinispora arenicola* CNS299

MDVSEAI AVLISPSGRLDPYPTYEQ LRAHG PVSRTTAGL FVVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIXIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTAQADELVDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLVAGFETT
TNLLGNGLVLLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPADSWLLVLLGAANRDPRRFPDPARFDPWRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGT PAGVAPGTP

>CYP1051A1 (2524766534) *Salinispora arenicola* CNS299

MATDAAITRARTVPAWKALPAAVRDTHRAFVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEV LHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAWAA
SRRVLAPMFRPARINAMVDTMADA IAGAFDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSID DILLPVL RQAQRQPDDGDDL SRLVRARADDGRALSE
KMRDDLVSMVAVTTETSTVVL TWLWPLL ANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATT DVLGGVRINKGAT
VILSPYVTQRM TAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMI
LKPVAPVPAR

>CYP105G5 (2524766558) *Salinispora arenicola* CNS299

LTIETTETTPADDSLAPLPRQFMQRDDPSKLPALAAALAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRRAAGLLQTDLP IKQ
AVENLEAQRAFMRQLVTDKRRTPADDMISGLVHHAGAEPPLTDDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRP EQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQ LARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTL

>CYP107Q4 (2524766559) *Salinispora arenicola* CNS299

MTTTAETS AETIDLFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRFLTNPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVS YALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIAKRRAPQDDLV TALVQAQAEQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLII
DRLAVGSEHGLGFGKGIHRCLGQHLAYQEA E VALQGLFTRFPDLSLAVPR
EEIPWILRPGFTTRRTLPLKLV

>CYP105CT1 (2524766582) *Salinispora arenicola* CNS299

MNSPNHMPADRSLTAPTSGCPMALSRGRVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTDSDHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGV LHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLTLDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRRFPGLRLAV
PDSELEFTQGTTVYSLRGLPVTW

>CYP154M5 (2524766599) *Salinispora arenicola* CNS299

VEQSCPYKLDVTGRDVHAEGEAI RARGPVAQVELPGGVQGSVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPPNWPLIGWLLMDNMTNDGADHQRLR
KLVSHGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNVTSISGEEAEANVEQWHRELLELV
EAKREKPEDMASLLIAAKEEDGSTLTQEEVVGTLHMLGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDP AVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPNMTLAVRPDQLEPQGT FIMNGHREL
PVR LGQPATVLA

>CYP105AB8 (2524767302) *Salinispora arenicola* CNS299

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHRADLVKT
LSLPVPSLVICELLGV PYADHDFEQEHTATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDLLGRQIARQHRDGT FDRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP105BL2 (2524767401) *Salinispora arenicola* CNS299

MSSHSAAAPDPETATPLHTLAPELTFPQFERSTPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLSDPRFSSDM SHPGFPNRTGKPVDDL
KDTLGAMDGERHRYRRLTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVP SRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHRDDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDP AVFERPDEL DVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP247A7 (2524767451) *Salinispora arenicola* CNS299

VRLTPGAARDIDLDSVNLFDLDLYTSGDPHP IWDVMRAQSPLHHQVLADG
REFWSVTRYDDVCRVLGDYREFTSERGT VVTHLGEDDIAAGKLLTSTDPP
RHTQVRRRAIGAKLTARAVASWQDRIRDAIVRFLEPALDGDTFDLAEQALL
LPAIVTGPLLGI PERDWQELVQLTAMVTAPSDPHFQHGSEATLAISHHE
LVTYVTEWVKQRRSAGGGDGSLLDHLMSVRVGGAPLTDEEIALDGYSILL
GANVTTPTVSGTVLALIERPEQFEKAQADPSLLANLVEEGLRWASAACN
FMRYAVNDTRIGGGTV PAGGAVVAWIGSANRDESYFPDPHQFDITRSGAN
RQVAFGFGPHYCIGAPLARMTLGIFFEELVQRFSGIELAGEPQHLSYFI

AGMTHLP IVAQKRKTP

>CYP105CH1 (2524767636) *Salinispora arenicola* CNS299

VSSLPLPTYPKLRDPADPLLPPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHFNFPYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRLLISEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRDPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVLNTIARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALDTVLRRLPGLHLVTPFEELPFKYRHLVWGIEEL
RVAW

>CYP105J3 (2524768166) *Salinispora arenicola* CNS299

MTDSVAFPQGRVCPHQAPAGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRTNPAWPAIVPIVAAVNDAAQKVLKIATALVGTGPE
HKAQRKMLIPSFTEFRMNALRPMIQEIVDQQLDEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGLVDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP107EU1 (2524768228) *Salinispora arenicola* CNS299

VTIGQTLPLDVYSPEFTRDPYAI FARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTNNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPADDLLTALVQVSADEDRLSREELVSMALLLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRDLITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQMQLAVEADDLEWLVNSFFRAPL
HLPVSLRR

>CYP1198B1 (2524768447) *Salinispora arenicola* CNS299

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQRKLVSKSFTPRIVKSFGPQITHIVDGLFEDFRDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGELITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDPRAYESPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKNPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP211B14 (2563520052) *Salinispora pacifica* CNY673

MDASEAVALLMSPPGRLDPYPTYERLRAHGPPVPTAAGFFVVTGYTEADA
VLRNPRFGVMDDEERDGVFFHWQDSPAMMSISQSMIRANPPDHSRMRRLA
AGVFTPRRVAALREVVAQADELIDEMIRAGRGGAPVDFLGSFAYPLPVT

VICALLGVPAADWAQFRRWASDLTGVLEPEITPQELAIADAGATELRDYF
TELIAQRRRDPTDDLTALVQTHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLFVLLTHPESATALRDQPELAPGYVDELLRYDSPVQLTTRTVR
ESVPLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPGRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPIRRNRLTLRGYETLP
VTVGAVAVDHGTPAGAALGTP

>CYP244A5 (2563520364) *Salinispora pacifica* CNY673

MSATTNAELGEAPETDMPVDPGLFDCMPDLIAAARIAPVVRIPYLGRHAW
VVCDELVKQALTHPKMGKDITLVPEWMRQPGLMVTAQPPPEYARAMIMS
DGENHARIRRIHAPVLSRNTERWGEQVAAKVEGFDELDELAKAAAGSNAEV
DVVTNYTHKIPLAFISEMLGLPPAAEHRLRSITDIMLYSSDYAARREAIG
GLFGAVEEWVRNPDGLRDGVITGLLAGSDGPAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEALRRPPHERPRTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRQPGEGADSFDTERRGHGHLSE
GLGMHYCIGAPLVRLEAKIAVRGFLRRFPQARLSADTAVQWESEWMIRRM
SFLPAVLS

>CYP244A5 (2563520368) *Salinispora pacifica* CNY673

MTSTTLPRFTLTGWNREDIVNPYPVYRRYREVAAVHRGEAGGDAPETFYV
FSYDQVAQVLSSSCFGRGRSLDATAASVPVPADQKALRAVVENWLVFMDP
PRHTELRSLLNRSFSPRIVTGLRPRIARIAQELLSRLGRQVETDLVEGFA
APLPILVIAELLGIPAERHGWLRNLTALALQEASSSRARRDTAGYARAEAA
AQEFTEYFREQVRLRRGSAGDDLLTILANAQLRGAPVSLDAVVGTVHLL
TAGHETTTNSLAKAVLALQAHPAVLEELRGADGLTADSIEELLRYDPPVQ
AVTRWTHQDRTLGGWEVPRGSRVVALLG SANRDPARFPLPDALDVHRPAD
RQLGFGGLGIHYCLGATLARAELEIGLQTLKGLPTLGYPAYVDYADDMV
FHGPSRLILVNPGERFCQ

>CYP107AW6 (2563521076) *Salinispora pacifica* CNY673

VETVTGTSAPLPVPYIADPYPTLARIRANGPVSIHSDGVPMMVVIARYR
EVRAALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLAGRKTVDLVQDLAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAVFATALREMTDYIAVQLRIR
RSRPGDDLLTELLAARDAGQLTDDEIVGMVFLLLIGGHETTVNLLGTATL
ALLRNPDQHRWLLANRHALPEAIDEFLRYESPVAMATLRFTTTPVTVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPKLALATEVRQLQWRDTIMLRGLESPLVSLHG

>CYP107AX9 (2563521091) *Salinispora pacifica* CNY673

VTAQPAPVFDQRLLRDPHRRYNALRDQAPVHRVRTPDGAPAWLVTRYDDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVEKTVSTLLDGLAGNDHAELIDSLASPLPLQVMHEL
LGLPTQTSVDFRTWTNTLLSADANQPAQSR SAMANMRRFLIEQVAHKRAQ
PGDDLLTGLLCVREDDDGLTDDELVAMLFLLMFAGYDNTAALIGNVIHAL
LTNVELAEAVRTGSLAVDELVDGVLRWNP SFPLAVRRFAREPITIAGQTI
PAGDRIWLCLASANRDP AHFTEPDEIGIADMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVASLDFRFP GIRLAVPVQDIQWRESFRLRGLVALPVSL

>CYP208A21 (2563521102) *Salinispora pacifica* CNY673

MTTTSIERRRPPGPPRAAALSMLLTMSRDRLGMMTAAARAYGDAAWLPVG
HKALYFFNHPDYAKHVLTDNSDNYTKGIGLVHARRALGDGLLTSEGELWR

EQRRVIRPSFRSGRAPDQASVIAEEVASLVERLRARAGGPPVNVVTEFTG
LTLGVLGRITLLDVDLTALATVGDFAAQQDQAMFELVTL SAVPTWIPLTR
QRRFRRARAELEIRIVDDLVARRGDVSGRDDVLSRLILSTGAEPDARVRRQ
RLRDELVTLLLAGHETTASTLGWTLYLIDRHPPVRELRRAEAAEVLGDRL
PAYRDLPLDRFTTMVVQEAMRLYPPVWLLPRRSRRADRVGPYVWPAGSDV
VVSPYTMHRHPGFWEPEPDRFDPLRFDPRNAADRPRYAYLPFGAGPRVCVG
SNLGMTEAVIAVAMLCRELRLVRVPTHAAVPEPMLSLRIRGGLPMSVHLA
D

>CYP125A66 (2563521519) *Salinispora pacifica* CNY673

MTEPRIPVGFDFDTPAVLERRVPREEFAELRRTAPVWWNAQPKGSAGFDD
DGYWVVTRYADVMASRDSETYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPPEHTKLRAIVSRGFTPRAINALRGSLGERAERIVRDAAGRAGAGDFV
TDVACELPLQAI AELIGVPQHRRKVFDWSNQLIGYDDPAYGVDPLAASA
ELLAYAMEMAHERQRNPSDDLVTKL VNAQIDGEHLTADEF GFFVMLLAVA
GNETTRNAITHGMLAFLENPEQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLAGQAI SAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REL PVQYH

>CYP105BL6 (2563521582) *Salinispora pacifica* CNY673

MSSHFAAAPGPETATPLHTLAPELTFPQFERATPFDPPEAYTELSGRCPV
APVRMADGKPSWLITSFEGVRAALSDPRLSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRMLTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVALVPPSRVACHLVGIPLSDYELFTGMAAKLMEATSSADQIA
ALQDMVSYFDKLVTDREHHRDDLLGHMVRRYLSTGELTREMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHLMPGAVDELMRYLPMI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLSFGYGP HQCPAHALARLELEVVSRLLERFPTLRLADGDADLKVQ
DEDIMYNVSELAVAW

>CYP107AY7 (2563521738) *Salinispora pacifica* CNY673

MRAEPAPI PRSGARLGQEYDQLRKTDGVHQVLLPDTSLAWLVTSTELVSR
ALADPRLALNRKHSRGWSGFALPPALDANLLNLDAPDHTRLRLRVGPAF
SPQRVAALRPRIERTAEELVDTLVATGSPVDLVTGYCTPLSVQVIADLLG
VPEARRTDLRAWTDMLTSYPPDRDAIRQAVVELHGYVVNLIEAKRQRP
DDL SALVATEQEGDRLTRDELTS LAFLILFAGYENTANLIAS TVLRLLG
HGS LRGARASEAIEETLRLEPPAPAAIRRFPIEEMTIGGATIPAGDTVLL
SIAAATRGTDCNSARLAFGNPHFCLGAALARVEAEEAITVLARRLPSLA
LAAPGAPVRWRPTFRTTHGPAELLVTW

>CYP211C6 (2563521776) *Salinispora pacifica* CNY673

VPDIEGLLARLYSAQGRQDPYPVYADLHAQAAIATLEPRPERQRVA AVAV
GYDLVA AVL RDPEWFKQPPPGWRDQEILRILQSSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVINRVTD ELLDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPATELAWYRERVDRVDAFLDVAGKTPERLAAANAAGAE LRSFYR
ELLAHRRRTPGDDLISGLVEAVDAGGVELTEDELISNLVVLFNASFVTTV
YLLSNGLPVLLAHPEVAAALASSPELAAGAVDEILRLQTPVHLLARAAPR
DTV LGGVSIPQGNVLLLI AAAANRDP AHFPDPDRFDPRRSGPPSLAFGLG
LHYCLGA AVSRLEGR LALPRLLSRFPRLRILEQPVYSGSLFLRGIDKLSV
SPGGREHP

>CYP154M16 (2563522687) *Salinispora pacifica* CNY673

MPDRCPVLDPSPGRDIHAEADRLRAQAPAVKVELPGGVHAWSITSYDVVRR
LLLDRNVTKNARNHWPKFINDIIPPDWEMISWVAMDNMVTAYGKHLVRLR
RLIAKAFTVQRVETVRPQVEKLVDELDDGLAAETGEVVDLREKFCYPLPA
LLIADLIGMTEQQRAQTAKAMDLMVDTTVSPEQAQAILTGWRTAMDELIA
AKRREPFGKDIASDLIAARDDENGGLTDSELTDTIFAILGAGSETTINFL
DNAVTALVTHPGQLELVRSGRAGWDDVIDEVLRVQCPLASLPLRYAVTDI
ELDGVTIPQGDPIILINAAAAGRDPALHGDGTAGEFDVTRENKEHVSFGHGP
HYCLGAGIARLVATIGLSRLEFRFPDLRLAVPAEELQPLPTFIMNGHRAL
PIRLVPAPAAATAV

>CYP1005A8 (2563522723) *Salinispora pacifica* CNY673

VSAVLFRSWTKTAGPHWPAVTRVADQQGTEHLVVTEHELVRQVLTQVITY
RPDNALDAVTPIPVPALRVLAGHGFRLLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTKLVAERVAAIGATLDSGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAALFWAPLDADRQLALADEVGRFHQVLRFA
DTGGGLAAALRTTGHPDVLVGALFFLLVAGQETTSQFLTLHRLAGEP
TVRAALRDGGVSVANVVEEGLRLEPPIVWRRVAAVDSTLGGTAVPAGTS
VLLWLARAGRDPAIVPAPNEFRPGQRGSRRLAFGAGAHRCCLGDQLARME
AAVVVEQAAPLLDGISVVRAPWYPDNLTFRMPDAFVIRR

>CYP105AB34 (2563523864) *Salinispora pacifica* CNY673

MTETASITTPGTSSSTATSGPGSGEVTDTTEFPVERGCPFSTPAEYEQIREH
SPLTKVRLTTGREAWWIAGHELARAVLADRRFSSDRRRDNFPFVSTDPE
RKQLQDQPTSMGLMDGAHAQTRRALMGEFTVRRMAGLRPRIQQIVDQHI
DEMLSSEQRSADLVEALSPLVPVSLVICELLGVPYADHDFQARSGPLVRH
HTPSKVRVRIQEELNTYLGGGLIDRKVADPTDDLLSRQIAKQHAAGTFDRT
SLVSMALLLIAGHETTANMISLGVVGLLQHPDQLAMIKNDPEKTPPAVE
ELLRYFTITDVTARVATEDVQLGDTTITAGDGVVISGLAADHDPTVFTD
PNQIDLERGARHHVAFGFQPHQCIGQTLARLELQIVFDTLFRRIPTLRRLA
APLDDIPFKSDAIIYGAEELPVAW

>CYP1037B2 (2563524149) *Salinispora pacifica* CNY673

MSDHLPEINLVDPKLYSHGDPHAQWRWLRDHEPVYRHPATDLPAFWSLTR
YDHVKSAYRDADTYSSARGILLRPADHGDDPGGGRTLALTDPPRHRQLRE
LVDGWFAVRAVRTMETDIGGIVKRVVDRALEQGSCDFVTEIAARMPLYVI
CRMMGIPESDWEHLYSLTSQAFTAGDPVERRFAHLAILDYFDALQEEKAR
RPGDDLVSILATARIDGSPLGAETVILNCDNLLVGGTENTRITASGGMLA
FLQHPEQWAVVAGDPAALPSAIEEVLRTSTATHIMRTTTRPVEIAGRHI
PAGERVIFWLPSANRDESVFEGSESFLVRRQPNRHLLTGHGAHFCLGGVL
ARAE LRLLYRELLGRSLRVELDGEPEMLDSIVVNGPRTLVPVRLTAGR

>CYP211C1 (2562069341) *Salinispora arenicola* CNY281

VVDVEGLLTRLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHV
AGTFTPRRLGALEPVVNRVADELDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVVIDAFLDVAGKTPQRLDAANAAGAE LRAFYG
ELLAHRRRTPGEDLISGLVEAVDAGGVELTEDELISNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAATLADDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPI PQGQNVLLVIAAANRDP AHFPDPDRFDPRRS GPPSLAFGLG
LHYCLGA AVSRLEGRALPRLLSRFPRLRITEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP125A41 (2562069484) *Salinispora arenicola* CNY281

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVM TVSRSDTYSTRENTAIARLRPD TTREDIEMQRVIML
NVDPP EHTKLRAIVSRGFTPRAINALRGSLAERA EHIVRDAAVRGV GDFV
TDVACELPLQAI AELIGVPQHRRKVF DWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAEERQRSPSDDLVT KL VNAQIDGEHLTTDEF GFFVMLLAVA
GNETTRNAITHGMVAF LDNPEQWELFKAERPTSAVEE IIRWATPVNVFQR
TALVDTVLGGQTISAGQRVALFYGSANFDEAVFEDPDRFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211B9 (2562069889) *Salinispora arenicola* CNY281

MDVSEAVAVLISP SGR LDPYPTYEQ LRAHG PVSQTTAGLFVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIKSIARSMLRTNPPDHSRLRRLA
AGAFTPRRVAAMREV VTAQADELVD EMIRAGGDGARVDFMDRFAYPLPVA
VICALLGVPAADR SRFQRWAGDVTGILEPEITPEELTVADAGANDLRDYF
TGLIEQRRRV PADDLTTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLV VLLTHPEAAAAALRDQPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTEL PAGSWLLLLLGAANRDPRRFPDPARFDPWRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVAADRGT PAGVAPGTP

>CYP1005A1 (2562069980) *Salinispora arenicola* CNY281

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLT DQATY
RPDNAL EAVTPVPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQR PWTGLVADRVA AIRTTLDSGGPVDLYADLTADLPLLVLAR
LVELPDAPVD AVKQFARA ALELFWAPLDADRQLALADEVGRFHQVLR EFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFL TLLLHRLTGEP
RIRAALRAGSISVADVVEEGLRLEPPIVTWRRVA AVDSTLGGTAVAAGTS
VLLWLARAGRDP AVVAAPDEF RFGQRGSRRLAFGAGAHRC LGDQLARME
AAVVVEQVTPLLDGVTVIRPPWYPDNL TFRMPDAFVVRR

>CYP1051A5 (2562070216) *Salinispora arenicola* CNY281

MATDAAVTRARTVPAWKALPAAVRDTHR ALVDIGNWSDGDVVRVSLGVSR
PYLV TNPAHVQEVLHERAAIYPRGDDTALWRSVRKL VGDGILAEGDAAWAA
SRRVLAPMFRPVRINAMVDTMADAIAGAVDDLHGAATAGVPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDNILLPVLRQAQRQPDDGDDL SRLVVRARADDGQGLSE
KRMRDDLVSMVAVTTETSTVVLTWLVPLLANHPDVANRLYDEIERVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAAAADVLGGVRIDKGAT
VILSPYATQRM TAWWGPTAEVFDPERFAAGRETADGRHRYAHY PFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFTLTDTSM PGVKVAASTRPARRVEMI
VKPVAPIPAR

>CYP166A4 (2562070526) *Salinispora arenicola* CNY281

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTG HVEAVAAEQIEVMREHGAPADLVATFAQPLVL

RVLSSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYLDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHQCLGQN
LARVELRAGLSALLRAFPNRLRLAVSADEVPLRLQGSVFAVKNLPVCW

>CYP1522A2 (2562070920) *Salinispora arenicola* CNY281

VKAAHRDLVLATYHDVQEALSNSALTRSIDADRFRGNILEGVLLMLNGV
QHRDRRRIENTLFRREVLTYYEQELFPVIEETLDSIVRDGGADLVETGA
LLAVVLSARTVGIDFGIDSLDQRRRLIQYAAAFTRAVIDVAVVPEDEL
SAASVALAGFTSTFVRASWDRRMALIAAVDAGERAESDLPRDLLTTLLRH
RGAQGLDDSQVIRETAFYLEAGADTSAQVLTNSMDLLFAHARRDPSVLSR
LTQDTFLVQRFVHEAVRLRPTVPRIRRRALTDTVLCGAVVPADTLVELDA
VAANRDVDIFGPSADEFDPWREVPATVPRYAHAFGGGVHSCIGRNLA VGL
SLRGDQPPPDNHLFGIVPLMVQALLRSGMRPDPGAEPVPDTFSTRWTRWA
AYPVVFEAVATA

>CYP245A7 (2562071168) *Salinispora arenicola* CNY281

MPSATLPRFALTGWSRENIINPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRVIVENWLVFMDP
PRHTALRSLLNRSFSPRIVTELPRPRIARIAQELLSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRVDVGYARAEVA
AQEFTAYFREQVRLRRGSAGGDLITILATAKERGAPVSLDAIVGTCVHLL
TAGHETTNSLAKAVLALREHPAVLDELRGADGVTTDAVEEFLRYDPPVQ
AVTRWAHQDCTLGGCDIPRGSRVVALLGSANRDPARFPSPDVLVRRPAD
RNLSFGLGIHYCLGATLARAEEIIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP244A4 (2562071172) *Salinispora arenicola* CNY281

VSATTNTEVTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQALTHPKMGKDITLVPWMMRQPGLMVTAQPDPEYARAMIMS
DGDNHARIRRIHAPVLSRPNTERWGERVADKVEGFLDELSQAGSEGSTE
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPAGLRDGVIHGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGLSLISTSLYEAIIRPPHERPETDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEAGDSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPRLRLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP1004B5 (2562071335) *Salinispora arenicola* CNY281

MTAPALAPRFDALDPNVVEDPYPEYARLRAAGPLCRLGPGSWGVTREFADV
TGLQHDPRLGSEFPAGYHQISVGDGPASAFFQRIIMLYRDPDPDHVRLRRLM
SRAFSPAVVRRLRSHIEDLVDGLLAPALAAGRMDLVPDELAYPLPVRVVC
LMGIPPESTDDVRHAMNLGRAFTAVVPEHARAEDVAVRWLREHLGALL
EQRRSRRGDDLRLSLDAAESGDTLSADEIVDNTVFSFFAGFETTVHMIT
TGTAALLAHPDQLARLRADRSVTTAVDEFWRWDAPIQGTARYVREPIEI
GGRTIIRTGRVLVLMIGSANHDEQRFARPDRLDVGRQDNPHVAFGGGAHL
LGAFARMGAVVFDRLARLAVLEPDGPTVREPNTPFRAVASVPVRIGDV

>CYP1004A5 (2562071339) *Salinispora arenicola* CNY281

MRADTARPHLSAAFLATKDDPYPAYAELRARGPLIRAEELGQWLVTGHGAV
SALLRDGRLESMPAEYTRLTLGDSPGVDLNRIVLTRTPPDHTWLRRFI

GRALGTPAVRRLHDRIA AATDALLEPALDRGRLDVVTE LAVPLPVGVVCD
LIGIPTGDRPEVLTRVVALAKVFDAANLTPADLTDINTALPWLHDYLGDL
LATRRASPGGP TLAGMYWEESASDRLAVADFVDNMLFLFHAGFETTMGLV
SNGFAALLDHPEQLRRLRADPALVPSAVEEF LRYDAPIQN VIRVAREPVE
VAGQKIRAGRTVLLLLGAANRDEEVFRDAARLDVGRDPNPHLGFGGGLHH
CVGTALARLMSVVVFERLVGRVAVLGPAAPAVRRRHASLSYDHLPLAVA
AR

>CYP125G5 (2562071378) *Salinispora arenicola* CNY281

MSMDVVSTGNRADIAPATYAAGVPYAEFARLRRDEPVSWVPEAALWRRS
GEGRMLSQGP GFWAVTTTHDGVVSASRQPEV FSSGRQGAFLADPRTTADLE
QARQLLVNMDAPQHSRVRKLVTA VFTPRAIRALGESVTAHARALVDRAVQ
QEECDVVADLAAELPLMVLADLLGLPREDRHLLYRWSNNLVGFDDPEYGG
GDVEAYRKTFFEAFQYALSVADERRRAPRDDMLTLLATSEVDGRRLTDRE
FCNFWLLL VVAGNETTRHLITG SVLALVDNPTQRERLVADD TLLPSAVDE
LLRWVSPIMQFRRTAIEDTELCGTPIAAGDKVVLWYASANRDAAVFEAPD
ELRLHRNP NPHLSFGMGPHFCLGAHLARLEARTMLRELAPHL SRFRLTGP
VVRLESNFVNGVKS LPGSFTGQ

>CYP107FS3 (2562071415) *Salinispora arenicola* CNY281

MPGTQGEQNL TTEVFADPKALFATLGSRQPLHRISLPDGMPAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
RLVSTAFTRRRVEQMRPRIQRITDDLIDVIAAKGEADLVEALALPLPIAV
ISDMLGVPPFADRSFERHAEVL TGINASSGFD AIIAAGRWFDEYLAGLVQ
QRRREPRDDLISGMLAAQDKGDR L TDVELRSNALLLLSAGFETT VNLVAN
GLLALLRHPEAMAALRSEPKLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIATAAANHDPTVFADPSRLDLRREGSGQILSF SHGTHF
CLGAPLARLEGEVAFGTVLRRLAGLRLAVPADSLIWKASFVLHRLERLPV
TFTPGP

>CYP105CN4 (2562071416) *Salinispora arenicola* CNY281

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTAQLRDAGPVGT VRLYDG
RTAWLVTGAAEARALLADSRVSNRADFPNYPVM DERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQLLLPRFTVRRVAARRPAIQ RIVDEHLDAM
AATGSPADLVSAFATPVPTMVVCTHLGVPYQDRTRFEP AVAGLFEPDRAD
AAMAELTAYLHQ LIETKQSEPGDGVIDHLIAHHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGLTALLEAPGQYTALVDNPD LVP GAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLD PNV TTHPDRLDVALP
PTNH LAFSHGIHHCIGQNLALLELDIAFRALVTRFPALRLAVPAEQ LPTY
VAGDVPR LACL PVTW

>CYP105CP2 (2562071418) *Salinispora arenicola* CNY281

MTKSMPVQDLPAFFIPRECPYRPSAQHVSLRSGGPM AKVRLYNGRTAWLV
TDSAQARAVLSDYRRVSIKPYHGNYPLLNEEF EKVVDSGYADVLFGVDPP
EHTRQRQMIMPSFTLRRTAVLRPD IQRIVDGKLD EMMRHGAPGDLVTEFA
QPVP SMVMSFLLGVPWEDHEEFETPAHKLFVPELAEEATTEL GAYLERLI
QRKEQPGGTPGGTGLLDDLIRDHLQAGALS RDELVHIAMAMLVAGTDTT
NVISLGLTALLDNPDQWDALRDNPD ELIPGAVEEILRYTSLIEAFARVAV
SNIEFN GAVIKEGEGILISAAGVNFDPALAPDPGRFDIRRP RPSPFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRTAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP208A20 (2562071537) *Salinispora arenicola* CNY281

MTLDTIAPRVPLGPPRTAALRMLLVMKRDRLGMLTAAAARYGDASRLPVG
HKALWLFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGDLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGTGPELTAEALTG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNTVPMWIPLPR
QIRFRARRRKLQAVVDQLVDGRAGNLVDRVDVLSRLILSARGEADPRVGH
ARLRDELVTLLLAGHETTASTLGWTLSLIDRHFGVWERLHAEAVEVLGDR
LPEHDDVRRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGRAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP107AY15 (2562072015) *Salinispora arenicola* CNY281

MTAEPTPIPRSGARLGQEYDQLRKTDGVHQVLLPDASLAWLVTNPEVVAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPFAF
SPQ RVAALRPAIRRAAEHLLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRATWDTMLTSYPPDRDAIRQAVTDLHGYYVDLIDGKQQQPG
DDL LSVLV TIEQDGDRLRDELTSLAFLILFAGYENTANLIAS TVLWLLD
HGGLTEVP ISEAIEETLRHEPPAPVAIRRFPTEDIVIGDATIPAGDTVLI
SVAAATRGADGNAAKLAFNGPHYCLGAALARVEAEALTVLVRRLPGLT
LAVPPAQVRWRPTFRTHGPAELLVGW

>CYP105AB8 (2562072230) *Salinispora arenicola* CNY281

MTETASSRLTDTTEFPVQRECPFAEPVEYEQIRERSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFFVSTDPATRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQCIVDQCIDEMLTDDRQCADLVKA
LSLPVPSLVICELLGVPYADHDFEQEHTATLVRRNTASEVRQHSIDELNA
YLGALIDRKLANPDDDLLGRQIARQHRDGTFRASMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLTMKNDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVQFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARRHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPLDTIPFKTDAAIYG
ARELPVAW

>CYP107AX2 (2562072591) *Salinispora arenicola* CNY281

MTSRPTAVFDHRLLRDPHSRYNALRDQAPVHHVLTDPGAPAWLVTRYDDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPELDAHLLNRDPPDHTRLRRLAA
AAFTPRRVADLHPAVERIVSTLLDGLAGHDRAELIGSLASPLPLQVMHEL
LGLPTQANIDFRTWTNTLLSADANQPAQSRAAMANMRRFLIEQLAHKKAQ
PGDDLTLGLLAAREDDRLTDELVAMVFLLMFAGYDNTAALIGTVTHAL
LTTAELHEAVRGGSLALDELIDEVLRWNPAFPLAVRRFARESITIAGQTI
PAGDRIWLCLASANRDPAQFTQPDELGIVGLRRPHLSFGHGIHYCLGAPL
ARLQTTIAVTSLLNRFPEMRLAVPAHDIRWRESFRLRGLIALPVFLA

>CYP2611B2 (2562072698) *Salinispora arenicola* CNY281

MTTAARRSDLLPTPPMVPGLPLIGSMLDWQRDHAGFFRNAYERFGPIYSV
RLGPQRGVVLVGPRYHEFFYKEVDNRLSVPELYRFVVPMFGEVALAATDT
DTRRRHVGLLQSAFQGRRLTHYTGQAADETHRWLDSLGDGGQFDLWDSLE
SLVMRIAATTLTGPEVRARIDDFRPLADLARGMDVFLPPNLPLPKFIRR
DRARRQLIEMIQPVLAERRRRTDGPGDFLQTLVGDAQVRAEGDATLVGLS
LMTLFTGYITTCQAQLAWALILLRHPDHRESVVAEVDAAARGIDGLVPPET
RLPRLEWALKEAIRLRPVM SHYARHNRTDMELDGYRLPAGWLTILCPAVA
HRLPEYFTDPDHYDPGRFAPDRAEDRRHPYAMIGFSGGFYRCPGSAFGMN

EMRVVVAALLARFHLEAPAAEPRPSFDMGVTRPASPCIIGYRTRR

>CYP2098A2 (2562072701) *Salinispora arenicola* CNY281

MTSAAEISYDPFDPPELVQDPHPFYHRIRQLAPVFPSTMSSDMWMVSDDAA
KVYVVTRYEDLAYVLEHPDLFPSPGNKTGPEDPPEVTEELARGIPKAKTLY
DSDQPGHSRLRALMQGAWSTQQVEQFIPRIRRWADRTIDGFAADGSAELEF
ADYADKVMDBAILDFLGIPEEDHEQVHAWDKLWVKVFIPGHPPEDQRAAA
REIVEYQRYLERLFTERRNDPRDDVASALVHATTEDGDRLTMAELVWGLM
EMYGAGYGNATAEGLGNMLFLLLSERQRWEELRHQRGALADAVEEGLRLEG
PVQWLSREAAGDTELGGVTIPKGSVMVLYAAANRDPEAFPEPDDFRTSR
RGTTHTGAKHVAHGRGIHYCVGAGWSRVALRVGVEALMDRLPDLRLADDF
TPEFHLPEPMVRCVKSLPAVWPVR

>CYP105BL7 (2562072764) *Salinispora arenicola* CNY281

MSSHSAAPDPETATPLHTLAPELTFPQFERSTPFDPQAYTELSDRCPV
APIRMPDGKPSWLVTSEFEGVRTALSDPRFSSDMSPGFPNLNGRPVDTV
KDTLRDMDGERHRYRRTLTGELS VKRTKAMQPVITQITDEALDQLAAAG
PGADLVKHVALVIPSRVACHLVGVPFSDHELFTGMVNTLMDSNSSADQIV
AARQGMVSYFDELVTDRHHDRDDLGRMVRRLATGELTRDMVITLAWI
TMAAGQETTARMIGLGVAALLRHPDQLELLRREPHELLPGAVDELMRYLSV
IQLGIPRVAIDDVEIDGQTVTAGEGVVALLPLANRDPVAFDRPDELDVRR
NARQHLTFSYGPHQCPGHALARLELEVVFGRLLERFPTLRLADSDADLKV
WDKAIVYGVSELAVTW

>CYP248A2 (2562072861) *Salinispora arenicola* CNY281

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRAFVDR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLGL
LGLPAGDADAVGRWSQAVGRTLDRGATAEDMRRGHTAIAEFADYVERALA
ERREDGADLLALMLAAHQRLMSRNEIISTVVTFIFTGHETVASQLGNGL
LSLLDHPEQWESVRRRPHLLPQAVEECLRFDPVQSNTRQLTADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVTSPNELAYQPRTMFRGLTRLPVAFTPA
A

>CYP105W2 (2562072869) *Salinispora arenicola* CNY281

MTGYQDPPTGNQPGTPVPSGSTDPGIDAFPLPRRCPPSPPAEYARLRAEH
PVVRLPMLGGDMAVVSRRHADVRQVLS DPRMSADRRRPGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAIFRRQIVDEFVSVRVRQLRALVERVVDTH
LDALAAAVPGADLVSTFAYPVPSQVICEVLGVYPYGEHEFFERRSTLMFRR
STPADDRARCAREIREFLDVVVTDKERRPGDDVLSRLLQRQRGAGGVDHE
AAVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPPERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGVTTAAGEGVVALGQAANRDPGVFEH
PDEFDPDRDARAHAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP107Q4 (2562072921) *Salinispora arenicola* CNY281

MTTTAETS AETIDLFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPFRFLTNPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSYALTAHRIGKLRPRVEKITADLLDKLAED

GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRAWGDSMATMNGER
IPTTLVTCIELARELIEKRRAPQDDLVLTALVQAQAEQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI
DRLAVGSESHLGFKGKIHRCGLGQHLAYQEAVALQGLFTRFPNLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105G8 (2562072922) *Salinispora arenicola* CNY281

LTIETTETPPADDSLRAPLPRKFMQRDDPSKLPALVELAEQAPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFHYHPRFNKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLAARIEQIVTEQLEAMLV
EGNSADLVSAFAVPVPSLMICELLGVRREDRTEFQHRAAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISALVHHADADPPLTDDELVGIA
TLLLFAGLDTTASMLGLGMFVLLQRPEHMAVLRNDPSRIGDAVEELLRYL
TVVSAGLFRFAKEDVVLGGEHIPAGSTVVVSLMAANRDGRHWSEPEMLDV
TRARSSHLAFGHGVHQCLGQQARIELTVGITELLRRLPNVRLAVPPGDV
PLRNDMITYGVHRLPIVWDAP

>CYP162L1 (2562073011) *Salinispora arenicola* CNY281

MSDAVDLLNPATFATCSFHDQLARLRGQPGLYRHPEPNGPGFWVVSRYRD
ALAVYADPTTFSSRSGIRLGASQAQAAVADQMMVSDPPRHGRIRHVG
VPFGPTTVARWHDRVADAVAALVDDAVAREHCDVADLTVRLPNEVICAM
MDLPREDWARIGALTTOGLDSDPDPVTRLDANAEIFLYFSEQLEHRRTRPG
DDLSSMLLHTGTDLSDREDLIVNCSGVLTGASETTRYAAAAGLLALAHKPK
LWRLLRDVPTGVNDAVEEVLWRTSPGLHGLRTVTHAVDVGTRLAPGDRV
TVWNCSANRDGTVFPDAGAFRPNRRPNRHIAFGRGPHVCLGARVARLELR
ELLTALVRRVETVTVTGEPTWASSNFHGLTALPIHLRPALLPIG

>CYP1037B3 (2562073148) *Salinispora arenicola* CNY281

MPIATDDRPAINLVDPALYAEGDPYRQWRWLRHAPVYRHPATELPGFWA
ITRYDDVREVYRDVQTFSSAHGILLRPEGHGADPGGGRTLALTDPPRHRA
LRGHVDAWFTKRSIRSLQPTMEKITATVIDLALEAGECDFVTDIAARVPL
YVICDMMGIPESDWEMLYTLTSQAFGAADADGQRIAHLEILSYFDDLQRA
KARRPADDLVSVLATAEVDGVRLPPDDVILNCDNLLVGGTENTRISASGG
MLELLRHQAQWARLGAEPDLMPAAVDEVLRWTSTATHIARTATRPIEIRG
TRIAAGDLVTLWLPSVNRDESVFDEPDHFDITRRPNRHLALGFGEHFCG
NVLARVELTLLYQELLTRGLRIEPTAEPTLLRSIVVNGPESMPVRLHG

>CYP162A6 (2562073472) *Salinispora arenicola* CNY281

VAARLPLSVICDMLGVPPEDWDFMLDRTMVALGSGEDELAMAEAHADIL
SYYEDLIRRRRREPREDVVLTALVNGVVDGTGLTDEEIFLNCDGLISGGNE
TTRHATIGGFLALLDNPEQWETLRDDPGLLPGAVQEILRYTSPAMHVLRT
AVAPTRIGEYALNPGDPVALWLSAGNRDPQVFADPDRFDITRSPNPHLTF
STGAHYCLGSALATSELTVLFDRLLRVDSAEELTGPPRRTRRSILIWGYDS
VPVRLTAGSER

>CYP211B11 (2515703518) *Salinispora pacifica* CNT003

MDASEAVALLTSPGRLDPYPTYERLRAHGPPVSTAAGFFVVTGYTEADT
VLRNPRFEVMDDEERDGVFPHWQDSPAMISISRSMIRANPPDHSMRRLA
AGVFTPRRVAALREVVAQAQADGLVDEMIRAGRGAADVDFMGSFAYPLPVT
VICALLGVPAADWARFRHWASDLTGVLPEEITPQELAIADAGASELRDYF
TELIAQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT

TNLLGNGLVLLTHPDSATALRGQPELAPGYVEEFLRYDSPVQLTSRTVR
ESVSLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRHRLTLRGYETLP
VTVGAVPADPGTPAGVALGTP

>CYP125A65 (2515703866) *Salinispora pacifica* CNT003

MTEPRI PVGFDFTDPAVLERRVPREEFAELRR TAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMAVS RDSETYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPP EHTKLR AIVSRGFTPRAINALRGSLAERAERIVRDAAVRG TGDFV
TDVACELPLQAIAELIGVPQHRRKVF DWSNQLIGYDDPAYGVDPMAAAA
ELLAYAMEMANERQRNPSDDLVTQLVNAQIDG EHLTTDEF GFFVMLLAVA
GNETTRNAITHGMLAFLEHPDQWELFKAERPRSAVEE IIRWATPVNVFQR
TALVDTTLGGQAITAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REMPVRYR

>CYP208A22 (2515703955) *Salinispora pacifica* CNT003

MTVIADRGGRIPPGPPV TAGLRLLLALGRDRLGMMTSAAA EYGDVARLPV
GPKKLYFFNHPDHAKHVLADNHANYQKGIGLVHARRALGDGLLTSEGE LW
RKQRRVIQPAFQNRRLAQYAGAVGQEATRLVARLATRVDGPPVDVLDEMT
RLTLGVLGRTLLDAELTGFGVGESFAAVQDQAMFELET LNTVPTWIPLR
RQRRFRRARQHLQEVVDVLA AERGQAVEGRDDVLSRLILSTRAEADPQLG
RERLRDELVTLLLAGHETTASTLGWSLHLLDQHPELRERVRHEARTVLGD
RVPAYEDLHQ LRYTAMVVEEAIRLYPPVWILTRKARAEDEIGGYRVPAGA
DILICPYTLHRHPRFWAE PERFDPERFDPSRTTDRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLA VLLRDLRLLEGLPGRAVVPEPMLS LRVRGGLPMTVR
RVD

>CYP124M3 (2515703976) *Salinispora pacifica* CNT003

MTVPIELDAVDLS DNDFWTKPLEYRHAVFNALRAQPGLPHFASPEFGSAP
RGRGYALTRMDDVLAASRNPSVFISGKGNVAMEVPAEFLDQSLITMDNP
RHARLRRIVSRGFTMKAVTALMDNASQMAKQIVDEVVERGECDAVVDISA
KLPLGIICNMGI PDSQQQFVF EQTNVMLGVQDPEYVGEQNDAMLAMSV A
SQELADLMHELATLR AKNPTDDLISKLLSAEVNGEALTPSEL AHFFILLT
GAGTETTRNAISWGIQLLTQSPEQREAWLS DIDGVTPTAVEEIVRWSSPV
ISQRRTVAEDAEPVKLAGQLLGP GDKVLMFYGAANRDPNYFVHPEGFDVR
RSPNPHVGYGGPGPHFCLGAHLARLEISVMFRELLTRIPDIHATGEPARL
KSPLINGIKRLPVAFTPGAR

>CYP107AX4 (2515704002) *Salinispora pacifica* CNT003

MTSQPAPVFDQ LLLRDPHRRYNALRDEAPVHHIRTPDGAPAWLVTRYDDV
RAAFTDPRLSVDKRLSSTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVERIVSTLLDGLVGHDQAELIGSLASPLPLQVMQEL
LGLPTQTSVD FRRWTNTLLSADANQPAQSR SAMANMRRFLVEQLAHKRAR
PGDDLTLGLLAAREDDRLTDDELVAMLFLLMFAGYDNTAALIGNVVHAL
LTNTELPAAVRTGSLALDELVDGVLRWNPSFPLAVRRFAREPITIAGQTI
PAGDRIWLCLASANRDPAQFTAPDTLGTTGMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVTILLDRFP GIRLAVPAHDIRWRESFRLRGLVALPVFL

>CYP107AW7 (2515704017) *Salinispora pacifica* CNT003

VETVTGTSTPPFPYIADPYPTLARIRANGPV SILHSDEGIPMWVIARYR
DVRAALADPQFGQDARRAQALADNRVAGVTLLGGDIVHMLNSDPPDHTRLR

RHVQGAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAAAFATALREMTDYIAVQLRIR
QTRPGDDILTELLAARDAGQLTDDEIIGMVFLLLIGGHETTNNLLGTATL
ALMRNPDQHRWLLANQHALPEAIDEFLRYESPVAMATLRFTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLAFGHGLHRCCLGA
FLGKLEGEVALGALLRRHPRALAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP107FH3 (2515705076) *Salinispora pacifica* CNT003

VPIELDEAFVQDPYAVYEKLRAEGPAHRVRMPGVPVLIIGGLPVWLITGYD
AVRAALADSRSLSTDHRLDGLFAQKDPDRSHRGGFSSALASHMMHTDPPD
HTRLRKLVSKAFTTRAIEALRPRIQQTDELTAELAGHDTVDLDDAFAP
LPIRVICLLLGVPVAEQENFRSWSRALVSGHSPEAAATAATEVAAYLGDL
VERKRHATTDDVLTALVAAHDVDDRLTHTELVSTAYLLFIAGFETTLNAL
GNGTLHMLHRDQWTALRADRALLDNAVEEFLRLESPLKHATFRCATESL
RIGDAEIAAGDFVLLAIASANRDPRRFPDPHTLDVRRPAAGHLAFGHGIH
HCLGAPLARVEVRMAFDALLDAFPDMRLATDPAGLRWRNSTIIRGLDSL
P
VHLNN

>CYP2054A3 (2515705081) *Salinispora pacifica* CNT003

MSISADSEQVQGRFPDPYGAHRDDPYTFLAGLGVFYAPLLDAWCVTRED
MVAVLRDDRSFSARDHNPRPAVALPDDVNQMFRWTRGAGAVAVGSLDPPA
HAKIRDVLNIGFTPARVRAFEPTMRAVAADLADRIGDAPEFDFIADFAP
FALEVIGRRLGVPDDYLDRCRTWSEQRIELMMAQGDADHDRLREFARGLM
EFGEFARSLVRDRVADPRDDLISELLHDGKAGRTLTADEVAVQIPTLIFA
GHMTCAEALGTIFYQQLRSPGGWARVVDRTIPVGDVVEEGLRFDSPLAGM
YRTATRDVTVGGIRLTAGSRLLLLYGAAGRDSRAHACPAAFRPGDGSSGH
LAFGHGIHFCLGAGFARAELRVAVEVLAARMPDLGLAPGRPPRFRPVFPL
RALTELVRVTRSGGSGP

>CYP161N4 (2515705086) *Salinispora pacifica* CNT003

VNTVAQLPFTQTHVLDVAPALRLLQSRGKVHRVRTPEGVPAWLVTGHAEV
QQLDDDDRLSRSDPGGRDGGTALLNKLLGPLADDHPRLRSLLPQFTPER
LEPLRAVVEKLTEQHLDELAARTPPVDLRPALAMSLPILVLCEWLGVPAE
DKGRFSVWTQDAAGVQDPERSQRGLAELFGYCRQLVAAKRQDPGDDVISR
LIATAGIGDTEVVALTALLLFGGYETTVARIGTGVLNLLTNPDQWAAVRA
DPALVPATVDELLRRSMPNPNHNGMPRFAVTGFEIDGAAIRAGDLVLLNI
IAANHDETAFFDPDRDLITRPTAGSLAFGYGRHSCVGAPLARMVLRVALS
RLITRFPDLRLAVGVDELKLRHETLVGGLVELPVWTWGPR

>CYP1005A6 (2515705456) *Salinispora pacifica* CNT003

VSAVLFRSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLTQVQTY
RPDNALDSVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTELVAERVAAIRATLDSGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAALFWAPLDADRQLALADEVGRFHQVLRFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLHRLAGEP
TVRAALRDGSVSVPNVVEEGLRLEPPIVWRRVAAVDSTLGGTAVPAGTS
VLLWLARAGRDPAIVSAPDEFPRPGQRGSRRLAFGAGAHRCCLGDQLARME
AAVVVEQVSPLLDGVTVVWRAPWYPDNLTFRMPDAFVIRRGPAAGAAER

>CYP107AY9 (2515706497) *Salinispora pacifica* CNT003

MSQDQPTRAELAPIPRSGARIGPEYDQLRKTDGVHQLVLLPDTSMWLVT
PDLVSRALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPDHTRLRR

LVGPAFSPQORVAALRPRIQRTAEELAETMVATGSPVDLVTGYCTPLSVQV
IADLLGVPEAGRTDLRAWTDMLTSYPPDRDAIRQAVVELHGYYVNLIEA
KQQRPGDDLSSALVATEQEGDRLTRDELTSALFLILFAGYENTANLIAST
VLRLLDHGSLRGVVRVSEAIEETLRLEPPAPAAIRRFPTTEMTIGGATIPA
GDTVLLSIAAATRGADGNPARLAFGNGPHYCLGAALARVEAEEAITVLAR
RLPGLALAVPGAPVRWRPTFRTHGPAELLVAV

>CYP105AB28 (2515706557) *Salinispora pacifica* CNT003

MTETASTTTTPGISSTTTSGPASGEVTDQFPLERGCFFSTPTEYEQIREH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFFVSTDPE
RKQLRDQPTSMIGMDGAHAQARRALMGFTVRRMAGLRPRIQQIVDQHI
DEMLSSDQRAADLVEALSLPVPSLVICELLGVYPYADHDFQARSGLIRH
TTPTEVRLRIQKELNTYLALIDRKVADPTDDLLSRQIAKHHAAGTFDRT
SLVSMAFLLLIAGHETTANMISLGVVGLLQHPDQLAMIKEDPEKTPPAVE
ELLRYFTIADTVTARVATEDVQLGGTTINAGDGVVISGLAADHDPTVFTD
PDRDLERGARHHVAFGFGPHQCIGQTLARMELQIVFDTLFRRIPTLRLA
APLDDIPFKSDAFVYGAERLPVAV

>CYP162B3 (2515706687) *Salinispora pacifica* CNT003

MSEEPEMHIDLLDPAPFGRNDFWSTFTWLRTHSPVHWHPEPGGDGFWALS
KHRDIMKVYADSDTFSSGQGMRLGSDPAVAVAVSQRMLIVSDVPHHTRLK
RALALAFGPQQMPRLKTLVEEVVYELLAESTEHELDLDFIDLAKQLPNRVV
CVMGIPRADWSWIGALTDAFSDPDDSVRSKAHSEIFLYFIELLRERRA
RSGDDLISQIAHETLVDEGDGVERPLSDEEIVFNCNGVLSGANETTRYSA
AGAVHMF AEHPQWELLRTRGQDGIATAAEEILRWTTPGVHALRTATRDT
EINGTPIAKGDRVTLWNVSANRDEDVFTDPHAFRVDRRPNRHVAFGHGRH
LCLGARLARFELQALLTGLLAHVVDGFELTGPAVFNSNFTWGIKSLPVRL
LRSRSFAPAERAAL

>CYP162G1 (2515707145) *Salinispora pacifica* CNT003

VDIDLADPAFFAEQDFVAHFRLREESPLHWNPDGKEPGFWSLTRYDDCA
RVQKDPVTFSSSEITNTLGQHRWTGDHGAGRMLTHTDGRRHTELRGIVGRA
FTPRAIATLEPYLRSVVAETFEQALEHRRVDFVETMAMLPVASIAALLGV
PRADWPMVLKLTAAFGAGDSELGMSRDARIAAAAAHTQLLLLYCQDLMES
RRRQPGDDIATRLVQAQEDGRLTEEEAMLFFDILLGGNETTRHGAVGGL
LALIANPEQWAALRREPGLVDSAVQEILRYVSPSRHVLRSVTKDIELYGR
TVRAGEQIVVWHSSANRDAAVFDHPDEFRLDRDPNPHLGLGSGSHYCVGA
SLATLELRLTLEALSARVGAARVLEPPVPLASTVINGFKQVIVELTPS

>CYP107E37 (2515707540) *Salinispora pacifica* CNT003

VTIDQEIREYPPFRESRGIGIDPTYELLRRTEPLARVQLPYGEVSWLVTRY
EDVKTVLTDPRFSRAAAQGKDQPRTRAEMTYEGIIIGLDPPDHTRLRRLAG
KALTARRVNIAIRADAQRIANEYVDEMIAGKSPGDLVEAFALPYPVTVICE
LLGVFFEDRAQFRIWTEGLTSTSEQLMVYAEQLFDYMGKLVAQRRAEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTGIVETVSTHIPPVYALLT
HPELMAQLRADRSVPAAVEELLRMIPLNPAAMFPRYAVEDVTLSGITVR
AGQPVLVSLPGANRDPEVFENPETFDFTREQNPHVAFGHGPHHCLGAQLA
RMELQVALHTVLDRFPDLRLADGDEGVSWKSGLLVRGPSRLLVGW

>CYP107FH4 (2515707948) *Salinispora pacifica* CNT003

MPPGIGTPIRKNVMTQIPLSPDIIELDDQFMQDPHAVYARLNEKGPLHQV

RIPPGVPVCGGLTVWLVTGYDQVRAALADPRLSTDRLKTEALFAQNQPDS
TKRGGSSTIANHMLHNDPPDHTRLRLKLVNKAFTSRAVERLVPQIERIAD
ELLDSLSERETVDLLDLYAFPLTFRVICALIGVPEEDQENFKEWSKQLIS
GGSAEVAAAASAIMHDYLTRLVASKRDAPGEDVLSALVQARDADDRLAEN
ELISMAFLLIIGAHETTANTVSNGLLHMLTNLSQWEALARDSLLAGAIE
EFLRLESPLKHATFRCVTESLWIGDVLPAGDFVLISLAAANRHSGHFPG
DPQVLDIERQTRGHVAFGHGIHYCLGAPLARVEAHIAFSALLNRYPGMRL
AADPQDLRWRTSTLIRGLHELPVRLVSAPQGHVGS

>CYP208A24 (2515693045) *Salinispora pacifica* CNT569

VTALADRPSRLYPGPSPWSAPWLLARMARNRLDVMRSVSARYGDAVRLP
LGPKTLYFFNHPDHAKHVLAENPGSYHKGIGLVHARRTLGDGLLTSEGEL
WRKQRKTIQPVFQARRIARQAGAI AEEAVGLADRLHTMVGRDEPVDIRHE
MTDLTLGVLGRTLDDTLGDFGGIGDAFESVQDQAI FEMMSLGAVPTWVP
LPRQRRFRARRAELOQDVVDQLVARRRAAGGVEGRDDVVSRLIESTGEETD
PQVARQRMDELVTLLLAGHETTASTLTWAFQLLDQHHDVWERVHAEAVE
VLGDRI PVYEDLHRLRYTAMVVDEVMRLYPPVWLLPRIAQRDDVVGGYHV
PAGADLVFCPYTLHRHPEFWPEPDRFNPDRFDPELGTDRPRYAYIPFGAG
PRFCVGNTLGLMEAVFVIACVARRRLRLSVQPGYRLVPEPMLTLRVRGGLP
MRVHEA

>CYP125A15 (2515693137) *Salinispora pacifica* CNT569

MTEPRI PAGFDFTDPAVLERRVPREEFAELRRTVPVWWNVQPRGAAGFDD
DGYWVVTRYADVMASRDSETYSTRENTAIARFQPGTTKADLEMQRVIML
NVDPPHETKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGVDPLAAAA
ELLAYAMEMANERQRNPSDDLVTCLVNAQIDGEHLTTDEF GFFVMLLAVA
GNETTRNAITHGMLAFLEHPDQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLGGQAI SAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHMPDIHKVAEPQRLRSGWINGI
REMPVRYR

>CYP211C5 (2515693276) *Salinispora pacifica* CNT569

VLDVEDLLARLYSAQGRQDPYPVYANLHAQGAIAALAPRPERQRVA AVAV
GYDLVA AVL RDPEWFKQPPPDWTEQEILRTLQSSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVINRVTDELLDRMADVGPGEVDFVAEFAYPLPARVM
AEFIGIPATELAWYRERVDRIDEFLDVAGKTPERLAAANAAGADLRAFYR
ELLARRRRTPGDDLISGLVEAVDAGGVELTEDELISNLVVLFNASFVTTV
YLLSNGLPVLLAHPEVAAAALANDPELAAGAVDEILRLQTPVHLLARTAPR
DTVLGGVSI PQGQNVLLLLIAAANRDP AHFPEPDRFDPRRPGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRILEQPVYSGSLFLRGIDKLSV
SPGGREHP

>CYP125G4 (2515695237) *Salinispora pacifica* CNT569

MSTEIVSTGNRADI AHPATYAAGVPYAEFARLRREEPVSWVPEAPLWRRS
GEGRILSQGPGFWAVTTHEGVVAASRQPEVFS SGRQGAFLADPRTTADLE
QARQLLVNMDAPQHARVRRLLVTAVFTPRAIRALGESVTAHARNLVERAVR
QEECDVVADLAAELPLLVLADLLGLPREDRHLLYQWSNNLVGFDDPEYGG
GDVEAYRRTFFFAFYALS VADERRRAPREDLMTLLATGEADGRRLTDRE
FCNFWLLL VVAGNETTRHLITGSVLALVDNPTQRERLVADDTLLPSAVEE
LLRWVSPIMQFRRTAIVDTLHGTPIAAGDKVVLWYASANRDAAVFEAPD
ELRLHRNPNPHLSFGMGPHFCLGAHLARLEARAMLRELAPHL SRFRLSGQ

VVRLESNFVNGVKSLPGSFTGQ

>CYP1004A3 (2515695276) *Salinispora pacifica* CNT569

MRANTARPHLSAAFLATKDDPYPAYAELRARGPLTRAELGQWLVTGHGAV
SALLRDGRLESRMPEYTRLTLGDSPGVDFLHRIVLTRTPPEHTRLRRFI
GQALGTPVVRRLHDRIAAATDALLEPALDRGRLDVVTELAVPLPVGVVCD
LIGIPTGDRPAVLTRVTALAKVFDAANLSPADLADINTALPWLHDYFGDL
LATRRVSPGGPTLAEMYWEESASDRLAVADFVDNMLFLFHAGFETTMGLV
SNGVAALLNHPEQLGRLRADPALVPSAVEEFLRYDAPIQNVIRVARKPVE
VAGQKIRAGRTVLLLLGAANRDEKVFADAERLDVGRDPNPHLGFGGGLHH
CVGTALARLMVAVVFERLVGRVAVLGPAAPAVRRRHASLSYDHLPLVVA
AR

>CYP1004B4 (2515695280) *Salinispora pacifica* CNT569

MTTSALAPRFDALDPNVVENPYPEYARLRAAGPLCRLGPGSWGVTREFADV
TSLQHDPRLGSEFPAGYHEVSVGDGPASAFFQRVMLYRDPPDHIRLRLRV
SGAFTPAVVRRLRAHIEDLVDELLAPALAAGRMDLVSELAYPLPVRVICR
LMGIPLESAAEDVRHHATNIGRAFTAVVPEQTRVDADEAVSWLREHLGALL
EKRRSRPGDDLRLSRLDAEESGDNLSTADEIVDNTVFSFFAGFETTVHMIT
TGTAALLAHPDQLARLRADPSLVTTAVDEFLRWDAPIQGTARYVREPIEI
GGRTIRRGRVLVLMIGSANHDERRFARPDRLDVGRQDNPHVAFGGGSHLC
LGAYLARMEGAVVFDRLARLAVLEPDGPTVREPNTPFRAVASVPVRIGDG

>CYP113E2 (2515695301) *Salinispora pacifica* CNT569

MAAVPRLTFADGGKRVLPWFRMRDDQPVWYDQGTSSWNVFRYADIAQIL
KDPATFSSDPGRSMPELAEEAEGLVAVDPPRHARLRGLISTAFTPRLV
EQLAPRVRSIGELLNRAFVDRRVEGEFDIIGDLAYLLPVYVIGELLGLP
ESDRGYLVRAADEFYAISADDPFDGAYMASMQSTLDELGSYMLDHAERRR
AKPGDDLISALAHAEIDGERLNDREIRNFAILLTLAGHITTTALLGNTLL
ALGERQDIMLRWRQGQVDTAILLEEVLRHRTPFTEVYRFTTTEVTIGNQV
VPGDQLRLWIASGNRDERQFADPDFTFVLGRDSKHLGFGGLGIHYCLGASL
ARMESVVVLGLLAERTTSLVPAVEALSYYDAPGIFCLRSLPVSYRRT

>CYP163B18 (2515695381) *Salinispora pacifica* CNT569

LTRTIDLADPATFATHDLTNFWQRLRDEEPIYWNPPGTGRRGFVWLSRHA
DILEVYRDDINFTSERGNVLVTLLAGGDAGAGRMLAVTDGPRHAELRKLL
LRALGPRVLGPVCSAVRTNTRQMIGEAAAASGECDFATDVASRIPMITISN
LLGVPEADRAALLKMTKTALSADDESSETESEVARSEILLYFQDLVEFR
RKKPGEDVVSMLVNSSIDGVPLSDDDVVLNCYSLIIGGDETSRLTMIDSI
YTLAANPEQWMRLKGGRCIDKAVDEVLRWASPSMHFGRTAVRETDIHGE
WIRVDDIVTLWHASGNRDERAFSQPEVFDLGRAPNRHLSFGHGPHYCIGS
YLAKVEISELLMALRDLTRGFEIIGEPQIRSNLLTGFTSTMPVRFVSA

>CYP1005A6 (2515695537) *Salinispora pacifica* CNT569

VSGVLFRSWTKTAGTHWPAVTRVADRQGTTEHLLVTQHALVRQVLTQVQTY
RPDNALDAVTPIPVAAALRVLAGHHFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTGLVAERVAAIRATLDAGGSADLHADLSADLPLLVLAR
LVELPDAPVSAVKQFARAALFLWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRAIGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLAGEP

TVRAALRDGIVSVTNVVEEGLRLEPPIVTWRRVAAADSTLGGIAVPAGTS
MLLWLARAGRDP AIVPAPDEF R PGRGSRRLHAFGAGAHRC LGDQLARME
AAVVVEQVTPLLDGVTVV RAPWYPDNLTFRMPDAFVIRR

>CYP107AY3 (2515695857) *Salinispora pacifica* CNT569

MSQDQPTRAELAPIPRSGAQLGQEYDEFNAGDVHQVLLPDSSLAWLVTN
PELVSRALADPRLALNRRHSQGGWSGFALPPALDANLLNLDAPDHTRLRR
LVGPAFSPQRVAALRPRI RRTAEHL LDILVATTD PVDLVTGYCTPLSVRV
IADLMGVPEAGRADLR TWTDTMLTSYPPDRAAIRQAVVELHGYVVS LIAA
KQQQPGDDLLSVLATIEQDGDRLTRDELTS LAF LILFAGYENTANLIAST
VLRLLDHGGIRDVRVPAAIEETLRLEPPAPAAVRRFPTEEMTIGGATIPA
GDTVLLSIAAATRGADGSTTR LAFGNGPHFCLGAALARVEAEEALTVLAR
RLPGLALAVPVAQVRWRPTFRTHGPAELLVTW

>CYP105AB25 (2515696255) *Salinispora pacifica* CNT569

VPASGDLADVEFPVARGCPFSTPAEYEQIREHSPITKVRLTNGGDAWWIA
GHELGRAVLADRRFSSDRRRDNFPFVSTD PETRKQLQDQPTSMLGMDGAE
HAQARRALMGFTVRRMAGLRPRIQQIVDQHIDEMLSSEQRSADLVEALS
LPVPSLVICELLGV PYADHDF FQAHSGLVRHNT PPEVRARIQRELNTYL
GALIDRKVTDPTDDLGRQIAKQRAAGTFDR TSLVSM AFLLLIAGHETTA
NMISLGVVGLLQNP DQLAMIKEDPEKTPPAVEELLRYFTIADTVTARVAT
EDVQLGGTTINAGDGVVISGLAADHDPTVFTDPDRIDLERGARHHVAFGF
GPHQCIGQTLARMELQIVFDTLFRRIPTLR LAAPLDDIPFKSDAFVYGAE
KLPVAW

>CYP113X1 (2515697180) *Salinispora pacifica* CNT569

VTTSETTIPQP NVNDAAIYPWYRMMRDEHPVRRDPVTGWV VYRYDDAR
HVLTNPQIF SSEMHRMGYPESGLESLPQMDPPRHTRVRRI LGTAFTPHSI
GEFEPLIVRITNEVIDGFVDKDRVDFVAELAYTVPIAVILEVLGLPSEDR
VHFYDWARRVMDVTPEQMAQEGYAESLFDMQQDAVSYLREKVHERRGKAG
DDMLTRLANAQLDGD TLTDD ETANFANVMFAGGHISTMTIANTIDL LDM
NGQAQRDVRDNPSLLPQAIEEVLRRHPPI TTGLRGSTRDVELGGVTIPKH
QYVAASFCSANRDERQFTHPDAFDIHRAGEVRHFGFGFGTHHCIGNALGR
LETRLVVRTLHERFKKITVDRDGEVAWAKPPQMVG YDKLPVVLQPA

>CYP107Q4 (2561682127) *Salinispora arenicola* CNH643

MTTTAETS AETIDLF SPEVVADPFGWYARLREETGPTTGT LNIGTMMGGP
EMWLVTTRYEDVRQVLTDP RFLTNPPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVS YALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRAGDSMATMNGER
IPTTLVKCIELARELIAKRRAEPQDDLVTALVQAQAE DQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAP LLLAANTDPRRFPDPNKLI I
DRLAVGSEHGLGFGKGIHRCLGQHLAYQEA E VALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105G5 (2561682128) *Salinispora arenicola* CNH643

LTIIETTETPPADDSLRAPLPRQFMQRDDPSKLPPALAA LAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLS DPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRR AAGLLQTDLP IKQ
AVENLEAQRAFMQRLVTDKR RTPADDMISGLVHHAGAEPPLTDDELVGIA

TLLLFAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHYPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQRLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTP

>CYP1051A1 (2561682149) *Salinispora arenicola* CNH643

MATDAAITRARTVPAWKALPAAVRDTHRALVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAWAA
SRRVLAPMFRPARINAMVDTMADAIAAGVDGLHGAATAGTPIIDVGRELSR
IVCSAIMRVFFADRI TVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDDI LPPVLRQAQRQPDDGDDLLSRLVRARADDGQALSE
KMRDDLVSMVAVTTETSTVVLTWLVPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASRTPARTVEMV
LKPVPAPVPAR

>CYP1005A1 (2561682378) *Salinispora arenicola* CNH643

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTQATY
RPDNALAEAVTPVPVAALRVLAGHRFRLPPTLANNGGASHPAIRALVADAL
HPTKVAAQRFPWLTGLVADRVATIRTTLDSSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVKKQFARAALFELFWAPLDADRQLALADEVGRFHQVLRFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRSVSGEP
TIRAALRAGSSSVADVVEEGLRLEPPIVTVRRVAAVDSTLGGTTVAAGTS
VLLWLRAGRDPAVVAAPDEFPRPGQRGSRRLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTTVVRPPWYPDNLTFRMPDAFVVR

>CYP105AB8 (2561682543) *Salinispora arenicola* CNH643

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTTDQHCADLVKT
LSLPVPSLVICELLGVPYADHDFEQEHTATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDLLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFQDGTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTRLRLAAPLDKIPFKTDAAIYG
ARELPVAV

>CYP211C1 (2561682649) *Salinispora arenicola* CNH643

VVDVEELLTRYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPI PQGQNVLLLLIAAANRDP AHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP208A12 (2561682790) *Salinispora arenicola* CNH643

MTLDTITPRVPLGPPRTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVVLADNSANYHKGIGLVHARRALGDGLLTSEGDLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAEITG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNAVPMWIPLPR
QIRFRRARRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGHRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP211B2 (2561683539) *Salinispora arenicola* CNH643

MDVSEAI AVLISPSGRLDPYPTYEQ LRAHGPVSQTTAGLFVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIKSIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTQADELVDDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVLLTRPEAAAAALRDEPDLAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPAWSWLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGTAGVAPGTP

>CYP244A4 (2561684171) *Salinispora arenicola* CNH643

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLGRIHAW
VVCDELVKQALTHPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGFDELDSRAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEAIRRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAQVQVSI A AANRKPGE GADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP245A7 (2561684175) *Salinispora arenicola* CNH643

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVMFMDP
PRHTELRSLLNRSFSFPRIVTELPRPRIARIAQELL SRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYARA EVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELGAEGLTDDAVEEF LRYDPPVQ
AVTRWAHQD T T LGGCDIPGRSRVVAL LGSANRDPARFPSPDVLDVRRPAD
RHLSFGLGIHYCLGATLARA ELEIGLQALLDGVP T L GYGTQHVDYADDLV
FHGPSRLVLVNLGERCT

>CYP105CP2 (2561684339) *Salinispora arenicola* CNH643

MTKSMPVQDLPAFPPIPRECYPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSA HARAVLS DYRRVSIKPYHGNYPLLN EEF EKVVDSGYADVLFGVDPP
EHTRQRQMIMPSFTLRR TAVLRPDIQRIVDDKLDEM MRHGAPGDLVTEFA
QPVP SMVISFLLGV PWEDHEEFETPAHKLFVPELAEEATTEL GAYLERLI
QKKEQPGGTGGTGLLDD LIRDHLRAGALS RDELVHIAMAMLVAGTDTT
NVISLGT LALLDNPDQWAALRDNPD ELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRP RPSPSFSFSH

GIHRCPGDNLARLELEIAFRSLVTRMPNLRRTAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2561684341) *Salinispora arenicola* CNH643

MAAPAPQATPSTTPHPPSYPLPRECPYRPSAGTAHLRDAGPVSTVRLYDG
RTAWLVTGAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQLLLPRFTVRQVAARRPAIQIRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVPHYQDRTRFEPVAVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYTALVDNPDLPVPGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTTHPDRLDVALP
PTNHLAFSHGIHHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQQLPTY
FAGDVPRLACLPVTW

>CYP107FS2 (2561684342) *Salinispora arenicola* CNH643

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHXYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPFADRSEFERHAEVLGTINASSGFDIAAAGRWFDEYLAGLVQ
QRRREPQDDLISGMLAAQDKGDRLLTDVELRSNALLLSAGFETTVNLIAN
GLLALLRHPEAAMALRSEPNLMTTAVDELRLYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAANHDPTVFAAPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSLIVWKASFVLHRLRLPV
TFTPDRDPNPIDSVHTV

>CYP125G6 (2561684380) *Salinispora arenicola* CNH643

VPTLLNEHVSYDGAIAIVDSDGATSWIRLAERVNRVHLLRAHGLDTGD
RLACVTGNRRETFEVLLAALHTGVTVVPVNWHLTVTEIGHILSDSGSRVV
ITEELHVKAFAAAADGTAGPVAGLVLDREVEGFAAVEPLLAASPAEPE
GQVCGATMLYTSGETTGRPKGVVNNLFVTGAPYARVGRLCDYARSVLGVPR
RERMLLDGPWYHSSQLFFALLSLQGSRLVIRPYFDPAATLKTIDDHRIT
VTHLVPTQLVRLLRVDALTRQMFSGASLRRVWHGGGCPPEVKRSMIDWW
GPVLVEYYGATEGGVVTLIDSAEWLARPGSVGRAVPPSEVVVVDDGGQPV
AAGQTGQVFFRRRTGNRFHYHNAPEKTQAAYLAPDTFTTYGEVGHVDEDGY
LFLTGRAQDMIVSGGVNVYPAEVEAALLRHPVVRDAAVIGVADDEFGERV
VGIVVPETAVDPDLLTTHLDAHCRVSLAGFKVPRTYRVVESLPRDETGKL
RKDALRSKFGWLSGAAMTVPRPATGQPTAHRPDIAHPTTYVSGVPHDEFA
RRRRDEPVGWAEPLVTRHTAAGRTATRGSGFWAVTRYEDVVAASRRVTD
FSSAAKGAFLLTDPRTPADLQQARQLLVNMDDPHHARLRKLVTSVFTPRAV
RGLLASIDAHAAALVAKVVAAGEFDVVTDLAAELPLLVLADLLGVPKQDR
ALLYGWSNHLVGFDPDFGGGDIDAYRTAMAEAFQYALNLGVERRARPTD
DLVSLLANAEVDGTRLTDREFCNFWLLLVVAGNETTRHLVAGTMQALTEH
PGECARLVEGRVPMESAVEELLRWVTPIMQFRRTATRDTEIGGQAVTAGE
KVVLYYTSANRDATVFAEPDRLDLGRTPNRQLSFGIGPHYCLGAHLARAE
LTALLRVMSPHLGSLQLTGFPVSRLASNFVNGVKAMPAVIGSR

>CYP154M15 (2561684405) *Salinispora arenicola* CNH643

MNDKCPFAALDVTGQDLHGEEARLREQGPAVLVELPGGVKAWSINRYEVI
RELLMDRRVTKNARKHWPFAFIKGEIPPDWEMISWVAMDNMVTAYGKDHVR
LRKLVGRAFTQRRADALRPQVVALSTKLLDDLGTATPPGEVVDLRERFAYP
LPAMLVASLIGMSEAAALACSKVIDMMVHTNVSPEEAQAVLRGWRAAMAD
LIESKRRTPGEDITTDLIAAREEDGSRLSEAELADTIFAILGAGSETTIN
FFDNAITALLSRPGQLQLLRTGGVTWDDVIDEVLRVESPLAHLPLRYAVE

DIELDGVITIPQGDPILVNYAAAGRDPALHGGTADEFDLARGDKTHLSFGY
GPHYCLGAGIARMVATIGLSMLFERFPDLSLAVPVTELKRLPTFIMNGHQ
TLPVRLTAHAR

>CYP125A41 (2561684458) *Salinispora arenicola* CNH643

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRDSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAHEHIVRDAAVRGVGVDFV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAEERQSRSPSDDLVTKLVNAQIDGHELTTFDEFGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTV LGGQAISAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP166A4 (2561684603) *Salinispora arenicola* CNH643

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGWIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGGV IPTHQP IPGMFIHMDPPEHTRY
RRLLTGEFTVRRSRLTGHEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGI HQCLGQN
LARVELRAGLSALLRAFPNRLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP105BL2 (2561684794) *Salinispora arenicola* CNH643

MSSHSAAAPDPETATPLHTLAPELAFFPQFERSAPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLDPHFSSDM SHPGFPNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVP SRVACHLVG IPLSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVT DREHHRDDLLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDP AVFERPDELDVRRN
ARQHLTFGY GPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP107AX14P (2561685053) *Salinispora arenicola* CNH643

VTSPPHVAFGHLLLRDPHGQYNALRGQAPVHHIRTPDGAPAWLVMRYHDV
QAALTDLRLSVDKRFSDTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADQAPAVATIVDALLDGIADQDQAELIGALASPLPLQVMHEL
LGLPTQTSVDFRNWTNTLLSADANQPAQSRSAMATMRRFLMGQLARKRAQ
PGDDLLTGLLAARDDDDRFTDDELLAMVFLLMFAGYDNTAALIGNVTHAL
LTDAGLHDAVRAGSVDLDSVVDEVLRWNPSFPLAVRRFAREPVTPSRQAI
ASGSAWPARTATPHSSPNPTN

>CYP107EU1 (2561685738) *Salinispora arenicola* CNH643

VTIGQTL PDLVYSPEFTRDPY AIFARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELIPRHSTLTGAATGFPPGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDL LDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL

GRLCDAKRDPADDDLLTALVQVSADEDRLSREELVSMALLLLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRLDITRSTQGNLAMGH
GIHHCVGAALARLELEIVLIRLVARFPQMQLAVEADDLEWLVNSFFRAPL
HLPVSLRR

>CYP162P1 (2561686046) *Salinispora arenicola* CNH643

MGLPSEVDLADPDLYAEGDPDAEWAWLRAHRPVYRNPAGATAEFWALTRY
RDALQVYRDPSTFSSERGMVLGVDPVAGDPAAGRMLVVTDPPRHPKLRI
VSGIFVPRTMHRLEGRVRSLLVDQLLHRVVDGAGRCDFVNDVAARLPVAII
CELLGVPADEQDWMYHLTSTAFGGGDPAGSAEVSaveraEAYGDILLYYG
ELAAERRRRPGDDLVTLLVHADLDGEPLDVEDVLVNCTNLIIGGNETTRH
AASGGLLALAQRPELWRRLRETPTAVPTAVEEVLRWTTPGMHVLRATRD
TEIGGVPIRAGERVVVWNAANRDEDVFADPQRFIDRSPNRHIAFGQGG
HHCLGAALARLELTILFEEMAKQVTNVRLTGPFVRRVRSVLRGIRALPVE
LVT

>CYP154M21 (2561686133) *Salinispora arenicola* CNH643

MEKCPYVLDRAGSDIHKEASNLARGPVTLVELHGGYTAWSVTSYEVAKQ
LLMDPRISKNTKAHWPEFRDGNVPQDWELYTWVAMDNMQTRDGKEHDLRL
KLVAFAFTGRQAVKSRPIIEEIVNRLDDLETA PRGQAVDIKARYFYPLS
TILVCDLLGIAEEDRDVILHGNVNSKTTNTAESEANLHQWQTALGRLV
ETKRDPGDDLTTVIIKAGEDEQTPLTDDEVIGSLHLLIGGGTETTANVL
CHTVVMDMLTHPDQLAMVRSGAVSWESAWEVEVRKDGAVGSMFRCATDDV
EIGGVTTIAKGDVLVINYAAAGRDPERYGDAAAEFDITRADKANLSFGYGR
HRCCLGPALATMEAMVALPALFDRFPNLALAVPPNELKPKQGTFFNGYAEV
PLLLRS

>CYP154M13 (2561686134) *Salinispora arenicola* CNH643

MSTGRPVVLDPTGRDIHGADHLRALGPATLVELPGGVLAWSINSYEVGK
ALLSAPNVSKSARRHWPAYNGEIPPDWEMISWVAMDNISTTFGGDHRRL
RRLTAKAFGSRRAEQVRPMATHMVNTLLDRMADAADAGEVVDLKAAFAYP
LPGMLVAELIGMSEEARVAAAKVIDMMTATNITPEQAQGVLLGWRDAITD
LIAALKRAQPGDDITSDLIAARDEDGSLLTEQELVDITIFAILGAGSETTIN
FFDNAITQLLTHPEQLELVKSGQVSWDDVIEEVLRLSPLASLPMRFAVE
DIQLDGVTIHRGDPILINYAALGRDPALHGESAGVFDVTRQHKEHLSFGH
GAHYCLGAGIARMVAKTGLSALFERFPRMTLAVSATDLVPYPTFIMNGNR
QLPVHLSGALTWREGEQSALGRA

>CYP105W2 (2561686147) *Salinispora arenicola* CNH643

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCFPSPPAEYARLRAEH
PVVRLPMLGGDTAWVVS RHADVRQVLS DPRMSADRRRPGFPKFAPTTEGQ
RQASFANFRPPLNWLDPP EHAICRRQIVDEF SVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVPHYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDVVVTDKEHRPGDDVLSRLLYRQRRAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPPERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGVTTIAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAHAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2561686155) *Salinispora arenicola* CNH643

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRFADVR

AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQLMSRNEIVSTVVTFIFTGHETVASQLGNGL
LSLLDHPEQLELVRRQPHLVPAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCNPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP154M20 (2561686177) *Salinispora arenicola* CNH643

MERCPYVLDRAGRDLHGAEAKALRARGPVTLVELHGGYTAWSVTSYEIAKQ
LLVDPRIKNTKETWPEFREGKVPQDWELYTWVAMDNMQTRDGEEHDRLR
KLVAQAFTTTRQVAKVRPMIEDIVHRLDDLEKVPAGEVVDIKGRYFYPLS
TILVCDLLGIPEADRAEALHGTVVNARTTNSAESEANLHQWSALSCLV
ETKRREPGNDITTLIIKAREDEQAPLTDDEVIGSLHLLIGGGTETTSNVL
CNTLIDLTLHPDQMAMIRSGAVGWEAAWEEVEVRKDGAVGSMPPFCANADI
EIGGVTTIAKGDVLVLINAAAAGRDPERYGDTTAEFDITRADKTNLSFGYGR
HRCLGPALATMEAMISLPALFERFPDLVLAVPRDELKPKQGTFFVNGYAEV
PMLLRS

>CYP107FJ2 (2561686184) *Salinispora arenicola* CNH643

MSETLSTSVLLADAAEQRAWRAKLRGAGPVHRITTSGETGWLIVGHEEA
RNALVDLRLQGRTATVGHGRMPEDLERALNSHMLNVGPPDHTRLRRLVS
AAFTRRRIEQMRPRIQELTDELLDGLAGADEADLVAGLALPLPMRVLVDL
FGIPAEDCADFNVWTKVLTSAGAVDLDRLTTAAGEMVAYLRGLLDRKRQV
PESDLLSALVAVRDGADRLSDDELTSMVYLLLTAGYETTVNLIGNGLLNL
LANPEQLVAFKADPDLLPQVVEEAMRFDSPVQIAVRHSTEPVEIAGQAIP
SGALILVSLWANRDPDRFTEPEVFRVDRQDNPQLGFGYGFHHHCIGAPLA
RMEGTVAIGTVIRRFAPALRLAHPASSLTWRASMVMHGLTALPVHLR

>CYP105CH1 (2561686466) *Salinispora arenicola* CNH643

VSSLPLPTYPKLRDPADPLLPAPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHPPNFYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRRLLI SEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADF SKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRDPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVNLTIARDGTVFPEPHRLDIRRNARNHLAFSHGI
HOCMGQNLARVEMQIALDTVLRRLPGLHLVTPFEELPFKYRHLVWGIEEL
RVAW

>CYP107AY13 (2561686683) *Salinispora arenicola* CNH643

MTAELTPIPRSSARLGQEYDQLRKTDGVHQVLLPDASLAWLVTNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAP
SPQ RVAALRPGIRRAAEHLDDTLVATSRPTDLVTGYCNPLSVQVIADLMG
VPEAGRNLRAWTDMLTSYPPDRDAIRQAVTELHGYYVDLIDLKQQQPG
EDLLSVLVTTIEQDGDRLTRDELTSALFLILFAGYENTANLIASAVLWLLD
HGGLNVVPISEAIEATLRHEPPAPVAIRRFPTEDIIIGGVTI PAGDTVLL
SIAAATRGADGNAARLAFNGNGPHYCLGAALARIEAEEALTVLARRLPGLT
LAVPPAQVRWRPTFRTHGPAELLVGW

>CYP105J3 (2561686797) *Salinispora arenicola* CNH643

MTDSVAFPQGRVCPHQAPAGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRTPAWPAIVPIVAAVNDAAQQKVLKIATALVGTGPE
HKAQRKMLIPSFTRRMNALRPMIQEIVDQQLDDEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGLVDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPAVTRLAADDIEVE
GTVIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP1198B1 (2561687116) *Salinispora arenicola* CNH643

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQRKLVSFSFTPRIVKSFGPQITHIVDGLFEDFRDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDPAYENPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKHPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP125A41 (2519869361) *Salinispora arenicola* CNH962

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGFV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAEERQRSPSDDLVTCLVNAQIDGEHLTTDEFGGFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTV LGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211C1 (2519869510) *Salinispora arenicola* CNH962

VVDVEELLTRLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLAHRRRTPGEDLISGLLEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTV LGGVPI PQGQNVLLLLIAAANRDP AHFPDPDRFDP RRS GPPSLAFGLG
LHYCLGA AVSRLEGR LALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP244A4 (2519869691) *Salinispora arenicola* CNH962

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLRHAW
VVCDELVKQALTHPKMGKDIALVPEWMRQPGLMVT AQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGF LDEL SQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGS LISTS LYEAI RPPHERPKTDEDITAWIEETLRVHPPFPHPPTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGE GADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM

SVLPAVLS

>CYP245A7 (2519869695) *Salinispora arenicola* CNH962

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVMFMDP
PRHTELRSLLNRSFSPRIVTELRPRIARIAQELLSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANAMALQEASSSRAGRDDVDGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL
TAGHETTNSLAKAVLALREHPAVLDELRGADGLTTDAVEEFLRYDPPVQ
AVTRWAHQDITLGGYDIPRGSRVVALLGSANRDPARFPSPDVLVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP211B2 (2519869797) *Salinispora arenicola* CNH962

MDVSEAVAVLISPSGRLDPYPTYEQRLAHGPVSRTTAGLFFVVTGYAADM
VLRDPRFVVLLDDDLRDDVFPHWQDSPAIKSIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTQAQADELVDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVLLTRPEAAAAALRDEPDLPAGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPAGSWLLVLLGAANRDPRRFPDPARFDPWRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGTPAGVAPGTP

>CYP166A4 (2519870162) *Salinispora arenicola* CNH962

MTYAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLYHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPADLDIDRETSGHVAFGFGIHCQLGQN
LARVELRAGLSALLRAFPNLRRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP154M14 (2519870226) *Salinispora arenicola* CNH962

MRRRCPVVIDPAGTDIHAEGARIRTNGSVSQVELPGGVLAWSVTGQQAAR
QVLSQRFQSKDPRKHWTDYLDGRIGQDFPLIGWVLMNLTAYGSDHSRL
RKPCAQAFTPRRVQALRPAVERAAVELLDGLAMLSPTESVDLKARYTHPL
PSRVICDLFGVPEEDRAEMLRGGEVNVDTRVSAEEEEANVERWHQQMLDF
IANKRQNPGLDLSDLVAAQEANGSRLTDSEMVGTLHIMLATGTEPVKNL
ITNAVFALLTHPDQLYLLRTGRAGWDDVIQETLRVQAPVAHLPPFRFAVED
VEIDGVTIGRGDPLLNVFAAIGRDPEVHGETAAEFDITRADKEHLSFGQG
VYRCIGQPLALLEAEVALRMLFQRFPNLMLAVPPEEVTPQPTFIMNGLDT
LPVLLKECA

>CYP105BL2 (2519870579) *Salinispora arenicola* CNH962

MSSHSAAAPDPVTATPLHTLAPELTFPQFERSTPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLSDPRFSSDMSHPGFNRTGKPVDDLL
KDTLGAMDGERHRYRRLTGELTVRRAKAMRPVITRITDEALDQLAAAG
PGADLVKHVAFVVPSPRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA

ALQNMVSYFDTLVTDREHHDRDDLLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIIGLVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVATDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP1005A1 (2519870845) *Salinispora arenicola* CNH962

MTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTQATYRPDNAMEAVT
PVPVAALRVLAGHRFRLLPPTLANNGGVSHPAIRALVADTLHPTKVAAQRP
WLTGLVADRVATIRTTLDSGGPVDLYADLTADLPLLVLARLVELPDAPVN
AVKQFARAALFLWAPLDADRQLALADEVGRFHQVLRREFADTGGGLAAAL
RATGHSPDVLVGALFFLLVAGQETTSQFLTLLHLRLSSEPTIRAALRAGS
ISVADVVEEGLRLEPPIVTVRRVAAVDSTLGGTTVAAGTSVLLWLARAGR
DPAVVAAPDEFPRPGQRGRRLAFGAGAHRCCLGDQLARMEAAVVVEQATP
LLDGVTVVRRPPWYPDNLTFRMPDAFVVRR

>CYP107FS2 (2519871038) *Salinispora arenicola* CNH962

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPFADRSEFERHAEVLTGINASSGFDALIAAGRWFDEYLAGLVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETTNNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELRLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAANHDPTVVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSLWVKASFVLHRLERLPV
TFTPDRAPNPIDSVHTV

>CYP105CN1 (2519871039) *Salinispora arenicola* CNH962

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVGTAAEARALLADSRVSNRADFPNYPVMDEHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRLQLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVQYQDRTRFEPVAVAGLFEPDRAD
AAMAELTAYLHQLIETRQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVPGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIHHCIGQNALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPVTW

>CYP105CP2 (2519871041) *Salinispora arenicola* CNH962

MTKSMPVQDLPAFPPIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHARAVLSDYRRVSIKPYHGNYPLLNEEFKVVDSGYADVLFVGDPP
EHTRQRMIMPSFTLRRTAVLRPDIQRIVDDKLDMMRHGAPGDLVTEFA
QPVPMSMVSFLLGVFWEDHEEFETPAHKLFVPELAEEATTELGAYLERLI
QKKEQPGGTGGTGLLDDLRDHLRAGALSRDELVHIAMAMLVAGTDTTT
NVISLGTALLDNDPDQWAALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRATATPIDQIPSNNDGTLQRL
YELPVVW

>CYP105J4 (2519871353) *Salinispora arenicola* CNH962

MTDSVAFFPQGRVCPHQFAPGYRPLAAQSRSLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRNTNPAWPAIVPIVAAAVNDAQQKVLRIATALVGTGPE

HKAQRRMLIPSFTRFRMNALRPMIQEIVDQQQLEMIKSGAPTDLIAPAFAS
AVPVTVLRYRLMGIPDDDHGIFEKLSHQLLAGPHANEAYDQLMDYMSLVA
ERRRNPGEGLVDDLLAQHGANDDDVDHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRANPSLMPTAVDELLRFLSVPDVAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSLRLAVPAEEVPFLPAASLQVMAELPIT
W

>CYP107AY2 (2519871654) *Salinispora arenicola* CNH962

MTAEPTPIPRSGTRLGPEYDQLRKTDGVHQVLLPDASLAWLVTNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPFAF
SPQRVAALRPGIRRAAEHLLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRWTDTMLTSYPPDRDAIRQAVTELHGYYVDLIDIKQQQPG
DDLSSALVTIEQDGDRLSRDELTSLAFLILFAGYENTANLIASAVRWLLD
HGGLNVVPISEAIEGTLRHEPPAPVAIRRFPTEDIIIGGV TIPAGDTVLL
SIAAATRGADGNAARLAFGNPHYCLGAALARVEAEEALTVLARRLPGLT
LAVPPAQVRWRPTFRTHGPAELLVGW

>CYP208A12 (2519871724) *Salinispora arenicola* CNH962

MTLDTITPRVPLGPPRTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGDLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAEITG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNAVPMWIPR
QIRFRARRKKLQAVVDTLVDGRAGNLANRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHGPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGGLPLVVRP
VS

>CYP107Q4 (2519871922) *Salinispora arenicola* CNH962

MTTTAETS AETIDLFSPEVVADPFGWYARLREETGPNTGTNLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPFRFLTNPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPRPHWRAGDSMATMNGER
IPTTLVKCIELARELIAKRAEPQDDLVTALVQAQAEQDNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFDPNKLII
DRLAVGSEHGLGFGKGIHRCLGQHLYQEAEEVALQGLFTRFPDLTLAVPR
EEIPWILRPGFTTRTRLPLKLV

>CYP105G5 (2519871923) *Salinispora arenicola* CNH962

LTIETTETPAADDSLAPLPRQFMQRDDPSKLPPALAALAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQLDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRAGLLQTDLPKQ
AVENLEAQRAFMRQLVTDKRTTPADDMISGLVHHAGAEPPLTDELVGIA
TLLLFAGLDTTASMLGLGMFMMLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQARIELTVGITELLCLRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWGTP

>CYP1051A1 (2519871948) *Salinispora arenicola* CNH962

MATDAAKARARTVPAWKALPAAVRGAHRALVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLEHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAVDDLHEAATAGTFIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDDILLPVLRLQAQRQPDDGDDLLSRLVRARADDGRALSE
KRMRDDLVSMVAVTETSTVVLTLWLWPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMI
LKPVAPVPAR

>CYP105AB36 (2519872093) *Salinispora arenicola* CNH962

MTEAASSRLTDTEFPVQRQCPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPATRKRLHAQPLSMISMDG
AEHAQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHCVDLVKA
LSLPVPSLVICELLGVYDDHDFQEHATLVRRNTAPEVRQHCVDELNA
YLGALIDRKLANPDDDLGRQIARQHGDGTFDRASIVSLAFLLLVAGHET
TANMISLGVVGLLQHPDQLTMIKKDPDKVPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARRHHIAF
GFGPHQCIGQNLARLELQIVFDTLFRRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP105CT1 (2519872427) *Salinispora arenicola* CNH962

MNSPNHMPADRSLTAPASGCPMALSRGRVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTDSHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGVVLHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLITDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRRFPGLRLAV
PDSELEFTQGTTVYSLRGLPVTW

>CYP105W2 (2519872504) *Salinispora arenicola* CNH962

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPPSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRAHADVRLSDPRMSADRRRPGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVRRVRQSRALVERVVDTH
LDALTAGAPGADLVSTFAYPVPSQVICEVLGVYPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDMMVVTDKERRPGDDVLSRLLYRQRSAGGMDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPPERFPAAVE
ELLRYFTVVEAATARTTTAEIMIGGVTIAAGEGVVALGQAANRDPRVFEH
PDEFDPDRDARAHLAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2519872512) *Salinispora arenicola* CNH962

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRAFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL

LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAITEFADYVERALA
ERREDGADLLALMLAAHRSQMSRNEIVSTVVTFIFTGHETVASQLGNGL
LSLLDHPEQLELVRRQPHLVPQAVEECLRFDPVQSNTQRLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCNPNELAYQPRTMFRGLTRLFPVAFTPA
G

>CYP107AX4 (2561687179) *Salinispora pacifica* CNR909

MTSQPAPVFDQLLLRDPHRRYNALRDEAPVHHIRTPDGAPAWLVTRYDDV
RAAFTDPRLSVDKRLSSTDGEHGSSLPELDAHLLNRDPPDHTRLRRLAA
AAFTPRRVADLRPAVERIVSTLLDGLVGHDQAEIIGSLASPLPLQVMQEL
LGLPTQTSVDFRRWTNTLLSADANQPAQSRSAMANMRCFLVEQLAHKRAR
PGDDLLTGLLAAREDDRLTDDELVAMLFLLMFAGYDNTAALIGNVVHAL
LTNTELPAAVRTGSLALDELVDGVLRWNPSPFLAVRRFAREPITIAGQTI
PAGDRIWLCLASANRDPAQFTAPDTLGTTGMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVTILLDRFPGIRMAVPAHDIRWRESFRLRGLVALPVFL

>CYP107AW7 (2561687194) *Salinispora pacifica* CNR909

VETVTGTSTPPVPYIADPYPTLARIRANGPVSILHSDEGIPMWVIARYR
DVRAALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHHVQGAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFPLPLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAAAFATALREMTDYIAVQLRIR
QTRPGDDILTELLAARDAGQLTDEIIGMVFLLLIGGHETTVNLLGTATL
ALMRNPDQHRWLLANQHALLPEAIDEFLRYESPVAMATLRFTTTPVAVDDV
VIPAGELVLVLSLGGANRDPDRFPDADRLILDRRDTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPRLALAAEVRQLRWRDTIMLRGLESPLPVSLHG

>CYP125A65 (2561687682) *Salinispora pacifica* CNR909

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMASRDSETYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGVDPMAAAA
ELLAYAMEMANERQRNPSDDLVTKLVAQIDGEHLTTDEFGFFVMLLAVA
GNETTRNAITHGMLAFLEHPDQWELFKAERPRSAVEEIIRWATPVNVFQR
TALVDTTLGGQAITAGQRVALFYGSANFDESVEEPERFDITRSPNPHLG
FGSGSVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REMPVRYR

>CYP208A22 (2561687780) *Salinispora pacifica* CNR909

MTVIADRGGRIPPGPPVTAGLRLLLLALGRDRLGMMTSAAA EYGDVARLPV
GPKKLYFFNHPDHAKHVLADNHANYQKGIGLVHARRALGDGLLTSEGELW
RKQRRVIQPAFQNRRLAQYAGAVGQEATRLVARLATRVDPVPVLDLDMT
RLTLGVLRGRTLLDAELTGFGHVGESFAAVQDQAMFELETNTVPTWIPLR
RQRRFRRARQHLQEVVDVLA AERGQAVEGRDDVLSRLILSTRAEADPQLG
RERLRDELVTLLLAGHETTASTLGWSLHLLDQHPELRERVRHEARTVLGD
RVPAYEDLHQLRYTAMVVEEAIRLYPPVWILTRKARAEDEIGGYRVPAGA
DILICPYTLHRHPRFWAEPPERFDPERFDPSRITDRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLA VLLRDLRLGLELPGRAVVPEPMLSLRVRGGLPMTVR
RVD

>CYP124M3 (2561687801) *Salinispora pacifica* CNR909

MTVPIELDAVDLSDNDFWTKPLEYRHAVFNALRAQPGLPHFASPEFGSAP
RGRGYYALTRMDDVLAVSRNPSVFI SGKGNVAMEVPAEF LDQSLITMDNP
RHARLRRIVSRGFTMKAVTALMDNASQMAKQIVDEVVERGECDAVVDISA
KLPLGII CNMMGIPDSQQQFVFEQTNVMLGVQDPEYVGEQNDAMLAMSV
SQELADLMHELATLRKNPTDDLLSKLLSAEVNGEALTPSEL AHFFILLT
GAGTETTRNAISWGIQLLTQSPEQREAWLSIDIGVTPTAVEEIVRWSSPV
ISQRR TVAEDAEPVKLAGQLLGP GDKVLMFYGAANRDPNYFVHPEGFDVR
RSPNPHVGYGGPGPHFCLGAHLARLEISVMFRELLTRIPDIHATGEPARL
KSPLINGIKRLPVAFTPGAR

>CYP105AB28 (2561688033) *Salinispora pacifica* CNR909

MTETASTTTPGISSTTTSGPASGEVTD AEFPLERGC PFSTPTEYEQIREH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFPFVSTD PET
RKQLQDQPTSMIGMDGAEHAQARRALMG EFTVRRMAGLRPRIQQIVDQHI
DEMLSSDQRTADLVEALS LVPVSLVICELLGV PYADHDFQARSGLIRH
TTPTEVRLRIQKELNTYLGALIDRKVADPTD DLLSRQIAKHHAAGTFDRT
SLVSM AFLLLIAGHETTANMISLG VVGLLQHDPQLAMIKEDPEKT PPAVE
ELLRYFTIADTVTARVATEDVQLGGTTINAGDGVVISGLAADHDPTVFTD
PDRLDLERGARHHVAFGF GPHQCIGQTLARMELQIVFDTLFRRIPTLRLA
APLDDIPFKSDAFVYGAERLPVAW

>CYP211B11 (2561688519) *Salinispora pacifica* CNR909

MDASEAVALLTSPPGRLDPYPTYERLRAHG PVVSTAAGFFVVTGYTEADT
VLRNPRFEVMDDEERDGVFP HWQDSPAMISISRSMIRANPPDHSRMRRLA
AGVFTPRRVAALREVVAQA DGLVDEMIRAGRGGA AVDFMG SFAYPLPVT
VICALLGVPAADWARFRHWASDLTGVLEPEITPQELAIADAGASELRDYF
TELIAQRRRAPADDLT TALVQAHDADGDRLSGEELLANLVLLL VAGFETT
TNLLGNGLVLLTHPDSATALRGQPELAPGYVEEFLRYDSPVQLTSRTVR
ESVSLAGVELPAGSWLLVLLGAANRDPARFTD PARFDPRRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRHRLTLRGYETLP
VTVGAVPADPGTPAGVALGTP

>CYP162B3 (2561690008) *Salinispora pacifica* CNR909

MSEEP EMHIDLLDPAPFGRNDFWSTFTWLRTHSPVHWHPEPGGDGFWALS
KHRDIMKVYADSDTFSSGQGMRLGSDPA AVAAVSQRMLIVSDVPHHTRLK
RALALAFGPQQMPRLKTLVEEVVYELLAESTEHELD FIDLAKQLPNRVV
CVM MGIPRADWSWIGALT TDAFDSPPDSVRSKAHSEIFLYFIELLRERRA
RSGDDLISQIAHETLVDEGDGVERPLSDEEIVFNCNGVLSGANETTRYSA
AGAVHMF AEHPEQWELLRTRGQDGIATAAEEILRWTTPGVHALRTATRDT
EINGTPIAKGDRVTLWNVSANRDEDVFTDPHAFRVDRRPNRHVAFGHGRH
LCLGARLARFELQALLTG LLAHV DGFELTGPAVFNSSNFTWGIKSLPVRL
LRSRSFAPAERAAL

>CYP161N4 (2561690064) *Salinispora pacifica* CNR909

VNTVAQLPFTQTHVLDVAPALRLLQSRGKVHRVRTPEGVPAWLVTGHAEV
QQLLDDDRLSRSDPGGRDGGTALLNKLLG PLADDPRLRSLLEPQFTPER
LEPLRAVVEKLTEQHLDELATRTPPVDLRPALAMSLPILVLCEWLGVPAE
DKGRFSVWTQDAAGVQDPERSQRGLAE LFGYCRQLVAAKRQDPGDDVISR
LIATAGIGDTEVVALTALLLF GGYETTVARIGTGVL LLLTNPDQWAAVRA
DPALVSATVDELLRRSMPNPHNGGMPRFAVTGFEIDGAAIRAGDLVLLNI
IAANHDETAFFDPDRLDITRPTAGSLAFGYGRHSCVGAPLARMVLRVALS
RLITRF PDLRLAVGVDELKLRHETLVGGLVELPV TWGPR

>CYP2054A3 (2561690069) *Salinispora pacifica* CNR909

MSISADSEQVQGRPFDPYGAHRDDPYTFLAGLGVFYAPLLDAWCVTRRED
MVAVLRDDRSFSARDHNPRPAVALPDDVNQMFRWTRGAGAVAVGSLDPPA
HAKIRDVLNIGFTPARVRAFEPTMRAVAADLADRIGDAPEFDFIADFAPV
FALEVIGRRLGVPDDYLDRCRTWSEQRIELMMAQGDADHDRLREFARGLM
EFGEFARSLVRDRVADPRDDLISELLHDGKAGRTLTADEVAVQIPTLIFA
GHMTCAEALGTIFYQQLRSPGGWARVVDRTIPVGD LVEEGLRFDSPLAGM
YRTATRDVTVGGIRLTAGSRLLLLLYGAAGRDSRAHACPAAFRPGDGSSGH
LAFGHGHIHFCLGAGFARAELRVAVEVLAARMPDLGLAPGRPPRFRPVFPL
RALTEL RVTRSGGSGP

>CYP107FH3 (2561690075) *Salinispora pacifica* CNR909

VP IELDEAFVQDPYAVYEKLRAEGPAHRVRMPPGVPLIGGLPVWLITGYD
AVRAALADSR LSTDLHRIDGLFAQKDPDRSHRGGFSSALASHMMHTDPPD
HTRLRKLVS KAFTTRRAIEALRPRIQQTDELTAELAGHDTV DLLDAFAFP
LPIRVICLLLGV PVAEQENFRSWSRALVSGHSPEAAATAATEVAAYLGDL
VERKRHATTD DVLTA LVA AHDVDDRLTHTELVSTAYLLFIAGFETLNAL
GNGTLHMLHRDQWTALRADRALLDNAVEEFLRLESPLKHATFRCATESL
RIGDAEIAAGDFVLLAIASANRDP RRPDPHTLDVRRPAAGHLAFGHGHIH
HCLGAPLARVEVRMAFDALLDAFPDMRLATDPAGLRWRNSTIIRGLDSL P
VHLNN

>CYP1005A6 (2561690241) *Salinispora pacifica* CNR909

VSAVLF RSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLT DQVTY
RPDNALDAVTPI PVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQR PWLTELVAERVAAIRATLDSGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAAL EFWAPLDADRQLALADEVGRFHQV LREFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFL TLLHLRLAGEP
TVRAALRDGSVSVPNVVEEGLRLEPPIV TWRRVA AVDSTLGGTAVPAGTS
VLLWLARAGRDPAIVSAPDEF RPGQRGSRRLAFGAGAHRC LGDQLARME
AAVVVERVSPLLDGVTVVRAPWYPDNL TFRMPDAFVIRRG PAGAAER

>CYP107AY9 (2561691301) *Salinispora pacifica* CNR909

MSQDQPTRAELAPI PRSGARIGPEYDQLRK TG DVHQVLLPDTSM AVLTS
PDLVSRALADPRLALNRKHSRGGWSGFALPPALDANLLNDAPDHTRLRR
LVGPAFSPQRVAALRPRIQRTAEELAETMVATGSPVDLVTGYCTPLSVQV
IADLLGVPDAGRTDLRAWTDMLTSYPPDRDAIRQAVVELHG YV VNLIEA
KQQRPGDDL L SALVATEQEGDRLTRDELTS LAFLILFAGYENTANLIAS T
VLRLLDHGSLRGVRVSEAIEETLRLEPPAPAAIRRFPT EEMTIGGATIPA
GDTVLLSIAAATRGADGNPARLAFGN GPHYCLGAALARVEAEEAITVLAR
RLPGLALAVPGAPVRWRPTFRTHGPAELLVAW

>CYP162G1 (2561691418) *Salinispora pacifica* CNR909

VDIDLADPAFFAEQDFVAHFRWLREESPLHWNPDGKEPGFWSLTRYDDCA
RVQKDPVTFSS EITNTLGQHRWTGDHGAGRMLTHTDGRRHTELRGIVGRA
FTPRAIATLEPYLR SVVAETFEQALEHRRVDFVETMAMLPVASIAALLGV
PRADWPMVLKLTAAFGAGDSELGMSRDARIAAAAAHTQ LLLYCQDLMES
RRRQPGDDIATRLVQAQEDGRLTEEEAMLFFDILLGGNETTRHGAVGGL
LALIANPEQWAALRREPGLVDSAVQEILRYVSPSRHVLRSVTKDIELYGR
TVRAGEQIVVWHSSANRDAAVFDHPDEFRLDRDPNPHLGLGSGSHYCVGA
SLATLELRLTLEALSARVGAARVLEPPVPLASTVINGFKQVIVELTPS

>CYP107E37 (2561691969) *Salinispora pacifica* CNR909

VTIDQEIREYPPFRESRGIGIDPTYELLRRTEPLARVQLPYGEVSWLVTRY
EDVKTVLTDPFRFSRAAAQGKDQPRTRAEMTYEGIIIGLDPDPDHTRLRRLAG
KALTARRVNAIRADAQRIANEYVDEMIAGKSPGDLVELFALPYPVTVICE
LLGVPPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFDYMGKLVAQRRAEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTGIVETVSTHIPPVYALLT
HPELMAQLRADRSLVPAAVEELLRMIPLNPAAMFFPRYAVEDVTLSGITVR
AGQPVLVSLPGANRDPEVFENPETFDFTREQNPHVAFGHGPHHCLGAQLA
RMELQVALHTVLD RFPDLRLADGDEGVSWKSGLLVRGPSRLLVGW

>CYP211C1 (2518469277) *Salinispora arenicola* CNX481

VVDVEELLTRLYSAQGRQDPFPVYADLHAQGPIAALPPEPERHRVAAVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAELEAFYF
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPIPPQGQNVLLLIAAAANRDPAHFPDPDRFDPWRS GPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP1005A1 (2518469398) *Salinispora arenicola* CNX481

VSAVLFERSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTQATY
RPDNALEAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLDSSGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVKKQFARAALFWAPLDADRQLALADEVGRFHQVLRFEFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLHRLSGEP
TIRAALRAGSISVADVVEEGLRLEPPIVTVRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFPRPGQRGSRRHLAFGAGAHRC LGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP211B2 (2518469781) *Salinispora arenicola* CNX481

MDVSEAI AVLISPSGR LDPYPTYEQLRAHG PVSRTTAGLFVVTGYAEADM
VLRDPRFVVLDLDDLRDDVFPHWQDSPA KSIARSMLRTNPPDH SRIRRLA
AGAFTPRRVAAMREV VTAQADELVD EMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEDLAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLS GEELLANLVVLLVAGFETT
TNLLGNGLVVLLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPA GSWLLVLLGAANRDPRRFDPARFDPWRAQS QPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLT LRGYETLP
ITVGAVTADRGT PAGVAPGTP

>CYP105BL2 (2518469872) *Salinispora arenicola* CNX481

MSSHSAAPDPETATPLHTLAPELTFPQFERSTPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTT LSDPRFSSDM SHPGFPNRTGKPVDDL
KDTLGAM DGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVP SRVACHLVGIPFSDYERFTGMAATLMDSTSSADQFA
ALQNMVSYFDTLVTDREHHDRDDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETT AHMIGLVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVTL PPLANRDSAVFERPDELDVRRN
ARQHLTFGYGPHQC PAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP245A7 (2518470633) *Salinispora arenicola* CNX481

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVMFMDP
PRHTELRSLLNRSFSPRIVTELPRPRIARIAQELLSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDMMDGYARADVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGADGLTTDAVEEFLRYDPPVQ
AVTRWAHQDATLGCCDIPRGSRVVALLGSANRDPARFPSPDVLVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP244A4 (2518470637) *Salinispora arenicola* CNX481

MSTTTNTELTEAPETNMPVDPLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQALTHPKMGKDIALVPEWMRQPGLMVTAPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGFLELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGLSLISTSLYEAIRPPHERPKTDEDITAWIEETLRVHPPFPHPPTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEAGDSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP166A4 (2518470777) *Salinispora arenicola* CNX481

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVLGLPYGERDRYLHAVTLHDAEADPAEAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGGGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHCQLGQN
LARVELRAGLSALLRAFPNRLRLAVPADEVPLRLQGSVFVAVKNLPVCW

>CYP125A41 (2518471383) *Salinispora arenicola* CNX481

MTEPRIPAGFDFTDPEVLAHVRVPREEFAELRRAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRDSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGVDFV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQSPSDDLVTCLVNAQIDGELTDEFGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTVLGGQAI SAGQ RVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP105CP2 (2518471603) *Salinispora arenicola* CNX481

MTKSMPVQDLPAFPIPRECYPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSA HARAVLS DYRRVSIKPYHGNYP LLNEEF EKVVDSGYADVLFGVDPP
EHTRQ RQMIMPSFTLRRTAVLRPDVQRI VDDKLDEM MRHGAPGDLVTEFA
QPVP SMVMSFLLGV PWEDHEEFETPA HKLFVPELAEEATTEL GAYLERLI

QKKEQPGGTPGGTGLLDDLIRDHLRAGALSRDELVHIAMAMLVAGTDTT
NVISLGLTALLDNPDPQWAALRDDPDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRPPRPSPFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRRTAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2518471605) *Salinispora arenicola* CNX481

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVTGAEEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRLQLLPRTVTRQVAARRPAIQIRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVYPYQDRTRFEPAVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIHHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPVTW

>CYP107FS2 (2518471606) *Salinispora arenicola* CNX481

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPFADRSEFERHAEVLTGINASSGFDALIAAGRWFDEYLAELVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETTVNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAANHDPTVFADPSRLDLRREGSGQILSFSHGIHF
CLGAPLARLEGEIAFGTVLRRLAGLTLAVPTDSLWVKASFVLHRLERLPV
TFTPDRAPNPIDSVHTV

>CYP1051A1 (2518471737) *Salinispora arenicola* CNX481

MATDAAITRARTVPAWKALPAAVRGAHRAFDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLEHERAAIYPRGDDTALWRSVRKLVGDGILAEGDWAA
SRRVLAPMFRPARINAMVDTMADAIAGAVDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVGDALRIMKAQETIVTAMAPRILAPLPWWIPMP
GDRRFRAAVRSIDDIILPVLRLQAQRQPDGDDLLSRLVRARADDGRALSE
KMRDDLVSMVAVTTETSTVVLTWLWPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMI
LKPVAVPPAR

>CYP105G5 (2518471761) *Salinispora arenicola* CNX481

LTIETTETPTDDSLRAPLPRQFMQRDDPSKLPPALAALAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGELGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRPQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTP

>CYP107Q4 (2518471762) *Salinispora arenicola* CNX481

MTTTAETS AETID LFSPEVVAD PFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTRYEDVRQVLTDP RFLTNPPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVS YALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIAKRR AEPQDDLV TALVQAQAE DQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI I
DRLAVGSEHGLGFGKGIHRCLGQH LAYQEA E VALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP208A12 (2518471990) *Salinispora arenicola* CNX481

MTLDTITPRVPLGPPRTAALRMLLV MKRDRLGMLTSAAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGD LWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAE LTG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELET LNAVPMWIPLPR
QIRFRRARRKLQAVVD TLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTL SLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRV PANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP107AY2 (2518472783) *Salinispora arenicola* CNX481

MTAEPTPIPRSGARLGQEYDQLRK TGDVHQVLLPDASLAWLV TNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNL DAPDHTRLRRLVGP AF
SPQ RVAALRPGIRRAAEHL LDTLVATSGPTDLVTGYCNPLSVRVIADLMG
VPEAGRTNLRAWTDTMLTSYPPDRDAIRQAVTELHG YVVDLIDIKQQQPG
DDL LSALVTIEQDGDRLSRDELTS LAFLILFAGYENTANLIASAVLWLLD
HGGLNVVPISEAIEATLRHEPPAPVAIRRFPTEDIIIGGLTIPAGDTVLL
SVAAATRGADGNAARLAFGNPHYCLGAALARVEAE EALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP105J3 (2518472924) *Salinispora arenicola* CNX481

MTDSVAFPQGRVCPHPAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDR TNPAWPAIVPIVAAA VND AQQKVLKIATALVGT DGPE
HKAQRKMLIPSF TFRMNALRPMIQEIVDQQLDEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIF EKL SHQLLACPNANEAYDQLMGYMSRLIA
ERRRNPEG EGVLDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADP SLMPTAVDELLRFLSVPD AVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPGLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP105AB8 (2518473001) *Salinispora arenicola* CNX481

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCID EMLTTDQHCADLVKA
LSLPVPSLVICELLGV PYADHDFEQEHTATLVRRNTASEVRQHS IDELNA
YLGALIDRKLASPD DDLGRQIARQHRDGTTFDRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKNDPDKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAV

>CYP248A2 (2518473455) *Salinispora arenicola* CNX481

VLADAVTAFDPTAVDVRDPYPSYHWLLRHDPVHRGAHQVWYVSRFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQMSRNEIVSTVVTFTFTGHETVASQLGNGL
LSLLDHPEQMELMRRQPHLVPQAVEECLRFDPAVQSNTRQLAADVALHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDVPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCSPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP105W2 (2518473463) *Salinispora arenicola* CNX481

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRAHADVRLSDPRMSADRRRPGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVSRRVRQSRALVERVVDTH
LDALTAGAPGADLVSTFAYPVPSQVICEVLGVYPYGEHEFFERRSTLMFRR
STPADERARCARERIRDFLDVVVTDKERRPGDDVLSRLLYRQRSAGGMDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPPERFPAAVE
ELLRYFTVVEAATARTTTAEVTIGGVTTAAGEGVVALGQAANRDPRVFEH
PDEFDPDRDARAHLAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP154M5 (2518473619) *Salinispora arenicola* CNX481

VEQSCPYKLDVTGRDVAEGEAIARARGPVAQVELPGGVQGWSVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPPNWPLIGWLLMDNMTTNDGADHQRLR
KLVSHGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNVTSISGEEAEANVEQWHRELLELV
EAKREKPDEDMASLLIAAKEEDGSTLTQEEVVGTLHMLMGAGSETLMNAL
SYAVLGMLSNGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDPVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPNMTLAVRPDQLEPQGTFFIMNGHREL
PVR LGQPATVLA

>CYP105CT1 (2518473636) *Salinispora arenicola* CNX481

MNSPNHMPADRSLTAPTSGCPMALSRGRVGLDVADEIGELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTDSDHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGVLHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLTDTG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRRFPGLRLAV
PDSELEFTQGTTVYSLRGLPVTW

>CYP211B13 (2517900732) *Salinispora pacifica* CNT148

MDASEAVALLMSPPGRLDPYPTYERLRAHGTVVPTAAGFFVVTGYTEADT
VLRNPRFGVMDDEEREGVFPHWQESPAAMMSISQSMIRANPPDHSRMRRLA
AKAFTPRRVAALREVVAQAADGLVDGMIRAGRGGAPVDFLGSFAYPLPVA

VICALLGVPAADWAQFRRWASDLTGVLEPEITPQELAVADAGARELRDYF
TELVAQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVVLNHPDSATALRDQPELAPSYVEELLRYDSPVQLTTRTVR
ESVPLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRNLTLRGYETLP
VTVGAVAADHGTPAGVALGTP

>CYP1005A6 (2517901058) *Salinispora pacifica* CNT148

VSAVLFERSWTKTAGTHWPAVTRVADRQGT EHLVVTEHALVRQVLTQVTY
RPDNALDAVTPIPV TALRVLAGHRFRLPPTLANNGGVNHPAIRALVADAL
HPAKVAAQRPWLTELVAERVAAIRATLDAGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAALFWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLAGEP
TVRAALQDGSVSVTSVVEEGLRLEPPIVWRRVAAVDSTLGGTAVPAGTS
VLLWLARAGRDP AIVPAPDEF RPGQ RGSRRHLAFGAGAHRC LGDQLARME
AAVVVEQATPLLDGVTVVRAPWYPDNLTFRMPDAFVIRR

>CYP107AW9 (2517901444) *Salinispora pacifica* CNT148

VETVTGTSAPPPVPYIADPYPTLARIRANGPVSILHSDEGLPMWVIARYQ
DVRAALADPRFGQDSRRQAALADNRVAGVTLG GDIVHMLNSDPPDHTRLR
RHHVQGAFTARRVAAMRPLVERITTSLLDGLAGRTTVDLVQDFAFPLPLV
ICELLGFPAEERNVYRSWSTAILTHDDDPTAFATALREMTDYIAVQLRIR
QTRPGDDLLTELLAARDAGQLTDDEIIGMVFLLLIGGHETTVNLLGTATL
ALMRNPDQHRWLLANQPALPEAIDEFLRYESPVAMATLRFTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILNRHDTGHLAFGHGLHRCLGA
LLGKLEGEVALGALLRRYPRLALAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP107AX11 (2517901456) *Salinispora pacifica* CNT148

MTSPAPVFDQLLLRDPHRRYNALRDEAPVHHIRTPDGAPAWLVTRYDDV
RAAFTDPRLSVDKRLSSTDGEHGSSLPPELDAHLLNRDPPDHTRLRRFAA
AAFTPRRVADLRPAVERIVSTLLDGLAGNDHAELIGSLASPLPLQVMQEL
LGLPTQTSVDFRTWTNTLLSADANQPAQSR SAMASMRFLIEQLAHKRAR
PGDDLLTGLLAPHADGDRLSDDELVAMLFLLMFAGYDNTAALIGNVAHAL
LTNAELAEAVRTGSLAVDELVDGVLRWNP SFPLAVRRFAREPVTIAGQLI
PAGDRIWLCLASANRDP AQFTEPDTL GTTGMRCPHLSFGHGIHYCLGAPL
ARLQTTVAITSLLDRFP GIRLAVPAQDIRWRESFRLRGLVALPVFLSDGC
GSGGTYG

>CYP125A66 (2517902687) *Salinispora pacifica* CNT148

MTEPRIPKGFDFTDPAVLERRVPREEFAELRRTAPVWWNAQPKGSAGFDD
DGYWVVTRYADVMAVSRDSETYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPPEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAARDTGDFV
TDVACELPLQAI AELIGVPQHRRKVFDWSNQLIGYDDPAYGVDPMAASA
ELLAYAMEMAHERQRNPSDDLVTQLVNAQIDGEHLTADEF GFFVMLLAVA
GNETTRNAITHGMLAFLENPEQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLAGQAI SAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRQLADPQRLRSGWINGI
REL PVQYH

>CYP105AB33 (2517903372) *Salinispora pacifica* CNT148

MTETASITTAGASSTATSGPGSGEVTDAEFPVERGCPFSTPAEYEQIREH

APLAKVRLTTGREAWWIAGHELARAVLADRRFSSDRRRDNFFVSTDPET
RKQLQDQPI SMLGMDGAEHAQARRALMGFTVRRMAGLRPRIQQIVDQHI
DEMLSSEQRSADLVEALSLPVPSLVICELLGVADHDFQAHGTGPLVRH
NTPSQVRVRIQEELNTYLGGLIDRKVADPTDDLLSRQIAKQRAAGTFDRT
SMVSMAFLLLIAGHETTANMISLGVVGLLQHPDQLAKIKEDPEKTPPAVE
ELLRYFSITDTVTARVATEDVQLGDTTINAGDGVVISGLAADHDPTVFTD
PTRIDLERGARHHVAFGFGPHQCIGQTLARLELQIVFDTLFRRIPTLRLA
APLDDIPFKSDAIYGAEEELPVAW

>CYP1223A5 (2517904212) *Salinispora pacifica* CNT148

MREVGRAVQALFGPAGCAEPYPHYEALRRAAPVCPLPDNIVLVSRYAEAE
RVIRDPRFLMEDAAWIGQSHPGWTEHPSFRSLMLEMVNHNPPDHARLRRL
VSRAFTPRRVAELRPAVEQLIDDLQMAAREGGTADFMADFALPLPVTV
IGELLGIPPADRIWFAPRVEAFTDAIEESMRGPSLAEADQAVKELWARLG
ELADERRRNPRNDMVSELVSVSDSGDDRLSHDELLANLVLLYAAGYETTS
NLLGNGLAALLERPALKERLRQNPTQASAFVEEMLRFDPPIQIATRYTAQ
ATTLLGGLNIDAGTQIIIVLIGSANRDPDRFADPDEFDPDRADGGSMVFGVG
AHYCLGAALARMEAEIAFPRLDRFPAITGHAPGVRRRKSLRGFTQLPIS
LS

>CYP107AY10 (2517904853) *Salinispora pacifica* CNT148

MYQDQPTRAQLAPIPRSGALLGQEYDQLRKTGDVHQVLLPDTSMAWLVTS
PELVSRALADPRALNRKHSRGGWSGFALPPALDANLLNLDAPDHTRLRR
LVGPAFSPQRVAALRPVQRTAEELADTVLATGSPVDLVTGYCTPLSVQV
IADLLGVPEAGRTDLRAWTDMLTSYPPDRDAIRRAVVELHGYVNVNLIDA
KQQRPGDDL SALVATEQEGDRLTRDELTSLAFLILFAGYENTANLIAS
TLRLLDHGSLRGVQASEAVEETLRLEPPAPAAVRRFPTEEMTIGGATIPA
GDTVLLSIAAATRGADGNSARLAFNGPHFCLGAALARVEAEAEITVLAR
RLPSLALAVPGAPVRWRPTFRTHGPAELLVTW

>CYP211C4 (2517905018) *Salinispora pacifica* CNT148

VPDIEGLLTRLYSAPGRQDPYPVYADLHAQAAIAALAPRPERQRVAAVAV
GYDLVAAVLRDPEWGKQPPPGWTDQEILRTLQSSMMFINPPDHGRMRHVF
AGTFTPRRLGALAPVINRVTDDELDRMADAGPGEVDFVTEFAYPLPARVM
AEFIGIPATELTWYRERVDRIDAFLDVAGKTPERLAAANAAGAE LRAFYR
ELLVHRRRMPGEDLISGLVEAVDAGGVELTEEELISNLIVLFNASFVTTV
YLLSNGLPVLLAEPEVAAALADDPELTAGAVDEILRLQTPVHLLARAAPR
DTVLLGGVSI PQGQNVLLIIAANRDP AHFPDPDRFDP RRS GP PSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRILEQPVYSGSLFLRGIDRLSV
SPGGRSIRE

>CYP1278B4 (2517905315) *Salinispora pacifica* CNT148

MPSPVGAVVHPNPYPYAAAMVAERPFFHFDEQLDTWVAASAAAAQAVLTAP
GCRVRPPHEPVPQGITGTGTPAGDVFGNLVRMTDGE PQHRLKAIVTQTLGAV
DRSTVAATAMRHARQVLNDSVRTPYEQLMFELPAQVVATLCGLDPAAGGE
ATRLVGHFVQCIPATASPEQQQRAARAAAGLQELLGSKLDDTQHGLLGDL
VRMATHVGWTDQAPLLANGVGFLSQTYDATAALMGNTLLALSQQECELPI
SEMALQRFVREVIRHDAPIQNTRRFTATPIRHGDVEVPAGQAVLVLLAAA
NRDPAANPDPHMFADRTAPNVFTFSAGAHHCGETLAVTIVTTVVEQLL
RVGFDPAKLSTQVSYPSPNARIPVLT

>CYP105J3 (2571075757) *Salinispora arenicola* CNH713

MTDSVAFPQGRVCPHQAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRTPAWPAIVPIVAAVNDAAQQKVLKIATALVGTGPE
HKAQRKMLIPSFTEFSRMNALRPMIQEIVDQQLDDEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGLVDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIERLPSRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP125A41 (2571075909) *Salinispora arenicola* CNH713

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAHEHIVRDAAVRGVGVDFV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLYAMEMAEERQSPSDDLVTCLVNAQIDGHELTDEFGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERPKSAVEEIIIRWATPVNVFQR
TALVDTVLGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLDPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211C1 (2571076059) *Salinispora arenicola* CNH713

VVDVEELLTRLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVVIDAFLDVAGKTPQRLAANAAGAE LRAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPI PQGQNVLLLLIAAANRDP AHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP105AB8 (2571076177) *Salinispora arenicola* CNH713

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHRADLVKT
LSLPVPSLVICELLGVPPYADHDFQEHATLVRNTASEVRQHSIDELNA
YLGALIDRKLASPDDDLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFITIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPL DKIPFKTDAAIYG
ARELPVAW

>CYP166A4 (2571076408) *Salinispora arenicola* CNH713

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGWIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHVEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGI HQCLGQN
LARVELRAGLSALLRAFPNRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP105CH1 (2571076417) *Salinispora arenicola* CNH713

VSSLPLPTYPTLRDPADPLLPPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHFNFPYPVNPDAVVAQVARWTYILLGDDPPL
HTERRLLI SEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNREIEAFDHEALVALGLLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRDPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVLNNTIARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQC MGQNLARVEMQIALD TVLRRLPGLHLVTPFEELPFKYRHLVWGIEEL
RVAW

>CYP105BL2 (2571076492) *Salinispora arenicola* CNH713

MSSHSAAAPDPETATPLHTLAPELTFPQFERSTFPDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLDPRFSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLTGTGELTVRRAKAMRPVITQITDEALDQLAAG
PGADLVKHVAFVVP SRVACHLVGIP LSYELFTGMAATLMDSTSDDQFA
ALQNMVSYFDTLVTDREHHDRDDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDP AVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP162P1 (2571076922) *Salinispora arenicola* CNH713

MGLPSEVDLAEPDLADPDLYAEGDPDAEWAWLRAHRPVYRNPAGATAEFW
ALTRYRDALQVYRDPSTFSSERGMVLGVDPVAGDPAAGRMLVVTDPPRHP
KLRRIVSGIFVPRTMHRLEGRVRS LVDQLLHRVVDGAGRCDFVNDVAARL
PVAIIICELLGVPADEQDWMYHLTSTAFGGGDPAGSAEVS AVERAEAYGDI
LLYYGELAAERRRRPGDDLVTLLVHADLDGEPLDVEDVLVNCTNLIIGGN
ETTRHAASGGLLALAQRPELWRRRLRETPTAVPTAVEEVLRWTTPGMHVLR
TATRDTEIGGVPIRAGERVVVWNAANRDEDVFADPQHFDIDRSPNRHIA
FGQGGHHCLGAALARLELTILFEEMAKQVTNVRLTGPVRRVRSCVLRGIR
ALPVELVT

>CYP1005A1 (2571077435) *Salinispora arenicola* CNH713

VSAVLFRSWTKTAGTRWPGVTRVADQSGTEHLVVTRHALVRQVLT DQATY
RPD NALEAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLD SGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAV KQFARAALFWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFL TLLHRLSGEP
TIRTALRAGSISVADVVEEGLRLEPPIV TWRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDP AVVAAPDEF RPGQRGSRRH LAFGAGAHRC LGDQLARME
AAVVVEQATPLLDGVTIVRPPWYPDNL TFRMPDAFVVR

>CYP211B2 (2571077774) *Salinispora arenicola* CNH713

MDVSEAI AVLISPSGRLDPYPTYEQ LRAHG PVSRTTAGLFVVTGYAEADM
VLRDPRFVV LDDDLRDDVFPHWQDSPAIKSIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREV VTAQADELVDEMIRAGR DGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLT TALVQAHDADGGRLSGEELLANLVVLLVAGFETT

TNLLGNGLVLLTRPEAAAAALRDVDPDLAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPAWSWLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRTLTRGYETLP
ITVGAVTADRGTPAGVAPGTP

>CYP208A12 (2571078289) *Salinispora arenicola* CNH713

MTLDTITPRVPLGPPTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAELTG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNLAVPMWIPLP
QIRFRRARRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHGPVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGHRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP105CP2 (2571078628) *Salinispora arenicola* CNH713

MTKSMPVQDLPAFPIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHAARAVLSDYRRVSIKPYHGNYPLLNEEFKVVDSGYADVLFVGDPP
EHTRQRQMIMPSFTLRRATAVLRPDIQRIVDDKLDVMVRHGAPGDLVTEFA
QPVPSMVISFLLGVPWEDHEEFETPAHKLFVPELAEEATELGAYLERLI
QKKEQPGGTPGGTGLLDDLRDHLRAGALSRLDELVHIAMAMLVAGTDTT
NVISLGLTALLDNPDQWAALRDSPELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRATAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2571078630) *Salinispora arenicola* CNH713

MAAPAPQATPSTIPHPPSYPLPRECPYRPSAGTAHLRDAGPVSTVRLYDG
RTAWLVGTAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQLLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVVPYQDRTRFEPVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYTALVDNPDLPVPGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIIHCIGQNALLLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPTW

>CYP107FS2 (2571078631) *Salinispora arenicola* CNH713

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPFADRSEFERHAEVLTGINASSGFDIAAAGRWFDEYLAGLVQ
QRRREPQDDLISGMLAAQDKGDRDLDVELRSNALLLSAGFETTVNLIAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVIVAAAAANHDPTVFAAPSRLDLRREGSGQILSFSHGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSLWVKASFVLHRLERLPV
TFTPDRLDPNPIDSVHTV

>CYP125G6 (2571078671) *Salinispora arenicola* CNH713

VPTLLNEHVSVDGAAIAIVDSGDGATSWIRLAERVNRWVHLLRAHGLDTGD
RLACVTGNRRETFEVLLAALHTGVTVVPVNWHLTVTEIGHILSDSGSRVV

ITEELHVKA VAAAADGTAGPVAGLV LGDREVEGF AAVEPL LAAASSAEPE
GQVCGATMLYTS GTTGRPKGVVNNLFVTGAPYARVGRLCDYARSVLGVPR
RERMLLDGPWYHSSQLFFALLSLLQGSRLVIRPYFDPAATLKTIDDHRIT
VTHLVPTQLVRLLRVDALTRQMFSGASLRRVWHGGGPCPPEVKRSMIDWW
GPVLVEYYYGATEGGVVTLIDSAEWLARPGSVGRAVPPSEVVVVDDGGQPV
AAGQTGQVFFRRRTGNRFHYHNAPEKTQAAYLAPDTFTTYGEVGHVDEDGY
LFLTGRAQDMIVSGGVNVYPAEVEAALLRHPVVRDAAVIGVADDEFGERV
VGIVVPETA VDPDDLATHLDAHCRVSLAGFKVPRTYRVVESLPRDETGKL
RKDALRSKFGWLSGAAMTVPRPATGQPTAHRPDIAHPTTYVSGVPHDEFA
RRRDEPVGWVAEPVLTRHTAAGRTATRGSGFWAVTRYEDVVAASRRVTD
FSSAAKGAF L TDPRTADLQQARQLLVNMDDPHHARLRKLVTSVFTPRAV
RGLLASIDAHAAALVAKVVAAGEFDVVTDLAAELPLLVLADLLGVPKQDR
ALLYGWSNHLVGFD DPDFGGGDIDAYRTAMAEAFQYALNLGVERRARPTD
DLVSLLANAEVDGTRLTDREFCNFWLLLVVAGNETTRHLVAGTMQALTEH
PGE CARLVEGHVPMESAVEELLRWVTPIMQFRRTATRDTEIGGQAVTAGE
KVVLYYTSANRDATVFSEPDRLDLGRTPNRQLSFGIGPHYCLGAHLARAE
LTALLRVMSPHLGSLQLTG PVSRLASNFVNGVKAMPAVIGSR

>CYP154M15 (2571078696) *Salinispora arenicola* CNH713

MNDKCPFAALDVTGQDLHG EAARLREQGPAVLVELPGGVKAWSINRYEVI
RELLMDRRVTKNARKHWP AFIKGEIPPDWEMISWVAMDNMVTAYGKDHVR
LRKLVGRAFTQRRADALRPQVVALSTKLLDDL GATPPGEVVDLRERFAYP
LPAMLVASLIGMSEAAALACSKVIDMMVHTNVSPEEAQAVLQGWRAAMAD
LIESKRRTPGEDITTDLIAAREEDGSRLSEAELADTIFAILGAGSETTIN
FFDNAITALLSRPGQLQLLRTGAVTWDDVIDEVL RVESPLAHLPLRYAVE
DIELDGVTIPQGDPI LVNYAAAGRDPALHGGTADEFDLARGDKTHLSFGY
GPHYCLGAGIARMVATIGLSMLFERFPDL SLAVPATELKRLP T FIMNGHQ
TLPVRLTAHAR

>CYP107FJ2 (2571078715) *Salinispora arenicola* CNH713

MSETLSTSVLLADAAEQRAWRAKL RGAGPVHRITTSGETGWLIVGHEEA
RNALVDLRLQGR TATVGHGRMPEDLERALNSHMLNVGPPDHTRLRLRLVS
AAFTRRRIEQMRPRIQELTDELLDGLAGADEADLVAGLALPLPMRVLVDL
FGIPAEDCADFNVT KVLTSAGAVDLDRLT TAAGEMVAYLRGLLDRKRQV
PESDLLSALVAVRDGADRLSDEL TSMVYLLLTAGYETTVNLIGNGLLNL
LANPEQLVAFKADPDLLPQVVVEEAMRFDSPVQI AVRHSTEPVEIAGQAIP
SGALILVSL LWANRDPDRFTDPETFRVDRQDN PQLGFGYGFHHCIGAPLA
RMEGTIAIGTVIRRF PALRLAHPAGSLTWRASMVMHGLTALPVHLR

>CYP154M20 (2571078721) *Salinispora arenicola* CNH713

MERCPYVLDRAGRDLHG EAALRARGPVT LVELHG GYTAVSVTSYEIAKQ
LLVDPRISKNTKETWPEFREGKVPQDWELYTWVAMDNMQTRDGEEHDRLR
KLVAQAFTTRQVAKVRPMIEDIVDRLDDLEKVPAGEVVDIKGRYFYPLS
TILVCDLLGIPEADRAEALHGTAVNAKTTNSAESEANLHQWQSALSKLV
ETKRREPGNDITTLIIKAREDEQA PLTDDEVIGSLHLLIGGGTETTSNVL
CNTLIDL LTHPDQMAMIRSGAVGWEEAWE EEEVRKDGAVGSM PFRCANADI
EIGGV TIAKGDVLV LINYAAAGRDPERYGDTTAEFDITRADKTNLSFGYGR
HRCLGPALATMEAMISLPALFERFPDLILAVPRDELKPQGTFFVNGYAEV
PMLLRS

>CYP248A2 (2571078742) *Salinispora arenicola* CNH713

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVS RFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG

PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQMLSRNEIVSTVVTFFITGHETVASQLGNGL
LSLLDHPEQMELMRRQPHLVPQAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCSPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP105W2 (2571078750) *Salinispora arenicola* CNH713

MTGYQDRPTGDQPGTPVPSGSTDPGIGAFPLPRRCPPSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRAHADVQVLSDFRMSADRRRPGFPGFAPTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVSRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVYPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDVVVTDKEHRPGDDVLSRLLYRQRRAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGVTTAAGEGVVALGQAANRDPRVFEH
PDEFDPDRDARAHAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP154M13 (2571078763) *Salinispora arenicola* CNH713

MSTGRPVVLDPTGRDIHGEADHLRALGPATLVELPGGVLAWSINSYEVGK
ALLSAPNVSKSARRHWPAYNGEIPPDWEMISWVAMDNISTTFGGDHRRL
RRLTAKAFGSRRAEQVRPMATHMVNTLLDRMADAADAGEVVDLKAFAFYP
LPGMLVAELIGMSEEARVAAKVIDMMTATNITPEQAQGVLLGWRDAITD
LIAALKRAQPGDDITSDLIAARDEDGSLLTEQELVDITIFAILGAGSETTIN
FFDNAITQLLTHPEQLELVKSGQVSWDDVIEEVLRLLESPLASLPMRFAVE
DIQLDGVTIHRGDPILINYAALGRDPALHGESAGVFDVTRQHKEHLSFGH
GAHYCLGAGIARMVAKTGLSALFERFPRMTLAVSAKDLVPYPTFIMNGNR
QLPVHLSGALTWREGEQSALGRA

>CYP107Q4 (2571078829) *Salinispora arenicola* CNH713

MTTTAETS AETIDLFSPEVVADPFGWYARLREETGPTTGTNLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPFRFLTNPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRLKLVSYALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPRPHWRAGDSMATMNGER
IPTTLVKCIELARELIAKRRAPQDDLVTALVQAQAEQDNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLVRLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI
DRLAVGSEGLHGFKGKGIHRCLGQHLAYQEAEEVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTTRTRLPLKLV

>CYP105G5 (2571078830) *Salinispora arenicola* CNH713

LTIIETTETPPADDSLRAPLPRQFMQRDDPSKLPALAAALAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDEDELVGIA
TLLLLFAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHYPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTF

>CYP1051A1 (2571078850) *Salinispora arenicola* CNH713

MATDAAITRARTVPAWKALPAAVRDTHRALVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAVDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDDILLPVLRLQAQRQPDDGDDLLSRLVRARADDGQALSE
KRMRDDLVSMVAVTETSTVVLTLWLWPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMI
LKPVAPVPAR

>CYP244A4 (2571079204) *Salinispora arenicola* CNH713

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQALTHPKMGKDITLVPWWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGFLELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLLISTSLYEAIIRPPHERPKTDEDITAWIEETLRVHPPFPHPWT
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEAGDSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP245A7 (2571079208) *Salinispora arenicola* CNH713

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRLSLNRSFSPRIVTELPRPRIARIAQELLSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGAEGLTTDAVEEFLRYDPPVQ
AVTRWAHQDITLGGCDIPRGSRVVALLGSANRDPARFSPDVLVDVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPRTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCT

>CYP107EU1 (2571079293) *Salinispora arenicola* CNH713

VTIGQTLPLDLYVSPEFTRDPYAIFARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADSRLAKDGNRIGELMPRHSTLTGAATGFPPGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFCWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPADDLLTALVQVSADEDRLSREELVSMALLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRLDITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQMQLAVEADDLEWLVNSFFRAPL
HLPVSLRR

>CYP107AY2 (2571079494) *Salinispora arenicola* CNH713

MTAEPTPIPRSGARLGQEYDQLRKTGDVHQVLLPDTSLAWLVTNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRLRLVGPAP
SPQ RVAALRPGIRRAAGHLLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRAWTDMLTSYPPDRDAIRRAVTELHGYYVDLIDIKQQQPG

DDLLSTLVETIEQDGDRLSRDELTSIAFLILFAGYENTANLIASAVLWLLD
HGGLNVVPISEAIEGTLRHEPPAPVAIRRFPTEDIIIGGVITIPAGDTVLL
SVAAATRGADGNAARLAFGNPHYCLGAALARVEAEEALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP1198B1 (2571080633) *Salinispora arenicola* CNH713

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGGEYHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQKRLVSKSFTPRIVKSFGPQITHIVDGLFEDFRDRGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDPAYESP
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKNPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP154M21 (2571078764) *Salinispora arenicola* CNH713

MEKCPYVLDRAGSDIHKEALNLRARGPVTLVELHGGYTAWSVTSYEVAKQ
LLMDPRISKNTKAHWPEFRDGNVPQDWELYTWVAMDNMQTRDGKEHDLRL
KLVAFAFTGRQAVKSRPIIEEIVNRLDDLETAPRGQAVDIKARYFYPLS
TILVCDLLGIAEEDRDVILHGNVNSKTTNTAESEANLHQWQTALGRV
ETKRDPGDDLTTVIIKAGEDEQAPLTDDEVIGSLHLLIGGGTETTANVL
CHTVVMDMLTHPDQLAMVRSGAVSWESAWEVEVRKDGAVGSMFRCATDDV
EIGGVITIAKGDVLVLINYAAAGRDPERYGDAAAEFDITRADKANLSFGYGR
HRCGLPALATMEAMVALPALFDRFPNLALAVPPNELKPKQGTFFNGYAEV
PLLLRS

>CYP166A4 (2524589595) *Salinispora arenicola* CNH963

MTYAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHVEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLYHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPADLDIDRETSGHVAFGFGIHCCLGQN
LARVELRAGLSALLRAFPNLRLAVPADEVPLRLQGSVFVKNLPVCW

>CYP107Q4 (2524589604) *Salinispora arenicola* CNH963

MTTTAETSATIDLFSPEVVADPFGWYARLREETGPNTGTNLIGTMMGGP
EMWLVTTRYEDVRQVLTDPRLTNPPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRLKLVSYALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPRPHWRWAGDSMATMNGER
IPTTLVKCIELARELIAKRAEPQDDLVTALVQAQAEQDNVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI
DRLAVGSEGLHGFKGKIHRCGLGQHLAYQEAVALQGLFTRFPDLTLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105G5 (2524589605) *Salinispora arenicola* CNH963

LTIETTETPAADDSLRAPLPRQFMQRDDPSKLPPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDFRFSDFRYHPRFKKLSGQLGERLRNDK

ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQLDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRTTPADDMISGLVHHAGAEPPLTDDDELVGIA
TLLLFAGLDTTASMLGLGMFMILLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQQLARIELTVGITELLCLLPNVRLAVPPADV
PLRNDMITYGVHRLPILWGTP

>CYP1051A1 (2524589629) *Salinispora arenicola* CNH963

MATDAAKARARTVPAWKALPAAVRGAHRALVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAVDDLHEAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDILLPVLRQAQRQPDDGDDLLSRLVRARADDGRALSE
KRMRDDLVSMAVTTTETSTVVLTWLWPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASRTPARTVEMI
LKPVAPVPAR

>CYP211C1 (2524589891) *Salinispora arenicola* CNH963

VVDVEELLTRYLSAQGRQDPFFVYADLHAQGPIAALPPEPERRRVAAVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVVIDAFLDVAGKTPQRLAAANAAGAELEAFY
ELLAHRRRTPGEDLISGLLEAVDAGGVELTEDELVSNLIVLFNASFVTV
YMLSNGLPVLLAHPEVAAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPIPPQGNVLLLIAAAANRDPAHFPDPDRFDPRRSGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP125A41 (2524590039) *Salinispora arenicola* CNH963

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPHEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGFV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAEERQSPSDDLVTKLVAQIDGEHLTTDEF GFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTVLGGQAI SAGQRFALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSWINGI
RQMPVRYR

>CYP211B2 (2524590117) *Salinispora arenicola* CNH963

MDVSEAVAVLISPSGRLDPYPTYEQ LRAHG PVSRTTAGLFVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIKSIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTQAQADELVDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPAGSWLLVLLGAANRDPRRFPDPARFDPWRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGTAGVAPGTP

>CYP245A7 (2524590355) *Salinispora arenicola* CNH963

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRSLLNRSFSPRIVTELPRPRIARIAQELLSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANAMALQEASSSRAGRVDVGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGADGLTTDAVEEFLRYDPPVQ
AVTRWAHQDTTLGGYDIPRGSRVVALLGSANRDPARFPSPDVLVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP244A4 (2524590359) *Salinispora arenicola* CNH963

MSTTTNTELTEAPETNMPVDPLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQALTHPKMGKDIALVPEWMPQGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGFLELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLLISTSLYEAIARRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEAGDSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP154M14 (2524590516) *Salinispora arenicola* CNH963

MRRRCPVVIDPAGTDIHAEGARIRTNGSVSQVELPGGVLAWSVTGQQAAR
QVLSDQRFKSKDPRKHWTDYLDGRIGQDFPLIGWVMDNLTAYGSDHSRL
RKPCAQAFTPRRVQALRPAVERAAVELLDGLAMLSPTESVDLKARYTHPL
PSRVICDLFGVPEEDRAEMLRGGEVNVDTRVSAEEAAAANVERWHQQMLDF
IANKRQNPQPDLTSDLVAAQEAANGSRLTDSEMVGTLHIMLATGTEPVKNL
ITNAVFALLTHPDQLYLLRTGRAGWDDVIQETLRVQAPVAHLPPFRFAVED
VEIDGVTIGRGDPLLVNFAAIGRDPEVHGETAAEFDI TRADKEHLSFGQG
VYRCIGQPLALLEAEVALRMLFQRFPNLMLAVPPEEVTPQPTFIMNGLDT
LPVLLKECA

>CYP105BL2 (2524591183) *Salinispora arenicola* CNH963

MSSHSAAPDPVTATPLHTLAPELTFPQFERSTPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLDPRFSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLTGELTVRRAKAMRPVITRITDEALDQLAAAG
PGADLVKHVAFVVPSPRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHDRDDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHELLPGAVDELMRYLPLI
QFGIPRVATDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP105CP2 (2524591304) *Salinispora arenicola* CNH963

MTKSMPVQDLPAFPIPRECYPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHAARVLSYDYYRVSIPYHGNYP LLNEEFKVVDSGYADVLFVGDPP
EHTRQRMIMPSFTLRRTAVLRPD IQRIVDDKLDMMRHGAPGDLVTEFA
QPVPMSMVSFLLGVFWEDHEEFETPAHKLFPVPELAEEATTELGA YLERLI

QKKEQPGGTPGGTGLLDDLIIRDHLRAGALSRDELVHIAMAMLVAGTDTT
NVISLGLTALLDNPDPQWAALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRATATPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2524591306) *Salinispora arenicola* CNH963

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVGTGAEEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQQLLLPRFTVRQVAARRPAIQIRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVYPYQDRTRFEPAVAGLFEPDRAD
AAMAEALTAYLHQLIETRQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIIHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPVTW

>CYP107FS2 (2524591307) *Salinispora arenicola* CNH963

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPFADRSEFERHAEVLTGINASSGFDALIAAGRFDEYLAGLVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETTVNLVAN
GLLALLRHPEAMAAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVIAAAAAANHDPTVFADPSRLDLRREGSGQILSFSHGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSLWVKASFVLRHRLERLPV
TFTPDRAPNPIDSVHTV

>CYP105J4 (2524591654) *Salinispora arenicola* CNH963

MTDSVAFFPQGRVCPHQAPAGYRPLAAQSRSLAQVTLYDGRRVWAVTTRDLA
RRLVDPRISSDRNTNPAWPAIVPIVAAAVNDAQQKVLRIATALVGTGPE
HKAQRRMLIPSFTRFRMNALRPMIQEIVDQQLEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPHANEAYDQLMDYMSLVA
ERRRNPGEVLDLLAQHGANDVDHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRANPSLMPTAVDELLRFLSVPDAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSLRLAVPAEEVPFLPAASLQVMAELPIT
W

>CYP208A12 (2524591937) *Salinispora arenicola* CNH963

MTLDTITPRVPLGPRTAALRMLLVMKRDRLGMLTSAAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAEITG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLANRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHGPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPVWLLPRRALAPDTIGEYRVANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGPLVVRP
VS

>CYP107AY2 (2524592157) *Salinispora arenicola* CNH963

MTAEPTPIPRSGTRLGPEYDQLRKTDGVHQVLLPDASLAWLVTNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAF
SPQ RVAALRPGIRRAAEHLDDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGR TNLRAWTD TMLTSYPPDRDAIRQAVTELHGYVVDLIDIKQQQPG
DDL LSALVTIEQDGDRLSRDELTS LAFLILFAGYENTANLIASAVRWLLD
HGGLNVVPISEAI EGT LRHEPPAPVAIRRFPTEDIIIGGV TIPAGDTVLL
SIAAATRGADGNAARLAFGNPHYCLGAALARVEAE EALT V LARRLPGLT
LAVPPAQVRWRPTFRTHGPAELLVGW

>CYP105AB36 (2524592262) *Salinispora arenicola* CNH963

MTEAASSRLTDTEFPVQRQCPFAEPVEYEQIREQSSIAMVRLTGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPATRKRLHAQPLSMISMDG
AEHAQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHCVDLVKA
LSLPVPSLVICELLGV PYDDHDFQEH TATLVRRNTAPEVRQHCVDELNA
YLGALIDRKLANPDDDLGRQIARQH QDGT FDRASIVSLAFLLLVAGHET
TANMISLG VVGLLQHPDQLTMIKKDPDKVPLAIEELLRFFTIVDSVTSRV
ATEDVRF GDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHIAF
GFGPHQCIGQNLARLELQIVFDTLFRRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP1005A1 (2524592506) *Salinispora arenicola* CNH963

MTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLT DQATYRPD NALEAVT
PVPVAALRVLAGHRFRLLPPTLANNGGVSHPAIRALVADTLHPTKVAAQRP
WLTGLVADR VATIRTTLD SGGPVDLYADLTADLPLLV LARLVELPDAPVN
AVKQFARA ALELFWAPLDADRQLALADEVGRFHQV LREFADTGGGLAAAL
RATGHSPDVLVGALFFLLVAGQETTSQFL TLLLHRLSGEPTIRAALRAGS
ISVADVVEEGLRLEPPIV TWRRVA AVDSTLGGTTVAAGTSVLLWLARAGR
DPAVVAAPDEF RPGQRGSRRLAFGAGAHRC LGDQLARMEAAVVVEQATP
LLDGVTVVRPPWYPDNL TFRMPDAFVVR

>CYP105CT1 (2524592760) *Salinispora arenicola* CNH963

MNSPNHMPADRSLTAPASGCPMALSRGRVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFN VAGVSPSPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAA LDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTD SHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGVLHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLT DG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAF PALLRFPGLRLAV
PDSELEFTQGT TVYSLRGLPVTW

>CYP248A2 (2524592816) *Salinispora arenicola* CNH963

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAITEFADYVERALA
ERREDGADLLALMLAAHRSQ LMSRNEIVSTVVTFIFTGHETVASQLGNGL
LSLLDHPEQLELVRRQPHLV PQAVEECLRFDAVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCNPNELAYQPR TMFRGLTRLPVAFTPA
G

>CYP105W2 (2524592824) *Salinispora arenicola* CNH963

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRRHADVRQVLSDFRMSADRRRPGFPGFAPTTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVSRRVRQSRALVERVVDTH
LDALTAGAPGADLVSTFAYPVPSQVICEVLGVYPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDMVVTDKERRPGDDVLSRLLYRQRSAGGMDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPPERFPAAVE
ELLRYFTVVEAATARTTTAEIMIGGVTTAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAHAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP162A8 (2517954054) *Salinispora pacifica* CNS863

MISPDLSDPFTFYQNGDPLPVWAE LRREHPVYDNRRADGTRI WAVMTHKLC
TDMLTNPKVFSSANGMRLDSNPRVLARAAGKMLNVTDP PQHDKIRKLVSS
AFTPTIRIRLEANMRATAGRAIDTAIADGGCELTRLAHKLPVSVICDLLG
VPEQDWDFMAERTRFAWGSTAADDREEVEKVA AHT EIMAYFLDLAADRRK
RPMEDLV SALVHGEVDGRALTD EDVLYNCDALLSGGNETTRHATVGGFLA
FVMNPDEWSAIRQNRDLLPSAIQEIVRYTSPVMHSLRTATRDVEFGGINI
RAGEYVVAWLPSANRDEQLFDDPDRFNIRRS PNRHLGFIQGNHYCIGAGL
AAMELRVMFDELLNRVSEVRLAGPARRLR SNLLWGFDSL PVTFFHVGAGR

>CYP161T2P (2517954103) *Salinispora pacifica* CNS863

MARCWAGVPYANWEQFRRWSDDAADMYDQERSVGGYQALRDYIAELAQVR
LRVSGTDLISDLMESHRTPEGFTLNQVVELGLTLLFAGHETT VTAIDNG
AVLPATHPEQRARLAGDPSLLDAAVEEILRGSVPRMNFFARPD DTPAGA
PPRWANTDLVIGDVTVRAGELVLLGLAHANADERFFAESARFDVGRVPNR
HLTFGNPHFCAGAPLARLEL

>CYP211B19 (2517954499) *Salinispora pacifica* CNS863

MDASEAVALLMSPPGRRDPYPTYERLRAHGPPVATAAGFVV TGYTEADTV
LRNPRFGVMDDEERDGVFPHWQDSPAMMSISQSMIRANPPDHSRMRRLAA
GVFTPRRVAALREVVAQADELIDELIRAGRGGAPVDFLG SFAYPLPVTV
ICALLGVPAADWAQFRRWASELTAVLEPEITPQELAVADAGATELRDYFT
ELIAQRRRDPADDLT TALVQAHDADGDRLSGEELLANLVLLL VAGFETTT
NLLGNGLFVLLTHPDSATALRGQPELAPSYVEELLRYDSPVQLTSRTVRE
SVTLGGVELPAGSWLLVLLGAANRDPARFTD PARFDPGRAQSPPLSFGAG
AHYCLGAGLARLEAQVAFPLLLRRLPELSLAGEPVRRSR LTLRGYETLPV
TVGAVAADHGT PAGAARGTP

>CYP105AB29 (2517955342) *Salinispora pacifica* CNS863

MTETASITTPGTSSTTTSGPASGQVTD AEFFPVERGCPFSTPVEYEQIRDH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFPFVSTD PET
RKQLQDQPTSMIGMDGAEHAQARRALMGFTVRRMAGLRPRIQQIVDQHI
DEMLSSEQRSADLVEALS LVPVSLVICELLGV PYADHDFQAHSGPLIRH
TTPSEVRLRIQEELNTYL GALIDRKVTDPTDDLLSRQIAKHHAAGTFNRT
SLVSMAFLLLIAGHETTANMISLG VVGLLQHPDQLAMIKEDPEKTPPAVE
ELLRYFTIADTVTARVATEDVQLGDTTINAGDGVVISGLAADHDPTVFTD
PDRIDLERGARRHVAFGFGPHQCIGQTLARLELQIVFDTLFRRIPALRLA
APLDDIPFKSDAFVYGA EKLPVAW

>CYP211C6 (2517955422) *Salinispora pacifica* CNS863

VPDIEGLLTRLYSAQGRQDPYPVYADLHAQAAIAALEPRPKRQRVAAVAV
GYDLVAAVLRDPEWFKQPPPDWRDQEILRILQSSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVINRVTDDELLDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPATELAWYRERVDRVDAFLDVAGKTPERLAAAANAAGAELRSFYR
ELLAHRRRTPGEDLISGLVEAVDAGGVELTEDELISNLIVLFNASFVTTV
YLLSNGLPVLLAHPEVAAALASSPELAAGAVDEILRLQTPVHLLARAAPR
DMVLGGVSIPOGQSVLLLLIAAANRDPAHFPDPDRFDPRRSSPPSLAFGLG
LHYCLGAAVSRLEGRALAPRLLSRFPRRLRILEQPVYSGSLFLRGIDKLSV
SPGGREHP

>CYP125A66 (251795553) *Salinispora pacifica* CNS863

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRTPVWWNAQPKGSAGFDD
DGYWVVTRYADVMASRDSETYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLGERAERIVRDAAGRGTGDFV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGVDPLAASA
ELLAYAMEMAHERQRNPSDDLVTQLVNAQIDGHELTADFGFFVMLLAVA
GNETTRNAITHGMLAFLENPEQWELFKAERPRSAVEEIIRWATPVNVFQR
TALVDTTLAQAI SAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
RELPRYH

>CYP245A11 (2517955778) *Salinispora pacifica* CNS863

MSSTTLPRFTLTGWNREDIVNPYPVYRRYREVAAVHRGEAGGDAPETFYV
FSYDQVAQVLSSSCFGRGRSLDATAASVPVPADQKALRAVVENWLVMFMDP
PRHTELRSLLNRSFSPRIVTGLRPRIARIAQELL SRLGRQVETDLVEGFA
APLPILVIAELLGIPAGRHWLRTNALALQEASSSRAGRDTAGYARAEAA
AQEFTEYFREQVHLRRGSTGDDLLTILANAQLRGVPVSLDAVVGTAVHLL
TAGHETTTNSLAKAVLALQAHPAVLEELRGADGLTADSIEEFLRYDPPVQ
AVTRWTHQD TTLGGWEVPRGSRVVALLG SANRDPARFPLPDALDVHRPAD
RHLGFGGLGIHYCLGATLARAELEIGLQTLLNGLPTLGYPAQYVDYADDMV
FHGPSRLILVNPGERFCQ

>CYP244A5 (2517955782) *Salinispora pacifica* CNS863

MSATTNAELGEAPETSMPIDPGLFDCMPDLIAAARIAPVVRIPYLGRHAW
VVCDELVKQAL THPKMGKDIALVPEWMRQPGLMVTAQPPPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGEQVADKVEGFLDELSKAAAGSNAEV
DVVTNYTHKIPLAFISEMLGLPPAAEHRLRSITDIMLYSSDYAARREAIG
GLFGAVEEWVRNPDGLRDGVITGLLAGSDGPGA AVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEALRRPPHERPRTDEDITAWIEETLRVHPPFPHPPTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRQPGE GADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAKIAVRGFLRRFPQARLSADTAVQWESEWMIRRM
SSLPAVLS

>CYP208A26 (2517956208) *Salinispora pacifica* CNS863

MTVIADRGGRVPPGPPVTAGLRLL LALGRDRLGMLTSAATEFGDVARLPV
GPKRLYFFNHDPDHAKHVLADNHANYAKGIGLVHARRALGDGLLTSGGELW
RKQRRVIQPAFLNRRLAQYAGVVGQEATRLAERLATRVDPGPVDVLD EMT
RLTLGVLGRTL LLD AELTGFGVGESFAAVQDQAMFELETLSAVPTWIPLR
RQRRFRARRRHLQEVVDVLA AERGQNV EGRDDVLSRLILSTRAEADAALG
RQRLRDELVTLLLAGHETTASTLGWSLYLLDQHPQLRERVRHEATSVLGD
RVPGYADLHQLQYTAMVVQEAIRLYPPVWILTRKARAEDEVGGYRV PAGA
DLLICPYTLHRHPRFWEEPGRFDPERFDPARLTNRPRYAYIPFGAGPRFC

VGNNLGMLEATLVLAVLLRDLRLEGLPGRAVVPEPMLSLRVRGGLPMMVR
RAD

>CYP1005A8 (2517956417) *Salinispora pacifica* CNS863

VSAVLFRSWTKTVGTHWPAVTRVADQQGTEHLVVTEHELVRQVLTQVTY
RPDNALDAVTPIPVFALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTKLVAERVAAIGATLDGGATDLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAALALFWAPLDADRQLALADEVGRFHHQVLRFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLAGEP
TVRAALRDGGVSVANVVEEGLRLEPPIVTWRRVAAVDSTLGGTAVPAGTN
VLLWLLARAGRDP AIVPAPDEF RPGQRGSRRHLAFGAGAHRC LGDQLARME
AAVVVEQAAPLLDGISVVRAPWYPDNLTFRMPDAFVIRR

>CYP107AX9 (2517956799) *Salinispora pacifica* CNS863

VTAQPAPVFDQRLRLDPHRRYNALRDQAPVHRVRTPDGAPAWLVTRYDDV
RAAFIDPRLSVDKRFSGTDGEHGSSLPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVEKTVSTLLDGLAGNDHAELIGSLASPLPLQVMHEL
LGLPTQTSVDFRTWTNTLLSADANQPAQSRSAMANMRRFLIEQVAHKRAQ
PGDDLLTGLLCVREDDDGLTDELVAMLFLLMFAGYDNTAALIGNVIHAL
LTDVELAEAVRTGSLAVDELVDGVLRWNPSFPLAVRRFAREPITIAQGTI
PAGDRIWLCLASANRDP AHFTEPDEIGIADMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVAAILFDRFP GIRLAVFPVQDIQWRESFRLRGLVALPVSL

>CYP107AW6 (2517956812) *Salinispora pacifica* CNS863

VETVTGTSAPPPVPYIADPYPTLARIRANGPVSILHSDEGVPMWVIARYR
EVRAALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHHVQGAFTARRVAAMRPLVERITTSLLDGLAGRKSVDLVQDLAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAVFATALREMTDYIAVQLRLR
RSRPGDDLLTELLAARDAGQLTDDEIVGMVFLLLIGGHETTNNLLGTATL
ALLRNPDQHRWLLANGHALPEAIDEFLRYESPVAMATLRFTTTPVTVDV
VIPAGELVLVSLGGANRDPDRFPDADRLILD RRDTGHLAFGHGLHRC LGA
FLGKLEGEVALGALLRRHPKLALATEVRQLQWRDTIMLRGLES LPVSLHG

>CYP163B20 (2517957498) *Salinispora pacifica* CNS863

VTATEAKYVGQVGSRNAASTIDLADPATFAGHDLTNFWQRLRDEEPIYWN
PPTGGRRGFVLSRHADILEVYRDDMTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHAELRKLLLRALGPRVLGPVCRAVRANTRQMIGEAAAANGECD
FATDIASRIPMITISNLLGVPEADRASLLKMTKTALSADDESISD TDSEM
ARNEILLYFQDFVEFRKNPGEDVVSMLVNSSIDGVPLSDDDIVLNCYSL
IIGGDETSRLTMIDSINTLAANPGQWRRLKEGRCDIDKAVDEVLRWASPS
MHFGRTAVRETVIHGERIQVDDIVTLWGASGNRDERAFKRPEVFDLDRAP
NRHLSFGHGHPHYCIGSYLAKVEISELLIALRDLILGFEVIGAPQRIRSNL
LSGFSTMPVRFDADRTGLASEAREG

>CYP105BL3 (2517957531) *Salinispora pacifica* CNS863

MSSHSAAAPGPETATPLHTLAPELTFPQFERATPFDPPEAYTELSGRCPV
APVRMADGKPSWLITSFEGVRAALSDPRLSSDMSHPGFNRTGKPVDDLL
KDTLGAMDGERHRYRRLTGELTVRRAKAMRPVITQITDEALDQLAAAG

PGADLVTHVALVVPSPRVACHLVGIPLSEYELFTGMAAKLMDSTSNADQIA
ALQDMVSYFDTLVTDREHHRDDLLGHMVRRYLATGELDREMLIRLAWTT
MAAGQETTAHMIIGLVAALLRHHPGQLELLRREPHLMPGAVDELMRYLPMI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFFERPELDVRRN
ARQHLSFGYGPQHCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DEDIMYSVSELAVAW

>CYP107AY7 (2517957797) *Salinispora pacifica* CNS863

MRAEPAPIPRSGARLGQEYDQLRKTDGVHQVLLPDTSLAWLVTSPELVSR
ALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAPF
SPQ RVAALRPRIERTAEELVDTVATGSPVDLVTGYCTPLSVQVIADLLG
VPEAGRDTLRAWTDTMLTSYPPDRDAIRQAVVELHGYVNNLIEAKQQRPG
DDL LSALVATEQEGDRLTRDELTSLAFLILFAGYENTANLIASTVLRLLD
HGSLRGVRASEAIEETLRLEPPAPAAIRRFPIEETTIGGATIPAGDTVLL
SIAAATRGTDGNSARLAFGNPHFCLGAALARVEAEEAITVLARRLP SLA
LAVPGAPVRWRPTFRTHGPAELLVTW

>CYP208A21 (2517958080) *Salinispora pacifica* CNS863

MTTTSIDRRRPPGPPRAAALSMLLTMSRDR LGMMTAAARAYGDAAWLPVG
HKALYFFNHPDYAKHVLTDNSDNYTKGIGLVHARRALGDGLLTSEGELWR
EQRRVIRPSFRSGRAPDQASVIAEEVASLVERLRARAGGPPVNVVTEFTG
LTLGVLGRTLDDVLTALATVGDAFAAVQDQAMFELVTL SAVPTWIPLTR
QRRFRRARAELEIRIVDDLVARRGDVSGRDDVLSRLILSTGAEPDARVRRQ
RLRDELVTLLLAGHETTASTLGWTLYLIDGHPPVRERL LAEAVEVLGDRL
PAYRDL PDLRFTTMVVQEAMRLYPPVWLLPRRSRRADRVGPYRV PAGSDV
VVSPYTMHRHPGFWEPEPDRFDPLRFDP RNAADRPYAYLPFGAGPRVCVG
SNLGMMEAVIAVAMLCRELRLVRVPTHA AVPEPMLS LRIRGGLPMSVHLT
D

>CYP154M16 (2517958092) *Salinispora pacifica* CNS863

MPDRCPVLDP SGRDIHAEADRLRAQAPAVKVELPGGVHAW SITSYDVVKR
LLLDRNVTKNARNHWPKF INDEIPPDWEMISWVAMDNMVTAYGKHLVRLR
RLIAKAFTAQRVETVRPQVEKLVDEL LDGLAAETGEVVDLREKFCYPLPA
LLIAELIGMTEQQRAQTAKAMDLMVDTTVSPDQAQAILTGWRTAMDELIA
AKRREP GKDIASDLIAARDDENGGLTDSELTD TIFAILGAGSETTINFL
DNAVTALVTHPGQLELVRSGRAGWDDVIDEVL RVQCPLASLPLRYAVTDI
ELDGVTIPQGDPI LINYAAAGRDPALHGDTAGEFDVFRENKEHVSFGHGP
HYCLGAGIARLVATIGLSRLFERFPDLRLAVPAEELQPLPTFIMNGHRAL
PVRLVPAPAAATAV

>CYP107CT3 (2517958262) *Salinispora pacifica* CNS863

MTGASGDRTGQCPIALDHDFYADPHPAYRVIKENG NKPTPIVLKTGMAYL
PPGLEAWLVTAYEDVEFVLRDPRFRK SIDEAMPLFAAQSGGTAAARGSLL
YNNMANNDPPVHTRLRKPLNAMFTSR SVAGRRDVVRSAALETLEKVAGSQ
TFDLVKDFAFFFSISVISRTLGVPDADRGT FHGWVQTITGDAPPEILRRD
AGLMVEYLRGLIRGRRESAGNGTDDVLTLLATSLAEDEAVAQAYALLAAG
YETTANLIVTGFLT LAAHPEQLRRLWSDPGLVPDAVEEMLRHQSPFNLSL
YRYVTEPVELNGVRI PRGAIVFLAFAAANRDECRFTEPDSFDITQPHRDH
LAFGGGIHNCIGKHLARMEAQVAFETLIERCPGLAVHTPDEEFDWKASPT
FRGLRTL RVGPGPAPGGWEREQ

>CYP163B1 (2518148037) *Salinispora tropica* CNB476

VTAA DTGRVSGESQTPAHTVDLADPATFANHDLTGFWQQLRDEEPIHWN
PPTAGRRGFVVVSRYADILDVYRDDVTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHAELRKLLLRALGPRVLAPVCAAVRTNTRQMIREAVTKGEC
FASDIASRIPMMTISNLLGVPDADRAFLLSLTKTALSADDESISETESAM
ARNEILLYFQDLMEFRRDHPGEDVVSMLVNSSIDGAPLSDDDIVLNCYSL
IIGGDETSRLTMIDSVNTLAAHPQQWRRLKDGQCEIDKAVDEVLRWASPS
MHFGRVAARDTILHGVRIRADDIVTLWHASGNRDERVFHRPEVFDLGRTP
NRHLSFGHGPHYCIGSYLAKVEISELLIALRDLTSGFETTGEPPQIRIRSNL
LTGFATMPVRFVFPDRAGLARDALDG

>CYP154M1 (2518148410) *Salinispora tropica* CNB476

MRRRCPVVIDPAGTDIHAEGARIRANGSVSQVELPGGVLAWSVTGQQVAR
KVLSDQRFKSKDPRKHWTDYLEGRIGQDFPLIGWVMDNLTAYGSDHSRL
RKPCANAFTPRRVEALRPAVERAAVELLGELATVSPTESVDLKARYAHPL
PSRVICDLFGVPEEDREEMLRGGEVNVDTRVSAEEAAANVERWHQQLDF
IEEKRRNPGPDLTSDLIAAQQAEGRSLTDSEMVGTLHIMLATGTEPVKNL
IGNAVFALLTHPEQLDLVRSGRAGWDDVIQETLRMQAPVAHLPRFAVED
VDIDGVTIRRGDPLLVNFAAIGRDPDVHGDTAAEFDITRADKEHLSFGHG
VYRCIGQPLALREAEIALRMLFQRFPNLVLAVPPEEVTPQPTFIMNGLDT
LPVLLKGRA

>CYP208A4 (2518148439) *Salinispora tropica* CNB476

VTVAAAGRTFSGPTGAALLRSLWQLGQDRLGLMTSAARYGDAVRLGVGSR
SLYFFNHPDHAKHVLADNSGNYTKGLGLVHARRALGDGLLTSEGELWREQ
RRVIQPVFQAKRVAGQAHAVAEADRLIARLRARRGRGPVNLTDEFTALT
LGVLGRTLDDANLDAFTTVGAAFEEMQNQAMFEMASMSVPMWVPLPQQL
RFRRARRELERIVGRLVADRTARGEETGADDALSRLIASTRDEPDGVAR
RRMRDELVTLLLAGHETTASTLGWTFHLINQDPRVRVRLREEAIDVLGGR
LPEYADLARLTYTKMVSEAMRLYPPVWMLSRLARDADVVDGYVPVPRAD
VLICPYTLHRHPAFWFPEPERFDPERFDPEVTTDRPRYAYVPFGAGPRFCV
GNHLGLMEAVFVAMVSREFDLVAPVGQPVVAEPMLSLRVRGGLSMTVEP
VS

>CYP125A15 (2518148517) *Salinispora tropica* CNB476

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMAVSRSDDTYSTRENTAIARFQPGTTRADLEMQRVIML
NVDPPHEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
ADVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGVDPLTAAA
ELLAYAMEMANERQLNPSDDLVTKLVNQIDGEHLTTDEF GFFVMLLAVA
GNETTRNAITHGMLAFLEHPEQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLGGQAI SAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFHSIADHMPDIRKVAEPRRLRSGWINGI
REMPVRYR

>CYP211C1 (2518148650) *Salinispora tropica* CNB476

VLDVEGLLARLYSEQGRQDPYPVYADLHAQGAIAALAPRPEGQRVA AVAV
GYDLVGAVLRDPEWSKQPPPGWMEQEILRTLQSSMMFINPPDHGRMRKVF
AGTFTPRRLGTLEPVINRVADELDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPATELAWYRDRVDRIDAFLDVAGKTPERLAAAANAAAAELRVFYA
DLLARRRRTPGEDLISGLVEAVDAGGVQLTEDELINNLI VLFNASFVTTV
YMLSNGLPVLLHEPEVAAAALADDPETAGAIIDEILRLQTPVHLLARAAPR
DTVLGGVPI PQGQNVLLLLIAAANRDP AHFPDPDRFDPRRP GPPSLAFGLG

LHYCLGAAVSRLEGRILALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGGRMHP

>CYP107AW1 (2518148923) *Salinispora tropica* CNB476

MESVTSTSAPPPVPYIADPYPALARIRANGPVSIHLSDEGIPMWVIARYR
NVRAALADPRFGQDARRAQTADNRVAGVTGGDVIHMLNSDPPDHTRLR
HLVQGAFTARRVAAMRPLVERITTSLLDGVGGRQTVDLVQDFAFFPLPMLV
ICELLGFPAEERDAYRSWSTAILTHNDDPAAFATALRDMTDYIEVQLRHR
RARPGEDLLTELLAARDAGQLTDDEIVGMVFLLLIGGHETTNNLLGTATL
ALVRNPDQHRWLLANPHALSEAIDEFLRYESPVAMATLRFTTAPVTVDV
VIPSGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLGRYPGLTLAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP1005A1 (2518149077) *Salinispora tropica* CNB476

VSAVLFRSWTKTAGTHWPAITRVADQQGTEHLVVTQHALLVRQVLTQDQTY
RPDNALDAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTGLVAERVAAIRRTLDSSGSTDLHAELNADLPLLVLAR
LVELPDAPVSAVKQFARAALFELFWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHPPDVLVGLFFLLVAGQETTSQFLTLLHRLADEP
TVRAALRADSVSVADVVEEGLRLEPPIVTVRRVAAVDSTLGGSTVAAGTS
VLLWLARAGRDPVAVPAPDEFPRPGQRGSRRLAFGAGAHRCCLGDQLARME
AAVVVEQVTPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP211B1 (2518149692) *Salinispora tropica* CNB476

MDASEAVALLMSPGRIDPYPTYERLRAHGPPVQTAAGFFVVTGYTEADT
VLRNARLAFEVMDDELRDDVFPHWQDSPAMKSIARSMIRANPPNHGRMR
LAAGFTPRRIAALREVVTQADELADEMIRAGRDGAPVDFMGSAFYPLP
VAVICALLGVPAADWARFRGWASDLTAVLEPEITPQELTVADAGASELRD
YFTELIAQRRRAPADDLTALVQTHDADGDRLSGEELLANLVLLLVAGFE
TTTNLLGNGLVLLLAHPDSATALRDQPELAPGYVDELLRYDSPVQLTTRT
VRESVLLAGVELPAGSWVLVLLGAANRDPERFTDPTRFDPGRAQSPPLSF
GAGAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRNRLTLRGYET
LPVTVSAIAADHGTPAGVARGTP

>CYP1004B1 (2518151008) *Salinispora tropica* CNB476

MTTSALAPRFDALDPNVVEDPYPEYARLRAAGPLCRLGPGSWGVTREFADV
TNLQHDPRLGSEFPAGYHEISVGDGPASAFFQRMVLYRDPDHIRLRRLM
SGAFTPAVVRRLRSHIEDLVDELLAPALAAGRMDLVPELAYPLPVRVCR
LMGIPPESTEDVRHHATNIGRAFTAVVPEQARTEADEAVSWLREHLGALL
EQRRSHRGDDLLSRLDAAESGDNLDAEIVDNTVFSFFAGFETTVHMIT
TGTAALLAHPDQLARLRADPSLVTTAVDEFLRWDAPIQGTARYVREPIEI
GGRTIRRGRLVLMIGSANHDERRFAQPDRLDVGRQDNPHVAFGGGAHL
LGAFLARMEGAVVFDRLARLAVLEPDGPTVREPNTFFRAYASVPVRIGDR

>CYP1004A1 (2518151012) *Salinispora tropica* CNB476

MRANTARPHLSAAFLATKDDPYPAYAELRARGPLTRAELGQWLVTGHGAV
SALLRDGRLESMPAEYTRLTLGDSPGVDLHRLVLTPTPEHTRLRRFI
GRALGTPVVRRLHDRIAAATDALLEPALDRGLDVVTELAVALPVGVVCD
LIGIPTGDRPAVLTRVTALAKVFDAANLSPADLADINTALPWLHDYFGDL

LAVRRAGSGGPTLTEMYWEESASDRLAVADFVDNMLFLFHAGFETTMGLV
SNGVAALLNNPEQLGRLRADPALVPSAVEEFLRYDAPIQNVIRVARKPVE
VAGQKIRAGRTVLLLLGAANRDEEVFADAERLDVGRDPNPHLGFGGGLHH
CVGTALARLMAVVVFERLVDRTVLGPAAPAVRRRHASLSYDHLPLAVA
AR

>CYP125G1 (2518151051) *Salinispora tropica* CNB476

MSTEVVSTGNRADIAPATYAAGVPYAEFARLRRDKPVSWVPEAALWRRS
GEGRILSQGPGFWAVTTHEGVVAASRQPEVFSSGRQGAFLADPRTTADLE
QARQLLVNMDAPQHARVRKLVTAFTTPRAIRALGDSVTAHARNLVERAVR
QEECDVVADLAAELPLLVLADLLGLPREDRHLLYQWSNNLVGFDDPEYGG
GDVEAYRKTFEAFQYALSVAGERRRAPREDLMTLLATSEVDGRRRLTDRE
FCNFWLLLTVVAGNETTRHLITGSLVLAALVDNPMQRERLVADDTLLPSAVDE
LLRWVSPIMQFRRTAIVDTELCGTPIAAGDKVVLWYTSANRDAAVFEAPD
ELRLHRNPNPHLSFGMGPHFCLGAHLARLEARTMLRELAPHLRSRFRLTGP
VVRLESNFVNGVKSPLGSFTGQ

>CYP107AY1 (2518151210) *Salinispora tropica* CNB476

MRAELAPIPRSGARLGQEYDQLRNAGDVHQVLLPDSSSLAWLVTNPKLVSR
ALTDPRALNRRHSRGSWSGFALPPALDANLLNLDAPDHTRLRRLVGPAPF
SPQRVSAALRPRIIRRTAEHLLDTLVATSGPVDLVTGYCTPLSVQVIADLMG
VPEAGRADLRTWTDMLTSYPPDRDAIRQAVVELHGYVVDLIDTKRQQPG
DDLSSALVTIEQDGDRLRDELTSALFLILFAGYENTANLIASVLRLLD
HGGLRGVQLPEAIEETLRLEPPAPAAVRRFPTEEMTIGGATIPAGDIVLL
SIAAATRGTAAGNAARLAFNGPHFCLGAALARVEAEEALTVLARRLPDLA
LALPVAQVRWRPTFRTHTGPAELLVTW

>CYP105AB2 (2518151353) *Salinispora tropica* CNB476

MTETASIAATTRTASGQLTDAEFFVQRCGPFTAPTEYEQIREESSIAKVRL
KNGGEAWWIAGHELGRSVLADRRFSSDRRRDNFFVSTDPETRAQLQSQP
TSMGLMDGAHAQTRRALMGFTVRRMAGLRPRIQQIVDQHIDEMLATPQ
RSVDLVEALSPLVPVSLVICELLGVADHDFQGLTGPLLRLHTTPPEVRL
RIQEELNTYLGTLIDRKLTDPTDDLLSRQIAKHRDNGTFDRASMVSLAFL
LLVAGHETTANMISLGVVGLLQHPDQLVLIKDDDPDKTPLAVEELLRYFTI
ADSVTARVATEDVQLGDTTINAGDGVVISGLAADRDPTVFAPDRDLDER
GARHHVAFGFGPHQCIGQTLARMELRIVFDTLFHRIPTRLRLAAPLDDIPF
KSDAFVYGIEELPVAW

>CYP107AX1 (2518151593) *Salinispora tropica* CNB476

MTSRPTAVFDQCLLRDPHSRYNALRDQAPVHHVLTDPDGAPAWLVTRYNDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPPELDAHLLNRDPPDHTRLRRLAA
AACTPRRVADLHPAVERIVSTLLDGLAGHDRAELIGSLASPLPLQVMHEL
LGLPTQANIDFRTWTNTLLSADANQPAQSRAAMANMRRFLIEQLAHKRAQ
PGDDLTLGLLAAREDDRLTDDELVAMVFLLMFAGYDNTAALIGTVTHAL
LTNAELHEAVRGGSALDELIDEVLRWNPAFPLAVRRFAREPITIAGQTI
PAGDRIWLCLASANRDPAQFTQPDDELGIIGLRRSHLSFGHGIHYCLGAPL
ARLQTTIAVTSLLNRFPPEMRLAVPAHDIRWRESFRLRGLIALPVYL

>CYP107E3 (2518152654) *Salinispora tropica* CNB476

VTIDQEIRKYPFCESPGIGIDPTYGLLRSTEPLARVQLPYGEVSWLATRY
EDVKTVLTDPRFSRAAAQGKDQPRTREEMTYEGIIIGLDPPDHTRLRKLKLAG

KALTARRVNAIRADAQRIANEYVDEMIAGSPGDLVELFALPYPVTVICE
LLGVPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFGYMGKLVAQRRREPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTGVEVTVSTHIPNFVYALLT
HPELMAQLRADRSIVPAAVEELLRMIPLNPAAMFFRYAVEDVTLSGITVR
AGEPVLVSLPGANRDPEVFENPETFDFTREQNPHVAFGHGPHHCLGAQLA
RMELQVALHTVLDRFPDLSLADGDEGVSWKSGLLVRGPSRLLVAW

>CYP163B1 (2524768492) *Salinispora tropica* CNT261

VTAADTGRVSGESQTPAHTVDLADPATFANHDLTGFWQQLRDEEPIHWN
PPTAGRRGFVVVSRYADILDVYRDDVTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHAELRKLLLRALGPRVLAPVCAAVRTNTRQMIREAVTKGEC
FASDIASRIPMMTISNLLGVPDADRAFLLSLTKTALSADDESISETESAM
ARNEILLYFQDLMEFRDHPGEDVVSMLVNSSIDGAPLSDDDIVLNCYSL
IIGGDETSRLTMIDSVNTLAAHPQQWRRLKDGQCEIDKAVDEVLRWASPS
MHFGRVAARDTILHGVRIRADDIVTLWHASGNRDERVFRPEVFDLGRTP
NRHLSFGHGPHYCIGSYLAKVEISELLIALRDLTSGFETT_GEPQIRSNL
LTGFATMPVRFVPPDRAGLARDALDG

>CYP107NH1 (2524768763) *Salinispora tropica* CNT261

MTEPVVSLMDPEFWNDPVSAYERLRGSGPLIRMGLPGVPPVWLVTSCHEV
KSALSDPRFVVDAANVPGHHGPGIVDKMMAASGMPDEFRDYMTNMMFTDG
KDHSRLRLRLVTPGFSARRIRAMRPRVNQIAEELVESLAEKGSSELIADFS
APLTTTVICELIGVDRADQAQMGAWMHDTTGERVVSGRAMVNYTRDLIE
RRRAEPADDMISAMIRSGDEAGDRLSDAEIIAMALLLINAGHHSTAQFIP
NAVLVLLDHPEQLARLRAEPGQLPGAMDELMRLANPVPIATPRYATEDME
FAGVAVRRGEALTGSLEAANFDPERFPAPRQLDTGRDLGRGDGHLISFGAG
PHYCPGAALARLEGEIALDHLRLRRDNLRLAVERDEVYVDVSLGLRMLS
SLPVRL

>CYP247A8 (2524768769) *Salinispora tropica* CNT261

VRLNPEAGRPVALGSIDLFDPDLLASGDPHSVWDVMRSEAPLHRQVLPDG
RVFWSVTRYEDVCRVLGDHRAFTSERGTVFVTQLGADDIAAGKLLTSTDPP
RHTEVRRRAIGRLTARAVAHWEDLVRRVVRFLPALDGGCWDLAERAQH
LPLIIAGSLLGIPDSWEKLVQLTGMVTAPSDPMFGLDSEAATLAIHHE
IFDYLSDLVRRRRSVGTGGDSLDDHMLTVRAGAGPLPDEEVVYDSYSLIL
GANATTPTHTLSGIVTLAERPEQCDKVRADASLIPSMVEEGLRWTSACN
FMRYATVDTRLTGGTVPAGEAVVAWIASANRDESQFADPHTFDVTRGENR
HVAFGFGPHYCIGAPLARMTARIFFEELFRLFWSIEIDGEPQHLSNFIA
GMTHLPVVTRKRAQV

>CYP107Z27 (2524768779) *Salinispora tropica* CNT261

MSCTHPCHSLMDPTLIDDPAGGFSRIRDESPLAHAMVPGVDGPVWLVRH
ESVRKVLGDRRFVNDPTNVPGSSTPDLWAHAALAQGVPEHYLEHVRSMLO
LDGEVHARLRLVSRRAFTMRITALRPRMMQLTEELLDLLPAKAEDGVVD
LVEHFNYVQPISVICALVGVPAADRAAWIRWSRALTMESGTIGDAVTGM
VDNIRALIEQRRAEAADDLLTDLVRVRDADGDRLSEREMITMVITLVTAG
HDSTGLLLSNGLAALLTHPDQLAKLRADPSLGPQAFDELMRWCSAIVAAR
PRYATEDVELEDGLVRRGDVVIPLVLSANYDPEVFEDPHRLDISRVHEQR
RFHHVGFGDGLHYCLGAALAKHEAAIAITALLERYPGLELAVPAQRLRRA
RLPLTWRLDSLPLVRLGIGG

>CYP154M1 (2524769135) *Salinispora tropica* CNT261

MRRRCPVVIDPAGTDIHAEGARIRANGSVSQVELPGGVLAWSVTGQQVAR
KVLSDQRFSDKPRKHWTDYLEGRIGQDFPLIGWVLMNLTAYGSDHSRL
RKPCANAFTPRRVEALRPAVERAAVELLGELATVSPTESVDLKARYAHL
PSRVICDLFGVPEEDREEMLRGGEVNVDTRVSAEEEEANVERWHQQMLDF
IEEKRRNPGPDLTSDLIAAQQAEGRSLTDSEMVGTLHIMLATGTPEPVKNL
IGNAVFALLTHPEQLDLVRSGRAGWDDVIQETLRMQAPVAHLPPRFATED
VDIDGVTIRRGDPLLNVFAAIGRDPDVHGDAAEFDITRADKEHLSFGHG
VYRCIGQPLALREAEIALRMLFQRFPNLVLAVPPEEVTPQPTFIMNGLDT
LPVLLKGRA

>CYP208A4 (2524769163) *Salinispora tropica* CNT261

VTVAAAGRTFSGPTGAALLRSLWQLGQDRLGLMTSAARYGDAVRLGVGSR
SLYFFNHPDHAKHVLADNSGNYTKGLGLVHARRALGDGLLTSEGELWREQ
RRVIQPVFQAKRVAGQAHAAVEEADRLIARLRARRGRGPVNLTDEFTALT
LGVLRGRTLLDANLDAFTTVGAAFEEMQNQAMFEMASMSMVMWVPLPQQ
RFRRARRELERIVGRVLADRTARGETGADDALSRLIASTRDEPDGVAR
RRMRDELVTLLLAGHETTASTLGWTFHLINQDPRVRVRLREEAIDVLGGR
LPEYADLARLTYTKMVVSEAMRLYPPVWMLSRLARDADVVDGYVPV
VLICPYTLHRHPAFWPEPERFDPERFDPEVTTDRPRYAYVFPFGAGPRFCV
GNHLGLMEAVFVAMVSREFDLVAPVGPVVAEPMLSLRVRGGLSMTVEP
VS

>CYP125A15 (2524769242) *Salinispora tropica* CNT261

MTEPRI PVGFDFTDPAVLERRVPREEFAELRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMAVSRSDTYSTRENTAIARFQPGTTRADLEMQRVIML
NVDPPHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
ADVACELPLQAI AELIGVPQHHRKVFDWSNQLIGYDDPAYGVDPLTAAA
ELLAYAMEMANERQLNPSDDLVTKL VNAQIDGEHLTDEFGFFVMLLAVA
GNETTRNAITHGMLAFLEHPEQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLGGQAI SAGQ RVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFHSIADHMPDIRKVAEPRRLRSGWINGI
REMPVRYR

>CYP211C1 (2524769375) *Salinispora tropica* CNT261

VLDVEGLLTRLYSEQGRQDPYPVYADLHAQGAIAALAPRPEGQRVA AVAV
GYDLVGAVLRDPEWSKQPPPGWMEQEILRTLQSSMMFINPPDHGRMRKVF
AGTFTPRRLGTLEPVINRVADELDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPATELAWYRDRVDRIDAFLDVAGKTPERLAAANAAAAELRVFYA
DLLARRRRTPGEDLISGLVEAVDAGGVQLTEDELINNLI VLFNASFVTTV
YMLSNGLPVLLHHEPEVAAAALADDP ELTAGAIDEILRLQTPVHLLARAAPR
DTVLGGVPI PQGQNVLLLLIAAANRDP AHFPDPDRFDPRRPGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGGRMHP

>CYP1005A1 (2524769548) *Salinispora tropica* CNT261

VSAVLFRSWTKTAGTHWPAITRVADQQGTEHLVVTQH ALVRQVLT DQLTY
RPDNALDAVTPI PVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQR PWTGLVAERVAAIRRTLDSGGSTDLHAELNADLPLLVLAR
LVELPDAPVSAVKQFTRAAL ELFWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLADEP
TVRAALRADSVSVADVVEEGLRLEPPIVTVRRVAAVDSTLGGSTVAAGTS
VLLWLARAGRDP AVVPAPDEF RPPGQRGSRRLAFAGAHRC LGDQLARME
AAVVVEQVTPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP107AW1 (2524769683) *Salinispora tropica* CNT261

MESVTSTSAPPPVPYIADPYPALARIRANGPVSIHLSDEGIPMWVIARYR
NVRAALADPRFGQDARRAQTADNRVAGVTLGGDVIHMLNSDPPDHTRLR
HLVQGAFTARRVAAMRPLVERITTSLLDGVGGRQTVDLVQDFAFPLPLMLV
ICELLGFPAEERDAYRSWSTAILTHNDDPAAFATALRDMTDYIEVQLRHR
RARPGEDLLTELLAARDAGQLTDDIVGMVFLLLIGGHETTVNLLGTATL
ALVRNPDQHRWLLANPHALSEAIDEFLRYESPVAMATLRFTTAPVTVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLGRYPGLTLAAEVQRQLRWRDTIMLRGLESPLVSLHG

>CYP211B1 (2524769984) *Salinispora tropica* CNT261

MDASEAVALLMSPGRIDPYPTYERLRAHGPVVQTAAGFFVVTGYTEADT
VLRNARLAFEVMDDELRDDVFPHWQDSPAMKSIARSMIRANPPNHGRMR
LAAGFTPRRIAALREVVTQAQADELADEMIRAGRDGAPVDFMGSFAYPLP
VAVICALLGVPAADWARFRGWASDLTAVLEPEITPQELTVADAGASELRD
YFTELIAQRRRAPADDLTALVQTHDADGDRLSGEELLANLVLLLVAGFE
TTTNLLGNGLVVLAAHPDSATALRDQPELAPGYVDELLRYDSPVQLTTRT
VRESVLLAGVELPAGSWVLVLLGAANRDPERFTDPTRFDPGRAQSPPLSF
GAGAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRNRLTLRGYET
LPVTVSAIAADHGTAPGVARGTP

>CYP107AX1 (2524771324) *Salinispora tropica* CNT261

MTSRPTAVFDQCLLRDPHSRYNALRDQAPVHHVLTDPGAPAWLVTRYNDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPPELDAHLLNRDPPDHTRLRRLAA
AACTPRRVADLHPAVERIVSTLLDGLAGHDRAELIGSLASPLPLQVMHEL
LGLPTQANIDFRTWTNTLLSADANQPAQSRAAMANMRRFLIEQLAHKRAQ
PGDDLLTGLLAAREDDRLTDDDELVAMVFLLMFAGYDNTAALIGTVTHAL
LTNAELHEAVRGGSLALDELIDEVLRWNPAFPLAVRRFAREPITIAGQTI
PAGDRIWLCLASANRDPAQFTQPDELGIIGLRRPHLSFGHGIHYCLGAPL
ARLQTTIAVTSLNRFPEMRLAVSAHDIRWRESFRLRGLIALPVYL

>CYP107AY1 (2524772252) *Salinispora tropica* CNT261

MRAELAPIPRSGARLGQEYDQLRNAGDVHQVLLPDSSSLAWLVTNPKLVSR
ALTDPRALNRRHSRGSWSGFALPPALDANLLNLDAPDHTRLRRLVGPAP
SPQRVSALRPRIIRRTAEHLLDTLVATSGPVDLVTGYCTPLSVQVIADLMG
VPEAGRADLRTWTDMLTSYPPDRDAIRQAVVELHGYYVDLIDTKRQQPG
DDLLSALVTIEQDGDRLTRDELTSLAFLILFAGYENTANLIASTVLRLLD
HGGLRGVQLPEAIEETLRLEPPAPAAVRRFPTEEMTIGGATIPAGDIVLL
SIAAATRGTAGNAARLAFGNGPHFCLGAALARVEAEEALTVLARRLPDLA
LALPVAQVRWRPTFRTHGPAELLVTW

>CYP105AB2 (2524772471) *Salinispora tropica* CNT261

MTETASIATTRTASGQLTDAEFFVQRCFPFTAPTEYEQIREESSIAKVRL
KNGGEAWWIAGHELGRSVLADRRFSSDRRRDNFPFVSTDPETRAQLQSQP
TSMGLMGDAEHAQTRRALMGFTVRRMAGLRPRIQQIVDQHIDEMLATPQ
RSVDLVEALSPLVPSLVICELLGVFPYADHDFQGLTGPLLRRHTTPPEVRL
RIQEELNTYLGTLIDHKLTDPTDDLRSRQIAKHRDNGTFDRASMVSLAFL

LLVAGHETTANMISLGVVGLLQHPDQLVVIKDDPDKTPLAVEELLRYFTI
ADSVTARVATEDVQLGDTTINAGDGVVISGLAADRDPTVFAEPDRDLER
GARHHVAFGFGPHQCIGQTLARMELRIVFDTLFRHRIPTLRLAAPLDDIPF
KSDAFVYGIEELPVAW

>CYP107AY1 (2524772252) *Salinispora tropica* CNT261

MRAELAPIPRSGARLGQEYDQLRNAGDVHQVLLPDSSSLAWLVTNPKLVSR
ALTDPRRLALNRRHSRGSWSGFALPPALDANLLNLDAPDHTRLRRLVGPAPF
SPQRVSALRPRIIRRTAEHLDDTLVATSGPVDLVTGYCTPLSVQVIADLMG
VPEAGRADLRTWDTMLTSYPPDRDAIRQAVVELHGYVVDLIDTKRQQPG
DDLLSALVTIEQDGDRLTRDELTSLAFLILFAGYENTANLIASVLRLLD
HGGLRGVQLPEAIEETLRLEPPAPAAVRRFPTEEMTIGGATIPAGDIVLL
SIAAATRGTAGNAARLAFGNPHFCLGAALARVEAEEALTVLARRLPDLA
LALPVAQVRWRPTFRTHGPAELLVTW

>CYP105AB2 (2524772471) *Salinispora tropica* CNT261

MTETASIATTRTASGQLTDAEFPVQRCFPFTAPTEYEQIREESSIAKVRL
KNGGEAWWIAGHELGRSVLADRRFSSDRRRDNFPFVSTDPETRAQLQSQP
TSM LGMDGAEHAQTRRALMGFTVRRMAGLRPRIQQIVDQHIDEMLATPQ
RSVDLVEALSPLVPSLVICELLGVPYADHDFQGLTGPLL RHTTPPEVRL
RIQEELNTYLGT LIDHKLTDPTDDL SRQIAKHRDNGTFDRASMVSLAFL
LLVAGHETTANMISLGVVGLLQHPDQLVVIKDDPDKTPLAVEELLRYFTI
ADSVTARVATEDVQLGDTTINAGDGVVISGLAADRDPTVFAEPDRDLER
GARHHVAFGFGPHQCIGQTLARMELRIVFDTLFRHRIPTLRLAAPLDDIPF
KSDAFVYGIEELPVAW

>CYP1004B1 (2524772582) *Salinispora tropica* CNT261

MTTSALAPRFDALDPNVVEDPYPEYARLRAAGPLCRLGPGSWGVT RFADV
TNLQHDPRLGSEFPAGYHEISVGDGPASAFFQRMVLYRDPPDHIRLRRLM
SGAFTPAVVRRLRSHIEDLVDELLAPALAAGRMDLVPELAYPLPVRVVC R
LMGIPPESTEDVRHHATNIGRAFTAVVPEQARTEADEAVSWLREHLGALL
EQRRSHRGDDL SRLLDAEESGDNL SADEIVDNTVFSFFAGFETTVHMIT
TGTAALLAHPDQLARLRADPSLVTTAVDEF LRWDAPIQGTARYVREPIEI
GGRTIRRGRVLVLMIGSANHDERRFAQPDRLDVGRQDNPHVAFGGGAHLC
LGAFLARMEGAVVFDRLARLAVLEPDGPTVREPNTPF RAYASVPVRIGDR

>CYP1004A1 (2524772586) *Salinispora tropica* CNT261

MRANTARPHLSAAFLATKDDPYPAYAELRARGPLTRAELGQWLVTGHGAV
SALLRDGRLESMPAEYTRLTLGDSPGVDFLHRIVLTRTPPEHTRLRRFI
GRALGTPVVRRLHDRIAAATDALLEPALDRGRLDVVT ELAVPLPVGVVCD
LIGIPTGDRPAVLTRVTALAKVFDAANLSPADLADINTALPWLHDYFGDL
LAVRRAGSGGPTLT EMYWEESASDRLAVADFVDNMLFLFHAGFETTMGLV
SNGVAALLNNPEQLGRRLADPALVPSAVEEFLRYDAPIQNVIRVARKPVE
VAGQKIRAGRTVLLLLGAANRDEEVFADAERLDVGRDPNPHLGFGGGLHH
CVGTALARLMAVVVFERLVDRVTVLGPAAPAVRRRHASLRSYDHLPLAVA
AR

>CYP125G1 (2524772625) *Salinispora tropica* CNT261

MSTEVVSTGNRADIAPATYAAGVPYAEFARLRRDKPVSWSVPEAALWRRS

GEGRILSQGPFWAVTTHEGVVAASRQPEVFSSGRQGAFLADPRTTADLE
QARQLLVNMDAPQHARVRKLVTAFTTPRAIRALGDSVTAHARNLVERAVR
QEECDVVADLAAELPLLVLADLLGLPREDRHLLYQWSNNLVGFDDPEYGG
GDVEAYRKTFEAFQYALSVAGERRRAPREDLMTLLATSEVDGRRLTDRE
FCNFWLLLVVAGNETTRHLITGSLVALVDNPMQRERLVADDTLLASAVDE
LLRWVSPIMQFRRTAIVDTELCGTPIAAGDKVVLWYTSANRDAAVFEAPD
ELRLHRNPNPHLSFGMGPHFCLGAHLARLEARTMLRELAPHLSRFRLTGP
VIRLESNFVNGVKSLLPGSFTGQ

>CYP107E3 (2524773359) *Salinispora tropica* CNT261

VTIDQEIRKYPFCESPGIGIDPTYGLLRSTEPLARVQLPYGEVSWLATRY
EDVKTVLTDPRFSRAAAQKDKQPRTREEMTYEGIIIGLDPPDHTRLRKLKAG
KALTARRVNAIRADAQRIANEYVDGMIAGKSPGDLVELFALPYPVTVICE
LLGVPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFGYMGKLVAQRREEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTGNETVSTHINPFIYALLT
HPELMAQLRADRSVPAAVEELLRMIPLNPAAMFPRYAVEDVTLSGITVR
AGEPVLVSLPGANRDPEVFENPETFDFTREQNPHVAFGHGPHHCLGAQLA
RMELQVALHTVLDRFPDLSLADGDEGVSWKSGLLVRGPSRLLLA

>CYP107AY1 (2519083200) *Salinispora tropica* CNR699

MRAELAPIPRSGARLGQEYDQLRNAGDVHQVLLPDSSLAWLVNPKLVSR
ALTDPRALNRRHSRGSWSGFALPPALDANLLNLDAPDHTRLRLRVGPAPF
SPQRVSALRPRIIRTAEHLLDTLVATSGPVDLVTGYCTPLSVQVIADLMG
VPEAGRADLRTWTDTMLTSYPPDRDAIRQAVVELHGYVVDLIDTKRQQPG
DDLSSALVTIEQDGDRLTRDELTSALFLILFAGYENTANLIASVLRLLD
HGGLRGVQLPEAIEETLRLEPPAPAAVRRFPTEEMTIGGATIPAGDIVLL
SIAAATRGTAGNAARLAFNGPHFCLGAALARVEAEEALTVLARRLPDLA
LALPVAQVRWRPTFRTHGPAELLVTW

>CYP163B1 (2519083318) *Salinispora tropica* CNR699

VTAADTGRVSGESQTPAHTVDLADPATFANHDLTGFWQQLRDEEPIHWN
PPTAGRRGFVVVSRYADILDVYRDDVTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHAELRKLLLRALGPRVLAPVCAAVRTNTRQMIREAVTKGEC
FASDIASRIPMMTISNLLGVPDADRAFLLSLTKTALSADDESISETESAM
ARNEILLYFQDLMEFRDHPGEDVVSMLVNSSIDGAPLSDDDIVLNCYSL
IIGGDETSRLTMIDSVNTLAAHPQQWRRLKDGQCEIDKAVDEVLRWASPS
MHFGRVAARDTILHGVRIRADDIVTLWHASGNRDERVFHRPEVFDLGRTP
NRHLSFGHGPHYICISYLAKVEISELLIALRDLTSGFETTGEFQIRSNL
LTGFATMPVRFPVDRAGLARDALDG

>CYP154M1 (2519083700) *Salinispora tropica* CNR699

MRRRCPVVIDPAGTDIHAEGARIRANGSVSQVELPGGVLAWSVTGQQVAR
KVLSDQRFKSKDPRKHWTDYLEGRIQDFPLIGWVMDNLTAYGSDHSRL
RKPCANAFTPRRVEALRPAVERAAVELLGELATVSPTESVDLKARYAHPL
PSRVICDLFGVPEEDREEMLRGGEVNVDTRVSAEEAAAANVERWHQQMLDF
IEEKRRNPGPDLTSDLIAAQQAEGRSLTDSEMVGTLHIMLATGTEPVKNL
IGNAVFALLTHPEQLDLVRSGRAGWDDVIQETLRMQAPVAHLPPFRFAVED
VDIDGVTIRRGDPLLVNFAAIGRDPDVHGDAAEFDIITRADKEHLSFGHG
VYRCIGQPLALREAIALRMLFQRFPNLVLAVPPEEVTQPPTFIMNGLDT
LPVLLKGRA

>CYP208A4 (2519083728) *Salinispora tropica* CNR699

VTVAAAGRTFSGPTGAALLRSLWQLGQDRLGLMTSAARYGDAVRLGVGSR
SLYFFNHPDHAKHVLAADNSGNYTKGLGLVHARRALGDGLLTSEGELWREQ
RRVIQPVFQAKRVAGQAHAVAEADRLIARLRARRGRGFPVNLDEFTALT
LGVLGRITLLDANLDAFTTVGAAFEEMQNQAMFEMASMSMVMWVPLPQQ
RFRRARRELERIVGRVLADRTARGEETGADDALSRLIASTRDEPDGVAR
RRMRDELVTLLLAGHETTASTLGWTFHLINQDPRVRVRLREEAIDVLGGR
LPEYADLARLTYTKMVVSEAMRLYPPVWMLSRLARDADVVDGYVPV
PARADVLICPYTLHRHPAFWPEPERFDPERFDPEVTTDRPRYAYVPFGAGPRFCV
GNHLGLMEAVFVAMVSREFDLVAPVGQPVVAEPMLSLRVRGGLSMTVEP
VS

>CYP125A15 (2519083807) *Salinispora tropica* CNR699

MTEPRIPVGFDFDPAVLERRVPREEFAELRRTAPVWVWVQPRGSAGFDD
DGYWVTRYADVMASRSDSTYSTRENTAIARFQPGTTRADLEMQRVIML
NVDPPHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
ADVACELPLQAIAGELIGVPQHRRKVFWDWSNQLIGYDDPAYGVDPLTAAA
ELLYAMEMANERQLNPSDDLVTCLVNAQIDGHELTDEFGFFVMLLAVA
GNETTRNAITHGMLAFLEHPEQWELFKAERPRSAVEEIIRWATPVNVFQR
TALVDTTLGGQAIASAGQRVALFYGSANFDESVEEPPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFHSIADHMPDIRKVAEPRRLRSGWINGI
REMPVRYR

>CYP211C1 (2519083940) *Salinispora tropica* CNR699

VLDVEGLLTRLYSEQGRQDPYPVYAGLHAQGAIAALAPRPEGQORVAAVAV
GYDLVGAVLRDPEWSKQPPPGWMEQEILRTLQSSMMFINPPDHGRMRKVF
AGTFTPRRLGTLEPVINRVADELDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPATELAWYRDRVDRIDAFLDVAGKTPERLAAAANAAAAELRVFYA
DLLARRRRTPGEDLISGLVEAVDAGGVQLTEDELINNLIVLFNASFVTTV
YMLSNGLPVLLEHPEVAAALADDPELTAGAIDEILRLQTPVHLLARAAPR
DTVLGGVPIPGQONVLLIIAAANRDPAHFPDPDRFDPRRPGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGGRMHP

>CYP107AW1 (2519084212) *Salinispora tropica* CNR699

MESVTSTSAPPPVPYIADPYPALARIRANGPVSIHLSDEGIPMWVIARYR
NVRAALADPRFGQDARRAQTLADNRVAGVTLGGDVIHMLNSDPPDHTRLR
HLVQGAFTARRVAAMRPLVERITTSLLDGVGGRQTVDLVQDFAFPLPLV
ICELLGFPAEERDAYRSWSTAILTHNDPAAAFATALRDMTDYIEVQLRHR
RARPGEDLLTELLAARDAGQLTDDEIVGMVFLLLIIGGHETTNNLLGTATL
ALVRNPDQHRWLLANPHALSEAIDEFLRYESPVAMATLRFTTAPVTVDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLGRYPGLTLAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP211B1 (2519084565) *Salinispora tropica* CNR699

MDASEAVALLMSPLGRIDPYPTYERLRAHGPPVQTAAGFFVVTGYTEADT
VLRNARLAFEVMDDELRDDVFPHWQDSPAMKSIARSMIRANPPNHGRMR
LAAGFTPRRIAALREVVTQAQADELADEMIRAGRDGAPVDFMGSFAYPLP
VAVICALLGVPAADWARFRGWASDLTAVLEPEITPQELTVADAGASELRD
YFTELIAQRRRAPADDLTALVQTHDADGDRLSGEELLANLVLLLVAGFE
TTTNLLGNGLVLLAHPDSATALRDQPELAPGYVDELLRYDSPVQLTTRT
VRESVLLAGVELPAGSWVLVLLGAANRDPERFTDPTRFDPGRAQSPPLSF
GAGAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRNRRLTLRGYET
LPVTVSAIAADHGTAGVARGTP

>CYP1005A1 (2519084913) *Salinispora tropica* CNR699

VSAVLFRSWTKTAGTHWPAITRVADQQGTEHLVVTOHALVRQVLTQDQTY
RPDNALDAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTGLVAERVAAIRRTLDSGGSTDLHAELNADLPLLVLAR
LVELPDAPVSAVKQFARAALFLWAPLDADRQLALADEVGRFHQVLRFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLADEP
TVRAALRADSVSVADVVEEGLRLEPPIVTWRRVAAVDSTLGGSTVAAGTS
VLLWLARAGRDPVVPAPDEFPRPGQGRSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQVTPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP107AX1 (2519086713) *Salinispora tropica* CNR699

MTSRPTAVFDQCLLRDPHSRYNALRDQAPVHHVLTDPGAPAWLVTRYNDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AACTPRRVADLHPAVERIVSTLLDGLAGHDRAELIGSLASPLPLQVMHEL
LGLPTQANIDFRTWTNTLLSADANQPAQSRAMMANMRRFLIEQLAHKRAQ
PGDDLLTGLLAAREDDRLTDDELVAMVFLLMFAGYDNTAALIGTVTHAL
LTNAELHEAVRGGSLALDELIDEVLRWNPAPFLAVRRFAREPITIAGQTI
PAGDRIWLCLASANRDPAQFTQPDDELGIIGLRRPHLSFGHGIHYCLGAPL
ARLQTTIAVTSLNRFPEMRLAVPAHDIRWRESFRLRGLIALPVYL

>CYP113E1 (2519086849) *Salinispora tropica* CNR699

MMATVPRLTFADGGVSVLPWFRQMRDDQPVWYDQGTGSWNVFRYADIAQI
LTDPATFSSDPGRMTMPPELVEEAEGSLVAVDPPRHGRLRALISTAFTPRL
VEQLAPRVRSIAERLLDRTFVDRGPEGEFDAIGDVAYLLPVYVIGELLGL
PETDREYLVRTADEFYAISADDPFDGTYMASMQSTLDSLGTMYMLDQAERR
RARPGDDLMSALAHAEIDGEQLNDREIRNFAVLLLTAGHITTTALLGNTL
LALGERRDVMLRWRHGQVDTADVLEEVLRRHTPFTEVYRFTTTEVTIGNQ
VVPGDQLLRLWIASGNRDERQFADPDFTFVLGRDSRHLGFGGLGIHYCLGAS
LARMESVVLVLAERTTTTAPAVQGLSYDAPGIFCLRSLPVSYRRS

>CYP105AB2 (2519086951) *Salinispora tropica* CNR699

MTETASIAATTRTASGQLTDAEFPVQRCFPFTAPTEYEQIREESSIAKVRL
KNGGEAWWIAGHELGRSVLADRRFSSDRRRDNFPFVSTDPETRAQLQSQP
TSMLGMDGAEHAQTRRALMGFTVRRMAGLRPRIQQIVDQHIDEMLATPQ
RSVDLVEALSPLVPVSLVICELLGVPPYADHDFQGLTGPLLRTTPPEVRL
RIQEELNTYLGTLIDHKLTDPTDDLRSRQIAKHRDNGTFDRASMVSLAFL
LLVAGHETTANMISLGVVGLLQHPDQLVLIKDDPKTPLAVEELLRYFTI
ADSVTARVATEDVQLGDTTINAGDVVISGLAADRDPTVFAEPDRDLER
GARHHVAFGFGPHQCIGQTLARMELRIVFDTLFHRIPTLRLAAPLDDIPF
KSDAFVYGIEELPVAW

>CYP1004B1 (2519087277) *Salinispora tropica* CNR699

MTTSALAPRFDALDPNVVEDPYPEYARLRAAGPLCRLGPGSWGVTFRADV
TNLQHDPRLGSEFPAGYHEISVGDPASAFFQRVMLYRDPPDHIRLRLRM
SGAFTPAVVRRLRSHIEDLVDELLAPALAAGRMDLVPELAYPLPVRVVC
LMGIPPESTEDVRHHATNIGRAFTAVVPEQARTEADEAVSWLREHLGALL
EQRRSHRGDDLRLDAAESGDNLSDAEIVDNTVFSFFAGFETTVHMIT
TGTAALLAHPDQLARLRADPSLVTTAVDEFRLWDAPIQGTARYVREPIEI
GGRTIRRGRVLVLMIGSANHDERRFAQPDRLDVGRQDNPHVAFGGGAHLC
LGAFLARMEGAVVFDRLARLAVLEPDGPTVREPNTPFRAVASVPVRIGDR

>CYP1004A1 (2519087281) *Salinispora tropica* CNR699

MRANTARPHLSAAFLATKDDPYPAYAELRARGPLTRAELGQWLVTGHGAV
SALLRDGRLESMPAEYTRLTLGDSFGVDFLHRIVLTRTPPEHTRLRRFI
GRALGTPVVRRLHDRIAAATDALLEPALDRGRLDVVTELAVPLPVGVVCD
LIGIPTGDRPAVLTRVTALAKVFDAANLSPADLADINTALPWLHDYFGDL
LAVRRAGSGGPTLTEMYWEESASDRLAVADFVDNMLFLFHAGFETTMGLV
SNGVAALLNNPEQLGRLRADPALVPSAVEEFLRYDAPIQNVIRVARKPVE
VAGQKIRAGRTVLLLLGAANRDEEVFADAERLDVGRDPNPHLGFGGGLHH
CVGTALARLMAVVVFERLVDRVTVLGPAAPAVRRRHASLRSYDHLPLAVA
AR

>CYP125G1 (2519087320) *Salinispora tropica* CNR699

MSTEVVSTGNRADIOHPATYAAGVPYAEFARLRRDKPVSWVPEAALWRRS
GEGRILSQGPFGWAVTTHEGVVAASRQPEVFSGRQGAFLADPRTTADLE
QARQLLVNMDAPQHARVRKLVTAFTTPRAIRALGDSVTAHARNLVERAVR
QEECDVVADLAAELPLLVLADLLGLPREDRHLLYQWSNNLVGFDDPEYGG
GDVEAYRKTFFEAFQYALSVAGERRRAPREDLMTLLATSEVDGRRLTDRE
FCNFWLLLVLVAGNETTRHLITGSLVALVDNPMQRERLVADDTLPSAVDE
LLRWVSPIMQFRRTAIVDTELCGTPIGAGDKVVLWYTSANRDAAVFEAPD
ELRLHRNPNPHLSFGMGPHFCLGAHLARLEARTMLRELAPHLSRFRLTGP
VIRLESNFVNGVKSLLPGSFTGQ

>CYP107AY17 (2519087537) *Salinispora tropica* CNR699

MTGNPTPIPRSGAQLGQQYDHLRKTGDVHEVLLPDASLAWLVTNPEVAAR
ALADPRLALNRRHSRGGWSGFALPPSLDANLLNLDAPDHTRLRRLVGPAF
SPQ RVAALRPGIRRAAEHLDDTLVATSGPTDLVTGYCNPLSVQVIADLMG
IPEAGRTNLRAWTDTMLTSYPPDRDAIRQAVVELHGYYVDLIDVKQQQPG
DDL LSALVTIEQDGDRLTRDELTSLAFLILFAGYENTANLIASALWLLN
HGGLNEVP ISEAIEEALRHEPPAPVAIRRFPTEDIIIGDVTIPAGDTVLL
SIAAATRGLDGNAARLAFGNGPHYCLGAALARAEAEALAVLARRLPGLT
LAVPVAQVRWRPTFRTHGPAELLVSR

>CYP107E3 (2519087694) *Salinispora tropica* CNR699

VTIDQEIRKYPFCESPGIGIDPTYGLLRSTEPLARVQLPYGEVSWLATRY
EDVKTVLTDPRFSRAAAQKQDQPRTREEMTYEGIIIGLDPDHTRLRKLKAG
KALTARRVNIAIRADAQRIANEYVDEMIAKGSPGDLVELFALPYPVTVICE
LLGVFPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFGYMGKLVQRRREEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTG VETVSTHIPNFVYALLT
HPELMAQLRADRS LVPAAVEELLRMIPLNPAAMFP RYAVEDVTLSGITVR
AGEPVLVSLPGANRDPEVFENPETFDFTREQNPHVAFGHGPHHCLGAQLA
RMELQVALHTVLD RFPDL SLADGDEGVSWKSGLLVRGPSRLLVAV

>CYP107AY2 (2515971470) *Salinispora arenicola* CNQ748

MTAEPTPIPRSGARLGQEYDQLRKTGDVHQVLLPDASLAWLVTNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAF
SPQ RVAALRPGIRRAAEHLDDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRAWTDTMLTSYPPDRDAIRRAVTE LHGYVVDLIDIKQQQPG
DDL STLVTIEQDGDRLSRDELTSLAFLILFAGYENTANLIASAVLWLLD

HGGLNVVPISEAIEATLRHEPPAPVAIRRFPTEDIIIGGV TIPAGDTVLL
SVAAATRGADGNAARLAFNGPHYCLGAALARVEAEEALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP105CT1 (2515971499) *Salinispora arenicola* CNQ748

MNSPNHMPADRSLTAPTSGCPMALSRGRVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPIVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTDSDHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGV LHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLTDTG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRRFPGLRLAV
PDSELEFTQGT TVYSLRGLPVTW

>CYP154M5 (2515971516) *Salinispora arenicola* CNQ748

VEQSCP YKLDVTGRDVHAEGEAI RARGPVAQVELPGGVQGSVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPP NWPLIGWLLMDNM TNDGADHQRLR
KLVSHGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNV TSSISGEEAEANVEQWHRELLLV
EAKREKPD EDDMASLLIAAKEEDGSTLTQEEVVGTLHLMLGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDP AVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERF PNM TLAVRPDQLEPQGT FIMNGHREL
PVR LGQPATVLA

>CYP105CP2 (2515972023) *Salinispora arenicola* CNQ748

MTKSMPVQDLPAFFIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSA HARAVLSDYRRVSIKPYHGNYPLLNEEF EKVVDSGYADVLFGVDPP
EHTRQRQMIMPSFTLRRTAVLRPDIQRIVDDKLD EMMRHGAPGDLVTEFA
QPVP SMVMSFLLGVPWEDHEEFETPAHKLFVPELAE EATTEL GAYLERLI
QKKEQPGGTPGGTG LDDLI RDHLRAGALS RDELVHIAMAMLVAGTDTT
NVISLGT LALLDNPDQWAALRDN PDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRP RPSPFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRTAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2515972025) *Salinispora arenicola* CNQ748

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLV TGAAEARALLADSRVSNRADFPNYPVM DERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQLLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVPYQDRTRFEP AVAGLFEPDRAD
AAMAE LTAYLHQ LIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPD LVPGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNH LAFSHGIHHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQ LPTY
FAGDV PRLACLPVTW

>CYP107FS2 (2515972026) *Salinispora arenicola* CNQ748

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGM PAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR

KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVPPFADRSEFERHAEVLTGINASSGFDALIAAGRWFDEYLAELVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETTIVNLVAN
GLLALLRHPEAMAAALRSEPNLMTTAVDELRLRYDSPVSCVTYHFAQEPVEI
GGFKIRSGEHVVIAAAAAANHDPVTFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRLRAGLRLAVPADSLVWKASFVLHRLRLRPV
TFTPDRAFPNIDSVHTV

>CYP248A2 (2515972094) *Salinispora arenicola* CNQ748

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERMLA
ERREDGADLLALMLAAHRSQLMRNEIVSTVVTFFITGHETVASQLGNGL
LSLLDHPEQLELMRRQPHLVPPQAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLACSPNELAYQPRTMFRGLTRLPAFTPA
G

>CYP105W2 (2515972102) *Salinispora arenicola* CNQ748

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRRHADVRQVLSDFRMSADRRRPFGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVSRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVYPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDMVVTDKERRPGDDVLSRLLYRQRSAGGMDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPPERFPAAVE
ELLRYFTVVEAATARTTTAEVTIGGVTTAAGEGVVALGQAANRDPRVFEH
PDEFDPDRDARAHLAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLKLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP211B2 (2515972469) *Salinispora arenicola* CNQ748

MDVSEAIAVLISPGRLDPYPTYEQRLAHGPVSRTTAGLFVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIXIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTAQADELVDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLVAGFETT
TNLLGNGLVLLTRPEAAAALRDEPDLAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPADSWLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGTPAGVAPGTP

>CYP211C1 (2515972713) *Salinispora arenicola* CNQ748

VVDVEELLTRLYSAQGRQDPFFVYADLHTQGPIAALPPEPERRRVAHAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHV
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVVIDAFLDVAGKTPQRLAAANAAGAELEAFY
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPIPPQGNVLLLVAAAANRDPAHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP125A41 (2515972860) *Salinispora arenicola* CNQ748

MTEPRIPAGFDFTDPEVLAHVRVPREEFAELRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPHEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGVDFV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQSRSPSDDLVTCLVNAQIDGHELTDEFGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTVLGGQAI SAGQ RVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHL PDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP245A7 (2515973180) *Salinispora arenicola* CNQ748

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRLSLNRSFSPRIVTEL RPRIARIAQELLSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRVDVGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGAEGLTTDAVEEFLRYDPVQ
AVTRWAHQD TT LGGCDIPRGSRVVALLGSANRDQARFSPDVLDVRRPAD
RHLSFGLGIHYCLGATLARAEEIIGLQALLDGVP T LGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP244A4 (2515973184) *Salinispora arenicola* CNQ748

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQAL THPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGF LDEL SQAGSGGSAEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEAIRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGE GADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP1005A1 (2515973557) *Salinispora arenicola* CNQ748

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTDQATY
RPDNAL EAVTPVPVAALRVLAGHRFRLPPTLANNGGASHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLD SGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVQKFARAAL EFWAPLDADRQLALADEVGRFHQVLR EFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSSSVADVVEEGLRLEPPIVTWRRVA AVDSTLGGTTVAAGTS
VLLWLARAGRDP AVVAAPDEF R PGQRGSRRLAFGAGAHRC LGDQLARME
AAVVVEQATPLLDGVT VVRPPWYPDNLTFRMPDAFVVRR

>CYP208A12 (2515973993) *Salinispora arenicola* CNQ748

MTLDTITPRVPLGPRTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGDLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAE L TG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELET LNAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTL SLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV

GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGGLPLVVRP
VS

>CYP107Q4 (2515974371) *Salinispora arenicola* CNQ748

MTTTAETS AETIDLFSPEVVADPFGWYARLREETGPTTGTNLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRFLTNPFPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSALT AHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELV GIDEPDRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIAKRR AEPQDDLV TALVQAQ AEDQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPL LLAANTDPRRFPDPNKLI I
DRLAVGSEGLHGF GKG IHRCLGQHLAYQEA E VALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105G5 (2515974372) *Salinispora arenicola* CNQ748

LT IETTETTPADDSLAPLPRQFMQRDDPSKLPPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKL LTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRR AAGLLQTDLP IKQ
AVENLEAQRAFMQRLVTDKR RTPADDMISGLVHHAGAEPPLTDDELVGIA
TLLL FAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEH IPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQ LARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTP

>CYP1051A1 (2515974396) *Salinispora arenicola* CNQ748

MATDAAITRARTVPAWKALPAAVRDTHRA FVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAWAA
SRRVLAPMFRPARINAMVD TMADA IAGAVDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWI PMP
GDRRFRAAVRSIDDI LLPVLRQAQRQPDDGDDL SRLVRARADDGRALSE
KMRDDLVSMVAVTTETSTVVL TWLWPLL ANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMTAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMI
LKPVAPVPAR

>CYP105CH1 (2515974494) *Salinispora arenicola* CNQ748

VSSLPLPTYPKLRDPADPLLPAP EYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVD RRRHPNFYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRRL LISEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
QVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALG LLLL VGGHETTAN
TLTLATATMLERPEIAEQLR TDPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLV LNTIARDGT VFP EPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALD TVLRRLPGLHLVTPFEELPFKYRHLVWGIEEL
RVAW

>CYP105BL2 (2515974569) *Salinispora arenicola* CNQ748

MSSHSAAPDPETATPLHTLAPELTFPQFERSTPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTLSDPRFSSDM SHPGFPNRTGKPVDDLL

KDTLGAMDGERHRYRRMLTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHFVAVVPSRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHDRDDLLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP105AB8 (2515975039) *Salinispora arenicola* CNQ748

MTETASSRLTDTEFPVQRECPFAEPVEYEQIRERSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPVVRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHRADLVKT
LSLPVPSLVICELLGVADHDFQEHATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDLLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP107EU1 (2515975506) *Salinispora arenicola* CNQ748

VTIGQTLPLDVYSPEFTRDPYAI FARLREQAPVCRVTTHRGMSAWMVTRH
ADVALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDVPADDLLTALVQVSADEDRLSREELVSMALLLLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRETT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRDLITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQMQLAVEADDLEWLVNSFFRAPL
HLPVSLRR

>CYP166A4 (2515975736) *Salinispora arenicola* CNQ748

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGI HQCLGQN
LARVELRAGLSALLRAFPNRLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP105J3 (2515975757) *Salinispora arenicola* CNQ748

MTDSVAFFPQGRVCPHQ PAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVGPRISSDRNTNPAWPAIVPIVAAAVNDAQQKVLKIATLVGTDGPE
HKAQRKMLIPSFTRRMNALRPMIQEIVDQQLDemiQSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEVLDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP1198B1 (2515976073) *Salinispora arenicola* CNQ748

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQRKLVSKSFTPRIVKSFGPQITHIVDGLFEDFRDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKPNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRNPGGLITNVVDES
LRYDPPVHLAARMARATTIGGYDLDPGTIVVVLMAAGNRDPRAYENPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKHPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP1005A1 (2516216083) *Salinispora arenicola* CNS-991

MSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTQATY
RPDNALAEAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLDSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVVKQFARAALFWAPLDADRQLALADEVGRFHQVLRFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSISVADVVEEGLRLEPPIVTVRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFPRPGQRGSRRLAFGAGAHRC LGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP211B2 (2516216429) *Salinispora arenicola* CNS-991

MDVSEAI AVLISPSGRLDPYPTYEQLRAHGVPVSQTTAGLFVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPA KSIARSMLRTNPPDHSRI RRLA
AGAFTPRRVAAMREVVTAQADELVD EMIQAGR DGARVDFMDMFAYPLPVA
VICALLGVPAADR SRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTEL PAGSWLLVLLGAANRDPRRFDPARFDPGRAQSQPLSF GA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLT LRGYETLP
ITVGAVTADRGT PAGVAPGTP

>CYP154M21 (2516216524) *Salinispora arenicola* CNS-991

MEKCPYVLDRAGSDIHKEASNL RARGPVTLVELHGGYTAWSVTSYEVAKQ
LLMDPRISKNTKAHWPEFRDGNVPQDWEL YTWAMD NMQTRDGKEHDRLR
KLVA PAFTGRQAVKSRPIIEEIVNRLLDDLETA PRGQAVDIKARYFYPLS
TILVCDLLGIAEEDRDVILHGNVVNSKTTNTAE ESEANLHQWQTALGR LV
ETKRRDPGDDLTTVVIKAGEDEQTPLTDDEVIGSLHLLIGGGTETTANVL
CHTVVDM LTHPDQLAMVRSGAVSWESAWEEEVRKDGAVGSM PFRCATDDV
EIGGV TIAKGDVLV LINYAAA GRDPERYGDAAA EFDITRADKANLSFGYGR
HRCLGPALATMEAMVALPALFDRFPNLALAVPPNELKPQGT FIFNGYAEV
PLLLRS

>CYP154M13 (2516216525) *Salinispora arenicola* CNS-991

MSTGRPVVLDPTGRDIHG EADHLRALGPATLV ELPGGVLAWSINSYEVGK
ALLSAPNVSKSARRHWP AFYNGEIPPDWEMISWVAMDNISTTFGGDHRR L
RRLTAKAFGSRRAEQVRPMATHMVNTLLDRMADAADAGEVVDLKAAFAYP
LPGMLVAELIGMSEEARVAAAKVIDMMTATNITPEQAQGVLLGWRDAITD
LIA LKRAQPGDDITSDLIAARDEDGSLLTEQELVD TIFAILGAGSETTIN
FFDNAITQLLTHPEQLELVKSGQVSWDDVIEEVLRL ESPLASLPMRFAVE
DIQLDGVTIHRGDPILINYAALGRDPALHGESAGVFDVTRQHKEHLSFGH

GAHYCLGAGIARMVAKTGLSALFERFPRMTLAVSAKDLVPYPTFIMNGNR
QLPVHLSGALTWREGEQSALGRA

>CYP105W2 (2516216541) *Salinispora arenicola* CNS-991

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRRHADVRQVLSDFRMSADRRRPFGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVSRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVSSQVICEVLGVYPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDVVVTDKHRPGDDLRSRLLYRQRRAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLARAEPPERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGVTIAAGEGVVALGQAANRDPVFEH
PDEFDPDRDARAHLAFGHGRHICPGQHLARLEMEVALSRLFRRPLGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2516216548) *Salinispora arenicola* CNS-991

MLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRGHAIAEFADYVERALA
ERREDGADLLALMLAAHRSQLMsrNEIVSTVVTFFITGHETVASQLGNGL
LSLLDHPEQLELVRRQPHLVPPQAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDVPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCNPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP154M20 (2516216572) *Salinispora arenicola* CNS-991

MERCPYVLDRAGRDLHGEAKALRARGPVTLVELHGGYTAWSVTSYEIAKQ
LLVDPRISKNTKETWPEFREGKVPQDWELYTWVAMDNMQTRDGEHDLRL
KLVAQAFTTRQVAKVRPMIEDIVDRLLDDLEKVPAGEVVDIKGRIFYPLS
TILVCDLLGIPEADRAEALHGTVVNARTTNSAESEANLHQWQSALSKLV
ETKRREPGNDITTLIIKAREDEQAPLTDDEVIGSLHLLIGGGTETTSNVL
CNTLIDLTHPDQMAMIRSGAVGWEEAWEVEVRKDGAVGSMPFRCANADI
EIGGVTIAKGDVLINIAAAGRDPERYGDTTAEFDITRADKTNLSFGYGR
HRCLGPALATMEAMISLPALFERFPDLVLAVPRDELKPQGTFFVNGYAEV
PMLLRS

>CYP107FJ2 (2516216579) *Salinispora arenicola* CNS-991

MSETLSTSVLLADAAEQRAWRAKLRGAGPVHRITTSQGETGWLIVGHEEA
RNALVDLRLQGRTATVGHGRMPEDLERALNSHMLNVGPPDHTRLRLRVS
AAFTRRRIEQMRPRIQELTDELLDGLAGADEADLVAGLALPLPMRVLVDL
FGIPAEDCADFNVTWTKVLTSAGAVDLDRLTAAAGEMVAYLRGLLDRKRQV
PESDLSALVAVRDGADRLSDELTSMVYLLLTAGYETTVNLIGNGLLNL
LANPEQLVAFKADPDLQPQVVEEAMRFDSPVQIAVRHSTEPVEIAGQAIP
SGALILVSLWANRDPDRFTEPEAFRVDRQDNQPLGFGYGFHHHCIGAPLA
RMEGTIAIGTVIRRFPALRLAHPAGSLTWRASVMVMHGLTALPVHLR

>CYP154M15 (2516216598) *Salinispora arenicola* CNS-991

MNDKCPFAALDVTGQDLHGEAARLREQGPAVLVELPGGVKAWSINRYEVI
RELLMDRRVTKNARKHWPFAIKGEIPPDWEMISWVAMDNMVTAYGKDHVR
LRKLVGRAFTQRRADALRPQVVALSTKLLDDLGGATPPGEVVDLRERFAYP
LPAMLVASLIGMSEAALAACSKVIDMMVHTNVSPEEAQAVLRGWRAAMAD

LIESKRRTPGEDITTDLIAAREEDGSRLSEAEADTIFAILGAGSETTIN
FFDNAITALLSRPGQLQLLRTGAVTWDDVIDEVLRVESPLAHLPLRYAVE
DIELDGVTTIPQGDPILVNYAAAGRDPALHGGTADEFDLARGDKTHLSFGY
GPHYCLGAGIARMVATIGLSMLFERFPDLSLAVPATELKRLPTFIMNGHQ
TLPVRLTVHAR

>CYP125G6 (2516216623) *Salinispora arenicola* CNS-991

MPTLLNEHVSYDGAIAIVDSDGATSWIRLAERVNRWVHLLRAHGLDTGD
RLACVTGNRRETFFEVLLAALHTGVTVPVNVHLLTVTEIGHILSDSGSRVV
ITEELHVKAFAAAADGTAGPVAGLVLGDRVEGFAAVEPLLAASPAEPE
GQVCGATMLYTSGTTGRPKGVVNNLFVTGAPYARVGRLCDYARSVLGVPR
RERMLLDGPWYHSSQLFFALLSLLQGSRLVIRPYFDPAATLKTIDDHRT
VTHLVPTQLVRLLRVDALTRQMFSGASLRRVWHGGGPPPEVKRSMIDWW
GPVLVEYYGATEGGVVTLIDSAEWLARPGSVGRAVPPSEVVVVDDGGQPV
AAGQTGQVFFRRRTGNRFHYHNAPEKTQAAYLAPDTFTTYGEVGHVDEDGY
LFLTGRAQDMIVSGGVNVYPAEVEAALLRHPVVRDAAVIGVADDEFGERV
VGIVVPETAVDPDDFATHLDAHCRVSLAGFKVPRTYRVVESLPRDETGKL
RKDALRSKFGWLSGAAMTVPRPATGQPTAHRPDIAHPTTYVSGVPHDEFA
RRRRDEPVGWVAEPVLTRHTAAGRTATRGSGFWAVTRYEDVVAASRRVTD
FSSAAKGAFLLTDPRTPADLQQAQQLLVNMDDPHHARLRKLVTSTVFTPRAV
RGLLASIDAHAAALVAKVVAAGEFDVVTDLAAELPLLVLADLLGVPKQDR
ALLYGWSNHLVGFDPDFGGGDIDAYRTAMAEAFQYALNLGVERRARPTD
DLVSLLANAEVDGTRLTDREFCNFWLLLVVAGNETTRHLVAGTMQALTEH
PGECARLVEGRVPMESAVEELLRWVTPIMQFRRTATRDTEIGGQAVTAGE
KVVLYYTSANRDATVFAEPDRDLGRTPNRQLSFGIGPHYCLGAHLARAE
LTALLRVMSPHLGLSLQLTGVPVSRLASNFNFGVKAMPAVIGSR

>CYP107FS2 (2516216661) *Salinispora arenicola* CNS-991

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMPAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLTVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVPPFADRSEFERHAEVLGTGINASSGFDAAIAAGRWFDYLAGLVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETTUNLIAN
GLLALLRHPAEMAALRSEPNLMATAVDELLRYDSPVSCVYHFAQEPVEI
GGFEIRSGEHVVIAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRLRAGLRLAVPTDSLWVKASFVLHRLRLRPV
TFTPDRDPNLIDSVHTV

>CYP105CN1 (2516216662) *Salinispora arenicola* CNS-991

MAAPAPQATTSTTPHPPSYPLPRECPYRPSAGTAHLRDAGPVSTVRLYDG
RTAWLVGTAAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRLQLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVYPYQDRTRFEPVAGLFEPPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGLTALLTAPGQYAALVDNPDLPVPGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIHHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPTW

>CYP105CP2 (2516216664) *Salinispora arenicola* CNS-991

MTKSMPVQDLPAFFIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHAARAVLSDYRRVSIKPYHGNYPLLNEEFKVVDSGYADVLFVDP
EHTRQRQMIMPSFTLRRRTAVLRPDIQRIVDDKLDEMRRHGAPGDLVTEFA

QPVPMSMVISFLLGVPWEDHEEFETPAHKLFVPELAEEATTELGAYLERLI
QKKEQPGGTPGGTGLLDDLIRDHLRAGALSRDELVHIAMAMLVAGTDTT
NVISLGLTLALLDNPDQWAALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRITAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP244A4 (2516216886) *Salinispora arenicola* CNS-991

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLGRIHAW
VVCDELVKQALTHPKMGKDIALVPEWMRQPGMLVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRNTERWGERVADKVEGFLDELSQLAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGLSLISTSLYEAIRRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEAGDSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP245A7 (2516216890) *Salinispora arenicola* CNS-991

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRSLNRSFSPRIVTELRPRIARIAQELLSRLGQQVDVLDVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYARA EVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGAEGLTTDAVEEFLRYDPPVQ
AVTRWAHQDTTLGGCDIPRGSRVVALLGSANRDPARFSPDVLDVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPRTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP105AB8 (2516217099) *Salinispora arenicola* CNS-991

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHRADLVKT
LSLPVPSLVICELLGVPYADHDFQEHATLVRRTASEVRQHSIDELNA
YLGALIDRKLASPDLLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFQDGTINAGDGVVVVSGLSADWDPTVFADPDRLDLERGARRHHLAF
GFGPHQCLGQNLARLELQIVFDTLFRHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP211C1 (2516217223) *Salinispora arenicola* CNS-991

MVDVEELLTRLISAQGRQDFFPVYADLHARGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPIPPGQNVLLLLIAAANRDPAHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP125A41 (2516217373) *Salinispora arenicola* CNS-991

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIAARLRPDTTREDIEMQRVIML
NVDPPHEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGFV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQRSPSDDLVTCLVNAQIDGELTTDEF GFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTV LGGQAI SAGQ RVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHL PDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP105J3 (2516217524) *Salinispora arenicola* CNS-991

MTDSVAFFPQGRVCPHQ PAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRTNPAWPAIVPIVAAVND AQQKVLKIATALVGT DGPE
HKAQRKMLIPSF TFRMNALRPMIQEIVDQQLDEMIQSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIF EKLSHQ LLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGLVDDL LAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSV PDAVTRLAADDIEVE
GTII RQGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP247A7 (2516217639) *Salinispora arenicola* CNS-991

MRLTPGAARDIDLDSVNLFDLDLYTSGDPHPIWDMRAQSPLHHQVLADG
REFWSVTRYDDVCRVLGDYREFTSERGT VVTHLGEDDIAAGKLLTSTDPP
RHTQVRRRAIGAKLTARAVASWQDRIRDAIVRFLEPALDGDTFDLAEQALL
LPAIVTGPLLGI PERDWQELVQLTAMVTAPSDPHFQHGSEAATLAISHHE
LVTYVTEWVKQRRSAGGGDGSLLDHLMSVRVGGAPLTDEEIALDGYSILL
GANVTTPTVSGTVLALIERPEQFEKAQADPSLLANLVEEGLRWASAACN
FMRYAVNDTRIGGGTVPAGGAVVAWIGSANRDESYFPDPHQFDITRSGAN
RQVAFGFGPHYCIGAPLARMTLGIFFEEELVQRFGSIELAGEPQHLSYFI
AGMTHLP IVAQKRKTP

>CYP107EU1 (2516217773) *Salinispora arenicola* CNS-991

MTIGQTL PDLVYSPEFTRDPYAIFARLREQAPVCRVTTHRGMSAWMVTRH
VDVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTNNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDL LDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDVPADDLLTALVQVSADEDRLSREELVSMALLLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRLDITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQMQLAVEADDLEWL VNSFFRAPL
HLPVSLRR

>CYP1198B1 (2516217780) *Salinispora arenicola* CNS-991

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVD DAERAGSSI FMDQP
GHGRQRKLVS KSFTPRIVKSFGPQITHIVDGLFEDFRDRGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKNP GDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPG LITNVVDES
LRYDPPVHLAARMARATTIGGYDLDPGTIVVVLMAAGNRDP RAYENPDV

FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKHPEVDES
SLEYRRHIVVRGLEHMKVAFQP

>CYP105CH1 (2516217788) *Salinispora arenicola* CNS-991

MSSLPLPTYPKLRDPADPLLPPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHFNFPYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRLLISEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRTDPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVLTNIARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALDTVLRRLPGLHLVTPFEELPFKYRHLVWGIEEL
RVAW

>CYP105BL2 (2516217866) *Salinispora arenicola* CNS-991

MSSHSAAPDPETATPLHTLAPELAFFQFERSAPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLSDPRFSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPSPRVACHLVGIPLSYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHDRDDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIIGLVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP162P1 (2516218305) *Salinispora arenicola* CNS-991

MGLPSEVDLAEPDLADPDLYAEGDPDAEWAWLRAHRPVYRNPAGATAEFW
ALTRYRDALQVYRDPSTFSSERGMVLGVDPVAGDPAAGRMLVVTDPPRHP
KLRRIVSGIFVPRMTMRLEGRVRSVLDQLLHRVVDGAGRCDFVNDVAARL
PVAIIICELLGVPADQDWMYHLTSTAFGGGDPAGSAEVS AVERAEAYGDI
LLYYGELAAERRRRPGDDLVTLLVHADLDGEPLDVEDVLVNCTNLIIGGN
ETTRHAASGGLLALAQRPELWRRRLRETPTAVPTAVEEVLRWTTPGMHVLR
TATRDTEIGGVPIRAGERVVVWNAANRDEDVFADPQHFDIDRSPNRHIA
FGQGGHHCLGAALARLELTILFEEMAKQVTNVRLTGPVRRVRSCVLRGIR
ALPVELVT

>CYP107AY2 (2516219477) *Salinispora arenicola* CNS-991

MTAEPTPIPRSGARLGQEYDQLRKTGDVHQVLLPDASLAWLVTNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRLRVGPAF
SPQRVAALRPGIRRAAEHLLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRNLRAWTDMLTSYPPDRDAIRQAVTELHGYYVDLIDIKQQQPG
DDLSSALVTIEQDGDRLSRDELTSLAFLILFAGYENTANLIASAVLWLLD
HGGLNVVPISEAIEGTLRHEPPAPVAIRRFPTEDIIIGGV TIPAGDTVLL
SIAAATRGADGNAARLAFNGPHYCLGAALARVEAEALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVSW

>CYP208A12 (2516220231) *Salinispora arenicola* CNS-991

MTLDTITPRVPLGPPRTAALRMLLVMKRDLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGDLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAELTG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNNAVPMWIPLPR

QIRFRRARRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHGPVWERLHAEAVEVLGDR
LPEYDDLRLRYTVMVVEEAMRLFPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGHRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP166A4 (2516221074) *Salinispora arenicola* CNS-991

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVWIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHEVERVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLYHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIERETS GHVAFGFGI HQCLGQN
LARVELRAGLSALLRAFPNRLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP107Q4 (2516221098) *Salinispora arenicola* CNS-991

MTTTAETS AETIDLFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTRYEDVRQVLTDPRLTNPPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVS YALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPRPHWRWAGDSMATMNGER
IPTTLVKCIELARELIANRAEPQDDLVTALVQAQAEQDNVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPAVRELQRL
GPIQFAQPRFSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLII
DRLAVGSEGLGF GKGIHRCLGQHLAYQEA EVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTTRTTLPLKLV

>CYP105G5 (2516221099) *Salinispora arenicola* CNS-991

MTIETTETTPPADDSLAPLPRQFMQRDDPSKLPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRRAAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDDDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRP EQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQQLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTP

>CYP1051A1 (2516221119) *Salinispora arenicola* CNS-991

MATDAAITRARTVPAWKALPAAVRDTHRAFDVGVNWSGDGVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAVDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDDI LLPVLRQAQRQPDDGDDL SRLVVRARADDGQALSE
KRMRDDLVSMAVTTTETSTVVL TWMP LLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAAS TRPARTVEMI
LKPVAVPPAR

>CYP244A4 (2562106138) *Salinispora arenicola* CNY244

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAARVAPVVRIPYLGRIHAW
VVCDELVKQALHTPKMGKDIALVPEWMRQPGMLMVTAPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGFDELDSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEAIRRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEAGDSFDAERRGHGHLST
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP245A7 (2562106142) *Salinispora arenicola* CNY244

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRLSLNRSFSPRIVTELPRPRIARIAQELLSRLGQQVDVDLIVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRVDVGYAQAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGAEGLTTDAVEEFLRYDPVQ
AVTRWAHQDCTLGGCDIPGRSRVVALLG SANRDPARFPSPDVLVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPRTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCT

>CYP208A12 (2562107007) *Salinispora arenicola* CNY244

MTLDTITPRVPLGPPRTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGDLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAELTG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLANRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHGPVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP105J3 (2562107202) *Salinispora arenicola* CNY244

MTDSVAFFPQGRVCPHQPAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRNTNPAWPAIVPIVAAAVNDAQQKVLKIATALVGTGPE
HKAQRKMLIPSFTFRMRNALRPMIQEIVDQQLEDEMIKSGAPTDLIPAFAS
AVPVTVLRLMGIPTDDHGI FEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGLDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP125A41 (2562107378) *Salinispora arenicola* CNY244

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPHETKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGDV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQSPSDDLVTCLVNAQIDGHELTDEFGGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEIIIRWATPVNVFQR

TALVDTVLGQQAISAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211C1 (2562107526) *Salinispora arenicola* CNY244

VVDVEELLTRLYSAQGRQDPFFVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLARRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAAALATDPVLTAGAVDEILRLQAPVHLLARAA PR
DTVLGGVPI PQGQNVLLLLIAAANRDP AHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP105BL2 (2562107575) *Salinispora arenicola* CNY244

MSSHSAAPDPETATPLHTLAPELTFPQFERSTPFDPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLSDPRFSSDMSHPGFPDRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVP SRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHRD DLLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDP AVFERPDELDVRRN
ARQHLTFFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELA VTW

>CYP107AY2 (2562108145) *Salinispora arenicola* CNY244

MTAEPTPIPRSGARLGQEYDQLRKTGDVHQVLLPDASLAWLV TNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGP AF
SPQ RVAALRPGIRRAAEHL DTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRATDTMLTSYPPDRDAIRRAVTELHG YVVLDIDIKQQQPG
DDLSTLVTIEQDGDRLSRDELTS LAFLILFAGYENTANLIASAVLWLLD
HGGLNVVPISEAIEGTLRHEPPAPVAIRRFPTEDIIIGGV TI PAGDTVLL
SVAAATRGADGNAARLAFGNPHYCLGAALARVEAE EALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP105CT1 (2562108171) *Salinispora arenicola* CNY244

MNSPNHMPADRSLTAPTSGCPMALSRGRVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPI TVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTD SHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGVLHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRL LTDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAF PALLRFPGLRLAV
PDSELEFTQGT TVYSLRGLPVTW

>CYP154M5 (2562108187) *Salinispora arenicola* CNY244

VEQSCP YKLDVTGRDVHAEGEAIRARGPVAQVELPGGVQGWSVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPPNWPLIGWLLMDNMTTNDGADHQRLR
KLVS HGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP

ARVICDMFGVPEALRASVLRGAQVNVNTSSISGEEAEANVEQWHRELLELV
EAKREKPDEDMASLLIAAKEEDGSTLTQEEVVGTLHMLGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDPVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPHMTLAVRPDQLEPQGTFFIMNGHREL
PVRLGQPATVLA

>CYP105AB8 (2562108778) *Salinispora arenicola* CNY244

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHRADLVKT
LSLPVPSLVICELLGVPYADHDFQEHATLVRRTASEVRQHSIDELNA
YLGALIDRKLASPDDDLLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDDTTINAGDGVVVSGLSADWDPTVFADPDRDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTLFRHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP166A4 (2562108976) *Salinispora arenicola* CNY244

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGWIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHQCLGQNL
LARVELRAGLSALLRAFPNLRALVPADEVPLRLQGSVFAVKNLPVCW

>CYP1005A1 (2562109416) *Salinispora arenicola* CNY244

VSAVLFERSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTDAQTY
RPDNALAEAVTPVPVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLDSSGPPVDLYADLTADLPLLVLAR
LVELPDAPVNAVQKFARAALFLWAPLDADRQLALADEVGRFHQVLREFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSISVADVVEEGLRLEPPIVTVRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFPRPGQRGSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP1051A1 (2562109667) *Salinispora arenicola* CNY244

MATDAAITRARTVPAWKALPAAVRDTHRAFDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAIDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDILLPVLRQAQRQPDDGDDLLSRLVRARADDGRALSE
KMRDDLVSMVAVTTETSTVVLTWLWPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATDILGGVRINKGAT
VILSPYVTQRMTAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMI
LKPVAPVPAR

>CYP105G5 (2562109691) *Salinispora arenicola* CNY244

LTIIETTETPPADDSLRAPLPRQFMQRDDPSKLPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRRAAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQQLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTP

>CYP107Q4 (2562109692) *Salinispora arenicola* CNY244

MTTTAETSATIDLFSPEVVADPFGWYARLREETGPTTGTNLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRFLTNPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSALTAKHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPRPHWRAGDSMATMNGER
IPTTLVKCIELARELIAKRAEPQDDLVLTALVQAQAEQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWFPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLII
DRLAVGSEHGLGFKGKIHRCGLQHAYQEAEEVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP107FS2 (2562109988) *Salinispora arenicola* CNY244

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDDLIDVIAAEGEADLVETLALPLPIAV
ISEMLGVFPFADRSEFERHAEVLTGINASSGFDALIAAGRWFDLYLAELVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETTVNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVIVAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRLRAGLRLAVPTDSLWVKASFVLHRLRLRPV
TFTPDRAFPNIDSVHTV

>CYP105CN1 (2562109989) *Salinispora arenicola* CNY244

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVTGAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRLQLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVVPYQDRTRFEPAVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVPGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIHHCIGQNLALLELDIAFRALVSRFPTLRPAVPAEQLPY
FAGDVPRLACLPTW

>CYP105CP2 (2562109991) *Salinispora arenicola* CNY244

MTKSMPVQDLPAFPPIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSA HARAVLSDYRRVSIKPYHGNYPLLNEEFKVVDSGYADVLFVGDPP
EHTRQRMIMPSFTLRRTAVLRPDIQIRIVDDKLDMMRHGAPGDLVTEFA
QPVPMSMVSFLLGVFWEDHEEFETPAHKLFVPELAAEEATTELGAYLERLI
QKKEQPGGTPGGTGLLDDLRDHLRAGALSRLDELVHIAMAMLVAGTDTT
NVISLGTALLDNDPDQWAALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRKAPIDQIPSNNDGTLQRL
YELPVVW

>CYP105W2 (2562110371) *Salinispora arenicola* CNY244

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRRHADVRQVLSDPRMSADRRRPGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDMVVTDKERRPGDDVLSRLLYRQRAGGMDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPPERFPAAVE
ELLRYFTVVEAATARTTTAEVTIGGVTTAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAHLAFGHRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2562110379) *Salinispora arenicola* CNY244

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVS RFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERVLA
ERREDGADLLALMLAAHRSQIMSRNEIVSTVVTFFITGHE TVASQLGNGL
LSLLDHPEQMELMRQPHLLPHAVEECLRFDPVQSNT RQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLACNPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP211B2 (2562110444) *Salinispora arenicola* CNY244

MDVSEAI AVLISPSGRLDPYPTYEQ LRAHGVPVSRTTAGLFVVTGYAEADM
VLRDPRFVVLDLDDLRDDVFPHWQDSPAIXIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTQADELVD EMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVLLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPTGSWLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGTAGVAPGTP

>CYP105CH1 (2562110527) *Salinispora arenicola* CNY244

VSSLPLPTYPKLRDPADPLLPAPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHNPFPYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRRL LISEFTVRQAQAMPRIQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHGDDVLSRLIVSNRETEAFDHEALVALG LLLL VGGHETTAN
TLTLATATMLERPEIAEQLRDPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLV LNTIARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALD TVLRRLPGLHLVAPFEELPFKYRHLVWGIEEL
RVAW

>CYP107EU1 (2562110738) *Salinispora arenicola* CNY244

VTIGQTL PDLVYSPEFTRDPYAI FARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA

RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPVADDLLTALVQVSADEDRLSREELVSMALLLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRLDITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQMQLAVEADDLEWLVNSFFRAPL
HLPVSLRR

>CYP1198B1 (2562110922) *Salinispora arenicola* CNY244

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQRKLVSKSFTPRIVKSFGPQIAHIVDGLFEDFRDRGELDVVTDLAY
PVSIGIICDLFGIPDDERMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRNKPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDPAYESP
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKHPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP154AJ2 (2515924165) *Salinispora pacifica* CNT854

VDDSLFVIDPAGADIHGEGARLRASGPITRVLLPGGVEAWSVTGYHAAR
QVLADARFAKNARQHWPAYVNGDLGPDFPLIAWARMDNMSTADGESHA
RRLVAGAFSPQRIALQPRVERAVARALDELAAQAAERPGEPIDLKERYA
HPVAARVIGELLGVDPDGDGILDRAGYIESTPQRAAEFALLRSKIETL
VAAKRRAPGEDLISDLIAAQPSGCPVAGAGAGSDAELVGLAQLMLNTGAE
PARNLITNTVLALLTRPGQRAQVMSGEVSWGDVVEETLRDAPVAHL
PFRFATEDVTIAGTTISRGDVPLVGYAATGRDPELHGATAGEFDARRAD
KRHLAFGHGVHRCVGPALTRMEVRIAVEALFTRFPGVRLAVEPKELVGQ
GTFIMNGRRELPVQGLCAQP

>CYP211C9 (2515924223) *Salinispora pacifica* CNT854

VPDIEGLLARLYSARGRQDPYPVYADLHAQAAIAALTPGPGRQRVAAV
GYDLVAAVLRDPEWCKQPPPGWRDQEILRILQSSMMFINPPDHGRMRH
VFAETFTPRRLGALELVINRVTDDELDRMADAGPGEVDFVAEFAYPLP
ARVMAEFIGIPTTELAWYRERVDRIDAFLDVAGKTPERLAAANAAGAE
LRAFYRELLARRRRTPEGDLISGLVEAVDAGGVELTEDELISNLIVLF
NASFVTTVYLLSNGLPVLLAHPQVAAALADNPPELAAGAVDEILRLQTP
VHLLARAAPRDTVLGGVSIPOGQNVLLLIAAANRDPAHFPDPDRFDPR
RSGPSSLAFLGLLHYCLGAAVSRLEGRALPRLLSRFPRLRILEQPVYSG
SLFLRGIDKLSVSPGGRSIRE

>CYP125A65 (2515924357) *Salinispora pacifica* CNT854

MTEPRIPVGFDFDPTVLERRVPREEFAELRRAPVWVNVQPRGSAGFDD
DGYWVVTRYADVMASRDSETYSTRENTAIARFQPGTTRADLEMQRVIML
NVDPPPEHTKLRAIVSRGFTPRAIHALRGSLAERAERIVRDAAVRGTGDF
VTDVACELPLQAIABELIGVPQHHRKVFWDWSNQLIGYDDPAYGVDPMA
AAAAELLGYAMEMADERQRNPSSDDLVTKLVAQIDGHLTTDEFGGFFVML
LAVAGNETTRNAITHGMLAFLEHPEQWELFKAERPRSAVEEIIRWATPV
NVFQRTALVDTTLGGQAIASAGQRVALFYGSANFDESVEEPPERFDITR
SPNPHLGFEGSGVHFCLGANLARLEIELIFNSIADHMPDIRKAADPQRLR
SGWINGIREMPVRYR

>CYP107AX10 (2515924383) *Salinispora pacifica* CNT854

MTAQAPAPVFDQRLLRDPHRRYNALRDQAPVHHVVRTPDGAPAWLVTRYDDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVERTVSTLLDGLAGNDHAELIGSLASPLPLQVMHEL
LGLPTQTSVDFRTWTNTLLSADANQPAQSRSAMANMRRFLVEQVAHKRAR
PGDDLLTGLLCVREDDDGLTDDDELVAMLFLLMFAGYDNTAALIGNVIHAL
LTNAELAEAVRTRSLALDELVDGVLRWNPSFPLAVRRFAREPLTIAGQAI
PAGDRIWLCLASANRDPAHFTEPDEIGIADMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVASLFDRFPGIRLAMPVQDIQWRESFRLRGLVALPVFL

>CYP107AW6 (2515924396) *Salinispora pacifica* CNT854

VETVTGTSAPPPVPYIADPYPTLARIRANGPVSIHLSDEGVPMWVIARYR
EVRAALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLAGRKTVDLVQDLAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAVFATALREMTDYIAVQLRLR
RSRPGDDLLTELLTARDAGQLTDDIVGMVFLLLLIGGHETTVNLLGTATL
ALLRNPDQHRWLLANQHALPEAIDEFLRYESPVAMATLRFTTTPVTVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPKLALAAEVRQLQWRDTIMLRGLESPLVSLHG

>CYP245A11 (2515924480) *Salinispora pacifica* CNT854

MSSTTLPRFTLTGWTREDIVNPYPVYRRYREVAAVHRGEAGGDAPETFYV
FSYDEVAQVLSSSCFGRGRSLDATAASVPVPADQKALRAVVENWLVMFMDP
PRHTELRSLNRSFSFPRIVTGLRPRIARIAQELL SRLGQQVETDLVEGFA
APLPILVIAELLGIPAERHGWLRNTAIALQEASSSRARRD TDGYARAEAA
AQEFTEYFREQVCLRRGSTGDDLLTILANAQLRGAPVSLDAVVGTAHVLL
TAGHETTTNSLAKAVLALQAHPAVLEELRGADRLTADSIEEFRLYDPPVQ
AVTRWTHQD TT LGGWDPVPRGSRVVAL LGSANRDPARFPLPDALDVRRPAD
RHLGFGGLGIHYCLGATLARAEEIGLQTLNGLPTLGYPAYVDYADDMV
FHGPSRLILVNPGERFC

>CYP244A5 (2515924484) *Salinispora pacifica* CNT854

MSATTNAELDEAPETAMPVDPGLFDCMPDLIAAARIAPVVRIPYLG RHAW
VVCDELVKQAL THPKMGKDITLVPEWMRQPGLMVTAQPPPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGEQVADKVEGF LDELSQAAAAGSGAEV
DVVTNYTHKIPLAFISEMLGLPPVAEHRLRSITDIMLYSSDYAARREAIG
GLFGAVEEWVRNPAGLRDGVITGLLAGSDGPGAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEALRRPPHERPRTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRQPGEGADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAKIAVRGFLRRFPQARLSADTAVQWESEWMIRRM
SFLPAVLS

>CYP105BL3 (2515925457) *Salinispora pacifica* CNT854

MSSHSAAAPDPETATPLHTLAPELTFPQFERATPFDPPEAYTELSGRCPV
APVRMADGKPSWLITSFEGVRAALSDPRLSSDM SHPGFPNRTGKPVDDL
KDTLGAMDGERHRYRRMLTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVTHVALVVP SRVACHLVGIP LSEYELFTGMAAKLMDSTSSADQIA
ALQDMVSYFDTLVT DREHHDRDDLGHMVRRYLATGELDREMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREP HLMPGAVDELMRYLPMI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDP AVFERPDELDVRRN
ARQHLSFGYGP HQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DEDIMYRVSELAVAW

>CYP208A27 (2515926031) *Salinispora pacifica* CNT854

MTVITKRGGRVPPGPPVTTAGLRLLLLALGRDRLGMLTSAATEYGDVARLPV
GPKRLYFFNHPDHAKHVLAADNHANYAKGIGLVNARRALGDGLLTSDEGLW
RRQRRVIQPAFLNRRLTQYAGVVQGEATRLAERLATRVDPGPPVDVLDEMT
RLTLGVLGRTLDDAELTGFGHVGESFAAVQDQAMFELETLSAVPTWIPLR
RQRRFRARRHLQEVVDVLAAERGQDVEGRDDVLSRLILSTRAEADPALG
RQRLRDELVTLLLAGHETTASTLGWSLYLLDKHPQLRERVRHEATSVLGD
RVPGYADLHQLQYTAMVVQEAIRLYPPVWILTRKARAEDEVGGYRVPAGA
DLLICPYTLHRHPRFWEEPGRFDPERFDPARLANRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLAVALRLDLRLEGLPGRAVVPEPMLSRLVRGGLPMMVR
RAD

>CYP107FH3 (2515926136) *Salinispora pacifica* CNT854

VPIELDEAFVQDPYAVYERLRAEGPAHRVRMPPGVPLIGGLPVWLITGYD
AVRAALADSRLSTDLHRIDGLFAQKDPDRSHRGGFSSALASHMMHTDPPD
HTRLRKLVSQAFTTRAIEALRPRIQQTDELIADLAGHDTVDDLDAFAFP
LPIRVICLLLGVPVAEQENFRSWSRALVSGHSPEAAATAATEVAAYLGDL
VERKRQATTDDVLTALVTAHDVDDRLTHTELVSTAYLLFIAGFETTLNAL
GNGTLHLMLHRDQWTALRADRALLDNAVEEFRLRESPLKHATFRCATESL
RIGDAEIAAGDFVLLAIASANRDPRRFPDPHTLDVRRPAAGHLAFGHGIH
HCLGAPLARVEVRMAFDALLDAFPDLRLATDPAGLRWRNSTIIRGLDSL
VHLNN

>CYP2054A3 (2515926140) *Salinispora pacifica* CNT854

MPISADSEQVQGRFPDPYGAHRDDPYAFLAGLVFYAPLLDAWCVTRED
MVAVLRDDRSFSARDHNPRPAVALPDDVNQMFRTWGAGAVAVGSLDPPA
HAKIRDVLNIGFTPARVRAFEPTMRAVATDLADRIGDAPEFDFIADFVFP
FALEVIGRRLGVPDDYLDRCRTWSEQRIELMMAQGDADHDRLREFARGLM
EFGEFARSLVRDRVADPRDDLISELLHDGKAGRTLTADEVAVQIPTLIFA
GHMTCAEALGTIFYQQLRSPGGWARVVDRTIPVGDVVEEGLRFDSPLAGM
YRTATRDVTVGGIRLTAGSRLLLLYGAAGRDSRAHACPAAFRPGDGSSGH
LAFGHGIHFCLGAGFARAELRVAVEVLAARMPDLGLAPGRPPRFRPVFPL
RALTELRVTRSGGGCGP

>CYP161N4 (2515926145) *Salinispora pacifica* CNT854

VNTVAQLPFTQTHVLDVAPALRLLQSRGKVHRVRTPEGVPAWLVTGHAEV
QQLLDDDLRSRSDPGGRDGGTALLNKLLGPLADDHPRLRSLLFPQFTPER
LEPLRAIVEKLTEQHLDELATRTPPVDLRPALAMSLPILVLCEWLGVPAE
DKDRFSAWTQDAAGVQDPERSQRGLAELFGYCRQLVAAKRQDPGDDVISR
LIATAGIGDTEVVALTALLLFGGYETTVARIGTGVLNLTNPQWAAVRA
DPALVPATVDELLRRSMPNPHNGGMPRFALTGFEIDGAAIRAGDLVLLNI
IAANHDETAFFDPDRDLVTRPTAGSLAFGYGRHSCVGAPLARMVLRVALS
RLITRFPDLCLAVGVDGLKLRHETLVGGGLVELPVWTGPR

>CYP211B16 (2515926328) *Salinispora pacifica* CNT854

MDASEAVALLMSPGRDPYPTYERLRAHGPPVATAAGFFVVTGYAEADA
VLRNPRFAVMDDEERDGVFPHWQDSPAMMSISQSMIRANPPDHSMRRLA
AGVFTPRRVAALREVVAQADELIDEMIRAGRGGAPVDFLGGFAYPLPVT
VICALLGVPAADWAQFRRWAGDLTGVLPEITPQELAVADAGATELRDYF

TELIAQRRRDPADDLTALVQTHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLFVLLTHPESATALRDQPELAPSYVDELLRYDSPVQLTSRTVR
ESVPLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPGRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPVRRSRLTLRGYETLP
VTVGAVAADHGTPAGAALGTP

>CYP107AY8 (2515927224) *Salinispora pacifica* CNT854

MRAEPAPIPRSGARLGQEYDQLRKTDGVHQVLLPDTSLAWLVTSPELVSR
ALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAP
SPQ RVAALRPRIQRVAEELADTVVATGSPVDLVTGYCTPLSVQVIADLLG
VPEAGRDTLRAWTDMLTSYPPDRDAIRQAVVELHGYYVNLIEAKQQRPG
DDLLSALVATEQEGDRLTRDELTSLAFLILFAGYENTANLIASTVLRLLD
HGSLRGVRASEEIEETLRLEPPAPAAIRRFPTTEMTIGGATIPAGDTVLL
SIAAATRGTDHSARLAFNGPHFCLGAALARVEAEEAITVLARRLP SLA
LAVPGAPARWRPTFRTHGPAELLVTW

>CYP1197A2 (2515927587) *Salinispora pacifica* CNT854

VSLRLRLFELGADDPYDFYRHLRESGPVQWDDWMRTWLVLGYDEISALSKD
ERLSGARIDSFYERLPTGSRSGIAPLKNALSDMMLFTEPPRH TKLRQLIR
PGLTPRFIREMRPLVQTVVDDLLDRVLPTGRMDVIHDLSEPLSRDVIARL
AGVDGPGTG LLENWQGLLHEFFTQSQA AIPRINALRDVFDRGAVARRAGT
ADDMFSRMIAGQLGRAEYTDDEVFANFLLLLIDAGQATTHLIGNAVLALI
DHPDQLQLLREHP ELGVGA AHELLRYDTSVQFTSRVALEDITIGGQHIAA
GQSVALVLGSGNRDPRHYPNPDRLDLRRRAADHLSFGHGIHYCLGAALAL
TEIEIAVTTLLRRTRDLRPAETGRDWLESVNFRFLQRLPVRFTAV

>CYP1226A3 (2515927769) *Salinispora pacifica* CNT854

MTRTLRTPTSAPGRLPVLGHGLHMKRRPAEFLLELQSGEPVVTIALGRRP
AYVVDHTLTMRELLRDGDTFVRGGPMTERFRSMFGNGLGISEGEFHRRQR
ALIQPAFHNRKVIHYTELMSRTVAGTRDSWRDQQLAVEKEMDELALTNV
VEVIFAGDRSVDRARFMAATTTVLGGLFRRITDVTGVLTRLPTQANRDYD
AAAEYL RATIRRVIAEYRAAGTDHGDLLSMMLFARDEDGRPAMSDQQVHD
EVM TFFIAGSNTIANTLCWALHQIGADA EVERRLYAEVDRVLDGRAAGYA
DVANLEYTRQVLAETLRLRTQGLFN RVTARDAELGGYLIPAGSAVLYSF
HAVVHNPR IYEPERFDPDRWRPERARALPHGAFMPFATGVHGCIGDQFA
WTEMIVSLASIVARWRLEPVPGHQPKVPAMTMPVDSLPM TVRLRSR

>CYP105AB27 (2515928423) *Salinispora pacifica* CNT854

MTETASITTPGTSSTTTSEPASGQVTD AEF PVERGCPFSTPVEYEQIRDH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFPFVSTD PET
RKQLQDQPTSMIGMDGA EHAQARRALMG EFTVRRMAGLRPRIQQIVDQHI
DEMLSSDERTADLVEALS LPVPSLVICELLGV PYADRDFQARS GPLIRH
TTPTEVRLRIQEELNTYLGALIDRKVTEPTDDLLSRQIAKQRAAGTFDRT
SLVSMAFLLLIAGHETTANMISLG VVGLLQHPDQLAMIKDDPEKTPPAVE
ELLRYFTIADTVTARVATEDVQLGGTTINAGDGVVISGLAADHDPTVFTD
PDRLDL ERGARHHVAFGFGPHQCIGQTLARMELQIVFDTLFRRIPTLR LA
APLDDIPFKSDAFVYGA EKLPVAW

>CYP1005A8 (2515928547) *Salinispora pacifica* CNT854

VSAVLFRSWTKTAGTHWPPVTRVADQQGTEHLVVTEHELVRQVLT DQVTY
RPDNALDAVTPIVPALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQR PWLTKLVAERVA AIGATLD SGSSADLHAELSADLPLLVLAR

LVELPDAPVSAVKQFARAALFWAPLDADRQLALADKVGRFHQVLRFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLHRLAGEP
TVRAALRDGSVSVANVVEEGLRLEPPIVWRRVAVDSTLGGTAVPAGTS
MLLWLARAGRDPAIVPAPDEFPRPGQRGSRRHLAFGAGAHRCGLGDQLARME
AAVVVEQATPLLDGTSVVRAPWYPDNLTFRMPDAFVIRR

>CYP163B1 (2562097046) *Salinispora tropica* CNY681

VTAADTGRVSGESQTPAHTVDLADPATFANHDLTGFWQQLRDEEPIHWN
PPTAGRRGFVVSRADILDVYRDDVTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHAELRKLLLRALGPRVLAPVCAAVRTNTRQMIREAVTKGED
FASDIASRIPMTTISNLLGVPDADRAFLLSLTKTALSADDESISETESAM
ARNEILLYFQDLMEFRRDHPGEDVVSMLVNSSIDGAPLSDDDIVLNCYSL
IIGGETSRLTMIDSVNTLAAHPQQWRRLKDGQCEIDKAVDEVLRWASPS
MHFGRVAARDTILHGVRIRADDIVTLWHASGNRDERVFHRPEVFDLGRTP
NRHLSFGHGPHYCIGSYLAKVEISELLIALRDLTSGFETTGEPRIRSNL
LTGFATMPVRFPDRAGLARDALDG

>CYP107AW1 (2562097685) *Salinispora tropica* CNY681

MESVTSTSAPPPVPYIADPYPALARIRANGPVSIHLSDEGIPMWVIARYR
NVRAALADPRFGQDARRAQTADNRVAGVTLLGGDVIHMLNSDPPDHTRLR
HLVQGAFTARRVAAMRPLVERITTSLLDGVGGRQTVDLVQDFAFPLPLV
ICELLGFPAEERDAYRSWSTAILTHNDDPAAFATALRDMTDYIEVQLRHR
RARPGEDLLTELLAARDAGQLTDDIVGMVFLLLIIGGHETTNNLLGTATL
ALVRNPDQHRWLLANPHALSEAIDEFLRYESPVAMATLRFTTAPVTVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLGRYPGLTLAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP154M1 (2562097748) *Salinispora tropica* CNY681

MRRRCPVVIDPAGTDIHAEGARIRANGSVSQVELPGGVLAWSVTGQQVAR
KVLSDQRFKSKDPRKHWDYLEGRIGQDFPLIGWVMDNLTAYGSDHSRL
RKPCANAFTPRRVEALRPAVERAAVELLGEATVSPTESVDLKARYAHPL
PSRVICDLFGVPEEDREEMLRGGEVNVDTRVSAEEAAANVERWHQQMLDF
IEEKRRNPGPDLTSDLIAAQQAEGRSLTDSEMVGTLHIMLATGTEPVKNL
IGNAVFALLTHPEQLDLVRSRAGWDDVIQETLRMQAPVAHLPPFRFAVED
VDIDGVTIRRGDPLLVNFAAIGRDPDVHGDAAEFDI TRADKEHLSFGHG
VYRCIGQPLALRAEIALRMLFQRFPNLVLAVPPEEVTPQPTFIMNGLDT
LPVLLKGRA

>CYP208A4 (2562097776) *Salinispora tropica* CNY681

VTVAAAGRTFSGPTGAALLRSLWQLGQDRGLMTSAARYGDVRLGVGSR
SLYFFNHPDHAKHVLADNSGNYTKGLGLVHARRALGDGLLTSEGELWREQ
RRVIQPVFQAKRVAGQAHAAVEADRLIARLRARRGRGPVNLTDEFTALT
LGVLGRITLLDANLDAFTTVGAAFEEMQNQAMFEMASMSMVPWVPLPQQ
RFRRARRELERIVGRVLADRTARGEETGADDALSRLIASTRDEPDGVAR
RRMRDELVTLLLAGHETTASTLGWTFHLINQDPRVRVRLREEAIDVLGGR
LPEYADLARLTYTKMVVSEAMRLYPVWMLSRLARDADVVDGYVPVPRAD
VLICPYTLHRHPAFWPEPERFDPERFDPEVTTDRPRYAYVPFGAGPRFCV
GNHLGLMEAVFVAMVSREFDLVAPVGQPVVAEPMLSLRVRGGLSMTVEP
VS

>CYP125A15 (2562097855) *Salinispora tropica* CNY681

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRTAPVWWNVQPRGSAGFDD

DGYWVVTRYADVMASRSDSTYSTRENTAIARFQPGTTRADLEMQRVIML
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
ADVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGVDPLTAAA
ELLAYAMEMANERQLNPSDDLVTCLVNAQIDGHELTDEFGFFVMLLAVA
GNETTRNAITHGMLAFLEHPEQWELFKAERPRSAVEEIIIRWATPVNVFQR
TALVDTTLGGQAI SAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFHSIADHMPDIRKVAEPRRLRSGWINGI
REMPVRYR

>CYP211C1 (2562097988) *Salinispora tropica* CNY681

VLDVEGLLTRLYSEQGRQDPYPVYADLHAQGAIAALAPRPEGQRVA AVAV
GYDLVGAVLRDPEWSKQPPPGWMEQEILRTLQSSMMFINPPDHGRMRKVF
AGTFTPRRLGTLEPVINRVADELDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPATELAWYRDRVDRIDAFLDVAGKTPERLAAANAAAAELRVFYA
DLLARRRRTPGEDLISGLVEAVDAGGVQLTEDELINNLIVLFNASFVTTV
YMLSNGLPVLLHEHPEVAAALADDPELTAGAIDEILRLQTPVHLLARAAPR
DTVLGGVPI PQGQNVLLLI AAANRDP AHFPDPDRFDPRRPGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGGRMHP

>CYP105AB2 (2562098173) *Salinispora tropica* CNY681

MTETASIATTRTASGQLTDAEFFVQRCFPFTAPTEYEQIREESSIAKVRL
KNGGEAWWIAGHELGRSVLADRRFSSDRRRDNFFVSTDPETRAQLQSQP
TSMLGMDGAEHAQPRALMGEGFTVRRMAGLRPRIQQIVDQHIDEMLATPQ
RSVDLVEALSLPVPSLVICELLGVADHDFFQGLTGPLLRRHTTPEVRL
RIQEELNTYLGTLIDHKLTDPTDDLLSRQIAKHRDNGTFDRASMVSLAFL
LLVAGHETTANMISLGVVGLLQHPDQLV I IKDDPDKTPLAVEELLRYFTI
ADSVTARVATEDVQLGDTTINAGDGVVISGLAADRDPTVFAEPDRDLER
GARHHVAFGFGPHQCIGQTLARMELRIVFDTLFHRIPTLRLAAPLDDIPF
KSDAFVYGIEELPVAW

>CYP211B1 (2562098683) *Salinispora tropica* CNY681

MDASEAVALLMSPGLRIDPYPTYERLRAHGPPVQTAAGFFVVTGYTEADT
VLRNARLAFEVMDDELRDDVFPHWQDSPAMKSIARSMIRANPPNHGRMR
LAAGFTPRRIAALREVVTQAQADELADEMIRAGRDGAPVDFMGSFAYPLP
VAVICALLGVPAADWARFRGWASDLTAVLEPEITPQELTVADAGASELRD
YFTELIAQRRRAPADDLTALVQTHDADGDRLSGEELLANLVLLLVAGFE
TTTNLLGNGLVLLAHPDSATALRDQPELAPGHVDELLRYDSPVQLTTRT
VRESVLLAGVELPAGSWVLVLLGAANRDPERFTDPTRFDPGRAQSPPLSF
GAGAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRNRLTLRGYET
LPVTVSAIAADHGTPAGVARGTP

>CYP1005A1 (2562099000) *Salinispora tropica* CNY681

VSAVLFRSWTKTAGTHWPAITRVADQQGTEHLVVTQHALVRQVLT DQLTY
RPDNALDAVTPI PVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTGLVAERVAAIRRTLDSGGSTD LHAELNADLPLLVLAR
LVELPDAPVSAVKQFARAALFWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLHRLADEP
TVRAALRADSVSVADVVEEGLRLEPPIVTVRRVA AVDSTLGGSTVAAGTS
VLLWLARAGRDP AVVPAPDEF R PGQRGSRRLAFA GAGAHRC LGDQLARME
AAVVVEQVTPLLDGVTVVRPPWYPDNLTFRMPDAFVVR

>CYP107AX1 (2562099824) *Salinispora tropica* CNY681

MTSRPTAVFDQCLLRDPHSRYNALRDQAPVHHVLTDPGAPAWLVTRYNDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPPELDAHLLNRDPDPDHTRLRLRLAA
AACTPRRVADLHPAVERIVSTLLDGLAGHDRAELIGSLASPLPLQVMHEL
LGLPTQANIDFRTWTNTLLSADANQPAQSRAAMANMRRFLIEQLAHKRAQ
PGDDLLTGLLAAREDDRLTDELIVAMVFLLMFAGYDNTAALIGTVTHAL
LTNAELHEAVRGGSLALDELIDEVLRWNPAFPLAVRRFAREPITIAGQTI
PAGDRIWLCLASANRDPAQFTQPDELGIIGLRRSHLSFGHGIHYCLGAPL
ARLQTTIAVTSLNRFPEMRLAVPAHDIRWRESFRLRGLIALPVYL

>CYP113E1 (2562100020) *Salinispora tropica* CNY681

MMATVPRLTFADGGVSVLPWFRQMRDDQPVWYDQGTGSWNVFRYADIAQI
LTDPATFSSDPGRMTPELVEEAEGSLVAVDPPRHGRLRALISTAFTPRL
VEQLAPRVRSIAERLLDRTFVDRGPEGEFDAIGDVAYLLPVYVIGELLGL
PETDREYLVRTADEFYAISADDPFDGTYMASMQSTLDGLGTYMLDQAERR
RARPGDDLMSALAHAEIDGEQLNDREIRNFAVLLLTAGHITTTALLGNTL
LALGERRDVMLRWRHGQVDTADVLEEVLRHRTPFTEVYRFTTTEVTIGNQ
VVPGDQLRLRWIASGNRDERQFADPDTFVLGRDSRHLGFGGLGIHYCLGAS
LARMESVVLVLAERTTTLAPAVQGLSYDAPGIFCLRSLPVSYRRS

>CYP125G1 (2562100587) *Salinispora tropica* CNY681

MSTEVVSTGNRADIAPATYAAGVPYAEFARLRRDKPVSWSVPEAALWRRS
GEGRILSQGPFWAVTTHEGVVAASRQPEVFSSGRQGAFLADPRTTADLE
QARQLLVNMDAPQHARVRKLVTAFTTPRAIRALGDSVTAHARNLVERAVR
QEECDVVADLAAELPLLVLADLLGLPREDRHLLYQWSNNLVGFDDPEYGG
GDVEAYRKTTFFEAQYALSVAGERRRAPREDLMTLLATSEVDGRRLTDRE
FCNFWLLLVVAGNETTRHLITGSLVLAALVDNPMQRERLVADDTLLPSAVDE
LLRWVSPIMQFRRTAIVDTELCTPIAAGDKVVLWYTSANRDAAVFEAPD
ELRLHRNPNPHLSFGMGPHFCLGAHLARLEARTMLRELAPHLRSRFLTGP
VVRLESNFVNGVKSPLPGSFTGQ

>CYP1004A1 (2562100626) *Salinispora tropica* CNY681

MRANTARPHLSAAFLATKDDPYPAYAELRARGPLTRAELGQWLVTGHGAV
SALLRDGRLESMPAEYTRLTLGDSPGVDFLHRIVLTRTPPEHTRLRRFI
GRALGTPVVRRLHDRIAAATDALLEPALDRGRLDVVTTELAVPLPVGVVCD
LIGIPTGDRPAVLTRVTALAKVFDAANLSPADLADINTALPWLHDYFGDL
LAVRRAGSGGPTLTEMYYEESASDRLAVADFVDNMLFLFHAGFETTMGLV
SNGVAALLNNPEQLGRRLRADPALVPSAVEEFLRYDAPIQN VIRVARKPVE
VAGQKIRAGRTVLLLLGAANRDEEVFADAERLDVGRDPNPHLGFGGGLHH
CVGTALARLMAVVVFERLVDVTVLGPAAPAVRRRRHASLRSYDHLPLAVA
AR

>CYP1004B1 (2562100630) *Salinispora tropica* CNY681

MTTSALAPRFDALDPNVVEDPYPEYARLRAAGPLCRLGPGSWGVTFRADV
TNLQHDPRLGSEFPAGYHEISVGDGPASAFFQRMVLYRDPDPDHIRLRLRM
SGAFTPAVVRRLRSHIEDLVDELLAPALAAGRMDLVPELAYPLPVRVVCR
LMGIPPESTEDVRHHATNIGRAFTAVVPEQARTEADEAVSWLREHLGALL
EQRRSHRGDDLLSRLLDAAESGDNLSADEIVDNTVFSFFAGFETTVHMIT
TGTAALLAHPDQLARLRADPSLVTTAVDEFWRWDAPIQGTARYVREPIEI
GGRTIRRGVVLVLMIGSANHDERRFAQPDRLDVGRQDNPHVAFGGGAHLC
LGAFLARMEGAVVFDRLARLAVLEPDGPTVREPNTPFRAVASVPVRIGDR

>CYP107AY1 (2562100665) *Salinispora tropica* CNY681

MRAELAPIPRSGARLGQEYDQLRNAGDVHQVLLPDSSSLAWLVTNPKLVSR
ALTDPRALNRRHSRGSWSGFALPPALDANLLNLDAPDHTRLRRLVGPAPF
SPQRVSALRPRIIRRTAEHLLDTLVATSGPVDLVTGYCTPLSVQVIADLMG
VPEAGRDLRTWTDTMLTSYPPDRDAIRQAVVELHGYVVDLIDTKRQQPG
DDLLSALVTIEQDGDRLTRDELTSLAFLILFAGYENTANLIASVLRLLD
HGGLRGVQLPEAIEETLRLEPPAPAAVRRFPTEEMTIGGATIPAGDIVLL
SIAAATRGTAGNAARLAFGNPHFCLGAALARVEAEEALTVLARRLPDLA
LALPVAQVRWRPTFRTHGPAELLVTW

>CYP107E3 (2562101138) *Salinispora tropica* CNY681

VTIDQEIRKYPFCESPGIGIDPTYGLLRSTEPLARVQLPYGEVSWLATRY
EDVKTVLTDPRFSRAAAQGKDQPRTREEMTYEGIIGLDPPDHTRLRKLKAG
KALTARRVNAIRADAQRIANEYVDEMIAGSPGDLVELFALPYPVTVICE
LLGVPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFGYMGKLVAQRREEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTGVEVTVSTHIPNFVYALLT
HPELMAQLRADRSVLPAAVEELLRMIPLNPAAMFPRYAVEDVTLSGITVR
AGEPVLVSLPGANRDPEVFENPETFDFTREQNPHVAFGHGPHHCLGAQLA
RMELQVALHTVLDRFPDLSLADGDEGVSWKSGLLVRGPSRLLVAW

>CYP162A8 (2518088078) *Salinispora pacifica* DSM 45543

MISPDLSDPFTFYQNGDPLPVWAE LRREHPVYDNRRADGTRIWA VMTHKLC
TDMLTNPKVFSSANGMRLDSNPRVLARAAGKMLNVTDP PQHDKIRKLVSS
AFTPTTIRRLLEANMRATAGRAIDTAIADGGCELTRLAHKLPVSVICDLLG
VPEQDWDFMAERTRFAWGSTAADDREEVEKVAHA TEIMAYFLDLAADRRK
RPMEDLV SALVHGEVDGRALTD EDVLYNCDALLSGGNETTRHATVGGFLA
FVMNPDEWSAIRQNRDLLPSAIQEIVRYTSPVMHSLRTATRDVEFGGINI
RAGEYVVAWLPSANRDEQLFDDPDRFNIRRS PNRHLGFIQGNHYCIGAGL
AAMELRVMFDELLNRVSEVRLAGPARRLR SNLLWGFDSL PVTTFHVAGAR

>CYP161T2P (2518088127) *Salinispora pacifica* DSM 45543

MARCWAGVPYANWEQFRRWSDDAADMYDQERSVGGYQALRDYIAELAQVR
LRVSGTDLISDLMESHRTEPEGFTLNQVVELGLTLLFAGHETT VTAIDNG
AVLPATHPEQARLAGDPSLLDAAVEEILRGSVPRMNF FARPD DTD PAGA
PPRWANTDLVIGDVTVRAGELVLLGLAHANADERFFAESARFDVGRV PNR
HLTFGNPHFCAGAPLARLEL*ELSVALLERFPGLRLAVPAERLEPRANL
LTGGMTRVPVTW

>CYP105AB29 (2518088779) *Salinispora pacifica* DSM 45543

MTETASITTPGTSSTTTSGPASGQVTD AEFPVERGCPFSTPVEYEQIRDH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRDNFPFVSTD PET
RKQLQDQPTSMIGMDGAEHAQARRALMG EFTVRRMAGLRPRIQQIVDQHI
DEMLSSEQRSADLVEALS LPVPSLVICELLGV PYADHDFQAHSGPLIRH
TTPSEVRLRIQEELNTYL GALIDRKVTDPTD DLSRQIAKHHAAGTFNRT
SLVSM AFLLLIAGHETTANMISLG VVGLLQHPDQLAMIKEDPEKTPPAVE
ELLRYFTIADTVTARVATEDVQLGDTTINAGDGVVISGLAADHDPTVFTD
PDRIDLERGARRHVAFGFGPHQCIGQTLARLELQIVFDTLFRRIPALRLA
APLDDIPFKSDAFVYGA EKLPVAW

>CYP107CL2 (2518088818) *Salinispora pacifica* DSM 45543

MHDPYPVYVGM RDSAPVRLSDANAGR TW FVP RYHDVIDVLRDDRFSAALK
APAFINQFPPEQRVQFQPFNQSIAGWVVLQDPPAHRQLRQLMNKGFT RHL
VAALRPKVTEIATGLVD T MATRRSGDFMTDFAQPFPAAVIATMFGVPAAD
LSAFISWSDDIVLFADSLRPTVEVARAAQNGLLSMTEFFRQLLPQRRADP
GDDVISLLVSVRDNGEQLTDEQVLNCAQLIVAGHETTRNLVANGWLWTL
SHPDQLAKLWADPSLMTSAIREMMRFESPLQFVRRVARDDFDYLGVR IQA
QDGVVTMLGSANRDPAFFTEPDRFDITRNPTGHVALSYGPHICLGAALAE
METEVALGLLLERFPDLRAVDEQPERVMNPMLRGGGGDV RAGRRVRRQRH
RAEPGRVNDPVVVVSATDEVLRDPAAGPHLLTGQERARLGSFGSESARRD
FIAAHLVLRLCAARLLGTGPAQVSFGQFCPGCHATR HGRPLLTD RPD IHL
STSHTAGVAAAAGHAPVGV D VERHGRQ RSAALMRRVLAPAEFALVTEHP
DPRHAF L P YREREPGGLDSLGDGGGAVTSPEPSGGASGGAVRDHRAQPGD
ERQH GATDRQ RGERDPAEVSHHRRVHQHIQRFGGEHHEGRQGERGNSAR

>CYP1005A8 (2518089058) *Salinispora pacifica* DSM 45543

MSAVLFRSWTKTVGTHWPAVTRVADQQGTEHLVVTEHELVRQVLTDQVTY
RPDNALDAVTPIPV PALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQR PWLTKLVAERVA AIGATLDSGGATDLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAALALFWAPLDADRQLALADEVGRFHQVLREFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLAGEP
TVRAALRDGGVSVANVVEEGLRLEPPIV TWRRVAAVDSTLGGTAVPAGTN
VLLWLARAGRDPAIVPAPDEF R PGQRGSRRHLAFGAGAHRC LGDQLARME
AAVVVEQAAPLLDGISVVRAPWYPDNL TFRMPDAFVIRR

>CYP211B19 (2518089405) *Salinispora pacifica* DSM 45543

MDASEAVALLMSPFGRDPYPTYERLRAHGPPVVATAAGFVVTGYTEADTV
LRNPRFGVMDDEERDGVFPHWQDSPAMMSISQSMIRANPPDHSRMRRLAA
GVFTPRRVAALREVVAQADELIDELIRAGRGGAPVD FLGSFAYPLPVTV
ICALLGVPAADWAQFRRWASELTAVLEPEITPQELAVADAGATELRDYFT
ELIAQRRRDPADDLT TALVQAHDADGDRLSGEELLANLVLLL VAGFETTT
NLLGNGLFVLLTHPDSATALRGQPELAPSYVEELLRYDSPVQLTSRTVRE
SVTLGGVELPAGSWLLVLLGAANRDPARFTD PARFDPGRAQSPPLSFGAG
AHYCLGAGLARLEAQVAFPLLLRRLPELSLAGEPVRRSRLTLRGYETLPV
TVGAVAADHGTPAGAARGTP

>CYP244A5 (2518089754) *Salinispora pacifica* DSM 45543

MSATTNAELGEAPETSMPIDPGLFDCMPDLIAAARIAPVVRIPYLGRHAW
VVCDRELVKQALTHPKMGKDIALVPEWMRQPGLMVTAQPPPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGEQVADKVEGF LDELSKAAAGSNAEV
DVVTNYTHKIPLAFISEMLGLPPAAEHRLRSITDIMLYSSDYAARREAIG
GLFGAVEEWVRNPDGLRDGVITGLLAGSDGPGA AVTEGEVIVWTLGMIIT
GYETTGLISTSLYEALRRPPHERPRTDEDITAWIEETLRVHPPFPHPPTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRQPGEGADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAKIAVRGFLRRFPQARLSADTAVQWESEWMIRRM
SSLPAVLS

>CYP245A11 (2518089758) *Salinispora pacifica* DSM 45543

MSSTTLPRFTLTGWNREDIVNPYPVYRRYREVA AVHRGEAGGDAPETFYV
FSYDQVAQVLSSSCFGRGRSLDATAASVPVPADQKALRAVVENWL VFMDP
PRHTELRSLLNRSFSPRIVTGLRPRIARIAQELLSRLGRQVETDLVEGFA

APLPILVIAELLGIPAGRHGWLRTNALALQEASSSRAGRDTAGYARAEAA
AQEFTEYFREQVHLRRGSTGDDLLTILANAQLRGVPVSLDAVVGTAVHLL
TAGHETTTNSLAKAVLALQAHPAVLEELRGADGLTADSIEEFLRYDPPVQ
AVTRWTHQDTTLGGWEVPRGSRVVALLG SANRDPARFPLPDALDVHRRPAD
RHLGFGGLGIHYCLGATLARAELEIGLQTLNGLPTLGYPAQYVDYADDMV
FHGPSRLILVNPGERFCQ

>CYP107AW6 (2518089845) *Salinispora pacifica* DSM 45543

METVTGTSAPPPVPYIADPYPTLARIRANGPVSIHLSDEGVPMWVIARYR
EVRAALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLAGRKSVDLVQDLAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDDPAVFATALREMTDYIAVQLRLR
RSRPGDDLLTELLAARDAGQLTDDEIVGMVFLLLIGGHETTVNLLGTATL
ALLRNPQHRWLLANGHALPEAIDEFLRYESPVAMATLRFTTTPVTVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLLAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPKLALATEVRQLQWRDTIMLRGLESPLVSLHG

>CYP107AX9 (2518089858) *Salinispora pacifica* DSM 45543

MTAQPAFVFDQRLLRDPHRRYNALRDQAPVHRVRTPDGAPAWLVTRYDDV
RAAFIDPRLSVDKRFSGTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVEKTVSTLLDGLAGNDHAELIGSLASPLPLQVMHEL
LGLPTQTSVDFRTWTNTLLSADANQPAQSRSAMANMRRFLIEQVAHKRAQ
PGDDLLTGLLCVREDDDDGLTDDELVAMLFLLMFAGYDNTAALIGNVIHAL
LTDVELAEAVRTGSLAVDELVDGVLRWNPFSFPLAVRRFAREPITIAQGTI
PAGDRIWLCLASANRDPAHFTEPDEIGIADMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVAAILFDRFPGIRLAVPVQDIQWRESFRLRGLVALPVSL

>CYP208A21 (2518089872) *Salinispora pacifica* DSM 45543

MTTTSIDRRRPPGPPRAAALSMLLTMSRDRLGMMTAAARAYGDAAWLPVG
HKALYFFNHPDYAKHVLTDNSDNYTKGIGLVHARRALGDGLLTSEGELWR
EQRRVIRPSFRSGRAPDQASVIAEEVASLVERLRARAGGPPVNVVTEFTG
LTLGVLGRTLLDVDLTALATVGDFAAAVQDQAMFELVTL SAVPTWIPLTR
QRRFRARRAELEIRIVDDLVARRGDVSGRDDVLSRLILSTGAEPDARVRQ
RLRDELVTLLLAGHETTASTLGWTLYLIDGHPPVRELLAEAVEVLGDRL
PAYRDLPLDRFTTMVVQEAMRLYPPVWLLPRRSRRADRVGPYRVPAGSDV
VVSPYTMHRHPGFWEPEPDRFDPLRFDPRNAADRPRYAYLPFGAGPRVCVG
SNLGMMEAVIAVAMLCRELRLVRVPTHAAVPEPMLSLRIRGGLPMSVHLT
D

>CYP154M16 (2518089884) *Salinispora pacifica* DSM 45543

MPDRCPVLDPGRDIHAEADRLRAQAPAVKVELPGGVHAWTSITSYDVVKR
LLLDNRNVTKNARNHWPKFINDEIPPDWEMISWVAMDNMVTAYGKHLVRLR
RLIAKAFTAQRVETVRPQVEKLVDELDDGLAAETGEVVDLREKFCYPLPA
LLIAELIGMTEQQRAQTAKAMDLMVDTTVSPDQAQAILTGWRTAMDELIA
AKRREP GKDIASDLIAARDDENGGLTDSELTDITIFAILGAGSETTINFL
DNAVTALVTHPGQLELVRSGRAGWDDVIDEVLRVQCPLASPLRYAVTDI
ELDGVTIPQGDPIILINYAAAGRDPALHGDTAGEFDVFRENKEHVSFGHGP
HYCLGAGIARLVATIGLSRLFERFPDLRLAVPAEELQPLPTFIMNGHRAL
PVRLVPAPAAATAV

>CYP211C6 (2518090136) *Salinispora pacifica* DSM 45543

MPDIEGLLTRLYSAQGRQDPYPVYADLHAQAAIAALEPRPKRQRVAHAV

GYDLVA AVL RDPEWFKQPPPDWRDQEILRILQSSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVINRVTD ELLDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPATELAWYRERVDRVDAFLDVAGKTPERLAAANAAGAE LRSFYR
ELLAHRRRTPEGEDLISGLVEAVDAGGVELTEDELISNLIVLFNASFVTTV
YLLSNGLPVLLAHPEVAAAALASSPELAAGAVDEILRLQTPVHLLARAAPR
DMVLGGVSI PQGQSVLLLLIAAANRDP AHFPDPDRFDPRRSSPPSLAFGLG
LHYCLGAAVSRLEGR LALPRLLSRFPRLRILEQPVYSGSLFLRGIDKLSV
SPGGREHP

>CYP125A66 (2518090267) *Salinispora pacifica* DSM 45543

MTEPRIPVGFDFTDPAVLERRVPREEFAELRR TAPVWWNAQPKGSAGFDD
DGYWVVTRYADVMASRDSETYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPPEHTKLRAIVSRGFTPRAINALRGSLGERAERIVRDAAGRGTGDFV
TDVACELPLQAI AELIGVPQHRRKVFDWSNQLIGYDDPAYGVDPLAASA
ELLAYAMEMAHERQRNPSDDLVTQLVNAQIDGEHLTADEF GFFVMLLAVA
GNETTRNAITHGMLAFLENPEQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLAGQAI SAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REL PVR YH

>CYP208A26 (2518090359) *Salinispora pacifica* DSM 45543

MTVIADRGGRVPPGPPV TAGLRLLLALGRDRLGMLTSAATEFGDVARLPV
GPKRLYFFNHPDHAKHVLADNHANYAKGIGLVHARRALGDGLLTSGGELW
RKQRVVIQPAFLNRRLAQYAGVVGQEATRLAERLATRV DGPVDVLDEMT
RLTLGVLGRITLLDAELTGFGHGVGESFAAVQDQAMFELETLSAVPTWIPLR
RQRRFRARRHLQEVVDVLA AERGQNV EGRDDVLSRLILSTRAEADAALG
RQRLRDELVTLLLAGHETTASTLGWSLYLLDQHPQLRERVRHEATSVLGD
RVPGYADLHQLYTAMVVQEAIRLYPPVWILTRKARAEDEVGGYRVPAGA
DLLICPYTLHRHPRFWEEPGRFDPERFDPARLTNRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLA VLLRDLRLEGLPGRAVVPEPMLS LRVRGGGLPMMVR
RAD

>CYP105BL3 (2518090791) *Salinispora pacifica* DSM 45543

MSSHSAAAPGPETATPLHTLAPELTFPQFERATPFDPPEAYTELSGRCPV
APVRMADGKPSWLITSFEGVRAALSDPRLSSDMSHPGFPNRTGKPVDDL
KDTLGAMDGERHRYRRLTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVTHVALVVP SRVACHLVGIPLSEYELFTGMAAKLMDSTSNADQIA
ALQDMVSYFDTLVTDREHHRDRLDLGHMVRRYLATGELDREMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHGPGQLELLRREPHLMPGAVDELMRYLPMI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDP AVFERPDEL DVRN
ARQHLSFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DEDIMYSVSELAVAW

>CYP163B20 (2518090824) *Salinispora pacifica* DSM 45543

MTATEAKYVGQVGSRNAASTIDLADPATFAGHDLTNFWQRLRDEEPIYWN
PPTGGRRGFVWLSRHADILEVYRDDMTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHAELRKLLLRALGPRVLGPVCRAVRANTRQMIGAAAANGECD
FATDIASRIPMITISNLLGVPEADRASLLKMTKTALSADDESISD TDSEM
ARNEILLYFQDFVEFRKNPGE DVVSM LVNSSIDGVPLSDDDIVLNCYSL
IIGGDETSRLTMIDSINTLAANPGQWRRLKEGRCDIDKAVDEVLRWASPS
MHFGRTAVRETVIHGERIQVDDIVTLWGASGNRDERAFKRPEVFDLDRAP
NRHLSFGHGPHYICIGSYLAKVEISELLIALRDLILGFEVIGAPQIRSNL
LSGFSTMPVRFDADRTGLASEAREG

>CYP107CT3 (2518091855) *Salinispora pacifica* DSM 45543

MTGASGDRGTGQCPIALDHDIFYADPHPAYRVIKENGKNKPTPIVLKTGMAYL
PPGLEAWLVTAYEDVEFVLRDPRFRKSID EAMPLFAAQSGGTAAARGSL
YNNMANNDPPVHTRLRKPLNAMFTSR SVAGRRDVVRSAALETLEKVAGSQ
TFDLVKDFAFFFSISVISRTLGVPDADRGTFHGWVQTITGDAPPEILRRD
AGLMVEYLRGLIRGRRESAGNGTDDVLTLLATSLAEDEAVAQAYALLAAG
YETTANLIVTGFLTAAHPEQLRRLWSDPGLVPDAVEEMLRHQSPFNLSL
YRYVTEPVELNGVRI PRGAIVFLAFAAANRDECRFTEPD SFDITQPHRDH
LAFGGGIHNCIGKHLARMEAQVAFETLIERCPGLAVHTPDEEFDWKASPT
FRGLRTLVRVGP GPAPGGWEREQ

>CYP107AY7 (2518092421) *Salinispora pacifica* DSM 45543

MRAEPAPI PRSGARLGQEYDQLRKTDGVHQVLLPDTSLAWLVTSP ELVSR
ALADPRLALNRKHSRGGS GFALPPALDANLLNLDAPDHTRLRLRVGPAF
SPQ RVAALRPRIERTAEELVDTVVATGSPVDLVTGYCTPLSVQVIADLLG
VPEAGRTDLRAWTD TMLTSYPPDRDAIRQAVVELHGYVVN LIEAKQQRPG
DDL LSALVATEQEGDRLTRDELTS LAFLILFAGYENTANLIAS TVLRLLD
HGSLRGVRASEAIEETLRLEPPAPAAIRRFPIEETTIGGATIPAGDTVLL
SIAAATRGTDGNSARLA FGNGPHFCLGAALARVEAEEAITVLARRLP SLA
LAVPGAPVRWRPTFRTHGPAELLVTW

>CYP107Q4 (2518491485) *Salinispora arenicola* CNY260

MTTTAETS AETIDLFSPEVVADPF GWYARLREETGPTTGT LNIGTMMGGP
EMWLVTTRYEDVRQVLT DPRFLTNP PADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVS YALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVT VICELVGIDEPRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIAKRRAEPQDDLVTALVQAQAE DQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI I
DRLAVGSEHGLGFGKGIHRCLGQH LAYQEA E VALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105G5 (2518491486) *Salinispora arenicola* CNY260

LTIETTETTPADDSLRA PLPRQFMQRDDPSKLPPALAA LAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLS DPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFORRAAGLLQTDLP IKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDDEL VGIA
TLLLLFAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEH IPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQ LARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDT P

>CYP1051A1 (2518491510) *Salinispora arenicola* CNY260

MATDAAITRARTVPAWKALPAAVRDTHR ALVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAWAA
SRRVLAPMFRPARINAMVD TMADAIAGAVDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLPWWIPMP
GDRRFRAAVRSID DILLPVLRQAQRQPDDGDDL SRLVVRARADDGRALSE
KMRDDLVSMVAVT TETSTVVLTWLWPLL ANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLD ELLRLYPAGWILPRRAATTDVLGGVRINKGAT

VILSPYVTQRMATAWWGPAAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASSTRPARTVEMI
LKPVPVPPAR

>CYP1005A1 (2518491765) *Salinispora arenicola* CNY260

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTDQATY
RPDNAMEAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTLGLVADRVASIRTTLDSSGFPVDLYADLTADLPLLVLAR
LVELPDADPVNAVQKFARAALFLFWAPLDADRQLALADEVGRFHVQLREFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSSSVAHVVEEGLRLEPPIVTWRRVAAVDSTLGGTTVAAGTS
VLLWLLARAGRDPVVAAPDEFPRPGQRGSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVR

>CYP105BL2 (2518491966) *Salinispora arenicola* CNY260

MSSHSAAAPDPETATPLHTLAPELTFPQFERSTPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTLSDPRFSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPSPRVACHLVGIPLSYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHDRDDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIIGLVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSNADLKVQ
DKDIMYRVSELAVTW

>CYP105J3 (2518492408) *Salinispora arenicola* CNY260

MTDSVAFFPQGRVCPHQPAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRNTNPAWPAIVPIVAAAVNDAQQKVLKIATALVGTGPE
HKAQRKMLIPSFTRFRMNALRPMIQEIVDQQLDEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGLVDDLQAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP125A41 (2518492584) *Salinispora arenicola* CNY260

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTPVWVWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGDV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAEERQSPSDDLVTCLVNAQIDGELTTDEFGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTV LGGQAI SAGQVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211C1 (2518492733) *Salinispora arenicola* CNY260

VVDVEELLTRYLSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELLDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG

ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPIPGQGNVLLLIAAANRDPAHFPDPDRFDPWRS GPPSLAFGLG
LHYCLGAAVSRLEGRLLPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP208A12 (2518493652) *Salinispora arenicola* CNY260

MTLDTITPRVPLGPRTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAEITG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETINAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHGPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGGLPLVVRP
VS

>CYP211B2 (2518494206) *Salinispora arenicola* CNY260

MDVSEAI AVLISPSGRLDPYPTYEQ LRAHG PVSRTTAGLFVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIKSIARSMRLTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTQADELVDDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVLLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPADSWLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGTAGVAPGTP

>CYP105W2 (2518494322) *Salinispora arenicola* CNY260

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVS RHADVRQVLS DPRMSADRRRP GF PKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEF SVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVYPYGEHEFFERRSTLMFRR
STPADERAR CAREIRDFLDMVVT DKEHRPGDDVLSRLLYRQRRAGGVDHE
AVVSMAFVLLVAGHVTTSNMMLALSVLALLTHPARLARLRAE PERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGV TIAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAHLAFGYGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2518494330) *Salinispora arenicola* CNY260

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERVLA
ERREDGADLLALMLAAHRSQ LMSRNEIVSTVVT FIFTGHETVASQLGNGL
LSLLDHPEQMELMRQPHLLPHAVEECLRFDP AVQSNT RQLAADVELHGR
RLRRDDVVVVLGAANRDPGRYDRPDELDIRRDVPVSM SFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCSPNELAYQPR TMFRGLTRLPVAFTPA
G

>CYP107FS2 (2518494390) *Salinispora arenicola* CNY260

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVPFADRSEFERHAEVLTGINASSGFDAIIAAGRWFDEYLAELVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETTVNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRRLAGLRLAVPTDSLWVKASFVLRRLERLPV
TFTPDRAPNPIDSVHTV

>CYP105CN1 (2518494391) *Salinispora arenicola* CNY260

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVTGAEEARALLADSRVSNRADFPNYPVMDEHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRLQLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVPYQDRTRFEPVAGLFEPDRAD
AAMAEALTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVPGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTHPDRLDVALP
PTNHLAFSHGIIHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPTVW

>CYP105CP2 (2518494393) *Salinispora arenicola* CNY260

MTKSMPVQDLPAFPIPRECPYRPSAQHVSLRSGGPMKVRVLYNGRTAWLV
TDSAHARAVLSDYRRVSIKPYHGNYPILLNEEFKVVDSGYADVLFGVDP
EHTRQRMIMPSFTLRRTAVLRPDIQRIVDDKLDMMRHGAPGDLVTEFA
QPVPSMVSFLLGVPWEDHEEFETPAHKLFVPELAEAEATTELGAULERLI
QKKEQPGGTPGGTGLLDDLIRDHLRAGALSRDELVHIAMAMLVAGTDTT
NVISLGTALLDNPDQWAALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRRTAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP107AY2 (2518494544) *Salinispora arenicola* CNY260

MTAEPTPIPRSGARLGQEYDQLRKTGDVHQVLLPDASLAWLVTNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRLRVGPAF
SPQ RVAALRPGIRRAAEHLDDLVTATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRNLRAWTDMLTSYPPDRDAIRRAVTELHGYYVDLIDIKQQQPG
DDLSTLVITIEQDGRLSRDELTSLAFLILFAGYENTANLIASAVLWLLD
HGGLNVVPISEAIEGTLRHEPPAPVAIRRFPTEDIIIGGVITIPAGDTVLL
SVAAATRGADGNAARLAFGNGPHYCLGAALARVEAEALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP105CT1 (2518494570) *Salinispora arenicola* CNY260

MNSPNHMPADRSLTAPTSGCPMALSRGRVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVFNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTDSDHDDGITTDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGV LHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLTLDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRRFPGLRLAV
PDSELEFTQGTTVYSLRGLPVTW

>CYP154M5 (2518494587) *Salinispora arenicola* CNY260

VEQSCPYKLDVTGRDVHAEGEAI RARGPVAQVELPGGVQGWSVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPPNWPLIGWLLMDNMTTNDGADHQRLR
KLVSHGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNVVTSSISGEEAEANVEQWHRELLELV
EAKREKPDDEDMASLLIAAKEEDGSTLTQEEVVGTLLHMLGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDPVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPNMTLAVRPDQLEPQGTIFMNGHREL
PVRLGQPATVLA

>CYP166A4 (2518494730) *Salinispora arenicola* CNY260

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHVEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHCCLGQN
LARVELRAGLSALLRAFPNRLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP245A7 (2518495028) *Salinispora arenicola* CNY260

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENNLVFMDF
PRHTELRSLLNRSFSPRIVTELPRPRIARIAQELL SRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGAEGLTTDAVEEFLRYDPPVQ
AVTRWAHQDITLGGCDIPRGSRVVALLGSANRDPARFSPDVLDVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVP T L G Y G T Q H V D Y A D D L V
FHGPSRLVLVNLGERCK

>CYP244A4 (2518495032) *Salinispora arenicola* CNY260

MSTTTNTELTEAPETNMPVDPLGFDLDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQALHTPKMGKDIALVPEWMMRQPLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGFLDELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLLISTSLYEAIRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEAGDSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSTETAVQWESEWMIRRM
SVLPAVLS

>CYP105AB8 (2518495664) *Salinispora arenicola* CNY260

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKVNFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHRADLVKT
LSLPVPSLVICELLGVADHDFQEHATLVRRTASEVRQHSIDELNA
YLGALIDRKLASPDLLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVVSGLSADWDPTVFADPDRLDLERGARRHHLAF

GFQPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP105CH1 (2518495956) *Salinispora arenicola* CNY260

VSSLPLPTYPKLRDPADPLLPPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHFNFPYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRLLI SEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRTDPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVLNLTARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALDTVLRRLPGLHLVAPFEELPFKYRHLVWGIEEL
RVAW

>CYP1114C1 (2518496450) *Salinispora arenicola* CNY260

MVTTTNQVVDYNPLLLLEPDYTTYRKLRLDEAPVYRGYCDAGEFWALS RFA
DVQAAVRDWETFSSAEGNDLDDTGLLFGPGPSMDICDPSVHTRQRAVLKR
EFRREVVETRLQPAARRKVRQLLDRFGGTDQDFDAQEFGYPLPFGVICDW
LGLPASDHEQLMRWHATMLSRSPGKVALPPGVMYAQHEMFDYLR EAVTWR
CVKPDQDDLTVLANALNGGVMSDEV LGNAFFLFDAGIVSTSALLSSTLL
HLHAFKEQQRLLWSHPPELVPTAVEEMLRYDAPFQWFTRVTTREVELHGLP
VPAGARVVLIWGAANRDERYWTDPEL RVNRRPQRHLSFSDGIHRCLGAG
LARMEARVLEELIPAFADYSIMGPVERRITP SERTIARMPLAVRWSSER
RRADDGA

>CYP107EU1 (2518496497) *Salinispora arenicola* CNY260

VTIGQTL PDLVYSPEFTRDPYAIFARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFP PGLTNNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPADDLLTALVQVSADEDRLSREELVSMALLLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRLDITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQMQLAVEADDLEWLVNSFFRAPL
HLPVSLRR

>CYP1198B1 (2518496630) *Salinispora arenicola* CNY260

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQRKLVSKSFTPRIVKSFGPQITHIVDGLFEDFRDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPG LITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDP RAYENPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAF AQRLKHPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP208A12 (2526200382) *Salinispora arenicola* CNT799

MTLDTITPRVPLGP PRTAALRMLLVMKRDLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGD LWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAE L TG

LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHGFWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPVWLLPRRALAPDTIGEYRVANAD
VVISPYTLHRHPEFWPNERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGHRLVPEPMLSLRIRGGGLPLVVRP
VS

>CYP105BL2 (2526201160) *Salinispora arenicola* CNT799

MSSHSAAPDPETATPLHTLAPELAFFQFERSAPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTLSDPRFSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVP SRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDRHHDRDDLLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGP HQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP105CH1 (2526201235) *Salinispora arenicola* CNT799

VSSLPLPTYPKLRDPADPLLPAPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHFNFPYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRRLLI SEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEMLGVFPADHDYFQERTALQLRRDVPVAAQQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLL VGGHETTAN
TLTLATATMLERPEVAEQLRTPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGLVRAGESMLLVNLT IARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALD TVLRRLPGLHLVAPFEELPFKYRHLVWGIEEL
RVAW

>CYP105AB8 (2526201312) *Salinispora arenicola* CNT799

MTETASSRHTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHRADLVKT
LSLPVPSLVICELLGVPYADHDFQEHATLVRRTASEVRQHSIDELNA
YLGALIDRKLASPDLLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLTMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARRHHLAF
GFGPHQCLGQNLARLELQIVFDTL FHRIPTLRLAAPL DKIPFKTDAAIYG
ARELPVAW

>CYP107AX13 (2526201415) *Salinispora arenicola* CNT799

VTSPPHVAFGHLLRDPHGQYNALRGQAPVHHIRTPDGAPAWLVMRYDDV
RAALTDPRLSVDKRFSDTDGEHGSSLPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADQAPAVATIVDALLDGIAGQDQAEIIVGLASPLPLQVMHEL
LGLPTQTSVDFRNWTNTLLSADANQPAQSR SAMATMRQFLMGQLARKRAQ
PGDDLLTGLLAARDDDRFTDDELLAMVFLLMFAGYDNTAALIGNVTHAL
LTDAGLHDAVRAGSVDDLSDVDEVLRWNPSFPLAVRRFAREPVTIAGHTI
PAGDRVWLCLASANRDPAQFTEPDELGITPARRPHLAFGHGIHYCLGAPL
ARLQTTVAVASLLDRYPGIRLAVPAHELRLWRESFRVRGLAALPVRL

>CYP166A4 (2526201572) *Salinispora arenicola* CNT799

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHVERVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLYHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIERETS GHVAFGFGI HQCLGQN
LARVELRAGLSALLRAFPNRLRAVPADDEVPLRLQGSVFAVKNLPVCW

>CYP1005A1 (2526201725) *Salinispora arenicola* CNT799

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTDAQTY
RPDNAMEAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRFPWLTGLVADRVASIRTTLDSSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVKKQFARAALFWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSISVADVVEEGLRLEPPIVWRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFPRPGQRGSRRLAFGAGAHRLGDLQARME
AAVVVEQATPLLDGVTIVRPPWYPDNLTFRMPDAFVVR

>CYP105CP2 (2526202354) *Salinispora arenicola* CNT799

MTKSMFPVQDLPAFFIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHARAVLSDYRRVSIKPYHGNYP LLNEEFKVVDSGYADVLFVGDPP
EHTRQQRIMPSFTLRRTAVLRPDIQRIVDDKLDEMRRHGAPGDLVTEFA
QPVPMSVISFLLGVPWEDHEEFETPAHKLFVPELAEAEATTELGA YLERLI
QKKEQPGGTPGGTGLLDDLI RDHLRAGALSRDELVHIAMAMLVAGTDTT
NVISLGTALALLDNPQWAAALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLR TAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2526202356) *Salinispora arenicola* CNT799

MAAPAPQATPSTTPHPPSYPLPRECPYRPSAGTAHLRDAGPVSTVRLYDG
RTAWLVTGAAEARALLADSRVSNRADFPNYPVM DERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVYPYQDRTRFEPVAVAGLFEPDRAD
AAMAELTAYLHQ LIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYTALVDNPDLPV GAVNEILRYLSL
VEQLARVATEDIEIGKKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHAFSHGIHHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLP TY
FAGDVPRLACL PVTW

>CYP107FS2 (2526202357) *Salinispora arenicola* CNT799

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGM PAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPFADRSEFERHAEVLTGINASSGFDAIIAAGRWFDEYLAGLVQ
QRRREPQDDLISGMLAAQDKGDR LTDVELRSNALLLSAGFETT VNLIAN
GLLALLRHPEAMAALRSEPNLMTTAVDELRLYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVI AAAANHDPTVFAAPSRLDLRREGSGQILSF SHGIHF
CLGAPLARLEGEIAFGTVLRLLAGRLAVPTDSL VWKASFVLHRLRLPV
TFTPDRDPNPIDSVHTV

>CYP125G6 (2526202396) *Salinispora arenicola* CNT799

VPTLLNEHVS YDGA AIAIV DSDGATSWIRLA ERVNRVHLLRAHGLDTGD
RLACVTGNRRETF EVLLAALHTGVTVPVNVHLLTVTEIGHILSDSGSRVV
ITEELHV KAVAAAADGTAGPVAGLV LGDREVEGFAAVE PLLAAA SPAEPE
GQVCGATMLYTS GTTGRPKGVVNNLFVTGAPYARVGRLCDYARSVLGVPR
RERMLLDGFWYHSSQLFFALLSLLQGSRLVIRPYFDPAATLKTIDDHRIT
VTHLVPTQLVRLLRVDALTRQMFSGASLRRVWHGGGPCPPEVKRSMIDWW
GPVLVEYYGATEGGVVT LIDSAEWLARPGSVGRAVPPSEVVVVDDGGQSV
AAGQTGQVFFRRRTGNRFHYHNAPEKTQAAYLAPDTFTYGEVGHVDEG DY
LFLTGRAQDMIVSGGVNVYPAEVEAALLRHPVVRDAAVIGVADDEFGERV
VGIVVPETA VDPDDLATHLDAHCRVSLAGFKVPRTYRVVESLPRDET GKL
RKDALRSKFGWLSGAAMTVPRPATGQPTAHRPDIAHPTTYVSGVPHDEFA
RRRRDEPVGWVAEPVLTRHTAAGRTATRGSGFWAVTRYEDVVAASRRVTD
FSSAAKGAF LTPRTPADLQQARQLLVNMDDPHHARLRKLVTSVFTPRAV
RGLLASIDAHA AALVAKVVAAGEFDVVTDLAAELPLLVLADLLGVPKQDR
ALLYGWSNHLVGFD DPDFGGGDIDAYRTAMAEAFQYALNLGVERRARPTD
DLVSLLANAEVDGTR LTRDREFCNFWLLLVVAGNETTRHLVAGTMQALTEH
PGE CARLVEGRVPMESAVEELLRWVTPIMQFRRTATRDTEIGGQAVTAGE
KVVLYYTSANRDATVFAE PERLDLGRTPNRQLSFGIGPHYCLGAHLARAE
LTALLRVMSPHLGSLQLTG PVSRLASNFVNGVKAMPAVIGSR

>CYP154M15 (2526202421) *Salinispora arenicola* CNT799

MNDKCPFAALDVTGQDLHGEEAARLREQGPAVLVELPGGVKAW SINRYEVI
RELLMDRRVTKNARKHWP AFIKGEIPPDWEMISWVAMDNMVTAYGKDHVR
LRKLVGRAFTQRRADALRPQVVALSTKLLDDL GATPPGEVVDLRERFAYP
LPAMLVASLIGMSEAALAACSKVIDMMVHTNVSPEEAQAVLQGWRAAMAD
LIESKRRTPGEDITTDLIAAREEDGSRLSEAELADTIFAILGAGSETTIN
FFDNAITALLSRPGQLQLLRTGAVTWDDVIDEVL RVESPLAHLPLRYAVE
DIELDGVTIPQGDPI LVNYYAAGRDPALHGGTADEFDLARGDKTHLSFGY
GPHYCLGAGIARMVATIGLSMLFERFPDL SLAVPATELKR LPTFIMNGHQ
TLPVRLTVHAR

>CYP125A41 (2526202700) *Salinispora arenicola* CNT799

MTEPRIPAGFDFTDPEVL AHRVPREEFAELRR TAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPD TTREDIEMQRVIML
NVDPPEHTKLRAIVSRGFTPRAINALRGSLAERA EHIVRDAAVRGV GDFV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAEERQ RSPSDDLVTKL VNAQIDGEHLTTDEF GFFVMLLAVA
GNETTRNAITHGMVAF LDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTVLGGQAI SAGQ RVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHL PDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP107Q4 (2526202775) *Salinispora arenicola* CNT799

MTTTAETS AETIDLFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDP RFLTNPPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTR LRKLVS YALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIANRRAEPQDDLV TALVQAQAE DQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARL KDNPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI I
DRLAVGSEGLGFGKG IHRCLGQHLAYQEA E VALQGLFTRFPDLSLAVPR
EEIPWILRPGFTTRTRLPLKLV

>CYP105G5 (2526202776) *Salinispora arenicola* CNT799

LTIIETTETPPADDSLRAPLPRQFMQRDDPSKLPALAAALAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDFRFSDDRFYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQORRAAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDDDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGAAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPDPETLDV
TRVRSSHLAFGHGVHQCLGQQQLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTP

>CYP1051A1 (2526202801) *Salinispora arenicola* CNT799

MATDAAITRARTVPAWKALPAAVRDTHRAFDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLEHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAIDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDILLPVLRQAQRQPDDGDDLLSRLVHARADDGRALSE
KRMRDDLVSMVAVTTETSTVVLTWLWPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDLRLYPAGWILPRRAATTDILGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMI
LKPVAVPVAR

>CYP244A4 (2526203096) *Salinispora arenicola* CNT799

MSTTTNTELTEAPETNMPVDPLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQALTHPKMGKDIALVPEWMRQPLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGFLDELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEAIRRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEAGDSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP245A7 (2526203100) *Salinispora arenicola* CNT799

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAPAEQKALRAIVENWLVFMDP
PRHTELRSLLNRSFSPRIVTELPRPRIARIAQELLSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPTVLDELGAEGLTDDAVEEFLRYDPPVQ
AVTRWAHQDITLGGCDIPRGSRVVALLGSANRDPARFSPDVLVDVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP162P1 (2526203451) *Salinispora arenicola* CNT799

MGLPSEVDLAEPDLADPDLYAEGDPDAEWAWLRAHRPVYRNPAGATAEFW
ALTRYRDALQVYRDPSTFSSERGMVLGVDPVAGDPAAGRMLVVTDPPRHP
KLRRIVSGIFVPRTMHRLEGRVRSLLVDQLLHRVVGAGRCDFVNDVAARL

PVAIIICELLGVPADEQDWMYHLTSTAFGGGDPAGSAEVS AVERAEAYGDI
LLYYGELAAERRRRPGDDLVTLLVHADLDGEPLDVEDVLVNCTNLIIGGN
ETTRHAASGGLLALAQRPELWRRRLRETPTAVPTAVEEVLRWTTPGMHVLR
TATRDTEIGGVPIRAGERVVVWNAANRDEDVFADPQRFIDIDRSPNRHIA
FGQGGHHCLGAALARLELTILFEEMAKQVTNVRLTGPVRRVRSCVLRGIR
ALPVELVT

>CYP211C1 (2526203841) *Salinispora arenicola* CNT799

VVDVEELLTRLYSAQGRQDPFPVYADLHARGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPI PQGQNVLLLLIAAANRDP AHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP107FJ2 (2526204007) *Salinispora arenicola* CNT799

MSETLSTSVLLADAAEQRAWRAKLRGAGPVHRITTSGETGWLIVGHEEA
RNALVDLRLQGRTATVGHGRMPEDLERALNSHMLNVGPPDHTRLRLRLVS
AAFTRRRIEQMRPRIQELTDELLDGLAGADEADLVAGLALPLPMRVLVDL
FGIPAEDCADFNVTKVLTSAGAVDLDRLTAAAGEMVAYLRGLLDRKRQV
PESDLSALVAVRDGADRLSDELTSMVYLLLTAGYETTVNLIGNGLLNL
LANPEQLVAFKADPDLLPQVVVEAMRFDSPVQIAVRHSTEPVEIAGQAIP
SGALILVSLWLWANRDPDRFTEPEAFRVDRQDNPQLGFGYGFHHCIGAPLA
RMEGTIAIGTVIRRF PALRLAHPAGSLTWRASMVMHGLTALPVHLR

>CYP154M20 (2526204014) *Salinispora arenicola* CNT799

MERCPYVLDRAGRDLHGEAKALRARGPVTLVLELHGGYTAWSVTSYEIAKQ
LLVDPRI SKNTKETWPEFREGKVPQDWELYTWVAMDNMQTRDGE EHDLRL
KLVAQAF TTRQVAKVRPMIEDIVDRLLDDLEKVPAGEVVDIKGRYFYPLS
TILVCDLLGIPEADRAEALHGTVVNARTTNSAE ESEANLHQWQSALSKLV
ETKRREPGNDITTLIIKAREDEQAPLTDDEVIGSLHLLIGGGTETTSNVL
CNTLIDL LTHPDQMAMIRSGAVGWEEAWE EEEVRKDGAVGSMFPFCANADI
EIGGV TIAKGDVLVINYAAAGRDPERYGDTTAEFDITRADKTNLSFGYGR
HRC LGPALATMEAMISLPALFERFPDLVLAVPRDELKPQGT FVFNGYAEV
PMLLRS

>CYP248A2 (2526204036) *Salinispora arenicola* CNT799

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQ LMSRNEIVSTVVTFIFTGHETVASQLGNGL
LSLLDHPEQLELMRRQPHLVPQAVEECLRFDP AVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDVPVSM SFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCNPNELAYQPR TMFRGLTRLPVAFTPA
G

>CYP105W2 (2526204043) *Salinispora arenicola* CNT799

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCFFSPPAEYARLRAEH
SVVRLPMLGGDTAWVVSRRHADVRQVLS DPRMSADRRRP GPFKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEF SVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVSSQVICEVLGVPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDVVVTDKEHRPGDDLLSRLLYRQRRAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPPERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGVTTIAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAHLAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP154M13 (2526204056) *Salinispora arenicola* CNT799

MSTGRPVVLDPTGRDIHGADHLRALGPATLVLPGGVLAWSINSYEVGK
ALLSAPNVSKSARRHWP AFYNGEIPPDWEMISWVAMDNISTTFGGDHRRL
RRLTAKAFGSRRAEQVRPMATHMVNTLLDRMADAADAGEVVDLKAAFAYP
LPGMLVAELIGMSEEARVAAAKVIDMMTATNITPEQAQGVLLGWRDAITD
LIALKRAQPGDDITSDLIAARDEDGSLLTEQELVDTIFAILGAGSETTIN
FFDNAITQLLTHPEQLELVKSGQVSWDDVIEEVLRLSPLASLPMRF AVE
DIQLDGVTTIHRGDPI LINYAALGRDPALHGESAGVFDVTRQHKEHLSFGH
GAHYCLGAGIARMVAKTGLSALFERFPRMTLAVSAKDLVPYPTFIMNGNR
QLPVHLSGALTWREGEQSALGRA

>CYP154M21 (2526204057) *Salinispora arenicola* CNT799

MEKCPYVLD RAGSDIHKEASNL RARGPVTLVELHG GYTAWSVTSYEVAKQ
LLMDPRISKNTKAHWPEFRDGNVPQDWELYTWVAMDNMQTRDGKEHDLRL
KLVA PAFTGRQAVKSRPIIEEIVNRLLDDLETA PRGQAVDIKARYFYPLS
TILVCDLLGIAEEDRDVILHGNVNSKTTNTAESEANLHQWQTALGR LV
ETKRRDPGDDLT TVI IKAGEDEQTPLTDDEVIGSLHLLIGGGTETTANVL
CHTVVDM LTHPDQLAMVRSGAVSWESAWEEEV RKDGAVGSMPFRCATDDV
EIGGVTTIAKGDVLV LINYAAAGRDPERYGDAAAEFDITRADKANLSFGYGR
HRCLGPALATMEAMVALPALFDRFPNLALAVPPNELKPQGT FIFNGYAEV
PLLLRS

>CYP107AY2 (2526204214) *Salinispora arenicola* CNT799

MTAEPTPIPRSGARLGQEYDQLRKTDGVHQVLLPDASLAWLV TNPEVAAR
ALADPRLALNRRNSRGGS GFALPPALDANLLNLDAPDHTRLRLRVGP AF
SPQRVAALRP GIRRAAEHL LDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRAWTD TMLTSYPPDRDAIRRAVTELHG YVVDLIDIKQQQPG
DDL LSALVTIEQDGDRLSRDELTS LAFLILFAGYENTANLIASAVLWLLD
HGGLNVVPSSEAIEGTLRH EPPAPVAIRRFPTEDTII GDVTIPAGDTVLL
SVAAATR GADGNAARLA FGNPHYCLGAALARVEAEEALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP211B2 (2526204396) *Salinispora arenicola* CNT799

MDVSEAI AVLISPSGR LDPYPTYEQ LRAHG PVSQTTAGLFVVTGYAEADM
VLRDPRFVV LDDDLRDDVFPHWQDSPA IKS IARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREV VTAQADELVDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLT TALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLV VLLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPAGSWLLVLLGAANRDP RRFDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGT PAGVAPGTP

>CYP105J3 (2526204740) *Salinispora arenicola* CNT799

MTDSVAFPQGRVCPHPAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRTNPAWPAIVPIVAAAVNDAQQKVLKIATALVGTGPE
HKAQRKMLIPSFTRRMNALRPMIQEIVDQQLDEMIKSGAPTDLIPAFAS
AVPVTVLRYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGVLDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIERLPSRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP107EU1 (2526205072) *Salinispora arenicola* CNT799

VTIGQTLPLDVYSPEFTRDPYAIFARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFFPPGLTNNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDVPADDLLTALVQVSADEDRLSREELVSMALLLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRDLITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPMQLAVEADDLEWLVNSFFRAPL
HLPVSLRR

>CYP1198B1 (2526205161) *Salinispora arenicola* CNT799

MSGELTDQRTAPGAGGNPLRSLMDHGI RANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQRKLVSFSFTPRIVKSFGPQITHIVDGLFEDFRDRGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGITNVVDES
LRYDPPVHLAARMARATTIGGYDLDPGTIVVVILMAAGNRDPRAYENPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKHPEVDES
SLEYRRHIVVRGLEHMKVAFQP

>CYP1005A1 (2562079372) *Salinispora arenicola* CNH718

VSAVLFERSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVVRQVLTQATY
RPDNAMEAVTPVPVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLDSGGPVDLYADLTADLPLLVLAR
LVELPGAPVNAVKKQFARAALFWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLHRLSGEP
TIRAALRAGSSSVADVVEEGLRLEPPIVTVRRVAAVDSTLGGTTVAAGTS
VLLWLRAGRDPVVAAPDEFPRPGQSGRRHLAFGAGAHRC LGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP211B2 (2562079684) *Salinispora arenicola* CNH718

MDVSEAI AVLISPSGR LDPYPTYEQ LRAHG PVSRTTAGLFVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIKSIARSMRLTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTQADELVD EMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF

TGLIEQRRRAPADDLTALVQAHDADGDRLSGEEELLANLVVLLVAGFETT
TNLLGNGLVLLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPA GSWLLVLLGAANRDP RRFDPARFDPWRAQS QPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLT LRGYETLP
ITVGAVTADRGT PAGVAPGTP

>CYP125A41 (2562080288) *Salinispora arenicola* CNH718

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRR TAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRDS DTYSTRENTAIARLRPD TTREDIEMQRVIML
NVDPPEHTKLRAIVSRGFTPRAINALRGSLAERA EHIVRDAAVRGVGD FV
SDVACELPLQAIAELIGVPQHRRKVF DWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQRSPSDDLVT KLVNAQIDG EHLTTDEF GFFVMLLAVA
GNETTRNAITHGMVAF LDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTV LGGRAISAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211C1 (2562080437) *Salinispora arenicola* CNH718

VVDVEELLTRL YSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELLDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVS NLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTV LGGVPI PQGQNVLLLI AAANRDP AHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGAAVSRLEGR LALPRLLSRFPRLRIMEQP VYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP208A12 (2562080625) *Salinispora arenicola* CNH718

MTLDTITPRVPLGP PRTAALRMLLV MKDRDLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGD LWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGTG PVELTAELTG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELET LNAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLAGRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTL SLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRV PANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP244A4 (2562081432) *Salinispora arenicola* CNH718

MSTTTNTELTEAPETNMPVD PGLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVC DRELVKQAL THPKMGKDITLVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLS PRNTERWGERVADKVEGF LDELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGS LISTS LYEAIRRPPHERPKTDEDITAWIEETLRVHPPFP HPTW
RFPLEDIELGGYLI PKGAPVQVSIAAANRKPGE GADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPVAVLS

>CYP245A7 (2562081436) *Salinispora arenicola* CNH718

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV

FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVMFMDP
PRHTELRSLLNRSFSPRIVTELRPRIARIAQELLSSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGAEGLTTDAVEEFLRYDPPVQ
AVTRWAHQDTTLGGCDIPGRSRVVALLG SANRDPARFPSPDVLDVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP105CT1 (2562081631) *Salinispora arenicola* CNH718

MNSPNHMPADRSILTAPTSGCPMALSRGRVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTDSHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGVLHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLLTG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRRFPGLRLAV
SDSELEFTQGTTVYSLRGLPVTW

>CYP154M5 (2562081648) *Salinispora arenicola* CNH718

VEQSCPYKLDVTGRDVHAEGEAIRARGPVAQVELPGGVQGSVVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPPNWPLIGWLLMDNMTTNDGADHQRLR
KLVSHGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRAFATPLP
ARVICDMFGVPEALRASVLRGAQVNVTSISGEEAEANVEQWHRELLELV
EAKREKPEDDMASLLIAAKEEDGSTLTQEEVVGTLLHMLGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDPVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPHMTLAVRPDQLEPQGTFFIMNGHREL
PVRLGQPATVLA

>CYP166A4 (2562081915) *Salinispora arenicola* CNH718

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGIWVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRSRLTGHEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVLGPLYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHCQLGQN
LARVELRAGLSALLRAFPNRLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP105BL2 (2562082353) *Salinispora arenicola* CNH718

MSSHSAAAPDPETATPLHTLAPELTFPQFERSTPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTLSDPRFSSDMSHPGFNRTGKPVDDLL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPVSRVACHLVGIPFSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHDRDDLLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIIGLVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP1051A1 (2562082469) *Salinispora arenicola* CNH718

MATDAAITRARTVPAWKALPAVVRDTHRALVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGLAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAVDDLHEAATAGTPIDVGRELSR
VVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDDILLPVLRLQAQRQPDDGDDLLSRLVRARADDGRALSE
KMRDDLVSMAVTTETSTVVLTWLWPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMI
LKPVAPVPAR

>CYP107FS2 (2562082753) *Salinispora arenicola* CNH718

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVPPFADRSEFERHAEVLGTINASSGFDAAIAAGRWFDEYLAELVQ
QRRREPQDDLI SGMLAAQDKGDRLTDVELRSNALLLLSAGFETTVNLVAN
GLLALLRHPEAAMAALRSEPNLMTTAVDELRLYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRLRAGLRLAVPTDSLWKASFVLHRLRLRPV
TFTPDRAFPNIDSVQTV

>CYP105CN1 (2562082754) *Salinispora arenicola* CNH718

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVGTAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQLLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVPYQDRTRFEPVAVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIIHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRCLACLPVTW

>CYP105CP2 (2562082756) *Salinispora arenicola* CNH718

MTKSMPVQDLPAFFIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHARAVLSDYRRVSIKPYHGNYPILLNEEFKVVDSGYADVLFGVDPP
EHTRQRQMIMPSFTLRRTAVLRPDIQRIVDDKLDEMRRHGAPGDLVTEFA
QPVPMSVMVSFLLGVPWEDHEEFETPAHKLFVPELAEEATELGAYLERLI
QKKEQPGGTPGGTGLLDDLIRDHLRAGALSRDELVHIAMAMLVAGTDTT
NVISLGTALLLDNPQWAAALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRATAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105W2 (2562082870) *Salinispora arenicola* CNH718

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPPSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRAADVQLVLSDPMSADRRRPFGPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDMVVTDKERRPGDDVLSRLLYRQRSAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPERFPAAVE

ELLRYFTVVEAATARTTTAEVTIGGVTTIAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAH LAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2562082878) *Salinispora arenicola* CNH718

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVS RFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQMLMSRNEIVSTVVTFFITGHETVASQLGNGL
LSLLDHPEQMELMRRQPHLVPQAVEECLRFDPAVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCSPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP107EU1 (2562083303) *Salinispora arenicola* CNH718

VTIGQTLPLDVYSPEFTRDPYAI FARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADSRLAKDGNRIGELMPRHSTLTGAATGFFPGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFCWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPADDLLTALVQVSADEDRLSREELVSMALLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRLDITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQMQLAVEADDLEWLVNSFFRAPL
HLPVSLRR

>CYP105J3 (2562083351) *Salinispora arenicola* CNH718

MTDSVAFPQGRVCPYQPAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRNTNPAWPAIVPIVAAAVNDAQQKVLKIATALVGTGPE
HKAQRKMLIPSFTRRMNALRPMIQEIVDQQLEMIKSGAPTDLVAAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGLVGLDLAQHGANDDVHDDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP105AB8 (2562083496) *Salinispora arenicola* CNH718

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHRADLVKT
LSLPVPSLVICELLGVADHDFFQEHTATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDLLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTL FHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP107Q4 (2562083569) *Salinispora arenicola* CNH718

MTTTAETS AETIDLFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTREYEDVRQVLTDPRFLTNPADSPLEDIRAGVFKRLDFPPDLIPW

MANLLNVSDGEDHTRLRKLVSYALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIAKRRAPQDDLVLTALVQAQAEQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI
DRLAVGSEHGLGFGKGIHRCCLGQHLAYQEAVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105G5 (2562083570) *Salinispora arenicola* CNH718

LTIETTETPPADDSLRAPLPRQFMQRDDPSKLPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDDDELVGIA
TLLLFLAGLDTTASMLGLGMFMLLQRPQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQRLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTP

>CYP105CH1 (2562083621) *Salinispora arenicola* CNH718

VSSLPLPTYPTLRDPADPLLPAPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHFNFPYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRRLLISEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEMHGVFPADHDYFQERTALQLRRDVPVAAQQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLVLVGHETTAN
TLTLATATMLERPEIAEQLRDTPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVNLTARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALDTVLRRLPGLHLVTPFEELPFKYRHLVWGIEEL
RVAW

>CYP1198B1 (2562084099) *Salinispora arenicola* CNH718

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIIFMDQP
GHGRQRKLVSQSFTPRIVKSFGPQITHIVDGLFEDFRDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRNKPNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRNPNGLITNVVDES
LRYDPPVHLAARMARATTIGGYDLDPGTIVVVLMAAGNRDPRAYESPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQAQRLKNPEVDES
SLEYRRHIVVRGLEHMKVVSFQP

>CYP105J3 (2515976160) *Salinispora arenicola* CNH646

MTDSVAFFPQGRVCPHQAPAGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRNTNPAWPAIVPIVAAAVNDAQQKVLKIATALVGTGPE
HKAQRKMLIPSFTFRRMNALRPMIQEIVDQQLEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEVLDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDVAVTRLAADDIEVE
GTVIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP125A41 (2515976314) *Salinispora arenicola* CNH646

MTEPRIPAGFDFTDPEVLAHVRVPREEFAELRRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIAARLRPDTTREDIEMQRVIML
NVDPPHEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGDFFV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAEERQSRSPSDDLVTCLVNAQIDGHELTDEFGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTVLGGQAI SAGQ RVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211C1 (2515976465) *Salinispora arenicola* CNH646

VVDVEELLTRLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHV
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAANAAGAE LRAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTV LGGVPI PQGQNVLLLLIAAANRDP AHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP105AB8 (2515976571) *Salinispora arenicola* CNH646

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHCADLVKT
LSLPVPSLVICELLGVADHDFQEHATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDLLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRDLERGARHHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP162P1 (2515977027) *Salinispora arenicola* CNH646

MGLPSEVDLADPDLYAEGDPDAEWAWLRAHRPVYRNPAGTTAEFWALTRY
RDALQVYRDPSTFSSSERGMVLGVDPVAGDPAAGRMLVVTDPPRHPKL RRI
VSGIFVPRMTMRLEGRVRS LVDQLLHRVVDGAGRCDFVNDVAARLPVAII
CELLGVPADEQDWMYHLTSTAFGGGDPAGSAEVS AVERAEAYGDILLYG
ELAAERRRRPGDDLVTLLVHADLDGEPLDVEDVLVNCTNLIIGNETTRH
AASGGLLALAQRP ELWRRRLRETPTAVPTAVEEVLRWTTPGMHVLR TATRD
TEIGGVPIRAGERVVVWNAANRDEDVFADPQRFDIDRSPNRHIAFGQGG
HHCLGAALARLELTILFEEMAKQVTNVRLTG PVRVRVRSVLRGIRALPVE
LVT

>CYP208A12 (2515977582) *Salinispora arenicola* CNH646

MTLDTITPRVPLGPRTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKIGLVHARRALGDGLLTSEGDLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAELTG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELET LNAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTL SLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVPANAD

VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGHRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP107Q4 (2515978128) *Salinispora arenicola* CNH646

MTTTAETSAETIDLFSPEVVADPFGWYARLREETGPTTGTNLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRFLTNPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSYALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIAKRRAE PQDDLVTALVQAQAE DQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI I
DRLAVGSEGLHGFKGKIHRC LGQHLAYQEA E VALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105G5 (2515978129) *Salinispora arenicola* CNH646

LTIIETTETPPADDSLAPLPRQFMQRDDPSKLPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDDDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRP EQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHI PAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQ LARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTP

>CYP1051A1 (2515978150) *Salinispora arenicola* CNH646

MATDAAITRARTVPAWKALPAAVRDTHRALVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEV LHERAAIYPRGDDTALWRSVRKLVGDGILAE GDAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAVDGLHGAATAGTPI DVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLPWWIPMP
GDRRFRAAVRSID DILLPVLRQAQRQPDDGDDL SRLVRARADDGQALSE
KMRDDLVSMVAVTTETSTVVLTWLWPLL ANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLD ELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRM TAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVA ASTRPARTVEMV
LKPVAPVPAR

>CYP107AX14P (2515978416) *Salinispora arenicola* CNH646

VTSPPHVAFGHLLLRDPHGQYNALRGQAPVHHIRTPDGAPAWLVMRYHDV
QAALTDLRLSVDKRFSDTDGEHGSSLPPELDAHLLNRDPPDHTRLRRLAA
AAFTPRRVADQAPAVATIVDALLDGIADQDQAELIGALASPLPLQVMHEL
LGLPTQTSVDFRNWNTNLLSADANQPAQSR SAMATMRFLMGQLARKRAQ
PGDDL LTGLLAARD DDDRFTDDELLAMVFLLMFAGYDNTAALIGNVTHAL
LTDAGLHDAVRAGSVLDL SVVDEVLRWNPSFPLAVRRFAREPVTPSRQAI
ASGSAWPARTATPHSSPNPTN

>CYP244A4 (2515978750) *Salinispora arenicola* CNH646

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQAL THPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGF LDELSQAGSGGSTEV

NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEAIRRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEADSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP245A7 (2515978754) *Salinispora arenicola* CNH646

MPSATLPRFALTGWSRENIVNYPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRSLNRSFSPRIVTELRPRIARIAQELL SRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRVDVGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGAEGLTTDAVEEFLRYDPPVQ
AVTRWAHQDCTLGGCDIPRGSRVVALLGSANRDPARFSPDVLVDVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCT

>CYP166A4 (2515979022) *Salinispora arenicola* CNH646

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGWIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHQCLGQN
LARVELRAGLSALLRAFPNRLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP105BL2 (2515979296) *Salinispora arenicola* CNH646

MSSHSAAPDPETATPLHTLAPELAFPPQFERSAPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLDPHFSSDMSHPGFPNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPSPRVACHLVGIPLSYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHDRDDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIGLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP107FS2 (2515979781) *Salinispora arenicola* CNH646

MPVPQGEQNLTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPFADRSEFERHAEVLTGINASSGFDAAIAAGRWFDEYLAGLVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETTVNLIAN
GLLALLRHPAEMAALRSEPNLMTTAVDELRLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAANHDPTVFAPSRDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRLRAGLRLAVPTDSLWKASFVLHRLRLPV
TFTPDRDPNPIDSVHTV

>CYP105CN1 (2515979782) *Salinispora arenicola* CNH646

MAAPAPQATPSTTPHPPSYPLPRECPYRPSAGTAHLRDAGPVSTVRLYDG
RTAWLVGTGAEEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQORQLLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVPYQDRTRFEPVAGLFEFDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYTALVDNPDLPVGA VNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHAFSHGIIHHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPTW

>CYP105CP2 (2515979784) *Salinispora arenicola* CNH646

MTKSMFPVQDLPAFPPIPRECPYRPSAQHVSLRSGGPMAKVRLYNGRTAWLV
TDSA HARAVLS DYRRVSIKPYHGNYP LLNEEF EKVVDSGYADVLFGVDP
EHTRQORQMIMPSFTLRRTAVLRPDIQRI VDDKLDEM MRHGAPGDLVTEFA
QPVP SMVISFLLGVPWEDHEEFETPAHKLFPVPELAE EATTEL GAYLERLI
QKKEQPGGTGGTGLLDDLI RDHLRAGALS RDELVHIAMAMLVAGTDTT
NVISLGLTALLDNPDQWAALRDNPD ELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRTAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP154M21 (2515980120) *Salinispora arenicola* CNH646

MEKCPYVLDRAGSDIHKEASNL RARGPVTLVELHGGYTAWSVTSYEVAKQ
LLMDPRISKNTKAHWPEFRDGNVPQDWELYT WVAMDNMQTRDGKEHDLR
KLVA PAFTGRQAVKSRPIIEEIVNRLLDDLETA PRGQAVDIKARYFYPLS
TILVCDLLGIAEEDRDVILHGNV VNSKTTNTAE ESEANLHQWQTALGR LV
ETKRDPGDDLTTV I IKAGED EQTPLTDDEVIGSLHLLIGGGTETTANVL
CHTVVDMLTHPDQLAMVRSGAVSWESAWEE EVRKDGAVGSMPPFRCATDDV
EIGGV TIAKGDVLV L INYAAAGRDPERYGDAAAEFDITRADKANLSFGYGR
HRCLGPALATMEAMVALPALFDRFPNLALAVPPNELKPGGT FIFNGYAEV
PLLLRS

>CYP154M13 (2515980121) *Salinispora arenicola* CNH646

MSTGRPVVLDPTGRDIHG EADHLRALGPATLVELPGGVLAWSINSYEVGK
ALLSAPNVSKSARRHWPAFYNGEIPPDWEMISWVAMDNISTTFGGDHRRL
RRLTAKAFGSRRAEQVRPMATHMVNTLLDRMADAADAGEVVDLKA AFAYP
LPGMLVAELIGMSEEARVAAAKVIDMMTATNITPEQAQGVLLGWRDAITD
LIALKRAQPGDDITS DLIAARDEDGSLLTEQELVD TIFAILGAGSETTIN
FFDNAITQLLTHPEQLELVKSGQVSWDDVIEEVLRL ESPLASLPMRFAVE
DIQLDGVTIHRGDPILIN YAAALGRDPALHGESAGVFDVTRQHKEHLSFGH
GAHYCLGAGIARMVAKTGLSALFERFPRMTLAVSAKDLVPYPTFIMNGNR
QLPVHLSGALTWREGEQSALGRE

>CYP105W2 (2515980134) *Salinispora arenicola* CNH646

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRC PFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVS RHADV RQVLS DPRMSADRRRPGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEF SVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDVVVTDKEHRPGDDVLSRLLYRQRRAGGVDHE
AVVSMAFVLLVAGHVTTSNM LALSVLALLTHPARLARLRAE PERFFAAVE
ELLRYFTVVEAATARTATAEVTIGGV TIAAGEGVVAVGQAANRDP RVFEH
PDEFDPDRDARAHLAFGHGRHICPGQH LARLEMEVALSRLFRRLPGLRLT

MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2515980142) *Salinispora arenicola* CNH646

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQLMRNEIVSTVVTFTFTGHETVASQLGNGL
LSLLDHPEQLELVRRQPHLVPQAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDVPSPMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCNPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP154M20 (2515980164) *Salinispora arenicola* CNH646

MERCPYVLDRAGRDLHGEAKALRARGPVTLEVELHGGYTAWSVTSYEIAKQ
LLVDPRI SKNTKETWPEFREGKVPQDWELYTWVAMDNMQTRDGEEHDLRL
KLVAQAFRTTRQVAKVRPMIEDIVDRLLDDLEKVPAGEVVDIKGRYFYPLS
TILVCDLLGIPEADRAEALHGTVVNARTTNSAESEANLHQWQSALSKLV
ETKRREPGNDITTLIIKAREDEQAPLTDDEVIGSLHLLIGGGTETTSNVL
CNTLIDLTHPDQMAMIRSGAVGWEEAWEVEVRKDGAVGSMPPFRCANADI
EIGGVTIKAGDLVLINAAAAGRDPERYGDTTAEFDITRADKTNLSFGYGR
HRCCLGPALATMEAMISLPALFERFPDLVLAVPRDELKPQGTFFVNGYAEV
PMLLRS

>CYP107FJ2 (2515980171) *Salinispora arenicola* CNH646

MSETLSTSVLLADAAEQRAWRAKLRGAGPVHRITTSGETGWLIVGHEEA
RNALVDLRLQGRATATVGHGRMPEDLERALNSHMLNVGPPDHTRLRLRLVS
AAFTRRRIEQMRPIQELTDELLDGLAGADEADLVAGLALPLPMRVLVDL
FGIPAEDCADFNVTWKVLTSAGAVDLDRLTAAAGEMVAYLRGLLDRKRQV
PESDLLSALVAVRDGADRLSDELTSMVYLLLTAGYETTVNLIGNGLLNL
LANPEQLVAFKADPDLLPQVVEEAMRFDSPVQIAVRHSTEPVEIAGQAIP
SGALILVSLWANRDPDRFTEPEVFRVDRQDNPQLGFGYGFHHCIGAPLA
RMEGTVAIGTVIRRFAPALRLAHPASSLTWRASMVMHGLTALPVHLR

>CYP211B2 (2515980211) *Salinispora arenicola* CNH646

MDVSEAI AVLISPSGRLDPYPTYEQ LRAHG PVSQT TAGLFVVTGYAEADM
VLRDPRFVVLDLDDLRDDVFPHWQDSPAIXIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTAQADELVDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLVAGFETT
TNLLGNGLVLLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPAGSWLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGTAGVAPGTP

>CYP125G6 (2515980273) *Salinispora arenicola* CNH646

VPTLLNEHVSYDGAAIAIVDS DGATSWIRLAERVNRVHLLRAHGLDTGD
RLACVTGNRRETFEVLLAALHTGVTVPVNWHLTVTEIGHILSDSGSRVV
ITEELHVKA VAAAADGTAGPVAGLV LGDREVEGF AA VEPL LAAA SPAEPE
QVCGATMLYTS GTTGRPKGVVNNLFVTGAPYARVGRLCDYARSVLGVPR

RERMLLDGPWYHSSQLFFALLSLLQGSRLVIRPYFDPAATLKTIDDHRIT
VTHLVPTQLVRLLRVDALTRQMFSGASLRRVWHGGGPCPPEVKRSMIDWW
GPVLVEYYGATEGGVVTLIDSAEWLARPGSVGRAVPPSEVVVVDDGGQPV
AAGQTGQVFFRRRTGNRFHYHNAPEKTQAAYLAPDTFTYGEVGHVDEDGY
LFLTGRAQDMIVSGGVNVYPAEVEAALLRHPVVRDAAVIGVADDEFGERV
VGIVVPETAVIDPDDLATHLDAHCRVSLAGFKVPRTYRVVESLPRDETGKL
RKDALRSKFGWLSGAAMTVPRPATGQPTAHRPDIAHPTTYVSGVPHDEFA
RRRRDEFPVGWVAEPVLTRHTAAGRTATRGSGFWAVTRYEDVVAASRRVTD
FSSAAKGAFITDPRTPADLQQARQLLVNMDDPHHARLRKLVTSVFTPRAV
RGLLASIDAHAAALVAKVVAAGEFDVVTDLAAELPLLVLADLLGVPKQDR
ALLYGWSNHLVGFDDPDFGGGDI DAYRTAMAEAFQYALNLGVERRARPTD
DLVSLLANAEVDGTRLTDREFCNFWLLLVVAGNETTRHLIAGTMQALTEH
PGECARLVEGRVPMESAVEELLRWVTPIMQFRRTATRDTEIGGQAVTAGE
KVVLYYTSANRDATVFAEPDRLDLGRTPNRQLSFGIGPHYCLGAHLARAE
LTALLRVMSPHLGLSLQLTGPVSRLASNFVNGVKAMPAVIGSR

>CYP154M15 (2515980298) *Salinispora arenicola* CNH646

MNDKCPFAALDVTGQDLHGEEARLREQGPAVLVELPGGVKAWSINRYEVI
RELLMDRRVTKNARKHWPFIKGEIPPDWEMISWVAMDNMVTAYGKDHVR
LRKLVGRAFTQRRADALRPQVVALSTKLDDLGATPPGEVVDLRERFAYP
LPAMLVASLIGMSEAALAACSKVIDMMVHTNVSPEEAQAVLRGWRAAMAD
LIESKRRTPGEDITDITAREEDGSRLSEAELADTIFAILGAGSETTIN
FFDNAITALLSRPGQLQLLRTGAVTWDDVIDEVLRVESPLAHLPLRYAVE
DIELDGVITIPQGDPILVNYYAAGRDPALHGGTADEFDLARGDKTHLSFGY
GPHYCLGAGIARMVATIGLSMLFERFPDLSLAVPVTELKRLPTFIMNGHQ
TLPVRLTAHAR

>CYP1005A1 (2515980585) *Salinispora arenicola* CNH646

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTQATY
RPDNAMEAVTPVPVAALRVLAGHRFRLPPTLANNGGASHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVATIRTTLDSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVQKFARAALFWAPLDADRQLALADEVGRFHQVLRFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHHRVSGEP
TIRAALRAGSSSVADVVEEGLRLEPPIVTVRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFPRPGQRGSRRLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP107AY13 (2515980797) *Salinispora arenicola* CNH646

MTAELTPIPRSSARLGQEYDQLRKTDGVHQVLLPDASLAWLVTNPDVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAF
SPQRVAALRPGIRRAAEHLDTLVATSRPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRAWTDMTLSYPPDRDAIRQAVTELHGYYVDLIDLKQQQPG
EDLLSVLVTTIEQDGDRLTRDELTSLAFLILFAGYENTANLIASAVLWLLD
HGGLNVVPISEAIEATLRHEPPAPVAIRRFPTEDIIIGGLTIPAGDTVLL
SIAAATRGADGNAARLAFGNPHYCLGAALARIEAEEALTVLARRLPGLT
LAVPPAQVRWRPTFRTHGPAELLVGW

>CYP245A7 (2517943078) *Salinispora arenicola* CNY280

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVMFDP
PRHTELRSLLNRSFSPRIVTELPRPRIARIAQELLSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRVDVGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL

TAGHETTTNSLAKAVLALREHPTVLDELGAEGLTDDAVEEFLRYDPPVQ
AVTRWAHQDQDTTLGGCDIPRGSRVVALLGSANRDPARFPSPDVLDVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP244A4 (2517943082) *Salinispora arenicola* CNY280

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQALTHPKMGKDIALVPEWMRQPGMLMVTAPDPPEYARAMIMS
DGENHARIRRIHAPVLSPRNTERWGERVADKVEGFLDELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEAIRRPPHERPKTDEDITAWIEETLRVHPPFPHPPTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEGADSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP105CP2 (2517943299) *Salinispora arenicola* CNY280

MTKSMPVQDLPAFPIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHAARVLSYDYYRVSIPKPYHGNYPILLNEEFKVVDSGYADVLFVDP
EHTRQRMIMPSFTLRRTAVLRPDIQRIVDDKLDEMHRGAPGDLVTEFA
QPVPSMVISFLLGVPWEDHEEFETPAHKLFVPELAEEATTELGAYLERLI
QKKEQPGGTGGTGLLDDLRDHLRAGALSRDELVHIAMAMLVAGTDTT
NVISLGLTALLDNDPQWAALRDNDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRATAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2517943301) *Salinispora arenicola* CNY280

MAAPAPQATTSTTPHPPSYPLPRECPYRPSAGTAHLRDAGPVSTVRLYDG
RTAWLVGTAAEARALLADSRVSNRADFPNYPVMDEHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRLQLLPRFTVRQVAARRPAIQIRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVYPYQDRTRFEPVAGLFEPRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGLTALLTAPGQYAALVDNPDLPVPGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIIHCIGQNALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPTVW

>CYP107FS2 (2517943302) *Salinispora arenicola* CNY280

MPVPQGEQNLTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPFADRSEFERHAEVLTGINASSGFDIAAAGRWFDEYLAGLVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETTVNLIAN
GLLALLRHPEAMAALRSEPNLMTTAVDELRLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSLWKASFVLHRLERLPV
TFTPDRDPNLIDSVHTV

>CYP125G6 (2517943341) *Salinispora arenicola* CNY280

VPTLLNEHVSYDGAIAIVDSGDGATSWIRLAERVNVRWVHLLRAHGLDTGD
RLACVTGNRRRETFFEVLLAALHTGVTVPVNVHLLTVTEIGHILSDSGSRVV
ITEELHVKAFAAAADGTAGPVAGLVLDREVEGFAAVEPLLAASPAEPE
GQVCGATMLYTSGETGRPKGVVNNLFVTGAPYARVGRLCDYARSVLGVPR
RERMLLDGPWYHSSQLFFALLSLLQGSRLVIRPYFDPAATLKTIDDHRIT
VTHLVPTQLVRLLRVDALTRQMFSGASLRRVWHGGGPCPPEVKRSMIDWW
GPVLVEYYGATEGGVVTLIDSAEWLARPGSVGRAVPPSEVVVVDDGGQP
AAGQTGQVFFRRRTGNRFHYHNAPEKTQAAYLAPDTFTYGEVGHVDE
LFLTGRAQDMIVSGGVNVYPAEVEAALLRHPVVRDAAVIGVADDEFGERV
VGIVVPETTVDPDDLATHLDAHCRVSLAGFKVPRTYRVVESLPRDET
RKDALRSKFGWLSGAAMTVPRPATGQPTAHRPDIAHPTTYVSGVPHDEFA
RRRDEPVGWVAEPVLTRHTAAGRTATRGSGFWAVTRYEDVVAASRRVTD
FSSAAKGAFLTDPRTPADLQQAQQLLVNMDDPHHARLRKLVTSTVFT
RGLLASIDAHAALVAKVVAAGEFDVVTDLAAELPLLVLADLLGV
PKQDRALLYGWSNHLVGFDPDFGGGDDIDAYRTAMAEAFQYALNLG
VERRARPTDLVSLLANAEVDGTRLTDRFCNFWLLLVVAGNETTRHLV
AGTMQALTEHPGECARLVEGRVPMESAVEELLRWVTPIMQFRRTATRD
TEIGGQAVTAGEKVVLYYTSANRDATVFAEPDRLDLGRTPNRQLSFGI
GPHYCLGAHLARAE LTALLRVMSPHLGLSLQLTGPVSRLASNFVNGV
KAMPAVIGSR

>CYP154M15 (2517943366) *Salinispora arenicola* CNY280

MNDKCPFAALDVTGQDLHGEEARLREQGPAVLVELPGGVKAWSINRYEVI
RELLMDRRVTKNARKHWPFIKGEIPPDWEMISWVAMDNMVTAYGKDHVR
LRKLVGRAFTQRRADALRPQVVALSTKLLDDLGGATPPGEVVDLRERFAYP
LPAMLVASLIGMSEAAALACSKVIDMMVHTNVSPEEAQAVALRGWRAAMAD
LIESKRRTPGEDITTDLIAAREEDGSRSLSEAELADTIFAILGAGSETTIN
FFDNAITALLSRPGQLQLLRTGAVTWDDVIDEVLRVESPLAHLPLRYAVE
DIELDGVTIPQGDPILVNYYAAGRDPALHGGTADEFDLARGDKTHLSFGY
GPHYCLGAGIARMVATIGLSMLFERFPDLVLAVPATELKRLP TFIMNGHQ
TLPVRLTAHAR

>CYP107FJ2 (2517943385) *Salinispora arenicola* CNY280

MSETLSTSVLLADAAEQRAWRAKLRGAGPVHRITTSQSGETGWLIVGHEEA
RNALVDLRLQGRATVGHGRRMPEDLERALNSHMLNVGPPDHTRLRRLVS
AAFTRRRIEQMRPRIQELTDELDDGLAGADEADLVAGLALPLPLRVLDL
FGIPAEDCADFNWTKVLTSAGAVDLRLTTAAGEMVAYLRGLLDRKRQV
PESDLSALVAVRDGADRLSDDELTSMVYLLLTAGYETTVNLIGNGLLNL
LANPEQLVAFKADPDLLPQVVEEAMRFDSPVQIAVRHSTEPVEIAGQAIP
SGALILVSLWANRDPDRFTEPEAFRVDRQDNPNQLGFGYGFHHICIGAPLA
RMEGTIAIGTVIRRFAPALRLAHPAGSLTWRASMVMHGLTALPVHLR

>CYP154M20 (2517943392) *Salinispora arenicola* CNY280

MERCPYVLDRAGRDLHGEEAKALRARGPVTLVELHGGYTAVSVTSYEIAKQ
LLVDPRISKNTKETWPEFREGKVPQDWELYTWVAMDNMQTRDGEHDLRLR
KLVAQAFTTRQVAKVRPMIEDIVDRLLDDLEKVPAGEVVDIKGRYFYPLS
TILVCDLLGIPEADRAEALHGTVVNARTTNSAESEANLHQWQSALSKLV
ETKRREPGNDITTLIIKAREDEQAPLTDDEVIGSLHLLIGGGTETTSNVL
CNTLIDLTLHPDQMAMIRSGAVGWEEAAWEEVVRKDGAVGSMPFRCANADI
EIGGVTTIAKGDVLVINYAAAGRDPERYGDTTAEFDITRADKTNLSFGYGR
HRCLGPALATMEAMISLPALFERFPDLVLAVPRDELKPQGTFFVFNGYAEV
PMLLRS

>CYP248A2 (2517943414) *Salinispora arenicola* CNY280

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLTLRAVLEL
LGLPAGDANAIGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQLMsrNEIVSTVVTFFITGHETVASQLGNGL
LSLLDHPEQLELVRRQPHLVPPQAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCNPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP105W2 (2517943421) *Salinispora arenicola* CNY280

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRAHADVRLSDPRMSADRRRPGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVSRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVSSQVICEVLGVYPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDVVVTDKHRPGDDLRSRLLYRQRRAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGVTTAAGEGVVALGQAANRDPRVFEH
PDEFDPDRDARAHLAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP154M13 (2517943434) *Salinispora arenicola* CNY280

MSTGRPVVLDPTGRDIHGEADHLRALGPATLVELPGGVLAWSINSYEVGK
ALLSAPNVSKSARRHWPAYNGEIPPDWEMISWVAMDNISTTFGGDHRRRL
RRLTAKAFGSRRAEQVRPMATHMVNTLLDRMADAADAGEVVDLKAAFAYP
LPGMLVAELIGMSEEARVAAAKVIDMMTATNITPEQAQGVLLGWRDAITD
LIALKRAQPGDDITSDLIAARDEDGSLLTEQELVDITFAILGAGSETTIN
FFDNAITQLLTHPEQLELVKSGQVSWDDVIEEVLRLSPLASLPMRFAVE
DIQLDGVTIHRGDPILINYAALGRDPALHGESAGVFDVTRQHKEHLSFGH
GAHYCLGAGIARMVAKTGLSALFERFPRMTLAVSAKDLVPYPTFIMNGNR
QLPVHLSGALTWREGEQSALGRA

>CYP154M21 (2517943435) *Salinispora arenicola* CNY280

MEKCPYVLDRAGSDIHKEASNLARGPVTLVELHGGYTAVSVTSYEVAKQ
LLMDPRISKNTKAHWPEFRDGNVPQDWELYTWVAMDNMQTRDGKEHDRLR
KLVAFAFTGRQAVKSRPIIEEIVNRLDDLETAPRGQAVDIKARYFYPLS
TILVCDLLGIAEEDRDVILHGNVVNSKTTNTAESEANLHQWQTALGRLV
ETKRRDPGDDLTTVVIKAGEDEQTPLTDDEVIGSLHLLIGGGTETTANVL
CHTVVDMMLTHPDQLAMVRSAGVSWESAWEVEVRKDGAVGSMFRCATDDV
EIGGVTTIAKGDVLINIAAAGRDPERYGDAAAEFDI TRADKANLSFGYGR
HRCLGPALATMEAMVALPALFDRFPNLALAVPPNELKPKQGTTFIFNGYAEV
PLLLRS

>CYP125A41 (2517944000) *Salinispora arenicola* CNY280

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPHTKLRAIVSRGFTPRAINALRGLAERAHIVRDAAVRGVGVDFV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQSPSDDLVTCLVNAQIDGELTTDEFGGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTV LGGQAI SAGQ RVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLDPDIRKVAAPQRLRSGWINGI

RQMPVRYR

>CYP211C1 (2517944151) *Salinispora arenicola* CNY280

VVDVEELLTRLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVAHAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEFVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAELEAFY
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPI PQGQNVLLLI AAANRDP AHFPDPDRFDPWRS GPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP208A12 (2517944540) *Salinispora arenicola* CNY280

MTLDTITPRVPLGPPRTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGDLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAEITG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETINAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHGPVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGHRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP1005A1 (2517945663) *Salinispora arenicola* CNY280

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTDAQTY
RPDNAMEAVTPI PVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLDSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVQKFARAALFWAPLDADRQLSLADEVGRFHQVLRFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLHRLSGEP
TIRAALRAGSISVADVVEEGLRLEPPIVWRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFPRPGQRGSRRLAFGAGAHRC LGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP166A4 (2517945873) *Salinispora arenicola* CNY280

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGWIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPHQP IPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHQCLGQN
LARVELRAGLSALLRAFPNRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP105BL2 (2517946183) *Salinispora arenicola* CNY280

MSSHSAAPDPETATPLHTLAPELAFFQFERSAPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTLSDPRFSSDMSHPGFPNRTGKPVDDLL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVP SRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHRDDLLGHMVRRYLATGELTRDMLIRLAWTT

MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP1051A1 (2517946385) *Salinispora arenicola* CNY280

MATDAAITRARTVPAWKALPAAVRDTHRAFVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAWAA
SRRVLAPMFRPARINAMVDTMADA IAGAVDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSID DILLPVLRQAQRQPDDGDDLLSRLVRARADDGQALSE
KMRDDDLVSMVAVTTETSTVVLTWMMWPLL ANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASRTPARTVEMI
LKPVAPVPAR

>CYP105G5 (2517946405) *Salinispora arenicola* CNY280

LTIETTETTPADDSLAPLPRQFMQRDDPSKLPPALAALAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRP EQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHI PAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTP

>CYP107Q4 (2517946406) *Salinispora arenicola* CNY280

MTTTAETS AETIDLFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDP RFLTNPADSPLEDIRAGVFKRDLFPDLPW
MANLLNVSDGEDHTRLRKLVSYALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDE PDRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIANRAEPQDDLV TALVQAQAEQDNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLAANTDPRRFPDPNKLII
DRLAVGSEHGLGFGKGIHRCLGQHLAYQEA E VALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105AB8 (2517946962) *Salinispora arenicola* CNY280

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHRADLVKT
LSLPVPSLVICELLGVADHDFFQEHTATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPD DDLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARRHHLAF
GFGPHQCLGQNLARLELQIVFDTL FHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP211B2 (2517947129) *Salinispora arenicola* CNY280

MDVSEAI AVLISPSGRLDPYPTYEQ LRAHG PVSQTTAGLFVVVTGYAEADM

VLRDPRFVVLDDDLRDDVFPHWQDSPAIKSIARSMRLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTQADELVDemiQAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPAGSWLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRRLTLRGYETLP
ITVGAVTADRGT PAGVAPGTF

>CYP247A7 (2517947169) *Salinispora arenicola* CNY280

VRLTPGAARDIDLDSVNLFDLDLYTSGDPHPIDVDMRAQSPLHHQVLADG
REFWSVTRYDDVCRVLGDYREFTSERGTVVTHLGEDDIAAGKLLTSTDPP
RHTQVRRRAIGAKLTARAVASWQDRIRDAIVRFLEPALDGDTFDLAEQALL
LPAIVTGPLLGIPEWDQELVQLTAMVTAPSDPHFQHGSEAATLAISHHE
LVTVVTEWVKQRRSAGGGDGSLLDHLMSVRVGGAPLTDEEIALDGYSILL
GANVTTPTHTVSGTVLALIERPEQFEKAQADPSLLANLVEEGLRWASAACN
FMRYAVNDTRIGGGTVPAGGAVVAWIGSANRDESYFPDPHQFDITRSGAN
RQVAFGFGPHYCIGAPLARMTLGIFFEEELVQRFGSIELAGEPQHLSYFI
AGMTHLP IVAQKRKTP

>CYP162P1 (2517947251) *Salinispora arenicola* CNY280

MGLPSEVDLAEPDLADPDLYAEGDPDAEWAWLRAHRPVYRNPAGATAEFW
ALTRYRDALQVYRDPSTFSSERGMVLGVDPVAGDPAAGRMLVVTDPPRHP
KLRRIVSGIFVPRTMHRLEGRVRSVLDQLLHRVVDGAGRCDFVNDVAARL
PVAIIICELLGVPADEQDWMYHLTSTAFGGGDPAGSAEVS AVERAEAYGDI
LLYYGELAAERRRRPGDDLVTLLVHADLDGEPLDVEDVLVNCNLIIGGN
ETTRHAASGGLLALAQRPELWRRRLRETPTAVPTAVEEVLRWTTFGMHVLR
TATRDEIIGGVPIRAGERVVVWNAANRDEDVFADPQHFDIDRSPNRHIA
FGQGGHCLGAALARLELTILFEEMAKQVTNVRLTGPVRRVRSCVLRGIR
ALPVELVT

>CYP105CH1 (2517947292) *Salinispora arenicola* CNY280

VSSLPLPTYPKLRDPADPLLPPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHNPFPYPVNPDAVVAQVARWTYILLGDDPPL
HTERRRLLI SEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADF SKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRTPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVNLT IARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALD TVLRRLPGLHLVAPFEELPFKYRHLVWGIEEL
RVAW

>CYP107AY2 (2517947640) *Salinispora arenicola* CNY280

MTAEPTPIPRSGARLGQEYDQLRKTGDVHQVLLPDASLAWLVTNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAP
SPQ RVAALRPGIRRAAEHLLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGR TNLRAWTDMLTSYPPDRDAIRQAVTELHGYYVDLIDIKQQQPG
DDL LSALVTIEQDGDRLSRDELTS LAFLILFAGYENTANLIASAVLWLLD
HGGLNVVPSSEAIEATLRHEPPAPVAIRRFPTEDIIIGDVTIPAGDTVLL
SVAAATRGADGNAARLAFNGNGPHYCLGAALARVEAEALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP107EU1 (2517947725) *Salinispora arenicola* CNY280

VTIGQTLPLDVYSPEFTRDPYAIFARLREQAPVCRVTTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTTNMVNSDPP
DHTRLRYLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPVADDLLTALVQVSADEDRLSREELVSMALLLLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRLDITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQMLAVEADDLEWLVNSFFRAPL
HLPVSLRR

>CYP1223D1 (2517947814) *Salinispora arenicola* CNY280

MSTVVSAMQTLRSEAGRADPFPIYAELHKLGAVCAVDDPAERYQFVVHGY
DAVNHVLRDPAYRVTDAEMLERGGLRWREHPSLVAVLTSMFFTNEPRHAR
LRGMYSRIVTSRRVNALRGQIVAIVDDLLARMAERGAGGEPLDFMAEFAP
PMPGNVICEMMGVPDGRSWFIPRAHIFGDLLDLGKSSAELLRTADEATV
ELTEYFGKLIALRQKDPDDMISGFAQLQATAERIPEPELLASLLTFFNA
GFASTSHLLGNGVPLLAGQPRTIEAIQRDDVAARHVEEILRVAPPTHMAV
RVTGEDRTVAGLTMPAGSLLLVLLAAANHDPARFPDPGRFDPNRPDNRPL
TFGAGAHFCLGAPLTRLEGQVAFPMFLDRFPKLAPVGEATKTNRLTSLGY
QTLPVALS

>CYP107NF1 (2517947815) *Salinispora arenicola* CNY280

MPGYSLDSPARLDTDDFVADAHGVFATLREVAPAVPVIINGGIHAWLITR
YDVAKQAFSTDDMAKDVAAHWRFAHAGEVPFTGDVAVAARRNILSTDPDPH
TRLRSALAAAFPRRVEALRGWIGRIVADLLNSIASAGSADLVADFALPI
PMTVICELFGVPEEHRPHIRSWTETLFHGAEPDRMRQASDDIDSLLAEVI
ASRRARPGDDFTSTLVRAQDEGQLSTVELVMLLRAMLGGNETTINLLGN
AAAALLRWPDPQRATLTADPQRWPDAAIEEVLRRDGPIQNSIWRFATTDIKI
GEVTIPCGDAIIIALAAAGRDGRRFADPDRFDIGRTDQAHLAFGRGIHHC
IGAPLARLEAAVALPALFARLPDLRLATSWEQLRYRRSTMSRSLVSLPVK
FTPASPDHPAHP

>CYP1902A1 (2517947831) *Salinispora arenicola* CNY280

MVAIGRITYNPVGPAFFIDPYPHYAQLRAENPVHHTKYGFVVLTRQKQIV
EAYRHPALSRNTMLWEDFATWRRGSTDGPLERMMANWLV MIDPPRHTPLR
AIHEQVFTRRLDLAATSVVESIVSELLAPGRAAGGMDLVGEFADRIPVYL
INHLLDLPRADWDRIEWSRAIALTNEPMLTSKVL RAGEDARTAMGEYFD
PLIACRRATPGDDVLSGLAVTEVDGVRLTSEELQDSLAFLYQAGHPTSTH
LISLAVHSLLRNPDQLDRLRADPSLIPDAVEELHRYDGPVQMNDRVAVED
VHLFGEHLHRGQLVRLCVASANRDEDHHPQAARLDVTRTVTDQLGYGHGL
HHCVGAHLGRVQAQAALRALLAAAPGLRLTGDRRLRFLPSASNRGLVALPV
AF

>CYP105J3 (2517947916) *Salinispora arenicola* CNY280

MTDSVAFPQGRVCPHQ PAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRNTNPAWPAIVPIVAAAVNDAQQEV LKIALVGTDGPE
HKAQRKMLIPSF TFRMNALRPMIQEIVDQQLDEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIF EKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGLVDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITVEIALGALIERLPSRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP163B16 (2517948026) *Salinispora arenicola* CNY280

VTAADPGRVSGESQTPAHTVDLADPATFANRDLTGFWQQLRDEEPIHWN
PPTSGRRGFVVVSRYADILDVYRDDVTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHAELRKLLLRALGPRVLAPVCAAVRANTRQMVREAVTKGEC
FASDIASRIPMMTISNLLGVPDADRAFLSLTKTALSADDESISETESAM
ARNEILLYFQDLMEFRRDHPGEDVVSMLVNSTIDGAPLSDDDIVLNCYSL
IIGGDETSRLTMIDSVNTLAAHPKQWRRLKDGQCEIDKAVDEVLRWASPS
MHFGRAAAKDTILRGVQIRADDIVTLWHASGNRDERVFHRPEVFDLGRT
NRHLSFGHGPHYCIGSYLAKVEISELLIALRDLTSGFETTGEFPQIRSNL
LTGFSTMPVRFVPDRAGLARDALDG

>CYP1198B1 (2517948519) *Salinispora arenicola* CNY280

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGGEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQKRLVSKSFTPRIVKSFGPQITHIVDGLFEDFRDRGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKPNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGELITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDPRAYENPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKHPEVDES
SLEYRRHIVVRGLEHMKVAFQP

>CYP154M19 (2528442769) *Salinispora pacifica* CNY202

LNTTAPILLDPTGRDVHAEGDRLRAQGPIAQVELPGGVRAWSVVGDMVR
KVLADNRFADKDPQHWPAFINGEVGDEFPLIGWVLMNMTTSDGADHTRL
RKLTAFAFTLRTEAMRPQIKNIATELLDDLAAPPAGEIVDLKGSYAYPL
PTRVICDLFGVPEHLRREVMRGGEVNVNTTISHEEAVANVEQWHQAMHDL
VEMKRQNPGGDLLSMLIKTQAEDGTRLNDSEMAGTLHMLGAGSETTTNL
ISKAVVMLLTYPDQFALVRSGQVTWKDVIEETLRVQAPIAQLPFRFTTEE
VQIGGVTPKGDVPLIGFAAAGRDPRRHGVDADRFDLTRDDKEHLSFGYG
VHCLGAPLARLEAAIALPLLFERFPELALAVPANEIDPQGSFLLNGAST
LPVHLGRAA

>CYP125A15 (2528443473) *Salinispora pacifica* CNY202

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMAVSRSDTYSTRENTAIARFQPGTTKADLEMQRVIML
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDATVHGTGDFV
TDVACELPLQAIAGELIGVPQQHRRKVFDWSNQLIGYDDPAYGVDPLAAAA
ELLAYAMEMADERQRNPSDDLVTKLVAQIDGHELTDEFGFFVMLLAVA
GNETTRNAITHGMLAFLDHPDQWELFKAERPRSAVEEIIIRWATPVNVFQR
TALVDTTLGGQAIASAGQRVALFYGSANFDESVEFQPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHMPDIRKVAEPQRLRSGWINGI
REMPVRYR

>CYP211B10 (2528443926) *Salinispora pacifica* CNY202

MDASEAVALLMSPPGRLDPYPTYERLRAHGPPVVSTAAGFFVVTGYAEADT
VLRNPRFGVMDDDKERDDVFPWHQDSPAMMSISRSMIRANPPDHSRMRLA
AGVFTPRRIAALREVVAQAADGLVDEMIRAGRGAPVDFMGGFAYPLPVT
VICALLGVPAAADWAQFRRWASDLTGVLEPEITSEELAVADAGASELRDYF
TELVAQRRRAPADDLTALVQEHADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVLLTHPDSATALRDQPELAPSYVDELLRYDSPVQLTTRTVR
ESVPIAGVELPAGSWLLILLGAANRDPARFTDPTRFDPGRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRNRLTLRGYETLP
VTVGAVSADHGTPAGAALGTP

>CYP154AJ3 (2528445062) *Salinispora pacifica* CNY202

VDDESLFVIDPAGADIHGEGARLRASGPVTRVLLPGGVEAWSVTGYHAAR
QVLADARFAKNARQHWPAYVNGDLGPDFPLIAWARMDNMSTTDGESHARQ
RRLVAGAFSPORIAALQPRVERAVARALDELAQAQAEQPGEPIDLKERYA
HLVAARVIGELLGVPDSDPDGILDRAGYIESTPQRAAAEFALLRSKIEAL
VAAKRRTPEGDLISDLIAAQPGGCPVTGAGAGSDAELVGLAQLMLNTGAE
PARNLITNTVLALLTRPGQRAQVMGGEVSWGDVVEETLRTDAPVAHLPPFR
FATEEVTIAGTTISPQDPVLVGYAATGRDPELHGATAGEFDARRADKRHL
AFGHGVHRCVGPALTRMEVRIAVQALFTRFPGVRLAVEPKELVGQGTIFIM
NGRRELPVQGLCAQP

>CYP105BL4 (2528445137) *Salinispora pacifica* CNY202

MSSHSAAAPDPETATPLHTLAPELTFPQFERSMPFPDPPEAYTELSGRCPV
APVRMSDGNPSWLTISFKGVRAALSDPRFSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVKRAKAMPVITQITDEALDQLAAAG
PGADLVKHVAFVVPSPRVACHLVGIPFSEYELFTGLAAKLMESTSSADQVA
ALQDMVSYFDKLVTDREHHRDDLLGHMVRRYLATGELTREMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHLMPGAVDELMRYLPMI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDEL DVRN
ARQHLTFGYGP HQCPAHALARLELEVVSRLLEFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP1005A6 (2528445213) *Salinispora pacifica* CNY202

VSAVLFRSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLTQVTY
RPDNALDAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPTIRALVADAL
HPAKVAAQRPWLTGLVAERVAAIRATLDAGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAALFELFWAPLDADRQLALADEVGRFHQVLRFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLAGEP
TVRAALRDGSVSVTNVVEEGLRLEPPIVTVRRVAAVDSTLGGIAVPAGTS
VLLWLLARAGRDPAIVPTPDEFRPGQGRSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTVVRAWPYPDNLTFRMPDAFVIRR

>CYP211C3 (2528445655) *Salinispora pacifica* CNY202

VLDVEGLLARLYSAQGRQDPYPVYADLHAQGAIAALAPRPERQRVAAVAV
GYDLVAAVLRDPEWFKQPPPDWTEQEILRTLQSSMMFINPPDHGRMRHV
AGTFTPRRLGALEPVINRVTDDELLDRMADVGPGEVDFVAEFAYPLPARVM
AEFIGIPATELAWYRERVDRIDAFLDVAGKTPERLAAANAAGAE LRAFYG
ELLARRRRTPGDDLISGLVEAVDAGGVELTEDELISNLVVLFNASFVTTV
YLLSNGLPVLLAHPELAAALANDPELAAGAVDEILRLQTPVHLLARAAPR
DTVLGGVPI PQGQNVLLLI AAANRDPAHFPEPDRFDPRRRGPSSLAFLG
LHYCLGAAVSRLLEGRALPRLLSRFPRLRILEQPVYSGSLFLRGIDKLSV
SPGGREHP

>CYP107AY4 (2528446024) *Salinispora pacifica* CNY202

MMSQDQPMRAELAPVPRSGARLGQEYDEFKAGDVHQVLLPDSSSLAWLVT
NPELVSRALADPRLALNRRHSRGGWSGFALPPALDANLLNLDAPDHTRLR
RLVGPAFSPQORVAALRPRIIRRTAERLLDTLVAAGSPVDLVTGYCTPLSVQ
VIADLLGVPEAGRADLRTWTDMLTSYPPDRAAIRQTVVELHGYVNNLIA
AKQQQPGDDLLSALITIEQDGDRLTRDELTSLAFLILFAGYENTANLIAS
TVLRLLDHGGVREVQISDAIEETLRLDPPAPAAIRRFPTTEMTIGGATIP
AGDTVLLSIAAATRGADGNATRLAFGNPFPFCLGAALARVEAEETLTVLA
RRLPGLALAVPVAQVRWRPTFRTHGPAELLVTW

>CYP245A15 (2528446252) *Salinispora pacifica* CNY202

MPSATLPRFTLTGTWTREDIINPYPVYQRYREVAAVHRGEAGGGAPETFYV
FSYDEVSRVLSSSCFGRGRSLDAAAASVPVPTEQKALRAIVENWLVFMDP
PRHTELRSLLNRSFSPRIVTGLRPRIARIAQELL SRLGQQAEDLVEGFA
APLPILVIAELLGIPAERHRWLRANAVALQEASSSRARRDVG YARAEAA
AQEFTDYFREQVCLRRGSTGDDLM TILANAQLRGAPVGLDAVVGTCVHLL
TAGHETTTNSLAKAVLALRAHPAVLEELRRTDGLTADSIEEF LRYDPPVQ
AVTRWTHQD TTIGDW DVPGRSRVVAL LGSANRDPARFPLPDALDLHRPTD
RQLGFGLGIHYCLGATLARTELEIGLQTL LDGLPTLGDSAQYVDYADDMV
FHGPSRLILINPGERFRS

>CYP244A5 (2528446256) *Salinispora pacifica* CNY202

MSATTNAELGEAPETTMPVDPGLFDCMPDLIAAARIAPVVRI PYLGRHAW
VVCDELVKQAL THPKMGKDITL VPEWMRQPGLMVTAQPPPEYARAMIMS
DGENHARIRRIHAPVLS PRNTERWGEQVAGKVEGFLDELSQAASGRNAEV
DVVTNYTHKIPLAFISEMLGLPPEAEHRLRSITDIMLYSSDYAARREAIG
GLFGAVEEWVRNPAGLRDGVITGLLAASDGPGA AVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEALRRPPHERPKSDEDITAWIEETLRVHPPFP HPTW
RFPLEDIELGGYLIPKGAPVQLSIAAANREPGE GADSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAKIAVRGFLRRFP RARLSADTAVQWESEWMIRRM
SALPAVLS

>CYP208A23 (2528446757) *Salinispora pacifica* CNY202

MTVIADRGGVRPPGPPATAGLRLL LALGRDRLGMLTSAATEYGDVARLPV
GPKRLYFFNHPDHAKHVLADNNANYQKGIGLVHARRALGDGLLTS DGELW
RKQRRVIQPAFLNRRLAQYAGVVGQEATRLAERLATRAGGPPVDVLDEMT
QLTLGVLGRTL LLD AELTG FHVGVDSFAAVQDQAMFELETLSAVPTWIPLR
RQRRFRARRRHLQEVVDVLA AERGQDVEGRE DVLSRLIVSTRAEADPEVG
RQRLRDELVTLLLAGHETTASTLGWSLHLLDKHPQLRERVRQEATSVLGD
RVPVYEDLHRLQYTAMVVQEAIRLYPPVWILTRKARAEDEVGGYRVPAGA
DLLICPYTLHRHPRFWEEPERFDPERFDPARLTNRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLAVLLRDLRLLEGLPGRAVVPEPMLSRLVRGGLPMTVR
RVD

>CYP105AB24 (2528446814) *Salinispora pacifica* CNY202

MPETASITTTGTASTATTGAASGKVTD AEFFPVARGCPFSTPAEYEQIREH
SPIAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFPFVSTD PET
RKQLQDQPTSMLGMDGAEHAQTRRALMG EFTVRRMAGLRPRIQQIVDQHI

DEMLSSEQRSADLVEALSLPVPSLVICELLGVVPYADHDFQGLTGPLL RH
TTPPEAR GRIQEELNTYLGT LIDRKLTDPTDDLGRQIAKQHAAGTFDRT
SLVSM AFLLLVAGHETTANMISLGVVGLLQHPDQLAMIKNDPEKTPPAVE
ELLRYFTIADTVTARVATEDVQLGDTTINAGDGVVISGLAADHDP TVFTD
PDRIDLERGARRHHVAFGFGPHQCIGQTLARMELQIVFDTLFRR IPTLRLA
APLDDIPFKSDAFVYGA EKLPVAV

>CYP107AX4 (2528447187) *Salinispora pacifica* CNY202

MTSQPAPVFDQ LLLRDPHRRYNALRDEAPVHHIRTPDGAPAWLVTRYDDV
RAAFTDPRLSVDKRLSST DGEHGSSLPELDAHLLNRDPPDHTRLRRLAA
AAFTPRRVADLRPAVERIVSTLLDGLVGHDQAE LIGSLASPLPLQVMQEL
LGLPTQTSVDFRRWNTNLLSADANQPAQSR SAMANMRRFLVEQLAHKRAR
PGDDLLTG LLAAREDDRLTDDELVAMLFLLMFAGYDNTAALIGNVVHAL
LTNTELPAAVRTGSLALDELVDGVLRWNP SFPLAVRRFA REPIT IAGQTI
PAGDRIWLCLASANRDPAQFTAPDTLGTTGMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVTILLDRFPGIRLGLRRFPCLTWVWSVGQDVPVQEGPRHGR
QEEHGSASAAVGGGGGV RVAAGRAGQGRWSLVGRSGWAPRGDHPHGP GIS
ARRRTGCPRRRGRRRRGVGS

>CYP208A12 (2562124610) *Salinispora arenicola* CNY679

MTLDTITPRVPLGP PRTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAE L TG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELET LNAVPMWIPLPR
QIRFRRARRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRH PGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRV PANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVP GHRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP1005A1 (2562124949) *Salinispora arenicola* CNY679

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTDQATY
RPDNAL EAVTPVPVAAALRVLAGHRFRLPPTLANNGGASHPAIRALVADAL
HPTKVAAQRPWLTGMVADRVATIRTTLDSGGPVDLYADLTADLPLLV LAR
LVELPDAPVNAV KQFARAAL EFWAPLDADRQLALADEVGRFHQV LREFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFL TLLHLRLSGEP
TIRAALRAGSSSVADVVEEGLRLEPPIVTWRRVA AVDSTLGTTVAAGTS
VLLW LARAGRDP AVVAAPDEF RPGQRGSRRLAFGAGAHRC LGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP1051A1 (2562125182) *Salinispora arenicola* CNY679

MATDAAITRARTVPAWKALPAAVRDTHRA FVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAE GDAWAA
SRRVLAPMFRPARINAMVDTMADA IAGAVDGLHGAATAGTPIDVGREL SR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWI PMP
GDRRFRAAVRSIDDILLPVLRQAQRQPDDGDDLLSRLVRARADDGQAL SE
KMRDDLVSMAVTTETSTVVL TWLWPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLD ELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRM TAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVA ASTRPARTVEMV

LKPVAPVPAR

>CYP105G5 (2562125207) *Salinispora arenicola* CNY679

LTIETTETPPADDSLRAPLPRQFMQRDDPSKLPALAAALAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDFRFSDDRFYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRAGLLQTDLPKIQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQQLARIELTVGITELLRRLPNVRLAIPPADV
PLRNDMITYGVHRLPILWDTP

>CYP107Q4 (2562125208) *Salinispora arenicola* CNY679

MTTTAETS AETIDLFSPEVVADPFGWYARLREETGPTTGTNLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPFRFLTNPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRLKLVSYALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIAKRAEPQDDLVTALVQAQAEQDNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI
DRLAVGSEHGLGFGKGIHRCLGQHLAYQEAEEVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTTRTRLPLKLV

>CYP125A41 (2562125760) *Salinispora arenicola* CNY679

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTPVWVWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGDV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLYAMEMAEERQSPSDDLVTKLVAQIDGHLTTDEFGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTVLGGAISAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211C1 (2562125911) *Salinispora arenicola* CNY679

VVDVEELLTRLISAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPI PQGQNVLLLIAAANRDP AHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGA AVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP244A4 (2562126096) *Salinispora arenicola* CNY679

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQALTHPKMGKDIALVPEWMRQPGMLVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGFLDELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPANLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT

GYETTGSLISTSLYEAIRRPPHERPKTDEDITAWIEETLRVHPPFPHPTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEADSFDERRGHGHLST
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP245A7 (2562126100) *Salinispora arenicola* CNY679

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRSLNRSFSPRIVTELRPRIARIAQELL SRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYARAEVA
AQEFTEYFREQVRLRRRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGAEGLTTDAVEEFLRYDPPVQ
AVTRWAHQDTALGGCDIPGRSRVVALLG SANRDPARFPSPDVL DVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCT

>CYP105CP2 (2562126263) *Salinispora arenicola* CNY679

MTKSMPVQDLPAFPIPRECYPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHARAVLSDYRRVSIKPYHGNYP LLNEEF EKVVDSGYADVLFGVDPP
EHTRQRQMIMPSFTLRRTAVLRPDIQRIVDDKLDEM MRHGAPGDLVTEFA
QPVPSPMVISFLLGVPWEDHEEFETPAHKLFVPELAEEATTEL GAYLERLI
QKKEQPGGTPGGTGLLDDLIRDHLRAGALS RDELVHIAMAMLVAGTDTT
NVISLGLTALLDNPDQWAALRDNPD ELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRP RPSPFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRTAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2562126265) *Salinispora arenicola* CNY679

MAAPAPQATPSTTPHPPSYPLPRECYPYRPSAGTAHLRDAGPVSTVRLYDG
RTAWLV TGAAEARALLADSRVSNRADFPNYPVM DERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQLLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGV PYPQDRTRFEPAVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYTALVDNPD LVP GAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNH LAFSHGIHHCIGQN LALLELDIAFRALVSRFPTLRLAVPAEQ LPTY
FAGDVPRLACL PVTW

>CYP107FS2 (2562126266) *Salinispora arenicola* CNY679

MPVPQGEQNLTTTEVFADPKALFATLGS RQPLHRISLPDGM PAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPADRSEFERHAEVLTGINASSGFD AIIAAGRWFDEYLAGLVQ
QRRREPQDDLISGMLAAQDKGDR LTDVELRSNALLLSAGFETTVNLIAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAANHDPTVFAAPSRLDLRREGSGQILSFSHGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSL VWKASFVLHRLERLPV
TFTPDRDPNPIDSVHTV

>CYP125G6 (2562126304) *Salinispora arenicola* CNY679

VPTLLNEHVSYDGA AIAIVDS DGATSWIRLAERVNRWVHLLRAHGLDTGD
RLACVTGNRRETFEVLLAALHTGVTVVPVNWHLTVTEIGHILSDSGSRVV

ITEELHVKAVAAAADGTAGPVAGLVLGDRVEGFAAVEPLLAASPAEPE
GQVCGATMLYTSGETGRPKGVVNNLFVTGAPYARVGRLCDYARSVLGVP
RERMLLDGPWYHSSQLFFALLSLLQGSRLVIRPYFDPAATLKTIDDHRI
VTHLVPTQLVRLLRVDALTRQMFSGASLRRVWHGGGPCPPEVKRSMIDW
GPVLVEYYGATEGGVVTLIDSAEWLARPGSVGRAVPPSEVVVVDDGGQPV
AAGQTGQVFFRRRTGNRFHYHNAPEKTQAAYLAPDTFTTYGEVGHVDEDSY
LFLTGRAQDMIVSGGVNVYPAEVEAALLRHPVVRDAAVIGVADDEFGERV
VGIVVPETAVDPDDLATHLDAHCRVSLAGFKVPRTYRVVESLPRDETGKL
RKDALRSKFGWLSGAAMTVPRPATGQPTAHRPDIAHPTTYVSGVPHDEFA
RRRDEPVGWVAEPVLTRHTAAGRTATRGSGFWAVTRYEDVVAASRRVTD
FSSAAKGAFLLTDPRTPADLQQARQLLVNMDDPHHARLRKLVTSVFTPRAV
RGLLASIDAHAAALVAKVVAAGEFDVVTDLAAELPLLVLADLLGVPKQDR
ALLYGWSNHLVGFDDPDFGGGDIDAYRTAMAEAFQYALNLGVERRARPTD
DLVSLLANAEVDGTRLTDREFCNFWLLLVVAGNETTRHLIAGTMQALTEH
PGECARLVEGRVPMESAVEELLRWVTPIMQFRRTATRDTEIGGQAVTAGE
KVVLYYTSANRDATVFAEPDRLDLGRTPNRQLSFGIGPHYCLGAHLARAE
LTALLRVMSPHLGSLQLTGFPVSRLASNFVNGVKAMPAVIGSR

>CYP154M15 (2562126329) *Salinispora arenicola* CNY679

MNDKCPFAALDVTGQDLHGEEARLREQGPAVLVELPGGVKAWSINRYEVI
RELLMDRRVTKNARKHWPFAFIKGEIPPDWEMISWVAMDNMVTAYGKDHVR
LRKLVGRAFTQRRADALRPQVVALSTKLLDDLGAFTPPGEVVDLRERFAYP
LPAMLVASLIGMSEAAALACSKVIDMMVHTNVSPEEAQAVLRGWRAAMAD
LIESKRRTPGEDITTDLITAREEDGSRLSEAELADTIFAILGAGSETTIN
FFDNAITALLSRPGQLQLRTGAVTWDDVIDEVLRVESPLAHLPLRYAVE
DIELDGVTIPQGDPILVNYAAAGRDPALHGGTADEFDLARGDKTHLSFGY
GPHYCLGAGIARMVATIGLSMLFERFPDLSLAVPVTELKRLPTFIMNGHQ
TLPVRLTAHAR

>CYP211B2 (2562126497) *Salinispora arenicola* CNY679

MDVSEAIAVLISPSGRLDPYPTYEQRLAHGPVSQTTAGLFVVTGYAADM
VLRDPRFVVLLDDDLRDDVFPHWQDSPAIXIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTQAQADELVDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVLLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPAGSWLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGTPAGVAPGTP

>CYP105BL2 (2562126646) *Salinispora arenicola* CNY679

MSSHSAAPDPETATPLHTLAPELAFFQFERSAPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLDPHFSSDMSHPGFPNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPVSRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHRDDLLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIIGLVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRN
ARQHLLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP166A4 (2562127004) *Salinispora arenicola* CNY679

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGWIVSSYE

LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHVEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHCCLGQN
LARVELRAGLSALLRAFPNRLRLAVPADEVPLRLQGSVFVAVKNLPVCW

>CYP105J3 (2562127118) *Salinispora arenicola* CNY679

MTDSVAFPQGRVCPHPAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRTPAWPAIVPIVAAAANDAQQKVLKIATALVGTGPE
HKAQRKMLIPSFTFRMNALRPMIQEIVDQQLDDEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGLPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEVGLDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDAVTRLAADDIEVE
GTVIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP154M21 (2562127561) *Salinispora arenicola* CNY679

MEKCPYVLDRAGSDIHKEASNLARGPVTLVELHGGYTAWSVTSYEVAKQ
LLMDPRISKNTKAHWPEFRDGNVPQDWELYTWVAMDNMQTRDGKEHDLRL
KLVAFAFTGRQAVKSRPIIEEIVNRLDDLETAAPRGQAVDIKARYFYPLS
TILVCDLLGIAEEDRDVILHGNVNSKTTNTAESEANLHQWQTALGRV
ETKRRDPGDDLTTVIKAGEDEQTPLTDDDEVIGSLHLLIGGGTETTANVL
CHTVVDMLTHPDQLAMVRSGAVSWESAWEEVVRKDGAVGSMPPFRCATDDV
EIGGVTTIAKGDVLVLINYAAAGRDPERYGDAAAEFDITRADKANLSFGYGR
HRCLGPALATMEAMVALPALFDRFPNLALAVPPNELKPPQGTFFNGYAEV
PLLLRS

>CYP154M13 (2562127562) *Salinispora arenicola* CNY679

MSTGRPVVLDPTGRDIHGEADHLRALGPATLVELPGGVLAWSINSYEVGK
ALLSAPNVSKSARRHWPAYNGEIPPDWEMISWVAMDNISTTFGGDHRRRL
RRLTAKAFGSRRAEQVRPMATHMVNTLLDRMADAADAGEVVDLKAAAFAYP
LPGMLVAELIGMSEEARVAAAKVIDMMTATNITPEQAQGVLLGWRDAITD
LIAALKRAQPGDDITSDLIAARDEDGSLLTEQELVDITFAILGAGSETTIN
FFDNAITQLLTHPEQLELVKSGQVSWDDVIEEVLRLSPLASLPMRFVE
DIQLDGVTIHRGDPILINYAALGRDPALHGESAGVFDVTRQHKEHLSFGH
GAHYCLGAGIARMVAKTGLSALFERFPRMTLAVSAKDLVPYPTFIMNGNR
QLPVHLSGALTWREGEQSALGRA

>CYP105W2 (2562127574) *Salinispora arenicola* CNY679

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCFFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRRHADVRQVLS DPRMSADRRRP GPFKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEF SVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVYPYGEHEFFERRSTLMFR
STPADERARCAIREDFLDVVVTDKEHRPGDDVLSRLLYRQRRAGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPPERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGVTTIAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAHAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2562127582) *Salinispora arenicola* CNY679

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRFADV
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQMSRNEIVSTVVTFIFTGHETVASQLGNGL
LSLLDHPEQLELVRRQPHLVPPQAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDVPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCNPNELAYQPRMTMFRGLTRLPPVAFTPA
G

>CYP154M20 (2562127603) *Salinispora arenicola* CNY679

MERCPYVLDRAGRDLHGEAKALRARGPVTLEVELHGGYTAWSVTSYEIAKQ
LLVDPRIKNTKETWPEFREGKVPQDWELYTWVAMDNMQTRDGEHDLRL
KLVAQAFRTTRQVAKVRPMIEDIVDRLLDDLEKVPAGEVVDIKGRYFYPLS
TILVCDLLGIPEADRAEALHGTVVNARTTNSAESEANLHQWQSALSKLV
ETKRREPGNDITTLIIKAREDEQAPLTDDEVIGSLHLLIGGGTETTSNVL
CNTLIDLLTHPDQMAMIRSGAVGWEEAAWEEVVRKDGAVGSMPPFRCANADI
EIGGVTIAGKDLVLINAAAAGRDPERYGDTTAEFDITRADKTNLSFGYGR
HRCGLPALATMEAMISLPALFERFPDLVLAVPRDELKPQGTFFVNGYAEV
PMLLRS

>CYP107FJ2 (2562127610) *Salinispora arenicola* CNY679

MSETLSTSVLLADAAEQRAWRAKLRGAGPVHRITTSGETGWLIVGHEEA
RNALVDLRLQGRATATVGHGRMPEDLERALNSHMLNVGPPDHTRLRLRLVS
AAFTRRRIEQMRPRIQELTDELDDGLAGADEADLVAGLALPLPMRVLVDL
FGIPAEDCADFNVTWKVLTSAGAVDLRLTTAAGEMVAYLRGLLDRKRQV
PESDLSALVAVRDGADRLSDELTSMVYLLLTAGYETTVNLIGNGLLNL
LANPEQLVAFKADPDLQPQVVEEAMRFDSPVQIAVRHSTEPVEIAGQAIP
SGALILVSLWANRDPDRFTEPEVFRVDRQDNQQLGFGYGFHHHCIGAPLA
RMEGTVAIGTVIRRFAPALRLAHPASSLTWRASMVMHGLTALPVHLR

>CYP107EU1 (2562127619) *Salinispora arenicola* CNY679

VTIGQTLPLVYSPEFTRDPYAI FARLREQAPVCRVTTHRGMSAWMVTRH
ADVALLADNRLAKDGNRIGELIPRHSTLTGAATGFPPGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPVADDLLTALVQVSADEDRLSREELVSMALLLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRLDITRSTQGNLAMGH
GIHHCVGGAALARLELEIVLIRLVARFPQMQLAVEADDLEWLNVNSFFRAPL
HLPVSLRR

>CYP105AB8 (2562127867) *Salinispora arenicola* CNY679

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHCADLVKA
LSLPVPSLVICELLGVYPYADHDFEQEHTATLVRRNTASEVRQHSIDELNA
YLGELIDRKLASPDLLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKNDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARRHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPLDKIPFKTDAAIYG

ARELPVAW

>CYP107AX14P (2562128189) *Salinispora arenicola* CNY679

VTSPPHVAFGHLLLRDPHGYNALRGQAPVHHIRTPDGAPAWLVMRYDDV
RAALTDPRLSVDKRFSDTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADQAPAVATIVDALLDGIAGQDQAEIIGALASPLPLQVMHEL
LGLPTQTSVDFRNWTNTLLSADANQPAQSRSAMATMRRFLMGQLARKRAQ
PGDDLLTGLLAARDDDDRFDTDELLAMVFLLMFAGYDNTAALIGNVTHAL
LTDAGLHDAVRAGSVDLDSVVDEVLRWNPSFPLAVRRFAREFVTPSRQAI
ASGSAWPARTATPHSSPNPTN

>CYP105CH1 (2562128255) *Salinispora arenicola* CNY679

VSSLPLPTYPKLRDPADPFLPPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHPNFPYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRRLLISEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIIDELLAYFE
QLIQEKGSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRTPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVLNTIARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALDTVLRRLPGLHLVTPFEELPFKYRHLVWGIEEL
RVAW

>CYP244A7 (2562128414) *Salinispora arenicola* CNY679

VRVTSSNLAAEPEVTMPVDLRPTDCLPELLAAARVAPVVRIPIYLDQHAW
IVCDRELVKQALTHPKLGKDITLAPDWMRKPGQMTAMPPEYARMMITS
DGENHSRIRRLHAPVLSRPNTERWGKRVATLADELLDELDSGDNAEVNVV
TDYTHKVPLAFTSEMLGLPPGAERRLHDITEVMLYSADYALRQQAEEELF
EAVQDWRNPAGLYDGVITGLLASSDEEDVTVTEGEVIVWTLISLVINGYE
TAGSLISAALYEALRRPVREPRHTDEEDIAAWIEETLRVQPPVPHTTWRFA
LEDLSLGGYLIPKGAQVQVSI AAANRDPNEDTDGFD AERRGRGHL SFGRG
VHYCIGAPLARLQAQIALHGFLQRFPRARLSADTAPQWESEWMIRMSVL
PALLA

>CYP162P1 (2562128465) *Salinispora arenicola* CNY679

MGLPSEVDLADPDLYAEGDPDAEWAWLRAHRPVYRNPAGATAEFWALTRY
RDALQVYRDPSTFSSSERGMVLGVDPVAGDPAAGRMLVVTDPVRHPKLRRI
VSGIFVPRMTMRLEGRVRSVLDQQLLHRVVDGAGRCDFVNDVAARLPVAII
CELLGVPADEQDWMYHLTSTAFGGGDPAGSAEVS AVERAEAYGDILLYYG
ELAAERRRRPGDDLVTLLVHADLDGEPLDVEDVLVNCTNLIIGNETTRH
AASGGLLALAQRPELWRRRLRETPTAVPTAVEEVLRWTTPGMHVLRATRD
TEIGGVPIRAGERVVVWNAANRDEDFADPQRFIDRSPNRHIAFGQGG
HHCLGAALARLELTILFEEMAKQVTNVRLTGPPVRRVRSVLRGIRALPVE
LVT

>CYP1198B1 (2562128996) *Salinispora arenicola* CNY679

MSGELTDQRTAPGAGGNPLRSIMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQRKLVSFSFTPRIVKSFGPQITHIVDGLFEDFRDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGITNVVDES

LRYPDPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDPRAYENPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKHPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP105BL2 (2516006570) *Salinispora arenicola* CNX891

MSSHSAAAPDPETATPLHTLAPELTFPQFERSTPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLDPRFSSDMSHPGFNRTGKPVDDL
KDTLGAMGGERHRYRRMLTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPVSRVACHLVGIPFSDYERFTGMAATLMDSTSSADQFA
ALQNMVSYFDTLVTDREHHRDDLLGHMVRRYLASGELTRDMLIRLAWTT
MAAGQETTAHMITGLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVTLPLPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVVGRLLEFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP1005A1 (2516006744) *Salinispora arenicola* CNX891

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTQATY
RPDNAMEAVTPIPVAVLRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLDSSGGPVDLYTDLTADLPLLVLAR
LVELPDAPVNAVKKQFARAALFLWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLHRLSGEP
TIRAALRAGSISVADVVEEGLRLEPPIVTWRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFPRPGQSGRRHLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP211B2 (2516007610) *Salinispora arenicola* CNX891

MDVSEAI AVLISPSGRLDPYPTYEQ LRAHG PVSRTTAGLFVVTGYAEADM
VLRDPRFVVLDLDDLRDDVFPHWQDSPAIXIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTQADELVDLMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVLLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPADSWLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGTAPGAVPGTP

>CYP245A7 (2516007809) *Salinispora arenicola* CNX891

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVMFMDP
PRHTELRSLLNRSFSPRIVTEL RPRIARIAQELLSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYARADVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELGAEGLTDDAVEEFLRYDPPVQ
AVTRWAHQD TTLGGCDIPGRSRVALLGSANRDPARFSPDVLVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVP TLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP244A4 (2516007813) *Salinispora arenicola* CNX891

MSTTTNTELTEAPETNMPVDPLGFDMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQAL THPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGFLDELSQAGSGGSTEV

NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEAIRRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEGADSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP105CP2 (2516008441) *Salinispora arenicola* CNX891

MTKSMPVQDLPAFPIPRECYPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSA HARAVLS DYRRVSIKPYHGNYPLLNEEFKVVDSGYADVLFVGDPP
EHTRQRQMIMPSFTLRRTAVLRPDVQRIVDDKLDMMRHGAPGDLVTEFA
QPVPMSMVSFLLGVPWEDHEEFETPAHKLFVPELAEEATTEL GAYLERLI
QKKEQPGGTPGGTGLLDDLRDHLRAGALSRDELVHIAMAMLVAGTDTT
NVISLGTALLLDNPQWAALRDDPDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRP RPSPFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLR TAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2516008443) *Salinispora arenicola* CNX891

MAAPAPQATQSTTPHPPSYPLPRECYPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVGTGAEEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQLLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVYPYQDRTRFEPAVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTALLLTAPGQYAALVDNPDLPVGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIIHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPVTW

>CYP107FS2 (2516008444) *Salinispora arenicola* CNX891

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGM PAVLV TGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KL VSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPFADRSEFERHAEVLTGINASSGFDAIIAAGRWFDEYLAELVQ
QRRREPQDDLISGMLAAQDKGDRITDVELRSNALLLLSAGFETT VNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAANHDPTVFADPSRLDLRREGSGQILSFSHGIHF
CLGAPLARLEGEIAFGTVLRRLAGLTLAVPTDSL VWKASFVLHRLERLPV
TFTPD RAPNPIDSVHTV

>CYP248A2 (2516008503) *Salinispora arenicola* CNX891

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQIMSRNEIVSTVVTFIFTGHETVASQLGNGL
LSLLDHPEQLELVRRQPHLVPAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRVVCSPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP105W2 (2516008510) *Salinispora arenicola* CNX891

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRRHADVRQVLS DPRMSADRRRP GPFKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEF SVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVYPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDMVVT DKERRPGDDVLSRLLYRQRSAGGMDHE
AVVSMAFLLL VAGHVTT SNMLALS V LALLTHPARLARLRAE PERFPAAVE
ELLRYFTVVEAATARTTTAEVTIGGV TIAAGEGVVALGQAANRDPRVFEH
PDEFDPDRDARAHLAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP107Q4 (2516008914) *Salinispora arenicola* CNX891

MTTTAETS AETID LFSPEVVAD PFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDP RFLTNPPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSYALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIAKRR AEPQDDLV TALVQAQAE DQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI I
DRLAVGSEHGLGFGKGIHRCLGQHLAYQEA E VALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105G5 (2516008915) *Salinispora arenicola* CNX891

LTIETTETPTDDSLRAPLPRQFMQRDDPSKLPALAAALAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLS DPRFSSDRFRYHPRFKKLSGELGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRR AAGLLQTDLP IKQ
AVENLEAQRAFMQRLVTDKR RTPADD MISGLVHHAGAEPPLTDDELVGIA
TLLL FAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQ LARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTP

>CYP1051A1 (2516008948) *Salinispora arenicola* CNX891

MATDAAITRARTVPAWKALPAAVRGAHRALVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEV LHERAAIYPRGDD TTLWRSVRKLVGDGILAEGDAWAA
SRRVLAPMFRPARINAMVDTMADA IAGAVDDLHGAATAGT PIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWI PMP
GDRRFRAAVRSID DILLPVLRQAQRQPDDGDDL SRLV RARADDGRALSE
KMRDDLVSMVAVT TETSTVVL TWLWPLL ANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLD ELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMTAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVA ASTRPARTVEMV
LKPVAPV PAR

>CYP211C1 (2516009248) *Salinispora arenicola* CNX891

VVDVEELLTRLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELLDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLARRRHTPGEDLISGLVEAVDAGGVELTEDELVS NLIVLFNASFVTTV

YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPIPIQGQNVLLLIAAANRDPAHFPDPDRFDPWRS GPPSLAFGLG
LHYCLGAAVSRLEGRLLALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP105CT1 (2516009362) *Salinispora arenicola* CNX891

MNSPNHMPADRSLTAPTSGCPMALSRGRVGLDVADEIGELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTDSDDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGVVLHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLTDTG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRRFPGLRLAV
PDSELEFTQGT TVYSLRGLPVTW

>CYP154M5 (2516009378) *Salinispora arenicola* CNX891

VEQSCPYKLDVTGRDVHAEGEAIARARGPVAQVELPGGVQGWSVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPPNWPLIGWLLMDNMTTNDGADHQRLR
KLVS HGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNVVTSSISGEEAEANVEQWHRELLELV
EAKREKPDEDMASLLIAAKEEDGSTLTQEEVVGTLHLMLGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDPVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPMNTLAVRPAQLEPQGTIFMNGHREL
PVR LGQPATVLA

>CYP125A41 (2516009512) *Salinispora arenicola* CNX891

MTEPRI PAGFDFTDPEVLAHRVPREEFAELRR TAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPP EHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGD FV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLYAMEMAERQRSPSDDLVT KL VNAQIDG EHLTTDEF GFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTVLGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP105AB8 (2516009903) *Salinispora arenicola* CNX891

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQTV DQCIDEMLTTDQHCADLVKA
LSLPVPSLVICELLGV PYADHDFEQEHTATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPD DDLGRQIARQHRDGT FDRSSMVSLAFLLLVAGHET
TANMISLG VVGLLQHPEQLAMIKNDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTL FHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP113T2 (2516010391) *Salinispora arenicola* CNX891

MSVTKCVWTAPPADEEALAGWFRDREPVERAPGGGWHVFGYPEAKAVLAD

HGAFSNGVTRPVPDDSPMRLYREGNLTWSDPFRHRQLRALLTQVFTPRIV
AGLEPMIEETVASALAGIRHKDQVLFVREFASPVVATVIARMLKISDNGL
RLFQQWSQALLAIADPGAERNGLQTVLTQTQIAEAFHRLIARRRAAPSD
DLASGLMAAEVNGERLSDAEIAGLIALLMSTGQASTLTLVNSIIVLARHP
ESAAMLRTPELLAPAIDEVMRYRSETTRVDRKTVRDVVVGGEIPAGQT
VSVWIAAANRDPVFERPDVFNIERSPNPHIAFGHGIHYCLGAPLARVEI
PAALRRLLGATAGFTVDPAGTRLLDPRLMSGASEVAVRFDWKQA

>CYP285A9 (2516010401) *Salinispora arenicola* CNX891

MKLTKPAEHEPVDLEKADLVDPVHVGEGDPHAIWHAMRERDPVHWQQVDE
RLGYWSATRYEDVARVLRDHRVFTSEHGTLNLLGKKDPASRKQLPATDP
PRHTKMRSVPQALNSKVLERHREQIREEAQRLLASVPDGEEDFAEMVG
KLPMAVTGTLMGLDREDWPQLTYLTSQAIAPDDPEFVLPEGGEATLARAH
RELFAAFEQSLSRKKGKNGDLIDVLRTEMDDGRKLRPGEIVSNSYSLL
LGANVTTPHPVNAAMGELAKDGKYADWASHPELFESGINEALRWSSPASH
FLRYAKTDVELSGVTIRQGEVAAWIGSANRDATVFPDPYEFDIRRDPRN
HLAFGVGPHYCVGHAVARLALHELFEGLLDQFSGFEPAGEPQHLHSNFIA
GMKHLPLVATRRAEERNRG

>CYP208A12 (2516010420) *Salinispora arenicola* CNX891

MTLDTITPRVPLGPPRTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAELTG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNLAVPMWIPLP
QIRFERRARRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP1269A2 (2516010699) *Salinispora arenicola* CNX891

MTTPRTDRPYGTPGIGSAVPERGTVRTEGMALDAGQRRRLQLAQGLLWLR
AASGDPFAALLRDHDEDEAALYARLGGGAPIWRSSTGTWVTRHRTATAL
TADPAVEDRIVGWRPLGIPVMPLGEQDLGLHPENREALLSLARAEEVAEDA
LVERRPRWAVAVRRRLDRAGDGRIDLAELAAGISVDMLAEQLDLPGTEMG
WFSDLASHAGLAADGLLCPQDMRRTDMLAGIAELRERFAGRPFAMILAV
FGVRVCADLLRNALAALLAEPAGWAGLRAEPASAAAVVDEILRHDPPVRV
QLLEAVADTTAHGVPI TAGDQISVLLAVANRDAEVFPEPDVYRPGRPVSP
DRPVLLPGWPAGPVLPLARAQTVTALTELAGRFVLEAAGPVIREVRAPV
TRAIRELPARADRRVRRP

>CYP105J3 (2516011001) *Salinispora arenicola* CNX891

MTDSVAFPQGRVCPHQPA PGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLDVDPRISSDRNTNPAWPAIVPIVAAVNDAAQQKVLKIATLVGTDGPE
HKAQRKMLIPSFTRRMNALRPMIQEIVDQQLDEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLACPNANEAYDQLMGYMSRLIA
ERRRNPGEGLVDDLQAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPGLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP166A4 (2516011205) *Salinispora arenicola* CNX891

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGWIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVVRTSRLTGHVEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGGGELSGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHCCLGQN
LARVELRAGLSALLRAFPNRLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP107AX4 (2515713557) *Salinispora pacifica* CNT855

MTSQPAPVFDQLLLRDPHRRYNALRDEAPVHHIRTPDGAPAWLVTRYDDV
RAAFTDPRLSVDKRLSSTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVERIVSTLLDGLVGHDAQAELIGSLASPLPLQVMQEL
LGLPTQTSVDFRRWTNTLLSADANQPAQSRSAMANMRRFLVEQLAHKRAR
PGDDLLTGLLAAREDDRLTDDELVAMLFLLMFAGYDNTAALIGNVVHAL
LTNTELPAAVRTGSLALDELVDGVLRWNPSFPLAVRRFAREPIITAGQTI
PAGDRIWLCLASANRDPAQFTAPDTLGTGMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVTILLDRFPGIRLAVPAHDIRWRESFRLRGLVALPVFL

>CYP107AW7 (2515713571) *Salinispora pacifica* CNT855

VETVTGTSTPPPVPYIADPYPTLARIRANGPVSILHSDEGIPMWVIARYR
DVRAALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAAAFATALREMTDYIAVQLRIR
QTRPGDDILTELLAARDAGQLTDDEIIGMVFLLLIGGHETTVNLLGTATL
ALMRNPDQHRWLLANQHALPEAIDEFLRYESPVAMATLRFTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRDGTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPRLALAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP125A65 (2515714402) *Salinispora pacifica* CNT855

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMASRDSETYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPPHEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGVDPMAAAA
ELLAYAMEMANERQNRNPSDDLVTQLVNAQIDGHELTDEFGFFVMLLAVA
GNETTRNAITHGMLAFLEHPDQWELFKAERPRSAVEEIIRWATPVNVFQR
TALVDTTLGGQGITAGQRVALFYGSANFDESVEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REMPVRYR

>CYP211B11 (2515714987) *Salinispora pacifica* CNT855

MDASEAVALLTSPPGRLDPYPTYERLRAHGPPVSTAPGFFVVTGYTEADT
VLRNPRFEVMEDEERDGVFPHWQDSPAMISISRSMIRANPPDHSMRRLA
AGVFTPRRVAALREVVAQAADGLVDEMIRAGRGAADVFMGSFAYPLPVT
VICALLGVPTADWARFRHWASDLTGVLPEIITPQELAIADAGASELRDYF
TELIAQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVLLTHPDSATALRGQPELAPGYVEEFLRYDSPVQLTSRTVR
ESVSLAGVELPAGSWLLVLLGAANRDPARFTDPAFDPARRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRHRLTLRGYETLP
VTVGAVPADPGTPAGVALGTP

>CYP105AB28 (2515715437) *Salinispora pacifica* CNT855

MTETASTTTTPGISSTTTSGPASGEVTDAQFPLERGCPFSTPTEYEQIREH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFPFVSTDPE
RKQLQDQPTSMIGMDGAEHAQARRALMGFTVRRMAGLRPRIQQIVDQHI
DEMLSSDQRTADLVEALSLPVPSLVICELLGVYPYADHDFQARSGLIRH
TTPTEVRLRIQKELNTYLGALIDRKVADPTDDLRSQIAKHHAAGTFDRT
SLVSMAFLLLIAGHETTANMISLGVVGLLQHPDQLAMIKEDPEKTAPAVE
ELLRYFTTIADTVTARVATEDVQLGDTTINAGDGVVISGLAADHDPTVFTD
PDRDLERGARHHVAFGFGPHQCIGQTLARMELQIVFDTLFRRIPTLRLA
APLDDIPFKSDAFVYGAERLPVAW

>CYP107FH3 (2515715936) *Salinispora pacifica* CNT855

VPIELDEAFVQDPYAVYEKLRAEGPAHRVRMPPGVPLIGGLPVWLITGYD
AVRAALADSRSLSTDHLRIDGLFAQKDPDRSHRGGFSSALASHMMHTDPPD
HTRLRKLVSKAFTTRAIEALRPRIQQTTDELTAELAGHDTVDDLDAFAFP
LPIRVICLLLGVPVAEQENFRSWSRALVSGHSPEAAATAATEVAAYLGDL
VERKRHATTDDVLTALVAAHDVDDRLTHTELVSTAYLLFIAGFETTLNAL
GNGTLHMLHRDQWTALRADRALLDNAVEEFLRLESPLKHATFRCATESL
RIGDAEIAAGDFVLLAIASANRDPRRFPDPHTLDVRRPAAGHLAFGHGIH
HCLGAPLARVEVRMAFDALLDAFPDMRLATDPAGLRWRNSTIIRGLDSL
VHLNN

>CYP2054A3 (2515715941) *Salinispora pacifica* CNT855

MSISADSEQVQGRFPDPYGAHRDDPYTFLAGLGVFYAPLLDAWCVTQRED
MVAVLRDDRSFSARDHNPRPAVALPDDVNQMFRTWRGAGAVAVGSLDPPA
HAKIRDVLNIGFTPARVRAFEPTMRAVAADLADRIGDAPEFDFIADFAVP
FALEVIGRRLGVPPDDYLDRCRTWSEQRIELMMAQGDADHDRLREFARGLM
EFGEFARSLVRDRVADPRDDLISELLHDGKAGRTLTADEVAVQIPTLIFA
GHMTCAEALGTIFYQQLRSPGGWARVVDRTIPVGDVVEEGLRFDSPLAGM
YRTATRDVTVGGIRLTAGSRLLLLYGAAGRDSRAHACPAAFRPGDGSSGH
LAFGHGIHFCLGAGFARAELRVAVEVLAARMPDLGLAPGRPPRFRPVFPL
RALTEL RVTRSGGGSGP

>CYP161N4 (2515715946) *Salinispora pacifica* CNT855

VNTVAQLPFTQTHVLDVAPALRLLQSRGKVHRVRTPEGVPAWLVTGHAEV
QQLLDDDLRSRSDPGGRDGGTALLNKLLGPLADDHPRLRSLLEPQFTPER
LEPLRAVVEKLTEQHLDELAARTPPVDLRPALAMSLPILVLCEWLGVP
AE DKGRFSVWTQDAAGVQDPERSQRGLAELFGYCRQLVAAKRQDPGDDVISR
LIATAGIGDTEVVALTALLLFGGYETTVARIGTGVLNLLTNPDQWAAVRA
DPALVPATVDELLRRSMPNPNHNGMPRFAVTGFEIDGAAIRAGDLVLLNI
IAANHDETAFPDPDRDLITRPTAGSLAFGYGRHSCVGAPLARMVLRVALS
RLITRFPELRLAVGVDELKLRHETLVGGGLVELPVTWGP

>CYP208A22 (2515716025) *Salinispora pacifica* CNT855

MTVIADRGGRIPPGPPVTAGLRLLLLALGRDRLGMMTSAAA EYGDVARLPV
GPKKLYFFNHPDHAKHVLADNHANYQKGIGLVHARRALGDGLLTSEGELW
RKQRRVIQPAFQNRRLAQYAGAVGQEATRLVARLATRVDPGPPVDVLDEMT
RLTLGVLGRTLDDAELTGFGHVGESFAAVQDQAMFELETNTVPTWIPLR
RQRRFRRARQHLQEVVDVLA AERGQAVEGRDDVLSRLILSTRAEADPQLG
RERLRDELVTLLLAGHETTASTLGWSLHLLDQHPELRERVRHEARTVLGD
RVPAYEDLHQLRYTAMVVEEAIRLYPPVWILTRKARAEDEIGGYRVPAGA

DILICPYTLHRHPRFWAEPERFDPERFDPSRTTDRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLAVLLRDLRLEGLPGRAVVPEPMLSLRVRGGLPMTVR
RVD

>CYP1278B5 (2515716726) *Salinispora pacifica* CNT855

MPSPIGTVVHPNYPYPYAAAMVAERPLHFDEQLDTWVAASAAAVQAVLTAP
GCWVRPPHEPVPQGITGTAGDVFGNLVRMTDGEPOHRLKAIVTQTLGAV
DRTTVAATAAQRAQQILNDPVRTPYEQLMFELPAQVVAMLCGLDPAAGGE
ASRLVGRFVQCIPAAASPEQQQRAARAAAGLQELLGPKLDDTQHGLLGDL
VRMATQVNWTDRAPLLANGIGVLSQTYDATAALMGNTLLALSQQERERPA
GETALERFVREVIRHDAPVQNTRRFTTTPIRHGAVEVPAGQAILVLLAAA
NRDPAANPNPHTFRADRTAPTFTFSAGAHRRPGEMLAVTVVTTVVEQLL
KVGFEPAASLSTQVTYRPSPNTRIPVLTDQAGT

>CYP107N4 (2515716908) *Salinispora pacifica* CNT855

MTTRDLRFGAFLSPLHPPGSDPTWLIANDLALVEHVDRLGFDEFWIGHH
SGGWGIVSSPEVFLAAAAERTRHLRLGTGVVSLPYHNPFMVASRIVQLDH
MTRGRVMLGVGAGSLPSDAHMI GVEPGQQRPRTAELDAVLHLLRSDEPL
TMSTDWFDLRDARLQLRPYQHDLEVAISSAASPFMSRLAGRHGLSPLSFS
AGLPGVGVANLPRQWAHAETATGAGRVVSRDDWRLVSVHVAPTTEQAY
AEVRSGRHWLQGYFGDLIGLPVTPEGVEPGEELEAMVESGGAI VGS PRD
CIEAIERLQGVTTGGFGTLLVTVDWAGPQQVRNSFELLASEVVP HFRGSL
RRIEDSRRVWTQQRGVLVPKAVTALQAVLAPEPPTPETRPEAAPAPSGAP
AYPFGPPEKLEPDPHWARLREHEPVSRVTL PFGGEAWLATRYKDVRTVFA
DRRFSRAAAVAEGAPRFFSQQPPDAILSMDDPDHTRLRRLVGKAFGPKR
MEQLRPRVQQITDELLAEMERRHPVVDLVEDFSIPLSVTVICELLGVPT
DRDRFRVWSNAVLSTTAFTPEQAARYQAELHTYL GELVARHRAKPGDNLL
GQLASNQDEDVLSESELLRLGESILIAGHETTASHIPNFVYTLLRHPEAL
EKL RGE PALIPDAVQELLRFVPIGAVDGM PRVATEDLQLQGV LIRK GDAV
LPSMG SANHDERAFADPDRLDITRGSNPHVAFGN GPHHCLGAPLAVVELE
IALSSLLTRFTGLRLAVPEDELRWKNGLIVRGLEAMPVTW

>CYP107AY9 (2515717548) *Salinispora pacifica* CNT855

MSQDQPTRAELAPIPRSGARIGPEYDQLRKTGDVHQVLLPDTSMALVTS
PDLVSRALADPRLALNRKHSRGWSGFALPPALDANLLNDAPDHTRLRR
LVGPAFSPQRVAALRPRIQRTAEELAETMVATGSPVDLVTGYCTPLSVQV
IADLLGVPDAGRTDLRAWTDMLTSYPPDRDAIRQAVVELHGYVVNLIEA
KQQRPGDDL LSALVATEQEGDRLTRDELTS LAFLILFAGYENTANLIAS T
VLRLLDHGSLRGVRVSEAIEETLRLEPPAPAAIRRFPT EMTIGGATIPA
GDTVLLSIAAATRGADGNPARLAFGN GPHYCLGAALARVEAEEAITVLAR
RLPGLALAVPGAPVRWRPTFRTHGPAELLVAV

>CYP1005A6 (2515717700) *Salinispora pacifica* CNT855

VSAVLFRSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLT DQVTY
RPDNALDAVTPI PVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQR PWLT ELVAERVA AIRATLDSGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAAL ELFWAPLDADRQLALADEVGRFHQV LREFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFL TLLLHRLAGEP
AVRAALRDGSVSVPNVVEEGLRLEPPIV TWRRVA AVDSTLGGTAVPAGTS
VLLWLARAGRDPAIVSAPDEF RFGQQGSRRHLAFGAGAHRC LGDQLARME
AAVVVERVSPLLDGVTVVRAPWYPDNL TFRMPDAFVIRRG PAGAAER

>CYP107E37 (2515718055) *Salinispora pacifica* CNT855

VTIDQEIREYPPFRESRGIGIDPTYELLRRTEPLARVQLPYGEVSWLVTRY
EDVKTVLTDPRFSRAAAQGKDQPRTRAEMTYEGIIIGLDPPDHTRLRRLAG
KALTARRVNAIRADAQRIANEYVDEMIAKGSPGDLVELFALPYPVTVICE
LLGVPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFDYMGKLVAQRRAEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTGIVETVSTHIPPVYALLT
HPELMAQLRADRSLVPAAVEELLRMIPLNPAAMFPRYAVEDVTLSGITVR
AGQPVLVSLPGANRDPEVFENPETFDFTREQNPHVAFGHGPHHCLGAQLA
RMELQVALHTVLDLRFDPDLRLADGDEGVSWKSGLLVRGPSRLLVGW

>CYP211B19 (2517958869) *Salinispora pacifica* CNS996

MDASEAVALLTSPPGRRDPYPTYERLRAHGPPVATAAGFVVTGYTEADTV
LRSRPFVMDDEERDGVFPHWQDSPAMMSISQSMIRANPPDHSRMRRLAA
GVFTPRRVAALREVVAQADELIDELIRAGRGAPVDFLGSFAYPLPVTV
ICALLGVPAADWAQFRRWASELTAVLEPEITPQELAVADAGATELRDYFT
ELIAQRRRDPADDLTALVQAHAAGDRLSGEELLANLVLLLIVAGFETTT
NLLGNGLFVLLTHPDSATALRGQPELAPSYVEELLRYDSPVQLTSRTVRE
SVTLGGVELPAGSWLLVLLGAANRDPARFTDPARFDPGRAQSPPLSFGAG
AHYCLGAGLARLEAQVAFPLLLRRLPELSLAGEPVRRSRLTLRGYETLPV
TVGAVAADHGTPAGAALGTP

>CYP105AB29 (2517959662) *Salinispora pacifica* CNS996

MTETASITTPGTSSTTTSGPASGQVTDAEFFPVERGCPFSTPVEYEQIRDH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFPFVSTDPE
RKQLQDQPTSMIGMDGAEHAQARRALMGFTVRRMAGLRPRIQQIVDQHI
DEMLSSEQRSADLVEALSPLVPSLVICELLGVADHDFQAHSGPLIRH
TTPSEVRLRIQEELNTYLALIDRKVTDPTDDLLSRQIAKQHAAGTFNRT
SLVSM AFLLLIAGHETTANMISLGVVGLLQHPDQLAMIKEDPEKTPPAVE
ELLRYFTIADTVTARVATEDVQLGDTTINAGDGVVISGLAADHDPTVFTD
PDRIDLERGARRHVAFGFGPHQCIGQTLARLELQIVFDTLFRRIPTLRLA
APLDDIPFKSDAFVYGAEKLPVAV

>CYP244A5 (2517960241) *Salinispora pacifica* CNS996

MSATTNAELGEAPETSMPIDPGLFDCMPDLIAAARIAPVVRIPYLGRHAW
VVCDELVKQALTHPKMGKDIALVPEWMRQFGLMVTAQPPPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGEQVADKVEGFLDELSKAAAGSNAEV
DVVTNYTHKIPLAFISEMLGLPPAAEHRLRSITDIMLYSSDYAARREAIG
GLFGAVEEWVRNPDGLRDGVITGLLAGSDGPGAAVTEGEVIVWTLGMIIT
GYETTGLSLISTSLYEALRRPPHERPRTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRQPGEGADSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAKIAVRGFLRRFPQARLSADTAVQWESEWMIRRM
SSLPAVLS

>CYP245A11 (2517960245) *Salinispora pacifica* CNS996

MSSTTLPRFTLTGWNREDIVNPYPVYRRYREVAAVHRGEAGGDAPETFYV
FSYDQVAQVLSSSCFGRGRSLDATAASVPVPADQKALRAVVENWLVFMDP
PRHTELRSLLNRSFSPRIVTGLRPRIARIAQELLSRLGGQVETDLVEGFA
APLPILVIAELLGIPAGRHWLRTNALALQEASSSRARRDTAGYARAEAA
AQEFTEYFREQVRLRRGSTGDDLLTILANAQLRGVPVSLDAVVGTAVHLL
TAGHETTTNSLAKAVLALQAHPAVLEELRGADGLTADSIEEFRLRYDPPVQ
AVTRWTHQDCTLGGWEVPRGSRVALLGSANRDPARFPLPDALDVHRPAD
RHLGFGGLGIHYCLGATLARAELEIGLQTLNGLPTLGYPAQYVDYADDMV
FHGPSRLILVNPGERFCQ

>CYP211C6 (2517960273) *Salinispora pacifica* CNS996

VPDIEGLLTRLYSAQGRQDPYPVYADLHAQAAIAALEPRPERQRVAHAV
GYDLVAAVLRDPDFWKQPPPDWRDQEILRILQSSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVINRVTDDELLDRMADAGPGGVDFVAEFAYPLPARVM
AEFIGIPATELAWYRERVDRVDAFLDVAGKTPERLAAANAAGAE LRSFYR
ELLAHRRRTPGEDLISGLVEAVDAGGVELTEDELISNLIVLFNASFVTTV
YLLSNGLPVLLAHPEVAAALASSPELAAGAVDEILRLQTPVHLLARAAPR
DMVLGGVSI PQGQSVLLLLIAAANRDPAHFPAPDRFDP RRSPPSLAFGLG
LHYCLGAAVSRLEGRLLPRLLSRFPRLRILEQPVYSGSLFLRGIDKLSV
SPGGREHP

>CYP125A66 (2517960404) *Salinispora pacifica* CNS996

MTEPRIPVGFDFTDPAVLERRVPREEFAELRR TAPVWWNAQPKGSAGFDD
DGYWVVTRYADVMASRDSETYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPP EHTKLRAIVSRGFTPRAINALRGS LGERAERIVRDAAGRGTGDFV
TDVACELPLQAI AELIGVPQHHRKVF DWSNQLIGYDDPAYGV DPLAASA
ELLYAMEMAHERQRNPSDDLVTQLVNAQIDGEHLTADEFGFFVMLLAVA
GNETTRNAITHGMLAFLENPEQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLAGQAI SAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGSGGVHFC LGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REL PVRYH

>CYP107CL2 (2517960446) *Salinispora pacifica* CNS996

LQITPEFMHDPYPVYVGM RDSAPIHLS DANAGRTWFVPRYHDVIDVLRDD
RFS AALKAPAFINQFPPEQRAQFQPFNQSIAGWVVLQDPPAHRQLRQLMN
KGFT RHLVAALRPKVTEIATGLVD TMATRRSGDFMTDFAQFPFAAVIATM
FGVPAADLSAFISWSDDIVL FAGSLRPTVEVARAAQNGLLSMTEFFRQLL
PQRRADPGDDVISLLVSVRDNGEQLTDEQVLANCAQLIVAGHETTRNLVA
NGLWTTLLSHPDQLAKLRADPSLMTSAIREMMRFESPLQFVRRVARDDFDY
LGVRIQAQDGVV TMLGSANRDPAFFTEPDRFDITRNPTGHVALGYGPHIC
LGAALAEMETEVALG LLLERFPDLRAVDEQPERVMNPMLRGFAELRLSW

>CYP1056B2 (2517960455) *Salinispora pacifica* CNS996

LRHVDFLSPELGDELWRVFARYRREQPVVWVSSVRMFCVFRHADIR TALT
SPDFTVDY PFRVSRQVFGPTLLDFDGRHTILRRRLGGLLVGRDDNVAFT
GPIERSVADVLDGLDG VAGFDFVPTVARRLPEAVTAAFLGIPQADREWVY
AHLRYLLDHLDGSSRDFAVATELRREVSALVGRLLADPGQAEHTVLGR LG
NARRAGELDPEDAVGMALLVLAAGVETSTGMLANTMATLARFPRWATAGR
DDDVLGRVVREVLRWQPPQMDTVRFARRDTTLAGVPI PAGRPLKLLLAS
GNRDEDVFTEAE EFRPDREERASLSFGHGAHSCLGTHLAVAVATRFFAAF
LRRHPGATVPGPV PPIGGWTFRQPVTLPVRLGGPDPVGATATEGGQR

>CYP107AW6 (2517960795) *Salinispora pacifica* CNS996

VETVTGTSAPPPVPYIADPYPTLARIRANGPV SILHSDEGVPMWVIARYR
EVRAALADPRFGQDARRAQALADNRVAGVTLG GDIVHMLNSDPPDHTRLR
RHHVQGAFTARRVAAMRPLVERITTSLLDGLAGRKTVDLVQDLAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAVFATALREMTDYIAVQLRLR
RSRPGDDLLTELLAARDAGQLTDDEIVGMVFLLLIGGHETTVNLLGTATL
ALLRNPDQHRWLLANGHALPEAIDEFLRYESPVAMATLRFTTTPTVTDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILD RRD TGHLAFGHGLHRC LGA

FLGKLEGEVALGALLRRHPKLALATEVRQLQWRDTIMLRGLESIPVSLHG

>CYP107AX9 (2517960807) *Salinispora pacifica* CNS996

VTAQPAPVFDQRLLRDPHRRYNALRDQAPVHRV RTPDGAPAWLVTRYDDV
RAAFIDPRLSVDKRFSGTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVEKTVSTLLDGLAGNDHAELIGSLASPLPLQVMHEL
LGLPTQTSVDFRTWTNTLLSADANQPAQSRSAMANMRRFLIEQVAHKRAQ
PGDILLTGLLCVREDDDGTLTDELVAMLFLLMFAGYDNTAALIGNVIHAL
LTNVELAEAVRTGSLAVDELVDGVLRWNP SFPLAVRRFAREPIT IAGRTI
PAGDRIWLCLASANRDP AHFTEPDEIGIADMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVASLFD RFPGVRLAVPVQDIQWRESFRLRGLVALPVSL

>CYP208A21 (2517960820) *Salinispora pacifica* CNS996

MTTTSIDRRRPPGPPRAAALSMLLTMSRDRLGMMTAAARAYGDAAWLPVG
HKALYFFNHPDYAKHVLTDNSDNYTKGIGLVHARRALGDGLLTSEGELWR
EQRRVIRPSFRSGRAPDQASVIAEEVASLVERLRARAGPPVNVVTEFTG
LTLGVLGRITLLDVDLTALATVGDAFAAVQDQAMFELVTL SAVPTWIPLTR
QRRFRRARAELEIRIVDDLVAGRGDVSGRDDVLSRLILSTGAEPDARVRRQ
RLRDELVTLLLAGHETTASTLGWTLYLIDRHPPVRELRRAEAVEVLGDRL
PVYRDLPLDRFTTMVVQEAMRLYPPVWLLPRRSRRADRVGPYRVPAGSDV
VVSPYTMHRHPGFWEFDPDRFDPLRFDPRNAADRPRYAYLPFGAGPRVCVG
SNLGMMEAVIAVAMLCRELRLVRVP THAAVPEPMLSRLIRGGLPMSVHLA
D

>CYP154M16 (2517960832) *Salinispora pacifica* CNS996

MPDRCPVLDP SGRIHAEADRLRAQAPAVKVELPGGVHAW SITSYDVVKR
LLLDRNVTKNARNHWPKFINDEIPPDWEMISWVAMDNMVTAYGKHLVRLR
RLIAKAFTAQRVETVRPQVEKLVDEL LDGLAAETGEVVDLREKFCYPLPA
LLIAELIGMTEQQRAQTAKAMDLMVDTTVSPDQAQAILTGWRTAMDELIA
AKRREP GKDIASDLIAARDDENGGLT DSELTD TIFAILGAGSETTINFL
DNAVTALVTHPGQLELVRSGRAGWDDVIDEVL RVQCPLASLPLRYAVTDI
ELDGVTIPQGDPI LINYAAAGRDPALHGD TAGEFDVFRENKEHVSFGHGP
HYCLGAGIARLVATIGLSRLFERFPDLRLAVPVEELQPLPTFIMNGHRAL
PVRLVPAPAAATAV

>CYP163B20 (2517960938) *Salinispora pacifica* CNS996

VTATEAKYVGQVGNRNVASTIDLADPATFAGHDLTNFWQRLRDEEPIYWN
PPTGGRRGFVWLSRHADILEVYRDDMTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHAELRKLLLRALGPRVLGPVCRAVRANTRQMIGEAAAANGECD
FATDIASRIPMITISNLLGVPEADRASLLKMTKTALSADDESISD TDSEM
ARNEILLYFQDFVEFRKNPGE DVVSMLVNSSIDGVPLSDDDIVLNCYSL
IIGGDETSRLTMIDSINTLAANPGQWRRLKEGRCDIDKAVDEVLRWASPS
MHFGRTAVRETVIHGERIQVDDIVTLWGASGNRDERAFKRPEVFDLDRAP
NRHLSFGHGHPHYCIGSYLAKVEISELLIALRDLILGFEVIGVPQIRIRSNL
LSGFSTMPVRFDADRTGLASEAREG

>CYP105BL1 (2517960971) *Salinispora pacifica* CNS996

MSAHPAATPGSGPAPSLNELTPELTYPQFDRPNPFDPPE TYTELSSRCPV
APVRMPSGQSSWLITSFEGARKVLS DPRFSADMSRPGFPNLNDKPVDVVL
KDTLRHVDGEEHMHYRRTLTGEFSVKRMEALRPVITQFTDDALDQLAAAG
SGADLIK HVARVVP SRVVCHLIGVPFSDFEFFNEMVSTLMDTSSSADQIR
SAKQGLDSYFDQLITDREHHDQDDLGRMVRRYLATGELTREEVAELAWI
TLAGGQETT PHMIGLVATLLRHPDQLKLLQQEPALLPGAMDELLRYLTV

VHLGMPRVAVADVEIDGQTVAAAGEGVVALLPLANRDPSVFERPNELDIRR
NARQHLTFSYGP HQCPGH TLARLELEVVFGR LMERFPNLRLADENTELKT
RDKAIVYGLTELAVAW

>CYP1005A8 (2517961658) *Salinispora pacifica* CNS996

VSAVLFRSWTKTVGTHWPAVTRVADQQGTEHLVVTEHELVRQVLTDQVTY
RPDNALDAVTPIPVPALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTKLVAERVAAIGATLDSGGAADLHAELSADLPLLVLAR
LVLELPDAPVSAVKQFARAALALFWAPLDADRQLALADEVGRFHVQLREFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHLRLAGEP
AVRAALRDGDVSVANVVEEGLRLEPPIVTWRRVAAVDSTLGGTAVPAGTS
VLLWLARAGRDPAIVPAPDEFPRPGQRGSRRHLAFGAGAHRC LGDQLARME
AAVVVEQAAPLLDGISVVRAPWYPDNLTFRMPDAFVIRR

>CYP162A8 (2517961674) *Salinispora pacifica* CNS996

MISPDLSDP TFYQNGDPLPVWAE LRREHPVYDNRRADGTRI WAVMTHKLC
TDMLTNPKVFSSANGMRLDSNPRVLARAAGKMLNVTDPQHDKIRKLVSS
AFTPRTIRRLEANMRATAGRAIDTAIADGGCELTRLAHKLPVSVICDLLG
VPEQDWDFMAERTRFAWGSTAADDREEVEKVAAHTEIMAYFLDLAADRRK
RPMEDLV SALVHGEVDGRALTD EDVLYNCDALLSGGNETTRHATVGGFLA
FVMNPDEWSAIRQNRDLLPSAIQEIVRYTSPVMHSLRTATRDVEFGGINI
RAGEYVVAWLP SANRDEQLFDDPDRFNIRRS PNRHLGFIQGNHYCIGAGL
ATMELGVMFDELLNRVSEVRLAGPARRLR SNLLWGFD SLPVTFHVGAGR

>CYP1278A3 (2517962062) *Salinispora pacifica* CNS996

MPSPVGAVVHPNPYPYAAAMVAERPFFHFDEQLD TWVAASAAAVQAVLTAP
GCRVRPPHEPVPQGITGTGPAGDVFGNLVRMADGEPQHRLKAIVTQTLGAV
DRSDVAATAMQRRARQVLNDSVRTPYEQLMFELPAQVVATLCGLDPAAGGE
ATRLVGHFVQCIPATASPEQQQRAAQAAVGLQELLGPKLDDTQHGLLGDL
VRLATHVWGADRAPLLANGIGFLSQTYDATAALMGNTLLALSQQECELPT
SEMALQRFVREVIRHDAPIQNTRRFTATPIRHGDVEVPAGQAVLVLLAAA
NRDPAANPDPHMFRA DRTPNVFTFSAGAHHC PGETLAVTIVTTVVEQLL
TVGFHPAKLSTRVTYRSPNARIPVLTE

>CYP107AY7 (2517962194) *Salinispora pacifica* CNS996

MRAEPAPIPRSGARLGQEYDQLRKTDGVHQVLLPDTSLAWLVTSPELVSR
ALADPRLALNRKHSRGGWSGFALPPALDANLLNL DAPDHTRLRRLVGPAF
SPQ RVAALRPRIERTAEELVDTVVATGSPVDLVTGYCTPLSVQVIADLLG
VPEAGR TD LRAWTD TMLTSYPPDRDAIRQAVVELHG YV VNLIEAKQQRPG
DDL LSALVATEQEGDRLTRDELTS LAFLILFAGYENTANLI ASTVLRLLD
HGSLRGVRASEAIEETLRLEPPAPAAIRRFPIEETTIGGATIPAGDTVLL
SIAAATRGTDGNSARLAFGN GPHFCLGAALARVEAEEAITVLARRLP SLA
LAVPGAPVRWRPTFRTHGPAELLVTW

>CYP2091A1 (2517962610) *Salinispora pacifica* CNS996

VRAGPATTTAPGIPVHLERGAHWLHRVRDDDPY AALLTG FDEDPVPAYER
IRARGPLWRSSVGDWVTADHEVATLVERDPRFAPAGLAADV RGWAGLNPA
ALDRHRNAVRRRC DQLTDALPARFDLVTDYAE RVAAEAVADLLGRSTVPV
GRLAEVLHAVRTGPDGD LAPQRLRDQRAFDDGLAE LRRLAPEHPTGPAPT
AGPDPLL LATFGARITVN LIVGVLLAATRQ PATT AHSGIAALLAETVRHD
PPLTMYPVCLRADVETTGQRLRTGDRLVVVVAGANRDP RVFHEPDRFMPH

RALAGPDRRI RTPGPAYRALADCCHAQAVMAVEALRRRHPR LWPGPVLR
RGRAPVTRGPARCPIVTEHREVEDR

>CYP107CT3 (2517962824) *Salinispora pacifica* CNS996

MIGASGDR TGQCPIALDHD FYADPH PAYRVIKENG NKPTPIVLKTGMAYL
PPGLEAWLV TAYEDVEFVLRDPRFRK SIDEAMPLFAAQSGGTVAARGSL
YNNMANNDP PVHTRLRKPLNAMFTARSVAGRRDVVRSAALETLEKVAGSQ
TFDLVQDFAFPFSISVISRTLGVPDADRGT FHGWVQTITGDAPPEILRRD
AGLMVEYLRGLIRGRRESAGNGTDDVLTLLATSLAEDEAVAQAYALLAAG
YETTANLIVTGFLT LAAHPEQLRRLWSDPGLVPDAVEEMLRHQSPFNLSL
YRYVTEPVELNGVRI PRGAIVFLAFAAANRDECRFTEPDSFDITQPHRDH
LAFGGGIHNCIGKHLARMEAQVAFETLIERCPGLAVHTPDEEFDWKASPT
FRGLRTL RVGPGPAPGGWEREQ

>CYP113R3 (2517963774) *Salinispora pacifica* CNS996

MTSSAGQKDPSEELFSWLRTMLETRPVYRDEENGWQVFGYADISRTLADT
TTFSSDTARAFNPPQPDLDFFDMGNLVTTDPPRHRKLRSVISSMFTPRAV
AGLSARIERITHSLDSDV DGEERFELVETLTYALPITVICELIGLPMQDE
PLFRVWGDALGTIDAATVPPEQLENEVAPAI REMNEYLLAHARKRRRQPA
DDVISRLANAKIDDRPLEDGEIVGVIGLTMFAGHATTMALTGNAVLLFDS
HPEVDAAVRADRDLLPGAIEEILRLKPPFPRLARITTTDTEIGSHAVPAG
ELVTPWIAAANRDATRFDPETFDIHRNTGGHLVFGQGS HFCLGAPLARL
EGRIALNALLDRYAKISIDHDCGLEFENPWQLISPRRLPVAVKPL

>CYP105BL2 (2515745073) *Salinispora arenicola* CNT850

MSSHSAAAPDPETATPLHTLAPELAFFQFERSAPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTLSDPRFSSDM SHPGFPNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVP SRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHDRDDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDP AVFERPDEL DVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP208A12 (2515745906) *Salinispora arenicola* CNT850

MTLDTITPRVPLGPPTAALRMLLV MKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPV ELTAELTG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELET LNAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTL SLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRV PANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVP GHRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP1005A1 (2515746317) *Salinispora arenicola* CNT850

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLT DQATY
RPDNAL EAVTPI PVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQR PWLTGLVADRVASIRTTLD SGGPVDLYADLTADLPLLVLAR

LVELPDAPVNAVKQFARAALFELFWAPLDADRQLALADEVGRFHQVIREFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLHRLSGEP
TIRAALRAGSISVADVVEEGLRLEPPIVWRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFRPGQRGSRRLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTIVRPPWYPDNLTFRMPDAFVVR

>CYP166A4 (2515746438) *Salinispora arenicola* CNT850

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGWIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRSRLTGHERVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLYHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIERETS GHVAFGFGIHCCLGQN
LARVELRAGLSALLRAFPNRLRLAVPADEVPLRLQGSVFVKNLPVCW

>CYP107AX13 (2515746595) *Salinispora arenicola* CNT850

VTSPPHVAFGHLLRDPHGQYNALRGQAPVHHIRTPDGAPAWLVMRYDDV
RAALTDPRLSVDKRFSDTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADQAPAVATIVDALLDGIAGQDQAEILVGLASPLPLQVMHEL
LGLPTQTSVDFRNWTNTLLSADANQPAQSRSAMATMRQFLMGQLARKRAQ
PGDDLLTGLLAARDDDDRFTDDELLAMVFLMFAGYDNTAALIGNVTHAL
LTDAGLHDAVRAGSVDLDSVVDEVLRWNPSFPLAVRRFAREFVPTIAGHTI
PAGDRVWLCLASANRDPAQFTEPDELGITPARRPHLAFGHGHIHYCLGAPL
ARLQTTVAVASLLDRYPGIRLAVPAHELRLWRESFRVRGLAALPVRL

>CYP105CP2 (2515746729) *Salinispora arenicola* CNT850

MTKSMPVQDLPAFFIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSA HARAVLSDYRRVSIKPYHGNYPLNEEFEKVVD SGYADVLFVGDPP
EHTRQRQMIMPSFTLRRTAVLRPDIQRIVDDKLDEM MRHGAPGDLVTEFA
QPVP SMVISFLLGVPWEDHEEFETPAHKLFVPELAEAEATTEL GAYLERLI
QKKEQPGGTGGTGLLDDLRDHLRAGALS RDELVHIAMAMLVAGTDTTT
NVISLGLTALLDNPQWAAALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLR TAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2515746731) *Salinispora arenicola* CNT850

MAAPAPQATPSTTPHPPSYPLPRECPYRPSAGTAHLRDAGPVSTVRLYDG
RTAWLV TGAAEARALLADSRVSNRADFPNYPVM DERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVYPYQDRTRFEPAVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYTALVDNPDLPV GAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNH LAFSHGIIHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPTW

>CYP107FS2 (2515746732) *Salinispora arenicola* CNT850

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGM PAVLVTGNRE

ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPFADRSEFERHAEVLTGINASSGFDALIAAGRWFDEYLAGLVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLLSAGFETTVNLIAN
GLLALLRHPEAMAAALRSEPNLMTTAVDELRLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAANHDPTVFAAPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRLRRLAGLRLAVPTDSLWVKASFVLHRLRLPV
TFTPDRDPNFIDSVHTV

>CYP125G6 (251574677) *Salinispora arenicola* CNT850

VPTLLNEHVSYDGAIAIVDSGATSWIRLAERVNRVHLLRAHGLDGTGD
RLACVTGNRRETFEVLLAALHTGVTVPVNVHLLTVTEIGHILSDSGSRVV
ITEELHVKAFAAAADGTAGPVAGLVLGDRVEGFAAVEPLLAASPAEPE
GQVCGATMLYTSGTTGRPKGVVNNLFVTGAPYARVGRLCDYARSVLGVP
RERMLLDGFPWYHSSQLFFALLSLLQGSRLVIRPYFDPAATLKTIDDHRIT
VTHLVPTQLVRLLRVDALTRQMFSGASLRRVWHGGGCPPEVKRSMIDWW
GPVLVEYYGATEGGVVTLIDSAEWLARPGSVGRAVPPSEVVVVDDGGQSV
AAGQTGQVFFRRRTGNRFHYHNAPEKTQAAYLAPDTFTYGEVGHVDEG
LFLTGRAQDMIVSGGVNVYPAEVEAALLRHPVVRDAAVIGVADDEFGERV
VGIVVPETAVDPDDLATHLDAHCRVSLAGFKVPRTYRVESLPRDETGKL
RKDALRSKFGWLSGAAMTVPRPATGQPTAHRPDIAHPTTYVSGVPHDEFA
RRRRDEPVGWVAEPVLTRHTAAGRTATRGSGFWAVTRYEDVVAASRRVTD
FSSAAKGAFLLTDPRTPADLQQAQQLLVNMDDPHHARLRKLVTSTVFTPRV
RGLLASIDAHAAALVAKVVAAGEFDVVTDLAAELPLLVLADLLGVPKQDR
ALLYGWSNHLVGFDPDFGGGDIDAYRTAMAEAFQYALNLGVERRARPTD
DLVSLLANAEVDGTRLTDREFCNFWLLLVVAGNETTRHLVAGTMQALTEH
PGECARLVEGRVPMESAVEELLRWVTPIMQFRRTATRDTEIGGQAVTAGE
KVVLYYTSANRDATVFAEPEERLDLGRTPNRQLSFGIGPHYCLGAHLARAE
LTALLRVMSPHLGSLQLTGVPVSRLASNFVNGVKAMPAVIGSR

>CYP154M15 (2515746796) *Salinispora arenicola* CNT850

MNDKCPFAALDVTGQDLHGEEARLREQGPAVLVELPGGVKAWSINRYEVI
RELLMDRRVTKNARKHWPFIKGEIPPDWEMISWVAMDNMVTAYGKDHVR
LRKLVGRAFTQRRADALRPQVVALSTKLLDDLGGATPPGEVVDLRERFAYP
LPAMLVASLIGMSEAALAACSKVIDMMVHTNVSPEEAQAVLQGWRAAMAD
LIESKRRTPGEDITTDLIAAREEDGSRLSEAELADTIFAILGAGSETTIN
FFDNAITALLSRPGQLQLLRTGAVTWDDVIDEVLRVESPLAHLPLRYAVE
DIELDGVTIPQGDPILVNYYAAGRDPALHGGTADEFDLARGDKTHLSFGY
GPHYCLGAGIARMVATIGLSMLFERFPDLSLAVPATELKRLLPTFIMNGHQ
TLPVRLTVHAR

>CYP125A41 (2515747243) *Salinispora arenicola* CNT850

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTAPVWVNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGDV
TDVACELPLQAIAGELIGVPQHRRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAEERQSPSDDLVTKLVAQIDGHLTTDEFGGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERPKSAVEEIIRWATPVNVFQR
TALVDTVLLGGQAIASAGQVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP1051A1 (2515747397) *Salinispora arenicola* CNT850

MATDAAITRARTVPAWKALPAAVRDTHRAFDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLEHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAIDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDILLPVLRQAQRQPDDGDDLLSRLVHARADDGRALSE
KMRDDLVSMAVATTETSTVVLTWLVPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDILGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMI
LKPVAPVPPAR

>CYP105G5 (2515747423) *Salinispora arenicola* CNT850

LTIETTETPPADDSLAPLPRQFMQRDDPSKLPPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDDELVGIA
TLLLFLAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGAAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPDPETLDV
TRVRSSHLAFGHGVHQCLGQQALARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTF

>CYP107Q4 (2515747424) *Salinispora arenicola* CNT850

MTTTAETSATIDLFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPFRFLTNPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSYALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIANRAEPQDDLVLTALVQAQAEQDQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKDNPSPMPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI
DRLAVGSEHGLGFGKGIHRCLGQHLAYQEAVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP244A4 (2515747478) *Salinispora arenicola* CNT850

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQALTHPKMGKDIALVPEWMRQPGMLVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGFLDELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGLISTSLYEAIRPPHERPKTDEDITAWIEETLRVHPPFPHPPTW
RFPLEDIELGGYLIPIKGAPVQVSIAAANRKPGEAGDSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP245A7 (2515747482) *Salinispora arenicola* CNT850

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRSLLNRSFSPRIVTELPRPRIARIAQELLRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSRAGRVDVGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPTVLDELGAEGLTDDAVEEFLRYDPPVQ
AVTRWAHQDITLGGCDIPRGSRVVALLGSANRDPARFSPDVLDVRRPAD
RHLSFGLGIHYCLGATLARAEEIIGLQALLDGVPITLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP211C1 (2515747985) *Salinispora arenicola* CNT850

VVDVEELLTRLYSAQGRQDPFPVYADLHARGPIAALPPEPERRRVAAVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAELEAFYF
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPIFQGNVLLLLIAAANRDPAHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGAASRLRGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP154M21 (2515748195) *Salinispora arenicola* CNT850

MEKCPYVLDRAAGSDIHKESNLRRARGPVTLVELHGGYTAVSVTSYEVAKQ
LLMDPRISKNTKAHWPEFRDGNVPQDWELYTWVAMDNMQTRDGKEHDLRL
KLVAFAFTGRQAVKSRPIIEEIVNRLLDDLETAPRGQAVDIKARYFYPLS
TILVCDLLGIAEEDRDVILHGNVVNSKTTNTAESEANLHQWQTALGRV
ETKRRDPGDDLTTVIIKAGEDEQTPLTDDDEVIGSLHLLIGGGTETTANVL
CHTVVDMLTHTPDQLAMVRSGAVSWESAWEEEVKRDGAVGSMPPFRCATDDV
EIGGVTTIAKGDVLVINYAAAGRDPERYGDAAAEFDITRADKANLSFGYGR
HRCGLPALATMEAMVALPALFDRFPNLALAVPPNELKPPQGTFFNGYAEV
PLLLRS

>CYP154M13 (2515748196) *Salinispora arenicola* CNT850

MSTGRPVVLDPTGRDIHGEADHLRALGPATLVELPGGVLAWSINSYEVGK
ALLSAPNVSKSARRHWPAYNGEIPPDWEMISWVAMDNISTTFGGDHRRRL
RRLTAKAFGSRRAEQVRPMATHMVNTLLDRMADAADAGEVVDLKAAFAYP
LPGMLVAELIGMSEEARVAAAKVIDMMTATNITPEQAQGVLLGWRDAITD
LIALKRAQPGDDITSDLIAARDEDGSLLTEQELVDTIFAILGAGSETTIN
FFDNAITQLLTHPEQLELVKSGQVSWDDVIEEVLRLSPLASLPMRFAVE
DIQLDGVTTIHRGDPILINYAALGRDPALHGESAGVFDVTRQHKEHLSFGH
GAHYCLGAGIARMVAKTGLSALFERFPRMTLAVSAKDLVPYPTFIMNGNR
QLPVHLSGALTWREGEQSALGRA

>CYP105W2 (2515748209) *Salinispora arenicola* CNT850

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCFPSPPAEYARLRAEH
SVVRLPMLGGDTAWVVSRRHADVRQVLSDFRMSADRRRPGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVSRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVSSQVICEVLGVYPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDVVVTDKEHRPGDDLLSRLLYRQRRAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGVTTAAGEGVVALGQAANRDPVFEH
PDEFDPDRDARAHAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2515748216) *Salinispora arenicola* CNT850

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWVVSRLFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQMSRNEIVSTVVTFIFTGHETVASQLGNGL
LSLLDHPEQLELMRRQPHLVPPQAVEECLRFDPVQSNTROLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCNPNELAYQPRMTFRGLTRLPVAFTPA

>CYP154M20 (2515748239) *Salinispora arenicola* CNT850

MERCPYVLDRAGRDLHGEAKALRARGPVTLEVELHGGYTAWSVTSYEIAKQ
LLVDPRISKNTKETWPEFREGKVPQDWELYTWVAMDNMQTRDGEEDRLR
KLVAQAFTTRQVAKVRPMIEDIVDRLLDDLEKVPAGEVVDIKGRYFYPLS
TILVCDLLGIPEADRAEALHGTVVNARTTNSAESEANLHQWQSALSCLV
ETKRREPGNDITTLIIKAREDEQAPLTDDEVIGSLHLLIGGGTETTSNVL
CNTLIDLTHPDQMAMIRSGAVGWEAAWEEVEVRKDGAVGSMPPFRCANADI
EIGGVTTIAKGDVLVINYAAAGRDPERYGDTTAEFDITRADKTNLSFGYGR
HRCGLPALATMEAMISLPALFERFPDLVLAVPRDELKPQGTFFVNGYAEV
PMLLRS

>CYP107FJ2 (2515748246) *Salinispora arenicola* CNT850

MSETLSTSVLLADAAEQRAWRAKLRGAGPVHRITTSGETGWLIVGHEEA
RNALVDLRLQGRATVGHGRMPEDLERALNSHMLNVGPPDHTRLRLRLVS
AAFTRRRIEQMRPRIQELTDELLDGLAGADEADLVAGLALPLPMRVLVDL
FGIPAEDCADFNVTWKVLTSAAGVDLDRLLTTAAGEMVAYLRGLLDRKRQV
PESDLSALVAVRDGADRLSDELTSMVYLLLTAGYETTVNLIGNGLLNL
LANPEQLVAFKADPDLLPQVVEEAMRFDSPVQIAVRHSTEPVEIAGQAIP
SGALILVSLWANRDPDRFTEPEAFRVDRQDNPLGFGYGFHHHCIGAPLA
RMEGTIAIGTVIRRFAPALRLAHPAGSLTWRASMVMHGLTALPVHLR

>CYP105AB8 (2515748415) *Salinispora arenicola* CNT850

MTETASSRHTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHRADLVKT
LSLPVPSLVICELLGVADHDFFQEHTATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDLLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLTMIKDDPKTPLAIEELLRFFTTIVDSVTSRV
ATEDVRFQDGTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARRHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP162P1 (2515748449) *Salinispora arenicola* CNT850

MGLPSEVDLAEPDLADPDLYAEGDPDAEWAWLRAHRPVYRNPAGATAEFW
ALTRYDALQVYRDPSTFSSERGMVLGVDPAAGRMLVVTDPVRHP
KLRRIVSGIFVPRMTMRLEGRVRSVLDQLLHRVVGAGRCDFVNDVAARL
PVAIIICELLGVPADEQDWMYHLTSTAFGGGDPAGSAEVSASVERAEAYGDI
LLYYGELAAERRRRPGDDLVTLLVHADLDGEPLDVEDVLVNCTNLIIGGN
ETTRHAASGGLLALAQRPELWRRLRETPTAVPTAVEEVLRWTTPGMHVLR
TATRDTEIGGVPIRAGERVVVWNAANRDEDVFADPQRFIDIDRSPNRHIA
FGQGGHCLGAALARLELTILFEEMAKQVTNVRLTGPFVRRVRSCVLRGIR
ALPVELVT

>CYP107AY2 (2515748588) *Salinispora arenicola* CNT850

MTAEPTPIPRSGARLGQEYDQLRKTDGDVHQVLLPDASLAWLVTNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRLRVGPAPF
SPQ RVAALRPGIRRAAEHLLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRAWTDMLTSYPPDRDAIRRAVTELGHYVVDLIDIKQQQPG
DDL SALVTIEQDGDRLSRDELTSALFLILFAGYENTANLIASAVLWLLD

HGGLNVVPSSEAIEGTLRHEPPAPVAIRRFPTEDTIIGDVTIPAGDTVLL
SVAAATRGADGNAARLAFNGPHYCLGAALARVEAEEALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP211B2 (2515748721) *Salinispora arenicola* CNT850

MDVSEAI AVLISPSGRLDPYPTYEQLRAHG PVSQTTAGLFVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPFWQDSPAIKSIARSMRLTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTQADELVD EMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVLLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPAGSWLLVLLGAANRDP RRFDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGTPAGVAPGTP

>CYP105CH1 (2515749056) *Salinispora arenicola* CNT850

VSSLPLPTYPKLRDPADPLLPPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHFNFPYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRRL LISEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLVGGHETTAN
TLTLATATMLERPEVAEQLR TDPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLV LNTIARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALD TVLRRLPGLHLVAPFEELPFKYRHLVWGIEEL
RVAW

>CYP105J3 (2515749213) *Salinispora arenicola* CNT850

MTDSVAFPPQGRVCPHQ PAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRTNPAWPAIVPIVAAAVNDAQQKVLKIATALVGTGPE
HKAQRKMLIPSF TFRMNALRPMIQEIVDQQ LDEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIF EKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGLVDDL LAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSV PDAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIERLP SLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP107EU1 (2515749294) *Salinispora arenicola* CNT850

VTIGQTL PDLVYSPEFTRDPYAI FARLREQAPVCRVTTHRGMSAWMVTRH
ADV RALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPADDLLTALVQVSADEDRLSREELVSMALLLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRLDITRSTQGNLAMGH
GIHHCVGAAALARLELEIVLSRLVARFPQMQLAVEADDLEWLVNSFFRAPL
HLPVSLRR

>CYP1198B1 (2515749744) *Salinispora arenicola* CNT850

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFG EYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP

GHGRQKRLVSKSFTPRIVKSFGPQITHIVDGLFEDFRDRGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKPNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGIITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDPRAYENPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKHPEVDES
SLEYRRHIVVRGLEHMKVAFQP

>CYP105CT1 (2550298082) *Salinispora arenicola* CNT-088

MNSPNHMPADRSLTAPTSGCPMALSRGGVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTDSDDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGVLHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLTLDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRRFPGLRLAV
PDSELEFTQGTTVYSLRGLPVTW

>CYP125A41 (2550299254) *Salinispora arenicola* CNT-088

MTEPRIIPAGFDFTDPEVLAHRVPREEFAELRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPHEHTKLRAIVSRGFTPRAINALRGSLAERAHEHIVRDAAVRGVGDV
SDVACELPLQAI AELIGVPQHHRKVFWDNSQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQQRSPSDDLVTCLVNAQIDGELTDEFGFFVMLLAVA
GNETTRNAITHGMAAFLDNPEQWELFKAERPKSAREVEEIRWATPVNVFQR
TALVDTVLGGQAI SAGQVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP248A2 (2550299356) *Salinispora arenicola* CNT-088

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHG

>CYP107FS2 (2550299391) *Salinispora arenicola* CNT-088

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVPFADRSEFERHAEVLGTGINASSGFDIAAAGRWFDEYLAELVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETTVNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRLLAGRLAVPTDSLWVKASFVLRRLERLPV
TFTPDRAPNPIDSVHTV

>CYP105CN1 (2550299392) *Salinispora arenicola* CNT-088

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVTGAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVCVTHLGVYPYQDRTRFEPVAVAGLFEPDRAD

AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVPGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHTPDRLDVALP
PTNHAFSHGIIHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPVTW

>CYP105CP2 (2550299394) *Salinispora arenicola* CNT-088

MTKSMPVQDLPAFPIPRECPIYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHAARVLSYRRVSIKPYHGNYPLLNEEFEKVVDSDGYADVLFGVDPP
EHTRQRQMIMPSFTLRRITAVLRPDIQRIVDDKLDMMRHGAPGDLVTEFA
QPVPMSVMSFLLGVPWEDHEEFETPAHKLFVPELAEEATTELGAYLERLI
QKKEQPGGTPGGTGLLDDLRDHLRAGALSDELVHIAMAMLVAGTDTT
NVISLGTALLDNDPDQWAALRDNDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRITAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP211C1 (2550299403) *Salinispora arenicola* CNT-088

VAVGYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMR
HVFAGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPA
RVMAEFIGIPATELDWYRERVDVIDAFLDVAGKTPQRLAANAAGAE
FYGELLARRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFV
TTVYMLSNGLPVLLAHPEVAAAALATDPVLTAGAVDEILRLQAPVHLLARA
APRDTVLGVPPIQGGQNVLLLVAAANRDPAHFPDPDRFDPWRSGPPSLAF
GLGLHYCLGAASVRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDK
LSVSPGEGSTRE

>CYP244A4 (2550299624) *Salinispora arenicola* CNT-088

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLG
VVCDELVKQALTHPKMGKDIALVPEWMRQPGMLVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGFLDELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEAIRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEAGDSFDAERRGHGHSF
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP107Q4 (2550300485) *Salinispora arenicola* CNT-088

MTTTAETSATIDLFSPEVVADPFGWYARLREETGPTTGTNLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRLTNPPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSALTARHIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPRPHWRAGDSMATMNGER
IPTTLVKCIELARELIAKRAEPQDDLVLTALVQAQAEQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLAANTDPRRFPDPNKLII
DRLAVGSEHGLGFKGKIHRCGLGQHLAYQEAVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105G5 (2550300486) *Salinispora arenicola* CNT-088

LTIIETTETPPADDSLRAPLPRQFMQRDDPSKLPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRRAAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTP

>CYP1051A1 (2550300505) *Salinispora arenicola* CNT-088

MATDAAITRARTVPAWKALPAAVRDTHRAFDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAFDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLPWWIPMP
GDRRFRAAVRSIDDILLPVLRQAQRQPDGDDLLSRLVRARADDGRALSE
KRMRDDLVSMAVATTETSTVVLTWLWPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVDELRLYPAGWILPRRAATDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMI
LKPVAPVPAR

>CYP211B2 (2550300908) *Salinispora arenicola* CNT-088

MDVSEAI AVLISPSGRLDPYPTYEQ LRAHG PVSRTTAGL FVV TGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIXIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTAAQADELVDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPADSWLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGT PAGVAPGTP

>CYP105AB8 (2550301157) *Salinispora arenicola* CNT-088

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHRADLVKA
LSLPVPSLVICELLGVYPYADHDFQEHATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDLLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFTTIVDSVTSRV
ATEDVRLGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTL FHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP245A7 (2550301247) *Salinispora arenicola* CNT-088

PPVQAVTRWAHQDTTLGGCDIPRGSRVVALLGSANRDPARFPSPDVLDVR
RPADRHL SFG LGIHYCLGATLARAEELEIGLQALLDGVP TLGYGTQHVDYA
DDL VFHGPSRLVLVNLGERCK

>CYP154M5 (2550301334) *Salinispora arenicola* CNT-088

VEQSCP YKLDVTGRDVHAEGEAI RARGPVAQVELPGGVQGSV TGYQAAR

QVLADPRFAKDPKKWPAYTSGAIPPNWPLIGWLLMDNMTTNDGADHQRLR
KLVSHGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNVTSISGEEAEANVEQWHRELLELV
EAKREKPDDEMASLLIAAKEEDGSTLTQEEVVGTLHLMLGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDPVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPNMTLAVRPDQLEPQGTFFIMNGHREL
PVRLGQPATVLA

>CYP105CH1 (2550302278) *Salinispora arenicola* CNT-088

VSSLPLPTYPKLRDPADPLLPAPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHPNFPYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRRLLI SEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRDPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVNLTARDGTVPFEPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALDTVLRRLPGLHLVAPFEELPFKYRHLVWGIEEL
RVAW

>CYP1198B1 (2550302288) *Salinispora arenicola* CNT-088

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQRLVSKSFTPRIVKSFGPQIAHIVDGLFEDFRDRGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKPNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDPAYESP
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKHPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP107EU1 (2550302320) *Salinispora arenicola* CNT-088

VTIGQTLPLVYSPEFTRDPYAI FARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPADLLTALVQVSADEDRLSREELVSMALLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRDLITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQMQLAVEADDLEWLVNSFFRAPL
HLPVSLRR

>CYP248A2 (2550302578) *Salinispora arenicola* CNT-088

ALAEERREDGADLLALMLAAHRSQILMSRNEIVSTVVTFIFTGHETVASQLG
NGLLSLLDHPEQMELMRRQPHLVPAVEECLRFDPVQSNTRQLVADVEL
HGRRLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYC
LGSYLARLQLRTALGAMVALPDLRLVCSPNELAYQPRMTMFRGLTRLPVAF
TPAG

>CYP245A7 (2550302811) *Salinispora arenicola* CNT-088

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV

FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVMFMDP
PRHTELRSLLNRSFSPRIVTELPRPRIARIAQELLSSRLGQQVDVLDVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDEL

>CYP208A12 (2550303181) *Salinispora arenicola* CNT-088

MTLDTITPRVPLGPPTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAEITG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETINAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHGPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWNPFRFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGPLVVRP
VS

>CYP166A4 (2550303626) *Salinispora arenicola* CNT-088

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFHSKCAVGHFPVTHQGGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHVEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGGGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHCQLGQN
LARVELRAGLSALLRAFPNRLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP105BL2 (2550303802) *Salinispora arenicola* CNT-088

MSSHSAAPDPETATPLHTLAPELTFPQFERSTPFDPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLDPRFSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPSPRVACHLVGIPLSYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHDRDDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIGLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRN
ARQHLTFGYGPHQCBAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP1005A1 (2550303875) *Salinispora arenicola* CNT-088

AGVTPAPGLRAGAHRCGLDQLARMEAAVVVEQATPLLDGVTVVRPPWYPD
NLTFRMPDAFVVR

>CYP1005A1 (2550303876) *Salinispora arenicola* CNT-088

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTQATY
RPDNAMEAVTPVPVAALRVLGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLDSSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVKKQFARAALFWAPLDADRQLALADEVGRFHVQLREFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP

TIRAALRAGSISVADVVEEGLRLEPPIVTWRRVAAVDSTLGGTTVAAGTS
VLLWL

>CYP105W2 (2550304237) *Salinispora arenicola* CNT-088

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRRHADVRQVLSDPRMSADRRRPGFPGFAPTTGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVYPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDMVVTDKERRPGDDVLSRLLYRQRRAGGMDHE
AVVSMAFVLLVAGHVTTSNMIALSVLALLTHPARLARLRAEPERFPAAVE
ELLRYFTVVEAATARTTTAEVTIGGVTIAAGEGVVALGQAANRDPRVFEH
PDEFDPDRDARAHLAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP107AW10 (2561673213) *Salinispora pacifica* CNT133A

VETVTGTSTPPPMPIADPYPTLARIRANGPVSIHSDGIPMWVIARYR
DVRTALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHHVQGAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFPLPMLV
ICELLGFPAEERNAYRSWSTTILTHDDDPAAAFATALREMTDYIAVQLRIR
QTRPGDDILTELLAARDAGQLTDEEIIIGMVFLLLIGGHETTNNLLGTAIL
ALMRNPDQHRWLLANQHALPKAIDEFLRYESPAMATLRFTTTPVTIDDV
VIPAGELVLVSLGGANRDPDRFPEADRLILDRRDTGHLAFGHGLHRCCLGA
FLGKLEGEVALGALLRRHPRLALAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP211B11 (2561673563) *Salinispora pacifica* CNT133A

MDASEAVALLISPPGRLDPYPTYERLRAHGPPVSTAPGFFVVTGYTEADT
LLRNPRFEVMEDEERDGVFPQWQDSPAMISISRSMIRANPPDHSRMRRLA
AGVFTPRRVAALREVVAQAADGLVDEMIRAGRGAAVDFMGSFAYPLPVT
VICALLGVPTADWARFRHWASDLTGVLPEEITPQELAIADAGASELRDYF
TELIAQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVLLTHPDSATALRGQPELAPGYVEEFRLRYDSPVQLTSRMVR
ESVSLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPRRSQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRHRLTLRGYETLP
VTVGAVPADPGTPAGVALGTP

>CYP125A65 (2561673645) *Salinispora pacifica* CNT133A

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMAVSRDSEYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAHEHIVRDAAVRGTGDFV
TDVACELPLQAI AELIGVPQHHRKVF'DWSNQLIGYDDPAYGVDPMAAAA
ELLAYAMEMANERQRNPSDDLVTCLVNAQIDGEHLTTDEFGGFFVMLLAVA
GNETTRNAITHGMLAFLEHPDQWELFKAERPRSAVEEIIIRWATPVNVFQR
TALVDTTLGGQAITAGQRVALFYGSANFDESVEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REMPVRYR

>CYP244A12 (2561674687) *Salinispora pacifica* CNT133A

MQDTAHVNLA EAPTVTMPIELRPTDCLPELLAAARVAPIVRTPYLDQHAW
VVCDELVKQALTHPKLGKDVALAPDWMRQPGQMVTAMPPPEYARMVMS
DGEHHARIRRIHAPVLSRNTGRWSERVAAL IAGFLDNLDSADGTEVNLI
TDYTQKIPLAFTA EMLGLPPGVERRLHDITEVMLYSADYALRQHAVGELF
EAVQEWVRDPAELRDGVITGLLASTDGP DARVTEGEAIVWTL SLIINGYE

TTGSLISAALYEALRRPAPERPHTDEAVAAWIEETLRVQPPVPHTTWRFALADLDLGGYLIPKGAPVQISLAAANLDPDEAADSFDAQRRGRGHLSFGLGAHYCIGAPLARVQTKIALRGFLRRFPQARLSADTAPRWESEWMIRMSVLPVLLA

>CYP107AY8 (2561674709) *Salinispora pacifica* CNT133A

MRAELAPIPRSGARLGPEYDQLRKTGDVHQVLLPDTSMAWLVTSPELVSRALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAPSPQRVAALRPRIQRSAEELAETVVATGSPVDLVTSYCTPLSVQVIADLLGVPEAGRTDLRAWTDMLTSYPPDRDAIRQAVVELHGYVNNLIEAKRQRPGLDGLLSALVATEQEGDRLTRDELTSIAFLILFAGYENTANLIASTVLRLLGHGSLRGVRVPEAIEETLRLEPPAPAAIRRFPTTEMTIGGATIPAGDTVLLSIAAATRGADGNPARLAFGNPHFCLGAALARVEAEEAITVLARRLPGLALAVPGASVRWRPTFRTHGPAELLVAW

>CYP208A30 (2561675070) *Salinispora pacifica* CNT133A

MTVTAAGRTFSGPTGSALLRSLWQLGRDRLGLMTSAARYGDAVRLGVGSRSLYFFNHPDHAKHVLADNSGNYTKGIGLVHARRALGDGLLTSEGELWREQRRVMQPVFQAKRIAGQAHAVAEADRLRLARRRGGGPVNLTDEFTALT LGVLGRTLDDAKLDAFASVGAAFEEMQNQAMFEMASMSLVPMWVPLPQQLRFRRARRELERIVGRLVADRTARGEVTGADDALSRLIAATQDEPDPGFARRMRDELVTLLLAGHETTASTLSWTFHLVNQHPWVRGRLRKEAIEVLGDR LPEYADLARLTYTKMVVSEAMRLYPPVWMLSRLARDADVVDGYVPVADADVLICPYTLHRHPAFWPEPERFDPERFDPGAVTDRPRYAYVPFGAGPRFCIGNHLGLMEAVFVVMVVSREFELVAPVGPVVAEPMLSLRIRGGLSMTVEPVS

>CYP1005A6 (2561675753) *Salinispora pacifica* CNT133A

VSAVLFRSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLTQVQTYRPDNALDAVTPIPVAAALRVLAGHRFRLPPTLANNGGTSHPAIRALVADALHPAKVAAQRPWLTELVAERIAAIRATLDSGGSADLHAELSADLPLLVLARLVELPDAPVSAVKQFARAALFVWAPLDADRQLALADEVGRFHQVLRFEADTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHLRLAGEPTVRAALRDGSVSVPNVVEEGLRLEPPIVTVRRVAAVDSTLGGTAVPAGTSVLLWLARAGRDPAIVPAPDEFPRPGQRGSRRHLAFGAGAHRCCLGDQLARMEA AAVVVERVTPLLDGVTVVRAPWYPDNLTRMPDAFVIRR

>CYP107LA2 (2561676342) *Salinispora pacifica* CNT133A

MECPVTARSSRFYFPFSDRADLILDPTYGELRSKEPVARVRMPYGGGDAWL VTRHADAKKALSDPRLSIAAGAGRDVPRASPRIQEAEGLMGMPPEAHARL RRLVATAFTPRRVRDIAPRVAEIAADRLVNDVIETGPPADLVRQIALPVPI TIICELMGVPAEDQHVFVRVFSDALMSSTRYTDDEVDQAVQEFETAYLGGLL TQRRAHRTDDLIGALIEARDDGERLSEELIMLTGGLLVGGHETTASQIA SHLLVLLRDRARYETLSARPELIPTAVEELLRVAPMWVTVGPTRIATEDL ELNGVTIRAGDAVIFSLSSANLDEDAFPDATDVVLDRPNPHIAFGHGPH FCIGANLARLEIQSTIGALVRRRLPGLRLAVEENDLEWRRGMIVRSLAALPVTW

>CYP113B7 (2561676343) *Salinispora pacifica* CNT133A

MTQTDNAPMPFLDLPGKADAQGLLDWFAYMREHSPVSWDETRQAWHVFN YQDYLTVTTNPLIFSSDSFSPVFPVPPPELALLMGPGTIGGIDPPRHGPMRKL

VSQAFTPRRIAQMEDIETITADIFEQVRGQERIDIAADLAYPLPVTVIA
DMLGIPNEDHEKFREWVDIILSNEGLEYPNLPDDFTETVGPAAEWSEFL
YAQIAEKRRARPQDDLMSSGLLAVEVEGRRLTDEEVVNIVALLLTAGHISSA
TLLSNLFLVLEEHPAALAAVRADRSVPGVVEETLRWRSPFNCIFRLLAQ
DTEIFGQPMRKGQMVIAWIASANRDTEVFAEPDFTDIRRKSNNKHLAFGYG
IHHCLGAFLARQEAQVFLNQVLDEFSEFTIDHDGVEFYDPDQLTARRLPV
QVVR

>CYP163B20 (2561676835) *Salinispora pacifica* CNT133A

VTATDAKDVGVGSRNVASTIDLADPATFAGHDLTNFWQRLRDEEPIYWN
PPTSGRRGFVWLSRHADILEVYRDDMTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHTELRLKLLLRALGPRVLGPVCRAVRANTRQMIGEAAAANGECD
FATDIASRIPMITISNLLGVPEADRASLLKMTKTALSADDESISDSDSEM
ARNEILLYFQDFVEFRKNPGEDEVVSMVLNSSIDGVPLSDDDIVLNCYSL
IIGGDETSRLTMIDSINTLAANPGQWRRLKEGRCDIDKAVDEVLRWASPS
MHFGRTAVRETVIHGERIQVDDIVTLWGASGNRDERAFKQPEVFDLGRVP
NRHLSFGHGPHYICISYLAKVEISELLIALRDLILGFVIGEPQIRSNL
LSGFSTMPVRFDADRTGLASEAREG

>CYP105AB37 (2561676961) *Salinispora pacifica* CNT133A

MTETASTTTPGISSATTTPRISSTTTSGPASGEVTDAEFFPVKRGCPFFSTPT
EYEQIREHSPKAVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFP
FVSTDPETKKQLQDQPTSMIGMDGAHAQARRALMGFTVRRMAGLRPRI
QQIVDQIHIDEMSSDQRTADLVEALSLPVPSLVICELLGVYPYADHDFQ
RSGPLIRHTTSTEVRRLRIQKELNTYLGALIDRKVTDPTDDLRSQIAKHH
AAGTFDRTSLVSMFAFLLLIAGHETTANMISLGVVGLLQHPDQLVMIKEDP
EKTPPAVEELLRYFTIADTVTARVATEDVQLGDTTINAGDGVVISGLAAD
HDPTVFTDPDRLDLERGARRHVAFGFGPHQCIGQTLARMELQIVFDTLFR
RIPTLRLAAPLDDIPFKSDAFVYGAERLPVAV

>CYP107E37 (2561677041) *Salinispora pacifica* CNT133A

VTIDQEIRKYPFRESPIGIGIDPTYELLRRTEPLARVQLPYGEVSWLVTRY
EDVKTVLTDPRFSRAAAQGKDQPRTRAEMTYEGIIIGLDPDPDHTRLRLLAG
KALTARRVNAIRADAQRIANEYVDEMIAKGSPGDLVELFALPYPVTVICE
LLGVPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFGYMGKLVAQRRAEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTGVEVTVSTHINPFIYALLT
HPELMAQLRADRSVPAAVEELLRMIPLNPAAMFPRYAVEDVTLSGITVR
AGQPVLVSLPGANRDPEVFENPETFDFTRDQNPVAFGHGPHHCLGAQLA
RMELQVALHTVLDLRFDPDLRLADGDEGVSWKSGLLVRGPSRLLVGW

>CYP107AX6 (2561677097) *Salinispora pacifica* CNT133A

MTSPAPVFDQLLLCDPHRRYNALRDEAPVHHIRTPDGAPAWLVTRYHDV
RAAFTDPRLSVDKRLSSTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRIADLRPAVERIVSTLLDGLAGHDQAELIGSLASPLPLQVMQEL
LGLPTQTSVDFRTWTNTLLSADANQPAQSRSAMANMRRFLVEQLAHKRAQ
PGDDLLTGLLAAREGDWLTDDDELVAMFLFLMFAGYDNTAALIGNVAHAL
LTNAELPAAVHTGSLAVDELVDGVLRWNPSFPLAVRRFAREPIITIAQAI
PAGDRIWLCLASANRDPAQFTEPDTLGTGMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVTSLLDLRFPGIRLAVPAQDIRWRESFRLRGLVALPVFL

>CYP211B2 (2563513881) *Salinispora arenicola* CNY666

MDASEAVALLMSPPGRLDPYPTYERLRAHGPPVPTAAGFFVVTGYTEADT
VLRTPRFRGVMDDDEERDSVFPWHQESPAAMMSIAQSMIRANPPDHSRMRLA
AKAFTPRRVAALREVVAQAADGLVDEMIRAGRGGAPVDFLASFAYPLPVA
VICALLGVPAADWAQFRRWASDLTGVLEPEITPQELAVADAGAGELRDYF
TELVAQRRRAPADDLTALVRAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVLLDHPDSATALRDQPELAPGYVEELLRYDSPVQLTTRTVR
ESVPLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPIRRNRRLTLRGYETLP
VTVGAVAADHGTAPAGVALGTP

>CYP1005A6 (2563514182) *Salinispora arenicola* CNY666

VSAVLFRSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLTQVTV
RPDNALDAVTPIPVAAALRVLAGHRFRLPPTLANNGGVNHPAIRALVADAL
HPTKVAAQRPWLTELVAERVAAIRATLDSGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAALFWAPLDTDRQLALADEVGRFHQVLRFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLAGEP
TVRAALRDGSVSVPNVVEEGLRLEPPIVTWRRVAAVDSTLGGTAVPAGTS
VLLWLARAGRDPPIVPAPDEFPRPGQRGSRRHLAFGAGAHRCGLGDLARME
AAVVVERVTPLLDGVTVVRAPWYPDNLTFRMPDAFVIRRRPAGSAEH

>CYP208A29 (2563514392) *Salinispora arenicola* CNY666

MTTSSNRQRPFGPPRAAALSMLLTMSRDRLGMMTAAAGAYGDAAWLPVG
HKALYLFNHPDYAKHVLNTENSNDNYTKGIGLVHARRALGDGLLTSEGELWR
EQRRVIRPSFRSGRAPDQASVIAEEVARLVERLRARAGGPPVNVVTEFTG
LTLGVLGRTLDDVLTALATVGDAFAAVQDQAMFELVTL SAVPTWIPLTR
QRRFRARAELERIVDELVARRGDVSGRDDVLSRLIRSTGAEPDARVRRQ
RLRDELVTLLLAGHETTASTLGWTLYLIDRHPPVRERLRAEAVEVLGDRL
PAYRDLPLRFTTMVVQEAMRLYPPVWLLPRRSRRADRVGPYLV PAGSDV
VVSPYTMHRHPEFWPEPDRFDPLRFDPRNAADRPRYAYLPFGAGPRVCVG
SNLGTMEAVIAVAMLCRELRLVRVPHTAAVPEPMLSLRIRGGLPMSVHLA
D

>CYP154M16 (2563514407) *Salinispora arenicola* CNY666

MPDRCPVLDPSGRDIHAEADRLRAQAPAVKVELPGGVHAWISITSYDVVKR
LLLDNRNVTKNARNHWPKFINGEIPPDWEMISWVAMDNMVTAYGKHLVRLR
RLIAKAFTAQRVETVRPQVEKLVDLDDGLAAETGEVVDLREKFCYPLPA
LLIAELIGMTEQQRAQTAKAMDLMVDTTVSPEQAQAILTGWRTAMDELIA
AKRREP GKDIASDLIAARDDENGGQLTDSLELDTIFAILGAGSETTINFL
DNAVTALVTHPGQLELVRSRGRAGWDDVIDEVLRVQCPLASLPLRYAVTDI
ELDGVTIPQGDPIILINYAAAGRDPALHGDTAGEFDVTREHKEHVSFGHGP
HYCLGAGIARLVATIGLSRLFERFPDLRLAVPAEELQPLPTFIMNGHRGL
PVRLVPAPAAATAV

>CYP125A66 (2563515640) *Salinispora arenicola* CNY666

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRAPVWWNAQPKGSAGFDD
DGYWVVTRYADVMASRDSETYSTRENTAIARYQPGTTQADLEMQRVIMI
NVDPPEHTKLRAIVSRGFTPRAIDALRGSLAERAERIVRDAAVRGTGDFV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGVDPLAAAA
ELLAYAMEMAHERQRNPSEDLVTKLVNAQIDGEHLTADEF GFFVMLLAVA
GNETTRNAITHGMLAFFENPEQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLGGQAI SAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDISKLADPQRLRSGWINGI

RELPVQYH

>CYP107EP2 (2563516684) *Salinispora arenicola* CNY666

MTTLPDAGLRARMAGYYDILEKAADQGDLYARLLRGPADPYPVYEQIRAL
GPLPRSALGTWVTTDHQIANKVLRDRRFVRLADGQKVPEFMNFDNSILG
LDPPNHARLRKLTIPALNPRMAGRWRDRADQLCAQFIDELPTDGSADFDM
TEFAQKLPVTVIADLVGIPDDLPRFRSRLSRRIAPLLDGVVSFHKVRGVD
LAIDELTDMFRGIIKLRQENPGDDLISQMLPAIDDGRLTMDELEPLCMFL
PLAGSETTVNLIGNVRLALLANPEQWDMLRADPAGLAAGVVEETLRFDPP
VQQYRRVAHQEIELAGEILPVDGELAILAAAAANRDPVDFDDPHRYDITRR
SAADTLSFSAGIHYCLGAPLARVEAEEAFRAIATRLPDLRVAGEPRRRDS
FIIHGMLHFPLSTG

>CYP107NE1 (2563517046) *Salinispora arenicola* CNY666

MTTAGTRLLFDLRDPALQDDRYGYYRRVRDVEPVHRSPLGYWVITGYDEC
DAVLRSPGVSTDFTDPPQWARVRGGPDSPVVASARRWMLTRGGGDHRRLR
RMVSRALSPAAMARLRPRIRTLNVEMIDAMGEGEADLISGLALPLPVVVV
CELVGIPLADADRCRQWTNTIADVVDPMVTPMRMRMNEAVPEFSAYIAE
RLAERRAEPRDDLSSILLEPDARGDRLSDEDIAAQILVLFNAGHETSVNV
IGNGMVSLQLQNPDLRLRLREHPELVERSFDLSRHNSAVQIMARQTVAPV
QVGGVTIPAGASVFIVLGAHHDPVKYPDPERFDVTRTGTSPLIIFGSGPH
YCIAATLGRMEVVIAFEELLRRYSSIELATTELPWYSHFTFLLGLRSLPL
RLTYAR

>CYP107AY11 (2563517542) *Salinispora arenicola* CNY666

MSQDQPTRAELAPIPRSGARIGPEYDQLRKAGDVHQVLLPDSSSLAWLVTS
PELVSRALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPDHTRLRR
LVGPAFSPQORVAALRPRIQRTAEELADTVVATGSPVDLVTGYCTPLSVQV
IADLLGVPEAGRADLRAWTDMLTSYPPDRDAIRQAVVELHGYYVNLIEA
KQQRPGDDLSSALVATEQEGDRLTRDELTSLAFLILFAGYENTANLIAS
VLRLLDDGSLRGVRASEAIEETLRLEPPAPAAIRRFPTTEMTIGGATIPA
GDTVLLSIVAATRGADANPARLAFGNGPHFCLGAGLARVEAEEAITVLAR
RLPSLALAVPGAPVRWRPSPFRTHGPAELLVAW

>CYP162A7 (2563517680) *Salinispora arenicola* CNY666

MISPDLSDPIFYQNSDPLPVWERLRREHPVYDNRRANGARFWAVMTHKLC
TDMLTNPKVFSSANGMRLDSNPQVLARAAGKMLNVTDPQHDKIRKLVSS
AFTPTIRRLEANMRATAGRAIDLAIADGSCELTRLAHKLPVSVICDLLG
VPEQDWDFMAERTRFAWGSTAADDREEVEKVAHAHEIMAYFLDLAADRRK
RPMEDLVLSALVHGEVDGRALTDDEVLYNCDALLSGGNETTRHATVGGLLA
FVMNPDEWSAIRQNRDLLPSAIQEVVRYTSPVMHSLRTATRDVELGGINI
RAGEYVVAWLPSANRDEQLFDDPDRFNVRSPNRHLGFIQGNHHCIGSGL
ATMELTVMFDELLNRVSEVRLAGPVRRLRSNLLWGFDSLFPVTFHAGAGR

>CYP1278A5 (2563518156) *Salinispora arenicola* CNY666

MPSPVGAVVHPNPYPYYAAMVAERPFFHFDEQLDTWVAASAAAAQAVLTAP
GCRVRPPHEPVPQGIGTGPAGDVFGNLRMTDGEPOHRLKAIVTQALGAV
DRSTVAATAMQORARQVLNDSVRTPYEQMLFELPAQVVATLCGLDPAAGGE
ATRLVGHFVQCIPATASPEQQQRAAQAAGLQELLGPKLDDTQHGLLGDL
VRMATHVGWTDRAPLLANGIGFLSQTYDATAALLGNLTLLALSQQECELEPT
SEMALQRFVREVIRHDAPIQNTRRFTATPIRHGDAEVPAGRAVLVLLAAA

NRDPAANPDPHMFRAADRTTPNVFTFSAGAHHCGETLAVTIVTTVVEQLL
RVGFDPAKLSTRVTYRPSPNARIPVLT

>CYP107AX7 (2563518791) *Salinispora arenicola* CNY666

MTSQPAPVFDQLLLLRDPHRRYNALRDQAPVHHIRTPDGAPAWLVTRYDDV
RAAFTDPRLSVDKRFSSTDGEHGSSLPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRIADLRPAVKRIVSTLLDNLVGNDQAEFIGSLASPLPLQVMHEL
LGLPTQTSVDFRTWTNTLLSADANQPAQSRSAMANMRHFLIEQVARKRAR
PGDDLLTGLLAARADGDRLTDELVAMLFLLMFAGYDNTAALIGNVTHAL
LTNAELPEAVRAGSLALDELVDGVLRWNPSPFLAVRRFAREFVTIAGQVI
PAGDRIWLCLASANRDPAQFTEPDELGATGMRRPHLSFGHGIHYCLGVPL
ARLQTTVAVTSLDRFPGIRLAVPAHDIRWRESFRLRGLVTLFVFL

>CYP107AW7 (2563518802) *Salinispora arenicola* CNY666

VETVTGTSTPPPVPIADPYPTLARIRGNGPVSILHSDEGIPMWVIARYR
DVRAALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGIAGRRTTVDLVQDFAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAAAFATALREMTDYIAVQLRIR
QTRPGDDLLTELLAARDAGQLTDDDIIGMVFLLLIGGHETTNNLLGTATL
ALMRDPDQHRWLLANQHALPEAIDEFLRYESPAMATLRFTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRDRTGHFAFGHGLHRCCLGA
FLGKLEGEVALGALLRRHPRLALAAEVRQLRWRDTIMLRGLESPLVSLDG

>CYP107E38 (2563518888) *Salinispora arenicola* CNY666

VTIDQEIRKYPFRESPIGIDPTYELLRRTEPLARVQLPYGEVSWLATRY
EDVKTVLTDPRFSRAAAQGKDQPRTRAEMTYEGIIIGLDPPDHTRLRLKLAG
KALTARRVNARADAQRIANEYVDELIAGKSPGDLVELFALPYPVTVICE
LLGVPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFGYMGKLVAQRRAEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTGIVETVSTHIPPVYALLT
HPELMAQLRADRSVPAAVEELLRMIPLNPAAMFPRYAVEDVTLSGITVR
AGEPVLVSLPGANRDPEVFENPETIDLTRDPNPHVAFGHGPHHCLGAQLA
RMELQVALHTVLDRFPDLRLADGDAGVSWKSGLLVRGPNRLVAV

>CYP105CP2 (2516037503) *Salinispora arenicola* CNH941

MTKSMPVQDLPAFPIPRECYPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHAVALSDYRRVSIKPYHGNYPLLNEEFKVVDSGYADVLFVGDPP
EHTRQQRQMIMPSFTLRRTAVLRPDQIRIVDDKLDEMRRHGAPGDLVTEFA
QPVPSPMVISFLLGVPWEDHEEFETPAHKLFPPELAEEATELGAYLERLI
QKKEQPGGTGGTGLLDDLDLIRDLRAGALSRLDELVHIAMAMLVAGTDTT
NVISLGTALALLDNPDQWAALRDNPDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPFRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRRTAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2516037505) *Salinispora arenicola* CNH941

MAAPAPQATTSTTPHPPSYPLPRECYPYRPSAGTAHLRDAGPVSTVRLYDG
RTAWLVGTGAEEARALLADSRVSNRADFPNYPVMDEHLSMRATREMAREE
EGGFAAALFGMDPEHTRQRQLLPRFTVRQVAARRPAIQRMVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVYPYQDRTRFEPVAGLFEPRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGLTALLTAPGQYTALVDNPDLPVPGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHAFSHGIIHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY

FAGDVPRLACLPVTW

>CYP107FS2 (2516037506) *Salinispora arenicola* CNH941

MPVPQGEQNLTTTEVFADPKALIATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFFADRSEFERHAEVLTGINASSGFDATIAAGRWFDEYLAGLVQ
QRRREPQDDLISGMLAAQDKGDRITDVELRSNALLLSAGFETTVNLIAN
GLLALLRHPEAMAAALRSEPNLMTTAVDELRLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSLWVKASFVLRHRLERLPV
TFTPDRDPNPIDSVHTV

>CYP125G6 (2516037545) *Salinispora arenicola* CNH941

VPTLLNEHVSYDGAATIAIVDSGATSWIRLAERVNRWVHLLRAHGLDTGD
RLACVTGNRRTEFEVLLAALHTGVTVPVNVHLLTVTEIGHILSDSGSRVV
ITEELHVKAFAAAADGMAGPVAGLVLGDRIEGFAAVEPLLAASPAEPE
GQVCGATMLYTSGTTGRPKGVVNNLFVTGAPYARVGRLCDYARSVLGVPR
RERMLLDGPPWHSSQLFFALLSLLQGSRLVIRPYFDPAAATLKTIDDHRT
VTHLVPTQLVRLLRVDALTRQMFSGASLRRVWHGGGCPPEVKRSMIDWW
GPVLVEYYGATEGGVVTLIDSAEWLARPGSVGRAVPPSEVVVVDDGGQPV
AAGQTGQVFFRRRTGNRFHYHNAPEKTQAAYLAPDTFTYGEVGHVDEG
LFLTGRAQDMIVSGGVNVYPAEVEAALLRHPVVRDAAVIGVADDEFGERV
VGIVVPETAVDPDDLATHLDAHCRVSLAGFKVPRTYRVVESLPRDETGKL
RKDALRSKFGWLSGAAMTVPRPATGQPTAHRPDIAHPTTYVSGVPHDEFA
RRRRDEPVGWVAEPVLTRHTAAGRTATRGSGFWAVTRYEDVVAASRRVTD
FSSAAKGAFLTDPRTPADLQQAQQLLVNMDDPHHARLRKLVTSTVFTPRAV
RGLLASIDAHAALVAKVVAAGEFDVVTDLAAELPLLVLADLLGVPKQDR
ALLYGWSNHLVGFDPDFGGGDI DAYRTAMAEAFQYALNLGVERRARPTD
DLVSLLANAEVDGTRLTDREFCNFWLLL VVAGNETTRHLVAGTMQALTEH
PGEARLVEGRVPTESAVEELLRWVTPIMQFRRTATRDTEIGGQAVTAGE
KVVLYYTSANRDATVFAEPDRDLGRTPNRQLSFGIGPHYCLGAHLARAE
LTALLRVMSPHLGLSLQLTGPVSRLASNFVNGVKAMPAVIGSR

>CYP154M15 (2516037570) *Salinispora arenicola* CNH941

MNDKCPFAALDVTGQDLHGEEARLREQGPAVLVELPGGVKAWSINRYEVI
RELLMDRRVTKNARKHWPFIKGEIPPDWEMISWVAMDNMTAYGKDHVR
LRKLVGRAFTQRRADALRPQVVALSTKLDDLGLATPPGEVVDLRERFAYP
LPAMLVASLIGMSEAALAACSKVIDMMVHTNVSPEEAQAVALRGWRAAMAD
LIESKRRTPGEDITDILIAAREEDGSRLSEAELADTIFAILGAGSETTIN
FFDNAITALLSRPGQLQLLRTGAVTWDDVIDEVLRVESPLAHLPLRYAVE
DIELDGVTIPQGDPILVNYAAAGRDPALHGGTADEFDLARGDKTHLSFGY
GPHYCLGAGIARMVATIGLSMLFERFPDLSLAVPATELKRLPFTFIMNGHQ
TLPVRLTAHAR

>CYP107FJ2 (2516037589) *Salinispora arenicola* CNH941

MSETLSTSVLLADAAEQRAWRAKLRGAGPVHRITTSQSGETGWLIVGHEEA
RNALVDLRLQGRATVGHGRMPEDLERALNSHMLNVGPPDHTRLRLRLVS
AAFTRRRIEQMRPIQELTDELDDGLAGADEADLVAGLALPLPMRVLVDL
FGIPAEDCADFNWTKVLTSAGAVDLRLTTAAGEMVAYLRGLLDRKRQV
PESDLSALVAVRDGADRLSDELTSVMVYLLLTAGYETTVNLIGNGLLNL
LANPEQLVAFKADPDLLPQVVVEAMRFDSPVQIAVRHSTEPVEIAGQAIP
SGALILVSLWANRDPDRFTEPEAFRVDRQDNPQLGFGYGFHHICIGAPLA

RMEGTIAIGTVIRRFAPALRLAHPAGSLTWRASVMHGLTALPVHLR

>CYP154M20 (2516037596) *Salinispora arenicola* CNH941

MERCPYVLDRAGDLHGEAKALRARGPVTLEVELHGGYTAWSVTSYEIAKQ
LLVDPRIKNTKETWPEFREGKVPQDWELYTWVAMDNMQTRDGEEDRLR
KLVAQAFTRQVAKVRPMIEDIVDRLLDDLEKVPAGEVVDIKGRYFYPLS
TILVCDLLGIPEADRAEALHGTVVNARTTNSAESEANLHQWQSALSCLV
ETKRREPGNDITTLIIKAREDEQAPLTDDEVIGSLHLLIGGGTETTSNVL
CNTLIDLTHPDQMAMIRSGAVGWEEAWEVEVRKDGAVGSMFPRCANADI
EIGGVTTAKGDLVLINAAAAGRDPERYGDTTAEFDITRADKTNLSFGYGR
HRCGLPALATMEAMISLPALFERFPDLVLAVPREELKPQGTFFVNGYAEV
PMLLRS

>CYP248A2 (2516037618) *Salinispora arenicola* CNH941

VLADAVTAFDPTAVDVRRDPYPSYHLLRHDPVHRGAHQVWYVSRAFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAIGRWSRAVGRTLDRGATAEDMRRGHAAIAEFTDYVERALA
ERREDGADLLALMLAAHRSQIMSRNEIVSTVVTFFIFTGHETVASQLGNGL
LSLLDHPEQLELVRRQPHLVPPQAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCNPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP105W2 (2516037625) *Salinispora arenicola* CNH941

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPPSPAEYARLRAEH
PVVRLPMLGGDTAWVVSRAHADVRLSDPRMSADRRRPFGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVSRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVSSQVICEVLGVYPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDVVVTDKHRPGDDLRSRLLYRQRAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGVTTAAGEGVVALGQAANRDPVFEH
PDEFDPDRDARAHLAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP154M13 (2516037638) *Salinispora arenicola* CNH941

MSTGRPVVLDPTGRDIHGEADHLRALGPATLVELPGGVLAWSINSYEVGK
ALLSAPNVSKSARRHWPAYNGEIPPDWEMISWVAMDNISTTFGGDHRRRL
RRLTAKAFGSRRAEQVRPMATHMVNTLLDRMADAADAGEVVDLKAAAFAYP
LPGMLVAELIGMSEEARVAAAKVIDMMTATNITPEQAQGVLLGWRDAITD
LIALKRAQPGDDITSDLIAARDEDGSLLTEQELVDTIFAILGAGSETTIN
FFDNAITQLLTHPEQLELVKSGQVSWDDVIEEVLRLSPLASLPMRFAVE
DIQLDGVTIHKGDPILINYAALGRDPALHGESAGVFDVTRQHKEHLSFGH
GAHYCLGAGIARMVAKTGLSALFERFPRMTLAVSAKDLVPYPTFIMNGNR
QLPVHLSGALTWREGEQSALGRA

>CYP154M21 (2516037639) *Salinispora arenicola* CNH941

MEKCPYVLDRAGSDIHKEASNLARGPVTLEVELHGGYTAWSVTSYEVAEQ
LLMDPRIKNTKAHWPEFRDGNVPQDWELYTWVAMDNMQTRDGKEHDRLR
KLVAFAFTGRQAVKSRPIIEEIVNRLDDLETAPRGQAVDIKARYFYPLS
TILVCDLLGIAEEDRDVILHGNVNSKTTNTAESEANLHQWQTALGRLV

ETKRDPGDDLTTVIIKAGEDEQTPLTDDEVIGSLHLLIGGGTETTANVL
CHTVVDMMLTHPDQLAMVRSGAVSWESAWEEEVKRDGAVGSMFRCATDDV
EIGGVTTIAKGDVLVINYAAAGRDPERYGDAAAEFDITRADKANLSFGYGR
HRCLGPALATMEAMVALPALFDRFPNLALAVPPNELKQPQGTFFNGYAEV
PLLLRS

>CYP208A12 (2516037803) *Salinispora arenicola* CNH941

MTLDTITPRVPLGPPTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAEITG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETINAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWNPFRFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGRHLVPEPMLSLRIRGGGLPLVVRP
VS

>CYP245A7 (2516038656) *Salinispora arenicola* CNH941

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVMFMDP
PRHTELRSLNRSFSPIRVTELRPRIARIAQELLSRLSQQVDVDLVESFA
APLPILVISSELLGPIEERRAWLRANALALQEASSSRAGRVDVGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQORGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGAEGLTTDAVEEFLRYDPPVQ
AVTRWAHQDATLGGCDIPGRSRVVALLG SANRDPARFPSPDVLDVRRPAD
RHLSFGLGIHYCLGATLARVELEIGLQALLDGVP T L G Y G T Q H V D Y A D D L V
FHGSPSRLVLVNLGERCK

>CYP244A4 (2516038660) *Salinispora arenicola* CNH941

MSTTTNTELTEAPETNMPVDPLFDCMPDLIAAARVAPVVRIPYLG RHAW
VVCDELVKQALTHPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGFLDELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGLSLISTSLYEAIRRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEAGDSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP125A41 (2516038931) *Salinispora arenicola* CNH941

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRR TAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPD TTREDIEMQRVIML
NVDPP EHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGD FV
TDVACELPLQAI AELIGVPQHRRKVFDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAEERQ RSPSDDLVTKL VNAQIDG EHLTTDEF GFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTV LGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP107Q4 (2516039332) *Salinispora arenicola* CNH941

MTTTAETSAETIDLFSPEVVADPFGWYARLREETGPTTGTNLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPFRFLTNPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSALTATHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIAKRRAPQDDLVLTALVQAQAEQDQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLII
DRLAVGSEHGLGFGKGIHRCLGQHLAYQEAEEVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTTRTRLPLKLV

>CYP105G5 (2516039333) *Salinispora arenicola* CNH941

LTIETTETPPADDSLAPLPRQFMQRDDPSKLPPALAALAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRAGLLQTDLPKIQ
AVENLEAQRAFMRQLVTDKRRTPADDMISGLVHHAGAEPPLTDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQALARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTF

>CYP1051A1 (2516039353) *Salinispora arenicola* CNH941

MATDAAITRARTVPAWKALPAAVRDTHRALVDVGNWSDGDVVRVSLGVSR
PYLVTPNAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAAWAA
SRRVLAPMFRPARINAMVDTMADAIAAGAVDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDILLPVLRQAQRQPDDGDDLLSRLVRARADDGQALSE
KRMRDDLVSMVAVTTTETSTVVLTWLVPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDLLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYFPGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASRTPARTVEMI
LKPVAPVPAR

>CYP107AX13 (2516039766) *Salinispora arenicola* CNH941

VTSPPHVAFGHLLRDPHGYNALRGQAPVHHIRTPDGAPAWLVMRYDDV
RAALTDPRLSVDKRFSDTDGEHGSSLPPELDAHLLNRDPPDHTRLRRLAA
AAFTPRRVADQAPAVATIVDALLDGIADQDQAEILIGALASPLPLQVMHEL
LGLPTQTSVDFRNWNTLLSADANQPAQSRSAMATMRFRFLMGQLARKRAQ
PGDDLTLTGLLAARDDDDRFTDDELLAMVFLLMFAGYDNTAALIGNVTHAL
LTDAGLHDAVRAGSVDLDSVVDEVLRWNPSFPLAVRRFAREPVTIAGHTI
PAGDRVWLCCLASANRDPAQFTEPDELGITPARRPHLAFGHGHIHYCLGAPL
ARLQTTVAVASLLDRYPGIRLAVPAHELRLWRESFRVRGLAALPVRL

>CYP1005A1 (2516040012) *Salinispora arenicola* CNH941

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTQATY
RPDNALAEAVTPVPVAALRVLAGHRFRLLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVATIRTTLDSSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVKKQFARAALFLWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSISVADVVEEGLRLEPPIVTVRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFPRPGQRGSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP105AB8 (2516040191) *Salinispora arenicola* CNH941

MTETASSRHTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHRADLVKT
LSLPVPVSLVICELLGVFPYADHDFEQEHTATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDDDLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPDKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTLFRHRIPTLRLAAPLKDIPFKTDAAIYG
ARELPVAW

>CYP105BL2 (2516040628) *Salinispora arenicola* CNH941

MSSHSAAAPDPETATPLHTLAPELAFFPQFERSAPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTLSDPHFSSDMSHPGFPNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPVSRVACHLVGIPLSYELFTGMAATLMDSTSDDQFA
ALQNMVSYFDTLVTDREHHDRDDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIIGLVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP211B2 (2516040784) *Salinispora arenicola* CNH941

MDVSEAI AVLISPSGRLDPYPTYEQ LRAHG PVSQT TAGLFVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIXIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTQADELVDEMIQAGR DGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVLLTRPEAAAAALRDEPD LAPGHVDELLRYDSPVQLTTRTVR
ESVSFAGTEL PAGSWLLVLLGAANRDPRRFPD PARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLT LRGYETLP
ITVGAVTADRGT PAGVAPGTP

>CYP163B16 (2516041149) *Salinispora arenicola* CNH941

VTAADPGRVSGSESQTPAHTVDLADPATFANRDLTGFWQQLRDEEPIHWN
PPTSGRRGFVVVSRYADILDVYRDDVTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHAELRKL LRLALGPRVLAPVCAAVRANTRQMVREAVTKGECD
FASDIASRIPMTISNLLGVPDADRAFLSLTKTALSADDESISETESAM
ARNEILLYFQDLMEFRRDHPGEDVVSMLVNSTIDGAPLSDDDIVLNCYSL
IIGGDETSRLTMIDSVNTLAAHPKQWRRLKDGQCEIDKAVDEVLRWASPS
MHFGRVAAKDTILRGVQIRADDIVTLWHASGNRDERVFHRPEVFDLGRTP
NRHLSFGHGPHYCIGSYLAKVEISELLIALRDLTSGFETTGE PQIRSNL
LTGFSTMPVRFPDRAGLARDALDG

>CYP211C1 (2516041261) *Salinispora arenicola* CNH941

VVDVEELLTRLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLNFNASFVTTV

YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPI PQGQNVLLLLIAAANRDP AHFPDPDRFDPWRS GPPSLAFGLG
LHYCLGA AVSRLEGR LALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP107AY2 (2516041353) *Salinispora arenicola* CNH941

MTAEPTPI PRSGARLGQEYDQLRKTGDVHQVLLPDTSLAWLVTNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAPF
SPQRVAALRPGIRRAEHLDDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRATD TMLTSYPPDRDAIRQAVTELHG YVVDLIDIKQQQPG
DDL LSALVTIEQDGDRLSRDELTS LAFLILFAGYENTANLIASAVLWLLD
HGGLNVVPSSEAIEGTLRHEPPAPVAIRRFPTEDIIIGGV TIPAGDTVLL
SIAAATRGADGNAARLAFNGPPLLPRCGPGPGRGRGGTHRAGPSATRSD
ARRAPFFPGVASDVSHPRPRRTPGRLVAVRDDR MAGHYLGNGQREVADA
R

>CYP166A4 (2516041620) *Salinispora arenicola* CNH941

MTDAISFELPWARTDKFDPPTVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGGV IPTHPIPGMFIHMDPPEHTRY
RRLLTGEFTVRRSRLTGHVEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLYHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIERETSGHVAFGFGI HQCLGQN
LARVELRAGLSALLRAFPNLR LPAVPADEVPLRLQGSVFAVKNLPVCW

>CYP105J3 (2516041670) *Salinispora arenicola* CNH941

MTDSVAFFPQGRVCPHQ PAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDR TNPAWPAIVPIVAAAVNDAQQKVLKIATALVGTDGPE
HKAQRKMLIPSF TFRMNALRPMIQEIVDQQ LDEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIF EKL SHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGLVDDL LAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIERLPSRL LPAVPAEEVPFLPAASLQVIAELPIT
W

>CYP162P1 (2516041787) *Salinispora arenicola* CNH941

MGLPSEVDLAEPDLADPDLYAEGDPDAEWAWLRAHRPVYRNPAGATAAEFW
ALTRYRDALQVYRDPSTFSSERGMVLGVDPVAGDPAAGRMLVVTDPPRHP
KLRRIVSGIFVPRTMHRLEGRVRS LVDQLLHRVVDGAGRCDFANDVAARL
PVAIIICELLGVPADEQDWMYHLTSTAFGGGDPAGSAEVS AVERAEAYGDI
LLYYGELAAERRRRPGDDLVTLLVHADLDGEPLDVEDVLVNCTNLIIGGN
ETTRHAASGGLLALAQRPELWRRLRETPTAVPTAVEEVL RWTTPGMHVLR
TATRDTEIGGVPIRAGERVVVWNAANRDEDFADPQRFDIDRSPNRHIA
FGQGGHHCLGAALARLELTILFEEMAKQVTNVRLTG PVRVRVSCVLRGIR
ALPVELVT

>CYP211B11 (2524944033) *Salinispora pacifica* CNY239

MDASEAVALLTSPPGR LDPYPTYERLRAHG PVVSTAAGFFVVTGYTEADT
VLRNPRFEVMDDEERDGVFFHWQDSPAMISISRSMIRANPPDHSRMRRLA

AGVFTPRRVAALREVVAQAQADGLVDEMIRAGRGGAAVDFMGSFAYPLPVT
VICALLGVPTADWARFRHWASDLTGVLEPEITPQELAIADAGASELRDYF
TELIAQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVVLTHPDSATALRGQPELAPGYVEEFLRYDSPVQLTSRTVR
ESVSLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRHRLTLRGYETLP
VTVGAVPADPGTPAGVALGTP

>CYP107AX4 (2524944080) *Salinispora pacifica* CNY239

MTSQPAPVFDQLLLRDPHRRYNALRDEAPVHHIRTPDGAPAWLVTRYDDV
RAAFTDPRLSVDKRLSSTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVERIVSTLLDGLVGHDAQAELIGSLASPLPLQVMQEL
LGLPTQTSVDFRMWTNTLLSADANQPAQSRSAMANMRRFLVEQLAHKRAR
PGDDLLTGLLAAREDDRLTDDELVAMLFLLMFAGYDNTAALIGNVVHAL
LTNTELPAAVRTGSLALDELVDGVLRWNPSPFLAVRRFAREPITIAGQTI
PAGDRIWLCLASANRDPAQFTAPDTLGTGMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVTILLDRFPGIRLAVPAHDIRWRESFRLRGLVALPVFL

>CYP107AW7 (2524944094) *Salinispora pacifica* CNY239

VETVTGTSTPPFPYIADPYPTLARIRANGPVSILHSDEGIPMWVIARYR
DVRAALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAAFATALREMTDYIAVQLRIR
QTRPGDDILTELLAARDAGQLTDDEIIGMVFLLLIGGHETTVNLLGTATL
ALMRNPDQHRWLLANQHALPEAIDEFLRYESPVAMATLRFTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRDGTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPRLALAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP125A65 (2524945172) *Salinispora pacifica* CNY239

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMAVSRDSETYSTRENTAIAARFQPGTTQADREMQRVIMI
NVDPPHEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAAVRGTGDFV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGVDPMAAAA
ELLAYAMEMANERQRNPSDDLVTKLVAQIDGEHLTDEFGFFVMLLAVA
GNETTRNAITHGMLAFLEHPEQWELFKAERPRSAVEEIIRWATPVNVFQR
TALVDTTLGGQAITAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REMPVRYR

>CYP161N4 (2524946563) *Salinispora pacifica* CNY239

VNTVAQLPFTQTHVLDVAPALRLLQSRGKVHRVRTPEGVPAWLVTGHAEV
QQLLDDRLSRSDPGGRDGGTALLNKLLGPLADDPRLRSLLEPQFTPER
LEPLRAVVEKLTEQHLDELAARTPPVDLRPALAMSLPILVLC EWLGVP AE
DKGRFSVWTQDAAGVQDPERSQRLAELFGYCRQLVAAKRQDPGDDVISR
LITTAGIGDTEVVALTALLLFGGYETTVARIGTGVL LLLANPDQWAAVRA
DPALVPATVDELLRRSMPNPHNGGMPRFAVTGFEIDGAAIRAGDLVLLNI
IAANHDETAFFDPDRLDITRPTAGSLAFGYGRHSCVGAPLARMVLRVALS
RLITRFPDLRLAVGVDELKLRHETLVGGLVELPVWTWGPR

>CYP2054A3 (2524946568) *Salinispora pacifica* CNY239

MSISADSEQVQGRPFDPYGAHRDDPYTFLAGLGVFYAPLLDAWCVTRRED
MVAVLRDDRSFSARDHNPRPAVALPDDVNQMFRTWRGAGAVAVGSLDPPA
HAKIRDVLNIGFTPARVRAFEPTMRAVAADLADRIGDAPEFDFIADFAPV
FALEVIGRRLLGVPDDYLDRCRTWSEQRIELMMAQGDADHDRLREFARGLM
EFGEFARSLVRDRVADPRDDLISELLHDGKAGRTLTADEVAVQIPTLIFA
GHMTCAEALGTIFYQQLRSPGGWARVVDRTIPVGDLVEEGLRFDSPLAGM
YRTATRDVTVGGIRLTAGSRLLLLLYGAAGRDSRAHACPAAFRPGDGSSGH
LAFGHGIIHFCLGAGFARAELRVAVEVLAARMFPLGLAPGRPPRFRPVFPL
RALTEL RVTRSGGGSGP

>CYP107FH3 (2524946573) *Salinispora pacifica* CNY239

VPIELDEAFVQDPYAVYEKLRAEGPAHRVRMPPGVPLIGGLPVWLITGYD
AVRAALADSRLSTD LHRIDGLFAQKDPDRSHRGGFSSALASHMMHTDPPD
HTRLRKLVSKAFTTRAIEALRPRIQQTDELTAELAGHDTV DLLDAFAFP
LPIRVICLLLGVPAEQENFRSWSRALVSGHSPEAAATAATEVAAYLGDL
VERKRHATTDVLTALVAHDVDDRLTHTELVSTAYLLFIAGFETTLNAL
GNGTLHLMLHRDQWTALRADRALLDNAVEEFRLRESPLKHATFRCATESL
RIGDAEIIAAGDFVLLAIASANRDPRRFPDPHTLDVRRPAAGHLAFGHGIIH
HCLGAPLARVEVRMAFDALLDAFPDMRLATAPAGLRWRNSTIIRGLDSLPL
VHLNN

>CYP124M3 (2524946997) *Salinispora pacifica* CNY239

MTVPIELDAVDLSNDNDFWTKPLEYRHAVFNALRAQPLPHFASPEFGSAP
RGRGYYALTRMDDVLAVSRNPSVFI SGKGNVAMEVPAEFLDQSLITMDNP
RHARLRRIVSRGFTMKAVTALMDNASQMAKQIVDEVVERGECDAVVDISA
KLPLGIIICNMGI PDSQQQFVFEQTNVMLGVQDPEYVGEQNDAMLAMSV
SQELADLMHELATLRAKNPTDDLISKLLSAEVNGEALTPSEL AHFFILLT
GAGTETTRNAISWGIQLLTQSPEQREAWLSIDIGVTPTAVEEIVRWSSPV
ISQRRTVAEDAEPVKLAGQLLGP GDKVLMFYGAANRDPNYFVHPEGFDVR
RSPNPHVGYGGPGPHFCLGAHLARLEISVMFRELLIRIPDIHATGEPARL
KSPLINGIKRLPVAFTPGAR

>CYP208A22 (2524947018) *Salinispora pacifica* CNY239

MTVIADRGGRIPPGPPVTAGLRLLLLALGRDRLGMMTSAAA EYGDVARLPV
GPKKLYFFNHDPDHAKHVLADNHANYQKGIGLVHARRALGDGLLTSEGE
RKQRRVIQPAFQNRRLAQYAGAVGQEATRLVARLATRV DGPVVDVDEMT
RLTLGLVLRGRTLLDAELTG FHHGVGESFAAVQDQAMFELETNTVPTWIP
LRQRRFRRARQHLQEVVDVLA AERGQAVEGRDDVLSRLILSTRAEADPQLG
RERLRDELVTLLLAGHETTASTLGWSLHLLDQHPELRERVRHEARTVLGD
RVPAYEDLHQLRYTAMVVEEAIRLYPPVWILTRKARA EDEIGGYRVPAGA
DILICPYTLHRHPRFWAEPERFDPERFDPSRTTDRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLA VLLRDLRLEGLPGRAVVPEPMLSRLVRGGLPMTVR
RVD

>CYP244A10 (2524947222) *Salinispora pacifica* CNY239

MQDTAQANLAEAPEVRMPIELRPTDCLPELLAAARVAPVVRTPYLDQHAW
VVC DRELVKQALTHPKLGKDV ALAPDWMRQPGQMVTAMPPEYARMVM
SDGEHHARIRRIHAPVLSRPNTERWSERVAALVDGFLDNLDSADGTEVNLI
TDYTHKIPLAFTAEMGLPPGAERRLHDITEVM LYSADYALRQQAVGELF
EAVQEWVRDPAGLRDGVITGLLASADGPDATVTKGEAIVWTL SLIINGYE
TTGSLISAALYEALRRPARERPHTDEAVA AWIEETLRVQPPVPHTTWRF
A LADLDLGGYLI PRGAPVQISLAAANLDPDE DADSFDAQRRGRGHLSFGLG

AHYCIGAPLARVQTKIALRGFLRRFPQARLSLDTAPRWESEWMIRMSVL
PVLLA

>CYP107AY9 (2524947243) *Salinispora pacifica* CNY239

MSQDQPTRAELAPIPRSGTRIGPEYDQLRKTDGVHQQVLLPDTSMWLVT
PDLVSRALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPDHTRLRR
LVGPAFSPQORVAALRPRIQRTAEELAETMVATGSPVDLVTGYCTPLSVQV
IADLLGVDPDAGRTDLRAWTDMLTSYPPDRDAIRQAVVELHGYVNNLIEA
KQQRPGDDLSSALVATEQEGDRLTRDELTSALFLILFAGYENTANLIAS
VLRLLDHGSLRGVVRVSEAIEETLRLEPPAPAAIRRFPTTEMTIGGATIPA
GDTVLLSIAAATRGADGNPARLAFGNGPHYCLGAALARVEAEEAITVLAR
RLPGLALAVPGAPVRWRPTFRTHGPAELLVAV

>CYP105AB28 (2524947812) *Salinispora pacifica* CNY239

MTETASTTTPGISSTTTSGPASGEVTDAEFFPLERGCFFSTPTEYEQIREH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFFVSTDPE
RKQLQDQPTSMIGMDGAHAQARRALMGEFTVRRMAGLRPRIQQIVDQHI
DEMLSSDQRTADLVEALSPLVPSLVICELLGVYPADHDFQARSGLIRH
TTPTEVRLRIQKELNTYLALIDRKVADPTDDLRSRQIAKHHAAGTFDRT
SLVSMALLLIAGHETTANMISLGVVGLLQHPDQLAMIKEDPEKTAPAVE
ELLRYFTIADTVTARVATEDVQLGGTTINAGDGVVISGLAADHDPTVFTD
PDRDLERGARHHVAFGFGPHQCIGQTLARMELQIVFDTLFRRIPTLRLA
APLDDIPFKSDAFVYGAERLPVAV

>CYP107E37 (2524948458) *Salinispora pacifica* CNY239

VTIDQEIREYPPFRESRGIGIDPTYELLRRTEPLARVQLPYGEVSWLVTRY
EDVKTVLTDPRFSRAAAQGKDQPRTRAEMTYEGIIGLDPPDHTRLRLRLAG
KALTARRVNAIRADAQRIANEYVDEMIAGKSPGDLVELFALPYPVTVICE
LLGVFFEDRAQFRIWTEGLTSTSEQLMVYAEQLFDYMGKLVAQRRAEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTGVEVTVSTHINPFIYALLT
HPELMAQLRADRSVLPAAVEELLRMIPLNPAAMFPRYAVEDVTLSGITVR
AGQPVLVSLPGANRDPEVFENPETFDFTREQNPHVAFGHGPHHCLGAQLA
RMELQVALHTVLDRFPDLRLADGDEGVSWKSGLLVRGPSRLLVGW

>CYP1005A6 (2524948593) *Salinispora pacifica* CNY239

VSAVLFRSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLTDQVTY
RPDNALDAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTELVAERVAAIRATLDSGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAALFLWAPLDADRQLALADEVGRFHQVLREFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLAGEP
TVRAALRDGSVSVPNVVEEGLRLEPPIVWRRVAAVDSTLGGTAVPAGTS
VLLWLRAGRDPAIVSAPDEFPRPGQQGSRRHLAFGAGAHRC LGDQLARME
AAVVVEQVSPLLDGVTVVRAPWYPDNLTFRMPDAFVIRRGPAAGAAER

>CYP125A41 (2528437948) *Salinispora arenicola* CNR425

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPHETKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGFV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQSRPSDDLVTKLNVNAQIDGHELTDEFGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEIIIRWATPVNVFQR

TALVDTVLGQQAISAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211C1 (2528438096) *Salinispora arenicola* CNR425

VVDVEELLTRYSAQGRQDPFFVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLARRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAA PR
DTVLGGVPI PQGQNVLLLLIAAANRDP AHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP166A4 (2528439213) *Salinispora arenicola* CNR425

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGWIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRSRLTGHEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGI HQCLGQN
LARVELRAGLSALLRAFPNRLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP245A7 (2528439513) *Salinispora arenicola* CNR425

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGESGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRSLLNRSFSPRIVTEL RPRIARIAQELLSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRVDVGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGAEGLTTDAVEEFLRYDPPVQ
AVTRWAHQDTTLGGCDIPGRSRVVALLG SANRDPARFPSPDVLDVRRPAD
RHLSFGLGIHYCLGATLARAEEIIGLQALLDGVP TLYGTQHVDYADDLV
FHGPSRLVLVNLGERCT

>CYP244A4 (2528439517) *Salinispora arenicola* CNR425

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRI PYLGRHAW
VVCDRELVKQALTHPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRNTERWGERVADKVEGF LDELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLLISTSLYEAIRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGE GADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP105BL2 (2528439764) *Salinispora arenicola* CNR425

MSSQSAAAPDPETATPLHTLAPELTFPQFERPTFPDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLSDPRFSSDMSHPGFPNRTGKPVDDL

KDTLGAMDGERHRYRRMLTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPSPRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHDRDDLLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP105CH1 (2528439840) *Salinispora arenicola* CNR425

VSSLPLPTYPKLRDPADPLLPAPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHNPFPYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRRLLI SEFTVRQAQAMRPRIQQQLVDFHLEQLIAAGPGADFSKHFAM
QVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRTPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVNLT IARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALD TVLRRLPGLHLVTPFEELPFKYRHLVWGIEEL
RVAW

>CYP154M5 (2528439983) *Salinispora arenicola* CNR425

VEQSCPYKLDVTGRDVHAEGEAI RARGPVAQVELPGGVQGWSVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPPNWPLIGWLLMDNM TNDGADHQRLR
KLVSHGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNVTS SSGEEAEANVEQWHRELELV
EAKREKPDDEMASLLIAAKEEDGSTLTQEEVVGTLHMLGAGSETLMNAL
SYAVLGMLS NPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDP AVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPNM TLAVRPDQLEPQGT FIMNGHREL
PVRLGQPATVLA

>CYP105CT1 (2528440000) *Salinispora arenicola* CNR425

MNSPNHMPADRSLTAPTSGCPMALSRGRVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFN VAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEI IDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTD SHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGVLHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRL LTDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALRRFPGLRLAV
PDSELEFTQGT TVYSLRGLPVTW

>CYP107AY2 (2528440023) *Salinispora arenicola* CNR425

MTAEPTPIPRSGARLGQEYDQLRKTGDVHQVLLPDASLAWLV TNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRLRVGPAF
SPQ RVAALRPGIRRAAEHLLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRATDTMLTSYPPDRDAIRRAVTELHG YVVDLIDIKQQQPG
DDLSTLVTIEQDGDRLSRDELTS LAFLILFAGYENTANLIASAVLWLLD
HGGLNVVPISEAIEGTLRHEPPAPVAIRRFPTEDIIIGGV TIPAGDTVLL
SVAAATRGADGNAARLAFNGPHYCLGAALARVEAE EALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP105CP2 (2528440160) *Salinispora arenicola* CNR425

MTKSMPVQDLPAFPIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSA HARAVLS DYRRVSIKPYHGNYPLLN EEF EKVVDSGYADVLF GVDPP
EHTRQRQMIMPSFTLRR TAVLRPDIQRIVDDKLDEM MRHGAPGDLVTEFA
QPVP SMVMSFLLGVPWEDHEEFETPA HKLFVPELAE EATTEL GAYLERLI
QKKEQPGGTPGGTGLLDDLIRDHLRAGALS RDELVHIAMAMLVAGTD TTT
NVISLGT LALLDNPDQWAALRDN PDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRP RPSPFSFSH
GIHRC PGDNLARLELEIAFRSLVTRMPNLRTAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2528440162) *Salinispora arenicola* CNR425

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLV TGAAEARALLADSRVSNRADFPNYPVM DERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQLLLPRFTVRQVAARRPAIQ RIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVPYQDRTRFEP AVAGLFEPDRAD
AAMAE LTAYLHQ LIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGT LALLTAPGQYAALVDNPD LVP GAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNV TTHPDRLDVALP
PTNHLAFSHGIIHHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQ LPTY
FAGDVPRLACL PVTW

>CYP107FS2 (2528440163) *Salinispora arenicola* CNR425

MPVPQGEQNLTTEVFADPKALFATLGS RQPLHRISLPDGM PAVLV TGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVPFADRSEFERHA EVL TGINASSGFD AIIAAGRWFDEYLAELVQ
QRRREPQDDLISGMLAAQDKGDR L TDVELRSNALLLSAGFETT VNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCV TYHFAQEPVEI
GGFEIRSGEHVVIAAAAANHDPTVFADPSRLDLRREGSGQILSF SHGIHF
CLGAPLARLEGEIAFGTVLRRLAGLRLAVPTDSL VWKASFVLHRLERLPV
TFTPD RAPNPIDSVHTV

>CYP105AB8 (2528440410) *Salinispora arenicola* CNR425

MTETASSRLTDTEFPVQRECPFAEPVEYEQIRERSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDP AVRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQC IDEMLT TDQHRADLVKT
LSLPVPSLVICELLGVPPYADHDFEQEHTATLVRRNTASEVRQHS IDELNA
YLGALIDRKLASPDDDLGRQIARQHRDGT FDRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFF TIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPL DKIPFKTDAAIYG
ARELPVAV

>CYP208A12 (2528440769) *Salinispora arenicola* CNR425

MTLDTITPRVPLGPRTAALRMLLV MKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGDLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAE LTG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELET LNAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTL SLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRV PANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV

GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGGLPLVVRP
VS

>CYP211B2 (2528441210) *Salinispora arenicola* CNR425

MDVSEAI AVLISPSGR LDPYPT YQLRAHG PVSRTTAG LFVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIKSIARSMRLTNPPDHSRIRRLA
AGAFTPRRVAAMREVVT AQADELVD EMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLT TTA LVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVLLTRPEAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPA DSWLLVLLGAANRDP RRFDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGTPAGVAPGTP

>CYP105W2 (2528441323) *Salinispora arenicola* CNR425

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVS RHADVRQVLS DPERMSADRRRPGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEF SVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGV PYGEHEFFERRSTLMFRR
STPADERAR CAREIRDFLDMVVTDKERRPGDDVLSRLLYRQRSAGGMDHE
AVVSMAFVLLVAGHVTTSNM LALS V LALLTHPARLARLRAE PERFPAAVE
ELLRYFTVVEAATARTTTAEVTIGGV TIAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAHLAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLKLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2528441331) *Salinispora arenicola* CNR425

VLADAVTAFDPTAVDVRRDPYPSYHWWLLRHDPVHRGAHQVWYVS RFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQ LMSRNEIVSTVVT FIFTGHETVASQLGNGL
LSLLDHPEQMELMRQP HLPVQAVEECLRFDP AVQSNT RQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCSPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP1051A1 (2528441531) *Salinispora arenicola* CNR425

MATDAAITRARTVPAWKALPAAVRDTHRAFVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAWAA
SRRVLAPMFRPARINAMVD TMADAIAGAIDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLPWWIPMP
GDRRFRAAVRSID DILLPVL RQAQRQPDDGDDL SRLV HARADDGRALSE
KMRDDLVSMAVTTETSTVVL TWLWPLL ANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVDEL LRLYPAGWILPRRAATDVLGGVRINKGAT
VILSPYVTQRM TAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAAS TRPARTVEMI
LKPVAPVPA

>CYP105G5 (2528441556) *Salinispora arenicola* CNR425

LTIETTETTPADD SLRAPLP RQFMQRDDPSKLPPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLS DPRFSSDRFRYHPRFKKLSGQLGERLRNDK

ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRRAAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTF

>CYP107Q4 (2528441557) *Salinispora arenicola* CNR425

MTTTAETS AETIDLFSPEVVADPFGWYARLREETGPTTGTNLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRLTNPPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRLKLVSYALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIAKRRAEPQDDLVTALVQAQAEQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI
DRLAIGSEHGLGFGKGIHRCLGQHLYAQEAVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTTRTTLPLKLV

>CYP105J3 (2528441760) *Salinispora arenicola* CNR425

MTDSVAFFPQGRVCPHQPAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRTPAWPAIVPIVAAAVNDAQQKVLKIATALVGTGPE
HKAQRKMLIPSFTRRMNALRPMIQEIVDQQLEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGVLDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELRLFLSVPDAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP107EU1 (2528442284) *Salinispora arenicola* CNR425

VTIGQTLPLVYSPEFTRDPYAIFARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPADDLLTALVQVSADEDRLSREELVSMALLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRLDITRSTQGNLAMGH
GIHHCVGAAALARLELEIVLSRLVARFPQMQLAVEADDLEWLNVNSFFRAPL
HLPVSLRR

>CYP113S1 (2528442289) *Salinispora arenicola* CNR425

MDLRQSGMGTA PAYSLDGGRS LHRWLRDMREHHPVHRELLTRVWTLRYR
DITQATADPAIFSELWRYLPGDRGDDALTAGNLAMDP PRHRLVRDLVS
RSFTARAVGALRPRIAAIAAELIGAVADRGEMDVVADLS DPLPVLVIGEL
LGLPMADRELLSDWARRLLSFDKGDLTDEVVRKRVADTQQELLDYLRVHC
RRRTNPQDDLSRLIRA EVDGQRLTEDEVVN FANLLLLAGHVTTTLLLA
NIVLTLDEHPAVAAEARADRG LIPGLIEETLRYRPVIVSNMRVTTRAVTV
GTEQLPAGQLVLSLSFISGNRDEQYFTDPDRFDIHRDARKHLGFGHGIHYC
LGAPLARLELGIALDAMFDRFSRIEVTGVPVDYYDTPGVAGPRSLRIA FR
HH

>CYP107HF1 (2528442292) *Salinispora arenicola* CNR425

MYGDTEESAGVHSANNVTPLISTDPHAAYEHLREQAPACPIRSIEGSLMW
IVARHDGVRSVLGDARFANNPASVPGGKAPQLQANAMRRLGLDEELIPYL
ADTL LDSGKDHNRRLRRLVTPAFSARKVKALGPRIERLTDDLIDALPQHA
GGGVTDLLEHFAYPLPINVIGELVGVPAADLPAWLRWTHDLSFNQQALGQ
TLRPLVDYTYDLVRHRYDEPGEDLISELIQARDADGDRLSERELVTMVLS
LVIAGHDTTANFIANSIWALLTHPEQLALLRADPGLMPQAVQELLRWCGP
VLVSRMRYATEDVDLGGWTFQTGDAVTVALSGGNHDPRRFTDPGRDLITR
QHDTRGEVHLSFGAGPHYCLGAALARHEAEIALSRMLARHPDLALAVPAE
QLQWHAVSGMRKLATLPVRL

>CYP162A6 (2528442296) *Salinispora arenicola* CNR425

MPHGEP TLTLYANELCDPELYRQGNPEDLWRRMHAAAPVHEGIFEGRRFH
AVISHALISRMLKDPKGFSSERGMRLDQNPAAATSLAAGKMLIITDPPRHG
KIRRIVNSVFTPRMVARLEENMRVTAAGIVDQAIEEGECDFTDVAARLPL
SAICDMLGVPPEDWDFMLDRTMVAFGSGEDELAMAEAHADILSYEDLI
RRRRREPREDVV TALVNGVVDGTKLTDEEIFLNC DGLISGGNETTRHATI
GGFLALLDNPEQWETLRDDPGLLP GAVQEILRYTSPAMHVLR TAVAPTRI
GEYALNPGDPVALWLSAGNRDPQVFADPDRFDITRSPNPHLTFSTGAHYC
LGSALATSELTVLFDRLRLRRVDSAELTGPPRRTRSI LIWGYDSVPVRLTA
GSER

>CYP1005A1 (2528442475) *Salinispora arenicola* CNR425

VSAVLF RSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLT DQATY
RPD NALEAVTPVPVAALRVLAGHRFRLPPTLANNGGASHPAIRALVADAL
HPTKVAAQR PWTGLVADRVASIRTTLD SGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAV KQFARAAL EFWAPLDADRQLALADEVGRFHQVLR EFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFL TLLHRLSGEP
TIRAALRAGSSSVADVVEEGLRLEPPIV TWRRVAAVDSTLGGTTVAAGTS
VLLW LARAGRDP AVVAAPDEF RFGQ RGSRRHLAFGAGAHRC LGDQLARME
AAVVVEQATPLLDGVT VVRPPWYPDNL TFRMPDAFVVR

>CYP1198B1 (2528442535) *Salinispora arenicola* CNR425

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFG EYEHCSQILRHRDMGSDTSEAPSIKGFVDDAERAGSSIFFMDQP
GHGRQ RKLVS KSFTPRIVKSFGPQITHIVDGLFEDFRDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKNPGDDLVSLLATESNGERLTRFEV
TSVLATL FVA AHSTTNLISGGILALLRNQDEMAVLRENPGLI TNV VDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDPRAYESPDV
FDVNRKIKNVSLAFGAGAHFCIGSGLAKLEAEIAISAF AQRLKNPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP1004B4 (2518496743) *Salinispora pacifica* CNR942

MTTSALAPRFDALDPNVVENPYPEYARLRAAGPLCRLGPGSWGVT RFADV
TSLQHDPRLGSEFPAGYHEVSVGDGPASAFFQRVMLYRDPDHIRLRLV
SGAFTPAVVRRLRAHIEDLVDELLAPALAAGRMDLVPELAYPLPVRVICR
LMGIPLES AEDVRHHATNIGRAFTAVVPEQTRVDADEAVSWLREHLGALL
EKRRSRPGDDL SRLLD AEESGDNL SADEIVDNTVFSFFAGFETTVHMIT
TGTAALLAHPDQLARLRADPSLVTTAVDEF LRWD APIQGTARYVREPIEI
GGRTIRRG RVLVLMIGSANHDERRFARPDRLDVGRQDNPHVAFGGGAHLC

LGAYLARMEGAVVFDRLARLAVLEPDGPTVREPNTPFRAVASVPVRIGDG

>CYP1005A6 (2517379615) *Salinispora pacifica* DSM 45548

MSAVLFRSWTKTAGTHWPAVTRVADRQGTGTEHLVVTEHALVRQVLTQVITY
RPDNALDAVTPIPVLTALRVLAGHRFRLPPTLANNGGVNHPAIRALVADAL
HPAKVAAQRPWLTELVAERVAAIRATLDAGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAALFWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLAGEP
TVRAALQDGSVSVTSVVEEGLRLEPPIVTVRRVAAVDSTLGGTAVPAGTS
VLLWLARAGRDPAIVPAPDEFPRPGQGRSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTVVVRAPWYPDNLTFRMPDAFVIRR

>CYP211B13 (2517379950) *Salinispora pacifica* DSM 45548

MDASEAVALLMSPPGRLLDPYPTIERLRAHGTVVPTAAGFFVVTGYTEADT
VLRNPRFGVMDDEEREGVFFHWQESPAAMMSISQSMIRANPPDHSRMRRLA
AKAFTPRRVAALREVVAQAADGLVDGMIRAGRGGAPVDFLGSFAYPLPVA
VICALLGVPAADWAQFRRWASDLTGVLPEIITPQELAVADAGARELRDYF
TELVAQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVVLLNHPDSATALRDQPELAPSYVEELLRYDSPVQLTTRTVR
ESVPLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPRAQSPPLSFGA
GAHYCLGAGLARLEAQAFAFPLLLRRLPELALAGEPTRRNRLTLRGYETLP
VTVGAVAADHGTPAGVALGTP

>CYP1278B4 (2517380076) *Salinispora pacifica* DSM 45548

MPSPVGAVVHPNPYPYYAAMVAERPFFHFDEQLDTWVAASAAAAQAVLTAP
GCRVRPPHEPVPQGIGTGPAGDVFGNLVRMTDGEPOHRLKAIVTQTLGAV
DRSTVAATAMRHARQVLNDSVRTPYEQLMFELPAQVVATLCGLDPAAGGE
ATRLVGHFVQCIPATASPEQQQRAARAAAGLQELLGSKLDDTQHGLLGDL
VRMATHVGWTDQAPLLANGVGFLSQTYDATAALMGNTLLALSQQECELP
SEMALQRFVREVIRHDAPIQNTRRFTATPIRHGDVEVPAGQAVLVLLAAA
NRDPAANPDPHMFADRTAPNVFTFSAGAHHCPEGETLAVTIVTTVVEQLL
RVGFDPAKLSTQVSYRPSPNARIPVLTD

>CYP107AW9 (2517380421) *Salinispora pacifica* DSM 45548

METVTGTSAPPPVPYIADPYPTLARIRANGPVSIHLSDEGLPMWVIARYQ
DVRAALADPRFGQDSRRAQALADNRVAGVTLLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLAGRTTVDLVQDFAFPLPMLV
ICELLGFPAEERNVYRSWSTAILTHDDDPATAFATALREMTDYIAVQLRIR
QTRPGDDLLELLAARDAGQLTDDEIIGMVFLLLIGGHETTNNLLGTATL
ALMRNPDQHRWLLANQPALPEAIDEFLRYESPAMATLRFTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILNRHDTGHLLAFGHGLHRCLGA
LLGKLEGEVALGALLRRYPRLALAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP107AX11 (2517380433) *Salinispora pacifica* DSM 45548

MTSPAPVFDQLLLRDPHRRYNALRDEAPVHHIRTPDGAPAWLVTRYDDV
RAAFTDPRLSVDKRLSSTDGEHGSSLPPELDAHLLNRDPPDHTRLRRFAA
AAFTPRRVADLRPAVERIVSTLLDGLAGNDHAELIGSLASPLPLQVMQEL
LGLPTQTSVDFRTWTNTLLSADANQPAQSRSAMASMRFLIEQLAHKRAR
PGDDLTLGLLAPHADGDRLSDDELVAMLFLLMFAGYDNTAALIGNVAHAL
LTNAELAEAVRTGSLAVDELVDGVLRWNPSFPLAVRRFAREPVTIAGQLI
PAGDRIWLCLASANRDPAQFTEPDTLGTGMRCPHLSFGHGIHYCLGAPL
ARLQTTVAITSLLDRFPGIRLAVPAQDIRWRESFRLRGLVALPVFLSDGC

GSGGTYG

>CYP211C4 (2517380642) *Salinispora pacifica* DSM 45548

MPDIEGLLTRLYSAPGRQDPYPVYADLHAQAAIAALAPRPERQORVAAVAV
GYDLVAAVLRDPEWGKQPPPGWTDQEILRTLQSSMMFINPPDHGRMRHVF
AGTFTPRRLGALAPVINRVTDDELLDRMADAGPGEVDFVTEFAYPLPARVM
AEFIGIPATELTWYRERVDRIDAFLDVAGKTPERLAAANAAGAE LRAFYR
ELLVHRRRMPGEDLISGLVEAVDAGGVELTEEELISNLIVLFNASFVTTV
YLLSNGLPVLLAEPEVAAALADDPELTAGAVDEILRLQTPVHLLARAAPR
DTVLGGVSI PQGQNVLLLIAAANRDP AHFPDPRDFDPRRSGPPSLAFGLG
LHYCLGA AVSRLEGR LALPRLLSRFPRLRILEQPVYSGSLFLRGIDRLSV
SPGGRSIRE

>CYP125A66 (2517380770) *Salinispora pacifica* DSM 45548

MTEPRIPKGFDFTDPAVLERRVPREEFAELRRTAPVWWNAQPKGSAGFDD
DGYWVVTRYADVM AVSRDSE TYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPPEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAARDTGDFV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGVDPMAASA
ELLAYAMEMAHERQRNPSDDLVTQLVNAQIDGEHLTADEF GFFVMLLAVA
GNETTRNAITHGMLAFLENPEQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLAGQAI SAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRQLADPQRLRSGWINGI
REL PVQYH

>CYP107AY10 (2517382711) *Salinispora pacifica* DSM 45548

MYQDQPTRAQLAPI PRSGALLGQEYDQLRKTDGVHQVLLPDTSMAWLVTS
PELVSRALADPRLALNRKHSRGWSGFALPPALDANLLNLDAPDHTRLRR
LVGPAFSPQRVAALRPRVQRTAEELADTVLATGSPVDLVTGYCTPLSVQV
IADLLGVPEAGRTDLRAWTDTMLTSYPPDRDAIRRAVVELHG YVVNLIDA
KQQRPGDDL LSALVATEQEGDRLTRDELTS LAFLILFAGYENTANLIAS T
VLRLLDHGSLRGVQASEAVEETLRLEPPAPAAVRRFPTEEMTIGGATIPA
GDTVLLSIAAATRGADGNSARLAFGNGPHFCLGAALARVEAEEAITVLAR
RLPSLALAVPGAPVRWRPTFRTHGPAELLVTW

>CYP1223A5 (2517383474) *Salinispora pacifica* DSM 45548

MREVGRAVQALFGPAGCAEPYPHYEALRRAAPVCPLPDNIVLVSR YAEAE
RVIRDPRFLMEDA AWIGQSHPGWTEHPSFRSLMLEMVNHNPPDHARLRLR
VSRAFTPRRVAELRPAVEQLIDDL LDQMAAREGGTADFMADFALPLPVTV
IGELLGIPPADRIWFAPRVEAFTDAIEESMRGPSLAEADQAVKELWARLG
ELADERRRNPRNDMVSELVSVSDSGDDR LSHDELLANLVLLYAAGYETTS
NLLGNGLAALLERPALKERLRQNPTQASAFVEEMLRFDPP IQIATRYTAQ
ATTLGGLNIDAGTQII VLGISANRDPDRFADPDEFDPDRADGGSMVFGVG
AHYCLGAALARMEAEIAFPRL LDRFPAITGHAPGVRRRKSLRGFTQLPIS
LS

>CYP105AB33 (2517384161) *Salinispora pacifica* DSM 45548

MTETASITTAGASSTATSGPGSGEVTDAEFFVERGCPFSTPAEYEQIREH
APLAKVRLTTGREAWWIAGHELARAVLADRRFSSDRRRDNFPFVSTD PET
RKQLQDQPI SMLGMDGAEHAQARRALMGFTVRRMAGLRPRIQQI V DQHI
DEMLSSEQRSADLVEALS LVPVSLVICELLGV P YADHDFQ AHTGPLVRH
NTPSQVRVRIQEELNTYLGG LIDRKVADPTDDL LSRQIAKQRAAGTFDRT

SMVSMAFLLLIAGHETTANMISLGVVGLLQHPDQLAKIKEDPEKTPPAVE
ELLRYFSITDVTARVATEDVQLGDTTINAGDGVVISGLAADHDPTVFTD
PTRIDLERGARHHVAFGFGPHQCIGQTLARLELQIVFDTLFRRIPTLRLA
APLDDIPFKSDAIIYGAEELPVAW

>CYP211B11 (2571072052) *Salinispora pacifica* CNH732

MDASEAVALLTSPPGRLDPYPTYERLRAHGPFVVSTAAGFFVVTGYTEADT
VLRNPRFEVMDDEERDGVFPHWQDSPAMISISRSMIRANPPDHSRMRRLA
AGVFTPRRVAALREVVAQAADGLVDEMIRAGRGAAVDFMGSFAYPLPVT
VICALLGVPTADWARFRHWASDLTGVLPEITPQELAIADAGASELRDYF
TELIAQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVLLTHPDSATALRGQPELAPGYVEEFLRYDSPVQLTSRTVR
ESVSLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLRRLPELALAGEPTRRHRLTLRGYETLP
VTVGAVPADPGTPAGVALGTP

>CYP107AW7 (2571072364) *Salinispora pacifica* CNH732

VETVTGTSTPPFPYIADPYPTLARIRANGPVSILHSDEGIPMWVIARYR
DVRAALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAAFATALREMTDYIAVQLRIR
QTRPGDDILTELLAARDAGQLTDDEIIGMVFLLLIGGHETTNNLLGTATL
ALMRNPDQHRWLLANQHALPEAIDEFLRYESPVAMATLRFTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPRLALAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP107AX4 (2571072377) *Salinispora pacifica* CNH732

MTSQPAPVFDQLLLRDPHRRYNALRDEAPVHHIRTPDGAPAWLVTRYDDV
RAAFIDPRLSVDKRLSSTDGEHGSSLPELDAHLNRPDPDHTRLRLRLAA
AAFTPRRVADLRPAVERIVSTLLDGLVGHDQAEILIGSLASPLPLQVMQEL
LGLPTQTSVDFRRWTNTLLSADANQPAQSRSAMANMRRFLVEQLAHKRAR
PGDDLLTGLLAAREDDRLTDDELVAMLFLLMFAGYDNTAALIGNVVHAL
LTNTELPAAVRTGSLALDELVDGVLWRNPSFPLAVRRFAREPITIAQGTI
PAGDRIWLCLASANRDPAQFTAPDTLGTTGMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVTILLDRFPGIRLAVPAHDIRWRESFRLRGLVALPVFL

>CYP124M3 (2571072403) *Salinispora pacifica* CNH732

MTVPIELDAVDLSDNDFWTKPLEYRHAVFNALRAQPGLPHFASPEFGSAP
RGRGYALTRMDDVLAASRNPSVFI SGKGNVAMEVPAEFLDQSLITMDNP
RHARLRRIVSRGFTMKAVTALMDNASQMAKQIVDEVVERGECDVVDISA
KLPLGII CKMMGIPDSQQQFVFEQTNVMLGVQDPEYVGEQNDAMLAMSV
SQELADLMHELATLRKNPTDDLISKLLSAEVNGEALTPSELAHFFILLT
GAGTETTRNAISWGIQLLTQSPEQREAWLSDIDGVTPTAVEEIVRWSSPV
ISQRRVAEDAEPVKLAGQLLGPDKVLMFYGAANRDPNYFVHPEGFDVR
RSPNPHVGYGGPGPHFCLGAHLARLEISVMFRELLTRIPDIHATGEPARL
KSPLINGIKRLPVAFTPGAR

>CYP208A22 (2571072424) *Salinispora pacifica* CNH732

MTVIADRGGRIPPGPPVTAGLRLLLLALGRDRLGMMTSAAA EYGDVARLPV
GPKKLYFFNHDPDHAKHVLADNHANYQKGIGLVHARRALGDGLLTSEGELW
RKQRRVIQPAFQNRRLAQYAGAVGQEATRLVARLATRVDPVPVDVLEMT
RLTLGLVLRGRTLLDAELTGFGHGVGESFAAVQDQAMFELETINTVPTWIPLR
RQRRFRRARQHLQEVVDVLA AERGQAVEGRDDVLSRLILSTRAEADPQLG
RERLRDELVTLLLAGHETTASTLGWSLHLLDQHPELRERVRHEARTVLGD
RVPAYEDLHQLRYTAMVVEEAIRLYPPVWILTRKARAEDEIGGYRVPAGA
DILICPYTLHRHPRFWAEPERFDPERFDP SRTTDRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLA VLLRDLRLEGLPGRAVVPEPMLSLRV

>CYP125A65 (2571072506) *Salinispora pacifica* CNH732

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRTAPVWVNVQPRGSAGFDD
DGYWVVTRYADVMASRDSETYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGVDPMAAAA
ELLYAMEMANERQRNPSDDLVTQLVNAQIDGHELTDEF GFFVMLLAVA
GNETTRNAITHGMLAFLEHPDQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLGGQAITAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REMPVRYR

>CYP1005A6 (2571073440) *Salinispora pacifica* CNH732

VSAVLFRSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLT DQMTY
RPDNALDAVTPI PVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTTELVAERVAAIRATLDSGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARA ALELFWAPLDADRQLALADEVGRFHQVLR EFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFL TLLLHRLAGEP
TVRAALRDGSVSVPNVVEEGLRLEPPIV TWRRVAAVDSTLGGTAVPAGTS
VLLWLARAGRDPAIVSAPDEL RPGQRGSRRHLAFGAGAHRC LGDQLARME
AAVVVEQVSPLLEGVTVVRAPWYPDNLTFRMPDAFVIRRG PAGAAER

>CYP107FH3 (2571074485) *Salinispora pacifica* CNH732

VPIELDEAFVQDPYAVYEKLRAEGPAHRVRMPPGVPLIGGLPVWLITGYD
AVRAALADSRLSTDLHRIDGLFAQKDPDRSHRGGFSSALASHMMHTDPPD
HTRLRKLVSKAFTTRAIEALRPRIQQTDELTAELAGHDTV DLLDAFAFP
LPIRVICLLLGVFVAEQENFRSWSRALVSGHSPEAAATAATEVAAYLGDL
VERKRHATTDDVLTALVA AHDVDDRLTHTELVSTAYLLFIAGFETTLNAL
GNGTLHMLHRDQWTALRADRALLDNAVEEFRLRLESPLKHATFRCATESL
RIGDAEIAAGDFVLLAIASANRDP RRFDPHTLDVRRPAAGHLAFGHGHIH
HCLGAPLARVEVRMAFDALLDAFPDMRLATDPAGLRWRNSTIIRGLDSL P
VHLNN

>CYP2054A3 (2571074491) *Salinispora pacifica* CNH732

MSISADSEQVQGRFPDPYGAHRDDPYTFLAGLG VFYAPLLDAWCVTRRED
MVAVLRDDRSFSARDHNPRPAVALPDDVNQMFR TWRGAGAVAVGSLDPPA
HAKIRDVLNIGFTPARVRAFEPTMRAVAADLADRIGDAPEFDFIADFAVP
FALEVIGRRLGV PDDYLDRCRTWSEQRIELMMAQGDADHDRLREFARGLM
EFGEFARSILVRDRVADPRDDLISELLHDGKAGRTLTADEVAVQIPTLI FA
GHMTCAEALGTIFYQQLRSPGGWARVVDRTIPVGD LVEEGLRFDSPLAGM
YRTATRDVTVGGIRLTAGSRL LLLYGAAGRDSRAHACPAAFRPGDGSSGH
LAFGHGHIHFCLGAGFARAELRVAVEVLAARMPDLGLAPGRPPRFRPVFPL
RALTEL RVTRSGGGSGP

>CYP161N4 (2571074496) *Salinispora pacifica* CNH732

VNTVAQLPFTQTHVLDVAPALRLLQSRGKVHRVRTPEGVPAWLVTGHAEV
QQLDDDDRLSRSDPGGRDGGTALLNKLLGPLADDPRLRSLLEPQFTPER
LEPLRAVVEKLTEQHLDELATRTPVDLRPTLAMSLPILVLCEWLGVPAE
DKGRFSVWTQDAAGVQDPERSQRGLAELFGYCRQLVAAKRQDPADDVISR
LIATAGIGDTEVVALTALLLFGGYETTVARIGTGVLNLTNPQWAAVRA
DPALVPATVDELLRRSMPNPHNGGMPRFAVTGFEIDGAAIRAGDLVLLNI
IAANHDETAFPDPDRLDITRPTAGSLAFGYGRHSCVGAPLARMVLRVALS
RLITRFPDLRLAVGVDELKLRHETLVGGLVELPVTWGPR

>CYP107AY9 (2571074630) *Salinispora pacifica* CNH732

MSQDQPTRAELAPIPRSGARIGPEYDQLRKTDGVHQVLLPDTSMAWLVTS
PDLVSRALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPDHTRLRR
LVGPAFSPQORVAALRPRIQRTAEELAETMVATGSPVDLVTGYCTPLSVQV
IADLLGVDPAGRTDLRAWTDMLTSYPPDRDAIRQAVVELHGYVVNLIEA
KQQRPGDDLLSALVATEQEGDRLTRDELTSALFLILFAGYENTANLIAS
VLRLLDHGSLRGVRVSEAIEETLRLEPPAPAAIRRFPTTEMTIGGATIPA
GDTVLLSIAAATRGADGNPARLAFGNGPHYCLGAALARVEAEEAITVLAR
RLPGLALAVPGAPVRWRPTFRTHGPAELLVAW

>CYP244A10 (2571074650) *Salinispora pacifica* CNH732

MQDTAQANLAEAPEVRMPIELRPTDCLPELLAAARVAPVVRTPYLDQHAW
VVCDELVKQALTHPKLGKDVALAPDWMRQPGQMTAMPPEYARMMVMS
DGEHHARIRRIHAPVLSRPNTERWSERVAALVDGFLDNLDSADGTEVNLI
TDYTHKIPLAFTAEMGLPPGAERRLHDITEVMLYSADYALRQQAVGELF
EAVQEWVRDPAGLRDGVITGLLASADGPDATVTKGEAIVWTLISLIINGYE
TTGSLISAALYEALRRPARERPHTDEAVAAWIEETLRVQPPVPHTTWRFA
LADLDLGGYLIPRGAPVQISLAAANLDPDEDADSFDAQRRGRGHLSFGLG
AHYCIGAPLARVQTKIALRGFLRRFPQARLSLDTAPRWESEWMIRMSVL
PVLLA

>CYP105AB32 (2571075163) *Salinispora pacifica* CNH732

MTETTSTTTTSGISSTTTSGPASGEVTDAEFFPVERGCFFGTPTEYEQIREH
SPLAKVRLTTGGEAWWIAGHELGRAVLADRRFSSDRRRDNFFFISTDPE
RKRLRDQPTSMGLMDGAHAQTRRALMGEFTVRRMAGLRPRIQQIVDQHI
DEMLSSDQRTADLVEALSLPVPSLVICELLGVPIADHDFQARSGLVVRH
HTPSKVRVRIQEELNTYLGALIDRKVTDPTDDLLSRQIAKHHAAGTFDRT
EMVSLAFLLLIAGHETTANMISLGVMGLLQHPDQLAMIKEDPEKTPPAVE
ELLRYFTITDVTARVATEDVQVGDTTINAGDGVVISGLAADHDPTVFTD
PDRDLERGARHHVAFGFGPHQCIGQTLARIELQIVFDTLFRRIPTLRRLA
APLDDIPFKSDAIYGAERLPVAW

>CYP107E37 (2571075683) *Salinispora pacifica* CNH732

VTIDQEIREYPPFRESRGIGIDPTYELLRRTEPLARVQLPYGEVSWLVTRY
EDVKTVLTDPRFSRAAAQGKDQPRTRAEMTYEGIIIGLDPPDHTRLRRLAG
KALTARRVNIAIRADAQRIANEYVDEMIAGKSPGDLVELFALPYPVTVICE
LLGVPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFDYMGKLVAQRRAEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTGIVETVSTHINPFVYALLT
HPELMAQLRADRSVPAAVEELLRMIPLNPAAMFFPRYAVEDVTLSGITVR

AGQPVLVSLPGANRDPEVFENPETFDFTREQNPVAFGHGPHHCLGAQLA
RMELQVALHTVLDLDRFPDLRLADGDEGVSWKSGLLVRGPSRLLVGW

>CYP1004A3 (2518496747) *Salinispora pacifica* CNR942

MRANTARPHLSAAFLATKDDPYPAYAELRARGPLTRAELGQWLVTGHGAV
SALLRDGRLESMPAEYTRLTGLDSPGVDFLHRIVLTRTPPEHTRLRRI
GQALGTPVVRRLHDRIAAATDALLEPALDRGRLDVVTELAVPLPVGVVCD
LIGIPTGDRPAVLTRVTALAKVFDAANLSPADLADINTALPWLHDYFGDL
LATRRVSPGGPTLAEMYWEESASDRLAVADFVDNMLFLFHAGFETTMGLV
SNGVAALLNHPEQLGRRLRADPALVPSAVEEFLRYDAPIQNVRVARKPVE
VAGQKIRAGRTVLLLLGAANRDEKVFADAERLDVGRDPNPHLGGGGLHH
CVGTALARLMAVVVFERLVGRVAVLGPAAPAVRRRHASLRSYDHLPLVVA
AR

>CYP125G4 (2518496786) *Salinispora pacifica* CNR942

MSTEIVSTGNRADIAPATYAAGVPYAEFARLRREEPVSWVPEAPLWRRS
GEGRILSQGPFWAVTTHEGVVAASRQPEVFFSSGRQGAFLADPRTTADLE
QARQLLVNMDAPQHARVRLVTAVFTPRAIRALGESVTAHARNLVERAVR
QEEDVVADLAELPLLVLADLLGLPREDRHLLYQWSNNLVGFDDPEYGG
GDVEAYRRTFFFAFYALSVADERRRAPREDLMTLLATGEADGRRLTDRE
FCNFWLLLVVAGNETTRHLITGSLVALVDNPTQRRERLVADDTLLPSAVEE
LLRWVSPIMQFRRTAIVDTELHGTPIAAGDKVVLWYASANRDAAVFEAPD
ELRLHRNPNPHLSFGMGPHFCLGAHLARLEARAMLRELAPHLRSFRLSGQ
VVRLESNFVNGVKSPLGFSFTEQ

>CYP208A24 (2518496866) *Salinispora pacifica* CNR942

VTALADRPSRLRPPGSPSPWSAPWLLARMARNRLDVMRSVSARYGDAVRLP
LGPKTLYFFNHPDHAKHVLAENPGSYHKGIGLVHARRTLGDGLLTSEGEL
WRKQRKTIQPVFQARRIARQAGAIABEAVGLADRLHTMVGRDDPVDIRHE
MTDLTLGVLGRTLDDTLGDFGGIGDAFESVQDQAI FEMMSLGAVPTWVP
LPRQRRFRARRAELOQDVVDQLVARRRAAGGVEGRDDVVSRLIESTGEETD
PQVARQRMDELVTLLLAGHETTASTLTWAFQLLDQHHDVWERVHAEAVE
VLGDRIPVYEDLHRLRYTAMVVDEVMLRYPPVWLLPRIAQRDDVVGGYHV
PAGADLVLCPYTLHRHPEFWPEPDRFNPDRFDPELGTDRPRYAYIPFGAG
PRFCVGNLTGLMEAVFVIACVARRLRLSVQPGYRLVPEPMLTLRVRGGLP
MRVHEA

>CYP125A15 (2518496962) *Salinispora pacifica* CNR942

MTEPRIPAGFDFTDPAVLERRVPREEFAELRRTAPVWWNVQPRGAAGFDD
DGYWVVTRYADVMASRDSETYSTRENTAIARFQPGTTKADLEMQRVIML
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
TDVACELPLQAI AELIGVPQHHRKVF'DWSNQLIGYDDPAYGVDPLAAAA
ELLYAMEMANERQRNPSDDLVTCLVNAQIDGEHLTTDEFGFFVMLLAVA
GNETTRNAITHGMLAFLEHPDQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLGGQAI SAGQRVALFYGSANFDESVEEPPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHMPDIHKVAEPQRLRSGWINGI
REMPVRYR

>CYP211C5 (2518497102) *Salinispora pacifica* CNR942

VLDVEDLLARLYSAQGRQDPYPVYANLHAQGAIAALAPRPERQ RVAAVAV
GYDLVAAVLRDPEWFKQPPPDWTEQEILRTLQSSMMFINPPDHGRMRHVF

AGTFTPRRLGALEPVINRVTDDELDRMADVGPGEVDFVAEFAYPLPARVM
AEFIGIPATELAWYRERVDRIDEFLDVAGKTPERLAAANAAGADLRAFYR
ELLARRRRTPGDDLISGLVEAVDAGGVELTEDELISNLVVLFNASFVTTV
YLLSNGLPVLLAHPEVAAALANDPELAAGAVDEILRLQTPVHLLARTAPR
DTVLGGVSIPQGGQNVLLLLIAAANRDPARFPEPDRFDPRRPGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRILEQPVYSGSLFLRGIDKLSV
SPGGREHP

>CYP1005A6 (2518498742) *Salinispora pacifica* CNR942

VSAVLFRSWTKTAGTHWPAVTRVADQQGTEHLLVTQHALLVRQVLTQVTV
RPDNALDAVTPIPVAAALRVLAGHHFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTTELVAERVAAIRATLDAGGSADLHADLSADLPLLVLAR
LVELPDAPVSAVKQFARAALFWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLHRLAGEP
TVRAALRDGTVSVTNVVEEGLRLEPPIVTVRRVAAADSTLGGTAVPAGTS
VLLWLARAGRDPAIVPAPDEFPRPGQSGRRHLAFGAGAHRCCLGDQLARME
AAVVVEQVTPLLDGVTVVRAPWYPDNLTFRMPDAFVIRR

>CYP163B18 (2518498936) *Salinispora pacifica* CNR942

LTRTIDLADPATFATHDLTNFWQRLRDEEPIYWNPPPTGGRRGFVLSRHA
DILEVYRDDINFTSERGNVLVTLLAGGDAGAGRMLAVTDGPRHAELRKLL
LRALGPRVLGPVCSAVRTNTRQMIGEAAAASGECDFATDVASRIPMITISN
LLGVPEADRAALLKMTKTALSADDESVSSETESEVARSEILLYFQDLVEFR
RKKPGEDVVSMLVNSSIDGVPLSDDDVVLNLCYSLIIGGDETSRLTMIDSI
YTLAANPEQWMRLKGGRCIDKAVDEVLRWASPSMHFGRTAVRETDIHGE
RIRVDDIVTLWHASGNRDERAFSQPEVFDLGRAPNRHLSFGHGPHYCIGS
YLAKVEISELLMALRDLTRGFEIIGEPQIRSNLLTGFSMPVRFVSA

>CYP105AB25 (2518499154) *Salinispora pacifica* CNR942

MPETASITTPGTSSTTPSGTSSTATSGPASGDLADVEFPVARGCPFSTPA
EYEQIREHSPITKVRLTNGGDAWWIAGHELGRAVLADRRFSSDRRRDNFP
FVSTDPETRKQLQDQPTSMGLMDGAEHAQARRALMGFTVRRMAGLRPRI
QQIVDQHIDEMLSSEQRSADLVEALSPLVPVSLVICELLGVYPYADHDFQQA
HSGPLVRHNTAPEVRARIQRELNTYLGALIDRKVTDPTDDLGRQIAKQR
AAGTFDRTSLVSMAFLLLIAGHETTANMISLGVVGLLQNPDLAMIKEDP
EKTPPAVEELLRYFTIADTVTARVAIEDVQLGGTTINAGDGVVISGLAAD
HDPTVFVTDPRIDLERGARHHVAFGFGPHQCIGQTLARMELQIVFDTLFR
RIPTLRLAAPLDDIPFKSDAFVYGAEKLPVAW

>CYP1207A12 (2518499459) *Salinispora pacifica* CNR942

MITVPPTDRYLLDEDLVADPPYPYLAELRVAEPVRWSPVHRAWLVTGYEAA
ASCYAEPAISADRIGPMLAQTPLELLSPEAARAFTIMAGWMVFVDPPEHR
RLRSVFRGAFGARQVRRNRPMVQEAVTRLTARTGTVGDTVDLVAEFARPL
PATVAASWMMGVPEDTAMFQRWAIQVGDALGTVQSPEEYERSQQALLDL
FDYLRMLVRTRRATPGEDLISAALANGLVGDSVSEDEFVAMLTHVAFAGG
ETTSNLIAGVTWNLLRRPDQLALLRAEPAPVAIEELLRFDPGSKMSIR
HVKNDELALAGQRLRAGQRLYVVVTAGANRDPDYFDHPNELDVRRHPNPHLG
FGQGGHFCLGAPLARLVAGAALTDLLAAAPGLALATAEVRWQPSLLNRS
QELPVR

>CYP211B17 (2518499926) *Salinispora pacifica* CNR942

MDASEAAALLMSPPGRLDPYPTYEQ LRAHGPPVPTAAGFFVITGYAEVDT
VLRNSRFGVMDGEVRDGVFPHWQDSPAMMSIAQSMIRANPPDHSRMRLA
AGAFTPRRVAALREVVAQADELVDDEMIRAGRGGAPVDFMSSFAYPLPVT
VICALLGVPAAADWAQFRRWASDLTGVLEPEITPQELAIADAGASELRAYF
TELIAQRRRAPADDLTALVQAHD TDGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLAVLLTHPDSATALRDQPELAPGYVDELLRYDSPVQLTTRTVR
ESVPLAGVELPAGSWLLVLLGAANRDPARFTD PARFDPGRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRNRLTLRGYETLP
VTVGAVAAGHHGMPAGAALGTP

>CYP107AY3 (2518501126) *Salinispora pacifica* CNR942

MSQDQPTRAELAPIPRSGAQLGQEYDEFKAGDVHQVLLPDSSSLAWLVTN
PELVSRALADPRLALNRRHSQGGWSGFALPPALDANLLNLDAPDHTRLRR
LVGPAFSPQRVAALRPRIIRRTAEHLLDILVATTD PVDLVTGYCTPLSVRV
IADLMGVPEAGRADLRWTWDTMLTSYPPDRAAIRQAVVELHG YVVSLIAA
KQQQPGDDL SVLATIEQDGDRLTRDELTS LAFLILFAGYENTANLIAST
VLRLLDHGGIRDVRVPA AIEETLRLEPPAPAAVRRFPTEEMTIGGATIPA
GDTVLLSIAAATRGADGSTTRLA FGN GPHFCLGAALARVEAEEALTVLAR
RLPGLALAVPVAQVRWRPTFRTHGPAELLVTW

>CYP107AX3 (2518501647) *Salinispora pacifica* CNR942

MTSRPTAVFDHRLLRDPRARYNALRDQAPVHHVLT PDGAPAWLVTRYDDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPELDAHLLNRPDPDHTRLRLRLAA
AAFTPRRVADLHPAVERIVSTLLDGLAGHDRAELIGSFASPLPLQVMHEL
LGLPTQANIDFRTWTNTLLSADANQPAQSRAAMANMRRFLIEQLTHKKAQ
PGDDL LTGLLAAREDDRLTDDEL VAMVFLLMFAGYDNTAALIGTVTHAL
LTNAELHEAVRGGSALDELIDEVLRWNPAFPLAVRRFA REPIT IAGQTI
PAGDRIWLCLASANRDPAQFTQ PDELGIVGLRRPHLSFGHGIHYCLGAPL
ARLQTTIAVTNLLNRFPKMRLAVPAHDIRWRESFRLRGLIALPVYL

>CYP113X1 (2518499515) *Salinispora pacifica* CNR942

VTTSETTIPPQPNVNDAAIYPWYRMMRDEHPVRRDPVTGWWVYRYDDAR
HVLTNPQIFSSSEMHRMGYPESGLES LPQMDPPRHTRVRRI LGTAFTPHSI
GEFEPLIVRITNEVIDGFVDKDRVDFVAELAYTVPIAVILEVLGLPSEDR
VHFYDWARRVMDVTPEQMAQEGYAESLFDMQQDAVSYLREKVHERRGKAG
DDMLTRLANAQLDGDTLTDDETANFANVMFAGGHISTMTIANTIDLLDM
NGQAQRDVRDNPSLLPQAIEEVLRRHRPPITTGLRGSTRDVELGGVTIPKH
QYVAASFCSANRDERQFTHPDAFDIHRAGEVRHFGFGFGTHHCIGNALGR
LETRLVVRTLHERFKKITVDRDGEVAVAKPPQMVG YDKLPVVLQPA

>CYP154J2 (2515956097) *Salinispora pacifica* CNT029

MDHTAEKSGGYPYPLDPNGTDTHGETKTLREQGPIARVELPEGVVAWSVH
GYEAGKQIMSDERFSKNPRKSWPAYINGEISPGWPLITWAVMDNMATHDG
EDHARLRLRLLLRAFTTGRVESMRPRIRATVNELLNLD AAGANGPIDLRA
TYTQELPTRL MCDLFGVPEDRRAEVLQGGHTNVDTRISSEVAEANVVQWE
NAIAELVTYKHNPGDDLTSALISAKEEDGSRLSDNELVGT LHLLLGAGS
ETLVNGLSHAI IAVLTDPELRAGVTGGEISWDDVFEETLRVESPV AHLPF

>CYP244A5 (2515956308) *Salinispora pacifica* CNT029

MSATTNAELGEAPETSMFPVDPGLFDCMPDLIAAARIAPVVRIPYLGRHAW

VVCDRELVKQALTHPKMGKDITLVPEWMRQPGLMVTAQPPPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGEQVAAKVEGFLELSKAAAGSNAEV
DVVTNYTHKIPLAFISEMLGLPPAAEHRLRSITDIMLYSSDYAARREAIG
GLFGAVEEWVRNPDGLRDGVITGLLAGSDGPGAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEALRRPPHERPRTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRQPGEGADSFDTERRGHGHLSE
GLGMHYCIGAPLVRLEAKIAVRGFLRRFPQARLSADTAVQWESEWMIRRM
SFLPAVLS

>CYP245A11 (2515956312) *Salinispora pacifica* CNT029

MSSTTLPRFTLTGWNREDIVNPYPVYRRYREVAAVHRGEAGGDAPETFYV
FSYDQVAQVLSSSCFGRGRSLDATAASVPVPADQKALRAVVENWLVFMDP
PRHTELRSLLNRSFSPRIVTGLRPRIARIAQELLSRLGRQVETDLVEGFA
APLPILVIAELLGIPAERHGWLRTNALALQEASSSRARRDAAGYARAEAA
AQEFTEYFREQVRLRRGSAGDDLLTILANAQLRGAPVSLDAVVGTVHLL
TAGHETTTNSLAKAVLALQHPAVLEELRGADGLTADSIEEFLRYDPPVQ
AVTRWTHQDCTLGGWEVPRGSRVVALLGANRDPARFPLPDALDVHRPAD
RQLGFGLGIHYCLGATLARAELEIGLQTLNGLPTLGYPAQYVDYADDMV
FHGPSRLILVNPGERFCQ

>CYP107AW6 (2515956401) *Salinispora pacifica* CNT029

VETVTGTSAPPPVPYIADPYPTLARIRANGPVSILHSDEGVPMWVIARYR
EVRAALADPRFGQDARRAQALADNRVAGVTLLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLAGRKTVDLVQDLAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPVAFATALREMTDYIAVQLRIR
RSRPGDDLLTELLAARDAGQLTDDEIVGMVFLLLIGGHETTVNLLGTATL
ALLRNPQHRWLLANRHALPEAIDEFLRYESPVAMATLRFTTTPVTVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRDGTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPKLALATEVRQLQWRDTIMLRGLESPLVSLHG

>CYP107AX9 (2515956416) *Salinispora pacifica* CNT029

MTAQPAVFDQRLLRDPHRRYNALRDQAPVHRVRTPDGAPAWLVTRYDDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVEKTVSTLLDGLAGNDHAELIDSLASPLPLQVMHEL
LGLPTQTSVDFRTWTNTLLSADANQPAQSRSAMANMRRFLIEQVAHKRAQ
PGDDLLTGLLCVREDDDGLTDDELVAMLFLLMFAGYDNTAALIGNVIHAL
LTNVELAEAVRTGSLAVDELVDGVLRWNPSSFPLAVRRFAREPITIAGQTI
PAGDRIWLCLASANRDPAHFTEPDEIGIADMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVASLFDRFPGIRLAVPVQDIQWRESFRLRGLVALPVSL

>CYP208A21 (2515956427) *Salinispora pacifica* CNT029

MTTTSIDRRRPPGPPRAAALSMLLTMSRDRLGMMTAAARAYGDAAWLPVG
HKALYFFNHPDYAKHVLTDNSDNYTKGIGLVHARRALGDGLLTSEGELWR
EQRRVIRPSFRSGRAPDQASVIAEEVASLVERLRARAGGPPVNVVTEFTG
LTLGVLGRITLLDVDTALATVGDAFAAVQDQAMFELVTL SAVPTWIPLTR
QRRFRRARAELERIVDDLVARRGDVSGRDDVLSRLILSTGAEPDARVRQ
RLRDELVTLLLAGHETTASTLGWTLYLIDRHPPVRERLRAEAAEVLGDRL
PAYRDLPLDRFTTMVVQEAMRLYPVWLLPRRSRRADRVGPYVWPAGSDV
VVSPTMHRHPGFWEPEPDRFDPLRFDPRNAADRPRYAYLPFGAGPRVCVG
SNLGMTEAVIAVAMLCRELRLVRVPTHAAVPEPMLSLRIRGGLPMSVHLA
D

>CYP154M16 (2515956442) *Salinispora pacifica* CNT029

MPDRCPVLDPSPGRDIHAEADRLRAQAPAVKVELPGGVHAWSSITSYDVVRR
LLLDNRNVTKNARNHWPKFINDIIPPDWEMISWVAMDNMVTAYGKHLVRLR
RLIAKAFTAQRVETVRPQVEKLVDELDDGLAAETGEVVDLREKFCYPLPA
LLIADLIGMTEQQRAQTAKAMDLMVDTTVSPEQAQAILTGWRTAMDELIA
AKRREPGKDIASDLIAARDDENGGLTDSELTDITFAILGAGSETTINFL
DNAVTALVTHPGQLELVRSGRAGWDDVIDEVLRVQCPLASLPLRYAVTDI
ELDGVTIPQGDPIILINYAAAAGRDPALHGDGTAGEFDVTRENKEHVSFGHGP
HYCLGAGIARLVATIGLSRLLFERFPDLRLAVPAEELQPLPTFIMNGHRAL
PVRLVPAPAAATAV

>CYP211C6 (2515956696) *Salinispora pacifica* CNT029

VPDIEGLLARLYSAQGRQDPYPVYADLHAKAAIAALKPRPERQRVAAVAV
GYELVAAVLRDPEWFKQPPPGWRDQEILRILQSSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVINRVTDDELDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPATELAWYRERVDRVDAFLDVAGKTPERLAAANAAGAELSFYR
ELLAHRRRTPEGDLISGLVEAVDAGGVELTEDELISNLIVLFNASFVTTV
YLLSNGLPVLLAHPEVAAAALTSSPELAAGAVDEILRLQTPVHLLARAAPR
DTVLGGVSIPQGQNVLLLIAAAANRDPAHFPDPDRFDPRRSGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRILVQPVYSGSLFLRGIDKLSV
SPGGREHP

>CYP125A66 (2515956829) *Salinispora pacifica* CNT029

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRTAPVWWNAQPKGSAGFDD
DGYWVVTRYADVMAVSRDSETYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLGERAERIVRDAAGRAGDFV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGVDPLAASA
ELLAYAMEMAHERQRNPSDDLVTKLVAQIDGEHLTADEFGFFVMLLAVA
GNETTRNAITHGMLAFLENPEQWELFKAERPRSAVEEIIIRWATPVNVFQR
TALVDTTLAGQAI SAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
RELVPQYH

>CYP1005A8 (2515957844) *Salinispora pacifica* CNT029

VSAVLFRSWTKTAGPHWPAVTRVADQQGTEHLVVTEHELVRQVLTDQVTY
RPDNALDAVTPIPVPALRVLAGHGFRLLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTKLVAERVAAGATLDSGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAALFVWAPLDADRQLALADEVGRFHHQVLRIFA
DTGGGLAAALRTTGHPDVLVGALFFLLVAGQETTSQFLTLLHRLAGEP
TVRAALRDGGVSVANVVEEGLRLEPPIVTVRRVAAVDSTLGGTAVPAGTS
VLLWLARAGRDPAPVPADEFPRPGQRGSRRHLAFGAGAHRC LGDQLARME
AAVVVEQAAPLLDGISVVRAPWYPDNLTFRMPDAFVIRR

>CYP211B14 (2515958942) *Salinispora pacifica* CNT029

MDASEAVALLMSPPGRLDPYPTYERLRAHGPPVPTAAGFFVVTGYTEADA
VLRNPRFGVMDDEERDGVFPHWQDSPAMMSISQSMIRANPPDH SRMRRLA
AGVFTPRRVAALREVVAQADELIDEMIRAGRGGAPVDFLGSFAYPLPVT
VICALLGVPAADWAQFRRWASDLTGVLPEEITPQELAIADAGATELRDYF
TELIAQRRRDPTDDLTTALVQTHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLFVLLTHPESATALRDQPELAPGYVDELLRYDSPVQLTTRTVR
ESVPLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPGRAQSPPLSFGA

GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPIRRNRLTLRGYETLP
VTVGAVAVDHGTPAGAALSTP

>CYP107AY7 (2515960152) *Salinispora pacifica* CNT029

MRAEPAPIPRSGARLGQEYDQLRKTGDVHQVLLPDTSLAWLVTSPELVSR
ALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAPF
SPQ RVAALRPRIERTAEELVDTVVATGSPVDLVTGYCTPLSVQVIADLLG
VPEARRTDLRAWTDMLTSYPPDRDAIRQAVVELHGYVVNLEAKRQRP
DDL SALVATEQEGDRLTRDELTSALFLILFAGYENTANLIAS TVLRLLG
HGS LRGARASEAIEETLRLEPPAPAAIRRFPIEEMTIGGATIPAGDTVLL
SIAAATRGTDGNSARLAFGNGPHFCLGAALARVEAEEAITVLARRLPSLA
LAAPGAPVRWRPTFRTHGPAELLVTW

>CYP105BL5 (2515960404) *Salinispora pacifica* CNT029

MSSHSAAPGPETATPLHTLAPELTFPQFERATPFDPPEAYTELSGRCPV
APVRMADGKPSWLITSFEGVRAALSDPRLSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVALVVP SRVACHLVGIP LSEYELFTGMAAKLMEATSSADQIA
ALQDMVSYFDKLVTDREHHDRDDLGHMVRRYLATGELTREMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHLMPGAVDELMRYLPMI
QFGIPRVAMDDLEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLSFGYGP HQCPAHALARLELEVVSRLLERFPTLRLADGDADLKVQ
DEDIMYNVSELAVAW

RFATEDLEVGGARITAGDVLLVDFAGIGRDPEVHGATADNFDATRANKAH
LSFGYGVHYCLGARLAKMAAMIGLPALFERFPDVEMAAPKSALEFPQGSFV
VNGFKELPVHLKGRAAGAA

>CYP208A12 (2517933721) *Salinispora arenicola* CNX814

MTLDTITPRVPLGPRTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGDLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAEITG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETINAVPMWIP LPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTL SLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRV PANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGG LPLVVRP
VS

>CYP125A41 (2517934162) *Salinispora arenicola* CNX814

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPD TTREDIEMQRVIML
NVDPP EHTKLRAIVSRGFTPRAINALRGSLAERA EHIVRDAAVRGV GDFV
TDVACELPLQAI AELIGVPQHRRKVFDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQ RSPSDDLVTKL VNAQIDG EHLTTDEF GFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERPKSAVEEII RWATPVNVFQR
TALVDTVLGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHL PDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP245A7 (2517934332) *Salinispora arenicola* CNX814

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRSLNRSFSPRIVTELRPRIARIAQELLSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYARADVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGAEGLTTDAVEEFRLRYDPPVQ
AVTRWAHQDCTLGGCDIPGRSRVVALLSANRDPARFPSPDVLVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP244A4 (2517934336) *Salinispora arenicola* CNX814

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQALTHPKMGKDIALVPEWMRQPGMLMVTAPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGFDELQSAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLLISTSLYEAIRPPHERPKTDEDITAWIEETLRVHPPFPHPPTW
RFPLEDIELGGYLI PKGAPVQVSIAAANRKPGEGADSFDAERRGHGHLST
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP166A4 (2517934663) *Salinispora arenicola* CNX814

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGWIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHVEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHCCLGQN
LARVELRAGLSALLRAFPNLRRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP211B2 (2517934704) *Salinispora arenicola* CNX814

MDVSEAI AVLISPSGRLDPYPTYEQLRVHGVPVSRTTAGLFVVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIKSIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTAQADELVDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLVAGFETT
TNLLGNGLVLLTRPEAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPADSWLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRTLRLRGYETLP
ITVGAVTADRGTAGVAPGTP

>CYP105CT1 (2517934926) *Salinispora arenicola* CNX814

MNSPNHMPADRSLTAPTSGCPMALSRGRVGLDVADEIGELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNVAGVSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTD SHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGVLHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLTLDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRRFPGLRLAV
PDSELEFTQGTTVYSLRGLPVTW

>CYP154M5 (2517934942) *Salinispora arenicola* CNX814

VEQSCPYKLDVTGRDVAEAGEAIRARGPVAQVELPGGVQGSVGTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPPNWPLIGWLLMDNMTTNDGADHQRLR
KLVSHGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNVTTSSISGEEAEANVEQWHRELLELV
EAKREKPEDMASLLIAAKEEDGSTLTQEEVVGTLHLMLGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDPVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPNMTLAVRPAQLEPQGTFFIMNGHREL
PVRLGQPATVLA

>CYP105CT1 (2517934926) *Salinispora arenicola* CNX814

MNSPNHMPADRSLTAPTSGCPMALSRGRVGLDVADEIGELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTDSDHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGVHLHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLITDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRRFPGLRLAV
PDSELEFTQGTTVYSLRGLPVTW

>CYP105BL2 (2517935191) *Salinispora arenicola* CNX814

MSSHSAAPDPETATPLHTLAPELTFPQFERSTPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLDPRFSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPSPRVACHLVGIPFSDYERFTGMAATLMDSTSSADQFA
ALQNMVSYFDTLVTDREHHDRDDLGHMVRRYLASGELTRDMLIRLAWTT
MAAGQETTAHMIIGLVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVTLPPPLANRDPVFERPDELDVRRN
ARQHLTFGYGP HQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP107FS2 (2517935278) *Salinispora arenicola* CNX814

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPADRSEFERHAEVLGTGINASSGFDIAAAGRWFDEYLAELVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETTVNLVAN
GLLALLRHPEAMAAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRLAGLTLAVPTDSLWKASFVLHRLERLPV
TFTPDRAPNPIDSVHTV

>CYP105CN1 (2517935279) *Salinispora arenicola* CNX814

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVGTAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQLLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVYPYQDRTRFEPVAVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVPGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHAFSGHIHHCIGQNALLELDIAFRALVSRFPTLRLAVPAEQLPY

FAGDVPRLACLPVTW

>CYP105CP2 (2517935281) *Salinispora arenicola* CNX814

MTKSMPVQDLPAFPIPRECYPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHARAVLSDYRRVSIKPYHGNYPLLNEEFKVVDSGYADVLFGVDPP
EHTRQRMIMPSFTLRRTAVLRPDVQRIVDDKLDEMMRHGAPGDLVTEFA
QPVPSMVMSFLLGVPWEDHEEFETPAHKLFVPELAEEATELGAYLERLI
QKKEQPGGTGGTGLLDDLRDHLRAGALSRDELVHIAMAMLVAGTDTT
NVISLGTALLDNPDQWAALRDDPDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRRTAKPIDQIPSNNDGTLQRL
YELPVLW

>CYP1051A1 (2517935456) *Salinispora arenicola* CNX814

MATDAAITRARTVPAWKALPAAVRDTHRAFDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLEHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAAW
SRRVLAPMFRPARINAMVDTMADAIAAGAVDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADIRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDDILLPVLRLQAQRQPDGDDLLSRLVRARADDGRALSE
KMRDDLVSMVAVTTETSTVVLTWLVPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMI
LKPVAPVPAR

>CYP105G5 (2517935481) *Salinispora arenicola* CNX814

LTIETTETPPADDSLAPLPRQFMQRDDPSKLPPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGELGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRRAAGLLQTDLPKQ
AVENLEAQRAFMRQLVTDKRRTPADDMISGLVHHAGAEPPLTDELVGIA
TLLLFLAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTF

>CYP107Q4 (2517935482) *Salinispora arenicola* CNX814

MTTTAETSATIDLFSPEVVADPFGWYARLREETGPTTGTNLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPFRFLTNPADSPLEDIRAGVFKRDLFPDLPW
MANLLNVSDGEDHTRLRLKLVSYALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIAKRAEPQDDLVTALVQAQAEQDQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI
DRLAVGSEHGLGFGKGIHRCGLGQHLAYQEAEEVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTTRTLPLKLV

>CYP211C1 (2517935992) *Salinispora arenicola* CNX814

VVDVEELLTRYLSAQGRQDPFPVYADLHAQGPIAALPPEPERHRVAAVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELLDRMADAGAGGLDFVAEFAYPLPARVM

AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPI PQGQNVLLLLIAAANRDP AHFPDPDRFDPWRS GPPSLAFGLG
LHYCLGAAVSRLEGR LALPRLLSRFPRLRIMEQP VYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP105AB8 (2517936245) *Salinispora arenicola* CNX814

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRR LAAALRPRIQQIVDQC IDEMLTTDQHCADLVKA
LSLPVPSLVICELLGV PYADHDFEQEHTATLVRRNTASEVRQHS IDELNA
YLGALIDRKLASPD DDLGRQIARQHRDGT FDRSSMVSLAFLLLVAGHET
TANMISLG VVGLLQHPEQLAMIKNDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRF GDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLR LAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP1005A1 (2517936503) *Salinispora arenicola* CNX814

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLT DQATY
RPDNAL EAVTPI PVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQR PWTGLVADRVASIRTTLDSGGPVDLYADLTADL PLLVLAR
LVELPDAPVNAV KQFARA ALELFWAPLDADRQLALADEVGRF HQVLR EFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLL LHRLSGEP
TIRAALRAGSISVADVVEEGLRLEPPIV TWRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDP AVVAAPDEF RPGQRGSRRLAFGAGAHRC LGDQLARME
AAVVVEQATPLLDGVT VVRPPWYPDNLTFRMPDAFVVR

>CYP105J3 (2517936585) *Salinispora arenicola* CNX814

MTDSVAFPQGRVCPHQ PAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDR TNPAWPAIVPIVAAAVNDAQQKVLKIATALVGT DGPE
HKAQRKMLIP SFTFRMNALRPMIQEIVDQQLDEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIF EKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPEGVLD DDLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPD AVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHSAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPGLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP105W2 (2517936752) *Salinispora arenicola* CNX814

MTGYQDRPTGDQPGAPVPSRSTDPGIGAFPLPRRCPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVS R HSDVRQVLSDPRMSADRRRP GF PKFAPTTEGQ
RQASFANFRPPLNWLD PPEHAICRRQIVDEF SVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQV ICEVLGV PYGEHEFFERRSTLMFRR
STPADERARCAREIRD FLDVVVTDKERRPGDDVLSRLLYRQRSAGGMDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAE PERFPAAVE
ELLRYFTVVEAATARTTTAEVTIGGV TIAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAH LAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2517936759) *Salinispora arenicola* CNX814

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVS RFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQLMRNEIVSTVVTFFIFTGHETVASQLGNGL
LSLLDHPEQLELVRRQPHELLPHAVEECLRFDPVQSNTROLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDEFDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCSPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP107AX4 (2516042149) *Salinispora pacifica* CNR894

MTSQPAPVFDQLLLLRDPHRRYNALRDEAPVHHIRTPDGAPAWLVTRYDDV
RAAFIDPRLSVDKRLSSTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVERIVSTLLDGLVGHDAQEELIGSLASPLPLQVMQEL
LGLPTQTSVDFRRWTNTLLSADANQPAQSRSAMANMRRLVEQLAHKRAR
PGDDLTLGLLAAREDDRLTDDELVAMLFLLMFAGYDNTAALIGNVVHAL
LTNTELPAAVRTGSLALDELVDGVLRWNPSFPLAVRRFAREPITIAGQTI
PAGDRIWLCLASANRDPAQFTAPDTLGTGMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVTILLDRFPGIRLAVPAHDIRWRESFRLRGLVALPVFL

>CYP107AW7 (2516042164) *Salinispora pacifica* CNR894

VETVTGTSTPPPVPIADPYPTLARIRANGPVSIHLSDEGIPMWVIARYR
DVRAALADPQFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAAFATALREMTDYIAVQLRIR
QTRPGDDILTELLAARDAGQLTDDEIIGMVFLLLIGGHETTNNLLGTATL
ALMRNPDQHRWLLANQHALPEAIDEFLRYESPVAMATLRFTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRDRTGHLLAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPRLALAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP211B11 (2516042475) *Salinispora pacifica* CNR894

MDASEAVALLTSPPGRLDPYPTYERLRAHGPVVSTAAGFFVVTGYTEADT
VLRNPRFEVMDDEERDGVFPHWQDSPAMISISRSMIRANPPDHSRMRRLA
AGVFTPRRVAALREVVAQAADGLVDEMIRAGRGGAAVDFMGSFAYPLPVT
VICALLGVPAADWARFRHWASDLTGVLPEEITPQELAIADAGASELRDYF
TELIAQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVVLTHPDSATALRGQPELAPGYVEEFLRYDSPVQLTSRTVR
ESVSLAGVELPAGSWLLVLLGAANRDPARFTDPAFDPARRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRHRLTLRGYETLP
VTVGAVPADPGTPAGVALGTP

>CYP164C2 (2516042792) *Salinispora pacifica* CNR894

MTARAGSVAEDIIQLADRMGREDPYVPLHRMRQASPYVALPGLVVAGTHA
TCSAVLRDPGMSSERQRATLAPAARGPRTRNFLHLDPPDHTRLRLRLVSKV
FTPRVVATMEPHIRRTTDDLLTAAAARGSMEEVVADLAYPLPLRIICEVLG
VPAEDHHLVQHWSARLSEALEPPIPGLVSTTTSTEAARARAGFIAFYQAL
IADRRRSRPRADLVSQLVAVEDASERLDSSDILATCILLINAGHETTNNLI
ANGVLALLRHPEQLADLRAEPGLAAATVDEVRLRYDAPVQITSRVAKHDTR
LGAADVVRAGDMVLLVLLGAANRDPVYPPDPDRFDIRRRSPVPHLAFSAGAH
FCLGAGLARLEAQIALSAVAARLREPRLRAGGVSYKPNLSLRGPDVLTVD
FDDVLAPGRRDQGEANG

>CYP208A22 (2516045087) *Salinispora pacifica* CNR894

MTVIADRGGRIPPGPPVTAGLRLLLLALGRDRLGMMTSAAAEEYGDVARLPV
GPKKLYFFNHPDHAKHVLADNHANYQKGIGLVHARRALGDGLLTSEGELW
RKQRRVIQPAFQNRRLAQYAGAVGQEATRLVARLATRVDPGPVDVLDEMT
RLTLGVLGRTLDDAELTGFGHVGESFAAVQDQAMFELETINTVPTWIPLR
RQRRFRRARQHLQEVVDVLA AERGQAVEGRDDVLSRLILSTRAEADPQLG
RERLRDELVTLLLAGHETTASTLGWSLHLLDQHPELRERVRHEARTVLGD
RVPAYEDLHQLRYTAMVVEEAIRLYPPVWILTRKARAEDEIGGYRVPAGA
DILICPYTLHRHPRFWAEPERFDPERFDP SRITDRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLA VLLRDLRLLEGLPGRAVVPEPMLSRLVRGGLPMTVR
RVD

>CYP124M3 (2516045108) *Salinispora pacifica* CNR894

MTVPIELDAVDLSDNDFWTKPLEYRHAVFNALRAQPGLPHFASPEFGSAP
RGRGYYALTRMDDVLAVSRNPSVFISGKGNVAMEVPAEFLDQSLITMDNP
RHARLRRIVSRGFTMKAVTALMDNASQMAKQIVDEVVERGECDVAVDISA
KLPLGIIICNMMGIPDSQQQFVFEQTNVMLGVQDPEYVGEQNDAMLAMSV
SQELADLMHELATLRAKNPTDDLISKLLSAEVNGEALTPSELAHFFILLT
GAGTETTRNAISWGIQLLTQSPEQREAWLSDIDGVTPTAVEEIVRWSSPV
ISQRRTVAEADAEPVKLAGQLLGPDKVLMFYGAANRDPNYFVHPEGFDVR
RSPNPHVGYGGPGPHFCLGAHLARLEISVMFRELLTRIPDIHATGEPARL
KSPLINGIKRLPVAFTPGAR

>CYP161N4 (2516045227) *Salinispora pacifica* CNR894

VNTVAQLPFTQTHVLDVAPALRLLQSRGKVHRVRTPEGVPAWLVTGHAEV
QQLLDDDRLSRSDPGGRDGGTALLNKLLGPLADDDHPRLSLLEPQFTPER
LEPLRAVVEKLTEQHLDELATRTPPVDLRPTLAMSLPILVLC EWLGVP AE
DKGRFSVWTQDAAGVQDPERSQRLAELFGYCRQLVAAKRQDPGDDVISR
LIATAGIGDTEVVALTALLLFGGYETTVARIGTGVL LLLTNPDQWAAVRA
DPALVPATVDELRRSMPNPHNGGMPRFAVTGFEIDGAAIRAGDLVLLNI
IAANHDETAFPDPDRDLITRPTAGSLAFGYGRHSCVGAPLARMVLRVALS
RLITRFPDLRLAVGVDELKLRHETLVGGLVELPVWTWGPR

>CYP2054A3 (2516045233) *Salinispora pacifica* CNR894

MSISADSEQVQGRFPDPYGAHRDDPYTFLAGLGVFYAPLLDAWCVTTRRED
MVAVLRDDRSFSARDHNPRPAVALPDDVNQMFRTWRGAGAVAVGSLDPPA
HAKIRDVLNIGFTPARVRAFEPTMRAVAADLADRIGDAPEFDFIADFVAP
FALEVIGRRLGVPDDYLDRCRTWSEQRIELMMAQGDADHDRLREFARGLM
EFGEFARSLVRDRMADPRDDLISELLHDGKAGRTLTADEVAVQIPTLIFA
GHMTCAEALGTIFYQQLRSPGGWARVVDRTIPVGD LVEEGLRFDSPLAGM
YRTATRDVTVGGIRLTAGSRLLLLYGAAGRDSRAHACPAAFRPGDGSSGH
LAFGHGHIHFCLGAGFARAELRVAVEVLAARMPDLGLAPGRPPRFRPVFPL
RALTEL RVTRSGGSGP

>CYP107FH3 (2516045238) *Salinispora pacifica* CNR894

VPIELDEAFVQDPYAVYEKLRAEGPAHRVRMPGPVPLIGGLPVWLITGYD
AVRAALADSRLSTDLHRIDGLFAQKDPDRSHRGGFSSALASHMMHTDPPD
HTRLRKLVSKAFTTRAIEALRPRIQQTDELTAELAGHDTV D LLD AFAFP

LPIRVICLLLGVPVAEQENFRSWSRALVSGHSPEAAATAATEVAAYLGDL
VERKRHATTDVLTALVAAHVDVDDRLTHTELVSTAYLLFIAGFETTLNAL
GNGTLHMLHRDQWTALRADRALLDNAVEEFRLRESPLKHATFRCATESL
RIGDAEIAAGDFVLLAIASANRDPRRFPDPHTLDVRRPAAGHLAFGHGIH
HCLGAPLARVEVRMAFDALLDAFPDMRLATDPAGLRWRNSTIIRGLDSL
VHLHN

>CYP1005A6 (2516045434) *Salinispora pacifica* CNR894

VSAVLFRSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLTQV
RPDNLDAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTELVAERVAAIRATLDSGGSADLHAELSADLPLLV
LVELPDAPVSAVKQFARAALFWAPLDADRQLALADEVGRFHQVLR
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLHRLAGEP
TVRAALRDGSVSVPNVVEEGLRLEPPIVWRRVAAVDSTLGGTAVPAGTS
VLLWLARAGRDPATVSAPDEFPRPGQGRSRRHLAFGAGAHRCCLGDQLARME
AAVVVERVSPLLDGVTVVRAPWYPDNLTFRMPDAFVIRRGFAGAAER

>CYP107AY9 (2516045542) *Salinispora pacifica* CNR894

MSQDQPTRAELAPIPRSGARIGPEYDQLRKTDGVHQQVLLPDTSM
PDLVSRALADPRLALNRKHSRGGWSGFALPPALDANLLNDAPDHTRLRR
LVGPAFSPQORVAALRPRIQRTAEELAETMVATGSPVDLVTGYCTPLSVQV
IADLLGVDPDAGRTDLRAWDTMLTSYPPDRDAIRQAVVELHGYVNNLIEA
KQQRPGDDLLSALVATEQEGDRLTRDELTSALFLILFAGYENTANLI
ASTVLRLLDHGSLRGVRVSEAIEETLRLEPPAPAAIRRFPTTEMTIGGATIPA
GDTVLLSIAAATRGADGNPARLAFGNGPHYCLGAALARVEAEEAITVLAR
RLPGLALAVPGAPVRWRPTFRTHGPAELLVAV

>CYP244A10 (2516045562) *Salinispora pacifica* CNR894

MQDTAQANLAEAPEVRMPIELRPTDCLPELLAAARVAPVVRTPYLDQHAW
VVCDELVKQALTHPKLGKDVALAPDWMRQPGQMTAMPPEYARMVMS
DGEHHARIRRIHAPVLSRPNTERWSEVAALVDGFLDNLDSADGTEVNLI
TDYTHKIPLAFTAEMGLPPGAERRLHDITEVMLYSADYALRQQAVGELF
EAVQEWVRDPAGLRDGVITGLLASADGPDATVTKGEAIVWTLSLIINGYE
TTGSLISAALYEALRRPARERPHTDEAVAAWIEETLRVQPPVPHTTW
RFA LADLDLGGYLIPRGAPVQISLAAANLDPDEDADSFDAQRRGRGHL
SFGLG AHYICIGAPLARVQTKIALRGFLRRFPQARLSLDTAPRWESEWMIRMSVL
PVLLA

>CYP125A65 (2516045605) *Salinispora pacifica* CNR894

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRTPVWWNVQPRGSAGFDD
DGYWVVTRYADVMAVSRDSEYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPPHETKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
TDVACELPLQAIaeligvpqhrrkvfdwsnqligyddpaygvdpmaaaa
ELLAYAMEMANERQRNPSDDLVTQLVNAQIDGHELTDEFGFFVMLLAVA
GNETTRNAITHGMLAFLEHPDQWELFKAERPRSAVEEIIIRWATPVNVFQR
TALVDTTLGGQAITAGQRVALFYGSANFDESVEEPPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REMPVRYR

>CYP105AB28 (2516046733) *Salinispora pacifica* CNR894

MTETASTTTPGISSTTTSGPASGEVTDAEFFPLERGCPFGTPTEYEQIREH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFFVSTDPE
RKQLQDQPTSMLGMDGAHAQARRALMGEFTVRRMAGLRPRIQQIVDQHI
DEMLSSDQRTADLVEALSPLVPVSLVICELLGVYPYADHDFQARSGLIRH
TTPTEVRLRIQKELNTYLALIDRKVADPTDDLLSRQIAKHHAAGTFDRT
SLVSMAFLLLIAGHETTANMISLGVVGLLQHPDQLAMIKEDPEKTAPAVE
ELLRYFTIADTVTARVATEDVQLGGTTINAGDGVVISGLAADHDPTVFTD
PDRDLERGARHHVAFGFGPHQCIGQTLARMELQIVFDTLFRRIPTLRLA
APLDDIPFKSDAFVYGAERLPVAW

>CYP107E37 (2516046876) *Salinispora pacifica* CNR894

VTIDQEIREYPPFRESRGIGIDPTYELLRRTEPLARVQLPYGEVSWLVTRY
EDVKTVLTDPRFSRAAAQGKDQPRTRAEMTYEGIIGLDPPDHTRLRLRLAG
KALTARRVNAIRADAQRIANEYVDEMIAGKSPGDLVELFALPYPTVICE
LLGVPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFDYMGKLVAQRRAEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTGVEVTVSTHINPFIYALLT
HPELMAQLRADRSPLVPAAVEELLRMIPLNPAAMFPRYAVEDVTLSGITVR
AGQPVLVSLPGANRDPEVFENPETFDFTREQNPHVAFGHGPHHCLGAQLA
RMELQVALHTVLDRFPDLRLADGDEGVSWKSGLLVGRPSRLLVGW

>CYP125A15 (2515750343) *Salinispora pacifica* CNT150

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMAVSRDSEYSTRENTAIARFQPGTTRADLEMQRVIML
NVDPPEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTDGDFV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPTYGVDPLTAAA
ELLAYAMEMADERQRNPSDDLVTCLVNAQIDGEHLTTDEFGGFVMLLAVA
GNETTRNAITHGMLAFLEHPEQWELFKAERPRSAVEEIIRWATPVNVFQR
TALVDTTLGGQAI SAGQRFALFYGSANFDES VFEEPD RFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHMPDIRKAAEPQRLRSGWINGI
REMPVRYR

>CYP211C8 (2515750468) *Salinispora pacifica* CNT150

VLDVEGLLARLYSAQGRQEPYPVYADLHAQGAIAALASRPERQRVAAVAV
GYDLVASVLRDPEWFKQPPPDWTEQEILRTLQSSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVISRVTDDELLDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPAAELAWYRERVDRIDAFLDVAGKTPERLAAANVAGAE LRAFYG
ELLAHRRRTPEGEDLISGLVQAVDSGGVELTEDELISNLIVLFNASFVTTV
YLLSNGLPVLLAHPEVAAAMADDPELAAGAVDEILRLQTPVHLLARAAPR
DTVLGGSVIPQGSVLLLI AAANRDP AHFPDPDRFDP RRS GPPSLAFGLG
LHYCLGA AVSRLEGR LALPRLLSRFPRLRILEQPVYSGSLFLRGIDKLSV
SPGGREHP

>CYP105AB24 (2515750794) *Salinispora pacifica* CNT150

MPETASITTTGTASTATTGAASGKVTDAEFFPVARGCPFSTPAEYEQIREH
SPIAKVRLTTGREAWWIAGHELGRVTLADRRFSSDRRRDNFFVSTDPE
RKQLQDQPTSMLGMDGAHAQTRRALMGEFTVRRMAGLRPRIQQIVDQHI
DEMLSSQRSADLVEALSPLVPVSLVICELLGVYPYADHDFQGLTGPLLRLH
TTPPEARGRIQEELNTYLGLTIDRKLTDPD LLLGRQIAKQHAAGTFDRT
SLVSMAFLLLIAGHETTANMISLGVVGLLQHPDQLAMIKNDPEKT PPAVE
ELLRYFTIADTVTARVATEDVQLGDTTINAGDGVVISGLAADHDPTVFTD
PDRIDLERGARHHVAFGFGPHQCIGQTLARMELQIVFDTLFRRIPTLRLA
APLDDIPFKSDAFVYGAEKLPVAW

>CYP1005A6 (2515751047) *Salinispora pacifica* CNT150

VS AVLFRSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLT DQVTY
RP DNALDAVTPIPVAAALRVLTGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTGLVAERVAAIRATLDSGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAALFLWAPLDAGRQLALADEVGRFHQVLRFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLAGEP
TVRAALRDGSVSVTNVVEEGLRLEPPIVTWRRVAAVDSTLGGTAVPAGTS
VLLWLARAGRDP AIVPAPDEF RPPGQGRSRRHLAFGAGAHRC LGDQLARME
AAVVVEQVTPLLDGITVVVRAPWYPDNLTFRMPDAFVIRR

>CYP244A5 (2515751655) *Salinispora pacifica* CNT150

MSVTTNAELGEAPETNMPVDPGLFDCLPDLIAAARIAPVVRIPYLGRHAW
VVC DRELVRQALTHPKMGKDITLVPEWMMRQPGLMVTAQPPPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGEQVADKVEGF LDELGQAASGGNAEV
DVVTNYTHKIPLAFISEMLGLPPEAEHRLRSITDIMLYSSDYAARREAIG
GLFGAVEEWVRDPAGLRDGVITGLLAASDGPAAVTEGEVIVWTLGMIIT
GYETTGS LISTS LYEALRRPPHERPKTDEDIAAWIEETLRVHPPFPHPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPDEGADSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAKIAVRGFLRRFPRLRSADTAVQWESEWMIRRM
SLLPAVLS

>CYP245A13 (2515751659) *Salinispora pacifica* CNT150

MPSATLPRFTLTGWARED IINPYPVYQRYREAAA VHRGEASGDAPETFYV
FSYDEVAQVLSSNCFGRGRSLDAAAAAVPVPTDQKALRAIVENWLVFMDP
PRHTEL RALLNRSFSPRIVTGLRPRIARIAQELLTRLGQQVETDLVAGFA
APLPILVIAELLGIPAERHGWL RANAMALQEASSSRARRD VDG YARAESA
AQEFTEYFREQVYLRRGSTGDDLMTILANAQLRGAPVGLEAVVGTCVHLL
TAGHETTTNSLAKAVLALRAHPAVLEELRSADGLTADSIAEFLRYDPPVQ
AVTRWTHQD TTLGDWEVPRGSRV VALLGSANRDPARFPLPDALDVRRTAD
RHLGFGLGIHYCLGATLARA ELEIGLQTLLDGLPALDYSVQYVDYADDMV
FHGPSRLLL VNPGERFCS

>CYP154M18 (2515751733) *Salinispora pacifica* CNT150

MHETCPVLDTAGRDIHGESDRLRQRGA AVKVKLPGGVLA WAVTGHS AIKK
VLLDPNVTKNARAHWPAFINGEIPMDWELISWVAMDNMVTAYGAHLLQLR
KLSAKAFTPHRVEMMRPRVVALVNQLLDDL TAGGDEVVDLRERFCYPLPA
LTVADLIGMSEEHRQQ TAKAMDMVD TTVTPAQ AQETLAGWRGAMAE LIA
EKRRNPGEDIASDLIAARD DENGAKLTDTELTDTIFAILGAGSETTINFI
DNAVTALLSHPDQLAMVRSGQISWAEVIEETLRVECP LGS LPLRYAVTDI
ELEGVTIPKGDPILVN YAAA GRDPALHGETAGQFDVTRPDKEHISFGRGP
HYCLGAGIARMVATVGLSTL FERFPDLALAVPKGELQPLPTFIMNGHRAL
PVRLGVHRRAAVAG

>CYP208A28 (2515751707) *Salinispora pacifica* CNT150

MTVIA DRGGRVP PGPVPTAGLRLLLALGRDRLGMMTSAASEYGDVARLPV
GPKRLYFFNHPDHAKHVLADNNANYQKGIGLVHARRALGDGLLTS DGELW
RKQRRVIQPAFLNRRLAQYAGVV GQEATRLAERLATRVDGPPVDVLDEMT
RLTLGVLGRTL LLD AELTGFRGVGESFAAVQDQAMFELETLSAVPTWIPLR
RQRRFRRRARRHLQEVVDVLA AERGQEV EGRDDVLSRLILSTRAEADPQLG
RQRLRDELVTLLLAGHETTASTLGWSLHLLDQHPRLRERVRHEATS VLGG

RVPVYEDLHQLRYTAMVVQETIRLYPPVWILTRRARADDEVGGYRVPAGA
DLLICPYTLHRHPRFWEEPERFDPERFDPAGLTNRPRYAYIPFGAGPRFC
VGTNLGMLEATLVLAVLLRDLRLEGLPGRAVTPEPMLSLRVRGGLPMTVR
RAD

>CYP107Z27 (2515752057) *Salinispora pacifica* CNT150

MSRTLPCSHLMDPTLIIDDPAGGFSRIRDESPLAHAMVPGVDGPVWLVTRH
ESVRKVLGDRRFVNDPTNVPGSSTPDLWAHAALAQGVPHYELEHVRSMLO
LDGEVHARLRLVSRFTMRRITALLRPRMMQLTEELLDLLPAKAEDGVVD
LVEHFNYVQPISVICALVGVPAADRAAWIRWSRVLTSMESGTIGDAVTGM
VDNIRALIEQRRAEAADDLLTDLVRVRDADGDRLSEREMITLVITLVTAG
HDSTGLLLSNGLAALLTHPDQLAKLRADPSLGPQAFDELMRWCSAIVAAR
PRYATEDVELEDGLVRRGDAVIPVLVSANYDPEVFEDPHRLDITRVHEQR
RFHHVGFQDGLHYCLGAALAKHEAAIAITALLERYPGLELAVPAQRLRRA
RLPLTWRLDSLFPVRLGIGG

>CYP247A8 (2515752067) *Salinispora pacifica* CNT150

VRLTPEAGRPVALGSIDLFDPDLLASGDPHSVWDVMRSEAPLHRQVLPDG
RVFWSVTRYEDVCRVLGDHRAFTSERGTVFQTLGADDIAAGKLLTSTDPP
RHTEVRRRAIGRLTARAVAHWQDLVRRRAVVRFLPALDGGCWDLAERAQQ
LPLIIAGSLLGIPESDWEKLVQLTGMVTAPSDPMFGLGSEAATLAIHHE
IFDYLSDLVRRRRSAGTGGDSLDDHLMTVRAGAGPLPDEEVVYDSYSLIL
GANATTPHTLSGIVLTLVEWPEQCDKVRADPSLIPSMVEEGLRWTSAAACN
FMRYATVDTRLTGGTVPAGEAVVAWIASANRDESQFTDPHTFDVTRGENR
HVAFGFGPHYCIGAPLARMTARIFFEELFRLFWSIEIDGEPQHRLRSNFIA
GMTHLPVVTRKRAQV

>CYP107NH1 (2515752073) *Salinispora pacifica* CNT150

MTEPVVSLMDPEFWNDPVSAYERLRGSGPLIRMGLPGVPPVWLVTSCEHV
KSALSDPRFVVDAANVPGHHGPGIVDQMAASGMPDEFRDYMTNMMFTDG
KDHSRLRLVTPGFSARRIRAMRPRVDQIAGELVESLAEKGSGLIADFS
APLTTTVICELIGVDRADQAQMGAWMRDYTTGERVVSGRAMVNYTRDLIE
RRRAEPADDMISAMIRSGDEAGDRLSDAEIIAMALLLINAGHHSTAQFIP
NAVLVLLDHPEQLARLRAEPGQLPGAMDELMRLANPVPIATPRYATEDME
FAGVAVRRGEALTGSLEAANFDPERFPAPRQLDTGRDLGRGDGHLSFGAG
PHYCPGAALARLEGEIALDHLLLRDSLRLAVERDEVYVDVSLGLRMLS
SLPVRL

>CYP105AH4 (2515752383) *Salinispora pacifica* CNT150

MTLLQAEEKVLTPFFARTEWGTPPPILAQLRQAPPCAVIIPAGAASERRA
WLVTRYPDVRQALMDPRLSADELLPGAPVRIQVPQEERPSSFLRMDDPEH
GRLRGMIASQFTARRVRQLVPAVQRRTDLLDAFVAGPCPADLHDAFSRK
LPTLVIASLLGVPDEDSAFFVEKTRVTLSDQDDPEVSFAAYREMTDYLQQL
AARKAKEPQDDLMSQLAVNNLAVGDITMDELVGIARLVLVAGHETTNNQI
ALNILSLLLDPLRAQVLADDGRLLPEYIEEAMRYWSISQDGIVRLVTE
LVLGEVQMRAGDAVVISIPAANHDPTVFPEPNRIDVTRSPRDHLQWNGP
HYCQGAPLARLEMVIALRTLFLARLPGLRLATDDVPSLFRRGTVFHGVENL
PVAW

>CYP211B18 (2515752551) *Salinispora pacifica* CNT150

MDASEAVALLMSPPGRLDPYPTYEQ LRAHGPPVPTAAGFFVVTGYTEADT
VLRNPRFGVMDDEERADVFPWHQDSPAMMSISRSMIRANPPDHSRMRRLA
AGVFTPRRVAALREVVAQADELIDEMTRAGRGGAPVDFMGSFAYPLPVT
VICALLGVPAADWAQFRRWASELTGVLEPEITPEELAVADAGASGLRDYF
TELIAERRRTPAEDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVLLNQPGSATALRDQPELAPRYVDELLRYDSPVQLTTRTVR
ESMPLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPGRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRNRLTLRGYETLP
VTVGAAPADHGTPAGAALGTP

>CYP113E2 (2515752730) *Salinispora pacifica* CNT150

MAAVPRLTFADGGKRVLPWFRMRDDQPVWYDQGTKSWNVFRYADIAQIL
KDPVTFSSDPGRSMPELAEAEAGSLVAVDPPRHTRLRGLISAAFTPRLV
EQLAPRVRSIGELLNRAFVDRRVEGEFDIIGDLAYLLPVYVIGELLGLP
ESDRGYLVRAADIFYAISADDPFDGAYMASMQSTLDELGSYMLDHAERRR
AKPGDDLISALAHAEIDGERLNDREIRNFALLLLTAGHITTTALLGNTLL
ALGERQDIMLRWRQGQVDTAILLEEVLRHRTPFTEVYRFTTTEVTIGNQV
VPGDQLRLWIASGNRDERQFADPDFTFVLGRDSKHLGFGGLGIHYCLGASL
ARMESSVVLGLLAERTTSLAPAVEALSYYDAPGIFCLRSLPVSYRRT

>CYP107AY6 (2515753296) *Salinispora pacifica* CNT150

MRAELAPIPRSGVRLGQEYDEFKRTGDVHQVLLPDSSSLAWLVTDPELVSR
ALADPRLALNRRHSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAP
SPQRVAALRPRIIRRTAEHLLDALVTAGGPVDLVTGYCTPLSVQVIADLMG
VPEGGRDRLRTWDTMLTSYPPDRAAIRRTVVELHGYYVNLIAAKQQQPG
DDLLSALVTIEQDGDRLTRDELTSLAFLILFAGYENTANLIASTVLRLLD
RGGIREARILEAIEETLRLEPPAPVAVRRFPTEEMAIGGATIPAGDTVLL
SIAAATRGVDGSATRLAFGNPHFCLGAALARVEAEALTVLGRRLPGLA
LAVPVAQVRWRPTFRTHGPAELLVTW

>CYP244A9 (2515753309) *Salinispora pacifica* CNT150

MQNTAHTNLAEAPEVTMPIELRPTDCLPELLAAARVAPVVRIPLYDQHAW
VVCDELVKQALHTPKLGKDVTLAPDWMRQPGQMVTAIPPPEYARMVMS
DGEHHARIRRIHAPVLSRPAERWSERVAALVDGFLDNLDSTAGAQVDLI
TDYTHKIPLAFTSEMLGLPPGAERRLHDITEVMLYSADYALRQQAVGELF
EAVQEWVRNPAGLREGVITGLLASSDGPDATVTEGEAIVWTLSLIINGYE
TTGSLISAALYEALRRPARERPHTDEAIAAWIEETLRVQPPVPHTTWRF
LADLDLGGYLI PKGAPVQISLAAANLDPDEDADSFDAARRRGRGHLSFGRG
AHYCIGAPLARVQTKIALRGFLRRFPQARLSADTAPQWESEWMIRMSVL
PVLLA

>CYP107NG1 (2515753880) *Salinispora pacifica* CNT150

VTIPAGHSAAVCDFPVVQPDRLAVEPLFADLRSRTPIVRVRLPFGGTAWL
LTRYRDIRAVLASAQCCRAATDPDTPRILPRAGGEGLMSLDAPETHRL
RGLVTAWFTTRRVESLRPATEQAARQLIADMRGTGRADLVEQFSQKLSAT
VIGDLLGVPRSDRETFRQWSEALLSSTSYTQTQVQQATAELNNYFGYLID
QRDSHPDDLVTGLVRNMQAGKLSRREVLALVTDLLVAGFETTAGQLTNS
VYTLSTIPGAWAWLAADRTRIPAAVEELLRALPLGAGGFRARVTTAPITL
GGDTRPTTIPAGHVIIAPTIAANTDPEAFDEPLTIRLDRPRNQHLAFGH
GAHRCLGAPLARMELTTALDELIEAFPSLTAAAPETDLQWKSGLQIRGPR
ALPVTW

>CYP105AB2 (2515881576) *Salinispora tropica* CNS197

MTETASIAATTRTASGQLTDAEFFVQRGCPFTTPTTEYEQIREESSIAKVRL
KNGGEAWWIAGHELGRSVLADRRFSSDRRRDNFFVSTDPETRAQLQSQP
TSM LGMDGA EHAQTRRALMG EFTVRRMAGLRPRIQQIVDQHI DEMLTTPQ
RSVDLVEALS LFPVPSLVICELLGV PYADHDFQGLTG PLLRHTTPPEVRL
RIQEELNTYLGTLIDHKLTDPTDDLLSRQIAKHRDNGTFDRASMVSLAFL
LLVAGHETTANMISLG VVGLLQHPDQLV I IKDDPKTPLAVEELLRYFTI
ADSVTARVATEDVQLGDTTINAGDGVVISGLAADRDPTVFAEPDRDLER
GARHHVAFGFGPHQCIGQTLARME LRIVFDTL FHR IPTLR LAAPLDDIPF
KSDAFVYGIEELPVAV

>CYP163B1 (2515882202) *Salinispora tropica* CNS197

VTAADTGRVSGESQTPAHTVDLADPATFANHDLTGFWQQLRDEEPIHWN
PPTAGRGRGFWVVSRYADILDVYRDDVTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHAELRKLLLRALGPRVLAPVCAAVRTNTRQMIREAVTKGEC
FASDIASRIPMMTISNLLGVPDADRAFLLSLTKTALSADDESISETESAM
ARNEILLYFQDLMEFRRDHPGEDVVSMLVNSSIDGAPLSDDDIVLNCYSL
IIGGDETSRLTMIDSVNTLAAHPQQWRRLKDGQCEIDKAVDEVLRWASPS
MHFGRVAARDTILHGVRIRADDIVTLWHASGNRDERVFHRPEVFDLGRTP
NRHLSFGHGPHYCIGSYLAKVEISELLIALRDLTSGFETTGEPRIRSNL
LTGFATMPVRFPVDRAGLARDALDG

>CYP154M1 (2515882257) *Salinispora tropica* CNS197

MRRRCPVVIDPAGTDIHAEGARIRANGSVSQVELPGGVLAWSVTGQQVAR
KVLSDQRFKSKDPRKHWTDYLEGRIGQDFPLIGWV LMDNLT TAYGSDHSRL
RKPCANAFTPRRVEALRPAVERAAVELLGELATVSPTESVDLKARYAHPL
PSRVICDLFGVPEEDREEMLRGGEVNV DTRVSAEEAAAANVERWHQQMLDF
IEEKRRNPGPDLTSDLIAAQQAEGSRLTDSEMVGTLHIMLATGTEPVKNL
IGNAVFALLTHPEQLDLVRSGRAGWDDVIQETLRMQAPVAHL PFRFAVED
VDIDGVTIRRGDPLLNVFAAIGRDPDVHGDTAAEFDI TRADKEHLSFGHG
VYRCIGQPLALREAEIALRMLFQRFPNLV LAVPPEEVT PQPTFIMNGLDT
LPVLLKGRA

>CYP208A4 (2515882285) *Salinispora tropica* CNS197

VTVAAAGRTFSGPTGVALLRSLWQLGQDRLGLMTSAARYGDAVRLGVGSR
SLYFFNHPDHAKHVLADNSGNYTKGLGLVHARRALGDGLLTSEGELWREQ
RRVIQPVFQAKRVAGQAHAVAEADRLIARLRARRGRGPVNLTDEFTALT
LGVLGRTLLDANLDAFTTVGAAFEEMQNQAMFEMASMSMVP MWVPLPQQ
RFRRARRELERIVGRIVADRTARGE GTGADDALSRLIASTRDEPDGVAR
RRMRDELVTLLLAGHETTASTLGWTFHLINQDPRVRVRLREEAIDVLGGR
LPEYADLARLTYTKMVVSEAMRLYPPVWMLSRLARDADVVDGYVP PARAD
VLICPYTLHRHPAFWPEPERFDPERFDPEVTTDRPRYAYVPFGAGPRFCV
GNHLGLMEAVFVAMVSREFDLVAPVGQPVVAEPMLSLRVRGGLSMTVEP
VS

>CYP125A15 (2515882364) *Salinispora tropica* CNS197

MTEPRIPVGFDFTDPAVLERRVPREEFAELRR TAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMAVSRSDTYSTRENTAIARFQPGTTRADLEMQRVIML
NVDPP EHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
ADVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGVDPLTAAA
ELLAYAMEMANERQLNPSDDLVT KLVNAQIDGEHLTTDEF GFFVMLLAVA

GNETTRNAITHGMLAFLEHPEQWELFKAERPRSAVEEIIIRWATPVNVFQR
TALVDTTLGGQAIISAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFHSIADHMPDIRKVAEPRRLRSGWINGI
REMPVRYR

>CYP211C1 (2515882497) *Salinispora tropica* CNS197

VLDVEGLLTRLYSEQGRQDPYPVYAGLHAQGAIAALAPRPEGQRVA AVAV
GYDLVGAVLRDPEWSKQPPPGWMEQEILRTLQSSMMFINPPDHGRMRKV
AGTFTPRRLGTLEPVINRVADELDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPATELAWYRDRVDRIDAFLDVAGKTPERLAAANAAAAELRVFYA
DLLARRRRTPGEDLISGLVEAVDAGGVQLTEDELINNLIVLFNASFVTTV
YMLSNGLPVLLHHEPVA AALADDPELTAGAIDEILRLQTPVHLLARAAPR
DTVLGGVPI PQGQNVLLLIAAANRDP AHFPDPDRFDPRRPGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGGRMHP

>CYP107AW1 (2515883103) *Salinispora tropica* CNS197

MESVTSTSAPPPVPYIADPYPALARIRANGPVSI LHSDEGIPMWVIARYR
NVRAALADPRFGQDARRAQT LADNRVAGVT LGGDVIHMLNSDPPDHTRLR
HLVQGAFTARRVAAMRPLVERITTSLLDGVGGRQTVDLVQDFAFPLMLV
ICELLGFPAEERDAYRSWSTAILTHNDDPAAFATALRDMTDYIEVQLRHR
RARPGEDLLTELLAARDAGQLT DDEIVGMVFLLLI GGHETTVNLLGTATL
ALVRNPDQHRWLLANPHALSEAIDEFLRYESP VAMATLRFTTAPVTVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILD RRDTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLGRYPGLTLAAEV RQLRWRDTIMLRGLES LPVSLHG

>CYP107AY1 (2515883374) *Salinispora tropica* CNS197

MRAELAPIPRSGARLGQEYDQLRNAGDVHQVLLPDSSSLAWLV TNPKLVSR
ALTDPRALNRRHSRGSWSGFALPPALDANLLNLDAPDHTRLRRLVGP AF
SPQRVSALRPRI RTAEHLLDTLVATSGPVDLVTGYCTPLSVQVIADLMG
VPEAGRADLR TWDTMLTSYPPDRDAIRQAVVELHG YVVDLIDTKRQQPG
DDL LSALVTIEQDGDRLTRDELTS LAFLILFAGYENTANLIAS TVLRLLD
HGGLRGVQLPEAIEETLRLEPPAPA AAVRRFPTEEMTIGGATIPAGDIVLL
SIAAATRGTAGNAARLAFGNGPHFCLGAALARVEAEEALTVLARRLPD LA
LALPVAQVRWRPTFRTHGPAELLVTW

>CYP211B1 (2515883423) *Salinispora tropica* CNS197

MDASEAVALLMSP LGRIDPYPTYERLRAHG PVVQTAAGFFVVTGYTEADT
VLRNARLAFEVMDDEL RDDVFPHWQDSPAMKSIARSMIRANPPNHGRMR
LAAGAFTPRRIAALREV VTAQADELADEMIRAGRDGAPVDFMGSFAYPLP
VAVICALLGVPAADWARFRGWASDLTAVLEPEITPQELTVADAGASELRD
YFTELIAQRRRAPADDLT TALVQTHDADGDRLSGEELLANLVLLLVAGFE
TTTNLLGNGLVLLAHPDSATALRDQPELAPGYVDELLRYDSPVQLTTRT
VRESVLLAGVELPAGSWVLVLLGAANRDPERFTDPTRFDPGRAQSPPLSF
GAGAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRNRLTLRGYET
LPVTVSAIAADHGT PAGVARGTP

>CYP1005A1 (2515884614) *Salinispora tropica* CNS197

VSAVLFRSWTKTAGTHWPAITRVADQQGTEHLVVTQH ALVRQVLT DQLT
RPDNALDAVTPI PVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQR PWTGLVAERVAAIRRTLDSGGSTDLHAELNADLP LLVLAR
LVELPDAPVSAVKQFARAAL ELFWAPLDADRQLALADEVGRFHQV LREFA

DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLADEP
TVRAALRADSVSVADVVEEGLRLEPPIVTVRRVAAVDSTLGGSTVAAGTS
VLLWLARAGRDPVVPAPDEFPRPGQRGSRRLAFGAGAHRCCLGDQLARME
AAVVVEQVTPLLDGVTVVRPPWYPDNLTFRMPDAFVVR

>CYP107AX1 (2515885165) *Salinispora tropica* CNS197

MTSRPTAVFDQCLLRDPHSRYNALRDQAPVHHVLTDPGAPAWLVTRYNDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPELDAHLLNRDPPDHTRLRLRLAA
AACTPRRVADLHPAVERIVSTLLDGLAGHDAELIGSLASPLPLQVMHEL
LGLPTQANIDFRTWTNTLLSADANQPAQSRAAMANMRRFLIEQLAHKRAQ
PGDDLTLTGLLAAREDDRLTDDDELVAMVFLLMFAGYDNTAALIGTVTHAL
LTNAELHEAVRGGSLALDELIDEVLRWNPAFPLAVRRFAREPITIAGQTI
PAGDRIWLCLASANRDPAQFTQPDDELGIIGLRRSHLSFGHGIHYCLGAPL
ARLQTTIAVTSLLNRFPEMRLAVPAHDIRWRESFRLRGLIALPVYL

>CYP113E1 (2515885307) *Salinispora tropica* CNS197

MMATVPRLTFADGGVSVLPWFQRMRDDQPVWYDQGTGSWNVFRYADIAQI
LTDPATFSSDPGRMTPELVEEAEGSLVAVDPPRHGRLRALISTAFTPRL
VEQLAPRVRSIAERLLDRTFVDRGPEGEFDAIGDVAYLLPVYVIGELLGL
PETDREYLVRTADEFYAISADDPFDGTYMASMQSTLDGLGTYMLDQAERR
RARPGDDLMSALAHAEIDGELNDREIRNFVLLLTAGHITTTALLGNTL
LALGERRDVMLRWRHGQVDTADVLEEVLRRHRTPFTEVYRFTTTEVTIGNQ
VVPGDQLLRLWIASGNRDERQFADPDFTFVLGRDSRHLGFGGLGIHYCLGAS
LARMESVVEVLAEERTTTLAPAVQGLSYYDAPGIFCLRSLPVSYRRS

>CYP1004B1 (2515885762) *Salinispora tropica* CNS197

MTTSALAPRFDALDPNVVEDPYPEYARLRAAGPLCRLGPGSWGVTREFADV
TNLQHDPRLGSEFPAGYHEISVGDGPASAFFQRVMLYRDPPDHIRLRLRLM
SGAFTPAVVRRLRSHIEDLVDELLAPALAAGRMDLVPELAYPLPVRVVC
LMGIPPESTEDVRHHATNIGRAFTAVVPEQARTEADEAVSWLREHLGALL
EQRRSHRGDDLRLSRLDAEESGDNLSDAEIVDNTVFSFFAGFETTVHMIT
TGTAALLAHPDQLARLRADPSLVTTAVDEFWRWDAPIQGTARYVREPIEI
GGRTIRRGRLVLMIGSANHDERRFAQPDRLDVGRQDNPHVAFGGGAHL
LGAFLARMEGAVVFDRLARLAVLEPDGPTVREPNTPFRAVASVPVRIGDR

>CYP1004A1 (2515885766) *Salinispora tropica* CNS197

MRANTARPHLSAAFLATKDDPYPAYAELRARGPLTRAELGQWLVTGHGAV
SALLRDGRLESRMPEYTRLTLGDSPGVDLHRIVLTRTPPEHTRLRRFI
GRALGTPVVRRLHDRIAAATDALLEPALDRGRLDVVTTELAVPLPVGVVCD
LIGIPTGDRPAVLTRVTALAKVFDAANLSPADLADINTALPWLHDYFGDL
LAVRRAGSGGPTLTEMWEEASDRLAVADFVDNMLFLFHAGFETTMGLV
SNGVAALLNNPEQLGRLRADPALVPSAVEEFLRYDAPIQNVIRVARKPVE
VAGQKIRAGRTVLLLLGAANRDEEVFADAERLDVGRDPNPHLGFGGGLHH
CVGTALARLMAVVVFERLVDRVTVLGPAAPAVRRRHASLSYDHLPLAVA
AR

>CYP125G1 (2515885805) *Salinispora tropica* CNS197

MSTEVVSTGNRADIAPATYAAGVPYAEFARLRRDKPVSWVPEAALWRRS
GEGRILSQPGFWAVTTHEGVVAASRQPEVFSSGRQGAFLADPRTTADLE
QARQLLVNMDAPQHARVRKLVTAFTTPRAIRALGDSVTAHARNLVERAVR
QEEDCVVADLAAELPLLVLADLLGLPREDRHLLYQWSNNLVGFDDPEYGG

GDVEAYRKTFEAFQYALSVAGERRRAPREDLMTLLATSEVDGRRLTDRE
FCNFWLLLVLVAGNETTRHLITGSVLALVDNPMQRERLVADDTLLPSAVDE
LLRWVSPIMQFRRTAIVDTELCGTPIAAGDKVVLWYTSANRDAAVFEAPD
ELRLHRNPNPHLSFGMGPHFCLGAHLARLEARTMLRELAPHLSRFRLTGP
VVRLESNFVNGVKSLLPGSFTGQ

>CYP107E3 (2515886100) *Salinispora tropica* CNS197

VTIDQEIRKYPFCESPGIGIDPTYGLLRSTEPLARVQLPYGEVSWLATRY
EDVKTVLTDPRFSRAAAQKQDQPRTREEMTYEGIIGLDPPDHTRLRKLKAG
KALTARRVNIAIRADAQRIANEYVDEMIAGSPGDLVELFALPYPVTVICE
LLGVFPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFGYMGKLVAAQRREEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTGIVETVSTHIPPVYALLT
HPELMAQLRADRSLVPAAVEELLRMIPLNPAAMFPRYAVEDVTLSGITVR
AGEPVLVSLPGANRDPEVFENPETFDFTREQNPHVAFGHGPHHCLGAQLA
RMELQVALHTVLDRFPDLADGDEGVSWKSGLLVGRPSRLLVAW

>CYP162P1 (2572184259) *Salinispora arenicola* CNS848

MGLPSEVDLADPDLYAEGDPDAEWAWLRAHRPVYRNPAGATAEFWALTRY
RDALQVYRDPSTFSSERGMVLGVDPVAGDPAAGRMLVVTDPPRHPKLRI
VSGIFVPRTMHRLEGRVRSVLDQLLHRVVDGAGRCDFVNDVAARLPVAII
CELLGVPADEQDWMYHLTSTAFGGGDPAGSAEVSASVERAEAYGDILLYYG
ELAAERRRRPGDDLVTLLVHADLDGEPLDVEDVLVNCTNLIIGGNETTRH
AASGGLLALAQRPELWRLRETPTAVPTAVEEVLRWTTPGMHVLRATRD
TEIGGVPIRAGERVVVWNAANRDEDVFADPQRFIDRSPNRHIAFGQGG
HHCLGAALARLELTILFEEMAKQVTNVRLTGPRRVRSCVLRGIRALPVE
LVT

>CYP211C1 (2572184357) *Salinispora arenicola* CNS848

VVDVEELLTRLISAQGRQDPFPVYADLHAQGPIAALPPEPERRRVAHAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELLDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAELEAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPIPQGNVLLLIAAANRDPAHFPDPDRFDPWRSRGPPLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP125A41 (2572184504) *Salinispora arenicola* CNS848

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGDV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQRSPSDDLVTCLVNAQIDGEHLTTDEFGGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTVLGGAISAGQRFALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP166A4 (2572184653) *Salinispora arenicola* CNS848

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHVEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHQCLGQN
LARVELRAGLSALLRAFPNRLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP208A12 (2572184986) *Salinispora arenicola* CNS848

MTLDTITPRVPLGPPRTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGLDWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAEITG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNAVPMWIPLPR
QIRFERRARRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWPNERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGHRLVPEPMLSLRIRGGGLPLVVRP
VS

>CYP107AY2 (2572185596) *Salinispora arenicola* CNS848

MTAEPTPIPRSGARLGQEYDQLRKTDGVHQVLLPDASLAWLVTNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLADPDHTRLRLRVGPAF
SPQRVAALRPGIRRAAEHLDDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRAWTDAMLTSYPPDRDAIRQAVTELHGYYVDLIDIKQQQPG
DDLSSALVTIEQDGDRLSRDELTSLAFLILFAGYENTANLIASAVLWLLD
HGGLNVVPSSEAEIATLRHEPPAPVAIRRFPTEDIIIGGVTI PAGDTVLL
SVAAATRGADGNAARLAFGNPHYCLGAALARVEAEALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP245A7 (2572185881) *Salinispora arenicola* CNS848

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVMFMDP
PRHTELRLSLNRSFSFPRIVTELPRPRIARIAQELL SRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYARAEVA
AQEFTEYFREQVRLRRRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGAEGLTTDAVEEFLRYDPPVQ
AVTRWAHQD TT LGGCDIPRGSRVVALLGSANRDPARFPSPDVL D VRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVP T L GYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP244A4 (2572185885) *Salinispora arenicola* CNS848

MSTTTNTELTEAPETNMPVDPLGFDLDCMPDLIAAARVAPVVRI PYLGRHAW
VVCDELVKQAL THPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGF LDELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGLSLISTSLYEAIRPPHERPKTDEDITAWIEETLRVHPPFPHPPTW

RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEGADSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP105CP2 (2572186311) *Salinispora arenicola* CNS848

MTKSMPVQDLPAFFIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHARAVLSDYRRVSIKPYHGNYPLLNEEFKVVDSGYADVLFVGDPP
EHTRQQRQMIMPSFTLRRTAVLRPDIQRIVDDKLDEMRRHGAPGDLVTEFA
QPVPMSMVISFLLGVPWEDHEEFETPAHKLFVPELAEEATTELGAYLERLI
QKKEQPGGTPGGTGLLDDLI RDHLRAGALSRDELVHIAMAMLVAGTDTTT
NVISLGTALLLDNPQWAALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRP RPSPFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLR TAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2572186313) *Salinispora arenicola* CNS848

MAAPAPQATPSTTPHPPSYPLPRECPYRPSAGTAHLRDAGPVSTVRLYDG
RTAWLV TGAAEARALLADSRVSNRADFPNYFVMDKRHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRLLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVPHYQDRTRFEPAVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTALLLTAPGQYTALVDNPDLPVPGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIHHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACL PVTW

>CYP107FS2 (2572186314) *Salinispora arenicola* CNS848

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMPAVLVTGNRE
ARQALSDPRLVRSITAAAPELHXYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPADRSEFERHAEVL TGINASSGFDAIIAAGRWFDEYLAGLVQ
QRRREPQDDLISGMLAAQDKGDR LTDVELRSNALLLSAGFETT VNLIAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSL VWKASFVLHRLERLPV
TFTPDRDPNLIDSVHTV

>CYP125G6 (2572186353) *Salinispora arenicola* CNS848

VPTLLNEHVSYDGA AIAIVDS DGATSWIRLAERVNRWVHLLRAHGLDTGD
RLACVTGNRRETFEVLLAALHTGVTVVPVNWHLTVTEIGHILSDSGSRVV
ITEELHV KAVAAAADGTAGPVAGLV LGDREVEGF AAVEPLLAASPAEPE
GQVCGATMLYTS GTTGRPKGVVNNLFVTGAPYARVGRLCDYARSVLGVPR
RERMLLDGPWYHSSQLFFALLSLLQGSRLVIRPYFDPAATLKTIDDHRI T
VTHLVPTQLVRLLRVDALTRQMFSGASLRRVWHGGGCPPEVKRSMIDWW
GPVLVEYYYGATEGGVVTLIDSAEWLARPGSVGRAVPPSEVVVVDDGGQPV
AAGQTGQVFFRRRTGNRFHYHNAPEKTQAAYLAPDTFTTYGEVGHVDEDGY
LFLTGRAQDMIVSGGVNVYPAEVEAALLRHPVVRDAAVIGVADDEFGERV
VGIVVPETA VDPDDLATHLDAHCRVSLAGFKVPRTYRVVESLPRDETGKL
RKDALRSKFGWLSGAAMTVPRPATGQPTAHRPDIAHPTTYVSGVPHDEFA

RRRRDEPVGWVAEPVLTRHTAAGRTATRGSGFWAVTRYEDVVAASRRVTD
FSSAAKGAFLLTDPRTPADLQQARQLLVNMDDPHHARLRKLVTSVFTPRAV
RGLLASIDAHAAALVAKVVAAGEFDVVTDLAAELPLLVLADLLGVPKQDR
ALLYGWSNHLVGFDDPDFGGGDIDAYRTAMAEAFQYALNLGVERRARPTD
DLVSLLANAEVDGTRLTDREFCNFWLLLVVAGNETTRHLVAGTMQALTEH
PGEARLVEGRVPMESAVEELLRWVTPIMQFRRTATRDTEIGGQAVTAGE
KVVLYYTSANRDATVFAEPDRLDLGRTPNRQLSFGIGPHYCLGAHLARAE
LTALLRVMSPHLGSLQLTGPVSRSLASNFVNGVKAMPAVIGSR

>CYP154M15 (2572186378) *Salinispora arenicola* CNS848

MNDKCPFAALDVTGQDLHGEAARLREQGPAVLVELPGGVKAWSINRYEVI
RELLMDRRVTKNARKHWPFAFIKGEIPPDWEMISWVAMDNMVTAYGKDHVR
LRKLVGRAFTQRRADALRPQVVALSTKLLDDLGAFTPPGEVVDLRERFAYP
LPAMLVASLIGMSEAALAACSKVIDMMVHTNVSPEEAQAVLRGWRAAMAD
LIESKRRTPGEDITTDLIAAREEDGSRLSEAELADTIFAILGAGSETTIN
FFDNAITALLSRPGQLQLLRTGAVTWDDVIDEVLRVESPLAHLPLRYAVE
DIELDGVTIPQGDPILVNYAAAGRDPALHGGTADEFDLARGDKTHLSFGY
GPHYCLGAGIARMVATIGLSMLFERFPDLSLAVPATELKRLPTFIMNGHQ
TLPVRLTAHAR

>CYP1005A1 (2572186454) *Salinispora arenicola* CNS848

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTDQATY
RPDNALAEAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLDSSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVKKQFARAALFLWAPLDADRQLSLADEVGRFHHQVLRFEFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSISVADVVEEGLRLEPPIVTVRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFPRPGQRGSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTIVRPPWYPDNLTFRMPDAFVVRR

>CYP105BL2 (2572187117) *Salinispora arenicola* CNS848

MSSHSAAPDPETATPLHTLAPELAFFPQFERSAPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLDPRFSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPSPRVACHLVGIPLSYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHRDRLGLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIGLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTVGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP105AB8 (2572187290) *Salinispora arenicola* CNS848

MTETASSRHTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHRADLVKT
LSLPVPSLVICELLGVYPYADHDFQEHATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDLLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEEVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARRHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP154M21 (2572187481) *Salinispora arenicola* CNS848

MEKCPYVLDRAGSDIHKEASNLRRARGPVTLLVELHGGYTAWSVTSYEVAKQ
LLMDPRISKNTKAHWPEFRDGNVPQDWELYTWVAMDNMQTRDGKEHDLRLR
KLVAFAFTGRQAVKSRPIIEEIVNRLDDLETAAPRGQAVDIKARYFYPLS
TILVCDLLGIAEEDRDVILHGNVNSKTTNTAESEANLHQWQTALGRLV
ETKRDPGDDLTTVIIKAGEDEQTPLTDDEVIGSLHLLIGGGTETTANVL
CHTVVDMLTHPDQLAMVRSGAVSWESAWEVEVRKDGAVGSMFRCATDDV
EIGGVTTIAKGLVLINAAAAGRDPERYGDAAAEFDITRADKANLSFGYGR
HRCGLPALATMEAMVALPALFDRFPNLALAVPPNELKPGQGTFFNGYAEV
PLLLRS

>CYP154M13 (2572187482) *Salinispora arenicola* CNS848

MSTGRPVVLDPTGRDIHGEADHLRALGPATLVELPGGVLAWSINSYEVGK
ALLSAPNVSKSARRHWPAYNGEIPPDWEMISWVAMDNISTTFGGDHRRL
RRLTAKAFGSRRAEQVRPMATHMVNTLLDRMADAADAGEVVDLKAAFAYP
LPGMLVAELIGMSEEARVAAKVIDMMTATNITPEQAQGVLLGWRDAITD
LIALKRAQPGDDITSDLIAARDEDGSLLTEQELVDTIFAILGAGSETTIN
FFDNAITQLLTHPEQLELVKSGQVSWDDVIEEVLRLSPLASLPMRFAVE
DIQLDGVTIHRGDPILINYAALGRDPALHGESAGVFDVTRQHKEHLSFGH
GAHYCLGAGIARMVAKTGLSALFERFPRMTLAVSAKDLVPYPTFIMNGNR
QLPVHLSGALTWREGEQSALGRA

>CYP105W2 (2572187496) *Salinispora arenicola* CNS848

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPPSPPAEYARLRAEH
SVVRLPMLGGDTAWVVSRRHADVRQVLS DPRMSADRRRPGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGPVYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDVVVTDKEHRPGDDVLSRLLYRQRRAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPPERFPAAVE
ELLRYFTVVEAATARTTTAEVTIGGVTTAAGEGVVALGQAANRDPRVFEH
PDEFDPDRDARAHAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2572187504) *Salinispora arenicola* CNS848

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVS RFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQMSRNEIVSTVVTFTFTGHETVASQLGNGL
LSLLDHPEQLELVRRQPHLVPQAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCNPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP154M20 (2572187526) *Salinispora arenicola* CNS848

MERCPYVLDRAGRDLHGEAKALRRARGPVTLLVELHGGYTAWSVTSYEDIAKQ
LLVDPRISKNTKETWPEFREGKVPQDWELYTWVAMDNMQTRDGEEHDLRLR
KLVAQAFTTRQVAKVRPMIEDIVDRLLDDLEKVPAGEVVDIKGRYFYPLS
TILVCDLLGIPEADRAEALHGTVVNARTTNSAESEANLHQWQSALSCLV
ETKRREPGNDITTLIIKAREDEQAPLTDDEVIGSLHLLIGGGTETTNSVL
CNTLIDLTHPDQMAMIRSGAVGWEEAWEVEVRKDGAVGSMFRCANADI
EIGGVTTIAKGLVLINAAAAGRDPERYGDTTAEFDITRADKANLSFGYGR

HRCLGPALATMEAMISLPALFERFPDLVLAVPRDELKPQGTFFVNGYAEV
PMLLRS

>CYP107FJ2 (2572187533) *Salinispora arenicola* CNS848

MSETLSTSVLLADAAEQRAWRAKLRGAGPVHRITTSGETGWLIVGHEEA
RNALVDLRLQGRTATVGHGRMPEDLERALNSHMLNVGPPDHTRLRRLVS
AAFTRRRIEQMRPRIQELTDELLDGLAGADEADLVAGLALPLPMRVLVDL
FGIPAEDCADFNVWTKVLTSAGAVDLDRLTAAAGEMVAYLRGLLDRKRQV
PESDLSALVAVRDGADRLSDDELTSMVYLLLTAGYETTVNLIGNGLNL
LANPEQLVAFKADPDLLPQVVVEEAMRFDSPVQIAVRHSTEPVEIAGQAIP
SGALILVSLWANRDPDRFTEPEAFRVDRQDNPQLGFGYGFHHCIGAPLA
RMEGTIAIGTVIRRFAPALRLAHPAGSLTWRASMVMHGLTALPVHLR

>CYP211B2 (2572188343) *Salinispora arenicola* CNS848

MDVSEAIAVLISPSGRLDPYPTYEQLEAHGPVSQTTAGLFVVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIKSIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTAQADELVDEMIQAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVLTRPEAAAAALRDEPDLAGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPAGSWLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRTLRGYETLP
ITVGAVTADRGTAPGAVPGTP

>CYP247A7 (2572188458) *Salinispora arenicola* CNS848

VRLTPGAARDIDLDSVNLFDLDLYTSGDPHPIWDMRAQSPLHHQVLADG
REFWSVTRYDDVCRVLGDYREFTSERGTVVTHLGEDDIAAGKLLTSTDPP
RHTQVRRRAIGAKLTARAVASWQDRIRDAIVRFLEPALDGDTFDLAEQALL
LPAIVTGPLLGIPERDWQELVQLTAMVTAPSDPHFQHGSEAATLAISHHE
LVITYVTEWVKQRRSAGGGDGSLLDHLMSVRVGGAPLTDEEIALDGYSILL
GANVTTPTHVSGTVLALIERPEQFEKAQADPSLLANLVEEGLRWASAACN
FMRYAVNDTRIGGGTVPAGGAVVAWIGSANRDESYFPDPHQFDITRSGAN
RQVAFGFGPHYCIGAPLARMTLGIFFEEELVQRFSGSIELAGEPQHLSYFI
AGMTHLPIVAQKRKTP

>CYP107Q4 (2572188583) *Salinispora arenicola* CNS848

MTTTAETSATIDLFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRFLTNPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSYALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPRPHWRWAGDSMATMNGER
IPTTLVKCIELARELIANRAEPQDDLVTALVQAQAEQDNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFDPNKLII
DRLAVGSEHGLGFGKIHRCLGQHLAYQEAEEVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTTRTTLPLKLV

>CYP105G5 (2572188584) *Salinispora arenicola* CNS848

LTIETTETPPADDLSRAPLPRQFMQRDDPSKLPALAAALAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRRAAGLLQTDLPKIQ

AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDDDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQRLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTP

>CYP105B1A1 (2572188604) *Salinispora arenicola* CNS848

MATDAAITRARTVPAWKALPAAVRDTHRAFVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAVDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDDILLPVLRQAQRQPDDGDDLLSRLVRARADDGQALSE
KMRDDLVSMVAVTTETSTVVLTWMMPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDLLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASRTPARTVEMI
LKPVPAPVPAR

>CYP105CH1 (2572188563) *Salinispora arenicola* CNS848

VSSLPLPTYPKLRDPADPLLPAPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHFNFPYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRRLLI SEFTVRQAQAMRPRIQQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEMLGVFPADHDYFQERTALQLRRDVPVAAQQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRITDPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVNLTARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALDITVLRRLPGLHLVAPFEELPFKYRHLVWGIEEL
RVAW

>CYP105J3 (2572188768) *Salinispora arenicola* CNS848

MTDSVAFPQGRVCPHQAPAGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLDVDPRISSDRTNPAWPAIVPIVAAA VNDAAQQKVLKIATALVGTGPE
HKAQRKMLIPSFTRRMNALRPMIQEIVDQQLDDEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGLVDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDVAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIERLPSRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP107EU1 (2572188947) *Salinispora arenicola* CNS848

VTIGQTLPLDLYVSPEFTRDPYAI FARLREQAPVCRVTTHRGMSAWMVTRH
ADV RALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTNNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPVADDLLTALVQVSADEDRLSREELVSMALLLLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRETT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRDLITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVVRFPQMQLAVEADDLEWLNVNSFFRAPL
HLPVSLRR

>CYP163B16 (2572189009) *Salinispora arenicola* CNS848

VTAADPGRVSGESQTPAHTVDLADPATFANRDLTGFWQQLRDEEPIHWN
PPTSGRRGFVVVSRYADILDVYRDDVTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHAELRKLLLRALGPRVLAPVCAAVRANTRQMVREAVTKGEC
FASDIASRIPMMTISNLLGVPDADRAFLSLTKTALSADDESISETESAM
ARNEILLYFQDLMEFRRDHPGEDVVSMLVNSTIDGAPLSDDDIVLNCYSL
IIGGDETSRLTMIDSVNTLAAHPKQWRRLKDGQCEIDKAVDEVLRWASPS
MHFGRAAAKDTILRGVQIRADDIVTLWHASGNRDERVFHRPEVFDLGRTP
NRHLSFGHGPHYICISYLAKVEISELLIALRDLTSGFETTGEFQIRSNL
LTGFSTMPVRFVFPDRAGLARDALDG

>CYP1198B1 (2572189313) *Salinispora arenicola* CNS848

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQKRLVSKSFTPRIVKSFGPQITHIVDGLFEDFRDRGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGIITNVVDES
LRYDPPVHLAARMARATTIGGYDLDPGTIVVVLMAAGNRDPRAYENPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKHPEVDES
SLEYRRHIVVRGLEHMKVAFQP

>CYP107AY1 (2562101604) *Salinispora tropica* CNY678

MRAELAPIPRSGARLGQEYDQLRNAGDVHQVLLPDSSSLAWLVTNPKLVSR
ALTDPRALNRRHSRGSWSGFALPPALDANLLNLDAPDHTRLRRLVGPAP
SPQRVSAALRPRIIRRTAEHLLDTLVATSGPVDLVTGYCTPLSVQVIADLMG
VPEAGRDLRTWTDTMLTSYPPDRDAIRQAVVELHGYVVDLIDTKRQQPG
DDLALSALVTIEQDGDRLTRDELTSLAFLILFAGYENTANLIASTVLRLLD
HGGLRGVQLPEAIEETLRLEPPAPAAVRRFPTEEMTIGGATIPAGDIVLL
SIAAATRGTAGNAARLAFGNPHFCLGAALARVEAEALTVLARRLPDLA
LALPVAQVRWRPTFRTHGPAELLVTW

>CYP105AB2 (2562102029) *Salinispora tropica* CNY678

MTETASIAATTRTASGQLTDAEFPVQRGCPFTTPTTEYEQIREESSIAKVRL
KNGGEAWWIAGHELGRSVLADRRFSSDRRRDNFPFVSTDPETRAQLQSQP
TSMGLMGDAEHAQTRRALMGFTVRRMAGLRPRIQQIVDQHIDEMLTTPQ
RSVDLVEALSPLVPVSLVICELLGVYPYADHDFQGLTGPLLRTTPPEVRL
RIQEELNTYLGTLIDHKLTDPTDDLRSRQIAKHRDNGTFDRASMVSLAFL
LLVAGHETTANMISLGVVGLLQHPDQLVLIKDDPDKTPLAVEELLRYFTI
ADSVTARVATEDVQLGDTTINAGDGVVISGLAADRDPTVFAEPDRDLER
GARHHVAFGFGPHQCIGQTLARMELRIVFDTLFRHRIPTLRLAAPLDDIPF
KSDAFVYGIEELPVAW

>CYP1005A1 (2562102258) *Salinispora tropica* CNY678

VSAVLFRSWTKTAGTHWPAITRVADQQGTEHLVVTOHALVRQVLTQDLTY
RPDNALDAVTPIPAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTGLVAERVAAIRRTLDSGGSTDHAELEADLPLLVLAR
LVELPDAPVSAVKQFARAALFLWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLADEP
TVRAALRADSVSVADVVEEGLRLEPPIVTVRRVAAVDSTLGGSTVAAGTS
VLLWLARAGRDPVVPAPDEFPRPGQRGSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQVTPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP154M1 (2562103403) *Salinispora tropica* CNY678

MRRRCPVVIDPAGTDIHAEGARIRANGSVSQVELPGGVLAWSVTGQQVAR
KVLSDQRFKDPKHKWTDYLEGRIGQDFPLIGWVLMNDLTTAYGSDHSRL
RKPCANAFTPRRVEALRPAVERAAVELLGELATVSPTESVDLKARYAHL
PSRVICDLFGVPEEDREEMLRGGEVNVDTRVSAEEEEANVERWHQQLDF
IEEKRRNPGPDLTSDLIAAQQAEGRSLTDSEMVGTLHIMLATGTPEPVKNL
IGNAVFALLTHPEQLDLVRSGRAGWDDVIQETLRMQAPVAHLPFREFVED
VDIDGVTIRRGDPLLNVFAAIGRDPDVHGDAAEFDITRADKEHLSFGHG
VYRCIGQPLALREAEIALRMLFQRFPNLVLAVPPEEVTPQPTFIMNGLDT
LPVLLKGRA

>CYP208A4 (2562103431) *Salinispora tropica* CNY678

VTVAAAGRTFSGPTGAALLRSLWQLGQDRLGLMTSAARYGDAVRLGVGSR
SLYFFNHPDHAKHVLADNSGNYTKGLGLVHARRALGDGLLTSEGELWREQ
RRVIQPVFQAKRVAGQAHAVAEADRLIARLRARRGRGPVNLTDEFTALT
LGVLGRTLLDANLDAFTTVGAAFEEMQNQAMFEMASMSMVPWVPLPQQ
RFRRARRELERIVGRIVADRTARGEETGADDALSRLIASTRDEPDGVAR
RRMRDELVTLLLAGHETTASTLGWTFHLLINQDPRVRVRLREEAIDVLGGR
LPEYADLARLTYTKMVVSEAMRLYPPVWMLSRLARDADVVDGYPPPARAD
VLICPYTLHRHPAFWPEPERFDPERFDPEVTTDRPRYAYVPFGAGPRFCV
GNHLGLMEAVFVAMVSREFDLVAPVGQPVVAEPMLSLRVRGGLSMTVEP
VS

>CYP125A15 (2562103510) *Salinispora tropica* CNY678

MTEPRIPVGFDFDTPAVLERRVPREEFAELRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMASRSDSTYSTRENTAIARFQPGTTRADLEMQRVIML
NVDPPHETKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
ADVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGVDPLTAAA
ELLAYAMEMANERQLNPSDDLVTKLVAQIDGEHLTTDEFGFFVMLLAVA
GNETTRNAITHGMLAFLEHPEQWELFKAERPRSAVEEIIRWATPVNVFQR
TALVDTTLGGQAI SAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFHSIADHMPDIRKVAEPRRLRSGWINGI
REMPVRYR

>CYP211C1 (2562103643) *Salinispora tropica* CNY678

VLDVEGLLTRLYSEQGRQDPYPVYADLHAQGAIAALAPRPEGQRVA AVAV
GYDLVGAVLRDPEWSKQPPPGWMEQEILRTLQSSMMFINPPDHGRMRKVF
AGTFTPRRLGTLEPVINRVADELDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPATELAWYRDRVDRIDAFLDVAGKTPERLAAANAAAAELRVFYA
DLLARRRRTPGEDLISGLVEAVDAGGVQLTEDELINNLI VLFNASFVTTV
YMLSNGLPVLLHEHPEVAAALADDPDELTAGAIDEILRLQTPVHLLARAAPR
DTVLGGVPI PQGQNVLLIIAAANRDP AHFPDPDRFDPRRPGPPSLAFGLG
LHYCLGA AVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGGRMHP

>CYP107AW1 (2562103916) *Salinispora tropica* CNY678

MESVTSTSAPPPVPYIADPYPALARIRANGPVSI LHSDEGIPMWVIARYR
NVRAALADPRFGQDARRAQTLADNRVAGVTLGGDVIHMLNSDPPDHTRLR
HLVQGAFTARRVAAMRPLVERITTSLLDGVGGRQTVDLVQDFAFPLPMLV
ICELLGFPAEERDAYRSWSTAILTHNDDPAAAFATALRDMTDYIEVQLRHR
RARPGEDLLTELLAARDAGQLTDEIVGMVFLLLIGGHETTVNLLGTATL
ALVRNPDQHRWLLANPHALSEAIDEFLRYESPVAMATLRFTTAPVTVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGH LAFGHGLHRC LGA

FLGKLEGEVALGALLGRYPGLTLAAEVRQLRWRDTIMLRGLESIPVSLHG

>CYP211B1 (2562104144) *Salinispora tropica* CNY678

MDASEAVALLMSPLGRIDPYPTYERLRAHGPPVQTAAGFFVVTGYTEADT
VLRNARLAFEVMDDELRDDVFPHWQDSPAMKSIARSMIRANPPNHGRMRR
LAAGAFTPRRIAALREVVTQAQADELADEMIRAGRDGAPVDFMGSFAYPLP
VAVICALLGVPAADWARFRGWASDLTAVLEPEITPQELTVADAGASELRD
YFTELIAQRRRAPADDLTALVQTHDADGDRLSGEELLANLVLLLVAGFE
TTTNLLGNGLVLLAHPDSATALRDQPELAPGHVDELLRYDSPVQLTTRT
VRESVLLAGVELPAGSWVLVLLGAANRDPERFTDPTRFDPGRAQSPPLSF
GAGAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRNRLTLRGYET
LPVTVSAIAADHGTTPAGVARGTP

>CYP163B1 (2562104415) *Salinispora tropica* CNY678

VTAA DTGRVSGESQTPAHTVDLADPATFANHDLTGFWQQLRDEEPIHWN
PPTAGRRGFVVVSRYADILDVYRDDVTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHAELRKLLLRALGPRVLAPVCAAVRTNTRQMIREAVTKGEC
FASDIASRIPMMTISNLLGVPDADRAFLLSLTKTALSADDESISETESAM
ARNEILLYFQDLMEFRRDHPGEDVVSMLVNSSIDGAPLSDDDIDLNCYSL
IIGGDETSRLTMIDSVNTLAAHPQQWRRLKDGQCEIDKAVDEVLRWASPS
MHFGRVAARDTILHGVRIRADDIVTLWHASGNRDERVFHRPEVFDLGRTP
NRHLSFGHGPHYCIGSYLAKVEISELLIALRDLTSGFETTGEPPQIRSNL
LTGFATMPVRFVPDRAGLARDALDG

>CYP107AX1 (2562104801) *Salinispora tropica* CNY678

MTSRPTAVFDQCLLRDPHSRYNALRDQAPVHHVLTDPDGAPAWLVTRYNDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AACTPRRVADLHPAVERIVSTLLDGLAGHDRAELIGSLASPLPLQVMHEL
LGLPTQANIDFRTWTNTLLSADANQPAQSRAAMANMRRFLIEQLAHKRAQ
PGDDLLTGLLAAREDDRLTDDELVAMVFLLMFAGYDNTAALIGTVTHAL
LTNAELHEAVRGSLALDELIDEVLRWNPAFPLAVRRFAREPITIAGQTI
PAGDRIWLCLASANRDPAQFTQPDELGIIGLRRPHLSFGHGIHYCLGAPL
ARLQTTIAVTSLNRFPEMRLAVPAHDIRWRESFRLRGLIALPVYL

>CYP125G1 (2562105118) *Salinispora tropica* CNY678

MSTEVVSTGNRADIAPATYAAGVPYAEFARLRRDKPVSWSVPEAALWRRS
GEGRILSQPGFWAVTTHEGVVAASRQPEVFSSGRQGAFLADPRTTADLE
QARQLLVNMDAPQHARVRKLVTAFTTPRAIRALGDSVTAHARNLVERAVR
QEEDVVDLAAELPLLVLADLLGLPREDRHLLYQWSNNLVGFDDEYGG
GDVEAYRKTFEAFQYALSVAGERRRAPREDLMTLLATSEVDGRRLTDRE
FCNFWLLLVLVAGNETTRHLITGSVLALVDNPMQRERLVADDTLLPSAVDE
LLRWVSPIMQFRRTAIVDTELCTPIAAGDKVVLWYTSANRDAAVFEAPD
ELRLHRNPNPHLSFGMGPHFCLGAHLARLEARTMLRELAPHLRSFRLTGP
VVRLESNFVNGVKSPLPGSFTGQ

>CYP1004A1 (2562105157) *Salinispora tropica* CNY678

MRANTARPHLSAAFLATKDDPYPAYAELRARGPLTRAELGQWLVTGHGAV
SALLRDGRLESRMPAEYTRTLTGDSPPGVDFLHRIVLTRTPPEHTRLRRFI
GRALGTPVVRRLHDRIAAATDALLEPALDRGRLDVVTELAVPLPVGVVCD
LIGIPTGDRPAVLTRVTALAKVFDAANLSPADLADINTALPWLHDYFGDL
LAVRRAGSGGPTLTEMYYEESASDRLAVADFVDNMLFLFHAGFETTMGLV
SNGVAALLNNPEQLGRRLRADPALVPSAVEEFLRYDAPIQNVIRVARKPVE

VAGQKIRAGRTVLLLLGAANRDEEVFADAERLDVGRDPNPHLGFGGGLHH
CVGTALARLMAVVVFERLVDRTVLGPAAPAVRRRHASLRSYDHLPLAVA
AR

>CYP1004B1 (2562105161) *Salinispora tropica* CNY678

MTTSALAPRFDALDPNVVEDPYPEYARLRAAGPLCRLGPGSWGVTREFADV
TNLQHDPRLGSEFPAGYHEISVGDGPASAFFQRMVLYRDPDPHIRLRRLM
SGAFTPAVVRRLRSHIEDLVDELLAPALAAGRMDLVPELAYPLPVRVVC
LMGIPPESTEDVRHHATNIGRAFTAVVPEQARTEADEAVSWLREHLGALL
EQRRSHRGDDLLSRLLDAEESGDNLSADEIVDNTVFSFFAGFETTVHMIT
TGTAALLAHPDQLARLRADPSLVTSASVDEFWRWDAPIQGTARYVREPIEI
GGRTIRRGRLVLMIGSANHDERRFAQPDRLDVGRQDNPHVAFGGGAHL
LGAFLARMEGAVVFDRLARLAVLEPDGPTVREPNTPFRAVASVPVRIGDR

>CYP113E1 (2562105305) *Salinispora tropica* CNY678

MMATVPRLTFADGGVSVLPWFRQMRDDQPVWYDQGTGSWNVFRYADIAQI
LTDPAFTSSDPGRMTMPELVEEAEGSLVAVDPPRHGRLRALISTAFTPRL
VEQLAPRVRSIAERLLDRTFVDRGPEGEFDAIGDVAYLLPVYVIGELLGL
PETDREYLVRTADEFYAISADDPFDGTYMASMQSTLDGLGTYMLDQAERR
RARPGDDLMSALAHAEIDGEQLNDREIRNFVLLLTAGHITTTALLGNTL
LALGERRDVMLRWRHGQVDTADVLEEVLRRHRTPFTEVYRFTTTEVTIGNQ
VVPGDQLLRLWIASGNRDERQFADPDFTFVLGRDSRHLGFGGLGIHYCLGAS
LARMESVVLVLAERTTTTAPAVQGLSYDAPGIFCLRSLPVSYRRS

>CYP107E3 (2562105761) *Salinispora tropica* CNY678

VTIDQEIRKYPFCESPGIGIDPTYGLLRSTEPLARVQLPYGEVSWLATRY
EDVKTVLTDPRFSRAAAQGKDQPRTREEMTYEGIIGLDPPDHTRLRKL
KALTARRVNAIRADAQRIANEYVDEMIAGKSPGDLVELFALPYPVTVICE
LLGVFFEDRAQFRIWTEGLTSTSEQLMVYAEQLFGYMGKLVAQRREEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTGVTSTHIPPVYALLT
HPELMAQLRADRSVPAAVEELLRMIPLNPAAMFPRYAVEDVTLSGITVR
AGEPVLVSLPGANRDPEVFENPETFDFTREQNPHVAFGHGPHHCLGAQLA
RMELQVALHTVLDRFPDLSLADGDEGVSWKSGLLVRGPSRLLVAV

>CYP1005A1 (2515985850) *Salinispora arenicola* CNH905

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTDQATY
RPDNALAEAVTPVPVAALRVLAGHRFRLPPTLANNGGASHPAIRALVADAL
HPTKVAAQRPWLTLGLVADRVATIRTTLDSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVQKFARAALFLWAPLDADRQLALADEVGRFHQVLREFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSSSVADVVEEGLRLEPPIVTVRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFPRPGQRGSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP1051A1 (2515986083) *Salinispora arenicola* CNH905

MATDAAITRARTVPAWKALPAAVRDTHRAFVDVGNWSDGDVVRVSLGVSR
PYLVTPNAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAVDGLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLPWWIPMP
GDRRFRAAVRSIDDILLPVLRLQAQRQPDGDDLLSRLVRARADDGQALSE
KMRDDLVSMVAVTTETSTVVLTWLWPLLANHPDVANRLYDEIDRVVGGG

PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASRTPARTVEMV
LKPVAPVPPAR

>CYP105G5 (2515986108) *Salinispora arenicola* CNH905

LTIETTETTPPADDSLAPLPRQFMQRDDPSKLPALAAALAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDFRFSDDRFYHPRFKKLSGQLGERLRNDK
ARAGSFINDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPLTDDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRPQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQRLARIELTVGITELLRRLPNVRLAIPPADV
PLRNDMITYGVHRLPILWDTF

>CYP107Q4 (2515986109) *Salinispora arenicola* CNH905

MTTTAETSATIDLFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPFRFLTNPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRLKLVSYALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPRPHWRAGDSMATMNGER
IPTTLVKCIELARELIAKRAEPQDDLVTALVQAQAEQDQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLALLAANTDPRRFPDPNKLII
DRLAVGSEGHGLGFGKGIHRCLGQHLAYQEAEEVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP208A12 (2515986386) *Salinispora arenicola* CNH905

MTLDTITPRVPLGPPTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGLDWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAEITG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNLAVPMWIPLPR
QIRFRRARRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVANAD
VVISPYTLHRHPEFWPNERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGHRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP211C1 (2515986457) *Salinispora arenicola* CNH905

VVDVEELLTRLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVAAVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAELEAFY
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPIPPQGNVLLLIAAAANRDPAHFPDPRFDPWRSPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP125A41 (2515986607) *Salinispora arenicola* CNH905

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPHHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGDVF
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQRSPSDDLVTCLVNAQIDGHLTTDEF GFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTVLGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLDPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211B2 (2515986746) *Salinispora arenicola* CNH905

MDVSEAI AVLISPSGR LDPYPTYEQ LRAHG PVSQT TAGL FVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIKSIARSMRLTNPPDHSRIRRLA
AGAFTPRRVAAMREV VTAQADEL VDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVLLRRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTEL PAGSWLLVLLGAANRDPRRFPD PARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGT PAGVAPGTP

>CYP162P1 (2515987428) *Salinispora arenicola* CNH905

MGLPSEVDLADPDLYAEGDPDAEWAWLRAHRPVYRNPAGTTAEFWALTRY
RDALQVYRDPSTFSSERGMVLGVDPVAGDPAAGRMLVVTDPPRHPKLRI
VSGIFVPRTMHRLEGRVRS LVDQLLHRVVDGAGRCDFVNDVAARLPVAII
CELLGVPADEQDWMYHLTSTAFGGGDPAGSAEVS AVERAEAYGDILLYYG
ELAAERRRRPGDDLVTLLVHADLDGEPLDVEDVLVNCTNLIIGGNETTRH
AASGGLLALAQRPELWRLRETPTAVPTVVEEVLRWTTPGMHVLRATRD
TEIGGVPIRAGERVVVWNAANRDEDVFADPQRFIDRSPNRHIAFGQGG
HHCLGAALARLELTILFEEMAKQVTNVRLTG PVRVRVRS CVLRGIRALPVE
LVT

>CYP244A4 (2515987835) *Salinispora arenicola* CNH905

MSTTTNTELTEAPETNMPVD PGLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQAL THPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLS PRNTERWGERVADKVEGFLDELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGLISTSLYEAIRPPHERPKTDEDITAWIEETLRVHPPFPHPPTW
RFPLEDIELGGYLIPKGA PVQVSIAAANRKPGE GADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP245A7 (2515987839) *Salinispora arenicola* CNH905

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVMFMDP
PRHTELRSLLNRSFSPRIVTEL RPRIARIAQELL SRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSRAGR DVDGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGAEGLTTDAVEEFLRYDPPVQ
AVTRWAHQD TTLGGCDIPGRSRVALLGSANRDPARFPSPDVL DVRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVP TLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCT

>CYP105BL2 (2515988237) *Salinispora arenicola* CNH905

MSSHSAAPDPETATPLHTLAPELAFFPQFERSAPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTLSDPHFSSDMSPGFNRTGKPVDDLL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPVSRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDRHHDRDDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVAFERPDDEL DVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP107EU1 (2515988343) *Salinispora arenicola* CNH905

VTIGQTL PDLVYSPEFTRDPY AIFARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELIPRHSTLTGAATGFPPGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPVADDLLTALVQVSADEDRLSREELVSMALLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRLDITRSTQGNLAMGH
GIHHCVGGAALARLELEIVLIRLVARFPQMQLAVEADDLEWL VNSFFRAPL
HLPVSLRR

>CYP166A4 (2515988690) *Salinispora arenicola* CNH905

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHVEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGI HQCLGQN
LARVELRAGLSALLRAFPNLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP107FJ2 (2515988806) *Salinispora arenicola* CNH905

MSETLSTSVLLADAAEQRAWRAKLRGAGPVHRI TTQSGETGWLIVGHEEA
RNALVDLRLQGRATVGHGRMPEDLERALNSHMLNVGPPDHTRLRLRLVS
AAFTRRRIEQMRPRIQELTDELLDGLAGADEADLVAGLALPLPMRVLVDL
FGIPAEDCADFNWTKVLTSAGAVDLDRLTAAAGEMVAYLRGLLDRKRQV
PESDLLSALVAVRDGADRLSDELTS MVYLLLTAGYETTVNLIGNGLLNL
LANPEQLVAFKADPDL LPQVVEEAMRFDSPVQI AVRHSTEPVEIAGQAIP
SGALILVSL LWANRDPDRFTEPEVFRVDRQDN PQLGFGYGFHHCIGAPLA
RMEGTVAIGTVIRRF PALRLAHPAGSLTWRASMVMHGLTALPVHLR

>CYP154M20 (2515988813) *Salinispora arenicola* CNH905

MERCPYVLDRAGRDLHGEAKALRARGPVTLVELHGGYTAVSVTSYEIAKQ
LLVDPRI SKNTKETWPEFREGKVPQDWELYTWVAMDNMQTRDGEEHDLRL
KLVAQAFTRRQVAKVRPMIEDIVDRLLDDLEKVPAGEVV DIKGRYFYPLS
TILVCDLGIPEADRAEALHGT VVNARTTNSAESEANLHQWQSALSCLV
ETKRREPGNDITTLIKAREDEQAPLTDDEVIGSLHLLIGGGTETTSNLV
CNTLIDL LTHPDQMAMIRSGAVGWEEAWEVEVRKDGAVGSMPPFRCANADI
EIGGV TIAKGDVLIN YAAAGRDPERYGDTTAEFDITRADKTNLSFGYGR

HRCLGPALATMEAMISLPALFERFPDLVLAVPRDELKPQGTFFVNGYAEV
PMLLRS

>CYP248A2 (2515988836) *Salinispora arenicola* CNH905

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQLMRNEIVSTVVTFIFTGHETVASQLGNGL
LSLLDHPEQLELVRRQPHLVPPQAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDVPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCNPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP105W2 (2515988844) *Salinispora arenicola* CNH905

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPPSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRAHADVRLSDPRMSADRRRPGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVYPYGEHEFFERRSTLMFR
STPADERARCARERIRDFLDVVVTDKEHRPGDDVLSRLLYRQRRAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPPERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGVTTAAGEGVVAVGQAANRDPVFEH
PDEFDPDRDARAHAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP154M13 (2515988857) *Salinispora arenicola* CNH905

MSTGRPVVLDPTGRDIHGEADHLRALGPATLVELPGGVLAWSINSYEVGK
ALLSAPNVSKSARRHWPAYFNGEIPPDWEMISWVAMDNISTTFGGDHRR
RRLTAKAFGSRRAEQVRPMAHVMNTLLDRMADAADAGEVVDLKAAFAYP
LPGMLVAELIGMSEEARVAAKVIDMMTATNITPEQAQGVLLGWRDAITD
LIALKRAQPGDDITSDLIAARDEDGSLLTEQELVDITIFAILGAGSETTIN
FFDNAITQLLTHPEQLELVKSGQVSWDDVIEEVLRLSPLASLPMRFAVE
DIQLDGVTIHRGDPIILINYAALGRDPALHGESAGVFDVTRQHKEHLSFGH
GAHYCLGAGIARMVAKTGLSALFERFPRMTLAVSAKDLVPYPTFIMNGNR
QLPVHLSGALTWREGEQSALGRA

>CYP154M21 (2515988858) *Salinispora arenicola* CNH905

MEKCPYVLDRAGSDIHKEASNLARGPVTLVELHGGYTAWSVTSYEVAKQ
LLMDPRISKNTKAHWPEFRDGNVPQDWELYTWVAMDNMQTRDGKEHDLRL
KLVAAPTGRQAVKSRPIIEEIVNRLDDLETAAPRGQAVDIKARYFYPLS
TILVCDLLGIAEEDRDVILHGNVNSKTTNTAESEANLHQWQTALGRLV
ETKRRDPGDDLTTVIIKAGEDEQTPLTDDEVIGSLHLLIGGGTETTANVL
CHTVVDMLTHPDQLAMVRSGAVSWESAWEEVVRKDGAVGSMPFRCATDDV
EIGGVTTIAKGDVLVINYAAAGRDPERYGDAAAEFDITRADKANLSFGYGR
HRCLGPALATMEAMVALPALFDRFPNLALAVPPNELKPQGTFFVNGYAEV
PMLLRS

>CYP105CP2 (2515988980) *Salinispora arenicola* CNH905

MTKSMPVQDLPAFPIPRECPYRPSAQHVSLRSGGPMKVRVLYNGRTAWLV
TDSAHAARAVLSDYRRVSIKPYHGNYPLLNEEFKVVDSGYADVLFVGDPP
EHTRQRQMIMPSFTLRRTAVLRPDIQRIVDDKLDEMRRHGAPGDLVTEFA
QPVPSPMVISFLLGVFWEDHEEFETPAHKLFPVELAEAEATELGAYLERLI
QKKEQPGGTPGGTGLLDDLIRDHLRAGALSRLDELVHIAMAMLVAGTDTT

NVISLGLTALLDNDPDQWAALRDNPDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPFRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRRTAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2515988982) *Salinispora arenicola* CNH905

MAAPAPQATPSTTTPHPPSYPLPRECPYRPSAGTAHLRDAGPVSTVRLYDG
RTAWLVGTGAEEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRLPRFTVRQVAARRSAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVQYQDRTRFEPVAVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYTALVDNPDLPVGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIHHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPVTW

>CYP107FS2 (2515988983) *Salinispora arenicola* CNH905

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPFADRSEFERHAEVLTGINASSGFDAAIAAGRWFDEYLAGLVQ
QRRREPQDDLISGMLAAQDKGDRITDVELRSNALLLSAGFETTVNLIAN
GLLALLRHPEAAMAALRSEPNLMTTAVDELRLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVIVAAAAANHDPTVFAAPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRLAGLRLAVPTDSLWKASFVLHRLRLRPV
TFTPDRDPNPIDSVHTV

>CYP125G6 (2515989325) *Salinispora arenicola* CNH905

VPTLLNEHVSYDGAAIAIVDSGATSWIRLAERVNRWVHLLRAHGLDTGD
RLACVTGNRRTEFEVLLAALHTGVTVPVNWHLTVTEIGHILSDSGSRVV
ITEELHVKAFAAAADGTAGPVAGLVLGDRVEGFAAVEPLLAASPAEPE
GQVCGATMLYTSGTTGRPKGVVNNLFVTGAPYARVGRLCDYARSVLGVPR
RERMLLDGPWYHSSQLFFALLSLLQGSRLVIRPYFDPAATLKTIDDHRIT
VTHLVPTQLVRLLRVDALTRQMFSGASLRRVWHGGGCPPEVKRSMIDWW
GPVLVEYYYGATEGGVVTLIDSAEWLARPGSVGRAVPPSEVVVVDDGGQPV
AAGQTGQVFFRRRTGNRFHYHNAPEKTQAAYLAPDTFTYGEVGHVDEGY
LFLTGRAQDMIVSGGVNVYPAEVEAALLRHPVVRDAAVIGVADDEFGERV
VGIVVPETAVDPDDLATHLDAHCRVSLAGFKVPRTYRVVESLPRDETGKL
RKDALRSKFGWLSGAAMTVPRPATGQPTAHRPDIAHPTTYVSGVPHDEFA
RRRRDEPVGWAEPLVTRHTAAGRTATRGSGFWAVTRYEDVVAASRRVTD
FSSAAKGAFLLTDPRTPADLQQAQQLLVNMDDPHHARLRKLVTSTVFTPRAV
RGLLASIDAHAAALVAKVVAAGEFDVVTDLAAELPLLVLADLLGVPKQDR
ALLYGWSNHLVGFDPDFGGGDIDAYRTAMAEAFQYALNLGVERRARPTD
DLVSLLANAEVDGTRLTDREFCNFWLLLVVAGNETTRHLIAGTMQALTEH
PGECARLVEGRVPMESAVEELLRWVTPIMQFRRTATRDTEIGGQAVTAGE
KVVLYYTSANRDATVFAEPDRLDLGRTPNRQLSFGIGPHYCLGAHLARAE
LTALLRVMSPHLGLSLQLTGPVSRLASNFVNGVKAMPAVIGSR

>CYP154M15 (2515989350) *Salinispora arenicola* CNH905

MNDKCPFAALDVTGQDLHGEEARLREQGPAVLVELPGGVKAWSINRYEVI

RELLMDRRVTKNARKHWPFAFIKGEIPPDWEMISWVAMDNMVTAYGKDHVR
LRKLVGRAFTQRRADALRPQVVALSTKLLDDLGA TPPEVVDLRERFAYP
LPAMLVASLIGMSEAALAACSKVIDMMVHTNVSPEEAQAVLRGWRAAMAD
LIESKRRTPGEDITTDLIAAREEDGSRLSEAEADTIFAILGAGSETTIN
FFDNAITALLSRPGQLQLLRTGGVTWDDVIDEVLRVESPLAHLPLRYAVE
DIELDGV TIPQGDPILVNYAAAAGRDPALHGGTADEFDLARGDKTHLSFGY
GPHYCLGAGIARMVATIGLSMLFERFPDL SLAVPVTTELKRLPTFIMNGHQ
TLPVRLTAHAR

>CYP105AB8 (2515989575) *Salinispora arenicola* CNH905

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLT TDQHCADLVKT
LSLPVPSLVICELLGV PYADHDFQEHTATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPD DDLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARRHHLAF
GFGPHQCLGQNLARLELQIVFDTL FHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP105J3 (2515989731) *Salinispora arenicola* CNH905

MTDSVAFPQGRVCPHQ PAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRTPAWPAIVPIVAAA VNDAAQQKVLKIATALVGT DGPE
HKAQRKMLIPSF TFRMNALRPMIQEIVDQQLDEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIF EKL SHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGLVDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDAVTRLAADDIEVE
GTVIRKGDGVFFITSLINRDTDVHDAPNSLGWHHSAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP105CH1 (2515989799) *Salinispora arenicola* CNH905

VSSLPLPTYPKLRDPADPLLPPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRH PNFYPVPNPDAVVAQVARWTY ILLGDDPPL
HTERRRL LISEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEM LGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHGDDVLSRLIVSNRETEAFDHEALVALG LLLL VGGHETTAN
TLTLATATMLERPEIAEQLR TDPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESM LLLV LNTIARDGTVFPEPHRLDIRRNARNHLAF SHGI
HOCMGQNLARVEMQIALD TVLRRLPGLHLVTPFEELPFKYRHLVWGIEEL
RVAW

>CYP107AY13 (2515990293) *Salinispora arenicola* CNH905

MFS AVRPSV VRAHQFRPAVATMTWETVMTAELTPIPRSSARLGQEYDQLR
KTGDVHQVLLPDASLAWLV TNPDVAARALADPRLALNRRNSRGGWSGFAL
PPALDANLLNLDAPDHTRLRRLVGPAFSPQRVAALRPGIRRAAEHLLDTL
VATS RPTDLVTGYCNPLSVQVIADLMGVPEAGR TNLRAWTD TMLTSYPPD
RDAIRQAVTELHG YVVDLIDLKQQQPGEDLLSVLV TIEQDGDRLTRDEL T
SLAFLILFAGYENTANLIASAVLWLLDHGGLNVVPISEAIEATLRHEPPA
PVAIRRFPTEDI IIGGV TIPAGDTVLLSIAAATRGADGNAARLAFGNGPH
YCLGAALARIEAE EALTVLARRLPGLTLAVPPAQVRWRPTFRTHGPAELL
VGW

>CYP107AX14P (2515990616) *Salinispora arenicola* CNH905

VTSPPHVAFGHLLLRDPHGQYNALRGQAPVHHIRTPDGAPAWLVMRYHDV
QAALTDLRLSVDKRFSDTDGEHGSSLPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADQAPAVATIVDALLDGIADQDQAEILIGALASPLPLQVMHEL
LGLPTQTSVDFRNWTNTLLSADANQPAQSRSAMATMRRFLMGQLARKRAQ
PGDDLLTGLLAARDDDDRFTDDELLAMVFLLMFAGYDNTAALIGNVTHAL
LTDAGLHDAVRAGSVDLDSVVDEVLRWNPSFPLAVRRFAREPVTPSRQAI
ASGSAWPARTATPHSSPNPTN

>CYP1198B1 (2515990920) *Salinispora arenicola* CNH905

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQRKLVSFSFTPRIVKSFGPQIITHIVDGLFEDFRDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVMAAHAYFADLIHRRRKNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGELITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDPRAYENPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKHPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP107AW7 (2563524683) *Salinispora pacifica* CNY363

VETVTGTSTPPPVPYIADPYPTLARIRANGPVSILHSDEGIPMWVIARYR
DVRAALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAAAFATALREMTDYIAVQLRIR
QTRPGDDILTELLAARDAGQLTDDEIIGMVFLLLIGGHETTNNLGTATL
ALMRNPDQHRWLLANQHALPEAIDEFLRYESPVAMATLRFTTTPVAVDDV
VIPAGELVLVSLGGANRDHDFPDADRLILDRRDTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLRQHPKLALAAEVRQLRWRDTIMLRGLDSLPLVSLHG

>CYP208A22 (2563525001) *Salinispora pacifica* CNY363

MTVIADRGGRIPPGPPVTAGLRLLALGRDRLGMMTSAAA EYGDVARLPV
GPKKLYFFNHPDHAKHVLADNHANYQKGIGLVHARRALGDGLLTSEGELW
RKQRRAIQPAFQNRRLAQYAGAVGQEATRLVARLATRVDPVPDVLDEMT
RLTLGVLGRTLDDAELTGFGHVGESFAAVQDQAMFELETNTVPTWIPLR
RQRRFRRARQHLQEVVDVLA AERGQAVEGRDDVLSRLILSTRAEADPQLG
RERLRDELVTLLLAGHETTASTLGWSLHLLDQHPELRERVRHEARTVLGD
RVPAYEDLHQLRYTAMVVEEAIRLYPPVWILTRKARAEDEIGGYRVPAGA
DILICPYTLHRHPRFVAEPRFDPERFDPSTTDRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLA VLLRDLRLEGLPGRAVVPEPMLSIRVRGGLPMTVR
RVD

>CYP125A65 (2563525090) *Salinispora pacifica* CNY363

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMASRDSETYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPPEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGVDPMAAAA
ELLAYAMEMANERQRNPSDDLVTCLVNAQIDGEHLTTDEF GFFVMLLAVA
GNETTRNAITHGMLAFLEHPDQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLGGQAITAGQRVALFYGSANFDES VFEDPERFDITRSPNPHLG
FGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REMPVRYR

>CYP211B11 (2563525604) *Salinispora pacifica* CNY363

MDASEAVALLMSPPGRLDPYPTYERLRAHGPVVSTAAGFFVVTGYTEADT
VLRSPRFGVMDDEERDGAFFHWQDSPAMTSSSRSMIRANPPDHSRMRRRLA
AGVFTPRRVAALREVVAQAADGLVDEMIRAGRGGAAVDFMGSFAYPLPVT
VICALLGVPTADWARFRHWASDLTGVLPELTPQELAIADAGASELRDYF
TELIAQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVVLLTHPDSATALRGKPELAPDYVEEFLRYDSPVQLTSRTVR
ESVSLAGVELPAGSWLLVLLGAANRDPARFTDPARFDARRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELVLAGEPTRRHRLTLRGYETLP
VTVGAVPADPGTPAEVALGTP

>CYP1005A6 (2563526301) *Salinispora pacifica* CNY363

VSAVLFRSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLTDQMTY
RPDNALDAVTPIPVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTTELVAERVAAIRATLDSGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAALFVWAPLDADRQLALADEVGQFHQVLRIFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLAGEP
TVRAALRDGSVSVPNVVEEGLRLEPPIVTVRRVAAVDSTLGGTAVPAGTS
VLLWLARAGRDPAIVSAPDEFPRPGQQGSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQVSPLLDGVTVVRAPWYPDNLTFRMPDAFVIRRGPAAGAAER

>CYP105H11 (2563528215) *Salinispora pacifica* CNY363

MIDTAGQLVVDVFLRKEGESFPPPRYAEYRQRDGLVLSYLPDGKPVWLVT
RHAAREILTSRKVSSNPDHKGFPNIGETMGVPRQDQIPGWVFGMDSPDH
DRFRRALIPEFTVRRVREMRPAIQGVIDTVIDDLLANGPEADLINDFALP
IPSLVISALLGVPTVDREFFESRTRTLVAVRASTDQERDTASRELLRYIN
RLIEIKSKWPADDLPSRLLANGVLHPQELSGVLLLLLLIAGHETTANNIGL
GIVSLENPQWIGDERVVEELLRLHVSADLVSLRVAVEDVEICGQVIRAG
EGLVPLVAAANHDES VFACPHMFNPERSARQHVAFGYGVHQCCLGQNLVRV
EMELAYRTLFERIPGLRLTVDDGLPFKYDGVHLHGLHALPVRW

>CYP247A7 (2563528486) *Salinispora pacifica* CNY363

VRLTPGAARDIDLDSVNLFDLDLYTSGDPHPIWDMRAQSPLHHQVLADG
REFWSVTRYDDVCRVLGDYREFTSERGTVVTHLGEDDIAAGKLLTSTDPP
RHTQVRRRAIGAKLTARAVASWQDRIRDAIVRFLEPALDGDTFDLAEQALL
LPAIVTGPLLGI PERDWQELVQLTAMVTAPSDPHFQHGSEAATLAISHHE
LVITYVTEWVKQRRSAGGGDGSLLDHLMSVRVGGAPLTDEEIALDGYSILL
GANVTTPTHTVSGTVLALIERPEQFEKAQADPSLLANLVEEGLRWTSACN
FMRYALNDTRIGGGTVPAGGAVVAWIGSANRDESYFPDPHQFDITRSGAN
RQVAFGFGPHYCIGAPLARMTLGIFFEELVQRFSGSIELAGEPQHLSYFI
AGMTHLPIVAQKRKTP

>CYP161N4 (2563528578) *Salinispora pacifica* CNY363

VNTVAQLPFTQTHVLDVAPALRLLQSRGKVHRVRTPEGVPAWLVTGHAEV
QQLLDDDRLSRSDPGGRDGGTALLNKLLGPLADDHPRLRSLLFPQFTPER
LEPLRAVVEKLTEQHLDELAARTPPVDLRPTLAMSPLPILVLCEWLGVPAE
DKGRFSVWTQDAAGVQDPERSQRGLAELFGYCRQLVAAKRQDPGDDVISR
LIATAGIGDTEVVALTALLLFGGYETTAVARIGTGVLNLTNPQWAAVRA
DPALVPATVDELLRRSMFPNHNHGMPPFAVTGFEIDGAAIRAGELVLLNI
IAANHDETAFFDPDLRLDITRPTAGSLAFGYGRHSCVGAPLARMVLRVALS

RLITRFPDLRLAVGVDELKLRHETLVGGGLVELPVTWGPR

>CYP2054A3 (2563528583) *Salinispora pacifica* CNY363

MSISADSEQVQGRFPDPYGAHRDDPYTFLAGLGVFYAPLLDAWCVTRED
MVAVLRDDRSFSARDHNPRPAVALPDDVNQMFRWTWRGAGAVAVGSLDPPA
HAKIRDVLNIGFTPARVRAFEPTMRAVAADLADRIGDEPEFDFIADFAPV
FALEVIGRRLGVPDDYLDRCRTWSEQRIELMMAQGDADHDRLREFARGLM
EFGEFARSLVRDRVADPRDDLISELLHDGKAGRTLTADEVAVQIPTLIFA
GHMTCAEALGTIFYQQLRSPGGWARVVDRTIPVGDVVEEGLRFDSPLAGM
YRTATRDVTVGGIRLTAGSRLLLLYGAAGRDSRAHACPAAFRPGDGSSGH
LAFGHGHIHFCLGAGFARAELRVAVEVLAARMPDLGLAPGRPPRFRPVFPL
RALTEL RVTRSGGGSGP

>CYP107FH3 (2563528588) *Salinispora pacifica* CNY363

VPIELDEAFVQDPYAVYEKLRAEGPAHRVRMPPGVPLIGGLPVWLITGYD
AVRAALADSRLSTDHLRIDGLFAQKDPDRSHRGGFSSALASHMMHTDPPD
HTRLRKLVSKAFTTRAIEALRPRIQQTTDELTAELAGHDTVLDLLDAFAFP
LPIRVICLLLGVPAEQENFRSWSRALVSGHSPEAAATAATEVAAYLGDL
VERKRHATTDDVLTALVAHDVDDRLTHTELVSTAYLLFIAGFETTLNAL
GNGTLHMLHRDQWTALRADRALLDNAVEEFLRLESPLKHATFRCATESL
RIGDAEIAAGDFVLLAIASANRDPRRFPDPHTLDVRRPAAGHLAFGHGHI
HCLGAPLARVEVRMAFDALLDAFPDMRLATDPAGLRWRNSTIIRGLDSL
VHLNN

>CYP105AB28 (2563529195) *Salinispora pacifica* CNY363

MTETASTTTPGISSTTTSGPASGEVTDAEFPVERGCPFSTPSEYEQIREH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRDNFPFVSTDPE
RKQLQDQPTSMIGMDGAEHAQARRALMGEFTVRRMAGLRPRIQQIVDQHI
DEMLSSDQRTADLVEALSPLVPVSLVICELLGVYPYADHDFQARSGLIRH
TTPTEVRLRIQKELNTYLALIDRKVADPTDDLRSRQIAKHHAAGTFDRT
SLVSM AFLLLIAGHETTANMISLGVVGLLQHPDQLAMIKEDPEKTAPAVE
ELLRYFTIADTVTARVATEDVQLGGTTINAGDGVVISGLAADHDPTVFTD
PDRDLERGARHHVAFGFGPHQCIGQTLARMELQIVFDTLFRRIPTLRLA
APLDDIPFKSDAFVYGAERLPVAV

>CYP107E37 (2563529366) *Salinispora pacifica* CNY363

VTIDQEIREYPPFRESRGIGIDPTYELLRRTEPLARVQLPYGEVSWLVTRY
EDVKT VLTDPFRSRAAAQKQDQPRTRAEMTYEGII GLDPPDHTRLRLLAG
KALTARRVN A IRADAQRIANEYVDEMIAKGSPGDLVELFALPYPVTVICE
LLGVFPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFDYMGKLVAQRRAEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTG VETVSTHIPNFVYALLT
HPELMAQLRADRS LVPAAVEELLRMIPLNPAAMFP RYAVEDVTLSGITVR
AGQPVLVSLPGANRDPEVFENPETFDFTRDQNP H VAFGHGPHHCLGAQLA
RMELQVALHTVLDRFPDLRLADGDEGVSWKSGLLVRGPSRLLVGV

>CYP146A5 (2563529648) *Salinispora pacifica* CNY363

MTIDLANPDLYTTDARFDMWDEYIRSDAKVWSEPGFSPSGFWSAFSHRDV
SAILSPKAPFTSQYGMIGFDADHADHSGGRMLVVSEGRWHSILKRLIGP
FLSRLRAAE LRSVLHQEVREVIERLHAEDTTDVALTVGPRLPAAIVCEVI
GVPLSEREHLIQLTNHAFGGEESFDMKTPAEAHTEILFYFHELIGRRQK
KPETDLVSALLADGRLSTEDVLINCDNVLIGGNETTRHSITGAFHAFQLF

PKALDALSADPQLADRTVEEVVRWTSPAHVLRVATKDCEIGSQKILKGQ
AVVAWLAAANRDERPFSDFPHRFVPDRAPNRHLGFGTGPHHCLGAALARLE
LKELLTQLAAEARAVEPHREVRWMRNLVQGYSNLEVSMKWR

>CYP107AY9 (2563529747) *Salinispora pacifica* CNY363

MVATGSPVDLVTGYCTPLSVQVIADLLGVPEAGRTDLRAWTDMLTSYPP
DRDAVRQAVVELHGYVVNLIKAKQQRPGDDLSSALVATEQEGDRLTRDEL
TSLAFLILFAGYENTANLIASVLRLLDHGSLRGVRVSEAIEETLRLEPP
APAAIRRFPTTEMTIGGATIPAGDTVLLSIAAATRGADGNPARLAFGNP
HYCLGAALARVEAEEAITVLARRLPGLALAVPGAPVVRWRPTFRTHGPAEL
LVAV

>CYP244A10 (2563529914) *Salinispora pacifica* CNY363

MQDTAQANLAEAPEVRMPIELRPTDCLPELLAAARVAPVVRTPYLDQHAW
VVCDELVKQALTHPKLGKDVALAPDWMRQPGQMVMTAMPPEYARMMVMS
DGEHHARIRRIHAPVLSRPNTERWSERVAALVDGFLDNLDSADGTEVNLI
TDYTHKIPLAFTAEMGLPPGAQRRLLHDITEVMLYSADYALRQQAVGELF
EAVQEWVRDPAGLRDGVITGLLASTDGPDATVTKGEAIVWTLSLIINGYE
TTGSLISAALYEALRRPARERPHTDEAVAAWIEETLRVQPPVPHTTWRF
LADLDLGGYLIPRGAPVQISLAAANLDPDEDADSFDAQRRGRGHLSFGLG
AHYICIGAPLARVQTKIALRGFLRRFPQARLSPDTAPRWESEWMIRMSVL
PALLA

>CYP105BL2 (2518486201) *Salinispora arenicola* CNY256

MSSHSAAPDPETATPLHTLAPELTFPQFERSTPFDPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLSDPRFSSDMSHPGFPNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPSPRVACHLVGIPLSYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDRHHDRDDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIGLGVAALLRHPDQLELLRREPHELLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP208A12 (2518486674) *Salinispora arenicola* CNY256

MTLDTITPRVPLGPPRTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAELTG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNLAVPMWIPLPR
QIRFRRARRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHGPVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP107AY2 (2518487661) *Salinispora arenicola* CNY256

MTAEPTPIPRSGARLGQEYDQLRKTDGVHQVLLPDASLAWLVTNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRLRVGP
SPQ RVAALRPGIRRAAEHLLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRAWTDMLTSYPPDRDAIRRAVTELHGYVVDLIDIKQQQPG
DDLSTLVTIEQDGDRLSRDELTSALFLILFAGYENTANLIASAVLWLLD

HGGLNVVPISEAIEGTLRHEPPAPVAIRRFPTEDIIIGGV TIPAGDTVLL
SVAAATRGADGNAARLAFGNPHYCLGAALARVEAEEALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP105CT1 (2518487690) *Salinispora arenicola* CNY256

MNSPNHMPADRSLTAPTSGCPMALSRGRVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPHEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTDSDHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGV LHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLTDTG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRRFPGLRLAV
PDSELEFTQGT TVYSLRGLPVTW

>CYP154M5 (2518487707) *Salinispora arenicola* CNY256

VEQSCP YKLDVTGRDVHAEGEAI RARGPVAQVELPGGVQGWSVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPP NWPLIGWLLMDNMTNDGADHQRLR
KLVS HGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNV TSSISGEEAEANVEQWHRELLLV
EAKREKPD EMDASLLIAAKEEDGSTLTQEEVVGTLHLMLGAGSETLMNAL
SYAVLGMLS NPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDP AVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERF PNM TLAVRPDQLEPQGT FIMNGHREL
PVRLGQPATVLA

>CYP211C1 (2518487885) *Salinispora arenicola* CNY256

VVDVEELLTRLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVS NLIVLFNASFVTTV
YMLS NGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPI PQGQNVLLLLIAAANRDP AHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGA AVSRLEGR LALPRLLSRF PRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP125A41 (2518488034) *Salinispora arenicola* CNY256

MTEPRIPAGFDFTDPEVLAHRVPREFFAELRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPD TTREDIEMQRVIML
NVDPPEHTKLRAIVSRGFTPRAINALRGSLAERA EHIVRDAAVRGV GDFV
SDVACELPLQAIAELIGVPQHHRKVFDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQ RSPSDDLVTKL VNAQIDGEHLTTDEF GFFVMLLAVA
GNETTRNAITHGMAAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTVLGGQ AISAGQ RVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP1005A1 (2518488249) *Salinispora arenicola* CNY256

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLT DQATY
RPDNAL EAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL

HPTKVAAQRPWLTGLVADRVASIRTTLDSSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVQKFARAALFWAPLDADRQLALADEVGRFHQVLREFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSSSVADVVEEGLRLEPPIVTVRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFPRPGQRGSRRLAFAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP105G5 (2518488506) *Salinispora arenicola* CNY256

LTIETTETPPADDSLRAPLPRQFMQRDDPSKLPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFHYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRRAAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTP

>CYP107Q4 (2518488507) *Salinispora arenicola* CNY256

MTTTAETS AETIDLFSPEVVADPFGWYARLREETGPTTGTNLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPFRFLTNPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVS YALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRAGDSMATMNGER
IPTTLVKCIELARELIAKRRRAEPQDDLVTALVQAQAEQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI I
DRLAVGSEHGLGFGKGIHRCCLGQHLAYQEA E VALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP211B2 (2518489081) *Salinispora arenicola* CNY256

MDVSEAI AVLISPSGR LDPYPTYEQ LRAHG PVSRTTAGLFVV TG YAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPA IKS IARSMLRTNPPDHSRI RRLA
AGAFTPRRVAAMREV VTAQADEL VDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLV VLLTRPEAAAALRDEPDLAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPTGSWLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGTPAGVAPGTP

>CYP245A7 (2518489436) *Salinispora arenicola* CNY256

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRSLLNRSFSPRIVTEL RPRIARIAQELL SRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRVDVDGYAQAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELGAEGLTDDAVEEFLRYDPPVQ
AVTRWAHQD TTLGGCDIPGRSRVALLGSANRDPARFPSPDVL DVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVP TLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP244A4 (2518489440) *Salinispora arenicola* CNY256

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLGRIHAW
VVCDRELVKQALTHPKMGKDIALVPEWMRQPGMLMVTAPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGFLELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEAIRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEAGDSFDAERRGHGHLST
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP105W2 (2518489600) *Salinispora arenicola* CNY256

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCFSPPAEYARLRAEH
PVVRLPMLGGDTAWVSRHADVRQVLSDPRMSADRHRPGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVPGYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDMVVTDKERRPGDDVLSRLLYRQRSAGGMDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPERFPAAVE
ELLRYFTVVEAATARTTTAEVTIGGVTTIAAGEGVVALGQAANRDPVFEH
PDEFDPDRDARAHAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLKLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2518489608) *Salinispora arenicola* CNY256

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRAFVDR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRGRHAAITEFADYVERALA
ERREDGADLLALMLAAHRSQLMRNEIVSTVVTFFITGHETVASQLGNGL
LSLLDHPEQMELMRRQPHLVPAVEECLRFDPAVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCSPNELAYQPRTMFRGLTRLPAFTPA
G

>CYP107FS2 (2518489668) *Salinispora arenicola* CNY256

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPADRSEFERHAEVLGTGINASSGFDIAAAGRWFDEYLAELVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETTNNLVAN
GLLALLRHPEAAMAALRSEPNLMTTAVDELRLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRLLAGLRLAVPTDSLWKASFVLHRLERLPV
TFTPDRAPNPIDSVHTV

>CYP105CN1 (2518489669) *Salinispora arenicola* CNY256

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVTGAEEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQLLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVYPYQDRTRFEPVAVAGLFEPDRAD
AAMAEALTAYLHQLIETKQSEPGDGVIDHLIANHLRPDAIDRAELVAIASA
ILVAGTVTTSSAIALGLTALLTAPGQYAALVDNPDLPVPGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP

PTNHLAFSHGIIHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPVTW

>CYP105CP2 (2518489671) *Salinispora arenicola* CNY256

MTKSMPVQDLPAFFIPRECPYRPSAQHVSLRSGGPMKVRVLYNGRTAWLV
TDSAHARAVLSDYRRVSIKPYHGNYPLLNEEFKVVDSGYADVLFVGDPP
EHTRQRMIMPSFTLRRTAVLRPDIQRIVDDKLDEMRRHGAPGDLVTEFA
QPVPMSMVSFLLGVPWEDHEEFETPAHKLFVPELAEEATELGAYLERLI
QKKEQPGGTPGGTGLLDDLIRDHLRAGALSRDELVHIAMAMLVAGTDTT
NVISLGLTALLDNPDQWAALRDNDPDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPSPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRRTAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105AB8 (2518489824) *Salinispora arenicola* CNY256

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHRADLVKT
LSLPVPSLVICELLGVYPADHDFQEHATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDLLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRLGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARRHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP105CH1 (2518490644) *Salinispora arenicola* CNY256

VSSLPLPTYPKLRDPADPLLPAPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHFNFPYPVNPDAVVAQVARWTYILLGDDPPL
HTERRRLLI SEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRTPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVNLTARDGTVPFEPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALDTVLRLPGLHLVAPFEELPFKYRHLVWGIEEL
RVAV

>CYP166A4 (2518490694) *Salinispora arenicola* CNY256

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHVERVATEQIEVMRGGHAPADLVATFARPLVL
RVLSGLVGLPYGERDRLYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGI HQCLGQN
LARVELRAGLSALLRAFPNLRRLAVPADEVPLRLQGSVFVAVKNLPVCW

>CYP105J3 (2518490774) *Salinispora arenicola* CNY256

MTDSVAFFPQGRVCPHPAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRNTNPAWPAIVPIVAAAVNDAQQKVLKIATALVGTGPE
HKAQRKMLIPSFTFRMNALRPMIQEIVDQQLDEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA

ERRRNPGEIGLDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIERLPSRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP107EU1 (2518491001) *Salinispora arenicola* CNY256

VTIGQTLPLVVSPEFTRDPYAI FARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPADDLLTALVQVSADEDRLSREELVSMALLLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRLDITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQMQLAVEADDLEWLVNSFFRAPL
HLPVSLRR

>CYP1198B1 (2518491385) *Salinispora arenicola* CNY256

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQRLVSKSFTPRIVKSFGPQITHIVDGLFEDFRDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGIITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDPRAYENPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKHPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP105J3 (2566063003) *Salinispora arenicola* CNS820

MTDSVAFPQGRVCPHQAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLDVDPRISSDRTNPAWPAIVPIVAAAVNDAQQKVLKIATALVGTDGPE
HKAQRKMLIPSFTFRMNALRPMIQEIVDQQLDDEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEIGLDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP125A41 (2566063183) *Salinispora arenicola* CNS820

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGDV
TDVACELPLQAI AELIGVPQHRRKVFDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAEERQRSPSDDLVTKLVAQIDGEHLTTDEFGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTV LGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211C1 (2566063331) *Salinispora arenicola* CNS820

VVDVEELLTRLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVAAVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELLDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAELEAFYF
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAAALATDPVLTAGAVDEMLRLQAPVHLLARAAPR
DTVLGGVPIFQGGQNVLLLIAAANRDPAHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP105BL2 (2566063476) *Salinispora arenicola* CNS820

MSSHSAAAPDPETATPLHTLAPELTFPQFERSTPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTLSDPRFSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRMLTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPSPRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHRDDLLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIIGLVAAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSNADLKVQ
DKDIMYRVSELAVTW

>CYP208A12 (2566064249) *Salinispora arenicola* CNS820

MTLDTITPRVPLGPRTAALRMLLVMKRDRLGMLSSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGDLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAELTG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLAGRVDVLSRLILSARGEADPRVGH
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHGPVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP105CT1 (2566064332) *Salinispora arenicola* CNS820

MNSPNHMPADRSLTAPTSGCPMALSRGRVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVFENVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTDSHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGV LHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLTLDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRFPGLRLAV
PDSELEFTQGTTVYSLRGLPVTW

>CYP154M5 (2566064349) *Salinispora arenicola* CNS820

VEQSCPYKLDVTGRDVHAEGEAIRARGPVAQVELPGGVQGWSVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPPNWPLIGWLLMDNMTTNDGADHQRLR
KLVSHGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNVTTSSISGEEAEANVEQWHRELLELV
EAKREKPEDMASLLIAAKEEDGSTLTQEEVVGTLHMLGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV

AVGGAVIKAGDPVLMGFTAIGRDPVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPNMTLAVRPDQLEPQGT FIMNGHREL
PVRLGQPATVLA

>CYP244A4 (2566065507) *Salinispora arenicola* CNS820

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVC DRELVKQALTHPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRNTERWGERVADKVEGFLDELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLEYEAI RPPHERPKTDEDITAWIEETLRVHPPFPHPPTW
RFPLEDIELGGYLIPKGAPVQVSI AAANRKPGE GADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP245A7 (2566065511) *Salinispora arenicola* CNS820

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVMFMDP
PRHTELRSLNRSFSFPRIVTELRPRIARIAQELL SRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGR DVDGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPTVLDEL RGAEGLTDDAVEEF LRYDPPVQ
AVTRWAHQD TT LGGCDIPGRSRVVAL LGSANRDPARFPSPDVLDVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVP T LGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP166A4 (2566065813) *Salinispora arenicola* CNS820

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGWIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGGV IPTHQIIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTG HVEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGI HQCLGQN
LARVELRAGLSALLRAFPNLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP1005A1 (2566066359) *Salinispora arenicola* CNS820

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLT DQATY
RPDNAL EAVTPVPVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLD SGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAV KQFARA ALELFWAPLDADRQLALADEVGRFHQVLR EFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFL TLLHRLSDEP
TIRAALRAGSSSVADVVEEGLRLEPPIV TWRRVA AVDSTLGGTTVAAGTS
VLLWLARAGRDP AVVAAPDEF R PGRGSRRLAFGAGAHRC LGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP107FS2 (2566066414) *Salinispora arenicola* CNS820

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVPPFADRSEFERHAEVLTGINASSGFDALIAAGRWFDEYLAELVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETTIVNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPADSLVWKASFVLHRLERLPV
TFTPDRAFPIDSVHTV

>CYP105CN1 (2566066415) *Salinispora arenicola* CNS820

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVGTAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQORQLLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVQPYQDRTRFEPVAVAGLFEPDRAD
AAMAEALTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVPGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTTHPDRLDVALP
PTNHLAFSHGIIHHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPTVW

>CYP105CP2 (2566066417) *Salinispora arenicola* CNS820

MTKSMPVQDLPAFPIPRECPYRPSAQHVSLRSGGPMKVRVLYNGRTAWLV
TDSAHARAVLSDYRRVSIKPYHGNYPLLNEEFEKVVDSGYADVLFGVDP
EHTRQORQMIMPSFTLRRTAVALRPDIQRIVDKLDMMRHGAPGDLVTEFA
QPVPSMVMSFLLGVWEDHEEFETPAHKLFVPELAEEATTELGAYLERLI
QKKEQPGGTPGGTGLLDDLRDHLRAGALSRLDELVHIAMAMLVAGTDTT
NVISLGTALLDNPDQWAALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRATAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP107Q4 (2566066510) *Salinispora arenicola* CNS820

MTTTAETSATIDLFSPEVVADPFGWYARLREETGPTTGTNLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRLTNPPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSALTAKHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPRPHWRWAGDSMATMNGER
IPTTLVKCIELARELIAKRAEPQDDLVTALVQAQAEQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWQAVRELQRL
GPIQFAQPRFSEDIELGGVTIPRGAPVAPLLLAANTDPRRFDPNKLII
DRLAVGSEHGLGFGKGIHRCGLGQHLAYQEAQVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTTRTRLPLKLV

>CYP105G5 (2566066511) *Salinispora arenicola* CNS820

LTIIETTETPPADDSLAPLPRQFMQRDDPSKLPPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLITGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRRAAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIFAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTF

>CYP1051A1 (2566066532) *Salinispora arenicola* CNS820

MATDAAITRARTVPAWKALPAAVRDTHRAFVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLEHERAAIYPRGDDTSLWRSVRKLVGDGILAEGDAAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAFDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDDILLPVLRLQAQRQPDDGDDLLSRLVRARADDGRALSE
KRMRDDLVSMVAVTETSTVVLTLWLWPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDILGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMI
LKPVAPVPAR

>CYP107AY2 (2566067183) *Salinispora arenicola* CNS820

MTAEPTPIPRSGARLGQEYDQLRKTGDVHQVLLPDTSLAWLVTNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRLRVGPAP
SPQRVAALRPGIRRAAEHLLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRATDTMLTSYPPDRDAIRQAVTELHGYYVDLIDIKQQQPG
DDLLSALVTIEQDGDRLSRDELTSLAFLILFAGYENTANLIASAVLWLLD
HGGLNVVPSSEAIEGTLRHEPPAPVAIRRFPTEDIIIGGV TIPAGDTVLL
SIAAATRGADGNAARLAFGNPHYCLGAALARVEAEALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP211B2 (2566067319) *Salinispora arenicola* CNS820

MDVSEAI AVLISPSGRLDPYPTYEQ LRAHG PVSRTTAGLFVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIKSIARSMRLTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTQADELVD EMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVLLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTRTRVR
ESVSFAGTEL PADSWLLVLLGAANRDPRRFPD PARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLT LRGYETLP
ITVGAVTADRGT PAGVAPGTP

>CYP105AB8 (2566067359) *Salinispora arenicola* CNS820

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRRLAALRPRIQQIVDQCIDEMLT TDQHRADLVKT
LSLPVPSLVICELLGV PYADHDFEQEHTATLVRRNTASEVRQHS IDELNA
YLGALIDRKLASPDDDLLGRQIARQHRDGT FDRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP105CH1 (2566067472) *Salinispora arenicola* CNS820

VSSLPLPTYPKLRDPADPLLPPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHFNFPYPVNPDAVVAQVARWTYILLGDDPPL
HTERRLLI SEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLLVGGHETTAN

TLTLATATMLERPEIAEQLRTPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVNTIARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQC MGQNLARVEMQIALD TVLRRLPGLHLVAPFEELPFKYRHLVWGIEEL
RVAW

>CYP107EU1 (2566067617) *Salinispora arenicola* CNS820

VTIGQTL PDLVYSPEFTRDPYAIFARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDVPADDLLTALVQVSADEDRLSREELVSMALLLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRLDITRSTQGNLAMGH
GIHHCVGGAALARLELEIVLSRLVARFPQMLAVEADDLEWLVNSFFRAPL
HLPVSLRR

>CYP248A2 (2566067642) *Salinispora arenicola* CNS820

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVS RFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAITEFADYVERALA
ERREDGADLLALMLAAHRSQLMRSNEIVSTVVTFTFTGHETVASQLGNGL
LSLLDHPEQMELMRRQPHLVPQAVEECLRFDPVQSNTRQLAADVELHGR
RLHRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCSPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP105W2 (2566067650) *Salinispora arenicola* CNS820

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVS RHADVRQVLS DPRMSADRRRPGF PKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEF SVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVVPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDMVVT DKERRPGDDVLSRLLYRQRSAGGVDHE
AVVSMAFVLLVAGHVTTSNM LALS V LALLTHPARLARLRAE PERFPAAVE
ELLRYFTVVEAATARTTTAEVTIGGV TIAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAHLAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP1198B1 (2566067930) *Salinispora arenicola* CNS820

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFG EYEHCSQILRHRDMGSDTSEAPSIKGFVDDAERAGSSIFFMDQP
GHGRQRKLVS KSFTPRIVKSFGPQITHIVDGLFEDFRDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGTAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGIITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDPRAYENPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKHPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP105BL2 (2524677481) *Salinispora arenicola* CNS243

MSSHSAAAPDPETATPLHTLAPELTFPQFERSTPFDPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLSDPRFSSDMSHPGFPNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPSPRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHDRDDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIGLGVAALLRHPDQLELLRREPHELLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVAFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP105AB8 (2524677905) *Salinispora arenicola* CNS243

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHRADLVKT
LSLPVPSLVICELLGVPPYADHDFEQEHTATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDDDLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDDPDKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARRHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP105J3 (2524677995) *Salinispora arenicola* CNS243

MTDSVAFPPQGRVCPHPAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRNTNPAWPAIVPIVAAAVNDAQQKVLKIATALVGTGPE
HKAQRKMLIPSFTFRMNALRPMIQEIVDQQLDDEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPVEGVLDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIERLPSLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP125A41 (2524678166) *Salinispora arenicola* CNS243

MTEPRIPAGFDFTDPEVLAHVRVPREEFAELRRTPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAHEHIVRDAAVRGVGDV
TDVACELPLQAI AELIGVPPQHRRKVFWDNSQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQSRSPSDDLVTCLVNAQIDGELHTTDEFGFFVMLLAVA
GNETTRNAITHGMAAFLDNPEQWELFKAERP KSAVEEIIIRWATPVNVFQR
TALVDTVLGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211C1 (2524678313) *Salinispora arenicola* CNS243

VVDVEELLTRLISAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLARRRRTPEGDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR

DTVLGGVPIPIQGQNVLLLLVAAANRDPAHFPDPDRFDPWRS GPPSLAFGLG
LHYCLGAAVSRLEGRLLALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP211B2 (2524678403) *Salinispora arenicola* CNS243

MDVSEAI AVLISPSGR LDPYPT YQLRAHG PVSRTTAGL FVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIKSIARSM LRTNPPDHSRIRRLA
AGAFTPRRVAAMREV VTAQADEL VDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLT TALVQAHDADGDRLSGEE LLANLVVLLVAGFETT
TNLLGNGLVVL LTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTEL PADSWLLVLLGAANRDPRRFPDPARFDPGRAQS QPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGT PAGVAPGTP

>CYP166A4 (2524678961) *Salinispora arenicola* CNS243

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGWIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTG HVEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTG EELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLT VNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETS GHVAFGFGI HQCLGQN
LARVELRAGLSALLRAFPNLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP244A4 (2524679619) *Salinispora arenicola* CNS243

MSTTTNTELTEAPETNMPVD PGLFDCMPDLIAAARVAPVVRIPYLG RHAW
VVC DRELVKQAL THPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLS PRNTERWGERVADKVEGF LDELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGS LISTS LYEAIRRPPHERPKTDEDITAWIEETLRVHPPFPHPPTW
RFPLEDIELGGYLI PKGAPVQVSIAAANRKPGE GADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP245A7 (2524679623) *Salinispora arenicola* CNS243

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGESGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRSLLNRSFS PRIVTEL RPRIARIAQELL SRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGAEGLTTDAVEEFLRYDPPVQ
AVTRWAHQD TT LGGCDIPGRSRVALLGSANRDPARFSPDVL DVRRPAD
RHLSFGLGIHYCLGATLARAEEIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCT

>CYP208A12 (2524679894) *Salinispora arenicola* CNS243

MTLDTITPRVPLGP PRTAALRMLLV MKRDLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHV LADNSANYHKGIGLVHARRALGDGLLTSEGD LWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAE LTG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELET LNAVPMWIPLPR

QIRFRRARRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHGPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPVWLLPRRALAPDTIGEYRV PANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGGLPLVVRP
VS

>CYP105CT1 (2524680003) *Salinispora arenicola* CNS243

MNSPNHMPADRSLTAPTSGCPMALSRGRVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVFNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTDSDHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGV LHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLTGD
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRRFPGLRLAV
PDSELEFTQGTTVYSLRGLPVTW

>CYP154M5 (2524680019) *Salinispora arenicola* CNS243

VEQSCPYKLDVTGRDVHAEGEAI RARGPVAQVELPGGVQGSVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPPNWPLIGWLLMDNMTTNDGADHQRLR
KLVSHGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNVTSISGEEAEANVEQWHRELLLV
EAKREKPEDMASLLIAAKEEDGSTLTQEEVVGTLHLMLGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDPVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPNMTLAVRPDQLEPQGTIFIMNGHREL
PVRLGQPATVLA

>CYP1005A1 (2524680196) *Salinispora arenicola* CNS243

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTDQATY
RPDNAMEAVTPVPVAALRVLAGHRFRLPPTLANNGGASHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLDSSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVVKQFARAALFWAPLDADRQLALADEVGRFHHQVLREFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSISAADVVEEGLRLEPPIVTVRRVAAVNSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFPRPGQRGSRRHLAFGAGAHRC LGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP1051A1 (2524681157) *Salinispora arenicola* CNS243

MATDAAITRARTVPAWKALPAAVRDTHRALVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAVDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRITKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDDILLPVLRLQAQRQPDDGDDLLSRLVRARADDGRALSE
KRMRDDLVSMVAVTTETSTVVLTWLVPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPAAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMI
LKPVAPVPAR

>CYP105G5 (2524681181) *Salinispora arenicola* CNS243

LTIIETTETPPADDSLRAPLPRQFMQRDDPSKLPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRRAAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPPLTDDDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTP

>CYP107Q4 (2524681182) *Salinispora arenicola* CNS243

MTTTAETS AETIDLFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRLTNPPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSALT AHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIAKRAEPQDDLV TALVQAQAEQDNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI I
DRLAVGSEHGLGFGKGIHRC LGQLAYQEA E VALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP248A2 (2524681240) *Salinispora arenicola* CNS243

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVS RFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQ LMSRNEIVSTVVT FIFTGHETVASQLGNGL
LSLLDHPEQLELMRRQPHLLPQAVEECLRFDPAVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCSPNELAYQPRTMFRGLTRLPVAFTPT
G

>CYP105W2 (2524681248) *Salinispora arenicola* CNS243

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRHADVRQVLS DPRMSADRRRP GF PKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEF SVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQV ICEVLGV PYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDMVVT DKEHRPGDDVLSRLLYRQRRAGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPPERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGV TIAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAH LAFGYGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP105CP2 (2524681509) *Salinispora arenicola* CNS243

MTKSMPVQDLPAFPIPREC PYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSA HARAVLSDYRRVSIKPYHGNYPLLN EEF EKVVDSGYADV LFGVDPP
EHTRQRQMIMPSFTLRRTAVLRPDIQRIVDDKLDMMRHGAPGDLVTEFA
QPVPMSMVSFLLGV PWEDHEEFETPAHKLFVPELAE EATTEL GAYLERLI
QKKEQPGGTGGTG LDDLDLRDHLRAGALS RDELVHIAMAMLVAGTD TTT
NVISLGT LALLDNPDQWAALRDNPNDELIPGAVEEILRYTSLIEAFARVAV

SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRP RPSPFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRTAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2524681511) *Salinispora arenicola* CNS243

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVGTAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQQLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVYPYQDRTRFEPVAVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVPGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTHPDRLDVALP
PTNHLAFSHGIIHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPTW

>CYP107FS2 (2524681512) *Salinispora arenicola* CNS243

MPVPQGEQNLTTVEFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPADRSEFERHAEVLTGINASSGFDALIAAGRWFDEYLAELVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETTUNLVAN
GLLALLRHPEAAMALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVIAAAAANHDPTVFADPSRLDLRREGSGQILSFSHGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSLWKASFVLHRLERLPV
TFTPDRAPNPIDSVHTA

>CYP105CH1 (2524681907) *Salinispora arenicola* CNS243

VSSLPLPTYPKLRDPADPLLPAPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHNPFPYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRRLLI SEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADF SKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRTPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVNLTARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALDTVLRRPLGLHLVTPFEELPFKYRHLVWGIEEL
RVAW

>CYP107EU1 (2524682320) *Salinispora arenicola* CNS243

VTIGQTLPLVYSPEFTRDPYAI FARLREQAPVCRVTTHRGMSAWMVTRH
ADV RALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTNNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDL LDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDVPADDLLTALVQVSADEDRLSREELVSMALLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRLDITRSTQGNLAMGH
GIHHCVGAAALARLELEIVLSRLVARFPQMQLAVEADDLEWL VNSFFRAPL
HLPVSLRR

>CYP1198B1 (2524682528) *Salinispora arenicola* CNS243

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVD DAERAGSSIFFMDQP
GHGRQRKLVS KSFTPRIVKSFGPQITHIVDGLFEDFRDRGELDVVTDLAY

PVSIIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKPNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGELITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDPRAYENPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKHPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP163B1 (2518152948) *Salinispora tropica* CNB536

VTAADTGRVSGESQTPAHTVDLADPATFANHDLTGFWQQLRDEEPIHWN
PPTAGRRGFVVVSRYADILDVYRDDVTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHAELRKLLLRALGPRVLAPVCAAVRTNTRQMIREAVTKGEC
FASDIASRIPMMTISNLLGVPDADRAFLLSLTKTALSADDESISETESAM
ARNEILLYFQDLMEFRDHPGEDVVSMLVNSSIDGAPLSDDDIVLNCYSL
IIGGDETSRLTMIDSVNTLAAHPQQWRRLKDGQCEIDKAVDEVLRWASPS
MHFGRVAARDTILHGVRIRADDIVTLWHASGNRDERVFHRPEVFDLGRTP
NRHLSFGHGPHYCIGSYLAKVEISELLIALRDLTSGFETTGEFQIRSNL
LTGFATMPVRFPDRAGLARDALDG

>CYP107NH1 (2518153210) *Salinispora tropica* CNB536

MTEPVVSLMDPEFWNDPVSAYERLRGSGPLIRMGLPGVPPVWLVTSCHEV
KSALSDPRFVVDAANVPGHHGPGIVDKMMAASGMPDEFRDYMTNMMFTDG
KDHSRLRLRLVTPGFSARRIRAMRPRVNQIAEELVESLAEKGSSELIADFS
APLTTTIVICELIGVDRADQAQMGAWMHDTTGERVVSGRAMVNYTRDLIE
RRRAEPADDMI SAMIRSGDEAGDRLSDAEIIAMALLLINAGHHSTAQFIP
NAVLVLLDHPEQLARLRAEPGQLPGAMDELMRLANPVPIATPRYATEDME
FAGVAVRRGEALTGSLEAANFDPERFPAPRQLDTGRDLGRGDGHL SFGAG
PHYCPGAALARLEGEIALDHL LRRDNLR LAVERDEVYVDVSLGLRMLS
SLPVRL

>CYP247A8 (2518153216) *Salinispora tropica* CNB536

VRLNPEAGRPVALGSIDLFDPDLLASGDPHSVWDVMRSEAPLHRQVLPDG
RVFWSVTRYEDVCRVLGDHRAFTSERGTVFTQLGADDIAAGKLLTSTDPP
RHTEVRRRAIGGRLTARAVAHWEDLVRRVVRFLPALDGGCWDLAERAQH
LPLIIAGSLLGIPDS DWEKLVQLTGMVTAPSDPMFGLDSEAATLAI AHHE
IFDYLSDLVRRRRSVGTGGDSL LDHLMTVRAGAGPLPDEEVVYDSYSLIL
GANATTPTHTLSGIVLT LAERPEQCDKVRADASLIPSMVEEGLRWTSACN
FMRYATVDTRLTGGTVPAGEAVVAWIASANRDESQFADPHTFDVTRGENR
HVAFGFGPHYCIGAPLARM TARIFFEELFRLFW SIEIDGEPQH LRSNFIA
GMTHLPVVTRKRAQV

>CYP107Z27 (2518153226) *Salinispora tropica* CNB536

MSCTHPCHSLMDPTLIDDPAGGFSRIRDESPLAHAMVPGVDGPVWLVRH
ESVRKVLGDRRFVNDPTNVPGSSTPDLWAHAALAQGV PHEYLEHVR SMLQ
LDGEVHARLRRLVSRAFTMRRITALRPRMMQLTEELLDLLPAKAEDGVVD
LVEHFNYVQPI SVICALVGVPAADRAAWIRWSRALTMESGTIGDAVTGM
VDNIRALIEQRRAEAADLLTDLVRVRDADGDRLSEREMITMVITLV TAG
HDSTGLLLSNGLAALLTHPDQLAKLRADPSLGPQAFDELMRWCSAIVAAR
PRYATEDVELEDGLVRRGDVVI PVLVSANYDPEVFEDPHRLDISRVHEQR
RFHHVGF GDGLHYCLGAALAKHEAAIAITALLERYPGLELAVPAQRLRRA
RLPLTWRLDSL PVRLGIGG

>CYP211B1 (2518153605) *Salinispora tropica* CNB536

MDASEAVALLMSPLGRIDPYPTYERLRAHGPPVVQTAAGFFVVTGYTEADT
VLRNARLAFEVMDDELRDDVFPHWQDSPAMKSIARSMIRANPPNHGRMR
LAAGAFTPRRIAALREVVTQADELADEMIRAGRDGAPVDFMGSFAYPLP
VAVICALLGVPAADWARFRGWASDLTAVLEPEITPQELTVADAGASELRD
YFTELIAQRRRAPADDLTALVQTHDADGDRLSGEELLANLVLLLVAGFE
TTTNLLGNGLVLLAHPDSATALRDQPELAPGYVDELLRYDSPVQLTTRT
VRESVLLAGVELPAGSWVLVLLGAANRDPERFTDPTRFDPGRAQSPPLSF
GAGAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRNRLTLRGYET
LPVTVSAIAADHGTPAGVARGTP

>CYP211C1 (2518154547) *Salinispora tropica* CNB536

VLDVEGLLTRLYSEQGRQDPYPVYADLHAQGAIAALAPRPEGQRVAAVAV
GYDLVGAVLRDPEWSKQPPPGWMEQEILRTLQSSMMFINPPDHGRMRKVF
AGTFTPRRLGTLEPVINRVADELDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPATELAWYRDRVDRIDAFLDVAGKTPERLAAANAAAAELRVFYA
DLLARRRRTPGEDLISGLVEAVDAGGVQLTEDELINNLIIVLFNASFVTTV
YMLSNGLPVLLHEHPEVAAALADDPELTAGAIDEILRLQTPVHLLARAAPR
DTVLGGVPI PQGQNVLLLI AAAANRDP AHFPDPDRFDPRRPGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGGRMHP

>CYP125A15 (2518154680) *Salinispora tropica* CNB536

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMAVSRSDTYSTRENTAIARFQPGTTRADLEMQRVIML
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
ADVACELPLQAI AELIGVPQHHRKVF DWSNQLIGYDDPAYGVDPLTAAA
ELLAYAMEMANERQLNPSDDLVTKL VNAQIDGEHLTTDEF GFFVMLLAVA
GNETTRNAITHGMLAFLEHPEQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLGGQAI SAGQ RVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFHSIADHMPDIRKVAEPRRLRSGWINGI
REMPVRYR

>CYP105AB2 (2518155126) *Salinispora tropica* CNB536

MTETASIATTRTASGQLTDAEFFVQRCFPFTAPTEYEQIREESSIAKVRL
KNGGEAWWIAGHELGRSVLADRRFSSDRRRDNFPFVSTD PETRAQLQSQP
TSMLGMDGAEHAQTTRALMGEFTVRRMAGLRPRIQQIVDQHIDEMLATPQ
RSVDLVEALSLPVPSLVICELLGVYPYADHDFQGLTGPLL RHTTPPEVRL
RIQEELNTYLGTLDHKLTDPTDDL SRQIAKHRDNGTFDRASMVSLAFL
LLVAGHETTANMISLGVVGLLQHPDQLV I IKDDPKTPLAVEELLRYFTI
ADSVTARVATEDVQLGDTTINAGDGVISGLAADRDPTVFAEPDRDLDER
GARHHVAFGFQPHQCIGQTLARMELRIVFDTLFHRIPTLRLAAPLDDIPF
KSDAFVYGIEELPVAV

>CYP107AX1 (2518155879) *Salinispora tropica* CNB536

MTSRPTAVFDQCLLRDPHSRYNALRDQAPVHHVLTDPDGAPAWLVTRYNDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AACTPRRVADLHPAVERIVSTLLDGLAGHDRAELIGSLASPLPLQVMHEL
LGLPTQANIDFRTWTNTLLSADANQPAQSRAAMANMRRFLIEQLAHKRAQ
PGDDLLTGLLAAREDDRLTDDELVAMVFLLMFAGYDNTAALIGTVTHAL
LTNAELHEAVRGGSALDELIDEVLRWNPAFPLAVRRFAREPITIAGQTI
PAGDRIWLCLASANRDPAQFTQPDELGIIGLRRSHLSFGHGIHYCLGAPL

ARLQTTIAVTSLNRFPEMRLAVPAHDIRWRESFRLRGLIALPVYL

>CYP125G1 (2518156369) *Salinispora tropica* CNB536

MSTEVVSTGNRADIOHPATYAAGVPYAEFARLRDKPVSWSVPEAALWRRS
GEGRILSQPGFWAVTTHEGVVAASRQPEVFSSGRQGAFLADPRTTADLE
QARQLLVNMDAPQHARVRKLVTAFTFPRAIRALGDSVTAHARNLVERAVR
QEECDVVADLAAELPLLVLADLLGLPREDRHLLYQWSNNLVGFDDPEYGG
GDVEAYRKTFEAFQYALSVAGERRRAPREDLMTLLATIEVDGRRLTDRE
FCNFWLLLVVAGNETTRHLITGSLALVDNPMQRERLVADDTLPLSAVDE
LLRWVSPIMQFRRTAIVDTELCGTPIAAGDKVVLWYTSANRDAAVFEAPD
ELRLHRNPNPHLSFGMGPHFCLGAHLARLEARTMLRELAPHLSRFRLTGP
VVRLESNFVNGVKSLLPGSFTGQ

>CYP1004A1 (2518156408) *Salinispora tropica* CNB536

MRANTARPHLSAAFLATKDDPYPAYAELRARGPLTRAELGQWLVTGHGAV
SALLRDGRLESMPAEYTRTLTGDSPPGVDFLHRIVLTRTPPEHTRLRRI
GRALGTPVVRRLHDRIAAATDALLEPALDRGRLDVVTELA VPLPVGVVCD
LIGIPTGDRPAVLTRVTALAKVFDAAANLSPADLADINTALPWLHDYFGDL
LAVRRAGSGGPTLTETMYEESASDRLAVADFVDNMLFLFHAGFETTMGLV
SNGVAALLNNPEQLGRRLRADPALVPSAVEEFLRYDAPIQNVIRVARKPVE
VAGQKIRAGRTVLLLLGAANRDEEVFADAERLDVGRDPNPHLGFGGGLHH
CVGTALARLMMAVVVFERLVDRVTVLGPAAPAVRRRHASLSYDHLPLAVA
AR

>CYP1004B1 (2518156412) *Salinispora tropica* CNB536

MTTSALAPRFDALDPNVVEDPYPEYARLRAAGPLCRLGPGSWGVTREFADV
TNLQHDPRLGSEFPAGYHEISVGDGPASAFFQVRMLYRDPDPDHIRLRLRM
SGAFTPAVVRRLRSHIEDLVDELLAPALAAGRMDLVPELANPLPVRVVC
LMGIPPESTEDVRHHATNIGRAFTAVVPEQARTEADEAVSWLREHLGALL
EQRRSHRGDDLLSRLLDAAESGDNLDAEIVDNTVFSFFAGFETTVHMIT
TGTAALLAHPDQLARLRADPSLVTTAVDEFWRWDAPIQGTARYVREPIEI
GGRTIRRGRLVLMIGSANHDERRFAQPDRLDVGRQDNPHVAFGGGAHL
LGAFALARMEGAVVFDRLARLAVLEPDGPTVREPNTPFRAVASVPVRIGDR

>CYP1005A1 (2518156486) *Salinispora tropica* CNB536

VSAVLFRSWTKTAGTHWPAITRVADQQGTEHLVVTOHALVRQVLTDQLTY
RPDNALDAVTPIPVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTGLVAERVAAIRRTLDSGGSTDLHAELNADLPLLVLAR
LVELPDAPVSAVKQFARAALFLWAPLDADRQLALADEVGRFHHQVLREFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHLRLADEP
TVRAALRADSVSVADVVEEGLRLEPPIVTVRRVAAVDSTLGGSTVAAGTS
VLLWLRAGRDPVVPAPDEFPRPGQRGSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQVTPLLDGVTVVRPPWYPDNLTFRMPDAFVVR

>CYP107AY1 (2518156619) *Salinispora tropica* CNB536

MRAELAPIPRSGARLGQEYDQLRNAGDVHQVLLPDSSLAWLVTNPKLVSR
ALTDPRALNRRHSRGSWSGFALPPALDANLLNLDA PDHTRLRLRVGPAF
SPQRVSALRPRIRRTAEHLLDTLVATSGPVDLVTGYCTPLSVQVIADLMG
VPEAGRDLRTWTDMLTSYPPDRDAIRQAVVELHGYVVDLIDTKRQQPG
DDLLSALVTIEQDGDRLTRDELTSALFLILFAGYENTANLIASVTLRLLD
HGGLRGVQLPEAIEETLRLEPPAPAAVRRFPTEEMTIGGATIPAGDIVLL
SIAAATRGTAGNAARLAFNGPHFCLGAALARVEAEALTVLARRLPDLA

LALPVAQVRWRPTFRTHGPAELLVTW

>CYP124M3 (2518157189) *Salinispora tropica* CNB536

MTVPVELDAVDLSDNDFWTKPLEYRHAVFNALRAQPGLPHFASPEFGSAP
RGRGYYALTRMDDVLAVSRNPSTFISGKGNVAMEVPAEFLDQSLITMDNP
RHARLRRIIVSRGFTTKAVTALMDNASQMAKQIVDEVVEQGECDVVDISA
KLPLGIIICNMMGIPDSQQQFVFEQTNVMLGVQDPEYVGEQNDAMLAMSV
SQELADLMHELATLRAKNPTDDLISKLLSAEVNGEALTPSELAHFFILLT
GAGTETTRNAISWGIQLLTQSPEQREAWLSIDIDGVTPTAVEEIVRWSSPV
ISQRRTVAEADAEPVKLAGQLLGPQDKVLMFYGAANRDPNYFAHPEGFDVR
RSPNPHVGYGGPGPHFCLGAHLARLEISVMFRELLTRIPDIHATGEPARL
KSPLINGIKRLPVAFTPGAR

>CYP208A22 (2518157290) *Salinispora tropica* CNB536

MTVIADRGGRIPPGPPVTASLRLLLLALGRDRLGMMTSAAAAYGDVARLPV
GPKKLYFFNHPDHAKHVLADNHANYQKGIGLVHARRALGDGLLTSEGELW
RKQRRVIQPAFQNRRLAQYAGAVGQEATRLVARLATRVDPFPVDVDEMT
RLTLGVLGRTLDDAELTGFGHVGESFAAVQDQAMFELETINTVPTWIPLR
RQRRFRRARQHLQEVVDVLAERGQAVEGRDDVLSRLILSTRAEADPQLG
RERLRDELVTLLLAGHETTASTLGWSLHLLDQHPELRRERVRHEARTVLGD
RVPAYEDLHQLRYTAMVVEEAIRLYPPVWILTRKARAEDEIGGYRVPAGA
DILICPYTLHRHPRFWTEPERFDPERFDPSHTTDRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLAVLLRDLRLEGLPGRAVVPEPMLSRLVRGGGLPMTVR
RVD

>CYP107AW1 (2518157640) *Salinispora tropica* CNB536

MESVTSTSAPPPVPYIADPYPALARIRANGPVSIHLSDEGIPMWVIARYR
NVRAALADPRFGQDARRAQTLADNRVAGVTLGGDVIHMLNSDPPDHTRLR
HLVQGAFTARRVAAMRPLVERITTSLLDGVGGRQTVDLVQDFAFPLPLMV
ICELLGFPAEERDAYRSWSTAILTHNDDPAAFATALRDMTDYIEVQLRHR
RARPGEDLLTELLAARDAGQLTDDEIVGMVFLLLIGGHETTVNLLGTATL
ALVRNPDQHRWLLANPHALSEAIDEFLRYESPVAMATLRFTTAPVTVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHFAFGHGLHRCLGA
FLGKLEGEVALGALLGRYPGLTLAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP107E3 (2518157822) *Salinispora tropica* CNB536

VTIDQEIRKYPFCESPGIGIDPTYGLLRSTEPLARVQLPYGEVSWLATRY
EDVKTVLTDPRFSRAAAQKQDQPRTREEMTYEGIIIGLDPPDHTRLRKL
KALTARRVNAIRADAQRIANEYVDEMIAGKSPGDLVELFALPYPVTVICE
LLGVFPEDRAQFRIWTEGLTSTSEQLMVYAEQLFGYMGKLVQRRREESTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTGIVETVSTHINPFVYALLT
HPELMAQLRADRSVLPAAVEELLRMIPLNPAAMFPYAVEDVTLSGITVR
AGEPVLVSLPGANRDPEVFENPETFDFTREQNPVAFGHGPHHCLGAQLA
RMELQVALHTVLDRFPDLSLADGDEGVSWKSGLLVRGSPSRLLLAW

>CYP283A2 (2518157964) *Salinispora tropica* CNB536

VQADKCPVTGATATTARGDSVEFDFFAAPQAYRRVAAEHARDGAFHSSRG
DSFWVLSTYEGICAAFRDEDTFSVSRVSAADGAEDERWIPLTIQGRTHNE
WRRRLAAWFTPQARADLTPAIRANARRRISAFVDRGEVSFSDEFARPYVL
ENLMLAVGWPLADLDHLLAINVAMIRSREAPDPRQAFNAETAFFPALQEYV
RRHVARRRAEPVEGDLTSATFDWEIDGTPVSDADRESLLTVLFLAGVDST
VNHMANGIQHLAHHPGDRHRFLRDPEVRPAAVEEFLRVNSCMYPGRLATR
EGAGGVASQGDVTLLPLALANYDPAVFPEPERVDFDREQNPVAFGTGHH
QCLGAAYARAQILTAWEEWHELIPDYRLPDPTVEPPFLRVNYDLRIVW

>CYP105AB37 (2516082314) *Salinispora pacifica* CNT084

MTETASTTTTPGISSATTPRISSTTTSGPASGEVTDAEFFVKRGCPFSTPT
EYEQIREHSPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFP
FVSTDPETKKQLQDQPTSMIGMDGAEHAQARRALMGFTVRRMAGLRPRI
QQIVDQHIDEMLSSDQRTADLVEALSLPVPSLVICELLGVYPYADHDFQ
RSGPLIRHTTSTEVRLRIQKELNTYLGALIDRKVTDPTDDLRSRQIAKHH
AAGIFDRSTSLVSMALLIAGHETTANMISLGIVGLLQHPDQLAMIKEDP
EKTPPAVEELLRYFTIADTVTARVATEDVQLGDTTINAGDGVVISGLAAD
HDPTVFTDPDRLDLERGARRHHVAFGFGPHQCIGQTLARMELQIVFDTLFR
RIPTLRLAAPLDDIPFKSDAFVYGAERLPVAW

>CYP211B11 (2516083101) *Salinispora pacifica* CNT084

MDASEAVALLISPPGRLDPYPTYERLRAHGPPVSTAPGFFVVTGYTEADT
LLRNPRFEVMEDEERDGVFPQWQDSPAMISISRSMIRANPPDHSRMRRLA
AGVFTPRRVAALREVVAQAADGLVDEMIRAGRGAADVDFMGSFAYPLPVT
VICALLGVPTADWARFRHWASDLTGVLEPEITPQELAIADAGASELRDYF
TELIAQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVLLTHPDSATALRGQPELAPGYVEEFLRYDSPVQLTSRMVR
ESVSLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPRRSQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRHRLTLRGYETLP
VTVGAVPADPGTPAGVALGTP

>CYP107AW10 (2516083810) *Salinispora pacifica* CNT084

VETVTGTSTPPMPYIADPYPTLARIRANGPVSIHLSDEGIPMWVIARYR
DVRTALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLTGRTVDLVQDFAFPLPLMV
ICELLGFPAEERNAYRSWSTTILTHDDDPAAFATALREMTDYIAVQLRIR
QTRPGDDILTELLAARDAGQLTDEEIIIGMVFLLLIGGHETTVNLLGTAIL
ALMRNPDQHRWLLANQHALPKAIDEFLRYESPVAMATLRFTTTPVTIDDV
VIPAGELVLVSLGGANRDPDRFPEADRLILDRRDTGHFAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPRLALAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP125A65 (2516083969) *Salinispora pacifica* CNT084

MTEPRI PVGFDFTDPAVLERRVPREEFAELRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMAVS RDSETYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPP EHTKLRAIVSRGFTPRAINALRGSLAERA EHVIRDAAVRGTGDFV
TDVACELPLQAI AELIGVPQHRRKVF DWSNQLIGYDDPAYGVDPMAAAA
ELLAYAMEMANERQRNPSDDLVT KL VNAQIDG EHLTTDEF GFFVMLLAVA
GNETTRNAITHGMLAFLEHPDQWELFKAERPRSAVEEIIIRWATPVNVFQR
TALVDTTLGGQAITAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REMPVRYR

>CYP208A30 (2516084971) *Salinispora pacifica* CNT084

MTVTAAGRTFSGPTGSALLRSLWQLGRDRLGLMTSAARYGDAVRLGVGSR
SLYFFNHPDHAKHVLADNSGNYTKGIGLVHARRALGDGLLTSEGE LWREQ
RRVMQPVFQAKRIAGQAHAVAE EADRLRLARRGGGPVNL TDEFTALT
LGVLGRTLLDAKLDAFASVGAAFEEMQNQAMFEMASMSLVPMWVPLPQQL
RFRRARRELERIVGRLVADRTARGEVTGADDALSRLIAATQDEPDPGFAR
RRMRDELVTLLLAGHETTASTLSWTFHLVNQHPWVRGRRLRKEAIEVLGDR

LPEYADLARLTYTKMVVSEAMRLYPPVWMLSRRLARDADVVDGYVPV
PARADVLICPYTLHRHPAFWPEPERFDPERFDPGAVTDRPRYAYV
PFGAGPRFCIGNHLGLMEAVFVAMVSREFELVAPVGQPVVAEP
MLSLRIRGGLSMTVEPVS

>CYP244A12 (2516085069) *Salinispora pacifica* CNT084

MQDTAHVNLA EAPTVTMPIELRPTDCLPELLAAARVAPIV
RTPYLDQHAWVVC DRELVKQALHTPKLGKDVALAPDWMRQ
PGQMVTAMPPPEYARMMVMSDGEHHARIRRIHAPVLS
PRNTGRWSERVAALVAGFLDNLDSADGTEVNLI TDYTQ
KIPLAFTAEMLG LPPGVERRLHDITEVMLYSADYALRQ
HAVGELFEAVQE WVRDPAELRDG VITGLLASTDGPDA
RVTEGEAIVWTL SLIINGYE TTGSLISAALYEALRR
PAPERPH TDEAVAAWIEETLRVQPPVPHTTWRFAL
ADLDLGGYLIPKGAPVQISLAAANLDPDEAADSFDA
QRRGRGHLSFGLGAHYCIGAPLARVQTKIALRGFL
RRFPQARLSADTAPRWESEWMIRRM SVLPVLLA

>CYP107AY8 (2516085091) *Salinispora pacifica* CNT084

MRAELAPIPRSGARLGPEYDQLRKTDGVHQVLLPDT
SMAWLVTSPELVSRALADPRLALNRKHSRGGWSGFAL
PPALDANLLNLDAPDHTRLRRLVGPAFSPQ RVAAL
RPRIQRS AEELAE TVVATGSPVDLVT SYCTPLSVQ
VIADLLGVPEAGRTDLRAWTDMLTSYPPDRDAIRQ
AVVELHGYVVNLIEAKRQRP GDDL SALVATEQEG
DRLTRDELTS LAFLILFAGYENTANLIAS TVLRLL
GHGSLRGVRVPEAIEETLRLEPPAPAAIRRFPT
EEMTIGGATIPAGDTVLLSIAAATRGADGNPAR
LAFNGPHFCLGAALARVEAEEAITVLARRLPGLA
LAVPGASVRWRPTFRTHGPAELLVAV

>CYP1005A6 (2516085889) *Salinispora pacifica* CNT084

VSAVLFRSWTKTAGTHWPAVTRVADQQGTEHLVV
TEHALVRQVLT DQVTV RPDNALDAVTPIPVAAL
RVLAGHRFRLPPTLANNGGTSHPAIRALVADAL
HPAKVAAQR PWLTELVAERIAAIRATLDSGGSAD
LHAELSADLPLLVLARLVELPDAPVSAVKQFA
RAALELFWAPLDADRQLALADEVGRFHQVLR
EFA DTGGGLAAALRATGHPPDVLVGALFFLLV
AGQETTSQFLTLLHRLAGEPTVRAALRDGSV
SVPNVVEEGLRLEPPIV TWRRVA AVDSTLGGT
AVPAGTSVLLWLARAGRDPAIVPAPDEF R
PGQRGSRRHLAFGAGAHRC LGDQLARMEAAV
VVERVTPLLDGVTVVRAPWYPDNLTFRMPDA
FVIRR

>CYP107AX6 (2516086208) *Salinispora pacifica* CNT084

MTSPAPVFDQ LLLCDPHRRYNALRDEAPVHHIR
TPDGAPAWLVTRYHDVRAAFTDPRLSVDKRLS
STDGEHGSSLPPELDAHLLNRDPPDHTRLRRL
LAA AAFTPRRIADLRPAVERIVSTLLDGLAGH
DQAELIGSLASPLPLQVMQEL LGLPTQTSV
DFRTWTNTLLSADANQPAQSR SAMANMRRFL
VEQLAHKRAQ PGDDL TGLLAARE DGDWLT
DDELVAMLFLLMFAGYDNTAALIGNVAHAL
LTNAELPAAVHTGSLAVDELVDGVLRWNP
SFPLAVRRFA REPIT IAGQAI PAGDRIWLC
LASANRDP AQFTEPDTLGTTGMRRPHLSF
GHGIHYCLGAPLARLQTTVAVTSLLD R
FPGIRLAVPAQDIRWRESFRLRGLVALPVFL

>CYP107LA2 (2516086422) *Salinispora pacifica* CNT084

MECPVTARSSRFYPFSDRADLILDPTYGELRSKEP
VARVRMPYGGGDAWL VTRHADAKKALSDPRLS
IAAGAGRDVPRASPRIQEAEGLMGMPPEAHARL

RRLVATAFTPRRVARDIAPRVAEIIADRLVNDVIETGPPADLVRQIALPVPI
TIIICELMGVPAEDQHVFRVFS DALMSSTRYTDDEVDQAVQEFTAYLGGLL
TQRRAHRTDDLI GALIEARDDGERLSEEEELIMLTGGLLVGGHETTASQIA
SHLLVLLRDRARYETLSARPELIPTAVEELLRVAPMWVTVGPTRIATEDL
ELNGVTIRAGDAVIFSLSSANLDEDAFPDATDVVLDREPNPHIAFGHGPH
FCIGANLARLEIQSTIGALVRRLPGLRLAVEENDLEWRRGMIVRSLAALP
VTW

>CYP113B7 (2516086423) *Salinispora pacifica* CNT084

MTQTDNAPMPPLDL PKGADAQGLLDWFAYMREHSPVSWDETRQAWHVFN
QDYLTVTTNPLIFSSDFSPVFPVPPELALLMGPGTIGGIDPPRHGPMRKL
VSQAFTPRRIAQMEARIETITADIFEQVRGQERIDIAADLAYPLPVTVIA
DMLGIPNEDHEKFREWVDIILSNEGLEYPNLPDDFTETVGPAAIAEWSEFL
YAQIAEKRARPDQDLM SGLLAVEVEGRRLTDEEVNIVALLLTAGHISSA
TLLSNLFLVLEEHP EALAAVRADRS LVPGVVEETLRWRS PFNCIFRLLAQ
DTEIFGQPMRKGQMVIAWIASANRDTEVFAEPDFTDIRRKS NKHLAFGYG
IHHCLGAFLARQEAKVFLNQVLDEFSEFTIDHDGVEFYDPDQLTARRLPV
QVVR

>CYP163B20 (2516086942) *Salinispora pacifica* CNT084

VTATDAKDVGVGSRNVASTIDLADPATFAGHDLTNFWQRLRDEEPIYWN
PPTSGRRGFVWLSRHADILEVYRDDMTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHTELKLLLRALGPRVLGPVCRAVRANTRQMIGAAAANGCED
FATDIASRI PMITISNLLGVPEADRASLLKMTKTALSADDESISD TDSEM
ARNEILLYFQDFVEFRRKNPGEDVVSMLVNSSIDGVPLSDDDIVLNCYSL
IIGGDETSRLTMIDSINTLAANPGQWRRLKEGRCDIDKAVDEVLRWASPS
MHFGRTAVRETVIHGERIQVDDIVTLWGASGNRDERAFKQPEVFDLGRVP
NRHLSFGHGPHYCIGSYLAKVEISELLIALRDLILGFEVIGEPQIRIRSNL
LSGFSTMPVRFDADRTGLASEAREG

>CYP107E37 (2516087120) *Salinispora pacifica* CNT084

VTIDQEIRKYPFRES PGIGIDPTYELLRRTEPLARVQLPYGEVSWLVTRY
EDVKTVLTDPRFSRAAAQ GKDQPRTRAEMTYEGII GLDPPDHTRLRRLAG
KALTARRVNAIRADAQRIANEYVDEMI AKGSPGDLVELFALPYPVTVICE
LLGVPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFGYMGKLVAQRRAEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTG VETVSTHIPNFVYALLT
HPELMAQLRADRS LVPAAVEELLRMIPLNPAAMFP RYAVEDVTLSGITVR
AGQPVLVSLPGANRDPEVFENPETFDFTRDQNPHVAFGHGPHHCLGAQLA
RMELQVALHTVLDRFPDLRLADGDEGVSWKSGLLVRGPSRLLVGW

>CYP208A12 (2515708401) *Salinispora arenicola* CNT857

MTLDTITPRVPLGPRTAALRMLLV MKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHV LADNSANYHKGIGLVHARRALGDGLLTSEGD LWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAE LTG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELET LNAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLL AGHETTASTLGWTL SLIDRHGPVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRV PANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVP GHRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP105CP2 (2515709699) *Salinispora arenicola* CNT857

MTKSMPVQDLPAFPIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHAARAVLSYRRVSIKPYHGNYPLLNEEFEKVVDSDGYADVLFGVDP
EHTRQRQMIMPSFTLRRRTAVLRPDIQRIVDDKLDEMRRHGAPGDLVTEFA
QPVPSPMVISFLLGVPWEDHEEFETPAHKLFVPELAEAEATTELGAYLERLI
QKKEQPGGTPGGTGLLDDLIRDHLRAGALSDELVHIAMAMLVAGTDTT
NVISLGLTALLDNPQWAALRDNDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRATAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2515709701) *Salinispora arenicola* CNT857

MAAPAPQATPSTTPHPPSYPLPRECPYRPSAGTAHLRDAGPVSTVRLYDG
RTAWLVGTAAEARALLADSRVSNRADFPNYPVMDEHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQLLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVYPYQDRTRFEPVAGLFEPRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYTALVDNPDLPVGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIIHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPTW

>CYP107FS2 (2515709702) *Salinispora arenicola* CNT857

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPADRSEFERHAEVLGTGINASSGFDIAAAGRWFDEYLAGLVQ
QRRREPQDDLISGMLAAQDKGDRDLDVELRSNALLLSAGFETTVNLIAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVIAAAAANHDPTVFAAPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSLWVKASFVLHRLERLPV
TFTPDRDPNPIDSVHTV

>CYP125G6 (2515709739) *Salinispora arenicola* CNT857

VPTLLNEHVSYDGAIAIVDSGATSWIRLAERVNRVHLLRAHGLDTGD
RLACVTGNRRETFVLLAALHTGVTVPVNVHLLTVTEIGHILSDSGSRVV
ITEELHVKAFAAADGTAGPVAGLVLDREVEGFAAVEPLLAASPAEPE
GQVCGATMLYTSGTTGRPKGVVNNLFVTGAPYARVGRLCDYARSVLGVPR
RERMLLDGPWYHSSQLFFALLSLLQGSRLVIRPYFDPAATLKTIDDHRI
VTHLVPTQLVRLLRVDALTRQMFSGASLRRVWHGGGPCPPEVKRSMIDWW
GPVLVEYYGATEGGVVTLIDSAEWLARPGSVGRAVPPSEVVVVDDGGQPV
AAGQTGQVFFRRRTGNQFHYHNAPEKTQAAYLAPDTFTTYGEVGHVDE
LFLTGRAQDMIVSGGVNVYPAEVEAALLRHPVVRDAAVIGVADDEFGERV
VGIVVPETAVDPDFFATHLDAHCRVSLAGFKVPRTYRVVESLPRDETGKL
RKDALRSKFGWLSGAAMTVPRPATGQPTAHRPDIAHPTTYVSGVPHDEFA
RRRRDEPVGWAEPLVTRHTAAGRTATRGSGFWAVTRYEDVVAASRRVTD
FSSAAKGAFLLTPRTPADLQQAQQLLVNMDDPHHARLRKLVTSVFTPRAV
RGLLASIDAHAAALVAKVVAAGEFDVVTDLAAELPLLVLADLLGVPKQDR
ALLYGWSNHLVGFDPDFGGGDIDAYRTAMAEAFQYALNLGVERRARPTD
DLVSLLANAEVDGTRLTDREFCNFWLLLVVAGNETTRHLVAGTMQALTEH
PGEARLVEGRVPMESAVEELLRWVTPIMQFRRTATRDTEIGGQAVTAGE
KVVLYYTSANRDATVFAEPDRLDLGRTPNRQLSFGIGPHYCLGAHLARAE
LTALLRVMSPHLGSLQLTGFPVSRLASNFVNGVKAMPAVIGSR

>CYP154M15 (2515709764) *Salinispora arenicola* CNT857

MNDKCPFAALDVTGQDLHGEEARLREQGPAVLVELPGGVKAWSINRYEVI
RELLMDRRVTKNARKHWPFAFIKGEIPPDWEMISWVAMDNMVTAYGKDHVR
LRKLVGRAFTQRRADALRPQVVALSTKLLDDL GATPPGEVVDLRERFAYP
LPAMLVASLIGMSEAAALACSKVIDMMVHTNVSPEEAQAVLRGWRAAMAD
LIESKRRTPGEDITTDLIAAREEDGSRLSEAEADTIFAILGAGSETTIN
FFDNAITALLSRPGQLQLLRTGAVTWDDVIDEVLRVESPLAHLPLRYAVE
DIELDGVTIPQGDPILVNYAAAGRDPALHGGTADEFDLARGDKTHLSFGY
GPHYCLGAGIARMVATIGLSMLFERFPDL SLAVPATELKRLPTFIMNGHQ
TLPVRLTTHAR

>CYP107FJ2 (2515709783) *Salinispora arenicola* CNT857

MSETLSTSVLLADAAEQRAWRAKLRGAGPVHRITTSGETGWLIVGHEEA
RNALVDLRLQGRATATVGHGRMPEDLERALNSHMLNVGPPDHTRLRRLVS
AAFTRRRIEQMRPRIQELTDELLDGLAGADEADLVAGLALPLPMRVLDL
FGIPAEDCADFNVTWKVLTSA GAVDLDRLTAAAGEMVAYLRGLLDRKRQV
PESDLLSALVAVRDGADRLSDELTS MVYLLLTAGYETTVNLIGNGLLNL
LANPEQLVAFKADPDLLPQVVVEEAMRFDSPVQIAVRHSTEPVEIAGQAIP
SGALILVSL LWANRDPDRFTEPEAFRVDRQDN PQLGFGYGFHHCIGAPLA
RMEGTIAIGTVIRRFPALRLAHPAGSLTWRASMVMHGLTALPVHLR

>CYP154M20 (2515709790) *Salinispora arenicola* CNT857

MERCPYVLDRAGRDLHGEEAKALRARGPVT LVELHG GYTAVSVTSYEIAKQ
LLVDPRI SKNTKETWPEFREGKVPQDWELYT WVAMDNMQTRDGEEHDRLR
KLVAQAF TTRQVAKVRPMIEDIVDRLLDDLEKVPAGEVVDIKGRYFYPLS
TILVCDLLGIPEADRAEALHGT VVNARTTNSAESEANLHQWQSALSKLV
ETKRREPGNDITTLIIKAREDEQA PLTDDEVIGSLHLLIGGGTETTSNVL
CNTLIDL LTHPDQMAMIRSGAVGWEAAWEEVRKDGAVGSMPPFRCANADI
EIGGV TIAKGDVLV LINYAAAGRDPERYGD TTAEFDITRADKTNLSFGYGR
HRCLGPALATMEAMISLPALFERFPDLVLAVPRDELKPQGTFFVNGYAEV
PMLLRS

>CYP105W2 (2515709819) *Salinispora arenicola* CNT857

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVS RHADVRQVLS DPRMSADRRRP GF PKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEF SVRRVRQSRALVERVVDTH
LDALTA AAPGADLVSTFAYPVPSQV ICEVLGV PYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDVVVDKEHRPGDDVLSRLLYRQRRAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAE PERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGV TIAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAH LAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP154M13 (2515709832) *Salinispora arenicola* CNT857

MSTGRPVVLDPTGRDIHG EADHLRALGPATLVELPGGVLAWSINSYEVGK
ALLSAPNVSKSARRHWP AFYNGEIPPDWEMISWVAMDNISTTFGGDHRR L
RRLTAKAFGSRRAEQVRPMATHMVNTLLDRMADAADAGEVVDLKAAFAYP
LPGMLVAELIGMSEEARVAAAKVIDMMTATNITPEQAQGVLLGWRDAITD
LIAALKRAQPGDDITSDLIAARDEDGSLLTEQELVD TIFAILGAGSETTIN
FFDNAITQLLTHPEQLELVKSGQVSWDDVIEEVLRL ESPLASLPMRF AVE
DIQLDGVTIHRGDPILIN YAAALGRDPALHGESAGVFDVTRQHKEHLSFGH

GAHYCLGAGIARMVAKTGLSALFERFPRMTLAVSAKDLVPYPTFIMNGNR
QLPVHLSGALTWREGEQSALGRA

>CYP154M21 (2515709833) *Salinispora arenicola* CNT857

MEKCPYVLDRAGSDIHKEASNLARGPVTLVELHGGYTAWSVTSYEVAKQ
LLMDPRISKNTKAHWPEFRDGNVPQDWELYTWVAMDNMQTRDGKEHDRLR
KLVAPAFTRQAVKSRPIIEEIVNRLDDLETAPRGQAVDIKARYFYPLS
TILVCDLLGIAEEDRDVILHGNVVNSKTTNTAESEANLHQWQTALGRLV
ETKRDRDPGDDLTTVIIKAGEDEQTPLTDDEVIGSLHLLIGGGTETTANVL
CHTVVDMLTHTPDQLAMVRSAGVSWESAWEEEVRKDGAVGSMFRCATDDV
EIGGVTTIAKGDLVLINIAAAGRDPERYGDAAAEFDITRADKANLSFGYGR
HRCLGPALATMEAMVALPALFDRFPNLALAVPPNELKPQGTFFNGYAEV
PLLLRS

>CYP211B2 (2515709924) *Salinispora arenicola* CNT857

MDVSEAI AVLISPSGR LDPYPTYEQ LRAHG PVSQTTAGLFVVVTGYAEADM
VLRDPRFVV LDDDLRDDVFPHWQDSPAIKSIARSMRLTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTAQADELVDEMIQAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLVAGFETT
TNLLGNGLV LLLTRPEAAAAALRDEPDLAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPAGSWLLVLLGAANRDP RRFDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGT PAGVAPGTP

>CYP125A41 (2515710232) *Salinispora arenicola* CNT857

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRR TAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPP EHTKLRAIVSRGFTPRAINALRGSLAERA EHIVRDAAVRGVGD FV
TDVACELPLQAI AELIGVPQHRRKVFDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMA EERQRSPSDDLVT KL VNAQIDG EHLTTDEF GFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTVLGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211C1 (2515710381) *Salinispora arenicola* CNT857

VVDVEELLTRLYSAQGRQDPFPVYADLHAQGSIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVS NLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTV LGGVPI PQGQNV LLLIAAANRDP AHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGAAVSRLEGR LALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP1005A1 (2515710578) *Salinispora arenicola* CNT857

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTDQATY
RPDNAL EAVTPI PVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQR PWL TGLVADRVASIRTTLD SGGPVDLYADLTADLPLLVLAR

LVELPDAPVNAVVKQFARAALFELFWAPLDADRQLALADEVGRFHQVLRFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSISVADVVEEGLRLEPPIVWRRVAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFRRPGQRGSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTIVRPPWYPDNLTFRMPDAFVVR

>CYP105BL2 (2515710855) *Salinispora arenicola* CNT857

MSSHSAAPDPETATPLHTLAPELAFFQFERSAPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLDPRFSSDMSPGFPNRTGKPVDDL
KDTLGAMDGERHRYRRLTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPSPRVACHLVGIPLSYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHRDDLLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIGLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLVQ
DKDIMYRVSELAVTW

>CYP105CH1 (2515710928) *Salinispora arenicola* CNT857

VSSLPLPTYPKLRDPADPLPPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHFNFPYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRLLISEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRTDPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVLNTIARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALDTVLRRPLPGLHLVAPFEELPFKYRHLVWGIEEL
RVAW

>CYP107Q4 (2515710948) *Salinispora arenicola* CNT857

MTTTAETS AETIDLFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRFLTNPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSYALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRWAGDSMATMNGER
IPTTLVKCIELARELIANRAEPQDDLVTALVQAQAEQDNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKDNPMSMPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLALLAANTDPRRFPDPNKLI
DRLAVGSEHGLGFGKIHRCLGQHLAYQEAVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105G5 (2515710949) *Salinispora arenicola* CNT857

LTIETTETPPADDSLAPLPRQFMQRDDPSKLPPALAALAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFVVPVSLMICELLGVRVEDRTEFQRRAGLLQTDLPKQ
AVENLEAQRAFMRQLVTDKRRTPADDMISGLVHHAGAEPPLTDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQALRIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTF

>CYP1051A1 (2515710970) *Salinispora arenicola* CNT857

MATDAAITRARTVPAWKALPAAVRDTHRAFDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLEHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAVDDLHGAATAGTFIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDDILLPVLRQAQRQPDDGDDLLSRLVRARADDGQALSE
KRMRDDLVSMVAVTETSTVVLTWLWPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMI
LKPVPAPVPAR

>CYP245A7 (2515711258) *Salinispora arenicola* CNT857

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRLSLNRSFSPRIVTELPRPRIARIAQELL SRLGQQVDVDLIVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRVDVGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPTVLDELRGAEGLTTDAVEEFLRYDPVQ
AVTRWAHQD TTLGGCDIPRGSRVVALLGSANRDPARFPSPDVL D VRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVP T L GYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP244A4 (2515711262) *Salinispora arenicola* CNT857

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAAARVAPVVRI PYLGRHAW
VVCDELVKQALTHPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGFLDELSQAGSGGSTEV
NVVTNYTHKIPLAFI SEMGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEAIRPPHERPKTDEDITAWIEETLRVHPPFPHPPTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEGADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP166A4 (2515711305) *Salinispora arenicola* CNT857

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHEVERVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVLGPLYGERDRYLHAVTLLHDAEADPAEAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLYHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIERETSGHVAFGFGI HQCLGQN
LARVELRAGLSALLRAFPNRLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP105J3 (2515711437) *Salinispora arenicola* CNT857

MTDSVAFPQGRVCPHQAPAGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRTPAWPAIVPIVAAA V N D A Q Q K V L K I A T A L V G T D G P E
HKAQRKMLIPSF T FRMNALRPMIQEIVDQQLD EMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIF E K L S H Q L L A G P N A N E A Y D Q L M G Y M S R L I A
ERRRNPGEGLVDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDVATRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSL G W H H A S A A D H L T F G F G A H Q C

LGQSLARITMEIALGALIDRLPSRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP107AX13 (2515711571) *Salinispora arenicola* CNT857

VTSPPHVAFGHLLLRDPHGOYNALRGQAPVHHIRTPDGAPAWLVMRYDDV
RAALTDPRLSVDKRFSDTDGEHGSSLPPELDAHLLNRDPPDHTRLRRLAA
AAFTPRRVADQAPAVATIVDALLDGVAGQDQAEIIGGLASPLPLQVMHEL
LGLPTQTSVDFRNWTNTLLSADANQPAQSRSAMATMRQFLMGQLARKRAQ
PGDDLLTGLLAARDDDDRFTDDELLAMVFLLMFAGYDNTAALIGNVTHAL
LTDAGLHDAVRAGSVDLDSVVDEVLRWNPSFPLAVRRFAREPVTIAGHTI
PAGDRVWLCLASANRDPAQFTEPDELGITPARRPHLAFGHGHIHYCLGAPL
ARLQTTVAVASLLDRYPGIRLAVPAHELWRESFRVRGLAALPVRL

>CYP105AB8 (2515712007) *Salinispora arenicola* CNT857

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTTDQHCADLVKA
LSLPVPSLVICELLGVADHDFQEHATLVRRTASEVRQHSIDELNA
YLGALIDRKLASPDLLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKNDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP162N1 (2515712293) *Salinispora arenicola* CNT857

MGLPSEVDLAEPDLADPDLYAEGDPDAEWAWLRAHRPVYRNPAGATAEFW
ALTRYRDALQVYRDPSTFSSERGMVLGVDPVAGDPAAGRMLVVTDPPRHP
KLRRIVSGIFVPRMTMRLEGRVRSVLDQLLHRVVDGAGRCDFVNDVAARL
PVAIIICELLGVPADEQDWMYHLTSTAFFFFGDPAGSAEVSASVERAEAYGDI
LLYYGELAAERRRRPGDDLVTLLVHADLDGEPLDVEDVLVNCTNLIIGGN
ETTRHAASGGLLALAQRPELWRRRLRETPTAVPTAVEEVLRWTTPGMHVLR
TATRDTEIGGVPIRAGERVVVWNAANRDEDVFADPQRFIDIRSPNRHIA
FGQGGHHCLGAALARLELTILFEEMAKQVTNVRLTGPVRRVRSCVLRGIR
ALPVELVT

>CYP107AY2 (2515712684) *Salinispora arenicola* CNT857

MTAEPTPIPRSGARLGQEYDQLRKTGDVHQVLLPDASLAWLVTNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAP
SPQRVAALRPGIRRAAEHLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRATDTMLTSYPPDRDAIRRAVTELHGYYVDLIDIKQQQPG
DDLLSALVTIEQDGRLSRDELTSLAFLILFAGYENTANLIASAVLWLLD
HGGLNVVPISEAIEATLRHEPPAPVAIRRFPTEDIIIGGV TIPAGDTVLL
SVAAATRGADGNAARLAFNGPHYCLGAALARVEAEEALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP107EU1 (2515712989) *Salinispora arenicola* CNT857

VTIGQTLPLVYSPEFTRDPYAIFARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPADLLLTALVQVSADEDRLSREELVSMALLLLLVAGHETTS

KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFDPDPRLDITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQMQLAVEADDLEWLVNSFFRAPL
HLPVSLRR

>CYP1198B1 (2515713299) *Salinispora arenicola* CNT857

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQKRLVSKSFTPRIVKSFGPQITHIVDGLFEDFRDRGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKNP GDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDPRAYENPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKHPEVDES
SLEYRRHIVVRGLEHMKVAFQP

>CYP211B13 (2517379950) *Salinispora pacifica* DSM 45548

MDASEAVALLMSPPGRLDPYPTYERLRAHGTVVPTAAGFFVVTGYTEADT
VLRNPRFGVMDDEEREGVFPHWQES PAMMSISQSMIRANPPDHSRMRLA
AKAFTPRRVAALREVVAQAADGLVDGMIRAGRGGAPVDFLGSFAYPLPVA
VICALLGVPAADWAQFRRWASDLTGVLPEEITPQELAVADAGARELRDYF
TELVAQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVLLNHPDSATALRDQPELAPSYVEELLRYDSPVQLTTRTVR
ESVPLAGVELPAGSWLLVLLGAANRDPARFTD PARFDPRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRNRLTLRGYETLP
VTVGAVAADHGTAPGVALGTP

>CYP105BL6 (2516872158) *Salinispora pacifica* DSM 45546

MSSHPAAPGPETATPLHTLAPELTFPQFERATPFDPPEAYTELSGRCPV
APVRMADGKPSWLITSFEGVRAALSDPRLSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVALVVP SRVACHLVGIPLSEYELFTGMAAKLMEATSSADQIA
ALQDMVSYFDKLVTDREHHRDDLLGHMVRRYLSTGELTREMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHLMPGAVDELMRYLPMI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDP AVFERPDELDVRRN
ARQHLSFGYGPHQCPAHALARLELEVVSRLLERFPTLRLADGDADLKVQ
DEDIMYNVSELAVAW

>CYP107AY7 (2516873803) *Salinispora pacifica* DSM 45546

MRAEPAPIPRSGARLGQEYDQLRKTDGVHQVLLPDTSLAWLVTSPELVSR
ALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAPF
SPQRVAALRPRIERTAEELVDTVVATGSPVDLVTGYCTPLSVQVIADLLG
VPEARRTDLRAWTDMLTSYPPDRDAIRQAVVELHGYYVNLIEAKRQRP
DDL SALVATEQEGDRLTRDELTSALFLILFAGYENTANLIAS TVLRLLG

HGSLRGARASEAIEETLRLEPPAPAAIRRFPIEEMTIGGATIPAGDTVLL
SIAAATRGTDGNSARLAFNGPHFCLGAALARVEAEEAITVLARRLPSLA
LAAPGAPVRWRPTFRTHGPAELLVTW

>CYP105AB34 (2516875228) *Salinispora pacifica* DSM 45546

MTETASITTPGTSSTATSGPGSGEVTDEFFPVERGCPFSTPAEYEQIREH
SPLTKVRLTTGREAWWIAGHELARAVLADRRFSSDRRRDNFPFVSTDPET
RKQLQDQPTSMGLMDGAEHAQTRRALMGFTVRRMAGLRPRIQQIVDQHI
DEMLSSEQRSADLVEALSPLVPVSLVICELLGVFPYADHDFQARSGLVRH
HTPSKVRVRIQEELNTYLGLIDRKVADPTDDLRSRQIAKQHAAGTFDRT
SLVSMAFLLLIAGHETTANMISLGVVGLLQHPDQLAMIKDDPEKTPPAVE
ELLRYFTITDVTARVATEDVQLGDTTITAGDGVVISGLAADHDPTVFTD
PNQIDLERGARHHVAFGFGPHQCIGQTLARLELQIVFDTLFRRIPTLRLA
APLDDIPFKSDAIYGAEEPLPAW

>CYP1005A8 (2516875471) *Salinispora pacifica* DSM 45546

MSAVLFRSWTKTAGPHWPAVTRVADQQGTEHLVVTEHELVRQVLTQVQTY
RPDNALDAVTPIPVPAALRVLAGHGFRLLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTKLVAERVAAIGATLDSGGSADLHAELNADLPLLVLAR
LVELPDAPVSAVKQFARAALFLWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRTTGHPDVLVGALFFLLVAGQETTSQFLTLLHRLAGEP
TVRAALRDGGVSVANVVEEGLRLEPPIVTVRRVAAVDSTLGGTAVPAGTS
VLLWLARAGRDPAIVPAPDEFPRPGQQRGSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQAAPLLDGISVVRAPWYPDNLTFRMPDAFVIRR

>CYP211B14 (2516875818) *Salinispora pacifica* DSM 45546

MDASEAVALLMSPGRLDPYPTYERLRAHGPPVPTAAGFFVVTGYTEADA
VLRNPRFGVMDDEERDGVFPHWQDSPAMMSISQSMIRANPPDHSRMRRLA
AGVFTPRRVAALREVVAQADELIDEMIRAGRGGAPVDFLGSFAYPLPVT
VICALLGVPAADWAQFRRWASDLTGVLPEEITPQELAIADAGATELRDIF
TELIAQRRRDPTDDLTTALVQTHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLFVLLTHPESATALRDQPELAPGYVDELLRYDSPVQLTTRTVR
ESVPLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPGRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPIRRNRLTLRGYETLP
VTVGAVAVDHGTPAGAALSTP

>CYP244A5 (2516876216) *Salinispora pacifica* DSM 45546

MSATTNAELGEAPETSMPVDPGLFDCMPDLIAAARIAPVVRIPYLGRHAW
VVCDELVKQALTHPKMGKDITLVPEWMRQPGLMVTAQPPPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGEQVATKVEGFDELDELKAAAGSNAEV
DVVTNYTHKIPLAFISEMLGLPPAAEHRLRSITDIMLYSSDYAARREAIG
GLFGAVEEWVRNPDGLRDGVITGLLAGSDGPGAAVTEGEVIVWTLGMIIT
GYETTGSLLISTSLYEALRRPPHERPRTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAQVQVSIAAANRQPGEGADSFDTERRGHGHLSE
GLGMHYCIGAPLVRLEAKIAVRGFLRRFPQARLSADAQVQWESWMIIRM
SFLPAVLS

>CYP245A11 (2516876220) *Salinispora pacifica* DSM 45546

MSSTTLPRFTLTGWNREDIVNPYPVYRRYREVAAVHRGEAGGDAPETFYV
FSYDQVAQVLSSSCFGRGRSLDATAASVPVPADQKALRAVVENWLVFMDP
PRHTELRSLLNRSFSPRIVTGLRPRIARIAQELLSRLGRQVETDLVEGFA
APLPILVIAELLGIPAERHGWLRTNALALQEASSSRARRDTAGYARAEAA

AQEFTEYFREQVRLRRGSAGDDLLTILANAQLRGAPVSLDAVVGTGVHLL
TAGHETTTNSLAKAVLALQAHPAVLEELRGADGLTADSIEEFLRYDPPVQ
AVTRWTHQDCTLGGWEVPRGSRVVALLGSRNDRPARFPLPDALDVHRPAD
RQLGFGLGIHYCLGATLARAELEIGLQTLNGLPTLGYPAQYVDYADDMV
FHGPSRLILVNPGERFCQ

>CYP107AW6 (2516876309) *Salinispora pacifica* DSM 45546

METVTGTSA PPPVPYIADPYPTLARIRANGPVSIHLSDEGVPMWVIARYR
EVRAALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLAGRKTVDLVQDLAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAVFATALREMTDYIAVQLRIR
RSRPGDDLLTELLAARDAGQLTDDEIVGMVFLLLIGGHETTNNLLGTATL
ALLRNPDQHRWLLANRHALPEAIDEFLRYESPVAMATLRFTTTPVTVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPKLALATEVRQLQWRDTIMLRGLESPLVSLHG

>CYP107AX9 (2516876325) *Salinispora pacifica* DSM 45546

MTAQPAFVFDQRLLRDPHRRYNALRDQAPVHRVRTPDGAPAWLVTRYDDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVEKTVSTLLDGLAGNDHAELIGSLASPLPLQVMHEL
LGLPTQTSVDFRTWTNTLLSADANQPAQSRSAMANMRRFLIEQVAHKRAQ
PGDDLLTGLLCVREDDDLTDDELVAMLFLLMFAGYDNTAALIGNAIAL
LTNVELAEAVRTGSLAVDELVDGVLRWNPSPFLAVRRFAREPITIAQGTI
PAGDRIWLCLASANRDPAHFTEPDEIGIADMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVASLFDRFPGIRLAVPVQDIQWRESFRLRGLVALPVSL

>CYP208A21 (2516876338) *Salinispora pacifica* DSM 45546

MTTTSIDRRRPPGPPRAAALSMLLTMSRDRLGMMTAAARAYGDAAWLPVG
HKALYFFNHPDYAKHVLTDNSDNYTKGIGLVHARRALGDGLLTSEGELWR
EQRRVIRPSFRSGRAPDQASVIAEEVASLVERLRARAGGPPVNVVTEFTG
LTLGVLGRTLLDVDTALATVGDFAAAVQDQAMFELVTL SAVPTWIPLTR
QRRFRRARAELEIRIVDDLVARRGDVSGRDDVLSRLILSTGAEPDARVRRQ
RLRDELVTLLLAGHETTASTLGWTLYLIDRHPPVRELRRAEAAEVLGDRL
PAYRDLPLDRFTTMVVQEAMRLYPVWLLPRRSRRADRVGPYVWPAGSDV
VVSPYTMHRHPGFWEPEPDRFDPLRFDPRNAADRPRYAYLPFGAGPRVCVG
SNLGMTEAVIAVAMLCRELRLVRVPTHAAVPEPMLSRLIRGGLPMSVHLA
D

>CYP154M16 (2516876355) *Salinispora pacifica* DSM 45546

MPDRCPVLDPGSRDIHAEADRLRAQAPAVKVELPGGVHAWTSITSYDVVRR
LLLDNRNVTKNARNHWPKFINDEIPPDWEMISWVAMDNMVTAYGKHLVRLR
RLIAKAFTAQRVETVRPQVEKLVDLDELGLAAETGEVVDLREKFCYPLPA
LLIADLIGMTEQQRAQTAKAMDLMVDTTVSPEQAQAILTGWRTAMDELIA
AKRREP GKDIASDLIAARDDENGGQLTDSELTDITIFAILGAGSETTINFL
DNAVTALVTHPGQLELVRSGRAGWDDVIDEVLRVQCPLASPLRYAVTDI
ELDGVTIPQGDPIILINYAAAGRDPALHGD TAGEFDVTRENKEHVSFGHGP
HYCLGAGIARLVATIGLSRLFERFPDLRLAVPAEELQPLPTFIMNGHRAL
PVRLVPAPAAATAV

>CYP211C6 (2516876599) *Salinispora pacifica* DSM 45546

MPDIEGLLARLYSAQGRQDPYPVYADLHAKAAIAALEPRPERQRVA AVAV
GYDLVA AVL RDPEWFKQPPPGWRDQEILRILQSSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVINRVTD ELLDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPATELAWYRERVDRVDAFLDVAGKTPERLAAAANAAGAE LRFFYR
ELLAHRRRTPEGEDLISGLVEAVDAGGVELTEDELISNLIVLFNASFVTTV
YLLSNGLPVLLAHPEVAAAALTSSPELAAGAVDEILRLQTPVHLLARAAPR
DTVLGGVSI PQGQNVLLLLIAAANRDP AHFPDPDRFDPRRSGPPSLAFGLG
LHYCLGA AVSRLEGR LALPRLLSRFPRLRILEQPVYSGSLFLRGIDKLSV
SPGGREHP

>CYP125A66 (2516876736) *Salinispora pacifica* DSM 45546

MTEPRIPVGFDFTDPAVLERRVPREEFAELRR TAPVWWNAQPKGSAGFDD
DGYWVVTRYADVM AVSRDSE TYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPP EHTKLRAIVSRGFTPRAINALRGSLGERAERIVRDAAGRGAGDFV
TDVACELPLQAI AELIGVPQHRRKVF DWSNQLIGYDDPAYGVDPLAASA
ELLYAMEMAHERQRNPSDDLVT KL VNAQIDGEHLTADEF GFFVMLLAVA
GNETTRNAITHGMLAFLENPEQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLAGQAI SAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REL PVQYH

>CYP1278A4 (2516876960) *Salinispora pacifica* DSM 45546

MPSPVGAVVHPNPYPYAAAMVAERPFFHFDEQLDTWVAASAAAAQAVLAAP
GCRVRPPHEPV PQGITGTGPAGDVFGNLVRMTDGE PQHRLKAIVTQTLGAI
DRSAVAATAMQRRARQVLNDSVRTPYEQLMFELPAQVVATLCGLDPAAGGE
ATRLVGHFVQCIPATASPEQQQRAA QAAAAGLQELLGPKLDDTQHGLLGEL
VRMATHVGWTDRA PLLANGIGFLSQTYDATAALMGNTLLALSQQECELPT
SEMALQRFVREVIRHDAPIQNTRRFTATPIRHGDVEVPAGQAVLVLLAAA
NRDPAANPDPHMF RADRTTPNVFTFSAGAHHC PGETLAVTIVTTVVEQLL
RVGFDP AKLSTRVTYRPSPNARIPVLTE

>CYP1005A1 (2540879996) *Salinispora tropica* CNY012

VSAVLFRSWTKTAGTHWPAITRVADQQGTEHLVVTQHALVRQVLT DQLT
RPNYALDAVTPI PVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQR PWTGLVAERVA AIRRTLDSGGSTDLHAELNADLPLLVLAR
LVELPDAPVSAVKQFARA ALELFWAPLDADRQLALADEVGRFHQVLRFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFL TLLHRLADEP
TVRAALRADSVSVADVVEGLRLEPPIVTWRRVA AVDSTLGGSTVAAGTS
VLLW LARAGRDP AVVPAPDEF RPPGQRGSRRLAFGAGAHRC LGDQLARME
AAVVVEQVTPLLDGVT VVRPPWYPDNLTFRMPDAFVVR

>CYP211B1 (2540880304) *Salinispora tropica* CNY012

MDASEAVALLMSPLGRIDPYPTYERLRAHG PVVQTAAGFFVVTGYTEADT
VLRNARLAFEVMDDEL RDDVFPHWQDSPAMKSIARSMIRANPPNHGRMR
LAAGFTPRRIAALREV VTAQADELADEMIRAGRDGAPVDFMG SFAYPLP
VAVICALLGVPAADWARFRGWASDLTAVLEPEITPQELTVADAGASELRD
YFTELIAQRRRAPADDLTALVQTHDADGDRLSGEELLANLVLLLVAGFE
TTTNLLGNGLV VLLAHPDSATALRGQPELAPGYVDELLRYDSPVQLTTRT
VRESVLLAGVELPAGSWVLVLLGAANRDPERFTDPTRFDPGRAQSPPLSF
GAGAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRNRLTLRGYET
LPVTVSAIAADHGTPAGVARGTP

>CYP163B1 (2540880733) *Salinispora tropica* CNY012

VTAADTGRVSGESQTPAHTVDLADPATFANHDLTGFWQQLRDEEPIHWN
PPTAGRRGFWVVSRYADILDVYRDDVFTTSEGRNVLVTLLAGGDAGAGRM
LAVTDGPRHAELRKLLLRALGPRVLAPVCAAVRTNTRQMIREAVTKGEC
FASDIASRIPMMTISNLLGVPDADRAFLLSLTKTALSADDESISETESAM
ARNEILLYFQDLMEFRRDHPGEDVVSMLVNSSIDGAPLSDDDIVLNCYSL
IIGGDETSRLTMIDSVNTLAAHPQQWRRLKDGQCEIDKAVDEVLRWASPS
MHFGRVAARDTILHGVIRADDIVTLWHASGNRDERVFHRPEVFDLGRTP
NRHLSFGHGPHYCIGSYLAKVEISELLIALRDLTSGFETTGEFQIRSNL
LTGFATMPVRFVPDRAGLARDALDG

>CYP107NH1 (2540881005) *Salinispora tropica* CNY012

MTEPVVSLMDPEFWNDPVSAYERLRGSGPLIRMGLPGVPPVWLVTSCHEV
KSALSDPRFVVDAAANVPGHHGPGIVDKMMAASGMPDEFRDYMTNMMFTDG
KDHSRLRLRVTPGFSARRIRAMRPRVNQIAEELVESLAEKSGGELIADFS
APLTTTVCICELIGVDRADQAQMGAWMHDTTGERVVSGRAMVNYTRDLIE
RRRAEPADDMISAMIRSGDEAGDRLSDAEIIAMALLLINAGHHSTAQFIP
NAVLVLLDHPEQLARLRAEPGQLPSAMDELMRLANPVPIATPRYATEDME
FAGVAVRRGEALTGSLEAANFDPERFPAPRQLDTRDLGRGDGHLISFGAG
PHYCPGAALARLEGEIALDHLLLRDNLRLAVERDEVYVDVSLGLRMLS
SLPVRL

>CYP247A8 (2540881011) *Salinispora tropica* CNY012

VRLNPEAGRPVALGSIDLFPDLLASGDPHSVWDVMRSEAPLHRQVLPDG
RVFWSVTRYEDVCRVLGDHRAFTSERGTVFTQLGADDIAAGKLLTSTDPP
RHTEVRRRAIGGRLTARAVAHWEDLVRRAVVRFLPALDGGCWDLAERAQH
LPLIIAGSLLGIPDSWEKLVQLTGMVTAPSDPMFGLDSEAATLAIHHE
IFDYLSDLVRRRRSVGTGGDSLDDHLMTVRAGAGPLPDEEVVYDSYSLIL
GANATTPHTLSGIVLTLAERPEQCDKVRADASLIPSMVEEGLRWTSACN
FMRYATVDTRLTGGTVPAGEAVVAWIASANRDESQFADPHTFDVTRGENR
HVAFGFGPHYCIGAPLARMTARIFFEELFRLFWSIEIDGEPQHLSNFIA
GMTHLPVVTRKRAQV

>CYP107Z27 (2540881021) *Salinispora tropica* CNY012

MSCTHPCHSLMDPTLIDDPAGGFSRIRDESPLAHAMVPGVDGPVWLVRH
ESVRKVLGDRRFVNDPTNVPGSSTPDLWAHAALAQGVPHYELEHVRSMQL
LDGEVHARLRLRLVSRAFTMRRTALRPRMMQLTEELLDLLPAKAEDGVVD
LVEHFNYVQPISVICALVGVPAAADRAAWIRWSRALTSMESGTIGDAVTGM
VDNIRALIEQRRAEAADDLLTDLVRVRDADGDRLSEREMITMVITLVTAG
HDSTGLLLSNGLAALLTHPDQLAKLGADPSLGPQAFDELMRWCSAIVAAR
PRYATEDVELEDGLVRRGDVVIPVLVSANYDPEVFEDPHRLDISRVHEQR
RFHHVGFGDGLHYCLGAALAKHEAAIAITALLERYPGLELAVPAQRLRRA
RLPLTWRLDSLPLVRLGIGG

>CYP211C1 (2540881040) *Salinispora tropica* CNY012

VLDVEGLLTRLYSEQGRQDPYPVYADLHAQGAIAALAPRPEGQRVAAVAV
GYDLVGAVLRDPEWSKQPPPGWMEQEILRTLQSSMMFINPPDHGRMRKVF
AGTFTPRRLGTLEPVINRVADELDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPATELAWYRDRVDRIDAFLDVAGKTPERLAAANAAAAELRVFYA
DLLARRRRTPGEDLISGLVEAVDAGGVQLTEDELINNLIVLFNASFVTTV

YMLSNGLPVLLLEHPEVAAALADDPPELTAGAIDEILRLQTPVHLLARAAPR
DTVLGGVPI PQGQNVLLLLIAAANRDPAHFPDPDRFDPRRPGPPSLAFGLG
LHYCLGAAVSRLEGRLLALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGGRMHP

>CYP125A15 (2540881173) *Salinispora tropica* CNY012

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRTAPVWWNVQPRGSGGFDD
DGYWVVTRYADVMAVSRDSSTYSTRENTAIARFQPGTTRADLEMQRVIML
NVDPPPEHTKLRAIVSRGFTPRINALRGSLAERAERIVRDAAVRGTGDFV
ADVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGVDPLTAAA
ELLAYAMEMANERQLNPSDDLVTCLVNAQIDGHLTTDEF GFFVMLLAVA
GNETTRNAITHGMLAFLEHPEQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLGGQAI SAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFHSIADHMPDIRKVAEPRRLRSGWINGI
REMPVRYR

>CYP208A22 (2540881272) *Salinispora tropica* CNY012

MTVIADRGGRI PPGPPVTASLRLLLLALGRDRLGMMTSAAA EYGDVARLPV
GPKKLYFFNHPDHAKHVLADNHANYQKGIGLVHARRALGDGLLTSEGEW
RKQRRVIQPAFQNRRLAQYAGAVGQEATRLVARLATRVDGPPVDVLDEMT
RLTLGVLGRTL LLD AELTGFGVGESFAAVQDQAMFELET LNTVPTWIPLR
RQRRFRRARQHLQEVVDVLA AERGQAVEGRDDVLSRLILSTRAEADPQLG
RERLRDELVTLLLAGHETTASTLGWSLHLLDQHPELRERVRHEARTVLGD
RVPAYEDLHQLRYTAMVVEEAIRLYPPVWILTRKARAEDEIGGYRVPAGA
DILICPYTLHRHPRFWTEPERFDPERFDP SHTTDRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLA VLLRDLRLEGLPGRAVVPEPMLSRLVRGGLPMTVR
RVD

>CYP107AW1 (2540881835) *Salinispora tropica* CNY012

MESVTSTSAPPPVPYIADPYPALARIRANGPVSILHSDEGIPMWVIARYR
NVRAALADPRFGQDARRAQTLADNRVAGVTLGGDVIHMLNSDPPDHTRLR
HLVQGAFTARRVAAMRPLVERITTSLLDGVGGRQTVDLVQDFAFPPLMLV
ICELLGFPAEERDAYRSWSTAILTHNDDPAAFATALRDMTDYIEVQLRHR
RARPGE DLLTELLAARDAGQLTDDEIVGMVFLLLIGGHETT VNL LGTATL
ALVRNPDQHRWLLANPHALSEAIDEFLRYESP VAMATLRFTTAPVTVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLAFGHGLHRC LGA
FLGKLEGEVALGALLGRYPGLTLAAEVRQLRWRDTIMLRGLES L PVS LHG

>CYP107AY1 (2540882122) *Salinispora tropica* CNY012

MRAELAPIPRSGARLGQEYDQLRNAGDVHQVLLPDSSLAWLVTNPKLVSR
ALTDPRALNRRHSRGSWGFALPPALDANLLNLDAPDHTRLRLRVGPAF
SPQRVSALRPRI RRTAEHLLDTLVATSGPVDLVTGYCTPLSVQVIADLMG
VPEAGRADLRWTDTMLTSYPPDRDAIRQAVVELHG YVVDLIDTKRQQPG
DDL LSALVTIEQDGDRLTRDELTS LAFLILFAGYENTANLIAS TVLRLLD
HGGLRGVQLPEAIEETLRLEPPAPA A VRRFPTEEMTIGGATIPAGDIVLL
SIAAATRGTAGNAARLAFGNPHFCLGAALARVEAEEALTVLARRLPD LA
LALPVAQVRWRPTFRTHGPAELLVTW

>CYP105AB2 (2540882434) *Salinispora tropica* CNY012

MTETASIAATRTASGQLTDAEFFVQRCFPFTAPTEYEQIREESSIAKVRL
KNGGEAWWIAGHELGRSVLADRRFSSDRRDNF PFVSTDPETRAQLQSQP
TSM LGMDGA EHAQTRRALMGFTVRRMAGLRPRIQQIVDQHIDEMLATPQ
RSLDLVEALS L PVP SLVICELLGV PYADHDFQGLTG PLLRHTTPPEVRL

RIQEELNTYLGTILDRKLTDPDLDLLSRQIAKHRDNGTFDRASMVSLAFL
LLVAGHETTANMISLGVVGLLQHPDQLAIKDDDPDKTPLAVEELLRYFTI
ADSVTARVATEDVQLGSTTINAGDGVVISGLAADRDPTVFAEPDRDLER
GARHHVAFGFGPHQCIGQTLARMELRIVFDTLHFHRIPTLRLAAPLDDIPF
KSDAFVYGIEELPVAW

>CYP107AX1 (2540882940) *Salinispora tropica* CNY012

MTSRPTAVFDQCLLRDPHSRYNALRDQAPVHHVLTDPGAPAWLVTRYNDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPELDAHLLNRDPPDHTRLRRLAA
AACTPRRVADLHPAVERIVSTLLDGLAGHDRAELIGSLASPLPLQVMHEL
LGLPTQANIDSRTWTNTLLSADANQPAQSRAAMANMRRFLIEQLAHKRAQ
PGDDLLTGLLAAREDDRLTDDELVAMVFLLMFAGYDNTAALIGTVTHAL
LTNAELHEAVRGGSLALDELIDEVLRWNPAFPLAVRRFAREPITIAGQTI
PAGDRIWLCLASANRDPAQFTQPDELGIIGLRRSHLSFGHGIHYCLGAPL
ARLQTTIAVTSLNRFPEMRLAVPAHDIRWRESFRLRGLIALPVYL

>CYP1004B1 (2540883477) *Salinispora tropica* CNY012

MTTSALAPRFDALDPNVVEDPYPEYARLRAAGPLCRLGPGSWGVTREFADV
TNLQHDPRLGSEFPAGYHEISVGDPASAFFQRMVLYRDPPDHIRLRLRM
SGAFTPAVVRRLRSHIEDLVDELLAPALAAGRMDLVPELAYPLPVRVVC
LMGIPPESTEDVRHHATNIGRAFTAVVPEQARTEADEAVSWLREHLGALL
EQRRSHRGDDLLSRLDAEESGDNLSADEIVDNTVFSFFAGFETTVHMIT
TGTAALLAHDPQLARLRADPSLVTTAVDEFWRWDAPIQGTARYVREPIEI
GGRTIRRGVVLVLMIGSANHDERRFAQPDRLDVGRQDNPHVAFGGGAHLC
LGAFLARMEGAVVFDRLARLAVLEPDGPTVREPNTFFRAYASVPVRIGDR

>CYP1004A1 (2540883481) *Salinispora tropica* CNY012

MRANTARPHLSAAFLATKDDPYPAYAELRARGPLTRAELGQWLVTGHGAV
SALLRDGRLESRMPEYTRLTLGDSPGVDFLHRIVLTRTPPEHTRLRRI
GRALGTPVVRRLHDRIAAATDALLEPALDRGRLDVVTELAVALPVGVVCD
LIGIPTGDRPAVLTRVTALAKVFDAANLSPADLADINTALPWLHDYFGDL
LAVRRAGSGGPTLTEMWEEASDRLAVADFVDNMLFLFHAGFETTMGLV
SNGVAALLNNPEQLGRRLRADPALVPSAVEEFLRYDAPIQNVIRVARKPVE
VAGQKIRAGRTVLLLLGAANRDEEVFADAERLDVGRDPNPHLGFGGGLHH
CVGTALARLMAVVVFERLVDRVTVLGPAAPAVRRRHASLSYDHLPLAVA
AR

>CYP125G1 (2540883520) *Salinispora tropica* CNY012

MSTEVVSTGNRADIAPATYAAGVPYAEFARLRRDKPVSWVPEAALWRRS
GEGRILSQPGFWAVTTHEGVVAASRQPEVFSSGRQGAFLADPRTTADLE
QARQLLVNMDAPQHARVRKLVTAFTTPRAIRALGDSVTAHARNLVERAVR
QEECDVVADLAAELPLLVLADLLGLPREDRHLLYQWSNNLVGFDDPEYGG
GDVEAYRKTFEAFQYALSVAGERRRAPREDLMTLLATSEVDGRRLTDRE
FCNFWLLLVLVAGNETTRHLITGSVLALVDNPMQRERLVADDTLPLSAVDE
LLRWVSPIMQFRRTAIVDTELCGTPIAAGDKVVLWYTSANRDAAVFEAPD
ELRLHRNPNNHLSFGMGPHFCLGAHLARLEARTMLRELAPHLSRFRLTGP
VIRLESNFVNGVKSLLPGSFTGQ

>CYP124M3 (2540884167) *Salinispora tropica* CNY012

MTVPVELDAVDLSDNDFWTKPLEYRHAVFNALRAQPGLPHFASPEFGSAP
RGRGYYALTRMDDVLAVSRNPSTFISGKGNVAMEVPAEFLDQSLITMDNP
RHARLRRIVSRGFTTKAVTALMDNASQMAKQIVDEVVEQGECDVVDISA
KLPLGIIICNMMGIPDSQQQFVFEQTNVMLGVQDPEYVGEQNDAMLAMSV
SQELADLMHELATLRAKNPTDDLISKLLSAEVNGEALTPSELAHFFILLT
GAGTETTRNAISWGIQLLTQSPEQREAWLSIDIGVTPTAVEEIVRWSSPV
ISQRRRTVAEDAEPVKLAGQLLGPDKVLMFYGAANRDPNYFAHPEGFDVR
RSPNPHVGYGGPGPHFCLGAHLARLEISVMFRELLTRIPDIHATGEPARL
KSPLINGIKRLPVAFTPGAR

>CYP107E3 (2540884601) *Salinispora tropica* CNY012

VTIDQEIRKYPFCESPGIGIDPTYGLLRSTEPLARVQLPYGEVSWLATRY
EDVKTVLTDPRFSRAAAQKQDQPTREEMTYEGIIIGLDPPDHTRLRKL
KALTARRVNAIRADAQRIANEYVDGMIAGKSPGDLVELFALPYPVTVICE
LLGVPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFGYMGKLVQRREEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTGNETVSTHINPFIYALLT
HPELMAQLRADRSVPAAVEELLRMIPLNPAAMFPRYAVEDVTLSGITVR
AGEPVLVSLPGANRDPEVFENPETFDFTREQNPVAFGHGPHHCLGAQLA
RMELQVALHTVLDRFPDLSLADGDEGVSWKSGLLVGRPSRLLVAW

>CYP105BL2 (2519878343) *Salinispora arenicola* CNY234

MSSHSAAAPDPETATPLHTLAPELTFPQFERSTPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLDPRFSSDMSHPGFNRTGKPVDDLL
KDTLGAMDGERHRYRRLTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPSPRVACHLVGIPLSYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHRDDLLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIIGLVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPAVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP1051A1 (2519878753) *Salinispora arenicola* CNY234

MATDAAITRARTVPAWKALPAAVRDTHRALVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAAW
SRRVLAPMFRPARINAMVDTMADAIAAGVDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDILLPVLRLQAQRQPDGDDLLSRLVRARADGRALSEK
RMRDDLVSMAVTTETSTVVLTLWLWPLLANHPDVANRLYDEIDRVVGGGP
VRGDHLAELTYTRMVLDELLRLYPAGWILPRAATTDVLGGVRINKGATV
ILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMHR
CLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMIL
KPVAPVPAR

>CYP1005A1 (2519879007) *Salinispora arenicola* CNY234

VSAVLFRSWTKTAGTRWPDVTRVADQNGTEHLVVTRHALVRQVLTDAQTY
RPDNAMEAVTPIPVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLDSSGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVVKQFARAALFLWAPLDADRQLALADEVGRFHQVLRFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSSSVADVVEEGLRLEPPIVTVRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFPRPGQRGSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP125A41 (2519879332) *Salinispora arenicola* CNY234

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMVTSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGVDFV
SDVACELPLQAI AELIGVFPQHRRKVFDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQRSPSDDLVTCLVNAQIDGEHLTTDEF GFFVMLLAVA
GNETTRNAITHGMAAFLDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTVLGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHL PDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211C1 (2519879482) *Salinispora arenicola* CNY234

VVDVEELLTRLISAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLARRRRTPEGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAAALATDPVLTAGAVDEILRLQAPVHLLARAA PR
DTV LGGVPI PQGQNVLLLVA AANRDP AHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGAAVSRL EGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP166A4 (2519880226) *Salinispora arenicola* CNY234

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHVGVATEQIEVMRGGH GAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGGGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGI HQCLGQN
LARVELRAGLSALLRAFPNLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP105W2 (2519880559) *Salinispora arenicola* CNY234

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPPSPPAEYARLRAEH
PVVRLPMLGGDTAWVVS RHADVRQVLS DPRMSADRRRPGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEF SVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGV PYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLD MVVTDKEHRPGDDVLSRLLYRQRRAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALS V LALLTHPARLARLRAE PERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGV TIAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAH LAFGYGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2519880567) *Salinispora arenicola* CNY234

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVS RFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL

LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHGSQMSRNEIVSTVVTFIFTGHETVASQLGNGL
LSLLDHPEQLELMRRQPHLVPQAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLACNPNELAYQPRTMFRGLTRLFVAFTPA
G

>CYP107FS2 (2519880627) *Salinispora arenicola* CNY234

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVPPFADRSEFERHAEVLTGINASSGFDIAAAGRWFDEYLAELVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETTVNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSLWVKASFVLHRLERLPV
TFTPDRAPNPIDSVHTV

>CYP105CN1 (2519880628) *Salinispora arenicola* CNY234

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVTGAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRLQLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVPPYQDRTRFEPVAVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVPGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTHPDRLDVALP
PTNHIAFSHGIIHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPTW

>CYP105CP2 (2519880630) *Salinispora arenicola* CNY234

MTKSMPVQDLPAFPIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHARAVLSDYRRVSIKPYHGNYPILLNEEFKVVDSGYADVLFGVDPP
EHTRQRMIMPSFTLRRTAVLRPDIQRIVDDKLDEMRRHGAPGDLVTEFA
QPVPMSMVSFLLGVFWEDHEEFETPAHKLFVPELAEETTELGAYLERLI
QKKEQPGGTPGGTGLLDDLIRDHLRAGALSRLDELVHIAMAMLVAGTDTT
NVISLGTALLDNDPDQWAALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPFRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRTAKPIDQIPSNNDGTQLRL
YELPVVW

>CYP245A7 (2519881022) *Salinispora arenicola* CNY234

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRLSLNRSFSPRIVTELPRPRIARIAQELLSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYAQAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGAEGLTTDAVEEFLRYDPPVQ
AVTRWAHQDITLGGCDIPRGSRVVALLGSANRDPARFSPDVLVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPRTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP244A4 (2519881026) *Salinispora arenicola* CNY234

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAARVAPVVRIPYLGRIHAW
VVCDELVKQALHTPKMGKDIALVPEWMRQPGMLVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGFLELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEAIRRPPHERPKTDEDITAWIEETLRVHPPFPHPPTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEGADSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP211B2 (2519881387) *Salinispora arenicola* CNY234

MDVSEAI AVLISPSGRLDPYPTYEQLRAHG PVSRTTAGL FVV TG YAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPA IKS IARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREV VTAQADEL VDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTRTRTVR
ESVSFAGTELPTGSWLLVLLGAANRDPRRFDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGTAGVAPGTP

>CYP208A12 (2519881655) *Salinispora arenicola* CNY234

MTLDTITPRVPLGPRTAALRMLLV MKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGDLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAELTG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTL SLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP105AB8 (2519881842) *Salinispora arenicola* CNY234

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHRADLVKA
LSLPVPSLVICELLGVPPYADHDFEQEHTATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDDDLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRLGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP154M5 (2519882084) *Salinispora arenicola* CNY234

VEQSCPYKLDVTGRDVHAEGEAIRARGPVAQVELPGGVQGWSVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPPWNWPLIGWLLMDNMTTNDGADHQRLR
KLVSHGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNVTS S ISGEEAEANVEQWHRELLELV
EAKREKPEDMASLLIAAKEEDGSTLTQEEVVGTLHLMLGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDP AVHGETAGDYDITREDKTHLSFGHGV

HFCLGAPLARLELKIALPALFERFPNMTLAVRPDQLEPQGTFIMNGHREL
PVRLGQPATVLA

>CYP105CT1 (2519882101) *Salinispora arenicola* CNY234

MNSPNHMPADRSLTAPASGCPMALSRGRVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTDSHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGV LHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLITDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRRFPGLRLAV
PDSELEFTQGT TVYSLRGLPVTW

>CYP105CH1 (2519882684) *Salinispora arenicola* CNY234

VSSLPLPTYPKLRDPADPLLPAPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSDRRHPNFYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRRLLI SEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRDPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVLNTIARDGTVFPEPHRLDIRRNARNHLAFSHGI
HOCMGONLARVEMQIALD TVLRRLPGLHLVAPFEELPFKYRHLVWGIEEL
RVAW

>CYP105G5 (2519882869) *Salinispora arenicola* CNY234

LTIIETTETPPADDSLAPLPRQFMQRDDPSKLPPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRRAAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDELVGIA
TLLL FAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHI PAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQ LARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTF

>CYP107Q4 (2519882870) *Salinispora arenicola* CNY234

MTTTAETS AETIDLFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRFLTNPADSPLEDIRAGVFKRDLFPDLPW
MANLLNVSDGEDHTRLRKLVS YALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPRPHWRAGDSMATMNGER
IPTTLVKCIELARELIAKRAEPQDDLVTALVQAQAEQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI
DRLAVGSEHGLGFGKGIHRCLGQHLAYQEA E VALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105J3 (2519883139) *Salinispora arenicola* CNY234

MTDSVAFFPQGRVCPHQPA PGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRNTNPAWPAIVPIVAAA V NDAQQKVLKIATALVGTGPE
HKAQRKMLIPSF TFRMRNALRPMIQEIVDQQ LDEMIKSGAPTDLIPAFAS

AVPVTVLRYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGLVDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHSAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP107EU1 (2519883173) *Salinispora arenicola* CNY234

VTIGQTLPLDVYSPEFTRDPYAIFARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTTNMVNSDPP
DHTRLRLHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPADDLLTALVQVSADEDRLSREELVSMALLLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRDLITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQMQLAVEADDLEWLVNSFFRAPL
HLPVSLRR

>CYP1198B1 (2519883319) *Salinispora arenicola* CNY234

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQKRLVSKSFTPRIVKSFGPQIAHIVDGLFEDFRDRGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVMAAHAYFADLIHRRRNKPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGIITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDPRAYESPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKHPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP163B1 (2540885395) *Salinispora tropica* CNT250

VTAADTGRVSGESQTPAHTVDLADPATFANHDLTGFWQQLRDEEPIHWN
PPTAGRRGFVVVSRYTDILDVYRDDVTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHAELRKLLLRALGPRVLAPVCAAVRTNTRQMIREAVTKGEC
FASDIASRIPMMTISNLLGVDPADRAFLLSLTKTALSADDESISETESAM
ARNEILLYFQDLMEFRRDHPGEDVVSMLVNSSIDGAPLSDDDIDLNCYSL
IIGGDETSRLTMIDSVNTLAAHPQQWRRLKDGQCEIDKAVDEVLRWASPS
MHFGRVAARDTILHGVRIRADDIVTLWHASGNRDERVFHRPEVFDLGRTP
NRHLSFGHGPHYICISYLAKVEISELLIALRDLTSGFETTGEFQIRSNL
LTGFATMPVRFPVDRAGLARDALDG

>CYP154M1 (2540885756) *Salinispora tropica* CNT250

MRRRCPVVIDPAGTDIHAEGARIRANGSVSQVELPGGVLAWSVTGQQVAR
KVLSDQRFSKDPKHWTDYLEGRIGQDFPLIGWVMDNLTAYGSDHSRL
RKPCANAFTPRRVEALRPAVERAAVELLGELATVSPTESVDLKARYAHL
PSRVICDLFGVPEEDREEMLRGGEVNVDTRVSAEEAAAANVERWHQQMLDF
IEEKRRNPGPDLTSDLIAAQQAEGSRLTDSEMVGTLHIMLATGTEPVKNL
IGNAVFALLTHPEQLDLVRSGRAGWDDVIQETLRMQAPVAHLPPFRFAVED
VDIDGVTIRRGDPLLVNFAAIGRDPDVHGDAAEFDI TRADKEHLSFGHG
VYRCIGQPLALREAEIALRMLFQRFPNLVLAVPPEEVPQPTFIMNGLDT
LPVLLKGRA

>CYP208A4 (2540885785) *Salinispora tropica* CNT250

VTVAAAGRTFSGPTGAALLRSLWQLGQDRLGLMTSAARYGDAVRLGVGSR
SLYFFNHPDHAKHVLADNSGNYTKGLGLVHARRALGDGLLTSEGELWREQ
RRVIQPVFQAKRVAGQAHAVAAEEADRLIARLRARRGRGPVNLTDFTALT
LGVLRGRTLLDANLDAFTTVGAAFEEMQNQAMFEMASMSMVMWVPLPQQL
RFRRARRELERIVGRLVADRTARGEETGADDALSRLIASTRDEPDGVAR
RRMRDELVTLLLAGHETTASTLGWTFHLINQDPRVRVRLREEAIDVLGGR
LPEYADLARLTYTKMVVSEAMRLYPPVWMLSRLARDADVVDGYVPV
PARADVLICPYTLHRHPAFWPEPERFDPERFDPEVTTDRPRYAYV
PFGAGPRFCVGNHLGLMEAVFVAMVSREFDLVAPVGPVVAEPMLSLRVRGGLSMTVEP
VS

>CYP125A15 (2540885864) *Salinispora tropica* CNT250

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMAVSRSDDTYSTRENTAIARFQPGTTRADLEMQRVIML
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
ADVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGVDPLTAAA
ELLAYAMEMANERQLNPSDDLVTKL VNAQIDGHELT TDEF GFFVMLLAVA
GNETTRNAITHGMLAFLEHPEQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLGGQAI SAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFHSIADHMPDIRKVAEPRRLRSGWINGI
REMPVRYR

>CYP211C1 (2540885997) *Salinispora tropica* CNT250

VLDVEGLLTRLYSEQGRQDPYPVYAGLHAQGAIAALAPRPEGQRVA AVAV
GYDLVGAVLRDPEWSKQPPPGWMEQEILRTLQSSMMFINPPDHGRMRKVF
AGTFTPRRLGTLEPVINRVADELDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPATELAWYRDRVDRIDAFLDVAGKTPERLAAAANAAAAELRVFYA
DLLARRRRTPGEDLISGLVEAVDAGGVQLTEDELINNLIVLFNASFVTTV
YMLSNGLPVLLHEHPEVAAAALADDPELTAGAIDEILRLQTPVHLLARAAPR
DTVLGGVPI PQGQNVLLLLIAAANRDP AHFPDPDRFDPRRPGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGGRMHP

>CYP107AY1 (2540886619) *Salinispora tropica* CNT250

MRAELAPIPRSGARLGQEYDQLRNAGDVHQVLLPDSSLAWLVTNPKLVSR
ALTDPRALNRRHSRGSWSGFALPPALDANLLNLDAPDHTRLRRLVGP
PAFSPQRVSALRPRI RRTAEHL LDTLVATSGPVDLVTGYCTPLSVQVIADLMG
VPEAGRADLR TWTDTMLTSYPPDRDAIRQAVVELHGYVVDLIDTKRQQPG
DDL LSALVTIEQDGDRLTRDELTS LAFLILFAGYENTANLIAS TVLRLLD
HGGLRGVQLPEAIEETLRLEPPAPAAVRRFPTEEMTIGGATIPAGDIVLL
SIAAATRGTAGNAARLAFGNPHFCLGAALARVEAEEALTVLARRLPD
LA LALPVAQVRWRPTFRTHGPAELLVTW

>CYP107AW1 (2540886648) *Salinispora tropica* CNT250

MESVTSTSA PPPVPYIADPYPALARIRANGPVSI LHSDEGIPMWVIARYR
NVRAALADPRFGQDARRAQT LADNRVAGVT LGGDVIHMLNSDPPDHTRLR
HLVQGAFTARRVAAMRPLVERITTSLLDGVGGRQTVDLVQDFAFPLPMLV
ICELLGFPAEERDAYRSWSTAILTHNDDPAAAFATALRDMTDYIEVQLRHR
RARPGEDLLTELLAARDAGQLT DDEIVGMVFLLLIGGHETT VNLGATL
ALVRNPDQHRWLLANPHALSEAIDEFLRYESPVAMATLRFTTAPVTVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILD RRDTGH LAFGHGLHRCLGA
FLGKLEGEVALRALLGRYPGLTLAAEV RQLRWRDTIMLRGLES LPVSLHG

>CYP211B1 (2540887114) *Salinispora tropica* CNT250

MDASEAVALLMSPLGRIDPYPTYERLRAHGPPVQTAAGFFVVTGYTEADT
VLRNARLAFEVMDDELRDDVFPHWQDSPAMKSIARSMIRANPPNHGRMRR
LAAGAFTPRRIAALREVVTQADELADEMIRAGRDGAPVDFMGSFAYPLP
VAVICALLGVPAADWARFRGWASDLTAVLEPEITPQELTVADAGASELRD
YFTELIAQRRRAPADDLTALVQTHDADGDRLSGEELLANLVLLLVAGFE
TTTNLLGNGLVVLLAHPDSATALRGQPELAPGYVDELLRYDSPVQLTTRT
VRESVLLAGVELPAGSWVLVLLGAANRDPERFTDPTRFDPGRAQSPPLSF
GAGAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRNRLTLRGYET
LPVTVSAIAADHGTPAGVARGTP

>CYP1005A1 (2540887485) *Salinispora tropica* CNT250

VSAVLFRSWTKTAGTHWPAITRVADQQGTEHLVVVQHALVRQVLTQDQTY
RPDNALDAVTPIPVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTGLVAERVAAIRRTLDSSGGSTDLHAELNADLPLLVLAR
LVELPDAPVSAVKQFARAALFVWAPLDADRQLALADEVGRFHQVLRFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLADEP
TVRAALRADSVSVADVVEEGLRLEPPIVTVRRVAAVDSTLGGSTVAAGTS
VLLWLARAGRDPAVVPAPDEFPRPGQGRSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQVTPLLDGVTVVRPPWYPDNLTFRMPDAFVVR

>CYP107AX1 (2540888392) *Salinispora tropica* CNT250

MTSRPTAVFDQCLLRDPHSRYNALRDQAPVHHVLTDPDGAPAWLVTRYNDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPPELDAHLLNRDPPDHTRLRRLAA
AACTPRRVADLHPAVERIVSTLLDGLAGHDRAELIGSLASPLPLQVMHEL
LGLPTQANIDFRTWTNTLLSADANQPAQSRAAMANMRRFLIEQLAHKRAQ
PGDDLTLGLLAAREDDDLRLTDELVAMVFLLMFAGYDNTAALIGTVTHAL
LTNAELHEAVRGGSLALDELIDEVLRWNPAFFLAVRRFAREPITIAGQTI
PAGDRIWLCLASANRDPAQFTQPDDELGIIGLRRSHLSFGHGIHYCLGAPL
ARLQTTIAVTSLNRFPEMRLAVPAHDIRWRESFRLRGLIALPVYL

>CYP1004B1 (2540888686) *Salinispora tropica* CNT250

MTTSALAPRFDALDPNVVEDPYPEYARLRAAGPLCRLGPGSWGVTREFADV
TNLQHDPRLGSEFPAGYHEISVGDPASAFFQVRMLYRDPPDHIRLRLRM
SGAFTPAVVRRLRSHIEDLVDELLAPALAAGRMDLVPDELAYPLPVRVVC
LMGIPPESTEDVRHHATNIGRAFTAVVPEQARTEADEAVSWLREHLGALL
EQRRSHRGDDLRLSRLDAEESGDNLSADEIVDNTVFSFFAGFETTVHMIT
TGTAALLAHPDQLARLRADPSLVTTAVDEFWRWDAPIQGTARYVREPIEI
GGRTIRRGRVLVLMIGSANHDERRFAQPDRLDVGRQDNPHVAFGGGAHLC
LGAFLARMEGAVVFDRLARLAVLEPDGPTVREPNTPFRAVASVPVRIGDR

>CYP1004A1 (2540888690) *Salinispora tropica* CNT250

MRANTARPHLSAAFLATKDDPYPAYAELRARGPLTRAELGQWLVTGHGAV
SALLRDGRLESRMPAEYTRLTLGDSPGVDFLHRIVLTRTPPEHTRLRRI
GRALGTPVVRRLHDRIAAATDALLEPALDRGRLDVVTTELAVPLPVGVVCD
LIGIPTGDRPAVLTRVTALAKVFDAANLSPADLADINTALPWLHDYFGDL
LAVRRAGSGGPTLTEMWEEASDRLAVADFVDNMLFLFHAGFETTMGLV
SNGVAALLNNPEQLGRRLRADPALVPSAVEEFLRYDAPIQNVIRVARKPVE
VAGQKIRAGRTVLLLLGAANRDEEVFADAERLDVGRDPNPHLGFGGGLHH
CVGTALARLMVVVFERLVDRVTVLGPAAPAVRRRHASLSYDHLPLAVA

AR

>CYP125G1 (2540888729) *Salinispora tropica* CNT250

MSTEVVSTGNRADIAPATYAAGVPYAEFARLRRDKPVSWVPEAALWRRS
GEGRILSQGPGFWAVTTHEGVVAASRQPEVFSSGRQGAFLADPRTTADLE
QARQLLVNMDAPQHARVRKLVTAFTFPRAIRALGDSVTAHARNLVERAVR
QEECDVVADLAAELPLLVLADLLGLPREDRHLLYQWSNNLVGFDDPEYGG
GDVEAYRKTFEAFQYALSVAGERRRAPREDLMTLLATSEVDGRRLTDRE
FCNFWLLL VVAGNETTRHLITGSVLALVDNPMQRERLVADDTLLPSAVDE
LLRWVSPIMQFRRTAIVDTCLCGTPIAAGDKVVLWYTSANRDAAVFEAPD
ELRLHRNPNPHLSFGMGPHFCLGAHLARLEARTMLRELAPHLSRFRLTGP
VVRLESNFVNGVKSLPGSFTGQ

>CYP113E1 (2540889078) *Salinispora tropica* CNT250

MMATVPRLTFADGGVSVLPWFRQMRDDQPVWYDQGTGSWNVFRYADIAQI
LTDPATFSSDPGRMTPELVEEAEGSLVAVDPPRHGRRLRALISTAFTPRL
VEQLAPRVRSIAERLLDRTFVDRGPEGEFDAIGDVA YLLPVYVIGELLGL
PETDREYLVRTADEFYAISADDPFDGTYMASMQSTLDGLGTYMLDQAERR
RARPGDDLMSALAHAEIDGEQLNDREIRNFVAVLLLTAGHITTTALLGNTL
LALGERRDVMLRWRHGQVDTADVLEEVLRHRTPFTEVYRFTTTEVTIGNQ
VVPGDQLLRLWIASGNRDERQFADPDFTFVLGRDSRHLGFGGLGIHYCLGAS
LARMESVVLVLAERTTTLAPAVQRLSYDAPGIFCLRSLPVS YRRS

>CYP105AB2 (2540889202) *Salinispora tropica* CNT250

MTETASIAATTRTASQGLTDAEFFPVQRGCPFTTPTTEYEQIREESSIAKVRL
KNGGEAWWIAGHELGRSVLADRRFSSDRRRDNFPFVSTDPETRAQLQSQP
TSM LGMDGAEHAQTRRALMGFTVRRMAGLRPRIQQIVDQHIDEMLTTPQ
RSVDLVEALS LVPVSLVICELLGVADHDFQGLTGPLL RHTTPPEVRL
RIQEELNTYLGLTIDHKLTDPTDDLLSRQIAKHRDNGTFDRASMVSLAFL
LLVAGHETTANMISLGVVGLLQHPDQLV I IKDDPDKTPLAVEELLRYFTI
ADSVTARVATEDVQLGDTTINAGDGVVISGLAADRDPTVFAEPDRDLER
GARHHVAFGFGPHQCIGQTLARMELRIVFDTL FHR IPTLR LAAPLDDIPF
KSDAFVYGIEELPVAW

>CYP107E3 (2540889756) *Salinispora tropica* CNT250

VTIDQEIRKYPFCESPGIGIDPTYGLLRSTEPLARVQLPYGEVSWLATRY
EDVKTVLTDPRFSRAAAQGDQPR TREEMTYEGII GLDPPDHTRLRKLKAG
KALTARRVN AIRADAQRIANEYVDEMI AKGSPGDLVELFALPYPVTVICE
LLGVPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFGYMGKLV AQRRREPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTG VETVSTH I PNFVYALLT
HPELMAQLRADRS LVPAAVEELLRMIPLNPAAMFP RYAVEDVTLSGITVR
AGEPVLVSLPGANRDPEVFENPETFDFTREQNPHVAFGHGPHHCLGAQLA
RMELQVALHTVLD RFPDLSLADGDEGVSWKSGLLVRGPSRLLVAW

>CYP211B11 (2571081250) *Salinispora pacifica* CNR510

MDASEAVALLMSPPGR LDPYPTYERLRAHGPPVSTAAGFFVVTGYTEADT
VLRNPRFEVMDDEERDGVFPHWQDSPAMISISRSMIRANPPDH SRMRRLA
AGVFTPRRVAALREVVAQAADGLVDEMIRAGRGGAAVDFMGSFAYPLPVT
VICALLGVPTADWARFRHWASDLTG VLEPEITPQELAIADAGASELRDYF
TELIAQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVLLTHPDSATALRGQPELAPGYVEEFLRYDSPVQLTSRTVR
ESVSLAGVELPAGSWLLVLLGAANRDPARFTD PARFDPRAQSPPLSFGA

GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRHRLTLRGYETLP
VTVGAVPADPGTPAGVALGTP

>CYP125A65 (2571081662) *Salinispora pacifica* CNR510

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMAVSRDSEYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
TDVACELPLQAIAELIGVPQHHRKVFWDWSNQLIGYDDPAYGVDPMAAAA
ELLAYAMEMANERQNRPSDDLVTKLVNAQIDGHELTDEFGFFVMLLAVA
GNETTRNAITHGMLAFLEHPDQWELFKAERPRSAVEEIIRWATPVNVFQR
TALVDTTLGGQAITAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REMPVRYR

>CYP107AW7 (2571081928) *Salinispora pacifica* CNR510

VETVTGTSTPPPVPIADPYPTLARIRANGPVSIHLSDEGIPMWVIARYR
DVRAALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHHVQGAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAAAFATALREMTDYIAVQLRIR
QTRPGDDILTELLAARDAGQLTDEEIIIGMVFLLLIGGHETTIVNLLGTATL
ALMRNPDQHRWLLANQHALPEAIDEFLRYESPVAMATLRFTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLLAFGHGLHRCCLGA
FLGKLEGEVALGALLRRHPRLLALAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP107AX4 (2571081943) *Salinispora pacifica* CNR510

MTSQPAPVFDQLLLRDPHRRYNALRDEAPVHHIRTPDGAPAWLVTRYDDV
RAAFIDPRLSVDKRLSSTDGEHGSSLPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVERIVSTLLDGLVGHDQAELIGSLASPLPLQVMQEL
LGLPTQTSVDFFRRWTNTLLSADANQPAQSRSAMANMRRFLVEQLAHKRAR
PGDDLLTGLLAAREDDRLTDDELVAMLFLLMFAGYDNTAALIGNVVHAL
LTNTELPAAVRTGSLALDELVDGVLRWNPSPFLAVRRFAREPIITAGQTI
PAGDRIWLCLASANRDPAQFTAPDTLGTTGMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVTILLDRFPGIRMAVPAHDIRWRESFRLRGLVALPVFL

>CYP1005A6 (2571083609) *Salinispora pacifica* CNR510

VSAVLFRSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLTDQVTY
RPDNALDAVTPIPVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTELVAERVAAIRATLDSGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAALFLWAPLDADRQLALADEVGRFHHQVLREFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHLRLAGEP
TVRAALRDGSVSVPNVVEEGLRLEPPIVTVRRVAAVDSTLGGTAVPAGTS
VLLWLARAGRDPPIVSAPDEFPRPGQGSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQVSPLLDGVTVVRAPWYPDNLTFRMPDAFVIRRGPAAGAAER

>CYP107AY9 (2571083969) *Salinispora pacifica* CNR510

MSQDQPTRAELAPIPRSGARIGPEYDQLRKTDGVHQVLLPDTSMWLVT
PDLVSRALADPRIALNRKHSRGGWSGFALPPALDANLLNLDPDHTRLRR
LVGPAFSPQRVAALRPRIQRTAEELAETMVATGSPVDLVTGYCTPLSVQV
IADLLGVPDAGRDTLRAWTDMLTSYPPDRDAIRQAVVELHGYVNLIEA
KQQRPGDDLSSALVATEQEGDRLTRDELTSALFLILFAGYENTANLIAST
VLRLLDHGSRLRGVRVSEAIEETLRLEPPAPAAIRRFPTTEMTIGGATIPA
GDTVLLSIAAATRGADGNPARLAFNGNPHYCLGAALARVEAEEAITVLAR

RLPGLALAVPGAPVRWRPTFRTHGPAELLVAW

>CYP161N4 (2571084114) *Salinispora pacifica* CNR510

VNTVAQLPFTQTHVLDVAPALRLLQSRGKVHRVRTPEGVPAWLVTGHAEV
QQLDDDDRLSRSDPGGRDGGTALLNKLLGPLADDHPRLRSLLEPQFTPER
LEPLRAVVEKLTEQHLDELATRTFPVDLRPALAMSLPILVLCEWLGVPAE
DKGRFSVWTQDAAGVQDPERSQRLAELFGYCRQLVAAKRQDPGDDVISR
LIATAGIGDTEVVALTALLFGGYETTVARIGTGVLNLTNPQWAAVRA
DPALVPSTVDELLRRSMPNPHNGGMPRFVAVTGFEIDGAAIRAGDLVLLNI
IAANHDETAFPDPDRDITRPTAGSLAFGYGRHSCVGAFLARMVLRVALS
RLITRFPDLRLAVGVDELKLRHETLVGGGLVELPVTWGPR

>CYP2054A3 (2571084119) *Salinispora pacifica* CNR510

MSISADSEQVQGRPFDPYGAHRDDPYTFLAGLGVFYAPLLDAWCVTRRED
MVAVLRDDRSFSARDHNPRPAVALPDDVNQMFRWTWRGAGAVAVGSLDPPA
HAKIRDVLNIGFTPARVRAFEPTMRAVAADLADRIGDAPEFDFIADFAPV
FALEVIGRRLGVPDDYLDRCRTWSEQRIELMMAQGDADHDRLREFARGLM
EFGEFARSLVRDRVADPRDDLISELLHDGKAGRTLTADEVAVQIPTLIFA
GHMTCAEALGTIFYQQLRSPGGWARVVDRTIPVGDVVEEGLRFDSPLAGM
YRTATRDVTVGGIRLTAGSRLLLLYGAAGRDSRAHACPAAFRPGDGSSGH
LAFGHGHIHFCLGAGFARAELRVAVEVLAARMPDLGLAPGRPPRFRPVFPL
RALTELVRVTRSGGSGP

>CYP107FH3 (2571084125) *Salinispora pacifica* CNR510

VPIELDEAFVQDPYAVYEKLRAEGPAHRVRMPPGVPLIGGLPVWLITGYD
AVRAALADSRLSTDHLRIDGLFAQKDPDRSHRGGFSSALASHMMHTDPPD
HTRLRKLVSKAFTTRAIEALRPRIQQTDELTAELAGHDTVLLDAFAFP
LPIRVICLLLGVPAEQENFRSWSRALVSGHSPEAAATAATEVAAYLGDL
VERKRHATTDVLTALVAAHDVDDRLTHTELVSTAYLLFIAGFETTLNAL
GNGTLHLMLHRDQWTALRADRALLDNAVEEFLRLESPLKHATFRCATESL
RIGDAEIAAGDFVLLAIASANRDPRRFPDPHTLDVRRPAAGHLAFGHGHI
HCLGAPLARVEVRMAFDALLDAFPDMRLATDPAGLRWRNSTIIRGLDLSL
VHLNN

>CYP124M3 (2571084527) *Salinispora pacifica* CNR510

MTVPIELDAVDLSNDNDFWTKPLEYRHAVFNALRAQPLPHFASPEFGSAP
RGRGYYALTRMDDVLAVSRNPSVFI SGKGNVAMEVPAEFLDQSLITMDNP
RHARLRRIVSRGFTMKAVTALMDNASQMAKQIVDEVVERGECDVVDISA
KLPLGII CNMMGIPDSQQQVFVEQTNVMLGVQDPEYVGEQNDAMLAMSV
SQELADLMHELATLRAKNPTDDLISKLLSAEVNGEALTPSELAHFFILLT
GAGTETTRNAISWGIQLLTQSPEQREAWLSIDIGVTPTAVEEIVRWSSPV
ISQRRTVAEDAEPVKLAGQLLGPGDKVLMFYGAANRDPNYFVHPEGFDVR
RSPNPHVGYGGPGPHFCLGAHLARLEISVMFRELLTRIPDIHATGEPARL
KSPLINGIKRLPVAFTPGAR

>CYP208A22 (2571084548) *Salinispora pacifica* CNR510

MTVIADRGGRIPPGPPVTAGLRLLLLALGRDRLGMMTSAAA EYGDVARLPV
GPKKLYFFNHPDHAKHVLADNHANYQKGIGLVHARRALGDGLLTSEGELW
RKQRRVIQPAFQNRRLAQYAGAVGQEATRLVARLATRVDPVPVLDVDEMT
RLTLGVLGRTLDDAELTGFGHVGESFAAVQDQAMFELETNTVPTWIPLR
RQRRFRRARQHLQEVVDVLA AERGQAVEGRDDVLSRLILSTRAEADPQLG

RERLRDELVTLLLAGHETTASTLGWSLHLLDQHPELRERVRHEARTVLGD
RVPAYEDLHQLRYTAMVVEEAIRLYPPVWILTRKARAEDEIGGYRVPAGA
DILICPYTLHRHPRFWAEPPERFDPERFDPSTTDRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLAVLLRDLRLLEGLPGRAVVPEPMLSLRVRGGLPMTVR
RVD

>CYP105AB28 (2571085529) *Salinispora pacifica* CNR510

MTETASTTTPGISSTTTSGPASGEVTDAEFFLERGCPFFSTPTEYEQIREH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFFVSTDPE
RKQLQDQPTSMIGMDGAEHAQARRALMGEFTVRRMAGLRPRIQQIVDQHI
DEMLSSDQRAADLVEALSLPVPSLVICELLGVYPYADHDFQARSGPLIRH
TTPTEVRLRIQKELNTYLALIDRKVADPTDDLLSRQIAKHHAAGTFDRT
SLVSMAFLLLIAGHETTANMISLGVVGLLQHPDQLAMIKEDPEKTPPAVE
ELLRYFTIADTVTARVATEDVQLGGTTINAGDGVVISGLAADHDPTVFTD
PDRDLERGARHHVAFGFGPHQCIGQTLARMELQIVFDTLFRRIPTLRLA
APLDDIPFKSDAFVYGAERLPVAW

>CYP107E37 (2571085737) *Salinispora pacifica* CNR510

VTIDQEIREYPPFRESRGIGIDPAYELLRRTEPLARVQLPYGEVSWLVTRY
EDVKTVLTDPRFSRAAAQGKDQPRTRAEMTYEGIIGLDPPDHTRLRLLAG
KALTARRVNARADAQRIANEYVDEMIAKGSPGDLVELFALPYPTVICE
LLGVPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFDYMGKLVAQRRAEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTGVEVTVSTHIPPVYALLT
HPELMAQLRADRSVLPAAVEELLRMIPLNPAAMFFPRYAVEDVTLSGITVR
AGQPVLVSLPGANRDPEVFENPETFDFTREQNPVHAFGHGPHHCLGAQLA
RMELQVALHTVLDRFPDLRLADGDEGVSWKSGLLVRGPSRLLVGW

>CYP208A12 (2515494030) *Salinispora arenicola* CNT800

MTLDTITPRVPLGPRTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVADNSANYHKGIGLVHARRALGDGLLTSEGDLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAEITG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETINAVPMWIPLP
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWNPFRFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGHRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP125A41 (2515494362) *Salinispora arenicola* CNT800

MTEPRIPAGFDFTDPEVLAHVRVPREEFAELRRTPVWVWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGDV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAEERQSPSDDLVTKLVAQIDGHLTTDEFGGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERPKSAVEEIIRWATPVNVFQR
TALVDTVLGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP105J3 (2515494516) *Salinispora arenicola* CNT800

MTDSVAFPQGRVCPHQAPAGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRTNPAWPAIVPIVAAVNDAAQQKVLKIATALVGTGPE
HKAQRKMLIPSFTRRMNALRPMIQEIVDQQQLEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEVGLDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSRLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP1005A1 (2515494559) *Salinispora arenicola* CNT800

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTDAQTY
RPDNAMEAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLDSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVKKQFARAALFWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSISVADVVEEGLRLEPPIVTVRRVAAVDSTLGGTTVAAGTS
VLLWLRAGRDPVAVAAPDEFPRPGQGRSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTIVRPPWYPDNLTFRMPDAFVVR

>CYP211B2 (2515494885) *Salinispora arenicola* CNT800

MDVSEAIAVLISPSGRLDPYPTYEQLRAHGFPVSQTTAGLFVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIKSIARSMRLTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTQADELVDDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVLLTRPEAAAAALRDEPDLPAGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPAGSWLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGTAGVAPGTP

>CYP107AY2 (2515495611) *Salinispora arenicola* CNT800

MTAEPTPIPRSGARLGQEYDQLRKTDGDVHQVLLPDASLAWLVNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRLRVGPAF
SPQORVAALRPGIRRAAEHLDDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRAWTDMLTSYPPDRDAIRRAVTELGHYVVDLIDIKQQQPG
DDLALSALVTIEQDGDRLSRDELTSALFLILFAGYENTANLIASAVLWLLD
HGGLNVVPSSEAEIGTLRHEPPAPVAIRRFPTEDTIIGDVTIPAGDTVLL
SVAAATRGAAGNAARLAFGNPHYCLGAALARVEAEEALTVLARRLPGLT
LAVPPSQVRWRPPTFRTHGPAELLVGW

>CYP245A7 (2515495853) *Salinispora arenicola* CNT800

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRSLNRSFSPRIVTELRPRIARIAQELLSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPTVLDELGAEGLTDDAVEEEFLRYDPPVQ
AVTRWAHQDITLGGCDIPRGSRVVALLGSANRDPARFSPDVLVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPRTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP244A4 (2515495857) *Salinispora arenicola* CNT800

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLG RHAW
VVC DREL VKQAL THPKMGKDIALVPEWMRQPGLM VTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGF LDEL SQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEAIRRPPHERPKTDEDITAWIEETLRVHPPFPHPPTW
RFPLEDIELGGYLIPKGAPVQVSI AAANRKPGE GADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP166A4 (2515495996) *Salinispora arenicola* CNT800

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTG HVERVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLYHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEHIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGI HQCLGQN
LARVELRAGLSALLRAFPNRLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP107AX13 (2515496153) *Salinispora arenicola* CNT800

VTSPPHVAFGHLLRDPHGQYNALRGQAPVHHIRTPDEAPAWLVMRYDDV
RAALTDPRLSVDKRFSDTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADQAPAVATIVDALLDGIAGQDQAE LIGGLASPLPLQVMHEL
LGLPTQTSVDFRNWTNTLLSADANQPAQSR SAMATMRQFLMGQLARKRAQ
PGDDLLTGLLAARDDDDRFTDDELLAMVFLLMFAGYDNTAALIGNVTHAL
LTDAGLHDAVRAGSVDLDSVVDEVLRWNPSFPLAVRRFAREPVAIAGHTI
PAGDRVWLCLASANRDPAQFTEPDELGITPARRPHLAFGHGIHYCLGAPL
ARLQTTVAVASLLDRCPGIRLAVPAHELRLWRESFRVRGLAALPVRL

>CYP154M15 (2515496405) *Salinispora arenicola* CNT800

MNDKCPFAALDVTGQDLHGEEARLREQGPAVLVELPGGVKAWSINRYEVI
RELLMDRRVTKNARKHWP AFIKGEIPPDWEMISWVAMDNMVTAYGKDHR
LRKLVGRAFTQRRADALRPQVVALSTKLLDDL GATPPGEVVDLRERFAYP
LPAMLVASLIGMSEAALAACSKVIDMMVHTNVSPEEAQAVLRGWRAAMAD
LIESKRRTPGEDITTDLIAAREEDGSRLSEAELADTIFAILGAGSETTIN
FFDNAITALLSRPGQLQLLRTGAVTWDDVIDEVL RVESPLAHLPLRYAVE
DIELDGVTIPQGDPILVNAAAAGRDPALHGGTADEFDLARGDKTHLSFGY
GPHYCLGAGIARMVATIGLSMLFERFPDLSLAVPATELKRLP TFIMNGHQ
TLPVRLTAHAR

>CYP125G6 (2515496430) *Salinispora arenicola* CNT800

VPTLLNEHVSYDGA AIAIVDS DGATSWIRLAERVNRVHLLRAHGLDTGD
RLACVTGNRRETFEVLLAALHTGVTVPVNWHLTVTEIGHILSDSGSRVV
ITEELHVKA VAAAADGTAGPVAGLV LGDREVEGF AA VEPLLAASPAEPE
QQVCGATMLYTS GTTGRPKGVVNNLFVTGAPYARVGRLCDYARSVLGVPR
RERMLLDGPWYHSSQLFFALLSLLQGSRLVIRPYFDPAATLK TIDDHRI T
VTHLVPTQLVRLLRVDALTRQMFSGASLRRVWHGGGCPPEVKRSMIDWW
GPVLVEYYGATEGGVVTLIDSAEWLARPGSVGRAVPPSEVVVVDDGGQSV
AAGQTGQVFFRRRTGNRFHYHNAPEKTQAAYLAPDTFTYGEVGHVDEDDGY
LFLTGRAQDMIVSGGVNVYPAEVEAALLRHPVVRDAAVIGVADDEFGERV

VGIVVPETAVDPDDLATHLDAHCRVSLAGFKVPRTYRVVESLPRDETGKL
RKDALRSKFGWLSGAAMTVPRPATGQPTAHRPDIAHPTTYVSGVPHDEFA
RRRRDEPVGWVAEPVLTRHTAAGRTATRGSGFWAVTRYEDVVAASRRVTD
FSSAAKGAFLLTDPRTPADLQQARQLLVNMDDPHHARLRKLVTSVFTPRAV
RGLLASIDAHAAALVAKVVAAGEFDVVTDLAAELPLLVLADLLGVPKQDR
ALLYGWSNHLVGFDPDFGGGDIDAYRTAMAEAFQYALNLGVERRARPTD
DLVSLLANAEVDGTRLTDREFCNFWLLLVVAGNETTRHLVAGTMQALTEH
PGECARLVEGRVPMESAVEELLRWVTFIMQFRRTATRDTEIGGQAVTAGE
KVVLYYTSANRDATVFAEPEERLDLGRTPNRQLSFGIGPHYCLGAHLARAE
LTALLRVMSPHLGSLLQLTGPVSRLASNFVNGVKAMPAVIGSR

>CYP107FS2 (2515496469) *Salinispora arenicola* CNT800

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPFADRSEFERHAEVLTGINASSGFDIAAAGRWFDEYLAGLVQ
QRRREPQDDLI SGMLAAQDKGDRLTDVELRSNALLLSAGFETTUNLIAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAAANHDPVFAAPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRLRAGLRRLAVPTDSLWVKASFVLRRLERLPV
TFTPDPRDPNPIDSVHTV

>CYP105CN1 (2515496470) *Salinispora arenicola* CNT800

MAAPAPQATPSTTPHPPSYPLPRECPYRPSAGTAHLRDAGPVSTVRLYDG
RTAWLVGTGAEEARALLADSRVSNRADFPNYPVMDEHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQORQLLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVYPYQDRTRFEPVAVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYTALVDNPDLPVPGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIIHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPVTW

>CYP105CP2 (2515496472) *Salinispora arenicola* CNT800

MTKSMPVQDLPAFPIPRECPYRPSAQHVSLRSGGPMKVRVLYNGRTAWLV
TDSAHAARVLSYDRRSIKPYHGNYPLLNEEFKVVDSGYADVLFVGDPP
EHTRQORQMIMPSFTLRRTAVLRPDQIRIVDDKLDEMMPRGAPGDLVTEFA
QPVPMSMVISFLLGVFWEDHEEFETPAHKLFPVPELAEAEATELGAYLERLI
QKKEQPGGTGGTGLLDDLDLIRDHLRAGALSRDELVHIAMAMLVAGTDTT
NVISLGTALALLDNPDQWAALRDNPDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPFRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRRTAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105BL2 (2515496959) *Salinispora arenicola* CNT800

MSSHSAAPDPETATPLHTLAPELAFFQFERSAPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLSDPRFSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPSPRVACHLVGIPLSYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHDRDDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIIGLVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ

DKDIMYRVSELAVTW

>CYP105CH1 (2515497034) *Salinispora arenicola* CNT800

VSSLPLPTYPKLRDPADPLLPPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHFNFPYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRLLI SEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRTPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVNLTARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALDTVLRRLPGLHLVAPFEELPFKYRHLVWGIEEL
RVAW

>CYP1051A1 (2515497134) *Salinispora arenicola* CNT800

MATDAAITRARTVPAWKALPAAVRDTHRAFVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLEHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAAW
SRRVLAPMFRPARINAMVDTMADAIAAGAVDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDDILLPVLRLQAQRQPDDGDDLLSRLVRARADDGQALSE
KMRDDLLVSMVAVTTETSTVVLTWLWPLLANHPDVANRLYDEIDRVVGGG
PVRGGHLAELTYTRMVLDELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMI
LKPVAPVPAR

>CYP105G5 (2515497154) *Salinispora arenicola* CNT800

LTIETTETPPADDSLAPLPRQFMQRDDPSKLPALAAALAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRVEDRTEFQRRAGLLQTDLPKQ
AVENLEAQRAFMRQLVTDKRRTPADDMISGLVHHAGAEPPLTDELVGIA
TLLLFLAGLDTTASMLGLGMFMMLQRPEQMAVLRDDPSRIGAAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHYPAGSTVVVSLMAANRDGRHWPDPETLDV
TRVRSSHLAFGHGVHQCLGQQALARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTF

>CYP107Q4 (2515497155) *Salinispora arenicola* CNT800

MTTTAETS AETIDLFSPEVVADPFGWYARLREETGPTTGTNLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRLTNPPADSPLEDIRAGVFKRDLFPDLPW
MANLLNVSDGEDHTRLRKLVSALT AHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPRPHWRAGDSMATMNGER
IPTTLVKCIELARELIANRAEPQDDLVTALVQAQAEQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKDNPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI
DRLAVGSEHGLGFGKGIHRCLGQHLAYQEA EVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTTRTTLPLKLV

>CYP105AB8 (2515497229) *Salinispora arenicola* CNT800

MTETASSRHTDEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTTDQHRADLVKT

LSLPVPSLVICELLGVVYADHDFQEHATLVRRTASEVRQHSIDELNA
YLGALIDRKLASPDLLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLTMIKDDPKTPLAIEELLRFFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVSGLSADWDPTVFADPDRLDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTRLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP211C1 (2515497568) *Salinispora arenicola* CNT800

VVDVEELLTRLISAQGRQDPFPVYADLHARGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAANAAGAE LRAFYG
ELLARRRRTPEGDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPI PQGQNVLLLI AAANRDP AHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP154M21 (2515497763) *Salinispora arenicola* CNT800

MEKCPYVLDRAGSDIHKEASNLARGPVTLVELHGGYTAVSVTSYEVAKQ
LLMDPRISKNTKAHWPEFRDGNVPQDWELYTWVAMDNMQTRDGKEHDLRL
KLVAPAFTRQAVKSRPIIEEIVNRLDDLETAPRGQAVDIKARYFYPLS
TILVCDLLGIAEEDRDVILHGNVVNSKTTNTAESEANLHQWQTALGR LV
ETKRDRPDGDLTTV I IKAGEDEQTPLTDDEVIGSLHLLIGGGTETTANVL
CHTVVMDLTHPDQLAMVRS GAVSWESA WEEEEVRKDGAVGSMFPFCATDDV
EIGGV TIAKGDVLV L INYAAAGRDPERYGDAAA EFDITRADKANLSFGYGR
HRCLGPALATMEAMVALPALFDRFPNLALAVPPNELK PQGTFIFNGYAEV
PLLLRS

>CYP154M13 (2515497764) *Salinispora arenicola* CNT800

MSTGRPVVLDPTGRDIHG EADHLRALGPATLVELPGGVLAWSINSYEVGK
ALLSAPNVSKSARRHWP AFYNGEIPPDWEMISWVAMDNISTTFGGDHRRL
RRLTAKAFGSRRAEQVRPMATHMVNTLLDRMADAADAGEVVDLKAAFAYP
LPGMLVAELIGMSEEARVAAAKVIDMMTATNITPEQAQGVLLGWRDAITD
LIALKRAQPGDDITS DLIARDEDGSLLTEQELVD TIFAILGAGSETTIN
FFDNAITQLLTHPEQLELVKSGQVSWDDVIEEVLRL ESPLASLPMRFAVE
DIQLDGVTIHRGDPILINYAALGRDPELHGESAGVFDVTRQHKEHLSFGH
GAHYCLGAGIARMVAKTGLSALFERFPRMTLAVSAKDLVPYPTFIMNGNR
QLPVHLSGALKWREGEQSALGRA

>CYP105W2 (2515497778) *Salinispora arenicola* CNT800

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPFSPPAEYARLRAEH
SVVRLPMLGGDTAWVVS RHADVRLSDPRMSADRRRPGF PKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEF SVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVSSQV ICEVLGV PYGEHEFFERRSTLMFRR
STPADERARCAREIRD FLDVVVTDKEHRPGDDL S RLLYRQRRAGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAE PERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGV TIAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAH LAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2515497786) *Salinispora arenicola* CNT800

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQLMsrNEIVSTVVTFFIFTGHETVASQLGNGL
LSLLDHPEQLELMRRQPHLVPQAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCNPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP154M20 (2515497810) *Salinispora arenicola* CNT800

MERCYPYVLDRAGRDLHGEAKALRARGPVTLEVELHGGYTAVSVTSYEIAKQ
LLVDPRISKNTKETWPEFREGKVPQDWELYTWVAMDNMQTRDGEEHDRLR
KLVAQAFTTRQVAKVRPMIEDIVDRLLDDLEKVPAGEVVDIKGRYFYPLS
TILVCDLLGIPEADRAEALHGTVVNARTTNSAESEANLHQWQSALSKLV
ETKRREPGNDITTLIIKAREDEQAPLTDDEVIGSLHLLIGGGTETTSNVL
CNTLIDLTLTHPDQMAMIRSGAVGWEAAWEEEVKRDGAVGSMPPFRCANADI
EIGGVTTIAKGDVLVLINYAAAGRDPERYGDTTAEFDITRADKTNLSFGYGR
HRCCLGPALATMEAMISLPALFERFPDLVLAVPRDELKPQGTFFVNGYAEV
PMLLRS

>CYP107FJ2 (2515497817) *Salinispora arenicola* CNT800

MSETLSTSVLLADAAEQRAWRAKLRGAGPVHRITTSQGETGWLIVGHEEA
RNALVDLRLQGRATATVGHGRMPEDLERALNSHMLNVGPPDHTRLRLRLVS
AAFTRRRIEQMRPRIQELTDELLDGLAGADEADLVAGLALPLPMRVLVDL
FGIPAEDCADFNVTWKVLTSAVAVDLDRLTAAAGEMVAYLRGLLDRKRQV
PESDLSALVAVRDGADRLSDELTSMVYLLLTAGYETTVNLIGNGLLNL
LANPEQLVAFKADPDLQPQVVEEAMRFDSPVQIAVRHSTEPVEIAGQAIP
SGALILVSLWANRDPDRFTEPEAFRVDRQDNQQLGFGYGFHHHCIGAPLA
RMEGTIAIGTVIRRFAPALRLAHPAGSLTWRASMVMHGLTALPVHLR

>CYP107EU1 (2515498322) *Salinispora arenicola* CNT800

VTIGQTLPLVYSPEFTRDPYAI FARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPADDLLTALVQVSADEDRLSREELVSMALLLLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDEPKFPDPDRLDITRSTQGNLAMGH
GIHHCVGAAALARLELIVLSRLVARFPQMQLAVEADDLEWLNVNSFFRAPL
HLPVSLRR

>CYP162P1 (2515498373) *Salinispora arenicola* CNT800

MGLPSEVDLAEPDLADPDLYAEGDPDAEWAWLRAHRPVYRNPAGATAEFW
ALTRYRDALQVYRDPSTFSSERGMVLGVDPVAGDPAAGRMLVVTDPPRHP
KLRRIVSGIFVPRTMHRLEGRVRSVLDQLLHRVVDGAGRCDFVNDVAARL
PVAIIICELLGVPADEQDWMYHLTSTAFGGGDPAGSAEVS AVERAEAYGDI
LLYYGELAAERRRRPGDDLVTLLVHADLDGEPLDVEDVLVNCTNLIIGGN
ETTRHAASGGLLALAQRPELWRRLRETPTAVPTAVEEVLRWTTPGMHVLR
TATRDTEIGGVPIRAGERVVVWNAANRDEDVFADPQHFDIDRSPNRHIA
FGQGGHHCLGAALARLELTILFEEMAKQVTNVRLTGPVRRVRSCVLRGIR
ALPVELVT

>CYP1198B1 (2515498444) *Salinispora arenicola* CNT800

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGGEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQKRLVSKSFTPRIVKSFGPQITHIVDGLFEDFRDRGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGELITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDPRAYENPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQAQLKHPEVDES
SLEYRRHIVVRGLEHMKVAFQP

>CYP125A66 (2518501913) *Salinispora pacifica* CNS055

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRTAPVWWNAQPKGSGGFDD
DGYWVVTRYADVMASRDSETYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAARDTGDFV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGVDPMAASA
ELLAYAMEMAHERQRNPSDDLVTQLVNAQIDGEHLTADEFGFFVMLLAVA
GNETTRNAITHGMLAFLENPEQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLAGQAI SAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGSGGVHFCLGANLARLEIELIFNSIADHLPDIRQLADPQRLRSGWINGI
RELFPQYH

>CYP107AX8 (2518502212) *Salinispora pacifica* CNS055

MTSPAPVFDQLLLLRDPRRRYNALRDEAPVHHIRTPDGAPAWLVTRYDDV
RAAFTDPRLSVDKRLSSTDGEHGSSLPPELDAHLLNRDPPDHTRLRRFAA
AAFTPRRVADLRPAVERIVSTLLDGLAGNDQAEI LDSLASPLPLQVMQEL
LGLPTQTSVDFRTWTNTLLSADANQPAQSRSAMANMRRFLIEQVARKRAQ
PGDDLLTGLLAARADGDRLTDELVAMLFLLMFAGYDNTAALIGNVAHAL
LTNAELAEAVRTGSLALDELVDGVLRWNPSFPLAVRRFAREPVTIAGQLI
PAGDRIWLCLASANRDPAQFTEPDTLGTTGMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVTSLDRFPGIRLAVPAHDIRWRESFRLRGLVALPVFL

>CYP107AW8 (2518502225) *Salinispora pacifica* CNS055

VETVTGTSAPPPVPYIADPYPTLARIRANGPVSILHSDEGLPMWVIARYR
DVRAALADPRFGQDSRRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RLVQGAFTARRVAAMRPLVERITTSLLDGLAGRTTVDLVQDFAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAAAFATALREMTDYIAVQLRIR
QTRPVDDLLELLAARDAGQLTDDEIIGMVFLLLIGGHETT VNLLGTATL
ALMRNPDQHRWLLANQPALPEAIDEFLRYESPVAMATLRFTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRHDTGHAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPRLALATEVRQLRWRDTIMLRGLES LPVSLHG

>CYP162H1 (2518502365) *Salinispora pacifica* CNS055

MTAVTDVDVADPTLHRD GALPPVWRWMRRHDPVRWTVRPNQDSYWSVTTH
AEAVRVL RDSRTFSSERGIRLGADPVAAAAASRRMLIVTDPPRHADLRRI
IASAFTARTVRRLEQNMR ETVTASLDHA FERAGAGDFVEVAGR LPVSVICD
LLGVPREDWDFFLLGR TTVAFGAVDEHGSPTAEAVEAHADILLYHLELARQ
RRRDPREDVV TALVQGEVDGRPLTDEEILLNCDGLISGGNETTRHAAVGG
LLALAADPGQWRALRANPDLLPTAVDEILRWTTPGAHTLR TAVGDTELAG

RAIEAGQQVVVWGGSVNRDEAVFDQPDEFRLDRKPNRHLLTFSHGAHYCLG
SALATSELRVLFGEELARRVAGIEVAGPVERVRSNHINGFDRAVVKLHPVT
AGGGRHG

>CYP1005A6 (2518502695) *Salinispora pacifica* CNS055

VSAVLFRSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLTDQVTY
RPDNALDAVTPIPVAAALRVLAGHRFRLPPTLANNGGVNHPAIRALVADAL
HPAKVAAQRPWLTGLVAERVAAIRATLDAGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKRFARAALFLFWAPLDADRQLALADEVGRFHHQVLRFA
DTGGGLAAALRATGHPPDVLVVGALFFLLVAGQETTSQFLTLLHLHRLAGEP
TVRAALRDGVSVPNVVEEGLRLEPPIVTVRRVAAVDSTLGGTAVPAGTS
VLLWLARAGRDPPIVPADEFPRPGQRGSRRLAFGAGAHRCCLGDQLARME
AAVVVEQVTPLEGVTVVRAPWYPDNLTFRMPDAFVISR

>CYP211B15 (2518502986) *Salinispora pacifica* CNS055

MDASEAVTLLMSPSGRLDPYPTYERLRAHGPPVPTAAGFFVVTGYTEADA
VLRNPRFGVMDDEERDGVFPHWQESPAMMSISRSMIRANPPDHSRMRLA
AKAFTPRRVAALREVVAQAADGLVDEMIRAGRGAPVDFLSSFAYPLPVA
VICALLGVPAADWAQFRRWASDLTGVLPEEITPQELAVADAGAGELRDYF
TELVAQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVLLDHPDSVTALRDQPELAPGYVEELLRYDSPVQLTTRTIR
ESVPLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPGLALAGEPTRNRRLTLRGYETLP
VTVGAVAADHGTAPAGVALGTP

>CYP105AB31 (2518503325) *Salinispora pacifica* CNS055

MTETASTTTPGTSSTATSGPASGEVTDTEFPVERGCPFSTPAEYEQIREH
SPLAKVRLTTGREAWWIAGHELARAALADRRFSSDRRRDNFPFVSTDPET
RKQLQDQPTSMGLMDGAEHAQARRALMGFTVRRMAELRPRIQQIVDQHI
DEMLSSEQRSADLVEALSPLVPVSLVICELLGVADHDFFQSRSGPLVRH
HTPSKVRVRIQEELNTYLGEIDRKVTDPTDDLRSRQIAKQHAAGTFDRT
SLVSMAFLLLIAGHETTANMISLGVVGLLQHPDQLAMIKNDPEKTPPAVE
ELLRYFTITDVTARVATEDVRLGDTTINAGDGIVISGLAADHDPTVFTD
PDRIDLERGARRHVAFGFGPHQCIGQTLARIELQIVFDTLFRRIPTLRLA
APLDDIPFKSDAIYGAEEELPVAW

>CYP1611B1 (2518504475) *Salinispora pacifica* CNS055

MTTRSGLLPTPPMPVGLPLLGSMLWQRDHAGFFQRAYERYGPVFSVRLG
PQRGVVLVGPDYHDFFFKEVDKRLSVPELYRFVVPFMFGDVALASRDPQTR
RRHVGLLHSAFQQRLSAYSRLAAEETHAWLDGLGGSGRFELWREMEGLV
MRIAASSTLLGPEVRARVDDFRPLLADLARGMDVFLPPYLPLPKFIRRDQA
RRRLTEMIKPVLAERRRRVDGPPDFLQTLVHDPGVGGESDERLIGMSLMT
LFTGYLTTCQAQLAWALVLLVQHPAHLATVVAEVDAAACADGRVPVEARLP
RLDRALKEAIRLRPVMASHYARHNRTDIEVDGYRLPAGWLTMLCPAVAHRL
PEVFTDPDRYDPERFGPDRAEDRRHPYALIGFSGGFYRCPGSAFGMNEMR
IVIAALLARFRLVAPAVEPVPAPFDMGVTRPASPCMMDYRLRD

>CYP2098A1 (2518504478) *Salinispora pacifica* CNS055

MTTSADMTYDPFDPKLVQDPHSFYHRIRQLSPVFPSTMSSDMWMVSDDAT
TVYVVTSYDELAYVLEHPDLFPSGNKTGPEDPPEVTEELARGIPKAKTLY

DSDQPNHTRLRALMQGAWSAQRVESFAPRIQWWADRMIDRFAERGAAELV
ADYADPAMDHAILDFLGIPEEDHERVHAWDKLWVKVFI PGHPPEDQRAAA
REIVEYQRYLEQLFVERRANPRDDVASALVHATTEDGDRLTMAELVWGLM
EMYGAGYGNTAEALSNMLFLLLHERQRWTDLRQRREALPDAVEEGLRLEG
PVQWLSREAAQDTELGGATI AKGSTVMVIYSAANRDPEAFPEPDEF RPER
RGATRTGAKHVAHGRGIHYCVGAGWSRVAIRAGLAAIMDRLPDLRLADGF
TPEFHLPEPMVRCVKTLPAVWPAR

>CYP1004B3 (2518505666) *Salinispora pacifica* CNS055

MTTSALAPRFDALDPNVVEDPYPEYARLRAAGPLCRLGPGSWGVT RFADV
TSLQHDPRLGSEFP SGYEISVGDGPASAFFQRVMLYRDPDPH IRLRRL
SGAFTPAVVRRLRSHIEDLVDELLAPTLAAGRMDLVPELAYPLPVRVICR
LMGIPPESAEDVRHHATNIGRAFTAVVPEQARIEADEAVSWLREHLGALL
EQRRSRPGDDL SRLLD AEESGDNLSADEIVDNTVFSFFAGFETTVHMIT
TGTAALLAHPDQLARLRADPSLVTTAVDEF LRWD APIQGTARYVREPIEI
GGRTIRRGRVLVLMVGSANHDERRFTRPDRLDVGRQDNPHVAFGGGAHLC
LGAFLARMEGAVVFDRLARLAVLEPDGPTVREPNTPF RAYASVPVRIGDG

>CYP1004A4 (2518505670) *Salinispora pacifica* CNS055

MRANTARPHLSAAFLATEDDPYPAYAE LRARGPLTRAELGQWLVTGHGAV
SALLRDGRLESRM PAEYTRLTLGDS PGVDFLDRIVLTRTPPEHTRLRRFI
GRALGTPVVRRLHDRIAAATDALLEPALDRGRLDVVT ELAVPLPVG VCD
LIGIPTGDRPAVLTRVTALAKVFDAANLSPADLADINTALPWLHDYFGDL
LAIHRGSPGGPTLAEMYWEESASDRLAVADFVDNMLFLFHAGFETTMGLV
SNGVAALLNHPEQLGRRLRADPALVPSAVEEFLRYDAPIQNVIRVARKPVE
VAGQKIRAGR PVLLLLGAANRDEEVFADAERLDVGRDPNPHLGFGGGLHH
CVGTALARLMAVVVFERLVGRVAVLGPAAPAVRRRHASLSYDRLPLAVA
AR

>CYP125G4 (2518505709) *Salinispora pacifica* CNS055

MSTEIVSTGNRADI AHPATYAAGVPDAEFARLRREEPVSWVPEAPLWRRS
GEGRILSQGP GFWAVTTHEGVVAASRQPEVFSSGRQGAFLADPR TTADLE
QARQLLVNMDAPQHARVRKLVTA VFTPRAIRALGESVTAHARNLVERAVR
QEECDVVADLAAELPLLVLADLLGLPREDRHL LYQWSNNLVGFDDPEYGG
GDVEAYRKTFFEAFQYALSVADERRRAPRGDLMTLLATGEADGRRLTDRE
FCNFWLLL VVAGNETTRHLITGSVLALVDNPMQRERLVADD TLLPSAVEE
LLRWVSPIMQFRRTAIVDTELCGTPIAAGDKVVLWYASANRDAAVFEAPD
ELRLHRNP NPHLSFGMGPHFCLGAHLARLEARTMLRELAPHL SRFRLTGP
VVRLESNFVNGVKS LPGSFTGH

>CYP107AY12 (2518505770) *Salinispora pacifica* CNS055

MSQDQQLAPI PRSGARLGQEYDQLRKTDGVHQVLLPDTSLAWLV TNPELV
SRALADPRLALNRKHSRGW SGFALPPALDANLLNLDAPDHTRLRRLVGP
AFSPQRVAALRPRIQRTAEELVDTVLATGSPVDLVTGYCTPLSVQVIADL
LGVPEAGRTDLRAWTDMLTSYPPDRDAIRQAVVELHG YVINLIEAKQQR
PGDDL SALSALVATEQEGDRLTRDELTS LAFLILFAGYENTANLIAS TVLRL
LDQGS LRGVRAPEAVEETLRLEPSAPVAIRRFTEELTIGGATIPAGDTV
VLSIAAATRGADGNSARLAFNGPHFCLGAALARVEAE EAITVLARRLPS
LALAVPGAPVRWRPTFRTHGPAELLVTW

>CYP162J1 (2518506317) *Salinispora pacifica* CNS055

MTVAVRTTPPAAFFPDGTPTRQIDGIDISTDLGDPGLYAHGRPERLWAVL
RHHHPVHWNARPD RP GFWAVTRYAEAVQVLRDTAGFGSEKGMRLDADPAA

NTAAAGRMLIVSDPPRHGPMRRALAKAFTPTVVARLRASMLAYVDDALDL
MTERSTAGEATEFTEVASRLPVAVICDLLGVPGQDHDfMLDRTRIAFGET
PEGTAAADAKAVSRAHADILAYYAGLVRSRRADPQDDIVTAMVHADMGGR
PMTDLEIYLNcNGLVSGGIETTRHASVGGLLALIEDPREWDRLHAVSAGA
GAPDAAVAEILRYTSPAMHVLRTATADTTIGEQQPVREGDQVTVWLAAANR
DPAVFTDPDRFDIGRDPNPHLAFGIGQHHCIQSALARTELSVLFGEVLVRR
FRGAETTGPFRRLPSTLIRGYESLPVLAHV

>CYP107E38 (2518506557) *Salinispora pacifica* CNS055

VTIDQEIRKYPFRESPIGIDPTYELLRRTEPLARVQLPYGEVSWLATRY
EDVKTVLTDPRFSRAAAQGKDQPRTRAEMTYEGIIIGLDPPDHTRLRKLKAG
KALTARRVNAIRADAQRIANEYVDELIAGKSPGDLVELFALPYPVTVICE
LLGVPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFGYMGKLVAQRRAEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTGIVETVSTHIPPVYALLT
HPELMAQLRADRSVLPAAVEELLRMIPLNPAAMFPYAYEDATLSGITVR
AGEPVLVSLPGANRDPEVFENPETIDFTRDPNPHVAFGHGPHHCLGAQLA
RMELQVALHTVLDLRFDPDLRLADGDAGVSWKSGLLVRGPKRLLVAV

>CYP105BL2 (2562091612) *Salinispora arenicola* CNY486

MSSHSAAAPDPVTATPLHTLAPELTFPQFERSTPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTLSDPRFSSDMSHPGFNRTGKPVDDLL
KDTLGAMDGERHRYRRLTGELTVRRAKAMRPVITRITDEALDQLAAAG
PGADLVKHAVFVVPVSRVACHLVGIPLSDYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHRDRLDGLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIGLGVAALLRHPDQLELLRREPHELLPGAVDELMRYLPLI
QFGIPRVATDDVEVDGQTVTAGEGVVALPPLANRDPAVFERPDELVDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP125A41 (2562092017) *Salinispora arenicola* CNY486

MTEPRIPAGFDFTDPEVLAHVRVPREEFAELRRAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGVDFV
TDVACELPLQAIAGELIGVPQHRRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLYAMEMAEERQSPSDDLVTKLVAQIDGELTTEDEFGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERPKSAVEEIIIRWATPVNVFQR
TALVDTVLGGQAIASAGQRFVLFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211C1 (2562092166) *Salinispora arenicola* CNY486

VVDVEELLTRYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVAAVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAELEAFYF
ELLAHRRRTPEGDLISGLLEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPIPPQQNVLLLIAAAANRDPAHFPDPRFDPRRSGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP105AB36 (2562092281) *Salinispora arenicola* CNY486

MTEAASSRLTDTEFPVQRQCPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRRKANFPFVSTDPATRKRLHAQPLSMISMDG
AEHAQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTTDQHCVDLVKA
LSLPVPSLVICELLGVYPYDDHDFQEHATLVRRTAPEVRQHCVDLNA
YLGALIDRKLANPDDDLLGRQIARQHODGTFDRASIVSLAFLLLVAGHET
TANMISLGVVGLLQHPDQLTMIKKDPDKVPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVVSGLSADWDPTVFADPDRLDLERGARHHIAF
GFGPHQCIGQNLARLELQIVFDLTFRRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP1005A1 (2562092841) *Salinispora arenicola* CNY486

MTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTQATYRPDNAMEAVT
PIPVAAALRVLAGHRFLPPTLANNGGVSHPAIRALVADALHPTKVAAQRP
WLTGLVADRVATIRTTLDSGGPVDLYADLTADLPLLVLARLVELPDAPVN
AVKQFARAALFELFWAPLDADRQLALADEVGRFHQVREFADTGGGLAAAL
RATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEPTIRAALRAGS
ISVADVVEEGLRLEPPIVTVRRVAAVDSTLGGTTVAAGTSVLLWLARAGR
DPAVVAAPDEFPRPGQRGSRRHLAFGAGAHRC LGDQLARMEAAVVVEQATP
LLDGVTVVRPPWYPDNLTFRMPDAFVVR

>CYP245A7 (2562093653) *Salinispora arenicola* CNY486

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVMFMDP
PRHTELRSLNRSFSPRIVTELRPRIARIAQELL SRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANAMALQEASSSRAGRVDVGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGADGLTTDAVEEFLRYDPPVQ
AVTRWAHQDTTLGGYDIPRGSRVVALLGSANRDPARFPSPDVLVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVP T LGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP244A4 (2562093657) *Salinispora arenicola* CNY486

MSTTTNTELTEAPETNMPVDPLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVKQALTHPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGF LDELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEAIRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGE GADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP105J4 (2562093786) *Salinispora arenicola* CNY486

MTDSVAFFPQGRVCPHQAPAGYRPLAAQRSLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRNTNPAWPAIVPIVAAAVNDAQQKVLRIATALVGTDGPE
HKAQRRMLIPSFTFRRMNALRPMIQEIVDQQ LDEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPHANEAYDQLMDYMSTLVA
ERRRNPGEGLVDDLQAQHGANDDVHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRANPSLMPTAVDELLRFLSV PDAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSLRLAVPAEEVPFLPAASLQVMAELPIT
W

>CYP107FS2 (2562094229) *Salinispora arenicola* CNY486

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVFPFADRSEFERHAEVLTGINASSGFDIAIAAGRWFDEYLAGLVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETTVNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSLWVKASFVLRRLERLPV
TFTPDRAPNPIDSVHTV

>CYP105CN1 (2562094230) *Salinispora arenicola* CNY486

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVGTAAEARALLADSRVSNRADFPNYPVMDEHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRLQLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVQPYQDRTRFEPVAGLFEPDRAD
AAMAELTAYLHQLIETRQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIHHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPTW

>CYP105CP2 (2562094232) *Salinispora arenicola* CNY486

MTKSMPVQDLPAFPIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHARAVLSYRRVSIKPYHGNYPILLNEEFKVVDSGYADVLFVDDPP
EHTRQRMIMPSFTLRRRTAVLRPDIQRIVDDKLDMMRHGAPGDLVTEFA
QPVPMSMVSFLLGVFWEDHEEFETPAHKLFVPELAEAEATTELGAYLERLI
QKKEQPGGTGGTGLLDDLRDHLRAGALSRDELVHIAMAMLVAGTDTT
NVISLGTALLDNPQWAAALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRATPIDQIPSNNDGTLQRL
YELPVVW

>CYP166A4 (2562094319) *Salinispora arenicola* CNY486

MTYAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHVEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLYHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPADLDIDRETSGHVAFGFGIHCCLGQN
LARVELRAGLSALLRAFPNLRRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP107AW7 (2562095325) *Salinispora arenicola* CNY486

VETVTGTSTPPPVPYIADPYPTLARIRANGPVSIHLSDEGIPMWVIARYR
DVRAALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAAAFATALREMTDYIAVQLRIR
QTQPGDDILGDLAARDAGQLTDDEIIGMVFLLLIGGHETTVNLLGTATL
ALMRNPDQHRWLLANQHALPEAIDEFLRYESPVMATLRFTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPRLALAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP107AY2 (2562095370) *Salinispora arenicola* CNY486

MTAEPTPIPRSGTRLGPEYDQLRKTDGDVHQVLLPDASLAWLVTNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAPF
SPQORVAALRPGIRRAAEHLLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRATDTMLTSYPPDRDAIRQAVTELHGYVVDLIDIKQQQPG
DDLLSALVTIEQDGDRLSRDELTSLAFLILFAGYENTANLIASAVRWLLD
HGGLNVVPISEAIEGTLRHEPPAPVAIRRFPTEDIIIGGV TIPAGDTVLL
SIAAATRGADGNAARLAFGNPHYCLGAALARVEAEEALTVLARRLPGLT
LAVPPAQVRWRPTFRTHGPAELLVGW

>CYP107Q4 (2562095395) *Salinispora arenicola* CNY486

MTTTAETS AETIDLFSPEVVADPFGWYARLREETGPNTGTNLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRLTNPPADSPLEDIRAGVFRRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVS YALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRAWGDSMATMNGER
IPTTLVKCIELARELIAKRAEPQDDLVTALVQAQAEQDNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI
DRLAVGSEHGLGFGKGIHRCCLGQHLAYQEA E VALQGLFTRFPDLTLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105G5 (2562095396) *Salinispora arenicola* CNY486

LTIETTETPAADDSLRAPLPRQFMQRDDPSKLPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQLDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRTTPADDMISGLVHHAGAEPPLTDDELVGIA
TLLLFLAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQQLARIELTVGITELLCLRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWGTP

>CYP105CT1 (2562095433) *Salinispora arenicola* CNY486

MNSPNHMPADRSLTAPASGCPMALSRGRVGLDVADEVSELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTD SHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGVLHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLTLDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRRFPGLRLAV
PDSELEFTQGT TVYSLRGLPVTW

>CYP154M5 (2562095450) *Salinispora arenicola* CNY486

VEQSCPYKLDVTGRDVHAEGEAI RARGPVAQVELPGGVQGW SVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPP NWPLIGWLLMDNMTTNDGADHQRLR
KLVS HGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNV TSSISGEEAEANVEQWHRELLELV
EAKREKPEDMASLLIAAKEEDGSTLTQEEVVGT LHLMLGAGSETLMNAL
SYAVLGMLS NPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV

AVGGAVIKAGDPVLMGFTAIGRDPVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPNMTLAVRPDQLEPQGTIFIMNGHREL
PVRLGQPATVLA

>CYP105W2 (2562095639) *Salinispora arenicola* CNY486

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCFFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRRHADVRQVLSDFRMSADRRRPFGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVSRRVRQSRALVERVVDTH
LDALTAGAPGADLVSTFAYPVPSQVICEVLGVYPYGEHEFFERRSTLMFRR
STPADERARYAREIRDFLDMVVTDKERRPGDDVLSRLLYRQRSAGGMDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPPERFPAAVE
ELLRYFTVVEAATARTTTAEIMIGGVTTAAGEGVVALGQAANRDPRVFEH
PDEFDPDRDARAHLAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2562095647) *Salinispora arenicola* CNY486

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRAFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQLMRNEIVSTVVTFFITGHETVASQLGNGL
LSLLDHPEQLELVRRQPHLVPQAVEECLRFDPAVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDVPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCNPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP247A7 (2562095938) *Salinispora arenicola* CNY486

VRLTPGAARDIDLDSVNLFDLDLYTSGDPHPIDVDMRAQSPLHHQVLADG
REFWSVTRYDDVCRVLGDYREFTSERGTVVTHLGEDDIAAGKLLTSTDPP
RHTQVRRRAIGAKLTARAVASWQDRIRDAIVRFLEPALDGDTFDLAEQALL
LPAIVTGPLLGPIDRWQELVQLTAMVTAPSDPHFQHGSEAATLAISHHE
LVTYVTEWVKQRRSAGGGDGSLLDHLMSVRVGGAPLTDEEIALDGYSILL
GANVTTPTHTVSGTVLALIERPEQFEKAQADPSLLANLVEEGLRWTSACN
FMRYALNDTRIGGGTVPAGGAVVAWIGSANRDESYFPDPHQFDITRSGAN
RQVAFGFGPHYCIGAPLARMTLGIFFEELVQRFGSIELAGEPQHLSYFI
AGMTHLPIVAQKRKTP

>CYP1051A1 (2562096399) *Salinispora arenicola* CNY486

MATDAPITRARTVPAWKALPAAVRDTHRALVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAVDDLHEAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDDIILLPVLRLQAQRQPDDGDDLLSRLVRARADDGRALSE
KRMRDDLVSMAVATTETSTVVLTWLWPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMTAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASRTPARTVEMI
LKPVAVPVAPAR

>CYP208A12 (2515510476) *Salinispora arenicola* CNB527

MTLDTITPRVPLGPPRTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGDLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGVGPVELTAELTG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGSLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWNPNERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP2296A2 (2515510766) *Salinispora arenicola* CNB527

MAVAPPVQGLTDGAIGSYLLAARGRQWIAGAADGRDPWSLILRGGDREAL
IRRARDRGAVYHSPAGCWVVTETAPAAEILADPRMGLWYADPAGAMPD
EVERPLLAHFLSLHRAFCADQAEYRRLPAWTEPVLGPETADHRAVRLTA
ACRTVLSALPDHFDLVRDFARPCATAVLGELTGLSAAERVRLAEASAACA
AVLDAVVCPPQRPVALGLRTGVERLRALFDAEGGGAAARARVLTAVAGVE
MAAQLTVNVVLIADPRRRTAGVDSTGVGGLVEEVLRRDPPVRVEHRVA
QADVTVAGQLVTAGSEVVVLIDAAANLDGGPDRQPLTVDDGLYTACVAPFA
RATAEAAVTAALSLPVTWALAGEPVRRLRSPVTAAYAGVPIAAVSRAARR
G

>CYP166A4 (2515510771) *Salinispora arenicola* CNB527

VTASAVGSLGEDYRPNELSADPYPPFYARARSEEPVFYAPAVDAYVATTQ
DVRTVLADPETYSIAAVLRPLEQLAPEARAEIDGSVPVLPADHGDGDEA
RRRAAEATRLAFARSSVDAQAEHLRSVVDALIDRFVMDGPGDVMSRLARA
LPVHGKAKTLGIEPEDVPAVVEGSYSLTYLMSGANS�DQVQVQAAARRVA
AYQRLLDRYVQRRHAEPRDDLVTAIVAAVTPQDGSFPVAARHTVIESLTG
LIGAGQNTTAMIGTAVWQLLCHPGQLELLRQRPELTPAAVEELARFDMP
LQGLFRQVTRPVRLGGKDI PVGARIMVLFASANRDEKVFDRPDELDITRK
PKRHMSYGHGPRSCVGSYLARQLLQYTIGGLVTRIPGLAFAGPPEFVPGM
HRIIHRLDVRW

>CYP173K1 (2515510787) *Salinispora arenicola* CNB527

VSIGTRTDLGDSFAPFTEQDMYPLYARARVEEPVFYTPALDAWVVTRYAD
VRDVLGNPKAFSLATVPDSLAMLSPEAYAELAKTFAEVPVSIREDAVDEA
RKRVRAPILRAFSDETVRDMQEFITGQVEQLIDRFADRGHAELEMAELARQ
LPVRVKAPVIGIDPADIDEFVQGTYDFMELHSVAAQLPVELQVAKARRVV
DYQRLLDSSYAQRRAEPRNDLFSELVAAMAPGSGPLTVPERKALVNAMTG
LIAAGHFTTTTAMVGTGIYHLLHRRDQWELLCRRPDLDNAIEELARFDMP
LRGLMRRTTKNVVVSVELPPGTEVMVAYQSANRDETTFPRADELDISRE
PTDHFGYGFGRSVCVGAALGRSIFRTTLRSLSRRLPGLWLATDEVRYLPG
LHVIVRELPSW

>CYP245A7 (2515511120) *Salinispora arenicola* CNB527

MPSATLPRFALTGWNRENIVNPYPVYQRYREVAPVHRGEPGGDAPDTFYV
FSYDEVVQVLSSSCFGRGRSLDAAQASVPVPAEQKALRAIVENWLVFMDP
PRHTELRSLLNRSFSPRIVTELPRPRIARIAQELLSRLGQQADVDLVESFA
APLPILVISELLGIPEERRAWLRANAMALQEASSSRAGRDVEGYARAEVA
AQEFTEYFREQVRLRRGSAGGDLITVLANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGADGLTTDAVEEFRLYDPPVQ
AVTRWAHQDITLGGCDIPGRSRVVALLGSANRDPARFPLPDVLDVRRPAD

RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGER

>CYP244A4 (2515511124) *Salinispora arenicola* CNB527

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVCDELVLKQALTHPKMGKDITLVPEWMMRQFGLMVTAPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGFLDELSQAGSGSTEVN
VVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIGG
LFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIITG
YETTGSLLISTSLYEAIRPPHERPKTDEDITAWIEETLRVHPPFPHPHTWR
FPLEDIELGGYLIPKGSVPQVSIAAAANKRPGEGADSFEAERRGHGHLSTG
LGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAESAVQWESEWMIRRMSS
VLPVAVLS

>CYP211B2 (2515511360) *Salinispora arenicola* CNB527

MDVSEAVAVLTSPSGRLDPYPTYEQLEAHGVPVSRRTAGLFVVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIXSIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTAPADELVDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLVAGFETT
TNLLGNGLVLLTRPEAAAAALRDQPDLAGPYVDELLRYDSPVQLTTRTVR
DSVSFAGTELPAGSWLLVLLGAANRDPFRFPDPARFDPWRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
VTVGAVTADRGTPAGVAPGTP

>CYP166A4 (2515511806) *Salinispora arenicola* CNB527

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHIGWIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHEGVAAEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFAEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPADLDIDRETSGHVAFGFGIHCCLGQN
LARVELRAGLSALLRAFPNLRALVPADEVPLRLQGSVFVAVKNLPVCW

>CYP105BL2 (2515512120) *Salinispora arenicola* CNB527

MSSHAAAPDPETATPLHTLAPELTFPQFERSTPFDPPQAYTELSGRCPV
APVMSDGGKPSWLITSFEGVRTTSLDPRFSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPSPRVAYHLVGIPSSDYELFTGMATTLMDSTSSADQFA
ALQNMVSYFDTLVTDREHHDRDDLGRMVRRYLATGELTRDMLITLAWTT
LAAGQETTAHMIGLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPMI
QFGIPRVAMDDVKVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DEDIMYRVSELAVTW

>CYP1005A1 (2515512714) *Salinispora arenicola* CNB527

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTDQATY
RPDNALAEAVTPVPVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTTELVA DRVATIRTTLDSSGGPVDLYADLTADLPLLVLAR

LVELPDAPVNAVVKQFARAALFWAPLDADRQLALADEVGRFHQVLRFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLHRLTGEP
TIRAALRAGSISVADVVEEGLRLEPPIVWRRVAVDSTLGGTTVAAGTS
VLLWLRAGRDPVVAAPDEFRRPGQRGSRRLAFGAGAHRCGLGDQLARME
ATVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVR

>CYP105CT1 (2515512784) *Salinispora arenicola* CNB527

MNSPNHMPADSSSTAPARGCPMALSRGRVGLDVTDEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSAVFNAGVPSPPVLVDGGFDTSVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIINAALDEMER
NGPPVDLVAMFAKTVPIITVICELIGVPEELRERYRRRAERAASASAVSTP
LDELRLREAGWVSRELIEYHRKNPSDDIIGMLLREHGADSHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGV LHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLTLDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRRFPGLRLAV
PDSELEFTQGTTVYSLRGLPVTW

>CYP154M5 (2515512800) *Salinispora arenicola* CNB527

VEQSCPYKLDVTGRDIHAEGEAIARARGPVAQVELPGGVQGSVTGYQAAR
QVLADPRFAKDPQKWPAITSGAIPPTWPLIGWLLMDNMTTNDGADHQRRL
KLVSHGFTPRQVERTPLIVKIVNDLLDGLSTAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNVTSISGEEAEANVEQWHRELLELV
EAKREKPDMDASLLIAAKEEDGSTLSQEEVVGTLHMLGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDPVHGETAGDYDITRADKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPNMTLAVRPNQLEPQGTTFIMNGHREL
PVRLGQPATVLA

>CYP211C1 (2515512995) *Salinispora arenicola* CNB527

VVDVEGLLARLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVAAVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAELEAFY
ELLAHRRRTPGEDLISGLVEAVDAGGVALTEDELISNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPIPOGQNVLLLIAAANRDPAHFPDPDRFDPRRSGLAFGLG
LHYCLGAASVRLLEGRLALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP125A41 (2515513262) *Salinispora arenicola* CNB527

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPHETKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGDV
TDVACELPLQAIAGELIGVPQHRRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQSPSDDLVTKLVAQIDGHELTDEFGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERPKSAVEEIIIRWATPVNVFQR
TALVDTVLGGQAIASAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP105CP2 (2515513525) *Salinispora arenicola* CNB527

MTKSMPVQDLPAFPPIPRECYPYRPSAQHVSLRSGGPMARVRLYNGRTAWLV
TDSA HARAVLS DYRRVSIKPYHGNYPLLN EEF EKVVDSGYADVLFGVDP
EHTRQRQMIMPSFTLRRTAVLRPDIQRIVNDKLD EMMRHGAPGDLVTEFA
QPVP SPMVS FLLGVPWEDHEEFETPAHKLFVPELAEEATTEL GAYLERLI
QKKEQPGGTPGGTGLLDD LIRDHLRAGALS RDELVHIAMAMLVAGTDTT
NVISLGLTALLDNPDQWAALRDN PDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRP RPSPFSFSH
GIHRC PGDNLARLELEIAFRSLVTRMPNLRTAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2515513527) *Salinispora arenicola* CNB527

MAAPAPQATQSTTPHPPSYPLPRECYPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLV TGAAEARALLADSRVSNRADFPNYPVM DERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQ LLLPRFTVRQVAARRPAIQ RIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVPYQDRTRFEP AVAGLFEPDRAD
AAMAELTAYLHQ LIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPD LVP GAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNV TTHPDRLDVALP
PTNH LAFSHGIHHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQ LPTY
FAGDVPRLACL PVTW

>CYP107FS2 (2515513528) *Salinispora arenicola* CNB527

MPVPQGEQNLTTTEVFADPKALFATLGS RQPLHRISLPDGM PAVLVTGYRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDD LIDVVAAKGEADLVEALALPLPIAV
ISEMLGVPFADRSEFERHAEVLTGINASSGFDAIIAAGRWFDEYLAGLVQ
QRRREPQDDLISGMLAAQDKGDR L TDVELRSNALLLSAGFETTVNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAREPVEI
GGFEIRSGEHVVIAAAAANHDPTVFADPSRLDLRREGSGQILSF SHGIHF
CLGAPLARLEGEIAFGTVLRRLAGLRLAVPTDSL VWKASFVLHRLERLPV
MFTPDRDPNPIDSVHTV

>CYP107AY14 (2515513934) *Salinispora arenicola* CNB527

MKAELTPIPRSGARLGQEYDQLRK TG DVHQVLLPDASLAWLV TNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGP AF
SPQRVAGLRPGIRRAAEHL LDTLVATSRPTDLVTGYCNPLSVQVIADLMG
VPDAGR TNLRAWTDMLTSYPPDRDAIRQAVTELHG YVVDLIDLKQQQPG
DDL SVLV TIEQDGDRLRDELTS LAFLILFAGYENTANLIASAVLWLLD
HGGLNEVP IAEAI EGTLRDEPPAPVAIRRFPTEDIIIRGLTIPAGDTVLL
SIAAATRGADGNAARLAFGNGPHYCLGAALARVEAEEALTVLARRLPGLT
LAVPPAQVRWRPTFRTHGPAELLVGW

>CYP107EU2 (2515514206) *Salinispora arenicola* CNB527

VTVGQTL PDLVYSPEFTRDPYAVFARLREQAPVCRVTTHRGMSAWMVTRY
ADVRALLADSR LAKDGNRIGELMPRH SKLTGAATGFPPGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVESLRPRIEEIVDDLLDGVAACGDEADLAEILS
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPADDLLTALVQVSADEDRLSREELVSMALLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPALAA GAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPQKFPDPDRLDITRSTQGNLAMGH
GIHHC VGAALARLELEIVLSRLVARFPQLQLAVAADDLEWL VNSFFRAPL
HLPVSLGR

>CYP248A2 (2515514271) *Salinispora arenicola* CNB527

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRFADVR
AVLGDERFARDGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLGL
LGLPAGNADAVGRWSRAVGRTLDRGATAEDMRRGHVAIAEFADYVERALA
ERREDGADLLALMLAAHRSQMSRNEIVSTVVTFIFTGHETVASQLGNGL
LSLLDHPEQLELVRRQPHLVSQAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDEFDIRRDPVPSMSFGTGMRYCLGS
YLARLQLRTALGAMAALPDLRLVCSPNELAYQPRTMFRGLTRLPAFTPA
G

>CYP105W3 (2515514279) *Salinispora arenicola* CNB527

MTGYQDPPTGDQPGAPVPSGSTDPGLDAFFPLPRRCPPSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRAHADVRLGDPMSADRRRPFGFPKFAPTTEGQ
RQASFANFRPPLNWMPPPEHAICRRQIVDEFSAARRVRQLRTLVERVDDAH
LDALAAAAPGADLVSTFAYPVPSQVICEVLGVYPYGEHGFERRSTLMFRR
STPADERARCAREIREFLDVVVTDKERRPGDDVLSRLLYRQRSAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPKRFPAAVE
ELLRYFTVVEAATARTATAEVTIGGVTTAAGEGVVALGQAANRDPRVFEH
PDEFDPDRDARAHAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MKVSDLPLKEDSNIFGLYALPVAW

>CYP107Q4 (2515514528) *Salinispora arenicola* CNB527

MTTTAETS AETIDLFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRLTNPPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRLKLVSYALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRAHWRAWGDSMATMNGER
IPTTLVKCIELARELIEKRRAEPQDDLVTALVQAQAEQDNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI
DRLAVGSESHLGFKGKGIHRCLGQHLAYQEAQVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105G7 (2515514529) *Salinispora arenicola* CNB527

LTITETTETPPADDTLRAPLPRQFMQRDDPSKLPPALAAAEQAPVGRSTL
PDGDPFWMVSGYDEARAVLSDFRFSDDFRYHPRFKKISGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQLDVMLA
KNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRRAAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRNPADDMISGLVHHAGADPPLTDDELVGIA
TLLLLFAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPPRIGDAVEELLRYL
TVVSAGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPIRWDTF

>CYP1051A4 (2515514555) *Salinispora arenicola* CNB527

MATDAAITRARTVPAWKALPAAVRDTHRALVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAATYPRGDDTALWRSVRKLVGDGILAEQDAWAA
SRRVLAPMFRPVRINAMVDTMADAIAGAVDDLHGAAGVAGTPIVGVRELSR
IVCSAIMRVFFADRITVQDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRTAVRSIDILLPVLRLQAQRQPDGDDLLSRLVRARADDGQVLSE
KMRDDLVSMVAVTETSTVVLTWLWPLLANHPDVADRLYDEIDRVVGGG

PVRGDHLAELTYTRMVLDLRLYPAGWILPRRAAATDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFVAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASSTRPARTVEMI
LKPVAIPAR

>CYP105AB35 (2515515124) *Salinispora arenicola* CNB527

MTETASSRLTDTEFPVQRQCPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFISTDPATRKRLYAQPLSMISMDG
AEHAQARRALIGEFTVRRRLAALRPRIQQIVDQCIDEMLTDDQHCVDLVKA
LSLPVPSLVICELLGVYDDHDFQEHATLVRNTAPEVRQHSIDELNA
YLGALIDRKLADPDDDLGRQIARQHQDGTFRSSIVSLAFLLLVAGHET
TANMISLGVVGLLQHPDQLTMKNDPDKMPLAIEELLRFFTIVDSVTSRV
ATEDVRLGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARRHHIAF
GFGPHQCIGQNLARLELQIVFDTLFRRIPTLRLAASLDKIPFKTDAAIYG
ARELPVAW

>CYP105EJ1 (2515515170) *Salinispora arenicola* CNB527

MAGVNSDLPSFPMARRCPHHPPEYAEMRARGAAVRVNFLGTPVWAITRH
AEARDLLTDSRVSTDPASPGHPFGALAATAERMAGQLTMDPPEHSAHRR
MLISEFGVRRVREMRPAIERSVDDLLDGMAGAAADLVEAYGLPLASAIM
CQLLGVPERDHAFHFDACAMLGCVFSSRDADVARMEMLAYLDDLVRGKH
PGQDGVDRLLTIRHDTGEPTHEAIVGMCFMILLAGHHTTATMIPLGVHT
LLDHPDQLAQLRAEPALWPAAVDELLRFHSIVDWMSFDRVATADIDVGDE
RIHAGEGIFVLGAAANRDERAFERSDDFNHRRSRHHLAFGVGIHQCLGQ
SLARTDLEISYRRLFDRFPRIRIHAPAAGLSFKYDAAMFGLQELPVTW

>CYP105CH2 (2515515726) *Salinispora arenicola* CNB527

VSSLPLPTYPKLRDPADPLLPADYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDKHPNFPYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRRLLISEFSVRQAQAMRPRIQQLVDFHLDQLIAAGPGADFSKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVAVADQKQAIDELLAYFE
QLIQRKSSHPGDDLLSRLIVSNRETEAFDHEALVALGLLLLLVGGHETTAN
TLTLATATMLERPEVAEQLRTDPSLMPSAVEEFLRYFSVAVAVSRIATVD
LQVGDLVRAGESMLLVNLTARDGTVFPEPHRLDIHRNARNHLAFSHGI
HQCMGQNLARVEMQIALDVTLLRRLPGLHLVTPFEELPFKYRHLVWGIEEL
KVAW

>CYP107AX1 (2515515857) *Salinispora arenicola* CNB527

MTSRPTAVFDQCLLRDPHSRYNALRDQAPVHHVLTDPGAPAWLVTRYNDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLHPAVERIVSTLLDGLAGHDRAELIGSLASPLPLQVMHEL
LGLPTQANIDFRTWTNTLLSADANQPAQSRAAMANMRRFLIEQLAHKRAQ
PGDDLLTGLLAAREDDRLTDDELVAMVFLLMFAGYDNTAALIGTVTHSL
LTNAELHEAVRGSLALDELIDEVLRWNPAFPLAVRRFAQEPITIAQT
PAGDRIWLCLASANRDPAQFTQPDDELGIVGLRRPHLSFGHGIHYCLGAPL
ARLQTTIAVTSLLNRFPPEMRLAVPAHDIRWRESFRLRGLIALPVYL

>CYP1198B2 (2515515874) *Salinispora arenicola* CNB527

MSGELTDQRAAPDVGGNPLRSLLDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGGEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP

GHGRQKRLVSKSFTPRIVQSFGPQITRIVDGLFEDFQDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKPNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMTVLRENPGVITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGSIVVVLMAAGNRDPRAYENPDV
FDVNRKIKNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQQLLKNPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP208A12 (641270080) *Salinispora arenicola* CNS-205

MTLDTITPRVPLGPRTAALRMLLVMKRDRLGMLSSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGDLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAEITG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP166A4 (641270760) *Salinispora arenicola* CNS-205

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFHSCHCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHEVEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLYHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHCCLGQN
LARVELRAGLSALLRAFPNRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP107Q4 (641270774) *Salinispora arenicola* CNS-205

MTTTAETS AETIDLFSPEVVADPFGWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPFRFLTNPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRLKLVSYALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPRPHWRAGDSMATMNGER
IPTTLVKCIELARELIAKRAEPQDDLVTALVQAQAEQDNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI
DRLAVGSEHGLGFGKGIHRCLGQHAYQEAEEVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105G5 (641270775) *Salinispora arenicola* CNS-205

MTIETTETTPADDSLRAPLPRQFMQRDDPSKLPALAAALAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDEDELVGIA
TLLLLFAGLDTTASMLGLGMFMILLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTF

>CYP1051A1 (641270799) *Salinispora arenicola* CNS-205

MPAWKALPAAVRDTTHRAFDVGNWSDGDVVRVSLGVSRPYLVTNPAHVQE
VLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAAASRRVLAPMFRPA
RINAMVDTMADAIAGAIDDLHGAATAGTPIDVGRELSRIVCSAIMRVFFA
DRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMPGDRRFRAAVRSI
DDILLPVLRLQAQRQPDDGDDLLSRLVHARADDGRALSEKMRDDLVSMVA
VTTETSTVVLTWLWPLLANHPDVANRLYDEIDRVVGGGPVRGDHLAELTY
TRMVLDELLRLYPAGWILPRRAATDILGGVRINKGATVILSPYVTQRM
TAWWGPTAEAFDPERFAAGREAADGRHRYAAYPFVGMHRCLGEHLFNLEA
ILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEVILKPVAPVPAR

>CYP1005A1 (641271027) *Salinispora arenicola* CNS-205

MSAVLFRSWTKTADTRWPDVTRVADQSGTEHLVVTRHALVRQVLTQATY
RPDNAMEAVTPVPVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLDSGGPVDLYADLTADLPLLVLAR
LVLELPDAPVNAVVKQFARAALFWAPLDADRQLALADEVGRFHQVLRFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSISVADVVEEGLRLEPPIVWRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFPRPGQRGRRLAFAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP211B2 (641271361) *Salinispora arenicola* CNS-205

MDVSEAI AVLISPSGRLDPYPTYEQ LRAHG PVSRTTAGLFVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIKSIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTAQADELVDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPADSWLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRRLTLRGYETLP
ITVGAVTADRGT PAGVAPGTP

>CYP105W2 (641271514) *Salinispora arenicola* CNS-205

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCFPSPPAEYARLRAEH
PVVRLPMLGGDTAWVVS RHADVRQVLSDFRMSADRRRP GF PKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEF SVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQV ICEVLGVYPYGEHEFFERRSTLMFRR
STPADERARCAREIRD FLDVVVTDKERRPGDDVLSRLLYRQRRAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPERFPAAVE
ELLRYFTVVEAATARTTTAEVTIGGV TIAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAH LAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (641271522) *Salinispora arenicola* CNS-205

MLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANTVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERVLA
ERREDGADLLALMLAAHRSQ LMSRNEIVSTVVTFFITGHETVASQLGNGL
LSLLDHPEQMELMRQP HLLPHAVEECLRFDPVQSNTROLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCSPNELAYQPRTMFRGLTRLPVAFTPA

>CYP107FS2 (641271587) *Salinispora arenicola* CNS-205

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
 ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
 KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
 ISEMLGVFFADRSEFERHAEVLTGINASSGFDATIAAGRWFDEYLAELVQ
 QRRREPQDDLISGMLAAQDKGDRITDVELRSNALLLSAGFETTVNLVAN
 GLLALLRHPEAMAAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
 GGFEIRSGEHVVIAAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
 CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSLWVKASFVLRHRLERLPV
 TFTPDRAPNPIDSVHTV

>CYP105CN1 (641271588) *Salinispora arenicola* CNS-205

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
 RTAWLVGTGAEEARALLADSRVSNRADFPNYPVMDEHLSMRATREMAREE
 EGGFAAALFGMDPPEHTRQORQLLPRFTVRQVAARRPAIQRIVDEHLDAM
 EANGSPADLVSAFATPVPTMVVCTHLGVYPYQDRTRFEPVAVAGLFEPDRAD
 AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
 ILVAGTVTTSSAIALGLTALLTAPGQYAALVDNPDLPVPGAVNEILRYLSL
 VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
 PTNHAFSGIHHHCIGQNALLLELDIAFRALVSRFPTLRLAVPAEQLPY
 FAGDVPRACLPLVTW

>CYP105CP2 (641271590) *Salinispora arenicola* CNS-205

MTKSMVPQDLPAFPIPRECPYRPSAQHVSLRSGGPMKVRVLYNGRTAWLV
 TDSAHAARAVLSDYRRVSIKPYHGNYPILLNEEFKVVDSGYADVLFVGDPP
 EHTRQORQMIMPSFTLRRTAVLRPDIQIRIVDEKLDEMRRHGAPGDLVTEFA
 QPVPSMVMFSLLGVFWEDHEEFETPAHKLFPVPELAEAEATELGAYLERLI
 QKKEQPGGTGGTGLLDDLRDHLRAGALSRLDELVHIAMAMLVAGTDTT
 NVISLGLTALLDNPDQWAALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
 SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRPPRPSFSFSH
 GIHRCPGDNLARLELEIAFRSLVTRMPNLRRTAKPIDQIPSNNDGTLQRL
 YELPVVW

>CYP244A4 (641271805) *Salinispora arenicola* CNS-205

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLGRHAW
 VVCDRELVKQALTHPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
 DGENHARIRRIHAPVLSRPNTERWGERVADKVEGFDELQSAGSGGSAEV
 NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
 GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
 GYETTGSLLISTSLYEAIRPPHERPKTDEDITAWIEETLRVHPPFPHTW
 RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEAGDSFDAERRGHGHLSE
 GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
 SVLPAVLS

>CYP245A7 (641271809) *Salinispora arenicola* CNS-205

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
 FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVMFDP
 PRHTELRSLLNRSFSPRIVTELPRPRIARIAQELLSRLGQQVDVDLVESFA
 APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRVDVGYAQAEVA

AQEFTEYFREQVRLRRGRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELGAEGLTDDAVEEFLRYDPPVQ
AVTRWAHQDITLGGCDIPRGSRVVALLGSANRDPARFSPDVLVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPITLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP105AB8 (641272001) *Salinispora arenicola* CNS-205

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTTDQHRADLVKT
LSLPVPSLVICELLGVPIADHDFEQEHTATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDDDLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDDTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARRHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP211C1 (641272121) *Salinispora arenicola* CNS-205

MDVEELLTRLISAQGRQDPFPVYADLHAQGPIAALPPEPERRRVAAVAVG
YDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVFA
GTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVMA
EFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAEELRAFYE
LLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNNLIVLFNASFVTTVY
MLSNGLPVLHAHPEVAAAALATDPVLTAGAVDEILRLQAPVHLLARAAPRD
TVLGGVPI PQGQNVLLLVAANRDPAHFPDPRDFPWRSGPPSLAFGLGL
HYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSVS
PGEGSTRE

>CYP125A41 (641272267) *Salinispora arenicola* CNS-205

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGFV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQSPSDDLVTKLVAQIDGHELTDEFGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERPKSAREEIRWATPVNVFQR
TALVDTVLGGQAI SAGQRFALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHLPDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP105J3 (641272455) *Salinispora arenicola* CNS-205

MTDSVAFFPQGRVCPHQAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRNTNPAWPAIVPIVAAAVNDAQQKVLKIATALVGTGPE
HKAQRKMLIPSFTRFRMNALRPMIQEIVDQQLDEMIQSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGLVDDLQAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDAVTRLAADDIEVE
GTIIRQGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP107EU1 (641272581) *Salinispora arenicola* CNS-205

MTIGQTLPLDVYSPEFTRDPYAI FARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPADDLLTALVQVSADEDRLSREELVSMALLLLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRDLITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQMLAVEADDLEWLVNSFFRAPL
HLPVSLRR

>CYP1198B1 (641272587) *Salinispora arenicola* CNS-205

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQRKLVSFSFTPRIVKSFGPQITHIVDGLFEDFRDRGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRNKPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDPAYESP
FDVNRKIRNVSLAFGAGAHFCIGSLAKLEAEIAISAFQRLKHPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP105CH1 (641272594) *Salinispora arenicola* CNS-205

MSSLPLPTYPKLRDPADPLLPAPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHHPNFYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRLLISEFTVRQAQAMPRIQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRTPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVNLTARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALDTVLRRLPGLHLVAPFEELPFKYRHLVWGIEEL
RVAW

>CYP105BL2 (641272669) *Salinispora arenicola* CNS-205

MSSHSAAPDPETATPLHTLAPELTFPQFERSTPFDPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLSDPRFSSDMSHPGFPNRTGKPVDDL
KDTLGAMDGERHRYRRLTGELTVRRAKAMPVITQITDEALDQLAAAG
PGADLVKHVAFVVPVSRVACHLVGIPLSYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHRDRLGLHGMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHELLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVAFERPDEL DVRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP162A6 (641273965) *Salinispora arenicola* CNS-205

MPHGPTLTLYANELCDPELYRQGNPEDLWRRMHAAAPVHEGAFEGRRFH
AVISHALISRMLKDPKGFSSERGMRLDQNPAAATSLAAGKMLIITDPPRHG
KIRRIVNSVFTPRMVARLEENMRVTAAGIVDQAIEEGECDFTDVAARLPL
SAICDMLGVPPEDWDFMLDRTMVAFGSGEDELAMAEAHADILSYEDLI
RRRRREPREDVVTALVNGVVDGTKLTDEEIFLNC DGLISGGNETTRHATI
GGFLALLDNPEQWETLRDDPGLLPGAVQEILRYTSPAMHVLRTAVAPTRI
GEYALNPGDPVALWLSAGNRDPQVFADPDRFDITRSPNPHLTFSTGAHYC
LGSALATSELTVLFDRLRLRRVDSAELTGPPRRTRSILIWGYDSVPVRLTA
GSER

>CYP107HF1 (641273969) *Salinispora arenicola* CNS-205

MYGDTEESAGVHSANNVTPLISTDPHAAEHLREQAPACPIRSIEGSLMW
IVARHDGVRSVLGDARFANNPASVPGGKAPQLQANAMRRLGLDEELIPYL
ADTLSDSDGKDNRLRLVTPAFSARKVKALGPRIERLTDDLIDALPQHA
GGGVTDLLEHFAYPLPINVIGELVGVPAADLPAWLRWTHDLSFNQQALGQ
TLRPLVDYTYDLVRHRYDEPGEDLISELIQARDADGDRLSERELVTMVLS
LVIAGHDTTANFIANSIWALLTHPEQLALLRADPGLMPQAVQELLRWCGP
VLVSRMRYATEDVDLGGWTFQTGDAVTVALSGGNHDPRRFTDPGRDLITR
QHDTRGEVHLSFGAGPHYCLGAALARHEAEIALSRMLARHPDLALAVPAE
QLQWHAVSGMRKLATLPVRL

>CYP113S1 (641273972) *Salinispora arenicola* CNS-205

MGTAPAYSLDGGRSLHRWLDRDMREHHPVHRELLTRVWTLRYRDITQATA
DPAVFSSELWRYLPGDRGDDALTAGNLTAMDPPRHRLVRDLVSRSTARA
VGALRPRIAAIAELIGAVADRGEMDVVADLSDPLPVLVIGELLGLPMAD
RELLSDWARRLLSFDKGDLTDEVVRKRVADTQQEELLDYLRVHCRRRRTNP
QDDLISRLIRAEVDGQRLTEDEVVNFANLLLLAGHVTTLLLLANIVLTLD
EHPAVAAEARADRGILPGLIEETLRYRPVIVSNMRVTTTRAVTVGTEQLPA
GQLVSLSFISGNRDEQYFTDPDRFDIHRDARKHLGFGHGIHYCLGAPLAR
LELGIALDAMFDRFSRIEVTGVPVDYDTPGVAGPRSLRIAFRHH

>CYP107AY2 (641274297) *Salinispora arenicola* CNS-205

MTAEPTPIPRSGARLGQEYDQLRKTDGVHQVLLPDASLAWLVTNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPFAF
SPQ RVAALRPGIRRAAEHLLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRATDTMLTSYPPDRDAIRRAVTELHGYYVDLIDIKQQQPG
DDLSTLVTIEQDGDRLSRDELTSLAFLILFAGYENTANLIASAVLWLLD
HGGLNVVPISEAIEATLRHEPPAPVAIRRFPTEDIIIGGV TIPAGDTVLL
SVAAATRGADGNAARLAFGNPHYCLGAALARVEAEALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP105CT1 (641274328) *Salinispora arenicola* CNS-205

MNSPNHMPADRSLTAPTSGCPMALSRGRVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTDSDYDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGVLLHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLITDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALRRFPGLRLAV
PDSELEFTQGT TVYSLRGLPVTW

>CYP154M5 (641274344) *Salinispora arenicola* CNS-205

MEQSCPYKLDVTGRDVHAEGEAI RARGPVAQVELPGGVQGSVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPPNWPLIGWLLMDNMTNDGADHQRLR
KLVS HGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGREFATPLP
ARVICDMFGVPEALRASVLRGAQVNVTS SISEEAEANVEQWHRELLELV
EAKREKPEDMASLLIAAKEEDGSTLTQEEVVGTLHMLGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDPVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPHMTLAVRPDQLEPQGT FIMNGHREL

PVRLGQPATVLA

>CYP107AW7 (2516072425) *Salinispora pacifica* CNT131

VETVTGTSTPPVPYIADPYPTLARIRANGPVSILHSDEGIPMWVIARYR
DVRAALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFPLPLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAAAFATALREMTDYIAVQLRIR
QTRPGDDILTELLAARDAGQLTDDDEIIGMVFLLLIIGHETTVNLLGTATL
ALMRNPDQHRWLLANQHALLPEAIDEFLRYESPVAMATLRFRTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLAFGHGLHRCGLGA
FLGKLEGEVALGALLRRHPRLALAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP107AX4 (2516072440) *Salinispora pacifica* CNT131

MTSQPAPVFDQLLLRDPHRRYNALRDEAPVHHIRTLDGAPAWLVTRYDDV
RAAFTDPRLSVDKRLSSTDGEHGSSLPPELDAHLNLRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVERIVSTLLDGLVGHDQAEIIGSLASPLPLQVMQEL
LGLPTQTSVDFERRWTNTLLSADANQPAQSRSAMANMRRFLVEQLAHKRAR
PGDDLLTGLLAAREDDRLTDDDELVAMLFLLMFAGYDNTAALIGNVVHAL
LTNTELPAAVRTGSLALDELVDGVLRWNPSFPLAVRRFAREPITIAGQTI
PAGDRIWLCLASANRDPAQFTAPDTLGTGMRRPHLSFGHGIHYCLGASL
ARLQTTVAVTILLDRFPGIRLAVPAHDIRWRESFRLRGLVALPVFL

>CYP164C2 (2516072927) *Salinispora pacifica* CNT131

MTARAGSVAEDI IQLADRMGREDPYVPLHRMRQASPYVALPGLVVAGTHA
TCSAVLRDPGMSSERQRATLAPAARGPRTNRLHLDPPDHTRLRLRLVSKV
FTPRVVATMEPHIRRTTDDLLTAAAARGSMEEVADLAYPLPLRIICEVLG
VPAEDHHLVQHWSARLSEALEPPIPGLVSTTTSTEAARARAGFIAYFQAL
IADRRRSRPRADLVSQLVAVEDASERLDSSDILATCILLINAGHETTVNLI
ANGVLALLRHPEQLADLRAEPGLAAATVDEVRLRYDAPVQITSRVAKHDTR
LGAADVVRAGDMVVLLLGAANRDPVYPDPDRFDIRRRSPVPHLAFSAGAH
FCLGAGLARLEAQIALSAVAARLREPRLRAGGVSYKPNLSLRGPDVLTVD
FDDVLAPGRRDQGEANG

>CYP211B11 (2516073147) *Salinispora pacifica* CNT131

MDASEAVALLTSPPGRLDPYPTYERLRAHGPPVSTAAGFFVVTGYTEADT
VLRNPRFEVMDDEERDGVFPHWQDSPAMISISRSMIRANPPDHSMRRLA
AGVFTPRRVAALREVVAQAADGLVDEMIRAGRGAADVDFMGSFAYPLPVT
VICALLGVPTADWARFRHWASDLTGVLPEITPQELAIADAGASELRDYF
TELIAQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVVLLTHPDSATALRGQPELAPGYVEEFLRYDSPVQLTSRTVR
ESVSLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRHRLTLRGYETLP
VTVGAVPADPGTPAGVALGTP

>CYP125A65 (2516073791) *Salinispora pacifica* CNT131

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMAVSRDSETYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPPHEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGVDPMAAAA
ELLAYAMEMANERQRNPSDDLVTQLVNAQIDGHELTDEFGFFVMLLAVA
GNETTRNAITHGMLAFLEHPDQWELFKAERPRSAVEEIIIRWATPVNVFQR

TALVDTTTGGQAITAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REMPVRYR

>CYP208A22 (2516075212) *Salinispora pacifica* CNT131

MTVIADRGGRIPPGPPVTAGLRLLLLALGRDRLGMMTSAAA EYGDVARLPV
GPKKLYFFNHPDHAKHVLADNHANYQKGIGLVHARRALGDGLLTSEGELW
RKQRRVIQPAFQNRRLAQYAGAVGQEATRLVARLATRVDPVPDVLDEMT
RLTLGVLGRITLLDAELTGFGVGVGESFAAVQDQAMFELETNTVPTWIPLR
RQRRFRRARQHLQEVVDVLA AERGQAVEGRDDVLSRLILSTRAEADPQLG
RERLRDELVTLLLAGHETTASTLGWSLHLLDQHPELRERVRHEARTVLGD
RVPAYEDLHQLRYTAMVVEEAIRLYPPVWILTRKARA EDEIGGYRVPAGA
DILICPYTLHRHPRFWAE PERFDPERFDPSRTTDRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLA VLLRDLRLEGLPGRAVVPEPMLSRLVRGGLPMTVR
RVD

>CYP124M3 (2516075233) *Salinispora pacifica* CNT131

MTVPIELDVAVDLSNDNDFWTKPLEYRHAVFNALRAQPGLPHFASPEFGSAP
RGRGYALTRMDDVLAVSRNPSVFI SGKGNVAMEVPAEFLDQSLITMDNP
RHARLRRIVS RGFTMKAVTALMDNASQMAKQIVDEVVERGECDAVVDISA
KLPLGIIICNMGI PDSQQQVFVEQTNVMLGVQDPEYVGEQNDAMLAMSV
SQELADLMHELATLR AKNP TDDLISKLLSAEVNGEALTPSEL AHFFILLT
GAGTETTRNAISWGIQLLTQSPEQREAWLSDIDGVTP TAVEEIVRWSSPV
ISQRR TVAEDAEPVKLAGQLLGPGDKVLMFYGAANRDPNYFVHPEGFDVR
RSPNPHVGYGGPGPHFCLGAHLARLEISVMFRELLTRIPDIHATGEPARL
KSPLINGIKRLPVAFTPGAR

>CYP107FH3 (2516075353) *Salinispora pacifica* CNT131

VPIELDEAFVQDPYAVYEKLRAEGPAHRVRMPPGVPLIGGLPVWLITGYD
AVRAALADSRLSTD LHRIDGLFAQKDPDRSHRGGFSSALASHMMHTDPPD
HTRLRKLVS KAFTTRAIEALRPRIQQTDEL TADLAGHDTV DLLDAFAFP
LPIRVICLLLGVPVAEQENFRSWSRALVSGHSPEAAATAATEVAAYLGDL
VERKRHATTDDVLTALVA AHDDRLTHTELVSTAYLLFIAGFETTLNAL
GNGTLHMLHRDQWTALRADRALLDNAVEEFLRLESPLKHATFRCATESL
RIGDAEIAAGDFVLLAIASANRDPLRFDPHTLDVRRPAAGHLAFGHGIH
HCLGAPLARVEVRMAFDALLDAFPDMRLATDPAGLRWRNSTIIRGLDSL P
VHLNN

>CYP2054A3 (2516075358) *Salinispora pacifica* CNT131

MSISADSEQVQGRFPDPYGAHRDDPYTFLAGLG VFYAPLLDAWCVTRED
MVAVLRDDRSFSARDHNPRPAVALPDDVNQMFRTWRGAGAVAVGSLDPPA
HAKIRDVLNIGFTPARVRAFEPTMRAVAADLADRIGDAPEFDFIADFAVP
FALEVIGRRLGV PDDYLDRCRTWSEQRIELMMAQGDADHDRLREFARGLM
EFGEFARSLVRDRVADPRDDLISELLHDGKAGRTLTADEVAVQIPTLIFA
GHMTCAEALGTIFYQQLRSPGGWARVVDRTIPVGD LVEEGLRFDSPLAGM
YRTATRDVTVGGIRLTAGSRLLLLYGAAGRDSRAHACPAAFRPGDGSSGH
LAFGHGHIHFCLGAGFARAELRVAVEVLAARMPDLGLAPGRPPRF RVPFPL
RALTEL RVTRSGGSGP

>CYP161N4 (2516075363) *Salinispora pacifica* CNT131

VNTVAQLPFTQTHVLVDVAPALRLLQSRGKVHRVRTPEGVPAWLVTGHAEV
QQLLDDDLRSRSDPGGRDGGTALLNKLLGPLADDPRLRSLLFPQFTPER
LEPLRAVVEKLTEQHLDELATRTPVDLRPTLAMSILVLCEWLGVPAE
DKGRFSIWTQDAAGVQDPERSQRGLAELFGYCRQLVAAKRQDPGDDVISR
LIATAGIGDTEVVALTALLLFGGYETTVARIGTGVLILLANPDQWAAVRA
DPALVPATVDELLRRSMPNPNHNGMPRFAVTGFEIDGAAIRAGDLVLLNI
IAANHDETAFFPDPDRDLITRPTAGSLAFGYGRHSCVGAPLARMVLRVALS
RLITRFPDLRLAVGVDELKLRHETLVGGGLVELPVTWGPR

>CYP105AB28 (2516075865) *Salinispora pacifica* CNT131

MTETASTTTPGISSTTTSGPASGEVTDAEFPLERGCFFSTPTEYEQIREH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFPFVSTDPE
RKQLQDQPTSMIGMDGAHAQARRALMGFTVRRMAGLRPRIQQIVDQHI
DEMLSSDQRTADLVEALSIPVPSLVICELLGVVPYADHDFQARSGPLIRH
TTPTEVRLRIQKELNTYLALIDRKVADPTDDLRSRQIAKHHAAGTFDRT
SLVSMAFLLLIAGHETTANMISLGVVGLLQHPDQLAMIKEDPEKTAPAVE
ELLRYFTIADTVTARVATEDVQLGGTTINAGDGVVISGLAADHDPTVFTD
PDRDLERGARHHVAFGFGPHQCIGQTLARMELQIVFDTLFRRIPTLRRLA
APLDDIPFKSDAFVYGAERLPVAV

>CYP107AY9 (2516076090) *Salinispora pacifica* CNT131

MSQDQPTRAELAPIPRSGTRIGPEYDQLRKTDGVHQVLLPDTSMAWLVTS
PDLVSRALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPDHTRLRR
LVGPAPSPQRVAALRPRIQRTAEELAETMVATGSPVDLVTGYCTPLSVQV
IADLLGVDPDAGRDTLRAWTDMLTSYPPDRDAIRQAVVELHGYVNNLIEA
KQQRPGDDLSSALVATEQEGDRLTRDELTSALFLILFAGYENTANLIAS
VLRLLDHGSLRGVRVSEAIEETLRLEPPAPAAIRRFPTTEMTIGGATIPA
GDTVLLSIAAATRGADGNPARLAFNGPHYCLGAALARVEAEEAITVLAR
RLPGLALAVPGAPVRWRPTFRTHGPAELLVAV

>CYP244A10 (2516076110) *Salinispora pacifica* CNT131

MQDTAQANLAEAPEVRMPIELRPTDCLPELLAAARVAPVVRTPYLDQHAW
VVCDELVKQALHTPKLGKDVAPDWMRQPGQMTAMPPEYARMVMMS
DGEHHARIRRIHAPVLSRPNTERWSERVAALVDGFLDNLDSADGTEVNLI
TDYTHKIPLAFTAEMGLPPGAERRLHDITEVMLYSADYALRQQAVGELF
EAVQEWVRDPAGLRDGVITGLLASADGPDATVTKGEAIVWTLSLIINGYE
TTGSLISAALYEALRRPARERPHTDEAVAAWIEETLRVQPPVPHTTWRF
LADLDLGGYLIIPGAPVQISLAAANLDPDEDADSFDAQRRGRGHLSFGLG
AHYCIGAPLARVQTKIALRGFLRRFPQARLSLDTAPRWESEWMIRMSVL
PVLLA

>CYP107AY16 (2516076408) *Salinispora pacifica* CNT131

MRVEPTSIPRSGAQLGQEYDQLRKTDGVHQVLLPDASLAWLVTNPEVVAW
ALADPRLALNRRNSRAGWSGFALPPALDANLLNLDAPDHTRLRLRLVGP
SPQRVSALRPGIRRAAEHLDTLVATTVTDLVTGYNPLSVQVIADLMG
VPEGGRTNLRAWTDMLTSYPPDRDAIRQAVTELHGYVVDLIDIKQQQPG
DDLSSALVTIEQDGDRLTRDELTSALFLILFAGYENTANLIASAVLWLLD
HGGLTVVPHSEAIEATLRHEPPAPVAIRRFPTEDILIGGVTI PAGDTVLL
GIAAATRGADGNAARLAFGKGPHYCLGAALARVEAEEALTVLARRLPSLT
LAVPP

>CYP1005A6 (2516076637) *Salinispora pacifica* CNT131

VSAVLFRSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLTQVITY
RPDNALDAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTTELVAERVAAIRATLDSGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAALFVWAPLDADRQLALADEVGRFHQVLRIFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLAGEP
TVRAALRDGSVSVPNVVEEGLRLEPPIVWRRVAAVDSTLGGTAVPAGTS
VLLWLARAGRDPAIVSAPDEFPRPGQRGSRRLAFGAGAHRCCLGDQLARME
AAVVVERVSPLLDGVTVVRAPWYPDNLTFRMPDAFVIRRGPAAGAAER
AQVRWRPTFRTHGPAELLVSW

>CYP107E37 (2516076675) *Salinispora pacifica* CNT131

VTIDQEIREYPPFRESRGIGIDPTYELLRRTEPLARVQLPYGEVSWLVTRY
EDVKTVLTDPRFSRAAAQKQDQPRTRAEMTYEGIIGLDPPDHTRLRLRLAG
KALTARRVNAIRADAQRIANEYVDEMIAGKSPGDLVELFALPYPVTVICE
LLGVFFEDRAQFRIWTEGLTSTSEQLMVYAEQLFDYMGKLVARRAEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTGVEVTVSTHINPFIYALLT
HPELMAQLRADRSVPAAVEELLRMIPLNPAAMFPRYAVEDVTLSGITVR
AGQPVLVSLPGANRDPEVFENPETFDFTREQNPVAFGHGPHHCLGAQLA
RMELQVALHTVLDRFPDLRLADGDEGVSWKSGLLVRGPSRLLVGW

>CYP107FH4 (2516076790) *Salinispora pacifica* CNT131

MPPGIGTPIRKNVMTQIPLSPDIIELDDQFMQDPHAVYARLNEKGPLHQV
RIPPGVPVCGGLTVWLVTGYDQVRAALADPRLSTDRLKTEALFAQNQPDS
TKRGGFSSTIANHMLHNDPPDHTRLRLKLVNKAFTSRAVERLVPQIERIAD
ELLDSLSERETVDLLDLYAFPLTFRVICALIGVPEEDQENFKESKQLIS
GGSAEVAASAIMHDYLRVASKRDAPGEDVLSALVQARDADDRLAEN
ELISMAFLIIIGAHETTANTVSNGLLHMLTNLSQWEALARDSLLAGAT
EFLRLESPLKHATFRCVTESLWIGDVELPAGDFVLISLAAANRHSGHFGP
DPQVLDIERQTRGHVAFGHGHIHYCLGAPLARVEAHIAFSALLNRYPGMRL
AADPQDLRWRTSTLIRGLHELPVRLVSAPQGHVGS

>CYP211B11 (2517979575) *Salinispora pacifica* CNT609

MDASEAVALLISPPGRLDPTYTYERLRAHGPPVSTAPGFFVVTGYTEADT
LLRNPRFEVMEDEERDGVFPQWQDSPAMISISRSMIRANPPDHSRMRRLA
AGVFTPRRVAALREVVAQAADGLVDEMIRAGRGAADVDFMGSFAYPLPVT
VICALLGVPTADWARFRHWASDLTGVLPEEITPQELAIADAGASELRDYF
TELIAQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLLAVAGFETT
TNLLGNGLVLLTHPDSATALRGQPELAPGYVEEFLRYDSPVQLTSRMVR
ESVSLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPRRSQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRHRLTLRGYETLP
VTVGAVPADPGTPAGVALGTP

>CYP244A12 (2517980718) *Salinispora pacifica* CNT609

MQDTAHVNLAEPVVTMPIELRPTDCLPELLAAARVAPIVVRTPYLDQHAW
VVCDELVKQALTHPKLGKDVVALAPDWMRQPGQMVMTAMPPPEYARMVMMS
DGEHHVRIRRIHAPVLSRNTGRWSERVAALVAGFLDNLDSADGTEVNLI
TDYTQKIPLAFTAEMGLPGPVERRLHDITEVMLYSADYALRQHAVGELF
EAVQEWVRDPAELRDGVITGLLASTDGPDAVTEGEAIVWTLISLIINGYE
TTGSLISAALYEALRRPAPERPHTEAFAAWEETLRVQPPVPHTTWRF
LADLDLGGYLIPKGAQVQISLAAANLDPDEAADSFDAQRRGRGHLSFGLG

AHYCIGAPLARVQTKIALRGFLRRFPQARLSADTAPRWESEWMIRMSVL
PVLLA

>CYP107AY8 (2517980738) *Salinispora pacifica* CNT609

MRAELAPIPRSGARLGPEYDQLRKTGDVHQVLLPDTSMAWLVTSPELVSR
ALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAF
SPQ RVAALRPRIQSAEELAETVVATGSPVDLVTSYCTPLSVQVIADLLG
VPEAGRDTLRAWDTMLTSYPPDRDAIRQAVVELHGYVNNLIEAKRQRP
DDL SALVATEQEGDRLTRDELTSALFLILFAGYENTANLIASVLRLLG
HGSRLRGVRVPEAIEETLRLEPPAPAAIRRFPTTEMTIGGATIPAGDTVLL
SIAAATRGADGNPARLAFGNPHFCLGAALARVEAEEAITVLARRLPGLA
LAVPGASVRWRPTFRTHGPAELLVAV

>CYP163B20 (2517981077) *Salinispora pacifica* CNT609

VTATDAKDVGVGSRNVASTIDLADPATFAGHDLTNFWQRLRDEEPIYWN
PPTSGRRGFVWLSRHADILEVYRDDMTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHTELKLLLRALGPRVLGPVCRAVRANTRQMIGAAAANGECD
FATDIASSIPMITISNLLGVPEADRASLLKMTKTALSADDESISDTDSEM
ARNEILLYFQDFVEFRKNPGEDEVVSMVLNSSIDGVPLSDDDIVLNCYSL
IIGGDETSRLTMIDSINTLAANPGQWRRLKEGRCDIDKAVDEVLRWASPS
MHFGRTAVRETVIHGERIQVDDIVTLWGASGNRDERAFKQPEVFDLGRVP
NRHLSFGHGPHYCIGSYLAKVEISELLIALRDLILGFEVIGEPQIRIRSNL
LSGFSTMPVRFDADRTGLASEAREG

>CYP125A65 (2517981222) *Salinispora pacifica* CNT609

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMASRDSETYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGTGDFV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGVDPMAAAA
ELLAYAMEMANERQRNPSDDLVTKLVAQIDGEHLTTDEF GFFVMLLAVA
GNETTRNAITHGMLAFLEHPDQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLGGQAITAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGSGSVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REMPVRYR

>CYP208A30 (2517982635) *Salinispora pacifica* CNT609

MTVTAAGRTFSGPTGSALLRSLWQLGRDRLGLMTSAARYGDAVRLGVGSR
SLYFFNHPDHAKHVLADNSGNYTKGIGLVHARRALGDGLLTSEGELWREQ
RRVMQPVFQAKRIAGQAHAVAEEADRLLARLRARRGGGPVNLTDEFTALT
LGVLGRTLLDAKLDAFASVGAAFEEMQNQAMFEMASMSLVPMWVPLPQQL
RFRRARRELERIVGRLVADRTARGEVTGADDALSRLIAATQDEPDPGFAR
RRMRDELVTLLLAGHETTASTLSWTFHLVNQHPWVRGRLRKEAIEVLGDR
LPEYADLARLT YTKMVVSEAMRLYPPVWMLSRLARDADVVDGYVPV
PARADVLICPYTLHRHPAFWPEPERFDPERFDGAVTDRPRYAYVPFGAGPRFCI
GNHLGLMEAVFVAMVSREFELVAPVGQPVVAEPMLSLRIRGGLSMTVEP
VS

>CYP107AW10 (2517982780) *Salinispora pacifica* CNT609

VETVTGTSTPPMPYIADPYPTLARIRANGPVSI LHSDEGIPMWVIARYR
DVRTALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHHVQGAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFPLPMLV
ICELLGFP AEERNAYRSWSTTILTHDDDPAAAFATALREMTDYIAVQLRIR

QTRPGDDILTELLAARDAGQLTDEEIIIGMVFLLLIGGHETTNNLLGTAIL
ALMRNPDQHRWLLANQHALPKAIDEFLRYESPVAMATLRFTTTPVTIDDV
VIPAGELVLVSLGGANRDPDRFPEADRLILDRRDTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPRLALAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP1005A6 (2517983149) *Salinispora pacifica* CNT609

VSAVLFRSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLTQVQTY
RPDNALDAVTPPIVAAALRVLAGHRFRLPPTLANNGGTSHPAIRALVADAL
HPAKVAAQRPWLTELVAERVAAIRATLDSGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAALFLFWAPLDADRQLALADEVGRFHVQLREFE
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHLRLAGEP
TVRAALRDGSVSVPNVVEEGLRLEPPIVTVRRVAAVDSTLGGTAVPAGTS
VLLWLRAGRDPPIVPADEFRPGQGRSRRHLAFGAGAHRCCLGDQLARME
AAVVVERVTPLLDGVTVVRAPWYPDNLTFRMPDAFVIRR

>CYP107AX6 (2517983482) *Salinispora pacifica* CNT609

MTSPPAPVFDQLLLCDPHRRYNALRDEAPVHHIRTPDGAPAWLVTRYHDV
RAAFTDPRLSVDKRLSSTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRIADLRPAVERIVSTLLDGLAGHDQAEELIGSLASPLPLQVMQEL
LGLPTQTSVDFRTWTNTLLSADANQPAQSRSAMANMRRFLVEQLAHKRAQ
PGDDLTLGLLAAREGDWLTDDDELVAMLFLLMFAGYDNTAALIGNVAHAL
LTNAELPAAVHTGSLAVDELVDGVLRWNPSPFLAVRRFAREPITIAGQAI
PAGDRIWLCLASANDPAQFTEPDTLGTTGMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVTSLLDRFPGIRLAVPAQDIRWRESFRLRGLVALPVFL

>CYP1207A12 (2517983870) *Salinispora pacifica* CNT609

MITVPPTDRYLLDEDLVADPYPYLAELRVAEPVRWSPVHRAWLVGTGEAA
ASCYAEPAISADRIGPMLAQTPLELLSPEAARAFTIMAGWMVFVDPPEHR
RLRSVFRGAFGARQVRRNRPMVQEAVTRLTARTGTGTVGDTVDLVAEFARPL
PATVAASWMGVPVEDTAVFQRWAIQVGDALGTVQSPEEHERSQALLDL
FDYLRMLVRRTRATPGEDLISAALANGLVGDSVSEDEFVAMLTHVAFAGG
ETTSNLIAGVTWNLLRHPDQLALLRAEPELAPVAIEELLRFDGPSKMSIR
HVKNDELAVAGQRLRAGQRLYVVVTAGANRDPDYFDHPNELDVRHPNPHLG
FGQGGHFCCLGAPLARLVAGAALTDLLAAAPGLALSTA-EVRWQPSLLNRSL
QALPVR

>CYP107LA2 (2517983889) *Salinispora pacifica* CNT609

MECPVTARSSRFYPFSDRADLILDPITYGELRSKEPVARVRMPYGGGDAWL
VTRHADAKKALSDPRLSIAAGAGRDVPRASPRIQEAEGLMGMPPEAHARL
RRLVATAFTPRRVRDIAPRVAEIIADRLVNDVIETGPPADLVRQIALPVPI
TIIICELMGVPAEDQHVFVRVFSDALMSSTRYTDDEVDQAVQEFTAYLGGLL
TQRRAHRTDDLIGALIEARDDGERLSEELIMLTGGLLVGGHETTASQIA
SHLLVLLRDRARYETLSARPELIPTAVEELLRVAPMWVTVGPTRIATEDL
ELNGVTIRAGDAVIFSLSSANLDEDAFPDATDVVLDREPNPHIAFGHGPH
FCIGANLARLEIQATIGALVRRRLPGLRLAVEENDLEWRRGMIVRSLAALP
VTW

>CYP113B7 (2517983890) *Salinispora pacifica* CNT609

MTQTDNAPMPPLDLPGKADAQGLLDWFAYMREHSPVSWDETRQAWHVFN
QDYLTVTNPLIFSSDFSPVFPVPELALLMGPGTIGGIDPPRHGPMRKL
VSQAFTPRRIAQMEARIETITADIFEQVRGQERIDIAADLAYPLPVTVIA
DMLGIPNEDHEKFREWVDIILSNEGLEYPNLPDDFTETVGPAAEWSEFL
YAQIAEKRARPDQDLMSGLLAVEVEGRRLTDEEVVNIVALLLTAGHISSA
TLLSNLFLVLEEHPALAAVRADRSVPGVVEETLRWRSPFNCIFRLLAQ
DTEIFGQPMRKGMVIAWIASANRDTEVFAEPDTFDIRRKS NKHLAFGYG
IHHCLGAFLARQEAKVFLNQVLDEFSEFTIDHDGVEFYDPDQLTARRLPV
QVVR

>CYP107E37 (2517984117) *Salinispora pacifica* CNT609

VTIDQEIRKYPFRESPGIGIDPTYELLRRTEPLARVQLPYGEVSWLVTRY
EDVKTVLTDPRFSRAAAQKQDQPRTRAEMTYEGIIGLDPPDHTRLRRLAG
KALTARRVNAIRADAQRIANEYVDEMIAGKSPGDLVELFALPYPVTVICE
LLGVPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFGYMGKLVARRAEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTGVEVTVSTHINPFIYALLT
HPELMAQLRADRSVPAAVEELLRMIPLNPAAMFPRYAVEDVTLSGITVR
AGQPVLVSLPGANRDPEVFENPETFDFTDQNPVAFGHGPHHCLGAQLA
RMELQVALHTVLDRFPDLRLADGDEGVSWKSGLLVRGPSRLLVGW

>CYP105AB37 (2517984125) *Salinispora pacifica* CNT609

MTETASTTTPGISSATTTPRISSTTTSGPASGEVTDAEFFPVERGCPFSTPA
EYEQIREHSPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFP
FVSTDPETKKQLQDQPTSMIGMDGAHAQARRALMGFTVRRMAGLRPRI
QQIVDQHIDEMSSDQRTADLVEALSLPVPSLVICELLGVYPYADHDFQ
RSGPLIRHTTSTEVRLRIQKELNTYLGALIDRKVTDPTDILLSRQIAKHH
AAGTFDRTSLVSMAFLLLIAGHETTANMISLGIVGLLQHPDQLAMIKEDP
EKTPPAVEELLRYFTIADTVTARVATEDVQLGDTTINAGDGVVISGLAAD
HDPTVFTDPRDLRLERGARRHVAFGFGPHQCIGQTLARMELQIVFDTLFR
RIPTLRLAAPLDDIPFKSDAFVYGAERLPVAW

>CYP113E1 (640472873) *Salinispora tropica* CNB-440

MATVPRLTFADGGVSVLPWFRQMRDDQPVWYDQGTGSWNVFRYADIAQIL
TDPATFSSDPGRTPPELVEEAEGSLVAVDPPRHGRLRALISTAFTPRLV
EQLAPRVRSIAERLLDRFTVDRGPEGEFDAIGDVAYLLPVYVIGELLGLP
ETDREYLVRTADEFYAISADDPFDGTYMASMQSTLDGLGTYMLDQAERRR
ARPGDDLMSALAHAEIDGEQLNDREIRNFAVLLLTAGHITTTALLGNTLL
ALGERRDVMLRWRHGQVDTADVLEEVLRRHTPFTEVYRFTTTEVTIGNQV
VPGDQLRLWLIASGNRDERQFADPDFTFVLGRDSRHLGFGLGIHYCLGASL
ARMESVVLVLEVLAEERTTLAPAVQGLSYYDAPGIFCLRSPLVSYRRS

>CYP163B1 (640473290) *Salinispora tropica* CNB-440

MTAADTGRVSGESQTPAHTVDLADPATFANHDLTGFWQQLRDEEPIHWN
PPTAGRGRFVVSRYADILDVYRDDVTFTSERGNVLVTLLAGGDAGAGRM
LAVTDGPRHAELRKLLLRALGPRVLAPVCAAVRTNTRQMIREAVTKGEC
FASDIASRIPMMTISNLLGVDPADRAFLSLTKTALSADDESISETESAM
ARNEILLYFQDLMEFRRDHPGEDVVSMLVNSSIDGAPLSDDDVLNCSYL
IIGGDETSRLTMIDSVNTLAAHPQQWRRLLKDGQCEIDKAVDEVLRWASPS
MHFGRVAARDTILHGVRIRADDIVTLWHASGNRDERVFHRPEVFDLGRTP
NRHLSFGHGPHYICISYLAKVEISELLIALRDLTSGFETTGEPRIRSNL
LTGFATMPVRFPVDRAGLARDALDG

>CYP105AB2 (640473609) *Salinispora tropica* CNB-440

MTETASIAATTRTASGQLTDAEFPVQRCPTTPTTEYEQIREESSIAKVRL
KNGGEAWWIAGHELGRSVLADRRFSSDRRRDNFFVSTDPETRAQLQSQP
TSM LGMDGA EHAQTRRALMGFTVRRMAGLRPRIQQIVDQHIDEMLATPQ
RSVDLVEALS LFPVPSLVICELLGVYPYADHDFQGLTGPLL RHTTPPEVRL
RIQEELNTYLGT LIDRKLTDPTDDLLSRQIAKHRDNGTFDRASMVSLAFL
LLVAGHETTANMISLGVVGLLQHPDQLV I IKDDPKTPLAVEELLRYFTI
ADSVTARVATEDVQLGDTTINAGDGVVISGLAADRDPTVFAEPDRDLDER
GARHHVAFGFGPHQCIGQTLARMELRIVFDTLFHRIPTLR LAAPLDDIPF
KSDAFVYGIEELPVAV

>CYP1005A1 (640473840) *Salinispora tropica* CNB-440

MSAVLFRSWTKTAGTHWPAITRVADQQGTEHLVV TQHALVRQVLT DQ LTY
RPDNALDAVTPI PVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQR PWTGLVAERVAAIRRTLDSGGSTDLHAELNADLPLLVLAR
LVELPDAPVS AVKQFARAAL EFWAPLDADRQLALADEVGRFHQV LREFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFL TLL LHRLADEP
TVRAALRADSVSVADVVEEGLRLEPPIV TWRRVA AVDSTLGGSTVAAGTS
VLLWLARAGRDP AVVPAPDEF RFGQ RGSRRHLAFGAGAHRC LGDQLARME
AAVVVEQVTPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP211B1 (640474137) *Salinispora tropica* CNB-440

MDASEAVALLMSP LGRIDPYPTYERLRAHGPPV VQTAAGFFVVTGYTEADT
VLRNARLAFEVMDDEL RDDVFPHWQDSPAMKSIARSMIRANPPNHGRMR
LAAGAFTPRRIAALREV VTAQADELADEMIRAGRDGAPVDFMG SFAYPLP
VAVICALLGVPAADWARFRGWASDLTAVLEPEITPQELTVADAGASELRD
YFTELIAQRRRAPADDLTALVQTHDADGDRLSGEELLANLV LLLVAGFE
TTTNLLGNGLV LLAHPDSATALRDQPELAPGHVDELLRYDSPVQLTTRT
VRESVLLAGVELPAGSWVLVLLGAANRDPERFTDPTRFDPGRAQSPPLSF
GAGAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRNRLTLRGYET
LPVTVSAIAADHGTPAGVARGTP

>CYP107AW1 (640474552) *Salinispora tropica* CNB-440

MESVTSTSAPPPVPYIADPYPALARIRANGPV SILHSDEGIPMWVIARYR
NVRAALADPRFGQDARRAQTLADNRVAGVT LGGDVIHMLNSDPPDHTRLR
HLVQGAFTARRVAAMRPLVERITTSLLDGVGGRQTVDLVQDFAFPLPMLV
ICELLGFPAEERDAYRSWSTAILTHND DPAAAFATALRDMTDYIEVQLRHR
RARPGEDLLTELLAARDAGQLTDDEIVGMVFLL LIGGHETT VNL LGTATL
ALVRNPDQHRWLLANPHALSEAIDEFLRYESP VAMATLRFTTAPVTVDV
VIPAGELVLVSLGGANRDPDRFPDADRLILD RRDTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLGRYPGLTLAAEVRQLRWRDTIMLRGLES LPVSLHG

>CYP107AX1 (640474627) *Salinispora tropica* CNB-440

MTSRPTAVFDQCLLRDPHSRYNALRDQAPVHHVLT PDGAPAWLVTRYNDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPELDAHLLNRDPPDHTRLRLRLAA
AACTPRRVADLHPAVERIVSTLLDGLAGHDRAELIGSLASPLPLQVMHEL
LGLPTQANIDFRTWTNTLLSADANQPAQSRAAMANMRFLIEQLAHKRAQ
PGDDLLTGLLAAREDDRLTDDEL VAMVFLLMFAGYDNTAALIGTVTHAL
LTNAELHEAVRGGS LALDELIDEVL RWNPAFPLAVRRFAREPITIAGQTI
PAGDRIWLCLASANRDPAQFTQPD ELGIIGLRSHLSFGHGIHYCLGAPL
ARLQTTIAVTSLNRFPEMRLAVPAHDIRWRESFRLRGLIALPVYL

>CYP211C1 (640474738) *Salinispora tropica* CNB-440

MLDVEGLLTRLYSEQGRQDPYPVYAGLHAQGAIAALAPRPEGQORVAAVAV
GYDLVGAVLRDPEWSKQPPPGWMEQEILRTLQSSMMFINPPDHGRMRKVF
AGTFTPRRLGTLEPVINRVADELDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPATELAWYRDRVDRIDAFLDVAGKTPERLAAAANAAAAELRVFYA
DLLARRRRTPGEDLISGLVEAVDAGGVQLTEDELINNLIVLFNASFVTTV
YMLSNGLPVLLEHPEVAAAALADDPDELTAGAIDEILRLQTPVHLLARAAPR
DTVLGGVPI PQGQNVLLLLIAAANRDP AHFPDPDRFDP RRP GPPSLAFGLG
LHYCLGA AVSRLEGR LALPRLLSRFPRLRIMEQP VYSGSLFLRGIDKLSV
SPGGRMHP

>CYP125A15 (640474868) *Salinispora tropica* CNB-440

MTEPRIPVGFDFTDPAVLERRVPREEFAELRR TAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMASRSDSTYSTRENTAIARFQPGTTRADLEMQRVIML
NVDPP EHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
ADVACELPLQAI AELIGVPQHRRKVF DWSNQLIGYDDPAYGVDPLTAAA
ELLAYAMEMANERQLNPSDDLVTKL VNAQIDG EHLTTDEF GFFVMLLAVA
GNETTRNAITHGMLAFLEHPEQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLGGQAI SAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFHSIADHMPDIRKVAEPRRLRSGWINGI
REMPVRYR

>CYP208A4 (640474950) *Salinispora tropica* CNB-440

MTVAAAGRTFSGPTGAALLRSLWQLGQDRLGLMTSAARYGDAVRLGVGSR
SLYFFNHPDHAKHVLADNSGNYTKGLGLVHARRALGDGLLTSEGELWREQ
RRVIQPVFQAKRVAGQAHAVAEEADRLIARLRARRGRGPVNLTDEFTALT
LGVLGRTLLDANLDAFTTVGA AFEEMQNQAMFEMASMSVPMWVPLPQQL
RFRRARRELERIVGRLVADRTARGE GTGADDALSRLIASTRDEPDGVAR
RRMRDELVTLLLAGHETTASTLGWTFHLINQDPRVRVRLREEAIDVLGGR
LPEYADLARLTYTKMVVSEAMRLYPPVWMLSRLARDADVVDGYVP PARAD
VLICPYTLHRHPAFWPEPERFDPERFDPEVTTDRPRYAYVPFGAGPRFCV
GNHLGLMEAVFVAMVSREFDLVAPVGQPVVAEPMLSLRVRGGLSMTVEP
VS

>CYP154M1 (640474980) *Salinispora tropica* CNB-440

MRRRCPVVIDPAGTDIHAEGARIRANGSVSQVELPGGVLAWSVTGQQVAR
KVLSDQRFSDKPRKHWDYLEGRIGQDFPLIGWVLM DNLTAYGSDHSRL
RKPCANAFTPRRVEALRPAVERAAVELLGELATVSPTESVDLKARYAHPL
PSRVICDLFGVP EEDREEMLRGGEVNVDTRVSAEEAAAANVERWHQQMLDF
IEEKRRNPGPDLTSDLIAAQQAE GSRLTDSEMVGTLHIMLATGTEPVKNL
IGNAVFALLTHPEQLDLVRSGRAGWDDVIQETLRMQAPVAHL PFRFAVED
VDIDGVTIRRGDPLLNVNFAAIGRDPDVHGD TAAEFDITRADKEHLSFGHG
VYRCIGQPLALREAEIALRMLFQRFPNLVLAVPPEE VTPQPTFIMNGLDT
LPVLLKGRA

>CYP107E3 (640475024) *Salinispora tropica* CNB-440

MTIDQEIRKYPFCESPGIGIDPTYGLLRSTEPLARVQLPYGEVSWLATRY
EDVKTVLTDPRFSRAAAQ GKDQPR TREEMTYEGII GLDPPDHTRLRKLAG
KALTARRVN AIRADAQRIANEYVDEMI AKGSPGDLVELFALPYPTVICE
LLGVPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFGYMGKLVAQRREEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTG VETVSTHIPNFVYALLT
HPELMAQLRADRS LVPAAVEELLRMIPLNPAAMFPRYAVEDVTLSGITVR

AGEPVLVSLPGANRDPEVFENPETFDFTREQNPVAFGHGPHHCLGAQLA
RMELQVALHTVLDRFPDLSLADGDEGVSWKSGLLVRGPSRLLVAW

>CYP125G1 (640475039) *Salinispora tropica* CNB-440

MSTEVVSTGNRADIAHPATYAAGVPYAEFARLRRDKPVSWSVPEAALWRRS
GEGRILSQPGFWAVTTHEGVVAASRQPEVFSSGRQGAFLADPRTTADLE
QARQLLVNMDAPQHARVRKLVTAFTTPRAIRALGDSVTAHARNLVERAVR
QEECDVVADLAAELPLLVLADLLGLPREDRHLLYQWSNNLVGFDDPEYGG
GDVEAYRKTTFFEAQYALSVAGERRRAPREDLMTLLATSEVDGRRLTDRE
FCNFWLLLVVAGNETTRHLITGSLVLAALVDNPMQRERLVADDTLLPSAVDE
LLRWVSPIMQFRRTAIVDTELCTPIAAGDKVVLWYTSANRDAAVFEAPD
ELRLHRNPNPFLSFGMGPHFCLGAHLARLEARTMLRELAPHLRSRFLTGP
VVRLESNFVNGVKSPLGSFTGQ

>CYP1004A1 (640475078) *Salinispora tropica* CNB-440

MSTFSLERVACDRMLGLAVRGRGLADSLMRANTARPHLSAAFLATKDDPY
PAYAELRARGPLTRAELGQWLVTGHGAVSALLRDGRLESMPAEYTRLT
GDSPGVDFLHRIVLTRTPPEHTRLRRFIGRALGTPVVRRLHDIRIAAATDA
LLEPALDRGRLDVVTTELAVPLPVGVVCDLIGIPTGDRPAVLTRVTALAKV
FDAANLSPADLADINTALPWLHDYFGDLLAVRRAGSGGPTLTEMWEEESA
SDRLAVADFVDNMLFLFHAGFETTMGLVSNVGAALLNNPEQLGRRLRADPA
LVPSAVEEFLRYDAPIQNVIRVARKPVEVAGQKIRAGRTVLLLLGAANRD
EEVFADAERLDVGRDPNPHLGFGGGLHHCVGTLARLMMAVVVFERLVDRV
TVLGPAAPAVRRRHASLSYDHLPLAVAAR

>CYP1004B1 (640475082) *Salinispora tropica* CNB-440

MTTSALAPRFDALDPNVVEDPYPEYARLRAAGPLCRLGPGSWGVTREFADV
TNLQHDPRLGSEFFAGYHEISVGDGPASAFFQVRMLYRDPPDHIRLRLRM
SGAFTPAVVRRLRSHIEDLVDELLAPALAAGRMDLVPELAYPLPVRVVC
LMGIPPESTEDVRHHATNIGRAFTAVVPEQARTEADEAVSWLREHLGALL
EQRRSHRGDDLLSRLDLAEESSGDNLSADEIVDNTVFSFFAGFETTVHMIT
TGTAALLAHPDQLARLRADPSLVTTAVDEFWRWDAPIQGTARYVREPIEI
GGRTIRRGVVLVLMIGSANHDERRFAQPDRLDVGRQDNPHVAFGGGAHL
LGAFLARMEGAVVFDRLARLAVLEPDGPTVREPNTPFRAVASVPVRIGDR

>CYP107AY1 (640476690) *Salinispora tropica* CNB-440

MSQDPTMRAELAPIPRSGARLGQEYDQLRNAGDVHQVLLPDSSSLAWLVTN
PKLVSRALTDPRALNRRHRSRGSWSGFALPPALDANLLNLDAPDHTRLRR
LVGPAFSPQRVSAALRPRIIRRTAEHLDTLVATSGPVDLVGTGYCTPLSVQV
IADLMGVPEAGRADLRTWTDMLTSYPPDRDAIRQAVVELHGYVVDLIDT
KRQQPGDDLLSALVTIEQDGDRLTRDELTSALFLILFAGYENTANLIAST
VLRLLDHGGLRGVQLPEAIEETLRLEPPAPAAVRRFPTEEMTIGGATIPA
GDIVLLSIAAATRGTAGNAARLAFGNGPHFCLGAALARVEAEEALTVLAR
RLPDLALALPVAQVRWRPTFRTHGPAELLVTW

>CYP125A41 (2562111514) *Salinispora arenicola* CNY690

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPHETKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGDV
TDVACELPLQAIELIGVPQHHRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLYAMEMAEERQSPSDDLVTKLVAQIDGHELLTDEFGGFFVMLLAVA

GNETTRNAITHGMVAFLDNPEQWERFKAERP KSAVEEII RWATPVNVFQR
TALVDTV LGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHL PDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP211C1 (2562111660) *Salinispora arenicola* CNY690

VVDVEGLLARLYSAQGRQDPFFVYADLHAQGPIAALPPEPERRRVAAVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVDADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLAHRRRTPGEDLISGLVEAVDAGGVALTEDELISNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPI PQGQNVLLLLIAAANRDP AHFPDPDRFDPRRSGPPSLAFGLG
LHYCLGAAVSRLEGR LALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP244A4 (2562111846) *Salinispora arenicola* CNY690

MSTTTNTELTEAPETNMPVDPLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVC DRELVKQAL THPKMGKDITLVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLS PRNTERWGERVADKVEGFLDELSQAGSGGSAEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGS LISTS LYEAIRRPPHERPKTDEDITAWIEETLRVHPPFPHPHTW
RFPLEDIELGGYLIPKGS PVQVSIAAANRKPGE GADSFEAERRGHGHLSE
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAESAVQWESEWMIRRM
SVLPAVLS

>CYP245A7 (2562111850) *Salinispora arenicola* CNY690

MPSATLPRFALTGWNRENIVNPYPVYQRYREVAPVHRGEPGGDAPDTFYV
FSYDEVVQVLSSSCFGRGRSLDAAQASVPVPAEQKALRAIVENWLVFMDP
PRHTELRSLLNRSFSPRIVTEL RPRIARIAQELL SRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANAMALQEASSSRAGRDVDGYARAEVA
AQEFTEYFREQVRLRRGSAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGADGLTTDAVEEFLRYDPPVQ
AVTRWAHQD TTLGGCDVPRGSRVVAL LGSANRDPARFPLPDVLDVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLRALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGER

>CYP211B2 (2562112171) *Salinispora arenicola* CNY690

MDVSEAVAVLTSPSGRLDPYPTYEQ LRAHG PVSRTTAGL FVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIKSIARSMRLTNPPDHSRIRRLA
AGAFTPRRVAAMREV VTAQADELVDEMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLVAGFETT
TNLLGNGLVLLTRPEAAAALRDQPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPA GSWLLVLLGAANRDP RRFDPARFDPWRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLT LRGYETLP
VTVGAVTADRGT PAGVAPGTP

>CYP105W3 (2562112710) *Salinispora arenicola* CNY690

MTGYQDPPTGDQPGAPVPSGSTDPGLDAFPLPRRCFFSPPAEYARLRAEH

PVVRLPMLGGDTAWVVSRRHADVRQVLGDPRMSADRRRPGFPGKFAPTTEGQ
RQASFANFRPPLNWMDPPEHAICRRQIVDEFSARRVRQLRTLVERVVDH
LDALAAAAPGADLVSTFAYPVPSQVICEVLGVPHYGEHGFERRSTLMFRR
STPADERARCAREIREFLDAVVTDKERRPGDDVLSRLLYRQRSAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPKRFPAAVE
ELLRYFTVVEAATARTATAEVTIGGVTTAAGEGVVALGQAANRDPRVFEH
PDEFDPDRDARAHLAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MKVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2562112718) *Salinispora arenicola* CNY690

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRAFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLGL
LGLPAGDADAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQLMRNEIVSTVVTFTFTGHETVASQLGNGL
LSLLDHPEQSELVRRQPHLVSQAVEECLRFDPVQSNTRQLAADVELHGR
LLRRDDVVVVLAGAANRDPGRYDRPDEFDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCSPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP107FS2 (2562112780) *Salinispora arenicola* CNY690

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLDVVAAKGEADLVEALALPLPIAV
ISEMLGVPPFADRSEFERHAEVLGTGINASSGFDIAAAGRWFDEYLAGLVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETTVNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAANHDPTVFADPSRLDLRRQGSQILSFSGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSLIVWKASFVLHRLERLPV
TFTPDRDPNPIDSVHTV

>CYP105CN1 (2562112781) *Salinispora arenicola* CNY690

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVTGAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVPHYQDRTRFEPVAVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVPGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIIHHCIGQNLALLELDIAFRALVNRFTLRLAVPAEQLPY
FAGDVPRLACLPTW

>CYP105CP2 (2562112783) *Salinispora arenicola* CNY690

MTKSMPVQDLPAFPIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSA HARAVLSDYRRVSIKPYHGNYPLLNEEFKVVDSGYADVLFGVDP
EHTRQRQMIMPSFTLRRTAVLRPDIQRIVDDKLDMMRHGAPGDLVTEFA
QPVPMSMVSFLLGVWPEDHEEFETPAHKLFVPELAEETTEL GAYLERLI
QKKEQPGGTPGGTGLLDDLIRDHLRAGALSRLDELVHIAMAMLVAGTDTT
NVISLGTALLDNPDQWEALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLR TAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CT2 (2562112862) *Salinispora arenicola* CNY690

MNSPNHMPADSSSTAPARGCPMALSRGRVGLDVTDEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSAVFNVAGVSPPPVLVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIINAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAASASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGADSHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGVLLHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLTLDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELEAFALLRRFPGLRLAV
PDSELEFTQGTTVYSLRGLPVTW

>CYP154M5 (2562112878) *Salinispora arenicola* CNY690

VEQSCPYKLDVTGRDIIHAEGEAIARARGPVAQVELPGGVQGWSVTGYQAAR
QVLADPRFAKDPQKWPAYTSGAIPPTWPLIGWLLMDNMTTNDGADHQRLR
KLVSHGFTPRQVERTRPLIVKIVNDLLDGLSTAGPDEVVDLKGRAFATPLP
ARVICDMFGVPEALRASVLRGAQVNVTSISGEEAEANVEQWHRELELV
EAKREKPEDDMASLLIAAKEEDGSTLSQEEVVGTLHMLGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGSSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDPVHGETAGDYDITRADKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPNMTLAVRPDQLEPQGTFFIMNGHREL
PVRLGQPATVLA

>CYP208A12 (2562113589) *Salinispora arenicola* CNY690

MTLDTITPRVPLGPRTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGDLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGTGPPVELTAEITG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNAVPMWIPLPR
QIRFRRARRKLQAVVDTLVDGRAGSLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP105BL2 (2562113820) *Salinispora arenicola* CNY690

MSSHAAAAPDPETATPLHTLAPELTFPQFERSTPFDPPQAYTELSGRCPV
APVMSMDGKPSWLITSFEGVRTTSLSDPRFSSDMSHPGFPNRTGKPVDDL
KDTLGAMDGERHRYRRMLTGELTVRRAKAMRPVITQITDEALDQLAAGV
PGADLVKHVALVPSRVAYHLVGIPSSDYELFTGMATTLMESTSSADQFA
ALQNMVSYFDTLVTDREHHDRDDLGRMVRRYLATGELTRDMLITLVWTT
LAAGQETTAHMIIGLVAALLRHPDQLELLRREPHLLPGAVDELMRYLPMI
QFGIPRVAMDDVKVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVR
DEDIMYRVSELAVTW

>CYP105AB35 (2562113949) *Salinispora arenicola* CNY690

MTETASSRLTDTEFPVQRQCPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFISTDPATRKRLYAQPLSMISMDG
AEHAQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHCVDLVKA
LSLPVPSLVICELLGVPYDDHDFQEHATLVRRNAAPEVRQHSIDELNA
YLGALIDRKLANPVDDLGRQIARQHQDGTFRSSIVSLAFLLLVAGHET

TANMISLGVVGLLQHPDQLTMIKNDPDKMPLAIEELLRFFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHIAF
GFGPHQCIGQNLARLELQIVFDTLFRRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP107EU2 (2562114108) *Salinispora arenicola* CNY690

VTVGQTLPLVYSPEFTRDPYAVFARLREQAPVCRVTTHRGMSAWMVTRY
ADVALLADSRKADGNRIGELMPRHSLTGAATGFPPGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVESLRPRIEEIVDDLLDGVAACGDEADLAEILS
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDVPADDLLTALVQVSADEDRLSREELVSMALLLLLVAGHETTS
KQISNGVLALLLDPEQLKLLKAQPALAAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPQKFPDPDRLDITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQLQLAVAADDLEWLVNSFFRAPL
HLPVSLGR

>CYP107AY14 (2562114503) *Salinispora arenicola* CNY690

MTAELTPIPRSGAQLRQEYDQLRKTDGVHGVLLPDASLAWLITNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRLRVGPAF
SPQRVAGLRPGIRRAAEHLLDTLVATSRPTDLVTGYCNPLSVQVIADLMG
VPEAGRNLRAWTDMLTSYPPDRDAIRQAVTELHGYYVDLIDLKQQQPG
DDLSSLVLVTIEQDGDRLTRDELTSLAFLILFAGYENTANLIASAVLWLLD
HGGLNEVPIDAEIAIEGTLRDEPPAPVAIRRFPTEDIIIRGLTIPAGDTVLL
SIAAATRGADGNAARLAFNGPHYCLGAALARVEAEEALTVLARRLPGLT
LAVPPAQVRWRPTFRTHGPAELLVGW

>CYP1005A1 (2562114613) *Salinispora arenicola* CNY690

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTDAQTY
RPDNALAEAVTPVPVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTTELVA DRVATIRTTLDSSGPPVDLYADLTADLPLLVLAR
LVELPDAVPNAVQKFARAALFVWAPLDADRQLALADEVGRFHQVLRFEFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLTDEP
TIRAALRAGSTSVADVVEEGLRLEPPIVWRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFPRPGQRGSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP105CH2 (2562115214) *Salinispora arenicola* CNY690

VSSLPLPTYPKLRDPADPLLPPADYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDKHPNFYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRRLLISEFSVRQAQAMRPRIQQLVDFHLDQLIAAGPGADFSKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVAVADQKQAIDELLAYFE
QLIQRKSSHPGDDLRLIVSNRETEAFDHEALVALGLLLLVGGHETTAN
TLTLATATMLERPEVAEQLRDPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGDQLVRAGESMLLVNLTARDGTVFPEPHRLDIHRNARNHLAFSHGI
HQCMGQNLARVEMQIALDTVLRLRLPGLHLVTPFEELPFKYRHLVWGIEEL
KVAW

>CYP105G7 (2562115417) *Salinispora arenicola* CNY690

LTIIETTETPPADDTLRAPLPRQFMQRDDPSKLPPALAALAEQAPVGRSTL

PDGDPFWMVSGYDEARAVLSDFRFSDDRFYHPRFKKISGQLGERLRNDK
ARAGSFINDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQLDVMLA
KGNSADLVSAFAVPVPSFMICELLGVRYEDRTEFQRRRAAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRNPADDMISGLVHHAGADPPLTDDDELVGIA
TLLLFAGLDDTTASMLGLGMFMLLQRPEQMAVLRDDPPRIGDAVEELLRYL
TVVSAGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPIRWDTP

>CYP107Q4 (2562115418) *Salinispora arenicola* CNY690

MTTTAETS AETID LFSPEVVADPF GWYARLREETGPTTGTLNIGTMMGGP
EMWLVTTRYEDVRQVLTDP RFLTNPPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRLKLVSYALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDE PDRAHWRAWGDSMATMNGER
IPTTLVKCIELARELIEKRAEPQDDLVTALVQAQAE DQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI I
DRLAVGSESHLGF GKGIHRCLGQH LAYQEA E VALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP166A4 (2562115591) *Salinispora arenicola* CNY690

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHIGWIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHVGEVAAEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAYEQAGAYFAEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPADLDIDRETSGHVAFGFGI HQCLGQN
LARVELRAGLSALLRAFPNLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP1051A4 (2562115888) *Salinispora arenicola* CNY690

MATDAAITRARAVPAWKALPAAVRDTHRALVDVGNWSDGDVVRVSLGVSR
PYVVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAWAA
SRRVLAPMFRPVRINAMVDTMADAIAGAVDDLHGA AVAGTPIDVGRELSR
IVCSAIMRVFFADRITVQDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRTAVRSIDNILLPVLHQARQRPDDGDDL SRLVVRADDDGQVLSE
KRMRDDLVSMVAVTETSTVVLTLWLPLLANHPDVADRLYDEIDRVVGGG
PVRGDHLAELTYTRMVDELRLRYPAGWILPRRAATDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMI
L

>CYP1198B2 (2562116325) *Salinispora arenicola* CNY690

MSGELTDQRAAPDVGGNPLRSLLDHGIRANPYPLFGELREAGPTAVEDGS
VVLFG EYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQRKLVS KSFTPRIVQSFGPQITRIVDGLFEDFQDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKNP GDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMTVLRENPGVITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGSIVVVLMAAGNRDPRAYENPDV
FDVNRKIKNVSLAFGAGAHFCIGSGLAKLEAEIAISAF AQRLKNPEVDES
SLEYRRHIVVRGLEHMRVSFQPKPVAPIPAR

>CYP107AW7 (2515996764) *Salinispora pacifica* CNT603

VETVTGTSTPPPVPIADPYPTLARIRANGPVSIHSDEGIPMWVIARYR
DVRAALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAAAFATALREMTDYIAVQLRIR
QTRPGDDILTELLAARDAGQLTDDEIIGMVFLLLIGGHETTVNLLGTATL
ALMRNPDQHRWLLANQHALPEAIDEFLRYESPVAMATLRFTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLRRHPRALALAADVRLRWRDTIMLRGLESPLVSLHG

>CYP107AX4 (2515996778) *Salinispora pacifica* CNT603

MTSQPAPVFDQLLLRDPHRRYNALRDEAPVHHIRTPDGAPAWLVTRYDDV
RAAFIDPRLSVDKRLSSTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVERIVSTLLDGLVGHDQAELIGSLASPLPLQVMQEL
LGLPTQTSVDFRRWTNTLLSADANQPAQSRSAMANMRRFLVEQLAHKRAR
PGDDLLTGLLAAREDDRLTDDELVAMLFLLMFAGYDNTAALIGNVVHAL
LTNTELPAAVRTGSLALDELVDGVLRWNPSPFLAVRRFAREPITIAGQTI
PAGDRIWLCLASANRDPAQFTAPDTLGTTGMRRPHLSFGHGIHYCLGAPL
ARLQTTVAVTILLDRFPGIRLAVPAHDIRWRESFRLRGLVALPVFL

>CYP164C2 (2515996940) *Salinispora pacifica* CNT603

MTARAGSVAEDI IQLADRMGREDPYPVLRMRQASPYVALPGLVVAGTHA
TCSAVLRDPGMSSERQATLAPAARGPRTRNFLHLDPPDHTRLRLRLVSKV
FTPRVVATMEPHIRRTTDDLLTAAARGSMEEVADLAYPLPLRIICEVLG
VPAEDHHLVQHWSARLSEALEPPIPGLVSTTTSTEAARARAGFIAYFQAL
IADRRRSRPRADLVSQLVAVEDASERLDSSDILATCILLINAGHETTVNLI
ANGVLALLRHPEQLADLRAEPGLAAATVDEVRLYDAPVQITSRVAKHDTR
LGAADVVRAGDMVLLLGAAANRDPVYPDPDRFDIRRRSPVPHLAFSAGAH
FCLGAGLARLEAQIALSAVAARLREPRLRAGGVSYKPNLSLRGPDVLTVD
FDDVLAPGRRDGQEANG

>CYP125A65 (2515997482) *Salinispora pacifica* CNT603

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMAVSRDSEYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGVDPMAAAA
ELLAYAMEMANERQRNPSDDLVTQLVNAQIDGEHLTTDEFGFFVMMLLAVA
GNETTRNAITHGMLAFLEHPDQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLGGQAITAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REMPVRYR

>CYP211B11 (2515998070) *Salinispora pacifica* CNT603

MDASEAVALLTSPPGRLDPYPTYERLRAHGPPVSTAAGFFVVTGYTEADT
VLRNPRFEVMDDEERDGVFPHWQDSPAMISISRSMIRANPPDH SRMRRLA
AGVFTPRRVAAALREVVAQAADGLVDEMIRAGRGGAAVDFMGSFAYPLPVT
VICALLGVPTADWARFRHWASDLTGVLPEEITPQELAIADAGASELRDYF
TELIAQRRRAPADDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVLLTHPDSATALRGQPELAPGYVEEFLRYDSPVQLTSRTVR
ESVSLAGVELPAGSWLLVLLGAANRDPARFTD PARFDPRAQSPPLSFGA

GAHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRHRLTLRGYETLP
VTVGAVPADPGTPAGVALGTP

>CYP1005A6 (2515999114) *Salinispora pacifica* CNT603

VSAVLFRSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLTQVQTY
RPDNALDAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQRPWLTELVAERVAAIRATLDSGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARAALFWAPLDADRQLALADEVGRFHQVLRFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLAGEP
TVRAALRDGSVSVPNVVEEGLRLEPPIVTWRRVAAVDSTLGGTAVPAGTS
VLLWLLARAGRDPDIVSAPDEFRRPGQRGSRRLAFGAGAHRCGLGDQLARME
AAVVVERVSPLLDGVTVVVRAPWYPDNLTFRMPDAFVIRRGFAGAAER

>CYP124M3 (2516000068) *Salinispora pacifica* CNT603

MTVPIELDAVDLSDNDFWTKPLEYRHAVFNALRAQPGLPHFASPEFGSAP
RGRGYYALTRMDDVLAVSRNPSVFIISGKGNVAMEVPAEFLDQSLITMDNP
RHARLRRIIVSRGFTMKAVTALMDNASQMAKQIVDEVVERGECDVVDISA
KLPLGIIICNMMGIPDSQQQFVFEQTNVMLGVQDPEYVGEQNDAMLAMSV
SQELADLMHELATLRKNPTDDLIISKLLSAEVNGEALTPSELAHFFILLT
GAGTETTRNAISWGIQLLTQSPEQREAWLSIDIGVTPTAVEEIVRWSSPV
ISQRRRTVAEDAEPVKLAGQLLGGPGDKVLMFYGAANRDPNYFVHPEGFDVR
RSPNPHVGYGGPGPHFCLGAHLARLEISVMFRELLTRIPDIHATGEPARL
KSPLINGIKRLPVAFTPGAR

>CYP208A22 (2516000089) *Salinispora pacifica* CNT603

MTVIADRGGRIPPGPPVTAGLRLLLLALGRDRLGMMTSAAAAYGDVARLPV
GPKKLYFFNHPDHAKHVLADNHANYQKGIGLVHARRALGDGLLTSEGELW
RKQRRVIQPAFQNRRLAQYAGAVGQEATRLVARLATRVDPGPVDVLD
RLTLGLVLRGRTLLDAELTGFGHVGESFAAVQDQAMFELETNTVPTWIP
LRQRRFRRARQHLQEVVDVLAERGQAVEGRDDVLSRLILSTRAEADPQLG
RERLRDELVTLLLAGHETTASTLGWSLHLLDQHPELRERVRHEARTVLGD
RVPAYEDLHQLRYTAMVVEEAIRLYPPVWILTRKARAEDEIGGYRVPAGA
DILICPYTLHRHPRFWAEPERFDPERFDPSTTDRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLAVLLRDLRLEGLPGRAVVPEPMLSLRVRGGLPMTVR
RVD

>CYP244A10 (2516000206) *Salinispora pacifica* CNT603

MQDTAQANLAEAPEVRMPIELRPTDCLPELLAAARVAPVVRTPYLDQHAW
VVCDELVKQALTHPKLGKDVALAPDWMRQPGQMTAMPPEYARMMVMS
DGEHHARIRRIHAPVLSRPNTERWSERVAALVDGFLDNLDSADGTEVNLI
TDYTHKIPLAFTAEMGLPPGAERRLHDITEVMLYSADYALRQQAVGELF
EAVQEWVRDPAGLRDGVITGLLASADGPDATVTKGEAIVWTLSLIINGYE
TTGSLISAALYEALRRPARERPHTDEAVAAWIEETLRVQPPVPHTTWRF
A
LADLDLGGYLIPRGAPVQISLAAANLDPDEDADSFDAQRRGRGHL
SFGLG
AHYCIGAPLARVQTKIALRGFLRRFPQARLSLDTAPRWESEWMIRMSVL
PVLLA

>CYP107AY9 (2516000227) *Salinispora pacifica* CNT603

MSQDQPTRAELAPIPRSGTRIGPEYDQLRKTDGVHQVLLPDTSM
AWLVTS
PDLVSRALADPRLALNRKHSRGGWSGFALPPALDANLLNDAPDH
TRLRR
LVGPAFSPQRVAALRPRIQRTAEELAETMVATGSPVDLVTGYCTPL
SVQV
IADLLGVDPDAGRTDLRAWTDMLTSYPPDRDAIRQAVVELHGYV
VNLIEA

KQQRPGDDLLSALVATEQEGDRLTRDELTSIAFLILFAGYENTANLIAS
VLRLLDHGSLRGVRVSEAIEETLRLEPPAPAAIRRFPTTEMTIGGATIPA
GDTVLLSIAAATRGADGNPARLAFGNGPHYCLGAALARVEAEEAITVLAR
RLPGLALAVPGAPVRWRPTFRTHGPAELLVAW

>CYP161N4 (2516000407) *Salinispora pacifica* CNT603

VNTVAQLPFTQTHVLDVAPALRLLQSRGKVHRVRTPEGVPAWLVTGHAEV
QQLDDDDRLSRSDPGGRDGGTALLNKLLGPLADDHPRLRSLLFPQFTPER
LEPLRAVVEKLTEQHLDELATRTPPVDLRPTLAMSILVLCWEWLGVP
DKGRFSIWTQDAAGVQDPERSQRGLAELFGYCRQLVAAKRQDPGDDVISR
LIATAGIGDTEVVALTALLLFGGYETTVARIGTGVLILLANPDQWAAVRA
DPALVPATVDELLRRSMPNPNHNGGMPRFAVTGFEIDGAAIRAGDLVLLNI
IAANHDETAFPDPDRDLITRPTAGSLAFGYGRHSCVGAPLARMVLRVALS
RLITRFPDLRLAVGVDELKLRHETLVGGLVLPVWTWGPR

>CYP2054A3 (2516000412) *Salinispora pacifica* CNT603

MSISADSEQVQGRFPDPYGAHRDDPYTFLAGLGVFYAPLLDAWCVTRRED
MVAVLRDDRSFSARDHNPRPAVALPDDVNQMFRWTRGAGAVAVGSLDPPA
HAKIRDVLNIGFTPARVRAFEPTMRAVAADLADRIGDAPEFDFIADFAPV
FALEVIGRRLGVPDDYLDRCRTWSEQRIELMMAQGDADHDRLREFARGLM
EFGFARSLVRDRVADPRDDLISELLHDGKAGRTLTADEVAVQIPTLIFA
GHMTCAEALGTIFYQQLRSPGGWARVVDRTIPVGDIVEEGLRFDSPLAGM
YRTATRDVTVGGIRLTAGSRLLLLYGAAGRDSRAHACPAAFRPGDGSSGH
LAFGHGHIHFCLGAGFARAELRVAVEVLAARMPDLGLAPGRPPRFRPVFPL
RALTEL RVTRSGGGSGP

>CYP107FH3 (2516000417) *Salinispora pacifica* CNT603

VPIELDEAFVQDPYAVYEKLRAEGPAHRVRMPPGVPLIGGLPVWLITGYD
AVRAALADSRLSTDHLRIDGLFAQKDPDRSHRGGFSSALASHMMHTDPPD
HTRLRKLVSKAFTTRAIEALRPRIQQTDELTAELAGHDTVLDLLDAFAFP
LPIRVICLLLGVPAEQENFRSWSRALVSGHSPEAAATAATEVAAYLGDL
VERKRHATTDVLTALVAHDVDDRLTHTELVSTAYLLFIAGFETTLNAL
GNGTLHMLHRDQWTALRADRALLDNAVEEFLRLESPLKHATFRCATESL
RIGDAEIAAGDFVLLAIASANDPRRFPDPHTLDVRRPAAGHLAFGHGHI
HCLGAPLARVEVRMAFDALLDAFPDMRLATDPAGLRWRNSTIIRGLDSL
VHLNN

>CYP105AB28 (2516000722) *Salinispora pacifica* CNT603

MTETASTTTPGISSTTTSGPASGEVTDAEFPLERGCPTSTPTEYEQIREH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFPFVSTDPET
RKQLRDQPTSMIGMDGAEHAQARRALMGFTVRRMAGLRPRIQQIVDQHI
DEMLSSDQRTADLVEALSPLVPVSLVICELLGVADHDFFQARSGPLIRH
TTPTEVRLRIQKELNTYLGALIDRKVADPTDDLRSRQIAKHHAAGTFDRT
SLVSMAFLLLIAGHETTANMISLGVVGLLQHPDQLAMIKEDPEKTAPAVE
ELLRYFTIADTVTARVATEDVQLGDTTINAGDGVVISGLAADHDPTVFTD
PDRLDLARGARHHVAFGFGPHQCIGQTLARMELQIVFDTLFRRIPTLRLA
APLDAIPFKSDAFVYGAERLPVAW

>CYP107E37 (2516000926) *Salinispora pacifica* CNT603

VTIDQEIREYPPFRESRGIGIDPTYELLRRTEPLARVQLPYGEVSWLVTRY
EDVKTVLTDPRFSRAAAQGKDQPRTRAEMTYEGIIIGLDPPDHTRLRLLAG
KALTARRVNIAIRADAQRIANEYVDEMIAGSGPDLVELFALPYPVTVICE
LLGVPFEDRAQFRIWTEGLTSTSEQLMVYAEQLFDYMGKLV AQRRAEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTG VETVSTH IPNFVYALLT
HPELMAQLRADRS LVPAAVEELLRMIPLNPAAMFPRYAVEDVTLSGITVR
AGQPVLVSLPGANRDPEVFENPETFDFTREQNPHVAFGHGPHHCLGAQLA
RMELQVALHTVLDRFPDLRLADGDEGVSWKSGLLVRGPSRLLVGW

>CYP125A65 (2519097328) *Salinispora pacifica* CNY331

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMASRDSETYSTRENTAIARFQPGTTQADREMQRVIMI
NVDPP EHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAVRGTGDFV
TDVACELPLQAI AELIGVPQHRRKVFDWSNQLIGYDDPAYGVDPMAAAA
ELLAYAMEMANERQRNPSDDLVTKL VNAQIDGEHLTTDEF GFFVMLLAVA
GNETTRNAITHGMLAFLEHPDQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLGGQAITAGQRVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRKVADPQRLRSGWINGI
REMPVRYR

>CYP208A22 (2519097416) *Salinispora pacifica* CNY331

GPKKLYFFNHPDHAKHVLADNHANYQKGIGLVHARRALGDGLLTSEGELW
RKQRRVIQPAFQNRRLAQYAGAVGQEATRLVARLATRV DGPVVDVLD EMT
RLTLGVLGR TLLDAELTG FHGVGESFAAVQDQAMFELET LNTVPTWIPLR
RQRRFRRARQH LQEVDVLA AERGQAVEGRDDVLSRLILSTRAEADPQLG
RERLRDELVTLLLAGHETTASTLGWSLHLLDQHPELRERVRHEARTVLGD
RVPAYEDLHQLRYTAMVVEEAIRLYPPVWILTRKARAEDEIGGYRVPAGA
DILICPYTLHRHPRFWAEPERFDPERFDPSRTTDRPRYAYIPFGAGPRFC
VGNNLGMLEATLV LAVLLRDLRLEGLPGRAVVPEPMLS LRVRGGLPMTVR
RVD

>CYP211B11 (2519097714) *Salinispora pacifica* CNY331

MDASEAVALLMSPPGRLDPYPTYERLRAHGPPVVSTAAGFFVVTGYTEADT
VLRSPRFGVMDDEERDGAFFHWQDSPAMTSSISRSMIRANPPDH SRMRLA
AGVFTPRRVAALREVVA AQADGLVDEMIRAGRGGAAVDFMG SFAYPLPVT
VICALLGVPTADWARFRHWASDLTG VLEPELTPQELAIADAGASELRDYF
TELIAQRRRAPADDLT TALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVVL LTHPDSATALRGQPELAPDYVEEFLRYDSPVQLTSRTVR
ESVSLAGVELPAGSWLLVLLGAANRDPARFTD PARFDARRAQSPPLSFGA
GAHYCLGAGLARLEAQVAFPLLLRRLPELV LAGEPTRRHRLTLRGYETLP
VTVGAVPADPGTPAEVALGTP

>CYP107AW7 (2519097974) *Salinispora pacifica* CNY331

VETVTGTSTPPPVPYIADPYPTLARIRANGPVSILHSDEGIPMWVIARYR
DVRAALADPRFGQDARRAQALADNRVAGVT LGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPA AFATALREMTDYIAVQLRIR
QTRPGDDILTELLAARDAGQLTDDEIIGMVFLLLIGGHETT VNLGATL
ALMRNPDQHRWLLANQHALPEAIDEFLRYESPVAMATLRFTTTPVAVDDV
VIPAGELVLVSLGGANRDHDFPDADRLILD RRDTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLRQH PKLALAAEVRQLRWRDTIMLRGLDSL PVS LHG

>CYP105H11 (2519100117) *Salinispora pacifica* CNY331

MIDTAGQLVVDVDFPLRKEGESFPPPRYA EYRQRDGLVLSYLPDGKPVWLVT
RHA AVREILTSRKVSSNP DHKGFPNIGETMGVPRQDQIPGW FVGMDSPDH
DRFRRALIPEFTVRRVREMRPAIQGV IDTVIDDLLANGPQADLINDFALP
IPSLVISALLGVPTVDREFFESRTRTLVAVRASTDQERDTASRELLRYIN
RLIEIKSKWPADDLPSRLLANGVLHPQELSGVLLLLLLIAGHETTANNIGL
GIVSLENPQWIGDERVVEELLRLHSVADLVSLRVAVEDVEICGQVIRAG
EGLVPLVAAANHDES VFACPHMFNPERSARQHVAFGYGVHQCLGQNLVRV
EMELAYRTLFERIPGLRLTV DDEGLPFKYDGV LHGLHALPVRW

>CYP1005A6 (2519100239) *Salinispora pacifica* CNY331

VSAVLFRSWTKTAGTHWPAVTRVADQQGTEHLVVTEHALVRQVLT DQMTY
RPDNALDAVTPIPVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPAKVAAQR PWLTELVAERVA AIRATLDSGGSADLHAELSADLPLLVLAR
LVELPDAPVSAVKQFARA ALELFWAPLDADRQLALADEVGFHQV LREFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLAGEP
TVRAALRDGSVSVPNVVEEGLRLEPPIV TWRRVA AVDSTLGGTAVPAGTS
VLLWLARAGRDP AIVSAPDEF RPPGQQGSRRLAFGAGAHRC LGDQLARME
AAVVVEQVSPLLDGVTVVRAPWYPDNL TFRMPDAFVIRRG PAGAAER

>CYP244A10 (2519100452) *Salinispora pacifica* CNY331

MQDTAQANLAEAPEVRMPIELRPTDCLPELLAAARVAPVVRTPYLDQHAW
VVC DRELVKQAL THPKLGKDVALAPDWMRQPGQMVTAMPPPEYARMMVMS
DGEHHARIRRIHAPVLS PQNTERWSERVAALVDGFLDNLDSADGTEVNLI
TDYTHKIPLAFTA EMLGLPPGAQRRLHDITEVM LYSADYALRQQAVGELF
EAVQEWVRDPAGLRDGVITGLLASTDGP DATVTKGEAIVWTL SLIINGYE
TTGSLISAALYEALRRPARERPHTDEAVA AWIEETLRVQPPVPHTTWRF A
LADLDLGGYLIPRGAPVQISLAAANLDPDE DADSFDAQRRGRGHL SFGLG
AHYCIGAPLARVQTKIALRGFLRRFPQARLSPDTAPRWESEWMIRRM SVL
PALLA

>CYP107AY9 (2519100473) *Salinispora pacifica* CNY331

MVATGSPVDLVTGYCTPLSVQVIADLLGVPEAGR TDLRAWTD TMLTSYPP
DRDAVRQAVVELHGYV VNLIEAKQQRPGD DLLSALVATEQEGDRLTRDEL
TSLAFLILFAGYENTANLI ASTVLRLLDHGSLRGVRVSEAIEETLRLEPP
APAAIRRFPT EEMTIGGATIPAGDTVLLSIAAATRGADGNPARLAFGNP
HYCLGAALARVEAE EAITVLARRLPGLALAVPGAPVRWRPTFRTHGPAEL
LVAW

>CYP161N4 (2519100607) *Salinispora pacifica* CNY331

VNTVAQLPFTQTHVLDVAPALRLLQSRGKVHRVRTPEGVPAWLVTGHAEV
QQLLDDDRLSRSDPGGRDGGTALLNKLLGPLADDPRLRSLLEPQFTPER
LEPLRAVVEKLTEQHLDELAARTPPVDLRPTLAMS LPILVLCEWLGVPAE
DKGRFSVWTQDAAGVQDPERSQRLAELFGYCRQLVAAKRQDPGDDVISR
LIATAGIGDTEVVALTALLLFGGYETTVARIGTG VLLLLLTNPDQWAAVRA
DPALVPATVDELLRRSMPNPNHNGGMPRFAVTGFEIDGAAIRAGDLVLLNI
IAANHDETAFFDPDPRLDITRPTAGSLAFGYGRHSCVGAPLARMVLRVALS
RLITRFDPDLRLAVGVDELKLRHETLVGG LVELPVTWGPR

>CYP2054A3 (2519100612) *Salinispora pacifica* CNY331

MSISADSEQVQGRPFDPYGAHRDDPYTFLAGLGVFYAPLLDAWCVTRED

MVAVLRDDRSFSARDHNPRPAVALPDDVNQMFRFTWRGAGAVAVGSLDPPA
HAKIRDVLNIGFTPARVRAFEPTMRAVAADLADRIGDEPEFDFIADFAPV
FALEVIGRRLGVPDDYLDRCRTWSEQRIELMMAQGDADHDRLREFARGLM
EFGEFARSLVRDRVADPRDDLISELLHDGKAGRTLTADEVAVQIPTLI FA
GHMTCAEALGTIFYQQLRSPGGWARVVDRTIPVGD LVEEGLRFDSPLAGM
YRTATRDVTVGGI RLTAGSRL LLLYGAAGRDSRAHACPAAFRPGDGSSGH
LAFGHGIIHFCLGAGFARAELRVAVEVLAARMPDLGLAPGRPPRFRPVFPL
RALTEL RVTRSGGGSGP

>CYP107FH3 (2519100617) *Salinispora pacifica* CNY331

VPIELDEAFVQDPYAVYEKLRAEGPAHRVRMPGVP LIGGLPVWLITGYD
AVRAALADSRLSTDLHRIDGLFAQKDPDRSHRGGFSSALASHMMHTDPPD
HTRLRKLVS KAFTTRAIEALRPRIQQTDELTAELAGHDTV D LLD AFAFP
LPIRVICLLLGV PVAEQENFRSWSRALVSGHSPEAAATAATEVAAYLGDL
VERKRHATTDDVLTALVA AHDVDDRLTHTELVSTAYLLFIAGFETTLNAL
GNGTLHMLHRDQWTALRADRALLDNAVEEFRLRLESPLKHATFRCATESL
RIGDAEIAAGDFVLLAIASANRDPRRFPDPHTLDVRRPAAGHLAFGHGIIH
HCLGAPLARVEVRMAFDALLDAFPDMRLATDPAGLRWRNSTIIRGLDSL P
VHLNN

>CYP247A7 (2519100673) *Salinispora pacifica* CNY331

VRLTPGAARDIDLD SVNLF DLDLYTSGDPHPIWDMRAQSPLHHQVLADG
REFWSVTRYDDVCRVLGDYREFTSERGTVVTHLGEDDIAAGKLLTSTDPP
RHTQVRRRAIGAKLTRA VASWQDRIRDAIVRFLEPALDGD TFDLAEQALL
LPAIVTGPLLGI PERDWQELVQLTAMVTAPSDPHFQHGSEAA TLAI SHHE
LVTYVTEWVKQRRSAGGGDGSLLDHLMSVRVGGAPLTDEEIALDGY SILL
GANVTTPTHTVSGTVLALIERPEQFEKAQADPSLLANLVEEGLRWTS AACN
FMRYALNDTRIGGGTVPAGGAVVAWIGSANRDESYFPDPHQFDITRSGAN
RQVAFGFGPHYCIGAPLARMTLGIFFEELVQRFSGSIELAGEPQH LRSYFI
AGMTHLP IVAQKRKTP

>CYP105AB28 (2519101566) *Salinispora pacifica* CNY331

MTETASTTTPGISSTTTSGPASGEVTD AEF PVERGCPFFSTPSEYEQIREH
SPLAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFPFVSTD PET
RKQLQDQPTSMIGMDGAEHAQARRALMGFTVRRMAGLRPRIQQIVDQHI
DELLSSDQRTADLVEALS LVPVPSLVICELLGV P YADHDFQARS GPLIRH
TTPTEVRLRIQKELNTYL GALIDRKVADPTD D LLSRQIAKHHAAGTFDRT
SLVSMAFLLLIAGHETTANMISLG VVGLLQHPDQLAMIKEDPEKTAPAVE
ELLRYFTIADTVTARVATEDVQLGDTTINAGDGVVISGLAADHDPTVFTD
PDRDLERGARHHVAFGFGPHQCIGQTLARMELQIVFDTLFRRIPTLR LA
APLDDIPFKSDAFVYGAERLPVAW

>CYP107E37 (2519101716) *Salinispora pacifica* CNY331

VTIDQEIREYPFRESRGIGIDPTYELLRRTEPLARVQLPYGEVSWLVTRY
EDVKTVLTDPRFSRAAAQ GKDQPRTRAEMTYEGII GLDPPDHTRLRRLAG
KALTARRVNAIRADAQRIANEYVDEMIAKGSPGDLVELFALPYPVTVICE
LLGV PFEDRAQFRIWTEGLTSTSEQLMVYAEQLFDYMGKLVAQRRAEPTD
DLLGALVKARDEGDRLTEQELLSIAGVGLLLTG VETVSTH I PNFVYALLT
HPELMAQLRADRS LVPAAVEELLRMIPLNPAAMFP RYAVEDVTLSGITVR
AGQPVLVSLPGANRDPEVFENPETFDFTRDQNP HVAFGHGPHHCLGAQLA
RMELQVALHTVLDRFPDLRLADGDEGVSWKSGLLVRGPSRLLVGW

>CYP211C1 (2518220639) *Salinispora arenicola* CNT859

VVDVEELLTRLYSAQGRQDPFPVYADLHAQGSIAALPPEPERRRVAAVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELLDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAELEAFYF
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPI PQGQNVLLLLIAAANRDPAHFPDPDRFDPWRSGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP125A41 (2518220788) *Salinispora arenicola* CNT859

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAVRGVGDV
TDVACELPLQAI AELIGVPQHRRKVFDWSNQLIGYDDPAYGTDPLTASA
ELLYAMEMAEERQSPSDDLVTKL VNAQIDGHELT TDEF GFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEE IIRWATPVNVFQR
TALVDTVLGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHL PDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP107AX13 (2518221038) *Salinispora arenicola* CNT859

VTSPPHVAFGHLLRDPHGQYNALRGQAPVHHIRTPDGAPAWLVMRYDDV
RAALTDPRLSVDKRFSDTDGEHGSSLPPELDAHLLNRDPPDHTRLRRLAA
AAFTPRRVADQAPAVATIVDALLDGIAGQDQAE LIVGLASPLPLQVMHEL
LGLPTQTSVDFRNWTNTLLSADANQPAQSR SAMATMRQFLMGQLARKRAQ
PGDDLLTGLLAARDDDRFTDDELLAMVFLLMFAGYDNTAALIGNVTHAL
LTDAGLHDAVRAGSVDLDSVVDEVLRWNPSFPLAVRRFAREPVTIAGHTI
PAGDRVWLCLASANRDPAQFTEPDELGITPARRPHLAFGHGIHYCLGAPL
ARLQTTVAVASLLDRYPGIRLAVPAHEL RWRESFRVRGLAALPVRL

>CYP1005A1 (2518221088) *Salinispora arenicola* CNT859

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLT DQATY
RPDNAL EAVTPI PVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQR PWTGLVADRVASIRTTLD SGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAV KQFARA ALELFWAPLDADRQLALADEVGRFHQVLRFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSISVADVVEEGLRLEPPIV TWRRVA AVDSTLGGTTVAAGTS
VLLWLARAGRDP AVVAAPDEF RPGQRGSRRLAFGAGAHRC LGDQLARME
AAVVVEQATPLLDGVTIVRPPWYPDNLTFRMPDAFVVR

>CYP154M15 (2518221680) *Salinispora arenicola* CNT859

MNDKCPFAALDVTGQDLHG EAARLREQGPAVLVELPGGVKAWSINRYEVI
RELLMDRRVTKNARKHWP AFIKGEIPPDWEMISWVAMDNMTAYGKDHVR
LRKLVGRAFTQRRADALRPQVVALSTKL LDDL GATPPGEVVDLRERFAYP
LPAMLVASLIGMSEAALAAACSKVIDMMVHTNVSPEEAQAVLRGWRAAMAD
LIESKRRTPGEDITTDLIAAREEDGSRLSEAE LADTIFAILGAGSETTIN
FFDNAITALLSRPGQLQLRTGAVTWDDVIDEVL RVESPLAHLPLRYAVE
DIELDGVTI PQGDFILVNYAAAGRDPALHGGTADEFDLARGDKTHLSFGY
GPHYCLGAGIARMVATIGLSMLFERFPDLSLAVPATELKR LPTFIMNGHQ

TLPVRLTTHAR

>CYP125G6 (2518221705) *Salinispora arenicola* CNT859

VPTLLNEHVSYDGAIAIVDSGATSWIRLAERVNRVHLLRAHGLDTGD
RLACVTGNRRETFEVLLAALHTGVTVPVNVHLLTVTEIGHILSDSGSRVV
ITEELHVKAFAAAADGTAGPVAGLVLDREVEGFAAVEPLLAASPAEPE
GQVCGATMLYTSGTTGRPKGVVNNLFVTGAPYARVGRLCDYARSVLGVP
RERMLLDGPWYHSSQLFFALLSLQGSRLVIRPYFDPAATLKTIDDHRIT
VTHLVPTQLVRLRLVDALTRQMFSGASLRRVWHGGGPCPPEVKRSMIDWW
GPVLVEYYGATEGGVVTLIDSAEWLARP GSVGRAVPPSEVVVVDDGGQP
AAGQTGQVFFRRRTGNQFHYHNAPEKTQAAYLAPDTFTTYGEVGHVDE
DGYLFLTGRAQDMIVSGGVNVYPAEVEAALLRHPVVRDAAVIGVADDE
FGERVVGIVVPETAVDPDDFATHLDAHCRVSLAGFKVPRTYRVVESL
PRDETGKLRKDALRSKFGWLSGAAMTVPRPATGQPTAHRPDIAHPTTY
VSGVPHDEFARRRRDEPVGWAEFVLTRHTAAGRTATRGSGFWAVTRY
EDVVAASRRVTD FSSAAKGAFLLTDPRTPADLQQAQQLLVNMDDP
HHARLRKLVTSVFTPRAVRGLLASIDAHAAALVAKVVAAGEFDVV
TDLAAELPLLVLADLLGVPKQDRALLYGWSNHLVGFDPDFGGGDI
DAYRTAMAEAFQYALNLGVERRARPTDLVSLLANAEVDGTRLT
DREFCNFWLLLVVAGNETTRHLVAGTMQALTEHPGECARLVEGRV
PMESAVEEELLRWVTPIMQFRRTATRDTEIGGQAVTAGEKVVLYY
TSANRDATVFAEPDRLDLGRTPNRQLSFGIGPHYCLGAHLARAE
LTALLRVMSPHLGSLQLTG PVSRLASNFVNGVKAMPAVIGSR

>CYP107FS2 (2518221744) *Salinispora arenicola* CNT859

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLV
TGNREARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFAD
PPDHGRMKLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLV
ETLALPLPIAVISEMLGVPFADRSEFERHAEVLTGINASSGFDAI
IAAGRWFDEYLAGLVQQRREPODDLISGMLAAQDKGDRLLTDVEL
RSNALLLSAGFETTVNLIANGLLALLRHPEAMAALRSEPNLMTTAV
DELRLRYDSPVSCVTYHFAQEPVEIGGFEIRSGEHVVIAAAAA
NHDPTVFAAPSRLDLRREGSGQILSFSGIHFCLGAPLARLEGEI
AFGTVLRRLAGLRLAVPTDSL VWKASFVLRRLERLPVTFTPD
RDPNPIDSVHTV

>CYP105CN1 (2518221745) *Salinispora arenicola* CNT859

MAAPAPQATPSTTPHPPSYPLPRECPYRPSAGTAHLRDAGPVST
VRLYDGRTAWLVTGAAEARALLADSRVSNRADFPNYPVMDERHLS
MRATREMAREEEGGFAAALFGMDPPEHTRQORQLLPRFTVRQVA
ARRPAIQIRIVDEHLDAMEANGSPADLVSAFATPVPTMVVCTH
LGVPYQDRTRFEPVAGLFEPPDRADAAMAELTAYLHQLIETKQ
SEPGDGVIDHLIANHLRPGAIDRAELVAIASAILVAGTVTTSSA
IALGTLALLTAPGQYTALVDNPDLPVGA VNEILRYLSLVEQLAR
VATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIHHCIGQNLALLELDIAFRALVSRFPTLRLAVPA
EQLPITYFAGDVPRLACL PVTW

>CYP105CP2 (2518221747) *Salinispora arenicola* CNT859

MTKSMPVQDLPAFPPIPRECPYRPSAQHVSLRSGGPMKVRLYNG
RTAWLVTD SAHARAVLSDYRRVSIKPYHGNYPLLNEEFKVVDS
GYADVLFGVDPPEHTRQORQMIMPSFTLRRTA VLRPDIQRI
VDDKLDMMRHGAPGDLVTEFAQPVPSMVISFLLGVPWEDHEE
FETPAHKLFVPELAEEATTEL GAYLERLIQKKEQPGGTPGGT
GLLDDLIRDHLRAGALS RDELVHIAMAMLVAGTDTTNNVIS
LGLTALLDNPDQWAALRDNPDDELIPGAVEEILRYTSLIEAFA
RVAVSDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDI
RRPPRPSFSFSHGIHRCPGDNLARLELEIAFRSLVTRMPNLRT
AKPIDQIPSNNDGTLQRL

YELPVVW

>CYP208A12 (2518222156) *Salinispora arenicola* CNT859

MTLDTITPRVPLGPPRTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HRALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGLDWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAEITG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTLSLIDRHGPGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGHRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP105J3 (2518222270) *Salinispora arenicola* CNT859

MTDSVAFPQGRVCPHQAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRTPAWPAIVPIVAAVNDAAQKVLKIATLVGTDGPE
HKAQRKMLIPSFTEFRMNALRPMIQEIVDQQLDEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGLVDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP105BL2 (2518222506) *Salinispora arenicola* CNT859

MSSHSAAPDPETATPLHTLAPELAFFQFERSAPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTLSDPRFSSDMSHPGFNRTGKPVDDLL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPSPRVACHLVGIPLSYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHRDRLDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIIGLVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELVDVRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP166A4 (2518222538) *Salinispora arenicola* CNT859

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHVVERVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLYHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIERETS GHVAFGFGI HQCLGQN
LARVELRAGLSALLRAFPNLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP1051A1 (2518222908) *Salinispora arenicola* CNT859

MATDAAITRARTVPAWKALPAAVRDTHRAFVDVGNWSDGDVVRVSLGVSR
PYLVTPNAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAVDDLHGAATAGTPIVGVRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLPWWIPMP
GDRRFRAAVRSIDDILLPVLRLQAQRQPDGDDLLSRLVRARADDGQALSE
KMRDRLVSMVAVTTETSTVVLTWLWPLLANHPDVANRLYDEIDRVVGGG

PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASSTRPARTVEMI
LKPVAPVPAR

>CYP105G5 (2518222929) *Salinispora arenicola* CNT859

LTIIETTETPPADDSLRAPLPRQFMQRDDPSKLPALAAALAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDFRFSDDRFYHPRFKKLSGQLGERLRNDK
ARAGSFINDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPLTDDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRPQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTF

>CYP107Q4 (2518222930) *Salinispora arenicola* CNT859

MTTETAETSAETIDLFSPEVVADPFGWYARLREETGPTTGTNLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRFLTNPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSALTAKHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRAGDSMATMNGER
IPTTLVKCIELARELIANRAEPQDDLVTALVQAQAEQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKDNPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI
DRLAVGSEHGLGFGKGIHRCGLGQHLAYQEAEEVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP154M21 (2518223439) *Salinispora arenicola* CNT859

MEKCPYVLDRAGSDIHKEASNLARGPVTLVELHGGYTASVTSYEVAKQ
LLMDPRISKNTKAHWPEFRDGNVPQDWELYTWVAMDNMQTRDGKEHDRLR
KLVAFAFTGRQAVKSRPIIEEIVNRLLDDLETAPRGQAVDIKARYFYPLS
TILVCDLLGIAEEDRDVILHGNVNSKTTNTAESEANLHQWQTALGRLV
ETKRRDPGDDLTTVVIKAGEDQTPITDDEVIGSLHLLIGGGTETTANVL
CHTVVMDLTHPDQLAMVRSGAVSWESAWEEVVRKDGAVGSMFPFCATDDV
EIGGVITIAKGLVLINIAAAGRDPERYGDAAAEFDITRADKANLSFGYGR
HRCGLPALATMEAMVALPALFDRFPNLALAVPPNELKPGQTFIFNGYAEV
PLLLRS

>CYP154M13 (2518223440) *Salinispora arenicola* CNT859

MSTGRPVVLDPTGRDIHGEADHLRALGPATLVELPGGVLAWSINSYEVGK
ALLSAPNVSKSARRHWPFAFYNGEIPPDWEMISWVAMDNISTTFGGDHRRL
RRLTAKAFGSRRAEQVRPMATHMVNTLLDRMADAADAGEVVDLKAAFAYP
LPGMLVAELIGMSEEARVAAAKVIDMMTATNITPEQAQGVLLGWRDAITD
LIALKRAQPGDDITSDLIAARDEDGSLLTEQELVDITIFAILGAGSETTIN
FFDNAITQLLTHPEQLELVKSGQVSWDDVIEEVLRLSPLASLPMRFAVE
DIQLDGVTIHRGDPIILINIAALGRDPALHGESAGVFDVTRQHKEHLSFGH
GAHYCLGAGIARMVAKTGLSALFERFPRMTLAVSAKDLVPYPTFIMNGNR
QLPVHLSGALTWREGEQSALGRA

>CYP105W2 (2518223454) *Salinispora arenicola* CNT859

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRRHADVRQVLS DPRMSADRRRP GFKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFSVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVVPYGEHEFFERRSTLMFRR
STPADERARCARERIRDFLDVVVTDKEHRPGDDVLSRLLYRQRRAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPPERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGVTTAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAHLAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2518223461) *Salinispora arenicola* CNT859

VLADTVTAFDPTAVDVRDPYPSYHWLLRHDPVHRGAHQVWYVS RFADVR
AVLGDQRFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQ LMSRNEIVSTVVTFIFTGHETVASQLGNGL
LSLLDHPEQLELVRRQPHLVPQAVEECLRFDP AVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCNPNELAYQPRTMFRGLTRL PVAFTPA
G

>CYP154M20 (2518223483) *Salinispora arenicola* CNT859

MERCPYVLDRAGRDLHGEAKALRARGPVTLEVELHGGYTAWSVTSYEIAKQ
LLVDPRI SKNTKETWPEFREGKVPQDWELYTWVAMDNMQTRDGEEHDRLR
KLVAQAFTRQVAKVRPMIEDIVDRLLDDLEKVPAGEVV DIKGRYFYPLS
TILVCDLLGIPEADRAEALHGT VVNARTTNSAESEANLHQWQSALSKLV
ETKRREPGNDITTLIKAREDEQAPLTDDEVIGSLHLLIGGGTETT SNVL
CNTLIDL LTHPDQMAMIRSGAVGWEEAWEVEVRKDGAVGSMPFR CANADI
EIGGVTTIAKGDVLVINYAAAGRDPERYGDTTAEFDITRADKTNLSFGYGR
HRCLGPALATMEAMISLPALFERFPDLVLAVPRDELKPQGTFFVNGYAEV
PMLLRS

>CYP107FJ2 (2518223490) *Salinispora arenicola* CNT859

MSETLSTSVLLADAAEQRAWRAKLRGAGPVHRITTSGETGWLI VGHHEEA
RNALVDLRLQGR TATVGHGRMPEDLERALNSHMLNVGPPDHTRLRRLVS
AAFTRRRIEQMRPRIQELTDELLDGLAGADEADLVAGLALPLPMRV LVDL
FGIPAEDCADFNVTWKVLTSAGAVDLDRLLTTAAGEMVAYLRGLLDRKRQV
PESDLSALVAVRDGADRLSDEL TSMVYLLLTAGYETTVNLIGNGLLNL
LANPEQLVAFKADPDLLPQVVEEAMRFDSPVQIAVRHSTEPVEIAGQAIP
SGALILVSL LWANRDPDRFTEPEAFRVDRQDN PQLGFGYGFHHCIGAPLA
RMEGTIAIGTVIRRF PALRLAHPAGSLTWRASMVMHGLTALPVHLR

>CYP245A7 (2518223560) *Salinispora arenicola* CNT859

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRLSLNRSFSPRIVTEL RPRIARIAQELLSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGRDVDGYARAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQQRGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVIALREHPTVLDEL RGAEGLTDDAVEEFFLYDPVQ
AVTRWAHQD TTGGCDIPGRSRVVAL LGSANRDPARFPSPDVL DVRRPAD
RHLSFGLGIHYCLGATLARAEEIIGLQALLDGVP TLYGTQHV DYADDLV
FHGPSRLVLVNLGERCK

>CYP244A4 (2518223564) *Salinispora arenicola* CNT859

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAARVAPVVRIPYLGRIHAW
VVCDELVKQALHTPKMGKDIALVPEWMRQPGMLVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGFDELDSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEAIRPPHERPKTDEDITAWIEETLRVHPPFPHPPTW
RFPLEDIELGGYLIPKGAPVQVSIAAANRKPGEGADSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP211B2 (2518224082) *Salinispora arenicola* CNT859

MDVSEAI AVLISPSGRLDPYPTYEQ LRAHG PVSQT TAGLFVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIKSIARSMRLTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTQADELVDemiQAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVLLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPAWSLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGTAGVAPGTP

>CYP105CH1 (2518224261) *Salinispora arenicola* CNT859

VSSLPLPTYPKLRDPADPLLPAPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHNPFPYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRRLLI SEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADF SKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRTPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVNLT IARDGT VFP EPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALD TVLRRLPGLHLVAPFEELPFKYRHLVWGIEEL
RVAW

>CYP107AY2 (2518224840) *Salinispora arenicola* CNT859

MTAEPTPIPRSGARLGQEYDQLRKTDGVHQVLLPDASLAWLVNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAPF
SPQ RVAALRPGIRRAAEHLDDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGR TNLRAWTDMLTSYPPDRDAIRRAVTELHG YVVDLIDIKQQQPG
DDL SALVTIEQDGDRLSRDELTS LAFLILFAGYENTANLIASAVLWLLD
HGGLNVVPISEAIEATLRHEPPAPVAIRRFPTEDIIIGV TIPAGDTVLL
SVAAATRGADGNAARLAFGNGPHYCLGAALARVEAEEALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP107EU1 (2518225013) *Salinispora arenicola* CNT859

VTIGQTLPLDVYSPEFTRDPYAIFARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPADDLLTALVQVSADEDRLSREELVSMALLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFDPDRDLITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQMQLAVEADDLEWL VNSFFRAPL
HLPVSLRR

>CYP1198B1 (2518225251) *Salinispora arenicola* CNT859

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQKRLVSKSFTPRIVKSFGPQIITHIVDGLFEDFRDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKNP GDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDPRAYENPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKHPEVDES
SLEYRRHIVVRGLEHMKVAFQP

>CYP211B2 (2518143281) *Salinispora arenicola* CNB458

MDVSEAVAVLTSPSGRLDPYPTYEQ LRAHG PVSRTTAGL FVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIKSIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTQADELVD EMI RAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVL LTRPEAAAAALRDQPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTEL PAGSWLLVLLGAANRDP RRFDPARFDPWRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
VTVGAVTADRGT PAGVAPGTP

>CYP208A12 (2518143339) *Salinispora arenicola* CNB458

MTLDTITPRVPLGPRTAALRMLLV MKRDRLGMLTSAAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGDLWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGTG PVELTAE L TG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELET LNAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGSLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTL SLIDRH PGVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRV PANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRMTGVPGYRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP211C1 (2518143656) *Salinispora arenicola* CNB458

VVDVEGLLARLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADEL LDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAE LRA FYG
ELLAHRRRTPGEDLISGLVEAVDAGGVALTEDELISNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTV LGGVPI PQGQNVLLLI AAANRDPAHFDPDRFDPRRSGPPSLAFGLG
LHYCLGAAVSRLEGR LALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP125A41 (2518143802) *Salinispora arenicola* CNB458

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRR TAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPD TTREDIEMQRVIML
NVDPP EHTKLRAIVSRGFTPRAINALRGSLAERA EHIVRDAAVRGV GDFV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGTDPLTASA

ELLAYAMEMAEERQSPSDDLVTCLVNAQIDGHLTTDEFGFFVMLLAVA
GNETTRNAITHGMVAFLDNPEQWERFKAERP KSAVEEII RWATPVNVFQR
TALVDTV LGGQAI SAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIEELIFNSIADHLDPDIRKVAAPQRLRSGWINGI
RQMLVRYR

>CYP245A7 (2518144140) *Salinispora arenicola* CNB458

MPSATLPRFALTGWNRENIVNPYPVYQRYREVAPVHRGEPGGDAPDTFYV
FSYDEVVQVLSSSCFGRGRSLDAAQASVPVPAEQKALRAIVENWLVFMDP
PRHTELRSLLNRSFSPRIVTEL RPRIARIAQELLSRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANAMALQEASSSRAGRVDVDGYARAEVA
AQEFTEYFREQVRLRRGSAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGADGLTTDAVEEFLRYDPPVQ
AVTRWAHQD T T LGGCDVPRGSRV VALLGSANRDPARFPLPDVLDVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVP T LGYGTQHVDYADDLV
FHGPSRLVLVNLGER

>CYP244A4 (2518144144) *Salinispora arenicola* CNB458

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVC DRELVKQAL THPKMGKDITL VPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLS PRNTERWGERVADKVEGFLDELSQAGSGGSAEV
NVVTNYTHKIPLAFI SEMLG LPP EAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGS LISTS LYEAI RRPPHERPKTDEDITAWIEETLRVHPPFPHP T W
RFPLEDIELGGYLIPKGS PVQVSIAAANRKPGE GADSFEAERRGHGHL SF
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAESAVQWESEWMIRRM
SVLPAVLS

>CYP1051A4 (2518144489) *Salinispora arenicola* CNB458

MATDAAITRVRTVPAWKALPAAVRDTHRALVDVGNWSDGDVVRVSLGVSR
PYVVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAAWAA
SRRVLAPMFRFPVRINAMVD TMDAIA GAVDDLHGA AVAGTPIDVGRELSR
IVCSAIMRVFFADRITVQDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRTAVRSIDNILLPVLRQAQRQPDDGDDL SRLVVRARADDGQVLSE
KRMRDDLVSMAVTTETSTVVL TWLWPLL ANHPDVADRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLD ELLRLYPAGWILPRRAAATDVLGGVRINKGAT
VILSPYVTQRM TAWWGPTAEAFDPERFAAGQEAADGRHRYA YYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTR PARTVEMI
LKPVAPIPAR

>CYP107FS2 (2518144732) *Salinispora arenicola* CNB458

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGM PAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVVAAGKEADLVEALALPLPIAV
ISEMLGVFPFADRSEFERHA EVL TGINASSGFDAI I AAGRWFDEYLAGLVQ
QRRREPQDDLISGMLAAQDKGDRLTDVELRSNALLLSAGFETT VNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQE PVEI
GGFEIRSGEHVVIAAAAANHDPTVFADPSRLDLRRQGSQILSFSGIHF
CLGAPLARLEGEIAFGTVLRLLAGLRLAVPTDSLWVKASFVLHRLRLPV
TFTPDRDPNPIDSVHTV

>CYP105CN1 (2518144733) *Salinispora arenicola* CNB458

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVTGAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQQLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVFPYQDRTRFEPVAVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVPGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIHHCIGQNLALLELDIAFRALVNRFPTRLRLAVPAEQLPY
FAGDVPRLACLPTW

>CYP105CP2 (2518144735) *Salinispora arenicola* CNB458

MTKSMPVQDLPAFFIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHARAVLSDYRRVSIKPYHGNYPLLNEEFKVVDSGYADVLFGVDP
EHTRQRQMIMPSFTLRRTAVLRPDIQRIVDDKLDMMRHGAPGDLVTEFA
QPVPSMVMSFLLGVFWEDHEEFETPAHKLFVPELAEETTELGAYLERLI
QKKEQPGGTPGGTGLLDDLIRDHLRAGALSDELVHIAMAMLVAGTDTTT
NVISLGLTALLDNDPQWEALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRATAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CT2 (2518144844) *Salinispora arenicola* CNB458

MNSPNHMPADSSSTAPARGCPMALSRGRVGLDVTDEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSAVFNVAGVSPPPVLVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIINAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAASASAVSTP
LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGADSHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGVLHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLTDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFPALLRRFPGLRLAV
PDSELEFTQGTTVYSLRGLPVTW

>CYP154M5 (2518144860) *Salinispora arenicola* CNB458

VEQSCPYKLDVTGRDIAEGEAI RARGPVAQVELPGGVQGWSVTGYQAAR
QVLADPRFAKDPQKWPAYTSGAIPPTWPLIGWLLMDNMTTNDGADHQRRL
KLVSHGFTPRQVERTRPLIVKIVNDLLDGLSTAGPDEVVDLKGRAFATPLP
ARVICDMFGVPEALRASVLRGAQVNVTSISGEEAEANVEQWHRELELV
EAKREKPDEDMASLLIAAKEEDGSTLSQEEVVGTLHMLGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDPVHGETAGDYDITRADKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPNMTLAVRPDQLEPQGTIFMNGHREL
PVRLGQPATVLA

>CYP105BL2 (2518146009) *Salinispora arenicola* CNB458

MSSHAAAAPDPETATPLHTLAPELTFPQFERSTPFDPQAYTELSGRCPV
APVMSMDGKPSWLITSFEGVRTTSLDPRFSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLTGELTVRRAKAMRPVITQITDEALDQLAAGV
PGADLVKHVALVVP SRVAYHLVGIPSSDYELFTGMATTLMESTSSADQFA
ALQNMVSYFDTLVTDREHHRDRLGMRVRRYLATGELTRDMLITLVWTT
LAAGQETTAHMIGLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPMI

QFGIPRVAMDDVKVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVR
DEDIMYRVSELAVTW

>CYP105AB35 (2518146224) *Salinispora arenicola* CNB458

MTETASSRLTDETFVQRQCPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFISTDPATRKRLYAQPLSMISMDG
AEHAQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHCVDLVKA
LSLPVPSSLVICELLGVPPYDDHDFQEHATLVRRNAAPEVRQHSIDELNA
YLGALIDRKLANPDDDLGRQIARQHQDGTFRSSIVSLAFLLLVAGHET
TANMISLGVVGLLQHPDQLTMIKNDPDKMPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHIAF
GFGPHQCIGQNLARLELQIVFDTLFRRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP105CH2 (2518146363) *Salinispora arenicola* CNB458

VSSLPLPTYPKLRDPADPLLPPADYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLAEPVSVDRKHNFPPYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRLLISEFSVRQAQAMRPRIQQLVDFHLDQLIAAGPGADFSKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVAVADQKQAIDELLAYFE
QLIQRKSSHPGDDLLSRLIVSNRETEAFDHEALVALGLLLLLVGGHETTAN
TLTLATATMLERPEVAEQLRTDPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGDLVRAGESMLLVLNTIARDGTVFPEPHRLDIHRNARNHLAFSHGI
HQCMGQNLARVEMQIALDTVLRRPLGLHLVTPFEELPFKYRHLVWGIEEL
KVAW

>CYP1005A1 (2518146418) *Salinispora arenicola* CNB458

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTDAQTY
RPDNALAEAVTPVPVAALRVLAGHRFRLLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTTELVDRAVATIRTTLDSSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVKKQFARAALFLWAPLDADRQLALADEVGRFHQVLREFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLTDEP
TIRAALRAGSTSVADVVEEGLRLEPPIVTVRRVAAVDSTLGGTTVAAGTS
VLLWLARAGRDPVVAAPDEFPRPGQRGSRRHLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNLTFRMPDAFVVRR

>CYP105G7 (2518146502) *Salinispora arenicola* CNB458

LTIETTETPPADDTLRAPLPRQFMQRDDPSKLPPALAALAEQAPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFINDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQLDVMLA
KGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRAGLLQTDLPKQ
AVENLEAQRAFMRQLVTDKRRNPADDMISGLVHHAGADPPLTDDDELVGIA
TLLLFLAGLDTTASMLGLGMFMLLQRPEQMAVLRGDPFRIGDAVEELLRYL
TVVSAGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPIRWDTF

>CYP107Q4 (2518146503) *Salinispora arenicola* CNB458

MTTTAETSAETIDLFSPEVVADPFGWYARLREETGPTTGTNLNIGTMMGGP
EMWLVTRYEDVRQVLTDPFRFLTNPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSALTARHIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRAHWRAWGDSMATMNGER
IPTTLVKCIELARELIEKRRAPQDDLVLTALVQAQAEQDNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI
DRLAVGSESHLGFGKGIHRCLGQHLAYQEAEEVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP107EU2 (2518146522) *Salinispora arenicola* CNB458

VTVGQTLPLDLYVSPEFTRDPYAVFARLREQAPVCRVTTTHRGMSAWMVTRY
ADVRALLADSRLAKDGNRIGELMPRHSLKTGAATGFPPGLTTNMVNSDPP
DHTRLRHLVGREFTGHRVESLRPRIEEIVDDLLDGVAACGDEADLAEILS
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPADDLLTALVQVSADEDRLSREELVSMALLLLVAGHETTS
KQISNGVLALLLDPEQLKLLKAQPALAAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPQKFPDPDRLDITRSTQGNLAMGH
GIHHCVGGAALARLELEIVLSRLVARFPQLQLAVAADDLEWLVNSFFRAPL
HLPVSLGR

>CYP107AY14 (2518147099) *Salinispora arenicola* CNB458

MTAELTPIPRSGAQLRQEYDQLRKTDGVHQVLLPDASLAWLITNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAP
SPQRVAGLRPGIRRAAEHLDTLVATSRPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRWTDMTLTSYPPDRDAIRQAVTELHGYYVVDLIDLKQQQPG
DDLSSLVLTIEQDGDRLTRDELTSLAFLILFAGYENTANLIASAVLWLLD
HGGLNEVPFAEAIEGTLRDEPPAPVAIRRFPTEDIIIRGLTIPAGDTVLL
SIAAATRGADGNAARLAFNGPHYCLGAALARVEAEEALTVLARRLPGLT
LAVPPAQVRWRPTFRTHGPAELLVGW

>CYP248A2 (2518147138) *Salinispora arenicola* CNB458

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRAFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLGL
LGLPAGDADAVGRWSRAVGRTLDRGATAEDMRRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQLMRNEIVSTVVTFIFTGHETVASQLGNGL
LSLLDHPEQSELVRRQPHLVSQAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDEFDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCSPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP105W3 (2518147146) *Salinispora arenicola* CNB458

MTGYQDPPTGDQPGAPVPSGSTDPGLDAFFPLPRRCFFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRAHADVRLGDPRMSADRRRPGFPKFAPTTEGQ
RQASFANFRPPLNWMPPPEHAICRRQIVDEFSAARRVRLRTLVERVVDTH
LDALAAAAPGADLVSTFAYPVPSQVICEVLGVYPYGEHGFERRSTLMFRR
STPADERARCAIREFLDVVVTDKERRPGDDVLSRLLYRQRSAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPKRFPAAVE
ELLRYFTVVEAATARTATAEVTIGGVTTAAGEGVVALGQAANRDPVFEH
PDEFDPDRDARAHLAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP107AX1 (2518147272) *Salinispora arenicola* CNB458

MTSRPTAVFDQCLLRDPHSRYNALRDQAPVHHVLTDPGAPAWLVTRYNDV
RAAFTDPRLSVDKRFSGTDEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLHPAVERIVSTLLDGLAGHDRAELIGSLASPLPLQVMHEL
LGLPTQANIDFRTWTNTLLSADANQPAQSRAAMANMRRFLIEQLAHKRAQ
PGDDLLTGLLAAREDDRLTDELVAMVFLLMFAGYDNTAALIGTVTHAL
LTNAELHEAVRGGSLALDELIDEVLRWNPAFPLAVRRFAREPIAIAQGQTI
PAGDRIWLCLASANRDPAQFTQPDDELGIVGLRRPHLSFGHGIHYCLGAPL
ARLQTTIAVTSLNRRFPFEMRLAVPAHDIRWRESFRLRGLIALPVYL

>CYP166A4 (2518147641) *Salinispora arenicola* CNB458

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHIGWIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTREFTVRRTSRLTGHEGVAAEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAYEQAGAYFAEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPADLDIDRETSGHVAFGFGIHCCLGQN
LARVELRAGLSALLRAFPNRLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP107AW7 (2518147760) *Salinispora arenicola* CNB458

VETVTGTSTPPPVPYIADPYPTLARIRANGPVSIHLSDEGIPMWVIARYR
DVRAALADPRFGQDARRAQALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLTGRTTVDLVQDFAFPLPMLV
ICELLGFPAEERNAYRSWSTAILTHDDDPAAAFATALREMTDYIAVQLRIR
QTQPGDDILTELLAARDAGQLTDDEIIGMVFLLLIGGHETTVNLLGTATL
ALMRNPQHRWLLANQHALPEAIDEFLRYESPVAMATLRFTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILDRDRTGHLLAFGHGLHRCCLGA
FLGKLEGEVALGALLRRHPRALAAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP1198B2 (2518147897) *Salinispora arenicola* CNB458

MSGELTDQRAAPDVGGNPLRSLLDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQRKLVSQSFTPRIVQSFGPQITRIVDGLFEDFQDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKNPGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMTVLRENPGVITNVVDES
LRYDPPVHLAARMARATTIGGYDLDPGSIVVVLMAAGNRDPAYENPDV
FDVNRKIKNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKNPEVDES
SLEYRRHIVVRGLEHMRVSFQP

>CYP208A12 (2519863096) *Salinispora arenicola* CNH877

MTLDTITPRVPLGPPTAALRMLLVMKRDLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGLDWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAELTG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELETNAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGTWTLSLIDRHGPVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRVPANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGHRLVPEPMLSLRIRGGGLPLVVRP

VS

>CYP211C1 (2519863973) *Salinispora arenicola* CNH877

VVDVEELLTRLYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELLDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPI PQGQNVLLLI AAANRDP AHFPDPDRFDPWRS GPPSLAFGLG
LHYCLGAAVSRLEGR LALPRLLSRFPRLRIMEQPVYSGSLF LRGIDKLSV
SPGEGSTRE

>CYP125A41 (2519864123) *Salinispora arenicola* CNH877

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRR TAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQ RVIML
NVDPP EHTKLRAIVSRGFTPRAINALRGSLAERA EHIVRDAAVRGV GDFV
TDVACELPLQAI AELIGVPQHRRKVFDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMA EERQRSPSDDLVTKL VNAQIDG EHLTTDEF GFFVMLLAVA
GNETTRNAITHGMVAF LDNPEQWELFKAERP KSAVEEII RWATPVNVFQR
TALVDTVLGGQ AISAGQRVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHL PDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP245A7 (2519864463) *Salinispora arenicola* CNH877

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSSCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRSLLNRSFSPRIVTEL RPRIARIAQELL SRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSSRAGR DVDGYARA EVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGAEGLTTDAVEEFLRYDPPVQ
AVTRWAHQD TTLGGCDIPRGSRVVALLGSANRDPARFPSPDVL DVRRPAD
RHLSFGLGIHYCLGATLARAELEIGLQALLDGVPTLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCT

>CYP244A4 (2519864467) *Salinispora arenicola* CNH877

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLGRHAW
VVC DRELVKQAL THPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLS PRNTERWGERVADKVEGF LDEL SRAGSGGSTE V
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAI G
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGS LISTS LYEAIRRPPHERPKTDEDITAWIEETLRVHPPFPHP TW
RFPLEDIELGGYLIPKGAPVQVSI AAANRKPGE GADSFDAERRGHGHLSF
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP1051A1 (2519864784) *Salinispora arenicola* CNH877

MATDAAITRARTVPAWKALPAAVRDTHRALVDVGNWSDGDVVRVSLGVSR
PYLVTNPAHVQEVLHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAWAA
SRRVLAPMFRPARINAMVDTMADA IAGAVDGLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSID DILLPVLRQAQRQPDDGDDL LSR LVRARADDGQALSE

KMRDDLVSMVAVTTETSTVVLTWLVPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPTAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASTRPARTVEMV
LKPVAPVPPAR

>CYP105G5 (2519864804) *Salinispora arenicola* CNH877

LTIETTETTPPADDSLAPLPRQFMQRDDPSKLPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDPRFSSDRFRYHPRFKKLSGQLGERLRNDK
ARAGSFIMNDPPEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRRAAGLLQTDLPKQ
AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRPEQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHIPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQLARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVHRLPILWDTP

>CYP107Q4 (2519864805) *Salinispora arenicola* CNH877

MTTTAETSATIDLFSPEVVADPFGWYARLREETGPTTGTNLNIGTMMGGP
EMWLVTRYEDVRQVLTDPFRFLTNPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSALTARHIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRAGDSMATMNGER
IPTTLVKCIELARELIAKRAEPQDDLVTALVQAQAEQNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFSEDIELGGVTIPRGAPVAPLLLAANTDPRRFDPNKLII
DRLAVGSEHGLGFGKGIHRCLGQHLAYQEAEEVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105CP2 (2519865122) *Salinispora arenicola* CNH877

MTKSMPVQDLPAFPIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHARAVLSDYRRVSIKPYHGNYPILLNEEFKVVDSGYADVLFGVDPP
EHTRQRQMIMPSFTLRRATAVLRPDIQRIVDDKLDEMRRHGAPGDLVTEFA
QPVPSPMVISFLLGVPWEDHEEFETPAHKLFVPELAEEATTELGAYLERLI
QKKEQPGGTPGGTGLLDDLIRDHLRAGALSDELVHIAMAMLVAGTDTT
NVISLGTALLLDNPQWAAALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMQNLRATAKPIDQIPSNNDGTLQRL
YELPVVW

>CYP105CN1 (2519865124) *Salinispora arenicola* CNH877

MAAPAPQATPSTTPHPPSYPLPRECPYRPSAGTAHLRDAGPVSTVRLYDG
RTAWLVTGAAEARALLADSRVSNRADFPNYPVMDEHLSMRATREMAREE
EGGFAAALFGMDPPEHTRQRQLLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVYPYQDRTRFEPVAGLFEPPDRAD
AAMAEALTAYLHQLIETKQSEPGDGVIDHLIANHLRPGAIDRAELVAIASA
ILVAGTVTTSSAIALGTALLLTAPGQYTALVDNPDLPVGAUNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIIHCIGQNALLLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPTVW

>CYP107FS2 (2519865125) *Salinispora arenicola* CNH877

MPVPQGEQNLTTTEVFADPKALFATLGSRQPLHRISLPDGMFAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KLVSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVPFADRSEFERHAEVLGTGINASSGFDIAAAGRWFDEYLAGLVQ
QRRREPQDDLISGMLAAQDKGDRLLTDVELRSNALLLSAGFETTVNLIAN
GLLALLRHPEAMAALRSEPNLMTTAVDELRLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAAANHDPTVFAAPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRRLAGLRLAVPTDSLWVKASFVLHRLERLPV
TFTPDRDPNPIDSVHTV

>CYP125G6 (2519865163) *Salinispora arenicola* CNH877

VPTLLNEHVSYDGAIAIVDSGATSWIRLAERVNRVHLLRAHGLDTGD
RLACVTGNRRETFEVLLAALHTGVTVPVNWHLTVTEIGHILSDSGSRVV
ITEELHVKAVAAAADGTAGPVAGLVLGDRVEGFAAVEPLLAASPAEPE
GQVCGATMLYTSGETGRPKGVVNNLFVTGAPYARVGRLCDYARSVLGVP
RERMLLDGPWYHSSQLFFALLSLQGSRLVIRPYFDPAATLKTIDHRIT
VTHLVPTQLVRLLRVDALTRQMFSGASLRRVWHGGGCPPEVKRSMIDWW
GPVLVEYYGATEGGVVTLIDSAEWLARPGSVGRAVPPSEVVVVDDGGQPV
AAGQTGQVFFRRRTGNRFHYHNAPEKTQAAYLAPDTFTTYGEVGHVDE
LFLTGRAQDMIVSGGVNVYPAEVEAALLRHPVVRDAAVIGVADDEFGERV
VGIVVPETAVDPPDLATHLDAHCRVSLAGFKVPRTYRVVESLPRDET
RKDALRSKFGWLSGAAMTVPRPATGQPTAHRPDIAHPTTYVSGVPHDE
FAARRRDEFPVGWVAEPVLTRHTAAGRTATRGSGFWAVTRYEDVVAAS
RRVTD FSSAAKGAFLLTDPRTPADLQQAQQLLVNMDDPHHARLRKL
VTSVFTPRAV RGLLASIDAHAAALVAKVVAAGEFDVVTDLAAELPL
LVLADLLGVPKQDR ALLYGWSNHLVGFDDPDFGGGDIDAYRTAMAE
AFQYALNLGVERRARPTD DLVSLLANAEVDGTRLTDREFCNFWLL
LVVAGNETTRHLIAGTMQALTEH PGECARLVEGRVPMESAVEEL
LRWVTPIMQFRRTATRDTEIGGQAVTAGE KVVLYYTSANRDATV
FAEPDRLDLGRTPNRQLSFGIGPHYCLGAHLARAE LTALLRVMS
PHLGSLQLTG PVSRLASNFVNGVKAMPAVIGSR

>CYP154M15 (2519865188) *Salinispora arenicola* CNH877

MNDKCPFAALDVTGQDLHGEEARLREQGPAVLVELPGGVKAWSINRYEVI
RELLMDRRVTKNARKHWPFIKGEIPPDWEMISWVAMDNMVTAYGKDHVR
LRKLVGRAFTQRRADALRPQVVALSTKLLDDL GATPPGEVVDLRERFAYP
LPAMLVASLIGMSEAAALACSKVIDMMVHTNVSPEEAQAVLRGWRAAMAD
LIESKRRTPGEDITTDLIAAREEDGSRLSEAELADTIFAILGAGSETTIN
FFDNAITALLSRPGQLQLRTGAVTWDDVIDEVLRVESPLAHLPLRYAVE
DIELDGVTIPQGDPILVNYAAAGRDPALHGGTADEFDLARGDKTHLSFGY
GPHYCLGAGIARMVATIGLSMLFERFPDLSLAVPVTELKRLPTFIMNGHQ
TLPVRLTAHAR

>CYP107AX14P (2519865342) *Salinispora arenicola* CNH877

VTSPPHVAFGHLLRDPHGQYNALRGQAPVHHIRTPDGAPAWLVMRYHDV
QAALTDLRLSVDKRFSDTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADQAPAVATIVDALLDGIADQDQAEILGALASPLPLQVMHEL
LGLPTQTSVDFRNWTNTLLSADANQPAQSR SAMATMRRFLMGQLARKRAQ
PGDDLVTGLLAARDDDRFTDDELLAMVFLLMFAGYDNTAALIGNVTHAL
LTDAGLHDAVRAGSVDDLDSVVDEVLRWNPSFPLAVRRFAREFVTPSRQAI
ASGSAWPARTATPHSSPNPTN

>CYP166A4 (2519865358) *Salinispora arenicola* CNH877

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRTSRLTGHVEGVATEQIEVMREHGAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGDGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHCCLGQN
LARVELRAGLSALLRAFPNLRRLAVPADEVPLRLQGSVFVAVKNLPVCW

>CYP105BL2 (2519865512) *Salinispora arenicola* CNH877

MSSHSAAAPDPETATPLHTLAPELAFFPQFERSAPFDPPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLDPHFSSDMSHPGFPNRTGKPVDDLL
KDTLGAMDGERHRYRRLMTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVPSPRVACHLVGIPLSYELFTGMAATLMDSTSSDDQFA
ALQNMVSYFDTLVTDREHHRDRLGDMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMIIGLVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP105J3 (2519865651) *Salinispora arenicola* CNH877

MTDSVAFPPQGRVCPHPAPGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRTPAWPAIVPIVAAAVNDAQQKVLKIATALVGTGPE
HKAQRKMLIPSFTFRMNALRPMIQEIVDQQLDDEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGLVDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDAVTRLAADDIEVE
GTVIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP1005A1 (2519865971) *Salinispora arenicola* CNH877

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTDQATY
RPDNALAEAVTPVPVAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTTELVA DRVATIRTTLDSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVKKQFARAALFWAPLDADRQLALADEVGRFHVQLREFA
DTGGGLAAALRATGHPPDVLVGALFFLLVAGQETTSQFLTLLHRLTDEP
TIRAALRAGSISVADVVEEGLRLEPPIVTWRRVAAVDSTLGTTVVAGTS
VLLWLLARAGRDPVVAAPDEFPRPGQRGSRRLAFGAGAHRCCLGDQLARME
AAVVVEQATPLLDGVTIVRPPWYPDNLTFRMPDAFVVRR

>CYP105CH1 (2519866600) *Salinispora arenicola* CNH877

VSSLPLPTYPKLRDPADPLLPAPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHPPNFPYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRRLLISEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADF SKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRDPSLMPSAVEEFLRYFSVAVAVSRIATAD
LQVGGQLVRAGESMLLVNLTARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQC MGQNLARVEMQIALD TVLRRLPGLHLVTPFEELPFKYRHLVWGIEEL

RVAW

>CYP107FJ2 (2519866684) *Salinispora arenicola* CNH877

MSETLSTSVLLADAAEQRAWRAKLRGAGPVHRITTSGETGWLIVGHEEA
RNALVDLRLQGRTATVGHGRMPEDLERALNSHMLNVGPPDHTRLRRLVS
AAFTRRRIEQMRPRIQELTDELLDGLAGADEADLVAGLALPLPMRVLVDL
FGIPAEDCADFNVTKVLTSAAGVLDRLTTAAGEMVAYLRGLLDRKRQV
PESDLSALVAVRDGADRLSDDELTSMVYLLLTAGYETTVNLIGNGLLNL
LANPEQLVAFKADPDLLPQVVEEAMRFDSPVQIAVRHSTEPVEIAGQAIP
SGALILVSLWANRDPDRFTEPEVFRVDRQDNPQLGFGYGFHHICIGAPLA
RMEGTVAIGTVIRRFAPALRLAHPASSLTWRASMVMHGLTALPVHLR

>CYP154M20 (2519866691) *Salinispora arenicola* CNH877

MERCPYVLDRAGDLHGEAKALRARGPVTLEVELHGGYTASVTSYEIAKQ
LLVDPRIKNTKETWPEFREGKVPQDWELYTWVAMDNMQTRDGEHDLRLR
KLVAQAFTTRQVAKVRPMIEDIVDRLLDDLEKVPAGEVVDIKGRYFYPLS
TILVCDLLGIPEADRAEALHGTVVNARTTNSAESEANLHQWQSALSKLV
ETKRREPGNDITTLIIKAREDEQAPLTDDEVIGSLHLLIGGGTETTSNVL
CNTLIDLTHPDQMAMIRSGAVGWEEAWEVEVRKDGAVGSMPFRCANADI
EIGGVTIKAGDLVLINYAAAGRDPERYGDTTAEFDITRADKTNLSFGYGR
HRCGLPALATMEAMISLPALFERFPDLVLAVPRDELKPQGTFFVNGYAEV
PMLLRS

>CYP248A2 (2519866715) *Salinispora arenicola* CNH877

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVSRAFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRGHAAIAEFADYVERALA
ERREDGADLLALMLAAHRSQIMSRNEIVSTVVTFTFTGHETVASQLGNGL
LSLLDHPEQLELVRRQPHLVPQAVEECLRFDPVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDPVPSMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCNPNELAYQPRTMFRGLTRLPAFTPA
G

>CYP105W2 (2519866723) *Salinispora arenicola* CNH877

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVSRHADVRQVLS DPRMSADRRRPFGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEFVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQVICEVLGVYPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDVVVTDKEHRPGDDVLSRLLYRQRRAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALSVLALLTHPARLARLRAEPPERFPAAVE
ELLRYFTVVEAATARTATAEVTIGGVTTAAGEGVVAVGQAANRDPRVFEH
PDEFDPDRDARAHAFGHGRHICPGQHLARLEMEVALSRLFRRLPGLRLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP154M13 (2519866736) *Salinispora arenicola* CNH877

MSTGRPVVLDPTGRDIHGEADHLRALGPATLVELPGGVLAWSINSYEVGK
ALLSAPNVSKSARRHWPAYNGEIPPDWEMISWVAMDNISTTFGGDHRRRL
RRLTAKAFGSRRAEQVRPMATHMVNTLLDRMADAADAGEVVLDLKAFAFYP
LPGMLVAELIGMSEEARVAAKVIDMMTATNITPEQAQGVLLGWRDAITD
LIALKRAQPGDDITSDLIAARDEDGSLLTEQELVDTIFAILGAGSETTIN

FFDNAITQLLTHPEQLELVKSGQVSWDDVIEEVLRLLESPLASLPMRFAVE
DIQLDGVTIHRGDPILINYAALGRDPALHGESAGVFDVTRQHKEHLSFGH
GAHYCLGAGIARMVAKTGLSALFERFPRMTLAVSATDLVPYPTFIMNGNR
QLPVHLSGALTWREGEQSALGRA

>CYP154M21 (2519866737) *Salinispora arenicola* CNH877

MEKCPYVLDRAGSDIHKEASNLARGPVTLVELHGGYTAWSVTSYEVAKQ
LLMDPRISKKTKAHWPEFRDGNVPQDWELYTWVAMDNMQTRDGKEHDRLR
KLVAFAFTGRQAVKSRPIIEEIVNRLDDLETA PRGQAVDIKARYFYPLS
TILVCDLLGIAEEDRDVILHGNVNSKTTNTAESEANLHQWQTALGRLV
ETKRRDPGDDLTTVIIKAGEDEQTPLTDDEVIGSLHLLIGGGTETTANVL
CHTVVDMLTHPDQLAMVRSGAVSWESAWEEEVKDGAVGSMPPFRCATDDV
EIGGVTIAGDLVLINAAAAGRDPERYGDAAAEFDITRADKANLSFGYGR
HRCLGPALATMEAMVALPALFDRFPNLALAVPPNELKPPQGTFFNGYAEV
PLLLRS

>CYP211B2 (2519866801) *Salinispora arenicola* CNH877

MDVSEAI AVLISPSGRLDPYPTYEQ LRAHG PVSQTTAGLFVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPA KSIARSMRLTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTQADELVD EMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVLLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPA GSWLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRLTLRGYETLP
ITVGAVTADRGT PAGVAPGTP

>CYP105AB8 (2519866881) *Salinispora arenicola* CNH877

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHCADLVKT
LSLPVPSLVICELLGVPYADHDFQEH TATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDDDLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDPKTPLAIEELLRFFTIVDSVTSRV
ATEDVRFGDTTINAGDGVVVVSGLSADWDPTVFADPDRLDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTL FHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAW

>CYP107EU1 (2519867088) *Salinispora arenicola* CNH877

VTIGQTL PDLVYSPEFTRDPYAIFARLREQAPVCRVTTHRGMSAWMVTRH
ADV RALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTNNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPADDLLTALVQVSADEDRLSREELVSMALLLLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRETT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRLDITRYTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQMQLAVEADDLEWLNVNSFFRAPL
HLPVSLRR

>CYP162P1 (2519867200) *Salinispora arenicola* CNH877

MGLPSEVDLADPDLYAEGDPDAEWAWLRAHRPVYRNPAGATAEFWALTRY
RDALQVYRDPSTFSSERGMVLGVDPVAGDPAAGRMLVVTDPPRHPKLRR
VSGIFVPRMTMRLEGRVRSIVDQQLLHRVVDGAGRCDFVNDVAARLPVAII
CELLGVPADEQDWMYHLTSTAFGGGDPAGSAEVS AVERAEAYGDILLYYG
ELAAERRRRPGDDLVTLLVHADLDGEPLDVEDVLVNCTNLIIGGNETTRH
AASGGLLALAQRPELWRRRLRETPTAVPTAVEEVLRWTTPGMHVLRATRD
TEIGGVPIRAGERVVVWNAANRDEDVFADPQRFIDRSPNRHIAFGQGG
HHCLGAALARLELTILFEEMAKQVTNVRLTGPVRRVRSCVLRGIRALPVE
LVT

>CYP107AY2 (2519867417) *Salinispora arenicola* CNH877

MTAEPTPIPRSGARLGQEYDQLRKTDGVHQVLLPDASLAWLVNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGP
SPQVAALRPGIRRAAEHLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRATDTMLTSYPPDRDAIRRAVTELHGYYVDLIDLKQQQPG
DDLSSALVTIEQDGDRLSRDELTSALFLILFAGYENTANLIASAVLWLLD
HGGLNVVPISEAIEATLRHEPPAPVAIRRFPTEDIIIGGVTI PAGDTVLL
SIAAATRGADGNAARLAFNGPHYCLGAALARVEAEALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP162M2 (2519867834) *Salinispora arenicola* CNH877

VPATVDLADLDLYASGDPVATWARLRATTPVFWNQHPGPGFWSVTTYQP
ALEVYRNTSAFTSELGMRVDS DPAAVKAAAGKMLIVTDPPSHQRLRQLMN
AAFVPRVVATLEESMRVIEPLLDQALEKESIDFVSEVAAVLPAAIISDI
MNVPQTERATMIKLTSAFGASVGASSGCPMDQLQKTEAHSEIFLYYADL
VEDRRRDPGDDVVSALLRGDL DGRPLTNEEVLLNCDGLVTGANETTRHAS
AAGLIALVENPDEWHRLKTGEVSI E SAVDEV LRYTSPALHVMRVATRDVE
IGGQQVSAGESVVVWNSSANRDG SVFPDPDRFDLGRTPNRHLTFGMGP
CLGAPLARVELKILLQVLVERVSRVEITGPVRRTRSNFMWGIDHLPVALS
RERR

>CYP163A11 (2519867837) *Salinispora arenicola* CNH877

MPHSTSLDGSPLLHVDLTDP RVHAEQDLRPLFGKLRAGRPVAWHPPRSSD
GRGFVWVTRHADMKAVCRDADR FVSTGGNVLSTLLARGDSASGRMLAVSD
GYRHSRLRRLWQALTPAALASLRERVFAATRSLILAALDDGDIDFARDV
AAHIPLTAICDLGVDPADRPFILRHTSAALS GESAQEANAAGTRLSQGE
LLLYFARLARIRRSEARNDLISLLARGTV DGERLTDDEVVFNCYSLILGG
DETRRLTMISSVRALVEHPDQWRALKNGTVSLKSATEEVLRWTS PAIHVG
RTAMRDSVLRGEQIRAGDVVTAWT L SANFDEAEFDQPLRFDL SRAPNHHL
AFAYGPHFCIGAH LARIEIAALLAGLREFVGAIDETGPARPVYSTFLRGF
SSLPVRLHP

>CYP244A7 (2519867849) *Salinispora arenicola* CNH877

VRVTSSNLAEAPEVTMPVDLRPTDCLPELLAAARVAPVVRTRYLDQHAW
IVCDRELVKQALTHPKLGKDITLAPDWMRKPGQMV TAMPPPEYARMMITS
DGENHSRIRRLHAPVLS PRNTERWGKRVATLADELLDELDSGDNAE VNVV
TDYTHKVPLAFTSEMLGLPPGAERRLHDITEVMLYSADYALRQQA VEELF
EAVQDWVRNPAGLYDG VITGLLASSDEEDVTVTEGEVIVWTL SLVINGYE
TTGSLISAALYEALRRPVRERPHTDEDIAAWIEEALRVQPPVPHTTWRFA
LEDLSLGGYLIPKGA PVQVSIAAANRDPNEDTDGFDAERRGRGHLSFGRG
VHYCIGAPLARLQAQIALHGFLQRFP RARLSADTAPQWESEWMIRMSVL
PALLA

>CYP1198B1 (2519868026) *Salinispora arenicola* CNH877

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGHEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQKRLVSKSFTPRIVKSFGPQIITHIVDGLFEDFRDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRKNP GDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDPRAYENPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKHPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP105BL2 (2519836560) *Salinispora arenicola* CNS673

MSSHSAAPDPETATPLHTLAPELTFPQFERSTPFDPQAYTELSGRCPV
APVSMADGKPSWLITSFEGVRTTSLDPRFSSDMSHPGFNRTGKPVDDL
KDTLGAMDGERHRYRRLTGELTVRRAKAMRPVITQITDEALDQLAAAG
PGADLVKHVAFVVP SRVACHLVGIPLSYELFTGMAATLMDSTSDDQFA
ALQNMVSYFDTLVTDREHHDRDDLGHMVRRYLATGELTRDMLIRLAWTT
MAAGQETTAHMI GLGVAALLRHPDQLELLRREPHLLPGAVDELMRYLPLI
QFGIPRVAMDDVEVDGQTVTAGEGVVALPPLANRDPVFERPDELDVRRN
ARQHLTFGYGPHQCPAHALARLELEVYGRLLERFPTLRLADSDADLKVQ
DKDIMYRVSELAVTW

>CYP208A12 (2519837303) *Salinispora arenicola* CNS673

MTLDTITPRVPLGPRTAALRMLLVMKRDRLGMLTSAAARYGDASRLPVG
HKALWFFNHPRYAKHVLADNSANYHKGIGLVHARRALGDGLLTSEGD LWR
KQRKVIQPAFQSRRIAQQAGMIAEEAFALVERLRARAGAGPVELTAE L TG
LTLGVLGRSLLDADLAGFDSIGDSFATVQDQAMFELET LNAVPMWIPLPR
QIRFRARRRKLQAVVDTLVDGRAGNLADRVDVLSRLILSARGEADPRVGR
ERLRDELVTLLLAGHETTASTLGWTL SLIDRHGPVWERLHAEAVEVLGDR
LPEYDDLRLRLRYTVMVVEEAMRLFPPVWLLPRRALAPDTIGEYRV PANAD
VVISPYTLHRHPEFWPNPERFDPERFAPGQAADRPRYAYLPFGAGPRFCV
GNNLGMMEAVFVIALLCRHLRLTGVPGYRLVPEPMLSLRIRGGLPLVVRP
VS

>CYP154M5 (2519837482) *Salinispora arenicola* CNS673

VEQSCPYKLDVTGRDVHAEGEAIRARGPVAQVELPGGVQGWSVTGYQAAR
QVLADPRFAKDPKKWPAYTSGAIPPNWPLIGWLLMDNMTTNDGADHQRLR
KLVSHGFTPRQVERTRPLIVKIVNDLLDGLSSAGPDEVVDLKGRFATPLP
ARVICDMFGVPEALRASVLRGAQVNVTS SISGEEAEANVEQWHRELLELV
EAKREKPEDMASLLIAAKEEDGSTLTQEEVVGTLHLMLGAGSETLMNAL
SYAVLGMLSNPGQYEMVRNGTSSWDDVIEETLRAQAPVAQLPLRYATEDV
AVGGAVIKAGDPVLMGFTAIGRDPVHGETAGDYDITREDKTHLSFGHGV
HFCLGAPLARLELKIALPALFERFPNMTLAVRPDQLEPQGT FIMNGHREL
PVRLGQPATVLA

>CYP105CT1 (2519837499) *Salinispora arenicola* CNS673

MNSPNHMPADRSLTAPTSGCPMALSRGRVGLDVADEISELRDGGRLGRIT
TAFGQEATLITRYDEVRAQMADSVVFNVAGVPSPPALVDGGFDTESVRRR
RTVGNLIMLDPPEHTRLRRMVAAWFTTRRVERLRPRVVEIIDAALDEMER
SGPPVDLVAMFAKTVPITVICELIGVPEELRERYRRRAERAVSASAVSTP

LDELRLREAGWVSRELIEYHRENPSDDIIGMLLREHGTDSDHDDGITDDE
LVGLANALLIAGHETTTQMLSMGTLALLRHPDQLALLRDDPSIVAGAVEE
LLRYVGV LHGGFVRVATRDTRLGGHRIHAGELVVPALTAANRDPRLITDG
DRLDITRPPTSHVAFGHGVHFCIGAPLARMELREAFALLRRFPGLRLAV
PDSELEFTQGTTVYSLRGLPVTW

>CYP107AY2 (2519837531) *Salinispora arenicola* CNS673

MTAEPTPIPRSGARLGQEYDQLRKTDGVHQVLLPDTSLAWLVTNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAF
SPQ RVAALRPGIRRAAEHLDTLVATSGPTDLVTGYCNPLSVQVIADLMG
VPEAGRTNLRATDTMLTSYPPDRDAIRQAVTELHGYYVDLIDIKQQQPG
DDL LSALVTIEQDGRLSRDELTSLAFLILFAGYENTANLIASAVLWLLD
HGGLNVVPSSEAIEGTLRHEPPAPVAIRRFPTEDIIIGGV TIPAGDTVLL
SIAAATRGADGNAARLAFGNPHYCLGAALARVEAEEALTVLARRLPGLT
LAVPPSQVRWRPTFRTHGPAELLVGW

>CYP211C1 (2519837760) *Salinispora arenicola* CNS673

VVDVEELLTRYSAQGRQDPFPVYADLHAQGPIAALPPEPERRRVA AVAV
GYDLVGAVLRDPEWSKAPPPGWTEQEILRTLQTSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVVNRVADELDRMADAGAGGLDFVAEFAYPLPARVM
AEFIGIPETELDWYRERVDVIDAFLDVAGKTPQRLAAANAAGAE LRAFYG
ELLARRRRTPGEDLISGLVEAVDAGGVELTEDELVSNLIVLFNASFVTTV
YMLSNGLPVLLAHPEVAAALATDPVLTAGAVDEILRLQAPVHLLARAAPR
DTVLGGVPI PQGQNVLLLLIAAANRDP AHFPDPRFDPWRSGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRIMEQPVYSGSLFLRGIDKLSV
SPGEGSTRE

>CYP125A41 (2519837908) *Salinispora arenicola* CNS673

MTEPRIPAGFDFTDPEVLAHRVPREEFAELRRTAPVWWNAQPRGSAGFDD
DGYWVVTRYADVMTVSRSDTYSTRENTAIARLRPDTTREDIEMQRVIML
NVDPPEHTKLRAIVSRGFTPRAINALRGSLAERA EHIVRDAAVRGV GDFV
SDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGTDPLTASA
ELLAYAMEMAERQ RSPSDDLVTKL VNAQIDGEHLTTDEF GFFVM LLA VA
GNETTRNAITHGMVAFLDNPEQWELFKAERP KSAVEE IIRWATPVNVFQR
TALVDTV LGGQAI SAGQ RVALFYGSANFDEAVFEDPERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNSIADHL PDIRKVAAPQRLRSGWINGI
RQMPVRYR

>CYP245A7 (2519838092) *Salinispora arenicola* CNS673

MPSATLPRFALTGWSRENIVNPYPVYQRYREVASVHRGEPGGDAPDTFYV
FSYDEVVQVLSSNCFGRGRSLDAAKASVPVPAEQKALRAIVENWLVFMDP
PRHTELRSLLNRSFSPRIVTEL RPRIARIAQELL SRLGQQVDVDLVESFA
APLPILVISELLGIPEERRAWLRANALALQEASSRAGR DVDGYAQAEVA
AQEFTEYFREQVRLRRGRAGGDLITILANAQERGAPVSLDAIVGTCVHLL
TAGHETTTNSLAKAVLALREHPAVLDELRGAEGLTTDAVEEFLRYDPPVQ
AVTRWAHQDTTLGGCDIPGRSRVVAL LGSANRDPARFPSPDVL D VRRPAD
RHLSFGLGIHYCLGATLARAEE IGLQALLDGVP TLGYGTQHVDYADDLV
FHGPSRLVLVNLGERCK

>CYP244A4 (2519838096) *Salinispora arenicola* CNS673

MSTTTNTELTEAPETNMPVDPGLFDCMPDLIAAARVAPVVRIPYLGRRHAW
VVCDELVKQALHTHPKMGKDIALVPEWMRQPGLMVTAQPDPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGERVADKVEGFLELSQAGSGGSTEV
NVVTNYTHKIPLAFISEMLGLPPEAEHRLRGITDIMLYSSDYAARREAIG
GLFGAVEDWVRNPADLRDGVITGLLAASDGPDAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEAIRRPPHERPKTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAPVQVSI AAANRKPGE GADSFDAERRGHGHL SF
GLGMHYCIGAPLVRLEAQIAVRGFLRRFPQARLSAETAVQWESEWMIRRM
SVLPAVLS

>CYP1005A1 (2519838307) *Salinispora arenicola* CNS673

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTQATY
RPDNAL EAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVASIRTTLD SGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAV KQFARA ALELFWAPLDADRQLALADEVGRFHQVLR EFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLHRLSGEP
TIRAALRAGSSSVADVVEEGLRLEPPIV TWRRVA AVDSTLGGTTVAAGTS
VLLWLARAGRDP AVVAAPDEF RFGQRGSRRLAFA GAGAHRC LGDQLARME
AAVVVEQATPLLDGVTVVRPPWYPDNL TFRMPDAFVVRR

>CYP105W2 (2519838493) *Salinispora arenicola* CNS673

MTGYQDRPTGDQPGAPVPSGSTDPGIGAFPLPRRCPFSPPAEYARLRAEH
PVVRLPMLGGDTAWVVS RHADVRQVLS DPRMSADRRRPGFPKFAPTTEGQ
RQASFANFRPPLNWLDPPEHAICRRQIVDEF SVRRVRQSRALVERVVDTH
LDALTAAPGADLVSTFAYPVPSQV ICEVLGVPYGEHEFFERRSTLMFRR
STPADERARCAREIRDFLDMVVT DKEHRPGDDVLSRLLYRQRRAGGVDHE
AVVSMAFVLLVAGHVTTSNMLALS V LALLTHPARLARLRAE PERFPAAVE
ELLRYFTVVEAATARTTTAEVTIGGV TIAAGEGVVALGQAANRDP RVFEH
PDEFDPDRDARAH LAFGHGRHICPGQH LARLEMEVALSRLFRRLPGLKLT
MEVSDLPLKEDSNIFGLYALPVAW

>CYP248A2 (2519838501) *Salinispora arenicola* CNS673

VLADAVTAFDPTAVDVRRDPYPSYHWLLRHDPVHRGAHQVWYVS RFADVR
AVLGDERFARTGIRRFWTDLVGPGLLSQIVGDIILFQDEPDHGRLRGVVG
PAFSPSALRRLEPTIEATVNDLLRPARALGAMDVVADLAYPLALRAVLEL
LGLPAGDANAVGRWSRAVGRTLDRGATAEDMRRGHAAITEFADYVERALA
ERREDGADLLALMLAAHRSQ LMSRNEIVSTVVT FIFTGHETVASQLGNGL
LSLLDHPEQMELMRRQPHLVPQAVEECLRFDP AVQSNTRQLAADVELHGR
RLRRDDVVVVLAGAANRDPGRYDRPDELDIRRDVPV SMSFGAGMRYCLGS
YLARLQLRTALGAMVALPDLRLVCSPNELAYQPRTMFRGLTRLPVAFTPA
G

>CYP107FS2 (2519838561) *Salinispora arenicola* CNS673

MPVPQGEQNLTTTEVFADPKALFATLGS RQPLHRISLPDGMPAVLVTGNRE
ARQALSDPRLVRSITAAAPELHKYHPLASDDYALSRHMLFADPPDHGRMR
KL VSTAFTRRRVEQMRPRIQQITDDLIDVIAAKGEADLVETLALPLPIAV
ISEMLGVPFADRSEFERHAEVLTGINASSGFDAIIAAGRWFDEYLAELVQ
QRRREPQDDLISGMLAAQDKGDR L TDVELRSNALLLSAGFETT VNLVAN
GLLALLRHPEAMAALRSEPNLMTTAVDELLRYDSPVSCVTYHFAQEPVEI
GGFEIRSGEHVVIAAAAANHDPTVFADPSRLDLRREGSGQILSFSGIHF
CLGAPLARLEGEIAFGTVLRRLAGRLAVPTDSL VWKASFVLHRLERLPV

TFTPDRAPNPIDSVHTV

>CYP105CN1 (2519838562) *Salinispora arenicola* CNS673

MAAPAPQATQSTTPHPPSYPLPRECPYRPSAGTARLRDAGPVSTVRLYDG
RTAWLVTGAAEARALLADSRVSNRADFPNYPVMDERHLSMRATREMAREE
EGGFAAALFGMDPFEHTRQRQQLLPRFTVRQVAARRPAIQRIVDEHLDAM
EANGSPADLVSAFATPVPTMVVCTHLGVFPYQDRTRFEPVAVAGLFEPDRAD
AAMAELTAYLHQLIETKQSEPGDGVIDHLIANHLRPDAIDRAELVAIASA
ILVAGTVTTSSAIALGTLALLTAPGQYAALVDNPDLPVGAVNEILRYLSL
VEQLARVATEDIEIGGKLIRAGDGIIVSFAAGNLDPNVTTHPDRLDVALP
PTNHLAFSHGIIHHCIGQNLALLELDIAFRALVSRFPTLRLAVPAEQLPY
FAGDVPRLACLPTW

>CYP105CP2 (2519838564) *Salinispora arenicola* CNS673

MTKSMPVQDLPAFPIPRECPYRPSAQHVSLRSGGPMKVRLYNGRTAWLV
TDSAHAARAVLSYRRVSIKPYHGNYPLLNEEFKVVDSGYADVLFGVDPP
EHTRQRQMIMPSFTLRRTAVLRPDIQRIVDDKLDMMRHGAPGDLVTEFA
QPVPSPMVSFLLGVFWEDHEEFETPAHKLFPVPELAEAEATTELGTYLRLI
QKKEQPGGTPGGTGLLDDLRDHLRAGALSDELVHIAMAMLVAGTDTT
NVISLGLTALLDNPQWAALRDNPDDELIPGAVEEILRYTSLIEAFARVAV
SDIELNGAVIKEGEGILISSAGVNFDPALAPDPGRFDIRRPPRPSFSFSH
GIHRCPGDNLARLELEIAFRSLVTRMPNLRKAPIDQIPSNNDGTLQRL
YELPVVW

>CYP211B2 (2519839079) *Salinispora arenicola* CNS673

MDVSEAI AVLISPSGRLDPYPTYEQ LRAHG PVSRTTAGLFVVTGYAEADM
VLRDPRFVVLDDDLRDDVFPHWQDSPAIXIARSMLRTNPPDHSRIRRLA
AGAFTPRRVAAMREVVTQADELVDLMIRAGRDGARVDFMDMFAYPLPVA
VICALLGVPAADRSRFRRWAGDLTGILEPEITPEELAGADAGADELRDYF
TGLIEQRRRAPADDLTALVQAHDADGDRLSGEELLANLVVLLVAGFETT
TNLLGNGLVVLTRPEAAAAALRDEPD LAPGYVDELLRYDSPVQLTTRTVR
ESVSFAGTELPAWSLLVLLGAANRDPRRFPDPARFDPGRAQSQPLSFGA
GPHYCLGAGLARLEAQVAFPLLLRRLPELALAGRPSRRTRTLRGYETLP
ITVGAVTADRGTAGVAPGTP

>CYP1051A1 (2519839324) *Salinispora arenicola* CNS673

MATDAAITRARTVPAWKALPAAVRDTHRAFVDVGNWSDGDVVRVSLGVSR
PYLVTPAHVQEV LHERAAIYPRGDDTALWRSVRKLVGDGILAEGDAAWAA
SRRVLAPMFRPARINAMVDTMADAIAGAVDDLHGAATAGTPIDVGRELSR
IVCSAIMRVFFADRITVRDALRIMKAQETIVTAMAPRILAPLVPWWIPMP
GDRRFRAAVRSIDDILLPVLRQAQRQPDDGDDLLSRLVRARADDGRALSE
KRMRDDLVSMVAVTTETSTVVLTLWLPLLANHPDVANRLYDEIDRVVGGG
PVRGDHLAELTYTRMVLDELLRLYPAGWILPRRAATTDVLGGVRINKGAT
VILSPYVTQRMATAWWGPAAEAFDPERFAAGREAADGRHRYAYYPFGVGMH
RCLGEHLFNLEAILIVATLLSRFRFALTDTSMPGVKVAASRTPARTVEMI
LKPVPVPPAR

>CYP105G5 (2519839348) *Salinispora arenicola* CNS673

LTIETTETPPADDSLAPLPRQFMQRDDPSKLPPALAAAEQSPVGRSTL
PDGDPFWMVSGYDEARAVLSDFRFSDFRYHPRFKKLSGQLGERLRNDK
ARAGSFINMDPFEHTRYRKLLTGQFTVRRMRQLTVRIEQIVTEQVDVMLA
EGNSADLVSAFAVPVPSLMICELLGVRYEDRTEFQRRRAAGLLQTDLPKIQ

AVENLEAQRAFMQRLVTDKRRTPADDMISGLVHHAGAEPPLTDDDELVGIA
TLLLFAGLDTTASMLGLGMFMLLQRPQMAVLRDDPSRIGDAVEELLRYL
TVVSTGLFRFAKEDVVLGDEHYPAGSTVVVSLMAANRDGRHWPEPETLDV
TRVRSSHLAFGHGVHQCLGQQARIELTVGITELLRRLPNVRLAVPPADV
PLRNDMITYGVRHLPILWDTF

>CYP107Q4 (2519839349) *Salinispora arenicola* CNS673

MTTTAETSATIDLFSPEVVADPFGWYARLREETGPTTGTNLNIGTMMGGP
EMWLVTTRYEDVRQVLTDPRLTNPPADSPLEDIRAGVFKRLDFPPDLIPW
MANLLNVSDGEDHTRLRKLVSALTAHRIGKLRPRVEKITADLLDKLAED
GKDGSPVDLVEEYCYPLPVTVICELVGIDEPDRPHWRWAGDSMATMNGER
IPTTLVKCIELARELIAKRAEPQDDLVLTALVQAQAEQDNRVSDDEIIGI
LFSLVTAGHQTTTYLIGNSVILLLENPDQLARLKENPSMWPQAVRELQRL
GPIQFAQPRFPSEDIELGGVTIPRGAPVAPLLLAANTDPRRFPDPNKLI
DRLAVGSEHGLGFGKGIHRCGLGQHLAYQEAEEVALQGLFTRFPDLSLAVPR
EEIPWILRPGFTRTRTLPLKLV

>CYP105AB8 (2519839587) *Salinispora arenicola* CNS673

MTETASSRLTDTEFPVQRECPFAEPVEYEQIREQSSIAMVRLTGGGEAWW
ISGHEQGRAVLADRRFSSDRKANFPFVSTDPAIRKRLHAQPLSLISMDG
AEHTQARRALIGEFTVRRLAALRPRIQQIVDQCIDEMLTDDQHRADLVKT
LSLPVPSLVICELLGVPPYADHDFEQEHTATLVRRNTASEVRQHSIDELNA
YLGALIDRKLASPDDDLGRQIARQHRDGTFRSSMVSLAFLLLVAGHET
TANMISLGVVGLLQHPEQLAMIKDDDPDKTPLAIEELLRFFITIVDSVTSRV
ATEDVRLGDTTINAGDGVVVSGLSADWDPTVFADPDRLDLERGARHHLAF
GFGPHQCLGQNLARLELQIVFDTLFHRIPTLRLAAPLDKIPFKTDAAIYG
ARELPVAV

>CYP105J3 (2519840085) *Salinispora arenicola* CNS673

MTDSVAFPPQGRVCPHQAPAGYRPLAVQRPLAQVTLYDGRRVWAVTTRDLA
RRLLVGPRISSDRNTNPAWPAIVPIVAAAVNDAQQKVLKIATALVGTGPE
HKAQRKMLIPSFTFRMNALRPMIQEIVDQQLDDEMIKSGAPTDLIPAFAS
AVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPNANEAYDQLMGYMSRLIA
ERRRNPGEGLVDDLQAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIAL
GLFALLQHPEQLAELRADPSLMPTAVDELLRFLSVPDVAVTRLAADDIEVE
GTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHHASAADHLTFGFGAHQC
LGQSLARITMEIALGALIDRLPSLRLAVPAEEVPFLPAASLQVIAELPIT
W

>CYP105CH1 (2519840209) *Salinispora arenicola* CNS673

VSSLPLPTYPKLRDPADPLLPAPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHPNFPYPVPNPDAVVAQVARWTYILLGDDPPL
HTERRRLLISEFTVRQAQAMRPRIQQLVDFHLEQLIAAGPGADFSKHFAM
KVPSAVICEMLGVPFADHDYFQERTALQLRRDVPVAAQKQAIDELLAYFE
QLIQEKSSHPGDDVLSRLIVSNRETEAFDHEALVALGLLLLLVGGHETTAN
TLTLATATMLERPEIAEQLRTPSLMPSAVEEFFLYFVSVAVAVSRIATAD
LQVGGQLVRAGESMLLVNLTARDGTVFPEPHRLDIRRNARNHLAFSHGI
HQCMGQNLARVEMQIALDTVLRLPLGLHLVAPFEELPFKYRHLVWGIEEL
RVAV

>CYP166A4 (2519840259) *Salinispora arenicola* CNS673

MTDAISFELPWARTDKFDPPAVFDALREQRPLARMRYPDGHVGVIVSSYE
LVREVLGDPRFSHSCAVGHFPVTHQGQVIPTHPQIPGMFIHMDPPEHTRY
RRLLTGEFTVRRSRLTGHVEGVATEQIEVMRGGHAPADLVATFARPLVL
RVLSGLVGLPYGERDRYLHAVTLLHDAEADPAEAAAAAYEQAGAYFDEVIE
RRRRQPEDDLISTLVGGGELTGEELRNIVTLLLFAGYETTESALAVGMFA
LLHHEDQLARLRADPTKIDAAIEELLRYLTVNQYHTYRTASEDIELHGEV
INKGDSVTVSLPAANRDPARFACPAELDIDRETSGHVAFGFGIHCCLGQN
LARVELRAGLSALLRAFPNRLRLAVPADEVPLRLQGSVFAVKNLPVCW

>CYP107EU1 (2519840512) *Salinispora arenicola* CNS673

VTIGQTLPLDVYSPEFTRDPYAI FARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELMPRHSTLTGAATGFPPGLTNNMVNSDPP
DHTRLRHLVGREFTGHRVEGLRPRIEEIVDDLLDGVAACGDEADLAETLA
RRLPIAVIGELLGVPEADRAEFFRWADTLYGGTASPEALGQAYNAIVDYL
GRLCDAKRDPADDLLTALVQVSADEDRLSREELVSMALLLLVAGHETTS
KQISNGVLALLLNPEQLKLLKAQPARTAGAVEELLRFEGPSLSASLRFTT
EPVEVAGVVIPEGEFVLLSLASGNRDPEKFPDPDRLDITRSTQGNLAMGH
GIHHCVGAALARLELEIVLSRLVARFPQMQLAVEADDLEWLNVNSFFRAPL
HLPVSLRR

>CYP1198B1 (2519841286) *Salinispora arenicola* CNS673

MSGELTDQRTAPGAGGNPLRSLMDHGIRANPYPLFGELREAGPTAVEDGS
VVLFGEYEHCSQILRHRDMGSDTSEAPSIKGFVVDDAERAGSSIFFMDQP
GHGRQRKLVSKSFTPRIVKSFGPQITHIVDGLFEDFRDKGELDVVTDLAY
PVSIGIICDLFGIPDDERDMLKEWSDDLALSTELPTLGAAIGVLNVFTRD
EINRFGSVAMAAHAYFADLIHRRRNKPNGDDLVSLLATESNGERLTRFEV
TSVLATLFVAAHESTTNLISGGILALLRNQDQMAVLRENPGITNVVDES
LRYDPPVHLAARMARARTTIGGYDLDPGTIVVVLMAAGNRDPRAYENPDV
FDVNRKIRNVSLAFGAGAHFCIGSGLAKLEAEIAISAFQRLKHPEVDES
SLEYRRHIVVRGLEHMKVSFQP

>CYP1278B4 (2517380076) *Salinispora pacifica* DSM 45548

MPSPVGAVVHPNPYPYAAAMVAERPFFHFDEQLDTWVAASAAAAQAVLTAP
GCRVRPPHEPVPQGIGTGPAGDVFGNLVRMTDGEPOHRLKAIVTQTLGAV
DRSTVAATAMRHARQVLNDSVRTPYEQLMFELPAQVVATLCGLDPAAGGE
ATRLVGHFVQCIPATASPEQQQRAARAAAGLQELLGSKLDDTQHGLLGDL
VRMATHVGTWDQAPLLANGVGFLSQTYDATAALMGNTLLALSQQECELP
SEMALQRFVREVIRHDAPIQNTRRFTATPIRHGDVEVPAGQAVLVLLAAA
NRDPAANPDPHMFRADRTAPNVFTFSAGAHHCGETLAVTIVTTVVEQLL
RVGFDPAKLSTQVSYPSPNARIPVLT

>CYP107AW9 (2517380421) *Salinispora pacifica* DSM 45548

METVTGTSAPPPVPYIADPYPTLARIRANGPVSIHLSDEGLPMWVIARYQ
DVRAALADPRFGQDSRRQAALADNRVAGVTLGGDIVHMLNSDPPDHTRLR
RHVQGAFTARRVAAMRPLVERITTSLLDGLAGRTTVDLVQDFAFPLPMLV
ICELLGFPAEERNVYRSWSTAILTHDDDPATAFATALREMTDYIAVQLRIR
QTRPGDDLLELLAARDAGQLTDDEIIGMVFLLLIGGHETTNNLLGTATL
ALMRNPDQHRWLLANQPALPEAIDEFLRYESPAMATLRFTTTTPVAVDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILNRHDTGHFAFGHGLHRCLGA
LLGKLEGEVALGALLRRYPRLALAAEVRQLRWRDTIMLRGLESPLVSLHG

>CYP107AX11 (2517380433) *Salinispora pacifica* DSM 45548

MTSPAPVFDQLLLRDPHRRYNALRDEAPVHHIRTPDGAPAWLVTRYDDV
RAAFTDPRLSVDKRLSSTDGEHGSSLPPELDAHLLNRDPDPHTRLRRFAA
AAFTPRRVADLRPAVERIVSTLLDGLAGNDHAELIGSLASPLPLQVMQEL
LGLPTQTSVDFRTWTNTLLSADANQPAQSRSAMASMRFLIEQLAHKRAR
PGDDLLTGLLAPHADGDRLSDELVAMLFLLMFAGYDNTAALIGNVAHAL
LTNAELAEAVRTGSLAVDELVDGVLRWNPSPFLAVRRFAREFVPTIAGQLI
PAGDRIWLCLASANRDPAQFTEPDTLGTGMRCPHLSFGHGIHYCLGAPL
ARLQTTVAITSLLDRFPGIRLAVPAQDIRWRESFRLRGLVALPVFLSDGC
GSGGTYG

>CYP211C4 (2517380642) *Salinispora pacifica* DSM 45548

MPDIEGLLTRLYSAPGRQDPYPVYADLHAQAAIAALAPRPERQRVAAVAV
GYDLVAAVLRDPEWGKQPPPGWTDQEILRTLQSSMMFINPPDHGRMRHVF
AGTFTPRRLGALAPVINRVTDDELDRMADAGPGEVDFVTEFAYPLPARVM
AEFIGIPATELTWYRERVDRIDAFLDVAGKTPERLAAANAAGAELEAFYR
ELLVHRRRMPGEDLISGLVEAVDAGGVELTEEEELISNLIVLFNASFVTTV
YLLSNGLPVLLAEPEVAAALADDPETAGAVDEILRLQTPVHLLARAAPR
DTVLGGVSIPQGGQNVLLLIAAAANRDPAHFPDPDRFDPRRSGPPSLAFGLG
LHYCLGAAVSRLEGRALPRLLSRFPRLRILEQPVYSGSLFLRGIDRLSV
SPGGRSIRE

>CYP125A66 (2517380770) *Salinispora pacifica* DSM 45548

MTEPRIPKGFDFTDPAVLERRVPREEFAELRRTPVWVNAQPKGSAGFDD
DGYWVVTRYADVMAVSRDSEYSTRENTAIAARFQPGTTQADREMQRVIMI
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAERIVRDAAAARDTGDFV
TDVACELPLQAI AELIGVPQHRRKVFWDWSNQLIGYDDPAYGVDPMAASA
ELLAYAMEMAHERQRNPSDDLVTQLVNAQIDGEHLTADEF GFFVMLLAVA
GNETTRNAITHGMLAFLENPEQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLAQAI SAGQVALFYGSANFDES VFEEPERFDITRSPNPHLG
FGGSGVHFCLGANLARLEIELIFNSIADHMPDIRQLADPQRLRSGWINGI
REL PVQYH

>CYP107AY10 (2517382711) *Salinispora pacifica* DSM 45548

MYQDQPTRAQLAPI PRSGALLGQEYDQLRKTDGVHQVLLPDTSMWLVT
PELVSRALADPRLALNRKHSRGWSGFALPPALDANLLNLDAPDHTRLRR
LVGPAFSPQRVAALRPRVQRTAEELADTVLATGSPVDLVTGYCTPLSVQV
IADLLGVPEAGRTDLRAWTDMLTSYPPDRDAIRRAVVELHGYYVNLIDA
KQQRPGDDL SALVATEQE GDRLTRDELTSALFLILFAGYENTANLIAS
TLRLLDHGSRLRGVQASEAVEETLRLEPPAPAAVRRFPTEEMTIGGATIPA
GDTVLLSIAAATRGADGNSARLAFGNGPHFCLGAALARVEAEAAITVLAR
RLPSLALAVPGAPVRWRPTFRTHGPAELLVTW

>CYP1223A5 (2517383474) *Salinispora pacifica* DSM 45548

MREVGRAVQALFGPAGCAEPYPHYEALRRAAPVCPLPDNIVLVSRYAEAE
RVIRDPRFLMEDAAWIGQSHPGWTEHPSFRSLMLEMVNHNPPDHARLRL
VSRAFTPRRVAELEPVEQLIDDLLDQMAAREGGTADFMADFALPLPVT
IGELLGIPPADRIWFAPRVEAFTDAIEESMRGPSLAEADQAVKELWARLG
ELADERRRNPRNDMVSELVSVSDSGDDRLSHDELLANLVLLYAAGYETTS
NLLGNGLAALLERPALKERLRQNPTQASAFVEEMLRFDPPIQIATRYTAQ
ATTLGGLNIDAGTQIIVLIGSANRDPDRFADPDEFDPDRADGGSMVFGVG
AHYCLGAALARMEAEIAFPRLLDRFPAITGHAPGVRRRKSRLRGFTQLPIS

LS

>CYP105AB33 (2517384161) *Salinispora pacifica* DSM 45548

MTETASITTAGASSTATSGPGSGEVTDAEFPVERGCPFSTPAEYEQIREH
APLAKVRLTTGREAWWIAGHELARAVLADRRFSSDRRDNFPPVSTDPET
RKQLQDQPI SMLGMDGAEHAQARRALMGFTVRRMAGLRPRIQQIVDQHI
DEMLSSEQRSADLVEALSLPVPSLVICELLGVYPYADHDFQAHGTGPLVRH
NTPSQVRVRIQEELNTYLGGLIDRKVADPTDDLRSRQIAKQRAAGTFDRT
SMVSMAFLLLIAGHETTANMISLGVVGLLQHPDQLAKIKEDPEKTPPAVE
ELLRYFSITDVTARVATEDVQLGDTTINAGDGVVISGLAADHDPTVFTD
PTRIDLERGARRHHVAFGFGPHQCIGQTLARLELQIVFDTLFRRIPTLRLA
APLDDIPFKSDAIIYGAEELPVAW

>CYP211C7 (2525885236) *Salinispora pacifica* CNS237

VPDVEGLLARLYSVQGRQDPYPVYADLHAQGAIAALAPRPERQRVAAVAV
GYDLVASVLRDPEWFKQPPLDWTEQEILRTLQSSMMFINPPDHGRMRHVF
AGTFTPRRLGALEPVINRVTDDELLDRMADAGPGEVDFVAEFAYPLPARVM
AEFIGIPATELAWYRERVDRIDAFLDVAGKTPERLAAANVAGAELEAFY
ELLAYRRRTPEGDLISGLAQAI DAGGVELTEDELISNLIVLFNASFVTTV
YLLSNGLPVLLAHPEVATAVADDPELAAGAVDEILRLQTPVHLLARAAPR
DTVLGGSVIPQGGNVLLIIAAANRDPAHFPDPDRFDPRRSGPSSLAFGLG
LHYCLGAASVSRLEGRLLPRLLSRFPRLRILEQPVYSGSLFLRGIDKLSV
SPGGREHP

>CYP125A15 (2525885375) *Salinispora pacifica* CNS237

MTEPRIPVGFDFTDPAVLERRVPREEFAELRRTAPVWWNVQPRGSAGFDD
DGYWVVTRYADVMAVSRDSEYSTRENTAIARFQPGTTKADLEMQRVIML
NVDPPPEHTKLRAIVSRGFTPRAINALRGSLAERAHIVRDAAGRGTGDFV
TDVACELPLQAI AELIGVPQHHRKVFWDWSNQLIGYDDPAYGVDPLTAAA
ELLAYAMEMADERQRNPSDDLVTCLVNAQIDGHELTDEFGFFVMLLAVA
GNETTRNAITHGMLAFLEHPEQWELFKAERPRSAVEEII RWATPVNVFQR
TALVDTTLGGQAI SAGQRFALFYGSANFDES VF AE PERFDITRSPNPHLG
FGGSGAHFCLGANLARLEIELIFNAIADHMPDIRKAAEPQRLRSGWINGI
REMPVRYR

>CYP285D2 (2525885465) *Salinispora pacifica* CNS237

MSVSNETVDVRLAEVNLFDPAFHTGDPHPLWRVMRERAPLHRQVLADGR
MFWNVTRYHDVCRVLGNHRQFTSERGSLISQLGTVDAAAGRMLVSTDPPR
HLQLRRPLASLFAQPAAEALRGRIQHGVRLINAAPVDESWDLAVDVQQL
PMVAAAAMVDLPESDWPDLIRWTGMAAAPSDPAFSVGSTATTLAIAHHEL
FDYFAGQVRDRREHPGDDVISHLLSMHAGDGPLTREEVIFNCYSILLGAN
ATTPHTVSGTVLALVERPGLLGELTGHPEAAATELVEEGLRWTSAASSFMR
HAVVDTELSGGVVVRAGDAVAWVGAANRDPVFPDPERFDPARRNNRHVA
FGHGHPHYCLGAVLARVTLRGFFAEFLQTFVSVQLAGQPQRLASNFIAGLT
HLPLSVRRRA

>CYP245A12 (2525885547) *Salinispora pacifica* CNS237

MPSATLPRFTLTGWAREDIINPYPVYQRYREVAAVHRGDASGDTPETFYV
FSYDEVAQVLSSSCFGRGRSLPAAAAASVPVPTDQKALRAIVENWLVFMDP
PRHTELRSLLNRSFSPRIVTGLRPRIARIAQELLTRLGQQVEADLVEGFA

APLPILVIAELLGIPAERHGWLRANAMALQEASSSRARQDVDGYARAEAA
AQEFTEYFREEVCLRRGSAGDDLMTILANAQLRGAPVGLAEAVVGTVCVHLL
TAGHETTTNSLAKAVLALRAHPAALEELQSADGLTADSVAEFLRYDPPVQ
AVTRWTHQDTTGLGDWDVPRGSRVVALLGSRNDRPARFPLPDALDVRRTAD
RHLGFGGLGIHYCLGATLARAELEIGLQTLLEDGLPALGYSAYQYVDYADDMV
FHGPSRLILVNPGERFC

>CYP244A5 (2525885551) *Salinispora pacifica* CNS237

MSATTNAELGEAPETSMPVDPGLFDCLPDLIAAARIAPVVRIPYLGRRHAW
VVCDELVKQALTHPKMGKDITLVPEWMRQPGMLVTAQPPPEYARAMIMS
DGENHARIRRIHAPVLSRPNTERWGEQVADKVEGFLDELSHAASGSNAEV
DVVTNYTHKIPLAFISEMLGLPPEAEHRLRSITDIMLYSSDYAARREAIG
GLFGAVEEWVRNPAGLRDGVITGLLAASDGPGAAVTEGEVIVWTLGMIIT
GYETTGSLISTSLYEALRRPPHERPNTDEDITAWIEETLRVHPPFPHTW
RFPLEDIELGGYLIPKGAQVQVSIAAANRKPGEAGDSFDAERRGHGHLSE
GLGMHYCIGAPLVRLEAKIAVRGFLRRFPRLRSADTAVQWESEWMIRRM
SLLPAVLS

>CYP163B17 (2525885770) *Salinispora pacifica* CNS237

LTHAVDLADPATFADHDLTNFWQRLRDEEPIYWNPPKDGRRGFWVLSRHA
DILEVYRDDVITYTSEGRNVLVTLTAGGDAGAGRLAVTDGPRHAELRKLL
LRALGPRVLGPVCSAVRNNTRQMIAEAAVNGECDATDIASRIPMITISN
LLGVPEADRAFLTLTKTALSADDESSETESSEMARSEILLYFQDLVEFR
RKNPGEDVVSMLVGSSIDGVPLSDDDVVLNCSLIIGGETSRLTMIDSI
HTLAAYPEQWRRLKSGQCNIDTAVDEVLRWASPSMHFGRTAVREADIHGE
RIRVDDIVTLWHASGNRDERAFSQPEVFDLGRAPNRHISFGHGPHYCIGS
YLAKVEISELLMALRDLIQGFVEVIGEPQIRSNLLTGFTMPVRFVSA

>CYP1005A7 (2525885971) *Salinispora pacifica* CNS237

VSAVLFRSWTKTAGTHWPAITRVADQQGTEHLVVTEHALVRQVLTQATF
RPDNALDAVTPIPVAAALRVLAGHRFRLPPTLANNGGVSHPAIRALVADAL
HPTKVAAQRPWLAGLVAERVAAIRATLDSGGSADLHADLSADLPLLVLAR
LVELPDAPVSAVKQFARAALFVWAPLDADRQLALADEVGRFHRVLRFA
DTGGGLAAALRASGHPPDVLVGLFFLLVAGQETTSQFLTLHLHRLAGEP
TVRAALRDGGVSVPNVVEEGLRLEPPIVTWRRVAAVDSTLGGTAVPAGTS
VLLWLARAGRDPITVPAPDEFPRPGQRGSRRLAFGAGAHRCIGDQLARME
AAVVVEQVTPLLDGITVVRAPWYPDNLTFRMPDAFVIRR

>CYP244A8 (2525886265) *Salinispora pacifica* CNS237

MQDTTHTNLAEAPEVTMPIELRPTDCLPELLAAARVAPVVRTPYLDQHAW
VVCDELVKQALTHPKLGKDVAAHAPDWMRQPGQMTAMPPEYARMMVMS
DGEHARIRRIHAPVLSRPNRERWSERVAALVDGFLDNLDSTAGAEVNLI
TDYTHKIPLAFTAEMGLPPGAERRLHDITEVMLYSADHALRQQAVGELF
EAVQEWVRNPAGLREGVITGLLASSDGPDATVTEGEAIVWTLSLIINGYE
TTGSLISAALYEALRRPARERPHTDEAIAAWIEETLRVQPPVPHTTWRFA
LADLDLGGYLIPKGAQVQISLAAANLDPDEDTSFDAQRRGRGHLSFGLG
AHYCIGAPLARVQTKIALRGFLRRFPQARLSADTAPQWESEWMIRRMVSVL
PVLLA

>CYP211B18 (2525887398) *Salinispora pacifica* CNS237

MDASEAVALLMSPPGRLDPYPTYEQ LRAHGFPVVP TAAGYFVVTGYTEADT
VLRSPRFGVMDDEERADVFPHWQDSPAMMSISRSMIRANPPDHSRMRRLA
AGVFTPRRVAALREVVAQADELIDEMTRAGRGGAPVDFMGSFAYPLPVT
VICALLGVPAADWAQFRRWASELTGILEPEITPEELAIADAGASGLRDYF
TELIAERRRTPADDLTALVQAHDADGDRLSGEELLANLVLLLVAGFETT
TNLLGNGLVVLNQPE SATALREQPELAPRYVDEV LRYDSPVQLTTRTVR
ESVPLAGVELPAGSWLLVLLGAANRDPARFTDPARFDPGRAQSPPLSFGA
GVHYCLGAGLARLEAQVAFPLLLRRLPELALAGEPTRRNRLTLRGYETLP
VTVG AAPADHGT PAGAALGTP

>CYP107NE1 (2525887682) *Salinispora pacifica* CNS237

MTTAGTRLLFDLRDPALQDDRYGYKRV RDVEPVHRSPLGYWVVTGYDEC
DTVLRSPGVSTDFTD DPQWARVRGGPDSPVVASARRWMLTRGGADHRRLR
RMVSRALS PAAMARLRPRIRTLVNGMIDAMGEGEADLISGLALPLPVVVV
CELVGIPLADADRCRQWTNTIADV DPMVTPRMRRRMNEAVPEFSAYIAG
KLAERRAEPRD DLLSILLEPDAKGDRLSDEDIAAQILVLFNAGHETSVNV
IGNGMVSL LQNPDQLRLLREHPELIERSFDELSRHNSAVQIMARQTIAPV
QVGDTTIPAGASVFIVLGA AHHPAKYDPERFDITRTGTSPLIFGSGPH
YCIAATLGKMEVVIAFEELLRRYSSIELATTELPWYSHFTFLLGLRSLPL
RLEYAR

>CYP154M18 (2525887786) *Salinispora pacifica* CNS237

MHETCPVLDTAGRDIHGESDRLRERGA AVKVKLPGGVLA WAVTGHS AVKK
VLLDPNVTKNARAHWPAFINGEIPMDWELISWVAMDNMVTAYGAHLLQLR
KLSAKAFTPHR VEMMRPRVVALVNQLLDDLAVAGEEVVDLRERFCYPLPA
LTVADLIGMSEEHRRQQTAKAMMMVDTTVT PAQAQETLAGWRGAMAELIA
EKRRNPGEDIASDLIAARD DENGAKLTDTELTD TIFAILGAGSETTINFI
DNAVTALLSHPDQLAMVRSGQISWAEVIEETLRVECP LGSPLPRYAVTDI
EIEGVTIPKGDPI LVNYAAAGRDPALHGETAGQFDVTRPDKEHISFGRGP
HYCLGAGIARMVATVGLSTL FERFPDLALAVPKGELQPLPTFIMNGHRAL
PVRLGVHRRAAVAG

>CYP208A28 (2525887812) *Salinispora pacifica* CNS237

MTVIVDRGGRVPPGPPVTAGLRLL LALGRDRLGMMTSAATEYGDVARLPV
GPKRLYFFNHPDHAKHVLADNNANYQKGIGLVHARRALGDGLLTS DGELW
HKQRRVIQPAFLNRRLAQYAGVVGQEATRLAERLATRV DGPVDVLDEMT
RLTLGVLGRTL LLD AELTGFRGVGESFAAVQDQAMFELETLSAVPTWIPLR
RQRRFRARRRHLQEVVDALAAERGQEV EGRDDVLSRLILSTRAEADPQLG
RQRLRNELVTLLLAGHETTASTLGWSLHL LDQHPQLRERVRHEATSVLGG
RVPVYEDLHQLRYTAMVVQE AIRLYPPVWILTRKARADDEVGGYRVPAGA
DLLICPYTLHRHPRFWEEPERFDPERFD PAGLTNRPRYAYIPFGAGPRFC
VGNNLGMLEATLVLA VLLRDLRLEGLPGRAVIPEPMLS LRVRGGLPMTVR
RAD

>CYP113B6 (2525888489) *Salinispora pacifica* CNS237

MTQTDNAPAPPIDLPKGADAQGLLDWFAYMRKHWPVSWDDSRQAWHVFN
RDYLTVTNTNPLIFSSDFSPVFPVPPELALLMGPGTIGGIDPPRHGPMRKL
VSQAFTPRRIAQMEARIETITADILEQVRDQDQIDIAADLAYPLPVTVIA
DMLGIPNEDHEKFREWVDIILSNEGLEYPNLPDDFTETVGP AIAEWSEFL
YAQIAEKRARPD DLM SGLLGVEVEGRKLTDEEVVNIVALLL TAGHISSA
TLLSNLFLVLEQHPEALAAVRADRS LVPGVVEETLRYS PFNCVFRLLAQ
DTEIFGQPMRKGQMVIAWIASANRDTEMFS DPDTFDIRRESNKHLAFGYG
IHHCLGAFLARQEAKVFLNKILDEFSEYTIHHDGVEFYDPDQLTARRLPV

DVIRH

>CYP107LA3 (2525888490) *Salinispora pacifica* CNS237

MECPVSAEYSRSYPFSNHTDLTIDPTYGELRSKEPVARVRMPYGEGBNAWL
VTRHADARKALSDPRLSIAAGAGRDVPRASPRIQEV DGLMGPPEAHARL
RRLVATAFTPKRIRDIAPRVAGIVDGLVDDLIHADPPADLVRQVASPVPV
KTICALMGVPTEDQHIFRVFSEVLMSSTRYTDDQVEKAIQDFTEYLGSL
AQRRANRTEDLIGAMLEARDNDDRLSEDELIMLTGGLLVGGHETTASQIA
SHIFVLLRERTRYEKLCAQPELIPAAVEELLRVSPMWASVGPTRVATEDL
ELNGASIRAGDAVIFSLTSANLDEDAFPDAADVLDREP NPHIAFGHGPH
FCVGASLARLEMQVTIEALVRRLPGLRLAVKEDELEWHQGMII RSLVSLP
VMW

>CYP107AX12 (2525888997) *Salinispora pacifica* CNS237

MTSQPAVVFDRLHLLRDPHRRYNALREQAPVHYVRTPDGAPAWLVTRYDDV
RAAFTDPRLSVDKRFSGTDGEHGSSLPPELDAHLLNRDPPDHTRLRLRLAA
AAFTPRRVADLRPAVERTVSTLLDDL AGNDHAELIGSLASPLPLQVMHRL
LGLPTQTSVDFTWTNTLLSADADQPAQSR SAMANMRRFLIEQVAHKRAR
PGDDLTLGLLSVREDDDGLTDELVAMLFLLMFAGYDNTAALIGNVIHAL
LTNVELAEAVRIGSLAVDEIVDGVLRWNPSFPIAVRRFAREPVTIAGQTI
PAGDRIWLCLASANRDPTQFTEPDEIGIAGGWRPHVSFGHGIHYCLGAPL
ARLQTTVAVTSLLD RFPGIRLAVPAHDIRWRESFRVRGLVALPVFL

>CYP107AW4 (2525889006) *Salinispora pacifica* CNS237

METVTGTSAPPPVPYIADPYPTLARLRANGPVSILHSDEGIPMWVIARYQ
NVRAALADPRFGQDARRAQTLADNRVTGVTLGGDIVHMLNSDPPDHTRLR
RQVQGAFTARRVAAMRSLVERITTSLLDGLAGRRTVDLVQDFAFPPLPMLV
ICELLGFPAEERNAYRCWSTAILTHDDDPAA FATALRDMTDYIAAQLRIR
RNRPGDDLLELLAARDAGQLTDDEIVGMVFLLLIGGHETT VNLIGTATL
ALLRNPQHRWLLANPHALPEAIDEFLRYESP VAMATLRFTTAPVT FDDV
VIPAGELVLVSLGGANRDPDRFPDADRLILD RRDTGHLAFGHGLHRCLGA
FLGKLEGEVALGALLRRYPRLALAAEVRQLRWRDTIMLRGLES LPVSLHG

>CYP105AB26 (2525889318) *Salinispora pacifica* CNS237

MTETASITTPGISSTTTTTRAASGELTDAEFFPVERGCPFFSTPAEYEQIRAH
SPIAKVRLTNGGEAWWIAGHELGRAILADRRFSSDRRRDNFPFVSTD PET
RKQFQDQPTSM LGMDGTEHAQARRALMGEFTVRRMAGLRPRIQQIVDQHI
DAMLSSGQRSADLVEALSLPVPSLVICELLGV PYADHDFQAHSGPLVRH
TTPPEVLLRIQGE LN TYLGALIDRKVTDPTDDLLSRQIAKQRAAGTFDRA
SMVSM AFLLLIAGHETTANMISLGVMGLLQHPDQLAI IKDDPEKTPPAVE
ELLRYFTIADTVTARVATEEVQLGDTTINAGDGVVVSGLAADRDPTVFTD
PDQLDLERGARHHVAFGFQPHQCIGQTLARMELQIVFDTLFRRIPTLRLA
APLDDIPFKSDAIVYGAEELPVAW

>CYP113E2 (2525889498) *Salinispora pacifica* CNS237

MAAVPRLTFADGGKRVLPWFRRMRDDQPVWYDQGTSSWNVFRYADIAQIL
KDPATFSSDPGRSMPPELAEAEGLVAVDPPRHARLRGLISTAFTPRLV
EQLAPRVRSIGELLLNRAFVDRRVEGEFDIIGDLAYLLPVYVIGELLGLP
ESDRGYLVRAADEFYAISADDPFDGAYMASMQSTLDELGSYMLDHAERRR

AKPGDDLISALAHAEIDGERLNDREIRNFAILLTLAGHITTTALLGNTLL
ALGERQDIMLRWRQGVDTAILLEEVLRHRTPFTEVYRFTTTEVTIGNQV
VPGDQLRLRWIASGNRDERQFADPDFTFVLGRDSKHLGFGGLGIHYCLGASL
ARMESVVVLGLLAERTTSLVPAVEALSYDAPGIFCLRSLPVSYRRT

>CYP107EP2 (2525889503) *Salinispora pacifica* CNS237

MTTLPDAGLRARMVGYDILEKAAEQGDLYARLLRGPADPYFPVYEQIRAL
GPLSRSA LGTWVTTDHQIANKVLRDRRFGVRLADGQKVPEFMNFDNSMLG
LDPPNHARLRKLTTPALNPRMAGRWRDRADQLCARFIDELPTDGSADFDM
TEFAQKLPVTVIADLVGIPDDLRPRFSRLSRRIAPLLDGVVSFHKVRGVD
LAIGELTDMFRGI IKLRQENPGDDLISQMLPAIDEGKLTMDLEPLCMFL
PLAGSETTVNLI GNGVRALLANPDQWMLRADPAGLAAGVVEETLRFDPP
VQQYRRVAHQEI ELVGEVLPVDGELAILAAAAANRDPVFD DPHRYDITRR
SAADTLSFSAGIHYCLGAPLARVEAEAAFRAIATRLPDLRVAGEPRRRDS
FIIHGMLHFP LSAG

>CYP105AH4 (2525889601) *Salinispora pacifica* CNS237

MTLLQAEEKVLNWPFA RTEWGTPPPILAQLRQAPPCAVIIPAGAASELRA
WLVT RYPDVRQALMDPRLSADELLPGAPVRIQVPQEERPSSFLRMDDPEH
GRLRGMIASQFTARRVRQLVPAVQRRTD DDLDAFVAGPCPADLHDAFSRK
LPTLV IASLLGVPDEDSAFFVEKTRVTL SQEDPEVAFAAYREMTDYL GQL
AARKAKEPQDDLMSQLAVNNLAVGDITLDELVG IARLVLVAGHETTTNQI
ALNILSLLLD PGLRAQVLADDGRLLPQYIEEAMRYWSISQDGIVRLVTE
LVLGEVQMRAGDAVVISIPA ANHDPTVFPEPNRIDVTRSPRDHLQWGNP
HYCQGAPLARLEMVIALRTL FARLPGLRLATDDVPSLFRRGT VFHGIENL
PVA

P450-fragments

Salinispora arenicola CNX508

>CYP105J3 (2516016178) *Salinispora arenicola* CNX508

MLIPSFTFRMNALRPMIQEIVDQQLDEMIKSGAPTDLIPAFASAVPVT
LYRLMGIPDDDHGIF EKL SHQLLAGPNANEAYDQLMGYMSRLIAERRRNP
GEGVLDDLLAQHGANDDADHDELVSTLVVQVAGNHGTTGSMIALGLFALL
QHPEQLAELRADPSLMPTAVDELLRFLSV PDAVTRLAADDIEVDGTIIRK
GDGVFFITSLINRDTDVHDAPNSLGWHHSAADHLTFGFGAHQCLGQSLA
RITMEIALGALIDRLPSLRLAVPAEEVPFLPAASLQVIAELPITW

Salinispora arenicola CNH996B

SPECIES1

>CYP107AX-fragment9 (2571110097) *Salinispora arenicola* CNH996B

VTSPPHVVFGHLLRDPHGQYNAPRGQAPVHHIRTPDGALAWLVMCYDDV
RAALTDPQLSVEKRCSDAHRWGARVVASA

>CYP105J4 (2571112007) *Salinispora arenicola* CNH996B

MTDSVAFPQGRVCPHQ PAPGYRPLAAQRSLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRTNPAWPAIVPIVAAAVNDAQQKVLRIATALVGT DGPE

HKAQRRMLIPSFTRRMNALRPMIQEIVDQ

>CYP105J4 (2571112008) *Salinispora arenicola* CNH996B

MIKSGAPTDLIPAFASAVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPHA
NEAYDQLIDYMSTLIAERRRNPGEVGLDDLLAQHGANDDVDHDELVSTLV
VQVAGNHGTTGSMIALGLFALLQHPEQLAELRANPSLMPTAVDELLRFLS
VPDAVTRLAADDIEVEGTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHH
ASAADHLTFGFGAHQCLGQSLARITMEIALGALIDRLPSLRLAVPAEEVP
FLPAASLQVIAELPITW

SPECIES2

>CYP107AX-fragmnet9 (2562075228) *Salinispora arenicola* CNH996

VTSPPHVVFGHLLRDPHGQYNAPRGQAPVHHIRTPDGALAWLVMCYDDV
RAALTDPQLSVEKRCSDAHRWGARVVASA

>CYP105J4 (2562078240) *Salinispora arenicola* CNH996

MIKSGAPTDLIPAFASAVPVTVLYRLMGIPDDDHGIFEKLSHQLLAGPHA
NEAYDQLIDYMSTLIAERRRNPGEVGLDDLLAQHGANDDVDHDELVSTLV
VQVAGNHGTTGSMIALGLFALLQHPEQLAELRANPSLMPTAVDELLRFLS
VPDAVTRLAADDIEVEGTIIRKGDGVFFITSLINRDTDVHDAPNSLGWHH
ASAADHLTFGFGAHQCLGQSLARITMEIALGALIDRLPSLRLAVPAEEVP
FLPAASLQVIAELPITW

>CYP105J4 (2562078241) *Salinispora arenicola* CNH996

MTDSVAFPQGRVCPHQAPAGYRPLAAQRSLAQVTLYDGRRVWAVTTRDLA
RRLLVDPRISSDRTNPAWPAIVPIVAAAVNDAQQKVLRIATALVGTGPE
HKAQRRMLIPSFTRRMNALRPMIQEIVDQ

Salinispora pacifica CNT001

>CYP1278B5 (2515995227) *Salinispora pacifica* CNT001

VCMPsRAQQIILNDPVRTPYEQLMFELPAQVVAMLCGLDPAAGGEASRLVG
RFVQCIPAAASPEQQQRAARAAAGLQELLGPKLDDTQHGLLGDLVRMATQ
VNWTDRAPLLANGIGFLSQTYDATAALMGNTLLALSQQERERPAGETTLE
RFVREVIRHDAPVQNTRRFTTTPIRHGAVEVPAGQAILVLLAAANRDPAA
NPNPHTFRADRTAPTVFTFSSAGAHRRPGEMLAVTVVTTVVEQLLKVGFEF
ARLSTQVTTYWSPSTRIPVLTDQAGT

Salinispora arenicola CNY685

>CYP107AX10 (2563829605) *Salinispora arenicola* CNY685

VTSPPHVVFGHDLRDPGQYSTLRGRAPVHHIRMPDGVPawLVMRYDDV

RAALTDPRLSVDKRFNHTVHRIR

>CYP244A-fragment2 (2563833405) *Salinispora arenicola* CNY685

VHYCIGAPLARLQAQIALRGFLQRFPRARLSADSARQWESERMIRMSVL
PALLA

>CYP105J-fragment1 (2563834046) *Salinispora arenicola* CNY685

MTDSVTFPQGRVCPHPAPGYRPLAAQRPLAQVTLYDGRRVCAVTTRDLA
RRLLVDPRISSDRANPAWPTIVPIVAAAVNDAQQKVLRIATALVGTDGPE
HKAQRKMLIPSFTRRVNALRPVIQEIVDQQLDEMIKSGAPTDLIPARTP
TRHMTRSWTI

>CYP105J-fragment6 (2563834047) *Salinispora arenicola* CNY685

VQVAGSHGTTGSMIALGLFALLQHPEQLVELRADPSFFITSLINRDTDVH
DAPNSLGWRHASAADHLTFGFGAHQCLGQSLARITMEIALGARIDRRPDL
RPAVPAGTLREDR

>CYP285A9 (2563834233) *Salinispora arenicola* CNY685

MKLTKPAEHEPVDLEKADLVDPVHGEKDPHAIWHAMRERDPVHWQQVDE
RLGYWSATRYEDVARVLRDHRVFTSEHGTLNLLGKKDPASRKQLPATDP
PRHTKMRSFPVQALNSKVLERHRE

>CYP285A9 (2563834234) *Salinispora arenicola* CNY685

VPDGEEFDFAEMVGKLPMAVTGTLMGLDREDWPQLTYLTSQAIAPDDPEF
VLPEGGEATLARAHRELFAAFEQSLSRKKGKNGDLIDVLRTEMDNGRK
LRPGEIVSNSYSLLLGANVTTPHPVNAAMGELAKDGKYADWASHPELFES
GINEALRWSSPASHFLRYAKTDVELSGVTIRQGEVPAAWIGSANRDATVF
PDPEYFDIRRDPRNHAFGVGPHYCVGHAVARLALHELFEGLLDQFSGLE
PAGEPQHLHSNFIAGMKHLPLVATRRAEERNRG

Salinispora pacifica DSM 45547

>CYP208A26 (2516639064) *Salinispora pacifica* DSM 45547

MLTSAATKYGDVARLPVGPKRLYFFNHPDHAKHVLADNHANYAKGIGLVH
ARRALGDGLLTSDGE

Salinispora arenicola CNQ884

>CYP107AY2 (2561693306) *Salinispora arenicola* CNQ884

VAVRLAEYPPAPRWARPVSPLPWRDVSAARPSVVRTHQVRPAVYPPDRDA
IRRAVTELHGYYVDLIDIKQQQPGGDLSTLVTEIQDGDRLSRDELTSLA
FLILFAGYENTANLIASAVLWLLDHGGLNVVPISEAIEGTLRHEPPAPVA
IRRFPTEDIIIGGVTPAGDTVLLSVAAATRGADGNAARLAFNGPHYCL
GAALARVEAEALTVLARLPGLTLAVPPSQVRWRPTFRTHGPAELLVGW

Salinispora pacifica CNH732

>CYP1278B2(2571075021) *Salinispora pacifica* CNH732

VLLAAANRDPAAANPNPHTFRADRTAPTFTFSAGAHLCPGEMLAVTVVTT
VVEQLLKVGFDPARLSTQVTYRPSNPTRIPVLTDQAGT

Salinispora tropica CNH898

>CYP107AX5(2515517766) *Salinispora tropica* CNH898

VRAALTDPRLSVDKRFSGTGGEHGSSLPPELDAHLLNRDPPDHTRLRCLA
ATAFTPRRIAEHQPAASLLDRFPGIRMAAPTHALRWRDSFRVRGLTALPV
HL

Salinispora pacifica CNY498

>CYP1278B3(2563543478) *Salinispora pacifica* CNY498

VCMPsRAQQIILNDPVRTTYEQSMFELPAQVVAMLCGLDPAAGGEASRLVG
RFVQCIPAAASPEQQQWAARAAAGLQELLGPKLDDTQHGLLGDLVRMATQ
VNWTDRAPLLANGIGVLSQTYDATAALMGNTRLALSQQEREREPAGETALE
RFVREVIRHDAPVQNTTRFTTTPIRHGAVEVPAGQAILVLLAAANRDPAA
NPNPHTFRADRTAPTFTFAAGAHRCPGEMLAVTVVTTVVEQLLKVGFEF
ASLSTQVTYRPSNPTRIPVLTDQAGT

Salinispora arenicola ATCC BAA-917

>CYP107AX14P(2550290938) *Salinispora arenicola* ATCC BAA-917

GQAPVHHIIRTPDGAPAWLVMRYHDVQAALTDLRLSVDKRFSDTDGEHGSS
LPPELDAHLLNRDPPDHTRLRLRLAAAFTPRRVADQAPAVATIVDALP

>CYP154M20(2550291869) *Salinispora arenicola* ATCC BAA-917

ETKRREPGNDITTLIIKAREDEQAPLTDDEVIGSLHLLIGGGTETTSNVL
CNTLIDLTLTHPDQMAMIRSGAVGWEEAWEVEVRKDGAVGSMPFRCANADM
LEPKGFE

>CYP107AX14P(2550292968) *Salinispora arenicola* ATCC BAA-917

LASPLPLQVMHELLGLPTQTSVDFRNWTNTLLSADANQPAQSRSAMATMR
RFLMGQLARKRAQPGDDLLTGLLAARDDDRFTDDELLAMVFLMFAGYD
NTAALIGNVTHALLTDAGLHDAVRAGSVDLDSVVDEVLRWNPSFPLAVRR
FAREPVTSPRQAIASGSAWPARTATPHSSPNPTN

>CYP154M20(2550292975) *Salinispora arenicola* ATCC BAA-917

MERCPYVLDRAGRDHLHGEAKALRARGPVTLEVELHGGYTAVSVTSYEIAKQ
LLVDPRISK

>CYP107AY2(2550293291) *Salinispora arenicola* ATCC BAA-917

MTAELTPIPRSSARLGQEYDQLRKTGDVHQVLLPDASLAWLVNPEVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAF
SPQRVAALRPGIRRAAEHLLDTLVATSRPTDLVTGYCNPLSVQVIADLMG
VPE

>CYP125G6 (2550294932) *Salinispora arenicola* ATCC BAA-917

FKPFRFQHPHHARLRKLVTSVFTPRAVRGLLASIDAHAAALVAKVVAAGE
FDVVTDLAAELPLLVLADLLGVPKQDRALLYGWSNHLVGFDDPDFGGGDI
DAYRTAMAEAFQYALNLGVERRARPTDDLVSLLANA EVDGTRLTDREFCN
FWLLLVVAGNETTRHLVAGTMQALTEHPGECARLVEGRVPMESAVEELLR
WVTPIMQFRRATRDTEIGGQAVTAGEKVVLYYTSANRDATVFAEPDRLD
LGRTPNRQLSFGIGPHYCLGAHLARAELTALLR

>CYP107EU1 (2550296198) *Salinispora arenicola* ATCC BAA-917

VTIGQTLPLDVYSPEFTRDPYAIFARLREQAPVCRVTTHRGMSAWMVTRH
ADVRALLADNRLAKDGNRIGELIPAQHAHGCGRVVPARTDDQHGGQ

>CYP154M13 (2550296521) *Salinispora arenicola* ATCC BAA-917

RGDPILINYAALGRDPALHGESAGVFDVTRQHKEHLSFGHGAHYCLGAGI
ARMVAKTGLSALFERFPRMTLAVSATDLVPYPTFIMNGNRQLPVHLSGAL
TWREGEQSALGRA

>CYP107FJ2 (2550296637) *Salinispora arenicola* ATCC BAA-917

CADFNVWTKVLTSAGAVDLDRLLTTAAGEMVAYLRGLLDRKRQVPESDLS
ALVAVRDGADRLSDDELTSMVYLLLTAGYETT VNLIGNGLNLLANPEQL
VAFKADPDLLPQVVVEAMRFDSVPQIAVRHSTEPVEIAGQAIPSGALILV
SLLWANRDPDRFTEPEVFRVDRQDNPQLGFGYGFHHCIGAPLARMEGTVA
IGTVIRRFPALRLAHPASSLTWR

>CYP107AY13 (2550296922) *Salinispora arenicola* ATCC BAA-917

TSYPPDRDAIRQAVTELHGYVVDLIDLKQQQPGEDLLSVLVTTIEQDGDRL
TRDELTSALFLILFAGYENTANLIASAVLWLLDHGGLNVVPISEAIEATL
RHEPPAPVAIRRFPTEDI IIGGV TIPAGDTVLLSIAAATRGADGNAARLA
FGNGPHYCLGAALARIEAEEALTVLAR

>CYP248A2 (2550297290) *Salinispora arenicola* ATCC BAA-917

EDGADLLALMLAAHRSQLMRNEIVSTVVTFIFTGHETVASQLGNGLLSL
LDHPEQLELVRRQPHLVPA

>CYP1005A1 (2550297912) *Salinispora arenicola* ATCC BAA-917

VSAVLFRSWTKTAGTRWPDVTRVADQSGTEHLVVTRHALVRQVLTDAQTY
RPDNAL EAVTPVPVAALRVLAGHRFRLPPTLANNGGASHPAIRALVADAL
HPTKVAAQRPWLTGLVADRVATIRTTLDSSGGPVDLYADLTADLPLLVLAR
LVELPDAPVNAVQKFARAAL ELFWAPLDADRQLALADEVGRFHQVLRFA
DTGGGLAAALRATGHSPDVLVGALFFLLVAGQETTSQFLTLLLRVSGEP
TIRAALRAGSSSVADVVEEGL

>CYP105J3 (2550297980) *Salinispora arenicola* ATCC BAA-917

LAE LRADPSLMPTAVDELLRFLSV PDAVTRLAADDIEVEGTVIRKGDGVF
FITS LINRDTDVHDAPNSLGWHHSAADHLTFGFGAHQCLGQSLARITME
IALGALIDRLPSRLAVPAEEVPFLPAASLQVIAELPITW

Salinispora pacifica CNS237

>CYP107AY1(2525886283) *Salinispora pacifica* CNS237

MRAEPAPIPRSGARLGQEYDEFKAGDVHQVLLPDSSLAWLVTDPELV TG
YCTPLSVQVIADLMGVPEAGRTFLRTWTD TMLTGYPDRAAIRRAVVELH
GYVVNLIGAKQQQPGDDL SALVTIEQDGDRLTRDEL TSLAFLILFAGYE
NTANLIAS TVLRLLDQGGIREARILEAIEETLRLEPPAPAAVRRFPTEEM
TIGGATIPAGDTVLLSIAAATRGADGSVTRLA FGNPGPHFCLGAAPQNSWS
PGDARRLTWWCQLPAGSRR

Salinispora pacifica CNT045

>CYP161T1 (2517965967) *Salinispora pacifica* CNT045

VQWHADGPVLGRCWAGVPYANWEQFRRWSDDAADMYDQERSVGGYQALRD
YIAELAQVRLRMSGTDLISDLMESHRTEPEGFTLNQVVELGLTLLFAGHE
TTVTAIDNGAVLLATHPEQRDRLADDP SLLDAAVEEILRGSVPRMNFFAR
PDDTDPAGALPRWANTDLVIGDVTVRAGELVLLGLAHANVDERFFAESAR
FDVGRVPNRH LTFGNPGPHFCAGAPLARLELQELSVARLERFPGLRLAVPA
ERLEPRANLLTGGMTRVPVTW

Salinispora arenicola CNH964

>CYP107AX6 (2515698830) *Salinispora arenicola* CNH964

VTSPPHVAFGHLLRDPHGQYNALRGQAPVHHIRTPDGAPAWLVMRYDDV
RAALTDPRLSVDKRFSDTDGEHGSSLPPELDAHLLNRDPPDHTRLRRLAA
AAFTPRRVADQAPAVATIVDALLDGIADQDQAE LIGALASPLPLQVMHEL
LGLPTQTSVDFRNWTRCCPPTPTSRPSRVRRWPRCGGFSWGSWPASGHSP
ATTC

Salinispora pacifica CNT403

>CYP161T2 (2561669980) *Salinispora pacifica* CNT403

MDFFARPDDTDPAGALPRRANTDLVIGDVTVRAGELVLLGLAHANVDERF
FAESARFDVGRVPNRH LTFGNPGPHFCAGAPLARLELQELFVARLERFPGA
APGGAGGAVGAARQPAHRWHDPCAGDLVAQGGGMSARRRSRSLICARSAT
VKRSSSSFWAAS TSVSISRIRAVPASVM

Salinispora pacifica CNT-133

>CYP107AX6 (2550581057) *Salinispora pacifica* CNT-133

VFDQLLLCDPHRRYNALRDEAPVHHIRTPDGAPAWLVTRYHDRVRAAFTDP

RLSVDKRLSSTDGEHGSSLPPELDAHLLNRDPPDHTRLRRLAAAAFTPRR
IADLRPAVERIVSTLLDGLAGHDQAELIGSLASPLPLQVMQELLGLPTQT
SVDFRTWTNTLLSADANQPAQSRSAMANMRRFLVEQLAHKRAQPGDDLTT
GLLAAREDGDWLTDDDELVAMLFLLMFAGYDNTAALIGNVAHALLTNAELP
AA

>CYP107AY9 (2550581202) *Salinispora pacifica* CNT-133

RRYPGVMSQDQPMRAELAPIPRSGARLGPEYDQLRKTGDVHQVLLPDTSM
AWLVTSPELVSRALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPD
HTRLRRLVGPAFSPQRVAALRPRI

>CYP244A12 (2550581480) *Salinispora pacifica* CNT-133

SFGLGAHYCIGAPLARVQTKIALRGFLRRFPQARLSADTAPRWESEWMIR
RMSVLPVLLA

>CYP163B20 (2550582793) *Salinispora pacifica* CNT-133

DLTNFWQRLRDVEPIYWNPPTSGRRGFWVLSRHADILEVYRDDMTFTSER
GNVLVTLLAGGDAGAGRMLAVTDGPRHTELKLLLRALGPRVLGPVCRAV
RANTRQMIGEAAANGCEDFATDIASRIPMITISNLLGVPEADRASLLKMT
KTALSADDESISDTDSEMARNEILLYFQDFVEFRKKNPGEDVVSMLVNSS
IDGVPLSDDDIVLNC

>CYP211B11 (2550584249) *Salinispora pacifica* CNT-133

DEMIRAGRGGAAVDFMGSFAYPLPVTVICALLGVPTADWARFRHWASDLT
GVLEPEIITPQELAIADAGASELRDYFTELIQRRRAPADDLTALVQAHD
ADGDRLSGEELLANLVLLLVAGFETTTNLLGNGLVVLLTHPDSATALRGQ
PELAPGYVEEFLRYDSPVQLTSRMVRESVSLAGVELPAGSWLLVLLGAAN
RDPARFTDPARFDPRR

>CYP105AB37 (2550584764) *Salinispora pacifica* CNT-133

QPTSMIGMDGAEHAQARRALMGFTVRRMAGLRPRIQQIVDQHIDEMLSS
DQRTADLVEALSLPVPVSLVICELLGVVPYADHDFQARSGP

>CYP113B7 (2550585478) *Salinispora pacifica* CNT-133

KGQMVIAWIASANRDTEVFAPDPTFDIRRKSNKHLAFGYGIHHCLGAFLA
RQEAKVFLNQVLDEFSEFTIDHDGVEFYDPDQLTARRLPVQVVR

>CYP244A12 (2550585594) *Salinispora pacifica* CNT-133

APDWMRQPGQMVMTAMPPEYARMMVMSDGEHHARIRRIHAPVLSPRNTGR
WSERVAALIAGFLDNLDSADGTEVNLITDYTQKIPLAFTAEMLGPPGVE
RRLHDITEVMLYSADYALRQHAVGELFEAVQEWVRDPAELRDGVITGLLA
STDGPDARVTEGEAIVWTLISLIINGYETTGLISAALYEALRRPAPERPH
TDEAVAAWIEETLRVQPPVPHTTWRFA

>CYP107AX6 (2550585683) *Salinispora pacifica* CNT-133

PLARLQTTVAVTSLDDRFPGIRLAVPAQDIRWRESFRLRGLVALPVFL

>CYP105AB37 (2550586674) *Salinispora pacifica* CNT-133

TPPAVEELLRYFTTIADTVTARVATEDVQLGDTTINAGDGVVISGLAADHD
PTVFTDPDRLLDLERGARHHVAFGFGPHQCIGQTLARMELQIVFDTLFRRI
PTLRLAAPLDDIPFKSDAFVYGAERLPVAW

>CYP107AY8 (2550587028) *Salinispora pacifica* CNT-133

VATGSPVDLVTSYCTPLSVQVIADLLGVPEAGRTDLRAWTDMLTSYPPD
RDAIRQAVVELHGYVVNLIIEAKRQRPGDDLLSALVATEQEGDRLTRDELT
SLAFLILFAGYENTANLIAS TVLRLLGHGSLRGVRVPEAIEETLRLEPPA
PAAIRRFPTTEMTIGGATIPAGDTVLLSIAAATRGADGNPARLAFGNNGPH
FCLGAALARVEAEEAITVLARRLPGLALAVPG

Salinispora pacifica CNQ768

>CYP1278B1 (2517950314) *Salinispora pacifica* CNQ768

MPSRAQQIILNDPVRTPYEQLMFELPAQVVAMLCGLDPAAGGEASRLVGRF
VQCIPATASPEQQQRAARAAAGLQELLGPKLDDTQQGLLGDLVRMATQVN
WTDRAPLLANGIGFLSQTYDATAALMGNTLLALSQQERERPADETTLERF
VREVIRHDAPVQNTRRFTATPIRHGDVEVPAGQAILVLLAAANRDPAANP
NPHTFRADRTAPTFTFSAGAHRCPGEMLA VTVVTTVVEQLLKVGFDPAS
LSTQVITYRSPNTRIPVLTDQAGT

>CYP107AY2 (2566059486) *Salinispora arenicola* CNS296

VAVRLAEYPTAPRWARPVSPLPWRDVSAARPSVVRTHQVRPAVYPPDRDA
IRRAVTELHGYVVDLIDIKQQQPGDDLLSALVTIEQDGDRLSRDELTSLA
FLILFAGYENTANLIASAVLWLLDHGGLNVVPTSEAIEATLRHEPPAPVA
IRRFPTEDIIIGGV TIPAGDTVLLSVAAATRGADGNAARLAFGNNGPHYCL
GAALARVEAEEALTVLARRLPGLTLAVPPSQVRWRPTFRTHGPAELLVGW

Salinispora pacifica DSM 45549

>CYP107AX2 (2517460095) *Salinispora pacifica* DSM 45549

MACHPLRRRASGIHRPAPLSVDKRFSSSTDGEHGSSLSPKLDAHLNRPDP
DHTRLRLRLAAAAFTPRRIADLRPAVETTVSTLLDGLAGNDHAELIGSLAS
PLPLQVMHEPLGLPTQASVDFRTWTNTLLSADANQPAQSCPAMANMRRFL
IEQVAHKRARPADLLTGLPPACLPAPFGCGWPCLPATYGGGNRSEYADW
SPCRCSCRRRA

Salinispora pacifica CNT851

>CYP107AX3 (2517988085) *Salinispora pacifica* CNT851

MQSRRGRTGPAAPAPNCKVSLETAHSTVTRPTTLDSDVSQRAPSPLADLR

PAMERIVSTLLDGLVGHDQAELIGSLASPLPLQVMQELLGLPTQTSVD
FRWNTNTLLSADANQPAQSRSAMANMRRFLVEQLAHERARPGDDLLTGLLAA
REDDDRLTDDDELVAMLFLLMFAGYDNTAALIGNVVHALLTNTELPAAVRT
GSLALDELVDGVLRWNPSPFLAVRRFAREPITIAGQTIPAGDRVWLCLAS
ANRDPAQFTAPDKLGTGIRPHLSFGHGIHYCLGAPLARLQTTVAVTIL
LDRFPGSGWPCRPTTSGGGNRFDYAGWSPYRCSCRATRWRQGGPASPPRP
ASADAGAGR

Salinispora arenicola CNS342

>CYP107AY2 (2571119390) *Salinispora arenicola* CNS342

VAVRLAEYPPAPRWARPVSPLPWRDVSAARPSVVRTHQVRPAVYPPDRDA
IRRAVTELHGYYVVDLIDIKQQQPGDDLLSTLVTEIQDGDRLSRDELTS
LAFLILFAGYENTANLIASAVLWLLDHGGLNVVPISEAIEGTLRHEPPAPVA
IRRFPTEDIIIGGV TIPAGDTVLLSVAAATRGADGNAARLAFGNGPHYCL
GAALARVEAEEALTVLARRLPGLTLAVPPSQVRWRPTFRTHGPAELLVGW

Salinispora pacifica CNT796

>CYP107AX3 (2515984270) *Salinispora pacifica* CNT796

MQSRRGRTGPAAPAPNCKVSLETAHSTVTRPTTLDSDVSQRAPSPLADLR
PAMERIVSTLLDGLVGHDQAELIGSLASPLPLQVMQELLGLPTQTSVD
FRWNTNTLLSADANQPAQSRSAMANMRRFLVEQLAHERARPGDDLLTGLLAA
REDDDRLTDDDELVAMLFLLMFAGYDNTAALIGNVVHALLTNTELPAAVRT
GSLALDELVDGVLRWNPSPFLAVRRFAREPITIAGQTIPAGDRVWLCLAS
ANRDPAQFTAPDKLGTGIRPHLSFGHGIHYCLGAPLARLQTTVAVTIL
LDRFPGSGWPCRPTTSGGGNRFDYAGWSPYRCSCRATRWRQGGPASPPRP
ASADAGAGR

Salinispora pacifica CNR114

>CYP1278B1 (2515965299) *Salinispora pacifica* CNR114

MPSRAQQIILNDPVRTPYEQIMFELPAQVVAMLCGLDPAAGGEASRLVGRF
VQCIPATASPEQQQRAARAAAGLQELLGPKLDDTQQGLLGDLVRMATQVN
WTDRAPLLANGIGFLSQTYDATAALMGNTLLALSQQERERPADETTLERF
VREVIRHDAPVQNTRRFTATPIRHGAVEVPAGQAILVLLAAANRDPAANP
NPHTFRADRTAPTFTFSAGAHRCPEGMLAVTVVTTTVEQLLKVGFDPAS
LSTQVTYRPSNPTRIPVLTDQAGT

Salinispora pacifica CNS860

>CYP107CL2 (2518511697) *Salinispora pacifica* CNS860

LQITPEFMHDPYPVYVGMRDSAPVRLSDANAGRTWTFVPRYHDVIDVLRDD
RFSAAALKAPAFINQFPPEQRVQFQPFNQSIAGWVVLQDPPAHRQLRQLMN
KGFTRHLVAALRPKVTEIATGLVDTMATRRSGDFMTDFAQFPFPAAVIATM
FGYRPPT

>CYP107CL2 (2518511699) *Salinispora pacifica* CNS860

VISLLVSVRDNGEQLTDEQVLNCAQLIVAGHETTRNLVANGWLWTLSSH
DQLAKLWADPSLMTSAIREMMRFESPLQFVRRVARDDFDYLGVRIQAQDS
VVTMLGSANRDPAFFTEPDRFDITRNPTGHVALSYGPHICLGAALAEETET
EVALGILLERFPDLRAVDEQPERVMNPMLRGGGGDVAGRRVRRQRHRAE
PGRVNDPVVVVSATDEVLRDPAAGPHLLTGQERARLGSFGSESARRDFIA
AHLVLRLCAARLLGTGPAQVSFGQFCPGCHATGHGRPLLTDPRDIHLSTS
HTAGVVAAGHAPVGVDERHGRQSAALMRRVLASAEFALVTEHPDPR
HAFLPYREREPGGDLSLGDGGGAVTSPEPSGGASGGAVRDHRAQPGDERQ
HGATDRQGERDPAEVSHHRRVHQHIQRFGGEGHHEGRQGERGNSAR

Salinispora arenicola CNY694

>CYP107AX8 (2562130127) *Salinispora arenicola* CNY694

VTSPPHVVFVGHDLRLDPHGQYSTLRGQAPVHHIRMPDGAPAWLVMRYDDV
RAALTDPRLSVDKRFNHTVHRTR

>CYP244A2 (2562132285) *Salinispora arenicola* CNY694

VHYCIGAPLARLQAQIALRGFLQRFPRARLSADSTHQWESERMIRRMVSL
PALLA

>CYP105J4 (2562133988) *Salinispora arenicola* CNY694

MDYMSRLIAERRRNPGEGVLDDLLAQHGANDDADHDELVSTLVVQVAGNH
GTTGSMIALGLFALLQHPEQLAELRADPSFFITSLINRDTDVHDAPNSLG
WRHASAADHLTFGFGAHQCLGQSLARITMEIALGALIDRRPDLRPAVPAG
TLREDR

>CYP105J2 (2562133989) *Salinispora arenicola* CNY694

VPIVAAAVNDAQQKVLRIASALVGTGPEHKAQRKMLIPSFTFRRVNALR
PVIQEIVDQQLDEMIKSGAPTDLIPARTPTRHMTTSWTI

>CYP285A9 (2562134111) *Salinispora arenicola* CNY694

MKLTKEAEHEPVDLEKADLVDPVHGEHGPDAIWHAMRERDPVHWQQVDE
RLGYWSATRYEDVARVLRDHRVFTSEHGTLNLLGKKDPASRKQLPATDP
PRHTKTRSPVQRALNSKVLERHREQIREEAQRLLASVPDGEEDFAEMVG
KLPMAVTGTLMGLDREDWPQLTYLTSQAIAPDDPEFVLPPEGGEATLARA
RELFAAFEQSLSRKKGKNGDLIDVLRHHGDGQRSQVAAG

>CYP285A9 (2562134112) *Salinispora arenicola* CNY694

MEMDNGRKLRPGEIVSNSYSLLLGANVTTPHVPNAAMGELTKDGKYADWA
SHPSELFESGINEALRWSSPASHFLRYAKTDVELSGVTIRQGEPAWIGS
ANRDATVFPDPYEFDIRRDPRNHLAFGVGPHYCVGHAVARLALHELFEGL
LDQFSGLEPAGEPQHLHSNFIAGMKHLPLVATRRAEERNRG

Salinispora arenicola CNP105

>CYP107AX13 (2518447851) *Salinispora arenicola* CNP105

LWTRSCGGIPPFPLAVRRFAREPVTIAGHTIPAGDRVWLCLASANRDPAQ
FTEPDELGITPARRPHLAFGHGHIHYCLGAPLARLQTTVAVASLLDRYPGI
RLAVPAHELRRWRESFRVRGLAALPVRL

>CYP107AX6 (2518447852) *Salinispora arenicola* CNP105

VTSPPHVAFGHLLLRDPHGQYNALRGQAPVHHIRTPDGAPAWLVMRYDDV
RAALTDPRLSVDKRFSDTDGEHGSSLPELDAHLLNRDPPDHTRLRRLAA
AAFTPRRVADQAPAVATIVDALLDGIADQDQAEILIGALASPLPLQVMHEL
LGLPTQTSVDFRNWTRCCPPTPTSRPSRVRRWPRCGGFSWGSWPASGHSP
ATTC

Salinispora arenicola CNX482

>CYP107AY2 (2515757970) *Salinispora arenicola* CNX482

VAVRLAEYPPAPRWARPVSPLPWRDVSAARPSVVRTHQVRPAVYPPDRDA
IRQAVTELHGYYVVDLIDIKQQQPGDDLSSALVTIEQDGDRLSRDELTSIA
FLILFAGYENTANLIASAVLWLLDHGGLNVVPISEAIEATLRHEPPAPVA
IRRFPTEDIIIGGLTIPAGDTVLLSIAAATRGADGNAARLAFGSGPHYCL
GAALARVEAEEALTVLARRLPGLTLAVPPSQVRWRPTFRTHGPAELLVGW

Salinispora pacifica CNY646

>CYP107EP2 (2563510406) *Salinispora pacifica* CNY646

MLGLDPPHHARLRKLTIPALNPRMAGRWRDRADQLCARFIDELPTDGSFAF
DLMTEFAQKLPVTVIADLVGIPDDLPRFRSRLRRRIAPLLDGVVVSFHKVR
GGGPGDR

Salinispora arenicola CNS299

>CYP107AY2 (2524767206) *Salinispora arenicola* CNS299

VAVRLAEYPPAPRWARPVSPLPWRDVSAARPSVVRTHQVRPAVYPPDRDA
IRRAVTELHGYYVVDLIDIKQQQPGDDLSSALVTIEQDGDRLSRDELTSIA
FLILFAGYENTANLIASAVLWLLDHGGLNVVPTSEAIEATLRHEPPAPVA
IRRFPTEDIIIGGVTTIPAGDTVLLSVAAATRGADGNAARLAFGNPHYCL
GAALARVEAEEALTVLARRLPGLTLAVPPSQVRWRPTFRTHGPAELLVGW

Salinispora arenicola CNY281

>CYP105J3 (2562072978) *Salinispora arenicola* CNY281

MTDSVAFPQGRVCPHQAPGYRPLAARRPLAQVTLCDGRRFAVTTTRDLA
RRLLDVDPRTSSDRNTNPAWAAIVPIVAAAVNDAQQKVLKIATALVGTGPE
RKAQRRMLIPSFTFRMNALRPMIQEIVDQQSIVFGARPMFAMS

Salinispora pacifica CNT003

>CYP1278B5 (2515705793) *Salinispora pacifica* CNT003

MFELPAQVVAMLCGLDPAAGGEASRLVGRFVQCIPAAASPEQQQRAARAA
AGLQELLGPKLDDTQHGLLGDLVRMATQVNWTDRAPELLANGIGFLSQTYD
ATAALMGNTLLALSQQERERPAGETTLERFMREVIRPDAPVQNTRRFTTT
PIRHGAVEVPAGQAILVLLAAANRDPAANPNPHTFRADRTAPTFTFSAG
AHRPGEMLAVTVVTTVVEQLLKVGFEFASLSTQVTYRPSNPTRIPVLTD
QAGT

Salinispora pacifica CNT569

>CYP107AX1 (2515693756) *Salinispora pacifica* CNT569

MHELLGLPTQASVDFRTWTNTLLSADANQPAQSRSAMANMRRFLIEQVAR
KRARPGDDLDRFPGIRLAVPAHDIRWRESFRLRGLIALPVFR

Salinispora arenicola CNH643

>CYP244A1 (2561687070) *Salinispora arenicola* CNH643

VRCPDISAATFLRLSSLLPNPRINIHPQGRGHLSTFGRGVHYCIGAPLAR
LQAQIALRGFLQRFPRARLSADTAPQWESEWMIRMSVLPALLA

Salinispora arenicola CNH962

>CYP107AX9 (2519870004) *Salinispora arenicola* CNH962

VTSPPHVVFVGHLLRDPHGQYNAPRGQAPVHHIRTPDGALAWLVMCYDDV
RAALTDPQLSVEKRCSDAHRWGARVVASA

Salinispora pacifica CNR909

>CYP1278B5 (2561690705) *Salinispora pacifica* CNR909

MFELPAQVVAMLCGLDPAAGGEASRLVGRFVQCIPAAASPEQQQRAARAA
AGLQELLGPKLDDTQHGLLGDLVRMATQVNWTDRAPELLANGIGFLSQTYD
ATAALMGNTLLALSQQERERPAGETTLERFVREVIRHDAPVQNTRRFTTT
PIRHGAVEVPAGQAVLVLLAAANRDPAANPNPHTFRADRTAPTFTFSAG
AHLCPGEMLAVTVVTTVVEQLLKVGFEFARLSTQVTYRPSNPSTRIPVLTD
QAGT

Salinispora arenicola CNX481

>CYP105CH2 (2518473081) *Salinispora arenicola* CNX481

TDFPEPHRLDIRRNARNHLAFSHGIHQCMGQNLARVEMQIALDTVLRRLP
GLHLVTPFEELPFKYRHLVWGIKELRVAW

>CYP105CH1 (2518473082) *Salinispora arenicola* CNX481

VSSLPLPTYPKLRDPADPLLPPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHFNFPYDRTPIRSSRRWLGGHTSCWATTRPC
TPSGGVC

Salinispora arenicola CNH963

>CYP107AX9 (2524589437) *Salinispora arenicola* CNH963

VTSPPHVVFVGHLLRDPHGQYNAPRGQAPVHHIRTPDGALAWLVMCYDDV
RAALTDPQLSVEKRCSDAHRWGARVVASA

Salinispora pacifica CNS863

>CYP107CL2 (2517958783) *Salinispora pacifica* CNS863

VISLLVSVRDNQEQLTDEQVLNCAQLIVAGHETTRNLVANGWLWTLSSH
DQLAKLWADPSLMTSAIREMMRFESPLQFVRRVARDDFDYLGVRIQAQDG
VVTMLGSANRDPAFFTEPDRFDITRNPTGHVALSYGPHICLGAALAEMET
EVALGLLLLERFPDLRAVDEQPERVMNPMLRGGGGDVRAGRVRVRQRHRAE
PGRVNDPVVVVSATDEVLRDPAAGPHLLTGQERARLGSFGSESARRDFIA
AHLVRLCAARLLGTGPAQVSFGQFCPGCHATRHGRPLLTDPRDIHLSTS
HTAGVAAAAGHAPVGVDERHGRQSAALMRRVLAPAEFALVTEHPDPR
HAFLPYREREPGGLDSLGDGGGAVTSPEPSGGASG

>CYP107CL2 (2517958785) *Salinispora pacifica* CNS863

LQITPEFMHDPYPVYVGMARDSAPVRLSDANAGRTWVPRYHDVIDVLRDD
RFSALKAPAFINQFPPEQRVQFQPFNQSIAGWVVLQDPPAHRQLRQLMN
KGFTRHLVAALRPKVTEIATGLVDTMATRRSGDFMTDFAQPFPAAVIATM
FGYRPPT

Salinispora tropica CNB476

>CYP107AX4 (2518150279) *Salinispora tropica* CNB476

VRAALTDPRLSVDKRFSGTGGEHGSSLPPELDAHLLNRDPPDHTRLRRLA
ATAFTPRRIAELQPAASLLDRFPGIRLAAPTHALRWRDSFRVRGLAALPV
HL

Salinispora tropica CNT261

>CYP107X5 (2524771191) *Salinispora tropica* CNT261

VRAALTDPRLSVDKRFSGTGGEHGSSLPPELDAHLLNRDPPDHTRLRCLA
ATAFTPRRIAELQPAASLLDRFPGIRMAAPTHALRWRDSFRVRGLTALPV
HL

Salinispora tropica CNT261

>CYP107AY2 (2524773542) *Salinispora tropica* CNT261

MEGDRLTRDELTSIAFLILFAGYENTANLIAS TVLRLLDGGGVLEVRIPE
AIEETLRLEPPAPAAIRRFPTTEMTNGGATIPVGD TVLLSIAAATRGTG
HFARLAFGNGPHFCLGAGLARVEAEEAITV LARRLPGLALAVSGAPVRWR
PTFRTHGPAELLVAW

Salinispora tropica CNR699

>CYP107AX5 (2519084399) *Salinispora tropica* CNR699

VRAALTDPRLSVDKRFSGTGGEHGSSLPPELDAHLLNRDPPDHTRLRCLA
ATAFTPRRIAELQPAASLLDRFPGIRMAAPTHALRWRDSFRVRGLTALPV
HL

>CYP107AY3 (2519087920) *Salinispora tropica* CNR699

MEGDRLTRDELTSIAFLILFAGYENTANLIAS TVLRLLDGGGVLEVRIPE
AIEETLRLEPPAPAAIRRFPTTEMTIGGATIPVSD TVLLSIAAATRGTG
HSARLAFGNGPHFCLGAGLARVEAEEAITV LARRLPGLALAVSGAPVRWR
PTFRTHGPAELLVAW

Salinispora tropica CNY681

>CYP107AX4 (2562098018) *Salinispora tropica* CNY681

VRAALTDPRLSVDKRFSGTGGEHGSSLPPELDAHLLNRDPPDHTRLRRLA
ATAFTPRRIAELQPAASLLDRFPGIRLAAPTHALRWRDSFRVRGLAALPV
HL

Salinispora arenicola CNH718

>CYP107AY4 (2562081609) *Salinispora arenicola* CNH718

VAVRLAEYPPAPRWARPVSPLPWRDVSAARPSVVRTHQVRPAVYPPDRDA
IRQAVTELHGYYVDLIDIKQQQPGDDL LSALVTIEQDGDRLSRDELTSIA
FLILFAGYENTANLIASAVRWLLDHGGLNVVPISEATEGTLRHEPPAPVA
FPPRTSSSGASRFRPVTPSCSVSPPPGADGNAARLAFGNGPHYCLGAAL
ARVEAEEALTVLARRLPGLTLAVPPSQVRWRPTFRTHGPAELLVGW

Salinispora arenicola CNH646

>CYP244A1 (2515980370) *Salinispora arenicola* CNH646

VRCPTDISAATFLRLSSLLPNPRINIHPQGRGHLSFGRGVHYCIGAPLAR
LQAQIALRGFLQRFPARLSADTAPQWESEWMIRRM SVLPALLA

Salinispora pacifica CNY202

>CYP107AW1(2528443850) *Salinispora pacifica* CNY202

VPAPTATLALMRNPDQHRWLLANQHALPEAIDEFLRYESPVAMATLRFTT
TPVAVDDVVI PAGELVLVSLGGANRDPDRFPDADRLILDRRDTGHLAFGH
GLHRCLGAFLGKLEGEVALGALLRQHPRALALAAEVRQLRWRDTIMLRGLE
SLPVSLHG

Salinispora pacifica CNS-143

>CYP107FH3(2550587919) *Salinispora pacifica* CNS-143

ALGNGTLHMLHRDQWTALRADRALLDNAVEEFLRLESPLKHATFRCATE
SLRIGDAEIAAGDFVLLAIASANRDP RR

>CYP124M3(2550588085) *Salinispora pacifica* CNS-143

PGLPHFASPEFGSAPRGRGCYALTRMDDVLAVSRNPSVFISGKGNVAMEV
PAEFLDQSLITMDNPRHARLRRIVSRGFTMKAVTALMDNASQMAKQIVDE
VVERGECDAVVDISAKLPLGIICNMMGIPDSQQQFVFEQTNVMLGVQDPE
YVGEQNDAMLAMSVASQELADLMHELATLRANKPTDDLISKLLSAEVNGE
AL

>CYP211B11(2550588578) *Salinispora pacifica* CNS-143

MDASEAVALLMSPPGRLDPYPTYERLRAHGPPVSTAAGFFVVTGYTEADT
VLRNPRFEVMDDEERDGVFPHWQDSPAM

>CYP124M3(2550588938) *Salinispora pacifica* CNS-143

VISQRRRTVAEDAEPVKLAGQLLGPDKVLMFYGAANRDPNYFVHPEGFDV
RRSPNPHVGYGGPGPHFCLGAHLARLEISVMFRELLTRIPDIHATGEPAR
LKSPLINGIKRLPVAFTPGAR

>CYP208A22(2550589306) *Salinispora pacifica* CNS-143

MTVIADRGGRIPPGPPVTAGLRLLLLALGRDRLGMMTSAAA EYGDVARLPV
GPKKLYFFNHPD

>CYP107AY9(2550589412) *Salinispora pacifica* CNS-143

VATGSPVDLVTGYCTPLSVQVIADLLGVPDAGRDTLRAWTDTMLTSYPPD
RDAIRQAVVELHGYVVNLI EAKQQRPGDDL SALVATEQEGDRLTRDELT
SLAFLILFAGYENTANLI ASTVLRLLDHGSLRGVRVSEAIEETLRLEPPA
PAAIRRFPTTEEMTIGGATIPAGDTVLLSIAAATRGADGNPARLAFGNPH
YCLGAALARVEAEEA

>CYP105AB37(2550591137) *Salinispora pacifica* CNS-143

PDRDL LERGARHHVAFGF GPHQCIGQTLARMELQIVFDTLFRRIP TLR LA
APLDDIPFKSDAFVYGAERLPVAW

>CYP105AB28(2550591138) *Salinispora pacifica* CNS-143

RHTTPTEVRLRIQKELNTYL GALIDRKVADPTDDLLSRQIAKHHAAGTFD
RTSLVSM AFLLLIAGHETTANMISLGVVGLLQHPDQ

>CYP208A22(2550591863) *Salinispora pacifica* CNS-143

TWIPLRRQRRFRRARQHLQEVDVLA AERGQAVEGRDDVLSRLILSTRAE
ADPQLGRERLRDELVTLLLAGHETTASTLGWSLHLLDQHPELRERVRHEA
RKVLGDRVPAYEDLHQLRYTAMVVEEAIRLYPPVWILTRKARAEDEIGGY
RVPAGADILICPYTLHRHPRFWAE

>CYP1278B5(2550591980) *Salinispora pacifica* CNS-143

VCMP SRAQQIILNDPVRTPYEQIMFELPAQVVAMLCGLDPAAGGEASRLVG
RFVQ CIPAAASPEQQQRAARAAAGLQELLGPKLDDTQHGLLGDLVRMATQ
VNWTDRAPLLANGIGFLSQTYDATAALMGNTLLALSQQERERPAGE TALE
RFVREVIRHDAFVQNTRRFTTTPIRHGAVEVPAGQAILVLLAAANRDPAA
NPNPHTFRPHRVHLQRWG TPLPRRDAGRDRRDDGRRAAAEGWLRAGELVH
AGDLP AI

>CYP107AX4(2550592098) *Salinispora pacifica* CNS-143

GVGMTSQPAPVFDQ LLLRDPHRRYNALRDEAPVHHIRTPDGAPAWLVTRY
DDVRAAFTDPRLSVDKRLSSTDGEHGSSLPPSWMRIYSTVTHPTTLDSDV
SQRPPSPLAASPTCAPRWSGSSARCWTVSSATTRRS

>CYP107AY9(2550592175) *Salinispora pacifica* CNS-143

AWLVTSPDLVSRALADPRLALNRKHSRGGWSGFALPPALDANLLNLDAPD
HTRLRRLVGPAFSPQRVAALRPRIQR

>CYP107AX4(2550592995) *Salinispora pacifica* CNS-143

AMANMRRFLVEQLAHKRARP GDDLLTGLLAAREDDDRLTDDDELVAMLFLL
MFAGYDNTAALIGNVVHALLTNTELPAAVRTGSLALDEL

>CYP211B11(2550593268) *Salinispora pacifica* CNS-143

FAYPLPVTVICALLGVPTADWARFRHWASDLTGVLEPEITPQELAIADAG
ASELRDYFTELIAQRRRAPADDLT TALVQAHDADGDRLSGEELLANLVLL
LVAGFETTTNLLGNGLVVLLTHPDSATALRGQPELAPGYVEEFLRYDSPV
QLTSRTVRESVSLAGVELPAGSWLLVLLGAANRDPARFTD PARFDPRRAQ
SPPLSFGAGAHYCLGAGLA

>CYP105AB28(2550593644) *Salinispora pacifica* CNS-143

LAKVRLTTGREAWWIAGHELGRAVLADRRFSSDRRRDNFPFVSTD PETRK
QLRDQPTSMIGMDGAEHAQARRALMGFTVRRMAGLRPRIQQIVDQHIDE
ML

Salinispora arenicola CNY679

>CYP107AY13(2562128543) *Salinispora arenicola* CNY679

MTAELTPIPRSSARLGQEYDQLRKTGDVHQVLLPDASLAWLVTNPDVAAR
ALADPRLALNRRNSRGGWSGFALPPALDANLLNLDAPDHTRLRRLVGPAF
SPQ RVAALRPGIRRAAEHLLDTLVATSRPTDLVTGYCNPLSVQVIADLMG
VPEAGR TNLRATDTMLTSYPPDRDAIRQAVTELHG YVVDLIDLKQQQPG
EDLLSVLV TIEQDGDRLTRDEL TSLAFLILFAGYENTANLIASAVLWLLD
HGGLNVVPISEAIEATLRHEPPAPVAIRRFPTEDIIIGASRFRPVT PSCS
VSPPPPGARTATFRGWFSATAPTTASVRPWPGSRPRRHSPCWPVGYPV

Salinispora arenicola CNX891

>CYP107AY2(2516009335) *Salinispora arenicola* CNX891

VAVRLAEYPPAPRWARPVSPLPWRDVSAARPSVVRTHQVRPAVYPPDRDA
IRRAVTELHG YVVDLIDIKQQQPGDDLLSALVTIEQDGDRLSRDEL TSLA
FLILFAGYENTANLIASAVLWLLDHGGLNVVPISEAIEATLRHEPPAPVA
IRRFPTEDIIIGGLTIPAGDTVLLSIAAATRGADGNAARLAFGNGPHYCL
GAALARVEAEALTVLARRLPGLTLAVPPSQVRWRPTFRTHGPAELLVGW

>CYP105CH2(2516011104) *Salinispora arenicola* CNX891

MPSAVEEFLRYFSVAVAVSRIATADLQVGGQLVRAGESMLLVNLT IARDS
TDFPEPHRLDIRRNARNHLAFSHGIHQCMGQNLARVEMQIALD TVLRRLP
GLHLVTPFEELPFKYRHLVWGIEELRVAW

>CYP105CH1(2516011105) *Salinispora arenicola* CNX891

VSSLPLPTYPKLRDPADPLLPPAEYLAIQSEKPIAKVLLPSGRPTWLITG
HALARQVLTEPCVSVDRRHFNFPYDRTPIRSSRRWLGGHTSCWATTCPC
TPSGGVC

Salinispora pacifica CNS996

>CYP161T1(2517961726) *Salinispora pacifica* CNS996

VQWHADGPVLGRCWAGVPYANWEQFRRWSDDAADMYDQERSVGGYQALRD
YIAELAQVRLRMSGTDLISDLMESHRTEPEGFTLNQVVELGLTLLFAGHE
TTVTAIDNGAVLLATHPEQRDRLADDP SLLDAAVEEILRAGELVLLGLAH
ANVDERFFAESARFDVGRV PNRHLTFGNGPHFCAGAPLARLELQELSVAR
LERFPGLRLAVPAERLEPRANLLTGGMTRVPV TW

Salinispora arenicola CNT-088

>CYP107AY2(2550298107) *Salinispora arenicola* CNT-088

YPPDRDAIRRAVTELHG YVVDLIDIKQQQPGDDLLSTLV TIEQDGDRLSR
DEL TSLAFLILFAGYENTANLIASAVLWLLDHGGLNVVPISEAIEGTLRH
EPPAPVAIRRFPTEDIIIGGV TIPAGDTVLLSVAAATRGADGNAARLAFG
NGPHYCLGAALARVEAEALTVLARRLPGLTLAVPPSQVRWRPTFRTHGP
AELLVGW

Salinispora arenicola CNY666

>CYP105AB37(2563515519) *Salinispora arenicola* CNY666

MTETASIEMTGTTSGPLTDADFPVQRGCPFTAPAEYEQIREESPIAKVHL
KTGGEAWWIAGHELGRAVLADRRFSSDRRRDNFPFVSTD PETREQLQSQP

TSMLGMDGEEHAQARRALMGEFTVRRMAGLRPRIQQIVDQHIDEMLATTR
RSVDLVEALSLPVPVSLVICELLGVADHDFQGLTGPLLRRHTTPTEVRV
RIQEELNTYLGNLIDRKLTDPDLDLGRQIAKHHANGTFDRASMVSMAFL
LLVAGHETTANMISLGVVGLLEHPDQLAMIKNNPDNTPLAVEELLRYFTI
ADTVTARVATEDVQLGDDTISAGDGVVISGLAADRDPAVFADPDRLDLER
GARHHVAFGFGPHQCIGQTLARMELQIVFDTLFHRIPTRLRLAAPLDDIPF
KTDAFVYGIEELPVAW

>CYP125G(2563518214) *Salinispora arenicola* CNY666

VLALVDNPMQRERLVADDTLPSVVEELLRWVSPIMQFR

>CYP133D(2563518744) *Salinispora arenicola* CNY666

MIMIWIYGAANRDPQFDDPDVFDARRQRNAHLGFGRGIHFCLGAPLARME
GRIALNALFDRFSRLRTVESDPPTFMPGFDTTGVNALTVDTRA

>CYP107EP1(2563519023) *Salinispora arenicola* CNY666

VRGADLAIGELTDMFRGVIMRQENPGDDLISQLLPAIDEGKLTMDLEP
LCMFLPSAGSETTVNLIGNGVWALLANPDQWDMLCADPEGLAAGVVEETL
RFDLPVQQYRRVVHQEIELAGEILAVDNELAILAAAANRDPVFDPPHRY
DITRKSADTLFSFAGIHYCRGAALARVEAAAAFRAIAKRLPDLHAAGEP
RRRDSFI IHGMLHFPLAAG

>CYP105AC(2563519050) *Salinispora arenicola* CNY666

MDAPEHTRLRLQLAGKFTARRMKDMRPLLERIVDDQLTAMEKHGPPADLV
SLFALPVPVSLAICELSGVVPYRDRAEFQNSATLFSLEASAEDASRAMDEL
YALLRQLVVDRDTDTGGLLSMLAAEGTLATEEIVGIGVLLLTAGHESTAG
SLGLSTFTLLSHPEHLARLQAEPVLIDNAVEELLRYLTIFHFGVPRTPLE
DVEVEGHLLRAGESITISLPAVNRDPSWFPEPDRLEFGRRTAGHMAFGYG
IHQCLGQNLVRMEMRVALPAIFQRFPRALALVP

Salinispora pacifica CNY239

>CYP1278B5(2524946400) *Salinispora pacifica* CNY239

VCMPsRAQQIILNDPVRTPYEQLMFELPAQVVAMLCGLDPAAGGEASRLVG
RFVQCIPAAASPEQQQRAARAAAGLQELLGPKLDDTQHGLLGDLVRMATQ
VNWTDRAPLLANGIGFLSQTIDATAALMGNTLLALSQQERERPAGETTLE
RFVREVIRHDAPVQNTRRFTTTPIRHGAVEVPAGQAILVLLAAANRDPAA
NPNPHTFRADRTAPTFTFSAGAHRRPGEMLAVTVVTTVVEQLLKVGFEF
ARLSTQVTYWSPSTRIPVLTDQAGT

Salinispora pacifica CNR942

>CYP107AX1(2518500391) *Salinispora pacifica* CNR942

MHELLGLPTQASVDFTWTNTLLSADANQPAQSRSAMNMRRFLIEQVAR
KRARPGDDLDRFPGIRLAVPAHDIRWRESFRLRGLIALPVFR

Salinispora pacifica CNT029

>CYP105AB34 (2515958479) *Salinispora pacifica* CNT029

MTSSRRAAAPWSGHTPSKVRVRIQEELNTYLGGLIDRKVADPTDDLLSRQ
IAKQHAAGTFDRTSLVSMALLLIAGHETTANMISLGVVGLLQHPDQLAM
IKDDPEKTPPAVEELLRYFTITDVTARVATEDVQLGDTTITAGDGVVIS
GLAADHDPTVFTDPNQIDLERGARHHVAFGFGPHQCIGQTLARLELQIVF
DTLFRRIPTLRLAAPLDDIPFKSDAIYGAEEELPVAW

Salinispora arenicola CNX814

>CYP107AY2 (2517934903) *Salinispora arenicola* CNX814

VAVRLAEYPPAPRWARPVSPLPWRDVSAARPSVVRTHQVRPAVYPPDRDA
IRRAVTELHGYVVDLIDIKQQQPGDDLSSALVTIEQDGDRLSRDELTSLA
FLILFAGYENTANLIASAVLWLLDHGGLNVVPISEAIEATLRNEPPAPVA
IRRFPTEDIIIGGLTIPAGDTVLLSIAAATRGADGNAARLAFGSGPHYCL
GAALARVEAEEALTVLARRLPGLTLAVPPSQVRWRPTFRTHGPAELLVGW

>CYP107AY2 (2517934903) *Salinispora arenicola* CNX814

VAVRLAEYPPAPRWARPVSPLPWRDVSAARPSVVRTHQVRPAVYPPDRDA
IRRAVTELHGYVVDLIDIKQQQPGDDLSSALVTIEQDGDRLSRDELTSLA
FLILFAGYENTANLIASAVLWLLDHGGLNVVPISEAIEATLRNEPPAPVA
IRRFPTEDIIIGGLTIPAGDTVLLSIAAATRGADGNAARLAFGSGPHYCL
GAALARVEAEEALTVLARRLPGLTLAVPPSQVRWRPTFRTHGPAELLVGW

Salinispora pacifica CNT150

>CYP107AX2 (2515753010) *Salinispora pacifica* CNT150

VDKRFSSTDGEHGSSLSPKLDAHLLNRDPPDHTRLRRLAAAAFTPRRIAD
LRPAVETTSTLLDGLAGNDHAELIGSLASPLPLQVMHEPLGLPTQASVD
FRTWTNTLLSADANQPAQSCPAMANMRRFLIEQVAHKRARPADDLLTGLP
PACLPAPFGCGWPCLPATYGGGNRSEYADWSPCRCSCRRRA
Salinispora tropica CNS197

>CYP107AX5 (2515881744) *Salinispora tropica* CNS197

VRAALTDPRLSVDKRFSGTGGEHGSSLPPELDAHLLNRDPPDHTRLRCLA
ATAFTPRRIAELQPAASLLDRFPGIRMAAPTHALRWRDSFRVRGLTALPV
HL

Salinispora tropica CNY678

>CYP107AX4 (2562101862) *Salinispora tropica* CNY678

VRAALTDPRLSVDKRFSGTGGEHGSSQPPELDAHLLNRDPPDHTRLRRLA
ATAFTPRRIAELQPVASLLDRFPGIRLAAPTHALRWRDSFRVRGLAALPV
HL

Salinispora arenicola CNH905

>CYP244A1 (2515990906) *Salinispora arenicola* CNH905

VRCPTDISAATFLRLSSLLPNPRINIHPQGRGHLSTFGRGVHYCIGAPLAR

LQAQIALRGFLQRFPRARLSADTAPQWESEWMIRRM SVLPALLA

Salinispora arenicola CNS243

>CYP107AY2 (25246799690) *Salinispora arenicola* CNS243

VAVRLAEYPPAPRWARPVSPLPWRDVSAARPSVVRTHQVRPAVYPPDRDA
IRRAVTELHGYVVDLIDIKQQQPGDDLLSTLVTIEQDGDRLSRDELTSIA
FLILFAGYENTANLIASAVLWLLDHGGLNVVPISEAIEGTLRHEPPAPVA
IRRFPTEDIIIGGV TIPAGDTVLLSVAAATRGADGNAARLAFGNGPHYCL
GAALARVEAEEALTVLARRLPGLTLAVPPSQVRWRPTFRTHGPAELLVGW

Salinispora pacifica DSM 45546

>CYP208A26 (2516876818) *Salinispora pacifica* DSM 45546

MLTSAATKYGDVARLPVGPKRLYFFNHPDHAKHVLADNHANYAKGIGLVH
ARRALGDGLLTSDGE

Salinispora tropica CNY012

>CYP107AX4 (2540881436) *Salinispora tropica* CNY012

VRAALTDPRLSVDKRFSGTGGEHGSSQPPELDAHLLNRDPPDHTRLRRLA
ATAFTPRRIAELQPVASLSDRFPGIRLAPPTHALRWRDSFRVRGLAALPV
HL

>CYP107AY3 (2540885071) *Salinispora tropica* CNY012

MEGDRLTRDELTSIAFLILIIAGYENTANLIAS TVLRLLDGGGVLEVRIPE
AIEETLRLEPPAPAAIRRFPTTEMTIGGATIPVSDTVLLSIAAATRGTDG
HSARLAFGNGPHFCLGAGLARVEAEEAITVLARRLPGLALAVSGAPVRWR
PTFRTHGPAELLVAW

Salinispora arenicola CNY234

>CYP107AY2 (2519881166) *Salinispora arenicola* CNY234

VAVRLAEYPPAPRWARPVSPLPWRDVSAARPSVVRTHQVRPAVYPPDRDA
IRRAVTELHGYVVDLIDIKQQQPGDDLLSTLVTIEQDGDRLSRDELTSIA
FLILFAGYENTANLIASAVLWLLDHGGLNVVPISEAIEGTLRHEPPAPVA
IRRFPTEDIIIGGV TIPAGDTVLLSVAAATRGADGNAARLAFGNGPHYCL
GAALARVEAEEALTVLARRLPGLTLAVPPSQVRWRPTFRTHGPAELLVGW

Salinispora tropica CNT250

>CYP107AX4 (2540885241) *Salinispora tropica* CNT250

VRAALTDPRLSVDKRFSGTGGEHGSSLPPELDAHLLNRDPPDHTRLRRLA
ATAFTPRRIAELQPAASLLDRFPGIRLAAPTHALRWRDSFRVRGLAALPV
HL

Salinispora arenicola CNY486

>CYP107AX9 (2562094788) *Salinispora arenicola* CNY486

VTSPPHVVFGHLLLRDPHGQYNAPRGQAPVHHIRTPDGALAWLVMCYDDV
RAALTDPQLSVEKRCSDAHRWGARVVASA

Salinispora arenicola CNB527

>CYP107AX7 (2515511962) *Salinispora arenicola* CNB527

VTSPPHVVFGHDLLRDPPGQYNALRGQAPVHHIRMPDGAPAWLVMRYDDV
RAALTDPRLSVDKRFNHTVHRIR

>CYP244A2 (2515513914) *Salinispora arenicola* CNB527

VHYCIGAPLARLQAQIALRGFLQRFPRARSSADSARQWESERMIRMSVL
PALLA

>CYP105J2 (2515514742) *Salinispora arenicola* CNB527

VPIVAAAVNDAQQKVLRIASALVGTGPEHKAQRKMLIPSFTFRRVNALR
PVIQEIVDQQLDEMIKSGAPTDLIPARTPTRHMTRSWTI

>CYP105J4 (2515514743) *Salinispora arenicola* CNB527

MDYMSRLIAERRRNPGEGVLDDLLAQHGANDDADHDELVSTLVVQVAGNH
GTTGSMIALGLFALLQHPEQLAELRADPSFFITSLINRDTDVHDAPNSLG
WRHASAADHLTFGFGAHQCLGQSLARITMEIALGALIDRRPDLRPAVPAG
TLREDR

Salinispora arenicola CNS-205

>CYP107AX13 (641514965) *Salinispora arenicola* CNS-205

VAVASLLDRCPGIRLAVPAHELRWRESFRVRGLAALPVRL

Salinispora pacifica CNT131

>CYP1278B5 (2516074202) *Salinispora pacifica* CNT131

VCMPsRAQQIILNDPVRTPYEQLMFELPAQVVAMLCGLDPAAGGEASRLVG
RFVQCIPAAASPEQQQRAARAAAGLQELLGPKLDDTQHGLLGDLVRMATQ
VNWTDRAPLLANGIGFLSQTYDATAALMGNTLLALSQQERERPAGETTLE
RFVREVIRHDAPVQNTRRFTTTPIRHGAVEVPAGQAILVLLAAANRDPAA
NPNPHTFRADRTAPTFTFSAGAHRRPGEMLAVTVVTTVVEQLLKVGFEF
ARLSTQVTTYWSPSTRIPVLTDQAGT

Salinispora pacifica CNT609

>CYP107CT (2517981003) *Salinispora pacifica* CNT609

MAYARTGLEAWLVTAYEDVEFVLRGPRFRKSIDAMPLFAAQSGGTVAAR
GSLLYNNMANNDDPPVHTRLRKPLNAMFTSRVVAISGPPAPGDNTPGSSKR
QGRKVI PRRATEGRRLGTINR

Salinispora tropica CNB-440

>CYP107AX4 (640473449) *Salinispora tropica* CNB-440

MRAALTDPRLSVDKRFSGTGGEHGSSLPPELDAHLLNRDPPDHTRLRRLA
ATAFTPRRIAELQPAASLLDRFPGIRLAAPTHALRWRDSFRVRGLAALPV
HL

Salinispora arenicola CNY690

>CYP107AX8 (2562112655) *Salinispora arenicola* CNY690

VTSPPHVVFVGHDLRLDPHGQYSTLRGQAPVHHIRMPDGAPAWLVMRYDDV
RAALTDPRLSVDKRFNHTVHRTR

>CYP244A2 (2562114523) *Salinispora arenicola* CNY690

VHYCIGAPLARLQAQIALRGFLQRFPRARLSADSARQWESERMIRMSVL
PALLA

>CYP105J5 (2562115258) *Salinispora arenicola* CNY690

MDYMSRLIAERRRNPGEGVLDDLLAQHGANDDADHDELVSTLVVQVAGSH
GTTGSMIALGLFALLQHPEQLAELRADPSFFITSLINRDTDVHDAPNSLG
WRHASAADHLTFGFGAHQCLGQSLARITMEIALGALIDRRPDLPSPAVPAG
TLREDR

>CYP105J2 (2562115259) *Salinispora arenicola* CNY690

VPIVAAAVNDAQQKVLRIASALVGTGPEHKAQRKMLIPSFTFRRVNALR
PVIQEIVDQQLDEMIKSGAPTDLIPARTPTRHMTRSWTI

Salinispora pacifica CNT603

>CYP1278B5 (2515998598) *Salinispora pacifica* CNT603

VCMPSTRAQQIILNDPVRTPYEQLMFELPAQVVAMLCGLDPAAGGEASRLVG
RFVQCIPAAASPEQQQRAARAAAGLQELLGPKLDDTQHGLLGDLVRMATQ
VNWTDRAPLLANGIGFLSQTYDATAALMGNTLLALSQQERERPAGETTLE
RFVREVIRHDAPVQNTRRFTTTPIRHGAVEVPAGQAILVLLAAANRDPAA
NPNPHTFRADRTAPTFTFSAGAHRRPGEMLAVTVVTTVVEQLLKVGFEF
ARLSTQVTTYWSPSTRIPLVLTQAGT

Salinispora arenicola CNB458

>CYP107AX8 (2518144632) *Salinispora arenicola* CNB458

VTSPPHVVFEGHDLRLDPHGQYSTLRGQAPVHHIRMPDGAPAWLVMRYDDV
RAALTGPRLSVDKRFNHTVHRTR

>CYP244A2 (2518147454) *Salinispora arenicola* CNB458

VHYCIGAPLARLQAQIALRGFLQRFFPRARLSADSARQWESERMIRMSVL
PALLA

>CYP105J2 (2518147496) *Salinispora arenicola* CNB458

VTLYDGRRVCAVTTHALARLLVDPRISSDRANPAWPTIVPIVAAAVNDA
QQKVLRIASALVGTGPEHKAQRKMLIPSFTRRVNALRPVIEIVDQQL
DEMIKSGAPTDLIPARTPTRHMTRSWTI

>CYP105J5 (2518147497) *Salinispora arenicola* CNB458

MDYMSRLIAERRRNPGEGLDDLLAQHGANDDADHDELVSTLVVQVAGSH
GTTGSMIALGLFALLQHPEQLAELRADPSFFITSLINRDTDVHDAPNSLG
WRHASAADHLTFGFGAHQCLGQSLARITMEIALGALIDRRPDLPAPVPAG
TLREDR