

Table 1. Genomic information and quality estimations of marine *Streptomyces* obtained from NCBI GenBank database.

Strain	NCBI GenBank assembly accession number	Isolation environment	Contigs	Size (Mbp)	GC content (mol%)	Completeness (%)	Contamination (%)
<i>Streptomyces abyssalis</i> SCSIO 10389	GCA_001751345.1	Marine coral	45	6.91	70.3	99.2	0.4
<i>Streptomyces abyssalis</i> SCSIO 10390	GCA_001751365.1	Marine coral	42	6.61	70.9	99.5	0
<i>Streptomyces albidoflavus</i> 38	GCA_002317005.1	Sea snail	1114	6.98	73.0	99.7	1.0
<i>Streptomyces albidoflavus</i> 132	GCA_002289335.1	Sea snail	1053	6.80	73.0	98.7	1.2
<i>Streptomyces albidoflavus</i> 138	GCA_002317025.1	Sea snail	1028	6.98	73.0	98.8	0.4
<i>Streptomyces albidoflavus</i> 143	GCA_002317035.1	Sea snail	957	7.03	73.0	99.2	0.2
<i>Streptomyces albidoflavus</i> 145	GCA_002289305.1	Sea snail	1153	6.52	73.0	98.4	0.4
<i>Streptomyces antioxidans</i> MUSC 164	GCA_000968685.2	Mangrove	282	9.12	71.5	100.0	4.2
<i>Streptomyces avicenniae</i> NRRL B-24776	GCA_000719135.1	Mangrove	66	6.48	73.5	95.5	0.9
<i>Streptomyces chilikensis</i> RC 1830	GCA_001642695.1	Sediment	1484	4.87	69.8	67.8	1.9
<i>Streptomyces diastaticus</i> deep-sea A18	GCA_002892485.1	Sediment	1377	7.71	71.7	100	8.6
<i>Streptomyces gilvigriseus</i> MUSC 26	GCA_001879105.1	Mangrove	206	5.21	73.0	94.7	0
<i>Streptomyces griseoaurantiacus</i> M045	GCA_000204605.2	Sediment	46	7.71	72.7	100.0	0
<i>Streptomyces humi</i> MUSC 119	GCA_001005085.2	Mangrove	214	10.0	71.8	100.0	0.2
<i>Streptomyces hyaluromycini</i> NBRC 110483	GCA_002217755.1	Sea grapes	52	11.5	71.1	100.0	0.1
<i>Streptomyces indicus</i> CGMCC 4.5727	GCA_900100315.1	Sediment	45	8.23	71.4	99.9	1.0
<i>Streptomyces malaysiense</i> MUSC 136	GCA_000980885.2	Mangrove	235	7.96	72.2	99.6	0.3
<i>Streptomyces mangrovisoli</i> MUSC 149	GCA_000974985.2	Mangrove	199	9.16	72.5	100.0	1.1
<i>Streptomyces nanshensis</i> 10374	GCA_001753705.1	Sediment	67	6.49	72.4	98.8	0
<i>Streptomyces nanshensis</i> SCSIO 01066	GCA_001751275.1	Sediment	2310	7.43	70.3	100.0	9.3
<i>Streptomyces nanshensis</i> SCSIO 10429	GCA_001751255.1	Marine coral	731	7.72	71.6	99.0	1.7
<i>Streptomyces nanshensis</i> SCSIO M10372	GCA_001751305.1	Sediment	114	10.27	70.9	98.0	6.9
<i>Streptomyces nanshensis</i> SCSIO M10399	GCA_001751265.1	Sediment	1285	8.58	58.4	91.4	9.0
<i>Streptomyces nigra</i> 452	GCA_003074055.1	Sediment	1	7.64	71.9	99.7	0.2
<i>Streptomyces niveus</i> SCSIO 3406	GCA_002009175.1	Sediment	1	7.99	70.5	99.5	0.7
<i>Streptomyces oceani</i> SCSIO 02100	GCA_001751245.1	Sediment	166	6.31	70.4	98.1	0.9
<i>Streptomyces parvulus</i> 2297	GCA_003344905.1	Mangrove	118	8.35	72.3	100	1.4
<i>Streptomyces philanthi</i> LHW51701	GCA_003323715.1	Marine sponge	80	7.66	72.2	99.6	1.4
<i>Streptomyces pluripotens</i> MUSC 135	GCA_000802245.2	Mangrove	1	7.35	69.9	99.5	0.6
<i>Streptomyces pluripotens</i> MUSC 137	GCA_000816465.4	Mangrove	1	7.59	69.9	99.5	0.6
<i>Streptomyces qinglanensis</i> 172205	GCA_003265665.1	Sediment	38	7.19	72.6	98.9	1.0
<i>Streptomyces qinglanensis</i> CGMCC 4.6825	GCA_900111245.1	Sediment	34	7.17	72.7	99.3	1.0
<i>Streptomyces qinglanensis</i> SCSIO M10379	GCA_001751375.1	Sediment	22	6.61	72.8	98.8	0.3

<i>Streptomyces</i> sp. 13-12-16	GCA_002114215.1	Marine sponge	1513	8.72	71.6	96.5	1.2
<i>Streptomyces</i> sp. AA0539	GCA_000297635.1	Sediment	57	5.77	72.9	95.8	0.9
<i>Streptomyces</i> sp. AA1529	GCA_000280905.1	Sediment	109	7.28	72.7	98.8	0.2
<i>Streptomyces</i> sp. AVP053U2	GCA_001469455.2	Sea Squirt	183	7.76	71.9	100.0	1.2
<i>Streptomyces</i> sp. B188M101	GCA_002910985.1	Marine sponge	609	8.22	71.6	99.5	0.2
<i>Streptomyces</i> sp. B226SN101	GCA_002910935.1	Marine sponge	580	8.27	71.6	99.8	0.2
<i>Streptomyces</i> sp. B9173	GCA_002081495.1	Seawater	133	8.77	71.8	100.0	0
<i>Streptomyces</i> sp. BSE7F	GCA_003122045.1	Sediment	5	7.51	72.3	98.1	0.4
<i>Streptomyces</i> sp. CB02366	GCA_001905905.1	Beach sand	44	7.37	72.5	99.9	0.3
<i>Streptomyces</i> sp. CB02400	GCA_001905725.1	Beach sand	47	8.93	71.7	100.0	0
<i>Streptomyces</i> sp. CB02414	GCA_001905385.1	Beach sand	19	7.99	72.0	100.0	0.6
<i>Streptomyces</i> sp. CB02613	GCA_002803175.1	Beach sand	28	7.38	71.7	99.5	0
<i>Streptomyces</i> sp. CMB-StM0423	GCA_002847285.1	Beach sand	1	8.03	73.1	100	1.3
<i>Streptomyces</i> sp. CNQ431	GCA_000797385.1	Sediment	295	7.04	73.1	99.9	0.1
<i>Streptomyces</i> sp. CNQ-509	GCA_001011035.1	Sediment	1	8.04	73.1	100.0	1.6
<i>Streptomyces</i> sp. CNZ279	GCA_002754675.1	Seawater	2	7.97	71.1	97.0	1.4
<i>Streptomyces</i> sp. CNZ306	GCA_002797655.1	Seawater	5	8.55	73.5	100	0.5
<i>Streptomyces</i> sp. DUT11	GCA_002848525.1	Sediment	1	8.03	71.8	97.3	1.0
<i>Streptomyces</i> sp. FM008	GCA_002910815.1	Marine sponge	1369	6.48	72.7	96.4	0.8
<i>Streptomyces</i> sp. GBA 94-10	GCA_000495635.1	Marine sponge	2	7.22	73.0	99.9	0.1
<i>Streptomyces</i> sp. H-KF8	GCA_001672315.1	Sediment	11	7.68	72.1	100.0	0.5
<i>Streptomyces</i> sp. HNM0039	GCA_003097515.1	Marine sponge	1	7.29	72.5	99.5	0.4
<i>Streptomyces</i> sp. HNS054	GCA_001044185.1	Marine sponge	117	7.45	72.4	99.6	0
<i>Streptomyces</i> sp. JS01	GCA_000743295.1	Sediment	38	7.80	71.6	99.8	0.4
<i>Streptomyces</i> sp. LHW50302	GCA_003323735.1	Marine sponge	70	7.69	72.0	99.6	1.9
<i>Streptomyces</i> sp. M10	GCA_000800535.1	Sediment	77	7.21	73.3	99.4	0
<i>Streptomyces</i> sp. MP131-18	GCA_001984575.1	Sediment	10	7.96	72.0	97.4	1.6
<i>Streptomyces</i> sp. MUSC 1	GCA_001866665.1	Sediment	218	10.25	71.5	99.9	1.4
<i>Streptomyces</i> sp. MUSC 14	GCA_001866675.1	Sediment	174	10.27	71.3	100.0	1.4
<i>Streptomyces</i> sp. MUSC 93	GCA_001866645.1	Sediment	166	7.02	69.9	99.4	1.8
<i>Streptomyces</i> sp. MUSC 125	GCA_000816485.1	Sediment	164	7.66	70.0	99.5	0.4
<i>Streptomyces</i> sp. NBRC 110027	GCA_000829715.2	Seawater	20	8.32	71.1	100.0	1.5
<i>Streptomyces</i> sp. NBRC 110035	GCA_000829695.1	Seawater	89	7.51	71.8	100.0	0.8
<i>Streptomyces</i> sp. NRRL B-24484	GCA_000717715.1	Seawater	186	8.86	73.8	99.5	1.8
<i>Streptomyces</i> sp. NRRL B-24501	GCA_000716085.1	Seawater	448	11.56	68.0	83.7	0.5
<i>Streptomyces</i> sp. NTK 937	GCA_000698495.1	Sediment	3	7.44	71.9	99.8	0.1
<i>Streptomyces</i> sp. PCS3-D2	GCA_000612545.1	Sediment	27	7.48	72.0	99.9	0.5
<i>Streptomyces</i> sp. PT12	GCA_003311645.1	Marine sponge	296	6.92	72.9	96.1	1.6

<i>Streptomyces</i> sp. PTY087I2	GCA_001687325.1	Sea squirt	83	8.16	71.5	99.8	0.5
<i>Streptomyces</i> sp. PVA_94-07	GCA_000495755.1	Marine sponge	3	7.11	73.1	99.9	0.1
<i>Streptomyces</i> sp. RV15	GCA_001514305.1	Marine sponge	152	10.77	70.2	100	1.2
<i>Streptomyces</i> sp. S063	GCA_002832675.1	Sediment	1	7.61	71.5	99.0	0
<i>Streptomyces</i> sp. SBT349	GCA_001083795.1	Marine sponge	691	8.06	72.7	95.1	1.1
<i>Streptomyces</i> sp. ScaeMP-e10	GCA_000373405.1	Seawater	20	8.08	71.6	99.8	1.0
<i>Streptomyces</i> sp. SCSIO_03032	GCA_002128305.1	Sediment	1	6.29	73.5	96.5	1.4
<i>Streptomyces</i> sp. SHP22-7	GCA_003573595.1	Sediment	146	7.90	72.2	89.0	0.5
<i>Streptomyces</i> sp. SM1	GCA_002910825.1	Marine sponge	1057	8.06	71.1	99.9	0.3
<i>Streptomyces</i> sp. SM5	GCA_002910895.1	Marine sponge	496	7.61	71.7	99.8	0.8
<i>Streptomyces</i> sp. SM8	GCA_000299175.2	Sediment	11	7.14	73.2	96.2	0.4
<i>Streptomyces</i> sp. SM9	GCA_002910795.1	Marine sponge	1592	6.45	72.7	97.0	0.8
<i>Streptomyces</i> sp. SM10	GCA_002910915.1	Marine sponge	195	7.47	70.8	99.5	0.4
<i>Streptomyces</i> sp. SM11	GCA_002910905.1	Marine sponge	311	8.00	71.1	99.3	1.1
<i>Streptomyces</i> sp. SM12	GCA_002910855.1	Marine sponge	910	6.48	72.2	94.3	0.6
<i>Streptomyces</i> sp. SM13	GCA_002910875.1	Marine sponge	388	8.44	71.2	99.8	0.2
<i>Streptomyces</i> sp. SM14	GCA_002910755.1	Marine sponge	639	6.34	72.4	94.8	1.1
<i>Streptomyces</i> sp. SM17	GCA_002910725.2	Marine sponge	4	7.18	73.3	99.9	0.4
<i>Streptomyces</i> sp. SM18	GCA_002910775.2	Marine sponge	1	7.70	71.8	99.8	0.8
<i>Streptomyces</i> sp. WZ.A104	GCA_002382885.1	Marine cyanobacteria	189	8.12	71.2	99.7	1.5
<i>Streptomyces spongiicola</i> 531S	GCA_003402595.1	Sediment	84	6.91	72.6	99.4	0
<i>Streptomyces spongiicola</i> HNM0071	GCA_003122365.1	Marine sponge	1	7.18	72.4	99.4	0.2
<i>Streptomyces violaceoruber</i> S21	GCA_002082175.1	Sediment	1	7.92	72.7	99.9	0.5
<i>Streptomyces xiamenensis</i> 318	GCA_000993785.2	Sediment	1	5.96	72.0	95.8	0.5
<i>Streptomyces xiaopingdaonensis</i> DUT180	GCA_000262345.1	Sediment	385	6.47	72.2	99.5	0.6
<i>Streptomyces xinghaiensis</i> S187	GCA_000220705.2	Sediment	1	7.14	73.1	100.0	1.3

Table S2. Genomic annotations of marine *Streptomyces* by using RAST webserver.

Strain	ORFs	rRNA Genes	tRNA Genes
<i>Streptomyces abyssalis</i> SCSIO 10389	6185	17	57
<i>Streptomyces abyssalis</i> SCSIO 10390	5961	13	54
<i>Streptomyces albidoflavus</i> 38	7006	8	66
<i>Streptomyces albidoflavus</i> 132	6873	8	69
<i>Streptomyces albidoflavus</i> 138	6973	8	70
<i>Streptomyces albidoflavus</i> 143	6988	8	69

<i>Streptomyces albidoflavus</i> 145	6486	1	62
<i>Streptomyces antioxidantans</i> MUSC 164	7845	6	61
<i>Streptomyces avicenniae</i> NRRL B-24776	6234	2	53
<i>Streptomyces griseoaurantiacus</i> M045	7108	5	66
<i>Streptomyces humi</i> MUSC 119	9020	4	68
<i>Streptomyces hyaluromycini</i> NBRC 110483	10681	4	72
<i>Streptomyces indicus</i> CGMCC 4.5727	7667	6	63
<i>Streptomyces malaysiense</i> MUSC 136	7529	3	66
<i>Streptomyces mangrovisoli</i> MUSC 149	8266	6	68
<i>Streptomyces nanshensis</i> 10374	5697	16	60
<i>Streptomyces nanshensis</i> SCSIO 10429	7422	9	59
<i>Streptomyces nigra</i> 452	7114	18	68
<i>Streptomyces niveus</i> SCSIO 3406	7285	18	64
<i>Streptomyces oceani</i> SCSIO 02100	5650	3	56
<i>Streptomyces parvulus</i> 2297	7914	5	63
<i>Streptomyces philanthi</i> LHW51701	6875	8	58
<i>Streptomyces pluripotens</i> MUSC 135	6813	18	67
<i>Streptomyces pluripotens</i> MUSC 137	7068	18	67
<i>Streptomyces qinglanensis</i> 172205	6605	3	58
<i>Streptomyces qinglanensis</i> CGMCC 4.6825	6593	8	59
<i>Streptomyces qinglanensis</i> SCSIO M10379	5783	15	58
<i>Streptomyces</i> sp. 13-12-16	9414	6	68
<i>Streptomyces</i> sp. AA0539	5305	3	55
<i>Streptomyces</i> sp. AA1529	6716	5	58
<i>Streptomyces</i> sp. AVP053U2	7334	9	68
<i>Streptomyces</i> sp. B188M101	7958	20	66
<i>Streptomyces</i> sp. B226SN101	7900	20	65
<i>Streptomyces</i> sp. B9173	8092	3	72
<i>Streptomyces</i> sp. BSE7F	7294	21	66
<i>Streptomyces</i> sp. CB02366	6910	4	65
<i>Streptomyces</i> sp. CB02400	8375	3	69
<i>Streptomyces</i> sp. CB02414	7441	4	66
<i>Streptomyces</i> sp. CB02613	6738	4	64
<i>Streptomyces</i> sp. CMB-StM0423	7080	15	55
<i>Streptomyces</i> sp. CNQ431	6603	3	47
<i>Streptomyces</i> sp. CNQ-509	7223	15	56
<i>Streptomyces</i> sp. CNZ279	7535	14	58
<i>Streptomyces</i> sp. CNZ306	7461	17	58

<i>Streptomyces</i> sp. DUT11	8354	18	64
<i>Streptomyces</i> sp. FM008	6863	14	65
<i>Streptomyces</i> sp. GBA 94-10	6529	21	65
<i>Streptomyces</i> sp. H-KF8	7182	18	66
<i>Streptomyces</i> sp. HNM0039	6673	16	67
<i>Streptomyces</i> sp. HNS054	7094	3	67
<i>Streptomyces</i> sp. JS01	7291	4	71
<i>Streptomyces</i> sp. LHW50302	7119	3	64
<i>Streptomyces</i> sp. M10	6,514	2	54
<i>Streptomyces</i> sp. MP131-18	7,360	2	54
<i>Streptomyces</i> sp. MUSC 1	9,994	4	66
<i>Streptomyces</i> sp. MUSC 14	10,218	4	67
<i>Streptomyces</i> sp. MUSC 93	6,851	5	66
<i>Streptomyces</i> sp. MUSC 125	7,328	4	66
<i>Streptomyces</i> sp. NBRC 110027	7,616	9	66
<i>Streptomyces</i> sp. NBRC 110035	7,113	14	65
<i>Streptomyces</i> sp. NRRL B-24484	8,690	6	68
<i>Streptomyces</i> sp. NTK 937	6,804	18	81
<i>Streptomyces</i> sp. PCS3-D2	6,973	3	69
<i>Streptomyces</i> sp. PT12	6,368	2	53
<i>Streptomyces</i> sp. PTY08712	7,398	9	65
<i>Streptomyces</i> sp. PVA_94-07	6,334	21	65
<i>Streptomyces</i> sp. RV15	10,708	3	65
<i>Streptomyces</i> sp. S063	7,330	18	65
<i>Streptomyces</i> sp. SBT349	7,627	2	54
<i>Streptomyces</i> sp. ScaeMP-e10	7,356	7	66
<i>Streptomyces</i> sp. SCSIO_03032	5,654	10	54
<i>Streptomyces</i> sp. SM1	8,483	19	68
<i>Streptomyces</i> sp. SM5	7,325	16	65
<i>Streptomyces</i> sp. SM8	6,783	4	60
<i>Streptomyces</i> sp. SM9	6,931	18	63
<i>Streptomyces</i> sp. SM10	7,059	30	67
<i>Streptomyces</i> sp. SM11	7,838	13	68
<i>Streptomyces</i> sp. SM13	8,329	16	66
<i>Streptomyces</i> sp. SM17	6,517	21	66
<i>Streptomyces</i> sp. SM18	7,025	18	67
<i>Streptomyces</i> sp. WZ.A104	7,708	4	66
<i>Streptomyces spongiicola</i> 531S	6,416	5	63

<i>Streptomyces spongiicola</i> HNM0071	6,577	18	65
<i>Streptomyces violaceoruber</i> S21	7,179	18	65
<i>Streptomyces xiamenensis</i> 318	5,547	15	55
<i>Streptomyces xiaopingdaonensis</i> DUT180	6,267	2	47
<i>Streptomyces xinghaiensis</i> S187	6,503	18	63