

2UWA

1 10 20 30 40 50

η1 α1 β1

2UWA MFPNII LSIF. LHLIPILMFSSSC L.GQGFPSPGYYPSSQ. ITSLGFDQGYTNL

HvXTH22 ..MAMMQIRRPDAISHLMVIVVGAVIL LQGEAQPSPGYYPSSK. VSSTPFSQWYSTL

HvXTH23 ..MASLSL. LPAMALLLLAMAVASSDAQSPGYYPSSR. FRPVAFNRGYSNK

HvXTH24 ..MEMTA. RFLA. AAAACVWLAAAAAFD. VPTVAFEEGFSP

HvXTH25 ..MAAASA. LLMAALAVFAAAAAALD. TSPVPFDAGYAPL

HvXTH26 ..MAC. HFLLAVLLASSSWVAASSGAAADDVMVPRPTTAAALTFREGYTQL

HvXTH27 ..MAC. HFLLAVLLASSSWVAASSGAAADDVMVPRPTTAAALTFREGYTQL

HvXTH28 ..MASSSCPPPSRPSRLLPVLVATVVL LGRGGEARQ. PAPLHGVVRSMAFDEGYTQL

HvXTH29 ..MASSSVR. QPWL LLLVLLPVM. ATAAVFDDNYAPL

2UWA

η2 β2 β3 β4 β5

2UWA WGPQHQRV. DQGS LTIWLDSTSGSGFKS INRYRS GYFGANIKLQSGYITAGVITSFYLSN

HvXTH22 WGPQHQS LSPDQTALTLWMDRS SGSGFKSKRSYRNGYFGVSMKVQPGYITAGVNTAFYLSN

HvXTH23 WGPQHQT VSGDHSAITIWLDRTCGSGFKSKHAYRNGYFATRIKLPAGYITAGTNTAFYLSN

HvXTH24 FGDNLVLRARDDRARLLLDRRSGSGFISSDYLYHGFSSASTKLPRDYITAGVVVAFYLSN

HvXTH25 FGDNLVRSADGRSVTLKLDRTYTGSGFVSKSAYRHGFFGASTKLPGDYITAGVVVAFYLSN

HvXTH26 FGDSNLR LHGDGKRVHISLDERITGSGFASQGAIFYHGFSSASTKLPSDYITAGVVVAFYVSN

HvXTH27 FGDSNLR LHGDGKRVHISLDERITGSGFASQGAIFYHGFSSASTKLPSDYITAGVVVAFYMSN

HvXTH28 FGSGNLALRRREGKRVHLALDESTGSGFASQDRFLHGFSSAAVKLPADYITAGVVVAFYLSN

HvXTH29 WGADGYHLVDQGTETIRLITMDRNSGAGFHSKSTYGS GEFHMRITKVPGGYITAGVVITAFYLAS

2UWA

β6 β7 β8

2UWA NQDYPGK. HDEIDIEFLGTIPGKPYTLQTNVFI EGSGDYN.IIGREMRIHLWFDPT.QDY

HvXTH22 NEVYPGY. HDEIDIVELGTVPGEPTYTLQTNVYVRGTGDAHP IVGREMRFLWFDPT.AAF

HvXTH23 NEAHPGF. HDEVDMELGTIPGEPTYTLQTNVYVRSGDGR.IIGREMRFLWFDPT.AGF

HvXTH24 GDVYEKT. HDELDFFELGSRWGGQWRVQTNVY. GNGSTSRGREERYHLWFDPT.LAA

HvXTH25 WDEYFKN. HDELDFFELGNRRGHGWRVQTNMY. GNGSTARGREERYHLWFDPT.TYTG

HvXTH26 GDVYEKT. HDELDFFELGNVRGKEWRVQTNVY. GDGSTAVGREERYGLWFDPT.HDF

HvXTH27 GDVYEKT. HDELDFFELGNVRGKEWRVQTNVY. GDGSTAVGREERYGLWFDPT.HDF

HvXTH28 ADVYEKT. HDELDFFELGNVRGKEWRVQTNVY. GNGSTGAGREERYDLWFDPT.DDF

HvXTH29 ETPYDGSDEDEVDFFELGNVDGENITLQTNVFVNGDGD. REQRSLWFDPT.ADF

2UWA

β9 β10 β11 η3 β12 η4

2UWA HNYYAIYWT PSEIIFVDDVPIR. RYPRK. SDATFPLRPLWVYGSVWDASSWATENCKY

HvXTH22 HHYAVLWN PDEIVFLVDVPIR. RYQKK. VEATFPEREMWAYG SVWDASSWATDCKRY

HvXTH23 HNYYAILWN PDAITFFVDDVPIR. RYERK. TELTFPDRPMWAYG SIWDASSWATDHGRH

HvXTH24 HRYSLWAPTH IIFYVDVTAIR. EVVRHPGMGGDFPAKPMAYAT IWDGSAWATEGCKY

HvXTH25 HRYAIAWT PNNIVFYVDGVPPIR. EVVRVPSMGGDFPSPKPM SVYAT IWDGSAWATEGCKY

HvXTH26 HRYAILWT NRTIVFYVDGTPPIR. EVVRSEAMGAQFPSPKPM SLYAT IWDGSSWATSCKRY

HvXTH27 FVVDGTPPIR. EVVRSEAMGAQFPSPKPM SLYAT IWDGSSWATSCKRY

HvXTH28 HHYSILWT QHRIIFYVDETPPIR. EVVRTEAMGAQFPSPKPM SLYAT IWDGSAWATLCKRY

HvXTH29 HEYKILWN PYHLVILVDVPIRVLRLNL TQGVAEYE FPAKRMVRA SLWDGSDWATDCKRT

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η5 β13 η6 η7 α2

2UWA KADYRYQPFV GKYEDFKLGSCTVEA. AS. S CNPASV.SP.YGQLSQQQVAAAM

HvXTH22 RSDYRYQPFVSGFKDFKVAGCEVGA. PA. S CRPVPA.GP.GGGLSAQQSAAM

HvXTH23 RADYRYQPFVARFDRFVVGCGPGA. PP. S CRPVRA.SPVGTGLTRQQYAAAM

HvXTH24 KVNYYKAPFASDFSDLSLRGCRVADFPASPALRIAGGDGCDLLGLMTADYAVMTPKRAAM

HvXTH25 KVDYAYAPFAAEFSDLVLSGCGAGNVADPE. G CQVDLL.THDVAVMAPAKRAAM

HvXTH26 KVEYKYAPVVAEFTDLELRGCASHDRAQPA. S CEP. EGMPARQRAAM

HvXTH27 KVEYKYAPVVAEFTDLELRGCASHDRAQPA. S CEP. EGMPARQRAAM

HvXTH28 RANYYKAPVVAEFGDLVLHACPVNRIYHSA. AAA CGTPWY.EPVAAA LSGEQRAAM

HvXTH29 KIDWGRAPEFTAGFRGFDVDA CDNAS.STPC. DSTDWNNARRHRR LSVREQAAAY

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β14 η6 η7

2UWA EWVQKNYMYNYCDDPTRDHT.LTP. EC.

HvXTH22 SWAQQRAMVYNYCQDGSKDRS.NYP. EC.

HvXTH23 RWAQQRHMVYNYCQDFRRDRS.LTP. EC.

HvXTH24 RAFRARRMTYTYCYDAARYAAGPFP. EC DNSDEERGTFWAWGESKTVVMKTRGRGRGRG

HvXTH25 RGFRQHLTYTACRDRVRKYTTTFP. EC DDLADGDSSFHLWGESSK. RRRRS

HvXTH26 ERVRRARHMTYGYCYDRARYPA.PLPE. EC RVGAEAA. MYLPSGE. ARSSDRR.RH

HvXTH27 ERVRRARHMTYGYCYDRARYPA.PLPE. EC RVGAEAA. MYLPSGE. ARSSDRR.RH

HvXTH28 SAFRRGHMSYSYCHDRRYPV.ALS. EC DVAVLPR. LFGPDGM. KYGGDRRHRR

HvXTH29 ENVRRTYMYNYCYADKDRFQNGKLEVS YTT. EC SYTT.

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HvXTH22
HvXTH23
HvXTH24	SRAGAGARGRAGAASS
HvXTH25	S.....SPLQYSSSMQ
HvXTH26	G.....KRHRRADSAL
HvXTH27	G.....KRHRRADSAL
HvXTH28	G.....GRGRRSDVVM
HvXTH29