

hHAL	MPRYTVHVRGEWLAVPCQDQGLTVGWLGREAVRRYIKNKPNDNGGFTSVDDAHFLVRRCKG	60
mHAL	MPRYTVHVRGEWLAVPCQDGKLTVGWLGREAVRRYIKNKPNDNGGFTSVDEVQFLVHRRCKG	60
x1HAL1	MPRYTVQVVRGEWLTPCKDACETIKWLGEALRRYIKNKPNNELLGCVEDVKFVRRCKG	60
x1HAL2A	MPRYTVHVRGEWLAVPCKESSETIRWLGEALRRYIKNKPNDNGGFTSVEDVKFYLRRCKG	60
x1HAL2B	MPRYTVHVRGEWLAVPCKEASETIRWLGEALRRYIKNKPNDNGGFTSVDDVKFYLRRCKG	60
xtHAL1	MPRYTVHVRGEWLTPCKDACETIKWLGEALRRYIKNKPNDNEFLSCVEDVKFCVRRCKG	60
xtHAL2	MPRYTVHVRGEWLAVPCKDASETIRWLGEALRRYIKNKPNDNGGFTSVEDVKFYLRRCKG	60
hHAL	LGLLDNEDRLEVALENNEFVEVVIEGDAMSPDFIPSQPEGVLYLSKYREPEKIYIELDGDR	120
mHAL	LGLLDNEDELEVALEDNEFVEVVIEGDVMSPDFIPSQPEGVFLYSKYREPEKIYIALDGDS	120
x1HAL1	LGLLDLDDAIEDVLENDEFLEVVEDDVMSPDFIPSQPEGSHLYSKYKEPSEYIYVDGES	120
x1HAL2A	LGLLDLDDIIEDALEDNEFVEVVIEGDVMSPDFIPSQPEGVHLYSRYKEPAEYIYHMDGEN	120
x1HAL2B	LGLLDLDDRIEDALENNEFVEVVIEGDVMSPDFIPSQPEGVHLYSRYKEPVEYIYHMDGES	120
xtHAL1	LGLLDLDDAIEDVLENDEFLEVVEDDVTSPDFIPSQPEGSHLYSKYQEPSEYIYHVDGES	120
xtHAL2	LGLLDLDDRIEDSLEDNEFVEVVIEGDVMSPDFIPSQPEGVHLYSRYKEPVEYIYLIEGES	120
hHAL	LTTEDLVNLGKGRIKILTPTAEKRVQKSREVIDSIIEKERTVVGITTFGFKGFARTVPI	180
mHAL	LSTEDLVNLGKGRIKILTSIAEKKVQKSREVIDSIIEKERTVVGITTFGFKGFARTVIPA	180
x1HAL1	LTPQDVFNLGKGLYIKLSPESEFKVKQSRLLESIIQEKKVAYGINTGFGKFARTVPIE	180
x1HAL2A	LSTQDLLNLGKGLFIKILTPQAESKVQKSRLLIDSIVQEKVVYGITTFGFKGFARTVPIV	180
x1HAL2B	LSTQDLLNLGKGLFIKILTPQAKENKVQKSRLLIDSIVQENKVYGITTFGGRFARTVPIV	180
xtHAL1	LTPQDVFNLGKGLYIKLSPEAEFKVKQSRLLESIIQEHKVYGINTGFGKFARTVPIE	180
xtHAL2	LSTQDLLSLGKGLFIKILTPQAKENKVQKSRLLIDSIVQEQKVYGITTFGFKGFARTVPI	180
hHAL	NKLQELQVNLVRSHSSGVGKPLSPERCRLMLALRINVLAKYSGISLETLKQVIEMFNAS	240
mHAL	NKLQELQVNLVRSHSSGVGKPLSPERCRLMLALRINVLAKYSGISLETLKQVIEAFNAS	240
x1HAL1	SKLQELQVNLVRSHSAGVGKPLSPEHTRMLFALRINVLAKYSGISLETILQQAIDAFNAS	240
x1HAL2A	TKLQELQENLVRSHSAGVGKPLSPERTRMLALRINVLAKYSGISLETILHQVIEVFNAS	240
x1HAL2B	GKLQELQENLVRSHSAGVGKPLSPDTRMLALRINVLAKYSGISLETILHQVIEAFNAS	240
xtHAL1	TKLQELQENLVRSHSAGVGKPLSPERTRMLFALRINVLAKYSGISLETILQQAIDAFNAS	240
xtHAL2	TKLQELQENLVRSHSAGVGKPLSPERTRMLALRINVLAKYSGISLETILHQVIEAFNAS	240
hHAL	CLPYVPEKGTVGASGDLAPLSHLALGLVGEKMWSPKSGWADAKYVLEAHGLKPVLKPK	300
mHAL	CLSYVPEKGTVGASGDLAPLSHLALGLIEGKMWSPKSGWADAKYVLEAHGLKPIVLKPK	300
x1HAL1	CLPYVPEKGTVGASGDLAPLSHLALGLIEGKMWSPKSGWADAKYVLKAHNLKPVSLKPK	300
x1HAL2A	CLPYVPEKGTVGASGDLAPLSHLALGLIEGKMWSPKSGWADAKYVLQAHGLQPSLKS	300
x1HAL2B	CLPYVPEKGTVGASGDLAPLSHLALGLIEGKMWSPKSGWADAKYVLQAHGLQPSLKP	300
xtHAL1	CLPYVPEKGTVGASGDLAPLSHLALGLIEGKMWSPKSGWADAKYVLKAHNLKPVSLKPK	300
xtHAL2	CLPYVPEKGTVGASGDLAPLSHLALGLIEGKMWSPKSGWADAKYVLQAHGLQPSLKP	300
hHAL	EGLALINGTQMITSLGCEAVERASAIARQADIVAALTLEVLGKTTKAFDTDIHALRPHRG	360
mHAL	EGLALINGTQMITSLGCEALERASAIARQADIVAALTLEVLGKTTKAFDTDIHAVRPHRG	360
x1HAL1	EGLALINGTQITSLGCEAVERANAIKQADVAAALTLEVLGKTTKAFDADIHAMRPHG	360
x1HAL2A	EGLALINGTQMITSLGCEAVERANAIKQADIVAALTLEVLGKTTKAFDTDIHALRPHRG	360
x1HAL2B	EGLALINGTQMITSLGCEAVERANAIKQSDVVAALTLEVLGKTTKAFDTDIHALRPHG	360
xtHAL1	EGLALINGTQITSLGCEAVERANAIKQADIVAALTLEVLGKTTKAFDADIHRIRPHG	360
xtHAL2	EGLALINGTQMITSLGCEAVERANAIKQADIVAALTLEVLGKTTKAFDTDIHALRPHG	360
hHAL	QIEVAFRFRSLSDSDHHPSEIAESHRFCDRVQDAYTLRCCPVHGVVNDTIAFVKNIITT	420
mHAL	QIEVAFRFRSLSDSDHHPSEIAESHRFCDRVQDAYTLRCCPVHGVVNDTIAFVKDIITT	420
x1HAL1	QGEVAFRFRSLSDSEHHPSEIAESHRFCDRVQDPTLRCCPVHGVVNDTIAFVKNIIMT	420
x1HAL2A	QVEVAFRFRSLSDSDHHPSEIAESHRFCDRVQDAYTLRCCPVHGVVNDTIAFVKNIITT	420
x1HAL2B	QVEVAFRFRSLSDSDHHPSEIAESHRFCDRVQDAYTLRCCPVHGVVNDTIAFVKNIITT	420
xtHAL1	QGEVAFRFRSLSDSDHHPSEIAESHRFCNKVQDPTLRCCPVHGVVNDTIAFVKNIIMT	420
xtHAL2	QVEVAFRFRSLSDSDHHPSEIAESHRFCDRVQDAYTLRCCPVHGVVNDTITFVKNIITT	420
hHAL	ELNSATDNPVMVFANRGETISGGNFHGEYPAKALDYLAIGVHELAAISERRIERLCNP	480
mHAL	ELNSATDNPVMVFASRGETISGGNFHGEYPAKALDYLAIGVHELAAISERRIERLCNP	480
x1HAL1	EVNSATDNPVMVF SERGETISGGNFHGEYPAKALDYLAIGVHELAAISERRIERLCNP	480
x1HAL2A	EINSATDNPVMVF SERGETISGGNFHGEYPAKALDYLAIGVHELAAISERRIERLCNP	480
x1HAL2B	EINSATDNPVMVF SERGETISGGNFHGEYPAKALDYLAIGVHELAAISERRIERLCNP	480
xtHAL1	EVNSATDNPVMVF SERGETISGGNFHGEYPAKALDYLAIGVHELAAISERRIERLCNP	480
xtHAL2	EINSATDNPVMVF SERGETISGGNFHGEYPAKALDYLAIGVHELAAISERRIERLCNP	480
hHAL	ELPAFLVVAEGGLNSGFMIAHCTAAALVSENKALCHPSSVDSLSTSAATEDHVSMMGGWAAR	540
mHAL	ELPAFLVVAEGGLNSGFMIAHCTAAALVSENKALCHPSSVDSLSTSAATEDHVSMMGGWAAR	540
x1HAL1	ELPAFLVTEGGLNSGFMIAHCTAAALVSENKVLCHPSSVDSLSTSAATEDHVSMMGGWAAR	540
x1HAL2A	ELPAFLVTEGGLNSGFMIAHCTAAALVSENKALCHPSSVDSLSTSAATEDHVSMMGGWAAR	540
x1HAL2B	ELPAFLVTEGGLNSGFMIAHCTAAALVSENKALCHPSSVDSLSTSAATEDHVSMMGGWAAR	540
xtHAL1	ELPAFLVTEGGLNSGFMIAHCTAAALVSENKVLCHPSSVDSLSTSAATEDHVSMMGGWAAR	540
xtHAL2	ELPAFLVTEGGLNSGFMIAHCTAAALVSENKALCHPSSVDSLSTSAATEDHVSMMGGWAAR	540
hHAL	KALRVIEHVEQVLAIELLAACQGIEFLRPLKTTTTPLEKVYDLVRSVVRPWNKDRFMAPDI	600
mHAL	KALRVIEHVEQVLAIELLAACQGIEFLRPLKTTTTPLEKVYDLVRSVVRPWIKDRFMAPDI	600
x1HAL1	KALKVVEHVEYVLAIELLAACQGLEFHRPLQTTTTPLEKVYDLVRSVVRPWNKDRFMAPDI	600
x1HAL2A	KAVRVIEHVEHVLAIELLAACQGIEFLRPLRQTTTTPLEKVYDLVRSVVRPWNKDRFMAPDI	600
x1HAL2B	KAVRVIEHVEHVLAIELLAACQGIEFLRPLRQTTTTPLEKVYDLVRSVVRPWNKDRFMAPDI	600
xtHAL1	KALKVIEHVEYVLAIELLAACQGMFRRPLQTTTTPLEKVYDLVRSVVRPWNKDRFMAPDI	600
xtHAL2	KALKVIEHVEHVLAIELLAACQGIEFLRPLRQTTTTPLEKVYDLVRSVVRPWNKDRFMAPDI	600
hHAL	EAAHRLLEQKVWEVAAPYIEKYRMEHIPESRPLSPTAFSLQFLHKK-STKIPESEDL--	657
mHAL	EAAHRLLLDQKVWEVAAPYIEKYRMEHIPESRPLSPTAFSLESRLRN-SATIPESDDL--	657
x1HAL1	ERVHRLRLDQKVWEVAAPYIEKYRKEHSLASRSLSSLASLDCLSLSNFNLDHNESS--	658
x1HAL2A	EAAHRLLEQKIWNVVEPYIEKYRMEHIPESRPSPTSFSLDSSLNNSCTHDHSDSLD	660
x1HAL2B	EAVHRLLDQKIWNVVEPYIEKYRMEHIPESRPSPTSFSMESSLSNNSCHDPSDCILLD	660
xtHAL1	ERVHRLLLDQKVWEVAAPYIEKYRKEHSLASRSLSSLASLDCISLSNFNLDHNESS---	657
xtHAL2	EAVHRLLDLKIWNVVEPYIEKYRMEHIPESRPSPTSFSLDSVSLNNSCAHVHCDSLD	660
hHAL	----	
mHAL	----	
x1HAL1	----	
x1HAL2A	FRGS 664	
x1HAL2B	FSGS 664	
xtHAL1	----	
xtHAL2	LDGS 664	