

Supplementary Table 4: Alignment of 484 lipobox-containing proteins from halophilic archaea

The N-terminal region of the 484 lipoproteins from 6 halophilic archaea is shown. Proteins are named by their ordered locus tag obtained upon genome annotation (code). Each of the proteins was positive in at least two of the three predictors (lipobox prediction: A: Prosite PS51257; B: lipoP; C: predLipo). The first 400 proteins are TatFind positive (“T”), the last 84 are TatFind negative (“-”). All TatFind positives and the first 50 of the TatFind negatives have a twin-Arg motif (“RR”) while the last 34 TatFind negatives lack a twin-Arg motif (“-”). The twin-Arg motif and the lipobox motif were juxtaposed by introducing a gap of variable length between positions 5 and 6 after the twin-Arg motif. Spaces were added on both sides of the twin-Arg motif and of the lipobox to increase readability. If there were three or more consecutive Arg residues in the twin-Arg motif, the positioning is according to TatFind, which is based on the detection of a conserved pair of hydrophobic residues at position +2/+3. Dashes indicate the single gap of variable length introduced between position +5 and +6 after the twin-Arg motif and also the region in front of the initiator-Met.

code	N-terminal sequence	lipobox prediction	TatFind	twin-Arg
pNG2038	-----MTERT RR QLLAG-----IGTSLTLA TAGC GGNSGSGGSN	A,B,C	T	RR
pNG3012	-----MK RR NLLSA-----LGTSVA LAGC STSTNSTETN	A,B,C	T	RR
pNG5085	-----MTHKNIPRNSSID RR TVLGL-----LSGSLAA LAGC SGGLSDSGDG	A,B,C	T	RR
pNG6063	-----ME RR QVLKT---AGILATGGVTG LAGC SSSGNGDGGG	A,B,C	T	RR
pNG6067	-----MTTRFGAPGTGLS RR EFLAA-----TGATGIAS LAGC SAGGANEPAA	A,B,C	T	RR
pNG7023	-----MTNSN RR KFLKA-----TGVGLLGG LAGC TRGGDSSGGD	A,B,C	T	RR
pNG7073	-----MD RR TFLAA-----SGLTVAGT LAGC SAPSDNQQRD	A,B,C	T	RR
pNG7088	-----MPSTS RR TFLGM-----VATGTVAS VAGC SSTCPDEGAP	A,B,C	T	RR

pNG7122	-----MNRSSVS	RR	QFLGA-----	SGAALVTG	LAGC	SAGEGGTSTD	A,B,C	T	RR
pNG7185	-----MHQLH	RR	QLLGV-----	VCSGLTV	LAGC	GSDQSGNSSE	A,B,C	T	RR
pNG7190	-----MDKADDSNGLT	RR	DYLSG-----	GSVLLGTST	VAGC	SGDGGESPST	A,B,C	T	RR
pNG7250	-----MVNTNRTIS	RR	EMLGA-----	LGATGVTA	LAGC	SGGSDDTDTA	A,B,C	T	RR
pNG7251	-----MVDKKHTRS	RR	ELLTA-----	LGAAGITG	LAGC	SGGGDGGDGE	A,B,C	T	RR
pNG7384	-----MVPST	RR	TLLHS-----	VCGLATV	LAGC	SGVFESSGES	A,B,C	T	RR
rrnAC0147	-----MD	RR	SFLTA-----	AGATVSVS	FAGC	AGLGGSESS	A,B,C	T	RR
rrnAC0158	-----MN	RR	QFLAS-----	AGLAGTTV	LAGC	GSLSSQSTRA	A,B,C	T	RR
rrnAC0296	-----MKQSLT	RR	AMLGA-----	LGTAVAA	TAGC	QSPGTGSDSG	A,B,C	T	RR
rrnAC0358	-----MFRNDKHSLSVSK	RR	SFLKM-----	VGTAAGL	LAGC	GGDSGSGDGG	A,B,C	T	RR
rrnAC0381	-----MPREARVD	RRR	YLQA-----	IGGTVATLS	VAGC	QSDSGDSQTL	A,B,C	T	RR
rrnAC0389	-----MET	RR	TFVRG-----	LGLAAGVA	LAGC	SSGGGSDSGD	A,B,C	T	RR
rrnAC0498	-----MPS	RR	SVLTA-----	GTLVA	LSGC	AALSPASARL	A,B,C	T	RR
rrnAC0508	-----MTNDLD	RR	TFIRT-----	TAAVSGAGL	LAGC	GGSGGDGGSD	A,B,C	T	RR
rrnAC0566	-----MQNTAT	RRR	VLGA-----	LGAGVVG	LSGC	VSDSSMTEQ	A,B,C	T	RR
rrnAC0576	-----MSSDTT	RRR	ILLGI-----	GTGVTVG	IAGC	SGGGNGGAE	A,B,C	T	RR
rrnAC0830	-----MSSDTN	RR	AFLKR--TGAVTTVGLLGG	LAGC	STEQTGGDGG	A,B,C	T	RR	
rrnAC0850	-----MTQ-RR-AT	RRR	FLMG-----	CSAIASVG	LAGC	TGGDESTATD	A,B,C	T	RR
rrnAC0856	-----MTRFT	RR	GLLAA-----	TVGAVGA	MAGC	AGGSSESESA	A,B,C	T	RR
rrnAC0899	-----MN	RR	EYIVA-----	AGVGLAGT	VAGC	SGQSEAGSGS	A,B,C	T	RR
rrnAC0998	-----MLRTT	RRR	LLSA-----	LGASLSI	LAGC	TQFDVESGAE	A,B,C	T	RR
rrnAC1082	-----MD	RR	TYIGT-----	IGSSMAALS	LAGC	SGSDGGDGNE	A,B,C	T	RR
rrnAC1892	-----MN	RRR	FLTL-----	SGVGTVGA	VAGC	SSEADSAESV	A,B,C	T	RR
rrnAC1944	-----MEFEST	RRR	FMQL-----	AGTGATVS	LAGC	NALQGGSDG	A,B,C	T	RR
rrnAC2421	-----MRNPCRARS	RR	QYLAA-----	LGGIGATA	LAGC	RGESGTQTEP	A,B,C	T	RR
rrnAC2469	-----MNEHDTRSID	RR	SVIKA-----	AASAGLVG	LAGC	SGGAPDEGDG	A,B,C	T	RR
rrnAC2580	-----MTNNST	RRR	FLKT-----	AGVAGVAA	LAGC	GGGGDGGDGG	A,B,C	T	RR
rrnAC2656	-----MSQ	RRR	TFISS-----	VGTATAIG	LAGC	LGGDGGDGGG	A,B,C	T	RR

rrnAC2761	-----MRNHNIT RR QLLAS-----GGAAATAA LAGC AGGFGGSGQG	A,B,C	T	RR
rrnAC2848	-----M RRRR FIAT-----GAGVGVGL FAGC SGSSDSGGSD	A,B,C	T	RR
rrnAC2863	-----MK RR NYIAS-----LGSGLTL LAGC ATGEGSGEGE	A,B,C	T	RR
rrnAC3028	-----MRDTSQ-RR-S RR GFLGT-----LALAAVT SAGC SSLGGTQNGQ	A,B,C	T	RR
rrnAC3119	-----MGRPTS RR NVIKI-----AGGALVA LAGC SDTGGSTESD	A,B,C	T	RR
rrnAC3197	-----MQESSNRT RR TFIKS-----AGVIGAAA LAGC SGGSDSSTED	A,B,C	T	RR
rrnAC3198	-----MTERGRT RR AFLGT-----LAATTVGS VAGC QSQFNPLAST	A,B,C	T	RR
rrnAC3204	-----MDRN RR QFLGA-----LTAVVTGT IAGC SGGDSGESSP	A,B,C	T	RR
rrnAC3220	-----MRDQQQSGTAS RR DYLLA---AGGLAAASTVG LAGC SGSGSETGTL	A,B,C	T	RR
rrnAC3248	-----M RRR ALLAS-----VPGALAG LAGC SFGTPGSDET	A,B,C	T	RR
rrnAC3267	-----MPIQ RR EFIAA-----IGTGALAT TAGC AQSSEGSGQT	A,B,C	T	RR
rrnAC3299	-----MPRSSME RR SFLKA-----TGSAAAAA LAGC SSDSDETEGA	A,B,C	T	RR
rrnAC3315	-----M RRR QFLAG-----GTVLLSAA VAGC GHPSVVLDM	A,B,C	T	RR
rrnB0022	-----M RRR QALAL-----VTGSLSL VAGC SSDTTTDLTP	A,B,C	T	RR
rrnB0097	-----MTSSYS RR TLLRT-----AGVAVAGA VGGC GGDSTAQDMD	A,B,C	T	RR
rrnB0117	-----MK RR TFLAS-----TGIGLTTA VAGC TTQAGSSDSP	A,B,C	T	RR
rrnB0275	-----M RRR TYIAS-----GTVMASGL LAGC SSGSSESEST	A,B,C	T	RR
rrnB0319	-----MSASTMKQNPVD RR SVLKI-----GATALAAG VAGC SQESSQSTET	A,B,C	T	RR
pNG6086	-----MN RR TFLKQ-----GTALSGGLV LSGC LGRLGFETQS	A,B,-	T	RR
pNG6087	-----MN RR DVLRA-----VGGTSLVG LAGC TGLFETR SAR	A,B,-	T	RR
pNG7039	-----MSRYDMNREGPT RR DYMKY-----SGAVVGSSL LAGC AGQSGSEAAP	A,B,-	T	RR
pNG7040	-----MTDDEKTPHERPT RR DYIKG-----AGIIAGGSL LAGC AGDAVSESTA	A,-,C	T	RR
pNG7041	-----MTDPDRAACEWPT RR DIVRS-----SGALAFGGF LAGC SGESGQESSV	A,-,C	T	RR
pNG7059	-----M RRR TLLKS-----TGAAGTIVG VAGC LGGGRLGDSN	A,B,-	T	RR
pNG7234	-----MRPT RR EFLGT-----AAALS LSGC LGGTATPTLT	A,B,-	T	RR
rrnAC0082	-----MDQT RR AVLAG-----VAGL FAGC GTTSQRTTTP	A,B,-	T	RR
rrnAC0299	-----MSSNSNDQSELT RR EYVTC-----GGTVLAGGL LSGC TGSSGSDPSD	-,B,C	T	RR
rrnAC0460	-----MPSS RRR YLRG-----CVATLGLA SAGC LGSNGYIETS	A,B,-	T	RR

rrnAC0510	-----MQRPST	RR	QFLTG-----TGVAALAI	TAGC	VSSGSSSEPA	A,B,-	T	RR
rrnAC0702	-----MYSDS	RR	GVLKK-----CIAAGSLGL	SSGC	LGTGGSGDT	A,B,-	T	RR
rrnAC0906	-----MSDSNDMTGRNATQS	RRR	FLAL-----GSATAATA	LTGC	SGILSGDDGG	-,B,C	T	RR
rrnAC0915	-----MTDDNSNKRLT	RR	NALRI-----AGAAGAAS	LAGC	GGSDGGDGSS	-,B,C	T	RR
rrnAC0957	-----MSRS	RR	TFLT-----LAAASVTLP	LAGC	AGGDEQSADE	-,B,C	T	RR
rrnAC1162	-----MRIS	RRR	FLAT-----VGAGVTLG	GAGC	VGDEGATAGG	A,B,-	T	RR
rrnAC1183	-----MARQT	RR	AVLAA-----LGSGIAA	TAGC	GAFGQERVDV	A,B,-	T	RR
rrnAC1260	-----MN	RR	DYLLA-----GATLG TAG	LAGC	SFLAAAEAPP	A,B,-	T	RR
rrnAC1325	-----MTS	RR	GLLLR-----LSALTGAAG	LSGC	SSLLARQAES	A,B,-	T	RR
rrnAC1365	-----MNRNQT	RR	KTLLA-----LGSALSIP	VAGC	SSGGLFGGET	-,B,C	T	RR
rrnAC1430	-----MD	RR	QFLRA-----AGPAAVAG	LAGC	LGGGSADTDY	A,B,-	T	RR
rrnAC1436	-----MRT	RR	TVLVL-----SAGTLC	LAGC	GSPGDGSNGG	-,B,C	T	RR
rrnAC1509	-----MMTDSPSGGIS	RRR	FLTS-----SGAIGTLA	LAGC	VQNTNSGDGS	-,B,C	T	RR
rrnAC1654	-----MN	RRR	YLT-----STAALSG	LAGC	LGDPEYTISS	A,B,-	T	RR
rrnAC1910	-----MPQ	RR	DLLKT-----VGIAATGL	LAGC	PSQGSTESNT	A,B,-	T	RR
rrnAC2010	-----MNRT	RR	ETLGL-----VGGLAATV	LGGC	LAPGAGDGG	A,B,-	T	RR
rrnAC2149	-----MAHDSNGLSEFVS	RR	KFIAT-----TGATSIAA	IAGC	SSGSSDSGSD	-,B,C	T	RR
rrnAC2228	-----MSSGDSID	RR	SFLTA-----AGSAAAAAT	LAGC	SGDGGDGGGT	-,B,C	T	RR
rrnAC2349	-----MTME	RR	TVLKR-----IGGVGAATA	LAGC	SVQEQQNGGS	A,B,-	T	RR
rrnAC2589	-----MTLPT	RR	GFVVG-----CAAT	LAGC	GVLPEEREPI	A,B,-	T	RR
rrnAC2853	-----MSTIPTAT	RRR	VLEA-----LGVGTAA	LAGC	ASAPGAKEQA	-,B,C	T	RR
rrnAC2868	-----MAMDQSAS	RR	SFLT-----VGAAATAG	LAGC	TGLGFGDQTL	-,B,C	T	RR
rrnAC3111	-----MK	RR	KFLQT-----MGVGATAV	GSGC	LGGGGEVVVS	A,B,-	T	RR
rrnAC3132	-----MPTNGSSVN	RR	QLLKS---TGAVAGVAGLTG	LAGC	SGGDGGDGGG	-,B,C	T	RR
rrnB0207	-----MGSVAMHDTV	RR	TVMKS-----IGAAGAVG	LAGC	STDGGSSGNT	-,B,C	T	RR
rrnB0311	-----MVQSGGGYDGV	RR	SVLKA---SGTALTVGTG	LAGC	SSSSGASVRP	-,B,C	T	RR
OE1391R	-----MQ	RRR	EFLQA-----TGAALAAVG	LAGC	SDSGGTTDGD	A,B,C	T	RR
OE1806R	-----MPTEHT	RRR	FLQA-----TGATSIAA	LAGC	AGGDDGAGDG	A,B,C	T	RR

OE2157F	-----MH RR AFLAG-----GTTLSVGV	LAGC	IGPSVSKSDY	A,B,C	T	RR
OE2171F	-----MSRDTRLDD RR TMLKS-----TGAAVTATL	LAGC	SGGGDTGDDE	A,B,C	T	RR
OE2317R	-----MADFD RR EFLKL-----AGGTVGASL	VAGC	SSGGGGGDTT	A,B,C	T	RR
OE3320F	-----MSAMGRAPD RR TFLRS-----AVAGGLAA	IAGC	TDRTTTGTTN	A,B,C	T	RR
OE3419F	-----MAGEAT RRR CLGHV-----AAGAAL	LAGC	TSHSDTSTST	A,B,C	T	RR
OE3629R	-----MG RR SFLAA-----TGAAASATT	LAGC	LGTTGTPTI	A,B,C	T	RR
OE3641F	-----MTS RRR FVAA-----VGSATAASLG	LAGC	VGDRETTTAT	A,B,C	T	RR
OE3859F	-----MH RR SFIGG-----VSAAGLGI	LGGC	SAAVGTVAPP	A,B,C	T	RR
OE4008R	-----MRGQPVH RR SVLAL-----VGGGAVSA	LAGC	TDTTDGDATT	A,B,C	T	RR
OE4030F	-----MH RR ALLGG-----VAAAAAAS	LTGC	MGAQSDDQYE	A,B,C	T	RR
OE4197F	-----MPH RRR VLTA-----TAAAASLS	LAGC	LSNDGGGDSQ	A,B,C	T	RR
OE4225F	-----MRT RR QFLAT-----TTSLTTVGL	LAGC	ARSPDNTDER	A,B,C	T	RR
OE4576F	-----MQ RR AFLKA-----GSAATLAGL	LAGC	SSPDSDATST	A,B,C	T	RR
OE4593R	-----MA RRR QILAG-----GASLIAAS	LAGC	TSSQSPTDDG	A,B,C	T	RR
OE5273R	-----MRTT RR SFIGA-----STTALLSG	FAGC	TSGGDDGANS	A,B,C	T	RR
OE1254R	-----M RRR TYLSL-----VGSAAAAG	TAGC	LGVLGDDTP	A,B,-	T	RR
OE1361F	-----MPS RR DVLRL-----GAGVLAAG	TAGC	TDTAPNRVAA	A,B,-	T	RR
OE1597F	-----MK RR AFLAT-----AAVLT	TTGC	LGRTDSVSDS	A,B,-	T	RR
OE1679R	-----MPADDAERTTTRT RR QVLG-----MGATGAAA	LAGC	QSTSSDPAD	-,B,C	T	RR
OE1743R	-----MD RR TLLGR-----AVAG	LTAC	VSLSVGAGCL	A,B,-	T	RR
OE2175F	-----MNSDQRGVP RR EFLKA-----AVAIGGASA	LSAC	LGRTDDPIPG	A,B,-	T	RR
OE2330R	-----MN RR AFLTA-----SAGLGSTAA	LAGC	LGALGFERQS	A,B,-	T	RR
OE2514F	-----MMACT RR KALAA-----VGTTLS	LSGC	ARIARPSSER	A,B,-	T	RR
OE3612R	-----MHSTT RR EWLGA-----IGATAATG	LAGC	AGVGGAGQPV	A,-,C	T	RR
OE3910R	-----MD RR NFLKT---AGAAGTIGISG	LSGC	LGVLGGGGED	A,B,-	T	RR
OE3933F	-----MSRART RRR LLSS-----VALAVVAG	LTGC	STHRQSDTAP	A,B,-	T	RR
OE4093F	-----M RRR TVLVG-----VTGALFGV	GGGC	LTMGADETAR	A,B,-	T	RR
OE4305R	-----MLLSPMTMTGDGMSNTS RRR FLKA-----TGAAALTAT	VAGC	SDSTSDADGS	-,B,C	T	RR

OE4357F	-----M RRR DYLRA-----VGGGATGVA	AAGC LQMGGNSAET	A,B,-	T	RR
OE4485R	-----MHSDPDDGASGPVS RR AFVAA-----TGTVAGVAA	LAGC ANSTDGSGGD	-,B,C	T	RR
OE4551F	-----MSDDTVS RR GFLKA-----AGAATVVATS	TAGC TDSGGGGDGG	-,B,C	T	RR
OE4700F	-----MH RR PFLSR-----LCLGAVAA	TAGC LSRRDDRDHS	A,B,-	T	RR
OE5147R	-----MDEQTHTHLS RRR TLTA-----SAGVLSAG	LAGC ITSGDTDGD	-,B,C	T	RR
OE5188F	-----MVDSICT RRR LLAA-----VGATSVSA	VAGC SSTLFGGDVE	-,B,C	T	RR
OE5404F	-----MTRNNPHIS RR TALRT-----VAGTALAS	MAGC MDDNGSAGPN	A,B,-	T	RR
HVO_0022	-----M RRR SFLRA-----AGAGGVSAL	LAGC TGTGGEQTTT	A,B,C	T	RR
HVO_0062	-----MPDTNKLS RRR FLKA-----TGGAATAAA	LAGC TGGDGEETTT	A,B,C	T	RR
HVO_0447	-----MAS RR EFIRT---AGITGVAGLTA	LSGC TGGDDSSEAT	A,B,C	T	RR
HVO_0518	-----MN RR ALLLG-----TAGLCAS	LAGC ASGGDAAEGS	A,B,C	T	RR
HVO_0530	-----MSRDSQSNDNRLS RR QYVAG-----AGALATMG	LAGC SGGGGSNDGG	A,B,C	T	RR
HVO_0553	-----MTVRYD RR TFLRT-----AAGAVGLGS	LSGC VGTFGTESGE	A,B,C	T	RR
HVO_0899	-----MARDSKPLN RR DVLKA---TGAVGTAGLAG	LAGC TGGGDGGGGD	A,B,C	T	RR
HVO_1007	-----MNGS RR DFLAA-----TGATLLGG	LAGC ASAPTDDGAG	A,B,C	T	RR
HVO_1119	-----MTQRVS RR SFLHA-----TAASTGIAL	LAGC SSSSGDGS	A,B,C	T	RR
HVO_1228	-----MEYS RRR LLQT-----TGLAVAAAG	LAGC NGRSSDET	A,B,C	T	RR
HVO_1401	-----MD RR SFVKA-----AGVAGIAG	LAGC TGGPSEGS	A,B,C	T	RR
HVO_1464	-----MEEKSTGQEGLT RR NYIRY-----GGTALGAGM	LAGC ASDSSGSDEA	A,B,C	T	RR
HVO_1624	-----MH RR TLLAA-----AGTGLAAA	LTGC IASAGDGADD	A,B,C	T	RR
HVO_1705	-----MHERDREPRGHS RRR FIAT-----TAALGVGA	LAGC TGGSDDET	A,B,C	T	RR
HVO_2038	-----MVNKYKRLT RR DYVKY-----GAAAATAA	LAGC GGQSASDPPT	A,B,C	T	RR
HVO_2141	-----MLSTT RRR TLQW-----LGLGGVAS	LAGC ATKSPATAQS	A,B,C	T	RR
HVO_2149	-----M RRR AFLAS-----ALTAATT	TAGC SSLGPQTEHT	A,B,C	T	RR
HVO_2286	-----MK RR KLLLG-----TTGLLTA	LAGC NTITGNKDT	A,B,C	T	RR
HVO_2375	-----MTRNSDSGLS RR KFLIA-----SGAAGLAG	LAGC TENNTDGGGS	A,B,C	T	RR
HVO_2432	-----ME RR TFLKG-----SAGAAAAFT	LAGC LGGGEGES	A,B,C	T	RR
HVO_2607	-----MTNP DARLS RR AFLGT-----LGTGAAVG	LAGC VGGDEGSTGD	A,B,C	T	RR

HVO_2651	-----MAGRPS-RR-QLL	RR	GAVAV-----GVGLTGA	LAGC	SSLRGCSSAE	A,B,C	T	RR
HVO_2695	-----MVDADSRKGKRVGS	RR	SFVKA-----AGASGVAVG	LAGC	ISTGGGDGDN	A,B,C	T	RR
HVO_A0181	-----MSLT	RR	TVLGS-----TALLSFGL	LAGC	VGNGGSDDGA	A,B,C	T	RR
HVO_A0190	-----MK	RR	TYLRT-----LGAVGVGAA	LAGC	NTPDEETPTE	A,B,C	T	RR
HVO_A0192	-----MNLS	RR	SYLGL-----GAAV	LSGC	VARGGEPAGT	A,B,C	T	RR
HVO_A0299	-----MN	RR	NFVKF-----ASGAAAGAA	LAGC	AGNGGDGGSG	A,B,C	T	RR
HVO_A0362	-----MPSIS	RR	EYLAV-----SATTVLAA	TAGC	QTSSCTPTDP	A,B,C	T	RR
HVO_A0380	-----MVKRDKGRID	RR	SFLKY-----SGLAGTGIT	VAGC	TGNQSEETTS	A,B,C	T	RR
HVO_A0428	-----MSNKSMPDTD	RR	KLLKT--IAAGATVGPATL	LSGC	TGGDAKTDVG	A,B,C	T	RR
HVO_A0477	-----MMAQDSKKLAGSVS	RR	QFLVA-----SSAAGVAG	LAGC	SGQSNPEADA	A,B,C	T	RR
HVO_A0576	-----MGKTLKSSTSN	RRR	FLKA-----TGASVAALT	LAGC	ASDDAGNGGG	A,B,C	T	RR
HVO_A0611	-----MRTKT	RRR	FLAT-----VAGSAAVG	LAGC	LGGDDSSDSA	A,B,C	T	RR
HVO_A0620	-----MSLPT	RR	QVLRA-----GGASLVAA	LAGC	SGEGSSSSSD	A,B,C	T	RR
HVO_B0093	-----MAGKRSTNWS	RR	DLIKY-----GAVAGTAG	LAGC	FDSSGQTTED	A,B,C	T	RR
HVO_B0132	-----MHT	RR	AVLAA-----GGATALAS	LSGC	VGRALGALDL	A,B,C	T	RR
HVO_B0139	-----MLS	RR	EVLAA-----GGAALVSG	VAGC	GGSSPAPDAT	A,B,C	T	RR
HVO_B0187	-----MVST	RR	SFIGG-----SAAAVAG	LAGC	LTTSSSEGDA	A,B,C	T	RR
HVO_B0198	-----MV	RRR	QILAG-----SAGLFASA	LAGC	TAGGSADSES	A,B,C	T	RR
HVO_B0228	-----MVREAITSR	RR	KFIKS-----AGVAGTVA	LAGC	AGNSDMSGDS	A,B,C	T	RR
HVO_B0358	-----MK	RR	TFLQL-----TGLGAAGG	LAGC	LGSNSPPPRK	A,B,C	T	RR
HVO_0066	-----MPRLRS	RRR	FLQL-----LGSASFG	VAGC	LGRDGGSSGP	A,B,-	T	RR
HVO_0154	-----MQ	RR	QVLAS-----LGSLAL	LSGC	LGGPAESPTE	A,B,-	T	RR
HVO_0564	-----MN	RR	TILKQ-----LAGTTAVGA	LAGC	VGVSSETDSTQ	A,B,-	T	RR
HVO_0628	-----MSQDGNDVS	RRR	FLTA-----AGAAAATAG	LAGC	SGGGGEDTTT	-,B,C	T	RR
HVO_1144	-----MRDHGSSNGGRT	RR	QFLAA-----TGAAATAG	LAGC	ATLTASGDDF	A,-,C	T	RR
HVO_1240	-----MTS	RRR	FLAA-----SGAVAAAG	LSGC	LAELGRLYTS	A,B,-	T	RR
HVO_1241	-----MK	RR	TYLRA-----AGAGAAVG	LAGC	LGGGDANPNV	A,B,-	T	RR
HVO_1244	-----M	RRR	ALLSL-----LAGAGVAG	VAGC	LGDGSAPAEA	A,B,-	T	RR

HVO_1245	-----MRNT	RR	AYLAA-----TAGALTLG	TAGC	LGGGSGGSGN	A,B,-	T	RR
HVO_1548	-----MH	RR	ALLSS-----AAALSLAG	LSGC	LADARRTTSG	A,B,-	T	RR
HVO_1597	-----ME	RRR	LLGL-----VAVGL	SSGC	LGSLPGATGP	A,B,-	T	RR
HVO_1612	-----MASTTN	RRR	FLAL-----GVGAA	IAGC	LGSEPPVADD	A,B,-	T	RR
HVO_1888	-----MAIE	RRR	FLQA-----AGVGAVLG	LSGC	TGNTSPPQAN	A,B,-	T	RR
HVO_1981	-----ME	RR	TFLKS-----VATTGALLT	TAGC	MGGGSESQPT	A,B,-	T	RR
HVO_2126	-----MD	RR	QFIAA-----ASAVGATA	FAGC	TGGDAGGSGG	A,B,-	T	RR
HVO_2153	-----MRNYVGAPGSTVS	RR	EFLAA-----TGSVGALG	LAGC	AAPTNDGNA	A,B,-	T	RR
HVO_2316	-----MN	RR	EMLAL-----SGALAAAT	IAGC	TGDGQSPAET	A,B,-	T	RR
HVO_2397	-----MNTNADSSDPKLS	RR	SVVAA-----GSGLLTAG	LAGC	LGSGGGAGSG	-,B,C	T	RR
HVO_2799	-----MK	RR	ALLST-----VAGSALGL	AAGC	LSDLDEPVET	A,B,-	T	RR
HVO_A0109	-----MRA	RR	NVLLG-----ATATLFG	FSGC	IAPFTSDGSL	A,B,-	T	RR
HVO_A0242	-----MN	RR	KLLLS-----LGATSLA	FPGC	LKGQTLNGTD	-,B,C	T	RR
HVO_A0324	-----MK	RR	TFVTA-----STLSVAG	LSGC	LGDTEYRIAD	A,B,-	T	RR
HVO_A0541	-----MADNDDCRSGPT	RR	DYVKF-----GGTVLGGGL	LAGC	AGGGSDATTT	-,B,C	T	RR
HVO_A0549	-----MCHDCDRTVA	RR	TVLSA-----VGAVGVAA	TAGC	LGGLGTDGGG	A,B,-	T	RR
HVO_A0557	-----MDQDLTDRATPT	RR	ACLKG-----GGALLAGGL	LAGC	AGQNDAESST	-,B,C	T	RR
HVO_A0558	-----MTDSDGPT	RR	KFLTY-----GGSVAAGGL	LAGC	TGSSESATA	-,B,C	T	RR
HVO_A0623	-----MRSRDARDAGSDRT	RRR	FIWL-----AGTAAMAG	LAGC	SGGGGAEPSE	A,-,C	T	RR
HVO_A0627	-----MK	RR	DALKT-----LGIGALAA	TAGC	LGGFEQQSAW	A,B,-	T	RR
HVO_B0082	-----MGSASESVRARFGDAAS	RR	NFLKA-----LGTAGIAG	LAGC	SGGGESYDQ	-,B,C	T	RR
HVO_B0140	-----MPSYS	RR	DALKT-----IPALAAG	LAGC	ASLTGRDDSL	A,B,-	T	RR
HVO_B0144	-----MVDDSENSKTLT	RR	GCLKY-----GGTIAGSGL	LAGC	SGTSEPSSSS	-,B,C	T	RR
HVO_B0184	-----MNEARPL	RRR	TVLSV-----LTAASLGG	LAGC	LGGADDSAPD	A,B,-	T	RR
HVO_B0217	-----MTDQPALTDES	RRR	YLKA-----IGTAGLTAG	LAGC	SGGGGGNGGG	-,B,C	T	RR
HVO_B0222	-----MKRTN	RRR	FLAA-----FSSSAFAF	TAGC	QRPVASASER	A,B,-	T	RR
HVO_B0318	-----MLDEESSIQ	RR	DVLSA-----LGAAGVTT	LAGC	TGGDTGDTDD	-,B,C	T	RR
HVO_C0075	-----MDSDTALD	RRR	YLGL-----LGGSAVTG	IAGC	TGGSNQEGTL	-,B,C	T	RR

HQ1199A	-----MN	RR	ELLRV--LACTSISGGTFL	TAGC	SENTASFPNV	A,B,C	T	RR
HQ1310A	-----MSDESRERDID	RR	SFVKL-----AGTATATAA	LAGC	GSSGGGGGAE	A,B,C	T	RR
HQ1383A	-----MSS	RRR	FLQG-----IGAVSTVGL	VAGC	TGSTNNSNN	A,B,C	T	RR
HQ1442A	-----MTSDQT	RRR	FISV-----VGAAGITG	LAGC	SGGGDAGDEG	A,B,C	T	RR
HQ1471A	-----MSKANAGDTQVS	RR	KLLT-----SGAIGAAG	LAGC	SSSEGNSSSEE	A,B,C	T	RR
HQ1486A	-----MFNKFDDKSDLEGPKID	RR	TAIKL-----FAAGGVSS	LAGC	AGESGDPGEG	A,B,C	T	RR
HQ1619A	-----MVRDNDLSLH	RR	DVLKA-----AGASTVGIAG	LAGC	AGGGGGGDSG	A,B,C	T	RR
HQ1806A	-----MSMQST	RR	KYIAM-----IGAVGGGA	MTGC	LGGNTNAGGT	A,B,C	T	RR
HQ1816A	-----MK	RR	SYLRQSVLPLIASAGIGAV	FAGC	TRTESDDSRI	A,B,C	T	RR
HQ1974A	-----MEIS	RRR	ALES-----ASVTAAVA	LTGC	IGESTSVSDN	A,B,C	T	RR
HQ1992A	-----MSRNVNS	RR	SFIKA-----ASIAGIAG	LAGC	SGQSTSNSGG	A,B,C	T	RR
HQ2058A	-----MQ	RR	TLLST-----LSTVGAVT	IVGC	IGGGDEDPQF	A,B,C	T	RR
HQ2104A	-----MN	RR	ELLQL-----TGVSLGFI	ATGC	VGIDPPQDTD	A,B,C	T	RR
HQ2186A	-----MFDNSGRIN	RR	NYIRS---VGAASVAGLAS	LAGC	SGDSSTDDTS	A,B,C	T	RR
HQ2192A	-----MVDEKTRTS	RR	KFLAA-----SGSLSAAA	LAGC	SGGGGGGGGG	A,B,C	T	RR
HQ2247A	-----MNPT	RRR	LLSG-----LGTAAAVG	LAGC	SGGGDSGSTS	A,B,C	T	RR
HQ2251A	-----MKQIDKPHN	RR	TLLSM-----IIIAVSVG	LAGC	TGPGESEDSG	A,B,C	T	RR
HQ2450A	-----MD	RR	TFVKA-----TGIAGIAG	LAGC	SGGPSGGAGN	A,B,C	T	RR
HQ2477A	-----MSSNID	RR	TFLT-----AGSAAAAAT	LAGC	SGSDDGSASD	A,B,C	T	RR
HQ2598A	-----MLTG	RR	GFIAA-----GASAVLAG	LAGC	SGTLGGSASG	A,B,C	T	RR
HQ2732A	-----MD	RR	SYIKS-----GAGVIAGGL	IAGC	TGSDSESEST	A,B,C	T	RR
HQ2754A	-----MYSMIQ	RR	KFVAG-----TGAATVAA	LAGC	SGSSDTGDES	A,B,C	T	RR
HQ2809A	-----MSERS	RR	DILKG---LGAAGTAGVVS	LAGC	SRQSGGGSTE	A,B,C	T	RR
HQ2849A	-----MNNWS	RR	EFVRI-----ATVGAGAG	IAGC	NALSPSGSIK	A,B,C	T	RR
HQ2969A	-----MARDIE	RR	AFLKR---AGAAGVLGTVG	LSGC	VGGGGEGGEG	A,B,C	T	RR
HQ3009A	-----MTLT	RR	QALLA-----TGTTLTAL	LSGC	GATQQEFTFS	A,B,C	T	RR
HQ3060A	-----MSWT	RR	GVLAS-----MAGVCG	VSGC	LASPDRSLPT	A,B,C	T	RR
HQ3135A	-----MPT	RR	TVIAA-----LTTVGTAT	LSGC	GSFDNTADNN	A,B,C	T	RR

HQ3182A	-----MTENTN	RR	TFLKI---	AGSTGAVGLAG	LAGC	AGGGGGGDGT	A,B,C	T	RR
HQ3283A	-----MSDGET	RR	EFLEA-----	FGVASISI	LGGC	QTSGSDTQT	A,B,C	T	RR
HQ3383A	-----MIDKS	RR	GFLAG-----	VGAAATTS	LAGC	AGIGSGSQT	A,B,C	T	RR
HQ3619A	-----MSDNRMS	RR	AVLAT-----	GAVGLGAS	LAGC	SSSGSGGGD	A,B,C	T	RR
HQ4034A	-----MDMSMN	RR	GVIEA-----	IGVGGLTV	LAGC	SSNSPNEQSE	A,B,C	T	RR
HQ4036A	-----MD	RRR	YIGI-----	VGTIVAGA	LAGC	NSNTENNAPS	A,B,C	T	RR
HQ1481A	-----MVDDSEVN	RRR	FLRA-----	TGAVAATVG	VAGC	SQGS DGETET	-,B,C	T	RR
HQ1855A	-----MTDSKIG	RRR	LLGL-----	TGA AVLGG	LAGC	NTQTQS QSNT	A,B,-	T	RR
HQ1912A	-----MLDDSLT	RR	ALLAS-----	GVAVTLG	LTGC	AETDPSSTPV	-,B,C	T	RR
HQ2373A	-----MD	RR	NYLHA-----	IAGAGAF	TAGC	LGSTLSFRDG	A,B,-	T	RR
HQ3303A	-----MSSEGADKKQRIAN	RR	TYLKG-----	LGAAGTVL	LAGC	SGSGGGSGGD	-,B,C	T	RR
Nmag_0005	-----MKRVAPSVT	RR	SLLAG-----	ASGVGLSA	LAGC	SERFWSRAEN	A,B,C	T	RR
Nmag_0106	-----MVH	RR	NILKG-----	AAGVGLAS	LAGC	LGGDNGGVDT	A,B,C	T	RR
Nmag_0499	-----MAGRDLDSA	RRR	FLGA-----	AGAAATAG	IAGC	VSLPTALDDR	A,B,C	T	RR
Nmag_0622	-----MQTDPT	RR	TFLAG-----	SATAGIVA	VAGC	ASDGDGNGGE	A,B,C	T	RR
Nmag_0655	-----MN	RR	TALRS-----	AGVLATVG	LAGC	VDAVEEHFQG	A,B,C	T	RR
Nmag_0697	-----MNGLCD	RR	AFLAS-----	AATGGMLG	LAGC	LSGDAEQVST	A,B,C	T	RR
Nmag_0704	-----MDDRLT	RRR	LIAI-----	SGAVSAAA	LAGC	NDDPEDPDDP	A,B,C	T	RR
Nmag_0795	-----MEGNSRYK	RRR	VIGL-----	IGTGT VVS	VAGC	LTDDTEDDGV	A,B,C	T	RR
Nmag_0945	-----MDPSTD	RRR	FVQA-----	MGGGFAVA	LAGC	LSDDEENGGE	A,B,C	T	RR
Nmag_1151	-----MPLQ	RR	QLLAG-----	IGGAATLT	VAGC	LGDDDRGTTL	A,B,C	T	RR
Nmag_1294	-----MN	RR	KLLLG-----	SGTFVASM	AAGC	LQAGGTSENK	A,B,C	T	RR
Nmag_1357	-----MHRPSFPS-RR-S	RR	AFLSG-----	TAVAGTAA	LAGC	TTLYHVL PDR	A,B,C	T	RR
Nmag_1387	-----MTFRPK	RR	ELLMG-----	AGAVSLGG	LAGC	LSDVPGLESE	A,B,C	T	RR
Nmag_1419	-----ME	RR	KILLG-----	SGAALATA	LAGC	SSSETDEPSG	A,B,C	T	RR
Nmag_1438	-----MGDDSKS	RR	TVLKG--VGIASAAGLTTS	LAGC	VSQNGGSDVE	A,B,C	T	RR	
Nmag_1742	-----MSDLP	RRR	LLAL-----	GGTALTGA	IAGC	SSSANEDDPN	A,B,C	T	RR
Nmag_1771	-----MQ	RR	TYLTL-----	TGSVGLLA	VAGC	LSEEQSTPKE	A,B,C	T	RR

Nmag_1801	-----MN	RR	QHIAQ-----LGGVGLVA	LSGC	LDTISSDETD	A,B,C	T	RR
Nmag_1824	-----MD	RR	SLIHT-----AVGASFI	LSGC	LSRSDGNSET	A,B,C	T	RR
Nmag_1899	-----MK	RR	TYLTT-----TSATAVGLA	LAGC	MGGEESDEDP	A,B,C	T	RR
Nmag_1923	-----MSRVG	RR	TYLAA-----AGGAVAGLAG	LAGC	LGDGGDSTPI	A,B,C	T	RR
Nmag_1931	-----MQ	RR	TVLAG-----LGSLGSLLA	LSGC	LSDDHGEIDE	A,B,C	T	RR
Nmag_2002	-----MELT	RR	KALTT-----SFSGLVMGT	IAGC	TDDTPEDEEE	A,B,C	T	RR
Nmag_2005	-----MDVT	RR	SVLKR-----TLGGAALGA	LAGC	LNEPDETS GT	A,B,C	T	RR
Nmag_2069	-----MPS	RR	SVLGA-----GATAGFAT	VAGC	LGSNHSFGAL	A,B,C	T	RR
Nmag_2138	-----ME	RRR	VLAT-----AGLLPIS	VAGC	VTVSTESADE	A,B,C	T	RR
Nmag_2173	-----MARHTT	RR	SVLKG---STAAAVGTTL	LAGC	VTDEGNGTGD	A,B,C	T	RR
Nmag_2271	-----MIP	RR	KFLQC-----GVVSFSGSI	IAGC	SESTETSNPE	A,B,C	T	RR
Nmag_2366	-----MTKRQSRSGGWSS	RR	TFVLA-----TGAIGTSV	LAGC	LDGDDSDSQA	A,B,C	T	RR
Nmag_2372	-----MAKFTRPVS	RR	GVLTS-----GATAVGVA	VAGC	ISDDTDGAGQ	A,B,C	T	RR
Nmag_2397	-----MVWNIG	RR	TLLSV-----TGLAL	LSGC	LDSGNTGETN	A,B,C	T	RR
Nmag_2411	-----MNQT	RR	AFLGT-----TGTVGLGV	VAGC	LGSEDPPEPP	A,B,C	T	RR
Nmag_2669	-----MASDRDQT	RR	QLLGL-----AGATVSTML	IAGC	GDTEPEDENG	A,B,C	T	RR
Nmag_2689	-----M	RRR	PFLVA-----ASATTVG	LAGC	TSAQERLGDV	A,B,C	T	RR
Nmag_2702	-----MNDSRLD	RR	QFLAA-----AGAGLAGV	VAGC	SEPNNASSIE	A,B,C	T	RR
Nmag_3059	-----ME	RR	TYLGS---LGAAGAAGLTG	LAGC	LDELSGDDDQ	A,B,C	T	RR
Nmag_3090	-----MVWELN	RRR	VLSG-----VGAAGIAG	LAGC	IGDEEEVTEG	A,B,C	T	RR
Nmag_3154	-----MEYN	RR	TILQS-----LLPAVGL	LAGC	SFRDDVHLFE	A,B,C	T	RR
Nmag_3278	-----MADNRMT	RRR	LLAG-----SSVAAAAG	LAGC	TDRLDDLGRD	A,B,C	T	RR
Nmag_3316	-----MPS	RR	EALLT-----AGPLLSST	LAGC	LDTFRTSGSL	A,B,C	T	RR
Nmag_3531	-----M	RRR	KYLTG-----ISSIATAG	IAGC	AGHTPTDDQ	A,B,C	T	RR
Nmag_3965	-----MAIQ	RR	GFIAA-----VGTGGAVG	LAGC	TGLGDDTGDS	A,B,C	T	RR
Nmag_4115	-----MN	RR	TVLTT-----AGLVA	VAGC	LSESSDPVTE	A,B,C	T	RR
Nmag_4271	-----MN	RR	SLLAM-----AVPASFAA	LSGC	LGSNSALDDW	A,B,C	T	RR
Nmag_0096	-----MVN	RR	DIKKG-----AGAASIAG	LAGC	LGGDNGGRDI	A,B,-	T	RR

Nmag_0184	-----MQGANYSLD	RR	TLLQR--TGAATSIAGLAA	IAGC	IDDSNGDDDD	-,B,C	T	RR
Nmag_0242	-----MN	RR	GYLGA-----IGAVGLTA	TAGC	VEELQAAADG	A,B,-	T	RR
Nmag_0327	-----MTDFPT	RRR	VLQL-----TGVGATAS	LAGC	TQFDIPGIGS	A,B,-	T	RR
Nmag_0438	-----MN	RR	TYLGA-----VAGGLTAT	SAGC	LGDFGDSID	A,B,-	T	RR
Nmag_0446	-----MAENNPTT	RR	TILKV----SGAVGAGAF	LAGC	ADNGNGNDP	-,B,C	T	RR
Nmag_0460	-----M	RRR	TFVGT-----LGGGAIAG	FAGC	LSREDTDDN	A,B,-	T	RR
Nmag_0557	-----MSPS	RRR	FLLGA-----TGLTGA	TAGC	LSYVRRVSPG	A,B,-	T	RR
Nmag_0563	-----ME	RR	ALLTS-----LCFPLFVS	VSGC	LAREQSPRLS	A,B,-	T	RR
Nmag_0609	-----MKYD	RR	TYLSS-----AIITIT	LSGC	TGLINSGRIR	A,B,-	T	RR
Nmag_0793	-----MN	RRR	ALTV-----GVTTGLTA	VAGC	LTGMLDDESS	A,B,-	T	RR
Nmag_0856	-----MN	RR	QYLAS-----ATGVAIVG	LSGC	LQILASGEIS	A,B,-	T	RR
Nmag_0963	-----MVDDTTMSNQYALT	RR	SALAS-----ASGLLVG	VAGC	LSGDDNEVDS	-,B,C	T	RR
Nmag_1091	-----MPST	RR	SLLAS-----ALVGSAA	LAGC	LSRVRSPPS	A,B,-	T	RR
Nmag_1209	-----MPS	RR	AVLAT-----CGSAV	LAGC	SAVRREPSVT	A,B,-	T	RR
Nmag_1789	-----MPAKNTHG	RR	TFLRS--TAAAGSVAALGG	LAGC	TGMLDGGDDT	A,B,-	T	RR
Nmag_1814	-----MCPPRS	RR	PVLAS-----VASLSAL	TAGC	STNWFSPET	A,B,-	T	RR
Nmag_1940	-----MD	RR	TFVHG-----VGGGSVTA	LAGC	LTRNGENEEH	A,B,-	T	RR
Nmag_1961	-----MK	RR	TLLRA---TGGAVLGGSVG	LAGC	LDQFSDSED	A,B,-	T	RR
Nmag_2110	-----MSQGHTD	RR	TMLAL-----SGAFLAG	MAGC	TGTAPDSEDE	-,B,C	T	RR
Nmag_2327	-----MDLN	RR	TMLGG-----IGTASLTG	LAGC	LNLVGLATHE	A,B,-	T	RR
Nmag_2358	-----MAPSQNLGRGLS	RR	SAIAT-----IGSIGALS	LAGC	LGGDEDGLSG	-,B,C	T	RR
Nmag_2390	-----M	RRRR	LLST-----GVVVA	LAGC	VSLPADEDET	A,B,-	T	RR
Nmag_2456	-----MH	RR	SVLAA-----ASAVASVG	IAGC	LEFFEDNGED	A,B,-	T	RR
Nmag_2492	-----MVENNRYRPGIN	RRR	VLQG-----LTAAGVIG	AAGC	LDSEETDETG	A,B,-	T	RR
Nmag_2581	-----MPS	RRR	TLAL-----GATLSTTA	LAGC	TALRSEPEYL	A,B,-	T	RR
Nmag_2647	-----MD	RR	TYLST-----SAATI	FAGC	TELSGADEPD	A,B,-	T	RR
Nmag_2680	-----MN-RR-NRSANAERGTT	RR	TILAG-----ATTAAIGL	AAGC	LSEDEESVPD	A,-,C	T	RR
Nmag_2733	-----MD	RR	QFLAA-----STVGVAAT	TAGC	LGNALSSTDD	A,B,-	T	RR

Nmag_2739	-----MPSD	RR	TFLT	-----CGTGATTA	LAGC	ADARVSARDV	A,B,-	T	RR
Nmag_2761	-----MLS	RR	TTLQA	-----TIPLFASL	LSGC	VSSMLPRDPP	A,B,-	T	RR
Nmag_2904	-----MAHQPSGQSKLTS	RR	AVLSA	-----AGAGVTAA	LAGC	SDSQDEDPVR	-,B,C	T	RR
Nmag_2996	-----MTHPS	RR	TLLGS	-----TAGLLAL	TAGC	IADNDDDDDD	A,B,-	T	RR
Nmag_3163	-----MD	RR	TWLTA	-----TTVGTLA	FSGC	LSELADRNS	A,B,-	T	RR
Nmag_3234	-----MH	RRR	VLAH	-----VGTGTIVG	TVGC	LSVPLPTGDS	A,B,-	T	RR
Nmag_3274	-----MTDSN	RR	SFVAA	-----TAAVGTLG	VAGC	LSTIDGWGDG	A,B,-	T	RR
Nmag_3481	-----MATDPRDTT	RR	SLLAT	-----TGSLGVLG	LAGC	LSDDEEDDGG	A,-,C	T	RR
Nmag_3486	-----MRTSFP	RRR	LLAT	-----TGTISALAI	GAGC	LDDSDSESDP	A,B,-	T	RR
Nmag_3525	-----MTDRHT	RR	TVLQA	-----AGATSVVAL	AAGC	LSDDEEENG	A,-,C	T	RR
Nmag_3601	-----MD	RR	EFVAA	-----GAVCGLGL	MAGC	LDDALADVTS	A,B,-	T	RR
Nmag_3725	-----MLDSDHVS	RR	TALRL	-----SLASGVAI	LAGC	ADDNDENDVD	-,B,C	T	RR
Nmag_3851	-----MPIGKQS	RRR	FLTA	-----TGGAAALGT	VAGC	LGGDDDDVVN	A,-,C	T	RR
Nmag_3944	-----MMSFKDGV	RR	DALKV	-----AGGVGLVG	LAGC	LGDGEQTDIT	A,B,-	T	RR
Nmag_4024	-----MASRQID	RR	SFLQV	-----AGGAGIAG	LAGC	LSGDVEAVSI	A,B,-	T	RR
Nmag_4050	-----MEPDGNMQFN	RR	ELISA	-----LSAGGVLA	LAGC	ADQADGDGND	-,B,C	T	RR
Nmag_4142	-----M	RRR	EFIAV	-----GCCSVCGI	SAGC	LDEDDSEVP	A,B,-	T	RR
NP0126A	-----M-RR-PHS	RR	QFLVA	-----AGLTVTAA	AAGC	FDSASEPTGE	A,B,C	T	RR
NP0278A	-----M	RRR	ALLTS	-----CVTVAAVS	ISGC	FDDGESPSGG	A,B,C	T	RR
NP0322A	-----MDLS	RR	GVLA	-----GAVA	LAGC	ADLEEQADRR	A,B,C	T	RR
NP0660A	-----MPELT	RRR	LLAA	-----AAGGIAG	LAGC	AAGSRESPPP	A,B,C	T	RR
NP0894A	-----M	RRR	TFLST	-----VAAGTIAA	SAGC	SSEELGLGLD	A,B,C	T	RR
NP0938A	-----MDST	RRR	MLGA	-----IAGSLSVV	AAGC	LGGDDAGDAP	A,B,C	T	RR
NP1600A	-----MHTTPT	RR	TVVRT	-----AAAAAGLA	VAGC	LDSEPDEAPE	A,B,C	T	RR
NP1648A	-----MERTV	RRR	TVLTV	-----LASSGSVL	VAGC	SDDDGTTETPE	A,B,C	T	RR
NP1652A	-----MTRKLS	RR	QLVSG	-----LAAAGAGV	AAGC	TDGEEGDS	A,B,C	T	RR
NP1748A	-----M	RRR	TYLTA	-----AGGLFAAG	LAGC	TDEEPTGN	A,B,C	T	RR
NP1978A	-----MS	RR	SLLAA	-----AGAGLAA	LSGC	TVLGDPPGED	A,B,C	T	RR

NP2004A	-----MRNPTVS RR KLLAS-----GAAAAGIG LAGC MGGNGGSDGP	A,B,C	T	RR
NP2092A	-----MH RR TFVSG-----VAAGAVAG LAGC LGGDDDAPTT	A,B,C	T	RR
NP2184A	-----MVS RR GVLAA-----LAVGASSS LAGC HTGALVEVQD	A,B,C	T	RR
NP2186A	-----MD-RR-VT RR GVLAA-----AGIA LAGC TDNGDDQPVR	A,B,C	T	RR
NP2288A	-----MQQLSDS RRRR TVLAA-----IGAGAAG LAGC LDGGSSNDPE	A,B,C	T	RR
NP2536A	-----MSPDLT RR GYLAV-----TAAAGGAA LAGC SDDVTADPDA	A,B,C	T	RR
NP2818A	-----MNRDELVANKTVG RR ALLGS-----VAAFAGV VAGC SQLSPASSKE	A,B,C	T	RR
NP2860A	-----MQPS RR TFVKS-----GIGVVGLGA LAGC AEEDPDPGAE	A,B,C	T	RR
NP3028A	-----MTRYT RRR LLGS-----SALAALGA FAGC TAEQPDDPEE	A,B,C	T	RR
NP3032A	-----MKRTT RRR FIAS-----GAAVGAIT IAGC ADEDPEPEPE	A,B,C	T	RR
NP3040A	-----MQ RR EFLAG-----GAGLTTAF TAGC ADSDRANVGI	A,B,C	T	RR
NP3142A	-----MSKQTQDTWT RRR MLAV-----AGAGAVVG LAGC ADESSEEPPEE	A,B,C	T	RR
NP3232A	-----MD RR AFLAT-----TGAAAAAS VAGC LGRGLSDEDF	A,B,C	T	RR
NP3388A	-----M RRR TYIAL-----SGAALAS LAGC SDDEGENGDG	A,B,C	T	RR
NP3578A	-----MKLT RR QALTA-----FGSAGVVG MAGC LGGGNDDEL	A,B,C	T	RR
NP3954A	-----MKDIS RRR FVLGT-----GATVAAAT LAGC NGNGNGNGNG	A,B,C	T	RR
NP4140A	-----MTRHIN RR NVLKA-----AGAASMVA LAGC NGNGNGNGNG	A,B,C	T	RR
NP4216A	-----MPS RR ELLRL--GGATLAAAASAAG IAGC SEEAFFEGPAD	A,B,C	T	RR
NP4616A	-----MNPS RR TVLKS-----GVGVAAAAA LAGC NGNGNGNGEE	A,B,C	T	RR
NP4692A	-----MAPP RRR QILSI-----GGLGLAAA IAGC GDTAPDDDTF	A,B,C	T	RR
NP4700A	-----MASDTT RR QFLIA-----ASAAATFTV VAGC SEPEEDPPGY	A,B,C	T	RR
NP4736A	-----MIS RR EFVAS-----VTATGAVV VAGC GTDEDAAPPEE	A,B,C	T	RR
NP4744A	-----MGTHT RRR FVRG-----TAAVAATGA LAGC NGNGNGNENG	A,B,C	T	RR
NP4750A	-----MRWT RRR VVAA-----IGAATTAA VAGC SDTDEDAENG	A,B,C	T	RR
NP5018A	-----MKLH RR TALRL-----AGVGVGTA VAGC LDPETDNGET	A,B,C	T	RR
NP5270A	-----M RRR TLLVS-----AAALPA VAGC SNVLPTGTND	A,B,C	T	RR
NP6072A	-----MN RR AALTV-----VTTATASA LAGC GGVDIGTSGA	A,B,C	T	RR
NP6086A	-----M RRR ALLAA-----TGTACGV LAGC LDIDSRFSGS	A,B,C	T	RR

NP6254A	-----ME RR AFLMA-----TGGAAT IAGC TTGGNTEEN	A,B,C	T	RR
NP6272A	-----MN RR AIIVA-----GGVFF LSGC GERATDMSNE	A,B,C	T	RR
NP0250A	-----MELS RR SFLAT-----SAVATAG FAGC TGDSDPDPP	A,B,-	T	RR
NP0254A	-----MPRFD RR DYLR-----AGLAGAAA LAGC TDVFDDNGET	A,B,-	T	RR
NP0528A	-----M RRR TVLAL-----AGAAGTAG LAGC LDDVLGSENG	A,B,-	T	RR
NP0544A	-----MVDTSNLD RR SLLKG-----VGVAGIAG LAGC TGNGDGNGNG	-,B,C	T	RR
NP0758A	-----MSDEGVD RR TFLQY--GGTAAAAAASVS VAGC NGNGDGNGNG	-,B,C	T	RR
NP0950A	-----MPT RRR VLAV-----AAAATA TAGC TALGDGENDE	A,B,-	T	RR
NP1070A	-----MRS RR TVLGA-----AAVLASG FAGC FSTEAPDDQE	A,B,-	T	RR
NP1480A	-----M RRR QVLAA-----VPVA LAGC VAAPEPGPPT	A,B,-	T	RR
NP1598A	-----MTQNTNPN RR TFLKA-----AGAGGAFL LAGC VGNEGEPTDE	-,B,C	T	RR
NP1654A	-----MN RR QFLAA-----GALVA AAGC LGPDDAEPPA	A,B,-	T	RR
NP1680A	-----MAT RRR FMCM-----GSTTVGLVA LSGC LGAEGAEVD	A,B,-	T	RR
NP1858A	-----MVS RR QLLAA-----GGLASAG LAGC LDSLSDGSSP	A,B,-	T	RR
NP2396A	-----METQVS RRR LLQA-----GGVGAAAS FAGC GYMDTEDGGA	A,B,-	T	RR
NP2622A	-----MDPQSSSQSVRMS RR SVLGA-----VGAGATAA LAGC SGGQDGDPLR	-,B,C	T	RR
NP2694A	-----M RRR ELIAA-----APLVA TAGC TIGGEPPDGS	A,B,-	T	RR
NP2862A	-----MNLS RR GLLTA-----GAGAATAA VAGC VDAAAPGQES	A,-,C	T	RR
NP2890A	-----MK RR DVLAG-----VGATALLG TAGC LGVAGLDEHE	A,B,-	T	RR
NP3030A	-----MKFRERDGLS RR EYVRA-----MVAAGGAAG LAAC LEAFDDGDTG	A,B,-	T	RR
NP3732A	-----MPPE RR DVLRL-----GTVGLGGL VAGC LDNGGADFGS	A,B,-	T	RR
NP3968A	-----MELS RR DALRA-----GGGLLAAAA LSGC VEERVTRRET	A,B,-	T	RR
NP4332A	-----MMPSIS RRR LLVG-----GAAALGSA LAGC PSPTPGGALE	A,B,-	T	RR
NP4786A	-----MN RR SFVAG-----AFGGAGIV TAGC IDIDSEDWEM	A,B,-	T	RR
NP5000A	-----MSQQRQTDGNDGRFTG RR AFIVG-----AAATGVAA FAGC TDNGNGDGNG	A,-,C	T	RR
NP5286A	-----MSSRLVS RRR AVAV-----AATVA VAGC LTEAGRRCRG	A,B,-	T	RR
NP6022A	-----MSLPPTAS RRR MLAA-----AGTALATFS LAGC SDESDDDPE	-,B,C	T	RR
NP6104A	-----MAHTPSDRVS RR SVLAT-----TGAAAAFG LAGC LGGGGGDGLS	-,B,C	T	RR

rrnAC0160	-----MMTERGIS	RR	EFKS-----	AVAIGGTAA	LAAC	LDRGSGTVPK	A,B,C	-	RR
rrnAC0236	-----MLLE	RR	HLSLA-----	LVVLLIA	SAGC	SGLFGSETGT	A,B,C	-	RR
rrnAC0863	-----MK	RR	HLLLV-----	AVLALVA	LSGC	TGFFGSEED	A,B,C	-	RR
rrnAC2237	-----M	RR	PFALV-----	ILCAVALL	LAGC	QAPSVSPDTE	A,B,C	-	RR
pNG7056	-----MRCS	RR	HALRL-----	IGASGVITA	TAGC	LNPGSLDNYA	A,B,-	-	RR
rrnAC0311	-----MY	RRR	VLAL-----	CGLAII	GAGC	QGETADTETV	A,B,-	-	RR
rrnAC1046	-----M	RR	LVLAV-----	CLVSF	LAGC	GAFMTDSPPL	A,B,-	-	RR
rrnAC1739	-----MGDLS	RR	GFGAS-----	VLAAL	SAGC	LGSRPDQESE	A,B,-	-	RR
rrnAC2271	-----M	RRR	HFVQT-----	LGVSAVVG	SAGC	AEQSDDTTSA	A,B,-	-	RR
rrnAC2940	-----M	RR	GVAIA-----	VVCLCLL	SAGC	TGLFGDNAAA	A,B,-	-	RR
OE3190F	-----M	RR	QLAAL-----	LVVALVA	VAGC	AGGSAPATDD	A,B,C	-	RR
OE4563F	-----MA	RR	LLAVA-----	VVCLVV	LAGC	QGGMSGDATT	A,B,C	-	RR
OE6028R	-----MSL	RR	LLAVF-----	AVVGMVV	IAGC	AGGIDNGEPA	A,B,C	-	RR
OE5030R	-----MP	RR	VLLRS-----	IGVCSAVG	IAGC	LSQGEARSIT	A,B,-	-	RR
HVO_1806	-----MN	RR	LAAVF-----	SAFLLV	VAGC	AAPVADPSAA	A,B,C	-	RR
HVO_1926	-----MQ	RR	TIAPI-----	FLVGLVL	LAGC	LSAPLQTTAD	A,B,C	-	RR
HVO_2145	-----MTRDTNHT	RRR	FTAL-----	TATAALSTA	LAGC	SGSGGDAANA	A,B,C	-	RR
HVO_1176	-----MN	RR	LLVGI-----	AALALLLV	TAGC	LGGTSSVSND	A,B,-	-	RR
HVO_1477	-----MV	RR	ATATL-----	VVVVLAV	LAGC	LGGGGAGAAT	A,B,-	-	RR
HVO_1673	-----MSS	RR	VVAVL-----	ALAALVL	TSGC	IGFLTGEETL	A,B,-	-	RR
HVO_1802	-----MTV	RRR	SLGM--RGSTLLVAVLVV	LAGC	AAPVSPGTDG	A,B,-	-	RR	
HQ1059A	-----MS	RR	ISRAS-----	IALSLLIV	LAGC	SGGGSFLNPN	A,B,C	-	RR
HQ2489A	-----MN	RR	LLAV-----	CALAFLGV	LSGC	LGIGTGPIPA	A,B,C	-	RR
HQ3375A	-----MNVSQ	RR	IVMLG-----	IALLVV	FSGC	AEVNDISIAPT	A,B,C	-	RR
HQ1196A	-----MI	RR	QILTK-----	CAVALSVG	LVGC	SGGGGGGSTD	A,B,-	-	RR
HQ2519A	-----MI	RRR	FISA-----	IVAGIII	IGGC	TGPNDSPNTA	A,B,-	-	RR
Nmag_0702	-----MNAKEIMN	RR	HVLSS-----	IGTTTGTL	LAGC	LTDDSGEPMA	A,B,C	-	RR
Nmag_1399	-----MY	RR	LLLSS-----	ISLVA	VSGC	TSNSDKEDGT	A,B,C	-	RR

Nmag_2088	-----MY	RRR	LLAA-----	AGLTTAV	VAGC	LTSDGTDGDG	A,B,C	-	RR
Nmag_2424	-----MN	RR	VYLAA-----	VGTSLSAS	LAGC	SSVMSVFDDE	A,B,C	-	RR
Nmag_2835	-----MYVT	RR	LVCVA-----	ILL	TAGC	VGSDDEGLDD	A,B,C	-	RR
Nmag_3079	-----MK	RR	HILTT-----	IGASLSFA	TAGC	LQGGSSNNEG	A,B,C	-	RR
Nmag_0572	-----MK	RR	LVLAT-----	AGATL	VSGC	SSYLRAPSNS	A,B,-	-	RR
Nmag_1805	-----MVS	RR	HLLSS-----	LGCAA	LAGC	TAVLPYDGTQ	A,B,-	-	RR
Nmag_2536	-----MSVP	RR	MMGAA-----	LLGV	VAGC	LSIGPGAENN	A,B,-	-	RR
Nmag_2731	-----MID	RR	TSLVA-----	VLGSILA	ISGC	LERISNGDTE	A,B,-	-	RR
Nmag_3155	-----MN	RR	LVFGS-----	LAVVLLIG	LAGC	TMFFTGISDD	A,B,-	-	RR
Nmag_3710	-----MN	RR	VCLRS-----	IAASSVVT	TAGC	LESLSQENDE	A,B,-	-	RR
Nmag_3769	-----MH	RR	VYLST-----	LSAAGIGS	LSGC	LDILATDSES	A,B,-	-	RR
NP3728A	-----M	RRR	VLLSL-----	VSGTAAA	LAGC	ADGMEEANDD	A,B,C	-	RR
NP4392A	-----MK	RR	YYLGT-----	IAAAA	LAGC	SELQPEEAPE	A,B,C	-	RR
NP6066A	-----MPS	RR	YILAC-----	VGAASIA	GAGC	TDLSDSNGRP	A,B,C	-	RR
NP1172A	-----MD	RR	LLAAT-----	ALAAVLL	SAGC	TVGYQPAADA	A,B,-	-	RR
NP4102A	-----MN	RR	LLAAV-----	AVFVLFG	LAGC	TTIFGADVDD	A,B,-	-	RR
NP4728A	-----MSSHPRQNESKGVS	RR	TFALL-----	AGSAVTAG	LAGC	TDDPMENGDA	A,B,-	-	RR
NP6234A	-----MQ	RR	KFSTT-----	TGSALSIL	FAGC	LGGTDVDPNE	A,B,-	-	RR
rrnAC0370	-----MDSGRNGGGPSVF	RR	DLLRS-----	IGAAGLAG	LAGC	GGSEGVTDGD	A,B,C	-	RR
OE3575R	-----MRNDDCCS	RR	QFGTT-----	LGGIGVATM	IAGC	SAFGLPSKKP	A,B,-	-	RR
HVO_B0280	-----MRETLT	RR	QFGVG-----	VAVATVA	LAGC	TDTGGGDGPV	A,B,C	-	RR
NP4850A	-----MDE-RR-CT	RR	QVGAG-----	VIGGLSVL	VAGC	LGNGDGNSSH	A,B,C	-	RR
rrnAC1401	-----M	HR	IVPAI-----	GLAALVV	LSGC	VTATVDSTVA	A,B,C	-	-
rrnAC2054	-----MT	TR	LLTVL-----	VVSLLV	LAGC	LGGGPAVGDG	A,B,C	-	-
rrnAC2239	-----M	RK	ELLIA-----	LTVV	LAGC	TVPSFGGSDH	A,B,C	-	-
rrnAC2345	-----MTA	VR	PLVLV-----	AIAVLVS	LAGC	GALFGSGGEA	A,B,C	-	-
rrnB0030	-----MYRFARNLCS	LR	GLARV-----	VVVVMLVT	ASGC	SAIGSLSEN	A,B,C	-	-
rrnAC0024	-----M	RW	LSTAA-----	VVVVLL	TAGC	NAFVGADTAA	A,B,-	-	-

rrnAC0808	-----MASR	IR	VLAVV-----	GLLL	LAGC	TGMGGSGDAG	A,B,-	-	-
rrnAC1293	-----M	RK	GILTL-----	LVGVLVV	SSGC	TGLITGETVA	A,B,-	-	-
rrnAC2079	-----MT	KR	KTIFS-----	SVAIALLLII	SGGC	SGFVGGGEPV	A,B,-	-	-
rrnAC2645	-----MVR	PR	VESLA-----	VAALLV	LAGC	GGFVANGVDS	A,B,-	-	-
rrnAC2720	-----M	WR	VTLAV-----	GIAL	IAGC	SSFFPTSPTA	A,B,-	-	-
rrnAC3140	-----M	RW	GVFGV-----	VVVLVV	ATGC	SGFAGSPSQS	A,B,-	-	-
rrnAC3358	-----MA	GR	IAVLL-----	VLLL	FAGC	GAFGGAERQT	A,B,-	-	-
rrnAC3416	-----M	TR	AVVAI-----	VTLALV	LAGC	SGFVQQDSPE	A,B,-	-	-
OE3264F	-----MR	PR	IVLIA-----	ALVVSSIA	LAGC	SGTQSGTPTA	A,B,C	-	-
OE2121F	-----M	RA	LWVAL-----	AVAALAV	TAGC	AGFGGPQSAA	A,B,-	-	-
OE2791R	-----MVRDLHV	PR	TALLA-----	VGLAVLLV	AAGC	TGMPGGSSAD	A,B,-	-	-
OE3655R	-----M	VR	SATIP-----	LVLIALLA	AAGC	LGSPIMEPVR	A,B,-	-	-
HVO_0494	-----MYS	NR	IPVLL-----	IAVLVL	LAGC	AGGADVAPAA	A,B,C	-	-
HVO_0807	-----M	RV	SVLLA-----	AALVL	STGC	LGGGSGTARL	A,B,C	-	-
HVO_1030	-----M	KR	TGLAT-----	VLLALMVV	LAGC	AGGAGTVTET	A,B,C	-	-
HVO_1580	-----MSPAA	DR	GIAPL-----	ALALVLLVV	LSGC	TSSSPSPPVV	A,B,C	-	-
HVO_1807	-----MAR	FR	ALPLA-----	ALAALAV	LSGC	VGVPADAPG	A,B,C	-	-
HVO_2535	-----MQPTA	AR	VLLAA-----	LMVL	LAGC	GGGVGGDATT	A,B,C	-	-
HVO_1609	-----MD	NR	LKLLS-----	VALLVV	LAGC	TGGAADGGAG	A,B,-	-	-
HVO_1808	-----MRTTG	LR	AVFAA-----	VLLV	LAGC	AAPTAAPGGD	A,B,-	-	-
HQ1800A	-----M	AR	TPIIV-----	AGVVFLLM	IAGC	SAPTAPGPDD	A,B,C	-	-
Nmag_2608	-----M	RQ	LAALL-----	LVALLV	SAGC	SAFDSSPDGD	A,B,C	-	-
Nmag_4102	-----M	KR	LLLTV-----	LVAAMLV	LAGC	ADGAGTDTDE	A,B,C	-	-
NP5284A	-----M	RI	NVAAF-----	AVLAVVV	TAGC	AGALLGEDLD	A,B,-	-	-
OE3125R	-----M	PK	YSTGG-----	AGSGGG	GQAC	ELCGSTADSL	A,B,-	-	-
HQ1883A	-----MT	TK	EESTN-KLIEQALTATTIA	VIGC	STSPGKPAHD	A,-,C	-	-	-
Nmag_2200	-----MTKRQGSNSQQVGRGLR	TR	VRSLP---	LGLVAVLFLVV	LAGC	TLPASPDQFG	-,B,C	-	-
NP4668A	-----M	KL	NVVGSG-----	GYVGTT	LAAC	LAEMGHNVSA	A,B,-	-	-