Original Alignment		Better Alignment	
RMGIQK EK--QD	AGAATGGGAATACAGAAA GAAAAA------CAGGAC	RMGIQK --EKQD	AGAATGGGAATACAGAAA ------GAAAAACAGGAC
ARYSSA FR--SA	GCTCGGTACAGCTCAGCA TTCCGC------TCAGCA	ARYSSA --FRSA	GCTCGGTACAGCTCAGCA ------TTCCGCTCAGCA
MEVGA GS-RA	ATGGAAGTTGGGGCC GGAAGT---CGGGCC	MEVGA -GSRA	ATGGAAGTTGGGGCC ---GGAAGTCGGGCC
KLLWL RL-WL	AAGCTCCTTTGGCTG CGCCTA---TGGTTG	KLLWL -RLWL	AAGCTCCTTTGGCTG ---CGCCTATGGTTG
MIKES TL-ES	CTGATAAAGGAGTCT ACACTG---GAGTCT	MIKES -TLES	CTGATAAAGGAGTCT ---ACACTGGAGTCT
RSNAA NT-AS	CGAAGTAATGCTGCC AATACT---GCTTCC	RSNAA -NTAS	CGAAGTAATGCTGCC ---AATACTGCTTCC
VSIGEK IV--EE	GTAAGCATTGGTGAGAAA ATTGTT------GAAGAA	VSIGEK --IVEE	GTAAGCATTGGTGAGAAA ------ATTGTTGAAGAA
SAGTSD EP--TS	TCTGCGGAACCAGCGAC GAACCC------ACCAGC	SAGTSD --EPTS	TCTGCGGGAACCAGCGAC ------GAACCCACCAGC
SQSFV PK-FV	AGCCAAAGTTTTGTC CCAAAG---TTTGTT	SQSFV -PKFV	AGCCAAAGTTTTGTC ---CCAAAGTTTGTT
TPYHFT YP--FT	ACACCCTACCATTTTACT TACCCT------TTTACT	TPYHFT --YPFT	ACACCCTACCATTTTACT ------TACCCTTTTACT
RLQSG SL-SG	AGGTTACAATCCGGT TCCCTT---TCAGGT	RLQSG -SLSG	AGGTTACAATCCGGT ---TCCCTTTCAGGT
FIPERCQL TL----WL	TTCATACCTGAAAGATGTCAGTTG ACACTT----------TGGTTA	FIPERCQL ----TLWL	TTCATACCTGAAAGATGTCAGTTG ----------ACACTTTGGTTA
ESTIL RD-VL	GAAAGTACAATTCTC AGAGAC---GTTCTC	ESTIL -RDVL	GAAAGTACAATTCTC ---AGAGACGTTCTC
HRLQW TD-TM	CACAGATTACAATGG ACAGAT---ACAATG	HRLQW -TDTM	CACAGATTACAATGG ---ACAGATACAATG
SAAAPAA VP---SS	AGCGCCGCGGCCCCGGCGGCG GTGCCT---------TCCAGT	SAAAPAA ---VPSS	AGCGCCGCGGCCCCGGCGGCG ---------GTGCCTTCCAGT
KLDTE PA-AE	AAGCTGGACACGGAA CCGGCC---GCGGAA	KLDTE -PAAE	AAGCTGGACACGGAA ---CCGGCCGCGGAA
FAEHI DI-LI	TTTGCTGAGCACATC GACATC---CTCATT	FAEHI -DILI	TTTGCTGAGCACATC ---GACATCCTCATT
QNIEK RT-QK	CAGAATATCGAGAAG AGAACA---CAGAAG	QNIEK -RTQK	CAGAATATCGAGAAG ---AGAACACAGAAG
HFDQNV VL--AV	CATTTTGATCAGAATGTT GTGCTG------GCTGTG	HFDQNV --VLAV	CATTTTGATCAGAATGTT ------GTGCTGGCTGTG
ASTYA IK-HA	GCTAGTACGTATGCT ATTAAA---CATGCC	ASTYA -IKHA	GCTAGTACGTATGCT ---ATTAAACATGCC
RSYGY SS-GY	CGAAGCTATGGCTAC AGCTCT---GGCTAC	RSYGY -SSGY	CGAAGCTATGGCTAC ---AGCTCTGGCTAC
NALSVTS SA---TS	AATGCTCTTTCTGTAACCAGT TCTGCG---------ACCAGT	NALSVTS ---SATS	AATGCTCTTTCTGTAACCAGT ---------TCTGCGACCAGT
SIPSD KV-SD	TCCATACCATCAGAT AAAGTT---TCAGAT	SIPSD -KVSD	TCCATACCATCAGAT ---AAAGTTTCAGAT
INTEVPDV DS----DV	ATCAACACAGAAGTCCCTGATGTC GACTCT------------GATGTC	INTEVPDV ----DSDV	ATCAACACAGAAGTCCCTGATGTC ------------GACTCTGATGTC
TDSHT GN-HT	ACTGACAGTCATACA GGCAAC---CATACA	TDSHT -GNHT	ACTGACAGTCATACA ---GGCAACCATACA
SEGEH AR-EH	AGTGAGGGGGAGCAT GCGAGG---GAGCAC	SEGEH -AREH	AGTGAGGGGAGCAT ---GCGAGGGAGCAC
SSTHS NA-HC	TCAAGTACGCACAGT AACGCA---CACTGT	SSTHS -NAHC	TCAAGTACGCACAGT ---AACGCACACTGT
TITDVEAV VI----AA	ACTATTACAGATGTGGAAGCTGTT GTGATC------------GCTGCT	TITDVEAV ----VIAA	ACTATTACAGATGTGGAAGCTGTT ------------GTGATCGCTGCT
LLPDT	CTTTTACCTGACACA	LLPDT	CTTTTACCTGACACA

LL-DT	TTACTT---GACACA	-LLDT	---TTACTTGACACA
AALTGF LP--GF	GCGGCACTGACAGGCTTT CTGCCA------GGCTTT	AALTGF --LPGF	GCGGCACTGACAGGCTTT ------CTGCCAGGCTTT
SEKLEQQD DE----DD	TCGGAGAAGTTGGAACAGCAAGAT GATGAG----------GACGAT	SEKLEQQD ----DEDD	TCGGAGAAGTTGGAACAGCAAGAT ----------GATGAGGACGAT
RAHASPRT LQ----RT	AGAGCACACGCTTCGCCAAGGACA TTGCAG----------AGGACA	RAHASPRT ----LQRT	AGAGCACACGCTTCGCCAAGGACA ----------TTGCAGAGGACA
TLFVQ RC-VQ	ACGCTGTTTGTTCAA CGCTGT---GTCCAA	TLFVQ -RCVQ	ACGCTGTTTGTTCAA ---CGCTGTGTCCAA
PEVIL EE-IL	CCTGAAGTGATTCTA GAAGAG---ATTCTA	PEVIL -EEIL	CCTGAAGTGATTCTA ---GAAGAGATTCTA
NPEYDY VS--DY	AATCCCGAATATGATTAT GTCAGT------GATTAT	NPEYDY --VSDY	AATCCCGAATATGATTAT ------GTCAGTGATTAT
MMIDP IL-DP	TTGATGATTGACCCG ATTCTT---GACCCG	MMIDP -ILDP	TTGATGATTGACCCG ---ATTCTTGACCCG
TSTVH LA-VH	ACCTCGACTGTCCAT TTGGCT---GTCCAT	TSTVH -LAVH	ACCTCGACTGTCCAT ---TTGGCTGTCCAT
TAPPHHR RG---HD	ACCGCGCCCCGCACCACAGA CGGGGC---------CATGAC	TAPPHHR ---RGHD	ACCGCGCCCCGCACCACAGA ---------CGGGGCCATGAC
SQPPS QQ-PS	TCCCAGCCGCCTTCA CAGCAG---CCTTCA	SQPPS -QQPS	TCCCAGCCGCCTTCA ---CAGCAGCCTTCA
GSVPL SA-PF	GGCTCAGTGCCACTG TCTGCA---CCTTTT	GSVPL -SAPF	GGCTCAGTGCCACTG ---TCTGCACCTTTT
SNPGI IQ-NL	TCTAACCCTGGGATT ATACAG---AACTTA	SNPGI -IQNL	TCTAACCCTGGGATT ---ATACAGAACTTA
SSTTE NN-TE	TCCAGTACCACAGAG AATAAC---ACCGAG	SSTTE -NNTE	TCCAGTACCACAGAG ---AATAACACCGAG
TSGET LE-ET	ACTTCAGGAGAGACT TTGGAA---GAGACT	TSGET -LEET	ACTTCAGGAGAGACT ---TTGGAAGAGACT
CEGPI AR-PI	TGCGAGGGTCCCATC GCGAGG---CCCATC	CEGPI -ARPI	TGCGAGGGTCCCATC ---GCGAGGCCCATC
PLGVGGA EE---PS	CCCCTCGGGGTGGGCGGGGCT GAAGAA---------CCGTCA	PLGVGGA ---EEPS	CCCCTCGGGGTGGGCGGGGCT ---------GAAGAACCGTCA
GSPNR SS-SR	GGCAGCCCCAACAGG AGCTCC---AGCAGG	GSPNR -SSSR	GGCAGCCCCAACAGG ---AGCTCCAGCAGG
SLGVSK DL--SK	TCGTTAGGTGTTTCCAAG GACCTT------TCCAAG	SLGVSK --DLSK	TCGTTAGGTGTTTCCAAG ------GACCTTTCCAAG
SSGRN SD-RN	AGCTCTGGCAGGAAC TCTGAC---AGGAAC	SSGRN -SDRN	AGCTCTGGCAGGAAC ---TCTGACAGGAAC
EVLRDPI SI---AI	GAAGTATTAAGAGATCCAATT AGCATT---------GCAATC	EVLRDPI ---SIAI	GAAGTATTAAGAGATCCAATT ---------AGCATTGCAATC
NSPLCCPE SD----PE	AACTCCCCGCTCTGCTGCCCTGAA TCAGAC----------CCTGAA	NSPLCCPE ----SDPE	AACTCCCCGCTCTGCTGCCCTGAA ----------TCAGACCCTGAA
SSGDL SE-DL	AGCTCTGGGGACTTG TCTGAG---GACTTA	SSGDL -SEDL	AGCTCTGGGGACTTG ---TCTGAGGACTTA
GFWTG SP-SR	GGGTTCTGGACAGGT TCCCCA---AGCCGT	GFWTG -SPSR	GGGTTCTGGACAGGT ---TCCCCAAGCCGT
PGEQEELR GA----LK	CCTGGTGAGCAGGAGGAACTGCGG GGAGCA----------TTGAAG	PGEQEELR ----GALK	CCTGGTGAGCAGGAGGAACTGCGG ----------GGAGCATTGAAG
DHCVL PY-VL	GATCACTGTGTGCTG CCCTAT---GTGCTA	DHCVL -PYVL	GATCACTGTGTGCTG ---CCCTATGTGCTA
SGLPS EP-PP	AGTGGTCTACCAAGC GAACCA---CCACCC	SGLPS -EPPP	AGTGGTCTACCAAGC ---GAACCACCACCC
RARPTR RT--MR	AGAGCTCGCCCAACGAGA CGCACA------ATGAGA	RARPTR --RTMR	AGAGCTCGCCCAACGAGA ------CGCACAATGAGA
SLDAR SI-AR	AGCTTGGATGCCCGT TCGATT---GCCCGT	SLDAR -SIAR	AGCTTGGATGCCCGT ---TCGATTGCCCGT
RGVPP VS-PP	CGTGGCGTGCCTCCG GTCTCG---CCCCCA	RGVPP -VSPP	CGTGGCGTGCCTCCG ---GTCTCGCCCCCA

DIGKV MV-EV	GACATAGGCAAGGTG ATGGTT---GAAGTA	DIGKV -MVEV	GACATAGGCAAGGTG ---ATGGTTGAAGTA
SALER AS-ER	TCAGCCTTGGAAAGA GCCTCG---GAGAGA	SALER -ASER	TCAGCCTTGGAAAGA ---GCCTCGGAGAGA
VIDLP NY-IP	GTAATCGACCTTCCA AACTAC---ATTCCA	VIDLP -NYIP	GTAATCGACCTTCCA ---AACTACATTCCA
LLAPLI AL--LI	CTCCTGGCTCCACTGATC GCTCTA------CTGATC	LLAPLI --ALLI	CTCCTGGCTCCACTGATC ------GCTCTACTGATC
SSPQG SS-QG	TCGAGCCCCCAGGGA AGTTCC---CAGGGG	SSPQG -SSQG	TCGAGCCCCCAGGGA ---AGTTCCCAGGGG
YVFRT GS-RS	TATGTTTTTAGGACC GGCTCT---CGGAGC	YVFRT -GSRS	TATGTTTTTAGGACC ---GGCTCTCGGAGC
TLLQEP LL--ES	ACACTGCTGCAGGAGCCT CTGCTA------GAGTCT	TLLQEP --LLES	ACACTGCTGCAGGAGCCT ------CTGCTAGAGTCT
APHLSE HP--SE	GCCCCACACCTCTCAGAA CACCCC------TCAGAA	APHLSE --HPSE	GCCCCACACCTCTCAGAA ------CACCCTCAGAA
SKFSNDD SR---DD	TCCAAGTTCAGTAATGATGAC AGCCGT---------GATGAC	SKFSNDD ---SRDD	TCCAAGTTCAGTAATGATGAC ---------AGCCGTGATGAC
SRYLY ME-VF	TCCAGATACCTGTAC ATGGAG---GTTTTC	SRYLY -MEVF	TCCAGATACCTGTAC ---ATGGAGGTTTTC
FKMNHK KK--QK	TTCAAAATGAACCATAAA AAGAAG------CAGAAG	FKMNHK --KKQK	TTCAAAATGAACCATAAA ------AAGAAGCAGAAG
CQLLV LE-LV	TGCCAGCTGTTGGTC CTGGAG---TTGGTC	CQLLV -LELV	TGCCAGCTGTTGGTC ---CTGGAGTTGGTC
EALPGL PL--GL	GAGGCCCTGCCAGGTCTG CCGCTA------GGTCTG	EALPGL --PLGL	GAGGCCCTGCCAGGTCTG ------CCGCTAGGTCTG

Original Alignment		Better Alignment	
MPLLRP LA--TR	CTGCCGCTCCTGAGGCCT CTGGCA------ACCCGG	MPLLRP LATR--	CTGCCGCTCCTGAGGCCT CTGGCAACCCGG------
RGPGG RG-SG	AGGGGACCTGGGGGT AGGGGG---TCTGGG	RGPGG RGSG-	AGGGGACCTGGGGGT AGGGGGTCTGGG---
TSTPTPTP TS----IP	ACTTCAACACCCACTCCAACTCCA ACTTCA----------ATACCC	TSTPTPTP TSIP----	ACTTCAACACCCACTCCAACTCCA ACTTCAATACCC----------
PYSSSSSS PY----SS	CCTTATTCTTCCTCTTCTTCCTCT CCTTAT----------TCTTCC	PYSSSSSS PYSS----	CCTTATTCTTCCTCTTCTTCCTCT CCTTATTCTTCC----------
CSNITQ CS--SS	TGCTCCAATATCACTCAG TGCTCC------AGCTCC	CSNITQ CSSS--	TGCTCCAATATCACTCAG TGCTCCAGCTCC------
MFGGK ML-GR	ATGTTTGGTGGGAAA ATGTTA---GGCCGG	MFGGK MLGR-	ATGTTTGGTGGGAAA ATGTTAGGCCGG---
CGLED CE-HG	TGTGGACTTGAAGAC TGTGAA---CATGGA	CGLED CEHG-	TGTGGACTTGAAGAC TGTGAACATGGA---
GEEAEA GE--EA	GGAGAAGAAGCCGAAGCA GGAGAA------GAAGCC	GEEAEA GEEA--	GGAGAAGAAGCCGAAGCA GGAGAAGAAGCC------
DDEEE DD-EE	GACGACGAGGAGGAA GACGAC---GAGGAG	DDEEE DDEE-	GACGACGAGGAGGAA GACGACGAGGAG---
SPSSS SP-SS	TCCCCTAGTAGTAGC TCCCCT---AGTAGT	SPSSS SPSS-	TCCCCTAGTAGTAGC TCCCCTAGTAGT---
VGVLF HG-WR	GTTGGCGTGCTTTTC CATGGT---TGGCGT	VGVLF HGWR-	GTTGGCGTGCTTTTC CATGGTTGGCGT---
MNEKDEK MN---EK	ATGAATGAAAAGGATGAGAAA ATGAAT---------GAAAAG	MNEKDEK MNEK---	ATGAATGAAAAGGATGAGAAA ATGAATGAAAAG---------
GSFSS GR-DF	GGAAGTTTTTCCTCA GGAAGG---GATTTC	GSFSS GRDF-	GGAAGTTTTTCCTCA GGAAGGGATTTC---
TRAAA TR-TA	ACCAGGGCTGCTGCC ACCAGG---ACTGCT	TRAAA TRTA-	ACCAGGGCTGCTGCC ACCAGGACTGCT---
ESGEK	GAGTCCGGCGAGAAA	ESGEK	GAGTCCGGCGAGAAA

RS-RL	AGGAGT---CGACTG	RSRL-	AGGAGTCGACTG---
TEGPA GE-VL	ACAGAAGGCCCGGCA GGGGAA---GTCCTG	TEGPA GEVL-	ACAGAAGGCCCGGCA GGGGAAGTCCTG---
PGEDSRD PG---KD	CCCGGAGAGGACAGCCGGGAT CCTGGA---------AAGGAC	PGEDSRD PGKD---	CCCGGAGAGGACAGCCGGGAT CCTGGAAAGGAC---------
VEGEGIVT EK----AG	GTGGAGGGTGAAGGAATTGTTACT GAGAAG-----------GCTGGA	VEGEGIVT EKAG----	GTGGAGGGTGAAGGAATTGTTACT GAGAAGGCTGGA-----------
EKEEE EK-EE	GAGAAGGAAGAAGAG GAGAAG---GAGGAA	EKEEE EKEE-	GAGAAGGAAGAAGAG GAGAAGGAGGAA---
GCGGG GC-GS	GGCTGCGGCGGCGGT GGCTGC---GGCAGC	GCGGG GCGS-	GGCTGCGGCGGCGGT GGCTGCGGCAGC---
ALDDA AL-DV	GCCCTCGACGATGCA GCCCTT---GACGTT	ALDDA ALDV-	GCCCTCGACGATGCA GCCCTTGACGTT---
YATTQ YA-VR	TATGCTACTACGCAA TATGCT---GTTAGG	YATTQ YAVR-	TATGCTACTACGCAA TATGCTGTTAGG---
AAVEVS AA--VV	GCGGCCGTGGAGGTTTCT GCGGCG------GTGGTG	AAVEVS AAVV--	GCGGCCGTGGAGGTTTCT GCGGCGGTGGTG------
SELSGEQL SD----QS	TCAGAGCTGTCAGGGGAACAGCTG TCGGAC-----------CAGTCA	SELSGEQL SDQS----	TCAGAGCTGTCAGGGGAACAGCTG TCGGACCAGTCA-----------
AQSSSS AQ--TS	GCCCAGTCCTCTTCCTCC GCCCAG------ACCTCT	AQSSSS AQTS--	GCCCAGTCCTCTTCCTCC GCCCAGACCTCT------
ISLGD KS-KR	ATAAGTTTAGGGGAC AAAAGT---AAAAGG	ISLGD KSKR-	ATAAGTTTAGGGGAC AAAAGTAAAAGG---
RATTT RA-TP	AGAGCAACTACTACC AGAGCA---ACTCCT	RATTT RATP-	AGAGCAACTACTACC AGAGCAACTCCT---
RSSRSR RS--SR	CGTTCCTCCAGAAGCCGC CGTTCC------TCCAGA	RSSRSR RSSR--	CGTTCCTCCAGAAGCCGC CGTTCCTCCAGA------
REDCM RE-AG	AGGGAAGATTGTATG AGGGAA---GCTGGT	REDCM REAG-	AGGGAAGATTGTATG AGGGAAGCTGGT---
SATTTTT SA---TT	TCTGCCACCACCACCACTACT TCTGCC---------ACCACC	SATTTTT SATT---	TCTGCCACCACCACCACTACT TCTGCCACCACC---------
PPSSS PP-SS	CCCCCAAGCAGCAGT CCCCCG---AGCAGC	PPSSS PPSS-	CCCCCAAGCAGCAGT CCCCCGAGCAGC---
PTPPPP PT--PP	CCCACTCCTCCACCGCCT CCTACT------CCTCCA	PTPPPP PTPP--	CCCACTCCTCCACCGCCT CCTACTCCTCCA------
VERSLT AE--QS	GTAGAGCGGTCACTCACC GCAGAG------CAGTCA	VERSLT AEQS--	GTAGAGCGGTCACTCACC GCAGAGCAGTCA------
PLRKRPRR IF----VL	CCGCTCCGCAAGAGGCCCCGCCGA ATTTTT-----------GTGTTG	PLRKRPRR IFVL----	CCGCTCCGCAAGAGGCCCCGCCGA ATTTTTGTGTTG-----------
KTFHFH KS--FH	AAGACTTTCCATTTCCAC AAGTCT------TTCCAT	KTFHFH KSFH--	AAGACTTTCCATTTCCAC AAGTCTTTCCAT------
ALPPP AL-PP	GCGTTGCCGCCGCCA GCGTTG---CCACCG	ALPPP ALPP-	GCGTTGCCGCCGCCA GCGTTGCCACCG---
APTTT TP-TT	GCCCCCACCACAACT ACCCCC---ACCACA	APTTT TPTT-	GCCCCCACCACAACT ACCCCCACCACA---
PATAATPT PA----PA	CCTGCCACAGCCGCTACCCCAACT CCTGCC-----------CCAGCC	PATAATPT PAPA----	CCTGCCACAGCCGCTACCCCAACT CCTGCCCCAGCC-----------
HLDDD HL-DD	CACCTTGATGATGAC CACCTT---GATGAT	HLDDD HLDD-	CACCTTGATGATGAC CACCTTGATGAT---
QPAAA QP-AA	CAGCCGGCGGCGGCA CAGCCA---GCGGCG	QPAAA QPAA-	CAGCCGGCGGCGGCA CAGCCAGCGGCG---
SLGFLPRK TI----RG	TCCTTGGGCTTCCTGCCTCGCAAG ACAATC-----------AGGGGC	SLGFLPRK TIRG----	TCCTTGGGCTTCCTGCCTCGCAAG ACAATCAGGGGC-----------
KFPIETP YF---SY	AAATTTCCAATCGAGACGCCA TATTTT---------TCCTAC	KFPIETP YFSY---	AAATTTCCAATCGAGACGCCA TATTTTTCCTAC---------
SFGEE SF-RE	AGCTTCGGGGAGGAA AGCTTC---AGGGAG	SFGEE SFRE-	AGCTTCGGGGAGGAA AGCTTCAGGGAG---
QRDES QQ-AG	CAACGAGACGAGTCA CAACAG---GCTGGG	QRDES QQAG-	CAACGAGACGAGTCA CAACAGGCTGGG---

AGEEE AG-EE	GCAGGAGAGGAAGAG GCAGGA---GAGGAA	AGEEE AGEE-	GCAGGAGAGGAAGAG GCAGGAGAGGAA---
HGSSSS HG--SS	CATGGCTCCAGCTCTTCT CATGGC------TCCAGC	HGSSSS HGSS--	CATGGCTCCAGCTCTTCT CATGGCTCCAGC------
EAIGSG EA--TG	GAGGCAATAGGGTCGGGA GAGGCA------ACAGGG	EAIGSG EATG--	GAGGCAATAGGGTCGGGA GAGGCAACAGGG------
QAVMS QA-DE	CAGGCTGTGATGAGT CAGGCT---GATGAG	QAVMS QADE-	CAGGCTGTGATGAGT CAGGCTGATGAG---
ESDTA ES-IL	GAATCCGACACGGCA GAATCC---ATCCTG	ESDTA ESIL-	GAATCCGACACGGCA GAATCCATCCTG---
KSKKK KP-KK	AAATCTAAGAAGAAA AAACCT---AAGAAG	KSKKK KPKK-	AAATCTAAGAAGAAA AAACCTAAGAAG---
TTPGTVPA TH----LQ	ACTACCCCAGGGACTGTGCCAGCA ACACAC----------CTCCAG	TTPGTVPA THLQ----	ACTACCCCAGGGACTGTGCCAGCA ACACACCTCCAG----------
QLQQQQQ QL---QQ	CAGCTGCAGCAGCAGCAGCAA CAGTTG---------CAGCAG	QLQQQQQ QLQQ---	CAGCTGCAGCAGCAGCAGCAA CAGTTGCAGCAG---------
PVFPC PV-SL	CCCGTGTTCCCTTGC CCCGTT---TCCCTT	PVFPC PVSL-	CCCGTGTTCCCTTGC CCCGTTTCCCTT---
GLPTQ GL-TA	GGATTGCCAACTCAA GGATTG---ACAGCT	GLPTQ GLTA-	GGATTGCCAACTCAA GGATTGACAGCT---
KPLECG GT--LV	AAACCTCTTGAGTGCGGC GGGACT------CTGGTG	KPLECG GTLV--	AAACCTCTTGAGTGCGGC GGGACTCTGGTG------
LAPPP VA-PP	TTAGCCCCCCACCG GTAGCT---CCCCCA	LAPPP VAPP-	TTAGCCCCCCACCG GTAGCTCCCCCA---
TPKKK IP-KK	ACTCCAAAGAAGAAA ATTCCA---AAGAAG	TPKKK IPKK-	ACTCCAAAGAAGAAA ATTCCAAAGAAG---
PPEEEE PP--EE	CCTCCCGAGGAAGAGGAG CCTCCC------GAGGAA	PPEEEE PPEE--	CCTCCCGAGGAAGAGGAG CCTCCCGAGGAA------
TGTQEATQ TG----TQ	ACCGGGACCCAGGAGGCGACCCAA ACCGGG----------ACCCAG	TGTQEATQ TGTQ----	ACCGGGACCCAGGAGGCGACCCAA ACCGGGACCCAG----------
SSLPP SS-QP	TCTTCCCTGCCTCCA TCTTCC---CAGCCT	SSLPP SSQP-	TCTTCCCTGCCTCCA TCTTCCCAGCCT---
QQPPP PQ-PP	CAGCAGCCGCCGCCA CCGCAG---CCACCG	QQPPP PQPP-	CAGCAGCCGCCGCCA CCGCAGCCACCG---
HTPPP HS-PP	CACACACCGCCGCCC CACTCA---CCACCG	HTPPP HSPP-	CACACACCGCCGCCC CACTCACCACCG---
CWNLSL CW--SL	TGCTGGAACCTGTCTCTA TGCTGG------AGCCTG	CWNLSL CWSL--	TGCTGGAACCTGTCTCTA TGCTGGAGCCTG------
GSGGG GS-GG	GGTAGTGGCGGTGGC GGTAGT---GGCGGT	GSGGG GSGG-	GGTAGTGGCGGTGGC GGTAGTGGCGGT---
EQEEEEE EQ---EE	GAACAGGAGGAGGAGGAGGAA GAACAG---------GAGGAG	EQEEEEE EQEE---	GAACAGGAGGAGGAGGAGGAA GAACAGGAGGAG---------
EEEEENEE EE----EE	GAGGAGGAAGAGGAAAATGAGGAA GAGGAA----------GAAGAG	EEEEENEE EEEE----	GAGGAGGAAGAGGAAAATGAGGAA GAGGAAGAAGAG----------
AEEEDEE AE---EE	GCAGAGGAGGAAGATGAAGAG GCAGAG---------GAGGAA	AEEEDEE AEEE---	GCAGAGGAGGAAGATGAAGAG GCAGAGGAGGAA---------
QRFNS PR-AV	CAGCGGTTCAATAGC CCGAGG---GCGGTT	QRFNS PRAV-	CAGCGGTTCAATAGC CCGAGGGCGGTT---
EQDDD EQ-DD	GAGCAAGACGACGAT GAGCAA---GATGAC	EQDDD EQDD-	GAGCAAGACGACGAT GAGCAAGATGAC---
PGLLL PG-LL	CCAGGGCTACTTCTA CCAGGG---CTCCTT	PGLLL PGLL-	CCAGGGCTACTTCTA CCAGGGCTCCTT---
KDGPGKA KD---EL	AAAGATGGGCCGGGAAGGCT AAAGAT---------GAGCTG	KDGPGKA KDEL---	AAAGATGGGCCGGGAAAGGCT AAAGATGAGCTG---------
ISGPGP IS--GP	ATTTCAGGCCCAGGCCCG ATTTCA------GGCCCA	ISGPGP ISGP--	ATTTCAGGCCCAGGCCCG ATTTCAGGCCCA------
GAESR NV-AN	GGTGCCGAAAGCAGA AATGTG---GCTAAC	GAESR NVAN-	GGTGCCGAAAGCAGA AATGTGGCTAAC---
PDEEE	CCTGATGAAGAAGAG	PDEEE	CCTGATGAAGAAGAG

PD-EE	CCTGAT---GAAGAA	PDEE-	CCTGATGAAGAA---
KQEEE KQ-EK	AAACAAGAAGAAGAG AAACAA---GAAAAA	KQEEE KQEK-	AAACAAGAAGAAGAG AAACAAGAAAAA---
RAGGG RA-GG	CGAGCTGGAGGCGGG CGAGCT---GGAGGC	RAGGG RAGG-	CGAGCTGGAGGCGGG CGAGCTGGAGGC---
KLSTS KL-TT	AAGCTGAGCACAAGC AAGCTG---ACCACA	KLSTS KLTT-	AAGCTGAGCACAAGC AAGCTGACCACA---
HESSS RE-CS	CACGAGAGCAGCAGT CGCGAG---TGCAGC	HESSS RECS-	CACGAGAGCAGCAGT CGCGAGTGCAGC---
ANMIS AS-IR	GCCAATATGATATCC GCCAGT---ATTAGA	ANMIS ASIR-	GCCAATATGATATCC GCCAGTATTAGA---
DWSNS DW-NN	GATTGGAGCAACTCT GATTGG---AACAAC	DWSNS DWNN-	GATTGGAGCAACTCT GATTGGAACAAC---
THRDRD TH--RD	ACACATAGAGATAGAGAC ACACAC------AGAGAT	THRDRD THRD--	ACACATAGAGATAGAGAC ACACACAGAGAT------
MSAAA LS-AA	CTGAGCGCAGCGGCC CTGAGC---GCAGCG	MSAAA LSAA-	CTGAGCGCAGCGGCC CTGAGCGCAGCG---
ETEEE ET-EE	GAGACAGAGGAAGAG GAGACA---GAGGAA	ETEEE ETEE-	GAGACAGAGGAAGAG GAGACAGAGGAA---
YDIAN YD-NT	TACGACATCGCTAAC TATGAC---AACACT	YDIAN YDNT-	TACGACATCGCTAAC TATGACAACACT---
GGGGAGG GG---AG	GGCGGCGGCGGCGCGGGCGGA GGCGGC---------GCGGGC	GGGGAGG GGAG---	GGCGGCGGCGGCGCGGGCGGA GGCGGCGCGGGC---------
PNTPTT PN--AS	CCAAACACGCCAACCACG CCAAAC------GCATCA	PNTPTT PNAS--	CCAAACACGCCAACCACG CCAAACGCATCA------
EKERER EK--ER	GAAAAAGAACGGGAGCGA GAAAAA------GAACGG	EKERER EKER--	GAAAAAGAACGGGAGCGA GAAAAAGAACGG------
SGASAS SG--AS	AGCGGTGCCAGCGCCAGT AGCGGT------GCTAGC	SGASAS SGAS--	AGCGGTGCCAGCGCCAGT AGCGGTGCTAGC------
SKEEE SK-EE	AGCAAAGAGGAAGAG AGCAAA---GAGGAA	SKEEE SKEE-	AGCAAAGAGGAAGAG AGCAAAGAGGAA---
EKEEE EK-EE	GAGAAGGAAGAGGAA GAGAAG---GAAGAG	EKEEE EKEE-	GAGAAGGAAGAGGAA GAGAAGGAAGAG---
GDGGG GD-GG	GGTGACGGCGGCGGG GGCGAT---GGCGGC	GDGGG GDGG-	GGTGACGGCGGCGGG GGCGATGGCGGC---
VGDDD VG-DD	GTGGGGGATGACGAT GTGGGG---GATGAC	VGDDD VGDD-	GTGGGGGATGACGAT GTGGGGGATGAC---
GTAAA GT-AA	GGCACCGCCGCCGCA GGCACC---GCCGCC	GTAAA GTAA-	GGCACCGCCGCCGCA GGCACCGCCGCC---
EGEEE EG-EE	GAAGGGGAGGAGGAA GAAGGG---GAGGAG	EGEEE EGEE-	GAAGGGGAGGAGGAA GAAGGGGAGGAG---
EGEEE EG-EE	GAGGGAGAGGAAGAG GAGGGA---GAGGAA	EGEEE EGEE-	GAGGGAGAGGAAGAG GAGGGAGAGGAA---
PAPPPP PA--PP	CCGGCTCCACCTCCACCC CCGGCC------CCACCT	PAPPPP PAPP--	CCGGCTCCACCTCCACCC CCGGCCCCACCT------
LPAGEVAG LP----AG	CTTCCTGCTGGTGAAGTGGCCGGC CTTCCT------------GCTGGT	LPAGEVAG LPAG----	CTTCCTGCTGGTGAAGTGGCCGGC CTTCCTGCTGGT------------
KSLPLQ ES--LA	AAGTCACTACCACTGCAG GAGTCC------CTGGCA	KSLPLQ ESLA--	AAGTCACTACCACTGCAG GAGTCCCTGGCA------
YYAAA TY-AA	TACTACGCCGCGGCA ACCTAC---GCCGCG	YYAAA TYAA-	TACTACGCCGCGGCA ACCTACGCCGCG---
AGAAAA AG--AA	GCAGGGGCGGCGGCGGCA GCGGGG------GCAGCG	AGAAAA AGAA--	GCAGGGGCGGCGGCGGCA GCGGGGGCAGCG------
DYGGG EY-GG	GACTACGGAGGTGGA GAGTAC---GGCGGT	DYGGG EYGG-	GACTACGGAGGTGGA GAGTACGGCGGT---
EDNKENK ED---NK	GAAGACAACAAGGAGAACAAA GAAGAC---------AACAAG	EDNKENK EDNK---	GAAGACAACAAGGAGAACAAA GAAGACAACAAG---------
SQSGSG SQ--SG	TCCCAGTCAGGGTCAGGA TCACAG------TCAGGG	SQSGSG SQSG--	TCCCAGTCAGGGTCAGGA TCACAGTCAGGG------

EEKNKN EK--KN	GAAGAAAAGAACAAGAAT GAAAAA------AAGAAC	EEKNKN EKKN--	GAAGAAAAGAACAAGAAT GAAAAAAAGAAC------
EGPAK EG-LS	GAAGGACCAGCAAAG GAAGGA---CTCTCA	EGPAK EGLS-	GAAGGACCAGCAAAG GAAGGACTCTCA---
ASTTT AS-TT	GCATCCACCACCACT GCATCT---ACCACC	ASTTT ASTT-	GCATCCACCACCACT GCATCTACCACC---
HPEEE HP-EE	CACCCGGAAGAGGAA CACCCG---GAAGAG	HPEEE HPEE-	CACCCGGAAGAGGAA CACCCGGAAGAG---
DDEEE DD-EE	GATGATGAAGAAGAG GATGAT---GAAGAA	DDEEE DDEE-	GATGATGAAGAAGAG GATGATGAAGAA---
AEEDED AE--ED	GCGGAAGAGGACGAGGAT GCCGAG------GAGGAC	AEEDED AEED--	GCGGAAGAGGACGAGGAT GCCGAGGAGGAC------
VIPPP VI-PP	GTTATTCCACCTCCC GTTATT---CCACCT	VIPPP VIPP-	GTTATTCCACCTCCC GTTATTCCACCT---
DEEDED DE--ED	GATGAAGAGGATGAGGAC GATGAG------GAGGAT	DEEDED DEED--	GATGAAGAGGATGAGGAC GATGAGGAGGAT------
KKNKG KE-QT	AAGAAAAATAAAGGG AAGGAA---CAGACA	KKNKG KEQT-	AAGAAAAATAAAGGG AAGGAACAGACA---
RFWGL RF-KE	CGCTTCTGGGGACTG AGATTC---AAAGAA	RFWGL RFKE-	CGCTTCTGGGGACTG AGATTCAAAGAA---
STPPPPPP ST----PP	TCCACCCCGCCCCCGCCCCCGCCG TCCACC----------CCTCCC	STPPPPPP STPP----	TCCACCCCGCCCCCGCCCCCGCCG TCCACCCCTCCC----------
PGVPS RD-RL	CCCGGCGTGCCGTCC CGTGAC---CGTCTG	PGVPS RDRL-	CCCGGCGTGCCGTCC CGTGACCGTCTG---
GNSPPASE GN----SS	GGAAACAGCCCTCCAGCCAGTGAG GGAAAC----------AGCTCT	GNSPPASE GNSS----	GGAAACAGCCCTCCAGCCAGTGAG GGAAACAGCTCT----------
GSGGG GS-GG	GGATCCGGGGGAGGC GGATCT---GGGGGA	GSGGG GSGG-	GGATCCGGGGGAGGC GGATCTGGGGGA---
MLAAA LL-AA	CTGCTGGCTGCTGCC CTTCTG---GCTGCT	MLAAA LLAA-	CTGCTGGCTGCTGCC CTTCTGGCTGCT---
PYAQAQ PY--AQ	CCATATGCTCAGGCTCAA CCATAT------GCCCAG	PYAQAQ PYAQ--	CCATATGCTCAGGCTCAA CCATATGCCCAG------
FSEVAR FG--IA	TTTTCAGAAGTAGCACGC TTCGGA------ATAGCA	FSEVAR FGIA--	TTTTCAGAAGTAGCACGC TTCGGAATAGCA------
KKEEEEEE IK----EE	AAAAAAGAAGAAGAAGAGGAGGAG ATAAAA----------GAAGAA	KKEEEEEE IKEE----	AAAAAAGAAGAAGAAGAGGAGGAG ATAAAAGAAGAA----------
KHQGSRK KH---KR	AAGCACCAAGGCTCTAGGAAG AAGCAC---------AAACGC	KHQGSRK KHKR---	AAGCACCAAGGCTCTAGGAAG AAGCACAAACGC---------
HFLLL HF-LL	CACTTCTTGTTGTTA CACTTC---TTGTTG	HFLLL HFLL-	CACTTCTTGTTGTTA CACTTCTTGTTG---
GLGSQ GL-SS	GGGCTCGGTTCACAG GGTCTC---AGTTCA	GLGSQ GLSS-	GGGCTCGGTTCACAG GGTCTCAGTTCA---
RGIRSR GG--SR	CGGGGAATCCGAAGTCGG GGGGGA------AGCCGA	RGIRSR GGSR--	CGGGGAATCCGAAGTCGG GGGGGAAGCCGA------
ATAAA AT-AA	GCGACCGCGGCGGCC GCGACC---GCGGCG	ATAAA ATAA-	GCGACCGCGGCGGCC GCGACCGCGGCG---
SAQQQ SA-QQ	AGCGCGCAGCAGCAA AGCGCG---CAGCAG	SAQQQ SAQQ-	AGCGCGCAGCAGCAA AGCGCGCAGCAG---
KVRTV KI-VA	AAGGTGAGGACTGTG AAGATC---GTGGCT	KVRTV KIVA-	AAGGTGAGGACTGTG AAGATCGTGGCT---
PEAAA SE-AA	CCAGAGGCAGCGGCA TCAGAG---GCAGCG	PEAAA SEAA-	CCAGAGGCAGCGGCA TCAGAGGCAGCG---
KHCDQ KY-GV	AAACATTGTGACCAA AAGTAC---GGAGTC	KHCDQ KYGV-	AAACATTGTGACCAA AAGTACGGAGTC---
FGTKY FG-RQ	TTTGGGACAAAATAC TTTGGG---AGGCAA	FGTKY FGRQ-	TTTGGGACAAAATAC TTTGGGAGGCAA---
SDKKT PV-RE	AGTGACAAAAAAACT CCTGTC---AGAGAA	SDKKT PVRE-	AGTGACAAAAAAACT CCTGTCAGAGAA---
ETPAA	GAAACTCCTGCAGCC	ETPAA	GAAACTCCTGCAGCC

ET-SA	GAAACG---TCTGCA	ETSA-	GAAACGTCTGCA---
SDAGQRAA SD----GG	TCGGACGCCGGCCAGCGCGCCGCT TCGGAC-----------GGCGGC	SDAGQRAA SDGG----	TCGGACGCCGGCCAGCGCGCCGCT TCGGACGGCGGC-----------
EDEDD ED-ED	GAAGACGAGGACGAT GAAGAC---GAGGAC	EDEDD EDED-	GAAGACGAGGACGAT GAAGACGAGGAC---
SGAGS SG-GG	TCAGGTGCTGGAAGT TCAGGT---GGTGGA	SGAGS SGGG-	TCAGGTGCTGGAAGT TCAGGTGGTGGA---
PGSSS PG-SS	CCAGGCAGCAGCAGT CCAGGC---AGCAGC	PGSSS PGSS-	CCAGGCAGCAGCAGT CCAGGCAGCAGC---
RSGLL RS-RL	CGCAGCGGTCTGCTA CGCAGC---CGCCTG	RSGLL RSRL-	CGCAGCGGTCTGCTA CGCAGCCGCCTG---
QRQQQ QR-QQ	CAGCGGCAGCAGCAA CAGCGG---CAGCAG	QRQQQ QRQQ-	CAGCGGCAGCAGCAA CAGCGGCAGCAG---
GKQLQT GS--AR	GGGAAACAACTGCAGACT GGGTCG------GCCCGG	GKQLQT GSAR--	GGGAAACAACTGCAGACT GGGTCGGCCCGG------
YQEEE YQ-EE	TACCAGGAAGAGGAA TACCAG---GAAGAG	YQEEE YQEE-	TACCAGGAAGAGGAA TACCAGGAAGAG---
QGTPGA QG--AL	CAAGGAACCCCCGGGGCT CAAGGA------GCCCTC	QGTPGA QGAL--	CAAGGAACCCCCGGGGCT CAAGGAGCCCTC------
PCPPPPP PC---PP	CCATGCCCACCACCACCACCT CCATGC---------CCACCA	PCPPPPP PCPP---	CCATGCCCACCACCACCACCT CCATGCCCACCA---------
HSDHDDH HS---DH	CACAGTGACCATGATGACCAC CACAGT---------GACCAT	HSDHDDH HSDH---	CACAGTGACCATGATGACCAC CACAGTGACCAT---------
IYPLLLL VY---LL	ATTTACCCCCTGTTGCTGCTA GTCTAC---------CTCCTG	IYPLLLL VYLL---	ATTTACCCCTGTTGCTGCTA GTCTACCTCCTG---------
ENREWVRA EN----LL	GAGAATCGTGAGTGGGTTCGTGCT GAGAAT-----------CTCCTG	ENREWVRA ENLL----	GAGAATCGTGAGTGGGTTCGTGCT GAGAATCTCCTG-----------
GSAAAA GS--AA	GGCTCCGCCGCTGCCGCC GGCTCC------GCCGCT	GSAAAA GSAA--	GGCTCCGCCGCTGCCGCC GGCTCCGCCGCT------
LKDARS LQ--KV	CTCAAGGATGCTCGTTCG TTACAA------AAGGTT	LKDARS LQKV--	CTCAAGGATGCTCGTTCG TTACAAAAGGTT------
GQADADAD EQ----AD	GGACAGGCTGATGCTGACGCTGAC GAGCAG-----------GCTGAT	GQADADAD EQAD----	GGACAGGCTGATGCTGACGCTGAC GAGCAGGCTGAT-----------
FDYGEEHS LD----HG	TTTGACTATGGAGAGGAGCATTCG TTGGAT-----------CACGGA	FDYGEEHS LDHG----	TTTGACTATGGAGAGGAGCATTCG TTGGATCACGGA-----------
AEEPAL GE--AT	GCCGAGGAACCAGCCCTG GGAGAA------GCAACA	AEEPAL GEAT--	GCCGAGGAACCAGCCCTG GGAGAAGCAACA------
EVWKAEDT KV----TE	GAGGTCTGGAAGGCAGAGGACACT AAGGTC-----------ACCGAG	EVWKAEDT KVTE----	GAGGTCTGGAAGGCAGAGGACACT AAGGTCACCGAG-----------
RQSVDS EK--QE	AGACAGAGTGTGGATTCT GAAAAA------CAAGAG	RQSVDS EKQE--	AGACAGAGTGTGGATTCT GAAAAACAAGAG------
FAHHH FA-HH	TTTGCCCACCACCAT TTTGCC---CACCAC	FAHHH FAHH-	TTTGCCCACCACCAT TTTGCCCACCAC---
SREEE SR-EE	TCAAGAGAGGAAGAG TCAAGA---GAGGAA	SREEE SREE-	TCAAGAGAGGAAGAG TCAAGAGAGGAA---
AITSKDNN AV----NS	GCCATCACTTCAAAAGACAATAAC GCTGTC-----------AATTCA	AITSKDNN AVNS----	GCCATCACTTCAAAAGACAATAAC GCTGTCAATTCA-----------
QDPPP QD-PP	CAGGATCCTCCTCCG CAGGAT---CCTCCT	QDPPP QDPP-	CAGGATCCTCCTCCG CAGGATCCTCCT---
LRDYE LR-AS	CTTAGGGACTATGAG CTCAGG---GCCTCT	LRDYE LRAS-	CTTAGGGACTATGAG CTCAGGGCCTCT---
DPSRAPS EP---IR	GACCCCTCTAGAGCCCCCTCT GAACCC---------ATTCGA	DPSRAPS EPIR---	GACCCCTCTAGAGCCCCCTCT GAACCCATTCGA---------
WTWRP WA-RV	TGGACATGGAGGCCC TGGGCC---CGCGTG	WTWRP WARV-	TGGACATGGAGGCCC TGGGCCCGCGTG---
ATAAA AT-AA	GCTACTGCTGCTGCC GCTACT---GCTGCT	ATAAA ATAA-	GCTACTGCTGCTGCC GCTACTGCTGCT---
HHQQQ HH-HQ	CATCACCAGCAACAG CACCAC---CACCAA	HHQQQ HHHQ-	CATCACCAGCAACAG CACCACCACCAA---

SWEDED IW--ED	AGTTGGGAGGACGAAGAT ATTTGG------GAGGAC	SWEDED IWED--	AGTTGGGAGGACGAAGAT ATTTGGGAGGAC------
SDSSS SD-SS	TCGGACTCCAGCTCG TCAGAC---TCCAGC	SDSSS SDSS-	TCGGACTCCAGCTCG TCAGACTCCAGC---
SISSSS SI--SS	TCCATCTCCTCGTCCTCC TCCATC------TCCTCG	SISSSS SISS--	TCCATCTCCTCGTCCTCC TCCATCTCCTCG------
EPAPEAP EP---AP	GAGCCAGCACCTGAAGCCCA GAGCCA---------GCTCCT	EPAPEAP EPAP---	GAGCCAGCACCTGAAGCCCCA GAGCCAGCTCCT---------
AMAAA AM-AA	GCCATGGCTGCTGCC GCCATG---GCTGCT	AMAAA AMAA-	GCCATGGCTGCTGCC GCCATGGCTGCT---
EHEEE GH-EE	GAACACGAGGAGGAA GGGCAC---GAGGAG	EHEEE GHEE-	GAACACGAGGAGGAA GGGCACGAGGAG---
MMSSS MV-SS	ATGATGTCCAGTTCA ATGGTG---TCCAGT	MMSSS MVSS-	ATGATGTCCAGTTCA ATGGTGTCCAGT---
QQQPQQ QQ--QT	CAGCAGCAGCCACAGCAG CAGCAG------CAGACA	QQQPQQ QQQT--	CAGCAGCAGCCACAGCAG CAGCAGCAGACA------
HRQQQQ HR--QQ	CATCGACAGCAGCAGCAA CATCGA------CAGCAG	HRQQQQ HRQQ--	CATCGACAGCAGCAGCAA CATCGACAGCAG------
HPEEE HP-EE	CACCCGGAAGAGGAA CACCCG---GAAGAG	HPEEE HPEE-	CACCCGGAAGAGGAA CACCCGGAAGAG---
GIVAK NL-GG	GGCATTGTGGCCAAG AACCTT---GGAGGC	GIVAK NLGG-	GGCATTGTGGCCAAG AACCTTGGAGGC---
EEAAA EE-AV	GAGGAGGCGGCGGCA GAGGAG---GCTGTG	EEAAA EEAV-	GAGGAGGCGGCGGCA GAGGAGGCTGTG---
GSHHL SS-HC	GGCAGCCACCACCTT TCCTCT---CACTGC	GSHHL SSHC-	GGCAGCCACCACCTT TCCTCTCACTGC---
NANREK NT--DV	AACGCTAATCGAGAGAAG AACACT------GATGTA	NANREK NTDV--	AACGCTAATCGAGAGAAG AACACTGATGTA------
GQSRSS GQ--SG	GGACAAAGCAGGAGCTCC GGACAA------AGCGGG	GQSRSS GQSG--	GGACAAAGCAGGAGCTCC GGACAAAGCGGG------
LVPSS SV-HS	TTAGTTCCTTCTTCC TCAGTT---CATTCT	LVPSS SVHS-	TTAGTTCCTTCTTCC TCAGTTCATTCT---
MPDDQ LL-DA	CTGCCAGATGACCAA CTACTG---GATGCC	MPDDQ LLDA-	CTGCCAGATGACCAA CTACTGGATGCC---
PYPQPQ AY--PQ	CCTTACCCTCAGCCTCAA GCTTAC------CCTCAG	PYPQPQ AYPQ--	CCTTACCCTCAGCCTCAA GCTTACCCTCAG------
QTTPGP QS--AP	CAGACAACTCCAGGACCT CAGTCA------GCTCCA	QTTPGP QSAP--	CAGACAACTCCAGGACCT CAGTCAGCTCCA------
MKVEK LK-EE	TTGAAGGTGGAGAAA CTGAAG---GAAGAG	MKVEK LKEE-	TTGAAGGTGGAGAAA CTGAAGGAAGAG---
YGEEC YG-GV	TATGGGGAAGAGTGC TATGGG---GGAGTG	YGEEC YGGV-	TATGGGGAAGAGTGC TATGGGGGAGTG---
GPGVRT GP--RV	GGTCCTGGAGTCAGAACT GGTCCT------AGAGTC	GPGVRT GPRV--	GGTCCTGGAGTCAGAACT GGTCCTAGAGTC------
PPTTT PP-TT	CCGCCTACAACCACA CCGCCC---ACAACC	PPTTT PPTT-	CCGCCTACAACCACA CCGCCCACAACC---
PQPPPPPP PQ----AP	CCGCAGCCACCGCCGCCACCACCA CCGCAG------------GCACCG	PQPPPPPP PQAP----	CCGCAGCCACCGCCGCCACCACCA CCGCAGGCACCG------------
ITRDK IT-SG	ATCACCAGGGATAAG ATCACC---AGCGGT	ITRDK ITSG-	ATCACCAGGGATAAG ATCACCAGCGGT---
YLEWIGQD YF----AR	TATTTGGAGTGGATAGGTCAGGAC TACTTC------------GCCCGG	YLEWIGQD YFAR----	TATTTGGAGTGGATAGGTCAGGAC TACTTCGCCCGG------------
SELLL SE-LL	TCTGAGCTCCTGCTT TCTGAG---CTCCTG	SELLL SELL-	TCTGAGCTCCTGCTT TCTGAGCTCCTG---
ISEEEEEE VS----KE	ATCTCAGAAGAAGAGGAGGAAGAG GTCTCA------------AAAGAA	ISEEEEEE VSKE----	ATCTCAGAAGAAGAGGAGGAAGAG GTCTCAAAAGAA------------
SSEEE SS-EE	TCCAGTGAGGAAGAG TCCAGT---GAGGAA	SSEEE SSEE-	TCCAGTGAGGAAGAG TCCAGTGAGGAA---
QREKEKEK	CAGCGGGAGAAGGAGAAGGAGAAA	QREKEKEK	CAGCGGGAGAAGGAGAAGGAGAAA

QR----EK	CAGAGG----------GAGAAG	QREK----	CAGAGGGAGAAG----------
RRHDQHD RR---HD	CGACGGCATGACCAGCATGAT CGAAGG---------CATGAC	RRHDQHD RRHD---	CGACGGCATGACCAGCATGAT CGAAGGCATGAC---------
GEAAA GE-AA	GGGGAAGCGGCCGCT GGGGAA---GCGGCC	GEAAA GEAA-	GGGGAAGCGGCCGCT GGGGAAGCGGCC---
APGDD GP-ED	GCACCTGGAGACGAT GGGCCT---GAAGAC	APGDD GPED-	GCACCTGGAGACGAT GGGCCTGAAGAC---
NKQQQQ NK--QQ	AACAAGCAGCAGCAGCAA AACAAG------CAGCAG	NKQQQQ NKQQ--	AACAAGCAGCAGCAGCAA AACAAGCAGCAG------
QNRVI QS-TD	CAGAACAGAGTTATC CAGAGC---ACAGAT	QNRVI QSTD-	CAGAACAGAGTTATC CAGAGCACAGAT---
GSEEE GS-EE	GGCTCTGAGGAAGAG GGCTCT---GAGGAA	GSEEE GSEE-	GGCTCTGAGGAAGAG GGCTCTGAGGAA---
SSGGG SS-GG	AGCTCAGGTGGCGGT AGCTCC---GGTGGC	SSGGG SSGG-	AGCTCAGGTGGCGGT AGCTCCGGTGGC---
EDLELWSK KD----SE	GAAGACTTAGAGCTTTGGTCAAAA AAAGAC----------TCAGAG	EDLELWSK KDSE----	GAAGACTTAGAGCTTTGGTCAAAA AAAGACTCAGAG----------
NSRQP DS-ML	AACTCCAGGCAGCCA GACTCC---ATGCTG	NSRQP DSML-	AACTCCAGGCAGCCA GACTCCATGCTG---
AAVGGSGG AA----GG	GCTGCAGTAGGGGGCAGCGGCGGT GCTGCA----------GGAGGG	AAVGGSGG AAGG----	GCTGCAGTAGGGGGCAGCGGCGGT GCTGCAGGAGGG----------
NTLPH AT-PS	AACACGCTACCCCAT GCTACC---CCATCC	NTLPH ATPS-	AACACGCTACCCCAT GCTACCCCATCC---
SPRGA LP-GG	TCACCAAGAGGTGCG TTACCA---GGAGGT	SPRGA LPGG-	TCACCAAGAGGTGCG TTACCAGGAGGT---
XAGXYXR CR---VY	NTGGCCGGGNTCTACANTCGN TGCCGA---------GTCTAC	XAGXYXR CRVY---	NTGGCCGGGNTCTACANTCGN TGCCGAGTCTAC---------
GFIRDGIS AL----VG	GGGTTCATCAGGGATGGGATCAGC GCGCTC----------GTTGGG	GFIRDGIS ALVG----	GGGTTCATCAGGGATGGGATCAGC GCGCTCGTTGGG----------
LRGPE LR-DR	CTTCGGGGGCCAGAG CTTCGG---GACAGA	LRGPE LRDR-	CTTCGGGGGCCAGAG CTTCGGGACAGA---
MLLPLT LL--LL	TTGCTGTTGCCTTTGACA TTGCTG------TTGCTT	MLLPLT LLLL--	TTGCTGTTGCCTTTGACA TTGCTGTTGCTT------
MTGGG LT-GG	TTGACAGGAGGAGGT TTGACA---GGAGGA	MTGGG LTGG-	TTGACAGGAGGAGGT TTGACAGGAGGA---
KPPGAGAG KP----SG	AAGCCCCCGGGTGCGGGTGCGGGC AAGCCC----------TCGGGT	KPPGAGAG KPSG----	AAGCCCCCGGGTGCGGGTGCGGGC AAGCCCTCGGGT----------
QCLLQ HC-LS	CAATGTTTGCTTCAA CACTGT---TTGAGT	QCLLQ HCLS-	CAATGTTTGCTTCAA CACTGTTTGAGT---
ASSGGS AS--GG	GCGAGCAGCGGAGGCAGT GCGAGC------GGCGGA	ASSGGS ASGG--	GCGAGCAGCGGAGGCAGT GCGAGCGGCGGA------
GGHKQPN GG---PK	GGAGGCCACAAACAACCTAAC GGAGGC---------CCCAAA	GGHKQPN GGPK---	GGAGGCCACAAACAACCTAAC GGAGGCCCCAAA---------
TSGKK TS-SK	ACTTCTGGCAAGAAA ACTTCT---AGCAAG	TSGKK TSSK-	ACTTCTGGCAAGAAA ACTTCTAGCAAG---
WMLAV WM-PS	TGGATGCTCGCGGTC TGGATG---CCCTCG	WMLAV WMPS-	TGGATGCTCGCGGTC TGGATGCCCTCG---
GDAANAA GD---AA	GGGGATGCTGCGAATGCTGCA GGAGAT---------GCTGCG	GDAANAA GDAA---	GGGGATGCTGCGAATGCTGCA GGAGATGCTGCG---------
HHGED HH-EE	CATCACGGAGAGGAC CATCAT---GAAGAG	HHGED HHEE-	CATCACGGAGAGGAC CATCATGAAGAG---
EEKKK EE-RK	GAGGAGAAAAAAAAG GAGGAG---AGAAAA	EEKKK EERK-	GAGGAGAAAAAAAAG GAGGAGAGAAAA---
RRHFF RR-YF	AGAAGACATTTCTTT AGAAGA---TATTTC	RRHFF RRYF-	AGAAGACATTTCTTT AGAAGATATTTC---
RDEPEP QD--EP	CGGGATGAGCCTGAGCCA CAGGAC------GAGCCT	RDEPEP QDEP--	CGGGATGAGCCTGAGCCA CAGGACGAGCCT------
VPGGG VP-GG	GTTCCTGGAGGAGGG GTTCCT---GGAGGA	VPGGG VPGG-	GTTCCTGGAGGAGGG GTTCCTGGAGGA---

AESSS AE-SS	GCAGAGTCTTCATCT GCAGAG---TCTTCA	AESSS AESS-	GCAGAGTCTTCATCT GCAGAGTCTTCA---
SDIENE ED--AE	TCGGATATTGAGAACGAA GAAGAC------GCAGAG	SDIENE EDAE--	TCGGATATTGAGAACGAA GAAGACGCAGAG------
ESEEDEE ES---EE	GAGAGTGAAGAAGACGAGGAG GAGAGT---------GAAGAA	ESEEDEE ESEE---	GAGAGTGAAGAAGACGAGGAG GAGAGTGAAGAA---------
GVNSS GV-SS	GGTGTGAACAGTAGC GGTGTG---AGCAGT	GVNSS GVSS-	GGTGTGAACAGTAGC GGTGTGAGCAGT---
LHVVA LR-VE	CTCCATGTGGTGGCA CTCCGT---GTGGAG	LHVVA LRVE-	CTCCATGTGGTGGCA CTCCGTGTGGAG---
DSEEEEE DS---EE	GATTCGGAAGAGGAGGAGGAA GATTCG---------GAAGAG	DSEEEEE DSEE---	GATTCGGAAGAGGAGGAGGAA GATTCGGAAGAG---------
GNPKA GT-RQ	GGAAACCCCAAAGCC GGAACC---CGCCAA	GNPKA GTRQ-	GGAAACCCCAAAGCC GGAACCCGCCAA---
EDDGYDE ED---ES	GAAGATGATGGTTATGATGAA GAAGAT---------GAGTCT	EDDGYDE EDES---	GAAGATGATGGTTATGATGAA GAAGATGAGTCT---------
ASRNEHR AL---HN	GCCTCACGTAATGAACACAGA GCCTTA---------CATAAT	ASRNEHR ALHN---	GCCTCACGTAATGAACACAGA GCCTTACATAAT---------
YEYFDNV YE---NY	TATGAGTACTTTGACAACGTA TATGAG---------AACTAT	YEYFDNV YENY---	TATGAGTACTTTGACAACGTA TATGAGAACTAT---------
GTGDK GT-DR	GGAACAGGTGACAAG GGAACA---GATCGC	GTGDK GTDR-	GGAACAGGTGACAAG GGAACAGATCGC---
KSGGG KS-GG	AAGAGCGGCGGAGGC AAGAGC---GGCGGA	KSGGG KSGG-	AAGAGCGGCGGAGGC AAGAGCGGCGGA---
AYGGG AY-GG	GCCTACGGGGGCGGT GCCTAC---GGGGGC	AYGGG AYGG-	GCCTACGGGGGCGGT GCCTACGGGGGC---
EDEEE ED-EE	GAAGACGAGGAAGAG GAAGAT---GAGGAA	EDEEE EDEE-	GAAGACGAGGAAGAG GAAGATGAGGAA---
VASGPS VA--PD	GTGGCTTCCGGCCCCTCA GTGGCT------CCTGAC	VASGPS VAPD--	GTGGCTTCCGGCCCCTCA GTGGCTCCTGAC------
QNYSS QN-SS	CAGAACTACTCTTCC CAGAAC---TCCTCT	QNYSS QNSS-	CAGAACTACTCTTCC CAGAACTCCTCT---
PHLPT LY-HA	CCTCATCTCCCCACT CTTTAT---CACGCC	PHLPT LYHA-	CCTCATCTCCCCACT CTTTATCACGCC---
EEAAAA EE--AA	GAGGAGGCGGCTGCGGCG GAGGAG------GCGGCT	EEAAAA EEAA--	GAGGAGGCGGCTGCGGCG GAGGAGGCGGCT------
VALLL AA-LL	GTGGCCCTCCTTCTC GCGGCC---CTCCTT	VALLL AALL-	GTGGCCCTCCTTCTC GCGGCCCTCCTT---
TQPRSR TQ--QR	ACGCAGCCGAGATCAAGG ACGCAG------CAGCGA	TQPRSR TQQR--	ACGCAGCCGAGATCAAGG ACGCAGCAGCGA------
AAGGS AA-SS	GCTGCCGGTGGCTCA GCTGCC---AGCAGC	AAGGS AASS-	GCTGCCGGTGGCTCA GCTGCCAGCAGC---
MKDAA LK-HS	CTGAAAGATGCAGCG CTGAAA---CATTCA	MKDAA LKHS-	CTGAAAGATGCAGCG CTGAAACATTCA---
GFPGPPG GF---PG	GGTTTTCCAGGTCCCCCGGGA GGTTTT---------CCTGGT	GFPGPPG GFPG---	GGTTTTCCAGGTCCCCCGGGA GGTTTTCCTGGT---------
PPTTTT PP--TT	CCTCCCACAACAACCACC CCTCCC------ACAACA	PPTTTT PPTT--	CCTCCCACAACAACCACC CCTCCCACAACA------
EALLL EA-LL	GAAGCGCTGCTGCTA GAAGCT---CTGTTG	EALLL EALL-	GAAGCGCTGCTGCTA GAAGCTCTGTTG---
LRQQQQQ LR---QQ	CTTAGGCAGCAGCAGCAGCAA CTTAGG---------CAGCAG	LRQQQQQ LRQQ---	CTTAGGCAGCAGCAGCAGCAA CTTAGGCAGCAG---------
PGPPP PG-PP	CCGGGCCCGCCGCCT CCGGGC---CCGCCG	PGPPP PGPP-	CCGGGCCCGCCGCCT CCGGGCCCGCCG---
DHSSS DH-NS	GACCACAGCTCCTCA GACCAC---AACTCC	DHSSS DHNS-	GACCACAGCTCCTCA GACCACAACTCC---
TVPPP TV-PP	ACCGTGCCTCCTCCA ACCGTG---CCTCCT	TVPPP TVPP-	ACCGTGCCTCCTCCA ACCGTGCCTCCT---
PQPPPP	CCACAGCCTCCTCCTCCA	PQPPPP	CCACAGCCTCCTCCTCCA

QQ--PP	CAGCAG------CCTCCT	QQPP--	CAGCAGCCTCCT------
SPTPP SP-PP	TCACCAACGCCTCCG TCACCA---CCGCCT	SPTPP SPPP-	TCACCAACGCCTCCG TCACCACCGCCT---
LCKNS LC-NI	CTCTGCAAGAATTCC CTCTGC---AATATT	LCKNS LCNI-	CTCTGCAAGAATTCC CTCTGCAATATT---
EEAAA NE-AA	GAAGAAGCAGCAGCC AATGAA---GCAGCA	EEAAA NEAA-	GAAGAAGCAGCAGCC AATGAAGCAGCA---
ATSSSSS AT---SS	GCTACTTCTTCTTCCTCCTCC GCTACT---------TCTTCT	ATSSSSS ATSS---	GCTACTTCTTCTTCCTCCTCC GCTACTTCTTCT---------
PSPLCE VS--SS	CCATCTCCATTGTGTGAA GTGTCT------TCATCG	PSPLCE VSSS--	CCATCTCCATTGTGTGAA GTGTCTTCATCG------
VTRRHRH VT---RS	GTCACTCGCCGCCATCGCCAT GTCACT---------CGAAGC	VTRRHRH VTRS---	GTCACTCGCCGCCATCGCCAT GTCACTCGAAGC---------
QTSWEASL QT----SR	CAGACTTCATGGGAGGCCTCCCTA CAGACT----------TCACGG	QTSWEASL QTSR----	CAGACTTCATGGGAGGCCTCCCTA CAGACTTCACGG----------
LMKKK LM-KK	CTCATGAAAAAGAAA CTCATG---AAAAAG	LMKKK LMKK-	CTCATGAAAAAGAAA CTCATGAAAAAG---
MPEEE LP-EE	CTGCCGGAGGAGGAA CTGCCG---GAGGAG	MPEEE LPEE-	CTGCCGGAGGAGGAA CTGCCGGAGGAG---
QSEEE NS-DE	CAGAGCGAAGAGGAA AACAGC---GATGAG	QSEEE NSDE-	CAGAGCGAAGAGGAA AACAGCGATGAG---
ELKKK QL-KK	GAACTCAAGAAGAAA CAGCTC---AAGAAG	ELKKK QLKK-	GAACTCAAGAAGAAA CAGCTCAAGAAG---
EWEEE EW-EE	GAATGGGAGGAAGAG GAGTGG---GAGGAA	EWEEE EWEE-	GAATGGGAGGAAGAG GAGTGGGAGGAA---
NDGEE ND-DE	AATGATGGTGAAGAG AACGAT---GATGAA	NDGEE NDDE-	AATGATGGTGAAGAG AACGATGATGAA---
GPTLHL AP--RL	GGGCCTACTTTGCACCTC GCACCT------CGTTTG	GPTLHL APRL--	GGGCCTACTTTGCACCTC GCACCTCGTTTG------
KEKKK KE-KK	AAAGAGAAGAAAAAG AAAGAG---AAGAAA	KEKKK KEKK-	AAAGAGAAGAAAAAG AAAGAGAAGAAA---
DQEEE DQ-EE	GACCAGGAGGAAGAG GACCAG---GAGGAA	DQEEE DQEE-	GACCAGGAGGAAGAG GACCAGGAGGAA---
HVLGPQ HL--SV	CATGTCCTAGGACCCCAG CATCTT------TCAGTA	HVLGPQ HLSV--	CATGTCCTAGGACCCCAG CATCTTTCAGTA------
VTEEE VA-DE	GTAACAGAGGAAGAG GTAGCA---GATGAA	VTEEE VADE-	GTAACAGAGGAAGAG GTAGCAGATGAA---
NAPPP NA-PP	AACGCTCCTCCTCCG AATGCT---CCCCCT	NAPPP NAPP-	AACGCTCCTCCTCCG AATGCTCCCCCT---
STISS AT-TS	TCCACAATATCTTCC GCCACA---ACATCT	STISS ATTS-	TCCACAATATCTTCC GCCACAACATCT---
DTSPP EI-TP	GACACCTCTCCACCT GAGATA---ACCCCA	DTSPP EITP-	GACACCTCTCCACCT GAGATAACCCCA---
DRDGDG DR--DG	GACAGGGATGGTGATGGC GACAGG------GACGGT	DRDGDG DRDG--	GACAGGGATGGTGATGGC GACAGGGACGGT------
SLPSS GL-TS	AGCCTGCCTTCATCC GGCCTG---ACTTCA	SLPSS GLTS-	AGCCTGCCTTCATCC GGCCTGACTTCA---
VLCKK VL-SK	GTGCTGTGCAAGAAA GTGCTG---AGCAAG	VLCKK VLSK-	GTGCTGTGCAAGAAA GTGCTGAGCAAG---
ARAAA AR-AA	GCCCGGGCGGCTGCG GCCCGG---GCGGCT	ARAAA ARAA-	GCCCGGGCGGCTGCG GCCCGGGCGGCT---
TGENDDEN TG----EG	ACAGGTGAAAACGACGATGAAAAT ACAGGC----------GAAGGC	TGENDDEN TGEG----	ACAGGTGAAAACGACGATGAAAAT ACAGGCGAAGGC----------
ILAAA IL-AA	ATCTTGGCTGCAGCT ATCTTG---GCTGCA	ILAAA ILAA-	ATCTTGGCTGCAGCT ATCTTGGCTGCA---
DVTSN DV-PG	GATGTGACTAGCAAT GATGTG---CCTGGC	DVTSN DVPG-	GATGTGACTAGCAAT GATGTGCCTGGC---
RQLLL RT-FL	AGGCAGTTGCTCTTA AGGACG---TTCCTC	RQLLL RTFL-	AGGCAGTTGCTCTTA AGGACGTTCCTC---

GDAAA GD-AA	GGGGACGCAGCAGCC GGGGAC---GCTGCA	GDAAA GDAA-	GGGGACGCAGCAGCC GGGGACGCTGCA---
ISTAA IS-AA	ATCTCCACAGCTGCA ATCTCT---GCAGCT	ISTAA ISAA-	ATCTCCACAGCTGCA ATCTCTGCAGCT---
QVPAGHSQ QV----SS	CAGGTCCCAGCTGGCCATAGCCAG CAGGTC----------TCGTCT	QVPAGHSQ QVSS----	CAGGTCCCAGCTGGCCATAGCCAG CAGGTCTCGTCT----------
DTPSS DT-SA	GACACACCTTCATCC GACACA---TCTGCA	DTPSS DTSA-	GACACACCTTCATCC GACACATCTGCA---
PASSS PA-SS	CCTGCATCCAGCAGT CCTGCA---TCCAGC	PASSS PASS-	CCTGCATCCAGCAGT CCTGCATCCAGC---