

Zebrafish	-KISEYQLETES--LSQCEQLRSVSAEQERQHVPQCFEDGRFRHVQCNRGGGECWCVNAE	57
Fugu	-VFYEYSLQSDS--LSPCELLRSEAVAKQQGNVPQCAEDGKFRPLQCSMGGQECWCVDGD	57
Rat	-NIFEYQVDAQP--LRPCELQREKAFLLKQDEYVPQCSEDDGSFQTVQCQNDGGQSCWCVDSD	57
Mouse	-NIFEYQVDAQP--LRPCELQREKAFLLKQAEYVPQCSEDDGSFQTVQCQNDGGQSCWCVDSD	57
Human	-NIFEYQVDAQP--LRPCELQRETAFLKQADYVPQCAEDGGSFQTVQCQNDGRSCWCVGAN	57
Marmoset	-NIFEYQVDAQP--LRPCELQRERAFLLKQADYVPQCTEDGGSFQTVQCQNDGRSCWCVGVD	57
Pig	-NIFEYQVDAQP--LRPCELQRERAFLLKRADYVPQCAEDGGSFQTVQCKKDDGGSCWCVDAD	57
Cow	-NIFEYQVDAQP--LRPCELQRERAFLLKREDYVPQCAEDGGSFQTVQCCKDGDASWCVDAD	57
Panda	-NIFEYQVEAQP--LRPCELQREEAFLLKGADHVPQCTEDGSYQTVQCRNDGGSCWCVDAN	57
Dog	-NIFEYQVDAQP--LRPCELQRERAFLLKGAAYVPQCAEDGSYQTVQCQNDGRSCWCVGAD	57
Horse	-NIFEYQVDAQP--LRPCELQRERAFLLTRADYVPQCAEDGGSFQTVQCQDGGGRACWCVGAD	57
Opossum	-NIFEYEVDSQP--LRPCELQREAFLLKKEDHIPQCLADGRFRNVQCSNNGLSWCVCDAE	57
Zebra finch	-NIFEYQTDSP--LRPCELQREEAFAAGEAYVPQCTEDGQFRTVQCSRNGLSCWCVDEN	57
Sea urchin	-RQYGTHN-----ISCHAL-VEQTTANDSAYFPRCTGYNTYSAKQCDSSG--SCWCVGPD	51
Amphioxus	-IEDEFQCGNGR-CIPDSFECDDGDDCRDNDSEVNC-TGCRRGKFMCEDGGCLPSIFRCD	57
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Zebrafish	GFEIPGSRQNGSSVYCLTTCQLQRQR-----ALQTEDATLVPVCLDSGEYQQVQCDASR	111
Fugu	GQEVPGTRTNGSAPLCETNNCYSHHAPDGVCTGVSPCQLQSLKCSPSGLFEVQCDHSR	117
Rat	GTEVPGSRQLGRPTACLSCQLHKQR-ILLSSYINSTDALYLPQCQDSGNYAPVQCDLQQ	116
Mouse	GREVPGSRQLGRPTVCLSFQQLHKQR-ILLGSYINSTDALYLPQCQDSGNYAPVQCDLQR	116
Human	GSEVLGSRQPGRPVACLSCQLQKQQ-ILLGSYINSTDTSYLPQCQDSGDYAPVQCDVQQ	116
Marmoset	GGEVLGSRQPGRPVACLSCQLQKQQ-ILLGSYINSTATSYLPQCQDSGDYTPVQCDVRQ	116
Pig	GREVPGSRQPGRPVACLSCQLQKQQ-ILLSSYINSTATSYLPQCQDSGAYAPVQCDVRR	116
Cow	GREVPGSRQPGRPAACLSFQQLKQQ-ILLSSYINSTATSYLPQCQDSGDYSPVQCDLRR	116
Panda	GREVPGSRPARPAACPSFQQLKQQ-ILLSGYLNGTATAYLPQCQDSGDYAPVQCDLGR	116
Dog	GVEVPGSRQPARPAACLSFQQLQRQQ-ILLSGYLNSTATSYLPQCQESGGYAPVQCDLWQ	116
Horse	GLEVPGSRQPGRPAACLSFQQLQRQR-ILLDGHANSSATSYLPQCEDSGDYAPVQCDIRG	116
Opossum	GTEVPGSKQAGLPDAACLSFQQLHKQK-ILVSSYINSTATSYLPQCQDSGEYEPVQCDLAR	116
Zebra finch	GVEVPGSKQNGYPISCLSFQQLQRQR-ILVSRYINSSISYIPQCLDSGAFDEVQCDMEL	116
Sea urchin	G--VHGADR-----EMEADRTK	66
Amphioxus	GIGDCDDSDDETNCRLGLDTLGGVP-----DQLTTTQTVPRPYPVTPIPPSSILEQGL	112
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Zebrafish	SQCWCVDLEGMEIYGTRQNGKPSKCPGTCEVRERLLHIGIGERSPPQ----CSDDGGFLP	167
Fugu	QQCWCVDQNGMELYGTRQNGRPSRCPGSCEVRSRLLHSSTPHTPPQ----CDGSGSFLP	173
Rat	VQCWCVDTEGMEVYGTRQGRPTRCPRSCAIRNRLLHGVGDKSPPQ----CDADGEFMP	172
Mouse	VQCWCVDTEGMEVYGTRQGRPTRCPRSCAIRNRLLHGVGDRSPPQ----CTADGEFMP	172
Human	VQCWCVDTEGMEVYGTRQGLGRPKRCPRSCAIRNRLLHGVGDKSPPQ----CSAEGEFMP	172
Marmoset	VQCWCVDTEGMEVYGTRQGLGRPRCPRSCAIRNRLLHGVGDKSPPQ----CSAEGEFMP	172
Pig	EQCWCVDTEGMEVYGTRRLGRPARCPGCCAIRNRLLHGVGDKSPPQ----CSADGFTFLP	172
Cow	RQCWCVDTEGMEVYGTRQGRPARCPRSCAIRNRLLHGVGDRSPPQ----CSPDGAFRP	172
Panda	EQCWCVDTEGMEVYGTRQGRPTRCPRSCAIRNRLLHGVGDKSPPQ----CSPDGGFLP	172
Dog	QQCWCVDTEGMEVYGTRQGLGRPARCPRSCAIRNRLLHGVGDKSPPQ----CSPDGAFRP	172
Horse	MQCWCVDADTEGMEVYGTRQGLGRPTRCPRSCAIRNRLLHGVGEKSPPQ----CSPGEFELP	172
Opossum	VQCWCVDSEGEVYGTRQQKPTRCPSCEAIRNRILHGVGEKSPPQ----CSSDGEFMP	172
Zebra finch	GQCWCVDPEGMEIYGTRQKGPACQPCNGCEIRDRRILHGFGEKSPPQ----CSADGEFMP	172
Sea urchin	---LCVEAP-----CRQELSNQDKVNLGQNLTSNPV---CDPQGMYP	104
Amphioxus	LLAVCTEQEFTCADGSKCVPRFLCDGKDCSDNSDEQDCAPRTCSEDKFTCSSGDCIPK	172
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Zebrafish	VQCKFVNNTDRMIFDLLHTFNQPEVFQTFSGFRKAYPELSSYCFCADSRGREMPSTGVE	227
Fugu	VQCVFINTTTGTQLDMMTVFNSFPEAFETFSGFRKLFPVSSYCFCSDSRGREMHNTGVE	233
Rat	VQCKFVNNTDMMIFDLIHNYNRFPAFVTFSAFRNRFPEVSGYCYCADSQGRELAETGLE	232
Mouse	VQCKFVNNTDMMIFDLIHNYNRFPAFVTFSSFRGRFPEVSGYCYCADSQGRELAETGLE	232
Human	VQCKFVNNTDMMIFDLVHSYNRFPDAFVTFSSFRRFPEVSGYCHCADSQGRELAETGLE	232
Marmoset	VQCKFVNNTDMMIFDLVHNYNRFPAFVTFSSFRRFPEVSGYCHCADSQGRELAETGLE	232
Pig	VQCKFVNNTDMMIFDLVHSYNRFPDAFVTFSSFRSRFPEVSGYCHCADSQGRELAETGLE	232
Cow	VQCKLVNNTDMMIFDLVHSYNRFPDAFVTFSSFRSRFPEVSGYCYCADSQGRELAETGLE	232
Panda	VQCKFVNNTDMMIFDLVQSYNRFPAFVTFSAFRSKFPEVSGYCHCADSQGRELAETGLE	232
Dog	VQCKFVNNTDMMIFDLVHSYNRFPDAFVTFSAFRSKFPDVSGYCHCADSLGRELAGTGLE	232
Horse	VQCKFVNNTDMMIFDLVHSYNRFPDAFVTFSAFRSRFPEVSGYCHCADSQGRELAETGLE	232
Opossum	VQCKFVNNTDMMIFDLVNSYNRFPFAFLTFSSFRSRFPEVSGYCYCADSQGRELAETGLE	232
Zebra finch	VQCKFVNNTDMSVLDLVHSYNRLPRAFQKFSVREVFPEISGYCYCVDLSLGRELADTGLE	232
Sea urchin	QQTADGT-----	112
Amphioxus	AWTCDLVDVDCADGSDETEELCQETNCTEKEYRCQNSVKCIHLTWFCDDGDKCREGEDEAD	232
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Zebrafish	LLLDEVYDTAFSDQTAGSSFAESNMRYILNRRYLAV---QLAINGKFRCPSPCESERAAA	284
Fugu	LLLSDEVYDSAFDAHPPVRSFAQSNIYRVLQRRMLAV---RLRITGRFRCPSPCCEERWAA	290
Rat	LLLDEIYDTIFAGLDQASTFTQSTMYRILQRRFLAI---QLVISGRFRCPTKCEVEQFTA	289
Mouse	LLLDEIYDTIFAGLDQASTFTQSTMYRILQRRFLAI---QLVISGRFRCPTKCEVEQFAA	289
Human	LLLDEIYDTIFAGLDLPSTFTTETTLYRILQRRFLAV---QSVISGRFRCPTKCEVERFTA	289
Marmoset	LLLDEIYDTIFAGLDLASTFTTETTLYRILQRRFLAV---QSLISGRFRCPTKCEVERFTA	289
Pig	LLLDEIYDTVFAGLDLASSFTTETTLYRILQRRFLAV---QLVTSGRFRCPTKCEVERFAA	289
Cow	LLLDEIYDTIFAGLDLASTFAETTLYRILQRRFLAV---QLVISGRFRCPTKCEVERFAA	289
Panda	LLLDEIYDTIFAGLDLASTFAESTLLRILQRRFLAV---QLVVSGRFRCPTKCEVERFTA	289
Dog	LLLDEIYDTIFAGLDLASTFAETTLYRILQRRFLAV---QLVLSGRFRCPTKCEVEQFTA	289
Horse	LLLDEIYDTIFAGLDLPSTFSETTLYRILQRRFLAV---QLVISGRFRCPTKCEVERFTA	289
Opossum	LLLDEIYDTIFAGLDPASTFTTETTLYRILQRRFLAV---QLVISGRFRCPTKCEVERLAA	289
Zebra finch	LLLDEVYETIFSEPEPARTFTESSIHRILQRRFLGV---QLATSGKFRCPSCRCEAERAAA	289
Sea urchin	-----	
Amphioxus	CDQQESMACSDGEWRCDAGKCI SAMWRCDGEQDCMDGTDEEFCHIRLRAQNLTSLDIPTP	292

Zebrafish	SQAGNSFVPSCTDN GAYVPTQCQSGGQCWCVD TYGKEIFGTRQNGV PKCSTGVKDCLSER	344
Fugu	TEAHSVYIPSCPEGGAFTRQCQGGQCWCVDHTGQELPGTRQQALLDCKLGPDSCPARR	350
Rat	TSFGHPYIPSCHRDGHYQTVQCQMERMCWCVDAQGTEIPGTRQQGQPLFCADQSCASER	349
Mouse	TRFGHSYIPRCHRDGHYQTVQCQTEGMCWCVDAQGREVPGTRQQGQPPSCAADQSCALER	349
Human	TSFGHPYVPSCHRRNGDYQAVQCQKEGPCWCVDAQGKEIHGTRQQGEPPSCAEGQSCVSKR	349
Marmoset	TSFGHPYVPSCHRRNGDYQAVQCQKEGPCWCVDAQGKEIHGTRQQGEPPSCAEGQSCVSKR	349
Pig	TSFGHPYVPSCHRDGEYQAGQCQKEGPCWCVDAQGKEIPGTRRPSEPLSACAKGQSCPLER	349
Cow	TSFRHPYVPSCHPDGEYQAAQCQGGPCWCVD SRGQEI PGTRQRGEPPSCAEDQSCPSER	349
Panda	SSFHGPYIPSCRRNGGYQAVQCQRGGPCWCAD AQGKEIHGTRRQGERPSCAEDQFCASER	349
Dog	SSFHGPYTPSCRRDGGFQAVQCQRGGPCWCVDARGKEIPGTRRPGERPSCAETQLCASER	349
Horse	SSFHGPYVPSCHRRNGDYQAVQCQREGPCWCAD AQGKEIYGTRRQGEPPSCAEDQSCTSER	349
Opossum	ISFQHSYMPSCCKDNGEYQPVQCQKERLCWCVD AKGKEISGTRQQGKLPSCGAERSCVSR	349
Zebra finch	QRFQQPLVPSCAADGGHTSLQCHPWGQCWCVD TQGHEVPGTRRRGQPLACGEEQSCISER	349
Sea urchin	-----QCWCSEPDGTMIPTNKR-----ASGESVTC-----	137
Amphioxus	SNLTLGGNDTGDHVCALITKMLPYFRQHEIKPRCNTVTVGIIYISSITRLIKEPVKPLSTR	352

Zebrafish	RQALSKLFYGPAGDFS KSNVFS-----SKD TVSFLGTCSPEFQELLANSGLLQSLPEL	398
Fugu	HRALFHLLSGSVAVPLQTSISDR-----SQTSCNSL---LQTLRDLLP-----VEV	393
Rat	QQALSRLYFETPGYFSPQDLLSS-EDRLVPVSGARLDISCPPIKELFVDSGLLRSI AVE	408
Mouse	QQALSRLYFETPDYFSPQDLLSS-EDRLAPVSGVRS DTS CPPIKELFVDSGLLRSI AVE	408
Human	QQALSRLYFGTSGYFSQHDLFSSPEKRWASPRVARFATSCPPTIKELFVDSGLLRPMVEG	409
Marmoset	QQALSRLYFGTSGYFSRHDLFSSWEEGRASPRVARFATCPPTIKELFVDSGLLHPMVEG	409
Pig	RRALSRLHLGPSGYSGQRGSFLAAERAPVSQTVP SFAASCPPLKELFVESGILQPVVQG	409
Cow	RRAFSRLRFGPSGYFSRRSLLLAPEEGPVSQRFA RFTASCPPSIKELFLDSGIFQPMVQG	409
Panda	RQALSRLHFGPSGYFSQHSLFLAPEGRQVSPRVARFATSCPPLIKELFVDSGILHPMVEG	409
Dog	RQALSRLFFGPSGYFSQHSLFLAPDGRQVSRVARFATSCPPLIKELFVDSGILRPMVEG	409
Horse	RQALSRLHFGPSGYFSRHSLFLAPEKRQVSRVARLATSCPPLIKELFVDSGILQPMVEG	409
Opossum	QQALSKLFFGPGGHFSQHSLFFAPEERQEPQKVARFAKTCPPFFKELFVDSGLLLPFTER	409
Zebra finch	RRALSRLLYGPAGYFSQSSSLFSTPDKQS--DKTDGFSRCPSPFKELFLDSGLSSPLAQS	407
Sea urchin	-----	
Amphioxus	FVIVEVGQFDKPGVCPQLGFPLHQSSPTCSR DACVSDFHCPGDLKCCVNGCGGTMCVDPS	412

Zebrafish	ER----PKVTN-----ILADVLQGMFPSGALALKALAL AQNPKRLQENLFGGKFLKN	446
Fugu	EF----PPFLS-----QLVEVDGLFRTVGGALRALSHS-SPQRLNENLFGGKFLKE	440
Rat	RYQQLSERS-----LLREAIRAIFPSREL AGLALQFTTNPKRLQQNLFGGTFLVN	459
Mouse	HYQRLSESRS-----LLREAIRAVFPSREL AGLALQFTTNPKRLQQNLFGGTFLAN	459
Human	QSQQFSVSEN-----LLKEAIRAIFPSRGLARLALQFTTNPKRLQQNLFGGKFLVN	460
Marmoset	QSQRFSVSES-----LLKEAIRAIFPSREL AHLALQFTTNPERLQQNLFGGKFLVN	460
Pig	QKKEVTAATES-----LLKEGLRGIFPSQELARLALQFTANPKRLQQNLFGGRFLAN	461
Cow	RDTRFVAPES-----LKEAIRGLFPSRELARLALQFTTNAKRLQQNLFGGRFLVK	459
Panda	QDQQFSASET-----LLREIGAIFPSRELARLALQFTTDPKRLQQNLFGGKFLVN	460
Dog	QDKQFSASET-----LIREAIGAIFPSRELARLALQFTTDPTRLQQNLFGGKFLVN	460
Horse	LDKQFSASES-----LLKEAIRVIFPSRELARLALQFTTNPKRLQQNLFGGKFLVN	460
Opossum	EGATQFFTLET-----FLSEAFGVLFPSRDLALLALQFTTDPKRLQQNLFGGKFLVN	461
Zebra finch	PFASQTPELET-----ILSEAITGMFPSRELARVALQFTANPKRFQENLFGGRFLKN	459
Sea urchin	-----	
Amphioxus	PEPTTLFEQEAGCANYDCGMQGAYCSGIVAGSAQC YCRPSECEAKDTVCDKYGTMYPSPM	472

Zebrafish	AGNFNFSGTVGDSGTLSTRQIFSQVGLTQV-----VTDLMQLAK-----TFTDSS	491
Fugu	IASSNISGVLGSQGT-----VRDWVS-----	462
Rat	AAQLNLSGALGTRSTFNFSQFFQQFGLPGFLVRDRATDLAKLLPVSLDSSPTVPLRVPE	519
Mouse	AAQFNLSGALGTRSTFNFSQFFQQFGLPGFLNRDRVTTLAKLLPVRLDSSSTPETLRVSE	519
Human	VGQFNLSGALGTRGTNFNSQFFQQGLGLASFINGGRQEDLAKPLSVGLDSNSSSTGTPEAAK	520
Marmoset	VGQFNLSGALGTRGTNFNSQFFQQGLGLASFNGGRLEDFAKPLSVELDSNSSAETPEASK	520
Pig	VGQFNLSGALGTRGTNFNSHFFQQGLGLPGFQKRQALADPAKSLSVGLDSNPATEAPEALK	521
Cow	VGQFNLSGALGTRGTNFNSHFFQQGLGLPGFQDGRALADLAKPLSVGLNSNPASEAPKASK	519
Panda	VGQFNLSGALGTRGTNFNSQFFQQFGLPGFQNGG--TNLSKPLSLGFDAGPATEPPEASK	518
Dog	VGRFNLSGAIGTRGTNFNSQFFQQFGLPGFQNSE--TDLAQPLSVGLDSQPATAPPEASK	518
Horse	AGQFNLSGALGTRGTNFNSQFFQQFGLPGFQNRGPPADRAEPLSLGLDSSPATESPEASK	520
Opossum	ISRFNLSGAIGARSTFNFTQFFQQIGLQGIKNRGDLVELTQQLSAGPD-----EVLANSK	516
Zebra finch	LIQFNFTGVLGTNGKYSIGQFFQEDLSEMGNQGPLESAEAFS-----LEASK	508
Sea urchin	-----	
Amphioxus	CHFEAFACEWGFPMEPAPCQDYNVQDIFKCKNGIRFVLKPYICDG-----I	518

Zebrafish	ENLNLDQEISDAFGRSVNLKNNREMIKLVSMALENTHFLSTLRVAIKQLKAEETTQLGSL	551
Fugu	-----GKGDSLQENRVLVESVRRVLGDP AFLSSLKVALQGHSSLLPPEQ--I	507
Rat	KRVAMNKS VGTFGFKVNLQENQDALKFLVSLMELPEFLVFLQRAVS-VPEDRARDLGDV	578
Mouse	KTVAMNKR VGNFGFKVNLQENQDALKFLVSLLELPEFLVFLQRAVS-VPEDIARDLGDV	578
Human	KDGTMNKPTVGSFGFEINLQENQNALKFLASLLELPEFLFLFLQHAIS-VPEDVARDLGDV	579
Marmoset	KAVAMNKSTVGSFGFEINLQENQNALKFLSSLLELPEFLFLFLQHAIS-VPEDVARDLGDV	579
Pig	MGVAMNKT VGSFGFEVNLQENRNALTF LSSLLELPEFLFLFLQHAIS-VPEDIARDLGDV	580
Cow	IDVALRKPVVGSFGFEVNLQENQNALQFLSSFLELPEFLFLFLQHAIS-VPEDIARDLGDV	578
Panda	KGAATNRMIVGSFGFEINLQENQNALTF LSSLLELPEFLFLFLQQAIS-VPEDIARDLGDV	577
Dog	EGTAMNVPVGSFGFQINLQENQNALTF LASLLELPEFLFLFLQHAIS-VPEDIAKDLGDV	577
Horse	KGVAMNKP VGSFGFEINLQENLNALKFLVSLLELPEFLFLFLQQAIS-VPEDIARDLGDV	579
Opossum	ERLTNLQSI VGSGLQKVNLDQNQNKLF LSSIMELPEFLFLFLKGVIS-VPENIARSLGDV	575
Zebra finch	GSSILSKPLVSSFVGTVTLDQNQNLKFLSYVLELPEFFTFLQQVIS-VPESVAEDLGEV	567
Sea urchin	-----	
Amphioxus	TDCFDGSDETGCPFKPEPPTSP TATVCNLPYRGRPCADATSRLRWYNSQKRTCLTYTH	578

Zebrafish	FRDIFQKSDVCKPMSSSSAPYLPQCTEDGLYQDVQCQSGECWCVD SRGLEVPGRRTTGSR	611
Fugu	LTPLLR--SCSGQDVTKHATFLPRCTPSGAFQEIQCDSGECWCVD SQGHEVLGSRTAGRP	565
Rat	MEMVFSQAACKQ---TSGRFFVP SCTAEGSYEDIQCYAGECWCVNSQGKEVEGSRVSGGH	635
Mouse	MEMVFSQAACKQ---MPGKFFVP SCTAGGSYEDIQCYAGECWCVD SRGKELDGSRVRGGR	635
Human	METVLSSQTCEQ---TPERL FVP SCTTEGSYEDVQCFSGECWCVNSWGKELPGSRVRGGQ	636
Marmoset	MEIVLNSQTCEQ---TPERL FVP SCMAEGSYEAVQCFAGECWCVD SWGKELPGSRVRGGQ	636
Pig	MEMALSSQGCEQ---TPGSLFVP SCTAEGSYEDVQCFAGECWCVDARGRELAGSRARGGR	637
Cow	MEMVFSQGCQ---APGSLFVP SCTAEGSYEEVQCFAGDCWCVD AQGRELAGSRVRGGR	635
Panda	MEIVLSSQGCEQ---TPGSLFVP RCTAEGSYEDVQCFAGECWCVD SRGKELAGSRVRGAR	634
Dog	MEMVLSSQDCEQ---TPGNLFVP QCSAEGDYEDVQCFAGECWCVD SRGKELAGSRVRGGR	634
Horse	MELVLSSQGCEQ---TPGGLFVP SCTAEGSYEDVQCFAGECWCVD SRGKELPGSRVRGGR	636
Opossum	IKMALESQACEQ---PSREL FVPTCTDGGNYDQVQCFAGECWCVD PQGRELRASRIRGQR	632
Zebra finch	VKLALGSGGCGE---EPRDL FVPTCTKEGRYEEVQCYAGECWCCLDTS GKEVPGRRRGRK	624
Sea urchin	-----	
Amphioxus	SGCDRNANSFGTREECLENVNAKRCVVKRTYSQRIPDLPQT TAAPT KDPEVVCNMLKDRG	638

Zebrafish	PRCPSQCEKERQMAIAVKASSSAGSEVFI PKCETDGAYVARQCLGKSCFCVDRSGTKL--	669
Fugu	SRCP S ICERQQWSALNMRKNMAAGAEIYVPVCS EDGDFLPLQC VGSHCFVDAKGN----	621
Rat	PRCPTKCEKQRAQMQLAGAPAGSSFFVPTCTSEGYFLPVQCFNSECYCVDAEGQVIPG	695
Mouse	PRCPTKCEKQRAQMQLASAPAGSSFFVPTCTREGYFLPVQCFNSECYCVDT EGQVIPG	695
Human	PRCPTDCEKQRAQMQLMGSQPAGSTL FVPACTSEGHFLPVQCFNSECYCVDAEGQAIPG	696
Marmoset	PRCPTDCEKQRAQMQLMGSQPAGSSVFVPACTSEGHFLSVQCFKAECYCVDAEGQAIPG	696
Pig	PRCPTACEKQRRMQSLLRGPAGSSVFVP SCTR EGHFLPVQCFSSDCYCVDA DGPPIG	697
Cow	PRCPTCEKQRAQMQLSGSQPAGSSLFVPACTSKGNFLPVQCFNSECYCVDT EGQPIG	695
Panda	PRCPTCEKQRALMQILSGSLPAGASLFVPSCSSEGHFLPVQCFNSECYCVDAEGQAIPG	694
Dog	PRCPTCEKQRALMRSLSGSLPAGASLFVP SCTR EGHFLPVQRFNSECYCVDTNGQAIPG	694
Horse	PRCPTKCEKQRAQMQLSGSQPAGSSLLVP SCTR EGHFLPVQCFSSSECYCVDAEGQPIG	696
Opossum	PRCPSECEKQREWAQVFM RSLPAGSSSLVPS CSDGSFLPVQCS DSGCYCVDS EGQTIPG	692
Zebra finch	PKCPTCEKQRRNLKNLQSLPAGSDLFI PSCTEDGDFLPLQCYGTNCFVDLNGKTIPG	684
Sea urchin	-----	
Amphioxus	PCRGRQKKYYLSTQRRCVRFTYGGCGGNDNRFHTYMECMDFCNDPRTKCQRQRTKAANA	698

Zebrafish	GIQSSGSSSLQCPTSCQAIATQFQSTIRSLSDPLSVTLQSEIYIPRCSYDGSWHQIQCD	729
Fugu	NVSPAGGAVSCKISIIYTIHTKHFTTSHDCKMIVPCSLTGK----	671
Rat	TQSTIGEPKLCPSVCQLQAEQAF LGVGVLLSNSSMVPPISSVYIPQCSTSGQWMPVQCD	755
Mouse	TQSTVGEAKQCPSVCQLQAEQAF LGVGVLLSNSSMVPSISNVYIPQCSASGQWRHVQCD	755
Human	TRSAIGKPKKCTPCQLQSEQAF LRVTQALLSNSSMLPTLSDTYIPQCSTDGQWRVQCN	756
Marmoset	TQSVMGKPKKCTPCQLQAEQAF LRVTQALLSNSSMLPTLPDITYIPQCRADGWRVQCD	756
Pig	TRTAPGEPKQCPTPCQLQAEQAF LGTVRGLISNPSEPPVLSSIIYIPQCSASGQWRRVQCD	757
Cow	TRSALGEPKPCSPCQLQAEQAF LGTVRTLVSNPSTLPALSSIIYIPQCSASGQWSPVQCD	755
Panda	TRSVPGEPKPCPTPCQLQAEQAF LGVARALGSGSSMLPSFSSSYVPQCSTSGQWRPVQCD	754
Dog	TRSLPGEPKQCPTPCQLQAEQAF LGIVQVLGSDSSMLPTFSSSYIPQCSTAGQWRPVQCD	754
Horse	TRSLPGEPKQCPTPCQLQAEQAF LGAVRALVSNSSTLPTLSSIIYIPQCSANGQWRHVQCD	756
Opossum	TEKMNGESKQCPTTCQLAAEQMFLWTARTLLGEP SLLPQLSDIYIPQCNSRGQWKRVCN	752
Zebra finch	IKGEAGNPMKCP SACQVAAGQEF LRAVKLLSDPSAVPELSSLHLPQCDAGGQWRVQCS	744
Sea urchin	-----	
Amphioxus	GLQVGMFITECRHGGFKPTCSRQSDDTGGQGLQTYMFRSVRHMDGQGLQTYMFRSVRHMD	758

Zebrafish	GPPEQAIEFYH-----	740
Fugu	PSP-----	674
Rat	GPHEQVFEWYERWNTQNSDGQELTTATLLMKLSYREVASTNFSLFQLSLYDAGQQSIFP	815
Mouse	GPHEQVFEWYERWKTQNGDGQELTPAALLMKIVSYREVASRNFSLFQLSLYDAGQQRIFF	815
Human	GPPEQVFEYQYQWEAQNK-GQDLTPAKLLVKIMSYREAASGNFSLFIQSLYEAGQQDVFP	815
Marmoset	GPPEQVFWYQYQWEAQNK-GQELTPAELLVKIVSYREAASGNFSLFIQSLYEAGQQGVFP	815
Pig	GPPEQAFWEYERWGAQSRSGQELTPAELLMKIMSYREAASGSFRVFIQNLYEAGQQGIFP	817
Cow	GPPEQAFWEYERWEAQNSAGQALTPAELLMKIMSYREAASRNFRLFIQNLYEAGQQGIFP	815
Panda	GPPEQAFWEYERWGAQNNSGQELTPAELLEKIMSYREAASGSFRLFIQSLYEAGQQGIFP	814
Dog	GPPEQAFWEYERWEAQNNSGQELTPAELLMKIMSYREAASGSFRLFIQSLYEAGQQGIFP	814
Horse	GPPEQAFWEYERWRAQNNGGQELSPAQLLMKIMGYREAASRSFRLFIQSLYEAGQQGIFP	816
Opossum	GPPEQAFQWYQRWITQNNGGQELPLAEVIQRMMSYKEASSEAFSIFIEKLYEAGHQNIFP	812
Zebra finch	GPPEQAFQWYERWIAENNQGKPLVPPELVNIIAGYKEASSGDFSFAFVKALYEAGHQNVFP	804
Sea urchin	-----	
Amphioxus	GQGLQTYMFRSVRHTGGQ-----GLQTYMSRSVRHTGG	791

Zebrafish	-----LLDGNSEAVYGPSVYLNPLSLWRLIRLDDSGYPGLLSDFSVPPLGSGFD	787
Fugu	-----CMKQKNASRSLIILFCPELS-----QTSSTGQIPFYSSSK----	711
Rat	VLAQYPSLQDVPQVVLEGATIQPGENIFLDPIYIFWQILNGQLSQYPGPYSDFSMPLEHFN	875
Mouse	VLAQYPSLQDVPQVVLEGATTPPGENIFLDPIYIFWQILNGQLSQYPGPYSDFNMPLEHFN	875
Human	VLSQYPSLQDVPLAALLEGKRPQPRENILLEPYLFWQILNGQLSQYPGSYSDFSSTPLAHFD	875
Marmoset	VLSQYPSLQDVPLAALLEGNRLQSRENVILLEPYLFWQILNGQLSRYPGPYSDFSSTPLAHFD	875
Pig	GLARYSSLQDVPPLAVLEGNLTQATRNILLEPYLFWQILNGQLPRYPGPYSDFSAPLAHLD	877
Cow	GLARYSSFQDVPVSVLEGNQTQPGGNVFLPYLFWQILNGQLDRYPGPYSDFSAPLAHFD	875
Panda	GLARYPSFQDIPLAVMEGNMTQPGGNILLEPYLFWQILNGQLSRYPGPYSDFSAPLAHLD	874
Dog	GLARYPSFQDVPPLAVMEGNRTQPGGNILLEPYLFWQILNGQLSRYPGAYSDFSAPLAHFD	874
Horse	GLAKYSSLQDVPPLAVLEGNLTQPGENIFLEPYLFWQILNGQLSRYPGPYSDFSIPLAHFD	876
Opossum	ILTDYSSSFQAVPIEVLDGNVTMAGDNILFDPFTFWQLLTGKLSRYPGPYTDFSSPLGHFE	872
Zebra finch	IFSMYSSFTDLPPQVLKGNLTSASENILLDPYTFWQLLTDQLSYYPGPYTDFSAPLGHFE	864
Sea urchin	-----	
Amphioxus	QGLQTYMFRSVRHTGGQGLQTYMFRSVRHTGGQGLQTYMSRSVRHTGGQGLQTYMFRSVR	851

Zebrafish	LRQCWCVDLEGDMLAGSKA-----	806
Fugu	-----QVTHLFLPGTNE-----	723
Rat	LRSCWCVD EAGQELDGTRT-----	894
Mouse	LRSCWCVD EAGQKLDGTQT-----	894
Human	LRNCWCVD EAGQ ELEGMRS-----	894
Marmoset	LRNCWCVD EAGQ ELEGTRT-----	894
Pig	LRSCWCVD EAGR KLEGTQT-----	896
Cow	LRSCWCVD EAGQ KLEGTRN-----	894
Panda	LRSCWCVD EAGQ ELEGTRT-----	893
Dog	LRSCWCVD EAGRELEGTRT-----	893
Horse	LRSCWCVD EAGQ ELEGTRA-----	895
Opossum	LRNCWCVD ENGQELKGTQV-----	891
Zebra finch	LRDCWCVD SKGGELEGTKAGVNQVPALLKGNLTSASENILLDPYTFWQLLTDQLSYYPGP	924
Sea urchin	-----	
Amphioxus	HRVDRGFKPTCSGQSDTRVDR-----	872

Zebrafish	-----PVGQIPKCPGPCSVVQRQVSEFLKQAEEL	835
Fugu	-----LLTRS-----CSGALAKVTAFRNEVKSI	746
Rat	-----RAGEIPACPGPCCEEVKFRVLKFIKETEEI	923
Mouse	-----KPGEIPACPGPCCEEVKLRVLKFIKETEEI	923
Human	-----EP SKLP TC PGSC EEAKLRVLQFIRETEEI	923
Marmoset	-----EP SKLP TC -----ELTHMKFLLDVFCVQSIFI	921
Pig	-----EP SKVPACPGSC EEVKLRVLQF I KEAEEI	925
Cow	-----EPNKVPACPGSC EEVKLRVLQF I REAEEI	923
Panda	-----EP SKVPACPGSC EKVKLRVLQF I KETEEI	922
Dog	-----EP SKVPACPGSC EEVKLRVLQF L KETEEI	922
Horse	-----EPNKVPACPGSC EEVKLHILRF I ETEEI	924
Opossum	-----ETNKVPACPGACEE VRLQVIQF I EES E E I	920
Zebra finch	YTDFSAPLGHFELRDCWCVD SKGGELEGT KAGVNQVPACPGICEGVKQ EAMKFME EAEQL	984
Sea urchin	-----	
Amphioxus	-----GFKPTCSGQSDTWMDRGFKPTCSGQSDTG	901
Zebrafish	ISASNSTHVPVGYGFLLAESVYLSPEELEQT---RSSMIPVTQTLLSNTDTALR-LAAHS	891
Fugu	LNLSNSSIHPLYEFLLADISPLTLDEINQT---EEGQW-ITDRLLSHSR SALR-LAAFS	801
Rat	VSASNASSFPLGESFLVAKGIQLTSEELGLPPLYP-SREAFSEKFLRGSEYAIR-LAAQS	981
Mouse	VSASNASSFPLGESFLVAKGIQLTSEELDLPPQFP-SRDAFSEKFLRGGEYAIR-LAAQS	981
Human	VSASNSSRFPLGESFLVAKGIRLNRNEDLGLPPLFP-PREAFAEQFLRGSDYAIR-LAAQS	981
Marmoset	LELMN-----ADEDLGLPPLFPPLPGEAFSEQFLRGSDYAIR-LAAQS	962
Pig	VMVSNSSQFPLGESFLAAKGIRLTDEELALPPLSP-SRETFLKFLSGSDYAIR-LAAQS	983
Cow	VTYSNSSRFPLGESFLAAKGIRLTDEELAFPPPLSP-SRETFLKFLSGSDYAIR-LAAQS	981
Panda	VLASNSSWFPLGESFLAAKGIRLTDEELSLPPLSP-SRESFSEKFLSGGDYAIR-LAAQS	980
Dog	VLASNSSWFPLGESFLAAKGIWLTDEELSLPRLSP-SRETFLKFLSGGDYALR-LAAQS	980
Horse	VLASNSSQFPLGESFLAAKGIWLTSEELALPRLSP-SWETVSEKFLSGNDYAIR-LAAQS	982
Opossum	IRASNSSQFALGESFLMAKGILLSDEELSRPLSFP-SKETFSNSMFHSGDYALR-VAAQS	978
Zebra finch	ILASNGSQFAFGESFLAAKGIELTDRDLLRSAGPDGLQAAIPQELLSGRDSALQ-LAAWS	1043
Sea urchin	-----	
Amphioxus	WTGASNLHVQVSQNTGGQGLQTYIYVQVSQTRVDRGSKPTCSGQSDTRVDRGFKPTCSGQ	961
Zebrafish	TLQFYQWSRLMASDRDRQSLMLGYQPYIPQCDAYGQWLPNQCYQSTGLCWCVDDEEGQYIA	951
Fugu	-----RESAGTFVHRR-----SYEPFLPQCDGDGNWLNRCQCFHSTGQCWCVDDEGEYIP	850
Rat	TLTFYQKLRLASLGESNGTASLLWSGPYMPQCNTIGGWEPVQCHPGTGQCWCVDGWGELIP	1041
Mouse	TLTFYQSLRASLGKSDGAASLLWSGPYMPQCNMIGGWEPVQCHAGTGQCWCVDGRGEFIP	1041
Human	TLSFYQRRRFSPDDSAGASALLRSGPYMPQCDAFGSGWEPVQCHAGTGHCWCVDDEKGGFIP	1041
Marmoset	TLSFYQSRRLSLDNNAGASARLRSGPYMPQCDAFGSGWEPMQCYAGTGHCWCVDDEKGEFIP	1022
Pig	TFSFYQRRRVALSDAPRTSGPLQPYYPVPQCDALGSGWEPVQCHAATGHCWCVDGEGAYLP	1043
Cow	TDFDYQRRRLVTLAESPRAPSPVWSSAYLPQCDAFGSGWEPVQCHAATGHCWCVDGGEYVP	1041
Panda	TLDIFYQRRGFLLDGSTRAALPRPGPYVPQCDVWGGWEPVQCHAGTGHCWCVDGRGEYVP	1040
Dog	TLDIFYQRRGFLLDGSTRTSALLRPVPYPVPQCDVWGGWEPVQCHARTGYCWCVDGKGEYVP	1040
Horse	TDFDYQRRRFALGDSARTSALLPPSPYPVPQCDALGRWEPVQCYARTGHCWCVDGKGEYVP	1042
Opossum	TLSFYQRSQSTLGDVPNEATILGYHPYPVPQCDGFNGWEPLQCSESTGHCWCVDDEKQYVA	1038
Zebra finch	VLRFYWQSYFTSKSSAGEATQLGFFPYIPQCDGLGNWEPVQCYESTGHCWCVDERGRYIM	1103
Sea urchin	-----	
Amphioxus	SDKVEPKGKCHVDRLAIDAGLPGAYVPQCREDTYDPLQCHGSTGECWCVSEYGDEIS	1021
Zebrafish	DSLTSRS-----SLPQMCEHPAKLYARG-----SKVTLCSLTGDKQALIS-	991
Fugu	DSLTSRSDHLPRCLTQCQRAHAQLLLSGWMKSSDHSR-----SYSPQCEEDGKFSVLQTG	905
Rat	GSLMARSSQMPQCPTSCELSRANGLISAWKQAGHQRNPGPGDLFTPVCLQTGEYVRQQT	1101
Mouse	GSIMSRSSQMPQCPTNCELSRASGLISAWKQAGPQRNPGPGDLFIPVCLQTGEYVRKQTS	1101
Human	GSLTARSLQIPQCPTTCEKSRSSGLLSSWKQARSQENPSPKDLFVFPACLETGEYARLQAS	1101
Marmoset	ASLTARSLQIPQCPTTCEKSRSSGLLSSWKQARSQGNPTPKDLFIPACLETGEYARLQAS	1082
Pig	ASLAARSPQVLQCPSPCETSRVRGLLSAWKQAGSQVRPSPKDLFIPACTETGEFARLQAS	1103
Cow	TSLTARSRQIPQCPTSCERLRASGLLSSWKQAGVQAEPSPKDLFIPTCLETGEFARLQAS	1101
Panda	ASLTARSPQIPQCPTACETSRASGLLSSWKQAASQGNPSPKDLFIPACLETGEFARLQES	1100
Dog	ASLTARSPRI LRCTACEKSRASGLLSSWKQAGSQGNPSPKDLFIPTCLETGEFARRQES	1100
Horse	ASLTARSPQMPQCPTTCEKSRASGLLSSWKQAGSQGNPSPEDLFIPTCLETGEFARLQAS	1102
Opossum	DSLAARSTRLPQCPSVCEKSQTNGLISNWEQGSAGNASPGDLFTPSCLETGEYNRLQES	1098
Zebra finch	DSLVSRSSELPKCRTSCQRSQANALISSWRQSSAKLDTSAADLFIPTCLETGEYTVLQRS	1163
Sea urchin	-----	
Amphioxus	GSRVSPGQLVPNCGDLSARTKRPQSQCEQEQQEVLAFALPG-----	1062

Zebrafish	-----LTHTRHVKRMKTIALQREVALG-----YEPECVQDGGHFS	1027
Fugu	GDAGWCVNPNQGEQIQMATLSPGGQLTCP SRCQL-----LAFQCKSDG-SFQ	951
Rat	GTGAWCVDPSSGEGVPT---NTNSSAQCPGLCDALKSRVLSRKVGLGYTPVCEALDGGFS	1158
Mouse	GTGTWCVDPASGEGMPV---NTNGSAQCPGLCDVLKSRALS RKVGLGYSPVCEALDGAFS	1158
Human	GAGTWCVDPASGEEELRP---GSSSSAQCPSLCNVLKSGVLSRRVSPGYVPACRAEDGGFS	1158
Marmoset	EAGTWCVDRASGEELLPP---GLNSSAQCPSLCNVLKNGVLSRRIGPGYVPTCGAEDGGFF	1139
Pig	EASTWCVDPASGEATPP---GTNSSAPCPGLCEVLQRGVPSRRASPGTTACRAEDGGFA	1160
Cow	EAGTWCVDPASGEGVPP---GTNSSAQCPSLCEVLQSGVPSRRTPSPGYSPACRAEDGGFS	1158
Panda	EAGSWCADPASGAGMPP---GMNSSAPCPSLCEVLPSGVLSRRASSGYTPACRAEDGGFS	1157
Dog	EGGTWCVDPGSGAGRPP---GTDSSAPCPSLCEELSSGTLRRASSGYSPACRAEDGGFS	1157
Horse	EAGTWCVDPATGEGMPP---GTNSTAQCLSRCEGLQRGDPSRRASPGYTPACRAEDGGFS	1159
Opossum	ESNTWCVNLASREGTRLGELPSNSSNP CPSTCNTLMEKANLREVSGYIPTCEGRDGRFS	1158
Zebra finch	DTD IWCVDPVSGE IFQRGSKGLDGNPECPSLCNMLKSKAVSREAARGDIPQCEGRDGSFS	1223
Sea urchin	-----	
Amphioxus	-----AYVPQCRDDGSFS	1075

Zebrafish	PLQCDLS--DCWCVSDSGKELPMTRSPRSTGQTPACNIPECPLPFG--DISHGAVLCSST	1083
Fugu	PLQCDMN--SCWCVSEDGQEVSGTRTRRQLGQVPSCDSPFCPTPT----ITHGTLVCLPT	1005
Rat	PVQCDLAQGSWCVCVLASGEEVPGTR---VVGTPQACESPQCPLPFSGSDVTDGVVFCETA	1215
Mouse	PVQCDLAQGSWCVCVLGS GEEVPGTR---VVGTPQACESPQCPLPFSGSDVADGVIFCETA	1215
Human	PVQCDQAQGSWCVMDSGEEVPGTR---VTGGQPACESPRCPLPFNASEVVGTTILCETI	1215
Marmoset	PVQCNQAQSSWCVMDSGEEVPGTR---VAGSQPACESPRCPLPFNVSEVVGTTILCETI	1196
Pig	PVQCDPAQGSWCVCVLGS GEEVPGTR---VAGSQPACE-----	1194
Cow	PVQCDPAQGSWCVCVLGS GEEVPGTR---VAGSQPACESPQCPLPFSVADVAGAILCERA	1215
Panda	PVQCDPAQGSWCVCVLDSGEEVPGTR---VAGSQLACESPQCPLPFNTSDVAGVILCERA	1214
Dog	PVQCDLAQGSWCVCVLDSGEEVPGTR---VAGSQLACESPRCPLPFNTTDVGGVILCERA	1214
Horse	PVQCDLDQGSWCVCVLGS GEEVPGTH---VAGSQPACESPQCPLPFNVSEVAGVILCERA	1216
Opossum	PVQCDLDQESCWCVLAMGEEVPGTR---VHGGRPSCESPQCPLPFSASDVVHGVVLCCKG	1215
Zebra finch	PVQCSQEQESCWCVFNGEEVPGTR---VNGARPECASPQCALPFGASAVANGAVLCETI	1280
Sea urchin	-----	
Amphioxus	PVQCHGSSGHCWCADQFGNEVAGTRVRPGENPRCSAEAPVTEAP-----	1119

Zebrafish	NVP-GQQMQRCELYCDQSYVNTLPVASFLCDPQAKNWL-EDAPLSNACQKPQVLQTVQVS	1141
Fugu	-----ANSSQSCNLMCHRGYQNALPVSNFVCDTKSHQWDGKHKPLGGACQTSQLWS-----	1056
Rat	SSSGVTTVQQCQLFCRQGLRNVSFPGPLICNLESQRWV-TLPL-PRACQRPQLWQTMQTQ	1273
Mouse	SSSGVTTVQQCQLLCRQGLRSAFE SPGPLICSLESQHWV-TLPP-PRACQRPQLWQTMQTQ	1273
Human	SGPTGSAMQQCQLLCRQGSWSVFPFPGPLICSLESGRWE-SQLPQPRACQRPQLWQTIQTQ	1274
Marmoset	SGPTGAAIQQCRLLCRQG-----FRPQLWQTIQTQ	1227
Pig	-----RPQLWQTIQTR	1205
Cow	SGLGAAAGQRCQLRCSQGYRSFAFPPEPLCSVQRRRWE-SRPPQPRACQRPQFWQTLQTQ	1274
Panda	SGAGGAPVQRCQLWCRRGYRSFAFPGLVCSLEKRRWE-SQPPQPRACQRPQLWQTLQAR	1273
Dog	SGPGGAPVQRCQLLCRRGYRSFAFPGLVCSLEEGRWL-SQPPQPRACQRPQLWQTFQTQ	1273
Horse	SG--EATVXRCQLLCRWGYRSFAFPGLVCSPPQRRLWV-SQPPQPRACQRPQLWQTLQTG	1273
Opossum	TDK-RQAVQQCQLICRQGYHLALPRGPFACNIESQRWI-SEPPLPQACQKLQLLQTVQTQ	1273
Zebra finch	SG-QAPGIQQCQLVCRQGFHSAAPSSPSCDARQRRWV-SAAPLPQACQKLQLFQTVQAQ	1338
Sea urchin	-----	
Amphioxus	-----PQTKCQEEREDANSRGLLAGVYVPQCTEEGLYNPIQCHGSTGQCWCVNDSGEEI	1173

Zebrafish	VQLQLSLNEGQQSCSTQS---VDLQAALLRDMRATGLCSLQLTSSGQTSSVSVCDESSVS	1198
Fugu	-----LPSACSHI---SSLKSTFLHMTSRGLCSAQLPASG--RSVSLCDASSVH	1101
Rat	AHFQLLLPPGKMCSIDYSGLLQAFQVFI LDELITRGFCQIQVKTFGTLVSRTVCDNSSIQ	1333
Mouse	AHFQLLLPPGKMCSVDYSGLLQAFQVFI LDELIARGFCQIQVKTFGTLVSSTVCDNSSIQ	1333
Human	GHFQLQLPPGKMCSADYADLLQTFQVFI LDELTARGFCQIQVKTFGTLVSIPVCDNSSVQ	1334
Marmoset	GHFQLQLPPGKMCSADYAGLLQAFQVFI LDELTARGFCQIQVKTFGTPVSI PCDNSSVQ	1287
Pig	GQFQLQLPPGKVCADYAGLLPTFQVFI LDELTARGFCRIQVTTARTPVSIPVCDSTVR	1265
Cow	AQFQLLLPLGKVCADYSGLLLAQVFI LDELTARGFCQIQVKTAGTPVSI PCDSSVK	1334
Panda	GQFQLRLPPGKMCSADYAGLLLVFQVFI LDELMARGFCEIQAKTFGTPVSI PCDGSTVQ	1333
Dog	GQFQLQLPPGKMCSADYAGLLPAFQVFI LADELEARGFCQIQAKTLGTPISIPVCDSSVQ	1333
Horse	AQIQLQLPPGSLCRADDAGLLPVFQGF I LDELMARGFCQIQVKTYGTPVSI PCDNSTVR	1333
Opossum	VQFHLQLPPGKMCSDDYSGLLQAFQSF I LDELKARGFCQIQGNTFGAVFSFPVCDSTVQ	1333
Zebra finch	THFQLRLPPEKTCSSDYSGLLQAFQIFI LDELKARGLCHLQVNAFGKTGSVSMCDSTVY	1398
Sea urchin	-----	
Amphioxus	MGTRVKAGESPNCAGTPATKQCQLEREEMLSEGPLL GAYIPTCAEDGSYDVIQCHDSTGHC	1233

Zebrafish	LECSN--DKEVTARITLMARLSDLPLAALPDLDIDTALSEERLLNGLKKLILSGSYQSI	1256
Fugu	LQCDNG--ITDMLMVTWSAKVSDLATSDLPNLQDFSQFLNDSSLLRGIRDIMGN--IQSM	1158
Rat	VGCLT--AERLGVNATWKLQLEDISVGSPLNLHSIERALMGQDLLGRFANLIQSGKFQLH	1391
Mouse	VGCLT--AERLGVNVTWKLQLEDISVGSPLDLYSIERAVTGQDLLGRFADLIQSGRFQLH	1391
Human	VGCLT--RERLGVNVTWKSRLLEDIPVASLPDLHDIERALVGKDLLGRFTDLIQSGSFQLH	1392
Marmoset	VGCLT--RERLGVNVTWKSRLLEDIPVASLSDLYDIERAMVGKDLLGRFTDLIQSGSFQLH	1345
Pig	VGCLS--LDRLGVNVTWTLRLLEDAPPASLPDLRDIEEALAGKDLVGRFADLIQSGTFQLH	1323
Cow	VECLS--RERLGVNITWKLQLVDAAPPASLPDLQDVEEALAGKYLAGRFADLIQSGTFQLH	1392
Panda	VECLA--GERLGVNVTWKLPLKDVPPASLPDLHDIEEALVGKDLIGRFTDMIQSGGFQLH	1391
Dog	VECVT--GERLGVNVTWKLHLEDVPPASLPDLHDIEEALVGKDLIGRFTDLIQSGGFQLH	1391
Horse	VECLT--QERVGVNVTWKLRLLEDVPPASLPDLRDVEEALVGKNLIRRFADLIQSGAFRLH	1391
Opossum	VECLT--GERLGVNVTWSSQLEDIPATSFDPDFHDIEKAFMGNDLVGRFAKLIQSGGFQLY	1391
Zebra finch	VQCLG--VDRLGVNITWRTQLENIPTASLPDLHDIEENAIIGDNLIGAFIKEIKDGVFLH	1456
Sea urchin	-----	
Amphioxus	WCVDREGEIILGTRVGPQEDVVCEDDATTSKPGVKEGKMPLGSETEEVTEAPKP-----	1287

Zebrafish	FLSD-----HSIALSSPPSFSCMTGYSQLPQ-----STGCVLCPAGSFFS	1296
Fugu	LASK-----PKLVSVKSPSLGCSRGYRLDS-----GAGCLICPAGTLST	1198
Rat	LDSKTFSADTILYFLNGDRFVTSPMTQLGCLGEGFYRVST---TSQDPLGCVKCPGGSFSQ	1448
Mouse	LDSKTFSADTILYFLNGDSFVTSPTQLGCMGEGFYRVPT---TRQDALGCVKCPGGSFSQ	1448
Human	LDSKTFPAET--IRFLQGDHFGTSPRTWFGCSEGFYQVLT--SEASQDGLGCVKCPGGSYSQ	1450
Marmoset	LDKSFPADTAIRFLQGDHFGTSPRTRFGLGEGFYQVWT--SEASQDRLGCVKCPGGSYSQ	1404
Pig	LDSTTFPADPSIHFLQGDLSLGTSPRTRFGCVEGSRQVPATSNTSQDPLGCVRCPEGYSYFQ	1383
Cow	LDSKTFSADTSIRFLQGDHFGTSPRTQFGCLEGFRVVAASDASQDALGCVKCPGGSYSFQ	1452
Panda	LDSKTFPADTSIYFVQGDRLGTSPRTWFGCLEGFRQVLATSNATQDPLGCMCPGGSYSFQ	1451
Dog	LDSKTFPADTSIYFLQGDHFGTSPRAWFGCLEGFRQVLAPSNAPQDPWGCVKCPGGSYSFQ	1451
Horse	LDSKTFPVDTSIRFIQGASFGTSPRTWFGCLEGFRQVSATSSAGQDPLGCVKCPGGSYSFQ	1451
Opossum	LDSKIFPADTTIRFLRGDFDTSPAIFGCKKGFQKNSPQGKTVDLDPGCVTCPEGYSYFQ	1451
Zebra finch	LDSKQFIADSVDFPRDEEFDLSRVQLG-----FVCPGGSYSFQ	1495
Sea urchin	-----	
Amphioxus	-----TVTVRSVTV	1296

Zebrafish	GGVCTPCPRDTFQEDEGQVFCSPCPAGTSTVAQGAFSASHCLTECKKS--KLSCTTKGDF	1354
Fugu	EGGCALCPQGTYYQDQEGRDFCHKCPRGSS--LTGASSVNQCVTDCQSR--GLRCSEKGDF	1254
Rat	DGKCTPCPAGTYQGQAGSSACIPCPRGRTTITGAFSKTHCVTDCQRDEAGLQCDQNGQY	1508
Mouse	DGRCTPCPAGTYQEQAQSSACIPCPRGRTTITGAFSKTHCVTDCQKNEAGLQCDQNGQY	1508
Human	DEECIPCPVGFYQEQAQSLACVPCPMGRTTISAGAFSQTHCVTDCQRNEAGLQCDQNGQY	1510
Marmoset	DEQCILCPVGFYQEQAQSLACVPCPMGRTTISAGAFSQTHCVTDCQRNEAGLQCDQNGQY	1464
Pig	EEQCIPCPAGFYQEQTGSLACAPCPAGTTTTSVGAFSQTHCVTACQRDEAGLQCDQDGQY	1443
Cow	DEQCIPCPAGFYQEQAQSLACVPCPEGRTTVYAGAFSQTHCVTDCQKNEVGLQCDQDSQY	1512
Panda	KETCIPCPVGFYQERAGSVACIPCPMGRTTISPGAFSPMHCVTACQRSEVGLQCDQDGQY	1511
Dog	KEICIPCPVGFYQEQAQSMDCVPCPVGRTTISPGAFSHTHCVTDCQRSEVGLRCDQDGQY	1511
Horse	DERCIPCPVGFYQERAGGLACDPCPLGRTTISAGAFSQTHCVTDCQKNETGLQCDQDGQY	1511
Opossum	NEECVPCSPGFYQEQPQSLACVRCRPAAGRTTISIGAFSQSHCVTDCQKNDLGLQCDQDGAY	1511
Zebra finch	DDECIPCPVGFYQYQYQTHSFCIKCPVGKTTNSYGAISADHCVTCPQGGEGQLQCDGEGQY	1555
Sea urchin	-----	
Amphioxus	KAETPKNETEKFLPPENGLNAFLNLTCDARRRALRLFWYNFTTAEVSYIPTCTADGKF	1356

Zebrafish	LSAQKDPVSGKWRCVSAQGEELTWTSSDGLLTVEECKVMEKFEVVSSSSLLKSESADTL	1414
Fugu	LPAQPDFLSGRWRCVSSEGLDLDSNSEKALTDEECVFRFRFQAVSGSDVIVNADDAEVL	1314
Rat	QANQKMDMSGVFCVDSEGRQLQWLQTEAGLSESQCLMMRKFEKAPESKVIFDASSPVIV	1568
Mouse	QASQKNRDSGEVFCVDSEGRKLQWLQTEAGLSESQCLMIRKFDKAPESKVIFDANSPVIV	1568
Human	RASQKDRSGKAFCDVDEGRRLPWETEAPLEDSSQCLMMQKFEKVPESKVIFDANAPVAV	1570
Marmoset	RASQRDKSGKAFCDVDEGRRLPG--ETEAPLEDSSQCLMMQKFEKTPESKVIFDASAPVAV	1523
Pig	RASQRDRASGKAFCDVDEGRRLPWSETQAPLVDAQCLMMRKFEKLPESKVIFTADVAVLG	1503
Cow	RASQRDRSGKAFCDVDEGRRLPWTEAEAPLVDAQCLVMRKFEKLPESKVIFSADVAVMV	1572
Panda	RASQRDRDSRKSFCVDDEGRRLPWSDTDGPLSDSQCLMMRKFEKALESQVIFGANVTAVG	1571
Dog	RASQRDRGAGKAFCDVDEGRRLPWSETAPLTDSSQCLMMQKFEKAPDSKVIFSANVTAVG	1571
Horse	RASQRDRSGKAFCDVDEGRRLPWSETAPLTDSLCLMMQKFEKVPESQVLFNADVAVV	1571
Opossum	SPSQRDPSSGRGAFCDVDSLKTLAWTETDGLTSSQCLMLRKFEQAPESKVIFSASDALV	1571
Zebra finch	RPAQODPATQKSLCVDSEGAALDWTETEDLLTDEQCLVLRKFERAPASSLIYGSEEAQIL	1615
Sea urchin	-----	
Amphioxus	FPMQCYGASGYCFVDEAGKEIPGTVSEP-----GARPVCSGVDDAKVD	1400

Zebrafish	SSDSSSQPKETQLRKCVLDCTQDDSCLYVAVFSDEEKTHCEMYSTSADNVECRTEPSKG	1474
Fugu	RTLT-----ADLSTCLHACSAEPSCHHVALFN--LHSQCELYSTHTVNTHCNTSQQTRG	1366
Rat	KSRVPS--ANSPLVQCLADCADDEACSFVTVSSMSSEVSCDLYSWTRDNFACVTSQDEED	1626
Mouse	KSSVPS--ADSPLVQCLTDCANDEACSFVTVSTMESEVSCDFYSWTRDNFACVTSQDEQD	1626
Human	RSKVPD--SEFPVMQCLTDCTEDEACSFVTVSTTEPELSCDFYAWTSDNVACMTSDQKRD	1628
Marmoset	RSKVPD--SEFPVMQCLTDCAEDETCEGFLTMSMMEPEVSCDFYAWTSDNVACMTSEQKQD	1581
Pig	-SKVPD--SESSLMQCLADCALDEACGFLTVSLEGSEGSDFYAWTSDNIACMTSSGQED	1560
Cow	RSEVPG--SESSLMQCLADCALDEACGFLTVSTAGSEVSCDFYAWASDSIACITSGRSED	1630
Panda	RSKAPG--SESPLMQCLTDCALDAACSSLTVSSVGSEVSCDFYAWSSDNIACVITSTQDQD	1629
Dog	RSKVSG--SGSPLLQCLTDCALDETCFSLAVSTAGSEVSCDFYGWTSIACITSAQHQD	1629
Horse	RSRVPD--SDSPLIQCLADCALDEACSFVTVSTAGSEVSCDFYAWTSDNIACMTSGQDRE	1629
Opossum	QSKTMK--GEFPLMQCLLDCSLDEACSFVTVTVAGSDAVCDFYAGTDVNIDCIASNQEQG	1629
Zebra finch	QSQSFEGDLQSTYFQCISGGEREDACGFAAVTPAGTEVLCELYSAAEAFNCTTSGSVQG	1675
Sea urchin	-----	
Amphioxus	TWDTGS-----GEDGGEEPTEEIELFTSAPTPDKAVLPTESPMVETTTIATSVL	1449

Zebrafish	FLGNDGAEAFQTLICVLKIKGDEPD-LTVLRKKGYEFSTAGLKR--FERLNFRKAGSGVY	1531
Fugu	FLGNLQAEHSDWLSCFPRVKGRASD-LLVIKKKGVEFTSSWQQQMYLKMKMMKVLSGVF	1425
Rat	AVDSLKETSFGLRCQVKVRNSGKDSLAVYVKKGHEFTASGQKS--FEPTGFQNVLSGLY	1684
Mouse	AMGSLKATSFGLRCQVKVRNSGKDSLAVYVKKGYESTAAGQKS--FEPTGFQNVLSGLY	1684
Human	ALGNSKATSFGLRCQVKVRSHGQDSPAVYLKKGQGSTTTLQKR--FEPTGFQNMLSGLY	1686
Marmoset	ALGNSKATSFGLRCQVKVRSRGQDSPAVYLKKGQGYTTTLQKS--FEPTGFQNTLSGLY	1639
Pig	ALGTSKATSLRSLTCQVKVRPGDGVPPAVYLKKGQEFATVGRKR--FEQTFQNALSGLY	1618
Cow	ALGTSQATSFGLRCQVKVRREGDPLAVYLKKGQEFITIGQKR--FEQTFQNSALSGMY	1688
Panda	TLGNSKATGFGLRCQVTVRSGAQDPPSVYLKKGAGSTWRLQKS--FEQTFQNTLSGMY	1687
Dog	TLGNSEATSFGLRCQMTVRSGAQDSLAVYLKKGQEFTTTSQKS--FEQTFQNMLSGLY	1687
Horse	ALGNSEATGFGLRCQVQVRSGDGGSLAVYLKKGQEFPTASQKS--FQNTGFQNTLSGVY	1687
Opossum	ALGNAAATSFQHLNCLLKVNDDKASVTVYLKKGYEFTTSGQKT--FEKTNFQNTLSGVY	1687
Zebra finch	VLGNPAATSISSLSCLLHVRNPEGDALMAFLKRGLEFLSSGPKA--FERTGFQNVLSGVF	1733
Sea urchin	-----	
Amphioxus	GLVTTAASKLGLVTTAASKPGLFTTVTPVLNNTAELGPDVSTRMPTLCERARAEALTALK	1509

Zebrafish	RTLVFDAAGSALADVHRFCVDSCGRETCDDGFILNQNVLNNGSIMCG-FLTAPTVLQCSE	1590
Fugu	RTQVFSSRQTSLSDVHRFCQDTCCHDKCCHGYIINQNSLMGSLFCG-WLRSPSVLMCEE	1484
Rat	SSVVFSA LGTNLTDTHLFCLLACDQDSCDGFIVTQVKE--GPTICG-LLSAPDILVCHI	1741
Mouse	SPVVFSA GANLTDHTYCLLACDNDSCDGFIIITQVKG--GPTICG-LLSSPDILLCHI	1741
Human	NPVVFSA GANLTD AHLFCLLACDRDLCCDGFVLTQVQG--GAIICG-LLSSPSVLLCNV	1743
Marmoset	NPVVISR--ASLTD AHLFCLLACDHDLCDDGFILTQVQG--GAIICG-LLSSPSVLLCNV	1694
Pig	SPVVFSA GASL TEAHLFCFLACDRDSCDGFILTQVQG--GPIICG-LLSSPDVLLCHV	1675
Cow	SPVVFSA GASLA EVHLFCLLACDHDSCDGFILVQVQG--GPLLCG-LLSSPDVLLCHV	1745
Panda	GPVVFPA SGADLTGAHLFCLLACDHDSCDGFILAQVQG--GPIICG-LLSSPDVLLCNV	1744
Dog	RPVIFPA SGADLTAAHLFCLLACDRDSCDGFILAQLQG--GPVICG-LLSSPDVLLCHV	1744
Horse	NPVVFSA GANL TEAHLFCLLACDRDSCDGFILAQVQG--GPIICG-LLSSPDVLLCNV	1744
Opossum	RSIMFSIDGANLMDTHLYCHLACDGEPCDGFILTQTLL--GGVLDSYLISSDTFLISKP	1745
Zebra finch	RSIALPAAGTSLTDAGLLCRQECSDSCDGFILSQLLLDAGTILCS-LLSSPDVLICNA	1792
Sea urchin	-----	
Amphioxus	ASEQHNRSRSAFVPTCTEEGRYTPRQCYLDGVNCFVKNKYGNALSAVTRMTEGEELECEE	1569

Zebrafish	SDWDVKSLSSSS-----RICGAGVQYSKQLKRFTSFSGGQNFTIT	1630
Fugu	QDWDVTGQGTAN-----RICGAGLQYNEQQKSFVDFGGQMFTIN	1524
Rat	NDWRDASDTQAN-----GTCAGVTYDQGSRQMTMSLGGQEFLQG	1780
Mouse	NDWRDTSATQAN-----ATCAGVTYDQGSRQMTLSLGGQEFLQG	1780
Human	KDWMDPSEAWAN-----ATCPGVTYDQESHQVILRLGQDEFIKS	1782
Marmoset	EDWMDASEARAN-----ATCPGVTYDQETRQVTLRVGGQDEFIKS	1733
Pig	RDWRDPSEAQAD-----ATCPGMTYDQDSHQGTLLRLGGQEFK-S	1713
Cow	RDWRDPAEAQAN-----ASCPGVTYDQDSRQVTLRLGGQEIR-G	1783
Panda	KDWRDPAEAQAN-----ATCPGVTYDQGSRQVTLRLGGQEFAQSN	1783
Dog	KDWRDPTEAQAN-----ATCPGVTYDRGSRQATLRLGGQEFR-V	1782
Horse	KDWRDPSEAQTS-----ATCPGVTYDHGSRQVTLRLGGQEFK-S	1782
Opossum	LSWKEFQCPNCNP-----NAACEPPHYPRQGREELPLGYLEVR-S	1785
Zebra finch	KGWSPAPASAMG-----EMCKGVSYDEKEKRFSTLGGQVFSGT	1831
Sea urchin	-----	
Amphioxus	HDYQTAAPPIAEP-----	1582

Zebrafish	DAALPASSKNKTGYQETLISFQRVYLWKESDMNTRAKTLSACSGSAVGEDSRALSDSVK	1690
Fugu	-TALSTDTKTKKDYQASIIISFQAVFLNPDADGRPASSCSGTADLSPPLDG-WGDSASLK	1582
Rat	LTLLEGT-----QDSFTISFQQVYLWKDSDIGSRPESMGCGRGMVP-KSEAPEGADMAT	1832
Mouse	LALLEGT-----QDSFTSFQQVYLWKDSDMGSRPESMGCERGMVP-RSDFPG--DMAT	1830
Human	LTPLEGT-----QDTFTNFQQVYLWKDSDMGSRPESMGCRCRKTVP-RPASPTTEAGLTT	1834
Marmoset	LTPLEGT-----QGFTTNFQQVYLWKDSDMGSRPESVGCRCRKTVP-SPTSPTETGLTT	1785
Pig	LTPREGA-----RDTFTSFQQVYLWKDSDMGSRSESMGCRRDMQP-RPESPEETDLTA	1765
Cow	LTPLEGT-----QDTLTSFQQVYLWKDSDMGSRSESMGCRRDTEP-RPASPTETDLTT	1835
Panda	LRPMEGT-----LDTTTSFQQVYLWKDSDMVSRSESLGCRRDTEP-RAASPTETDLVT	1835
Dog	PVALEGT-----SGTVTTSFQRVYLWKESDMGSRSESMGCRRDMEP-RPASPTETDLTT	1834
Horse	LTPLEGP-----QGIFTSFQQVYLWKDSDMGSRSESMGCSGDREP-RPASPTETDVT	1834
Opossum	SELFEGI-----EGPFISFQEVYLWKDSDVATRTKSTECSLDAVQ-QGQPPPDPDSTM	1837
Zebra finch	SQIMEET-----ERNFTTFQEIYLRDSDMVMTRMKTSLCEAAALK-TKDDLVLSDSTK	1883
Sea urchin	-----	
Amphioxus	-----RTEPSRPVGCPCRGSSL	1599

Zebrafish	EAFDVLDSGDVNVDPERELPNQLYWIFKHQYSFQEAQLWCLKRCEEEE-LCHVSDIRDEG	1749
Fugu	QRFQLVSENDVIVNPNRKLPTLSFWLNKKHFDSSQHALLWCLSRCDEEP-QCSVADLRDAD	1641
Rat	ELFSPVDITQVIVNTSHSLPSQQYWLSTHLFSAEQANLWCLSRCQEPVFCQLADIM-ES	1891
Mouse	ELFSPVDITQVIVNTSHSLPSQQYWLSTHLFSAEQANLWCLSRCQEPVFCQLADIT-KS	1889
Human	ELFSPVDLNQVIVNGNQSLSSQKHWFKHLFSAQQANLWCLSRCVQEHFSCQLAEIT-ES	1893
Marmoset	ELFSAVDLDQVIVNENRSLPIQKHWFKHLFSAEQANLWCLSRCVQEHFSCQLAEITITDN	1845
Pig	ELFSPVDLNQVIVSENRSLPSQQHRLFKHLFSLQQAHLWCLSRCVQEPSFCQLAEIT-DS	1824
Cow	GLFSPVDLIQVIVDGNVSLPSQQHWFKHLFSLQQAHLWCLSRCAGEPSFCQLAEIT-DS	1894
Panda	ELFSPVDLNQIIVNRSRSLPSQQHWFKHLFSPQQANLWCLSRCVQEPSFCQLVEIT-DS	1894
Dog	ELFSPVDLDQVIVNGSQSLPSQQHWFKHLFSPQQANLWCLSRCVQEPSFCQLVEIT-DS	1893
Horse	ELFSPVDLSQVVVNGSQSLPSQQHWFKHLFSPQQANLWCLSRCVQEPSFCQLAEIT-DS	1893
Opossum	ELFSQVNTERRVIDGNRTVPSQQHWFKHLFSAQQAHLWCLSPCAQENTFCQLQEVQ-TQ	1896
Zebra finch	DLFYLMDNSQIQSDQNYSLPYQQYVWFRQKYSAAEALLWCLTRCAQEEFCRMADLQ-SA	1942
Sea urchin	-----	
Amphioxus	VLSPPVVVKDVGRGGWYSSWARDPLDPNPYIFDGPRT-----	1637

Zebrafish	-PLYFACVLYPDTRVCGAYDKPLRQTCSLVMTQSLQTAYQKKVSLTGSVKSFYSRVPFKK	1808
Fugu	SAQFHSCSLYPSRECGGYENPRRQSCALVLETPPDNTYSKTVNLSGPIKSFERRIPFQK	1701
Rat	SSLYFTCSLYPEAQVCDNDVSNNAKNCQILPRQPTALFQRKVVNLDRVKNFYTRLFPQK	1951
Mouse	SSLYFTCFLYPEAQVCDNVMSNAKNCQILPHQPTALFRRKVVNLDRVKNFYTRLFPQK	1949
Human	ASLYFTCTLYPEAQVCDIMESNAQGCRLILPQMPKALFRKKVILEDKVKNFYTRLFPQK	1953
Marmoset	GSMYFTCTLYPEAQVCDIMESSPQGCRLILPQRPMALEFRKKVILEDKVKNFYTRLFPQK	1905
Pig	SPLYLTCTLYPEAQVCDVMEASPRGCRRILPRRPNALFQRRVVQLDRVKNFYTRLFPQK	1884
Cow	EPLYFTCTLYPEAQVCDILESSPGKCRILPRRPSALYRKKVVQLDRVKNFYTRLFPQK	1954
Panda	APLYFTCALYPEAQVCDVMEASPNKGCRLILPHRPKTLFRKKVILRDVKVKNFYTRLFPQK	1954
Dog	APLYFTCALYPEARVCDVMEASPNKGCRLILPHRPETLFRKKVILRDVKVKNFYTRLFPQK	1953
Horse	APLHFTCILYPEAQVCDVLESTPKGCRLTLPHRPGALFRKKVILRDVKVKNFYTRLFPQK	1953
Opossum	SSGDFCTCTLFQKAQTCDNSLTFTPESCMFVLPYRPQTLFHKKVILGDKVTNFYIRLPFQE	1956
Zebra finch	TDKYFVCTLYPEAQICDNSISQIPGNCATVLPWEPQTLYHKIVTLKSSVKSFYTRVPFQK	2002
Sea urchin	-----	
Amphioxus	-----IQYDNDYIAIVNDQVSRTWTLPDSDIAGNGQLVYGGSAAYNRAGTQD	1683

Zebrafish	MVSYSVRSRVSVS-SKPITEGFFECERRCDEDPCCRGIGYVKDS-GVAGSDVLCLTLNSL	1866
Fugu	MVSYSVRSRTRVTGNTSLSEGFHCERRCDEDPCCRGFGFIRDNKSMSNHDVLCSLISF	1761
Rat	LSGISIRDRIPMS-EKLISNGFFECERLCDRDPCCTGFGFLNVS-QMGGEMTCLTLNSM	2009
Mouse	LTGISIRDKVPMS-GKLISNGFFECERLCDRDPCCTGFGFLNVS-QLKGGEVTCCLTLNSM	2007
Human	LMGISIRNKVPMS-EKISISNGFFECERRCDADPCCTGFGFLNVS-QLKGGEVTCCLTLNSL	2011
Marmoset	LMGLSIRNKVPMS-EKISISNGFFECERLCMDPCCTGFGFLNVS-QLKGGEVTCCLTLNSL	1963
Pig	LTGLSIRHKVPMA-DKAISSGFFECERLCVDPCCTGFGFLNVS-QLKGGEVTCCLTLNSL	1942
Cow	LTGISIRNKVPMS-DKISISSGFFECERLCMDPCCTGFGFLNVS-QLKGGEVTCCLTLNSL	2012
Panda	LTGISIRNKVPMS-EKISISSGFFECERLCADPCCTGFGFLNVS-QLKGGEVTCCLTLNSL	2012
Dog	LMGISIRNKMPMS-EKISISNGFFECERLCADPCCTGFGFLNVS-QLTGGEVTCCLTLNSL	2011
Horse	LTGTSIRSKVPMS-DKSMSDGGFFECERLCVDPCCTGFGFLNVS-QLKGGEVTCCLTLNSL	2011
Opossum	LRGISVRSKISMT-RKPLSNGFFECERRCDADLCCKGFGFLNVS-QREGGELMCLTLNSL	2014
Zebra finch	VTEISVRNKTDMS-RKAVSDGGFFECERWCADPCCTGFGFFNDS-QLSGGKIVCVTLNSL	2060
Sea urchin	-----	
Amphioxus	LIKFDLENERVAARQQLPFAGIQNSYSYSWGGSTDIDFAVDEYG-----LYVIYGTQLQNR	1738

Zebrafish	GIQTCGENDSTSWRIQDCSTSQVQTQLYPFGWYQKPVNQWPKNPDVCPFFSLRSPSKNAD	1926
Fugu	GVQTCSEEDSSSWRTQDCSTS-VQTGPEPLGWYQKPVNQWSSAPALCPEFTLKTPANMGD	1820
Rat	GIQTCSEENGATWRILDCGSEDTEVHTYPFGWYQKPAVWS-DAPSFPCPSAALQSLTEEKV	2068
Mouse	GIQTCNEESGATWRILDCGSEDTEVHTYPFGWYQKPAVWS-DTPSFPCPSAALQSLTEEKV	2066
Human	GTQMCSEENGAWRILDCGSPDIEVHTYPFGWYQKPIAQN-NAPSFCLVVLPSLT-EKV	2069
Marmoset	GLQMCSEENGAWRILDCGSPDIEVHTYPFGWYQKPIALN-NAPSFPCPSVVLPSLT-EKV	2021
Pig	GLQTCSEENGGSWRLLACGSPDTEVRTYPFGWYQKPAVQN-DAPSFPCPSAALPPVP-EKV	2000
Cow	GLQTCSEEYGGVWRILDCGSPDTEVRTYPFGWYQKPVSPS-DAPSFPCPSVALPALT-ENV	2070
Panda	GLQTCTEENRGAWRILDCGSPDTEVHTYPFGWYRKPVAQN-DAPSFPCPSVVLPSLP-EKV	2070
Dog	GLQTCSEENMGAWRILDCGSPDTEVRTYPFGWYQKPAARN-DAPSFPCPVVTPPSLP-EKV	2069
Horse	GIQTCSEENGATWRILDCGSPDTEVRTYPFGWYRKPVSEN-NAPSFPCPAVVLPPLE-EKA	2069
Opossum	GFQTCSEEGTGTWRILDCSSPDVEVRTYPFGWYQKPVVQA-DASSMCPSSLLPSPL-EKV	2072
Zebra finch	GIQTCAEETRSSWQISDCSSPGAEVKIHFPFGWYQKPADLKSTIPNLCPVNVFPRP-ESE	2119
Sea urchin	-----	
Amphioxus	GNMVVSQINPEDLSIINTWNAGYFKRAAGNAFMRCGVLYATDAHDF TAKISYSFDTRTEQ	1798

Zebrafish	LQ-KWKKLDAVSYYVDASVSADFIVHISKDIAEDLDKVNWCLSACEDSESCSAVSIDSR	1985
Fugu	TQDQWQVLSNSMVLVDRSLSTYDVIHISRDIAENPDETRDFCLLACQKEESCVAVTLMQV	1880
Rat	ALDSWQTLALSSVIIDPSIKHFDVAHISISATRNFLAQDFCLQECRHRQDCLVTTLQIQ	2128
Mouse	TSDSWQTLALSSVIVDPSIKHFDVAHISTAATSNFSMAQDFCLQCSRHRQDCLVTTLQIQ	2126
Human	SLDSWQSLALSSVVVDPSIRHFDVAHVSTAATSNFSAVRDLCLESCSQHEACLITTLQTQ	2129
Marmoset	SLDSWQSLALSSVVVDPSIRNFDVAHVSTAASNFSAVRDLCLESCSQHEACLITTLQTQ	2081
Pig	ALDSWQPLPPSSVVVDPSIRNFDVAHISTAAGVDFSAARERCLLECSRHRQACLVTTLQTR	2060
Cow	ALDSWQSLALSSVIVDPSIRNFDVAHISTAAGVDFSAARDRCLWECSRHRQDCLVTTLQTR	2130
Panda	ALGSWQSLAPSAVVVDPSIRNFDVAHISTATTSDFSDARNFCLLECSRHRQACLVTTLQMR	2130
Dog	TLGSWQSLAPSAVVIDSSIRNFDVAHVSTATTNDFSDARDFCLLECSRHRQACLVTTLRAQ	2129
Horse	ALDAWQSLAPSSVVDPSIRNFDVAQISTATTSDFSVARDFCLLECSRHRQACLVTTLQTQ	2129
Opossum	SLDSWQSLDISSALIDPSIMNFIDIAHISTDASNFSAAARDLCLSECSQKPACHITTLQIQ	2132
Zebra finch	YMDAWQPLNVSSVLMSSISHFEVHVSRDISNDFSLARDFCLSACSKNQSCAVVTLEIQ	2179
Sea urchin	-----	
Amphioxus	EHDVLVQLRDPYRYNTMLDYNPADKKLYLWDETYLITYDVMCEKDESASEVTPAATTPPT	1858

Zebrafish	ESAVRCVMYPDTHTC-----LPTTSGRRCLLVTKEPQSVYIRTG---VQLEFT-----	2031
Fugu	ASATRCILYPDTTICGLSSTRLSSNPSTSCRLLIREFASHVYLRTGDLEPSRLVT-----	1935
Rat	QGVVRCVFPDIQSC-----EHSLSKTCWLLLHEEAAYIYRKS--GAPLHQSDGISTP	2180
Mouse	PGVVRCVFPYDQNC-----IHSLSRSHTCWLLLHEEATYIYRKS--GIPLVQSDVTSTP	2178
Human	PGAVRCMFYADTQSC-----THSLQGQNCRLLLREEATHIYRKP--GISLLSYE-ASVP	2180
Marmoset	PGAMRCMFYPDTQSC-----THSLQGQYCHLLLREEATHIYRKP--GISLLSYE-ASVP	2132
Pig	PGAVRCMFYADTQSC-----THSLQAQNCQLLLREEATHIYRKP--DIPLPGLG-SSAP	2111
Cow	PGAVRCMFYADTQSC-----THSLQAQNCRLLLHEEATYIYRKP--NIPLPGFG-TSSP	2181
Panda	PGAVRCVFPYADTQIC-----THSLQAQYQCQLLLREEATYIYRKL--NIPLSSG-TPAP	2181
Dog	PGAVRCVFPYADAQIC-----THSLQAQNCQLLLREEATHIYRKL--NIPLSFG-TSVP	2180
Horse	PGAVRCVFPYDQSC-----THSLQAQNCQLLLREEATYIYRKP--NLPLGSG-TSAP	2180
Opossum	PSTVRCVFPYDQSC-----AHSLSQHSCRLLLREEATYIYRKP--RGVSMRSSSTDPV	2184
Zebra finch	PSAIRCIFYPDTQMC-----AHGLQGHSCWVLLKEPATYIYRRQGNLLLPISSEDSTP	2233
Sea urchin	-----	
Amphioxus	PTTTPIPPAPTTPPT-----	1873

Zebrafish	SVSIPDHGTLGGESEVKPITGSDSKRVTYFLGVPYARPPIGDLRFSPQPADWTGTWNAT	2091
Fugu	SISIPGHGTLQG-AVTETGLGSVRKSVVQFLGVPYARPPIGSLRFEAAQLADWTGTWDAT	1994
Rat	SVHIDSFGQLQG-GSQVVKVGTAWKQVYQFLGVPYAAPPLAENRFQAPEVLNWTGSDAT	2239
Mouse	SVRIDSFQQLQG-GSQVIKVGTAWKQVYRFLGVPYAAPPLADNRFRAPEVLNWTGSDAT	2237
Human	SVPISTHGRLLG-RSQAIQVGTSWKQVDQFLGVPYAAPPLAERRFQAPEVLNWTGSDAS	2239
Marmoset	SVPIATHGKLLG-RSQAIQVGTSWKQVDQFLGVPYAAPPLAERRFRAPEVLNWTGSDAS	2191
Pig	TVTIATHGQLLG-TSQAIQLGASWKQVDQFLGVPYAAPPLAESRFRAPEVLNWTGSDAS	2170
Cow	SVPIATHGQLLG-RSQAIQVGTSWKQVDQFLGVPYAAPPLGEKRFRAPEHLNWTGSWEAT	2240
Panda	SVTIAPYGRLLG-RSQAVQVGSWRQVDQFLGVPYAAPPLAESRFQAPEVLNWTGSDAT	2240
Dog	SVTITPHGQLLG-RSQAIQVGTSWKQVDQFLGVPYATPPLAESRFRAPEVLNWTGSDAT	2239
Horse	SVTIATHGQLLG-RSQAIRVGTSWKQVDQFLGVPYASPLAESRFRAPEVLNWTGPWDAT	2239
Opossum	TVFIGTQGTLLG-KSEAIQVGAEWKRIIQFFGVPYAAPPLAQRRFSAPESFNWTGTWEAT	2243
Zebra finch	RVYIPSHGYLMG-KSQVIHVGSGWRNISQFLGIPYAAPPLGERRFCPPEPLAWLEAWNAT	2292
Sea urchin	-----	
Amphioxus	PRPTTSPSPRETICRLKKRRGPCRAKISRYYYLPSRDT CVKFRFGGCGGNANFNHSWAEC	1933

Zebrafish	FSRSSCLQPGD---LTDSTSSSEDCLYLNVFVASSVEKNVPVLVFFHNS-----ASDLL	2141
Fugu	KPRPSCIQPGD---SETAASSEDCLYLNIFTPAQRGRHVPVLVFFTNLGAY----QSSQML	2048
Rat	KLRSSCWQPGT-RTPTPPQISEDCLYLNVFVPENLVSNASVLVFFHNTVEMEGSGGQLNI	2298
Mouse	KPRASCWQPGT-RTPTPPQINEDCLYLNVFVPENLVSNASVLVFFHNTMEMEGSGGQLTI	2296
Human	KPRASCWQPGT-RTSTSPGVSEDCLYLNVIPQNVAPNASVLVFFHNTMDREESEGWPAT	2298
Marmoset	KLRASCWQPGT-RTSMSPGVSEDCLYLNVIPQNVAPNTSVLVFFHNTMEGKGSEGWPAT	2250
Pig	KPRASCWQPGI-RPATAPGVSEDCLYLSVFPQSLTPNSSVLVFFHNGAEG---PLAMAV	2226
Cow	KPRARCWQPGI-RTPTPPGVSEDCLYLNVFVPQNMVAPNASVLVFFHNAEKGSGDRPAV	2299
Panda	KPRASCWQPGT-RAPASPGVSEDCLYLNLFVPQNVAPNASVLVFFHNAMEGKGAGGQLAI	2299
Dog	KPRASCWQPGT-RTLESPGVDEDCLYLNVFVPQNVAPNASVLVFFHNTLEGRGSEGPLAI	2298
Horse	KPRASCWQPGA-RTPLSPGLSEDCLHLNVFVPQNVAPGASVLVFFHNSMEGRVSEGQLAL	2298
Opossum	VPRACWQPGFGKTSSSSTVSEDCLYLNVFVPQNLGQNASVLVFFHNADENGRRRSQDL	2303
Zebra finch	AARAACWQPGD-GEAPSQSVSEDCLYLHIFVPATTVKNMSVLVFFHNNGGSYNAEEGKTTL	2351
Sea urchin	-----	
Amphioxus	METCTERGEAPKAPQGPVNPARETPRPEVPSYMGDSCILPAEPGPCQEAHSRWHFDPV	1993

Zebrafish	DGSYLAAVGNIIVVTASFRVAAGFLSAGSSALPGNYGLQDQAAALGWVQKNIALFGGDP	2201
Fugu	DGSILAAGNIIVVTASYRVAAGFLSTESSGLHGNGLSDQEAVLHWVNAHISLVGGDN	2108
Rat	DGSILAAGNLIIVVTANYRLGVFGFLSSGSDEVAGNWGLLDQVAALTWVQTHIGAFGGDP	2358
Mouse	DGSILAAGNFIIVVTANYRLGVFGFLSSGSDEVAGNWGLLDQVAALTWVQSHIGAFGGDP	2356
Human	DGSFLAAGNLIIVVTASYRVGVFGFLSSGSSEVSGNWGLLDQVAALTWVQTHIRGFGGDP	2358
Marmoset	DGSFLAAGNLIIVVTASYRVGVFGFLSSGSSEVSGNWGLLDQVAALTWVQTHIRAFGGDP	2310
Pig	DGSFLAAGNLIIVVTASYRTGVFGFLSSGSSEVSGNWGLLDQVAALTWVQTHIGVFGGDP	2286
Cow	DGSFLAAGNLIIVVTASYRTGVFGFLSSGSSEVSGNWGLLDQVVALTWVQTHIQAFGGDP	2359
Panda	DGSFLAAGNLIIVVTAGYRVGVFGFLSSGSSEVSGNWGLLDQRAALTWVQTHIRVFGGDP	2359
Dog	DGSYLAAGNLIIVVTAGYRVGIFGFLSSGSSEVSGNWGLLDQLAALTWVQTHIGVFGGDP	2358
Horse	DGSFLAAGNLIIVVTAGYRVGVFGFLSSGSSEVSGNWGLLDQVAALTWVHTHIGAFGGDP	2358
Opossum	EGSFLAAGVDIIVVTANYRVGIFGFLSTGSKEASGNWGLLDQVAALKWVQAHIGSFGGDP	2363
Zebra finch	DGSYLAAGNLIIVVTANYRVGVFGFLSTGSASGNAGLWDQLAALRWVQQNIASFSGGDP	2411
Sea urchin	-----	
Amphioxus	N-----RVCQEFQYGGCGGNTNRFGSWRECTIKCLGQQAVHCGGCQH	2035

Zebrafish	TKVTVGAERNGADIASLHLTSP--SASSLFSRALLMGGSVFSPAVVMSSSKAQQTSSLA	2259
Fugu	ERVTVGAEQRGADITSLHLLS----SSPRFQRMLLMGGSVFSPSLQTPPSSRREALQLA	2164
Rat	QRVTLAADRGGADVASIHLITRPTRLQLFRKALLMGGSSALSPAIIISPDRAQQQAAALA	2418
Mouse	QRVTLAADRGGADVASIHLITRPTRLQLFRKALLMGGSSALSPAIIISPERAQQQAAALA	2416
Human	RRVSLAADRGGADVASIHLITRATNSQLFRRAVLMGGSSALSPAIVISHERAQQQAIALA	2418
Marmoset	RRVSLAADRGGADVASIHLITRATNSRLFRRAVLMGGSSALSPAIIISHERAQQQAAALA	2370
Pig	RRVALAADRGGADVAGIHLITRATNSRLFRRAVLMGGSVLSPAIVIRPDRAQQQAAALA	2346
Cow	RRVTLAADRGGADIASIHLVTTTRAANSRLFRRAVLMGGSSALSPAIVIRPERARQQAAALA	2419
Panda	RRVTLAADRGGADVASIHLITTRAANSRLFRRAVLMGGSAFSPAIVISQGRAQQQAAALA	2419
Dog	RRVTLAADRGGADVASIHLITTRAANSRLFRRAVLMGGSAFSPAIVISQGRAQQQAAALA	2418
Horse	RHVALAADRGGADVASIHLITRTANSRLFRRAVLMGGSSALSPAIVISQERAQQQAAAF	2418
Opossum	RKVSVAADRGGADIASIHLVTT-TANSRLFKRAILMGGSVLSPAATISQKRAQQQAAALA	2422
Zebra finch	GRVSLGAARGGADVASHLLTD-MAGADLFSRLLLMGGSAFSPASIIITTRRAQTQAAALA	2470
Sea urchin	-----	
Amphioxus	ERHGLHRGYCNNQFVMTGRVSKLELTPSWRVVTMTSSEMISKRGGRLRSIEYQGRDLAVQ	2095

Zebrafish	RELDGP-AADPSQLLDCLRSKPAHSINAAQTKLLAVSGPLQAWSPVVDGNVVREKPSVAL	2318
Fugu	TELGCFDNLNDMEMAACLRPAHELNIQAQTKLLAVSGPFPQSWSPVHQP-----T	2214
Rat	KEVGCP-NSSVQEVVSCFRQKPANILNEAQTKLLAVSGPFPHYWGPVVDGQYLRELPSRRL	2477
Mouse	KEVGCP-TSSIQEVVSCLRQKPANILNDAQTKLLAVSGPFPHYWGPVVDGQYLRELPSRRL	2475
Human	KEVSCP-MSSSQEVVSCLRQKPANVLNDAQTKLLAVSGPFPHYWGPVIDGHFLREPPARAL	2477
Marmoset	KEVSCP-MSSSQEVVSCLRQKPASVLNDAQTKLLAVSGPFPHYWGPVVDGQFLREAPARAL	2429
Pig	KEVGCP-PRPSQKWCPASAR-ACQPPHDAQSKLLAVSGPFPHYWGPVVDGQLLREAPARAL	2404
Cow	KEVGCP-SSSVQEMVSCLRQEPARILNDAQTKLLAVSGPFPHYWGPVVDGQYLRETPARVL	2478
Panda	EEISCP-TSSIQEMVSCLRQKPASVLNDAQTKLLAVSGPFPHYWGPVVDGQYLREAPARAL	2478
Dog	EEIGCP-TSSTQELVSCLRQKPASILNDAQTKLLAVSGPFPHYWGPVVDGQYLREAPARAL	2477
Horse	KEVGCP-TSSIQEMISCLRQEPANVLNDAQTKLLAVSGPFPHYWGPVVDGQYLREAPARAL	2477
Opossum	GEVNCP-TSPEGDMMSCLRQKPADILNNAQTKLLAISGFPFPHYWGPVVDGQYVLTQETPRTL	2481
Zebra finch	EDVGCP-SSTSEEIVACLRLQPARVLNDAQTKLLAISGFPFPHYWGPVMDGIYLRPLAKAL	2529
Sea urchin	-----	
Amphioxus	VLLPRN-----YNNKHGCPCYDVARGAEYVMGRVDGNGYGMVDEKGYMAELNNKYA	2147

Zebrafish	QSGRFHKAIEILLGSSSFEDGLISRAKNIKN-FEQLQGRADSKTAFYAALSNSLGGDDANAF	2377
Fugu	NTSSFQQRVDLLIGTSQHDSLITRARRLKD-LGDLLGHADGKTAFYEALSRSLGSSVTGSEQ	2273
Rat	KRPLPVKVDLLIGGSQDDGLINRAKAVKQ-FEESQGRNTSKTAFYQALQNSLGGEDSDAR	2536
Mouse	KRPLPVKVDLLIGGSQDDGLINRAKAVKQ-FEESQGRNTSKTAFYQALQNSLGGEDSDAR	2534
Human	KRSLWVEVDLLIGGSQDDGLINRAKAVKQ-FEESRGRNTSSKTAFYQALQNSLGGEDSDAR	2536
Marmoset	KRTLQVEVDLLIGGSQDDGLINRAKAVKQ-FEESQGRNTSSKTAFYQALQNSLGGEDSDAR	2488
Pig	QRPPRAKLDLLIGGSQDDGLIDRAKAVKR-FEESQGRNTSSKTAFYQALQNSLGGEGADPG	2463
Cow	QRAPRVKVDLLIGGSQDDGLINRAKAVKQ-FEESQGRNTSSKTAFYQALQNSLGGEGADAG	2537
Panda	QRTPRAKVDLLIGGSQDDGLINRAKAVKQ-FEESQGRNTSSKTAFYQALQNSLGGEDADAG	2537
Dog	QRTLRAKVDLLIGGSQDDGLINRAKAVKQ-FEESQGRNTSSKTAFYQALQNSLGGEDADAG	2536
Horse	QRFPRAKVDLLIGGSQDDGLINRAKAVKQ-FEESQGRNTSSKTAFYQALQNSLGGEGADAG	2536
Opossum	QRSPRMKVDVLIGSAQRDGLINRAKAIKKSQESQGRNTSSKTAFYQALQNSLGGENDSAS	2541
Zebra finch	QRPLRKVDLLIGSAQQDGLISRAKAIKK-FEESQGRNTSKTAFYQALQNSLGGESNSL	2588
Sea urchin	-----	
Amphioxus	RRLQQLKANPFSCS---YSYHDTSRQGSN-----PYARNTGHNQRNSR	2187

Zebrafish	VKEAATWFYSLQHSPTPSGYNVFSRALENATRDLFIICPTVDMAEFWAANTQTGVVYMYHL	2437
Fugu	LKEVAVWFYSLDHSPTASGYNLFSRALDNATRDLFIICPSLRMVSHWAKHKAS-AFLYHQ	2332
Rat	ILAAAIWYYSLEHS--TDDYASFRALENATRDFIICPIVNMASLWARRTRGNVFMVHV	2594
Mouse	ILAAAVWYYSLEHS--TDDYASFRALENATRDFIICPMVMNASLWARRTRGNVFMVHV	2592
Human	VEAAATWYYSLEHS--TDDYASFRALENATRDFIICPIIDMASAWAKRARGNVFMYHA	2594
Marmoset	VEAAATWYYSLEHS--SDDYASFRALENATRDFITCPIIDMASAWAKRTRGNVFMVHA	2546
Pig	VQAAATWYYSLEHD--TDDYASFRALEAATRDFIICPVIDMASHWARTARGNVFMYHA	2521
Cow	VQAAATWYYSLEHD--SDDYASFRALEQATRDFIICPVIDMASHWARTARGNVFMYHA	2595
Panda	VRAAATWYYSLEHS--TDDYASFRALENATRDFITCVIDMASHWARRARGNVFMYHA	2595
Dog	VRAAATWYYSLEHS--TDDYASFRALENATRDFITCVIDMASHWARRARGNVFMYHA	2594
Horse	VQAAATWYYSLEHS--ADDYASFRALENATRDFITCVIDMASHWARRARGNVFMYHA	2594
Opossum	IEVAATWYYSLEHS--TEDYSSSFRALDNATRDFISCPIIDMASHWARTARGNVFMYHV	2599
Zebra finch	IEDAATWYYSLEHS--TDDYSSSFRALDNATRDFITCPIINMASYWAAASQGNVFMVHV	2646
Sea urchin	-----	
Amphioxus	TNPQNPRSYQPQPQ--PNPYPSSPRSYQPQPQAR-----PQNPQPQPQPYPQY	2234

Zebrafish	PENAAYNVDLSVPMVDVQYLFVPLAAEKRDLSYKEKTFTLQIMNYMANFIKSGNPNLP	2497
Fugu	PLSSAHSRAETSVPDLVQLMFGSPYHPINIQRFTRSDRRLSLATMTYFSTFVRTGNPNP-	2391
Rat	PESYGHG--SLELLADVQYAFGLPFYSAYQGQFSTEEQSLSLKVMQYFSNFIRSGNPNYP	2652
Mouse	PESYGHG--SLELLADVQYAFGLPFYSAYQGQFSTEEQSLSLKVMQYFSNFIRSGNPNYP	2650
Human	PENYGHG--SLELLADVQFALGLPFYPAYEGQFSLLEKSLSLKIMQYFSHFIRSGNPNYP	2652
Marmoset	PKSYGHG--SLELLVDVQFAGGLPFYPAYEGQFSLLEKSLSLKIMQYFSHFIRSGNPNYP	2604
Pig	PESYSHG--SLELLADVRYAFGLPFYPAYEGQFTQEEKSLSLKIMQYFSNFVRSNPNYP	2579
Cow	PESYSHS--SLELLTDVLYAFGLPFYPAYEGQFTLEEKSLSLKIMQYFSNFIRSGNPNYP	2653
Panda	PESYGHG--SLDLLADVRSFAGGLPFYPAYEGQFTLEEKSLSLKIMQYFSNFIRSGNPNYP	2653
Dog	PESYDHR--SLELLADVQYAFGLPFYPVYEGQFTLEEKSLSLKIMQYFSNFVRSNPNYP	2652
Horse	PESHGHS--SLDLLADVQYAFGLPFHPAYEGQFTLEEKSLSLKIMQYFSNFVRSNPNYP	2652
Opossum	PETYAQN--SLELLADVQYAFGLPFHPQYKQFTLEEKSLSLKIMQYFSNFIKTGPNPNYP	2657
Zebra finch	PENEGHY--AVEFLLDVQYAFGLPFYPKYEEQFTDEEKGLSLQIMQYISNFINSNPNYL	2704
Sea urchin	-----	
Amphioxus	PRSSPQNPQPYPQNPQPYPQNPQPNPQDPRSNPQNPQPYPQNPYLYPQNPQPQNPQPYPQ	2294

Zebrafish	LAASTSFSGKFLPPWPQFMPHVGGGRAYKELSSTLVNRKNLQRSQCSFWSQYVPALTSSTA	2557
Fugu	---SHLWAESVLPQWPQVSSDPTLTYLELSPTLKHNEGLSQRSCSFWNQYVPALTSSTA	2448
Rat	HEFSQKAA-EFATPWPDFVPGAGGESYKELSAQLPNRQGLKKADCSFWSKYIQTLLKAD-AD	2710
Mouse	HEFSRKAA-EFATPWPDFIPGAGGESYKELSAQLPNRQGLKQADCSFWSKYIQTLLKAD-AD	2708
Human	YEFSRKVP-TFATPWPDFVPRAGGENYKEFSELLPNRQGLKKADCSFWSKYISSLKTSAD	2711
Marmoset	YEFSRKVP-DFASPWPDFVPSAGGENYKEFSTQLPNRQGLKKADCSFWSKYISSLKASAD	2663
Pig	HEFSRKAP-EFAAPWPDFVPGDGAESYKELSVLLPNRQGLKKADCSFWSKYISSLKASAD	2638
Cow	HEFSRRAP-EFAAPWPDFVPRDGAESYKELSVLLPNRQGLKKADCSFWSKYIQLSKASAD	2712
Panda	HEFSRKAP-EFAAPWPDFVPRAGGESYKELSVLLPSRQGLKASADCSFWSKYIRSLKAAAA	2712
Dog	HEFSRKAS-ELAAPWPDFVPRGTGGESYKEFSVLLPNRQGLKASADCSFWAKYIQLSKAVAD	2711
Horse	HEFSRKAP-EFAAPWPDFVPRAGRETYKEFSALLPNQQLKKADCSFWSKYIQLSKALAG	2711
Opossum	YDFSRIKL-ETTALWPEFLPHNTGDNKYKEFSPGLPNRQGLKKAECSFWSKYIQTLLKASTG	2716
Zebra finch	HFSRRLML-GVMPAWPMYLLSSDDGDNYKEFTVSLPTLKLKKADCSFWSKYIIRRLKASTG	2763
Sea urchin	-----	
Amphioxus	DPRSNPQNPQPYPQYPGYNPYNSGSNPQHGPSYPQDPRSHSQYPGHNPGRHQAAPNTSA	2354

Zebrafish	KFSCGTSAEETGVQTPTQEPKPLTPASF TLTPSRQ YN -	2572
Fugu	KFSLGTSAEETGVQTPTQSPKPLTLAS FTLTPSRQ Y -P	2463
Rat	GAKDAQLT KS GEEDLEVGP GSEEDFSGS LEPV PKS Y SK	2726
Mouse	GAKDAQLT KS EEEDLEVGP GLEEDLSGS LEPV PKS Y SK	2724
Human	GAKGGQSAE SEEEELTAGSGLREDLLSL QEPGSK T Y SK	2727
Marmoset	GAKGGQLAE SEEEELTAGSGVKEDLLSL QE---P- Y SK	2675
Pig	EAEDEPLAE SEEEEDRPG--- LAEDLLGLPELASK S Y SK	2651
Cow	ETKDGPSAD SEEEEDQPAGSGLTEDLLGL PELASK T Y SK	2728
Panda	GGEAGLSAE SEEEDELADSGL----- LGE PGSKS Y SK	2722
Dog	EAKQELSAE SEEDDEPADSGL----- IGE PGSKS Y SK	2721
Horse	EAKDELSAG SEEEEDQPAGSGLREDLLGL PEPGSMS Y SK	2727
Opossum	EAESQQPLVA EEE---LGSVELQSHLGV PEEGQK S Y SK	2729
Zebra finch	SASGGEPGETPSEVTSLES-----QPLGDEVA Y SR	2771
Sea urchin	-----	
Amphioxus	ARGRASYTHRSAHKR-----	2369