

Pufferfish_OR15134-1 -----MEPRANVS^YITVDG-YVEV^HRYRYLYFVLMLTAYLLILCTNSTVVYLI^CLHR-DLHQ^P
Pufferfish_OR14339-2 -----MDNSTNPPYFNLT^M-FFNIGQSRYLAFVLF^FILYLFIVFANIIIVVTARE^N-TLHEP
Pufferfish_OR14328-1 -----MDNSTNPPYFNLT^M-FFNIGQSRYLAFVLF^FILYLFIVFANIIIVVTARE^N-ALHEP
Pufferfish_OR14677-8 -----MLDGS-PGHNLS^HSTF^FFRGFP^ELHRYRLLVLPFSATYLLVLLGNSLLVYV^CNMME-HLSP
Pufferfish_OR14536-2 -----MDKMRLSLNVTAEQ---YQGLLERLMLSFLT^TTPVCCIFFYINTIMLFTLRSKTVFC^ETS
Pufferfish_OR14536-1 -----MDKVLSSSNVTDELQ---NRGTVERLMFSFLT^TTPVCCIFFYINAIMLFTLRSKTVFC^ETS
Pufferfish_OR10960-2 -----MSAPDANVS^VVVEYRDSLSK-----AVTKNVIVVVL^SISIN^YVNV6LVQTFHRHQV^FYSNP
Pufferfish_OR10960-3 -----MNASAA^NASGTA^AFRDSFSK-----AVTKNAVVLV^LGLFIN^YINRGLIHTFCKHQV^FYTNS
Pufferfish_OR12434-1 -----Q-----ILF^ERVLI^TQILAFMFISTNLVLLATVFSKPV^FEYSTM
Medaka_ORUn.33 -----MWEAA-MDGNS^SSHSVFRCFPELHAHRRLLALPFFLSLLSVLLGNSALILV^IREE-RLRG^P
Medaka_ORUn.2 -----MEN-----GSFHTYFVLNGFDELGLVRPLLFPFSFAFLVSLLANGLLVYV^FSQR-SLHQ^P
Medaka_OR21.18 -----MNNSTGVVLFSLSG-FSGSATHRLTLFCLSLLCYCLIMMVNVLILV^IIFDQ-SLREP
Medaka_OR21.19 -----MNN-----LSVIFLSG-LNETRVHRPTLFVLSLLCYCLILLVNVSLV^IIIILDK-SLHEP
Medaka_OR21.20 -----MNN-----LSVIFLSG-LNETRVHRPTLFVLSLLCYCLILLVNVSLV^IIIILDK-SLHEP
Medaka_OR13.14 -----MANNSSVISGNF^PVVK-----LISKDIIIVQVLIAIFLSINFFLIST^FFRKNV^FHTSM
Medaka_OR13.12 -----MSLNSSASGGG^FFPVK-----IINDRIIIVQVSIAVFLSINFFLIST^FFRRDV^FYNTM
Medaka_ORUn.23 -----MSSSSAMNVTSLL-----DEGLMRVILSTLSTVPACVFLVINGIMLFTLR^SKPV^FRET^C
Medaka_ORUn.21 -----MANISQGEVTS^ESL---YQNFVRTLIFSIISTVTSCVFLVINGIMLFTLR^SKPV^FRET^C
Medaka_OR14.15 -----MANISQGEVTS^ESL---YQNFVRTLIFSIISTVTSCVFLVINGIMLFTLR^SKPV^FRET^C
Medaka_OR14.13 -----MFHEPKISLSYRSMENY^TLNSYYLQLES^LNVSEASKYPVFFLFLFYLLIMLT^NVGILV^IIIIDR-NLHQ^P
Medaka_OR14.4 -----MENITYNSIVLQVEGFKV^TKESTEYAFFLFFFSYIVIMILNLGILAI^AIAIDK-SLHQ^P
Medaka_OR14.6 -----MENITYNSIVLQVEGFKV^TKESTEYAFFLFFFSYIVIMILNLGILAI^AIAIDK-SLHQ^P
Medaka_OR13.4 -----MNAVSVIHFSGFNLTAESVVP^AFLFATLSYMVILFCNLT^LTLITVLNK-SLHQ^P
Medaka_OR13.5 -----MFSNFSSETLLTSSLG^FSSIIYPAFVFGTLFYLIIVFCNLLVLT^TIAVSK-KLHK^P
Medaka_OR13.6 -----MLSNSSSV^DLTLLSSLDLQPT^YIYPSFVFGTL^LYLITVFCNLLVLT^TIAVSK-KLHK^P
Medaka_OR13.7 -----MKMENSSFGFYSKLTMDTFFIPAGGK^YPIILLGIAIYLF^GMSCNLTLLT^LLIILKK-NLHK^P
Medaka_ORUn.1 -----MENNSQI-VFVLHG-LNQSL^LNRQVSFGLALTAYLFTLFVNLT^LIGTVLLEKTH^LHQ^P
Medaka_OR21.2 -----MNVTYITLNG-FVEIEKYRYFYFFMMLPVYIFIVCSNCTIISLIV^IHK-NLHEP
Medaka_OR21.3 -----MNVTYISLDG-LVEIEKYRYFYFFMMLTYFYLIVCSNCTIISLIV^IHK-NLHEP
Stickleback_OR1.1 -----MEAS-PGRNFSHASPVFS^GFDGLQKH^RQLLALPLCASYLVVLLGNGLLVLV^LVRTE-SLK^GP
Stickleback_OR16.3 -----MMHNSSHV^KVF^FLSG-LNGTMTNRVALFSVMLLCYFFIVLVNVV^LVVTIILDK-NMHEP
Stickleback_OR1.12 -----MAANNSVVG^VDSPMN-----NFNYRVVIVQVLVSFELFINFWL^RTFFVRD-FYTV^M
Stickleback_OR1.13 -----MAANNSVVG^VESPTY-----KINYRLVVVQVLVSFELFINFWL^RTFFVRD-FYTV^M
Stickleback_ORUn.9 -----MMS-PLTNTTGG^LQ---YQGLLESVAFSMLTTPVCCF^FLLVNAAMLLT^LRSRPL^FRET^P
Stickleback_OR7.1 -----MLHD^AVAMNNTTG-----VMRFQSPVRVLLSMLPCILFLYINGV^MLFALLSKPL^LLESS
Stickleback_ORUn.6 -----MENFTNSPTLQLEALNISKAFFY^PVFI^LLLFSYLFIIANVGIAAV^LLLDK-SLHQ^P
Stickleback_ORUn.8 -----MENDTFNSLT^LRLLEG^LNVWKS^YFYPAFIFLLSYIFIMLMNVGIAAV^LLLDK-SLHQ^P
Stickleback_OR1.18 -----MENKSGFRSELTDTFVIPP^GGKYP^MFLFGIAIYLF^SVFCNLM^LSLIIL^KR-NLHK^P
Stickleback_OR16.10 -----MENNTFPQYFNLT^M-FVNIGNYRYLAFVLC^LLLYAFIIFSNLVIIV^LISREK-TLHEP
Stickleback_OR16.32 -----MDNVSVITMFTLSG-LSETTHYRGFLFALTLLCYSVIWLNVLT^IIVT^IADK-KLHEP
Stickleback_OR16.1 -----MENNTFPQYFNLT^M-FVKLGNYRYLAFVLC^LLLYAFIIFSNLVIIV^LISREI-TLHEP
Stickleback_OR16.5 -----MENNTFPQYFNLT^M-FVKLGNYRYLAFVLC^LLLYAFIIFSNLVIIV^LISREI-TLHEP
Stickleback_ORUn.1 -----MDAHLNVTVYTL^DG-HLDLNTYKYIFVMMLTMYILIICTNSTIV^LIVT^HN-NLHQ^P
Stickleback_ORUn.17 -----MDYRLNVTYITFGG-YVEV^HIRYRYLVFVVMFTVYILIISSNVTIV^CIIMI^HK-NLHEP
Zebrafish_OR126-7 -----LENESSVS^VFTLSG-LDETMENRYV^LFSLT^VLFYPLMVFCNVTIV^IVAI^SHK-KLHEP
Zebrafish_or126-3 -----MQSPLKNESNVV^FFALS^G-LNETMENRYV^LLSFTALFYPV^VIFCNVTIV^LTIFL^HK-KLHEP
Zebrafish_OR123-1 -----MDNNS^SSFMSFLTA-LNGSR^SSRITIFSALPGYFLTIFVNTLL^LIIVLEK-VLHQ^P
Zebrafish_OR125-1 -----MDNMSYPVILTMV-PKETKLYR^HIYFICFLVLYLLILSINIC^LVMV^IIEK-VLHEP
Zebrafish_OR127-1 -----MENGTSSSFYFTL-FKEFV^HIRYVILT^LTLYLAIIVCNAIILFV^VFKER-SLHEP
Zebrafish_OR128-10 -----MENGT---FYLM-LFENIGCTRYALFSLGILYSAIL^LFNFLVLAIFLER-TLHQ^P
Zebrafish_OR116-2 -----MENLSIIVSELTLDPSIPP^GAKYPIFIFGIF^IYMF^GAFCNLTLL^LLIFLTE-SLHK^P
Zebrafish_zor6a -----MTEEL--QGANS^HTKFLLTG^FPEIYKYRRFLFLPFFLT^YLLLLV6NSLL^LLVIK^STE-SLHSP
Zebrafish_OR117-1 -----MAGNLSNP^TFTFY--LKIAK^FDI^DPKAKY^PVFFAGILVYMF^SVCN^TTILGLIISQK-SLHK^P
Zebrafish_OR115-15 -----MENYTFNSIILQLEGLRVSE^EATYPV^FVFFLLFYVAIMVNLIGIFIV^TTHR-SLHEP
Zebrafish_OR133-7 -----MSN^LNASASNL^TQR-----LMDQDAPT^KAF^LFTVPCVIFLYVNGV^MLFTLRKKAV^FQETS
Zebrafish_OR132-1 -----MAGSNGTYGNVP^FTHQQV^FKLMDAGTSTKTA^VAVLTSLFFFSV^NCMISV^LSKRM^FYET^P
Zebrafish_OR134-1 -----MNSTAGQQL^LLR---DTFAM-----AFMKNFIVV^LVWFLLSYINGSV^VATFRHQIF^EDP
Zebrafish_OR131-2 -----MNSTSNSSLGN^TFISK-----TLKEKSLTVQVLV^GILLYVNGLMIFT^LFLK^ETFRDT-
Zebrafish_OR131-1 -----MNSTSNSSLN^TFMK-----SLKEKALLVQVLV^GILLYVNGLMIFT^LFLK^ETFRDT-
Goldfish_OR3 -----MQPPLENQSV^LVFTLSG-LNETMGRMF^FSLTALY^PPIVLCNVII^YTVISHK-KLHEP
Goldfish_OR2 -----MSSGNS^SSVK^DFFIVG^FPGLPQGYGAVAALL^LFAYVCILV^GNGIFIAL^LFTLEK-RLHK^P
Rainbow trout_OR500-1 -----MENSSQV^KFFYLF^G-LQETFNNKSVYFILP^LITYLLIITVNLPLIIT^IIEK-GLHEP
Cutthroat trout_OR600-1 -----MENHTYPNHILL^EGLKV^TQQSAYPAFIL^LIIYIFTMANIGLISLISMER-SLHQ^P
Brown trout_OR500-1 -----MENSTQV^KFFYLF^G-LQETFNNKSVYFILS^LITYLLIITVNLPLI^KTIIQEK-GLHEP
Atlantic salmon_SORB -----MVLNTYNSYMLHLEGLKV^TEETMYPV^IIILFFSYVIMFTNVGIV^LISREK-SLHQ^P
Medaka_mFOR2 -----MELEFN^VSLITLDG-FIEIEKYRYLYFLIV^FTFILILCNC^TIIFIIVVQK-SLHEP
Medaka_mFOR1 -----MELEFN^VSLITLDG-FIEIEKYRCLYFLIV^FTFILILCNC^TIIFIIVVQK-SLHEP
Medaka_OR_Y3 -----MENITNSFYLQLEGLKV^TETS^KYIFLIFFFSYIFIMV^TNVGILV^IIIIDR-NLHQ^P
Medaka_ORY1 -----MENITYNSIVLQVEGFKV^TKESTEYAFFLFFFSYIVIMILNLGILAI^AIAIDK-SLHQ^P
Frog_OR-52D1 -----MENSSYSQSM^LTGFGQLREIKYFYST^LVLLCFMIIIVSN^SSAVISAIA^MHR-SLQEP
Frog_OR-52E8 -----MANATYSQPTV^LALSFGELTAVKYL^GAI^VFLIFLMIVASSAVIG^TIILHR-SLHEP
Frog_OR-52A1 -----MEPGISNQSFISY^TDTLLGFPGISRW^RPLLAIPF^FSVYLVILSGNSLL^LICLICIKK-TLHSP
Frog_OR-52P1 -----MEPGISNQSFISY^TDTLLGFPGISRW^RPLLAIPF^FSVYLVILSGNSLL^LICLICIKK-TLHSP
Frog_OR-52A5 -----MEVGATKDYELLAVSV^EHDSLEPKSNPTQD^GALRPNAMNVT^SAPGNTTQVSP^TNSQLGVIIRTTFFVSVLVC^LFFFAYLV^TIITLVFF^TPKSP^LRENS
Frog_OR-2M5 -----MSNRTSET-----VRMTFIL^LSFLC^GFFIYLV^AIILYIFLSNAQV^RESA
Frog_OR-2M2 -----MSNQSTISEFILMG^FPGLPQKYFIPVSIT^MFLVYCVSLVANSSV^IILV^LQKE-QLHQ^P
zebrafish_OR10.1 -----MQNNA^SSNSTLIQ^AGFYIVGL^RSMP--YSNVYVMFLTVL^FVITVICNVFLIS^IIYV^DQ-RLHVP
zebrafish_OR10.14 -----MNDF--AENRNIS--IPSYFYISG^FSGIP--HMRYYYIFLSFVYIIS^FLGNSCLMFV^IIIDR-NLHTA
zebrafish_OR15.39 -----MNLSTV^SNGTASNEG^FYLTAFQ^TLP--TKNYLILGLAI^IYIITLLGNLVL^SSVLMNS-SLQNP
Medaka_ORUn.6 -----MSFLRTALN^SSVIIHPPGFYIVG^FESLP--SVNVFFIFLAIYV^VTVL^FNGLLIIVV^INP-CLHTP
Medaka_ORUn.28 -----MEFFNSALGKNITFVR^PPYKIA^GFIGIP--NMNYYYIFLFFV^FISVLGNTAVMT^IYLDH-NLRTA
Medaka_ORUn.27 -----MLASLMMDLFNSALGRNITFVR^PPYFIITG^FIGIP--NVKYYYIFLFFVYIVSV^GNTAVMAVIYMDN-SLRTP
Stickleback_OR7.3 -----MSSIRTVL^NDSATIHPPGFYIAFQ^TLP--YISVYIFLAFVYAV^TLVFNLLISL^IARDH-CLHTP
Stickleback_OR7.4 -----MTFLRTSLMNSL^IIRPPGFYIVG^FETLP--FISVYFIFLSFVYV^TVMFNSLVYVIA^FNH-CLHSP
Stickleback_OR7.8 -----MNLFNSALGENITFVR^PPYFVISGL^SGIP--EMKHYYVFLCFVYIVSVLGN^TVMAVIYLDH-NLRTP
Fugu_ORUn.83 -----MELFNAAPGKNVSFV^HPPYFIISGL^KGIP--HIKFYYVFLFFVYIVSVLGN^SSVMAVICLDH-NLRTP
Fugu_ORUn.20 -----MSLLRTVSN^GSIHPPGFYVVG^FETFP--HIRFYFIFLAFVYV^TVFFNCLLIYVIV^SNR-CLHTP
Pufferfish_OR7.1 -----MGLFNAAPGKNISFV^HPPYFIISGL^MGIP--HIRFYFIFLFFVYIVSVLGN^SSVMAVICLDR-SLRTP
Pufferfish_OR7.3 -----MLFLTQVSN^DTVIIHPPGFYIVG^FETFP--HIRFYFIFLAFVYV^TLLFNCLLIYVIA^SHP-CLHTP
zebrafish_OR10.29 -----MLSKN---WTTISEFII^VGIPGLHPDY^YGLVSAIFFVYI^TTVAGNMFFLV^LFV^TTE-SLRKP
zebrafish_OR10.31 -----MSQANDTTASTVTEFF^IMGFPGLLPKYYS^LTAA^LLCFYIAVITGNSLIV^LVFVIER-SLHK^P
zebrafish_OR15.58 -----MGSRSNVETYNTTIEFVL^RGFPGLPPEYHGSVGA^LLLFILYLVLATGNI^FIIVFV^MIEK-SIQKP
zebrafish_OR15.57 -----MTAYYTN---ITEFYLLGFPGLHPEY^GAVGFL^LFFVYLTLAGGNIFIA^IFIAYEK-SLQKP
Medaka_OR13.1 -----MISSNVTK^VKD^FFIIVGIPGLLPEY^HGLASFVLAVY^LTILFGNSFILA^VIIFER-VLHK^P
Medaka_OR13.3 -----MALLIIPNISRTESF^LGLGFPGLSPQYAPVSAL^FFFYLTATG^SVFIALAVICEK-SLQKP
Stickleback_OR1.25 -----MMNSNLTVMK^SFFILGFPGLSPTYYR^PVSALLFFFYLAIAIGNIFIT^FVVCEK-SLQKP
Fugu_ORUn.8 -----MIDNVTG^TESFFILGFPGLAPEY^RRPVSALFLIIYLVIAFGNIFIL^TFVMCQK-SLQKP
Pufferfish_OR16.7 -----MTNNVGTNSFVILGFPGLAPRY^GGPVSALFLIIYLAIVLGNV^FILTFVMCHK-SLQKP
Frog_OR669.1 -----MHQSMANRTRVSEFILLGFPGLDES^YDVPVSIGLFLAYIISLFANATVILL^IAFSR-HLHQ^P
Amphioxus_105.1 -----MGDQDGSQDSDDADIAVSLGPASQGLQTAYLVISLIVIVAA^NLLIILLVCRKEYL^RQP
Amphioxus_39.1 -----MRNLGRSRRRRIFIRRGTVVSDSIRRRLVIVKSGAMDQSVFSLNLDNIH^DVISNSPLSRGLQ^TLYLVTSLVAVAGCSSLVIFLVWKTESLQKP

110 120 130 140 150 160 170 180 190 200
LOR1 MYIFLCNLCINGLYETAGFYPKFLIDLLS--TFHVISYAGCLLQG^FVLHSSACADF^SILVLMAYDRYVAICRPLVYHSVMTTQ^RVCVFIFFAWLIPLYLV
LOR2 MYIFLCNLCINGLYGTAGFYPKFLIDLLS--TFHVISYAGCLLQG^FVLHSSACADF^SILVLMAYDRYVAICRPLVYHSVMTTQ^RVCVFIFFAWLIPLYLV
LOR3 MYIFLRNLCINGLYGTAGFYPKFLIDLLS--TFHVISYAGCLLQG^FVLHSSACADF^SILVLMAYDRYVAICRPLVYHSVMTTQ^RVCASIFFAWLIPLYLV
LOR4 MYIFLCNLRINGLYGTAGFYPKFLIDLLS--TFHVISYAGCLLQG^FVLHSSACADF^SILVLMAYDRYVAICRPLVYHSVMTTQ^RVCASIFFAWLIPLYLV
LOR5 MYIFLCNLCINGLCGTAGFYPKFLIDLLS--TFHVISYAGCLLQG^FVLHSSACADF^SILVLMAYDRYVAICRPLVYHSVMTTQ^RVCASIFFAWLIPLYLV
LOR6 MYIFLCNLCINGLYGTTGFYPKFLIDLLS--TTHVISYAGCLQG^FVLHSSACADF^SLLALMAFDRYVAICRPLVYHSVMTKQ^RRVCLFVFFAWLIPFYLM
LOR7 MYIFLCNLCINGLYGTTGFYPKFLIDLLS--TTHVISYAGCLQG^FVLHSSACADF^SLLALMAFDRYVAICRPLVYHSVMTKQ^RRVCLFVFFAWLIPFYLM
LOR8 MYIFLCNLCINGLYGTTGFYPKFLIDLLS--TTHVISYAGCLQG^FVLHSSACADF^SLLALMAFDRYVAICRPLVYHSVMTKQ^RRVCLFVFFAWLIPFYLM
LOR9 MYIFLCNLCINGLYGTTGFYPKFLIDLLS--TTHVISYAGCLQG^FVLHSSACADF^SLLALMAFDRYVAICRPLVYHSVMTKQ^RRVCLFVFFAWLIPFYLM
LOR10 MYIFLCNLCINGLYGTTGFYPKFLIDLLS--TTHVISYAGCLQG^FVLHSSACADF^SLLALMAFDRYVAICRPLAYHSVMTKQ^RRVCLFVFFAWLIPFYLI
LOR11 MYIFIAALLINSVL^FSTTIYPKLLIDFLS--DKQIISHQACLVQ^FHMFYSLAGAEFLLAAMAYDRYVSICKPLQYPTIMSKTTVSIFLVSAWLLPACQL
LOR12 MYIFIAALLINSVIFSTTIYPKLLIDFLS--DKQIISHQACLVQ^FHMFYSLAGAEFLLAAMAYDRYVSICKPLQYPTIMSKTTVSIFLVSAWLLPACQL
LOR13 MYIFIAALLINSVL^FSTTIYPKLLIDFLS--DKQIISHQACLVQ^FHMFYSLAGAEFLLAAMAYDRYVSICKPLQYPTIMSKTTVSIFLVSAWLLPACQL
LOR14 MYIFIAALLINSVL^FSTTIYPKLLIDFLS--DKQIISHQACLVQ^FHMFYSLAGAEFLLAAMAYDRYVSICKPLQYPTIMSKTTVSIFLVSAWLLPACQL
LOR15 MYIFIAALLINSVL^FSTTIYPKLLIDFLS--DKQIISHQACLVQ^FHMFYSLAGAEFLLAAMAYDRYVSICKPLQYPTIMSKTTVSIFLVSAWLLPACQL
LOR16 MYIFIAALLINSVL^FSTTIYPKLLIDFLS--DKQIITYQACLVQ^FHMFYSLG6SEFLLAAMAYDRYVSICKPLQYPTIMSKTTVSIFLVSAWLLPACQL
LOR17 MYIFIAALLINSVL^FSTTIYPKLLIDFLS--DKQIITYQACLVQ^FHMFYSLG6SEFLLAAMAYDRYVSICKPLQYPTIMSKTTVKIFLVSAWLLPACQL
LOR18 MYIFIAALLINSVL^FSTTIYPKLLIDFLS--DKQIITYSACLLQSFYV^LLG6SEFLLAAMS^YDRYVSICKPLQYPTIMSKTTVKIFLVSAWLLPACQL
LOR19 MYIFIAALLVNSVPFSTTIYPKLLIDFLS--DKQIITYQACLVQ^FHMFYSLG6SEFLLAAMA^HDRYVSICKPLQYPTIMGKTTVSIFLVSAWLLPACQL
LOR20 MYIFIAALLINSVL^FSTTIYPKLLIDFLS--DKQIITYQACLVQ^FHMFYSLG6SEFLLAAMAYDRYVSICKPLQYPTIMGKTTVSIFLVSAWLLPACQL
LOR21 MYIFIAALLINSVL^FSTTIYPKLLIDFLS--DKQIITYQACLVQ^FHMFYSLG6SEFLLAAMAYDRYVSICKPLQYPTIMSKTTVSIFLVSAWLLPACQL
LOR22 MYIFIAALLINSVL^FSTTIYPKLLIDFLS--DKQIITYQACLVQ^FHMFYSLG6SEFLLAAMAYDRYVSICKPLQYPTIMSKTTVSIFLVSAWLLPACQL
LOR23 MYIFIAALLINSVL^FSTTIYPKLLIDFLS--DKQIISHQACLVQ^FHMFYSLAGAEFLLAAMAYDRYVSICKPLQYPTIMSKTTVSIFLVSAWLLPACQL
LOR24 MYMFIAALLINSVL^FSTTIYPKLLIDFLS--DKQIITYQACLVQ^FHMFYSLG6SEFLLAAMAYDRYVSICKPLQYPTIMSKTTISIFLVLAWILPASQV
LOR25 MYIFIAALLINSVL^FSTTIYPKLLIDFLS--DKQIITYQACLVQ^FHMFYSLG6SEFLLAAMAYDRYVSICKPLQYPTIMSKTTISIFLVLAWILPASQV
LOR26 MYIFIAALLINSVL^FSTTIYPKLLIDFLS--DKQIITYQACLVQ^FHMFYSLG6SEFLLAAMAYDRYVSICKPLQYPTIMSKTTISIFLVLAWILPASQV
LOR27 -YVLIAALLINSVVYSTVFYPKLLIDFLS--DKQIITYSACLFQWFIFYSLAG6SEFLLAAMS^YDRYVSICKPLQYPTIMRKKTVIMFLVLAWLVPCKI

[illegible][illegible]

Stickleback_OR1.1
Stickleback_OR16.3
Stickleback_OR1.12
Stickleback_OR1.13
Stickleback_ORUn.9
Stickleback_OR7.1
Stickleback_ORUn.6
Stickleback_ORUn.8
Stickleback_OR1.18
Stickleback_OR16.10
Stickleback_OR16.32
Stickleback_OR16.1
Stickleback_OR16.5
Stickleback_ORUn.1
Stickleback_ORUn.17
Zebrafish_OR126-7
Zebrafish_or126-3
Zebrafish_OR123-1
Zebrafish_OR125-1
Zebrafish_OR127-1
Zebrafish_OR128-10
Zebrafish_OR116-2
Zebrafish_zor6a
Zebrafish_OR117-1
Zebrafish_OR115-15
Zebrafish_OR133-7
Zebrafish_OR132-1
Zebrafish_OR134-1
Zebrafish_OR131-2
Zebrafish_OR131-1
Goldfish_OR3
Goldfish_OR2
Rainbow trout
Cutthroat trout OR600-1
Brown trout OR500-1
Atlantic salmon SORB
Medaka_mFOR2
Medaka_mFOR1
Medaka_OR_Y3
Medaka_ORY1
Frog_OR_52D1
Frog_OR_52E8
Frog_OR_52A1
Frog_OR_52P1
Frog_OR_52A5
Frog_OR_2M5
Frog_OR_2M2
zebrafish_OR10.1
zebrafish_OR10.14
zebrafish_OR15.39
Medaka_ORUn.6
Medaka_ORUn.28
Medaka_ORUn.27
Stickleback_OR7.3
Stickleback_OR7.4
Stickleback_OR7.8
Fugu_ORUn.83
Fugu_ORUn.20
Pufferfish_OR7.1
Pufferfish_OR7.3
zebrafish_OR10.29
zebrafish_OR10.31
zebrafish_OR15.58
zebrafish_OR15.57
Medaka_OR13.1
Medaka_OR13.3
Stickleback_OR1.25
Fugu_ORUn.8
Pufferfish_OR16.7
Frog_OR669.1
Amphioxus_105.1
Amphioxus_39.1

MYVLI AALCAVDLLAATAIVPKMLLGLLF--DWNRI SLASCLAQMFSTHFLSSLESTLLLAMALDRYLAVCQPLRYTEMVGASALSRLLLLALVRS6SIM
MYTLLCSLCMNGLYGTGFFYPKILWDLLS--PVHVISYSGCLVQAFVYHAFVSNDSMLSVAMSRYDYVAICRPLVYHSVMSKKRLLILVFSWFTTFCIS
RYILFATTL LSSDIF---LIITDILLIFS-YKITYTMQVMWLVIYIISLCIFVTPTLTAMTLERYVAICKPLRHGELCSTRRALHCVLIIHSISSPC
RYILFATTL LSSDIF---LIITDILLIFS-YKITYTMQVMWLVIIFVSSLYFTVPVTLTAMTLERYVAICKPLRHGELCSTRRALHCVLIIHSISAIPS
RYVLLNLLLCADTAQ---MALSQLLYLLA-ASRAPLTYPACGLVLMALDITNVPSTLTVAMSLERYVAICRPLRHAAVLVTRSTMAAAVAVAFSSNLV
RYTLFANILLADSLQ---LLSAMLMYLLA-VTMILKSLFCAVLVAVRVTKTSPNLAMSLERYVAICFPLRHASIVTTRTGAAVAVMVTVVGLES
MYLLFCNPLPLNDLLGNSILLPRLLDMLRPRSELSFYEECVVQAFTHVFGTTSNTVLMIMAFDRYVAICVPLQYNMIMTNKVMKMLTASAWGVALVLV
MYLLFCNPLPLNDLLGNSILLPRLLDMLRPRSELSFYEECVVQAFTHMSGTAHTVLMIMAFDRYVAICVPLQYNMIMTNKVMKMLTASAWGVALVLV
MYFILFSLPLNDLIGVSAMLPKVLSDILVETNT--VYPLCVLQAFLLHMYGGGILFLIAMSFDRYAAICNPLRYSYIMTPRVICTISLVGLDFVLI
MYIFIMCLINSINSLYGSAGFFFRFLRDLLS--DTHLISRTACFAQIYVIYTYASYELTLGIMAYDRYVAICQPLNYHNKITSKAVSKLVAFAWIYPCFSV
MYIFIMCLINSINSLYGSAGFFFRFLRDLLS--DTHLISRTACFAQIYVIYTYASYELTLGIMAYDRYVAICQPLNYHNKITSKAVSKLVAFAWIYPCFSV
MYIFIAALLGNSVVFSTAIYPKLLDFLS--EEQIISYPACLLQFCFLYSLDGSFLLLSAMAYDRYSICKPLQYHTIMKKTITVRVLLAAAGCPFAAQ
MYIFIAALLINSVLFSTAIYPKLLDFLS--EKQIISYPACLLQWFSHHWLVASDFFLLSIMAYDRYVSICNPLQYTTIMQRTTIVYFLCSAWILPACLV
MYVFIICNLCANALFGTAGFYPKFLYDLLS--PDHVISYAGCMIQTFVYISYALCDVSTLTVMAYDRYVAICRPLEYHSVMTSQRVWEITLFCWAPLFLCM
MYIFLNCNLINGIFGTSGFYPKMYDLILA--QHEVISYAGCLIQIFVYSSVCFDSTLTVMAYDRYVAICRPLEYHSVMTNQRIECLTFCWLSPPFCM
MYIFLNCNLINGLYGATGFFYPLL YLLS--ESNVILSLKECAIQSFAIFTYATIGFTNLSVAMDRYVAICRPLYYHNIMTTVTVMRLTTFIWMFPCCOTA
MYIFLCHLCLINGVYGATGFFYPKILSDIL--DSYVISSHMCALQTYVIYSSLLSEITILTVMYSDRYVAICKPLDHYSLRKTNTCKVLILFSWIVPTFS
MYTILSCLSVNDLIGSAGFFPRILADLLS--DNTAISRPACFVQITFVYSSYAMEYITLTVMAYDRYVAICNPKLYHKMSRLTARYMAMASFCVFSM
MYTILSCLSFNSVFGTSMAPFRLLTDLLS--DTHLVPREACLLQAFVYISYASSENTILMAFDRYVAICKPLQYNSIMTPRNLVSILVAYIYPMPLCV
MYFILFSLPLNDVFGITMLPKVSLDILTEINK--TYPPLVQLG6GLLHMYGGVFLVLAAMAFDRYVAICMPLRYNALTMTPRVAGVIGALVWGLDFFFI
MYIFVSALAVVDIIVPTAIIPAMLLGLFLF--DLNEITLSGCLTQMVFTHFFSSVESTILLAMALDRYVAICKPLHYNEIMNMSMFLKFLFRTLIRSGTIM
MYFILFSLPLDILGITAGLPRVLVDITETND--VYPTCVLQAFLLHLYGGGILFLIAMSRLDYATICNPLRYSIMTPSRIFGLTAFAGWGLDFAVI
MYMLFCNPLINDILGNSIMPRMLLDLTKSPQRYISYEECVVQAFCTHGTGTTHTLILIMADRYVAICNPLRYQTIMKTITVILSALAWGIALFI
RYILFGHMLWVDTLN---LFMSVVL YICA-VSRILIMKNVCLLLIIAATALFQVSTLNLALMSLERYVAICFPLRHAFTSFKRTHAICVWVWL6LIQC
RYILFGHMLNDVSL---LLVTIAYMTLA-LCFLPHKSIKTLTLVLVSYCTFFNAPTLALMSLERYVAICFPLXHCITAHPRKGTATIGIWFSSVVD
RYILFGHMLVINDVQ---LVTIATIALVS-YILTYISYGVCCFLIVAVFTTRSPVNLGAIAERYAICYPLRHQAICTYHRAVLYIGVIZWFSVNNP
RYILFAQTLFVDSAL---MLFADTLVLGS-AYELFTHIISCYIFCTVMALLSICSPVTLVAMCLERYVAICLPLRHASISSPKNTINGLLIIVGSSVIP
RYILFAQTLFVDSSF---MIFADLTLCLS-AQYLIIHNISCVYFCTVMSVLSICSPVTLVAMCLERYVAICLPLRHASISSPKNTINGLLIIVGSSVIP
MYVFIICNLMMGLFGTAGFYPKMYDLILS--QHLISYAGCLVQIFVYSSVCLFDSTLTVMAYDRYVAICRPLEYHSVMTNQRIECLTFCWLSPPFCM
MYNIIILNLVSDLLFSTIITPKIISRYWFQ--DQSVISYGGCFTQAYVYHYGVSVSLIAMAFLDRYVAICNPLRYPNIVTILNIFCLWACWYPLTFCP
MYIFLNCNLINGLYGATGFFYPKILLDQFS--DQSVISYGGCFTQAYVYHYGVSVCMELSTLTVMYSDRYVAICNPLRYHTIVTSLTVRKLKLLFSWCLPFI
MYILFCNPLPLNDIGVATVMIPRLLWDILTAPERYITYECVIAQFHYHYATTSHVTLMIMAFDRYVAICNPLRYATIMTNKMWIRLSMSAWGVAIVLV
MYTILCSLCVNGLYGTGFFYPKILLDQFS--DVHVISYGGCFTQAYVYHYGVSVCMELSTLTVMYSDRYVAICRPLLYHTIVTSLTVRKLKLLFSWCLPFIAG
MYTILCSLCNPFNDIGNSTIYPRLLADILVPASERYITYEECVVQAFCTQMFGTSTHTILMIMAFDRYVAICNPLRYSIIMTNKIRLSVSGAWVAIVLV
MYIFIAALPTNSVMFMSMAVYPKLLVDILS--KRQIITYYACFFQHGVVYCLGASEFLLLTAMSFDRYVSICKPLQYQSLMSKRRVTVMILSLWLPFLQ
MYIFIAALLTNSVMFMSMAVYPKLLVDILS--KRQIITYYACLLQVVVYCLGASEFLLLTAMSFDRYVSICKPLQYQSLMSKRRVTVMILSLWLPFLQ
MYLLFCNPLINDVGNMSIMPRLLSVLTKPPSERLITYEECVLQAFTHVFGTTSNTVLMIMAFDRYVAICNPLRYSIIMTNRMVLKTVFAWGVAIVLV
MYLLFCNPLPVSIVGCTHILPRLLSDMLVPSPSERLITYEECVVQAFTAQMF6STHTVLMVMAFLDRYVAICNPLRYANIMTSMRIKTLTVFAWGVPFVW
MYFIFIAALCINGLYGSVIFFFLPFVNLLS--KQTVISYVGCIQVFSIHYISECVTILAVMALDRYVCNPLRYSIIMSLATVFKLIGAAWLVIALI
MYMFIACMLNGLYGSCFFPALFVNLLS--KQTVSYIGCLIQFVHSYSGCEITLAVMALDRYMCNPLRYSIMTSGTGLKIGAAWLVIALI
MYLLISVLFAINITSCTAILPKFLLLDILF--QLNQVSLTGCLLMFVIFYMAYCESNVMLLSLDRYVAICRPLRYHNIMTSLKLAWLTVTVIRVSFLV
MYLLISLFAINITSITILLPKFLLLDILF--LQNQVSLTGCLLMFVIFYMAYCESNVMLLSLDRYVAICRPLRYHNIMTSLKLAWLTVTVIRVNCILLI
RYVLFAMHLINDVYV---LVMTLYLAIITSYLPMLRPAHVCAIVMVSASASYKVTAYNLGVMALERYVAICFPLRHSEFCTRQRSARIALYGIWAI6GLIPN
RYVLFAMHLINDVLY---LSVGFYILVSYLYLVF-IPVPVCYIIVTALSCFTWVTPYNLALMSLERYVAICHLRHTIECISGHRLTATMALMVLGLTLPN
MYIIRLALSLDILFDITILPKIAIKYWF6--AGSITFYGCFFQLFCVNSLGSYICLIMLADRYVAICQPLRHSIISKNLVTLLCYLWVFAALIG
KFMAVGNLAADVILSLTALVPGMIKTYIAL--DNFVFPNLCLLQMYIYITCTCLESFSLCILSYDRFIAICFPLRHESINTNSRMAYIISAVWFFCVVTL
KYAVFNLNLSIDCESTATYEQLLDTFLFR--NQLTPYRCLYNMFSVFSISQSTLTLAVLSFDRYLVAICPLRHYHMIVTFRSMVLVIGTLWATLLM
KYLAVNLAADVINSINVIIPQMWPFVFN--QIYTSFGACFSQMMFFHFGDMSFSLALAYDRJLAICWPLRYSTINTNLRMLLITLALJWLVTLLD
KFLAVNLAVIDLCTACSIPIGMIKIFLKF--DNFVFPNQLCVQMFYFYFALESYALMILAYDRJLAICFALRQNSINTVSRMCCGIIITWICYLGV
KYAVFNLAFVDLLGNALTALVPKVIDTFLFN--HNYISYNECLTYFFCCYCLMSQALNLVALCYDRLVAIMFPLHYQVTVPRKIMLSIILAFWLVIAV
KYAVFNLAFVDLGNALSALVPKVIDFLFN--HHNIPYNDCTMLFFCYTCLMSQSFNLVALSYDRLVAITFPLHYQLRVNQTFMLSMASFVWFTITAV
KFMAVFNLAVIDLSTCTSPKIMKVFLLK--DNFVFPNLCVQMFYFYATLSMESYALAILAYDRJLAICLPMRQNLFTLPMILCIVGGTWWYNLGR
KFLAVNLAVIDIVLNTTIPGMWIKFVLK--DNFNPFLNLCVQMFYFYSCFASMESFALAILAYDRJLAICFPLRHSNVNTVTRMCSIGTFVFSVGI
KYAVFNLAFVDLGLSSTLMPKLLDIFLFN--HRYISYNDCLTLFFSYTFLCMQSFNLLALS YDRLIAIHPHYQVRVTHRFMISIAFFWVFATTAV
KYAVFNLAFVDLGNALSALVPKVIDFLFD--HRRIPYNDCLTLFFCYTCLMSQALNLVALAYDRJLAITFPLHYQVRVTHRFMISIASFVAFIIVAV
KFLAVNLAVIDIVLSSSTPSPMIRTFLLK--ENFPNPNLCVQMFYFYFATLSLALAILAYDRJLAICFPLQHSINTLWSMSVIAVTVCSYGLA
MYIILASLALSDMCFSTVALPKIISKYWFN--AGATPFIACFFQMLIHYFSGNSLIMMIMALDRYVAICPLRYQVTMNTVRVYTLITITAWITAFAP
MYIIMLSLVSVDICFTVALPKVISRYWFN--DGFISFYGCFTQRLIHYF6TLGNSLIMMIMALDRYVAICMPLRYVLTNRTMLLIGVFSWVTAMAP
TYIIFCNLAMDALCGLTPPRVIAKYWMS--DKIISFGVCTQMFHIFLGATNSFLMALMALDRFIAICNPLRYVLTNRTMLLIGVFSWVTAMNLQ

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Fugu_OR5510-1
Fugu_OR117-1
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Fugu_OR1026-2
Fugu_OR8298-1
Fugu_OR6030-1
Fugu_OR59-1
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Fugu_OR4208-2
Fugu_OR6818-1
Fugu_OR7903-1
Pufferfish_OR8981-2
Pufferfish_SCAF8981
Pufferfish_OR15134-1
Pufferfish_OR14339-2
Pufferfish_OR14328-1
Pufferfish_OR14677-8
Pufferfish_OR14536-2
Pufferfish_OR14536-1
Pufferfish_OR10960-2
Pufferfish_OR10960-3
Pufferfish_OR12434-1
Medaka_ORUn_33
Medaka_ORUn_2
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Medaka_ORUn_21
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Medaka_ORUn_1
Medaka_OR21_1
Medaka_OR21_3
Medaka_OR21_3
Stickleback_OR1_1
Stickleback_OR16_3
Stickleback_OR1_12
Stickleback_OR1_13
Stickleback_ORUn_9
Stickleback_OR7_1
Stickleback_ORUn_6
Stickleback_ORUn_8
Stickleback_OR1_18
Stickleback_OR16_10
Stickleback_OR16_32
Stickleback_OR16_1
Stickleback_OR16_5
Stickleback_ORUn_1
Stickleback_ORUn_17
Zebrafish_OR126-7
Zebrafish_or126-3
Zebrafish_OR123-1
Zebrafish_OR125-1
Zebrafish_OR127-1
Zebrafish_OR128-10
Zebrafish_OR116-2
Zebrafish_zor6a
Zebrafish_OR117-1
Zebrafish_OR115-15
Zebrafish_OR133-7
Zebrafish_OR132-1
Zebrafish_OR131-2

Zebrafish_OR131-1
Goldfish_OR3
Goldfish_OR2
Rainbow trout_OR500-1
Cutthroat trout_OR600-1
Brown trout_OR500-1
Atlantic salmon_SORB
Medaka_mfOR2
Medaka_mfOR3
Medaka_OR_Y3
Medaka_ORY1
Frog_OR-52D1
Frog_OR-52E8
Frog_OR-52A1
Frog_OR-52P1
Frog_OR-52A5
Frog_OR-2M5
Frog_OR-2M2
zebrafish_OR10.1
zebrafish_OR10.14
zebrafish_OR15.39
Medaka_ORUn.6
Medaka_ORUn.28
Medaka_ORUn.27
Stickleback_OR7.3
Stickleback_OR7.4
Stickleback_OR7.8
Fugu_ORUn.83
Fugu_ORUn.20
Pufferfish_OR7.1
Pufferfish_OR7.3
zebrafish_OR10.29
zebrafish_OR10.31
zebrafish_OR15.58
zebrafish_OR15.57
Medaka_OR13.1
Medaka_OR13.3
Stickleback_OR1.25
Fugu_ORUn.8
Pufferfish_OR16.7
Frog_OR69.1
Amphioxus_105.1
Amphioxus_39.1

LFVFI--GSFAY--TPPNAMNSYVVCISIEVMLQVKWLADTRATSQQLLFVIMLCIVGSTYIKIMIAARSASATNKKSTYKGLRTVILHGIIQLILGMMQFI
CVVIV--LTSRLILCG--SSIEKLYCENWSVVKLSCFST--TVNNVIGVYIIIIYFGHVLIFCSYIHLI-GKCRK--SKEGRNKFQTCVPHLLALLNV
LMMAI--RAYPLPYCSGNT-IHCYCDHISITSLACTN-RALYGVPAFAIAMVVLGLPLAFIIFSYPYCAII-VAVLHISSTQGRKLSFSTCSPQLIIIALY
LIAVS--LAVRLPLCG--SRIDKIFCDIPSLIKHACSPI--TINQNLNKFVIVVHVLQILFIVFSYQIV-RTCVK--SAKGRKFTQTCPVHLITIFIF
GILLG--LTIRLSRCR--SNIFNPYCDNNSLFKLSCD-NVFNNNYGLFTFVFLVSSIGSISLTYLKIA-IVCLSSKNSSLSNKALTTCSTHLLVYLIV
LIAVS--LTARLSLCLG--CRIDKIFCDNPSILKHACLPI--TINQNLNKLIVVHVLQIFFIVFSYSQIV-RTCVK--SAKGRKFTQTCPVHLITIFMF
GILLG--LTIRLSRCR--STILNPFCDNASLFLKLSCE-SVFINNMYGLTFTIVLFISSIGSIALTYMKIA-AECFISKNKAMNSKALKTCSTHLLTVYLIM
TVAISGKVIINQRPCS--FSLEGIFCDG-ALQRLLCIKLE-ELAVLDMIIILFNITVLPSPILFTYICIL-KISYRS-SKEVRSKAAQTCPLHMLVLVNF
TVAISGKVIINQRPCS--FSLEGIFCDG-ALQRLLCIKLE-ELAVLDMIIILFNITVLPSPILFTYICIL-KISYRS-SKEVRSKAAQTCPLHMLVLVNF
GILLG--LTIRLSRCR--TLIENPFCDNASLFLKLSCE-SVFINNNYGLTFTAVLLTSSIGSIVLTYSKIT-AVCLTSKSKSLNNKALQTCSTHLLVYLIM
AVLLG--LTIRLNRCR--TLIENPFCDNASLFLKLSCE-SVFINNNYGLTFTAVLLTSSIGSIVLTYSKIT-AVCLTSKSKSLNNKALQTCSTHLLVYLIM
AILVL--LTIRLPLCG--SVIQKIYCDNISVVKLSC-TDTTANNVFGLLITAAIIGLMPILTLMSYAQIL-RVCMKA-SKAFAKALQTCPLHMLVLTIFY
TIHVI--LTIRLPLCG--SVIQKIYCDNISVVKLSC-TDTTANNVFGLLITAAIIGLMPILTLMSYAQIL-RVCMKA-SKAFAKALQTCPLHMLVLTIFY
CPLVI--LTSMVQFCRL-NIILNFTCENMALLSLGCGDIT-KPQIAGLIVRVLVTLVDVSLLMISYSTILYTAMKSATG-KSQHKALNTCGTHLLVAMVV
CPLVI--LTSMVQFCRL-NIILNFTCENMALLSLGCGDIT-KPQIAGLIVRVLVTLVDVSLLMISYSTILYTAMKSATG-KSQHKALNTCGTHLLVAMVV
IADCI--ILSTS--VPSSFSSLVICARSASFMTNSQTLIRNLTHLSLFTVLGLIIIFTYIKIMMVALRVDGSKES-AIKASRTVMLHAIQLFLCLMAFS
VADFI--TFSLS--ANKRYFSLHVICRESLITVNPTQNTIRSNVLVITVSLVALIILYTYIKVMLVARKVGSSTSS-AIKAGKTVLLHGVQLLLSLMSLI
SIVAV--IVGQLPYCGPNR-VKNSFCVNSAVVLACVD-VTLARRTVFILAMCVLLPLAVIILSYVLII-RVHS-TNTENSWKAFYTCSTHLMVIGLY
LYAVF--SILTSFSCGNE-MNSYFCDGYTPVLVLACD-ITQQLNYATAIILFVIGASIFIFTYIGIL-RAVFRMKSSQSRFKALATCTEHLVLVCLY
MTAII--FISRLSFCVKIVTVNSFYCDHGPPIYRSACSN-MFPSSVIGSLYPIVTLGLPVFFIIFSYPYCAII-VTLFRVTTQDQRATKTCTAHLILVAVF
IFPVI--FASRLPYCSSRA-VLSGCCHEGPPVYRLACTD-TTYNRQLGTVTVMITLLGPLFFIIVFTYVIVV-IAMVRIASVTQRWKAFTCTLTHMMLVMLY
AYSVA--LITKLSFCSSVK-VFSYFCDYAPVYRLACND-NSKQWVAGTFFSYLNLGLPFTFIVLSYVSIL-VTVFRMKTSDNRRKTLATCAEHILVAIF
STAAQ--LLTSLFSCNSVV-INSYFCDHGIQIFGIACND-YSPSYFSDVLAITLWPLIIVISSYVIC-FALFKVSTIQEGVKAFKTCTAHLSLVAIY
LISVG--LLTSLFSCNSVV-INSYFCDHGIQIFGIACND-NFPNDVVSFFYPVIFWLPVLVFIILSSYLYIG-YTLVKVATLQQGKAFKTCCLAHLVAVY
AHTA--IMTSLFSCNSVR-VNSYFCDYAPVYRLACND-YTLHWSIASSTSSMVNLMPFTVILSYLSIL-ATVFRMKSVDNRMKALATCTEHLILVAIF
AFSTG--IMTSLFSCNSVR-VNSYFCDYAPVYRLACND-YAMQWASASFLSFMILGPPFVFIILSYVTIL-VTVFRMKSVDNRMKALATCTEHLILVAIF
LIAVG--LITSLFSCNSVA-INSYFCDHGIQIFGIACND-NFPNYVLSCLPVLIFFWLPFIIFILLSYLYIG-CTLAKVATVQEGKAFRTCTAHLSLVAIY
LIAVG--LITSLFSCNSVA-INSYFCDHGIQIFGIACND-HFSYVVSCLYPVFIFFWLPFIIFILLSYLYIS-CTLAKVATVQEGKAFRTCTAHLSLVAIY
AFSTG--IMTSLFSCNSVT-VRSYFCDYAPVYRLACND-YTLHWSIASSTSSMVNLMPFTVILSYLSIL-ATVFRMKSVDNRMKALATCTEHLILVAIF
LIAVG--LITSLFSCNSVT-VRSYFCDYAPVYRLACND-HFPNYVVSCLYPVFIFFWLPFIIFILLSYLYIS-CTLAKVANFQRGLKALKTCGHLVAVY
AFSA--IMTSLFSCNSVE-VYSYFCDYAPVYRLACND-NTLHWSIASSTSSMVNLMPFTVILSYLSIL-ATVFRMKSVDNRMKALATCTEHLILVAIF
TVATL--DTQQLPYCGPNL-ILQCYCDHISITNLACAE-NSKQLLVCLMALLVLLPLVCIISYCHII-ASVMRLSSSQSRWKSFCATCTQLCIITLF
SISLS--LTLKLPFCGPNM-IAHCFCDLSMNLQACAD-ASFYNLIAFGVAMFVLLVPLSFIIFSASIL-VSVLQIANAKGRKALSTCATQLTIIISY
VGVTL--LSLSVKYCGSNV-IPHCYCDHISITNLACAE-AATMKVTSTAIAMFVLWGLPFIIFSASIL-VSVLQIANAKGRKALSTCATQLTIIISY
TFMVI--NTFDEPYCGSNI-ITQNYCDHNSIILKSCGD-IGQKKFYSFAMFVLLGPLFIIFSASIL-VSVLQIANAKGRKALSTCATQLTIIISY
MGIVL--HASSLSFCDS-K-ILQCFCDHISITNLACAE-NSKQLLVCLMALLVLLPLVCIISYCHII-ASVMRLSSSQSRWKSFCATCTQLCIITLF
MTIVL--HALTSYCKSNI-IAQCYCDHISITNLACAE-NSKQLLVCLMALLVLLPLVCIISYCHII-ASVMRLSSSQSRWKSFCATCTQLCIITLF
LTIVL--LTLTLPFCNSV-IAQCYCDHISITNLACAE-NSKQLLVCLMALLVLLPLVCIISYCHII-ASVMRLSSSQSRWKSFCATCTQLCIITLF
VAVIV--QALALPYCKSNV-IVQCFCDHISITNLACAE-NSKQLLVCLMALLVLLPLVCIISYCHII-ASVMRLSSSQSRWKSFCATCTQLCIITLF
VTIIV--QALALPYCKSNV-IVQCFCDHISITNLACAE-NSKQLLVCLMALLVLLPLVCIISYCHII-ASVMRLSSSQSRWKSFCATCTQLCIITLF
AVITI--LDSTVPICNKNK-IKSCFCTNTGLTALSCAD-VTFVKRLAFGLAMFVLLPLVCIISYCHII-ASVMRLSSSQSRWKSFCATCTQLCIITLF
SLPLI--LVRDAGDNVSCLTKTSTSPAFVIRIIGMAVQ-----LSVLVIGLYFIVLKEAKRQQRDEQRVPKFKYKTRGFKTMAPLAIIITTT
IGQTL-----IKRLQNPCESLFCQPEAFTSTSPAIFKFNVCIVGVLLAVLAIIVYLVYKEARKQQ-ERDEHRLWLWYQTKAFKTLVPHIVVLVVS

310 320 330 340 350 360 370 380 390 400
LOR1 VVSLLDLLYMRFGSQ-----TSLQNVKNFMAMEFLLVPPINPLIYGFKLTQIRNRII-----FLSGKRI-----
LOR2 VVSLLDLLYMRFGSQ-----ALSQNVKNFMAMEFLLVPPINPLIYGFKLTQIRNRII-----FLSGKRI-----
LOR3 VVSLLDLLYMRFGSQ-----TSLQNVKNFMAMEFLLVPPINPLIYGFKLTQIRNRII-----FLSGKRI-----
LOR4 VVSLLDLLYMRFGSQ-----TSLQNVKNFMAMEFLLVPPINPLIYGFKLTQIRNRII-----FLTGKRI-----
LOR5 VVSLLDLLYMRFGSQ-----TSLQNVKNFMAMEFLLVPPINPLIYGFKLTQIRNRII-----FLSGKRI-----
LOR6 VVTLLDLLYMRFGSQ-----TSLQSVKNFMAMEFILPPTINPLIYGFKLTQIRNRIQS-----FLNCKFHS-----
LOR7 VVTLLDLLYMRFGSQ-----TSLQSVKNFMAMEFILPPTINPLIYGFKLTQIRNRIQS-----FLNCKFHS-----
LOR8 VVTLLDLLYMRFGSQ-----TSLQSVKNFMAMEFILPPTINPLIYGFKLTQIRNRIQS-----FLNCKFHS-----
LOR9 VVTLLDLLYMRFGSQ-----TSLQSVKNFMAMEFILPPTINPLIYGFKLTQIRNRIQS-----FLNCKFHS-----
LOR10 VVTLLDLLYMRFGSK-----TSLQSVKNFMAMEFILPPTINPLIYGFKLTQIRNRIQS-----FLNCKFHS-----
LOR11 SCLCAYDVIVVGLEAD-----FPKTVRLIMALQIILYHPLFNPIYGLMKKEIHKHLKR-----LFFPAKIK-----
LOR12 SCLCAYDVIVVGLEAD-----FPKTVRLIMALQIILYHPLFNPIYGLMKKEIHKHLKR-----LFFPAKIK-----
LOR13 SCLCAYDVIVVGLEAD-----FPKTVRLIMALQIILYHPLFNPIYGLMKKEIHKHLKR-----LFFPAKIK-----
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LOR16 SCLCAYDVIVVGLEAD-----FPKTVRLIMALQIILYHPLFNPIYGLMKKEIHKHLKR-----LFFPAKIK-----
LOR17 SCLCAYDVIVVGLEAD-----FPKTVRLIMALQIILYHPLFNPIYGLMKKEIHKHLKR-----LFFPAKIK-----
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LOR20 SCLCAYDVIVVGLEAD-----FPKTVRLIMALQIILYHPLFNPIYGLMKKEIHKHLKR-----LFFPAKIK-----
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LOR23 SCLCAFDVITVQLEAD-----FPKTVRFIMTLQIVMYHPLFNPIYGLMKKEIHKHLKR-----LFFPAKIK-----
LOR24 SCLCAFDVITVQLEAD-----FPKTVRFIMTLQIVMYHPLFNPIYGLMKKEIHKHLKR-----LFFPAKIK-----
LOR25 SCLCAFDVITVQLEAD-----FPKTVRFIMTLQIVMYHPLFNPIYGLMKKEIHKHLKR-----LFFPAKIK-----
LOR26 SCLCAFDVITVQLEAD-----FPKTVRFIMTLQIVMYHPLFNPIYGLMKKEIHKHLKR-----LFFPAKIK-----
LOR27 -----
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LOR29 -----
LOR31 SITVFCDAVALSRIDLE-----NLNPFILAVILSLEFVWIPPIILNPLVYGLKLPEIRKLILK-----MLSGPKPKDKQTKSHK-----
LOR32 SITVFCDAVALSRIDLE-----NLNPFILAVILSLEFVWIPPIILNPLVYGLKLPEIRKLILK-----MLSGPKPKDKQTKSHK-----
LOR33 SITVFCDAVALSRIDLE-----NLNPFILAVILSLEFVWIPPIILNPLVYGLKLPEIRKLILK-----MLSGPKPKDKQTKSHK-----
LOR34 SITVFCDAVALSRIDLE-----NLNPFILAVILSLEFVWIPPIILNPLVYGLKLPEIRKLILK-----MLSGPKPKDKQTKSHK-----
LOR35 SITVFCDAVALSRIDLE-----NLNPFILAVILSLEFVWIPPIILNPLVYGLKLPEIRKLILK-----MLSGPKPKDKQTKSHK-----
LOR37 YLVGSVTFLSHNLNIP-----IPTDVNTFMGLMYILFPATVNPPIYGVRTKEIRNGFFRIFK--LRVQTAMTVKVAPAGKRQM-----
LOR38 YLVGSVTFLSHNLNIP-----IPTDVNTFMGLMYILFPATVNPPIYGVRTKEIRNGFFRIFK--LRVQTAMTVKVAPAGKRQM-----
LOR39 YLVGSVTFLSHNLNIP-----IPTDVNTFMGLMYILFPATVNPPIYGVRTKEIRNGFFRIFK--LRVQTAMTVKVAPAGKRQM-----
LOR40 YLVGSVTFLSHNLNIP-----IPTDVNTFMGLMYILFPATVNPPIYGVRTKEIRNGFFRIFK--LRVQTAMTVKVAPAGKRQM-----
LOR41 YLVGSVTFLSHNLNIP-----IPTDVNTFMGLMYILFPATVNPPIYGVRTKEIRNGFFRIFK--LRVQTAMTVKVAPAGKRQM-----
LOR42 YLVGSVTFLSHNLNIP-----IPTDVNTFMGLMYILFPATVNPPIYGVRTKEIRNGFFRIFK--LRVQTAMTVKVAPAGKRQM-----
LOR43 EIVGTFTILSHRFTN-----VSADLQKIMGMLIFLVPPLNPIYGLYTSEIRNTMLR-----VIKKRVSN-----
LOR44 EIVGTFTILSHRFTN-----VSADLQKIMGMLIFLVPPLNPIYGLYTSEIRNTMLR-----VIKKRVSN-----
LOR45 EIVGTFTILSHRFTN-----VSADLQKIMGMLIFLVPPLNPIYGLYTSEIRNTMLR-----VIKKRVSN-----
LOR46 EIVGTFTILSHRFTN-----VSADLQKIMGMLIFLVPPLNPIYGLYTSEIRNTMLR-----AIKKRVSN-----
LOR47 EIVGTFTILSHRFTN-----VSADLQKIMGMLIFLVPPLNPIYGLYTSEIRNTMLR-----AIKKRVSN-----
LOR48 VFNGMSIITLHRFP-----HYSYDRKLCTILFHIIPCSINPIYGVQSKKEIKKFFSK-----SFKSKKTLPSFHQS-----
LOR49 VFNGMSIITLHRFP-----HYSYDRKLCTILFHIIPCSINPIYGVQSKKEIKKFFSK-----SFKSKKTLPSFHQS-----
LOR50 VFNGMSIITLHRFP-----HYSYDRKLCTILFHIIPCSINPIYGVQSKKEIKKFFSK-----SFKSKKTLPSFHQS-----
LOR51 FLCGMFVILHRFP-----QYSDYRKLCSILFIHVPGLSNPIYGVQSKEMKKFFLK-----LFKSKNTLPLI-----
LOR52 VFNGMSIITLHRFP-----HYSYDRKLCTILFHIIPCSINPIYGVQSKKEIKKFFSK-----SFKSKKTLPSFHQS-----
LOR53 VFNGMSIITLHRFP-----HYSYDRKLCTILFHIIPCSINPIYGVQSKKEIKKFFSK-----SFKSKKTLPSFHQS-----
LOR54 VFNGMSIITLHRFP-----QYSDYRKLCSILFIHVPGLSNPIYGVQSKEMKKFFLK-----LFKSKNTLPLI-----
LOR55 VFNGMSIITLHRFP-----QYSDYRKLCSILFIHVPGLSNPIYGVQSKEMKKFFLK-----LFKSKNTLPLI-----
LOR56 VFNGMSIITLHRFP-----QYSDYRKLCSILFIHVPGLSNPIYGVQSKEMKKFFLK-----LFKSKNTLPLI-----
LOR57 VFNGMSIITLHRFP-----QYSDYRKLCSILFIHVPGLSNPIYGVQSKEMKKFFLK-----LFKSKNTLPLI-----
LOR58 VFNGMSIITLHRFP-----QYSDYRKLCSILFIHVPGLSNPIYGVQSKEMKKFFLK-----LFKSKNTLPLI-----
LOR59 VFNGMSIITLHRFP-----QYSDYRKLCSILFIHVPGLSNPIYGVQSKEMKKFFLK-----LFKSKNTLPLI-----
LOR60 VFNGMSIITLHRFP-----QYSDYRKLCSILFIHVPGLSNPIYGVQSKEMKKFFLK-----LFKSKNTLPLI-----
LOR61 VFNGMSIITLHRFP-----QYSDYRKLCSILFIHVPGLSNPIYGVQSKEMKKFFLK-----LFKSKNTLPLI-----
LOR62 VFNGMSIITLHRFP-----HYSYDRKLCTILFHIIPCSINPIYGVQSKKEIKKFFSK-----SFKSKKTLPSFHQS-----
LOR63 FLCGMFVILHRFP-----QYSDYRKLCSILFIHVPGLSNPIYGVQSKEMKKFFLK-----LFKSKNTLPLI-----
LOR64 FLCGMFVILHRFP-----QYSDYRKLCSILFIHVPGLSNPIYGVQSKEMKKFFLK-----LFKSKNTLPLI-----
LOR65 FLCGMFVILHRFP-----QYSDYRKLCSILFIHVPGLSNPIYGVQSKEMKKFFLK-----LFKSKNTLPLI-----
LOR66 LVSGMILITLHCFP-----QYAEYRKISAILFNVPVGLSNPIYGLQSKKEIYKSLN-----IFHPKRIMLF-----
LOR67 LVSGMILITLHCFP-----QYAEYRKISAILFNVPVGLSNPIYGLQSKKEIYKSLN-----IFHPKRIMLF-----
LOR68 LVSGMILITLHCFP-----QYAEYRKISAILFNVPVGLSNPIYGLQSKKEIYKSLN-----IFHPKRIMLF-----
LOR69 LVSGMILITLHCFP-----QYAEYRKISAILFNVPVGLSNPIYGLQSKKEIYKSLN-----IFHPKRIMLF-----
LOR70 LVSGMILITLHCFP-----QYAEYRKISAILFNVPVGLSNPIYGLQSKKEIYKSLN-----IFHPKRIMLF-----
LOR71 LVSGMILITLHCFP-----QYAEYRKISAILFNVPVGLSNPIYGLQSKKEIYKSLN-----IFHPKRIMLF-----
LOR72 HGTIVISLSTTLQR-----LLMVRKNIYVYFIYILPRLCSSLIYGLRDQITRPVLMYY-----LCCRLPK--FQ-----
LOR73 HASIIISLSTTLQR-----LLIVRIKSILYVYFIYILPRLCSSLIYGLRDQITRPVLMYY-----LCCRLPK--FQ-----
LOR74 HGTIVISLSTTLQR-----LLIIRRSIFVYFIYILPRLCSSLIYGLRDQITRPVLMYY-----LCCRLPK--FQ-----
LOR75 HSSIIVSLSTIPQR-----ILFVHIRSTFYVYFIYILPRLCSSLIYGLRDQITRPVLMYY-----LCCRLPK--FQ-----
LOR76 HASIIISLSTTLQR-----LLIVRIKSILYVYFIYILPRLCSSLIYGLRDQITRPVLMYY-----LCCRLPK--FQ-----
LOR77 HSSIIVSLSTIPQR-----ILFVHIRSTFYVYFIYILPRLCSSLIYGLRDQITRPVLMYY-----LCCRLPK--FQ-----
LOR78 HSSMIVSLSTTLPT-----SQIIRRSIFVYFIYVLPRLCSSLIYGLRDQITRPVLMYY-----LCCRLPK--FQ-----
LOR79 HSSMIVSLSTTLPT-----SQIIRRSIFVYFIYVLPRLCSSLIYGLRDQITRPVLMYY-----LCCRLPK--FQ-----
LOR80 HSSMIVSLSTTLPT-----SQIIRRSIFVYFIYVLPRLCSSLIYGLRDQITRPVLMYY-----LCCRLPK--FQ-----
LOR81 HSSMIVSLSTTLPT-----SQIIRRSIFVYFIYVLPRLCSSLIYGLRDQITRPVLMYY-----LCCRLPK--FQ-----
LOR82 HTPSQAIAISKVDA-----ITSRLHIVYVYFIYIILPRLCSSLIYGLRDQITRPVLMYY-----LCCRLPK--FQ-----
LOR83 APQLLDILQQWFFPK-----NRTDSLFAYYIIVQILPRSVSPPIYGIIRDNTFRKYLKRY-----LFCCKDSIL-----
LOR84 APQLLDILQQWFFPK-----NRTDSLFAYYIIVQILPRSVSPPIYGIIRDNTFRKYLKRY-----LFCCKDSIL-----
LOR85 APQLLDILQQWFFPK-----NRTDSLFAYYIIVQILPRSVSPPIYGIIRDNTFRKYLKRY-----LFCCKDSIL-----
LOR86 APQLLDILQQWFFPK-----NRTDSLFAYYIIVQILPRSVSPPIYGIIRDNTFRKYLKRY-----LFCCKDSIL-----
LOR87 APQLLDILQQWFFPK-----NRTDSLFAYYIIVQILPRSVSPPIYGIIRDNTFRKYLKRY-----LFCCKDSIL-----

LOR88 APQLLDILQQWFPK-----NRTDSLFAHYIIVQILPRSVSPIIYGIRDNTFRKYLKRY-----LFCKDSIL-
LOR89 APQLLDILQQWFPK-----NRTDSLFAHYIIVQILPRSVSPIIYGIRDNTFRKYLKRY-----LFCKDSIL-
LOR90 APQLLDILQQWFPK-----NRTDSLFAHYIIVQILPRSVSPIIYGIRDNTFRKYLKRY-----LFCKDSIL-
LOR91 APQLLDALQKWFPK-----NFTDSLFAHYIIVQVLPISPFIIYGIRDNTFRYRLKRY-----LLCKDSKP-
LOR92 APQLLDALQKWFPK-----NFTDSLFAHYIIVQVLPISPFIIYGIRDNTFRYRLKRY-----LLCKDSKP-
LOR93 CPFIEVALFQ-IDL-----MLYVNVRYFNITFILAPRCLSPLIYGLRDEKFLALALKHK-----VPFGFHCVKIKARTGFVRQV6CRDRLP
LOR94 CPFIEVALFQ-IDL-----MLYVNVRYFNITFILAPRCLSPLIYGLRDEKFLALALKHK-----VPFGFHCVKIKARTGFVRQV6CRDRLP
LOR95 CPFIEVALFQ-IDL-----MLYVNVRYFNITFILAPRCLSPLIYGLRDEKFLALALKHK-----VPFGFHCVKIKARTGFVRQV6CRDRLP
LOR96 CPFIEVALFQ-IDL-----MLYVNVRYFNITFILAPRCLSPLIYGLRDEKFLALALKHK-----VPFGFHCVKIKARTGFVRQV6CRDRLP
LOR97 CPFIEVALFQ-IDL-----MLYVNVRYFNITFILAPRCLSPLIYGLRDEKFLALALKHK-----VPFGFHCVKIKARTGFVRQV6CRDRLP
LOR98 CPFIEVALFQ-IDL-----MLYVNVRYFNITFILAPRCLSPLIYGLRDEKFLALALKHK-----VPFGFHCVKIKARTGFVRQV6CRDRLP
LOR99 TPFIEGAVFQ-IDF-----MLFINVRFSYILFALAPRCLSPLIYGLRDETFFFHALKNY-----EFFGLYKRNV
LOR100 TPFIEGAVFQ-IDF-----MLFINVRFSYILFALAPRCLSPLIYGLRDETFFFHALKNY-----EFFGLYKRNV
LOR101 SPFIESTLLR-FDF-----MLFINVRYSNYVLFNLTPRCLSPLIYGLRDETFFFHALKNY-----EFFGLYKRNV
LOR102 GPFIESTLLR-FDF-----MLFINVRYSNYVLFNLTPRCLSPLIYGLRDEAFFHALKNY-----EFFGLYKRNV
LOR103 SPFIESTLLR-FDF-----MLFINVRYSNYVLFNLTPRCLSPLIYGLRDETFFFHALKNY-----EFFGLYKRNV
LOR104 SPFIESTLLQ-FDF-----MLFINVRYSKYVLFNLTPRCLSPLIYGLRDETFFFHALKNY-----EFFGLYKRNV
LOR105 TPFIESTLLR-FDL-----MLFAHVRLSNFILFGLTPKCLSPLIYGLRDETFFFHALKNY-----EFFGLYKRNV
LOR106 SPFIESTLLR-FDF-----MLFINVRYSNYVLFNLTPRCLSPLIYGLRDETFFFHALKNY-----EFFGLYKRNV
LOR107 CPFIEAAVFQ-IDL-----ILFINVRFYNYVLFNLTPRCLSPLIYGLRDETFFFHALKNY-----EFFGLYKRNV
LOR108 TPFIESTLLH-FDL-----MLFAHVRLSNFILFGLTPKCLSPLIYGLRDETFFFHALKNY-----EFFGLYKRNV
LOR109 TPFIESTLLQ-FDL-----MLFFHVRLSNFILFGLTPKCLSPLIYGLRDETFFFHALKNY-----EFFGLYKRNV
LOR110 TPFIESTLLR-FHL-----MLFTHVRLSNFILFGLTPKCLSPLIYGLRDETFFFHALKNY-----EFFGLYKRNV
LOR111 TPFIESTLLR-FDL-----MLFAHVRLSNFILFGLTPKCLSPLIYGLRDETFFFHALKNY-----EFFGLYKRNV
Fugu_OR123-1 VICMLFDLLYMRFGTK-----NLPESIQNFIAIQFILIPPILNPLIYGFKLQKIRRIQY-----FLWTKHVCII-
Fugu_OR6765-1 IVCLLFDLVHMRFDG-----TLDNARNFMIAIQFLLFPPLINPLIYGIKLTPIRNRIQN-----FLGKEI-
Fugu_OR4133-1 KICLLFDLLHMRFDG-----QLSEGANFMIAIQFLLFPPLINPLIYGIKLTPIRNRIQS-----FLCMKSL-
Fugu_OR3630-2 SCLTVYDVLLLRNLNTV-----VPKTVHFLITLQIIMYHPLFNPIYVGLKMKKEISKQLKK-----LFGKKGLF-
Fugu_OR8617-1 SCLTVYDVLLLRNLNTV-----VPKTVHFLITLQIIMYHPLFNPIYVGLKMKKEISKQLKK-----LFGKKGLF-
Fugu_OR5510-1 SCLTVYDVLLLRNLNTV-----VPKTVHFLITLQIIMYHPLFNPIYVGLKMKKEISKRLKK-----LFGKKRFVLTGVYTLHHK-
Fugu_OR117-1 SVTVFCDAVALSRIDLE-----SLNPFIAVVLSEFVVIPLVNLPLVYGLKLPKIRKCILR-----MFHNPK-
Fugu_OR2346-5 SLTVFCDAIALSRNIE-----EINPFLAVIFSLFVVIPLVNLPLVYGLKLPKIRREILR-----LFRHNIIT-
Fugu_OR5287-2 YLVGSVTFLSHNLNIN-----IPADVNTFMGMVYILFPATVNPPIYGVRTTEIRNGLLKIFK-----LQVKKLI--KVSPV-
Fugu_OR142-1 EFVATFTILSHRFNT-----VSADLQKIMGMILFIPLPPLNPIYGLVGTGEIRNALLR-----IHKRSISV-
Fugu_OR1026-2 SASGILIALHRFP-----QYSDYRKICAILFHITIPGSMNPPIYGIQSKKEIKYLYK-----LFQARKIMSSY-
Fugu_OR8298-1 FASGILVIALHRVP-----QYSDYRKICAILFHITIPGSLNPIYGVQSKKEIKQLLR-----QFHQKVFVAVKINYLVAPLVH-
Fugu_OR6030-1 YKPILAALSRIVSR-----IVLVRQLNVLYVCLFILPRCLSALIYGIRDQIRPVLFYF-----LCCRLTISVFPKGYK-
Fugu_OR59-1 YKPILAALSRIVTR-----LVLIRVQNVLYVCFILPRCLSALIYGIRDQIRPVLFYF-----LCCRLTISVFPKGYK-
Fugu_OR4208-3 EPLLKQALLWFFR-----NYSDSLFCYIIVQILPRISPIIYGVRDQKTFRRHLTRN-----LLCRPPRAPPEAQT-
Fugu_OR4208-2 APALRELLQKLFK-----NSTDLQVSYIVVQVLPSTSPMIYGLRDPTEFRKYLKRY-----MLARSS-
Fugu_OR6818-1 CPFIESAIFQ-IDY-----MLFINVRFYNYVTFILAPRCLSPLIYGLRDEKFFNALKYL-----ALCGLYKKRLDLFDE-
Fugu_OR7903-1 CPFIESAIIK-IDL-----LLYINVRFYNYVTFILAPRCLSPLIYGLRDEKFLNALKYL-----ALCGLYKKKIDY-
Pufferfish_OR8981-2 SMCLLFDILHEGFSSE-----RIPESARNFIAIQFLLVPPILNPLIYGLKLNKVRNRIKR-----FMCRRKS-
Pufferfish_SCAF8981 NMCLLFDMLYEKLSTE-----KIPKSTQNFIAIEFLFPPLINPLIYGLKLNKVRNRIEK-----FLCRKS-
Pufferfish_OR15134-1 SSFGIYDVLLLRNLNT-----VPKTVHFLITLQIIMYHPLFNPIYVGLKMKKEISKQLKK-----LFARKVLG-
Pufferfish_OR14339-2 SITVFCDAVALSRIDLE-----SLNPFIAVVLSEFVVIPLVNLPLVYGLKLPKIRKCVLR-----MFQNPEK-
Pufferfish_OR14328-1 SINFCDVALSRIDLE-----SLNPFIAVVLSEFVVIPLVNLPLVYGLKLPKIRKCILR-----MFQNPEKKV-
Pufferfish_OR14677-8 YLVGSVTFLSRNLNIY-----IPADVNTFMGMVYILFPATVNPPIYGVRTTEIRNGFFKLCK-----IRVKKLT--KVSPV6KRQT-
Pufferfish_OR14536-2 YTPILTALSRTVIR-----IVLVRQNVLYVWFFILPRCLSALIYGIRDRTIRPVFFYC-----LCCQLTISVFPKGYK-
Pufferfish_OR14536-1 YTPILTALSRTVIR-----IVLVRQNVLYVWFFILPRCLSALIYGIRDRTIRPVFFYC-----LCCQLTISVFPKGYK-
Pufferfish_OR10960-2 EPLLKQALQWFFR-----SYSDSLFCYIIVQILPRISPIIYGVRDQKTFRRYLRRN-----LLCRAQRAPERP6DGGPKPAACFCLD-
Pufferfish_OR10960-3 TPALRDALQRRFPE-----NSVDVLFASYVVLVQILPRSLSPLVSVRDQTFRRYLRRY-----LLRWRR-
Pufferfish_OR12434-1 CPFIESVVFQ-IDK-----VIFSYYVRFNYVVFYIAPRCLSPLIYGLRDEKIFLALKVR-----VFLFRSW-
Medaka_ORUn.33 YLVGSVAFLSRDL-----SSGVAFMGMVLYIILLPATVNPPIYGIKTEIRNGLLRLLK-----VTRNGSQ-KATSPGRRRS-
Medaka_ORUn.2 LTVALVAFLSYRVNRS-----LPTAVRVFFSTMYLLFPSCVNPPIYGIKTEIRQHIMKTLT-----RQT-----RVSGTC-
Medaka_OR21.18 TASLLFDIMYSRYGSA-----SLPQTLKNFMIAIQFLLGPPLNPNVYGLILTIRKRMIR-----VLYVVCNRLKLNKV-
Medaka_OR21.19 LVTILFDLMNMLTSK-----NLDTQIFQNFIAIEFLLIPPMNPLIYGFKLTKIRKIAK-----LTFTRSK-
Medaka_OR21.20 MVTILTDVILSLRIGFD-----GMPQTLQNLIAIEFLLIPPMNPLIYGFKLTKIRYKIKI-----LLTFRVK-
Medaka_OR13.14 SVLIEDAAFK-VSL-----TLYNNIRFYNYVMMFLAPRCLSPFIYGLRDELFFQALKYK-----ASCGLYKR-
Medaka_OR13.12 CPFIEAAVYN-VDP-----IVYNNLRFFNYIVFFLAPRCLSPLIYGLRDELFFQALKYH-----ALRGLLKNI-
Medaka_ORUn.23 NNPVIVALSLLTR-----MAFLWQIGFYIYFFIIFPRCMTSLIYGLRDQIRPVLMYH-----LSCHFKVSVGGLLKK-
Medaka_ORUn.21 YNPLVIALSKVLTR-----MAFLWQINIFYVTFIIFPRCMTSLIYGLRDQIRSLLDH-----LCCRLKDIRG-
Medaka_OR14.15 YNPLVIALSKVLTR-----MAFLWQINIFYVTFIIFPRCMTSLIYGLRDQIRSLLDH-----LCCRLKDIRG-
Medaka_OR14.13 FACGMINILLHRFP-----EYSYRSITAFMFILPGLDPIIYGVQSKKEIRHFLSK-----LLMSKKVVSFR-
Medaka_OR14.4 SISGVSIIVLHRFP-----QYSEYRKLSAILFVMIPLPPLNPIYGVQSKKEIRHFLSK-----KCCSRKIPFEC-
Medaka_OR14.6 SFSGVSIIVLHRFP-----QYSEYRKLSAILFVMIPLPPLNPIYGVQSKKEIRHFLSK-----KCCSRKRLKKNPI-
Medaka_OR13.4 ECLGLFTIISHRLQN-----ISPHLRRFMGLSTLIFPPTLNPIYGLKTEIREKILQ-----FFRIGVHPLKPMFS-
Medaka_OR13.5 QVNTTFTILSHRFEN-----ASPLLRALGVSVLIFPPFLDPLIYGLRTRRELRCMVV-----FLKRNFSFTK-
Medaka_OR13.6 QINSNAAYILHRSQS-----KLTVLRKAFGFSVLFPFLDPLIYGLNTRRELRCQIM-----FLRRNAGSTK-
Medaka_OR13.7 EVVGTFTILSHRFKD-----VSADLQKIMGMILFVLPPLNPLVYGLTSEIRKTLTG-----VFKNRVI-
Medaka_ORUn.1 TGSLLFDGAFS-RYGG-----TSIEMQLNALAAEFVLVPPALNPIYGMNLKEVRSRIYF-----RFTTRPKLSM-
Medaka_OR21.2 SCLMIYDIIIRLESN-----FSKTARFIMTLQIMYINPLCNPFYGLKMTIYKHLKK-----LFCFSRYSSS-
Medaka_OR21.3 SCLAIVDITIVRVESN-----LSKTARFIMTLQIMYINPLCNPFYGLKMTIYKHLKK-----LFCNSRCVSSS-
Stickleback_OR1.1 YLVGSVTFLSHNLNIA-----IPTNVNTLMGVAYILLPATINPVYGVRTTEIRSGFLKLFS-----AK-----RVSAAGTTKT-
Stickleback_OR16.3 LGTILLDFMHIRYGSN-----LPQAFKNFIAIEEVLVLPMNPLIYGFKLTKIRKIVA-----VITFKMTLLIS-
Stickleback_OR1.12 CPLTEAAVLQ-INL-----ILFINVRFYDYITFILAPRCLSPLIYGLRDEMFFHALKYK-----ALCGLYKKQSSNIP-
Stickleback_OR1.13 CPFJETAVLQ-INF-----ILYINVRFYDYIAFILAPRCLSPLIYGLRDEMFFHALKYK-----ALCGLYNQSTNVP-
Stickleback_ORUn.9 YSPVLMALSRSVNR-----LLFVRLQNVLYVAIFIFPRCLSSLIYGLRDKSIQPVLLQH-----LSCGLKLPIGTSPSPRDVDV-
Stickleback_OR7.1 FYMINPINQWGNR-----KMAIHQVGLFLVLIIILPKCLSPLIYGLRDAQFRHVFEYF-----FTFGSVKRPKPS-
Stickleback_ORUn.6 VLSALSNIIVLHRFP-----QYSDYRKLSAILFVMIPLPPLNPIYGVQSKKEIRHFLSK-----WFQSKVLPPL-
Stickleback_ORUn.8 LISGMCIIVLHRFP-----QYSDYRKLSAILFVMIPLPPLNPIYGVQSKKEIRHFLSK-----LFPKQVMP-
Stickleback_OR1.18 EIVSTFTILSHRFKN-----VSADLQKIMGMILFVLPPLNPIYGVLYTSEIRNTLT-----VSANIFTQVGWLR-
Stickleback_OR16.10 SITVFCDAVALSRIDLE-----ALNPFILAILSEFVVIPLVNLPLVYGLKLAIEIRKCVLK-----VFLRSVPVKTNNHK-
Stickleback_OR16.32 VASLLFDLLYMRFGSK-----DLPQAGVQNMAMEFLLIPPMNPLIYGLNLTIRNRIQN-----DVMCSKNRSRVGLQKKKFFKCLSF6KNT-
Stickleback_OR16.1 SITVFCDAVALSRIDLE-----ALNPFILAILSEFVVIPLVNLPLVYGLKLAIEIRKCVLN-----VFSHSEPVKTNNHK-
Stickleback_OR16.5 SSTVFCDAVALSRIDLE-----ALNPFILAILSEFVVIPLVNLPLVYGLKLAIEIRKCVLK-----VFLRSEPVKTN-
Stickleback_ORUn.1 CSLVTYDVIIVLHRFP-----IPKAIIRNLTQVILYHLLNPIYGLKMTIYKHLRR-----LFHQDKHN-
Stickleback_ORUn.17 TCLISYSLILDQLELD-----SPKTVRFIITIQAVIYQPLFNPLIYGLKMRRIYDHLKK-----LFCRMVLCHTDESQCFSV-
Zebrafish_OR126-7 TVALLFDVLYSRFGSK-----NVPHSVRNFMALFLLIPPLNPLIYGLNLTIVRQVQIK-----LFSKNKVGI-
Zebrafish_or126-3 TVAFLFDVLFSTRYGSK-----NVSQNLRNFMALFLLIPPLNPLIYGLNLTAVRQEVIR-----LFSRKQLEISK-
Zebrafish_OR123-1 VFWSLFSTLYELFGIS-----SLSQEFKFLSVTFMIPPLINPVYIGVILTPIRTAKAH-----VFQSFPRKHID-
Zebrafish_OR125-1 TFAFLFDYMYNRYGSK-----DIPESLRHFLAIVLIVPPLFNLMYGLNIRAVRKRFT-----SCGAAKVNIILEKHKIFIMH-
Zebrafish_OR127-1 SIASFCDIALSRNDS-----KIK-ILTIIFSVEFLVIPPVLNPLIYGLNLTIEIRKKIAC-----LFRRSKI6HFIE-
Zebrafish_OR128-10 SAALFCEVTLRSRVNL-----ELPIGLSIIILSEFLIYVPPILNPLIYGLNLTIEIRKKIMC-----IVTKCK-
Zebrafish_OR116-2 EIVATFTILSHRFIS-----VNADLQKIMGMILFVLPPLNPIYGLNLTIEIRKKIMC-----VIHRKIAHM-
Zebrafish_zor6a YFVGSVTFLSRNLNIP-----IPIDVNTFLGVMYIVFPASVNPPIYGVRTTEIRKIALFKIFK-----NKINKVSIKYSTIRN-
Zebrafish_OR117-1 EMVTAVAIISYRIPD-----FPPTAQVRVCGLMYAVLPVNPVYIGLKMKDRIALFV-----VLRKRKVV6RKTDVVKIRK-
Zebrafish_OR115-15 LISGLIIVLHRFP-----AYSQYRKVAALLFHIIIPSLNPIYGLNLTIEIRKKIMC-----SPFKRRRAVDV-
Zebrafish_OR133-7 VGVQIEAIYVYDF-----LTALNMVYFCFLVFIIFPKCLSPLIYGMRDQAFCLFKYF-----FTFGKGIKPVTEILHV-
Zebrafish_OR132-1 YATIRTEILYMVIGSGS-----PLFINRLNYIIVLILPRCLSPLIYGMDEAVWPLFKYF-----VCFRSSKIKPSVNVH-
Zebrafish_OR134-1 SPSVEGILNIIFPG-----RVLEIRFANYLIVYILPRFLSPIYGVDRKKFRKYLRRY-----FVCGVSTMETRVECKDGD-
Zebrafish_OR131-2 TPYIDILTLK-VDI-----MLFINVRKFSNFMFLFIPRCLSPLIYGLRDKKFFYNALKYK-----AFCGIYVYKHKIKDSKTIGGALSISI-
Zebrafish_OR131-1 TPYTEMSLWK-IDV-----MLFINVRKFSNFMFLFIPRCLSPLIYGLRDKKFFYNALKYK-----AFCGVYVVSXKHVDRDIKISRRKRC-
Goldfish_OR3 SFALLFDVLYTRYGSM-----TMPQDLRNFMALFLLIPPMNPLIYGLNLTILRKEVLK-----LLKKEV-
Goldfish_OR2 FLPRCFIYLS-NIGI-----NFSTDRLRLVIIMMYSLFPMPINPLIYCLTKDVKETLLK-----KIKVSMNPLFIPTKVNSTVCV-
Rainbow trout_OR500-1 ITVTILFDNLQ6-WNVV-----NSTLNMNRNMAVQFLVIPPVFNPLIYGLNLTQIRRAVFR-----KCNARKIIDMRC-
Cutthroat trout_OR600-1 LGCGFTIIVLHRFP-----AFADLRKVSSVGLGSVPTCLNPIYGLQTEIKQRIRF-----VFHRAKVA-
Brown trout_OR500-1 ITVTILFDNLQ6-WNVV-----NITLNMNRNMAVQFLVIPPVFNPLIYGLNLTQIRRAVFR-----KCNARKIIDMRC-
Atlantic salmon_SORB LISGIIIVLHRFP-----HYSQYRKVAALLFHIIIPSLNPIYGLNLTIEIRKKIMC-----VIHRKIAHM-
Medaka_mfOR2 SCLGSFEIIGFFWSE-----YPKTLHLTVLQIIIIYQPLFNPIYGLKMKKEISKHVKM-----LIWGR-
Medaka_mfOR1 SCLGSFVIIIGFFWSE-----YPKTLHLTVLQIIIIYQPLFNPIYGLKMKKEISKHVKM-----LIWGR-
Medaka_OR_Y3 ISCGLLNIIVLHRFP-----EYSDQRLIVILFHIIIPGSLNPIYGLQSKVEQVFRFSKGL-----CPHFVDAAMHSLFSSRFKK-
Medaka_ORY1 SISGVSIIVLHRFP-----QYSEYRKLSAILFVMIPLPPLNPIYGVQSKKEIRHFLSK-----KCCSRKIPFEC-
Frog_OR-52D1 VADVLFELLPRFPST-----TLPEYELVRLMSVQAFVIAPIHLPLIYGLKREIRLRVLQ-----MFGAKPIADLHNNL-
Frog_OR-52E8 VVDILCEVLLRFPFN-----SIPYELRIIISVQAFVIAPIHLPLIYGLKREIRLRVLQ-----MFGAKPIADLHNNL-
Frog_OR-52A1 YLCGLASSIVYRMETT-----ISPQVKNLFSAIYLMVPATLNPFIYGLRVSEIRKSLMKYK-----MKNLFFPS-
Frog_OR-52P1 YLCALASTIVQRMETS-----ISTDQRLVLSLASCIPPCINPIYGLRVSEIRKSLMKYK-----ERKNVFS-
Frog_OR-52A5 N-----NLLIEIYLM-----YMYLLPLGSSFFLMCLPRFISPLIYGLRDEVFERNYIKFR-----MLCRQLRVHKIKIVVFK-
Frog_OR-2M5 T-----SYIEANVKE-----YVLLAISNLFLLFCLPRFLGLPIYGLRDEVFGRKHLR-----KLHSCVIEIR-
Frog_OR-2M2 FIPRVFVYSTS-QIPL-----TLDADINVLLCLYTFIPHLANPVYICLRTKDIRNIFAQ-----SFNNIFHAKI-
zebrafish_OR10.1 FVPVIVIFNL-FFGI-----IWSPNVGLVCLSLSSLLPCCVNPVYISLTKTEIRSRVYS-----LFTRRLFVHPLKNGH-
zebrafish_OR10.14 YLPITITYS-----LAS-----INTNTIRNLSLTSALPMLNPIIYFTKTEEFMVSVKK-----LLKRKIIFFPYL-
zebrafish_OR15.39 YMPVIAIYVLG-NLRL-----VQNVDLTALTIVSVTPAMLNPIIYSLKTDELKERMVK-----LFRQSKVAQOIKTQEVKALQ-
Medaka_ORUn.6 YIPFFVIYTMG-FYLG-----PVNPDRLVLSLSMASCLPPCINPVVYSLKTKEKLTRALA-----LVRKKQVVSVSNRIIVLRTRK-
Medaka_ORUn.28 FFPILTFT-----NTN-----IHPNHRILNLSLTSALPMLNPIIYVLTQTEIKASFKK-----VLKIRSRFKVSGK-
Medaka_ORUn.27 FTVPLITFT-----LMD-----KIHNNRIINLSLTSVFPMLNPIIYVLTQTEIKASFKK-----ISKIYRKSMMKIKSLP-M-
Stickleback_OR7.3 YPIIFTIFLMG-LYVR-----SIDPDQRLVLSLASCIPPCINPIYVLTQTEIKASFKK-----LVQR--IKTSP-
Stickleback_OR7.4 YPIIFTIFLMG-FFLR-----LTPDQRLVLSLASCIPPCINPIYVLTQTEIKASFKK-----LVRNVIIGTDQRKMKPLRVKKSFR-
Stickleback_OR7.8 FIPVLTFT-----LME-----KINPNARIMNLSLTSILPPTLNPIIYVLTQTEIKASFKK-----LLKIRRSKMKIKCTPNMTHSL-
Fugu_ORUn.83 FIPLLTFT-----LME-----NIHPNARIMNLSLTSVFPMLNPIIYVLTQTEIKASFKK-----LLKLRGRSKTTPRKLPNLQTAACKC-
Fugu_ORUn.20 YIPLFTIFILG-FYVR-----LIDADQRLVLSLASCIPPCINPIYVLTQTEIKASFKK-----LIRKNKIKGTFK-

Pufferfish_OR7.1
Pufferfish_OR7.3
zebrafish_OR10.29
zebrafish_OR10.31
zebrafish_OR15.58
zebrafish_OR15.57
Medaka_OR13.1
Medaka_OR13.3
Stickleback_OR1.25
Fugu_ORUn.8
Pufferfish_OR16.7
Frog_OR669.1
Amphioxus_105.1
Amphioxus_39.1

FIPLLTITFT---LME-----NIHPNARIINSLTSVFPPMLNPIIYVLQTQEIKDSLRR-----LLKNSQSLKWAQRKHPILPQPSGSRG-
YIPLFTIFIFG-FYVR-----LIDADLRVLISLSMASCIPPCINPIVYSLKTKEIKIRAVA-----LFRKHKIRAIKA-----
YMPRFTVYLT--FLQI-----QISKDFRILLVLIYCLVPPLVNPFYICLRTQEIRMIIVSR-----WVSRQQALR-VACKINVTIL-----
YVPRFAVYITSNVPNA-----QMDKAEKIALVMFYSLPPLMNPFIYFIRIREIRQVFLK-----CCAQRKRM--ISSSTTVSK-----
YLPRTFVYITN-ISGY-----ELSNDRMVVSMYSLIPAVINPFIYCFRTKEIKEAIFK-----RFKKNK---VDRKISLG-----
YVPRCVVYVHD-VT-I-----AISPGRVMMLMWTLPPIVNPFIYCFRTKEIKDAIKK-----KLKDRK---VNVQI-----
YVPRCVVYITD-NLKV-----KVSPDARIIIALLYSLIPAAVNPLIYCLKTADIKEALMK-----RFKNRK---INLAFKSNTKP-----
YLPRCFVYVAS-TVGF-----SFSLDIRILLILLYSLPPLNPLIYCFKTRDIKLTLLR-----KLKMYR---VAIEIQMFAK-----
YLPRCFVYVSN-TVGY-----SFSLDVRILVLLYSLIPAAVNPLIYCFKTQYIKQHILK-----KIKTTR---IGIQLNLFLL-----
YLPRCFVYVAN-TVGF-----YFSIDVRILLTLLYSLVPPAVNPFYICFKTQDIKKILMK-----KLRNTG---FGMKVNIYS-----
YLPRCFVYVAN-TVGF-----YFSVDVRILLVLLYSLVPPAVNPFYICFKTQDIKQTLIK-----KLRNTR---IGTEVNVSF-----
FIPRIIFYISN-QVQL-----ILEEDLNVLILCLYTFVPMANPIIYCLRTKEIRKTIAR-----FFQKIVIKVKNPISVSVIVN-----
IVSTLFMTVTVAQGNADEQPSVAVVILEKASILLNLTSSMLNPIIYSLRLPEFRRAMREMCRRPTAVAPAVPTSQRRVHVIEVRGCDASNAGVGLD
VASVYFLVASGRALLNDGEKASTSLITVIVANRIFLTLSSMVNPPIVYSFRHPEFRQALGELFS---PTSIPSVPAVPVPPVTLQRRHDAVAVIEVPHYHD

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LOR109
LOR110
LOR111
Fugu_OR123-1
Fugu_OR6765-1
Fugu_OR4133-1
Fugu_OR3630-2
Fugu_OR8617-1

Fugu_OR5510-1	-----
Fugu_OR117-1	-----
Fugu_OR2346-5	-----
Fugu_OR5287-2	-----
Fugu_OR142-1	-----
Fugu_OR1026-2	-----
Fugu_OR8298-1	-----
Fugu_OR6030-1	-----
Fugu_OR59-1	-----
Fugu_OR4208-3	-----
Fugu_OR4208-2	-----
Fugu_OR6818-1	-----
Fugu_OR7903-1	-----
Pufferfish_OR8981-2	-----
Pufferfish_SCAF8981	-----
Pufferfish_OR15134-1	-----
Pufferfish_OR14339-2	-----
Pufferfish_OR14328-1	-----
Pufferfish_OR14677-8	-----
Pufferfish_OR14536-2	-----
Pufferfish_OR14536-1	-----
Pufferfish_OR10960-2	-----
Pufferfish_OR10960-3	-----
Pufferfish_OR12434-1	-----
Medaka_ORUn.33	-----
Medaka_ORUn.2	-----
Medaka_OR21.18	-----
Medaka_OR21.19	-----
Medaka_OR21.20	-----
Medaka_OR13.14	-----
Medaka_OR13.12	-----
Medaka_ORUn.23	-----
Medaka_ORUn.21	-----
Medaka_OR14.15	-----
Medaka_OR14.13	-----
Medaka_OR14.4	-----
Medaka_OR14.6	-----
Medaka_OR13.4	-----
Medaka_OR13.5	-----
Medaka_OR13.6	-----
Medaka_OR13.7	-----
Medaka_ORUn.1	-----
Medaka_OR21.2	-----
Medaka_OR21.3	-----
Stickleback_OR1.1	-----
Stickleback_OR16.3	-----
Stickleback_OR1.12	-----
Stickleback_OR1.13	-----
Stickleback_ORUn.9	-----
Stickleback_OR7.1	-----
Stickleback_ORUn.6	-----
Stickleback_ORUn.8	-----
Stickleback_OR1.18	-----
Stickleback_OR16.10	-----
Stickleback_OR16.32	RYVHST-----
Stickleback_OR16.1	-----
Stickleback_OR16.5	-----
Stickleback_ORUn.1	-----
Stickleback_ORUn.17	-----
Zebrafish_OR126-7	-----
Zebrafish_or126-3	-----
Zebrafish_OR123-1	-----
Zebrafish_OR125-1	-----
Zebrafish_OR127-1	-----
Zebrafish_OR128-10	-----
Zebrafish_OR116-2	-----
Zebrafish_zor6a	-----
Zebrafish_OR117-1	-----
Zebrafish_OR115-15	-----
Zebrafish_OR133-7	-----
Zebrafish_OR132-1	-----
Zebrafish_OR134-1	-----
Zebrafish_OR131-2	HN-----
Zebrafish_OR131-1	-----
Goldfish_OR3	-----
Goldfish_OR2	-----
Rainbow trout OR500-1	-----
Cutthroat trout OR600-1	-----
Brown trout OR500-1	-----
Atlantic salmon SORB	-----
Medaka_mFOR2	-----
Medaka_mFOR1	-----
Medaka_OR_Y3	-----
Medaka_ORY1	-----
Frog_OR-52D1	-----
Frog_OR-52E8	-----
Frog_OR-52A1	-----
Frog_OR-52P1	-----
Frog_OR-52A5	-----
Frog_OR-2M5	-----
Frog_OR-2M2	-----
zebrafish_OR10.1	-----
zebrafish_OR10.14	-----
zebrafish_OR15.39	-----
Medaka_ORUn.6	-----
Medaka_ORUn.28	-----
Medaka_ORUn.27	-----
Stickleback_OR7.3	-----
Stickleback_OR7.4	-----
Stickleback_OR7.8	-----
Fugu_ORUn.83	-----
Fugu_ORUn.20	-----
Pufferfish_OR7.1	-----
Pufferfish_OR7.3	-----
zebrafish_OR10.29	-----
zebrafish_OR10.31	-----
zebrafish_OR15.58	-----
zebrafish_OR15.57	-----
Medaka_OR13.1	-----
Medaka_OR13.3	-----
Stickleback_OR1.25	-----
Fugu_ORUn.8	-----
Pufferfish_OR16.7	-----
Frog_OR669.1	-----
Amphioxus_105.1	STASNARECATVLGSE RDVRAASNGGGPGSAE
Amphioxus_39.1	NDSQ-----