

# Additional file 1: Complete list of protein sequences used in this study

## Antizyme Inhibitor-AZIN

>Homo sapiens\_AZIN1(ENSP\_321507)  
MKGFI DDANYSVGLLDEGTNLGNVIDNYVYEHTLTGKNAFFVGD LGKIVKKHSQWQNVVA  
QIKPFYTVKCN SAPAVLEILAALGTGFACSSKNEMALVQELGVPPENIIYISPCKQVSQI  
KYAAKVG VGNIMTCDNEIELKKIARNHPNAK VLLHIATEDNIGGEEGNMKGFTTLKNCRHL  
LECAKELDVQIIIGVKFHVSSACKESQVYVHALSDARCVFDMAGEIGFTMNMLDIGGGFTG  
TEFQLEEVNHVISPLLDIYFPEGSGVKI ISEPGSYVSSAFTLAVNIIAKKVVENDKFPS  
GVEKTGSDEPAFMYMNDGVYGSFASKLSEDLNTIPEVHKKYKEDEPLFTSSLWGPSCDE  
LDQIVESC L LPELNVGDWLI FDNMGADSFHEPSAFNDFQRPAIYYMMSFSDWYEMQDAGI  
TSDSMMKNFFFV PSCIQLSQEDSFSAEA

>Macaca mulatta\_AZIN1(ENSMUP\_1788)  
MKGFI DDANYSVGLLDEGTNLGNVIDNYVYEHTLTGKNAFFVGD LGKIVKKHSQWQNVVA  
QIKPFYTVKCN SAPAVLEILAALGTGFACSSKNEMALVQELGVSPENIIYISPCKQVSQI  
KYAAKVG VGNIMTCDNEIELKKIARNHPNAK VLLHIATEDNIGGEEGNMKGFTTLKNCRHL  
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LDQIVESC L LPELNVGDWLI FDNMGADSFHEPSAFNDFQRPAIYYMMSFSDWYEMQDAGI  
TSDSMMKNFFFV PSCIQLSQEDSFSAEA

>Callithrix jacchus\_AZIN1(ENSCJAP\_42044)  
MKGFI DDANYSVGLLDEGTNLGNVIDNYVYEHTLTGKKAFFVGD LGKIVKKHSQWQNVVA  
QIKPFYTVKCN SAPAVLEILAALGTGFACSSKNEMALVQELGVSPENIIYISPCKQVSQI  
KYAAKVG VGNIMTCDNEIELKKIARNHPNAK VLLHIATEDNIGGEEGNMKGFTTLKNCRHL  
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GVEKTGSDEPAFMYVNDGVYGSFASKLSEDLNAIPEVHKKYKEDEPLFTSSLWGPSCDE  
LDQIVESC L LPELNVGDWLI FDNMGADSFHEPSAFNDFQRPAIYYMMSFSDWYEMQDAGI  
TSDAMMKNFFFV PSCIQLTQEDSFSTEA

>Mus musculus\_AZIN1(ENSMUSP\_105958)  
MKGFI DDANYSVGLLDEGTNLGNVIDNYVYEHTLTGKNAFFVGD LGKIVKKHSQWQTVVA  
QIKPFYTVKCN STPAVLEILAALGTGFACSSKNEMALVQELGVSPENIIFTSPCKQVSQI  
KYAAKVG VGNIMTCDNEIELKKIARNHPNAK VLLHIATEDNIGGEDGNMKGFTTLKNCRHL  
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TEIQLEEVNHVISPLLDIYFPEGSGIQI ISEPGSYVSSAFTLAVNIIAKKVVENDKFSS  
GVEKNGSDEPAFVYVYMNDGVYGSFASKLSEDLNTIPEVHKKYKEDEPLFTSSLWGPSCDE  
LDQIVESC L LPELNVGDWLI FDNMGADSFHEPSAFNDFQRPAIYFMMSFSDWYEMQDAGI  
TSDAMMKNFFFV PSCIQLSQEDSFSTEA

>Rattus norvegicus\_AZIN1(ENSRNOP\_69785)  
MKGFI DDANYSVGLLDEGTNLGNVIDNYVYEHTLTGKNAFFVGD LGKIVKKHSQWQNVVA  
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LECAKELDVQIIIGVKFHISSACKKEYQVYVHALSDARCVFDMAGEFGFTMNMLDIGGGFTG  
TEIQLEEVNHVISPLLDIYFPEGSGIQI ISEPGSYVSSAFTLAVNIIAKKVVENDKLSS  
GVEKNGSDEPAFVYVYMNDGVYGSFASKLSEDLNTVPEVHKKYKEDEPLFTSSLWGPSCDE  
LDQIVESC L LPELNVGDWLI FDNMGADSLHGPSAFSDTQRPAIYFMMSLSDWYEMQDAGI  
TSDAMMKNFFFV PSCIQLSQEDNFSTEA

>Canis familiaris\_AZIN1(ENSCAFP\_907)

MKGFLLDANYSVGLLDEGTNLGNVIDNYVYEHTLTGKNAFFVGD LGKIVKKHSQWQNVVA  
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KYAAKIGVNTMTCNEVELKKIARNHPNAKVLLHIATEDNIGGEEGNMKFGTTLKNCRHL  
LECAKELDVQIIGVKFHVSSACKESQVYVHALSDARCVFDMAGEFGFTMNMLDIGGGFTG  
TEFQLEEVNHVISPLLDVYFPEGSGIKIISEPGSYVSSAFTLAVNIIAKKVENDKFPSS  
GVEKTGSDEPAFMYMNDGIYGSFASKLSEDLNTIPEVHKKYKKEDEPLFTSSSLWGPSCDE  
LDQIVESCLLPELNVGDWLI FDNMGADSLHEPSAFNDFQRPAIYYMMSFSDWYEMQDAGL  
TSDTMMKNFFFVPCIQLSQEDSFSSEA

>Felis catus\_AZIN1(ENSFCAP\_9312)

MKGFIDDANYSVGLLDEGTNLGNVIDNYVYEHTLTGKNAFFVGD LGKIVKKHSQWQNVVA  
QIKPFYTVKCNSTPAVLEILAALGTGFACSSKTEMALVQELGVSPENIIYISPCQVVSQI  
KYAAKIGVNTMTCNEVELKKIARNHPNAKVLLHIATEDNIGGEEGNMKFGTTLKNCRHL  
LECAKELDVQIIGVKFHVSSACKESQVYVHALSDARCVFDMAGEFGFTMNMLDIGGGFTG  
SEFQLEEVNHVISPLLDVYFPEGSGIKIISEPGSYVSSAFTLAVNIIAKKVENDKFPSS  
GVEKTGSDEPAFMYMNDGVYGSFASKLSEDLNTIPEVHKKYKKEDEPLFTSSSLWGPSCDE  
LDQIVENCLLPELNVGDWLI FDNMGADSLHEPSAFNDFQRPAIYYMMSFSDWYEMQDAGI  
TSDTMMKNFFFVPCIQLSQEDGFSSEA

>Myotis lucifugus\_AZIN1(ENSMLUP\_1554)

MKGFIDDANYSVGLLDEGTNLGDVIDNYVNEHTLTGKNAFFVGD LGKIVKKHSQWQNVVA  
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KYAAKIGVNTMTCNEVELKKIARNHPNAKVLLHIATEDNTGDEEGNMKFGATLKNCRHI  
LECAKELDVQIIGVKFHVSSACKESQVYVHALSDARCVFDMAGEFGFTMNILDIGGGFTG  
TEFQLEEVNHVISPLLDVYFPEGSGIKIIEAEPGSYVSSAFTLAVNIIAKEVVESDKFPSS  
GVEKTGSDEPAFVYVYMNDGVYGSFASKLSEDLNTIPEVHKKYKKEDEPLFTSSSLWGPSCDE  
LDHIVEKCLLPELNVGDWLI FDNMGADSLHEPSAFNDRQRPAIYYMMSFSDWYEMQDAGI  
TSDTMMKNFFFVPCIQLSQEDSFSSEA

>Monodelphis domestica\_AZIN1(ENSMODP\_7263)

MKGFIEDANYSVGLLDEGTHLGNVIDNYVYEHTLTGKKAFFVGD LGKIVKKHSQWQNVVA  
QIKPFYTVKCNSTPAVLEILAALGTGFACSSKNEMALVQELGVSPENIIDISPCQSSQI  
KYAAKIGVNTMTCNEVELKKIARNHPNAKLLLHIATEDISGDEESNMKFGTTLKNCRHL  
LECAKELDVQIIGVKFHVSSACKESQVYVHALSDARCVFDMAGEFGFKMTILDIGGGFTG  
SEFQLEEVNHVISPLLDVYFPEGSGIKIIEAEPGSYVSSAFTLAVNIIAKKVENDVSS  
GVGKTGSNEPAFMYMNDGVYGSFASKLSENLTNTIPEVHKKYKKEDEPLFTSSSLWGPSCDE  
LDQIVENCLLPELNVGDWLI FDNMGADTLHEPSAFNDFQRPTIYYMMSFSDWYEMQDAGI  
TSDTMMKNFFFVPCIQLSQDDSSFSTEA

>Gallus gallus\_AZIN1(ENSGALP\_35817)

MKGFLEDANYSIGLLDEGATLADVIDNCIYEHTHTGKRAFFVGD LGKLVKKNIQWQNVMA  
PIKPFYTVRCNSTPGVLEILGTLGIGFACSSKSEMALVQGLGISPENIIYTNPCQASQI  
KYAAKAGINIMTCDSDIELKKIARNHPNAKLLLHIATEDITADEEMNMKFGTTLKNCRHL  
MECAKEFGVQIVGKVFHVSGSCKELQTYIHAISDARCVFDMAEFFGFKMNMLDIGGGFTG  
SELQLEEVNHVIRPLLDVYFPKESGIQVIAEPGCYVSSAFTLAVNIIAKKAVDCDKLLP  
SGVEQARNDDPEVFTYYINDGVYGSFASKLSEKLYTNPEVHKKYKKEDEPLFASSLWGPSC  
DELQIVENCLLPELNVGDWLI FDNMGSGTLGEQSTFNDYQRPLIYYMMSFSDWDEMQDA  
GIASDTLMKNFFFVPCIQLSPEDRFSTAA

>Anolis carolinensis\_AZIN1(ENSACAP\_9060)

MKGFLEDANYSIGLLDEGVNVAEVIDNCIYEHTINGKNGFFVGD LGKLIKHHIHWQNVMA  
PIKPFYTVKCNSTPGVLEILAALGTGFACSSKNEMALVQDLGISENIFSNPCQASQI  
KYAAKIGVNTMTCNEVELKKIARNHPNAKLLLHIATEDINGGEEEMNMFGTTLKNCRHL  
MECAKELNVQIIGVKFHVNSCKEPQVYKHAISDARCVFDMAEFFGFTMNMLNIGSGFTD  
YEFDLEKINHVSPLLDIYFPEESGVNVAEAGCYVSSAFTLAVNIIAKKAVQSTEP  
FKTEQTQGDQVFMYYINDGVYGSFASKLSDNLTTIPEVHKKYKKEDEPLFASSLWGPSCD  
ELDQIVENCLLPELNVGDWLLFDNMGSGTLGEQSAFNDFQRPPVYYIMSI SNWCEM  
QDAG FTCTELMKNFFFVPCIQLSPEDGFSLAA

>Xenopus tropicalis\_AZIN1(ENSXETP\_8894)  
MKGFIEDTNYSIGLLDDTATPRDVIDNHIYEHTLMGKNAFFVADLGKIVKKHFKWKNIMG  
RVNPFYTVRCNSSPAVLEILAALSMGFACANKNEMSLVYDLGIPMENAVYTNPCQASQI  
KHAAKIGVNLMTCDSETELKKIARNHFNAKLLLLHIATEGISGEEDMNMFTGTTLNCRHL  
LECAKELSVEVGVKFKHVSSSNPQTYIHALSDARCVFDMAEELGFKMNILDIGGISENE  
AQLEELYQAVSPLLDVYFPEGSQTRIIAEPGSFYVSSAFTLAVNVMAKNVIEHDQHLPSA  
GKQISNKPAFIYCMNEGVYGSFARKLSEKLNTPAEVHKKYKDDEPLFASLLGPSYDELD  
VIVEHCLLPELEVGDWVVFENMGCSLNEQSPFADFEEKPSLYNFMSFSDWYEIQDTGNTS  
ESLMKSLCVPFCFHLGEDQFCTV

>Danio rerio\_AZIN1a(ENSDARP\_122392)  
MKGFDVAPNYFIELLEGGTTLENVIDNHIYEQNLAEKNAFVVADLGALMRQHVVWKTMP  
LVRPFYVSCNSSPVVIELLSALGVGFVCANKAETTLVLSHDVPPENIILSGVCKQLSLI  
KHAAKTGINFLLCENEAE LRKIARAHPEAKLLLQVSTEAQIEEASVTIGCSLKGRHLL  
LAKELNVSVAGVTFQVPASCKDPQAYTHALS DARCIFDMGKELGFDNMNILDIGGGFSGSE  
FQLKQVHSVIRPLEAYFPSESGVSIIEAPGNFFVFCFTLAVNVI GKAAAYRNLHTSTH  
DKLTSSDAPEFVYMNDDGVYGSFMGR LFGNIISTPSVHKMSLTLDEPVFSSSLWGPSCDP  
LDQVVERCLLPELAVGDWLVFSNMGASQEGPATFS DTDQPPVYTIISTDDWFEMQEAGI  
SLDDTMKNLSLVQFGL

>Danio rerio\_AZIN1b(ENSDARP\_69192)  
MSMKGSLDELHYSVELLEGSAAALRDVIDKHIYDQTF AQKSAFFAADLGIVVQQARWRNK  
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HIKYAAKHNIPLVCDNEAEMRKIARCHPKAKVLLLLTSESCCEKEEMAI PFGSTLKDCR  
RLLECAAGELNLQVTGVKFNIPSCCQEVEKFSRAVSEARCVFDMGEELGFEMNILDIGGG  
FDGSEEQLDKVNQMLKPM LDMYFPRSTGLSIIAEPGAYVSSAFTLAVNIDKKT VARDC  
SAQPHDALSANDEPEFLYHINDGVYGSFASKLLCEDSIATPLAHKHVSAD EPLFSSSLWG  
PSEDDLDMERCLLPELSVGDWLLFRNAGASALGSASF SHGDQHKPPVFYSITEYDWQEI  
HNSGVTVDVRMKNFSLVPCCLQPNMSGASISTPA

>Takifugu rubripes\_AZIN1(ENSTRUP\_25228)  
MKELTNELQHSVSLLEGNASLCDVIDNHIYEQTLAGKNAFFIADLGVMRQHVRWRTHMA  
QIRPYYSVRCNSRPTVIDILAAALGTGFICTNKTELELVQSRGVPSEDIIFSGVSKQLSQL  
KYAAKNGIDLLVCDNEVELCKISRCHPSAKLLLQVSTEAFCQDNDLVMTFGCSLKDCRHL  
LERAKELGVQVGVFRNIISSCEDPQLYAHAMS DARC VFDMGEEIGFNMNILDIGGGFNG  
CETQLELVNNTVMMSVDLYFPPSSGVCIIAEPGSFFVSSAFTLAVNVISKEVVARDSHQ  
AHDEPSPNDEPAFYFMKEGVYGSFASKLCETQIVAPSVHKSSCLDAALFSSSLWGPSPGD  
DMDQVVEHCLLPELNI GDWLI F SQAGAYSLGQPLCSTDDSPPHVCYVMSSADWFEMQDI  
GITYEGTLKNMALVPYFLDSCQTEAALS VPA

>Tetraodon nigroviridis\_AZIN1a(ENSTNIP\_12033)  
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RLQPYFPVKCNSSPAVIEVMASLGLGFVCVNKAEMSLVLEHGVPPPEAVILSGVCKQQAHI  
KYAAKNNIQNLVCENEAE LFKISR LHPNAKLLLQLSTQAHAAETSMTFGFSLKSSRHLL  
AAKQLGLQVVGVSFHIPSSCQDLQEAYTHALS DARC VFDMGVDLGFNMNVLDIGSGFTGS  
EFQLRQVESALKPLLDTYFSPLSGVQVLAQPGNFYVASFCLAVTIMGKLVNPRWDNLA  
QGEDNEGTEFLYMNENGIYGFPSCKLLGNSISAPSVHKHALCAEEAMY PSSLWGP SLDQL  
DQVVERCLLPELSVGDWLLFPNMGACGLEDFGSLQLPVYYTVSTSDWFEMQEAGVALDNA  
VKNFSMVQCSA

>Tetraodon nigroviridis\_AZIN1b(ENSTNIP\_12033)  
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AAKQLGLQVVGVSFHIPSSCQDLQEAYTHALS DARC VFDMGVDLGFNMNVLDIGSGFTGS  
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QGEDNEGTEFLYMNENGIYGFPSCKLLGNSISAPSVHKHALCAEEAMY PSSLWGP SLDQL  
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>Gasterosteus aculeatus\_AZIN1(ENSGACP\_6108)

MKGIADepQYSVGLLEAGTALCDVINQHIDEQTLSEKNAFFVADLGVMRQHVRWRTHMP  
QIRPYYPVRCNSSPAVIEVLAVLGAGFICTNKSELELVQSHGVSPEDI IYSGICKQVSQI  
KYAAKNGIDLLVCDNEAELRKISRCHPNAKLLLVQVSTEASIQGDEMMAFGCSLKDCRHL  
LEKAKELGVQVVGVRCHISSACEDDQVYVHAISDARCVFDMGEDIGFDMTILDIGGGFSG  
SENQLEVINKAVMSMADLYFPSTGVSIIIGEPGSFFVSSAFTLVVNVISKEVVARDRQDQ  
ARDDPSPNDEPEFYHLSEGVYGPFAKSLSETLIATPSVYKPPQDAPLFSCLWGPSGD  
LDQVVEHCLLPELNAGDWLFTHAGAYSTGHPLCTATDSPPPPEYYYIISSTDFWEMQDIG  
VAHEATLKNFSLVPYFLAYCQTAAGRSVPA

>Oryzias latipes\_AZIN1a(ENSORLP\_3831)

MKGIADepQYSVGLLDGGTALCDVIDNYIDEQTVSEKNAFFVADLGAVMRQHVRWRTRMP  
LIRPYAVRCNSSPAVIELLASLGSFGFTCSNKSDLELVLSHGVSPEDI IYSGVCKQVSHI  
KYAATNGIDLLVCDNEAELRKISRCHPGAKLLLVQVSTEASNPEEGTSVTFGCSLKDSRCL  
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EREESPDEEPEIQVVLNEGVIYGSFSSKLETPIGAPSVHKKTLVDAPLFSCLWGPSGD  
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>Oryzias latipes\_AZIN1b(ENSORLP\_15618)

MKGFADKPNYIIELLDGVSVTLEDVIDGHICDQTVMEKSAFVVGDLGALMQQHACWQSVVP  
RVLPYPVKCNSSPVVIEVLASLGLGFVCANKAEVGLVLEHGVPPENIILSSGFKQLAHI  
KYAAKNNIQHLVCENEAELSKIARLHPSAKLLQLTTESQAAENSMAFGFSLKNCRHLE  
KAKDLGIDVVGAAFHIPSSCEDLQPAYTHALSARCVFDMGLDLGFNMHILDIGGGFTGS  
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QGINSGEKKEGTEFLYMNIEGVYGFPSHKLGHPIAAPSLHKHAFCADEAVYPSLWGPS  
LDQLDQVVEHCLLPELSVADWLIFSNMGTGLEDLNLCLSSSIDFPVYYYIISTSDWYKMEE  
AGVALNPNVKNFMSMLQYSA

>Homo sapiens\_AZIN2(ENSP\_362542)

MAGYLSESDFVMVEEGFSTRDLLKELTLGASQATTDEVAFFVADLGAIVRKHFCFLKCL  
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IKYAAKHGIQLLSFDNEMELAKVVKSHPSAKMVLCIATDDSHSLSLKFGVSLKSCRH  
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GTEGAKVRFEI IASVINSALDLYFPEGCGVDI FAELGRYYVTSFTVAVSIIAKKEVLLD  
QPGREEENGSTSKTIVYHLDEGVYGIFNSVLFDNICPTPILOKKPSTEQPLYSSSLWGPA  
VDGDCDVAEGLWLPQLHVGDWLVFDNMGAYTVGMGSPFWGTQACHITYAMSRVAWEALRR  
QLMAAEQEDDVEGVCKPLSCGWEITDTLVCVGPVFTPASIM

>Gorilla gorilla\_AZIN2(ENSGGOP\_14531)

MAGYLSESDFVMVEEGFSTRDLLKELTLGASQATTDEVAFFVADLGAIVRKHFCFLKCL  
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GTEGAKVRFEI IASMINALSALDLYFPEGCGVDI FAELGRYYVTSFTVAVSIIAKKEVLLD  
QPGREAPLPPPHIATCAACEPSPPAEENGSTSKTIVYHLDEGVYGIFNSVLFDNICPTPI  
LQKKPSTEQPLYSSSLWGPAVDGDCDVAEGLWLPQLHVGDWLVFDNMGAYTVGMVSPFGE  
TQACHITYAMSRVAWEALRRQLMAAEQEDDVEGVCKPLSCSWEITDTLVCVGPVFTPASIM

>Pongo abelii\_AZIN2(ENSPPYP\_1819)

MAGYLSESDFVMVEEGFSTRDLLKELTLGASQATTQVAAFFVADLGAIVRKHFCFLKCL  
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GTEGTVRFEI IASMINALSALDLYFPEGCGVDI FAELGRYYVTSFTVAVSIIAKKEVLLD  
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VDGDCDVAEGLWLPQLHVGDWLVFDNMGAYTVGMGPPKGGTQACHITYAMSRVAWEALGS  
S

>Mus musculus\_AZIN2(ENSMUSP\_30581)

MAGYLSESDFVMVEEGFSTRDLLEELTLGASQATSGKVAAFFVADLGAVVRKHFCFLKHL

PRVRPFYAVGCNSSLGVLKVLAEGLGFSCANKAEMELVQHIGVPASKIICANPCKQVAQ  
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LLENAKKSHVEVGVVSFHIGSGCPDPQAYAQS IADARLVFQMGAEELGHTMNIIDLGGGFP  
GLEGAKVRFEEMASVINSALDLYFPEGCGVDILAEELGRYYVTSAFTVAVSIVAKREVLDQ  
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EGCDCVAEGLWLPQLQVGDWLVFDNMAYTVDTKSLGGTQARRVTYAMSR LAWEALRGQ  
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>*Rattus norvegicus*\_AZIN2 (ENSRNOP\_72209)

MAGYLSEDFVMVEEGFSTRDLLEELTLGASQATTGKVAFFVADAVVRKHFCFLKYLPR  
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YAAKHGVRLLSFDNEVELAKVVKSHPSAKMVLCIATQDSHSLNHLSLRRLRASLKSCRHLL  
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EGAKVRFEEMASVINSALDLYFPEGCCVDILAEELGRYYVTSAFTVAVSIVAKKEVLT  
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AVDGCDCVAEGLWLPQLQVGDWLVFDNMAYTVDTKSLGGKPFKSGCCLQKKTRTPRVCANLCPA  
AGRSQTACVWALSSPQQASCEWACFPRESQRGQGDASGEVGEAASWYPLARTLVLALPPH  
APPVVFLPCK

>*Canis familiaris*\_AZIN2 (ENSCAFP\_15252)

MAGYLSETDFVMVEEGFSTRDLLEELTLGASQATAGDVAAFFVADLGA VVRKHFCFLKCL  
PRVRPFYTVKCNSSPGVLKVLAEGLGFSCANKAEMELVQRIGVPASKIVYANPCKQIAQ  
IKYAAKHGVRLLSFDNEVELAKVVKSHPSAKMVLCIATDDSHSLSHLSFKFGASLKSCRH  
LLENAKRSHVEVGVVSFHVSGCPDLHAYTQS IADARLVFEMGAELGHRMHILDLGGGFP  
GLEGAKVRFEIATVINSALDLYFPEGCGVDILARLGRYYVTSAFTLAVSIIAKKEVLLD  
QPGREEETGSTPKTIVYHLGEGVYGI FNSVLFNDNTCPTPILQKKSSTEQPLYSSSLWGPV  
ADGSDCVAEGLWLPQLHVGDWLVFENMGAYTVGMGSLFGGTQTCRVTYAMSRVAWEALRG  
QLLPAEQDEDETEGMCKPLSCGWEITDTLVCVGPVFTPASIM

>*Felis catus*\_AZIN2 (ENSFCAP\_24006)

MAGYLSETDFVMVEEGFSTRDLLEELTLGASQATTGDVAAFFVADLGA VVRRHFCFLKCL  
PRVRPFYTVKCNSSPGVLKVLAEGLGFSCANKAEMELVQRIGIPAGKIIYANPCKQIAQ  
IKYAAKHGVRLLSFDNELELAKVVKSHPSAKMVLIHAAEDSPSRLSFKFGASLKSCRHLL  
ENAKRSHMEVGVVSFHVGTGCPDLQAYTQS IADARLVFEMGTELGHRMHILDLGGGFP  
GLEGAKVRLEEICSVINSALDLYFPEGCGVDILAEELGRYYVTSAFTLAVSIIAKKEVLLD  
QPGREEESGSTPKTIVYHLGEGVYGI FNSVLFNDNTCPTPILQKKSMEQPLYSSSLWGPV  
VDGDCIAEGLWLPQLHVGDWLVFENMGAYTVGMGSLIEGAQTCRVTYAMSRVAWEALRG  
QLLPAEQDEDETEGMCKPLSCGWEITDTLVCVGPVFTPASIM

>*Myotis lucifugus*\_AZIN2 (ENSMLUP\_729)

MAGYLSETDFVMVEEGFSTRDLLEELTMGASQATTKSKAALFCLALSGCLPRHLLCFLG  
KLRCLPMPPSWFLVSSGCGPGSAHLVISISLGTCLWKAEMELVQRIGVPASKIIFANPCK  
QIAQIKYAAKYGIQLLSFDNEMELAKVVKNHSSAKLLLCIATDDSHSQSGLSLKFGALLD  
SCRHLLQNAKSHVEVGVVSFHVGSPPDPEAYAQFIADARIVFEMGAELGHRMHILDLG  
GGFPVGEAKVRFEIASVINSALDLYFPEGCGVDIFAKLGRYYVTSAFTLAVSIIAKKE  
VLLDQPGREEETGSAPKTIVYQLDEGIYGI FNSVLFNDNTCPTPVLQKKPSTEQPLYSSSL  
WGPAAADGDCVAEGLWLPQLHIGDWLVFENMGAYTVGMGSLFRGIQTCRITYAMSRVAWK  
ALREQPLPAEQDEDETEGMCKPLSCGWEITDTLVCVGPVFTPASII CVRLLCSAKGLV  
SQIS PQASVPGLLGRVSCQVKGSELLPF

>*Monodelphis domestica*\_AZIN2 (ENSMODP\_21660)

MLRPQGRAGAAGGAEAPVSDSLAGETYGQKPKCVLRGLSSPAAATPRGVAQVLSSPASP  
PSIAPGSAPPQGGRSDEGTSFFVADLGDVVKKHLRFLKNLPRVRPFYVVKCNSSPGVLR  
ALAEGLGFSCANKAEMELLRHIGVPAHKIITYSPCKQAAQVQQAARLGRIMLSFDNEVE  
LAKVARSHPTARMVLR IATDDSCSPARLSMKLGATLKSCRHLLLETAKKMNMEVGVVSFHV  
GSGCSSDPQAFQTQS IADARLVFEMGTELGYRMHILDLGGGFPGTEDSKVRFEEMASVINS  
ALDMYFPEGCGVDILAEFGRYYVASAFTLAVRIVAKKEVPSDQTGLDEEDGASPKSIVYH  
ISEGVYGAFCVFFDNACPMPI LQKKPSPDQRVYSSSLWGPTCDDLDHVAEGLCLPELQL  
GDWLI FENMGAYTVGTTASC SGQQTCTTYAMSRVTWEAVRGLLPPEEDTEDMCKPLSC  
GWEIADTLVCVGPVFTPASII

>Gallus gallus\_AZIN2(ENSGALP\_5708)  
MNGYLNESNFMVEEGFTSRDLLESTLVELCRTGDQQAFFVADLGDIVKKHLHFLKALPR  
VKPYFPVKCNSSGGVIRLLAELGAGFACANKTEIAEVQSIGVPADKIFYSSPCKQIAHIK  
YAASHGVQLMTFDNEVELSKVARSHQPARMLLGIAADSSPSAHPSMTFGATLKSCRCLE  
SAKEQDVEVVGISFHLGRHSLEPQVFAQAVAEQAQAFDMGAELGYRMHLLDIGGGFPGTE  
DTRAQFEEIAAVINSALDMYFPEGCGVEIIATPGRYVTSFTAASITSKEDVPVEQPG  
SDGEESGSKRSFVYHLSNGIYGTFCVLFDGPCPKPLLHKKPCSEQLLCSSLRGLGHA  
EDQITDDVELPELQDGDWLIQDMGAYSIAATSSLCGGCPQPHVTYAMSRLAWKALQLLQ  
KPPPAEDDHESACTPLSCGWEMVESLCVPPVFTPAGII

>Taeniopygia guttata\_AZIN2(ENSTGUP\_1370)  
MNGYLNESNFMVEEGFTTRDLLENLLGEPCEQSDQQAFFVADLGDIVKKHLRFLKALPR  
VKPYFPVKCNSEGVIRLLAELGAGFACANKAEITRVQGIQVADRIIFYSSPCKQVAHIR  
YAAAAGVRLMAFDNEVELSKVARSHPRARMLLGITADSTPPAHPSMTFGTTLKSCRHLE  
TAKEQAVEVVGISFHLGSRGLEPQAWAQAVATAQLVDFDMGTELGHHMHLDDIGGGFPGTE  
DTRALLEEMAAGINSALDLYFPEGSGVDIVARPGRYVTSFTAFLAVSITALEETPMEQPG  
SDGRCDRSTCPLSLSLPNVSSVLSPLPVPTCPPYVSLNPPEPSPSTHSSSLQSPRGHG  
EERIAEGLELPLQHVGDWLIILGTGSYSMPSSLLTAGPQARVTYAMSRVAWEGGQGWVRP  
PQAEDDRESLCMPLSCGWEMAETLCVTPVFAPAGII

>Anolis carolinensis\_AZIN2(ENSACAP\_3333)  
MTRCLDESIVMVEEGFTTKDVLLENLLLEVDQTNREPFVADLEEVEVKKHLRLLKALPR  
IKPFYALKCNRSKGVVQTLAAGLGFACANKTEMALVKSQVPAERIIICASPCKQLSLIK  
YAASQGVQLMTFDNEVELGKVARSHPSARMLLCLATDDSRSSSTHLSIKFGATLKTCHLL  
ETAKEMKVEVVGISFHLGSSCPDPQIFQSIADARLVFEMGAEVGYKMHLDDIGGGFPF  
EESRGRFEETSAVVNSALDLYFPEGCGVEIMAEELGRYVDSFTAFLAVNIVAKKEVTLQV  
SSEDEDPPGKKSFVYHLNDGVYGSFGSVIFNNACPIPIHLHQKPSPDQRLHSSSFWGPTGD  
GLDRLAEGVDLPELHVGDWLVFENMGAYAVPPSASLSSGPPARIHYAMSRVAWEAVQLLW  
GKLLHTEEEEEEGRESACTPLSCGWEITDSLCAAPVFAPASIM

>Homo sapiens\_ODC1(ENSP\_385333)  
MNNFGNEEFDCHFLDEGFTAKDILDQKINEVSSSDDKDAFYVADLGDILKKHLRWLKALP  
RVTPFFYAVKCNDKAIKTLAATGTGFDCASKTEIQLVQSLGVPPERIIYANPCKQVSQI  
KYAANNGVQMMTDFDSEVELMKVARAHPKAKLVLRIATDDSKAVCRLSVKFGATLRTSRL  
LERAKELNIDVVGVSFHVGSCTDPETFVQAI SDARCVFDMGAEVGFMSMYLLDIGGGFP  
SEDVKKLFEEITGVINPALDKYFSDSGVRI IAEPRYVVASAFTAFLAVNI IAKKIVLKEQ  
TGSDDEDESSEQTFMYVNDGVYGSFNCILYDHAHVKPLLQKRPKPDEKYYSSSIWGPTC  
DGLDRIVERCDLPEMHVGDWMLFENMGAYTVAASSTFNGFQRPTIYYVMGPAWQLMQQF  
QNPDPFPEVEEQDASTLPVSCAWESGMKRHRAACASASINV

>Pan troglodytes\_ODC1(ENSPTRP\_20031)  
MNNFGNEEFDCHFLDEGFTAKDILDQKIHEVSSSDDKDAFYVADLGDILKKHLRWLKALP  
RVTPFFYAVKCNDKAIKTLAAIGTGFDCASKTEIQLVQSLGVPPERIIYANPCKQVSQI  
KYAANNGVQMMTDFDSEVELMKVARAHPKAKLVLRIATDDSKAVCRLSVKFGATLRTSRL  
LERAKELNIDVVGVSFHVGSCTDPETFVQAI SDARCVFDMGAEVGFMSMYLLDIGGGFP  
SEDVKKLFEEITGVINPALDKYFSDSGVRI IAEPRYVVASAFTAFLAVNI IAKKIVLKEQ  
TGSDDEDESSEQTFMYVNDGVYGSFNCILYDHAHVKPLLQKRPKPDEKYYSSSIWGPTC  
DGLDRIVERCDLPEMHVGDWMLFENMGAYTVAASSTFNGFQRPTIYYVMGPAWQLMQQF  
QNPDPFPEVEEQDASTLPVSCAWESGMKRHRAACASASINV

>Pongo abelii\_ODC1(ENSPPYP\_14127)  
MNNFGNEEFDCHFLDEGFTAKDILDQKINEVSSSDDKDAFYVADLGDILKKHLRWLKAVP  
RVTPFFYAVKCNDKAIKTLAAVGTGFDCASKTEIQLVQSLGVPPERIIYANPCKQVSQI  
KYAANNGVQMMTDFDSEVELMKVARAHPKAKLVLRIATDDSKAVCRLSVKFGATLRTSRL  
LERAKELNIDVVGVSFHVGSCTDPETFVQAI SDARCVFDMGAEVGFMSMYLLDIGGGFP  
SEDVKKLFEEITSVINPALDKYFSDSGVRI IAEPRYVVASAFTAFLAVNI IAKKIVLKEQ  
TGSDDEDESSEQTFMYVNDGVYGSFNCILYDHAHVKPLLQKRPKPDEKYYSSSIWGPTC  
DGLDRIVERCDLPEMHVGDWMLFENMGAYTVAASSTFNGFQRPTIYYVMGPAWQLMQQF  
QNPDPFPEVEEQDASTLPVSCARESGMKRHRAACASASINV

>Mus musculus\_ODC1(ENSMUSP\_128661)

MSSFTKDEFDCHILDEGFTAKDILDQKINEVSSSDDKDAFYVADLGDILKKHLRWLWALP  
RVTPFFYAVKCNDSRAIVSTLAAIGTGFDCAASKTEIQLVQGLGVPAERVIYANPCKQVSQI  
KYAASNGVQMMTFDSEIELMKVARAHPKAKLVLRIATDDSKAVCRLSVKFGATLKTSRLL  
LERAKELNIDVIGVSFHVSGGCTDPETFVQAVSDARCVFDMATEVGFMSHLLDIGGGFPG  
SEDTKLFEEITSVINPALDKYFSPDSGVRIIAEPGRYVVASAFTLAVNI IAKKTVWKEQ  
PGSDDEDESNEQTFMYVNDGVYGSFNCILYDHAHVKALLQKRPKPDEKYYSSSIWGPTC  
DGLDRIVERCNLPEMHVGDWMLFENMGAYTVAAASTFNGFQRPNIIYVMSRPMWQLMKQI  
QSHGFPPPEVEEQDDGTLPMSCAQESGMDRHPAACASARINV

>Rattus norvegicus\_ODC1(ENSRNOP\_7259)  
MGSFTKEEFDCHILDEGFTAKDILDQKINEVSSSDDKDAFYVADLGDVLLKKHLRWLWALP  
RVTPFFYAVKCNDSRAIVSTLAAIGTGFDCAASKTEIQLVQGLGVPPERIIYANPCKQVSQI  
KYAASNGVQMMTFDSEIELMKVARAHPKAKLVLRIATDDSKAVCRLSVKFGATLKTSRLL  
LERAKELNIDVIGVSFHVSGGCTDPETFVQAVSDARCVFDMGTEVGFMSYLLDIGGGFPG  
SEDTKLFEEITSVINPALDKYFSPDSGVRIIAEPGRYVVASAFTLAVNI IAKKTVWKEQ  
TGSDDDEDESNEQTFMYVNDGVYGSFNCILYDHAHVKALLQKRPKPDEKYYSSSIWGPTC  
DGLDRIVERCSLPEMHVGDWMLFENMGAYTVAAASTFNGFQRPNIIYVMSRSMWQLMKQI  
QSHGFPPPEVEEQDVGTLPMSCAQESGMDRHPAACASASINV

>Canis familiaris\_ODC1(ENSCAFP\_32017)  
MNNFNNAEFDCHFLDEGFTAKDILDQKINEVSSSDDKDAFYVADLGDILKKHLRWLWALP  
RVTPFFYAVKCNDSRTIVKTLAAIGTGFDCAASKTEIQLVQSLGVPPERIIYANPCKQVSQI  
KYASNNGVQMMTFDSEVELMKVARAHPKAKLVLRIATDDSKAVCRLSVKFGATLKTSRLL  
LERARELNIDVIGVSFHVSGGCTDPETFVQAVSDARCVFDMGAEVGFNMYYLLDIGGGFPG  
SEDVKLFKEEITSVINPALDKYFPADSGVRVIAEPGRYVVASAFTLAVNI IAKKLVVKEQ  
TGSDDDEDESSEQTFMYVNDGVYGSFNCILYDHAHVKPLLQKRPKPDEKYYSTSIWGPTC  
DGLDRIVERCDLPEIHVGDWMLFENMGAYTVAAASTFNGFQRPTIIYVMSGPTWQLMQQI  
QNHDFPPEVEEQDVSTLPVSCAWESGMKRPPAACASASINV

>Felis catus\_ODC1(ENSFCAP\_17722)  
MNSFSNAEFDCHFLDEGFTAKDILDQKINEVSSSDDKDAFYVADLGDILKKHLRWLWALP  
RVTPFFYAVKCNDSRTIVKTLAAIGTGFDCAASKTEIQLVQSLGVPPERIIYANPCKQVSQI  
KYAANNGVQMMTFDSEVELMKVARAHPKAKLVLRIATDDSKAVCRLSVKFGATLKTSRLL  
LERARELNIDVIGVSFHVSGGCTDPETFVQAVSDARCVFDMGAEVGFNMCLLDIGGGFPG  
SEDVKLFKEEITSVINPALDKYFPADSGVRVIAEPGRYVVASAFTLAVNI IAKKLVVKEQ  
TGSDDDEDESSEQTFMYVNDGVYGSFNCILYDHAHVKPLLQKRPKPDEKYYSTSIWGPTC  
DGLDRIVERCDLPEMHVGDWMLFENMGAYTVAAASTFNGFQRPTIIYVMSGPTWQRMQQI  
QNHDFPPEAEEQDASALPVSCAWESGMKRPPAACASASINV

>Myotis lucifugus\_ODC1(ENSMLUP\_19721)  
MNNVSNEEFDCHFLDEGFTAKDILDQKINEVSSSDDKDAFYVADLGDILKKHLRWLWALP  
RVTPFFYAVKCNDSRTIVKTLAAIGTGFDCAASKTEIQLVQSLGVPPERIIYANPCKQVSQI  
KYAANNGVQMMTFDSEVELMKVARAHPKAKLVLRIATDDSKAVCRLSVKFGATLKTSRLL  
LERAKELNIDVIGVSFHVSGGCTDPETFVQAVSDARCVFDMGAEVGFNMYYLLDIGSGFPG  
SEDAKLFKEEITSVINPALDKYFSPDSGVTVIAEPGRYVVASAFTLAVNI IAKKLVVKEQ  
TGSDDDEESSEKTFMYVNDGVYGSFNCILYDHAHVKPLLQKRPKPDEKYYSSSIWGPTC  
DGLDRIVERCGLPEMHVGDWMLFENMGAYTVAAASTFNGFQRPTIIYVMSGPTWQLMQQI  
QNRDFPPEAEEDAVALPVSCAWESGMELLPAACASAHVNV

>Monodelphis domestica\_ODC1(ENSMODP\_18485)  
MNSFSNDEFDFNFLDEGFTAKDILDQKINEVSSSDDKDAFYVADLGDILKKHLRWYKALP  
RVTPFFYAVKCNDSRAILKTLAAVAGAGFDCAASKTEIQLVQSLGVPPERIIYANPCKQVSQI  
KYAANNGVQMMTFDSEVELMKVARAHPKAKLVLRIATDDSKAVCRLSVKFGATLKTSRLL  
LERAKELNIDVIGVSFHVSGGCTDPETFVQAVSDARCVFDMGAEVGFNMYYLLDIGGGFPG  
SEDVKLFKEEISSVINPALDKYFPDPSGVRIIAEPGRYVVASAFTLAVNI IAKKLVVKEQ  
TGSDDDEDEANDQTFMYVNDGVYGSFNCILFDHAHVKPLLQKRPKPDEKYYSSSIWGPTC  
DGLDRIVERCDLPEMHVGDWMLFENMGAYTVAAASTFNGFQRPTIIYVMSGPAWQCMQQI  
KNQGFPAEVEDQDINTLPLSCLAWESGMEHHSTTCTTSASVNV

>Gallus gallus\_ODC1(ENSGALP\_26476)  
MSGIMGSFSKEELETFFLDEGFTAKDILDQKINEVSSSDDKDAFYVADLGDIVKHKMRWH

KALPRVTPFFYAVKCNDS EAVVKT LAVLGAGFDCASKTEIQLVQSIGVPPERIIYANPCKQ  
LSQIKHAANS GVRMMTFDSEVELMKIARAHPKAKLVLRIITD DSKAVCRLSVKFGATLKT  
SRLLLERAKELDLAI VGVSFHVGSGCTDPETFVQAI SDARCVFDMGAELGFNMYLLDIGG  
GFPGSE DVKLFEEITSVINPALDKYFPLDSEVTIIAEPGRYYVASAFTLAVNIIAKKIV  
SKEQTGS DDEDDVNDKTLMYVNDGVYGSFN CILYDHAHV KPV LQKRPKPDDGCYSCSIW  
GPTCDGLDRIVERCNMPELQVGDWILFENMGAYTVA AASTFN GFQRPTIHYVMSRPAWQL  
MQQIKEQEF LAEVEEQDVASLP LSCACESGIEYPATCASASINV

>Taeniopygia guttata\_ODC1(ENSTGUP\_13433)  
MSNFSKEEFELTFLDEGFTA KDILDQKINEVSSSDDKDAFYVADLGDIVK KHV RWHKALP  
RVTPFFYAVKCNDSKAVVKT LAVLGAGFDCASKTEIQLVQSIGVPPERIIYANPCKQVSQI  
KHAASSGVQMMTFDSEVELMKVARAHPKAKLVLRIITD DSKAVCRLSVKFGATLKT S RLL  
LERAKELDLAI VGVSFHVGSGCTDPETFVQAI SDARCVFDMGAELGFSMYLLDIGGGFPG  
SE DVKLFEEITSVINPALDKYFP S DSGINI AEPGRYYVASAFTLAVNIIAKKIVLKEQ  
TGSDDEDDANDKTLMYVNDGVYGSFN CILYDHAHV KPV LQKRPKPDDSCYSCSIW GPTC  
DGLDRIVERFNMPELQVGDWILFENMGAYTVA AASTFN GFQRPTIHYVMSRPAWQLMQQI  
KEQGFLAEVEEQDVASLPVSCAWESGIEYPATCASASINV

>Anolis carolinensis\_ODC1(ENSACAP\_12470)  
MTEPLTCLFKEGNLMCQHWEICLLHLRNITPSKMNGFSGEEFSFTFLDEGFTA KDIVDQK  
INEVSSSDDKDAFYVADLGDVLK KHLR WYKALPRVSPFFYAVKCNDSI AVVKI L AALGAGF  
DCASKTEIQLVQSVGVPPERIIYANPCKQVSQIKHAANN GVM MTFDSEVELMKVARAH  
KAKLVLRIATD DSKAVCRLSVKFGATLKT S RLL LERAKELDLDIIGV SFHVGSGCTDPET  
FVQAI SDARCVFDMGAELGFSMYLLDIGGGFPGSE DVKLFEEITN VINPALDKYFP SDS  
GVKIIAEPGRYYVASAFTLAVNIIAKKVVIKEQTGS DDEEEQNDKTLMYVNDGVYGSFN  
CILYDHAHV KPV LQKRPKPDERYYSCSIW GPTCDGLDRIVELCAMPELQVGDWMLFENMG  
AYTVA AASTFN GFQRPTIYYVMSRPAWQLMEQIKEQGFQAEVEEQEVTLPLSCAWESGIE  
HYPAACASASINV

>Xenopus tropicalis\_ODC1(ENSXETP\_7603)  
MNSFSNDDDFSFLEEGFCARDIVEQKINEVSLSDDKDAFYVADLGDIVK KHV RWFKALP  
RVTPFFYAVKCNDSKAI VKTLSLLGAGFDCASKTEIQLVQSIGVSSERIIYANPCKQVSQI  
KYAASC GVEKMTFDSEVELMKVARNHPNAKLVLRIATD DSKAVCRLSVKFGATLKT S RLL  
LERAKELNVDIIGV SFHVGSGCTDPQTYVQAVSDARCVFDMGAELGFNMHLLDIGGGFPG  
SE DVKLFEEITSVINPALDKYFPVDSGVTIIAEPGRYYVASAFTLAVNIIAKKVMVNEQ  
SGSDDEEDAANDKTLMYVNDGVYGSFN CILFDHAHV KPV LTKKPKPDES FYSSSIW GPT  
CDGLDRIVERFDLPELQVGDWMLFENMGAYTVA AASTFN GFQRPTLYYVMSRPHWQLMHD  
IKEHGILPEVPELSAHRVSCAQESGIELAPTICPTASINV

>Danio rerio\_ODC1(ENSDARP\_124918)  
MTACTGSDFDFAFLEEGFCARDIVEQKINESSLSDDKDAFYVADLGDVLK KHLR WLRVLP  
RITPFFYAVKCNDSRAVVTTLASLGAGFDCASKTEIQIVQSVGVDP SRIIYANPCKQVSQI  
KYASAHGVQMMTFDSEVELMKVARSHENAKLVLRIATD DSKAVCRLSVKFGATLKT S RLL  
LERAKELGLDVIIGV SFHVGSGCTDPETYSQAI SDARYVFDI GAELGYNMSLLDIGGGFPG  
SEDTKLKFEEIAAVINPALDKYFPVDSGVRI AEPGRYYVASAYTLAVNIIAKKVIMKEQ  
SASDEEEDVSNDRTLMYVNDGVYGSFN CILYDHAHV LPTLHKKPKPDERMYPCS IWGPT  
CDGLDRIVEQCSLPDMQVGDWLLFENMGAYTVA AASTFN GFQKPDIIYIMSRTAWQCMQO  
IRAQGI PALPLEEPSAGNVPSHCGRESSLDVPAKPCPTQVL

>Takifugu rubripes\_ODC1(ENSTRUP\_17393)  
VGVTMNTMEMEFSFLEEGFS AKDIVEQKIKESSVTDDRDAFYVCDLGDVLK KHV RWMRALP  
RITPFFYAVKCNDSL SVLKT L ASLGTGFDCASKTEIQLVQSLGVDP SKIIYANPCKQVSQI  
KYASAHGVKMMTFDSEVELMKVARCHDNAKLVLRIATD DSKAVCRLSVKFGV PVKACRGL  
LERAKKLGLDVIIGV SFHVGSGCTDPKAYIQAIADARCVFDIGNELGFKMDLLDIGGGFPG  
SDDAELQFEEITAVINPTLEKYFPADSDVKIIAEPGRFYVASAYTLVNI IAKKVILDED  
SDEEDERTNEKTVMYVNDGVYGSFN CILYDHAHCMPTLHKKRKPDEVRYPSS IWGPTCD  
GLDRIVELCSLPDLQVGDWLVFENMGAYTVA AASTFN GFQKPD LHYIMS RPAWQSVQQIS  
QGMLPPAEESLFEAVGCGRESSLDIPMKSCQANVV

>Tetraodon nigroviridis\_ODC1(ENSTNIP\_4466)  
LCVTMNAEMEFSFLEEGFS AKDIVEQKIKESSLTVTVPPVRDPFSLQACVERLLFCFSS



VLRTLASLGTGFDCASKTEIQLVQSLGVDAGRRIYANPCKQASQIKYAAAAGVQMMTFDS  
EVELMKVARCHDNLVLR IATDDSKAVCRLSVKFGVFPVKACRGLLERARELGLDVI GVS  
FHVGS GCTDPNAYTQAIADARCVFDIGNELGFKMDLLDIGGGFPGSDDAALQFEEITAVI  
NPALDKYFPADTEVKVIAEPGRFYVASAYTLVVNI IAKKVI EDEDEDEEDERSGEKTVMY  
YVNDGVYGSFN CILYDHAHCMPTLHKRKPDEVRYPSSIWGPTCDGLDRIVELCSLPDLQ  
VGDWLVFENMGAYTVAASSTFNGFQKPD LHYIMSRRAW

>Gasterosteus aculeatus\_ODC1 (ENSGACP\_17174 )  
MNTSTSTEFDFSFL EEGFSARDIVEQKINESSTDDRDAFYVCDLGDV LKKHLRWVRALP  
RVTPFFYAVKCNNSRAVVM TLASLGAGFDCASKNEIHLVQSLGVDPSRIIYANPCKQVSQI  
KYASAHGVRMMTFDSEVELMKVARCHENAKL VLR IATDDSKAVCRLSVKFGAPLKACRGL  
LECAKKLQLDVIGV SFHVGS GCTDPQTY SQAIADARCVFDMGDELGFNM DLLDIGGGFPG  
SDEAELKFEEITGVISPALDKFFPADTG I KVI AEPGRFYVASAYTLVVNI IAKKAI VDDE  
SASDEEDEGTNDT TLMYVNDGVYGSFN CILYDHAHCLPTLLKPKPDEAMY TCSIWGPT  
CDGLDRIVEQCCLPDLQVGDWLVFDNMGAYTVAASSTFNGFQKPD IYVMSRTAWQQVQR  
ICSQGLPPPAAEESCVDLVPACCGRQSSMDQHPLVINC

>Oryzias latipes\_ODC1 (ENSORLP\_22229)  
VTMNTVEPTLEFSFL EEGFSAWDIVEQKINESL TDDRDAFYVCDLGDV LKKHLRWTRAL  
PRVTPFFYAVKCNDSRAVVM TLASLGTGFDCASKTEIQLVQSLGVHPNRIIYANPCKQVSRQ  
MKYASAHGVEMMTFDSEVELMKVARYHDNAKL VLR IATDDSKAVCRLSVKFGAP I KACRG  
LLERAKELGLDVVGV SFHVGS GCTDAGTFV KAIADARCVFDMGEELGFQMDLLDIGGGFP  
GSEDTLSFEEITATINPALDKYFPVDSGVRI I AEPGRFYVASAYTLVVNI IAKKVI DE  
EAPIDEEDNK TLMYVNDGVYGSFN CILYDHAHCY PVLHKKPKPDEMYSCSIWGPTCDG  
LDRIVEQCCLPDMQVGDWLVFKNMGAYTVAASSTFNGFQRPDIHYVMSRPAWQYVQQIFA  
QGVLP PPLEGSSQLEIPACCGRGSTFDMPAKPCPANIV

>Ciona intestinalis\_ (ENSCINP\_16169)  
MKQDCSVETS AVEIYPTINTSEIIASKI LNDGREDHDNGFFICDLGDVMKKYIRWQKNFP  
RVIPHYAIKCNPDEI LKMLIGLGTGFDCASKSEIRQMLALGARPEQII FANPCKQASHV  
RYARDNNVKRIVFDNVEELIKMKNFPTADL VLR IQTDDSQSICRF SMKYGAHPDVCKQL  
LDTAHKMNLNVVGISFHVGS GCDVQAFVKALQ NARVLFDYAECIGYKLNLLDIGGGFPG  
TEDVNLKFEEIASVNM T LKELFPMEEFPHVDVIAEPGRYFAASAYTLASNI IAKREVMR  
DVTEETVCEQTAYMYI NDGLYGSFNCLFYDHAHVTPKLLKEPSEIDMLYSSSVWGPTCD  
GLDRICELVQLPQLDVG NWILWEDMGAYTMAAGSSFNGFKTSKVVYV I SDLEKHVLRNCK  
MRIP

>Ciona savignyi\_ (ENSCSAVP\_17223)  
DHDDAFFVCDLGDVVKYVRWQKNFPRI V PYYAIKCNPDETM LKMLIGL GAGFDCASKAE  
IRQMLSLGASPEKIIFANPCKQTS HVRYAKENNIKPVVFDNKEELVKMKNYPNADL VLR  
IQTDDSQSVC PFSMKYGAHPDSCPQLLDTAYKMGLNVVGISFHVGS GCTDVQAFVKAIQN  
ARVLFDYAESIGYHFTLLDIGGGFPGTENVDLKFEEIASMVNLALDDLFPKSDFP HVQII  
AEPGRYFAASAYTLATNI IAKRAVLQGVPGEEADSPKAFMYVNDGIYGSFNCLF FDHAQ  
VTPQILKQTKQNGVRFSSSIWGPTCDGLDQICEHVMLPELTTGNWI IWEDMGAYTISAGS  
AFNGFKTTKMFYVIS

>Nematostella vectensis\_ (XP\_001636251)  
MKQSIGTDLAIEIVK DGLSHRDVITEKIDSLG REEKDDAFYIVDLADVVLKHKKVVQ LPRVEPFYAMKC  
NNDPAVLKLLAGLGLG FDCASKGEIQ TILGLGVSPKKIVYANPCKQASHIKYASQHDVAMTTFDNEMELH  
KIKKLYPDAQLILRIR TDDSKSLCQLGIKFGAPLQCRHLLKVAQDLGLNVVGV SFHVGS GCFDASAYAT  
AVIAARSVFNLA VQFGFNCTLLDIGGGFPGDPNAAITFEEICTTINPLLEEHFPSSGVRI I AEPGRYYS  
SSSFTLAVNVYSRREVQSSSVLAEDVTAPENNGNQGFMYVNDGVYGSFNCLIFDHATVEAIPVKESSGQ  
PLYQTSIWGPTCDSDMCI TKNMMLPKVEVGEWLFKYM GAYTQSAASTFNGFKKPTK FYLCTEELW

>Trichoplax adhaerens\_ (XP\_002114448)  
MSNPTIYYQLSKDKDPFYIVNVGNILKHKHTWLSL LPRVEPFYAVKCNDDRNVLATLSALGIGFDCASM  
AEIKAVLKLGVPPSKIVYANPCKQASHLKF AAKREVSMMTFDNEPELHKVKQLHPTAKLILRLLTDDSKS  
LCRLGQKYGAPLKTVPNLLQVARNL DLNVVGISFHVGS GCDASAFSSAVEIAKTAFDYGKSMGFQFDIL  
DIGGGFPGSPRATVSFEEISATLNKALNKHPVESGVRI I AEPGRYVVASAFNLAVNVI AKRQVNDNTQ  
AQGKQHAYRNQKMYVNDGVYGSFNCLLYDHAIVYPKTLGRDNEQQYSSSIWGPTCDGLDCVMKECMLP  
ELDVGDWMYFEDMGAYTAAASNFNGFQKPLAYYVIEEKVWALRKERNR NKPLPTS

## **Cholinergic Receptors Nicotinic subunits-CHRN**

>Homo sapiens\_CHRNB2(ENSP\_357461)

MARRCGPVALLLGFGLLRLLCSGVWGTDTTEERLVEHLLDPSRYNKLIRPATNGSELVTVQL  
MVS LAQLISVHEREQIMTTNVWLTQEWEDYRLTWKPEEFDNMKKVRLPSKHIWLPDVVLY  
NNADGMYEVSFYSNVVSVDGSI FWLPPAIYKSACKIEVKHFPPDQQNCTMKFRSWTYDR  
TEIDLVLKSEVASLDDFTPSGEWDIVALPGRRNENPDDSTYVDITYDFI IRRKPLFY TIN  
LIIPCVLITSLAILVFYLPSCGKMTLCISVLLALTVFLLLISKIVPPTS LDVPLVGKY  
LMFTMVLVTF SIVTSVCVLNVHHRSP THTMAPWVKVVFLEKLPALLFMQQPRHRCARQR  
LRLRRRQREREGAGALFFREAPGAD SCTCFVN RASVQGLAGAFGAEPAPVAGPGRSGEPC  
GCGLREAVDGVRFIADHMRSEDDDDQSVSE DWKYVAMVIDRFLWIFVFCVFGTIGMFLQ  
PLFQNYTTTTTFLHSDHSAPSSK

>Pan troglodytes\_CHRNB2(ENSPTRP\_2339)

MARRCGPVALLLGFGLLRLLCSGVWGTDTTEERLVEHLLDPSRYNKLIRPATNGSELVTVQL  
MVS LAQLISVHEREQIMTTNVWLTQEWEDYRLTWKPEEFDNMKKVRLPSKHIWLPDVVLY  
NNADGMYEVSFYSNVVSVDGSI FWLPPAIYKSACKIEVKHFPPDQQNCTMKFRSWTYDR  
TEIDLVLKSEVASLDDFTPSGEWDIVALPGRRNENPDDSTYVDITYDFI IRRKPLFY TIN  
LIIPCVLITSLAILVFYLPSCGKMTLCISVLLALTVFLLLISKIVPPTS LDVPLVGKY  
LMFTMVLVTF SIVTSVCVLNVHHRSP THTMAPWVKVVFLEKLPALLFMQQPRHRCARQR  
LRLRRRQREREGAGALFFREAPGAD SCTCFVN RASVQGLAGAFGAEPAPVAGPGRSGEPC  
GCGLREAVDGVRFIADHMRSEDDDDQSVSE DWKYVAMVIDRFLWIFVFCVFGTIGMFLQ  
PLFQNYTTTTTFLHSDHSAPSSK

>Mus musculus\_CHRNB2(ENSMUSP\_29562)

MARCSNSMALLFSFGLLWLC SGVLGTDTEERLVEHLLDPSRYNKLIRPATNGSELVTVQL  
MVS LAQLISVHEREQIMTTNVWLTQEWEDYRLTWKPEEFDNMKKVRLPSKHIWLPDVVLY  
NNADGMYEVSFYSNVVSVDGSI FWLPPAIYKSACKIEVKHFPPDQQNCTMKFRSWTYDR  
TEIDLVLKSDVASLDDFTPSGEWDI IALPGRRNENPDDSTYVDITYDFI IRRKPLFY TIN  
LIIPCVLITSLAILVFYLPSCGKMTLCISVLLALTVFLLLISKIVPPTS LDVPLVGKY  
LMFTMVLVTF SIVTSVCVLNVHHRSP THTMAPWVKVVFLEKLP TLLFLQQPRHRCARQR  
LRLRRRQREREGAGTLFFREGPAADPCTCFVNPASMQGLAGAFQAE PAAAGLGRSMGPCS  
CGLREAVDGVRFIADHMRSEDDDDQSVRE DWKYVAMVIDRFLWIFVFCVFGTIGMFLQ  
LFQNYTATTFLHSDHSAPSSK

>Canis familiaris\_CHRNB2(ENSCAFP\_25294)

MATRSGPAALLLGFGLLGLHAGVWGTDTTEERLVEHLLDPSRYNKLIRPATNGSELVTVQL  
MVS LAQLISVHEREQIMTTNVWLTQEWEDYRLTWKPEEFDNMKKVRLPSKHIWLPDVVLY  
NNADGMYEVSFYSNVVSVDGSI FWLPPAIYKSACKIEVKHFPPDQQNCTMKFRSWTYDR  
TEIDLVLKSDVASLDDFTPSGEWDI IALPGRRNENPDDSTYVDITYDFI IRRKPLFY TIN  
LIIPCVLITSLAILVFYLPSCGKMTLCISVLLALTVFLLLISKIVPPTS LDVPLVGKY  
LMFTMVLVTF SIVTSVCVLNVHHRSP THTMAPWVKVVFLEKLP TLLFMQQPRHRCARQR  
LRLRRRQREREGALLFREAPGESYSGSARGGVGTDCGLRS AVDGVRFIADHVRNEDDD  
QSVSE DWKYVAMVIDRFLWIFVFCVFGTIGMFLQPLFQNY SAATFLHTDHSAPSAK

>Xenopus tropicalis\_CHRNB2(ENSXETP\_8352)

YISCRDFAFAGTGCGLGTDTEERLVEHLLDPSRYNKLIRPATNGSEQVTVQLMVS LAQLI  
SVHEREQIMTTNVWLTQEWEDYRLTWDPAEFDDMKVRLPSKHIWLPDVVLYNNADGMYE  
VSFYSNVVSVDGSI FWLPPAIYKSACKIEVKHFPPDQQNCTMKFRSWTYDRTELDLVL  
SDVASLDDFTPSGEWDI IALPGRRNENPNDSTYVDITYDFI IRRKPLFY TINLIIPCILI  
TSLAILVFYLPSCGKMTLCISVLLALTVFLLLISKIVPPTS LDVPLVGKYL MFTMVLV  
TF SIVTSVCVLNVHHRSP THTMPPWVKVVF LDKLP TLLFMKQPRQNCARQLRQQRQSQ  
ERAAGSFFLRD GARSCTCYVNQASVKKYGAQLSELPEGVNGFRDRQ GKVRQCLCGLQEAV  
DGVRFIADHMKSEDDDDQSVSE DWKYVAMVIDRFLWIFVFCVFGTIGMFLQPLFQNYTT  
NALVHMNHA AKMK

>Danio rerio\_CHRNB2 (ENSDARP\_41624)

MMALWTLFCILAIKSGYGADTEERLVEHLLNPAHYNKLIIRPATNGSEVTVQIMVSLAQ  
LISVHEREQIMTTNVWLTQEWQDYRLTWSPEEFDGMMKVRRLPSKHIWLPDVVLYNNADGM  
YEVSFYSNAVVSVDGVSFVWLPPIYKSACKIEVKHFPPDQONCTLSFRSWTYDRTEVDLV  
LRADVASMDDFTPSGEWDI IALPGRRNENPSDPTYVDITYDFI IRRKPLFYTINLI IPCV  
LITSLAILVFYLPSPDCGEKMTLCISVLLALT VFLLLISKIVPPTSLDVPLVGKYL MFTMV  
LVTFSIVTSVCVLNVHRSPTTHTMPPWVKLVFLNKL PALLFMRQPRNSSERQRLRQRRR  
ANEQQEGGRGGLAAGLMAGLGLSGSSSGSKENNEACTCYVNRASVKQFGAELGGGGGGG  
STDGLNGIREGGRETREGGANPLQGSALPRGKQQPPTVLTQALLAQACPGFEEAVDGVRF  
IANHMKSEDDDRSVSEDDWKYVAMVIDRFLFLWIFVFCVFGTIGMFLQPLFQNYTAKTITH  
TPG

>Takifugu rubripes\_CHRNB2 (ENSTRUP\_14017)

TAVLPSSLHPSIQALLFQYAWMVGSDTEERLVEHLLNPAHYNKLIIRPATNGSELVTVQIM  
VSLAQLISVHEREQVMTTNVWLTQEWQDYRLTWIPEEFDGMLKVRRLPSKHIWLPDVVLYN  
NADGVYEVSFYSNAVVSVDGSI FVWLPPIYKSACKIEVKHFPPDQONCTLRFRSWTYDRT  
EIDLVLRADVASMDDFTPSGEWDI IALPGRRNENPGDPTYVDITYDFI IRRKPLFYTINL  
I IPCVLITSLAILVFYLPSPDCGEKMTLCISVLLALT VFLLLISKIVPPTSLDVPLVGKYL  
MFTMVLVTFSIVTSVCVLNVHRSPTTHTMPPWVKMVFLOKLPALLFMRQPRNSCERQRL  
RQRRRAQEHKEGGIFGKEDSDPCTCYVNRASVKQFGGDLGGAGGSMDGLNRARDGREAAQ  
CPGFEEAVEGVRFIANHMKSEDDDDQSVSEDDWKYVAMVIDRFLFLWIFVFCVFGTMGMFMQ  
PLFQNYTAKTINSSPG

>Tetraodon nigroviridis\_CHRNB2 (ENSTNIP\_21501)

GLCADTEERLVEHLLNPAHYNKLIIRPATNGSELVTVQIMVSLAQLISVHEREQVMTTNVW  
LTQEWQDYRLTWIPEEFDGMLKVRRLPSKHIWLPDVVLYNNADGVYEVSFYSNAVVSVDGS  
IFVWLPPIYKSACKIEVKHFPPDQONCTLRFRSWTYDRTEIDLVLRADVASMDDFTPSGE  
WDI IALPGRRNENPGDPTYVDITYDFI IRRKPLFYTINLI IPCVLITSLAILVFYLPSPDC  
GEKMTLCISVLLALT VFLLLISKIVPPTSLDVPLVGKYL MFTMVLVTFSIVTSVCVLNVH  
HRSPTTHTMPPWVKMVFLOKLPALLFMRQPRNSCERQRLRQRRRAQEQKGGRCGEPGGL  
MVGNGLGNAGSGGGTTLGLFGKEDSDPCTCYVNRASVKQFGGDLGSAGGGSMDGLNRAR  
EAREGGSGNQSRGKPGTGAPALSHALLAQACPGFEEAVEGVRFIANHMKSEDDDDQSVSEDD  
WKYVAMVIDRFLFLWIFVFCVFGTMGMFLQPLFQNYTAKTINSSPG

>Gasterosteus aculeatus\_CHRNB2 (ENSGACP\_16024)

GLGADTEERLVEHLLNPAHYNKLIIRPATNGSELVTVQIMVSLAQLISVHEREQVMTTNVW  
LTQEWQDYRLTWVPEEFDGMLKVRRLPSKHIWLPDVVLYNNADGVYEVSFYSNAVVSVDGS  
IFVWLPPIYKSACKIEVKHFPPDQONCTLRFRSWTYDRTEIDLVLRADVASMDDFTPSGE  
WDI IALPGRRNENPADPTYVDITYDFI IRRKPLFYTINLI IPCVLITSLAILVFYLPSPDC  
GEKMTLCISVLLALT VFLLLISKIVPPTSLDVPLVGKYL MFTMVLVTFSIVTSVCVLNVH  
HRSPTTHTMPPWVKLVFLNKL PALLFMRQPRNSCERQRLRQRRRAQEQKEGGRSGEAGAL  
MVGLGLGNASGNRGGTSTGVFSKEDSDPCTCYVNRASVKQFGGDLALLAQACPGFEEAVE  
GVRFIANHMKSEDDDDQSVSEDDWKYVAMVIDRFLFLWIFVFCVFGTIGMFMQPLFQNYT

>Homo sapiens\_CHRNG (ENSP\_374145)

MHGGQGPLLLLLLAVCLGAQGRNQEERLLADLMQNYDPNLRPAERDSDVVNVSLKLTLT  
NLISLNEREEALTTNVWIEMQWCDYRLRWDPRDYEGWVLRVPSTMVWRPDI VLENNVDG  
VFEVALYCNVLSVSPDGCYIWLPPAIFRSACSI SVTYFPFDWQNC SLIFQSQTYSTNEIDL  
QLSQEDGQTIEWIFIDPEAFTENG EWAIQHRPAKMLLDPAAPAQEAGHQKVVFYLLIQRK  
PLFYVINI IAPCVLISSVAI IHF LPAKAGGQKCTVAINVLLAQTVFLFLVAKKVPETSQ  
AVPLISKYLTFLLVVTILIVVNAVVVNLVSLRSPH THSMARGVRKVFLRLLPQLLRMHVR  
PLAPAAVQDTQSRLQNGSSGWSIT TGEVALCLPRSELLFQQWQRQGLVAAALEKLEKGP  
ELGLSQFCGSLKQAAPAIQACVEACNLIACARHQSSHFDNGNEEWFVGRVLDRCVFLAM  
LSLFCIGTAGIFLMAHYNRVPALPFPDPRPYLPSPD

>Gorilla gorilla\_CHRNG (ENSGGOP\_2069)

MHGGQGPLLLLLLAVCLGAQGRNQEERLLADLMQNYDPNLRPAERDSDVVNVSLKLTLT  
NLISLNEREEALTTNVWIEMQWCDYRLRWDPRDYEGWVLRVPSTMVWRPDI VLENNVDG  
VFEVALYCNVLSVSPDGCYIWLPPAIFRSACSI SVTYFPFDWQNC SLIFQSQTYSTNEIDL  
QLSQEDGQTIEWIFIDPEAFTENG EWAIQHRPAKMLLDPAAPAQEAGHQKVVFYLLIQRK

PLFYVINIIAPCVLISSVAIIYFLPAKAGGQKCTVAINVLLAQTVFLFLVAKKVPETSQ  
AVPLISKYLTFLLVVTILIVVNAVVVVNLVSLRSPHTHSMARGVRKVFLRLLPQLLRMHVR  
PLAPAAVQDTSRQLONGSSGRSITTTGEEVALCLPRSELLFQQWQRQGLVAAALEKLEKGP  
ELGPSQFCGSLKQAAPAIQACVEACNLIACARHQQSHFDNGNEEWFLVGRVLDRCVFLAM  
LSLFCGTAGIFLMAHYNRVPALPFPDPPHYLPSPD

>Mus musculus\_CHRNG(ENSMUSP\_27470)

MQGGQRPQLLLLLLAVCLGAQSRNQEERLLADLMRNYDPLRPAERDSDVVNVSLKLTLT  
NLISLNEREEALTTNVWIEMQWCDYRLRWDPKDYEGWLILRVPSTMVWRPDIVLENNVDG  
VFEVALYCNVLSVSPDGCYWLPPAIFRSSCSISVTYFPFDWQNCVSLVFSQTYSTSEINL  
QLSQEDGQAIIEWIFIDPEAFTENGWEAIRHRPAKMLLDSVAPAEAEAGHQKVVFYLLIQRK  
PLFYVINIIAPCVLISSVAIIYFLPAKAGGQKCTVATNVLLAQTVFLFLVAKKVPETSQ  
AVPLISKYLTFLMVVTILIVVNSVVVNLVSLRSPHTHSMARGVRKVFLRLLPQLLRMHVR  
PLAPAAVQDARFRLONGSSSGWPIAREEGDCLPRSELLFRQRQRNGLVQAVLEKLENG  
PEVRQSQEFQCGSLKQASPAIQACVDACNLMARARRQQSHFDSGNEEWLLVGRVLDRCVFL  
AMLSLFCGTAGIFLMAHYNQVPLPFPDPPHYLPLPD

>Xenopus tropicalis\_CHRNG(ENSXETP\_30553)

RGGMDTVLLLLVICISAAALCHNEEEGLLNDLMKNYNKNLRPAEKDGDIVSVSIKLTLTNL  
ISLNEREEALTTNVWVEVQWRDYRLSWDPNEYGI SMMRIPSTSVWLPDVGLENNVDGTF  
DIALYANTLVSSDGSMLYWLPPAIYRSSCPVVVYFPFDWQNCVSMVFSQTYANEIEELL  
TVDEQTIIEWIEIDPEAFTENGWEAIKHMPAKKIINHRLTPDDLNYQQIVFYLLIQRKPLF  
YIINIIVPCVLISSFVLSILVYFLPAKAGGQKCTVSIINILLAQTVFLFLIAQKI PETSTAVP  
LIVKYLTFLMVVTITIVANAVIVLNLISLRTPNTHSMSSTVRELCLRTVPRLLRMHLRPSD  
AAPPLAPLMRRSSVGLMIKADEYMLRKPRSQMLFEKQKERDGLMKVVLDKIGRMENNT  
SDDLHVHSLKHAAPAIRACVEACCHIASATREKNEFKSTGDNDWKCQSKVL

>Danio rerio\_CHRNG(ENSDARP\_110378)

MDQNLSKIIWLWILLFRFSGALCNLEGLHRDLMVGYNKNIRPVEHEDIIDVKIKMTL  
TNLISLNEKEETLTTCVWIEMQWRDYRLRWANRTGFVEYENITRMLRPSKIWLDPDIGLE  
NNVDGRFEVALYANTLIDPDGVSYYLPPAIYRSSCAIKVNYFPFDWQNCVSMVFSQTYNS  
NEITLMLSDEDNVTMEWIEIDPEAFTENGWEAIKHPAKKVINKRYRPDELEHQEIIFFL  
IIQRKPLFYVINIIIVPCVLFSSGLLVYFLPAKAGGQKCTMTICILLGQTVFLFLIAKKV  
PETSQAVPLIGKYLFMVMSVTTITVMNCVVVNLVSLRTPNTHPMSNTIRKVLNLI LPRVL  
RMTMQRWTPEQEGDFKMFALNGTPLRRRRSSGLIAKADEYMFRTARSELMF SRLKE  
RKGLLKNLTKIQLNGLGGNTAQDLECSLAAASPEVQQCVSSCKHIAESTKHQNDFQSKNE  
EWFLVARVIDRMCFFVMALLFILGTIGIFLTGHFNQAPSQFPFGDPKKYLPEISAGDIPG

>Takifugu rubripes\_CHRNG(ENSTRUP\_36755)

MDSGCPLSLSLFI R VFMSAAASAVNLEGE LFKDLMKGYNKNVRPTEKSGDITQVDIKLT  
LTNLISLNEKEEALTTSVWIELQWCDYRLRWDQPPRSTLYGNITKPLRIPSKIWLDPDII  
LENNVDGQFEVALYCNALVSPDGCYVWLPPAIYRSACPITVNYFPFDWQNCVSMVFSQTY  
SANEIDMVLKVEDNHTLEWVDIDPEAFTENGWEAIKHPAKKVINSQYTKDDREYQEVIF  
FLIIQRKPLFYIINI IAPCVLFSSCLLVYFLPAKAGGQKCTMSVATLLGQTVFLFLIAK  
KVPETSKAVPLIAKYLFMVMSVTTMVMNCVIVLNVSLRTPSTHIMTDAVRKVLNLI LPR  
LLKMQMRPWT PNNDSTPEIRNRRRSSMTLITKAEYAMKTARSELMF SRLKERNGLMKS  
VLEKLDGGLDGGTPEQLGISLAKASPEVKKCVASCKHIAETARQQSNFQNEEWFVVARV  
IDRACFIVMASVFFIGTIGVFLMGHFNQPPSAPFPRDAKTYLPPIN

>Tetraodon nigroviridis\_CHRNG(ENSTNIP\_1763)

SGCRLSLSFFVTVFTISAAASAVNLERELFKDLMKGYNKHVRPTEKSGDITQVDIKMTLT  
NLISLNEKEEALTTSVWIELQWCDYRLRWDQPPRAALYGNITKPLRIPSRIIWLDPDII  
LENNVDGQFEVALYCNALVSPDGCYVWLPPAIYRSACPITVNYFPFDWQNCVSMVFSQTY  
SANEIDMVLKVEDNHTLEWVDIDPEAFTENGWEAIKHPAKKVINSQYTKDDREYQEVIF  
FLIIQRKPLFYIINI IIVPCVLFSSCLLVYFLPAKAGGQKCTMSIATLLGQTVFLFLIAK  
KVPETSKAMPLIAKYLFMVMSVTTMVMNCVIVLNVSLRTPSTHIMTDTVRKILNLI LPR  
LLKMQMRPWT PNNDSTPEIRNRRRSSMTLITKAEYVAMKTARSELMF SRLKERNGLMKS  
VLEKLDGGLDGGTPEQLGISLAKASPEVKKCVASCKHIAETARQHNNFQNEEWFVVARV  
IDRACFIVMASVFFIGTIGVFLMGHFNQPPSTPFPDGVKMYLPP

>Gasterosteus aculeatus\_CHRNG(ENSGACP\_19898)

VIHILTIFICIEKTSAINLEGELEFKDLMKGYNKNVRPMENGSDVTQVAIKMTLTNLISLN  
EKEEALTTGVWIGMQWCDYRLRWDRPPRSALYGSITSQRLRPSKSIWLPDII LENNV DGN  
FEVALYCNALVSPNGCVNWLPPAIYRSACAITVNYFPFDWQNCMTVFHFSQTY SANEIKLV  
LTEEDDLTLEWVDIDPEAFTENGWEAIKHRPAKKLINTDYNKDELEYQEVVFFLI IQRKP  
LFYVINIIAPCVLFSGLLVYFLPAKAGGQKCTMSIATLLGQTVFLFLIAKKVPETSRA  
VPLIGKYL MFVMSVTMVMNCVIVLNVSLRTPNTHKMTDKVRKILLNLPRLNMQMRP  
WTPDGDNADTRRRSSMTLITKAE EYAMKTARSEL MFAALKERNGLMRSVLEK LKDELEGG  
TAEQLSASLGKASSQLQCVSSCKHIAKTARQQNNFKKENE EWFVAKVIDRVC FIVMVS  
VFFIGTIGIFLTGHFNQPPSSPFLGDPKTYLPPTNNLTDRVENGR

>Homo sapiens\_CHRND(ENSP\_258385)

MEGPVLTLGLLAA LAVCGSWGLNEEERLIRHLFQEKYNGKELRPVAHKEESVDVALATL  
SNLISLKEVEETLT TNVWIEHGWT DNRLKWN AEEFGNISVLR LPPDMVWLPEIVLENNND  
GSFQISYSCNVLVYHYGFVYWLPPAIFRSSCPI SVTYFPFDWQNC SLKFSSLYTAKEIT  
LSLKQDAKENRTYPVEWIIIDPEGFTENGWEIVHRPARVNVDP RAPLDSPSRQDITFYL  
IIRRKPLFYIINILVPCVLISFMVNLV FYLPADSGEKT SVAISVLLAQSVFLL LISKRLP  
ATSM AIP LIGKFL FGMVLVTM VVICVIVLNIHFRT PSTHVLSEGVK KLFLETLP ELLH  
MSRPAEDGSPGALVRRSSSLGYISKA EEFLLKSRSDLMFEKQSERHGLARRLT TARRP  
PASSEQAQQELF NELKPAVDGANFIVNHMRDQNNYNEEKDSWNRVARTVDR LCLFVVTPV  
MVGTAWIFLQGVYNQPPQFPFGDPFSY NVQDKRFI

>Mus musculus\_CHRND(ENSMUSP\_72983)

MAGPVLTLGLLAA LVV CALPGSWGLNEEQRLIQHLFNEKGYDKDLRPVARKEDKVDVALS  
LTL SNLISLKEVEETLT TNVWIDHAWVDSRLQWDANDFGNITVLR LPPDMVWLPEIVLEN  
NNDGSFQISYACNVLVYDSGYVTWLPPAIFRSSCPI SVTYFPFDWQNC SLKFSSLYTAK  
EITLSLKQEEENRSYPIEWIIIDPEGFTENGWEIVHRAAKLNVDPSPMDS TNHQDVT  
FYLIIRRKPLFYIINILVPCVLISFMINLV FYLPDGCGEKTSVAISVLLAQSVFLL LISK  
RLPATSM AIP LVGKFL FGMVLVTM VVICVIVLNIHFRT PSTHVLSEGVK KFFLETLP K  
LLHMSRPAEEDPGPRALIRRSSSLGYICKAE EYFSLKSRSDLMFEKQSERHGLARRLT TARRP  
PASSEQAQQELF NEMKPAVDGANFIVNHMRDQNSYNEEKDNWNQVARTVDR LCLFVV  
TPVMVGTAWIFLQGVYNQPPQFPFGDPFSY SEQDKRFI

>Felis catus\_CHRND(ENSFCAP\_5273)

TARTPSWGVAGSPQLSPAPWPGRISRQPPSRSLPAPHPSSCPSPGSWGLNEEERLIRHL  
FEEKGYNGKELRPVAH KDESVEVSLAL TSNLISLKEVEETLT TNVWMEHGWT DPRLQWDA  
EEFGNISVLR LPPDMLWLPEIVLENNNDGSFQISYACNVLVYPSGYVYWLPPAIFRSSCPI  
SVTYFPFDWQNC SLKFSSLYTAKEITLSLKQEEKEGRSY PVEWIVIDPAGFTENGWEI  
VHRPARINVDPSVPLDS PGHQDVTFYLIIRRKPLFYIINILVPCVLISFMINLV FYLPA  
DSGEKTSMAISVLLAQSVFLL LISKRLPATSM AIP LIGKFL FGMVLVTM VVICVIVLN  
IHFRTPSTHVLSEGVK KLFLETLPKRLHMSRPAEDGSPGALVRRSSSLGYISKA EEFLL  
LKSRSDLMFEKQSERHGLARRLT TARRPPAGSEQAQQELFSQLKPAVDGANFIVNHMRDQ  
NNYNEEKDCWNRVARTVDR LCLFVVTPIMVGTAWIFLQ GAYNQPPQFPFGDPFSY HEK  
DKRFA

>Xenopus tropicalis\_CHRND(ENSXETP\_30556)

HAWLWLFDLLCILVLVPGCLSESEEEERLLNHIFGERGYRKELRPVEHTGETVNVSLALTL  
SNLISLKEADETLT TNVWVVELGWYDKRLAWDMEEFHHINI IRVPPDMVWQPQLI LENNNN  
GVFEVAYYSNVLVNSDGFMYWLPPAIFQTSCS INVNYFPFDWQNC SLKFSSLYTNAKEIN  
LQLRQDQDEESQRNYPVEWIIIDPEGFTENGWEIVHIPAKKNIDRSLTPESTKYQDITF  
YLIIRRKPLFYIINILAPCVLIALMANLV FYLPADSGEKMTL AISVLLAQSVFLL LISR  
LPETSFAIPLISKYLMFIMVLVTIVVSV CVIVLNLHFRT PSTHVITERMKEIFLNKLPRI  
LHMSRPAEPEPEPWSGVLRRSSSVGYIVKAE EYYSVKSRSELMFEKQSERHGLTSRATP  
ARVNPLNSNNSQDQLYGEIKPAIDGANFIVKHMRDKNDYNEEKDNWYRIARTVDR LCLF  
VTPVMIIGTLWIFLGGAYNLPPSLPFPFGDPFDYNKEHKRLI

>Tetraodon nigroviridis\_CHRNDa(ENSTNIP\_8045)

ARGCNLSRGRNSAMHLRVCVCSGCWCNREEERLIHHLFKELGYNGKELRPVRRHEDAVDV  
QLAL TSNLISLKEVDETL TNVWIEHTWTDYRLSWNLSAFDGISMLR LPSNMVWLPEIV  
LENNNDAQFKVAYYSNVLVSSDGLCYWLPPAIFRSSCSISVKYFPFDWQNC TLKFTSLTY  
NAKEIRMLLKEDALNGTAYTVEWIVIDPASFTENGWEI IHRPAKRNTYKHIPMESNKHQ  
DITFYLVIRRKPLFYVNNIIPCVLISFLALLVYYPADSGEKMTLSISVLLAQSVFLL L

ISQRLPETSMSVPLIVKYLIMVGVTVVVLNLCVVVLNLHFRTPTSTHVMSGWTKRFLER  
LPRLLRMSRPAETEAYWDGVLPRRSSVGVYIASAEYYSVKSRSELMFEKQSERHGLVTR  
VTHAAMKPDQEGGVTDLQYAEIKPAVDGANYIIKHMRNKNDYNEEKDNWSGIARTVDRLC  
LFLVTPMLTVGTVIIFTGICNQPPHLPFKGDPHDYREENPRL

>Tetraodon nigroviridis\_CHRNB (ENSTNIP\_913)  
GCWCNEEERLIHHLFKELGYNKELRPVRRHEDAVDQALALTLNLSLKEVDETLTNTV  
WIEHTWTDYRLSWNLSAFDGISMLRRLPSNMVWLPEIVLENNNDAQFKVAYYSNVLVSSDG  
LCYWLPPAIFRSCSISVKYFPFDWQNCTLKFTSLTYNAKEIRMLLKEDALNGTAYTVEW  
IVIDPASFTENGWEI IHRPAKRNTYKHIPMESNKHQDITFYLVIRRKPLFYVNI IIPC  
VLISFLALLVYYLPADSGEKMTLSISVLLAQSVFLLLSQRLQKHPCFLFLSSYLMFIMVG  
VTVVVLNLCVVVLNLHFRTPTSTHVMSGWTKRFLERLPRLLRMSRPAETEAYWDGVLPRR  
SSVGYIASAEYYSVKSRSELMFEKQSERHGLVTRGRSDRSARVRRDQAGCGRSNI I KHM  
RNKNDYNEEKDNWSGIARTVDRLCFLVTPMLTVGTVIIFTGICNQPPHLPFKGDPHDYR  
EENPRL

>Homo sapiens\_CHRNA1 (ENSP\_261007)  
MEPWPLLLLSLCSAGLVLGSEHETRLVAKLFKDYSSVVRPVEDHRQVVEVTVGLQLIQL  
INVDEVNQIVTTNVRLKQGDMDLPRPSCVTLGVPFLFSLQNEQWVDYNLKNPDDYGGV  
KKIHIPSEKIWRPDLVLYNNADGDFAIKFKTKVLLQYTGHTWTTPPAIFKSYCEIIVTHF  
PFDEQNCMSMKLGTWTYDGSVVAINPESDQPDLSNFMESGEWVIKESRGWKHSVTYSCCPD  
TPYLDITYHFVMQRLPLYFIVNVI I PCLLFSFLTGLVFYLPDTSGEKMTLSISVLLSLTV  
FLLVIVELIPSTSSAVPLIGKYMLFTMVFIASIIITVIVINTHHRSPSTHVMPNWRKV  
FIDTIPNIMFFSTMKRPSREKQDKKIFTEDIDISDISGKPGPPPMGFHSPLIKHPEVKSA  
IEGIKYIAETMKSDQESNNAAEWKYVAMVMDHILLGVFMLVCIIGTLAVFAGRLIELNQ  
QG

>Pan troglodytes\_CHRNA1 (ENSPTRP\_21633)  
MEPWPLLLLSLCSAGLVLGSEHETRLVAKLFKDYSSVVRPVEDHRQVVEVTVGLQLIQL  
INVDEVNQIVTTNVRLKQGDMDLPRPSCVILGVPFLFSLQNEQWVDYNLKNPDDYGGV  
KKIHIPSEKIWRPDLVLYNNADGDFAIKFKTKVLLQYTGHTWTTPPAIFKSYCEIIVTHF  
PFDEQNCMSMKLGTWTYDGSVVAINPESDQPDLSNFMESGEWVIKESRGWKHSVTYSCCPD  
TPYLDITYHFVMQRLPLYFIVNVI I PCLLFSFLTGLVFYLPDTSGEKMTLSISVLLSLTV  
FLLVIVELIPSTSSAVPLIGKYMLFTMVFIASIIITVIVINTHHRSPSTHVMPNWRKV  
FIDTIPNIMFFSTMKRPSREKQDKKIFTEDIDISDISGKPGPPPMGFHSPLIKHPEVKSA  
IEGIKSTTVTMKSDQESNYAAAEWKYVAMVMDHILLGVFMLVCIIGTLAVFAGRLIELNQ  
QG

>Felis catus\_CHRNA1 (ENSFCAP\_13080)  
MRVFVEGGEQNLTVCSFAVSAGLVLGSEHETRLVAKLFEDYNSVVRPVEDHRQAVEVTV  
GLQLIQLINVDEVNQIVTTNVRLKQWVDYNLKNPEDIYGGVKKIHVPSEKIWRPDLVLY  
NNADGDFAIKFKTKVLLDYTGHTWTTPPAIFKSYCEIIVTHFPFDEQNCMSMKLGTWTYD  
SVAINPESDQPDLSNFMESGEWVIKESRGWKHWVFYACPTTPYLDITYHFVMQRLPLY  
FIVNVI I PCLLFSFLTGLVFYLPDTSGEKMTLSISVLLSLTVFLLVIVELIPSTSSAVPL  
IGKYMLFTMVFIASIIITVIVINTHHRSPSTHVMPNWRKVFIDTIPNIMFFSTMKRPS  
REKQDKKIFTEDIDISDISGKPGPPPMGFHSPLIKHPEVKSAIEGVKYIAETMKSDQESN  
NAAEWKYVAMVMDHILLGVFMLVCIIGTLAVFAERMKTMRITPPAPQS

>Anolis carolinensis\_CHRNA1 (ENSACAP\_5260)  
MDVCCPLLLLLLGPVAVLRCSSEHETRLVSDLFSKYNKVVRPVSNRDPVRVTVGLQLIQL  
INVDEVNQIVTTNVRLKQWMDVNLKNPEDIYGGVQIRIPSEDIWRPDLVLYNNADGDF  
AINKFTKILLNYTGHTWTTPPAIFKSYCEIIVTHFPFDEQNCMSMKLGTWTYDGMTVINP  
ESDRPDLSNMGSSEWIMKDYRGWKHEVTYACCPDLPYLDITYHFVMLRRLPLYFIVNVI I  
PCLLFSFLTGLVFYLPDTSGEKMTLSISVLLSLTVFLLVIVELIPSTSSAVPLIGKYMLF  
TMVFIASIIITVIVINTHHRNPSTHTMPQWRKIFIDTIPNLMFFSTMKRPSKNKQEKK  
IFSEIDIDISEISGKQPATVNFQSSLIKNEVKSAIEGIKYIAETMKSDQESNNAAEWK  
FVAMVVDHLLLGIFMSVCIIGTLAVFAGRLIELHQG

>Danio rerio\_CHRNA1 (ENSDARP\_21860)  
MNYFILILPILPYLYGPAVCSSEDETRLVKTLFTGYNKVVRPVSHFKDPVVVTVGLQLIQL  
ISVDEVNQIVTSNVRLKQWQKDVHLQWNPDDYGGIRKIRIPSTDLWKPDVLYNNADGDF

AIVHETKVLLEHTGMTWTPPAIFKSYCEIIVLHFPFDLQNCMKGTLTWTYDGNLVIINP  
DSDRDPDLSNFMESGEWVMKDYRSWKHWVYACCPDTPYLDITYHFLMLRRLPLYFIVNVI  
PCMLFSFLTGLVFYLPDTSGEKMTLSISVLLSLTVFLLVIVELIPSTSSAVPLIGKYMLF  
TMIFVIASIIITVIVINTHHRSPSTHIMPVVRKIFDITIPNMMFFSTMKRPSQERQEK  
LFPADFDISDISGKMPASVTYHSPITKNPDVRSVSAIEGVKYIADTMKSDEESNNAEEW  
KFMVAVLDHILLCVFMAVCIIGTLGVFAGRLIELSML

>Takifugu rubripes\_CHRNA1(ENSTRUP\_21949)  
LHLCDFSSGVETLAGTCASEDETRLVKTFLTGTGYNKVVVRPVNHFSEPVVTVGLQLIQLIS  
VDEVNQIVTSNVRRLRQQWVDVNLNWNPDYGGIRKIRVPSTDIWKPDVLYNNADGDFAI  
IHETKVLLEHTGKIWNPPAIFKSYCEIIVLHFPFDLQNCMKGTLTWTYDGLLVINPDS  
DRPDLNFMESGEWVLDKDYRSWKHWVYTCPPDTPYLDITYHFLMLRRLPLYFIVNVIIP  
MLFSFLTGLVFYLPDTSGEKMTLSISVLLSLTVFLLVIVELIPSTSSAVPLIGKYMLFT  
VFVIASIIITVIVINTHHRSPSTHTMPPWIRKVFETIPNMMFFSTMKRPSQEIQRKRLF  
PTDMDISDISGNPTPTSVTYQSPIVKNPDVRSVSAIEGVKYIAETMKSDEESNNAEEWKF  
VAMVLDHILLCVFMAVCIIGTLAVFAGRLIELN

>Tetraodon nigroviridis\_CHRNA1a(ENSTNIP\_12737)  
FTLRVSGGSLWFRAHLPERSQHFSSRSPVLCSEDETRLVKTFLTGTGYNKVVVRPVNHFSEPV  
VTVGLQLIQLINVEVSVQIVTSNVRRLRQQWVDVNLNWNPDYGGIRKIRVPSSEIWKPD  
VLYNNADGDFAIHETKVLLEHTGKIWNPPAIFKSYCEIIVLHFPFDVQNCMKGTLTWT  
YDGLLVINPDSDRPDLNFMESGEWVLDKDYRSWKHWVYTCGDTYLDITYHFLMQR  
LPLYFIVNVIIPCMFLSFLTGLVFYLPDTSGEKMTLSISVLLSLTVFLLVIVELIPSTSSA  
VPLIGKYMLFTMVFIASIIITVIVINTHHRSPSTHTMPPWIRKVFETIPNMMFFSTM  
KPSQEIQRKRLFPTDMDISDISGNPTPTSVTYQSPIVKNPDVRSVSAIEGVKYIAETMKA  
DEESNNAEEWKFVAMVLDHILLCVFMAVCIIGTVAVFAGRLIELNMP

>Tetraodon nigroviridis\_CHRNA1b(ENSTNIP\_20072)  
MNTTLFSFHIIILLAGAAWASSNETRLVKNLFAGYNKVVVRPVTHFKDPVVVTVGLQLIQLI  
NVDEVNQIVSSNVRRLKQWKDVNLHWNPDYGGIKKIRVPSTDIWRPDLVLYNNADGDFAI  
IVHETKVLLEHTGMTWNPPAIFKSYCEIIVLHFPFDLQNCMKGTLTWTYDGNLVVVPD  
SDRDPDLSNFMESGEWVMKDYRGWKHWVYACCPDTPYLDITYHFLMLRRLPLYFIVNVIIP  
CMLFSFLTGLVFYLPDTSGEKMTLSISVLLSLTVFLLVIVELIPSTSSAVPLIGKYMLFT  
MVFIASIIITVIVINTHHRSPSTHTMPDWVRRIFETIPNIMFFSTMKRPGKEKQRKGI  
QPPDFDISEISGNQATAVPYETRIITKNPDVRSVSAIEGVKYIAETMKSDEESNNAEEWKF  
VAMVLDHILLCVFMAVCLVGTGLGVFAGRLIELSML

>Gasterosteus aculeatus\_CHRNA1a(ENSGACP\_15736)  
PVSCSEAEATRLVKKLFTGYSKVVVRPVDHFSDAVVVSVGLQLIQLISVDEVNQIVTSNVR  
LQQRWRDVNLNWDYGGIRKIRVPSTDIWKPDVLYNNADGDFAIHQTKVLLEHTGMT  
TWNPPAIFKSYCEIIVLHFPFDLQNCMKGTLTWTYDGLLVINPDSARPDLNFMESGE  
WVLDKDYRSWKHTVNYSCPNKPYLDITYHFLMLRRLPLYFIVNVIIPCMFLSFLTGLVFYLP  
DTSGEKMTLSISVLLSLTVFLLVIVELIPSTSSAVPLIGKYMLFTMVFIASIIITVIVI  
NTHHRSPSTHTMPAWIRKVFETIPNMMFFSTMKRPSLEIRQMRMPTDMDISDISGNPA  
PTSPTYVSPITKNPDVRRVSAIEGVKYIAETMKSDEESNNAEEWKFVAMVLDHILLCVFMA  
VCIIGTLAVFAGRLIELNTL

>Gasterosteus aculeatus\_CHRNA1b(ENSGACP\_6143)  
MARMKPVFFIFYLVILAGAAGSSDETRLVKTFLTGTGYNKVVVRPVNHFKDPVVVTVGLQLI  
QLISVDEVNQIVSSNVRRLKQWKDVNLQWKPEDYSGIKKIRVPSTDIWRPDLVLYNNADG  
DFAIHETKVLLEHTGMTWNPPAIFKSYCEIIVLHFPFDLQNCMKGTLTWTYDGNLVV  
VPDSERPDLNFMESGEWVMKDFRGWKHWVYACCPDTPYLDITYHFLMLRRLPLYFIVN  
VIIPCMFLSFLTGLVFYLPDTSGEKMTLSISVLLSLTVFLLVIVELIPSTSSAVPLIGKY  
MLFTMVFIASIIITVIVINTHHRSPSTHTMPNWRVTVFETIPNIMFFSTMKRPGKEKQA  
KSSIIYGADFDISDISGNQTTISITYQSPITKNPDVRSVSAIEGVKYIAETMKSDEESNNA  
EEWKFMVAVLDHILLCVFMAVCLIGTLGVFAGRLIELSML

>Oryzias latipes\_CHRNA1a(ENSORLP\_1705)  
LGFTMYKYILKVLILFSDDCSRSVLGSEYETRLVKTFLTGTGYNKVVVRPVTHFSQAVEVT  
VGLQLIQLISVDEVNQIVTSNVRVKKQWTDVNLKWNPDYGGIKKIRVPSTDIWKPDVLYN  
NADGDFAIHETKVLLEYSKITWNPPAIFKSYCEIIVLHFPFDLQNCMKGTLGWSYDGL

LVVINPESDKPDLNFMESGEWVLKDSRCWKHWVQYTCCQDTPYLDITYHFLMLRRLPLYF  
IVNVIIPCLLFSFLTALVFYLPDTSGEKMTLSISVLLSLTVFLLVIVELIPSTSSAVPLI  
GKYMFLTVMFVIASIIITVIVINVHHRSPSTHTMPQWIRKVFIIETIPNMVFSTMKRPGQ  
EIRQRFFPTDMDISDISGNLPPTSITYQSPIIKNPDVRSIAIEGVKHAETMKLDEESNN  
AAEWEKFFVAMVLDHILLCVFMGVCIIIGTVAVFAGRLIELNM

>Oryzias latipes\_CHRNA1b(ENSORLP\_21899)

MGTLFFAFQVILLAGAAFASSETRLVKTFLTGYNKVVRPVNHYKDPVVVTVGLQLIQLI  
SVDEVNQIVSSNVRLKQQWKDVNLQWNPEDYGGIRKIRVPSTDIWRPDLVLYNNADGDFA  
IVHETKVLLEHTGMITWNPPAIFKSYCEIIVLHFPPFDLQONCTMKLGTWTYDGNLVVNP  
SDRPDLNFMESGEWVMKDYRGWKHWVYACCQDTPYLDITYHFLMLRRLPLYFIVNVIIP  
CMLFSFLTGLVFYLPDTSGEKMTLSISVLLSLTVFLLVIVELIPSTSSAVPLIGKYMFLT  
MVFVIASIIITVIVINVHHRSPSTHTMPDWVRKVFIIETIPNLMFFSTMKRPAKEKQNKPV  
YTAEFDISEISGNQATAVHYQSPLTKNPDVRSIAIEGVKYIAETMKSDEESNNAEWEKFF  
AMVLDHILLCVFMGVCIIIGTVAVFAGRLIELSTY

>Homo sapiens\_CHRNA2(ENSP\_385026)

MGPSCPVFLSFTKLSLWLLLLTPAGGEEAKRPPPRAPGDPLSSPSPTALPQGGSHETED  
RLFKHLFRGYNRWARPVPNTSDVIVRFGLSIAQLIDVDEKNQMMTTNVWLKQEWSDYKL  
RWNPDVDFGNITSLRVPSEMIWIPDIVLYNNADGEFAVTHMTKAHLFSTGTVHWVPPAIYK  
SSCSIDVTFPPFDQONCKMKFGSWTYDKAKIDLEQMEQTVDLKDYWESGEWAIVNATGTY  
NSKKYDCCAIEYPDVTYAFVIRRLPLFYTINLIIPCLLISCLTVLVFYLPSCDCEKITLC  
ISVLLSLTVFLLLITEIIPSTSLVIPLIGEYLLFTMIFVTLISIVITVFLNVHHRSPSTH  
TMPHWVRGALLGCVPRWLLMNRPPPPVELCHPLRLKLSPSYHWLESNVDAEEREVVVEEE  
DRWACAGHVAPSVGTLCSHGHLHSGASGPKAEALLQEGELLLSPHMQKALEGVHYIADHL  
RSEDADSSVKEDWKYVAMVIDRIFLWLFIIIVCFLGTIGLFLPPFLAGMI

>Macaca mulatta\_CHRNA2(ENSMUP\_28337)

MGPSPRPAFLSFTKLSLWLLLLTPAGGEEAKRPPPRAPGDPLSSPSPTALPQGGSHQAE  
RLFKHLFRGYNRWARPVPNTSDVIVRFGLSIAQLIDVDEKNQMMTTNVWLKQEWSDYKL  
RWNPADFGNITSLRVPSEMIWIPDIVLYNNADGEFAVTHMTKAHLFSTGTVHWVPPAIYK  
SSCSIDVTFPPFDQONCKMKFGSWTYDKAKIDLEQMEQTVDLKDYWESGEWAIVNATGTY  
NSKKYDCCAIEYPDVTYAFVIRRLPLFYTINLIIPCLLISCLTVLVFYLPSCDCEKITLC  
ISVLLSLTVFLLLITEIIPSTSLVIPLIGEYLLFTMIFVTLISIVITVFLNVHHRSPSTH  
TMPRWVRGALLGCVPRWLLMNRPLPSLELCHPPGLKLSPSYHWLETNMDAEEEREVVVEEE  
DRWACAGHVASSVGTLCSHGHLHSGASGPKAEAVLQEGELLLSPRMQKALEGVHYIADHL  
RSEDADSSVKEDWKYVAMVIDRIFLWLFIIIVCFLGTIGLFLPPFLAGMI

>Mus musculus\_CHRNA2(ENSMUSP\_22620)

MAPSHPAFQFWIHLYLWCLLLMPAVLAQQGSHTHAEDRLFKHLFGGYNRWARPVPNTSDV  
VIVRFGLSIAQLIDVDEKNQMMTTNVWLKQEWNDYKLRWDPAEFGNITSLRVPSEMIWIP  
DIVLYNNADGEFAVTHMTKAHLFFGTGTVHWVPPAIYKSSCSIDVTFPPFDQONCKMKFGS  
WYTDKAKIDLEQMERTVDLKDYWESGEWAIINATGTYNSKKYDCCAIEYPDVTYFVIR  
LPLFYTINLIIPCLLISCLTVLVFYLPSECCEKITLCSVLLSLTVFLLLITEIIPSTSL  
VIPLIGEYLLFTMIFVTLISIVITVFLNVHHRSPSTHMPNWRVALLGRVPRWLLMNR  
LPPMELHGSPGLKLSPTYHWLETNMDAEEEREETEEEEEEEDENICMCAGLPDSSMGVLY  
GHGSLHLRAMGPEAKTPSQASEILLSPQIQKALEGVHYIADHLRSEDADSSVKEDWKYVA  
MVDRIFLWLFIIIVCFLGTIGLFLPPFLAGMI

>Felis catus\_CHRNA2(ENSFCAP\_17705)

MGPSPRSVLSAMRGLWLLLLSPADLMGEGPKHPPWTPGDPTLPSCPQASRTQAEDRL  
FKHLFRGYNRWARPVPNTSDVIVRFGLSIAQLIDVDEKNQMMTTNVWLKQEWNDYKLHW  
NPADFGNITSLRVPSEMIWIPDIVLYNNADGEFAVTHMTKAHLFSTGTVHWVPPAIYKSS  
CSIDVTFPPFDQONCKMKFGSWTYDKAKIDLEQTEQTVDLKDYWESGEWAIINATGTYNT  
KKYDCCAIEYPDVTYFVIRRLPLFYTINLIIPCLLISCLTVLVFYLPSCDCEKITLCS  
VLLSLTVFLLLITDIIPSTSLVIPLIGEYLLFTMIFVTLISIVITVFLNVHHRSPRTHM  
PHWVRVAFGLGCVPRWLLMNRVPVPLEPRDPPDLKPSSSHVWLETNVDAAEEREKEEEDR  
WGAAHVSPSMGVLHGGLHGGASGPRVEVQLQEGGLLLSPRIQKALEGVHYIADHLRS  
EDADSSVKEDWKYVAMVIDRIFLWLFIIIVCFLGTIGLFLPPFLAGMI

>Monodelphis domestica\_CHRNA2(ENSMODP\_19892)



LTMPPPPLKMSDVDFVLRHASHALDEDRLFKFLFRGYNRWSRPVQNSSDVVIIRFGLSIA  
AQLIDVDEKNQMMTTNVWLKQEWSDYKLRWNP TDYGNITSIRVPSELIWIPDIVLYNNAD  
GEFIVTHMTKAHLFFGTGTVKWAPP AIYKSSCSIDVTFPPFDQQNCKMKFGSWTYDKAKID  
LEQMEQMVDLKDYWESGEWAI INAVGTYNTKKYDCCVEIYDPDITYFFIIRRLPLFY TINL  
IIPCLLISCLTVLVFYLPSDCGEKITLCSVLLSLTVFLLLITEIIPSTSLVIPLIGEYL  
LFTMIFVTL SIVITVFVNLVHHRSPGTHNMPHWVRAVFLGCI PRWLWMMNRPLPVLEFHDN  
PGQKLSSTHHWLD TNVDEDDKSEENWEFSGHSSPIDTLYHHC GHHHESPCFKAGTQLPE  
TEFLLPPSIQKALEGVHYIADHLRTEADAFSVKEDWKYVAMVIDRIFLWMFIIICFLGTI  
GLFLPPLLA

>Danio rerio\_CHRNA2a (ENSDARP\_28704)

MAENRIKTLNLLNMLI IADHVQPVLS DGWIHHAHAEDKLFHKLFIGYNKWSRPVRNISD  
VVIVKFGLSIAQLIDVDEKNQMMTTNVWLKQEWNDYKLRWNPSEFDNVTSIRVPSEMIWV  
PDIVLYNNADGEFAVTHMTKAHLFHTGKVS WVPPIYKSSCSIDVTFPPFDQQNCKMKFG  
SWTYDKAKIDLEQIEGTVDLKDYWESGEWAI INAVGTYNTKKYDCCHEIYDPDITYFFIIR  
RLPLFY TINLIIPCLLISCLTVLVFYLPSDCGEKITLCSVLLSLTVFLLLITEIIPSTS  
LVIPLIGEYLLFTMIFVTL SIVITVFVNLVHHRSPSTHSMPRVHVSVFLDHI PRWLFMR  
PEPEKPKKTANLSTSKSWFQQETGVDGLVCQDMFEGIGLSTSISSPSATSLHLS DSEPL  
LQKYELQHLGHVNL CQHAPAKLGNLVSEPGLLFSPCVLRALEGVRYIADHLRAEDED FSV  
KEDWKYVAMVIDRIFLWMFIIIVCLLGTIGLFLPPWLSGMI

>Danio rerio\_CHRNA2b (ENSDARP\_119522)

MASFTNQVLVFLRITLLCTII CESISCSCEKTHSHAEDDLFKKLF DGYNKWSRPVNTSDV  
IVKFGLSIAQLIDVDEKNQMMTTNVWLKQEWNDYKLRWKPSDYDNVTSIRVPSELIWV  
PDIVLYNNADGEFAVTHMTKAHLFHTGKVRWVPPAIYKSSCSIDVTFPPFDQQNCKMKFGS  
TYDKAKIDLRIENTVDLKDYWESGEWAI INAVGTYNTKKYDCCHEIYDPDITYFFIIRRL  
PLFY TINLIIPCLLISCLTVLVFYLPSDCGEKITLCSVLLSLTVFLLLITEIIPSTSLV  
IPLIGEYLLFTMIFVTL SIVITVFVNLVHHRSPSTHKMPCWVHVSVFLDLI PRWLFMR  
PDSRRRQKLLLLQRQVPGMTAR PANASLSTSTSWFRGQNSGEDESCRHF SYKDLELGTLS  
SAISLQASSPCPLGLT PPLQKFGPAPRLEVGTASRQLS GRANVTKRLDNMI PHDNPG  
FPLSPSVLQALEGVHYIADHLRAEADAFSVKEDWKYVAMVIDRIFLWMFIIIVCLLGTIGL  
FLPPWLAGMI

>Takifugu rubripes\_CHRNA2 (ENSTRUP\_19923)

MKKLQSFTLCTCHLIVLCIRSVSAVLC SQKTHSHAEDDLFKKLFAGYNKYSRPVNVTD  
VVIVKFGLSIAQLIDVDEKNQMMTTNVWLKQEWNDYKLRWRPSDYDNVTSIRVPSELIW  
PDIVLYNNADGEFAVTHMTKAHLFYNGKILWVPPAIYKSSCSIDVTFPPFDQQNCKMKFG  
SWTYDKAKIDLRIENTVDLNNYWESGEWAI INAVGTYNTKKYDCCHEIYDPDITYFFIIR  
RLPLFY TINLIIPCLLISCLTVLVFYLPSDCGEKITLCSVLLSLTVFLLLITEIIPSTS  
LVIPLIGEYLLFTMIFVTL SIVITVFVNLVHHRSPSTHKMPCWVHVSVFLDLI PRWLFMR  
PAPDGRRRRLLLLQQQEVMAERRRGRLTGYKSGNYLSTSANWLM DGSLSDEPNRNSYEDLE  
LGRARITAQRLTKADSTVSDSSFLSPSII RALEGVHYIADHLRAEADAFSVKEDWKYVA  
MVIDRIFLWMFIIIVCLLGTIGLFLPPWLAGMI

>Tetraodon nigroviridis\_CHRNA2 (ENSTNIP\_22729)

VLC SQKMHSHSEDA LFKKLFAGYNKYSRPVNVTDVVIVKFGLSIAQLIDVDEKNQMMTT  
NVWLKQEWNDYKLRWRPSDYDNVTSIRVPSELIWV PDIVLYNNADGEFAVTHMTKAHLFH  
NGKIRWVPPAIYNSCII DVTFPPFDQHTARCKFGPCRYDKAKLTCYWESGEWAI INAVG  
TYNTKKYDCCHEIYDPDITYFFIIRRLPLFY TINLIIPCLLISCLTVLVFYLPSDCGEKIT  
LCSVLLSLTVFLLLITEIIPSTSLVIPLIGEYLLFTMIFVTL SIVITVFVNLVHHRSPS  
THKMPCWVHVSVFLDLI PRWLFMRRAPEGRRRRLLLLQQPPSPRPLGTSPRQNSQKKQ  
EVPAGTNQQLSGARTTAQRLTKADSTGSDSYFLLSPSII RALEGVHYIADHLRAEADAFS  
VKEDWKYVAMVIDRIFLWMFIIIVCLLGTIGLFLPPWLAGMI

>Gasterosteus aculeatus\_CHRNA2 (ENSGACP\_14086)

YTIKYEPLRMILFNVS AVLCHEKSHSHAEDDLFKLTFAGYNKWSRPVSNISDVVIVKFGL  
SIAQLIDVDEKNQMMTTNVWLKQEWNDYKLRWKPSDYDNVTSIRVPSELIWV PDIVLYNN  
ADGEFAVTHMTKAHLFHNGKVRWVPPAIYKSSCSIDVTFPPFDQQNCKMKFGSWTYDKAK  
IDLERTENTVDLNNYWESGEWAI INAVGTYNTKKYDCCHEIYDPDITYFFIIRRLPLFY TI  
NLIIPCLLISCLTVLVFYLPSDCGEKITLCSVLLSLTVFLLLITEIIPSTSLVIPLIGE  
YLLFTMIFVTL SIVITVFVNLVHHRSPSTHKMPHWVHVSVFLNLI PRWLFMRRAPEGRRR

RLALMQQDAALVRRQGRAGGYKRPSNCLSTSATWSGGSRVNLQRAVKADNAVSDSTFLL  
SPSVIRALEGVHYIADHLRAEDADFSVKEDWKYVAMVIDRIFLWMFIIVCLLGTIGLFLP  
PWL

>*Oryzias latipes*\_CHRNA2(ENSORLP\_11046)  
FCYDKSHAAHEEELFQT<sup>1</sup>LTFTGYNKWSRPV<sup>2</sup>PNISDVVIVKFGLSIAQLIDVDEKNQMMTTN  
VWLKQEWNDYKLRWKP<sup>3</sup>SDYDNVTSIRVPSELIWVPDIVLYNNADGEFAVTHMTKAHLFHT  
GKVRWVPPAIYKSSCSIDV<sup>4</sup>TFFF<sup>5</sup>PDQ<sup>6</sup>QNC<sup>7</sup>KMK<sup>8</sup>FGS<sup>9</sup>WTY<sup>10</sup>DKAKIDLERIENTVDLNNYWES  
GEWAIINAVGTYNTK<sup>11</sup>KYDC<sup>12</sup>CHEI<sup>13</sup>Y<sup>14</sup>PD<sup>15</sup>ITY<sup>16</sup>FFI<sup>17</sup>IRRLPLFY<sup>18</sup>TINLIIPCLLISCLTVLVFY  
LP<sup>19</sup>SDCGEKITL<sup>20</sup>CISVLLSLTVFLL<sup>21</sup>LITEIIP<sup>22</sup>STSLVIPLIGEYLLFTMI<sup>23</sup>FV<sup>24</sup>TL<sup>25</sup>SIVITV<sup>26</sup>F  
VLNVHHRSPSTHKMPRW<sup>27</sup>VHTV<sup>28</sup>FLDLIP<sup>29</sup>RWLF<sup>30</sup>MRRPAPNGRRRRL<sup>31</sup>LL<sup>32</sup>LQ<sup>33</sup>DGAL<sup>34</sup>GRLQ<sup>35</sup>PRV  
SALDIST<sup>36</sup>SSTW<sup>37</sup>LREGAVLEK<sup>38</sup>TERS<sup>39</sup>CYEDLE<sup>40</sup>GLT<sup>41</sup>LQ<sup>42</sup>S<sup>43</sup>Y<sup>44</sup>SFR<sup>45</sup>PPSP<sup>46</sup>PPG<sup>47</sup>Q<sup>48</sup>TP<sup>49</sup>PP<sup>50</sup>QL<sup>51</sup>K<sup>52</sup>TP<sup>53</sup>Q  
NSQSWREGGGGPNRQ<sup>54</sup>MGGARV<sup>55</sup>DS<sup>56</sup>PKV<sup>57</sup>QCAESG<sup>58</sup>SLLSP<sup>59</sup>CV<sup>60</sup>MR<sup>61</sup>ALEGVHYIADHLRAEDAD<sup>62</sup>F  
SVKEDWKYVAMVIDRIFLWMFIIVCLLGTIGLFLPPWLAGMI

>*Homo sapiens*\_CHRNA6(ENSP\_276410)  
MLTSKGQGF<sup>1</sup>LHGGLCLWLCV<sup>2</sup>FT<sup>3</sup>PF<sup>4</sup>FKGC<sup>5</sup>VGCATEERL<sup>6</sup>FHKL<sup>7</sup>FSHYNQ<sup>8</sup>FIRPVENVSDPVT  
VHFEVAITQLANVDEVNQ<sup>9</sup>IMETNLWLRHIW<sup>10</sup>NDYKLRWD<sup>11</sup>PMEYDGIETLRVPADKIWK<sup>12</sup>PDI  
VLYNNAVGDFQVEGKTKALLKYNGMITWT<sup>13</sup>PPAIFKSSCPMDIT<sup>14</sup>FF<sup>15</sup>PF<sup>16</sup>DH<sup>17</sup>QNC<sup>18</sup>SLK<sup>19</sup>FGS<sup>20</sup>WT  
YDKAEIDLLIIGSKVDMNDFWENSEWEI<sup>21</sup>IDASGYK<sup>22</sup>HDIKYN<sup>23</sup>CCEEIYTDITY<sup>24</sup>SFYIRRLP  
MFY<sup>25</sup>TINLIIPCLFISFLTVLVFYLP<sup>26</sup>SDCGEKVTLCISVLLSLTVFLLVITETIP<sup>27</sup>STSLV<sup>28</sup>V  
PLVGEYLLFTMI<sup>29</sup>FV<sup>30</sup>TL<sup>31</sup>SIVVTVFVLNIHYRTPT<sup>32</sup>HTMPRWKTVFLKLLPQVLLMRW<sup>33</sup>PLD  
KTRGTGSDAVPRGLARRPAK<sup>34</sup>GKLASHGEP<sup>35</sup>RHLKECFHCHKS<sup>36</sup>NELATSKRRLSHQ<sup>37</sup>PLQ<sup>38</sup>WV  
ENSEHSP<sup>39</sup>EV<sup>40</sup>EDVINSVQ<sup>41</sup>FAENMKSHNETKEVEDDWKYVAMVVD<sup>42</sup>RV<sup>43</sup>FLWVFIIVCV<sup>44</sup>FGTA  
GLFLQPLLNGTGKS

>*Pongo abelii*\_CHRNA6(ENSPPYP\_20814)  
MPTSKGQGF<sup>1</sup>LHGGLCLWLCV<sup>2</sup>FT<sup>3</sup>PF<sup>4</sup>FKGC<sup>5</sup>AGCVTEERL<sup>6</sup>FHKL<sup>7</sup>FSHYNQ<sup>8</sup>FIRPVENVSDPVT  
VHFEVAITQLANVDEVNQ<sup>9</sup>IMETNLWLRHIW<sup>10</sup>NDYKLRWD<sup>11</sup>PTEYDGIETLRVPADKIWK<sup>12</sup>PDI  
VLYNNAVGDFQVEGKTKALLKYNGMITWT<sup>13</sup>PPAIFKSSCPMDIT<sup>14</sup>FF<sup>15</sup>PF<sup>16</sup>DH<sup>17</sup>QNC<sup>18</sup>SLK<sup>19</sup>FGS<sup>20</sup>WT  
YDKAEIDLLIIGSKVDMNDFWENSEWEI<sup>21</sup>IDASGYK<sup>22</sup>HDIKYN<sup>23</sup>CCEEIYTDITY<sup>24</sup>SFYIRRLP  
MFY<sup>25</sup>TINLIIPCLFISFLTVLVFYLP<sup>26</sup>SDCGEKVTLCISVLLSLTVFLLVITETIP<sup>27</sup>STSLV<sup>28</sup>V  
PLVGEYLLFTMI<sup>29</sup>FV<sup>30</sup>TL<sup>31</sup>SIMVTVFVLNIHYRTPT<sup>32</sup>MHTMPRWKTVFLKLLPQVLLMRW<sup>33</sup>PVD  
KTRGTGSDAMP<sup>34</sup>RGLARRPAK<sup>35</sup>GKLASREEPRHLKECFHCHKS<sup>36</sup>NELATSKRRLSHQ<sup>37</sup>PLQ<sup>38</sup>WV  
ENSEHSP<sup>39</sup>EV<sup>40</sup>EDVINSVQ<sup>41</sup>FAENMKSHNETKQVEDDWKYVAMVVD<sup>42</sup>RV<sup>43</sup>FLWVFIIVCV<sup>44</sup>FGTA  
GLFLQPLLNGTGKS

>*Mus musculus*\_CHRNA6(ENSMUSP\_33882)  
MLNSRDQGNLHSG<sup>1</sup>LCLWLCGFLALFKGSTGCESEEQLFHRLFAHYNRFIRPVENVSDPVT  
VHFEVAITQLANVDEVNQ<sup>2</sup>IMETNLWLRHIWKDYRL<sup>3</sup>RWD<sup>4</sup>PTEYDGIETLRVPADNIWK<sup>5</sup>PDI  
VLYNNAVGDFQVEGKTKALLKYDGVITWT<sup>6</sup>PPAIFKSSCPMDIT<sup>7</sup>FF<sup>8</sup>PF<sup>9</sup>DH<sup>10</sup>QNC<sup>11</sup>SLK<sup>12</sup>FGS<sup>13</sup>WT  
YDKAEIDLLIIGSKVDMNDFWENSEWEI<sup>14</sup>VDASGYK<sup>15</sup>HDIKYN<sup>16</sup>CCEEIYTDITY<sup>17</sup>SFYIRRLP  
MFY<sup>18</sup>TINLIIPCLFISFLTVLVFYLP<sup>19</sup>SDCGEKVTLCISVLLSLTVFLLVITETIP<sup>20</sup>STSLVI  
PLVGEYLLFTMI<sup>21</sup>FV<sup>22</sup>TL<sup>23</sup>SIVVTVFVLNIHYRTPATH<sup>24</sup>MPKWVKTIFLQAFPSILMMR<sup>25</sup>KPLD  
KTKEAGGVKDPKSH<sup>26</sup>TKRPAKVKF<sup>27</sup>THRGESKLLKECHHCQKSSDIAPGKRRSSQ<sup>28</sup>QPARVWA  
ENSEHSSDVEDVIESVQ<sup>29</sup>FAENMKSHNETNEVEDDWKYMAMVVD<sup>30</sup>RV<sup>31</sup>FLWVFIIVCV<sup>32</sup>FGTV  
GLFLQPLLNGTGKS

>*Canis familiaris*\_CHRNA6(ENSCAFP\_8128)  
MLTSKGQGF<sup>1</sup>LHFG<sup>2</sup>LCLCSCIFIPCLKGSAGCASEERL<sup>3</sup>FHKL<sup>4</sup>FSHYNQ<sup>5</sup>FIRPVENVSDPVT  
VHFEVAITQLANVDEVNQ<sup>6</sup>IMETNLWLRHIW<sup>7</sup>NDYKLRWNPMEYDGIETLRVPADRIWK<sup>8</sup>PDI  
VLYNNAVGDFQVEGKTKALLKYDGMIIWT<sup>9</sup>PPAIFKSSCPMDIT<sup>10</sup>FF<sup>11</sup>PF<sup>12</sup>DH<sup>13</sup>QNC<sup>14</sup>SLK<sup>15</sup>FGS<sup>16</sup>WT  
YDKAEIDLLIIGSKVDMNDFWENSEWEI<sup>17</sup>VDASGYK<sup>18</sup>HDIKYN<sup>19</sup>CCEEIYTDITY<sup>20</sup>SFYIRRLP  
MFY<sup>21</sup>TINLIIPCLFISFLTVLVFYLP<sup>22</sup>SDCGEKVTLCISVLLSLTVFLLVITETIP<sup>23</sup>STSLVI  
PLVGEYLLFTMI<sup>24</sup>FV<sup>25</sup>TL<sup>26</sup>SI<sup>27</sup>AVTVFVLNIHYRTPATH<sup>28</sup>MPKWVKTIVFLQLLPQILMMR<sup>29</sup>RPLD  
KMRKTSSDKNSKGISSRPTKVNFDNYRET<sup>30</sup>KLPKECCHCHKSSKLATSKRRLSHQ<sup>31</sup>SLQ<sup>32</sup>WMT  
ENSEHWPDVEDVINSVQ<sup>33</sup>FAENMKQN<sup>34</sup>NETKEVEDDWKYVAMVVD<sup>35</sup>RV<sup>36</sup>FLWVFIIVCV<sup>37</sup>FGTA  
GLFLQPLLNGTGKS

>*Myotis lucifugus*\_CHRNA6(ENSMLUP\_4768)  
MLTSKGQGC<sup>1</sup>LHCG<sup>2</sup>LCLWLYIFIP<sup>3</sup>PF<sup>4</sup>FKDGAGCASEERL<sup>5</sup>FHKL<sup>6</sup>FSHYNQLIRPVENVSEPV<sup>7</sup>T

VHFEVAITQLANVDEVNQIMETNLWLRHIWNDYKLRWDPTEFDGIETIRVPADKIWKPDI  
VLYNNAVGDVQVKGKTKALLKYDGMITWTTPPAIFKSSCPMDITFFPFDPHQNC SLKFGSWT  
YDKAEIDLLIIGSKVDMNDFWENSEWEIVDASGYKHDIKYNCCEEIYTDITYSFYIRRLP  
MFY TINLIIPCLFISFLT VLVFYLP SDCGEKVTLCISVLLSLTVFLLVITETIPSTSLVI  
PLVGEYLLFTMI FVTLSIAVTVFVLNIHYRTPPTHTMPDWVKMVFLQLLPQIIMMKRPLD  
KTRKTSDDKNPKSISGRPTKVKFDNRREP KLLKECCHCHKSHQLATSKRRLSHQPLQWMT  
GNTEHSPEVEDVINSVQFIAENMKNQNETKEVEDDWKYVAMVVDRVFLWIFIIVCVFGTA  
GLFLQPLLNGTGKS

>Homo sapiens\_CHRNB3(ENSP\_289957)  
MLPDFMLVLIVLGI PSSATTGFNSIAENEDALLRHLFQGYQKWVRPVLHSNDTIKVFYFGL  
KISQLVDVDEKNQ LMTTNVWLKQEWTDHKL RWNPDYGGIHSIKVPSESLWLPDIVLFEN  
ADGRFEGSLMTKVIIVKSNGTVVWTPPASYKSSCTMDVTFPPFDRQNC SMKFGSWTYDGT  
VDLILINENVDKDFDNGEWEILNAKGMKGNRRDGVSYPPFITYSFVLRRLPLFYTLFL  
IIPCLGLSFLT VLVFYLP SDEGEKLSLSTSVLVSLTVFLLVIEEII PSSSKVIPLIGEYL  
LFIMIFVTL SIIIVTVFVINVHRRSSSTYHPMAPWVKRFLQKLPKLLCMKDHVDRYSPE  
KEESQPVVKGKVLKQKQLSDGEKVLVAFLEKAADSIRYISRHVKKEHFISQVVQDWK  
FVAQVLDRI FLWFLVSVTGSVLI FT PALKMWLHSHY

>Callithrix jacchus\_CHRNB3(ENSCJAP\_14325)  
MLTDFMLVLIVLGI PSSATAGFSSIAENEDALLRHLFQGYQKWVRPVLHSNDTIKVFYFGL  
KISQLVDVDEKNQ LMTTNVWLKQEWTDHKL RWNPDYGGIHSIKVPSESLWLPDIVLFEN  
ADGRFEGSLMTKVIIVKSNGTVVWTPPASYKSSCTMDVTFPPFDRQNC SMKFGSWTYDGT  
VDLILINENVDKDFDNGEWEILNAKGMKGNRRDGVSYPPFITYSFVLRRLPLFYTLFL  
IIPCLGLSFLT VLVFYLP SDEGEKLSLSTSVLVSLTVFLLVIEEII PSSSKVIPLIGEYL  
LFIMIFVTL SIIIVTVFVINVHRRSSSTYQPMAPWVKRFLQKLPKLLCMKDHVDRYSIPE  
KEESQPVVKS KVLKQKQLSDGEKVLVAFLEKAADSIRYISSHVKKEHFISQVVQDWK  
FVAQVLDRI FLWFLVSVTGSVLI FT PALKMWLHSHY

>Gallus gallus\_CHRNB3(ENSGALP\_24774)  
MLCLMLCVLCWSRSDVAALG SVAENEDALLRHLFQGYQKWVRPVENSNDTIKVLFG LKIS  
QLVDVDEKNQ LMTTNVWLKQEWMDHKL SWNPEEYGGITAIRVPSESLWLPDIVLFENADG  
RFEGSLMTKAIIVKYNVVTWMP PASYKSSCTMDVTFPPFDRQNC SMKFGSWTYDGSMDL  
ILVDENVDKDFDNGEWEILNAKGMKGNRDKGLYSYPPFITYSFVLRRLPLFYTLFLIIP  
CLGLSFLT VLVFYLP SDEGEKLSLSTSVLVSLTVFLLVIEEII PSSSKVIPLIGEYLLFI  
MIFVTL SIIIVTVFVINVHRRSSATYHPMAPWVKRFLQKLPRLLCMKGHVDRYSFSDTEE  
KETTLLKSKLP GKQKHKQAKDGEKVVIAFLEKAADSIRYISRHVKKEHFIRQVVQDWKFVA  
QVLDRI FLWFLVSVTGSVLI FT PALQMWLNSTL

>Xenopus tropicalis\_CHRNB3(ENSXETP\_22596)  
TMKMFIIYACTNII FIPSGFAKFHPLAEIEDALLRKL FAGYQKWVRPVLNPNSTIKVNFGL  
KISQLVDVDEKQ LMTTNVWL RQEWMDMKL RWNPKDYGGITYIRVPSESLWLPDIVLFEN  
ADGRFEGSLMTKAI IKYDGTVTWTPPASYKSSCTMDVTFPPFDRQNC SMKFGSWTYDGNM  
VDLILLDENVDKDFDNGEWDILNATGLKGMKRDGLYSYPPFITYSFVLRRLPLFYTLFL  
IIPCLGLSFLT VLVFYLP SDEGEKLSLSTSVLVSLTVFLLVIEEII PSSSKVIPLIGEYL  
LFIMIFVTL SIIIVTVFVINVHRRSSATYHPMAPWVKRFLFLEKLPKLLCMKGHVDRFSFFD  
SESDVSSAKSKPSGRKRN I HASDGEKVLIAFLEKAADS IKYIISTHVKKEHFIRQVVQDWK  
FVAQVLDRI FLWFLVSVITGSVLI FT PALQMWLN SHV

>Danio rerio\_CHRNB3a(ENSDARP\_69164)  
MKLQISGILLVAAVAYATIEAPEEFVSLAEMEDTL LRNLFRGYQKWVRPVLHANDTITVR  
FGLKISQLVDVDEKNQ LMTTNVWLWEEWTDYKLRWNPEDYGGITSIRVPSETIWL PDIVL  
YENADGRFEGSLMTKAI VRFNGT IMWTPPASYKSACTMDVTFPPFDRQNC SMKFGSWTYD  
GTMVDLTLVDAYVDKDFDNGEWEILNATGQRGSRDGIYSYPYLTYSFILKRLPLFYT  
LFLIIPCLGLSFLT VLVFYLP SDEGEKLSLSTSVLVSLTVFLLVIEEII PSSSKVIPLIG  
EYLLFIMIFVTF SIIIVTVFVINVHRRSSATYHPMAPWVKSLFLQRLPRLLCMRGHTDRYQ  
YPDIELRSP ELKRGMKKQKQKSAGGGRAGVKE DENQAWIALLEKATHSVHYISRHIRKEH  
FIREVVQDWKFVAQVLDRI FLWAF LTVSVLGTILIFT PALQMFST S

>Danio rerio\_CHRNB3b(ENSDARP\_50036)  
MTLTVIGLFTLFTSIFATTPAREFVSLAEREDALLRDLFQGYQRWVRPILHANHTVKVRF

GLKISQLVDVDEKNQLMTTNVWLYEEWLDYKLRWNPENYGGITFIRVPSESIWLPDIVLY  
ENADGRFEGSIMTKAIVRYNGLITWTTPPASYKSACTMDVTFPPDRQNCMSKFGSWTYDG  
NMVELLVNQHVDSDFFDNGEWEILSATGHKGSRRDGHYSYPIYTSFILKRLPLFYTL  
FLIIPCLGLSFLTIVLVFYLPSEDEGEKLSLSTSVLVSLTVFLLVIEEIIIPSSSKVIPLIGE  
YLLFIMIFVTLIIIVTVFVINVHHRSSATYHPMSPWVRTLFLQRLPDLLCMRGNTDRYHY  
PQMEPQSPDLKPRSKKGGPPGPEGDQALINMLEQATNSVRYISRHIKKEHFIREVVQDWK  
FVAQVLDRIFLWAFLTVSVLGTILIFTPAVKMFLSTPPPPSP

>Takifugu rubripes\_CHRNB3a(ENSTRUP\_15529)

PPLLSVLLSVPIPLAPAEEDFVSLAELEDSLLRNLFKGYQKWVRPVQHANTITVRFGLK  
ISQLVDVDEKNQLMTTNVWLWQEWIDVKKLWNPDDYGGITAIRVPSETIWLDPDIVLYENA  
DGRFEGSLMTKAIVRWDGTITWTTPPASYKSACNMDVTFPPDRQNCMSKFGSWTYDGNMV  
DLVLVDHYVDRKDFDNGEWEILNATGVKGSRRDEVYWPVFTYSFILKRLPLFYTLFLI  
IPCLGLSFLTIVLVFYLPSEDEGEKLSLSTSVLVSLTVFLLVIEEIIIPSSSKVIPLIGEYLL  
FIMIFVTFIIIVTVFVINVHHRSSATYHPMAPWVKSFLQRLPRLLCMRGHTDRYHFPDN  
EMRSPKPRRAIGRRVQKEDENQAWLAMLEKATNSVRYISQHIRKEHFIREVVQDWK  
FVAQVLDRIFLWAFLTVSVLGTILIFTPALKMYLHKMFH

>Takifugu rubripes\_CHRNB3b(ENSTRUP\_4037)

HLPDQLVCAKTSLSAPAQSEFVSLAEMEDALLRNLFQGYQRWVRPIQHANTIKVRFGLK  
ISQLVDVDEKNQLMTTNVWLWQEWIDFKLRWNPDKYGGITSIRVPSNLWLPDIVLYENA  
DGRFEGSLMTKAIVRYNGAITWTTPPASYKSACTMDVTFPPDRQNCMTKFGSWTYDGMTV  
DLILIDKQVDRKDFDNGEWEILSATGAKGNRKGGLYSYPIYTSFILKRLPLFYTLFLI  
IPCLGLSFLTIVLVFYLPSEDEGEKLSLSTSVLVSLTVFLLVIEEIIIPSSSKVIPLIGEYLL  
FIMIFVTLIIIVTVFVINVHHRSSATYHPMSPWVRTLFLQKLPRLLCMRGHTDRYHYPEL  
GPESPEPKPRSGRRGQRISGGTYGQASSEKDEDEDWATMLDKAIFSVRYISRHIRKE  
HFIREVVQDWKFWAQVLDRIFLWAFLTVSVLGTILIFTPALQKFMQVLP

>Tetraodon nigroviridis\_CHRNB3a(ENSTNIP\_16128)

LLVASVCFPPVHMFAPAQSEFVSLAEMEDALLRNLFQGYQRWVRPIQHANTIKVRFGLK  
KISQLVDVDEKNQLMTTNVWLWQEWIDYKLRWNPDKYGGITSIRVPSNLWLPDIVLYEN  
ADGRFEGSLMTKAIVRYNGAITWTTPPASYKSACTMDVTFPPDRQNCMTKFGSWTYDGMT  
VDLILIDKQVDRKDFDNGEWEILSATGAKGNRKGGLYSYPIYTSFILKRLPLFYTLFLI  
IIPCLGLSFLTIVLVFYLPSEDEGEKLSLSTSVLVSLTVFLLVIEEIIIPSSSKVIPLIGEY  
LFIMIFVTLIIIVTVFVINVHHRSSATYHPMSPWVRTLFLQKLPRLLCMRGHTDRYHYPE  
LGPESPEPRVRAGRRGQRVGSVSHGQTPPEGKDEEASMLDKAIYSVRYISRHIRKE  
HFIREVVQDWKFWAQVLDRIFLWAFLTVSVLGTILIFTPALQKFMKVLQPSSS

>Tetraodon nigroviridis\_CHRNB3b(ENSTNIP\_14999)

QEDFVSLAELEDSLLRNLFQGYQKWVRPVQHANTITVRFGLKISQLVDVDEKNQLMTTN  
VWLWQEWVDLKLWNPDDYGGITAIRVPSETIWLDPDIVLYENADGRFEGSLMTKAIVRWD  
GTITWTTPPASYKSACTMDVTFPPDRQNCMSKFGSWTYDGNMVDLVLVDHYVDRKDFD  
GEWEILNATGVKGSRRDGIYWPVFTYSFILKRLPLFYTLFLIIPCLGLSFLTIVLVFYLP  
SDEGEKLSLSTSVLVSLTVFLLVIEEIIIPSSSKVIPLIGEYLLFIMIFVTFIIIVTVFVI  
NVHHRSSATYHPMAPWVKSFLQRLPRLLCMRGHTDRYHFPDMEMHSPKPRRAVGRRG  
VQGQKGPLAGKEDENQAWLAMLEKATNSVRYISQHIRKEHFIREVVQDWKFWAQVLDRI  
FLWAFLTVSVLGTILIFTPALQMYLSTP

>Gasterosteus aculeatus\_CHRNB3a(ENSGACP\_24319)

QDDVVSLEAEMEDSLLRNLFQGYQKWVRPVLHNSNTITVCFGLKISQLVDVDEKNQLMTTN  
VWLWQEWVDLKLWNPDDYGGITSIRVPSETIWLDPDIVLYENADGRFEGSLMTKAIVRWD  
GTITWTTPPASYKSACTMDVTFPPDRQNCMSKFGSWTYDGNMVDLVLVDHYVDRKDFD  
GEWEILNATGQRGSRRDEVYWPVFTYSFILKRLPLFYTLFLIIPCLGLSFLTIVLVFYLP  
SDEGEKLSLSTSVLVSLTVFLLVIEEIIIPSSSKVIPLIGEYLLHHRSSSTYHPMAPWVKS  
FLQRLPRLLCMRGHTDRYHFPDMEMHSPKPRRAVGRRGVQGRGVPVSGKEENRAWLA  
MLEKATNSVRYISRHIKKEHFIREVVQDWKFWAQVLDRIILLWAFLTVSVLGTILIFTPAL  
QMYFSTP

>Gasterosteus aculeatus\_CHRNB3b(ENSGACP\_23418)

MKWTVLFLLLVCLSLAEIHAPSEFVSLAEMEDALMRNLFQGYQRWVRPIQHANTVVRV  
FGLKISQLVDVDEKNQLMTTNVWLWQEWIDYKLRWNPDKYGGITSIRVPSEIWLDPDIVL

YENADGRFEGSLMTKAIVKFNGVITWTPPASYKSACTMDVTFPPFDRQNCTMKFGSWTYD  
GHMVDLVLDINQVDRRDFFDNGEWEILSATGARGTRKDDMYTYPFLTYSFILKRLPLFYT  
LFLIIPCLGLSFLTIVLVFYLPSEGEKLSLSTSVLVSLTVFLLVIEEIIIPSSSKVIPLIG  
EYLLRSSATYHPMSPWVRNLFQKLPFLCMRGHTDLYHYPELAPESPENKPRSGGRKGG  
QRANSGARGQTASEGKEDAWATMLDKAVYSVRYISRHIRKEHFIREVVQDWKFVAQVLD  
RIFLWAFLLTVSILGTVLIFTPALYSFFKIP

>Oryzias latipes\_CHRN3a(ENSORLP\_17917)

FPLLVPQENVLSLAELEDSSLRNLFKGYQKWVRPVQHANTITVRFGLKISQLVDVDEKN  
QLMTTNVWLWQEWIDVKLKNPDDYGGITSIRVPSETIWLDPDIVLYENADGRFEGSLMTK  
AIVRWDGTITWTPPASYKSSCTMDVTFPPFDRQNCSMKFGSWTYDGNMVDLVLDHYVDR  
KDFFDNGEWEILNATGQRGRSRDEMYWYPFLTYSFILKRLPLFYTLFLIIPCLGLSFLTIV  
LVFYLPSEGEKLSLSTSVLVSLTVFLLVIEEIIIPSSSKVIPLIGEYLLFIMIFVTFSSII  
VTVFVINVHHRSSATYHPMAPVWKSFLQKLPRLLCMRGHTDRYHFPDIEMRSPKTRR  
GAGRAVPGGMEDDSQAWLAMLEKATNSVHYISRHIRKEHFIREVVQDWKFVAQVLDRI  
LWAFLLTVSILGTVLIFTPALQSYLSTP

>Oryzias latipes\_CHRN3b(ENSORLP\_4018)

LTVFLLLLLSACPQLFAAITAPKRFVSLAEMEDDLLKNLFQGYQRWVRPIQRPNDTVRVR  
FGLKISQLVDVDEKNQLMTTNVWLWQEWIDYKLRWNPDKYGGITSIRVPSENIWLDPDIVL  
YENADGKFEGLSMTKAIVKFNGAVTWMPPASYKSACTMDVTFPPFDRQNCSMKFGSWTYD  
GNMVDLVLMDSQVDRKDFFDNGEWEILSATGAKGNRDKGLYFYFPFITCSFILKRLPLFYT  
LFLIIPCLGLSFLTIVLVFYLPSEGEKLSLSTSVLVSLTVFLLVIEEIIIPSSSKVIPLIG  
EYLLFIMIFVTLIIIVTVFVINVHHRSSATYHPMSPWVRSFLQKLPRLLCMRGHADRYH  
YPELAPESPALKSRSGRRGIQRMSSGGQQSTYDGKEEAYSTMLEKAIYSVRYISRHIR  
KDHFIREVQDWKFVAQVLDRIFLWIFLSVSVLGTILIFTPALQMFMKIPPPAPSE

>Homo sapiens\_CHRNA4(ENSP\_359285)

MELGGPGAPRLLPPLLLLLGTGLLRASSHVETRAHAERLLKLLFSGYNKWSRPVANI  
SDVVLVRFGLSIAQLIDVDEKNQMMTTNVVVKQEWHDYKLRWDPADYENVTSIRIPSELI  
WRPDIIVLYNNADGDFAVTHLTKAHLFHDGRVQWTPPAIYKSSCSIDVTFPPFDQQNCTMK  
FGSWTYDKAKIDLVMHSRVDQLDFWESGEWVIVDAVGTYNTRKYECCAEIYDPDIYAFVIR  
RLPLFYTINLIIPCLLISCLTVLVFYLPSECGEKITLTCISVLLSLTVFLLLITEIIPSTS  
LVIPLIGEYLLFTMI FVTL SIVITV FVLNVHHRSPRTHMTPTWVRRVFLDIVPRLMLMKR  
PSVVKDNCRRLESMHKMASAPRFWPEPEGEPPATSGTQSLHPPSPSFCVPLDVPAEPGP  
SCKSPSDQLPPQPLEAEKASPHSPGSPGCRPPHGTQAPGLAKARSLSVQHMSSPGEAVEG  
GVRCSRRSIQYCVPRDDAAPEADGQAAGALASRNTHSAELPPDQPSCKCTCKKEPSSV  
SPSATVKTSTKAPPPLPLSPALTRAVEGVQYIADHLKAEDTDFSVKEDWKYVAMVIDR  
IFLWMMFIIIVCLLGTVGLFLPPWLAGMI

>Mus musculus\_CHRNA4(ENSMUSP\_66338)

MEIGGSGAPPPLLLPPLLLLLGTGLLPASSHIETRAHAERLLKLLFSGYNKWSRPVANI  
SDVVLVRFGLSIAQLIDVDEKNQMMTTNVVVKQEWHDYKLRWDPADYENVTSIRIPSELI  
WRPDIIVLYNNADGDFAVTHLTKAHLFYDGRVQWTPPAIYKSSCSIDVTFPPFDQQNCTMK  
FGSWTYDKAKIDLVMHSRVDQLDFWESGEWVIVDAVGTYNTRKYECCAEIYDPDIYAFI  
IRRLPLFYTINLIIPCLLISCLTVLVFYLPSECGEKVTLTCISVLLSLTVFLLLITEIIPS  
TSLVIPLIGEYLLFTMI FVTL SIVITV FVLNVHHRSPRTHMPAVRRVFLDIVPRLLFM  
KRPSVVKDNCRRLESMHKMANAPRFWPEPESEPGILGDICNQGSLPAPTFCNRMDTAVE  
TQPTCRSPSHKVPDLKTSEVEKASPCPSPGSCHPPNSSGAPVLIKARSLSVQHVPSSQEA  
AEGSIRCSRRSIQYCVSQDGAASLTESKPTGSPASLKTSPQLPVSQDQTSCKCTCKEPE  
PVSPITVLKAGGKAPPQHLPLSPALTRAVEGVQYIADHLKAEDTDFSVKEDWKYVAMVIDR  
IFLWMMFIIIVCLLGTVGLFLPPWLAGMI

>Monodelphis domestica\_CHRNA4(ENSMODP\_21042)

MRLOQPQGSALLLLRGLLILGVLPPASGHVETRAHAERLLKLLFSGYNKWSRPVANI  
SDVVLVRFGLSIAQLIDVDEKNQMMTTNVVVKQEWQDYKLRWDPADYENVTSIRIPSELI  
WRPDIIVLYNNADGDFAVTHLTKAHLFYDGRVQWTPPAIYKSSCSIDVTFPPFDQQNCTMK  
FGSWTYDKAKIDLVMHSHVDQLDYWESGEWVIVDAVGTYNTRKYECCAEIYDPDIYAFI  
IRRLPLFYTINLIIPCLLISCLTVLVFYLPSECGEKITLTCISVLLSLTVFLLLITEIIPS  
TSLVIPLIGEYLLFTMI FVTL SIIITV FVLNVHHRSPRTHMPAVRRVFLDIIPRLLFM  
KRPGVVKDNCRKLVESMHKLAGGPRFWPQPEPNFVTSPTSPQTPERSPSASFCVHLED

VKPQAVCKSPSGQYTVLQRPEPGKSGPCSPPTPHPLNNSHPGFSKVRSLSVQQMYSSN  
KVEEGSIRCRSRSIQYCSLQEDSSQANNGQSTSSPASLRSQKDEVQPQEKSPCKCKCKK  
VKATPVPDPVTKPRSTKEQHALLPMPALKLAVEGVQYIADHLKAEDTDFSVKEDWKYVAM  
VIDRIFLWMFVIVCLLGTVGLFLPPWLAGMI

>Danio rerio\_CHRNA4 (ENSDARP\_22694)  
MRAAWRVFLLCVHLQLAYVFSMSPAHAHAERLLQSLFINYNKLSRPVANISDVVLVHF  
GLSIAQLIDVDEKNQMMTTNVVVKQEWNDYKLRWNPEEYENVTSIRIPSEI IWRPDI  
VLYNNADGDFAVTHLTKAQVFYNGRIKWKPPAIYKSSCIDVTFPPFDQQNCKMKFGS  
WTYDR  
AKIDLISMASDQMDYWESGEWVIINAVGTYNIKKYECCTEIIYDPDITYSFIIRRL  
PLFY  
TINLIIPCLLISCLTVLVFYLPSECAEKITLCSVLLSLTVFLLLITEIIPSTSLVI  
PLI  
GEYLLFTMIFVTLIIITVFLVNVHHRSSRTHSMPHWVRQLFLHLVPRYLFMKRPP  
ASGK  
RNCGKLIEMMHKQANSQSMFLRNNILDISPQSPIPHLGPTSAQQDQVQQDSTSPKPL  
FF  
CSSPSSQYSILQEENSQTPQTPVLSYTCAYTNSIFASSTTSFPDTLGLTLLHTIP  
QDGAK  
STECDFQGHSAESVMEAKESVLGAGSCQHCLTSEGTSLQKLDLDEAGRCTRHNMP  
SAQI  
FSPSSDGDSTDLNAAEPVSNLSQSLLKALEGVQYIADHLRAEDSDFSVREDWKY  
VAMVIDR  
IFLWMFVLCILGTVGLFLPPWLAGMI

>Takifugu rubripes\_CHRNA4 (ENSTRUP\_25718)  
TEWISSGLDPPALPHHLHFIWITSSSLAGFSQVAPRAHAERLLQDLFAHYNKLSRP  
VEN  
TTDTVLVHFGLSIAQLIDVDEKNQMMTTNVVVKQEWNDYKLRWNPEEYENVTSIR  
IPSEI  
IWRPDI  
VLYNNADGDFAVTHLTKAQLFYDGRIKWMPPAIYKSSCIDVTFPPFDQQSCKM  
KFGS  
WTYDR  
AKIDLISMASDQMDYWESGEWVIINAVGKYNTKKYECCTEIIYSDITYYFIIRRL  
PLFY  
TINLIIPCLLISCLTVLVFYLPSCGKITLCSVLLSLTVFLLLITEIIPSTSLVI  
PLI  
GEYLLFTMIFVTLIIITVFLVNVHHRSPQTHGMPHWVRRVFLDFVPKVL  
FMKR  
PPGTAKQHCKKLIEMHRPATVSGPSPSPSSPLANCKNDQSLNANTFCQSIGRY  
SLLSEKQLLHGKSAASSSSQLSLPPTLPLGLLHKRTNKNESNTMASIGRSLSVEH  
MFDGQ  
KEAPCRGRYRRRSRFSQYCCCLHDEGAGLTRATWGQKHPADHLVEIIMAESTKDT  
SSLQ  
DFEVSTISPAMQRAIEGVQYIADHLRAEDADFSVKEDWKYVAMVIDRIFLWMFV  
LVCILG  
SVGLFLPPWLAGMI

>Tetraodon nigroviridis\_CHRNA4 (ENSTNIP\_6787)  
IQVAPRARRRRLRDLFAHYNRLSRPVENTTDTVLVHFGLSIAQLIDVDEKNQMMTT  
NVW  
VKQEWNDYKLRWNPEEYENVTSIRIPSEI IWRPDI  
VLYNNADGDFAVTHLTKAQLFYDGR  
IKWMP  
PAIYKSSCIDVTFPPFDQQSCKMKFGS  
WTYDR  
AKIDLISMASDQMDYWESGEWVIINAVGKYNTKKYECCTEIIYSDITYYFIIRRL  
PLFY  
TINLIIPCLLISCLTVLVFYLP  
SQC  
GKITLCSVLLSLTVFLLLITEIIPSTSLVIPLIGEYLLFTMIFVTLIIITVFLV  
NVH  
HRSPQTHGMPHWVRRVFLDFVPKVL  
FMKR  
PPGTAKQHCKKLIEMHRPATVSEVENS  
SSF  
WTGLETELQMGVQKTIKALTDSPSIRISSPSPSSPLVNCNKGNSLNANTFCQ  
SIG  
QYSLSEKLLHGKTAAFSSQLSLPPTLPLGRLHNHTDEESNTIALNGRSLSVE  
HMF  
DDRKEASRPGGYRRRSRFSQYCCCLHDEGVGLTRTTGEMKKQPSADHLGETI  
MAEST  
KDTSSLQNIELSTISPAMQRAIEGVQYIADHLRAEDSDFSVKEDWKYVAMVIDR  
IFLWMF  
LVCILG  
SVGLFLPPWLAGMI

>Gasterosteus aculeatus\_CHRNA4 (ENSGACP\_6142)  
LPPLLSYLVANLCLSRTHVRPRAHAERLLQDLFARYNKLSRPVENTSDTVLVHFGLS  
IA  
QLIDVDEKNQMMTTNVVVKQEWSDYKLRWKPEDYENVSSIRIPSEI IWRPDI  
VLYNNADG  
DFAVTHLTKAHLFHDGRIKWMPPAIYKSSCIDVTFPPFDQQSCKMKFGS  
WTYDR  
AKIDLISMASDQMDYWESGEWVIINAVGKYNTKKYECCTEIIYSDITYYFIIRRL  
PLFY  
TINLI  
IPCLLISCLTVLVFYLPSCGKITLCSVLLSLTVFLLLITEIIPSTSLVIPLIGEYLL  
FTM  
FVTLIIITVFLVNVHHRSPQTHSMPHWVRRVFLDMVPRVLFMKRPPGTAKQHCKK  
LIEM  
HRPTAISATGNLAWYWTGLETGLRQMCQAEALPKTPCDSPSIHVCSPAPPSSPP  
EDCE  
EDDRLLKANLSLPPALPLGPLRSFSQEEPNAAPNGRSLSAEQMFDQQGDL  
SQRAG  
HRCRSRFSQYCCCLHGEGLMAVAGWVKKQAPTNPAGRVGTGKASTQD  
DIVIPTIS  
PAVQRAIEGVQYVADHLRAEDADFSVKEDWKYVAMVIDRIFLWMFVLCILG  
SVGLFL  
PPWLAGMI

>Oryzias latipes\_CHRNA4 (ENSORLP\_1058)  
SSQIEPRAHAERLLQNLFARYNKLSRPVQNTSDTVLVHFGLSIAQLIDVDEKNQMMTT  
N  
VWLKQEWNDYKLRWNPEYENVTSIRIPSEI IWRPDI  
VLYNNH  
SADGDFAVTHLTKAHLF  
YDQIKWMP  
PAIYKSSCIDVTFPPFDQQSCKMKFGS  
WTYDR  
AKIDLISMASDQMDY

ESGEWVIVNAVGYNTKKYECCAIEYADITYYFIIRRLPLFYTINLIIPCLLISCLTVLV  
FYLPSQCGEKITLCSIVLLSLTVFLLLITEIIPSTSLVIPLIGEYLLFTMVVFTLSIIT  
IFVLNVHHRSPQTHGMPHWRRVFLDLVPRVLFMKRPPGTAKQHCKRLIEMMHCPTTISA  
TGNSSQSFWTGLDSELRQMTQVHNSLPKVDSPRILVCSPPSSSPVDDCSEDEHPLKADIF  
CQTPSGQYSPLLEHQALCRHISTTHSAPQLSMPLGPFPCLSREHPSPLARNGRSLSVEQM  
CGKQGQPPQRSARHCRSRSQSFQYCCCLHNDGAAGFTGQTNKTPEQLTETLAAEFKADASTQL  
DNMAPIVSPAMQRAIEGVQYIADHLRAGDADFSVKEDWKYVAMVIDRIFLWMFVLVCILG  
SVGLFLPPWLAGMI

>Homo sapiens\_CHRNA3(ENSP\_315602)  
MGSGPLSLPLALSPPRLLLLLLLLLPPVARASEAEHRLFERLFEDYNEIIRPVANVSDPV  
IIHFEVMSMSQLVKVDEVNQIMETNLWLKQIWNKYKLNWPSDYGGAEFMRVPAQKIWKPD  
IVLYNNAVGDVFQVDDKTKALLKYTGVEVTWIPPAIFKSSCKIDVTYFPFDYQNCMTKFGSW  
SYDKAKIDLVLIGSSMNLKDYWESGEWAIKAPGYKHKDIKYNCCIEIYDPDITYSLYIRRL  
PLFYTINLIIPCLLISFLTVLVFYLPSDCGKVTLCISVLLSLTVFLLVITETIPSTSLV  
IPLIGEYLLFTMI FVFTLSIVITVFVLNVHYRTPHTHTMPVWVKTVFLNLLPRVMFMRPT  
SNEGNAQKPRPLYGAELSNLNCFSRAESKGCKEGYPCQDGMCGYCHHRIKISNFSANLT  
RSSSSSESVDAVLSLSALSPEIKEAIQSVKYIAENMKAQNEAKEIQDDWKYVAMVIDRIFL  
WVFTLVLCILGTAGLFLQPLMAREDA

>Oryctolagus cuniculus\_CHRNA3(ENSOCUP\_4351)  
MGAPPPPPSPVLLLLLLLLLPPVVSASEAEHRLFERLFEDYNEIIRPVANVSDPVI IQFE  
VSMSQLVKVDEVNQIMETNLWLKQIWNKYKLNWPSDYNGAEFMRVPAQKIWKPDIVLYN  
NAVGDVFQVDDKTKALLKYTGVEVTWIPPAIFKSSCKIDVTYFPFDYQNCMTKFGSWSYDKA  
KIDLVLIGSSMNLRDYWESGEWAIKAPGYKHKDIKYNCCIEIYTDITYSLYIRRLPLFYT  
INLIIPCLLISFLTVLVFYLPSDCGKVTLCISVLLSLTVFLLVITETIPSTSLVIPLIG  
EYLLFTMI FVFTLSIVITVFVLNVHYRTPHTHTMPVWVKTVFLNFLPRVMFMRPASDGD  
AQMPELLLAGAELSNLGCGRTEPKACKEGCPCQDGCAGYRHHRRVKMSNFGANLTRSSSL  
ESVDAVLSLSALSPEIREAIRSVQYIAENMKAQNEAKEIQDDWKYVAMVIDRIFLWVFIL  
VCILGTAGLFLQPLMAREDA

>Taeniopygia guttata\_CHRNA3(ENSTGUP\_3582)  
GCGGSEAEHRLYAALFKSYNQFVRPVKNVSDPVI IQFEVMSMSQLVKVDEVNQIMETNLWL  
KHIWNKYKLRWNPADYGGAEFIRVPSGQIWKPDIVLYNNAVGDVFQVDDKTKALLKYTG  
VWIPPAIFKSSCKIDVTYFPFDYQNCMTKFGSWSYDKAKIDLVLIGSTMNLKDYWESGEW  
AIKAPGYKHKDIKYNCCIEIYDPDITYSLYIRRLPLFYTINMIIPCLLISFLTVLVFYLPS  
DCGKVTLCISVLLSLTVFLLVITETIPSTSLVIPLIGEYLLFTMI FVFTLSIVITVFVLN  
VHYRTPKHTMPVWVKTIFLNLPRIMFMRPASDEENNQKPKPLFTSEFSNLNCINGSE  
TKSCKDGFACQDMACSCCQYQRTNSESVDPMLSFSVLSPEMRDAIESVKYIAENMKMQNE  
AKEIQDDWKYVAMVIDRIFLWVFILVCILGTAGLFLQPLMAREDA

>Pelodiscus sinensis\_CHRNA3(ENSPSIP\_19032)  
QTSAPLSLPSTAFSKEVSLILPATLSVSNCSAEHRLFASLFANYSQFIRPVENVSDPA  
IIQFEVMSMSQLVKVDEVNQIMETNLWLKHIWNKYKLNWNPPEYGGAEFIRVPSDSIWKPD  
IVLYNNAVGDVFQVDDKTKALLKYTGVEVTWIPPAIFKSSCKIDVTYFPFDYQNCMTKFGSW  
SYDKAKIDLVLIGSTMNLKDYWESGEWAIKAPGYKHKDIKYNCCIEIYDPDITYSLYIRRL  
PLFYTINMIIPCLLISFLTVLVFYLPSDCGKVTLCISVLLSLTVFLLVITETIPSTSLV  
IPLIGEYLLFTMI FVFTLSIVITVFVLNVHYRTPKHTMPVWVKTIFLNLPRIMFMRPAS  
SDEETTQKPKPLYSVELSDNLNCFSSSETKCKEGFICQDTACSCCRYQRIKFSDFSGNLT  
RSSSYESVDALLSLSVLSPEIRDAIESVKYIAENMKMQNEAKEIQDDWKYVAMVIDRIFL  
WVFILVCILGTAGLFLQPLMAREDA

>Danio rerio\_CHRNA3(ENSDARP\_132461)  
MQLIHFI IASTIQLCVSVSGVCCSEAEHRLFSVIFSSYNQYIRPVENVSDPVVQFEVSM  
SQLVKVDEVNQIMETNLWLRHIWNKYKLRWDPKDFGGVEFIRVPSNKIWKPDIVLYNNAV  
GDFQVDDKTKALLRFGNDVTWIPPAIFKSSCKIDVTYFPFDYQNCMTKFGSWTYDKAKID  
LVLIGSTINLKFWESEGEWTIIDAPGYKHKDIKYNCCIEIYTDITYSLYIRRLPLFYTINM  
IIPCLLISFLTVLVFYLPSDCGKVTLCISVLLSLTVFLLVITETIPSTSLVIPLIGEYL  
LFTMI FVFTLSIVITVFVLNVHYRTPKHTMPVWVKTIFLNLPRIMFMRPASDEENNQKPK  
PLFTSEFSNLNCFSSSETKCKEGFICQDTACSCCRYQRIKFSDFSGNLT  
RSSSYESVDALLSLSVLSPEIRDAIESVKYIAENMKMQNEAKEIQDDWKYVAMVIDRIFL  
WVFILVCILGTAGLFLQPLMAREDA

LGTAGLFLQPLLLGEDM

>Takifugu rubripes\_CHRNA3 (ENSTRUP\_9649)

LLFLLPGGCCSEAEHKLFSVIFSNYNQYIRPVENVTDPVIVQFEVSMSQLVKVDEVNQIM  
ETNLWLRHIWNDYKLRWPKEYGGVEYIRVPSSRIWKPDIVLYNNAVGDVQVDDKTKALLR  
YNGDVTWIPPATFKSSCKIDVTYFPFDYQNCMTKFGSWTYDKAKIDLVLIGSTMNLKDFW  
ETGDWLIIDAPGYKHDIKYNCCCEIYTDITYSLYIRRLPLFY TINLIIPCLLISFLTIVL  
FYLPSCDCGEKVTLCISVLLSLTVFLLVITETIPSTSLVIPLIGEYLLFTMI FVTL SIVIT  
VFVLNVHYRTPKTHTMPCWVRAVFLLELLPRVMFMTRPERHAFQVLRRLPLSNTELSNLNLL  
SGDPSKGSTSLCCEGRCNCCWYQSRSGSVAKVSGGSQRSSSESLNGGLMPLPLSPEVRE  
AIESVRYIAENMRLQNEAKEVQDDWKYVAMVIDRIFLWVFLVLCILGTAGLFLQPLLLAE  
DI

>Tetraodon nigroviridis\_CHRNA3 (ENSTNIP\_2840)

LLFRLPGGSCSEAEHKLFSVIFSNYNQYIRPVENVTDPVIVQFEVSMSQLVKVDEVNQIM  
ETNLWLRHIWNDYKLRWNPKKEYGGVEYIRVPSSRIWKPDIVLYNNAVGDVQVDDKTKALL  
RYNGDVTWIPPATFKSSCKIDVTYFPFDYQNCMTKFGSWTYDKAKIDLVLIGSTMNLKDF  
WETGDWLIIDAPGYKHDIKYNCCCEIYTDITYSLYIRRLPLFY TINLIIPCLLISFLTIVL  
VFYLPSCDCGEKVTLCISVLLSLTVFLLVITETIPSTSLVIPLIGEYLLFTMI FVTL SIVI  
TVFVLNVHYRTPKTHMPRVVRAVFLLELLPRVMFMIRPEREPEQGRGAGNAQDMHPRSCS  
VHSSELSNLNLLSGDLTKGSTSLCCEGRCNCCWYQSRKVSQSSSDSLNGGLMPQLP  
LSPEVREAIESVRYIAENMRLQNEAKEVQDDWKYVAMVIDRIFLWVFLVLCILGTAGLFL  
QPLLLAEDI

>Gasterosteus aculeatus\_CHRNA3 (ENSGACP\_21875)

AEHKLFSVIFSSYNQYIRPVENVTDPVVVQFEVSMSQLVKVDEVNQIMETNLWLRHIWND  
YKLRWNPKDFGGVDFIRVPSNRIWKPDIVLYNNAVGDVQVDDKTKALLRFNGDVTWIPPA  
IFKSSCKIDVTYFPFDYQNCMTKFGSWTYDKAKIDLVLIGSTINLKDFWESGEWTIIDAP  
GYKHDIKYNCCCEIYTDITYSLYIRRLPLFY TINMIIPCLLISFLTIVLVFYLPSCDCGEKI  
TLCISVLLSLTVFLLVITETIPSTSLVIPLIGEYLLFTMI FVTL SIVITVFVLNVHYRTP  
KTHTMPCWVRTVFLGLLPRVMFMTRPETDAERVLAAAGDVQTTHLRPCAIHPSGALQKQH  
KPQAPPPSVVSSLTNRQRLFNTELSDLNLSGDPKAGSALLCCKGHCNCCWRQRSS  
KLPADSGGGSGGLGSMGALSGGSVAVGGGSHCSSSESVAGGTMSMLPLSPEVQEAIESVKY  
IAENMRLQNEAKEVQDDWKYVAMVIDRIFLWVFLVLCILGTAGLFLQPLLLWDDI

>Homo sapiens\_CHRNB4 (ENSP\_261751)

MRRAPSLVLFVVALCGRGNCRVANAEKLMDDLKTRYNNLIRPATSSSQLISIKLQL  
SLAQLISVNEREQIMTNTVWLKQEWTDYRLTWNSRYEGVNI LRIPAKRIWLPDIVLYNN  
ADGTYESVYTNLIIVRSNGSVLWLPPIAYKSACKIEVKYFPFDQONCTLKFRSWTYDHTE  
IDMVLMTPTASMDDFTPSGEWDIVALPGRRTVNPQDPSYVDVYDFI IKRKPLFY TINLI  
IPCVLTTLLAILVFLYLPSCDCGEKMTLCISVLLALTFLLLLISKIVPPTSLDVPLIGKYL  
FTMVLVTFISIVTSVCVLNVHHRSPSTHTMAPWVKRCFLHKLPTFLFMKRPGPDSSPARAF  
PPSKSCVTKPEATATSTSPSNFYGNMYSFVNPAASASKSPAGSTPVAI PRDFWLRSSGRF  
RQDVQEALEGVSFIAQHMKNDDEDQSVVEDWKYVAMVVDRLFLWVFMFVCVLGTVGLFLP  
PLFQTHAASEGPYAAQRD

>Danio rerio\_CHRNB4 (ENSDARP\_139554)

XGVCADSEERLMNWLLGKHRYNKLIRPALNRTERVTLLQVSLAQLISVNEREQIMTNTV  
WLTQNWNDYRLSWDPAEYEGIDKLRIPSRHIWLPDIVLYNNADGTYEVTVFTNAIVLFNG  
SIAWLPPAIYKSACKIEVKHFPFDQONCTLKFRSWTYDHTEIDLLLKSDAASMDDFTPSG  
EWDILALPGRRTVSPLDATYVDLTYDFI IKRKPLFY TINLIIPCVLITSLAILVFLYLP  
SCDCGEKMTLCISVLLALTVFLLLLISKIVPPTSLDVPLIGKYLMTMVLVTFSIITSVCLNV  
HHRSPSTHMPAVWKIVFLVRLPALLFMQRPRGHSARQLRQRNRLGLADTPGRSVMCS  
SASALLAASSASALSSPGLLYNKGHFGSRRAEGLNNGHGSADLKGNRLYCEWGSEIQEA  
VDGVRYVADHMMGNDDQSVIEDWKYVAMVVDRLFLWIFVIVCVVGTGLGLFLQPLFQNT  
LAIQQPNTPEPARRDGM

>Takifugu rubripes\_CHRNB4 (ENSTRUP\_9641)

LWGRMNTVLSLNSLIYHGVPSGCRCADSEERLMNWLLGKNRYNPLIRPASNRTERVPVKL  
QVSLAQLISVNEREQIMTNTLWLMQHWVDYRLSWDPAKYEGINKLRIPSRLIWLPDIVLY  
NNADGTYEVTVFTNAIVLFNGSINWLPPAIYKSACKIEVKHFPFDQONCTLKFRSWTYDR



TEIDLVLKTDAAASMDDFTPSGEWDILALPGRRTVNPPLDPTYVDLTYDFI IKRKPLFY TIN  
LIIPCILITSLAILVFYLPSPDCGEKMTLCISVLLALTVFLLLI SKIVPPTSLDVPLIGKY  
LMFTMVLVTF SIIITSVCVLNVHHRSPSTHTMPSWVKLI FLVKLP SLLFIRRPQNN SARQR  
LQSQRCAKRDILGLGCQPKSSITMLSSALLSPGSVFSTPGQKNVAPSLSLNITQNLQQ  
SSGADWAADVQEALSGVRFVAEHMMEDDDDQSVIEDWKYVAMVVD RMFLWIFVIVCVVGT  
LGLFLQPVFQNPITPIQQPSSDM

>Gasterosteus aculeatus\_CHRNB4 (ENSGACP\_21862)

FGCEYTTCAFKLWNINVS PGRCAESEERLMNWLLGKDRYNLLIRPAVNRTERV PVKLQV  
SLAQLISVNEREQIMTTNVWLTQHWVDYRLSWDPAKYEGIDKLRIPSRHIWLPDIVLYNN  
ADGTYEVTVF TNAIVIFNGSINWLPPAIYKSACKIEVKHF PFDQONCTLKFRSWTYDHTE  
IDLILKSEVASMDDFTPSGEWDILALPGRRTVNPPLDPTYVDLTYDFI IKRKPLFY TINLI  
IPCVLITSLAILVFYLPSPDCGEKMTLCISVLLALTVFLLLI SKIVPPTSLDVPLIGKYL  
FTMVLVTF SIIITSVCVLNVHHRSPSTHTMPSWVKLI FLVKLPALLFMRRPQNN SASQRLR  
RQRCLRARKSIGSSGYPDAAKTGFI LSPSALKGDLRSTDYIPSGQDLKQSTSSDWAADVQ  
EAVNGVRFVAEHMMGDDDDQSVIEDWKYVAMVVD RMFLWIFVIVCVVGT LGLFLQPVFQT  
QIVPNQQ

>Oryzias latipes\_CHRNB4 (ENSORLP\_16438)

CKSADSEERLMNMLLGKHYRNPLIRPAINRTERVEVKLQVSLAQLISVNEREQIMTTNVW  
ITQHWVDYRLSWDPAKYEGIQKLRIPSRHVWLPDIVLYNNADGIYEVTVFTNVIVLFNGS  
VNWLPPAIYKSACKIEVKHF PFDLQONCTLKFRSWTYDHTEIDLILKSEAASMDDFTPSGE  
WDIIALPGRRTVNPDPPTYVDLTYDFI IKRKPLFY TINLIIPCILITSLAILVFYLPSPDC  
GEKMTLCISVLLALTVFLLLI SKIVPPTSLDVPLIGKYL MFTMVLVTF SIIITSVCVLNVH  
HRSPSTHTMPSWVKLI FLKLPALLFMKRPNNFSGCQRLRQQRCLRARRSILGLDYPNAS  
KACFTLSSSALLPDSAFSTPRHKNLAPTMGYGLSRRKGDLSSSDYPHISLTP TQDYQQK  
CKSDWTADVKEAVKGVRFVAEHMMADDDDDQSVIEDWKYVAMVVD RMFLWIFVIVCVVGT  
LGLFLQPLFQSQMITSQQPSSDKPRI

>Homo sapiens\_CHRNB1 (ENSP\_304290)

MTPGALLMLLGALGAPLAPGVRGSEAEGRLEKLFSGYDSSVRPAREVGD RVRVSVGLIIL  
AQLISLNEKDEEMSTKVYLDLEWTDYRLSWDPAEHDGIDSLRITAE SVWLPDVVLLNNND  
GNFDVALDISVVSSDGSVRWQPPGIYRSSCSIQVTFYFPFDWQONCTMVFSSYSYDSSEVS  
LQTGLGPDGQGHQEIHIHEGTFIENGQWEI IHKPSRLIQPPGDPRGGREGQRQEVIFYLI  
IRRKPLFYLVNVIAPCILITLLAIFVFYLP PDAGEKMGLSIFALLTLTVFLLLLADKVPE  
TSLSVPIIIKYL MFTMVLVTF SVILSVVVLNLHHRSPH THQMPLWVRQIFIHKLPLYLRL  
KRPKPERDLMPEPPHCSSPGSGWGRGTDEYFIRKPPSDFLFPKPNRFQPELSAPDLRRFI  
DGNRAVALLPELREVVSSISYIARQLQE QEDHDALKEDWQFVAMVVDRLFLWTFIIFTS  
VGTLVIFLDATYHLPPPDPFP

>Gorilla gorilla\_CHRNB1 (ENSGGOP\_22459)

MTPGALLMLLGALGAPLAPGVRGSEAEGRLEKLFSGYDSSVRPAREVGD RVRVSVGLIIL  
AQLISLNEKDEEMSTKVYLDLEWTDYRLSWDPAEHDGIDLLRITAE SVWLPDVVLLNNND  
GNFDVALDISVVSSDGSVRWQPPGIYRSSCSIQVTFYFPFDWQONCTMVFSSYSYDSSEVS  
LQTRLGPDGQGHQEIHIHEGTFIATSSLSYLPQYIIVIEKSVFEWPGNMITDYAIELS  
FSSALQGEKMGLSIFALLTLTVFLLLLADKVPE TSLSVPIIIKYL MFTMVLVTF SVILSV  
VVVLNLHHRSPH THQMPLWVRQIFIHKLPLYLRLKRPKPERDLMPEPPHCSSPGSDWGRGT  
DEYFIRKPPSDFLFPKPNRFQPELPAPDLRRFIDGNRAVALLPELREVVSSISYIARQL  
QE QEDHDALKEDWQFVAMVVDRLFLWTFIIFTSVGT LVIFLDATYHLPPPDPFP

>Mus musculus\_CHRNB1 (ENSMUSP\_47270)

MALGALLLLLGLVLTPLAPGARGSEAEGLIKKLF SNYDSSVRPAREVGD RGVSIGLTL  
AQLISLNEKDEEMSTKVYLDLEWTDYRLSWDPAEHDGIDSLRITAE SVWLPDVVLLNNND  
GNFDVALDINVVVSFE GSVRWQPPGLYRSSCSIQVTFYFPFDWQONCTMVFSSYSYDSSEVS  
LKTGLDPEGEERQEVYIHEGTFIENGQWEI IHKPSRLIQLPDQRRGKKEGHHEEVIFYLI  
IRRKPLFYLVNVIAPCILITLLAIFVFYLP PDAGEKMGLSIFALLTLTVFLLLLADKVPE  
TSLAVPIIIKYL MFTMVLVTF SVILSVVVLNLHHRSPH THQMFPWVRQIFIHKLPPYLGL  
KRPKPERDQLPEPHSLSRSGWGRGTDEYFIRKPPSDFLFPKLNRFQPESSAPDLRRFI  
DGPTRAVGLPQELREVISSISYMARQLQE QEDHDALKEDWQFVAMVVDRLFLWTFIVFTS  
VGTLVIFLDATYHLPPPDPFP

>Danio rerio\_CHRNB1(ENSDARP\_92302)  
MKAQDWIIVTCCCLCGLGAMTGATEMEDKLMKKLFSAYNSKVRPARNPEERVVVRIGMILS  
SFVSLNMKDEEMNTIVMMNLEWNDYRLSWNP KDYGGVDVLRISGKVWLPDIVLINNNDG  
VFGVALQVHVQAYSNGRVTWTPPALYKSSCGVKVTYFFFDWQNCMTVFRSYTYDSSEVDL  
QHALDKRGKEIKEIILDTFSESGEWHIRHKVSRKNVREDLYEDITFYLI IERKPMFYVV  
NIVLPCILITIIAIFNFYLPDAGEKMGLSINVLLTLTVFLLLLANKIPETSLGVPI IVN  
YLMITMILVTFSVILSVVVLNLHHRSPNTHQMP LWRKIFIHMLPPYLGMLRPKVETPLF  
LEKPAKKENIQAISRVADEYFIRKPSNMNFLFPKPHRYQPDGQCTDLRKFIDGPSHYLTL  
PPELKTAVEAITYIAEQQAQEKDYEALKEDWQYVAMVADRFLFLWIFVI FTTLGTLGIFTD  
ASFNATPTDPFF

>Takifugu rubripes\_CHRNB1a(ENSTRUP\_10238)  
STMKYLLLLPLSCCLSLIPLGGASEVEKTLMKTLFSNYTLKVRPAISPEQRVVVRVGMIL  
LSSFVGLNMKNEEMSTIVMMNLEWTDYRLSWSPKQYGGIEVLRIPSGKVWLPDIVLINNNDG  
VGFHVALHVHVQVYNSGRVTWTPPALYCSSCGVKVEYFFFDWQNCMTVFRSYTYDSTEI  
DVQYALNLRGQEIREIQLDEAFTEGGEWYIKHRPSRKVMLDDEYEGMVFYLI IERKPLY  
VLNIIILPCILITIIAIFNFYLPDAGEKMGLSINVLLTLTVFLLLLLADKIPETSLGVPI I  
VNYIMLTMLVTFSVILSVVVLNLHHRSPNTHQMPMWRKIFIHLLPPYLCMMRPKVEAP  
LYLEALPRREKVTTVSKVADEYFIRKPDMSVLFPKPNRFHSEGLCTDLRKFIDGPSSYL  
SLPEELKSAIEAITYIAEALQAQEKDYEALKKDWQYVAMVDRMFLWIFVI FTTVGT LAIF  
AEASFNRAPANPFF

>Takifugu rubripes\_CHRNB1b(ENSTRUP\_10240)  
TSYLLFTQLIFGVLLLLAGASEVEKTLMKTLFSNYTLKVRPAISPEQRVVVRVGMILSSF  
VGLNMKNEEMSTIVMMNLEWTDYRLSWSPKQYGGIEVLRIPSGKVWLPDIVLINNNDGVF  
HVALHVHVQVYNSGRVTWTPPALYCSSCGVKVEYFFFDWQNCMTVFRSYTYDSTEIDVQY  
ALNLRGQEIREIQLVYNI SPEGGEWYIKHRPSRKVMLDDEYEGMVFYLI IERKPLYV  
VLNIIILPCILITIIAIFNFYLPDAGEKMGLSINVLLTLTVFLLLLLADKIPETSLGVPI I  
VNYIMLTMLVTFSVILSVVVLNLHHRSPNTHQMPMWRKIFIHLLPPYLCMMRPKVEAPLYL  
EALPRREKVTTVSKVADEYFIRKPDMSVLFPKPNRFHSEGLCTDLRKFIDGPSSYLSL  
PEELKSAIEAITYIAEALQAQEKDYEALKKDWQYVAMVDRMFLWIFVI FTTVGT LAIF  
AEASFNRAPANPFF

>Tetraodon nigroviridis\_CHRNB1(ENSTNIP\_8624)  
AFEVESALLKNLFSNYTLKVRPAVSPEQRVVVRVGMILSSFVGLNMKNEEMSTIVMMNLE  
WTDYRLSWSPKDYDGI E VLRIPSGKIWLPDIVLINNNDGVFEVALQVHVQVYNSGRVTW  
TPPALYCSSCGVKVEYFFFDWQNCMTVFRSYTYDSTEIDIQYALDSKGREIKEIQ LDEAYT  
EGGEWYIKHRPSRKVMLDDEYEGMVFYLI IERKPLYVVLNIIILPCILITIIAIFNFYLP  
DAGEKMGLSINVLLTLTVFLLLLLADKIPETSLGVPI IVNYIMFTMILVTFSVILSVVLR  
LHHRSHNTHQMPMWRKIFIHLLPPYLCMMRPQVETPLYLEVLPREKKIPASSKVADEYF  
IRKPDLSVLFPKPNRFHSDGLCTDLRKFIDGPSSYLSLPEELKSAIEAITYIAEALQAQ  
EKDYEALKKDWQYVAMVDRMFLVLFVI FTTVGT LAIF TQASFNRS PGNPFVTPDTWFL

>Gasterosteus aculeatus\_CHRNB1(ENSGACP\_26349)  
PLCPTGASDMEKTLKLLKLF TDYNLKV RPASSPEERVVVRVGMVLSSFVGLNMKNEEMSTI  
VMMNLEWTDHRLSWKREEYDGI E VMRI PAGKVWLPDIVLINNNDGVFDVALHVHVQAYS  
N GRVTWTPPALYCSSCGVKVTYFFFDWQNCMTVFRSYTYDSTEIDVQYALDSKRNEIREIQ  
LDEAYTEGGEWT IKHKPCRKNMNDQYEVMTFYLI IERKPLYVVLNIIILPCILITIIAIF  
NFYLPDAPAGEKMGLSINVLLTLTVFLLLLLADKIPETSLGVPI IVNYIMFTMILVTFSV  
ILSVVVLNLHHRSPSTHMPMWRKIFIHLLPPYLYMLRPKVETPLSLEFMPREKVVFT  
ISKADEYFIRKPDSSILFPKPNRFHPEGMCTDLRKYIDGPSSYLTLPDELKSAIEAITFI  
AEALQAQEKDFEALREDWQYVAMVDRMFLWIFVI FTTVGT LAIFADASFHRTPTDPFK

>Oryzias latipes\_CHRNB1(ENSORLP\_4440)  
MTLFFVGHGLGVPYRSRLLGAAQVEQALMKSLFSDYNLKV RPAHVPE SRVVVRVGMILSS  
FVGLNMKNEEMSTIVMMNLEWTDYRLTWNPKQHDG IKMLRVPSGKVWLPDIVLINNNDGV  
FDVALRVHVLVYSDGRITWTPPALYLSGCGVKVTYFFFDWQNCMTVFRSYTYDSTEIDLQ  
YALDSKGEIREIQ LDEGFSESGEWHIRHKPSRKIMKDDLYEEMTFYLI IERKPLYFN  
FYLPDAGEKMGLSINVLLTLTVFLLLLLADKIPETSLGVPI IVKYIMFTMILVTF SVILSV  
VLNLHHRSPNTHMMPMWRKIFIHLLPPYLFMRPKQENLQYLESVPREMKVMAISKAA  
DEYFIRKPDSSILFPKPNRFHSDGMYTDLRKFIDGPSTYLALPDELKTAIDAITYIAEAL

QAEKDYEALKEDWQFVAMVVDRLMFLWIFVVF<sup>T</sup>TLGLT<sup>L</sup>AI<sup>F</sup>IDAS<sup>F</sup>NHT<sup>P</sup>KDP<sup>F</sup>K

>Homo sapiens\_CHRNE (ENSP\_293780)

MARAPLGVLLLLLGLLGRGVGKNEELRLYHHLFN<sup>N</sup>YDPGSRPVREPEDT<sup>V</sup>TISLKVTL<sup>T</sup>NL  
ISLNEKEETL<sup>T</sup>TSVWIGIDWQDYRLNYSKDDFGG<sup>I</sup>ETLRVPSELVWLPEIVLENNIDGQ<sup>F</sup>  
GVAYDANVLVYEGGSVTWLPPAIYRSVCAVEV<sup>T</sup>YFPFDWQNC<sup>S</sup>LIFRSQTYNAEEVEFT<sup>F</sup>  
AVDNDGKTINKIDIDTEAYTENG<sup>E</sup>WAIDFCPGVIRRHGGATDGPGETDVIYSLI<sup>I</sup>RRKP  
LFYVINIIVPCVLISGLVLLAYFLPAQAGGQK<sup>T</sup>VSINVLLAQTVFLFLIAQKI<sup>P</sup>ETSLS  
VPLLGRFLIFVMVATLIVMNCVIVLNVSQR<sup>T</sup>P<sup>T</sup>THAMSPRLRHVLELLPRL<sup>L</sup>GSPPPP  
EAPRAASPPRRASSVGLLRAEELILKKPRSEL<sup>V</sup>FEQRRHQGTWTA<sup>A</sup>FCQSLGAAAPE<sup>V</sup>  
RCCVD<sup>A</sup>VNFVAESTRDQEATGEEVSDWVRMGNALDNIC<sup>F</sup>WAALVLF<sup>S</sup>VGSSLI<sup>F</sup>LGAY<sup>F</sup>N  
RVPDL<sup>P</sup>YAPCIQ<sup>P</sup>

>Mus musculus\_CHRNE (ENSMUSP\_99616)

MAGALLGALLLLTLFGRSQGKNEELSLYHHLFD<sup>N</sup>YDPECRPVRRPEDT<sup>V</sup>TITLKVTL<sup>T</sup>NL  
ISLNEKEETL<sup>T</sup>TSVWIGIDWDYRLNYSKDDFAG<sup>V</sup>GILRVPSEHVWLPEIVLENNIDGQ<sup>F</sup>  
GVAYDSNVLVYEGGYVSWLPPAIYRSTCAVEV<sup>T</sup>YFPFDWQNC<sup>S</sup>LIFRSQTYNAEEVEF<sup>I</sup>F  
AVDDDGNTINKIDIDTAAFTENG<sup>E</sup>WAIDYCPGMIRRYEGGSTEGPGETDVIY<sup>T</sup>LI<sup>I</sup>RRKP  
LFYVINIIVPCVLISGLVLLAYFLPAQAGGQK<sup>T</sup>VSINVLLAQTVFLFLIAQKI<sup>P</sup>ETSLS  
VPLLGRYLIFVMVATLIVMNCVIVLNVSLR<sup>T</sup>P<sup>T</sup>HATSPRLRQILLELLPRL<sup>L</sup>GSPPPP  
EDPRTASPARRASVGLILLRAEELILKKPRSEL<sup>V</sup>FEQRRHGTWTAALCQNLGAAAPE<sup>I</sup>  
RCCVD<sup>A</sup>VNFVAESTRDQEATGEELSDWVRMGKALDNV<sup>C</sup>FWAALVLF<sup>S</sup>VGSTLI<sup>F</sup>LGAY<sup>F</sup>N  
QVPDL<sup>P</sup>YPPCIQ<sup>P</sup>

>Bos taurus\_CHRNE (ENSBTAP\_42804)

MAGALLCALLLLQLLGRGEGKNEELRLYHYLFD<sup>T</sup>YDPGRRPVQEPEDT<sup>V</sup>TISLKVTL<sup>T</sup>NL  
ISLNEKEETL<sup>T</sup>TSVWIGIDWQDYRLNYSKGD<sup>F</sup>GGVETLRVPSELVWLPEIVLENNIDGQ<sup>F</sup>  
GVAYEANVLVSEGGYLSWLPPAIYRSTCAVEV<sup>T</sup>YFPFDWQNC<sup>S</sup>LIVFRSQTYNAEEVEF<sup>V</sup>F  
AVDDEGKTISKIDIDTEAYTENG<sup>E</sup>WAIDFCPGVIRRHGDSAGGPGETDVIYSLI<sup>I</sup>RRKP  
LFYVINIIVPCVLISGLVLLAYFLPAQAGGQK<sup>T</sup>VSINVLLAQTVFLFLIAQKI<sup>P</sup>ETSLS  
VPLLGRYLIFVMVATLIVMNCVIVLNVSLR<sup>T</sup>P<sup>T</sup>HAMSPRLRYVLELLPQL<sup>L</sup>GSAPP  
EIPRAASPPRRASSLGLLRAEELILKKPRSEL<sup>V</sup>FEQRRHGTW<sup>T</sup>ATLCQNLGAAAPE<sup>I</sup>  
RCCVD<sup>A</sup>VNFVASSTRDQEATGEEVSDWVRMGKALD<sup>S</sup>ICFWAALVLF<sup>L</sup>VGSSLI<sup>F</sup>LGAY<sup>F</sup>N  
RVPQL<sup>P</sup>YPPCM

>Danio rerio\_CHRNE (ENSDARP\_116514)

MAVAERFGRTCVAIALLATVLQVTGNEESQLIAD<sup>K</sup>FKNYSKNIRPARHADEKVKVQV<sup>K</sup>L  
TLTNLISLNEKEETL<sup>T</sup>TNVWIEIQWHDYRLAWNT<sup>S</sup>EYHDIEQIRVPPYTVWL<sup>P</sup>DIVLENN  
IDGKFDVAYYANVLISDGS<sup>M</sup>YWLPPAIYRSTCAIEI<sup>T</sup>YFPFDWQNC<sup>T</sup>LIVFRSQTY<sup>S</sup>ANE  
IDIVLAEDENGKPIEWVDIDPEAFTENG<sup>E</sup>WAIK<sup>H</sup>RPARKLTNQRYS<sup>P</sup>DDLEYQEY<sup>Y</sup>NI  
IQRKPLFYVINIILPCSLISSLVVLAYFLPAQ<sup>A</sup>GGQKLT<sup>V</sup>SISVLLAQTVFLILISQ<sup>K</sup>IP  
ETSLSVPLIGKYLI<sup>F</sup>VM<sup>S</sup>MTTLIVTNCII<sup>V</sup>LNYSLRSP<sup>S</sup>THNMSQS<sup>I</sup>KHIFLEV<sup>V</sup>PRYL<sup>G</sup>  
MAPFVDEGDQGGVYEMRERRRSSFGLMQRAE<sup>E</sup>YVLKQPRSEMM<sup>F</sup>DKQ<sup>R</sup>ERHGLMRTI<sup>V</sup>DE  
IDVSSTANLYKSLAKTAPEIKECVDAC<sup>N</sup>FIAESTKQ<sup>Q</sup>NDT<sup>G</sup>SEMESWV<sup>L</sup>IGKMI<sup>D</sup>KVCF<sup>W</sup>  
AAISLFSIGTIAIFLMGHYNQAPEY<sup>P</sup>FAWENK<sup>K</sup>YV<sup>P</sup>E

>Takifugu rubripes\_CHRNE (ENSTRUP\_41477)

SLLGSQLVSLFRAVQ<sup>S</sup>NEETELIKDLFKDYNK<sup>N</sup>IRPVVHPEDKVEVQIKLTL<sup>T</sup>NLISL<sup>N</sup>  
EKEETL<sup>T</sup>TNVWIEIQWLDYRLSWNESKYYGIQ<sup>V</sup>IRV<sup>P</sup>CKTVWL<sup>P</sup>DIVLENNIDGKFDV<sup>A</sup>Y  
YANVLISSNGW<sup>M</sup>YLPPAIYRSTCSIEI<sup>T</sup>YFPFDYQ<sup>N</sup>CTLA<sup>F</sup>RSQTY<sup>S</sup>ANEVDLILAL<sup>T</sup>E  
ENGTIEWVDIDPEAFTENG<sup>E</sup>WAI<sup>V</sup>HRPARKM<sup>V</sup>NMRYS<sup>P</sup>DDLEYQEILFNL<sup>V</sup>IQRKPL<sup>F</sup>YI  
INLILPCSLISSLVVLAYFLPAQAGGQKLT<sup>V</sup>SISVLLAQTVFLFLIAQK<sup>V</sup>PETSLSV<sup>P</sup>LI  
GKYLI<sup>F</sup>VMCV<sup>T</sup>TLIATN<sup>Q</sup>IVVLN<sup>F</sup>SLRSP<sup>N</sup>HTMSQ<sup>T</sup>IKHV<sup>F</sup>LEMV<sup>P</sup>RFLC<sup>M</sup>PLV<sup>D</sup>ESE  
ATTEVNGIRERRRSSFGLMQRAE<sup>E</sup>YVLKQPRSEMM<sup>F</sup>DKQ<sup>R</sup>ERHGLTTAN<sup>L</sup>YKSLAQAA<sup>P</sup>E  
IKQ<sup>C</sup>VDAC<sup>N</sup>FIA<sup>D</sup>SKRQ<sup>N</sup>TIGSEIESWV<sup>L</sup>IGKMI<sup>D</sup>KVCF<sup>W</sup>AAI<sup>L</sup>LLFI<sup>I</sup>GTVAIFLM<sup>G</sup>H  
NRAPDFPFP<sup>G</sup>Q<sup>N</sup>KK

>Tetraodon nigroviridis\_CHRNE (ENSTNIP\_14726)

NEETELIKDLFKDYNKKIRPVVHPEDKVEVQIKL<sup>T</sup>TLN<sup>L</sup>ISLNEKEETL<sup>T</sup>TNVWIEIQ<sup>W</sup>I  
DYRLSWNESEYYGINI<sup>R</sup>VP<sup>C</sup>KT<sup>V</sup>WL<sup>P</sup>DIVLENNIDGKFDVAYYANVLVSSNG<sup>M</sup>YWL<sup>P</sup>  
AIYRSTCAIEI<sup>T</sup>YFPFDYQ<sup>N</sup>CTLA<sup>F</sup>RSQTY<sup>S</sup>ANEVELILTIGEKNETIEWVDIDPEAF<sup>T</sup>E

NGEWAIVHRPARKVINTRYSPDDLEYQEIMFNLVIQRKPLFYIINVILPCSLISSLVVLA  
YFLPAQAGGQKLTVSISVLLAQTVFLFLIAQKVPETSLSVPLIGKYLIFVMCVTTLIATN  
QIVVLNFSRLRSPSTHTMSQTIKHVFLELVPRLCMPPLVDEGEATAVNGIRERRRSSFG  
LMQRAEEYVLKQPRSEMMFDKQRERHGLTRRSIVDNIDVTSTANLYKSLAQAAPEIKQCVD  
ACNFIADSIRQONTIGSEIENWVLIGKMKDKVCFWAAILLFIIGTVAIFFMGHFNRAPDF  
FPFGEDKKYVPS

>Gasterosteus aculeatus\_CHRNE (ENSGACP\_26955)

MAESRFWIFFGVAVLGLTLARVQCNEESELIRDLFKGYNKNIRPVVHPEDKLTIQIKLT  
LTNLISLNEKEETLTTNVWIEIQWVDYRFVWNTSNYHGIDVIRVPCKTIWLPDIVLENNI  
DGKFDVAYYANVLISYDGSMYWLPPIAYRSTCAIEITYFFFDYQNTLAFRSQTYANEV  
DLILAVGDEMETIEWVDIDPQAFTENGWEAIVHRPGRKMINPRYTPDDLEYQEILFNLVI  
QRKPLFYIINIILPCSLISSLVVLAFLPAQAGGQKLTVSISVLLAQTVFLFLIAQKIP  
TSLSVPLIGKYLIFVMSVTTLIATNQIVVLNFSRLRSPSTHTMSNTIKHVFLEMVPRFLGM  
PPLVDDTEVTTVNGVRRRRSSFGLLQRAEEYVLKQPRSEMMFDKQRERHGLTRRSIVDD  
MDVSSTANLYKSLAQAAPEIKQCVDACNFIAESTRQQNSIGSEIESWVLIGKMKDKVCFW  
AAISLFIIGTVWIFLTGHFNRAPEFPFPGQSKKYVPS

>Oryzias latipes\_CHRNE (ENSORLP\_10079)

MPVFSSPLLQYIMIEIVHCNEESQLIGDLFRNYNKNIRPVEHPEDKVQVMIKLTLTNLIS  
LNEKEETLTTNVWIEIQWTDYRLVWNTSQYYGIKTRVPYNTVWLPDIVLENNIDGKFDV  
AYYANVLISNEGWMYWLPPIAYRSTCAIEITYFFFDYQNTLAFRSQTYSAKEVDLVLAT  
GDEDVTIEWVDIDPEAFTENGWEAIVHRPARKVINTRYSPDDLEYQEIIIFNLVIQRKPLF  
YIINVILPCSLISSLVVLAFLPAQAGGQKLTVSISVLLAQTVFLFLIAQKTPETSLAVP  
LIGKYLIFVMCVTTLIATNQIVVLNFSRLRSPSTHTMSYSIKHLCELMVPRFLGMSPLVDD  
SEVTAEVNGIRERRRSSFGLMQRAEEYVLKQPRSEMMFDKQRERHGLTRRSIVDNIDVSS  
TANLYKSLAQAAPEIKQCVDACNFIAESTKQQNDIGSVXESWVLIGKMKDKVCFWAAMLLF  
SGTVGIFLTGHVKNKAPEFPFPGEDKKYVP

>Homo sapiens\_CHRNA5 (ENSP\_299565)

MAARGSGPRALRLLLVQLVAGRCGLAGAAGGAQRGLSEPSSI AKHEDSLKDLFQDYER  
WVRPVEHLNDKIKIKFGLAISQLVDVDEKNQLMTTNVWLKQEWIDVKLRWNPDDYGGIKV  
IRVPSDSVWTPDIVLFDNADGRFEGTSTKTIVIRYNGTVTWTTPANYKSSCTIDVTFPF  
LQNC SMKFGSWTYDGSQVDIILEDQDVKRDFFDNGEWEIVSATGSKGNRTDSCWYPYV  
TYSFVIKRLPLFYTLFLIIPCIGLSFLTIVLVFYLP SNEGEKICLCTSVLVSLTVFLLVIE  
EII PSSSKVIPLIGEYLVFTMIFVTL SIMVTVFAINIHRSSSTHNAMAPLVRKIFLHTL  
PKLLCMRSHVDRYFTQKEETESGSGPKSSRNTLEAALDSIRYITRHMKENDVREVVEDW  
KFIAQVLD RMFLWTF LFVSVIGSLGLFVPVIYKWANILIPVHIGNANK

>Xenopus tropicalis\_CHRNA5 (ENSXETP\_51511)

MPWCAEYLLWFLCLDLIHGACGISEPSYIAKSEDRLFKYL FQQQDYQRWVRPVEHLNDT  
VKVKFGLAITQLVDVDEKNQLMTTNVWLKQEWVDVKLRWDPNEFAGITSIRVPSDSIWIP  
DIVLYDNADGRFEGSVTKAVVRYDGTINWTPPANYKSSCTIDVTFPFDLQNC SMKFGSW  
TYDGSQVDIILEDYHVDKRDFFDNGEWEIVNATGNKGNRTDGCCFYPIITYSFIKRLPL  
FYTLFLIIPCIGLSFLTIVLVFYLP SNEGEKISLCTSVLVSLTVFLLVIEEII PSSSKVIP  
LIGEYLVFTMIFVTL SIVLTVFAINIHRSSATHNAMAPWVRKIFLHKLKLLCMRSHVD  
RYFTRKDETGKVRGPESSRNTLEAALDSIRYITRHMVKEHEVQEVVEDWKFVAQVLD RMF  
LWTFLLVSVIGSLFLFIPVIHKWANIIVPVHIGNMYGDKNT

>Danio rerio\_CHRNA5 (ENSDARP\_136216)

MVTALS LVRALLPLVCSAVLCSAIGPPMLSSYAKTEDKLFKHLFSNYQKWVRPIEDLNTT  
IQVKFGLAISQLVDVDEKNQLMTTNVWMKQEWTDLKL RWDPDHYLGITSIRVPSDSIWIP  
DIVLYDNADGNFEATVTKAVVRF DGTISWTPPANYKSACTIDVTFPFDLQNC SMKFGSW  
TYDGSQVDIILEDVHVDKRDYFDNGEWEIVKATGNRGLRRDGTFFYPSITYSFI IRRPL  
FYTLFLIIPCIGLSFLTIVLVFYLP SNGGEKISLCTSVLVSLTVFLLVIEEII PSSSKVIP  
LIGEYLVFTMIFVTL SIVITVFAINIHRSSSTHSMAPWVRRI FLHHLPRLLCMRSHVD  
RYATSAGTRTGG LGYKSLSDQDNQLDAEHNLAALLESIRYITRHMVKEHEVREVVQDWK  
FVAQVLD RRVFLWAFLLVSLLSGALLFIPVIYK WASIIVPSYAEITS

>Takifugu rubripes\_CHRNA5 (ENSTRUP\_13990)

STEIRISMTVNLWVITVFLHLLLEVPKLSSCAKAEDKLFKYLFGNYQKWVRPVDHLNQTIR

VKFGLAISQLVDVDEKNQRM TTNVWMKQEWTD MKLRWNPEEYAGIT IIRVPSDRIWRPDV  
VLYDKSSDGRFEGTITKAVVKYDGTITWTAPANYKSACTIDV TFFFDFLQNC SMKFGSWT  
YDGSQVDIILEDHFV DKRDFDNGEWEIVKATGSRGLRMDG STSYPTI TYFFI IRRPLF  
YTLFLIIPCIGLSFLTILV FYLPSNGG EKISLCTSVL VSLTVFLLVIEE IIPSSSKAIPL  
IGEYLVFTMI FVTL SIVI TVFAINVHRRSSSTHNDMAPWVRRVFLHHL PKLLCMRSHVDR  
YATSGAARTRGLGMAEGSEPELTP LFYTRQNLKAALDSIRYITMHVVKENEVREYPHARG  
LSQQVSKSLNSFQAQTC SQT CRFLPSIDMKKKKAKEIHFKVVDWK FVAQVLD R MFLWAF  
LLVSILGSALLFIPVIYKWAS IIV

>Tetraodon nigroviridis\_CHRNA5 (ENSTNIP\_14923)

VPKLSSYAKAEDKLLKYLFGNYQKWVRPVDHLNQTIRVKFGLAISQLVDVDEKNQRM TTN  
VWMKQEWTD MKLRWSP EEEYVGIT IIRVPSDRIWRPDV VLYD NSDGRFEGT VTKAVVKHDG  
TITWTAPANYKSACTIDV TFFFDFLQNC SMKFGSWTYDGSQVDIILEDHFV DKRDFDNG  
EWEIVKATGSRGLR TDG SASYPTI TYFFI IRLPLFYTLFLIIPCIGLSFLTILV FYLPSN  
GGEKISLCTSVL VSLTVFLLVIEE IIPSSSKAIPLIGEYLVFTMI FVTL SIVI TVFAINV  
HRRSSSTHNDMAPWVRRVFLHRLPKLLCMRHVDRYATSGASRARALGMAESTPELTP LLY  
SRQSLKAALDSIRYITMHVVKENEVREVVQDWKFVAQVLD R MFLWAFLLVSILGSAILFI  
PVIYKWAS IIVPNHETMVFGN

>Gasterosteus aculeatus\_CHRNA5 (ENSGACP\_21887)

MCHSLRVPKLS SFAKAEDKLFKYLFGNYQKWVRPVEYLNQ TISVKFGLAISQLVDVDEKN  
QQMTTNVWMKQEWIDRKLWRNPDDYLGIT TIRVPSNRIWLPDVVLYD NSDGRFEATVTKA  
VVKYNGTISWTPPANYKSACTIDV TFFFDFLQNC SMKFGSWTYDGSQVDIT LEEFHV DKK  
DYFDNGEWEIVKATGSRGLR TDSSSTYPTI TYFFI IRRPLFYTLFLIIPCIGLSFLTIL  
VFYLP SNGG EKISLCTSVL VSLTVFLLVIEE IIPSSSKAIPLIGEYLVFTMI FVTL SIVI  
TVFAINI HRRSSSTHNDMAPWVRRIFLHRLPKLLCMRSHADRYATAGVARTGGAEREGKM  
KDSAPELTSLLYTKHNLQAALESIRYITMHVVKENEVREVVQDWKFVAQVLD R MFLWAF  
LVSILGSALLFIPVIYKWANIIVPKHFGS

>Oryzias latipes\_CHRNA5 (ENSORLP\_24913)

VPKLSSYAKAEDTLFKHLFGTYQKWVRPIEYLNQ TIPVKFGLAISQLVDVDEKKQLMTTN  
VWLKQEWIDMKLRWKPEDYLGIT TIRVPSDRIWLPDVVLYD NSDGRFEGT VTKAVVKYDG  
TISWNPPANFKSACTIDV TFFFDFLQNC SMKFGSWTYDGSQVDIILEDHFV DKKDYFDNG  
EWEIVKATGSRGLR TDG STSYPTI TYFFI IRRPLFYTLFLIIPCIGLSFLTILV FYLPS  
NGNEKISLCTSVL VSLTVFLLVIEE IIPSSSKAIPLIGEYLVFTMI FVTL SIIITVFAIN  
IHYRSSSTHNDMAPWVRRIFLHRLPKLLCMRSHVDRYATAGLAGKGVTVQEKTKDSTPD  
LTHILHTRHNLQTALESIRYITMHVVKENQVREVVQDWKYVAQVLD R MFLWAFLLVSVLG  
SALLFVPVIYKWAS IIVPDYAGS

>Ciona intestinalis\_ (ENSCINP\_4364)

MGSRCLIAVCLCYVIRECLSAHAEEKLLRHLLDPVRYNKLIRPSE SITSKVDVHFDLII  
SQLIGINEREQYMITK VWLPQVWVDKRLSWQPMRYENITKVQLPSNMIWLPDVVLYNNAD  
GMYEVS LQSNAILNNGTVTWMPPAIYKSACKIKVRHFPFDEQNCTMMFRSWTYNRLDIE  
LKLKNPNATLDDFTPSGEWDILQTPGSVNVNPNDETYQDLLYSLI IRRKPLFY TINLIIP  
CILITSLAILV FYLPSDCG EKMTLCISVLLALTVFLLLISKI VPPTSLDVPLIGKYLMT  
MMLVTL SIVASVCLNIHHRSPSTHTMPPWIRTIFLNHL PPLLGMERPGTDDR CRCKVND  
ATYGV DVT ELSGSDVIRNRKRGKSEVKLP RDVSSALEGVKFIADHLRAEDENKNVHEDWK  
YVAMVIDRMFLFVFGVCAIGTIGIFIQPFV

>Ciona intestinalis\_ (ENSCINP\_17902)

MINCLLIFLLL PITKTSAAKFESTEGRLANYLLNGYNPQFRPYNKKYENKTFVDVMM TSL  
QIISVKEKSQEF TTSVYMQYDWLDDRFGWVPDDYDGI TTVRI PCASIWVPRIVLQNSIDG  
NFDVSLRTNALIQHDGK VSWLPPALYKSTCTIEVALFPFDWQNTMVF RSATYDRTEMEF  
GIPIDTVYIDLSAFQ SNGEWDILQRPVKINSNENDKTYQDITFYFI IRRKPQFYI INLII  
PCILMSSLS CFV FYLPSISCEKMTLSISILLGETVFLFLIAQRMPETS LAVPLIAGYLLF  
VMILV IISVICSVV CNVHYRSNTTHSMPDWI VWI FMEKLA PLLLKVERPSEEEESGAC SAR  
PRRCSSVSTRKAMKQRSEWKPPSEILFDHQASRLGFRARHYLNEYGMTGINVAAPENG SF  
VPPSFKKLPKGFQPAADS IDYIANQKKEENEMGQS QDDWGYVALILDRLLLWVYLATFTL  
GTLFFFLQTKFAYYPEKLN

>Ciona savignyi\_ (ENSCSAVP\_750)

ECTSAHAEELLRHLLDSGRYNKLIRPSQSNFDLIISQLIGINEREQFMITKVWLPQVWV  
DERLSWQPTHEYENITKVQLPSDMIWLPDIVLYNNADGTYEVSLSQSNAILNNGTWTWMPF  
AIYKSACKIKVRHFPPFDEQNCTMMFRSWTYDRDDIELKLMNPATLDDFTPSGEWDILAT  
PGMMNLNADDPSYQDLLYSLVIRRKPLFYTVNLIIPCILITSLAILVFYLPSCDCEKMTL  
CISVLLALTVFLLLSKIVPPTSLDVPPLIGKYLMTMMLVTFSSIIASVCVLNIHHRSPST  
HEMSPWIRRTFLQVIPPPLIGMQRPGTDQCSYNKYKVDVSDLSGSDVIRKRKQPEVQLSRD  
ISSALEGVKLISDHLKAEDRNKNVDFIGYLYILEYLI FRLTRMLIRGYISFIVLLDSPTF  
AVHVQFRSQGWIRQHLFNLSSCELVIHEDWKYVAMVIDRMFLFVFFVVCVAVGTVSI FLQP  
FV

>Ciona savignyi\_(ENSCSAVP\_1475)

LHTGFILLVLAASAAVSEFQSSERLMKRLNNGYNNQFRPYNVEYENKTLVSMGMTLS  
QIISVKEKSQELTTSVYMTFDWVDRNRFSDPEEYEGITIIIRIPPYAIWSPRIVLQNSIDG  
NFDVSVPMALIKYTGEVQWIPPGLYKSTCTIVVALFPFDWQNTMVFRSATYDRSEMEF  
GLSYGDSIYVDPEAFKENGWIKVQRVPRINSDDSDPTYQDVTFFYLIIRKRPQFYVINLI  
IPCILMSSLSCFVYLPVSVSCEKMTLSISVLLGETVFLFLIAQRVPETSLAVPLIAGYLL  
FVMILVIISSVSSVVVNCNVHYRSNTTHSMPDWVWVWFMEKLAIPILRVERPSEEEEGACSA  
RPRRCSSVSARKAMRQRKEWKSPEIMFDHQASRLGFRRRHVVNHYGMTEVNVASPENDF  
EPAAESINYIANQLKEENDSAQSKDDWGYVALILDRI LLWIYFAAFSLGTLFFFLQSTFA  
YYPEQ

>Ciona savignyi\_(ENSCSAVP\_3483)

TEEKLFKRLFDYDYNWIRPVANSQSVLIAFELFVSQVLKVDENQIMMTNLWLKQEWND  
NKLWRPEDIYGGVYLRVPSEFIWKPDIVLYNTAVGKFQVDQNTKALLRYNGDVSWMPPA  
IFKSSCSIDVTYFPFDQNTMKGFSWTYDKARVNLVIKNEANRKEYWESGEWELLDVL  
GYRHERKYNCCPEIYDVTYSFHIRRLPLFYMINLIIPCILLISFLTVLVYLPSCDCEKI  
TLCISVLLSLTVFLLVITEIIPSTSLVIPLIGQYLLFTMIFVTLISIVITVFLVNVHFRSE  
NTHTMPWVRRVFLCPLKASCFSHLFHSSISSHNHNVNKSLAHSATSLTHHSTSPHN  
TTTAICHMNRVSNAEKTEKTPDSALPKVEVQRAIESVMIANHLKVEDESTEIENDWKYV  
MVIDRIFLWIFIVVCLGTTGIFLRPLDDTHVG

>Branchiostoma floridae\_(XP\_002594600)

MLVTKVNVSFCSRSHTEFLAAEAEERLVQRLFNESRYNPLIRPARYNGEKVLVHFRLSISQLINVDEKNQK  
MKTNVWLHQEWFYDRLSWDPREYDNKIVIRVPEIIVWRPEIVLFFNNANGQYDVQLMPKCLIIYSGGNITWI  
PPAIYESACQIDVRFPPFDQNCNCKMFKASWYDGTGLDLELKDNTAVMDDFKKNGEWDILRLPGRKSSHA  
GDPLPYVYFDFILMRPLFYTNLIIPCILITSLVSLVYLPSCDCEKITLSISVLLALTVFLLLIADI  
PPTSLDVPPLIGKYIMFTMIFVTFTIVTTVYILNVHHRPSTHTMPPWVRTVFLDKLPRLLLMKRPNQCRK  
YALRVSESSARNPHEDFPEDHTDSPYSPRTRPAHTRYKQIDLPEVPSDLPPELKKAVKNVRYIADYFR  
SHDQDLSISEDWKYVAMVIDRIFLWTFVSVCFITGLGLFLQPL

>Branchiostoma floridae\_(XP\_002603628)

MFLPGGVATQSEERLFRDLFRDYNKWIRPVANISNIVVIEFGLAIAQLLDVDEKNQIMTTNVWLKQKWKD  
SKLCWDPDEYHGVSIVRVPDMDIWLDPDIVLYNNADGNYAVKHNTKAQISSDGMVTWEPPAVYKSSCEIEV  
TYFPFDQNCNCKMFKASWYDGFQIDLMMDDHVDQGGFSESGEWIIDAPGQKNIKYECCEEVYPDITF  
FFVIRRLPLFYTNLIVPCALISFLTVLVYLPSCDCEKITLTCISVLLSLTVFLLLIITEIIPATSIVIPV  
IGEYLLFTMIFVTLISIVITVFLVNIHYRSPSTHRMPVWRKIIFIDILPRLLSDVYDYESKTLPRMTTPKM  
RSRHGAKVSVTNVSGNPGVGGAEKYNTCDSRPSQSQARAQFQSYQYSPDILRAAQGVNYIAETLRKDEA  
DSVNEWDWKYVAMVIDRIFLWIFVSMCIGTIGLFLQPLPGFIS

>Drosophila melanogaster\_(FBpp0306936)

MGSVLFVAFVIALHFATGGLANPDARLYDDLLSNYNRLIRPVGNNSDRLTVKMGLRLSQ  
LIDVNLKNQIMTTNVVVEQEWNDYKLNPNDDYGGVDTLHVPSEHIWLPDIVLYNNADGN  
YEVTIMTKAILHHTGKVVWKPPIYKSFCEIDVEYFPFDEQTCFMKFGSWTYDGYMVDLR  
HLKQTADSDNIEVGIDLQDYIISVEWDIRVPAVRNEKFFYSCCEEPLYDVFNLTLRRT  
LFYTVNLIIPCVGISFSLVSLVYLPSCDCEKITLTCISVLLSLTVFLLLAIEIIPPTSLTV  
PLLGKYLFTMMLVTLVSVVVTIAVLNVNFRSPVTHRMAPWVQRLFIQILPKLLCIERPCK  
EPEEEDQPPEVLTDVYHLPPDVDFVNYDSKRFSGDYGI PALPASHRFDLAAAGGISAHC  
FAEPPLPSSLPLPGADDDLFSPSGLNGDISPGCCPAAAAAADLSPTFEKPYAREMEKT  
IEGSRFIAQHVKNKDKFESVEEDWKYVAMVLDRLMFLWIFAIACVVGTAIIILQAPSLYDQ  
SQPIDILYSKIAKKKFELLKMGSENTL

>Apis mellifera\_(NP\_001011575)

MFKMQILTLGLVFNLTLHIYISVAGLKI FEANPDTRKRLYDDLLSNYNRLIRPVMNNTETLTVQLGLKLSQL  
IEMNLKNQVMTTNVWVEQRWNDYKLNWNPPEYGGVEMLYVPSENIWLDPDIVLYNNADGNIEVTLMTKATL  
KYTGDVSWKPPAIYKSSCEINVEYFPFDEQSCIMKFGSWTYNGAQVDLKHMKQEAGSNLVAKGIDLSDFY  
LSVEWDILEVPASRNEEYPCCTEPYSDFITFNITMRRKTLFYTVNLIIPCVGITFLTTLVLFYLPSSDGEK  
VSLCSSILLSLTVFFLLLAELIIPPTSLAIPLLGKYLFTMILVTLISIWITVCLNVHFRSPSTHNMSPWV  
RQVFLNWMRLLMMRRTPYSTPEYDDTYMDSGYTNEIDFSFPDSVSDYPLELKGSPDGFESVTSQYKNIR  
EDDARHIPHASVTDSENTVPRYLSPDVISALKGVRFAQHIAKNADKDNEVIEDWKVAMVLDRLFLWVFT  
LACTAGTLGII FQAPSLYDTRPVDQQLSGISPRNYMYPNIDISPEG

>Anopheles gambiae\_(XP\_311918)

MGSVLLTAVFIALQFATGLANPDSKRLYDDLLSNYNRLIRPVGNNSDRLTVKMGRLRSLQIDVNLKNQIM  
TTNVWVEQEWNDYKLNWNPDDYGGVDLHVPSEHIWLPDIVLYNNADGNIEVTLMTKAILHHTGKVVWKP  
PAIYKSFCEIDVEYFPFDEQTCFMKFGSWTYDGYMVDLRHLQQT PDSNDIDIGIDLQDYISVEWDMKV  
PAVRNEKFYSCCEEPYDII FNITLRRKTLFYTVNLIIPCVGISFSLVLFYLPSSDGEKISLCISILLS  
LTVFFLLLAELIIPPTSLTVPLLGKYLFTMMLVTLVSVVTIAVLNVNFRSPVTHRMAPWVHRVFIELLPK  
VLCIERPKKEDEPSDNDQTPDVLTDVDFQVPPDVEKYVGFCEGKEYGTDFDIPALPPSRFDVAASGGVGP  
CFGEPLPALPLPGGDDLFSPTGNGDMSPTCCGDLSPTEFKPLREMEKTEASRFVAQHVRNKDKFES  
VKEDWKYVALVLDRLFLWIFTIACVLGTCLII LQAPSLYDNTQPIDAMYSKIAKKKMELLMKMGSENV

>Caenorhabditis elegans\_(T08G11)

MRTNRLSWILVLSVVI FLVIINTINASDDEERLMVDVFRGYNLSIQPVRNSSELPLIVKM  
ALQLVLLINVDEKQVMHTNVWLTQLQWHDFQMKWNPVNYGEIKQIRVSPDKVWLPDIVLF  
NNADGNIEVSMFCNVVINHKGDMWVPPAIYKSSCIDVEFFPFDEQVCTLVFGSWTYNE  
NEIKLEFVQAEVDVSEYSASSIWDVIDVPASLVNKRRIEFQVRIRKTLFYTVVLIIP  
TVLMAFLSMAVFFLPTDSGEKITLTISVLLSIVVFLLLVSKILPPTSSTIPLMAKYLLLLT  
FVLNVITILVTVII INVYFRGPRTHRMPQWVRVVFLLQFLPKLVCMKRPKSASERSAVRSG  
MAQLPGVGQFTLSPSAHPLCPSADDRTTTIRNTASNETSAYYPLSTDALRAIDAIEYIT  
EHLKRDEQHKFRDDWKYVAMIIDRLLLYVFFGITVGGTCGILFSAPHVFQRIDQQEMLD  
RLKEKYDTASNIP

>Trichoplax adhaerens\_(XP\_002111826)

MVATAQKNCYIYAILFASILSHSICNAQKTLFSVLEQQQTQNAVMI STNGDAI IAGLLPAHYNYEDGKHK  
CSELDTYGIHLMAMI FAINDINEQSNLLPDVKLGDIRDTCHNSLRVSKEIMALMQYLPFKEGKYDGF  
FCEKIKYDEANEETVRTYGP IIGVIGTMSDSTIATANTIGNFGVIEITPSALAVTQSDNQPPNLYSTQP  
SFYDHLVVISKIIIALDMTRICLITIEPPETS YRMDLLRTILQDAKICIAQEF SITGDRMSLAMARVIQN  
LKANNKLQVVLLGPEYKGVRFMKEAERQNLTRTWIGAGEWVKSPAISIRKEVMGGLLAVSTQTFRSV  
LITKHLNENYVTSDRNVHLDQLWKKLYNCTPNEENCEVRLGSYEIIDEKKSCEYYQSELNEDI IYVIDA  
VYAIHALHQTLNCTIEFCNSVETFNHTIFNYHLQRVEFSNHANQPVEFQQNKGVRHILIQNLHDDNCS  
HFVEVARWNPFESEMIMDTNKIRWRNGESTTIPTEVYETACTPGDRKHSFDQESCYYVCLKGPSLVNSG  
TTSQCFKCSPGFKPTNRSACQEI PPTKLDWRNPVNLITLIFTLLSMLTLLFIVIIFFKYSNTPIVKASN  
KIMSHIQLLSVALLFILGGSYQFAVTTSLCWFQFAICSVSFP LCEACLLAKTKHVANVFTLSSRIQKVDK  
SSRLQSRWCKSLIPILFVLSITAPIII IWLIFTIIDPPNAIPDYRYENEVHILCSSKHLHLGLLVGFTL  
VLAIICTILAWKTRKLPDNFSEARYIFICSFSTLVIVALSVPGYYSTVGLLQATFASIAVITFGLSILLL  
LFIPKIYITLFRPDLNLTKEAMLRSIQEFTFGADTRIHTKPK

>Amphimedon queenslandica\_(XP\_011410551)

MSSSRSLSSRSKSHLSKSKFESTAELPSEVMVNTPEQLSWQVLSQTQVARFKALSPTELTKELSTVLS  
LSKHEEDLQQAAILDYVSSVFVAQEKDFDTEQLSSFFTIIHKLLANIREKRTTLQDNLNELKSYFAGVG  
VSDQTCCLKCFTPKVAMATISYIHTSLVQHHTLFEYILQEKEDEFIQTQLLVSLPPDSSTLSPPLEESV  
TEDFYNRLVSTAPAGSPSQTLGSPTHSPPHSIQGTDMSPTGAI PPTLLNLRPEDVKMMTEKLEET  
VTPYQDEMLRKLVDRETSYKSKLDKLEKSLT

## **Ciliary Rootlet Coiled-Coil Protein-CRO**

>Homo sapiens\_CROCC(ENSP\_364691)

MSLGLAGAQEVLETLTVIQTLESSVLCQEKGLGARDLAQDAQITSLPALIREIVTRNLS  
QPESPVLLPATEMASLQLQENQLLQELSRVEDLLAQSRARDELAIKYNVAVSERLEQ  
ALRLEPGELETQEPRLVRSQVELRRQLQEEQAS YRRKLQAYQEGQQRQAQLVQRLQGKI  
LQYKRCSELEQQLLERSGELEQQLRDRTEHSQDLESALIRLEEEQQRASLAQVNAMLR  
EQLDQAGSANQALSIEDIRKVTNDWTRCRKELEHREAAWRREESFNAYFSNEHSRLLLLLW

RQVVGFRRLVSEVKMFTERDLLQLGGELARTSRAVQEAGLGLSTGLRRLAESRAEAALEKQ  
ALLQAQLEEQLRDKVLRKDLAQQQMQSDLDKADLSARVTELGAVKRLEKQNKLEKDQVN  
KDLTEKLEALESRLQEQALETEDGEGLLQOTLRDLAQAVLSDSESGVQLSGSERTADAS  
NGSLRGLSGQRTPSPPRRSSPGRGRSPRRGSPACSDSSTLALIHSAHHRQLQVQDMRG  
RYEASQDLLGTLRKQLSDSEERRALEEQQLRRLDKTDGAMQAHEDAQREVQRLRSANEL  
LSREKSNLAHSLQVAQQQAELRQEREKLQAAQEELRRQRDRLEEEQEDAVQDQAVRRE  
LERSHRQLEQLEGKRSVLAKELVEVREALSRATLQDRMLQAEKAEVAEALTKAEAGRVEL  
ELSMTKLRAEEASLQDSLKLSALNESLAQDKLDLNLVAQLEEEKSALQGRQRAEQEA  
TVAREEQERLEELRLEQEVARQGLEGLSLRVAEQAEALEQQLPTRLRHERSQLQEQLAQLS  
RQLSGREQELEQARREAQRQVEALERAAREKEALAKEHAGLAVQLVAAEREGRTLSEAT  
RLRLEKEALEGSLFEVQRQLAQLEARREQLEAEGQALLAKETLTGELAGLRQOI IATQE  
KASLDKELMAQKLVQAEREAQASLREQRAAHEEDLQRLQREKEAAWRELEAERAQLQSQL  
QREQEELLARLEAEKEELSEEIAALQQERDEGLLLAESEKQQALSKESEKTALSEKLMG  
TRHSLATISLEMERQKRDAQSRQEQDRSTVNALTSELRLDRAQREAAAAHAQEVRRLQE  
QARDLGKQRDSCLEAEELRTQLRLLEDARDGLRRELLEAQRKLRESQEGREVQRQEQAGE  
LRRSLGEGAKEREALRRSNEELRSVAVKKAESERISLKLANEDKEQKLALLEEARTAVGKE  
AGELRTGLQEVEERSLEARRELQELRRQMMLDSENTRLGRELAELQGRALGERAEKES  
RRETGLRQLRLKGEASLEVMRQELQVAQRKLQEQEGEFTRERRLGSLLEEARGTEKQQ  
LDHARGLELKLAAARAEAAELGLRLSAAEGRAQGLEAELARVEVQRRAAEAQLGGRLRSAL  
RRGLGLGRAPSPAPRPVPGSPARDAPAEAGSGLNSPSTLECSPGSPSPSPGPATSPASP  
DLDPGLVAGALREFLQELRQAEREAQASLREQRAAHEEDLQRLQREKEAAWRELEAERAQLQKAV  
AESEEARSDVGRSLSGVQAEALQEEVRRSERERRATLDQVATLERSLQATESELRSQ  
EKISKMKANETKLEGDKRRLEKVLDAESRTVKLELQRRSLEGELEQRSRLGLSDREAQAQ  
ALQDRVDSLQRVQVADSEVKAGTLQTLVERLNGALAKVEESEGALRDKVRGLTEALAQSSA  
SLNSTRDKNLHLQKALTACEHDRQVLQERLDAARQALSEARKQSSSLGQVQTLRGEVAD  
LELQRVAEAGQLQQLREVLRQRQEGEAAALNTVQKLQDERRLLQERLGLSLQRALAQLEAE  
KREVERSALRLEKDRVALRRTLDKVEREKLRSHEDEVRLSAEKGRDLRDTLTGAELELAE  
QRQIQQLEAQVVLEQSHSPAQLEVDAAQQQLELQEQEVERLRSAAQAQTERTLEARERAHR  
QRVRGLEEQVSTLKGQLQQLRRSSAPFSPSPGPPEK

>Pan troglodytes\_CROCC(ENSPTRP\_423)

MSLGLAGAQEVELTLETVIQTLESSVLCQEKGLGARDLAQDAQITSLPARIREIVTRNLS  
RPESPVLLPATEMASLLSLQENQLLQELSRVEDLLAQSRARDELAIKYNAVSEERLEQ  
ALQLESGELETQEPRLVRSVELRRQLQEEQASYRRKLQAYQEGQQRQAQLVQRLQGKI  
LQYKRCSELEQQLLERSGELEQQRRLRDEHSQDLESALIRLEEEQQRSASLAQVNAML  
EQLDQAGSANQALSEDIRKVTNDWTRCRKELEHREAAWRREESFNAYFSNEHSRLLLLW  
RQVVGFRQLVSEVKMFTARDLLQLGGELARTSRAVQEAGLGLSTGLRRLAESRAEAALEKQ  
KDLTEKLEALESRLQEQALETEDGEGLLQOTLRDLAQAVLSDSESGVQLSGSERTADAS  
NGSLRGLSGQRTPSPPRRSSPGRGRSPRRGSPACSDSSTLALIHSAHHRQLQVQDMRG  
RYEASQDLLGTLRKQLSDSEERRALEEQQLRRLDKTDGAMQAHEDAQREVQRLRSANEL  
LSREKSNLAHSLQVAQQQAELRQEREKLQAAQEELRRQRDRLEEEQEDAVQDQAVRRE  
LERSHRQLEQLEGKRSVLAKELVEVREALSRATLQDRMLQAEKTEVAEALTKAEAGRVEL  
ELSMTRLRAEEASLQDSLKLSALNESLAQDKLDLNLVAQLEEEKSALQGRQRAEQEA  
TVAREEQERLEELRLEQEVARQGLEGLSLRVAEQAEALEQQLPTRLRHERSQLQEQLAQLS  
RQLSGREQELEQARREAQRQVEALERAAREKEALAKERAGLAVQLVAAEREGRTLSEAT  
RLRLEKEALEGSLFEVQRQLAQLEARREQLEAEGQALLAKETLTGELAGLRQOI IATQE  
KASLDKELMAQKLVQAEREAQASLREQRAAHEEDLQRLQREKEAAWRELEAERAQLQSQL  
QREQEELLARLEAEKEELSEEIAALQQERDEGLLLAESEKQQALSKESEKTALSEKLMG  
TRHSLATISLEMERQKRDAQSRQEQDRSTVNALTSELRLDRAQREAAAAHAQEVRRLQE  
QARDLGKQRDSCLEAEELRTQLRLLEDARDGLRRELLEAQRKLRESQEGREVQRQEQAGE  
LRRSLGEGAKEREALRRSNEELRSVAVKKAESERISLKLANEDKEQKLALLEEARTAVGKE  
AGELRTGLQEVEERSLEARRELQELRRQMMLDSENTRLGRELAELQGRALGERAEKES  
RRETGLRQLRLKGEASLEVMRQELQVAQRKLQEQEGEFTRERRLGSLLEEARGTEKQQ  
LDHARGLELKLAAARAEAAELGLRLSAAEGRAQGLEAELARVEVQRRAAEAQLGGRLRSAL  
RRGLGLGRAPSPAPRPVPGSPARDAPAGGSGGLSSPSTLECSPGSPSPSPGPATSPASP  
DLDPGLVAGALREFLQELRQAEREAQASLREQRAAHEEDLQRLQREKEAAWRELEAERAQLQKAV  
AESEEARSDVGRSLSGVQAEALQEEVRRSERERRATLDQVATLERSLQATESELRSQ  
EKISKMKANETKLEGDKRRLEKVLDAESRTVKLELQRRSLEGELEQRSRLGLSDREAQAQ  
ALQDRVDSLQRVQVADSEVKAGTLQTLVERLNGALAKVEESEGALRDKVRGLTEALAQSSA  
SLNSTRDKNLHLQKALTACEHDRQVLQERLDAARQALSEARKQSSSLGQVQTLRGEVAD



LLELQORVEAEGQLQQLREVLRRQREGEEAAALNTVQKLDQERLLQERLGSQORALAQLEAE  
KREVERSALRLEKDRVALRRTLDKVEREKLRSHEDTVRLSAEKGRDLRDLTGTAELELAEAE  
QRQIQQLEAQVVVLEQSHSPAQLLEVDAQQQQLELQEQEVERLRSAAQQTERTLEARERAHR  
QRVRGLEEQVSTLKGQLQQELRRSSAPFSPSPGPPEK

>Gorilla gorilla\_CROCC (ENSGGOP\_15837)

MSLGLAGAQEVELTLETVIQTLESSVLCQEKGLGARDLAQDAQITSLPARIREIVTRNLS  
RPESPVLLPATEMASLLSLQEEENQLLQEQELSRVEDLLAQSRARDELAIKYNVAVSERLEQ  
ALRLESGELETQEPRGLVRRQSVLRRQLQEEQASYYRKLQAYQEGQQRQAQLVQRLQGGKI  
LQYKKRCSELEQQLLERSGELEQQRLRDTEHSQDLEGALIRLEEEQQRASLAQVNAAML  
EQLDQAGSANQALSSEDIRKVTSDWTRSRKELEHREAAWRREESFNAYFSNEHSRLLLLW  
RQVVGFRRLLVSEVKMFTERDLLQLGGELARTSRVQAEGLGLSTDLRLAESRAEAALEKQ  
ALLQAQLEEQLRDKVLRKDLAQQQMQSDLDKADLSARVTELSLAVKRLQKQNLKQDQVN  
KDLTEKLEALESRLQEQAALETEDGEGQLQQLTRDLAQAVLSDSESGVQLSGSERTTAS  
NGSLRGLSGQRTSPPPRRSSPGRGRSPRRGSPACSDSSTLALIHSAHKKRQLQVQDMRG  
RYEASQDLLGTLRKQLSDSEERRALEEQQLRDLRDKTDGAMQAHEDAQREVQRLRSANEL  
LSREKSNLAHSLQVAQQAAELRQEREKLAQAQEEELWCQRDRLEEEQDDAVQDGARVRRE  
LERSHRQLEQLEGKRSVLAKELVEVREALSRATLQRDMLQAEKAEVAEALTKAEAGRVEL  
ELSMTKLRAEEASLQDSLSKLSALNESLAQDKLDLNLVAQLEEEKSALQGRQRQAEQEA  
TVAREEQERLEELRLQEVARQGLEGLSLRVAEQAEQAELEQQLPTLRHRSRLQEQLAQLS  
RQLSGRELEQLEQARQVEALERAAREKEALAKERAGLAVQLVAAREGRTLSEEA  
RLRLEKEALEGSLFEVQRQLAQLEARREQLEAEGQALLLAKETLTGELAGLRQQI IATQE  
KASLDKELMAQKLVQAEWEAQASLWEQQAHEEDFQRLQHEKEAAWRELEAERAQLQSQL  
QREQEELLARLEAEKEELSEEIAALQQRDEGLLLAESEKQALSLKESEKTALSEKLMG  
TRHSLATISLEMERQKRDAQSRQEQDRSTVNALTSSELRLDRAQREAAAAAHTQEVRRLEQ  
QARDLQKQRDSCLEAEELRTQLRLLLEDARDGLRRELLAQKRLRESQEGREVQRQEQAGE  
LRRSLGEGAKEREALRRSNEELRSVKKAESERISLKLANEDKEQKLALLEEARAVGKE  
AGELRTGLQEVERSRLEARRELQELRRQMKMLDSENTRLGRELAELQGRALGERAEKES  
RRETGLRLRLLKGEASLEVMRQELQVAQRKLEQEQEFTRERRLLGSLEEARGTEKQQ  
LDHARGLLEKLEAARAEAAELGLRLSAAEGRAQGLEAELARVEVQRRAAEAQLGGLRSAL  
RRGLGLGRAPSPAPREVPGSPARDAPAGGSGEGLSSPSTLECSPGSQPPSPGPATSPASP  
DLDPFAVRGALREFLQELRQAQRERDELRTQTSALNRQLAEMEAERDSATSRARQLQKAV  
AESEEARSSVDGRSLGVQAEALALQEEVRRSERERRATLDQVATLERSLQATESELRSQ  
EKISKMKANETKLEGDKRRLEKVLDASESRTVKLELQRRSLEGLQRSRLGLSDREAQAQ  
ALQDRVDSLQRQVADSEVKAGTLQTLVERLNGALAKVEESEGALRDKVRGLTEALAQSSA  
SLNSTRDKNLHLQKALTACEHDRQVLQERLDAARQALSEARKQSSSLGQVQTLRGEVAD  
LLELQORVEAEGQLQQLREVLRRQREGEEAAALNTVQKLDQERLLQERLGSQORALAQLEAE  
KREVERSALRLEKDRVALRRTLDKVEREKLRSHEDTVRLSAEKGRDLRDLTGTAELELAEAE  
QRQIQQLEAQVVVLEQSHSPAQLLEVDAQQQQLELQEQEVERLRSAAQQTERTLEARERAHR  
QRVRGLEEQVSTLKGQLQQELRRSSAPFSPSPGPPEK

>Mus musculus\_CROCC (ENSMUSP\_99549)

MSLGLAGSLQAQLALEIIVIQSLENCVLPNQEKSLSVQNRVQDFQGASLLVCAREVIASN  
LSRPETPAPLQVPPEMASLLSLQEEENQLLQEQELSRVEDLLAQSRARDELAIKYNVAVNERL  
EQAVRLETGELEAQEPRGLVRRQSVLRRQLQEEQSSYYRKLQAYQEGQQRQAQLVQRLQA  
KILQYKKQCSELEKQLMDRSTELEQQRLRDTEHSQDLDALLRLEEEQQRASLAQVNA  
LREQLDQANLANQALSSEDIRKVTSDWTRSCKELEQREAVWRREESFNAYFSNEHSRLLR  
LWRQVMGLRRQASEVKGTERDLLQLGGELVRTSRVQELGLGLSASLHRAESKAEAALE  
KQKLLQAQLEEQLAQKLLREKDLAQQLVQSDLDKADLSARVTELSLVEHLQNLQNSEKQ  
VNRTLSDKLEALESRLQEQTTLDTEDEGGLQQLTRDLAQAAALSDTESGVQLSSSERTAD  
TSDGSLRGFSGQRTPTPPRHSPGRGRSPRRGLSPACSDSSTLTIHSAHKKRQLQVQDMR  
GRYEASQELLGSVRKQLSDSEGERRGLEEQQLRDLRDTAASAQAQEDAQREARLRSANE  
LLSREKGNLTHSLQVTQQQAKELRQEEKLAQAQEEELKRQHNQLEDAQEDSVQEGARARR  
ELERSHRQLEQLEVKRSGLTKELVEVREALSCAILQRDVLQTEKAEVAEALTKAEAGRAQ  
LELSLTKLRAEEASLRDLSKMSALNESLAQDKLELNLIAQLEEEKVALLGRQQQAEHA  
TTMAVEKQELLEQLRLEQEVERQGLGSLCVAEQAREALEQQILVLRSESHLQEQLAQL  
SRQLSGRDQLEQLRESQRQVEALERAAREKEAMAKERAGLAVKLAAREGRTLSEEA  
IRLRLEKEALESSLFVQQRQLAQLEARREQLEADSQALLLAKETLTGELAGLRQQVTSTE  
EKAALDKELMTQKLVQAEAREAQASLREQRAAHEEDLQRLQHEKEAAWRELQAERAQLQGG  
LQQEREELLARMEAEKEELSEEIAALQQRDEGLLLAESEKQALSLKESEKTALSEKLM  
GTRHSLAAISLEMERQKRDAQSRQEQDRNTLNALTSSELRLDRAQLEEAATAHAQTVKELE

ERTGNLGRQREACMREAEELRTQLRVLEDTRDGLRRELLEAQRKGRDSQDSSEAHRQEAS  
ELRRSLSEGAKEREALRRSNEELRSVAVKKAESERISLKLANEDKEQKLALLEEARVSVAK  
EAGELRASLQEVERSRLEARRELQELRRQMKTLDSDNGRLGRELADLQGRALALGERTEKE  
SRREALGLRQRLLKGESSLKQELQGSQRKLEQEAFFRERERGLLGSLEEARGAEKR  
LLDSARSLELRLEAVRAETSELGLRLSAAEGRAQGLEVELARVEAQRRAEAQGLGLRSA  
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>Rattus norvegicus\_CROCC (ENSRNOP\_52694)  
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KVRDSQDSSEAHRQEASELRRSLSEGTKEREALRRSNEELRTAVKKAESERISLKLANED  
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LTDALAQSSASLTSSQDKNLYLQKALSTCEHDRQVQLQERLDAARQALSEARRQSSSLGEG  
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>Canis familiaris\_CROCC (ENSCAFP\_42060)  
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>Felis catus\_CROCC (ENSFCAP\_9450)

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>Myotis lucifugus\_CROCC (ENSMLUP\_28)

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>Monodelphis domestica\_CROCC (ENSMODP\_39331)  
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>Takifugu rubripes\_CROCC (ENSTRUP\_26160)  
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LQSHTDVALKELDQCRAALAANEETRDQLKRDVTDERRQNQTVDTLETCTREVSELRRN  
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>Tetraodon nigroviridis\_CROCC (ENSTNIP\_17688)

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>Gasterosteus aculeatus\_CROCC (ENSGACP\_1486)

AMSASGNSDSDSNKLESVIQRLEESVLSEEKLTVRGASPDAPPTCLPARVREIVTKNLN  
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>Oryzias latipes\_CROCC (ENSORLP\_22962)

KAMSAEENSDDPSKLESVIRREESVLSEEKRLTVRGPSPDDPPACLPARVREIVTKNL  
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QALRSETGEGEADSQASRSLAQONVELRRRLDEEQAAAYRRKLTAYQEGQQRQAQLVQKLO  
AKVLQYKKRCGDLEQKLEKSSSELEERSETSNRHHEDSSSSLEEALLHLEEEQQRSSSL  
SAVNAMLREQLEQAGLANEALSRLDIRRLTADWTKAREELEQKESDWRREESFHSYFSSE  
HGRLLTFWRQVVGFRRHVCEMKSSAERDLSDMRGELVRMSHLVQVSCAGLSAVLRSQEAG  
TALALEQERALRDQLEQQLRGQVKETMNLQSRADAERSELSLRLSDAAQENERLKSQMEE  
RDREIDNLSRRLEEQRSDETDSQLLRAHCNALLDTLKDIAQTVLSDGESSEADPDNSA  
VVLQALIRDSSPQRSSTSSSSSPLPEAALSALRSVVTNMMLQLQDVRGRLLSAQSSAQK  
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AKGEGQRSEMALEEEAGRSRAELTKDKAALVVQLTASERENAMLAEEELTAFRSERETLET  
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LSAAQLEAQASRKATSEHQEEVERLALEKEVVRHLSQMEHETAVRKLKQEVEDQLQKAR  
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LKELEQCRASLSAAEENREQLRRDFLETERRLTQTQEASENHRREGAELRRSLCDVTRER  
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RSRLEARRELQELRRQLKVLADREQKRELAEQLQTRLSLEEQRREEERGKEVFI LKQKLA  
ETQTARESLKRELSMTQKRLVSESESGWRSCERELTAQLQEARGCEKKLQDEAKNLSVRAQ  
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SRGRSPGGSSASPGSISRHHSISPLRPSLSPKGGGTPLPPAQPELDPDTRLRSGLRDFLQ  
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TQILLQQQEDAVKRVDRERRALADRVRELESLHTAEMEKKHTQEQLNKQRATEARLEAE  
RKRLREALEAAEARATRVELGRRSLEGEQLRKLKGLGDREAESQASQERHDCCLLRQVAEG  
EAQVSLQTEVDRLSQAALLKAQEGEAALKQKVTTLSSQSLQEAADHSSTQTRLTALQKTL  
SLVEQDKRLLQEKMDARTSVTEAKRSMFALTERVQSLQEGELTQSELLREELEAEKNTQ  
EALRQRSGSLAETQHSIQKAQTERAAVEERLLALQRAVALLETEKKDAERQAARLEKDKD  
ALRNTLDKVERQKLCCEGSMRLSAEKTRLDRLNAVEQELQEAQQQMLMLQTLAEMEQ  
AHSGCEGLLRQDEAQQAELKRNCKDLERTLSTRERAHHRVKGLEEQQVSTLKEQLQ  
QEMKRRQPPLPSTFTST

>Homo sapiens\_CROCC2 (ENSP\_397968)

MSSASSEPGNGDASQQPLLGLDVTIQRLEDTILSPTASREDRALTVRGEGRQASPTPVPT  
RIREIVAGSLSEPPQAGVQEPATATVARVQEEENELLQEELTRLGDLQAASAERDELASR  
CRVVSEQLQARLETTEAQLRRSELEHSVDLEEALGRLEAAEERSTGLCQVNALLREQLEH  
MKKANDALGRELAMTGSVQRLQGELELRRWAQRQTRSGGLGQPRDLLLLWRQAVVLGTD  
LAELRVATERGLADLQADTARTARRLHTACLNLDSNLRLSASSTASTLQQLRDKAGEML  
QLQGRWDAEKVALQARLSEQTLLEVEKLTQNEQKAKTIAALRTDLQNLVAQEDARCLELA  
GSSITELGEPRLRSPQRATSPHQGASPPHICSPATLDPALQAMRAAIERRWRREQELC  
LQLKSSQALVASLQEQLESRRELWAAQKQKQERAREQAREALRGQLEAQRLEVQQCR  
ASCKLLGREKAALEMVVEELKGDADAADAEKQGLEAEAAELQRSLLLQAERREELALRRE  
RSCRALETSQGRLLQLEEKVSGLREELASVREALSTAQLQRDVVESEREGLRSALARAEC  
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LSRARTLERVQEQEAQSQQEQATISATTEELKALQAQFEDAITAHQRETTALRESLQD  
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KDVLLLNFSELRATICRAEQEKASFKRSKEEKEQKLLILEEAQAALQQAASALRAHLWEL  
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RKEVLGLQRKLAEEVAAGEAHGQRLQEHRESRGAEQTLRAELHSVTRKLEASGVADAL  
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TKGSDSSQALPGQQGTSPPARPHSPLRWPSPTPGGRSSELMDVATVQDILRDFVQKLR  
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ALQKEALRRLEHLASVRAAGQEKRRLEQLETLRQALEESRRHSQGLAKQKLLLEEQL  
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>Pan troglodytes\_CROCC2(ENSPTRP\_61067)

SRSTGLCQVNALLREQLLEHMKKANDALGRELAMTGSVQRLQGELELRRWAQRQVLPQPT  
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LRLSASSTASTLGQQLDKVGEMLQLQGRWDAEKVALQARLSEQTLLEKLEQNEQKAKT  
VAALRTDLQNLVGGRDGGGCVAGVCHPCSGVSPATGSLVAQEDARCLELAGSSITELGEP  
RRPLRIPQRATSPHQGASPPHICSPAALDPALQAMRAAIERRRREQELCLQLKSSQALV  
ASLREQLSESRRELWAAQKLQQRERAREQAREQALRGQLEAQRLEVQCCRASCKLLGREK  
AALEMVVEELKKGADAADAQKQGLEAEAAELQRSLLLQAERREELALRRERS CRALETSQ  
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RDSLESSLLEAQQLATKLEQLEEEARSAGLARQALQVEMEQLQSDWEVQEMKLVQD TVR  
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>Macaca mulatta\_CROCC2(ENSMMPUP\_41485)

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CRVVSEQLQARLETTEAQLRRSELEHSVDLEEALGRLEVAEERSTGLCQVNALLREQLLEH  
MKKANDALARELAGTTGSVQRLQGELELRRWAQRQTRPGGLEKPRDLLLWRQAGVLCGT  
DGTRGLADLQADTAKTARRLHTACLNLDSNLRLSASSTASTLGQQLRDKVGEMLQLQVRW  
DTEKVALQARLSEQTLLEKLEQNEQKARTIASLRDLQSLVAQEDTQCLELSWSITEL  
GEPRRPLRSPQRATSPHQGASPPHICSPAALDPALQAVRAAIERRRREQELCLQLESSQ  
AVAAGLQEQLESECRQELWAAQKLQQRERAREQAREQALWGQLEAQRLEVQCCRASCKLLG  
REKAALMVEELKKGADAADAQKQGLEAEATELQRSLLLQAERREELALQRERS CRALE  
TSQGRQLQLEEKVSGLREELASAREALSTAQLQRDVVESEREGLRSALARAEC SNADLEL  
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AREQLAQAEQQLLLEQAEACRGLQQACGRLEQQQEQLLEGQAALLGREKALRQVGVTCQ  
KQALEEQLAQSLQDQEAQMDTLQQALQDKDALSEERAQLLAKQEALERQGR LAEEEAADL  
RYARQDGPRLSPSHTPSSPALLRAPRGGPGLQSRGSMVEPLELLGPHGEREAGHRLRSP  
SFRNMNMLRPGEP LHSAFCHSLFFEGGFIPPPSLPNFLT SIPCPVQALS LKEAERSLLSE  
ELSRARRVLERVQEAQSQEQEAQATISSTTEELKALQAQFEDAITAHQRETTALCDSLR  
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LEQERGDARQELQELHRQVRTLKAENQRRSGEAHELQVQCSQEVLELRRQAAKAEAKREG  
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RRQNHQLQAQMVEMEQAHTQQLRDLAAQHQRDLATEAERLHGQDSQATQALESQEWTHQQ  
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>Felis catus\_CROCC2(ENSFCAP\_23758)

VSLWTA V FQRLEDTVLSPMASREDRALTVRGEWPALPTVPARIREIVAGSLRDEPHQG  
LQPPAVSAGVQEEENERLQEE LSRLGELLAQADAEQDELAGRYHAVSARSFRGLRLLRQD  
WAGDAPCGVLRAPGMSGSTPTPAVFRVLLAPAGSQEGCRLWAGLVQLWEGSVPPPCLLA  
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HMKKANDRLAEELARTDGVHLHRGQLEL TEARRAETQIRRRRRGGSQDFLLLRQVTA  
LRVQLAELRTTAERAL TDMRAEMARTAGRLQTA CLALGSRRLRAASSAAGALEQRLRDQV  
RETQLQGRWDAEKVALQARLSEQTLLEKLEQNSKKERTISSLKMDVQKLESRRSRGQ  
RAADTLEDQVEALQRVLKSIT EVLHLGPSRGT LKVAQEDAGC PERACSGGPEAQEAQGG  
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EQLEEKVSGLKKELVSAQEALNSARLQRDVLESEREGLHRLARAVGTGLPSLTPSHTRL  
SVPSPLVTLPLLLGARAWTRTPPCPHPRQLEQERERLRRERQKALEQERAGALERLARAEQ  
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LQAQREQLLEGQARSMLARQALQVEMQQLRSAWEVQETKLQWDVGRQLRQVAQQERDLQL  
ALESQALAHHEDLARLQREKESLSLSLTEEKVAHRLEQEKKLVAKNAAKREALKEEIQ  
SLKHERDESLQLENEMQEALSLSKEEERRLLREELFRAMQELGQVRQEAQSQQKQAEATV  
SATAAELKALQARFEDA I LAHQREAAALRDSLREMAAERSNAGREAEGLRAQLDEAREAL  
AVLRGELQGSSESRERGLRREALARRALGEEAREKAVLRSNTELRAALRRAEQDKASFQ  
RSKEEREQKVLVLEEARAAQKEACELRASLREVQQARADACRELQELGTQVNVLRAENP  
RKGRESSEPGDRSGCDQGLQRQTRWPQWRRRDGWLQRGRRSALMTLPQVLRRLRELEAAE  
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GELARAEGARRHAEALGRLWSTLCRGLGLRGPSPSGSPWPFGFPSTGSESIQSAGPPTR  
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ERERAQAQSRAARLQEAALAEAEEGGMSVEGERRRQAARALQEEALRSLEEQRHAGRRAA  
SWEKRRLQ

>Bos taurus\_CROCC2(ENSBTAP\_6833)

PAGLREPLASLGGSPPEHLLQDELRSLEDLLAQAGAERDELGRYHTVNERGGEMLGTR  
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LGSSRPGGSLPSQLQARLQATTAQLRRSELESMDELDALGRLEAAEQRSTSLSQVNALL  
REQLEQLRKAHDRLAELARTTGSVPRLWAELELREAQRRTHREAGRARSQQPQDTLLQR  
QVTALRGRLAELRAATEKGLADLRADVARMARRLHTACLNLSNLRLTAGSEAAALEQQ  
RDKVREMLQLQGCWAAEKAAALQARLAEQTLLVEKLTQNASKERAISSLRMDVQRLESQH  
GGGGPTAPEDSRAEVETLRLLLDSSITQVQAQVAQADAGSEELARSSGAEGEGAQQGRGSP  
LHAGNSLRAESPADPDSALWAVRQAIQRWRQREQLRQQLESSEARATGLQEQLSESQRE  
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RACGRLEERLERLEGGATRLRRRERAQLQEQVGVVTCCKQALEKQLAQSLQDQEAQMAALQ  
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DESLQLQHEKQOSPQAQERPTPVTQALLLRDAELSRLRGELQLVLRQEAQQQEQEAAT  
ISTVASELKALQAQFEDA I SAHQTEARALRETLRALVAQRSSTGREAEETLRAQLDEAHEA  
LAALHRELQSEETQEGLQKEARDARRALADAAREKDALRDSNTELRLRRAEQEKASF  
KRSTEEREQKVLVLEEAWASAQKQAGELRASLREAEAAVDTQQQLQELRRQVTTLEAEN  
QRKSRELVRLQTRGAQEPQRQEAALALQTLVAEAKAAREDSQWEVRRRLRMLAEVEAQAKT  
REKHLERQLCESRGERALWAEALRGVARKLLQADGVADSLQARPDRACGRAHGLKQEPAR  
AEGTQRETEDQRGQLWSMLHPSVGLHGWSPEASPEPAGPPSRGQCPRPPSHPPGAPPP  
RGSPSLPEKGARASMRDAQRDLTQKLWDAQWEGAGRRSLGLQAFCLSPALGAEASEPT  
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>Equus caballus\_CROCC2(ENSECAP\_21159)

AERDELASRHHAVSERDLEHSVDLEEAALGRLEAAEQRSTGLSQVNALLREQLEHLKAND  
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AELRAATERGLADMADTARTARRLHRACLNLDLHRLSASRAADALEQALQGTRLEQQ  
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KMDVQKLVRGAGRQRPCRGVSVRLAEGSALAAGVPAWRRPAGSGRPEGPSGDRLRSPRPT  
ASPYRGVSPPRTRSLAASDPALRAVQAAIQRWRLKEQELRLQLESSQAVVAGLREQLSES  
QQELRASRLLQERAQEQAREYEDLLGKLEAQSREAAQHCRATSELLGREKKALESVVEEL  
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SWLKKELLSAREALNTAQLRQDVLESEREGLRGALARAESGSADLELLVTRLRKSEGVEQR  
DSLAKMAALMEGLAQDKGTLNHLVLQLEQERDQLEQQKALEQERAGAQEQLAQAEQQLE  
LVRAERRGLQQACGRLEEQLEQLEGRAAQLRRRERAQLQEELGQVTCCKQALEEQLAQSLQ  
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AQQLAMQLQAQEQLEGEAQSARLARQALQVEMQLKSTWEVQETKLQWDVGRQLRQVAQ  
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VLKEEIQSLKHERDESLLQLEHEMQOALSKEAERSLLREELSRATWELERLQQEAQSRE  
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EEAQEGLAALRQLEQSEESREGLRREALEARQALGDETREKDVQLQSNAELEAAVRRAE  
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LQRKLAEEVEAGGEARERQLEERLHESRGTEQSLRAELRGVTGQLQQAGGVADSLRTRLDE  
ACRRVHSLEQQLAHTEGARQDAESQLGRLWSTLRRGLGLGARSPTSPPERPGSPKGCQS  
DGSEGHSGRHSASPPGPARPSHGPRHLHPEIHGPEVDVASVRDTLRDFVQLRDAQREERDNR  
RLQVASLSSRLSEAESEERARAQSRMRQLQKALAEAEEGWRQAEGETSRARAAQALQEEAL  
RRLQTE

>Loxodonta africana\_CROCC2 (ENSLAFP\_23187)

ETTEARLRRSELEHSVDLEEALGRLEAAEQRSTGLAQVNTLLREQLHEMCKANDALAEEL  
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AATERGLADMRAEAARTARRLHTACLNLDPNRLLSAHSAAQAQQQLRDKVQEMLALQGC  
WDAEKVALQARLSEQTQLVERLTHEENTEKEGTIRALTVEVQGLESRGRGQPSMDDLDRDQ  
VDALRQVLNSITKVPLPSPALQGLRVFRKKGTELVQSGSTEGYEMLGQPKRPLHTYPPG  
GGLSPPQAQSPAALDPALRAVRVAIERRQQREQLRWKLEASQAVAAGLREQLSECRQEL  
LASKGPLWEQAWHEHEALLGELEAHRWEAQGCRASEERLGREKAALAEAVVEELRGQVDISA  
VERCRELEAENVELQRSLLLCAEQGNELAQEQRSRRELDTSQGHLEQLEEKVSGLKKELV  
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LMEGLAQDKGTNLHLILQLEQERDRLREQQRVLEQEQARSLEQLARAEQQALAREQAERR  
SLPEGSVQLAREAQLSRWPVRHLWAGLQCQLPQVTCGKQALEEQLAQSLQDREAQMDTL  
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TQQEQLEGEAQSARLMRQALQVDMQLKSTGEVRETKLQWDLEQLRRQVAQQERDSQLAL  
ESQAVAHREDLARLQREKRPVKVYKMLSKCRMAGTEAQRGRELKGCCLCRFLPPHSSNVQ  
RGAASSRAPVSFTCTPSCHLQALSKEAERNLLREELSTATQELERARQEAQQQERAKA  
TISTVTEELRVLQAQFTDAISTHQKESAALSTSLREVAARS SMGREAERLRAQLDVAQE  
GLAVLRLEQGVESCEGLRREALEARRALADEAREKDVQLQSNTELRSIRTAEQEKAS  
FKRSKEEHEQKVLILEEAHAAARKEAGELRAGLREVERARADARRELQGLRRQVKALEAE  
SQRKQEVGELQARAARDTQLQEQGQEALELQRRAAELEVAAYEGARKEVGLQRLKLA  
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LHQEVNGALRQNLQQAQMAELEQAHTQRLQELAAQHQQDLAAEAEQLHGAQLQAAQALE  
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>Dasypus novemcinctus\_CROCC2 (ENSDNOP\_27065)

VLQRLETTVLSPTASREDRALTVRGDGRGASPTVPARIREIVAGSLSEPPQGVREPPG  
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TTGSVLRQLQGLERQAWRQAEREFIYFFNIQCIFVKMSFYLSGLGFIRLLVSLIVFITL  
DDILVLGATLKKANCGSKSTGEIFSPSAALQNSRQSVPSLPAVFGLAMRVQLLEYHLHVA  
QRAVGAGRKHI PRGASSARCHWLNNEGVGAPQMWNKGRGSDNGEVAAQEARCHGAQQAVDS  
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RACSPAAPDQALQAVQTALERRRQEQELCLRLSSQEAAGLREQLSESRRERLRSWRE  
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GRTEQQEELARRGARSQRELEASQGRLEQLEDKVSGLKKELVAAAREALSAAQLRQDVLEG  
EGEALRALARAESSNTELELLVTRRLKSEGVAQRDSLAKMAALMEGLAQDKGTNLHLVLQ  
LEQERDRLQERQKALEQAGAGAREQLAGVEQQLERERAQKQGLQQACGRLEEQQGQLEGG  
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>Myotis lucifugus\_CROCC2(ENSMULP\_17303)

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>Homo sapiens\_CEP250(ENSP\_380661)

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>Pan troglodytes\_CEP250 (ENSPTRP\_46519)

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>Gorilla gorilla\_CEP250 (ENSGGOP\_8041)

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>Mus musculus\_CEP250 (ENSMUSP\_105247)

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>Rattus norvegicus\_CEP250 (ENSRNOP\_52126)

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>Canis familiaris\_CEP250 (ENSCAFP\_40980)

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>Felis catus\_CEP250 (ENSFCAP\_2972)

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>Myotis lucifugus CEP250 (ENSMLUP\_14802)

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>Monodelphis domestica\_CEP250 (ENSMODP\_2186)

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>Gallus gallus\_CEP250(ENSGALP\_55060)

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>Anolis carolinensis\_CEP250(ENSACAP\_5625)

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>*Ciona intestinalis* (ENSCINP\_32049)

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>*Strongylocentrotus purpuratus* (XP\_011663951)

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ALKQVMETEAEERSARKDAQNLTRRFGLDEELRLKEKDYAMSVDEARSERRISERLRTTENALDTEK  
ADLGDLLKLSAAEGRVNGLESQLAQVEGAKQVEVEFKLGSLSHSTLRRTLIGAGGMGSSLSLASSTSGP  
RSSLRDRSPSPVRARTRSPVKGFDNTFASTADGFGTPIPTGSPQLDRSASPLPTRSTSPTRMEQLVA  
DIDPETVRIALKDFSSQLKQDTERERDEAFCRIRLITQELAENEAARHRVDQRLQQFQKSLTEAEEGKRG  
DGRSSAQ TALMLQEETIRRSERDRKGMQEKINTLERSLSAEAEKRNQSDRIAKMNQGSQRMEDKRS  
RETLEASENRCTQLELKRRALEGLQRSHLSMNDKETESQVLQDRIEALMRQIQDLESKNTSLQLTVDR  
SSSLARSEEHEHTLKDQLQSLSLSLNDTAMESTQKQEQQLHHLQAVANSEKDRRVLQERLDAARHGASDA  
KKQNHQLIERVQQGQNDLAECELRRAELEQQVRSQQVLVKQHQESEETMTQIQRFQAEKRSKHEHVTT  
QKAYSNLETEKREVQRSAGRLEKDKTALKKTLKDKVEREKMRHEEAVMRATSEKALDQSLTSLDQENIEL  
QRQTALQATLAETEQQHAQRILIELTTRHRQETE IETERLRTAQLQAERTLEARERAHRQRVKGLEEQNS  
TLKDQMHHEVRKRQYISMSKTNDEIQDLRNMLSLSLHVSARDPTLDPVLEHETRKLDESMDGYSSSLR  
RSARGASPTSLSPRLAKDRNRSISPVRLGKPASTSTPGMDSKLRSSSGRTRSARGLSPSSLRGSLRK

>*Drosophila melanogaster* (FBpp0308351)

MQAYRDNFKQTPCPSAVDLQAAGPAHQSATASRLPFSRSQRGRDPSASGASVSASVAGGL  
TPRMSPGPPGAGGGGGGGVSGGGSGDPSALLRQNLQELRQLADESHSYRRRLDITYKQAQ  
HNQANLVSRLQSKIQQYRQRCSLDLEERMHETIKPTAGVGPKLTTGPTNQVLCSTSLTLGQ  
SSLPCSSSLDSPPCS RSDYVDDVLTGGGAGAAELCRKLEEEHQRCQIIVAQNSALRQ  
LEESNRTEALTNDLQKLTNDWASLRDELLIKEDEFKEEEQAFKDYNSHNRLKMWRE  
VVAVKRTFEMQTAMKAEVAKMGQEINCVGKDINGSNATVAFVQQAARAADELKQSQ  
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IERLNNSMREIAQAVVQDAENADREADAEVTTGGVMQHMHLTRDAASVVGAGGAGSTAGG  
GGKSPRRNSTRASQAFAEGTISAVQAALHXYQLALHDMQVKFQNTSETLRTTKAQLETSE  
GTKQLLTTKMQQLTEKLDSSNSKLSSELLQERESLQRLDDIRVQKQSEMGRADINSAGE

NLSSDYEKMLNCGKQLQKRIDSMEEDKKAVELEIQRI LKDKNITELNLRSEEDRSSRLRE  
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LSNNSCSTSDLEKSVQNCLEQAQEERKKLRISVDQCNEIGELKKELAILDKARLELETD  
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EATEERRSOLERDLQEALVREESLKNHVARLQKELEQCQRKAQETKTQLLNAARAAESDF  
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HLESVQVQHEEALIRAESEKQALLIAHRDKQAVAEERLEAVSRDLKTEQESLDRSRREAN  
ARDEKQRAAIAQLKDEMVMQRTKEEEHKIKLEECIRKQELQLSSLREERESLCRVSEELK  
MEIRLKEEDRMESTNNELQDALRKSKEGEGFIDS LRKELTDCRRQLADSNIERDKYSGSNK  
ELRDHVKRVESAKREQARAIEEALQKISNLEDTKNSLENERTLSTILKETENHFTKTQ  
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TRQELGRARCQNNQEEHRFHAREQELAQRLLEEGRGREKRLLEDQKHNLEVCCLADATQQIQE  
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ECQMLRERLAQTEMQLAATSEENGQNEERLEKSRQQCSKLDNEKRQLQEELAKVEGRASK  
LELQRVAMEGDLTRLQMALQEKDCSIRQMAERLENQNRALTQLEDRCTALKSTVDQLKER  
LQKSAVSETQLRGEIKTLQKELSEQGHCSQANEDKLLVQKSLQTAENEKRI LTERLDSA  
QTNLNELRSSQAQLDGNQRLQEQVTDLEVQRSALSQLRIAKWNQESGGDKDLTNGNGG  
GNGEELSRLQKSSQREKSELRSKLTQLQDKVKQLECDRKSFKSGGNAYDRAEKSN SFY  
GAAESGEFDSNRYDVGGNAGGGSFNCGLDHSVIEQETRDRLRLKVRRLLETLLAEKSELA  
RCKARMNDSAKCHDGLDGRYSAQMHAEKLLDAREQSHRQQVLRLENQISMLREQLAQE  
AKRRQQYILRSSKANREMQHLRSTLGD SLRNVSQHPVDPHLLSESRRLDSAVSMSLPPS  
SCRDYDRD

>Apis mellifera (XP\_006559453)

MSRPLPKNISQLSARGMERRRPPFLRGPSRMREKIERGIGSKMDSTGSTLSGTGDCLSEEDLSPDALVR  
QNYELHRLEEEAANYKRRLDTYRQAQQHQAALVSRLOAKVLQYKQKCELENQMAESIVYDSNKVVSSA  
PPTTSVLDAAHQTLREIREEQIYDLDTALKKLESEERKRCEKLLQLNTTLKQLEESHQTNALTNDLQKL  
SNDWDILREELAIKEEEWREEEQAFNDYYTSEHNRLILWRDVSVKRLFADIKSSTERDLLKMKNNIIS  
TFNDVSSACNNTGFAMRQAAMHPMISQQVQQAQEQVTTDLKTELITLQKQYDVAQNEIRIKEEKINQLI  
RDVHSLERCGEAEIHRNTRLQDDIEILQSALRDIHAHVIQDAESREIESTQAPPHLHLSPTGPIPOK  
SPKRGTRSNTIPAFAEISTI SAVQAALHKYQLTIHELQVKLQTNKEQLQNTKQCENAEENVKTLEKKAEE  
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LEDEKLYLQSELNRLSKDVELRELNLRSEEDRCSKMR EELLTLREELNKTYLSKDMLEQQKLETDGLISQ  
IEKSKGDLELELERVLEKSDVQEVLMKLETVC SNHEQEKQRLQEELKVKVTEEKNLANQCTDQQGDLS  
LRKELLEQANEMNGRINRNLEDLVKDNEEKQVLEETNEKEVQRLQEQLASMRSEKETLEGVLFDTQTSLEN  
MHVKKTQLEKEQKELLIKQESLKGQVERLMKDLENSEKRIHEVKQTLTQQSGDQEAFFQQIISNVKHXSE  
ENIKKLNEEKEQIKINLEKRLQSSLLQVTGEKDNEINLQQRIDEMQQHIENLCCQQHEEVLLRAENDKQQ  
ALLIAHHDQQALMEKLETVLHEMEEKNNVERVKREAAVKTEQERNINQLRDELNRLKTKLDETRKTD  
EEKIKL DLKIEELWKERELAQRESEELQVQLHMTEDKVDLSLQNLHETIRKLDKENLNETLRKELVDIR  
RQLGDSTYEKEKYNSNRELREHVKRIESEKREQNRILEESYQKISALEDMKVNVAERSRLQAQIRDME  
KEMLQQLKQLHFTQDELQKSHQSNQAQONDEKELQARLTNETEERERLQLQLHQVKKQLMDVDNSLKVTR  
QELGRLRSRADEENERWRVREQELVVRLEDSRCREKLEDQKHNLEVCCLADASQQIQELKARLGGSEGRV  
RALDAQLSQLEITKKEVEQKLSVSGSTLRRIAGIQMDG SVNIPFKLLSPSRRWSPARAQDHIDSSRDVIL  
DVPDEIIRKGVRSMLQQVAQIERERDDYKTELCNLKQLDENQEIQRNSDIQINTLLTNIRMLQDEKNSL  
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ESRATKLELQMSLEGLQRLQMMFQEKDANIHKLQERNDTQNRMTTLEERTSLKSMVEQLNLALEKA  
STTENELKNEINSMQH NIMELTTTLQTSNEKNKQLQKQISNAENERRILSERIESMQQSLNDLKHNTQTL  
TDQITRLQNELANNEVQRCAESQLRIVAYPTQEEININKDEELLRQLQIAQRERSEMGRKMEALNDKMKL  
LEADKRNLERQLSLFKSTNRSKSYERYEKAHTELLGTSFDIDHYEQENRELRLKVRRLLETQLAEKEAELI  
RLKSSYTHTHSVDFNDRDTGEIERLRAAQLQAEKLLLEAREQSHRQQVLRLENQIQLLREQLNQEIKRRQ  
LYVLRSSRAGREMQLRQALGDSLRTVAQDPSLDAVLEHEARKLDSTLTSTTSLPPSLALPPPPSYDRS  
STPAQLK

>Anopheles gambiae (XP\_311738)

MTTVLNGKDCAPSLGLRHSEGGGGGGGGSALADRSKKPF SRPFNKSRLQHEPSSTTTGGVSGTGGPPAT  
TARMPSTGSSSGPPSAADTSALIRQNNELRHRLQEEANNYRRRLETYKQAQNNQAALVSRLOAKVLQYK  
QRCSLEQLPPSAGSCSGGGGGGGGGRYAGGSGSREPSPGSRHLHHAHAPSPPPSAGGGGGGGPICTDV

TGGPLSLPSACPVARERARSRRSQSPCRKYSEGSHEIRHQLDEERRRCEKLLVENSCLRQOLEESHRT  
NEALTNDLQKLTNDWESLRDELLSKEDEWKEEQAFNDYNNHEHTRLLKMWREVQVRRMFNEMTSTTKM  
ELGRMHLELSGTVREVSAGCSGVSVNLKQSSKFEEAQQMHIERENIELKSQLESLRLOFEEAAKQEIQRD  
QRLQMQAQLKLLDDRYTQADSDQAAQAHMNDLELERLQAALRDI AHAVVQDAETSASADMGGCGGSAGE  
GGQHHLHLSQPIVSPGVAPRSPKRASGGMAGTGGSLRASQAFAGETISAVQAALHKYQLAIHDLQVKLQT  
NNDALKATRKQYDSCEHARDTSLGKVSSELTEKLSANHQSELYKERDSLQKTLDGRLSDKHTVERGKAE  
LNSIVDSLNTDYEKIQNVNSKLQKMYDALEEEKMI ELELQRVHKDKDIQELNLRAEFEERC SRLREETIT  
LREELNKLYLSRDLEQQRIESDGLLNMLEKQKLELEFELDRVTGERNELHSTLEKRTNSNEHQEQEIRQ  
LKTTVACLDEERGKLRASQSSDQSADLASLKKELISAEQARLDLDSEKLAI SERLKCLEMEKDKIEAELSC  
VARERNDLSNQLATISRKKEITIGEEVMRLRQRLEQSNEMNGRLNRSLEELVKESEEKTVTIEGHEKELQR  
LQEQLASLRSEKESLEAVLFDTNTSLEEAEAKKDALERENQDLLIKQESHKALIARLNKDLNAERRAQD  
IKIQLTNAANQAEFLQKLSNLRTFSEENIKKLNDEKEQIRQSLEKRMQSSLOALESAKDAEIRQLREQ  
FETLQLHLDALNQHQHEEVILRAENKQQALLIAHRDKQAVIEKLEVTARELKNLENGDRKREMAARQE  
KDRTTIGCLRDEVTKMRTKAEEARIRAEEMNRLEVVAGSLREEKETLLKDAEELKVQLRLESDRCDALN  
HQLQDTHRKLKEAENSTDA TRKDLTDTRRTLADSNIERDKYANSNKELRDHVVRVEEQRRQQARTIEDAL  
AKISSLEETRNGLEQDKVRLQITILKETETNVTKLNQELSNAQTDIQKFQTDTTQKDASEKELQARLANEG  
EEKERVLAELHQIKKQADLEGLTCATRQELGRARCKANQDEHRFHQREQLCARNEEGRGREKRLQEDQK  
HNLEVLADATQQIQELKARLGGAEGVRALDEQLVQLECCQKKEVENKLS SIGHTLRRR IAGIQMDGSVSL  
PYRLMSPSRRYS PARGGTGRSEGEHHHHRHHHGHGHEHTRSLSGENVLIDVDPPEMVRKGVRSLS  
MQQIAHIERERDDFKVQLCTARKQLQEGSDAQLRLETINKLQOHVRAVHEDKTNLEARLAQKTSALQST  
EETLRQKSEDELTALEKATQLEQSLTSTSEERTHLEERLDKCRQSGARLES DKRHLQDELAATEARATKL  
DLQRVALEGDIQRLQAMAMQEKDCTVRNQERLENQQRSLTQLEDRCVALKSTVDQLKERLQAAAITETEL  
RGEISGLQRHNADQSHTFALGQDKLQKQLKTLGSGSENERVLAERLDAAQHTINELRRNQASQDSTTRL  
QEQLAECEVQKSTLESQRLAKWNQETSEQLAATGGNLGGSGGAGGNTSGDQELTRQLISSQRENERLR  
NKVEALNEKIRTLEDRQQRPAQKYDRSEKKSGEYDSNRIESTTYSGLDHAQLEQEGRELRMKVRRLETL  
LAEKEAELARSRAKLLS PASKASSLGGSGVADVERYS AQVQAERLLDAREQSHRQQVTRLENQIAMLR  
EQLAQEAQRQQYILRSSRAGREMQQLRQTIGDSLNRVAQDPLDTSLLESEARRLDSAVSMSLPPTTSAT  
GRGRGEYDRSLSPTR

>Capitella teleta\_ (ELU12564)

MSTDSTDYSGRSYKRRSGGGGWERTSRKVENLAHSLKDTNRNLKAVDKMLLDYKDASEQQNSVIDKLQG  
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DDMDTPRRLHRLHQSVRDVSSEQLRLEDDLQOEILRRHRIETDHNKTLAALLEQTKQADPALNSVEQRLQ  
SIQDELRSERTFLRRKQDEVGKVSQELKQQPANVVYDGRVNAVENEALRLARLTQVETQKTAMESELERT  
KQRLEQVDGNKSTLITVNDMRRQLSRVEHERDQLGLQLEQRERDLKAQLKTRSLDEQQDGLREQEIKRL  
KQDLEEARSQLTKSASVVG DYGELRRELDKSERLRSQSLSDHIQVGVALF

>Hydra magnipapillata\_ (XP\_01255552)

MSFLDEKPPSDKSNDEDLPSLQSI IKRLEENEIKLPTKETLTNSEIPI SMRDVTKVMSNDVADA EKLIEE  
NRLLYDDLLWSQNQLSLMKSEKSSLNSKPLYN DYMRMQSPVNSSYNNE SVRIQSPVSSFLSVENYILQ  
INQLKQKIEDDHSNYKRKLHAYQEGQEKQSELIQKQLQSKVQQYKMRNNELEMIANDKSNELEELRDKLQV  
TIA SAKEYEKRLMEFDEDRSNEMENYAVQLEEEKQRNVNLQHANNMLHEQLEQATSANSHLSLETQKLSI  
ELTKSCDELKHRDSEENYFTEEHRKLVNLWNSIDFSRFAFNIVKLETQKDLLQVKA EFSKSARTIQ AAS  
MELEKTQRGLSTVNQNTLLEEQAQREKVESQLREKIRELIDLQATLNKMKDHYEIRLDEITNSLTESKAR  
VDEQQKTIGLYKNKQLGIEYSETTENWKNDSQVNI EAMREEIEVLQSTLYELANCILEDADSTSSSLD  
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EQKRQLDI AVMDKQSFKRQFDISSSKLQQLNTAYDELKTDHLSLQSKYNKSNE DCNKYRNQLQIEKEKQ  
SFENMKNHLQNKVEEYEHKVNQLENQISYLNHNESEKKSIMNEVSRLSNESQQQLQKVIADLECKQS  
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ALGEDKLN LGKIVLQVEAERDQIYKEKENLESEKLGKEELLRIDKEKASLESERKGI LEAINLNDATIE  
KLEEQLQEACFSKNMNDTLNNVVREKEVSQYELVSLRLEVERLQNSLNRLLEKEELTKENSLI SVKLS  
GNLKEIQALTESNALKSEKETLESYLYELQHLVGLKLEVRKEQLETSNHEVHLAKDTIAVELAHLK KENE  
IQ TAKLNKENELLQQKLSLLERERDLSLSRLKEQHEDQIHQLAMDKDKMLTAKKEEHLIVINELKEEMED  
YQIKAERDRALINEVASIQRERDLLLLQAEAEKQAH LRAADSEKSLLEVEKITKLKDDLDSANEELEILK  
RDLEEAAAREKDLLNSAHEIEKCKENLEETVNL YEAKLKDLDVSDHDKLLKNEELYGELSNAK FQLKIL  
NENHEAAQKECKELTNSKVIDLNGKLD DASKHTLELKRSLKDAEVEKMLVLSGAEELREAFKQVESEKMTY  
KKNYEDSKKLASILDDTNVMQTRETDLDRHMI SELETARQETRKEVEQQQLQNRVRLLDTECVKCKDLNIA  
KDQLNKTNSLLEERLDLINTKNKLRECETSKDAIKAE MQALATKAREHNDEFGLREKDLLMALEDARQT  
EVKVYDKMRQLENLLDVSNQEKSDLKLLKSSVEGRNLGLEDQLTKLEALKNLDLSDKLSNVYSALRRTLGI  
KPNQSINSINLLVHLRPSQMSLRNVAHLTLGNRVYLS SHDQSSFEDETPPSKNV SFETSNEMDPEYVRN  
SLREFAQKFKDLEHERDEALINIGGLQRQLENLEMDRLDYENRSLVQLQKSLQDTAEDKRGADGRLSSAQT

ALLLQEETIRRLERERKTAEEKFQILESTVAQLETEKRTLKEKYMKAHKHKLKYEQAEAMRSQIDGAES  
RITRTDLKKKSLEGDIDRLRSQ LHD AENEK HATKQRLEILQRTCKDLELKSSSIQLTVDRLNMSLSKSTD  
QEHL LQSKVTELSAISEKQSVVVS LQDKLQQTERIIVSNEQEKQAAFEKVENLKKQLLENKLLNDLQND  
KILNLRNEIANLESTRINLESELRQVQTL LQKNKVGDEELLNKLEKFKEEKKNLQERLAQQQRLLAQGEQ  
EKRDIEKNSVKVEKEKRALKATVEQLEKEKFLIDEELIQ LKNDQTESDKIRSNYEQTINSLRIQLS QLQE  
TLEEKELQHNKKLASMSARHRDDLMEIERMKSQQSLDRTYDARERAHKQIRGLEDQINTLKDQFAKE  
IQQKQSFINRTTQKNEEQEIRQKINSSINEVARNADPRILDRESQKLDTTYDNYNDFSAVLTASTPYSN  
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>Amphimedon queenslandica (XP\_003384298)

MEEQETKAPPEEATKDTDSASGDGSESKDVRVESTFEELKEFEFEEVLQEMVGDGSLGKFKTEYEKLHKALI  
KSHSEKRLMLQCQELNAELISNASKVTSALKITQDDKATISSQKQEI EKLWRAVDDAQDKETKTHETIH  
QLKLENI SLNKLIENGAGFGPAMQESMKALEKEKEELTVERDEQMEEISALRTELSELMEKRKEAENERE  
SVELKVLQ LQEEITAKNQEIDRDSRRKAKLEKDLRGVQAEVDNKVEEIKAKQAQLNKAHEDYAKAEQVLK  
DTQKKYENSVKQNEALEVMLDKKKKEYDQEVNRNEELARQNSEQIMELMKKEESINEFKQEI M KINKIRE  
GLQKKLREIEERKANVEANRDSL MQQIASIEKELEQERRQAESERRSFDELLRERDIISKSLRKSEGS AE  
RLEHLMKMKQEOTIKTLQHEITNFKEEAKQRSLLLQLEKERDKYGKESTDATQKCLQQMEEV KRKELEML  
QQKKLIAEAQNKLQQQKTLYEAASSDRSLYSKQLI EARDEITDMKRRIKILSHQIDQLKEEIAAKDGAMV  
KVNADLMHLEREDNLSAEISGRKQELEAARQLLENQKNEEKKLRKVLTEASTESARQKKELEQVINERD  
ILGTQVIRRNDELSLLYEKIKIQOSTL DKGEIQYKSRVEDIRILKLEIKKLRREKGLLTKSVANIEDLKR  
ELCQCQRELLRERTRCKAIEBELENPINIHRWRKLEASDLGTYEMIQKIHTLQKKLIQKTEEVVEKELLI  
QEKEKLYMDLKQILQRQPGPEVAEQ LQIYQQTLKEKTKQMKSMASELNMYETQVAEHKMDIDRLERELQE  
VKKKYLLQKKKEHIQKERERMLTKGLAPPVIPKATTNMPRFTGGGFNLKPNVLA

## **Discs, large Drosophila Homolog-associated Protein-DLGAP**

>Homo sapiens\_DLGAP1 (ENSP\_316377)

MKGLSGSRSHHHGVTCD SACSLSHSDRKP YLLSPVEHHPADHPY YTQRNSFQAECVGP  
FSDPLASSTFPRRHYSQQELKDECALVPRTLATKANRIPANLLDQFERQLPLSRDGYHT  
LQYKRTAVEHRSDSPGRIRHLVHSVQKLF TKSHSLEGP SKGSVNGGKASPDEAQAARYGK  
RSKSKERRAEPKARPSTSPGWSSDDNLDGDMCIYHAPSGVMTMGRC PDRSASQYFLEAY  
NTISEQAVKASRSNNDVKSTCANLPVSLDTPLLKKS AWSSTLT VSRAREVYQKASVNMD  
QAMVKSESCQQRSCQYLQVPQDEWGTGYPGRKDEIPCRMRSGSYIKAMGDEDSGDS  
TSPKPSPKVAARRESYLKATQPSLTEL TTKISNEHSPKLQIRSHSYLRVAVSEVSINRSL  
DSLDPAGLLTSPKFRSRNESYMRAMSTISQVSEMEVNGQFESVCSVFSELESQAVEALD  
LPMPGCFMRSHSYVRAIEKGCSDDECVSLRSSSPRRTTTT VRTIQSSTVSSCITTYKK  
TPPPVPPRTTTKPFISITAQSSTESAQDAYMDGQGRGDIISQSGLSNSTESLDSMKALT  
AAIEAANAQIHGPASQHMGNNTATVTTTTT IATVTTEDRKKDHF KKNRCLSIGIQVDDAE  
EPDKTGENKAPSKFQSVGVQVEEKECFRRFTRSN SVTTAVQADLDFHDNLENSLESIEDN  
SCP GP MARQFSRDASTSTVSIQSGNHYHACAADDDFD TDFDPSILPPDPWIDSITEDP  
LEAVQRSVCHRDRGHWFLLKLLQAERDRMEGW CQQMEREERENNL PEDILGKIRTA VGSAQL  
LMAQKFYQFRELCEENLNPN AHRPTSQDLAGFW DMLQLSIENISMKFDELHQLKANNWK  
QMDPLDKKERRAPPPVPPKPAKGPAPLIRERSLESSQRQEARKRLMAAKRAASVRQNSAT  
ESAESIEIYIPEAQTRL

>Pan troglodytes\_DLGAP1 (ENSPTRP\_16750)

MKGLSGSRSHHHGVTCD SACSLSHSDRKP YLLSPVEHHPADHPY YTQRNSFQAECVGP  
FSDPLASSTFPRRHYSQQELKDECALVPRTLATKANRIPANLLDQFERQLPLSRDGYHT  
LQYKRTAVEHRSDSPGRIRHLVHSVQKLF TKSHSLEGP SKGSVNGGKASPDEAQAARYGK  
RSKSKERRAEPKARPSTSPGWSSDDNLDGDMCIYHAPSGVMTMGRC PDRSASQYFMEAY  
NTISEQAVKASRSNNDVKSTCANLPVSLDTPLLKKS AWSSTLT VSRAREVYQKASVNMD  
QAMVKSESCQQRSCQYLQVPQDEWGTGYPGRKDEIPCRMRSGSYIKAMGDEDSGDS  
TSPKPSPKVAARRESYLKATQPSLTEL TTKISNEHSPKLQIRSHSYLRVAVSEVSINRSL  
DSLDPAGLLTSPKFRSRNESYMRAMSTISQVSEMEVNGQFESVCSVFSELESQAVEALD  
LPMPGCFMRSHSYVRAIEKGCSDDECVSLRSSSPRRTTTT VRTIQSSTVSSCITTYKK  
TPPPVPPRTTTKPFISITAQSSTESAQDAYMDGQGRGDIISQSGLSNSTESLDSMKALT  
AAIEAANAQIHGPASQHMGNNTATVTTTTT IATVTTEDRKKDHF KKNRCLSIGIQVDDAE  
EPDKTGENKAPSKFQSVGVQVEEKECFRRFTRSN SVTTAVQADLDFHDNLENSLESIEDN  
SCP GP MARQFSRDASTSTVSIQSGNHYHACAADDDFD TDFDPSILPPDPWIDSITEDP  
LEAVQRSVCHRDRGHWFLLKLLQAERDRMEGW CQQMEREERENNL PEDILGKIRTA VGSAQL  
LMAQKFYQFRELCEENLNPN AHRPTSQDLAGFW DMLQLSIENISMKFDELHQLKANNWK

QMDPLDKKERRAPPPVPPKPAKGPAPLIRERSLESSQRQEARKRLMAAKRAASVRQNSAT  
ESAESIEIYIPEAQTRL

>Gorilla gorilla\_DLGAP1(ENSGGOP\_28607)  
MKGLSGSRSHHHGVTCDSDSLSHSDRKPYPYLLSPVEHHPADHPYYTQRNSFQAECVGP  
FSDPLASSTFPRRHYSQQELKDECALVPRTLATKANRIPANLLDQFERQLPLSRDGYHT  
LQYKRTAVEHRSDSPGRIRHLVHVSQKLFTKSHSLEGPSKGSVNGGKASPDEAQAARYGK  
RSKSKERRAEPKARPSTSPGWSSDDNLDGDMCIYHAPSGVMTMGRCPDRSASQYFMEAY  
NTISEQAVKASRSNNDVKCSTCANLPVSLDTPLLKSAWSSTLTVSRAREVYQKASVNMD  
QAMVKESECQQRSCQYLQVPQDEWTGYTPRGKDDEIPCRMRSGSYIKAMGDEDSGDS  
TSPKPSPKVAARRESYLKATQPSLTELTLTKISNEHSPKLQIRSHSYLRVSEVSINRSL  
DSLDPAGLLTSPKFRSRNESYMRAMSTISQVSEMEVNGQFESVCESVFSELESQAVEALD  
LPMPGCFRMRSHSYVRAIEKGCSDDECVSLRSSPPRRTTTTVRTIQSSTVSSCITTYKK  
TPPPVPPRRTTTKPFISITAQSSTESAQDAYMDGQGQRGDIISQGLSNSTESLDSMKALT  
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>Mus musculus\_DLGAP1(ENSMUSP\_52858)  
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>Rattus norvegicus\_DLGAP1(ENSRNOP\_73938)  
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>Myotis lucifugus\_DLGAP1(ENSMLUP\_11070)

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>Monodelphis domestica\_DLGAPl (ENSMODP\_35344)

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LSIGIQVDDVDEPVKAGENKVTSKFQSIGVQVEEEKCFRRFTRSNVTAQADLDFHEN  
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SMKFDLHQLKANNWKQMDPLDKKERRVPPVPPKPAKGVPLIRERSLESSQRQEARKRLMAA  
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>Gallus gallus\_DLGAPl (ENSGALP\_46967)

MKGLSSSRSHHHGVTCDDPCDSLHSDRKPYPYLLNPVDPHPADHPYTTQRNSFQAECMVP  
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SGQISRQFSRDASTSTVSIQSGNHYHACAVDDDFETDFDPSILPPDPWIDSITEDPLE  
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>Anolis carolinensis\_DLGAPl (ENSACAP\_21368)

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>Xenopus tropicalis\_DLGAPl(ENSXETP\_35507)  
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>Danio rerio\_DLGAPl(ENSDARP\_113100)  
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>Takifugu rubripes\_DLGAPl(ENSTRUP\_45775)  
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DGQVQLKSSWSSSTLTVSRAREVYQKASVNLKALVKA EQGRTCHFLQVPQDDWSGF SPL  
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>Tetraodon nigroviridis\_DLGAP1a(ENSTNIP\_15747)

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>Tetraodon nigroviridis\_DLGAP1b(ENSTNIP\_8779)

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>Gasterosteus aculeatus\_DLGAP1a(ENSGACP\_5055)

MKGLSSSRSHHHAVTCDPSYDSMTLGHSDRRSYFLNPGEAHPSDHPCYTORNSFQAEC SA  
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>Gasterosteus aculeatus\_DLGA1b(ENSGACP\_19506)  
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IAPSVHIWYRTDCEICTLLSRQVPQDEWSGFSPLGKEDDIPCRMRSGSYVKAMAEDSDG  
DSDGSPKPSPKMQARRASYLKATQPSLTEMTTLQISSEHSPKLQIRSHSYLRVSEVSI  
RSLDTLDPKTLDDPKSLLSSPQYRSRNEASYRAMSTISQIEQVCEQVYSAMQAQAMEAAI  
DSMETMDTLMPGCFRMRSHSYVRAIDQGCSEEGEGGRPLLLLPSSPRTSATTVRTI  
QSSTVSSCITTYKTPPPVPPRTSTCSTASKPYISITAQSSTESAQDAYMEEEGPRGDMT  
IQSGLSNSTESIDSMKALTAIEAANAQVHGVPASQHVNSAMTVCPTPSVHSGAVIED  
HRDVYRKEALRKGLKCLSIGIQSKFTSIGVQVEDDRGVTAVQADMDIPDAMDTPLDSPDT  
DMEVLSSGALSRYSRDAATSTVSIQSGNHYHACASDDYDDVGFDPISLPPDPWIDSV  
TDDSLDVVQRSVCHRDRWFLKLLQAETDRMEGWCRQMELDQQDNDLDPDVLGKMRSVAVG  
SAQLLMSQKFQQFRELCEENLNPNAHPRPVASDLAGFWDMLQLSIENISLKFDELHQIRA  
NNWRPLDPPERKERRLPPVPPKPPKAPHHHPLARDRSLESSEKQRQEARRRLMAAKRA  
ASVRQNSATESADSIIEIYIPEAQTR

>Oryzias latipes\_DLGA1(ENSORLP\_10417)  
MKGLSGSKSHHHVVSIEPSYDPLGHVDRKQLLISQMDIPVVPVMPAEHPYNAQRTSYP  
SDSNSIVPYGTFPRRCHSTSSSHHPEVKDECMIVPYDGGKMQTQVVPVNIQVYEHQPPF  
SRDGYHTLQYKRGVLAHTGGMGTNDNNNDSPGRIRHLVHVSQKLFKSHSLEGPHHTQSS  
KGAHNGSVNGGGGGGSRASPEGGNPSAGVRHRKRKSRERCRSAEPKHSYHHHHPQL  
HGSASAPGSGYWSDDNLERELCLYHPHHHQPPSPSPSISPSPIAMTMGRVNDNPKF  
HARHGHTHHHSALKASRSNNDLKYAASSACLPPVGLLDGPLVKKGAWSSSLTVSRAREVY  
TNSSHNQPRASAGSGLNLDLALVKSKGSQLQDPSCHFLOIWIYQSVQTAVYLPGLFVAV  
AKSGSYANLNNFQVPQDEWSGFSPLGKEEDIPCRMRSGSYVKAMAEDSDGSESGSPKPS  
PKVQARRASYLKATQPSLTEMTTLQISTEHSPLQIRSHSYLRVSEVSIENRSLDTLDPK  
SLLDPKSLSSPQYRSRNEASYRAMSTISQIEQVCEQVYSEMYSQAMEAAMDLETMDTL  
PMPGCFRMRSHSYVRAIDQGCAGEEEEGGRPLLLLPSSPRTSATTVRTIQSSTVSSCI  
TTYKTPPPVPPRTSTCSTASKPYISITAQSSTESAQDAYMEEEGPRGDMTIQSGLSNST  
ESIDSMKALTAIEAANAQVHGVPASQHVNNSTMTVSVPNSSALSRGYSIEDHRDEYRKEA  
LRKGLKCLSIGIQSKFTSVGVQVEDDRGVTAVQADLDPDMLDMPMDSPEPNRHILSPNA  
LSRQYSRDAATSTVSIQSGNHYHACASDEYDDVGFDPISLPPDPWIDNVTDPLCVAS  
RSICQRDGRWFLKLLQAETDRMEGWCRQMELDQQENDLPDEVLGKMRSAMESAQHLMSSQ  
FQQFRELCEENLNPNIHPRPVASDLAGFWDMLQLSIENISLKFDELHQLRANNWRPLDPP  
ERKERRLPPVPRKPHKPHQHPPLVRDRSLESSEKQRQEARRRLMAAKRAASVRQNSAT  
ESADSIIEIYIPEAQTR

>Homo sapiens\_DLGA2(ENSP\_400258)  
MKGLSGSRTQPPLCSGHTCGLAPPEDCEHLHHGPDARPPYLLSPADSCPGGRHRCSPRSS  
VHSECVMPVVLGDHVSSTTFPRMHYSSHYDTRDCAVAHAGAKINRI PANLLDQFEKQL  
PLHRDGFHTLQYQRTSAAAEQRSESPGRIRHLVHVSQKLFKSHSLEGSSKSNANGTKAD  
GRADDDHHHAHAKHSKRKSKERKPEGKPRPGMSSWSSDDNLDSDSTYRTPSVLNRHHL  
GPVAHCYPDALQSPFGDLSLKTSKSNNDVKCSACEGLALTPDAKYLKRSWSSTLTVSOAK  
EAYRKSSSLNLDKPLHLQDAKPALRPCHYLQVPQDEWGGYPTGGKDEEIPCRMRSGSYIK  
AMGDEESGESDSSPKTSPKSAIPEPLKLSIGQRPLGEHQTYLQAASDVPVGHSLDPA  
ANYNSPKFRSRNQSYMRAVSTLSQASCVSQVSEAEINGQFESVCEVSEVESQAMDALD  
LPGCFRTRSHSYLRAIQAGYSQDDECIPMMPSDITSTIRSTAASVYTNKTPPPVPPR  
TTSKPLISVTAQSSTESTQDAYQDSRAQRMSWPWQDSRGLYNSTDSLDSNKAMNLALETA

AAQRHLPESQSSSVRTSDKAILVSKAEELLKSRCS SIGIQDSEFPEHQPYPRSDVETATD  
SDTESRGLREYH SVGVQVEDEKRRHGRFKRSNSV TAAVQADLELEGFPGHITTEDKGLQFG  
SSFQRHSEPTPTQYSAVRTVRTQGLFSYREDYRTQVDTSTLPPDPWLEPAIDTVETGR  
MSPCRRDGSWFLKLLHAETKRMEGWCKEMEREAENDLSEEILGKIRSAVGSQAQLLMSQK  
FQQFYWLCQQNMDPSAMP RPTSQDLAGYWDMLQLSIEDVSMKFDELQRLRLNDWKMMESP  
ERKEERKVPPPIPKKPPKGKFPITREKSLDLPDRQRQEARRRLMAAKRAASFRQNSASER  
ADSIEIYIPEAQTRL

>Pan troglodytes\_DLGAP2 (ENSPTRP\_42538)

MKGLSGSRTQPPLCSGHTCGLAPPEDCEHLHHGPDARPPYLLSPADSCPGGRHRCSPRSS  
VHSECVMPVVLGDHVSSSTFPRMHYSSHYDTRDDCAVAHAGAKINRIPANLLDQFEKQL  
PLHRDGFHTLQYQRTSAAAEQRSESPGRIRHLVHSVQKLF TKSHSLESSSKSNANGTKAD  
GRADDDHHHAHAKHKSRSKSKERKPEGKPRPGMSSWSSDDNLDSDSTYRTPSLLNRHHL  
GPVAHCYPDALQSPFGDLSLKT SKSNNDVKCSACEGLALTPDAKY LKRSSWSTLTVSQAK  
EAYRKSSLNLDKPLLHQDAK PALRPCHYLQVPQDEWGGYPTGGKDEEIPCRMRSGSYIK  
AMGDEESGESDSSPKTSPKSAI LPEPLLSIGQRPLGEHQQT YLQAASDVPVGHSLDPA  
ANYNSPKFRSRNQSYMRAVSTLSQASCVSQVSEAEINGQFESVCE SVFSEVESQAMDALD  
LPGCFRTRSHSYLRAIQAGYSQDDECI PMMTPSDITSTIRSTA AVSYTNYKKT PPPVPPR  
TTSKPLISVTAQSSTESTQDAYQDSRAQRMS PWPQDSRGLYNSTDSLDSNKAMNLALETA  
AAQRHLPESQSSSVRTSDKAILVSKAEELLKSRCS SIGIQVAALGRPRRSLLN VETATDS  
DTESTRGLREYH SVGVQVEDEKRRHGRFKRSNSV TAAVQADLELEGFPGHITMEDKGLQFGS  
SSFQRHSEPTPTQYSAVRTVRTQGLFSYREDYRTQVDTSTLPPDPWLEPAIDTVETGRM  
SPCRRDGSWFLKLLHAETKRMEGWCKEMEREAENDLSEEILGKIRSAVGSQAQLLMSQKF  
QQFYWLCQQNMDPSAMP RPTSQDLAGYWDMLQLSIEDVSMKFDELQRLRLNDWKMMESPE  
RKEERKVPPPIPKKPPKGKFPITREKSLDLPDRQRQEARRRLMAAKRAASFRQNSATERA  
DSIEIYIPEAQTRL

>Gorilla gorilla\_DLGAP2 (ENSGGOP\_7425)

PQYSWSPTQHFNEERYSPAPRSMKGLSGSRTQPPLCSGHTCGLAPPEDCEHLHHGPDARP  
PYLLSPADSCPGGRHRCSPRSSVHSECVMPVVLGDHVSSSTFPRMHYSSHYDTRDDCAV  
AHAGAKINRIPANLLDQFEKQLPLHRDGFHTLQYQRTSAAAEQRSESPGRIRHLVHSVQK  
LFTKSHSLEGSSKSNANGTKADGRADDDHHHAHAKHKSRSKSKERKPEGKPRPGMSSWWS  
SDDNLDSDSTYRTPSVLNRHHLGPVAHCYPDALQSPFGDLSLKT SKSNNDVKCSACEGLA  
LTPDAKY LKRSSWSTLTVSQAKEAYRKSSLNLDKPLLHQDAK PALRPCHYLQVPQDEWGG  
YPTGGKDEEIPCRMRSGSYIKAMGDEESGESDSSPKTSPKSAI LPEPLLSIGQRPLGE  
HQQT YLQAASDVPVGHSLDPAANYNSPKFRSRNQSYMRAVSTLSQASCVSQVSEAEING  
QFESVCE SVFSEVESQAMDALDLPGCFRTRSHSYLRAIQAGYSQDDECI PMMTPSDITST  
IRSTA AVSYTNYKKT PPPVPPR TTSKPLISVTAQSSTESTQDAYQDSRAQRMS PWPQDSR  
GLYNSTDSLDSNKAMNLALETA AAQRHLPESQSSSVRTSDKAILVSKAEELLKSRCS SIG  
IQDSEFPEHQPYPRSDVETATDS DTESRGLREYH SVGVQVEDEKRRHGRFKRSNSV TAAVQ  
ADLELEGFPGHITMEDKGLQFGSS FQRHSEPTPTQYSAVRTVRTQGLFSYREDYRTQVD  
TSTLPPDPWLEPAIDTVETGRMSPCRRDGSWFLKLLHAETKRMEGWCKEMEREAENDL  
SEEILGKIRSAVGSQAQLLMSQKFQ QFYWLCQQNMDPSAMP RPTSQDLAGYWDMLQLSIED  
VSMKFDELQRLRLNDWKMMESPERKEERKVPPPIPKKPPKGKFPITREKSLDLPDRQRQE  
ARRRLMAAKRAASFRQNSATERAD SIEIYIPEAQTRL

>Mus musculus\_DLGAP2 (ENSMUSP\_39647)

MGTAVLPGI LQKHCCILPDRNTESQCTLCGEPEEEEEGGDLAQ PGLSFPGPAAEEDIDQQY  
SWSPTQHFNEERYSPAPRNMKGLTGSRNQPQLCAGHTCGLSPPDDCEHPHDMHHGSDVR  
QPYLLSPAESC PMDHRCS PRSSVHSECMMPVMLGDHVSSSTFPRMHYSSHYDTRDDCA  
MSHTSTKVNRI PANLLDQFEKQLPLHRDGFHTLQYQRASAATEQRNESPGRIRHLVHSVQ  
KLF TKSHSLEGSSKSNINGTKSDSRVDDHHQSHLSKHSKRSKSKERKPE SKHKS GMSSWW  
SDDNLDSDSTYRTPSVAHRHMDHI PHCYPEALQSPFGDLSLKT SKSNNDVKCSACEGL  
ALTPDTRYMKRSSWSTLTVSQAKEAYRKSSLNLDKPLVHPEIKPSLRPCHYLQVPQDDWG  
AYPTGGKEEEEIPCRMRSGSYIKAMGDEESGESDSSPKTSPVAIRPEPLLP I IQRPLG  
DHQTSY LQAATEVPVGHSLNPSINYNPKFRSRNQSYMRAVSTLSQASCVSQMSEAEVN  
QFESVCE SVFSEVESQAMDALDLPGCFRTRSHSYLRAIQAGYSQDDECI PMMTPSDITST  
TIRSTA AVSYTNYKKT PPPVPPR TTSKPLISVTAQSSTESTQDAYQDSRAQRMS PWPQDS  
RGGLYSMDSLDSNKAMNLALETA AAQRHAADTQSSSTRS IDKAVLASKAEELLKSRCS  
IGVQDSEFPDHPYPRSDVETATDS DTESRGLREYH SVGVQVEDEKRRHGRFKRSNSV TAA  
VQADLELEGFPGHVSMEDKGLQFGSS FQRHSEPTPTQY GALRTVRTQGLFSYREDYRTQ

VDTSTLPPDPWLEPSLDTVETGRMSPCRRDGSWFLKLLHTETKRMEGWCKEMEREAEN  
DLLEDILGKIRSAVGSQAQLLMSQKFQQFYWLCQQNMDPSAMPRPTSQDLAGYWDMLQLSV  
EDVSMKFDELHQKLNWDKIIIESPERKEERKIPPIPKKPPKGKFPITREKSLDLPDRQR  
QEARRRLMAAKRAASFRQNSATERADSIEIYIPEAQTRL

>*Rattus norvegicus*\_DLGAP2(ENSRNOP\_54654)  
DQQYSWSPTQHFNEERYSPAPRNMKGLTGSRNQPQLCVGHTCGLSPADECEHPHDHVRHG  
PDVRQPYLLSPAESCMPDHHRCSPRSSVHSECMMMPVMLGDHVSSSTFPRMHYSSHYDTR  
DDCATSHASTKVNRI PANLLDQFEKQLPLHRDGFHTLQYQRASAATEQRNESPGRIRHLV  
HSVQKLFTKSHSLEGSSKSNINGTKSEGRMDDHHQSHLSKHSKRSKSKERKPEKHKSGM  
SSWSSDDNLDSDSTYRTPSVAHRHMDHI PHCYPEALQSPFGDLSLKTSKNSNDVKCSA  
CEGLALTPDTRYMKRSSWSTLTVSQAKEYRKSSLNLDKPLVHPEIKPSLQPCHYLQVPQ  
DDWGAYPTGGKEEIPCRMRSGSYIKAMGDEESGESDSSPKTSPTVALRPEPLLSIIQ  
RPLGDHQTQSYLQAATEVPVGHSLDPSVNYNSPKFRSRNQSYMRAVSTLSQASCVSQMSE  
AEVNGQFESVCESVFSEVESQAMDALDLPGCFRTRSHSYLRAIQAGYSQDDECIPVMTPS  
NMTSTIRSTAAVSYTNYKKT PPPVPPRTTSKPLISVTAQSSTESTQDAYQDSRAQRMSPW  
PQDSRGGLYNSMDSLDSNKAMNLALESAAAQRHAADTQSSSTRSIDKAVLVSKAEELLS  
RCSSIGVQDSEFPDHPYPRSDVETATDSDTESRGLREYHSVGVQVEDEKRHRGRFKRSNS  
VTAAVQADLELEGFPGHVSMEKGLQFGSSFQRHSEPSTPTQYGALRTVRTQGLFSYRED  
YRTQVDTSTLPPDPWLEPSLDTVETGRMSPCRRDGSWFLKLLHTETKRMEGWCKEMERE  
AEENDLSEEILGKIRSAVGSQAQLLMSQKFQQFYWLCQQNMDPSAMPRPTSQDLAGYWDML  
QLSVEDVSMKFDELHQKLNWDKIMESPERKEERKIPPIPKKPPKGKFPITREKSLDLP  
DRQRQEARRRLMAAKRAASFRQNSATERADSIEIYIPEAQTRL

>*Loxodonta africana*\_DLGAP2(ENSLAFP\_6018)  
EEEGGDLAQPGISFPGPAEEELDQRYWSPTQHFNEERYSPAPRNMKGLSGSRNQPLCS  
GHTCGLTPPEDCEHTDHIHHGQETRQSYLLSPTDSCPMDDHHRCSPRSSIHSECMMMPVM  
MGDHMSSTFPRMHYSSHYDTRDDCAMSHASTKINRI PANLLDQFEKQLPLHRDGFHTLQ  
YQRTSTAERKESRPGRIRHLVHSVQKLFTKSHSLEGSSKSNVNGTKGDSRVDDHHGHHS  
KHSKRSKRSKESPEKHKSGMSSWSSDDNLDSDSTYRTPSVINRHHVDHISHCYPETLQ  
GPFGLSLKTSKSNNDVKCSACEGLSMTPTDKYMKRSSWSTLTVSQAKEYRKSSLNLDK  
PLVHQEIKPSLRPCHYLQVPQDEWGGYPTGGKDEEIPCRMRSGSYIKAMGDEESGESDS  
SPKTS PKVAIRPEPLLSIGORPLGDHQTQSYLQAASDVPGHNLDPANYTSPKFRSRN  
QSYMRAVSTLSQASCVSQMSEAEINGQFESVCESVFSEVESQAMDALDLPGCFRTRSHSY  
LRAIQAGYSQDDECIPAMTSSDIASIRSTAAISY TNYKKT PPPVPPRTTSKPLISVTAQ  
SSTESTQDAYHDSRTQRI SPWPQDGRGLYNSTDSLDSNKAMNLALESAAAQRQASESQGG  
SARTSDKAILVSKAEFLKSRRSSIGIQDSEFPEHQPYPRSDVETAADSDTESRGLREYH  
SVGVQVEDEKRHRGRFKRSNSVTAGVQADLELEGFPGHITMEDKGLQFGSSFQRHSEPSTP  
TQYGAVRTVRTQGLFSYREDYRTQVDTSNLPPDPWLEPSIETVETGRMSPCRRDGSWFL  
KLLHTETKRMEGWCKEMEREAENDLSEEILGKIRSAVGSQAQLLMSQKFQQFYWLCQQNM  
DPSAMPRPTSQDLAGYWDMLQLSIEDVSMKFDELHHLKLNWDKIIIESPERKEERKVPPI  
PKKPPKGKFPITREKSLDLPDRQRQEARRRLMAAKRAASFRQNSATERADSIEIYIPEAQ  
TRL

>*Dasypus novemcinctus*\_DLGAP2(ENSDNOP\_4883)  
DQQYSWSPTQHFNEERYSPAPRNMKGLSGSRNQPLCSGHTCGLTPPEDCEHSHDHLHHG  
QETRQSYLLSPTDSCPMDDHHRCSPRSSIHSECMMMPMMMGDHMSSTFPRMHYSSHYDTR  
DDCAMSHASTKINRI PANLLDQFEKQLPLHRDGFHTLQYQRTSTAEEQRSESPGRIRHLV  
HSVQKLFTKSHSLEGSSKSNVNGTKGDSRMDDHHGHHSKHSKRSKSKERKPEKHKSGM  
SSWSSDDNLDSDSTYRTPSVLNRHHVDHISHCYPETLQSPFGDLSLKTSKSNNDVKCSA  
CEGLAMTPTDKYMKRSSWSTLTVSQAKEYRKSSLNLDKPLIHQEI KPSLRSCHYLQVPQ  
DEWGGYPTGGKDEEIPCRMRSGSYIKAMGDEESGESDSSPKTSPKVATRPEPLLSIAQ  
RPLGDHQTQSYLQAASDVPGGLDPSANYNSPKFRSRNQSYMRAVSTLSQASCVSQMSE  
AEINGQFESVCESVFSEVESQAMDALDLPGCFRTRSHSYLRAIQAGYSQDDECIPAMTSS  
NITSTIRSTAAAPY TNYKKT PPPVPPRTTSKPLISVTAQSSTESTQDAYHDSRAQRGSPW  
PQDARGLNSTESLDSNKALNLALETAQAQRHAAEQGG SARAGDKAVLGAKAEFLRSR  
RASVGIQDSEFPEHQPYPRSDVETATDSDTESRGLREYHSVGVQVEDEKRHRGRFKRSNSV  
TAAVQADLELEGFPGHVTEDKGLQFGSSFQRHSEPSTPTQYGAVRTVRTQGLFSYREDY  
RTQVDTPNLPPDPWLEPSIETVETGRMSPCRRDGSWFLKLLHTETKRMEGWCKEMEREA  
EENDLSEEILGKIRSAVGSQAQLLMSQKFQQFYWLCQQNMDPSAMPRPTSQDLAGYWDMLQ  
LSIEDVSMKFDELHQKLNWDKIMESPERKEERKVPPIPKKPPKGKFPITREKSLDLPD

RQRQEARRRLMAAKRAASFRQNSATERADSIEIYIPEAQTRL

>Monodelphis domestica\_DLGA2 (ENSMODP\_17783)

DQQYSWSPTQHFNEERYSPAPRNMKGLSSSRNQPQLCSGHTCGLTPPEDCEHTHDHLHHG  
QEPRQSYLLSPTESCMPDHHRCSPRSSIHSECMMPMMMGDHMSSTFPRMHYSSHYDTR  
DDCAMSHASTKINRIPANLLDQFEKQLPLHRDGFHTLQYQRTSNAAEQRSESPGRIRHLV  
HSVQKLFKSHSLEGSSKSNVNGTKSDSRGDDHHHGHPSKHSKRSKSKERKPEKSKHSGM  
SSWSSDDNLDSDSTYRTPSVVNRHHVDHISHCYPDALQSHFGDLSLKTSKSNNDMKCSA  
CEGLAMTPDGKYMKRSSWSTLTVSQAKEYRKSLSLNDKPLVHQEIKPALRPCHYLQVPQ  
DEWGGYPTGGKDEEIPCRMRSGSYIKAMGDEESGESDSSPKTSPKVAVRTEALLKSIGQ  
RPLGDHQTQSYLQAAGDVPGGHNDPTANYNSPKFRSRNQSYMRAVSTLSQASCVSQMSE  
AEINGQFESVCEVSFSEVEAAMDALDLPFCFRTRSHSYLRAIQAGYSQDDECIPAMTSS  
NITSTIRSTTAVSYTSYKKT PPPVPPRTTSKPLISVTAQSSTESTQDAYHDSRTQRI PPW  
PQDGRGLYNSTDSLDSNKAMNLALETAQAQRHASESQSSSVRTSDKAVLVTKAEFLKSR  
RSSIGIQTEMFPTHSLPYHSSTVETATDSDTESRGLREYHSGI QVEDDKRHGRFKRSNS  
VTAAVQADLELEGFPGHITMEDKGLQFGSSFQRHSEPSTPTQYGAVRTVRTQGLFSYRED  
YRTPVDTSNLPPDPWLEPSIETVETGRMSPCRRDGTWFMKLLHTETKRMEGWCKEMERE  
AEENDLSEEILGKIRSAVGSQAQLLMSQKQFYWLCQQNLDP SAMPRPTSQDLAGFWDLL  
QLSIEDVSMKFDELHQLKLNKLI ES PERKEERKVPVPPVPPKPKPKGKFPITREKSLDLP  
DRQRQEARRRLMAAKRAASFRQNSATERADSIEIYIPEAQTRL

>Gallus gallus\_DLGA2 (ENSGALP\_26331)

MGTIQVLPGLQKHCCILPDRNTESQCTLGEPEDLDSLTDGHAFPEDEGGDLLKSSFSFP  
GTPEEIDQQYSWSPSHHFNEERYSPASRNMKGLSGSRNQPQLCSAHTCGLASPEDCEHT  
HDHIHHGQEPRQSYLLSPTESCMPDHHRCSPRSSIHSECMMPMVMGDHMSSTFPRMHY  
SSHYDTRDDCAMSHGNPKINRIPANLLDQFEKQLPLHRDGFHTLQYQRTSTAAEQRSESP  
GRIRHLVHSVQKLFKSHSLEGSSKGNVNGTKGDSRGGDDHHHGHSHKGRKRSKSKERKPE  
TKHKSGMSSWSSDDNLDSDSTYRTPSVVNRHHADHISHCYPEALQGHFGDLSLKTSKSN  
NDVKCSACEGLAMTPDSKYMKRSSWSTLTVSQAKEYRKSLSLNDKPLVHQEIKPSLRPC  
HYLQVPQDEWGGYPAGGKDEEIPCRMRSGSYIKAMGDEESGSDTSPKTSPLAVRPES  
LLKSIGQRPLGDHQNQSYLQATASDVPPGGHNDPSANYNSPKFRSRNQSYMRAVSTLSQAS  
CVSQMSEAEVNGQFESVCEVSFSEVEAAMDALDLPFCFRTRSHSYLRAIQAGYSQDDEC  
IPAMASSNITSTIRSTTAVTYTSYKKT PPPVPPRTTSKPLISVTAQSSTESTQDAYHDSR  
AQRMSPPWPQDGRGMYNSTDSLDSNKAMNLALETAQAQRHVSEASIRTSKAILVTKAE  
FLKSRSSIGIQVETATDSDTESRGLREYHSGI QVEDEKRGHGRFKRSNSVTAAVQADLE  
LEGFPGHITMEDKGLQFGSSFQGHSEPSTPTQYSAVRTVRTQGLFSYREDYRTPVDTSNL  
PPPEPWLEPAIETVETGRMSPCRRDGSWFMKLLHTETKRMEGWCKEMEREAEENDLSEEI  
LGKIRSAVGSQAQLLMSQKQFYWLCQQNLDP SAMPRPTSQDLAGFWDLLQLSIEDVSMK  
FDELHQLKLNKLI ES PERKPTGWWMEERKVPVPPVPPKPKPKGKFPITREKSLDLPDRQR  
QEARRRLMAAKRAASFRQNSATERADSIEIYIPEAQTRL

>Anolis carolinensis\_DLGA2 (ENSACAP\_5144)

MKGLSGSRNQSQLCSAHTCGLASPEDCEHTHDHIHHGQESRQSYLLSPTESCMPDHHRC  
PRSSIHSECMMPMVMGDHMSSTFPRMHYTSHYDTRDDCTMSHANPKVNRI PANLLDQF  
EKQLPLHRDGFHTLQYQRTSTAAEQRSESPGRIRHLVHSVQKLFKSHSLEGSSKSNVNG  
TKGDGRGDDHHHGHSHKGRKRSKSKERKPEKHKGTGMSWSSDDNLDSDSTYRTPSVVN  
RHHVDHISHCYPEALQGHFGDLSLKTSKSNNDVKCSACEGLAMAPDGKYMKRSSWSTLT  
VQAKEYRKSLSLNDKPLVHQEIKPSLRPCHYLQVPQDEWGGYPAGGKDEEIPCRMRSG  
SYIKAMGDEESGSDTSPKTSPLAVHPESLLKSIQQRALGDHQNQSYLQAASDVPPGHS  
LDPANYNNSPKFRSRNQSYMRAVSTLSQASCISQMSEAEVNGQFESVCEVSFSEVEAQA  
DALDLPFCFRTRSHSYLRAIQAGYSQDDECIPAMASSNITSTIRSTTAVTYTSYKKT PPP  
VPPRTTSKPLISITAQSSSTESTQDAYHDSRTQRI SPWPQDSRGMYNSTDSLDSNKAMN  
LALETAQAQRHMSENQTSVRTSDKAILVTKAEFRKSRSSIGIQVETATDSDTESKGLRE  
YHSGVQVENDKRHGRFKRSNSVTAAVQADLELEGFPGHITMEDKGLQFGGSFQRHSEPS  
TPTQYGAVRTVRTQGLFSYREDYRTQVDTSNLPPPEPWLEPAIETVETGRMSPCRRDGS  
WFMKLLHTETKRMEGWCKEMEREAEENDLSEEILGKIRSAVGSQAQLLMSQKQFYWLCQ  
QLDPSAMPRPTSQDLAGFWDLLQLSIEDVSIKFDELHQLKLNKLI ES PERKEERKVP  
VPPKPKPKGKFPITREKSLDLPDRQRQEARRRLMAAKRAASFRQNSATERADSIEIYI  
PEAQTRL

>Danio rerio\_DLGA2 (ENSDARP\_139510)

IDQLDSWSPPPYFDEDSYSPPPRNMKGLSSGRPQLTFTSGHTCGLPDCDQSLDHLQHVGPD  
DSRSPYLLSPTESCPLDPHRCSPPRSSIHSECMVMPVSMASDHVSSSTFPRMHYSSHQDSL  
RDDGSTSHGSGKMNRI PANLLDQFEKQLPIHRDGFHTLQYQRTSATTNSEQRNESPGRI  
RHLVHSVQKLFTKSHSLEGSSKMNGTKGDSRSDSGHHHHHHHHHGHHDGSHKHSKRKSK  
ERKSDSKQRSIAGWSSDDNLDSDSTYRTPS IMSRHHGDHITHCYPDMGHGHFGDLSLK  
TSKSNNDVKCSACES IAMAPEGKFMKRSSWSTLTVSQAKEYRKSSSLNLEKPTMPQDLKS  
SMRPFCHFLQVPQDEWGRDEEIPCRMRSSSYVKAMGDQSDGSDGSPKNSPQKMRVFNPA  
LVKSVLQRQLSDQRPSQSYHLQTSREIHPSITLPSPNYNSPKFRSRNQSYMRAVSTLSQ  
ASCVSQVSETEVNGQFESVCEVSEVESQAMDALDLPGCFRTRSHSYLRAIQAGFSQDD  
DCVPSMTSSTVTSTIRSTTAVTYTPSTPTYKRTPPPVPFRSTSKPLISITAQSSTESTQD  
AYHEGQLARGFWGSDGSSLSLGRALYNSTDSLDSAKAVTIAMEAAAAMAMAGKRHPSTDSH  
SSVMTCDKAVLVSKAEYKLTTPRSSIGIQSSVQVQSKIGRRDVEAATDSECEKSGSREY  
QSVGIQVEDERRQGRFKRSNSVTAAVQADLELEGFPLMEDKGLQFGGGFQRHSEPSTPTQ  
YGAVRTVRTQGLFSYREDYRTPTEPPSPQRSPEPWLEPSPREPIATVAVTVTPPQPSDSG  
RASPSCRRDGSWFMQLLHAETKKMEGWCKELEGAEENDLSEEILGKIRSAVGSQQLMS  
QKFQQFYWLCQQNLDPSPAMPRPTSQDLAGFWDLLQLSIDDVTSKFNELQKIKSNDWRLID  
SPVKKVRADYLPVPKKTLRKSVTREKSLDLPDRQRIEARRRLMAAKRAASFRQNSASE  
RADSIEIYIPEAQTRL

>Takifugu rubripes\_DLGAP2 (ENSTRUP\_27118)  
VDQQYSWSPSQYFDEDSNPPPPRNMKGLSGGRPAQLQLTSPTSAYSCLVECDPSLDHHL  
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GSASRDSGNTSGGSKMNRI PANLLDQFEKQMLHRDGFHTLQYQRTSTTTTSTEQRNES  
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RKSDGGGKQRSGGWSSDDNLDSDSTYRPPSVMSRHPVEHISHCYSDSVHGHVGDMSLK  
TSKSNNDVKCTACES INMAPEGKFMKRSSWSTLTVSQAKEYRKSSSLNLEKPMPTDLPK  
NLRPCHYLQVPQDDWGGYPGDGKDEEIPCRMRSSSYVKAMGDEESGESDSSPKASPQKS  
VRPEALVKAVIRPRDLLDSQSQSYHLQTTNRMHPSIALEPSTNYNSPKFRSRNQSYMRAV  
STLSQASCVSQVSETEINGQFESVCEVSEVESQAMEALDLPGCFRTRSHSYLRAIQAG  
YSQDDDCIPPMASVTSTIRSTTAITYTPNYKKTTPPVPPRSTSKPLISITAQSSTESTQ  
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HSSVLTCDKAVLVSKAEYKLTTPSSIGIQSFIDLPLPSHPPSHRLALVEAATDSESESKG  
SREYQSVGIQVEDNTKGQGRFKRSNSVTAAVQADMELEGFVPMEDKGLQFGGGFQRHSEP  
STPTQYGAVRTVRTQGLFSYRDDYRTLAEPSPRETSREATWQLEPPSPRENTASSAESG  
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QKFQQFYWLCQQNLDPSPAMPRPTSQDLAGFWDLLQLSIDDVTVKFDQLQQIKNNWRLID  
SPEKKPPAPVPKKTARQKSVITREKSLDLPDRHRQEARRLMAAKRAASFRQNSGSEAD  
SIEIYIPEAQTRL

>Tetraodon nigroviridis\_DLGAP2a (ENSTNIP\_13668)  
MKGLSSSRFQHQIPLPYGLDYDPHVHDLHAHGGSESRHPSYLLSPTESCPTDFHHRYSPR  
SSIHSDCMVMSPVMMPPAASDHISSSTFPRMHYSSQYDTATRDDCAAITASASVKSNR  
LPANLLDQYEQKQLPLHRDGFHTLQYQRTSTTTTEQRSESPGRI RHLVHSVQKLFTKSHSLE  
GSSKMNGTKGDI GGGGAGYHHYQHSTKHGSKRSKSKERKHRSGGWSSDDNLDSDSTY  
RTPSVMSRHHGEHASHCHPDSMSSHFGDLSLKTTKSSNDVKCSACEALGPEGKFMKRSS  
WSTLTVSQAKEYRRAAFNLDKPMMHTDLKSSRTCHFLQVPQDDWGGYPGEKDEEIPCR  
MRSSSYVKAMGEVDDSDGSDTSIKTSPQKTVRS DALVLKSAMQRPHPDPQRVLTQHPL  
PPILTFSQGYHLQTLRDMRPHPSVTLDPATVHPPPPFRSRNQSYMRAVSTLSQVSETEING  
QFESVCEVSEVESQAMEALDLPGSFRTRSHSYLRAIQAGYSQDDDCLPMSMTSSTVTST  
LRSTTAQKNGTNSKVTDYKKTTPPVPPRSTTKPLISVTAQSSTESTQDAYQYQEGKHPRS  
GLWTTDSLGRPIYSSTDSLSTKAVTMAMESAAGKRHTSLGSHTSVQTCDAVLVSKAE  
YLKTPRSSIGIQVETVTDSEPETKGLPQFHSIGIQVEDRKRHRGRFKRSNSVATAVQADME  
LEGFPSMEDKGFQFGGAFGRHSEPSTPTQYGAIRTVRTQGLFSYREDYRSPSSRPSHPPE  
PWLVEPSLESTDTGRVSPIRR DGSWFMQLLHNETKRLEGWCKEMERAEHDLSEEILGK  
IRSAVGSQQLMSQKFQQFYWLCQQNLDPSPAMPRPTSQDLAGFWDLLQLSIDDVTAKFDE  
LHQIKDNHWQLVKSPEKKERKWPPVPKRPARGRSGIMRERSLDLQDRQREARRRLMAA  
KRAASFRQNSATERADSIEIYIPEAQTRL

>Tetraodon nigroviridis\_DLGAP2b (ENSTNIP\_20628)  
MKGLSGVRPAQLQLTSVSAHTCGLAECDPDHLHGHGNARSPSYLLSPTESCPLDHR  
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SHGSGSKMNRI PANLLDQFEKQMP LHRDGFHTLQYQRTSTTTTTTEQRNESPGRIRHLVH  
SVQKLFTKSHSLEGSSKMNGTKSDSHRDSKRKSKDRKSDGSGKQRSGGWSSDDNLDSD  
STYRPPSVMSRHPVDHISHCFPDSVHGHLAGDMSLKTSKSNNDVKCTACDSINMAPEGKF  
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DEIPCRMRSSSYVKAMGDEESGESDSSPKASPQKTVRDPALFVAIQPSRTEMYLPSFAN  
SIKGVLSLFSQSYHLQAARNIHPSIALDPSANYNSPKFRSRNQSYMRAVSTLSQVSETEV  
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TIRSTTAITYTPNYKKNPPVPPRRTTSKPLISITAQSSSTEMQDAYHEGRPHGRMWTPE  
GLSLGLGPRGLYNSTDSL DSTKAVTIAMEAAGLMAGKRHPSTDSHSSVLTCDKAILVSK  
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LPEETSPLGLEPPSPRESAASSAESGRASPSLRRDGSWFMQLLHTDTKRIEGWCKEMEA  
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>Gasterosteus aculeatus\_DLGAP2a (ENSGACP\_10715)  
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DSRHSSYLLSPTESCMPDFHHRYSRPSIIHSDCMMAPVMVPAQAAASEHISSTFPRMHY  
SSPYDPAAREKSNR L PANLLDQFEKQLPLHRDGFHTLQYQRTSTTTTEQRGESPGRIRHL  
VHSVQKLFTKSHSLEGSSKMNGTKGEERVSHHAHSTMAARGARAKERKHRSGGWSSDD  
NLDSDSTYRTPSVMSRHHGEHVGHCPDSTHSHHFGDLSLKASKSNNDVKCSACESMAMA  
PEGKFMKRSSWSTLTVSQAKEYRKSSLHLEKPMHSDLKHSRCPCHYLQVPQDEWSGYP  
GDKDEEIPCRMRSSSYVKAMGEVEDESGDSDSSPKISPOKAVRDPALVLSAMQRPRLD  
SHSQGYHMQTARDMRPQHSVTLDPAAFHPPPPFRSRNQSYMRAVSTLSQASCVSQVSETEI  
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STLRSTTAVSYPPSYKKTAPPVPPRGAPKPLISVTAQSSTESTQDAYQEGRHPRGGLWTT  
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RSSITAIQKLSQLQSTHQEHFQICQVETVTDSESESKGLPQFHSIGIQVEDHKRHRGRFKRS  
NSVTTAGVADMELESTFPMEDKGLQFGGGFGRHSEPSTPTQYGAIRTVRTQGLFSYREDY  
RPSGGPPSPQPEAWLAEP SLEGADTGRVSPLRRDGSWFMQLLHNETKRLEGWCKEMEREA  
EEHDLTEEILGKIRSAVGSQAQLLMSQKFQQFYWLCQQNLDPSAMPRPTSQDLAGFWDLLQ  
LSIDDVTAKFDELQQIKSNRWQLVESPDKKKERKWPPLAKRPSKGRGVMRERSLDLQDR  
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>Gasterosteus aculeatus\_DLGAP2b (ENSGACP\_8971)  
DQLYSWSPSQYFDEDSCLP PRNMKGLSGGRPAQLHLTSPTAHTCGLVECDHSLEHLLHH  
GNSRPPSYLLSPTDSCPLESHHRCSPRSSIHSECMVVPVMSATDHSISSSTFPRMHYGS  
GARESGGNTSGGRDSRDDGSSSHGGSGKMNRIPNLLDQFEKQMP LHRDGFHTLQYQRT  
STTTTTTEQRNESPGRIRHLVHSVQKLFTKSHSLEGSSKMNGTKGDPHRESSHHANHHHQ  
GHHKHSKRKSKKERKSDGSGKQRSGGWSSDDNLDSDSTYRTPSVMSRHPADHVGHCPD  
SMHGHLAGELSLKTSKSNNDVKCSACESISMAPEGKFMKRSSWSTLTVSQAKEYRKSSL  
NLEKPMPTTEL RPNLRPCHYLQVPQDDWGGYPGDEKDEEIPCRMRSSSYVKAMGDEESG  
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EAATDSESEKGLRQYHSVGIQVEDNKKGQGRFKRSNSVTAAVQADMELEGFP T MEDKGL  
QFGGGFQRHSEPSTPTQYGAVRTV RTQGLFSYREDYRATAEPSSPRETTSEASWQLEPPS  
PRKSAASPGDGRASPSLRRDGSWFMQLLHTETKRIEGWCKEMEAEEAEENDLSEDI L GKI  
RSVGSQAQLLMSQKFQQFYWLCQQNMDPSAMPRPTSQDLAGFWDLLQLSIDDVTMKFDRL  
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>Oryzias latipes\_DLGAP2a (ENSORLP\_21608)  
DQQYSWSPSQYFDEDSYTPPPRNMGKLSGGRPPQLQLTSPTS AHTCGLAEC DHPLDHHFH  
GDARSPSYLLSPTDSYPLESLHRCSPRSSIHSECMMPMSLSATDHSISSSTFPRMHYGS  
GSRDSSGNTSGGRDSRDDGSSSQGGSGKMNRIPANLLDQFEKQMP LHRDGFHTLQYQRTA  
TTTTTTEHRNESPGRIRHLVHSVQKLFTKSHSLEGSSKMNGTKSDSHRDSRRHHHHHHHQ  
HHKHSKRKSKDRKSEGGGKHRSGGWSSDDNLDSDSTYRTPS IMSQHPVDHITHCYPDS

VHSHLAGDLSLKTSKSNNDVKCSVCEMSMAPEGKFMKRSSWSTLTVSQAKEYRKSSLN  
LEKPMIPSDLKPNLRPCSYLQVPQDEWGGYPGGGKDDEIPCRMRSSSYVKAMGDEESGE  
SDSSPKTSPQKSVRKDALVKAIIRPKIGCHQVTKNYHLQATREIHPSFALDPSTNYNSPK  
FRSRNQSYMRAVSTLSQASCVSQVSETEVNGQFESVCESVFSEVESQAMEALDLPFCFRT  
RSHSYLRAIQAGYSQDDDCIPPMASVTSTIRSTTAITYTPSYKKAPPPVPPRTTSTKPLI  
SITAQSSTESTQDAYYHGRHPRGGVWTADGLSLGLSPGRALYNSNDSLDSAKAVTIALEA  
AGVMAGKRHPSTDSHSSLLTCDKAILVSKAEYLYKTPRSSIGIQSITVPSRYAAPPADVE  
TATDSEAESKGSPEYHVSIGQVEDDKKQGRFKRNSVTAQADLELEGFPTMEDKGLQ  
FGGGFQRHSEPTPTQYGAVRTVRTQGLFSYRDDYRTPAEPPSPRETTSENTWQLEPPSP  
RESNSSPGESGRVPSLRRDGSWFMQLLHNETKKMEGWCKEMEAEEENDLSEEILGKIR  
SAVGSQQLLMSQKFQFYWLCQQNLDPSPAMPRPTSQDLAGFWDLLQLSIDDVSIKFDQLQ  
QIKNNGWRPVDSPEKSLRRQTPAPIPKKTARQKSTITREKSLDLPDRHRQEARRLMAA  
KRAASFRQNSATERADSI E I Y I PEAQTRL

>Oryzias latipes\_DLGAP2b(ENSORLP\_14160)  
DQQSSTWSPPRKFNENRHLPPSRNMKGLSGSRSQHHP LSHGLDYDPHVHDLHAHHGSDT  
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SKERKHRSGGWSSDDNLDSDSTYRPSVMSRHHGEHVDHCY PDSMHSHHFGEMSLKGSK  
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YSQDDDCPLSMTSSTVTSTLRSTTVVSYPPSYKKT PPPVPPRTTTKPLISVTAQSSTEST  
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SIGIQVEDKKRRGRFKRNSVTTAVQADLELEGFPSPMEDKGLQFGGGFGRHSEPTPTQY  
GAIRTVRTQGLFSYREDHRPSSRPTSPQPEPWLVEPSLESTDTGRVSP LRRDGSWFMQLL  
HNETHLEGWCKDMEQAEADNDLSEEILGKIRSAVGSQQLLMSQKFQFYWLCQQNMDPS  
AMPRPTSQDLAGFWDLLQLTIDDVTAKFDELQEIKNQWNLLLESPEKNEQERKWPPLPK  
RSAGKRGSVMRERSLDLQDRQRQEARRLMAAKRAASFRQNSATERADSI E I Y I PEAQTR  
L

>Homo sapiens\_DLGAP3(ENSP\_235180)  
MRGYHGDGRGSHPRPARFADQQHMDVGPAAARAPYLLGSREAFSTEFRCAPRAGLGHISPE  
GPLSLSEGSPVGPPEGGPAGAGVGGGSSTFPRMPGQGFDTCEDCVGHPPQKGGAPRLPPT  
LLDQFEKQLPVQDGFHTLPYQRGAPAGPGPAPGTGTAPPEPRSESPSRI RHLVHVSQKL  
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RSKSKDRKGDGRHQAKSTGWSSDDNLDSDSGFLAGGRPPGEPGGPFCLEGPDGSYRDL  
FKGRSGGSEGRCLACTGMSMSLDGQSVKRSAWHTMMVSQGRDGYPGAGPGKLLGPETKA  
KARTYHYLQVPQDDWGGYPTGGKDGEIPCRMRSGSYIKAMGDEESGDSDGSPKTS PKAV  
ARRFTTRRSSVDQARINCCVPPRIHPRSSIPGYSRSLTTGQLSDELNQQLEAVCGSVFG  
ELESQAVDALDLPFCFRMRSHSYLRAIQAGCSQDDCPLLATPAAVSGRPGSSFNFRKA  
PPPIPPGSQAPPRISITAQSSTDSAHESFTAAEGPARRCSSADGLDGPAMGARTLELAPV  
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QVEEDKRRARFKRNSVTAGVQADLELEGLAGLATVATEDKALQFGRSFQRHASEPQPGP  
RAPTYSVFRVTHTQGWAYREGYPLPYEPPATDGS PGAPAPPTPGPGAGRDSWIERGSR  
SLPDSGRASPCPRDGEWFIKMLRAEVEKLEHWCQOMEREAEDYELPEEILEKIRSAVGST  
QLLLSQKVQFFRLCQQSMPTAFPVPTFQDLAGFWDLLQLSIEDVTLKFLELQQLKANS  
WKLEPKKEKKVPPP I PKKPLRGRGVPVKERSLDSVDRQRQEARLLAAKRAASFRHSS  
ATESADSI E I Y I PEAQTRL

>Gorilla gorilla\_DLGAP3(ENSGGOP\_13017)  
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FAKSHSLEAPGKRDYNGPKAEGRGGSGGDSYPGPGSGGPHTSHHHHHHHHHHHHHSRHK  
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FKGRSGGSEGRCLACTGMSMSLDGQSVKRSAWHTMMVSQGRDGYPGAGPGKLLGPETKA  
KARTYHYLQVPQDDWGGYPTGGKDGEIPCRMRSGSYIKAMGDEESGDSDGSPKTS PKAV

ARRFTTRSSSSVDQARINCCVPPRIHPRSSIPGYSRSLTTGQLSDELNQQLEAVCGSVFG  
ELESQAVDALDLPGCFRMRSHSYLRAIQAGCSQDDCLPLLATPAAVSGRPGSSFNFRKA  
PPPIPPGSQAPPRISITAQSSTDSAHESTAAEGPARRCSSADGLDGPAMGARTLELAPV  
PPRASPKPPTLI IKTI PGREELRSLARQRKWRPSIGVQVETISDSDTENRSRREFHSIGV  
QVEEDKRRARFKRSNSVTAGVQADLELEGLAGLATVATEDKALQFGRSFQRHASEPQPGP  
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SLPDSGRASPCPRDGEWFIKMLRAEVEKLEHWCQOMEREAEDYELPEEILEKIRSAVGST  
QLLLSQKVQQFFRLCQQSMDPTAFPVPTFQDLAGFWDLLQLSIEDVTLKFLELQQLKANS  
WKLLEPKKEKKVPPPIPKKPLRGRGVPVKERSLDSVDRQRQEARKRLLAAKRAASFRHS  
ATESADSI EIYIPEAQTRLh

>Pongo abelii\_DLGA3 (ENSPPYP\_1806)

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LAGGRPPGEPGGPFCELEPGDGSYRDL SFKGRSGGSEGRCLACTGMSMSLDGQSVKRS  
TMMVVSQGRDGYPGAGPGKLLGPETKAKARTYHYLQVPQDDWGGYPTGGKDGEIPCRMR  
SGSYIKAMGDEESGDSGSPKTS PKAVARRFTTRSSSSVDQARINCCVPPRIHPRSSIPG  
YSRSLTTGQLSDELNQQLEAVCGSVFGELESQAVDALDLPGCFRMRSHSYLRAIQAGCSQ  
DDDCLPLLATPAAVSGRPGSSFNFRKAPPIPPGSQAPPRISITAQSSTDSAHESTAAE  
GPARRCSSADGLDGPAMGARTLELAPVPPRASPKPPTLI IKTI PGREELRSLARQRKWRP  
SIGVQVETISDSDTENRSRREFHSIGVQVEEDKRRARFKRSNSVTAGVQADLELEGLAGL  
ATVATEDKALQFGRSFQRHASEPQPGRAPTYSVFRTVHTQGGWAYREGYPLPYEPPATD  
GSPGPAPAPT PGPAGRRD SWIERGSRSLPDSGRASPCPRDGEWFIKMLRAEVEKLEHWC  
QOMEREAEDYELPEEILEKIRSAVGSTQLLLSQKVQQFFRLCQQSMDPTAFPVPTFQDLA  
GFWDLLQLSIEDVTLKFLELQQLKANSWKLLEPKKEKKVPPPIPKKPLRGRGVPVKERSL  
DSVDRQRQEARKRLLAAKRAASFRHS

>Mus musculus\_DLGA3 (ENSMUSP\_101700)

MRGYHGDRGSHPRPARFADQQHMDVGPAAAPYLLGSREAFSTEPRFCAPRAGLGHLSPE  
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TLLDQFEKQLPVQQDGFHTLPYQRGPAGPGPGSGAAPEARSESPSRIRHLVHSVQKLF  
AKSHSLEAPGKR DYNPKADGRGSSGGDSYSGPGSGGTPTSHHHHHHHHHHHQSRHGK  
SKSKDRKGDGRHQTKATGWWSSDDNLDSDSGFLGGRPPGEPGGPFCLDAPDGSYRDL SFK  
GRSGGSEGRCLACTGMSMSLDGQSVKRSAWHTMMVVSQGRDGYPGAGPGKLLGPETKAKA  
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RFASRRSSSVDTARINCCVPPRIHPRSSIPGYSRSLTTGQLSEEFNQQLEAVCGSVFGEL  
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EEDKRRARFKRSNSVTAGVQADLELEGLAGLATVATEDKALQFGRSFQRHASEPQPGPRA  
PTYSVFRTVHTQGGWAYREGYPLPYEPPATDGS PGPPTVPAPGPGSGRRD SWMERGSRSL  
PDSGRTSPCPRDGEWFIKMLRAEVEKLEHWCQOMEREAEDYELPEEILEKIRSAVGSTQL  
LLSQKVQQFFRLCQQSLDPTAFPVPTFQDLAGFWDLLQLSIEDVTLKFLELQQLKANSW  
LLEPKKEKKVPPPIPKKPSRGRGVPVKERSLDSVDRQRQEARKRLLAAKRAASFRHS SAT  
ESADSI EIYIPEAQTRL

>Rattus norvegicus\_DLGA3 (ENSRNOP\_19214)

MRGYHGDRGSHPRPARFADQQHMDVGPAAAPYLLGSREAFSTEPRFCAPRAGLGHLSPE  
GPLSLSEGPSSVGPPEGGPGVAGGGSSTFPRMYPGQPFDTCEDCVGHPQGGKATRLPP  
TLLDQFEKQLPVQQDGFHTLPYQRGPAGPGPGSGAAPEARSESPSRIRHLVHSVQKLF  
AKSHSLEAPGKR DYNPKAEGRSSSGGDSYSGPGSGGPPTSHHHHHHHHHHHQSRHGK  
SKSKDRKGDGRHQTKATGWWSSDDNLDSDSGFLGGRPPGEPGGPFCLDAPDGSYRDL SFK  
GRSGGSEGRCLACTGMSMSLDGQSVKRSAWHTMMVVSQGRDGYPGAGPGKLLGPETKAKA  
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RFASRRSSSVDTARINCCVPPRIHPRSSIPGYSRSLTTGQLSEEFNQQLEAVCGSVFGEL  
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RASPKPPTLI IKTI PGREELRSLARQRKWRPSIGVQVETISDSDTENRSRREFHSIGVQV  
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PTYSVFRTVHTQGGWAYREGYPLPYEPPATDGS PGPVPPVAPGPGSGRRD SWMERGSRSL  
PDSGRTSPCPRDGEWFIKMLRAEVEKLEHWCQOMEREAEDYELPEEILEKIRSAVGSTQL



LLSQKVQQFFRLCQQSLDLAGFWDLLQLSIEDVTLKFLELQQLKANSWKLEPKKEEKVP  
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EAQTRL

>Equus caballus\_DL3 (ENSECAP\_16420)  
MRGYHGDGRGSHPRPARFADQQHMDVGAARAPYLLGSGEAFSTEPRFCAPRAGLGHLSPE  
GPLSLSEGPSVGPPEGGGAGVGGGSSSTFPRMPYQGGPFDTCEDCVGHPQGGKAPRLPPT  
LLDQFEKQLPVQQDGFHTLPYQRGPAGAGPGPGPESGTAPPEARSESPSRIRHLVHSVQKL  
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RSKSKDRKGDGRHQAKAAGWSSDDNLDSDSGFLAGGRPPGEPGGPFCEAPDGSYRDLS  
FKGRSGGSEGRCLACTGMSMSLDGQSVKRSAWHTMMVSQGRDGYPGAGPGKGLLPETKT  
KARTYHYLQVPQDDWGGYPTGGKDGEIPCRMRSGSYIKAMGDEESGSDGSPKTSFKAV  
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PPPIPPGSQAPPRISITAQSSSTDAHESFTAEGPARRCSSADGLDGPAMGARTLELAPV  
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SLPDSGRTSPCPRDGEWFIKMLRAEVEKLEHWCQOMEREAEDYELPEEILEKIRSAVGST  
QLLLSQKVQQFFRLCQQSMDPTAFVPTFQDLAGFWDLLQLSIEDVTLKFLELQQLKANS  
WKLEPKKEEKVPPP I PKKPSRGRGVPVKERSLDSVDRQRQEARKRLLAAKRAASFRHSS  
ATESADSI E I Y I PEAQTRL

>Loxodonta africana\_DL3 (ENSLAFP\_10976)  
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GPLSLSEGPSVGPPEGGGAGVGGGSSSTFPRMPYQGGPFDTCEDCVGHPQGGKAPRLPPT  
LLDQFEKQLPVQQDGFHTLPYQRGPAVAGPGPGSGSAPEARSESPSRIRHLVHSVQKL  
FAKSHSLEAPGKRDYNGPKAEGRGGSGGDSYPGPGSGGHHTSHHHHHHHHHHHHQSRHGK  
RSKSKDRKGDGRHQAKAAGWSSDDNLDSDSGFLVGGQPSGEPGGPFCEAPDGSYRDLS  
FKGRSGGSEGRCLACTGMSMSLDGQSVKRSAWHTMMVSQGRDGYPGAGPGKGLLPETKA  
KARTYHYLQVPQDDWGGYPTGGKDGEIPCRMRSGSYIKAMGDEESGSDGSPKTSFKAV  
ARRFTSRRSSVDQARINCCVPPRIHPRSSI PGYTRSLTTGQLSEELNQQLEAVCGSVFG  
ELESQAVDALDLPGCFMRSHSYLRAIQAGCSQDDCLPLLAAPASVSGRPGSSFNFRKA  
PPPIPPGSQAPPRISITAQSSSTDAHESFTAEGPARRCSSADGLDGPAMGARTLELAPV  
PPRASP KPPTLI IKTI PGREELRSLARQKWRPSIGVQVETISDSDTENRSRREFHSIGV  
QVEDDKRRARFKRSNSVTAGVQADLELEGLAGLATVATEDKALQFGRSFQRHASEPQPGP  
RAPTYSVFRTVHTQGGWAYREGYPLPYEPPATDGPAPPTPTPGPGAGRRDSWIERGSR  
SLPDSGRTSPCPRDGEWFIKMLRVEVEKLEHWCQOMEREAEDYELPEEILEKIRSAVGST  
QLLLSQKVQQFFRLCQQSMDPTAFVPTFQDLAGFWDLLQLSIEDVTLKFLELQQLKANS  
WKLEPKKEEKVPPP I PKKPSRGRGVPVKERSLDSVDRQRQEARKRLLAAKRAASFRHSS  
ATESADSI E I Y I PEAQTRL

>Myotis lucifugus\_DL3 (ENSMLUP\_12457)  
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GPLSLSEGPSVGPPEGGGGTGIGGSSSTFPRMPYQGGPFDTCEDCVGHPQGGKAPRLPPT  
LLDQFEKQLPVQQDGFHTLPYQRGPAGAGPGPGSGSAPEARSESPSRIRHLVHSVQKL  
FAKSHSLEAPGKRDYNGPKADGRGGSGGDSYTGPGSGGPHTSHHHHHHHHHHHHQSRHGK  
RSKSKDRKGDGRHQAKAGWSSDDNLDSDSGFLAGGRPPGEPGGPFCEAPDGSYRDLS  
FKGRSGGSEGRCLACTGMSMSLDGQSVKRNAWHTMMVSQGRDGYPGAGPGKGLLPPEAKA  
KTRTYHYLQVPQDDWGGYPTGGKDGEIPCRMRSGSYIKAMGDEESGSDGSPKTSFKAL  
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FKIPRPHPPGNPAPPFLPGPEHHRYSLNFTPANSPTLQASADGLDGPAMGARTLELAP  
VPPRASP KPPTLI IKTI PGREELRSLARQKWRPSIGVQVETISDSDTENRSRREFHSIG  
VQVEEDKRRARFKRSNSVTAGVQADLELEGLAGLASVATEDKALQFGRSFQRHASEPQPGP  
PRAPTYSVFRTVHTQGGWAYREGYPLPYEPPATDGSFGPAPAPTPTPGPGAGRRDSWMERGSR  
RSLPDSGRTSPCPRDGEWFIKMLRAEVEKLEHWCQOMEREAEDYELPEEILEKIRSAVGST  
TQLLLSQKVQQFFRLCQQSMDPTAFVPTFQDLAGFWDLLQLSIEDVTLKFLELQQLKAN  
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SATESADSI E I Y I PEAQTRL

>Monodelphis domestica\_DLGP3(ENSMODP\_29570)  
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FEAVCGSVFGEPEQAVDALDLPGCFRMRSHSYLRAIQAGCSQDDDCPLLLTAPMGAGPS  
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SADGLDGPTTGTRTLQVAPARASPKPPTLI IKTI PGREELRSLARQRKWRPSIGVQVE  
TISDSDTETRSRREFHSIGVQVEEDKRRARFKRSNSVTAGVQADLELEGLAGLAVATED  
KALQFGRSFQRHASEPQPGPRGPAYSVFRVHTQGGWAYREGYPLPYEPPAPDGPFGSGP  
APAPTPAPTHGRDRSWMERGSRLPDSGRASPCPRDGEWFIKMLQAEVEKMEHWCQOMER  
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LQLAIEDVSLKFLQLKANSWKPLEPEEEKVPPPIPKKPSRGRGVPVKDRSLDSVDR  
QRQEARKRLLAAKRAASFRHSATESADSIEIYIPEAQTRL

>Gallus gallus\_DLGP3(ENSGALP\_3970)  
MKGYHGERSQAQHSŠGHRRCRIPEDCEHPSDYIHPGPDGRPPYLLSPSEPCSLHHPFCPV  
RSPSVAGCEGPLSDPPSGSASSTFPRMHHAQQQQPYDSCDECMATAHPSSKINRLPPTLL  
DQFEKQLPLHHDGFHTLQYPRAGGTEPRSESPSRIRHLVHSVQKLFKSHSLEAPAKRDY  
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SSYMVSGRHAVDQGTQYCVDAPEAFRDLTLKSLKSGGEGKCLACAGMSMSLDGQTVKRS  
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RRMRSGSYIKAMGDEDSADSDASAKVSPRAATRDRSYRRSSADQARSKFASRHYSDSYI  
CNCPCSGVPPRMLPRGQYGRSFTTGQINDELNHQFEAVCESVFGEVESQAVEALDLPGC  
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VQPRTPAKPSTLI IKAIPGREELRSLARQRKWRPSIGVQVEAVSDSDTESRSQREFHSIG  
VQVEEDKRRARFKRSNSVTAGVQADLELEGLFAGLAVATEDKALQFGRPFQRHSSEPESE  
QYAVYKTVHTQGGWAYREDYQMQYDAVEVPRRDWVERGSRLPDSGRASPCHRDGEWFI  
KLLQAEVEKMEGWCQOMEREAEDYDLPEEILEKIRSAVGSQALLMSQKVQQFYRLCQQNM  
DPAFVPTFQDLAGFWDLLQLSIEDVSMKFAELQQLKANGWKIIEPKEEKVPPPIPKK  
PPRSKVHPVKERSLDSVDRQRQEARKRLLAAKRAASFRQNSATESADSIEIYIPEAQTRL

>Anolis carolinensis\_DLGP3(ENSACAP\_13190)  
MRSYHGERSQSREHPCRCVPEACDQPMYVHHSQESRQPYLLSPSEPCSLDHYCPSRSSA  
EAPLSLSTEPSSAASSSSSTFPRMHAPQPYDSCDECMAAAHPSSKINRLPPTLLDQFEKQ  
QLPLHHDGFHTLQYQRASSTEQPRSESPSRIRHLVHSVQKLFKSHSLEAPSKREFNGTK  
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QATQFCVDAPESAFRDLTLKSLKSGGEGKCLACAGMSMSLDGQTVKRSWHHTMTVSQAR  
EAYPSSGGGPEKPLMLQEAKAKERSYHYLQVRRSSSWTSHAPLSRGSKIRCLGLYSGQLI  
LEYIRSPPHRPRDASPSPEPGMPELSSFLKSSFHCIFFPRTLCSAEDHVPKLVTESGFS  
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VFGEVESQAVEALDLPGCFRMRSHSYLRAIQAGCSQDDDCSLNTQSPSMIQVMVQLVH  
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NSTESLESTKITAMSLDPLSLQARTAPKPTLI IRTIPGREELRSLARQRKWRPSIGVQV  
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KALQFGRSFQRHSSEPESTRQYSVYKTVHTQGGWAYREDYQMQYDTMEVPRQDSWMDRGS  
RSLPDSGRASPCHRDGEWFIKLLQAEVEKMEGWCQOMELEAEDYDLPEEILEKIRSAVGS  
AQLLMNQKFQFYRLCQQNMDPAFPMPTFQDLAGFWDLLQLSIEDVSIKFAELHQLKAN  
GWKPIEPKLSFPQEDKKVPPPIPKKPPSRRLHPVKDRSLDSVDRQRQEARKRLLAAKRAA  
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>Danio rerio\_DLGP3(ENSDARP\_93925)  
MKGYQVSRSLSQHSSGPCYCMPEDCDTARDYMHPDHYQGHNDDHYYPPGGPPEPLAMVP  
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HRSGGEESGGHHYSHTQSRASARRNKSRERSKSGDSRHESSSRHRSKTAGWSSDDNLD

SDSSFLVAGRGVRYPTGHETLDAAIQELTLRKS KGPPPG ECLACTNIAMTGDSGHS LK  
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DLPGCFRTRSHSYVRAIQAGCSQDDDCLSVFSMSVFPQASMKEAVFPYRKGPPPLPRMS  
KPMISVTAQSSTESTQDAYFQSTGQPALVRPRQHSNSVDLTENSGGRTSRGGHYLGGGTA  
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LPQNSMSLAKALTVGEEFKQEGRGRKWRPSIAVQVDSSETLSDSDPEGKALREVHSIGVQ  
VEDDKRRARFKRSNSVTASVQADLETGFGGLTVP TQDKGLQFGCSFQRHSSEPEASQF  
AEYRTVHTQGGWAYREDYHSGYTTEPGPELRALPRSHSPLPLAPERGVGGWSEGPRSLP  
DSGRASPCLR DGEFFLRLLOTEVERMEGWQCQNEMEREAETNELPEEVLELIRGAVGSAQML  
MSQVRVQQFFRMCQQSVDPSSYPQPTTQDLASFWDLLQLAIEDVRVKFQDLQRLKDSGWRL  
PPEKKEDKKVPPPLPKKPIGGVTGSLRADSTAESGMLVVSRRGRSLPEREKSLDVGDRQK  
LETRRRLLOTKRSASFRQNSATESADSIEIYITEAQTRL

>Takifugu rubripes\_DL3a (ENSTRUP\_38091)  
GGGTFFRSHPSQHPSLHSDSCDECLPSGHSGKMHRI PPNMTDQFEKQVPFHPDGFHTLQ  
YQRSTSGGAEQRSESPSRIRHLVNSVQRLFAKSHSLEAPSKREYNGTRGSSDYRSEGGG  
HRSGGEDGGGHYSGHQPRSTRRNKSRERSKSGDSRHESGRHRHSRTAGWWSSDDNLDSDS  
SFLVGGGRRRGYPSGHESLDAAIQELTMKRPKERMAAPGPGDCVACTTMALAGNEGGGHHG  
HHGSHLRSTWSAMTVSQAREVYPSTRGGGGYDKALVPVDPKMKERTFHYLQVPS EDWAG  
YGGGDAVDSGGEI PCRMRSGSYIKAMGDDSDSDTSPKASPKSTLIAQRDAFKRSAS  
VDQRLNARTTPKSHTRRSYTRSLTSTQLGDTLNRQFESVCETMFGEVESQAVEALDLP  
VFRTRSHSYVRAIQAGCSQDDDCLSVFSMSGPQGSIKSGAVFPYRKGAPPPLPRMSKSS  
LSVRAQSSTESTQDAYFLEGPTRPARERDGRVGGSLGKSVSLPQNSMVLSKAGGHDDVR  
GGRKLRPSIAVQVDSSETLSDSDAEGKALTEVHSIGVQVEDDKRRARFKRSNSVTASVQA  
DLGPEGFPGLSIAVPMQDKSLQFGCSFQRHSSEPEASQYTDCHRTVHTQGGWAYRETDL  
RRQHPLPPRSHSPLPITSERAWAGTPSLEGPRSLPDSGRASPCMRDGEFFLRLLOTEVE  
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TSQDLANFWDLLQLNIEDVRIKFQDLQRVKESGWRLPPEKKEDKKLPPPLPKK PAGGGHT  
LPIREKSLDLGDRQRTAARRRLLQTKRAASFRQNSATESADSIEIYIPEAQTRL

>Takifugu rubripes\_DL3b (ENSTRUP\_38088)  
HSGGGTFFRSHPSQHPSLHSDSCDECLPSGHSGKMHRI PPNMTDQFEKQVPFHPDGFHTLQ  
LQYQRSTSGGAEQRSESPSRIRHLVNSVQRLFAKSHSLEAPSKREYNGTRGSSDYRSEGG  
HYSGHQPRSTRRNKSRERSKSGDSRHESGRHRHSRTAGWWSSDDNLDSDSSFLVGGGRRG  
YPSGHESLDAAIQELTMKRPKERMAAPGPGDCVACTTMALAGNEGGGHHGHHGHS LKRST  
WSAMTVSQAREVYPSTRGGGGYDKALVPVDPKMKERTFHYLQVPS EDWAGGYGGGDAVDS  
GGEI PCRMRSGSYIKAMGDDSDSDTSPKASPKSTLIAQRDAFKRSASVDQRLNATNS  
GSRSVHRRIPNSRTTPKSHTRRSYTRSLTSTQFVSPVTQLGDTLNRQFESVCETMFGEV  
ESQAVEALDLPGVFRTRSHSYVRAIQAGCSQDDDCLSVFSMSGPQGSIKSGAVFPYRKA  
PPPLPRMSKSSLSVRAQSSTESTQDAYFQNSGQLASGPGRTKQHSNSVDLGGSEGPSGR  
SSRGGYYTAVGPRSRQYSNSAESLDGNSMVLSKAGGHDDVRGGRKLRPSIAVQVRHEHR  
ANDVDSSETLSDSDAEGKALTEVHSIGVQVEDDKRRARFKRSNSVTASVQADLGPFGFP  
LSIAVPMQDKSLQFGCSFQRHSSEPEASQYTDCHRTVHTQGGWAYREV FHKTKADLKMT  
HQSTPSLEGPRSLPDSGRASPCMRDGEFFLRLLOTEVERMEGWQCQNEMEREAENDLPEE  
ILEPIRSVAVGGAQMLMSQKVQQFFRLCQQSLDPSAYPOP TSQDLANFWDLLQLNIEDVRIK  
FQDLQRVKESGWRLPPEKKEDKKLPPPLPKK PAGGTLPIREKSLDLGDRQRTAARRRLLQ  
TKRAASFRQNSATESADSIEIYIPEAQTRL

>Tetraodon nigroviridis\_DL3 (ENSTNIP\_12089)  
GGGTFFRSHPSQHPSLHSDSCDECLPPGHSGKMHRI PPNMTDQFEKQVPFHPDGFHTLQ  
YQRSTSGGAEQRSESPSRIRHLVNSVQRLFAKSHSLEAPSKREYNGTRGSGDYRSEGGG  
HRSGGEDGGGHYSGHQPRSTRRNKSRERSKSGDSRHESGRHRHSRTAGWWSSDDNLDSDS  
SFLVGGGRRRGYPSGHESLDAAIQELTMKRPKDRMVAPGPGECVACTTMALAGTEGGGHHG  
HHGSHLRSTWSAMTVSQAREVYPSTRGGGGYDKALVPVDPKMKERTFHYLQVPS EDWGG  
YGGGDSVDSGGEI PCRMRSGSYIKAMGDDSDSDTSPKASPKSTLIAQRDAFKRSAS  
MDQRQCTDAYPNSRTTPKTHTRRSYTRSLTSTQLGDTLNRQFESVCETMFGEVESQAVE  
ALDLPGVFRTRSHSYVRAIQAGCSQDDDCLSVFSMSGPQGSIKSGAVFPYRKGAPPPLPP  
RMSKSSLSVRAQSSTESTQDAYFQALGAPSHATRWIWEGLKAPPVAPREEGTPPRALD  
APNSMALSKTGGHDDARGGRKLRPSIAVQVDSSETLSDSDAEGKALTEVHSIGVQVEDDK



>Mus musculus\_DLGA4 (ENSMUSP\_105195)

MKGLGDSRPRHLSDSLDPPEPLFAGPDRNPYLLSPTFAFAREARFPGQNTLPGDGLFPL  
NNQLPPPSSTFPRIHYNSHFVPEESPFPSHAQATKINRLPANLLDQFEKQLPIHRDGF  
TLQFPRGEAKARGESPGRIRHLVHSVQRLFFTKAPSMEGTAGKVGNGSKKGGLEDGKGR  
RAKSKERAKAGEPKRRSRNSISGWSSDDNLDGEGGAFRSGPASGLMTLGRQQERTQPRY  
FMHAYNTISGHMLKTKNTTTELTAAPPAPPATCPSLGVGTDNTYVKRGSWSTLTL  
AHEVCQKTSATLDKSLKSKSCHQGLAYHYLQVPGGGGEWSTLLSPRDMSTAEGPIPC  
RRMRSGSYIKAMGDEDSDESGGSPKPSPKTAARRQSYLRATQQSLGEOQSNPRRSLDR  
SVDMLLPSKCPSEWEDYNPISDSLNDSSCISQVFGQASLIPQLFGHDQVREADLSDQYE  
AACESACSEAEESTAEALDLPLPSYFRSRSHSYLRAIQAGCSQEEDSVSLQSLPPPSTG  
SLSNSRSLPSSSCLVAYKKTTPPVPPRTTSKPFISVTVQSSSTESAQDTYLDSDHKSEVT  
SQSGLSNSSDSLDSSTRPPSVTRGGITPGPEAPEPPPKHAALKSEQGTLTSSSESHSEAI  
KRKLSIGIQERTRRSGSHLSEDNPKAIDVMAPSSESSAPSHSMSSRRDTSDDTQDAND  
SSCKSSERSLPDCTSHPNISISIDAGPRQAPKIAQIKRNL SYGDN SDPALEASSLPPDPW  
LETSSSSPAEPAQPGACRRDGYWFLKLLQAETERLEGWCCQMDKETKENNLSEEVLGKVL  
SAVGSQAQLLMSQKFQQFRGLCEQNLNPDANPRPTAQDLAGFWDLLQLSIEDISMKFDELY  
HLKANSWQLVETPEKRKEEKKPPPPVPPKPAKSKAAVSRDKASDAGDKQRQEARKRLAA  
KRAASVRQNSATESADSI EIYVPEAQTRL

>Rattus norvegicus\_DLGA4 (ENSRNOP\_34166)

MKGLGDSRPRHLSDSLDPPEPLFAGPDRNPYLLSPTFAFAREARFPGQNTLPGDGLFPL  
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TLQFPRGEAKARGESPGRIRHLVHSVQRLFFTKAPSMEGTTGKVGNGGKKGVLLEDGKGR  
RAKSKERAKAGEPKRRSRNSISGWSSDDNLDGEGGAFRSGPASGLMTLGRQPRTQPRY  
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AHEVCQKTSATLDKSLKSKSCHQGLAYHYLQVPGGGGEWSTLLSPRDMSTAEGPIPC  
RRMRSGSYIKAMGDEDSDESGGSPKPSPKTAARRQSYLRATQQSLGEOQSNPRRSLDR  
SVDMLPLSKCPSEWEDYNPISDSLNDSGCISQVFGQASLIPQLFGHDQVREADLSDQYE  
AACESACSEAEESTAEALDLPLPSYFRSRSHSYLRAIQAGCSQEEDSVSLQSLPPPSTG  
SLSNSRSLPSSSCLVAYKKTTPPVPPRTTSKPFISVTVQSSSTESAQDTYLDSDHKSEVT  
SQSGLSNSSDSLDSSTRPPSVTRGGITPGPEAPEPPPKHAALKSEHGTLTSSSESHSEAVP  
KRKLSIGIQVDCIQVPKKEEPPATKQSIGVQVEDDWRSSAPSHSMSSRRDTSDDTQD  
ANDSSCKSSERSLPDCTSHPNISISIDAGPRQAPKIAQIKRNL SYGDN SDPALEASSLPPP  
DPWLETSSSSPAEPAQPGACRRDGYWFLKLLQAETERLEGWCCQMDKETKENNLSEEVLG  
KVL SAVGSQAQLLMSQKFQQFRGLCEQNLNPDANPRPTAQDLAGFWDLLQLSIEDISMKFD  
ELYHLKANSWQLVETPEKRKEEKKPPPPVPPKPAKSKAAVSRDKASDAGDKQRQEARKRL  
LAAKRAASVRQNSATESADSI EIYVPEAQTRL

>Canis familiaris\_DLGA4 (ENSCAFP\_12515)

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TLQFPRGEAKARGESPGRIRHLVHSVQRLFFTKAPSLGEGTAGKVGNGSKKGGLEDGKGR  
RAKSKERAKAGEPKRRSRNSISGWSSDDNLDGEGGAFRSGPASGLMTLGRQAERSQPR  
YFMHAYNTISGHMLKAAKSNAEELTAAPPAPPAPPAACPSLGVGTDNTYVKRGSWSTLTL  
HAHEVCQKTSATLDKSLKSKSCHQGLAYHYLQVPGGGGEWSTALLSPREADAAAEPIPC  
RRMRSGSYIKAMGDEDSDESGGSPKPSPKTAARRQSYLRATQQSLGEOQSNPRRSLDR  
SVDMLLPSKCPSEWEDYNPVSDSLNDSSCISQIFGQASLIPQLFGHEQVREADLSDQYEA  
ACESACSEAEASAAAEALDLPLPSYFRSRSHSYLRAIQAGCSQEEDSVSLQSLPPPSTGS  
LSNSRSLPSSSCLVAYKKTTPPVPPRTTSKPFISVTVQSSSTESAQDTYLDSDHKSEVTS  
QSGLSNSSDSLDSSTRPPSVTRGGVTPAPEAPEPPPKHAALKSEQGTLTSSSESHPEAI  
PKRKLSSIGIQVDCIQVPKKEEPPATKQSIGVQVEDDWRSSAPSHSMSSRRDTSDDTQDA  
NDSSCKSSERSLPDCTPHPNISISIDAGPRQAPKIAQIKRNL SYGDN SDPALEASSLPPP  
PWLETTSSSSPAEPAQPGACRRDGYWFLKLLQAETERLEGWCCQMDKETKENNLSEEVLGK  
VLSAVGSQAQLLMSQKFQQFRGLCEQNLNPEANPRPTAQDLAGFWDLLQLSIEDISMKFDE  
LYHLKANSWQLVETPEKRKEEKKPPPPVPPKPAKSKPAVSRDKASDAGDKQRQEARKRL  
AAKRAASVRQNSATESADSI EIYVPEAQTRL

>Monodelphis domestica\_DLGA4 (ENSMODP\_1726)

MKGLSGDSRGRHLSDSLPPPPDALFPGSDRNPYLLSPTATVTTADPFRESGFPGASTGV  
AGDTLFLPLPSPLTSGTFPRLHYNSHFVPEEGPFPSHAQATKINRLPANLLDQFEKQLP

VHRDGFSTLQFHRAEPRPRGESPGRIRHLVHSVQKLFFAKAQSLEGGGLKSGNGRKGGA  
GGGETGKGRRAKGDSDGKTAEPKRRSRNSISGWSSDDNLDGNSGDCGYRPSAGLMTLG  
RQPERAQPRYFVYNTFSEHMLKAAKNNSELPRAGAGGGGAPPASLPASTEPSYKRGWS  
STLTLSHAREVCQKASATIDKALLKSKSCHQDLAYHYLQVPPSEWNSSLSRTGGDSEIPC  
RRMRSGSYIKAMGDEDESDSTSPKPSPKTAARRQSYLKATQQSLSEQSTTHRS�DRLDS  
VDMLLPSKFPSSWEEYNPIGNSITESSCINQIFGQASVFPQIFSHEEQVREAE LSDQYEA  
ACESAYSEAESATADVLDLPLPSYFRSRSHSYLRAIQAGCSQDEDSISLQSLSPPTGSS  
LSSSRTLPSSSCLVAYKKT PPPVPPRTTSKPFISVTVQSSSTESAQDTYLDSDHKSEVNS  
QSGLSNSSDSDSTRPPSVTQSSGGTQAREAPELPQKNATLKNDKGTLTSEEPAETAP  
KRKLSISIGIQVDCIQVPKKEPPATKQSIGVQVEDEWRYSGASHSMSSKRD TDSDTQE  
ANDSSCKSSERSLSDCPHHNSINIDTNPRPSVKASQIKRNL SYGDN SDPALETSSLP  
DPWLETSSSSPLEPSQPGACRRDGYWFLKLLQAETERLEGWCCQMDKEAKENNLSEEV  
KVL SAVGSAQLLMSQKFQQFRGLCDQNLNPD SNPRPTAQDLAGFWDLLQLSIEDI  
SMKFD ELYHLKANSWQLADPPEKALLSQEAKMSSKRAKAKTTKRPQRATSNVFAMFDQSQIQE  
FKEAFNMIDQNRDGFIDKEDLHDM LASLGKNPTDEYLEGMMSEAPGPINFMTMFLTMFGEK  
LNGTDPEDVIRNAFACFDEEASGVIHEDHLRELLTGMGRFTDEEVDEMYREAPIDKKN  
FNYVEFTRILKHGAKDKDD

>Gallus gallus\_DL GAP4 (ENSGALP\_1565)  
MKGLGDNRSRHLSNLDSPQDSLYAPQDRNYPYLLSPTDSFTMDPRFPAQNALHGDCLLPL  
NNQISNSSTFPRIHYNSHFVDPDENPFPSHAQATKINRLPANLLDQFEKQLPIHRDGFST  
LQFQRSDAKHRSESPGRIRHLVHSVQKLFKAKSLSLEGPTKGNVNGKKGADDPKQNRRSKS  
KDRAKTSEPKRRTRNSISGWSSDDNLDSDTCSYRNP MGLMTLGRQPDHSQPKYFMHAYN  
TISEHMLKSSKSNNDLKVTPCTNIPINNSNYIKRGSWSTLTLSHAREVCQKASATIDKA  
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PKPSPKTAARRQSYLKATQQSLSEQSTTQRSLDRLDSVEILLPPKFP TWEEYNIQISDSV  
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YFRSRSHSYLRAIQAGCSQDEDTSSVRSISPPPAGSLSGSRTLPNTSSSCLVAYKKT PPP  
VPPRTTSKPFISVTVQSSSTESAQDTYLDSDHKSEVTSQSGLSNSSDSDSTRTPSVTRG  
SIVTTPARTPELPYKQKATLKS DKGTLTSEEPKVENVPKRKLSISIGIQVDCLQPVVKEPP  
PPVTKFQSIGVQVEDEWRNHSRSMSSKQD TDSDTQEPNNSCKSSERSIAEQPHNNSV  
GVDTSTRQPAKPSQIKRNL SYGDN TDPALEPSSLP PDPWLETSSASPSEPTQPGACRRD  
GFWFLKLLQAETERLEGWCRQMDQETKENNLSEEV LGKVL SAVGSAQLLMSQKFQQFHGL  
CEQNLNPNANPRPTAQDLAGFWDLLQLSIEDI SMKFD ELYHLKANSWQLAETPERKEEKK  
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PEAQTRL

>Pelodiscus sinensis\_DL GAP4 (ENSPSIP\_18720)  
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LQFQRSDSKHRSESPGRIRHLVHSVQKLFKAKSLSLEGPTKGSVNGKKGTEDPKQNRRSKS  
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NESSCISQIFGQSSFI PQIFTHGEQTREAE LCDQYEA VCESAYSEAE SA AEVLDLPLPS  
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KPPPPVPPKPAKPKT PLNRDKASDSVDKQRQEAR KRLMAAKRAASVRQNSATESADSI EYV  
YVPEAQTRL

>Xenopus tropicalis\_DL GAP4 (ENSXETP\_37684)  
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STLQFQRGVPEGKDRSESPGRIRHLVHSVQKLFNKSQSLEGGGRASVNGKKGSEDSKGT  
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SGYNTISESMLKASKSNNDLKFPPFQPPSLTSLPLPAPQDVLVPSSTSTLKRGSWSTLTL  
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IQVDSIQPVPIPELPPPARFQSIGVQVEEWRKGYTKNLNTLLSLIRIPSLSYKPEITF  
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>Danio rerio\_DLGA4(ENSDARP\_2935)

MKAFTPQRTRHLSDCPPRSPAHLGVSYPSTPYLLPSAMDHYGALDPHHSFAPGPGG  
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LPGQQDGFSTLQFHRSTAVTTTKQQQQRTDSPGKIRYLVHVSQKLFKASQSLNSAIKA  
NMNGRNSRSSSSDDKHRSKSKDRAKSEGTAKRRPRSNMGSYSSDDLDSDVSNYRNPMA  
MMTLGRQGPDSQVARSYYMQGYSTISEHTLKSSKSNLKHQPLPALPAPGGIGGGRAQM  
FDGNFSKAGPWSLTLGPTRQVCQKGSATLDRTLKSKSVQDGLGCHFLQMPSTGEWSGT  
LGRSGPMGEIPCRMRSGSYVKAMADLEDSSESDSGSPKPSPKSAARRQSYLRATQQSLSD  
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DIHPHPRCSDPPDVPMPCTCFRSRSHSYLRAIQAGCSQDDDTASMDSDSPPTTTTTRTY  
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SSDSDLSTRANSLAKGTRPQIPVAAPREPQIPAAVVISPNALRETHNEPLKGETLAADEP  
PLEPVPKRKLSSIGIQVDCIQEIQAKVETPPPLARFQSIGVQVEDGWTFSRSSSMASRQE  
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FWDLLQLSIEDISLKFDELYHLKSNWKLNGESPEKQGFKENQKQAPPVPPKPKGKSKPTL  
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>Takifugu rubripes\_DLGA4(ENSTRUP\_24240)

MKGLGANRGRHLSDSCEPTGCPQKPLCPMSSDPHSSFLLSPTFNHYGTLDPHLHQYTPTS  
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FSTARFRPHQHVMPSVLSMQGFGSSAPYGEVESQAVEALDLPAPTCFRSRSHSYLRAIQA  
GCSQDEDTASVSDSLPPISTGYSSNTRKTIPIISLTVSSRKAPPVPPRGTSKPLISVT  
AQSSTESAQDQTYLDQDRGSEANSQSGRSNSSDLSCSIRTGGLAQGSKPSAPFPPEVAPP  
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RDGNWFLKLLRAETARMEGWCCQMEQETKDNKLSEEVLMTRSAVGSQAQLLISQKFEQFR  
GLCNENLNINANPRPTAQDLAGFWDLLQLSIEDISNKFDELYHLKTNWQLPEKQLQKDE  
NKQLPSSVPPKPKSKPKLSTGKDRSVDSAVDKQRQEARKRLMAAKRAASVRQNSATESADS  
IEIYVPEAQTRL

>Tetraodon nigroviridis\_DLGA4(ENSTNIP\_484)

MKGLGANRSRHLSDSCEPTGCPQRPLCPLSSDPHSPFLLSPTFNHYGTLDPHLHQCTPTS  
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KDDTMVKRGTWSTLTLHQARQVLQKGSATVNRTLLKSKSCHQDLAQQLQVPVGDWATLG  
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TNRSLDNLDCLVSPLEAPPHRRNDFSHCSSTLGRGAQSLSQLLAERSVFAECHSGIKQGE  
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DQQDRGSEANSQSGRSNSDSLCSITPPPAASVPPVAPRDL PPTITVTTATSTL PQN  
DSSSRGVTLDQPPTAPRRKLSSIGVQVDCVLPVLKEEAQPLTAPLKFQSIGVQVENGRPL  
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SRISTCPAETLDPALDPSSLPPPDP SLDTGNCSAHGDGVQITPACPRDGNWFLKLLRAET  
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>Gasterosteus aculeatus\_DLGAP4a (ENSGACP\_10781)  
MKGLGTSRNRHFTDSCPESSGHPEALYSQKTSTLPRSPYLLSPTMDHYGTMDPHLYPSAN  
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SYLRAIQAGCSQDDDTASMDSGCSPPHIDTTVRTYNTSTVSSCITTKKAAPPVPPRTT  
SKPKSVTVQSSTESAQDNYLDQQDRRSEVNSQSSHHSNSDSDLDSTRANSLARGIRRP  
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PPPPRQILKRSTTRSSSSSFESLDPALDP SCLPPPEPWLESNGNSNGSV PQSGGGGTL C  
RRDGHWFLLKLLQAETGRMEGWCHQMEQETKDNQLSEEVLGKVRSAVGC AQLLMAQKFQOF  
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PPGRKDEEKESATKKPKGRPSL GREKSTDSASSASTASAEKQRHEARKRLLAAKKAASF  
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>Gasterosteus aculeatus\_DLGAP4b (ENSGACP\_4213)  
MKGFGANRSRHMDSCEPARCPQKPLCPLTSDPHGAFLLTPTINHYGTLDPHLHLCSPS  
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SQDEDTASVDSESPHGTGAGYSYSSNTRSAQYLF SNRKAPPVPPRTT SKPLISVTVQSS  
TESAQDVYIDQQERGSEANSQSGRSNSDSLCSIRTAGLAKGSRPLPVPVPAAPGPAAG  
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GNWFMKLLQAETGRMEGWCQQMEQETKDNKLSEEVLTIRSAVGS AQLLMTKKFEQFRGL  
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YVPEAQTRL

>Oryzias latipes\_DLGAP4 (ENSORLP\_20789)  
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PGSLPADCMPLPLNQLSNSSTFPRIHYNSYDQSDFSPPGDSIGGNQMPHLLFEFEKQLPG  
GHDGFFSTLQFHRTSAAAAAKQRTDSPGRIRYMLHSVQKLF AKSQSMETHNMKGNVNGRST  
GSGGSSGTEDGGRHQRRSKSKDRGTKSEATAKRPRSNMSGYWSSDDLDSSDLSSYH  
NTMGMMTQGRPTGHDTQVQTRYVHSGYNTISSKSTNDMKYPALPASGGRAGTADMLMN  
DGDYMKGGSWSTLTMGQPRQVIQKGSATLDRSMLKSKSQD LTCNYLQVGRRGDWSSTL  
GRSGGPNEIPCRMRSGSYVKAMGD MEDSDDSDGSPKPSPKTAARRQSYLRATQQSLSDQ  
LPPRNVQHTRRLKTQVKAFHILTSLKEMSSNRSLDNLDCIGGAGPLVPWEDDDFSQACST  
LGRRSCLGQLRDLERSHAYEDRSSESTFRDRSRQSQDNSEPPDLMPPTCFR SRSHSYLRA



IQAGCSQDDDSASVDSGCSPPPSDSTVRTYSTSTELCGVKRWSAAPEVSTCITTCCKKTAP  
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LARGIPRLPHI IATPVATTREPAASRTANASTETS DSGVQSEFLKRKLSSIGIQVDCIQE  
VPREETPPPAKFQSIGVQVEDGWHWSRFRLSRSSSMASKQETDSDTKDSDLNNGEPSGDAS  
PPPPPRQILNRSTTRSSSSSSFSESLDPALDPSSLPPDPWLDSGTDGHSGLPQGGGGGTL  
CRRDGHWFLLKLLQAETGRMEGWCCQMEQETKDNQLSEEVLGKVRSAVGSQAQLLMSQKFQQ  
FRGLCEQNL

>Homo sapiens\_DLGA5 (ENSP\_247191)

MSSSHFASRHRKDISTEMIRTKIAHRKSLSQKENRHKEYERNRHFGKLDVNIPTLEGRIL  
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GRYRPMPCFLLSNQNAVKAEPKKAIPSSVRI TRSKAKDQMEQTKIDNESDVRAIRPGPR  
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IKGKNSFAPKDFMFQPLDGLKTYQVTPMTPRSANAF LTPSYTWTPLKTEVDESQATKEIL  
AQCKTYSTKTIQQDSNKLPCPLGPLTVWHEEHVLNKNEATTKNLNGLPIKEVPSLERNE  
GRIAQPHHGVPYFRNILQSETEKLTSHCFEWDRLKLELDIPDDAKDLIRTAVGQTRLLMKE  
RFKQFEGLVDDCEYKRGIKETTCTDL DGFWDVMSFQIEDVIHKFNLIKLEESGWQVNNN  
MNHNMKNVFRKKVVSGIASKPKQDDAGRI AARNRLAAIKNAMRERIRQECAETA SVI  
PKEVDKIVFDAGFRVESPVKLFSGLSVSSEGPSQRLGTPKSVNKAVSQSRNEMGIPQOT  
TSPENAGPQNTKSEHVKKTFLFSI PESRSSIEDAQCPGLPDLIEENHVVNKTDLKVDCLS  
SERMSLPLLAGGVADDINTNKKEGISDVVEGMELNSSITSQDVLMS SPEKNTASQNSILE  
EGETKISQSELF DNKSLTTECHLLDSPGLNCSNPF TQLERRHQEHARHISFGGNLITFSP  
LQPGEF

>Pan troglodytes\_DLGA5 (ENSPTRP\_10806)

MSSSHFASRHRKDISTEMIRTKIAHRKSLSQKENRHKEYERNRHFGKLDVNIPTLEGRIL  
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GRYRPMPCFLLSNQNAVKAEPKKAIPSSIRI TRSKAKDQMEQTKIDNESDVRAIRPGPR  
QTSEKKVSDKEKKVVQPVMP TSLRMTRSATQAAKQVPRTVSSTTAKPVTRAANENEPEP  
KVPSKGRPAKNVETKPKDKGISCKVDSEENTLNSQTNATSGMDPDGVL SKMENLREINTAK  
IKGKNSFAPKDFMFQPLDGLKTYQVTPMTPRSANAF LTPSYTWTPLKTEVDESQATKEIL  
AQCKTYSTKTIQQDSNKLPCSLGPLTVWHEEHVLNKNEATTKNLNGLPIKEVPSLERNE  
GRIAQPHHGVPYFRNILQSETEKLTSHCLEWDRKLELDIPDDAKDLIRTAVGQTRLLMKE  
RFKQFEGLVDDCEYKRGIKETTCTDL DGFWDVMSFQIEDVIHKFNLIKLEESGWQVNNN  
MNHNMKNVFRKKVVSGIASKPKQDDAGRI AARNRLAAIKNAMRERIRQECAETA SVI  
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TSPENAGPQNTKSEHVKKTFLFSI PESRSSIEDAQCPGLPNLIEENHVVNKTDLKVDCLP  
SERMSLPLLAGGVADDINTNKKEGISDVVEGMELNSSITSQDVLMS SPEKNTASQNSILE  
EGETKISQSELF DNKSLTTECHLLDSPGLNCSNPF TQLERRHQEHARHISFGGNLISFSP  
LQPGEF

>Gorilla gorilla\_DLGA5 (ENSGGOP\_3409)

MSSSHFASRHRKDISTEMIRTKIAHRKSLSQKENRHKEYERNRHFGKLDVNIPTLEGRIL  
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GRYRPMPCFLLSNQNAVKAEPKKAIP TSI TRSKAKDQMEQTKIDNESDVRAIRPGPR  
QTSEKKVSDKEKKVVQPVMP TSLRMTRSATQAAKQVPRTVSSTTARKPVTRAANENEPEP  
KVPSKGRPAKNVETKPKDKGISCKVDSEENTLNSQTNATSGMDPDGVL SKMENLPEINTAK  
IKGKNSFAPKDFMFQPLDGLKTYQVTPMTPRSANAF LTPSYTWTPLKTEVDESQATKEIL  
AQCKTYSTKTIQQDSNKLPCPLGPLAVWHEEHVLNKNEATTKNLNGLPIKEVPLLERNE  
GRIAQPHHGVPYFRNILQSETEKLTSHCLEWDRKLELDIPDDAKDLIRTAVGQTRLLMKE  
RFKQFEGLVDDCEYKRGIKETTCTDL DGFWDVMSFQIEDVIHKFNLMKLEESGWQVNNN  
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TSPENAGPQNTKSERVKKTLFLFSI PESRNSIEDAQCPGLPDLIEENHVVNKTDLKVDCLP  
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LQPGEF

>Mus musculus\_DLGA5 (ENSMUSP\_40416)

MLVSRFASRFRKDSSTEMVRTNL AHRKSLSQKENRHRYERNRHFGKLDVNI PLEGRELG

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KERKSFAPKHCVFQPPCGLKSYQVAPLSPRSANAFLLTPNCDWNQLRPEVFTTTQDKANE  
ILVQQGLESLTDRSKEHVLNQGASTSDSNHASVKGVPCSEASEGQTSQPPHDVPHYFRKI  
LQSETDRLTSHCQEWEGKLDLDIPDEAKGLIRTTVGQTRLLIKERFRQFEGLVDNCEYKR  
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KSFVLSSESSERRSQRFGTPLSASKVVPEGRAAGDLLRQKMPKPKPDPQSSKSEHVDRTFSD  
GLESRCHVEDTPCPGEQDSSDIEHDVNKINVKMDCFSVETNLPLPAGDANTNQKEAISAV  
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>Rattus norvegicus\_DLGA5 (ENSRNOP\_15553)  
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SQFGLDSQDTSRKERGLNQKASTPNSDHLKSVKGISSSEAGDGTGQPQHDVPHYFRKILQ  
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KETTCTDLDFWDMVVSFQVDDVTQKFNLLMKLEESGWKDNNSPSKKVIRKKIVPGKTSKA  
KQDEDEGRTAARSRLAAIKNAMKDRLRQEAQAQAAVPEIPTAADKIVFDAGFFRIESPVKS  
FSVLSSESSERRSQFGAHSASRAVPEGRAAGDLLRQKTPKRPDPQSSTIEHVDRTFSDGLE  
SRCSQVEDILCPVQDSSDVERDVNKKIKVMESFSVATMNLPLPAGEVAGDANSNQKDAV  
SAAAVEGVGSVLSQDVLMSHPETNAFNSQRDSLQEGAELSQSVLLHKSILTSECHLLGPPD  
LSCTSPCTREDTRQDRGRQFSFGGNLIVFSPLRP

>Canis familiaris\_DLGA5 (ENSCAFP\_40149)  
MSSHVSRHRKDLVSNMIRTKIAHRKSLSQKESRYKEYERNRHFGLKDVNIPTLESKILL  
ELDETSQNLVPEKAKVKPRSKKTI LGDQKQMLQKYKEEKQLQKLKEQREKAKRGVFKVG  
LYRPMPCFLLSNQSTVKAEPKAVSSVFRITRSKAKDQMEHTKINNGSDVRAIQPGQRQ  
TSERKVLDKKEKVVQVMTTSVRLTRSATQAAKQIARTVSSSTTARKPIIRATNDHEMERQ  
RPNQRRPTKKTETKPKDVVSFKVDSEDNLTDLQIGATNGMDPDGVLPKMENLPKNTAKTK  
GKNSFAPQDFVFQPLDGLKTYQVKPMTPRSANAFLLTPSYTWTPLKTEVDKTEVTKELT  
QECKTYSAKMIHQDSKLCPLGSLTVWNKEHVLNKDETTKNSGLTIKEVPSLEIIED  
QISQPHHDVLYFRKSLRLETEKLTSHCLEWDRKLELDIPDDAKDLIRTAGVQTRLLMKER  
FKQFEGLVDNCEYKRGEKETTCTDLDFWDMVVSFQIEDVNQKFNLLTKLEESGWQNNNNI  
SKKVPQKVVSGVASKPKQDDDGRIARNRLAAIKHAMREKMKQKEPVEAAASVMPKEVD  
KIVFDAGFFRIESPIKFSGLSISSECLSQRLRTPKSVSKTVSESRAEMDHLRQTMSPQN  
PDPQSTKSEHVDKETLLSTIPKTRNSTEDAQCPLGLQGLIEVNDNANKINFEMACLP SERM  
NLPFLAGEVADDINTNKKKEIPDVI EGGLEHSSVTAQDILMSPEKNI PSQNNILQEEKT  
KISQSVFDTRSLTTERHLLDSDPLNCSTTFTWVERKHQDHIRHISFGGNLIAFSPLRPF  
DKQPEEF

>Felis catus\_DLGA5 (ENSFCAP\_15423)  
MSSHVSRHRKDLVSNMIRTKIAHRKSLSQKESRYKEYERNRHFGLKDVNIPTLESRVL  
LELDETCQNLVPEKASVKPRSTKTALGDQKQMLQKYKEEKQLQKLKEQREKAKRGVFKV  
GLYRPMPCFLLSNQSTEPKAVPSSVFRITRSKAKDQMEQIKIDNGSDVRAIRPGQRQTS  
ERKVLDKERKAVQVTTTSVRMTRSATQAAKQARTVSSSTTRKPVTRANDHEIERKAPN  
QGRPAKNIETKPEKVISFKLDSEENTLDSQASTTNGMDPDGVL SKLENLPKNTAKTKGK  
NSFAPQDFMFQPLDGLRQVTPMTPRSANAFLLTPSYTWTPLTEIEIAKTQEPTKEILAQK  
CKTSSAKIVHQDANKLQCPGLSGLTVWNKEHVLNKDETTKNSGLPTKEVPSLEINEDQVS  
QPQHDVPHYFRNIIQSETEKLTSHCLEWDRKLELDIPDDAKDLIRTAGVQTRLLMKERFKQ  
FEGLVDNCEYKRGEKETTCTDLDFWDMVVSFQIEDVNQKFNLLTKLEESGWQNNNNNTNKK  
VFRKKVVSGVPSKSKEDDGRIARNRLAAIKNAMRERMKKEEHVEAAASVMPKEVDTIVF  
DAGFFRIESPVKFSGLSISSECLSQRLRTPKSVSKAVSENRSKMGVLRQTVSPQNPDPS  
STTCGHVDKETLLSTIPKTRNSTEDAQCPLGLQGLIEVNYGTNKISFEMDRLSSERM SLPL  
PAGEVRDDINDNKKEEISDDVEGMELNSSVTAQDVLMSPEKNIASQNNILQEEETKISQ

SVLFDTKSLTTECHLLDPSGLNCGNTFTQVERRHPDHGRHISFGGNLITFSPLRPLSEEH  
PEEF

>Myotis lucifugus\_DLGAP5 (ENSMLUP\_9522)  
MSSSHFASRRRKDLSTDMIRTKIAHRKSLSQKEHRHKEYERNRHFGLKDVNIPTLEGRYL  
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GLYRPDVPFSLFNSRNTTkaepikavssfvrmtrsktkdQMEQTKITIGNDVQATRPQQR  
QTSEKKVLNKEKKVDQPEMPTSIRMTRSATLAAQMARTVSSSTRKPVTRATNDNEAERK  
ATNQGRPAKNVETKPKDKVISFQVDSEEDNLDSTSATNDGVLskmenlPNTNTVKMKGKN  
SFAPKDFMFQPLDGLKTYQVTPMTPRSANAFLTpsftwTPlkTEVDKTADATKEILAQKC  
KIDSAKTVHQDSNKLQYPLDSLTVWNKENVLNTNDTTKNSSGLLIKEVPSLEINEDQLSQ  
PQHDPVYFRNLIQSETEKLTSHCLEWDRKLELDIPDDAKDLIRTTVGGQTRLLMKERFKQF  
EGLVDDCEYKRGEKETTCDDLDFWDMVsfQIEDVNQKFNNLTkLEDsgwQNNNNNNI SK  
KVIRKKVVSgiASKPKQDDGGRIARNRLAAIKNAMRERIKQEEHAEAAAASVVPKEVDKI  
VFDAGFFRVESPVKSFSGLSISSERLSQRLRTPTSVSKAVSDSRAALGLLSQTASPEHPG  
PQSTRREQADEKTLLSNI PENRNSIVEDAQCPRLPDLIEVNHDISKINFKMDCLPSEMS  
LPLPAGEVACDINTNKTEEISDVVEGMELNSSMTQDVLMSspekDIPsqhNISQEEETK  
IFQSVLFDNKGLTTECHLLESTDLNCSNLFtpverrrreHARHISFGGNLITFSPLRALS  
GEQPEEL

>Monodelphis domestica\_DLGAP5 (ENSMODP\_17488)  
MASLSVPNHRRDASTEMIRTKVAHRKSITWKENRHKKYEQNRHFGLLDVNTTSLEERNL  
PQLDETIDNILEKDNVKSPLDLRELLSNQRKEMLQYKERKQLQKMKEQRDRMRGGVFKVG  
LYKPDPPQFLRGLPGQKTVKPEPKVVFQTSVRI TRSKVKDKLEQPKVNNNGHNMEAVQAGQ  
KPTSEHQSSKERKVVKPDMRVTRSATIAAKQIPKPTSSVAMRRPIPKLISENQLERKAST  
EERPPPKEVVKDKGKILPSKAGGEENSSKDALTEGPHSFKKSPSEEIAEFLGKEYIPE  
KNVASQVRKKYSFAPENFRFQPPDSLVNRYRIKLISPQRECVAPSCFWSPLEVKDYHSQES  
KRETLKENKVDNCSAQPDLDLQSPKPLEILHKDCLSNKNGDTTITSDNLPINTQIPL  
LEINEHQTAPPQHDVQYFRNLIQSETERLTGFCHDWEKKLTLDIPDDAQDLIRTTIGQTR  
LLISERFKYFEGLVNDCDYNGCQKKITCMDLDGFWDMVNFQVEDVNKKFEKLSKLQESW  
QEKNTINQKVIKKAVPVEKCKSKQDDAARTAAARNRLAAIKASMKEKIKQEEPSLEI AVP  
GVSKAKEIDKIVFDAGFFRVESPVKSFSAISASKEAVHSKSDPAEYKTPGNKKRNLI EG  
NWTKLCSPSYQ

>Xenopus tropicalis\_DLGAP5 (ENSXETP\_34368)  
METRTQFTGRYKDLSTENLRKVARRSITQKENRHNEFKKCRGLSVADANISLLKECE  
LPPLEETDECSILKAQETTVDIVGKSKEYTKQRRDMLQRFKKEKELRKLKEQREKAAKGV  
FKCGITXKPDVTI PPVWGTQHTAKVKPKEKLAPPVVSrvTRSMakAEPAGSKANRTQHvKA  
GVLNMSKISaERGITKCGQNSALKKPKETKVAPSQRGVRTALSTTTKPalRNNVVAKSQN  
KTTKETKAKENVKKS PVSEPPKVKEAELPKAEPLPKAEPLPKAEPLPKAEPLPKAEPLPK  
AEPLPKAEPLPKAEPLPKAEPLPKAAVETGTSSIEAHQPPHERKPSFAPQNFMFQP  
MDGLSPYKFKPMTPSRANAFLTpcftwSPVRLERNHLPASPKNKEQTAVEQVLPVEQVL  
PVEQVLPVEQVLPVEQVLPVEQVLPVEQVLPVEQVLPVEQVLPVEQVLPVEQVLPVEQV  
ESATDVCLAPTDAGSPSSSVSNPQKENEKEAPKEPEHDVPYFRDTLkSEIARLkQLCCE  
WDKRIELDIPEDAADLIRTTVGGQTRLLMCERFKQFEGLVDNCEFKRGEKETTCDDLDFG  
WDMIYFQIEDVGKFFINLGKMEENSWQONTAPTkkVvKkKIGPAATSKSTQGDsgRAAR  
SRLAAIKAAKLNKKGQEEPTVEAPALPTrFDEVVFDAGFFRVESPAKGTNSVRAKCNSSW  
SSPTTQPSTNRIQQSKNHNGEQITEVPNSPGTVNSPIRKSFLDNSEEVSVQSDEPHPIPS  
VVETDKAACAVHVADLTkYLVPTEtTSSIQLCDSpapedIGMAPARALFVEETAGISGSFV  
DDVFMCSPTNGPAPQPI SPTRESDAVCGNRDLNALNDQLDFLGsCTPINMVEK

>Danio rerio\_DLGAP5 (ENSDARP\_66410)  
MESRFAHLYKRDSSTSMIRLKMSRRRSQSQKENREKIQNMRRHLDRLPEIDLsMDTSTLM  
ATQDKAPKTKTASDSSDAAERKMLARYKENKILQKEKEKREKEKKGVFKVGLYKPPQL  
GYLPSNTAAPGRAKATEMNQSTRITRSMVQNQKLAVERHAVPKKVVETLSTARAPAKDNRK  
PLTSTKTRATTAEPVRAQTTRSAAKTAPDAVVKPVADTRGPKTRSAVKYPAAPSSGRGK  
VIQGNMkanVENKPAEIKDtaVDKVEEPKAAPASFApQGFVFQPPVGLRSFEPVPLSPSS  
ANAFSPSfnSEVSMepAFSPPKPVVsfSSPPPSVSAYMPDHPISPPSVSSPLQAQSFp  
QPSTDAAPSPSSAPMEPQHDVAYFRAAMASETERLTGLSELWESRFDDASIPeEMRDRMR  
TAVGQARLLMKERFGQFNGLVDDCDFKRGEKITTCDDLQGFWDMVYFQVEDVNKKFSALK  
EAEARDWKEEVKPVTKKRvVKKPPVvAGKAAAGGGGNAAKSRLAAIKAAKAKQAEQKA

TETSDKPOEDSSSVVAPVQSVVFHGGFFQVESPVKTPAAVRRSCRGVVSSPSVTKFSTP  
VRQCRSTAISSASPLPCMSTTPPRPLQPEVLPICPTPLRSAEPLPESPRAPQMTPDHMQAP  
HTDLCNSNSQPQFDSSTCTQQTQPDFRNEAENSAPGQSESPVECSEAQIEDCI PESMLSN  
STQAEDNVVSEESLHVSAGVDALSQCSFHAEPSVCAPASPAMMPSTPTKDLNASSALSN  
ELVLSACSSSPTSADVENTGPDQDAEGATGLDFERYLLPSVRDVSPEQSLAADRFSLGVM  
AEMESPVSQPGESPVDVLA SPTAVPRMVFSHRISQMPPSLLLFTPEQRERVRQSV CERDL  
MTFTPTPSK

>Takifugu rubripes\_DL GAP5 (ENSTRUP\_43035)

EILLLISTETSCYFAFCYSHVSRSLMSDKFSLFRDTSVSMRLRVKMSRRRSQTQKENR  
ERTVNTRRKLDKLMELDASCLDASTAVVNMSVAHERTLHGTAIAKKTEAAVEERVKQLER  
WREHKALQREKEKREKERKGVFKTGLYHPKDTLVVFSQPWASSASDKVKEPVVQRLTRTR  
AAAVKSACVQTKTKTDEPVSSRSAIRPPVTKTPAAKDKAKEKPAGIKFLSLEARTRSRA  
VVGVVVFPVSAHKKHKGVIIEPANTTQPAVPTVVISASQVMEPERKTCPSPLPCCETTE  
RTMDQPQDDCVPAGEADEAPSFAPKDFIFQAPVGLATYRFEPLTPRSADAF LRPRFEILQ  
KVFSFKNLRSLPLLFHSISFSLLPAPVLDHEPQHVSNNPPPTNPQCSPPGASPAEAA  
PTPTCSMEAQHDVPYFRAEIANGTNRLMSLCVHWEAKVEDESIPEEMRDRMRTAVGQARL  
LMKERFKQFSGLVDDCEFSRGEKITTCTDLQGFWDVYQVEDVNKKFDALKEAESRAWV  
EDRKPPPRPKKAVMKHGALSQKPSGAPVKPTGSKAAAKSRLAAVKAAMKARQQAETIKE  
EPQTQTASQPAESVVFDDGGFFQVESPAR

>Tetraodon nigroviridis\_DL GAP5 (ENSTNIP\_15859)

RMESKFSHLSQRDNVSMRLRIKMSRRRSQTQKENRERTLNARRRLEKLPELDASSADASA  
LTTNTSVLHQRTLNETALAKKAAVEERMKQLERWKERKAVQKEKEKREKERRGVFKTGLY  
HPKDSLVLVFGSPAASRTRGKEIKEHTAPSHHTRVTRSMKQQLHLQTVLQFFTC LRMF SNVQ  
NPLKTQEPNTMAIKGNYP LSQPTQRPTRTQAAPVKSATSQTKAKTGKKPKIQALYTHGSF  
LAEPPSTRSASRPPVFRKPVENDKPKPEAGVQECGEGAGPPSKPSVTEQPRADSVPAQGA  
PETPSFAPKDFTFQAPAGLTLFKFEPLTPQSADAF LTPSLSFSLPPAPVLDVDFGPQDVPGT  
PPQKTPPCPPPAEAPPPACAAEPQHNVPYFRAEVATETDRLTSLCVHWEAKIEDGSIP  
EEMRDRMRTAVGQARLLMKERFKQFTGLVDDCEFARGEKVTTC TDLQGFWDVYQVEDV  
NKKFAALKEAESRSWVEERKPPRAKRPVKKPSDAPAKPTGSKAAAKSRLAAVKAAMRAR  
QQAAGNTDSGAEAAQAGSQPSEPVVFDGGFFHVESPAKPPGPSVAGSLRRSSRLG

>Gasterosteus aculeatus\_DL GAP5 (ENSGACP\_12507)

MDSAF AHLRQRDTSVSMRLRVKMSRRRSQS QKENRERVVNTRRQLAELPELEMSSLDASIA  
TVNISNIQKTLNNGKSAKDVAGEERLKLARWKERKALEKEKEKREKRRKGVFKTGMYPHK  
DTLTIPLSLPVVPAASRAKESVRVTRSMKQQQQTQAALDRTRSRVAVPKRAPAPATAKI  
HDPAAHSASRLPTEVEPAVRALRSKSASRPVTAAPVVAKDKPMEKTTVKVSYSAAVEAD  
VTMESQETPRPPGPAPSSEEQNVAVEAPAVAVEEASSFAPKGFMFKAPVGLSSFKFEPLT  
PRSADAF LTPSLNAMLLFLRSPSFLPEVPAFNLQPPGEPDSSPSKSPRRSPCEAPA  
TTGSPLESKRGVYFRLEIVSETEGLMTLCADWEPKVEDESIPEEMRDRMRTAVGQARLL  
MKERFKQFSGLVDECELGRGEKITTCTDLQGFWDVYQVEDVHKKFNALKVAEGRGWVE  
EHEPPPPRQRKGVKPPSAAPAKATGTNQAARSRLAAVKAAMKAKQQAEEAEKAAKDAGA  
AVEDAGPSSEESRAEPPATVVFDDGGFFQVESPAKPPGSLRRAGRPSAAALPQTPPCS  
N YLSLRRSTRCLALPQTPLLTAASPARPRHTPARLTLDQAPASPRGTPRASRRHRANSS  
L CFSVPRDAAAVQGGAAPALSAPAAEHSLPSICVAEEPAGVCVDLPRSPCRTPQRSLSPSF  
SLSPSVTPSRPPTSSPPAVLSPEEAQESVCLTPGTLVVEVNTLCSAVNKVLCFCCCFQEI  
PGLDFERYLLPSQRSLSLPGGLDVEMESPRGQTEDLLTLPEHGVRLVSYHNNTNLKSTML  
LFTPDLKDRIRQSVCPDMLMVFPTPL

>Oryzias latipes\_DL GAP5 (ENSORLP\_4278)

MESRFASLRQRDTSVSMRLRVKMSRRRSQTQKENRQRAMNTRRQLDKLPELEMSSLDASMA  
RSNVSALQERETNAKPEKIKAQEERLKLARWKERKALEREKEKREKQKGVFKTGLYHP  
KDICTGPAVPPVSAKHKEKKTVAQSTRVTRSMKQQQETHLMNSVSDCITTAGPAVQ  
PLSSRSAKRPPVPKTSAVKDKPKEKVADVRTTRAKAALSSVAPSSGHTKSSNGQITGAAH  
LVINPIHPTQVSTALSENAAKAPPFAPRDFIFQAPTGLSSFKFEPLTPRSADAF LTPRL  
VYVPLLSPTLILPPVSSFTLHPQAE LSKPSPKTS HQSPRGTSAAVTAAPPCCPLESK  
HDVPYFRSEIAKETVRLTTFCHHWEPKVEDESIPEEMRDRMRTAVGQARLLMKERFKQFS  
GLVDDCDLGRGEKVTTC TDLQGFWDVYQVEDVNKKFDALKEAEGRSWVEECKPPPRQR  
KTVKKPSAAPAKATGTNAAAKSRLAAVKAAMKAKQQAEEAEKASQDSTSGDLPSQKPGPQ  
AEALKLDAVVFDDGGFFKVESPAKSSSEGGKPTVLCFICSFYKCVFRRSSRLSAAVPLAS

PCSSYRTPRRAAQRPLALERTPIGSRASPVQLSRPTLEQAPTPKCQPDIQGIDGPANASL  
CFSPVKLEPSSEETSDBGSPAQKAGGASPTVSVVERNSAEPTEGTPLSAAHCIPSSKSPSP  
APHVPEPPSGLSFVLSFCAPLTSAAAEAPQAVYQTPNSSVVEEVPLDFDRYFQPSQRCS  
LSPREPVAEETLSPMATDVEMEGRQAEELPALSAVSSVFSRSPQVQSAKAALLLFTF  
DLKDRIRQSVCPDLMSTPPNF

>Anopheles gambiae\_ (XP\_319732)

MDRSVDSIGSCSLDVDADSTDFSDTSGELNFLTPIISGKDITREFTAGIKERCMLPVINCQAVTSVLDPV  
GHISTVLTTTTAPNGQQQQQALQPLLSGTGDSSPTAATNKKPSYLNACCNGYSNLTTYDSKLRQDIN  
KSREVPSPRPIIATLHYNRTETVNGGAAGMRGMNGSILSPSPSGADMTDNVGMFNGNGSFAGSMRTKVI  
SSQSQISSHARDEATAQLLMTPKKSFIIQQRVEKLYGASEVVVLNKQNYSSSERKYLNNIANDNTSGGAPG  
KLIHHGSTAQAGQQQHHHPMGNGTARNGADVESLPLRHLRPEFRAQLQIFSPKKMPKPAAPPANQQD  
HRTTVTNRSTMVKNARISSHTTTSSSTNGRTSNDSSFSSNNNI VLDGNHFLRILKTEQNRLKAMADE  
VEQEINLLKADGVEFGEDINGYILVAVGKARLLCSQKMKQFEDLCYTNLNQSPDEKFQTTGEDLRGFWD  
VMLQVNNVDASFAEIDFRKNGWRKPAPKSPPPPARNGTAGATRKLKVRPYKTGGTANGTSVTDGNGV  
EAKKASAAALAAKREAQRKQLMEMKRKQKLA

>Capitella teleta\_ (ELT90804)

MVIMADPVAIVTEDATSGYVRKMVSRLFESLQSEILNNGSEPSLVNHAPSSTPASKRSLTSHDPQPANGS  
VDNLHDHSDSEAKSPSYVKLSCAVSGYSSNKYNAFNSEDKVKKTKPPLPHKPAPLRGASRTNGSDATSVS  
LVSVTVDTDETDSPRVNGTSPRTPLVNGQRPPQHDNDVPTPQKLGICVLCPLCLFDVIFKFDAGKRVSQOE  
KPMGSAHVLFHFERGLRQTLIMDGSFLVQKESDRLELCAKAEELYEAEDLPEEASGRIRATIGKANL  
LTSKKFKQFRGLCQKNLEQADDEPFQTTAQDLAGFWDMLVLTQVDDLDCKFAEIESLRNGWISRNASSAS  
LNNIEKSSNKAKHSGTKNKSQRQPSVACTPKSSLSASARAHREARRRLLQAKRAGRQRKVSQSDNKDDV  
EVEIFVPQ

>Octopus bimaculoides\_ (XP\_014770553)

MASSGPPSVLDRRSPHPDLSKLVVDRIITRRRSPVRANKGPCNDEVHSRIAQPYRTSFSAVVSLPRVRKTSN  
EVLAANLALERSRSDQGSVSSKSSRRGISPRHVRYDDNVRVHSDTEDSLMTSLSGQESSYSPLESPRDS  
SDILSPISAMSSSDKCPQLIVPSTGTLTNKPIHQETLRGIRKGCENNTLHPGDRLTPNNSVSFLPSES  
SVHGGDSGVSTDVDSQREKTSKLNINKDYVDRTISYRMAIQAYSDDEVKRLAEAKVVEKAEPEEEAEVSN  
PELKKSEVCAQSSLPSSQSNDSQKSTSQGAEPKRNDAHFLSHAKKSLSTSMGNFFRRLSPNVRRTKHHK  
RNSSTEGSAQSLNTSDSCSIESDPSGHPVHRSNSKSRFSFMKFFGKIHRNKSHSLRSGDRKPSKDDLE  
CSQSQDIKQFDPSTQRILKSIEQNSMSDKTIYQKFKAKQPSNHTADAGNKSQAVRPLQATSKTLNNSPSG  
ANQKNKENELKAMSLPLKPSLAEENELEANVSPQSNASTAGAASSVYATSSSLDQNSIDDFSLAVHTPG  
SEGTFATSPGSHNTNNAKTHLINNDSPGSLDLGSSAPDSFIDIPSRKPSYLLKSCSVSGYGKYSVYSSY  
KDIERRSPFSSSSSLKAESRSTSCEMPAIQSDNKEVTKSIDDPSKDKELKADMDGVPASSNGIDGIPE  
SSVINITSTESSHVDGDYFLKLTLEKEEKLSKLAETANDLDKHHLPDDVSGKIRAAIGKANLLQNKFKF  
QFRELQNYMTPVSSEEDHPTKLEDLQGFWEVMIQIDDDVYDMFAEIDLRLQNGWKEVHFESRRSSSSSQ  
KSASVNSTPSHTPGNHITNSLPPKISPDGHLVMVMDATGKIT

>Amphimedon queenslandica\_ (XP\_003387885)

MSQARETQYKYKGRSKGVESRLKGGKALDSKRQREELLSGRRRAALLEINEEIMAEIIIQEKGTGATGKKK  
TSDDRKEELLKWKKERDRKKQKEQKKANAKPAFVVGKANISSNRKVPLPVEPSSSTATVKEGPSKKGKRV  
TEPPGNAKREELGRKRVTGSRQPDVKQKPATRSSVRLQTAKSKETKAVKQSTKKQLTAESSKSTNSKREI  
TKELSPHPPPCIDKSDLQRDSVLSSAWIPGAPPTPQCASQONARPNFEQFFSKQVFSFQFKGQTGETTNT  
GKAQSI FTFRKEFREEDI IKRIEDDISNIIEEKREEKEAAVPATDDTGRGKSAKKEVKGGGRKRNKKR  
QNERTEKESDDEEDLETIDTGTGIGREEEPVDELPTNVRMSDTSIEAINVSVAHNNNYTNQOLEEERQSS  
TDPPASAHTQDLSPPVTNFAPPTTDVTPPSEGLATDATGNDSGFDLVPFYKRHTDVTQRFNALCAEWDDK  
LSQLEDDGEKEEDAGRPSDEVIGDIRTTVCQAKLLMRQKQYLELVQQAEDPAAEHKTMADLQGFWD  
VYFQVESIYKFFSSFSEMESNSWKTVVTPAEDGDS TCKPRRSKRGASKAKRGGSKTGASSAISERLAAA  
RAKREAERLKIREMRQAFAAASKTKEEEVPPAPVTPKKNIAESPFPLDISFSPAPSSLRPPTPKSL  
LKTQPASASKSSSLKRLSSIPDPVFEVDKSHETEGAFMTKLVQINASKMKIKDFDTNLIMSPARRSKRL  
STRRRSELIVSSISEIPNDRNNVAYLPNEALID

## **E2F Transcription Factor-E2F**

>Homo sapiens\_E2F1 (ENSP\_345571)

MALAGAPAGGPCAPALEALLGAGALRLLDSSQIVIIISAAQDASAPPAPTGPAAAPAGPCD  
PDLLLFATPQAPRPTPSAPRALGRPPVKRRLDLETDHQYLAESSGPARGRGRHPGKGVK  
SPGEKSRYETSLNLTTRKFLLELLSHSADGVVDLNVAAEVLKVQKRRIYDITNVLEGIQLI

AKKSKNHIQWLGSHHTTVGVGGRLEGLTQDLRQLQESEQQLDHLMNICCTQLRLLSEDTDS  
QRLAYVTCQDLRSIADPAEQMVMVIKAPPETQLQAVDSSENFQISLKSQKQGPIDVFLCPE  
ETVGGISPGKTPSQEATSEEENRATDSATIVSPPPSSPPSSLTTDPSQSLLSLEQEPLLS  
RMGSLRAPVDEDRLSPLVAADSLLEHVREDFSGLLPEEFISLSPHEALDYHFGLEEGER  
IRDLFDCDFGDLTPLDF

>Gorilla gorilla\_E2F1(ENSGGOP\_3528)

MALAGAPAGGPCAPALEALLGAGALRLLDSSQIVIIISAAQDASAPPAPTGPAAAPAGPCD  
PDLFFFATPQAPRPTASAPRPALGRPPVKRRLDLETDHQYLAESSGPARGRGRHPGKGVK  
SPGEKSRYETSLNLTTRKRFLELLSHSADGVVDLNWAAEVLKVQKRIYDITNVLEGIQLI  
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RMGSLRAPVDEDRLSPLVAADSLLEHVREDFSGLLPEEFISLSPHEALDYHFGLEEGER  
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>Macaca mulatta\_E2F1(ENSMMPUP\_30996)

MALAGAPAGGPCAPALEALLGAGALRLLDSSQIVIIISAAQDASAPPAPTGPAAAPAGPCD  
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SPGEKSRYETSLNLTTRKRFLELLSRSADGVVDLNWAAEVLKVQKRIYDITNVLEGIQLI  
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RMGSLRAPVDEDRLSPLVAADSLLEHVREDFSGLLPEEFISLSPHEALDYHFGLEEGER  
IRDLFDCDFGDLTPLDF

>Mus musculus\_E2F1(ENSMUSP\_99434)

MAVAPAGGQHAPALEALLGAGALRLLDSSQIVIIISTAPDVGAPQLPAAPPTGPRDSVLL  
FATPQAPRPTASAPRPALGRPPVKRRLDLETDHQYLAGSSGPFRRGRGRHPGKGVKSPGEK  
SRYETSLNLTTRKRFLELLSRSADGVVDLNWAAEVLKVQKRIYDITNVLEGIQLIAKKS  
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VTCQDLRSIADPAEQMVIKAPPETQLQAVDSSETFQISLKSQKQGPIDVFLCPEESADG  
ISPGKTSQETSSGEDRTADSGPAGPPSPSTSPALDPSQSLLGLEQEAVLPRMGHLRV  
PMEEDQLSPLVAADSLLEHVREDFSGLLPEEFISLSPHEALDYHFGLEEGERIRDLFDC  
DFGDLTPLDF

>Rattus norvegicus\_E2F1(ENSRNOP\_22428)

MAVAPAGGQHAPALEALLGAGALRLLDSSQIVIIISTAPDVGAPQVPTGPAAAPPAGPRDPD  
VLLFATPQAPRPTASAPRPALGRPPVKRRLDLETDHQYLAGSSGPFRRGRGRHPGKGVKSP  
GEKSRYETSLNLTTRKRFLELLSHSADGVVDLNWAAEVLKVQKRIYDITNVLEGIQLIAK  
KSKNHIQWLGSRMTVMVIGRLEGLTQDLQQLQESEQQLDHLMHICTTQLQLSEDSDIQR  
LAYVTCQDLRSIADPAEQMVIKAPPETQLQAVDSSETFQISLKSQKQGPIDVFLCPEES  
AEGISPGRTSYQETSGEDRNADSGTAGPPSPSTSPALDPSQSLLGLEQEAVLPRIGNL  
RAPMEEDRLSPLVAADSLLEHVREDFSGLLPEEFISLSPHEALDYHFGLEEGERIRDLF  
DCDFGDLTPLDF

>Felis catus\_E2F1(ENSFCAP\_4643)

LPQVKRRLDLETDHQYLAESSGPARGRGRHPGKGVKSPGEKSRYETSLNLTTRKRFLELLS  
RSADGVVDLNWAAEVLKVQKRIYDITNVLEGIQLIAKSKNHIQWLGSHAAVIGGRLE  
GLTQDLRQLQESERQLDHLIHICTAQLRLLSEDSQRSSTLAYVTCQDLRSIADPAEQMV  
VIKAPPETQLQAIDSETFQISLKSQKQGPIDVFLCPEESAGGISPGKTSQGTASGEED  
RAVDPATTVPPSSPSSPAADPSQSLLSLEQEPLLSRMGGLRAPVDEDRLSPLVAADSL  
LEHVREDFSGLLPEEFISLSPHEALDYHFGLEEGERIKDLFDCDFGDLTPLDF

>Equus caballus\_E2F1(ENSECAP\_21291)

AAPPRSAAPPVKRRLDLETDHQYLAESSGPTRGRGRHPGKGVKSPGEKSRYETSLNLTTRK  
RFLELLSRSADGVVDLNWAAEVLKVQKRIYDITNVLEGIQLIAKSKNHIQWLGSHAAV  
GIGGRLEGLTQDLRQLQESERQLDHLIHICTTQLRLLSEDTDSQRYPCTAWRAADLRSIA  
DPAEQMVMVIKAPPETQLQAVDSSETFQISLKSQKQGPIDVFLCPEESAGGISPGKTSQ  
TASGEEDRAANPATTVPPSSPSSPATDPSQSLLSLEQEPLLSRMGGLRAPVDEDRLSP  
LVAADSLLEHVREDFSSLLPEEFISLSPHEALDYHFGLEEGERIRDLFDCDFGDLTPLD

F

>Myotis lucifugus\_E2F1(ENSM LUP\_14006)

ATGVCGGVGGQALRACLGRARGGLLDSWQIVIIISIAQDTSAPLPPAPAVRAASPRDPDLL  
LFATPQAPRPTSPRPALGRPPVKRRLDLETDHQYLAESSGLARGRGRHPGKGVKSPGK  
SRYETSLNLTTRKRFLELLSRADGVVDLNWAAEVLKVQKRRIYDITNVLEGIQLIAKKS  
NHIQWLGNHATVIGGGQLEGLTKDLQQLQENERQLDHLIHVCTTQLQLLSEADASQRSTL  
AYVTCQDLRSIADPAEQMVMVIKAPPETQLQAMDSSEAFQISLKSQGPIDVFLCPEESA  
GGISPRKTPSQGATSGEEDRAADPTPTVPPSSSLPSTPDVDPSPQLLSLEQEPLLSRMGG  
LRAAMDEDHLSPLVAADSLLEHVREDFSSLLPEEFISLSPPHGALDYHFGLEEGEGIRDL  
FDCDFGDLTPLDF

>Erinaceus europaeus\_E2F1(ENSEEUP\_9096)

VKRRLDLETDHQYLAESSGPPRGRGRHPGKGVKSPGKESRYETSLNLTTRKRFLELLSHSS  
DGVVDLNWAAEVLKVQKRRIYDITNVLEGIQLITKKSNNHIQWLGNHAAVIGGGRLEELT  
QDLQQLQESERQLDHLIHICTTQLQLLSESDSQRYPGDLRSIADPAEQTMVIKAPPE  
TQLQAVDSAETFQISLKSQGPIDVFLCPEETVGGASPGKTPSQGTASGEEDRTADAATT  
VPQPPSPAGDPSPSLLSLEQEPLVPRMGCLRAPVDEDRLSPLVAADSLLEHVREDFSGLP  
EEFISLSPPLEALDYHFGLEEGEGIKDLFDCDFGDLTPLDF

>Gallus gallus\_E2F1(ENSGALP\_4806)

PQVKRKLNLETDHQYLAESLPAARGRARI PGRGAKSPGKESRYETSLNLTTRKRFLELLSQ  
SPDGVDLNWAAEVLKVQKRRIYDITNVLEGIQLITKKSNNHIQWLGNSQVAAGASSRQRL  
LEKELRDLQAERQLDDLIQTCTVQLRLLTEDPSNQSFAYVTCQDLRSIVDPSEQVMVI  
KAPPETQLQVSDPGEAFQVSVRSTQGPIDVFLCPEDSSGVCSPVKSPFKAPAEELSPGSS  
QQRASPLLSAQDVMNMLLPEALLPGTALPTKCPTEVSLSPLASMDTLLHEHGKDDFPGL  
ADEFIALSPPQPQDYHFGLEEGEGISELDFDCDFGDFTHLDF

>Anolis carolinensis\_E2F1(ENSACAP\_8599)

FQELQFIGWKILLDFKVAISRNLKSTHPLERVKRKLNLETDHQYIAESFQGNRGRARN  
AVKGVKSPGKESRYETSLNLTTRKRFLELLSQSPDGVDLNWAAADV LKVQKRRIYDITNVL  
EGIQITKKSNNHIQWLGSRSTVGGPSNCHGLMKELQDLQDAEQQLDTLIQMCTTQFKLL  
TEDLENKRKAYVTCQDLRSVVDVPEQLVMVIKAPPETQMQVSDPAEAFQIAVKSTQGPID  
VFLCPEESSEVCSPTKSPQKAVAVGQRTPESSQAAAVVTTAATPVLLHPSQAEPLLSGENT  
LPLKCPGDDVSLSPLASVDTLLQQKDDFSSFLPAEFIALSPPQTQDYHFGLEEGEGISE  
LDFDCDFGDFTS LDF

>Xenopus tropicalis\_E2F1(ENSXETP\_46332)

ALWEAGTFQVAEQQIVIIISTPDVPAEAAGNPGLSEAEMLLFTTPQGPSTSYTAQRPD LGR  
PPVKRKL DLETVSRYNQEALQTPRGKGRPLKAVKSPGERSRYDTS LHLTTRKRFLELLSQ  
SSDGVDLNWAAQVLNVQKRRIYDITNVLEGIHLITKKSNNHIQWLGYSYAEYNSRYQS  
TLKDCQKLEDQEKQLDKLIHMANTQLKLFKEEILDTQQCTFGYVTCQDLRSIADP SERML  
MVIRYPPD TMCVSDPAEAFQMSLKSTQAPIDVFLCPDDSSGVCSPVTSPTKTSQAE PSS  
INQAEPLPSVQPKESPASIPMLDIGLGLSDMQEPFLPPENEIPLDSTLNCLPLSPSNL  
LLDYRDAMPDFLPNDFISLSPASSQEYSFGLQTCGAAELFNDFDCDFSGLTALDL

>Danio rerio\_E2F1(ENSDARP\_137549)

MSEGFISGQTSEDL LADFESLLNNGSIDLSEDHQIVIIISTPGTATTSTATGDILLFATPH  
HTSTGTTSLPDHRRPILGRPPVKRKL DLDSDHQYICTSRTASNGPTPPATPAPPRVPKLA  
VEKSRDYDTS LNLTTKRFLDLAQS PDGVVDLNWASQVLDVQKRRIYDITNVLEGIHLISK  
KSKNNIQWLGNRIDGASLARFQELQKEVSELTEAEKLELINKCSLQLRLLTEDTHNKK  
YPLRYVRCQDLRNTVDPDQIIMVIRAPAETAMQVSEPSQYISLKSQGPIDVFLCPE  
DSSGVCSPVTD CSPAKSSNQSPAKSDPASQEVSTPTTL PSSSPLPLHTDSEFLDSDF  
SGICAMPDFDLSPLDSDFLLERSGAADGLGLPLDSFICLSPPHSQDYHFGLEDHEGVSEL  
FDCDFSDLVPLEF

>Takifugu rubripes\_E2F1(ENSTRUP\_28243)

ETLLNSGSIDLSQDHQIVIIITSPSNEGLHPGSAPTSTGEILLFATPQGPADVGLHDKRRP  
ALGRPPVKRKL DLDSDHQYVSTTRPCIGQAPSTPAPPRVPRNTTEKSRDYDTS LNLTTKR  
LNLLSQSADGVVDLNWASQVLDVQKRRIYDITNVLEGIHLISKSKNNIQWLGNRVDTAL  
VSRHKEQLQKEVCDL TEAEQDLQLISKCSLQLRLLTEDPQNNTWGYVRCQDLKRFDSPD

QLLMVIRAPPETQMQVSEPSKGFEMSLKSTQGPIDVFLCPEDSSGACSPVSGSSPTKTNT  
EPLSVPPVAQPTDQSNASGSTATLQLHHPVSSAGPSLHAPVPMDFDLSPLSAADFLN  
GEGFSLPLDGFINLSPPHSHDYHFGLEDHEGISELFDLTHVLE

>Tetraodon nigroviridis\_E2F1(ENSTNIP\_7715)  
LITGQTSIEDILADFETLLNSGSIDLGEDHQIIVIITSPGNEGLHPGSAPTSTGEILLFATP  
QGPADVGLQDKRRPALGRPPVVKRKLDDSDHQYVSTTRPCIGQAPPSTPAPPRVPRNLTE  
KSRDYDTSLNLTTRKFLNLLSQSADGVVDLNLWASQVLDVQKRIYDITNVLEGIHLISKKS  
KNHIQWLGNRVDTALVSRHKELQKEVCDLAEAEQDLQLVSKCSLQLRLLTEDPQNNTWG  
YVRCQDLKKSVDSPDQLLMVIRAPPETQMQVSEPSKGFEMSLKSTQGPIDVFLCPEDSSG  
ACSPVTGSSPAKATGPSLVPEQTTDQSKTRGSTALLAESSSSPASTSSTVTAASQQDSSS  
LPMGNDSGYVSDMPNFDLSPLSAADFLNGEGFPLPLDGFINLSPPHSHDYHFGLEDHEGI  
SELFDLTHVLE

>Gasterosteus aculeatus\_E2F1(ENSGACP\_6233)  
EILLFATPQGSVDVGVQDKRRPALGRPPVVKRKLDDSDHQYVSTTRPSIGQAPPSIPRTA  
TEKSRDYDTSLNLTTRKFLNLLSQSADGVVDLNLWASQVLDVQKRIYDITNVLEGIQLISK  
KSKNNIQWLGNRVDAALVSRQKDLHGEVCDLKDAAEQDLQVSKCNLQLRLLTEDPQNNT  
LGIVRCQDLKKSFDSPDQLVMVIRAPPETQMQVSEPSKSYQVSLKSTRGPIDVFLCPEES  
SGVCSFVTGGSPSKPDPPLLVPPPAPPTDQSQARNSTAAQDETLLSPESLLGGDPFSSGLGE  
MPDFNLSPISSSDFLNADGIPPLDGFINLSPPHSHDYHFGLEDHEGISELFCDFDLDL  
QVLG

>Oryzias latipes\_E2F1(ENSORLP\_1148)  
CCRSPLGGRQCHDFETLLNSGSIDLSDHQIIVIITSPSNEGLHPLAAPSSTGEILLFATP  
QSHADAGGQDRRRPALGRPPVVKRKLDDSDHQYVSTTRSSASQAPPSTPAPPRVPRSTAE  
KSRDYDTSLNLTTRKFLNLLSQSADGVVDLNLWASQVLDVQKRIYDITNVLEGIQLISKKS  
KNHIQWLGNRIDASMVSRHKELQREACDLTEAEQDLDELIAKCNLQLRLLTEDPQNKKLG  
YVRCQDLRQSFDSFDQVMVIRAPPETQMQVSEPSSEGYQVSLKSTRGPIDVFLCPEDSSG  
VCSFVTGTSPSKTGADPSLASPLLPHPAEPQPPFPPTESLLGGDPFSSGLGDMADFDLS  
PLSSDFLNAGEGLPLALDNFINLSPPHSHDYHFGLEDHEGISELFDLTHVLE

>Homo sapiens\_E2F2(ENSP\_489612)  
MLQGPRALASAAGQTPKVVVAMSPTELWPSGLSSPQLCPATATYYTPLYPQTAPPAAAPG  
TCLDATPHGPEGQVVRCLPAGRLPAKRKLDLEGIGRPVVEFPTPKGKICIRVDGLSPSKT  
PKSPGKTRYDTSGLLTKKFIYLLSESEEDGVLDLNLWAAEVLVDVQKRIYDITNVLEGIQ  
LIRKKAANNIQWVGRGMFEDPTRPGKQQQLGQELKELMNTAQALDQLIQSCSLSFKHLTE  
DKANKRLAYVTYQDIRAVGNFKEQTVIAVKAPPQTRLEVPDRTEDNLQIYLKSTQGP  
YLCPEEVQEPDPSPEEPLPSTSTLCPSPDSAQPSSTDPSSIMEPTASSVPAPAPTQQAP  
PPPSLVPLEATDSMLELPHPLQQTEDQFLSPTLACSSPLISFSPSLDQDDYLWGLEAGE  
GISDLFDSYDLGDLIN

>Pongo abelii\_E2F2(ENSPPYP\_2014)  
MLQGPRALASAAGQTPKVVVAMSPTELWPSGLSSPQLCPATATYYTPLYPQTAPPAAAPG  
TCLDATPHRPEGQVVRCLPAGRLPAKRKLDLEGIGRPVVEFPTPKGKICIRVDGLSPSKT  
PKSPGKTRYDTSGLLTKKFIYLLSESEEDGVLDLNLWAAEVLVDVQKRIYDITNVLEGIQ  
LIRKKAANNIQWVGRGMFEDPTRPGKQQQLGQELKELMNTAQALDQLIQSCSLSFKHLTE  
DKANKRLAYVTYQDIRAVGNFKEQTVIAVKAPPQTRLEVPDRTEDNLQIYLKSTQGP  
YLCPPAVLKDPSPEEPLPSTSTLCPSPDSAQPSSTDPSSIMEPTASSVPAPAPTQQAP  
PPPSLVPLEATDSMLELPHPLQQTEDQFLSPTLACSSPLISFSPSLDQDDYLWGLEAGE  
GISDLFDSYDLGDLIN

>Macaca mulatta\_E2F2(ENSMUP\_15528)  
MLQGPRALVSAAGQPPKVVVAMSPTELWPSGLSSPQLCPATTTYYTPLYPQTAPPVAVAPG  
TCLDATPHGPEGQVVRCLPAGRLPAKRKLDLEGIGRPVVEFPTPKGKICIRVDGLSPSKT  
PKSPGKTRYDTSGLLTKKFIYLLSESEEDGVLDLNLWAAEVLVDVQKRIYDITNVLEGIQ  
LIRKKAANNIQWVGRGMFEDPTRPGKQQQLGQELKELMNTAQALDQLIQSCSLSFKHLTE  
DKANKRLAYVTYQDIRAVGNFKEQTVIAVKAPPQTRLEVPDRTEDNLQIYLKSTQGP  
YLCPEEVQEPDPSPEEPLPSTSTLCPSPDSAQPSSTDPSSIMEPTASSVPAPAPTQQAP  
PPPSLVPLEATDSMLELPHPLQQTEDQFLSPTLACSSPLISFSPSLDQDDYLWGLEAGE  
GISDLFDSYDLGDLIN



>Mus musculus\_E2F2 (ENSMUSP\_50047)

MLRAPRTLAPATAQPTKSLPALNPTELWPSGLSSPQLCPATTATTTYTSLYTQTVPSSVA  
LGTCLDAPHGPEGQIVRCAPAGRLPAKRKLDLEGIGRPTVPEFRTPKGKCIKRVLDGLPSP  
KTPKSPGKTRYDTSGLLLTKKFIYLLSESEEDGVLDLNWAAEVLVDVQKRRIYDITNVLEG  
IQLIRKKSNNIQWVGRLEFDPTRPSRQQQLGQELKELMNAEQTLDDQLIQSCSLSFKHL  
TEDNANKKLAYVTYQDIRAVGNFKEQTVIAVKAPPQTRLEVPDRAEENLQIYLKSTQGP  
EVYLCPEEGQEPDSPAKEALPSTALSPIPDCAQPGCSTDSGIAETIEPSVLIQPIPPP  
PPPPLPPAPSLVPLEATDNMLELHSHPLLQQTEDQFLSPILAANSPLISFSPPLDQDEYLW  
GMDEGEGISDLFDSYDLGDLIN

>Rattus norvegicus\_E2F2 (ENSRNOP\_67839)

MGCGLVSPAGVSQAWRERGGGAAGPQLLVKTLGKDSLCLSKERMTSSPFRGPWILELEPK  
RGGGVFVLPNVGTSGLCGTEPGSPLGLGGCRSHDPKQWLWCGDGHQAKRKLDEGLGRP  
TVPEFRTPKGKCIKRVLDGLPSPKTPKSPGKTRYDTSGLLLTKKFIYLLSESEEDGVLDLNW  
AAEVLVDVQKRRIYDITNVLEGIQLIRKKSNNIQWVGRGIFEDPTRPAKEQQLGQELKEL  
MNAEQTLDDQLIQSCTLSFKHLTEDNANKKLAYVTYQDIRAVGNFKEQTVIAVKAPPQTRL  
EVPDRAEENLQIYLKSTQGP  
IEVYLCPEEGQEADSPTEALPSTSTLSPVPCAPGCST  
DSGLAETIESSVMPQVPPPLPPPPPPAPSLVPLEATDNMLELHSHPLLQQTEDQFLSPIL  
TASSPLISFSPPLDQEYLWGMDEGEGISDLFDSYDLGDLIN

>Canis familiaris\_E2F2 (ENSCAFP\_19556)

MLRGPRAPAAAAGPPSKALPAMSPTEPWPGLSSPQLCPATATYCTSLYPQTVPPAAAAG  
TCLDAPHGPEGQAVRCVPAGRLPAKRKLDLEGIGRPAIPEFRTPKGKCIKRVGLPSPRT  
PKSPGKTRYDTSGLLLTKKFIYLLSESKDGVLDLNWAAEVLVDVQKRRIYDITNVLEGIQ  
LIRKKAANNIQWVGRGMFEDPTRPGKQQQLGQELKELMSMEQALDQLIQSCSLSNFKHLTE  
DKANKRLAYVTYQDIRAVGNFKEQTVIAVKAPPQTRLEVPDRNEENLQIYLKSTQGP  
IEVYLCPEEVQDPDSPAKERLPPASTLGPSPDSTQPSSTDPGMTDPVASSASHPPPPPP  
PPPPLVPLEATDSMLELPHPLLQQTEDQFLSPTLPCSSPLISFSPPLDQDDYLWGLDGG  
GISDLFDSYDLGDLIN

>Felis catus\_E2F2 (ENSFCAP\_10812)

MLRGPRALAPAAALPLKGLPALSPTLWPPGLSSPQLCPATTTTYTSLYPQTVPPATAAPG  
TCLDAPHGPEGQAVRCVPAGRLPAKRKLDLEGIGKPAVPEFRTPKGKCIKRVLDGLPSPKT  
PKSPGKTRYDTSGLLLTKKFIYLLSESKDGVLDLNWAAEVLVDVQKRRIYDITNVLEGIQ  
LIRKKAANNIQWVGRGMFEDPTRPGKQQQLGQELKELMSTEQALDQLIQSCTLSNFKHLTE  
DKANKRLAYVTYQDIRAVGSFKEQTVIVKAPPQTRLEVPDRSEENLQIYLKSTQGP  
IEVYLCPEEVQEPDSPKDFPSPSPPLGPIPDSTQPSSTDPGMTPEMASPGPALTPQQALQL  
PAPPPPLVPLEATDSMLELPHPLLQQTEDQFLSPTLPCSSPLISFSPPLDQDDYLWGLDGG  
LDGEGISDLFDSYDLGDLIN

>Myotis lucifugus\_E2F2 (ENSMLUP\_8054)

MLRGPRAPAPAAALPLKGLPALSPTLWPPGLGSPQLCPVTTAYTSLYPQTVPPATVPG  
TCLDAPHGPEGQAVRCVPAGRLPAKRKLDLEGIGRPAVLEFQTPKGKLIKRVLDGLPSPKT  
PKSPGKTRYDTSGLLLTKKFIYLLSESKDGVLDLNWAAEVLVDVQKRRIYDITNVLEGIQ  
LIRKKAANNIQWVGRGALEDPTRPGKQQQLGQELKELMSMEQALDQLIQSCTLSNFKHLTE  
DKANKKLAYVTYQDIRAIGTFKEQTVIAVKAPPQTRLEVPDRNEENLQIYLKSTQGP  
IEVYLCPEEMQEPDSPAKEPVPSTSTLSPTPDSAQPCSSTNPGILEPTASPDLSAPSLTSQQ  
ALLPPPSLVPLEATDSMLELPHPLLQQTEDQFLTDSSPLISFSPPLDQDDYLWGLDGGEG  
ISDLFDSYDFGDLIN

>Monodelphis domestica\_E2F2 (ENSMODP\_15986)

MLRIPKGVSPAPGGSAPAAPQKPPQPLQIKKALPVVSPVWTPDVRSPQGGPVPASHFTPL  
YPPMVAAVAPAAPGSCLDATPQGPEIRASRASAGRLPAKRKLDLEGMGRQGLSEFRTPKG  
KCGGDEGLPSPKTPKSPGKTRYDTSGLLLTKKFIYLLSESEEDGVLDLNWAAEVLVDVQKR  
RIYDITNVLEGIQLIRKKAANNIQWVGRGMFEDPAGPRKQQLGQELKDLSDTERVLDQL  
IQSCTSDLKHLTEETNQRYPSSWRMGDIRAIGNFKDQTVIAVKAPPETRELEVPDL  
REENLQIYLKSTNGPIEVYLCPEDNREAGSSQEAPPSPDPGPFPPGRSSSPSSCSLDLIA  
PPGRCLAIGAFFLSVWA

>Pelodiscus sinensis\_E2F2 (ENSPSIP\_17158)

MLRVPKGVSSAPQQQKKIMPVMSSADLVTSSLSPPQMHSIPASYFMQVYPQTVAAAPPPR  
GSCLYATPHGPEIKAIRSASAGRLPAKRKLDLEGTGQFGLPEFRTPKGKGRMVTRIPSPR  
TTKAPKSPGKERYDTSGLLLTKKFVGLIAESPDGVLNWAETEVEVLEVKRRIYDITNVL  
EGIQLRKKSNNIQWMTGTFEDTSVTVKQQLRQELAEELAKTERKVDLIDQCTLQLK  
HLTEDETNQRLAYVYTYQDIRAIGNFQEQTVIAVKAPPETKLEVPDFSEENVQLHLKSTNG  
PIEVYLCPEEILDSPAKESSFLTPSLQDSSDGTDPSPGKGGGLWPLAWSPLPSPVLW  
GLTFPFVAAAAPLMEVEDGLLDVPHLLQQTEDQLPYGDPAPFVFSFSPPLDQDDYLWGLE  
GGEGVSDLFEAYDLGDLLKN

>Takifugu rubripes\_E2F2(ENSTRUP\_29627)  
AKRKLDELDPLYMPEFRTPKGKCNIAARLTSRTPKSPGERTRYDTSGLLLTKKFVGLIA  
ESPDGVLNWAETEVEVLEVKRRIYDITNVLEGVQLIRKKSNNIQWLVGDVFEGGTGGGQ  
KACTLRKEIGDLEQAEKCLDELILSSTGQLKQLEHGDNQRLGYVTYHDIRSIGSLQDQT  
VIAVKAPADTKLEVPDTEGESLQIYLSKNGPIEVYLCPEDEGLDASPVKSVSTPKKEFP  
PTVCTSHTTSTAPPSCSIKEEVEFTIRIPAHIPAAAAASSSILDVEGLLGLPSSLQI  
TEDQLPSATFTPDNTPFVFSFSPPLDHDYDLSLDDGEGVSDFFDITYDLGDLLSN

>Tetraodon nigroviridis\_E2F2(ENSTNIP\_20402)  
MMRMPKGVSAASGRPAAGLSCSQTKMKLLSAGVKTEFFSAGLSSPLMNAVPGYFTQICN  
TTAAEQRANSLYSTPHGPEAKPIRASSGRMPAKRKLDELDPLYMPEFRTPKGKCNIAARL  
TSRTPKSPGERTRYDTSGLLLTKKFVGLIAESPDGVLNWAETEVEVLEVKRRIYDITNV  
LEGVQLIRKKSNNIQWLVGDVFEGGAGGQKAGALRKEGLDLERAEEKCLDELILSSTAQ  
LKQLETEYEDNQRLGYVTYQDIRSIGSFQDQTVIAVKAPADTKLEVPDTEGQSLQIYLSK  
KNGPIEVYLCPEEALEDASPVKSASTPKKDILQITCPPAPATSSTAPPSCSIKEEVEFK  
PSSAHVAAASSSILDVEGLLGLPSSLQITEDQLPSASFAPDNTPFVFSFSPPLDHDY  
LWSLDDGEGVSDFFDYSYDLGDLLSN

>Gasterosteus aculeatus\_E2F2(ENSGACP\_12624)  
MMRMPKGVSPAPGRQKIKVVSTAGGKHEFFSTGLSSPPMSTVPPGYFTQICNTAAGEQRA  
NSLYSTPHGPEAKPIRSCGRPLPAKRKLDLELDPLYLPEFRTPKGKCSIAARIPSRTPKS  
PGERTRYDTSGLLLTKKFVGLIAESPDGVLNWAETEVEVLEVKRRIYDITNVLEGVQLIR  
KKSNNIQWLVGDVFEGGASGGEKACALRKEGLGELERVERSLLDVLVQSSTAQLKQLEYE  
DNKRYPLRCTLGYVTYQDIRSIGTLRDQTVIAVKAPADTKLEVPDTEGQSLQIYLSK  
GPIEVYLCPEEGLDASPGKSAATPIKEFSKPLDPPTATAMAPPSYSAKEEPAEPTLLE  
AVDSLCPKELINGLLGLPSSLQITDDQLPCTSFAPDNPAPFVFSFSPPLDHDYDLSL  
SEGVSDFFDITYDLGELLKS

>Homo sapiens\_E2F5(ENSP\_398124)  
MAAAEPASSGQAPAGQGQGRPPPQPPQAQAPQPPPPPLGGAGGGSSRHEKSLGLLTT  
KFVSLQEAQKDGVLNWAETEVEVLEVKRRIYDITNVLEGLDIEKKSNNIQWKGVGAG  
CNTKEVIDRLRYLKAIEIDLELKERELDQQLWQSSIKNVMDDSIINNRFSYVTHEDICN  
CFNGDTLLAIQAPSGTQLEVPPIPEMGQNGQKQYQINLKSHSGPIHVLLINKESSSSKPV  
FPVPPDDLTQPSQSLTPVTPQKSSMATQNLPEQHVSESRQALQOTSATDISSAGSISG  
DIIIDELMSSDVFPLLRLSPTPADDYFNLDNEGVCDLFDVQILNY

>Gorilla gorilla\_E2F5(ENSGGOP\_9511)  
MAAAEPASSGQAPAGQGQGRPPPQPPQAQAPQPPPPPLGGAGGGSSRHEKSLGLLTT  
KFVSLQEAQKDGVLNWAETEVEVLEVKRRIYDITNVLEGLDIEKKSNNIQWKGVGAG  
CNTKEVIDRLRYLKAIEIDLELKERELDQQLWQSSIKNVMDDSIINNSTFSYVTHEDIC  
NCFNGDTLLAIQAPSGTQLEVPPIPEMGQNGQKQYQINLKSHSGPIHVLLINKESSSSKPV  
VFPVPPDDLTQPSQSLTPVTPQKSSMATQNLPEQHVSESRQALQOTSATDISSAGSIS  
GDIIDELMSSDVFPLLRLSPTPADDYFNLDNEGVCDLFDVQILNY

>Mus musculus\_E2F5(ENSMUSP\_29069)  
MAAAEPTSSAQPTPQAQAPPPHAGPSSQPSAALAGGSSRHEKSLGLLTTKFVSLQEAQ  
DGLDLNWAETEVEVLEVKRRIYDITNVLEGLDIEKKSNNIQWKGVGAGCNTKEVIDRL  
RCLKAEIEIDLELKERELDQQLWQSSIKNVMEDSIINNRFSYVTHEDICNCFHGDLLAI  
QAPSGTQLEVPPIPEMGQNGQKQYQINLKSHSGPIHVLLINKESSSSKPVVFPVPPDDLT  
QPSQSSSTSVTPQKSTMAAQNLPEQHVSESRQTFQQTAAEVSSGSISGDIIDELMSSDV  
FPLLRLSPTPADDYFNLDNEGVCDLFDVQILNY

>Rattus norvegicus\_E2F5(ENSRNOP\_44464)  
MAAAEPTSSAQPTPQAQAPPPPPPHGAPSSHQSAALAGGSSSRHEKSLGLLTTKVFVSLLO  
EAQDGVLDLKEAADTLAVRQKRRIYDITNVLEGIDLIEKKSNSIQWKGVGAGCNTKEVI  
DRLRCLKAEIEDLELKERELDQOKLWLQOSIKNVMEDSINNRFYSYVTHEDICSCFNGDTL  
LAIQAPSGTQLEVPIPEMGQNGQKQYQINLKSHSGPIHVLLINKESNSKPVVFPVPPD  
DLTQPSSQSSTSVTPPKSTMAAQNLPQHVSESRQNFQQTATEISSGSISGDIIDELMS  
SDVFPLLRLSPTPADDYNFNLDDEGVCDFDVQILNY

>Myotis lucifugus\_E2F5(ENSMLUP\_5617)  
MAAAEPASSGQSAPQQAQVQWAPPASPAPPQLGARGGARRRGCGPRCTRFLFIRQLQ  
GAGMGVPDAGEAADTLAVRQKRRIYDITNVLEGIDLIEKKSNSIQWKGVGAGCNTKEVL  
ERLRLDLRAEVEDLDLKERELDQOKSWLQOSIRNVMDDTINSRRRTFSYVTHEDICNCFHG  
DTLLAIQAPAGTQLEVPLPEMGQNGQKQYQINLKSHSGPIHVLLINKESSSSQPVVFPV  
PPDDLTPPSQPSTPQTPHKPSPTPPSPGPPASERSPSLQHIPATDSASGSVTGDLIDE  
LMSDDVFPLLRLSPTPADDYNFNLDDEGVCDFDVQILNY

>Monodelphis domestica\_E2F5(ENSMODP\_7364)  
MAAAAELGSSGQQPPGQGPQPPAAPPNGGGGSSSRHEKSLGLLTTKVFVSLLOEAK  
DGVLDLKAADTLAVRQKRRIYDITNVLEGIDLIEKKSNSIQWKGVGAGCNTKEVIDRL  
RYLKAEIEDLELKERELDQOKLWLQOSIKNVMDDSINNRYPFISISVTFYSYVTHEDICNS  
FNGDTLLAIRAPSGTQLEVPIPEMGQNGQKQYQINLKSHSGPIHVLLINKDSSSKPVVFP  
VPPDDLTQPPSQVSTPVSQKPNTEQNLPEQHTLTIGQHLQQTVPVSDTPSGSISGDI  
IDELMSSDVFPLLRLSPTPADDYNFNLDDEGVCDFDVQILNY

>Gallus gallus\_E2F5(ENSGALP\_30213)  
MAAAAEEAGGGSSSRHEKSLGLLTTKVFVSLLOEAKDGVLDLKAADALAVRQKRRIYDIT  
NVLEGIDLIEKKSNSIQWKGVGAGCNTKEVVDRRLYLEAEIEDLELKEKELDQOKLWLQ  
OSIKNVMDDSTNHQFSYVTHEDICNCFNGDTLLAIQAPCGTQLEVPIPEMGQNGQKQYQI  
NLKSSSGPIHVLLINKESNSKPMVFPVPPDDLAQTPSQPVAVTPLKPTPAENPPEH  
GLNQGGQLPETTVDTPSESSLQONSTTPATPYSSLPDSVLYPSLSDGVTQATTSSNDYQA  
LLPLDVNCILKPNSTFIKMEEPAGNIGGDIIDELMSSDGKYLASLLAVIKKVVAVFLYE  
QHSW

>Anolis carolinensis\_E2F5(ENSACAP\_13864)  
ASPFALLCSLSLFFYQAADTLAVRQKRRIYDITNVLEGIDLIEKKSNSIQWKGVGAGC  
NTKEIVDRRLYLEAEIEDLELKEKELDQOKIWLQOSIKNVKEDSENKHFYSYI THE DICDC  
FNGDTLLAIQAPSGTQLEVVPVQVQKQYQINLKSNNGPIHVLLINKESSSSKPVVFPV  
PPDDLHLPSQSAIPLIPSKMDAEPQTLQESGTSNQELSLSQTPVADMATDINLQDIPTP  
ETFCVSVPDSELYESLVTETTPSSNTCQPFIPLDVNSILKPNTEFDVAKMDESGGI INSDI  
IDELMSSDIFPLLRLSPTPEDDYSFNLDDEGVCDFDVQILNY

>Danio rerio\_E2F5(ENSDARP\_56678)  
MAESNSASFPHSTPNGSSRHEKSLGLLTVKFVTLLOEAKDGVLDLKAADSLAVKQKRRI  
YDITNVLEGIGLIEKKTNTIQWKGESTGCQPQEVLEQVELLKANIADLELQERELDMQK  
ACLQQSIKQLNEDPYSCRYSYMHEDICDAFSGDTLLAVMAPSGTQLEVVPPEMGHNGQK  
KYQVNLRSHPAPIQVMLINRETSCSKPVVVSVPPIIDISSMPTPSTPAGLQRFPISSID  
LCDQKHGLLKSAAEHQLTPSSTSPDVHMECPNESPASQCLLMQSSSLGGPEEQRELGGQ  
DLQSMLEEMRDEREGVSNLIDELMSSDVFPLLRLSPNPGVDYSFNLDDEGVCDFDVQI  
LNY

>Takifugu rubripes\_E2F5(ENSTRUP\_5420)  
RAAPSRHEKSLGVLTMKFVRLLOQAEDGVLDLKAASSLAVGQKRRIYDITNVLEGVGLI  
EKKNKNI IQWRGENSHNRTREVMEQVQHLKAQNSELEAREKELDNQKAWLEENIKFLSHD  
PNSTTYPFVTHEDICNAFRGETLLAVLAPAGTQLEVPLPEKQSGQKQYQVNLRSHPISPI  
QVLLINRDSDSVPVFPVPPTEIICPTPPSTPASLQRFPLSSSDHQMVLPEDDLLTPS  
STPPDAQTGKGPVDLIEELMSTDYIILITRFPPYTGIDYSFNLDDEGVCDFDVQILNY

>Oryzias latipes\_E2F5(ENSORLP\_22426)  
FPTAAARSTDVRLNLQAADSLAVKQKRRIYDITNVLEGVGLIEKKNKNI IQWRGQRSVCS  
QTKEVQEQVGLLKAQISQLEALEEELDQOKVCLEESIQUALSHGPRRSTYTFVTHEDICRA  
FEGETLLAIVAPAETQLEVVPVPTGGGGQKSYQVNLRSRRAPIRVLLIDRDLSSAPVVF

PVPPSDDFCMPMTPPSTPGGLQRFTLVTPGGSAA SPLCSQDPTCSDQQMAPVDLSGRAAS  
SSDLASDQNPMDLEVQDFQAALGVGSLKMSDGGESLKDSREGEAEELMEELISAEAPPLP  
RLPALTGLDYSFSLDAGGGCDLFDVSI LNY

>Homo sapiens\_E2F6(ENSP\_370936)  
MSQQRPAKLPSSL LLDPT EETVRRRCRDPINVEGLLPSKIRINLEDNVQYVSMRKALKVK  
RPRFDVSLVYLTRKFMDLVR SAPGGILD LNKVATKLGVRKRRVYDITNVLDGIDLVEKKS  
KNHIRWIGSDLSNFGAVPQQK LQEELSDLSAMEDALDEL IKDCAQQLFELTDDKENERL  
AYVTYQDIHSIQAFHEQIVIAVKAPAETRLDVPAPREDSITVHIRSTNGPIDVYLCEVEQ  
GQTSNKRSEGVGTSSSESTHPEGPEEEENPQQSEELLEVS N

>Pongo abelii\_E2F6(ENSPPYP\_14118)  
MSQQRPAKLPSSL LLDPT EETVRRRCRDPINVEGLLPSKIRINLEDNVQYVSMRKALKVK  
RPRFDVSLVYLTRKFMDLVR SAPGGILD LNKVATKLGVRKRRVYDITNVLDGIDLVEKKS  
KNHIRWIGSDLSNFGAVPQQK LQEELSDLSAMEDALDEL IKDCAQQLFELTDDKENERL  
AYDSITVHIRSTNGPIDVYLCEVEQ GQTSNKRSEGVGTSSSESTHPEGPEEEKNPQQSEE  
LLEVS N

>Macaca mulatta\_E2F6(ENSMMPUP\_30569)  
MSQQRPAKLPSSL LLDPAEETVRRRCRDPINVEGLLPSKIRINLEDNVQYVSMRKALKVK  
RPRFDVSLVYLTRKFMDLVR SAPGGILD LNKVATKLGVRKRRVYDITNVLDGIDLVEKKS  
KNHIRWIGSDLSNFGAVPQQK LQEELSDLSAMEDALDEL IKDCAQQLFELTDDKENERY  
PLTYVTYQDIHSIQAFHEQIVIAVKAPAETRLDVPAPREDSITVHIRSTNGPIDVYLCEV  
EQGQTGSKRSEGVGTSSSESTHAE GPEEEENPQQSEELLEVS N

>Mus musculus\_E2F6(ENSMUSP\_20908)  
MSQQRPAKLPSSL LLDPAQETVRRRCRDPINVENLLPSKIRINLEENVQYVSMRKALKVK  
RPRFDVSLVYLTRKFMDLVR SAPGGILD LNKVATKLGVRKRRVYDITNVLDGIELVEKKS  
KNHIRWIGSDLSNFGAAPQQK LQAELSDLSAMEDALDEL IKDCAQQLLELTDDKENERL  
AYVTYQDIHGIQAFHEQIVIAVKAPEETRLDVPAPREDSITVHIRSTKGPIDVYLCEVEQ  
NHSNGKTNDGIGASPSKSSHPQCPEKEDEPPQ

>Rattus norvegicus\_E2F6(ENSRNOP\_57241)  
MSQQRPAKLPSSL LLDPAQETVRRRCRDPINVENLLPSKIRINLEENVQYVSMRKALKVK  
RPRFDVSLVYLTRKFMDLVR SAPGGILD LNKVATKLGVRKRRVYDITNVLDGIELVEKKS  
KNHIRWIGSDLSNFGAAPQQK LQAELSDLSAMEDALDEL IKDCAQQLLELTDDKENERL  
AYVTYQDIHGIQAFHEQIVIAVKAPEETRLDVPAPREDSITVHIRSTKGPIDVYLCEVEQ  
NHSNGKTADGVGASPSDSKHLQSP EKEDKPLQ

>Canis familiaris\_E2F6(ENSCAFP\_5307)  
MSQQRPAKLPSSL LLDPAEETVRRRCRDPINVEGLLPSKIRINLEDNVQYVSMRKALKVK  
RPRFDVSLVYLTRKFMDLVR SAPGGILD LNKVATKLGVRKRRVYDITNVLDGIDLVEKKS  
KNHIRWIGSDLSNFGAVPQQK LQEELSDLSAMEDALDEL IKDCAQQLFELTDDKENERL  
AYVTYQDIHSIQAFHEQIVIAVKAPAETRLDVPAPREDSITVHIRSTRGPIDVYLCEVEQ  
GHSSNKSSSEGAGTSSSKNKHPEPPNKEENPPQQSEELLEVS N

>Felis catus\_E2F6(ENSFCAP\_11090)  
MLFICIFFICIIIVFKLLIYISVFSFFQPSKIRINLEDNVQYVSMRKALKVKRPRFDVSLV  
YLTRKFMDLVR SAPGGILD LNKVATKLGVRKRRVYDITNVLDGIDLVEKKS KNHIRWIGS  
DLSNFGAVPQQK LQEELSDLSAMEDALDEL IKDCAQQLFELTDDKENERLAYVTYQDIH  
SIQAFHEQIVIAVKAPAETRLDVPAPREDSITVHIRSTKGPIDVYLCEVEHDSGNKVSE  
GAGTSSSKNKHPEHPDKEEKPPQQSEELLEVS N

>Myotis lucifugus\_E2F6(ENSMLUP\_3074)  
APLALSPGPEGGR CAGALPRSVRA CLPSKIMINLEDNVQYVSMRKTLKVKTPRFDVSLVY  
LTRKFMDLVRNAPGGILD LNKVATKLGVRKRRVYDITNVLDGIDLVEKKS KNHIRWIGSD  
LNNFGAVPQQK LREELSDLSAMEEALDEL IKDCAQQLFELTDDKDNERLT LAYVTYQDI  
HSIRAFHEQIVIAVRAPAETRLDVPAPREDSITVHIRSTKGPIDVYLCEVEQGRSGRKG S  
EGAGPSASKKSKHSETPDKEENPPQQSEQVCDVSV

>Monodelphis domestica\_E2F6(ENSMODP\_13925)



>Oryctolagus cuniculus\_E2F3(ENSOCUP\_12342)  
MRKGIQPALEQYLVITAGGGEGAAVVAAAAAAMDKRALLASPGFAAAAAAPGAYIQILT  
NTSTSSCSSSLQSGVAAGPLLPSAPGAEPAGSLLYTPHGPSSRAGLLQQAPAPGRGG  
SGGGGGPPAKRRLELGESGHQYLSGLKTPKGKGRAALRSPDSPKTPKSPSEKTRYDTS  
GLLTKKFIQLLSQSPDGVLDLNKAAEVLKVQKRRIYDITNVLEGIHLIKKSKNNVQW  
MGC SLSEDGGMLAQCGLSKEVTELSQEKKLDELIQSCTLDLKLLEDSENQRLAYV  
TYQDIRKISGLKDQTVIVVKAPPETRELVDPDIESLQIHLASTQGP  
IEVYLCSEETETHSPVKTNNDHNGNIPKPTSKDLASTNSGHSDCSISMANLSPLAS  
PANLLQQTEDQIPSNLEGPVFNLLPPLQEDYLLSLGDEEGISDLFDAYDLEKPL  
VDFMCS

>Felis catus\_E2F3(ENSFCAP\_6648)  
LQAKRRLELGESGHQYLSGLKTPKGKGRAALRSPDSPKTPKSPSEKTRYDTS  
LGLLTKKFIQLLSQSPDGVLDLNKAAEVLKVQKRRIYDITNVLEGIHLIKKSK  
NNVQWMGCSLSEDGGMLAQCGLSKEVTELSQEKKLDELQIHLASTQGP  
IEVYLCPEETETHSPMKTNNQDHN GNIPKPPSKEVVTEFPPSLPDP  
SVMGTRHDLASTNSGHSDCSISMANLSPLAS PANLLQQTEDQIPSNLEGP  
FVNLLPPLQEDYLLSLGEEEGISDLFDAYDLEKPLV

>Dasypus novemcinctus\_E2F3(ENSDNOP\_15351)  
PSFVLQAKRRLELGESGHQYLSGLKTPKGKGRAALRSPDSPKTPKSPSEKTRY  
DTSGLLTKKFIQLLSQSPDGVLDLNKAAEVLKVQKRRIYDITNVLEGIHLIKK  
SKNNVQWMGCSLSEDGGMLAQCGLSKEVTELSQEKKLDELQIHLASTQGP  
IEVYLCPEETETHSPMKTNNQDHN GNIPKPTSKAQRSEFHFLLQPPNIAAR  
IGVIEIPIISDLASTNSGHSDCSVSMANLSPLAS PANLLQQTEDQIPSNLEGP  
FVNLLPPLQEDYLLSLGEEEGISDLFDAYDLEKPLV

>Monodelphis domestica\_E2F3(ENSMODP\_14171)  
MRKGIQPALEQYLVITAGGGEGAAAAAAMDKRALLASPGFPAAAPGTYIQILTT  
NTTSSCSSSLQSGAAAGPQHTNVPGVEQTAGSLLYSTPHGPSSRAGLLQQQ  
PALGRGGGGPPAKRRLELGESGHQFLSDGLKTPKGKGRAAVRSPDSPKPKK  
TRYDTSGLLTKKFIQLLSQSPDGVLDLNKAAEVLKVQKRRIYDITNVLEGI  
HLIKKSKNNVQWMGCSLSDGGMLAQCGLSKEVTELSQEKKLDELQIHLAST  
QGP  
IEVYLCPEENETHSPVKSYNQDHN GNIPKPSKDVASTNSGHADCSISMAN  
LSPLASPTNLLQQTEDQIPSNLEGPVFNLLPPLIQEDYLLSLGEEEGISDL  
FDAYDLEKPLVDFMCS

>Taeniopygia guttata\_E2F3(ENSTGUP\_6514)  
AKRRLELGSGHQYLAEGLKTPKGKGRAATRSPDSPKTPKSPSEKTRYDTS  
LGLLTKKFIQLLSQSPDGVLDLNRAAEVLKVQKRRIYDITNVLEGIHLIKK  
SKNNIQWMGCSLSEDGGMLAQCGLSKEVTELSQEKKLDELQIHLASTQGP  
IEVYLCPEENDALSPMKTYSQDHN GNISKTISKEVASANSQGDCSVNMA  
TISPLAS PANLLQQTEDQIPSNLEGPVFNLLPPLIQEDYLLSLGDEEGIS  
DLFDAYDLEKPLMDEFIYS

>Xenopus tropicalis\_E2F3(ENSXETP\_28)  
MRKGTQGGHEKLLPLGLQGTDKGSLAGGFIAGGGGVVAGGGGYVQIIS  
SPGPPLHHHGLCIPEQAASFIYSTPHGPATRAGQLQPALGRPPAKRRLEL  
GDGSHQYLSGLKTPKGKGRVAVTHCPDSPKTPKSPLEKTRYDTSGLLTKK  
FIQLLSQSSDGVLDLNRAAEVLKVQKRRIYDITNVLEGIHLIKKSKNNIQ  
WMGCTLPDDGGNLAQSQELSKELSELAQEENKLDLKNCTLDLKH  
LTENAENQRYPFYVYQDIRKISGLKEQTVIVIRAPPETRELVDPV  
ESLQIHLSSQGAIEVYLCPEESESSESPVKQCNQDHN GNVS  
KPKPHSKDSLSPNMENVNCVVEGISPLTSPTNLLQQTEDQISL  
NMDAPFVNLLPPLMQEDYLLSLGDEEGISDLFDAYELEKPLS  
LDDFMCS

>Danio rerio\_E2F3(ENSDARP\_109781)  
MRKGGSSVPGQVMLTGVVRAEQHGVFTAVSDRRCVAVSNATRIQINT  
PPSTNNGCVPEASADSLYTTPLQGSTHGTGLRPTLGRPPAKRRLELDI  
TDHQYSEPAKTLRSRKGALKLKIAPKAPKTPPEKTRYDTSGLFLTKK  
FCQLLAQSSDGVLDLNKAAIVLNQKRRLYDITNVLEGR  
LIKKKSKNNIQWLGSSLPDGLPSPAMQSHSLAREMLALTQE  
ERRLELIQCTRNQV

QMTEEIHSQKYAYVTYQDIRRIKSLKDQTVIAIKAPSETKLEVPDPKESLQVHLSSSKGP  
IDVFLCTDGGDSGSPLOQGLDVNGNHPAFLKVSQEAASDGPADNVKMNGNSNASVNGFGP  
VSGNAPMSPLSSSLSSILQQPEEAI PFVPLSPALLSDEYMLGLGDEQGISDLFDSCDLDT  
LALDDLLRI

>Takifugu rubripes\_E2F3(ENSTRUP\_21138)  
MRRGISSASEKVILTGVGGSSLDNSIILTTLSDRLNPGQSNATFIQIITTPPCNVTQTN  
VCLSEPPQINSIYTPPQGAANGARQRPALGRPPAKRRLALDDSDHQHQPEPIRTPRGKGP  
TANGTRIKTPKTPKSPPEKTRYDTSGLLTKKFVLLGQSSDGVLDLNLAAETLQVQKRR  
LYDITNVLEGIHLIKKSKNNIQWMGCSLLEEEGSLSRQRLTDEVSAALGEEQRLEQLI  
QRCSTDMRHMSELSSNQKYAYITYQDIKQLGNLDRDQTVIVVKAPTDTKLEVTDPELSLI  
HLTSTQGPIDVLLCPDDSHPTSPVKNGGTDINGNSPFLKVLQAPSPGAPPAVAASVVT  
LSPISSPYTSLQQTEDQIPTSLGPFNLAPLLEQDDYLLGLGDDQGISDLFDACDFDK  
IRSLGLDDLLCS

>Gasterosteus aculeatus\_E2F3(ENSGACP\_8788)  
MRRGISSAPDKVILTGVGGSLDNIIILTALTDRLNAGQSNATYIYIITTPPCNITQTSN  
VCLSEPPQINNIYTPPQAGANGTQRPTLGRPPAKRRLALDDSDHQYQSEPVTRGRVGT  
AVANGARPKTPRTPKSPPEKTRYDTSGLLTKKFVLDLQSSDGVLDLNLAAETLQVQKR  
RLYDITNVLEGIHLIKKSKNNIQWMGCSLLEVEGALSQRQLTAEVSAALGEEQRLEQLI  
IQCSLDMRMRMSELQSNQKYAYVTYQDIKQLGNLDRDQTVIVVKAPTDTKLEVADPDENLS  
IHLTSTKGPPIEVLLCPDEENDPRS PVKGGMDINGNSPFLKVLQGPTESSASTIQSLAPP  
SSSAVSVTTLSPISSPYTSLQQTEDQIASSLGPFLNLGLPLLQGEDYTLDLGDEHGIS  
DLFDACDFDKMPSLGLDDLLCS

>Oryzias latipes\_E2F3(ENSORLP\_17999)  
MMRVPKGVSPASVRPAVALASQQKMKVLSLGLSSPPMAVPIGYFTQIGNTAAAEQRANS  
LYSTPHGPEAKPIRSSSGLRPAKRKLDLEDPECLTEFRTPKDKGITAARIPSPRTPKSPG  
ERTRYDTSGLLTKKFVGLIAESP DGVLDLNLWATEVLEVQKRRIYDITNVLEGVQLIRKK  
SKNNIQWLGVDFRGGASGGEKACSLRRELVDLDRALRSLDQLSSTTKLQLETKYKQ  
QLTLGYVTYQDIRS IASLRDQTVIAVKAPAETKLEVPETAAGSLQIYLKSKNGPIEVYLC  
PEEGLEDPSPVKSIILNPSKASPHSLGQPGAAPAEPLSCKIKKEPDDCKPQALARPATPT  
SPAASLLDHPALNTVEKAFNLLQITEDQLPGTSFTSDANTPFVFSFPLDHDYDYLWSLE  
DGEVSDFFDSYDLGDLRLS

>Homo sapiens\_E2F4(ENSP\_368686)  
MAEAGPQAPPPPGTPSRHEKSLGLLTKFVSLLEAKDGVLDLKLAAADTLAVRQKRRIYD  
ITNVLEGIGLIEKSKNSIQWKGVGPGCNTREIADKLIELKAEIEELQOREQELDQHKVW  
VQOSIRNVTEDEVQNSCLAYVTHEDICRCFAGDTLLAIRAPSGTSLEVPIPEGLNGQKQYQ  
IHLKSVSGPIEVLLVNKEAWSSPPVAVPVPPEDLLQSPSAVSTPPPLPKPALAQSQEAS  
RPNPQLTPTAVPGSAEVQGMAGPAAEITVSGGPGTDSKDSGELSSSLPLGPTTLDTRPLQ  
SSALLDSSSSSSSSSSSSSSNSNSSSSSSGPNPSTSFEPKADPTGVLELPKELSEIFDPTR  
ECMSSELLEELMSSEVFAPLLRLSPPPGHDYIYNLDESEGVCDFDVPVLNL

>Pan troglodytes\_E2F4(ENSPTRP\_53494)  
MAEAPQAPPPPGTPSRHEKSLGLLTKFVSLLEAKDGVLDLKLAAADTLAVRQKRRIYDI  
TNVLEGIGLIEKSKNSIQWKGVGPGCNTREIADKLIELKAEIEELQOREQELDQHKVW  
VQOSIRNVTEDEVQNSCLAYVTHEDICRCFAGDTLLAIRAPSGTSLEVPIPEGLNGQKQYQ  
IHLKSVSGPIEVLLVNKEAWSSPPVAVPVPPEDLLQSPSAVSTPPPLPKPALAQSQEASR  
PNPQLTPTAVPGSAEVQGMAGPAAEITVSGGPGTDSKDSGELSSSLPLGPTTLDTRPLQ  
SALLDSSSSSSSSSSSSSSNSNSSSSSSGPNPSTSFEPKADPTGVLELPKELSEIFDPTR  
ECMSSELLEELMSSEVFAPLLRLSPPPGHDYIYNLDESEGVCDFDVPVLNL

>Mus musculus\_E2F4(ENSMUSP\_15003)  
MAEAGPQAPPPPGTPSRHEKSLGLLTKFVSLLEAKDGVLDLKLAAADTLAVRQKRRIYD  
ITNVLEGIGLIEKSKNSIQWKGVGPGCNTREIADKLIELKAEIEELQOREQELDQHKVW  
VQOSIRNVTEDEVQNSCLAYVTHEDICRCFAGDTLLAIRAPSGTSLEVPIPEGLNGQKQYQ  
IHLKSMGPIEVLLVNKEAWSSPPVAVPVPPEDLLQSPSAVSTPPPLPKPALAQSQEAS  
PPSPQLTPTAVPGSAEVQGMAGPAAEITVSGGPGTDSKDSGELSSSLPLGPTTLDTRPLQ  
SSALLDSSSSSSSSSSSSSSNSNSSSSSSGPNPSTSFEPKADPTGVLDLPKELSEIFDPTR  
ECMSSELLEELMSSEVFAPLLRLSPPPGHDYIYNLDESEGVCDFDVPVLNL

>Rattus norvegicus\_E2F4 (ENSRNOP\_21145)  
MAEAGPQAPPPPGTSPSRHEKSLGLLTTKFSVLLQEAKDGVLDLKLAAADTLAVRQKRRIYD  
ITNVLEGIGLIEKKSNSIQWKGVGPGCNTREIADKLIELKAEIEELQOREQELDQHKVW  
VQQSIRNVAEDVQNSCLAYVTHEDICRCFAGDTHLAIAPSGTSLEVPIPEGLNGQKKYQ  
IHLKSMSPGPIEVLLVNKEAWSSPPVAVPVPVPPDDLLQSPPAVSTPPPLPKPALAHPQETS  
RPSSPQITTPVGLSTEVSDVAGQTAEIAVSGSPGTENKSGGELSSSLPLGLTALDTRPL  
QSSALLDSSSSSSSSSSSSSSSSSSSSSGPNPSTSFEPKADPTGVLDLPKELSEIFDPTRE  
CMSSELLEELMSSEVFAPLLRLSPPPGDHDYIYNLDESEGVCDFDVPVVLK

>Canis familiaris\_E2F4 (ENSCAFP\_30221)  
MAEAGPQAPPPPGTSPSRHEKSLGLLTTKFSVLLQEAKDGVLDLKLAAADTLAVRQKRRIYD  
ITNVLEGIGLIEKKSNSIQWKGVGPGCNTREIADKLIELKAEIEELQOREQELDKHKVW  
VQQSIRNVTEDEVQNSPHTLAYVTHEDICRCFAGDTHLAIAPSGTSLEVPIPEGLNGQKK  
YQIHLKSVSGPIEVLLVNKEAWSSPPVAVPVPVPPEDLLQSPPAVSTPPPLPKPTLAQPHD  
TSRPSSPQLTTPVGTGITEAQGVGPAEIAVSGGPGTDSKDGELGSLPPGLAALDTR  
PLQSSALLDSSSSSSSSSSSSSSSSSSSGPNPSTTCHPVAPAPIEFLELPKELSEIFDPTREC  
MSSELLEELMSSEVFAPLLRLSPPPGDHDYIYNLDESEGVCDFDVPVVLNL

>Myotis lucifugus\_E2F4 (ENSMLUP\_18522)  
MAEAGPQAPPPPGTSPSRHEKSLGLLTTKFSVLLQEAKDGVLDLKLAAADTLAVRQKRRIYD  
ITNVLEGIGLIEKKSNSIQWKGVGPGCNTREIADKLIELKAEIEELQOREQELDQHKVW  
VQQSIRNVTEDEVQNSPHTLAYVTHEDICRCFAGDTHLAIAPSGTSLEVPIPEGLNGQKK  
YQIHLKSVSGPIEVLLVNKEAWSSPPVAVPVPVPPEDLLQSPSALSTPPPLPKPAVALPQD  
ASHPSSPQVTSTTTICVPAGVEAQGMIPAEEIIVSGGPGSDSKDSGELSSLSLGAALD  
TRPLQSSALLDSSSSSSSSSSSSSSSSSSSGPNPSTSFEPKVDPTGVLELPKELSEIFDPT  
PECMSELLEELMSSEVFAPLLRLSPPPGDHDYIYNLDESEGVCDFDVPVVLNL

>Monodelphis domestica\_E2F4 (ENSMODP\_7623)  
PPGTPSRHEKSLGLLTTKFSVLLQEAKDGVLDLKLAAADTLAVRQKRRIYDITNVLEGIGL  
IEKKSNSIQWKGVGPGCNTREIADKLIELKAEIEELQOREQELDQHKVWVQQSIRNVTE  
DTFCLFSLTPATVAVVTHEDICKCFTGDTLLAIAPSGTSLEVVPVPEGLNVQKKYQIHLR  
SATGPIEVLLVNKDAWSSPPVVPVPPEDLLQFQAAIPSPQPRPAPSQHPETSIPSSP  
CPSTPTSTQDQSAIGQPTASPVAGSSSGPGADSKDASVLGTLNTASPAALDTRPLQSSAS  
LDSSSTLNPSTSFEPKDPDPTGILELPKELSEMFDPTRECMSSGLEELMSSEVFAPLL  
RLSPPPGDHDYIYNLDESEGVCDFDVPVVLNL

>Gallus gallus\_E2F4 (ENSGALP\_2638)  
MAECGPQPPGAGGGGGGGGGGGSGGAGAPSRHEKSLGLLTTKFSVLLQEAKDGVLDLKL  
ADTLAVRQKRRIYDITNVLEGIGLIEKKSNSIQWKGVGPGCNTREIAHKLIELKADIED  
LEQQEQELEKQKMWVQQSIKNVTEDEVQNNWLAYVTHEDICKCFTGDTLLAIAPSGTRLE  
VPIPEGPRQKKYQIHLKSTSGPIDVLLVNKDAWSSPPVLPVPPPEDLIQCQAVAPSKP  
QIPPLAHFQEASVPSSTQPSPTPTPSSTQDHSPPPEQKDTSTECSISVVESKSSSSDLPLS  
NVSAPSGHTARLDTQLLQSSASLDSSSVLPSPSASFEPKDPDAGMLELPKELSEMFDPT  
RECMSELLEELMSSEVFAPLLRLSPPPGDHDYIYNLDESEGVCDFDVPVVLNL

>Anolis carolinensis\_E2F4 (ENSACAP\_22297)  
MAADSGAQPGGGPPSRHEKSLGLLTTKFSVLLQEAKDGVLDLKLAAADTLAVRQKRRIYDI  
TNVLEGIGLIEKKSNSIQWKGVGPGCNTREIAHKLIELKAEIEDLEQRERELEQQKIWV  
QQSIKNVTDDVQNSRLAYITDEDLCKCFPGDTHLAIAPSGTQLEVVPVPEGLNGQKKYQI  
HLKSTSGPIDVLLVNKDAWSSPPVLPVPPPEDLIQCQLATPSKPHRPHALHSVPSRSQPS  
APVPSSTQDHVCATLKTAGATESDISITEPKSVGELDPLTPPAAPIILPAGLDTQPLQSS  
ASLDGSGVLPSPSTSFQLIKDPDTEILELPKELSEMFPDRECMSELLEELMSSEVFAP  
LLRLSPPPGDHDYIYNLDESEGVCDFDVPVILNL

>Takifugu rubripes\_E2F4 (ENSTRUP\_24511)  
LGAVGDSLQPQTPSRHEKSLGLLTTKFSVLLQEAKDGVLDLKLAAADTLAVRQKRRIYDIT  
NVLEGIGLIEKKSNSIQWKGVGPGCNTREIADKLIDLKAELEDDLALREHELDQQRVWVQ  
QSIKNVTDDSNNSPLTLAYVKHEDLCGAFKGDTHLAIAPIGTQLEVPIPEVGYIPNGQ  
RKYQIHLKSSGPIEVLLVNKDPSSASPVLPVPPPEILQSLPTPALTPASQPSVSQVL  
KSAAAASVKPAPVAAAIPVVPSTESMMVPSILISSWSSDGTTVQVSDAPSSSPLAPATET



PVAATQQLLSSASLDGSASSASAVFEPVKSDPSELLDFPKELSDMFDPTKEISGDILLED  
LMSSEVFSPLLRLSPPPSDHDYIYNLDETEGLCDLFDVPIILNL

>Gasterosteus aculeatus\_E2F4 (ENSGACP\_18258)  
STQPVRLLTLPQTPSRHEKSLGLLTTKFTVLLQEAKDGVLDLKAADTLAVRQKRRIYDIT  
NVLEGIGLIEKKSNSIQWKGVGPGCNTREIADKLIDLKAELEDDLALRENELDQQRVVWQ  
QSIKNVTDDSNNSPYPSLQHEDLGAFKGETLLAIRAPIGTQLEVPIPIESVVLNGQRKYQ  
IRLKSSSGAIEVLLVKNKDPSSSSPVVLPVPPDDILQSLPVPTPTSQPPTAVPQYRLLSS  
FTSSFRPSVLQNCSSNDCKTRPGRNNSCSSHRDNPSISTQQLQSSASLDGSASSASAGF  
QPIKSDPSELLDFPKELSDMFDPTKEIISGDILLEDLMSSEVFSPLLRLSPPPSDHDYIYN  
LDETEGLCDLFDVPIILNL

>Ciona intestinalis\_(ENSCINP\_30840)  
MDNSRVFSTTTTAREIFTNNLASVSPQCSSKSLPSNELHLTPSQDDTHQWLYGGHDMHGAT  
DMSIVTVESQNNRNTAQVQRKLELQSSSSGSMNSYLMSESQIQQLQTQNFVNNYNKPPSF  
KSPLKRAKSVSERKVLATNPPSRKRKMSTAGSVASGSPSEKSRDYDTSLGLLTKRFTQLMR  
NSSDGILDNLQAADLAVQKRRIYDITNVLEGIGLIEKRSKNNVQWVACPNTESDHSSEI  
EKQETQNEVDALRNKEEELDQLIRKRQMELELRLSESNTEHSYVTYQDIRGIKSFKEQIVI  
CIKAPQDTKLEVPDPGEKIQMLLKSTKGEIDVFLCPDPQDHI SPKKEPVEGDSGLLESTS  
VSDGSQRLSGSQYEENRPLFMQTEDQMPSEVDSAFIDEDSFIALSPAMNPDDYLFSLDD  
SEGISELFDMNATSLSGARTS

>Ciona savignyi\_(ENSCSAVP\_5210)  
MDNSRVFSTTTTAREMFTNNLASISPHCSNKTFFEHASPSLEHTHQWLPGGHDLAGVSDIS  
IMSVESQSNRTSNQVQRKLELPSHSPGQSPYYMSESQQLLHNQQLTNYNKPSSFKSPLK  
RGKSAMERKVLATNPPIRKRKNSSTNAAMAGSPSEKSRDYDTSLGLLTKRFIQLMKSSSDG  
ILDNLHAAEILSVQKRRIYDITNVLEGIGLIEKRSKNNVQWVDAQKCDDEQVNEEEKRES  
ELELASLRKQEEQLDTLIRKRQLELERLSESNNEYPFYFSQLLDIYIRGIKSFKDQIVIC  
IKAPQDTKLEVPDPGEKIQMLLKSTKGEIDVFLCPDPHDNMSPKKSQSDSCLGDTLEEDR  
SQRISPNGKYEDTKPLMQTDDCIPSEVDSAFIDEDSFIALSPSVNPDEYLFSLTDDSEG  
ISELFDINSTLSAPPSS

>Branchiostoma floridae\_(XP\_002590245)  
KSPLEKTRYDTSGLLTKKFVGLLGSSPDGIVDLNQAEEVLNVQKRRIYDITNVLEGINLIKKSKNHIE  
WRVQSTMEKDKERLNSAIGLFTVDTEHIRENLLDELIRHSSTQLKHLTEDSENKYPFQHGEHYCKCRN  
DIRSIKTFEEQTVIAIKAPPETRELVDPRESIQIWLKSSKGPPIEVYLCPEEQNTEDAGSSSSDAASSEG  
CSSTSGSPSCSVKGSELKTNEMARSLLPQTEDQDQEIQDFVALSPPLMEDDYLFSLSPGEGISDLFDAYDL

>Saccoglossus kowalevskii\_(XP\_002733979)  
MPRGQPMQTVSRPAIPTLTITKSTVANTTYGEVSRGITIKGVTQIQELEPIYTVKALQQHQEILSQVGCT  
PDLQTKVIKPTIGRPPQAKRKLDDATAAMLDDGFKSPRGGRKKPRPSPKGSQAQSPAERTRYDTSGLLLT  
KKFVGLLRSAPGVLDLNAAEVLEVQKRRIYDITNVLEGINLIAKKAKNNIEWKSSNSIASNGQEGSV  
CASSVDLNAEIFDLEAKENRLDELIKSCTLQKMLTEDANNGKYPL

>Octopus bimaculoides\_(XP\_014790584)  
MSIITTEDLRTPKRGRKTRTLFDCSPKVRSPGEKTRYDTSGLLTKKFVGLLRNAPDGVVDLNKAAESLE  
VQKRRIYDITNVLEGINLISKKSKNHIQWKCISIAANPVPLQLTTLKMDLHSEMAIYEAKENEMDKLI  
EHCTKQLKILTEDPEKSKYAYVTYHDIRNIRSLDDQTVMAVKAPPETRELELPDISKIWLKSNQAIEVYL  
CPDDVKKDKVHTPATTEGHNSSSSISEEQLSDESTSCDSFKTQVSLKNALLEEQDISPDASINLLQQTEDQ  
NLDSTLTHLEPPIYMEDYMFNLNDGEGITDFFGGVF

>Hydra magnipapillata\_(XP\_012561724)  
MQPLQPIIFTTFKTPSKVFMANSQTQIIRSAPQPIAPATFKTKLNSPALEEKLAVQKSPACERRYETSL  
GILTKRFVSLLRNSVSGILDNLQAEELEDDVQKRRIYDITNVLEGIGVIEKNSKNNIKWVGAKHLENQNDN  
IADVENQEEAILATNLVDLHQDIEDLKLSEAKLELIQQCQONEMKQCSGAKHYNKHSYVTYQDIRGIKDF  
NNTVIAIKAPPETKLEVPDPNESIQIWLKSSNGPIDVYLCPENKENVPPSNDRLECAYSdstSSVSEF  
SPFNENLCSPGNLSQSSGYFDECQFSSYDANTTLSSMNCDALHINKLDSDFIAYNESCYQNELSISPL  
ISLEPNFKAEDYLFSLDCNEGISDLFDVDTFL

## **Family with Sequence Similarity 110-FAM110**

>Homo sapiens\_FAM110D(ENSP\_363386)  
MLLAPPSTPSRGRTPSAVERLEADKAKYVKTHQVIARRQEPALRGSPGPLTPHPCNELGP  
PASPRTPRPVRRGSGRRLPRPDSLIFYRQKRDCKASVNKENAKGQGLVRRFLGAPRDAA  
PSSPASTERPAASGGWAAPQDAPEAAGKRALCPTCSLPLSEKERFFNYCGLERLALVEVLG  
AERFSPQSWGADASPQAGTSPPPGSGDASDWTSSDRGVDSPPGAGGGGGSEAAAGSARDRR  
PPVSVVERNARVIQWLYGCQRARGPPRESEV

>Pan troglodytes\_FAM110D(ENSPTRP\_39919)  
MLLAPPSTPSRGRTPSAVERLEADKAKYVKTHQVIARRQEPALRGSPGPLTPHPCNELGP  
PASPRTPRPVRRGSGRRLPRPDSLIFYRQKRDCKASVNKENAKGQGLVRRFLGAPRDAA  
PSSPASTERPAASGGWAAPQDAPEAAGKRALCPTCSLPLSEKERFFNYCGLERLALVEVLG  
AERFSPQSWGADASPQAGTSPPPGSGDASDWTSSDRGVDSPPGAGGGGGSEAAAGSARDGR  
PPVSVVERNARVIQWLYGCQRARGPPRESEV

>Gorilla gorilla\_FAM110D(ENSGGOP\_23325)  
MLLAPPSTPSRGRTPSAVERLEADKAKYVKTHQVIARRQEPALRGSPGPLTPHPCNELGP  
PASPRTPRPVRRGSGRRLPRPDSLIFYRQKRDCKASVNKENAKGQGLVRRFLGAPRDAA  
PSSPASTERPAASGGWAAPQDAPEAAGKRALCPTCSLPLSEKERFFNYCGLERLALVEVLG  
AERFSPQSWGADASPQAGTSPPPGSGDASDWTSSDRGVDSPPGAGGGGGSEAAAGSARDGR  
PPVSVVERNARVIQWLYGCQRARGPPRESEV

>Pongo abelii\_FAM110D(ENSPPYP\_1957)  
MLLAPPSTPSRGRTPSAVERLEADKAKYVKTHQVIARRQEPALRGSPGPLTPHPCNELGP  
PASPRTPRPARRGSGRRLPRPDSLIFYRQKRDCKASVNKENAKGQGLVRRFLGAPRDAA  
PSSPASTERPAASGGWAAPQDAPEAAGKRALCPTCSLPLSEKERFFNYCGLERLALVEVLG  
AERFSPQSWGADASPQAGTSPPPGSGDASDWTSSDRGVDSPPGAGGGGGSEAAAGSARDGR  
PPVSVVERNARVIQWLYGCQRARGPPRESEV

>Mus musculus\_FAM110D(ENSMUSP\_60143)  
MLLSSPTTTPSRGRTPSAVERLEADKAKYVKTHQVIARRQEPALRGGPGPLTPHPCNELGA  
SASPRTPGPARRGSGRRLPRPDSLIFYRQKRDCKASVNKENAKGQGLVRRFLGATRDA  
PSSPAPTERPGAPAGWAGSPDTPEATGKRAVCPTCSLPLSEKERFFNYCGLERLALVEVLG  
AERFSPQSWGAEHGPQVATSPPPPGSGDSDWTSSDRDAGSPDCAGGGGGSEAAAGSARDGR  
PTVSVVERNARVIQWLYGCQRARAPPRESEV

>Rattus norvegicus\_FAM110D(ENSRNOP\_22130)  
MLLASPTTTPSRGRTPSAVERLEADKAKYVKTHQVIARRQEPALRGGSGPLTPHPCNELGA  
SASPRTPGPARRGSGRRLPRPDSLIFYRQKRDCKASVNKENAKGQGLVRRFLGATRDA  
PSSPAPTERPGAPAGWAGSPDTPEATGKRALCPTCSLPLSEKERFFNYCGLERLALVEVLG  
AERFSPQSWGAEHSPQVATSPPPPGSGDSDWTSSDRDAGSPDCAGGGGGSEAAAGSARDGR  
PTVSVVERNARVIQWLYGCQRARAPPRESEV

>Canis familiaris\_FAM110D(ENSCAFP\_18618)  
MILASPSTPSRGRTPSAVERLEADKAKYVKTHQVIARRQEPALRGGPGPLTPHACNELGP  
PASPRTPRPARRSSGRRLPRPDSLIFYRQKRDCKASVNKENAKGQGLVRRFLGAPRDAP  
SSSPGPTERPAAPGVWAAPQDAPEAAGKRALCPTCSLPLSEKERFFNYCGLERLALVEVLG  
AERFSPQSWGADASPQAGTSPPPGSGDSDWTSSDGDTRPDGADRGGGGGGSEAAAGSARDGR  
RDGRPPVSVVERNARVIQWLYGCQRARGPPRESEV

>Bos taurus\_FAM110D(ENSBTAP\_17456)  
MLLASPSTPSRGRTPSAVERLEADKAKYVKTHQVIARRQEPALRGGPGPLTPHTCNELGP  
PPSPRTPRPARRGSGRRLPRPDSLIFYRQKRDCKASVNKENAKGQGLVRRFLGSPRDVA  
SSSAGSSERPAAPGGWTAPQDAPEAAGKRALCPTCSLPLSEKERFFNYCGLERLALVEVLG  
AERFSPQSWGADASPQAGTSPPPGSGDASDWTSSSEGGADRDRDAEGGGGSAAGSERDGR  
QVSVVERNARVIQWLYGCQRARGPPRESEV

>Gallus gallus\_FAM110D(ENSGALP\_2206)  
MVPLGSTPRVACTSGRDVSPRLRLNRGPESLRAQLAGGSGRTPSAVERLEADKVKYVKS  
QQVINSRQEPALRGCSPPCSRPRRLLALQRCHLCHGSDLSCDGSRKAPCPSVPRRG  
GGRRLLRPDSLVIYRQKRDPCVINKENTKGYGLVRRFLQGPLRDKPPSSPSAQGSDKAP  
ESPMLWVSMEQAEDVRTPGAGSSSSTVPMPDSPVPQPEAPSLAQPPASPSKPALGL

RLSLPLSEKERFFNYCGLDRAMVEGLGKERFVPAGWDAASARLHGSCWEPSQASGCSGE  
DAGPGEEDPTRLCSAISVVERNARVIKWLYGCQRAWAAAKESTV

>Anolis carolinensis\_FAM110D(ENSACAP\_17512)  
YLRKQLEGTAGMRTPSAVERLEADKAKYVKSQQVIDRRQEPVLLCYSLQSSPCCRRLAR  
HQRLVVTKDGLGPKKLPPTPPSPQSPIARRGGRRLLRPDSLVIYRQKRDCAVNKENTK  
SYGIVRRLFQSPRLRDGHNSRVVSTEGVEHPQRDPGPTDSKRKLCSSSLPLSEKERFFNY  
CGLDRNLVQVLGAERFKPGTWDARSSGRFPGSVASASSLQHGSGEEGPAEEPSEKPTSI  
SLVERNARVIKWLYSCQQAQTAAKESTV

>Danio rerio\_FAM110D(ENSDARP\_84963)  
MKPLTPIGSPSPRLRLNKGPDYLRRQMDAGSRGRSIS AVERLEADKAKYVKTQQVINTKQ  
EPVLVPCATPPPVPRLNLTSTPSTPVLLPRNQMPFSAPSFSRDENEDDSRKENCRNES  
DVETNNANKPPVLSRPTPLVAPHSAPIMRRSNGKRMLRPDSLVIYRQKKECKSPGENIN  
GNIEVKGYSFVRRLFQGSMEKSSVNDVAQKTVINEEKASSSRDGD SRMSWSNDKDTV  
GVETRSSKSEREHSABEIQNNNEEKQPKICLRNSTRNSNNNDMDPWKPVIPWKRTNMKR  
SKSELRLRCSLAISEQERFFDYCGLDFDMVERLGPENFLAGASSVDTL SLLRSVGGGGS  
EPSEFSRHSGEIGFQEELAEQIPTGVSI IERNARVIKWLYGCRSAAQEGPKESTV

>Takifugu rubripes\_FAM110D(ENSTRUP\_18192)  
LPGDSKRINMKPLTPIGSPSPRLRLNKGPDYLRRQIDGGGHGRTIS AVERLEADKAKYV  
KQQVINTKQEPVLVPCATPPPQPRRGVSLPGNVT PRLPPRSSTTPFSTTSGSLTPKENRR  
TSVDIEVHNRSNVSGMPPPIRTPGGNSLVAPHSAPVLRSSGKRMMRPDSLVIYRQKKE  
CKSPSGGTVGENNMESSRSTKTERERSPELPSHAFGSTLERTRNGFRNGANEGAKTVA  
TNGNHSSNPDDDDADDPPWKRA SPQPAARRKFGE LRRSKSDLRLRCSVALSEQDYFFDFCG  
LDMDMIQRLGRENFLSGASSIDT LSLALRSVVDGCGGSEPFSEFSRHSGDGLFEEELAEQ  
LPTGVSI IERNARVIKWLYGCKNAEEGPKESTV

>Gasterosteus aculeatus\_FAM110D(ENSGACP\_17970)  
MKPLTPVGSPPSPRLRLNKGPDYLRRQMDGGGHGRSVSAVERLEADKAKYVKSQQVINAKQ  
EPALVPCATPPPQPRRAASIPGSPAPGLAPRRPSNAASSALS GSFASRDENENYDSRKEN  
RRTSVDVEARNRSNANGALPPVPRTPGVGSLVAPHSAPVLRSTGKRMLRPDSLVIYRQK  
KECKSPHGAAGDNSNTEGSTREKAAGGEGRIQKMLRRSEDLRLRCSAALSEQELFFAF  
CGLDVMVDRLGRTNFLSAASSLGTLSLALRSVDGDRSEPFSEFSQHSGDGLFQEELAEQ  
PPTGVSI IERNARVIKWLYGCRNAAREGPKESTV

>Oryzias latipes\_FAM110D(ENSORLP\_18703)  
SPSPRLRLNKGPDYLRRQIDGGGHGRSIS AVERLEADKAKYVKSQQVINTKQEPVLVPCA  
TPPPHTRRAFSTPGSLTPRLPPRRLSNTPFSSISSGFP SRDENENDDSRKENRRTSVDIE  
VHNRSNVNYVTPPSRPTPGTNKLVAPHSAPVLRKSTGKRMLRPDSLVIYRQKKECKSLSD  
AAAGENNNVDVKGQSFVRRLFQGSMEKNGGGEGRIQKMVIGLGPTTKMLQTAQEAVKPT  
KNEVLSVYPALDPSDLKTQATELQRSKSDLLLHCSVAFSEQEHFFDFCGLDMDMIERLG  
RQNFLSGASSTDTLSLALRSVSEDSGGASEPFSEFSRHSGDGLFQEELAEQLPTGVSI IER  
NARVIKWLYGCKNAAQEGPKESTV

>Homo sapiens\_FAM110C(ENSP\_328347)  
MRALAALSAPPNERLLPRDPAATRDPDAARPARRSAVERLAADR AKYVRGRPGTGRGVAS  
EGSGPGA IKCPGNDPGPPARAPAPVARRAIARKPLRPDSLIIYRQKCEFVRGSGADGPRA  
SLVKKLFQGP GKDKAPVPTGDEGKAGNPETVPTTPGPAADPAIPETPAPAARS AAPSSV  
PAAPPPEPRVRRRGLQRSQSDLSSRYSAALAESDTFFQY CGLDPEVVEALGRENFTAG  
SDCVTLKVR SVSVATSGSGFSRHSGDDEGLQEELIEQVPSTTSVIERNARI KWLYTC  
KKAKETPSQEQRTRGSKPSR

>Gorilla gorilla\_FAM110C(ENSGGOP\_16511)  
SGADGPRASLVKKLFQGP GKDKAPVPRTEDEGKAGNPETVPTTPGPAADPATPETPAPAA  
RSAAPSSVPAAPPPEPRVRRRGLQRSQSDLSSRYSAALAESDTFFQY CGLDPEVVEAL  
GRENFTAGSDCVTLKVR SVSVATSGSGFSRHSGDDDGLQEELIEQVPSTTSVIERNAR  
I IKWLYTCKKAKETPSQEQRTRGSKPSR

>Macaca mulatta\_FAM110C(ENSMUP\_251)  
LAAQPEGES AVERLAADR AKYVRGRPGTGRGVASEGSGPGA IKCPGNDRAIARKPLRPDS

LIIYRQKCEFMRGAGADGPRASLVKKLFQGGPKDKVVPRTGDEGKTGNPETVPTKPGAA  
ADLAPPETPAPAARSAPSSVPAAPPPEPRVLRRLRGLQRSQSDLSSRYSAALAESDTFF  
QYCGLDPEVVEALGRENFTAGSDRVTLKVRVSVVATSGSGFSRHSGDDGLQEEELIEQV  
PSTTSVIERNARI IKWLYTCKKAKETPSQEQRTR

>Mus musculus\_FAM110C(ENSMUSP\_41563)  
MRALPTLDLARMRPPPLGDPRAAEDTLTPRPANKSAVERLAADRKYVVRSTLGSSRGFVS  
EHRVPEAPGVQHRNPIPSALAPAVARRAIARKPLRPDSLVIYRQKCEFVRGSDADCSR  
GLMKKFFQGGSGKDKMAVAPETTRVADEDKTTKETETATWTKSSQAAAARPASMLPPPTPVV  
AVKSPAETRVANEDKTTKETETATWTKSSQAAAARPASMLPPPTPVVAVKSPAETRVAN  
EDKTTKETETATWTKSSQAAATRPASMLPPPTPVVAVKSPALPFEVAPRVVPGCSGVQLRV  
SRSKGLQRSQSDLSSRYIAKAESDTFFKYCGLDPDVVEALGRENFSAGSDCVTLKVRVSV  
SMAASDSSFSRHSGLQEEELLEQVPSSTTSVVERNARI IKWLFCKKAKETPSQKLGPA  
A

>Rattus norvegicus\_FAM110C(ENSRNOP\_7466)  
MRALPTLDLARTRPSLGDRAAEGTLTRQPANKSAVERLAADRKYVVRSTLGSSRGFVS  
ENRVPEAPGVQHRNPIPSALAPAVARRAVARKPLRPDSLVIYRQKCEFVRGSDADSSRV  
GLMKKFFQGGSGKDKMSVTPETTRVADEYKTTKETETATWTKASQAAAARPASMLPPAPVVA  
MESPALPFEVAPRVVRRSGVELRASRSKGLQRSQSDLSSRYSTARAESDTFFQYCGLDP  
EVVESLGRNFSAAADCVTPKMRVSMATSDSSFSRHSGLQEEELLEQVPSSTTSVVER  
NARI IKWLFCKKAKETPSQKLGPA

>Canis familiaris\_FAM110C(ENSCAFP\_34814)  
MRALPGLDAPQRQPPAQPEGPRGRDAAVPARRSAERLAADRKYLRGPRGAGPAPEG  
SSAGPSAGAAGAPGPAPAPAPGAVARRTVARRPLRPDSLVIYRQKCDFVRGQGDGPR  
GLVRKLFPGPRDRAAACPGTARGDDELARREGAVVSRPGSVGAPAAPGTPRGAPPAPP  
APPAPPASSAPPAPPPTPRRPAAPPAAPGTPRGAPAAPAPPAPPAPPPTPPASCAAPRTPAS  
SAPPGPQPRGSRRLRRSOSDLSSRYASLAEFDFFQYCGLDPEVLDALGRENFSAGS  
DRVTPQVRSVSVVATSDSGFSRRSGGQEGLEQEEELTEQVPSSTTSVVERNARI IKWLYTCKR  
AKETPGQGLQGA

>Felis catus\_FAM110C(ENSFCAP\_24329)  
PAGGEGRAPELQRSQDLSSRCSASLAEFDFFQYCGLEPEVVEALGRENFSAGSDRVTL  
KVRVSVVATSDSGFSRHSGGEEGLQEEELTEQVPSSTTSVVDNRARI IKWLYTCKKARETP  
GQGLQ

>Xenopus tropicalis\_FAM110C(ENSXETP\_36569)  
MPTDIMHAVRMHPIAELQHPSPAVPLRLLTRGPDYLRQMEALGSPRANLSAVERLAADK  
AKYVKTPQQQQQGVCGSSSAGSRGDPGSSASDSSSGSSRGSQQEGTRGQQGTAPVR  
RGSSKRSNRPDSLVIYRLKSRGEGQQAEPARVGLVRRFLKKEKPPGSAIPVPPQEHSTPC  
PSERLSPEKEKQDSRSTGLHRSQSDISSRYSRFSDFDSFFQYCGLEPEVVEELGRDRF  
SPAREERLELLAQSRIRSVVATSESGMSWRSEGEGLGQLEDEPLSGQLPGANSTTSV  
IERNARI IKWLYGCKRAKETRGSPD

>Danio rerio\_FAM110C(ENSDARP\_132007)  
SRILVKGPEFLRKQMERENEANKGRVSAVERLAATKPQYVKCQQEVGSSQEPVISTESAS  
GSSRGSSKEDDSVKNVTNVNDYKELPEEDSNVRRSSSKKRDSILLYRQKCELLRGAPVLR  
RRLNRKPLLLTVRDKGGESDRATSKECGKESQVTTASGTNEVQRATPHRKVLETKEQER  
KSRTGVARSSDISRYSKNFADFVFFKYCGLDGDIIESLGKENFSARSDDLSSNIRSI  
SVSTSDDGFSKSDGLQEEELQETVRQGSVIERNARI IKWLYSCRNAAESGKTLRDL

>Takifugu rubripes\_FAM110C(ENSTRUP\_38131)  
SAVERLAASKVKYKVSQEVVNMGSSDQNSRSSGNAAAGDNTAQPAFGAQPSVGVVRRSS  
SKKRPDLSLLYRQKCELLRGPGSDRKHVRCKKLISVHKDVPLLEVTAQQHDSMEKEKM  
AMLEGPVKECSSSANGYQSERGRIKESVGGKSTGLLGIPEIERRSGKGVSRSHDISRY  
SKNFADFDAFFKYCGLSGEVIESLGKENFSARSDELAIKIRSVSISTSDSGFTRSGDSD  
GLEDLQAKIRQGTSVIERNARI IKWLYSCKNAKE

>Tetraodon nigroviridis\_FAM110C(ENSTNIP\_15203)  
IKILEKGPEYLRKQMELETETKRHLSAVERLAASKPKYKVSQEVVNPATPEPVISLTELVS

SGLESSDQSSSLIGNVAAGDNSALPAFGAQHRSAGEVRRSSSKRPDSLLLYRQKCELLR  
GDRKHHVHRHKPLLSVHKVTDKDCESVEKEKMATLKGPAKECSSSVGRSVEKKSTCHLMI  
PEIERRFGKGVSRSHSDISSRYSKNFADFDFAFFKYCGLSGEVIESLGKENFSARSDEMAI  
KLRVSVISTSDSGFTRSSGESDGLLEDDLQSKIRQGTSI IERNARI IKWLYSCKNAKEAG  
KKLRD

>Oryzias latipes\_FAM110C(ENSORLP\_17369)  
FPVESVSLDARKTTMETNSDATKILGKGPEYFRKQMERDNKGHMSAVERLAASKPIYVKS  
QQVVNSCQEPVINLSPFTVSSSGSSNLPLKHGGNLVTGNSPTSVAQDSSPGQERRSSSK  
RPDSLLIYRQKCESLRGPANNRKHPMSRKLKLLGPNVGNVPLENASKECESKGNKEKLL  
AQGAENCSSRVFVSQSEKRSNRAVEEHSTESSNDSGTTKCCAGGLLEVPQTERRSGKGV  
RSHSDISSRYSTNFADFDVFFKYCGLSDSIDSLGRENFSTCSDEISMSIIRSVSVSTSD  
DGFSRDSDGSDGLEKELEKKNQGTSVIERNARI IKWLYSCKNAAETGKMLRD

>Homo sapiens\_FAM110B(ENSP\_355204)  
MPTETLQGTSMVKPVSPAGTFTTSAVPLRILNKGPDYFRRQAEPNPKRLSAVERLEADKAK  
YVKSQEVINAKQEPVKPAVLAKPPVCPAAKRALGSPTLKVFNGHAKTESGVQRENKLEI  
LKNIINSSEGSSSGSGHKHSSRNWPPHRSEATDLHRHSFAESLKVYPTQGRSSPQEGGSH  
VGRRLLEQSAESFLVHSHSSSDIRKVTSVKPLKAI PCSSSAPPLPPKPKIAAIASMKSPE  
ADPVEPACGVSRRPSLQRSKSDLSDRYFRVDADVERFFNYCGLDPEELENLGMENFARAN  
SDIISLNFRSASMISSDCEQSQDSNSDLRNDSDANDRVYPYGISAIERNARI IKWLYSIKQ  
ARESQKVSHV

>Pan troglodytes\_FAM110B(ENSPTRP\_34709)  
MPTETLQGTSMVKPVSPAGTFTTSAVPLRILNKGPDYFRRQAEPNPKRLSAVERLEADKAK  
YVKSQEVINAKQEPVKPAVLAKPPVCPAAKRALGSPTLKVFNGHAKTESGVQRENKLEI  
LKNIINSSEGSSSGSGHKHSSRNWPPHRSEATDLHRHSFAESLKVYPTQGRSSPQEGGSH  
VGRRLLEQSAESFLVHSHSSSDIRKVTSVKPLKAI PCSSSAPPLPPKPKIAAIASMKSPE  
ADPVEPACGVSRRPSLQRSKSDLSDRYFRVDADVERFFNYCGLDPEELENLGMENFARAN  
SDIISLNFRSASMISSDCEQSQDSNSDLRNDSDANDRVYPYGISAIERNARI IKWLYSIKQ  
ARESQKVSHV

>Mus musculus\_FAM110B(ENSMUSP\_127942)  
MPTETLQGTSMVKPVSPAGTFTTSAVPLRILNKGPDYFRRQAEPNPKRLSAVERLEADKAK  
YVKSQEVINAKQEPVKPAVLAKPPVCPGTKRALGSPTLKVFNGHAKTESGVQRETLKLEI  
LKNIINSSEGSSSGSGHKHSSRNWPPHRD'TDLHRHSFAESLKVYPTPGHGSPESSSHV  
SRRLLEQSAETFLVHSHSSSDIRKVTSVKPLKAI PCSSSAPPLPPKPKVAAMKSPADQV  
EPACGVSRRPSLQRSKSDLSDRYFRVDADVERFFNYCGLDPEELENLGMENFARANSDI  
SLNFRSASMISSDCEQSQDSNSDLRNDSDANDRVYPYGISAIERNARI IKWLYSIKQARES  
QKVSHV

>Rattus norvegicus\_FAM110B(ENSRNOP\_12067)  
MPTETLQGTSMVKPVSPAGTFTTSAVPLRILNKGPDYFRRQAEPNPKRLSAVERLEADKAK  
YVKSQEVINAKQEPVKPAVLAKPPVCPGAKRVLGSPTLKVFNGHAKTESGVQRETLKLEI  
LKNIINSSEGSSSGSGHKHSSRNWPPHRD'TTELHRHSFAESLKVYPTPGRGSPESSSHV  
SRRLLEQSAESFLVHSHSSSDIRKVTSVKPLKAI PCSSSAPPLPPKPKVAAMKSPADQV  
EPACGVSRRPSLQRSKSDLSDRYFRVDADVERFFNYCGLDPEELENLGMENFARANSDI  
SLNFRSASMISSDCEQSQDSNSDLRNDSDANDRVYPYGISAIERNARI IKWLYSIKQARES  
QKVSHV

>Bos taurus\_FAM110B(ENSBTAP\_15832)  
MPTESLQGTSMVKPVSPAGTFTTSAVPLRILNKGPDYFRRQAEPNPKRLSAVERLEADKAK  
YVKSQEVINAKQEPVKPAVLAKPPVCPAAKRALGSPTLKVFNGGGGGAKSEGGAPRETLK  
LEILKNILNSSEGSSTGSGHKHSARNWADAFVHSHSSSDIRQGGGARPLKAILPCSSSA  
PPLPPKPKVAAPAAVKSPEAEAAEPAGGVRRRPSLQRSKSDLSDRYFRVDADVERFFNYC  
GLDPEELENLGMENFARANSDIISLNFRSASMISSDCEQSQDSNSDLRNDSDANDRVYPY  
GSAIERNARI IKWLYSIKQARESQKVSHV

>Monodelphis domestica\_FAM110B(ENSMODP\_11099)  
PPNMPTETLQGTSMVKPVSPAFTTSAVPLRILNKGPDYFRRQAEPNPKRLSAVERLEAD  
KAKYVKSQEVINAKQEPVKPAVLAKPPVCPAAKRALGSPTLKVFNNNAKTESGMQRENK

LEILKNIINSSEGGSSSGSGHGHKSTRNWPPHRSDSAELNRHSFAESLKVYPTQGRSSPQES  
NSNVSRRLLEHSAESFLHVSHSSSDIRKVTSVKPLKAI PCSSSAPPLPPKPKVAAIATMK  
APEIDPIEPSSCGVSRRPSLQRSKSDLSDRYFRVDADVERFFNYCGLDPEELENLGMENF  
ARANSDIISLNFERSASMISSDCEQSQDSNSDLRNDDSANDRVYPYGISAIERNARI IKWLY  
SIKQARESQKVSHV

>Gallus gallus\_FAM110B(ENSGALP\_24834)

MPTETLPTGSMVKPVSPAVTFTTSAVPLRILNKGPDYFRRQAEPNPKRLSAVERLEADKAK  
YVKSQEVINAKQEPVKPAVLAKPPVCPAAKRALGSPTLVFVSNNAKTESGVQRENKLEI  
LKNIINSSEGGSSSGSGHGHGPRNWPPHRSFAESLKVYPTQGRSSPQESSN  
VSRRLDQSAETFLHVSHSSSDIRKVTSAKPLKAI PCSSSAPPLPPKPKIAAIATLKSPE  
IEAVESGCGVSRRPSLQRSKSDLSDRYFRVDADVERFFNYCGLDPEELENLGMENFARAN  
SDIISLNFERSASMISSDCEQSQDSNSDLRNDDSANDRVYPYGISAIERNARI IKWLYSIKQ  
ARESQKVSHV

>Anolis carolinensis\_FAM110B(ENSACAP\_5176)

MPTETLQTGSMVKPVSPAITFTTSAVPLRILNKGPDYFRRQAEPNPKRLSAVERLEADKAK  
YVKSQEVINAKQEPVKPAVLKPPVCPASKRSLGSPTLVFVSNVKTESGVQRENKLEI  
LKNIINSSEGGSSSGSGHGHSSRNWPPHKS DSGDLNRHSFAESLKVYPTQGRGSPQDSNS  
VGRRLLEQSTEAFLHVSHSSSDIRKVTSSGKPLKAI PCSSSAPPLPPKPKIAAALTTLKSPE  
IDAVETSCGVSRRPSLQRSKSDLSDRYFRVDADVERFFNYCGLDPEELENLGMENFARAN  
SDIISLNFERSASMISSDCEQSQDSNSDLRNDDSANDRVYPYGISAIERNARI IKWLYSIKQ  
ARESQKVSHV

>Xenopus tropicalis\_FAM110B(ENSXETP\_12484)

MPTETLQTGSMVKPVSPAIVTFTTSAVPLRILNKGPDYFRRQSEPNPKRLSAVERLEADKAK  
YVKSQEVINAKQEPVKPAVLAKPPICPGAKRALSSPTMKMFNNNAKNESCVQRENKLEI  
LKNIINSSESSSTGSAHKQSSRNWPPNRSDSADLNRHSFAESLKVYPTQTHSSPQDSNS  
ISRRFLEKTNTFLHVSHSSSDIRKVTSVKQIKAI PCSSSAPPLPPKPKLAPLSTLKSPE  
NDNLDSGCGVSRRPSLQRSKSDLSDRYFRVDADVERFFNYCGLDPEEELKLG MENFTRAN  
SDIISLNFERSASMISSDCEQSQDSNSDLRNDDSANDRVYPYGISAIERNARI IKWLYSIKQ  
ARESQKVSHV

>Danio rerio\_FAM110B(ENSDARP\_138309)

MPTETLQADSKPVGGGAFASAVPLRILNKGPDYFRRQTEPNPKRLSAVERLEADKAKYV  
KSQEVINAKQEPKQVLAQPPVCPVPLKRGGGVSGGLKASNNNAKSDTCATTTKRENLN  
LEILKNIILNSSSSSEGPAGKTSKVGARSWAPHHSELSEPGCRSFTDSLKVPSTQGRH  
SPQGGNLNLSRRLLEERSCEVDGERSPLHASHSSDIRRM CNKGKPLRAARSSSSSAPPLP  
PKSAKALAACDNAPCSPERETLTSTAAEELGSSVARRPSLHRKSDLSDRYARAGADV  
ERFFNYCGLDPEELESVGVESFARANSDIVSLNFERSASMISSDCEQSRHSNDDLTD EEDD  
AGERVYPYGISAVERNARI IKWLYSIKQARESQKVSHV

>Takifugu rubripes\_FAM110B(ENSTRUP\_18808)

MPTETLAPALPDSKAPGATPFFSAPVPLRILNKGPDYFRRQVEPNPKRLSAVERLEADKA  
KYVKSQEVINAKQEPKPPVLAQPHSSSHSLVPKRGSGIDEGGNGRGLPFAKASNNNAKSES  
CSTSSGNSKRENLNLEILKNLLNSSSSSSGAASEGLEGGAKRGMRSRWTSPGSPSTSHSLRS  
FSHSLKVPPISSGVCHSPHQGGNLNLSRRLNERTDGAVLDRSHSPLPPLTSHSSDDL  
RLCNGKPLRTARSSSSAPPLPPKPNPASLPPPPDANLEIELGSSAARRSSLHRKSDLSDRY  
ARAGADVERFFNYCGLDPEEELAVGPENFARASSDIVSLNFERSASMISSDCDRSRRS  
SNGDEDEEEDGGERVYPYGISAVERNARVIKWLYSIKQARETQKVSHV

>Tetraodon nigroviridis\_FAM110B(ENSTNIP\_5998)

AMPTETLAPALPDSKAPGATPFFSSTVPLRILNKGPDYFRRQVEPNPKRLSAVERLEADK  
AKYVKSQEVINAKQEPKPPVLAQPHSSSHSLVPKRGSGIDEGGNGRGLPFAKASNNNAKSE  
SCATSSGNSKRENLNLEILKNLLNSSSSSSGAASEGLAGGAKRGMRSRWTSPGSPSTSHSL  
RSFSSHLKVPPISSGGRRSPHQGGNLNLSRRLNERSRSPPLPPLTSHSSDDLRLCNGK  
PLRTARSSSSAPPLPPKPNPASLPPPTSADANLEIELGSSAARRSSLHRKSDLSDRYA  
RAGADVERFFNYCGLDPEEELAVGPENFARASSDIVSLNFERSASMISSDCDRSRRSSNEG  
LSDGGERVYPYGISAVERNARVIKWLYSIKQARETQKVSHV

>Gasterosteus aculeatus\_FAM110B(ENSGACP\_19484)

MPTETLPPALPDSKTAGPATAFSSAVPLRILNKGPDYFRQVESNPKRLSAVERLEADKA  
KYVKSQEVINAKQEPKPPVLAKPPAGHTLLSKRSLGIGGGANGGMPFKASNNNTKSDT  
CATSSGSSKRGNNLLEILKNLLNSSSSSSGAGSEGLGAGAKSDSAPSPSTSHSLRSFHSLS  
KVPPIINSGGRRSPLQGGNLLNSRRGEGVLDERSRSLPPLLTSHSSDILLRLCNGKPLRTA  
RSSSSSAPPLPPKPNPATIPLCDNTAPQSLPCDFGEPSTDANPELGLSLVARRSSLHRSKS  
DLSDRYARAGADVERFFNYCGLDPEELEAVGPENFARANSDIVSLNFRSASMISSDCDRS  
RRSSNDVLSGDDEEEEEAGERVYPYGISAVERNARVIKWLYSIRQARETQKVSHV

>Oryzias latipes\_FAM110B(ENSORLP\_10358)

MPTETLAPNLPDSKATGPATPLSATVPLRILNKGPDYFRQVDPNPKRLSAVERLEADKA  
KYVKSQEVINAKQEPKPPILAKPAGHAFLLKRGSGTVGGNGGGTFFKASNNNAKSDSC  
ATSSGGTKRENLLEILKNLLNSSSSSSGAGSEGLASGSKSAVLMRSDSAPSPSTSHSLR  
SFPHSLKVPLTNSWGRCSPLQGGNLLNSRRVQDERGYEGIVVERSRSPLPPLSSHSSD  
LLRLCNGKPLRTARSSSSSAPPLPPKPNPLSLAPCDNSTPQSLPCHLGDPPDASGDANME  
LEQGNVALRSSLHRSKSDLSDRYARAGADVERFFNYCGLDPEELEVVGLNFARANSDI  
VSLNFRSASMISSDCQSRSSNDGVSEGDEAEDEEEEEAGERVYPYGISAVERNARVIKWL  
YSIKQARETQKVSHV

>Homo sapiens\_FAM110A(ENSP\_445228)

MPVHTLSPGAPSAPALPCRLRTRVPGYLLRGPADGGARKPSAVERLEADKAKYVKS LHVA  
NTRQEPVQPLLSKQPLFSPETRRRTVLTSPRRALPGCRRPQLDLIDLSSIDLCDSPVSP  
AEASRTPGRAEGAGRPPATPPRPPSTSAVRRVDVRLPASPARPCPSPGPAAASSPAR  
PPGLQRSKSDLSERFSRAAADLERFFNFCGLDPEEARGLGVAHLARASSDIVSLAGPSAG  
PGSSEGGCSRRSSVTVEERARERVPYGVSVVERNARVIKWLYGLRQARES PAAEG

>Pan troglodytes\_FAM110A(ENSPTRP\_22513)

MPVDTLSPGAPSAPALPCRLRTRKVPGYLLRRPADGGVRKPSAVERLEADKAKYVKS LHVA  
NTRQEPVQPLLSKQPLFSPETRRRTVLTSPRRALPGCRRPQLDLIDLSSLINLCDSPVSP  
AEASRTPGRAEGAGRPPATPPRPPSTSAVRRVDVRLPASPARPCPSPGPAAASSPAR  
PPGLQRSKSDLSERFSRAAADLERFFNFCGLDPEEARGLGVAHLARASSDIVSLAGPSAG  
PGSSEGGCSRRSSVTVEERARERVPYGVSVVERNARVIKWLYGLRQARES PAAEG

>Pongo abelii\_FAM110A(ENSPYP\_12132)

MPVDTLSPGAPSAPALPCRLRTRKIPGYLLRRPADGGVRKPSAVERLEADKAKYVKS LHVA  
NTRQEPVQPLLSKQPLFSPETRRRTVLTSPRRALPGCRRPQLDLGILSSLINLCDSPVSP  
AEASRTPGRAEGAGHPPATPPRPPSTSAVRRVDVRLPASPARPCPSPGPATAFSPAR  
PPGLQRSKSDLSERFSRAAADLERFFNFCGLDPEEARGLGVAHLARASSDIVSLAGPSAG  
PGSSEGGCSRRSSVTVEERARERVPYGVSVVERNARVIKWLYGLRQARES PAAEG

>Mus musculus\_FAM110A(ENSMUSP\_105489)

MPVDTLSPGAPATPALPFRRLRTRKVPGYLLRRPADGGARKPSAVERLEADKAKYVKS LRVA  
NTRQEPVQPLVLRQPLFS PGPRGPVLTSPRRVLPSCGRRPQLDLIDLSSLINLCDSPVSP  
SEASRTPGRPEGSAHKVPPATPPRPPSTVAVRRVDVRLPASPARPYPSPGTTTTSSPG  
RPPGLQRSKSDLSERFSRAAADLERFFNFCGLDPEEARGLGVAHLARASSDIVSLAGPSA  
GPCSSEGGCSRRSSATVEERSLDRVPYGVSVIERNARVIKWLYGLRQARDPPTTEG

>Rattus norvegicus\_FAM110A(ENSRNOP\_66725)

MENLSGAPYPAANFVPSVFSPLPSGYVTAMPVDTLSPGAPTPALPFRRLRTRKVPGYLLP  
RPADGGARKPSAVERLEADKAKYVKS LRVANTRQEPVQPLARQPLFS PGSRGPVLTSPR  
RVLPSCGRRPQLDLIDLSSLINLCDSPVSPSEANRTPGRPEGSAHKVPPATPPRPPSTV  
AVRRVDVRLPASPARPYPSPGAATTSSPGRPPGLQRSKSDLSERFSRAAADLERFFNFC  
GLDPEEARGLGVAHLARASSDIVSLAGPSAGPCSSSEGGCSRRSSATVEERTLERVPYGV  
VIERNARVIKWLYGLRQARDPPTTEG

>Canis familiaris\_FAM110A(ENSCAFP\_34783)

MPVDTLTPGARDTPALPFRRLRTRKVPGYLLRRPADGGARKPSAVERLEADKAKYVKS LHVA  
NTRQEPVQPLLSKQPLFS PGTRRTVLTSPRRVLPGPGRPQLDLIDLSSNLIDLCDSPASP  
TEASRTPARTEGAHQAPPATPPRPPSTAAVRRVDVRLPASPARPCPSPGTATASSPAR  
PPGLQRSKSDLSERFSRAAADLERFFNFCGLDPEEARGLGVAHLARASSDIVSLAGPSAG  
PGSSEGGCSRRSSATVEERARERVPYGVSVVERNARVIKWLYGLRQARDTPAAEG

>Felis catus FAM110A(ENSFCAP\_10149)

MPVDTLTPGARDTPALPFRLRTKVPGYLLRRPADGGARKPSAVERLEADKAKYVKS LHVA  
NTRQEPVQPLLSKQPLFSPGTRRTVLTPSRRVLPGPGRRPQLDLIDLSSLDLDCDSPASP  
AEAGRTPGRTEGAHQAPPATPPRPPPSTAAVRRVDVRPLPASPAQPCPSPGTTASSPAR  
PPGLQRSKSDLSERF SRAAADLERFFNF CGLDPEEARGLGVAHLARASSDIVSLAGPSAG  
PGSEGDCSRSSATVEERARERERVPYGVSVVERNARVIKWLYGLRQARDTPAAEG

>Myotis lucifugus FAM110A(ENSMLUP\_9453)

MPVDMLSPGARDTPALPFRLRTKVPGYLLRRPADGGARKPSAVERLEADKAKYVKS LQVA  
NTRQQPVQPLLSKQPLFSPGTRRTVLTPSRRALPGPCRRLPQLDLIDLSSLDLDCDSPVSP  
AEASRTPGQAEGAHQDPPATPPRPPPSTAAVRRVDVRPLPASPAQPCPSPDTAASSPARP  
PGLQRSKSDLSERF SRAAADLERFFNF CGLDPEEARGLGVAHLARASSDIVSLAGPSAGP  
GSSEGGCSRSSATIEERARERVPYGVSVIERNARVIKWLYGLRQARETPAVEG

>Gallus gallus FAM110A(ENSGALP\_40717)

MPVEALHAGDAMKGMARTPFTSAMP IRI LNKGP EYFRRAEPAARKPSAVERLEADKAK  
YVKSQQVASTRQEPVKPPLLKQPLFVPAVRRVLTPSRKTPGPRSAGRAKTSLNLEILN  
HLINGCDSPKAESPRGGERHGAAEALSAGRVGKAPGSPAAPRPPGTAVRRVDVRPCGAL  
PPAVPGIRVPSSPSPCRPPAAPALSSPNRPESARRQTL LHRKSKSDLSDRFSRATADLERF  
FNYCGLDPEEVQDMGAEHFARASSDIVSVKFHVSSTASSEGGRSR SAATPEGRPAERMP  
YGISVVERNARVIKWLYGLRQAREPQQVSNV

>Anolis carolinensis FAM110A(ENSACAP\_10891)

MPVETLQASHAMKGISVTAAPFTSAMPFRILNKGP EYFRRAEPAARKPSAVERLEA  
DKAKYVKSQQVATTKQEPVVRPLLLKQPLFTPGVRRVMLTPSRKTPQGSRCGAKTSLNLDI  
LNNLINFCDSPSPFPKADKSPLESKWRPEDRSRSPGYLPSTPKTKGGPSEGMSKLSQSS  
ASSSSKPPSTVAVRRVDVRPCGPMRARTPAIQ LTPVPTSPAQARILSASPLNSPSPCGE  
LRPDSAKRQTCLHRKSKSDLSDRYSRATADLERFFNYCGLDPEDMGDMEVERFTRASSDIV  
SIKFHVSSTASSEGTRSRSAVTLEERQAERMPYGISVVERNARVIKWLYGLRQARECQK  
VSNV

>Xenopus tropicalis FAM110A(ENSXETP\_42515)

MSVGTIRPSGVGAPLPPVMPLRIRNKGP EYFRRAEPAARKPSAVERLEADKLYVKSQKQ  
VASTKQEPVVRPALSQPLFSPGVQVRVLLTPNRRMP PAALRLSSPNNSLNLDVLTCLINLC  
DSPLKSPRGEVAPWQAKKEPPNPSSTPNSPRTPTAAVRRVDVKPREALPPAPGTPLSPS  
SPLCSPSDSGKRRS QLQRSKSDLSDRFSRVSANLERFFNYCGLDPGEVGNIGAEHFACAS  
SDIAKFHVS SSSGSECAQSQFSETAGEETPAARLPYGISVVERNARVIKWLYGLKQTIES  
QKLPTTPG

>Apis mellifera (XP\_006557558)

MMTAMARLPCKQTS P S Q Q P Q V N N F G N S R N C Y W N M Q T R H P A P P Y V R N H Q R Q T D H T G K R K S A V E L L Q E T K A F  
YVKSETVLDRKQELKN SGHLQVSQLSAPGAPPRLLRKCGSASACSMQPTSPS QLPAPMTPPCCWASCHE  
QDRPDGILSPQQTLPALPPKSPRLVVPQRRITISGPPSSTGGDQLQTKLRLNLTDSKENVFFPDSPTQ  
TIVQTNGIPQEEKFRYSPGSLSPNFREEDRVKLG VVRIVRVRKKIDHCTQDVRFKFGRSNSHSHTSGRSG  
RKSTSSQSVENTVCHKSLPDLHTSTRRRASLS PRASTKSSKPSGHHQSSSNCPCETSSDYSEHSFKRDA  
VCYRSSRHIRSLGSGGGDASSVLSAGGRTQKSSGSSKLSHGATARDSGGSSGHCTPRSEPPPDCWSHIR  
RDSGASTQHSTEKDRSRG SYANGTPTSVRRYSPESESSNSQTDYSPTCNSRFSDGWKEGRGRPILRSK  
SDISDRYWRQDNGRSNKVPARPPRSITQLENFFDCLGLDSDNYQRITKPSKSSSPVFFDSVSSVDSALG  
LYSWAGNNQTNQSSQWQNNDCSVGMGNDDSNQRVNDPPS IVERNARI I KWLCQCRKVQFGFS

>Anopheles gambiae (XP\_001688662)

MAAVVYGN SPRHSSRH HQGHL L SQHSPYHTQSSNAGQHSLPPPPGHHSSHHTLSSVSPPSQIITPPTSY  
LSTATTAISSQQQQQSSVQQQSQPAYHHHHSQSVSLPPQHAQTLSSYHQLRSKRKSAVELLAESKPFY  
VKSETVLDRQQQLLNKRSSAGGGSGSGGGSGSSGGGGGSSQQSRSDGAQCGSTGTLSG SYMVSPSRTLP  
SSAVSYALQQVQQQQQQQQRSTNRRSASSGSDL LQTKLRKLLNAADSKETIMPPASDVGLINSKYGQP  
LETSYIGTGMVGGGGGSLDDIGYIQPPKNYQQQLTVHPEQPSDVSVFFPSAFLSPQSLPPHPGGDDDL  
YLYGGLHDSLVLTDYRAISPPAEYAEQQQQQQQQHGGSP EGKHS MGGGHSRYNYQRSYSHSQAVVPG  
SGHHPTDESDYSPTQSYNINSHKSLPDLHSQSSRHS PHSEALSCSRGNRSNRSGSSFN RDSGSSGHYT  
HHSEPCCKQQQQQQQQHSHQSHHQLSHLPHSQMMMQQQQQHHSQQQHYQQHHSQQHTLSSQGD  
RQDSMMLLDYRRDSGSSTQHS GNSYYAYGIPPLRYDCIECRAKIREEADCLLNFTTPEVPEAFQDGYSE  
KQHQLQQQQQQQQHQQQQHQQQLSKSQHAKYIDERGRKYYKNPPMSPLSPVSPSPPEQAQLDLSF



PLGTFKRQKCLRFKNRSGRQSAVSNPSPSSGGRCGPGGGGPGSSASAGAVAGGPMVDDDRRPILRSKSDI  
SDRYWNRSQPERTLLPVAADVRDHHRRADREERDRERDRERDREQQLEKQQRSRSDSLTQLERFF  
DRLGLDEETYDRYIAPKGGSLQRRSSGSYHHHSTAHHHNSASSDIHRLSDDCSTGGGGTTPGGGGSGGGAD  
SDESSAVFFSDVSTIDSTKLPDSTETANGPGAGGAPASQLLVAVGAVGQPGVGGQADGGVPLLGAGP  
APLYRTSEPPSI IERNARI IKWLCNCKKMQLA

>Nematostella vectensis\_(XP\_001629519)

MADSLCIIILFGLKRNIFRVSNDFFLLKDSRNI PKDLSSLQKFTPLSGFTVRSIRSMAACCPITISDLPK  
VLREKLAHILDESNTPTWRELIHVMPPDMYRAHQVESFAMATLKCRSPTQELFDDLARRSVTLDELQGWV  
QKLPQSNKKQSMIQLLYGHPVVTRQPGNIMVAVGANAVLSCGATGHQPLNYQWFKSKKALEGQTGSLLRV  
KNVSKLDEGHYICRVANSNGDYVFTWAKLSLQNPSETHQFSRPIITSQPEYPEVHTVLGGTLRLYCDAL  
GDPAPTFQWYKNDLPLPDGDQREYCKRDICADDQGRYMCVASNSSGSTESRPTRVFVRHQVPRGQMEAND  
KVALLIGNKDYKMAQHNLTLFHLPLNDVCDLAVLRSIGFKVSVLNLTLKEMEFALDEFYKLLVKDTYAL  
FYFAGHGFEINGQGYLMPIDATERYHSQENLPAWKVLETMQNSEAKLNIIVLDCCRTTPNDKPIETIPVD  
NGCYQPIVTKENLVVIHGCLPQNSVFESEDERNGFI AKHLIKLIGQTKPLSKIKLEFSKAIHDEKIYDPE  
DRKQOVVHIHTTEIDMCLADNTAVHMQGACAVSGSEGWKAHGRYTQGFYFRSSGGGGGPEIPEDPVT  
VHERDGVVVELVFMAEFSNALLVTARCRPDNYHVT FDMPECVSGCLVTKVTGKESTIPQRFSRAESAIRI  
ADLQRLQVFLCLNMDRQEAWGLGRAHIVQPS

>Hydra magnipapillata\_(XP\_004205687)

MEECEFKEHFRVNRNTFNFLVYELHPLLKTTTTFREPI SVVKRVAVALHYLASCEEYRGVSSSLFGIGKS  
IANLIVHEFINAVNDILLPKYVKFPLSVENLIKHSRDFEAILGFQKICIGAVDGCCHIPIFAPKDAQAISYYN  
YKGWYSIVLFSVVDCRYRFIYTSVSGSPGRNNDYSYIFQNSSLKAILESSLFDKCKELGDSLVLPLCLIGDS  
AFPLTRHLLKPYPKNLELSEI

>Amphimedon queenslandica\_(XP\_011409799)

MDNSVFIGARPGDSEQALSSVVNYSTSKSSFFIVCEIFAIVLQRQTSLLTLTTLAHISSSELSIFIDLLPK  
ELLGAVRALCIPNAIYKACATGYSQLAQKSNVLSPTGMHKNFVTFI GLLAFNCFI HDIITYI IKPMFK  
VYLLHPQSSQANQGTLSLQFVSLLLRHILVDKYIRGEVNDGDVNIIVYPPFVSHYLLAKSKELSFVVLN  
LLKELLKLSKDTLRSSRGTTWGGKTGMSILVESFPSSQGNAAALIKLRETMELIAEQDQWVRECSKQDS  
KQLLHVEKLGDAASLSPAQAQYLLHLLI PYCPEDTVKRINNESSGSLPPFMTHPEQTVDRILKNLDQWTLHN  
ALLHLNLNINSSHLHLSIDHLSQSIVQVFEDSCTEEWTEDESSQVDGAYCPSIWLVTPLVSELPKSVLGK  
ILKSAGNVLGKQWNNLDRQQRERRSTRASITPTTPNPKTGLQWQPPFLELVLACMNSNHSNHEELLGPL  
QKQLTTFLTA FEKDSFPADEQNKSMLYTALKRLGLVGSMLPSVCSVCSNVL DWVSLLIPLICSGAVDR  
QPDNSELFTNCLDML SALLQALS PDFHMCVFSGGEKGKSYIMCIKKMKS DLASSKSTCKQEI QQLFPLP  
QKLYEVTVVKPPSAFSQQFRIPEKVQGLRVQEVKEISPWEIIEGIKNSGPFQLSWFGATRIKRKPLKYLE  
QEKQIQHHTHQHFLSNSGHLGGSGPSTSRHSVFLPDSNDSTNGAIGGGGGGGVSSDSGDNAIPPGAAS  
TAGGTRASVGGTGEGLDNKAEILLQINKMNRQQPSLTTQPGPLPPTFHTTGQVGSNTPHQLTQQQP  
MQRQIPHGMMQHSAAQMMRPPPHFLQRQLEYMTPEQRNHFMSLPNEEKRVYLSNLQRTFRERRMLEQQQ  
QQQQQQQLMFRHPMHRPMPQVAPPMTQVLLQQRMPRYGPQHMGPPQMHHSGGYMPGHPAMPFRQPPP  
GPMYTMHRPPMHNLPPHHQ

## **Grainyhead like Transcription factor-GRHL**

>Homo sapiens\_GRHL3(ENSP\_288955)

MSNELDFRSVRLKNDPVNLQKFSYTSSEDAWKTYLENPLTAATKAMMRVNGDDDSVAAL  
SFLYDYMGPKKRI LSSSTGGRNDQ GKRYHGM EYETDLTPLESPTHLMKFLTENVSGT  
PEYDPLKKNLMSLEGALPTPGKAAPLPAGPSKLEAGSVDSYLLPTTDMYDNGSLNSLF  
ESIHGVPPTQRWQPDSTFKDDPQESMLFPDILKTSPEPPCPEDYPSLKSDFEYTLGSPKA  
IHIKSGESPMAYLNKGQFYVPTLRTPAGGKGLALS NKVKSVMVMVFDNEKVPVEQLRFW  
KHWSRQPTAKQRVIDVADCKENFNTVEHIEEVAYNALS FVWVNEEAKVFIGVNCSTLD  
FSSQKGVKGVPLNLQIDTYDCGLGTERLVHRAVCQIKIFCDKGAERKMRDDERKQFRKRV  
KCPDSSNSGVKGCLLSGFRGNETTYLRPETDLETPVLFIPNVHFSSLQRSGGAAPSAGP  
SSSNRLPLKRTCSPTTEEFELPSKQAKEGDLQRVLLYVRRETEEVFDALMLKTPDLKGL  
RNAISEKYGFPEENIYKVYKCKRGETSLLHPRLSRHPPPDCLECSHPVTQVRNMGFGDG  
FWRQRDLDSNPSTTVNSLHFTVNSE

>Gorilla gorilla\_GRHL3(ENSGGOP\_1766)

MSNELDFRSVRLKNDPVNLQKFSYTSSEDAWKTYLENPLTAATKAMMRVNGDDDSVAAL  
SFLYDYMGPKKRI LSSSTGGRNDQ GKRYHGM EYETDLTPLESPTHLMKFLTENVSGT  
PEYDPLKKNLMSLEGALPTPGKAAPLPAGPSKLEAGSVDSYLLPTSDMYDNGSLNSLF

ESIHGVPPTQRWQPDSTFKDDPQESMLFPDILKTSPEPPCPEDYPSLKSDFEYTLGSPKA  
IHIKSGESPMAYLNKGQFYPVTLRTPAGGKGLALSSNKVKSVMVVFVDFNEKVPVEQLRFW  
KHWSRQPTAKQRVIDVADCKENFNTVEHIEEVAYNALS FVWNVNNEEAKVFIGVNCLSTD  
FSSQKGVKGVPLNLQIDTYDCGLGTERLVHRAVCQIKIFCDKGAERKMRDDERKQFRRKV  
KCPDSSNSGVKGCLLSGFRGNETTYLRPETDLETPVLFIPNVHFSSLRSGGAAPSAGP  
SSSNRLPLKRTCSPFTEEFELPSKQAKEDDLQRVLLYVRRETEEVFDALMLKTPDLKGL  
RNAISEKYGFPEENIYKVYKCKRGETSLLHPRLSHHPPDCLECSHPVTQVRNMGFGDG  
FWRQRDLDSNPSTTVNSLHFTVNSE

>Mus musculus\_GRHL3(ENSMUSP\_101481)

MSNELDFRSVRLKNDPVSFQKFPYSNEDEAWKTYLENPLTAATKAMMRVNGDEESVAAL  
SFLYDYMGPKKEKRILSSSTGGRNDQGKKFYHSM DYEPDLAPLESPTHLMKFLTENVSGS  
PDYTDQLKKNLGLGVLPTPGKTNTVPPGPSKLEASSMDSYLLPASDIYDNGSLNSLF  
ESIHGVPPTQRWQPDSTFKDDPQESLLFPDILKTS PDPPCPEDYPGLKSDFEYTLGSPKA  
IHIKAGESPMAYLNKGQFYPVTLRTPAGGKGLALSSSKVKSVMVVFVDFNDKVPVEQLRFW  
RHWSRQPTAKQRVIDVADCKENFNTVQHIEEVAYNALS FVWNVNNEEAKVFIGVNCLSTD  
FSSQKGVKGVPLNLQIDTYDCGAGTERLVHRAVCQIKIFCDKGAERKMRDDERKQFRRKV  
KCPDSSNAGIKGCLL SGFRGNETTYLRPETDLETPVLFIPNLHFSSLRPGGVVPSAG  
HSSDRPLKRTCSPF AEEFEPLPSKQAKEDDLQRVLLYVRRETEEVFDALMLKTPDLKG  
LRNAISEKYGLPEENICKVYKCKRGILVNMDNNI IQHYSNHVAFLLDMGELDGKIQIIL  
KEL

>Rattus norvegicus\_GRHL3(ENSRNOP\_61035)

MSNELDFRSVRLKNDPVSFQKFPYNNDEAWKTYLENPLTAATKAIMRVNGDDESVAAL  
SFLYDYMGPKKEKRILSSSTGGRNDQGKKYHSM DYEPDLAPLESPTHLMKFLTENVSGS  
PDYTDQLKKNLGLGALPTPGKTSTLPPGPSKLEAGSMDSYLLPTSDMYDNSSLNSLF  
ESIHGVPPTHDFEYTLGSPKAIHIKAGESPMAYLNKGQFYPVTLRTPAGGKGLSLSSSKV  
KSVVMIVFVDFNDKVPVEQLRFWRHWSRQPTAKQRVIDVADCKENFNTVQHIEEVAYNALS  
FVWNVNNEEAKVFIGVNCLSTDFSSQKGVKGVPLNLQIDTYDCGAGTERLGAERKMRDDER  
KQFRNKVKCPDSSNNGIKGCLL SGFRGNETTYLRPEADLETPVLFIPNLHFSSLRPGG  
VVP SAGHSSDRPLKRTCSPF AEEFEPLPSKQAKEDDLQRVLLYVRRETEEVFDALMLK  
TPDLKGLRNAISEKYGFPEENICKVYKCKRGILVNMDNNI IQHYSNHVAFLLDMGELDG  
KIQIILKEL

>Bos taurus\_GRHL3(ENSBTAP\_26370)

SFSFRSVRLKNDPVSFQKFPYTNEDEAWKTYLENPLTAATKAMMRVNGDDDSVAALSFL  
YDYMGPKKEKRLLSSSTGGRNDQGKRYHGM EYEMDLTPLESPTHLMKFLTENVSGTPEY  
PDVLKKNLMSVEGAAPT PGKAALLPAGPSKLETGSVDSYLLPTSDVYDNGSLSSLFESI  
HGVPPTQRWQPDSTFKDDPQESLLFPDILKTSPEPPGPEDY PNPKSDFEYTLGSPKAIHI  
KSGESPMAYLNKGQFYPVTLRTPAGGKGLALSSNKVKSVMVVFVDFNEKGPVEQLRFWKHW  
HSRQPTAKQRVIDVADCKENFNTVQHIEEVAYNALS FVWNVHEEAKVFIGVNCLSTDFSS  
QKGVKGVPLNLQIDTYDCGSGTERLVHRAVCQIKIFCDKGAERKMRDDERKQFRRKVKCP  
DSSNSGIGSLLAGFRGNETTYLRPEADLETPVLFIPNVHFSSLRPGGLILSKNNVD  
ELALKRTCSPFTEEFELPSKQAKEDDLQRVLLYVRRETEEVFDALMLKTPDLKGLRSAI  
SEKYGFPEENIYKVYKCKRGILVNMDNNI IRHYSNHVAFLLDMGELDGKIQIILKEL

>Monodelphis domestica\_GRHL3(ENSMODP\_16354)

MSNELDFRSVQLKNDVNFQKFSCTNEDEAWKTYLGNPLTAATKAMMRVNGDEDSVAAL  
SFLYDYMGPKKEKRILSSSTGARSDLGKRYHGM EYEVDFPPLESPTHLMKFLTENVSGS  
QEY PDLTKNNLMNLEGTASTKSGLLPPGPSKLEDS PADGSYLLPTGDMYDSSLSNLFET  
IHGPPPQRWQPDSTFKDDGQESLLFPDILKSPSE PQC PEDYPGTSDFEYTLGSPKAIH  
IKSGESPMAYLNKGQFYPVTLRTPGGGRCLHLSSNKVKSMMIMVVFVDFNEKI PVEQLRFWKH  
WHSRQPTAKQRVIDVADCKENFNTVQHIEEVAYNALS FVWNVNNEEAKVFIGVNCLSTDFS  
TQKGVKGVPLNLQIDTYDCGTGTDRLVHRAVCQIKIFCDKGAERKMRDDERKQFRRKAKC  
PDSSNGLKGCPLSNFRGNETTYLRPETDLESQVLFIPNIHF SNLQRNGVAGSPTIHNG  
TNRLPLKRTCSPFSDDFLLPPKQAKEDDLQRVLLYVRRETEEVFDALMLKTPDLKGLRN  
AISEKYGFPEESIYKVYKCKRGILVNMDNNI IQHYSNHVAFLLDMGELDGKIQIILKEL

>Gallus gallus\_GRHL3(ENSGALP\_6748)

MRCCLDMRIHLKQKGEQKQNSPHSFRSVRLMKN DTMNFQKFSYTNEDEAWKTYLENPLT  
AATKAMMRVNGDDDSVAALSLLYDYMV PKEKRILPSGMMGRNELGKRQYHGM EYDSDIT

SFDGSAHLMKLLSENTSMTQEYCEPQKKNGLSLEGIPTPHKPAMLPPGTSKLDATPDTYM  
VPPGDLYDNSALNSLFETNPVATPQQRWQPDSTFKEDPQESLFSIDLKQPPEPPCESY  
PTDGVKSDFEYTLGSPKAIHIKSGDSPMAYLNKGQFYFITLRAAGDSKCLHLSNKKVSV  
VMIVFDNEKIPTQEQLKFWKHWSRQPTAKQRVIDVADCKENFNTVQNIIEELAYNALSFW  
NIHEEAKVFIGVNCLSTDFSSQKGVKGVPLNLQIDTYDYGNGTNHLVHRAVCQIKIFCDK  
GAERKMRDDERKQFRKRGKCLDSNNGLKGCLLSGFRGNEITFLRPETDLETQPVLFIPN  
LHFSNQQRCTALPPAVPNSANRLPLKRSGETSFTDFDFVPPKQTKKEEDPQRVLLYVRE  
SEEVFDALMLKTPDLQGLRMAISEKYGLPEESIYKVYKCKRGILVNMDNNIIQHYSNHM  
AFLLDMVEAEDKIQVILKEL

>*Anolis carolinensis*\_GRHL3(ENSACAP\_16996)

IALLRSFRSVRLKNDGMGFQKFCMNEDEAWKTYLENPLTAATKAMMRVNGDDESVAAL  
SLLCDYYMIPKEKRYVPSGNTGRNDIGKRHCHVMDYEPDISSFENSAQLMKLLAENVSVS  
QEYTDLPKKNGLVLDGLPAPHKPPALPPGPSKMEANPAESYMIPSGDVYDNGSLHSLFDA  
IHVAPPQQRWQPDSTFKEDPQESLIFNDILKTQPEVPCSEGYSLNDAKSDFEYTLGSPKA  
IHIKSGESPMAYLNKGQFYPVSLKTVGDTKGLHLSSDKVKSVMVVFVDFNEKI PMEQLKFW  
KHWSRQPTAKQRVIDVADCKENFNTVQHIEEVAYNALSFWVNVAAEEAKVFGVNCLSTD  
FSSQKGVKGVPLNLQIDTYDFGTGTNRLVHRAICQIKIFCDKGAERKMRDDERKQFRKRG  
KCLDANNNSLKSCLVSGFRGNEITYLKPQADLETQPVLFIPNVHFSNLQRCATVLPASGV  
PHDPSSALLLLCQFLEISPGPPLISALLLHLPVLLYVRESEEVFDALMLKTPDLKGLR  
NAISEKYGLPEESIYKVYKCKRGILVNMDNNIIQHYSNHMAFLLDVVEAEEKFQVTLKE  
L

>*Xenopus tropicalis*\_GRHL3(ENSXETP\_8467)

MSNELDYRPVMLLQNDINLKYSSPNDDAWSKYLENPMTAATKAMMRANGDDDVAALS  
LYDYRVPKPKRIITQGSTGRCDQVKRSCIEYDSDISTYDSTQLMRFLNDNNSSTHEYSE  
THKKNYSLSLDCLINPSKPLPSSGKLDNNAHDDFMATSCDVYEKNPLTTLFDPHVPFPQ  
QRWQPDSTFKEDTPEPLIFNDILRSQAESTCSEDIYPGEANRDFECTLESKPAIHIKSGE  
SPMAYLNKGQFYFVNLRTAETRKCIVHLTSNKVKSVMVVFVDFNEKNPEEQLRKWKHWSRQ  
PTAKQRVIDVADCKENFNTVENIEEVAYNALSFWVNIIEEAKIFIGINCLSTDFSSQKGV  
KGVPLNLQIDTYDFGTGKRLIHRVAVCQIKIFCDKGAERKMRDEERKQFRKRGKSAQNN  
KDIKASVLPYGRGSDFTYLRPVTDMMETHPVLFIPNIHYSNLQRCGVVLSAADNSDRLSL  
KRSSQSFPESEAPPKQQTNEPQRVLLYVRETEEVFDALMLKTPDLKGLRNAISEKY  
ELPEERICRVYKCKRGILVNMDNNIIQHYSNHVAFLLDLTDVDGKIQVTLKEL

>*Homo sapiens*\_TFCP2L1(ENSP\_263707)

MLFWHTQPEHYNQHNHSGSYLRDVLALPIFKQEEPQLSPENEARLPPLQYVLC AATS PAVK  
LHEETLTYLNQGQSYEIRLLENRKLGDQDLNNTKYVKSIRVVFHRRRLQYTEHQQLEGW  
RWSRPGDRILDIDIPLSVGILDPRASPTQLNAVEFLWDPAKRASAFIQVHCISTEFTPRK  
HGGEKGVPPFRVQIDTFKQNGEYTEHLHSASCQIKVFKPKGADRKQKTDREKMEKRTAQ  
EKEKYQPSYETTILTECSPWPDVAYQVNSAPSPSYNGSPNSFGLGEGNASPTHPEALPV  
GSDHLLPSASIQDAQWLHRNRFSQFCRLFASFGADLLKMSRDDLQVQICGPADGIRLFN  
AIKGRNVRPKMTIYVCQEQNRVPLQKRDGSGDSNLSVYHAI FLEELTTLELIEKIAN  
LYSISPQHIHRVYRQGTGIHVVSNEVMVQNFQDESCFVLSTIKAESNDGYHIILKCGL

>*Macaca mulatta*\_TFCP2L1(ENSMUP\_55543)

MLFWHTQPEHYNQHNHSGSYLRDVLALPIFKQEEPQLSPENEARLPPLQYVLC AATS PAVK  
LHEETLTYLNQGQSYEIRLLENRKLGDQDLNNTKYVKSIRVVFHRRRLQYTEHQQLEGW  
RWSRPGDRILDIDIPLSVGILDPRASPTQLNAVEFLWDPAKRASAFIQVHCISTEFTPRK  
HGGEKGVPPFRVQIDTFKQNGEYTEHLHSASCQIKVFKPKGADRKQKTDREKMEKRTAQ  
EKEKYQPSYETTILTECSPWPDVAYQVNSAPSPSYNGSPNSFGLGEGNTSPTHPEALPV  
GSDHLLPSASIQDAQWLHRNRFSQFCRLFASFGADLLKMSRDDLQVQICGPADGIRLFN  
AIKGRNVRPKMTIYVCQEQNRVPLQKREGSGDSNLCVYHAI FLEELTTLELIEKIAN  
LYSISPQHIHRVYRQGTGIHVVSNEVMVQNFQDESCFVLSTIKAESNDGYHIILKCGL

>*Mus musculus*\_TFCP2L1(ENSMUSP\_27629)

MLFWHTQPEHYNQHNHSGSYLRDVLALPIFKQEEPQLSPENEARLPPLQYVLC AATS PAVK  
LHEETLTYLNQGQSYEIRLLENRKLGDQDLNNTKYVKSIRVVFHRRRLQYTEHQQLEGW  
RWSRPGDRILDIDIPLSVGILDPRASPTQLNAVEFLWDPKRSASAFIQVHCISTEFTPRK  
HGGEKGVPPFRVQIDTFKQNESGDYSEHLHSASCQIKVFKPKGADRKQKTDREKMEKRTAQ  
EKEKYQPSYETTILTECSPWPDVYQANNTPSPSYNGSPNSFGLREGNSSPNHPVEPLPL

GSDHLLPSASIQDAQQWLHRNRFSQFCWLFASFSGADLLKMSRDDLVQVCGPADGIRLFN  
AIKGRNVRPKMTIYVCQELEQNQLPLPQKQDDSGDNSLCVYHAI FLEELTTLELTEKIAS  
LYSIPPQHIHRVYRQGPAGIHVVVSNEMVQNFQDESCFILSTLKAESNDGYHI IILKCGL

>Canis familiaris\_TFCP2L1(ENSCAFP\_7168)  
XYNQHSSGSYLRDVLALPIFKQEEPQLSPENEARLPPLQYVLC AATSPAVKLHEETLTYL  
NQGQSYEIRLLENRKL GDFQDLN TKYVKS IIRVVFHDRRLQYTEHQQLEGWRWSRPGDRI  
LDIDIPLSV GILDPRASPTQLNAVEFLWDPSKRASAFIQVHCISTEFTPRKHGGEKGVPF  
RVQIDTFKQ NENGEYTEHLHSASCQIKVFKPKGADRKQKT DREKMEKR TAQEKEYQPSY  
ETTILTECSPWPD MAYQVNSAPSPSYNGSPNSFGLGEGNSSP THPVETLPLSNDHLLPSA  
SIQDAQQWLHRNRFSQFCRLFASFSGADLLKMSRDDLVQICGPADGIRLFNAIKGRNVRP  
KMTIYVCQELEQNRA PLQKRDGGDSSLCVYHAI FLEELTTLELVEKIASLYSISPQHIH  
RVYRQGP TGIHV VVSNEMVQNFQDESCFILSTLKAESNDGYHI IILKCGL

>Felis catus\_TFCP2L1(ENSFCAP\_11266)  
FITRDTQREEGDQMSGGFVQSDVLALPIFKQEEPQLSP ESEARLPPLQYVLC AATSPAV  
KLHEETLTYLNQGQSYEIRLLENRKL GDFQDLN TKYVKS IIRVVFHDRRLQYTEHQQLEG  
WRWSRPGDRILDIDIPLSV GILDPRASPTQLNAVEFLWEP SKRASAFIQVHCISTEFTPR  
KHGGEKGVPF RVQIDTFKQNDNGEYTEHLHSASCQIKVFKPKGADRKQKT DREKMEKR TA  
QEKEYQPSYETTILTECSPWPD MAYQVNSAPSPSYNGSPNSFGLGEGNSSP THPVETLP  
LGNDHLLPSASIQDAQQWLHRNRFSQFCRLFASFSGADLLKMSRDDLVQICGPADGIRLF  
NAIKGRNVRPKMTIYVCQELEQNRA PLQKRDGGDSSLCVYHAI FLEELTTLELVEKIA  
NLYSISPQHIHRVYRQGP TGIHV VVSNEMVQNFQDESCFILSTLKAESNDGYHVI IILKCGL

>Homo sapiens\_GRHL1(ENSP\_324693)  
MTQEYDNKR PVLVLQNEALYPQRRSYTSEDEAWKS FLENPLTAATKAMMSINGDEDSAAA  
LGLLYDYYKVP RERRSS TAKPEVEHPEPDH SKRNSIP IVTEQPLISAGENRVQVLKNVFP  
NIVLPHGNQLGIDKRGHLTAPD TTVTVS IATMP THSIKTETQPHGF AVGIPP AVYHPEPT  
ERVVVFDRNLNTDQFSSGAQAPNAQRRTPDSTFSETFKEGVQEVFFPSDLSLRMPGMNSE  
DYVFD SVSGNNFEYTL EASKSLRQKPGDSTMTYLNKGQFYPI TLKEVSSSEGIHHPISKV  
RSVIMV VFAEDKSREDQLRH WKYWSRQHTAKQRC IDIADYKESFNTI SNIEE IAYNAIS  
FTWDINDEAKV FIVSNCLSTDFSSQKGVKGLPLNIQVDTYSYNNRSNKPVHRAYCQIKVF  
CDKGAERKIRDEERKQSKRKVSDVKVPLLPSHKRMDITVFKPFIDLDTQPVLFI PDVHFA  
NLQRGTHVLP IASEELEGEGSVLKRGPYGTEDDFAVPPSTKLARIEEPKRVLLYVRKESE  
EVFDALMLKTPSLKGLMEAISDKYDVPHDKIGKIFKCKKGGILVNMDDNIVKHYSNEDTF  
QLQIEEAGGSYKLT LTEI

>Callithrix jacchus\_GRHL1(ENSCJAP\_11987)  
MTQEYDNKR PVLVLQNEALYPQRRSYTSEDEAWKS FLENPLTAATKAMMSINGDEDSAAA  
LGLLYDYYKVP RERRSS TAKPEVEHPEPDH SKRNSIP IVTEQPLISAGENRVQVLKNVFP  
NIVLPHGNQLGIDKRGHLTAPD TTVTVS IATMP THSIKTETQPHGF AVGIPP AVYHPEPT  
ERVVVFDRNLNTDQFSSGAQAPNAQRRTPDSTFSETFKEG IQEVFFPSDLSLRMPGMNSE  
DYVFD SVSGNNFEYTL EASKSLRQKPGDSTMTYLNKGQFYPI TLKEVSSNEG VHHPI SKV  
RSVIMV VFAEDKSREDQLRH WKYWSRQHTAKQRC IDIADYKESFNTI SNIEE IAYNAIS  
FTWDINDEAKV FIVSNCLSTDFSSQKGVKGLPLNIQIDTYSYNNRSNKPVHRAYCQIKVF  
CDKGAERKIRDEERKQSKRKVSDVKVPLLPSHKRMDITVFKPFLLDLDTPVLFI PDVHFA  
NLQRGTHVLP IASEELEGEGSALKRGPYGTEDDFVPPSTKLSRIEEPKRVLLYVRKESE  
EVFDALMLKTPSLKGLMEAISDKYDVPHDKIGKIFKCKKGGILVNMDDNIVKHYSNEDTF  
QLQIEEAGGSYKLT LTEI

>Mus musculus\_GRHL1(ENSMUSP\_82689)  
MTQEYDNKR PVLVLQNEALYPQRRSYTSEDEAWKS FLENPLTAATKAMMSINGDEDSAAA  
LGLLYDYYKVP RERRSS AVKPEGEHPEPEH SKRNSIP NVTEQPLISAGENRVQVLKNVFP  
NIVLPHSNQLGIDKRGHLTAPD TTVTVS IATMP THSIKTEIQPHGF AVGIPP AVYHSEPT  
ERVVVFDRSLSTDQFSSGTQPPNAQRRTPDSTFSETFKEGVQEVFFPS ELSLRMPGMNSE  
DYVFD SVSGNNFEYTL EASKSLRQKQGDSTMTYLNKGQFYPV TLKEGSSNEG IHHPI SKV  
RSVIMV VFAEDKSREDQLRH WKYWSRQHTAKQRC IDIADYKESFNTI SNIEE IAYNAIS  
FTWDINDEAKV FIVSNCLSTDFSSQKGVKGLPLNIQIDTYSYNNRSNKPVHRAYCQIKVF  
CDKGAERKIRDEERKQSKRKVSDVKVQLLPSHKRMDITVFKPFLLDLDTPVLFI PDVHFT  
NLQRGSHVLSLP SEELEGE GSVLKRGPFGT EDDFGVPPPAKLTRTEEPKRVLLYVRKESE  
EVFDALMLKTPSLKGLMEAISDKYDVPHDKIGKIFKCKKGGILVNMDDNIVKHYSNEDTF

QLQIEEAGGSYKLTLLTEI

>Rattus norvegicus\_GRHL1(ENSRNOP\_68887)

NSIPNVTEQPLISAGENRVQVLKNVFPNIVLPHSNQLGIDKRGHLTAPDTTVTVSIATMP  
THSIKTEIQPHGFTVGI PPAVYHSEPTERVVVFDRSLSTDQFSSGPQPPNAQRRTPDSTF  
SETFKEGVQEVFFPSELRLMPGMTSEDYVFDVSVGNNEFYTLEASKSLRQKQGDSTMTY  
LNKGQFYFVTLKEVSNNEGIHHPISKVRSVIMVFAEDKSREDQLRHWKYWHSRQHTAKQ  
RCIDIGEWPRSPPTSRRLQCPASQVLLLLLAIINFLKVFISVNCLSTDFSSQKGVKGLPL  
NIQIDTYSYNNRSNKPVHRAYCQIKVFCDKGAERKIRDEERKQSKRKVSDVKVQLLP SHK  
RTDITVFKPFLDLDTQPVLFI PDVHFTNLQRGSHVLSLPTEELEGDGSVLKRGPFGTEDD  
FGVPPPAKLARTEEPKRVLLYVRKESEEVFDALMLKTPSLKGLMEAISDKYDVP HDKIGK  
IFKKCKKGILVNMDDNIVKHYSNEDTFQLQIEEAGGSYKLTLLTEI

>Bos taurus\_GRHL1(ENSBTAP\_9846)

MTQEYDNKRPLVVLQNEALYSQRRSYTSEDEAWKSFLENPLTAATKAMMSINGDEDSAAA  
LGLLYDYKVPRERRSSAAKADVEHAEPDHSKRNVPNVTEQPLISAGENRVQVLKNVFPN  
IVLPHGNQLGIDKRGHTAPDTTVTVSISAMPTHAIKTESQPHGFTVGI PPAVYHPEPTE  
RVVVFDRNLNADQFGSGAQPPNAQRRTPDSTFSETFKEGVQEVFFPSDLSLRMPGMNSD  
YVFDVSVGNNEFYTLEASKSLRQKPGDSTMTYLNKGQFYFVTLKEVSGSEAVHHPIGKVR  
SVIMVFAEDKSREDQLRHWKYWHSRQHTAKQRCIDIADYKESFNTISNIEEIAYN AISF  
TWDINDEAKVFI SVNCLSTDFSSQKGVKGLPLNIQIDTYSYNNRSNKPVHRAYCQIKVFC  
DKGAERKIRDEERKQSKRKGKCTDPSSQLNAFSDVKVPLLP SHKRMDITVFKPFIDLDTQ  
PVLFI PDVHFASLQRGAHVLP IASEELEGEGSSLKRGYPYSAEDDFVI PPPAKLTRVEEPK  
RVLLYVRKESEEVFDALMLKTPSLKGLMEAISDKYDVPQEKIGKIFKKCKKGILVNMDDN  
IVKHYSNEDTFQLQMEESGGSFKLTLLTEI

>Xenopus tropicalis\_GRHL1(ENSXETP\_15285)

MTQDYDNKRPLVVLQNDGLYQRRSYTSEDEAWKSFLENPLTAATKAMMSINGDEDSAAA  
LGLLYDYKVPRERRPSAAKQEHADQEHNKRNGLPQINEQALLSEN RVQVLKTVFPFNI  
VVPLANQDVKRGHLTTPDTTAAVSI TSLPAHPIKTESQSHCFVGLQSVFHTEPTEIRIVT  
FDRTVPSDHFTSNSQPPNSQRRTPDSTFSETYKEDVPEVFFPPDL SLRMGSMNSDYVFD  
SVAGNNEFYTLEASKSLRQKPGDSTMTYLNKGQFYFVTLKEIGGNKGIHHPISKVRSVIM  
VVFADDKSREDQLRHWKYWHSRQHTAKQRCIDIADYKESFNTISNIEEIAYN AISFTWDL  
NDEGKVFISVNCLSTDFSSQKGVKGLPLNLQIDTYSYNNRSNKPVHRAYCQIKVFCDKGA  
ERKIRDEERKQSKRKVQDVKVG LPPSHKRTDITVFKPMDLDTQPVLFI PDVHFANLQRT  
THVLP IAPEDMEGELSSPGMKRV PFSPEEDFTAPP AKLPRVDEPKRVLLYVRRETEEVFD  
ALMLKTP TLKGLMEAVSDKYEVPIEKIGKIFKKCKKGILVNMDDN I KHYSNEDTFQLQI  
EESGGSYKLTLLTEI

>Danio rerio\_GRHL1(ENSDARP\_124180)

MSQEHENKRAVLVLPNDPAYNQRRPYTSEDEAWKSFLENPLTAATKAMMSINGDEDSAAA  
LGLLYDYKVPDRKRTISQKTDVLSGDVDPNKRNMLTFLQETSMQLGDNRIQVLKGVPL  
NIVLPGNQHVQDKRGLFSPDPTTVTVSIAPVASNSVKTEGSPSHGFSVTVPNPHCAEPDSH  
TVVVFDRQLPHNQFS PNTQPRTPDSTFPENPDVFSFPGDLQLRMGPI TQDDYGTFDTVSGN  
NFEYILEASKSLRQKSGDGTMTYLNKGQFYFVTLRETDNGKLLQGPICKVRSVVMVVFGE  
EKSRDDQLKHWKYWHSRQHTAKQRCIDIADYKESFNTISNIEEISYNAISFTWDISEEAK  
IFISVNCLSTDFSSQKGVKGLPLNIQIDTYSYNNRSNKP IHRAYCQIKVFCDKGAERKIR  
DEERKQSRKGC PDVNPPLGNFGADV KVP LLHKRTDMTVFRTLTD FETQPVLFI PD IHF  
STFQRHAFTAEDSEEGS AMKRLPYTEEEFGSPPNKLARMDEPKRVLLYVRRETEEVFDAL  
MLKTP TLKGLVEAISEKYEVSLEKIGKVYKCKKGILVNMDDN I KHYSNEDTFQIQMEE  
MGGMIKLTLLTEIE

>Takifugu rubripes\_GRHL1(ENSTRUP\_34820)

MSQEHDNKRAVLVQLNEPGYGGQRRSFTTEDEAWKSFLENPLTAATKAMMSINGDEDSAA  
ALGLLYDYKVPREKRTIPQNKPEALICDVDPNKRHQLQAGHSITSLHDVGMENKIQVVK  
GPFNLIQLAQDKRQFSSPDPTTVTVSIATVPNYPPIKTEVP SHSFSVTMPNCAETDGH  
GVFERQLAHNGVQFSPTQSTPPDSTFPESFKDSSQEVFSFPGELQLRMSS IASEEY PQ  
FDAAPGNNEFYTLEASKSLRQKTGDGTMTYLNKGQFYFVTLREIDNKGIQQPI TKVRSV  
MVVFGEKCRDDQLKHWKYWHSRQHTAKQRCIDIADYKESFNTIGNIEEISYNAISFTWD  
TSDEAKIFISVNCLSTDFSSQKGVKGLPLNLQIDTYSYNNRSNKP IHRAYCQIKVFCDKG  
AERKIRDEERKQSRKRVADVKVPI LQKRNDVTIFKMMTDFETQPILFI PD IHFSTFQRHG

QYTLKAASETEEGEESSSGMKRLPFSDEFASPPNKMAREEEPKKVVLLYVRKETEEVFDA  
VMLKDPKGLVEAISEKYELPLEKIGKVYKCKKGIILVHMDDNII RHYSNEDTFQITME  
ELGGMYKLTLEI

>Tetraodon nigroviridis\_GRHL1(ENSTNIP\_20455)  
MSQEHDNKRAVLVQLNEPGYGGQRRSFTTEDEAWKSFLENPLTAATKAMMSINGDEDSAA  
ALGLLDYDYKVPREKRTIPQNKPEALICDVPNKRHQIQAGHSIVPVHDAGVENKIQVVK  
GPFNILQLAQDKRGQFSSPDTTVTVSIAAVPNYQPIKTEGPHSFSVSIPNSCAETDGHV  
GVFDRQLAHNGVPFSPGAQSRTPPDSTFPESFKDGSQEVVFPDGLQLRMSSIASEEYPP  
FDAVPGNNFEYTLLEASKSLRQKTGDGTMTYLNKGQFYPIITLREIDNKTQQPITKVRVSVV  
MVFVGEKCRDDQLKHWKYWHSRQHTAKQRCLDIADYKESFNTIGNIEEISYNAISFTWD  
TNEAKIFISVNCLSTDFSSQKGVKGLPLNLQIDTYSYNNRSNKPIHRAYCQIKVFCDKG  
AERKIRDEERKQSRKRVVDVKVPIILQKRNDVTVFKMMDTFETQPILFIPDIHFSTFQRHA  
VPVSAQSSAHCSGKIRLFPFSDEFASPPSKMAREEEPKKATVLLYVRKEAEEVFDAVML  
KNPTLKGVEAISEKYELPLEKMGKVYKCKKGIILVHMDDNIIKHYSNEDTFQITVEELG  
GMYKLTLEI

>Gasterosteus aculeatus\_GRHL1(ENSGACP\_11669)  
MSQEHDNKRAVLVQLNEPGYAGQRRSFTTEDEAWKSFLENPLTAATKAMMSINGDEDSAA  
ALGLLDYDYKVPDRKRTITQSKPEALVCDVPNKRHQIQLGHPILPQEGGLENRIQVLKG  
PFNILQLAQDKRAQFASPDTTVTVSIAAVPNYTVKTEGPAHGFSVTVPNNAEATAGHV  
VYDRQLAHNVVQFSPGTHTRTPDSTFSESYKDGSEVYVFPDGLQLRMAMSPEDYTPFN  
TVLGNNFEYTLLEASKSLRQKSGDGTMTYLNKGQFYPIITLREADHKAMQQPITKVRVSVV  
VFGEEKCRDDQLKHWKYWHSRQHTAKQRCLDIADYKESFNTIGNIEEISYNAISFTWDTN  
EEAKIFISVNCLSTDFSSQKGVKGLPLNLQIDTYSYNNRSNKPIHRAYSHIKVFCDKGAE  
RKIRDEERKQTRRKVADAKVPLLQKRNDVTFFKTMDSHETQPVLFIPIHFSTFQRQFPM  
QFPPTEDVEESSGMKRLPFSDEFASPPNKMARGGEPKKVVLLYVRKEAEEVFDALMLKNP  
TLKGLVEAISEKYELPLDKGVKGYKCKKGIILVHMDDNIIKHYSNEDTFQITMEEMGGMY  
KLTLEI

>Oryzias latipes\_GRHL1(ENSORLP\_19084)  
MSQEHDNFIPSKRAVVVQLNQGYGNQRRSFTTEDEAWKSFLENPLTAATKAMMSINGDE  
DSAAALGLFDYDYVPRDKRTIHQPKTELLASDVPNKRQKSSLEICLQEANMDNRVQV  
LKTPINILQLTSDKRTHFPSPDTTVTVSIATVPNYQSVKTEGPHSFGFSVTVPNNCNDAGV  
FDRQLNQNAIQFSPSTQSRTPDSTFPESFKDGSQEEVFKHPPPQVKMFAFDQNCNNFE  
YSLEASKSLRQKTGDGTMTYLNKGQFYPIITLREVDNKGIIQQPITKVRVSVVVFVGEKCR  
EDQLKHWKYWHSRQHTAKQRCLDIADYKESFNTIDNIEEISYNAISFTWDTNNEAKIFIS  
VNCLSTDFSSQKGVKGLPLNLQIDTYSYNNRSNKPIHRAYCQIKVFCDKGAERKIRDEER  
KQSRKGVKVPDLSCNPPFADMKVPILQKRNDVTIFKMMNDLETQPVLFIPIHFSAQRH  
PMKSYNPFSAEEGEDRYVSHLLYISDEFAPPPNKMFRVDEPKKVVLLYVRKETEEVFDAL  
MLKNPTLKGLEAISEKYELPLDKIGKVYKCKKGIILVHMDDNIIKHYSNEDTFQITMED  
QGGTYKLTLEI

>Homo sapiens\_GRHL2(ENSP\_251808)  
MSQESDNNKRLVALVPMPSDPPFNTRRAYTSEDEAWKSYLENPLTAATKAMMSINGDEDS  
AAALGLLDYDYKVPDRKRLLSVSKASDSQEDQEKRNCLGTSEAQSNLSGGENRVQVLKTV  
PVNLSLNDHLENSKREQYSISFPESAIIPVSGITVVKAEFTPVFMAPPVHYPRGDGE  
EQRVVIQEQTQYDVP SLATHSAYLKDDQRSTPDSTYSESFKDAATEKFRSASVGAEYMY  
DQTSSTGFQYTLLEATKSLRQKQEGPMTYLNKGQFYAITLSETGDNKCFRHPISKVRVSVV  
MVFVSEDKNRDEQLKYWYWHSRQHTAKQRVLDIADYKESFNTIGNIEEIAYNVAVSFTWD  
VNEEAKIFITVNCLSTDFSSQKGVKGLPLMIQIDTYSYNNRSNKPIHRAYCQIKVFCDKG  
AERKIRDEERKQNRKKGQASQTQCNSSSDGKLAAPLQKSDITYFKTMDLHSPVLF  
FIPDVHFANLQRTGQVYNTDDEREGGSVLVKRMFRMEEFGPVPKQMKKEGTRKRVLL  
YVRKETDDVFDALMLKSPTVKGLMEAISEKYGLPVEKIAKLYKSKKGIILVNMDDNIEH  
YSNEDTFILNME SMVEGFKVTLMEI

>Gorilla gorilla\_GRHL2(ENSGGOP\_27105)  
MSQESDNNKRLVALVPMPSDPPFNTRRAYTSEDEAWKSYLENPLTAATKAMMSINGDEDS  
AAALGLLDYDYKVPDRKRLLSVSKASDSQEDQEKRNCLGTSEAQSNLSGGENRVQVLKTV  
PVNLSLNDHLENSKREQYSISFPESAIIPVSGITVVKAEFTPVFMAPPVHYPRGDGE  
EQRVVIQEQTQYDVP SLATHSAYLKDDQRSTPDSTYSESFKDATTEKFRSASVGAEYMY

DQTSSGTFQYTLLEATKSLRQKQEGPMTYLNKGQFYAITLSETGDNKCFRHPISKVRSVV  
MVFSEDKNRDEQLKYWKYWSRQHTAKQRVLDIADYKESFNTIGNIEEIAYNVAVSFTWD  
VNEEAKIFITVNCCLSTDFSSQKGVKGLPLMIQIDTYSYNNRSNKPIHRAYCQIKVFCDKG  
AERKIRDEERKQNRKKGKQASQTQCNSSSDGKLAAIPLQKKS DITYFKT M PDLHSQPVL  
FIPDVHFANLQRTGQVYNTDDEREGGSVLVKRMFRPMEEEFGPVP SKQMKEEGTKRVLL  
YVRKETDDVFDALMLKSPTVKGLMEAISEKYGLPVEKIAKLYKKS KKGILVNMDDNIEH  
YSNEDTFILNME SMVEGFKVTLM EI

>Mus musculus\_GRHL2(ENSMUSP\_22895)

MSQESDNNKRLVALVPMPSDPPFNTRRAYTSEDEAWKSYLENPLTAATKAMMSINGDEDS  
AAALGLLDYKYVPRDKRLLSVSKASDSQEDQDKRNCLGTSEAQINLSGGENRVQVLKTV  
PVNLCLSQDHMENS KREQYSV SITESSAVI PVSGITVVKAE DFTPVFMAPPVHYPRADSE  
EQRVVI FEQTQYDLPSIASHSSYLKDDQRSTPDSTYSESFKDGASEKFRSTSVGADEYTY  
DQTGSGTFQYTLLEATKSLRQKQEGPMTYLNKGQFYAITLSETGDNKCFRHPISKVRSVV  
MVFSEDKNRDEQLKYWKYWSRQHTAKQRVLDIADYKESFNTIGNIEEIAYNVAVSFTWD  
VNEEAKIFITVNCCLSTDFSSQKGVKGLPLMIQIDTYSYNNRSNKPIHRAYCQIKVFCDKG  
AERKIRDEERKQNRKKGKQASQAQCNNSSDGKMAA I PLQKKS DITYFKT M PDLHSQPVL  
FIPDVHFANLQRTGQVYNTDDEREGSSVLVKRMFRPMEEEFGPTPSKQI KEENVKRVLL  
YVRKENDDVFDALMLKSPTVKGLMEALSEKYGLPVEKITKLYKKS KKGILVNMDDNIEH  
YSNEDTFILNME SMVEGFKITLM EI

>Felis catus\_GRHL2(ENSFCAP\_4592)

LNKEQSSTKRLVALVPMPSDPPFNTRRAYTSEDEAWKSYLENPLTAATKAMMSINGDEDS  
AAALGLLDYKYVPRDKRLLSVSKASDSQEEPDKRNCLGTTEAQNNTGGENRVQVLKTV  
PVNLSLNQDHL ENSKREQYSTNISESPAI I PVSGITVVKAE DFTPVFMAPPVHCPRGDGE  
EQRVLI FEQTQYGVPSMASHSTYLKDDQRSTPDSTYSESFKDGTA EKFRSASVGAEEYMY  
DQASSGTFQYTLLEATKSLRQKQEGPMTYLNKGQFYAITLSETGDNKCFRHPISKVRSVV  
MVFSEDKNRDEQLKYWKYWSRQHTAKQRVLDIADYKESFNTIGNIEEIAYNVAVSFTWD  
VNEEAKIFITVNCCLSTDFSSQKGVKGLPLMIQIDTYSYNNRSNKPIHRAYCQIKVFCDKG  
AERKIRDEERKQNRKKGKQGPSQTQCNSSSDGKLAAIPLQKKS DITYFKT M PDLHSQPVL  
FIPDVHFANLQRTGQVYNTDDEREGSSVLVKRMFRPMEEEFGPAPSKQMKEEGMKRVLL  
YVRKETDDVFDALMLKSPTVKGLMEAISEKYGLPVEKIAKLYKKS KKGILVNMDDNIEH  
YSNEDTFILNME SMVEGFKITLM EI

>Xenopus tropicalis\_GRHL2(ENSXETP\_14534)

MSQETDNKRLVVLV PNDVFNPRRAYTSEDEAWKSYLENPLTAATKAMMSINGDEESAAA  
IGLLLDYKYVPREKRLLSLNKINEGHEDQDKRNCLPANETPSNLSTGENRVQVLKTVPVN  
LSLNNDTVESSNREKYTTSLSESPQAPASAVTVVKAEEFTPVFMAPSVPYRSDGEEPRG  
VIFEQTHTFGVHSITTHSDYLNKDDQRSTPDSTYNESFKETTEIFVPSQKYRTPSVGTEEF  
YEQTASSTFQYTLLEATKSLRQKQEGPMTYLNKGQFYAITLSETGANKCFRHPISKVRSV  
IMVFSEDKNRDEQLKYWKYWSRQHTAKQRVLDIADYKESFNTIGNIEEIAYNVAVSFTW  
DVNEEAKIFITVNCCLSTDFSSQKGVKGLPLMIQIDTYSYNNRSNKPIHRAYCQIKVFCDK  
GAERKIRDEERKQNRKKGKQAAQAQCNN S ADGKLSAVPLQKKS DITFFKTMTDL DVQPV  
LFIPDVHFGNLQRTGQVYNTDDDI E GSGVLVKRLLRPVDEDY GPPAPKQMKEGSRKRVLL  
YVRKETDEVF DALMLKYPTVKGLLEAISEKYGI PVEKIVKIYKKS KKGILVNMDDNIEH  
YSNEDTFILNVE SLAEQGYKITL TEI

>Takifugu rubripes\_GRHL2(ENSTRUP\_4868)

MSQETDNKRLVVVPNESSYPSVRRAYTSEDEAWRSYLENPLTAATKAMMSINGDEDSAN  
ALGLLDYKYVPEKRLLPVSKVSEITEEQEKRSTLTSNPSSQSEAESVDNHVQVLKSV  
VNL SLSTEPQEA KREPFTGSSG PAGAAGDGVSSTLTVVKAEMYAPVFMAGTGLHYRMEEE  
EPASRV IYEHNPDVTVGHSSYVKEDQRSPPDSPYEEERDGTDDFLFPQERICRIKSF  
GFNSVVGACSDSFQYTL DATRSLRQKQGEVPMTYLNKGQFYAVTLNELSANKRLRQPI SK  
VRSVIMVFSEDKNRDEQLKYWKYWHARQHTAKQRVLDIADYKESFNTISNIEEIAYNAI  
SFTWDVNEEAKIFITVNCCLSTDFSSQKGVKGLPLMIQIDTYSYNNRSNKPLHRAYSQIKV  
FCDKGAERKIRDEERKLLRKKSKEGKTNPTVQLRMFVSSGKDGGVGVITIPKKS DITFFK  
TLTNLEAQPVLFI PDVHFGNLQRAGQVFAFNTEEIERDGGVLVKRMFRPSDEDLCPSPHK  
QLKEDTQKRVLVYVRKETDEVFDALMLKSPTLGLLMDAISEKYGVPTERIAKVYKKS KKG  
ILVNMDDNIEHYSNEDTFILDIDSYADALKITL TEI

>Tetraodon nigroviridis\_GRHL2(ENSTNIP\_12011)

MSQETDSKRLVVVVPNESSFPVRRAYTSEDEAWRSYLENPLTAATKAMMSINGDEDSAN  
ALGLLYDYYKVPKEKRLLPVSKVSETTDEQTKRSALASNPSPGQSVAEAVDNHVQVLKSV  
PVNLSLSTEPQEAKEPFTALTVVKAEMYAPVFMGTGLHYRMEKEEEEQASRVIYEQNPFF  
EATTGSHTSYVKEDQRSPPDPSPFQEEQDGSQAQKYHPPSALVTEDFLFPQEGVDSFYTLTD  
ATRSLRQKQEGEPMTYLNKGQFYAVTLNELSANKRLRQPI SKVRSVIMVVFSEDKNRDEQ  
LKYWKYWHARQHTAKQRVLDIADYKESFNTISNIEE IAYNAISFTWVDVNEEAKIFITVNC  
LSTDFSSQKGVKGLPLMIQMDTYSYNNRNRPLHRAYSQIKVFCDKGAERKIRDEERKLL  
RKKSKGLGAEARADVGKGGVGMVAVPKKSDTTFKMTNLEAQPVLFIPDVHFGNLQRA  
GQVFAFNTEEMEREGLLVVKRMFRPSDEDLCPSPHKQLKEETQKRVLLYVRKEADEVFDA  
LMLKSPTLRGLMDAISEKYGVPTERIAKVYKSKKGI LVMDDNII EHYSNEDTFILDID  
SYADALKITLTEI

>Gasterosteus aculeatus\_GRHL2(ENSGACP\_4851)

MSQETDNNNNKRLVVVVPNESSYPVRRAYTSEDEAWRSYLENPLTAATKAMMSINGDED  
SANALGLLYDYYKVPKEKRLLPVVKVLEITEEQKRSALPGNPDSQSEAVTDNRVQVLK  
SVPVNLSTNTEPQEHKREHFSSLTEAAPGNNGSSAAAVKAEAYAPVFMGTGAGLHYRGE  
SSRVIYEQAAYEVTTVSHSSYGKEDQLSPDPSYAEERDGMTIKKFHAPSSLATEDFLH  
QEGVDGFQYTLTDATRSLRQKQEGEPMTYLNKGQFYVTLNELSASKRLRHPISKVRVSVV  
VVFSEDKNRDEQLKYWKYWHSRQHTAKQRVLDIADYKESFNTIGNIEE IAYNAISFTWVD  
NEEAKIFITVNCSTDFSSQKGVKGLPLMIQIDTYSYNNRNRNKPLHRAYSQIKVFCDKGA  
ERKIRDEERKLFRRKSKDIAMSCFCNNKDGGVGVI TPKKADTTYFKTMSDLEAQPVLF  
IPDVHFGNLQRAQGVFTFNTEEIEREGSVLVKRMFRSDEDVCPSPHKQIKEETHKRVLL  
YVRKETDEVFDA LMLKSPTLRGLMDAISEKYGVATERIANVYKSKKGI LVMDDNII EH  
YSNEDTFILSIDSYADAYKVTLMEI

>Oryzias latipes\_GRHL2(ENSORLP\_3636)

MSQETDKFSDSKRLVVVVPNENSPAMRRAYTSEDEAWRSYLENPLTAATKAMMSINGDE  
DSANALGLLYDYYKVPKEKRLLPKVAEVEIEEQEKRSMLPSNNSNQSEPETLDNRVQVL  
KSLPVNLSVNTEPQEAKEPFTSTSTEPGSADAGSPPHAMVKAEGFSPVFMGAGLHYRGE  
GEEPTRVVFQSPYEATTVSHSTYLKEDQKSPDPSYDEDTDGHSKQYHSSSLAPDDF  
LFHEAGVDSFYTLTDATRSLRQKQEGEPMTYLNKGQFYAVTLNELSANKRLRHPISKVRV  
VIMVVFSDKNRDEQLKYWKYWHSRQHTAKQRVLDIADYKESFNTINNIEE IAYNAISFT  
WDVNEEAKLFFIVFLFLSSSSVSSGVSHLPHHNRSGEFAGQSNVAVRPLHRLFCHLSVFFP  
SQGAERKIRDEERKLFRRKSKGMTPSVSYINESKDSNVGVI TPKKSDTTYFKTMDLEA  
QPVLFIPDVHFGTLQRAQGVFAFNTEEMDREGGVLVVKRMFRPSDEDLCPSPKQIKEETH  
KRVLLYVRKETEEVFDA LMLKSPTLRGLMDAISEKYGVPTERIAKVYKSKKGI LVMDD  
NII EHYSNEDTFILNIESCADSFKIILTEI

>Homo sapiens\_TFCP2(ENSP\_257915)

MAWALKPLADEVIESGLVQDFDASLSGIGQELGAGAYSMSDVLALPIFKQEESLPPDN  
ENKILPFQYVLC AATSPAVKLDHETLTLYLNQGSYEIRMLDNRKLGELPEINGKLVKSI  
RVVVFHRRRLQYTEHQLEGWRRWRPGDRILDIDIPMSVGIIDPRANPTQLNTVEFLWDPA  
KRTSVFIQVHCISTEFTMRKHGGEKGVPPFRVQIDTFKENENGEYTEHLHSASCQIKVFKP  
KGADRKQKTDREKMEKRTPEHEKEYQPSYETTILTECSPWPEITYVNNSPSPGFNSSHSS  
FSLGEGNGSPNHQPEPPPVTDNLLPTTTPQEAQQWLHRNRSTFTRLFNTFSGADLLKL  
TRDDVIQICGPADGIRLFNALKGRMVRPRLTIYVCQESLQREQQQQQQQQQKHEDGDS  
NGTFFVYHAIYLEELTAVELTEKIAQLFSISPCQISQIYKQGPTGIHVLI SDEMIQNFQE  
EACFILDMTKAETNDSYHIILK

>Callithrix jacchus\_TFCP2(ENSCJAP\_32500)

MAWALKPLADEVIESGLVQDFDASLSGIGQELGAGAYSMSDVLALPIFKQEESLPPDN  
ENKILPFQYVLC AATSPAVKLDHETLTLYLNQGSYEIRMLDNRKLGELPEINGKLVKSI  
RVVVFHRRRLQYTEHQLEGWRRWRPGDRILDIDIPMSVGIIDPRANPTQLNTVEFLWDPA  
KRTSVFIQVHCISTEFTMRKHGGEKGVPPFRVQIDTFKENENGEYTEHLHSASCQIKVFKP  
KGADRKQKTDREKMEKRTPEHEKEYQPSYETTILTECSPWPEITYVNNSPSPGFNSSHSS  
FSLGEGNGSPNHQPEPPPVTDNLLPTTTPQEAQQWLHRNRSTFTRLFNTFSGADLLKL  
TRDDVIQICGPADGIRLFNALKGRMVRPRLTIYVCQESLQREQQQQQQQQQKHEDGDS  
NGTFFVYHAIYLEELTAVELTEKIAQLFSISPCQISQIYKQGPTGIHVLI SDEMIQNFQE  
EACFILDMTKAETNDSYHIILK

>Bos taurus\_TFCP2(ENSBTAP\_25713)



MAWALKLPLADEVIESGLVQDFDASLSGIGQELGAGAYSMSDVLALPIFKQEESLPPDN  
ENKILPFQYVLC AATSPAVK LHDETLTYLNQGQSYEIRMLDNRKLGELPEINGKLVKSIF  
RVVFHRRRLQYTEHQQLLEGWRWNRPGDRILDIDIPMSVGIIDPRANPNQLNTVEFLWDPA  
KRTSVFIQVHCISTEFTMRKHGGEKGVPPFRVQIDTFKENENGEYTEHLHSASCQIKVFKP  
KGADRKQKTDREKMEKRTPEHEKEYQPSYETTILTECSPWPEITYVNNNSPSPGFNSSHSS  
FSLGEGNGSPNHQPEPPPVTDNLLPTTTPQEAQQWLHRNRFSTFTRLFTNFSGADLLKL  
TRDDVIQICGPADGIRLFNALKGRMVRPRLTIYVCQESLQREQQQQQQNQKHEDGDSN  
GTFVYHAIYLEELTAVELTEKIAQLFSISPCQISQIYKQGPTGIHVLI SDEMIQNFQEE  
ACFILDTMKETNDSYHIILK

>Gallus gallus\_TFCP2(ENSGALP\_54348)

MAWALKLPLADEVIESGLVQDFDASLSGIGQELGAGAYSMSDVLALPIFKQEESLPPEN  
ENKILPFQYVLC AATSPAVK LHDETLTYLNQGQSYEIRMLDNRKIGELPEINGKLVKSIF  
RVVFHRRRLQYTEHQQLLEGWRWNRPGDRILDIDIPMSVGIIDPRANPTQLNTVEFLWDPS  
KRTSVFIQVHCISTEFTMRKHGGEKGVPPFRVQIDTFKENENGEYTEHLHSASCQIKVFKP  
KGADRKQKTDREKMEKRTPEHEKEYQPSYETTILTECSPWPEITYVNNAPSPGFNSSHSS  
FSIGEGNGSPNHQPEPPPIADNLLPTSTPQEAQQWLHRNRFSTFSRFLFRNFSGADLLKL  
TREDVIQICGPADGIRLFNALKGRMVRPRLTIYVCQESQQLQELQKQKHEDGDAVSTFFV  
YHAIYLEELTAVELTEKLAQLFSISSQQISQIYKQGPTGIHVLI SDEMIQNFQDESCFVL  
DTMKAETNDSYHIILK

>Anolis carolinensis\_TFCP2(ENSACAP\_12164)

MAWALKLPLADEVIESGLVQDFDASLSGIGQELGAGAYSMSDVLALPIFKQEESNLPPDN  
ENKILPFQYVLC AATSPAVK LHDETLTYLNQGQSYEIRMLDNRKMGELPELNGKLVKSIF  
RVVFHRRRLQYTEHQQLLEGWRWNRPGDRILDIDIPMSVGIIDPRANPTQLNTVEFLWDPS  
KRTSVFIQVHCISTEFTMRKHGGEKGVPPFRVQIDTFKENENGEYTEHLHSASCQIKVFKP  
KGADRKQKTDREKMEKRTPEHEKEYQPSYETTILTECSPWPEITYVNNVSPSPGFSSSHSS  
FSISEGNGSPNHQPEPPPIADNLLPTSTPQEAQQWLHRNRFSAFSRFLFTNFSGADLLKL  
TREDVIQICGPADGIRLFNALKGRMVRPRLTIYVCQESQQLSEQQKHEDGDAANSTFFVY  
HAIYLEELTAVELTEKIAQLFSISAQQISQIYKQGPTGIHVLI SDEMIQNFQDESCFILD  
TMKAETNDSYHIILK

>Xenopus tropicalis\_TFCP2(ENSXETP\_21218)

MAWALKLPLADEVIESGLVQDFDASLSGIGQELGAGAYSMSDVLALPIFKQEESLPSEN  
ENKILPFQYVLC TATSPAVK LHDETLTYLNQGQSYEIRMLDNRKMGELPELNGKLVKSIF  
RVVFHRRRLQYTEHQQLLEGWRWNRPGDRILDIDIPMSVGIIDPRANPTQLNTVEFLWDPA  
KRTSVFIQVHCISTEFTMRKHGGEKGVPPFRVQIDTFKENENGEYTEHLHSASCQIKVFKP  
KGADRKQKTDREKMEKRTPEHEKEYQPSYETTILTECSPWPEITYVSNAPSPGFNSSHNS  
FPIGEGNGSPNHQPEPPPIADNLLPTSTPQEAQQWLHRNRFSAFSAFRLFTNFSGADLLKL  
TREDVIQICGPADGIRLFNALKGRMVRPRLTIYVCQESQQLREQQQKHHE  
NGEAGNSAFYVYHAIYLEEMTAIELTEKIAQLFSISPHQINQIYKQGPTGIHVLI SDEIM  
FNHLICFVLLPLAETNDSYHIILK

>Danio rerio\_TFCP2(ENSDARP\_121618)

MAWALKLPLADEVIESGLVQDFDASLSGIGQELGAGAYSMSDVLALPIFKQEESNLPPES  
DNKILPFQYVLC AATSPAVK LHDETLTYLNQGQSYEIRMLDNRKMGELPEINGKLVKSII  
RVVFHRRRLQYTEHQQLLEGWRWNRPGDRILDIDIPMSVGVVDPRANPTQLNTVEFLWDPS  
KRTSVFIQVHCISTEFTMRKHGGEKGVPPFRVQIDTFKENENGEYTEHLHSASCQIKVFKP  
KGADRKQKTDREKMEKRAPQEKEYQPSYETTILTECSPWPEATYVNNNSPSPGFNSTHNS  
FPVTEGNGSPSHQPEPVAQLADVLSCHLLRRESESNQNLPTATPQEAQQWLHRNRFSP  
FCRLFTNFSGADLLKLTREDVIQICGPADGIRLFNALKGRVVRPRLTIYVCQESQQAREQ  
HQKHENGDTNNTFFVYHAIYLEDLTAVELTEKLAQLFSISPRQISQIFKQGPTGIHVLI  
SDEMIQNFQDEVCFVLDTMKAETNDGYHIILK

>Takifugu rubripes\_TFCP2(ENSTRUP\_38080)

MAWALKLPLTDEVIESGLAQDFDASLSGIGQELGAGAYSMSDVLALPIFKQEESLPSEN  
ENMILPFQYVLCAPTSPAVK LHDETLTYLNQGQSYEIRMLDNRKIGELPEITGKLVKSII  
RVVFHRRRLQYTEHQQLLEGWRWNRPGDRILDIDIPMSVGIIDPRANPTQLNTVEFLWDPS  
KRTSVFIQVHCISTEFTMRKHGGEKGVPPFRVQIDTFKENENEEYTEHLHSASCQIKVFKP  
KGADRKQKTDREKMEKRAPQEKEYQPSYETTILTECSPWPEATYVNNNSPSPGFNNTHNS  
FPVSENGSPNHQPEPVVQVIDISKVSFCLQNLPSATPQDAQQWLLRNRFSPFCRLFTN

FSGADLLKLTREDVIQICGPADGIRLFNALKGRVVRPRLTIYVCQESQQTREQQVKHENG  
DAAINTFFVYHAIYLEEPTAAELTEKLAQLFNISPIQISQIFKQGPTGIHVLVSDEMIQN  
FQDEVCFVLDTMKDDTNDGYHIILK

>Tetraodon nigroviridis\_TFCP2(ENSTNIP\_15497)  
MAWALKLPLTDEVIESGLAQDFDASLSGIGQELGAGAYSMSDVLALPIFKQEESLPS  
ENMILPFQYVLCAPTS PAVKLDHDETLTYLNQGQS YEIRMLDNRKIGELPEITGKMKVKSII  
RVVFDHRRRLQYTEHQQLGWRWNRPGDRILLDDIPMSVGIIDPRANPTQLNTVEFLWDPS  
KRTSVFIQVHCISTEFTMRKHGGEKGVPPFRVQIDTFKENENEEYTEHLHSASCQIKVFKP  
KGADRKQKTDREKMEKRAPQEKQYQPSYETTILTECSPWPEATYVNNSPSPGFNTHNS  
FPVAEGNGSPNHQPEPVPAIDNLLPSATPQDAQQWLLRNRFSPFCRLFTNFSGADLLK  
LTREDVIQICGPADGIRLFNALKGRVVRPRLTIYVCQESQQTREQQVKHENGDAANTFFV  
YHAIYLEELTAAELTEKLAQLFNISPRQISQIFKQGPTGIHVLVSDEMIQN FQDEVCFV  
LDTMKDDTNDGYHIILK

>Gasterosteus aculeatus\_TFCP2(ENSGACP\_14466)  
MAWALKLPLTDEVIESGLVQDFDASLSGIGQELGAGAYSMSDVLALPIFKQEESNLPPDN  
ENKILPFQYVLCAPTS PAVKLDHDETLTYLNQGQS YEIRMLDNRKIGELPEINDKMAKSII  
RVVFDHRRRLQYTEHQQLGWRWNRPGDRILLDDIPMSVGIIDPRANPTQLNTVEFLWDPS  
KRTSVFIQVHCISTEFTMRKHGGEKGVPPFRIQIDTFKENENEEYTEHLHSASCQFKVFKP  
KGADRKQKTDREKMEKRTPOEKEKYQPSYETTILTECCPWPEVTYVGNPSPGFNSTPNS  
FPVPEGNGSPNHQPEPVVQVADNLLPTATPQDAQQWLLRNRFSPYCRLFTNFSAGADLLK  
LTREDVIQICGPADGIRLFNALKGRVVRPRLTIYVCQESQQPREQQPKHENGDAANTFFV  
YHAIYLEELTAAELTEKLAQLFNISPRQINQIFKQGPTGIHVLVSDEMIQN YQDEVCFV  
LDTMKDDTNDGYHIILK

>Oryzias latipes\_TFCP2(ENSORLP\_19587)  
MAWALKLPLTDEVIESGLVQDFDASLSGIGQELGAGAYSMSDVLALPIFKQEESNLPADN  
ENKILPFQYVLCAPTS PAIKLDHDETLTYLNQGQS YEIRMLDNRKIGELPEITGKMKVKSII  
RVVFDHRRRLQYTEHQQLGWRWNRPGDRILLDDIPMSVGIIDPRANPTQLNTVEFLWDPS  
KRTSVFIQVHCISTEFTMRKHGGEKGVPPFRIQIDTFKENESGEYTEHLHSASCQVKVFKP  
KGADRKQKTDREKMEKRTPOEKEKYQPSYETTILTECSPWPEVTYVNNSPSPGFNSSHNS  
FPVAEGNGSPSHQPEPVVQVADNLLGTATPQDTQQWLLRNRFSPFCRLFTNFSVGADLLK  
LTREDVIQICGPADGIRLFNALKGRAVRPRLTIYVCQESQQAREQQPKHENGDAASTFFV  
YHAIYLEELTSTELTEKLAQLFNISPRQINQIFKQGPTGIHVLVSDEMIQN YQDEVCFV  
LDTMKDETS DAYHIILK

>Homo sapiens\_UBP1(ENSP\_283628)  
MAWVLMDEVIESGLVHDFDASLSGIGQELGAGAYSMSDVLALPIFKQEDSSSLPLDGETE  
HPPFQYVMCAATSPAVKLDHDETLTYLNQGQS YEIRMLDNRKMGDMPEINGKLVKSIIRVV  
FDHRRRLQYTEHQQLGKWKWNRPGDRILLDDIPMSVGIIDTRTNPSQLNAVEFLWDPKRT  
SAFIQVHCISTEFTPRKHGGEKGVPPFRIQVDTFKQENGEYTDHLHSASCQIKVFKPKGA  
DRKQKTDREKMEKRTAHEKEKYQPSYDTTILTEMRLPEIIE DAVEHEQKSSKRTLPADY  
GDSLAKRGSCSPWDAPTAYVNNSPSPAPTFTSPQQSTCSVPDSNSSSPNHQGDGASQTS  
GEQIQPSATIQUETQQWLLKNRFSYTRLFNSFGADLLKLTKEDLVQICGAADGIRLYNS  
LKRSRVRPRLTIYVCREQPSSTVLQGGQQAASSASENGSGAPYVYHAIYLEEMIASEVAR  
KLALVFNIPLHQINQVYRQGP TGIHILVSDQMVQNFQDESCFLFSTVKAESSDGIHIILK

>Pan troglodytes\_UBP1(ENSPTRP\_25410)  
MAWVLMDEVIESGLVHDFDASLSGIGQELGAGAYSMSDVLALPIFKQEDSSSLPLDGETE  
HPPFQYVMCAATSPAVKLDHDETLTYLNQGQS YEIRMLDNRKMGDMPEISGKLVKSIIRVV  
FDHRRRLQYTEHQQLGKWKWNRPGDRILLDDIPMSVGIIDTRTNPSQLNAVEFLWDPKRT  
SAFIQVHCISTEFTPRKHGGEKGVPPFRIQVDTFKQENGEYTDHLHSASCQIKVFKPKGA  
DRKQKTDREKMEKRTAHEKEKYQPSYDTTILTEMRLPEIIE DAVEHEQKSSKRTLPADY  
GDSLAKRGSCSPWDAPTAYVNNSPSPAPTFTSPQQSTCSVPDSNSSSPNHQGDGASQAS  
GEQIQPSATIQUETQQWLLKNRFSYTRLFNSFGADLLKLTKEDLVQICGAADGIRLYNS  
LKRSRVRPRLTIYVCREQPSSTVLQGGQQAASSASENGSGAPYVYHAIYLEEMIASEVAR  
KLALVFNIPLHQINQVYRQGP TGIHILVSDQMVQNFQDESCFLFSTVKAENSDGIHIILK

>Mus musculus\_UBP1(ENSMUSP\_81946)  
MAWVLSMDEVIESGLVHDFDSSLSGIGQELGAGAYSMSDVLALPIFKQEDSSLSLEDEAK

HPPFQYVMCAATSPAVKLDHDETLTYLNQGGQSYEIRMLDNRKMGDMPELSGKLVKSIIRVV  
FHDRRLQYTEHQQLEGWKWNRPDRLDLDDIPMSVGIIDTRTNPSQLNAVEFLWDPKAKRT  
SAFIQVHCISTEFTPRKHGGEKGVFPRIQVDTFKQENGEYTDHLHSASCQIKVFKPKGA  
DRKQKNDREKMEKRTAHEKEKYQPSYDTTILTEMRLEPIEDAVEHEQKKSSKRTLPA  
GDSLAKRGSCSPWPDPTAYVNNNSPAPTFTSSQPSTCSVPDSNSSSPNHQGDGAAQAS  
GEQIQPSATTQETQWLLKNRFSSYTRLFNSFGADLLKLTKEDLVQICGAADGIRLYNS  
LKRSRVRPRLTIYVCQEQPSSALQGGPQAAGSGGESGGTTPSVYHAIYLEEMVASEVAR  
KLASVFNIPFHQINQVYRQGPTGIHILVSDQMVQNFQDETCFLFSTVKAENNDGIHILK

>Canis familiaris\_UBP1(ENSCAFP\_6873)

MAWVLKMDDEVIESGLVHDFDASLSGIGQELGAGAYSMSDVLALPIFKQEDSSLPDGETK  
HPPFQYVMCAATSPAVKLDHDETLTYLNQGGQSYEIRMLDNRKMGDMPEITGKLVKSIIRVV  
FHDRRLQYTEHQQLEGWKWNRPDRLDLDDIPMSVGIIDTRTNPSQLNAVEFLWDPKAKRT  
SAFIQVHCISTEFTPRKHGGEKGVFPRIQVDTFKQENGEYTDHLHSASCQIKVFKPKGA  
DRKQKTDREKMEKRTAHEKEKYQPSYDTTILTEMRLEPIEDAVEHEQKKSSKRTLPA  
GDSLAKRGSCSPWPDPTAYVNNSSPSTAPAFSTPQQGTCVPSNSSSPNHQGDGVSQAC  
SEQLQPSATIQETQWLLKNRFSSYTRLFNSFGADLLKLTKEDLVQICGAADGIRLYNS  
LKRSRVRPRLTIYVCQEQPSSSPLQGGQPAGSGGDSGSGTPYVYHAIYLEEMVASEVARK  
LAMVFNIPFHQINQVYRQGPTGIHILVSDQMVQNFQDESCFLFFTVKAENGDGIHIVLK

>Ciona intestinalis\_(ENSCINP\_23332)

YTSEDEAWRSYLENPLTAATTAMMSIHGDEDSAAAALGILYDYKVPREKRILTYQPNTGN  
RDKQTRFKLCSKTSVQQLNLPNPINLNLRLYLKDCYIKRDCQKQSLFCRSISTYSKCV  
SSQEGNISSTGLTSEDVSAMTPVISAASTAVHGDSSLEITVRDHSTEEVNGLGEYLNIGR  
VQEDIRQLTPDSAYSEAKDSPPQMSQVYNFALTCFFNVLYSREYFEYAMEAPKSLKQKDG  
EPTMSYINKGQFYCISLRECAWRPWRYNTRVTSVQIVFGDGKPEDEQLRHWKYWHARQ  
HTAKQRIIDIADYKESCMISDIDEFAHNAISFNWDVNDVAKIFVSCNCLSTDFSAQKGIK  
GLPLLLQIDTYMDNRRGAAPAHRGMCQKLVFCDKGAERKIRDEERKAMRKRQRSGMSPSI  
TTPPTSAAPAGGAPGKRQEVVYFKTVVDGITPSVYFVPEIFVRRNSMTQHLYDFSDPLR  
GSTKRSLMSSLSEGEFPPSNKVLKRSEDRVLLYVRRRETDVYDGMILCDPTLEGLKRAL  
EKEYGIPVQKMSKVLKKSRRKGIILVNDVNDNIVRHYSNEDTFIIAVETETIDNDVTHKITLS  
VV

>Ciona savignyi\_(ENSCSAVP\_18633)

PPINPLYTSEDEAWRSYLENPLTAASTAMMSIHGDEDSAAAALGILYDYKVPREKRILAY  
QPSNKEKQNCRTTSINPQSENVNSGNQIRILTFQTWSQINVRDHTPDELTSPLLKNFPH  
SDVITLSTVRPELSALCEVSAHLFIYMFVAVLHVNGLGEYLNIGRTQDIKQLTPDSTYSE  
AKESPPQITQPFQSPSSVATLPSMFSPTSEKYFEYAMEAPKSLKQKDGEPMSYINKGQF  
YCISLRECSGRPWRYQNSRVTSVQIVFGDGKPEEQQLSHWKYWHARQHTAKQRIIDIAD  
YKESCMISDIDEFAHNAISFSWDVNDVAKIFVSCNCLSTDFSAQKGIKGLPLLLQIDTYI  
DNRRGVAPAHRGMCQKLVFCDKGAERKIRDEERKAIKRQRSAQAPLRSPSITPPPAAGA  
PGGTPGKRLDVVYFRVFDYITPSVYFVPEVYRRIINNWRKFRVHYRVTDDISPSFILL  
KSELTLLQIKLPMPKLSNNDVLLYVRRKENDEVYDGMILRESTVKGKQAIEKEYGIPVQ  
NISKVLKKSRRKGIILVNDVNDNIVRHYSNEDTFIIDVETETLGNVTHKITLSIV

>Branchiostoma floridae\_(XP\_002586459)

MTQEVDNSKRSVVVLQNEALYRNTYSSRDEDEAWRSYLENPLTAATTAMLNINGDEDSAAAALGLLYDYK  
VPKEKRMNANYVTRTPMGPEETDQPSRDLTMLRNVPPLADSISSGFDGHHHSSPVTTQPPATSPLTVRA  
DHHIHIHKPDHSPMIVAKPDEMVRTPDSAFSEATFKDHQEQEHDVLDGDDMSAFQVFNYNISQVSLAAAHVQ  
RRQQPELLQOVITETQIMPPEPINGVAFEYILEAPKSLRQKPGEASMSYVNGQFYAVTLTEAGSSPWR  
HHSTKVRSVIQVVFQGRSEEEQLKHWRYWHARQHTARQRIIDMADYKESTNVNIENIDEIAHNAIAFSWD  
VRETGKVFISVNCLSTDFSSQKGIKIDTYTDYFKGATPVHRAYVQIKVFCDKGAERKIRDEVRKISKKKQ  
SEEIKSQIPSHKRNELAYFKPMADLKTPPVLFVDFIPAARAPPQITQPVTFGLTTPPFDRGMKRSFSEDS  
AYSPESSPTPAKVANKSVLLYVRRKEEDVDYDALMLREPSVQGLLSAVEEYKVPNDKVSQVFKKSKKGI  
LVNIDDNIIHYCNEDTFIIEHQEETDGNIRVILTEVQDTP

>Drosophila melanogaster\_(FBpp0312214)

MALSFLSQNSGLLDLQSIQFDPPQYTHHQQQQQLLHLSHHPQHIIQQHQNQQLQQQAEQIQ  
QHQQERTLSTKFDLNLFNELDQMEFNLNRSQYQNNNNNSISNNQNSNNNTNTNGISE  
NLNQIQNRHFISGYHHQHIGSDYEQVINFDVSPNSEEQSWTDGQSKDSPGQIIVDQTIY  
LNSGSRKRRMDWDSLIGQSENSPTASQSGDLPKVAHQEKEKHKREKHSGRSSWDDIG

FDLNAEFNSNSYLNNENFLSFSPTLTTLLKQEPQTDQIKPSPKVSLDNASASPSIAIAKLD  
EVQNSPSPQAIISGQDSANGSGSAANGKHDVNSGLACGCGSPQGSPLANAEYELNEKKGKPOQ  
LSVLDPAKIEIGSANGATHAEDHKFQYILAAATS IATKNNEETLTYLNQGGQSYEIKLKKI  
GDLISLYRDKILKSVIKICFHERRLQFMEREQMQQQSRPGERIEVVDVPLSYGLCHVVSQ  
PLSSGSLNLTVEIFWDPKKEVGVYIKVNCISTEFTPKKHGGGKGVFPFRLQIETYIENTNSA  
TASGSGSNNSAIASGSGSSGSAAPASPRTSPSAGSNGKQAVHAAACQIKVFKLKGADRK  
HKQDREKIQKRQSEQEKQFQPSYECTIMNDISLDLMSATTTGCYSPEYMKLWPNSPVHI  
PKYDGMPLFPAPSAASPATSSSPIAINSVTSTNSPTLKLMDATNMVSPQHVPADMDYDYSQ  
IMPESTPSQVTQWLTNHRLTAYLSTFAQFSGADIMRMSKEDLIQICGLADGIRMFNILRA  
KTIAPRLTLYASVDGCSYNAIYLLSNTAKELQQKLFKMPGFYEFMAKASAEQENGAGGAAT  
AAAAALFNWGMHSHKSYSGSGSNIFNDANKSCVYISGSPGILVTTITDEVLNNEIKDGSLYA  
LEVQAGKVILKLINKQDNN

>Drosophila melanogaster\_ (FBpp0289766)  
MSTSTATTSVITSNELSLSGHAHGHHGHAHQHLQHHTHSRLGVGVGVGILSDASLSPIQGS  
GGHSGGGNTNSSPLAPNGVPLLTMMHRSPDSPQPELATMTNVNVLDLHTDNSKLYDKEAV  
FIYETPKVVMVPADGGGNNNSDEGHAIIDARIAAQMGNAQQQQQQQQTEHQPLAKIEFDE  
NQIIRVVGPNGEQQQIISREIINGEHHILSRNEAGEHILTRIVSDPSKLMPPNDNAVATAM  
YNQAQKMNNDHGQAVYQTSPLPLDASVLHYSGGNDSNVIKTEADIYEDHKKHAAAAAAAAA  
GGGSIITYTSDPNGVNVKQLPHLTVFPQKLDPDLYQADKHIDLIYNDGSKTVIYSTTDQKS  
LEIYSGGIDIGSLVDGQVVVQAGLPHYATTGAGGQPVYIVADGALPAGVEEHLQSGKLNQ  
QTTPIDVSGLSQNEIQGFLLGSHPSSTVSTTGVVSTTTISHHQQQQQQQQQQQQQQQ  
QHQQQQQHPGDIVSAGVGSTGSIVSSAAQQQQQQQLISIKREPEDLRKDPKNGNIAGAA  
TANGPGSVITQKILHVDAPTASEADRPSTPSSINSTENTESDSQSVSGSESGSPGARTT  
ATLEMYATTGGTQIYQLTSHPSTASGAGGAGPAGAAGGGVSMQAQSPSPGPYITANDY  
GMYTASRLPPGPPPTSTTTFIAEPSYREYFAPDGGGYVPASTRSLYGDVDVSVSQPGG  
VVTYEGRFAGSVPPPATTTVLTSVHHHQQQQQQQQQHQQQQQQQHHQQQQHHSQDGSN  
GGATPLYAKAITAAGLTVLDLSPDSGIGTDAITPRDQTNIIQSFQDYTELCQPGTLIDANG  
SIPVSVNSIQQRITAVHGSQNSPTTSLVDSTNGSTRSRPWHDFGRQNDADKIQIPKIFTN  
VGFYHLESPISSQRREDDRITYINKGQFYGITLEYVHDAEKPIKNTTVKSVIMLMFRE  
EKSPEDDEIKAWQFVHRSRQHSVKQRILDADTKNSVGLVGCIEEVSHNAIAVYWNPLESSAK  
INIAVQCLSTDFSSQKGVKGLPLHVQIDTFEDPRDTAVFHRGYCQIKVFCDKGAERKTRD  
EERRAAKRKMTATGRKKLDELHYHPVTDRESEFYGMQDFAKPPVLFSPAEDMEKSFYGHETD  
SPDLKGASPFLLHGQKVATPTLKFHNNHFPDMQTDKDHILDQNMLTSTPLTDFGPPMKR  
GRMTPPTSERVMLYVRQENEEVYTPLHVVPPTTIGLLNAIENKYKISTTSINNIYRTNKK  
GITAKIDDDMISFYCNEDIFLLEVQQIEDDLVDVTLTELPNQ

>Apis mellifera\_ (XP\_006558550)  
MELQFIMDGSADALNGTIWFPNTPSPPYEQLSVVRQNRCDPIATQHAMGYHSAENSLRQDKYNSPKDSPE  
DGVQIRSSSESPQHLSPSSDNPNCCQSTLKRAGEPLSQITELEKHKHAKRDGVSNGSGQGWSTQVEE  
LAEHLAADFDGSLALAAADLATAVASYNMSEALLALPLSLTVFKQEAPSPENQQNSNLNHVSQRTINSAP  
TNNVNSVEADSNNGQTAASLHQLLYPSNEEYPTSSGNHVSSSQGSELNEDCRFQYVLAATS IAT  
KVNEETLTYLNQGGQSYEIKLKKLGLDLSAYRGKILKSTIRICFHERRLQYTEREQMLAWQRARPERLLE  
VDVPLSYGMVDVCQPSNNSVEFMWDPTKEVGVYIKVNCISTEFTPKKHGGGKGVFPFRIQVETRLPGGPR  
LHAASCQVKVFKLKGADRKHKQDRDKILRRPPHEQDKYQPSYDCTVLSDIPLDSLSSSNVITQSGGSPYA  
STEATISQSRSTISGNTSPVAVPLALSVSNPVPLVPASDAVKENVTAPALPSPAAIIPDQSCIETER  
SSCLVQLSPDASAAQTTWLRASRFNAFESTFASFASDILRLSRDDLIQICGLADGIRLFNALHASKAPT  
PKLTLYFSLDSSLRVAYLDSLSTSSALINKLLNTLSLSDRLHSLVFLGPGQIHVLVLTDELVANMKDE  
SMYFVETIKDNASERYKLLLKPSRS

>Caenorhabditis elegans\_ (Y48G8AR)  
MSFQLDQSTSVIKTAPPGRLEFKNEPIDIASSNIQDLAKMQTLDGYYQQTSLQLPQSQY  
HRMYENVYNNQIILYAQTQNFQYPTLLTNGSLAQTEWRGQMDTSAYSNTGYSRSSTSQ  
QPQYTQQVTENERIVYKVPDMSPVDSGIGGDISILNPKKEFFTSADGGSMLESSERTL  
SHRDSPLVIPKLYNNGLFQYVLEAIPSTSVRRDDRMITYVNVKQGFYTVSLEYTPDLNKCL  
KSQTVKSLMVVFREDKTYEIEIKTWQSWHARQHVSKQRILEIDSKNSGMIGQIEEIGN  
NAVQFYWNPSDPSGVRISIAVQCLSTDFSTQKGVKGLPLHVQIDTYDGENDKVPFHRGYC  
QIKVFCDKGAERKLRDEDKRAQKRKVQEYTAGALPGGRKSDGEYHDQCERSEFYHMREL  
DKPAALFIAPEEFEPYVDSTSLSFDMSEIEPIPTKRPTSERIMLYVRKRDEQIYQPLH  
VVPASLSGLALAIANKFGADPDKMSGVYKRCAGITVKVDDEMLRLYCNEEDTFIIDVEHA  
TDGSTAATLIEVAPTNPNSYSNS

>Nematostella vectensis\_(XP\_001636486)  
MGFFGLFNRYTFILEAPTSIVQRRGDDTLTYLNKGQFYAIDFEGNFDPPSTEEDIIRVKSVVHLVFRDEK  
DPRAELEHWNYWHSQQPNPQQRAFDIDRKSCQNI DENITDQAYNAAGFTWSPHLNAKIVIRINCLSTDFS  
PQKGVKGIPLHLQIDTYEDVDNPD AEPVHRAFCQIKVFRDKGAERKNKDESKSAERR

### **Inhibitor of DNA Binding protein-ID**

>Homo sapiens\_ID1(ENSP\_365280)  
MKVASGSTATAAAGPSCALKAGKTASGAGEVVRLSEQSV AISRCAGGAGARLPALLDEQ  
QVNVLLYDMNGCYSRLKELVPTLPQNRKVSKEILQHVIDYIRDLQLELNSESEVGT PGG  
RGLPVRAPLSTLNGEISALTAEAACVPADDRILCR

>Pan troglodytes\_ID1(ENSPTRP\_59507)  
MKVASGSTATAAAGPSCALKAGKTASGAGEVVRLSEQSV AISRCAGGAGARLPALLDEQ  
QVNVLLYDMNGCYSRLKELVPTLPQNRKVSKEILQHVIDYIRDLQLELNSESEVGT PGG  
RGLPVRAPLSTLNGEISALTAEAACVPADDRILCR

>Gorilla gorilla\_ID1(ENSGGOP\_15723)  
MKVASGSTATAAAGPSCALKAGKTASGAGEVVRLSEQSV AISRCAGGAGARLPALLDEQ  
QVNVLLYDMNGCYSRLKELVPTLPQNRKVSKEILQHVIDYIRDLQLELNSESEVGT PGG  
RGLPVRAPLSTLNGEISALTAEAACVPADDRILCR

>Mus musculus\_ID1(ENSMUSP\_92019)  
MKVASGSAAAAAGPSCSLKAGRTAGEVVLGLSEQSV AISRCAGTRLPAL LDEQQVNVLLY  
DMNGCYSRLKELVPTLPQNRKVSKEILQHVIDYIRDLQLELNSESEVGT TGG RGLPVRA  
PLSTLNGEISALAAEAACVPADDRILCR

>Rattus norvegicus\_ID1(ENSRNOP\_52261)  
MKVASSSAAATAGPSCSLKAGRTAGEVVLGLSEQSV AISRCAGTRLPAL LDEQQVNVLLY  
DMNGCYSRLKELVPTLPQNRKVSKEILQHVIDYIRDLQLELNSESEVATAGGRGLPVRA  
PLSTLNGEISALAAEAACVPADDRILCR

>Bos taurus\_ID1(ENSBTAP\_21521)  
MKVASGSAAAAAGPSCALKAGKAAGGAGEVVRLSEQSV AISRCAGGPGARLPALLEEQP  
VNVLLYDMNGCYSRLKELVPTLPQNRKVSVEILQHVIDYIWDLELELNSESHVGT PGG  
GLPARAPLSTLNGEIGALAAEAACVPADDRILCR

>Loxodonta africana\_ID1(ENSLAFP\_17611)  
MKVASGSASAAAGPSCALKAGKAAGGAGEVVRLSEQSV AISRCAGGAGGRLPAL LDEQQ  
VNVLLYDMNGCYSRLKELVPTLPQNRKVSKEILQHVIDYIWDLQLELDSQSAVGVPGSR  
GLPARAPLSTLN GEMSALAAEAACVPADDRILCR

>Myotis lucifugus\_ID1(ENSMLUP\_19722)  
MKVASGNAAAAAGPSCALKAGKTAGEVVRLSEQSV AISRCAGGPGARLPALLDEQQVNV  
LLYDMNGCYSRLKELVPTLPQNRKVSVEILQHVIDYIWDLELELNSESQVGT PGGARGLP  
ARAPLSTLNGEISALAAEAACVPADDRILCR

>Monodelphis domestica\_ID1(ENSMODP\_24318)  
MKVASGSAAAGPSCALKPGKVS GGAGEVVRLSEQSV AISRCGGAGTRLPAL LDEQQVNV  
LLYDMNGCYSRLKELVPTLPQNRKVSKEILQHVIDYIWDLQLELDSQAAGTPGARGLPA  
RAPLSTLN GEMSALAAEAACV GADDRILCR

>Danio rerio\_ID1(ENSDARP\_59731)  
MKVVGPTCALKSSKVGGEDVVRCLSDQSLAISCKKIPLLDEQMTMFLQDMNSCYSKLKEL  
VPTLPTNKKASKMEILQHVIDYIWDLQVELESKNQSSAPRTPLTTLNAELASISVENGC  
SDDRIMCR

>Takifugu rubripes\_ID1(ENSTRUP\_24736)  
PTVEATLTTMKVVGSTCALKSKVGSEEMVRCLSDQSLTISKCKIPLLDEQMAVLLQDMNS  
CYSKLKELVPTLPTNKKASKVEILQHVIDYIWDLQVELDEPEKSRQLAGSVPRTPLTTLN

AELASIAVENGCSDDDRIMCR

>Tetraodon nigroviridis\_ID1 (ENSTNIP\_3643)  
STVEATRATMKVVGSTCALKSKVGSSEVVRCLSEQSLAISKCKIPLLDEQMAVLLQDMNS  
CYSKLLKELVPTLPTNKKASKVEILQHVIDYIWDLQVELDEPEMSRQLSAASVPRTPPLTTL  
NAELASITVENGCSDDDRIMCR

>Gasterosteus aculeatus\_ID1 (ENSGACP\_13273)  
MKVVGSTCALKSKVGGSEEMVRCLSEQSLAISKCKIPLLDEQMSAFLHDMNSCYSKLLKELV  
PTLPTNKKASKVEILQHVIDYIWDLQVELDEPEKSRHHSAGGVTRTPPLTTLNAEIASIAV  
ENGCSDDRIMCR

>Oryzias latipes\_ID1 (ENSORLP\_17208)  
ASVEATLLKMKVVGSTCALKTKVSGEMGLSDQSLAISKCKLPLLDEQMSVFLQDMNSCYS  
KLLKELVPTLPTNKKASKVEILQHVIDYIWDLQIELDEPEKSRQLSAASGQRTPLTTLNAE  
LASIAVENGCSDERIMCR

>Homo sapiens\_ID2 (ENSP\_379585)  
MKAFFPVRSVRKNLSLSDHSLGISRSKTPVDDPMSLLYNMDCYSKLLKELVPSIPQNKKVS  
KMEILQHVIDYIIDLQIALDSHPTIVSLHHQRPQNGQASRTPLTTLNNTDISILSLQASEF  
PSELMNSNDSKALCG

>Macaca mulatta\_ID2 (ENSMMP\_4318)  
MKAFFPVRSVRKNLSLSDHSLGISRSKTPVDDPMSLLYNMDCYSKLLKELVPSIPQNKKVS  
KMEILQHVIDYIIDLQIALDSHPTIVSLHHQRPQNGQASRTPLTTLNNTDISILSLQASEF  
PSELMNSNDSKALCG

>Callithrix jacchus\_ID2 (ENSCJAP\_11113)  
MKAFFPVRSVRKNLSLSDHSLGISRSKTPVDDPMSLLYNMDCYSKLLKELVPSIPQNKKVS  
KMEILQHVIDYIIDLQIALDSHPTIVSLHHQRPQNGQASRTPLTTLNNTDISILSLQASEF  
PSELMNSNDSKALCG

>Mus musculus\_ID2 (ENSMUSP\_20974)  
MKAFFPVRSVRKNLSLSDHSLGISRSKTPVDDPMSLLYNMDCYSKLLKELVPSIPQNKKVT  
KMEILQHVIDYIIDLQIALDSHPTIVSLHHQRPQNGQASRTPLTTLNNTDISILSLQASEF  
PSELMNSNDSKVLGCG

>Rattus norvegicus\_ID2 (ENSRNOP\_9491)  
MKAFFPVRSVRKNLSLSDHSLGISRSKTPVDDPMSLLYNMDCYSKLLKELVPSIPQNKKVT  
KMEILQHVIDYIIDLQIALDSHPTIVSLHHQRPQNGQASRTPLTTLNNTDISILSLQASEF  
PSELMNSNDSKVLGCG

>Felis catus\_ID2 (ENSFCAP\_21760)  
MKAFFPVRSVRKNLSLSDHSLGISRSKTPVDDPMSLLYNMDCYSKLLKELVPSIPQNKKVS  
KMEILQHVIDYIIDLQIALDSHPTIVSLHHQRPQNGQASRTPLTTLNNTDISILSLQASEF  
PSELMNSNDSKALCG

>Bos taurus\_ID2 (ENSBTAP\_28235)  
MKAFFPVRSVRKNLSLSDHSLGISRSKTPVDDPMSLLYNMDCYSKLLKELVPSIPQNKKVS  
KMEILQHVIDYIIDLQIALDSHPTIVSLHHQRPQNGQASRTPLTTLNNTDISILSLQASEF  
PSELMNSNDSKALCG

>Monodelphis domestica\_ID2 (ENSMODP\_18263)  
MKAFFPVRSVRKNLSLSDHSLGISRSKTPVDDPMSLLYNMDCYSKLLKELVPSIPQNKKVS  
KMEILQHVIDYIIDLQIALDSHPTIVSLHHQRPQNGQASRTPLTTLNNTDISILSLQASEF  
PSELMNSNDSKALCG

>Gallus gallus\_ID2 (ENSGALP\_36138)  
MKAFFPVRSVRKNLSLSDHSLGISRSKTPVDDPMSLLYNMDCYSKLLKELVPSIPQNKKVS  
KMEILQHVIDYIIDLQIALDSHPTIVSLHHQRPQNGQASRTPLTTLNNTDISILSLQAAEF  
PSELMASDSKALCG

>Pelodiscus sinensis\_ID2 (ENSPSIP\_4744)  
MKAISPVRSVRKNSLSEHTLGLISRSKTPVDDPMSLLYNMNDYCYSKLELVPSIPQNKKVS  
KMEILQHVIDYIIDLQIALDSDHPSIVSFHHQRPGNPSSRTPLTTLNTDISILSLQASEF  
PSELMNSDKALCG

>Danio rerio\_ID2 (ENSDARP\_72092)  
MKAISPVRFRKSSASVTTTEHSLGISRSKTPVDDPLSLLYNMNDYCYSKLELVPSIPQNK  
KNVSKMEILQHVIDYIIDLQIALDSNSAITSLLHHPRAGQGTSTRPTLTLNTDISILSLQT  
PEFPDLITEDSRTLYR

>Takifugu rubripes\_ID2 (ENSTRUP\_37209)  
MKAISPVRFRKNNANFSEHSLGISRSKTPVDDPLSLLYNMNDYCYSKLELVPSIPQNK  
VSKMEILQHVIDYIIDLQIALDSSVALNSRLHHPTRPGQTPSTRPTLTLNTDISILSLQS  
PELPSELMTDDSRTLHR

>Tetraodon nigroviridis\_ID2 (ENSTNIP\_20446)  
MKAISPVRFRKNNANFSEHSLGISRSKTPVDDPLSLLYNMNDYCYSKLELVPSIPQNK  
SKMEILQHVIDYIIDLQIALDSNVALNSRLHHPARPGQTPSTRPTLTLNTDISILSLQSP  
ELPSELMTDDSRTLHR

>Gasterosteus aculeatus\_ID2 (ENSGACP\_11916)  
MKAISPVRFRKNNANISEHSLGISRSKTPVDDPLSLLYNMNDYCYSKLELVPSIPQNK  
VSKMEILQHVIDYIIDLQIALDSSVALTSLLHHPARPGQAPSRTPLTLTLNTDISILSLQAT  
YEQHRTPCQ

>Oryzias latipes\_ID2 (ENSORLP\_18816)  
MKAISPVRFRKNAVNLTEHSLGISRSKTPVDDPLSLLYNMNDYCYSKLELVPSIPQNK  
VSKMEILQHVIDYIIDLQIALDSSVALSSLHHPARPGQTGASRPPLTLTLNTDISILSLQS  
PELPSELMTDDSRTLHR

>Homo sapiens\_ID3 (ENSP\_489102)  
MKALSPVRGCYEAVCCLSERSLAIARGRGKGPAAEEPLSLLDDMNHVCYSRLRELVPGVPR  
GTQLSQVEILQRVIDYIIDLQVVLAEAPAGPPDGPHLPIQTAELTPELVISNDKRSFCH

>Pongo abelii\_ID3 (ENSPPYP\_2013)  
MKALSPVRGCYEAVCCLSERSLAIARGRGKGPAAEEPLSLLDDMNHVCYSRLRELVPGVPR  
GTQLSQVEILQRVIDYIIDLQVVLAEAPAGPPDGPHLPIQTTELSPELVISNDKRSFCH

>Mus musculus\_ID3 (ENSMUSP\_8016)  
MKALSPVRGCYEAVCCLSERSLAIARGRGKSPSTEEPLSLLDDMNHVCYSRLRELVPGVPR  
GTQLSQVEILQRVIDYIIDLQVVLAEAPAGPPDGPHLPIQTAELTPELVISKDKRSFCH

>Rattus norvegicus\_ID3 (ENSRNOP\_35270)  
MKALSPVRGCYEAVCCLSERSLAIARGRGKSPSAEEPLSLLDDMNHVCYSRLRELVPGVPR  
GTQLSQVEILQRVIDYIIDLQVVLAEAPAGPPDGPHLPIQTAELTPELVISKDKRSFCH

>Canis familiaris\_ID3 (ENSCAFP\_19544)  
SGAAAGVRALPAAVGAPWLSCSSRHPASLCNMKALSPVRGCYEAVCCLSERSLAIARGRG  
KGPAEEPLSLLDDMNHVCYSRLRELVPGVPRGTQLSQVEILQRVIDYIIDLQVVLAEAP  
GPPDGPHLPIQTAELAPELVISNDKRSFCH

>Felis catus\_ID3 (ENSFCAP\_23941)  
MKALSPVRGCYEAVCCLSERSLAIARGRGKGPAAEEPLSLLDDMNHVCYSRLRELVPGVPR  
GTQLSQVEILQRVIDYIIDLQVVLAEAPAGPPDGPHLPIQTAELAPELVIANDKRSFCH

>Pteropus vampyrus\_ID3 (ENSPVAP\_8330)  
MKALSPVRGCYEAVCCLSERSLAIARGRGKGPAAEEPLSLLDDMNHVCYSRLRELVPGVPR  
GTQLSQVEILQRVIDYIIDLQVVLAEAPAGPPDGPHLPIQTAELSPELVISNDKRSFCH

>Ornithorhynchus anatinus\_ID3 (ENSOANP\_19268)

MKAISPVRSVRGCYEAVCC<sup>1</sup>SEQSLAIARGGGGKRPAL<sup>2</sup>EPLGLLYDMNGCY<sup>3</sup>SRLRELVP  
GIPRGTTLSQVEILQHVIDYILD<sup>4</sup>LQGALEEPAAGAGPPTG<sup>5</sup>PLLSLKAAELASELYSGDER  
RLC

>Gallus gallus\_ID3(ENSGALP\_42729)  
MKAISPVRSVRSCYEAVCC<sup>1</sup>SEQSLAIARSSNNKSPA<sup>2</sup>LEEPMNLLYDMNDCY<sup>3</sup>SKLRELVP  
GIPQGT<sup>4</sup>KL<sup>5</sup>SQVEILQHVIDYIFDLQIVLEEGAKGRDPSSEATLLSLKAAELASGLCSKDE  
RSLCH

>Taeniopygia guttata\_ID3(ENSTGUP\_927)  
MKAISPVRSVRSCYEAVCC<sup>1</sup>SEQSLAIARGSHNKSPA<sup>2</sup>LEEPMNLLYDMNDCY<sup>3</sup>SKLRELVP  
GIPQGT<sup>4</sup>KVSQVEILQHVIDYIFDLQIVLEEGSKGRDPSSEATLLSLKAAELAS

>Pelodiscus sinensis\_ID3(ENSPSIP\_18126)  
MKAISPVRSVRSCYEAVCC<sup>1</sup>SDQSLAIARGSHNKSPA<sup>2</sup>LEEPM<sup>3</sup>SLLYDMNDCY<sup>4</sup>SKLRELVP  
GIPQGS<sup>5</sup>KL<sup>6</sup>SQVEILQHVIDYIFDLQIVLEEQAKQDSSSDT<sup>7</sup>SLLSRKA<sup>8</sup>AEFASELCSKDE  
RRLCH

>Danio rerio\_ID3(ENSDARP\_71555)  
MKAISPVRSVRSCYEAVCC<sup>1</sup>ISEQSLAISRCKSPSEELSD<sup>2</sup>MNMNDCY<sup>3</sup>SKL<sup>4</sup>KELVPSIPQNK  
SVSQVEILQHVIDYIFDLQIALENETDTQNT<sup>5</sup>PDIFLSMKNSEMSRNF<sup>6</sup>SKEDGAMCH

>Takifugu rubripes\_ID3(ENSTRUP\_29951)  
MKAISPVR<sup>1</sup>SARSCYKAVCC<sup>2</sup>ISEQSLVIGRNK<sup>3</sup>HSCLEEPVSALHDMNDCY<sup>4</sup>SRLK<sup>5</sup>QLVPSIP  
QNESV<sup>6</sup>SQVEILQHVIDYIFDLQIALQAE<sup>7</sup>EAAAPKMVLSIKTKDL<sup>8</sup>THNFSKEGERLYH

>Tetraodon nigroviridis\_ID3(ENSTNIP\_1755)  
MKAISPVR<sup>1</sup>SARSCYKAVCC<sup>2</sup>ISEQSLVISRNK<sup>3</sup>HSCVEEPV<sup>4</sup>GALRDMNDCY<sup>5</sup>SRLK<sup>6</sup>ELVPSIP  
QDQSV<sup>7</sup>SQVEILQHVIDYIFDLQIALQAE<sup>8</sup>EAAAPKMVLSIKVRT<sup>9</sup>DGACVSADISWDSNRVC  
VCS

>Gasterosteus aculeatus\_ID3(ENSGACP\_12641)  
MKAISPVRSVRSCYKAVCC<sup>1</sup>ISEQSLAINRNK<sup>2</sup>HSCLEEP<sup>3</sup>LGALCDMNDCY<sup>4</sup>SKL<sup>5</sup>KELVPSIP  
QNKSV<sup>6</sup>SQVEILQHVIDYIFDLQIALEAEDAATPEM<sup>7</sup>VLSIKAADLARNFSKEEGR<sup>8</sup>LCH

>Oryzias latipes\_ID3(ENSORLP\_17983)  
MKAISPVR<sup>1</sup>SVRNCYKAVCC<sup>2</sup>ISEQSLAINRTN<sup>3</sup>KHCC<sup>4</sup>DEPVSALCDMNDCY<sup>5</sup>SRLK<sup>6</sup>ELVPSI  
PQNKSV<sup>7</sup>SQVEILQHVIDYIFDLQIALEAVDPSA<sup>8</sup>PEM<sup>9</sup>VLSIKTSDITRNFSKEEGR<sup>10</sup>LCH

>Homo sapiens\_ID4(ENSP\_367972)  
MKAVSPVR<sup>1</sup>PSGRKAPSGCGGGELALRCLAEHG<sup>2</sup>HS<sup>3</sup>LGGSAAAAAAAAAARCKAAEAAA<sup>4</sup>DEP  
ALCLQCDMNDCY<sup>5</sup>SRLRRLVPTIPP<sup>6</sup>NKKVSKVEILQHVIDYILD<sup>7</sup>LQLALETHPALLRQ<sup>8</sup>PPP  
PAPPHPAGT<sup>9</sup>CPAAPPRTPLTALNTDPAGAVNKQ<sup>10</sup>GDSILCR

>Pongo abelii\_ID4(ENSPPYP\_23841)  
MKAVSPVR<sup>1</sup>PSGRKAPSGCGGGELALRCLAEHG<sup>2</sup>HS<sup>3</sup>LGGSAAAAAAAAAARCKAAEAAA<sup>4</sup>DEP  
ALCLQCDMNDCY<sup>5</sup>SRLRRLVPTIPP<sup>6</sup>NKKVSKVEILQHVIDYILD<sup>7</sup>LQLALETHPALLRQ<sup>8</sup>PPP  
PAPPHPAGT<sup>9</sup>CPAAPPRTPLTALNTDPAGAVNKQ<sup>10</sup>GDSILCR

>Macaca mulatta\_ID4(ENSMMP\_19275)  
MKAVSPVR<sup>1</sup>PSGRKAPSGCGGGELALRCLAEHG<sup>2</sup>HS<sup>3</sup>LGGSAAAAAAAAAARCKAAEAAA<sup>4</sup>DEP  
ALCLQCDMNDCY<sup>5</sup>SRLRRLVPTIPP<sup>6</sup>NKKVSKVEILQHVIDYILD<sup>7</sup>LQLALETHPALLRQ<sup>8</sup>PPP  
PAPPHPAGT<sup>9</sup>CPAAPPRTPLTALNTDPAGAVNKQ<sup>10</sup>GDSILCR

>Mus musculus\_ID4(ENSMUSP\_21810)  
MKAVSPVR<sup>1</sup>PSGRKAPSGCGGGELALRCLAEHG<sup>2</sup>HS<sup>3</sup>LGGSAAAAAAAAAARCKAAEAAA<sup>4</sup>DEP  
ALCLQCDMNDCY<sup>5</sup>SRLRRLVPTIPP<sup>6</sup>NKKVSKVEILQHVIDYILD<sup>7</sup>LQLALETHPALLRQ<sup>8</sup>PPP  
PAPPHPAGT<sup>9</sup>CPAAPPRTPLTALNTDPAGAVNKQ<sup>10</sup>GDSILCR

>Equus caballus\_ID4(ENSECAP\_11106)  
PALCLQCDMNDCY<sup>1</sup>SRLRALVPTIPP<sup>2</sup>NKKVSKVEILQHVIDYILD<sup>3</sup>LQLALETHPALLRQ<sup>4</sup>PPP



PAPPHPAGTCSAPPRTPLTALNTDPAGAVNKQGDSILCR

>Monodelphis domestica\_ID4(ENSMODP\_14146)  
MKAVSPVRPSGRKAPSGCGGELALRCLAEHSHSLGGSAAAVAAAAAARCKAAEAAEEPS  
LCLQCDMNDYCYSRLKLVPTIPPNKKVSKVEILQHVIDYILDQLALETHPALLRQQPPP  
PPPLHHPSSGSCPAGPPRTPLTALNTDPAGAVNKQGDSILCR

>Gallus gallus\_ID4(ENSGALP\_50623)  
MKAVSPVRHPGRRAPAGAGGGGGHPALRCLAEHSGCKGGEEPAALCCLQCDMNDYCYSRLR  
RLVPTIPPNKRVSKVEILQHVIDYILDQLALETHPALLRQPPTLHPGGCPAGTPRTPL  
TALNTDPVVRGWL

>Anolis carolinensis\_ID4(ENSACAP\_3085)  
DEPAALCCLQCDMNDYCYSRLRKLVPPTIPPHKRVSKVEILQHVIDYILDQLALETHPALLR  
QQPQQQQQQQLLAPHQAPRTPLTALNVDPVR

>Xenopus tropicalis\_ID4(ENSXETP\_54646)  
APVAAAMKAVSPVRPQSRKAQVPAVCGELALHCLSEHSLGVARYKMEEEEETLCLQYDMND  
CYSRLKRLVPTIPPNKKVSKVEILQHVIDYILDQLALDTHPVLRLRQPPTRTPLTDLNT  
DPAALVVNKQGDSILCR

>Danio rerio\_ID4(ENSDARP\_66371)  
MKASVPVRPHKLPSSCSQLSLRYLSESSRCMEDEDLFCLQYDMNDYCYSRLKRLVPTIPQ  
DKKVSKVEILQHVIDYILDQLALETHPALLKQTSPPASTRTPLTQINTEQRTGVMKED  
SLFLCR

>Takifugu rubripes\_ID4(ENSTRUP\_30900)  
MKAVTPVRPQDSSSSGSNLHCLTKQSYNIARCRMEEEDLFCLQYDMNDYCYSRLKRLVP  
TIPQDKKVSKVEILQHVIDYILDQLALETHPSLHKQQSGTCCPPASKPSRTPLTVLNV  
HHQGPGRKNTCPV

>Gasterosteus aculeatus\_ID4(ENSGACP\_4826)  
MKAVTPVHPQDSSSSGSPSLHYLSKESLNIARCRVEDEDLFCLQYDMNDYCYSRLKRLVP  
TIPQDKKVSKVEILQHVIDYILDQLALETHPSLHKQQPQRTGTCPAPASNPSRTPLTPL  
NVDHHQRTSIVKKPEDSILCR

>Oryzias latipes\_ID4(ENSORLP\_3198)  
MKAVSPVRPQDPSSSSQLSLHYLSKQSLNIARCRMEEEDLFCLQYDMNDYCYSRLKRLVP  
TIPQDKKVSKVEILQHVIDYILDQLALETHPALHIQQLGTCPPAASNPNRTPLTVLNV  
DHQRTSVVKKPEDSVLCR

>Saccoglossus kowalevskii\_(NP\_001161570)  
MKERQGNRATKLNSTALRHVSKESVETCSRGNMVA AAAAVLAAGSMSEYLDGILTYSMSDCYSKLDL  
VPTIPPNKKVSKVELLQHVIDYIQDLQVELEAHPAMRNTPPPPEKQIPTNRTPLGTIPPENTAIADQV  
SHLEKSASCSWDIDSCSPRSC

>Ptychodera flava\_(AJS19026)  
ETKDSRPSKLNSTLSLRHVSKDSHSISSCKGNTAAAAAALAAVGPMSYLDGILTYSMQDCYSKLDLV  
PSIPPNEKVKVELLQHVIDYIQDLQTALESHPALRNSPPPPLMEKQNSNRTPLGTIPPENTAILSDQVS  
HLEKTTNNTNWEDSCSPRSC

>Strongylocentrotus purpuratus\_(XP\_780755)  
MKQPPQMOTAVQHQPYPALHHTLPQHAGGEKKQKRAGVSNFTMSDCYEKQKLVPTIPKRNKVRVEIL  
QHVIDYIQDLQTALEGNIDVMMGVSVALTGMITDSMAMPAPSPAASNRMPTTIVPQSTQQQSHQOMT  
CPPATPLGVHTQSNVRQQQQQCYPPQHTSLFHHQGYSDYHQRQMMHMLQQHPGSSSKVLPHPYETP  
ESSPESRSC

>Nematostella vectensis\_(XP\_001636690)  
MKPQSKPTDSKFEEALRATIRSASSITRASIFSEFERDSNDNMSECYERLKNMVPNVPVGRRISKVEILQ  
YVIDYILDQLTALENQTANRRRRRSNRVNRSPSTISLNEIEKLRNDIAFFKIAENK

>Hydra magnipapillata\_(XP\_012554514)  
MVMVTPNMTDKKGLKNTSNEETKKKVELEIKNENLKPEVFETFLPTTISYHSNCLPDAIFLTTSSNGQLIT  
TSTINYSIFLTDITSSSVTNKQETKKDKDEEHLIAAAATPSASQLCSSATSKEENIFSPKFPFLTSSQS  
DNNITKTFAPVFSLSNPLLAPNLAIPYINTQPTTGVGDSEFKNIFVTTPOAKPNPSKSKESGNSESDSHN  
MATSRGRKRTAQSRLEPAKLKEPAAVARRNARERRRVKMNVDGFLRLRRHVPTDPKNKKLSKVKTLRLAIE  
YIHHLQHLQVDNCSQQTQLQVANISQVSSFDDIDGGNAWLNTEAMNRVNREMDEDIQOTIDPARLRTNY  
TDYITR

>Trichoplax adhaerens\_(XP\_002110381)  
MNPLSVDSISPVDSDSNLSQYSFTNSSIPSISSSKTSTTITMNQSDPCLDTSSGYLPNHQSNQFVLSYQ  
NDEEETTIVHLNNSQSRKHLKKSSESVTAKRRNERERRRVQLVNDGFSELRKHVPTDSENKLSKVKTL  
RSAIEYIKQLQSLLEKQTVPEAPRRKVYARQSMKKSNVKGKTNLGYINFEVLENI SDSVNERTYELAD  
VELDYLCHLRIRIIYISGNRAWIQ

>Amphimedon queenslandica\_(XP\_003387453)  
MKRHLSDSETEMNEEYEECCSPDTAQVVSRRKRRGIIEKRRRDRINNCLMELRRLVPAAFEKQGSAKLEK  
AEILQMTVDHLRHLHQTRDPRGFTDPLSAYSNTRAFIDYRVMGFRECVAEVARYMTNVEGLDMKDPMRVR  
VLNHLNENYLTQRELAINAAVAASAQMGLPKLSPATLPPAGIAIQHATGPFPIPAHRASPDGNSPPTT  
FALPTPVISFAPTATVPVFGAAHIATPNAHPPIISLAKIEGVSQATPISPTKKFCSSSTSSSPSATKQPF  
RPWADPTDDD

## **Maestro Heat-like Repeat-containing Protein Family-MROH**

>Homo sapiens\_MROH5(ENSP\_481783)  
MDRQCSERPYSCTPTGRVSSAVSQNSRISPPVSTSMKDSSCMKVHQDSARRDRWSHPTTI  
LLHKSQSSQATLMLQEHMFGEAYSAAATGFKMLQDMNSADPFHLKYI I K K I K N M A H G S P  
KLVMETIHDYFIDNPEISSRHKFRFLQFTLEMVIGASDVLEETWEKTFTRLALENMTKATE  
LEDIYQDAASNMLVAICRHSWRVVAQHLETELLTGVPFRSLLYVMGVLSSEELFSQED  
KACWEEQLIQMAIKSVPFLLSTDVWSKELLWTLTPSWTQQEQSPEKAFLLFTYYGLILQAE  
KNGATVRRHLQALLETSHQWPKQREGMALTGLAATRHLDDVWAVLDQFGRSRPIRWSLP  
SSSPKNSEDLRWKASSTILLAYGQVAAKARAHILPWVDNIVSRMVFFHYSSWDETLKQ  
SFLTATLMLMGAVSRSEGAHSYEFFQTSSELLQCLMVLMEKEPQDTLCTRSRQQAMHIASS  
LCKLRPPIDLERKSQLLSTCFRSVFALPLLDALKHTCLFLEPPNIQLWPVAREERAGWTH  
QGWPRAVLHCSEHLQSLYRTMEALDFMLQSLIMQNPTADELHFLLSHLYIWLASEKAH  
ERQRAVHSCMILLKFLNHNGLDPKEDFKRIGQLVGLGMLCQDPDRATQRCSLEGASHL  
YQLLMCHKTGAEALQAESQAPKELSQAHSQSDGAPLWNSRDQKATPLGPQEMAKNHFQLCSF  
QVIKDIMQQLTLAELSDLIWTAIDGLGSTSPFRVQAASEMLLTAVQEHGAKLEIVSSMAQ  
AIRLRLCSVHIPQAKEKTLHAITLLARSHTCELVATFLNISIPLDSTHTFQLWRALGAGQP  
TSHLVLTLLACLQERPLPTGASDSSPCPEKTYLRLLAAMNMLHELQFAREFKQAVQEG  
YPKFLFALLTQMHYVLELNLPSPEPPKQQAQEAAPVSPQSCSTSLEALKSLLSTGHWHDF  
AHLELQGSWELFTTHTYPKGVGLLARAMVQNHCRQIPAVLRQLLPSLQSPQERERKVAI  
LILTFLYSPVLEVLKQAALTVLAQGLHDPSPPEVRVLSLQGLSNILFHPDKGSLQGGQ  
LRPLLDGFFQSSDQVIVCIMGTVSDTLHRLGAQGTGSQSLGVAISTRSFNDRDGI RAA  
AMALFGDLVAAMADRELSGLRTQVHQSMVPLLLHLKQCPAVATQAKFTFYRCVALLRWR  
LLHTLFACTLAWERGLSARHFLWTCLMTRSQEEFSIHLSQALSYLHSHSCHIKTWVTLFIG  
HTICYHPQAVFQMLNAVDNTLLFRFTFEHLRS DPEPSIREFATSQLSFLQKVSARPKQ

>Macaca mulatta\_MROH5(ENSMUP\_31900)  
MDGQCSERPHSHTPTGRMSSAVSQNSRISLPVSTSTKDSSCMKAPQDSACRDRWSHPTTI  
LLHKSQSSQAALMPQEHGMFMAEAYSAAICLKMLQDMNGADLFHLKYI I K K I K N M A R G S P  
KLVMETIHNHYFIDNPEISSRHKFRFLQFTLEMVIRASDVLEETWEKTFMQLALENMTKATE  
LEDTYQDAASNVLVAICRHSWQAVAQHLETELLTGIFFRSLLYVMGVLSSEELFSQED  
KACWEEQLIQMAIKSVPFLLSMDVWSKELLWTLTPSRTQQEQSPEKAFLLFTYYGLILQAE  
KNSATVRRHLQALLETSHQWPKQREGMALTGLAATRHLDDVWAVLDQFGRSRPIRWSLH  
SSSPKNSEDLRWKASSTILLAYGQMAAKARAHILPWVDNIVSRMVFFHYSSWDETLKQ  
SFLTATLMLMGAVSRNEGAHSYEFSTSELLECLMVLMEKEPQDTLYTRSRQQTMHIASS  
LCKLRPPIDLERKSQLLSTCFRSVFALPLLDALKHTCLFLEPPNIQVWPMAREWAGWMH  
QGWPGAVLHCELNLQSLYRTMEALDMLQSLIMQNPTDELHFLLSHLYIWLASEKAH  
ERQRAVHSCMILLKFLNHNKGNLDPKENFKRIGQLVGLGMLCQDPDRAIQRCSLEGASHL  
YQLLMCHKGEFCGAPTSTPTATSGRPTPSPLTSTLPQFAPKPNPDLNHNPRGGEAWPPGP  
GISMEYECGKEPGPWFALTDVDCNPFVQAASEMLLIQVQEHGDKLKI VSGMAQAI CLH

LCSVRIPOAKEKTLHAITLLARSHTRRELVTTFLDISIPLDSTHFQLWRALGAEQPTSHLV  
LTMLLAWLQERPLPTASDSSPCPKKTYLRSLAAMNMLHELQFARECCQACQRLPLPC  
SSTNKAFSLETTFPAKPGPSHQPEASASPEPPLLSCTSTLEALKSLLSTTGHWRDFAHLE  
LQGSWELFTTIHTYPKGVGLLARTVGPQNHCRCQIRAVLRQLLPSLQSPPEERERKVAILI  
LTEFLYSPALLEVLPKQAALTVLVTQGLRDPSPPEVRVLSLQGLSNILFHPDKGSLLRGQLR  
PFLDGGFFQSSEQVIVCIMDTVSDMLHRLGAQGAGSLSVAISARSFFNDERDRIRAAAM  
ALFGDLVAAMADRELSGLRTQVHQSMVPLLLHLKQCPAVTTQAKFTFYRCAVLLRWRLR  
HTLFCTLAWERGLSARHFLWTCLVRGLGSVGRNRAKEWGPGLRPLIHSRHTICCHPQAVF  
QMLNAGDINLLLCTFEHLKSDPEPSIREFATSQQSFLQKVSARPKQ

>Canis familiaris\_MROH5 (ENSCAFP\_1794)

MSQNPRAAQRQAGTRGNPEGDAPCPASHRISSPISRSMKDLSCMKVPQDPAHRDKQAHP  
TILLCKSRSSQAALMPKEHKMFMEAYNAIICFKMLRDLNGSDPLHLKYIIKKIKGMAYR  
APNLVLETIHDYLVDPNEISSRHKFRFLHVLEAVIEASNSLEEAWQKSFMLALENMTKS  
TELEEVYQDAASDVLLAICRHSWRMVAQHLETEVLTGVFPHRSLLYVMGILTSNEAIFNE  
GEKACWEEQLAQLAVKSVQFLNTDMWSKELLLALTKPDRTHQEQPPEKAFLFIYYGLILQ  
AEDNSTTVRTHLRLTLLDTSQWPKQREGIALTIGLAAARHLDHVWAVLEQFGRSTPIKWS  
LHSFCLKNAEDLQWASSTILLSYGQMAVRAKAHILPWVDNILSRMVFYFHYSSWDETL  
KQSFLSAVLMVLGAVSRNEGASHEFSQVSELLDCLMVLMEKEPRDTLCTPTRQQTIIII  
SSLACKLRPPDLLEKKSQLLSTCLHLSVLALPLLDVLEKHTCLFLEPPNIQAGPLAPYRGA  
DAGAWRPPDLPHVPTQTLYNKTSALDQLLQSFIMQSPPTDELHLLLSHLYPWLASEKAQ  
ERQRAVDRSTALLRFLSHSHSLDPKEDFRRIGQLVGMGLILCQDPDRAIQSSVEGLGHL  
YQLLISQTARAAPMVNAQAPKQLSPASVDGAPVWSSGDQKTAPPTPEMTFPKDHIFQLD  
SSQVIKEVMKHLTKAELTDLIWTAIEGLGSASPFVQAAADMLLTTIREHGAKLETVANL  
GRAIHLQLCSVCIPQAKEKALHAITLLAQNHTELVATFLDFSVPLDASHAFCLWRALGAE  
QPVSQVLAVALLAWLQERALPPGPRDGSPPKDKCPRSLAAMNMLHELQFAREFKAVQ  
EAFQQLLLALLAQLHYTLELHLPQEPHLPQERQGWSVTPPSPHCSTSTLEALKSLLSTTGH  
WQDFAHLELQGGWKLFTIDTYPQGVSLARAMVQNHCKQIKAVTSQLLPNLQSKEARERK  
VAIILTEFLYSPPTLLEVLPRQAALIVLARSRLRDPSPPEVRVLSLQGLGNILFHPEKESLL  
RRQLPPFLDGFYQNEQVVVQMGTVSDVLHRLGAHSAQAQSLGVAINARSFFDDELDGI  
RAAAMALFGDLVAAMAGKELSSLRTQVHQSMVPLFLHLKDHCPGVVTQAKFTLYRCAVLL  
RWRLRHTLFCTLAWERGLSARHFLWTCLMTHSQEEFGIHLAQALSYLHSRHRHIKTWAAL  
FIGYTIYHPQAVSQMVSSVDTNLLFSTFEDLKKDPEPSIRVFATRQLYFLQKVAARP

>Felis catus\_MROH5 (ENSFCAP\_24435)

MDEQNSEKSHSHASADRTSSAVSQNPRTSSHVSKSMKELSYLKVQDPSRKDRQGHPPTI  
ILCKSQSSQVAVEPEKESMFMEETYSAIICFKMLQDLNGSDTRGLKYIIKKIKNMAHEAP  
NLVLETIHDYFVNNPEMSCRHRFWLQVLEAAIEASDSLEEAWKTFMKLALLENMTKSTE  
LEEYVQDAASNVLAIICRHSWQVVAQHLETEVLTGVFPHRSLLYVMGILTSNESIFQKGE  
KACWEKQLAQMAGKSVQFLHMEKWSKELLSALTKPDQTHQEQPPEKAFLFVYYGLIILQNE  
DNATTVRTHLRLTLLDTSQWPKQREGIALTVGLAATRHLDHVWAVLEQFGRSTPVKWSLH  
SFCLKKSEDPKWRWASSTMLLAYGQMAVKAKAHILPWVDNILSRMVFYFHYSSWDETLKQ  
SFLTAIFMLVGAISRNEGASHEFSQISELLECLMVLMEKEPQDTLCTSTRQQTIIIISS  
LCKLRPPLDLKRKSRLLSVCLRSVFALPLMDVLKHTCLFLEPPNIQLAPSMSTPGEPPSS  
KHWSRDLHPPAQTLYNKTEALDQMLQSLIMQNPTADELHFLLSHMYTWLASEKHTHER  
QRAVHSCVALLGFLSHDLYLDTKEDFRRTGQLVGVGLILCQDPDKATRHSLEGVGHLYQ  
LLMRQARARELPTVEAQAPKQLSQASEDGAPIWSIGDQQTAPPTPREMAFPKDHIFQLGSS  
QVIKEVMKHLTVAELTDLIWTAVDGLGSASSFRVQAAADMLLLAIQEHGALETVAKLGR  
AIHLQLCSVHIPQAKEVALHAITLLARNHTELVATFLDPSIPLDSHTFQLWRALGAERP  
TSRLVVATLLAWLQERPLPPGARDGSPPPEDKTYLPSLTAMNMLHELQFAREFEKAVQEA  
YPELLLALLTQTHYISELNLPEEPQPGQEAQPLATPSPQRTSLEALKGLLSTTGHWDFA  
HLELRGAWELFATTRYPOGVGLLARAMVQNRGQIKAVTSRLLSSLRSEEKREKRTAVL  
ILVEFLYSPMLLEVLPRQAVLTVLARSRLRDPSPPEVRALSQGLGNILFHPEKGSLLQRQM  
PAFLNGFFQNSEQVVVRVMGTVSDVLHRLGANGAAAQSLRVAINARSFFDDELDGIRAAA  
MALFGDLVAAAAGRELIGLRAQVHQSIVPLLLHLKDRCPAVVTVSARCRAFPPLAGLRVCR  
WRQGAALLSGSSLALGQQVWPALVSVTEEFSEIHLAQALSYLHSRHHHIKTWAALFIGYN  
ICYHPQAVSQVVNSMDTNLLLCTFEDLKKDPEPGIREFASRQLFFLQEMAARPQ

>Loxodonta africana\_MROH5 (ENSLAFP\_25258)

QAFLFYYYGLILQATEDSATVRAHLQSLLETSHQWPKQREGMALTMGLAAVRHLEDVWAV  
LDQFGRSAPIKCSPHIFSPKDDTLKQSFLLKGVLLLVRAISRNEGASHEFSQAPPELLDCL

MILLEKESPDTLCTSIRQQAIIHIISSLCCLRPPDLERKSRLLSVCFRSVFALPLLEVL  
KHTCLFLEPPNIQALYDRTAEALDQLLQTFIRQTPAEELHFLLSHMYFWLASEKAHERQ  
RAVHSC TALLKFLSQNP HLDPKKEEFRWTKLVGMLGILCQDPDRATQLSSLEGMGHLYQL  
LMRQKDATASRPQIYKQLQDFSNVPSRKVPLKCYHLKEVMKRLTMQELTDLIWTAIDGLG  
SHSPFRVQAAAEMLLAAIQDRGAKLDTVARLGRAIHLQLCSVRIPQAKEHALQAITLLAR  
SHTSQLVA AFLDFS IPLDRCPAPDWIKLSAGARVPEIVELVYVLKHKQFAPPRDILLST  
GDSRLLARSEAMNTVHELQFTREFKVAVQEAYPELLLALLAQVHYIILELDLPREPQPHSE  
IQEA AVTSPQSTSLEALKSLLSTTGHWHDFAHLELQGSWELFTTLPTYPQGVSL LARAMV  
QNHCCQIKAVLGQLLPSLQSREERERKVAMLILTEFLYSPALLEVLPKQAALAVLARGLR  
DTSPKVRVWSLQGLGNVLFQSGKVSLLRGQLPPFLDGGFFQDSEPVVVRVMGTVSDVLRRL  
GALGAGA QSLGVAINARSFFDDERDGI RAAAMALFGDLVAAMEGKELGRLRAQVYQSMVP  
LLLHLKDHCPAVVTQAKFTFYRCTVLLHWRLRHTL FCTLAWEQGLSARHFLWTC LMTHSQ  
EEFHVHLTQALS YLHSCHHHIKTWAALFIG

>Ornithorhynchus anatinus\_MROH5 (ENSOANP\_10714)  
ELKDAYQNAASNILVALYAHSKQLVTHKLEEEFLTGTFPHRSLLYTMGTISSSEHLQDTP  
EKKEYWEEQLTRVGTSTGFLMVDDWAQQLMWAITLSDRDCPEPTPEKAFLFTYYGMTLR  
ASNNSALVRKHLRSLLG VSHQSPAHREGVALTLGLVANRHLTDAAVAVLDEFGRMGFQRKC  
WSHLSHQVPDDSDVQLKWMGSTILLSYGQIAAKAKEMILPWVDNIASRMVNYFHCSIWD  
DSLKQSFVLVATLMLVRAISRTEGAQSYAFHQAEELTRCLVTLVEKEPLDSLCT SARQQAM  
LI IADLSKLRPALEPKKSHLLFTCFRSVFTLPPMEMLEKHTCLLANPKPDVQVNH PATPS  
QPTVLSRALAPSGVFEHLWALFEETREALDKILQSF LSENPCPEELHCLVGHMYSWLAS  
ERALERQRAVKSCVSLLRFTYENLCFDSSSEFRRI GHVLVGMGLLDRDPDRVTRHLDLEG  
IGYLWLLLLRHKGEKELQAVTSGPEHRHNCPCGGPCHSEKKKKTSPSAPVSLLGHL LHI  
CQTTTLSTMMKVMGLIQLRDLIWTVDGLRGSVHFRVEAAADMLLALLEDFGAKLEKVAD  
IGRTLYLQLASIH SVAIKTSVLKALTLLARDHTWELVSAFLEFSLPPDSQAFDLWRAVGT  
EQHVSPKVLKVL LAKLQERPLPEESKGAIEEKTHFKSFAAMSTLHEVLF AHEFKAAVQEA  
YPELFLALVTQLHYVFELGPPGQASLPGPQRSETNFSSPGSSTALEAVKTL LSTSGHWKD  
LAHVELQGGWDLFTSINTYQKGLTLLASRAMVQNRCPQLRAVLKLTVPGLSKHERERKV  
AILIFTEFLHSPTILQDLPKRTILSLLHKALADPSP TVRVISLQGLGNVLFHPGKALLQ  
AQLGGFLNGLYQDKEQVVTGVMDTMSNVLYRLAQQGAGPQSLDIALT LRPFFDDERDQVR  
AAAI SLFGDLVTVMEGKDRSTLKTQVCRSLVSL LHLKDDSPAVVTKSKFAFFRCAVFLK  
FRLCHTLFCTLAWEQGLSARHFIWTC LMSNGRDEFHIHLSQALGYLH SPLQHRLMAAATF  
IG

>Homo sapiens\_MROH6 (ENSP\_479227)  
MAGGVWGRSRAREAPV GALTLTALTEGIRARQGPQPPSAGPQPKSWEVKPEAEPQTQA  
LTAPSEAEPRGATVPEAGSEPCSLNSALEPAPEGPHQVPQSSWEEGLADLALYTAACL  
EEAGFAGTQATVLTLSLEARGERLEDQVHALVRGLLAQVPSLAEGRPWRAALRVL SAL  
ALEHARDVVCALLPRSLPADRVAAELWRSLSRNQRVNGQVVLVQLLWALKGASGPEPQALA  
ATRALGEMLAVSGCVGATRGFYPHLLLALVTQLHKLARSPCSPDMPKIWVLSHRGPPHSH  
ASC AVEALKALLTGDGGRMVVTCMEQAGGWRRLVGAHTHLEGVLLLASAMVAHADHHLRG  
LFADLLPRLRSADDPQRLTAMAFFTGLLQSRPTARLLREEVILERLLTWQGDPEPTVRWL  
GLLGLGHLALNRRKVRHVSTLLPALLGALGEGDARLVGAALGALRRL LRPRAVRLLSA  
ELGPRLPPLDDTRDSIRASAVGLLGTLVRRGRGGLRLGLRGPLRKLVLQSLVPL LRLH  
DPSRDAAESSEWTLARCDHAF CWGLLEELVTVAHYDSPEALSHLCCRLVQRYPGHVPNFL  
SQTQGYLRSPQDPLRRAAVLIGFLVHHASPGCVNQD LLSLFDLGRQLQSDPKPAVAAA  
AHVSAQQVAMLARARGCPRGPRLLRIAPRPARPPV FADSPFQRRSVAGRWGCSGPRRA

>Macaca mulatta\_MROH6 (ENSMMUP\_2188)  
PVLSTARLSLCCPVKATRALGEMLAVSGCVGATRGFYPHLLLALVTQLHKLACS PRSPDM  
PKI WVLSHRGPPHSHASC AVEALKALLTGDGGRMVVTCMEQAGGWRRLVGAHTHLEGVLL  
LASAMVAHADHHLRGLFADLLPRLRSADDLQRLTAMAFFTGLLQSRPTARLLREEVILER  
LLTWQGDPEPTVRWLGLLGLGHLALNRRKVRHVSTLLPALLGALGEGDSRLVGAALGALR  
RLLL RPRAVRLLSVELGPRLPPLDDIRASAVGLLGS LVRGRGGLRLGLRGPLRKLVL  
QSLVPL LRLHDP SRDAAESSEWTLARCDQAF CWGLLEEMVTVAHYDSPEALSHLCCRLV  
QRYPGHVPNFLSQTQGYLRSPQDPLRRAAVLIG

>Callithrix jacchus\_MROH6 (ENSCJAP\_39882)  
MARGVWGWVPEMPGALTLTAVAEGIRARQGRSREPPSTG PQPEPWELKPEAEPQAQAI A  
THSETESGCGATIPEAGSEPRSPERPHQVPQSSWEEGLADLALYTAACLEEAGFACTQA

TALTLSSALEARGERLEDQVHALVVRGLLAQVPSLAEGRPRAALRVLSALALEHARDVVC  
ALLPRSLPPDRAAAELWRLSCNQRVNGQVLVQLLWALKGASGPEPQTLAATRALGEMLAV  
SGCVGATRGFYSHLLALVTQLHKLARSPPSPDKIWLVLSHRGPSSHASCVEALKAL  
LTGDGGRMVVTCMEQAGGWRRRLVGAHHTHEGVLLLASAMVAHADHHLRGLFADLLPRLRS  
ADDPQRLTAMAFFTGLLQSRPTARLLREEVILERLLTWQGDPEPTVRWLGLLGLGHLALN  
RRKVRHVSALLPALLGALGEGDARLVGAALGALKRLLLRPRAPVRLLSSELGPRLRPLLD  
HTRDSVRASAVGLLGTLVRRRGRGMLRLGLRGLRKLVLQSLVPLLLRLHDPSPDAAESSE  
WTLARCDQAFWGMLEEMVTVARYDSPEALSHVCRRLVQRYPGHVPNFLSQTQGYLRSPH  
DPLRRAAVLIGFLVHASPFCVNQDLLDSLFDLGRQLQNDPEPAVAAAAHVSAQQVALL  
ARSRGRPRPVFANSFPQRRSLAGRWGCSGPCRA

>Mus musculus\_MROH6 (ENSMUSP\_139029)

MAGGVWGRGRDGRDGPVGSLLTLTALAEGIRASQGGPVGPSSTGPPQSDPQELGPEPEPIQ  
TLTPAFEAQPGNEVVAPTAGEIYSPHNAQEPAPERPYQASQYSWEEGTADLALYTAAC  
LEEAGYAGTQATALTLSSALEARGQRLEDQVHGLVVRGLLAQVPSLAEGRPRAALRVLSA  
LALHAQDVVCCALLPSSLPDRAASELWRSLSRNQRVNGQVLVQLLWALKGVAAPESEAL  
AATRALGEMLAVSGCVGATRGFYPHLLALVTQLHELAQGAHSPDSPKVVPEPSHRGPPHS  
HASCTVEALKALLTGDGGRMVVTCMEQAGGWRRRLVGAHHTHEGVLLLASAMVAHADHHLR  
GLFADLLPRLRSANNPQRLTAMAFFTGLLQSQTARLLREEVILERLRTWQGDPEPTVRW  
LGLLALGNLAMNRGKIRHVNMILLPVLLRALGEGDVRVGAALGALRLLLLQPGAPVRLLS  
SELPRPLPPLDDARDSVRASAVGLLGTLVRRRGRGLRGLRGLRKLVLQSLVPLLLRL  
HDSSQDAAESSEWTLARCDQALRWGLLEEMVTVAHYDSPEALSRVCHRLVQRYPSHVQYF  
LSQTQGYLRSPQDTLRRAATVLI GFLVYHTRPKGISQDLLDSLFDLQDLGQLQGDPESAVSS  
AAHVSAQQVALLARAQVQTRSPNLFRRFIRRHHSYPPRPHPLYDSSPFLRRSLAGRWSCLE  
PH

>Rattus norvegicus\_MROH6 (ENSRNOP\_42442)

MAGGVWGRGRDGPVGSLLTLTALAEGIRASQGGPVGPSSTGPPQAEPEELGPEAEPIQTLT  
PASEAQPGNEVVAPTASSEIGSPNVQEPAPERPYQVSQYSWEEGTADLALYTAACLEE  
AGYAGTQATALTLSSALEARGQRLEDQVHDLVVRGLLAQVPSLAEGRPRAALRVLSALAL  
EHAQDVVCCALLPSSLPDRAASELWRSLSRNQRVNGQVLVQLLWALKGAAGPESEALAA  
RALGEMLAVSGCVGATRGFYPHLLALVTQLHDLAQGAHSPDSPKVVPEPSHRGPPSHAS  
CTVEALKALLTGDGGRMVVTCMEQAGGWRRRLVGAHHTHEGVLLLASAMVAHADHHLRGLF  
ADLLPRLRSANNSQRLTAMAFFTGLLQSQPTAQLLREEVILERLRTWQGDPEPTVRWLGL  
LGLGHLAMNRGKIRHVNTLLPVLLRALGEGDVRVGAALGALRRIILLQPGAPVRLLSSEL  
RPRPLPPLDDARDSVRASAVGLLGTLVRRRGRGLRGLRGLRKLVLQSLVPLLLRLHDS  
SQDAAESSEWTLVRCDRALRWGLLEEMVTVAHYDSPEALSRVCHRLVHRYPSHVQHFLSQ  
TQGYLRSPQDTLRRAATVLI GFLAYHTSPKGVSDLLDSLFDLQDLGQLQGDPESAVSSAAH  
VSAQQVALLARAQVQTRSSNLFRRFIRRHRSYPTRPHPLYDSSPFLRRSLAGRWSCLEPR

>Bos taurus\_MROH6 (ENSBTAP\_45971)

MAGGVWGPARGAPV GALTLTALAEGIRASRGQPMGPPAPGPQPQPELEPAVEEPGRAATT  
PTAGGEPSPPPPQEPAPGEPQQTPRSSWEEGALADLAVYTAACLEEAGFVGTQATALTL  
SSALEAQGHRLLEDQVHGLVVRGLLAQVPHLAEGRPRAALRVLSLALAHSRDVFALLRC  
SPAPDRVAELWRSLSRNQRVNGQVLVQLLWALKGSAGSQLEALAAATRALGEMLSVSGCV  
GATRGFYPNLLLVLVTQLHELARDAHSPDTPKVVVPSHRGPPSHASCTVEALKALLTGD  
GGRMVVTCMEQAGGWRRRLVGAHHTHEGVLLLASALVAHADHHLRGLFADLLPRLRSTDDA  
QRLTAMAFFTGLLQSRPTARLLREEVILERLRAWQGDPEPTVRWLGLLGLGHLALNHGKV  
RHATTLPLALLGALGEGDPRVDAALGSLRRVLLQPRAPVRLLSAELRPRPLPPLDDTRD  
SVRASAVGLLGTLVRRRGRGLRVGLRRLRKLVLQSLVPLLLRLHDPSPDTAESSEWTLA  
RCDQALHWGLLEEMVTVAHYDSPEALSRICHRMVQWYPSHVPSFSLSQTQGYLRSPQGPLR  
RAAALLTGFLVHSSPSHVNQDLLDSLFDLGRRLSDPEPAVAAAAARVSGQQVALLARAQ  
PQPCGRSLWGLRHLPFCGRPRPRPARPPVYADSPFQHRSHPGRWGCSGPG

>Pteropus vampyrus\_MROH6 (ENSPVAP\_5655)

MAGGVWGRARGAPV GALTLTALAEGIRASQGGPVRPPKGPQPEPEPTEAEPGNITASPE  
PCSPPREQEPASERHQVQPSSWEEGPLADLALYTAACVEEAGFMGTQATALTLSSALEA  
RGERLEDQVRAVLVGLLAQVPSLAEGRPRAALRVLSALALEHAQDVVRALLPCSLPPDR  
AAAELWSSLGRNQRVNGQVLLQLLWVLKGTAGLELEALAAATCALGEMLAVSGCVGATRGF  
YPHLLLTLTVTQLHRLARGAHSPTPKI WAPSQRGPPSHASCTVDALKALLTGDGARMVV  
TCMEQAGGWRRLLAAHHTHEGVLLLASAMVAHADHHLRGLFAELLSRLCSPEAQRLTAM

AFFTGLQSGPTARLLREEGILERLRWQHDPPTVRWLGLLGLDHLALNNGKARHVSAL  
LPALLGALGEADARLVGAALGALRRVLLQPRAPVRLSTELGPRLAPLLDDARDSVRASA  
IGLPGTLVRQGRGGLRVGL

>Monodelphis domestica\_MROH6(ENSMODP\_14116)  
MARRRRGWGGGEPGQAGPLGALTAAEAEGIQISRATGPSQGGPPQEPKEPENPTEAV  
TTPRTEGLEPDPATGDLKNEPCSSKASSSESEPQPWEPEQHPQCLLAPGSLADFALQTVV  
CLE DAGISGTHALAFSLSSALEAQGGQLPEKVREVVQGLHGQMAQLVEGRARRVALRALC  
SLAAEHTQEVVQTTLLPHSLPCDRAAAELWRGLSRNQRVNGLVHLLQEVKGPQSQGLS  
PSSSPGPSRQDAKPHQTALAAATRALGEMLSVSGCVAATRGFYPPQVLIALVTQLHQWLVG  
HSPQAQVVKVRGPPSNHASCALKALLSGDGRMVVTCMEQSGGWRRMLMGSGTHLEGLV  
LLASALVAHADHHLRGLFADLLPRLQSPDKAPRLTAMAFFTGLLQSGPTARLLRDEAIVQ  
RLTAWQGDPEPTVRWLGLLGLGHLALNHRKARHVGTLLRALLDALGEADTRLVGAALGAL  
RRLLLRPRARARVSAYCASLGTLLRPLLDHCQDSVRASAIIGLLGTLVGRCSLRRARMVRE  
LVVGLSLVTLRLQDPSLDAAQSAEWTLARCDRFLHWKLEEISTMAHYDSPEALSRTC  
RLVQWYPRRASDFLSQAQGYLRSPEVPIRVAAMFIFGLIHHMDPDCVNPGLVDSLHDL  
GEMQWDAETCIRDVSHITMHQVRLVCQDQDSPGHGNFSPWQLFCCWGHQERERPVYEDS  
PFKPRSRAGLWGCGRPS

>Anolis carolinensis\_MROH6(ENSACAP\_3363)  
MNSFYVSVIIFLVIQLHYLVDCSDIDYQEEILQTSYISCTMETLKALVKRETTSRACF  
ASLTGSDLLSSPENYLEGVLLARALVKHHRGLDYAVFTKVIPLLHHGDDKQKLTAMAF  
FTALLSSESTYTVLQKHYSGLLKNWLADSSATYRWLSLHGMGNVAHHLQSKKEFTTLIL  
SILPSFDDSDKVALTAMEVITKVMVQKINVNLYVKITKQLQPFADGRNKVSCAANKL  
FQDILKNIDAKDKYAMQDQVLTAVTLMVNLQELNLDVAKESGSRWLLVVTTSFSCWLQ  
SFNGWTTNDNEDSWDMVCKHLVKEHPGKLRRLNQAQHYRQSPQKSSRSAATIFIG

>Homo sapiens\_MROH7(ENSP\_396622)  
MALSPGANLVFHEDPKMTFSPSPSCGAPGLGSGTIPQPHPDMAQVPMNLNLLPSPGLALV  
LNDLSLSPVSGEASGLVSENTPRPDDSRRAIAPASLQITSSCSGEALDLDKDVSRPDSQGR  
LCPASNPIPSSTAPRLSSGNHPQSNSEDAFKCLSSKIFKLGQRNSNPSRHELNPFIR  
HHSREGLVLGHCISRPPSKALLIPTSNSSLDLDSNPLNMGSRNTSKLNLNVAPDSHGTL  
IPDTNETITLASHNISESVSKGAFSTTWSTSSKETMNVASSGHSRSDLSVTITQASYVTL  
IPGSSYGISLHSSSTHEPNSTISPPSCMTLILGSNETLSLDSLLFSDTSTLTLSSQDDA  
KDNSIHTVPLEENLESWSEMASIKVGQFPLGFPI SNPAGKDAVTLQGIPEGAFDEVTSC  
VKVPEKTEGGNNMALVENVTTLQKSQDLLEAEGEKKTMIKKIMRQIQEPLDSLSSSVRK  
QAMEILTQLSHTQPTLGMRESELVNVCVHVSFSLPSVQAMQEKDEAKAETIQALYHQT  
EALQTLKALFIEDPTPAGLKSILEALGPWMNSGKAHERARAVNTNVSVLNHLMLTLPFF  
MPLGFALGLLLGRLLIHLIGDPDEEIGCEALDGIILYTI LELQKRARDKEETNKELYE  
SNKHFLGPYNVSPCQNI LRVIEEFGDFLGPQQIKDLLLLAALEGLKGSSEAPGKDSREMM  
QLASEVMLSSVLEWRHRALEVIPEIMQGIYMLSHIQEPRARQVALLPVSLASSFMTE  
VVVALLMCPLPLNSGAEMWRQLILCKPSCDVRDLDDLGLSLKEKPVTKEGRASIVPLA  
AASGLCELLSVNSCMGRVRRIPQLLLALLIQVHYHIGLNLPGCVAPPKDTKKGAPSPF  
VPVRVWVVKVKTLLLRMGCSYETTFLEDQGGWELMEQVESHHRGVALLARAMVQYSCQEL  
CRILYLLIPLLERGDEKHRITATAFFVVELLQMEQVRRIPPEEYSLGRMAEGLSHHDPIMKV  
LSIRGLVILARRSEKTAKVKALLPSMVKGLKNMDGMLVVEAVHNLKAVFKGRDQKLMDSA  
VYVEMLQILLPHFSDAREVVRSSCINLYGKVVQKLRAPRTQAMEEQLVSTLVPLLLTMQE  
GNSKVSQKCVKTLRLCSYFMAWELPKRAYSRKPWDNQQTVAKICKLVNTHRDSAFIFL  
SQSLEYAKNSRASLRKCSVMFIGSLVPCMESIMTEDRLNEVKAALDNLRHDPEASVCIYA  
AQVQDHILASCWQNSWLPHGNSWVCYSATTHRWSPCENLPTSHQRRSWIMQALGSKWMS  
LKK

>Pan troglodytes\_MROH7(ENSPTRP\_1342)  
MALSPGANLVFHEDPKMTFSLPSCGAPGLGSGTIPWPHPDTAHVPMNLNLLPSPGLALIPD  
LNDLSLSPVSGEASGLVSENTPRPDDSRRAIAPASLQITSSCSGEALDLDKDVSRPDSQGR  
LCPASNPIPSSTAPRLSSGNHPQSNSEDAFKCLSSKIFELGQRNSNPSRHELNPFIR  
HHSREGLVLGHCISRPPSKALLIPTSNSSLDLDSNPLNMGSRNTSKLNLNVAPDSHGTL  
IPDTNETITLASHNISESVSKGAFSTTWSTSSKETMNVASNGHPRSDLNVTITQASYVTL  
IPGSSDGLISLHSSSTHGNSTISPPSCMTLILGSNETLSLDSLLFSDTSTLTLSSQDDA  
KDNSIHTVPLEENLESWSEMASIKVGQFPLGFPTSNPAGKDAVTLQGIPEGAFDEVTSC  
VKVPEKTEGGNNMALVENVTTLQKSQDLLEAEGEKKTMIKKIMRQIQEPLDSLSSSVRK

QAMEILTQLSHTQPTLGMRRERSELVNVCVHVSFSLPSVQAMQEKDEAKAETIQTLYHQTL  
EALQTLKALFIEDPTPAGLKSILEALGPWMNSGKAHERARAVNTNVSVLNHMLLTLPPF  
MPLGFPALGLLLGRLLIRIGDPDEEIGCEALDGI I ILYTTLELQKRARDKEETNKKELYE  
SNKHFLGPYNPVSQCQNILRVIEEFGDFLGPQQIKDLLLALEGLKGSSEAPGKDSREMM  
QLASEVMLSSVLEWYRHRALEVIPEIMQGIYMQLSHIQEPRARQVALLPVSLASSFMTE  
VVVALLMCPLPLNSNGAEMWRQLILCKPSCDVRDLDDLGLSLKEKPITKEGRASIVPLA  
AASGLCELLSINSCMGRVRRRIYPQLLLALLIQVHYHIGLNLPGCVAPPKDTKKGAQPSPF  
VPVRVWVVKVKTLLLRMGCSYETTFLEDQGGWELMEQVESHHRGVALLASCQELCRILYL  
LLPLLERGDEKHRITATAFFVELLQMEQVRRIPPEYSLGRMAEGLSHHDPIMKVLSIRGL  
VILARRSEKTAKVKALLPSMVKGLKNMDGMLVVEAVHNLKAVFKGRDQKLMDSAVYVEML  
QILLPHFSDAREVDRSSCINLYGKVVQKLRAPRTEAMEEQLVSTLVPLLLTMQEGNSKVS  
QKCVKTLRLCSYFMAWELPKRAYSRKPWDNQQQTVAKICKCLVNTHRDSAFIFLSQSLEY  
AKNSRASLRKCSVMFIGSLVPCMESIMTEDRLNEVKAALDNLRHDPEASVCIYAAQVQDH  
ILASCWQNSWLPHGNSWVCYSATTHRWSPCENLPTSHQRRSWIMQALGSWKMSLKK

>Pongo abelii\_MROH7(ENSPPYP\_1530)

MALSPGANLVFHEDPKMTPSLPSCGALGIGSGTIPQPHPDMAHVPMLNLLPSPGLALVPD  
LNASPSVSGEASGLVSENTPRPDDSRAPASLQITSSCSGEALDLDSDKDVSRLLDSQGH  
LCPASNPIPSSTEAPGLSSGNHPQSNSEDAFKCLSSKIFELGQRNSNPSRHELNPFIR  
HHSREGLVLGHCISRPSKALLIPASNSSLDLDSNPLNMGSRNTSKLNLNGAPDSRGT  
IPDNTKAVTLASHNISGSVSKGAFSTTWSTSSKETMNVASNDHPRSNDLNVITITQASYMTL  
IPGSSDGISLHSSSTHGPNSTISPPSCMTLILGSNETLSLDSLLFSDTSTLTLSSQDDA  
KDNSIHTVALEENLESWSEMASIKMGQFPLGFLTSNSAGKDAVTLQGIPEGAFDEMTSCL  
VKVPEKTEGGNMALVENVTTLQKSQDLLEAEGEKTKMIKKIMRQIQEPLDSLSSSVRK  
QAMEMLTQLSHTQPTLGMRRERSELVNMVQSVFSLPSVQAMQEKDEAKAETIQTLYHQTL  
EALQTLKALFIEDPTLAGLKSILEALGPWMNSGKAHERARAVNSNVSVLNHMLLTLPPF  
MPLGFPALGLLLGRLLIRIGDPDEEIGCEALDGI I ILYTTLELQKRARDKEETNKKELYE  
SNKHFLGPYNPVSQCQNILRVIAEFGDFLGPQQIKYLLLALEGLKGSSETPGKDSREMM  
QLASEVMLSSVLEWYRHRALEVIPEIMQGIYTQLSHIQEPRARQVALLPVSLASSFMTE  
VVVALLMCPLPLNSNGAEMWRQLILCKPSCDVRDLDDLGLSLKEKPVREGRASIMPLA  
AASGLCELLSVNSCMGRVRRRIYPQLLLALLIQVHYHIGLNLPGCVAPPKDTKKGAQPSPF  
VPVRWVWVVKVKTLLLRMGCSYETTFLEDQGGWELMEQVESHHRGVALLARAMVQYSCQEL  
CRILYLLIPLLERGDEKHRITATAFFVEMEQRRIPEEYSLGRMAEGLSHHDPIMKVLSI  
RGLVILARRSEKTAKVKALLPSMVKALKNMDGMLVVEAVHNLKAVFKGRDRKLMDSAVYV  
EMLQILLPHFSDAREVDRSSCINLYGKVVQKLRAPRTEAMEEQLVSTLVPLLLTMQEGNA  
KVSQKCVKTLRLCSYFMAWELPKRAYSRKPWDNQQQTVAKICKCLVNTHQDSAFIFLSQS  
LEYAKNSRASLRKCSVMFIGSLVPCMESIMTEDRLNEVKAALDNLRHDPEASVCIYAAQV  
QDHILANCWQNSWLPHGDSWVCYSATTHRWSPCENLPTSHQRRSWIMQALGSWKMSLQV

>Mus musculus\_MROH7(ENSMUSP\_102382)

MALSRGTSLILHEDPEKIPSPNSCEVPGIMSNTTPRPTPDALAPPPEHALALTPALHPA  
LSPDPEGVSGPVSNDIPSHNASGATTPSSTQINTVDTADQGLNHTSGPDAAGTLCPSDQP  
ARIPSSQTANVLSPENSSRPCSEDVSKSFSSKVFGLGQSNPSRPEPNLYIKALSREAL  
VRSHNISRQGSQVPLLLPSNTSLDRHSGNISKVNLIAPNSNEAITLTSHTIFASISKE  
ALSAPWNTGSKGSINGTSTIQPRSGLNVTVTHASHVSMIPGSSEGLSLQSSARVPNSTLS  
PSSCMTLIMDSESPMSDSSFLVTDSTLTLSSHRDYSEDNSIRTMPLLENLKGWDSLQGV  
TALQSPPEGTSEDVKNVNAEKRNHDNKAALVANIITYQKNQEMVEMKEEKEATVKMMMRQ  
IQEPLDSLSPARRQAMEILAQLSHTKPILSVREVELVNTCVRSVFSVSLPSVQAMQEKD  
ESKAEVIQILYYQTLDSLQKLLNALFIEDPTPTGLKSILEPLGPWMNSGKAHERARAVNS  
NVSVLNHTLVTLPLLISSGFPTLGLLLGRLLLRIGDPDEEIGREALDGITILYTIIDLQK  
RTKNKEDTNKKELYENNRFLGPYNPVSQCQNILRVIAEFGDFLGPQQVDRDLAALGL  
KGISSETQKDSGEMMQLASEVMLSSVLEWYRHRALEVIPEIMQGIYMQLTHIQEPRAREV  
ALLPISFLASSFMTEVVVALLMCPLPLDSNGAEMWRQLILRKPCDVRDLDDLTLTSIKE  
KPVTKKGRASIVPLAAASGLCELLSVNSCVGRVRRRIYPQLLLALLIQVHYHIGLNLPSRM  
APRKDSKDDTQPPLFIPVRWVWVVKVKTLLLRMGCSYESAFLEEQGGWELMGQAESHYRGV  
SLLARAMVHYSCQELCRILYLLIPLLERGDERHKITATAFFVELFRMEQVRRIPPEYSLG  
RMVEGLSHRDPIMNVLSIRGLVILACKSEKMAKVQSLPSMVKSLKNMDGMLVVEAVHDL  
KRIFKGQKGLTDSAVYVEMLQILLPHFTDAREMVRASCINVYGKVVKKLQTPRTEAMEE  
QLTSTLMPLLFI IQEGNAKVSQKCVKTLVCCSSFMNVELPKKAYSQKPWDNQQQLTVTKIC  
KYLVSSTRDNVFTFLNQSLEYAKNSRASLRKSSVIFIGSLVPCMENMMTEERLNEVKATL  
EILRHDPEASVICAAQADQIMATCWRNSWPLLYGDSWVCDPSSMHRWSPSCENLPTSH

QRRSWIMQALASWKMSLKQ

>Rattus norvegicus\_MROH7 (ENSRNOP\_72770)

MALSRGTSLILHEDPEKTPSPNSCEVPGIMSNTTPRPTPDLTLAPLPAHGVALAPALHPA  
LSPDPEGVSGPVPNDISNPNASGAATPSSIQINTADTDDQSLDHTPKPNLAGTLCPDSQP  
VPSLSSTQATVLSPENSIKPLSEDIKPSFSSKVFGLGQSNNSRPEPNLYIRALSREAL  
VRSHITISRQSSQTPLLLPNTSLDRHSGNISKVNLRAGQNSNEAITLTSHTIFASVSKE  
ALSASWNTGSKGSVNVTSNSQPRSGLNVTVTHASHVSLIPGSSEGLSLHSSAQVPNSTLS  
PSSCMTLIMGSESLMDSFVVTDTSTLTLSSHRDYSEDNSIRTMPLEENLGKWDLSQGV  
TAFRSPPEGTSEDAKANESEKRDHDNDTALVENIISYQKNQDEVEVTGEKETTVKMMMRK  
IQEPLDLSLLSPARRQAMEILAQLSHTKPILSVRERVELVNTCVRSVFSVSLPSVQAMQEKD  
ESKAEVIQTLYHQTLDSLQKLLNALFIEDPTPAGLKSILEPLGPMWNSGKVERARAVNS  
NVSVLNYTLVTLPPFVSSGFPTLGLLLGRLLLRIGDPDEEIGREALDGITILYTIILDQK  
RTKNKEEINKKELYETNKRFLGPYNPASPCQNILRVIAEFGDFLGPQQVRDLLLLAALEGL  
KDISETQGKDSIEMQLASEVMLSSVLEWYRHRALEVIPEIMQGIYMLSHIQEPRAREV  
ALLPISFLASSFMTEVVALLMCPLPLDSNGAEMWRQLILRKPSCDVRDLDLTLTSLKE  
KPVTKKGRASIVPLAAASGLCELLSVNSCVGRVRIYPQLLLALLIQVHYHIGLNLPSRV  
APRKDSKDDIQPPLFVVRWVVKVVKTLTKMGCSESAFLEEQGGWELMGQAESHYRAV  
SLLARAMVHYSCQELCRILYLLIPLLERGDERHKITATAFFVELFRMEQVRIPEEYSLG  
RMVEGLSHRDPIMKVLSIRGLVILARRSEKMTKVQGLLPSMVKSLKNMDGVLVMEAVHDL  
KTIKFKGQAKKLTDNSVYIEMLQTLPHFIDARETVRTSCINTYGVVKKLRMPRTQAMEE  
QLTSTLMLPLFI IQEIGNAKVSQHFPLEFHDTAGIFFLLVCRNV

>Bos taurus\_MROH7 (ENSBTAP\_53490)

METLTQLSHSQPVLGLQERSELVNTCVKSVFSLPTIQAMQEKDQAKADALQIILYCQTLDA  
LQTLNLFVDEDPYVLLSSRSLPLGPMWNSGKAHERARAVKSNVSVLNHALLTPEFLMS  
SGFPALGLLLGRLLIRIGDPDEEIGREALDGITILYTIILELQKRARDKEETNKKELYESN  
KRFLGPYNPVPSPQNILRVIAEFGDFLGPQQVKDLLLLAALEGLKGGSEAREKDLGEMMQL  
ASEVTLSSVLEWYRHRALEVIPEIMHGIYAHLSHIQEPRAREVALLPVSLASSFMTEVV  
VALLMCPLPLDSNGAEMWRQLILRKPSCDVRDLDLTLTSLKEKPVTKKGRASIVPLAAA  
SGLCELLSVNSCMGRVRIYPQLLLALLIQVHYHIGLNLPRGRVASRKDAKDAQTPGFIP  
VRWVVKVVKTLTKMGCSEANFLEEQGGWELMGQAENHHRGVSLARAMVHYSCQELCR  
ILYLLIPLLERGDEKHKITATAFFVELLRMEQVRIPEEYSLGRMAEGLSHRDPIMKVLS  
IRGLVILAQRTEKAAKVQALLPSMVKGLKSVLDGLLVVEAVHNLKTIKFKQDRKLDNSVY  
VEILQILLPHFSDSREDVRTSCINLYGVVQKLRSPRTPAVEEQLISTLVPLLLTMQEGN  
AKVSQKCVKTLFRCSCFMAWELPKKAYSRKPDWNQQQTVAKICKYLVDTHRDSAFTFLSQ  
GLEAYAKSPRASLRKSSVMFVIGSLVPCMESSMTEDRMNEVKAALLENLRHDPEASVCICAAQ  
AQDNILASCWRNSWPLPHGDSWVCDPATTHRWSPCENLPTSHQQRSWIMQVLGSWKISL  
KQ

>Myotis lucifugus\_MROH7 (ENSMLUP\_15399)

MALSQRASLVLCEDPKKTPSFSSTGAPGLSGTISGPNPGTDLVPALNVPPSPGLALVPD  
LHPILSPVSEEAPGLVSDSTPSPDES GAVAPAALQTTPPPSGEALGLELNHISRPNQEA  
LHPASPLVSPDSEAEAGPSSDNPSGLNSEEAFNPHSSKAFELGQNNNSRSESNPFLR  
TFSREALVLGPCLSRPCSKALLIPASGSMDSPSNHLLSVGSRTISKDLKLGAPGCGTSL  
PSTNETIKLVSQDISGSVSKGSFGAAWKTSSKGNINVALNSNSRSDVNVTVTQASCLTVI  
PGFQDDISLRSSTRPNPSPPTSCMTLIMGSKETLSLSSSLIFSDTSTLTLSSQDDSE  
DNTIHTVPLEESQSWSEMANSEMSRFPLVPTCNTADKGTAAFHSVPERTFSEETSCLVN  
APGEREDGEDGNKMTLVENVITLQKSQDVPEGDGEKKTMMKKMMEQIQEPLDSLSSSVR  
RGMETLTQLSHTQPALGVRERSELVNTCVRSVFSVSLPSVQAMQEKDEAKAESIQILYRQTL  
DALQTLNLFVDEPTPAGLKSILEPPGPMWNSGKAHERAPPCEQQCLSFLILLRPLFV  
SPMPTRMISFSLGSLGRNSVDQVSTEAKPTLLVEKTLTTC SKGARDKSETDKRELY  
ESNKRFLGPYNPASPCQNILRVIAEFGDFLGPQQVKDLLLLAALEGLTGGSEAEAGGRDSG  
EMMQLASEVTLSVLEWYRHRALEVIPEITQAIYVQLSHIQEPRAREVALLPISLASSF  
MTEVVALLMCPLPLDSNGAEMWRQLILGKPSCEVRDLDLTLTSLKEKPVTKKGRASIV  
PLAAASGLCELLSVNSCLGRVRRLYPQLLLALLIQVHYHIGLNLPRRLPSQPDRKDAKQ  
AQPSVFEPVRWVVKVVKTLTKMGCSEYEAFLDDQGGWELMGQEENHHRGVSLARAMVQ  
YSCQERCRIYLLIPLLERGDEKHKITATAFFVELFQMEQVRIPEEYSLGRMAEGLNHQ  
NPIMKVLSIRGLVILARKEKTAQVQALLPSMVKGLKSVLDGLLVMEAGHNLKTIKFKQDR  
KLDNSVYVELLQILLPHFSDAREDVRSFCINLYGVVQKLRSPCTPAMEQQLVSTLVPL  
LLTMQEGNTKVGQLCVKTLFRCSCFMAWELPKRAYSRKPWDSQQQAVTKICNYLVNTHRD



SALTFLSQSLEYSNNSRASLRKSSVLLIGSLVPFMDSIMTEDRLNEVKAALLENLRHDPEA  
SVCICAAQAQDSILTSCWRTSWPMTHADLWVCDPAATHRWGSSCENLPTSHQPRSWIMQA  
LGSWTTSLRQ

>Monodelphis domestica\_MROH7(ENSMODP\_4784)  
MALNPKSAHHSKSSDMPSPMVLSPPTLGLISLSPSTSETLVPNLGSLPRLASTAALAPF  
FGLAPTLMVSDAESASSDLALVPASITYQIPTSSKAVSMGANGGPNSSGSSIIILGPASSTI  
LIPGLNDSSDPGNQISKPHSNAAMAPGSPSLLAGKEADSPNPSSTVLLQPALSSAFLV  
SRSPSTHRALGLNSNSTPKSSSTGFDKAVKLSQSPSLTSGKALCLSFDTSHLMGPAGTHL  
MVTDPSPNFQKNPDVESVSRPSSNLTLSPFSGLTSSPSSRKALGVGMGNVSRSSSSVALT  
PTLSRPSSPASKKASNAETDNSNGTTPDSAANTEALSDPNVSRPNSLMALAPIACMALVVD  
HSQDKKNDSGCMLTDASCVTLSSSQDSPDNFNSIVLESNSKTTTELKRKLESSQSVMLQTL  
RSTSEDSRLSQAQSDENKNVPEKSQEQLPEGETKQLLRKMMKQIQEPIIDVLSNSNRQQ  
AMITLAHLSQIPRRLHAKEKSELVTVCVRSVFSVSLPSVQTMQEODSPNADFIKILYSQTL  
ALQALLKSLFLEDPTPASLTSILEVSRSLRDGSGPGLGQVRGNGWTREKPLGPWITS  
HERARAVNNVSLNCTLQTSFFTSHEHDSNTPMEPQNKELKSIEQNRNRYLVPGFP  
MFGLLLGRLLIRICDPEEIGSEALDGVIIILYTI LELQKRNL DKEETNELELYESNKRFL  
GPYNPVSPCQNILRVIAEFGDFLGPQQVKDLLLALEGLRDDQETPTKDTAEMMQLA  
SEVTLSSVLEWYRHRVLEVIPEIMNGIYVHLHGIHEPRAREVALLPISLLASSFMTEV  
VIALLMCPPLDSDNGAEMWRQLILRKPSCDIRDLELLTSLKEKPVTKNGRASIVPLAA  
ASGLCELLSVNCGVTRVRIYPQLLLALLVQVHYHIGLNLPGQSGCFRNSLSATFMPV  
RVWVKVVKTLTLLKMGCSYEATLLESQGGWELMGQAEHHHRGVSL LARAMVHYSCQEL  
CRMLYLLIPL LERGDEKHKITATAFFVELLRMEQVKRIPEEYSLGRMSEGLSSEDP  
IMKVLCIRGLVILAH RTEKSNKIQALLPSMMKGLQWVDGLLAVEAVSNVKTILRSQDKK  
SSDISIYLDILQVLQPHFDDNREEVRLAAITLFGKVQVLLRSPCTPLTEQQLVNSLV  
PLILQLQEGNPVVGKRCKTLSYCCYHMAWVLPKMMYSKKPWPDPSSQSVAKICKYLVNTH  
RDSALVFLTQSLEYTKSPRAALRRSAVTFIGSLVPCMEGMLTEELLSEVKSEQAKY  
TKDEGNDYFKDKDYKKAVALSYTEGLRKKCSDDLNAVLLTNRAAAQFHLGNLRSAL  
NDVTAARKLKPNHLKAIIRGAACHLELKNFARNIRLWCDGLRDSQERKLETRAKA  
ERLKRVEERDIRKAKVKEKKEEAQKGAIRAIQARNIRLAAAAPGDDDEPSDDADD  
PDGASPHAGLGAENAAGAMPCLGDDGRLRWPTLLLYPEHGQTDIFISAFHEDSR  
FIDHFLVMFGELPPWDLERKYHPDNLQLYFEDDAQEELYQLSPESTLLEALQHP  
RYVVKASTPAFLVLAKQSPFCKSFLRGRKVHRLK

>Homo sapiens\_MROH8(ENSP\_339971)  
XVAGTPTSSQPSFGPSIRERPSQSLCPCPCPAGEGPAWPALERRRLVTSRGRQPS  
PQSHAQQLTRRRHSSEQVPESEPRADFRSGKWLQEPATGDARDSRQALRARMSSK  
HRICSQEEVVI PCAYDSDSEVDLELSNLEIIKKGSSSIELTDLDIPDIPGLHCE  
PLSHSPRHLTQQDPLSEAI VEKLIQSIQKVFNGELKGELEKLFGLDLSLSQALPY  
DETAKSFIHSHIADIVHTLNLVQEEERPHLSSSMRQEVEFVTIADLSYQDVHLL  
LFGSEDRAELFSLTIKSIITLPSVRTLTQIQEIMPNGTCNTECLYRQTFQAFSE  
MLQSLVVKDPHLENLDTIIKHLVPLWQSVK DHERERATASMAQVCLKSKHLNKL  
PLRFQRLGHLVALMALLCGDPQEKVAEEAAEGIH SLLHITLRLKYITHDKKQ  
QNLKRALTKREFLELHSSAAKCFYNC PFRIAQVFEGLDSELNLCQFIMTTFDL  
TKLKHPCIQRSAGELLLTLAKNTESQFEKVPEIMGVICAQLSII SQPRVRQ  
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WRLLRKLQKCHNEPAQEKMAVVAATDALYEVFLGNRLRAATFRLFPQLLMTLLI  
QIHHSIGLTMSDVDIPSGLYTEQVEPSEVTPLCFAMQATKTLTLLRTRCCLQ  
EFNIMEKNKGWALLGGKDGH LQGLFLLANALLERNQLLAQKVMYLLVPLLN  
RGNDKHKLTSAGFFVELLRSPVAKRLPSIYSVARFKDWLQDGNHLFRILGLR  
GLYNLVGHQEMREDIKSLLPYIVDSLRETDKIVLSAIQILLQLVTRTMDFTT  
LAAMMRTLFSLFGDVRSDVHRFSVTLFGAAIKSVKNPDKKSIENQVLD  
SLVPLLLYSQDENDAVAAEESRQVLTICAQFLKWKLPQEVYSKDPWHIKP  
TEAGTICRFFEKKCKGKINILEQTLMYSKNPKLPIRRSAVLFVGLLSKYMD  
HNELRRMGTDWIEDDLRDLCDPEPSLCIASQTL LLVQMARAEPKPKQRVN  
WLQKLMGRSSA

>Pongo abelii\_MROH8(ENSPYP\_12264)  
MPLSRGRGRSRLAGSRAATSSLPRALSPKSTGRGALSISHAQLLTRRRHSSEQ  
VPPAS EPQADFRSGKWLQEPATGDARDSRQALRARMSSKHRICSQEEVQEEV  
VVI PCAYDSDSQVDLELSNFETIKKGSSSIELTDLDIPDIPGLHCEPLSHS  
PRHLTQQDPLSEAI VEKLIQSIQKVFNGELKGELEKLFGLNLSLSQALPY  
DETAKSFIHSHIADIVHTSNVLVQEEERPHS LSSPVRQEVEFVTIADLSY  
QDVHLLFGSEDRAELFSLTIKSIITLPSVRTLTQIQEIMPNGTCNTECLYR  
QTFQAFSEMLQSLVVKDPHLENLDTIIKPLRFQRLGHLVALMALLCGDPQ  
EKVAEEAAEGIH SLLHITLRLKYITHDKKQQSLKRALTKREFLELYSSAAK  
CFYSCPF

RIAQVFEGFLDSDELCOFIMTTFDTLKNLKHPCIQRSAGELLLTLAKNAESQFEKVEIM  
GVICAQLSIIISQPRVRQOIINTVSLFISRPKYTDIVLSFLLCHPVPYNRHLAEVWRMLAV  
ELPSTTWILWRLLRKLQKCHNEPAQEKMAYVAVAAATDALYEVFLGNRLRAATFRLFPQLL  
MTLLIQIHHSIGLTMSDVDIPSGLYTEQEVSEVTPLCFAMQATKTLTLLRCCCLQEFNIM  
EKNKGWALLGGKDHHLLQGVFLLANALLERNRLLAQKVMYLLVPLLNRGNDKHKLTSAGFF  
VELLRSPMAKRLPSIYSVARFKDWLQDGNHLFRILGLRGLYNLVGHQEMREDIKSLLPNI  
VDSLRETDEKIVLSAIQIILLQLVVRTMDFTTLAAMMRTLFSLFGDVRSDVHRFSVTLFGAA  
IKSVKNPDKKSIENQVLDLVLPLLLYSQDENDAVAEESRRVLTICAQFLKWKLPQEVYSK  
DPWHIKPTEAGTICRFFEKKCKGKINILEQTLMYSKNPKLPIRRSAVLFVGLLSKYVDHN  
ELRRMGTDWIEDDLRDLDCPEPSLCIIASQTLTLLVQMARAKPKPKQRVNWLQKLMGRSS  
A

>Macaca mulatta\_MROH8 (ENSMUP\_18889)

MPLSRRGRSRLAGSRAATSSLPRTALSPKSAGRGALSISHAQLLTRRRHSSEQVPPES  
EPQADFRSGKWLQEPATGDARDSRQALRRMSSKHRCISQEEVVIPIYAYDNDSGSDLEL  
SNLETIKKSSSIELTDLDPDIPGLHCEPLSDSPRHLTRQDPLNEAIVDKLIQSIQRGF  
SGELKGELEKLTFLGSLSSLRALPYDETTEFIIHSHIADIVHTLNLVQVEERPHSLSSL  
VRQEVFVTIADLSYQDVHLLFGSEDRAELFSLVIXSIIITLPSVRTLTQIQEIMPNGCNT  
ECLYRQTFQAFSEMLQSLVVKDPYLENLDTIKHLDPWLQSVKDDHERERATASMTQVLK  
LSRHLSLKPLRFQRLGHLVALMALLCGDPQENVAEEAAESIHYLLHITLRLKYIHDKK  
NQNLKRALTKCREFLYSSAAKCFYSCPFRIAQVFEGFLDSNELCOFIMTTFDTLKNL  
NHPCIQRSAGELLLTLAKNAESRFEKVEIMGVICAQLSIIISQPRVRQOIINTVSLFISR  
PKYTDIVLSFLLCHPVPYNRHLAEVWRMLAVELPNTTWILWRLLRKLQKCHNEPAQEKMA  
YVAVAAATDALYEVFLGNRLRAATFRLFPQLLMTLLIQIHHSIGLTMSDVDIPSGLYTEQ  
VSSEVTPLCFAMQATKTLTLLRCCCLQEFNIMEKNKGWALLGGKDCHLQGVFLLANALLER  
NRLLAQKVMYLLVPLNRGNDKHKLTSAGFFVELLRSPVAKRLPSIYSVARFKDWLQDGN  
HLFRILGLRGLYNLVGHQEMREDIKSLLPYIVDSLRETDKKIVLSAIQIILLQLVVRTMDFT  
TLAAMMRTLFSLFGDVRPDVHRFSMTLFGAAIKSVKNPDKKSVKQVLDLVLPLLLYSQD  
ENDSVAEESRRVLTICAQFLKWKLPQEVYSKDPWHIKPTEAGTICRFFEKKCKGKINILE  
QTLIYSKNPKLSVRRSAVLFVGLLSKYMDHNELRMGTDRIEDDLRDLDCPEPSLCIIT  
SQTLTLLVQMASAEPKPKQRVNWLQKLMGRSSA

>Mus musculus\_MROH8 (ENSMUSP\_124362)

MPLPRRGGEPRLAGARVVRTSLPRATPRSPKRVGRGAPLLSHAQRLTRRRHSSEQVPPPEP  
EQADFRSGKWLQERAGGDARDPRHTPLARMGSRQRASGTEEVVIPCASDSDSGSVDLQLS  
NLDDVQKGGASVEFTDSDIADIPTLPQESLPDNLRLTLQEPLETSIERLVQSIQEVVH  
GELKGETQKLFRLSLSLSTIPIYDENTESFIHRHTAEIVHVLVSVLVQVEEPLHSLTSMV  
RQEIFVTTIDLSFQNVYLLFGSEDREDLLGLITKSIISLPATSTPIQLLKIVSNQAIQEQ  
CLYRETTEAFSVMLQSLVIKDPHLEFFDSIFKHIDPWLQSDRDHERERATVMAQVLKCL  
SSYLSLKLPLQFQRLGNLVAVMALLCGDPQKEVAEEAAEGTHYLLHITLRLKYIMQDRDN  
NSKNLRETLLKCRLLLEQYSLKRFYCCPYKIVQVFEVFLDSRELQGFIMTILDSLKNLPH  
PCIQQTAGELLITLVKSAEARFERVPEIVGVICARLSIITLTSVRQOIINTVSLFVSRPK  
YTDVVLSHLLCHPVPYDRHLAELWRSLEVELSNTTWVLRLLRKLQKCHGEPQEKMAYV  
AVAVTDALYEVLMGNKLRRAAFRLFPQLLMTLLIQIHHSIGLTMSDVSIPSGLYAEQEVV  
MEVTPLCFAIQATKTLTLLRCLCWQEFSEIMEKSGGWTLKGEHLLQGVFLLANALMERSHL  
FAYKILYLLVPLINRGNDKHKLTSAGFFVELLKS PMARRLPKVYSTIRLKAWLNEESKLF  
RILALRGLRNLVRHQEMREDIKSLLPCILSSLHETDERILLAIQIILLQLVRLDSTTLA  
TMMKTLTSLFGDVRQDVHCFSMTLFGASIKAVKHTEKKSVEDQVLESVPLLLFSQDEND  
EIAKESRRVLTLCARFLNWKLPREYVCKDPLYIKPNEVRRVCKFFGEKSKGKIDILDQTL  
PYSKDPKLPIRR TAVLFVGLLSHYVDTSELKRKGTDWIEKDLRELLQDPEPSLRILASQA  
LFRIQRVGSTSEAE TSVSWLRKLLCCLHT

>Rattus norvegicus\_MROH8 (ENSRNOP\_52093)

MPLPRRGGEPRLAGARVVRTSLPRATPRSPKRVGRGAPLLSHAQRLTRRRHSSEQVPPPEP  
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NLDDIHKGGPSVEFADSDISDIPILPQESLPDNLRSPTLQEPLESEASVERLVQSIQEVVH  
GDLKGELEKLFRLSLSLSTIPIYDESTESFIHRHTAEIVHILTVLVQVEEPLHSLNLSLV  
RQEVFVTITDLSYRDVHLLFGSEDREDLLGLITKSMMSLPAICTPIQLPRIVSNQAIQQE  
CLYRGTFFETFSVMLQSLVVKDPHLEIFDSIFKHIDPWLQSDRDHERERATFVMAKVLKCL  
SSYLSPKLPLQFHRLGHLVAVMALLCGDPHKEVAEEAAEGTHYLLHITLRLKYITQDRDS  
GKNLRETIVKCRELLEQYNLKGFYCCPFKIVQVFEVFLDSKELGQFIMTVLDSLKSLPH

YIQQTAGELLITLVKSAEARFEKVPEIIGVICARLSIITLASVRQOIINTVSLFVSRPKY  
TDIVLSHLLCHPVPYDRHLAELWRTLEVELSSTTWVLRLLRKLQKCHDGPTEKMAVVA  
VAVTDALYEVLMGNKLRAAAFRLFPQLLMTLLIQIHHSIGLTMDSVSIIPSGLYAEQEIPT  
EVTPLCFAIQATKTLRLRCLWCQEFSEIMEKNGGWTLKKGEGHLQGVFLLANALMERSHLF  
AYKIMYLLVPLINRGNDKHKITSAGFFVELLRSPMARRLPRVYSTIRLKTWLNEESKLF  
ILALRGLRNLVGHREMREDIKSLLPCILNSLYETDERILLAIQIILLQLVVRTLDSSTLAT  
MMKTLTSLFGDVRQDVHRFSMTLFGASIKAVKHTEKKSVEDQVLESVPLLLFSQDENDA  
IAKESRRVLTLCARFLNWKLPREVEYCKDPLYIKPNEVRRVCKFFGERSKGIIDILDQTLT  
YSKDPKLPIRRRTAVLFVGLLSNYVDASELKRKGTDWIENDLRELLQDPEPSLRIIASQAL  
FRIQRVGNIPETEISVSWMRKLLGCLHT

>Canis familiaris\_MROH8(ENSCAFP\_12816)

MALYWMNHSLFYCWICSQEEVVI PCSDNDSDSGVDLQLSNLEDIKKDPSSLELTDSDF  
DITGLSQESFIDSRHLLTQQGPVSEANVERLIQSIQEVFNGLQSEFEKLTFLRSLSSLS  
QTLPYDETTFEIHSHITDIVHVLNMLIEEPLHSLFSSVRQEVFITIANLSYQDIHLLF  
GSEDRAFLSLITKSIITLPSVETLIQLQEIMPSSSYNTECLYRQTFQAFSEMLQSLVVK  
DPHLENLDTIFKQMDPWLQSTKDHERRERATASMAQVLKCLSRHLSLKLPLRFQRLGHFVA  
LMALLCGDSVTEVAEEAAEGMHCLLHVTLRLKCTIYDKKNHPNLRAMKCCQELLELYSI  
KQFYSCPFKIAQIFEAFLNSNELFQFVMTTLDGLENLKHPCQKSAGELLI TMVKNAESR  
FEKVPEIMGVICARLSIISQPRVRRQIINTVSLFISRPKYTDIVIGHLLCHPVPYDRHLA  
ELWRTLEVELPSTTWILWRLLRKLQKCHNEPTEKMAVVAATDALYEVFVGNRLQAAT  
FRLFPQLLMTLLIQIHHSIGLTMDSVAVPSGLYTGQEMSSSEVTPLCFAIQATKSLLLRTL  
CWQEFNIMEKNGWTLLEGKECHLQGVSLLANALLERNHLLAQKVMYLLVPLLNRGNDKH  
KLTSAGFFVELLQSPVARRLPSIYSIVRLKDWLHGNRVFKFLALRGLCYLIKHQDMRED  
IRSLLPCLDLCETDEKIVLLAIQIILLQLVGTMDFTTLTAMMKTFLTFLFGDVRSDVHRL  
SMTLFGASIKSVKYTDKKGVENQVLDLSPVPLLLYSQDENDAVAEESRQVLTICAQFLKWK  
LPQEVYCKDPWYISPSEAGTVCKFFGKCCQGVNLLAQTLMFSKNAKLPIRRRAVLFVGL  
LLKYVDYSELRTKGTDWIENDLKALLHDPEPSLCI IASQALFRVQKVGAEPSRQSI PG

>Felis catus\_MROH8(ENSFCAP\_11066)

PKKSPSTCFPPTGEEAPAWPAPEWRALASRGLRPTRPASHAQRRLTRRRHFSEQVPPGPEP  
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LEDVKNDASSLELTDSIDSIAGLPQESLTDSEFGHLTQQGPLSEPIVERLIQSIQEFFNG  
DLQSELEKLTFLRSLSSLSRALPYDETIGAFIHSIEDIVHILNMLVEEELLHSLFSPVH  
QEVFVTIADLSYQDVHLLGSEDQADFFSLLTKSIITLPPVKTTLTQLEEIVPSGSYNTEC  
VCELTFTLFLPLIFVNVQSHHIGFLSFILVQMDPWLQSTKDHERRERAASMAEVLKCSS  
RHLSLKLPLQFQRLGRLVALMALLCGDPVKEVAEEAAEGTHYLLHITLRLKYVTHDKKNH  
PSLRRAMKCCQELLELYSIKQFYSCPFRIAQVFEVFLNSNELCQFVMTILDGLKNLKHPC  
TQKSAGELLITLVENAESRFEKVPEIMGVICAQLSIISQPRVRRQIINTVSLFISRPKYT  
DIVISHLCHPVPYDRHLAELWRTLDVKLPSTTWILWRLLRKLQKCHNAPTEKMAVMAV  
AATDALYEVFVGNRLRAATFRLFPQLLMTLLIQIHHSIGLTMDSVAIPSGLYTEQEMSSQ  
VTPLCFAIQATKTLRLRCLWCQEFNIMEKNGWTLLEGKDGHLQGISLLANALLERNHLF  
ANKIMYLLVPLLNRGNDKHKLTSAGFFVELLQSPMARRLPSIYSIARLKDWLHGNVFK  
TLALKGLHYLTRHQMREGIKSLLPCILDLCETDEKIVLLAIQIILLQLVETMDFTTLTA  
MMKTLFSLFGDVRPDVHRFSMTLFGASIKSVKYTDKKGIEHQVLDLSPVPLLLYSQDENDA  
VAEESRQVLTICAQFLKWKLPQEVYCKDPWYIRCGKVGKVKFFGKCKGKVNVAQTLI  
FSKNAKLPIRRRAVLFVGLLKYVDHSELRMKGTDWIEKGHIDLRDLLCDPEPSLRI IAS  
QALFQVREVGTEDPRQTVCGLRKLMGCLST

>Myotis lucifugus\_MROH8(ENSMLUP\_2058)

TPTPPQVPCIPPARQPSLRLWTPERRSPCPSPAEEGDPAWPAPEWRTLASRGRWPSRRGH  
AQHLTRRRHSSEQVQEGSAPPADFRSEKWLPERAGGDAGNSRQAPRAEMASRDICSDWV  
VVPYASDSDSGVDLQLSNLEDIKGSSLEFTGFRLRKRDPFISKSHCTQLGSDKFRYL  
THDDAFSEANIENLIESIQEFFHGELKIQSEHEKLYLRLSLSLSRILPYDETTFEIHG  
HIADIVHILYILVEEPLHSLFSPVRQEVFVTITDLSYQDVHLLFGSEDRVNLFSLIKKS  
TITLPSKTLTQLQEIKPSGSKSECLYRQTFQVFSEMLQSLVVRDPHLENFDIILKHMD  
PWLQSIKDHERRERAASIAQVLKCLCMHLNLKLPPLRFQRLGHLVALMVLCCGDPLEVAE  
EAAESTYYLLHITLRLKYITEDKKNRPIILRGAMKNCQELLEFYSIKQFYACPFKIAKIFE  
VLLDSNELCQFVVTILDGLKNLEHSCHTQLAGELLSLVENVEFRFEEVPEIVGVICAQL  
SMISQPSVRQVITIVSLLISRPKYTDTVISYLLYHPVPYDRNLAEMWRTLKVEVPSTTG  
ILSRLRKLQKCHNEPTEKMAVVAATDALYEVFMGNKLEAMFQLFPQLLMTLLIQI

HHSIDLTMSEVAIPPGLYKEQEMSSKVTPLCFAIQATKTLRLTLCFQEFNIMEKNEGWA  
LLAGKDCHLQGVSLLANALLERNHVLAHKILYLLVPLLNLRGNNAKHKLTSAAGFFVELLQSP  
VARRLPDSIYSIARLKDWLHHGNNIFKILALTLGLYIIRHQKMREDIQSLLPCILDLLCES  
DEKIVLLAIQIILLLVRTMDFSTLAAMMRKMFSLFGDVRPNVHCFSMTLFGASVKSVKYA  
DKKGVENQVLDSELLPLLLYSQDENDAVAEESRRILTICAQFLKWKLPQQVYKDPWYINP  
SEVETICKFFGKKCKQEKVNILAQALTFKNAKLPIRRRAVLFVGFISKYLDRLNELKTKGT  
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>Monodelphis domestica\_MROH8(ENSMODP\_400)

SRFSPLEEMVFPVPENDSGSVLDLQLSKLEGIKKDANSIDFTVDSDFELPGTSKKNASED  
VTPLLIIEGPPGLIIVENLIDSVQDFLNGDRKGDAAEKLTFRLCLSSLSQTLPYDETAESFI  
HDRIEQIVNALNMI IQQEPHLSLFTPTRQEVFTAITDLSQEIINLLFGSKEKLDLFRNLI  
RSMIALPSTKILNLIQTVMPTGQYNTESLYRQTFQAFCEMLQSLVIQDPHLENLDQILEY  
MEPWLQSAKDQERERAAASMAQMLRSLSRHVNLQPPHLHFQNLGKLVALMSLLCGDPVEEV  
TQEAAGETHHLLRITLRIKCLTYDKKSHQNFKGAVKCKELLEIYNIRQFYSNPFKIAQV  
FEVFLSPNELSQYIITTL DGLKNPKHPCIQQSAGILLVMTMVKCAETRFKVSIDIIRAICG  
RLPIIGQFIARQHAMNIVSLLISKPTYTDIVLDQLLHPIPFDRHLAELWRTLVDVLPNT  
TWILWRLLRKLQKCHSMVEDKMAFMAVAATDALYEIFVGNKLAATYRLFQLLMTLLIQ  
MHHSIGLTMDSVVPFSGMYIEEEVITCTPLSFQATKALLRTRTCWFEFYTMEKKKGW  
NLLELESDDHIQGVSLLANVLEKHVVLAQRILYLLIPLLNRGNEKHRLTSAAFFVELLRS  
PLARRIPKRYTIVRLEEWLHHENYQFRVLSLKGIDNLLCYHQGMEEIDGMI PAILSNLSE  
ANERIVLLSISVLRNLLNTMDFTTLNKTMHALFSLFSDVRPKIHLLAVTLFGDSIKMVK  
KDKKEIEGRILESPLLLLHLQDEDDDVAKESSRVLISICHFLKWKIPREYVHKDLWHGR  
SGIEAICKFFEQKCRGKCDMLIQAAKYIQSDQVNLREAFITGALAKFMDRNLRTKGT  
EWLEEILRPQLYDPEPSVRIIAAQALIRIQRAVLAQPEPTPVL SRLRKLNFYH

>Homo sapiens\_MROH9(ENSP\_356733)

MLTRNPKTKSSLQILQDSVKWHHMAHKVNSLLDAYSGLLSNE SMILAVNSSFVDPLLQFE  
SQLKIESSFGMLVMPSLDKVKEMGSSYIEYIEDMENLYHNI LN IYENILTSLVSKDLYK  
LQILKEMLVWMSKDSYLQERIMVI INKVLRFVTVKVRKYISVDAPCLGLLAAELSLCS  
HEDPSIVQASLGMCHLLYIARCQNDIGTNKPTNGKSHSLQFPSSDVEFLPKFQQDESK  
IAQRVGQTLPLPDLDFVQSSLMLKSSPDDKIASDAASILIFTLEFHAEKVTMVSKI VDA  
IYRQLCDNNCMKDVMLQVITLLTCTSPKKVIFQLMDYVVPADDTLIQMWKAACSQASVAP  
HVLKTIILLILKGPGE MEDTVTEGKRFSLDITNLMPLAACQALCTFLPLGSYRKAVAQYF  
PQLLTTLMFQVFYNSELKPI LKDRALYAQDALRVLLNCSGLQQVDITLMKENFWDQLSED  
LCYYHGVCFI AKTLSEYNFPQFPETLSYLYKLSVEGPRRSEDTVIVLIFLTELNNFFKD  
PLPEEFLVLFINWINDSNPVSRLILHRIVHMSP I INKTENVSSILIAILDALFSKDDNV  
VLQALLTLRLLNELDKVYSLGTRIGSSYCTLMDHINGGIRSMAIRHFGQLVRDMRQYT  
WMVNDVLEGLVPLILFLEDDDKRVAEACKYTLKICTSQLKWSTSRLLKDENYSFEMVVL  
NICNNLIISHRNYITDLTSDTLRFLWSPRTYLKRASVILIGYLAKSGHLLLRDEIEVML  
DVIERLLRDEDPMIKQLAEITYDIFKKKAHKLTSAPLKQNFQKLLKLFYIKKLPYLYN  
SPNGQIDSPDSDKVDKNDKAL

>Gorilla gorilla\_MROH9(ENSGGOP\_9013)

MLTRNPKTKSSLQILQDSVKRHHMAHKVSSLLDAYAGLLSNE SMILAVNSSFVDPLLQFE  
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LQILKEMLVWMSKDSYLQERIMVI INKVLRFVTVKVRKYISVDAPCLGLLAAELSLCS  
HEDPSIVQASLGMCHLLYIARCQNDIGTNKPTNGKSHSLQFPSSDVEFLPKFQQDESK  
IAQRVGQTLPLPDLDFVQSSLMLKSSPDDKIASDAASILIFTLEFHAEKVTMVSKI VDA  
IYRQLCDNNCMKDVMLQVITLLTCTSPKKVIFQLMDYVVPADDTLIQMWQAAGS QASVAP  
HVLKTIILLILKGPGE MEDTLTEGKRFSLDITNLMPLAACQALCTFLPLGSYRKAVAQYF  
PQLLTTLMFQVFYNSELKPI LKDRALYAQDALRVLLNCSGLQQVDITLMKENFWDQLSED  
LCYYHGVCFI AKTLSEYNFPQFPETLSYLYKLSVEGPRRSEDTVIVLIFLTEVSFVDC EQ  
LCSHFLFLPKFKSKFQFLVSLPLNVGSYQDLRS

>Pongo abelii\_MROH9(ENSPYP\_602)

MLTRNPKTKSSLQILQNSVKWHHMAHKVSSLFDAYSGLLSNE SVILAVNSSFVDPLLQFE  
SQLKIESSFGMLVMPSLDKVKEMGSNYEYIEDVENLYHNI LN IYENILTTLVSKDLYK  
LQILKEMLVWMSKDSYLQERIMVI INKVLRFVTVKVRKYISVDAPCLGLLAAELSLCS  
HEDPSIVQASLGMCYLLYIAQCQNDIGTNKPTNGKSHSLQFPSCDVEFLPKFQQDKSK  
IAQRVGQTLPLPDLDFVRSLLMKVSSPDDKIASDAASILIFTLEFHAEKVTMVSKI VDA

IYRQLCDNNCMKHVMLQVITLLTCTSPKKVIFQLMDYSVPADDTLIQMWAAGSEVSVAP  
HVLKTIILLILKKGKPGEMEDTLTEGKRFSLDGTNLMPLAYAQDALRVLLNCSGLQQVDITL  
MKENFWDQLSEDLICYHGVCFIALSL

>Mus musculus\_MROH9(ENSMUSP\_94365)

MIQETTNTMTRLQTLQSSVTWYHVEFKAEIILLDTYSGLLSEQSIILAMNSSFVDPVQFE  
SQLQIIELSFRKVFMSPSLSTVKAMGRTSEDTELENLYQNI FNIFEDTLLILVSKDFYK  
IQILKEMATWMSSEDSYQQRAMMVITRVLIFASKRVKKYRSIDAPCLGLLAAELSLFCS  
HNDPEIIQQAMAGMNYVLYIALCQNSNVVKFRSSKPSEEKSNIKVMTSGVESLAKMTQGE  
KTKIAQSVGQIILLPQLLTDVFWTLLKKLSSPNNKMAIEAASLLKLTLEFHAQKITRVSKI  
VEDIYEQLCGNPSMMSKSVMLHVISVLRASPKKVI FQLMEFPVPADKTLTLLWQAASME  
SSVASEVLKTIILLILKKGKPGEIEETLGEKRRFSLDATNMMPVAASQALCTFLPVTSEYK  
VVKLFPEFLMALLLQLSYCSHHLKNTARNRPLYVRDALKALLNCSGLEEVDKALEKKNFW  
DQFSQVMDHQYGIHLIAKTLSECNFPQFPETLHYVYKIAVEGPRSEDSIVTIIFFAELL  
NNFFKESLPEEFLVLFNRWINDSNPSVGKMSLQKIASMAPVFSEIESVCNLLLPLVDAFL  
SKEHTVIRAMLTNRNLSKLDKKIYSTVCIRIASSYPLMDHVNSGIQCMAIRHFGELL  
MDMNHYNWMLKHIVLGSVPLILFLESKETRIVKACRYTLTICVTQLKWSTASLLKEETY  
NFESVVDICNLLSSYESYITDLISDTLGFLGSSRDFLKKGAILVGYLGKSGEHLRLR  
DEIDIMIEVIERLTRVEDALIKELAEKTRKLFKEIANRMSSTIKQTFRKKWVMFRTKKL  
KLIYDVASIRTLEGNIEI IKDSLIESNLEKSEKPYRVTKENYFNESLYTV

>Rattus norvegicus\_MROH9(ENSRNOP\_4931)

MATWMNEDTLYQQRAMMVITRVLIFASKRVKKYPSIDAPCLGILAAELSLFCSHDDPEI  
IKQAITGMNYVLYIALCQNSNAITFRSLKTNEKESNPKIITSDVELLAKITQGEKTKLVQ  
SVGQIILLPQLLTDVFWTLLKKLSSPYNNTAKDAASLLKLTLEFHAQKITRVSKI VNDIYE  
QLSENSSYMMQNAMLVVISLLTRASPKKVI FQLMEFPVPADKVLMLMWQAASVESVASE  
VLKTIILLILKKGKPGEMEETMVERRRFSLDATNMMPVAASQALCTFLPVTSYRKKVVFVFP  
EFLMALLLQLFYCSQHLKDTAQDRPLYVRDALKALLNCSGLEEVDKALERKNFWDQFSQV  
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PEEFLVLFNRWINDSNPSVGKMSLQKIASMAPVFSEIESVCNLLLPLVDAFLSKEHTV  
IRAMLTNRNLSKLDKVIYKVCIRIASSYPLMDHVNGGIQCMAIRHFGELLMMDMNQY  
NWMLHHIVLGSVPLILFLESKETRIVNACRYTLTICTTQLKWSTAHLKKEETYNFESV  
LDVCNLLSSYEGYITDLISDTLGFLGSSRAFLKKGAILVGYLGKSGEHLRLRDEIDIM  
IEVIERLTREEDPLIKELVEKTRKLFKEMANRMASSTVQTFRKKWAKMFRTKKLKLIYDA  
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>Canis familiaris\_MROH9(ENSCAFP\_22081)

MKTRKNLRHSDKDETLQTLQSSVKKWHHIVNSAPSLWDAISRLLSDQAMVLSLNSFVDP  
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KDFYKQLKILKDMIWMNEDTSLYQERVMMI ISSVLSFASKVKRYASIDAPCLGVLAEL  
SLLCFHNDPLITHQASLGMCYLLWIAKQNDIEEIKSTMCNSGNHGLLPVPSDTEFLMD  
LQDKTKITQYVGTLPKPSLLTDFVWSLLMRLSSNCVTAFAEASTMLKMTLEYHAHKVTM  
VSKIVDAIYKQCEHSSHVMRHTLLRVITLLIRSSPKKVI FQLMDYPIPADNTLLMWQA  
AGSESRMAPHVLTILLILKKGKPGEMQDSLERRRFSLDTTNMMPVAASQALCTLLPIS  
YKRAVAEFFPQLLMALMLQLFYSSDLRLMIKDRLFYARDALRVLLNCSGLQKQVDMALKK  
NCWNQFSQVLSHHRVYLVAKTLSDYNFPQFPETLHYLYKLSVEGPRSEDSIVIVIFFT  
ELLNFFKDPPEEFLVLFNRWVNDPNPAVSKLSLQKIASMAPVINKVENVRSLISILD  
AFFSKDKTVI I WALLTLRKLGLKLNKVTYSSSLSTRASSYPLMDHSNGGIRSMAYHFG  
ELLKMSQYPWILNDMVTGGLVPLILFLEDEIRVAKACKYTLKICASELNWSTSYLLKD  
KHHNFELVVLNICKNLLISHESYITNLISDTLGFLRSSRIYLRASVILIGYTLKLGSHL  
LLREEIEVMLDAIDPVLREDEPVIRELAEITYRDFKEMSLKLTSSNFKQIFRRLFSLIYL  
KKLKPLYNWPDLADSL

>Felis catus\_MROH9(ENSFCAP\_2773)

LHLLSSLLNCTFFLISFVDPQLQFESQLKIIESSFKKVFSPSEKVRQMGNSSEDDKED  
IENLYQNILNMYEDTLLILVSKDLYKQLKILKDMAMWMNEDSSYLQERAIIVISRVLFSFAS  
RKVRGASVDAPCLGVLAELSLCCHNDVSI TQQASLGMHLLCIAKQNEDEKTKST  
KYEKHGNHCLLSPSSVQEFVQVLRDRAKIAQSVGQTLMPSSLTDFVWSLLMTLSSPNC  
VTAFKASTILKLTLEYHAHKVTMVSKIVDAIYKRENSHVMRQAMLRVTTLLTRTSPK  
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RDALRVLLNCSGLQQVDIALKKKNCWNQFSEELFHHQGVYLIAKTLSEYNFPQFPETLQY  
LYKLSVEGPRRSEDVTITVIFTFTEVSFIRRLNNQVLFPPYANLRQHSNLLSPLNIDSYQG  
LRQ

>Myotis lucifugus\_MROH9(ENSM LUP\_5298)  
VTNLQILQSVVVKWQHLLIQEYATATSLWDTLATIFNHQALILAVNSSFVDPDLLQFETQLSII  
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FRDPFPEEFLVLFNRNWKDSNPAVSKLSLQKIATMAPVINQIESGCSLVLSILDFAFYSKD  
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VVLNICNNIFISHGSIYITDLLSDSLGFLRSSRVYLRRAALILIGYLAVSGRHLLLRDDIE  
VMLEAIERVLQDEDP LVEELAKITYGLFKKIAHKMTSSVIKQSFRR LFNFIYIKKVKLLY  
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>Monodelphis domestica\_MROH9(ENSMODP\_4394)  
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RVARIVDFIHTQLNANLPIDLKQ TLLQIIALLTRSV PQKVVFQ LLDYMLPVDRSVLKMWK  
AVSTESKSSCLV LKTI LILVLKGPGEVEESSKIRKRFSLDTANMMPVVAQA L CILLPVP  
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VDALPSKDKTVIIQAMTTLRKL LSVLDKVTYSIICMRIASSYSLMDHETASIRAMA FRH  
FGDLLKDMKQYTWMLKPAVIKCLVPLLLFLEDESELRVVKACKYTLNICAPYFKWKV IPLL  
QDNLYNIEIVVLNICNCLYNNFGS FISDII FTTLGFLKSDRGFLRKA AII FLGYMAKMG S  
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>Drosophila melanogaster\_(FBpp0071261)  
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SEALLEESGKKEEENCSTEISVAYDVLFNQWLHSREP KVCVEILQALSSMYPLLPKDRIQ  
DQAARLV PQILALYRRSVDRNAV TQFLCSVLKTNLALNATVLDG I IDVLVTHLFDLV CVY  
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SCAGNIENRIPATIECLKQLILSERGIKMKLTLLKTIVALAQKSHIRDKEFVWFVVRHSC  
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IFSRLVPLKPTGELAASILLHLGAALSDPNAVVRGLSIQGMGYVGQLGEKEAKRYSETAI  
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REAAIQFLFGDICEGKHDDGSSSPTSSMEALREQLIANLFPLLLHLSESEVAIASACRGTL  
QRVCRLLTAPRVVEMAEQQQLGEERGHQLNYSSFVLEFVKTI ALELTDHIQDFIDSCLPQL  
RSQWPEVRGSAAIIVIGLHNFSLERNVQTE TVASKIAVLLKDEQALVRMRAATALGYFFG  
DI

>Anopheles gambiae\_(XP\_001237319)

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LDRSAVTQYLASIIKTVLQLDSKLLAPMADTLVGCLFDLVCVSPDYDKPQTVKGHFEVLRFCFDLLAPEYG  
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QETIRDVDEYTFVEGVIAEMFHLPLYQPASGGGSGSAGGGGGGGGGGAGQAAEFRVPLDQERRML  
VKVFGVCLCHTRDEHLIENKLDLIVALAKGEKADKHAPTEEYERLMQDYAEALGYASVEHLDRVMGKLLTA  
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VRQTAVDVLKKILEIACVYETLTVDSSVEWVGELDRIRDEIVTDDAKDIYRLAAELARIAQRLSSYQY  
VQFSKCLLYSVSDPEPSSVIGASYVLKFFMHVKGSEMFHAIP ELVKECLYAVKICEVPRAKTTILKSILA  
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DAARTATLHPFAIVCVLREMFACAELKSEMQRFPFIFCMLLSTLASYITLLPPYSVLAQPNAAGNVTIP  
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FEPFQVSSAIRIRPFEKSSSTELRESAILLFGDLGCLKQLPAGEAGQHDGADVSESLVEQLRANLCSL  
LLHLCEQNSMIARACKITLKNVCALLGTAKMNALQNHLLLEHGQLQCAVFLKDFVKLIGEELEQEWINDFI  
DACLPLLRSQWPEIRGNAAIILIGLLHCQANANVKCQHMEQIGHKISLLLKDECTTVRVSAASEALGYIYGEM

>Capitella teleta\_(ELT91566)

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QLMPFLQVLM EGLVDAEFPFCSSGACVVMKSFMESRGAELHSQVATLQTGLHAKLSVITHPQTRTGLTRAV  
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TQHSMALT VVLT ELCRGEAAAPVVASNYARLLASMMTMVSMVDVRPPQQQAKDANGKPAKHSSALTAR  
IDPSEVSI DGLRQVLIASQCPAIMQALDSVEIWGKFRNIEQVADGFALLTKCLVEFQPHCIGHLVSNLNP  
LLGASVYDRPQRMMAAAVYAQV ISESLIEEGCAGDSNLVDLLVNGLLARL VDSNHRVRMLCIRGLGNVAS  
AGSEQLRKYSMSVVSAMIAGMDDKEDVDDYITLEAMEGLSRILAEI DEEQIRGVLINVSLRIRPCFEKNN  
DRVRAAIGLFGDLARFGDGP SKDPFVEQIHSNLVTL LLLHLNDPSPQVRLACKKTLRSIGFPVGESEINE  
MFQKHLLESASLIYGEFMNDLSKAINKDFVDKLN FYTMGNV SFFRSSWSEIRSNAA MFVGFLLGNMDS S  
ASNLSKEHICGALILLKLDLSPDVRIKAAEAMSYLHCI

>Hydra magnipapillata\_(XP\_012564350)

MASELLGGNKYVSSSVVPIVCHLSREMVIQDDYPRYITLFEKEKFNEMERRFKDFLNDTSNERSNIWQK  
LSELLESVLDIRPVSIQQKPKVKMDSYTKDYSYSSIRRKAKKQAEIDLNTTDFNLQSNFSSETIRDNLN  
ANDNVNDIDSEENNYVSSSDNDQDENFDGEINNI LRDWSLQYNITHVALASLLCILKPYFPPTLPQHPRTL  
LKTPTILEVKKLSGGDYCHIGLENGLKNCINDLFI PENTNIHLQINIDGLPLFKSSGVSVWPILCIVKN  
FSMKEPFVVGIIYSGKEKPPSAAEFLEEFVEETKHLVDNGFLFNKRYSVKIHSFICDAPARAFVKGIKGH  
SGYNSCEKCATNGEYDGLIYPETNAPLRDLSFFHMDKKHYLWECPLKLLNVGFVSQFGLDYMHLVCL  
GVMKRLILYWKGPGLHVRIGTRAMDQLSNSLSLSQNI PSEFSRKC RSAHEVLRWKATKFRLLFLYLGL  
PLVLSNVLSLPLYNHFMLLNVAITILVDPVFSKDYSEYAHHELLVLFVNEGKSLYKGFVYVNVHCLIHLS  
KDVQTLGPLDNFSSFPFENLLGQLKKMIRKPQFP IQQLVRRRLGERKLSNLKNDNNLDELNLLKGEHFN  
PLPNGFEHAKQFKKQVLEKWFSTSNKDNCFITNDGVPCI IRNMLLINNDITFVCEKFLTVYESFMFPI S  
STKLGI CKVS

>Trichoplax adhaerens\_ (XP\_002108256)

MSASGKQWLSEYGSEYSTGGQIDEMVLALIESCADKSESVRATVADSLT SIGKKK PALVLNFCKVFLEKR  
TKLDKGRVLLLGVIKRIVTETIDTLPSQVGC DLVRLASSEMTASKEVIVDWQTAASEVLVALGSRFAKE  
VITSLLDKFGAGAI PHYFVVQTLANLASKNAYCVVPHLKD TFGRLLPMLGMAKSDNMKYI FSYALNRFCE  
SISEYVANIDKAPDKKISSGMYFGEVSAGYDVLFGVWLQSKDSRLRSVVAEAI GQMALILPRDKIEEQST  
KLISVIVSLYRKHS PNDHLLITECLCNILAAHLQVGCQIADSLADNV MATLHNQACAFADFGSTSSIKNH  
NEVLRCFAVIGPITSNRLIQFLLNKLENPNDKIRIGTLNLIKHI INASGIPQDKMALIISGLKILLNETN  
NKVKQTLAQVISAMAHHEYHLHLEGGQLLVEFIVRQCALTDNLQKTTKPDSEVSNASLRVMCGNVLQVLT  
TVAHMQNVLWPTLIEFIVPMKYNNAAGVICR SAAF LANKKQSEESSDYLDYACQVNL PKPVALLARLLV  
LAGLPKRSCGQLHVLNLLAMSSNINEAFADMWDSVLP RMI TYLEDCITL EHSAGDDWNQKAWEDLVK  
LLTKSLEEVEDENWTCELGSEMSSQIVMYESFPEEKASKNF LYKCI GVI LRKTTNKAYVEKQLNIMFSSV  
NHTNQTEREGCAMGMGFASYAHLDAVLQKLEDV PKREMDKSEADVERIKSTLILSYGYVTTYSPVNLITS  
RIEVNILRVINPQFGNVKDS TVKQNLIRSVALIGHALHKDHLKFSFTFNKRDDLI THMLAEELAEKTLRS  
FNLMLCEILENGSPNDFMLYKVHKKIYSPHLENW IYSSHERERDRSLQSLAAI LEWYLEHAESNKDG  
SSKKFGAVIARLAPRVADPLASVRESTITCTQLIFRIEMQFQAIGNDELVDAMDLLIERCRKEESTVITS  
VVNDYGKILAKKIREVELVEFYI LLLDGLVDCQLQSAVGTSAI INAVLRSRAGGLREEKLRKLEEIDDD  
KCICKVRKSRFVLASYHLLPVLDVLLNFKLPYDRYV VGLWKT LAEEEEMLGSVCSHFMDLLKKSFPFQEQ  
GRKEIIKIATEQPIAIACGFNELFKVPTAVSIAKRDPQLFSTLLLRIGTCIKVQVKEKSSKAHGVSPM  
RTAISAFQGF LTLSEEFVLD EIDKEDGWDKIRHDKAYSDAI VAITSALCKSILLRPHIAKVIAYLMPAL  
NGPYDNQRLIVAAFFAEI INQRCLGELGQADI I INCLLSRLVDDNLKVRMFCV RGLGNVASVGREHFNAY  
STTVLSALMSGIDEKDDSDCDIT LEAMSGLSRI IAELEDTHVRSILINISL KIRPCFEKSEEKVRARAFT  
LFGHLSKFGDGPSPKVPFLEQIQANMVSLLLHLNENEASVVKACKFTLRSIGPLLNSEIDYMFQKYLLDD  
ATLYYGEFLNLLTRLLI SEYKEKTSLYVTGATRFK SEWEEIRANAATLIGYYLGNLPNELRETI SKEHV  
CNALKMLLKDTS PMVRS GCATATSLLEYEY

## **Myelin Transcription Factor-MYT**

>Homo sapiens\_MYT1L(ENSP\_382114)

MEVDTEEKRRHTRSKGVRVPVEPAIQELFSCPTPGCDGSGHVSGKYARHRSVYGCPLAKK  
RKTQDKQPQEPAPKRKPFVAVKADSSVDECDSDGTEMDMEKEEDEGEYSEDNDEPGDE  
DEEDEEGDREEEEEIEEDEDDEDEDGEDVEDEEEEEEEEEEEEEENEDHQMNCHNTRI  
MQDTEKDDNNNDEYDNYDELVAKSLNLGKIAEDAAYRARTESEMNSNTS NSLEDDSDKN  
ENLGRKSELSDLDSV VRETVDLSL KLLAQGHGVVLS ENMNDRN YADSMSQQDSRNMNYV  
MLGKPMNGLMEKMVEESDEEVCLSSLECLRNQCFLARKLSETNPQERNPQQNMNIRQH  
VRPEEDFPGRTPDRNYS DMLNLMRLEEQLSPRSRVFASC AKEDGCHERDDDTTSVNSDRS  
EEVFDMTKGNLTLLEKAI ALET ERAKAMREKMAMEAGRDNMRSYEDQSPRQLPGEDRKP  
KSSDSHVKKPYGKDP SRTEKKESKCPTPGCDGTGHV TGLYPHHRSLSGCPHKDRVPPEI  
LAMHESVLKCP TPGCTGRGHVNSNRNSHRSLSGCPIAAA EKLAQAQEKHQSCDVSKSSQA  
SDRVLRPMC FVKQLEIPQYGYRNNVPTTTPRSNLAKELEKYSKTSFEYNSYDNHTYGKRA  
IAPKVQTRDISPKGYDDAKRYCKDPSPSSSTSSYAPSSSNLSCGGGSSASSTCSKSSF  
DYTHDMEAAHMAATAI LNLSTRCREMPQNLSTK PQDL CATRNP DMEVDENGLDLSMNKQ  
RPRDSCCPILTPLEPMS PQQAVMNNRCFQLGEGDCWDL PVDYTKMKPRRI DEDESKDIT  
PEDLDPFQEALEERRY PGEVTIPSPKPKYPQCKESKKDLITLSGCPLADKSIRSMLATSS  
QELKCPTPGCDGSGHITGN YASHRSLSGCPRAKKS GIRIAQSKEDKEDQEP I RCPVPGCD  
GQGHITGKYASHRSASGCP LAAKRQKDG YLNGSQFSWKS VKTEGMS CPTPGCDGSGHVSG  
SFLTHRSLSGCPRATSAMKAKLSGEQMLTIKQRASNGIENDEEIKQLDEEIKELNESNS  
QMEADMILKRTQIT TMESNLKTEEENKVI EQQNESLLHELANLSQSLI HSLANIQLPHM  
DPINEQNFDAYVTTLTEM YTNQDRYQSPENKALLENIKQAVRGIQV



>Pan troglodytes\_MYT1L(ENSPTRP\_55706)

MEVDTEEKRRHRTRSKGVRVPVEPAIQELFSCPTPGCDGSGHVSGKYARHRSVYGCPLAKK  
RKTQDKQPQEPAPKRKPFPAVKADSSSVDECDSDGTEMDKEKEEDEGEEYSEDNDEPGDE  
DEEDEEGDREEEEEIEEEDDDDDDEDGEDVEDEEEEEEEEEEEEEENEDHQMNCHNTRIM  
QDTEKDDNNNDEYDNYDELVAKSLNLGKIAEDAAYRARTESEMNSNTSNSLEDDSDKNE  
NLGRKSELSDLSDVRETVDLKLQAQGHGVVLSNMNDRNYADSMSQQDSRNMNYVM  
LGKPMNGLMEKMEVESDEEVCLSSLECLRNQCFLARKLSETNPQERNPQQNMNIRQHV  
RPEEDFPGRTPDRNYSMLNLMRLEEQLSPRSRVFASCAKEDGCHERDDDTTSVNSDRSE  
EVFDMTKGNLTLLEKAIATALETERAKAMREKMAMEAGRRDNMRSYEDQSPRQLPGEDRKP  
SSDSHVKKPYDPSRTEKESKCPPTPGCDGTGHVTGLYPHHRSLSGCPHKDRVPPEILAM  
HESVLKCPPTPGCTGRGHVNSNRNSHRSLSGCPIAAAELAKAQEKHQSCDVSKSSQASDR  
VLRPMPFVKQLEIPQYGYRNNVPTTTPRSNLAKELEKYSKTSFEYNSYDNHTYGKRAIAP  
KVQTRDISPKGYDDAKRYCKDPSSSSSTSSYAPSSSNLSCGGSSASSTCSKSSFDYT  
HDMEAAHMAATAI LNLSTRCREMPQNLSTKPQDLCTARNPDMEVDENGLDLSMNKQRPR  
DSCCPILTPLEPMSPOQAVMNNRCFQLGEGDCWDLVPDYTKMKPRRIDEDESKDITPED  
LDPFQEALEERRYPEVETIPSPKPKYPQCKESKDLITLSGCPLADKSI RSMLATSSQEL  
KCPTPGCDGSGHITGNYASHRSLSGCPRAKSGIRIAQSKEDKEDQEP I RCPVPGCDGQ  
HITGKYASHRSASGCPAAKRQKDGYLNGSQFSWKS VKTEGMSCPTPGCDGSGHVSGSFL  
THRSLSGCPRATSAMKAKLSGEQMLTIKQRASNGIENDEEIKQLDEEIKELNESNSQME  
ADMIKLRTQITMESNLKTI EENKVI EQNESLLHELANLSQSLIHSLANIQLP HMDPI  
NEQNFDAYVTTLTEMYTNQDRYQSPENKALLENIKQAVRGIQV

>Mus musculus\_MYT1L(ENSMUSP\_58264)

MDVDSEEKRRHRTRSKGVRVPVEPAIQELFSCPTPGCDGSGHVSGKYARHRSVYGCPLAKK  
RKTQDKQPQEPAPKRKPFPAVKADSSSVDECYESDGTEDMDKEEDDDEEFSEDNDEQGD  
DDEDEVDREDEEEIEEEDDDEDDDEDGDDVEEEEEEDDEEEEEEEEEENEDHQMSCTR  
IMQDTEKDDNNNDEYDNYDELVAKSLNLGKIAEDAAYRARTESEMNSNTSNSLEDDSDK  
NENLGRKSELSDLSDVRETVDLKLQAQGHGVVLSNISDRSYAEGMSQQDSRNMNY  
VMLGKPMNGLMEKMEVESDEEVCLSSLECLRNQCFLARKLSETNPQDRSQPPNMSVRQ  
HVRQEDDFPGRTPDRNYSMLNLMRLEEQLSPRSRTFSSCAKEDGCHERDDDTTSVNSDR  
SEEVFDMTKGNLTLLEKAIATALETERAKAMREKMAMDAGRRDNLSYEDQSPRQLAGEDRK  
SKSSDSHVKKPYGKDPSTRTEKRESKCPPTPGCDGTGHVTGLYPHHRSLSGCPHKDRVPPE  
ILAMHENVLKCPPTPGCTGRGHVNSNRNSHRSLSGCPIAAAELAKAQEKHQSCDVSKSNQ  
ASDRVLRPMPFVKQLEIPQYGYRNNVPTTTPRSNLAKELEKYSKTSFEYNSYDNHTYGKR  
AIAPKVQTRDISPKGYDDAKRYCKNASPSSSTSSYAPSSSNLSCGGSSASSTCSKSS  
FDYTHDMEAAHMAATAI LNLSTRCREMPQNLSTKPQDLCTARNPDMEVDENGLDLSMNK  
QRPRDSCCPVLTPLPMSPOQAVMSSRCFQLSEGCWDLVPDYTKMKPRRVEDEDEPKET  
TPEDLDPFQEALEERRYPEVETIPSPKPKYPQCKESKDLITLSGCPLADKSI RSMLAT  
SQELKCPTPGCDGSGHITGNYASHRSLSGCPRAKSGIRIAQSKEDKEDQEP I RCPVPGC  
DGQGHITGKYASHRSASGCPAAKRQKDGYLNGSQFSWKS VKTEGMSCPTPGCDGSGHVS  
GSFLTHRSLSGCPRATSAMKAKLSGEQMLTIKQRASNGIENDEEIKQLDEEIKELNESN  
SQMEADMIKLRTQITMESNLKTI EENKVI EQNESLLHELANLSQSLIHSLANIQLP H  
MDPINEQNFDAYVTTLTEMYTNQDRYQSPENKALLENIKQAVRGIQV

>Equus caballus\_MYT1L(ENSECAP\_12726)

MEVDAAEKRRHRTRSKGVRVPVEPAIQELFSCPTPGCDGSGHVSGKYARHRSVYGCPLAKK  
RKTQDKQPQEPAPKRKPFPAVKADSSSVDECYESDGTEDMDKEEEDDEEEYSEDDDEQRD  
DDDEEEVDREEEEEIEEEDDDDDDEDGEDVEEEEEEEEEEEEEENEDHQMNCHNTR  
IMQDAEKDDNNNDEYDNYDELVAKSLNLGKIAEDAAYRARTESEMNSNTSNSLEDDSDK  
NENLGRKSELSDLSDVRETVDLKLQAQGHGVVLAENMNERNYADTMSQQDNRMNY  
VMLGKPMNGLMEKMEVESDEEVCLSSLECLRNQCFLARKLSETNPQERNPQQNMNIRQ  
HVRQEDDFPGRTPDRNYSMLNLMRLEEQLSPRSRTFSSCAKEDGYHERDDDTTSVNSDR  
SEEVFDMTKGNLTLLEKAIATALETERAKAMREKMAMEAGRRDNMRSYEEQSPRQLPGEERK  
PKSSDSHVKKPYGKDPSTRAEKESKCPPTPGCDGTGHVTGLYPHHRSLSGCPHKDRVPPE  
ILAMHENVLKCPPTPGCTGRGHVNSNRNSHRSLSGCPIAAAELAKAQEKHQSCDVSKSNQ  
ASDRVLRPMPFVKQLEIPHYGYRNNVPTTTPRSNLAKELEKYSKTSFEYNSYDSHTYGKR  
AIAPKVQTRDISPKGYDDAKRYCKNASPSSSTSSYAPSSSNLSCGGSSASSTCSKSS  
DYTHDMEAAHMAATAI LNLSTRCREMPQNLSTKPQDLCTARNPDMEVDENGLDLSMNKQ  
RPREGCCPILTPLEPMSPOQAVMNSRCFQLSEGCWDLVPDYTKMKPRRIDEDEPKET  
PEDLDPFQEALEERRYPEVETIPSPKPKYPQCKESKDLITLSGCPLADKSI RSMLATSS  
QELKCPTPGCDGSGHITGNYASHRSLSGCPRAKSGIRIAQSKEDKEDQEP I RCPVPGCD

GQGHITGKYASHRSASGCPLAAKRQKDGYLNGSQFSWKSVKTEGMSCTPGCDGSGHVSG  
SFLTHRSLSGCPRATSAMKKAKLSGEQMLTIRQRASNGIENDEEIKQLDEEIKELNESNS  
QMEADMIKLRTQITTMESNLKTI EENKVI EQQNESLLHELANLSQSLIHSLANIQLPHM  
DPINEQNF DAYVTTLTDMYTNQDRYQSPENKALLENIKQAVRGIQV

>*Anolis carolinensis*\_MYT1L(ENSACAP\_5659)  
MEVDADEKRRHRTRSKGVRVSI SLQFPWKPAIQELFSCPTPGCDGSGHVSGKYARHRSVYG  
CPLAKKRKTQEKQPQEPAPKRKPFVVKTDNSSVDECYETDGT EEMDDKEEEEEEEEEEDY  
SDDNDDHGDDEEEEEEEVEDREEEIEEEEEEEEEEEADEVEDEEEEEEEEEEEEEKET  
KAEDHQMNCHNTRMQDAEKDDNNNDEYDNYDELVAKSLNLGKIAEDAAYRARTESEMNS  
NTSNSLEDDSDKNENVGRKSELSDLSDVRETVDLSKLLAQGHGVVLSININDRNYTD  
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ERNQQNMNSRQHARQEEDSQGRTPERNYS DMMNLMRLEEQLSPRSRTPPSCAKEGGCHE  
RDDDTSITSDRSEEVFDMTKGNLTLLEKAI ALETERAKAMREKMAEAGRDNMRSYEE  
HSPRHLSGDDRKSKSSDGHVKKPYGKDP SRTEKESKCP TPGCDGTGHVTGLYPHHRSL  
SGCPHKDRVPPEILAMHENVLKCP TPGCTGRGHVNSNRNSHRSLSGCPIAAAEKLAKAQE  
KHQSCDASKSNQASDRVLRP MCFVKQLEIPQYGYRNNVPTTTPRSNLAKELEKYSKTTFE  
YNSYDNHAYGKRAIAPKVQSRDISPKGYDVA AKRYCKNSSPTSSTTSSYAPSSSNMSCG  
GGSSASSTCSKSSFDYTHDMEAAHMAATAI LNLSTRCREMPQNLSTKPQDLC SRKNQNP  
MEVDENGLDLSLNKQRQRDGC CAI LTPLEPMS PQQQAVMNNRCYQLNESDCWDL PVDYT  
KMKPTI DEDDSKEMNPELDLDPFQEAL EERRY PGEVTIPSPKPKYPQCKENKDLITLSG  
CPLADKSIRSMLATSSQELKCP TPGCDGSGHITGNYASHRSLSGC PRAKKS GIRIVQSKE  
DKEDQEP I RCPVPGCDGQGHITGKYASHRSASGCPLATKRQKDGYLNGSQFSWKSVKTEG  
MSCPTPGCDGSGHVSGSFLTHRSLSGCPRATSAMKRAKLSGEQMLTIKQRASNGIENDEE  
IKQLDEEIKELNESNTQMEADMIKLRTQITTMESNLKTI EENKVI EQQNESLLHELANL  
SQSLIHSLANIQLPHMEPINEQNF DAYVTTLTDMYTNQDRYQSPENKALLENIKQAVRGI  
QV

>*Xenopus tropicalis*\_MYT1L(ENSXETP\_25129)  
MEVESDEKRRHRTRSKGVRVPEPAIQELFSCPTPGCDGSGHVSGKYARHRSVYGCPLAKK  
RKTQDNKPQEPAPKRKPFPGKADNSSVDECYETDGTEDMDDSQTRSEEQFHSNHHEQN DL  
VKSPIPRKLSDSILEPDFEHETCPIHNQDMERKSENKQKSRTQNE DLGRMSLHPMDCHSS  
RILHDTEKDDNNNDEYDNYDELVAKSLNLGKIAEDAAYRARTESEMNSNTSNMEDDSD  
KNEHVGRKTELSLDLSDVRETVDLSKLLAQGHGVVLS DNLNERHFVDNAMQEDTRNMN  
YVMLGKPTNNGHAEKMI EESDEEVCLSSLECLRNQCFDLARKLSETNSHDRSQQHMMNR  
MHRQEEDYSDHTDRNYS DMMNLMRLEEQLSPRSRSPSSCAKEDEC IERDDDTTSITSDR  
SEEVFDMTKGNLTLLEKAI ALESERAKAMRDKMAMEAGRRESMRDCDDHSVRHLSGEDRR  
LKTNDGHVKKPCYTKDPSRTEKESKCP TPGCDGTGHVTGLYPHHRSLSGCPHKDRVPPE  
ILAMHENVLKCP TPGCTGRGHVNSNRNSHRSLSGCPIAAAEKLAKAQEKHQSCDASKTNQ  
ASDRVLRP MCFVKQLEIPQYGYRNNVSTTTPRSNLAKELEKYSKTTFDYN NYENHAYGKR  
AIAPKVQSRDISPKGYDAKRYCKNSSPTSSTTSSYAFDYTHDMEAAHMAATAI LNLSTRC  
REMPQNLSTKPQDLC SRNPDI DV DENGTL DLSMNKQSHRDGCCTI LTPLEPMS PQRQAVM  
NSQCYQMNEGDCWDL PVDYTKMKPRRI DEDDSKEINHEDLDPFPDLEERRY PGEVTIPSP  
PKPKFPQCKESKDLITLSGCPLADKSIRSMMATSSQELKCP TPGCDGSGHITGNYASHR  
SLSGCPRAKKS GIKIAQSKEDKEDQEP I RCPVPGCDGQGHVTKGYASHRSASGCPLAAKR  
QKDGYLNGSQFSWKS GKTEGMSCTPGCDGSGHISGSFLTHRSLSGCPRATSAMKKA RLS  
GEEMLTIKQRATNGIENDEEIKQLDEEIKELNESNSQMESDMIKLRTQITTMESNLKTI E  
ENKAI EQQNESLLHELANLSQSLINSLANIQLPHMDPINEQNF DAYVTTLTDMYTNQDR  
YQSPENKALLENIKQAVRGIQV

>*Danio rerio*\_MYT1L(ENSDARP\_127218)  
MEVDAAEKRRHRTRSKVAVEAAQELFSCPTPGCDGSGHVSGKYARHRSVYGCPLAKKRKTQ  
EKPLQEPASKRRPFLTMADGEHAMYENYEAEME EGEEREQEEIEEVEDEEEGEDEEEEE  
CSDNEDLGE EEEEEEGEDDGEVEREDVEEIEQMEEEVEE DEEVVEEDGDDEEQEEDDDE  
EEDDLEHDEEEYYGNLSHQDDNYSSGQSKSNHMI EKDNNNNNNNNTNNEEYENYDELVAK  
SLLNLGKIAEDAAYQAMTESEMNSSSNSAGEDDDEDEDDGSEQQGELSVDLSDV  
RETVDLSKLLAQGHGAVLPDEGYADAGSGDACQANGRGQAEES EEEVCLSSLECLRNQCF  
DLARKLSETQPSERPLMEHHMQHHSEQQQPQHLLHPPHPPHPPMPRYDSCQMDQHRPLER  
NYS DMVNLMLKEEQLS PASRGYPSSCAQDGEDTTSVASDRSDEAFDMTKGNLSLLEKAI  
ALESERAKVMRDRMASEQMVARRDNQRLHGEHS PRQSSAEERKARLHHDGAKRAYYPKD  
SRGEKESKCP TPGCDGTGHVTGLYPHHRSLSGCPHKDRVPPEILAMYENVLKCP TPGCS

GRGHVNSNRNSHRSLSGCPIAAAAEKMAKVQEKHHS CDGPKSNQASDRVLRPMC FVKQLEI  
PEYGYKNNVPTSTPRSNLAKELEKYSKASFDYSNTYENQPHAYGKRSLIPKSHGRDTS PK  
GYDAKRYCKTSSPASSTSSYAPSSSSSLSCGGGGGGGGGGSSASSTCSKSSFDYTH  
DMEAAHMAATAILNLSTRCREMPQSLAAKGPELLAQSPDDR DGDDSRALDVGRVGGMGEG  
SGGTVLTP LQPMS PQRQALLNSHCYQMSTADCWDL PVDYTKIKRLDDDHKEDDLDPFQDL  
LEDQQYSGEVSLSPKHKYAPCKESKELLTLSSCQLADKGMGMMSNSQDLKCP TPGC  
DGS G HITGNYASHRSLSGC PRAKKS GIKIMH SKEDKDDQEP I RCPVPGCDGQGHVTKYA  
SHRSASGCPLAAKRQKDG YVNGAPFSWKS GKT DGMTCP TPGCDGSGHVSGSFLTHRSLSG  
CPRATSAMKKARMTGVEMLTIKQRASKGIENDEEIKQLDEEIKDLNESNNQVESDMIKLR  
TQITTMETNLKSI EENKVIEQQNDSL LHELANLSQSLINSLANIQLPHMKPMLKEAPV  
KNYCCLQMPHREPMEQNFDYVSTLTDMYTHQDQYQSPENKALLENIKQAVQGIQV

>Takifugu rubripes\_MYT1L (ENSTRUP\_7999)  
SVNGYPLAKKRKRVRDQRTPDNYPKRSSYLDDMHNSTMEEWYDTDGTE DMDDREEEEVERV  
IEEEDEVERGHEDSEEDYEEEQIEVEQEESEEEERVDEEEETVEEVKYDEGEEEEKQOSHG  
QEDDEMSSAERVKANGEARSSSTGKSGPLTEKDDNNNDEYDNYDELVAKSLLNLGKIAEDA  
ANRAMTESEMNSLNTTEDEEDEDDEEEDDDDLRLNADSDVVRETVDLSKLLAQGHGAM  
LAENV DQGEFADDAAKTVNKNDYAHNGANSHTVGNKQVMSICSGQIEKSDEEVC LSSLEC  
LRNQCFDLARKLSETKTSGDSNQPTQHSSGDYQHSQTNGRSLNRSYSMDNLMKLEEQLS  
PRSKAFTSCAQDGRCHKNFDEDTASVASDRSEEMFDMTKGNLSLLEKAI ALESERAKAMR  
DKMAADPTRRDRGRYSHGDNRSRQSYGVDRKSRFPDGMKKPFY LK DASRV DKKESRCPTP  
GCDGTGHVTGLYPHHRSLSGCPHKDRVPPENKVVMYENVLKCP TPGCTGRGHVNSNRNS  
HRSLSGCPIAAAAEKLAKTKEKHQTC DGT KSNQGS DGVLRPTCFAYVVFVKQVDY PKYDYKN  
NVSTSTPRSNLAKELEKYSKTNFDYCAFDGSTNHQAYGKRAIAPKVDGQRDTS PKGYNER  
IIFAWNISLSGPDNASKQQPEISSSLSCGGGRGASSTCSKSSFDYSHDMEAAHMAATAIL  
NLSTRCREMPQSLGKPDQLCSQAKSPGLD VDENG TLDLSLSKRLCSGGSGSSGAGDSVL  
MPLEPMSPLRQATLLGSR CYGMNAASCWDL PVDYSKIKH VDEDENEPTGYDDLDAFKDL  
LEDRSYTTDVRI P SPKPKFGQCKENKDLITLSGCPLADKSIR SMLANNAQELKPRCPTP  
GCDGSGHITGNYASHRSLSGC PRAKKN GIKI IHSKENKEDQEP I RCPVPGCDGQGHVTKY  
YVSHRSASGCPIAAKRQKDG YLNGIQFTWKS GKT EGMSCPTPGCDGSGHVSGSFLTHRSL  
SGCPRATSAMRKARLSGVEMLTIKQCCASNGLEHEDDVKQLDEEIKDLSESNPHVEADMI  
KLRTQITTMESNLKSI EENKVIEQQNESLLHELANLSHSLINSLANAQLPHMEPISEQN  
FEDYVTTLTDIYTNQDQYQIPENKALLENINQTVQGIQA

>Tetraodon nigroviridis\_MYT1La (ENSTNIP\_13634)  
MEMNVAKRRHRTRSKGLRAAAEAATQELFSCPTPGCDGSGHVSGKYARHRSVYGCPLAKK  
RKALEKQPLEPAKRRPFLTSSLDV GAYAS YEGEVMEVGS SDKEPREVEEERDGEDEMED  
EFS EDKEQRDAEKRGSEDERKRRCFDQPPTPVC DVTEGAEAEQSGRNNVGS PQTWKVS DL  
FLLSWQKTTTTTADNPSSRLLVAKSLLNLGKIAEDAAYQAMTESEMNSNSNSTGEDE  
DEDEDEDGSDQDGGGELSVDLSDVVRETVDLSKLLAQGHGAVLPEDGYPEGSVVEEGR  
SNGRDAEEDVCLSGLECLRSQCFDLAQKLSQS QAPERGAVHHQLQLPSEQQMLHHLNSYD  
GCHQGEPRSLERNFSDMANLMKLEEQLS PASRGYPTSCSQEGDEDTTSVASDRSDETFDM  
AKGNLSLLEKAI ALESERAKVMRDRMSPENSFLRRDHHQHRGHGEHS PRVNASEERRSRL  
HQDGLKRAYYPKEYSRGEKESKCP TPGCDGTGHVTGLYPHHRSLSGCPHKDRVPEIVA  
MYENVLKCP TPGCSGRGHVNSNRNSHRSLSGCPIAAAAEKMAKVHEKSQTVEVSGSKSSQTS  
DRVLRPMC FVKQLEIPQNGYKNNIPTSTPRSNLAKELEKYSKTSFDYSAYDGHAYGKRA  
PAAKAPHGREPSPKAYEGAKRYCKTSSPASSTSSYAPSSSSSLSCGGGAGSAGGGGSSA  
SSTCSKSSFDYTHDMEAAHMAATAILNLSTRCRELPHALGGKPELLPQSPVGLDSDSGP  
AEPQPGGPEGSGTVLTP LQPMS PQRQALLSSRCYQLSEADCWDL PVDYTKIKRLGEEPEH  
KEVTGDELDPFRQLLEEQRYPAEVPMPSPKHKYPACKEGKELLTLSSCQLADKSIRGMM  
TPNSQELKCP TPGCDGSGHITGNYASHRSLSGC PRAKKS GIKILHKEDKEDQEP IKCPVP  
GCDGQGHVTKYASHRSASGCPLAAKRQKDSYVNGSQYVWKS GKT DGMSCPTPGCDGSGH  
VSGSFLTHRSLSGCPRATTAMKKARMSVDMLS IKQRASKGIENDEEIKQLDEEIKENES  
NSQVESDMIKLRQTITTMESNLKSMEEENKVIEQQNDSL LHELANLSQSLINSLNIQLPH  
MEPMNEQNFDYVSTLTDMYTHQDQYQSPENKALLENIRQAVQGIQV

>Tetraodon nigroviridis\_MYT1Lb (ENSTNIP\_11126)  
SVYGCPOAKKRKRVRDQRTPENYPKRSTYLDDMHSSTMEECYETDGTE DMDDREEEELERV  
LEGYMDYNGHVQKKNPVEEWLAMEVEPLHGMYHCQTEKVEEDDEMSSTEEVETTSEAW  
GSAAKSGPLTEKDDNNNDEYDNYDELVAKSLLNLGKIAEDANRAMTESEMNSNRENEEE  
ENRDEDETQRSGPRLNADSDVVRETVDLSKLLAQGHGAVLAENEDGQEI MDAAEAAIKN

DCAHSGAISHTVGNKQVKSACNGQIEKSDDEEVCLSSLECLRNQCFDLAPEKNHVSCGDSN  
QPPQHSYGDYQHGMENGRSLNRNYSMDNLMKLEEQLSPCSKAFSQAQDGRCHQDFDEDT  
ASVTSDRSEEVFDMTKGNLSLLEKAI ALESERAKAMRDKMSADPTRRDRVRYNHGDNGPR  
HAYGVERKARFPDGMKKPFYFKDASRVDKKESRCPTPGCDGTGHVTGLYPHHRSLSGCPH  
KDRVPPETLWVFGVSLACSVKFCCEEKNCNLENI FNLNSGCP IAAA EKLAKTKEKHQTC  
DGSKSNQASDRVLRSTVCQKQVDCLRYGYKNNVSTSTPRSNLAKELEKYSKTNFDYSAFD  
GSSNHQVYGKRAIAPKVDGQRDASPKGYDGTTKRYCKNSSASSTTSTYASC GGGAGGTG  
GRGGSSSSASSTCSKSSFYD SHDMEAAHMAATAI LNLSTRCREMPQSMGGKPELCSQSP  
GLDVDENGTLDLSLKRRLCGGGSGSSGGGDSVLT PLEPMSPLRQASLLGSRCYGMNAAN  
CWDLPVDYTKIKHIDEDENEIKECSPQDDLD AFNDLLED RSYTADVGMPSPKSKYQCKE  
SKKDLITLSGCPLADKSIRSMLANNAQELKCP TPGCDGSGHITGNYASHRSLSGCP RARK  
NGIKI IHSKENKEDQEP I RCPVPGCDGQGHVTGKYVSHRSASGCP IAAKRQKDGYNLGIQ  
FTWKS GKTEGMSCTPGCDGSGHVSGSFLTHRRFTGLQQDQVLRQKFKLRILVNSNNQ  
TSAGLEHEDDVKQLDEEMKDLSESNPHVEADMIKLR TQITTMESNLKSIQEENK VIEQQN  
ESLLHELANLSQSLINSLANAQLPHMEPISEQNFEDYVTTLTDIYTNQEYQI PENK TLL  
ENINQAVQGIQV

>Gasterosteus aculeatus\_MYT1La (ENSGACP\_15823)

MEVNAARKRHRTRSKGVRAAVEAATQELFSCPTPGCDGGGHVSGSYPGPRSVYGCPLAKK  
RKALEKQPLEPAAKRRPFLTPCNGGEEDAGAYARYQNRALRWGERVRQWEESDLKTEESL  
YNTKRARMWGMPLISPLGTASSGSAESQNQMDGASLGPMSR PASSEPAVGE EEEVMRAA  
ETKYRAVRRSCIWMSERFSLF PPTAENHYKPAQSKLLLLIQKDDNNNHSC TIGAGNAPG  
EDYENYDELVAKSLLNLGKIAEDAAYQALTESEMNSNSNSGGEDEDEEYKGE LSVLDL  
SDVVRETVDLSKLLAQGHGAMLPEDGYPDGGMLGDAGHHANGRPVGVVQADESEEEVC  
LSSLECLRNQCFDLARKLSETQACDRPALHALHHQLQMPADHQV VHHLNSHFWSHRRLRY  
DSCQQSAQEEHRSLSERSYSDMVNLMKLEEQLSPGSRGYPTSCSQEGDEDTT SVASDRSDE  
TFDMAKGNLSLLEKAI ALESERAKVMRDRIASEHSLPRRRGHGEHSSRLSCAGEERKSRM  
HHDGLKRAFYPKDS SRGDKKESKCP TPGCDGTGHVTGLYPHHRSLSGCP HKDRVPEILA  
MYENLVKCP TPGCSGRGHVNSNRNSHRSLSGCP IAAADKMSKVHEKSIPTESGSKTNQTS  
DRVLRPMCTYKQLEIPQYGYKNNVPTSTPRSNLAKELEKYSKTSYDYGDGQHG GGGYK  
RGLATKLP HGRDTS PKGYDAKRYCKTSSPASSTTSYAPSSSSSLSCSASSTCSKSSFY  
THDMEAAHMAATAI LNLSTRCRELPHALGGKPDLLTQSPVGDLEDGGPLDVGGQPGGPE  
GSGTVLTPLOPMS PQRQALLSSRCYQLSEADCWDL PVDYTKIKRLGEEHEK EADQLDPF  
QELLEEQRYPAEAPVHSPKHHKYPACKEGKELLT LSSCQLADKNIRGIMTNSQDLRCP  
TPGCDGSGHITGNYASHRSLSGCP RAKKSGIKI LHSKEDKDDQEP I KCPVPGCDGQGHVT  
GKYASHRSASGCP IAAKRQKDNVNGSQFVWKS GKTDGMSCTPGCDGSGHVSGSFLTHR  
SLSGCPRATSAMKKARMSGVEMLTIKQRASKGIENDEEIKQLDEEIKDLNESNTQVESDM  
IKLR TQITTMETNLKSI EENK VIEQQNDSL LHELANLSQSLINSLANIQLPHMKPAAQK  
EAPVKHSCCVMPPREPMNEQNFDTYVSTLTDMYTHQDQYQSPENKALLENIKQAVQGIQ  
V

>Gasterosteus aculeatus\_MYT1Lb (ENSGACP\_17522)

DFDEDTASVTSDRSEEVFDMTKGNLSLLEKAI ALESERTKAMRDKMAA EAARRDGGY GVE  
RKARLPDGMKKPFYHKDASRADKESRCPTPGCDGTGHVTGLYPHHRSLSGCP HKDRVPP  
EIVAMYENVLKCP TPGCTGRGHVNSNRNSHRSLSGCP IAAA EKLAKAQEKHQGCDVPKTS  
QASDRVLSLMCSVKQLDCPQYGYKNNVSSSTPRSNLAKELEKYSKTSFDYSAFDGSSNH  
AYGKRAIAPKVHQRDTS PKGYDSD FQRTRDVRALFISSFALCSLASGAGIPFSPFVCS  
FHPSPLLII ISLKNL TQTHPPQHTSTHTRKPHPTVQSPGLDVDENGTLDLSMSKRLCS  
GGDSVLT PLEPMS PQRAALLGSRCYGMGDAADCWDL PVDYTKIKHIDEDEKESASQPAL  
HAPTRSQADDLPFHDLLEERSY TADVSI PPKPKYVHCKEGKDLITCPTSRC DSGGHM  
TSNLAFDFLSSCLSGCP LADKSIRSMLANNAQELKCP TPGCDGSGHITGNYASHRSLSGC  
PRARKSGIKI IHSKENKEDQEP I RCPVPGCDGQGHVTGKYASHRSASGCP IAAKRQKDG  
YLNLIQFTWKS GKTEGMSCTPGCDGSGHVSGSFLTHRSLSGC PRATSAMRKARLSGVELL  
TIKQQCAGNGLEHEEDIKQLDADIKDLSESNQVEADMIKLR TQITTMESMSKSI EENK  
VIEQQNESLLHKL SHLSQSLTNSLANVQLPHMEPISEQNF DAYVTTLSDMYSNQDPYQSP  
ENKVL LDNIKQAVQGIQV

>Oryzias latipes\_MYT1La (ENSORLP\_22342)

SVYGCPLAKKRKSLDIEPLETSPKRSTLLDDMDNSTMEECYD TDGTSKSLDTPSHSNEWED  
KSWSYVKIGGKSQVDEGGNAKEKLEVLQKPEINDWWLASVASIPADFEKDNQLSPGDSTS  
EGGGGDGYSKLGPAMEKDDNNNDEYENYDELVAKSLLNLGKIAEDAANRAMTESEMNSNS

PNSAEGELQRGDLSLDVESDVVRETVDLSKLLAQGHGAVLSDSLDGQDFEGSARPGDQTN  
YSHNGGNGQMKTTNNGKIEGSDEEVCLSSLECLRNQCFDLARKLSETKSIDRNGPSQQNH  
YSCGDPSQQPHHGYGDFHNSQDSRRTLDRNYSMDNLMKLEEQLSPRSKAFSSCAQDER  
YHTSHRDFDEDTASITSDRSEEVFDMTKGNLSLLEKAI ALESERAKAMRDKLAEEAARRD  
GVRYAHEDHGPRHGYGVERKARLPDGMKPPFFHKGADPSRADKKE SRCPTPGCDGTGHVT  
GLYPHHRSLSGCPHKDRVPPEIVAMYENVLKCPTPGCTGRGHVNSNRNSHRSLSGCPIAA  
AEKLAKAQEKHQSCDGPKNQSSDRVLRPMC FVKQLDYPQYGYKNNVSTSTPRSNLAKEL  
EKYSKTSFDYSAFDSTNNHHVYGKRAIAPKAHGQRDASPKGHDAFAAKRYCKNSSASST  
TSTYAPKSSFDYSHDMEAAHMAATAILNLS TRCREMPHGIGGKPDLCSSPGLD VDENG  
TLDLSMSKRLCGGGAGDAVLT PLEPMS PQQAALLGSRCYGMGDAADCWDL PVDYTKIKH  
IDEDKEKYLQTD DDLDFQDLDDRSYTTDVNMPSPKPKYVQCKETKKDLITLSGCP LAD  
KSIRSMLANNAQELKCPTPGCDGSGHITGN YASHRSLSGCPRARKSGIKI IHSKENKEDQ  
EPIRCVPVPGCDGQGHVTGKYASHRSASGCPIAAKRQKDG YLNGIQFTWKS GKTEGMSCPT  
PGCDGSGHVSGSFLTHRSLSGCPRATSAMRKARLSGVEMLTIKQQHASNVLDHEEEIKQL  
DEEIKDLSESNSQVEADMIKLRTQITTMES SLKSLEENKVI EQQNESLLHELANLSQSL  
INSLVNAHLPHMESLSEQNFDAYVTTLTD MYTNQDQYQSVENKT LLENIKQAVQGIQV

>Oryzias latipes\_MYT1lb(ENSORLP\_22706)

MEGNVTEKRHRTRSKGVRAVEAVTQELFSCPTLGC DSGHVSGKYARHRSIYGCP LAKK  
RKTLDGKDVCSVLNIPRAKRPF LSPRAGQEI DENAGSFSSYQNDAMKTGRQREQMNCQSKTEQ  
NDGSHEDVCSVLNIMGLHDQGRDSESIGRRSRGLEEDQRRFLDAVKENMKVADV RGED  
AEDRDETLTRDAEAKYSFRFFFSVFLSAVKQFKPNGQSKLGPVEKDNNNNNSCGPNSTG  
EDYENYDELVAKSLNLGKIAADAAYQAMTESEMNSNSNSAGEDDEDDASEQGD RKGEL  
SVDLSDSVVRETVDLSKLLAQGHGAILPEDEY PHAAMNDGKHANGAPCMRVKAQDSGEE  
VCLNSLECLRNQCFDLARKLSETQPSDRPI LHS LQNSINPADQQGVHHLNSSPEIFLFP  
FIRYDSSHQNALEEPRLLDRRYS DMVNLMKLEEQLSPASRGYPTSQDGEDTTSIASDHS  
DETFDMAKGNLSLLEKAI ALESERAKVMRDRMASEHSMPRRDQHYHRSHGEHS PRLSSSA  
EERKSRMQDGLKRAYYPKDSSRGEKKEKSCPTPGCDGTGHVTGLYPHHRSLSGCPHKDR  
VPPEIQVLAMYENVLKCPTPGCSGRGHVNSNRNSHRSLSGCPIAAA EKMAKVHEKSHSAD  
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QQGSYGKRGSTTKSQHGRDTPSPKGYDAVKFVLT SRLRWSKMSQLSEDSLNASVRDGRNAA  
AKLTGTGSASTHPLQFPSPSYFDYTHDMEAAHMAATAILNLS TRCRELPNALGGKPDLLS  
QSPVGDLDGSELDEGQPGGPEGSGTVLTP LQPMSPQRHALLSSRCYQLSDSDCWDLPV  
DYTKMKRLGDEHKESELDLDFQELLEEQRYPAEVTTPSSKHHKYS PCKESKELITLSSC  
QLIDKNIRNMLPTNSQELRCPTPGCDGSGHITGN YASHRSLSGCPRAKKSGIKILQSKED  
KDEQEPIKCPVPGCDGQGHVTGKYASHRSASGCPLAAKRQKDSYVNGSQFVWVSGKTDGM  
TCPTPGCDGSGHVSGSFLTHRSLSGCPRATSAMKSRMSGVEMLTIKQRASKGIENDEE I  
KQLDEEIKDLNESNNQVESDMIKLRTQITTMETNLKSMEEENKAVEQQNDSLHELANLS  
QSLINSLANIQLPHMRPLPQKEAPVKHSCCLQMPPREPMNEQNFDYTVSTLTD MYTHQEM  
VKT SVCVSL LQNPGLSLEGLLC

>Homo sapiens\_ST18(ENSP\_276480)

MDAEAEDKTLRTRSKGTVEVPMDSL IQELSVAYDCSMAKKRTAEDQALGVPVNKRKSLLMK  
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CYQELMVKSLMHLGKFEKNVSVQTVSENLNDSGIQSLKAESDEADECFLIHSDDGRDKID  
DSQPPFCSSDDNESNSESAENGWDSGSNFSEETKPPRVPKYVLT DHKKDLLEVPEIKTEG  
DKFIPCENRCDSETERKDPQNALAEPLDGNAPSPFDVEEEDSESLAVMTEEGSDLEKAK  
GNLSLLEQAIALQAERGCVFHNTYKELDRFLLEHLAGERRQTKVIDMGGRQIFNNKHSR  
PEKRETKCPIPGCDGTGHVTGLYPHHRSLSGCPHKVRVPLEILAMHENVLKCPTPGCTGR  
GHVNSNRNTHRSLSGCPIAAA EKLA MSQDNQLDSPQTGC PDQAHRTSLVKQIEFNFP  
QAITSPRATVSKEQEKFGKVPFDYASFDAQVFGKRPLIQTVQGRKTPFPESKHFPNPVK  
FPNRLPSAGAHTQSPGRASSYSYGQCS EDTHIAAAAAILNLS TRCREATDILSNK PQSLH  
AKGAEIEVDENGTLDLSMKKNRILDKSAPLTSNTS IPTSSSPFKTSSILVNAAFYQAL  
CDQEGWDT PINYSKTHGKTEEEKEKDPVSSLENLEEKFPGEASIPSPKPKLHARDLKKE  
LITCPTPGCDGSGHVTGN YASHRSVSGCPLADKTLKSLMAANSQELKCPTPGCDGSGHVT  
GNYASHRSLSGCPRARKGVKMTPTKEEKEDPELKCPIVIGCDGQGHISGKYTS HR TASGC  
PLAAKRQKENPLNGASLSWKLNKQELPHCPLPGCNGLGHVNNV FVTHRSLSGCPLNAQVI  
KKGKVSEELMTIKLKATGGIESDEEIRHLDEEIKELNESNLKIEADMMKLQTI TSMESN  
LKTIEEENK LIEQNNESLLKELAGLSQALISSLADIQLPQMGP ISEQNF EAYVNTLTD MY  
SNLERDYSPECKALLESIKQAVKGIHV

>Gorilla gorilla\_ST18 (ENSGGOP\_1207)

MDAAEADKTLRTRSKGTEVPMDSLIQELSVAYDCSMAKKRRAEDQALGIPVNRKRSLLMK  
PRHYSPNADCQEDRSRTEDDGPLETHDHSTAEIIMIKPMDESLLSTAQENSRRKEDRYS  
CYQELMVKSLMHLGKFEKNVSVQTI SENLNDSGIQSLKAESDEADECFLIHSDDGRDKID  
DSQPPFCSSDDNESNSESAENGWDSGSNFSEETKPPRVPKYVLTDHKKDLLEVPEIKTEG  
DKFIPCENRCDSETERNDPQNALAEPLDGNAPSPFDVEEEDSESLAVMTEEGSDLEKAK  
GNLSLLEQAIALQAERGCVFHNTYKELDRFLLLEHLAGERRQTKVIDMGRQIFNNKHSRPR  
PEKRETKCPIPGCDGTGHVTGLYPHHRSLSGCPHKVRVPLEILAMHENVLKCPTPGCTGR  
GHVNSNRNTHRSLSGCPAAAAEKLAMSQDKNQLDSPQTGQCPDQAHRTSLVKQIEFNFP  
QAITS PRATVSKEQEKFGKVPFDYASFDAQVFGKRPLIQTVQGRKTPPFPEKHFSPVK  
FPNRLPSAGAHTQSPGRASSYSYGQCS EDTHIAAAAAI LNLSTRCREATDILSNKPQSLH  
AKGAEIEVDENGLDLSMCKNRILDKSAPLTSNTS IPTSSSPFKTSSILVNAAFYQAL  
CDQEGWDT PINYSKTHGKTEEDKEKDPVSSLENLEEKFPGEASIPSPKPKLHARDLKKE  
LITCPTPGCDGSGHVTGN YASHRSVSGCPLADKTLKSLMAANSQELKCPTPGCDGSGHVT  
GN YASHRSLSGCP RARKGGVKMTP TKEEKEDPELKCPIVIGCDGQGHISGKYTSHRTASGC  
PLAAKRQKENPLNGASLSWKLNKQELPHCPLPGCNGLGHVNNVFVTHRSLSGCPLNAQVI  
KKGK VSEELMTIKLKATGGIESDEEIRHLDEEIKELNESNLKIEADMMKLQTQITSMESN  
LKTIEEENK LIEQNNESLLKELAGLSQALISSLADIQLPQMGP ISEQNFEAYVNTLTDMY  
SNLERDYSPECKALLESIKQAVKGIHV

>Mus musculus\_ST18 (ENSMUSP\_131417)

MDAEVEDKTLHTLSKGTEVPMDSLIPELRVPYDCSMAKKRRAEEQASGVP INKRSLLMK  
PRHYSPDMGCKESPDNRNEDDGLLETNDHATADEIMVKSMDETLHLPAQDSSLQKKDQYT  
CYPELMVKS LVLHGKFEESVQTTCCENLNGSSIQSLKAESDEAHEGSMVHSDNGRDKVH  
HSQPPFCSSGDS ESDSDSAENGWGNGSNSS EDDTHGKPKHKLTYNRKDLLEVPEIKAED  
DKFIPCENRCDSDTDGRDPQNSHMEPLVVKAPSPFPEVEEGESLATVTEEPAEVEKAKGN  
LSLLEQAIALQAERGSVFHHTYKELDRFFLDHLARERRQPRVTDANGRI FTNKHSRPRPE  
RREAKCPIPGCDGTGHVTGLYPHHRSLSGCPHKVRVPLEILAMHENVLKCPTPGCTGRGH  
VNSNRNTHRSLSGCPAAAAEKLAMTQDKS QLDSSQTGQCPAQHRVNLVKQIEFNFRSHA  
ITSPRASASKEQEKFGKVPFDYASFDAQVFGKRPLLQTGQKAPPFPEKHFSPVKFP  
NGLPSAGAHTQSTVRASSYGHGQYSEDTHIAAAAAI LNLSTRCREATDILSNKPQSLRAK  
GAEIEVDENGLDLSMCKNR IHDKSIPTSSPTTITPSSSPFNASSLLVNAAFYQALSD  
QEGWNV PINYSKSHGKTEEEKEKDPVNFLNLEEKKFAGEASIPSPKPKLHTRDLKKE LI  
TCPTPGCDGSGHVTGN YASHRSVSGCPLADKTLKSLMAANSQELKCPTPGCDGSGHVTGN  
YASHRSLSGCP RARKGGIKMTP TKEEKEDSELRCPIVIGCDGQGHISGKYTSHRTASGCPL  
AAKRQKENPLNGAPLSWKLNKQELPHCPLPGCNGLGHVNNVFVTHRSLSGCPLNAQA IKK  
VKVSEELMTIKLKATGGIDGDEEIRHLDEEIKELNESNLKIEADMMKLQTQITSMESNLK  
TIEEENK LIEQSNESLLKELAGLSQALISSLADIQLPQMGP INEQNFEAYVNTLTDMYSN  
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>Rattus norvegicus\_ST18 (ENSRNOP\_56380)

MDAEVEDKALHTLSKGTEVPMDSLIPELRVAYDCSMAKKRRAEEQALGVPVNRKRSLLMK  
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YPELMVKS LMLHGKFEESVQTVGENLNGNGIQSLKAECDEANECFMVHSDGRDKVHH  
SQPPFCSSGDS ESDSDSTENGWGSGSNSS EDDTHGKPKRKLTYNRKDLLEVPEIKAEDD  
KFIPCENRCDSDTSGRDPQNSHMEPLAVKVQSPFPEVEESES LATVIAESA EAVEKAKGSL  
SLLEQAIALQAERGSVFHHTYKELDRFLLDHLARRRQPKVTDASGRQIFNNKHSRPRPER  
REAKCPIPGCDGTGHVTGLYPHHRSLSGCPHKVRVPLEILAMHENVLKCPTPGCTGRGHV  
NSNRNTHRSLSGCPAAAAEKLAMTQDKS QLDSSQTGQGPEQHRVNLVKQIEFNFRSQAI  
TSPRASASKEQEKFGKVPFDYASFDAQVFGKRPLLQTGQKAPPFPEKHFSPVKF SN  
GLPSAGAHTQSTVRASSYGHGQYSEDTHIAAAAAI LNLSTRCREATDILSNKPQSLRAK  
AEIEVDENGLDLSMCKHRILDKS IPTSSHTT IATPSSSPFKASSLLVNAAFYQALCDQ  
EGWNV PINYSKSHGKTEEEKEKDPVNSLENLEEKKFAGEASIPSPKPKLHTRDLKKE LI  
CPTPGCDGSGHVTGN YASHRSVSGCPLADKTLKSLMAANSQELKCPTPGCDGSGHVTGN  
YASHRSLSGCP RARKGGIKMTP TKEEKEDSELRCPIVIGCDGQGHISGKYTSHRTASGCPL  
AKRQKENPLNGT PLSWKLNKQELPHCPLPGCNGLGHVNNVFVTHRSLSGCPLNAQA IKKV  
KVSEELMTIKLKATGGIEGDEEIRHLDEEIKELNESNLKIEADMMKLQTQITSMESNLK  
TIEEENK LIEQSNESLLKELAGLSQALISSLADIQLPQMGP INEQNFEAYVNTLTDMYSN  
LERDYSPECKALLESIKQAVKGIHV

>Felis catus\_ST18 (ENSFCAP\_7935)

LNHYSAAYDCSMAKKRRAAEQALGVPVNRKRSLLMKPRHYS PNVDCREECDDRTEAE E E E E D  
GLPEASDHTASEETMIKPMDEHLHSTAQENSNGKEDRYG CYREL VVKSLMHLGKFENHVS  
VQTVSENLNGSGLQCAQAESEDAEHFVHSDDGKEKINDPQLRFCSDDSESNSESAEN  
GWDSGSNLSEEA KPHRVPKYILVDDGKDLLGAPEIKTEGDKFISCENTCDPETDRRDPQN  
TRVEPLDGTGQPSCAGVEGDGNGSLAAMREESLDLEKAKGSLSVLEQAIALQAERGCVFH  
NTYKELDRFLLEHLAGEERRQTKVIDMGGRQILNSKHSRPEKRETKCPIPGCDGTGHVGT  
LYPHHRSLSGCPHKVRVPLEILAMHENVLKCPTPGCTGRGHVNSNRNTHRSLSGCPAAAA  
EKLAMSQDKSQLDSPKSGQCPEQVHRTSLVKQIEFNFRSQAITSPRATVSKEQEKFGKVP  
FDYASFDAQVFGKRPLVQTGQGRKTPPFPE SKHFSNPGKFPNRLPSAGAHTQSPCRASSY  
GYGQCS EDTHIAATAAILNLSTRCRETADILSNKPQSLHAKGAEIEVDENGTLDLSLKK  
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EKEKDPASSLENLEEKFPGEASIPSPKPKLHARDLKKELITCPTPGCDGSGHVTGNYS  
HRSVSGCPLADKTLKSLMAANSQELKCPTPGCDGSGHVTGNYS HRSLSGCPRARKGGVK  
MPTPTKEEKEDPELKCPIVIGCDGQGHISGKYTSHRTASGCPLAAKRQKENPVNGAPLSWKL  
NKQELPHCPLPGCNGLGHVNNV FVTHRSLSGCP LNAQA I KKGKVSEELMTIKLKATGGIE  
SDEEIRHLDEEIKELNESNLKIEADMMKLQTQITSMESNLK TIEEENRLIEQN NESL LKE  
LAGLSQALISSLADIQLPQMGP ISEQNF EAYVNTLTDMYSNLERDSSPECKALLESIKQA  
VKG I HV

>Dasypus novemcinctus\_ST18 (ENSDNOP\_7514)  
SKQLFLKPCDLSLDTFAVYDCSMAKKRRMDEQALGVPVNRKRSLLMKPQHYS PNMDCRE  
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MHVGKFEKDVSIQTTNENLNDSGIQSLKAESDEADECFMIHSDEGTVKVS DGG LRRCSSA  
DNDNDSNSGSAETGWDSGNSFSEETKPPRVPKYILVDDRKDLVEVPEIKTEGEKFPCKN  
MCDSETERRD LQNA PVEPLG SQGQSSSFSENERDREGLSAVTEEA VDVGKAKGNLSLLEQ  
AIALQAERGRAFHHTYKELDRFLLEHLAGEERRHAKVIDMGGRQIFTSKHSRPEKRETKC  
PIPGCDGTGHVGTGLYPHHRSLSGCPHKVRVPLEILAMHENVLKCPTPGCTGRGHVNSNRN  
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RATMSKEQEKFGKVPFDYASFDAQVFGKRPLTQTGQGRKTPPFPE SKHFS SPVKCPHRLP  
GPGAHPSPCRASSYGHGQCSADAHIAAAAAAILNLSTRCREAAEILSNKPQSLPAKADI  
EVDENGTLDLSMKKNRILDKAAPLTSSNTSIP TSSSPFKTSSLLVNAAFYQALCVQEGW  
DVPVNF SKAHGKAE E E E KDSVNSPENLEEKFPGEASIPSPKPKLHARDLKKELITCPT  
PGCDGSGHVTGNYS HRSLSGCPLADKTLKSLMAANSQELKCPTPGCDGSGHVTGNYS  
RSLSGCPRARKGGVKMPTPTKEEKEDPELKC PVMGCDGQGHISGKYTSHRTASGCPLAAKR  
QKESPLNGAPLAWKLNKQELPHCPLPGCNGLGHVNNV FVTHRSLSGCP LNAQA I KKGKVS  
EELMTIKLKATGGIESDEEIRHLDEEIKELNESNLKIEADMMKLQTQITSMESNLK TIEE  
ENK LIEQN NESL LKELAGLSQALISSLADIQLPQMGP ISEQNF EAYVNTLTDMYSNLERD  
YSPECKALLESIKQAVKGIHV

>Monodelphis domestica\_ST18 (ENSMODP\_12044)  
MSYHGNYSK TQLLVHSSAHKGRETYKFWKQKKMDADAEDKRLHTRSKGTQVQVDSL VQE  
LSAAYGCPMAKKRKTEEPALGVPVNRKRSLLMKPRHYNPSVECKEENEDQSETEEDDCLL  
EMNGHPTAEENLVKPT EGI L HSSGKESFNRNKDSY TNYQDLVVKSLMHLGKLDQDASIQ T  
LTENLNDSGIQSLKTESDEVD DCFMIHSAECKAKINDSNLRYCSSDDNESHSEIAENGWD  
SGSNFSEETPEKSHVTQTYIVSNNQEE SLEAPEIKTEVENFV PCEKVC DSEMEIRESQTS  
PMESLESRAQNPLPEGDEDDTECL SITTEESVDLDTKGHLSLLEQAIALQAEQGHV FHS  
TYKELDRFLLEHLAGEERRHTKVIDMGGRQVFN SKHSRPEKRETKCPIPGCDGTGHVGTGL  
YPHHRSLSGCPHKVRVPLEILAMHENVLKCPTPGCTGRGHVNSNRNTHRSLSGCPAAAA  
KLAMSQDKNQLDSPKTGQCPDQVHRTSLVKQLEFSQFSFRSSQTVTSPRATITKEQEKFG  
KVPFDYASFDAQVFGKRTIVPTIQGNPSQLPESKHFSNPVKLSNRLPSASAHTQSPCRA  
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KKNRILDKSTPLNSPHISIP TSSASPFKTSSLLVNAAFYQALCEQEGWDT PINYSKTHGK  
KEE E E KDPVSSPENLEEKYPGEVSI P SPKPKLHARELKKELITCPTPGCDGSGHVTGN  
YASHRSVSGCPLADKTLKSLMAANSQELKCPTPGCDGSGHVTGNYS HRSLSGCPRARKG  
GVKVTPTKEDKEDPELKC PVLGCDGQGHISGKYTSHRTASGCPLAAKRQKENPLNGSSLS  
WKLNKQELPHCPLPGCNGLGHVNNV FVTHRSLSGCP LNAQA I KKGKVSEELMTIKLKASG  
GLESD E EIRHLDEEIKELNESNLKIEADMMKLQTQITSMESNLK TIEEENK LIEQN NESL  
LKELAGLSQALISSLADIQLPQMGP ISEQNF EAYVNTLTDMYSNLERDYSPECKALLES I  
KQAVKGIHV

>Gallus gallus\_ST18 (ENSGALP\_24567)

SSSLKISHLFSRQSYKSAYKCSMAKRKAEEQISGVFVNKRKSLLMKPRHYSPLSLECKEEN  
EDSIDHDGLRSNHPFSYAEERTAKPCEETPNSSGGQENSSQRKDNYSYQDAMAKSLMNSG  
KIAKDAPSQAMAENLNDSGIQSLKTESDDADECYMIDSAEGKEKTSISDPKYCSSEENES  
NSEMMDNEDWSSSNFSEETS VKPHLTQKYTVECNQPSILEVPEIKKEEVEFDPCETLCDS  
EAELRAPQESHDPDFEKRIQNVFPESEEDDNECLSETTEMSVELDKAKGNLSLLEEAIAL  
QAEQGHVHFSTYKELDRFLEHLGERRQTKVIDVGGRQLFSNKHSPRPEKRETKCPIPG  
CDGTGHVGTGLYPHRSLSGCPHKVVRVPLEILAMHENVLKCPPTGCTGRGHVNSNRNTHRS  
LSGCPAAAAEKLAMSQEKNOLES PKAGQCHDQTHSTNLTKQLEVVQYNYRTSQPVTSSRT  
TLTKEKEKFGKVPFDYASFDAQVFGKRTIAPMVQGRKTPQFLESKHFSPVKFSNRLPSA  
SAHTQSPCHANSYSYGQCS EDTHIAAAAAI LNLSTRCREAAEILSNKPQSLSAKGAIEV  
DENGTLDLMSKKNRSQDKVTPLTSSSTVLPTPSSSPFKTSSILVNAAFYQALCEQEGWDT  
PINYSKTHGRKEEKEKDPVSSPENMEEKYPGEVSI PPKPKLHSRDLKELITCPTPGC  
DGS GHVTGNYASHRSVSGCPLADKTLKSLMAANSQELKCPPTGCDGSGHVTGNYASHRS  
SGCPRARKGGIKVTPTKDEKEDPELKCPVIGCDGQGHISGKYTSHRTASGCPLAAKRQKE  
SPVNGSSLSWKLKQELPHCPLPGCNGLGHVNNVVFVTHRSLSGCP LNAQAIAKKGKISEEL  
MTIKLKASGGIESDEEIRHLDEEIKELNESNLKIEADMMKLQQTQITSMETNLKTI E EENK  
LIEQNNESSLKELAGLSQALISSLADIQLPQMGP I SEQNFEAYVNTLTDMYSNLERDYSP  
ECKALLESIKQAVKGIHV

>Xenopus tropicalis\_ST18 (ENSXETP\_12512)  
SQEAKIKIYVLLDIVPSVTSAYNCTMSKKRKLLEPCSTAPVNKRKSLLMKPQHYDPREDF  
DEDNEDKSDFPFKLLKKKCGNTVEKSACEKSEKTLHFLIVTVKIPILSNYCCCYQDIMS  
NASILRNAAKETIMNPLNDI INDSGTQSVKADTDDAQESYCDQPSKHKDHQAFSADDTNS  
NCEITENGWDS SSSSFSEEMNANDHSPDEYSKKMKINPTVDFKKRSTDKGDVCETQNSVI  
QATEQEDRKTQHSKLENEEDDKLSALKEESVDLNNTKGSLTLLEQAIALQAEQGHMVHS  
TYKELDMFLEHLARERRQTKI IDITGRQIYSNKNSPRPEKRETKCPIPGCDGSGHVTGL  
YPHRSLSGCPHKVVRVPIEILAMHENVLKCPPTGCGNRGHVNSNRNTHRSLSGCPAAAAE  
KLSKTQEKQLT SNCGSI NIEPIHRIQVLSPLVHNFQLYGATQPLTTARATI I KEHDRFGKV  
PFDYASFDAQVFGKHTIATVVVHSQDSNFSGAKQHTSPAKSSNRLHSAHTQSPCHASSYNY  
GOCSEDTHIAAAAAI LNLSTRCREAAEILSNKPLLSAKATDIEVDENGTLDLMSKKNR  
FHETAANFGITKPI LSTP SLPFKTSSILVNAAFYKALCEKEGWEAPVNYSKVHG TI GED  
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RSVSGCPLADKTLKSLMAANSQELKCPPTGCDGSGHVTGNYASHRSLSGCP RARKNGVKL  
FASKEDKEEQELKCPVVGCDGQGHISGKYTSHRSASGCPLAAKRQKESILNGSSLPWKQN  
KQELPHCPLPGCNGLGHVNNVVFVTHRSLSGCP LNAQALKKGKTSEELMSVKT KSSNGTEN  
EDDIRNLDEEIKELNESNLKIEADMMKLQQTQISSMETNLKTI E EENK LIEQNNESSLKEL  
AGLSQALISSLADIQLPQMEPI SEHNFEAYVNTLT EMYSTMEHDY PPECKALLENIKQAV  
KGIHV

>Takifugu rubripes\_ST18a (ENSTRUP\_14767)  
MDSEGEETLKYHYHGSTGYRFNNPTLELSIFPYGPVARKRSAQEGAQGAPVNKRKSLLMK  
PRHYS PSEACEE ESEDLAAPQDKEEPRNIDTPAGVASPPRDEQCDLIRTVHPLLSRPDPR  
FRCCCLLQPP LTLSSLSARSRLVHFLDLYETLDDNMLQLLLLSQI HATNGSPQCEPDAT  
ERLVDEDEEELNNEEEHQSDRMSGASSPPSQYDEEREVEWEPLSLAAKVNGSLPETPE  
DLTGNGHIKEEPPS DLSGLMGRAGVFQVESFRYRPLPAEEDSKGEAERPPRLDGWALGL  
HEMSRGRVNFSLLEQAIALQTEQRQALHHAYREMDRFLMEQMSHERRHQRMEMDGRLSY  
HGGKESPRADKDKVKCPTPGCDGTGHVGTGLYPHRSLSGCPHKVVRVPEILAMHENVLK  
PTPGCTGRGHVNSNRTHRSLSGCPAAAAVKVSKPQEE SLKCRQTPDRSPRAVGLMKKLE  
MNQLNYRLSHPAALQSTLAKDMDKYSRIRFDYASFDAQVFGKQPLMGANPEQEMS PFS  
SPQQYPGFLAAPGGCLPTSGHSPSSQFKKDDGLQASAATAA I LNLSTRYQKNTEAVAGR  
PLAAPAKDMLIEVDENGTLDLMSKCKENVKQTARTPPGDSLGPSEAAAAKGGSLLI GPA  
FYQPLCDRDSWESPLNFSKAHILHDPEEDYDGVSLDQHYKGDGSM LSPKAKALLRDSKK  
ELLSCTPGCDGSGHVTGNYASHRSVSGCPLADKTLKSLMAANAQELKCPPTGCDGSGHV  
TGN YASHRSLSGCP RARKGGLKLT LNKENNTSPLVTC PVMGCDGQGHISGKYTSHRSAGS  
CPLAAKRQKESINGLPFAWKASKQELPHCPLPGCNGLGHANNVFATHRSLSGCP LNAHN  
IKKKHSEEEEMTIK LKASSGVENKEDIKHLDEIEIDLNESNMKIEADMMQLQTTQISSMEC  
NLKTI E EENK MIEQHND SLLKELARLSQALINSLTDIQLPQMGP I SEHNFEAYVNTLTDM  
YNNSEHEYSPECKALLDNIKQA I KGIHV

>Takifugu rubripes\_ST18b (ENSTRUP\_14768)  
EMSRGRVNFSLLEQAIALQTEQRQALHHAYREMDRFLMEQMSHERRHQRMEMDGRLSYH



GGKESPRADKKDVKCPTPGCDGTGHVVTGLYPHHRSLSGCPHKVVRVPEILAMHENVLKCP  
TPGCTGRGHVNSNRSTHRSLSGCPIAAAVKVSQPEESLKCRQTPDRSPRAVGLMCKLEM  
NQLNRYLSHPAALQSTLAKDMDKYSRIRFDYASFDAQVFGKQPLMGANPEQEMSPFSDS  
PQQYPGFLAAPGGCLPTSGHSPSSQFKKDDGLQASAATAAILNLSTRYQKNTEAVAGRP  
LAAPAKDMLIEVDENGLDLSMKKCKENVKTQARTPPGDSLGPSEAAAAKGGSLIGPAF  
YQPLCDRDSWESPLNFSKAHILHDPEEDYDGVSLDQHYKGDGSMSPKAKALLRDSKKE  
LLSCPTPGCDGSGHVTGNYSHRVSGCPLADKTLKSLMAANAQELKCPPTPGCDGSGHVT  
GNYSHRSLSGCPRARKGGLKLTRSVPPPQRHPLFARCPVMGCDGQGHISGKYTSHRASAG  
SCPLAAKRQKESINGLPFAWKASKQELPHCPLPGCNGLGHANNVFATHRSLSGCPLNAH  
NIKKKHSEEMTIKLIKASSGVENKEDIKHLDEIEDLNE SNMKIEADMMQLQTQQISSME  
CNLKTIEEENKMI EQHND SLLKELARLSQALINSLTDIQLPQMGP ISEHNFEAYVKT LTD  
MYNNSEHEYSPECKALLDNIKQAIKGIHV

>Tetraodon nigroviridis\_ST18 (ENSTNIP\_11341)

EMSRGRVNFSLLEQAIALQTEQRQALHHAYREMDRFLMEQMTNERRHQMMEMDGRITYH  
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TPGCTGRGHVNSNRSTHRSLSGCPIAAAVKVSQPEESLKCRQTPDRSPRAVGLIKKLEM  
NQLNRYLSHPVSLQTNLAKDMDKYSRIRFDYASFDAQVFGKQPLMGVNPEQEMSPFSDS  
PQQYPGFLAAPGGRLPTSGHSPSSQFKKEDSLQASAATAAILNLSTRYRKNMEAVAGRP  
LATSTKDMMLIEVDENGLDLSMKKCKENVTAQAKMPPEDSLTPSEAAAAKGGSMIGPAF  
YQPLCERESWESPINFSKAHVLHDPEEDYDHSVLEEQHYKGDGSMSPKAKALLRDSKKE  
LLSCPTPGCDGSGHVTGNYSHRVSGCPLADKTLKSLMAANAQELKHRCPTPGCDGSGH  
VTGNYSHRSLSGCPRARKGGLKLT PNKDDKDEQELKCPVMGCDGQGHISGKYTSHRASAG  
SCPLAAKRQKESISGLPFAWKASKQELPHCPLPGCNGLGHANNVFATHRSLSGCPLNAH  
NIKKKHSEEMTIKLIKASSGVENKEDIKHLDEIKDLNESNMKIEADMMQLQTQQISSME  
CNLKTIEEENKMI EQHND SLLKELARLSQALINSLTDIQLPQMGP ISEHNFEAYVKT LTD  
MYNDSEHEYSPECKALLDNIKQAIKGIHV

>Gasterosteus aculeatus\_ST18 (ENSGACP\_23711)

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GDEELPDSERDDQTEDLMGSA SSVLTETPGRPSVSRVCPAAAPPPRKRTRGGSGPRE  
RRSPARRGAAEVQAAAAEEDGEGEAEAEERPPQPDGWGLGLHERGLEMGRGRVNFSLLEQA  
IALQTEQRQVLHHA YREMDRFLMEQMTSERRHHRMMDMGRLSFHGGKDSRPTDKKDIK C  
PTPGCDGTGHVVTGLYPHHRSLSGCPHKVVRVPEXMHENVLKCTRPTRRGHVNSNRSTHR  
SLSGCPIAAAVKVSQPEESPKCRQTPDCSPRAIGLMKKFEMNQLNRYLSHPVAALKTSL  
AKDMDKYSRIRFDYASFDAQVFGKQPLMGASQDQEMPHFPDS PQRYHAFLGAPGGGLPAS  
GQRSPPSQFRKEDGLQAAAAATAAILNLSTRYRKNMEAVAGRPLATSTKDVPIEVDENGL  
DLSMKKSKDSGKPLD DLSLAEAAKGGV LVGPAFYQPLCERDGDWGLPLPHFNKAHVS  
PDAEVQTDARHNRRPKNFLNNGSVMSPQAKLLLRDAKKEPLNCPTPGCDGSGHVTGNYS  
HRVSGCPLADKTLKSLMAANSQELKCPPTPGCDGSGHVTGNYSHRSLSGCPRARKGGLK  
LTPDKDDKDEQELKCPVMGCDGQGHISGKYTSHRASAGSCPLAAKRQKESVSGLPFAWKA  
NKQELPHCPLPGCNGLGHANNVFATHRSLSGCPLNAQS IKKKHSEEMMTIKLKTSSGVE  
NKEDIQHLDEIQELNESNMKIEADMMQLQTQQISSMECNLRTIEEENRMIEQHNDGLLK  
ELARLSQALINSLTDIQLPQMGP ISEQNFEAYVNTLTD MYNNSEHEYSPECKALLDNIKQ  
AIKGIHV

>Oryzias latipes\_ST18 (ENSORLP\_21882)

FLQKMDSEGEETLKTCHSGSGLAECITETHSPYASMARKRS AQEGVQGAPVNRKRSLLM  
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TDILRAVFLGKVKRKL SVFFSCSNLSYGNFQRINGVADGGYPCAGAKSCSPLGWSEVTSN  
GSPQCEVDSSEAA LAEEEDDLNND EEDQNLD RMSGTSSPQSPYRNMAKWEPLSLSAKDNS  
PSEDLSGRSDHLRQELLPEAEALRYKLLSAEEDSEGEAEAEERPRLD SWALGLRERGLDM  
SRGSVNL SLLLEQAIALQTEQRQVLHHA YREMDRFLMEQMTSERRTHRMMDMDCRLRHTHT  
HCRLLSKLMSKWL LPFALGRGRGAGLLRAISSRHKSDLPYQVLAMHENVLKCPPTPGCTGR  
GHVNSNRSTHRSLSGCPIAAAVKVSQPEESLKCRQTPDRSPRAIGLIKKFEMNQLNRYL  
SHPVATLQTS LTKDLKYSRIRFDYASFDAQVFGKQPLLGTNPEQEMPLYPDCKFHSSPQ  
QYPGFLGAPGGRLPASGQHSPLSPFKKEDDPQATAATAAILNLSTRYRKNVEAVAGQPLA  
TTTKDMAIEVDENGLDLSMKRCKENKGAQSRTPPEAPLSPPE SAVAKGGSVLIGPAFYQ  
PLCERDSWESSLPVHFSKAHILQDKEDDYEQISLEDQHYLGDSSMSPKAKALLRDSKKE

LLSCPTPGCDGSGHVTGNYASHRSVSGCPLADKTLKSLMAANSQELKCPTPGCDGSGHVT  
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PLAAKRQKESSINGLPLFAWKTNKQELPHCPLPGCNGLGHANNVFATHRSLSGCPINAQSI  
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>Homo sapiens\_MY1(ENSP\_477771)

MSLNEDKRARTRSKALRGPPETTAADLSCPTPGCTGSGHVRGKYSRHRSLQSCPLAKKR  
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GQDEIHRPETAEGRSPVKSHFGSNPIGSATASSKGSYSSYQGIATSLNLGQIAEETLV  
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EEEEEEAAPDVIHQEDTSHTSAQKAPELRGPESPSPKPEYSVIVEVRSDDDKDEDTHSRK  
STVTDESEMDDMMTRGNLGLLEQAIALKAEQVRTVCEPGCPAEQSQLGLGEPGKAAKPL  
DTVRKSYYSKDPSPRAEKREIKCPTPGCDGTGHVTGLYPHHRSLSGCPHKDRIPPEILAMH  
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RILRPMCFFVKQLEVPYGSYRPNVAPATPRANLAKELEKFSKVTFDYASFDAQVFGKRM  
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DLKCPTPGCDGSGHITGNYASHRSLSGCPRAKKSQVAVTKDDKEDPELMKCPVPGCVG  
LGHISGKYASHRSASGCPAARRQKEGSLNGSSFSWKSLEKNEGPTCPTPGCDGSGHANGS  
FLTHRSLSGCPRAATFAGKKGKLSGDEVLSPKFKTSDVLENDEEIKQLNQEIRDLNESNSE  
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>Gorilla gorilla\_MY1(ENSGGOP\_6203)

MSLNEDKRARTRSKALRGPPETTAADLSCPTPGCTGSGHVRGKYSRHRSLQSCPLAKKR  
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GQDEIHRPETAEEEEEEAAPDVIHQEDTSHTSAQKAPELRGPESPSPKPEYSVIVEVRS  
DDDKDEDTHSQKSTVTDESEMDDMMTRGNLGLLEQAIALKAEQVRTVCEPGCPAEQSQL  
GLGEPGKAAKPLDTVRKSYYSKDPSPRAEKREIKCPTPGCDGTGHVTGLYPHHRSLSGCPH  
KDRIPPEILAMHENVLKCPTPGCTGQGHVNSNRNTHRSLSGCPAAAAEKLAKSHEKQQPQ  
TGDPSSSSNSDRILRPMCFFVKQLEVPYGSYRPNVAPATPRANLAKELEKFSKVTFDYA  
SFDAQVFGKRMMLAPKIQTSETSPKAFQCFDYSHDAEAAHMAATAILNLSTRCWEMPENLS  
TKPDLPKSVSDIEVDENGTLDLSMHKHKRRENAFPSSSSCSSSPGVKSPDASQRHSST  
APSSMTSPQSSQASRQDEWDRPLDYTKPSRLREEEPPEEPAHSAFASSEADDQEVSEE  
NFEERKYPGEVTLTNFKLFLSKDIKKELLTCPTPGCDGSGHITGNYASHRSLSGCPAD  
KSLRNLMAAHSADLKCPTPGCDGSGHITGNYASHRSLSGCPRAKKSQVAVTKDDKEDP  
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PGCDGSGHANGSFLTHRSLSGCPRAATFAGKKGKLSGDEVLSPKFKTSDVLENDEEIKQLN  
QEIRDLNESNSEMEAAMVQLQSQIISMEKNLKNIEEENKLIIEEQNEALFLELSGLSQALI  
QLANIRLPHMEPIEQNFDAYVSTLTDMYSNRDPENKDLLESIKQAVRGIQV

>Mus musculus\_MY1(ENSMUSP\_104387)

MSSSEDKRARTRSKTLRGPPETTADLSCPTPGCTGSGHVRGKYSRHRSLQSCPLAKKR  
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GQEEIHHPQTAEGKSLIKPHFDSNPTSSPSGFSKSSYSSYQGIATSLNLGQIAEEALV  
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SDRILRPMCFFVKQLEVPYGSYRPNVAPATPRANLAKELEKFSKVTFDYASFDAQVFGK  
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VDIEVDENGTLDLSMHKHKRRENTFPSSSSCSSSPGVKSPDVSQRQSSTSAPESSMTSPQ  
SSQASRQDEWDRPLDYTKPSRLREEEPPEEPAHSAFASSEADDQEVSEENFEERKYPGE  
VTLTNFKLFLSKDIKKELLTCPTPGCDGSGHITGNYASHRSLSGCPADKSLRNLMAAHS

SADLKCPTPGCDGSGHITGNYASHRSLSGCPRAKKSGLKVAPTKDDKEDPELMKCPVPGC  
VGLGHSIGKYASHRSASGCPLAARRQKEGALNGSSFSWKS LKNEGPTCPTPGCDGSGHAN  
GSFLTHRSLSGCPRATFAGKKGKLSGDEILSPKFKTSDVLENDEEIKQLNQEIRDLNESN  
SEMEAAMVQLQSQISSMEKNLKNIEEENKLIIEEQNEALFLELSGLSQALIQSLANIRLPH  
MEPICEQNFDAYVNTLTDMYSNQDCYQNPENKGLLETIKQAVRGIQV

>Rattus norvegicus\_MYT1(ENSRNOP\_32420)  
MVANSDEGEKDLFIQPEDVVEEVIEVTSERSQEPQSLKDMVNEESSKQKQVGLGHEEEEE  
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GCDGSGHITGNYASHRSLSGCPLADKSLRNLMAHSADLKCPTPGCDGSGHITGNYASHR  
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QKEGALNGSSFSWKS LKNEGPTCPTPGCDGSGHANGSFLTHRSLSGCPRATFAGKKGKLS  
GDEILSPKFKTSDVLENDEEIKQLNQEIRDLNESNLEMEAAMVQLQSQISSMEKNLKNIE  
EENKLIIEEQNEALFLELSGLSQALIQSLANIRLPHLEPICEQNFDAYVNTLTDMYSNQDC  
YQNPENKGLLETIKQAVRGIQV

>Canis familiaris\_MYT1(ENSCAFP\_19510)  
MSLDNEDKRARTRSKAVRVPPEPTGADLSCPTPGCTGSGHIRGKYSRHRSLQSCPLAKKR  
KLEGAQAEHLVSKRKSHPKLLALDEGYSDTDGSEDAEVKDASVSESEGTL EEDEAEMS  
GQEEIHRPEPAEGRSPVKSHFASKPIGSSAGPAKGSYSSYQEI IATSLNLLGQIAVETLV  
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VEGVAESESSKMKVTMGNEEE  
EEEEVPAADVICQEDAPHAPTQKAPELRHPASPSPKPEYSVIVEVRSDDGKDEDSSHQKS  
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EVDENGLDLSMHKHKRRESAFPSSSSSSSPGVKSPEASQRQSSTAPSSSMTSPQSSQ  
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GLGHISGKYASHRSASGCPLAARRQKEGSLNGSPFSWKS LKNEGPTCPTPGCDGSGHAN  
SFLTHRSLSGCPRATFAGKKGVSGDEVLS TKFKTSDGAVLENDEEIKQLNQEIRDLNES  
NSEMEAAMVQLQSQISSMEKSLKNIEEENKLIIEEQNEALFLELSGLSQALIQSLANIRLPH  
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>Felis catus\_MYT1(ENSFCAP\_1104)  
MSLEHEDKRARTRSKALRVPPPEPTGADLSCPTPGCTGSGHIRGKYSRHRSLQSCPLAKKR  
KLEGAQPEHLVSKRKSHPKLLALDEGYSDTDGSEDAEVKDASVSESEGTL EEDEAEMS  
GQEEIHRPEPAEGRSPVKPHFGSNPISSPTGPTKGSYSSYQEI IATSLNLLGQIAVETLV  
GEDLGQVAKPGPGVVHLLVQEEAEEGATSDEGEKDVFI RPEDTEEVMEVTRERSQELGPQS  
GEGMVSEESSKMKVXEEEEEEEEEEEEEEVAAPDVICQEDAPHAPTQKAPEPRHPASPSPKP  
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GCPTEQGGQPGGEPGVVRPLDAARKNYCSKDPRAEKREIKCPTPGCDGTGHVTGLYP  
HHRSLSGCPHKDRIPPEILAMHENVLKCPCTPGCTGQGHVNSNRNTHRSLSGCPIAAAEEKL  
AKSHEKQPPQGGDPKNSNSDRILRPMCFVKQLEVPYGSYRPSVAPATPRANLAKELE  
KFSKVTFDYASFDAQVFGKRMLAPKIQTSETSPKAFKCFDYTHDAEAAHMAATAILNLS  
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DASQRHSSTAPSGSMTSLPSSQASRQDEWDRPLDYTKPSRQREEEPEESEPAAHSFASS  
EADDQEVSEESFEERKYPGEVTLANFKMKFLSKDIKKELLTCPTPGCDGSGHITGNYASH  
RSLSGCPLADKSLRNLMAHSADLKCPTPGCDGSGHITGNYASHRRTSLSGCPRAKKS  
GARVTPTKDDKEDPELMKCPVPGCVGLGHISGKYASHRSASGCPLAARRQKEGSLNGSPFSW



TLDL SMNKH RKRESA F P S S S S C S S S P S V K S P D V S Q R Q N S T S A T S S T M T S P Q S S Q T S R Q D E  
W D G P I D Y T K P N R Q R E E E P E E S E P A A H S F A S S E A D E Q E A S E E N F E E R K Y P G E V T L T N F K L K  
F L P K D I K K E L L T G S G G T N N R G Y K T S C F V G H Q K R E S Q D H H H G Q T M S C P T P G C D G S G H I T G N  
Y A S H R S L S G C P L A D K S L R N L M A A H S A D L K C P T P G C D G S G H I T G N Y A S H R S L S G C P R A K K S  
G I K I T P T K D D K E D P E L M K C P V P G C V G L G H I S G K Y A S H R S A S G C P L A A R R Q K E G S L N G S S F  
S W K S L K N E G P T C P T P G C D G S G H A N G S F L T H R S L S G C P R A T F A G K K G K L S G D E I L N T K F K T  
S D V L E N D E E I K Q L N R E I T E L N E S N S E M E A A M V K L Q S Q I S S M E K N L R N I E E E N K I I E E Q N E  
A L F L E L S G L S Q A L I Q S L A N I R L P H M E P I S E Q N F D A Y V N T L T D M Y T N Q E C Y Q N P E N R D L L E  
S I K Q A V K G I Q V

>Xenopus tropicalis\_MYT1(ENSXETP\_25128)  
M N V D N V N K G T R T R S K A I R V I P L D L I E Q E V S L Q S C P L S R K R K L Q E S E Q E H P P S K R K S H P L K  
L A L D E G F N V D S D G S E E A E V K E E D S G T E E S E A I I E D I E E D T E P T E P K E E P S S P T V E A E S T A  
K V D T E E T E T K T E S S P P A K V N Y S S Y Q E I I A N S L L N L G Q V A K E A L V S E G H L Q E S E L N E E K P S  
S V K S N E E E V E Q L M V E E A C E K E I I I Q T E D A E E V I E V T S E P S S E S G T E P R D E V N C E D T G K L Q  
K D M E E H S I E M A N Q D L P H A S Q D S P K L H C E G Q F S P K P E Y S V I V E V R S D D D K D D D S H S Q K S A V  
T D E S E M Y D M M T R G N L G L L E Q A I A L K A E Q V K V I R E P S R S S L D N M K N F S A D E K Q N R P I D T M R  
K N F Y D A A R P E K R E I K C P T P G C D G T G H V T G L Y P H H R S L S G C P H K D R I P P E I L A M H E N V L K C  
P T P G C T G Q G H V N S N R N T H R S L S G C P I A A A E K L A R S H E K Q Q Q P G D L S K G S S N S D R I L R P M C  
E T S P K A F K S K P F P K A S P S H S P S S S Y I K S T S S S S S G F D Y T H D A E A A H M A A T A I L N L S T R  
C W E M P E N L S T K Q Q D T P G K S S E M K V D E N G T L D L S M N K H R K R E S T F P S S S C S S S P S M K S P D  
Q S R G Q N C T S A T S S N M T S P Q S S Q T S R Q D D W D G P I D Y T K P N R Q R E E E P E E M E P A A A S F A S S E  
A D D Q E M Q E E S Y E E R K Y P G D V T L T N F K L K F L S K D S K K E L L T C P T P G C D G S G H I T G N Y A S H R  
S L S G C P L A D K S L R N L M A A H S A D L K C P T P G C D G S G H I T G N Y A S H R S L S G C P R A K K S G L K I T  
P T K D D K D D P E L M K C P V P G C D G L G H I S G K Y A S H R S A S G C P L A A R R Q K E G A L N G S A F S W K S L  
K T E G P T C P T P G C D G S G H A N G S F L T H R S L S G C P R A S F A G K K G K I S G D E F L G T K F K T S D V L E  
N D E E I K Q L N K E I N E L N E S N S E M E A D M V N L Q S Q I T S M E K N L K N I E D E N K V I E E Q N D A L F V E  
L S G L S Q A L I R S L T N I R L P Q M E P I S E Q N F D A Y V N T L T D M Y T N Q E C Y Q N P E N K A L L E S I K Q A  
V K G I K V

>Danio rerio\_MYT1a(ENSDARP\_136943)  
M K L C G T F L E N E Y R G K L L N Q R W T R G D K I S R C R P S L R L Q S R P I K M S L D T D D K R T R T R S K A G R  
V P S E I V G Q E L S C P T P G C N G T G H I S G K Y A R H R S A L S C P L A R K R R L Q E A E S E Q P S S K R K S H P  
L K L A M D E G F N A E S E G S G E E T E L R E E E E E D E E C T Q Q K L G D Q E D E Q Q A K Q N T E S T N T E E E G  
D E E E C I I I E S S S T E K P K P S P S E D L S S Y Q H I V A N S M T H L N N H N N G A M S P Q Q P P V I M E T Q E K  
S P F R E T E E E K Y G T E E T R S Q V G V V V C K E N G L K L E D E E A D S E S Q K E S D H Q Y F T E E M Q T Q Q D D  
E E E E D D D D D E G L R S E I Q K G E T Y H N E L N D I K H E E E E E E R E T V C S V I T A T Q G S H I R E D Y I  
S H K L A L P Q S Y S N K A P T A S A M L I D V Q S E G S E R D A D D D D D D D D D D D D D D D G D E G D D D S L S Q R  
S T V A D E S E M F D I M R G N L G L L E Q A I A L K A Q Q V K A H R G L S R I P E H H R F F A L D D R A G K H M E H I  
R K S C F V K E S S R S E K R E I K C P T P G C D G T G H V T G L Y P H H R S L S G C P H K D R I P P E I L A M H E N V  
L K C P T P G C T G Q G H V N S N R N T H R S L S G C P I A A A E K L S K S H D K Q H L P Q P M G E H I K G S P N S D R  
V L R P M C F V K Q L E I P P H G S Y R P S L V P A T P R A N L A K E L E K Y S K V S F D Y A S F D V Q V F G K R M L A  
P K M H T S E T S P K A F K S K P F P R V S P P S P L H G V Y G K S S S S G Y D Y S H D A E A A H M A A T A I L N L  
S T R C W E R P E N L S I R H Q D K S M E I E V D E N G T L D L S M K K P I K R E V G M S C T S P E V R S P D L S S S S  
S S S S T S L H H G N S S I S P H S L H T Y K Q E E W E G P L D Y T K P N R Q R E E E L E E M D H S A P S F A S S D P E  
D C D M M Q D G L E D R K Y P G E V T T P S F K V R F Q P K D N K D L L M C P T P G C D G S G H I T G N Y A S H R S L  
S G C P L A D K S L R S L M A A H T A E L K C P T P G C D G S G H I T G N Y S S H R S L S G C P R A K K G I K T P I  
K D D K E D S E L L K C P V P G C D S L G H I S G K Y A T H R S A Y G C P L A A R R Q K E G L L N G S P F S W K A F K T  
E G P T C P T P G C D G S G H A N G S F L T H R S L S G C P R A S L N K K K A K F P G E E Y L S T K F R A S D V L D N D  
E D I K Q L N K E I N E L N E S N N E M E A D M V N L Q T Q I T S M E K N L K N I E Q E N K M I E E Q N E A L F M E L S  
G L S Q A L I R S L A N I R L P H M Q E P I T E Q N F E S Y V S T L T D M Y T N K D C Y Q N P E N K A L L E T I N K A V  
K G I K V

>Danio rerio\_MYT1b(ENSDARP\_102049)  
M K L C K T F L E N E F R G Q L L S Q R W T R G D R V S S C E S K R S R R Q K M S Q D A D D K R T R T R S K G I R V P L  
E L V G Q E Y S C P T P G C D G L G H V S G K Y A R H R S A L G C P L A K K R K L Q E A E E N L P A P K K K P N L L K L  
A M D D G F N A D S D T N S E T E T K D E G V E S E E D T A D K V M E V K E K S P A S E A M T E S S Q V N L E E K E T  
P I R Q T S P V P E I E I E K E E A N I E S T P I Q Q I T M D T E A E E E L Q V A E E I Q A R E E E V E E E A E E I T E  
E E R V T Q Q L K E T D E P V T T V E E E E E D D E E D E E G E E E T Q C L S Q K N N S D H Q Y F S G D F G K M Q T K E  
T G E L E R D S E D E D E E G D E E E E E E Q S Q V E P S S L M A P V P T V S A Q E L D V M T H G N I N L D H H L G E D

EEEEDEDERDDASDKDSPTVVIELGSDGEEEEEEEEEDDGEDEEEEEI DEADDDDLDSMS  
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IAARRAYYKGDGSRLEKKEVKCPTPGCDGTGHVHTGLYPHHRSLSGCPHKDRIPPEILAMH  
ENVLKCPTPGCTGQGHVNSNRNTHRSLSGCPAAAAAGKHKSHDKQSQPQTSVIDPASVGSN  
SDRVLRPMC FVKQLEIPQYGSYRTNAMPATPRANLAKELEKYSKVSFDYASFDVQVFGKR  
MLAPKMPTSETSPKAFKSPSPSHSLSGGYTKSSSSSTSSGYDYTHDAEAHMAATAI LNL  
STRCWERPENLSTRPPDQAGKDMDIEVDENGLDLSMCKPKREGVRSPPSSSSSSSSSQH  
HGVTSPHSSHTYKQEEWEGPLDYTKSNRQKEEPEEVEYTTTHSYASSDGEDDDGTQEGAE  
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RTLMAAHTAELKCPTPGCDGSGHITGNYASHRSLSGCPRAKKGKIKTTPTKDDKEDSELI  
KCPVPGCDSLGHISGKYATHRSAYGCP LAARRQKEGMLNGT PFSWKAFKTEGPTCPTPGC  
DGS GHANGSFLTHRSLSGCPRASANKKRARFPGDDYISKKFRASDVLNDDEDIKQLNKEI  
NELNESNSEMEADMANLHTQISSMEKNLKSMEENKLIIEEKNEALFMELSGLSQALIRSL  
ANIRLPQM QEPITEQNFDAYVDLTHMFTDKECYQNPENRALLESINQAVKGI EV

>Takifugu rubripes\_MYT1 (ENSTRUP\_17361)  
MSQDVTETRRTRRSKGI RASSELAAQEMNSCPTPGCDGKGHVSGRYSRHRSVLGCPIVKK  
RKLEEAESQSAPKKRNQPVKQAAGEDFTHTSDSEEEEEEEEGEEEGEEAEDEEELREKK  
KPTSKIRAEATKESSPAGAPPDSEVCSADDGATSGNQENKDVSOEVAEEDQVSEQLLEE  
MTVINLTKTKEEKEEEDVTKTTEEEHRRERREVP EATVVERPMINQENS DHQYSSGDYK  
HQAKEVAEEQQEKEEKEEKEEKEEKEEKEEKEEKEEKEEKEEKEEKEEKEEKEEKEEKEE  
EGELMIEEDEDQDSIKASPATVVI EVRSEEEDEEEDDEEEDGSGITDDSENWDMRGN  
LGLLEKAIALKAGEVKGGEVQSSPEYHPYSSSSSRSSQGAGAARRSAYYKDKKKEVKCPT  
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VTTTPRANLAKELEKYSKVSFDYASFDVQVFGKRTLIPKTPSSTETSPKAFKSYDYSDA  
EAHMAATAI LNLSTRCWERPESLCSVSREPCSKE SDIEVDENGLDLSMCKTKREGLQA  
SEPPSSSSSSS QL T GATLSQGH SQPEWEEPLDFTTQTGVKEEDHEEVEYAAPS Y TSSDAE  
EEDQDNLEDRKY PGEVTTSSFKVKFQAKDSKELLVCPTPGCDGSGHITGNYASHRSLSG  
CPLADKSLRTLMAAHTAELKCPTPGCDGSGHITGNYASHRSLSGCPRAKKS GVKATPTKD  
DKEDSELLRCPVPGCDSLGHISGKYATHRSAYGCP LAARRQKEGLLNGT PFSWKAFKAEG  
PTCPTPGCDGSGHANGSFLTHRSLSGCPRASANKKAKLPDEFITAKFRASDVLNDDED  
IKQLNTEISEL NESNSEMEADMMNLHTQISSMEKNLKNMEEENKQIEERNEALFLELSGL  
SQALIRSLANIRLP TMEPMSEQNFDTYVEALTHMFTNKDCYQNPENRALLESINQAVKGI  
EV

>Tetraodon nigroviridis\_MYT1 (ENSTNIP\_5677)  
TSVDVDEKRRTRRSKGI RVPVELLQEQSCPTPGCSGSGHVSGRYSRHRSVLSCPIARKH  
RLEEEEQDAEKPPSKRKAHPLKLALDEGFSAESDTSSEKDEDEAGGAVVSEETQGHNGDE  
ATPTQDGHMELEAQLD SPEEDKETEMEEEEAAAAAEGEAAQLSGQSRSWAGLKV T GMLARQ  
PVAPRLIFIDRTGDAADPGCLCSTEEECVMVGSPSRSSQRPHQAPD SLLHLGRVSGDPS  
PSTAPQPPVTMETQEDNSTAAAEAKDEEQEYGEDEDEGPDQSNPLIQIHHPDGEHEEMTED  
ENAKGGETDGRREDHLANVQENYATHRASSPTS PDVIEVHSDRSED R D FEDVDGDDDKDS  
LSQRSTMTDESEIFDISRGNLGLLEQAIALKAEVQVQAGQRERFCS PDVHQQRYITVEDR  
PKHLDALRRSYFNKESGRSEKKEVKCPTPGCDGTGHVHTGLYPHHRSLSGCPHKDRIPPEI  
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ASPNDRVLRPMC FVKQLEIPQYGSFRPSAAPSTPRANLAKELEKYSKVSFDHASFDAQV  
GKRVLAPKMPTSETSPKAFKIYDYSQDAEAHMAATAI LNLSTRCWEKPENLSTRAQDKS  
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AYKQEEWEGPLDYTKPNRQREEDMEEMEQTGQAFVSSDSEDCDLTQDGLDRRY PGEVTS  
ASFVKVFQPKDKKELLACPTPGCDGSGHITGNYASHRSLSGCP LADKSLRSLMAAHAPE  
LKCPTPGCDGSGHITGNYASHRSLSGCPRAKKS GIKTPTKDNQEDSELLKCP I PGCDSLG  
HISGKYATHRSAYGCP LAARRQKEGLLNGT PFWKAFKAEGPTCPTPGCDGSGHANGSFL  
THRSLSGCPRALYAKKAKFP SDEY PSSKFRASHVLDNDEDIKQLDKEISDI SESNEME  
ADMVNLQTQISSMEKNLKNIEHENKMIEEQNEALFVELSGLSRALIRSLANIRLP HMEPI  
TEQNFDYSVSTLTDMYTNKERFQSPENKALLESINKAVKGIKV

>Gasterosteus aculeatus\_MYT1a (ENSGACP\_17495)  
MSVESDTRRTRRSKGI RVPVIELVQELSCPTPGCNGSGHISGRYSRHR SILGCPVARKR  
RLEEAEEAEQEQDAEQPAKRKSPPLRMALDEGFSAESDAGSEAE GEGQRSGETAEIAADE  
AERKLCRCSSLEHTLLNEECVIVGPR LGPAPPARRECRSASQSAEEVADSL LHLGRVSDS

FAPAAAVHQPVAVDTEEEVTVAAKRGEDAKDEQEGNMTEASEEAAEVEEEVEEDKKGCEP  
DSSSHVIOENHQHLTQDVRHQQIKGDEEEEDMAAPSAEEEEKEEERHKENYTAGPPLSYG  
LNRVSPLEDHFPNLRGENYKVHRAVSSTSPDVIEVRSRSEERDFEDADGDDERDDDDSL  
SQRSTVTDESEMFDIRGNLGLLEQAIALKAEQVKPAGPGELLRTPDIHQQRYPFLDDRP  
KHLDVIRKSYFSKESRPEKREIKCPTPGCDGTGHVVTGLYPHHRSLSGCPHKDRIPPEIL  
AMHENVLKCPGCTGQGHVNSNRNTHRSLSGCPIAAAELSKGLDKQHLSQPGSEQLKG  
SLNDRVLRPMCFCVKQLEVPQYGSYRPNMAPATPRANLAKELEKYSKVSFDYASFDAQVFG  
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HRSISGCPRAKSGIKTPTKDNQEDSELLKCPVPGCDLGHISGKYATHRSAYGCPAAR  
RQKEGLLNGTFFNWKAFFKTEGPTCPTPGCDGSGHANGSFLTHRSLSGCPRALFAKKKAKF  
PTEDYLSTKFRASDVLNDEDIKQLNKEINDLNESNMEMEADMVNLQTQVDSKVFCLKTI  
EHENKMIENEALLPKLSGLSRALIRSLGNIPLPHMQEPITEQNFDLSYVSTLTHMYTNKD  
RFQSAENKALLETINRAVKGIV

>Gasterosteus aculeatus\_MYT1b(ENSGACP\_16935)  
SVVLAMHENVLKCPGCTGQGHVNSNRNTHRSLSGCPIAAATKLNKGQDKQVILQASPS  
EPSSNSDRVLRPMCFCVKQLEIPQYGSYRPNVTTTTPRANLAKELEKYSKVSFDYASFDVQ  
VFGKRLMIPKTPSSAETSPKAFKNSYDYSQDAEAAHMAATAILNLSTRCWERPETISTK  
PREPCSKESDIEVDENGTLDLSMKKTKREGAQPPPEPSSSSSSSQHIGATLSQSHQPEW  
EGPLDFTKSSGVKEEDHEEVEYTAQSYTSSDGEEDQENLEERKYPGEVTTGSKVKFPP  
KESKKEILICPTPGCDGSGHITGNYASHRSLSGCPLADKSLRSLMAAHTAELKCPGCD  
GSGHITGNYASHRSLSGCPRAKGGVKSTPTKDDKEDSELLRCPVPGCDLGHISGKYAT  
HRSAYGCPAARRQKEGLLNGTFFSWKAFKTEGPTCPTPGCDGSGHANGSFLTHRSLSGC  
PRATANKKRAKFPGDEYITAKFRASDVLNDEDIKQLNKEINELSESNSEMEADMNLHT  
QISSMENNLKSMEEENKHIEERNEALFLELSGLSQUALIRSLTNIIRLPALEPPSEQNFDSY  
VDTLTHMFTNKDCYQNPENRALLESIQAVKQIEV

>Oryzias latipes\_MYT1a(ENSORLP\_24992)  
DDDEAAEQAEDEEGGRTEPEAAVPATQGTDSEIILLRDQTVISLVASKQGYDEGEHEHA  
SVGSGITDDSENWDMTRGNLGLLEQAIALKAEVQGGSESFSSSDYQPHGSSIKASESAA  
AARRSSYFNKGKKLKKKKEVKCPTPGCDGTGHVVTGLYPHHRSLSGCPHKDRIPPEILAMH  
ENVLKCPTPGCSGQGHVNSNRNTHRSLSGCPIAASSKLIKQDKPVHLQAAASEPSSNSD  
RVLRPMCFCVKQLEIPQYGNYPNTATTTTPRANLAKELEKYSKVSFDYASFDVQVFGKRM  
IPKTVGITDTSKASKASLPKASSPTHAVSESPKALSSSGYDYSQEAHMAATAIL  
NLSTRCWERPETLSTKPNPYAKESDIEVDENGTLDLSMKKAKTDDTTPSEPPSSSYTSS  
QPVGVTSEHTHDDWEGPLDFTKSTEVKEEDEEMDYTALSYSSSEGEEDDQESLGRKY  
PGEVTTTTFKVKFQPKDSKDIIVCPTPGCDGSGHITGNYASHRSLSGCPLADKSLRSLM  
AAHSAELKCPGCDGSGHITGNYASHRSLSGCPRAKGGVKTTPTKDDKDDSELLKCPV  
PGCDLGHISGKYATHRSAYGCPAARRQKEGLLNGTFFSWKAFKTEGPTCPTPGCDGSG  
HANGSFLTHRSLSGCPRASANKKTKLPGDEYITAKFRASDVLNDEDIKQLNKEISELN  
ESNSEMEADMLHLHTQISSMEKNLKSLEENEQMEEKNEALFLELSGLSQALIHSLANIH  
LPTMEPMTEQNFDSYVDTLTMFTNKDCYQNPENRALLESIQAVKQIEV

>Oryzias latipes\_MYT1b(ENSORLP\_2798)  
MSVESDDKRTRRSKGRVPIELVQELRICPTPGCNGSGHISGRYSRHRSLGCPPIARK  
RRLEEAEQEQEQAERPASKKSDASSIKLCFENSVAEADDPAAEWEVEEVKDEQEENLME  
EEEAQRLQKLEESPAEQEANDQNDDEGSDCHVFLHEQIKHEQAESEEEEESEEMV  
SVQETRTEEEHRGHSISTSDAPTAVRTITSTAAAQASSSSASPDIEVRSEKDFDLG  
DVDHDDSDLSQRSFAFTDESEMFMTRGNLGLLEQAIALKAEQVKPGGPRELLRAPDIH  
QRYFTLEDRPKHLDIRKSYFRNDILIFINVLQHLRNVTRRCQKQHFHLSGSLQNKDLK  
LHEEHGSKSPSSYSVMNLLKTMEEVQINPAKNISKLNSCKEPQRTSVYIKSDKRSSLF  
EVLGETPNPTLLPGGSSSRQRIRLNRKVLQKDLRQKTRAFDGSKPVKMSNKDRIS  
SSLSTPPPPSSIMSDAESSRPEKREIKCPTPGCDGTGHVVTGLYPHHRSLSGCPHKDRIP  
PEILAMHENVLKCPGCTGQGHVNSNRNTHRSLSGCPIAAAELSKTHDKPAVAPPTSE  
LLKVSPNDRVLRPMCFCVKQLDVVPQYGSYRPNMAPSTPRANLAKELEKYSKVSFDYASFDA  
QVFGKRTLAPKISTSETSPKAFKTYFEYCKNKYRFANCTNKTTPSSPSLSLHSYGKSS  
LAYDYSHDAEAAHMAATAILNLSTRCWEKPENLSTKPNKEMDIEVDENGTLDLSMKKPI  
KREGSVSGTSPGVRSPDSSSSSSSLHHGGNSGMTSPNLQTYKQEDWEGPLDFTKPNRQR

EEEADESYSVSSDPEDCDMMQDGLLEERKYPGEVTTSPFKVKFQPKDSKKELLSLSGCPLAD  
KSLRSLMAAHTPELKCPTEPGCDGSGHITGNYASHRSLSGCPRAKKSIGIKTPTKDNQEDSE  
LLKCPVPGCDLGHISGKYATHRSAYGCPLAARRQKEGLLNGTFFNWKAFKTEGPTCPTP  
GCDGSGHANGSFLTHRSLSGCPRALYAKKAKFPSELYLSTKFRPTDVLNDNEDIKQLNK  
EISDLNDSNMEMEADMVNLQQTQISSMEKNLKSIEHENKMIEEQNEALFVELSGLSRALIR  
SLANIRLPHMEPITEQNFDYVSTLTDMYTNKDCFQSPENKALLESINKAVKGIKV

>Trichoplax adhaerens\_ (XP\_002116647)

MSEVDDKPFQCPTEGCKESFTNMDHLEVHQKRHTSNLKIQCANRASSDTPASALPDQTPTPSRFLRAFEE  
AGLEDALQNPFEATFAKAAVDRADPSAAIASGVLATMKLRDSSQHDVAAALTSLSQQPSPVPISTSIAT  
LLPSKSTIKPVIESIGNTTASATVAVANPIATTATQQSIHSHIPTITKTVAQLSQQPVNNGALNSITV  
VSAKERLQHSRLRVKAIKTSASTASSKTPQVTKTKTLDIVNKVTKAPTAVVKAVSTNDTPVRKSEAVTNGP  
HRTKRARRSQEDLDPEEKQRQFLERNRAAATRCREKKTWISGLDKKVKELSDKNSSLQAEAAKLRSEVA  
HLKSLLIAYQNGSIAPRKEHLSDSVSDAETVASSVLTHLAMAPSTDITSNGGAKITASTVVLND

>Amphimedon queenslandica\_ (XP\_011403471)

MSGEVSGTTSANASTQSTPTPPNIGRRGRRLKCATPIKSAKKDERGTFPQTGSLSLVLPPTGNSNSD  
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VTGLYAMHYAVSGCPIAAQAKKELEKDVIKPPRPPPHPSFRKKRRFRSYYKKKVPQNGASKTGVTPII  
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TPGCGGIGHITGLYSMHYAVSGCPLAHGKTPEECKSRRDELNKSRAQASQTLSESEALSPPPRKNPRLMA  
SRNLSATLDSVAIGDPLPNNTPSFKTLPPNDNKKRFRMPEYYFRPEPKLEGLTSSQDLQLFREAQAKMR  
EQLVNVEGKHTDYKLSKIFGCYEIDTWYSSYPPEYTELSQIYVCEFLRYKYTVVTYNNHTSCCVQRR  
PPGREIYRKNLTVSFEVDGENHKEYSQNLCLLAKLFLDHKTLFYFNVEPFLFYIVTRYDDTGCHIVGYFSK  
EKHSPQGFVNSCIVLMPPHMRRGYGHLIDFSYLLTRHQEKVGSPEPLSDLGLLCYRSYWKDKVLSYLT  
KHNSQSI SMKEISLETGISADDLISLQYYRIILKYWKGKHII IKKELLEEHSCKVERHKSSDLTIDASC  
LKMMPPTTYPVYP

## **Nuclear Receptor Coactivator-NCOA**

>Homo sapiens\_NCOA1 (ENSP\_320940)

MSGLGDSSSDPANPDSHKRKGSPCDTLASSTEKRRREQENKYLEELAELLSANISDIDSL  
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SCLICIAARRLPRPPAITGVESFMTKQDITTKIISIDTSSLRAAGRTGWEDLVRKCIYAFF  
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IHIIDREHSGLSQDDTNSGMSIPRVNPSVNPISPAHGVARSSSTLPPSNSNMVSTRINR  
QOSSDLHSSSHSNSNSQGSFGCSPGSQIVANVALNQGQASSQSSNPSLNLNNSPMEGTG  
ISLAQFMSPRRQVTSGLATRPRMPNNSFPPNISTLSSPVGMTSSACNNNNRSYSNIPVTS  
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TGTSNSASANSSSGGCSPSSHSLTERHKILHRLLEQEGSPDITTLVPEPKKDSASTSVS  
VTGQVQGNSSIKLELDASKKESKDHQLLRYLLDKDEKDLRSTPNLSLDDVKKVVEKKEQ  
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QSKSEDQCISQLELLCPPTTVEGRNDEKALLEQLVSVFLSGKDETELAELDRAIGIDKL  
VQGGGLDVLSEFPFPQATPPLIMEERPPLYSPYSSPSTANLPSPFQGMVRQKPSLGT  
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GNNLPPSSGLPVQMGNPRLPQGAQQFPYPPNYGTNPGTTPASTSPFSQLAANPEASLAN  
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MAGGNTNVQNMNPMMAQMQMSSLQMPGMNTVCPEQINDPALRHTGLYCNQLSSTDLLKTE  
ADGTQQVQVQVFADVQCTVNLVGGDPYLNQPGPLGTQKPTSGPQTPQAQKSLQLLQ  
E

>Gorilla gorilla\_NCOA1 (ENSGGOP\_11007)

MSGLGDSSSDPANPDSHKRKGSPCDTLASSTEKRRREQENKYLEELAELLSANISDIDSL  
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VPWPQAEARRNSHTFNCRMLIHPPDEPGTENQEACQRYEVMQCFTVSQPKSIQEDGEDFQ  
SCLICIARRLRPPAITGVESFMTKQDTTGKIIISIDTSSLRAAGRTGWEDLVRKCIYAFF  
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VTGQVQGNSSIKLELDASKKESKDHQLLRYLLDKDEKDLRSTPNLSLDDVVKVKEKKEQ  
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TSVTIKSEILPASLQSATARPTSRLNRLPELELEAIDNQFGQPGTGDQIPWTNNVTAIN  
QSKSEDQCISQDLLELLCPPTTVEGRNDEKALLEQLVSVFLSGKDETELAELDRLGIDKL  
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MAGGNTNVQNMNPMMAQMMSLQMPGMNTVCPEQINDPALRHTGLYCNQLSSTDLLKTE  
ADGTQQVQVQVFADVQCTVNLVGGDPYLNQPGPLGTQKPTSGPQTPQAQQKSLQLLLE  
E

>Mus musculus\_NCOA1(ENSMUSP\_82971)

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GIALSQFMSPRRQANSGLATRARMNSNSFPPNIPVTLSSPVGITSGACNNNNRSYSNIPVT  
SLQGMNEGPNNVGFSSAGSPVLQRMSSQNSPSRLSMQPAKAESKDSKEIASILNEMIQSD  
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VLSCTGTSSASSNSPSGGTCCPSSHSSLTERHKILHRLLEQEGSPSDITTLSEVEPEKDSVP  
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VEKKEQMDPCNTNPTPMTKPAPEEVKLESQSQFTADLDQFDQLLPTLEKAAQLPSLCETD  
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DLLKTDADGNQDKKTEEFFSVVTTD

>Rattus norvegicus\_NCOA1(ENSRNOP\_71037)

MSGLGDSDDPANPDShKRKGSPCDTLASSTEKRRREQENKYLEELAEILLSANISDIDSL  
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GISLAQFMSPRRQANSGLATRARMNSNSFPPNIPVTLSSPVGITSGACSNNNRSYSNIPVT  
SLQGMNEGPNNVGFSSAGSPVLQRMSSQNSPSRLSMQPAKAESKDNKEIASILNEMIQSD  
NSANEGKPLDSGLLHNNDRSLDGDGSKYSQTSKHLVQLLTTTAEQQLRHADIDTSCKDVLSC

CTGTSSSASSNPSSGTCPPSSHSSLTERHKILHRLLEQEGSPSDITTLVSVEPEKKDSASAST  
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KEQMDPCNTNPAPVTKPAPEEVKLESQSQFSADLDQFDQLLPTLEKAAQLPGLCETDRMD  
GAVPGVNIKSEILPASLQPTPARSAPRLNRLPELELEAIDNQFGQPGAGDQIPWANNTVT  
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MPIPPQSSLLQPTPPTSGYQSPDMKAWQQGTMGNNVFSQAVQSQPAPAQPGVYNMSIT  
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>Canis familiaris\_NCOA1(ENSCAFP\_6049)

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DGFFVFNCEGRIVFVSENVTSYLGYNQEEELMNTSVYSILHVGDHAEFVNLLPKSLVNG  
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SCLICIAARRLPRPAPITGVESFMTKQDITTKIISIDTSSLRAAGRTGWEDLVRKCIYAFF  
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IHIIDREHSGLSQDDTNSGMSIPRVNPSVNSSISPAHGVARSSSTLPPSSNNMVSFRVNR  
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SGTSSNSASANSSSGCSPSSHSSLTERHKILHRLLEQEGSPSDITTLVSVEPKKDGASTSVS  
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MDPCTTNPMPKPAPEEIKLESQSQFTADLDQFDQLLPTLEKAAQLPGLCEPERMDGAV  
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VQGGGLDVLSERFPPQATPPLMMEERPNLYSQPYSSPSPTANLSSPFQGMVRQKPSLGT  
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GNNLPPSSGLPVQMGPNRPLPQAPQQFPYPPSYGTNPPTPPASTSPFSQLAANPESTLAN  
RNSMVNRGMAGNMGGQFGTGINPQMQQNVFQYPGSGMVPQGEANFAPSLSPGNSMVPMPI  
PPPQSSLLQPTPSSGYQSPDMKAWQPGAMGNNSVFSQAVQSQPTPAQPGVYNMSITVS  
MAGGNTNVQNMNPMGMQMQMSSSLQMPGMNTVCPEQINDPALRHTGLYCNQLSSTDLLKTE  
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>Felis catus\_NCOA1(ENSFCAP\_22579)

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LEALDGFFVFNCEGRIVFVSENVTSYLGYNQEEELMNTSVYSILHVGDHAEFVNLLPKS  
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YAFFQPGREPSYARQLFQEVMTRGTTASSPSYRFILNDGTMLSHTKCKKLCYQSPDMQPF  
FIMG IHIIDREHSGLSQDDTNSGMSISRVNPSVNSSISPAHGVARSSSTLPPSSNNMVS  
RVNRQQSSDLHSSSHSNNSSNSQGSFGCSPGNQIVASVALNQGQASSQSTNPSLNLNNSP  
EGTGISLAQFMSPRRQVSSGLATRPRMPNNSFPPNIPTLSSPVGMTGTTTCNNSNRSYSN  
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VLSCSGTSGSASANSSSGCSPSSHSSLTERHKILHRLLEQEGSPSDITTLVSVEPKKDSAS  
TSVSVTGQVQGNSSVKLELDASKKESKDHQLLRYLLDKDEKDIRSTPNLSLDDVKVKEK  
KKEQMDPCNTNPMPKPAPEEIKLESQSQVSDVSEMGEKCEAVDKTVSSGLLCCYSISF  
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DKLVQGGGLDVLSERFPPQATPPLMMDERPNLYSQPYSSPSPTANLSSPFQGMVRQKPS  
LGTMPVQVTPPRGAFSPSMGMQPRQTLNRPPAAPNQLRLQLQORLQGGQQLIHQNRQAIL  
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LANRNSMVNRGMTGNMGGQFGTGINPQMQQNVFQYPGSGMVPQGEASFAPSLSPGSSMVP  
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TVSMAGGNTNVQNMNPMGMQMSLQMPGMNTVCPEQINDPALRHTGLYCNQLSSTDLL  
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LLTE

>Monodelphis domestica\_NCOA1(ENSMODP\_29006)

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SVNNQVPVGNANI KLELEASKKESKDHQLLRYLLDKDEKDLRAAPTLSLDDVKVKEKKE  
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GLPVQMGTSRRLPQGAQQFPYPSYGTNPGTPTSTSPFSQLASNPEASLASRNNMVNRG  
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QQTQTQPTSGYQSPDMKTWQQGAMGNMNFSTQTPAPAQPGVYNNMSITVSMAGGNTNVQ  
NMNPMGMQMSLQMPGMNTVCSEQINDPALRHTGLYCNQLSSADILKTESDSGAQQVQ  
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>Gallus gallus\_NCOA1(ENSGALP\_26767)

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PERSESGVAVKSEM LAAPLQBSTAPRAPTGLNPLSSQGMQAARAPFEFCDPLEPAQLRP  
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>Anolis carolinensis\_NCOA1(ENSACAP\_770)

MSG LGNNSMDPANPDSQKRKGS PCDTLAQSNEKRREQENKYLEELADLLSANIG EIDSL  
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>Xenopus tropicalis\_NCOA1(ENSXETP\_45770)

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>Danio rerio\_NCOA1(ENSDARP\_45947)

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>Takifugu rubripes\_NCOA1a(ENSTRUP\_16274)  
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>Takifugu rubripes\_NCOA1b(ENSTRUP\_16273)  
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>Tetraodon nigroviridis\_NCOA1 (ENSTNIP\_22339)  
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>Homo sapiens\_NCOA2 (ENSP\_399968)  
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>Pongo abelii\_NCOA2 (ENSPPYP\_24008)

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>Macaca mulatta\_NCOA2(ENSM MUP\_21016)

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>Mus musculus\_NCOA2(ENSM USP\_6037)

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>Takifugu rubripes\_NCOA2 (ENSTRUP\_29760)

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>Tetraodon nigroviridis\_NCOA2(ENSTNIP\_11019)

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>Gasterosteus aculeatus\_NCOA2(ENSGACP\_3702)

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>Oryzias latipes\_NCOA2(ENSORLP\_10164)

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>Homo sapiens\_NCOA3(ENSP\_361066)

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>Gorilla gorilla\_NCOA3(ENSGGOP\_19561)

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>Macaca mulatta\_NCOA3(ENSMUP\_15773)

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>Mus musculus\_NCOA3(ENSMUSP\_85416)

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>Rattus norvegicus\_NCOA3(ENSRNOP\_7768)

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>Canis familiaris\_NCOA3(ENSCAFP\_15958)

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>Felis catus\_NCOA3(ENSFCAP\_13944)

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>Myotis lucifugus\_NCOA3(ENSMLUP\_383)

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>Monodelphis domestica\_NCOA3(ENSMODP\_20305)

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>Gallus gallus\_NCOA3(ENSGALP\_7263)

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>Anolis carolinensis\_NCOA3(ENSACAP\_16172)

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>Takifugu rubripes\_NCOA3b (ENSTRUP\_10582)

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>Tetraodon nigroviridis\_NCOA3a (ENSTNIP\_15572)

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>Tetraodon nigroviridis\_NCOA3b (ENSTNIP\_10107)

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>Gasterosteus aculeatus\_NCOA3a (ENSGACP\_13262)  
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GHPLEELLGPRGHSEGPS DERALLDQLDLSLLNTD VIALQEI DRALGIPEIVGQGRCPSP  
EPFTGSDSSIGMDQKPGYNQGYPGPPGSS IGMQPGYGGNTMQGQSPGGFNPMNQAQGA  
AGFPGMAGMGGMGNPRANMMRPRMMSATKPLRLQLLQORLQGGQFMNQTRQGMKMEHAPGG  
NPAMQPGM QPGM QPGM QPGFLNAQMIAQRSREMMTMQMR RQRM MMRGFSPPNVTAPGG  
MDASIGGPPMNQPGQQGFSYGGNYAGMNQQGDP SFMAPVSSPPGNMMQTMMMPGMQGNPQ  
GGPMYQSGDMKGWPQGGMPRGNTY PQQQFPQQGNQGF GPMMNKQGMQGLGMNPMAM  
GRMPMPGDQKYC

>Gasterosteus aculeatus\_NCOA3b (ENSGACP\_20073)  
CTLPPPLCR CERKRREQESKYIEELAE LISANLGDIDSFNVKPDKCAILKETVRQIRQIK  
EQGEWTRRAGGPREVKTEMTRAFRHVSCSLPVYPLLLYSLVALSASLHVRASQSFVAVFL  
FSRVKQTVRGYNDERIMNECVFTCLCQLKDCIFKKVLPVCFVNSPPAASRARVFSRGASC  
TCQKETSQQLKAPDKALRQPWRKVGCLSEVCPFFLALPGSLPLKGDPLPLCVTVCVPLPP  
AMRKLGRTPVRRLD FSNALTGSHSHSLCKSM PPLLFNNSLLYSPKSLIQTSQQRLPPTRA  
PRWAPTFLQGHAE TPLYRFS LSGDTPVTAQTKSKLYRHPMSNEPQGFISTHLLQREPNGY  
RSAQGGSMMPNTRQQGMGPNPNAQMNMTGGGMGNVGRGFGMSEQGH LGHMGMGGGS  
IPPQHPPQHPQQHPQLQHPFQSSGGFGLSGMNSP SGSPRMGGPQQGLLMS PRNRGSP  
KMAANQFSPGVI FSPGMHSPMSGIVSGGGSGGGTT FSSSSLNALQAI SEGVGSSLPSTLT  
SPSPAHKPDSSPVHSSSALSSQPAKPGQDGSKSPAGGLGPGPGQAESSGDRPDSQATTA  
TKESGEGGNEAGVASSEPSRRLPDSKGHKKLLQLLTSPT EELGMEGSSGSPVPPSTTS  
ISTPAGSDTKDPGAMSSAHYTGSLQEKHKILHKLLQNGNTPDEVAKI TAEATGKVTLLGG  
QEGGEAGSGGSGGPGPLVAEPKQEQSPKKEKTHALLHYLLNKDDSK EPVDVKPKLEELE  
GKAVTGSVRGGPGSAPEHPESKIKSEPPDDLHNLESILGDLRGSTSDFYPDQAGGGGAND  
TGGAQGGCLDDSLRAGSPGMGPGPRGPFQRALSMDGKPPVGPAGPGRRPMLIKQENMMGS  
PDGYPGNMGMNRMVQRSPMGGSGDWGMSRSGSPVGHPSMMRQGM EYGN SKMMSGP

MVGRSNSVPGSRSM LQQQLMDMGTSRGSADMGMGMS PFSQQGQPNQSPSWPDTMMGMEGN  
RRQFGNTLDDLLVPPTTSEGQSDERALLDQLDLSLLNNTDGI ALEEIDRALGIPDLVSNQ  
GSEQQMEFPFGQDQSMVLDQKPLYGQYGPSPMLQSGYGGNPMQGGQAQPGGFPGMLSQ  
MGQGGSFPGMGGMGSGHPRANMMRPRMMTANKPMRLQLQQR LQGGQFMNQTRQGMGMM  
ENPGGNPGMRPGMQPGMGQPGLFNAQMMARSRMVTMQMRRQRMMMLMQQQQAAAAA  
AGGFSPPNVTAPGGMENPMGGPNMGQPGPQQFGYGGNYGLAQGGDPSFGPSGGSPPGAM  
IPGRLGPQNPMMQHPQGGPMYQGADMKGWSQGGMARNSSYPQQQFGPQGNPGQYGGMMI  
NNGMPASGGGGHMGQMGGMNPMVMGRMPDQKYC

>Oryzias latipes\_NCOA3a(ENSORLP\_15195)

MSGLGENSEMEPLSSENKRKRLSTCDTPALGFVCSSEKRRREQESKYIEELAE LISANLSD  
IDSFNVKPKDCAILKETVRQIRQIKEQGKSSNDVQKSDVSSTGQGVIDKDH LGPLLL  
QQALDGF L FVVNREGSIVFVSDNVTQYLQYKQEELINTNVYNI LHEDDREEFHKNLPKSS  
INGVSWGNPVRQKSHFTTCRMLVKFGHAHGPMEEGPGGPRYETMQCFALTQPKAMIEEG  
EDLQSCMICVARRVTAMERTESFNTRHELSGKLIQIDQNSLRASMRPGWEDLLRRCIQMF  
LQHS D G Q P W S H K R H Y H E A F L Q G H A E T P L Y R F S L S D G T P V T A Q T K S K L Y R H P M S N E P Q G F I  
S T H L L Q R E P N G Y R S A P G G G M M S N S M R Q Q G M G G P S P N T Q M N V N P G G G M G M G M G M N R G F S  
M N E Q G H M A H M A P M G G G S M Y G G S G G A G G G G G M G N R V M Q M N Q N S G G F L S G M N S P S G S P R I  
G G P Q Q G F L M S P R N R G S P K M G A N Q F S P G A P G M H S P M G S I G S G G A G G G G T S T F S S S S L N A L Q  
A I S E G V S S S L S T L T S P P P A H K P D S S P S I H S S S S S Q P N Q Q G K P S Q D G C K S P T G G L G P G D  
H H L S T H H H H Q H P A E S S A D R P D S Q A A T S T K E S G E G S G E A G V T N S E S Q R R L P D S K G H K K L  
L Q L L T S P T E E L G I G G S G T S G P V P P P N S S R N D V G L D C K D A S G G M T S P S S T G V S S S S A A S S  
Q A A G Q G S L Q E K H K I L H K L L Q N G N T P D E V A K I T A E A T G K V S L G G Q E S S E A D S K Q E Q H S P K K  
E K T H A L L H Y L L N K D D S K E P V D V K P K L E E L E G K G P P G P T G G P L P E H P E S K I K S E P S D D V R F  
F Q L H N L E S I L G D L R G S S D F Y P D L A G G G V A N R A G N K P Q G C L D D G L Q G S P V L G P G A R G P F Q  
R T L S M D G K P S I A P G G A G R R P M L I K Q E K M M G S P D S Y P G N L G P I N R G V V P Q R S P M G G S G D W G  
M P C S N A S A A G S A G H P S M M R P G M E Y N S G K S M M P G P M V G R S N S V P G S R S M L Q Q Q L M D M G K G G  
Y S K P K Q R Q Q F Q R S Y I S F G I L R G S S D M G I G M S P F S Q Q G Q P T P S P S W P D S M M S M E G N R L R R Q  
F G N S L D D L L V P P T T S E G Q S D E R A L L D Q L D S L L N N T D G I A L E E I D R A L G I P D L V S N Q Q G P E  
T L E P F P G D Q A M L L D Q K P L Y G Q Y G P P S M P M Q S G Y G G N P M Q G Q Q G Q G F P M L S Q M G Q G  
G N F P G M A G M G M G N P R A N M M R P R M M S P N K P M R L Q L Q Q R L Q G Q Q F M S Q T R Q G M G M K M E N P G  
G N P G M R P V P T V Q P G F L N A Q M M A Q R S R E V V T M Q M R R Q R M M M F T G G F S P P P N V T A P G G M D S P  
M G G P N M A Q P G P Q Q F G Y S S S Y G M A Q Q G D P S F G P S G G S P P N A M P G R L G P Q N P M M Q Q H S Q G G  
P M Y Q G P D M K A W S Q G G V G R N S A S Y P Q Q Q F G Q Q G N P A Q Y G G M M M N G A M P S S G G G H M G Q M G G  
Q M G M N P M V M G R M P M G P D Q V C

>Oryzias latipes\_NCOA3b(ENSORLP\_17196)

MSGIGDNSLEPLRSDRKRKRLSTCDTPGLGPAKSMCDKRLREQESKYIEELAE LISANLS  
NIDSFNVKPKDCAILKETVRQIRQIKEQGPSSCDDVQKADVSSTGQGVIDKDH LGPLLL  
LQALDGF L FVVNREGSIVFVSDNVTQYLQYKQEELINTSVYNI IHDDNREEFHKNLPKPN  
GPNGQWGGEAPRQKSHFTFCRMLVNLAHGASHGLSEDRPGGQRYETMQCFALTQPRAMME  
EGDDLQSCMICVARRITAVERTERFTTRHELSGKLIETEQSSSLHNTMRPGWEDLVRRCM  
QMFLNRS D G Q P W S Y K R H Y Q D A F H T G R A E T P L Y R F S L S D G T L V T A Q T R T D L C R N P S T N E P H  
S F L S T H F L Q S N M P Q R G M A S Y S G G G R M N Q M N H M N P M H Q M N M G Q M N P M H P M N H M G S M N Q M G  
H H G M H Q Q H T H T Q M G Q M H G G P G G G G F G M G M T S P P Q S S P G I N G P P H N V L G S P R V R G S P K T G A  
S P F S P G G M H S P M S S T H T G G S G G G G T T F S S S S L N A L Q A I S E G L G N P M P S P L T S P L S H K P D  
S S P S I N S T N Q E T G G K S A L P P Y S E S K S P G S S L R A G G E Q Q S Q Q H P Q T P T S E G P P D K P D S Q A G  
L G G G E A N R R V P D K C N K L L Q L L T S P T D D L V P S N H P Q S S G S S I P D S K D G S G G H G A V S S G  
S S G H F P S Q S L Q E K H K I L H K L L K D G N T P D E V A Q I T L L A T G K S S L D S A A P E A G L S S T G G E K G  
S E T K K E Q H S P K K E K S H A L L H Y L L N K D D S K E G G D M K P K L E D L D G R G A P G A G V T S S D P H G M D  
G K V K L E P S D E A E T L E T I L G V R Q N N S S F Y P E L D S R A T K E V A N K Q G A V S E S L H E N I Q G G A T G  
S P P R S I L I H P L L R R E R G P M L P A Q R A A Y Q R A L S V D S K P M G G D M P V G G G L A S R R N V P C P T L V  
K Q E S M E A P V R P G T M P N G F P G G M G V C P P R G N P T R G I G R G M G A H Q R P P M A G P G E W G M P R S G G  
S A A A G P G H P V M G R P G Q M G G P M I S R S I S A P E N M R S M L Q Q Q L M D M G A N E S N V S M S P F G G Q R P  
P P Q S P S W P D S A M G M D R P Q T S T N R E Q F P H P L E E L L G P L P S S E G P G D D R A L L D Q L D S L L N N A  
D V I T L H E I D K A L G I P E I V G Q A H G P E A E F S A M D S S A G M D Q K A M Y S Q G Y G P P T M G M Q S A Y  
A G N T G P P P G G F N P M M N Q M G P T G A F P G M G P M G N P R A N M T R P R M M T A T K P L R L Q L Q Q R L Q G Q  
Q Q G I Q P G I Q P G M A P A G M N V Q L K D Y I C G Q P G F V N A Q M L A Q R Q R E A M T T M Q M R R Q R M M M L M Q  
Q Q Q G Q A A G G F S P P P N V T A P A G M E N P I G S P P I T Q P G Q Q G F N Y G G S Y G Q L T E S A L H S F V K L  
S F G V L T V A V V F A G M N Q Q G E S F I P P G S S P P G H M M Q G R M G G P Q Q N T M M P G M Q G N P Q G G H V Y S  
S G D M K G W L Q G N M P R N N L Y S Q Q Q F P Q Q G N Q G Q F G S M M M N T S M G G T G P G S G S S V G Q M T Q M P G

QMGGQMGMNPMGMGRMPMPGDQQKYC

>Saccoglossus kowalevskii (XP\_006811320)

MNNPQVSKLLNKTDSDRTQSNKSLNERRRREQENIYIEELAEELISASITNMDSCNVKPKCAILQETVKQ  
IKTIKRQQVAESNGAVQQCHVSSSKPALLANDVLGPLLLEALDGFVFNVSQGRIEFVTENVSTYLKFGK  
DELVGSSSIYSLIHAGDHAQLTECLLPLTNGIVWPSNPENPKLSKSRFTNCRMYIGSQDEHGDDGGSQESKL  
EHMQCSAVLQPHPDQPNADGSASVDGPAYLVCVARRMPQEDRSLIEQFVTKQDLSGKIIISADISSLTL  
PFHKSDDLVGHSLEQYCHSSDMQQLIKHHQEVLSNITDTCTTAMYKFRATDHCWLFVQTRSKLFLRNGQP  
EFIMSTHSIYRETPNTPSTDASTSASTNQVSSI PSTPKSDHSGPLPSLSNLLRSGNSASASSNSPIEMLQ  
NSSLSSLLKSTNLKPYMSHLQTKLPTRINTSSDVMRPPVPGSSYSRSETS YKTSSPLCCSSQSPVAST  
SGLVSPDSVQGRVEKPASTSSSLKRPSQDSAQGGKFKKNRLLQKLLMEDDDTDYAAQGAACGEAVEFTSN  
PPSNSSTQSEASVRMKEAILQRLLQSPNPLSVESKMDADKKDFSDSEDENKILSKLLDGDSCSVKFGSE  
LYPLEQLRRMQNHSGGDLFPRI PSQDTSKILDHHRTLIPDACPPGKQSKNGAPQKQPKNVLLQKLLMEDD  
SSVLSHSTLFGKTFGAGFRKHEIVPNVNESDSIVSSSSSSSSSSSSNSNNNSNVALASAVTSGENTASTA  
KTPVTSQQQQNLQKPEQQQTQSPQTSALPALENFNINLDEEETNTLIQQLFHVANSLPEEALTGTQNS  
QSVVQELLAGCDGNQVTQMETSSSLQKPMVPI DNNNKQNSNPENPLLQQLLEGSASDQLKLOQQQSVPPD  
STVQSPPTPI PNTAPIGFGALLNRQSNQQLRRVSTWVQQPSQLGRSSGGIQRRTIGSVHSISNQGLSA  
TGMTNPMFPHLQSTQKSSI QVMTNLNLSGNTSQQSPSSIMSDSSASLSDDAI LQQLEQVLNNSNLS  
LCEIDNALGIEQLLSTPHSDEQLTSDLLNSALSGGASGRNTPSSSSVNSMNTIATSSMNTLANSMGGIA  
SNTITNTYPHSTITDSLSNSGLLNTGNLGLNFMDS TMRQSSQPVYSMQQLPDI INPRFSQGHSMN  
SGPRFPGSGMPQSFQQQQVQARLRHQQLQTVRQRSHLRQTL LMRQQQQRLQQQQQQQQHHELO  
QQKLQQMLQQQIMMQQHNP LLQQQQKHLVMLQQQQQQQSFIGSQINHQQLIETQETNFPD TLADMLAQ  
TSNITAPNVTIQKSPGAFKPMSPHSARPPTPGTAVGPRLSQAASRPLQSGTRNSTGLDFSLSPFSQRP  
PQQTTPVSHFKPSQNI FQFPDLNNTAPPNNTVTSSMSQNNFHMQQTNSSGSNS ITTNPMPQTSATGTNS  
IFTNTIMHLTGISSSSTITANLVLQQGCSAASSGSAQLNNATRPSTTMVNSMISQTSSTVASSAVANQII  
AMSPQTANQMMSPSRMLQFTQSPANTIASSNRQSPA WGRQMSPEGSLLLAQLNAKSSPVDTQEIMGSASQ  
LQRSLSTDQQQLRPSREVVHSSHLLSASSQGTSA TSSPLASITSPPSVLNDTPSSMSETLTPKKEMDKSL  
KASPCSRPSNNSEQFNVAVDIVDQGNVIASSTMYHHYPYPSFDETEDNESMMLDFPFDDLTGDDSKPAAV  
ENTEPPDSEDSARNDIQEDELADRLTMVMENHTREEAHKRFOKFCALANVKPPSDPSMKAATLFRNQLLN  
PDTKAPPLEISTDDSKPIVQPEKKGKSSLLQKLLLE

>Ptychodera flava (BAC06837)

MALIAIFTLTLVSLQQLSTDAMPFSHLKI PCHIMPGEITRLNHKGQQYSLHEESDPEVASLFGVTEDEGI  
IRSMEELTDYANRMFSVVVEQFLDDDAWKDSFNIIYITKSGDNSEHLKFTQDRYEGSVLENSPAGTVVYGF  
ESISACSECDLVEYSL LGTGEEKFNLENKDGIVITQ TNEVLDRESRASYNLTLVAASASLETETDILLIT  
VEDVNDNAPEFDPETCEVTVPEISPADAI VAVYHVAVDPDAGKNGKVMYYTDTNDMTFSVHPD TGCVIIGG  
PLQAKEYTLTVFARDRGKPSLEASTPGRVITVTPVDQSLKFS SILGPGPVI LQDDDEELPEIKVSLMED  
APKGSVVTTIKAPSNDKSSQYRFLMNNPMNPRFHVQYYTGDIVLTGRLDIDAHPTEEINVGITKDFNDPL  
REAPGQKVIITII PSETDKPAPPNQVVKPRIRRAKSPSFDQPSYEGTVEEVDGLASVPVAFVPREILTV  
RANGDPSNIQYRIQQAEFFREDFAIGLTSGI ISSRKHLDREDNKGQVREFTVTASNSAGTTSVEVLIKIKD  
VNDNAPQFPYPPYIGSFPENGAPGVTVM TIQAEDLDDPNEGGNALVRY SILRNAQNSVQAI FAIDSESA  
VITTVQVGNLDREEIPSYDIVVKAVDGGAHTGTVTAT IYVSDENDNPPEFPQAKSFVEISENVPVDSVFK  
VIAIDRDVGINSYSIISGNVGEKFRIETDPDSGYAIVKVAKKIDFELNESKFVLTIEVDDSKNTATTELD  
IRVMDANDEVPSFSQPRYLAEHPEDFAKWT TIGTVAATDRDKSEKFSEIEFEVVRVPEFPDSSFFT VGS  
NGSVMAIKDLDPEDPDQIRENYIFTVTATDNVRGQSGERRNTATVTFVTSITDVNDNAPEFLPGYTL  
LVPENTPAGYEAGVVEIIDRDDDSNGPPFTHRVIDDDGILSFFDVSSPIGVEDQLRVVSL EEFDR EATPF  
YYIPVVLSDKHGVSATQTLTVTIGDVNDNPPSPATK TILVYSYKQGI PRSAIGEYVAADEDIVKGGDISY  
TVTTPIPQFSVDKDTGQIIIEENTKAGTYDFKVEVEDEKPPVICTVIVEVKDIP EEAVFSSGSRLLTS  
AEKFIRGTPSMKDRFHDILVDVLGAKKENIDIFSVINVPGEENQCDVRWSAHGSPYRPEKMNTQLLLAK  
DVIESQLGVSFGMVPIDMCLDEGICESSCTNYFNAITDPTIIDDGADTFVSVTTIQRAECVCGAKLAPRG  
PCASNPCNLGGQCIDTPSGYVCQCDEKYGGPNCE DISRGFQSN SFAWYPPLSQCEETKTSIEFLT KSRDG  
IILYNGPIVPI DLGQPQDFMAIELVGGKPKLYMDLGS GMLPLTIDSPPLNDEKWHLEIIRKSKHVEFVL  
DHCENAVITETERTSVSDESNCATD TTPGTNRFLNVNTP LQLGGIDMDSTYTYPNTFNFAPGGDFVGC I  
RNVIQDGKVDLGTGPREKNSEQGCPQTDLLCYVDGVYVCKNGLCVTESASVYTCVCDPGWGGEACDEEL  
PSYDFLSDSYVIYDLEASLVSDKYSYDQIMVGNTOQEDALLMHLQNVGDGEEYITMKMKEGNAFIEYNLG  
DPGMKYLGRVHNYTINDGNYHTVRLRYGNI FRFEVDGGGGVTRVEKAQGIKFKEFIPDKPSVIVGANVSL  
SEMRYLGGDYSGCAKDARISNSYIGFDGEIDGTIAVPNRVEKDCNICLLSPCIAPLVCPVTPSFIYCS  
GDLVFRGGACVKEGGPAPQTGAAGLSLAALIAI LLLCIFILLVILAFIVYKRHAQKDKGALVLDVDEDDL  
HENVVVYDDEGGGEEDYDAYDINTLRKPVDPAL ESPVIPKKKQPVSETPRTRPNLPPGALPDI GDFLDK  
RQNDADDDPEAPPYD LRVYNFEGEGSTAGSLSLNTSGSGESEQNFYDLKDLGPPFKKLADMYGGEED

## Na<sup>+</sup>/K<sup>+</sup> Transporting ATPase Interacting Protein-NKAIN

>Homo sapiens\_NKAIN1(ENSP\_362841)

MGKCSGRCTLVAFCCQLVAALERQIFDFLGYQWAPILANFLHIMAVILGIFGTQYRSR  
YLILYAOWLVLWVGWNAFIICFYLEVQLSQDRDFIMTFNTSLHRSWWMENGPGLVTPV  
LNSRLALEDHHVISVTGCLLDYPYIEALSSALQIFLALFGFVFACYVSKVFLEEEEDSFDF  
IGGFDSYGYQAPQKTSHLQLQPLYTSG

>Pan troglodytes\_NKAIN1(ENSPTRP\_793)

MAVILGIFGTQYRSRYLILYAOWLVLWVGWNAFIICFYLEVQLSQDRDFIMTFNTSLH  
RSWWMENGPGLVTPVNSRLALEDHHVISVTGCLLDYPYIEALSSALQIFLALFGFVFA  
CYVSKVFLEEEEDSFDFIGGFDSYGYQAPQKTSHLQLQPLYTSG

>Gorilla gorilla\_NKAIN1(ENSGGOP\_19669)

MGKCSGRCTLVAFCCQLVAALERQIFDFLGYQWAPILANFLHIMAVILGIFGTQYRSR  
YLILYAOWLVLWVGWNAFIICFYLEVQLSQDRDFIMTFNTSLHRSWWMENGPGLVTPV  
LNSRLALEDHHVISVTGCLLDYPYIEALSSALQIFLALFGFVFACYVSKVFLEEEEDSFDF  
IGGFDSYGYQAPQKTSHLQLQPLYTSG

>Mus musculus\_NKAIN1(ENSMUSP\_144007)

MGKCSGRCTLVAFCCQLVAALQRQIFDFLGYQWAPILANFLHIMAVILGIFGTQYRSR  
YLILYAOWLVLWVGWNAFIICFYLEVQLSQDRDFIMTFNTSLHRSWWMENGPGLVTPV  
LNSRLALEDHHVISVTGCLLDYPYIEALSSALQIFLALFGFVFACYVSKVFLEEEEDSFDF  
IGGFDSYGYQAPQKTSHLQLQPLYTSG

>Canis familiaris\_NKAIN1(ENSCAFP\_16446)

MAVILGIFGTQYRSRYLILYAOWLVLWVGWNAFIICFYLEVQLSQDRDFIMTFNTSLH  
RSWWMENGPGLVTPVNSRLALEDHHVISVTGCLLDYPYIEALSSALQIFLALFGFVFA  
CYVSKVFLEEEEDSFDFIGGFDSYGYQAPQKTSHLQLQPLYTSG

>Monodelphis domestica\_NKAIN1(ENSMODP\_21301)

MSKCNCRCTLVGFCCQLVAALERQVDFDFLGYQWAPILANFLHIMAVILGIFGTQYRSR  
YLIMYAGWLVLWVGWNAFIICFYLEVGHLSQDRDFIMTFNTSLHRSWWMENGPGLVTPV  
LNSRLALEDHHVITVTGCLLDYPYIEVLSSALQIFLALFGFVYACYVSKVFLEEEEDSFDF  
IGGFDSYGYQAPQKTSHLQLQPLY

>Xenopus tropicalis\_NKAIN1(ENSXETP\_28231)

MGRCSGRCTLVGIICQLAAALQRQIFDFLGYQWAPILANFLHIMVILGILGTLHYRSR  
YLILYSIWLALWVWNAFIICFYLEVGHFSQHRDLIMTFNTSMHRSWWMENGPGLVTPV  
RGPPLPLADHHMVTVTGCLLDYPYIEALSSALQIFLALFGFVYACYVSKVFMDEEDSFDF  
IGSYDSYGYQAPMKTSHLQLQPLYKPG

>Takifugu rubripes\_NKAIN1(ENSTRUP\_33429)

MGKCDGRCTLLVICSLQVAALQRQVDFDFLGYQWAPILANFLHIMAVILGMFGTVQFRFR  
YLIFYAVWLVLWVGWNAFTICFYLEVGNLSQERDFLMTFNTSLHRSWWMHGPGLVTPV  
RDSLIIAPDGHVITVSSCLLDYQYIEVLSSAVQILLALFGFVYACYVSKVFQDDEDSFDF  
IGGFDSYGYQPPQKSSHLQLQPLYTAG

>Tetraodon nigroviridis\_NKAIN1(ENSTNIP\_20105)

MGRCDGRCTLLVICSLQVAALQRQVDFDFLGYQWAPILANFLHIMAVILGMFGTVQFRFR  
YLIFYAVWLVLWVGWNSFIICFYLEVGNLSQDRDFLMTFNTSLHRSWWMHGPGLVTPV  
VDSLIIAPDDHHVITVSGCLLDYQYIEVLSSAIQILLALFGFVYACYVSKVFQDDEDSFDF  
IGGFDSYGYQPPQKSSHLQLQPLYTAG

>Gasterosteus aculeatus\_NKAIN1(ENSGACP\_7528)

MGKCDGRCTLLVICSLQVAALQRQVDFDFLGYQWAPILANFLHIMAVILGMFGTVQFRFR  
YLIFYAVWLVLWVGWNSFIICFYLEVGNLSQDRDFLMTFNTSLHRSWWMHGPGLVTA  
VLD SRMAPDDHHVITVSGCLLDYQYIEVLSSAIQVLLALFGFVYACYVSKVFQDDEDSFDF  
IGGFDSYGYQPPQKSSHLQLQPLYTAG

>Homo sapiens\_NKAIN3(ENSP\_429073)



MGCCTGRCSLICLCALQLVSALERQIFDFLGFQWAPILGNFLHIIVVILGLFGTIQYRPR  
YIMVYTVWTALWVTWNVFIICFYLEVGGLSKDTDLMTFNISVHRSWWREHGPGCVRRVLP  
PSAHGMMDDYTYVSVTGCIVDFQYLEVIHSAVQILLSLVGFVYACYVISISMEEDTYSC  
DLQVCKHLFIQMLQIE

>Pan troglodytes\_NKAIN3(ENSPTRP\_34735)  
MGCCTGRCSLICLCALQLVSALERQIFDFLGFQWAPILGNFLHIIVVILGLFGTIQYRPR  
YIMVYTVWTALWVTWNVFIICFYLEVGGLSKDTDLMTFNISVHRSWWREHGPGCVRRVLP  
PSAHGMMDDYTYVSVTGCIVDFQYLEVIHSAVQILLSLVGFVYACYVISISMEEDTYSC  
DLQVCKHLFIQMLQIE

>Gorilla gorilla\_NKAIN3(ENSGGOP\_28708)  
VSALERQIFDFLGFQWAPILGNFLHIIVVILGLFGTIQYRPRYIMVYTVWTALWVTWNVF  
IICFYLEVGGLSKDTDLMTFNISVHRSWWREHGPGCVRRVLP  
PSAHGMMDDYTYVSVTGCIVDFQYLEVIHSAVQILLSLVGFVYACYVISISMEEDTYSC  
DLQVCKHLFIQMLQIE

>Mus musculus\_NKAIN3(ENSMUSP\_113113)  
MGCCTGRCSLVCLCALQLLSALERQIFDFLGFQWAPILGNFLHIIVVILGLFGTIQYRPR  
YIMVYTVWTALWVTWNVFIICFYLEVGGLSKDTDLMTFNISVHRSWWREHGPGCVRRVLP  
PSAHGMMDDYTYVSVTGCIVDFQYLEVIHSAVQILLSLVGFVYACYVISISMEEDTCRN  
K

>Rattus norvegicus\_NKAIN3(ENSRNOP\_17479)  
MGCCTGRCSLVCICICMYLSALERQIFDFLGFQWAPILGNFLHIIVVILGLFGTIQYRPR  
YIMVYTVWTALWVTWNVFIICFYLEVGGLSKDTDLMTFNISVHRSWWREHGPGCVRRVLP  
PSAHGMMDDYTYVSVTGCIVDFQYLEVIHSAVQILLSLVGFVYACYVISISMEEDTCK

>Equus caballus\_NKAIN3(ENSECAP\_18083)  
LSALERQIFDFLGFQWAPILGNFLHIIVVILGLFGTIQYRPRYIVVYTVWTALWVTWNVF  
IICFYLEVGGLSKDTDLMTFNISVHRSWWREHGPGCVRRVLP  
PSAHGMMDDYTYVSVTGCIVDFQYLEVIHSAVQILLSLVGFVYACYVISIFMEEDT

>Monodelphis domestica\_NKAIN3(ENSMODP\_10310)  
ISALERQIFDFLGFQWAPILGNFLHIIVVILGLFGTIQFRPRYIVVYTVWTALWVTWNVF  
IICFYLEVGGLSKDTDLMTFNISVHRSWWREHGPGCVRRVLP  
PSAHGMMDDYTYVSVTGCIVDFQYLEVIHSAIQILLSLIGFVYACYVISVFMEEEDS

>Taeniopygia guttata\_NKAIN3(ENSTGUP\_11578)  
LAALERQIFDFLGFQWAPILGNFLQIIVVILGLFGTIQFRPRYIVVYTVWTALWVTWNVF  
IICFYLEVGGLSKETDLMTFNISMHRSWWREHGPGCIRRVRP  
SSPGILEDYSYVSVTGCIVDFQYLEVIHSAIQILLSLIGFVYACYVISIFMEEDS

>Anolis carolinensis\_NKAIN3(ENSACAP\_23034)  
MGCCTGRCTLVFLCTLQLLAALERQIFDFLGFQWAPILGNFLHIIVVILGLFGTLQYRPR  
YIVVYSVWTALWVTWNVFIICFYLEVGGLSKETDLMTFNISMHRSWWREHGPGCIRRVR  
P  
SAPGILEDFSYVSVTGCIMDFQYLEVIHSAIQILLSLVGFVYACYVISVFMEEEDSCKY

>Xenopus tropicalis\_NKAIN3(ENSXETP\_46789)  
ARCTFSSCCLIIYICVIQLVALERQIFDFLGYQWAPILGNFLHIIVVILGLFGTIQYRPR  
YIVVYTVWTALWVTWNVFIICFYLEVGGLSKDTDLMTFNISIHRSWWREHGPGCVWRLVPA  
PPSKNLGDHSFISVTGCIEFQYIEVIHSAVQILLSLIGFVYACYVISVITDEEDSCRHK

>Homo sapiens\_NKAIN4(ENSP\_359340)  
MGSCSGRCALVVLCAFAQLVAALERQVDFDFLGYQWAPILANFVHIIIVVILGLFGTIQYRLR  
YVMVYTLWAAVWVTWNVFIICFYLEVGGLLKDSSELLTFSLSRHRSWWRERWPGCLHEEVP  
AVGLGAPHGQALVSGAGCALEPSYVEALHSCLQILIALLGFCVCGCQVVSVFTEEDSDFD  
IGGFDPFPLYHVNEKPSSLLSKQVYLLPA

>Pongo abelii\_NKAIN4(ENSPPYP\_12544)  
MGSCSGRCALIVLCAFAQLVAALERQVDFDFLGYQWAPILANFVHIIIVVILGLFGTIQYRPR  
YVMVYTVWAAVWVTWNVFIICFYLEVGGLLQDSSELLTFSLSRHRSWWRERWPGCLHEEVP

AVGLGAPHGQALVSGAGCALEPSYVEALHSGLQILIALLLGFVCEEEESFDFIGGFDPFPLY  
HVNEKPPSLLSKQAYLPA

>Macaca mulatta\_NKAIN4(ENSMUP\_12099)  
MGSCSGRCALIVLCTFQLVTALERQVDFDLGYQWVPILANFAHIVVILGLFGTIQYRPR  
YVVVYTVWTAIWVTWNVFIICFYLEVGGLSQDSELLTFSLSQHRSWWHEHWPGLHHEEVP  
AAGLGAPHGQALVSGAICALEPSSVEALHSGLQILIALLLGFVCGCYVVSVFTEEEEDSFDF  
IGGFDPFPLYHVNEKPPSLLSKQAYLPA

>Mus musculus\_NKAIN4(ENSMUSP\_99342)  
MGFCSGRCTLALCALQLVTALERQVDFDLGYQWAPILANFTHIIVVILGLFGTIQYRPR  
YIVVYVWAAVWVTWNVFIICFYLEVGGLSKDSSELLTFNLSGHRSWWEEHGPGLHHEEVA  
TAGLGALHGQSLVVGACAMVHSYVEALHSGLQILIALLLGFVYGCYVVSVLTEEEEDSFDF  
IGGFDPFPLYHVNEKPPSLLSKQAYLPA

>Rattus norvegicus\_NKAIN4(ENSRNOP\_75472)  
ACRELSDSPLTPGSPVSIYAVFLRLLKVTQLGFFHTLVTLERQVDFDLGYQWAPILAN  
FAHIVVILGLFGTIQYRPRYIVVYVWAAVWVTWNVFIICFYLEVGGLSKDSSELLTFSL  
SRHRSWWEEYGPDCLEKAATAGLGALHGQSVVVGPGCMVHSYVEALHSGLQILIALLLG  
FVYGCYVVSVLTEEDDSFDFIGGFDPFPLYHVNEKPSGLLSKQAYLPA

>Canis familiaris\_NKAIN4(ENSCAFP\_18827)  
MGCCSGRCALLFICSFQLVTALERQVDFDLGYQWAPILATFVHIVMVILGLLGTIYRPR  
YVVVYAVWEAVWVTWNVFIICFYLEVGGLSKDSKLLTFNLSPHRSWWREHGPGLHDEPE  
AGLGPLGGQALVAGVGALEHGYTEALHSALQILIALLVGFVACCVVSVFTEEEEDSFDFI  
GGFDPFPRYHVSEKPSNLLKQYVYVPA

>Loxodonta africana\_NKAIN4(ENSLAFP\_11277)  
VRETPTWRCAAFTRLLLPQVTALERQVIDFLGYQWAPILANFLHIVLILGLFGTVQYRPR  
YVVYAVWAPIWVTWNVFIICFYLEVGGLSKDSSELLTFHFSQHRSWWREHGLGCVHEEAL  
ATSLRPLDGQALVSGSCTLEYHYVEALHSVLQALVALVGFVYACYVVSALTEEKDSFDF  
IGGFDPFPLYHVNEKLSHLLFKQAFMPG

>Gallus gallus\_NKAIN4(ENSGALP\_33347)  
MGCCTGRCTLIIFLCTLQLLAALERQVDFDLGYQWAPILANFLHIIIVILGLFGTIQYRPR  
YIVVYAIWTAIWVTWNVFIICFYLEVGGLSKDSSELLTFNISRHQSWWSENGPGCVRKEAS  
MSGIAGLDSSHYSIVIGCALEYRYIEVMHSSFQILIALLVGFVYACYVVSVFTEEEEDSFDF  
IGGFDPFPLYHVNEKPTNLLFKQTYLPA

>Anolis carolinensis\_NKAIN4(ENSACAP\_20361)  
MGCCTGRCTLILLCTLQLLAALERQVDFDLGYQWAPILANFLHIIIVILGLFGTIQYRPR  
YIVVYAIWTAIWVTWNVFIICFYLEAGGLSKDSSELLTFNISRHQSWWSENGPGCVRKETP  
MVGLKGLDSSHYSVIGCALEYRYIEVMHSALQILVALVGFVYACYVVSVFTEEEEDSFDF  
IGGFDPFPLYHVNEKPSNLLFKQTYLPA

>Takifugu rubripes\_NKAIN4(ENSTRUP\_11648)  
MGCCSGRCTLIFICTLQLVLALERQVDFDLGYQWAPILANFFHIIIVILGLFGTIQYRPR  
YIVVYTVWAAWVWVWVFIICFYLDVGGLSKDSDLLTFNISAHHSWWGEHGPVCVRREMH  
QAPGVRTTDSQSYITVMGCLLGYQYIEVAHSGAQILVALLGFVYACYVVSVAITEEEDSFDF  
FIGGFDPFPLYHINEKSSDLLKPMYPPG

>Gasterosteus aculeatus\_NKAIN4(ENSGACP\_3416)  
MGCCSGRCTLIFICTLQLVLALERQVDFDLGYQWAPILANFFHIIIVILGLFGTIQYRPR  
YIVAYTVWAAWVWVWVFIICFYLDVGGLSKDSDLLTFNISAHHSWWSEHGPVCVRGEMP  
QAAGGRTTESHSYITVMGCFMDYQYIEVLHSAQILVALLGFVYGCYVVSVAITEEEDSFDF  
FIGGFEPFPLYHVNEKPSHLLLRPV

>Oryzias latipes\_NKAIN4(ENSORLP\_12189)  
VVLSSFRSACLERQVDFDLGYQWAPILANFFHIIIVILGLFGTIQYRPRYIIVYIVWAA  
VWVWVWVFIICFYLDVGGTKDSDLLTFNISAHHSWWSEHGPVCIRREMPEAAGVRSSTES  
HSYITVMGCHMEYQYIEVLHSSTQILVALLGFVYACYVVSAMTEEEDSFDFIGGFEPFPL

YHVNEKSSHLLLKPMYL

>Homo sapiens\_NKAIN2(ENSP\_357402)

MGYCSGRCTLIFICGMQLVCVLERQIFDFLGYQWAPILANFVHIIIVILGLFGTIQYRPR  
YITGYAVWLVLWVTWNVFVICFYLEAGDLSKETDLILTFNISMHRSWWMENGPCTVTSV  
TPAPDWAPEDHRYITVSGCLLEYQYIEVAHSSLQIVLALAGFIYACYVVKCITEEEDSFD  
FIGGFDSYGYQGPQKTSHLQLQPMYMSK

>Pan troglodytes\_NKAIN2(ENSPTRP\_31701)

MGYCSGRCTLIFICGMQLVCVLERQIFDFLGYQWAPILANFVHIIIVILGLFGTIQYRPR  
YITGYAVWLVLWVTWNVFVICFYLEAGDLSKETDLILTFNISMHRSWWMENGPCTVTSV  
TPAPDWAPEDHRYITVSGCLLEYQYIEVAHSSLQIVLALAGFIYACYVVKCITEEEDSFD  
FIGGFDSYGYQGPQKTSHLQLQPMYMSK

>Macaca mulatta\_NKAIN2(ENSMMUP\_17512)

MGYCSGRGTLIFICGMQLVCVLERQIFDFLGYQWAPILANFVHIIIVILGLFGTIQYRPR  
YITGYAVWLVLWVTWNVFVICFYLEAGDLSKETDLILTFNISMHRSWWMENGPCTVTSV  
TPAPDWAPEDHRYITVSGCLLEYQYIEVAHSSLQIVLALAGFIYACYVVKCITEEEDSFD  
FIGGFDSYGYQGPQKTSHLQLQPMYMSK

>Mus musculus\_NKAIN2(ENSMUSP\_140463)

MGYCSGRCTLIFICGMQLVCVLERQIFDFLGYQWAPILANFVHIIIVILGLFGTIQYRPR  
YVTGYAVWLVLWVTWNVFVICFYLEAGDLSKETDLILTFNISMHRSWWMENGPCTVTSV  
TPAPDWAPEDHRYITVSGCLFDYQYIEVAHSSLQIVLALAGFIYACYVVKCITEEEDSFD  
FIGGFDSYGYQGPQKTSHLQLQPMYMSK

>Felis catus\_NKAIN2(ENSFCAP\_823)

VCVLERQIFDFLGYQWAPILANFVHIIIVILGLFGTIQYRPRYITGYAVWLVLWVTWNVF  
VICFYLEAGDLSKYTLILTFNISMHRSWWMENGPCTVTSVTPAPDWAPEDHRYITVSG  
CFLEYQYIEVAHSSLQIVLALAGFIYACYVVKCITEEEDSFDFIGGFDSYGYQGPQKTS  
HLQLQPMYM

>Danio rerio\_NKAIN2(ENSDARP\_112659)

MGCCSGRCTLAFICGMQLISILERQIFDFLGYQWAPILTNTFIHIIITVILGLFGTVQFRPR  
YVTGYAVWLVLWVAVNVFIIICFYLEVGDLSKDTDLIMTFNISMHRSWWMENGPCTVTPV  
TTPPSWAPEDHRYISISGCLLEYQFVEVAHSSLQIILA

>Takifugu rubripes\_NKAIN2(ENSTRUP\_37282)

TDRCLVDLQCIKLVSVLERQVIDFLGYQWAPILTNTFLHIIIVILGLFGTIQFRPRYVTGY  
AAWLVMWMTWNVFIIICFYLEVGDLSRSDLVLTFLNLSMHRSWWMENGPCTVTPISPPPS  
WAPEDHRYISISGCLMDFQFIEVAHSSLQILLALMGFIYACYVVKLISEEEDSFDFIGGF  
DSYGYQGPQKTSHLQLQPMYIPC

>Tetraodon nigroviridis\_NKAIN2(ENSTNIP\_13874)

LGNGAGRPFPTPSVACMWGVSVLERQVIDFLGYQWAPILTNTFLHIIIVILGLFGTIQFRPR  
YVTGYAAWLVMWMTWNVFIIICFYLEVGDLSRSDLVLTFLNLSMHRSWWMENGPCTVTPV  
TTPPSWAPEDHRYISISGCLMDFQFIEVAHSSLQILLALMGFIYACYVVKLISEEEDQLR  
VDFIGGFDSYGYQGPQKTSHLQLQPMYMKG

>Gasterosteus aculeatus\_NKAIN2(ENSGACP\_17511)

FSFLELLLSCSLPEVAVVSVLERQVVDVFLGYQWAPLLTNTFLHIIIVILGLFGTIQFRPR  
YAAWLVMWMTWNVFIIICFYLEVGDLSRSDLVLTFLNLSMHRSWWMENGPCTVTPVTPPP  
SWAPEDHRYISISGCLMDFQFIEVAHSSLQILLALMGFIYACYVVKLISEEEDSFDFIGG  
FDSYGYQGPQKTSHLQLQPMYM

>Oryzias latipes\_NKAIN2(ENSORLP\_21348)

VNYCGGLCKCLGPFLLSMYKVSVLERQVIDFLGYQWAPILTNTFFHIIIVILGLFGTIQFR  
PRYVTGYAAWLVMWMTWNVFIIICFYLEVGDLSRSDLVLTFLNLSMHRSWWMENGPCTVTP  
PISPPPSWAPADHRYISISDCLMDFQFIEVAHSSLQILLALAGFIYACYVVKLISEEEDS  
FDFIGGFDSYGYQGPQKTSHLQLQPMYIKK

>Branchiostoma floridae\_(XP\_002603157)  
MSCCSGRCTLIALCFQLIATVERQVDFDLGYMWAPIIGNFFQIICVILGLFGTYQYRPRYIVVYCTWGW  
LWVAWNIFIICVYLELGLSLTVETPALTLGAPQISISWREHGIGCQASNATATSTNPVVTGCLLDFTYVEM  
IHAAIQIVLAIVGFYIYVVMFTEEDDSFDFIGGFDSYSAYQAPQKTSHMQLQPMYV

>Capitella teleta\_(ELT97184)  
MKEYCCHGNRLTLTLGVNVQIATVERQVDFDLGYMWAPIIGNFLQIIFIIIVGFFGALQYRPKIVIVYAV  
WSLLWIGWNI FVICFYFEVGLLKRDSPI LNIDTGNRSWWFDNGIGCQTPNKTQLDTGLDYVEGCLLQYYY  
VEIIHAAIQCLFSLGLFCVGCYVVYVFSEEDDSFDFIGGFDTFSSAFQSPAKSSHVQLQPVYVATGAR

>Octopus bimaculoides\_(XP\_014782962)  
MGSGRCSLSPNTAIMVIFVLQLLSTVERLIFDFLGYMWAPIMGNFLQIICVIGIFGVCQYRPLVAVY  
SIWSLLWIGWNI FVICLYLEIGILSR TRELYILNIGTKNKSWWLEHGIGCQVTNNTWEKNYHGETSRPI P  
PEEFVEGCLVEYYYYVEFIHAAVQCLFSFFGFIISCITIMYTEEDESDFDFIGGFDSYTSYQSQKGS  
LQPLYSTYLEQLLSLWIKPSNFYLAYQCE

>Trichoplax adhaerens\_(XP\_002117095)  
MACGTLRTWTMAILLIQLISLLERITFDFMGAVWALIIGNFVAILITVVGTFGAYQFRPRYLIMYLIWSF  
AWIACNVAVMLTYLEISIFKQGGTILTINTESASWWKNGIGCTVEYESSSQTGSTSSAI IAKVTGCILE  
YKYVEVIHAGIQCFSSLGIIIGSWLTHRLYNPKAIDQSANSASYRSTNFHLQNV

## **Potassium Voltage-Gated Channel subfamily Q-KCNQ**

>Homo sapiens\_KCNQ4(ENSP\_262916)  
MAEAPRRRLGLGPPPGDAPRAELVALTAVQSEQGEAGGGGSPRRGLLGSPLPPGAPLPG  
PGSGSGSACGQRSSAAHKRYRRLQNWVYNVLERPRGWAFVYHVFI FLLVFSCLVLSVLST  
IQEHQELANECLLILEFVMIVVFGLEYIVRVWSAGCCCRYRGWQGRFRFARKPFCVIDFI  
VFVASVAVIAAGTQGNIFATSALRSMRFLQILRMVRMDRRGGTGWKLLGSVVYAHSKELIT  
AWYIGFLVLI FASFLVYLAEKDANSDFSSYADSLWWGTITLTTIGYGDKTPHTWLGRLVLA  
AGFALLGISFFALPAGILGSGFALKVQEQHRQKHFEKRRMPAANLIQAARLYSTDM  
SRA YLTATWYYYDSILPSFRELALLFEHVQRARNGGLRPLEVRRAPVPD GAPSRYPPVATCHR  
PGSTSFPCGESSRMGIKDRIRMGSSQRRGTGPSKQHLAPPTMPTSPSSEQVGEATSPTKVQ  
KSWSFNDRTRFRASLR LKPR TSAEDAPSEEVAAEKS YQCELTVD DIMPVKT VIRSIRIL  
KFLVAKRKFKETLRPYDVKD VIEQYSAGHLDMLGR IKS LQTRVDQIVGRGPGDRKAREKG  
DKGPSDAEVVDEISMMGRVVKVEKQVQSIEHKLDLLLGFYSRCLRS GTSASLGAVQVPLF  
DPDITSDYHSPVDHEDISVSAQTL SISR SVSTNMD

>Pan troglodytes\_KCNQ4(ENSPTRP\_1033)  
MAEAPRRRLGLGPPPGDAPRAELVALTAVQSEQGEAGGGGSPRRGLLGSPLPPGAPLPG  
PGSGSGSACGQRSSAAHKRYRRLQNWVYNVLERPRGWAFVYHVFI FLLVFSCLVLSVLST  
IQEHQELANECLLILEFVMIVVFGLEYIVRVWSAGCCCRYRGWQGRFRFARKPFCVIDFI  
VFVASVAVIAAGTQGNIFATSALRSMRFLQILRMVRMDRRGGTGWKLLGSVVYAHSKELIT  
AWYIGFLVLI FASFLVYLAEKDANSDFSSYADSLWWGTITLTTIGYGDKTPHTWLGRLVLA  
AGFALLGISFFALPAGILGSGFALKVQEQHRQKHFEKRRMPAANLIQAARLYSTDM  
SRA YLTATWYYYDSILPSFRELALLFEHVQRARNGGLRPLEVRRAPVPD GAPSRYPPVATCHR  
PGSTSFPCGESSRMGIKDRIRMGSSQRRGTGPSKQHLAPPTMPTSPSSEQVGEATSPTKVQ  
KSWSFNDRTRFRASLR LKPR TSAEDAPSEEVAAEKS YQCELTVD DIMPVKT VIRSIRIL  
KFLVAKRKFKETLRPYDVKD VIEQYSAGHLDMLGR IKS LQTRVDQIVGRGPGDRKAREKG  
DKGPSDAEVVDEISMMGRVVKVEKQVQSIEHKLDLLLGFYSRCLRS GTSASLGAVQVPLF  
DPDITSDYHSPVDHEDISVSAQTL SISR SVSTNMD

>Gorilla gorilla\_KCNQ4(ENSGGOP\_21390)  
FLLVFSCLVLSVLSTIQEHQELANECLLILEFVMIVVFGLEYIVRVWSAGCCCRYRGWQ  
GRFRFARKPFCVIGNEXEELRKKSELGLREMGDLYPFPVWKSPTS PRQAQRSELITAWYIG  
FLVLI FASFLVYLAEKDANSDFSSYADSLWWGTITLTTIGYGDKTPHTWLGRLVLAAGFAL  
LGISFFALPAGILGSGFALKVQEQHRQKHFEKRRMPAANLIQAARLYSTDM SRA YLTAT  
WYYYDSILPSFRELALLFEHVQRARNGGLRPLEVRRAPVPD GAPSRYPPVATCHRPGSTS  
FCPGESSRMGIKDRIRMGSSQRRGTGPSKQHLAPPTMPTSPSSEQVGEATSPTKVQKSWSF  
NDRTRFRASLR LKPR TSAEDAPSEEVAAEKS YQCELTVD DIMPVKT VIRSIRILKFLVA  
KRKFKETLRPYDVKD VIEQYSAGHLDMLGR IKS LQTRVDQIVGRGPGDRKAREKGDKGPS  
DAEVVDEISMMGRVVKVEKQVQSIEHKLDLLLGFYSRCLRS GTSASLGAVQVPLFDPDIT

SDYHSPVDHEDISVSAQTLISIRSVSTNMD

>Mus musculus\_KCNQ4(ENSMUSP\_30376)

MAEAPPRLGLGPPPGDAPRAELVALTAVQSEQGEAGGGGSPRRGLLGSPLPPGAPLPG  
PGSGSGSACGGQRSSAAQKRYRRLQNWVYNVLERPRGWAFVYHVFI FLLVFSCLVLSVLS  
TIOEHQELANECLLILEFVMI VVFGLEYIIRVWSAGCCCRYRGWQGRFRFARKPFCVIDF  
IVFVASVAVIAAGTQGNIFATSALRSMRFLQILRMVRMDRRGGTGWKLLGSVVYAHSKELI  
TAWYIGFLVLI FASFLVYLAEKDANSDFSSYADSLWWGTITLTTIGYGDKTPHTWLGRVL  
AAGFALLGISFFALPAGILGSGFALKVQEQHRQKHFEKRRMPAANLIQAARLYSTDTSR  
AYLTATWYYYDSILPSFRELALLFEHIQARANGGLRPLEVRRAPVPDGPSPRYPPVATCH  
RPGSASFPCGESSRMGIKDIRIRISSSQKRTGPSKQHLAPPP IPTSPSSEQVGEASSPSKV  
QKSWSFNDRTRFRASLRKPRCSAEEGPSEEVAAEKSQCELTVDVMPAVKTVIRSVRI  
LKFLVAKRKFKETLRPYDVKDVI EQYSAGHLDMLGRIKSLQARVDQIVGRGPGDRKTREK  
GDKGPSDTEAVDEISMMGRVVKVEKQVQSIEHKLDLLLGFYSRCLRSCTSASLGTQVPL  
FDPDITSDYHSPVDHEDISVSAQTLISIRSVSTNMD

>Dasypus novemcinctus\_KCNQ4(ENSDNOP\_17886)

MAEAPPRLGLAPPDAPRAELVALTAVQSEQGEAGGGGSPRRHGLLGSPLPPGAPLPG  
PGSGSGSACGGQRSSAAHKRYRRLQNWVYNVLERPRGWAFVYHVFI FLLVFSCLVLSVLS  
TIOEHQELANECLLILEFVMI VVFGLEYIVRWSAGCCCRYRGWQGRFRFARKPFCVIDFI  
VFWASVAVIAAGTQGNIFATSALRSMRFLQILRMVRMDRRGGTGWKLLGSVVYAHSKELIT  
AWYIGFLVLI FASFLVYLAEKDANSDFSSYADSLWWGTITLTTIGYGDKTPHTWLGRVLA  
AGFALLGISFFALPAGILGSGFALKVQEQHRQKHFEKRRMPAANLIQAARLYSTDTSR  
AYLTATWYYYDSILPSFRELALLFEHVQRARANGGLRPLEVRRVPVPDGPSPRYPPVATCHR  
PGSTSFPCGESSRMGIKDIRIRMGSSQRRTPGPSKQHLAPPP IPTSPSSEQMGGEATSPTKVQ  
KSWSFNDRTRFRASLRKPRCSAEEGPSEDVAEKSQCELTVDVMPAVKTVIRSVRIL  
KFLVAKRKFKETLRPYDVKDVI EQYSAGHLDMLGRIKSLQARVDQIVGRGTGDRKAREK  
DKGPSDPEAVDEISMMGRVVKVEKQVQSIEHKLDLLLGFYSRCLRSCTSASLGTQVPL  
DPDITSDYHSPVDHEDISVSAQTLISIRSVSTNMD

>Xenopus tropicalis\_KCNQ4(ENSXETP\_49800)

MAVGTQPQADNGRVPSSLAPISGQESGMFVALTAVQTDGNGPRRLGLLGTPIPGAPRS  
SSSHKKYRRLQNYLNVLERPRGWAFIYHAFIFLLVFSCLVLSVFSTIPEYHHLANKGLF  
ILEFVMI VVFGMEYVIRIWSAGCCCRYRGWKGRLRFARKPFCVIDFIVLVA SLAVIAAGT  
QGNIFATSALRSMRFLQILRMVRMDRRGGTGWKLLGSVVYAHSKELITAWYIGFLVLI FAS  
FLVYLAEKDANKEFSTYADSLWWGTITLTTIGYGDKTPHTWLGRVLAAGFALLGISFFAL  
PAGILGSGFALKVQEQHRQKHFEKRRTPAANLIQAARLYSTDVSRSYLTATWYYYDSIL  
PSFRELLLLFDTWHRTCRNGGVRLCQGSPPRYQVVPSTPKPATPPFCTGESSKLGKDRM  
RGTVPKQTTTRSKQYLAPPERASPGTEPAEETPSPTKVQKSWSFNDRTRFRASLRKSRP  
QADEGPGDDINDEKRLPNDLTMEDVMPTIKTLIRAFRILKFLVAKRKFKETLRPYDVKDVI  
EQYSAGHLDMLGRIKSLQGRVDQIIGRGPVPEKKPRDKGEKVSTMGPEVEAADELSMM  
GRVVKVERQVQSIEDKLDILLGFYSQCIRKGPASSFTLTSMQMP LIDQEMTSDYQSPVDP  
VDFSVAQTLNISHSASTNME

>Takifugu rubripes\_KCNQ4(ENSTRUP\_36608)

MLGSPSNNGGIRMLAPPAPDDRRVEFVALTAVHTESEPSTPERGHPSHRTGLLGTPLP  
GPPGPRANTSASSKRFRKLQNFLYNVLERPRGFAYHAFIFLLVFSCLVLSVFSTIHEH  
QKFANQDSSSWLLHEFVMI VVFGLEYFIRIWAAGCCCRYRGWQGRRLRFARKPFCVIDLI  
VFWPSLAVIAAGTQGNIFATSALRSMRFLQILRMVRMDRRGGTGWKLLGSVVYAHSKELIT  
AWYIGFLVLI FASFFVYLVKDVNTDFNTYADSLWWGTITLTTIGYGDKTPRTWQGRLLA  
AGFALLGVFFALPAGILGSGFALKVQEQHRQKHFEKRRMPAANLIQAARLYSTDASHS  
YLTATWYFYDSMLPSFRELTLFSLQRQRNKQLPLHDTYAQIHAGRKQRYPRLRACAR  
GSADCFVPSRGEKIGFRDIRMNNRSSTIRSKASPLPPGSNVRRSPSQENVPDPTS  
PGKVQKSWSFNDRTRFRTRSLRKLPRPPADVEGVGEDSTEDKPYCDMAMEEVI PAVKTLIR  
AVRILKFLVAKRKFKETLRPYDVKDVI EQYSAGHLDMLGRIKSLQTRVDQIIGRGA VQPD  
KKARPEKGEKTPPELDSLELSMMGRVVKVEKQVQSIEHKLDLLLNLVSHCLKKGSSNYT  
LSTLLDPLTSDYHSPTDQRDLFPSANTLNISTSESGNLE

>Tetraodon nigroviridis\_KCNQ4(ENSTNIP\_5762)

MLGSPSNNGGIRMLAPPAPDDERRVEFVALTAVHTESEPSTPERGHPSHRTGLLGTPLP  
GPPGPRASASASSKRFRKLQNFLYNVLERPRGFAYHAFIFLLVFSCLVLSVFSTIPEH

QKFANQGLFILEFVMIVVFGLEYFIRIWAAGCCCRYRGWQGRLEFARKPFCVIDLIVFVASLAVIAAGTQGNIFATSALRSMRFLQILRMVMDRRGGTWKLLGSSVVAHSKELITAWYIGFLVLI FASFLVYLAEKDINTDFSTYADSLWWGTITLTTIGYGDKTPRTWQGRLLAAGFALLGV SFFALPAGILGSGFALKVQEQHRQKHFEKRRMPAANLIQAARLYSTDASHSYLTA TWYFYDSMLPSFRELTLLFSLHQRRTPGALWSIETSHLTPPPCSQERVPDLKPCPRFHS FFFAVSSKIGFRDRIRMNNSRSSQTIIRSKASPLPPGSNGRRSPSQENMADSTSPGKVQKS WSNFDRTRFRFRTSLRLKPRPPADAEGVGEDSVEDKPYCDVAMEEVI PAVKTLIRAVRILKF LVAKRKFKETLRPYDVKDVEIQYSAGHLDMLGRIKSLQTRVDQIIGRGAVQPDKKVRPEK GEKTPPELDSLDELMMGRVVKVEKQVQS IENKLDLLLDLYSHCLKKGSSNFTLSTLLD PDLTSDYHSPTDQRDLFPSANTLNISTSESGNLE

>Gasterosteus aculeatus\_KCNQ4 (ENSGACP\_6436)  
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>Oryzias latipes\_KCNQ4 (ENSORLP\_15074)  
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>Homo sapiens\_KCNQ3 (ENSP\_373648)  
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>Macaca mulatta\_KCNQ3 (ENSMUP\_11684)  
XGDAAGDEERKVGGLAPGDVEQVTLALGAGADKDGTLLLEGGGRDEGQRRTPOGIGLLA KTPLTRPVKRNNAKYRRIQTLYDALERPRGWALLYHALVFLIVLGCLILAVLTTTFKEYE TVSGDWLLLLLETFAIFIFGAEFALRIWAAGCCCRYKGRGRLKFKARPLCMLDIFVLIAS VPVAVGNQGNVLAATSLRSLRFLQILRMLRMDRRGGTWKLLGSAICAHKSKELITAWYIGF LTLILSSFLVYLVEKDVPEVDAQGEEMKEEFETYADALWWGLITLATIGYGDKTPKTWEG

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>Mus musculus\_KCNQ3(ENSMUSP\_63380)

MGLKARRAAGAAGGGGGGGGGGAANPAGGDSAVAGDEERKVGLAPGDVEQVTLALGA  
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>Bos taurus\_KCNQ3(ENSBTAP\_27546)

MGLKARRPAGAAGGGGDGGGGGGGAANPAGGDAAGDEERKVGLAPGDVEQVTLALGAG  
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WALLYHALVFLIVLGLCLILAVLTTTKEYETVSGDWLLETTFAIFIFGAEFALRIWAAGC  
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DRRGGTWWGLITLATIGYGDKTPKTWEGRLIAATFSLIGVSVFFALPAGILGSGLALKVQ  
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SOKLGLLDRVRLSNPRGSNTKGKLFPLNVDAIEESPSKEPKVGSNNKERFRTAFRMKA  
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NEPYVARPSTSETEDQSMMGKFVKVERQVHDMGKKLDFLVDMLHMHMERLQVHVAGFSPS  
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LPLGGPSSGKHATPYAERPTVLPILTLLDSRGSYRSQVELHGPCSDRVSPRQRSSITRDS  
DTPLSLMSVNHEELERSPSGFSISQDRDDYAFGPSGGSSWMREKRYLAEGETDTEPFT  
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>Myotis lucifugus\_KCNQ3(ENSM LUP\_14023)

QTPSSFPFRFLIVLGLCLILAVLTTTKEYETVSGDWLLETTFAIFVFGAEFALRIWAAGC  
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DRRGGTWWGLITLATIGYGDKTPKTWEGRLIAATFSLIGVSVFFALPAGILGSGLALKVQ  
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GDGISDSIWTSPSNKPV

>Monodelphis domestica\_KCNQ3(ENSMODP\_1454)

FLIVLGCLILAVLTTTFKEYETVSGDWLWLLLETFAIIFFGAEFALRIWAAGCCCRYKGRG  
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LDSRVSYHSQAELHSPYQDRISPRQRFSFTRSDTPLSLLSVNHEELERSPSGFSISQDR  
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>Gallus gallus\_KCNQ3(ENSGALP\_56287)

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LAVLTTTFKEYETVSGDWLWLLLETFAIIFFGAEFALRIWAAGCCCRYKGRGRLKFARKPL  
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ERPTVLPIFTLMDSQVSYHSQGDMSYSDKVSPRQRSLTRSDTPLSLLSVNHEELER  
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>Anolis carolinensis\_KCNQ3(ENSACAP\_10760)

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GQNSSRWPAMPFSTSYAERPTVLPILTFIDPHISYQSPGDFQSPHSERIPSRQKHSVTR  
DSDTPLSLLSVNHEELERSPSGFSISQDRDDFLFGPNGSSWMEKRYLAEGETDTDTP  
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>Xenopus tropicalis\_KCNQ3(ENSXETP\_49802)

WAANWATLMFLIVLGCLILAILTTTFKEYEDASGDWLLLETFALVIFGVEFALRIWAAGC  
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SYSTWENLNLHYMAANRELITAWYIGFLLTLLSSFLVYLVEKDVPERNEKGEVVEEFET  
YADALWWGLITLATIGYGDKTPKTWEGRLIAATFSLIGVSVFFALPAGILGSGLALKVQEQ  
HRQKHFEKRRKPAELIQSAWRFYATNLSRIDLIATWRYEYETTVQFPYFRLRKEQMDGTN  
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QSPRHDPYSVKVPEIEDQSMGKVFVVERQVQDMEKLLDFLVDMMQHMDQLQVHI TEY  
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FSAPLPFNGENCPRVATPPSSSYTERPTVLPITLIDTRVEFQDSSGASNPYLKEASPTQ  
RRSFRSDTPLSLLSVNHEDELQSPSGFSISQEKEDFSFGNNGSNWMREKRYLAEGETD  
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>Tetraodon nigroviridis\_KCNQ3(ENSTNIP\_8726)

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QPRTQDFD TYADALWWGAGRS DGPHSCEQRTV GALVGD RRNLPHADGSSWNQTN NLSGLI  
RNLCCPSSQKLRLLERVRLPNAPT GSSDGA EESPSK PAGFSNRERLRTAFRMRAYTLRQ  
SSEDPAAPTEAAVEERGFPPDILLEEMIPTLKLVI RAVRILQFLLNKKRFKETLRPYDVK  
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PKAASLPDAEDQSMMGRFVRVERQVEDMEKKLDFL VDMHIQTHEHLQVDSVGT AHMTLEA  
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>Gasterosteus aculeatus\_KCNQ3(ENSGACP\_20863)

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KEHSRVNAACRGGTQVTEVTEVTVSHLQITLTTIGYGD KPTKTWAGRLLAGTFALIGVSF  
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TIISLPCFRQDTHLEA IASQKLSLLERVRLPNARPSIGTGKRLTGHTDSIEESPSKEPKPA  
GFSNRERFRTAFRMKAYTLRQSSSEDGGALAEPALEERGFPPDILMEEMIPTLKLVI RAVR  
IMQFLLNKKRFKETLRPYDVKDVIEQYSAGHLDMLCRIKYLQTRIDMILAPG PPLTPKQK  
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IQHSEHLQVDSAGAAHMTLEACNPTGAGEIRR VFFNYAESFPHLSYQMPVKGMSGGSGGG  
GGHQPPPLLHQRRPAAVPTYAERPTVLPIS SLQDLSAGPRTTGARGGDSPLSMLSVH  
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WNTPP

>Oryzias latipes\_KCNQ3(ENSORLP\_8236)

FLIVLGLCLILAILTTFKHEHNTSAHWLVILETF AIFIFGAEFGLRIWAAGCCCR YK GWRG  
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LGS AIYAHSKELITAWYIGFSLILASFLVYLVEKDDVSDGSDREDPTVQPKQD FDTY  
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RQKHFEKRRHPAAGLIQSAWRYYSTN PVRDDLIATWRFYETIISLPCFRQDTFEVMSQK  
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KDVIEQYSAGHLDMLCRIKYLQTRIDMILAPG PPLTPKSKKTQKTPFSYPANQSPRQESY  
LPKTTAMPD TDQSSMMGRFVRVERQVEDMEKKLDFL VDMHIQTHEHLQVDSAGTAHMTLE  
TCGPGANGEIRR VFLNYSEAFPHMSYQVAIGKAGRGRGDQECRRGAGLARGHPERPAMGT  
VPTYIERPTVLPIS SLQDLSAGPRTTGRQGGDSPLSMLSVNHEELERSPSGFSISVDRE  
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APL

>Homo sapiens\_KCNQ2(ENSP\_486706)

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SSEGALYILEIVTIVVFGVEYFVRIWAAGCCCR YR GWRGRLKFARKPF CVIDIMVLIASI  
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>Pan troglodytes\_KCNQ2 (ENSPTRP\_23658)

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LQILRMIRMDRRGGTGWKLLGSVVYAHSKELVTAWYIGFLCLILASFLVYLAEKGENDHFD  
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HGTSPVGDHGSLVRIPPPAAHERSL SAYGGNRA S MEFLRQEDTPGCRPPEGTLRDS DTS  
ISIPVDHEELERSFSGFSISQSKENLDALNSCYAAVAPCAKVRPYIAEGESD TDS D LCT  
PCGPPPRSATGEGPFGDVGWAGPRK

>Mus musculus\_KCNQ2 (ENSMUSP\_99340)

MVQKSRNGGVYPGTSGEKKLKVGFVGLDPGAPDSTRDGALLIAGSEAPKRGSVLSKPRTG  
GAGAGKPPKRNAYFKRLQNFLYNVLERPRGWAFIYHAYVFLLVFVSWLEIVTIVVFGVEYF  
SSEGALYILEIVTIVVFGVEYFVRIWAAGCCCRYRGWRGRLKFARKPFCVIDIMVLIASIA  
AVLAAGSQGNVFATSALRSLRFLQILRMIRMDRRGGTGWKLLGSVVYAHSKELVTAWYIGF  
LCLILASFLVYLAEKGENDHFDTYADALWWGLITLTTIGYGDYKYPQWTWNGRLLAATFTLI  
GVSFFALPAGILGSGFALKVQEQHRQKHFEKRRNPAAGLIQSAWRFYATNLSRTDLHSTW  
QYYERTVTVPMYSSQTQTYGASRLIPPLNQLELLRNLSKSKGLTFRKEPQPEPSPSKVS  
LKDRVFSSPRGMAAGKGSPOAQTVRRSPSADQSLDPSKVPKSWFSGDRSRTRQAFRI  
KGAASRQNSEEASLPGEDIVEDNKSCNCFVTEDLTPGLKVSIRAVCVMRFLVSKRKFKE  
SLRPYDVM DVIEQYSAGHLDMLSRIKSLQSRVDQIVGRGPTITDKDRTKGPAETELPEDP  
SMMGRLGKVEKQVLSMEKKLDFLVSIIYQRMGIPPAETEAYFGAKEPEPAPPYHSPEDSR  
DHADKHGCI IKIVRSTSSGTQRNYAAPPAPPAQC P P STSWQOSHQRHGTS PVGDHGSLV  
RIPPPAAHERSL SAYGGNRA S TEFLRLEGT PACR PSEAALRDS DTS ISIPVDHEELER  
SFSGFSISQSKENLDALNSCYAAVAPCAKVRPYIAEGESD TDS D LCTPCGPPPRSATGEG  
PFGDVAWAGPRK

>Rattus norvegicus\_KCNQ2 (ENSRNOP\_40830)

MVQKSRNGGVYPGTSGEKKLKVGFVGLDPGAPDSTRDGALLIAGSEAPKRGSVLSKPRTG  
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SSEGALYILEIVTIVVFGVEYFVRIWAAGCCCRYRGWRGRLKFARKPFCVIDIMVLIASIA  
AVLAAGSQGNVFATSALRSLRFLQILRMIRMDRRGGTGWKLLGSVVYAHSKELVTAWYIGF  
LCLILASFLVYLAEKGENDHFDTYADALWWGLITLTTIGYGDYKYPQWTWNGRLLAATFTLI  
GVSFFALPAGILGSGFALKVQEQHRQKHFEKRRNPAAGLIQSAWRFYATNLSRTDLHSTW  
QYYERTVTVPMYSSQTQTYGASRLIPPLNQLELLRNLSKSKGLTFRKEPQPEPSPSKVS  
LKDRVFSSPRGVAAGKGSPOAQTVRRSPSADQSLDPSKVPKSWFSGDRSRARQAFRI  
KGAASRQNSEEASLPGEDIVEDNKSCNCFVTEDLTPGLKVSIRAVCVMRFLVSKRKFKE  
SLRPYDVM DVIEQYSAGHLDMLSRIKSLQSRVDQIVGRGPTITDKDRTKGPAETELPEDP  
SMMGRLGKVEKQVLSMEKKLDFLVSIIYQRMGIPPAETEAYFGAKEPEPAPPYHSPEDSR  
DHADKHGCI IKIVRSTSSGTQRNYAAPPVMPAQC P P STSWQOSHQRHGTS PVGDHGSLV  
RIPPPAAHERSL SAYSGNRA S TEFLRLEGT PACR PSEAALRDS DTS ISIPVDHEELER  
SFSGFSISQSKENLDALNSCYAAVAPCAKVRPYIAEGESD TDS D LCTPCGPPPRSATGEG  
PFGDVAWAGPRK

>Gallus gallus\_KCNQ2 (ENSGALP\_9339)

MVQKSRNGGVYPGPAAEKKLKVGFVGLDPGAPDSSRDGALLIAGSESTKRGSIILSKPRSG  
VSGSGKPPKRNAYFKRLQNFLYNVLERPRGWAFIYHAYVFLLVFVSWLEIVTIVVFGVEYF  
SSEGALYILEIVTIVVFGVEYFVRIWAAGCCCRYRGWRGRLKFARKPFCVIDIMVLIASIA  
AVLAAGSQGNVFATSALRSLRFLQILRMIRMDRRGGTGWKLLGSVVYAHSKELITAWYIGF  
LCLILASFLVYLAEKGENEHFDTYADALWWGLITLTTIGYGDYKYPQWTWNGRLLAATFTLI  
GVSFFALPAGILGSGFALKVQEQHRQKHFEKRRNPAAGLIQAARFYATNLSRTDLHSTW  
QYYERTVTVPMYSTQTQTYGASRLIPPLNQLELLRNLSKSKGLTFRKEQQPEPSPSKVS  
LKDRVFSSPRGAGTKGKGSPOAQGIRRSADQSIEDSPSKVPKSWFSGDRSRARQAFRI  
KGAASRQNSEEASLPGEDIPDENKSCNCFVTEDLTPGLKVSIRAVCIMRFLVSKRKFKE  
SLRPYDVM DVIEQYSAGHLDMLSRIKSLQSRVDQIVGRGSSMTNKDRTKGPAEGELPEDP

SMMGRLGKVEKQVQSMEKKLDFLVNIYQRMGIPPTETEAYFGSKEPDPAPPYHSPEDSR  
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LVRI PPPPSHERSLSAYS SGGHRASAEYLRNEDITTKHHESALRSDTSSISIPSDHEELE  
RSFSGFSISQSKENLDILNNGCYAAVAKIRPYIAEGESDSDSLCTPCGPPRSATGEGP  
FSDMGWSAPRQ

>Anolis carolinensis\_KCNQ2(ENSACAP\_5855)

MSFLFLFCLFLLPSSFLLVFSCLVLSVFSTIDDYEASSEGALYILEIVTIVVFGVEYFVR  
IWAAGCCCRYRGWRGRLKFARKPFCVIDIMVLIASIAVLAAGSQGNVFATSALRSLRFLQ  
ILRMIRMDRRGGTGWKLLGSSVYVAHSKELITAWYIGFLCLILASFLVYLAEKGENEHFDY  
ADALWWGLITLTTIGYGDYKYPQTWNGRLLAATFTLIGVSFFALPAGILGSGFALKVQEQH  
RQKHFEKRRNPAAGLIQAARFYATNLSRDLHSTWNYERTVTVPMYSSQTQSYGASRL  
IPPLNQLLELLRNLSKSGLTFRKEQQPEPSQKVS LKDRVFS PRGAATKKGSPQAPG  
IRRSPADQSIDDSPSKVPSWSFGDRSRARQAFRIK GASSRQNSE DAGLPGEDMGDPDN  
KSCNCFVTEDLTPGLKLSIRAVCVMRFLVSKRKFESLRPYDMDVIEQYSAGHLDMLS  
RIKNLQSRIDMIVGPPPPSTPRHKKYSTKGSSPQYSPRVDQIVGRGPSMTDKDRTKGSAE  
GELQEDPSMMGRLGKVEKQVQSMEKKLDFLVNIYQRMGIPPTETEAYFGSKEPEPAPPY  
HSPEDSREHIDKNGCI IKIIRSTSSMGQKNFSAPPATTVPNNSCPPSTSWQPYPRQSHGV  
SPVGEPSGLVRI PPPPSHERSSAYS SGGHRASAEYAKNEDVTAKHPESALRSDTSSISIP  
SVDHEELERSFSGFSISQSKENLDVLNNGCYTAVAKIRPYIAEGESDSDSLCTPCGPPP  
RSATGEGPFSDMGWSTPRQ

>Xenopus tropicalis\_KCNQ2(ENSXETP\_49801)

MVQKSRNGGVYPGPTGEKKLKVGFVGLDAGPPDTSRDGALLIDGSDKRSSILIKQRSGVS  
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EGALYILEIITIVVFGVEYFVRIWAAGCCCRYRGWRGRLKFARKPFCVIDIMVLIASIAV  
LSAGSQGNVFATSALRSLRFLQILRMIRMDRRGGTGWKLLGSSVYVAHSKELITAWYIGFLC  
LILASFLVYLAEKEDNDMFDYADALWWGLITLTTIGYGDYKYPKTWNGRLLAATFTLIGV  
SFFALPAGILGSGFALKVQEQHRQKHFEKRRNPAAGLIQAARFYATNLSRMDLHSTWQY  
YERTVTVPMYSSVSSQTQYASRLIPPLNQLDLRLNLSKSGLTFRKEQQAEPPSSQKVS  
LKERVFS PRGVATKKGSPQSQGMRRSPADQSL EESPSKVPKSWSGDRSRTRQAFRI  
KGSASRQNSEVSLPEEEVAVPEENRSCNCEFLAEDLTPGLKASIRAVCIMRFLVAKRKF  
ESLRPYDMDVIEQYSAGHLDMLARIKNLQSRVDQIVGRGGSITDKDRAKGAETEIPDD  
PSMMGRLGKVEKQVLSMEKKLDFLVNIYQRMGIPPEETEAYFGAKDREPAPPYHSPEDS  
RDPVDKSCITKIIRSSSMGQKNFSAPPAQLTPTTHCPPSTSWQQQOPYHRHSHGSSVPG  
DPGSLVRI PPPPSHERSLSAYGVSRMVGVEEGSGKHRDPAALRSDTSSISIPSDHEELE  
RSFSGFSISQSKENLEILNNGAVAGPGCHKVRPYIAEGESDSDSLCTPCGPPARSTTG  
EGPYGDMGWPSKK

>Danio rerio\_KCNQ2(ENSDARP\_122368)

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SSESALYILEIVTIVVFGVEYIVRIWAAGCCCRYRGWRGRLRFARKPFCIIDIMVLFASV  
SVLAAGSQGNVFATSALRSLRFLQILRMLRMDRRGGTGWKLLGSSVYVAHSKELITAWYIGF  
LCLILASFLVYSVEKDDNAEMFETYADALWWGLVTLTTIGYGDYKFPVTWNGRLIAATFSL  
IGVAFFALPAGILGSGFALKVQEQHRQKHFEKRRNPAAGLIQAARFHFATNLSRDLFST  
WDFYAQT VSVPMYSRNTLLSNLWQLIPPNQLDILRSLKGS AFRKDSQIDVTPSSEISH  
KDTLCGCCPRTNSRKP SVKEKSPSKSTGGKEARTDGVKESPSKVTKSLSFTDRNKAKHA  
FKMKDGASRQNSEEASLPEDLGD DRGYNCEFLPHLSPGLKVTIRSICVMRFLLSKRRFKE  
SLRPYDMDVIEQYSAGHLDMLSRIKNLQIDLIVGPPPPSTPRHKKYVNIHQWPSQTRWL  
YYWTALQVDQIVGKGASAGEKDKPKSDTEVPEDPSMMGRLNKMEKEVGAMDLKLNFLVSI  
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RPVQQQA AVESDTSLSIPSDHEELDRSFSGFSISQAREEDYVPPVSLGPFGGGGGTLC  
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>Takifugu rubripes\_KCNQ2a(ENSTRUP\_24561)

MVQKSLNGGVYPAEDGEKKHRVGFVGLDPGAPESSRDGALLIAGPDGAHKRSSILCRRGS  
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KNSSESALYILEIVTIVVFGVEYIVRIWSAGCCCRYRGWRGRLKFARKPFCVIDIMVLIA  
SVSVLAAGSQGNIFATSALRSLRFLQILRMLRMDRRGGTGWKLLGSSVYVAHSKELITAWYI

GFLCLILASFLVYSVEKESNEEFETYADALWWGLITLTTIGYGDKVPKWTWNGRMLGAAFS  
MIGVAFFALPAGILGSGFALKVQEQHRQKHFEKRRNPAAGLIQGAWRFYATNLSRTDLVC  
TWDFYEQTVSVPYRIFIPPLNQDLRLNLKKGKSRKESQTEMSPSNENA  
HKERLCGCCPRAISRKASLKDKVFPSPKAPFAKGAQSPGAEEGVEASPYKVAKSWST  
DKNRGTKNSFKARGSTRQNSEEASLPGEEMGDDKSCHEFLTQELPSSLKVTIRAICIM  
KFLVSKRKFESLRPYDMDVIEQYSAGHLDMLCRIKNLQTRVDQIVGKSPKADGDPGDD  
LSMMGRLVKVEKQVLCMDRKLDFLVNVYVQRMGITHSETEAYFNSKEPYPAPPYHSPDDS  
KLEKDNKEQMNSLEQKDPVGRSGARSVGSPPSASQSRPSTSWQHQLQHPLSQPAWNSVA  
NTPSPVCGDQSPNLFRLPPPAPAHDRSSGSSSHSRRRRRRQTCQQDGTAAESDTSLSIP  
SVDHEELERSFSGFSISQAKEDFFGSPFFAGTAGCPRVRPFIAEGESDTS DLYAPSPVS  
FTGDTSCGERPWPGLK

>Takifugu rubripes\_KCNQ2b(ENSTRUP\_24560)  
MVQKSLNGGVYPAEDGEKHKRVGFVGLDGPAPESRDGALLIAGPDGAHKRSSLCCRGS  
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KNSSESALYILEIVTIVVFGVEYIVRIWSAGCCCRYRGRGLKFKARKPFCVIDIMVLIA  
SVSVLAAGSQGNIFATSAIRSLRFLQILRMLRMDRGGTWKLLGSSVYAHSKELITAWYI  
GFLCLILASFLVYSVEKESNEEFETYADALWWGLITLTTIGYGDKVPKWTWNGRMLGAAFS  
MIGVAFFALPAGILGSGFALKVQEQHRQKHFEKRRNPAAGLIQGAWRFYATNLSRTDLVC  
TWDFYEQTVSVPYRIFIPPLNQDLRLNLKKGKSRKESQTEMSPSRKASLKDKVFPSPK  
APFAKGAQSPGAEEGVEASPYKVAKSWSTDKNRGTKNSFKARGSTRQNSEEASLPGE  
EMGDDKSCHEFLTQELPSSLKVTIRAICIMKFLVSKRKFESLRPYDMDVIEQYSAGH  
LDMLCRIKNLQTRIDMIVGPPPSTPRHKKSTEGLDLSPITSPIYLFNARVDQIVGKSP  
KADGDPGDDLSMMGRLVKVEKQVLCMDRKLDFLVNVYVQRMGITHSETEAYFNSKEPYP  
APPYHSPDDSKLEKDNKEQMNSLEQKDPVGRSGARSVGSPPSASQSRPSTSWQHQLQHPLS  
QPAWNSVANTPSPVCGDQSPNLFRLPPPAPAHDRSSGSSSHSRRRRRRQTCQQDGTAA  
ESDTSLSIPSV DHEELERSFSGFSISQAKEDFFGSPFFAGTAGCPRVRPFIAEGESDTS  
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>Tetraodon nigroviridis\_KCNQ2(ENSTNIP\_13799)  
MVQKSLNGGVYPEEEGEKHKVGFVGLDGPAPESRDGALLIAGPDGAHKRSSLCCRGS  
GVSTGRPRPSKKNASRKLQNFYALERPRGWAFVYHAYVLLVLLCDFLDVSATIKEF  
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SVSVLAAGSQGNIFATSAIRSLRFLQILRMLRMDRAGTWKLLGSSVYAHSKELITAWYI  
GFLCLILASFLVYSVEKESNEEFETYADALWWGLITLTTIGYGDKVPKWTWNGRMLGAAFS  
MIGVAFFALPAGILGSGFALKVQEQHRQKHFEKRRNPAACLIQGAWRFYATNLSRTDLLC  
TWDFYEQTVSVPYRIFIPPLNQDLRLNLKKGKSRKESQTELSPSRKASL  
KDKVFPSPKAPFAKGAQSPGAEEDGVETSPYKVAKSWSFNEKNRGAKNSLKARGSSSRQ  
NSEEASLPGEVGDGKCHDFLTQELPSSLKVTIRAVCIMKFLVSKRKFESLRPYDVM  
DVIEQYSAGHLDMLCRIKNLQTRIDMIVGPPPSTPRHKKSTEGPRDGEAGDDLMMGRL  
VKVEKQVLCMDRKLDFLVNVYVQRMGITHSETEAYFNSKEPYPAPPYHSPDESKEKDPK  
EQMNSLEQKDPVGRSVALGSPSASQSRPSTSWQHQLQHPLSQPAWNSVANTPSPVC  
GDRSPNLFRLPPPAPAHDRSSGSSSQSRRRRRRQTCQQAESDTSLSIPSV DHEELERSF  
SGFSISQAKEDFFGASFFAGPPVCPDRPFIAEGESDTS DLYAPSPVSFTGDI FCGEKP  
WPGLK

>Gasterosteus aculeatus\_KCNQ2(ENSGACP\_6133)  
FLLVFSCLILSVFATIREFKNSSESALYILEIVTIVVFGVEYIVRIWAAGCCCRYRGRW  
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YGDKVPKWTWNGRLLAATFSMIGVAFFALPAGILGSGFALKVQEQHRQKHFEKRRNPAAGL  
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TSPSRKASLKDKVFPSPKAPLAKGKSQSPDGAEASPGKVDKSWSFADKNRGPKHSFRAR  
GSTSRQNSEEASLPGEEIGDDKSCHEFLSQELPPGLRVTIRAICVMKFLVSKRRFKESL  
RPYDMDVIEQYSAGHLDMLSRIKNLQSRQDRYDCGAPAPSTPRHKKSTEGPSIMLFTPQ  
PKYRSKVDQIVGKGPKEGSDSDMMGRLGKVEKQVICMDRKLDFLVHVVYVQRMGIPR  
SETEAFFVDSKEPYPAPPYHSPDESSEKLTQCSVPAIPCSDGSLEKKDPLLGRCPVSHSRPST  
SWQHQLQHPLSQPAWNSVANTPSPVAGSADHSPTLFRLLPPPAPVHDRPSRNGRESGS  
RSRRRRRRRQRDAVALES DTSLSIPSV DHEELERSFSGFSISQAKEDFFGSPFFAGSGGG  
AGTEAAAGPALCARVRPFIAEGESDTS DLYAPSPVLSFTGEVSCGDPAPWGRK

>Oryzias latipes\_KCNQ2(ENSORLP\_1054)

MVQKPLNGGVYPAQAEKHKHVGFLDPGAPESSRDGALLIAGSESSKRGSILGRPRSS  
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DSSENALYILEIVTIVVFGVEYIVRIWAAGCCCRYRGWRGRLKFARKPFCVIDIMVLIAS  
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IGVAFFALPAGILGSGFALKVQEQHRQKHFEKRRNPAAGFIQAARFYATNLTRTDLLCT  
WEFYEQTVALPMYRIIPPLNQMDLLRNLKKGKSRKESQTETS PRFLLSRKPSLKEKVFPS  
PSKAPMGKAEDGAEASPSKWPWFDTKNRGPKHAFRVRSGTGRQNSEEASLPGEEIGDDK  
SCNCEFLAQELPPGLKVTIRAI CVMKFLVSKRRFKESLRPYDVM DVIEQYSAGHLDMLCR  
IKNLQSRIDMIVGPPPTTPRHKKSTEGPRLDGRET PNSSCCRV DQIVGKSPKVDGEVGD  
QSMGRLVVKVEKQVVCMDRKLDFLVNVYAQRMGIAHSETEAFFNSKEPY PAPPYQSLDDI  
KEEKNGKEEVKELVKVKTYSAPDVPCSDGPLENSRPSTSWKHQLQHPLSQPAWGS  
TPSPVGLSGDRSPNPFRLPPPPAPSHDWSSSGHGGGSSRDNASR RRRRHRRCQQDAAS  
AAAVESDTSLSIPSDHEELERSFSGFSISQAKEDFFGPPYFTGSGGGGAAGTEAGTGHS  
LCARVRPFIAEGESDTS DLYAPSPLSFTGEVPCGEKGWPLK

>Homo sapiens\_KCNQ5(ENSP\_345055)

MPRHAGGEEGGAAGLWVKSAAAAAGGGRLGSGMKDVESGRGRVLLNSAAAARGDGLL  
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RMVRMDRRGGTWKLLGSVVYAHSKELITAWYIGFLVLI FSSFLVYLVEKDANKEFSTYAD  
ALWWGTITLTTIGYGDKTPTLWLGRLLSAGFALLGISFFALPAGILGSGFALKVQEQHRQ  
KHFEKRRNPAANLIQCVWRSYAADEKSVSIATWKPHLKALHTCSPTKKEQGEASSSKFCS  
NKQKLFMYTSRKQSQKLSFKERVRMASPRGQS IKSQASVGDRRSPSTDI TAEGSPTKV  
QKSWSFNDRTRFRPSLRKSSQPKPVIDADTALGTDDVYDEKGCQCDVSVEDLTPPLKTV  
IRAIRIMKFHVAKRKFETLRPYDVKD VIEQYSAGHLDMLCRIKSLQTRVDQILGKGQIT  
SDKKSREKITA EHTTDDLSMLGRVVKVEKQVQSIESKLDCLLDIYQQVLRKGSASALAL  
ASFQIPPFECEQTSQSDYQSPVDSKDLGSAQNSGCLSRSTSANISRGLQFILT PNEFSAQT  
FYALSPTMHSQATQVPI SQSDGSAVAATNTIANQINTAPKPAAPTTLQIPPLPAIKHLP  
RPETLHPNPAGLQESISDVTTCLVASKENVQVAQSNLTKDRSMRKS FDMGGETLLSVC  
PMVPKDLGKSLSVQNLIRSTEELNIQLSGSESSGSRGSQDFYPKWRESKLFITDEEVGPEET  
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>Gorilla gorilla\_KCNQ5(ENSGGOP\_11126)

YSFLLVFGCLILSVFSTIPEHTKLASSCLLILEFVMIVVFGLEFIIRIWSAGCCCRYRGW  
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WKLLGSVVYAHSKELITAWYIGFLVLI FSSFLVYLVEKDANKEFSTYADALWWGTITLTT  
IGYGDKTPTLWLGRLLSAGFALLGISFFALPAGILGSGFALKVQEQHRQKHFEKRRNPA  
NLIQCVWRSYAADEKSVSIATWKPHLKALHTCSPTKKEQGEASSSKFCSNKQKLFMYTS  
RKQSQKLSFKERVRMASPRGQS IKSQASVGDRRSPSTDI TAEGSPTKVQKSWSFNDRTR  
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AKRKFETLRPYDVKD VIEQYSAGHLDMLCRIKSLQTRVDQILGKGQITS DKKREKITA  
EHTTDDLSMLGRVVKVEKQVQSIESKLDCLLDIYQQVLRKGSASALALASFQIPPFECE  
QTSQSDYQSPVDSKDLGSAQNSGCLSRSTSANISRGLQFILT PNEFSAQTFYALSPTMHSQ  
ATQVPI SQSDGSAVAATNTIANQINTAPKPAAPTTLQIPPLPVIKHLP RPETLHPNPAG  
LQESISDVTTCLVASKENVQVAQSNLTKDRSMRKS FDMGGETLLSVC PMVPKDLGKSLSV  
QNLIRSTEELNIQLSGSESSGSRGSQDFYPKWRESKLFITDEEVGPEETETDFTDAAPQ  
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>Mus musculus\_KCNQ5(ENSMUSP\_110955)

MPRHAGGEEGGAAGLWVRSAAAAAGGGRPGSGMKDVESGRGRVLLNSAAAARGDGLL  
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ERPRGWAFIYHAFVFLVFGCLILSVFSTIPEHTKLASSCLLILEFVMIVVFGLEFIIRI  
WSAGCCCRYRGWQGRLLRFARKPFCVIDITIVLIASIAVVS AKTQGNIFATSALRSLRFLQIL  
LRMRMDRRGGTWKLLGSVVYAHSKELITAWYIGFLVLI FSSFLVYLVEKDANKEFSTYA  
DALWWGTITLTTIGYGDKTPTLWLGRLLSAGFALLGISFFALPAGILGSGFALKVQEQHR  
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SNKQKFFRVYTSRKQSQKLSFKERVRMASPRGQS IKSQASVGDRRSPSTDI TAEGSPTK  
VQKSWSFNDRTRFRPSLRKSSQPKPVIDADTALGIDDVYDEKGCQCDVSVEDLTPPLKTV

VIRAIRIMKFHVAKRKFKETLRPYDVKDVIEQYSAGHLDMLCRIKSLQTRVDQILGKGQM  
TSDKKSREKITAHEHETDDPSMLARVVKVEKQVQSIESKLDCLLDIYQQVLRKGSASALT  
LASFQIPPFCEQTSYQSPVDSKDLGSAQNSGCLTRSASANISRGLQFILTPNEFSAQ  
TFYALSPTMHSQATQVPMSQNDGSSVATNNIANQISAAPKPAAPTTLQIPPLSAIKHL  
SRPEPLLSNPTGLQESISDVTCLVASKESVQFAQSNLTKDRSLRKSFDMGGETLLSVRP  
MVPKDLGKSLSVQNLIRSTEELNLQFSGSESSGSRGSQDFYPKWRESKLFITDEEVGAEE  
TETDTFDGTPPPAGEAAFFSSDSLRTGRSRSSQNICKTGDSTDALSLPHVKLN

>Bos taurus\_KCNQ5(ENSBTAP\_10251)

CLMFQEFVMIVVFGLEFIIRIWSAGCCCRYRGWQGRLLRFARKPFCVIDTIVLIASIAVVS  
AKTQGNIFATSALRSLRFLQILRMVRRDRGGTWKLLGSSVVAHASKELITAWYIGFLVLI  
FSSFLVYLVEKDANKEFSTYADALWWGTITLTTIGYGDKTPTLWLGRLLSAGFALLGISF  
FALPAGILGSGFALKVQEQHRQKHFEKRRNPAANLIQCVWRSYAADEKSVSVATWPKHLK  
ALHTCSPTKKEQGEASSSQKLSFKERVRMASPRGQSVKSRQASLGDRRSPSTDI TAEGSP  
TKVQKSWSFNDRTRFRPSLRKSSQPKPVVDADTALGTDVYDDKGCQCDVSVEDLTPPL  
KTVIRAIRIMKFHVAKRKFKETLRPYDVKDVIEQYSAGHLDMLCRIKSLQTRVDQILGKG  
QITSDKKSREKITAHEHETDDPSMLGRVVKVEKQVQSIEAKLDCLLDIYQQVLRKGSAPA  
LALAPFPSPPFCEQTSYQSPGDGRDLSGPAPGGGLPRSATRERARQSLDLGGALLS  
VRPAVPQDPGRSVSAQNLARSTEDLDVQLSGSESSGSRGSQEFYPKWRESKLFISDEEAA  
SPEDTGTDALDAVPPAREPAPAPDSLRTGRSRSSQSSCPAAGGADALGRPHVRLK

>Gallus gallus\_KCNQ5(ENSGALP\_49052)

MSLLGKPLSYSSGPPSCRNRNAYRRLQNYLYNVLERPRGWAFVYHAFVFLVFGCLILSVF  
STIPEHTKLASGCLFILEFVMIVVFGLEFIIRIWSAGCCCRYRGWQGRLLRFARKPFCVID  
IIVLIASIAVVS AKTQGNIFATSALRSLRFLQILRMVRRDRGGTWKLLGSSVVAHASKEL  
ITAWYIGFLVLI FSSFLVYLVEKDANNQFSTYADALWWGTITLTTIGYGDKTPTLWLGRL  
LSAGFALLGISFFALPAGILGSGFALKVQEQHRQKHFEKRRNPAASLIQCVWRSYAADEK  
SVSIATWPKHLKALHTCSPTKKEQGEASSSKLCSNKQKLFMYTPRKHSQKLSFKERVRM  
ASPRGQSIKNRQSSVGGDRRSPSADIATDGSPTKVQKSWSFNDRTRFRPSLRKSSQPKPV  
VDADTSLGTDVYDDKGCQCDVSVEDLTPALKTVIRAIRIMKFHVAKRKFKETLRPYDVK  
DVIEQYSAGHLDMLCRIKSLQSRVDQILGKGQITADKRSREKNTAENETDDLSMLGRVV  
KVEKQVQSIESKLDCLLDIYQQVLRKGSASALT LASFQMPAFECEQTSYQSPSDSKDLS  
NSAQISGCVSRASANLPRGLQLILTPNEFSTQAYYAI SPAMHSQATQVPNDGHTTVNNT  
SNQINQATKPATPTTLQIPPFSSVKHINRPEPVI IIPVTTQENISDVTACLVGSKDNGQV  
AQPSATKDLTWRKGLDTEGEPLLSVKPVVQMDLGKSLSIQNLIQSTEELNVQITGSDSSG  
SRGSQDVYSKWRESKLFITDEELETEAGTETTEAISRPLVETTLSTDSLRTGISRSSQSI  
CKPGDGTEALSLLHVKLLK

>Taeniopygia guttata\_KCNQ5(ENSTGUP\_13065)

FSFLVFGCLILSVFSTIPEHTKLASGCLFILEFVMIVVFGLEFIIRIWSAGCCCRYRGW  
QGRLLRFARKPFCVIDIIVLIASIAVVS AKTQGNIFATSALRSLRFLQILRMVRRDRGGT  
WKLLGSSVVAHASKELITAWYIGFLVLI FSSFLVYLVEKDANTEFSTYADALWWGTITLTT  
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SLIQCVWRSYAADEKSVSIATWPKHLKALHTCSPTKKEQGESSSSQKLSFKERVRMASPR  
GQSIKSRQSSVGGDRRSPSADIATEGSPTKVQKSWSFNDRTRFRPSLRKSSQPKPMVDAD  
TSLGTDVYDDKGCQCDVSVEDLTPALKTVIRAIRIMKFHVAKRKFKETLRPYDVKDVIE  
QYSAGHLDMLCRIKSLQSRVDQILGKGQITADKRSREKNPAEHETADDVSMGRVVKVEK  
QVQSIESKLDCLLDIYQQVLRKGSASALT LASLQMPAFECEQTSYQSPSDSKDLSNSAQ  
LSGCVSRASANLPRGLQLILTPNEFSTQAYYAFSPAMHSQATQVPNDGPATVNNTSNQI  
NQTTKPATPTTLQIPPFSSMKHINRPEPIHI IIPVTTQENISNVTACLVASKDNGQVAQPS  
ATKDLAWRKS LDTEGEPLLSVKPVVQMDLGKSLSVQNLIQSTEELNIQIAGSDSSSSRGS  
QDVYSKWRESKLFITDEELETESGTETTEAISRPLVETTL SADSRLRTGISRSSQNICKPG  
DGTEALNLLHVKLLK

>Danio rerio\_KCNQ5a(ENSDARP\_118905)

MPRNHSGDEGGAGLWMTSQHYGMKDVEAGRGTMMNATRNADSLLSAPGTTGAGGSENQR  
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VLSVSTI PAHMDLSNHCLLILEFVMIVVFGLEYIIRIWSAGCCCRYRGWQGRLLRFARKP  
FCVIDIIVLIASIAVVSAGSQGNIFATSALRSLRFLQILRMVRRDRGGTWKLLGSSVVA  
HASKELVTAWYIGFLVLI FSSFLVYLVEKEFNKQFATYADALWWGTITLTTIGYGDKTPQT  
WTGRLLSAGFALLGISFFALPAGILGSGFALKVQEQHRQKHFEKRRNPAASLIQCVWRSY

AADENSVS IATWPKHLKALHTCSPTNQKLSFRERVRMASPRGQSVKSRQMSVNDRRSPGT  
EVAVEGSSPAKVQKSWSFNDRTRFRPSLRRLKSRSTTEADTTLGPDDAFDDKACHCDVT  
VEDLSAPLKAVIRAIRIMKFHVAKKKFKETLRPYDVKDVEIQYSAGHLDMLCRIKSLQTR  
VDQILGKGQISVDRKGREKILPEGESLEHDMMSMLGRVCKVERQVQSIESKLDLSDIYRQ  
VLQKSSSMLGLSALPLFELDQTSQSSLSKESSSQLTGSGVSRSCSSNLHRGLHLAL  
APSELNLGTGYPHSASSFSPSPLNNQPSSPDSFYPPSPPIILTPNNLSRSHQRFSSELTR  
PVPTVHSTSTTLQLPPMVPAPPGRPTSLIPETLQESRAECPTNCLLGTQNEVESDKEAES  
IPSTVQLRDKPERNSKEDGSWRRHLSLDIDPLMLMSSTAAASLQVERGLGKLSAQNLML  
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>Danio rerio\_KCNQ5b(ENSDARP\_79805)

MPRNHSGDEAGSGLWMNTSPGHHAESYGLHNVECDNRMKNNCSRPGDGLLSASHAGTGAS  
GTERDRGKQGARLSLLGKPLVYGTQSGRRNARYRRIQNYLYNVLERPRSWAFIYHAFVFI  
LVFGCLVLSVFSTIPDHQEMASQSLLEFVMIIVVFGLEYIIRIWSAGCCCRYRGWQGR  
RFARKPFCVIDIIVLIASVAVVSAGSQSNIFATSALRSLRFLQILRMVRMDRRGGTWKLL  
GSVVYAHSKELVTAWYIGFLVLIFFSFLVYLVEKEFNKDFATYADALWWGTITLTTIGYG  
DKTPKTWTGRMLSAGFALLGISFFTLFAGILGSGFALKVQEQHRQKHFEKRRNPAACLIQ  
CVWRSYAADENSVSIVATWPKHLKALHTCSPTKKDQGESATSQKLSFKDRVRMASPRGQSI  
KSRQTSVTDRRSPGAEISTDGSSPAKVQKSWSFNDRTRFRPSLRRLKSRSTPEGEANVT  
VDEAFDEKCHCCHDMSVEDLPSALKTIVIRAVRIMKFHVAKKKFKETLRPYDVKDVEIQYSA  
GHLDMLCRIKSLQTRVDQILGRGQMPVDKVKREKLLSDGDILEDVSMGLRVCKVERQVQS  
IESKLDLSDIYRQVLQKSSSTALTFSSLPFGLLENSDYQSTVLSKDLSCASQVSQSI  
GNHPRALQLILAPNELMNLNQNNTSTSSPGLNPASASPFNLSTFQVPSTPSLECPAQS  
PSQILNANSFHCSIGHFPSVQPPPPLSSTTTSKYQLSTVPSQAGHARSMGPTRSDPADY  
AKSCFRGVGIDLGLNSSMICKLQKQNRPSAKEDSSWRRHISLDSEVEMDPLAPVSPAPV  
QQQCSGDRGLGKLSLVQDLIQPALEGVVDTHSSQASFSSTSISSSQDSSAGGIEMGAGGW  
GEADLFISDRDLTSTKAHNQGFDFLSQAPIDASYSELLRTSTAAGASHSLASGHTSNT  
GSNETINMPHVRLK

>Takifugu rubripes\_KCNQ5a(ENSTRUP\_31899)

AGDAMP RSHSGDQSGGPGWLKLTSTGRRGQEYPLKDVCEGRTTMNNAVRVGDGVL SAAAA  
GALGVDRKQGARLSLLGKPLTYSAQSGRRNARYRRLQNYLYNVLERPREWAFVYHAFVFI  
LVFGCLVLSVFSTIPAHQEFSSHCLLILEFVMIIVVFGLEYIIRIWSAGCCCRYRGWQGR  
RFARKPFCVIDIIVLIASVAVVSAGSQGNIFATSALRSLRFLQILRMVRMDRRGGTWKLL  
GSVVYAHSKELVTAWYIGFLVLIFFSFLVYLVEKEFNKDFATYADALWWGTITLTTIGYG  
DKTPQTWTGRLLSAGFALLGISFFALPAGILGSGFALKVQEQHRQKHFEKRRNPAASLIQ  
CVWRSYAADENSVS IATWPKHLKALHTCSPAKKEQGETTYSQKLSFKERVRMASPRGQSM  
KNRQLSINDRQRCSPGNDVMGGAELMGGSPAKVQKSWSFNDRTRFRPSLRRLKSRTRAAVS  
DVDAGMSTEDSLDERGCHCDVTLLEDLSAPLKAVIRAVRIMKFHVAKKKFKETLRPYDVKD  
VIEQYSAGHLDMLCRIKSLQTRVDQILGKGQIPIDKKIRDKLNPDGDSLEGMSMLGRVCK  
VERQVSSIESKLDLSDVYRQVLQKGPSALTLSLPLFELHNRHSSDYQTSILSRDLP  
SPQEGDPMGGENNGINHSLSVNTRGLRLILAPADDDPPDSAPPSYPPSTASLSPSPLL  
PPDSPYPNLATPNI SKRAHF PDLPPPSSGGGFTLQLPPI LHPSQPHCPIEPTSNQGT  
GPSVVVRSPVDGDTPEGSAQEEAQCEKPLKSEGVWRRHINLEVNPLLPSSSPDWEEC  
LGKLSLAHNLCQPSTNRAQSHSSDLHNSSSSHSKCVNAHGGLSNWDEAE LFI SDRKLN  
R

>Takifugu rubripes\_KCNQ5b(ENSTRUP\_20763)

MPRNHNGDEGGTGLWMRTSQGHRSEGSYGLKDVESGQRM LNAGDGLLSASAAAGAVGSE  
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SCLVLSVFSTIPPHQDFSSYCLLILEFVMIIVVFGLEYIIRIWSAGCCCRYRGWPGR  
LRFARKPFCVIDIIVLIASVAVVSAGSQGNIFATSVLRSRFLQILRMVRMDRRGGTWKLL  
GVS VYAHSKELVTAWYIGFLVLIFFSFLVYLVENKFNKEFATYADALWWGTITLTTIGY  
GDKTPKTWTGRMLSAGFALLGISFFALPAGILGSGFALKVQEQHRQKHFEKRRNPAAYLI  
QCVWRSYAADENSVS IATWPKHLKALHTCSPTKKEQGESTSQKLSFKERVRMASPRGQTI  
KNRQTSSGNDRRSPVTDINTEGTSPAKVQKSWSFNDRTRFRPSLRRLKSRSTTDATDSNVAG  
EDGFDEKGCNCEISVDDLLPAVKSVIRAVRIMKFYVAKKKFKETLRPYDVKDVEIQYSA  
GHLDMLCRIKSLQTRVDQILGKGQIPDKKIREKLLSDGDILEDMSMLGRVCKVERQVQS  
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HPGGCVSHSSTNSRLSQGLRLILAPSSDSSST

>Tetraodon nigroviridis\_KCNQ5 (ENSTNIP\_17165)  
FRFILVFSCLVLSVFSTIPAHQDFSSDCLLILECFMIVVFGLEYIIRIWSAGCCCRYRGW  
QGRLRFARKPFCVIDIIVLIASVAVVSAGSQGNILAAFLRSLRFLQILRMVRMDRRGGT  
WKLLGSVVYAHSKELVTAWYIGFLVLIFSSFLVYLVENKGNKEFATYADALWWGTITLTT  
IGYGDKTPKTWTGRMLSAGFALLGISFFALPAGILGSGFALKVQEQHRQKHFEKRRNPAA  
YLIQAAWRYSTDRPDLDATWRHYESLLPPHSQKLSFKERVRLASPRGQTLKNRQASS  
VNDRRSPVTDISAEGTSPAKVQKSWSFNDRTRFRPSLRRLKSQSRSTTDAEDGFDEKGCN  
CEISVEDLLPSVKSVIRAVRIMKFYVAKKKFKETLRPYDVKDVIEQYSAGHLDMLCRIKS  
LQTSRVDQILGKGQIPLDKKIREKLLSDGDILEDMMLGRVCKVERQVQSIESKLDLSLLD  
IYRQMLHKGSSSALTLSLPLFELEQTSDYHSPVFAKDPSCSSQAPKTVSIEASTNME

>Gasterosteus aculeatus\_KCNQ5a (ENSGACP\_23908)  
FRFVLVFSCLVLSVFSTIPAHQDFSSYCLLILEFVMIVVFGLEYIIRIWSAGCCCRYRGW  
QGRLRFARKPFCVIGEILLIASVAVVSAGSQGNIFATSVLRSLRFLQILRMVRMDRRGGT  
WKLLGSVVYAHSKELVTAWYIGFLVLIFSSFLVYLVENKFNKDFATYADALWWGTITLTT  
IGYGDKTPKTWTGRMLSAGFALLGISFFALPAGILGSGFALKVQEQHRQKHFEKRRNPAA  
YLIQCVWRSYAADENSVS IATWKPHLKAHTCSPTKKEAGESTTSQKLSFKERVRRMASPR  
GQSIKNRQTSSVNDRRSPVAEAGTDGTSPAKVQKSWSFNDRTRFRPSLRRLKSQSRSTTDA  
ADSNMAGEDSYDERGCHCEMSVQDLLPSVKSVIRALRIMKHFVAKKKFKETLRPYDVKDV  
IEQYSAGHLDMLCRIKSLQTRVDQILGRGQIPLDKKIREKLLSDGDILEDMMSFGRVCKV  
ERQVQSIESKLDLSLLDIYRQVLRKGGASSALTLSLPLFELEQTSDYHSSVFGKDLSSSTQ  
ASSNAALPPGSNSHLSQGGHLILAP

>Gasterosteus aculeatus\_KCNQ5b (ENSGACP\_23911)  
ELVNLVESLIVLPGFVILYPLLEFVLVFSCLVLSVFSTIPAHQDFSSYCLLILEFVMIV  
VFGLEYIIRIWSAGCCCRYRGWQGRLRFARKPFCVIDIIVLIASVAVVSAGSQGNIFATS  
VLRSLRFLQILRMVRMDRRGGTWKLLGSVVYAHSKELVTAWYIGFLVLIFSSFLVYLVEN  
KFNKDFATYADALWWGTQKPHSDPSGRDDEITLTTIGYGDKTPKTWTGRMLSAGFALLGI  
SFFALPAGILGSGFALKVQEQHRQKHFEKRRNPAAAYLIQAAWRCYSTDRPYLDATWRP  
YKSLTTSYSQKLSFKERVRRMASPRGQSIKNRQTSSVNDRRSPVAEAGTDGTSPAKVQKSW  
SFNDRTRFRPSLRRLKSQSRSTTDGPREDSDYDERGCHCEMSVQDLLPSVKSVIRALRIMKF  
HVAKKKFKETLRPYDVKDVIEQYSAGHLDMLCRIKSLQTRVDQILGRGQIPLDKKIREKL  
LSDGDILEDMMSFGRVCKVERQVQSIESKLDLSLLDIYRQVLRKGGASSALTLSLPLFELE  
QTSDYHSSVFGKDLSSSTQASSNAALPPGSNS

>Oryzias latipes\_KCNQ5a (ENSORLP\_3087)  
KIKMCFGNVISKKRGPFPFPKVLKFILVFSCLVLSVFSTIPAHQEFSSYCLLILEFVMIV  
VVFGEYIIRIWSAGCCCRYRGWQGRLRFARKPFCVIDIIVLIASVAVVSAGSQGNIFAT  
SVLRSLRFLQILRMVRMDRRGGTWKLLGSVVYAHSKELVTAWYIGFLVLIFASFLVYLV  
NKFNKDFATYADALWWGTTFRTPCLYLQITLTTIGYGDKTPKTWTGRMLSAGFALLGISF  
FALPAGILGSGFALKVQEQHRQKHFEKRRNPAAAYLIQCVWRSYSADENSVS IATWKPHL  
KAHTCSPTNQKLSFKERVRRMASPRGQSIKNRQTSSMNDRRSPVADGGAEGTSPAKVQKSW  
SFNDRTRFRPSLRRLKSASRSTTDVLPWGGDDGDDKCHCDLSVEDLLPSKAVIRAVRIM  
KFHVAKKKFKETLRPYDVKDVIEQYSAGHLDMLCRIKSLQTRVDQILGKGQIPLDKKIRD  
KLLSDGDILLEDMMLGRVCKVERQVQSIESKLDLSLLDIYRQVLRKGGSSSGLTSSLPLFE  
LEQTSDYNSPVSFKDLSTPSQPITIIATSSSSSHA

>Oryzias latipes\_KCNQ5b (ENSORLP\_2826)  
FILVFGCLVLSVFSTIPAHQEFSSHCLLILEFVMIVVFGLEYIFRIWSAGCCCRYRGWQ  
RLRFARKPFCVIDIIVLITSVAVVSAGSQGNVFATSALRSLRFLQILRMVRMDRRGGTWK  
LLGSVVYAHSKELVTAWYIGFLVLIFSSFLVYLVKEFNKDFDYADALWWGTCLWSSP  
IQITLTTIGYGDKTPKTWTGRLLSAGFALLGISFFALPAGILGSGFALKVQEQHRQKHFE  
KRRNPAAASLIQQIEWRVKVVYQFNTHLLAFWELFELYDGLLLASPSQKLSFKERVRRMAS  
RGQSMGAARTTIGDRQRCSPGSEVVGSNELMSGSPAKVQKSWSFNDRTRFRPSLRRLKSQ  
SGDGGKATEDSERGCHCDVTVEDLSAPLKAVIRAVRIMKHFVAKKKFKETLRPYDVKDV  
IEQYSAGHLDMLCRIKSLQTRVDQILGKGQIPEKPRDKLHPDGDSLEGMSMLGRVCKV  
ERQFSGVLHRVQTRLLLDIYRQVLRKGGSSSGLTSSLPLFELENHQRHGSDFPSPHRGDAIR  
SRDEGGMQRSLSASPR

>Homo sapiens\_KCNQ1 (ENSP\_155840)



MAAASSPPRAERKRWGWGRLPGARRGSAGLAKKCPFSLELAEGGPAGGALYAPIAPGAPG  
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KCFVYHFAVFLIVLVCLIFSVLSTIEQYAALATGTLFWMEIVLVVFFGTEYVVRVLSAGC  
RSKYVGLWGRLLRFARKPISIIDLIVVVASMVVLCVGSKGQVFATSAIRGIRFLQILRMLH  
VDRQGGTWRLGSSVVF IHRQELITTLYIGFLGLIFSSYFVYLAEKDAVNESGRVEFGSYA  
DALWWGVVTVTTIGYGDKVPQTWVGKTIASCFSVFAISFFALPAGILGSGFALKVQKQOR  
QKHFNRIQIPAAASLIQTAWRCYAAENPDSSTWKIYIRKAPRSHTLLSPSPKPKKSVMVKK  
KKFKLDKDNVTPGEEKMLTVPHITCDPPEERRLDHFSVDGYDSSVRKSPTLLEVSMPHFM  
RTNSFAEDLDLEGETLLTPITHISQLREHHRATIKVIRRMQYFVAKKKFQQARKPYDVRD  
VIEQYSQGHNLNLMVRIKELQRRLDQSIGKPSLFI SVSEKSKDRGSNTIGARLNRVEDKVT  
QLDQRLALITDMLHQLLSLHGGSTPGSGGPPREGGAHITQPCGSGGSVDPELFLPSNTLP  
TYEQLTVPRRGPDEGS

>Callithrix jacchus\_KCNQ1 (ENSCJAP\_21515)

MAAASSPPRAERKRWGWGRLPGARRGSAGLAKKCPFSLELAEGGPAGGALYAPIAPGAPG  
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FIYHFAVFLIVLVCLIFSVLSTIEQYAALATGTLFWMEIVLVVFFGTEYMVRLWSAGCRS  
KYVGLWGRLLRFARKPISIIDLIVVVASMVVLCVGSKGQVFATSAIRGIRFLQILRMLHVD  
RQGGTWRLGSSVVF IHRQELITTLYIGFLGLIFSSYFVYLAEKDAVNESGHVEFGSYADA  
LWWGVVTVTTIGYGDKVPQTWVGKTIASCFSVFAISFFALPAGILGSGFALKVQKQORQK  
HFNRQIPAAASLIQTAWRCYAAENPDSSTWKIYVRKPPRSHALLSPSPKPKKSVMVKKKK  
LKLDKDNVSPGEEKTLTVPQITCDPPEERRLDHFSVDSDSVRKSPTLLEVSMPHFMRT  
NSFAEDLDLEGETLLTPITHISQLREHHRATIKVIRRMQYFVAKKKFQQARKPYDVRDVI  
EQYSQGHNLNLMVRIKELQRRLDQSIGKPSLFI AVSEKSKDRGSNTIGARLNRVEDKVTQL  
DQRLVLIITDMLHQLLSLHGGSTPGSGGPPREGGAHITPPCGSGGSIDPKLFLPSALPTY  
EQLTVPRRGPDEGS

>Mus musculus\_KCNQ1 (ENSMUSP\_9689)

MDTASSPPSAERKRAGWSRLLGARRGSÄVVKKCPFSLELAEGGPEGSTVYAPIAPTAPGAPG  
LAPPMPSTPVSPAPADLGP RPVSLDPRVSIY SAR PPLLARTHVQGRVYNFLERPTGWK  
CFVYHFTVFLIVLVCLIFSVLSTIEQYAALATGTLFWMEIVLVVFFGTEYVVRVLSAGCR  
SKYVGIWGRLLRFARKPISIIDLIVVVASMVVLCVGSKGQVFATSAIRGIRFLQILRMLHV  
DRQGGTWRLGSSVVF IHRQELITTLYIGFLGLIFSSYFVYLAEKDAVNESGRIEFGSYAD  
ALWWGVVTVTTIGYGDKVPQTWVGKTIASCFSVFAISFFALPAGILGSGFALKVQKQORQ  
KHFNRIQIPAAASLIQTAWRCYAAENPDSATWKIYVRKPARSHTLLSPSPKPKKSVMVKKK  
KFKLDKDNMSPGEEKMFNVPHITYDPPEDRRPDHFSIDGYDSSVRKSPTLLEVSTPHFLR  
TNSFAEDLDLEGETLLTPITHVSQLRDHRATIKVIRRMQYFVAKKKFQQARKPYDVRDVI  
IEQYSQGHNLNLMVRIKELQRRLDQSIGKPSLFIPISEKSKDRGSNTIGARLNRVEDKVTQ  
LDQRLVLIITDMLHQLLSMQGGPTCNSRSQVVASNEGGSINPELFLPSNSLPTYEQLTVP  
QTGPDEGS

>Rattus norvegicus\_KCNQ1 (ENSRNOP\_27875)

MDTASSPPNAERKRAGWGRLLGARRGSAGLAKKCPFSLELAEGGPTGGTVYAPIAPTAPGAPG  
GLAPPMSPPVSPVAPADLGP RPVSLDPRVSIYSTRPPLLARTHVQGRVYNFLERPTGWK  
KCFVYHFTVFLIVLVCLIFSVLSTIEQYAALATGTLFWMEIVLVVFFGTEYVVRVLSAGC  
RSKYVGIWGRLLRFARKPISIIDLIVVVASMVVLCVGSKGQVFATSAIRGIRFLQILRMLH  
VDRQGGTWRLGSSVVF IHRQELITTLYIGFLGLIFSSYFVYLAEKDAVNESGRIEFGSYA  
DALWWGVVTVTTIGYGDKVPQTWVGKTIASCFSVFAISFFALPAGILGSGFALKVQKQOR  
QKHFNRIQIPAAASLIQTAWRCYAAENPDSSTWKIYVRKPARSHTLLSPSPKPKKSVMVKK  
KKFKLDKDNGLSPGEEKIFNVPHITCDPPEDRRPDHFSIDGYDSSVRKSPTLLEVSTPHFL  
RTNSFAEDLDLEGETLLTPITHVSQLRDHRATIKVIRRMQYFVAKKKFQQARKPYDVRD  
VIEQYSQGHNLNLMVRIKELQRRLDQSIGKPSLFIPISEKSKDRGSNTIGARLNRVEDKVT  
QLDQRLVLIITDMLHQLLSLQGGPTCNNSRSQVVASDEGGSINPELFLPSNSLPTYEQLTV  
PQTGPDEGS

>Canis familiaris\_KCNQ1 (ENSCAFP\_42679)

GHRRCPGLRRGSAGGAFFRCALRPHQGSRTLGGEGLHPRGPGAPGGLPRPQAAPASPPD  
LLGPFLPLPVPNARPAAGPGVCPRRRSYPSVRCWNFRVRLPTDRRVLP PHSFLIVLVC  
LIFSVLSTIEQYVALATGTLFWMEIVLVVFFGTEYVVRVLSAGCRSKYVGIWGRLLRFARK  
PISIIDLIVVLASMVVLCVGSKGQVFATSAIRGIRFLQILRMLHVDRQGGTWRLGSSVVF  
IHRQELITTLYIGFLGLIFSSYFVYLAEKDAVNDSGQVEFGSYADALWWGVVTVTTIGYG

DKVPQTWVGKTIASCFSVFAISFFALPAGILGSGFALKVQQKQRQKHFNRQIPAAASLIQ  
TAWRCYAAENPDSSTWKIYVRKPARSHALLSPSPKPKKSVMVKKKFKQDKDNGVSPGEK  
MLTVPHITCEPVSEERRPDHFSVDNCDSSVKKSPMLLEVSTAHEMRTNSFAEDLDLEGET  
LLAPITHVSQLREHHRATIKVIRRMQYFVAKKKFQQARKPYDVRDVIEQYSQGHNLNLMVR  
IKELQRRLDQSIGKPSLFSVSEKSKDRGSNTIGARLNRVEDKVTQLDQRLVLTIDMLHQ  
LLSLYHGGPPGGRPPSGSGVQVVQPCSSINPELFLPSNTLPTYEQLTVPRRGPEEGS

>Xenopus tropicalis\_KCNQ1(ENSXETP\_43172)  
IFQLLKKPLSWKPFVYYPKFLIVLILCLIFSVLSTIQYNNLATETLFWMEIVLVVFFGA  
EYVVRWLSAGCRSKYVGIWGRRLRFARKPISVIDLIVVVASIIVLCVGSNGQVFATSAIRG  
IRFLQILRMLHVDRQGGTWRLGSSVFIHRQELITTLTYIGFLGLIFSSYFVYLAEKDAID  
SSGEYQFGSYADALWWGVVTVTTIGYGDKVPQTWIGKTIASCFSVFAISFFALPAGILGS  
GFALKVQQKQRQKHFNRQIPAAASLIQTAWRCYAAENPDSATWKIYIRKQSRNHILSPS  
PKPKKSAMVKKKIRTDREEGSTDKMLNIPNITYDHVADDRKNDGYSVEAYENTVRKPF  
FLDPGTGPFIRTSSFTDDLMEGDTLLTPITHISELKEHHRAAIKVIRRMQYFVAKKKFQ  
QARKPYDVRDVIEQYSQGHNLNLMVRIKELQRRLDQSLGKPSLFLSVSDKVKDKGSNTIGS  
RLNRVEDKVTQMDHKLNLITDMLHHLVTNQQGTQSIRTPHRNSLNSENHASRNTLPTYE  
QLTVPRPGQDNVS

>Danio rerio\_KCNQ1(ENSDARP\_77949)  
MTSPAHSSTATEASWTAGAADLQMTALHLRNDGVRFPSSVVPDPAVITQHPPSHLHPRMS  
VYSATRPTLSRSLQGRVYNFLERPTGWKCFVYHFTVFLIVLSCLILSVLSTIDEYQALA  
NKTLFWMELVLMFFGVEYVVRWLSAGCRSKYVGIWGRRLRFARKPISVIDLIVVVASIIV  
LAFGNSGQVFATSAVRGIRFLQILRMLHVDRQGGTWRLGSSVFIHRQELITTLTYIGFLG  
LIFSSYFVYLAEKDAVDDHGNSSGFGSYADALWWGVVTVTTIGYGDKVPQTWIGKTIASC  
SVFAISFFALPAGILGSGFALKVQQKQRQKHFNRQIPAAASLIQASWRCFALLNPDSATY  
KLFVKNLSSSSGSSPKLVKMRKMKISDRNNGQNSPAVPSITYDSFDDGRDSRQETLTS  
LQQSVISDGTNTRRYERAPSWNSLSSFFQFSTPPATKPGVFEVSSRPTLQRSSSIADME  
TEPEREIVLIPVAHVSQLRDSHRAAIRVIQRMYYFVARKKFQQARKPYDVRDVIEQYSQ  
HLNLMVRIKELQRRLDHSLGKQSLFQTSSERLKDGTNTIGSRLNRMDEKITHMDRNLNS  
IAESLNLMLARERRGDLARGKEQRSTMRRQSATFSLSVLDSSEQLSTTTAIHEDS

>Takifugu rubripes\_KCNQ1(ENSTRUP\_41806)  
KPPLDLQLSEIGPGAPDVPEPPARNDGRKMPADATANSEVPPAYLHPYSAHPRMSFRMSVY  
STGVRPVLTRAYIQGRVYNFLERPSGWKCLLYHFTVFLIVLACLILSVLSTIDQYQSLSQ  
TTLFWVEIVLVVFFGMEYFIRLWSAGCRSKYVGVWGRRLRFARKPISIIDLIVVVASVIVL  
SVGSKGQVFATSAVRGIRFLQILRMLHVDRQGGTWRLGSSVVIHRQELITTLTYIGFLSL  
IFSSYFVYLAETIYASGGSTEFERNYADALWWGVVTVTTIGYGDKVPQTWIGKTIASCFSV  
FAISFFALPAGILGSGFALKVQQKQRQKHFNRQIPAAAGLIQTSWRCFAVENLDSATYKM  
FLRKRSNITASLSSPKSKKSVKIKRKPADSADQNGPTSPTVPSITYDSVFDGRELSSD  
VYSTTVRRSPGLLDVHGHDPRLRNASFANDTELESEHHNHLFPAASLSQLTESHRKAI  
RVIQRMRYLVAKRNFQQARKPYDVRDVIEQYSQGHNLNLMVRIKELQRRLDQSLGKMTLFQAG  
SERAKDRGNNSIGSRLNRMEDKISHMDQTLGRISESLAVLLEQK

>Tetraodon nigroviridis\_KCNQ1(ENSTNIP\_12469)  
PRMSFRMSVYSTGVRPVLTRAYIQGRAYNFLERPSGWKCLVYHFSVFLIVLACLILSVLS  
TIDQYQSLSQTTTLFWVEIVLVVFFGMEYFVRLWSAGCRSKYVGIWGRRLRFARKPISIIDL  
IVVIASVIVLSVGSKGQVFATSAVRGIRFLQILRMLHVDRQGGTWRLGSSVVIHRQELI  
TTLTYIGFLSLIFSSYFVYLAETYSVSGGSTDFRNFADALWWGVVTVTTIGYGDKVPQTWI  
GKTIASCFSVFAISFFALPAGILGSGFALKVQQKQRQKHFNRQIPAAACLIQTSWRCFAV  
ENLDSATFKMFLRKRSNISASSLSPSKSKKSVKIKRKPVSVDKDSGPTSPTVPSITYDSV  
FDGRELSSVPACVQTERRAPGLLDVHSHDALRRNASFADDTELESEPHTHLFPAAASLSQ  
LTESHRKAIQRMRYFVAKRNFQQARKPYDVRDVIEQYSQGHNLNLMVRIKELQRRLDQ  
SLGKMTFFQAGSERAKNRGNNSVGSRLNRMEDKITHMEQTLGCIADSLALLLQQRDAGEA  
EGGRLRPQRRARHFVPSHDSLPSYDQLSSSPSSFSNN

>Gasterosteus aculeatus\_KCNQ1(ENSGACP\_22656)  
WCGVCSRRGGVDRLRTAVAQFGTNNKTSERPATRGAPPDPLPGPRLHIPSTTRERMPED  
GNAAADTGNVYLHPYLSHPRMSVRMSVYSTGIRPVLTRAHIQGGVYNFLERPSGWKCFV  
YHFTVFLIVLACLILSVLSTIDQYQALAHTTTLFWVEIVLVVFFGVEYFVRLWSAGCRSKY  
VGICGRLRFARKPISIIDLIVVVASIIVLSVGSKGQVFATSAVRLKFSDNVTTSHKDPDI

GQWIDL SVLYCVFQELITTTLYIGFLSLIFSSYFVYLAEKDAVDSSGYSEFENYADALWWG  
VVTVTITIGYGDKVPQWIGKTIASCFSVFAISFFALPAGILGSGFALKVQQQRQKHFNR  
QIPAAACLIQTSWRCAFVENFDSVTFKKFLKKRAHIPASSLSTLKPKKSVKVTRKPRS  
SDKDNGPTSPTVPSITYSNVFD SGREFIFLSNKGFNSTFEASAGLLDVHSPGPLRRNCS  
FADDLDAEAERD GELAPVTSLSQLTESHRRAIRVIQRMRYFVARRNFQQARKPYDVRDVI  
EQYSQGHLLNLMVRIKELQRRLDQSIGRQTLFQSGSDRAKDKGTNSIGSRLNRMEDKITHM  
DHTLNRIAESLTSVLHRRDGPPEPRRPPQ

>Branchiostoma floridae\_(XP\_002588016)  
MARTDAAYRPRKMSNISALSADSPFVSLPRPAQLTVPETTSRMSMSDTETEFLEFPKLSISEAEDDISL  
NMGD GAGRQEPGRCSIGPDTDAETGAKEVTGLLTPERRNMGDGAGRQEPGRCSIGPDTDAETGAKEV  
TGLLTPERRSVGNCAPAGRRSVKQVEFIGLRQLTVEEEYQAAVARKQGTVGRYALPRMSLLGKPIGYR  
ATRAARYRHFQMMVYNFLERPAGCKTLAYHIIIPDQPGAGGVTHDWGETPQQDSTRTPCDQEEWSNLLT  
GREAVKTS SSWEDLAPT PKTTGAHCWKENIPSKVWFLRGKRKRKARKVQSATSAAPIPDITVTMAGKRVN  
WEDSVS QETSNSAETISMEDMVSERVGGESRASPGSPPPGYDTLLAVKGPQAVEDVVSIGSHSSDQVFAD  
SGLTDDVHLCNNVKVDVDPETQLRRRGMLDAEGPGPPRMTLLGKPIPHVYHSNKNRRTLYIKTQIFNF  
FEVPQKQLLSKDSTRTPCDQEEWSNLLTGREAVKTS SSWEDLAPT PKTTGAHCWKENIPSKVWFLRGKRK  
RKARKVQSATSAAPIPDITVTMAGKRVNWEDSVS QETSNSAETISMEDMVSERVDRVESRASPGSPPPGY  
DTLLAVKGPQAVEDVVSIGSHSSDQVFADSGLTDDVHLCNNVKVDVDPETQLRRRGMLDAEGPGPPRMTL  
LGKPIPHVYHSNKNRRTLYIKTQIFNF FEVPQKQLLSKCEMGTNATDNSQHNCPKTEEQDKLPNQALYVM  
CENGTNATDNSQHNCPKTEEQDKLPNQALYVMEIIVIVFGMEYILRMWAAGCRSRYQTWRGLRFARRP  
FVIIVLSLGHGSHGNVFAASALRGLRFLQILRMVMDRRGGTWKLLGSSVVAHRQELLLTAYIGFLALIFAS  
FSLYLIEK DENPEDFGNF AKALYWG VITLLTVGYGDATPDTWLGKLVAVGFSLLGISFFMLPAITMTTVG  
YGDATPDSWQKLLTVVFLGCGISFFALPAGILGSGFALKLWRCYAGDKNSRSIATWPLHLRAVPDRKD  
AAAKKKSFKS QLSRFSTSSPLARPTVSR LQGLEVDGVDQQTQVSAESSGSTRQMSVADSGKPLSGK  
KPAGVRWRET VNAVMTSYESPGSDKSGLRDKYRVRYTVEDMAGYALSEEEYHQPWGLARLSPAHKNAIRA  
IRKIKYFVARRKFREALRPYDVKD VIEQYSAGHV D LLARVKHLQSR LDEILGSSRSRSPGHAKDKYANDPK  
MPLQNRVIRLEKQVHNIDQKLDV LINLMHQKPPDPGSHGDKEIGDHGNKANS DPVHGDGANTACHSNQI  
SLIPDSTRSKDCVELQQAPQSGRTRALPRQSATVISESDPSEGDAAETTSCQQDGKEAQDCVETGEETAG  
NGHQGTGNRAKLSSDSDSSLRMLGRET DIV

>Saccoglossus kowalevskii\_(XP\_006820358)  
MAVSVIIIAIGTSGQMFAFSALRGLRFLQILRLVRVDRRGGTWKLLGSSVVAHRQELITTWYIGFLSLSV  
LSFLVYNAEMEKNKEDFETFADAMWWGLVTLTTVGYGDKVPVTVWGKLVAAVFAIVGISFFALPAGILGS  
GFALKVQQQRQKHF LRRRH PAAELIQGILGSGFALKVQQQRQKHF LRRRH PAAQLIQCVWRCYAADPC  
SMSVATWKPHLRPVNSPTTNR TNPSLISRLSTKRKIGSPMVRHNPLNQHDALKKSHSHDLVDGDSL NKS  
SLSLHDGNGPLSRNQDSL YSPKNR DDDSIKEDEPVVPEPQTTEW FVTQNI AALKRLLDDDET MGLTRLTE  
PHKNAVRAIRKIKYFVARRKFKEAFRPYDVKD VIEQYSAGAAEMQFRMKA IQARLDEILGKTEGKNGIEL  
YNTKVPMITRVIKVEKKVNMIDRKL DMLIELYREERQEKMKALQONKHEHDDQNDSDKDPKPPSRIRRH  
GRARKLSRVKSEGHGAHVDTHEKSERRVEFRKLSDSQPSIPSSLNL DAPDATTVTVSTALSQPSITTTTE  
SEQGLQLANAKGVGRGQNPIDYDSAIDDTRV

>Drosophila melanogaster\_(FBpp0301793)  
MDPDNDIYAFYDIRGYKGC RPNR SERILQPRMSLLGKPLNYNRGTRRDVRYRRLQSR  
LYNFLERPRGLHAI F YHVMVFLMVF T CLALS VFSTIKEYEEDAVYILFRMEILVVIWFTM  
EFGARLWSSGCRSRYQGC LGR LKFVKRPF CII DIVTILASIVVLGMGTSGQVFATSALRG  
LRFQILRMVMDRRRGGTWKLLGSSVVAHRQELITMYIGFLGLIFASFLVYMWEKDVND  
KFSNFAQALWWGVITLCTVGYGDMVPI TWQGLIASCCALLGISFFALPAGILGSGFALK  
VQQQRQKHMIRRRQPAATLIQAVWRCYAADEHSVS VATWNIHRVALPSPASRASSSFK  
HNTSFVARLPTIRRHKSQT IQTPGGDGGGVSKPPGSSRASTRYTRTIR DINASVENLEV  
VQNGKSMNPSFSEDSVAETTCLKNIKNSDDEE DEPRCTQLTNRHKT AIRFIRKLYFVAR  
RKFKKALPYDVKD VMEQYAAGHV D LLGRVKMLHLRLDQILGKQGSKAKDVYASKISLAS  
RVVKVERQVADIEEKLDILIKAYMEDRDRFLALPLPAKPKIHSISPSHKPLHHAHNLAMI  
DVWKRTAALS VHPEQVTTTPLL NPSAPDSSELRS L TATQTPTTTTDAIATQTPMPPHVQH  
TATNTKSSVLSNYQLGSEKQQHNDVFMTELENRTKKRV TLSLHRSTSEPYSKQEQRITIP  
DEGADSLDSSAKPTPPDSSIILIDEYEDFEEDLNCEGEMDHFPTWEIDSDIGVEVDVDA  
DADGDCDESTEDTALLQCATRTAIVITPISPVSSAHNLQQLNDQTTTLNKS NLLPPDSG

>Apis mellifera\_(XP\_006565037)  
MKDRPHRPYRDHGGQAMPLEEVQGLLLPPSRTGNRGLTIVQVGKNGGGGGDGLLKLEPPSDLRPTP  
SPLSETSATLQSDNNDTFSGGVDPRLLLGANTGGDRNTWEGRYRVKEHRRAGKATFQGVYNFLERPTGW

KCFLYHFSVFMVVLVCLIFSVLSTIEQYSNFANETLFWMEICLVVFFGVEYLVRLWSAGCRSKYMGCCGR  
LRFIRKPICIIDLIVVVASMVVLSVGSNGQVFATSAIRGIRFLQILRMLHVDRQGGTWRLGSSVVFIRHQ  
ELITTLTYIGFLGLIFSSYFVYLAEKDVGPDGKTDSSYADALWGWITVTTIGYGDTPVQPTWMMGKIVAS  
CFSVFAISFFALPAGILGSGFALKVQKQKQKQKHFNRQIPAAAMLIQCLWRCYAADKAINSVATWNIYIKD  
PAPAGQPSTPLGKLICVVKMSLMIQVAKKASVLKRRKSRNRMDVQQQQQSLPPVTISGGMSSGGATGDQ  
NDNQRMENEGDVIFYMEEPAGTPNRARRDNRGSLFSTSQTSSVTEATSDEIDIDIEEPQRVTTLTEAHRN  
AIRAIRKIKYFVARRKFQARKPYDVRDVEIQYSQGHLMNMVRIKELQRRLDQTLGKPGSYLAGIDRAGN  
VKPMTIGARLYRVEQQLSVMDKKLDQLVYVNLNAVAQKQIPLRSIEDDV

>Hydra magnipapillata (XP\_012559369)

MKHQCEIELNNKEKMSFLNRNTLQKSKTIHKTRMSVVFYFLEKQPOTIFALLYHKVMFVLVLSLSLILIT  
IESFARNTKIHSAYIYIEVSLAIVFTAIEYSLRVWSCSIQSKYAGVSGRLRFIKRPVILDMIVILATIFI  
IYSHKIIRDLLHTTLFQFLNLFQILRILRLDRQQGAFKIMSLVVYEHRQELMTCWYLSFILLAACSFLVY  
IAEKNDISIVSSNKIKNLGEGIYFGMITLLTIGYDGFSPNSWIAKIIVVVFAFIGTAFALPAGILGSGFA  
LKVAQNQKKKHFNRRRVPAALIIQYVWRNYSTQVNPSSNTWTNYRMIIEKEKHQTLSMNNTPIILSKQNNNSN  
KNVVGLHKKNQVDRKPFKETTCAIIPSAVNFNRNRPNSDGNLIVMFPTNIEHQGTIVSLPASTDVDLKEF  
LKSRIINVENQRSCTRQLNRIEKIIVRFLIKIKIKVALRKFKVVCPRPYDIKDVEIQYTSQGIEMFGFIRKE  
QSRIENALGIQDGRMLIPSLDVRMDIFEKKIDTSLVSKLDNMELLNSNSQLT

>Trichoplax adhaerens (XP\_002117304)

ERVAINVSGLRFETYESTLIKHPNTLLGNRRARRDRYYDYERKEYFFDRHRQSFEAILYYYQSEGLNRPS  
TVPWDIFYEELCFQIEPEVLSHLRKEVEGMEEDPAPLLPQNKIKRRIWLLFEYDPTSMMAKCVAFFSMAI  
ILLSVAVFCLETVDFGNVFNKSNVTVEQNRTATRNDALYNVETMCVVWFTFELIRFLACPSKWKV  
ISPMNIIDFLAIMPYYITLIMRTNGNPNVTVEALRVLRLARVLRIFKLSRHSSGLQTLGKTFKSSMNEL  
FMLGCILVICVILFSSVYFFFEYERNKKEFQSI PHAFWWAVITMTTVGYGDISPRTGLGQIIGSLCAVTG  
VLCIALPVPIIVSNFTYYY

>Amphimedon queenslandica (XP\_011404311)

MADRVEHRISQQHSLPNSPLLKRKRKIRRRSRPEVYDQSAVPASPSTLSLSCSSSDSECESNREEEEDP  
LPDKDQSVTVKQALEGLFYNKAVQLVHHDCILYVAEAIYIDRLLKSADEEEFILGCFNQTWVNITEPS  
YLNLLIIPKDYTLWSLQLFLALICLIGAFVIYVHQEPYGSVPVLRHVFRYMTHSIVICVLIIGLAFFVTL  
LMPQCLHILWIPTFLFCWPARHNFMYIVQKSEVSFFRSFHGFRTTAISLATFLLCFMFSCCLIIHFFER  
LGKKISLFDTYFVVVTFSTVGYGDISPAHWTKVITITIFIIAALMYLPPKVDKLWRSFTLHRKHXYQYN  
KANITKHVVLAADVLDKPLVLRDFLSELYSDPGQMDTQVVVLIKEEPADYIKAILLHPIWSQRVAILRGT  
LRPSDLARVKLRADACFLHSSRTGRAADADQHTMSAWTVKNYAPKTRLFVHVVRQPESKFQLNIADVI  
CDGELTSAVLALNSVCPGLLTLALLVHTFTTYEGRRFNIPEYKRYEECSPEVIYHVKLGESRYFHRFAGK  
NFLFTSVVAYRKFHVLLGICPSGGTDILFNPGINHIMDRNDECYIISDTHEHNSDHQIIPASTFQSSSL  
RTSATLGLLLAMYISGIDPDQMFHQTEYEERDSDNKGGFPRASANDRLKLLSSPDSIPEIQVEGVASGLS  
LTHEVGLPSIGEEEEVLDEQLAVEVTNWQHDVQHGLQLLKYHGEGELPERKPCVKLSVKSHEGHHSPRS  
HSLPVAATTCTVMEPHPLAHLPLSLGVIPEDEPDVIVIGEEEPHLLSHLQRVGDKQQHSSGGGGGKHRVH  
SQPALFHFGFNKRQSESKHDDHLLKAKKHSCLKLHDNTSMKSYVSSNASVKSMSNHSIDDVVSLEVEDLS  
DIEELEDLEEGRHETE GGFISEAETESIDVPPIPYCGCEPLKCHLMKNARTYEDIIDRSFIGEDITRQ  
WYHHAIVYSDVVS DGLFHFITPLRAAYLPPSSLPKIVFLLGNMPEHFISTISQLPMIYFMVGSISSTS  
DLLRAGIMVAESLVVFSNKMQRQSDGEHLADAETHITAIEKIARLFPHVKISCDIKYRFNIRFIRTPFE  
DLCMQRLRHMARVDHLYLFLPQFASSKAFSSMLDITLLYQSYQKPYIIKLFRLQGLGCTQVKGSGFLWK  
VPVNNELAKLHTYVRVQRLVASFSFTSMALYRTANVDHNI DPQYVVKGYCEEELEKLRFLISELHSLGI  
KRNVPELKRSTQQLYVNPDPDFVIEGDIILGIRPPLSNKPPPPSDDVKTEPFPSPASQI SELVRAY  
SASAFYGGGSP IPTAMPLGPGGVVLQDTRLHFGLMRKFSFTGSLPQQHQNTGSCSADSCDM

## **Regulator of G-protein Signalling-RGS**

>Homo sapiens\_RGS13 (ENSP\_442837)

MSRRNCWICKMCRDESKRPPSNLTLEEVLQWAQSFENLMATKYGPVVYAAAYLKMEHSDEN  
IQFWMACETYKKIASRWSRISRAKKLYKIYIQPQS PREINIDSSTRETIIRNIQEPTETC  
FEEAQKIVYMHMERDSYPRFLKSEMYQKLLKTMQSNNSF

>Macaca mulatta\_RGS13 (ENSMMP\_2239)

MSRRNCWICKVFRDESKRPPSNLTLEEVLQWAQSFENLMATKYGPVVYAAAYLKMEHSDEN  
IQFWMACETYKKIASRWSRISRAKKLYRIYIQPQS PREINIDNSTRQTIKNIQEPTETC  
FEEAQKIVYMHMERDSYPRFLKSEMYQKLLKTMQSNNSF

>Mus musculus\_RGS13(ENSMUSP\_107572)  
MSRHICWICKLCRDESKRLPSNLTLDVFLKWAQSLESIMATKYGPVIVYTAYLKLEHSDEN  
IKFWMACETYKKIASRRGRISRAKKLYNIYIQQSPREINIDSTTREATI IKSIREPTQTC  
FEEAQKIVYMHMEMDSYPRFLKSEMYQQLLKTQSQSS

>Rattus norvegicus\_RGS13(ENSRNOP\_5163)  
MSRHICWICKLCRHESKRLPSNLTLDVFLKWAQSLESIMATKYGPVVYTAYLKLEHSDEN  
IKFWMACETYKKIASRRGRISRAKKLYNLYIQQSPREINIDSTTREATI IKSIREPTQTC  
FEEAQKIVYMHMEMDSYPRFLKSEMYQQLLKTQSKSC

>Homo sapiens\_RGS8(ENSP\_258302)  
MWNTLTRSLSDHPVKGKDPQAMRTGQRQNGMRTRLGCLSHKSDSCSDFTAILPDKPNRAL  
KRLSTEEATRWDSDFDVLLSHKYGVAAFRFLKTEFSEENLEFWLACEEFKKTRSTAKLV  
SKAHRI FEEFVDVQAPREVNIDFQTREATRKNLQEPSLTCFDQAQGVHSLMEKDSYPRF  
LRSKMYLDLLSQSQRRLS

>Callithrix jacchus\_RGS8(ENSCJAP\_8703)  
MWSALTRSLSDHPVKGKDPQAMRTGQRQNGMRTRLGCLSHKSDSCSDFTAILPDKPNRAL  
KRLSTEEATRWDSDFDVLLSHKYGVAAFRFLKTEFSEENLEFWLACEEFKKTRSTAKLV  
SKAHRI FEEFVDVQAPREVNIDFQTREATRKNMQEPSLTCFDQAQGVHSLMEKDSYPRF  
LRSKMYLDLLSQSQRRLS

>Mus musculus\_RGS8(ENSMUSP\_107445)  
MRTSQRQNGMRTRLGCLSHKSDSCSDFTAILPDKPNRALKRLSTEEATRWAESFDVLLS  
HKYGVAAFRFLKTEFSEENLEFWLACEEFKKTRSTAKLVTKAHRI FEEFVDVQAPREVN  
IDFQTREATRKNMQEPSLTCFDQAQGVHSLMEKDSYPRFLRSKMYLDLLSQSQRRLS

>Gallus gallus\_RGS8(ENSGALP\_42229)  
MAALLIPRRNRGMRTRLGCLSHKSDSYNDFTAILPDKPNRALKRLSTEEATRWDSDFDVL  
LSHKYGLAAFRFLKTEFSEENLEFWLACEDFKKTRSTAKLAQAQRI FEEFIDVQAPRE  
VNIDFQTRELTRRNMQEPSLSCFDQAQGVHSLMEKDSYPRFLRSKIYTDLLSQTQRRLS

>Anolis carolinensis\_RGS8(ENSACAP\_4874)  
MKEDAPRCSDQSLCDHTLGKELQSTRTGQRQNGMRTRLGCLSHKSDSCSDFTAILPDKP  
NRALKRLSTEEATRWDSDFDVLLSHKYGVAAFRFLKTEFSEENLEFWLACEEFKKTRST  
AKLASKAQRIFEEFVDVQAPREVNIDFQTREVTTRNIQEPSSSCFDQAQGKIHSLMEKDS  
YPRFLRSKIYTDLLSQTQRRLS

>Danio rerio\_RGS8(ENSDARP\_93238)  
MKTRLGCLSNKSDSCSDFSEFLPPAQERTTRYLKLSDNDEVTRWDSDFDILLSNKYGLAAF  
RTFLKTEFSDENIEFWLACEDYKIKSPAKMMSKANKIYKEFIDVHAPREVNIDHRTREE  
TKNRLLEPTPHSLNEVQAKVYSLMEKDSYPRFIRSKIYQDLLNRTQIYCQRKSV

>Takifugu rubripes\_RGS8(ENSTRUP\_11344)  
SCIVWMPERTPTMKTRLGCLSKKSDSYSDFSEFLPPAHDTTARWLNRLSTDEVVRWSESF  
DHLLSHKHGLAAFRFTFLKSEFSDENIEFWMAC EEYKTKSSTKLVS KANKIYQEFLDIQA  
PREVNIDHRTREKTKQSLSDPSPTSLNEVQAKVYSLMERDSYPRFLRSKMYQDLVSRRAH  
RGQ

>Tetraodon nigroviridis\_RGS8(ENSTNIP\_11066)  
MHSLYDPKQDPTMKTRLGCLSKKSDSYSDFSEFLPPAHETTARCLNRLSTDEVVRWSESF  
EHLLSHKHGLAAFRFTFLKSEFSDENIEFWMAC EEYKTKSSTKLVS KANKIYKEFIDTQA  
PREVNIDHRTREKTKQSLSDPSPTSLNEVQAKIYSLMERDSYPRFLRSKMYQDMVSRRAH  
QQQRSSV

>Gasterosteus aculeatus\_RGS8(ENSGACP\_7635)  
MKTRLGCLSNKSDSYSDFSEFLPPAHETTARCLKVSTDEVVRWSESF DHLLSHKYGLAAF  
RTFLKSEFSDENIEFWMAC EEYKTKSSTKLVS KANKIYQEFIDVQAPREVNIDYRTREK  
TKQSLSDPSPTSLNEVQGVYGLMEKDSYPRFLRSKMYQDMVNRANAHQRRSV

>Oryzias latipes\_RGS8(ENSORLP\_15410)

LAALLQFGRSLSTMKTRLGCLSKKSDSYDFSEFLPPAHETTARCLNTSHAVTSEQLKQTF  
RLSTDEVVRWSDSFEHLLSHKYGLAAFRTFLKSEFSDENIEFWMACEEYKKIKSSTKLLS  
KANKIFKEFIEVQSPREVNIDYRTREKTKQSLADPTPTSLNEVQGKIYSLMEKDSYPRFL  
RSKMYQDMINRAHAQGQRRSV

>Homo sapiens\_RGS1 (ENSP\_356429)  
MRAAAIISTPKLDKMPGMFFSANPKELKGTTHSLDDKMQRPRPKTFGMDMKAYLRSMIPH  
LESGMKSSKSDVLSAAEVMQWSQSLEKLLANQTGQNVFGSFLKSEFSEENIEFWLACED  
YKKTESDLLPCKAEIYKAFVHSDAAKQINIDFRTRRESTAKKIKAPTPTCFDEAQKVIYT  
LMEKDSYPRFLKSDIYLNLLNDLQANSLK

>Mus musculus\_RGS1 (ENSMUSP\_140624)  
MRAAAIISTPRLNKMPGMFFSASPDKSKEHSHSLDDKKQKRRPKTFGMDVKTYLRSMIPH  
LESGMKSASKDILSAAEVMQWSQSLEKLLANQTGQNVFGRFLKSEFSEENIEFWLACED  
YKKTETDLLHNKAENIYKAFVHSDAVKQINIDFHTRESTAKKIKTPTPTSFDEAQKVIYS  
LMEKDSYPRFLKSNIYLNLLNDLQANTLK

>Monodelphis domestica\_RGS1 (ENSMODP\_15110)  
MRAAAIISTPRLNKMPGIFSSANTNELKGSDDLDDKTQKKPKAFGTDLKAYLKSMLP  
HLESGIKSSKSDILSVTEVIQWSQSLEKLLTNQTGLAVFGNFKSEFSEENIEFWLACE  
DYKRTESDHLHCKAEKIYKAFVQSDATKQINIDFHTRESTAKKIQVPTPTSFDEAQKVIY  
TLMERDSYPRFLKSEVYLKLLSELQGNLSK

>Xenopus tropicalis\_RGS1 (ENSXETP\_12507)  
AADINVNALYKMPGIFSSHANALKEVDNKPDEVMQKKKNFAVDLKNYLKSMPLPHLETMK  
SSSSTSSSDSEKNKLTPEI IQWTMSLEKLLI SEDGQSVFREFLKSEFSEENIEFWLACE  
DYKATNDSEELRCKANVIYQEFIQPNANKQINIDFSTRNSVTKDLLEPTITTFNDAQMI  
FILMERDSYPRFLKSEIFLRLAERHHGNNVRG

>Homo sapiens\_RGS18 (ENSP\_356430)  
METTLLFFSQINMCESKEKTFKLIHGSGKEETSKEAKIRAKEKRNRLSLLVQKPEFHED  
TRSSRSGLHAKETRVSPPEEAVKWGESFDKLLSHRDGLEAFTRFLKTEFSEENIEFWIACE  
DFKKSQKGPQQIHLKAKAIYEKFIQTDAPKEVNLD FHTKEVITNSITQPTLHSFDAAQSRV  
YQLMEQDSYTRFLKSDIYLDLMEGRPQRPTNLRSSRSFTCNFQDVQSDVAIWL

>Mus musculus\_RGS18 (ENSMUSP\_27603)  
MDMSLVFFSQINMCESKEKTFKLMHSGKEETSIEAKIRAKEKRNRLSLLLQRPDFHGE  
TQASRSALLAKETRVSPPEEAVKWAESFDKLLSHRDGVDAFTRFLKTEFSEENIEFWVACE  
DFKKCKEPQQIILKAKAIYEKFIQNDAPKEVNIDFHTKEVIAKSI AQPTLHSFDTAQSRV  
YQLMEHDSYKRFKSETYLHLIEGRPQRPTNLRSSRSFTYNDVQDVKSDVAIWL

>Gallus gallus\_RGS18 (ENSGALP\_3996)  
MENPLLLFPQLNISASKDKSYKVMKPTVKEEPNKASKPGAKQKRNRLSLLLQKSELHEA  
EHLGKPTNLTKAPSVSPPEEAMKWGESFDKLLSQKGLDAFTRFLKTEFSEENIEFWIACE  
DYKKSKTTELFPKAKTIYEMFIRKDAPKEVNLD FKTKEVTSQNI EQPVIITTFDAAQNTV  
YRLMEQDSYPRFLRSDLYLNLVKGRNPGRPPTLRRSSRSFTVNDVQGVPRPDTIWIQ

>Anolis carolinensis\_RGS18 (ENSACAP\_17931)  
PDVIKKWGESFYNLISQKAGVDTFTQFLRSEFSEENIEFWMACEDYKKCKDASQLSLKAQ  
AIYETFIEKEAPKEVNLD FNTKVCTSENMSHPTLNTFDAAQNKIYALMEQDSYPRFLKSD  
LYLDMVHGQPRGHSALRRSSRSFTFNEFKDVQPDFAIWM

>Danio rerio\_RGS18 (ENSDARP\_52418)  
MRSEDEQLACRMKETHLRSDKDKGRLSLLLARSQSHENVSPDKKPQAKSNHIPPVAMKW  
SDSFEDLLSHSDGVEVTRFLRTEFSEENIEFWLACEDFKTTESSTKLQTKAKQIHAIFI  
DKEAPKEINIDHSTKAAIEKNILQPTNSCFDAAQHKIYGLMKRDCYPRFLASDIYLTLTAK  
RSGPPTMTRRRSSRSFVNERPEGTAAWL

>Takifugu rubripes\_RGS18 (ENSTRUP\_25011)  
METLLLLFPQFSFTAQKEEVYFRMLGPGATQAAMKEDSSSHGRQKDKERTSRLSLFLAK  
SGSHENVSPHKTNTSTANNVSPPELALRWSDSFEELLSHSDGVEVFSQFLRKEFSKENIEF

WLACEEFKTIIDSRTKMLSKAKYIYTVFCETDSPKEINIDYNTRMAIQRSMAPTKGCFEA  
AQQQVYNLMKKDSYPRFLSDTYLNLTRRRGPGATMFRRRSRSCVFNERGEAAAEP  
SAW

>Tetraodon nigroviridis\_RGS18(ENSTNIP\_9731)  
METLLLLFPQFSYTTQKQEAYCRMLAPGASRALMKEDSSGQKDKERKSRLSLFLTKSGS  
HENVSPHKKNAPANNVSPESALQWSDSFEELLSHSDGVEVFSQFLRKEFSEENIEFWLA  
CEEYKTIDSETKLLSKAKYIYTVFCEPDSPEINIDYNTRMAIQRGVAKPTKGCFEAAQL  
QVYNLMKKDSYPRFLSDTYLRLTGRRGPRANMFRRRSRSCVFDERGEAAAERSAW

>Gasterosteus aculeatus\_RGS18(ENSGACP\_21268)  
MKDSSRQKDKERKSRLSLFLTKSGSHENVSPTKKNTTTNISPETALQWSDSFEELLKH  
SDGVESFSQFLRTEFSEENIEFWLACEEYKTIDSDTKLLSKAKCIYTVYIDSDAPKEINI  
DYNTKAAIQKVIKPTKSCFEAAQLIVYSLMKKDSYPRFLHSDIYLRLTRRKGP  
GTMNMFRRSRSCVFNDRGEATTEPSAW

>Oryzias latipes\_RGS18(ENSORLP\_13691)  
METLLFLFPQFTYMAPKEEAYFKMLGAEDAQAAMKDDSSRQNEKERKSRLSLFLTKSGS  
HENISPQKKTNTTSLNISPETALQWSDSFEDLLKHPDGVEAFTQFLRTEFSEENIEFWLV  
CEEYKSIDSKSKLLSKAKYIYTVFIESEAPKEVNIDYNTKMAIKANMSHPTRSTFEAAQM  
KVYSLMKKDCYPRFLHCDIYLRLTRRKGPATMFRRRSRSCVFNERGEPTQPSAW

>Homo sapiens\_RGS16(ENSP\_356529)  
MCRTLAAFPPTCLERAKEFKTRLGIFLHKSELGCDTGSTGKFEWGSKHENRNFSE  
DVLGWRESFDLLLSSKNGVAAFHAFKTEFSEENLEFWLACEEFKKIRSATKLASRAHQIFEE  
FICSEAPKEVNIDHETHELTRMNLQTATATCFDAAQKTRTLMEKDSYPRFLKSPAYRDL  
AAQASAASATLSSCSLDEPSHT

>Pan troglodytes\_RGS16(ENSPTRP\_2932)  
MCRTLAAFPPTCLERAKEFKTRLGIFLHKSELGCDTGSTGKFEWGSKHENRNFSE  
DVLGWRESFDLLLSSKNGVAAFHAFKTEFSEENLEFWLACEEFKKIRSATKLASRAHQIFEE  
FICSEAPKEVNIDHETRELTRMNLQTATATCFDAAQKTRTLMEKDSYPRFLKSPAYRDL  
AAQASAASATLSSCSLAEPSHT

>Mus musculus\_RGS16(ENSMUSP\_27748)  
MCRTLATFPNTCLERAKEFKTRLGIFLHKSELSSDTGGISKFEWASKHNKERSFSE  
DVLGWRESFDLLLSSKNGVAAFHAFKTEFSEENLEFWLACEEFKKIRSATKLASRAHHIFDEY  
IRSEAPKEVNIDHETRELTKTNLQAATTSCFDVAQKTRTLMEKDSYPRFLKSPAYRDLA  
AQASATSTSAPSGSPAEP  
SHT

>Canis familiaris\_RGS16(ENSCAFP\_41741)  
MCRTLAAFPPTCLERAKEFKTRLGIFLHKSELGSDTGNVSKFEWSSKHSDGRNFSE  
DVLGWKESFDLLSSKNGVAAFHAFKTEFSEENLEFWLACEEFKKLRSAAKLASRAHKIFEE  
FIRSEAPKEVNIDHETRELTEKNLQAATATCFDVAQKIRTLMEKDSYPRFLKSPAYRDL  
AAQASAASASQSGCSPAEPLHT

>Myotis lucifugus\_RGS16(ENSM LUP\_10119)  
MCRTLAFPTTCLERAKEFKTRLGIFLHKSDLSSDTGNAGKSEWNNKHSKERRNFSE  
DVLGWRESFDLLLSSKNGVAAFHAFKTEFSQENLEFWLACEEFKKIRSASKLASRAHRI  
FEEFICSEAPKEVNIDHETRELTRTNLQAATATCFDVAQKTRTLMEKDSYPRFLKSPAYQDL  
AAQASATNASPSSGSSAEP  
SHT

>Monodelphis domestica\_RGS16(ENSMODP\_8487)  
MCRTLAFPTTCLERAKEFKTRLGIFLHKSELGTESGNVSKFERGNKHSKEKLVPE  
DVLWKESFNQLSSQNGVAAFRAFLKTEFSEENLEFWLACEEFKKIQSAAKLATRAHRI  
FEEFICSDAPKEVNIDHETRELTRKNLQEATTTCFDEAQKTHTLMEKDSYPRFLKSAAYRDLV  
EQALAAASPSQSVRHVGECSHT

>Gallus gallus\_RGS16(ENSGALP\_51958)  
MSCWMPRCPALSMCRGLAALPIACLERAKELKTRLGILLHKPELRHGIGAAGKLQ  
LGSRRDSSREVLEWRESFDQLLSSKNGVTAFTFLKTEFSEENLDFWLACEDFKKTRSKTKLAS  
KANRIFEEFVQSEAPREVNIDHETREITRKNLTGATSACFNEAQAKTRTLMEKDSYPRFL

KSASYQDMTKQATSRSINKRLHT

>*Anolis carolinensis*\_RGS16(ENSACAP\_4866)

MCRGLAALPASCLERAKEFKSRLGILLHKPEFGCKFGNMGKATKHRYSLLEEVLGWKDSFE  
NLLRSKNGVAAFHEFLKTEFSEENLEFWLACEEYKRTRSKGKLSAKANRIFEDFVQSEAP  
REVNLDHETREATRRNVIAATSDCFEEAQVKHTHTLMEKDSYPRFLKSAYYRDLTEQAMSH  
KMSKPVHT

>*Homo sapiens*\_RGS21(ENSP\_428343)

MPVKCCFYRSPTAETMTWSENMDTLLANQAGLDAFRIFLKSEFSEENVEFWLACEDFKKT  
KNADKIASKAKMIYSEFIEADAPKEINIDFGTRDLISKNIAEPTLKCDFDEAQKLIYCLMA  
KDSFPRFLKSEIYKKLVNSQQVPHKKWLPFL

>*Pongo abelii*\_RGS21(ENSPPYP\_457)

MPVKCCFYRSPTAETMTWSENMDTLLANQAGLDAFRIFLKSEFSEENVEFWLACEDFKKT  
KNAEKIASKAKMIYSEFIEADAPKEINIDFSTRDLISKNIAEPTLKCDFDEAQKLIYCLMA  
KDSFPRFLKSEIYKKLVNSQQVPHKKWLPFL

>*Bos taurus*\_RGS21(ENSBTAP\_50085)

MVKGRCCFHRSPTTETVAWSENMDTLLTNQAGLDAFRIFLKSEFSEENVEFWLACEDFKK  
TESAEKIASKAKMIYSEFIEADAPKEINIDFSTRDLISKNIAEPTLKCDFDEAQKLIYSLM  
ANDSFPRFLKSEIYKKLVNSKEIGSHKKWLPFL

>*Monodelphis domestica*\_RGS21(ENSMODP\_40198)

MPVKSTPTNAMAWSESMDTLLANQAGLDAFRIFLKSEFSEENVEFWLACEDYKKTESA  
IASKAMMIYSEFIQADAPKEINIDFSTRDLISRNI SQPTLKCDFDEAQRILIYSLMAKDSFP  
RFLKSEAYKKLVNSQQDGNHKKWLPFL

>*Homo sapiens*\_RGS4(ENSP\_397181)

MYNMLLIQKRKIGSOLLRAGEAEGDRGAGTAERSSDWLDGRSWAIKETPTGLAGRRE  
DSDNIFTGEEAKYAQSRSHSSCRISFLLANSKLLNMCKGLAGLPASCLRSKDMKHL  
GFLQKSDSCEHNSHKKDKVVICQRVSQEEVKKWAESLENLISHECGLAAFKAFKSE  
YSEENIDFWISCEEYKIKSPSKLSPKAKKIYNEFISVQATKEVNLDSCTREETSRNMLE  
PTITCFDEAQKIFNLMEKDSYRRFLKSRFYLDLVPSSCGAEKQKGAKSSADCASLVPQ  
CA

>*Canis familiaris*\_RGS4(ENSCAFP\_40445)

MCKGLAGLPASCLRSKDMKHLGFLQKSDSCEHNSHKKDRVVVCQRVSQEEVKKWA  
ESLENLISHECGLAAFKAFKSEYSEENIDFWISCEEYKIKSPSKLSPKAKKIYNEFIS  
VQATKEVNLDSCTREETSRNMLEPTITCFDEAQKIFNLMEKDSYRRFLKSRFYLDLANS  
SIAGSEKQKGAKSSADCPSPVQYA

>*Felis catus*\_RGS4(ENSFCAP\_19941)

MCKGLAGLPASCLRSKDMKHLGFLQKSDSCEHNSHKKDKVVVCQRVSQEEVKKWA  
ESLENLISHECGLAAFKAFKSEYSEENIDFWISCEEYKIKSPSKLSPKAKKIYNEFIS  
VQATKEVNLDSCTREETSRNMLEPTITCFDEAQKIFNLMEKDSYRRFLKSRFYLDLADS  
SSAGSEKQKGAKSPADCPSPVQYA

>*Gallus gallus*\_RGS4(ENSGALP\_4041)

MCKGLAALPATCLKSAKDMKHLGVLLQKSESCDYGSSQGKKEKVSQSVQEEVKKWA  
ESLENLIHHRGLAAFRFLKSEYSEENIEFWVSCEDYKKTSPAKLSTKARKIYDEFIS  
VQATKEVNLDSCTREKTSNMLEPTLSCFDEAQKIFTLMEKDSYRRFLKSPYYLDLVP  
PRAGCGPENCKRAHAHALDCNSNIISQCA

>*Xenopus tropicalis*\_RGS4(ENSXETP\_22973)

MCKGLAGVTAFPATCLKSAKDIKHLGFLQKADGCEHSPCVKKDKPGSQRRLRQDEVKKW  
AESLENLINNECGLAAFRFLQSEYSEENIDFWLACENYKVKTPKLLKKAQKIYEDFI  
SVEATREVNLDSATREETSNNIIQPTHSTFDEAQHRIFILMEKDSYRRFLKSKFYLDLVL  
SSSGASTKKMKVLTDSNPFIPQCA

>*Danio rerio*\_RGS4(ENSDARP\_93260)



MCKGLAALPATCLKSADIKHKIGFLLQKPDPPQEQLKEKEKEKDKKVKDVTVVNRIT  
PAETEKWKTSFTNLKNDGRKAFASFLQSEYSQENIEFWVACEDFKQTPADKMNLKARN  
IFERYIEADSPREVNLDVSTREQTRKNLEMCDVSCFDEAQSKIIFTLMEKDSYRRFLRSRL  
FLELSQPAMDNKPCGLEKKVKRQISDYSQCLPSYA

>Takifugu rubripes\_RGS4 (ENSTRUP\_13149)  
MCKGLATLPATCLKSADIKHKISFLLQKHFAQCNNNSNKSTQRKIRLCFRVPAADDEVKK  
WNLSFSHVMNSEMGRQVFASFRLSEFSEENMDFWVACEEYRKMAPSDLAARAQQIYQLYI  
ESDAPKEVNLDVAVTREETRQNVDAQHPSCFDEAQKMIYILMEKDSYRRFLHSTLVQDL

>Homo sapiens\_RGS2 (ENSP\_235382)  
MQSAMFLAVQHDCRPMDKSAGSGHKSEEKREKMKRLLKDWKTRLSYFLQNSSTPGKPKT  
GKKSQQAQAFIKPSPEEAQLWSEAFDELLASKYGLAAFRFLKSEFCEENIEFWLACEDFK  
KTKSPQKLSSKARKIYTDIEKEAPKEINIDFQTKTLIAQNIQEATSGCFTTAQKRIVYSL  
MENNYSYPRFLESEFYQDLCKKPQITTEPHAT

>Gorilla gorilla\_RGS2 (ENSGGOP\_2712)  
NSRGSSTRTIMQSAMFLAVQHDCRPMDKSAGSGHKSEEKREKMKRLLKDWKTRLSYFLQ  
NSSTPGKPKTGKKSQQAQAFIKPSPEEAQLWSEAFDELLASKYGLAAFRFLKSEFCEENI  
EFWLACEDFKKTKSPQKLSSKARKIYTDIEKEAPKEINIDFQTKTLIAQNIQEATSGCF  
TTAQKRIVYSLMENNYSYPRFLESEFYQDLCKKPQITTEPHAT

>Equus caballus\_RGS2 (ENSECAP\_9948)  
MQSAMFLAVQHDCGPMDKSAGSGPKSEEKREKMKRLLKDWKTRLSYFLQNSSSPGKPKT  
GKKSQQAQAFIKPSPEEAELWSEAFDELLASKYGLAAFRFLKSEFCEENIEFWLACEDFK  
KTKSPQKLSSKARKIYTDIEKEAPKEINIDFQTKTLIAQNIQEVTSGCFTTAQKRIVYSL  
MENNYSYPRFLESEFYQDLCKKPQITTEPHAT

>Pteropus vampyrus\_RGS2 (ENSPVAP\_1109)  
MQSAMFLAVQHDCGSMDSGSGPKSEEKREKMKRLLKDWKTRLSYFLQHSSSPGKPKT  
GKKSQQTTFIKPSPEEAQLWSEAFDELLASKYGLAAFRFLKSEFCEENIEFWLACEDFK  
KTKSPQKLSSKAKKIYTDIEKEAPKEINIDFQTKTLIAQNIQEATSGCFTTAQKRIVYSL  
MENNYSYPRFLESEFYQDLCKKPQITSEPHAT

>Taeniopygia guttata\_RGS2 (ENSTGUP\_17249)  
ARPGCRARMERGGRRRSEPEEADKGRMKRTIIKDWKTRLSYFLQNSSHPNKRKSKKAGKR  
HSYFRPSAEVQLWSEAFDELLASKYGLAAFRFLKSEFCEENIEFWLACEDFKKTKSPQ  
KLTSKAKKIYNDIEKEAPKEINIDFQTKNMIAQNIQEATHTCFSVAQKRIVYSLMENNYSY  
PRFLESEFYQELCKKMPINRAAQGT

>Xenopus tropicalis\_RGS2 (ENSXETP\_12515)  
SSGTNTNPLRDIMQSAMFLAIQHNCQOVERSSPGGCQKNEEKRGKMKKTIKDWKTRLSY  
FLQNSQNTSNGSLNMGQNKRGKKNAYCRPTPEEAKSWSETFDLLASKYGVAAFRFLKS  
EFSEENIEFWLACEDFKKTKSPHKLTAKAKKIYDEFIEKEAPKEINIDFQTRINIMQTMQ  
EPHSHCFSAQRVYSLMVNNSYPRFIQSEFYQELCQVPVQMPSEPQAT

>Takifugu rubripes\_RGS2 (ENSTRUP\_8753)  
KDWRNRLGFFLKLNSHSMFHLMKNRSYSSVLRPSVDDVNQWAQSLDTLLSNKYGKTAFC  
VFLKSEFSEENIEFWTACEEFRAHTSQENLLSRASSIYEEFVKNEAPKEINLDFHTKNAI  
MQSLHEPHANIFMAAQRKIVYSLMENNAYPRFIHSDLYRELC

>Tetraodon nigroviridis\_RGS2 (ENSTNIP\_15305)  
LINLSYFRRKDWRNRLGFFSKLNSHSMFHLKRNRYRPTVDDVNQWAQSLDTLLSNKYG  
KTAFCIFLKSEFSEENIEFWTACEDFRLHTSQEELLSRANSIYEEFVKSEAPKEINLDFHT  
TKNAIVQNLHQPNASIFLAAQRKIVYSLMENNYSYPRFIHSDLYRELC SAARRESRHPKP

>Gasterosteus aculeatus\_RGS2 (ENSGACP\_7723)  
LSQKSQVQRKNWRNRIGFLLKTHTSKSLHLKRSYRPTADDVQQAQSFDKLLGHEYGK  
RVFWAFLKTEFCEENIEFWTACEDFRNVTSSKALASKANSIYEEFISSEAPKEINLDFHT  
KNTIVQNLREPTVTSFLAAEKVYSLMENDSYPRFINSKLYKEMCAAARGE

>Homo sapiens\_RGS20 (ENSP\_297313)  
MPQLSQDNQECLQKHFSRPSIWTQFLPLFRAQRYNTDIHQITENEGDLRAVPDIKSFPPA  
QLPDSAPAAPKLFGLLSSPLSSLARFFSHLLRRPPPEAPRRRLDFSPLLPALPAARLSRGH  
EELPGRLSLLLGAALALPGRPSGGRPLRPPHPVAKPREEDATAGQSSPMPQMGSERMEMR  
KRQMPAAQDTPGAAPGQPGAGSRGSNACCFWCCCCSCSCLTVRNQEDQRPTIASHELRA  
DLPTWEESPAPTLEEVDNAWAQSFDKLMVTPAGRNAFREFLRTEFSEENMLFWMACEELKK  
EANKNIIEEKARIYEDYISILSPKEVSLDSRVREVINRNMVEPSQHIFDDAQLQIYITLM  
HRDSYPRFMNSAVYKDLLQSLSEKSIEA

>Macaca mulatta\_RGS20 (ENSMMUP\_20223)  
FPPAQLPYSPAAPKLLGLLYSPLSSLTRFFSHLLRRPPPEAPRRRPNFSPLLPALPAARL  
SRGHEELPGRLSLLLGAALALPGRPSGGRPLRPARPVGKPREEDATAGQSSPMPMGSER  
MEMRKRQMPLAQDAPGAAPGQPGAGSRGSNACCFWCCCCSCSCLTVRNQEDQRPTIASHELRA  
PMLLFWSPRSPAPTLEEVDNAWAQSFDKLMVTPAGRNAFREFLRTEFSEENMLFWMACEE  
LKKEANKNIIEEKARIYEDYISILSPKEVSLDSRVREVINRNMVEPSQHIFDDAQLQIY  
ITLMHRDSYPRFMNSAVYKDLLQSLSEKSIEA

>Xenopus tropicalis\_RGS20 (ENSXETP\_61981)  
MGSERMEMRKRQMSVHQEAVSATQAQQGVGNRGSNACCFWCCCCSCSCLTVRNQDDERT  
RRSSNEIRGHGIPNWEESPSPTLEDVYSWGQSFDKLMTTPAGRNAFREFLRTEFSEENML  
FWMACEELKKEASKNVEEKARLIYEDYISILSPKEVSLDSRVREVINRNMLEPSQRTFD  
DAQLQIYITLMHRDSYPRFMNSAIYKNLLQTLSESPADS

>Danio rerio\_RGS20 (ENSDARP\_56734)  
MGSERMEMRKRQMSVQQEVSAGTTAPAQNEQPGQGNRASNACCFWCCCCSCSCLTVRNE  
DRDERNRRASYDFKADGDADFEESPKPTAEEICLWGQSFDKLMNCPGSRSAFRQFLRTEF  
SEENMLFWLACEEFRKEANKSVIEEKARIYEDYISILSPKEVSLDSRVREVINRNMLEP  
TSHTFDQAQLQIYITLMQRDSYPRFMNSPVYKNLLKTVSETQSVES

>Takifugu rubripes\_RGS20 (ENSTRUP\_29421)  
PMGSEMEMRKRQMSVQQESAAGGTAPTQQGQPGQANPRGSNACCFWCCCCSCSCRCV  
DRNEDRDRERSQAAFDVKEGTADSEDCPKPTLEEVRTWGQSFDKLMCCPAGRNSFRQFLR  
TEFSEENMLFWLACDEFREANKSAIEEKARAIYEDYISILSPKEVSLDSRVREAINRNM  
QEPNLHTFDQAQLQIYITLMQRDSYPRYMNSPVYKNLNTLSEQSPES

>Gasterosteus aculeatus\_RGS20 (ENSGACP\_22637)  
MGSERMEMRKRQMSVQQESAAGGTAPAQGGQPGQANPRGSNAYFLHVACRPCSLLIIRNE  
DRDERNRKASYDVKEETSDCEDCPKPTLEEVRTWGQSFDKLMCCPAGRNAFRQFLRTEFS  
EENMLFWLACEEFSKANKTPVEERARVIYEDYISILSPKEVSLDSRVRESINRNMQEPN  
LQTFEDAQLQIYITLMQRDSYPRYMNSAAYKNLNTLSEQSPES

>Homo sapiens\_RGS19 (ENSP\_333194)  
MPTPHEAEKQITGPEEADRPPSMSSHDTASPAAPSRNPCCLCWCCCCSCSWNQERRRAWQ  
ASRESKLQPLPSCEVCATPSPEEVQSWAQSFDKLMHSPAGRSVFRFLRTEYSEENMLFW  
LACEELKAEANQHVVDEKARLIYEDYVVSILSPKEVSLDSRVREGINKKMQEPSAHTFDQA  
QLQIYITLMHRDSYPRFLSSPTYRALLLQGPSQSSSEA

>Pan troglodytes\_RGS19 (ENSPTRP\_40391)  
NQERRRAWQASRESKLQPLPSCEVCATPSPEEVQSWAQSFDKLMHSPAGRSVFRFLRTE  
YSEENMLFWLACEELKAEANQHVVDEKARLIYEDYVVSILSPKEVSLDSRVREGINKKMQE  
PSAHTFDQAQLQIYITLMHRDSYPRFLSSPTYRALLLQGPSQSSSEA

>Oryctolagus cuniculus\_RGS19 (ENSOCUP\_22545)  
MAIGMQILPHLPLQDEREELRISPRMVLVIQKPYSTDLLLKPYSYSPLNPAPAQLRDVC  
HAEPEEVESWAQSFDKLMHIPAGRSVSRFLRTEYSEENMLFWLACEELKAVGNQHVVDE  
KVRLIYEDYVVSILSKKVSLSRVREGINRKMQEPSAHTFDGAQLQIYITLMHWDSYPRFL  
SSPTYHAHLLR

>Canis familiaris\_RGS19 (ENSCAFP\_38171)  
MPTPHEAEKQHAGPEEAGRPPSMSSHDAAPPAAPSRNPCCLCWCCCCSCSWNEERRRAWR  
ASRDNKLQPLPSCEACATPSPEEVRSWAQSFDKLMHSPAGRGVFRFLRTEYSEENMLFW

LACEELKAEANQHVVDEKARLIYEDYVSILSPKEVSLDSRVREGINKKMQEPSAHTFD  
DACLQIYITLMHRDSYPRFLSSPTYRALLLRGSSQSSHEA

>Homo sapiens\_RGS17(ENSP\_206262)  
MRKRQSQNEGTPAVSQAPGNQRPNTCCFCWCCCCSCSCLTVRNEERGENAGRPTH  
TKMESIQVLEECQNPTAEVLSWSQNFDMKAPAGRNLFRFLRTEYSEENLLFWLACED  
LKKEQNKKVIEEKARMIYEDYISILSPKEVSLDSRVREVINRNLLDPNPHMYEDA  
QLQIYITLMHRDSFPRFLNSQIYKSFVESTAGSSSES

>Gorilla gorilla\_RGS17(ENSGGOP\_17405)  
LGPEVAEMRKRQSQNEGTPAVSQAPGNQRPNTCCFCWCCCCSCSCLTVRNEERGEN  
AGRPTHTKMESIQVLEECQNPTAEVLSWSQNFDMKAPAGRNLFRFLRTEYSEENLL  
FWLACEDLKKEQNKKVIEEKARMIYEDYISILSPKEVSLDSRVREVINRNLLDPN  
PHMYEDAQLQIYITLMHRDSFPRFLNSQIYKSFVESTAGSSSES

>Mus musculus\_RGS17(ENSMUSP\_113519)  
MRKRQSQNEGTPAVSQAPGNQRPNTCCFCWCCCCSCSCLTVRNEERGDSSGRSPHT  
TKMESIQVLEECQNPTAEVLSWSQNFDMKAPAGRNLFRFLRTEYSEENLLFWLACED  
LKKEQNKKVIEEKARMIYEDYISILSPKEVSLDSRVREVINRNLLDPNPHMYEDA  
QLQIYITLMHRDSFPRFLNSQIYKAFVESTTCTSES

>Felis catus\_RGS17(ENSFCAP\_12811)  
LSSFSQLGTEAAEMRKRQSQNEGTPAVSQAPGNQRPNTCCFCWCCCCSCSCLTVRNE  
ERGENAGRPTHTKMESIQVLEESQNPTSDEVLSWSQNFDMKAPAGRNLFRFLRTEYS  
EENLLFWLACEDLKKEQNKKVIEEKARMIYEDYISILSPKEVSLDSRVREVINRN  
LLDPNPHMYEDAQLQIYITLMHRDSFPRFLNSQIYKSFVESTASSTSES

>Xenopus tropicalis\_RGS17(ENSXETP\_18378)  
FSLSVCCFLVATVDIAEMRKRQQAQNEEISTVSQAPGGNQRPNNTCCFCWCCCCSC  
SCLTVRNEERGERGAGRPTHTKMENIQVEECCQPTAEELLSWSHNFDMKMSPAGRNL  
FRFLRTEYSEENLLFWLACEDLKNEQNKKIVEDTARNIYEDYISILSPKEVSLDS  
RVREVINRNLLDPNPHMYEDAQLQIYITLMHRDSFPRFLNSQVYKSLLESTEGSI  
TES

>Danio rerio\_RGS17(ENSDARP\_107036)  
MSPQSVSGVEMRKRQGRIEGPPQAPGHPRPNTCCLCWCGCCKCLWNEDRRERSE  
RQTCTKMSIEATEELHPTLDEVIAWSRSFEMMRSPEGRDVFREFLRSEYSEENLL  
FWIACEDLKKETNPSVVEEKARIYEDYVSILSPKEVSLDSRVREGINQSLAEPSS  
TMYEAAQLQIYITLMHRDSFPRFLNSVYRDLLNSKRACLDT

>Takifugu rubripes\_RGS17(ENSTRUP\_12338)  
ILFCSLHLVLTQPWSVSGVEMRKRQAAHIEAPPQAPGQPRPNTCCLCWCGCCKCL  
WNEDRMERSERQTCTKMSIEAAEQRPSLEEVLWSRSFELMLRSLEGREVFREFLR  
SEYSEDNLLFWLACEDLKKETDSALVDEKARIYEDYVSILSPKEVSLDSRVREGI  
NQTLAEPNSLMYEEAQFQIYITLMHRDSFPRFLNSLYRDLLANRRRACLDP

>Tetraodon nigroviridis\_RGS17(ENSTNIP\_20133)  
AEMRKRQAAHIEAPPQAPGQPRPNTCCLCWCGCCKCLWFRNEDRMERSERQCTK  
MDSIEAAEQFARRPSLEEALWSRSFELMLRSLEGREVFREFLRSEYSEDNLLFWL  
ACEDLKKETDSALVDEKARIYEDYVSILSPKEVSLDSRVREGINQTLAEPNSLMY  
EEAQFQIYITLMHRDSFPRFLNSLYRDLLANRRRACLDP

>Gasterosteus aculeatus\_RGS17(ENSGACP\_13703)  
MRKRQAAHIEAPPQAPGQPRPNTCCLCWCGCCKCLWNEDRIERSERQTCTKMSI  
EAVEEQQPSLDEVLSWARSFEMMLRSLEGREVFREFLRSEYSEDNLLFWLACEEL  
KKETDPAVVEEKSRIIYEDYVSILSPKEVSLDSRVREGINQTLAEPNSLMYEEAQ  
FQIYITLMHRDSFPRFLNSVYRDLLANRRRACLDP

>Oryzias latipes\_RGS17(ENSORLP\_6183)  
VVVRYLLNSIQLGSSVSGVEMRKRQAAHIEAPPQAPGQPRPNTCCLCWCGCCKCL  
CITVCRNEERMERNERQTCTMMSIDAADHCCRPSLEELLSWARSFDMMLRSFEG  
REIFREFLRSEYSEDNLLFWLACEELKKETNPSVVEEKARIYEDYVSILSPKEV  
SLDSCVREGINQSL

AEPSNVMYEEAQLQIYTLMHRDSFPRFLNSSVYRDLLASRRRTCLDT

>Homo sapiens\_RGS3 (ENSP\_259406)

MPVIPALWEVEMGRSQQEIETILANRSHSDSTPLPNFLSGSHRPECCTCRLLTASGAQD  
SLPFGRRLYSGPWRSCCEEVCHVSVLSVLSTSCGLSLSLPIFPGWMEWLSPDIALPRRDEW  
TQTSPARKRITHAKVQAGQLRLSIDAQDRVLLLHIEGKGLISKQPGTCDPYVKISLIP  
EDSRLRHQKTQTPVPCRDPAFHEHFFFFPVQEEDDQKRLLVTVWNRASQSRQSGLIGCMSF  
GVKSLLLTPDKEISGWYLLGEHLGRTHKHLKVARRRLRPLRDPLLRMPGGGDTENGKCLKI  
TIPRGKDGFGFTICCDSPVRVQAVDSGGPAERAGLQQLDTVLQLNERPVEHWKVELAHE  
IRSCPSEIILLVWRMVPQVKPGPDGGVLRASCKSTHDLQSPPNKREKNCTHGVQARPEQ  
RHSCHLVCDSSDGLLGGWERYTEVAKRGGQHTLPALSRAATPDNYIILAPLNPGSQL  
LRPVYQEDTIPEESGSPSKGKSYTGLGKKSRLMKTVMKMGHGNYNCPVVRPHATHSSY  
GTYVTLAPKVLVFPVQPLDLCNPARTLLLSEELLLYEGRNKAAEVTLFAYS DLLLFTK  
EDEPGRCDVLRNPLYLQSVKLQEGSSEDLKFCVLYLAEKAECLFTLEAHSQEKKRVCWC  
LSENIKQQQLAASPPDSKMFETEADKREMALEEGKGPAGAESPPSKEPSPGQELPPGQ  
DLPPNKDPSGQEPAPSQEPLSSKDSATSEGSPPGPDAPPKDVPPCQEPAPPAQDLSPCQ  
DLPAGQEPPLHQDPLLTKDLPAIQESPTRDLPPCQDLPPSQVSLPAKALTEDTMSGDLL  
AATGDPPAAPRPAFVIPEVRLDSTYSQKAGAEQGCSDGDEEAEAEVEEGEEDEDE  
DTSDDNYGERSEAKRSMIETGQGAEGGLSLRVQNSLRRRTHSEGSLLQEPGRCFASDT  
TLHCSDEGGAASWTGMPSPSTLKKELGRNGGSMHLSLFFTGHRKMSGADTVGDDEASR  
KRKSNLAKPMKKNLGI FRRRNESPGAPPAGKADKMMKSFKPTSEEALKWGESLEKLLVH  
KYGLAVFQAFRLRTEFSEENLEFWLACEDFKKVKSQSKMAAKAKKIFAEYIAIQACEVNL  
DSYTREHTKDNLQSVTRGCFDLAQKRIFGLMEKDSYPRFLRSDLYLDLINQKMSPP

>Callithrix jacchus\_RGS3 (ENSCJAP\_33218)

QSGLIGCMSFGMKSLTPDKEISGWYLLGEHLGRTHKHLKVATRRLQLLRDPLLRMPGSG  
DTENGEKLIKITIIPRGKDGFGFTICCDSPVRVQAVDSGGPAERAGLQQLDTVLQLNERPVE  
HWKVELAHEIRSCHSEIILLVWRMVPQVKPGPDGGVLRASCKSSHLLSPPNKREKNC  
THGAQARPEQRHSCHLVCDSSDGLLSSGWERYTEVAKRGGQHTLPALSRAATPDNYIIL  
LAPLNPGSQLLRPVYQEDTIPEESGSPSKGKSYTGLGKKSRLMKTVMKMGHGNYNCPV  
MRPHATHSSYGTYYVTLAPKVLVFPVQPLDLCNPARTLLLSEELLLYEGRNKASQVTLF  
AYS DLLLFTKEDPEGRCNVLRNPLYLQSVKLQEGSSEDLKFCVLYLAEKAECLFTLEAHS  
HEQKKRVCWCLENIKQQQLAASPPDSKMFETEADKREMSLEEGKGPAGAESPPSKEP  
SPGKEDLPPKDDSSGQEPGQEPPLSSNNSATCEESPPGPDALPSKDAPPCQEPAPPAQD  
LSPCQDLPAGQEPPLHQDPLLTKDLPAVQEPPTQDLPPCQDLPPSQVSLPVKALIEETTS  
SGDLLAATGDPPAASRPAFVIPEVRLDSTYSQEGAERGSSGDTSDNYGERSEAKRSM  
IETGQGAEGGLSLRVQNSLRRRTHSEGSLLQEPGRCFASDTTLHCSDEGGAASAWAMPS  
PSTLKKELGRNGGSMHLSLFFTGHRKISGADTAGDDEASRKRKSNLAKDMKNLGLF  
RRRNESPGAPPAGKADKMMKSFKPTSEEALKWGESLEKLLHLYGLAVFQAFRLRTEFSEE  
NLEFWLACEDFKKVKSQSKMAAKAKKIFAEYIAIQACEVNLDSYTREHTKDNLQSVTRG  
CFDLAQKRIFGLMEKDSYPRFLRSDLYLDLINQKMSPP

>Rattus norvegicus\_RGS3 (ENSRNOP\_71774)

MEWPHQDTSLSRKDACTQTYPPRRRIRHAQLQDAGQLKLSIGAQDRVLLLVHIEGKGLIS  
KKPGICDPYVKISLIPEDSQLCCQTTQVIRDCRDPAFHEHFFFFPVPEEGDQKRLLVTVW  
QASETRQHALIGCMSFGVRSLLTPDKEISGWYLLGEDLGRTHKHLKVARRRLQPLRDVLL  
RMPGDGDPENGEKLIITIRRGKDGFGFTICCDSPVRVQAVDSGGPAERAGLQQLDTVLQL  
NERPVEHWKVELAHEIRSCPSEIILLVWRVVPQIKPGPDGGVLRASCKSTHLLSPPN  
KREKNCTHGAPTRPEQRHSCHLVCDSSDGLLGGWERYTEVGKRSQHTLPALSRAATPT  
DPNYIILAPLNPGSQLLRPVYQEDAIPEEPGTTTKGKSYTGLGKKSRLMKTVMKMGHSN  
YQDCSALRPHIPHSSYGTYYVTLAPKVLVFPVQPLDLCNPARTLLLSEELLLYEGRNKT  
SQVTLFAYS DLLLFTKEEPEGRCDVLRNPLYLQSVKLQEGSSEDLKFCVLYLAEKAECLF  
TLEAHSQEKKRVCWCLENIKQQQLAATPTERKMFETEADKEMPLVEGKGPAGAEERT  
PSKDPSPSQELPPGQELPPSKDPSPSQELPPGQDLPPSKDPSPSQELPPGQELPPSKDPS  
PSQELPAGQDLPPRKEFSGQEAAPGPESSPEDIAATCQNPPQSPETSTSKDPSPPQGSS  
PTTEVPSCQGLPAGQESTSQDPLLSQEPPIPESSASDQNVLPQSQESSPPSQGLSEKALA  
EQTISPGEIPAATAGEPSASRPNFVIPEVRLDSAYSQQDGAHGGSSGEDEDAEEGEEGEE  
GEEDEEDDTSDDNYGDRNEAKRSSLIETGQGAEGGLSLRVQNSLRRRTHSEGSLLQEAR  
PCFASDTTLHCSDEGTTSTWAI PSRTLKKELGRNGGSMHLSLFFTGHRKMSGTDLAD  
DVEASRKRKSNIAKDMKNLAI FRRRNESPGAQAPAGKADKTKSFKPTSEEALKWSESL  
EKLLHLYGLVEFQAFRLRTEFSEENLEFWLACEDFKKVKSQSKMAAKAKKIFAEYIAIQ

CKEVNLDSTREHTKENLQSI TRGCFDLAQKRIFGLMEKDSYPRFLRSDLYLDLINQKKM  
SPPL

>Felis catus\_RGS3(ENSFCAP\_18970)

LSVLSESCGLSPRLPMFSGWKEWQGHHTTLHRKDAWTQTPARRRIRHAQIQGAGQLKLS  
IDAQDRVLLLLHIEGKGLMSKEPGICDPYVKISLIPEDNHRLRRQKTQTILDCREPVFHE  
HFFFLVQEEDEQKRLLVTVWNRAGDSRQSGFIGCMSFGVKSLLTPDKEINGWYLLGEHL  
GRTKHLKVARRRLRPLRGPLQRIPGYGDTESEGEKLIKITIPRGKDGFGFTICDSPVRVQA  
VDSGGPAERAGLQQLDVLQNLNERPVEHWKCVELAEHIRSCPSEIILLVWRMVPQVKPGP  
DGGVLRASCKSTHDLQSPFNKREKNCTHGAQARPEQRHSCHLVCDSSDGLLGGWERYT  
EVAKRGGQHTLPALSRAATSTDPNYIILAPLNPGSOLLRPLYQEDAIPEESGGPSKGSY  
TGLGKKSRLMKTVMKMGHGNYNQCPVMRPHTPHSSYGYVTLAPKVLVFPVQPLDLC  
NPARTLLLSEELLYEGRNKAVEVTLFAYSLLLLFTKEDEPGRCNVLRNPLYLQSVKLQE  
GSSEDLKFCVLYLAEKAECLFTLEAHSQEQQKRVWCWCLSENIKQQQLAASPESKMFEP  
EADEKREMPLEEGKELGAEDPPPNDPSSGQEPSPGQDFPPNKESSSVQEPSGQEPPLSS  
KDSPSCKEPPPGQEPWPSKDSPPCQEPALPPCQDLPTSQEPSPQDPQVSQDLPIRDP  
PAQELEPCQDQVPLPAEETTSSGDPAAAGDLPVSRPAFVIPEVRLDSAYSQKAGAEGG  
GLGFEEDEAAEEGDEGDEEEEEEDTSDDNYGEHHEAKRSSMIEAGQAAEGGLSLRVQNS  
LRRRTHSEGSLLQEARGPCFASDTTLHCSDGEGTASTWAMPSPRTLKKELGRRNGGSMHHL  
SLFFTGHRKMSGADAVGDDDEASRKRKSKNLAKDMKNLGI FRRRNESPGAQPGGKADKM  
VKFSKPLEGLGGQRAEVAGSASHKRPGLLLDGLAVFQAFLRTEFSEENLEFWLACEDF  
KKVKSQSKMTAKAKKIFAEYIAIQACKEVNLDSTREHTKDNLQSVTRGCFDLAQKRIFG  
LMEKDSYPRFLRSDLYLDLINQKKMSPPL

>Monodelphis domestica\_RGS3(ENSMODP\_29681)

MEHHSQVFPVLGGERVSELENTKKRISYSQLEGAGQLKLSIDKEGRVLLLHIMEARDLMN  
KDSQPCDAYVKVSVVPDNRKRRQKTQTPDCKNPAFHERFFFPQIEADEQKRLLVAVWN  
RKRDRQSELIGCMSFGVKSLLVPDKEVSGWYLLGQKLGRAKHLKVATRRLKQRRDLFL  
KTPMLVLRQEDTENMQLKITIPRGRDGFQFTICDSPVRVQAVDSGGPADRAGLQQLDVT  
LQNEQVPEHWKCVELAEHIRNCPGEIILLVWRIIPQIKPGPDGGVLRASCKSTHDLQV  
PPNKREKNSILGARPEQRHSCHLVCDSSDGLLVGWERYSELGKQTQHTLPPLTRASAST  
DPNYIILAPLNPGSOLLRPLYQEEIIPEDIGNTSKGSHTGLGKKSRLMKTVMKGYGN  
YQNTIMKPHTPHSSYGYVTLAPKVLVFPVYVQPLDLCNTARTLLLAEELLYEGRNKT  
AKVTLFVYSDLLLTKDEDEPGRCNVLRNPLYLQSVKLQEGLPEDLKFCILYLAEKAECLL  
TLEAYSQEQQKRVWCWCLSENI SKQPQAAAASESKMLETVDVDRRKMPPSEEEVPPSTEGG  
AGGAPEEPGPLESNPSQKEIFSGEATSLEMPPLPAEGVANEASEEQSPENHPSQGEALAG  
EATNLEMPPLAEGVTNGAPEELGPPASDCPQVEVPTEEGPGSRASALTDKQPFVIPEVRL  
DPTFSQSLGAEGIEQDGI LDEDAEEEEVEGEEGYEEEDDESDDSYLEHNEAKRCSMIET  
SATEGTFMLTVQSSLRRTTHSEGSLLQETKSHCFSTDTLNCSDGEGKSGWALASPGTV  
KKDLGRNGGSMHHL SLFFTGHRKLSGAEASCDEGAEASQKRSKKLAKDMKNLGI FRRRN  
DSPGGNGAGKTDKGMKSLKPTSEEALKWGESLEKLLHXYGLAVFRAFLRTEFSEENLEF  
WLACEDFKKVKSQSKMASKAKKIFAEYIAIQACKEVNLDSTREHTKENLQNVTRACFDL  
AQKRIYGLMEKDSYPRFLRSELYLDLINQKKPSSPL

>Danio rerio\_RGS3(ENSDARP\_50870)

MDYSKQNSHHVTIRERRKRLHRESLWLQDPVLPKGPSTKKPCHELKRPSDSRARRSSVRH  
IRSVDRKRPPLAASQEEENVTRPAEAGNRKAVSRNSSAQVKVASVVKT TVKNDKQPATKKRR  
KIHPSGFRGKQGLKLVTPGRGWLYMQVLEARGLMGREYRPCDSYVKIS IAPDVDHSKRW  
KTRTVLDCKSPVFNEGFMDLVDDEDDQKKRLLVTVWNRDRDRRSDFLGCMSFGVHSLITS  
SKEIRGWYLLGEELGRSKHLKVASRRIRQTAEAAAPNYEAGPESSGPNMQSFTVTILR  
GKDGFGFTICDSPVRVQAVDPGGPAHQAGLQQLDVLQNLNGQVVEHWKCVDLAHAIRNC  
RNEITVVVWRTVPI MPYIEGLIHRPSYKPSGFESLSSTAKTQNKTPPLSRPTNHKQGR  
RKKGSSSDNAGSGVGESLSWSTGKREENDYKTRTQTLKGRVTSNNGDNYIILSPVSPGN  
QILQPVYSDSNGTLGTGLRIYQTSRGLQSPDYLDQDGLQGQATLCRTMSSKTTTLPSS  
YRQSFHAIKATVFIYTDLLLTTREDEPGRCNVLQSPYLYHQIQQLQDVPADKRLRLYISYWI  
ERTECLFSLEAFSSQKRRVVQCLRDNDKQLALRERIGPDQMLEPKAAEQADLGLLGF  
PHSVSEPCSPSCPSASPILRRTNCTSPAQRLSYDLPDANQTSPTS RDACKPSYTDTSEI  
WKNRQKEVKESDLEKREQEGESASETISVGARPTSSSSSSSPLVI PKLCLDRSFNTDAL  
TSPSTDDDDDEEEDSDEGFLKRRSMVESSPCGGQQSGGLCVQRSLHRRTHSEGSLL  
QEPSPRFISDQAIDCIEAKRETPERWAVPSPQTLRKELTKNNGSVHQICLLFTGRRVCG

KPNCKCDMGKTAVKKKSKNLAKDMKNRLTFLRKKTNDRHGSPASKLKDVLKSDKPAPE  
EALKWAESLDTLLSHKYGLAVFRSFLQTEFSEENLDFWLACEEFKKIKSLSKMTSRAKKI  
FTEYISIQSCKEVNLDSTREHIKENMENICADCFDLAQSRIIFGLMERDSYPRFLRSDIY  
MELTNQKRPGSAADPS

>Homo sapiens\_RGS5 (ENSP\_433001)  
MCKGLAALPHSCLERAKEIKIKLGIILLQKPDVGLVPIPYNEKPEKPAKTQKTSLDEALQ  
WRDSLDKLLQNNYGLASFYSFLKSEFSEENLEFWIACEDYKKIKSPAKMAEKAKQIYEYEF  
IQTEAPKEVGLWVNI DHFTKDITMKNLVEPSLSSFDMAQKRIHALMEKDSLPRFVRSEFY  
QELIK

>Macaca mulatta\_RGS5 (ENSMUP\_49829)  
MCKGLAALPHSCLERAKEIKIKLGIILLQKPDVGLVPIPYNEKPEKPAKTHKPSLDEALQ  
WRDSLDKLLQNNYGLASFYSFLKSEFSEENLEFWIACEDYKKIKSPAKMAEKAKQIYEYEF  
IQTEAPKEVNIDHFTKDITMKNLVEPSLSSFDMAQKRIHALMEKDSLPRFVRSEFYQELI  
K

>Mus musculus\_RGS5 (ENSMUSP\_27997)  
MCKGLAALPHSCLERAKEIKIKLGIILLQKPDVGLVPIPYNEKPEKPAKAHKPSLEEVLQ  
WRQSLDKLLQNSYGFASFYSFLKSEFSEENLEFWVACENYKKIKSPIKMAEKAKQIYEYEF  
IQTEAPKEVNIDHFTKDITMKNLVEPSPRSFDLAQKRIYALMEKDSLPRFVRSEFYKELI  
K

>Bos taurus\_RGS5 (ENSBTAP\_32130)  
MCKGLAALPHSCLERAKEIKIKLGIILLQKPDVGLVPIPYNEKPEKPAKTQKPSLDEALQ  
WRDSLDKLLQNNYGLASFYSFLKSEFSEENLEFWMACEDYKKIKSPVKMAETAKKIYEYEF  
IQVEAPKEVNIDHFTKEITVKNLVEPSPSSFDVAQKRIHALMEKDSLPRFVRSEFYQEFI  
K

>Myotis lucifugus\_RGS5 (ENSMLUP\_14434)  
SCTSAAAMAEHVCCTAKEIKIKLGTLLQKPDPAADLVIPIPYNEKPEKPAKTQKPSPEEALQ  
WRDSLDKLLQSSYGLASFYSFLKSEFSEENLEFWMACEDFKKTKSATKMAEKAKKIYEYEF  
IQTEAPKEVNIDHFTKDITVRNLVEPSPSSFDVAQKRVHALMEKDSLPRFVRSEFYQEFI  
K

>Gallus gallus\_RGS5 (ENSGALP\_42833)  
MCKGLAALPHTCLERAKEIKTKLGTLLQKPDVAIDFIIPYPEKPEKPAKALKPSPEEVLQ  
WRDSLEKLLQNPYGLASFYSFLCSEFSEENVEFWVACEDYKKTSPVKMEEKAKRIYEYEF  
IQTEAPKEVNIDHFTKAVTMKNLVEPSPSSFDMAQKRIFALMEKDSLPRFVRSEFYQELI  
K

>Xenopus tropicalis\_RGS5 (ENSXETP\_22975)  
MCKGLAALPHTCLERAKEIKTKLGTLLQKPDVAIDLIIPIYDPKPEKTPKASKPSAEEAGQ  
WRDSLDKLLQNSYGLSVFQGFYFLKSEFSEENIEFWMACEDYKVKVSPKMATKAKKIYDEF  
IQTEAPREVNIDHFTKAVTMKNLVEPSSSSFDLAQKKIFALMEKDSLPRFVRSEFYQELI  
K

>Danio rerio\_RGS5 (ENSDARP\_4766)  
MCKGLAALPQTCLERAKEIKTKLGTLLQKPDVAIDLIIPIYQEKPEKPEKPEKQKATPEEAA  
QWRESLQKLVLSNSYGLATFYSFLRSEFSEENIEFWMACEDFKKTKNPLKMATKAKKIYED  
FIQTGGPKVEVNIDHFTKDVTLRNLVLDLSSSTFELAQSRITYLMEKDSFGRFLRSDQYQELI  
LK

>Takifugu rubripes\_RGS5 (ENSTRUP\_12673)  
MCKGLAALPQSCCLERAKEIKSKLGVLLQKPDVAIDLIIPIYPEKTEKKPEKQKPTPEEAA  
QWRESLDRVLNNSYGLNAFRSFLQSEFSDENVEFWMSCEDFKKTKDPVKMAAKAKKIYED  
FIQAEGPREVNIDHFTKDMTLRNLVVKLSHMTFDLAQKRIYALMEKDSFGRFLRSELYQDL  
LVN

>Tetraodon nigroviridis\_RGS5a (ENSTNIP\_4031)  
MCKGLAALPQTCLERAKEIKTKLGVLLQKPDVAIDLIIPIYPEKTEKKPEKQKTHLYHSL

EWKREEIDKLNLNKLNGLNAFRSFLQSEFSDENIEFWMSCEEFFKKS KDPVKMAAKAKKIY  
EDFIQAEGPREVNIDHF TKDVTLRNLV KLSPTTFDLAQKRIYALMEKDSFGRFLRSQLYQ  
DLLV

>Tetraodon nigroviridis\_RGS5b(ENSTNIP\_1535)  
MCKGLAALPQTCLERAKEIKTKLGVLLQKPENAI DLII PYPEKTEKKPEKQQKYKQCEFI  
HKREEIDKLNLNKLNGLNAFRSFLQSEFSDENIEFWMSCEEFFKKS KDPVKMAAKAKKIYE  
DFIQAEGPREVNIDHF TKDVTLRNLV KLSPTTFDLAQKRIYALMEKDSFGRFLRSQLYQD  
LLV

>Gasterosteus aculeatus\_RGS5(ENSGACP\_7574)  
MCKGLAALPQSCLERAKEIKSKLGVLLQKPENAI DLII PYPEKAEKKPEKQQKPTPEEAA  
QWREGLDRVLNNSYGLAAFRSFLQSEFSDENIEFWMTCEDFKKTKNPVKMATKAKKIYED  
YIQSEGPREVNI DHFTKDVTLRNLV DLSPTTFDLAQKRIFALMEKDSFGRFLRSEYQQL  
LV

>Oryzias latipes\_RGS5(ENSORLP\_15473)  
MCKGLAALPQTCLERAKEIKTKLGVFLNKPENAI DLII PYPEKTEKKPEKLQKP THEEAAA  
QWRESLDRVLNNSYGLTAFRSFLQSEFSDENIEFWMACEDFKKTKNPVKMAAKAKKIYED  
FIQSEGPREVNI DHFTKDVTLRNLV DLSPTFELAQKRIFALMEKDSFARFLRSEYQYQEL  
LVN

>Ciona savignyi\_(ENSCSAVP\_490)  
MNIYRPRSMACLRNLNSEYDGEFHKTRSGSTSTEGKISISSDGF SRMMKDIQVGLGNKL  
NKFSSVSDLTGMFEGDFNDVSVFGKRTEKIGGI IGIKTKKKKYQFGSVSNISVCSLSHR  
VKKLNVSNSASKLRGRFKRSGRQDKSDKLQHKFENIFAWLHRSGKKAGRYAMRRNRSP  
IP  
MTKSDTRRKLPLKLT LKEVLSK KETTNAFRAFLSRELSEENLDFWLDVET YKRAKASKRQK  
MGIKIYEKYISPSSTHEINVE SCVRQOTRKRLLNF DVDTFDEAQQHIFKLMAADSFRFL  
EVF

>Saccoglossus kowalevskii\_(XP\_006825374)  
MTQRAHCHTSTRGHKRRSIELRTQSLTHGFEAMALET PPVHKRRKTGRFNQLPIQDFPEPQVYTPGQLKL  
SIYRTRRHLMVNI I KARGISHIPGYTDGCYVTVVIVAPHGKKDSMATRVVTDATPHFQEIFPLSFLHLDL  
LDRIVISLYRQSSTLNDLMGCMSFGAKHLIKGTKLIDGWYLLNQELGVKKHLGVYPYKRPKLSKEVKKKQ  
QPVR I I KKVMTVVQKGHYGFTILD TTPVRVGVKVD SGGPSEKVGLQMGDVIIRINKHHVERS PCTDIIGI  
VKNAPGHVRLVIERRAKTVIRRLSEDVERRPLNTLMSSNRCHNQKEYAKQLCGETEYTOHLCPD TDYARH  
LRYDTPDSLRSSTCSSTISGTPSEDDMMTGQVQITVVCNYHMQQLELRLAAYSSPAQKTQELMTLGD I  
YLAVL DGFISSYAVYQSCLRMAEENLAVKLQVPVWSDEYFNTVVRGFMYPSEYLDKLCQLLQMLWTSTP  
TEHPDHENFKHVLNGSVHIYFTDTRQFR LAELGRRYV FAGTLHNINQTNDRSKKLWAIMCTDLLLLTKK  
QDDDSFLIVDKLLLSL FVQDI ESSPNDFIVTVVTNIKQKENKVL RAPTEHLKKTWKKLLNKHSSGIYLM  
TFDGSVKEIHIGDRKETTKGISRPFLGRRKISSPDL PSTAKTASLLSRKVSSPEIKITSFDNDDSQLNRN  
AVITEELSDDTGIMN SSKNRSKLAVELYKKS PSCEDCSKSESTQNSLEQLTTASAPGSPLFHISRSWNS  
LTPTGTVSGGYPCKSNEDCAKTSKDTSSTKAKPKRKNIFQLFTGDNKNKDEIDGH DAPPHALFLKEPVEG  
KSQETTS PRRTITRMR SRVSGSEDEAIEEELEDPGSGSDSPTDDALQLPSFNTDNDKRKRKKNLAKDMKE  
KLRFLRRRHTDGC I KDAEKLKTLRPSYAQA I KWSESFDSLLADKYGLASFR AFLKTEFSDENIEFWLACE  
DYKKVRPSKWSSRAQRIYNDYVAIQAPREVNLDSH SRLATVSNLSNPTKHAFDLAQKRIQSLMEKDSYPR  
FLRSEFYQSLINDKKQVSN C

>Saccoglossus kowalevskii\_(XP\_006816283)  
MKRDRQNTQSTPPPSPAEDKNKSSKACCFWC CCCSCSWTHSLAVRDPSENEKQKSDTKMELKDKEIEKP  
SRDEIKSWGESFDR LMKSAAGRDSFREFLKSEYSEENLLFWLACEELRHQTDQEIEEKSRLIYEDYISI  
LSPKEVSLDSRVREVINRNMVDPTQHTFDDAQQIYILMHRDSYPRFINSQKYKQLLCKG

>Octopus bimaculoides\_(XP\_014787789)  
MIEMTTMNRNQPATNENDVRMRSNRPSKDNKENKETKDQPVQQQTPQNESPEEAVSPTSSPHTRRERRF  
STTCCFCWCCTPPCFSNLGSGRSSKGDNSPNSNMVVKNDQLSQRSKELDSNSDREELLSLEDKMNWSES  
FDRLIRSNNGRRKFRFLRMEYSEENMLFWLACEELKREQNSELIEEKARLIYEDYISILSPEVSLDSR  
VREVINQNMLDPSPTFDEAQLQIYTLMHQDPYPRFLNSQLYKKLIEEASS

>Nematostella vectensis\_(XP\_001629433)  
MFVSRIAMAIAIKELMCEARAIKELMPSSEEIN EWGRSFERLLSSKNGIRVFHEFLKSEYSEENLLFWLAVE

RLKKETEPASVKNLAQTIYNDYVSTESPKEVSI DHKTRQVIDDEISQPTKETFSKAQQHVYVVMYQDCYP  
RFLSSSTFKTLQQECLNN

>Hydra magnipapillata\_ (XP\_012555230)  
MASTIIRTVNLKRSKGLGFIIISNQFPCIIISCVNQNTPAFDAGLKS GDEILEINSIDVVSQFKHNDVVKII  
LCNEQP HILIKVTRFY SVSKDFLLHGFNQVLDIT HLSDEHIKINFTHEKNSKDCSTVVSNSYCEERKA  
NVQHSEMTENDVHYCFENISTKSSLRSPSQPVSIIYYPPIYNVLLLYYCSVDI PHDINLKISSDSTINDC  
ISKIKLNNKPVLVHLQISKMGIKLINPFGNEIVTYPLRTIIFSNIIAEDKRFFSFVTQNSLLDHSVTT  
LNSTKKFVKSKI VCLHACHVFMVESKLSVHSDHKEFADVFKI ACTPSLKFDGCQEFPPSPSYVLQELNAF  
LKERKNVRKGVQSFCFVSTEEFPSTPEEDVIYNTLEKI QKSSLNSPTRNTQKLMVSPPCSLQGINEDEKL  
CLIKEIQONNNYSQKISLTADYPMQKNMHSLEIGGEKNISWIKGNEFSKLLFP SKRMEYKPPVPRKIS  
CATKSF GFTKII SSEQKGSNIKNQENKLFGLFNSTEKCKEQVSSDIKKERSSSDSMVSENSTESFSDIN  
SRKGT PPTNPKHSVKSPEKEKNVHNKKVELWSCSFESLLADIDGVKCFQEF LKKEFSEENLMFWKACNDF  
LKLKDINKIKECAKEIFDNYLSSKAPFLVNVNLSICKRVEQQLDSPNTDLFVI PQQQVFQLMKFD SYPRF  
IKSDWFKERVNNYNADNSSKENLKKLNQSFEEKNVNFRTGKVKSP ELKNSRAAIHKGINLIVSTLYL  
YCVFR

>Trichoplax adhaerens\_ (XP\_002109868)  
MVMALLKVYVNSLNGIEAFARFLKSEFSDENIKFWLACEEFRKIDNKGEIESRAKWIYDTYVSRKAKTEI  
NLDSKTRSHIRKRME SIDNNIFDQGQKCIKELMATDSYPRFIKSSKYRSLLA

## **Regulating Synaptic Membrane Exocytosis Protein-RIMS**

>Homo sapiens\_RIMS3 (ENSP\_361768)  
MFNGEPGPASSGASRNVRSSSISGEICGSQQAGGGAGTTAKKRRSSLGAKMVAIVGLT  
QWSKSTLQLPQPEGATKKLRSNIRRSTETGIAVEMRSRVTRQGSRESTDGSTNSNSSDGT  
FIFPTRLGAESQFSDFLDGLGPAQIVGRQTLATPPMGDVHIAIMDRSGQLEVEVIEARG  
LTPKPGSKSLPATYIKVYLLENGACLAKKTKMTKKTCDPLYQQALLFDEGPQGKVLQVI  
VWGDYGRMDHKCFMGMAQIMLDEL DLSAAVTGWYKLFPTSSVADSTLGSLTRRLSQQSSE  
SATSPSCS

>Pan troglodytes\_RIMS3 (ENSPTRP\_1025)  
MFNGEPGPASSGASRNVRSSSISGEICGSQQAGGGAGTTAKKRRSSLGAKMVAIVGLT  
QWSKSTLQLPQPEGATKKLRSNIRRSTETGIAVEMRSRVTRQGSRESTDGSTNSNSSDGT  
FIFPTRLGAESQFSDFLDGLGPAQIVGRQTLATPPMGDVHIAIMDRSGQLEVEVIEARG  
LTPKPGSKSLPATYIKVYLLENGACLAKKTKMTKKTCDPLYQQALLFDEGPQGKVLQVI  
VWGDYGRMDHKCFMGMAQIMLDEL DLSAAVTGWYKLFPTSSVADSTLGSLTRRLSQQSSE  
SATSPSCS

>Mus musculus\_RIMS3 (ENSMUSP\_130295)  
MFNGEPGPASAGASRNVRSSSISGEICGSQQAGGGAGTTAKKRRSSLGAKMVAIVGLT  
QWSKSTLQLPQPEGATKKLRSNIRRSTETGIAVEMRSRVTRQGSRESTDGSTNSNSSEGT  
FIFPTRLGAESQFSDFLDGLGPAQIVGRQTLATPPMGDVHIAIMDRSGQLEVEVIEARGL  
TPKPGSKSLPATYIKAYLLENGACVAKKTKVAKKTC DPLYQQALLFDEGPQGKVLQVIV  
WGDYGRMDHKCFMGMAQIMLDEL DLSAAVTGWYKLFPTSSVADSTLGSLTRRLSQQSLES  
ATSPSCS

>Bos taurus\_RIMS3 (ENSBTAP\_24925)  
MFNGESGPASAAAASRNVRSSSISGEICGSQQAGDGTGTSTAKKRRSSLGAKMVAIVGLT  
QWSKSTLQLPQAEAGATKKLRSNIRRSTETGVAVEMRSRVTRQGSRESTDGSTNSNSSDGT  
FIFPTRLGAESQFSDFLDGLGPAQIVGRQTLATPPMGDVHIAIMDRSGQLEVEVIEARG  
LTPKPGSKSLPATYIKVYLLENGACLAKKTKVAKKTC DPLYQQALLFDEGPQGKVLQVI  
VWGDYGRMDHKCFMGMAQIMLDEL DLSAAVTGWYKLFPTSSVADSTLGSLTRRLSQQSSE  
SATSPSCS

>Monodelphis domestica\_RIMS3 (ENSMODP\_21938)  
MFDGEPGTGPAASSRNVRSSSISGEVFGGGGEQAGGTAGASTAKKRRSSLGAKMAAIVG  
LTQRSRSSLQLPQPEGPKKLP SNIRRSTETGIAVEMRSRVTRQGSRESTDGSTNSNSSD  
GTFIFPTARLGAESQFSDFLDGLGPAQIVGRQTLGTPPMGDVHIAMMDRSGQLEVEVIEA  
RGLTPKLGSKSLPATYIKVYLLENGACLAKKTRVAKKTC DPLYHQALLFDEGPQGKVLQ  
VIVWGDYGRMDHKCFMGMAQIVLEELDLSNVVTGWYKLFPTSSVADSTLGPLTRRLSQQS



LESSTSPSCP

>Xenopus tropicalis\_RIMS3 (ENSXETP\_38276)

MFNGETSSSVRNVRSSSISGEMYNLEKGNANPDAAAGVTTTKKRRSSLGAKMVAIVGLS  
QWSKSTLQLNQPDGTTKKLRSNIRRSTETGIAVEMRNRVTRQGSRESTDGSTNSNSSDGT  
FIFPPTRLGAESQFSNFLDGLGPAQIVGRQTLATPPMGDVHIGMVDNRNGQLEVEVIQARG  
LTPKPGSKSIPAPYIKVYLIENGVCLSKKTRTSKKTWDPVYQQALLFDEGPQGVQVI  
VWGDYGRMDHKCFMGMAQILLEELDLSVCVTGWYKLFPTSSLADSSIAPLTRRLSQSSLE  
SSTSPSCT

>Danio rerio\_RIMS3 (ENSDARP\_94802)

MMLSSSVDPVSPGGMSAVAARNVVRSSSISGAMYSLEKSPSSTGPDGTSLTGNKKRRSSSL  
GAKMVAIVGLSQWSKSTLQLNQDGGTKKLRSTIRRSTETGIAVEMRNRVTRQGSKDSTD  
GSTNSNSSDGTFFIFPTRLGPESQFSDFLDGLGPAQIVGRQTLATPSMGDVYIGVVDRGG  
QLEVEITQARSLTPKPGSKNIPATYIKVYVLENGMCLAKKKTQVVKKTLDPFQQSLMFD  
ESPQGVQVIWGDYGRMDSKCFMGMAQILLDDLDLSSMVGGWYKLFPTSSLADPSIGP  
LTRRLSQSSLESATSPSCT

>Takifugu rubripes\_RIMS3 (ENSTRUP\_46461)

VEVPSPGGMSGLSVAARNVVRSSSISGAMYSLEKSPGGGSDSTSLAGNKKRRSSSLGAKM  
VAIVGLSQWSKSTQQLNQDGGTKKLRSTIRRSTETGIAVEMRNRVTRQGSKDSTDGSTN  
SNSSDGTFFVFPPTRLGPESQFSDFLDGLGPAQIVGRQTLATPPMASTGDVHIGIVDRGGQ  
LEVEVNQARGLTPKPGSKNIPATYVVKVYVLENGVCLAKKKTQVVKRNLDPYQQALLFDE  
SPQGVQVIWGDYGRMDHKCFMGMAQILLELDLSATVSGWYKLFPTSSLADPSIGPL  
TRRLSQSSLESATSPSCS

>Tetraodon nigroviridis\_RIMS3 (ENSTNIP\_12061)

VEVPSPGGMSGLSVAARNVVRSSSISGAMYSLEKSPGGGSDSTSLAGNKKRRSSSLGAKM  
VAIVGLSQWSKSTQQLNQDGGTKKLRSTIRRSTETGIAVEMRNRVTRQGSKDSTDGSTN  
SNSSDGTFFVFPPTRLGPESQFSDFLDGLGPAQIVGRQTLATPPMGFTSTGDVHIGIVDRG  
GQLEVEVNQARGLTPKPGSKNIPATYVVKVYVLENGVCLAKKKTQVVKRNLDPYQQALLF  
DESPQGVQVIWGDYGRMDKCFMGMAQILLELDLSATVSGWYKLFPTSSLADPSIGPL  
LTRRLSQSSLESATSPSCS

>Gasterosteus aculeatus\_RIMS3 (ENSGACP\_9569)

MGGLSGLSAAAARNVVRSSSISGAMYGLEKSPGGGSDSASLAGNKKRRSSSLGAKMVAIV  
GLSQWSKSTQQLHQDGGTKKLRSTIRRSTETGIAVEMRNRVTRQGSKDSTDGSTNSNS  
DGTFFVFPPTRLGPESQFSDFLDGLGPAQIVGRQTLATPSMGDVNVGMVDRGGQLEVEVNQ  
ARGLTAKPGSKNMPATYVVKVYVLENGVCLAKKKTQVVKRNLDPYQQALLFDESPLGKVL  
QVIWGDYGRMDHKCFMGMAQILLELDLSATVSGWYKLFPTSSLADPSIGPLTRRLSQS  
SLESATSPSCT

>Oryzias latipes\_RIMS3 (ENSORLP\_6562)

QIKSKSEVQIRRTFWSLINAHYFDVDHFSEKNNGGTTKKLRSTIRRSTETGIAVEMRNRVT  
RQGSKDSTDGSTNSNSSDGTFFVFPPTRLGPESQFSDFLDGLGPAQIVGRQTLATPSMGDV  
HVAMVDRGGQLEVEVSQARGLTPKPGTRNIPATYVVKVYVLENGVCLAKKKTQVVKKTLDP  
TYQQALLFDESPPQGVQVIWGDYGRMDHKCFMGMAQILLELDLSATVSGWYKLFPTSS  
LADPSIGPLTRRLSQSSLESATSPS

>Homo sapiens\_RIMS2 (ENSP\_427018)

MSAPVGPGRGLAPIPAASQPPLQPEMPDLSHLTEEEKIILAVMDRQKKEEKEQSVLKK  
LHQQFEMYKEQVKKMGEESSQQQEQKGDAPTCGICHKTKFADGCGHNCSYCQTKFCARCG  
GRVSLRSNKVMWVCNLCRKQQEILTKSGAWFYNSGNTFPQQPDQKVLRLRNEEAPQEKK  
PKLHEQTQFQGPSGLSVPAVEKSRSHGLTRQHSIKNGSGVKHHIASDIASDRKRSPSVS  
RDQNRDYDREEREYSQYATSDTAMPSPSDYADRRSQHEPQFYEDSDHLSYRDSNRRS  
HRSHKEYIVDDEVESRDEYERQRREEEYQSRYSRSDPNLARYPVKPPQPYEEQMRIHAEVS  
RARHERHSDVSLANADLEDSRISMLRMDRPSRQRSISERRAAMENQRSYSMERTREAOQ  
PSSYAQRRTTNHSPPTPRRSPLPIDRPLRRTDSLRKQHLLDPSSAVRKTREKMETMLRN  
DSLSSDQSESVRPPPKPHKSKGGKMRQISLSSSEELASTPEYTSRDDVEIESESVSE  
KGDMDYNWLDHTSWHSSEASPMSLHPVTWQPSKGDRLIGRILLNKRLKDGSVPRDSGAM  
LGLKVVGGKMTESGRLCAFITKVKKGLADTVGHLPDDEVLEWNGRLLQGATFEEVYNI

I L E S K P E P Q V E L V V S R P I G D I P R I P D S T H A Q L E S S S S S F E S Q K M D R P S I S V T S P M S P G M L  
R D V P Q F L S G Q L S S Q S L S R R T T P F V P R V Q I K L W F D K V G H Q L I V T I L G A K D L P S R E D G R P R N  
P Y V K I Y F L P D R S D K N K R R T K T V K K T L E P K W N Q T F I Y S P V H R R E F R E R M L E I T L W D Q A R V R  
E E E S E F L G E I L I E L E T A L L D D E P H W Y K L Q T H D V S S L P L P H P S P Y M P R R Q L H G E S P T R R L Q  
R S K R I S D S E V S D Y D C D D G I G V V S D Y R H D G R D L Q S S T L S V P E Q V M S S N H C S P S G S P H R V D V  
I G R T R S W S P S V P P P Q S R N V E Q G L R G T R T M T G H Y N T I S R M D R H R V M D D H Y S P D R D R D C E A A  
D R Q P Y H R S R S T E Q R P L L E R T T T R S R S T E R P D T N L M R S M P S L M T G R S A P P S P A L S R S H P R T  
G S V Q T S P S S T P V A G R R G R Q L P Q L P P K G T L D R K A G G K K L R S T V Q R S T E T G L A V E M R N W M T R  
Q A S R E S T D G S M N S Y S S E G N L I F P G V R L A S D S Q F S D F L D G L G P A Q L V G R Q T L A T P A M G D I Q  
V G M M D K K G Q L E V E I I R A R G L V V K P G S K T L P A P Y V K V Y L L D N G V C I A K K K T K V A R K T L E P L  
Y Q Q L S F E E S P Q G K V L Q I I V W G D Y G R M D H K S F M G V A Q I L L D E L E L S N M V I G W F K L F P P S S  
L V D P T L A P L T R R A S Q S S L E S S T G P S Y S R S

>Pan troglodytes\_RIMS2 (ENSPTRP\_35048)

M Q F E T L R Q V C N S V L S H F H G V F S S P P N I L Q N E L F G Q T L N N A R K R S P S V S R D Q N R R Y D Q R E E  
R E E Y S Q Y A T S D T A M P R S P S D Y A D R R S Q H E P Q F Y E D S D H L S Y R D S N R R S H R H S K E Y I V D D E  
D V E S R D E Y E R Q R R E E E Y Q S R Y R S D P N L A R Y P V K P Q P Y E E Q M R I H A E V S R A R H E R R H S D V S  
L A N A D L E D S R I S M L R M D R P S R Q R S I S E R R A A M E N Q R S Y S M E R T R E A Q G P S S Y A Q R T T N H S  
P P T P R R S P L P I D R P D L R R T D S L R K Q H H L D P S S A V R K T K R E K M E T M L R N D S L S S D Q S E S V R  
P P P P K P H K S K G G K M R Q V S L S S E E E L A S T P E Y T S C D D V E I E S E S V S E K G D M D Y N W L D H T  
S W H S S E A S M S L H P V T W Q P S K D G D R L I G R I L L N K R L K D G S V P R D S G A M L G L K V V G G K M T E  
S G R L C A F I T K V K K G S L A D T V G H L R P G D E V L E W N G R L L Q G A T F E E V Y N I I L E S K P E P Q V E L  
V V S R P I G D I P R I P D S T H A Q L E S S S S S F E S Q K M D R P S I S V T S P M S P G M L R D V P Q F L S G Q L S  
I K L W F D K V G H Q L I V T I L G A K D L P S R E D G R P R N P Y V K I Y F L P D R S D K N K R R T K T V K K T L E P  
K W N Q T F I Y S P V H R R E F R E R M L E I T L W D Q A R V R E E E S E F L G E I L I E L E T A L L D D E P H W Y K L  
Q T H D V S S L P L P H P S P Y M P R R Q L H G E S P T R R L Q R S K R I S D S E V S D Y D C D D G I G V V S D Y R H D  
G R D L Q S S T L S V P E Q V M S S N H C S P S G S P H R V D V I G R T R S W S P S V P P P Q S R N V E Q G L R G T R T  
T T G H Y N T I S R M D R H R V M D D H Y S P D R D S H F L T L P R S R Y S Q T I D H H H R D G R D C E A A D R Q P Y H  
R S R S T E Q R P L L E R T T T R S R S T E R P D T N L M R S M P S L M T G R S A P P S P A L S R S H P R T G S V Q T S  
P S S T P V A G R R G R Q L P Q L P P K G T L D R

>Mus musculus\_RIMS2 (ENSMUSP\_48719)

M S A P L G P R G R P A P T P A A S Q P P P Q P E M P D L S H L T E E E R K I I L A V M D R Q K K E E E K E Q S V L K K  
L H Q Q F E M Y K E Q V K K M G E E S Q Q Q Q E Q K G D A P T C G I C H K T K F A D G C G H N C S Y C Q T K F C A R C G  
G R V S L R S N K V M W V C N L C R K Q Q E I L T K S G A W F Y N S G S N T L Q Q P D Q K V P R G L R N E E A P Q E K K  
A K L H E Q P Q F Q G A P G D L S V P A V E K G R A H G L T R Q D T I K N G S G V K H Q I A S D M P S D R K R S P S V S  
R D Q N R R Y E Q S E E R E D Y S Q Y V P S D G T M P R S P S D Y A D R R S Q R E P Q F Y E E P G H L N Y R D S N R R G  
H R H S K E Y I V D D E D V E S R D E Y E R Q R R E E E Y Q A R Y R S D P N L A R Y P V K P Q P Y E E Q M R I H A E V S  
R A R H E R R H S D V S L A N A E L E D S R I S L L R M D R P S R Q R S V S E R R A A M E N Q R S Y S M E R T R E A Q G  
Q S S Y P Q R T S N H S P P T P R R S P I P L D R P D M R R A D S L R K Q H H L D P S S A V R K T K R E K M E T M L R N  
D S L S S D Q S E S V R P P P P R P H K S K G G K M R Q V S L S S E E E L A S T P E Y T S C D D V E L E S E S V S E  
K G D S Q K G R K T S E Q G V L S D S N T R S E R Q K R M Y Y G G H S L E E D L E W S E P Q I K D S G V D T C S S T  
T L N E E H S H S D K H P V T W Q P S K D G D R L I G R I L L N K R L K D G S V P R D S G A M L G L K V V G G K M T E S  
G R L C A F I T K V K K G S L A D T V G H L R P G D E V L E W N G R L L Q G A T F E E V Y N I I L E S K P E P Q V E L V  
V S R P I G D I P R I P D S T H A Q L E S S S S S F E S Q K M D R P S I S V T S P M S P G M L R D V P Q F L S G Q L S I  
K L W F D K V G H Q L I V T I L G A K D L P S R E D G R P R N P Y V K I Y F L P D R S D K N K R R T K T V K K T L E P K  
W N Q T F I Y S P V H R R E F R E R M L E I T L W D Q A R V R E E E S E F L G E I L I E L E T A L L D D E P H W Y K L Q  
T H D V S S L P L P R P S P Y L P R R Q L H G E S P T R R L Q R S K R I S D S E V S D Y D C E D G V G V S D Y R H N G  
R D L Q S S T L S V P E Q V M S S N H C S P S G S P H R V D V I G R T R S W S P S A P P P Q R N V E Q G H R G T R A T G  
H Y N T I S R M D R H R V M D D H Y S S D R D S H F L T L P R S R H S Q T I D H H H R D G R D C E A A D R Q P Y H R S R  
S T E Q R P L L E R T T T T R S R S S E R P D T N L M R S M P S L M T G R S A P P S P A L S R S H P R T G S V Q T S P S S  
T P G T G R R G R Q L P Q L P P K G T L E R S A M D I E E R N R Q M K L N K Y K Q V A G S D P R L E Q D Y H S K Y R S G  
W D P H R G A D T V S T K S S D S D V S D V S A V S R T S S A S R F S S T S Y M S V Q S E R P R G N R K I S V F T S K M  
Q N R Q M G V S G K N L T K S T S I S G D M C S L E K N D G S Q S D T A V G A L G T S G K K R R S S I G A K M V A I V G  
L S R K S R S A S Q L S Q T E G G G K L R S T V Q R S T E T G L A V E M R N W M T R Q A S R E S T D G S M N S Y S S E  
G N L I F P G V R L A S D S Q F S D F L D G L G P A Q L V G R Q T L A T P A M G D I Q V G M M D K K G Q L E V E I I R A  
R G L V V K P G S K T L P A P Y V K V Y L L D N G V C I A K K K T K V A R K T L E P L Y Q Q L S F E E S P Q G R V L Q  
I I V W G D Y G R M D H K S F M G V A Q I L L D E L E L S N M V I G W F K L F P P S S L V D P T L A P L T R R A S Q S S  
L E S S T G P S Y S R S

>Equus caballus\_RIMS2 (ENSECAP\_20682)

RVKEEHKQPPTQWFFPSGITELVNNVLQPQQKQNEKEAQTKLHQQFELYKEQVKKMGEE  
SQQQQEQKGDAPTCGICHKTKFADGCGHNCSYCQTKFCARCGGRVSLRSNKVMWVCNLCR  
KQQEILTKSGAWFYNSGSNTFPQQPDQKVLRLGRNEEAPQEKKAKLHEQAQFQGPSGLSV  
PAVEKSRSHGLTRQDSIKNGSGVTHQIASDIASDRKRSPSVSRDQNRRYDQREEREYSQ  
YATSDSAMPSPSDYADRRSQHEPQFYEESDNINYRDSNRRSHRHSKEYIADDEDVESRD  
EYERQRREEEYQARYRSDPNLARYPVKQPYPYEEQMRIHAEVSRARHERRHSDVSLANAEL  
EDSRISMLRMERPSRQRSISERRAALENQRSYSMERTREAOQPSSYPQRTTNHSPPTPRR  
SPIPIDRDLRRTDLSLRKQHLLDPSSAINKRKRSILAQMLAQGPSSSSSRKRIGNRGKKE  
RKEKESKKRGNLTFSEETGKSLPSFFFCELSISKVSLSNLWDSQKGRKTRQAVLSD  
SNTRSEKQKKMMYFGGHSLEEDLEWSEPOIKDSGVDTCSSTTLNEEHSHSDKHPVTWQPS  
KGDRLIGRILLNKRLKDGSPRDSGAMLGKLVVGGKMTESGRLCAFITKVKKGLADTV  
GHLRPGDEVLEWNGRPLQGATFEEVYNIILESKPEPQVELVVSRIPIGDIPIPDSTHAQL  
ESSSSSFESQKMDRPSISVTSPPMSPGMLRDVPQFLSGQLSIKLWFDKVGHLIVTILGAK  
DLPSREDGRPRNPYVKIYFLPDRSDKNKRRTKTVKKTLEPKWNQTFIYSPVHRREFRERM  
LEITLWDQARVREEESEFLGEILIELETALLDDEPHWYKLQTHDVSSLPLPHSPYMPRR  
QLHGESPTRRLQRSKRISDSEVSDYDCDDGIGVVSDFRHNDRDLQSSTLSVPEQVMSNH  
CSLSGSPHRVDVIGRTRSWSPVPPQSRNVEQGLRGRSATGHYNTISRMDRHRVMDH  
YSPDRDRDCEAADRQPYHRSRSTEQRPLLERTTTRSRSTERPDTNLMSMPSLMTGRSAP  
PSPALSRSHRPTGSVQTSPPSSTPVAGRRGRQLPQLPPKGTLEKAGGKLRSTVQRSTET  
GLAVEMRNWMTQASRESTDGSMNYSSEGNLIFPGVRLASDSQFSDFLDGLGPAQLVGR  
QTLATPAMGDIQVGMMDKKGQLEVEIRARGLVVKPGSKTLPAPYVKVYLLDNGVCIAKK  
KTKVARKTLEPLYQQLLSFEESPQGVQLQIVWGDYGRMDHKSFMGVAQIILDELELSNM  
VIGWFKLFPSSSLVDPTLAPLTRRASQSSLESSTGPSYSRS

>Xenopus tropicalis\_RIMS2 (ENSXETP\_8820)

MSAPLGPGRGGPLPPAQPAQMPPEMDDLHLTEDEKIIIMAVMERQKKEEKEQSVLKVKE  
EQKAQPAQWFFPSGITELVNNVLQPQPKQNEKEPEIKLHQQFEMYKEQVKKMGEEAQQQ  
QEQKGEAPTCGICHKTKFADGCGHDCSYCQTKFCARCGGRVSLRSNKVMWVCNLCRQKE  
ILTKSGAWFYSSGSSTPLKPGEESQAGYQTEEAPQEKKAKLQEQSQYQGPSGLLTPASD  
KNRPGQIVRQDSIKNGSELKHPIPGDLASDSHRKRSPSIPRDQNRRYDTRDDIGEHSQHA  
TSDSAMPSPSDYSDRRLQRGSQLYDEPEHGDRSRRRSNEYSVDEEDIQDREYERQR  
REEEYQARYRSDPNLARYPVKQPYPYEEQMRIHAEVSRARQRRHSDVSLAQTEFEESRMST  
LRMERPSRQRSASERRAAMESQRSYSIERTRDVQGGPGRQRTSNHSPPTPRRSPINDR  
PDMRRTDLSLRKQHLLDPSSAVRKTREKMETMLRNDLSLSDQSESVRPPPKPHKTKKGG  
KMRQVLSLSSSEELASTPEYTSCEDEIESESVSEKGSQRGKRKTSQAVLSDSNILSE  
RQKKMVCFGGHSLEEDLEWSEPOIKDSGVDTCSSTTLNEEHSHSEKHPVTWQPSKDGDR  
LIGRILLNKRLKDGSPRDSGAMLGKLVVGGKMTESGRLCAFITKVKKGLADTVGHLRPG  
DEVLEWNGRILQGATFEEVYNIILESKPEAQVELLVSRIPIGDIPIPDSTHAQLESSSSS  
FESQKMDRPSISVTSPPMSPGMLRDVPQFLSGQLSIKLWYDKVGHLIVTILGAKDLPSRE  
DGRPRNPYVKIYFLPDRSDKNKRRTKTVKKTVEPKWNQTFIYSPVHRREFRERMLEITLW  
DQARVREEESEFLGEILIELETALLDDEPHWYKLQTHDVSSLPLPHSPFPMQRRQLHG  
ESPTRRLQRSKRISDSEVSDYDCDDGIGVVSDFRHNDRDLQSSTLSVPEQVMSNHCSRTGP  
PHVDSIGRTRSWSPVPPQSRNLEQGPGRGTRSGPAHYNTMSRVERHRVLDNHYSRDRDR  
AHPRTGSVQTSPSGTPLAGRRGRQLPQLPPKGTLEKAGGKLRSTVQRSTETGLAVEMRN  
WMTQASRESTDGSMNYSSEGNLIFPGVRLASDSQFSDFLDGLGPAQLVGRQTLATPAM  
GDIQVGMMDKKGQLEVEIRARGLVVKPGSKTLPAPYVKVYLLDNGVCIAKKQTKVAR  
KTLVWGDYGRMDHKSFMGVAQIILDELELSNMVIGWFKLFPSSSLVDPTLAPLTRRAS  
QSSLESSTGPSYSRS

>Takifugu rubripes\_RIMS2 (ENSTRUP\_19111)

MSAPHGPRGGPGPGPAAAAASAAGAVPDLPLSHLTFEERKIIILGVMERQKTEIKEEPPK  
QPAQWFFPSGITELVNNVLQGPQKSQNEKEPEPDTKLHQQFESYKEQVKKMGEEETKPAQDQK  
SEAPTCGICHKTKFADGCGHLCSYCQTKFCARCGGRVSLRSNKVMWVCNLCRQKEILTK  
SGAWFYPSGPGQVRGVFEGGPQGGKAKLQDPSLYPYHGTSGDLTPASDRSRPHGGLLPRQ  
ASLDNGSGLRYPGPDAAATDRKRSPASRDPNQYDQREGGDHAQYAPT DGSMPSPSDY  
GDGDRRARNRSHMYAEARMGYRERRGPRWHSQEYPLDQELDGPPEYELQRQRQEEF  
QARYRSDPNLARYPVKQPYPYEEQMRMHAEVGRRLRHERRHSDVSLAYTELDEPGPIRLSRQ  
HLTERRPPMVQRSYVDRSSPGMPGPGGGHRTSNHSPPTPHRSPVLGERSGDLRRGD  
LSDPMMRQQHLLDPSSAVRKTREKMESMLRNDLSLSDQSESVRPPPKPHKTKKGGKMR  
QVLSLSSSEELATPEYTSCEDEIESESVSEKGESQRGKRKTFEQTFMSEPTHTLSE  
RQKKMVRFGGHSFEEDLTWCEPQVKDQSGVDTCSSTTLNEEHSHSEKHLVTWQPSKDGDR  
LIGRILLNKRMKDGSPRDSGALLGKLVVGGKMTESGRLCAFITKVRKGLADTVGHLRPGDQ

VLEWNGKLLQGATFKEVYNI ILESKPEPQVELVVSRLGDI PRIPDSTHAQLESSSSSFE  
SOKMDRPSISVTS PMS PSM LRDAPQYLSGQLSVKLWYDKVGHQLIVTILGAKDLPPREDG  
RPRNPYVKIYFLPDRSDKSKRRRTKT VVKSLEPKWNQTFMYS PVHRRFRERMLEITLWDQ  
ARVREEESEFLGEILIELETALLDDEPHWYKLQTHDVSSIPLPRASPNSQRRQLHGESPT  
RRLQRSQRISDSEISDYDCEDGVGLFVSEYRSNGRDFQSSTLSVPEQVMSSNHCSRSDI  
NRARSRSPSVPPSRVEKCGPGSSDMKMLSLQRTWQHAGMARAYSEGAYTSDYDYER  
NHGAMDRHEYHSRSDQRPTIERPTCRSRSTERPHDSSLMRSMPSLPSGRSAPPSPAL  
TRAHPRSGSVQTSPTSTPMSGRRGRQLPQLPPTGKDRKAGGKLRSTIQRSTETGLAVEM  
RSRMTRQASRESTDGS MNYSSEGNLIFPGVRLSSDAQFSDFLDGLGPAQLVGRQTLATP  
PMGDIQIGMVEKKGALEVEVIRARGLVGKPGSKSLPAPYVKVYLLENGVCIAKKTKVAR  
KTLDPYQQQLPFEE SPGGKVLQVIVWGDYGRMDHKSFMGAVQILLDELDSLNMVIGWFK  
LFPSSSLVDPTLAPLTRRASQSSLD SFSRS

>Tetraodon nigroviridis\_RIMS2 (ENSTNIP\_11042)

AAAAAAAAAASAGAVPEMPDLSHL TEEERKII LGVMERQKNEEAKEQSMLNLGCKTNFAS  
TMVGAGTRSEKEQMPSEKPLLIYGLCFRIKEPKPQPAQPGRAQKLHQQFESYKEQVKKM  
GEETKPAQDQKSEAPNGICHKTKFADGCGHLCSYCQTKFCARCGRVSLRSNKEDKVVM  
WVCNLCRKQQEILTKSGAWFYGSGPGQVRGVFEGGPGQKAKLQDPSRLRNPLSAVVSQN  
TSLILSPKPRRLECGETSSTVEPSSAKAKKDRTEKKPIKTQRAPDLGVMNLGSGNNKSCR  
KRSPASARDPNQAVRKTREKME SMLRNDLSLSDQSESVRPPPKPHKTKKGGKMRQV  
SLSSSEELATTPEYTSCEDEVEIESESVSEKGDLDGHWWDHSSWHSSEASPMSLHLVWQ  
PSKDGDRILIGRI LLNKRMDGVS PRDSGALLGLKVVGGKMTESGRLCAFITKVRKGLAD  
TVGHLRPGDQVLEWNGKLLQGATFKEVYNI ILESKPEPQVELVVSRLGDI PRIPDSTHA  
QLESSSSSFE SOKMDRPSISVTS PMS PSM LRDAPQYLSGQLSVKLWYDKVGHQLIVTILG  
AKDLPPREDGRPRNPYVKIYLLPDRSDKSKRRRTKT VVKSLEPKWNQTFMYS PVHRRFRE  
RMLEITLWDQARVREEESEFLGEILIELETALLDDEPHWYKLQTHDVSSIPLPRASPNSQ  
RRQLQSPTPRLQRSQRISDSEISDYDCEDGVGITVVISDYRSNGRDFQSSTLSVPEQVMS  
SNHCSRSDINRPRSRSVPVHQRTIERPTCRSRSTERPHDSSLMRSMPSLPSGRSAPP  
SPALTRAHPRSGSVQTSPTSTPMSGRRGRQLPQLPMPGKDRKKKSLDMEERTRQMKLKM  
KYPKPGAGSDSRLEQEYHKHAQYTFFRDPRGSDNLSAKSSSDSDVSDVSAVSRSSASRFS  
TSYMSVQSERPQGNRKIRDFASKMKNRQMGSSSGMNMTKSTSISGDMCNLEKTDGSQSDT  
AVGTVGTDDKKRRSSI GAKMQAMVGM SRKSQSTS QLSQTEAGGKLRSTIQRSTETGLAV  
EMRSRMTRQASRESTDGS MNYSSEGNLIFPGVRLSSDAQFSDFLDGLGPAQLVGRQTLA  
TPPMGDIQIGMVEKKGALEVEVIRALCALWGNQGSKSLPAPYVKVYLLENGVCIAKKTK  
VARKTLDPLYQQQLPFEE SPGGKVLQVIVWGDYGRMDHKSFMGAVQILLDELDSLNMVIG  
WFKLFPSSSLVDPTLAPLTRRASQSSLD SFSRS

>Gasterosteus aculeatus\_RIMS2 (ENSGACP\_6381)

MSAPHGPRGGPSAAGAMPPEMPDLSHL TEDERKII LGVMDRQKKEEAKEQTMLKRRRRERA  
GSGQWPYPWSGRLLGW PALMQPDQRKNQRLQPAQKLHQQFESYKDQVKMGEEKPTQEL  
KSEAPTCGICHKTKFADGCGHLCSYCQTKFCARCGRVSLRSNKVMWVCNLCRKQQEILT  
KSGAWFFDPGPGQVRGVFEGGPGQKAKLQDPSLYPYQGASGDLTDRSRPHGGLLPRQAS  
LDNGAGLRY SAPGDAPIDRKQSPSASRDPNQYDQREGVDHSQYAPTGGMPRSPDYGD  
GDHRRAPRGP HYPDAEAARMGYRGPGRWHSQEYPLDQELDGPPEYDLQRQRQEEFQTR  
YRSDPNLARYPVKPPYEEQMRMHAEVGRVRHERRHSDVSLAYTEQDDPGPVRLSRQHLT  
ERRPPMVGQRSYSVDRSSPGMPGGLGGHRTSNHSPPTPHRS PVLGDRSGDLRRGDLGVG  
GDSMRRQHHLDPSAVRKTREKME SMLRNDLSLSDQSESVRPPPKPHKTKKGGKMRQ  
VLSSEELATTPEYTSCEDEVEIESESVSEKGDQRGKRKTIEQTYMSEPTHTLSEKQ  
KMVRFGGHSFEEDLAWCEPQVKDSGVDTCSSSTTLNEESHSEKHPVTWQPSKDGDRILIGR  
ILLNKRMDGVS PRDSGALLGLKVVGGKMTESGRLCAFITKVRKGLADTVGHLRPGDQV  
LEWNGKLLQGATFKEVYNI ILESKPEPQVELVVSRLGDI PRIPDSTHAQLESSSSSFE S  
QKMDRPSISVTS PMS PSM LRDAPQYLSGQLSVKLWYDKVGHQLIVTILGAKDLPAREDGR  
PRNPYVKIYFLPDRSDKSKRRRTKT VVKSLEPKWNQTFMYS PVHRRFRERMLEITLWDQA  
RVREEESEFLGEILIELETALLDDEPHWYKLQTHDVSSIPLPRASPNTQRRQLHGESPTR  
RLQRSQRISDSEISDYDCEDGVGITDYPNGRDFQSSTLSVPEQVMSSNHCSRSDINR  
ARSRSVPVPPSSRLDQAFDLRPSQYSSSARVDHHSVSEDNYPDSRGRAHPRSGSVQTS  
PTSTPASNRGRQLPQLPPTGKDRNSCMDMEERTRQMKLKMNKYKQGAGSDPRLEQDYH  
KEYRSGRDPASDNLSAKSSSDSDVSDVSAVSRSSASRFSSTSYMSVQSERPQGNRKIR  
FASKMKNRQMGSSGGVNMTKSTS SVSGDMCNLEKTDGSQSDTAVGTVGTDDKKRRSSI GAK  
MQAMVGM SRKSRSSTLSQTEAGGKLRKEIHRSTETGLAMEMRSRMTRQASREYTDGSM  
NYSSEGNLIFPGVRLSSDAQFSDFLDGLGPAQLVGRQTLATPPMGDIQIGMVDKGALE

VEIIRARGLVGKPGSKALPAPYVKVYLLENGVCIAKKTKVARKTLDPLYQQQLPFEEESP  
GGKVLQVIVWGDYGRMDHKSFMGAVQILLDELDLSNMVIGWFKLFPSSSLVDPTLAPLTR  
RASQSSLDLDFSR

>Oryzias latipes\_RIMS2(ENSORLP\_3004)

RFKEPKPQPAQWFSGITELVNNVLQPOQKQNDKEPEADTKLHQQFESYKDQVKKMGEE  
TKPTQDQKSEAPTCGICHKTKFADGCGHLCSYCQTKFCARCGGRVSLRSNKVMWVCNLCR  
KQQEILTKSGEWFYSSGPGQVRGVFEGGPGQKAKLQDPSLYPHQGVSGDLRPSDRSRP  
HGGLLRQASLDNDTGLRYSGSGDPSLDRKQSPASRDPNQKYDQREGGNHPQYAPADGG  
MPSRPSDYGDRNSRQTSRGPMPYDAMDAMRMGFRDRRGPGRWHSQEYPLDQELDGPPT  
DLQRQRQEEYQARYRSDPNLARYPVKQPYPYEEQMRMHAEVGRLRHERRHSDVSLAYTEQD  
DPGPIRLSRQHFTERRPPMVGQORSYSVDRSSPGMPGSLGSHRTSNHSPPTPRHSPVLGD  
RQDQRRGDFGGDAMRRQOHHLDPSAVRKTREKMEMLRNDLSLSSDQSESVRPPPKPH  
KTKKGGKMRQVLSLSSSEELATTPEYTSCEDEVEIESESVSEKGESQRGKRKTIEQAFMSE  
PTHTLSEKQKMRVFRGGHSFEEDLAWCEPQVKDSGVDTCSSSTLNEESHSEKHPVTWQP  
SKDGDRLIGRILLNKRMDGSPRDSGALLGLKVVGGKMTESGRLCAFITKVRKGLADT  
VGHLRPGDQVLEWSGRLLQGATFKEVYNIIELESKPEPQVELVVSRIPIGDIPIRIPDSTHAQ  
LESSSSSFESQKMDRPSISVTSMPSPRTLADAPQYLSGQLSVKLVYDKVGHQLIVTILGA  
KDLPPREDGRPRNPYVKIYFLPDRSDKSKRRTKTVKKSLEPKWNQTFMYSVHRREFRER  
MLEITLWDQARVREEESEFLGEILIELETALLDDEPHWYKQTHDVSSIPLPRASPNSQR  
RQLHRESPTRRLQRSQRISDSEISDFDCEEGVGVVTDYRSNGRDFQRSSTLSVPEQVMSSN  
HCSRSADIARARSRSVPPPLSRRESEQANGFRDKTNHFLTLPRTRHTQLIDDEPKDPRN  
HGAMDRHEYHSRSRSADQRPVTERLAPRSHSTERPHDSSIMRSMPSLPSGRSAPPSPAMT  
RAHPRSGSVQISPTGTPMSSRRGRQLPQLPPTGMDRKAGGKLRSTIQRSTETGLAVEMR  
SRMTRQASRESTDGSMSYSSEGNLIFPGVRLSSDAQFSDFLDGLGPAQLVGRQTLATPS  
MGDIQIGMVDKKGALVEIIRARSLVGKPGSKALPAPYVKVYLLENGVCIAKKTKVARK  
TLDPLYQQQLPFEESSPGKVLQVIVWGDYGRMDHKSFMGAVQILLDELDLSNMVIGWYK  
LFPSSSLVDPTLAPLTRRASQSSLDLDFSR

>Homo sapiens\_RIMS4(ENSP\_439287)

MERSQSRLSLSASFEALAIYFPCMNSFDDEDAEGDSRRLKGAIQRSTETGLAVEMPSRTL  
RQASHESIEDSMNSYGSEGNLNYGGVCLASDAQFSDFLGSMGPAQFVGRQTLATTPMGDV  
EIGLQERNQLEVDIIQARGLTAKPGSKTLPAAYIKAYLLENGVCIAKKTKVARKSLDP  
LYNQVLLFPESPQKVLQVIVWGNYGRMERKQFMGVARVLEELDLTTLAVGWYKLFPTS  
SMVDPATGPLLRRQASQLSLESTVGPCGERS

>Macaca mulatta\_RIMS4(ENSMUP\_13905)

MERSQSRLSLSASFEALAIYFPCMNSFDDEDAEGDSRRLKGAIQRSTETGLAVEMPSRTL  
QASHESIEDSMNSYGSEGNLNYGGVCLASDAQFSDFLGSMGPAQFVGRQTLATTPMGDVE  
IGLQERNQLEVDIIQARGLTAKPGSKTLPAAYIKAYLLENGVCIAKKTKVARKSLDPL  
YNQVLLFPESPQKVLQVIVWGNYGRMERKQFMGVARVLEELDLTTLAVGWYKLFPTSS  
MVDPATGPLLRRQASQLSLESTVGPCGERS

>Mus musculus\_RIMS4(ENSMUSP\_45637)

MERSQSRLSLSASFEALAIYFPCMNSFDDEDAEGDSRRLKGAIQRSTETGLAVEMPSRTL  
QASHESIEDSMNSYGSEGNLNYGGVCLASDAQFSDFLGSMGPAQFVGRQTLATTPMGDVE  
IGLQERNQLEVDIIQARGLTAKPGSKTLPAAYIKAYLLENGVCIAKKTKVARKSLDPL  
YNQVLLFPESPQKVLQVIVWGNYGRMERKQFMGVARVLEELDLTTLAVGWYKLFPTSS  
MVDPATGPLLRRQASQLSLESTVGPCGERS

>Felis catus\_RIMS4(ENSFCAP\_10849)

EGDSRRLKGAIQRSTETGLAVEMPSRTLQASHESIEDSMNSYGSEGNLNYGGVCLASDA  
QFSDFLGSMGPAQFVGRQTLATTPMGDVEIGLQERNQLEVDIIQARGLTAKPGSKTLPA  
AYIKAYLLENGVCIAKKTKVARKSLDPLYNQVLLFPESPQKVLQVIVWGNYGRMERKQ  
FMGVARVLEELDLTTLAVGWYKLFPTSSMVDPAAGPLLRRQASQLSLESTVGPCGERS

>Dasypus novemcinctus\_RIMS4(ENSDNOP\_20169)

MNSFDDEDAEGDSRRLKGAIQRSTETGLAVEMPSRTLQASHESIEDSMNSYGSEGNLNYG  
VCLASDAQFSDFLGSMGPAQFVGRQTLATTPMGDVEIGLQERNQLEVDIIQARGLTAK  
PGSKTLPAAYIKAYLLENGVCIKAKKTKVARKSLDPLYNQVLLFPESPQKVLQVIVWGN  
YGRMERKQFMGVARVLEELDLTTLAVGWYKLFPTSSMVDPAAGPLLRRQASQLSLESTVG

PCGERS

>Gallus gallus\_RIMS4(ENSGALP\_6585)

MNSFDEEDADGDGRRLKGAIQRSTETGLAVEMPSRTRVQASHESIEDSMNSYGSEGNLNF  
SGVHLASAGQFSDFLGSMGPAQFVGRQTLATTSMDGVEIGLQERNQLEVDIIQARGLTP  
KPGSKTLPAAAIKAYLLENGVCIAKKKTKVARKSLDPLYNQVLLFPESPQGVVQVIVWG  
NYGRMERKHFMGVARVLLLEEDLSTLAIGWYKLFPTSSMVDPTTGPLLRRQSSQLSLESTV  
GPCCDRS

>Pelodiscus sinensis\_RIMS4(ENSPSIP\_14824)

MPSRTRVQASHESIEDSMNSYGSEGNLNFSGVHLASAGQFSDFLGSMGPAQFVGRQTLAT  
TSMGDVEIGLQERNQLEVDIIQARGLTPKPGSKTLPAAAIKAYLLENGVCIAKKKTKVA  
RKSLDPLYNQVLLFAESPQGVVQVIVWGNYGRMERKYFMGVARVLLLEEDLSTLAIGWY  
KLFPTSSMVDPTTGPLLRRQSSQLSLESTVGPCCDRS

>Danio rerio\_RIMS4(ENSDARP\_77256)

MERSQSRLSLSASFEALAIYFPCMNSFDEDDGDPEGRRLKGIQRSTETGLAVEMPSRTRV  
QASHESIEDSMNSYGSEGNLNYSGMCLASDAQFSDFLDGMGPAQFVGRQTLATTSMDGVE  
ISLMERSGQLEVEVIQARGLIMKPGSKGPPAAAIKVYLLENGICIAKKKTKSVRKS LDPL  
YNQVLFVSESPQGVVQVIVWGNYGRMDRKCFCMGVARILLEEDLSSMVIWYKLFPTSS  
MVDPTMAPLIRHSSQLSLESTVGPCCERS

>Takifugu rubripes\_RIMS4(ENSTRUP\_40546)

EGRRLKGAIQRSTETGLAVDMPSRTIRQASHESIEDSMNSYGSEGNLTYSGMCLASDAQF  
SDFLDGMGPAQFVGRQTLATTSMDGVEIGLLERNNGGLEVEVVQARGLTMKSGSKTPPAAI  
IKVYLLENGVCVAKKTKSVRKS LDPLYNQVLFVSESPQGVVQVIVWGNYGRMDRKCFCM  
GVARILLEEDLSTMVIWYKLFPTSSMVDPKMAPLIRHSSQMSLESTLGPCERS

>Tetraodon nigroviridis\_RIMS4(ENSTNIP\_6738)

QPRLAKPADPGPTAGLYMERSQSRLSLSASFEALAIYFPCMNSFDEDDGDVDAEGRRLKGA  
IQRSTETGLAVEMPSRTIRQASHESIEDSMNSYGSEGNLTYSGMCLASDAQFSDFLDGMG  
PAQFVGRQTLATTSMDITGDVEIGLLERNNGGLEVEVVQARGLTMKPGSKTPPAAI KVYL  
LENGICVAKKTKSVRKS LDPLYNQVLFVSESPQGVVQVIVWGNYGRMDRKCFCMGVARI  
LLEEDLSTMAIGWYKLFPTSSMVDPKMAPLIRHSSQMSLESTLGPCER

>Gasterosteus aculeatus\_RIMS4(ENSGACP\_4606)

MERSQSRLSLSASFEALAIYFPCMNSFDEDDGDVTEGRRLKGIQRSTETGLAVEMPSRT  
VRQASHESIEDSMNSYGSEGNLNYSGMCLASDAQFSDFLDGMGPAQFVGRQTLATTSMDG  
VEIGLMERNGALEVEVVQARGLTMKAGSKGPPAAAIKVYLLENGTCVAKKTKSVRKS LD  
PLYNQVLFVSESPQGVVQVIVWGNYGRMDRKCFCMGVARILLEEDLSTMVIWYKLFPT  
SSMVDPAMAPLIRHSSQMSLESTIGPCERS

>Oryzias latipes\_RIMS4(ENSORLP\_11935)

DGRKLKGGIQRSTETGLAVEMPSRTRVQASHESIEDSMNSYGSEGNLNYSGMCLASDAQF  
SDFLDGMGPAQFVGRQTLATTSMDGVEIGLMERNNGGLEVEVVQARGLTMKPGSKAPPAAI  
IKVYLLENGVCVAKKTKSVRKS LDPLYNQVLFVSESPQGVVQVIVWGNYGRMDRKCFCM  
GVARILLEEDLSTAMVIWYKLFPPSSMVDPTMGPLIRHSSQMSLESTIGPCERS

>Homo sapiens\_RIMS1(ENSP\_428417)

MSSAVGPRGPRPPTVPPPMQELPDLSHLTEEERNIIMAVMDRQKEEEEKKEEAMLKCVVRD  
MAKPAACKTPRNAENQPHQFSPRLHQQFESYKEQVRKI GEEARRYQGEHKDDAPT CGICH  
KTKFADGCGHLCSYCRTKFCARCGRVSLRSNNEKVVWVCNLCRKQOEILTKSGAWFF  
GSGPQQTSDGTLSDTATGAGSEVPREKKARLQERSRSQTPLSTAAASSQDAAPPSPAPPD  
RSKGAEPSQALGPEQKQASSRSRSEPPRERKTPGLSEQNGKALKSERKRVPKTSAQP  
VEGAVEERERKERRESRRLKGRSQDYDPTPEKRDEGKAADKQKEDYQTRYRSDPN  
LARYPVKPPPEEQQMRMHARVSRARHERRHSDVALPRTEAGAALPEGKAGKRAPAAARAS  
PPDSPRAYSAERTAE TRAPGAKQLTNHSPAPRHGPVPAEAPELKAQEPLRKQSR LDPSS  
AVLMRKAKREKVE TMLRNDLSLSDQSESVRPSPPKPHRSKRGGKKRQMSVSSSEEEGVST  
PEYTSCEDELESESVSEKGLDYYWLDPATWHSRETSPISSHPTWQPSKEGDRLIGRV  
ILNKRTTMPKDSGALLGLKVVGGKMTDLGRLGAFITKVKKGLADVVGHLAGDEVLEWN  
GKPLPGATNEEVYNIILESKSEPQVEIIVSRPIGDI PRIPESHPPLESSSSSFFESQKME

RPSISVISPTSPGALKDAPQVLPQGQLSVKLWYDKVGHQLIVNVLQATDLPARVDGRPRNP  
YVKMYFLPDRSDKSKRRTKTVKKILEPKWNQTFVYSHVHRRDFRERMLEITVWDQPRVQE  
EESFLGEILIELETALLDDEPHWYKLQTHDESSLPLPQSPFMPRRHIHGESSKKLQR  
SQRISDSDISDYEVDDGIGVPPVGYRSSARESKSTTLTVPEQQRTHHRSRSVSPHRGN  
DQGKPRSRLPNVPLQQRSLDEIHPTRRSRSPTRHHDASRSPVDHRTRDVDSQYLSEQDSEL  
LMLPRAKRGRSAECLHTTRHLVVRHYKTLPPKMPLLQSSSHWNIYSSILPAHTKTKSVTRQ  
DISLHHECFNSTVLRFTDEILVSELQPFLLDRARSASTNCLRPDTSLSHSPERERGRWSPSL  
DRRRPPSPRIQIQHASPENDRHSRKSERSSIQKQTRKGTASDAERVLPTCLSRRGHAAPR  
ATDQPVIRGKHPARSRSSEHSSIRTLCMHHLPVPGSAPPSPLLTRMHRQRSPTQSPPAD  
TSFSRRGRQLPQVPVRSISIEQASLVVEERTRQMKMKVHRFKQTTGSGSSQELDREQYS  
KYNIAHKDQYRSCDNVSAKSSSDSDVSDVSAISRTSSASRLSSTSFMSSEQSERPRGRISSFT  
PKMQGRRMGTSGRSIMKSTSVSGEMYTLEHNDGSQSDTAVGTVGAGGKRRSSLSAKVVA  
IVSRRSRSTSQLSQTESGHKKLKSTIQRSTETGMAAEMRKMVRQPSRESTDGSINSYSSE  
GNLIFPGVRLGADSQFSDFLDGLGPAQLVGRQTLATPAMGDIQIGMEDKKGQLEVEVIRA  
RSLTQKPGSKSTPAPYVKVYLLENGACIAKKKTRIARKTLDPLYQQSLVFDESPOGKVLQ  
VIVWGDYGRMDHKCFMGVAQILLEELDLSMVGWYKLFPPSSSLVDPTLPLTRRASQSS  
LESSTGPPCIRS

>Pongo abelii\_RIMS1(ENSPYP\_18764)

MSSAVGPRGPRPPTVPPMQELPDLSHLTEEERNIIMAVMDRQKEEEEEKEEAMLCVVDR  
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KTKFADGCGHLCSYCRTKFCARCGRVSLRSNNDKYVMWCNLCRKQOEILTKSGAWFFG  
SGPQQTSDGTLSDTATGAGSEVPREKKARLQERSRSQTPLSTAAASSQDAAPPSAPPDR  
SKGADPSQQALGPEQKQASSRSRSEPPREKKTPLGLSEQNGKALKSERKRVPKTSAQPV  
EGAVEERERKERRESRLEKGLSQDYPTPEKRDEGKAADDEEKQRKEEDYQTRYRSDPNL  
ARYPVKPPPEEQMHRVSRARHERRHSDVALPRTEAGAALPEGKVGKRAPAAARASP  
PDSPRAYSAERTAETRAPGAKQLTNHSPAPRHGVPVPAEAPELKAQEPLRKQSRLDPSSA  
VLMLRNDLSLSDQSESVRSPPKPHRSKRGGKKRQMSVSSSEEEGVSTPEYTSCEDEVELE  
SESVSEKGDLDYYWLDPATWHSRETSPISSHPVTWQPSKEGDRLIGRVLNKRRTMPKDS  
GALLGLKVVGGKMTDLGRLGAFITKVKKGLADVVGHLAGDEVLEWNGKPLPGATNEEV  
YNIILESSEKSEPVVEIIVSRPIGDIPIPESSHPPLESSSSSFESQKMERPSISVISPTSP  
GALKDAPQVLPQGQLSVKLWYDKVGHQLIVNVLQATDLPARVDGRPRNPYVKMYFLPDRSD  
KSKRRTKTVKKILEPKWNQTFVYSHVHRRDFRERMLEITVWDQPRVQEESEFLGEILIE  
LETALLDDEPHWYKLQTHDESSLPLPQSPFMPRRHIHGESSKKLQRSQRISDSDISDY  
EVDDGIGVPPVGYRSSARESKSTTLTVPEQQRTHHRSRSVSPHRGNDQGKPRSRLPNV  
PLQQRSLDEIHPTRRSRSPTRHHDASRSPVDHRTRDVDSQYLSEQDSELLMLPRAKRGRSA  
ECLHTTRHLVVRHYKTLPPKMPLLQSSSHWNIYSSVLPVPAHTKTKSVTRQDISLHHECFNSR  
VLRFTGRWSPSLDRRRPPSPRIQIQHASPENDRHSRKSERSSIQKQTRKGTASDAERVLPT  
CLSRRGHAAPRATDQPVIRGKHPARSRSSEHSSIRTLCMHHLPVPGSAPPSPLLTRMH  
RQRSPTQSPPADTSFSRRGRQLPQVPVRSISIEQASLVVEERTRQMKMKVHRFKQTTGS  
GSSQELDREQYSKYNIAHKDQYRSCDNVSAKSSSDSDVSDVSAISRTSSASRLSSTSFMSSEQ  
SERPRGRISSFTPKMQGRRMGTSGRSIMKSTSVSGEMYTLEHNDGSQSDTAVGTVGAGGK  
KRRSSLSAKVVAIVSRRSRSTSQLSQTESGHKKLKSTIQRSTETGMAAEMRKMVRQPSRE  
STDGSINSYSSEGNLIFPGVRLGADSQFSDFLDGLGPAQLVGRQTLATPAMGDIQIGMED  
KKGQLEVEVIRARSLTQKPGSKSTPAPYVKVYLLENGACIAKKKTRIARKTLDPLYQQSL  
VFDESPOGKVLQVIVWGDYGRMDHKCFMGVAQILLEELDLSMVGWYKLFPPSSSLVDPT  
LPLTRRASQSSLESSTGPPCIRS

>Oryctolagus cuniculus\_RIMS1(ENSOCUP\_15419)

RKKAPGLSEQNGKALKSERKRVPKTLAQGEVAAEERERKERRESRLEKGRSQDYDPM  
PDKREEAKAAAKEEKQRKEEGLPGPIAATRNLARTPVKPPARRGSRXCESKAGKRAV  
TRASPPDSPRAYAAERTAETRAPGAKALTNHTPPAPRHGPGPAEAPELKAQEPLRKQSR  
LDPSSAVLIRKAKREKVTMLRNDLSLSDQSESVRSPPKPHRSKRGGKKRQMSVSSSEEE  
GVSTPEYTSCEDEVELESESVSEKGDLDYYWLDPATWHSRETSPISSHPVTWQPSKEGDRL  
IGRVLNKRRTMPKESGALLGLKVVGGKMTDLGRLGAFITKVKKGLADVVGHLAGDEVLEW  
NGKPLPGATNEEVYNIILESSEKSEPVVEIIVSRPIGDIPIPESSHPPLESSSSSFESQ  
KMERPSISVISPTSPGALKDAPQVLPQGQLSVKLWYDKVGHQLIVNVLQATDLPARVDG  
RPRNPYVKMYFLPDRSDKSKRRTKTVKKILEPKWNQTFVYSHVHRRDFRERMLEITVWDQ  
PRVQEESEFLGEILIELETALLDDEPHWYKLQTHDESSLPLPQSPFMPRRHIHGESS  
KKLQRSQRISDSDISDYEVDDGIGVPPVSYRSSARESKSTTLTVPEQQRTHHRSRSV  
SPHRGDDQGRPRSRLPNVPLQQRSLDEIHPTRRSRSPTRHHDASRSPVDHRSDVDSQYLSE

QDSELLMLPRAKGRSAECLHTTRHLVRYKTLPPKMPLLQNGSHWNIYSSIMPTHSKTK  
SVTRQDNPLHHEYFTSRVLLRFTDEILASELQPSLDRARSASTNCLRPDTSLHSPERERA  
NRGRWSPSLDRRRPPSPRIQIQHASPENDRHSRKSERSIQKQTRKGTASDTERVLPCL  
SRRGHAAPRTADQPGIRGKHPARSRSSEHSSVRTLCSMHHLAPGGSAPPSPLLTRMHRQ  
SPTQSPADVFSNRRGRQLPQVVRSSSIEQASLVVEERTRQMCMKVHRFKQTTGSGSS  
QELDREQYSKYNIHKDQYRSCDNVSARSSSDSDVSDVSAISRTSSASRLSSTSFMSQSER  
PRGRIRYSSFTPKMQGRRMGTSGRAITKSTSVSGEMYTLEHNDGSQSDTAVGTGAGGKK  
RRSSLSAKVVAIVSRRSRSTSQLSQTESGHKKLKSTIQRSTETGMAAEMRKMVRQPSRES  
TDGSINSYSSEGNIIFPGVRLGADSQFSDFLDGLGPAQLVGRQTLATPAMGDIQIGMEDK  
KGQLEVEVIRARSLTQKPGSKSTPAPYVKVYLLENGACIAKKKTRIARKTLDPLYQQLV  
FDESPQGVQLVIVWGDYGRMDHKCFMGVAQILLEELDLSMVIWGYKLFPPSSSLVDPTL  
TPLTRRASQSSLESSTGPPCIRS

>Canis familiaris\_RIMS1(ENSCAFP\_3850)

RLHQQFESYKEQVRKIGEEARRYQGEHKDDAPTCTGICHKTKFADGCGHLCSYCRTKFCAR  
CGGRVSLRNSNEDKVVMMWCNLCRKKQOEILTKSGAWFFGSGPQQPSQDGTLSDTATGAGS  
EVPREKKARLQERSRSQTPLSTAAASSQDTAPPSAQPDRSKGAESSQQAVGPEQKQVSSR  
SRSEPPREKKTAGLSEQNGKGAQKSERKRAPKSSVQPGEGAVEERERKERRESRRLEKG  
RSQDFPDVPEKREDRKAAEDEKQKKEEYQTRYRSDPNLARYPVKPPPEEQQMRMHARVS  
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QLTNHSPAPRHGVPAAEALEPKAQLPRKQSRDLDPSSAVLIRKSKREKVTMLRNDLSL  
SDQSESVRPSPPSRTRGRSNGVRKMICLVNSSESEIVSIYKFTKQEIIEHSEGEIVYGAG  
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VGGKMTDLGRLGAFITKVKKGLADVVGHRLRAVQGDVLEWNGKPLPGATNEEVYNIILE  
SKSEPQVEIIVSRPIGDIPIPIESSHPPLESSSSSFEQKMERPSISVISPTSPGALKDA  
PQVLPQQLSVKLWYDKVGHQLIVNVLQATDLPTRVDRPRNPYVKMYFLPDRSDKSKRRT  
KTVKKVLEPKWNQTFVYSHVHCRDFRERMLEISVWDQPRVQEESEFLGEILIELETALL  
DDEPHWYKLQTHDESSLPLPQPSPFMPRRHIHGESSKKLQRSQRI SDSDISDYEVDDGI  
GVVPPVGRSSARESSTLTVPQEQRTTHHRSRVSVPHRGDDQGRPRSRLPNVPLQRS  
DEIHPTRRSRSPTRHHDASRSPVDHRSRDVDSQYVLEQDSELLMLPRAKQGISCMFVLP  
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DEILVSELQPSLDRARSASTNCLRPDTSLHSPERESLVHWANRGRWSPSLDRRRPPSPRI  
QIQHASPENDRHSRKSRRSIIQKQTRKGTASDAERVLPPCLSRGYAALRATDQPVLRGK  
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GTSGRAITKSTSVSGEMYTLEHNDGSQSDTAVGTGAGGKKRRSSLSAKVVAIVSRRSR  
TSQLSQTESGHKKLKSTIQRSTETGMAAEMRKMVRQPSRESTDGSINSYSSEGNIIFPGV  
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CIRS

>Ornithorhynchus anatinus\_RIMS1(ENSOANP\_2403)

RLHQQFESYKEQVRKIGEEARRYQGEHKDDAPTCTGICLTKFADGCGHLCSYCRTKFCAR  
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RSQDVPEKRDKGGGDDQKQKKEEYQTRYRSDPNLARYPVKPHPEEQQMRMHATVSKAR  
HERRHSDVSLPHTEMAAAEAPENKLGKHSQVPGRISVSKQLTNHSPAPRHGPAPSEHLE  
SKSQESLKKQSRDLPSAAILVRKAKREKMETMLRNDLSLSDQSESVRPSPPKPHRSKRG  
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ADVGHRLAGDEVLEWNGKPLPGATNEEVYNIILESKSEPQVEIIVSRPIGDIPIPIESS  
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RERMLEITVWDQPRVQEESEFLGEILIELETALLDDEPHWYKLQTHDESSLPLPQPSPF  
MPRRHVHPESSKKLQRSQRI SDSDISDYEDDGI GVVPPVGRSNTRESKATLTVPQ  
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RSRMDDDQYVLEQSESELLMLPRAKGRSAECLHTTSELQPSLDRARSASTNCLRPDTS  
LHSPERERIHQQGSQGSPPADTSFSNRRGRQLPQLPVRSGSLEQASLVVEERTRQMCMKVH



RYKQTTGSGSSQELDREQYSKYNLHKEQYRSCDNVSAKSSSDSDVSDVSAISRTSSASRLS  
STSFMSEQSERPRGRVRYSSFTPKMQGRRMGTSGRITTKSTSVSGEMYKLEHNDGSQSDT  
AVGTVGTGGKRRSSLSAKVVAIVSRRSRSTSQLSQTERGHKVL

>Gallus gallus\_RIMS1(ENSGALP\_25647)

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EIESESVSEKGDLDYYWLDPATWHSRETSPISSHVPTWQPSKEGDRLIGRVI LNKRRTMP  
KESGALLGLKVGGKMETELGRLGAFITKVKKGSLADVGHLAGDEVLEWNGKPLPGATN  
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TSPGALRDAPQVLPQGQSVKLVYDKVGHQLIVNVLQATDLPPRV DGRPRNPYVKMYFLPD  
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ISDYDVEDDGIQVPPGYRSTSTRESSTTLTVPEQQRTTHHRSRVSVPHRGDDQGRTRSRL  
PNVPSQRSLDEIHQMRRSRSPTRHHEASRSPADYRSRDMDSQYLSQSESELLMLPRAKRG  
RSAECLHTISELQPSLDRARSASTNCLRPDTSLSHSPERERGRWSPSLERRRPTS PRIHIQ  
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VSAKSSSDSDVSDVSAISRTSSASRLSSTSFMSEQSERPRGRISTFTPKMQGRRMGTSGR  
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QFSDFLDGLGPAQLVGRQTLATPAMGDIQIGMVDKKGQLEVEVIRARGLTQKPGSKSTPA  
PYVKVYLLENGACIAKKKTRIAKRTLDPLYQQTLVFDESPQGVQLQVIVWGDYGRMDHKC  
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>Anolis carolinensis\_RIMS1(ENSACAP\_4113)

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RCGGRVSLRSNNEDKVYRNNV SAGYGPLLEGPE TVMWVCNLCRKQQEILTKSGAWFFGSG  
PQQPPSQDGTLSDTATGGSSSESPREKKARLQERSRSQTPLSTAAATSQEFSSGVQTD  
GTEASQQAMGLEKQKQTSR SRSEPPREKKTSAAPEQNGKGLKGERKRVPKSAPQGGEG  
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SAILSRKAKREKMETMLRNDLSLSDQSESVRSPPKPHRSKRGGKQRQMSVSSSEEGAS  
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VILNKRRTMPKESGALLGLKVGGKMETELGRLGAFITKVKKGSLADVGHLAGDEVLEW  
NGKPLPGATNEEVYNI ILESKSEPQVEIIVSRPIGDIPIPIETSHPPPLESSSSSFESQK  
MERPSISVISPTSPGALKDAPQVLPQGQSVKLVYDKVGHQLIVNVLQATDLPPRIDGRPRN  
PYVKMYFLPD RSDKSKRRTKTKVKKSLPKWNQTFLYSHVHRRDFRERMLEITVWDQPRVQ  
EEESDFLGEI LIELETALLDDEPHWYKLQTHDESSLPLPQSPFMPRRHAHGGENSKKL  
QRSQRISDSDFSDYDVEDGIGVPSVGYRSTSTRENKSTTLTVPEQQRTTHHRSRVSVP  
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RKVSASETERMHQPGSPMOSPADTFSSRRGRQLPQVPVRSGSIEQEQESYSPSSKANL  
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VSAISRTSSASRLSSTSFMSEQSERPRGRISTFTPKMQGRRMGTSGRITTKSTSVSGEVY  
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>Xenopus tropicalis\_RIMS1(ENSXETP\_4933)  
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SRSEPPKDRKKALAISEQNGKVLKSDRKRQKCLNQQAEGHMDDREHKERRESRRLGKGR  
SQDIPEKAEEDTMEEDKQRTEDQYQTRYRSDPNLARYPVKQPPEEQMRMHAKVSKARH  
ERRHSDASLPHTELDEAEVFNKLGKNSQGSASQDKKSVLENKRSYSVDRNGEVLVSKPK  
QSANHSLHSSQHSPPPEHVDSDMNHDSFKKQSRDLPSSALLTRKATREKMETMLRNDLSL  
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QSERPRRLCSFTPRMQSRMGTSGLAITKSTSVSGEIKLEHNDGSQSDTAVGMVGTGG  
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VDKKGQLEVEVIRARGLIQKPGSKSTPAPYVKVYLLENGACVAKKKTRIARKTLDPLYQQ  
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>Danio rerio\_RIMS1(ENSDARP\_135764)  
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KIGAETKRQAVHKDDAPTCGICRKTGFADGCGHLCSYCQTKFCARCGGRVSLRSNNEDK  
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TLLPNAGPGDHPKGADTMPASRSRSEPPPREKRRPVMHEQNGKVI GRGERRRPARLSSQ  
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CEDVEIESVSEKGDWDCHPLDPTVWHLNMKHVMSAHPVSWQPSKEGDHLIGRITLSKRS  
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DGLGPAQLVGRQTLATPAIGDIQIGMVNKKGQLEVEVIRARGLIQKPGSKSLPAPYVKVY  
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>Takifugu rubripes\_RIMS1(ENSTRUP\_20109)  
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HKTGFANGCGHLCSYCQTKFCARCGGRVSLRSNNEDKVVMMWVCNLCRKKQEQEILTKSGEWF  
SGSGVRPGSQGASLNDLTTGGEAQPDRKLQRSRSQAPPTFNANAGLPDGTQPPAGVGAKG  
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MGVGRRLKLVHSHGFEDAQDNLGAPETHRRRPKDEEQREERQCREEEYQNRYSRDPNLARY  
PVKQPKEEQEMRIHAKVSKVRHERRHSDLAINEVGLGPGDGGGGGTKEGVNENRLSRKAG

GGDGRKLENNRYPYSVERNVTGRGAPIRSGHQTTGGPGLNKGHTESYTTRTPRDRGDDN  
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ILESKEPEQVELVVSRIPIGDIPIPIESTHPPLESTGSSSFESQKMDRPSISVMSPTSPGA  
LRELPLLLPGQLSVKLWYDKVGHQLIVNVLQAIIDLPPRPDGRPRNPYVKMYFLPDRSDKS  
KRRTKTVKKSAPKWNQTFIYSHVHRRDFRERMLEITVWDQPRVQEESEFLGEILIELE  
TALLDDIPHWYKLQTHDVSSIPLPQPSPYLPRRHHLKSDSPSKKLQRSHRIDTEFDDGLM  
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MQRSLDEIHQNRHQSNPSHYHDSHLEHQRSQSDSYEYSEDSHGNGSEVLEMHR SIRGGS  
AECLHTNSRGTARYSNTLPPKMPLLVNGIHKDIYSSTLPACLKSKPAPRQEGGSSEPRSI  
LTHRVLRFTEVPRWRSDLQPSLDRVRSASTTCLRPEPNFHLDRDRYELLKWTILQE  
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MTYFPVSI GAPSVCPLSSALLPVQHMKMHSTALVGCPCNSPRLDRVHLHGPPSPAGTPL  
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QIQSVGRSMLKSSSVSGEIYSQERTDGSQSDTALGTVCGGGKRRSSLSARVVAIVGNRR  
SRSTSQISGPEGKSKKEGAPIQRSTETGMAVELTRNMSRQPSRESNNGSMNSYSSEGNL  
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VQKPGSKSLPAPYVKVYLLNNGAYVAKKTKIARKTLDPLYQQALLFEESPHGKVLQVIV  
WGDYGRMDHKSFMGVAQILLEELDLSSTVIGWYKLFPPSSLDVPTLASLTRRASQSSLDSS  
SGPVGVR

>Tetraodon nigroviridis\_RIMS1(ENSTNIP\_22973)  
LHQQFESYKQEVRRIGAE TRRQQTQQKDDAPTTCGICHKTKFANGCGHLCSYCQTKFCARC  
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GDIPIPIESTHPPLESTGSSSFESQKMDRPSISVMSPTSPGALRDLPLLLPGQLSVKLWYD  
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SIPLPQPSPYLPRRHHLKSDSPSKKLQRSHRIDTEFDDGLITSPQLSCTERNRERDRGS  
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FLDGLGPAQLVGRQTLATPAIGDIQISMVEKKGQLEVEVIRARGLVQKPGSKSLPATYVK  
VYLLNNGAYVAKKTKIARKTLDPLYQQALLFEESPHGKVLQVIVWGDYGRMDHKSFMGVA  
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>Gasterosteus aculeatus\_RIMS1(ENSGACP\_23917)  
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RLARRGGGGEGNHKALLENHVFVSDRTAGVGGAAQPAGGGVRS GPQPEGPVAPDWGNTK  
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GGSTPEYTSCEVDVMESVSEKGDWDCHSLDPTVWHHYILFPSLLSVHPVTWQPSKEGDHL  
IGRITLSKRSAVPREAGSLGLKVVGGKMTETGRLGAFITKVKKGSLADVGHVHLRAGDEV  
LQWNGKSLPGATKKEVYNIILESKAESQVEIVVSRIPIPIESSHPPLESRSSSFES  
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RVQEESEFLGELIELETALLDDIPHWHYKLQAHDMSSIPLPQPSPYLPRRHVHGDSPSK  
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CRARSRPAHVPMQRSLEI HQNSHHSHSTLRYHDSRLEHQRSQSDSDYEYSEDSHRHGND  
EVLEMHRIRGGSAECLHTNRGIGRYSNTLPPKMPLLVNGIHKDIYSSTLPACLKRKPPL  
RQEGGSTMPRSILTHRVLRFTEVTVSDLQPPDLDRVRSASTTCLRPDTNFQSPDRDSSRC  
SNSLPLKTPPSPRILVEHVAPEEDRYTRPAPQQHIFLSKKGSKKFADGSRIQPTSILRG  
SRGRGGPLRPFQGTALAGSGPNSPRLESQRYASTPLCADITLSVAMLYAPVSHLKEGRAH  
PHGSPSSPSGTPSSGRGRQLPQLPAKSSSIEQALAVEERARQLQVKVHSYRPSASHDPE  
MDLKTREMYAEQRRSSDNMSARSSSDSDMSDASALSRASSASRLSSTSYMSIQSERPGR  
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SARVVAIVGNRRSRSTSQISGPEGKSKKEKGAPIQRSTETGMAVELTRNMSRQPSRESNN  
GSMNSCNSSEGNLIFSGVNVGASSQFSDFLDGLGPAQLVGRQTLATPAIGDIQIGMMEKKG  
QLEVEVIRARGLVQKPGSKSLPAPYVKVYLLNNGAYVAKKTKIARKTLDPLYQQALLFE  
ESPQGVLVQVIVWGDYGRMDHKSFMGVAQILMEELDLSSTVIGWYKLFPPSSLVDPTLAS  
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>Ciona intestinalis\_(ENSCINP\_21734)  
MMELPDLSHLTEEEQKQILSVIKRQDEEKKEKAMINLGIIPPNDSSLPICFKIQRNH  
QQFETYKEQVKKASETYESKNTPGTNDVIGETCSLCHKTKMAEGSGHSCSYCSRKFCSRC  
GGRVVPKSSKLMWVCNLCRQKQEMLTGSGAWCNANGSKSTLTNLLEPI PANGIQPAENKS  
VNKPHRTNDIMTNSKDIKPKAKPRVSSSTSSHLDTQPPRSSGSTPNMSGGKSEITR  
SQVGSDDRKEQDDRMRTSSSSPRMGNDARVHQSSRDVVKHREI INHNIRDEYHGKRQTEPT  
HKPGEIPSQPHSASESPRSTHRAATHHGSPNPLPKKNEPTLLPSDPRSHSKPHEASPKR  
VRSISVVSQSSHFSGSPHSSPQIKRSDRSVGNFTSHSPESHGTQRRNHRMKNDRQSYLGES  
MILTKYSPTNHNIDTLDTCCKPFLNII FSMFSRLSYSDVNLVDNHI ECRNHHKRMNRQDY  
LDSNAMTIRRHKKVCRPDKYKRRNPSLSSTDEEREDFQTTDPDYSSCEDEHQHGDNLN  
TSRNEHFDGRNRKVVHFTESVDKYLQKYPGSLSDHSMVSAENLSSGTRDSDGIDTSSTN  
THSDEKEVGIQVPSWQPSPDGRFLIGRMLNKGLATGDSQNGEAILGLKVVGGKMTES  
GRLGAFITKVKHGSGLADVVHGLQPGDEVVMWVNDCLQNASFDEVYEAVLASKKSKLVELT  
VSRQIKFVPRIPDLSLHRHPVTESSSSSFESQKREEGMNGRNGQRRTVTPSKI QVRLWFD  
NSTQQLYVTVLQAI DLLPREGGMLRNPYIKMYLLPDRSEASKRRSKTAKKTLNPSWHQSF  
VYGPIRRQDLGSMALVSLWDLDRSVESNNHFLGEIFIDLGMTRLDDTTQWFNLVMEEDT  
VNHSVSHSISHYDYVPEPHQVVKGRRRVASEADFGVFVFKKQFLVIYF

>Ciona savignyi\_(ENSCSAVP\_17838)  
TCSLCHKTKMAEGSGHSCSYCSRRCRCGGRVVPKSNKLMWVCNLCRQKQEI VAKSGSW  
SNSNGSKSTLTNLLEPI PPKGLTNKWLNEPRVPGSKITPKPKQHQWTSVENMFKLQVL  
CHSFSFGGKTHNNKNYCPKENGSKPNSLNNEKENPKNKSDLRVTPTTQRDAQIPKTSGS  
SLSLSSGRSSDVVRSLSSECRWDGEEHAKSRPSSPNPRKSIGRCVTSSPDIQNRDVAPKQP  
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ANSKSHHKLNDTSPKQTMRVVSQSTNFNSPHYSSPHSSPHLKRNERTLNLTSTSDPNRR  
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FRSKHQFSQSVSVENLSCVTRDSDGIDTGGSVHTASTQPDRENPVSWQPSPDGKFLI  
GRMILNKGLATGNTQNYDGPILGLKVVGGKMTESGRLGAFITKVKHGSGLADVVHGLRPGD  
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VGKTLQDFVGGGLPGQVIGRQTLAASSLGDLELSFYETRGQLEVQVIRARNLVPKANSKV  
LPAPYVKVYLMFMQICISKKKTKIARRTLDPVFHQTMNFDPTQYGHCVQVIVWGDYGRMD  
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>Anopheles gambiae\_(XP\_003435904)  
MFTQTNRDIFSSVANGDDNDDGSSHHGLKMDDMPDLSHLTQEERAI IEGVMRQKQEEERENEIMRRK  
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RANSQLRRQYSQQDPPTRRLSQSDGSGMDMMSPGHHQQQIGRMQQMGHGQVGGMYGGRPGAGQQGYGGG  
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FEAGHQRYFDNHTRLNANLTDYRATKLDVQQRNSYNRTNHNRYQSPSQAAPSSHPYHYQPSQDPLGRD  
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SERPRGSKGIRRAAAWRACFGATVYLEGQHGCGKTHQNRRLQHRSLPTGWATTSICALPSESYPCGGQQV  
MADNSGILPVLDPVTQATIIPPKPEFELPPPACTVVGPSVVGNACTCSSFVSLPVSIPIDSVLSEPIPI  
SPAPPDKTISQMSDMAGSYGSPVSHGGSMPEGYFNEQCITLQPERSTIRSISMNPGSDNMVSTSVNLLS  
SQPGCQHPATSFQSGSLPTEHYFGRARHPAGGVSM DIMPSSMHAADGTGTVEYEQCAPSMGRRPSY  
AMRSNTSEPNLNSMIMRRLSNRPIEQPHAFGYAQRNQMISISNRYHPQPHAGMGSDMGSKYAPPPVAT  
NQIILKSSFDQNLHNSIVYEPGGMGGGAGGQNICISNKNVYDPHTGYQNQTIITCISNSRENLEGNFRY  
TSNPEGTVCEINAPDVQFRSSRASNLVEEVAMPDQARVPVKETLSAGRNI DCDEHEYGVSDLEMHPDHI  
LNKPIEVLKSPSEYRYSAYPKKVTEDTYVVSSDVRGKPEKISRSHSLIAQDQIIDIEYDSDTGWTKTSVR  
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VDGESSKNQSEKGSKNIEKPTATGKQGEKEKCTAVAKKEKESKVGKTSSSSKPMVKSKSSTGSSTPK  
KGTSPAKSGSGSIKAGSLKQTKTGGSTPSIASSKVKVAEKPNFKEIDTKKSKSKLPCKKTDKSKR  
VDEIKSESTVLYSSSEIKSII DEVRMELLQPKSTVYLSDESPTVLRNRSFSFDGELNYSKRIHDSYDK  
YEFVDGRKHYLLKDERLQRLTDYRGERAVGYERSTDRRRGDDEYERRGCRMVDPGEEDDPRRRPEMFA  
KCKSRSSSLVSNDAIEPLRRKVYHSDSAEEEDDDGREDEEEGDEVEFFESFRGRNSSFNGKSSLKRR  
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GSPSTSAGRLPVDHQRAHTTHSDYDVRGRSRYGGHNGGREAYRQRDRDRDRNNSDHERDRDLSREQ  
RESRERGEDQSLNSTEGTPEDKIDGSLSDTAVIQSLDARRKLDQRSKSETPTRDRDRFGTGMGIKSN  
TSQLSATGRKRRMGFGKRGKNSFTVHRSEEVLPGEVRRGGGLSRGSSASSDGEGSADGDSTPRVASKRVD  
RVTSGAPAHKCTMLPPHSDRLVHQILSSPSVAHSILLADQGVSPSSSSSTSQRKRASAGSIQRSVEVTP  
PAQSAAYRAGSLHSISSEGSWSPSLRVAGDTGPLSDFIDGLGPGQLVGRQVLGAPALGDIQLSMCYQK  
GSLEVEVIRARGLQARPGSKVLPAPYVKVYLVSGKCKIEKAKTTTARKTLDPLYQQQLVFREPFAGCILQ  
VTVWGDYGRMEGKVFMGVAQIMLDNLNLSHIVIGWYKLFGTSSL

>Hydra magnipapillata\_ (XP\_012564402)

MIMSQSLSTGNDYYPASPPPIDLSHLTEAEKRKIKNVLDQRKELENETAFIQSGIVRELATYQVRYELKSN  
QAPLSDANMCELCHKNKEFCVNNYKRYCKFCRSKLCDECSIQSGSGKMTWSCCLICKKKQDLLLKTGRWF  
HGKEHKFPNPAEIEQLLTVPTQOKKPLSPKI IKTGYPASSVTKAQLADKNCTKVLDQTNNESTELSNTK  
KVTFGNKSKSNMLEEQQIKEMFQSLVSHHVHWSRPDENKILGDILLSIGSNI IKKFDPDYCTAFGIKLSM  
GVSDEHGLLKTLVKSVVPGSIGDIIGKIKPGDELLEWNELSLVGCSSKEEVEDVLANEDSLDLHLLSRKC  
HKEKILANIQSVPPSHHSPSPQPMGILKTIDGSDFKTDCQNGAVECDSSKSNVQANQSRGTPILKANNI  
SGQLQIKLKYEDTSCLYVSIIGAQGLNHRQNMQLRNPYVKLYFLPDRSLQSKRRTKTVLRSLSPWNQT  
FMYTLKSQKFKGRYLEITLWDYERSENEFLGEILISMLEAPLDNLCHWYPLQLHDQQNMLPQPTPTPTL  
SPQCSKAQFILQDNGEREHPVENQTVSSFS PADINEKINEVGTVKTSFSYDSTGGTSTIDENTPVPSPSPS  
QVFEMNKELSQITSSKNSDNEKRQYLKPALVQESSVIRPSLLQRAQLFLQKQLDVLTSSSSSETQLTKNS  
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VDSRRIEPRLTDYNLSLSQQGDRAGDKSAEWRQSGNDNNYGVKFNKPTLLRMDMSGSSPKNFEKKA  
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SSIASSMMLTTSVGSMSWI PPSLRSLSGDVQLIDFVEGLGPAQVVGRQVLGSPMLGDVQLSLLDRRGVLD  
VEIIRAKSLIIPKPSKTLAPYVKVYLLCGKCKVEKRTKTSKRTLDPHYAQLHTFVQNYQGVKVLQIMV  
WGDYGRLDKRVFMGVCQIILLDDLDSQLLVGVYKLFTTTSLVHPPSNPSPNPNPTTSSSTNSDRF

>Amphimedon queenslandica\_ (XP\_011405965)

MESKKRVVSNYRSSIIGPPVFQYTSIYAKISEAKNLASGLRDVYCYIKVDNEAIARTASVFNSSEPFWGE  
EYRLHVPLEYQYVSVYLYDHDTLGVKVPVIGKVRDLRDSIMGSPRGLDSWFPLKPI SKDDEIQGELLAEIM  
IDEYSDEMFRGVITLVEARDLAVRDINSKVDYAVINYKGEKELNTPTLKKTFRPRWNKTYELPINRPLEE  
FDNRTVRITIIYDSAKFHHD AFLGEVIIDLAEFLGQRYKTWYRLQQQDKETSAAAMPSSGAKKDGKKEKDL

GSLRLKVKQCHEERILDSQLYSPFVQLMISAVESPGPEGSPLLIMLEEVMTMDRNSLAQTLVRFYIAHNAI  
LPLFDCLISREVENVSLSNVTTLFRGNLSASKCLDQFMKVVALPYLHETLKPVIDTIFNDKKLVELDPDQ  
LKTRSSSTSKLIDTSAVQLTGYIQIATESIFESVERCPQVLRQSMRLLWDRVIVKFPDGDTPYSSVTGFI  
FLRFFVPAILSPKLFALREEHADQRAERTLKLTAQLIQTMGNLQTAVDAKEQFMSPMATLLKEGVDKVKT  
YINQLIDVQIVMNTSPATPVEVLS DGLGYLQHVVLNSGVLWKRVTSGTSGAVGSLLYRKRFFELTNI AFT  
YFPTEKKTGEAKSYPVQWIRVVEKLDEAAFSRKHMFQIVIVPVGVPSTAFSPSETVLYLQAADVNEQNRWV  
SAIRKACLNRMSVPVHHTGVYLPKKEWSSCRATAPAEPGCCPCHRGITIGDWRDPLDPYLDQAQVLYSQ  
YQQGRETTLTKNYSAPAESENPENPDVPPRPAPKPGSDEARMQAAYGR LAEVLDEL SYHHSQV PNV

## **R-Spondin Homolog-RSPO**

>Homo sapiens\_RSPO1(ENSP\_383846)

MRLGLCVVALVLSWTHLTISSRGIKGRQRRISAEGSQACAKGCELCSEVNGCLKCSPKL  
FILLERNDIRQVGVCCLPSCPPGYFDARNPDMNKCIKCKIEHCEACFSHNFCTKCKEGLYL  
HKGRCPACPEGSSAANGTMECSSPAQCEMSEWSPWGPCSKKQQLCGFRGSEERTRRVL  
HAPVGDHAACSDTKETRRTVRRVPCPEGQKRRKGGQGRRENANRNLARKE SKEAGAGSR  
RRKGQQQQQQGTGVP L TSAGPA

>Gorilla gorilla\_RSPO1(ENSGGOP\_7543)

MRLGLCVVALVLSWTHLTISSRGIKGRQRRISAEGSQACAKGCELCSEVNGCLKCSPKL  
FILLERNDIRQVGVCCLPSCPPGYFDARNPDMNKCIKCKIEHCEACFSHNFCTKCKEGLYL  
HKGRCPACPEGSSAANGTMECSSPAQCEMSEWSPWGPCSKKKKLCGFRGSEERTRRVL  
HAPVGDHAACSDTKETRRTVRRVPCPEGQKRRKGGQGRRENANRNLARKE SKEAGAGSR  
RRKGQQQQQQGTGVP L TSAGPA

>Macaca mulatta\_RSPO1(ENSMUP\_11037)

MRLGLCVVALVLSWTHLTIGSRGIKGRQRRISVEGSQACAKGCELCSEVNGCLKCSPKL  
FILLERNDIRQVGVCCLPSCPPGYFDARNPDMNKCIKCKIEHCEACFSHNFCTKCKEGLYL  
HKGRCPACPEGSSAANGTMECSSPAQCEMSEWSPWGPCSKKKKLCGFRGSEERTRRVL  
NAPGGDHAACSDTKETRRTVRRVPCPEGQKRRKGGQGRRENANRNLARKE SKEAGTGSR  
RRKGQQQQQQGTGVP L TSAGPA

>Mus musculus\_RSPO1(ENSMUSP\_30687)

MRLGLCVVALVLSWTHIAVSGRGIKGRQRRISAEGSQACAKGCELCSEVNGCLKCSPKL  
FILLERNDIRQVGVCCLPSCPPGYFDARNPDMNKCIKCKIEHCEACFSHNFCTKCKEGLYL  
HKGRCPACPEGSTAANSTMECGSPAQCEMSEWSPWGPCSKKRKLCGFRGSEERTRRVL  
HAPGGDHTTCSDTKETRKT VRRTPCPEGQKRRKGGQGRRENANRHPARKNSKEPGSNSR  
RHKGQQQPQPGTTG P L TSVGP TWAQ

>Oryctolagus cuniculus\_RSPO1(ENSOCUP\_9364)

MRLGLCVVALTLSWVHLAAGSRGIRGKRQRRISAEGSQACAKGCELCSEVNGCLKCSPKL  
FILLERSDIRQVGVCCLPSCPPGYFDARNPDMNKCIKCKIEHCEACFSHNFCTKCKEGLYL  
HKGRCPACPEGSTASNGTLECGSPAQCEMSEWSPWGPCSKKKKLCGFRGSEERTRRVL  
HAPAGDHTACSDTKEARRTVRRTPCPEGQKRRKGGQGRRENTHRNLARKDSKETGAGSR  
RRKGQQQQPGTAR P FT TAGPT

>Bos taurus\_RSPO1(ENSBTAP\_5002)

MRLGLCVVALVLSWVHLAAGSRGIRGKRQRRISADGGQACAKGCELCSEVNGCLKCSPKL  
FILLERNDIRQVGVCCLPSCPPGYFDARNPDMNKCIKCKIEHCEACFSHNFCTKCKEGLYL  
HKGRCPACPEGSA PADGTMECSSPAQCEMSEWSPWGPCSKKKKLCGFRGLEERTRRVL  
HAPGGDHAVCSDTKETRKT VRRTPCPEGQKRRKGSQGRRENANRNPGRKESKEAGTGAR  
RRKGQQQQQQGTG P V T S L G P T

>Dasypus novemcinctus\_RSPO1(ENSDNOP\_20525)

MRLGLCVVVLVLSWVHLAAGSRGTGKRQRRISVEGSQACAKGCELCSEVNGCLKCSPKL  
FILLERNDIRQVGVCCLPSCPPGYFDARNPDMNKCIKCKIEHCEACFSHNFCTKCKESLYL  
HKGRCPACPEGSSAANGTMECSSPAQCEMSEWSPWGPCSKKKKLCGFRGSEERTRRVL  
HVPAGDHAICSDTRETRRTVRRTPCPEGQKRRKGGQGRREKVN RNPDRKESKEAGTGSR  
RRQLLQQPQQGTAG P V T S A G P T

>Myotis lucifugus\_RSPO1((ENSM LUP\_11140)

MRLGLCVVALVLSWMHLTAGSRGIKGRQRRISAEGSQACAKGCELCSEVNGCLKCSPKL  
FILLERNDIRQVGVCLPSCPPGYFDARNPDMNKCIKCKIEHCEACFSHFNCTKCKESLYL  
HKGRCPACPEGSAAANGTMECSSPAQCEMSEWSLWGPCTKRKKLKGFRGSEERTRRVL  
HAPGGDHAICSDTKEIRRCTVRRTPCEPQKRRKGGQGRREKANRNP SRKESKEAGTGSR  
RRKGGQQPQQQQQGTGVLTSAGPT

>Ornithorhynchus anatinus\_RSP01(ENSOANP\_3258)  
MQLGLFAVLVILSWTDLAGGSKVAKGRQRRISTEVSQGCAGCELCSEFNGCLKCSPKL  
FILLERNDIRQIGICLPSCPPGYFDARNPDMNKCIKCKIENCDAFCSQNFCTKCKEGLYL  
HKGRCPDCPSGYSAAANGTMECSSPAHCEMSEWSSWGPCSKKKKLCGFRKGTEERARRVL  
NAPTGDRSGCCPPAREVRRCTVQKSLCPEGPKRRKDEQKRENGNGNHRKEAKEARS GSR  
RRKGGQQQQQQQRTVLPPLTLAGPD

>Gallus gallus\_RSP01(ENSGALP\_3008)  
MQLGLFVVVFLSMDLTTGGSKVVKGRQRRISTELSQGCARGCDLCSEFNGCLRCSPKL  
FILLERNDIRQIGICLPSCPLGYFGLRNTDMNKCIKCKIENCESCFSRNFTKCKEGLYL  
HKGRCPYVTCPEGYSAAANGTMECSSPAQCEMSEWGPWGPCSKKRKLCGFKKGNEDRTRRIL  
QAPSGDVSLCPATTEVRRCTVQKSQCPEGKRRKDEQKQDNTNGNRNRKDTKDAKSGTK  
KRKSKQRGAVAPTTASAPQ

>Pelodiscus sinensis\_RSP01(ENSPSIP\_8505)  
MQLGLFLVVVFLSMDLAGSSKVVKGRQRRISSEVSQGCAGCDLCSEFNGCLKCSPKL  
FILLERNDIRQIGICLPSCPLGYFVGNPDMNKCIKCKIENCEACFSRNFTKCKEGLYL  
HKGRCPYVTCPEGYSAAANGTMECSNPAQCEMSEWGPWGPCSKKRKLCGFKKGNERSR KVL  
LAPSGDVSVCPATTEVRKCTVQKNQCPEGKRRKKEEQEKRDNMNGNRNQKDTKEAKSGTK  
KRKSQQRGTVPMTLASPAQ

>Xenopus tropicalis\_RSP01(ENSXETP\_63528)  
MQFGLFAVLVLI LMDIADSNKFFVKGRRHRRRSTEVSMVCAKGCDCSEFNGCMKCLPKFL  
ILLERNDIRQTIGICLPSCPQGYFDDRNRENNRCLKCKINNCEACFSKNFTKCKEGFYSH  
KGSCYSSCPEGFSAVNGTAECSSVQCEMSEWGAWSPCSRGTQCGRKKGTEERSRI VVKAP  
LGDALCPPTTERRKCTMPKIPCTNRSGLMLKNQNKQELSKRKEKNSKTQIEQDGLSKR  
NKSQQKVTSTPSTPLPVQ

>Danio rerio\_RSP01(ENSDARP\_135809)  
MHLGLLALALVFFSSMGHADNLKASKARRQRRISTEVPPSCSNGCEHCSEYNGCLKCRPR  
LFILLERNDIRQIGICLAACPVGYYGIRNRDMNKCTQCKIENCEACFSRNFTKCKEGLY  
SHRGRCFSSCPEGFTVNGTMECVVQCDLSEWSPWGPCMKNKTCGFKKGNQTRTREPLQV  
PSPATSTGAAPASGCVPEIQTRCTVQKKIPCKGENKKNQQRNGENSKNRGRDSKERGGN  
KRRKNTNRSTTVPTITTSMT

>Takifugu rubripes\_RSP01(ENSTRUP\_24334)  
MQLGLVVLAMIFLSSMGHSDALKLSKARRQRRVSPEMPLSCP KGCDCRCSEYNGCIKCKPK  
LFIFLERNDIRQIGVCLASCPVGYFGMRNPEGNNRCTQCKIENCEACFNRNFTKCKEGL  
YSHSGRCYVSCPQDQSAVNETMECVDCLEGEWSQWSSCMKKNKTCGFRKGSQSRSRVPLP  
QVHSPDTSALVPSQTCAPETERKKCTLSKAPCGRERNGKGDQQGDTNRRERENGRGHG  
RNKGGGSRRKKGQSRRTSAPSITSSVS

>Gasterosteus aculeatus\_RSP01(ENSGACP\_18089)  
MQLGLVALAMVVFSSVGHGDALRPSRGRQRRVSTEGPPSCP KGCDCRCSEYNGCIKCRPK  
LFIFLERNDIRQIGVCLASCPVGYFGMRNPEGNNRCTQCKIDNCEACFNRNFTKCKEGL  
YSHSGRCYVSCPQRTANESMECVQRADECILGEWSQWSSCMKKNKTCGFKKGSQSR  
RVPSQVHSPDASPAPEPSQTCAPQVERRKCSVTKTPCARGKRKI H

>Oryzias latipes\_RSP01(ENSORLP\_18367)  
MQLGLVALAMIILSSMGHSDVVKLSKARRQRRVSTEGPPSCP KGCDCRCSEYNGCVKCKPK  
LFIFLERNDIRQVGVCLASCPVGYFGMRNPEGNNRCTQCKIDNCEACFNRNFTKCKEGL  
YSHSGRCYVSCPQRTANETMECVQHALKCELGKWSQWSSCMKKNKTCGFKKGSQFRV  
RVPLQQTAAADSSSTLEETCTSQSERKCVVPKTPCVKDRKNKGDNTNRRRRLGREG  
KDGSRRGGGKRRRGPSTTTVPSITSSVT

>Homo sapiens\_RSPO2 (ENSP\_276659)  
MQFRLFSFALIIILNCMDYSHCQGNRWRRSKRASYVSNPICKGCLSCSKDNGCSRCQQKLF  
FFLRREGMRQYGECLHSCPSGYYGHRAPDMNRCARCRIENCDSCFSKDFCTKCKVGFYHL  
RGRCFDECPDGFAPLEETMECVEGCEVGHWSEWGTC SRNNRTCGFKWGLETRTRQIVKKP  
VKDTILCPTIAESRRCKMTMRHCPGGKRTPKAKEKRNKKKKRKLIERAQEQHSVFLATDR  
ANQ

>Pongo abelii\_RSPO2 (ENSPPYP\_21114)  
MQFRLFSFALIIILNCMDYSHCQGNRWRRSKRASYVSNPICKGCLSCSKDNGCSRCQQKLF  
FFLRREGMRQYGECLHSCPSGYYGHRAPDMNRCAGCEVGHWSEWGTC SRNNRTCGFKWGLE  
LETRTRQIVKKPAKDTIPCPTIAESRRCKMTVRHCPGGKRTPKAKEKRNKKKKRKLTERA  
QEQHSVFLATDRANQ

>Mus musculus\_RSPO2 (ENSMUSP\_67325)  
MRFCFLFSFALIIILNCMDYSQCQGNRWRRNKRASYVSNPICKGCLSCSKDNGCSRCQQKLF  
FFLRREGMRQYGECLHSCPSGYYGHRAPDMNRCARCRIENCDSCFSKDFCTKCKVGFYHL  
RGRCFDECPDGFAPLDETMCEVEGCEVGHWSEWGTC SRNNRTCGFKWGLETRTRQIVKKP  
AKDTIPCPTIAESRRCKMAMRHCPGGKRTPKAKEKRNKKKKRKLIERAQEQHSVFLATDR  
VNQ

>Rattus norvegicus\_RSPO2 (ENSRNOP\_71706)  
MRFCFLFSFALIIILNCMDYSQCQGNRWRRSKRASYVSNPICKGCLSCSKDNGCSRCQQKLF  
FFLRREGMRQYGECLHSCPSGYYGHRAPDMNRCARCRIENCDSCFSKDFCTKCKAGFYHL  
RGRCFDECPDGFAPLDETMCEVEGCEVGHWSEWGTC SRNNRTCGFKWGLETRTRQIVKKP  
AKDTIPCPTIAESRRCKMAMRHCPGGKRTPKAKEKRNKKKKRKLIERAQEQHSVFLATDR  
VNQ

>Canis familiaris\_RSPO2 (ENSCAFP\_995)  
MQFRLFSFALIIILNCMDYSHCQGNRWRRSKRASYVSNPICKGCLSCSKDNGCSRCQQKLF  
FFLRREGMRQYGECLHSCPSGYYGHRAPDMNRCARCRIENCDSCFSKDFCTKCKVGFYHL  
RGRCFDECPDGFAPLDETMCEVEGCEVGHWSEWGTC SRNNRTCGFKWGLETRTRQIVKKP  
AKDTIPCPTIAESRRCKMAMRHCPGGKRAPKAKEKRNKKKKRKLIERAQEQHSVFLATDR  
ANQ

>Bos taurus\_RSPO2 (ENSBTAP\_18083)  
MDYSHCQGNRWRRSKRASYVSNPICKGCLSCSKDNGCSRCQQKLF FFLRREGMRQYGECL  
HSCPSGYYGHRAPDMNRCARCRIENCDSCFSKDFCTKCKVGFYHLRGRCFECPDGFAPL  
DETMCEVEGCEVGHWSEWGTC SRNNRTCGFKWGLETRTRQIVKKPAKDTIPCPTIAESRR  
CKMAMRHCPGGKRPDNNIGKK

>Pteropus vampyrus\_RSPO2 (ENSPVAP\_402)  
MQFRLFSFALIIILNCMDYSHCQGNRWRRSKRASYVSNPICKGCLSCSKDNGCSRCQQKLF  
FFLRREGMRQYGECLHSCPSGYYGHRAPDMNRCARCRIENCDSCFSKDFCTKCKVGFYHL  
RGRCFDECPDGFAPLDETMCEVEGCEVGHWSEWGTC SRNNRTCGFKWGLETRTRQIVKKP  
AKDTIPCPTIAESRRCKMAMRHCPGGRRAPKAKEKRNKKKKRKLTERAQEQHSVFLATDR  
ADQ

>Ornithorhynchus anatinus\_RSPO2 (ENSOANP\_23721)  
ASYGANPICKGCLSCSKDNGCSRCQQKLF FFLRREGMRQYGECLHSCPLGYYGLRSPDMN  
RCARCRIENCDSCFSRDFCTKCKAGSFLHRGRCFDECPDGFAPLEETMECVEGCEVGPWS  
EWGVC SRNNRTCGFKWGLETRTRQIVKKPAKDTIPCPTIAESRRCKMALRHCPGGK

>Anolis carolinensis\_RSPO2 (ENSACAP\_9991)  
MQFRLFSFALIVLNCMDYSHCQGNRWRRSKRANYGPNPICKGCLSCSKDNGCIRCQHKL  
FFLRREGMRQYGECLNSCPSGYYGLRAPDMNRCARCRIENCDSCFSRDFCTKCKPGFYLY  
RGRCFGECPDGFAPLEETMECVEGCEVGPWSEWGTC SRNNRTCGFKWGLETRTRQIVKKP  
AKDTIPCPTIAESRRCKMALRHCPGGKRTPKTKDKKKKKKLNLMERAQKQHSVFLSTDRAG  
Q

>Xenopus tropicalis\_RSPO2 (ENSXETP\_63896)  
MQFQLFSFVLIIILNCVDYSHCQANRWRRSKRASYGTNPICKGCLSCSKDNGCLRCQPKLF



FYLRREGMRQYGECLQSCPPGYGVVRGPDNRCRSCRIENCDSCFSRDFCIKCKSGFYSH  
KGQCFEECPEGFAPLDDTMVCVDGCEVGPWSEWGTCSRNNRTCGFKWGLETRTRQIVKPK  
AKDTIPCPTIAESRRCKMAMRHCPGGTRTTKKKDKKNKKKKKKLLERAQEQHSVVLATDR  
SSQ

>Danio rerio\_RSPO2 (ENSDARP\_100941)  
MQFRLFSFALIVLNCVDYSHCQTQQSHRWRNRKRASYGAYPICKGCSVCSKDNGCMNCQP  
KFLFLRRRERMROYGECLHACPSGGYGMRGTEINMCSRIRIDDCEACFSKDFCTKCKLGF  
YLHKGRCFEKCPEGFAPLEDTMECEGCEVQWSEWGTCAARRNKTCGFKWGLETRTRHIV  
KPKPKDTIPCPTIAESRRCKMAMRHCRKGGSGKGHRTKDQKKSNKQRLRLRAQNQHSDH  
LASIRAGQ

>Takifugu rubripes\_RSPO2 (ENSTRUP\_13116)  
MQFRLFSFALIVLNCMEYSNCQAPSHRWRNRKRASYGAYPICKGCSMCSRDNCGVNCQPK  
LFLFLRRRERMROYGECLHDCPAGYYGMRSPELNMCSRRIENCESCFSKDFCTKCKSGFY  
LHKGRCFDRCPPEGFAPLEDTMECEGCEVQWSEWGTCAARRNKTCGFKWGLETRTRHIVK  
KPKPKDTIPCPTIAESRRCKMPTRHCSRGLLEKTKNKHLLKQRRKYI

>Gasterosteus aculeatus\_RSPO2 (ENSGACP\_7152)  
GCSVCSRDNCGVNCQPKLFLFLRRRERMROYGECLLDCPAGYYGMRTLEINMCSRRIENC  
ESCFSKDFCTKCKSGFYLHKGRCFDKCPEGFAPLEDTMECEGCEVQWSEWGTCAARRNK  
TCGYKWGLETRTRHIVKPKPKDTIPCPTIAESRMCKMAIRHCRRGKDV

>Homo sapiens\_RSPO4 (ENSP\_217260)  
MRAPLCLLLLLVAHADMLALNRRKKQVGTGLGGNCTGCIICSEENGSTCQQRFLFLFIRR  
EGIRQYGKCLHDCPPGYFGIRGQEVNRCKKCGATCESCFSDFCIRCKRQFYLYK GKCLP  
TCPPGTLAHQNTRECCQGECELGPPWGGWSPCTHNGKTCGSAWGLESRVREAGRAGHEEAAT  
CQVLSERKCPPIQRPCPGERSPGQKGRKDRRPRKDRKLDRLDVRPRQPGLQP

>Pan troglodytes\_RSPO4 (ENSPTRP\_22516)  
MRAPLYLLLLVAHADMLALARWGEQVGTGLGGNCTGCIICSEENGSTCQQRFLFLFIHRE  
GIRQYGKCLHDCPPGYFGIRGQEVNRCKKCGATCESCFSDFCIRCKRQFYLYK GKCLPT  
CPPGTLAHQNTRECCQGECELGPPWGGWSPCTHNGKTCGSAWGLETRVREAGWAGHEETATC  
QVLSERKCPPIQRPCPG

>Mus musculus\_RSPO4 (ENSMUSP\_41578)  
MRAPLCLLLLLVAHADMLALYRRKKQAGTGLGGNCTGCVICSEENGSTCQQRFLFLFIRR  
EGIRQYGKCVHDCPLGFFGIRGQEVNRCKKCGATCESCFSDFCIRCKRRFHLK GKCLP  
SCPPGTLTHQSTRECCQEECEPSPWGSWSPCIHNGKTCGSGWGLETRVREAGPAKQEETAS  
CRVLSERKCPPIKRPCPGERNPRQKNRKDRRQRKDRKLERLRRPHQRGSQ

>Rattus norvegicus\_RSPO4 (ENSRNOP\_12951)  
MRAPLCLLLLLVAHADMLALYRRKKQAGTGLGGNCTGCVICSEENGSTCQQRFLFLFIRR  
EGIRQYGKCVHDCPLGFFGIRGQEVNRCKKCGATCESCFSDFCIRCKRRFHLK GKCLP  
TCPPGTLTHQSTRECCQEECEPSPWGSWSPCIHNGKTCGSGWGLETRVREAGPAKQEEMAS  
CRVISESRKCPPIKRPCPGERNPRQKNRKDRRQRKDRKLERLRLHQHGSQ

>Canis familiaris\_RSPO4 (ENSCAFP\_10193)  
VGTGLGGNCTGCVICSEENGSTCQQRFLFLFIRREGIRQYGKCVHDCPPGYFGVRGQEVN  
RCKKCGATCESCFSDFCIQCKRRFYLYK GKCLPTCPLGTAAQPSTRECCQEECELGPPWS  
WSPCMHNGKTCGSAWGLETRVREAGRAGREEAPTQVLSERKCPPIQRPCPAGAEKNPSQ  
KGRDRRPRKDRKLDRTLDVRPRPPAA

>Bos taurus\_RSPO4 (ENSBTAP\_29170)  
VGTGPGGNCTGCVICSEENGSTCQQRFLFISREGIRQYGKCVHDCPPGYFGVRGQEVN  
RCKKCGATCESCFSDFCIQCKRRFYLYK GKCLPTCPLGTAAQPSTRECCQEECELNPPWS  
WSPCTHNGKTCGSAWGLETRVREAGRAGREEAATCQVLSERKCPPIRRPCPGERNPNRKK  
GQRERRPRKDRKLDGRGDGRPPAP

>Pteropus vampyrus\_RSPO4 (ENSPVAP\_2129)  
MRVPLCLLLLLVAHADMLPLNRRKKQVIGLGGNCTGCVICSEENGSTCQQRFLFLFIRR

EGIRQYGKCVHDCPSGYFGVVRGQEIINRCKKCGATCQSCFSQDFCIQCKRRFYLYK GKCLP  
TCPPGTTAQQSTQEQECELGPWGSWSPCTHNGKTCGSAWGLETRVREAGRAGQEEGAT  
CQVLSERKCPPIQRPCGERNPSQKKGRRDRRPRKDRKLDKLDVRRPPRGRQW

>Monodelphis domestica\_RSPO4 (ENSMODP\_24370)  
MPWILLILLFFGNAVEMFALNHSKKQVGVGLKDNCTGCLICSEENGCVSTCQPRFLHIRR  
DGIRQYGKCVHDCPHGYFGVVRGHEVNRCKKCGSTCESCFSDFCIRCKRFFLHKGKCAP  
TCPPGTIAQQSTWECQEECEFGPWSLWSPCLQDGKTCGSAWGLETRVREVSRSREEGTA  
ACQALSESRCNAIRRHCPGEKNLTRRRGRKERHRKERKMEHS

>Taeniopygia guttata\_RSPO4 (ENSTGUP\_7065)  
GCVLCESEDNGCITCHHRLFLLIWRDGIQYGMVHTCPPGYFGVVRGLEVNRC TKCRSPSC  
ESCFNRDFCMCKDNFTCTMASAFGCCPAGTAAQTGTRECQETCEPGPWSEWSACTHESR  
TCGCRWGVETRVREVPEAAREEGTACPALLETTRRCRMKKHCPCGGEHRGQG

>Anolis carolinensis\_RSPO4 (ENSACAP\_10663)  
NCTGCIMCEDNGCISQKQLFLIIWRDGMRYGACVHACPPGYFGVVRGQEVNRCIKCRS  
PNCESCFKDFCIKCKQQFYLHKGKCLSTCPLDTIAQPSTQECLSKPEKCEMGPWNWSP  
CTNQGRTCGWRWGSAAARSREAIKSSKEEAEACPVLTESRCKRMKKRCPGAKSPNKQNI  
ST RYYRKSSLAQESRLASRSSD

>Danio rerio\_RSPO4 (ENSDARP\_123862)  
XLLVQMHVQLLALLSLFCQMLLLTLAVRKRRESWRQDCRSCVLCRENGCLRCSERLFLF  
LRRDGI LHHGSC LHS CPAGH FGLRGKELNRCMKCKAPECEFCFNKDFCTKCKIGFLLFKG  
KCFKSCPEGTFQASTDCVEGCVFSVFGFWSEWSSCQHNGLSGCVTWGLQSR TRELSRNT  
PEEKETLCPPTQTESRCKQMKRRRCRDKRKNKERRQERRNAQKLLKLYGNRTITNPPQGNLNF  
RSFVPQ

>Homo sapiens\_RSPO3 (ENSP\_349131)  
MHLRLISWLFIIILNFMEYIGSQNASRGRRRQRRMHPNVSQGCQGGCATCS DYNGCL SCKPR  
LFFALERIGMKQIGVCLSSCPSGYYGTRYPDINKCTKCKADCDCFCFNKFNCTKCKSGFY  
LHLGKCLDNCPEGLEANNHTMECVSIVHCEVSEWNPWSPCTKKGKTCGFKRGTETRVREII  
QHPSAKGNLCPPTNETRKTCTVQRKKCQKGERGKGRERKRKKPNKGESKEAIPDSKSL  
ESKEIPEQRENKQQQKRRKVQDKQKSVSVSTVH

>Pan troglodytes\_RSPO3 (ENSPTRP\_31716)  
MHLRLISWLFIIILNFMEYIGSQNASRGRRRQRRMHPNVSQGCQGGCATCS DYNGCL SCKPR  
LFFALERIGMKQIGVCLSSCPSGYYGTRYPDINKCTKCKADCDCFCFNKFNCTKCKSGFY  
LHLGKCLDNCPEGLEANNHTMECVSIVHCEVSEWNPWSPCTKKGKTCGFKRGTETRVREII  
QHPSVKGNLCPPTNETRKTCTVQRKKCQKGERGKGRERKRKKPNKGESKEAIPDSKSL  
ESKEIPEQRENKQQQKRRKVQDKQKSGIEVTLAEGLTSSVSQRTQPTPCRRRYL

>Callithrix jacchus\_RSPO3 (ENSCJAP\_6657)  
MHLRLISWFFIIILNFMEYIGSQNASRGRRRQRRMHPNVSQGCQGGCATCS DYNGCL SCKPR  
LFFVLERIGMKQIGVCLSSCPSGYYGTRYPDINKCTKCKADCDCFCFNKFNCTKCKSGFY  
LHLGKCLDNCPEGLEANNHTMECVNIVHCEVSEWNPWSPCTKKGKTCGFKRGTEIRVREII  
QHPSAKGNLCPPTNETRKTCTVQRKKCQKGERGKGRERKRKKVKNKGESKEAIPDSKDL  
ESKETPEQRENKQQQKRRKVQDKQKSVSVSTVH

>Mus musculus\_RSPO3 (ENSMUSP\_90287)  
MHLRLISCFIIILNFMEYIGSQNASRGRRRQRRMHPNVSQGCQGGCATCS DYNGCL SCKPR  
LFFVLERIGMKQIGVCLSSCPSGYYGTRYPDINKCTKCKVDCDCFCFNKFNCTKCKSGFY  
LHLGKCLDSCPEGLEANNHTMECVSIVHCEASEWSPWSPCMKKGKTCGFKRGTETRVRDIL  
QHPSAKGNLCPPTSETRTCTIVQRKKCSKGERGKGRERKRKKLNKEERKETSSSSDSKGL  
ESSIETPDQENKERQQQKRRARDKQKSVSVSTVH

>Rattus norvegicus\_RSPO3 (ENSRNOP\_15395)  
MHLRLISWFFIIILNFMEYIGSQNATRGRRRQRRMHPNVSQGCQGGCATCS DYNGCL SCKPR  
LFFVLERIGMKQIGVCLSSCPSGYYGTRYPDINKCTKCKADCDCFCFNKFNCTKCKSGFY  
LHLGKCLDSCPEGLEANNHTMECVSIVHCEASDWSWSPCMKKGKTCGFKRGTETRVRDIL  
QHPSAKGNLCPPTSETRTCTIVQRKKCSKGERGKGRERKRKKLNKEDDKKETSSSSDSKGL

SSRETSEQHESKERQQQKRRAREKQQKSVSVSTVH

>*Canis familiaris*\_RSPO3(ENSCAFP\_1500)

MLKNSPPVTSCQEWVLESRQQLPWPTLHPNVSQGCQGGCATCSDYNGCLSCKPRLFFVL  
ERIGMKQIGVCLSSCPSGYGTRYPDINKCTKCKADCDCFCFNKNFCTKCKSGFYLLHKGK  
LDNCPGLEANNHTMECVSIVHCEASEWSPWSPCMKKGKTCGFKRGTETRVREITQHPSA  
KGNLCPPTSETRKCTVQRKKCQKGERGKGRERKRKPKNKEESKDAVPDNKGLEPSRETP  
EPRENKDKQQKRRKVQDKQQKSSVDLFWGLKSS

>*Loxodonta africana*\_RSPO3(ENSLAFP\_2613)

MHLRLVPWFFIILNFMHEYIGSQNASRGRRRQRRMHPNVSQGCQGGCATCSDYNGCLSCKPR  
LFFVLERIGMKQIGVCLSSCPSGYGTRYPDINKCTKCKADCDCFCFNKNFCTKCKSGFYLLH  
HLGKCLDNCPGLEANNHTMECVSIVHCEASEWSPWSPCMKKGKTCGFKRGTETRAREIV  
QHPSAKGNLCPPTSETRKCTVQRKKCQKGERG

>*Myotis lucifugus*\_RSPO3(ENSMLUP\_3791)

MHLRLISWFFIILNFMHEYIGSQNASRGRRRQRRMHPNVSQGCQGGCATCSDYNGCLSCKPR  
LFFVLERIGMKQIGVCLSSCPSGYGTRYPDINKCTKCKADCDCFCFNKNFCTKCKSGFYLLH  
HLGKCLGNCPGLEANNHTMECVSIVHCEASEWSAWSPCTKKGKTCGFKRGTETRVREIT  
QHPSAKGNLCPPTSETRKCTVQRKKCQKGERGTK

>*Monodelphis domestica*\_RSPO3(ENSMODP\_22041)

MHLRLISWFFIILNFMHEYIGSQNASRGRRRQRRMHPNVSQGCQGGCATCSDYNGCLSCKPR  
LFFVLERNGMKQIGVCLSSCPSGYGTRSPDINKCTKCKADCDCFCFNKNFCTKCKNGFYLLH  
HLGKCLDTCPEGLEANNHTMECASIVHCEASEWSPWSPCTKKGKTCGFKRGTETRFREII  
QLPSAKGNLCPPTSETRKCMVQRKKCPKGERGKGRERKRKLNKEENKETRPNKGD  
SSES RDQRENKDKQQKRRKVQDKQQKSSMDLFGGLTSP

>*Gallus gallus*\_RSPO3(ENSGALP\_48902)

MQLRLISWFFIALNFMHEYIGSQHASRVRRQGRMHPNVSQGCQGGCATCSDYNGCLSCKPR  
LFFVLERIGMKQIGVCLSSCPSGYGTRYPDINKCAKCKADCDCFCFRNFCTKCKSGFYLLH  
YSGKCLEKCPDGLEANNHTMECTSIVHCEASEWSPWSPCTKKGKTCGFKRGNEVRVREIV  
QHPSARGNPPATSESRKCMVQRKRCQKEGKGNREEKRKSNKDESKESRQESKGRAA  
RRQNREQRENNTQPKRRKAPSKEQDLAPVDTAH

>*Xenopus tropicalis*\_RSPO3(ENSXETP\_61149)

MQLRLLSLFCFIILNFMLEYIDSQQIPRGRRRHRMHPNVSQGCQGGCATCSDYNGCLTCKPQ  
LFFALVRNGMKQIGVCRPSCPNGYFGTRSPDINKCTKCKADCDCFCFNKNFCTKCKSGFYLLH  
HNGKCLDTCPEGFENNHNMECTSIVHCVVGEWSAWGPCTKRGKTCDIKRGNETRVREILQ  
YPSRGTGCPPTSETKCKVVRKCKQDSQDRQRPRGNRDEIKKNKQRRKNGDAPRKQRQR  
KQERNQREGKRGEKGV

>*Danio rerio*\_RSPO3(ENSDARP\_58577)

MQLQLISIVLILHFMHEYTNQCQHHGSRHRGNKQVSGVSSQGCQGGCQTCVYNGCLTCKPK  
LFIHLERDGMRIQVCLASCPNGFYGTRSPDRNDCKGSECDSCFNRFNFCRLRCRAGSYL  
HKGKCMESCPDGLVPSDTKKECVAACPALCDLQNSDCTCRVSGHFLHAGQCHHVCPDE  
FEPNSMECIPTVHCEVSEWSEWGTCSRSGKTCGFKWGEETRTRKVLQNPSPMGSPCPPT  
SEKRECFVKKRCKPPKGQRREKRRFNLQEKVTAEARREKREREREKETIDRESESRN  
KTEQRRRRDQSRDAGTV

>*Takifugu rubripes*\_RSPO3(ENSTRUP\_9205)

MQLHLISFVLIILHCMDYTGCCQHHSSSRHWQHKQISGVSSGCQGGCLTCSDYNGCLSCK  
PRFFMHLERIGMKQIGVCVTSCPPGFYGTFRPERSPCTKCRSECDSCFAKNFCTRCRAGF  
YLHLGKQETCPEGLVRNEAQRECAPISLNLVHCEVGEWSEWSPCSRSGRTCRFKRGQET  
RTRQVLRYPSPFGNCPPEISEIKECLVKKRCKPDPGGSERGRGRERERERERERERERER  
KKERKKERKKERKKERKKERKKERISVVLVI

>*Tetraodon nigroviridis*\_RSPO3(ENSTNIP\_22293)

MQLQLISFALIILHCMDYTGCCQPHSSSRHWQHKQISGVSSGCQGGCLTCSDYNGCLSCK  
PRFFMHLERIGMKQIGVCMTSCPPGFYGTFRPERSPCTKCRSECDSCFARNFCTRCRAGF  
FLHLGKQETCPEGLVRNEAQRECAPKCPADCESVNSDCTCRCRQGLYLLSGRCHHVCP

EDYEPSDKLMECTPQVHCEVGEWSEWSPCSQSGRTCGFKRGQETRTRQVLRYPSPFGNPC  
PDISEIKECLLKKRKCPCGGRRKGERKERLNRNRRKDKENQTEREDSDNRNKTEHRHRRG  
HDPDLAWP

>Gasterosteus aculeatus\_RSPO3(ENSGACP\_8044)  
MQLQLISFVLIILHGMDNTGCQQHSSPRNRQHKQISGVSSGCQQGGCLTCSDYNGCLSCK  
PRFFMHLERIGMKQIGVCMTCPLGFYGTSPERNTCTKCRSECDSCFNKNFCTRCRAGF  
YLHLGKQCQENCPEGLVRSDTQRECVPGCPAECEACVNSETCARCRPGLYQLGGRCHHVCP  
EDYEPSDKLMECTPQVHCDVGEWSEWSPCSRSRGTGCFKRGQETRTRQVLRHPSFPGNPC  
AEVSEFKECLVKKRKCPCPERGQLGGQGTKNMNRGGRRKKNERRRNRNRRKDTGEREDLDN  
RNKTEHRHRRGHDTDPASP

>Oryzias latipes\_RSPO3(ENSORLP\_7233)  
MQLQVISFVLIILHCMDFTGCQPHSSSRHPQHKSISGVSSGCQQGGCLTCSDYNGCLSCK  
PRFFMHLKRIGMKQIGVCMTCPPGFYGTSPERNTCTKCRSECDSCFDKNFCTRCRAGF  
YLHLGKQCQESCPDSMVHNDTQRECVLSCPAECELNVNSETCMRRCRQGFYQLNGKCYHICP  
EDYEPNDRLMECTPQVHCQVGEWSEWSPCIRSSKTCNRRGQEARMRQILQTPSQFGRPCP  
LTTEVKDCLVKKRKC SGRRNPERKERRNRKNRDKESDEGRREKGRERDRGTGERENS  
ENRNKTEHRHRRGHNTETASP

>Strongylocentrotus purpuratus\_(XP\_796266)  
MELEGFLLFAITFFCGLLATMEGKHRGKGCPLGCSTCSVYNGCITCKPRYLFLLRSGMKQVVICHTHACP  
GFYPNSAGDYHRCRSCRIENCDCYSRTFCSRCPPYVGLYGKCVLQCPDSMYVNEMTSQCEVKVDCAVS  
PWSPWSPCIKKGQTCGFKWGEHRRYREVVARPTPEAEPCPELQGEKCRMHPRYCPGQLPRKPKDKGKRK  
KEKGTDDNQEGTTRKNDGNKQKDRTNRRSKKKDRQKPSPRDERRQRQRKEEHLIDFPLSTRTI

>Drosophila melanogaster\_(FBpp0271811)  
MLRHIVLLILLSSEVRGVCNRIPOGASGPRSPVDDNFKILIDGNPETYVPEHQYNVLSLSC  
PINMKVFSFTLVVEAEDPSAAFGGQDMTGHFELLVGDTRFSTSCENMVENTNTNAKIYI  
AVSWIAPRNPDSGCVLKAGVVQHRDVWFLDDGFLTKRICPEEIDELNSLTPPLETCCAC  
DEAKYEIVLERKWARNTHWKDFPSEDWRTRLGEVIGASHSHSYRYWAYGGRASKGMKELA  
EHGATRLENEIRENTQNGEVRTIIKAPGIPYRPKTFGTTLANARLDPVHHQISLAAKID  
PSPDWILGVAGLELCLSNCTWLERKVLNLYPWDIGTDSGSPYSMSDEPQVPPDVVRRITS  
SYPSDHRSPFYDDTGAPMKPLATLYLTRKLYIRECEEVPOEGPLECAVHPWNEWTCNST  
RCGQGYSHRQRSFKNPNLANFNCDRRLEEFRCQGTQCGAAEEEELEGEPPGLGMENPPS  
SGSMAEQCLTNWGEWSPCTKTGGRSSTRTRDYYPQARQRCLSVMRIPLEETRECI GSD  
CGGTIPDNGELDGFPEPDVFGETDHGGYMGKTTSWNSKQEHSSLSGSGNQAWNRRKPYNSWK  
DKSLNSPRDNAQESPNLFDQIENPQRPAYNPSDNMGGYDKGFPPTNSYSNDKLVGNRPG  
YNDFNSDYNKDAYNDYTPSFTSRTPFGRYPNQQTVEGTVEGNTNDINGNYNVVQDYCFEK  
PYASTLPCFAKPVVESNYWFDHEDHECKIFTTDNCQNRNRFRTLTACEGTCLQPQINM  
ERSENDAMDLYGRRSYDQKQTRGRPYDQTSGLIAYGQTEGRSYDQKVGKSYDRTFGRSYKQ  
TGGGSYDQPEDRSYDLSTGRSYVQPEDRSYDLSRGRSYDQPVGRSYDLAGGRSYGETSEA  
GDIGEPMSQTRSRYDTSRRGRYGG

>Apis mellifera\_(XP\_016772377)  
MPSSFSFDYPTFFDFEFGPRPRQTTYHRQRNRGVPLQNLFTDPLFKEQWYLNNGAKDGYDMNLGPAWQKGY  
TGKSVVVSILDDGIQTNHPDLALNYDHOASTDINDNDNDPMPRDNGDNKHGTRCAGEVAAVAFNQYCGVG  
VAYNASIGGVRMLDGPVNDAVEARALGLNPDHIDIYSASWGPEDDGKTVDGPGPLARRAFIYGVTSGRKG  
KGSIFVWASGNGGRHTDSCNCDGYTNSIFTLSISSATQGGYKPYWLEECSSLASTYSSGTPGNDKSVAT  
VDMDAKLRPDHICTVEHTGTSASAPLAAGIAALALEANPSLTWRDMQYLVVLTSRSTPLEKESGWILNGV  
KRKVVSHKFGYGLMDAGAMVNLAEQWTVNPPQHICKSDEINEERRIDPTYGYTLSVYMDVTGCAGSVNEVR  
FLEHVQCKVSLRFFPRGNLRLLLTSPMGTTSTLLFERPRDVLSSSFDDWPFLSVHFWGEKADGRWTLQVN  
NAGNRHVNSPGIILKKWQLIFYGTATNPIRIRTRQFNPGYQGYPYVGAASNVQASVATLDGSSAPILTNRL  
PGDTSSSSSFDSPSSSQVGDSELDTARKILHDCDPQCDPQGCYKGPQTQCIACKNYRLDNTCVSQCPPR  
SFPNQGGVCSWPCHESEICAGAGQDSCLSCAPHLRVTDLAVCLQCCPEGYENTENSTCVPCANASC  
QDRPDKCTSEHHLVMYENKCYAACPLTYTYETQDYNCAFCSTCETCNGTAENQCISCRPGLFSLNGACR  
ASCPIGYGADKKRRECVPCPPGCATCDMSTCRSCDDGWSLNEEGLCAPEHRDRCKTTEFYENGHCKQCHA  
SCKTCAGPGENNCISQKPLLLQAKRCVYQCDDGYYSMAQPSGPVCPVCLHTCKTCVSRNLNCTACQDGLQ  
LQSGEGRSSCAQGYYSRDRGQCAKCYLACKTCSGPRRDQCVTCPPGWQLAAGECHPECPEGFFKSNFGCQK  
CHHYCRTCKGRNRYRAGVTLTLLPLLDGVNIERAIHTPGRDPCPDFIPEHRYDLHLSPFKQSLNIHSIR  
ISSPEKIQTMYINLSFI

>Trichoplax adhaerens (XP\_002110515)

MAEQLVKILLFLTLIHVRQESTEHYNTWVIHVPGLTNAKLVATTHASTILHQVGSLEDHYLIRHAG  
TPHRSKRSNSYKSWNLRLDTRVLYVEQQISKLRIRKSFNFNDPLWPKQWYLENTGOASGPPHLDHNIIP  
AWKSGATGIGIVVSIILDDGLYYEHPDLRRNYDPEASFDINGNDHDPTPRKTGNDENRHGTRCAGEVAIA  
NNSICTVGAAYNAKIGGIRMLDGDVTDAVEATSLSWKPKQHIDIYSSSWGPEDDGRNIDGPGPLAKKAFID  
GVNKGHRHGLGSI FVWASNGGSSVHDNCNCDGYVISIYTISSISAATDTGNVPWYTESCSSILATTFSSGN  
GONKIITDDLHDCRTEHSHTGTSAAAPLAAGMFALALEANPRLTWRDLQHIVVITSKPDKLHTDDWTINGV  
GRKISNWFYGLLDAAALVSTARNWKTVP IQRSKSFKFKTKKNYIPPNGLIIVSINVEKSEAIVNYLEHV  
QAVISLSHNQRGLITIQ LISPAGTKSVLFDRRQQDTSRAGFKNWPLMTTHFWGEKSAGNWTLIIINKDSN  
SGKLGKWKLVLFGTTSKPHDLYYSSCNPECERSSSGNGPGAADCRI CRHFQAADGRCVKNCSNGQYGNLE  
TKACINCPYGCDCVNNDSICITCKPNFANSNGSCVSSCESTYQHSFNGNTKCLKCSSNCAACANETYCIS  
CPGTAYEYRGSCIQQCPQGTYSNYVYGIRTCCTSKHNCLDCYNEAGSCRVCQKGYQLVVDKSKTKSCP  
VGYNAISGEQNICLACHHRTSCLSAASSGCKSCSHGFHLYNGSCTDKCPDGTYTDKFTGECFPCFNTC  
TTCNAGKSKSCLSKSNLYLQNGECVSNCFKGYQDDNLMRCRRCHHSCASCNGPSSNSCTSKLSQSFL  
HNNSCLMECPVGHYSDITMKACNPCSSHCYHCVNSVCLSCNKNFILHHQKCAKSCPSGYILKERTCNPC  
HPTCSNCSDDDIASCSCGKSHTHFLHQGICTKSCLFGYFGDTITQQCQPCGHSSCASC FEGNSSLCLLCP  
GRFLQHGSCVTT CNNGFPKNGTCSSEGVGCRECLPNDPNQCLTCLDNYFNHFKNCVRECPVGTYT NAT  
AGQLICHDSNCTCSGKH IENCTDCKPGWFMHAGKCVSYCPSSGYANGNACSKCSHGCKLCISQNTCLEC  
ESSLVKFNKSGCLKDCPSNSYATDENTECQLCHKGCETCKIVNRESQCLSCINQYLILKAGKCLPNGNCSG  
NMYFNKSNCSKCHSDCEACFDDDRISCLRCREDKYLNPVSAICEQYCPGLYFADNATRRCCQCHYSCLS  
SNASVCTQCRPGFYNSGNCITKASGEYFNKKTASCQLCGNCKEKNINSKTCITCKSGNYKYDGCICLS  
ACPTQTYASNGNCKACPSGCLCKADMTCTCKKNYKLSQSACVLSLPLNGCKNSSCLVCKVANCSRCS  
DSTICNICIKPFILHQGSCIKQCPDGTYFDHVKNCFDCNDCSSCVGPKETDCVKCSSAKPYLLHYKCL  
SKCPANYYIDNANAKCRQCHFSCSKSCSGGSMNDICI CSDFGHYKSEKQCVNKPDLSSYRKNETDCGSC  
YSGCASCYGNKDKCISCI SPMVNFNFECMEKCLGYSYNDSGICRKHPCSGSCTGPHLNQCTSCSTGLF  
LKNGECHGTCPSGYEDMKS LKCLPCNPCKTVCVSDSAQCLTCNHGMVLQNSKCLRNCSSGYHTDGGCR  
PCHTSLCSCKGFTASDCLSCSKGWELLPHGICEPVCPSGQYD IGLKSCGNCHSSCATCSSKQASCLSC  
LKGRLLDKQSSRCYPCCKIDSDSQCCNCSASLKVCVLLSDTGNNIVTTPSLVTVTHHDFGNTFKEEKPVQ  
LILISGAISLLLFVGVV IIRRRNIFGHRGYKCLTPSGYDHTTISSTRTAYPDYDNDEINQV

## **Solute Carrier Family-SLC**

>Homo sapiens\_SLC30A1 (ENSP\_355968)

MGCWGRNRGRLLCMLALTFMFMVLEVVVSRVTSSLAMLSDSFHMLS DVLALVVALVAERF  
ARRTHATQKNTFGWIRAEVMGALVNAIFLTGLCFAILLEAIERFIEPHEMQQPLVVLGVG  
VAGLLVNLGLCLFHHHSGFSQDSGHGSHGHHGHGHLPGKPRVKSTRPGSSDINVAPG  
EQGPDQEETNTLVANTSNGLKLD PADPENPRSGDTVEVQVNGNLVREPDHMELEEDRA  
GQLNMRGVFLHVLGDALGSVIVVVALVFYFSWKGCSEGDFCVNCPFPDPCKAFVEIINS  
THASVYEAGPCWVLYLDPTLCVVMVCILLYTTYPLLKESALILLQTVPKQIDIRNLIKEL  
RNVEGVEEVHELHVWQLAGSRI IATAHIKCEDPTSYMEVAKTIKDVFNHNGIHATTIQPE  
FASVGSKSSVVPCELACRTQCALKQCCGTLQPAPSGKDAEKT PAVSISCLELSNNLEKKP  
RRTKAENIPAVVIEIKNMPNKQPESL

>Pan troglodytes\_SLC30A1 (ENSPTRP\_3292)

MGCWGRNRGRLLCMLALTFMFMVLEVVVSRVTSSLAMLSDSFHMLS DVLALVVALVAERF  
ARRTHATQKNTFGWIREVMGALNAILGLCFAILLEAIERFIEPHEMQQPLVVLGVG  
LLVNLVGLCLFHHHSGFSQDSGHGSHGHHGHGHLPGKPRVKSTRPGSSDINVAPG  
PDQEETNTLVANTSNGLKLD PADPENPRSGDTVEVQVNGNLVREPDHMELEEDRAGQL  
NMRGVFLHVLGDALGSVIVVVALVFYFSWKGCSEGDFCVNCPSPDPCKAFVEIINSTHA  
SVYEAGPCWVLYLDPTLCVVMVCILLYTTYPLLKESALILLQTVPKQIDIRNLIKELRNV  
EGVEEVHELHVWQLAGSRI IATAHIKCEDPTSYMEVAKTIKDVFNHNGIHATTIQPEFAS  
VGSKSSVVPCELACRTQCALKQCCGTLQPAPSGKDAEKTPTV SISCLELSNNLEKKPRRT  
KAENIPAVVIEIKNMPNKQPESL

>Pongo abelii\_SLC30A1 (ENSPYP\_251)

MGCWGRNRGRLLCMLALTFMFMVLEVVVSRVTSSLAMLSDSFHMLS DVLALVVALVAERF  
ARRTHATQKNTFGWIRAEVMGALVNAIFLTGLCFAILLEAIERFIEPHEMQQPLVVLGVG  
VAGLLVNLVGLCLFHHHSGFSQDSGHGSHGHHGHGHLPGKPRVKSSRPGSSDINVAPG  
EQGPDQEETNTLVANTSNGLKLD PADPENPRSGDTVEVQVNGNLVRES DHMELEEDRA  
GQLNMRGVFLHVLGDALGSVIVVVALVFYFSWKGCSEGDFCVNCPFPDPCKAFVEIINS

THASVYEAGPCWVLYLDPTLCVVMVCILLYTTYPLLKESALILLQTVPKQIDIRNLIKEL  
RNVEGVVEEVHELHVWQLAGSRIIATAHIKCEDPTSYMEVAKTIKDVFNHNGIHATTIQPE  
FASVGSKSSVVPCELACRTQCALKQCCGTRPQAPSGKDAEKTPTVSIISCLELSNLEKKP  
RRTKAENIPAVVIEIKNTPNKQPESL

>Mus musculus\_SLC30A1(ENSMUSP\_42410)  
MGCWGRNRGRLLCMLLLTFMFMVLEVVVSRVTASLAMLSDSFHMLSVDLALVVALVAERF  
ARRTHATQKNTFGWIRAEVMGALVNAIFLTGLCFAILLEAVERFIEPHEMQQPLVVLVSVG  
VAGLLVNVVLGCLCFHHHSGEGQGAGHGHSHGHGHGLAKGARKAGRAGVEAGAPPGRAPD  
QEETNTLVANTSNSNGLKADQAEPEKLRSDDPVDVQVNGNLIQESDNLEAEDNRAGQLNM  
RGVFLHVLGDALGSVIVVVALVFFYFNWKGCTEDDFCTNPFPPDCKSSVEIINSTQAPM  
RDAGPCWVLYLDPTLCIMVCILLYTTYPLLKESALILLQTVPKQIDIKHLVKELRDVDG  
VEEVHELHVWQLAGSRIIATAHIKCEDPASVMQVAKTIKDVFNHNGIHATTIQPEFASVG  
SKSSVLPCELACRTQCALKQCCGTRPQVHSGKDAEKAPTIVSIISCLELSENLEKKARRTKA  
EGSLPAVVIEIKNVPNKQPESL

>Rattus norvegicus\_SLC30A1(ENSRNOP\_6340)  
MGCWGRNRGRLLCMLLLTFMFMVLEVVVSRVTASLAMLSDSFHMLSVDLALVVALVAERF  
ARRTHATQKNTFGWIRAEVMGALVNAIFLTGLCFAILLEAVERFIEPHEMQQPLVVLVSVG  
VAGLLVNVVLGCLCFHHHSGEGQGAGHGHSHGHGHGLAKGARKAGRAGGEAGAPPGRAPD  
QEPDQEETNTLVANTSNSNGLKADQAEPEKLRSDDPVDVQVNGNLIQESDSLESEDNRAG  
QLNMRGVFLHVLGDALGSVIVVVALVFFYFSWKGCEDDFCVNPFPPDCKSSVELMNST  
QAPMHEAGPCWVLYLDPTLCIMVCILLYTTYPLLKESALILLQTVPKQIDIKHLVKELR  
DVEGVVEEVHELHVWQLAGSRIIATAHIKCEDPASVMQVAKTIKDVFNHNGIHATTIQPEF  
ASVGSKSSVVPCELACRTQCALKQCCGTRPQVHSGKEAEKAPTIVSIISCLELSENLEKKPR  
RTKAESVPAVVIEIKNVPNKQPESL

>Canis familiaris\_SLC30A1(ENSCAFP\_41421)  
MLLLTFMFIIVLEVVVSQVTSSLVMLSDFSFLMLSVDLALVVALVAERFARRTHATQKNTFG  
WIRAEVMGALVNAIFLTGLCFAILLEAIERFIEPHEMQQPLVVLGVGVAGLLVNVMLGCL  
FHHHSGFGNDSGHGHSHGGHGHLPKGARGKGGRAGAGDDSETPGEQRPDAEETNTLVSN  
SSNSNGLKLERPDPEKSRNDAVEVQVNGNLIRESHDVELEDDDKAAQLNMRGVFLHVF  
GDALGSVIVVVALVFFYFSWRCPEGEFCVNPCIPDPCKAFVEIINSTHATVHEAGPCWVLY  
LDPTLCIVMVCILLYTTYPLLKESALILLQTVPKQIDIKNLIKELRDVEGVVEEVHELHVW  
QLAGSRIIATAHIKCEDPTSYMQVAKTIKDVFNHNGIHATTIQPEFASVGSKSSVVPCEL  
ACRTQCALKQCCGTRPQAPSGKDAEKAPTIVSIISCLELSDNLEKKPRRTKVESIPAVVIEI  
KKMPNKQPESL

>Felis catus\_SLC30A1(ENSFCAP\_22351)  
MLMLTFMFMVLEVVVSRVTSSLAMLSDSFHMLSVDLALVVALVAERFARRTHATQKNTFG  
WIRAEVMGALVNAIFLTGLCFAILLEAIERFIEPHEMQQPLVVLGVGVAGLLVNVMLGCL  
FHHHSGFGNDSGHGHSHGGHGHLPKGARGKSNRTGSSDNSVTPGEQRPEQEETNTLVSNSS  
SSNGLKLRDPDPEKSRNDAVEVQVNGNLIREPDMHELEDDNKAGQLNMRGVFLHVF  
GDALGSVIVVVALVFFYFSWKCPKGEFCVNPCIPDPCKAFVEIINSTHATVYEAGPCWVLYLD  
PTLCIVMVCILLYTTYPLLKESALILLQTVPKQIDIKNLIKELRDVEGVVEEVHELHVWQL  
AGSRIIATAHIKCEDPTSYMQVAKTIKDVFNHNGIHATTIQPEFASVGSKSSVVPCELAC  
RTQCALKQCCGTRPQAPSGKDAEKAPTIVSIISCLELSDNLEKKPKRRTKAESIPAVVIEIKK  
MPNKQPESL

>Myotis lucifugus\_SLC30A1(ENSMLUP\_14723)  
MGCWSRNRGRLLCMLLLTFMFMVLEMVVSQVTSSLAMLSDSFHMLSVDLALVVALVAERF  
AQRTHATQKNTFGWIRAEVMGALVNAIFLTGLCFAILLEAIERFIEPHEMQQPLMVLAVG  
VAGLVNVVLGCLCFHHHSGFGNNSGHGHSHGGHGHHTKGVRGKSSRPGSDHRSPPGGQ  
RADQEETNTLVAGSSNSNGLKLGTDPEKSRINATDVQMNNGVIRESDNTDLEDEADDAQKAG  
QLNMRGVFLHVFGDALGSVIVVVALVFFYFWDSCPEGRFCENPCIADPCKALVEIINST  
QGTVFEAGPCWVLYLDPTLCIVMVCILLYTTYPLLKESALILLQTVPKQIDIRNLIKELR  
NVEGVVEEVHELHVWQLAGSRIIATAHIKCEDPTSYMQVAKTIKDVFNHNGIHATTIQPEF  
ASVGSKSSVVPCELACRTQCALKQCCGTRPQAYSEKDEKAPTIVSIISCLELSENLEKPR  
TQAENMPAVVIDMKMPNKQPESL

>Monodelphis domestica\_SLC30A1(ENSMODP\_3320)

MGCWGRNRARLLCMLSLTFMFMVLEMVVSRLTSSLAMLSDSFHMLSDVLALIVALVAERF  
ARRTQSTQKNTFGWIRAEVMGALVNAIFLTGLCFVILLEAIERFIEPHEIKQPLVVLGVG  
VAGLVVNLGLCLFHGHNGFGQGGESGGGHSHGGHSHGGHSHGKGVRGKSNRSGGNNSNL  
TESERAADGEETNNLVISSSKSNGMKLEREEEEQDGRDRTMDVQVNGTLIVDDSDNLDSEDE  
DNRGQLNMRGVFLHVFGDALGSIIVVINALVFFFWSKSCPEGEICKNPCVDPDCEAFVGI  
INSTDPVGEVGPWCWVLYLDPTLCLVMVGILFYTTYPLLKESALILLQTVPKQVNIIRNLKM  
ELRDVDGVEEVHELHVWQLAGSRIIATAHIKCRDPASYMVVAKSIKDVFNHGIHATTIQ  
PEFASVGSKSGVAPCELACRTQCALKQCCGTAQKNKETEKAPISSISCLELSDNLEKQPRR  
TKIENIPAVMIDIKKMPNKQPESSM

>Danio rerio\_SLC30A1a(ENSDARP\_22487)

MACAPNRVRLLCMLSLTFGFFIVEVVVSRITSSLAMLSDSFHMLSDVIALVVALVAVRFA  
EQTQSTNKNTFGWIRAEVMGALVNAVFLTALCFTIILEAIERFTEPHEIEQPWVVIWVGVA  
LGLLVNLLGLCLFHGHAGGGGHSHGGHSHGGAKKHKNGKVRSETLEDSSRSAGEET  
NNLVANHNPNVNAERKAADMCHSDSLDLQINGSAPYDELENGHDAASQLNMRGVFLHV  
LGDALGSIIVVINAIFVFWKPCPEPTICENPCSGQHCADHALNISSPLTNGTLIKAGP  
CWVLYLDPTLCIIMVCILLYTTYPLLKESALILLQTVPKQIDMHQLNARLRDLEGLAVH  
ELHIWQLAGSRIIATAHIKCHDPTS YMDVAKRIKDFHDEGIHATTIQPEFVTVNSESRA  
SLCELS CRTQCAPKLCCGAVDTAKPLEGSLESKSKCESKTPTLPSASVTSLEIISESVED  
TSRPESVVIITREVESSL

>Danio rerio\_SLC30A1b(ENSDARP\_94784)

MGLGQNRMRLLCMLTLTLVFFVVEVVVSRITASLMLSDSFHMLSDVIALTVALIAVSFA  
ETTRSTSKNTYGWIRAEVMGALVNAVFLTALCFTIFLEAVERYTQPHEIENPRVVIWVGVA  
AGLLVNVLLGLFLFHGHAGFGGGHSHAGHSHAGHSHAHQTNHREKPKAHEEACTLMINSS  
QGDHTCEQKSDSLNIRITAKGSLEDLDQSPESASQLNMRGVFLHVLGDALGSIIVVINAL  
IFTFVWTPCHSDQICYNPCRNHLTDHVVNTTVLSISKTPDRIPTISVAGPCWVLYLD  
PTLCLIMVCILLYTTYPLLKESALILLQTVPEQIDMPKLGKGLKSLDGLAVHDLHIWQL  
AGARIATAHIKCTDPALYMDIAKRIKDVFNHDEGIHATTIQPEFSAFSEGFQCELS  
RSQCKPKLCCNPTKRAKPEEELAKCRHDKPHSHAVEWGDGKKVDDAVHTEMESV

>Takifugu rubripes\_SLC30A1(ENSTRUP\_46128)

MACEPNRRLLCMLTLTFVFFFIVEVVVSRMTASLSMLSDSFHMLSDVIALIVALVAVRFA  
EKSHSTKNTFGWIRAEVMGALVNAVFLTALCFTIILEAIERFTEPHEIESPEMVAGVGA  
AGLLVNVLLGLCLFHGHAGGGGHSHGGKKNKLLKLGKDGKSPAAETSTLVDNHSSPSDTK  
PKNEMICKDSEDLHMNGNTLYDELEEHASSQLNMRGVFLHVLGDALGSIIVVINALIFT  
FVWKPCPPDEMCLNPCINGHSTDRHINQTLVGI TEGPSMSAMTFAGPCWVLYLDPTLCV  
IMVAILLYTTYPLLKESALILLQTVPKQIDMHQLNERLQGLEGLVAIHDLHIWQLAGSRI  
IATAHIKCHDPTS YMDVAKRIKDFHNEGIHATTIQPEFVTFSSERSDLSCELS CRTQCA  
PKLCCGTADKQAGADKKTDAECKAAAAAAASTLEVITEVPEQVAAAQTLQPSADAVAA  
RELESSL

>Tetraodon nigroviridis\_SLC30A1(ENSTNIP\_13679)

MACEPNRRLLCMLTLTFVFFFIVEVVVSRITSSLSMLSDSFHMLSDVIALIVALVAVRFA  
EKTHSTKNTFGWIRAEVMGALVNAVFLTALCFTIVLEAIERFTEPHEIESPEVVAGVGA  
AGLLVNVLLGLCLFHGHAGGGGHSHGSKNKKLKMGEAGEGSPAAETSTLVDNHNSPTDPK  
PKNGKSSEITCKDSEDLQMNNGNTHYDELEDEQASSQLNMRGVFLHVLGDALGSIIVVNV  
ALIFTFVWRPCGSEETCVNPCISGHSTDHQVNHNTLVLDSEGPSVWSATRAGPCWVLYLD  
PTLCVIMVGILLYTTYPLLKESALILLQTVPKQIDMHLNERLLGLDGLVAIHELHIWQL  
AGSRIIATAHIKCHDPTS YMDVAKRIKDFHDEGIHATTIQPEFVTFSSERSDLSCELS  
RTQCAPKLCCGSADKANAGPDKKSGGECRASAASALEVISEVPEEKAAAQTLQHGAEAV  
RELESSL

>Gasterosteus aculeatus\_SLC30A1(ENSGACP\_13084)

MTCEPNRRLLCMLSLTFAFFIVEVVVSRMTSSLSMLSDSFHMLSDVIALVVALVAVRFA  
EKTHATDKNTFGWIRAEVMGALVNLFLTALCFTIVLEAVERFTEPHEIETPLVVAGVGA  
AGLLINLLGLCLFRGHAGGGGHSHGGHSHGNKKNRGTGKSQKAGNGSSGEETNNLVAS  
HNSPGDARPRNASEISSDSDADVQMNNGSPHFEEEMHDAASQLNMRGVFLHVLGDALGSI  
VVVNSLIFTFVWQPCGKEEMCVNPCINSHISDHQVNHNTLVNLLGTTMSAMKYAGPCWV  
LYLDPTLCIIMVCILLYTTYPLLKESALILLQTVPKQINMNRNLNQRLLGLEGLVAIHELH  
IWQLAGSRIIATAHIKCHDPTS YMEVAKRIKDFHDEGIHATTIQPEFVTFNSESRDSL

ELSCRTQCAPKLCCGSADKPNAGSDKKASSYCKAASASGLEVIVETPEQAAGVEAGTRSE  
AAITVAREVESSL

>*Oryzias latipes*\_SLC30A1(ENSORLP\_15324)  
MACEPNRARLLCMLSITFGFFLVEVVSRITSSLSMLSDFSFMHLSDVIALIVALVAVRFA  
EKTQATNKNTFGWIRAEVMGALVNAVFLTALCFTIVLEAVERFTEPHEIDSPMVVAGVGA  
AGLLINLLGLCLFHGHAGGGHSHGGHSHGGKGGKGGKGGKSGKAGNGSAGEETNYLVGN  
HTSNTKPSMAEVSKDSTEVQMNGNTHFEEMESEADASSQLNMRGVFLHVLGDALGSVIV  
VVNSVIFTFVWKPCEGPNPCINSHKTDHRHINHTLVDLQDQDTKAGPCWVLYLDPTL  
CIIMVGILLYTTYPLLKESALILLQTVPKQINMHRNLNERLLSLDGLVLAIHDLHIWQLAGS  
RIIATAHIKCHDPTS YMDVAKRIKDFHDEGIHATTIQPEFVTFNSETQGSQCELSCRTQ  
CAPKLCCGQKSASDSKAAAASGLEVISEASEQVPSIQGGPRTEAEVAVTREVESSV

>*Homo sapiens*\_SLC30A2(ENSP\_363396)  
MEAKEKQHLLDARPAIRSYTGSLWQEGAGWIPLPRPGLDLQAIELAAQSNHHCHAQKQPD  
SHCDPKKGAQRQLYVASAICLLFMIGEVEILGALVSVLSIWWVTGVLVYLAVERLISG  
DYEIDGGTMLITSGCAVAVNIIMGLTLHQSGHGHSHGTTNQQEENPSVRAAFIHVIGDFM  
QSMGVLVAAYIIFYFKPEYKYVDPICTFVFSILVLTTLTILRDVILVLMEGTPKGVDFTA  
VRDLLLSVEGVEALHSLHIWALTVAQPVLSVHIAIAQNDAQAVLKTASSRLQKGFHFHT  
VTIQIEDYSEDMKDCQACQGPSD

>*Pan troglodytes*\_SLC30A2(ENSPTRP\_52651)  
MEAKEKQHLLDARPAIRSYTGSLWQEGAGWIPLPRPGLDLQAIELAAQSNHHCHAQKQPD  
SHCDPKKGAQRQLYVASAICLLFMIGEVEVGGYLAHSLAVMTDAAHLLTDFASMLISLFS  
LWSSRPATKTMNFGWQRAEILGALVSVLSIWWVTGVLVYLAVERLISGDYEIDGGTMLI  
TSGCAVAVNITMGLTLHQSGHGHSHGTTNQQEENPSVRAAFIHVIGDFMQSMGVLVAAYI  
LYFKPEYKYVDPICTFVFSILVLTTLTILRDVILVLMEGTPKGVDFTA VRDLLLSVEGVE  
EALHSLHIWALTVAQPVLSVHIAIAQNDAQAVLKTASSRLQKGFHFHTVTIQIEDYSEDM  
MKDCQACQGPSD

>*Mus musculus*\_SLC30A2(ENSMUSP\_101499)  
MQTMDKQNLLESTRGARSFLGSLWKSEASRIPPVDLPAVELAVQSNHYCHAQKDSGSHPD  
PEKQRRARRKLYVASAICLVFMIGEIEILGALLSVLSIWWVTGVLVYLAVERLISGDYEI  
KGD TMLITSGCAVAVNIMGLLALHQSGHGHSHGNSRDDSSQQQNPSVRAAFIHVIGDLLQ  
SVGVLVAAYIIFYFKPEYKYVDPICTFVFSILVLTTLTILRDVILVLMEGTPKGVDFTTV  
KNLLLSVDGVEALHSLHIWALTVAQPVLSVHIAIAQNADAQAVLKVARDRLQKGFNFHTM  
TIQIEKYSSEDMKNCQACQGPPE

>*Rattus norvegicus*\_SLC30A2(ENSRNOP\_72908)  
MQTMDKQNLLESTRGARSFFGALWKSEASRIPPVNLPSVELAVQSNHYCHAQKDSGSHPN  
SEKQRRARRKLYVASAICLVFMIGEIEGGYLAQSLAIMTDAHLLTDFASMLISLFSLWVS  
SRPATKTMNFGWQRAEILGALLSVLSIWWVTGVLVYLAVERLISGDYEIKGD TMLITSGC  
AVAVNIIMGLLALHQSGHGHSHGHSHEDSSQQQNPSVRAAFIHVVGDLLQSVGVLVAAYI  
IFYFKPEYKYVDPICTFVFSILVLTTLTILRDVILVLMEGTPKGVDFTTVKNLLLSVDGVE  
EALHSLHIWALTVAQPVLSVHIAIAQNDAQAVLKVARDRLQKGFNFHTMTIQIESYSEDM  
MKSCQECQGPSE

>*Canis familiaris*\_SLC30A2(ENSCAFP\_18683)  
MEPTEKQHLVDTKSGTRSYTGSLWQEGTGWIPPLPSPGLDLQAIELVAESNHYCHAQKQGA  
SHLEPKKERARRQLYVASAICLVFMIGEIVGGYLAHSLAIMTDAHLLTDFASMLVSLFS  
LWSSRPATKTMNFGWQRAEILGALLSVLSIWWVTGVLVFLAVERLISGDYEIEGGTMLI  
TSGCAVAVNIIMGLTLHQSSGHSHDSSQQQENPSVRAAFIHVIGDFLQSVGILVAAYIL  
YFKPEYKYVDPICTFVFSILVLTTLTILRDVILVLMEGTPKGVDFTTVKNLLLSVDGVE  
ALHSLHIWALTVAQPVLSVHIAIAQNADGQAVLKAASRLQKGFNFHTMTIQIEDYSEDM  
KDCQECQGPSD

>*Felis catus*\_SLC30A2(ENSFCAP\_11870)  
XPTERQHLMDARPGARSYTGSLWQEGAGWIPLPAPGLDLQAIELAAESNHYCHAQKQGPS  
HFDSKKEQARRRLYVASAICLVFMIGEIVGGYLAHSLAVMTDAAHLLTDFASMLVSLFSL  
WSSRPATKTMNFGWQRAEILGALLSVLSIWWVTGVLVFLAVERLISGDYEVGGTMLIT  
SGCAVAVNIIMGLTLHQSGHGHSHDTSQQQENPSVRAAFIHVVGDFLQSLGILVAAYIILY





GDLLQSLGVLAASILIYFKPQYKVADPISTFLFSICALGSTAPTLRDVLVLMGAPRSV  
EFEPVRDTLLSVPGVRATHDLHLWALTLTYHVASAHLAIDSTADPEAILAEASSRLYSRF  
GFSSCTLQVEKYRSEMAHCLRCREPPKA

>Canis familiaris\_SLC30A3(ENSCAFP\_7210)  
MEPSPATGGSETTRLVSPRDRGGAGGGLRLKSLFTEPSEAVPEEPKSVLPPFHHCHRDPL  
PQPGLTPERLQAQRQLCAACAVCCVFMAGEVVGGLYLAHSLAIMTDAHLLADVGSIMIGSL  
FSLWLSTRPATRTMTFGWHRSETLGALASVVSLWMVTGILLYLAFIRLLHSDYHIEGGAM  
LLTASIAVCANLLMAFVLHQAGPPHSHGSRGAEYAPLEEGPGEPLPLGNTSVRAAFVHVL  
GDLLQSLGVLAASVLIYFKPQYKAADPISTFLFSICALGSTAPTLRDVLVLMGSPRSV  
GFEPVRDTLLSVPGVRATHDLHLWALTLTYHVASAHLAIDSTADPEAVLAEATSQLSRSR  
GFSSCTLQVEQYQPEMAQCLRCREPPQA

>Felis catus\_SLC30A3(ENSFCAP\_17271)  
MEPSPATGGSETTRLVSPRDRGGAGGGLRLKSLFTEPSEPLPEEPKPEEMPFHHCHRDPL  
PPPGLTPERLQAQRQLCAACAVCCVFMAGEVVGGLYLAHSLAIMTDAHLLADVGSMMGSL  
FSLWLSTRPATRTMTFGWHRSETLGALASVVSLWMVTGILLYLAFIRLLHSDYHIEGGAM  
LLTASIAVCANLLMAFVLHQAGPPHSHGSRGAEYAPLEEGPGEPLPLGNTSVRAAFVHVL  
GDLLQSLGVLAASVLIYFKPQYKAADPISTFLFSICALGSTAPTLRDVLVLMGSPRSV  
GFEPVRDTLLSVPGVRATHDLHLWALTLTYHVASAHLAIDSTADPEAVLAEATSQLSRSR  
GFSSCTLQVEQYQPEMAQCLRCREPPQA

>Myotis lucifugus\_SLC30A3(ENSMLUP\_1312)  
MEPAPAAGGSETTPWRAPRDRESTGEGVRLLSLFTEPMESTAEETTFHCHRDPLPPPGLT  
PERLRAQRQLCVACAVCCVFMAGEVVGGLYLAHSLAIMTDAHLLADVGSMLGSLFSLWLS  
TRPATRTMTFGWHRSETLGALASVLSLWMVTGILLYLAFIRLLHSDYHIEGGAMLVTAGI  
AVCANLLMAFVLHQAGPQHSHGSRGAEYAPLEEGPGEHLPLGNTSVRAAFVHVLGDLLQS  
LGVLAASILIYFKPQYKAADPISTFLFSICALGSSAPTLRDVLVLMGAPHNVGFEPVR  
DALLSVPGVQATHLHMWSLTLTYHIASAHLAIDSTADPEAVLAEATSRLYSRFQFSSCT  
LQVEQYQSEMDQCLRCQEPQQA

>Ornithorhynchus anatinus\_SLC30A3(ENSOANP\_20322)  
SLFSEPSEPLPAESAPEQPRPQHCHGALAPQAGPSAERLRARKQHGAAACAVCCLFMAGD  
VAGGYLAHSLAIMTDAVHLLADVGSMMAGSLFSLWLSARPATRTMTFGWHRSETLGALASV  
LSLWLVGTFLLYLASLRLHSDYHIEGGAMLFTAGIAVCANLLMAFVLHQASPTHSHGAG  
GAGYMPLEEGQEAPLHLGNTSVRAAFVHVLGDLLQSFVGLVAATLIYFKPQYKAADPIST  
FLFSACALGSTAPTLRDVLVLMGAPPNIGFEPVRDALLGVPGVRAHELHLWALTLTY  
HVASAHLAIDEADPEAVLAEASSRLHARFGFASCTFQVERYQPDMAQCPCQCQEP

>Homo sapiens\_SLC30A4(ENSP\_261867)  
MAGSGAWKRLKSMRLKDDAPLFLNDTSADFDSDEAGDEGLSRFNKLRVVVADDGSEAPER  
PVNGAHPQLQADDDSLDQDLPLTNSQLSLKVDSCDNCQREILKQRKVKARLTIAAVL  
YLLFMIGELVGGYIANSIAIMTDALHMLTDLSAIIITLLALWLSKSPKRFTEFGFHRLE  
VLSAMISVLLVYILMGFLLYEAVQRTIHMNYEINGDIMLITAAGVAVNVIMGFLLNQSG  
HRHSHSHSLPNSPTRGSGCERNHGQDSLAVRAAFVHALGDLVQSVGVLIAAYIIRFKPE  
YKIADPICTYVFSLLVAFTTFRIIWDTVVILLEGVPSHLNVDYIKEALMKIEDVYSVEDL  
NIWSLTSGKSTAIVHIQLIPGSSSKWEEVQSKANHLLLNTFGMYRCTIQLSYRQEVDR  
CANCQSSSP

>Pan troglodytes\_SLC30A4(ENSPTRP\_12029)  
MAGSGAWKRLKSMRLKDDAPLFLNDTSADFDSDEAGDEGLSRFNKLRVVVADDGSEAPER  
PVNGTHPTLQADDDSLDQDLPLTNSQLSLKVDSCDNCQREILKQRKVKTRLTIAAVL  
YLLFMIGELVGGYIANSIAIMTDALHMLTDLSAIIITLLALWLSKSPKRFTEFGFHRLE  
VLSAMISVLLVYILMGFLLYEAVQRTIHMNYEINGDIMLITAAGVAVNVIMGFLLNQSG  
HRHSHSHSLPNSPTRGSGCERNHGQDSLAVRAAFVHALGDLVQSVGVLIAAYIIRFKPE  
YKIADPICTYVFSLLVAFTTFRIIWDTVVILLEGVPSHLNVDYIKEALMKIEDVYSVEDL  
NIWSLTSGKSTAIVHIQLIPGSSSKWEEVQSKANHLLLNTFGMYRCTIQLSYRQEVDR  
CANCQSSSP

>Mus musculus\_SLC30A4(ENSMUSP\_5952)  
MAGPGAWKRLKSLRKKDDTFLFLNDTSADFDSDEVSDEGLSRFNKLRVVVADDDSEAPER

PVNGAHPALQADDDSLDQDLPLTNSQLSLKMDPCDNC SKRRELLKQRKVKTRLTIAAVL  
YLLFMIGELVGGYMANSLAIMTDALHMLTDLSAII LTLALWLSSKSPTRRFTFGFHRLE  
VLSAMISVMLVYVLMGFLLYEAVQRTIHMNYEINGDVMLITA AVGVAVNVIMGFLLNQSG  
HHSHAHSHSLPSNSPSMVSSGHSHGQDSLAVRAAFVHALGDLVQSVGVLIAAYIIRFKP  
EYKIADPICTYIFSLVAF TTFRIIWDTVVIILEGVP SHLNVDIKESLMKIEDVYSVED  
LNIWLSLTS GKSTAI VHMQLIPGSSSKWEEVQSKAKHLLLN TFGMYKCTIQ LQSYRQEVIR  
TCANCHSSST

>Rattus norvegicus\_SLC30A4(ENSRNOP\_184)  
MAGPGAWKRLKSLLRKDDTPLFLNDTSAFDFSD EVD EGLSRFNKLRVVVADDDSEAPER  
PVNGAHPALQADDDSLDQDLPLTNSQLSLKMDPCDNC SKRRELLKQRKVKTRLTIAAVL  
YLLFMIGELVGGYMANSLAIMTDALHMLTDLSAII LTLALWLSSKSPTRRFTFGFHRLE  
VLSAMISVMLVYVLMGFLLYEAVQRTIHMNYEINGDVMLITA AVGVAVNVIMGFLLNQSG  
HHSHAHSHSLPSNSPSMVSSGHSHGQDSLAVRAAFVHALGDLVQSVGVLIAAYIIRFKP  
EYKIADPICTYIFSLVAF TTRIIWDTVVIILEGVP SHLNVDIKESLMKIEDVYSVED  
LNIWLSLTS GKATAI VHMQLIPGSSSKWEEVQSKAKHLLLN TFGMYKCTVQLQSYRQEATR  
TCANCQSSST

>Canis familiaris\_SLC30A4(ENSCAFP\_32670)  
MAGSSAWKRLKSLLRKDDAPLFLNDTSAFDFSD EVD EGLSRFNKLRVVVADDDGSEI PER  
PINGAHPALQADDDSLDQDLPLANSQLSLKVDPCDNC SRQRELLKQRKVKTRLTIAAVL  
YLLFMIGELVGGYIANS LAIMTDALHMLTDLSAII LTLALWLSSKSPTKRFTFGFHRLE  
VLSAMISVLLVYIILMGFLLYEAVQRTIHM KYEINGDIMLITA AVGVAVNVIMGFLLNQSG  
HHAHSHSLPSNSPTIGSGCRHNHGQDSLAVRAAFVHALGDLVQSVGVLIAAYIIRFKPEY  
KIADPICTYVFSLLVAF TTFRIIWDTIVIILEGVP SHLNVDIKEALMKIEDVYSVEDLN  
IWSLTS GKPTAI VHIQLIPGSSSKWEEVQSKAKHLLLN TFGMYKCTIQ LQSYRQEVDRTC  
AHCQSSSP

>Felis catus\_SLC30A4(ENSFCAP\_23880)  
XGAWKRLKSLLRKDDAPLFLNDTSAFDFSD EVD EGLSRFNKLRVVVADDDGSEI PERPVN  
GAHPALQADDDSLDQDLPLTNSQLSLKVDPCDNC SRQRELLKQRKVKTRLTIAAVLYLL  
FMIGELVGGYIANS LAIMTDALHMLTDLSAII LTLALWLSSKSPTKRFTFGFHRLEVL  
S AMISVLLVYIILMGFLLYEAVQRTIHM KYEINGDIMLITA AVGVAVNVIMGFLLNQSGHHA  
HSHSLPSNSPTVSGCRHNHGQDSLAVRAAFVHALGDLVQSVGVLIAAYIIRFKPEYKIA  
DPICTYVFSLLVAF TTFRIIWDTIVIILEGVP SHLNVDIKEALMKIEDVYSVEDLN IWS  
LTS GKPTAI VHIQLIPGSSSKWEEVQSKAKHLLLN TFGMYKCTIQ LQSYRQEVDRTC AHC  
QSSSS

>Myotis lucifugus\_SLC30A4(ENSMLUP\_5017)  
VNGAHPALQADDDSLDQDLPLTNSQLSLKVDPCDTC SRRRELLKQRKVKTRLTIAAVLYL  
LFMIGELVGGYIANS LAIMTDALHMLTDLSAII LTLALWLSSKSPTKRFTFGFHRLEVL  
S AMISVLLVYIILMAFLLYEAVQRTIHM NYEINGDIMLITA AVGVAVNVIMGFLLNQSGHH  
HAHSHSLPSNSPTTGPYGHNHGQDSLAVRAAFVHALGDLVQSVGVLIAAYIIRFKPEYK  
IADPICTYVFSLLVAF TTFRIIWDTVVIILEGVP RHLHVDYI KEALMKIEDVH SVEDLN  
VSLTS GKPMIAIHIQLIPGSSSQWEEVQSKARHLLLN TFGMYKCTIQ LQSYRQD VDRTC AHC  
NCQNASS

>Monodelphis domestica\_SLC30A4(ENSMODP\_21986)  
MARASVWNRLKSWWKDDT PPF LN DTS AFDFSD EVD EGFPRFNKLRVVVADDDGLETPET  
INGTHLAFQADDDSLDQDLPLPNSQLGFKVDPCDSCRKQRELLK LKVKTRLTIAAGVLY  
LLFMIGELVGGYIANS LAIMTDALHMLTDLSAII LTLALWLSAKSPTKRFTFGFHRLEVL  
LSAII SVLLVYIILMGFLLYEAVQRTIHM NYEINGDIMLITA AIGVAVNVIMGFLLNQSGH  
HSHSHSPPPNSPTTGPYGHGHGHNQGNDSLAVRAAFVHALGDLVQSIGVLVAAAYIIRFKP  
EYKIADPICTYIFSLVAF TTFRIIWDTIVIILEGVP SHLNVDFI KEALMKIEDVH SVEDLN  
INLWLSLTS GKTTAI VHLQLAPGSSSEWEEVQSKARHLLLN TFGIYKCSVQLQSYRRAANK  
TCGGCRSASA

>Xenopus tropicalis\_SLC30A4(ENSXETP\_47719)  
MWRPQAWWSSVRS AFQRSDQPPYLNDATGFDC TEEPALEGEVLP RFNKLRVLVADEPVA  
ANGVPMNMASDDES LLESWQNRVKTEPCEKCSNHRERRKQ GKVKRKL LLAALYLLFMV  
ELVGGYVANSLAIMTDALHMLSDLSSII LTLALCLSSKPPNKRFTFGFHRLEVL SAIVS

VILVYILTGFLLYEAIQRTIHMDYNINGDVMLITAAVGVAVNLMGILLSQSGHHHSHSH  
GPAANSPSPHGHSHGSLAVRAAFVHALGDLAQSIGVLIYAAYIRFKPEYKIADPICTYIF  
SVLVVFTTVRLVWDTVLIILEGVPRHLNVDRKDDLMKIEDVYSVKDLNVWSLTTGKSAA  
IIHLQLCPDASSKWEVQNKARHVLLKTHGMYKCFIQIQSYGQEESTRICTDCSNA

>Danio rerio\_SLC30A4 (ENSDARP\_136240)  
MSGLIGRVRSAFRSRPDSWHLSDAAAFDFSEDLQEEESPRFSRLQVVVSGEAEERPAVNG  
SARSTLTDDDDSLGASTGSTGPEACDGCQRNREQQRRRRVVRKLGGAAVLYFLFMV  
IGGYVANSLAIMTDALHMLTDLIGIIVSLLALWLSAKPPTYRFTFGLHRLEVL  
SAGISVLIYILTGVLLNEAAQRTIHQDFTIDGDVMLITAAVGVAVNLLMGFLLN  
QSGHLHSHGHGHGSHGSHGSSDQSSGQGRGHGSLAVRAAFIHALGDLVQSVGV  
LIAAYIVRFKPEYK LADPICTYLFVSVLFLSTFQIIRDGTGIIILEGVPRHMDV  
SVIRAELLKLQHVCEVEELKL WALTADKTA  
AIVHLQLAPGIVGNWEEVQASARRLLMVSHGVTHCTQLQITPGENNTRII  
TCIQCEFQMKESTYCKDESR

>Takifugu rubripes\_SLC30A4 (ENSTRUP\_43292)  
MSAANLFNKVRSFRDPAGLDLNDTTPIDFSDELVEDEPPRFNHLKVVVSGETS  
SGFAAG ASANGVAVNTLVVTD  
DDDSLIESSSMGSSSGLNTHPCDNCTKKREMMKNKKVMKLVIAA  
VLYLLFMTAEIIGGYVSNLAIMTDAVHMLTDVVGILFSLALWLSNKPPTKR  
FTFGLHR LEVISAVLSVALIYILTAVLVYEAVLRTV  
SQDFDIDGDVMLITAAVGVAVNIVMGFLLNQ  
DGHLHSHGHGSHAHGHGSHSRGHGSHGASGSPETTQKQHGSLAVRAAFI  
HALGDLFQ SVGVLIAAYVVRFKPELKLADPICTYVFSI  
LVLVTTVRIIRDVTVIVLEGVPRHLDTLQI  
KEDLLKLDVQAVVELNVWALTDDKTAALVHLQLRPSSG  
NKWEDVQSKARHLLMRTHGLS RCTVQVQTYRER  
LEHSCDNCRQSV

>Tetraodon nigroviridis\_SLC30A4 (ENSTNIP\_12410)  
MSAGNFFNKVRSFRREPADLDLNDTTPIDFSNDLMEDEAPRFNHLRVMVSGETS  
SGYSSR STSNGVAVNTLVVTD  
DDDSLMESSVSSSSSGPAVHPCEGCTRRKEMLKNKKI  
IKRLVIA AGLYLFMTAEIIGGYLSNSLAIMTDAVHMLTDVVG  
ILFSLALWLSNRPPTKRFTFGLHR LEVISAVLSVALIY  
ILTAVLVYEAVLRTISQEFDIDGDVMLIVAAIGVAVNI  
IMGFLLNQDGHLHSHGHGSHAHGHGSHSRGHMAVRAAFI  
HALGDLFQSVGVLVAAAYVVR FKPELKLADPICTYVFSI  
LVLVTTVRIIRDAMVIVLEGVPRHLDLQMKEDLLKLDVQ  
AVDELNVWALTDDKTAALVHLQLRPSSGSKWEDVQAKARHLL  
MHIGHLSRCTVQVQTYRER LENSCLNCRQSI

>Gasterosteus aculeatus\_SLC30A4 (ENSGACP\_22242)  
KMSGGSLFSKVRSSFRERNDWHLSDTAPFDSELAEDEAPKFNKLRVVVSGEMSDYSA  
GAPSGVAVSTLAVAAGDDDDCLLDSSVGPSPGLNMDPCDSCTKKRDGVK  
HRRVMRRLVFAALLYFLFMTAEIVGGYLSNSLAIMTDAVHMLTDVVG  
ILFSLALWLSSTKPPTSRFT FGLHRLEVVSAVLSV  
VLIYVLTAVLLYEAIQRTVHQEFDIDGDIMLITAAVGVAVNLMG  
FLLNQGHLLHSHGHGHAHAHGHSHHQGSLAVRAAFIHALGDLVQSVGV  
LIAAYIVRFKPE LKLADPICTYIFSVLVLTFRIMRDTAVI  
VLEGVPRHLDLRIKEDLLKLEDVQSVDEL NIWALTADKTA  
AIVHLQLAPSSSSSWEDVQAKARHLLLHTYGLTRCTVQVQ  
THRLRLVHS CAHCQLS

>Oryzias latipes\_SLC30A4 (ENSORLP\_3059)  
PWRPLAYEGGNLLSKVRSFRRERSDWDLSDTAPFDSEDELVEDETPKFNKLRVVVSGEM  
TDYAAGAPSNVTVSTLVADDDDSLDDSSNSGCPGLNMDPCDNCTKKRERIKHRRVMKR  
LVIAALLYFLFMTGEEIIGGYVSNLAIMTDAVHMLADVVGILFSLALWLS  
TKPPTKRFT FGLHRLEVVSAVLSVLIYILTGVLLYEAVQRTVHQ  
DFSIDGDVMLITAAVGVAVNLMG FLLNQGGHLHSHGHGSHSSAAA  
AGSRPAGSGQPHGSLAVRAAFIHALGDLVQSVGV  
LIAAYVVRFKPEFKLADPICTYIFSVLVLTIRIIRD  
TIVIVLEGVPRHLDLQRIREDLL KLEDVQSIDELNVWALTADKTA  
AIVHLQLTPSSGHSWEDVQAKARHLLLHTYGLSRCTVQ  
VQTHRERMVRSCANCLQP

>Homo sapiens\_SLC30A8 (ENSP\_415011)  
MEFLERTYLVNDKAAKMYAFTLESVELQQKPVNKDQCPRERPEELES  
SGMYHCHSGSKPT EKGANEYAYAKWKLCSASAICFIFMIAE  
VVGHHIAGSLAVVTDAAHLLIDLTSFLLSLFS  
LWLSSKPPSKRLTFGWHRAEILGALLSILCIWVVTGVLVYLACERLLY  
PDYQIQATVMIIVSSCAVAANIVLTVLHQ  
RCLGHNHKEVQANASVRAAFVHALGDLFQSI  
SVLISALIYF KPEYKIADPICTYIFSVLV  
LASTITILKDFSILLMEGVPKSLNYS  
GVKELILAVDGVLSV

HSLHIWLSLTMNQVILSAHVATAASRDSQVVRREIAKALSKSFTMHSLTIQMESPVDQDPD  
CLFCEDPCD

>Pan troglodytes\_SLC30A8 (ENSPTRP\_35104)  
MEFLERTYLVNDKAAKMYAFTLESVELQQKPVNKDQCPRRERPEELES GGM YHCHSGSKPT  
EKGANEYAYAKWKLCASASAI CFVFMIAEVVGGHIAGSLAVVTDAHLLIDLTSFLLSLVS  
MWLSSKPPSKRLTFGWHRAEILGALLSILCIWVVTGVLVYLACERLLYPDYQIQATVMI I  
VSSCAVAANIVLTVVLHQRCLGHNHKEVQGNASVRAAFVHALGDLFQSISVLSALI IYF  
KPEYKIADPICTFIFSI LVLASTITILKDFSILLMEGVPKSLNYSGVKELILAVDGVVSV  
HSLHIWLSLTMNQVILSAHVATAASRDSQVVRREIAKALSKSFTMHSLTIQMESPVDQDPD  
CLFCEDPCD

>Oryctolagus cuniculus\_SLC30A8 (ENSOCUP\_7337)  
MEFLERTYLVNDKATKMYACTLDSVELQQKPVNKDQCPGEGPGELEAGGIYHCHSNSKAT  
ENRANEVQAKWKLRAASAI CFVFMIAEVVGGHIAGSLAIITDAHLLIDLTSFLLSLFS  
LWLSTKPPSKRLTFGWHRAEILGALLSILCIWLVTGVLVYLACERLLHPDYQIQGTVM I I  
VSGCAVANIILTMVLHQRRLGHNHKEVQTNASVRAAFVHALGDLFQSISVLSALVIYF  
KPDYKIADPICTFIFSI LVLASTITILKDFSILLMEGVPKGLNNGVKELIMAVDGVVSV  
HSLHIWLSLTMNQVILSAHVATAASWDGQVVRREIAKALSKSFAVHSLTIQMESPADQDPD  
CIFCEAPQD

>Canis familiaris\_SLC30A8 (ENSCAFP\_1179)  
MEFLERTYLVNDRATKMYAFNLDSVELQQKSLNKDQCPGKPEELES GAIYHCHSNSKAT  
ENRANEQVYAKWKLYAASGVCFVFMIAEVVGGHIAGSLAVITDAHLLIDLTSFLLSLFS  
LWLSSKPPSKQLTFGWHRAEILGALLSILCVVVTGVLVYLACERLLYPDYQIQGTVM I I  
VSGCAVAANIILSVILHQRHAGHNHKEVQANASVRAAFVHALGDLFQSISVLTSAI IYF  
KPDYKMADPICTFVFSI LVLASTITVLKDFSILLMEGVPKLNLYSDVKELILAVDGVVSV  
HSLHIWLSLTMNQVILSAHVAAAASRDSQVVRREIVKALSNSYTVHSLTIQMESPADQDPD  
CFFCEDPRD

>Felis catus\_SLC30A8 (ENSFCAP\_6576)  
MEFLERTYLVNDKATKMYAFTLDSVELQQKSLNKNQCPGKPEELDSGAIYHCHSNSKAT  
ENRANEQVYAKWKLCAASGICFVFMIAEAVGGHIAGSLAVVTDAHLLIDLTSFLLSLFS  
LWLSSKPPSKQLTFGWHRAEILGALLSILCVVVTAVLVYLACERLLYPDYQIQATVMI I I  
ISGCAVAANIILSVILHQRHAGHNHKEVQANASVRAAFVHALGDLFQSISVLTSAI IYF  
KPDYKMADPICTFVFSI LVLASTITVLKDFSILLMEGVPKLNLYDDVKELILAVDGVVSV  
HSLHIWLSLTMNQVILSAHVAAAASRDSQVVRRAIVKVLNDSFTVHSLTIQMESPADQDPD  
CFFCEEPRD

>Myotis lucifugus\_SLC30A8 (ENSMLUP\_2351)  
MEFPERTYLVTDKATKMYAFTLDSVDRQQKPVTKDHCSGEKPEVLEPGAIYHCHSNAKAT  
ENRANEQVYAKWKLWAAASGICFVFMIAEVVGGHIAGSLAVVTDAHLLIDLTSFQLSLFS  
LWLSSKPPSKRLTFGWHRAEILGALLSMLCVAVTGLVYLACERLLYPDYQIQATVMI I I  
VSGCAVAANIVLSVILHQRPPGHSHKEVQANASVRAAFVHALGDLFQSISVLTSAI IYF  
KPDYKMADSICTFVFSV LVLASTVTVLKDFSILLMEGVPKLNLYNAVKELILAVDGVVSV  
HSLHIWLSLTMNQVILSAHVAAAASRDSQSVRREIAKVLNSFPVHSLTIQMESPADQDPD  
CLFCEEPQD

>Gallus gallus\_SLC30A8 (ENSGALP\_25920)  
MAAKKGPACLVSEERDTKKYSLALDRVSWHQKNFNEERQQQEGENAEANQAYHCHGYSQ  
AYEDRKMEQHQARRKLYTASVICI IFMVAEITGGQIAGSLAVVTDAHILVDLTSFLISL  
FSLWLTSKPPKHLTFGWHRAEILGALMSMII IWMVTGVLTYLASMRLHLDYDIDAAM  
LITSACAVFANILLSLILHQSGHGHSHGAQARETTLAPLEKPVLSNASLRAAFVHAIGDL  
FQSVSVLISALIIFFKPEYKIADPICTFVFSI FVLATTTITILRDILIVLMEGTEKGLSYD  
AVKARILAVEKVESVHNLHLWLSLTMNQVILSAHVATAADTVDSQKMLKDITQALFEHYSFH  
SITIQIESGGDQEONCVFCQEPD

>Anolis carolinensis\_SLC30A8 (ENSACAP\_10676)  
MASKKSLERACLVDNRDTRKRYSLTLSSNGSNSDQENHHEEPVGTGIHAVHCHSYSKGYE  
RRKREQHEARLRLCVATVICI IIMVAEIIIGGHVAGSLAVITDAAHVLVDLMSFLISILSL  
WLSSKSPSKRLTYGWHRAEILGALFSMII IWMVTGVLTYLAILRLLHPQYEIEATVMLIT

SGCAVIANIILSLMLHHKGGGNLYNVHQSSDGRSDPERTLASSNASVRAAFIHAVGDLFQ  
SISVLIISALIIIFLKPEYKMADPICTFVFSLLVLTGCAMLRDILLVLMEGMPKMGMSYKAV  
KERILTVDKVESVHSLHVVSLTMNQPVLSAHIVTDTANKQQILNEITELLIDTYNFYTVT  
LQIEPKADQQPDCVFCQDPRD

>Danio rerio\_SLC30A8 (ENSDARP\_133246)  
MFTKKPEKIHVSENSAKMYTIMSESMPSVDMKDGKCHDNNRALEDREKREKKIAKKRLY  
IVSAVCLVFMVGEILGGYFAGSLAVMTDAAHLLVDLTSFIIISLCSLWLSRRPATRNLNYG  
WHRAEILGALLSIFTIWLVTGVLVYLAVERIINDNFTIEGTVMLITSGCAVLANIIMALT  
LHQSGHGHSHGGLSAGHGHSHDHGKENGHSHSDGSHHDVVEQRPGKTQANASVRAAFVHV  
IGDLLQSIISVLSALIIFFKPEYKIADPICTFLFSFLVLTFTTFTIMRDIVIVLMEGTPAG  
VNYNEVRQLLLGVKGVKAVHNLHIWALTMNQAVLSAHVATDETVDPQEVLEMTQVCFTK  
YSFHSVTIQLEPQADQRPDCSLCQDPAK

>Takifugu rubripes\_SLC30A8 (ENSTRUP\_7845)  
MFKQKSSERRRLSSEENSYSAAGRSFRMSKLSDSASQEEPLKDGALSIIKHCHDNSHSRE  
DREQEKKVARRRLYVASVVCVIFMTGEILGGYFAGSLAVMTDAAHLLVDLTSFIIISLSS  
WLSSRPPTHKLNYGWHRAEILGALLSVFTIWWVTGVLVYLAVERLIINDYTIIEGTIMLIT  
SACAVLANIIMALTLLHQSGHGHSHGGLSGKSHKTPERSRRRTQANASVRAAFVHVVG  
DLLQSIISVLSALIIFFKPEYKMADPICTFLFSVFLVLTFTTFTIIRDILIVLMEGAPAGLK  
YSDVRDGLLAVNGVTAVHNLHIWALTMNQAVLTAHVVAIDETADAHSVLEMTQACFSSYN  
FHSVTIQMEKQSDLKPGCDLCEDPQL

>Tetraodon nigroviridis\_SLC30A8 (ENSTNIP\_7337)  
GGYFAGSLAVMTDAAHLLVDLTSFIIISLSSWLSSRPATHRLNYGWHRAEILGALLSVFT  
IWWVTAVLVYLAVERLIINDYTIIEGKIMLITSGCAVLANIIMALTLLHQSGHGHHRRTQQA  
NASVRAAFVHVVDLLQSIISVLSALIIIFVKPEYKIADPICTFLFSIFVLFTTFTIIRDI  
VIVLMEGAPVGVKYSVDVRDGLLAVKGVRAVHNLHIWALTMNQAVLTAHVVAIDETVDAQSV  
LREMTQACFSSYNFHSVTIQMEKTADLKPGCNLCEDPKL

>Gasterosteus aculeatus\_SLC30A8 (ENSGACP\_3931)  
MFKKKDPERTGLVSDLRSSYTALARCASSVNPQMALQIDGTGGIKHCHDNSSAQEDRERE  
KKVAQRRLYVVSVICLLFMIGEIIIGGYLAGSLAVMTDAAHLLADFIISFLISLSSWLSSR  
PATHKLSYGWHRAEILGSLLSVFTIWLVTGVLVYLAVERLVSNDYTIIEGTIMLITSGCAL  
LANIVMALIILHQSGHGHSHGGVSGHSHKGGRSQQDNASVRAAFVHVVLGDLQSVSVLL  
SAIIIFFKPEYKIADPICTFLFSIFVLCTTFTTILRDILVLMNGTPAGVKYGEVRDLSLE  
VKGVKAVHNLHIWALTMNQAVLTAHVVAIDETVDAQTVLREMTQACISSYNFHSVTIQMER  
QADLKPGCTLCEEPKM

>Oryzias latipes\_SLC30A8 (ENSORLP\_2202)  
NFHKTYYLLTIKAANFFTFYKKSIIIMTFFPKTKNQITFKIPPNEGLQGGAEHCHDNSRA  
QEDRETEKKVARRLYVVSICLVFMVAEIVGGYLAGSLAVMTDAAHLLDLDLTSFLISLFL  
SLWLSKSPATQKLSFGWHRAEILGALLSVFTIWLVTGVLVYLAVERLVTDFTIEGSIML  
ITSGCAVVANIIMAVTLHQSGHGHSHGGRTQANASVRAAFVHVIGDLLQSIISVLSAIV  
IFFRPEYKIADPICTFLFSILVLTCTTFTIMRDILLVLMEGTPSGVKYSEVRDRLLAVKGV  
TAVHNLHIWALTMNQAMLSAHVAIDDSADAQMVLEMTQACFSSYNFHSVTIQMERQADL  
KPGCSLCENPKK

>Homo sapiens\_SLC30A10 (ENSP\_355893)  
MGRYSGKTCRLLFMLVLTVAFFVAELVSGYLGNSIALLSDSFNMLSDLISLCVGLSAGYI  
ARRPTRGFSATYGYARAEEVVGALSNAVFLTALCFTIFVEAVLRLARPERIDDPVLVIVG  
VLGLLVNVVGLLIIFQDCAAWFACCLRGRSRRLLQQRQQLAEGCVPGAFFGGPQGAEDPRRAA  
DPTAPGSDSAVTLRGTSVKREKRGATVFANVAGDSFNQNEPEDMMKKEKSEALNIRG  
VLLHVMGDALGSVVVITAIIFYVLPLKSEDPNCWQCYIDPSLTVLMVIIILSSAFPLIK  
ETAAILLQMVPKGVNMEELMSKLSAVPGISSVHEVHIWELVSGKIIATLHIKYPKDRGYQ  
DASTKIREIFHHAGIHNVTIQFENVDLKEPLEQKDLLLLCNSPCISKGCAKQLCCPPGAL  
PLAHVNGCAEHNGGSLDITYGSDGLSRRDAREVAIEVSLDSDCLSDHGQSLNKTQEDQCYV  
NRTHF

>Pan troglodytes\_SLC30A10 (ENSPTRP\_3342)  
MGRYSGKTCRLLFMLVLTVAFFVAELVSGYLGNSIALLSDSFNMLSDLISLCVGLSAGYI

ARRPTRGFSATYGYARAEEVVGALSNAVFLTALCFTIFVEAVLRLARPERIDDPPELVLIVG  
VLGLLVNVVGLLIFQDCAAWFACCLRGRSRRLQQRQQLAEGCAPGAFGGPQGAEDPRRAA  
DPTAPGSDSAVTLRGTSVERKREKATVFANVAGDSFNTQNEPEEMMKKEKKSEALNIRG  
VLLHVMGDALGSVVVITAIIFYVPLPKSEDPNCWQCYIDPSLTVLMVIIILSSAFPLIK  
ETAAILLQMPKGVNMEELMSKLSAVPGISSVHEVHIWELVSGKIIATLHIKYPKDRGYQ  
DASTKIREIFHRAGIHNVTIQFENVDLKESLEQKDLLLNCNSPCISKGCAKQLCCPPGAL  
PLAHVNGCAEHNGGPSLDTYGSDDLRRDAREVAIEVSLDGLSDHGQSLNKTQEDQCYV  
NSTHF

>Mus musculus\_SLC30A10(ENSMUSP\_53181)  
MGRYSGKTCRLLFMLVLTAAFFVAELVSGYLGNSIALLSDFSFNMLSDLISLCVGLGSGYI  
ARRGRGSSATYGYVRAEVEVVGALSNAVFLTALCFTIFVEAVLRLARPERIDDPPELVLIVG  
ALGLAVNVVGLLIFQDCGACFSRCTRGRRTRPSQQPSQGDPRGALGCPQEAATATAPGSG  
TAVTLRGSSAGRKQQEGATVFSNVAGDSLNTENEPEETTKKEKKSEALNIRGVLLHVMGD  
ALGSVVVVITAIIFYVQPLRREDPCNWQCYIDPSLTVVMVIIILSSAFPLIKETAVILLQ  
MVPKGVNMEELMSQLSTVPGISSVHEVHIWELISGKIIATLHIKHQKQTEYQDASRKIRE  
IFHHAGIHNVTIQFETLDLKEALEQKDFLLTCSAPCITQSCAKKLCCPPGTLPLALVNGC  
AEHNGRSSRESYRSIEAPEVAIDVDGCPREQQGQTLTKTQERQHYENSTHF

>Rattus norvegicus\_SLC30A10(ENSRNOP\_50013)  
MGRYSGKTCRLLFMLVLTAAFFVAELVSGYLGNSIALLSDFSFNMLSDLISLCVGLGSGYI  
ARRGPRGSSATYGYVRAEVEVVGALSNAVFLTALCFTIFVEAVLRLARPERIDDPPELVLIVG  
ALGLAVNVVGLLIFQDCGACFSRCTRGRHRTRPSQPPRQGDGALGCPREAAATATDPGSD  
SAVTLRGASAGRKQQEGATVFSNVAGDSLNTQNEPEETTKKEKKSEALNIRGVLLHVMGD  
ALGSVIVVVTAIIFYVRPLRHEDPCNWQCYIDPSLTVVMVIIILSSAFPLIKETAVILLQ  
MVPKGVNMEELMSQLSMVPGVSSVHEVHIWELISGKVIATLHIKHQEGTEYQDASRKVRE  
IFHHAGIHNVTIQFETLDLKEALEQKDFLPTCSAPCISQSCAKKLCCPPGTLPLALVNGC  
AEHNGGPNLESYRSIEAPEVVIDVALDGCPRKQGVHVKTKQERQHCENSTHF

>Canis familiaris\_SLC30A10(ENSCAFP\_15955)  
MGRYSGRSFRLLIMCIVSILLFVMELVIANIGNSLSLASDAFAVLSHFLSMIIALFGVVRV  
SSIKQHRKSTFGFLRADVVGAFGNSIFAVALMFSILVEAVKRYINPQKTEEPLLLSAGI  
IGLLFNILKVNYQICLSFFTLCLELANSRQSTRVLVGGDCPGAEGARPDAYKMPRVAC  
RPVVPCTRIVDLRGKMKKKKKRKEINLFLNAGDSLNTQNEPEETMKKEKKSEALNIRG  
VLLHVMGDALGSVVVITAIIFYVRPLQPEDPCNWQCYIDPSLTIIMVIIILSSAFPLIK  
ETAAILLQMPKGVNMEELMSKLSAVPGISSVHEVHIWELISGKIIATLHIKYQKDRDYQ  
DASRKIREIFHVSIGIHNVTIQFEQVDLKDPEQKDLLLCSGPCISKGCEKQLCCPPGAL  
PLAHVNGCAEHNGCPPLDTPSDGLRRRETTEVAIEVSLDSCSLSEHGQAPSKSQEDPHYV  
NSTHF

>Felis catus\_SLC30A10(ENSFCAP\_14129)  
MGRYSGKTCRLLFMLVLTAAFFVAELVSGYLGNSIALLSDFSFNMLSDLISLCVGLGAGYV  
ARRPRGGLGATYGYARAEEVVGALSNAVFLTALCFTISVEAVLRLARPERIDDPPELVLIVA  
SFSFLASFPPFLFYLLWSIDCLENVCTLFSPSPFAHSSVPLGVTGFGDGGRLPLASFFF  
LAKMYHSGICVRVCWGRGGRGRGSDDELVGNAGDSLNTQNEPEETMKKEKKSEALNIRGVL  
LHVMGDALGSVVVITAIIFYVRPLKGEDPCNWQCYIDPSLTVIMVAIILSSAFPLIKET  
AAILLQMPKGVNTEELMSKLSAVPGVSSVHEVHIWELISGKIIATLHIKYRKDRGYQDA  
SMKIREIFHNAGIHNVTIQFEHVDLKETMEQKDLLLCSGPCISKGCEKQLCCPPGALPL  
AHVNGCAEHNGCPPLDTPSDGHRGQVTEVAIEVSLDSCSLSDHGQALSKTQEDQHYVNS  
THF

>Monodelphis domestica\_SLC30A10(ENSMODP\_5329)  
MGRYSGKTCRLIFMLVLTAGFFVAELVSGYLGNSIALISDFSFNMLSDLISLCVGISAGFI  
ARRHTRGARATYGYRAEVEVVGALSNAVFLTALCFTIFVEAILRLVRPERIDDPKLVLIVG  
ALGLAVNVVGLLIFQDCSWFTCRGRRRRRRRLDDSKREPSAPLDAVRTQQLQPSGSPAVVP  
GSDALTLRVASSPPKEKAAALQPSEAGDSLNIQNEPEENIKKEKKSEALNIRGVLLHVM  
GDALGSVVVIAAIIFYVPLDVAAPCNWQCYIDPSLTIIMVIIILSSAFPLIKETASIL  
LQMPKGINLEELVSKLSNVAGVNSIHEVHVWELVSGKNIATLHIKQKQKDYRDANFKM  
REIFHVSIGIHNVTIQPEYVDQKESLEQEWMLFCNSPCISKACVKQLCCPPPETQPLTHVNG  
CTEPNGFPPTATYRSDGLSINETAAIVIEADGLSDSQAAKKVQGDVLFVNSTHF

>Xenopus tropicalis\_SLC30A10 (ENSXETP\_5883)  
PACPPAMGRYTGKTCRLIFMLVLTVIFFVAELVSGYLGNSIALISDSFNMLS D LISLCVGI  
ITASQISRRKSRGPRATYGYPRAEVV GALCNAIFLTALCFTILVDSVLR LAQPQRIDNVIT  
LVLIVGTLGGLLVNI VGLLVFQDYGSYRSHSYKGGMWGVPLPGQTRNTQVSVAHCLTVTPS  
KAVGRELHLVGNPLLSSSLKVN GEPVMCHGDAMSPPEDEKSEEKKEEKKAAATLNIRGVM  
LHVVDALGSVVVVVAVIFVYVLP L DANAPCNWQCYIDPSLTVVMVAIILYSAPPLIKET  
AYILLQMPVQGVQVGEIGQKLALVPGVNSVHEIHIWELASGKNIATLHVKFQDFASHATA  
SQEIRRI FHEEEIHAVTIQAEFPNEKDLTLACSAPCISEKCDPYLCC

>Danio rerio\_SLC30A10 (ENSDARP\_132768)  
MGRYSGKTCRLILMLVITVIFFVAEIVAGYMGNSVALVSDSFNMLS D ILSLCVGLTAARV  
SRRAGSGRFSFGLGRAEVV GALANAVFLIALCFSISMESLKR LAMPQAID DAPLV LIVGS  
LGLAVNLVGLVIFQDCGR LCGRRGKEKKREHREDREQELEQVETGLQEEKTEKDGAPLN  
IRGVLLHVLNDALGSVVVVASALFYVWPLEPDQPCNWQCYVDPSLTLVMV I I LSSAAP  
LLKETTTILLQMSPEL PVSAIL ESVCRLPGVSSVHEAHVWELAKGRNVASLHVKLQAPA  
GALWAQVSLQQQITQIFHRAGVHSLTLQLELADSDADSSCSAPCLSSSCQKLSCCPAGPV  
CVCAPPRDSSTEKHTPQACTHSSKL

>Ciona intestinalis (ENSCINP\_14617)  
LSSMLGLIIVYFLAEAVVGH L TSSLTLIADSFHMLS DALSLVVALVAVRLSKREQAYFNT  
FGWVRFEVVGALINSTFLFALCISITMEAI EKFYDPLISQPELV L AVGGCGLLINVIGL  
VLFGGHAHAGHNHSHGHHDHGHNHGHDNHNNHLQVSSMHVFL LGNLF RPTIFIVNNGST  
EQHMNMKAVFLHVLGDALGSVIVMISATIIYLVPEYIYCNKVCQSDPNLV L IELKNATAV  
NVVINVNEWIMYIDPAMSI VLV L IMIFTTYPLFKESSLVLLQTVPKHIK L QHLKEKIKTI  
EGVQEI QNFHLWQLTGEKLVATVHVWCND AISFLRIAEEIKQRLNDAGIHSTTIQPEFYR  
SPKPYC

>Ciona intestinali\_ (ENSCINP\_3497)  
SSAPSEVESDCHDSSDEKTQRENKKRKKAMRKL LIATGLSFLFMVGEIVGGFLANSLAI  
MTDASHLLTDVSSFLISIIALKMAARPI SKKMTFGWHRAEVI GALISVLAIWI V TGVLVY  
LAVMRLIHNNYEVNGK TMLITASLAVGFNI LMGLVLHEHSHTHGSHGHSHAGHSHDHND  
HDHEESGNVNVRAAFI HVIGDLLQSLGVLTA AFVIYFKPEYKIADPICTFLFSIFVLITT  
ITILRDTIIVIMEGSPVGEYSVLKEKLEIEGVTAVHDLRIWSLTLNQTVM SAHLAIDK  
GTDPNLV LKRATRRLKSLYDFHSLTIQVEYYSNDMDECKKCQPA

>Ciona savignyi (ENSCSAVP\_8066)  
MDLTNSEERLKEQDSLMDNEHEHGGTCKKLLRKT SRLASMLSLIVYFFAEVIVGH L TS  
SLTLIADSFHMLS DALSLIVALFAVRMSKRDAQQS L TPWP SKQAYFNTFGWVRFEVVGAL  
INATFL LALCISILMEAI EKFYDPLISQPELV L AVGGGGLLINLIGLV L FGGHAHAGHD  
HDHGHGHGHSHGHGHSHNNHNDHSDHKHNNNI TNEEHMNMKAVFLHVLGDALGSVIVM  
ISASIVYFVPYEETSTASTNATNASSVIVTTHVNSWIMYLDPAMSI VLVVIMITTTYP L  
FKQSSLVLLQTVPKHIQLQSVKDKIKTIDGVQEI HDFHIWQLTGEKLVATVHVQCSDSQV  
YLRIAKEIKQLHDEGIHSSTVQPEFHRSPTAQCDMACETDACKTKRCCSVSDVPLAKN  
NSKTVVNSATLAEI DETDPIRPSVQPNSSDA

>Ciona savignyi (ENSCSAVP\_10119)  
HCHDSSDEKTQRENKKRQKAMRKL LIATGLSFLFMVGEIVEVIGALVSVVAIWI V TGVLVY  
YLAVMRLINNKYEVHGK TMLITASLAVGFNI LMGLVLHEHSHTHG DASDTGNVNVRAAFI  
HVIGDLLQSLGVLTA AFVIYFKPEYKIADPICTFLFSVFLV L ITTITILRDTIIVIMEGSP  
VGVEYTVVKEKLLGIEGVA AVHDLRIWSLTLNQTVM SAHLAIDKSTDPNIVLKRATRRLK  
SLYDFHSLTIQVEYYSNDMDECKKCQPA

>Caenorhabditis elegans\_ (C15B12)  
MEVTMEDRSVKADKADRDDNNTTSTELLGKMRQTKVIDNCSHGHTHTLEHDLRLKGEPIGK  
SESVPKGVSRSLIIQIGMTVIFCALEFITGVVCS IAMLADSYHMAADVMALIVAFTCIKI  
ATRPSTRLGYGWVRAETLGGFFNGIFMCTVCV L VFQEA VGR I INVHMITHP L QVLVIGFI  
GLLINLFGMFNLSGHGSHGGGSHGHSHGHSHNNKKT KKN DGHGHSHANGHGHSHD  
GKSDCN GEEEPDHTRLNGKFRSASAMANS DANVRLLDND DNSNDI IERRLSGVNSQNTII  
ATVDRQMTPYGTHMASEVLNVSSNNLDKSAQKTEQKDKNVNIHGVWLHLLSDAFGSVIV  
MISAGFVYFLPTWKIAAYLDPILSISLASIMGFTAVVLVKTSGEKLLKQTP EGLDLEKVK  
KDLCSIVGVSKVEKLSVWTL CGQRIIAAAHVNI CHPAVFP EAAAYKIKNYFHDLGVHSTTI



EPTFEDTCMQSMRIMVKKVVDGKSIEEPVSVSTENEITE

>Capitella teleta\_(ELT87571)

MHCHTDKQEDRLDRRARNKLIASMLCVLFMIAEAVGGVLANSLA  
VATDAAHLLTDFASFMSLFSLYVA  
SRPSTKMSFGYYRAEVIGALVSVLLIWWVTAVLVYLAVDRVISGDYEIGGATMLITAGCAVAFNIFMGL  
TLHDTHGSHGGGSHGSHGENHTQHQPNIINVRAAFIHVIGDFLQSLGVMIAAIVVYFKPEYKIVDPIC  
FLFSILVLFTTITILRDTLNVLMEGTPKGIQDQVRLCTIPGVRELHNLRIWVSLTVSKVALSVHLAVE  
PSTSHQQTIAAARLMRERFGVHECTVQIEDYVDEMDDCTQCQEPKD

## **Syntrophin, Gamma-SNT**

>Homo sapiens\_SNTA1(ENSP\_217381)

MASGRRAPRTGELLELRAGAGSGAGGERWQRVLLSLAEDVLTVPADGDPGPEPGAPREQE  
PAQLNGAAEPGAGPPQLPEALLLQRRRVTVRKADAGGLGISIKGGRENKMPILISKIFKG  
LAADQTEALFVGDAILSVNGEDLSSATHDEAVQVLKKTGKEVVLEVYKMKDVSYPYFKNST  
GGTSVWSDSPPASPLQRQPSSPGPTPRNFSEAKHMSLKMAYVSKRCTPNDPEPRYLEICS  
ADGQDTLFLRAKDEASARSWATAIQAVNTLTPRVKDELQALLAATSTAGSQDIKQIGWL  
TEQLPSGGTAPTLLALLETEKELLYLSLPEAREALSRLPARTAPLIATRLVHSGPSKGSVPY  
DAELSFALRTGTRHGVDTHLFSVESPOELAATWTRQLVDGCHRAAEGVQEVSTACTWNGRP  
CSLSVHIDKGFLLWAAEPGAARAVLLRQPFEKLMSSDDGASLLFLDFGGAEGEIQDLHL  
SCPKTIVFIIHSFSLAKVTRLGLLA

>Pan troglodytes\_SNTA1(ENSPTRP\_22970)

MASGRRAPRTGELLELRAGAGSGAGGERWQRVLLSLAEDVLTVPADGDPGPEPGAPREQE  
PAQLNGAAEPGAGPPQLPEALLLQRRRVTVRKADAGGLGISIKGGRENKMPILISKIFKG  
LAADQTEALFVGDAILSVNGEDLSSATHDEAVQVLKKTGKEVVLEVYKMKDVSYPYFKNST  
GGTSVWSDSPPASPLQRQPSSPGPTPRNLSEAKHVS LKMAYVSKRCTPNDPEPRYLEICS  
ADGQDTLFLRAKDEASARSWATAIQAVNLTALPRVKDELQALLAATSTAGSQDIKQIGWL  
TEQLPSGGTAPTLLALLETEKELLYLSLPEAREALSRLPARTAPLIATRLVHSGPSKGSVPY  
DAELSFALRTGTRHGVDTHLFSVESPOELAATWTRQLVDGCHRAAEGVQEVSTACTWNGRP  
CSLSVHIDKGFLLWAAEPGAARAVLLRQPFEKLMSSDDGASLLFLDFGGAEGEIQDLHL  
SCPKTIVFIIHSFSLAKVTRLGLLA

>Pongo abelii\_SNTA1(ENSPPYP\_12200)

MASRRAPRTGELLELRAGAGSGAGGERWQRVLLSLAEDVLTVPADGDPGPEPGAPREPE  
PAQLNGAAEPGAGPPQLPEALLLQRRRVTVRKADAGGLGISIKGGRENKMPILISKIFKG  
LAADQTEALFVGDAILSVNGEDLSSATHDEAVQALKKTGKEVVLEVYKMKDVSYPYFKNST  
GGTSVWSDSPPASPLQRQPSSPGPTPRNLSEAKHVS LKMAYVSKRCTPTDPEPRYLEICS  
ADGQDTLFLRAKDEASARSWATAIQAVNALMPRVKDEVQALLAATSTAGSQDIKQIGWL  
TEQLPSGGTAPTLLALLETEKELLYSSLPEAREALSRLPARTAPLIATRLVHSGPSKGSVPY  
DAELSFALRTGTRHGVDTHLFSVESPOELAATWTRQLVDGCHRAAEGVQEVSTACTWNGRP  
CSLSVHIDKGFLLWAAEPGAARAVLLRQPFEKLMSSDDGASLLFLDFGGAEGEIQDLHL  
SCPKTIVFIIHSFSLAKVTRLGLLA

>Mus musculus\_SNTA1(ENSMUSP\_105350)

MASGRRAPRTGELLELRGAGSGAGGERWQRVLLSLAEDALTVSPADGEPGPEPEPAQLNG  
AAEPGAAPPQLPEALLLQRRRVTVRKADAGGLGISIKGGRENKMPILISKIFKGLAADQT  
EALFVGDAILSVNGEDLSSATHDEAVQALKKTGKEVVLEVYKMKDVSYPYFKNSTAGGTSVW  
WSDSPPASPLQRQPSSPGPTPRNLSEAKHVS LKMAYVSRCTPTDPEPRYLEICAADGQDA  
VFLRAKDEASARSWAGAIQAQIGTFIPWVKDELQALLTATGTAGSQDIKQIGWLTEQLPS  
GGTAPTLLALLETEKELLYCSLPQSREALSRPTAPLIATRLVHSGPSKGSVPYDAELSF  
ALRTGTRHGVDTHLFSVESPOELAATWTRQLVDGCHRAAEGIQEVSTACTWNGRPCSLSVH  
IDKGFLLWAAEPGAARAVLLRQPFEKLMSSDDGTSLLFLDFGGAEGEIQDLHLSCPPTM  
VFIIHSFSLAKVTRLGLLA

>Rattus norvegicus\_SNTA1(ENSRNOP\_21715)

MASGRRAPRTGELLELRGAGSGAGGERWQRVLLSLAEDALTVSPADGEPGPEPEPAQLNG  
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EALFVGDAILSVNGEDLSSATHDEAVQALKKTGKEVVLEVYKMKDVSYPYFKNSTAGGTSVW

WDSPPASPLQRQPSSPGPQPRNLNEAKHVS LKMAYVSRRCTPTDPEPRYLEICAADGQDT  
LFLRAKDEASARSWAGAIQAQISTFIPWVKDELQALLTATGTAGSODIKQIGWLTEQLPS  
GGTAPTALLTEKELLYCSLPQTREALSRPARTAPLIATRLVHSGPSKGSVPYDAELSF  
ALRTGTRHGVDTHLFSVESPQELAAWTRQLVDGCHRAAEGVQEVSTACTWNGRPCNLSVH  
IDKGFTLWAAEPGATRAVLLRQPFEKLMSSDDGMSLLFLDFGGAEGEIQLDLHSCPKTM  
VFIIHSFSLSAKVTRLGLLA

>Canis familiaris\_SNTA1(ENSCAFP\_11007)  
MPILISKIFKGLAADQTEALFVGDAILSVNGEDLSSATHDEAVQVLKKTGKEVVLEV KYM  
KEVSPYFKNSAGGTSVGVDSPPASPLRQPSSPGSPRDLSDAKHMSLKMAYVSRRCTST  
DPEHRYLEICSADGQDTLFLRAKDEASAKSWAAAIQAQVNALMPWVKDELQALLAATSTT  
GSQDIKQIGWLTEQLPNGGTAPTALLTEKELLYCHLPQTREALSQPSRTAPLIATRLV  
HSGPSKGSVPYDAELSFALRTGTRHGVDTHLFSVESPQELATWTRQLVDGCHRAAEGVQ  
VSTACTWNGRPCSLSVHIDKGFTLWAAEPGAARAVLLRQPFEKLMSSDDGASLLFLDFG  
GAEGEIQLDLHSCPKTMVFIIHSFSLSAKVTRLGLLA

>Felis catus\_SNTA1(ENSFCAP\_21236)  
GGRENKMPILISKIFKGLAADQTEALFVGDAILSVNGEDLSSATHDEAVQVLKKTGKEVV  
LEV KYMKEVSPYFKNSAGGTSVGVDSPPASPLQRQLSSPGPPRDISDAKHISLKMAYVS  
RRTCTPTDPEPRYLEICSADGQDTLFLRAKDEASAKSWAAAIQAQVNALMPWVKDELQALL  
AATSTAGSODIKQIGWLTEQLPGGGTAPTALLTEKELLYCHLPQTREALSQPARTAPL  
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>Monodelphis domestica\_SNTA1(ENSMODP\_3704)  
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RSADGRDILFLRAKDEASAQAWLAALQANIGVLVFWTDELRLALLAAAGGVSGSTEIKRI  
GWLTEQLSGGGTEPVLAVLTKDLLFYSSLPQNRDALSAPARSSPLIATRLVHSGPSKGS  
VLYDSELSFALRSGTHQGVETHLFSVESPRLSSWTRLLVDGCHNAAETVQEVSTACTWN  
GRSCSLSVHIDKGFTLWAVEPGLAKTLLLQEPFEKLMSSDDGSSLLFLDFGGTEGEIQL  
DLHSCPKTIVFIIHSFSLSAKVTRLGLA

>Anolis carolinensis\_SNTA1(ENSACAP\_8363)  
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LLALSEDFLSVSPGGGGGGGGGKPEETPPSSPGQLNGGDPALVPDALTNIKRTVRIV  
KQDVGGLGISIKGGRENKMPILISKIFKGLAADQTEALFVGDAILSVNGADLSDATHDEA  
VQALKKTGKEVVLEV KYMKEISPYFKNSSTGATVSWDSSPAAFQKQASPSLSLRDLNEGK  
NIPLRCYISRKCLPSDPENRYLEVCSADGRIPFLRAKDEASAQAWFNAIHSNISALLP  
RVREELRALQSGAGIAGSRDIKHVGWLTEQLPGDGTKNILAILTEKELLYSCLPQSRDA  
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>Xenopus tropicalis\_SNTA1(ENSXETP\_46345)  
MASPGTAHRSGLLELRCPGERWVRVLLLLGEETVTFPEPEPGAAEEKALNGAEPAGGVP  
ESLINLRRTVRVLKQDAGGLGVS IKGGRENKMPILISKIFKGLAADLTGSLYVGDAILSV  
NGVDLSEATHDDAVQALKKTGKEVVLEV KYMKEISPYFKGSPPSGSPAAPLQKRGSPALP  
PKEYKDGKSIPLKMCYVSRRLPTDTEPRYLEICSADGRDVLFFRAKDEGTAQSWFNAIH  
TNASALAPRVREDVKQLLGKDIKQMGWLTEQLPQDGKRNLALLTEKDLLLYNSLPHSRE  
GFSKPYCHPLIATRLVHSGPSKSSPLYDTELAFAALRSGTQKGVETHLFSVETQRELATWT  
RVLVDGCHSAAELIKEVTTACTWGGNECALSIHIDKGFTLFTTEEPGLNKVIHFHQPFKEL  
RMSDDGVRIYLYLEFGNPEAELQLDLHSCPKTIVFIIHSFSLSAKVSRLGLFT

>Takifugu rubripes\_SNTA1(ENSTRUP\_31180)  
MAAAMKAQKTGLELRVTVDWRVRVLTATLTEDTLTVNPSEASEEPAKAAPTPVGALNGDP  
PNLSSSPVPETITNVKRTVRVTKQDVGGLGISIKGGKENKMPILISKIFKGLAADQTEAL

YVGDAILSVNSYDLREATHDEAVQALKKTGKEVVLEVKEYIKEMSAFFKSSGSPGGALPWD  
SPPSTPQRTSEPLPAEVKEPRSIPLKMCQVSRKQCPDPTENRYFEVISATRKNVFLRAK  
DPAMAQSWYNAIQNSIANLLPRMKDEMVMQPGMEVKHVGWITEQVIQGPKEKPVAVLTD  
RDLLLYPSLPESKEGLKSPTKSHPLITTRLVHSGPGKSSPLLDSDLSFGLRGTQGVET  
HVFRVDSAKDLSWTWHLVVEGCHNAAELIKEVTTACSWNGKECTLGVHIDEGFTLFTTEEM  
GVRKRILLQHPFEHLKMSDDGVRMMFLDFGGPEAEIQLDLHCCPKTLVFI IHSFLSAKV  
KRLGLLA

>Tetraodon nigroviridis\_SNTA1(ENSTNIP\_9832)

MAAAMKAQKTGELLELRVTVDWRMVLATLTEDTLTVNPGEATEEPAKAAPTPAGAINGDP  
PNLSSSPVPETITNVKRTVRVTKQDVGGGLGISIKGGKENKMPILISKIFKGLAADQTEAL  
YVGDAILSVNSYDLREATHDEAVQALKKTGKEVILEVKEYIKEMSAFFKSSGSPGGALPWD  
SPPSSPQRTSEPLPAEVKEPRSIPLKMCQVSRKQCPDPTENRYFEVVSSTRKNMFLRAK  
DPAMAQSWYNAIQAGIANLLPKVKDEMVMQPGMEVKHLGWITEQVTQGPVAVLTD  
RDLLLYPSLPDSKESLNSPTRSHPLITTQLVHSGPGKSSPLLDSDLSFGLRSGTKQGVET  
HVFRVDSAKDLSAWTHLLVVEGCHNAAELIKEVTTACSWNGKECTLGVHIDEGFTLFTTEEM  
GVRKRILLQHPFERLKMSSDDGVRMMFLDFGGPEAEIQLDLHCCPKTLVFI IHSFLSAKV  
KRLGLLA

>Gasterosteus aculeatus\_SNTA1(ENSGACP\_8047)

GGKENKMPILISKIFKGLAADQTEALYVGDAILSVNGYDLREATHDEAVQALKKTGKEVI  
LEVKEYIKEMSAFFKSSGSPGATLPWDSPPSTPHTGTELSPAEVKEPRSIPLKMCQVSRKQ  
CPDPTENRYFEVISSRRNSVFLRAKDPAVAQSWYNAVQAGAASLLPRVKEEMRSMQQGV  
EVKHLGWITEQVCKNADVHEKPVLAMLTDRDLYPSLPESKESLGNPAKSHPLIATRLV  
HSGPGKSSPLLDSDLSFGLRSGTKQGVETHVFRVDSAKELSTWTHLVVEGCHNAAELVKE  
VTAACSWNGKECTLGVHIDEGFTLFTQEMGVRKSI LLQQPFERLRMSSDDGVRMMFLDFG  
GQEA EIQLDLHSCPKTIVFI IHSFLSAKV KRLGLLA

>Oryzias latipes\_SNTA1(ENSORLP\_7508)

MAAAMKTQKTGELLELRVTVDWRVRLATLTEDALTLNPGDSADEPAKPGHQSPAGAVNGD  
PPNLSSSPVPETITNVKRTVRVTKQDVGGGLGISIKGGKENKMPILISKIFKGLAADQTEA  
LYVGDAILSVNGYDLREATHDEAVQALKKTGKEVILEVKEYIKEMSAFFKSSGSPGASLPW  
DSPSTPQRDPPELSPAEGKEPRSVPLKMCQVSRKQCPDPTEDRYFEVTSFNRKNVFLRA  
KDPAMAQSWYNAIQAAAAGSLLPQVKEELKIMQPGVQIKHVGWMTQKYLKIDMRQPEK  
AVLAVLTKEDLLFPSPENKQSLSSPTKSHPLITTRLVHSGPGKSC LHADSELSFGLRS  
GTRQGVETHVFRVDSAKELSAWTHLLVVEGCHNAAELIKEVTTGTEPSRKRQVFLRDSTP  
EVFSADPIGLLFFLYKDFYSILAFETLDFFLCIYPNQGFSSPQQLDLHCCPKTLVFI IHS  
FLSAKVRRLGLLA

>Homo sapiens\_SNTB1(ENSPTRP\_431124)

MAVA AAAAAAGPAGAGGGRQRSGLLEVLVDRDRWHKVLVNLSEDALVLSSEEGAAAYNGI  
GTATNGSFCRGAGAGHPGAGGAQPPDSPAGVRTAFTDLPEQVPESISNQKRGVVKLQKQEL  
GGLGISIKGGKENKMPILISKIFKGLAADQTQALYVGDAILSVNGADLRDATHDEAVQAL  
KRAGKEVLLLEVKEYMREATPYVKKGSPVSEIGWETPPPEPRLGGSTSDPPSSQSFHFHRD  
RKSIPKMCYVTRSMALADPENRQLEIHSPPDAKHTVILRSKDSATAQAWFSAIHSNVNDL  
LTRVIAEVREQLGKTGIAGSREIRHLGWLAEKVPGESKKQWKPALVVLTEKDLLIYDSMP  
RRKEAWFSPVHTYPLLATRLVHSGPGKSPQAGVDLSFATRTGTRQGIETHLFRAETSRD  
LSHWTRSIVQGCHNSAELIAEISTACTYKNQECLTIHYENGFSITTEPQEGAFPKTIIQ  
SPYEKLMSSDDGIRMLYLDFFGGKDGEIQLDLHSCPKPIVFI IHSFLSAKITRGLVA

>Pan troglodytes\_SNTB1(ENSPTRP\_35135)

MAVA AAAAAAGPAGAGGGRQRSGLLEVLVDRDRWHKVLVNLSEDALVLSSEEGAAAYNGI  
GTATNGSFCRGAGAGHPGAGGAQPPDSPAGVRTAFTDLPEQVPESISNQKRGVVKLQKQEL  
GGLGISIKGGKENKMPILISKIFKGLAADQTQALYVGDAILSVNGADLRDATHDEAVQAL  
KRAGKEVLLLEVKEYMREATPYVKKGSPVSEIGWETPPPEPRLGGSTSDPPSSQSFHFHRD  
RKSIPKMCYVTRSMALADPENRQLEIHSPPDAKHTVILRSKDSATAQAWFSAIHSNVNDL  
LTRVIAEVREQLGKTGIAGSREIRHLGWLAEKVPGESEKQWKPALVVLTEKDLLIYDSMP  
RRKEAWFSPVHTYPLLATRLVHSGPGKSPQAGVDLSFATRTGTRQGIETHLFRAETSRD  
LSHWTRSIVQGCHNSAELIAEISTACTYKNQECLTIHYENGFSITTEPQEGAFPKTIIQ  
SPYEKLMSSDDGIRMLYLDFFGGKDGEIQLDLHSCPKPIVFI IHSFLSAKITRGLVA

>Mus musculus\_SNTB1(ENSMUSP\_41294)  
MAVAAAAVAAPAGGGGARAQRSGLLEVLVDRRWHKVLVNLSEDALVLSCEEGAAAYNGIG  
AATNGSFRCRSGTGHPVPGVAQAPDSPAGVRTAFTDLPEQVPESISNQKRGVKVLKQELG  
GLGISIKGGKENKMPILISKIFKGLAADQTQALYVGDAILSVNGADLRDATHDEAVQALK  
RAGKEVLLLEVKYMREATPYVKKGSPVSEIGWETPPPEPRLGGGSAEPLSSQSFHFRDR  
KSIPLKMCYVTRNMTLADPENRQLEIHSPDAKHTVILRSKDSATAQAWFSAIHSNAGDLL  
TRVVADIREQLGKTGIAGSREIRHLGWLAEKVPGESEKQWKPALVVLTEKDLLIYDSMPR  
RKEAWFSPVHSYPLLATRLVHSGPGKSPQAGMDLSFATRTGTQGIETHLFRAEISRDL  
SHWTRSIVQGCHNSAELTAEITACTYRNQECRLTIHYDNGFSISTEPQDGAFPKTI IQS  
PYEKLKMSDDGIRMLYLDFFGGKEGEIQDLHLHSCPPIVFI IHSFLSAKITRGLVA

>Felis catus\_SNTB1(ENSFCAP\_23633)  
VNLS DALVLSCEEGAAAYNGIGTATNGSFRCRAGGAQPPDSPAGVRTAFTDLPEQVPES  
ISNQKRGVKVLKQELGGLGISIKGGKENKMPILISKIFKGLAADQTQALYVGDAILSVNG  
ADLRDATHDEAVQALKRAGKEVLLLEVKYMREATPYVKKGSPVSEIGWETPPPEPRLGGG  
SSDPLSSQPFHFRDRKSIPLKMCYVTRSMASADPENRQLEIHSPDAKHTVILRSKDSAT  
AQAWFSAIHSNVSDLLTQVIAEVREQLGKTGIAGSREIRHLGWLADKVPGESEKQWKPAL  
VVLTEKDLLIYDSMPRRKEAWFSPVHTYPLLATRLVHSGPGKSPQAGVDLSFATRTGTR  
QGIETHVFRASETGRDLHWTRSIVQGCHNSAELVTEVTACTYKNOACCLTIHYENGFSI  
TTEPQEGAFPKTI IQSPYEKLKMSDDGIRMLYLDFFGGKDGEIQDLHLHSCPPIVFI IHS  
FLSAKITRGLVA

>Erinaceus europaeus\_SNTB1(ENSEEUP\_6243)  
MAVAAAAVAAPAGGGGGRAQRSGLLEVLVDRRWHKVLVNLGEDALVLSCEEGAAAYNG  
FGAATNGSFRCRAGASGSPGTQSPDSPAGVRTAFTDLPEQVPEAISNQKRGVKVLKQEMGG  
LGISIKGGKENKMPILISKIFKGLAADQTQALYVGDAILSVNGADLRDATHDEAVQALKR  
AGKEVLLLEVKYMREATPYVKKGSPVSEIGWETPPPEPRLGGSSSDPLSSQSFHFRDRK  
NIPLKMCYVTRSMALADPENRQLEIHSPDAKHTVILRSKDSATAQAWFSAIHSNVSDLLT  
RVITNVRDQLGKTGIAGSREIRHLGWLAEKVPGESEKQWKPALVVLTEKDLLIYDSMPRR  
KEAWFSPVHTYPLLATRLVHSGPGKSPQAGVDLSFATRTGTRQGIETHLFRAEISRDL  
HWTRSIVQGCHNSAELITEITACTYKNOECRLTIHYENGFSITTEPQEGAFSKTI IQSP  
YEKLKMSDDGIRMLYLDFFGGKDGEIQDLHLHSCPPIVFTIHSFLSAKITRGLVA

>Gallus gallus\_SNTB1(ENSGALP\_26399)  
MAVAAAGGGGGGGRAQRSGWLEVLVRRERWHKVLNANLGGREALVLSGEERPDGAAHNGLGGD  
GAACRGAEGGGGSAVRTAFTDPPEQVPEAVSNKKRCVKVLKQELGGLGISIKGGKENKM  
PILISKIFKGLAADQTQALYVGDAILAVNGTDLRDATHDEAVQALKRAGKEVLLLEVKYM  
EATPYVKKGSPVSEIGWETPPPEPRLGCVSADPLSLSIHRDKTIPLKMCYVTRNM  
TVSDPENRLIEVHSPDAKHTVVLRSKDSATAQAWFNAIHSSVNDLI PRVIAEVRDQLGKA  
GIAGSREIRHLGWLAEKVPGDNEKHWKPVVVLTEKDLLIYESMPRMKEAWFSPHLYPL  
LATRLVHSGPGKSPQSGVDLSFATRTGTRQGIETHLFRTESTRDLSLWTRNIVQGCHNS  
AELITEITTSCTYKNOECRLTIHYEHGFSLTTEPQDGAFSKTIAQYPYEKLKMSDDGIR  
MLYLDFFGGKDGEIQDLHLHSCPPIVFI IHSFLSAKITRGLVA

>Pelodiscus sinensis\_SNTB1(ENSPSIP\_8557)  
MPILISKIFKGLAADQTQALYVGDAILAVNGTDLRDATHDEAVQALKRAGKEVLLLEVKYM  
REATPYVKKGSPVSEIGWETPPPEPRLGGVSSDPLSLSIHRDRKTIPLKMCYVTRN  
MAVSDPENRLLEVHSPDAKHTVVLRSKDSATAQAWFNAIHSSVNDLI PRVIAEVRDQLGK  
TGIAGSREIRHLGWLAEKVPGENEKHWKPVVVLTEKDLLMYDSMPRMKEAWFSPHLYPL  
LLATRLVHSGPTKSPQSGVDLSFATRTGTRQGIETHLFRTESTRDLSLWTRNIVQGCHN  
SAELITEIKTSCTYKNOECRLTIHYEHGFSLTVEPRDGALSKTIVQCPYEKLKMSDDGIR  
MLYLDFFGGKDGEIQDLHLHSCPPIVFI IHSFLSAKITRGLVA

>Takifugu rubripes\_SNTB1(ENSTRUP\_25844)  
APKMAVVIAGKVGACGVRKSGVLEVLVRRERWHKVSVNLEALTLSCCEEDSGNDADDSV  
NFNCNGSYLDNNNANSNNGHQHVRPACTERVPEAIANRKRKCVKQEIIGGLGISIKGGK  
ENKMPILISKIFKGLAADQTQALYVGDAILSVNEMNLRDATHDEAVQALKRAGREVTLEV  
KYMREATPYVKKGSPVSEIGWETLPPPEPRLGTPPITSSPISNPPSPPTQPFLSPQGDRR  
CIPLKMCYVTRAMTTADPENRQLELHSPDTRHTVVLRCPDQPSALSWFAMHVSSTSLAQ  
WALAEVVQNTARMGIAGSKEIRHLGWLAGKVPQTESEKQSWKPVVVVTEKDLLLLYDSL  
RSKEAWHCPAHIYPLLATRLVHSGPDRGSPHSGTELEFFATRTGTRGLIEAHLFRVETTKD

LSLWTRHIVNGCHASAEMIKEVTTSCLYRGQECRLVIHYEQGFVSLADPTPLGDRENGEG  
RKA AAAAAPPQVLLSYPYEKLKMSDDGIRMLLLDFGGKEGEIQDLHLHSCPPIVFI LHSF  
LSAKISRGLVA

>Tetraodon nigroviridis\_SNTB1(ENSTNIP\_12507)  
MAVVIKGVSGACGVRKSGVVEVLVGRWHKVSVHLN E EAL T L S C E G E R V G N A D D G V S L S  
CNGSYLDNNNANSNNGQQHVRPACTERVPEAIANRKRKCVKAKQEI GGLGISIKGGKENK  
MPILISKIFKGLAADQTQALYVGDAILSVNGMNLRDATHDEAVQTLKRAGKEVTLEVKYM  
REATPYVKKGSPVSEIGWETLPPESPRLGTPPISSPHTLSTPPSPSAQPFLSPQDRRCI  
PLKMCYVTRAMTTADPENRQLELHSPDTRHTVVLRCPDQPSALS WFAALHSVTS S L A Q R A  
LAEVVQNTARMGIAGSKEIRHLGWLAKTESEKQSWKPVLVVVTEKDLLLYDSLPRSKEA  
WHSPAHIYPLLATRLVHSGPDRGSPHSGTELFATRTGTRLGIEAHLFRVETTKDLS SWT  
RHIVNGCHASAEMIKEVTTSCLYRGQECRLVIHYEQGFVSLADPTPLGGRENGEEREAAAN  
AAKPQVLLSYPYEKLKMSDDGIRMLFLDFGGREGEIQDLHLHSCPPIVFI LHSF L S A K I  
SRLGLVA

>Gasterosteus aculeatus\_SNTB1(ENSGACP\_9186)  
APKMAVVITTTGVPVGSVGVQKSGFLDVLVRRERWHKVLVNLN E E A L T L S C E E E D C G P D R D S V  
TPNGVTNGSYLDNNNANSNNGPHAARTAFTDLPERVPEAIANRKRKCVKTKQEI GGLGVS  
IKGGKENKMPILISKIFKGLAADQTQALYVGDAILSVNGVNLRDATHDEAVQALKRAGKE  
VTLEVKYMRATPYVKKGSPVSEIGWETPPPESPRLGSPVLSPTS VYKFSFGDRRCI PLK  
MCCVTRALTTDPENRQLELHSPDARHTVVLRCPDQPSALS WFSAMHSVTS K L A K R A L S E  
VIHSTARTDVAGSREIRHLGWLAKVGTSESEKQCKWPVLVVVTEKDLLLYESLPRGKEAW  
QSPAHOYPLLATRLVHSGSERGSPHSGTELLFATRTGTRLGIEHTLFRAETAKDLSLWTR  
QLVNGCHASAEMIKEVTTSCLYQSQECRLVIHYEQGFVSLADPKLGDGPQVLLSYPYEKL  
KMSDDGVRMLFLDFGGEEGEIQDLHLHSCPPIVFI LHSF L S A K I Y R L G L V A

>Homo sapiens\_SNTB2(ENSP\_338191)  
MRVAAAATAAGAGPAMAVWTRATKAGLVELLLRERWVRVVAELSGESLSLTGDAAAAE  
PALGPAAAAFNGLPNGGGAGDSLPGSPSRGLGPPSPAPP R G P A G E A G A S P P V R R V R V V K  
QEAGGLGISIKGGRENMPILISKIFPGLAADQSRALRLGDAILSVNGTDLRQATHDQAV  
QALKRAGKEVLLVVKFIREVTPYIKKPSLVSDLPWEGAAPQSPSFGSEDSGSPKHQNST  
KDRKIIPLKMCFAARNLSMPDLENRLIELHSPDSRNTLILRCKDTATAHSWFVAIHTNIM  
ALLPQVLAELNAMLGATSTAGGSKEVKHIAWLAEQAKLDGGRQQWRPVLMAVTEKDLLLY  
DCMPWTRDAWASPCHSYPLVATRLVHSGSGCRSPSLGSDLTFATRTGSRQGIEMHLFRVE  
THRDLSSWTRILVQGCHAAAELIKEVSLGCMLNGQEVRLTIHYENGFTISRENGGSSSIL  
YRYPFERLKMSADDGIRNLYLDFGGPEGELTMDLHSCPPIVFLHTFLSAKVTRMGLLV

>Pan troglodytes\_SNTB2(ENSPTRP\_14133)  
MRVAAAATAAGAGPAMAVWTRATKAGLVELLLRERWVRVVAELSGESLSLTGDASAAE  
PALGPAAAAFNGLPNGGGAGDSLPGSPSRGLGPPSPAPP R G P A G E A G A S P P V R R V R V V K  
QEAGGLGISIKGGRENMPILISKIFRGLAADQSRALRLGDAILSVNGTDLRQATHDQAV  
QALKRAGKEVLLVVKFIREVTPYIKKPSLVSDLPWEGAAPQSPSFGSEDSGSPKHQNST  
KDRKIIPLKMCFAARNLSMPDLENRLIELHSPDSRNTLILRCKDTATAHSWFVAIHTNIM  
ALLPQVLAELNAMLGATSTAGGSKEVKHIAWLAEQAKLDGGRQQWRPVLMAVTEKDLLLY  
DCMPWTRDAWASPCHSYPLVATRLVHSGSGCRSPSLGSDLTFATRTGSRQGIEMHLFRVE  
THRDLSSWTRILVQGCHAAAELIKEVSLGCMLNGQEVRLTIHYENGFTISRENGGSSSIL  
YRYPFERLKMSADDGIRNLYLDFGGPEGELTMDLHSCPPIVFLHTFLSAKVTRMGLLV

>Pongo abelii\_SNTB2(ENSPYP\_8467)  
MRVAAAAGAGPAMAVWTRATKAGLVELLLRERWVRVVAELSGESLSLTGDAAAAE  
LPALGPAAAFNGLPNGGGAGDSLPGSPSRGLGPPSPAPP R G P A G E A G A S P P V R R V R V V K  
GGLGISIKGGRENMPILISKIFPGLAADQSRALRLGDAILSVNGTDLRQATHDQAVQAL  
KRAGKEVLLVVKFIREVTPYIKKPSLVSDLPWEGAAPQSPSFGSEDSGSPKHQNSTKDR  
KIIPLKMCFAARNLSMPDLENRLIELHSPDSRNTLILRCKDTATAHSWFVAIHTNIMALL  
PQVLAELNAMLGATSTAGGSKEVKHIAWLAEQAKLDGGRQQWRPVLMAVTEKDLLLYDCM  
PWTRDAWASPCHSYPLVATRLVHSGSGCRSPSLGSDLTFATRTGSRQGIEMHLFRVETHR  
DLSSWTRILVQGCHAAAELIKEVSLGCMLNGQEVRLTIHYENGFTISRENGGSSSILYRY  
PFERLKMSADDGIRNLYLDFGGPEGELTMDLHSCPPIVFLHTFLSAKVTRMGLLV

>Mus musculus\_SNTB2(ENSMUSP\_148684)

MAVWTRATKAGLVELLLRERWVRVVAELSGESLSLTGDAAAVEPEPPAAAFNGLPNGGGG  
ESLPGSPNRGLGPPSPAPPGRPAGEASASPPVRRVRVVKQEAGGLGISIKGGRENRMPI  
LISKIFPGLAADQSRALRLGDAILSVNGTDLRQATHDQAVQALKRAGKEVLEVKFIREV  
TPYIKKPSLVSDLPWEGASPOSPSFGSEDSGSPKHQNTTKDRKVIPLKMCFAARNLSMP  
DLENRLIELHSPDSRNTLILRCKDTATAHSWFVAIHTNIMALLPQVLAELNAMLGATSTA  
GGSKEVKHIAWLAEQAKLDGGRQQWRPVLMAVTEKDLLLYDCMPWTRDAWASPCHSYPLV  
ATRLVHSGSGCRSPSLGSDLTAFATRTGSRQGIEMHLFRVETHRDLSTWTRILVQGCHAAA  
ELIKEVSLGCTLSGQEVRFVHYEHGFTITRDNGGASSILYRYPFERLKMSADDGIRNLY  
LDFGGPEGELTMDLHSCPKPIVFLHTFLSAKVTRMGLLV

>Rattus norvegicus\_SNTB2 (ENSRNOP\_27561)  
MAVWTRATKAGLVELLLRERWVRVVAELSGESLSLTGDAAAVEPEPPAVAFNGLPNGGGG  
GGDSLPGSPNRGLGPPSPAPPGRPAGEASASPPVRRVRVVKQEAGGLGISIKGGRENRM  
PILISKIFPGLAADQSRALRLGDAILSVNGTDLRQATHDQAVQALKRAGKEVLEVKFIR  
EVTPTYIKKPSLVSDLPWEGASPOSPSFGSEDSGSPKHQNTTKDRKVIPLKMCFAARNLS  
MPDLENRLIELHSPDSRNTLILRCKDTATAHSWFVAIHTNIMALLPQVLAELNAMLGATS  
TAGGSKEVKHIAWLAEQAKLDGGRQQWRPVLMAVTEKDLLLYDCMPWTRDAWASPCHSY  
LVATRLVHSGSGCRSPSLGSDLTAFATRTGSRQGIEMHLFRVETHRDLSTWTRILVQGCHA  
AAELIKEVSLGCTLSGQDVRFTVHYEHGFTITRDNGGTSSILYRYPFERLKMSADDGIRN  
LYLDFGGPEGELTMDLHSCPKPIVFLHTFLSAKVTRMGLLV

>Canis familiaris\_SNTB2 (ENSCAFP\_30087)  
MNNETPRGERPAPPAPRGRGKRRGCPTGMRVSAAGAGPAMAVWTRATKAGLVELLL  
RERWVRVVAELSGESLSLTGDAAAPEAAALGPAAAFNGLPNGGGAGDSLPGSPSRGLG  
PPSPAPPGRPAGEAGASPPVRRVRVVKQEAGGLGISIKGGRENRMPIILISKIFPGLAAD  
QSRALRLGDAILSVNGTDLRQATHDQAVQALKRAGKEVLEVKFIREVTPTYIKKPSLVSD  
LPWEGASPOSPSFGSEDSGSPKHQNSTKDRKVIPLKMCFAARNLSMPDLENRLIELHSP  
DSRNTLILRCKDTATAHSWFVAIYTNIMALLPQVLAELNAMLGATSTAGGSKEVKHIAWL  
AEQAKLDGGRQQWRPVLMAVTEKDLLLYDCMPWTRDAWASPCHSYPLVATRLVHSGSGCR  
SPSLGSDLTAFATRTGSRQGIEMHLFRVETHRDLSTWTRILVQGCHAAAELIKEVSLGCTL  
NGQEVRLTVHYENGFTISKENGGSSILYRYPFERLKMSADDGIRNLYLDFGGPEGELTM  
DLHSCPKPIVFLHTFLSAKVTRMGLLV

>Gallus gallus\_SNTB2 (ENSGALP\_43176)  
MGTREAPSAPPLAALTANSVPPCGRGARPRVARGGAERRGGGGMAVWTRASKAGLLEL  
LLRERWVRVVAELSGEALSLEAEPGEPTPGLNGVANGGGGGEWGAEAAVPGCVRVRV  
KAEAGGLGISIKGGRENRMPIILISKIFPGLAAERSGALRLGDAILAVNGVDLRDATHDQA  
VQALKRAGREVILEVKFMREVTPTYMKKPSLVSDLPWEGAAPQSPSLSGSEDSGSPQHGA  
RDRKVIPLKMCFAARNLSMPDLENRLIELHSPDSRNTLILRCKDTATAHSWFTALHANIM  
ALLPQVLAELNAAALGGSAGGREVKHVAWLAEQARLDGGRQQWRPVLMAVTEKDLLLYDAM  
PWTRDAWASPCHSYPLVATRYRDGDCSGSHPTWDAAPTSPPLPRLVHSGSGRRSPSLGS  
ELTFATRTGSRQGIEMHVFVETHRDLSCWTRVLVQGCHAAAELIKEVSVGCTLGGQEVK  
LCIHYEGGFTICRDEAGGSVLYRYPYEKLMMSADDGIRTLYLDFGGPEGELALDLHSCPK  
PIVFLHTFLSAKVTRMGLLV

>Danio rerio\_SNTB2 (ENSDARP\_67932)  
MMAVWTRAQKQGHLDLLSDRWVRVSAELTRDNLTLTAEGEPGGPAGYPEHNSHLKNGVS  
NGNEQNRDVFVTRVQYDNSPGRVNGTSDSESSGYCDSEGVRVRVIVKQESGGLGISIKG  
GRENRMPIILISKIFPGLAADQSRALRVGDAILSVNGSDLRDATHDAVQALKKAGKEVTL  
EVKYIREVSPLFKKSSMSADLSWDGRLQSPNLSSDESPPKSSVSRDRKVIPLKMSFISRN  
LTMPDPENRLLLEHSPDGQHTVVLRCCKDGATAHSWFTAHTNVAALLPQTLISYINTFLNN  
ANTHCTLKHIGWLVEQLDMDGSRHQYKRVIMALTEKDILLFQAVPWTYESWTTPVLTHPL  
LATRLVHSGSVRSPALGGDLLFATRTGTGRGIESHVFRVETHWDLSTWTRALVQGGHSA  
AELIKEVSIQCVLNRQNVRLILHYERGFTVTRESGDSVLFHFPHYERLKMSADDGVRNLF  
DFGAPGEMVFEHSGPKPVVFLHLSFLSAKLARLGLLT

>Takifugu rubripes\_SNTB2 (ENSTRUP\_6306)  
QAVPILEGSSEAVRKRVRVVKQESGGLGISIKGGRENRMPIILISKIFPGLAADQSRALRV  
DAILSVNGSDREATHDLAVQALKKAGKEVTLVKYIREVSPLFKKPSLVADLPWDGVRP  
QSPSYSGSEDSGSPKHSSSSSKDRKVISLKMCFISRNLTMPDLENRLLLEHSPDGQHTV  
VLRCKDAPTANSWFTAHTNIAALLPQVLAHINAYLGASSAPTHPHLKHIGWLAEQIQ

DGGRQQYKPVVMALTEKDILLFEAVPWSRESWSLPLLTHPLLATRLVHSGSARGSPAQGS  
ELVFATRTGTGRGIESHVFRVETHWDLSSWTRALVQGAHAAAELIKEVSI GCTLNRQDVR  
LTLHYEKGFTVTREPADLTGGAVLYRYPYEKLMKSADDGIRNLYLDFGGPEGEMVFDLHS  
GPKPVVFLHSFLSAKLTRMGLLT

>Tetraodon nigroviridis\_SNTB2 (ENSTNIP\_11695)  
MAVWTRADKNGQLDLLLLRDRWIRVAAELTRETLLTAEAEAGGHHHCANSPGKYPNNGSN  
SDFGSPGSSYSGSPGSSFGSRHGDFPLALEGSSEAVRKRVRVVKQESGGLGISIKGGRENRM  
PILISKIFPGLAADQSRALRVGDAILSVNGNDLREATHDLAVQALKKAGKEVTLEVKYIR  
EVSPLFKKPSLVADLPWDGVRPQSPSYSGSEDSGSPKHGGSSPSKDRKVISLKMCFISR  
LTMFDLENRLLLEHSPDGQHTVVLRCKDAPTANSWFTAMHTNIAALLPQVLAHINAYLGA  
SVSASTHPLKHIGWLAEQIQLEGGRQQYKPVVMALTEKDILLFESVWPWSRESWSLPLLT  
HPLLATRLVHSGSARGSPAQGSSELVAFATRTGTGRGIESHVFRVETHWDLSSWTRALVQGA  
HAAAELIKEVSI GCTLNRQEVRLTLHYEKGFTVTREPADLTGGAVLFRYPYEKLMKSADD  
GIRNLYLDFGGPEGEMVFDLHSGPKPVVFLHSFLSAKLTRMGLLT

>Gasterosteus aculeatus\_SNTB2 (ENSGACP\_2773)  
PRAPPAASAGVGMVWTRADKRGQLDLLLLRDRWIRVAAELTRETLLTAEAEATGPGGNH  
WDYNGSSAAPRNGVPNGNEPGASPGNPARVPPSGPEQLQSQNQPGDGSSEAVRKRVRVVKQ  
ESGGLGISIKGGRENRMPI LISKIFPGLAADQSRALRVGDAILSVNGSDLREATHDLAVQ  
ALKKAGKEVTLEVKYIREVSPFLFKKPSLVADLPWDGARAQSPSCSGSEDSGSPKHCGASP  
RDRKVMSLKMCFISRNLTMFDLENRLLLEHSPDGQHTVVLRCKDGATANSWFTAVHTNVA  
ALLPHTLAHVNAYLGASSPAHPLQHIGWLAEQVQLEGGRQQHKPVVMALTEKDILLFES  
VPWSRESWSAPLLTHPLLATRLVQCRGARGSPQGSDTAFVTRTGTGRGIESHVFRVETQ  
WDLSTWTRALVQGAHAAAELIKEVSI GCTLNRQDVRRLTLHYEKGFTVTREPADPPGAVL  
FRYPYEKLMKSADDGMRNLYLDFGGPEGEMVFDLHSGPKPVVFLHSFLSAKLTRMGLLT

>Homo sapiens\_SNTG1 (ENSP\_483474)  
MDFRTACEETKTGICLLQDGNQEPFKVRLHLAKDILMIQEODVICVSGEPFYSGERTVTI  
RRQTVGGFGLSIKGGAEHNI PVVVKISKEQRAELSGLLFIGDAILQINGINVRKCRHEE  
VVQVLRNAGEEVTTLTVSFLKRAPAFKLP LNEDCACAPSDQSSGTSSPLCDSGLHLNYHP  
NNTDTLSCSSWPTSPGLRWEKRWCDLRLIPLLHSRFSQYVPGTDL SRQNAFQVIAVDGVC  
TGIIQCLSAEDCVDWLQAIATNISNLTKHNIKKINRNFVFNQQIVYMGWCEAREQDPLQD  
RVYSPTFLALRGSCLYKFLAPPVTTWDWTRA EKTFSVYEIMCKILKDSDLLDRRKQCFTV  
QSEGEDLYFSVELES DLAQWERAFQTATFLEVERIQCKTYACVLES HLMGLTIDFSTGF  
ICFDAATKAVLWRYKFSQLKGSDDGKSKIKFLFQNPDTKQIEAKELEFSNLFAVLHCIIH  
SFFAAKVA CLDPLFLGNQATATAASSATTSKAKYTT

>Pan troglodytes\_SNTG1 (ENSPTRP\_34657)  
MDFRTACEETKTGICLLQDGNQEPFKVRLHLAKDILMIQEODVICVSGEPFYSGERTVTI  
RRQTVGGFGLSIKGGAEHNI PVVVKISKEQRAELSGLLFIGDAILQINGINVRKCRHEE  
VVQVLRNAGEEVTTLTVSFLKRAPAFKLP LNEDCACAPSDQSSGTSSPLCDSGLHLNYHP  
NNTDTLSCSSWPTSPGLRWEKRWCDLRLIPLLHSRFSQYVPGTDL SRQNAFQVIAVDGVC  
SGIIQCLSAEDCVDWLQAIATNISNLAKHNIKKINRNFVFNQQIVYMGWCEAREQDPLQD  
RVYSPTFLALRGSCLYKFLAPPVTTWDWTRA EKTFSVYEIMCKILKDSDLLDRRKHCFVT  
QSEGEDLYFSVELES DLAQWERAFQTATFLEVERIQCKTYACVLES HLMGLTIDFSTGF  
ICFDAATKAVLWRYKFSQLKGSDDGKSKIKFLFQNPDTKQIEAKELEFSNLFAVLHCIIH  
SFFAAKVA CLDPLFLGNQATASAAAASSATTSKAKYTT

>Mus musculus\_SNTG1 (ENSMUSP\_118101)  
MDFRTTCEETKTGVCLLQDGNQEPFKVRLHLARDLLMLQEODVLCVSGEPFYSGERTVTI  
RRQTVGGFGLSIKGGAEHNI PVVVKISKEQRAELSGLLFIGDAILQINGINVRKCRHEE  
VVQVLRNAGEEVTTLTVSFLKRAPAFKLPVNEDCACAPSDQSSGTSSPLCDSGLHLNYHP  
NNTDTLSCSSWPTSPGLRWEKRWCDLRLIPLLHARFSQYVPGTDL SRQNAFQVVAVDGVC  
SGIIQCLSAEDCVDWLQAIASNISNLTKHNIKKINRNFVFNQQIVYMGWCEAREQESLQD  
RVYTPVFLALRGSCLYRFLSPPVTTWDWTRA EKTFSVCEIMCKVLKDSDLLDRRKHCFM  
QSEGEDLYFSVELES DLAQWERAFQTATFLEVERIQCKTYACVLES HLMGLTIDFSTGF  
ICFDAATKAVLWRYKFSQLKGSDDGKSKIKFLFQNPDTKQIEAKELEFSNLFAVLHCIIH  
SFFAAKVA CLDPLFLGNQAATTA AVSSASTSKAKHLA

>Canis familiaris\_SNTG1 (ENSCAFP\_10009)

MDFRTACEETKTGICLLQDGNQEPFKVRLHLAKDILMIQEODVICVSGEPFYSGERTVTI  
RRQTVGGFGLSIKGGAEHNI PVVISKISKEQRAELSGLLFIGDAILQINGINVRKCRHEE  
VVQVLRNAGEEVTTLTVSFLKRAPAFKLPLNEDCACAPSDQSSGTSSPLCDSGLHLNYHP  
NNTDTLSCSSWPTSPGLRWEKRWCDLRLIPLLHSRFSQYVPGTDLRQNAFQVIAVDGVC  
SGIIQCLSAEDCIDWLQAIATNISNLTKHNIKKINRNFVFNQQIVYMGWCEAREQDPLQD  
RAYSPTFLALRGSSLYKFLAPPVTTWDWTRAETFSVYEIMCKILKDSDLLDRRKHCFTV  
QSEGEDLYFSVELSDLAQWERAFQTATFLEVERIQCKTYACVLESHLMGLTIDFSTGF  
ICFDAATKAILWRYKFSQLKGSDDGKSKIKFLFQNPDTKQIEAKELEFSNLFAVLHCIIH  
SFFAAKVAACLDPLYLGNQATAASTAASSSTTSRAKYTT

>Myotis lucifugus\_SNTG1(ENSMLUP\_10385)

MDFRTACEETKTGICLLQDGNQEPFKVRLHLAKDILMIQEODVICVSGEPFYSGERTVTI  
RRQTVGGFGLSIKGGAEHNI PVVISKISKEQRAELSGLLFIGDAILQINGINVRKCRHEE  
VVQVLRNAGEEVTTLTVSFLKRAPAFKLPLNEDCACAPSDQSSGTSSPLCDSGLHLNYHP  
NNTDTLSCSSWPTSPGLRWEKRWCDLRLIPLLHSRFSQYVPGTDLRQNAFQVIAVDGVC  
SGIIQCLSAEDCIDWLQAIATNISNLTKHNIKKINRNFVFNQQIVYMGWCEAREQDPLQD  
SVYSPIFLALRGSSLYKFLAPPVTTWDWTRAETFSVYEIMCKILKDSDLLDRRKHCFTV  
QSEGEDLYFSVELDCDLAQWERAFQTATFLEVERIQCKTYACVLESHLMGLTIDFSTGF  
ICFDAATKAVLWRYKFSHLKGSDDGKSKIKFLFQNPDTKQIEAKELEFSNLFAVLHCIIH  
SFFAAKVAACLDPLFLGHQATASAAASSATMSKAKYTT

>Monodelphis domestica\_SNTG1(ENSMODP\_12397)

MDFRTSCEETKTGICLLQDGNQEPFKVRLHLAKDILMIQEODVICVSGEPFYSGERTVTI  
RRQTVGGFGLSIKGGAEHNI PVVISKISKEQRAELSGLLFIGDAILQINGINVRKCRHEE  
VVQVLRNAGEEVTTLTVSFLKRAPAFKLPLNEDCACAPSDQSSGTSSPLCDSGLHLNYHP  
TNTDTLSCSSWPTSPGLRWEKRWCDLRLIPLLHSRFSQYLPGSDDLRCRQNAFQVIAVDGVC  
SGIIQCLSAEDCIDWLQAIATNISNLTKHNIKKINRNFVFNQQIVYMGWTEEREQDSLQD  
RKYTPKFLALRGSSLYKFLAPPVTTWDWTRAETFSVYEIMFKIFKDSDLLDRRKHCFTV  
QSETGEDLYFSVELECDLAQWEKAFQTATFLEVERIQCKTYACVLESHLMGLTIDFSMGF  
VCFDAATKAVLWRYKFSQLKGSDDGKSKIKFLFQNPDTKQIEAKELEFSNLFAVLHCIIH  
SFFAAKVAACLDPLYLGNQASASASTSASSAATGKVKYTT

>Taeniopygia guttata\_SNTG1(ENSTGUP\_11271)

MDFRTTCEETKTGVCLLQDGNQEPFKVRLHLAKDILMIQEODVICVSGEPFYSGERTVTI  
RRQTVGGFGLSIKGGAEHNI PVVISKISKEQRAELSGLLFIGDAILQINGINVRKCRHEE  
VVQVLRNAGDEVTLTVSFLKRAPAFKLPLNEDCACAPSDQSSGTSSPLCDSGLHLNYHP  
NNTDTLSCSSWPASPGLRWEKRWCDLRLIPLLHSRFSQYLPGSDDLRCRQNAFQVIAVDGVC  
SGIIQCLSAEDCIDWLQAIASNISNLTKHNIKKINRNFVFNQQIVYMGWTEEREQDSLQD  
RMYTPKFLALRGSSLYKFIAPPVTTWDWTRAETFSVYEIMCKILKDSDLLDRRKHCFTV  
QSEGEDLYFSVELECDLILWEKAFQTATFLEVERIQCKTYACVLESHLMGLTIDFSMGF  
VCFDAATKAVLWRYKFSQLKGSDDGKSKIKFLFQNPDTKQIEAKELEFSNLFAVLHCIIH  
SFFAAKVAACLDPLYVGSQATASAAPTTSGTGKLYST

>Anolis carolinensis\_SNTG1(ENSACAP\_12130)

MDFRTACEETKTGICLLQDGNQEPFKVRLHLAKDILTIQEODVICVSGEPFYSGERTVTI  
RRQTVGGFGLSIKGGAEHNI PVVVISKISKEQRAELSGLLFIGDAILQINGINVRKCRHEE  
VVQVLRNAGEEVTTLTVSFLKRAPAFKLPLNEDCACIPSDQSSGTSSPLCDSGLHLNYHP  
NNTDTLSCSSWPTSPGLRWEKRWCDLRLIPLLHSRFSQYLPGSMDRCRQNAFQVIAVDGVC  
SGIIQCLSGEDCIDWLQAIATNISNLTKHNIKKINRNFVFNQQIVYMGWTEEREQDSLQD  
RMYTPKFLALRGSSLYKFIAPPVTTWDWTRAERTFSVYEIMYKILKDSDLLDRRKHGFV  
QSEMGEDLYFSVELESIDLILWEKAFHSATFLEVERIQCKTYACVLESHLMGLTIDFGMGF  
VCFDAATKAVLWRYKFSQLKGSDDGKSKIKFLFQNPDTKQIEAKELEFSNLFAVLHCIIH  
SFFAAKVAACLDQYVGSQAAASTSVSAASTAAAAAAGTSTLATSSGSSKLYTT

>Xenopus tropicalis\_SNTG1(ENSXETP\_12501)

MEFNLCICAKTGICLLQDGNQEPFKVRLHLAKDILMIQEODVICVSGEPFYSGERTVAIR  
RQTVGGFGLSIKGGSEHNI PVVVISKISKEQRAELSGLLFIGDAILQINGINVRKCKHEEV  
VQVLRNAGEEVTTLTVSFLKRSPAFKLPLNEDCSCVPCDQSSGTSSPLCDSGLHLNYHPN  
NTDSLSCSSWPTSPGLRWEKRWCDLRLIPLLHSRFSQYLPGSDDLRCRQNAFQVIAVDGVC  
GIIQCLLAEECIDWLQSI SANISNLTKHNIKKINRNFVFNQQIVFLGWVEEREQDTLKDY  
VYSPKFLALRGSSLYKFNPPVTTWDWMRAEKFTVYEIMCKIFKDSDLLDRRKHCFTV



SETGEDLYFSVELECDLLQWEKAFQTATFLEVERIQCKTYACVIESHLMGLTIDFGMGFI  
CFDAATKAILWKYKFSQLKGSDDGKSKIKFLFQNDTKQIEAKELEFSNLFAVLHCIIHS  
FFAAKVAACLDPRFVDSQGAASAIVTTSCATAGVCKMKYST

>Danio rerio\_SNTG1(ENSDARP\_134700)  
QTKTGIYLLQDGSSEEPFNIRLHLAKDILTIQEODVICVSGEPFYSSERTVTIRRQTIGGF  
GLSIKGGAEHKIPVVISKISKEQKAELSGLLFIGDGILQINGINVRSYRHEEVVQVLRNA  
GEEVTLTVSFLKRTPAFLKLPCEDCSCIPSDQSSGTSSPLCDSGLHLNHPNNTDTLSC  
SSWPMSPLRWEKRWVLDLRIPLLHARLSQYVPGTDICRQNAFQVIAVDGVCSGVIQCPG  
TDECTDWLQAIASANISALTKHNVHLTLKCRLPDGTIIYMGWVDEKEQDSVQDRMYTPKFL  
ALRGSSLFKFSAPPVTTWDWTRAEKSFVYEIMFKILKFYLISSYFQVYFIYVRVQDSEL  
LDRKHKCFVQDTSGEDIFFSVELECELLWEKAFQMATFFEVERIQCKTYACIVDSHLM  
GLTIDFSMGFVCFDAASKAVLWRYKFSQLKGSDDGKSKIKFLFQNDTKLIEAKELEFS  
NLFAVLHCIIHAFFAAKVAACLDPMFVSSRNAAMAPVUSA

>Takifugu rubripes\_SNTG1(ENSTRUP\_16051)  
MDFKTSNEETKTGIYLMQEGNEEPFNIRLHLAKDILTIQEODVICVSGEPFYSSERTVTI  
RRQTIGGFGLSIKGGAEHKIPVVISKISKEQKAELSGLLFIGDGILQINGINVRSYRHEE  
VVQVLRNAGEEVTLTVSFLKKTPAFLKLPCEDCCTCIPSDQSSGTSSPLCDSGLHLNHP  
NNTDTLSCSSWPTSPALRWEKRWVLDLRIPLLHSRLSRYSPGSDSCRKNAFQVIAVDGVC  
SGVVQFPTAEDCLDWLQAISSNISLTKHNVKINRNFVFNQOIIYMGWVDEKEQDSVQD  
RMYSKFLALRGSSLFKFSAPPVTTWDWTRAEKSFVYEIMFKILKDNLDLDRKHKCFV  
QTESGEDMFFSVELDCELLIWEKAFQTATFLEVERIQCKTYACIMESHLMGLTVDFGMGF  
VCFDAASKAVLWRYKFSQLKGSDDGKSKIKFLFQNDKSIIEAKELEFSNLFAVLHCIIH  
AFFAAKVAACLDPMFVESQGTATTAGFPPSLSAISSKHLS

>Tetraodon nigroviridis\_SNTG1(ENSTNIP\_11343)  
MDFKTSNEETKTGIYLMQEGNEEPFNIRLHLARDILTIQEODVICLSGEPFYSSERTVTI  
RRQTIGGFGLSIKGGAEHKIPVVISKISKEQKAELSGLLFIGDGILQINGINVRSYRHEE  
VVQVLRNAGEEVTLTVSFLKKTPAFLKLPCEDCCTCIPSDQSSGTSSPLCDSGLHLNHP  
NNTDTLSCSSWPTSPALRWEKRWVLDLRIPLLHSRLSRYSPGSDSCRKNAFQVIAMDGVC  
SGVVQFATAEDCLDWLQAISSNISLTKHNVKINRNFVFNQOIIYMGWVDEKEQDSVQD  
RMYSKFLALRGSSLFKFSAPPVTTWDWTRAEKSFVYEIMFKILKDNLDLDRKHKCFV  
QTESGEDMFFSVELDCELLIWEKAFQTATFLEVERIQCKTYACIMESHLMGLTVDFTMGF  
VCFDAASKAVLWRYKFSQLKGSDDGKSKIKFLFQNDKSIIEAKELEFSNLFAVLHCIIH  
AFFAAKVAACLDPMFVESQGTATTAGFPPSLSAISCHSQT

>Gasterosteus aculeatus\_SNTG1(ENSGACP\_23700)  
MDFKTSNEETKTGIYLMQEGNEEPFNIRLHLARDILTIQEODVICVSGEPFYSSERTVTI  
RRQTIGGFGLSIKGGAEHKIPVVISKISKEQKAELSGLLFIGDGILQINGINVRSYRHEE  
VVQVLRNAGEEVTLTVSFLKKTPAFLKLPCEDCCTCVPSDQSSGTSSPLCDSGLHLNHP  
NNTDTLSCSSWPACPLRWEKRWVLDLRIPLLHSRLSQYNPQSDVCRKNAFQVIAVDGVC  
SGVLQFLTADDCLDWLQALASNISLTKHNVKINRNFVFNQOIIYMGWVDEKEQDSVQD  
RMYSKFLALRGSSLFKFSAPPVTTWDWTRAEKSFVYEIMCKILKDNLDLDRKHKCFV  
QTESGEDLFFSVELECELLIWEKAFQMATFLEVERIQCKTYACIMESHLMGLTVDFGAGF  
VCFDAASKAVLWRYKFSQLKGSDDGKSKIKFLFQNDKSIIEAKELEFSNLFAVLHCIIH  
AFFAAKVAACLDPIFVESQGNATPAGFPPSLCSISCSNSQTPKLYAT

>Oryzias latipes\_SNTG1(ENSORLP\_21863)  
TSFFPTWNCSQTKTGIYLMQEGNEEPFNIRLHLAKDILTIQEODVICVSGEPFYSSERTV  
TIRRQTIGGFGLSIKGGAEHKIPVVISKISKEQKAELSGLLFIGDGILQINGINVRSYRH  
EEVVQVLRNAGEEVTLTVSFLKKTPAFLKLPCEDCCTCIPSDQSSGTSSPLCDSGLHLNHP  
NNTDTLSCSSWPTSTGLRWEKRWVLDLRIPLLHSHLSQYMPGSDTCRKNAFQVIAVDG  
VCSGVLQFPTAEDCLDWLHAIASNISLTKHNVKINRNFVFNQOIIYMGWVDEKEQDSV  
QDRMYTPKFLALRGSSLFKFTAPPVTTWDWTRAEKSFVYEIMSKILKVRSLCVIIQFP  
PHFKERLSQENDLDRKHKCFVQTESGEDMFFSVELECDLLWEKAFQMATFLEVERIQ  
SKTYACIMESHLMGLTIDFSMGFVCFDAASKAVLWRYKFSQLKGSDDGKSKIKFLFQND  
ESKSIIEAKELEFSNLFAVLHCIIHAFFAAKVAACLDPVFLESQGTAAAGIPPS

>Homo sapiens\_SNTG2(ENSP\_311837)  
MGTEGPPPPAASRGRQGCLLVPARTKTTIALLYDEESENAYDIRLKLTKEVLTIQKQDVV

CVGGSHQGRNRRVTVTLRRQPVGGGLGLSIKGGSEHNVPVVISKIFEDQAADQTGMLFVGDA  
VLQVNGIHVENATHEEVVHLLRNAGDEVTITVEYLREAPAFKLPGLSGPGSSDHSSGAS  
SPLFDSGLHLNGNSSTAPSSPSSPIAKDPRYEKRWLDTLVPLSMARISRYKAGTEKLR  
WNAFEVLALDGVSSGILRFYTAQDGTDLRAVSANIRELTLQNMKMANCKCCSPSDQVVHM  
GWVNEKLQGDSSQTRPKFLALKGPSFYVFSTPPVSTFDWVRAERTYHLCEVLFKVKHF  
WLTEDCWLQANLYLGLQDFDFEDQRPYCFYSVAGHGKSHVFNVELGSELAMWEKSFQRAT  
FMEVQRTGSRTYMCSWQGEMLCFTVDFALGFTCFESKTKNVLWRFKFSQLKGSDDGKTR  
VKLLFQNLDTKQIETKELEFQDLRAVLHCIHSFIAAKVASVDPGFMDSQSLARKYMYSS

>Pan troglodytes\_SNTG2 (ENSPTRP\_19957)

MGTEGPPPPAASRGRQCCLLVPARTKTTIALLYDEESENAYDIRLKLTKEVLTIQKQDVV  
CVGGSHQGRNHRVTVTLRRQPVGGGLGLSIKGGSEHNVPVVISKIFKDQAADQTGMLFVGDA  
VLQVNGIHVENATHEEVVHLLRNAGDEVTITVEYLREAPAFKLPGLSGPGSSDHSSGAS  
SPLFDSGLHLNGNSSTAPSSPSSPIAKDPRYEKRWLDTLVPLSMARISRYKAGTEKLR  
WNAFEVLALDGVSSGILQFYTAQDGTDLRAVSANIRELTLQNMKMANCKCCSPSDQVVHM  
GWVNEKLQGDSSQTRPKFLALKGPSFYVFSTPPVSTFDWVRAERTYHLCEVLFKVKHF  
WLTEDCWLQANLYLGLQDFDFEDQRPYCFYSVAGHGKSHVFNVELGSELAVWEKSFQRAT  
FMEVQRTGSRTYMCSWQGEMLCFTVDFALGFTCFESQTKNVLWRFKFSQLKGSDDGKTR  
VKLLFQNLDTKQIETKELEFQDLMAVLHCIHSFIAAKVASVDPGFMDSQSLARKYMYSS

>Callithrix jacchus\_SNTG2 (ENSCJAP\_43085)

PAAPRGRQGCLLVLARLKTAVALLYSEEYHSAYDIRLKLTKEMLTIQKQDVICVGGSHQG  
RSHRTVTVTLRRQPVGGGLGLSIKGGSEHNVPVVISKIKGQAADQTGMLFVGDAVLQVNGIN  
VENATHEEVVHLLRNAGDEVTITVEYLREAPAFKLPGLSGPGSSDHSSGASSPLFDSAL  
HLNGNSRNTAPSSPSSPIAKDPRYEKRWLDALSVPLSMARISRYKAGTEKFRWNAFEVLA  
LDGVSSGILQFYTAQDGDWLRRAVSANIRELTLQNMKLANRCCSASDQVVHMGWVHEKHLH  
GADSSQTCRPFKFLALKGPSFYVFSSPPVSTFDWVRAERTYHLCEVLFKVKHFWLTDDCWL  
QANLYLGLQDGFDFEDQRPYCFYSVAGHGKSHVFNVELGSELAVWEKSFQRAMFMEVQRSG  
SKTYACSWQGEMLCFTVDFALGFTCFESKTKNVLWRFKFSQLKGSDDGKTRVKLLFQHL  
DTKQIETKELEFQDLTAVLHCIHAFIAAKVASVDPGFVDSQSLAKKMYMSN

>Mus musculus\_SNTG2 (ENSMUSP\_21004)

MSAEGSQSLAAPRGRPSHLLVPARTKTALALLYDEGLEENAYDVRLKLTKEVLTIQKQDVV  
CIGGAPPGANHRVTVTLRRQPVGGGLGLSIKGGAEHGVVVISKIFKDQAADQTEMLFIGDA  
VLQVNGINVENATHEEVVHLLRNAGDDVTITVEYLREAPSFLKLPGLSGPGSSDHSSRAS  
SPLFDSGLHLNGHCSHTAPSSPSSPIANEPKYEKRWLDTLVPLSMARISRYKAGTEKLR  
SSALEVLALDGAFTGVLQFSTAQDCADWLRISITNISDLTLQHMKMANCKCCSPCDQVVHM  
GWVNERLQGDANSQFRPKFLALRGSSFYIFGAPPVSTLDWGRAERAYNLCEVLFKVKHF  
WLSDNYLQANLYLGLQDFDCEDPRSICYFVLANHGKSHIFSVELGSELAVWEKAFQRAT  
FMEVQRTGSKTYLCSWQGETLCTVDFALGFTCFDGTGKTKNVLWRFKFSQLKGSDDGKTR  
VKLLFQNLDTKQIETKELEFQDLTAVLHCIHSFIAAKVASLDPVFMDSQSMARRYLCSS

>Felis catus\_SNTG2 (ENSFCAP\_12755)

ARGRGPVVAPTSLSRFPVVSALPPQTRTGLALLHHEGSGSPCDVRLKLTKEVLTIQKQD  
VVCVRGSSHGAAHRTVTVTLRRQPVGGGLGLSVKGGAEHRVPVVISKIFRGAADQTGMLFVG  
DAVLQVNGINVEHATHEEVVHLLRNAGDEVAITVDYLREAPAFKLPGLSGPGPAGDHSSG  
ASSPLFDSGLHLNSNPSTDSPPSSPAADAPQYEKRWLDTLVPLSMARISRCKAGTGK  
CRSGAFQVLAVDGVRTGVLQFHTARESADWLRRAVSATISDLTLESKMKVNEGCSPCDQVV  
HMGWVRERLEGTSSRETFRSKFLALKGSLLYVFSTAPVSTLDWVRAEKTYNLCEVLFKHLH  
KLWLADDGWLHEACHLPGPFAPQRPFSFVSVLVGHGQSRVFSVDLGSELAAWERSFQRAT  
FKEVQRSRSTYTCWQGEMLCFTVDFALGFTCSDSKTKNVLWRFKFSQLKGSDDGNAR  
VKLLFQHPDQIETKELEFPDLTAVLHCVHAFIAAKVASVDPAFMDSQSFARKSASAE

>Monodelphis domestica\_SNTG2 (ENSMODP\_17858)

SQGPPPPASFRLLIGCILVPLLTGTGIALLYDEGSENAFDIRLKLTKEVLTIQKQDVVVCV  
SGSNHSTNHRVTVTLRHQPVGGGLGLSIKGGAEHKVPVVISKIFKDQAADQTGMLFIGDAVI  
QVNGINVENATHEEVVHLLRNAGDEVTITVQYLREAPSFLKLPGLSGPGSSDHSSGASSP  
LFDSGLHLNGNSNTAPSSPSSPIANEPKYEKRWLDTLVPLSMARISRYKAGTDKLRNS  
AFEVLALDGVSTGIIQFYTSQESADWLRRAVSTNIGDLTLQNMKMANCKCCSPCDQVVHMGW  
VNERIQGIDSSQPYKFKFLALKGSFYIFSTPPVSTLDWVRAEKIYNLCEVLFKVKHLWL  
ADDCWLQANFYGLGHQDYDLEDQRPYCFYSVMVGQKSHFFNVELGSELAVWEKSFQRAIF

MEVQRTGSKTYMCSWQGEALCFTVDFALGFTCFDSKTKNVLWRFKFSQLKGSSDDGKTRV  
KLLFQNLDTKQIEMKELEFQDLTAVLHCHSFIAAKVASVDPMFIDSQSIARRYMYSN

>Gallus gallus\_SNTG2(ENSGALP\_26350)

VMYMGITGLSLERAEPHELLIPDRTKTGIALLYDEVSENAYDIRLKLTKEVLTIQKQDVI  
CVSGSDRSANHRTVTLHRQPVGGLGLSIKGGAEHKVPVVISKMFKDQAADQTGMLFIGDA  
ITQVNGINVESATHEEVVHLLRNAGDEVTTITVQYLREAPSFLKLPGLSPGPSSDHSSGAS  
SPLFDSGLHLNGNSANTAPSSPSSPIANEPKYEKRWLDTLVPLSMARISRYKTGTDKLR  
SNAFEVLALDGVSTGILQFYTAQESADWLRAISTNISDLTLQNMKMANKCSSPSDQVVHM  
GWVHERLEGTDSSQLYKFKFLALKGSSFYIFSTPPVSTLDWVRAEKMYNLCEVLFKIHKL  
WLADDCWLQANLYFGIHQDFDFEDHRPYCFVSVMVGHGKSHCFNVELGSELAVWEKSFQRA  
IFLEVQRTGSKTYMCSWQGD TLCFTVDFALGFTCFDSKTKNVLWRFKFSQLKGSSDDGKT  
KVKLLFQNPDTKQIETKELEFQDLTAVLHCHSFIAAKVASVDPVVFIDSQSIARKYMYSN

>Pelodiscus sinensis\_SNTG2(ENSPSIP\_6229)

QTKTGIALLYDEGSENAYDIQLKLTKEVLTIQKQDVICVSGSDHSTNHRTVTLHRQPVG  
LGLSIKGGAEHKVPVVISKIFKDKAADQTGMLFIGDALLQVNGINVESATHEEVVHLLRN  
AGDEVTTITVQYLREAPSFLKLPGLSPGPSSDHSSGASSPLFDSGLHLNGNTTNTAPSSPS  
SPIANEPKYEKRWLDTLVPLSMARISRYKAGTDKLR SNAFEVLALDGVSTGILQFYTAQ  
ESADWLRALATNISDLTLQNMKMANCCSLSDQVIHMGWVNERLEGTDSSQLYKYFLAL  
KQSSFYIFSTPPVSTLDWIRAEEKIYHLCEVLFKVKHLWLADDCWLQANLYLGIHQDYAFE  
DQRPYCFVSVMVGHGKSHSFNVELGSELVAWEKSFQRAIFLEVQRTGSKTYMCSWQVALC  
FTVDFALGFTCFDSKTKNVLWRFKFSQLKGSSDDGKT KVKLLFQNI DTKQIEMKELEFQD  
LTAVLHCHSFIAAKVASLDPVVFIDSQSIARKYMYSN

>Danio rerio\_SNTG2(ENSDARP\_130115)

MNAAAKHQPDLLERPASLLVPTWTKTGLALLYDEHTSNTYDVRLKLT KDLLIIQKQDVVC  
ASGIESHLNHRVTVLRQATGGLGLSIKGGAEHKVPVVISKIFKDQVADQTGKLFIGDAV  
LQVNGINVEKCTHEEVVHLLRTAGDEVSTITVRYLREAPAFKLPGLSPGPSSDHSSRASS  
PLFDSGLHLNGNSNTAPSSPSSANEPKYEKRWLDVATLPLFMARISRRKAGTDKLR  
NSFEVIALDGVCTHVLQFCTAGESTDWLQAI STNINDLTQDSIKTVNKYCSADDQVDCPH  
GLGVRADSRRCRQRRRRSLQIPGAQRIS SAYLQDSTYWTQAEASFHLCEVLFKVKHL  
WIAEDCWIQTCLYMGLOQDGLRDSEPFCSVLLGHGQSFCFSVELGSDLVLEKAFQRA  
VFMEVQRVRSKSYMCSQKILCFTIDFESGFSCSDTL SKKI IWKYKFSQLKGSSDDGKT  
RVKLLFQNS ENKQIEMKELEFANLTAVLHCHSFIAAKVATVDPVFSNQSLTQKYMCS

>Tetraodon nigroviridis\_SNTG2(ENSTNIP\_8351)

AAQITFSFADPRHDP SHRVKLLTIKTKSGIALLYKEETNNSYDVCLKLTKEVLTIQKLDV  
VCTNGPETQVNHRTVVLRRQANGGLGLSIKGGAEHNVPVVISKIFKDQVADQTGKLFVGD  
AVLQVNGIHVELCTHKEVVHLLRTAGDEVTTITVRYLREVPSFLKLPGLSPGPSTDHSRVS  
SPLFDSGLHLNGNGNSTAPSPPLPSANEPKYEKRWLDVSLPLLMARVCRYKAATDQLRS  
NCFEVFALDGA STNIIQFCTAAESTDWLQAI STNINELTQENIKI INKYCSSDDQIVHMG  
WVCECEPAGGAAGRSPAFKFLALRGPHFYIFRHPVSAAEWQAETSYNLYEVLFKVKHLW  
MAEDCWLQARLYLGLHSPDQDNESLCFSILVGHGQSHTFRVELATDLAIWEKSFQRAV  
FLEVQIRRSKSYMCSQGAVLCFTIDFGSGFTCEGSSKTVLWRYKFSQLKGSSDDGKTR  
VKLLFKNAESQQIEMKELEFANLTAVLHCHSFIAAKVASMDPLFMYSQSFHGNHVNS

>Gasterosteus aculeatus\_SNTG2(ENSGACP\_7480)

MNVTGKQPELIERPASLPVPTSTKSGIALLYNEETNNTYDVCLKLTKEVLTIQKLDVVC  
TSGSESPANHRTVVLRRQAAGGLGLSIKGGAEHNVPVVISKIFKDQVADRTGKLFVGDV  
LQVNGINVEPCTHKEVVHLLRTAGDEVTTITVRYLREVPSFLKLPGLSPGPSTDHSRVSSP  
LFD SGVHLNGNGNTAPSPPPPADKPRYEKRWLDVPLPLLMARVSRCKAATDQLRSNC  
LDV FALDGA STNIIQFCTAAESTDWLQAI STNINELTQENIKMINKYCP SDDQTVHMGWT  
CGSPEGGAAGRASAFKFLALRGPHFYIFRSPPI SAADWQAETTYNLYEVLFKVKHLWMA  
EDCWLQARLYLGLHSPDQDNESLCFSILVGHGQSHTFRVELASDLATWEKSFQRAVFW  
EVQRIRRSKSYMCSQGSVLSFTVDFGSGFSCAEGSSKTALWRYKFSQLKGSSDDGKTRVK  
LLFKNAESNQIEMKELEFANLTAVLHCHSFIAAKVASVDPVDFVCSHGL

>Oryzias latipes\_SNTG2(ENSORLP\_22013)

CSFQRQQTSGIALLYNEDTNTYDVCLKLTKEALTIQKLDVICTSGTESQVNHRTVVL  
RQATGGLGLSIKGGAEHNVPVVISKIFKDQVADQTGKLFIGDAV LQVNGINVESCTHEEV

VHLLRTAGDEVITITVRYLREVPSFLKPLGSPGLDHSRGSPLFDSGLHLNGNENNAAPS  
PPSPSANEPKYEKRWLDDVCMPLLMARVSRYKAGTDKLRNSCFQVFASGGTCTNILQFFT  
AAESTDWLQAI SANINGLTQENIKI INKHS PAENQIVHMGWACESLEDSTVGRSSTFKFL  
ALRGPYFYIFKRPPISSADWGKSEITYNLYEVLFKVHKLWMAEDCWLKARLYLGLENSPE  
QQDNEPLCFSILVGHGQSHTFRVELASDLAIWEKSFQRAVFTMNTVSKSYMCSHGTV  
LCFTIDFGSGFSCSEASSSTILWRYKFSQLKGSDDGKTRVKLLFKNAESKQIEMKELEF  
ANLTAVLHCIHSFIAAKVASMDPLFVCSPSFSGNCLNS

>Homo sapiens\_GOPC (ENSP\_52569)

MSAGGPCPAAAGGGPGGASC SVGAPGGVSMFRWLEVLEKEFDKAFVDV D L L L G E I D P D Q A  
DITYEGRQKMTSLSSCFAQLCHKAQSVSQINHKLEAQLVDL K S E L T E T Q A E K V V L E K E V H  
DQLLQLHSIQQLHAKTGQSVDSGTIKAKLRELEANKKEKMKEAQLEAEVKLLRKENEALRRHIAV  
LQAEVYGARLA AKYLDKELAGRVQQIQLLGRDMKGP AHDKLWNQLEAEIHLHR  
HKTIVIRACRGRNDLKRPMQAPPGHQDQSLKKSQGVGPIRKVLLKEDHEGLGISITGGKE  
HGVPILISEIHPGQPADRCGGLHVGDAI L AVNGVNL RDTKHKEAVTILSQQRGEIEFEVV  
YVAPEVSDDENVEYEDESGHRYRLYLDELEGGGNPGASCKDTSGEIKVLQGFNKKAVTD  
THENGDLGTASETPLDDGASKLDDLHTLYHKKS Y

>Gorilla gorilla\_GOPC (ENSGGOP\_13221)

MSAGGPCPAAAGGGPGGASC SVGAPGGVSMFRWLEVLEKEFDKAFVDV D L L L G E I D P D Q A  
DITYEGRQKMTSLSSCFAQLCHKAQSVSQINHKLEAQLVDL K S E L T E T Q A E K V V L E K E V H  
DQLLQLHSIQQLHAKTGQSVDSGTIKAKL K S G P S V E E L E R E L E A N K K E K M K E A Q L E A E  
VKLLRKENEALRRHIAV L Q A E V Y G A R L A A K Y L D K E L A G R V Q Q I Q L L G R D M K G P A H D K L W N  
QLEAEIHLHRHKTIVIRACRGRNDLKRPMQAPPGHQDQSLKKSQGVGPIRKVLLKEDHEG  
LGISITGGKEHGVPILISEIHPGQPADRCGGLHVGDAI L AVNGVNL RDTKHKEAVTILSQ  
QRGEIEFEVVYVAPEVSDDENVEYEDESGHRYRLYLDELEGGGNPGASCKDTSGEIKVL  
QGFNKKAVTDTHENGDLGTASETPLDDGASKLDDLHTLYHKKS Y

>Pongo abelii\_GOPC (ENSPPYP\_18990)

MAAGGPCPAAAGGGPGGASC SVGAPGGVSMFRWLEVLEKEFDKAFVDV D L L L G E I D P D Q A  
DITYEGRQKMTSLSSCFAQLCHKAQSVSQINHKLEAQLVDL K S E L T E T Q A E K V V L E K E V H  
DQLLQLHSIQQLHAKTGQSVDSGTIKAKL S G P S V E E L E R E L E A N K K E K M K E A Q L E A E V K  
LLRKENEALRRHIAV L Q A E V Y G A R L A A K Y L D K E L A G R V Q Q I Q L L G R D M K G P A H D K L W N Q L  
EAEIHLHRHKTIVIRACRGRNDLKRPMQAPPGHQDQSLKKSQGVGPIRKVLLKEDHEGLG  
ISITGGKEHGVPILISEIHPGQPADRCGGLHVGDAI L AVNGVNL RDTKHKEAVTILSQQD  
DENVEYEDESGHRYRLYLDELEGGGNPGASCKDPSGEIKVLQGFNKKAVTDTHENGDLGT  
ASETPLDDGASKLDDLHTLYHKKS Y

>Oryctolagus cuniculus\_GOPC (ENSOCUP\_18266)

MFRWLEVLEKEFDKAFVDV D L L L G E I D P D Q A D I T Y E G R Q K M T S L S S C F A Q L C H K A Q T V S Q  
INHKLEAQLVDL K S E L T E T Q A E K V V L E K E V H D Q L L Q L H S I Q L Q L H A K T G Q S V D S G T I K A K  
L E R E L E A N K K E K V K E A Q L E A E V K L L R K E N E A L R R H I A V L Q A E V Y G A R L A A K Y L D K E L A G R  
V Q Q I Q L L G R D M K G P A H D K L W N Q L E A E I H L H R H K T V I R A C R G R N D L K R P M Q A P P G H D Q D S L  
K K S Q G V G P I R K V L L L K E D H E G L G I S I T G G K E H G V P I L I S E I H P G Q P A D R C G G L H V G D A I L  
AVNGVNL RDTKHKEAVTILSQQRGEIEFEVVYVAPEVSDDENVEYEDESGHRYRLYLDE  
LEGGGNPGASSK DASGEIKVLQ E Y N K K P V T D T H E N G D L G S S S E T P L D D S A S K L D D L H S L Y  
HKKS Y

>Felis catus\_GOPC (ENSFCAP\_22118)

AQLVDL K S E L T E T Q A E K V V L E K E V H D Q L L Q L H S I Q L Q L H A Q T G Q S V D S G T I K A K L E R E L E  
A N K K E K M K E A Q L E A E V K L L R K E N E A L R R H I A V L Q A E V Y G A R L A A K Y L D K E L A G R V Q Q I Q L  
L G R D M K G P A H D K L W N Q L E A E I H L H R H K T V I R A C R G R N D L K R P M Q A P P G H D Q D S L K K S Q G V  
G P I R K V L L L K E D H E G L G I S I T G G K E H G V P I L I S E I H P G Q P A D R C G G L H V G D A I L A V N G V N  
L R D T K H K E A V T I L S Q Q R G E I E F E V V Y V A P E V S D D E N V E Y E D E S G H R Y R L Y L D E L E G G S N  
P G A S C K D T S G E I K V L Q G F N K K A V T D G H E N G D L G T S S E P P V E D S A S K L D D L H S L Y H K K S Y

>Myotis lucifugus\_GOPC (ENSMLUP\_6884)

MSAGGPCPAGAGGGPGGASC AVGVSPGGVSMFRWLEVLEKEFDKAFVDV D L L L G E I D P D Q A  
ADITYEGRQKMTSLSSCFAQLCHKVQTVSQINHKLEAQLVDL K S E L T E T Q A E K V V L E K E V  
H D Q L L Q L H S V Q L Q L H A K T G Q S V D S G T I K A K L L K S V P S V E E L E R E L E A N K K E K M K E A Q L E A  
E V K L L R K E N E A L R R H I A V L Q A E V Y G A R L A A K Y L D K E L A G R V Q Q I Q L L G R D M K G P A H D K L W

NQLEAEIHLHRHKT VIRACRGRNDLKRPMQAPPGHDQDSLKKSQGVGPIRKVLLLKEDYE  
GLGISITGGKEHGVPILISEIQPGQPADRCGGLHVGDAI LAVNGVNL RDTKHKEAVTILS  
QQRGEIEFEVVYVAPEVSDDENVEYEDESGHRYRLYLDELEGGSNPGATCKDTSGEVKV  
LQGFNKKSVDTGHEGDLGTSRETPLEDSAAKLDDLHSLYQRKSC

>Monodelphis domestica\_GOPC (ENSMODP\_22195)  
MSAGGPCSAGPGGVSGGASCASGVPPGGVSMFRWLEVLKEKFDKAFVDV D L L L G E I D P D Q  
ADITYEGRQKMTSLSSCFAQLCHKAQTVSQINHKLEAQLVDLKSEL TETQAEKVLEKEV  
HDQLQLHLSVQLQLHAKTGQSVDSGTIKAKLSVPSVEELERELEANKKEKMKEAQLEAEV  
KLLRKENEALRRHIAVLQAEVYGARLAAKYLDKELAGRVQQIQLLGRDMKGP AHDKLNQ  
LEAEIHLHRHKT VIRACRGRNDLKRSMQAPPGHDQDSLKKSQGVGPIRKVLLLKEDHEGL  
GISITGGKEHGVPILISEIHPGQPADRCGGLHVGDAI LAVNGVNL RDAKHKEAVTILSQ  
RGEIEFEVVYVAPEVSDDENVEYEDESGHRYRLYLDELEGGSNPV AHRK GASGD I K L L Q  
GFNKKPVIDGHENGDLGTSSETPLNDSASKLAESAESLS

>Gallus gallus\_GOPC (ENSGALP\_23990)  
MRAGTFRSPGCVAAAPGEPGPPRRRGTA EAGGGASRALCEARPGRVAGGMSAAGGVGSC  
GPGGAACGGGVGGAASAPGGGVSMFRWLEVLKEKFDKAFVDV D L L L G E I D P D Q A D I T Y E G  
RQKMTSLSSCFAQLCHKAQTVSQINHKLEAQLVDLKSEL TETQAEKAVLEKEVHDQLQL  
HAVQLQLHAQTGQNVDSGAIKAKLERELEANKKEKVKEAQLAEV K L L R K E N E A L R R H I A  
VLQAEVYGARLAAKYLDKELAGRVQQIQLLGRDMKGP AHDKLNQLEAEIHLHRHKT VIR  
ACRGRNDLKRPMQAPPGHDALKKSQGVGPIRKVLLVKEDHEGLGISITGGKEHGVPIL  
ISEIHPGQPADRCGGLHVGDAI LAVNGVNL RDAKHKEAVTILSQQRGEIEFEVVYVAPEV  
DSDDENVEYEDESGHRYRLYLDELEEGANS GSNRKEVNVDVKPSQVFDK K P S I D G H E N G D  
LGNSVPEPSLEDAAPKLTRSAESLS

>Anolis carolinensis\_GOPC (ENSACAP\_14036)  
MSGGGSCAGPGPGACGGAGAASSSASSPSGAGGLSMFRWLEVLKEKFDKAFVDV D L L L G E  
IDPDQADITYEGRQKMTSLSSCFAQLCHKAQTVSQINHKLEAQLVDLKSEL TETRAEKAV  
LEKEVHDQLQLHAIQLQLHAKTGQSVDSGAIKAKLSVPSVEDLERELEANKKEKVKEAQ  
LEAEVKLLRKENEALRRHIAVLQAEVYGARLAAKYLDKELAGRVQQIQLLGRDMKGP AHD  
KLWNQLEAEIHLHRHKT VIRACRGRNDLKRPMQAPPGHNTDSLKKSQGVGPIRKVLLVKE  
DHEGLGISITGGKEHGVPILISEIHPGQPADRCGGLHVGDAI LAVNGVNL RDAKHKEAVT  
ILSQQRGEIEFEVVYVAPEVSDDENVEYEDESGHRYRLYLDELEEGNSASSR K D G S G D  
VKS L Q V F E K K A S I D G H E N G D L G N S V D T E E T V S K L A Q S A E S L A

>Xenopus tropicalis\_GOPC (ENSXETP\_28166)  
MSAAPCSTSASGPVPGMSMFRWLEVLKEKFDKAFVDV D L L L G E I D P D Q A D I T Y E G R Q K M T  
TLSSCFAQLCHKAQTVSQINHKLEAQLVDMKSELTEVQAEKAVLDKEVHEQLQLHAVQL  
QLHKTGQSVDSGAIKAKLSVPSVEAMEKELEANKKEKVKEAQLAEV K L L R K E N E A L R R  
HIAVLQAEVYGARLAAKYLDKELAGRVQQIQLLGRDMKGP AHDKLNQLEAEIHLHRHKT  
VIRACRGRNDLKRPLPVP PGHDPDCLKKSQGVGPIRKVILAKEDHEGLGISITGGKEHG  
VPILISEIHPAQPADRCGGLHVGDAI LAVNGINLRDAKHKEAVTILSQQRGEIEFEVVYVA  
PEIDSDDENVEYEDESGHRYRLYLDELEAGANPGVSTKDGSA DTKPLQAFEQKLHIDGN  
ENG D L E T A S E S L S G G D T A S K L A Y S K S F G R R Q A Y

>Takifugu rubripes\_GOPCa (ENSTRUP\_8920)  
MSMFRWLEVLKEKFDKAFVDV D L L L G E I D P D Q V D I T Y E G R Q K M T T L S S C F A Q L C H K A Q T V  
FQLNHKLEAQLVDQRSELTEVKAEREVMEREVHDQLQLHSLQLQLYAKQQAEDSDTIK  
DRLKSDLRRRKVK

>Takifugu rubripes\_GOPCb (ENSTRUP\_8919)  
PVGQSSSGMSMFRWLEVLKEKFDKAFVDV D L L L G E I D P D Q V D I T Y E G R Q K M T T L S S C F A  
QLCHKAQTVFQLNHKLEAQLVDQRSELTEVKAEREVMEREVHDQLQLHSLQLQLYAKQ  
QAEDSDTIKDRLVADTSKGSCHFVPGE

>Tetraodon nigroviridis\_GOPC (ENSTNIP\_10059)  
LHQWAPGPGSLPGTSSLPQSSSGMSMFRWLEVLKEKFDKAFVDV D L L L G E I D P D Q V D I  
TYEGRQKMTTLSSCFAQLCHKAQTVFQLNHKLEAQLVDQRSELTEVKAEREVLEREVHDQ  
LLQLHSLQLQLYAKEQAEDSDTIKDRLPAPTLEQMEHELET K K K K H L S E A K L E M E V R L Y  
KKETEALRRHIAVLQAEVYGARLAAKYLDKELAGRVQQIQLLGRDMKGP AHDKLNQLEA

EIHLHRHKTIVIRACRGRNDAKKPLPSPADHVPEMLKKTQGVGPIRKVMLVKDDHEGLGIS  
ITGGKEHGVPILISEIHVSQPAERCGLHVGDAI LAVNGVNL RDAKHKEAVTILSQQQGQ  
IEFEVVYVAPELSDDENVEYEDDNGHPYRLYLEELDPSSSAAASNSAA

>Gasterosteus aculeatus\_GOPC (ENSGACP\_7682)  
MSASAGCSPVAQSSGLPGMSMFRWLEVLEKEFDKAFVDVLDLLGEIDPDQVDITYEGRQ  
KMTSLSSCFAQLCHKQTQVTFQLNHKLEAQLVDLRSELTEAKAERKVIEREVHDQLLQHLHA  
LQLQLHPKQQAEDSDSIRDRLPAPSLEKMEQELKVSKEKFEFEDARLEAEVRLFKKENE  
LRRHMAVLQAEVYGARLAAYLDKELAGRVQQIQLLGRDMKGPADKLNQLEAEIHLHR  
HKTIVIRACRGRNDPKKPLLSVPGHDPDMLKKSQGVGPIRKVVLVKDDHEGLGISITGGKE  
HGVPILISEIHPSQPADRCGLHVGDAI LAVNSINLRDAKHKEAVTILSQQQGQIEFEVV  
YVAPEVSDDENVEYEDDNGHRYRLYLEELEDSSSGGAPPNNNAASLQALE  
DTGISSETTAEETPSKPPETDCSS

>Oryzias latipes\_GOPC (ENSORLP\_19672)  
CSAPSSSDMSSSAGCSPSGQSSGLGPALSMFRWLEVLEKEFDKAFVDVLDLLGEIDPDQV  
DITYEGRQKMTSLSSCFAQLCHKSTQVTFQLNHKLEAQLVDLRSELTEAKAERVVAEREVH  
ELLLQLHALQLQLRAQQQTEDSDTIKDRLPAPLVEVMEQELMAGKKEKLAEARLEKEVH  
LFRKENEALRRHIAVLQAEVYGARLAAYLDKELAGRVQQIQLLGRDMKGPADKLNQLE  
EAEIHLHRHKTIVIRACRGRIDPKKPLPSVPGHEHDLKKTQGVGPIRKVALVKEDHEGLG  
ISITGGKEHGVPILISEIHGQPADRCRGLHVGDAI LAVNSINLRDAKHKEAVTILSQQR  
GQIEFEVVYVAPEVSDDENVEYEDDNGHRYRLYLEELEDSSSGGAPPNNNAASLQALE  
NMTLNSGAENGNPGSCCESRPDEEGAPKPPESDASS

>Branchiostoma floridae\_(XP\_002594112)  
MNEKSLVRPGSAPPPSGMATWSRDARVPAHGTPVGMALTAASAMTRSGLLEVVYRDRWCRVLSLEE  
ETLTISLEDSSVGGGDQNGDAIRNSEFDHDQLPESIANHKRVVKVIKQDVGGGLGISIKGGKENKMPILIS  
KIFKGLAADQTESLYVGDAI LSVNGEDLRDATHDEAVRALKRAGKEVVLEVLYREVTPYFRSTVIGEV  
GWENASPYVIKEPGADNKASTNNFTEMKTIPLKMCYVTRNLTMPDPEQRTFELHSPDGRSSCILRCQDAS  
SASQWFAAIHANTSMLTASAMAEANSKLVSRGSGADREIKHMGWLCEQAHGEGGSSSWKPVFAALPTD  
LLLYDTPVPSREEWAVPVQSHPLLATRCSAYFDSRVGHTGTTPSRSPSGGASGRDLAFGTRTGSRVETQR  
DLAAWTRLIVQLCHQAAEDMKEVIQACFWQGRECKLMVHYESGFTLMDNSNPNESQSDVLWNFPFERMRM  
SADDGVGRLWLDFFGAEGEQQLDMCTGPKPIVFIHNFLSAKVTRMGLFA

>Drosophila melanogaster\_(FBpp0302599)  
MVESSSLGRTPPAAQQPIPQQHSPSPSGLRRCNMETRVRGAWYRVLVTLETDFLAVSLDE  
SCEAAQPSNDGQSTTLNGTLGSNHSGGGGGGAGGGGTGGGGQNGTLPNSASLQGMNIQDT  
ELDGSASNDPILDRDPCLNNNNAGDGGGMDMCDVPDHVANQKRHVRIKSDNNGLGISIK  
GGRENMPILISKIFRMAADQAKGLYVGDAI LTVNGEELRDATHDEAVRALKRSGRVVD  
LEVKFLREVTPYFRKASIISEVWELQRAFLCPLGPGVPTSPAPKTTPRADTRYIPLQL  
THLARNLKYIDPENRCFELHSPDGVHSCILRAADSAAELVWFNALHSAMGTSTQRALAEA  
NRALTNLIGELKHIGWLSKRMSGGSSGSAGGAASGGSGTSNSVAVAGELPSGRSSSESS  
DESDKWLPIFVAVTEREFRIYESAPWSVEAWSRPLEIYALATTRLAGAGNSSLNGQQT  
VFCVRCGTARGVLVYWLRETHRDMAAWARSLVQGS HQAVNYQREFSFRCLFQGRQCQLV  
VHINRGFFLYDCGGFAPTPTPTVATAKTQLWQFAFDKLGKSADDGARMLYLDFGEDGEIEL  
DMECCPKPVVFFVHNCLSAKVHNSIA

>Anopheles gambiae\_(XP\_320202)  
GIAEICDVPDSVANQKRHVRIKSDNNGLGISIKGGRENMPILISKIFRMAADNAKGLYVGDAI LSVN  
GEDLRDATHDEAVRALKRAGRVVDLEVKFLREVTPYFRKASIISEVWELQRAFLCPLGNASSPPGVAP  
RSPPRADTRYIPLQLTHLARNLKYHDPENRCIELHSPDGIHSCILRAMDPQEATTFWFNALHSAIGKSTQK  
ALLDANRALVSIIGELKHIGWLSRRSGGGEYTHHTRSTAEETGPNSQALAAVRLNGRSSSESSDELDK  
WQSI FVAVTDRELRLYESAPWSVEAWSRPFESCPVATRLAGAGNTSTVGSNSSTHSSVFCIRCGTTRGV  
VSHWLRSETNRDMAAWARVLVQGCHNAIICQREFSFRCLFQGRPCQLIVHLDRGFTLLDSGLGPASKALW  
TFPFDKLKGSAADDGNKLLYLDGSGTEDGAELELDMECCPKPVVFFVHNCLSAKVHNSIA

>Nematostella vectensis\_(XP\_001638712)  
MAVAVSMFRWLDLLEKEFDKAFVDLDDLLEGEIDPDQSEITYDGRQKMTQLSSAFAQLVHKSQTIFQSNAK  
LEAELVALRHADVVEEQATKRVLEKEVNLLLQLHAVQLQLHTTSGTHLESNIRSKLLNDHSPFHIELEI  
SKYKADAMKEAKLDCQVRQLEKENAALRKHIFSLQGEVYGARLAAYLDKELAGRIQQIQLLGRDMRGAE  
HDKLNQIEAEIHLHRHKTIVIRACRGRKDRNKPPPPPEPTENDEDEDADSI SRKRRGIGEPRTVIVNKD

KTEGLGISITGGKEHGVPILISEIHDGMPAARCGGLYVGDAILAVNGIDLQDAKHNDVAVKILSSIHGIEIT  
MEVLYVAPDDSSDEEEDAWEEEDTRR

>Hydra magnipapillata\_(XP\_002167025)

MSLAVSMFRWLDMLEKEFDKAFVELDSILGYIDYDGNFIDDGRKKLAILSSVFSQLSHKSQTIFENNAK  
YEAEELIGLRTELSEAKATVTILEKEVKNSLLQLHSVQLQLHSGKENSADLQI IKTKLENDLTQFRQNAIK  
ESQVTEEIKI IKKENDALRKYITQIQGEVCGARLAAKYLEKELAGRIQQIQLLGRNLKLOHEHMLWNQIE  
SEIFLHRHKT VIRACKKNPPKKSSSSSHINKEKQERVNI AKHSGDKIVVKFYREKSEGLGISITGGKEHG  
IPV I ISEIHEGMLASRCEDLQTGDAILAVNNINLENVSHEEAVSILSALSGNVTEVWRVIDTSSEDEEW  
ETNYSRSTVGLLDDPNEISLSDSDINMTNSPAPNSNKKVNISSLRSSLAEKLAQSLRKINKDMSPAD  
EASPQPTHI

## **Sorting Nexin Family-SNX**

>Homo sapiens\_SNX27(ENSP\_357836)

MADEDEGEGIHPSAPHRNGGGGGGSGLHCAGNGGGGGGPRVVRIVKSESGYGFNVRGQ  
VSEGGQLRSINGELYAPLQHVSAVLPGGAADRAGVRKGDRILEVNHVNVEGATHKQVVDL  
IRAGEKELILTVLSVPPHEADNLDPSDDSLGQSFYDYTEKQAVPISVPRYKHVEQNGEKF  
VVYNVYMAGRQLCSKRYREFAILHQNLKREFANFTFPRLP GKWPFSLSEQQLDARRRGLE  
EYLEKVCSIRVIGESDIMQEFLSESDENYNGVSDVELRVALPDGTTVTVRVKKNSTTDQV  
YQAI AAKVGMDS TT VNYFALFEVISHSFVRKLAPNEFPHKLYIQNYTS AVPGTCLTIRKW  
LFTTEEEI LLNDNDLAVTYFFHQAVDDVKKGYIKAEKSYQLQKLYEQRKVMVYLNMLRT  
CEGYNEIIFPHCACDSRRKGHVITAI SITHFKLHACTEEGQLENQVIAFEWDEMQRWDTD  
EEGMAFCFEYARGEKKPRWVKI FT P Y F N Y M H E C F E R V F C E L K W R K E E Y

>Pan troglodytes\_SNX27(ENSPTRP\_2202)

MADEDEGEGIHPSAPHRNGGGGGGSGLHCAGNGGGGGGPRVVRIVKSESGYGFNVRGQ  
VSEGGQLRSINGELYAPLQHVSAVLPGGAADRAGVRKGDRILEVNHVNVEGATHKQVVDL  
IRAGEKELILTVLSVPPHEADNLDPSDDSLGQSFYDYTEKQAVPISVPRYKHVEQNGEKF  
VVYNVYMAGRQLCSKRYREFAILHQNLKREFANFTFPRLP GKWPFSLSEQQLDARRRGLE  
EYLEKVCSIRVIGESDIMQEFLSESDENYNGVSDVELRVALPDGTTVTVRVKKNSTTDQV  
YQAI AAKVGMDS TT VNYFALFEVISHSFVRKLAPNEFPHKLYIQNYTS AVPGTCLTIRKW  
LFTTEEEI LLNDNDLAVTYFFHQAVDDVKKGYIKAEKSYQLQKLYEQRKVMVYLNMLRT  
CEGYNEIIFPHCACDSRRKGHVITAI SITHFKLHACTEEGQLENQVIAFEWDEMQRWDTD  
EEGMAFCFEYARGEKKPRWVKI FT P Y F N Y M H E C F E R V F C E L K W R K E E Y

>Mus musculus\_SNX27(ENSMUSP\_29783)

MADEDEGEGIHPSAPHRNGGGGGGSGLHCAGNGGGGGGPRVVRIVKSESGYGFNVRGQVS  
EGGQLRSINGELYAPLQHVSAVLPGGAADRAGVRKGDRILEVNGVNVEGATHKQVVDLIR  
AGEKELILTVLSVPPHEADNLDPSDDSLGQSFYDYTEKQAVPISVPTYKHVEQNGEKFVV  
YNYMAGRQLCSKRYREFAILHQNLKREFANFTFPRLP GKWPFSLSEQQLDARRRGLEEY  
LEKVCIRVIGESDIMQEFLSESDENYNGVSDVELRVALPDGTTVTVRVKKNSTTDQVYQ  
AIAAKVGMDS TT VNYFALFEVINHSFVRKLAPNEFPHKLYVQNYTS AVPGTCLTIRKWL  
TTEEEVLLNDNDLAVTYFFHQAVDDVKKGYIKAEKSYQLQKLHEQRKVMVYLNMLRTCE  
GYNEIIFPHCACDSRRKGHVITAI SITHFKLHACTEEGQLENQVIAFEWDEMQRWDTDEE  
GMAFCFEYARGEKKPRWVKI FT P Y F N Y M H E C F E R V F C E L K W R K E E Y

>Felis catus\_SNX27(ENSFCAP\_18486)

NGVNVEGATHKQVVDLIRAGEKELILTVLSVPPHEADNLDPSDDSLGQSFYDYTEKQAVP  
ISVPTYKHVEQNGEKFVVYNVYMAGRQLCSKRYREFAILHQNLKREFANFTFPRLP GKWP  
FSLSEQQLDARRRGLEEYLEKVCSIRVIGESDIMQEFLSESDENYNGVSDVELRVALPDG  
TTVTVRVKKNSTTDQVYQAI AAKVGMDS TT VNYFALFEVINHSFVRKLAPNEFPHKLYVQ  
NYTS AVPGTCLTIRKWLFTTEEEI LLNDNDLAVTYFFHQAVDDVKKGYIKAEKSYQLQK  
LYEQRKVMVYLNMLRTCEGYNEIIFPHCACDSRRKGHVITAI SITHFKLHACTEEGQLEN  
QVIAFEWDEMQRWDTDEEGMAFCFEYARGEKKPRWVKI FT P Y F N Y M H E C F E R V F C E L K W R  
KEEVVAEVEASEVESFSHASVCLSEAGLQKNI FRMARSQQRDVAT

>Bos taurus\_SNX27(ENSBTAP\_33754)

MADEDEGEGIHPSAPHRNGGGGGGSGLHCAGNGGGGGGPRVVRIVKSESGYGFNVRGQ  
VSEGGQLRSINGELYAPLQHVSAVLPGGAADRAGVRKGDRILEVNGVNVEGATHKQVVDL  
IRAGEKELILTVLSVPPHEADNLDPSDDSLGQSFYDYTEKQAVPISVPTYKHVEQNGEKF





YLSLLRGCEGYNEIIFPHCSCDSRRKGVIAAISIHHFKLHACTEEGTLENQVIAFDWAE  
MQRWDTDEEGMAFCFEYARGEKKPRWVKIFTPYFNYMHECFERVFCELKWRKENIFQLLR  
HRRDGST

>Takifugu rubripes\_SNX27b(ENSTRUP\_18905)  
MADVEGQGICSLPPLPHPSTLTCSSSGNVTPGTGSSCQTATTVTSGPRLVRIKSDSGY  
GFNVRGQVSEGGQLRSINGELYAPLQHVSAVLPGGAADRAGISKGDRILEVNGVNVEGAT  
HKQVVDLIRAGERELVLAVLSVPPQEADCLDPGDDVSAQSCYDYSKQAVPISVPSYKHT  
ELNQEKFVVYVNYMAGRQLCSKRYREFVILHQNLKREFDNFTFPKLPKWPFLSEQQLD  
ARRRGLEEEYLEKVCVSRVIGESDIMQEFLSDSDENYNGVSDVELRIAMPDKTTLNVRVRK  
NATTDQVYQAVVMKLGMDSVTSSYFALFEVINHTFVRKLAPNEFPHKLYVQNYTSAVPGT  
CLTMRKWLFTTEEEVLLNDNQLAVSYFFHQAVEDVKKGSVKSEQKQFYQLQKLAEQKMAA  
YLSLLRGCEGYNEIIFPHCSCDSRRKGVIAAISIHHFKLHACTEEGTLENQVIAFDWAE  
MQRWDTDEEGMAFCFEYARGEKKPRWVKIFTPYFNYMHECFERVFCELKWRKEIEEEATD  
KDNKNCSKDEYFPTPEAQKGWKHLGREIATS

>Tetraodon nigroviridis\_SNX27a(ENSTNIP\_21490)  
MTDVGQGTCSPPSPLPHPSTLTCSSSGNVTPGTGSSCQTATTVTSGPRLVRIKSDSG  
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THKQVVDLIRAGERELVLAVLSVPPQEADCLDPGDDVSAQSCYDYSKQAVPISVPSYKH  
TELNQEKFVVYVNYMAGRQLCSKRYREFVILHQNLKREFDNFAFPKLPKWPFLSEQQLD  
DARRRGLEEEYLEKVCVSRVIGESDIMQEFLSDSDENYNGVSDVELRIALPDKTALTVRVR  
KNATTDQVYQAVVTKLGMDSVTSSYFALFEVINHTFVRKLAPNEFPHKLYVQNYTSAIPG  
TCLTMRKWLFTTEEEVLLNDNQLAVSYFFHQAVDDVKKGSVKSEQKSYQLQKLVQKMA  
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EMQRWDTDEEGMAFCFEYARGEKKPRWVKIFTPYFNYMHECFERVFCELKWRKEIEEEATD  
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>Tetraodon nigroviridis\_SNX27b(ENSTNIP\_21489)  
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THKQVVDLIRAGERELVLAVLSVPPQEADCLDPGDDVSAQSCYDYSKQAVPISVPSYKH  
TELNQEKFVVYVNYMAGRQLCSKRYREFVILHQNLKREFDNFAFPKLPKWPFLSEQQLD  
DARRRGLEEEYLEKVCVSRVIGESDIMQEFLSDSDENYNGVSDVELRIALPDKTALTVRVR  
KNATTDQVYQAVVTKLGMDSVTSSYFALFEVINHTFVRKLAPNEFPHKLYVQNYTSAIPG  
TCLTMRKWLFTTEEEVLLNDNQLAVSYFFHQAVDDVKKGSVKSEQKSYQLQKLVQKMA  
AYLSLLRGCEGYNEIIVPHCSCDSRRKGVIAAISIHHFKLHACTEEGTLENQVIAFDWA  
EMQRWDTDEEGMAFCFEYARGEKKPRWVKIFTPYFNYMHECFERVFCELKWRKENIFQLL  
RHRRDGGT

>Gasterosteus aculeatus\_SNX27(ENSGACP\_15830)  
MADVEGQGICSTVPELPHPSSRNGSGSGNVTPGGTGGSCQTATTVTSGPRLVRIKSDSG  
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TELNQEKFVVYVNYMAGRQLCSKRYREFVILHQNLKREFAIFTFPKLPKWPFLSEQQLD  
DARRRGLEEEYLEKVCVSRVIGESDIMQEFLSSESDENYNGVSDVELRIAMPDKSPLTVRVC  
KNSTTDQVYQAVVMKLGMDSVTASYFALFEVINHTFVRKLAPNEFPHKLYVQNYTSAIAG  
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MYMSLLRDCEGYNEIIFPHCSCDSRRKGVITAIISIRHFKLHACTEEGTLENQVIAFDWG  
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>Homo sapiens\_SNX17(ENSP\_233575)  
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WVTITSPQAIMMSICLQSMVDELMMVKKSGSIRKMLRRRVGGTLRRSDSQAVKSPPLLE  
SPDATRESMVKLSKLSAVSLRGIGSPSTDASASDVHGNFAFEGIGDEDL

>Pongo abelii\_SNX17(ENSPPYP\_14016)

MHFSIPETESRSGDSSGGSAYVAYNIHVNGVLHCRVRYSQLLGLHEQLRKEYGANVLPAPF  
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VLLSNGQKVLVNLVLTSDQTEDVLEAVAAKLDLPDDLIGYFSLFLVREKEDGAFS  
FVRKLEFELPYVSVTSLRSQYKIVLRKSYWDSAYDDDVMENRVGLNLLYAQTVSD  
IERGWILVTKEQHRQLKSLQEKVSKKEFLRLAQTTLRHYGYLRFDACVADFP  
EKDCPVVVSAGNSELSLQLRLPGQQLREGSFRVTRMRCWRVTSSVPLPSG  
STSSPGRGRGEVRLELAFEYLMKDRLLQWVTITSPQAIMMSICLQSMVDEL  
MVKKS GGSIRKMLRRRVGGTLRRSDSQQAVKSPPLLESPDATRESMVKLS  
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>Callithrix jacchus\_SNX17(ENSCJAP\_47034)

MHFSIPETESRSGDSSGGSAYVAYNIHVNGVLHCRVRYSQLLGLHEQLRKEYGANVLPAPF  
PKKLFSLTPAEVEQRREOLEKYMQAVRQDPLLGSETFNFLRRAQQETQQVPTEEVSL  
VLLSNGQKVLVNLVLTSDQTEDVLEAVAAKLDLPDDLIGYFSLFLVREKEDGAFS  
FVRKLEFELPYVSVTSLRSQYKIVLRKSYWDSAYDDDVMENRVGLNLLYAQTVSD  
IERGWILVTKEQHRQLKSLQEKVSKKEFLRLAQTTLRHYGYLRFDACVADFP  
EKDCPVVVSAGNSELSLQLRLPGQQLREGSFRVTRMRCWRVTSSVPLPSG  
STSSPGRGRGEVRLELAFEYLMKDRLLQWVTITSPQAIMMSICLQSMVDEL  
MVKKS GGSIRKMLRRRVGGTLRRSDSQQAVKSPPLLESPDATRESMVKLS  
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>Mus musculus\_SNX17(ENSMUSP\_31029)

MHFSIPETESRSGDSSGGSAYVAYNIHVNGVLHCRVRYSQLLGLHEQLRKEYGANVLPAPF  
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VLLSNGQKVLVNLVLTSDQTEDVLEAVAAKLDLPDDLIGYFSLFLVREKEDGAFS  
FVRKLEFELPYVSVTSLRSQYKIVLRKSYWDSAYDDDVMENRVGLNLLYAQTVSD  
IEHWILVTKEQHRQLKSLQEKVSKKEFLRLAQTTLRHYGYLRFDACVADFP  
EKDCPVVVSAGNSELSLQLRLPGQQLREGSFRVTRMRCWRVTSSVPLPSG  
STSSPGRGRGEVRLELAFEYLMKDRLLQWVTITSPQAIMMSICLQSMVDEL  
MVKKS GGSIRKMLRRRVGGTLRRSDSQQAVKSPPLLESPDASRESMVKLS  
SSKLSAVSLRGIGSPSTDASASDVHGNFAFEGIGDEDL

>Monodelphis domestica\_SNX17(ENSMODP\_19547)

MHFSIPETESRSGDSSGGSNYVAYNIHVNGVLHCRVRYSQLLGLHEQLRKEYGANVLPAPF  
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VLLSNGQKVLVNLVLTSDQTEDVLEAVAAKLDLPDELIGYFSLFLVREKEDGAFS  
FVRKLEFELPYVSVTSLRSQYKIVLRKSYWDSAYDDDVMENRVGLNLLYAQTVSD  
IEHWILVTKEQHRQLKSLQEKVSKKEFLRLAQTTLRHYGYLRFEPVADFP  
EKGC PVVVSAGNSELSLQLRLPGQQLREGSFRVTRMRCWRVTSSVPLPSG  
NTSSPNRGRGEVRLELAFEYLMKDRLLQWVTITSPQAIMMSICLQSMVDEL  
MVKKS GGSIRKMLRRRVGGTLRRSDSQQAVKSPPLLESPDATRESVVKLS  
SSKLSAVSLRGISSPSPDTNTSDVHGNFAFEGIGDEDL

>Erinaceus europaeus\_SNX17(ENSEEUP\_7993)

MHFSIPETESRSGDSSGGSAYVAYNIHVNGVLHCRVRYSQLLGLHEQLRKEYGANVLPAPF  
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VLLSNGQKVLVNLVLTSDQTEDVLEAVAAKLELPDDLIGYFSLFLVREKEDGAFS  
FVRKLEFELPYVSVTSLRSQYKIVLRKSYWDSAYDEDVMENRVGLNLLYAQTVSD  
IERGWILVTKEQHRQLKSLQEKVSKKEFLRLAQTTLRHYGYLRFDACVADFP  
EKNC PVVVSAGNSELSLQLRLPGQQLREGSFRVTRMRCWRVTSSVPLPSG  
STSSPGRGRGEVRLELAFEYLMKDRLLQWVTITSPQAIMMSICLQSMVDEL  
MVKKS GGSIRKMLRRRVGGTLRRSDSQQAVKSPPLLESPDASRESMVKLS  
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>Gallus gallus\_SNX17(ENSGALP\_26600)

MQAVRQDPTLGGSETFNFLRKAQQETQQIPTEEVVLEVLLSNGQKVKVLTILSDQTEDV  
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KSYWDSYDDDDVMEHHVGLNLLYAQTVSDIEHWILVNKEQHRQLKSLQEKVSKKEFIRL  
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VTSSVPMNSGSGSSPGKSEVKLELAFEYLMKDRLLQWVTITSPQAIMMSICLQSMVDEL  
MVKKS GGSIRKMFRRRANGALRRSDSQQAVKSPPLLESPDASREPMKLS  
SKLTSVSLRGISSHSSANDVGNDFHGNFAFEGIGDEDL

>Taeniopygia guttata\_SNX17(ENSTGUP\_15174)

AYNIHVNGVLHCRVRYSQLLGLHEQLRKEYGANVVPFAFPKIFTLTPAEVEQRREOLEK  
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VLEAVASKLDLPPDDLGVYFSLFLVRETKDGAFSFVRKLEFELPYVSVTSLHNPEFQIIL  
RKS YWDSAYDDDDVMEHRVGLNLLYAQTVSDIEHGWIILVNKEQHRQLKSLQEKVSKKEFIR  
LAQTLKYYGYLKFDPDPCVDFPEKGCCHVVVSAGNNELNQVRLPNEQIKEGSFKVTRMRCW  
RVTSSVPMNNGPSSGSPGKSEVKLELAFEYLMSKDRLQWVTITSPQAIMLSICLQSMVDE  
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>Takifugu rubripes\_SNX17(ENSTRUP\_17937)  
MHFSIPETEVCSENGSTYVAYNIHVNGVLHCRVRYSQLLSLHEQIKKEYGSNVVPAFPF  
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FELPYVSISSLSQSSDFHIVLRKSYWDTAYDGDVMDNRVGLSLLYAQTVSDIERGWILVNK  
DQHRQLKSLQEKGSKKEFIHLGQTLKYYGYIKFDPDPCVDFPEKGCQVIVSAGNNELNHFV  
KLPNEQMKEGSFKVTRMRCWRVTSSQVPLANGTTNTCSSKCEVKLELAFEYLMSKDRLQ  
WVTITSPQAIMMSICLQSMVDELMVKKSGGSIKKMLRKRHNGSIYRADGQQAVKSPPLLD  
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>Tetraodon nigroviridis\_SNX17(ENSTNIP\_19436)  
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KKIFTLTPAEVEQRREOLEKYMQAVRQDPLLGSSEMFNSFLRKAQQETQQIPTEEVALDI  
SLSNGQKITANILTSQDQTEVDLDAVAAKLDLPEDLIGYFSLFLIRELVDGGVTFVRKLE  
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DQHRQLKSLQEKGSKKEFIHLGQTLKYYGYIKFDPDPCVDFPEKGCQVIVSAGNNELNHFV  
KLPNEQMKEGSFKVTRMRCWRVTSSQVPLANGTTNTCSSKCEVKLELAFEYLMSKDRLQ  
WVTITSPQAIMMSICLQSMVDELMVKKSGGSIKKMLRKRHNGSIYRADSQQAVKSPPLLD  
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>Gasterosteus aculeatus\_SNX17(ENSGACP\_14244)  
MHFSIPETEVRSGENSSYVAYNIHVNGVLHCRVRYSQLLGLHEQIKKEYGSNVVPAFPF  
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CLSNQKQVTVNIILTSQDQTEVDLDAVATKLDLPDDLGVYFSLFLIREGADGGLTFVRKLE  
FELPYVSIITSLRNFHILLRKS YWDMAYDGDVMDNRVGLNLLYAQTVSDVERGWILVN  
KDQHRQLKSLQEKGSKKEFIHLGQTLKYYGYIKFDPDPCVDFPEKGCQVIVSAGNNELNHF  
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QWVTITSPQAIMMSICLQSMVDELMVKKSGGSIKKMLRKRHNSIQRSDSQQAVKSPPLLD  
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>Oryzias latipes\_SNX17(ENSORLP\_20418)  
MHFSIPETEVRSGDNGSTYVAYNIHVNGVLHCRVRYSQLLGLHEQIKKEYGSNVVFNFPF  
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CLCSGPKLTVHIILTSQDQTEVDLEAVGKLDLPDDLGVYFSLFLVHEGVDGSLTFVRKLE  
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KLPNEQMKEGSFKVTRMRCWRVTSSQVPTNGTTNPGSASKCDVKLELAFEYLMSKDRLQ  
WVTITSPQAIMMSICLQSMVDELMVKKSGGSIKKVLKQRQESLHRADSQQAVKSPPLLES  
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>Homo sapiens\_SNX31(ENSP\_312368)  
MKMHFCIPVSQQRS DALGGRYVLYSVHLDGFLFCRVRYSQLHGWNEQLRRVFGNCLPPFP  
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IFLPNEQSIRIEIITSDTAERVLEVVS HKI GLCRELLGYFGLFLIRFGKEGKLSVVKKLA  
DFELPYVSLGSSEVENCKVGLRKWYMAPSLDSVLMDCRVAVDLLYMQAIQDIEKGWAKPT  
QAQRQKLEAFQKEDSQTKFLELAREVRHYGLQLDPCTCDYPESGSGAVLSVGNNEISCC  
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SKIKIAKDDCVFGNIKEEDL

>Gorilla gorilla\_SNX31(ENSGGOP\_28414)  
MKMHFCIPVSQQRS DALGGRYVLYSVHLDGFLFCRVRYSQLHGWNEQLRRVFGNCLPPFP

PKYYLAMTTAMADERRDQLEQYLQNVMTDPNVLRSDVFEFLKLAQLNTFDIATKKAYLD  
ILLPNEQSIRIEIITSDTAERVLEVVSHTKGLCRELLGYFGLFLIRFGKEGKLSVVKKLA  
DFELPYVSLGSSEVENCKVGLRKWYMDPSLDSVLMDCRVAVDLLYMQAIQDIEKGWAKPT  
QAQRQKLEAFQKEDNQTKFLELAREVRHYGYLQLDPCTCDYPESESGAVLSVGNNEISSC  
ITLPDSQTQDIVFQMSRVKWCQVTFGLTLLDTPGQRTLNQNLLELRFQYSEDSWCQWFWI  
YTKQAFLLSSCLKKMISEKMKVLAEAENTEMQIEVPEQSKSKKYHIQQSQQKDYSSFLSRK  
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>Macaca mulatta\_SNX31(ENSMUP\_13018)

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ITLPDSQTQDIVFQMSRVKWCQVTFGLTLLDMDGPQAFNQNLELRFQYSEDSWCQWFWI  
YTKQAFLLSSCLKKMISEKMKVLAAKNPEMQIEVPEQSKSKKYHIQQSQQKDYSSFLSRK  
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>Mus musculus\_SNX31(ENSMUSP\_124063)

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>Rattus norvegicus\_SNX31(ENSRNOP\_37890)

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VFLPDGRSINVGSLTSDTAERVLEVVAHKLGLHPELVGYFGLFLIQCFPEGKLSVVKKLA  
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YSKQAFLLSSCLKKMVSEKMAKLTEESPEMQIEVDPQGRSKKHHPGQPSQKDYFNFLRKG  
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>Canis familiaris\_SNX31(ENSCAFP\_797)

MKMHFCIPVSQQRDLRDLGGRYVLYSVYLDGYLFCRVRYSQLHRWNEQLRRVFGNCLPPFP  
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IFLPDGRNIQVEIILTSDTAERVLEVVSHTKIGLCQELLGYFGLFLIQCKEKGKFSVMKKLV  
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KIEIIVKDCVFGTIMEEDL

>Felis catus\_SNX31(ENSFCAP\_1733)

MKMHFCIPVSQQRPDALGGRYVLYSVYLDGYLFCRVRYSQLHRWNEQLRRVFGNSLPPFP  
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ITLPDNQTQEIIFQMSRVKWCQVTFGLTLLDMDGPQRTLNQNLLELRFQYSEDSRWQWFWI  
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>Myotis lucifugus\_SNX31(ENSMLUP\_13398)

MKMHFCIPVSQQRPDALGGRYTLYSVYLDGFLFCRVRYSQLHRWNEQLRRVFGNCLPPFP  
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SKIKTAEGDCVSRTPPEEE

>Monodelphis domestica\_SNX31(ENSMODP\_7764)

MQRQPLAPRSWVLHGVEKRRNTSPSLTPPQSPQSTMKMHFSIPVSQQRLDTLGGRYVL  
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IVSYKMGSLRELIGYFSLFLIQFQSDNVLSVMKKMAEFELPYVSLQSTEVENCKVGLRKW  
YMDPSLDSMLMDCQTAINLLYEQAVQEIEKKWAKPTEEQRQEALRKAGNQTKFLELAQ  
KVQHYGYMQLDSCACDYPEPGCVATLAVGNNEISCYFKLPSNQTQEVNFKMSRIKSWQVT  
FLGTLLEEEESPQQTLNQNLELRFQYSEGNNWQWFTIYSKQAFLLSSCLKKMITKMMK  
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>Anolis carolinensis\_SNX31(ENSACAP\_16180)

MKMHFSIPLSEELLEKFGRYVLYSVYLEGFLFCKVRYSQLHRWNEQLRRVFRGIPSPF  
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VYLPDGRYLRIDVQTSDAERVLEVSYKIELSRELIGYFSLFLIQDHNNGELSVLKKLA  
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DGQMQLQIFQKAPNKMKFLELVQEVQHYGYIQLDPCSCDYPEVGCTAAIHVGNNEISCC  
IKLPSNQIKEVSKINRVCWQVTFGLSVTGQGLDQFLELRFYNDSDTWRWIVFNTKQA  
FLLSSCLKKIIEQMLTATKSDQEMQIELPQPKAKKASIHPSQIFHSGFKSRKKITTSR  
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>Xenopus tropicalis\_SNX31(ENSXETP\_38721)

MHICIPVTEELQDTLGRFVLYSVYLEGFLFCKVRYKDLHLWNEQIYRVFGRNRLPKFPPK  
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MPDGAAVELDVQTSDSAERVLEAALFKLGVSRLEGEYFSLFITHEAKGPFVVKRIAGF  
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QQQKLQHCLKQONKLFLELMKTVEYYGYLHITSTSDYPECDSEVTIIVGNNEISCHFY  
SPGGHAENLRSLIKDLICWNVTLLPKKQEVMSPNHQHLELKFQDYQQGSSLKCIITHTEQA  
FLLSSCLKKMLSERPVHRCKEELEIQVDKATCKSNIRPEQNGVHAKKLDKREYCVVDNI  
SDLDL

>Branchiostoma floridae\_(XP\_002609888)

MAESGGEEELPSPEQVSTKPRVVTIYKTDGFGFNVRGQVSEGGQLRSINGQLYAPLQHVSAVLEGGAAH  
KAGIQRGDRILEVNENVEGATHKRVDLIKSGGDSLTLKVVSVSRKEAARLDAQGDDNSASYACVDYSE  
KRALPISVPDYRTVETSAEKVVYNIYMAGRQLCARRYREFSNLHQTLKREFPEFPFKMPGKWPFTLSE  
QQLDARRRGLEQYLEKVC SIRVIAESDVMQEF LADITEKDVNSGTAEVDLRVLLPDRSTLTVTIRRNNNT  
DQVYDAVVDKLGLEDELLPYFGLFEIMDTNFERKLVPTFPHNLYIQNYTTAASTCIALRKWFLDLQREL  
QLTHLDMANTFFYWQTLKREFPEFPFKMPGKWPFSLSEQQLDARRRGLEQYLEKVC SIRVIAESDVMQEF  
FLADITEKDRL

>Saccoglossus kowalevskii\_(XP\_006817773)

SQHSTLASSPLFNGFFLSAQQETQRQEAEDVSDVYLLNGHKITIKIMSTDQTDVLETVASQINLPDDF  
VYYFALYLKSDSGSFSIVRKMQDFESPFLSLKTAGSKHKIVLRKNFWDATYDDDLLDNRVSMNLLYVQ  
AVSDIDRGWTLANKEQMARLEVLKSKGSKKEYLRLAQTLKYYGFIQFKPCTSDFPVKNTKVLVSAGNREL  
SFRVSDPDGQVKEGSKVTRMRCWRITTTIAETNGESDVSNTTSELELSFEYLVAKDKLQWIAVQSDQAI  
LMSICLQGMVDELIMKKEGSRMKRPQDRIRGTRTDFKRDAPNSIKMSSSSSSHSVSSPSPSEETASAA  
QKAKESVKKISVSKNKNLFSNNTTILLCCFASKLLTLIHAELGSLISSANHERQLNFLYIHMSIPVK

>Strongylocentrotus purpuratus\_(XP\_011660429)

MHFSIPDTQECKDEQGSYRVYNVHVNGVFHCSVRYSQLHDFNEQVKEFSNSFTGYQKFPKFLSLTP  
SQREERREKLEKYIQIVSQDPRIANSIDIFNGFLLTSQKETRQEEPVDVQLEVYMMNGSRVKVDIKSTDQT  
DDVLERVTSEIGLHEQFTYYFALFLVIKDKDEEAGTIIRRIQDFESPIYSLKAATGTCKIVLRKNYWDPS  
FDSLDLEDRVALQLLYVQTLSDVSRGWVASEDQMARLQSLKAKNSKKEYIKFAQTLKYYGTLQFKQCTV  
NYPEPETKTIVINTGNKELYFRVELPDKSTKEGVFRITRMRCWRITNSADKEARRLSGAEPVVDNSPKKK  
DSQLELSFEYLVAKNKLQWVTIRSQQAILISLCLQSMVDELLELQKKGHIKRVGFFQRENVALSSLPVAH

YGLGN

>Octopus bimaculoides\_ (XP\_014780947)

MADSDEEGSTPSTPERMMSDHSQPRVVTITKTETGFGFNVRGQVSEGGVLKSINGVLYAPLQHVSAVLEG  
GAAHRAGIRKGDRILEVNGVNVGATHRQVVDLIKSGRDNLTTLTVISPERVAERLEPSDDSSGPSLIDY  
SERRSLPISIPDYQSVENNGEKYVVFNIYMAGRHLCSRREYFDCLHSQKREFTDFNFPKLPGKKLFTL  
SDQQLDARRRGLEQYLEKVC AVRVI GESETVQEF LAASDSHMENGGCNEVELKVS LDPHSLCIVTIRRTD  
NTEKVYQAVCNKLDNTSSKFFYL FETVDYNFERKLPQEFPHNIYIQNYSTATATCIALRKWVFSLAL  
EMQLSYSEYVSNLLYWQAIDDDVSRSLIKAGDRLYELKALQEAAKVNEY LKMARRLDSYGEIVFPHCACDS  
RKEGHVMASIGIRAFRLQACKEDGSI EPQVVEIKWSDIKNYDIDDETM SFIF EYFRPSRKSRLVRIYSTY  
FVYMYDSFERIFEE LDWQKEPFFKCGLEMNQTSAESESDSDRVIDGH

>Trichoplax adhaerens\_ (XP\_002110491)

MSDGEETVDSPKTTNGDRHTESDAQSLSVENSKSVTIRKSQKGFNVRGQVSEGGQLRAINGKLYPPLQ  
HVSAVIDGGSQAGVVRVGDRI LAVNGISVEGSSHQAVVDLIKQNSQVCELLLPVTDDEAKRLDGRGRG  
SAHHDYPPDYTEKNALPITIPDWTNIDRNGERYTRPYNYTCLLPNNEVILLKISLFLKPLILQIGVQCL  
HDLKESTENTTFQNFASGH LAYLNHKS IKEDAVWSPTYVVKHRFERFSFCFLEVTSVCAIYDSKTIQEFL  
CINDESKKTNTEPTDNN TSI EISLPDAKTIAISIRKSDIVEDVYQIAAKKAGIGKSNM KYFAMFEHISE  
NFWRKLQDNEMPYAVIYRSSNRLAIKKWTFSEDEKKT LVSDDTVLNIIYHEAANEIKSGKLS SQEKIN  
DLKAAQNSGKKALFVELAQTLRGYNTVVFPHCASNVRKNGNIVSISKSGLALTACTNTGELEE QEHKFN  
WDSII EWETDEDEASFNFRYNRENMPRLVKLYTDYDMYKCECFDRVIAELEWEREQIDVKPTENVAAVT  
ASEKPSAKKLTKPSALADIGDGL

>Amphimedon queenslandica\_ (XP\_003386341)

MRNLGYSTIKKGVASTKLEEKEMHIHIPSISDALDSKSGKFKVFDIYVNGLYHG SVRYSQLLDLHNEVKV  
KYSSATIVDFPAKVFMISEAQLHERRRMLERYVHCLAQDRNIGSSDMFQDFMLSCQQI SSGEEDKEVEID  
VYLSNEKSKKIKFSSFDRSPHVLEATCKSIGVSEDLTHYFGLFMEYSIPGDKWKT LHCLSDFCPYLSLC  
AANRSEDKYFRLTIKKWFFSPKFLTDC LSDSTALNMIYIETIRDIDTETLTVPDSIKDKLVSLKKS GKRK  
EFIETLSSQPTCLFGYNYCEGLLFNDQSTSSALAGGTKIVLKDIEKVYPI SKMRCWKVGVLRGNREHFFS  
FEYEYSHQK FVWVVLKGVSTILLAQSITRAVEEFLVLSKNKSIRKPSENLFSRRPERPFP SFELTLGPPA  
GEDIHMAAASDSQSPSIVRTESQSSSKDSEVST DSEENNTSNTRADIHVTTPTVTPPTSNESPSLGGGG  
GGTYVTSGSSKTKSSGNKKS LVPNYVKS KKKDEEEIAFNPTFLSDADL

## **Stathmin-STMN**

>Homo sapiens\_STMN1 (ENSP\_410452)

MASSDIQVKELEKRASGQAFELILSPRSKESVPEFPLSPPKKKDL SLEEI QKKLEAAEER  
RKSHEAEVLKQLAEKREHEKEVLQKAI EENNNFSKMAEEKLTHKMEANKENREAQMAAKL  
ERLREKMYFWTHGPGAPHAQISAEQ SCLHVPALCPALGLQSALITWSDL SHH

>Pan troglodytes\_STMN1 (ENSPTRP\_653)

MASSDIQVKELEKRASGQAFELILSPRSKESVPEFPLSPPKKKDL SLEEI QKKLEAAEER  
RKSHEAEVLKQLAEKREHEKEVLQKAI EENNNFSKMAEEKLTHKMEANKENREAQMAAKL  
ERLREKMYFWTHGPGPHPAQISAEQ SCLHVPALCPALGLQSALITWSDL SHH

>Gorilla gorilla\_STMN1 (ENSGGOP\_18067)

MASSDIQVKELEKRASGQAFELILSPRSKESVPEFPLSPPKKKDL SLEEI QKKLEAAEER  
RKSHEAEVLKQLAEKREHEKEVLQKAI EENNNFSKMAEEKLTHKMEANKENREAQMAAKL  
ERLREKMYFWTHGPGPHPAQISAEQ SCLRVPALCPALGLQSALITWSDL SHH

>Mus musculus\_STMN1 (ENSMUSP\_101493)

MASSDIQVKELEKRASGQAFELILSPRSKESVPDFPLSPPKKKDL SLEEI QKKLEAAEER  
RKSHEAEVLKQLAEKREHEKEVLQKAI EENNNFSKMAEEKLTHKMEANKENREAQMAAKL  
ERLREKFLPGQARGGAE EQRIQRPG

>Rattus norvegicus\_STMN1 (ENSRNOP\_22574)

MASSDIQVKELEKRASGQAFELILSPRSKESVPEFPLSPPKKKDL SLEEI QKKLEAAEER  
RKSHEAEVLKQLAEKREHEKEVLQKAI EENNNFSKMAEEKLTHKMEANKENREAQMAAKL  
ERLREKDKHVEEVRKNKESKDPADET EAD

>Felis catus\_STMN1 (ENSFCAP\_18356)

MASSDIQVKELEKRASGQAFELILSPRSKESVPEFPLSPPKKKDLSEEEIQKKLEAAEER  
RKSHEAEVLKQLAEKREHEKEVLQKAIENNNSFKMAEEKLTHKMEANKENREAQMAAKL  
ERLREKDKHIEVRKNKESKDPADETEAD

>Equus caballus\_STMN1(ENSECAP\_19130)  
MASSDIQVKELEKRASGQAFELILSPRSKESVPEFPLSPPKKKDLSEEEIQKKLEAAEER  
RKSHEAEVLKQLAEKREHEKEVLQKAIENNNSFKMAEEKLTHKMEANKENREAQMAAKL  
ERLREKDKHIEVRKNKESKDPADETEAD

>Myotis lucifugus\_STMN1(ENSMLUP\_9804)  
MASSDIQVKELEKRASGQAFELILSPRSKESVPEFPLSPPKKKDLSEEEIQKKLEAAEER  
RKSHEAEVLKQLAEKREHEKEVLQKAIENNNSFKMAEEKLTHKMEANKENREAQMAAKL  
ERLREKDKHIEVRKNKESKDPADETEAD

>Gallus gallus\_STMN1(ENSGALP\_2235)  
MATSDIQVKELEKRASGQAFELILGPRSKAAPEFPLSPPKKKDLSEEEIQKKLEAAEER  
RKSHEAEVLKQLAEKREHEKEVLQKAIENNNSFKMAEEKLTHKMEANKENREAQMAAKL  
ERLREKDKHIEVRKNKEGKDPGEAETN

>Anolis carolinensis\_STMN1(ENSACAP\_17541)  
MASSDIQVKELEKRASGQAFELILGPPSKDAVPEFPLSPPKKKDLSEEEIQKLEAAEER  
RKSHEAEVLKQLAEKREHEKEVLQKAIENNNSFKMAEEKLTHKMEANKENREAQLAAKM  
ERLREKEKHLEVRKNKEGGKDSGDNESD

>Danio rerio\_STMN1a(ENSDARP\_41006)  
MASSGADIQVKELDKRASGQAFEVILSPTAPDAKGEFPLSTPKKKEVSLDEIQKKLDAAE  
ERRKNHEAEVLKHLAEKREHEKEVLQKAMEENNNSFKMAEEKLNQKMEANKENRTARMAA  
MNEKFKEKDKKLEVRKNKETKEGGEDEN

>Danio rerio\_STMN1b(ENSDARP\_133564)  
MAATSDIQVKELDKRASGQAFEVILGSPASDVKNFLLSPPKKKDLSEEEIQKKLEAAEER  
RRKSHEAEVLKHLAEKREHEKEVLQKALEENNNSFKMAEEKLNQKMEANKENRTAIMAAM  
NEKFKEKDKKIEVRKNKETKEHNAFSFSDTFITSGLGGDLCA

>Takifugu rubripes\_STMN1a(ENSTRUP\_28187)  
MAASEDIQVKELDKRASGQAFEVILATPDPKGFPLSPPKKKDVSEEEIQKLDAAEERR  
KNHEAEVLKHLAEKREHEKEVLQKAMEENNNSFKMAEEKLNQKMEANKENRTALKAAAMDE  
KFKEKDKKLEVRKNKETKEGTSED

>Takifugu rubripes\_STMN1b(ENSTRUP\_28188)  
IRLFISDIQVKELDKRASGQAFEVILATPDPKGFPLSPPKKKDVSEEEIQKLDAAEER  
RKNHEAEVLKHLAEKREHEKEVLQKAMEENNNSFKMAEEKLNQKMEANKENRTALKAAAMDE  
EKFKKDKKLEVRKNKETKEGTSED

>Tetraodon nigroviridis\_STMN1a(ENSTNIP\_529)  
SRSGGSDIQVKELDKRASGQAFEVILAAPDPKGFPLSPPKKKDVSEEEIQKLDAAEER  
RKNHEAEVLKHLAEKREHEKEVLQKAMEENNNSFKMTEEKLQKMEANKENRTALKAAAMNE  
EKFKKDKKYEEVRKNKETKDGASED

>Tetraodon nigroviridis\_STMN1b(ENSTNIP\_15665)  
MAAAEDIQVKELDKRASGQAFEVILAAPDPKGFPLSPPKKKDVSEEEIQKLDAAEERR  
KNHEAEVLKHLAEKREHEKEVLQKAMEENNNSFKMTEEKLQKMEANKENRTALKAAAMNE  
KFKEKDKKYEEVRKNKETKDGASED

>Gasterosteus aculeatus\_STMN1(ENSGACP\_10298)  
MATSEEILVKELDKRASGQAFEVILAAPAPDAKPEFPLTPPKKDVSEEEIQKLDAAEER  
RRKNHEAEVLRHLAEKREHEKEVLQKAMEENNNSFKMAEEKLNQKMEANKENRTALMAAM  
NEKFKEKDKKLEVRKNKETKEGSED

>Homo sapiens\_STMN2(ENSP\_429243)  
MAKTAMAYKEKMKELSMLSLICSCFYPEPRNINIYTYDDMEVKQINKRASGQAFELILKP

PSPISEAPRTLASPKKKDLSLEEIQKKLEAAEERRKSQEAQVLKQLAEKREHEREVLQKA  
LEENNNFSKMAEEKLILKMEQIKENREANLAAIERLQEKLVKFISSSELKESIESQFLEL  
QREGKQ

>Pan troglodytes\_STMN2(ENSPTRP\_34842)  
MAKTAMAYKEKMKELSMLSILCSFYPEPRNINIYTYDDMEVKQINKRASGQAFELILKP  
PSPISEAPRTLASPKKKDLSLEEIQKKLEAAEERRKSQEAQVLKQLAEKREHEREVLQKA  
LEENNNFSKMAEEKLILKMEQIKENREANLAAIERLQEKLVKFISSSELKESIESQFLEL  
QREGKQ

>Pongo abelii\_STMN2(ENSPYP\_20967)  
MAKTAMAYKEKMKELSMLSILCSFYPEPRNINIYTYDDMEVKQINKRASGQAFELILKP  
PSPISEAPRTLASPKKKDLSLEEIQKKLEAAEERRKSQEAQVLKQLAEKREHEREVLQKA  
LEENNNFSKMAEEKLILKMEQIKENREANLAAIERLQEKERHAAEVRNKELQVELSG

>Mus musculus\_STMN2(ENSMUSP\_29002)  
MAKTAMAYKEKMKELSMLSILCSFYPEPRNINIYTYDDMEVKQINKRASGQAFELILKP  
PSPISEAPRTLASPKKKDLSLEEIQKKLEAAEERRKSQEAQVLKQLAEKREHEREVLQKA  
LEENNNFSKMAEEKLILKMEQIKENREANLAAIERLQEKERHAAEVRNKELQVELSG

>Canis familiaris\_STMN2(ENSCAFP\_12328)  
MAKTAMAYKEKMKELSMLSILCSFYPEPRNINIYTYDDMEVKQINKRASGQAFELILKP  
PSPISEAPRTLASPKKKDLSLEEIQKKLEAAEERRKSQEAQVLKQLAEKREHEREVLQKA  
LEENNNFSKMAEEKLILKMEQIKENREANLAAIERLQEKERHAAEVRNKELQVELSG

>Bos taurus\_STMN2(ENSBTAP\_26776)  
MAKTAMAYKEKMKELSMLSILCSFYPEPRNINIYTYDDMEVKQINKRASGQAFELILKP  
PSPISEAPRTLASPKKKDLSLEEIQKKLEAAEERRKSQEAQVLKQLAEKREHEREVLQKA  
LEENNNFSKMAEEKLILKMEQIKENREANLAAIERLQEKERHAAEVRNKELQVELSG

>Myotis lucifugus\_STMN2(ENSMMLUP\_14224)  
TVPFVFPAYKEKMKELSMLSILCSFYPEPRNISIYTYDDMEVKQINKRASGQAFELILKP  
PSPISEAPRTLASPKKKDLSLEEIQKKLEAAEERRKSQEAQVLKQLAEKREHEREVLQKA  
LEENNNFSKMAEEKLILKMEQIKENREANLAAIERLQERERHAAEVRNKELQVELSG

>Gallus gallus\_STMN2(ENSGALP\_25330)  
LTRFLVSAYKEKMKELSMLSILCSFYPEPRNMNIYKYDDMEVKQINKRASGQAFELILKP  
PPSPVSEAPRTLASPKKKELSLEEIQKKLEAAEERRKSQEAQVLKHLAEKREHEREVLQK  
ALEENNNFSKMAEEKLILKMEQIKENREANLAAIERLQEKERHAAEVRNKELQVELSG

>Anolis carolinensis\_STMN2(ENSACAP\_13160)  
MAKTAMAYKEKMKELSMLSILCSFYPEPRNLNIYTYDDMEVKQINKRASGQAFELILKP  
PSPVSEAPRTLASPKKKDLSLDEIQKKLEAAEERRKSQEAQVLKQLAEKREHEREVLQKA  
LEENNNFSKMAEEKLILKMEQIKENREANLAAI LVERLQEKERHAAEVRNKELQVELSG

>Danio rerio\_STMN2a(ENSDARP\_94591)  
MAKTAIAYKEKMKELSMLSILCSFYPEPRNINIVCFEDMEVKPINKRASGQAFEVILKP  
PSPVSDAHSITSPPKRDMSLDDIQKKLEAAEDRRRSQEAQVLKALAEKREHERDVLLK  
AMEENSNFSKMAEEKLILKMEQIKENREAHLAAMIDRLHEKERHAAIVRRNKELREQIVE

>Danio rerio\_STMN2b(ENSDARP\_72761)  
MAKTAIAYKEKMKELSLSILCSCLYPEARNKIMGEFEDMEVKAINKRASGQAFEVILKP  
PSPTTEGGYSITSPPKRDMSLEDIQKKLEAAEDRRRSQEAQVLKALAEKREHERDVLLK  
AMEENSNFSRMAEEKLILKMEQIKENRDAHLAAMMDRLHEKEKHAQLVRRNKELREELTA

>Takifugu rubripes\_STMN2(ENSTRUP\_34816)  
MAKTATAYKEKMKELSLSILCSFYPEARNFVHEFEDMEVKAIKKRTSGQAFEVILKP  
PSPVSDAVHNFPSPPKRDISLEDIEKKLEAAEDRRRYQEAQVMRALAEKREHERDVLLKA  
MEENSNFSKMAEEKLQMKMDQIKENRDAHLAAMLRLQEKVRKQPNSVPRPSVLLLPHPD  
RGGSVTVTFQERHAAIVRRNKELREELT



>Tetraodon nigroviridis\_STMN2a (ENSTNIP\_21571)  
MAKTASAYKEKMKELSVLSLICSCFYPEARNKLLHEFEDMEVKPIKKRASGQAFEVILKP  
PSPVSDAVHNFP PPPKRDISLEDIEKKLEAAEDRRRYQEAQVLRALAEKRDHERDVLLKA  
MEDNSNFSKMAEEKLQMKMDQIKENRDAHLAAMLERLQEKERHAALVRKNKELREELTA

>Tetraodon nigroviridis\_STMN2b (ENSTNIP\_20938)  
AASAPSAYKEKMKELSVLSLICSCLYPESRKNILGDFEDLDIKPINKRASGQAFEVLLKP  
SSPVTDAAHCVTSPPKRDLSEDIQKKLEAAEDRRRSQEAQVLQALAEKREHERDVLLRA  
MEENSNSFRMAEEKLQKMEQIEENRMAYLAAMMERLQEKERKHAQEVRRNKELREALTA

>Gasterosteus aculeatus\_STMN2a (ENSGACP\_11495)  
MSKTATAYKEKMKELSVLSLICSCFYPEAHNKRVCFEFVADMEVKAINKRASGQAFEVIL  
KPLSPVSDVAHNLP TPKRDISLEDIEKKLEAAEDRRKYQEAQVLRALAEKRDHEREVLI  
KAMEENSNSFSKMAEEKLLMKMEQIKENREAHLAAMIERLQEKVRNAEILLWCARTRELRE  
ELTD

>Gasterosteus aculeatus\_STMN2b (ENSGACP\_4486)  
MAKTAIAYKEKMKELSVLSFICSCLYPETHKNIMGDFEDMDIKPINKRASGQAFEVILKP  
TSPVSDAAHCVTTPPKRDVSEDIQKKLEAAEERRRSQEAQVLRALAEKRDHERDVLLKA  
MEENSNSFRMAEEKLQVKMEHIEENRQAYLAAIMERLQERERHAQEVRRNKELREEVTA

>Oryzias latipes\_STMN2a (ENSORLP\_10355)  
MAKTATAYKEKMKELSVLSLICSCFYPEARNKLVCFEFEDMEVKPIKKRTSGQAFEVILKP  
LSPVSEVSHSLPSPPKRDISLEDIEKKLEAAEERRKYQEAQVLRALAEKREHERDVLLKA  
MEENSNSFSKMAEEKLHMKMEQIKENREAHMAAMMERLLEKEKRAVVRRNKELREELTA

>Oryzias latipes\_STMN2b (ENSORLP\_16214)  
MEKTAIAYKEKMKEMSVLSLICSCLYPESRKNIMGDFEGDLDIKPLNKRASGQAFEVILK  
PPSPVSDVAHCISPPPKRDISLEDIEKKLEAAEDRRRSQEAQILRILAEKREHERDVLLK  
AMEENSNSFRMAEEKLQMKMEQIEENRQAYLAAAMMERLQERERHAQEVRRNKELREELLP

>Homo sapiens\_STMN4 (ENSP\_342538)  
MTLAAAYKEKMKELPLVSLFCSCFLADPLNKSSYKYEWCGRQCRRKDESQRKDSADWRER  
RAQADTVDLNWCVISDMEVIELNKCTSGQSFEVILKPPSFDGVPEFNASLPRRRDPSLEE  
IQKKLEAAEERRKYQEAELLKHLAEKREHEREVIQKAIENNNFIKMAKEKLAQKMESNK  
ENREAHLAAMLERLQEKDKHAEVRRKNKELKEEASR

>Pan troglodytes\_STMN4 (ENSPTRP\_53212)  
MTLAAAYKEKMKELPLVSLFCSCFLADPLNKSSYKYEWCGRHCRRKDESHRIDSADRETI  
PHADTVDLNWCVISDMEVIELNKCTSGQSFEVILKPPSFDGVPEFNASLPRRRDPSLEEI  
QKKLEAAEERRKYQEAELLKHLAEKREHEREVIQKAIENNNFIKMAKEKLAQKMESNKE  
NREAHLAAMLERLQEKVVRGFWLERRFLGHAVFLLQQVCRDLLIIISGRKQPRAKIRIFFLG  
RILREFRRMIREVRGKK

>Gorilla gorilla\_STMN4 (ENSGGOP\_3284)  
MTLAAAYKEKMKELPLVSLFCSCFLADPLNKSSYKYEWCGRQCRRKDESQRKDSADWRER  
RAQADTVDLNWCVISDMEVIELNKCTSGQSFEVILKPPSFDGVPEFNASLPRRRDPSLEE  
IQKKLEAAEERRKYQEAELLKHLAEKREHEREVIQKAIENNNFIKMAKEKLAQKMESNK  
ENREAHLAAMLERLQEKDKHAEVRRKNKELKEEASR

>Mus musculus\_STMN4 (ENSMUSP\_113759)  
MTLAAAYKEKMKELPLVSLFCSCFLSDPLNKSSYKYEWCGRQCRRKQGSQRKGSADWRER  
REQADTVDLNWCVISDMEVIELNKCTSGQSFEVILKPPSFDGVPEFNASLPRRRDPSLEE  
IQKKLEAAEERRKYQEAELLKHLAEKREHEREVIQKAIENNNFIKMAKEKLAQKMESNK  
ENREAHLAAMLERLQEKDKHAEVRRKNKELKEEASR

>Rattus norvegicus\_STMN4 (ENSRNOP\_73294)  
MTLAAAYKEKMKELPLVSLFCSCFLSDPLNKSSYKYEWCGRQCRRKQGSQRKGSADWRER  
REQADTVDLNWCVISDMEVIELNKCTSGQSFEVILKPPSFDGVPEFNASLPRRRDPSLEE  
IQKKLEAAEERRKYQEAELLKHLAEKREHEREVIQKAIENNNFIKMAKEKLAQKMESNK  
ENREAHLAAMLERLQEKDKHAEVRRKNKELKEEASR

>Felis catus\_STMN4(ENSFCAP\_13372)  
AAAYKEKMKELPLVSLFCSCFLADPLNKSSYKYEGWCGRQCRRKQDSQRKDSADWRERREQ  
ADTVDLNWCVISDMEVIELNKCTSGQSFEVILKPPSFDGVPEFNASLPRRRDPSLEEIQK  
KLEAAEERRKYQEAELLKHLAEKREHEREVIQKAIENNFIKMAKEKLAQKMESNKENR  
EAHLAAMLERLQEKDKHAEVVRKNKELKEEASR

>Bos taurus\_STMN4(ENSBTAP\_23448)  
MTLAAYKEKMKELPLVSLFCSCFLADPLNKSSYKYEADTVDLNWCVISDMEVIELNKCTS  
GQSFEVILKPPSFDGVPEFNASLPRRRDPSLEEIQKLEAAEERRKYQEAELLKHLAEKR  
EHEREVIQKAIENNFIKMAKEKLAQKMESNKENREAHLAAMLERLQEKDKHAEVVRKN  
KELKEEASR

>Myotis lucifugus\_STMN4(ENSMLUP\_4034)  
MTLAAYKEKMKELPLVSLFCSCFLADPLNKSSYKYEADTVDLNWCVISDMEVIELNKCTS  
GQSFEVILKPPSFDGVPEFNASLPRRRDPSLEEIQKLEAAEERRKYQEAELLKHLAEKR  
EHEREVIQKAIENNFIKMAKEKLAQKMESNKENREAHLAAMLERLQEKDKHAEVVRKN  
KELKEEASR

>Gallus gallus\_STMN4(ENSGALP\_26738)  
MTLAAYKEKMKELPLVSLFCSCFLSDPLNKPAYTYEADTVDLTWCVISDMEVIELNKRTS  
GQSFEVILKPPSFDGIPFNASLPRRRDPSLEEIQKLEAAEERRKYQEAELLKHLAEKR  
EHEREVIQKAIENNFIKMAKEKLAQKMESNKENREAHLAAMLERLQEKDKHAEVVRKN  
KELKEEASR

>Xenopus tropicalis\_STMN4(ENSXETP\_38062)  
MTLAAYKEKVKELPLVSLFCSCFLSDPLNKQTYKYDADTVDLTWCAISDMEVIELNKRAS  
GHAFEVILKPPSFDIPEITATLPQKRDPSEEEIQKLEAAEERRKYQEAELLKHLAEKR  
EHEREVIQKAIENNFIKMAKVKLAQRMEVNKENREAHLAAMLERLQEKDKHAEVVRKN  
KELKEEASR

>Danio rerio\_STMN4(ENSDARP\_113219)  
MTLAAYRDKVKELPLVSLCSCINSNRANPTYKAEDAVDLNWCVIKEMEVIELNKRTSG  
QAFEVILKPPSFDVAPELNTSMPQRRDPSLEEIQKLEAAEERRKFQEAEMLKHLAEKRE  
HEREVIQKAFEENNNFIKNAKEKLEQRMEANKENREALLAAMLERLQEKDKHAEVVRKN  
ELKEEACR

>Takifugu rubripes\_STMN4(ENSTRUP\_3348)  
MTLAAYKEKVKELPLVSLFCACLNPTIENPTYKAEDAVDLGWCVMKDVEVIELNKRASG  
QAFEVILKPPSFDGVPLDNTSMPQRRDPSLEEIQKLEAAEERRKCQEAELLKHLAEKRE  
HEREVIQKAFEENNNFIKNAKEKLEQKMEAIKENREALLAAMLERLQEKDKHAEVVRKN  
EMKEEACR

>Tetraodon nigroviridis\_STMN4(ENSTNIP\_22371)  
MTLAAYKEKVKELPLVSLFCACLNPTLENPTYKAEDAVDLGWCVIKDVEVIELNKRAS  
GQAFEVILKPPSFDGVPELNTSMPQRRDPSLEEIQKLEAAEERRKCQEAELLKHLAEKR  
EHEREVIQKAFEENNNFIKNAKEKLEQKMEAIKENREALLAAMLERLQEKDKHAEVVRKN  
KEMKEEACR

>Gasterosteus aculeatus\_STMN4(ENSGACP\_5935)  
MTLAAYKEKVKELPLVSLFCACFNQRADKPTYKAEDAVDLGWCVIKDVEVIELNKRTSG  
QAFEVILKPPSFDGVPELNGSMPQRRDPSLEEIQKLEAAEERRKCQEAELLKHLAEKRE  
HQREVIQKAFEENNNFIKNAKEKLEQKMEANKENREALLAAMLERLQEKDKHAEVVRKN  
EMKEEACR

>Oryzias latipes\_STMN4(ENSORLP\_20225)  
MTLAAYKEKVKELPLVSLFCACLNPTAEKTPYKAEDPTDAVDLGCVMKDVEVIELNKR  
TSGQAFEVILKPPSFDALPELNTSMPQRRDPSLEEIQKLEAAEERRKCQEAELLKHLAE  
KREHEREVIQKAYAENNNFIKNAKEKLEQKMEANKENREALLAAMLERLQEKVQHKKILK  
KKKKIKNESNG

>Homo sapiens\_STMN3(ENSP\_359070)  
MASTISAYKEKMKELSVLSLICSCFYTQPHNPNTVYQYGDMEVKQLDKRASGQSFEVILKS  
PSDLSPEPMLSSPPKKKDTSLLEELQKRLEAAEERRKTQEAQVLKQLAERREHEREVLHK  
ALEENNNFSRQAEKLNKYMELSKEIREAHLAALRERLREKELHAAEVRNKEQREEMSG

>Pan troglodytes\_STMN3(ENSPTRP\_51938)  
MASTISAYKEKMKELSVLSLICSCFYTQPHNPNTVYQYGDMEVKQLDKRASGQSFEVILKS  
PSDLSPEPMLSSPPKKKDTSLLEELQKRLEAAEERRKTQEAQVLKQLAERREHEREVLHK  
ALEENNNFSRQAEKLNKYMELSKEIREAHLAALRERLREKELHAAEVRNKEQREEMSG

>Gorilla gorilla\_STMN3(ENSGGOP\_4679)  
MASTISAYKEKMKELSVLSLICSCFYTQPHNPNTVYQYGDMEVKQLDKRASGQSFEVILKS  
PSDLSPEPMLSSPPKKKDTSLLEELQKRLEAAEERRKTQEAQVLKQLAERREHEREVLHK  
ALEENNNFSRQAEKLNKYMELSKEIREAHLAALRERLREKELHAAEVRNKEQREEMSG

>Mus musculus\_STMN3(ENSMUSP\_99334)  
MASTVSAYKEKMKELSVLSLICSCFYSPHPNTIYQYGDMEVKQLDKRASGQSFEVILKS  
PSDLSPEPVLSSPPKRKDTSLLEELQKRLEAAEERRKTQEAQVLKQLAERREHEREVLHK  
ALEENNNFSRLAEKLNKYMELSKEIREAHLAALRERLREKELHAAEVRNKEQREEMSG

>Rattus norvegicus\_STMN3(ENSRNOP\_18697)  
MASTVSAYKEKMKELSVLSLICSCFYSPHPNTIYQYGDMEVKQLDKRASGQSFEVILKS  
PSDLSPEPVLSSPPKRKDTSLLEELQKRLEAAEERRKTQEAQVLKQLAERREHEREVLHK  
ALEENNNFSRLAEKLNKYMELSKEIREAHLAALRERLREKELHAAEVRNKEQREEMSG

>Bos taurus\_STMN3(ENSBTAP\_48555)  
MASTISAYKEKMKELSVLSLICSCFYSPHPNTVYQYGDMEVKQLDKRASGQSFEVILKS  
PSDLSPEPMLSSPPKRKDTSLLEELQKRLEAAEERRKTQEAQVLKQLAERREHEREVLHK  
ALEENNNFSRLAEKLNKYMELSKEIREAHLAALRERLREKELHAAEVRNKEQREEMSG

>Myotis lucifugus\_STMN3(ENSMLUP\_19179)  
PGLPPTAYKEKMKELSVLSLICSCFYSPHPNTIYQYGDMEVKQLDKRASGQSFEVILKS  
PSDLSPEPVLSSPPKRKDTSLLEELQKRLEAAEERRKTQEAQVLKQLAERREHEREVLHK  
ALEENNNFSRLAEKLNKYMELSKEIREAHLAALRERLREKELHAAEVRNKEQREEMSG

>Monodelphis domestica\_STMN3(ENSMODP\_21178)  
MASTMSAYKEKMKELSVLSLICSCFYTQPHNPNTIYQYGDMEVKQLDKRASGQSFEVILKS  
PSDLSPEPILSSPPKKKDISLEELQKRLEAAEERRKTQEAQVLKQLAEKREHEREVLHK  
ALEENNNFSRLAEKLNKYMELSKEIREAHLAALRERLREKELHAAEVRNKEQREIISG

>Gallus gallus\_STMN3(ENSGALP\_9879)  
MASTVSAYKEKMKELSVLSLICSCFHTQPHNPNTIYQYGDMEVKQLDKRASGQSFEVILKS  
PSDLSPEPILSSPPKKKDLLEELQRRLEAAEERRKTQEAQVLKQLAEKREHEREVLHK  
ALEENNNFSRLAEKLNKYMELSREREIREAHLAALRERLREKELHAAEVRNKEQREIISG

>Xenopus tropicalis\_STMN3(ENSXETP\_7299)  
SSSSLAAYKEKMKELSMIDMICSCLYSQPLPKTVYQFEDMEVKQLNKRASGQSFEVILKP  
PTDLSPEPPLTTSPTKKDISLEELQKRLEAAEERRKIQEAQVLKQLSEKREHERNVLHR  
AIEDNNSFSRIAEEKLNKYMELSQEIRDANLAALKERLREK

>Danio rerio\_STMN3(ENSDARP\_128691)  
MDSTLSAYSCLKREMSVLSLICSCLYNQPHNPNTFGQFEDMEVKSLNKRASGQAFEVILKS  
PTDPSPERPQTLALPPQRKEPSLGELQRRLEAAEARRRSQEKQVLKQLAEKREREKEVLT  
KAQEVNNNYSKKTTEEKLNHKMEMITENRMARLNALKQRLREKEIHAAEVRNKNKELNTDLS  
G

>Saccoglossus kowalevskii\_(XP\_006814464)  
MRSFICPLSFRALDTFSRPFACCFYSEISMPSSTLVKECAEVKTTGGVAYDVILSEPKTETVLKRPVSP  
KKSEKSLTDIASKLAAAEERRKSMESQLLQRLAEERALAQEKASRVMKDNNNFQEVTKKQLDEKMQVFEE  
NRNARFQALQKRLKERRYMAEKYATTKGPSAKMKQMAIEH

>Drosophila melanogaster\_ (FBpp0078829)  
MLIGLVRDSVMQCFCHTCRAPGILPAVSRRSAPIKNNKIRSKQPRLSKVKVFITTEIRC  
QEKSRRGLSYEVILAEFAPNVAVPKRPVTPGKNVSVVEIEQKLKAAEERRISLEAKKMD  
ISTKLAKVEEATRKKDEITNEFITQTKEQLESKMEHLHVEKREAIISDMKEKLIKHAQDIE  
KTRETLEQQKANEQKAIIEEKLKIAQSLRDENIKMLDRLKEHERRAELVRQNKAQAQDLD  
GQQSAIASSG

## **Serine/Threonine-Protein Kinase-STK**

>Homo sapien\_STK3 (ENSP\_429744)  
MLQLMDSGITICLRNGAASVFKKKEWSTQGEENKQDSKLKKLSEDSLTKQPEEVFDVLEK  
LGEYSYGSVFKAIHKESGQVVAIKQVPVESDLQEI I KEISIMQQCDSPYVVKYYSYFKN  
TDLWIVMEYCGAGSVSDI IRLRNKTLIEDEIATILKSTLKGLEYLHFMRKIHRDIKAGNI  
LLNTEGHAKLADFGVAGQLTDTMAKRNTVIGTPFWMAPEVIQEI GYNCVADIWLSGITSI  
EMAEGKPPYADIHPMRAIFMIPNPPPTFRKPELWSDDFDFVKKCLVKNPEQRATATQL  
LQHPFIKNAKPVSI LRDLITEAMEIKAKRHEEQQRELEEEEEENSDEDELDSHTMVKTSVE  
SVGTMRATSTMSEGAQTMIEHNSTMLES DLGTMVINSEDEEEEDGTMKRNATSPQVQRPS  
FMDYFDKQDFKKNKSHENCNQNMHPEFPMSKNVFPDNWVVPQDGFDFLKNLSLEELQMLR  
KALDPMEREIEELRQRYTAKRQPI LDAMDAKKRRQQNF

>Pan troglodytes\_STK3 (ENSPTR\_34983)  
MEQPPAPKSKLKKLSEDSLTKQPEEVFDVLEKLGESYGSVFKAIHKESGQVVAIKQVPV  
ESDLQEI I KEISIMQQCDSPYVVKYYSYFKNTDLWIVMEYCGAGSVSDI IRLRNKTLTE  
DEIATILKSTLKGLEYLHFMRKIHRDIKAGNILLNTEGHAKLADFGVAGQLTDTMAKRNT  
VIGTPFWMAPEVIQEI GYNCVADIWLSGITSIEMAEGKPPYADIHPMRAIFMIPNPPPT  
FRKPELWSDDFDFVKKCLVKNPEQRATATQLLQHPFIKNAKPVSI LRDLITEAMEIKAK  
RHEEQQRELEEEEEENSDEDELDSHTMVKTSVESVGTMRATSTMSEGAQTMIEHNSTMLES  
DLGTMVINSEDEEEEDGTMKRNATSPQVQRPSFMDYFDKQDFKKNKSHENCNQNMHPEFP  
SKNVFPDNWVVPQDGFDFLKNLSLEELQMLR KALDPMEREIEELRQRYTAKRQPI LD  
MDAKKRRQQNF

>Gorilla gorilla\_STK3 (ENSGGOP\_28648)  
MLQLMDGGITICLRNGAASVFKKKEWSTQGEENKQDSKLKKLSEDSLTKQPEEVFDVLEK  
LGEYSYGSVFKAIHKESGQVVAIKQVPVESDLQEI I KEISIMQQCDSPYVVKYYSYFKN  
TDLWIVMEYCGAGSVSDI IRLRNKTLTEDEIATILKSTLKGLEYLHFMRKIHRDIKAGNI  
LLNTEGHAKLADFGVAGQLTDTMAKRNTVIGTPFWMAPEVIQEI GYNCVADIWLSGITSI  
EMAEGKPPYADIHPMRAIFMIPNPPPTFRKPELWSDDFDFVKKCLVKNPEQRATATQL  
LQHPFIKNAKPVSI LRDLITEAMEIKAKRHEEQQRELEEEEEENSDEDELDSHTMVKTSVE  
SVGTMRATSTMSEGAQTMIEHNSTMLES DLGTMVINSEDEEEEDGTMKRNAAS PQVQRPS  
FMDYFDKQDFKKNKSHENCNQNMHPEFPMSKNVFPDNWVVPQDGFDFLKNLSLEELQMLR  
KALDPMEREIEELRQRYTAKRQPI LDAMDAKKRRQQNF

>Mus musculus\_STK3 (ENSMUSP\_18476)  
MEQPPASKSKLKKLSEDSLTKQPEEVFDVLEKLGESYGSVFKAIHKESGQVVAIKQVPV  
ESDLQEI I KEISIMQQCDSPYVVKYYSYFKNTDLWIVMEYCGAGSVSDI IRLRNKTLTE  
DEIATILKSTLKGLEYLHFMRKIHRDIKAGNILLNTEGHAKLADFGVAGQLTDTMAKRNT  
VIGTPFWMAPEVIQEI GYNCVADIWLSGITSIEMAEGKPPYADIHPMRAIFMIPNPPPT  
FRKPELWSDDFDFVKKCLVKSPEQRATATQLLQHPFIKNAKPVSI LRDLIAEAMEIKAK  
RHEEQQRELEEEEEENSDEDELDSHTMVKTSSESVGTMRATSTMSEGAQTMIEHNSTMLES  
DLGTMVINSEEEEEEEEEEDGTMKRNATSPQVQRPSFMDYFDKQDFKKNKSHENCQSM  
REPGMSNSVFPDNWRVPQDGFDFLKNLSLEELQMLR KALDPMEREIEELHQRYSAKR  
QPILDAMDAKKRRQQNF

>Rattus norvegicus\_STK3 (ENSRNOP\_62778)  
MEQPPAPKSKLKKLSEDSLTKQPEEVFDVLEKLGESYGSVFKAIHKESGQVVAIKQVPV  
ESDLQEI I KEISIMQQCDSPYVVKYYSYFKNTDLWIVMEYCGAGSVSDI IRLRNKTLTE  
DEIATILKSTLKGLEYLHFMRKIHRDIKAGNILLNTEGHAKLADFGVAGQLTDTMAKRNT  
VIGTPFWMAPEVIQEI GYNCVADIWLSGITSIEMAEGKPPYADIHPMRAIFMIPNPPPT  
FRKPELWSDDFDFVKKCLVKSPEQRATATQLLQHPFIKNAKPVSI LRDLITEGMEIKAK  
RHEEQQRELEDEEENSDEDELDSHTMVKTSSEGVGTMRATSTMSEGAQTMIEHNSTMLES  
DLGTMVINSEDEEEEDGTMKRNATSPQVQRPSFMDYFDKQDFKKNKSHENCQSMREPCPM

SNNVFPDNWRVPQDGDGDFDLKNSLSEELQMRLKALDPMEREIEELHQRYSAKRQPIILDA  
MDAKRRQQNF

>Canis familiaris\_STK3(ENSCAFP\_711)

MEQPPAPKSKLKKLSEDSLTQPEEVFDVLEKLGEGSYGSVFKAIHKESGQVVAIKQVPV  
ESDLQEIIKEISIMQQCDSFYVVKYYSYFKNTDLWIVMEYCGAGSVSDIIRLRNKTLTE  
DEIATILKSTLKGLEYLHFMRKIHRDIKAGNILLNTEGHAKLADFGVAGQLTDTMAKRNT  
VIGTPFWMAPEVIQIEIGYNCVADIWSLGITSIEMAEGKPPYADIHPMRAIFMIPTNPPPT  
FRKPELWSDDFTDFVKKCLVKNPEQRATATQLLQHPFIKNAKPVSI LRDLITEAMEIKAK  
RHEEQQRELEEEEEENSDEDELDSHTMVKTSSSESVGTMKATSTMSEGAQTMIEHNSTMLES  
DLGTMVINSEDEEEDGTMKRNATSPQVQRPSFMDYFDKQDFKNSHENCNQNMHEPFP  
SKNVFPDNWKVPQDGDGDFDLKNSLSEELQMRLKALDPMEREIEELRQRYTAKRQPIILDA  
MDAKRRQQNF

>Felis catus\_STK3(ENSFCAP\_19309)

MEQPPAPKSKLKKLSEDSLTQPEEVFDVLEKLGEGSYGSVFKAIHKESGQVVAIKQVPV  
ESDLQEIIKEISIMQQCDSFYVVKYYSYFKNTDLWIVMEYCGAGSVSDIIRLRNKTLTE  
DEIATILKSTLKGLEYLHFMRKIHRDIKAGNILLNTEGHAKLADFGVAGQLTDTMAKRNT  
VIGTPFWMAPEVIQIEIGYNCVADIWSLGITSIEMAEGKPPYADIHPMRAIFMIPTNPPPT  
FRKPELWSDDFTDFVKKCLVKNPEQRATATQLLQHAFIKNAKPVSI LRDLITEAMEIKAK  
RHEEQQRELEEEEEENSDEDELDSHTMVKTSSSESVGTMKATSTMSEGAQTMIEHNSTMLES  
DLGTMVINSEDEEEDGTMKRNATSPQVQRPSFMDYFDKQDFKNSHENCNQNMHEPFP  
SKNVFPDNWKVPQDGDGDFGFLFVFWPNLTMYF

>Monodelphis domestica\_STK3(ENSMODP\_8035)

SPPTPSKLLKSEDSLTQPEEVFDVLEKLGEGSYGSVFKAIHKESGQVVAIKQVPVES  
DLQEIIKEISIMQQCDSFYVVKYYSYFKNTDLWIVMEYCGAGSVSDIIRLRNKTLTEEE  
IATILKSTLKGLEYLHFMRKIHRDIKAGNILLNTEGHAKLADFGVAGQLTDTMAKRNTVI  
GTPFWMAPEVIQIEIGYNCVADIWSLGITSIEMAEGKPPYADIHPMRAILSHKSPPTFGK  
KFGTDEFENLSSKCLVKNPEQRATATQLLQHPFIKNAKAVSI LRDLITDAMEIKAKRHEE  
QQRELEEEVEENSDEDELDSHTMVKNALSVNTMRAASTMSEGAQTMIEHNNTTILENDLGT  
MVINSEDEEVEDGTMKRNATSSQAQRPSFMDYFDKQDFKNSQENS DNKNIHEQQVVPVSKN  
IFPDNWKVPQDGNDFDLKNSLSEELQMRLKALDPMEREIEELRQSYNAKRQPIILDAMDA  
KRRQQNF

>Gallus gallus\_STK3(ENSGALP\_25754)

MEQAAPKSKLKKLSEDSLTQPEEVFDVLEKLGEGSYGSVFKAIHKESGQVVAIKQVPVE  
SDLQEIIKEISIMQQCDSFYVVKYYSYFKNTDLWIVMEYCGAGSVSDIIRLRNKRLTED  
E IATILKSTLKGLEYLHFMRKIHRDIKAGNILLNTEGHAKLADFGVAGQLTDTMAKRNTV  
IGTPFWMAPEVIQIEIGYNCVADIWSLGITSIEMAEGKPPYADIHPMRAIFMIPTNPPPTF  
RKPELWSDEFTDFVKKCLVKNPEQRATATQLLQHTFIKNAKPVSI LRDLITEAMEIKAKR  
HEEQQRELEEEEEENSDEDELDSHTMVKTNSSESASTMRATSTMSEGAQTMIEHNSTMLES  
LGTMVINSDDDEEEDGTMKRNATSPQVQRPSFMDYFDKQDSKNKSPENCNQNMHEPYHIS  
KNVFPDNWKVPQDGDGDFDLKNSLSEELQMRLKALDPMEREIEELRQRYTAKRQPIILDAM  
DAKRRQQNF

>Anolis carolinensis\_STK3(ENSACAP\_15922)

MEQAAPKSKLKKLSEDSLTQPEEVFDVLEKLGEGSYGSVFKAIHKESGQVVAIKQVPVE  
SDLQEIIKEISIMQQCDSFYVVKYYSYFKNTDLWIVMEYCGAGSVSDIIRLRNKTLTED  
E IATILKSTLKGLEYLHFMRKIHRDIKAGNILLNTEGHAKLADFGVAGQLTDTMAKRNTV  
IGTPFWMAPEVIQIEIGYNCVADIWSLGITSIEMAEGKPPYADIHPMRAIFMIPTNPPPTF  
RKPELWSDEFTDFVKKCLVKNPEQRATATQLLQHPFIKNAKPVSI LRDLITEAMEIKAKR  
HEEQQRELEEEEDENSEEDELDSHTMVKTGSESAGTMRATSTMSESAQTMIEHNSTMLES  
LGTMVINSDDDEDEDEDGTMKRNATSPQAQRPSFMDYFDKQDSKNKSHENCNQNMHESY  
HISKNVFPDNWKVPQDGDGDFDLKNSLSEELQMRLKALDPMEREIEELRQRYTAKRQPIIL  
DAMDAKRRQQNF

>Danio rerio\_STK3(ENSDARP\_15367)

MEHSVPKNLKKLSEDSLTQPEEVFDVLEKLGEGSYGSVFKAIHKESGQVVAIKQVPVE  
SDLQEIIKEISIMQQCDSFYVVKYYSYFKNTDLWIVMEYCGAGSVSDIIRLRNKTLTED  
E IATV LKSTLKGLEYLHFMRKIHRDIKAGNILLNTEGHAKLADFGVAGQLTDTMAKRNTV

IGTPFWMAPEVIQEIGYNCVADIWSLGITSIEMAEGKPPYADIHPMRAIFMIPTNPPPTF  
RKPEHWSDDFTDFVKKCLVKNPEQRATATQLLQHPFIVGAKPVSILRDLITEAMDMKAKR  
QQEQQRELEEDDENSEEEVEVDSHTMVKSGSEAGTMTRATGTMSDGAQTMIEHGSTMLES  
NLGTMVINSDDDEEEEDLGSRRNPTSQQIQRPSFMDYFDKQDSNKAQEGFNHNQQDPCL  
ISKTAFPDNWVKVPQDGDGDFLKNLDFEELQMLRTALDPMMEIEELRQRYTAKRQPILD  
AMDAKKRRQQNF

>Takifugu rubripes\_STK3 (ENSTRUP\_38341)  
VLSLYLSSPDSKLLKLESDSLTKQPEEVFDVLEKLGEGSYGSVFKAIHKESGQVVAIKQV  
PVESDLQEIIKEISIMQQCDSFYVVKYYSYFKNTDLWIVMEYCGAGSVSDIIRLRNKTL  
TEEEIATILKSTLKGLEYLHFMRKIHRDIKAGNILLNTEGHAKLADFGVAGQLTDTMAKR  
NTVIGTPFWMAPEVIQEIGYNCVADIWSLGITSIEMAEGKPPYADIHPMRAIFMIPTNPP  
PTFRKPELWSDEFTDFVKKCLVKNPEQRATATQLLQHPFISQAKPVTILRDLITEAMEMK  
AKRQQEQQRELEEEEDNSEETEVDSTMTVKSSEAGTMTRATSTMSDGAQTMIEHGSTM  
LESDLGTMVINSDDDEEEEDQSRMRRHATPQQPMRPSFMDYFDKQDSNKAQQQENYNH  
NQAQEPGYHIQSKNVFPDNWVKVPQDGDGDFLKNLDFEELQLRLTALDPMMEIEELRQR  
YTAKRQPILDAMDAKKRRQQNF

>Tetraodon nigroviridis\_STK3 (ENSTNIP\_12004)  
MEPSAPKSKLLKLESDSLTKQPEEVFDVLEKLGEGSYGSVFKAIHKESGQVVAIKQVPVE  
SDLQEIIKEISIMQQCDSFYVVKYYSYFKNTDLWIIMEYCGAGSVSDIIRLRNKCGQLT  
EEEIATILKSTLKGLEYLHFMRKIHRDIKAGNILLNTEGHAKLADFGVAGQLTDTMAKR  
TVIGTPFWMAPEVIQEIGYNCVADIWSLGITSIEMAEGKPPYADIHPMRAIFMIPTNPPP  
TFRKPELWTDFTDFVKKCLIKNPEQRATATQLLQHPFISQAKPVTILRDLITEAMEMKA  
KRQQEQQRELEEDDDNSEETEVDSTMTVKSSEAGTMTRATSTMSDGAQTMIEHGSTM  
ESDLGTMVINSDEDEEEEDQGSRRHATSQQPMRPAFMDYFDKQDSNKAQQQDNQPQE  
PGYHIHAKNVFPDNWVKVPQDGDGDFLKNLDFEELQLRLTALDPMMEIEELRQRYTAKRQ  
PILDAMDAKKRRQQNF

>Gasterosteus aculeatus\_STK3 (ENSGACP\_4790)  
IMETSAPKSKLLKLESDSLTKQPEEVFDVLEKLGEGSYGSVFKAIHKESGQVVAIKQVPV  
ESDLQEIIKEISIMQQCDSFYVVKYYSYFKNTDLWIVMEYCGAGSVSDIIRLRNKTLTE  
DEIATILKSTLKGLEYLHFMRKIHRDIKAGNILLNTEGHAKLADFGVAGQLTDTMAKRNT  
VIGTPFWMAPEVIQEIGYNCVADIWSLGITSIEMAEGKPPYADIHPMRAIFMIPTNPPPT  
FRKPELWSDDLTDFVKKCLVKNPEQRATATQLLQHPFISLAKPVTILRDLITEAMEMKAK  
RQQEQQRELEEEEDNSEETEVDSTMTVKSSEAGTMTRATSTMSDGAQTMIEHGSTM  
SDLGTMVINSDDDDDEEDHGSRRHATSQQPMRPSFMDYFDKQDSNKAQQQENYNHNQ  
PKEQPGFHIQSKNVFPDNWVKVPQDGDGDFLKNLDFEELQLRLTALDPMMEIEELRQRY  
TAKRQPILDAMDAKKRRQQNF

>Homo sapiens\_STK4 (ENSP\_361892)  
METVQLRNPPRRQLKLDSDSLTKQPEEVFDVLEKLGEGSYGSVYKAIHKETGQIVAIKQ  
VPVESDLQEIIKEISIMQQCDSFHVVKYYSYFKNTDLWIVMEYCGAGSVSDIIRLRNKTL  
LDEDEIATILQSTLKGLEYLHFMRKIHRDIKAGNILLNTEGHAKLADFGVAGQLTDTMAK  
RNTVIGTPFWMAPEVIQEIGYNCVADIWSLGITAIEMAEGKPPYADIHPMRAIFMIPTNP  
PPTFRKPELWSDNFTDFVKKCLVKSPEQRATATQLLQHPFVRSAGVVSILRDLINEAMDV  
KLKRQESQQREVDQDDEENSEEDEMDSGMTVRAVGDEMGTVRVASTMTDGANTMIEHDDT  
LPSQLGTMVINAEDDEEEEGTMKRRDETMQPAKPSFLEYFEQKEKENQINSFGKSVPGPLK  
NSSDWKIPQDGDYEFKLSWTVEDLQKRLALDPMMEQIEEIRQKYQSKRQPILDAIEAK  
KRRQQNF

>Gorilla gorilla\_STK4 (ENSGGOP\_13194)  
METVQLRNPPRRQLKLDSDSLTKQPEEVFDVLEKLGEGSYGSVYKAIHKETGQIVAIKQ  
VPVESDLQEIIKEISIMQQCDSFHVVKYYSYFKNTDLWIVMEYCGAGSVSDIIRLRNKTL  
LDEDEIATVLQSTLKGLEYLHFMRKIHRDIKAGNILLNTEGHAKLADFGVAGQLTDTMAK  
RNTVIGTPFWMAPEVIQEIGYNCVADIWSLGITAIEMAEGKPPYADIHPMRAIFMIPTNP  
PPTFRKPELWSDNFTDFVKKCLVKSPEQRATATQLLQHPFVRSAGVVSILRDLINEAMDV  
KLKRQESQQREVDQDDEENSEEDEMDSGMTVRAVGDEMGTVRVASTMTDGANTMIEHDDT  
LPSQLGTMVINAEDDEEEEGTMKRRDETMQPAKPSFLEYFEQKEKENQINSFGKSVPGPLK  
NSSDWKIPQDGDYEFKLSWTVEDLQKRLALDPMMEQIEEIRQKYQSKRQPILDAIEAK  
KRRQQNF

>Pongo abelii\_STK4 (ENSPPYP\_12335)

QLKKLDEDSLTKQPEEVFDVLEKLGEGSVYKAIHKETGQIVAIKQVPVESDLQEIIEK  
EISIMQQCDSPHVVKYYGSYFKNTDLWIVMEYCGAGSVSDIIRLRNKTLTEDEIATILQS  
TLKGLEYLHFMRKIHRDIKAGNILLNTEGHAKLADFGVAGQLTDTMAKRNTVIGTPFWMA  
PEVIQEIIGYNCVADIWSLGITAIEMAEGKPPYADIHPMRAIFMIPTNPPPTFRKPELWSD  
NFTDFVKQCLVKSPEQRATATQLLQHPFVKSAGVSI LRDLINEAMDVKLRQESQOREV  
DQDDEENSEEDEMDSGTMVRAVGEEMGTVRVASTMTDGANTMIEHDDTLPSQLGTMVINA  
EDEEEEGTMKRRDETMQPAKPSFLEYFEQKEKENQINSFGKSVPLKNSSDWKIPQDGDY  
EFLKSWTVEDLQKRLALDPMMEQEIIEIRQKYQSKRQPI LDAIEAKRRQQNF

>Rattus norvegicus\_STK4 (ENSRNOP\_61873)

METVQLRNPPRRQLKKLDEDSLTKQPEEVFDVLEKLGEGSVYKAIHKETGQIVAIKQ  
VPVESDLQEIIEKISIMQQCDSPHVVKYYGSYFKNTDLWIVMEYCGAGSVSDIIRLRNK  
L TEDEIATILQSTLKGLEYLHFMRKIHRDIKAGNILLNTEGHAKLADFGVAGQLTDTMAK  
RNTVIGTPFWMAPEVIQEIIGYNCVADIWSLGITAIEMAEGKPPYADIHPMRAIFMIPTNP  
PPTFRKPEVWSDNFMDFVKQCLVKSPEQRATATQLLQHPFVKSAGGAILRDLINEAMDV  
KLRQEAQQRAVDQDDEENSEEDEMDSGTMVRAAGDMGTVRVASTMSGGANTMIEHGDT  
LPSQLGTMVINTEDEEEEGTMKRRDETMQPAKPSFLEYFEQKEKENQINSFGKNVSGSLK  
NSSDWKIPQDGDYEFLLKSWTVEDLQKRLSALDPMMEQEMEEIRQKYRSKRQPI LDAIEAK  
KRRQQNF

>Canis familiaris\_STK4 (ENSCAFP\_14145)

METVQLRNPPRRQLKKLDEDSLTKQPEEVFDVLEKLGEGSVYKAIHKETGQIVAIKQ  
VPVESDLQEIIEKISIMQQCDSPHVVKYYGSYFKNTDLWIVMEYCGAGSVSDIIRLRNK  
L TEDEIATILQSTLKGLEYLHFMRKIHRDIKAGNILLNTEGHAKLADFGVAGQLTDTMAK  
RNTVIGTPFWMAPEVIQEIIGYNCVADIWSLGITAIEMAEGKPPYADIHPMRAIFMIPTNP  
PPTFRKPELWSDNFMDFVKQCLVKSPEQRATATQLLQHPFVKSAGVSI LRDLINEAMDV  
KLRQEAQQREVDQDDEENSEEDEMDSGTMVRAAGDEMGTVRVASTTSDGASTMIEHGDT  
LPSQLGTMVINTEDEEEEGTMKRRDETMQPAKPSFLEYFEQKEKENQIHSFGQSVPGPLR  
NSSDWKVPQDGDYEFLLKSWTVEDLQKRLALDPMMEQEIIEIRQKYQSKRQPI LDAIEAK  
KRRQQNF

>Felis catus\_STK4 (ENSFCAP\_19419)

METVQLRNPPRRQLKKLDEDSLTKQPEEVFDVLEKLGEGSVYKAIHKETGQIVAIKQ  
VPVESDLQEIIEKISIMQQCDSPHVVKYYGSYFKNTDLWIVMEYCGAGSVSDIIRLRNK  
L TEDEIATILQSTLKGLEYLHFMRKIHRDIKAGNILLNTEGHAKLADFGVAGQLTDTMAK  
RNTVIGTPFWMAPEVIQEIIGYNCVADIWSLGITAIEMAEGKPPYADIHPMRAIFMIPTNP  
PPTFRKPELWSDNFMDFVKQCLVKSPEQRATATQLLQHPFVKSAGVSI LRDLINEAMDV  
KLRQEAQQREVDQDDEENSEEDEMDSGTMVRAAGDEMGTVRVASTVTDGASTMIEHGDT  
LPSQLGTMVINAEDDEEEEGTMKRRDETMQPAKPSFLEYFEQKEKENQINSFGKSVPGPLR  
NSSDWKVPQDGDYEFLLKSWTVEDLQKRLALDPMMEQEIIEIRQKYQSKRQPI LDAIEAK  
KRRQQNF

>Myotis lucifugus\_STK4 (ENSMLUP\_10751)

VCGAGSGRREDGALSGSRLPGSAMETVQLRNPPRRQLKKLDEDSLTKQPEEVFDVLEK  
GEGSVYKAIHKETGQIVAIKQVPVESDLQEIIEKISIMQQCDSPHVVKYYGSYFKNT  
DLWIVMEYCGAGSVSDIIRLRNKTLTEDEIATILQSTLKGLEYLHFMRKIHRDIKAGNILL  
NTEGHAKLADFGVAGQLTDTMAKRNTVIGTPFWMAPEVIQEIIGYNCVADIWSLGITAI  
EMAEGKPPYADIHPMRAIFMIPTNPPPTFRKPELWSDSFMDFVKQCLVKSPEHRATATQLL  
QHPFVKSAGVSI LRDLINEAMDVKLRQEAQQREVENEDEENSEEDELD SGTMVRAAGD  
EMGTVRVASTMSGANTMIEHDGTL SQLGTMVINAEDDEEEEGTMKRRDETMQPAKPSFL  
EYFEQKEKENQINSFGKSVPGPLKNSSDWKVPQDGDYEFLLKSWTVEDLQKRLALDPMME  
QEIIEIRQKYQSKRQPI LDAIEAKRRQQNF

>Monodelphis domestica\_STK4 (ENSMODP\_20242)

METVQLRNPPRRQLKKLDEDSLTKQPEEVFDVLEKLGEGSVYKAIHKETGQIVAIKQ  
VPVESDLQEIIEKISIMQQCDSPHVVKYYGSYFKNTDLWIVMEYCGAGSVSDIIRLRNK  
L TEDEIATILQSTLKGLEYLHFMRKIHRDIKAGNILLNTEGHAKLADFGVAGQLTDTMAK  
RNTVIGTPFWMAPEVIQEIIGYNCVADIWSLGITAIEMAEGKPPYADIHPMRAIFMIPTNP  
PPTFRKPELWSDSFAFVKQCLVKSPEHRATATQLLQHPFVKSAGVSI LRDLINEAMDV

KLKRQEAQQRELDQDDDDNSEEDETDSGTMVRAVGDETGTVRAASTLSDGANTMIEHEDT  
LPSQLGTMVINTEEEEEEGTMKRREDETMQPAKPSFLEYFEQKEKENQVNSFGKNVPGPLK  
NSSDWKVPQDGDYEFLLKWSVEDLQKRRLSALDPMMEQEIEEIRQKYQSKRQPILDAIEAK  
RRRQQNF

>Gallus gallus\_STK4(ENSGALP\_6511)  
METVQLRNP RRQLK KLDEDSLTKQPEEVFDVLEKLGEGSYGSVFKAIHKETGQVVAIKQV  
PVESDLQEIIKEISIMQQCDSPHVVKYYSYFKNTDLWIVMEYCGAGSVSDIIRLRNKTL  
TEEEIATIVQSTLKGLEYLHFMRKIHRDIKAGNILLNTEGHAKLADFGVAGQLTDTMAKR  
NTVIGTPFWMAPEVIQEIGYNCVADIWLSGITAIEMAEGKPPYADIHPMRAIFMIPTNPP  
PTFRKPELWSDAFTDFVKQCLVKSPQRATATQLLQHPFVKSAGKASILRDLINAMDIK  
LKRQEAQQRELDQEDEENSEEEDTDSGTMVRAVGDETGTVRAASTLSDGANTMIEHEDT  
ESQLGTMVINTEDEEEEGTMKRREDETMQPARPSFLEYFEQKAKENQVNSFGKNVSGQTKN  
SSDWKVPQDGDYEFLLKWSVEDLQKRRLSALDPMMEQEIEEIRQKYQSKRQPILDAIEAK  
RRRQQNF

>Anolis carolinensis\_STK4(ENSACAP\_11982)  
METVQLRNP RRQLK KLDEDSLTKQPEEVFDVLEKLGEGSYGSVFKAIHKETGQVVAIKQV  
PVESDLQEIIKEISIMQQCDSPHVVKYYSYFKNTDLWIVMEYCGAGSVSDIIRLRNKTL  
MEDEIATIIQSTLKGLEYLHFMRKIHRDIKAGNILLNTEGHAKLADFGVAGQLTDTMAKR  
NTVIGTPFWMAPEVIQEIGYNCVADIWLSGITAIEMAEGKPPYADIHPMRAIFMIPTNPP  
PTFRKPELWSDAFTDFVKQCLVKSPQRATATQLLQHPFVKSAGKASILRDLINAMDIK  
LKRQEAQQRELDQEDEENSEEEDTDSGTMVRAVGDETGTVRAASTLSDGANTMIEHEDT  
ESQLGTMVINTEDEEEEGTMKRREDETMASVRPSFLEYFEQKEKENRRNCVRQVPERYSPD  
WRVPQDGDYEFNPAWFRRE

>Tetraodon nigroviridis\_STK4(ENSTNIP\_7894)  
REKVQMRNPNRRQLK KLSEDSLTKQPEEVFDILEKLGEGSYGCVFKAH SKETGEI VAIKQ  
VPVESDLQEMIKEISIMQQCNPHVVQYYGSYFKNSDLLIVMEYCGAGSVADIIRIRNKTL  
LTEEEVAPILQSTLKGLEYLHFMRKIHRDIKAGNILLNTEGHAKLADFGVAGQLTDTMAK  
RNTVIGTPFWMAPEVIQEIGYNCVADIWLSGITAIEMAEGKPPYADIHPMRAIFMIPTNPP  
PTFRKPELWSESFDFVSQCLVKNPEERATATQLLQHPFIKTSKPRSVLRTLISDAMEIK  
LKRSDENYKKEEKISTASSEDEVDQGTMRAGTADSGTIRPADSLAGTMIHHEDTDT  
LLGLTLVINSDEEDAGTMKRKWEETLQPTKPSFLQYFEQKEKEAGVQKDGVHRQTSADER  
RPEGDLQVVSTWSVEELHLRLASLDPQMEQEIEEVRQRYQAKRKPILDAIEAKKRQQQRV

>Gasterosteus aculeatus\_STK4(ENSGACP\_23)  
KDRVQMRNPNRRQLK KLSEDSLTKQPEEVFDVLEKLGEGSYGCVFKAHYKETGEI VAIKQ  
VPVESDLQEMIKEISIMQQCNPHVVRYYSYFKNSDLWIVMEYCGAGSVSDIIRLRNKTL  
ITEEEICAILQSTLKGLEYLHFMRKIHRDIKAGNILLNSEGQAKLADFGVAGQLTDTMAK  
RNTVIGTPFWMAPEVIQEIGYNCVADIWLSGITAIEMAEGKPPYADIHPMRAIFMIPTNPP  
PTFRNPDLWSPSFQDFVSQCLVKNPENRATATQLLQHPFIKCPKPSVLRALITDAMEIK  
KLKRQEEAEQRQDEEDNSDEDEVDQGTMRAGTADSGTIRVAGSLSGSLGGTARTMIAH  
DDGDGTGTMRSQGLGTMVINSDEEDEEEAGTMKRREDETMQPAKPSFLQYFEQKEKEANSHR  
EGGGDPADHRGLPEGDLQVVSLWSVEELRLRLASLDPQMEQEIEEIRRYQTKRRPIMDA  
IEAKRRRQQNF

>Oryzias latipes\_STK4(ENSORLP\_24937)  
MENTQKVQMRNPNRRQLK KLSEDSLTKQPEEVFDVLEKLGEGSYGCVFKANYKETGEI VAIKQ  
IKQVPVESDLQEMIKEISIMQQCNPHVVRYYSYFKNSDLWIVMEYCGAGSVSDIIRIR  
NKTLSEEEIATVVHSTLKGLEYLHFMRKIHRDIKAGNILLNAEGQAKLADFGVAGQLTDT  
MAKRNTVIGTPFWMAPEVIQEIGYNCVADIWLSGITAIEMAEGKPPYADIHPMRAIFMIPT  
TNPPPTFRNPDLWSENFDFVSQCLVKNPENRATATQLLQHPFIKSAKPN SVLKSMTDA  
MEIKLKKQEEALQREQEADEEDNSDEDEVDQGTMRAGTADSGTIRVAGSLSGSLGGTARTMIAH  
TMIEHEDTGTMQSGLGTMVINSDEEDEEECGTMKRREDETMQPVKPSFLEYFEQKEKEANI  
QNDGGRKGENHADNRKLPLDGDLEGVMTWSVEELRKRRLASLDPQMEQEIEEIRQRYQAKR  
QPILDIAIQAKKRLQ

>Homo sapiens\_STK24(ENSP\_442539)  
MAHSPVQSGPLGMQNLKADPEELFTKLEKIGKGSFGEVFKGIDNRTQKVVAIKIIDLEEA  
EDEIEDIQQEITVLSQCDSPYVTKYYSYKDKLWIIMEYLGGSALDLEPGPLDETQ



IATILREILKGLDYLHSEKKIHRDIKAANVLLSEHGVEVKLADFGVAGQLTDTQIKRNTFV  
GTPFFWMAPEVIKQSAYDSKADIWSLGITAIELARGEPPHSELHMPKVLFLIPKNNPPTLE  
GNYSKPLKEFVEACLNKEPSFRPTAKELLKHKFILIRNAKKTSYLTELIDRYKRWKAEQSH  
DDSSSESDAETDQGASGGSDSGDWIIFTIREKDPKNLENGALQPSDLDRNKMKDIPKRPF  
SQCLSTIISPLFAELKEKSQACGGNLSIEELRGAIYLAEEACPGISDTMVAQLVQRLQR  
YSLSGGGTSSH

>Pongo abelii\_STK24(ENSPPYP\_6227)

NLKADPEELFTKLEKIGKGSFGEVFKGIDNRTQKVVAIKIIDLEEADEIEDIQQEITVL  
SQCDSPYVTKYYGSYLKDTKLWIIMEYLGGSALDLLTDTQIKRNTFVGNPFWMAEVIKQ  
SAYDSKADIWSLGITAIELARGEPPHSELHMPKVLFLIPKNNPPTLEGNYSKPLKEFVEA  
CLNKEPSFRPTAKELLKHKFILIRNAKKTSYLTELIDRYKRWKAEQSHDDSSSESDAETD  
GQASGGSDSGDWIIFTIREKDPKNLENGALQPSDLDRNKMKDIPKRPFSQCLSTIISPLFA  
ELKEKSQACGGNLSIEELRGAIYLAEEACPGISDTMVAQLVQRLQRYSLSGGGTSSH

>Rattus norvegicus\_STK24(ENSRNOP\_31981)

LQTLKADPEELFTKLEKIGKGSFGEVFKGIDNRTQKVVAIKIIDLEEADEIEDIQQEIT  
VLSQCDSPYVTKYYGSYLKDTKLWIIMEYLGGSALDLEPGPLDEIQIATILREILKGL  
DYLHSEKKIHRDIKAANVLLSEHGVEVKLADFGVAGQLTDTQIKRNTFVGTFFWMAPEVIK  
QSAYDSKADIWSLGITAIELAKGEPHSELHMPKVLFLIPKNNPPTLEGSYSRPLKEFVE  
ACLNKEPSFRPTAKELLKHKFIRNAKKTSYLTELIDRYKRWKAEQSHEDSSSESDSVET  
DSQASGGSDSGDWIIFTIREKDPKNLENGTLQPSDLERNKMKDFPKRPFSQCLSTIISPLF  
AELKEKSQACGGNLSIEELRGAIYLAEEACPGISDTMVAQLVQRLQRYSLSGGGASAH

>Dasypus novemcinctus\_STK24(ENSDNOP\_4811)

MNSRAQLLGLDEDEGHVHPGEKEKNLKADPEELFTKLEKIGKGSFGEVFKGIDNRTQKV  
VAIKIIDLEEADEIEDIQQEITVLFQCDSGYISKIRHGTFFQDTKLWIIMEYLGGSALD  
LLEPGPLDETQIATILREILKGLDYLHSEKKIHRDIKAANVLLSEHGVEVKLADFGVAGQ  
LTDQIKRNTFVGTFFWMAPEVIKQSAYDSKADIWSLGITAIELAKGEPHSELHMPKVL  
FLIPKNNPPTLEGNYSKPLKEFVEACLNKEPSFRPTAKELLKHKFIRNAKKTSYLTELID  
RYKRWKAEQSHDDSSSESDTETDQGASGGSDSGDWIIFTIREKDPKNLENGALQPSDLER  
NKMKDIPKRPFSQCLSTIISPLFAELKEKSQACGGNLSIEELRGAIYLAEEACPGISDT  
MVAQLVQRLQRYSLSGGGSSSH

>Anolis carolinensis\_STK24(ENSACAP\_16226)

MAHSPVQQPGLPGMQNLKADPEELFTKLEKIGKGSFGEVFKGIDNRTQKVVAIKIIDLEE  
AEDEIEDIQQEITVLSQCDSPYVTKYYGSYLKDTKLWIIMEYLGGSALDLEPGSLDEI  
QIATILREILKGLDYLHSEKKIHRDIKAANVLLSEQGEVKLADFGVAGQLTDTQIKRNTF  
VGTFFWMAPEVIKQSAYDSKADIWSLGITAIELAKGEPHSELHMPKVLFLIPKNNPPTL  
EGNYSKPLKEFVEACLNKDPSFRPTAKELLKHKFIVRNAKKTSYLTDLIDRHKRWKAEQN  
HDNSSSESDSDGETDQGASGGSDSGDWIIFTIREKDPKNLENGATQLHEWERNKENTIQR  
RPLSRCLSTIISPLFTELKERSQACGGNVGSIEELREAIYLSSEACPGISDTMVTTELVER  
LQRYSVAGGSASSH

>Danio rerio\_STK24(ENSDARP\_135203)

MAHSPVQGSPLPGMQNLKADPEELFTKLERIGKGSFGEVFKGIDNRTQKVVAIKIIDLEE  
AEDEIEDIQQEITVLSQCDSPFVTKYYGSYLKDTKLWIIMEYLGGSALDLEPGSLDETQ  
IATILREILKGLDYLHSEKKIHRDIKAANVLLSEQGEVKLADFGVAGQLTDTQIKRNTFV  
GTPFFWMAPEVIKQSAYDSKADIWSLGITAIELAKGEPHSDLHMPKVLFLIPKNNPPTLE  
GNYSKPLKEFVEACLNKEPSFRPTAKELLKHKLIVRFAKKTSYLTELIDKYKRWKAEQSR  
AESSSDESSEPDGQASGGNDFGNDWIIFTIREKDPKQLONGASLVGEEEPNKRPLSQSL  
STVITPVLTELKEGAGEAAAATTVKPEVLEQLGEAIFLAEEAYPGISDVMVTQLIQRLQR  
FSRARTSSSSHQ

>Takifugu rubripes\_STK24(ENSTRUP\_20094)

MAHSPVQGNLPGMQNCKADPEELFTKLERIGKGSFGEVFKGIDNRTQKVVAIKIIDLEE  
AEDEIEDIQQEITVLSQCDSPFITKYGSYLKGTKLWIIMEYLGGSALDLMPEGALDETQ  
IATILREILKGLDYLHSEKKIHRDIKAANVLLSEQGEVKLADFGVAGQLTDTQIKRNTFV  
GTPFFWMAPEVIKQSAYDSKADIWSLGITAIELAKGEPHSELHMPKVLFLIPKNNPPTLE  
GNYSKPLKEFVEACLNKEPSFRPTAKELLKHKLIVRHAKKTSYLTELVDKYKRWKAEQSR  
TNDSSSESDSEPDGQASGGNDFGSDDWIIFTIREKDPKQLONGEGQSGAEQTKDIPKRPY

SQSLATVISPALAELKARQEQVNGNPLVLDELRTAILLAEAFPGISDSLVAHMHRLQRY

>Tetraodon nigroviridis\_STK24a(ENSTNIP\_16268)  
MAHSPVQGNLPGMQNAKADPEELFTKLERIGKGSFGEVFKGIDNRTQKVVAIKIIDLEEA  
EDEIEDIQQEITVLSQCDSPPFITKYYSYLGKTKLWIIMEYLGGSALDLMEPGALDETQ  
IATILREILKGLEYLHSEKKIHRDIKAAANVLLSEQGEVVKLADFGVAGQLTDTQIKRNTFV  
GTPFFWMAPEVIKQSAYDSKADIWSLGITAIELAKGEPHSELHMPKVLFLIPKNNPPTLE  
GNYSKPLKEFVEACLNKEPSFRPTAKELLKHKLIVRHAKKTSYLTELVDKYKRWKAEQSR  
TTESSSDESDESQDQASGGNDFGSDDWIFTIREKDPKKLQNGEGQSGTEQQTKDIPKRP  
FSQSLATVISPALAELKARQEQVNGNPLVLDELRTAILLAEAFPGISDSLVAHMHRLQRY

>Tetraodon nigroviridis\_STK24b(ENSTNIP\_16990)  
MAHSPIQSGPLGIQNFADPEELFTKLERIGKGSFGEVYKIDNRTQTVVAIKVIDLEEA  
EDDIEDIQQEITVLSQCDSPPFITKYYSYLGKTKLWIIMEYLGGSALDLMEPGALDETQ  
IATVLRILKGLLEYLHSENKIHRDIKAAANVLLSEQGDVVKLADFGVAGQLTDTQIKRNTFV  
GTPFFWMAPEVIKQSAYDSKADIWSLGITAIELAKGEPHSELHMPKVLFLIPKNNPPTLE  
GSYSKPLKEFVEACLNKEPNFRPTAKELLKHKYIVRHAKKTSYLTELIDRFKRWKSEKSR  
DESSSDESDESQDQASGGDPDGDKWIFNTIREKDPKKCQNGSAQPEEMETDQVQENPK  
RPLSQSLSTIFSPFTTELKAKAGRSNHKQPAAELQEAIFLAEETYPGICDSLVAELVQR  
LQRYALSOGSSGR

>Gasterosteus aculeatus\_STK24(ENSGACP\_18309)  
MAHSPVQGNLPGMQNTKADPEELFTKLERIGKGSFGEVFKGIDNRTQKVVAIKTIDLEEA  
EDEIEDIQQEITVLSQCDSPPFVTKYYSYLGKDTKLWIIMEYLGGSALDLMEPGCLDETQ  
IATILREILKGLLEYLHSEKKIHRDIKAAANVLLSEQGEVVKLADFGVAGQLTDTQIKRNTFV  
GTPFFWMAPEVIKQSAYDSKADIWSLGITAIELAKGEPHSELHMPKVLFLIPKNTPPTLE  
GSYSKPLKEFIEACLNKEPSFRPTAKELLKHKLIVRHAKKTSYLTELVDKYKRWKAEQSR  
TAESSSDESDESQDQASGGNDFGSDDWIFTIREKDPKKLQNGEGQSGAADQVRASKTKD  
IPKRPYSQSLATVISPALAELKARQEQVNGNPMVLDELREAILLAEEYSPGIADSLVAHM  
VQRLQSFSTSRASASS

>Oryzias latipes\_STK24(ENSORLP\_3560)  
MAHSPVQGNLPGMQNARVDPEELFTKLERIGKGSFGEVFKGIDNRTQKVVAIKIIDLEEA  
EDEIEDIQQEITVLSQCDSPPFVTKYYSYLGKDTKLWIIMEYLGGSALDLMEPGPLDETQ  
IATILREILKGLLEYLHSEKKIHRDIKAAANVLLSEQGEVVKLADFGVAGQLTDTQIKRNTFV  
GTPFFWMAPEVIKQSAYDSKADIWSLGITAIELAKGEPHSDLHMPKVLFLIPKNNPPTLE  
GSYCKPLKEFVEACLNKEPSFRPTAKELLKHKLIVRYAKKTSYLTELVDKYKRWKAEQSR  
TAESSSDESDESQDQASGGNDFGSDDWIFTIREKDPKKLQNGEGQSGVTDQTKDIPKRP  
FSQSLAAVISPALAELKARQEKVNGNPMVLDELKEAILLAEACPGISDSLVAHMHRLQ  
RNMLSMNGVHTR

>Homo sapiens\_STK25(ENSP\_385687)  
MAHLRGFANQHSRVDPEELFTKLDRIKGSFGEVYKIDNHTKEVVAIKIIDLEEADEDEI  
EDIQQEITVLSQCDSPIYTRYFGSYLKSTKLWIIMEYLGGSALDLLKPGPLEETYIATI  
LREILKGLDYLHSEKRIHRDIKAAANVLLSEQGDVVKLADFGVAGQLTDTQIKRNTFVGTFF  
WMAPEVIKQSAYDFKADIWSLGITAIELAKGEPNSDLHMPRVLFLIPKNSPPTLEGQHS  
KPFKEFVEACLNDPRFRPTAKELLKHKFITRYTKKTSFLTELIDRYKRWKSEGHGEESS  
SESDSIDGEAEDGEQPIWTFPPTIRPSPHSKLHKGTALHSSQKPAEPVKRQPRSQCLST  
LVRPVFGELEKEKHKQSGGSGVALEELENAFSLAEESCPGISDKLMVHLVERVQRFSHNRN  
HLTSTR

>Pan troglodytes\_STK25(ENSPTRP\_46906)  
MAHIRGFANQHSRVDPEELFTKLDRIKGSFGEVYKIDNHTKEVVAIKIIDLEEADEDEI  
EDIQQEITVLSQCDSPIYTRYFGSYLKSTKLWIIMEYLGGSALDLLKPGPLEETYIATI  
LREILKGLDYLHSEKRIHRDIKAAANVLLSEQGDVVKLADFGVAGQLTDTQIKRNTFVGTFF  
WMAPEVIKQSAYDFKADIWSLGITAIELAKGEPNSDLHMPRVLFLIPKNSPPTLEGQHS  
KPFKEFVEACLNDPRFRPTAKELLKHKFITRYTKKTSFLTELIDRYKRWKSEGHGEESS  
SESDSIDGEAEDGEQPIWTFPPTIRPSPHSKLHKGTALHSSQKPVPEVKRQPRSQCLST  
LVRPVFGELEKEKHKQSGGSGVALEELENAFSLAEESCPGISDKLMVHLVERVQRFSHNRN

HLTSTR

>Mus musculus\_STK25(ENSMUSP\_27498)

MAHLRGFAHQHSRVDPEELFTKLDRIKGSFGEVYKIDNHTKEVVAIKIIDLEEADEI  
EDIQQEITVLSQCDSPIYTRYFGSYLKSTKLWIIMEYLGGSALDLLKPGPLEETYIATI  
LREILKGLDYLHSEKIHHRDIKAAANVLLSEQGDVKLADFGVAGQLTDTQIKRNTFVGTFF  
WMAPEVIKQSAYDFKADIWSLGITAIELAKGEPNSDLHPMRVLFLLIPKNNPPTLEGHHS  
KPFKEFVEACLKNDPRFRPTAKELLKHKFITRYTKKTSFLTELIDRYKRWKSEGHGEES  
SESDSIDGEAEDGEQGPWTFPPTIRPSPHSKLHKGTALHSSQKPAEPIKRQPRSQCCLST  
LVRPVFGEKKEKHKQSGGSGVALEELENAFSLAEESCPGISDKLMVHLVERVQRFSHSRN  
HLTSTR

>Canis familiaris\_STK25(ENSCAFP\_8426)

MAHLRGFANQHPRVDPEELFTKLDRIKGSFGEVYKIDNRTKEVVAIKIIDLEEADEI  
EDIQQEITVLSQCDSPIYTRYFGSYLKSTKLWIIMEYLGGSALDLLKPGPLEETYIATI  
LREILKGLDYLHSEKIHHRDIKAAANVLLSEQGDVKLADFGVAGQLTDTQIKRNTFVGTFF  
WMAPEVIKQSAYDFKADIWSLGITAIELAKGEPNSDLHPMRVLFLLIPKNSPPTLEGHHS  
KPFKEFVEACLKNDPRFRPTAKELLKHKFITRYTRKTSFLTELIDRYKRWKSEGHGEES  
SESDSIDADAEDGEQGPWTFPPTIRPSPHSKLHKGTALHGPQKSAEPVKRQPRSQCCLST  
LVRPVFGEKKEKHKQSGGGVGALEELENAFSLAEESCPGISDKLMAHLVERVQRFSHNRN  
HLTSTR

>Myotis lucifugus\_STK25(ENSM LUP\_6530)

MAHLRGFANQHRSRVDPEELFTKLDRIKGSFGEVFKIDNRTKEVVAIKIIDLEEADEI  
EDIQQEITVLSQCDSPIYTRYFGSYLKSTKLWIIMEYLGGSALDLLKPGPLEETYIATI  
LREILKGLDYLHSEKIHHRDIKAAANVLLSEQGDVKLADFGVAGQLTDTQIKRNTFVGTFF  
WMAPEVIKQSAYDFKADIWSLGITAIELAKGEPNSDLHPMRVLFLLIPKNSPPTLEGHHS  
KPFKEFVEACLKNDPRFRPTAKELLKHKFITRYTRKTSFLTELIDRYKRWKSEGHGEES  
SESDSIDGDAEDGEQGPWTFPPTIRPSPHSKLHKGTALHGPQKTVESVKRQPRSQCCLST  
LVRPVFGEKKEKHKRQSGGGVGALEELENAFSLAEESCPGISDKLMAHLVERVQRFSHNRN  
HLPSAR

>Ornithorhynchus anatinus\_STK25(ENSOANP\_18636)

MAHLREFANQHRSRVDPEELFTKLERIGKGSFGEVYKIDNRTKEVVAIKIIDLEEADEI  
EDIQQEITVLSQCDSPIYTRYFGSYLKSTKLWIIMEYLGGSALDLLKPGPLEETYIATI  
LREILKGLDYLHSEKIHHRDIKAAANVLLSEQGDVKLADFGVAGQLTDTQIKRNTFVGTFF  
WMAPEVIKQSAYDFKADIWSLGITAIELAKGEPNSDLHPMRVLFLLIPKNNPPTLEGHHS  
KPFKEFVEACLKNDPRFRPTAKELLKHKFITRYTKKTSFLMELIDRYKRWKSEGHGEDSS  
SESDSIDGDAEDGEQGPWTFPPTIRPSPLNKLHKGMALNGSQKSAEPIKRQPRSQCCLST  
LVRPVFGEKDKHKQTGGNVGAMEELENAFSLAEESCPGISDKLIAHMVERVQRFSHSRN  
HLTSTR

>Gallus gallus\_STK25(ENSGALP\_9265)

XPADRAGMAHLRDFASQHSRVDPEELFTKLERIGKGSFGEVYKIDNRTKEVVAIKIIDL  
EEAEDEIEDIQQEITVLSQCDSPIYTRYGYSYLGKTKLWIIMEYLGGSALDLLKPGPLE  
ETYIATILREILKGLDYLHSEKIHHRDIKAAANVLLSEQGDVKLADFGVAGQLTDTQIKR  
TFVGTFFWMAPEVIKQSAYDFKADIWSLGITAIELAKGEPNSDLHPMRVLFLLIPKNNP  
TLEGHHSKPFKEFVEACLKNDPRFRPTAKELLKHKFITRYTKKTSFLMELIDRFKRWKSE  
GHGEDSSSGSDSIDGDTEGDGQGPWTFPPTIRPNSLSKLHKGMALHGSQKPSEPIKRQP  
RSQCCLSTLVHPVFGELKDKHKQTGGNVGAMEELENAFSLAEESCPGISDKLIAHMVERVQ  
RFSHSRNHLTSAR

>Anolis carolinensis\_STK25(ENSACAP\_1074)

MAHLREFANQHRSRVDPEELFTKLERIGKGSFGEVYKIDNRTKEVVAIKIIDLEEADEI  
EDIQQEITVLSQCDSPIYTRYGYSYLGKTKLWIIMEYLGGSALDLLKPGPLEETYIATI  
LREILKGLDYLHSEKIHHRDIKAAANVLLSEQGDVKLADFGVAGQLTDTQIKRNTFVGTFF  
WMAPEVIKQSAYDFKADIWSLGITAIELAKGEPNSDLHPMRVLFLLIPKNNPPTLEGHHS  
KPFKEFVEACLKNDPRFRPTAKELLKHKFITRYTKKTSFLMELIDRYKRWKSEGHGEDSS  
SDDSDIDGDADERDQGMWTFPPTIRPNSLNKLHKGLSHHGSQKPAEPIKRQPRSQSLST  
LVRPVFGEKDKHKQTGGNVGAMEELENAFGLAEESCPGISDKLIAHMVERVQRFSHSRN  
HLTSAR

>Xenopus tropicalis\_STK25 (ENSXETP\_62780)  
VDYPLVVILIVNSLHFQSSRMDPERLFTKLERIGKGSFGEVYKGIENRSKEVVAIKIIDL  
EEAEDEIEDIQQEITVLSQCDSPIYTRYGYSYLKGSKLWIIMEYLGGSALDLLKPGPLE  
EAYIATILREILKGLDYLSERKIHRDIKAANVLLSEQGDVKLADFGVAGQLTDTQIKRN  
TFVGTFFWMAPEVIKQSAYDFKADIWSLGITAIELAKGEPYSDLHMPRVLFLLIPKNNPP  
SLQGQYSKPFKDFVEACLNKDPRSRPTARELLKHRFILRYTKKTSFLVELVERHHRWKSQ  
GHREDSSSDESMDNEDERNQNIPIWSFPETICAKSMSRMQWGCQKSAEVIHRLPRSHC  
LSALVTPVFQELREQRSAGAFGSVQELENAFSLAEESSPGITDQLISHLVQRVQSFYIANY  
S

>Danio rerio\_STK25a (ENS DARP\_56962)  
MAHLRDMQNQNSRLDPEEYFTKQERIGKGSFGEVYKGINNRTKEVVAIKIIDLEEADEI  
EDIQQEITVLSQCDSPIYTRYGYSYLKGTKLWIIMEYLGGSALDLLKPGPLEETYIATI  
LREILKGLEYLHSEKIHHRDIKAANVLLSEQGDVKLADFGVAGQLTDTQIKRNTFVGTFF  
WMAPEVIKQSAYDFKADIWSLGITAIELAKGEPNSDLHMPRVLFLLIPKNTPTLEGSYS  
KPFKEFVEACLNKDPRFRPTAKELLKHKFITRYTKKTSYLTTELIDRYRRWKSEGHGDESS  
SDDSDMDGDGDDRDHCPVWTFPTVRPSSMNKLQKGYTNTDSEAAETVKRQPKSQCLSALV  
SPIFRELKEKRRACGGMGAIIELENAFNLAEESCPGISDLLVTHIMERVCRFALNGNTT  
PSSR

>Danio rerio\_STK25b (ENS DARP\_123777)  
MAHLQNI RNQNSRLNPEEYFTKLERIGKGSFGEVYKGINNRTKEVVAIKIIDLEEADEI  
EDIQQEITVLSQCDSPIYTRYGYSYLGTGSKLWIIMEYLGGSALDLLRPGTLEEVYIATI  
LREILKGLDYLSERKIHRDIKAANVLLSEHGVEKVLADFGVAGQLTDTQIKRNTFVGTFF  
WMAPEVIKQSAYDFKADIWSLGITAIELAKGEPNAELHMPRVLFLLIPKNNPTLEGSYS  
KAFKDFVEACLNKDPRFRPTAKELLKHKFITRYTKKTSYLSSELIDRYRRWKSEGHGEES  
SDDSDMDGEGDDRDQGMWTFPTVRPSTINKLNRGLSHLDNKTSDVMKRQPKSSSLTSFI  
TPIFKELKEKRRVGGNGVCAVEELENAFNLAEESCPGISDRLLNHVMERVCSFSGHADSM  
L

>Takifugu rubripes\_STK25 (ENSTRUP\_963)  
GMAHLRDMQNQNTRLDPEEYFTKQERIGKGSFGEVYKGINNRTKEVVAIKIIDLEEADEI  
IEDIQQEITVLSQCDSPIYTRYGYSYLKGTKLWIIMEYLGGSALDLLRPGPLEETYIAT  
ILREILKGLEYLHSEKIHHRDIKAANVLLSEQGDVKLADFGVAGQLTDTQIKRNTFVGTFF  
FWMAPEVIKQSAYDFKADIWSLGITAIELAKGEPNSDLHMPRVLFLLIPKNTPTLEGPY  
SKPFKEFIEACLNKDPRFRPTAKELLKHKFITRYTKKTAYLTTELIDRYRRWKSEGHGEES  
SDDSDMDADGDVDTCPMWTFTVRPTSMNKLQKGYTHTDSESGDSVVRQPKSQSLSALV  
TPIFRELKEKRRASGGGVGAIEELENAFNLAEESCPGISDRLVTHMMERVCRFSLNGNTT  
PSSR

>Tetraodon nigroviridis\_STK25 (ENSTNIP\_10668)  
MAHLRDMQNQNTRLDPEEYFTKQERIGKGFGEVYKGINNRTKEVVAIKIIDLEEADEIE  
DIQQEITVLSQCDSPIYTRYGYSYLKGTKLWIIMEYLGGSALDLLRPGPLEETYIATIL  
REILKGLEYLHSEKIHHRDIKAANVLLSEQGDVKLADFGVAGQLTDTQKRNTFVGTFFW  
APEVIKQSAYDFKAVSLWAEGITAIELAKGEPNSDLHMPRVLFLLIPKNTPTLEGPYSK  
FKEFVEACLNKDPRFRPTAKELLKHKFITRYTKKTAYLTTELIDRYRRWKSEGHGEES  
SDDSDMDADGDVDTCPMWTFTVRPTSMNKLQKGYTHTDSESGDSVVRQPKSQSLSALV  
TPIFRELKEKRRASGGGVGAIEELENAFNLAEESCPGISDRLVTHMMERVCRFSLNGNTT  
PSSR

>Gasterosteus aculeatus\_STK25 (ENSGACP\_20761)  
MAHLRDMQNQNTRLDPEEYFTKQERIGKGSFGEVYKGINNRTKEVVAIKIIDLEEADEI  
EDIQQEITVLSQCDSPIYTRYGYSYLKGTKLWIIMEYLGGSALDLLRPGPLEETYIATI  
LREILKGLEYLHSEKIHHRDIKAANVLLSEQGEVKLADFGVAGQLTDTQIKRNTFVGTFF  
WMAPEVIKQSAYDFKADIWSLGITAIELAKGEPNSDLHMPRVLFLLIPKNTPTLEGPYS  
KPFKEFVEACLNKDPRFRPTAKELLKHKFITRYTKKTAYLTTELIDRYRRWKSEGHGEES  
SDDSDMDADGDVDTCPMWTFTVRPSSNKLQKGYTHTDSESGDLVVRQPKSQCLSALV  
TPIFRELKEKRRASGGGVGAIEELENAFNLAEESCPGISDLLVTHMMERVCRFSLNGNTT  
SSR

>Oryzias latipes\_STK25 (ENSORLP\_6042)

PATGR<sup>T</sup>MAHLRDMQN<sup>N</sup>QNT<sup>H</sup>LDPEEY<sup>F</sup>TKQERIGKGSFGEVYKGINNRTKEVVAIKIIDLE  
EAEDEIEDIQQEITVLSQCDSPYVTKYYGSYLKGT<sup>L</sup>KLWIIMEYLG<sup>G</sup>GSALD<sup>L</sup>LLRPGPLEE  
TYIATILREILKGLDYLHSEK<sup>K</sup>IHRDIKAA<sup>N</sup>VLLSEQGDV<sup>K</sup>LADFGVAGQ<sup>L</sup>TDTQIKRNT  
FVGT<sup>P</sup>FWMAPEVIKQ<sup>S</sup>AYDFKADI<sup>W</sup>SLGITAI<sup>E</sup>LAKGEP<sup>P</sup>NSDLHP<sup>M</sup>RVLF<sup>L</sup>IPK<sup>N</sup>TPPT  
LEGPYSKPFKEFVEACLNKDPFR<sup>R</sup>PTAKEL<sup>L</sup>LKHK<sup>F</sup>ITRYTK<sup>K</sup>TAYLTELID<sup>R</sup>YRRW<sup>K</sup>SEG  
HGEES<sup>S</sup>SDSDMDADGDGEQ<sup>C</sup>PVWTFPT<sup>V</sup>RPSSMSQ<sup>L</sup>QMDYAHLES<sup>G</sup>SGDSMKR<sup>Q</sup>PKSQ<sup>C</sup>  
LSALV<sup>T</sup>PIFRELK<sup>R</sup>RASGGGAGAI<sup>E</sup>LENAF<sup>N</sup>LAEE<sup>S</sup>CPGIS<sup>D</sup>RLV<sup>T</sup>HMMER<sup>V</sup>CR<sup>F</sup>SL  
NGNTAPSSR

>Homo sapiens\_STK26(ENSP\_377867)  
MAHSPVAVQVPGMQ<sup>N</sup>NIADPEEL<sup>F</sup>TKLERIGKGSFGEV<sup>F</sup>KGIDNRTQ<sup>Q</sup>VVAIKIIDLEEA  
EDEIEDIQQEITVLSQCDSSYVTKYYGSYLK<sup>G</sup>SKLWIIMEYLG<sup>G</sup>GSALD<sup>L</sup>LLRAGPFDEFQ  
IATMLKEILKGLDYLHSEK<sup>K</sup>IHRDIKAA<sup>N</sup>VLLSEQGDV<sup>K</sup>LADFGVAGQ<sup>L</sup>TDTQIKRNTFV  
GTPFWMAPEVIQ<sup>S</sup>AYSADSKADI<sup>W</sup>SLGITAI<sup>E</sup>LAKGEP<sup>P</sup>NSDMHP<sup>M</sup>RVLF<sup>L</sup>IPK<sup>N</sup>NPPTLV  
GDFTKSFKEFIDACLNKDP<sup>S</sup>FRPTAKEL<sup>L</sup>LKHK<sup>F</sup>IVKNSK<sup>K</sup>TSYLTELID<sup>R</sup>FRK<sup>R</sup>WKAEGHS  
DDES<sup>D</sup>SEGS<sup>D</sup>SEST<sup>S</sup>REN<sup>N</sup>THPEWS<sup>F</sup>TTVR<sup>K</sup>KPDP<sup>K</sup>KVQNGAEQ<sup>D</sup>LVQ<sup>T</sup>LSCLSMIITPA  
FAELK<sup>Q</sup>QDENNASRNQAIEELEK<sup>S</sup>IAVAEAACPGITDKMV<sup>K</sup>KLIEK<sup>F</sup>QKCSADES<sup>P</sup>

>Pan troglodytes\_STK26(ENSPTRP\_38373)  
MAHSPVAVQVPGMQ<sup>N</sup>NIADPEEL<sup>F</sup>TKLERIGKGSFGEV<sup>F</sup>KGIDNRTQ<sup>Q</sup>VVAIKIIDLEEA  
EDEIEDIQQEITVLSQCDSSYVTKYYGSYLK<sup>D</sup>HGISRHLK<sup>F</sup>QMEMLLHSR<sup>K</sup>LGSKLWI  
IMEYLG<sup>G</sup>GSALD<sup>L</sup>LLRAGPFDEFQIATMLKEILKGLDYLHSEK<sup>K</sup>IHRDIKAA<sup>N</sup>VLLSEQGDV  
KLADFGVAGQ<sup>L</sup>TDTQIKRNTFVGT<sup>P</sup>FWMAPEVIQ<sup>S</sup>AYSADSKADI<sup>W</sup>SLGITAI<sup>E</sup>LAKGEP<sup>P</sup>  
NSDMHP<sup>M</sup>RVLF<sup>L</sup>IPK<sup>N</sup>NPPTLVGDFTKSFKEFIDACLNKDP<sup>S</sup>FRPTAKEL<sup>L</sup>LKHK<sup>F</sup>IVKNS  
K<sup>K</sup>TSYLTELID<sup>R</sup>FRK<sup>R</sup>WKAEGHS<sup>D</sup>DES<sup>D</sup>SEGS<sup>D</sup>SEST<sup>S</sup>REN<sup>N</sup>THPEWS<sup>F</sup>TTVR<sup>K</sup>KPDP<sup>K</sup>KV  
QNGAEQ<sup>D</sup>LVQ<sup>T</sup>LSCLSMIITPAFAELK<sup>Q</sup>QDENNASRNQAIEELEK<sup>S</sup>IAVAEAACPGITDK  
MV<sup>K</sup>KLIEK<sup>F</sup>QKCSADES<sup>P</sup>

>Mus musculus\_STK26(ENSMUSP\_33444)  
MAHSPVAVQVPGMQ<sup>N</sup>NIADPEEL<sup>F</sup>TKLERIGKGSFGEV<sup>F</sup>KGIDNRTQ<sup>Q</sup>VVAIKIIDLEEA  
EDEIEDIQQEITVLSQCDSSYVTKYYGSYLK<sup>G</sup>SKLWIIMEYLG<sup>G</sup>GSALD<sup>L</sup>LLRAGPFDEFQ  
IATMLKEILKGLDYLHSEK<sup>K</sup>IHRDIKAA<sup>N</sup>VLLSEQGDV<sup>K</sup>LADFGVAGQ<sup>L</sup>TDTQIKRNTFV  
GTPFWMAPEVIQ<sup>S</sup>AYSADSKADI<sup>W</sup>SLGITAI<sup>E</sup>LAKGEP<sup>P</sup>NSDMHP<sup>M</sup>RVLF<sup>L</sup>IPK<sup>N</sup>NPPTLI  
GDFTKSFKEFIDACLNKDP<sup>S</sup>FRPTAKEL<sup>L</sup>LKHK<sup>F</sup>IVKNSK<sup>K</sup>TSYLTELID<sup>R</sup>FRK<sup>R</sup>WKAEGHS  
DEES<sup>D</sup>SEGS<sup>D</sup>SESS<sup>R</sup>SNPHPEWS<sup>F</sup>TTVR<sup>K</sup>KPDP<sup>K</sup>KLQNGEEQ<sup>D</sup>LVQ<sup>T</sup>LSCLSMIITPA  
FAELK<sup>Q</sup>QDENNASRNQAIEELEK<sup>S</sup>IAVAETAACPGITDKMV<sup>K</sup>KLIEK<sup>F</sup>QKCSADES<sup>P</sup>

>Canis familiaris\_STK26(ENSCAFP\_27770)  
MAHSPVAVQVPGMQ<sup>N</sup>NIADPEEL<sup>F</sup>TKLERIGKGSFGEV<sup>F</sup>KGIDNRTQ<sup>Q</sup>VVAIKIIDLEEA  
EDEIEDIQQEITVLSQCDSSYVTKYYGSYLK<sup>G</sup>SKLWIIMEYLG<sup>G</sup>GSALD<sup>L</sup>LLRAGPFDEFQ  
IATMLKEILKGLDYLHSEK<sup>K</sup>IHRDIKAA<sup>N</sup>VLLSEQGDV<sup>K</sup>LADFGVAGQ<sup>L</sup>TDTQIKRNTFV  
GTPFWMAPEVIQ<sup>S</sup>AYSADSKADI<sup>W</sup>SLGITAI<sup>E</sup>LAKGEP<sup>P</sup>NSDMHP<sup>M</sup>RVLF<sup>L</sup>IPK<sup>N</sup>NPPTLV  
GDFTKSFKEFIDACLNKDP<sup>S</sup>FRPTAKEL<sup>L</sup>LKHK<sup>F</sup>IVKNSK<sup>K</sup>TSYLTELID<sup>R</sup>FRK<sup>R</sup>WKAEGHS  
DDES<sup>D</sup>SEGS<sup>D</sup>SEST<sup>S</sup>REN<sup>N</sup>THPEWS<sup>F</sup>TTVR<sup>K</sup>KPDP<sup>K</sup>KLQNGAEQ<sup>D</sup>LVQ<sup>T</sup>LSCLSMIITPA  
FAELK<sup>Q</sup>QDENNASRNQAIEELEK<sup>S</sup>IAVAEAACPGITDKMV<sup>K</sup>KLIEK<sup>F</sup>QKCSADES<sup>P</sup>

>Myotis lucifugus\_STK26(ENSM<sup>L</sup>UP\_1350)  
KAHVKSQGNLYALK<sup>N</sup>NIADPEEL<sup>F</sup>TKLERIGKGSFGEV<sup>F</sup>KGIDNRTQ<sup>Q</sup>VVAIKIIDLEEA  
EDEIEDIQQEITVLSQCDSSYVTKYYGSYLK<sup>G</sup>SKLWIIMEYLG<sup>G</sup>GSALD<sup>L</sup>LLRAGPFDEFQ  
IATMLKEILKGLDYLHSEK<sup>K</sup>IHRDIKAA<sup>N</sup>VLLSEQGDV<sup>K</sup>LADFGVAGQ<sup>L</sup>TDTQIKRNTFV  
GTPFWMAPEVIQ<sup>S</sup>AYSADSKADI<sup>W</sup>SLGITAI<sup>E</sup>LAKGEP<sup>P</sup>NSDMHP<sup>M</sup>RVLF<sup>L</sup>IPK<sup>S</sup>NPPTLV  
GEFTKSFKEFIDACLNKDP<sup>S</sup>FRPTAKEL<sup>L</sup>LKHK<sup>F</sup>IVKNSK<sup>K</sup>TSYLTELID<sup>R</sup>FRK<sup>R</sup>WKAEGHS  
DDES<sup>D</sup>SEGS<sup>D</sup>SEST<sup>S</sup>REN<sup>N</sup>THPEWS<sup>F</sup>TTVR<sup>K</sup>KPDP<sup>K</sup>KLQNGALEIHIYPKNKEKDLVQ<sup>T</sup>L  
SCLSMIITPAFAELK<sup>Q</sup>QDENNASRNQAIEELEK<sup>S</sup>IAVAEAACPGITDKMV<sup>K</sup>KLIEK<sup>F</sup>QK

>Monodelphis domestica\_STK26(ENSMODP\_19135)  
MAHSPVAVQVPGMQAGAASSSSWNTNQR<sup>T</sup>DPEEL<sup>F</sup>TKLERIGKGSFGEV<sup>F</sup>KGIDNRTQ<sup>Q</sup>V  
VAIKIIDLEEAEDEIEDIQQEITVLSQCDSSYVTKYYGSYLKGT<sup>L</sup>KLWIIMEYLG<sup>G</sup>GSALD  
LLRAGPFDEFQIATMLKEILKGLDYLHSEK<sup>K</sup>IHRDIKAA<sup>N</sup>VLLSEQGEV<sup>K</sup>LADFGVAGQ<sup>L</sup>  
TDTQIKRNTFVGT<sup>P</sup>FWMAPEVIQ<sup>S</sup>AYSADSKADI<sup>W</sup>SLGITAI<sup>E</sup>LAKGEP<sup>P</sup>NSDMHP<sup>M</sup>RVLF  
LIPK<sup>N</sup>NPPTLLGDFTKPFKEFTDACLNKDP<sup>S</sup>FRPTAKEL<sup>L</sup>LKHK<sup>F</sup>IIKNAK<sup>K</sup>TSYLTELID

RFKRWKAEGHSDDES DSDGSDSESSNKENNSHP EWSFTTVRKKPDAKKLQNGTEQEEELA  
KTLSCLSLTIITPVFAELKEQDTSNASRTKAI EEELEKSMTVAETACPGITDKMVKKLIEKF  
QKFSVNDSS

>Gallus gallus\_STK26(ENSGALP\_9728)  
MAHSPVAVQVPGMQNHRADPEELFTKLERIGKGSFGEVFKGIDNRTQQVVAIKIIDLEEA  
EDEIEDIQQEITVLSQCDSPYVTKYYSYLKGTKLWIIMEYLGGSALDLLRAGPFDEFQ  
IATMLKEILKGLDYLHSEKKIHRDIK AANVLLSEQGDVKLADFGVAGQLTDTQIKRNTFV  
GTPFWMAPEVIQQSAYDSKADIWSL GITAI ELAKGEPNSDMHPMRVLF LIPKNNPPTLL  
GEFSKPFKEFIDACLNDPTFRPTAKELLKHKFIMKNAKTSYLTELIDRFKRWKAEGHS  
SDES DSDGSDSESSNKENNSHP EWSFTTVRKKPDAKKLQNGTDQDLVKTLSCLTMIITPV  
FAELKQQD TNNASRKAIEE LEKSINMAEATCPGITDKMVKKLMEKFQKFSVNDSS

>Anolis carolinensis\_STK26(ENSACAP\_21957)  
MAHSPVAVQVPGMQNHRADPEELFTKLERIGKGSFGEVFKGIDNRTQQVVAIKIIDLEEA  
EDEIEDIQQEITVLSQCDSPYVTKYYSYLKGTKLWIIMEYLGGSALDLLRAGPFDEFQ  
IATMLKEILKGLDYLHSEKKIHRDIK AANVLLSEQGDVKLADFGVAGQLTDTQIKRNTFV  
GTPFWMAPEVIQQSAYDSKADIWSL GITAI ELAKGEPNSDMHPMRVLF LIPKNNPPTLI  
GDFSKPFKEFIDACLNDPTFRPTAKELLKHKF I LKNAKTSYLTELIDRFKRWKAEGHS  
SDETSDGSDSESSNKENNSHP EWSFTTVRKKPDAKKLQNGTDQDLMKTLSCLSMIITPV  
FAELKQQD TNNASRKAIEE LEKSISLAETTCPGITDKMVKKLMEKFQKFSVNESS

>Xenopus tropicalis\_STK26(ENSXETP\_11925)  
ISHSPLRYVYKVP LIQNHRADPEELFTKLERIGKGSFGEVFKGIDNRTQHVVVAIKIIDLE  
EA EDEIEDIQQEITVLSQCDSPYVTKYYSYLKVLNFWWITLIYYMGGRTKRAKDLLRVG  
PFDEFQIATMLKEILKGLDYLHSENKIHRDIK AANVLLSEQGDVKLADFGVAGQLTDTQI  
KRNTFVGT PFWMAPEVIQQSAYDSKADIWSL GITAI ELAKGEPNSDMHPMRVLF LIPKN  
NPPSLTGDFSKPFKEFVDA CLNKDPSFRPTARELLKHKYIVKNAKRTSYLTELIDRFKRW  
KAEGHSDSGSDSDTESNNKENHHP EWSFTTVRKKPESKTMQNGTDQDLVKTLSLSLAI  
ISPVFAELKQQDRNNTVRKNAIEE LEKSINVAEATYPGITDKMVKKLMEKFQNTLKCSTH  
SSS

>Danio rerio\_STK26(ENSDARP\_79474)  
MAQSPVAVQVPGMQNSRTDPEELFTKLDRIGKGSFGEVFKGIDRQTQNSVVAIKTIDLEEA  
EDEIEDIQQEITVLSQCDSPHVTKYYSYLKGSKLWIIMEYLGGSALDLLRAGPFDEYQ  
IATMLKEILKGLDYLHSEKKIHRDIK AANVLLSESGEVKLADFGVAGQLTDTQIKRETFV  
GTPFWMAPEVIQQSAYDSKADIWSL GITAI ELAKGEPNSDMHPMRVLFH I PKNTPPTLN  
GDFSKI FKEFVDSCLNKDPAFRPTAKELLKHKFIVKYAKKTSYLTELIDRLKRWKAEGHS  
DSSSDSDSESSNKENNSPEWSFTTVRKKKTEKKQPNGTDEELQKKSASLTTVMAPVF  
SELKSQHRDNERTKGV IEMLEESLHTAEDLCPGVTD RMITQILDRVQRF SMS

>Takifugu rubripes\_STK26(ENSTRUP\_15949)  
LRHAPQLVKFAHTQSTQIDPEELFTKLDRIGKGSFGEVFKGIDNRTQSVVAIKTIDLEEA  
EDEIEDIQQEITVLSQCDSPIYITKYYSYLKGTKLWIIMEYLGGSALDLLRAGPFDESQ  
IATMLKEILKGLDYLHSEKKIHRDIK AANVLLSEHGQVKLADFGVAGQLTDTQIKRETFV  
GTPFWMAPEVIQQSAYDSKADIWSL GITAI ELAKGEPNSDMHPMRVLFH I PKFPAPTLT  
GDFSKSFKEFTEACLNDPAFRPTAKELLKHKFIVKHCKKTSYLS ELIDRYRRWKEQGHS  
DSSSDSDSESSNKENNSPEWSFTTVRKKKTEGRKVLNGTSPDQMSKSASLTTVISPVF  
TELKQQHKEHSQQRLAIEE LERNIRLAEDVCPGITDRMVSHIIARYQK PGLKDNV

>Tetraodon nigroviridis\_STK26(ENSTNIP\_14178)  
CPYFKVTMEVPGMQSTQVDPEELFTKLDRIGKGSFGEVFKGIDNRTQSVVAIKTIDLEEA  
EDEIEDIQQEITVLSQCDSPIYITKYYSYLKGTKLWIIMEYLGGSALDLLRAGPFDEFQ  
IATMLKEILKGLDYLHSEKKIHRDIK AANVLLSEHGQVKLADFGVAGQLTDTQIKRETFV  
GTPFWMAPEVIQQSAYDSKADIWSL GITAI ELAKGEPNSDMHPMRVLFH I PKFPAPTLT  
GEFSRKFKEFTEACLNDPAFRPTAKELLKHKFIVKHCKKTSYLS ELIDRYRRWKEEGHS  
DSSSDSDSESSNKENNSPEWSFTTVRKKKTEGRKVLNGTSPDQMSKSASLTTVISPVF  
TELKQQHKEHSEQRLAIEE LERNIRLAEVCPGITDRMVSHIIARYQK

>Oryzias latipes\_STK26(ENSORLP\_4136)  
INLVFFFV FQSSQIDPEELFTKLDRIGKGSFGEVFKGIDNRSQSVVAIKTIDLEEA EDEI

EDIQQEITVLSQCDSPIYITKYFGSYLKGSKLWIIMEYLGGSALDLLRAGPFDESQIATM  
LKEILKGLDYLHSEKKIHRDIKAAANVLLSEHGQVKLADFGVAGQLTDTQIKRETFVGTFF  
WMAPEVIQQSAYDSKADIWSLGITAIELAKGEPNNDMHPMRVLFHIPKSPPTLSGDFS  
KSFKEFTEACLNKDPAFRPTAKELLKHKFITKHCKKTSYLSSELIDRYRRWKEEGHSGSS  
DDSDSVSSESSNKENDMHPPEWSFTTVRKKKTEGRMVLNGTLQTPEQLSKSASLSTVISP  
FTELKQQHKEHSTQRLAIEQLEHNIQLAEDICPGITDKMVTHI IARCQKYDHRHSVLKDA  
V

>Branchiostoma floridae\_ (XP\_002589064)  
SELKKLSEESLTRQPEEVFDVLEKLGEGSYGSVFKAMHKESGQVLAIKQVPVDTDLQEIIKEISIMQQCD  
RKLNNNGCGTLFYIHVLVIVMEYCGAGSVSDIMKLRNKTLEDEIAAITSMLVKGLEYLHFMRKIHRDIK  
AGNILLNTEGDAKLADFGVAGQLTDTMAKRNTVIGTFPFWMAPEVIQEIGYDCLADIWSLGITALEMAEGK  
PPYADIHPMRAIFMIPTKPPPTFRNPEKWSQEFIDFVSQCLVKNPQQRPSATQLLQHPFIRAAPKPAYILK  
EMISEAQVARQRMEQVEEESPEEEEDDDVDASTMLLGEDNDTGTIKATMVESSTAGTMIEHSDSTMLES  
DLGTMVINSDEDTDEDESTMRKTGKVKKEKYRPSFLDHFEEKQDERDRQSAANGNITAEIQPGPVL RPAS  
EGYGFVRPFQDGFDFLKNLSSDELRRRFETLDQEMEREIEELRRRYQAKRQPIINAMDAKKKRQHF

>Strongylocentrotus purpuratus\_ (XP\_011667292)  
MTSTSTGTCLMLKLESEDALKEPEEVFDLLEKLGEGSYGSVFKAIHKESGQVLAIKQVPVDTDLQEIIKE  
ISIMQQCDSTYVVKYGSYFKNTDLWIVMEYCGAGSVSDIMRRRNKTLNEAEIATILYSTLKGLEYLHFM  
RKIHRDIKAGNILLNNEGNALADFGVAGQLTDTMAKRNTVIGTFPFWMAPEVIQEIGYDCKADIWSLGIT  
ALEMAEGKPPYAEIHPMRAIFMIPTKPPPTFRDPEKWSQDFIDFTSKCLIKSPEDRATATDLLQHPFVRD  
AKPVSILNAIINEANCIREREKLEKEDDDDEGSDFEDDMYTIVEEEDTEGRLEDDVDVSGTMVRGRPPVM  
NEDDSGTIIISGSAGNTANTFIEHDDVTDIDSGTMIEHGTMIDHDSGTMIEHGTMIDHDSGTMVDHDSGT  
MIDHDSGTMVDHDSGTMIDHDSGTMVDHDSGTMINHGSNDLESNMGMTMINDDDSDGNDGTMKRTDTAK  
ADAYKPQYLEHYERQEEAKQAKISSPVTPIPNSNAPTVPSPNAPMHIAPGNHRLKQLSIDELRERLTSLD  
PQMEAEIEELRKRYQEKRRPIIEAMEVKKRRTQHF

>Drosophila melanogaster\_ (FBpp0082840)  
MSWTEKVDPELIFTKQERIGKGSFGEVFKGIDNRTQQVVAIKIIDLEEADEIEDIQQEIMVLSQCDSPIY  
VTKYYSYLGKTKLWIIMEYLGGSALDLMKAGSFEEMHIGIILREVLKGLDYLHSEKLRHRDIKAAANVLL  
LDYLSERKLRHRDIKAAANVLLSEQGDVVKLADFGVAGQLTNTTSKRNTFVGTFFWMAPEVI  
KQSQYDAKADIWSLGITAIELAKGEPNSELHPMRVLFILPKNNPQLTGSYTKSFKDFV  
EACLNKDPENRPTAKELLKYPFIKAKKNAYLIDLIDRFKWKVSKGDESETESENDS  
SDAKQGGSSQDEPWIMTVKGLHINSAPRAGVNSFQLQHEHLMQKLMQTTHSPAGGGVQ  
ASPAANALSSSVSVAASASSVITANEGVSSASALPPQNSHVHNNHNNNNINNNIRNL  
SNKHATTTMLNAAPPSSVTSSSSASELQQRSSSKPELRQSRSAAPLDQVEDRRASLGL  
PLOSSVPTPSTAEQQQRRSSQRESFHANNAALVASCSSSSNNHSHHEHVATNHASHVKH  
SGAQRLVQTNACLNFLFPVLSDIQRKYSGGGSAGSGSGGRNIGVGSIDIGDLKSVFE  
LAERSSPGVSDLFMKELIHMLVPGYSETRINTIMDRAIRNRK

>Apis mellifera\_ (XP\_016771231)  
MAFNEKVDPELIFTKQERIGKGSFGEVFKGIDNRTQQVVAIKIIDLEEADEIEDIQQEIMVLSQCDSPIY  
VTKYYSYLGKTKLWIIMEYLGGSALDLMKAGNFEEMHIAVILREVLKGLDYLHSEKLRHRDIKAAANVLL  
LSEMGDVKLADFGVAGQLTNTTSKRNTFVGTFFWMAPEVIKQASYDSKADIWSLGITAIELAKGEPNSEL  
LHPMRVLFILPKNNPQLTGNYSYTKQFKEFVEACLNKDPENRPTAKELLKQFIRKAKKNSYLIDLIDRYK  
KWSQRSESETESENDSSESKQSDMDDPWIMTVKGPVHVVKGPVVPMLPLDEQPPSLTLTHTPNHRS  
NHNQAKPHANGTSRSPNDSTLNHYRSESRDSVRDQAKHTPSRPHEAAPPVDTREKREYDRDFNRD  
SSLRELKEMRESRESRDRERDRER  
KHSRSAALSGVPLPLSELQRKHQYSARDNNGEGSGIGKNGGAIIEELRSFAFETAERTSPGMTEALIREL  
LKSLLPANHSEGCLFMLEKVIILRDT

>Anopheles gambiae\_ (XP\_319097)  
SLPQKVDPELIFTKQERIGKGSFGEVFKGVDNRTQQVVAIKIIDLEEADEIEDIQQEIMVLSQCDSPIY  
TKYFGSYLGKTKLWIIMEYLGGSALDLMKAGLFEEMHIAVILREVLKGLDYLHSEKLRHRDIKAAANVLL  
SELGDVVKLADFGVAGQLTNTTSKRNTFVGTFFWMAPEVIKQSMYDSKADIWSLGITAIELAKGEPNSEL  
HPMRVLFILPKNNPQLTGSYTKPDKDFVEACLNKDPENRPTAKELLKFPFIKAKKNSYLIDLIDRYK  
WKSQKGESETESENDSSESKQSDLDPEPWIMTVKGLNFNNFNKNPRSSSSPSHQSSTLIAANNATNT  
SPIIVDSRKRERELQNQISALQLQKEKEASLERQQRDHRLERESEWEKDREKERERERERERERERERER  
RERERDRERERERERERDRDRDRERERERERDRDRERDRDRERERERERERERERERERERERERERER  
ENEKRSSSLRRERDPSHNNTSSNGNSRTNSITNVNNSKSSSRSSSTTTPTTATSTNSGCLKAIIFF

LLSEVSI DGWLG NRGYEMQRNYNSGSDMGDLRLAFESAERSSPGVSDLFVKEI IHKLVPGFSETRINKLI  
DKVTR

## **Transcription Elongation factor A (SII) Protein-TCEA**

>Homo sapiens\_TCEA3(ENSP\_406293)

MGQEEELLRIAKKLEKMVARKNTEGALDLLKLLHSCQMSIQLLQTTRIGVAVNGVRKHCS  
DKEVVSLAKVLIKNWKRLLDSPGPPKGEKGEEREKAKKKEKGLECSDWKPEAGLSPPRKK  
REDPKTRRDSVDSKSSASSPKRPSVERSNSSSKSAESP KTPSSPLTPTFASSMCLLAPC  
YLTGDSVRDKCVEMLSAALKADDDYKDYGVNCDKMASEIEDHIYQELKSTDMKYRNRVRS  
RISNLKDP RNPGLRRNVLSGAI SAGLIAKMTAEEMASDELRELRNAMTQEAI REHQMAKT  
GGTTTDLFQCSKCKKKNCTYNQVQTRSADEPMTTFVLCNECGNRWKFC

>Pan troglodytes\_TCEA3(ENSPTRP\_44770)

MGQEEELLRIAKKLEKMVARKNTEGALDLLKLLHSCQMSIQLLQTTRIGVAVNGVRKHCS  
DKEVVSLAKVLIKNWKRLLDSPGPPKGEKGEEREKAKKKEKGLECSDWKPEAGLSPPRKK  
REDPKTRRDSVDSKSSASSPKRPSVERSNSSSKSAESP KTPSSPLTPTFASSMCLLAPC  
YLTGDSVRDKCVEMLSAALKADDDYKDYGVNCDKMASEIEDHIYQELKSTDMKYRNRVRS  
RISNLKDP RNPGLRRNVLSGAI SAGLIAKMTAEEMASDELRELRNAMTQEAI REHQMAKT  
GGTTTDLFQCSKCKKKNCTYNQVQTRSADEPMTTFVLCNECGNRWKFC

>Mus musculus\_TCEA3(ENSMUSP\_99592)

MGLEEEELLRIAKKLEKMVSRKKTEGALDLLKLLNSCQMSIQLLQTTRIGVAVNGVRKHCS  
DKEVVSLAKVLIKNWKRLLDSPRTTKGEREAREKAKKKEKGLGSDWKPEAGLSPPRKKG  
GEPKTRRDSVDSRSSTTSSPKRPSLERSNSSSKSVETPTTSSPSTPTFAPAVCLLAPCY  
LTGDSVRDKCVEMLSAALKAEDNFKDYGVNCDKLASEIEDHIYQELKSTDMKYRNRVRSR  
ISNLKDP RNPGLRRNVLSGAI SPELIAKMTAEEMASDELRELRNAMTQEAI REHQMAKTG  
GGTTDLLRCSKCKKKNCTYNQVQTRSADEPMTTFVLCNECGNRWKFC

>Rattus norvegicus\_TCEA3(ENSRNOP\_15776)

MGLEEEELLRIAKKLEKMVARKKTEGALDLLKLLNSCQMSIQLLQTTRIGVAVNGVRKHCS  
DKEVVSLAKVLIKNWKRLLDSPRTTKGEREAREKAKKKEKGLGSSGWKPEAGLSPPRKKE  
GGEPKTRRDSVDSRSSTTSSPKRPSLERSNSSRSKVETPKTSSPSTPTFAPAVCLLASC  
YLTGDSVRDKCVEMLSAALKAEDDFKDYGVNCDKLASEIEDHIYQELKSTDMKYRNRVRS  
RISNLKDP RNPGLRRNVLSGTISP ELIAKMTAEEMASDELRELRNAMTQEAI REHQMAKT  
GGTTDLLRCSKCKKKNCTYNQVQTRSADEPMTTFVLCNECGNRWKFC

>Canis familiaris\_TCEA3(ENSCAFP\_19574)

MGQEEELLRIARKLEKMVARKNSEGALGLLKLLNSCQMSIQLLQTTRIGVAVNGVRKHCS  
DKEVVSLAKVLIKNWKRLLDSPGPPKGEKGEERDKAKKKEKGLDCSNWKPETGLSPPRKKR  
AEEP KERRDSVDSKSSATSSPKRPSMERSNSGKSKAETPKTPTSPSTPTFAPSVCLLAPC  
YLTGDSVRDKCVEMLSAALKAEDDYKDYGVNCDKMASEIEDHILEELKSTDMKYRNRVRS  
RISNLKDP RNPGLRRNVLSGAI SAGLIAKMTAEEMASDELRELRNAMTQEAI REHQMAKT  
GGTTTDLFQCSKCKKKNCTYNQVQTRSADEPMTTFVLCNECGNRWKVC

>Felis catus\_TCEA3(ENSFCAP\_10810)

MGQEEELLRIARKLEKMVARKNTEGALDLLKLLDSCQMSIRLLQTTRIGVAVNGVRKHCS  
DKEVVSLAKVLIKNWKRLLDSPGPPKGEKREERDKAKKKEKGLNCSDWKPEAGLSPPRKKR  
EDPKDRRDSVDSKSSATSSPKRPSMERSNSSSKAETPKTPTSPSTPTFAPSICLLAPCY  
LTGDSVRDKCVEMLSAALKAEDDYKDYGVNCDKMASEIEDHILEELKSTDMKYRNRVRSR  
ISNLKDP RNPGLRRNVLSGAI SAGLIAKMTAEEMASDELRELRNAMTQEAI REHQMAKTG  
GGTTDLFQCSKCKKKNCTYNQVQTRSADEPMTTFVLCNECGNRWKVC

>Myotis lucifugus\_TCEA3(ENSMLUP\_3196)

MGREEELLRIAKKLEKMVARKHTEGALDLLKLLNSCQMSIQLLQTTRIGVAVNGVRKYCS  
DKEVVSLAKVLIKKWKRLLDSPESPKGKGEEREKAKKKEKELDCSNWKSEAGLSPPRTK  
QGEEP KDRRDSVDSKSSATSSPKRPSMERSNSGKSKAETSPKTPSSPSSPTFASSICLL  
APCYLTGDSVRDKCVEMLSAALKADDDYKDYGVNCDKMASEIEDHILEELKSTDMKYRNR  
VRSRISNLKDP RNPGLRRNVLSGAI STGLIAKMTAEEMASDELRELRNAMTQEAI REHQM  
AKTGGTTTGLFQCKCKKKNCTYNQVQTRSADEPMTTFVLCNECGNRWKVC



>Monodelphis domestica\_TCEA3(ENSMODP\_20168)  
MGQEEELLRIAKKLDKMVSRKNTREGALDLLKLSYKMSIQLLQTTTRIGIANGVRKHCL  
DKEVVALAKILIKNWKRLLDTSETPKKEKAMEREKKEKKEQNVDLSDWKPLEAFSPQSRS  
PREEPKDRRDSSESGSSSSVSSPSPQKRPVERSNSSKGVETPKTPTSPSSPTFSPSAC  
CLAPCYLTGDSVRDKCVELMSAALKMDDDYKEYGVNCDKMASEIEDHIFQELKGTDMKYR  
NRVRSRISNLKDPNPNLRRNVLCGAISTSLIARMTAEEMASDELKELRNAMTLEAIREH  
QMAKTGGTTTTDLFQCISVKRRIVPITRCRQEVLMSP

>Taeniopygia guttata\_TCEA3(ENSTGUP\_953)  
MGPAEELVRIAKKLDKMVARSTEGALDLLKSLTYTMTIQLLQTTTRIGVAVNSVRKHCS  
DEEVVASAKILIKNWKRLLGDPNAFWGDREKDTDGDKEKKGLDVSSCPTTSGTAPGQFLK  
EGEPLTGRASADRSSTLSSSSSSQKRLANSSNVKTEVPRSPSPSPSPCFLAPCYLT  
GDSVRDKCIEMLTAALRMDDDYKEFGVNCEKMAEIEDHILGLGSTDMDKYRNRVRSRISN  
LKDPKPNPALRRNVLCGAIEPSLIARMTAEEMASDELKLRNAMTQEAIREHQMAKTGGTV  
TDLFQCGKCKKKNCTYNQVQTRSADEPMTTFVLCNECGNRWKVC

>Takifugu rubripes\_TCEA3a(ENSTRUP\_34730)  
MTREEELVRIAKQLDKMVSRRNTDGAMDLLRELKSFNMTLRLLQETRIGVSVNSIRKHCT  
DEEVIALAKVLIKDWKRLLLETGHQTKNRLRFREKAVHQKRRESSDSKPGPPLKRNSTESK  
PERRESQGSRSSQPGPPQRKPSTDGNERKAKPDTPKSPTTPTSPMSPGGALPHLNTGDS  
VRDKCIEMLAAALRTDIYTDYKEFGTNCDSMAAEIEDHHIYQEI KATDMKYKNRVRSRI  
SNLKDKNPGLRKNVLAGTLALSRIASMSAEEMASDELKQLRNTLTQEAIREHQMAKTGG  
TSTDLLQCGKCKKKNCTYNQVQTRSADEPMTTFVLCNECGNRWKFC

>Takifugu rubripes\_TCEA3b(ENSTRUP\_34735)  
MTREEELVRIAKQLDKMVSRRNTDGAMDLLRELKSFNMTLRLLQETRIGVSVNSIRKHCT  
DEEVIALAKVLIKDWKRLLASPSSSKFFSRRESQGSRSSQPGPPQRKPSTDGNERKAKPD  
TPKSPTTPTSPMSPGGALPHLNTGDSVRDKCIEMLAAALRTDIYTDYKEFGTNCDSMA  
AEIEDHIYQEI KATDMKYKNRVRSRISNLKDKNPGLRKNVLAGTLALSRIASMSAEEMA  
SDELKQLRNTLTQEAIREHQMAKTGGTSTDLLQCGKCKKKNCTYNQVQTRSADEPMTTFV  
LCNECGNRWKFC

>Tetraodon nigroviridis\_TCEA3(ENSTNIP\_12540)  
MTREEELVRIAKKLDKMVSRRNTDGAMDLLRELKSFNMTLKLQETRIGVSVNSIRKHCA  
DEEVIALAKVLIKDWKRLLGSGRRPYAEKPAGLKNGLDPARAAAASPGSSPDDTQNRDE  
KDSSSHPPHAPPSPSPPAKRPSLEARKERRDSSSGRGSAKPSDDAQKRDRRESVDSKA  
GPPPKNRSTGSKPERRESSDSKSSSSPAKKLTAERRPKADTPKTPTTPTSPSPGGLLP  
PHLSTGESVRDKCIEMLAAALRTDNDYKEFGTNCDSMAAEIEDHILLEI KATDMKYKNRV  
RSRISNLKDKNPGLRKNVLAGTIALSRIASMSAEEMASDELKQLRNTLTQEAIREHQMA  
KTGGTTTTDLQCGKCKKKNCTYNQVQTRSADEPMTTFVLCNECGNRWKFC

>Gasterosteus aculeatus\_TCEA3a(ENSGACP\_9658)  
MTREEDLTRIAKKLDKMVSRRNTREGALDLLRELKSFNMTLKLQETRIGMSVNGIRKNST  
DEEVIALAKLLIKDWKRLLDLEKAAERNNGLDSSKTAVSPKGPSETHSRKDSCDSKPGQ  
PVRHKSTDSKPGRESTDSKSSSSPPAKKLTVERESQGLKTSQPGPPQRKPSTDIMERKG  
KADTPKTPTSPSPMSPSGSSSGGPVPHLATGDSVRDKCIYMLAAALRTDDHYKDFGTN  
CDSMAAEIEDYIYQETKATDMKYKNRVRSRISNLKDKNPGLRRNVLAGSIDLSRIASMS  
AQEMASDELKQLRNVLTQEAIREHQMAKTGGTSTDLLQCGKCKKRNCTYNQVQTRSADEP  
MTTFVLCNECGNRWKFC

>Gasterosteus aculeatus\_TCEA3b(ENSGACP\_9668)  
MTREEDLTRIAKKLDKMVSRRNTREGALDLLRELKSFNMTLKLQETRIGMSVNGIRKNST  
DEEVIALAKLLIKDWKRLLVSHRRLHVKLKHDSSPEKKQPKSGKEKHNEERRARRADDP  
SDDEKHLEEPGRTESSDSKPPPQKMPDPVKIKQMPFVVRKSDSSDKPPLKPSLGVKK  
EKHRCNETKATDMKYKNRVRSRISNLKDKNPGLRRNVLAGSIDLSRIASMSAQEMASDE  
LKQLRNVLTQEAIREHQMAKTGGTSTDLLQCGKCKKRNCTYNQVQTRSADEPMTTFVLCN  
ECGNRWKFS

>Homo sapiens\_TCEA1(ENSP\_428426)  
MEDEVVRFACKMDKMVQKNAAGALDLLKELKNI PMTLELLQSTRIGMSVNAIRKQSTDE  
EVTSLAKSLIKSWKLLDGPSTEKDLDEKKKEPAITSQNSPEAREESTSSGNVSNRKDET

NARDTYVSSFPAPSTSDSVRLKCREMLAAALRTGDDYIAIGADEEELGSQIEEAIYQEI  
RNTDMKYKNRVRSRISNLKDAKNPNLRKNVLCGNI PPDFARMTAEEMASDELKEMRKNL  
TKEAIREHQMAKTGGTQTDLFTCGKCKKKNCTYTQVQTRSADEPMTTFVVCNECGNRWKF  
C

>Macaca mulatta\_TCEA1(ENSMUP\_50273)  
MEDEVVRFakkMDKMVQKkNAAGALDLLkELkNIPMTLELLQSTRIGMSVNAIRKQSTDE  
EVTSLAKSLIKSWKkLLDGPSTDKDSEkkkKEPAISSQNSPEAREESTSSGNVSNRkDET  
NARDTYVSSFPAPSTSDSVRLKCREMLAAALRTGDDYIAIGADEEELGSQIEEAIYQEI  
RNTDMKYKNRVRSRISNLKDAKNPNLRKNVLCGNI PPDFARMTAEEMASDELKEMRKNL  
TKEAIREHQMAKTGGTQTDLFTCGKCKKKNCTYTQVQTRSADEPMTTFVVCNECGNRWKF  
C

>Mus musculus\_TCEA1(ENSMUSP\_80266)  
MEDEVVRIAKKMDKMVQKkNAAGALDLLkELkNIPMTLELLQSTRIGMSVNALRKQSTDE  
EVTSLAKSLIKSWKkLLDGPSTDKDPEkkkKEPAISSQNSPEAREESSSSSNVSRkDET  
NARDTYVSSFPAPSTSDSVRLKCREMLAAALRTGDDYVAIGADEEELGSQIEEAIYQEI  
RNTDMKYKNRVRSRISNLKDAKNPNLRKNVLCGNI PPDFARMTAEEMASDELKEMRKNL  
TKEAIREHQMAKTGGTQTDLFTCGKCKKKNCTYTQVQTRSADEPMTTFVVCNECGNRWKF  
C

>Rattus norvegicus\_TCEA1(ENSRNOP\_10893)  
MEDEVVRIAKKMDKMVQKkNAAGALDLLkELkNIPMTLELLQSTRIGMSVNAIRKQSTDE  
EVTSLAKSLIKSWKkLLDGPSTDKDSEkkkKEPAISSQNSPEAREESSSSSHVSRkDET  
NARDTYVSSFPAPSTSDSVRLKCREMLAAALRTGDDYVAIGADEEELGSQIEEAIYQEI  
RNTDMKYKNRVRSRISNLKDAKNPNLRKNVLCGNI PPDFARMTAEEMASDELKEMRKNL  
TKEAIREHQMAKTGGTQTDLFTCGKCKKKNCTYTQVQTRSADEPMTTFVVCNECGNRWKF  
C

>Felis catus\_TCEA1(ENSFCAP\_13388)  
GALDLLkELkNIPMTLELLQSTRIGMSVNAIRKQSTDEEVTSLAKSLIKSWKkLLDGPST  
DKDPEkkkKDTAVTSQNSPEAREERQKKQDSSIRLTKLSLDAKGSKNKSPLKPRRNSSG  
NISSRKEEANARDTYVSSFPAPSTSDSVRLKCREMLAAALRTGDDYVAIGADEEELGSQ  
IEEDILSVYIHDLVPIYQEI RNTDMKYKNRVRSRISNLKDAKNPNLRKNVLCGNI PPDF  
ARMTAEEMASDELKEMRKNLTKEAIREHQMAKTGGTQTDLFTCGKCKKKNCTYTQVQTR  
ADEPMTTFVVCNECGNRWKSVC

>Bos taurus\_TCEA1(ENSBTAP\_4499)  
AGALDLLkELkNIPMTLELLQSTRIGMSVNAIRKQSTDEEVTSLAKSLIKSWKkLLDGPST  
TDKDSEkkkKDTAVTSQNSPEAREESSSSGNMSSRkDET NARDTYVSSFPAPSTSDSVR  
LKCREMLAAALRTGDDYIAIGADEEELGSQIEEAIYQEI RNTDMKYKNRVRSRISNLKDA  
KNPNLRKNVLCGNI PPDFARMTAEEMASDELKEMRKNLTKEAIREHQMAKTGGTQTDLF  
TCGKCKKKNCTYTQVQTRSADEPMTTFVVCNECGNRWKF

>Monodelphis domestica\_TCEA1(ENSMODP\_17400)  
MEDEIIRIAKKMDKMVQKkNAAGALDLLkELkNIPMTLELLQSTRIGMSVNAIRKQSTDE  
EVTSLAKSLIKSWKkLLDGPSTDKDSEkkkKEPAISSQNSPEAKEESSSSSNASNRKEET  
NASDSFIPSPAPSTSDSVRMKCREMLAAALRTGDDYIAIGADEEELGSQIEEAIYQEL  
RNTDMKYKNRVRSRIANLKDAKNPNLRKNVLCGNI PPDFARLTAEEMASDELKEMRKNL  
TKEAIREHQMAKTGGTQTDLFTCGKCKKKNCTYTQVQTRSADEPMTTFVVCNECGNRWKF  
C

>Gallus gallus\_TCEA1(ENSGALP\_44127)  
MTTEDEIIRIAKKMDKMVQKkNAAGALDLLkELkNIPMTLELLQSTRIGMSVNAIRKQST  
DEEVTSLAKSLIKSWKkLLDGPSTDKDSEkkkKEPASSQNSPEAREESSSSSNSSSRKE  
EGSAPSNSFIPSPAPSTSDSVRVKCREMLSAALRTGDDYIAIGADEEELGSQIEEAIY  
QELKNTDMKYKNRVRSRIANLKDAKNPNLRKNVLCGNI PPDFAKMTAEEMASDELKEMR  
KNLTKEAIREHQMAKTGGTQTDLFTCGKCKKKNCTYTQVQTRSADEPMTTFVVCNECGNR  
WKFC

>Anolis carolinensis\_TCEA1(ENSACAP\_17696)

MSAEDEIIRIAKKMDKMQKNAAGALDLLKELKNPMTLELLQSTRIGMSVNAIRKQST  
DEEVTSLAKSLIKSWKKLLDGPNSNDKDEKKEAASSQNSPEAREESSSSSSNSNRKE  
ESNTGSDAFISSFPRAPITSDSVRMKCREMLAAALKTGDDYIAIGADEEELGSQIEEAPI  
FQELKNTDMKYKNRVRSRISANLKDTPNLRKNVLCGNIAPDRFAKMTAEEMASDELKEM  
RKNLTKEAIREHQMAKTGGTQTDLFSCGKCKKKNCTYTQVQTRSADEPMTTFVVCNECGN  
RWKFC

>Xenopus tropicalis\_TCEA1(ENSXETP\_58861)  
MSSAAGDEIIRIAKKMERMVQKKNNTAGALDLLKELKNLPMTLELLQSTRIGMSVNAIRKQ  
SGEEEVTSKSLIKSWKKLLDGPNSADMEERKQDQAPAPQNSPEAREESSSSSTNISARKE  
ECPAPSDGFITSPRAPSTSDSVRIKRELLATALKTGDDHIAIGADVDELGAQIEEAVF  
QEFKNTAEKYKNRIRSRISANLKDAPNLRNVLVLCGNIAPDLFARMSAEEMASDELKEMR  
KNLTKEAIREHQMARTGGTETDLFTCGKCKKKNCTYTQVQTRSADEPMTTFVFCNECGNR  
WKFC

>Danio rerio\_TCEA1a(ENSDARP\_92636)  
MGKKEEEEIIRIAKKMDKMAQKKNVGVGALDLLKELKNIPMTLELLQSTRIGMSVNAIRKQ  
STDDEVTSKSLIKSWKKLLDEPAADKNSEKKEKERTTPVVSPTSSEPREESSSSNS  
SSKSESVDVTPNTLIATFPAPGTSDSVRIKREMLSNALQTGDDYITIGSDCDELGAQIE  
EECIFLEFKNTDMKYKNRVRSRISNLKDAKNPDLRNVLCGNVSPDRIAKMTAEEMASDE  
LKEMRKNLTKEAIRDHQVATSGGTQTDLFCTCGKCKKKNCTYTQVQTRSADEPMTTFVFCN  
ECGNRWKFC

>Danio rerio\_TCEA1b(ENSDARP\_134502)  
MGKKEEEEIIRIAKKMDKMAQKKNVGVGALDLLKELKNIPMTLELLQSTRIGMSVNAIRKQ  
STDDEVTSKSLIKSWKKLLDEPAADKNSEKKEKERTTPVVSPTSSEPREESSSSNS  
SSKSESVDVTPNTLIATFPAPGTSDSVRIKREMLSNALQTGDYITIGSDCDELGAQIE  
EYILFIFMPNFKNTDMKYKNRVRSRISNLKDAKNPDLRNVLCGNVSPDRIAKMTAEEMA  
SDELKEMRKNLTKEAIRDHQVATSGGTQTDLFCTCGKCKKKNCTYTQVQTRSADEPMTTFV  
FCNECGNRWKFC

>Takifugu rubripes\_TCEA1a(ENSTRUP\_29649)  
MGKKEEEDIIRIAKKIDKMAQKKNVGVGALDLLKELRSIPMTLELLQSTRIGMSVNAIRKQ  
STDEEVTSKSLIKSWKKLLDEPGGGEKTSEEKRKEQSTPVISSSQESPEAREESSCSS  
SNNNSRSEPSDDTPSSFVNTFPRAASTSDPIRVKREMLANALQTGDDYIAIGADCDELGA  
AQIEDYILSMFKNTDMKYKNRVRSRISNLKDVKNPDLRNVLCGSITPERMAKMTAEEMA  
SDELKEIRKNLTKEAVRDHQMATTTGGTQTDLFCTCGKCKGKNCTYTQVQTRSADEPMTTFV  
FCSGCGNRWKVC

>Takifugu rubripes\_TCEA1b(ENSTRUP\_29648)  
VKMGKKEEEDIIRIAKKIDKMAQKKNVGVGALDLLKELRSIPMTLELLQSTRIGMSVNAIR  
KQSTDEEVTSKSLIKSWKKLLVIKKERSECPRSDFSASPSFRSCSSSNNNSRSEPSDD  
TPSSFVNTFPRAASTSDPIRVKREMLANALQTGDDYIAIGADCDELGAQIEDYILSMFK  
NTDMKYKNRVRSRISNLKDVKNPDLRNVLCGSITPERMAKMTAEEMASDELKEIRKNLT  
KEAVRDHQMATTTGGTQTDLFCTCGKCKGKNCTYTQVQTRSADEPMTTFVFCSGCGNRWKVC

>Tetraodon nigroviridis\_TCEA1(ENSTNIP\_21813)  
MGKKEEEEIIRIAKKIDKMAQKKNVGVGALDLLKELRSVPMTLELLQSTRIGMSVNAIRKQ  
STDEEVTSKSLIKSWKKLLDEPGSGEKTSEEKRKEQSTPIISSSQESPAREESSCSS  
NTNSRSEPLDDTPGSFVNAFPRAASTSDPIRVKREMLANALQTGDDYIAIGADCDELGA  
QIEDFIFQEFKNTDMKYKNRVRSRISNLKDVKNPDLRNVLCGSITPERMAKMTAEEMAS  
DELKEIRKNLTKEAVRDHQMATTTGGTQTDLFCTCGKCKGKNCTYTQVQTRSADEPMTTFV  
CNGCGNRWKIC

>Gasterosteus aculeatus\_TCEA1(ENSGACP\_22642)  
MGKKEEEDIIRIAKKMDKMAQKKNVGVGALDLLKELRSIPMTLELLQSTRIGMSVNAIRKQ  
STDDEVTSKSLIKSWKKLLDEPGSGEKPSDEKRKEPTTPVSPSQGSPEAKEESSSSNS  
SSSKSEPAEVSTNSLINTFPAPRTSDSIRIKRELLAAALQAGDDHIAIGADCDELGAQ  
IEEVIFQEFKNTDPKYKSRVRSRISNLKDMKNPDLRNVLCGSVTPERMAKMTAEEMASD  
ELKEMRKNLTKEAVRDHQMATTTGGTQTDLFCTCGKCKGKNCTYTQVQTRSADEPMTTFVFC  
NDCGNRWKFC

>Oryzias latipes\_TCEA1(ENSORLP\_22301)  
MSKKEEEEIIRIAKMDKMAQKKNAGALDLLKELRNIPMSLELLQSTRIGMSVNAIRKQ  
STDEEVTSLAKSLIKSWKKLLGSPCDIKKKAQKHQEOKPVCSLSIHSLKNRTSSSSNF  
SSRSDTTEVAPNSLIHNFPRAPSTSDSIRLKCREFMLANALQTGEDYIAIGADCEELGAQI  
EYIYLHEFKNTDMKYKNRVRSRISNLKDMKNPNLRRTVLCGSVSPERMAKMTAEEMASDE  
LKEMRKNLTKEAVRDHQMATTTGGTQTDLFTCGKCKGKCTYTVQVQTRSADEPMTTFVFCN  
QCGNRWKVC

>Homo sapiens\_TCEA2(ENSP\_343515)  
MMGKEEEIARIARRLDKMMVTKKSAEGAMDLLRELKAMPITLHLLQSTRVGMSVNALRKQS  
SDEEVIALAKSLIKSWKKLLDASDAKARERGRGMPPLPTSSRDASEAPDPSRKRPELPRAP  
STPRITTFPPVPVTCDAVRNKCREMLTAALQTDHHDHVAIGADCERLSAQIEECIFRDVGN  
TDMKYKNRVRSRISNLKDAKNPDLRRNVLCGAI TPQQIAVMTSEEMASDELKEIRKAMTK  
EAIREHQMARTGGTQTDLFTCGKCRKKNCTYTVQVQTRSSDEPMTTFVVCNECGNRWKFC

>Gorilla gorilla\_TCEA2(ENSGGOP\_3790)  
MMGKEEEIARIARRLDKMMVTKKSAEGAMDLLRELKAMPITLHLLQSTRVGMSVNALRKQS  
SDEEVIALAKSLIKSWKKLLDASDAKARERGRGMPPLPTSSRDASEAPDPSRKRPELPRAP  
STPRITTFPPVPVTCDAVRNKCREMLTAALQTDHHDHVAIGADCERLSAQIEECIFRDVGN  
TDMKYKNRVRSRISNLKDAKNPDLRRNVLCGAI TPQQIAVMTSEEMASDELKEIRKAMTK  
EAIREHQMARTGGTQTDLFTCGKCRKKNCTYTVQVQTRSSDEPMTTFVVCNECGNRWKFC

>Mus musculus\_TCEA2(ENSMUSP\_99331)  
MGKEEEIARIARRLDKMMVTRKNAEGAMDLLRELKNMPITLHLLQSTRVGMSVNALRKQSS  
DEELIALAKSLIKSWKKLLDVSDGKSRNQGRGTPLPTSSSKDASRTTDLSCCKPDPPTP  
STPRITTFPPQVPITCDAVRNKCREMLTLALQTDHHDHVAIGVGNCEHLSSQIEECIFLDVGN  
TDMKYKNRVRSRISNLKDAKNPGLRRNVLCGAI TPQQIAVMTSEEMASDELKEIRKAMTK  
EAIREHQMARTGGTQTDLFTCNKCRKKNCTYTVQVQTRSSDEPMTTYVVCNECGNRWKFC

>Canis familiaris\_TCEA2(ENSCAFP\_22394)  
EGAMDLLRELKAMPVTLHLLQSTRVGMSVNALRKQSSDEEVIALAKSLIKSWKKLLDASD  
AKAREQRRAGPPPTSSSKEAPEAKDPSRKRPELPRVPSAPRITTFPPVPVTCDAVRNKCR  
EMLTAALQTDHDMVAIGADCEGLSAQIEECIFRDVGN TDMKYKNRVRSRISNLKDAKNP  
LRRNVLCGVI TPQQIAVMTSEEMASDELKEIRKAMTKEAIREHQMARTGGTQTDLFTCGR  
CRRKNCTYTVQVQTRSSDEPMTTFVVCNECGNRWK

>Monodelphis domestica\_TCEA2(ENSMODP\_21286)  
GGAGAGTTRPKMQRGAAEPEARPERAAHGTMMGKEEEIVRIAKRLDKMMVTKKSTDGAM  
LLKELKSMPTLDDLQSTRIGMSVNALRKQSTDEEVI SLAKSLIKSWKKLLDASEDKNDE  
KKRNSSLATSSSKDASDTKDQSSNKKQDPPRTISTPKITTFPPI PITCDAVRNKCREMLT  
AALQTDNDHVAIGADCEHL SAQIEEYILKEGLPENTDMKYKNRVRSRISNLKDSKNPDLR  
KNVLCGAI TPEQIAVMTSEEMASNELKEIRKAMTKEAIREHQMAKTGGTQTDLFTCGKCK  
KKNCTYTVQVQTRSSDEPMTTFVVCNECGNRWKVG

>Gallus gallus\_TCEA2(ENSGALP\_49511)  
MGKEEEIVRIAKRLDKMVAKKSADGAMDLLKELKSMPTLDDLQSTRIGMSVNALRKQSS  
DEEVIALAKSLIKSWKKLLDASEEKSEKKKNSLPTSSSKETGNSRDQSSNKRQEPPKT  
PTTPKITTFPPAPVTCDAVRNKCREMLTTALQADDDYIAIGADCEHIAAQIEECIYQDIK  
NTDMKYKNRVRSRISNLKDSKNPELKNVLCGAI TPEQIAVMTSEEMASNELKEIRKAMT  
KEAIREHQMAKTGGTQTDLFTCGKCKKKNCTYTVQVQTRSSDEPMTTFVVCNECGNRWKVA  
HQGYWH

>Anolis carolinensis\_TCEA2(ENSACAP\_6264)  
AMGGEQEVRIAKRLDKMVAKKSADGAMDLLKELKSMPTLHLLQSTRIGMSVNALRKQS  
TDEDVIALAKSLIKAWKKLLDASEDKGNEKKNLSLPTSSSRESGDSKDQSSIKRQDLPKT  
PTTPKITTFPPVPI TCDTVRSKCREMLTSALQTDNDYVAIGVDCEEMAAQIEAFELIYQD  
VKNTDLKYKNRVRSRISNLKDSKNPDLRKNVLCGVI TPEQIAVMTSEEMASNELKEIRKA  
MTKEAIREHQMAKTGGTQTDLFTCGKCRKKNCTYTVQVQTRSSDEPMTTFVVCNECGNRWK  
FC

>Danio rerio\_TCEA2(ENSDARP\_2994)  
MVKDQEVERIAKKLDKMHKKNTDGAIDLLELQELKNMKMSLETLOSTRIGMSVNAVRKQSS  
DEEVQTLAKSLIKAWKKLLDGESEKPEEKKGESPLQSSSSKDCPGSSDTSNKPETPKTPT  
TPVTPKFTMFPPAPVTTDSVRTKCRELLVAALQTDGDHQTIGADCEHMAAQIEDYIYQEF  
KSTDMKYKTRLSRISNLKDQKNPDLRRNVLCGNISPERIASMTAEEMASPELKEIRKAL  
TKESIREHQLSKVGGETETDMFVCGKCKGKNCTYTQVQTRSADEPMTTFVLCNECGNRWKF  
C

>Oryzias latipes\_TCEA2(ENSORLP\_20995)  
TAMAKNQEVERIAKKLDKMQKENTEGALDLLKELQNIKMSLETLOSTRVGMVNAVRKQ  
SSDEEVQTLAKSLIKSWKRLLDGSEKSEKKEKKEKESPLRSSSTSSDSGSSGKRHCSAK  
SGDTPPTPNTPTPTLPLITSFPPAPVTSDSVRNKCARELLVAALQTDDEYKTIQVDCDH  
LAAQIEHHIFQEFKSTDMKYKARLSRISNLKDQKNPDLRRNVLCGNISAQRIACMTAE  
MASAELKQIREALTKESIREHQLSKVGGETETDMFICSKCHGKNCTYTQVQTRSADEPMT  
FVLCNGCGNRWKF

>Homo sapiens\_TCEANC(ENSP\_440038)  
MISAHKRLCLPGSSNSPASAFRVAGTTAVKMSDKNQIAARASLIEQLMSKRNFEDLGNHL  
TELETIYVTKHEHLQETDVRVAVYRVLKNCPSVALKKKAKCLLSKWKAVYKQTHSKARN  
KLFPPVRGNKEENSGPSPHDSQNETLGCSSNSLSSQDVAKLSEMIIVPENRAIQPKPEEH  
FGDGDPESTGRSSELDPPTPMRTKCIELLYAALTSSTDDQPKADLWQNFAREIEEHV  
TLYSKNIKKYKTCIRSKVANLNKPNKCHLQQNLLSGTTSPPREFAEMTVMEMANKELKQLR  
ASYTESCIQEHYLPQVIDGTQTNKIKCRRCEKYNCKVTVIDRGTFLFSPWVRNSNPDEQM  
MTYVICNECGEQWYHSHKWCW

>Gorilla gorilla\_TCEANC(ENSGGOP\_4804)  
MISAHKRLCLPGSSNSPASAFRVAGTTAVKMSDKNQIAARASLIEQLMSKRNFEDLGNHL  
TELETIYVTKHEHLQETDVRVAVYRVLKNCPSVALKKKAKCLLSKWKAVYKQTHSKARN  
KLFPPVRGNKEENSGPSPHDSQNETLGCSSNSLSSQDVAKLSEMIIVPENRAIQPKPEEH  
FGDGDPESTGRSSELDPPTPMRTKCIELLYAALTSSTDDQPKADLWQNFAREIEEHV  
TLYSKNIKKYKTCIRSKVANLNKPNKCHLQQNLLSGTTSPPREFAEMTVMEMANKELKQLR  
ASYTESCIQEHYLPQVIDGTQTNKIKCRRCEKYNCKVTVIDRGTFLFSPWVRNSNPDEQM  
MTYVICNECGEQWYHSHKWCW

>Mus musculus\_TCEANC(ENSMUSP\_136691)  
MSDKNQIIARASLIEQLVSKRYFEDIGKQLTELEMIYVSKEHLQETDVRVAVYRVLKNC  
SVTLKKKAKCLLAKWRGFYKSTHCKPRQSPKVLHTNANKEESAASVSDVSDQETS  
EIMGLCSSLSRLLPQDAAKPAAAI GSESSTAQMEINEGYLKGGDDSECTRKSSGVFQGT  
SVRSKCVLELLYALASCTDHTEVHIWQNLAREIEEHIFTLHSNNIKKYKTCIRSKVAN  
KNPRNFHLQQNFLSGTMSAREFAEMSVLDMASQELKQLRASYTESSIQEHCLPQSV  
DGTW TKNKIKCRRCDKYNCKVTVIARGTLFPLSPWVQNSNPDEQMTYVICNECGEQWYHNNWVCL

>Canis familiaris\_TCEANC(ENSCAFP\_35135)  
AVKMSDKNQIAASASLIEQLLSKRNFEDLGNHLTDLETLCVTKEDLQETIVVAVYRVLK  
HCPVALKKKAKHLLSEWKALYKDLHFKPRDKSFPTGRNEENSRLSHDPSQDELSSGSS  
SNSSSHSVAEAFEMIVPENSTSQTEPKEEHFRSGDPKSTAQRSELDPMPVRAKCTEL  
LYEALTSPTFEQPKADLWRNFAREIEEHIFTLHSKNLKKYKTCVRSKVANLRNPKNSHLQ  
QNLLSGTMSPPREFAKMTVMEMANKELKQLRASYTESCIQEHHLPPQAI EGTHTR  
KIKCRRCEKFNCKVTVIARGTLFPLSPWVRNSNPDEEMTYVICNECGEQWYHSHKWCW

>Gallus gallus\_TCEANC(ENSGALP\_26714)  
MSDQKNIIYRIHCIEKLLSENNFQDIEDHLKELEDVSMTEYVYLGTEVAVVYRILKSCP  
SAELKKKAKQLLSRWKALYKNNRLQSVQVKKSVSVCVSEATEHLEI PGEQLLSEGPCQ  
VLDVAVPSKILVPPRTVKKVASNNADGSRDQLSPFEEGHTDNEGSKPLVNEAGSQD  
HMRA LRCKCTDLLYKALTGSAKDEETDKWLELSKEIEEHVFALHCKNDKKYKNCIR  
SKISNLK NPKSCNLKHNLFSGTSPKAFEMTVMEMASDELKQLRALYTESCIQEHQ  
LPQVINGTQT NNIKCRRCEKSDCTVTMIARGTLFPLPGWVRSTNPDEQMLTFVICNECGEQWYHSHKWCW

>Anolis carolinensis\_TCEANC(ENSACAP\_1595)  
MSNTKVLTSRADCIEKLLSERKYQDIVIHLTYLETADITIDDLQETDVAKAVFRVSNCP  
SVVLKKKAKHLLSKWKAIYKHKCSPSVQLHLGLSENANEDSGHIQVVSQVNSIGKLNQ

DKLCSASPSLASESPSSNPSSCVQKDNTTQPDLGNGSSISETGQQHGPIMAVRGKCTQLL  
FEALTDSSSTNEEIAKHQTAEEIEQHIFALHAGNDRKYKNSIRSKVSNLKNPKNYHLKH  
SLHIGVLSPTFAGMSAVEMAHDDELKQLRASYTKSAVQEHQLPQRISGTLTNKIKYGEPT  
VLFLLDSS

>*Xenopus tropicalis*\_TCEANC(ENSXETP\_56763)  
MLHKDINKELVSRALVENLLAERKYEDLAFHLTYFEKAEVTSGILQGTDIVRVVYRVLK  
TCPRGALKLAKVLLSKWKKLYRKCCCHETSCICEHCSKICENKEGPEKLAVDIQDQVHNS  
EQKILINKSTSSPSYKFNLNKSDSSAQDCYGNHEESVTDHEVPKKNVNAEDLALRTKCTE  
LLYQALREDSECQEKLQNLAKAIEENIYKIHAGNTKKYRNCIRSKISNLKNPKNSHLKMQ  
ILSRALSPKVFAEMGVMEMACDELRLNLRANYTETCVQEHQLPQGVGDVHTNKIRCRCDK  
FNCTVTMISRGTFLPLGWVVRTGNPDEEMMTFVICNECGEQWYHNRWVCL

>*Tetraodon nigroviridis*\_TCEANC(ENSTNIP\_214)  
AAMDVVHVSLEIERASRERNYRNILALLGDLDKAAITAEQLEM TDVVVKVLYRLLKTCPEV  
GVRRAAKALLSRWKKEHSQDGDQENNPCLPCRSADVGAEKVHEDASTSGDKCGLRAASG  
ASGGFSSVRSKCVQLLSLRLPEPPEQAQAAELAAAIERHIHERHRSNPLKYKACVRSKV  
ANLRNPQNQHREGLLSASLSPLTFAGMSAEEMAGALRLREEYSSRGLSERQLPQAAE  
GTPTRKIRCKRCGGRECRVSVQVARGALFLPAWVRRGIPGEDAMTFVTCSGCGEQWYHS

>*Branchiostoma floridae*\_(XP\_002593577)  
MENALDILKSLKELPMTLDILQKTRIGMSVNNLRKSSNSEEVNSLAKSLIKSWKKLLNQN  
GAPKRS DSTS  
SEPSEKSPPEGTKLQRQDSSSTAGSSSFSSSQDSFPAVTKTHDSVREKCREMLANALKT  
DEFKNTMCKYKT  
RVRSRIANLKDAKNPGLREKVLHGDVSAEKMAKMTAEEMASPEMKELRQSLTKEAIRDAQ  
MATTTGGTQTD  
LLKCGKCKKRNVTYNQVQTRSADPMTTFCYCNECGNRWKENALDILKSLKELPMTLDIL  
QKTRIGMSVN  
NLRKSSNSEEVNSLAKSLIKSWKKLLNQN  
GAPKRS DSTS  
SEPSEKSPPEGTKLQRQDSSSTAGSSSFSSSQ  
DSFPAVTKTHDSVREKCREMLANALKT  
DEFKNTMCKYKT  
RVRSRIANLKDAKNPGLREKVLHGDVSAEK  
MAKMTAEEMASPEMKELRQSLTKEAIRDAQ  
MATTTGGTQTDLLKCGKCKKRNVTYNQVQ  
TRSADPMTTFCY  
CNECGNRWKATKTLRCRIRIITPPCM  
IYHNAVIISSRV  
VATAPEGSIRPK  
SSLSSDATA  
SADRLSGAE  
IRRDAGGIACLAQVPRAQTAGVATATGG

>*Saccoglossus kowalevskii*\_(XP\_006818876)  
MPGTEEEVIRIGKQLEKVMVSKNASDLGNAFDLLKSLKELPMTLEVLQKTRIGMSVNSLRKQSSNEEVI  
SL  
AKSLIKSWKKLLPAPSSSKSSNKDNQDSSRDSPTDLSQDGNINSNNDNSSSSQSKSSSKFQVPK  
TNDVAV  
REKCREMLTNALKTPLGDI  
ESVGT  
EELGEP  
EIAAT  
IEDC  
IFTEFT  
NTEAKYKTRVRSR  
VANLKDVRNPI  
LRQVLCGSI  
PPEKIANMTAEEMASDR  
LREL  
TKEAIR  
EAQMSTTGGT  
KTSLLKCGKCKKRNCTYNQ  
VQTRSADPMTTFCV  
CNECGNRWKFC

>*Hydra magnipapillata*\_(XP\_002166168)  
MMITSIKWIFFLYTLIILIGPCDSKKSVSVALRRNARNVKGQNNTENLKGPRGQGYIALEIGTPPQR  
INVLDVTGSSNFAVAATPHYPYLPVYFHPDRSSTFTDLNRAVAVPYTQGNWEGKLGSDLIRFIDAPNATVR  
VNIAAIHSSENFFINGSNWEGILGLGYARLSKPDSSVTPFLDQFVIVSDVVEDTFMSQLCSTSELDP  
SSEP  
TVAGTMVFGEMDDDLKGDMLYTPIVKKWYEVVITDMSVNGISLGVHCKKYNVDKTI  
VDSGTTNLRVPE  
EIFNLILTQLKDYDLGVPDEFWIGRQMMCWNYDKTPWEEFPHMSISLLSSLS  
SKEFVLKIP  
PQLYLRE  
TIERGPLPGQH  
CYKFAIT  
KAEKGT  
VIGAVVME  
GFYV  
VFDRENIR  
VGF  
AATTCGAE  
GRLNPRSE  
VSGPFIR  
ADPTDCEYIESELADTALLTVAYVMAGVCGLCLELPLVFLVLLGQASCKKSVEKAGVPRDY

## **UBX Domain-Containing Protein-UBXN**

>*Homo sapiens*\_UBXN2A(ENSP\_312107)  
MKDVDNLKSIKEEWVCE  
TGSDNQPLGNNQ  
QS  
NCEYFVDSL  
FEEAQKVSSKCV  
SPA  
EQKKQ  
VDVNIKLWKN  
GFTVND  
DFRSYSDGASQ  
QFLNSIKK  
GELPSELQGI  
FDKEEVDV  
KVEDKKN  
EICLSTKPV  
FQPFSGQ  
GHR  
LGSATPKIV  
SKAKNIE  
VENKNNLS  
AVPLNNLE  
PITNIQI  
WL  
ANGKRIVQ  
KFNI  
THR  
VSHIKDFIE  
KYQGSQ  
RSPPFSL  
ATALP  
VLRLLDE  
TLTLEE  
ADLQ  
NA  
V  
IIQRLQKT  
ASF  
RE  
LSEH

>*Pan troglodytes*\_UBXN2A(ENSPTRP\_20106)  
MKDVDNLKSIKEEWVCE  
TGSDNQPLGNNQ  
QS  
NCEYFVDSL  
FEEAQKVSSKCV  
SPA  
EQKKQ  
VDVNIKLWKN  
GFTVND  
DFRSYSDGASQ  
QFLNSIKK  
GELPSELQGI  
FDKEEVDV  
KVEDKKN  
EICLSTKPV  
FQPFSGQ  
GHR  
LGSATPKIV  
SKAKNIE  
VENKNNLS  
AVPLNNLE  
PITNIQI  
WL  
ANGKRIVQ  
KFNI  
SHR  
VSHIKDFIE  
KYQGSQ  
RSPPFSL  
ATALP  
VLRLLDE  
TLTLEE  
ADLQ  
NA

AVIIQRLQKTASFRELSEH

>Mus musculus\_UBXN2A(ENSMUSP\_118834)

MKEVDNLDSEKEEWACETGPPDSQPLNDNQKDCYFVDSLFEAEAGKAGAKCLSPTEQKK  
QVDVNIKLWKNFTVNDDFRSYSDGASQQFLNSIKKGELPSELWGI FDKKEVDVKVEDKK  
NEVCMSTKPVFQPFSGQGHRLGSATPRIVSKAKSIEVDNKSTLSAVSLNNLEPI TRIQIW  
LANGERTVQRFNVSHRVSHIKDFIEKYQGSQRSPPFALATALPFLRFLDETTLTLEEADLK  
NAVIIQRLQKTAEPRKFL

>Rattus norvegicus\_UBXN2A(ENSRNOP\_6668)

MKEVDNLDSEKEEWACETGPPDNQPLNDNPQKDCYFVDSLFEAEAGKAGAKCLSPTEQKK  
QVDVNIKLWKNFTVNDDFRSYSDGASQQFLNSIKKGELPSELQGVFDKDEVDVKVEDKK  
NEVCMSTKPVFQPFSGQGHRLGSATPRIVSKAKSIEVDNKSTLSAVSLNNLEPI TRIQIW  
LANGERTVQRFNISHRVSHIKDFIEKYQGTQRSPPFALATALPFLRFLDETTLTLEEADLQ  
NAVIIQRLQKTAEPRKFL

>Bos taurus\_UBXN2A(ENSBTAP\_2634)

MKEVDNLDSEKEEWACETGSDHQPLSDSQKNCEYFVDSLFEAEAGKAGAKCLSPTEQKKQ  
VDVSIKLWKNFTVNDDFRSYSDGASQQFLNSIKKGELPLELQGVFDKKEVDVKVEDKKN  
EVCMSSTKPVFQPFSGQGHRLGSATPKIVSKAKNIEVENKNKLSAVPLNNLEPI TNIQIWL  
ANGKRIVQKFNISHRISHIKDFIEKYQGSQRSPPFSLATALPFLKLLDETTLTLEEADLQ  
AVIIQRLKKTAEPRKELS

>Monodelphis domestica\_UBXN2A(ENSMODP\_2593)

MAFGPVDCVPNDRTRKENAGDCFLWSCSFSFHFAAGAGRMKEVEKLESRLREDWLCEGAE  
GQSHRGSQAGSCELFDFSLLEEAQRGGSEHLP SAAAVTQADVSIKLWQNGFTVNGEFRSY  
GDGASQQFLNAIRKSELGRFRFSQEEVAVRVEDKKEQVFPVPRKPAFAPFSGRGRHLG  
SATPRIVSKASGEAGPPKPLAAPVPLNPWEVPTS IQIWLADGRRLVQRFNVSHRVSHVR  
DFIRSCEGSPRSAPFSLVTALPGLRPLDDALTLEEAGLRNAVVIQRRPAPRAPAV

>Xenopus tropicalis\_UBXN2A(ENSXETP\_39482)

MREADKLDNMKSQDRGFRSGRGSERKRCDSFVNSLFEEAENAGALIASPEDEDSNADVI  
IKMWKNFTINDGYLRDYSGAENRQFMDSVRKGELEPELQKTFDKKEI AVNVEDRKNEEY  
LLRKPNI DAFSGLGHRGSAAPK VITKDMETCNEQSLPSVDLNELEPLTNIKVWLADGKR  
IVQKFN TSHRISDVRFLE RIPC KPGNAPFTLATS FPLHDLDES LTIQEAE LQNSVLVQ  
KLQRTTEPFRNS

>Danio rerio\_UBXN2A(ENSDARP\_124898)

MMKNIDSRERHEDDTWCEGAQNEEEEEEEDEEASPIRSSFSVEDLLDEVEKISSVASSGK  
KVEIVVRLWKNFTLNDEDLRSYTQEENQEFLEAIKKGELPLELEGRAEDEELEVNVEDM  
KDEVYVPKKKIFHPFTGRGYRLGSAVPRVVARSRSHEDCSGPPVPAVELNEDLPVTSLQ  
IWLADGRRLVQRFNLCHRISDVQRFVEQAQITDTPFILTTSLPFRELTDEAQSLEEADLA  
NAVIVQRPVNT HAPFGHS

>Takifugu rubripes\_UBXN2A(ENSTRUP\_13296)

FSVEDLLDEVEKICYEASGAKQVEMVRLWKDGFTVNDDEEFRSYVSPENQDFLDAIKRG  
ELPGEWESRAEKEELEISVEDL TEENYLPKKKVFHPFSGRGRYRLGSAVPRVVARSPSVHE  
DGESPPIPMVTLDHALPVTSLQIWLADGRRLVQRFNLSHRIIDVQDFVARSQRSCPPFIL  
TTSLPFRELS DKDLSLEEADLANAVIVQRPLNTEAPF

>Tetraodon nigroviridis\_UBXN2A(ENSTNIP\_6186)

MSRSFSVEDLLDEVEKICYDASGAKVEMVRLWKDGFTVNDDEEFLKIYRSRGKRESWRS  
IGRGYRLGSAVPRVVARSPSVHEDGESPPIPMVTLDHALPVTSLQIWLADGRRLVQRFNL  
SHRIVDVQDFVARSQRSCPPFILTTSLP CRELS DKDLSLEEADLANAVIVQRPLNTEAPF  
GHS

>Gasterosteus aculeatus\_UBXN2A(ENSGACP\_16377)

MKEFDSVGGERRDNC EEESEEEQAPIRRSFSVEDLLHEVEKICYDASGTSKVEMVRLW  
KDGFTVNDQEFRSYVSPENQDFLDSIKRGELPK EWESRAEEEELEISVEDL TEENYVPRR  
KAFHPFSGQGYRLGSAVPRVVARSPSVHEDGESPPIPMVTLDHALPVTSLQIWLADGRRL  
VQRFNLSHRIADVQDFVARCQRSCPPFVLTTSVPFRELNDKELSLGEADLANAVIVQRPL

DTPAPFGHS

>Homo sapiens\_UBXN2B(ENSP\_382507)

MAEGGGPEPGEQERRSSGPRPPSARDLQLALAEELYEDEVKCKSSKSNRPKATVFKSPRTT  
PQRFYSSSEHEYSGLNIVRPSTGKIVNELFKEAREHGAVPLNEATRSGDDKSKSFTGGGY  
RLGSSFCRSEYIYGENQLQDVQIILLKLWSNGFSLDDGELRPYNEPTNAQFLESVVRGEI  
PLELQRLVHGGQVNLDMEDHQDQEYIKPRLRFKAFSGEGQKLGSLTPEIVSTPSSPEEED  
KSILNAVVLIDDSVPTTKIQIRLADGSRLIQRFNSTHRILDVRNFIVQSRPEFAALDFIL  
VTSFPNKELTDESLLLEADILNTVLLQQLK

>Gorilla gorilla\_UBXN2B(ENSGGOP\_15686)

MAEGGRPEPGEQERRSSGPRPPSARDLQLALAEELYEDEVKCKSSKSNRPKATVFKSPRTT  
PQRFYSSSEHEYSGLNIVRPSTGKIVNELFKEAREHGAVPLNEATRSGDDKSKSFTGGGY  
RLGSSFCRSEYIYGENQLQDVQIILLKLWSNGFSLDDGELRPYNEPTNAQFLESVVRGEI  
PLELQRLVHGGQVNLDMEDHQDQEYIKPRLRFKAFSGEGQKLGSLTPEIVSTPSSPEEED  
KSILNAVVLIDDSVPTTKIQIRLADGSRLIQRFNSTHRILDVRNFIVQSRPEFAALDFIL  
VTSFPNKELTDESLLLEADILNTVLLQQLK

>Mus musculus\_UBXN2B(ENSMUSP\_29907)

MAEGGRAEPEEQERGSSRPPPSARDLQLALAEELYEDEMCKCKSSKPDRSTPATCRSPRTT  
PHRLYSGDHKYDGLHIVQPPTGKIVNELFKEAREHGAVPLNEATRSSREDKTKSFTGGGY  
RLGNSFYKRSEYIYGENQLQDVQVLLKLWRNGFSLDDGELRPYSDPTNAQFLESVVRGET  
PLELQRLVHGAQVNLDMEDHQDQEYIKPRLRFKAFSGEGQKLGSLTPEIVSTPSSPEEED  
KSILNAAVLIDDSMPTTKIQIRLADGSRLVQRFNSTHRILDVRDFIVRSRPEFATTDFFIL  
VTSFSPKELTDETVTLQEQADILNTVILQQLK

>Rattus norvegicus\_UBXN2B(ENSRNOP\_12551)

MAEGGGAEPPEEQERRSSRPPPSARDLQLALAEELYEDEMCKCKSSKPDRSTATAFKSPRTT  
PLRLYSGDQYEGGLHIAQPPTGKIVNELFKEAREHGAVPLNEATRSSSDDKAKSFTGGGY  
RLGSSFYKRSEYIYGENQLQDVQIILLRWSNGFSLDDGELRPYSDPTNAQFLESVVRGEI  
PLELQRLVHGSQVSLDMEDHQDQEYIKPRLRFKAFSGEGQKLGSLTPEIVSTPSSPEEED  
KSILNAAVLIDDSVPTTKIQIRLADGSRLIQRFNSTHRILDVRDFIVQSRPEFATTDFFIL  
VTSFSPKELTDESVTLQEQADILNTVILQQLK

>Canis familiaris\_UBXN2B(ENSCAFP\_10519)

MAEGGGADPGEQERRSSGPRPPSARDLQLALAEELYEDEVKCKSSKSDRPKATVFKSPRTTP  
QRFYSSSEHEYSGLHIVRPSTGKIVNELFKEAREHGAVPLNEATRSGDNKSKSFTGGGYR  
LGNSFCRSEYIYGENQLQDVQIILLKLWSNGFSLDDGELRPYNDPNAQFLESVVRGEIP  
LELQRLVHGGHVNLDMEDHQDQEYIKPRLRFKAFSGEGQKLGSLTPEIVSTPSSPEEEDK  
SIFNAVVLIDDSVPTTKIQIRLADGSRLIQRFNSTHRILDVRNFIIQSRPEFATLDFILV  
TSFPNKELTDESLLTQEQADILNTVILQQLK

>Bos taurus\_UBXN2B(ENSBTAP\_12043)

MAEGGGGEAGEEPRAGPRPPSARDLQLALAEELYEDEVKCKASKSDRPKATAFKSPQTA  
PQRFYSSSEHECSGLHIVQPSTGKIVNELFREARQHGAVPLNEATRSGDDKSKSFTGGGY  
RLGNSFCRQSEYIYGENQLQDVQIILLKLWSNGFSLDDGELRPYSDPTNAQFLESVVRGEI  
PLELQRLVHGGHNLDMEDHQDQEYVVKPRLRFKAFSGEGQKLGSLTPEIVSTPSSPEEEEE  
KSLFNAVVLIDDSMPTTKIQIRLADGSRLIQRFNSTHRILDVRDFIVQSRPEFATLDFILV  
VTSFPNKVLTDESLLTQEQADILNTVILQQLK

>Myotis lucifugus\_UBXN2B(ENSMLUP\_22383)

MAEGGEAGPGEQDRPSGPRPPSARDLQLALAEELYKDEVKCKSSKTDPRKASVFKSPRTTP  
QRFYSSSEHEYSGLHLVSPGKIVNELFKEAKEHGAVPLHEATRSGDDKTKSFTGGGYR  
LGNSICKQSEYIYGENQMVDVQIILLKLWSNGFSLDDGELRPYNDPVNAQFLESVVRGEIP  
PELQRLVHGGQVNLDMEDHQDQEYIKPRLRFKAFSGDGQKLGSLTPEIVSTPSSPEEEEEK  
SILNAAVLIDDSVPTTKIQIRLADGSRLIQRFNSTHRILDVRDFIVQSRPEFANLDFILI  
TSFSPKELTDESLLTQEQAGIINTVILQQLK

>Gallus gallus\_UBXN2B(ENSGALP\_24843)

MADGGASPAQQEGEMSAAGPGLRRERQHRGSGRPPSARDLQLALAEELYEDEAKRQSLRSD  
KPTTTKMSNSKGLKIDSFRLRKRPERMSDDKENQRFYSGDSEYRGLQISGASNNPSKIV



AELFKEAKEHGAVPLDEASRTSGDFSKAKSFSGGGYRLGDSSQKHSEYIYGNQDVQILLK  
LWRNGFSLDDGELRSYSDPINAQFLESVKRGEIPELQRLVHGGQVNLDMEDHQEQEYVK  
PRLRFKAFSGEGQKLGSLTPEIVSTPSSPEEEDKSI LNAPVLIDDSVPATKIQIRLADGS  
RLIQRFNQTHRIKDIRDFIIQSRPAFATTDVFLVLTTFPNKELTDESLLTREADILNTVIL  
QQLK

>Anolis carolinensis\_UBXN2B(ENSACAP\_5211)  
VGQGVRAATTKGREKESPPSLPPSFSNCTLALAGLYEDEMKRQPLHSEKSTTRVASHPRLP  
VQRLASSEYLFVGINIITPLLNKIVDELDFKEAREHGAVPLNEVSRASGDCYKAKSFSGGG  
YRLGDSTWKRSEYIYGENQFGQDVQILLKLRNGFSLDDGELRSYTDVFNADFLSVKRG  
EIPAELQRLVHGGQINLDMEDHQEQEYVPRRLRFKAFSGEGQKLGSLTPEIVSTPSSPEE  
EEKSFADGAVLVDDSVPTTKIQIRLADGSRLIQRFNRTHRIVDIRNFIIQSRPLFANTDF  
VLLTTFPHKELTDESMTLQESDILNTVILQQLK

>Homo sapiens\_NSFL1C(ENSP\_216879)  
MAAERQEALREFVAVTGAEEDRARFFLESAGWDLQIALASFYEDGGDEDIVTISQATPSS  
VSRGTAPSDNRVTSFRDLIHDQDEDEEEEEEGQRFYAGGSERSGQQIVGPPRKKSPNELVD  
DLFKGAKEHGAVAVERVTKSPGETSKPRPFAGGGYRLGAAPEEESAYVAGEKQHSQDV  
HVVLKLVKSGFSLDNGELRSYQDPSNAQFLESIRRGEVPAELRRLAHGGQVNLDMEDHRD  
EDFVKPKGAFKAFKFTGEGQKLGSTAPQVLSTSSPAQQAENEAKASSSILIDESEPTTNIQI  
RLADGGRLVQKFNHSHRISDIRLFIVDARPAAMAATSFILMTTFPNKELADESQTKEANL  
LNAVIVQRLT

>Pongo abelii\_NSFL1C(ENSPPYP\_12121)  
MAAERQEALREFVAVTGAEEDRARFFLESAGWDLQIALASFYEDGGDEDIVTISQATPSS  
VSRGTAPSDNRVTSFRDLIHDQDEDEEEEEEGQRFYAGGSERSGQQIVGPPRKKSPNELVD  
DLFKGAKEHGAVAVERVTKSPGETSKPRPFAGGGYRLGAAPEEESAYVAGEKQHSQDV  
HVVLKLVKSGFSLDNGELRSYQDPSNAQFLESIRRGEVPAELRRLAHGGQVNLDMEDHRD  
EDFVKPKGAFKAFKFTGEGQKLGSTAPQVLSTSSPAQQAENEAKASSSILIDESEPTTNIQI  
RLADGGRLVQKFNHSHRISDIRLFIVDARPAAMAATSFILMTTFPNKELADESQTKEANL  
LNAVIVQRLT

>Macaca mulatta\_NSFL1C(ENSMUP\_21035)  
MAAERQEALREFVAVTGAEEDRARFFLESAGWDLQIALASFYEDGGDEDIVTISQATPSS  
VSRGTAPSDNRVTSFRDLIHDQDEDEEEEEEGQSSGFYAGGSERSGQQIVGPPRKKSPNEL  
VDDLKGAKEHGAVAVERVTKSPGETSKPRPFAGGGYRLGAAPEEESAYVAGEKQHSQDV  
DVHVVLKLVKSGFSLDNGELRSYQDPSNAQFLESIRRGEVPAELRRLAHGGQVNLDMEDH  
RDEDFVKPKGAFKAFKFTGEGQKLGSTAPQVLSTSSPAQQAENEAKASSSILIDESEPTTNI  
QIRLADGGRLVQKFNHSHRISDIRLFIVDARPAAMAATSFILMTTFPNKELADESQTKEANL  
NLLNAVIVQRLT

>Mus musculus\_NSFL1C(ENSMUSP\_28949)  
MAEERQDALREFVAVTGTEEDRARFFLESAGWDLQIALASFYEDGGDEDIVTISQATPSS  
VSRGTAPSDNRVTSFRDLIHDQDEDEEEEEEGQRFYAGGSERSGQQIVGPPRKKSPNELVD  
DLFKGAKEHGAVAVERVTKSPGETSKPRPFAGGGYRLGAAPEEESAYVAGERRRHSGQDV  
HVVLKLVKWTGFSLDNGDLRSYQDPSNAQFLESIRRGEVPAELRRLAHGGQVNLDMEDHRD  
EDFVKPKGAFKAFKFTGEGQKLGSTAPQVLNTSSPAQQAENEAKASSSILINEAEPTTNIQI  
RLADGGRLVQKFNHSHRISDIRLFIVDARPAAMAATSFVLMTTFPNKELADENQTLKEANL  
LNAVIVQRLT

>Rattus norvegicus\_NSFL1C(ENSRNOP\_11654)  
MAEERQDALREFVAVTGAEEDRARFFLESAGWDLQIALASFYEDGGDEDIVTISQATPSS  
VSRGTAPSDNRVTSFRDLIHDQDEDEEEEEEGQRFYAGGSERSGQQIVGPPRKKSPNELVD  
DLFKGAKEHGAVAVERVTKSPGETSKPRPFAGGGYRLGAAPEEESAYVAGERRRHSGQDV  
HVVLKLVKWTGFSLDNGDLRSYQDPSNAQFLESIRRGEVPAELRRLAHGGQVNLDMEDHRD  
EDFVKPKGAFKAFKFTGEGQKLGSTAPQVLNTSSPAQQAENEAKASSSILINEAEPTTNIQI  
RLADGGRLVQKFNHSHRISDIRLFIVDARPAAMAATSFVLMTTFPNKELADENQTLKEANL  
LNAVIVQRLT

>Felis catus\_NSFL1C(ENSFCAP\_11914)  
FQIALASFYEDGGDEDIVTISQATPSSVSRGTAPSDNRVTSFRDLIHDQDEDEEEEEEGQR

HRFYAGGSERSGQQIVGPPRKKSPNELVDDLKFGAKEHGAVAVERTKSPGETSKPRPFA  
GGGYRLGAAPPEESAYVAGERRRHSGQDVHVVLKWKSGFSLDNGELRSYQDPSNAQFLE  
SIRRGEVPAELRRLAHGGQVNLDMEDHRDEDFVKPKGAFKAFKFTGEGQKLGSTAPQVLNLS  
SPAQQAENEAKASSVSIDESQPTTNIQIRLADGGRLVQKFNHSHRISDIRLFIVDARPA  
MAATSFVLMTTFFPNKELADESQTLKEANLLNAVIVQRLT

>Myotis lucifugus\_NSFL1C(ENSMLUP\_5784)  
KMAERQEALREFVAVTGTEDDRARFFLESAGWDLQIALASFYEDGGDEDIVTISQATPSS  
VSRGTVSSISSDNRVTSFKDLIHDQDEDEEEEGQRFYAGGSERSGQQIVGPPRKRSPNE  
LVDDLKFGAKEHGAVAVEQMTSRPGETSKPKPFAGGGYRLGAAPPEESAYVAGERRRHSS  
QDVHIVLKLWKSGFSLDNGELRSYQDPSNAQFLESIRRGEVPAELRRLAHGGQVNLDMED  
HRDEDFVKPKGAFKAFKFTGEGQKLGSTAPQVLNLTVPFPAQQAENEAKASSVSIDESQPTTN  
IQIRLADGGRLVQKFNHSHRISDIRLFIVDARPAATAATSFVLMTTFFPNKELADENQTLKE  
ANLLNAVIVQRLT

>Gallus gallus\_NSFL1C(ENSGALP\_9964)  
MADREEALREFVAVTGAEERARFFLESAGWDLQIALASFYEDGGDEDILTLPQPTPSSV  
SRGTAASDHRVTSFRDLVHAQEDDDEEEEGQRFYAGGSERSGQQIVGPPRKKSPNELVED  
LFGAKEHGAVAVDR TAKSSGESSKPKPFAGGGYRLGATPEEESAYVAGERRRHNSVQDVH  
VVLKWKSGFSLDNGELRSYQDPSNAQFLDDIRRGEVPAELRRLARGGQVNLDMEDHRDE  
EYVVKPSVFKAFKFTGEGQKLGSTAPQVLSTSSPAQQAENEAKASSIAIAIDSEPTTNIQIR  
LADGGRLVQKFNHSHRIRDIRLFIVDARPAATAATSFVLMTTFFPNKELTDENQTLKEANLL  
NAVIVQRLT

>Anolis carolinensis\_NSFL1C(ENSACAP\_8142)  
MADREEALREFVAVTGAEERARFFLESAGGDLQIALASFYEDGGDEDIITLPQPAPSSV  
TRGTTTPSDHRVTSFRDLVHAQEEEEEEEGQRFYAGGSERSGQQIVGPPRKKSPNELVED  
LFRGAKEHGAVAVERTAKSPGEGSRPRPFAGGGYRLGAAPPEESAYVAGESRQNAQDVH  
VVLKWKSGFSLDGGELRSYQDPSNSQFLESIRRGEVPAELRRLARGGQVNLDLIEDHRDE  
DFVKPRGTFRFTGEGQKLGSTAPQVMGSGSLAQQQAENEAKASSITIDESEPTTNIQIR  
LADGGRLVQKFNHSHRIRDIRLFIADARPAATAATSFVLMTTFFPNKELSDDELTLKEANLL  
NAVIVQRLI

>Ciona intestinalis\_(ENSCINP\_2958)  
VMSSQDEMVTFRGITDASEERARFFLESSGWQLQVALSSFFD SGIAENPTAMSEVEPKR  
TTRSSKFASVHDYKNNKNDSSSEEEGQRYAYAGGSEHSGELIVGPPRKKNTNQQIKDLFKE  
AKEHGAEVVDPRKHGKEKEKKKYFTGAGYKLGDDGSDSPSVFVPEVEVQQRPGPVNVVL  
KLWSNGFTVDDGPIRDFNDPQNQEFLOSVKKGQIPQELIRNAKGGEVHVDMEDHREEDYK  
PQKKKLPKPFSGQMLGSPTPQVETSPAPSSISSVDPPI SIDQSKPSTNIQIRLLDGTTRI  
RQQFNHHRVSDIRSFILNSQPNMGSRPVFLMTTFFPNKELTNENETIAGAQLLNSQVVQK  
LK

>Branchiostoma floridae\_(XP\_002609968)  
MADKDELQSQFVAVTGVDQGRAKFFLESAQWDLQVAIAHFYDTAGDDDMEETSQAAGTSAAPPGDSAKG  
GRQESSEDEEEGQAYYAGGSEHGGGQILGPPKKKPNPSTDDVVDKLFQSAKDHAETVEPEEAAARPKP  
LAFKGTGYRLGATEEDTQVVQGERDASRRQEKTIIVLRMWNKNGFTVDDGELRAYDDPANQEF LNSINKGEV  
PLELIRMCRGLEVALNLEDHRHEEWAPPKVAVKAFSGEGHKLGSPTPNVVSAPAAAAGSGDRKTNEAKAQ  
SNVGMKDSEPTTSIQIRLADGSRLLVAKFNHTNRVSDVRQFIATARPETA VTPFVLMTTFFPNKELTDESQT  
LKEANLLNAVIVQKMK

>Saccoglossus kowalevskii\_(XP\_006822016)  
MVTEFTNITGSDLERAQFFLESSGWQLQVAIASFYDEAEMDDTPDTLPSGVGGRVSEPEGVAPPY SATG  
GSRFATLSDMMPVGDDEDDSEDEGETFYAGGAERGGSGQQIVGPAKKKASKIVEEMFQSAKEHGAQEV S  
AATPVPSGSSAGASFGGAGYRLGDTEGGDVRPVPGTSRSKQDQPKDMHVVLKWKNGFTVNDTELRAFSD  
PKNAEFLNSVTKEI PKELHNKAKGGEVNLDMEDHRDEEYVPAKQALKPFTGEGFKLGNPTPKVVTQSTP  
SVPANVLNTNPIEVDKNKPI TQLQLRLADGSRLLSGQFNNTHTVGDIRRFIIYSRPQYSSTVFVLQTTFFPN  
RELTDDSKTLIEADVWNLSLIVQRLK

## **X Kell Blood Group Precursor-related Family-XKR**

>Homo sapiens\_XKR4(ENSP\_480076)

MAAKSDGRLKMKKSSDVAFTPLQNSDHSGSVQGLAPGLPSGSGAEDEEAAGGGCCPDGGG  
CSRCCCCAGSGGSAGSGSGGGVAGPGGGGAGSAAALCLRLGREQRRYSLWDCLWILAAVA  
VYFADVGTDIWLAVDYLRGQRWWFGLTLFFVVLGSLSVQVFSFRWFVHDFSTEDSATAA  
AASSCPQPGADCKTVVGGGSAAGEGEARPSTPQRQASNASKSNIAAANSNGSNSSGATRAS  
GKHSASCSFCIWLLQSLIHILQLGQIWRYFHTIYLGIRSRQSGENDRWRWFYWKMVYEYA  
DVSMHLHLLATFLESAPQLVQLQCIIVQTHSLQALQGFTAASLVSLAWALASYQKALRDS  
RDDKKPISYMAVVIQFCWHFFTTIARVITFALFASVFQLYFGIFIVLHWCIMTFWIVHCE  
TEFCITKWEIIVFDMVVGIIYIFSWFNVKEGRTRCRLFIIYFVILLENLALSALWYLYKA  
PQIADAFaipalcvvfssfltgvvfmlmyyaffhpngrprfgqspscacedpaaafTLPD  
VATSTLRSISNNRSVSDRDQKFAERDGCVPVFQVRPTAPSTPSSRPPRIEESVIKIDLF  
RNRYPAWERHVLDRSLRKAILAFECSPSPRLQYKDDALIQRLEYETT

>Pan troglodytes\_XKR4(ENSPTRP\_34691)  
RYFHTIYLGIRSRQSGENDRWRWFYWKMVYEYADVSMHLHLLATFLESAPQLVQLQCIIVQTHSLQALQGFTAASLVSLAWALASYQKALRDSRDDKKPISYMAVVIQFCWHFFTTIARVITFALFASVFQLYFGIFIVLHWCIMTFWIVHCE  
TEFCITKWEIIVFDMVVGIIYIFSWFNVKEGRTRCRLFIIYFVILLENLALSALWYLYKAPQIADAFaipalcvvfssfltgvvfmlmyyaffhpngrprfgqspscacedpaaafTLPDVATSTLRSISNNRSVSDRDQKFAERDGCVPVFQVRPTAPSTPSSRPPRIEESVIKIDLF  
RNRYPAWERHVLDRSLRKAILAFECSPSPRLQYKDDALIQRLEYETT

>Mus musculus\_XKR4(ENSMUSP\_70648)  
MAAKSDGRLKMKKSSDVAFTPLQNSDNGSGSVQGLAPGLPSGSGAEDTEAAGGGCCPDGGG  
CSRCCCCAGSGGSAGSGSGGGGRGSGAGSAAALCLRLGREQRRYSLWDCLWILAAVAVY  
FADVGTDIWLAVDYLRGQRWWFGLTLFFVVLGSLSVQVFSFRWFVHDFSTEDSSTTTTS  
SCQQPGADCKTVVSSGSAAGEGEVRPSTPQRQASNASKSNIAATNSGNSNGATRTSGKH  
RSASCSFCIWLLQSLIHILQLGQIWRYLHTIYLGIRSRQSGESGRWRWFYWKMVYEYADVSMHLHLLATFLESAPQLVQLQCIIVQTHSLQALQGFTAASLVSLAWALASYQKALRDSRDD  
KKPISYMAVVIQFCWHFFTTIARVITFALFASVFQLYFGIFIVLHWCIMTFWIVHCE  
TEFCITKWEIIVFDMVVGIIYIFSWFNVKEGRTRCRLFIIYFVILLENLALSALWYLYKAPQIADAFaipalcvvfssfltgvvfmlmyyaffhpngrprfgqspscacedpaaafTLPDVATSTLRSISNNRSVSDRDQKFAERDGCVPVFQVRPTAPSTPSSRPPRIEESVIKIDLF  
RNRYPAWERHVLDRSLRKAILAFECSPSPRLQYKDDALIQRLEYETT

>Canis familiaris\_XKR4(ENSCAFP\_10384)  
CCAGSAGSGGGGAGSGGGGSGVSGGPGAPDGGGAGSAAALCMRLGRERRRYSLWDCLWILA  
AVAVYFADVGTDIWLAVDYLRGQRWWFGLTLFFVVLGSLSVQVFSFRWFVHDFSTEDSA  
PAAAASSCPQPGADCKTAAGGGSAAAAGEGEARPSTPQRQASNASKSNIAAANSNGSNSSGST  
NIMKKVRSSSCSFCKILYSLISILSYSPCFLSRYFHTIYLGIRSRQSGENDRWRWFYWKMV  
YEYADVSMHLHLLATFLESAPQLVQLQCIIVQTHRLQALQGFTAASLVSLAWALASYQKALRDSRDDKKPISYMAVVIQFCWHFFTTIARVITFALFASVFQLYFGIFIVLHWCIMTFWI  
VHCE  
TEFCITKWEIIVFDMVVGIIYIFSWFNVKEGRTRCRLFIIYFVILLENLALSALWYLYKAPPFADAFaipalcvvfssfltgvvfmlmyyaffhpngrprfgqspscacedpaaafTLPPEVATSTLRSISNNRSVSDRDQKFAERDGCVPVFQVRPTAPSTPSSRPPRIEESVIKIDLF  
RNRYPAWERHVLDRSLRKAILAFECSPSPRLQYKDDALIQRLEYETT

>Myotis lucifugus\_XKR4(ENSMLUP\_9777)  
MAAKSDGRLKMKKSSDVAFTPLQNSDHSGSVQGLAPGLPSGSGAEDDEEAAGGGCCPDGGG  
CSHCCCCSGSGGGGSGGGGSGVSGGPGGGGASSAAALCLRLGGEQRRYSLWDCLWIL  
AAVAVYFADVGTDIWLAVDYLRGQRWWFGLTLFFVVLGSLSVQVFSFRWFVHDFSTEDS  
ATAAAAASSCSQPGADCKTLVRSASAAAAGEGEVRPSTPQRQASNASKSNIAAPNTGSNSSG  
ASGKHSASCSFCIWLLQSLIHILQLGQIWRYFHTIYLGIRSRQSGENDRWRWFYWKMVYE  
YADVSMHLHLLATFLESAPQLVQLQCIIVQTHSLQALQGFTAASLVSLAWALASYQKALR  
DSRDDKKPISYMAVVIQFCWHFFTTIARVITFALFASVFQLYFGIFIVLHWCIMTFWIVH  
CE  
TEFCITKWEIIVFDMVVGIIYIFSWFNVKEGRTRCRLFIIYFVILLENLALSALWYLYKAPQIADAFaipalcvvfssfltgvvfmlmyyaffhpngrprfgqspscacedpaaafTLPPEVATSTLRSISNNRSVSDRDQKFAERDGCVPVFQVRPTAPSTPSSRPPRIEESVIKIDLF  
RNRYPAWERHVLDRSLRKAILAFECSPSPRLQYKDDALIQRLEYETT

>Anolis carolinensis\_XKR4(ENSACAP\_17702)  
IFPQKSFFRYFHTIYLGIRSRSGDNDNRWRWFYWKMVYEYADVSMHLHLLATFLESAPQLV

QLCIVVQTRTLQALQGLTAAASLVSLAWALASYQKALRDSRDDKKPISYMAV I IQFCWHF  
FTI AARVITFALFASVFLYFGIFIVLHWCIMTFWIVHCETEFCITKWEEIVFDMVVGII  
YIFSWFNVKEGRTRCRLFIIYFVILLENALSALWYLYKAPMISDAFAI PALCVVFSFL  
TGIVFMLMYAFFHPNGPRFGQSPSCACEDSVAAFTLPPEVASSTLRISNNRSVTSDRD  
QKFAERDGCVPVFQVRPTAPSTPSSRPRIEESVIKIDLFRNRYPAWERHVLDRSLRKAI  
LAFECSPAPRLQYKDDALI QERLEYETTL

>Xenopus tropicalis\_XKR4(ENSXETP\_55756)  
MAAKSDGMLKMKKSDVAFTPLQNSDHSGSVQGLATG SQPGSATGDGGCSDGSSRCCSSGG  
SSSGRVAGGGGGVGGASPSLCLRLGREQQRYSVWDC LWILA AVAVYFADVGS DIWLSVDY  
YLRGQRWWFGLTLFFVVLGSLSVQVFSFRWFVHDFSTENSSQCNPMESKAAAGSAAACEG  
DARPSTPQRQASTASSKPATTGTNRANSRSDSSSSCSFCIWIMQSLIHILQLGQIWRYFHL  
NRLGFRERASGEXERWSFTFNYIHEEFTDRLVLTLYIYLYTQPQLILQVCHKVKVYHIT  
CNIAGLTAASLVSLAWALASYQKALRDSRDDKKPISYMAV I IQFCWHFFTTI AARVITFA  
LFASVFLYFGIFIVLHWCIMTFWIVHCETEFCITKWEEIVFDMVVGIIYIFSWFNVKEG  
RTRCRLFIIYFVILLENALSTLWYLNKAPQILD AFAI PALCVVFSFLTGIVFMLMYA  
FFHPNGPRFGQSPSCACEDTVTAFPLPPEGASNTLRSMNNRSVASDRDQKFTERDGCMP  
VFQVRPIAPSTPSSRPRIEESVIKIDLFRNRYPAWERHVLDRSLRKAILAFECSPSPPR  
LQYKDDALI QERLEYETTL

>Takifugu rubripes\_XKR4(ENSTRUP\_24449)  
MAAKSDGVLKMKKSDVAFTPLQNSEHSGSVQGLHPGAQLDSAGTGDADFANGESRCCGGG  
GSNSTCLRLGREQQKYTVWDC LWILA AVAVYVADVGS DVWLSVDYLLHNDYWWFGLTLFF  
VVLGFSFSVQLFSFRWFVHDFSTEDGAVSAADCTHMDGNKLLSGSASHGDVTAQQHPATPQ  
RQASTASKNTTNTASTAVGRSEKRSAYYTFCVWISQSI IHILQLGQIWRYIHTIYLG I  
QSHQSVETERWRYWRMVYEFADV SMLHLLATFLESAPQLV LQLCII IQTHKLQAVQENA  
GMTAAASLVSLAWALASYQKALRDSRDDKKPISYLA V I IQFCWHFFTTI AARVITFALFAS  
VFQLYFGIFIVLHWCIMTFWIVHCETDFCISKWEEIVFDMVVGIIYIFSWFNVKEGRTRC  
RLFIIYLLILVENAALSALWYLYRSPLATDAFAVPALCVIFSSFFTGVV FMLMYA FFHP  
NGPRFRSLSGHGLNLDPTAQFSTLPSEVATNSLRSNRGATATLERDMGKYSERDGCMPV  
FQVRPTVPSTPSSRAPRPEETVIKIDLCRNRYPAWERHVLDRSIRKAILAVDSSQTPPRL  
QYKDDALVQERLEYETTL

>Tetraodon nigroviridis\_XKR4(ENSTNIP\_21301)  
GGGSHSTCLRLSREQQKYTVWDC LWI VAAVAVYVADVGS DVWLSVDYLL EEDYWWFGLTL  
FFVVLGFSFSVQLFSFRWFVHDFSTEDSAEAAAADGSHMDGNKLLSGSASHHGQHRAGPQGP  
KRPAYYTFCVWGSQSVIHILQLGQIWRYIHTIYLG VQSRQSAETERWRYWRMVYEFADV  
SMLHLLATFLESAPQLV LQLCII IQTHKLLAVQGMTAAASLVSLAWALASYQKALRDSRD  
DKPISYLA V I IQFCWHFFTTI AARVITFALFASVFLYFGIFIVLHWCIMTFWIVHCETD  
FCISKWEEIVFDMVVGIIYIFSWFNVKEGRTRCRLFIIYLLILAENAALSALWYLYRSPL  
ATDAFAVPALCVIFSSFLTGVV FMLMYA FFHPNGPRFRSGHGLNLDPTAQFSTLPS  
EVATNSLRSNRGATATLERDAGKYSERDGCMPVFQVRPTVPSTPSSRAPRLEETVIKIDLC  
RNRYPAWERHVLDRSIRKAILAVDCSLTPPRLQYKDDALVQERLEYETTL

>Gasterosteus aculeatus\_XKR4(ENSGACP\_19427)  
RSAYYSFCVWFGQSVIHILQMGQI WRYFHTIYLGVRSHQSAETERWRYWRMVYEFADVS  
MLHLLATFLESAPQLV LQLCII IQTHKLQAVQGMTAAASLVSLAWALASYQKALRESRDD  
KKPISYLA V I IQFCWHFFTTI AARVITFALFASVFLYFGIFIVLHWCIMTFWIVHCETDF  
CISKWEEIVFDMVVGIIYIFSWFNVKEGRTRCRLFIIYLVILVENAALSALWYLYRSPT  
TDAFAVPALCVIFSSFLTGVV FMLMYA FFHPNGPRFRSPSGQGLDLDPSAQFSTLPYE  
GTTNSLRSNRGATATLERDGGKYSERDGCMPVFQVRSTVPSTPSSRAPRLEETVIKIDLC  
RNRYPAWERHVLDRSIRKAILAVDSSLTPPRLQYKDDALVQERLEYETTL

>Oryzias latipes\_XKR4(ENSORLP\_5348)  
MAAKSDGVLKMKKSDVAFTPLQNSEHSGSVQGLHPGEQPD SACADGDFINGESRCCGGVG  
SNSTCLRLGAELQQYSLWDC LWILA AVAVYVADVGT DVWLSVDYFLHGDYWWFSLTLFFV  
MLGFSFSVQLFSFRWFVHDFSTEDSAESAADCFHVDGKLLSGSASHGDVTAQQHPGAPQR  
QASTASKNTASNSTASAALGGRGTRRSRHYTFCIWFGQSVIHILQLGQIWRYLRTIYLG V  
RSRQSAESERWRWHKMYEFADV SMLHLLATFLESAPQLV LQLCII IQTHKLQAVQGMT  
AAASLVSLAWALASYQKSLRDSRDDKPVSYLA V I IQFCWHFFTTI AARVITFALFASVFL  
YFGIFIVLHWCIMTFWIVHCETDFCISKWEEIVFDMVVGIIYIFSWFNVKEGRTRCRLF I

YYFVILVENAALSALWYLYRIPKTTDAFAVPALCVIFSSFLTGVVFLLMYYAFFHPNGPR  
FGRSPSGQGLNLDPTAQFATLPSEGATNSLRSSRGASSTLERDAGKYSERDGCMPVFQVR  
PTVPSTPSSRAPRLEEETVIKIDLCRNRYPAWERHVLDRGIRKAILAVECSVTPPRLQYKD  
DALVQERLEYETTL

>Homo sapiens\_XKR5 (ENSP\_483879)

MHARLLGLSALLQAAEQSARLYTVAYYFTTGRLLWGWLALAVLLPGFLVQALSYLWFRAD  
GHPGHCSLMLLHLLQLGVWKRHWDAALTSLQKELEAPHRGWLQLQEQADLSALRLEALLQ  
TGPHLLLQTYVFLASDFTDIVPGVSTLFSWSSLSWALVSYTRFMGMKPGHLAMPWAALF  
CQQLWRMGMLGTRVLSLVLFYKAYHFWVFWVAGAHWLVMTFWLVAQQSDIIDSTCHWRLF  
NLLVGAVYILCYLSFWDSPSRNRMTTFYMVMLLENIILLLLATDFLQGASWTSIQTIAGV  
LSGFLIGSVSLVIYYSLHHPKSTDIWQGCLRKSCGIAGGDKTERRDSPRATDLGKRTE  
SGSCQGASYEPTILGKPPTPEQVPEAGLGTQVAVEDSFLSHHHWLWVKLALKTGNVSKI  
NAAFGDNSPAYCPPAWGLSQDYLRKALSAQQELPSSSRDPSTLENSSAFEGVPKAEAD  
PLETSSYVSFASDQDEAPTQNPAAATQEGGTPKEGADAVSGTQGGKTGGQQRGGEGQQSS  
TLYFSATAEVATSSQEGSPATLQTAHSGRRLGKSSPAQPASPHVGLAPFPDMADISP  
ILGTGPCRGFCSAGFPGRTLSISELEEPLPKRELSSHAAVGVVWVSLPQLRTAHEPCLT  
STPKSESIQTDSCSCREQMKQEPSFFI

>Pan troglodytes\_XKR5 (ENSPTRP\_54982)

MHAGLLGLSALLQAAEQSARLYTVAYYFTTGRLLWGWLALAVLLPGFLVQALSYLWFRAD  
GHPGHCSLVMHLHLLQLGVWKRHWDAALTAALQKEPEAPHRGWLQLQEQADLSALRLEALLQ  
TGPHLLLQTYVFLASDFTDIVPGVSTLFSWSSLSWALVSYTRFMGMKPGHLAMPWAALF  
CQQLWRMGMLGTRVMSLVLFYKAYHFWVFWVAGAHWLVMTFWLVAQQSDIIDSTCHWRLF  
NLLVGAVYILCYLSFWDSPSRNRMTTFYMVMLLENTILLLLATDFLQGASWTSIQTIAGV  
LSGFLIGSVSLVIYYSLHHPKSTDIWQGCLRKSCGIAGGDKTERRASPRATDLGKRTE  
SGSCQGASYELTILGKPPTPEQVPEAGLGTQVAVEDSFLSHHHWLWVKLALKTGNMSKI  
NAAFGDDNPVYCPPAWGLSQDDLQKALSAQRELPSSSRHPSTLENSSAFEGVSKAEAD  
PLETSSYVSFASDQDEAPTQNPAAATQEGGTPKEGADAVSGTQGGKTGGQQRGGEGQQSS  
TLYFSATAEVATSSQEGSPATLQTAHSGRRLGKSSPAQPASPHVGLAPFPDMADISP  
ILGTGPCRGFCSAGFPGRTLSISELEEPLPTRELSSHAAVGVWMSLPLQLRTAHEPCLT  
STPKSESIQTDSCSCREQMKQEPSFFI

>Gorilla gorilla\_XKR5 (ENSGGOP\_11430)

MHAGLLGLSALLQAAEQSARLYTVAYYFTTGRLLWGWLALAVLLPGFLVQALSYLWFRAD  
GYPGHCSLVMHLHLLQLGVWKRHWDAALTAALQKEPEAPHRGWLQLQEQADLSALRLEALLQ  
TGPHLLLQTYVFLASDFTDIVPGVSTLFSWSSLSWALVSYTRFMGMKPGHLAMPWAALF  
CQQLWRMGMLGTRVMSLVLFYKAYHFWVFWVAGAHWLVMTFWLVAQQSDIMDSTCHWRLF  
NLLVGAVYILCYLSFWDSPSRNRMTTFYMVMLLENTILLLLATDFLQGASWTSIQTIAGV  
LSGFLIGSVSLVIYYSLHHPKSTDIWQGCLRKSCGIAGGDKTERRASPRATDLVGRKTES  
SGSCQGASYELTILGKPPTPEQVPEAGLGTQVAVEDSFLSHHHWLWVKLALKTGNVSKI  
NAAFGDDSPVYCPPAWGLSQDYLRKALSAQRELPSSSRHPSTLENSSAFEGIPKAEAD  
PLETSSYVSFASDQDEAPTQNPAAATQEGGTPKEGADTVSGTQGGKTGGQQRGGEGQQSS  
TLYFSATAEVATSSQEGSPATLQTAHSGRRLGKSSPAQPASPHVGLAPFPDMADISP  
ILGTGPCGGFCPSAGFPGRTLSISELEEPLQPTRELSSHAAVGVWMSLPLQMRRTAHEPCLT  
STPKSESIQTDSCSCSEQMKQEPSFFI

>Mus musculus\_XKR5 (ENSMUSP\_93089)

MHAGLLGLSALLQAAEQSARLCSIVFYFATGRLLWGWLALSALLPGFLVQALSFLWFRAD  
GHQGGWVAVLHLLQLGVWKRHWDSVATALWKGKEAPSWGQLHLQEQADLSALRLEALLQ  
TGPHLLLQAYVFLASDFTDIVPGISALLSWSSLSWALVSYNRFLGIMKPGHHTMLWAALL  
CQQLWRMGMLGARVLSLVLFRCRVYRVVVLVVGGAHWLVMTFWLVAQQSDIVESTCHWRLF  
NLLVGAVFILCYINFWDSPSRSRVASFYLVMLLENTILLLLATDFLQGVPGTSLWTVVGV  
LSGFLIGCASLVIYYSLHHPKSSDIQQSFMKCCGPIEDNKPESEPPRAVDPTGEMPDS  
SSWQGEESYELTSLDKAPSPQNTAEVGLGEQRSSESSFFSHHHWLLKLALKTGSVSRI  
NAALGGDSPGCSPPLLGSSQHCDDLQKPLFSHQDLPSSPCDPLTLEKGSSEYVGPKAEM  
ESLETSSYLSFASLEDNATTQKPPATQEDSPKLAGSKADLAAQGGKETEGPLQGGKEGQES  
TTLYFSAAMDRTTSHQRGSPVVLRIHSHSETLVESRPGQPALPQAVTKPFPVTVANISPI  
GRNFRPSAELPGRAPDSSECEEWKDAARDPSMQSSLPKMRLKAAEPCFTSTPKSESIQR  
DYSCRDRVRQEMSFII

>Rattus norvegicus\_XKR5 (ENSRNOP\_32580)  
MKPGHRTMLWAALLCQQLWRMGMLGARVLTLLVLCRVRVWVWLVVGGAHWLVMTFWLVAQ  
QSDIVESTCHWRLFNLLVGAVFILCYINFWDSPSRSRMASFYLVMLLENSILLLLATDFL  
QGAPWTSWLVVGVLSGFLIGCASLVVYYSLLHPKSSDIQENFMKCCGPIENNKSDSEP  
PPRAMVPTGERPDSSSWCQEKSYELTSLDKAPSPGKSTAELRLEEQRSGEDSFFSHHHWL  
LLKLALKTGSISKINAALGGDSPGCSCPPRLGSSQHCDLQKPLFSQQDLPSPPRDLTL  
EKGPEYVVGAPKAEMESLETSSYISFASDLEDNATTQKPPATQEDSPKAGTKADLAAQGKD  
TDGPLKKGEGQESTTLYFSATMDRRTTCHQKGS PVALRTSHLGLTGESRPVQPALPQAVTK  
PFPVALANISPIGRNFCPDAGLPGRAPESSEWEWEDPAKNPSTQSSLPKVRLRAAEEP  
CVTSTPKSESIQRDYNCRDRVKQEVSF

>Canis familiaris\_XKR5 (ENSCAFP\_36968)  
QRGGLVFLNARTRCQSRPAGLCCVVHYFTTGQLLWGWLALALLPGCLVQVLSYLWFRAD  
GQQGHGLLVVLLHLLQLGVWKRHWDAASSALSKEGEASRRDQLLLQEADLSALRLLLEALMQ  
TGPHLLLQTHVFLASDFTELVPVGSALCSWAALSVALVCYARLAGLLKPGRLPVPWAALF  
CQQLWRMGMLGARVLSLALFSRAYHAWVLVGGAHWLVMTFWLVAQQSDVVDSTCHWRLF  
NLLVGA VYILCYLNFWDSPSRHRMAMFYTIMLLENIVLLLLLATDFLQASQTSWLT IAGV  
SSGFLIGSVSLVTSYGLLRPPSAGGRRGRGVAAGDGADAESCPRGPAPARGSPGAGQEDG  
GEFTALGRAPGPQWGPPEAGLES LTAREDPFFSHHHWLLLKLALKTGNM SKINA AF GEDS  
PGRFGPPARGVGVQHSAAQGTPLFPQQELPPSPPGPQASEKSGIPGVLSAEADLLEASSF  
ASLAGDKHDQAPGQKRPAPTQGRPGEGAGAASPLQGRAAGARTGAQGLEGSTRDFSATA  
EGGSPQEGGQATPHTCAPGRRPRSPPRPAPRPFPAAVADISPIILRPLSRSFVGTAPG  
SSERGEQREPTTDRNLPELLSLPKRSLWPADQPCLTSTPKCE

>Felis catus\_XKR5 (ENSFCAP\_12849)  
RHQKTQCRRAWLAAAREEPARLCSVVYYFITGQPLWGWLALS VLLPGFLVQGLSYLWFRAD  
GHQGHCLLVMLHLLQLGVWKRHWDAASTALQKEREASSRQQLLLQEADLSALRLLLEALLQ  
TGPHLLLQTHVFLASDFTDVVPVGSALCSWSALSVALVCYACFMGFVKPGHVFTPWAALL  
CQQLWRMGMVGARVLSLVLFVGAHRVWVWLVVGGAHWLVMTFWLVAQQSDIIDSTCHWRLF  
NLLVGAAYILCYLNFWDSPSRNRMAMFYTIMLLENIVLLLLLATDFLQASRTSLWT IAGV  
LSGFLIGSISLVVYYSLLHPKSTDIWRGFVTEVRGTAVGDRAERGSSPRASAAAGERPGS  
PGDSCELTHLGRAPSPQWGPPEAGLESQIVQEDSFLGHHHWLLVKLALKTGNVSKINA AF  
RKDGPGFFGPPPEWGLSQRNHQMTPRFSQKELASSPHDPLSSDKGESQVVRKAEADLLD  
TSSYVSLAGDNPDEAPGRRWSAAPREGSPREGAEAVSPLQGRGAGDRRGRAGQESATLYF  
SATAEGATSPQREAGQATSQTPLSGRSSEPSPRPATRPF PATMASISPIILGPGRTGSRP  
STGLPGRALGGSERGGQPEMGPDPNLPTIAGTRMALPEVSLRPADEPCLTSTPKCEPAHG  
DCGGRARPRTMPSFSM

>Monodelphis domestica\_XKR5 (ENSMODP\_28839)  
MHAGYLVICALLLAAEQGARLCTVVYYFHTKQYLWAWLTLSTLLPGCLIQGLSYLWFLAD  
GHQGSCLVIVHLLQLGTWKRHWDTFLTMTTKEEESPD MRKVLLHQGDLFVLRLLLEALLQ  
IGPHLLLQAYAFISADFPVPGVSAVLSWLSLSWSLVSYTRIMSLIKPGLAMPWAALL  
CQLLWRLAMLGTRITLVLVFSQAYHCWVWLVVGGAHWLVMTFWLVAQQSDIIDSTCCWRLF  
NLLVGALYVFCYINFWDSPSRNRMTTFYTIMLMENIILLLLLATDFLQASWGTMWMTIGI  
VSGFIIGCASLVYIYSLHPKSTEIWQGFIRKFCGSVSDSKTEKEPSSFQCTKPVEEKSE  
SLGLYPVEDPKDPKYQGNLSMDWGASTGSQVVRDEATAKCHHHWLLVKLALKTGNMSKI  
NAAFNGGLDCFCPPYITSKCFGPQMKLSFLEKEFPLPQKHCGPCPCQTSWQKDSQAEDI  
PETKEDPLETSSFITLSSHQHVHAPHTKIQT KVPWRPEKSI SESPIGQGGGKRRQENS  
TFYFSATMEGATPSHHEARTAPPVSCRKVDIEKDQQTNSDPNHLVPKFPPI SVANISPIIL  
GTSTAHLRLRHNTGLYNGSQCSLPGVSSAGSRRPLELWTAPGNSFLSVGTWVSMIRSKLKP  
SGEPYCTSTPKSEPRKDGDSLRLRERLRQESNLFF

>Xenopus tropicalis\_XKR5 (ENSXETP\_63692)  
LTVGKRFSPGRGMEASGSSVGC AAVSLLLYLMEGAELAVLVHYFLTQGYTWASCTLAL  
LIPGCLVQALSFAWFRKEGPAGGFTVTLIHVLQLGILKQADCLQVALREGKRQKPGNER  
ELLMQQGDAALLRLEALLQALPHLLLLQTYIYLALEYTNAYAVASALLSLSWALVSY  
SRFLCLLKPGLSMPWASLLCQLLWRMGMI GTRAMALAVFARVYHFVWFAVAGAHWLVMS  
FWLVAQQTDLISRPCYKLFNALVGA VYVFCFLNVRDGP SRYRVAIFYTVMLLENAI LLL  
LATDFLQGVLSNVRLTVVVMCGFLIGENGGLMDLQVNMSSFHSVANVILYCTRSNCLS  
IAFSLPPPPATCNMIKGLGEVMRKDMASQPWLAFPTAVRRTAPICVCFCSQYLPYELSF  
IYPTLTDWRHYIVYSGGILILELLCRIYTVASLP TDYKETYGDQHSKYGNTNLCKRHRA

MGLIQSNKETPIQLMIRLLHSANVEPEKPGAASVEPIQTPTKEIPAQEGARTEVYPAICV  
SPILSLATNSNFQRSIAPDVGSLCDDSSMSNDEADVTEAEELPGEKARLLLAPGLLAPSL  
RGRLIPEEKPCFTSTPKPQTASAEPLREDSKTKRKLLEP

>Danio rerio\_XKR5a(ENSDARP\_134463)  
MWMLLTCLSSSSVCCVAFYLWQEQLCFAGWTFALLLPGLVQVLSFRWYRADGDTHTC  
HNFIIHTLHLGIFKRFDCAVCEWTSFGSAGSHAQEVMMQADVSALRLLLEVLLMTVPQTL  
LQTYALTVDYGLSSPVALCSGVCLLSLSWALVLYSRACCLIRPGHLQMPAALLSOLLW  
RTGMLAARFTSLALFTRTFGCWLVIGVIASHWLMALWLVSQQTDIYVGQWSWRVFNFI  
GVHVFLFLNVKDGPSRFRMAGFYTVMLLENATLLLAASEILIDASWDSLTIPTAVLCSFL  
LGLTSLILYYRFLHPKSTEISQGLHQRHMGRECIQQADSSFSGLGDKHLPPAALPVLFRS  
SHPSFSLSGIPGSLLEHPGSCGVKPDGECRHHHLLIRLALKTGDPVKINSAYGAGGVSG  
ILAVDQKAEMIDDGCI SASESRDDTMAPLSDCREFFESMSEAKDDDDDDSDSLEMESPLES  
PVTLSDCRKSPEGKSVFGDSPEPNYCPTESSTLYFSADPQSPSSSSNPRLDRETPFSF  
GSGTGLETLELSPISDTGGLHRDXXXXGQRASGPGGSLHFRTRVKWRGFGITPQGSPQ  
AGGFVP

>Danio rerio\_XKR5b(ENSDARP\_129253)  
MQNRKGSEITWSHVCLYSFSGLIVLLEKAALVLCFTHYLITGQELLAWLTAALCLPISAV  
QMLSLKWIYITDEERPKPSVILLHCLHLGVYHRLWSCMKSQAEQVQFGAVLIQQADVSVLC  
LIEALTLSPQSLQTYSLFTLHPGLLSPVVVICGLSLLNVSWFVVLVSRSCFLLRPAHL  
HMTPAALLCQFIWRAGMLSARVTSMLLFCSTFHWWTCGVLGFHHLIMFWQVSQQTDICI  
NRGSRWLFNFILGALYIFIFVNVKDGPSRYRMTGFYLLMLENTFLLLLASDSFSGPSWD  
SMSVPLTVSCSFLIGVIFLILYYRFLHPKSTEILQSLRLQMSLTTIDKTDTDCKDTTLES  
STHKHGTFSLTGFPPAQLHLPLEGDGHMMLIKLALKTGNDKINSMYGNRGLSVILGK  
NDAKDEDLGESGCKRSVEAGKASENYQIESTSAAEVKQVSLEKIEYNSCPVDCSSTVYF  
SAEAQSYSVSDSILEKDKMAAISPIVNGDEVHLIGKQLLRNPNPCYTSTPIADFKTMQTVG  
DRLGGVRRQVQF

>Tetraodon nigroviridis\_XKR5a(ENSTNIP\_15267)  
LPVIYICIGFYLWNEEMQWAGLTLGLFLPGTAVQLLSMKWYRDDGDDRRCYLSVIHILHLG  
IFKRLWDCMRVLRQDSVAELGASIMQQADVAALWLEALVLTLPQSLQAYVMVSTDV  
GFVSPVGCSCGLCVLSISWALVLYNRACCLIRPGHLAMPAAAMLQLVWRAGMLGARVAC  
LMFFARVFNWVCGVAGFHWLTASFVLISSQPDICTGFWCWFRAFNGIMGLVHVFLFLNVK  
DGPSRFRMASFYAFMLVENATLLLAASDFLSEASWDNMTLPTTVLCSFVLSATSLILYYR  
FLHPKSTEICQGTDNHNVGSTCIEGGESEFSLGDKSLPVPSIQNHGSFSYSVGVAGSLLDH  
PGTCGGQPNNSPCYHHHLLIRLAMKTGDLGKINRAYGAGGAAAILDMEEYAQDIKQD  
SNTLTVGGSCGGISNSVSQEKGLAPLSDCKDEFQTI SEPTSI EHPEDDSLEMESPLESP  
MSDFKRSPEGKSVFGDSPEPYFCPTESSTLYFSADPQSPSSASNRLDRDIGGLEQGV  
RLNSLPSPALHRDVRGLMGRVGPRTSTPRLD SGALDNPPNIPHLTGPRRQLIMSQRDE  
DEIF

>Tetraodon nigroviridis\_XKR5b(ENSTNIP\_20846)  
SPAVIYCFVYYLWVGHNYCYAYLAGFTALFLLPGWGPQWLSYLWYLSDGRIRRRSLTWT  
LLHLGLFKRLWECTQAEEDVYGYIMQQADVSALRLLLEALVVTLPETLLHTYVLICTDIG  
IKSPASVCFVAVCLLSLAWALVLYARACSLIRPGHLQMTPAAVLCRLLWRVGLRMLGSRFA  
VLMLFTRVFKQWVGLGVVHVLGATFWMVSSQSDIIRSTSRWRLFNLVGLGAIHIFFLNV  
KYGQSRCRMAGFYLVMEVENAFLLASSWLFMSVSWDTVGI PAAVLC SFLIAGVISLVLY  
YRFLHPKSFEIFQSI RRRGLG GACTERGSTLSLEEKVTPTFHRQASGGTLMDLPLQWEGW  
KHHHLLIRLALKTGAVTRIWSAYGEGGLAGLMGLSEEFHSPDDFRVPQGSPTPPSPQQP  
GSLCHIDSNAGTLTEASSAGSLDIKTPGWSPEPERRSFLIGSPEKKPGASGESSTLYFS  
ADAQSPSSGS

>Gasterosteus aculeatus\_XKR5(ENSGACP\_12330)  
VRVLVIYICIGFYLWNEETQWAGITLGLFLPGTAVQLLSMKWYHDDGDDRRCYLSVIHILH  
LGIKRLWDCMRVLRMQDSVAELGAAVMQQADVAALWLEALVLTLPQSLQAHVVVST  
DVGIMSPVAYCCGLCVLSISWALVLYSRACCLIRPGHLAMPAAALLCQLVWRAGMLGARV  
TCLMFFARVFNWVCGVAGFHWLTASFVLSVSSQPDICTGFWCWFRAFNGVMGLVHVFLFLN  
VKDGPSRFRMASFYAFMLVENATLLLAASDFLSEASWDSMTLPATVLC SFLLGATSLVLY  
YRFLHPKSTEISQGTNRDHMGSTCIERGESEFSFGDKSLPAASVQNHGSFSLSGVAGSLL  
EHPGTCRGRANGSCPCYHHHLLIRLALKTGDLGKINAAAILDMEEYRQEFKSNEGMTITA

GGSCDGVSTSESQKGLAPLSDCKDEFQSVSEPTSTDNQDEEEDSLEMESPMESPASDFK  
RSSPEGKSVFGDSPEPYFCPTESSTLYFSADPQSPSSASTTRLDRDTGGLEPGVRLSSI  
PSDPALHRDVRGLIGRVGPRCTSTPKLDSGVLHSPPTVPHLTGPRRQLIMSRRDEEDNF

>Oryzias latipes\_XKR5a(ENSORLP\_16231)  
LCESVIYCIGFYLWNEETQWAGLTLGLFLPGTAVQLLSVKWYDDGDDRRRCYLSVIHILH  
LGIFKRLWDCMKSVLRRQGSVSELGVVVMQQADVAALWVLEALVLTLPQSLLQAYVVVST  
DVGITSPVAYCCGLCVLSVSWALVLYSRACCLIRPGLHAMPAAALLCQLVWRAGMLGARV  
TCLMFFARVFWHVVCGVAGFHWLTASFVLSQQPDICTGPWCWRAFNGVLGLVHVFLFLN  
VKDGPSRYRMASFYAFMLVENATLLLTASDFLSEASWDNMTLPTSVLCCFLLGATSLVLY  
YRFLHPKSTEISQGTSRHHMGSTCIEQGESSFSLGDKSLPPPSSQTHGSFSLSGVAGSLL  
EHPGNCEGRSNSSPCYHHHLLIRLALKTGDLGKINRAYGAGGAAAALDMDNNQEFKS  
NEGITITAGGSCAVSTSESQKGLAPLSDCKDEFQSI SEPTSTHEPDEEEDSLEMESPM  
ESPVSDFKRSSPEGKSVFGDSPEPYFCPTESSTLYFSADPQSPSSASNPRLDRETGSLE  
LGGRLNSIPSDPALHRDVRGLMGRVQRCISTPKLDLGVLDASSI PHLTGPRRQLIMSR  
RDEDDHF

>Oryzias latipes\_XKR5b(ENSORLP\_13915)  
CMSPIVYCFVYYLWVGHNYCYAHLGFTALFLLPGWGPQWLSYQWYLSDGRIARKSLRWT  
HILHLGIFKRLWECMHLPEDEDLYVEIMQQADASALRFEALVVTLPETLFQTYVLICTDI  
GIKSPTSVCFVYVCLLSLAWALVLYARACSLIRPGLHMTPAAILCRLLWRVAMLGSRFAV  
LMLFTRVFRQWILGVLGVHVLGATFWMVVSQQTDIIRSTSRWRIFNLVLGAIYVFLFLNVK  
YGQSRYRMAAFYLVFVENALLLASSWLFMTVSWDTVGI PAAVFC SFLIGLIALVLYR  
FLHPKSFEIFQSI RHRGIGGACTDRGSALSLEEKVSPTLHRHATLSVFC SGGGTLMDLPI  
QWEGWKHHHLLIRLALKTG DVVRIWTAYGEGGLAGLMGLPEYSTQTYKTFRETSNRSLT  
ASKDSSFQHHSPQKRSNSYPGFKRIPRDYPRPGEKVS LDIKTPGWSPERRS PLLAGS  
PEKKS GIPGESSTTLYFSADPQSPSTGS

>Homo sapiens\_XKR6(ENSP\_416707)  
MAAKSDGGGVGVGFAQLHNLDEAVGSGGEEDGEPGGGGCGGGGDGSEPGESSMHIHCCHC  
NTSSCYWGCRSACLRSLLGRKPRRSAAADGGDQPLQPPAAGAGRQPPTPSAARPEPPPP  
QVERPWLDCWLIVLALLVFFGDVGTDLWLALDYRKG DYVYFGLTLFFVLVPSLLVQSLS  
FRWFVQDYTGGLGAVEGLTSRGPMMGAGYVHGAARGGPGVRSPTPGAQRLCRLSVWI  
WQSVIHLQLMQGVWRYIRTMYLGIQSQRKQRRFYWAMMYEYADVNMLRLLLETFLSA  
PQLVLQLYIMLQKNSAETLPCVSSVTSLSLAWVLASYHKLLRDSRDDKKSMSYRGAI IQ  
VFWRFLFTISSRVISFALFASIFQLYFGIFV VVHWCAMAFWI IHGGTDFCMSKWEI LFNM  
VVGIVYIFCWFNVKEGRTRYRMFAYYITVLTENAALTFLWYFYRDPETTD SYAVPALCCV  
FISFVAGIAMLLLYGVLHPTGPRAKILASSCCAELLWGIPLPPDVEPMAPEIPGYRGTQ  
VTPTRAVTEQQEDLTADTCLPVFQVRPMPGPPTPLGRPYLPEGPLIKIDMPRKRYPAWDAH  
FVDRRLRRTINILQYVTPPTAVGIRYRDG PLYLLELQYESSL

>Gorilla gorilla\_XKR6(ENSGGOP\_9164)  
LLLPRHSSREFQYIRTMYLGIQSQRKQRRFYWAMMYEYADVNMLRLLLETFLSAPQ  
LVLQLYIMLQKNSAETLPCAGVSSVTSLSLAWVLASYHKLLRDSRDDKKSMSYRGAI IQ  
VFWRFLFTISSRVISFALFASIFQLYFGIFV VVHWCAMAFWI IHGGTDFCMSKWEI LFNM  
VVGIVYIFCWFNVKEGRTRYRMFAYYITVLTENAALTFLWYFYRDPETTD SYAVPALCCV  
FISFVAGIALMLLYGVLHPTGPRAKILASSCCAELLWGIPLPPDVEPMAPEIPGYRGTQ  
VTPTRAVTEQQEDLTADTCLPVFQVRPMPGPPTPLGRPYLPEGPLIKIDMPRKRYPAWDAH  
FVDRRLRRTINILQYVTPPTAVGIRYRDG PLYLLELQYESSL

>Mus musculus\_XKR6(ENSMUSP\_113708)  
MAAKSDGGGVGVGFAQLHNLDEAVGSGGEEDGEPGGGGCGGGGDGSEPGESSLHIHCCHC  
SSCYWGCRSACLRSLLGKPRRSAAAADGGDQPLQPPGAAGRHPPTPSAGRPQASPQVE  
RPWLDCWLIVLALLVFFGDVGTDLWLALDYRKG DYGCFLTLFFVLVPSLLVQSLSFRW  
FVQDYTGGLGAVEGLSSRGPMMGAGYGHGAARGGPGAGGSATPGAQRLCRLSVWIWQ  
VIHLQLMQGVWRYIRTMYLGIQSQRKQRRFYWAMMYEYADVNMLRLLLETFLSAPQ  
VLQLCIMIQKNSAETLPCVSSVTSLSLAWVLASYHKLLRDSRDDKKSMSYRGAL IHLFW  
RLFTISSRVISFALFASIFQLYFGIFV VVHWCAMAFWI IHGGTDFCMSKWEI LFNMVV  
IVYIFCWFNVKEGRTRYRMFAYYITVLTENAALTFLWYFYRNPESTDSYAVPALCCV FVS  
FVAGITLMLLYGVLHMPGPRAKVFASSCCAELLWGIPLPPDVEPMAPEIPGYRGTQVTP  
TRAVTEQQEDLTADTCLPVFQVRPMPGPSTPSGRPYHPEGPLIKIDMPRKRYPAWDAH FVD



RRRLRRTINILQYVTPPTAVGIRYRDGPLYELLQYESSL

>*Canis familiaris*\_XKR6(ENSCAFP\_11914)

RYIRTMYLGIQSQRQKEHQRRFYWAMMYEYADVNMLRRLLETFLAESAPQLVVLQLCIMIQKN  
SAETLPCVSSVTSLSLAWVLASYHKLLRDSRDDKKSMSYRGALIHFLWRLFTISSRVIS  
FALFASIFQLYFGIFVHVHCAMAFWIIHGDTDFCMSKWEEILFNMVVGIVYIFCWFNVK  
EGRTRYRMFAYYTVLTENAALTFLWYFYRNPETDTSYAVPALCCVFLSFVAGIALMLLY  
YGVLPMPGPRAKIFASSCAELLWGIPLPPDVEPMAQTPGYRGTQVTPTRAVTEQQEDL  
TADTCLPVFQVRMVPSTPSGRPYPEGLIKIDMPRKRYPAWDAHFDVDRRLRRTINILQ  
YVTPPTAVGIRYRDGPLYELLQYESSL

>*Myotis lucifugus*\_XKR6(ENSMLUP\_22004)

LGRYIRTMYLGIQSQRQKEHQRRFYWAMMYEYADVNMLRRLLETFLAESAPQLVVLQLCIMIQ  
ENSAETLPCVSSVTSLSLAWVLASYHKLLRDSRDDKKSMSYRGALIHFLWRLFTISSRV  
ISFALFASIFQLYFGIFVHVHCAMAFWIIHGDTDFCMSKWEEILFNMVVGIVYIFCWFN  
VKEGRTRYRMFAYYTVLTENAALTFLWYFYRNPETDFYAVPALCCVFLSFVAGIALML  
LYYGVLPMPGPRAKIFASSCAELLWGIPLPPDVEPMAQTPGYRGTQVTPTRAVTEQQE  
DLTADTCLPVFQVRMGPSTPSGRPYHPEGLIKIDMPRKRYPAWDAHFDVDRRLRRTINI  
LQYVTPPTAVGIRYRDGPLYELLQYESSL

>*Monodelphis domestica*\_XKR6(ENSMODP\_11108)

MYLGIQSQRQKEHQRRFYWAMMYEYADVNMLRRLLETFLAESAPQLVVLQLCIMIQKNSAETL  
PCVSSVTSLSLAWVLASYHKLLRDSRDDKKSMSYRGALIHFLWRLFTISSRVISFALFA  
SIFQLYFGIFVHVHCAMAFWIIHGDTDFCMSKWEEILFNMVVGIVYIFCWFNVKEGRTR  
YRMFAYYTVLTENAALTFLWYFYRNPETDTSYAVPALCCVFLSFVAGIALMLLYYGVLP  
MPGPRAKIFASSCAELLWGIPLPPDVEPMAQTPGYRGTQVTPTRAVTEQQEDLTADTC  
LPVFQVRMGPSTPSGRPYHPEGLIKIDMPRKRYPAWDAHFDVDRRLRRTINILQYVTPPT  
AVGIRYRDGPLYELLQYESSL

>*Gallus gallus*\_XKR6(ENSGALP\_26821)

RVSRFAFPVSCRYIRTMYLGIQSQRQKEHQRRFYWAMMYEYADVNMLRRLLETFLAESAPQ  
LVLQLCIMIQKNRAETLPCVSSVASLSLAWVLASYHKLLRDSRDDKKSMSYRGALIHFL  
WRLFTISSRVISFALFASIFQLYFGIFVHVHCAMAFWIIHGDTDFCMSKWEEILFNMV  
GIVYIFCWFNVKEGRTRYRMFAYYTVLTENAALTLLWYFYRDPDTTDSYAVPALCCVFL  
SFAAGIALMLLYYGVLPMPGPRAKIFASSCAELLWGIPLPPDVEPMAQTPGYRGAQAT  
PTRAVTEQQEELTADTCLPVFQVRMVPSTPSGRPYPEGLIKIDIPRKRYPAWDAHFDV  
DRRLRRTINILQYVTPPTAVGIRYRDGPLYELLQYESSL

>*Anolis carolinensis*\_XKR6(ENSACAP\_7485)

RYIRTMYLGIQSQRQKEHQRRFYWAMMYEYADVNMLRRLLETFLAESAPQLVVLQLCIMIQKN  
RAETLPCVSSVTSLSLAWVLASYHKLLRDSRDDKKSMSYRGALIHFLWRLFTISSRVIS  
FALFASIFQLYFGIFVHVHCAMAFWIIHGDTDFCMSKWEEILFNMVVGIVYIFCWFNVK  
EGRTRYRMFAYYTVLTENAALTLLWYFYRDPDTTDSYAVPALCCVFLSFAAGIALMLLY  
YGVLPMPGPRAKIFSSCAELLWGIPLPPDIEPMAQTPGYRAAQATPTRAAATEQQEEP  
TADTCLPVFQVRMVPSTPSGRPYHPEGLIKIDIPRKRYPAWDAHFDVDRRLRRTINILQ  
YVTPPTAVGIRYRDGPLYELLQYESSL

>*Xenopus tropicalis*\_XKR6(ENSXETP\_1509)

MAAKSDGMLGVSGGFAQLHNLDEAVAAAAAGERGGGGEDGEPGESSSIHICHCCNTSSCY  
WGCRSACLRSLLGKKGAGMLGGQAGGKGDRAWLDCLWIVLALMVFFWDVGTDLWLAADY  
YSKRDYLCSSLTGLFVLVPSLLVQILSFRWFAQDYTGGLGAVEGLSSRGPMMGSIHHH  
YQRHHPSTYTAERFCRISVWLWQSVIHILQMGQVWRYLRTMYLGIQSQRQKEHQRRFYWAM  
MYEYADVNMLRRLLETFLAESAPQLVVLQLCIMIQKNRAETLPCVSSVASLSLAWVLASYHK  
LLRDSRDDKKSMSYRGALIHIFWRLFTISSRVISFALFASIFQLYFGIFVHVHCIMAFW  
IIHGDTDFCMSKWEEILFNMVVGIVYIFCWFNVKEGRTRYRMFAYYTVLTENAVLTLFLW  
YFYRDPDTTDSFAVPALCCVFLCFAAGVAFILLYYGVLPMPGPRAKIFASSCAELLWGI  
PLPPDVEPMAQTPGYRGAQATPTRATEQQDDLTADTCLPVFQVRMVPSTPSGRPYYPE  
GLIKIDMPRKRYPAWDAHFDVDRRLRRTINILQYI TPSAVGIRYRDGPLYELLQYESSL

>*Danio rerio*\_XKR6a(ENSDARP\_63724)

MAAKSDGRGVATGFAQLHNLDEAVGSCEDDPRQSSFHICHCCNTSSCYWGCRSACLHLYL

LDKGRDVRPPHEERLWLDCLWIVLALLVFFWDVGTDLWLALDYAKQDYLWFGTLFFV  
LVPSVLVQILSFRWFVQDYTGGLGSVEGLSSTRRSTSAVVYNRARCRRVSVVWVQTLIH  
ILQMGQVWRYIRTMYLGIQSRQKENQRRFYWAMMYEYADVNMLRRLLETFLSAPQLVLQ  
LCIMIQKNRAETLQCVSAVTSLLSLSWVLSYHKLLRDSRDDQKSMYSYRGALVHLLWRFF  
TISSRALSFAFASVFHLYFGIFVVLHWCAMAFWVIHGGTDFCMSKWEVLFNMVVGVVY  
VFCWFNVKEGRTRYRMVFIYSLVVENTILTALWYAYRDPVSTDSYAASALCGVFLCFAS  
GVACMVLYYGVLPMPRLRVLASSCCAELLWGLPLPPEAEPMAPTPGPRGSQATPTRGM  
ASGDYSEPEEAATDTCPLVFQVRSTEPTDASGRPIPKGPLIKIDMPRKRYPAWDAHFDV  
RRLRRTINILQFISPNAVGIYRDGPLYELLQYESSL

>Danio rerio\_XKR6b(ENSDARP\_22407)

MAAKSDGCVVGTGFAQLHNLDEATGDEEPLDSAAIHCHCCNSSSCYWGCRSACLQPLLG  
ERDRPQHQQHQPEERLWLDCLWIVALLVFFWDVGTDLALLALDYYSKRDLWFGTLFF  
VLVPSVLVQILSFRWFVQDYTGGLGAVEGLSRKATADLSSRIYGRDRCCVISIWIWHAC  
VHVLQMGQVWRYIRTMYLGIQSRQKEHRRFYWAMMYEYADVNMLRRLLETFLSAPQLV  
LQLCIMIQKNRAETLQCVSSVASLLSLAWVLSYHKLLRDSRDDKKSMSYRGALIHIFWR  
LFTISSRVLSFAFASIFHIYFGIFVVLHWCAMAFWVHGGTDFCMSKWEVLFNMVVGVI  
VYIFCWFNVKEGRTRYRMVFIYFVLAENTVLTCLWYAYRDPITDTSYAVPVLGCVYLT  
ASGVVFMGVYGFVLPMPKIRVLAASSCCAELLWGLPLPPEAEPMAPTPGPRASQPTPSR  
ASMVDDTTMDTCLPVFQVRSPEPTTPLGRYRPEGPLIKIDMPRKRYPAWDAHFDVDRRLR  
TINILQFITPATVGIYRDGPLYELLQYESS

>Takifugu rubripes\_XKR6(ENSTRUP\_13182)

MAAKSDGRGVVGTGFAQLHNLDEVVGTGEDDTRNGSSFHICHCCNTSSCYWGCRSACLHYL  
RTKGKEKGDRTARPTLEERLWLDCLWIVALLVFFWDVGTDLWLAVDYHKKQDFLWSGLT  
LFFVLVPSVLVQILSFRWFVQDYTGGLGSVEGLSSRRAAACLQRDKCCRLSVWIWQTVI  
HIFQLGQVWRYIRTMYLGIQSHRQKENQRRFYWAMMYEYADVNMLRRLLETFLSAPQLVL  
QLCIMIQSNAEWLQCVSALSLLSLAWVLSYHKLLRDSRDDKKSMSYRGALVHLFWRL  
FTISSRVLSLAFASVFHIYFGIFVVLHWCAMAFWVIHGGTDFCMSKWEVLFNMVVGVV  
YVFCWFNVREGRTRYRMVAYIVVLEENVILSSLWYAYRDPATTDAYASFALCGVFLCFA  
SGVACMVLYYGVLPMPGPRRLRVLASSCCAELLWGLPLPPEAEPMAPTPGPRGSQATPTRG  
LTGEYAESDEATDTCPLVFQVRSPEPTVDAAGRPIQPEGPFIKIDMPRKRYPAWDAHFDV  
RRLRRTINVLQYISPNAAGIYRDGPLYELLQYESSF

>Tetraodon nigroviridis\_XKR6a(ENSTNIP\_17283)

MAAQSDGGKAAVGGGFAQLYDVDAEPPMDSAAIHICCCRTSACYWGCRSACLGSLLGG  
GQPAGGVGIRETHCPPREQLWLDCLWIVALLVFFWDVGTDLCLAVDYHKKQDFLWSGLT  
LFFVLVPSVLVQILSFRWFVQDYTGGLGVEVEGLTKRGAVALGCLYGRDRQLATIWMMW  
QATIHILQLGQVWRYIRTYLGLVMSRRQKEHQRWYWAMMFYADVNMLRRLLETFLSAP  
QLVLQLSIMIQENRAETLQCISSLSLLSLAWVLSYHKLLRDSRDDQRSMSYRGALLHI  
FWRLFTISSRVLSLAFASVFHIYFGIFVVLHWCAMAFWVHGGTDFCMSKWEVLFNMV  
VGIVYIFCWFNVKEGRTRHRMVTYYMVVLAENSLTGLWYAYRDPVLTDSYAVPALCGVY  
LTFAGGVLMVLLYGFVLPATAHLQSPASSCCAQLLWGLPLPPSAPPTAPPTPAHMTKS  
QTEEDVAETCLPVFQVRSAPPISKPEGPLIKIDMPRKRYPAWDHYVDRRLRRTINILQYI  
TPAAVGIYRDGLLYELLQYESSL

>Tetraodon nigroviridis\_XKR6b(ENSTNIP\_19426)

MAAKSDGRGVVGTGFAQLHNLDEVVGTGEDDARNGSSFHICHCCNTSSCYWGCRSACLHYL  
RAKKGKGGKETARPTPEERLWLDCLWIVLALLVFFWDVGTDLWLAVDYHKKQDFLWSGLT  
LFFVLVPSVLVQILSFRWFVQDYTGGLGSVEGLSSRRAAASLQRDKCCRLSVWIWQTVI  
HIFQLGQVWRYIRTMYLGIQSHRQKENQRRFYWAMMYEYADVNMLRRLLETFLSAPQLVL  
QLCIMIQSNAEWLQCVSALSLLSLAWVLSYHKLLRDSRDDKKSMSYRGALVHLFWRL  
FTISSRVLSLAFASVFHIYFGIFVVLHWCAMAFWVIHGGTDFCMSKWEVLFNMVVGVV  
YVFCWFNVREGRTRYRMVAYVVVLEENVILTSWYAYRDPATTDAYASLALC

>Gasterosteus aculeatus\_XKR6a(ENSGACP\_14390)

MAAKSDGRGVVGTGFAQLHNLDEVVGTGEDDTRNSSSFHICHCCNTSSCYWGCRSACLHYL  
RGKKGKGGDAARPPQEERLWLDCLWIVALLVFFWDVGTDLWLAVDYHKKQDFLWSGLT  
LFFVLVPSVLVQILSFRWFVQDYTGGLGSVEGLSRRATATLQRDSCCRLSVVWVQTVIH  
IFQLGQVWRYIRTMYLGIQSHRQKENQRRFYWAMMYEYADVNMLRRLLETFLSAPQLVLQ  
LCIMIQSNAEWLQCVSAISSLLSLAWVLSYHKLLRDSRDDKKSMSYRGALVHLFWRLF

TISSRVLSLALFASVFHIIYFGIFVVLHWCAMAFWVIHGGTDFCMSKWEEVLFNMVAVVY  
VFCWFNVNVRAGRTRCRMVAYYALVLLLENAILSLWYAYRDPVTTDAYASFALCGVFLCFAS  
GVACMVLYYGVLHMPGRLRVLASSCCAELLWGLPLPPEAEPMAPT PGRHRSQATPTRGL  
AGEYEESDETPDTCLPVFQVRSTEPVDAAGRPIQPEGPLIKIDMPRKRYPAWDAHVFDR  
RLRRTINVLQYISNAVGIRYRDGPLYLLELQYESSL

>Gasterosteus aculeatus\_XKR6b(ENSGACP\_19719)  
MAAQSDGGKAPGGVGAAPLPATGAAAQPASAPCSAGGQPLGGVGIETHCAPPREQLWLD  
CLWIIILALIVFFWDVGTDLCLANEYRRQDYLWFGTLTFFVLVPSVLVQILSFRWFVQDY  
TGGGLGEVEGLTKRGAVALGCLYPGRDRLQLATIWLWQATIHILQLGQVWRYIRTLYLGI  
MSRRQKEHQRRWYWAMMFEYADVNMRLRLETFLESAPQLVLQLCIMIQENRAETLQCIS  
LGSLLSLAWVLASYHKLRLDRSDDQRSMSYRGALLHLFWRLFTISSRVLSLALFASLFH  
YFGIFVVLHWCAMAFWVHGGTDFCMSKWEEVLFNMVVGIVYIFCWFNVKEGRTRHRMV  
YIVVLAENTILTGLWYTYRDPALTDYAVPALCGVYLTFFAGGVLMVLLYGFHPASAH  
LQSPASSCCAQLLWGLPLPPSAPPTAPPTPAHMSKSTDEDVAETCLPVFQVRSAPITS  
KPEGPLIKIDMPRKRYPAWDAHVDRLRRTINILQYITPAAVGIRYRDGPLYLLELQYE  
SSF

>Oryzias latipes\_XKR6a(ENSORLP\_20541)  
MAAKSDGRGVVTGFAQLHNLDEVVGTGEDDARNGSSFHICHCCNTSSCYWGCRSACLHYL  
RRKGERDAARPPQEERLWLDCLWIVLALLVFFWDVGTDLWLAVDYIHNQNFWSLTLF  
FVLVPSVLVQILSFRWFVQDYTGGLGSGVEGLSSRAVATFQRDRCCRLSVVWVQTI  
VHI  
FQMGQVWRYIRTYLGIQSHRQENQRRFYWAMMYEYADVNMRLRLETFLESAPQLVLQ  
LCIMIQSNKVERLQCLASLSSLLSLAWVLASYHKLRLDRSDDKKSMSYRGALLHLFWRL  
FT  
ISSRVLSFALFASVFHIIYFGIFVVLHWCAMAFWVIHGGTDFCMSKWEEVLFNMVVG  
VYV  
FCWFNVREGRTRYRMVYTYTVVLLLENALLTSLWYAYRDPATTDAYASFALCGVFLC  
FASG  
VACMVIYYGVLHMPGRLRVLASSCCAELLWGLPLPPEAEPMAPT PGRHRSQATPTRGL  
V  
GEHMESDEATDTCLPVFQVRSTEPVDAAGRPIHPEGPLIKIDMPRKRYPAWDAHVFDR  
R  
LRRTINVLQYISNAVGIRYRDGPLYLLELQYESSL

>Oryzias latipes\_XKR6b(ENSORLP\_5516)  
MAAQSDGGKAAGCGGFQLYDVDAEEPLDSAAIHCQCRTSACYWGCRSACLGSLLGGG  
QPVGIGVRETHCAPPREQLWLDCLWIIILALLVFFWDIGTDLCLAVDYYQRQDYLWFG  
LTL  
FFVLVPSVLVQILSFRWFVQDYTGGLGDVEGLTKRGTVTLGCLYPGKDRQLQASIW  
LWQ  
ATIHILQLGQVWRYIRTLYLGLMSRRQKEHQRRWYWAMMFEYADVNMRLRLEAFLES  
APQ  
LVLQLCIMIQENRAETLQCISLASLSSLLSLAWVLASYHKLRLDRSDDQRSMSYRGA  
LLHL  
FWRLFTISSRVLSLALFASLFHIIYFGIFVVLHWCAMAFWVHGGTDFCMSKWEEVLF  
NMV  
V  
GIVYIFCWFNVKEGRTRYRMVYIIVLAENTILTGLWYAYRDPVLTDSYAVPALCGVY  
F  
TFIGVLIIMLLYGFHPATAHLQSPASSCCAQLLWGLPLPPSAPPTAPPTPAHMKVSK  
Q  
TDEDVAETCLPVFQVRSTPTTSKPEGPLIKIDMPRKRYPAWDAHVDRLRRTINILQY  
I  
TPGAVGIRYRDGPLYLLELQYESSL

>Homo sapiens\_XKR7(ENSP\_477059)  
MAAKSDGAAASASPDPEGAAGGARGSAGGRGEAAAAAGPPGVVAGGGPGPRYELRDC  
CWV  
LCALLVFFSDGATDLWLAASYLQNHQTYFSLTLFVLLPSLVVQLLSFRWFVYDYSEPA  
GSPGPAVSTKDSVAGGAAISTKDSAGAFRTKEGSEPEPGPQAPSSASAYRRRCCRLC  
IWL  
LQTLVHLLQLGQVWRYLRALYLGLQSRWRGERLRRHFYQMLFESADVSMRLRLETF  
LRS  
APQLVLQSLLVHRRGGAPDLLPALSTASLVSLAWTLASYQKVLDRSDDKRPLSYKGA  
V  
AQVLWHLFSAIARGLAFALFASVYKLYFGIFIVAHWCVMTFWVIQGETDFCMSKWE  
EII  
Y  
NMVVGIIYIFCWFNVKEGRSRRRMTLYHCIVLLENAALTFWYSSRNFTDFYSLIMV  
CV  
VASSFALGIFMVCVYCLLHPNGPMLGPQAPGCIFRKASEPCGPPADAITSPRSLPRT  
T  
GAERDGASAGERAGTPTPPVFQVRPGLPPTPVARTLRTEGPVIRIDLPRKKYPAWDA  
HFI  
DRRLRKTILALEYSSPATPRLQYRSVGTSELELLETTV

>Gorilla gorilla\_XKR7(ENSGGOP\_5134)  
WLAASYLQNHQTYFSLTLFVLLPSLVVQLLSFRWFVYDYSEPPGSPGPAVSTKDSVAG  
GAAISTKDSAGAFRTKEGSEPEPGPQAPSSASAYRRRCCRLCIIWLLQTLVHLLQLG  
QVWR  
YLALYLGLQSRWRGERLRRHFYQMLFESADVSMRLRLETFLRSAPQLVLQSLLVH  
RG  
GAPDLLPALSTASLVSLAWTLASYQKVLDRSDDKRPLSYKGAQAQVLWHLFSAIAR  
GL  
AFALFASVYKLYFGIFIVAHWCVMTFWVIQGETDFCMSKWEIINYNMVVGIIYIFC  
WFNV  
KEGRSRRRMTLYHCIVLLENAALTFWYSSRNFTDFYSLIMVVCVASSFALGIFMVCV

YCLLHPNGPMLGQPAPGCIFRKASEPCGPPADAITSPPRS LPRRTTGAERDGASAGERAGT  
PTPPVFQVRPGLPPTPVARTLRTEGPVIRIDLPRKKYPAWDAH FIDRRLRKTILALEYSS  
PATPRLQYRSVGTPELLEYETTV

>Pongo abelii\_XKR7(ENSPPYP\_12174)

MAAKSDGAAVVLLPSLVVQLLSFRWFVYDNSEPA GSPGPAVSTKDSVAGGAAISTKDSAG  
AFRTKEGSPEPGQPAPSSASAYRRRCCRLCIWLLQTLVHLLQLGQVWRYLRALYLGLQS  
RWRGERLRRHFYWRMLFESADVSMRLRLETF LRSAPQLVQLSLLVQGGAPDLLPALST  
SASLVSLAWTLASYQKVLDRSRDDKRPLSYKGAVQVLWHLF SIAARGLAFALFASVYKL  
YFGIFIVAHWCVMTFWVIQGETDFCMSKWE EIIYNMVGIIYIFCWFNVKEGRSRRRMTL  
YHCIVLLENAALTGFWYSSRNFSSTDFYSLIMCVVASSFALG IFFMCVYYCLLHPNGPML  
GPQAPGCIFRKASEPCGPPADAITSPPRS LPRRTTGAERDGASAGERAGTPTPPVFQVRP  
LPPTPVARTLRTEGPVIRIDLPRKKYPAWDAH FIDRRLRKTILALEYSSPATPRLQYRSV  
GTSQELLEYYETTV

>Mus musculus\_XKR7(ENSMUSP\_49346)

MAAKSDGAAAVAGPGPEGPAGADRGGAGGRGEAAAGIAGPGPVEAGCPGPRYELRDCCWV  
LCALLVFFSDGATDLWLAASYLQGGQSTYFGLTLLFVLLPSLVVQLLSFRWFVYDYSEPA  
GTPGPAVSTKDSDIVGAAISTKDSAVAFRTKEGS AELVPRPAPSSAGTYRRRCCRLCVWL  
LQTLVHLLQLGQVWRYLRALYLGLQSRWRGERLRRHFY WQMLFESADVSMRLRLETF LRS  
APQLVQLSLLVHRGREPELLTALSISASLVSLAWTLAS YQKVLDRSRDDKRPLSYKGAV  
VQVLWHLFTIAARTLAFALFASVYKLYFGIFIVAHWCIMTFWVIQGETDFCMSKWE EIIY  
NMVGIIYIFCWFNVKEGRSRRRVTLYYCIVLLENAALTGFWYSSRNFSSTDFYSLILVCV  
VASSFALG IFFMCVYYCLLHPNGPMLGQPAPGCIFPEAPG PCGPPADAITSPPRS LPRRTT  
GTERDGVAVGGERAGTPTLPVFQVRPGLPPTPVARPLRTEGPVIRIDLPRKKYPAWDAH  
IDRRLRKTILALEYSSPATPRLQYRSMGTSQELLEYYETTV

>Rattus norvegicus\_XKR7(ENSRNOP\_12156)

MAAKSDGAAAVAGPGPEGPAGADRGGAGGRGEVAAGIAGPGPVEAGCPGPRYELRDCCWV  
LCALLVFFSDGATDLWLAASYLQGGQSTYFGLTLLFVLLPSLVVQLLSFRWFVYDYSEPT  
GTPGPAVSTKDSDIVGAAISTKDSAVAFRTKEGS PELVPRPAPSSAGAYRRRCCRLCVWL  
LQTLVHLLQLGQVWRYLRALYLGLQSRWRGERLRRHFY WRMLFESADVSMRLRLETF LRS  
APQLVQLSLLVHRGREPELLTALSISASLVSLAWTLAS YQKVLDRSRDDKRPLSYKGAV  
VQVLWHLFTIAARTLAFALFASVYRLYFGIFIVAHWCIMTFWVIQGETDFCMSKWE EIIY  
NMVGIIYIFCWFNVKEGRSRRRVTLYYCIVLLENAALTGFWYSSRNFSSTDFYSLILVCV  
VASSFALG IFFMCVYYCLLHPNGPMLGQPAPGCIFPEAPG PCGPPADAITSPPRS LPRRTT  
GAERDGAAVGGERAGTPTPPVFQVRPGLPPTPVARPLRTEGPVIRIDLPRKKYPAWDAH  
IDRRLRKTILALEYSSPATPRLQYRSMGTSQELLEYYETTV

>Canis familiaris\_XKR7(ENSCAFP\_10553)

MAAKSDGAAAAAGPGPEGAAGGARSEAGGRGEAAAAAAGGPGVTGAGGPGPRYELRDCCW  
VLCALLVFFSDGATDLWLAASYLQGQRTYFGLTLLFVLLPSLVVQLLSFRWFVYDYSEP  
AGAPGPAVSTKDSGAGGPSISTKDSAAAFRTKEGGPQLGPGPAPSSASAYRRRCCRLCVW  
LLQTLVHLLQLGQVWRYLRAMY LGLQSRWRGERLRRHFYWRMLFESADVSMRLRLETF LRS  
SAPQLVQLSLLVHRGGQPDLLPALSTASLVSLAWTLAS YQKVLDRSRDDKRPLSYKGA  
VAQVLWHLFTIAARSLAFALFASVYKLYFGIFIVAHWCVMTFWVIQGETDFCMSKWE EII  
YNMVGIIYIFCWFNVKEGRSRRRMTLYYCIVLLENAALTGFWYSSRNFSSTDFHSLILVC  
VVASSFALG IFFMCVYYCLLHPNGPMLGPPQAAGCICPEAPG PCGPPADAVTSPPRS LPRRTT  
TGAEREGPSVGGERAGTPTPPVFQVRPGLPPTPVARPLRTEGPVIRIDLPRKKYPAWDAH  
FIDRRLRKTILALEYSSPATPRLQYRSVGTPELLEYETTV

>Felis catus\_XKR7(ENSFCAP\_17682)

MAAKSDGAAAAAGPGPEGAAGGARGGAGGRGEXGQRTYFGLTLLFVLLPSLVVQLLSFRW  
FVYDYSEPAGAPGPAVSTKDSGTGGGPSISTKDSAAAFRTKEGSPQLGPGPAPSSASAYRR  
RCCRLCVWLLQTLVHLLQLGQVWSRYKRANYFHLNPRWGSEEEVRSFHFTTIPSSASISE  
FRLLKQTSNTKTNKTLQLCMLMSAHSGSPD DLSLSTASLVSLAWTLASYQKVLDRSR  
DDKRPLSYKGAVQVLWHLFTIAARSLAFALFASVYKLYFGIFIVAHWCVMTFWVIQGET  
DFCMSKWE EIIYNMVGIIYIFCWFNVKEGRSRRRMTLYYCIVLLENAALTGFWYSSRN  
STDFHSLILVCVASSFALG IFFMCVYYCLLHPNGPMLGPPQMPGCICPEAPG PCGPPADA  
VTSPPRS LPRRTTGTTERDGASAGGERAGTPTPPVFQVRPGLPPTPVARTLRTEGPVIRIDL  
PRKKYPAWDAH FIDRRLRKTILALEYSSPATPRLQYRSVGTPELLEYETTV

>Myotis lucifugus\_XKR7(ENSM LUP\_19149)  
GAAERWGGERLRRHFYWRILFESADVSMRLRLETF LRSASPQLLIVLSWFLHALTVPPSQ  
PLSTSASLVSLAWTLASYQKVL RDSRDDKRPLSYKGAVAQVLWHLFTIAARSLAFALFAS  
VYKLYFGIFIVAHWCIMTFWVIQGETDFCMSKWE EIIYNMVVGGIYIFCWFNVKEGRSRR  
RMTLYYCIILLENAA LTGFWYSSRNFS TDFHSLIILVCV VASSFALGIFFM CVY YCLLHPN  
GPMLGPQAPGCICPEAPEFCGPPADAVTSPPRS LPRRTGAERDGVSVGGERAGTPTPPVF  
QVRPGLPPTPVARTSRTEGPVIRIDLPRKKYPAW DAHFIDRRLRKTILALEYSSPVT PRL  
QYRSTRTSQELLE YETTV

>Monodelphis domestica\_XKR7(ENSMODP\_24298)  
GGRRPRYSLWDCWALCALLVFFSDGATDLWLAADY YLQGRRIWFGLTLLFALLPSLVVQ  
LLSFRWFVYDYSSAGAGPGAATTA FSTKDSTSASVSASAAFS TKDSGPGPGPAVSAPPAL  
SGAPRPHRRCCRLCVWLLQSLVHVLQ LQGVWRYLRAMY LGLQSRWHGEQLRRHFYWRMMF  
ESADISMLRLLLEAF LKSAPQLV LQLS IMVLQGGMEALQGLSASASLVSLAWI IASYQKVL  
RDSRDDKRAMSYKGAIVQILWHLFTIAARALAFALFASVFRLYFGIFIVAHWCIMTFWVI  
QGETDFCMSKWE EIIYNMVVGGIYIFCCFNVKRSRCR MATYYCIVLVENVALTGFWYYN  
HNFTDFSA LIMVCVVAASYALGIFFM LVYYCLLHPNGMPFGPQAPGGIFPEAVGPGPSG  
PPADAVTSPPRS LPRRTGGERDGI PGDRDSGAPAVFQVRPSLPATPVARTPRTEGPVIRI  
DLPRKKYPAW DAHFIDRRLRKTILALEYSSPATPRLQYRSMGASRELLEYETTV

>Gallus gallus\_XKR7(ENSGALP\_428)  
GAPASGDAGGGARAAGSGIQPAAGLPGVRAGLRDGCWVLCALLVCFADGASDLWLAADY Y  
LEGQRWWFGLTLLFVLLPSLVVQLLSFRWFVYDFAVG TKDSAGSTKDSARGRRGCCRLCV  
WLLQGC IHL LQLGQVWRYLR TLYLGLQSRWQAEHRRRHFYWRMMFENADISMLRLETF L  
KSAPQLV LQLS IMVQNNIKALQGF SASASLVSLAWMIASYQKVL RDSREDKMPMSYKGA  
VVQILWHLFTIAARAIAFALFASVFQLYFGIFIVTHWCIMTFWIIQGETDFCMSKWE EII  
YNMVVGGIYIFCWFNVKEGRSRYRMCIIYIITLSENAALTILWFHYNRKTM SDFNALIL  
VCVVSSSFALGIFFMFIYCLLHPNGMPFGPSSGGC IFRQRP PAPPSSPADAVTSPPRS L  
PRTTGGEREGAPGERDSCVPVFQVRPCAPT PPAARAPRTEGPVIRIDLPRKKYPAW DAHF  
IDRRLRKTILALEYAS PSTPRLQYRTAGVSQELLE YETTV

>Anolis carolinensis\_XKR7(ENSACAP\_16774)  
IFHLPVLCRYLR TMYLGLQSRWQSENRRRHFYWRMMFESADISMLRLLLETF LKSAPQLV L  
QLS IMVHQNYIEPLQGLSASASLVSLAWTLASYQKVL RDSREDKLPMSYK GAMVQILWHL  
FTIAARAIAFALFASVFQLYFGIFIVTHWCIMTFWIIQGETDFCMSKWE EIIYNMVVGGI  
YIFCWFNVKEGRSRCRMSIYIITLSENAAMTGLWYHRSESISESNALIIVCVVTS SFA  
LGVFFMFIYCLLHPNGTIFATQSTGCMCREEATAVPGGAGDVVTSPPRS LPRRTGAERE  
GVPGRDSCVPVFQVRPSVPPTPVPRAPRTEGPVIRIDLPRKKYPAW DAHFIDRRLRKT I  
LALEYSSPTT PRLQYRSVGT SQELLE YETTV

>Danio rerio\_XKR7a(ENSDARP\_53660)  
MAAKSDGTAVSLQNDI PPTCLPGLEKRSPEWRPVGKEYSLLDCCWTLCALLVFFSDGASD  
LWLAADY YLRRDYWWFALTLVFI IIPSVVVQVLSFRWFAYDYS DANGSGSAAAAMVAASN  
AESHFSTKDS DQRGAGRSAAVTGSRSSAQSCRCV CVWLFQSAVHVLQ LAQVWRYVHALYL  
GVQSRWRGEHEHKHYWR TMFENADISMLRLLLETF LKSAPQLV LQLS IMVQTGQI LPLQG  
LSASASLVSLGMMASYQKALRDSRDDKLPMSYKAVVHMLWHLFTV GARAMAFALFVSL  
FQLYFGIFIVAHWCAMTFWIIQGETDFCMSKWE EIIYNMMVGIYIIFCWFVREGPTRGR  
LLLYSLIILAENVALTAVWYIYRSPRTSDFYAVVVV CVVACSYALGTFFMFVY YCLLHPD  
GPVPGAYLGCCGVQVGAVSDPCVSSPTSAPPLDVVSSPPRTLQRTKGIDSVPMDIGEVF  
KMRTLKASRNAAPRVT PRTEGPVIRIDLPRKQYPAW DAHFIDRRLRKTILVLEGAAPVTP  
RIQYRCLGTPKEVMEYETTV

>Danio rerio\_XKR7b(ENSDARP\_34312)  
MVILWKYYQRSIRYVHTLYLGVQSRWHGGPGQRHFYWR LMFESADINMLRLLLEAF LKSAP  
QLV LQLS IMIHSNHILPLQGLSASASLVSLAWMIASYQKVL RDSRDDKLPMSYKAVIVQM  
LWHLFTIGARTIAFALFASVFQLYFGIFIVAHWCAMTFWIIQGETDFCMSKWE EIIYNMV  
VGGIYIIFCWFNVKEGRARFRLGVYYCVTLFENVALTAAWYIHRGPHTSDFYALIIVCVV  
CSYALGTFFMFVY YCLLHPDGPILGTQWSCVEEGMGVIGLGGIGDLGTPLPQPDVVTSP  
RTLPRTTGGDRENGAGDRDSCMPVFQVRPPSVPPSSPRPRTTEGPVIRIDLPRKRYPAW  
DAHFIDRRLRKTILVLENTSPVTPRIQYQTF S NPKEVMEYETTV

>Takifugu rubripes\_XKR7(ENSTRUP\_15851)  
MAAKSDGAPLSQRNEIPAECPPGPDPRAPRHRPAEQRYSLPDCCWTLCALLVFFSDGASD  
LWLAADYYLRITYWCFALTLVVFVIVPSLVVQVLSFRWFAYDFAESVESGSAAAAVVAASG  
EEDFSTKDSGERGAGRAAAAEEVLPGPPTVGGARGCCRVFVWLFQAIIVHIFQLAQVWRYVH  
ALYLGVQSRWHRDPERRHFYWRMMFESADISMLRLLSFLKSAPQLVLQLSIMIYTKQVL  
PLQGLSASASLISLAWMIASYQKVLDRSRDDKLPMTYKAVVVQILWHLFTIGARTLAFAL  
FASVFQLYFGIFIVAHWCIMTFWIIQGETDFCMSKWEI IYNMMVGVVYIFCWFSVREGR  
TRCRMLIYSLTVFVENVALTTIWYLYRGSRTSESYAVIMVCVAVASSYALGTFMFVYCL  
LHPDGPVSGWGYIVEKEVPVESLGPASSHPPDVSSPPRTLQRTKGSEREQAGIDGDV  
FQVRPPRGAAHAPVNHPTPRTEGPVIRIDLPRKKYPAWDAHFIDRRLRKTILVLESAAFPVT  
PRIQYRCLGNPKVMEYETTV

>Tetraodon nigroviridis\_XKR7a(ENSTNIP\_15450)  
QYVHALYLGVSQRWHDGDPERRHFYWRMTFASADISMLRLLSFLKSAPQLVLQLSIMVHT  
QQVLPLOGLSASASLLSLAWMVASYQKVLDRSRDDKLPMSYKAVAVQILWHLFAIGARTL  
AFALFASAFQLYFGIFVVAHWCVMTFWIIQGETDFCMSKWEI IYNMMVGVVYIFCWFSV  
REGRTRCRMLLYSLTVLVENVALTAVWYLYRGAGASESYAVVMVCVAVASSYALGTFMFV  
YYCLLHPDGPVSGWGYVVEKELPAEPLASPASSHPPDVSSPPRTLQRTKGSEREQAGV  
DGDVDFQVRPPRGARAPVNPPTPRTEGPVIRIDLPRKKYPAWDAHFVDRRLRKTILVLESA  
APATPRIQYRCLGTPKEVMEYETTV

>Tetraodon nigroviridis\_XKR7b(ENSTNIP\_14283)  
KFLNWKYDLRYFHALYLGASHLHGSSPGRHFHWRLMFESADITMLRLLLEAFKLSAPQLV  
LQLSIMIHGNAVLPLOGLSASASLVSLAWMIASYQKVLDRSRDDKLPMSYKAMITQMLWH  
FFTIGARTVAFALFASVFQLYFGIFIVSHWCVMTFWISKETDFCMSKWEI IYNMVVGI I  
YIFCWFNKVEGSPSRFRMI IYYSVTLAENVALTAAWYTYRGPQTSDDSSALVVVCLVACSFA  
LGTFFMLVYYCWLHPDGPVLGLHWAGCVDEGMVSAGGVVGVIDACLTPSQGSQTDVMTS  
PPRTLPRTKDMGEAIPGERDRDSCLPVFQVRPSPSSAALLQKASSSSRAPEGPVIRIDL  
PRKRYPAWDAHFIDRRLRKTILLVEATSTISPRIQYRSSMMGSKEVLEYETTV

>Gasterosteus aculeatus\_XKR7a(ENSGACP\_15752)  
MAAKSDGAAVSLRNEIPAECPSGSDPRPSRHRAAEQRYSVDPCCWTLCALLVFFSDGASD  
LWLAADYYLRGSYWCFALTLVVFVIVPSVVVQVLSFRWFAYDFTETVESGAAAAAVVGGG  
ASTAGQSDFTTDSGERGAGRSAAEAGSLPGPPTGGVGRGCCRAVWLFQAI I HIFQLAQV  
WRYVHALYLGVSQRWHRDPERRHYWRMMFESADISMLRLLSFLKSAPQLVLQLSIMNQ  
ATQVLPLOGLSASASLISLAWMVASYQKALDRSRDDKLPMTYKAVIVQILWHLFTIGART  
LAFALFASVFQLYFGIFIVAHWCIMTFWIIQGETDFCMSKWEI IYNMMVGI VYVFCWFS  
VREGRTRCRMLIYSLTVF IENVALTTAWYLYRDPRTSDFYAVIMVCVAVASSYALGTFMF  
VYYCLLHPDGPISGWGYIVAKEVPVETLASPAASLPDVVSSPPRTLQRTKSEGERGSG  
VDADVFQVRALRGAQAPAPNLTPRTEGPVIRIDLPRKKYPAWDAHFIDRRLRKTIVLVLES  
AAPVTPRIQYRCLGTPKEVMEYETTV

>Gasterosteus aculeatus\_XKR7b(ENSGACP\_13894)  
ALRYIHALYLGASQRWHDGDPRRHFHWRLMFESADITMLRLLLEAFKLSAPQLVLQLSIMI  
HGNI VLPLOGLSASASLVSLAWMIASYQKVLDRSRDDKLPMSYKAVITQMLWHFFTIGAR  
TVAFALFASVFQLYFGIFIVSHWCVMTFWIIQGETDFCMSKWEI IYNMVVGI IYIFCWFS  
NVKEGSPSRLRMTVYYSVTLAENVALTAAWYTYRGPHTSDSYALVVVCLVACSFAFGTFFM  
LVYYCWLHPDGPVLSQWGGCVDDGGVSAGGVAGVIDACLTPSQGSQTDVMTSPPRTL  
RTKDTGEPVPERDKDRDRDSCLPVFQVRPSPSSPALLHRTSSSSRALDGPVIRIDLPR  
KRYPAWDAHFIDRRLRKTILLLETTSAASPRIQYRSSMMGSKEVLEYETTV

>Oryzias latipes\_XKR7a(ENSORLP\_18662)  
RAFQLLSRMPALTRKMTNRYVHALYLGVSQRWHDGDPERRHYWRMMFETADISMLRLLS  
SFLKSAPQLVLQLSIMIHTSQVLPLOGLSASASLMSLAWMISSYQKVLDRSRDDKVPMTY  
KAVIVQILWHLFTIAARTLAFALFASVFQLYFGIFIVAHWCIMTFWIIQGETDFCMSKWE  
E I IYNMMVGI IYVFCWFSVREGRTHCRLLIYSVTVFVENVALTTIWYMYRGGTDRHGNSD  
FYAVMMVCMVASSYALGTFMFVYYCLLHPEGAVSGWSYVEKEVPVELLSPASSLPD  
LVSSPPRTLQRTKGSQDREQDGVFKVRPLRGAKPPVNLKPRTEGPVIRIDLPRKRYPAW  
DAHFIDRRLRKTILVLEKAAFPVTPRIQYRCLVTPKEVMEYETTV

>Oryzias latipes\_XKR7b(ENSORLP\_20930)  
RYIHALYLGAQSRWHSNGPRRHFHWRLMFESADITMLRLLLEAFKLSAPQLVQLSIMIHG  
NGVLPLOGLSASASLVSLAWMIASYSQKVLDRDSRDDKLPMSYKAVIAQMLWHFFFTIGARTV  
AFALFASVFQLYFGIFIVSHWCVMFTFWIIQGETDFCMSKWEEIIYNMVVGGIIYIFCWENV  
KEGPSRFRMALYSVTLAENVALTAAWYTYRGPQTTDSSALVVVCLVACSFALGTFFFMLV  
YYCWLHPDGPVLGSQWGGCVDEGVVAGGVVGVIDAACLTPSQGSQTDMMVITSPPRTLPR  
KDTGEPVPERERDRDSCLPVFQVRPSPSASPALLHRNSSLSRAQEGPVIRIDLPRKRYP  
AWDAHFIIDRRLRKTIILLENLTSAVSPRIQYRSSMMGSKEVLEYETTV

>Homo sapiens\_XKR8(ENSP\_362991)  
MPWSSRGALLRDLVGLVLTAAFLDLGTDLWAAVQYALGGRYLWAAALVLLGLASVAL  
QLFSWLWLRADPAGLHGSQPPRRCLALLHLLQLGYLYRCVQELRQGLLVWQQEPEPSEFDL  
AYADFLALDISMLRLEFETFLLETAPQLTLVLAIMLQSGRAEYYQWVGICTSFLGISWALLD  
YHRALRTCLPSKPLLGLGSSVIYFLWNLLLLWPRVLAVALFSALFSPSYVALHFLGLWLVLL  
LLWVWLQGTDFMPDPSEWLYRVTVATILYFSWFNVAEGRTRGRAI IHFAFLSDSILLV  
ATWVTHSSWLPSPGIPQLWLPVGCFCFFLGLALRLVYYHWHLPSCCWPDPDQVDGARSL  
LSPEGYQLPQNRRMTHLAQKFFPKAKDEAASPVKG

>Pan troglodytes\_XKR8(ENSPTRP\_737)  
MPWSSRGALLRDLVGLVLTAAFLDLGTDLWAAVQYALGGRYLWAAALVLLGLASVAL  
QLFSWLWLRADPAGLHGSQPPRRCLALLHLLQLGYLYRCVQELRQGLLVWQQEPEPSEFDL  
AYADFLALDISMLRLEFETFLLETAPQLTLVLAIMLQSGRAEYYQWVGICTSFLGISALLDY  
HALRTCLPSKPLLGLGSSVIYFLWNLLLLWPRVLAVALFSALFSPSYVALHFLGLWLVLL  
WVWLQGTDFMPDPSEWLYRVTVATILYFSWFNVAEGRTRGRAI IHFAFLSDSILLVAT  
WVTHSSWLPSPGIPQLWLPVGCFCFFLGLALRLVYYHWHLPSCCWPDPDQVDGARSLLS  
PEGYQLPQNRRMTHLAQKFFPKAKDEAALPVKG

>Gorilla gorilla\_XKR8(ENSGGOP\_14554)  
MPWSSRGALLRDLVGLVLTAAFLDLGTDLWAAVQYALGGRYLWAAALVLLGLASVAL  
QLFSWLWLRADPAGLHGSQPPRRCLALLHLLQLGYLYRCVQELRQGLLVWQQEPEPSEFDL  
AYADFLALDISMLRLEFETFLLETAPQLTLVLAIMLQSGRAEYYQWVGICTSFLGISWALLD  
YHRALRTCLPSKPLLGLGSSVIYFLWNLLLLWPRVLAVALFSALFSPSYVALHFLGLWLVLL  
LLWVWLQGTDFMPDPSEWLYRVTVATILYFSWFNVAEGRTRGRAI IHFAFLSDSILLV  
ATWVTHSSWLPSPGIPQLWLPVGCFCFFLGLALRLVYYHWHLPSCCWPDPDQVDGARSL  
LSPEGYQLPQNRRMTHLAQKFFPKAKDEAASPVKG

>Mus musculus\_XKR8(ENSMUSP\_41205)  
MPLSVHHHVALDVVGLVLSILSFLDLVADLWAVVQYVLLGRYLWAAALVLLGLQASVLL  
QLFSWLWLTADPTELHHSQLSRPFLALLHLLQLGYLYRCLHGMHQGLSMCYQEMPSECDL  
AYADFLSLDISMLKLFESFLEATPQLTLVLAIVLQNGQAEYYQWFGISSSFLGISWALLD  
YHRSLRTCLPSKPRGRSSAIYFLWNLLLLGPRICAIATFSAVFPYYVALHFFSLWLV  
LFWIWLQGTNFMPDCKGEWLYRVTMALILYFSWFNVSGRTRGRAVIHLIFIFSDSVLLV  
TTSWVTHGTWLPSPGISLLMWVTIGGACFFLGLALRVYYLWHLHPSCSWDPDLVDGTLGLL  
SPHRPPKLIYNRRATLLAENFFAKAKARAVLTHEVQLNGVL

>Rattus norvegicus\_XKR8(ENSRNOP\_17619)  
MPLSVHPQVALDVVIGLVSTLSFLDLVADLWAVVQYVLLVGRYLWAAALVLLGLQASVLL  
QLFSWLWLTADPTELHQLQPSRRFLALLHLLQLGYLYRCLHGMHQGLSMCCQEVPECDL  
AYADFLSLDISMLRLEFESFLEATPQLTLVLAIVLQSGNAEYYQWFGISSSFLGISWALLD  
YHRSLRTCLPSKPRLGCSSAVYFLWNLLLLGPRICAIATFSVVPYCLALHFLSLWLV  
LYWVWLQDTKMPNSNGEWLYRVTVALILYFSWFNVSGRTRGRATIHLGFILSDSVLLV  
TTSWVTDTWLPGGVLLWAAALGGACFSLGLVLRMIYYLRLHPSCSWEPDFVDGTLRLLPP  
ERPPKLIYNRRATRLAQNFFAKLKTQAALPQAVQLNGVL

>Canis familiaris\_XKR8(ENSCAFP\_17596)  
MPWLPRALLWDVVLGFGTAFLIDLGADLWAAQYVVSGRYLWAAALVLLGLASVAL  
QLFSWLWLRADPAGLHAPQPPGRCLALLHLLQLGYLYRCVQGLQGLLVWRQEAPSEFDL  
AYADFLTLDISMLRLEFETFLLETTPQLTLVLAIVLQSGRAESYQWVGICTSFVGISWALLD  
YHRALRTCLPSKSLGLGSSVVYFLWNLLLLWPRVLAVALFSALFPHYVALHFLGLWLVLL  
LFWVWLQGTDFMPDSCSEWLYRATVATILYFSWFNVAEGRTRGRATIHLVFLSDSVLLV  
VTWVTHIAWLPGGIPQLMLLPVSGICFLLGLALRLVYYRWLHPRCRQEPDRVDGAWGLRS

LEWRRLPQNRMAQLAQSFFPRVRDEAALPQKGEANGVL

>Felis catus\_XKR8(ENSFCAP\_16867)

MPWLPRAALLWDLVLFGLGTAFLVDLGDADLWAAVQYVLSGXHLWQMLSTSCFDEAALS  
QPLGSLTLPWTPCPSLWASPQDPKFLCLLTFENYHLRQFHSMPRCVQGLQQGLLVWQQ  
EAPSDFDLAYADFLTLDISMLRFLFETFLETPQLTLVLAIVLQSGRAESYQWVGICTSFV  
GISWALLDYHRALRTCLPSKPPLGPGSSVVYFLWNLLLLWPRVVFVALFSALFPHYVALH  
FLGLWLVLLFWVWLQGTDFMPDSCSEWLYRATVATILYFSWFNVAEGRTRGRAAIHLVFL  
LSDSVLMAVTWLTHIAWLPSGIPLQTLTPVGGVCVLLGLALRLVYYRWLHPSCRWEPDRV  
DGTRGLGSLEWRRLPQNRMAQLAQNFFPRVRDEAALPQKGEVNGVL

>Myotis lucifugus\_XKR8(ENSMLUP\_140)

MPCSLRAILLRDLLILGVLGISAFLIHLGSDLWAVSQYVLSGRYLWAAVLVSLLVASVAL  
QVFSWVWLRADPADLHSSQLSARCLALLHLLQLGYLYRCMQGLQQGLLVWQQEVPSFDL  
AYADFLSLDISMLRFLFETFLEKTPQLTLVLAIVLQSGQAEYYQWFGICTSFMGISWALLD  
YHRALRTCLPSKPVGLGSSVIYFLWNLLLLWPRVLAVALFSALFPRYVALHFLGLWLVL  
LFWVWCQGTNFMPDPRSEWLYRATVATILYFSWFNVAEGHTRGRATIHLVFLVLLSDSVLMV  
VTWVTQSAWLPSGIPLQMLLPVGGTSFLLGLGLRLVYYRWLHPSYPWEPDQVDGTTAFRS  
LEHYQLPQNRMDHLAQNFFSKARDEAALPWPGEVNGVL

>Monodelphis domestica\_XKR8(ENSMODP\_13478)

MEWKGRHRRGGVSQIGGGDMEGAGTFPSDGVPRAGVAPEEAGGSGAMPGYPRVCRLRDL  
LLTALGTGAFVLDLGDADLWAAQYALQGHLLWTALQLASLGLASAVLQLFWSAWYRGDPA  
GLHPPSSGRWLAFLHFLHLGYLHRCVRALKVGFSLWRQDEPAEVDLDYANFISMDISML  
RLFETFLEATPQLIILVHLITLCMGRVEYYQWLGIGTSFLCTAWALLDYHRALRSCLPTKP  
PLGYLSSAVYFLWNLLLLCPRIALALALFTTVPWYIAVHFLTLWLVLLWVWLQNTDFMP  
GPTSEWLFRTVALILYFSWFNVSEGRTRNRSIIHFSFLLMDSALLGGTTLAHNVPFLGS  
SLLPWLPGAALCFLLGLGLRGAYYQWLHPSRQMAALDEGDGRGLTLQDWHQNRRIAKLA  
QSFFPRAVPAKRRGVNGAV

>Danio rerio\_XKR8(ENSDARP\_58512)

MECANISKYSWLDLAFVTVIGVCTYLFVDVGSDDLWVAKEFYVHGEFIWFGVLVGFMLVSSVT  
VQLFSWFWLQYDRKLENFECQESAGNAVLFSGAKRVTFSLLLHVFLGLFIRHISAICQG  
FRVWCHGGEGSEYAVYQTHDLSMLRLIETFCEAPQLTLMYIMLRNNHARIVQCVSVVA  
STTSMAWMVVDYHQSLRSFLPKDKQGCSSVVYFWNLFLIAPRVVAVALFASVLPCFI  
AVHFLLLWSVFLWAWRQGTDFMDSPPGEWLYRATIGLIWYFSWFNVSEGHTRDRGFYH  
IFMMADTSIFLTTWWMYRDVEATQSYAVSLIIAIPLCYILGLMIKVLYYCCFHPKLWRPP  
DLRVAADASDGLPEFSIVKTVGASFQSINNRMCKHAANFYVTNTSRALKTHECEARM

>Takifugu rubripes\_XKR8(ENSTRUP\_29820)

DFVFSVIGVFTFFVDWGADVWVATEFYRGGDFFWFGLLVSLMVLSSVLVQMFSWFWLKYD  
RVGHHRNQPKRSFLGTLHLLCHLHLRRHISAIRQGFVWWRQOEGSEYAVYLTLDLSML  
RLIETFSEAPQLTLMVHMLCTNRARTVQFVSVAASTTSAIWMVVDYHRSRRAFLPDKA  
KQGWGSSLIYFLWNFLIAPRVAALALFASVVGGFVAVHFLLLWCVFVMWAWLQGTDFMD  
SVCGEGLYRATVGIWYFSWFNVAEQTRGRSIIYHSFITTDGGILLTWWCYRDPVQTE  
PYGLALLVTLFFSYLLGLLFFKTVYYCCFHPT

>Tetraodon nigroviridis\_XKR8(ENSTNIP\_6409)

MEQPSIYNYSWVDFVFSVIGVFTFFVDWGADVWVATEFYRGGDFFWFGLVGLMVLSSVL  
VQMFSWFWLQYDRGLPDLQGTGGTVLFGDRLRLSCLLHVQLGFLCRHISAIRQGFVWWR  
RKEEGSEYAFYLSHDLMLRLIETFSEAPQLTLMIVMLRTQRARAVQFVSVAASTTSAI  
AWMVVDYHRCRLRSFLPKARQGWASSLIYFLWNFLIAPRVAALALFASVVGGLGLHLL  
LLWLVFVTWAWLQRTHEFMDSPGGEWLYRATVGIWYFSWFNVAEGRTRGRSAIYHAFITA  
DGAILLVTWWCCREPVAEPYALALLTLLLSYLLGLLFFKSLYYCCFHPTLWRPPAREPG  
LPDDLDPADVTFRHLSIQDGAPASRPLNRRMALHAADFYSARTS

>Gasterosteus aculeatus\_XKR8(ENSGACP\_3110)

MEGATFSKYSWIDFVFSVIGACTFLVDWGSVDWLAEEFYRGGDVTWFWVLVGLMALSSFV  
VQTFSWFWFQYDRELPGFRAQTEAAVLLGDRAKLSCAVHVLQGLGFLCRHISAIRQGFVW  
WRKEKGESEYAIYQTHDLSMLRLIETFSEAPQLTLMIVMLHHTKARAVQFVSIAASTT  
SAIWMVVDYHRSRSLRSFLPKAKQGWGSSLIYFLWNFLIAPRVAALALCASVLSGYMAAH



FLMLWSAFALWAWRQGTTHFMDSVAGEWLYRATVGLIWYFSWFNVKDGQTRSRSAIYHSFI  
STDGAILLATWWCHRDPVQTQSYALALLIALPLFHFLGLLFKALYYCCFHPKLWRPPARD  
PGLPNDLPDAQVSMRDFPIQDGGLSPKLLNKRMAQVARFYSD

>Oryzias latipes\_XKR8(ENSORLP\_11799)  
MQRGCFPRYSWIDFAFVSVIGVCTFLMDWGS<sup>DL</sup>WVAEEFYCRGDLSWFGVLVGLMILSSVV  
VQMF<sup>SW</sup>FVYDRKLSGFGSKVGTNSVLCGDRVKIFCLLHVLQ<sup>LG</sup>FFCRHISAIRQGF<sup>RV</sup>  
WWRKEEGSEYAIYLTHDLSMLR<sup>LF</sup>FETFCESAPQLILMMYVMLRTNRRARVVQFV<sup>VA</sup>ASTT  
SIAMVLDYHRS<sup>LR</sup>SFLPKAQQGWGSSVYF<sup>LN</sup>WLLLIGPRVAALALFSSV<sup>LP</sup>LLIIVPH  
FLLLWLAFL<sup>LW</sup>AWQQTNFMDSAVGEWLYRATVGLIWYFSWFNVAEGHTRVRS<sup>LI</sup>YHSFM  
TADC<sup>LL</sup>LVTWYLRDAAQTEAYGLALIALPLSYLLG<sup>LL</sup>FKAIYYCCFHPKLWRPP<sup>PE</sup>  
GRLPNDLQIEVTS<sup>DL</sup>SIQDDSVSAPIFNKRMEHHAARFY

>Homo sapiens\_XKR9(ENSP\_431088)  
MKYTKQNF<sup>M</sup>SVLGI<sup>II</sup>YVTDLIVDIWVS<sup>VR</sup>FFHEGQYVFSALALS<sup>F</sup>MFLFGTLVAQCFSY  
SWFKADL<sup>KK</sup>AGQESQHC<sup>FL</sup>LLHCLQGGVFTRYWFALKR<sup>GY</sup>HAAFKYDSNTSNFVEEQIDL  
HKEVIDR<sup>VT</sup>DL<sup>S</sup>MLR<sup>LF</sup>FETYLEGCPQLILQ<sup>LY</sup>I<sup>LL</sup>EHGQANFSQYAAIMVSCCAISWSTV  
DYQVALR<sup>KS</sup>LPDK<sup>KL</sup>LLNGLCPKIT<sup>YL</sup>FYKLF<sup>T</sup>LLSWMLSV<sup>V</sup>LL<sup>LL</sup>FLNVKIALF<sup>LL</sup>FLWL  
LGI<sup>I</sup>WAFK<sup>NN</sup>TQFCTCISMEFLYRIVVGFIL<sup>I</sup>FTFFNIK<sup>G</sup>QNTKCPM<sup>SC</sup>YYIVRVLGTLG  
ILTVFW<sup>VC</sup>PLTIFNPDYFIPISITIVL<sup>T</sup>LLLGILFLIV<sup>YY</sup>GSFHPN<sup>RS</sup>AETK<sup>CD</sup>EIDGK<sup>P</sup>  
VLRECRMRYFLME

>Pan troglodytes\_XKR9(ENSPTRP\_53139)  
MKYTKQNF<sup>M</sup>SVLGI<sup>II</sup>YVTDLIVDIWVS<sup>VR</sup>FFHEGQYVFSALALS<sup>F</sup>MFLFGTLVAQCFSY  
SWFKADL<sup>KK</sup>AGQESQHC<sup>FL</sup>LLHCLQGGVFTRYWFALKR<sup>GY</sup>HAAFKYDSNTSNFVEEQIDL  
HKEVIDR<sup>VT</sup>DL<sup>S</sup>MLR<sup>LF</sup>FETYLEGCPQLILQ<sup>LY</sup>I<sup>LL</sup>EHGQANFSQYAAIMVSCCAISWSTV  
DYQVALR<sup>KS</sup>LPDK<sup>KL</sup>LLNGLCPKIT<sup>YL</sup>FYKLF<sup>T</sup>LLSWMLSV<sup>V</sup>LL<sup>LL</sup>FLNVKIALF<sup>LL</sup>FLWL  
LGI<sup>I</sup>WAFK<sup>NN</sup>TQFCTCISMEFLYRIVVGFIL<sup>I</sup>FTFFNIK<sup>G</sup>QNTKCPM<sup>SC</sup>YYIVRVLGTLG  
ILTVFW<sup>VC</sup>PLNIFNPDYFIPISITIVL<sup>T</sup>LLLGILFLIV<sup>YY</sup>GSFHPN<sup>RS</sup>AETK<sup>CD</sup>EIDGK<sup>P</sup>  
VLRECRMRYFLME

>Gorilla gorilla\_XKR9(ENSGGOP\_19148)  
MKYTKQNF<sup>M</sup>SVLGI<sup>II</sup>YVTDLIVDIWVS<sup>VR</sup>FFHEGQYVFSALALS<sup>F</sup>MFLFGTLVAQCFSY  
SWFKADL<sup>KK</sup>AGQESQHC<sup>FL</sup>LLHCLQGGVFTRYWFALKR<sup>GY</sup>HAAFKYDSNTSNFVEEQIDL  
HKEVIDR<sup>VT</sup>DL<sup>S</sup>MLR<sup>LF</sup>FETYLEGCPQLILQ<sup>LY</sup>I<sup>LL</sup>EHGQANFSQFTFFNIK<sup>G</sup>QNTKCPMS  
CYI<sup>Y</sup>IVRVLGTLGILTVFW<sup>VC</sup>PLTIFNPDYFIPISITIVL<sup>T</sup>LLLGILFLIV<sup>YY</sup>GTFHPN<sup>RS</sup>  
AETK<sup>CD</sup>EIDGK<sup>P</sup>VLRECRMRYFLME

>Mus musculus\_XKR9(ENSMUSP\_85900)  
MKYTKCNF<sup>M</sup>SVLGI<sup>II</sup>YVTDLVADIVLSVRYFHDGQYV<sup>LG</sup>VLTLSFVLCGTLIVHCF<sup>SY</sup>  
SWLKADLEKAGQENERYF<sup>LL</sup>LLHCLQGGVFTRYWFALRTGYH<sup>V</sup>VFKHSDRKS<sup>N</sup>FMEEQ<sup>T</sup>DP  
HKEAIDMAT<sup>DL</sup>SMLR<sup>LF</sup>FETYLEGCPQLILQ<sup>LY</sup>AFLECGQANLSQ<sup>CM</sup>VIMVSCCAISWSTV  
DYQIALR<sup>KS</sup>LPDK<sup>N</sup>LLRGLWPKL<sup>MY</sup>LFYKLL<sup>T</sup>LLSWMLSV<sup>V</sup>LL<sup>LL</sup>LV<sup>D</sup>VRVALL<sup>LL</sup>FLWI  
TGFIWAFINHTQFCNSVMEFLYRIVVGFIL<sup>V</sup>FTFFNIK<sup>G</sup>QNTKCPM<sup>SC</sup>YYTVRVLGTLG  
ILTVFWIYPLSIFNSDYFIPISATIVL<sup>L</sup>LLGII<sup>F</sup>LVGY<sup>Y</sup>GNFHPN<sup>RV</sup>EPQLDETDGKA  
PQRDCRIRYFLMD

>Rattus norvegicus\_XKR9(ENSRNOP\_58714)  
MKYTICNF<sup>M</sup>SVLGI<sup>III</sup>YVTDLVADIVLTVRYFYD<sup>G</sup>QYVFGVLTLSFVLCGTLIVHCF<sup>SY</sup>  
SWLKDDLKAGGENEHYF<sup>LL</sup>LLHCLQGGVFTRYWFVLR<sup>T</sup>GYH<sup>V</sup>VFKHSHRTSNFMEEQ<sup>T</sup>DP  
HKEAIDMAT<sup>DL</sup>SMLR<sup>LF</sup>FETYLEGCPQLILQ<sup>LY</sup>AFLE<sup>R</sup>GQANFSQY<sup>M</sup>VIMVSCCAISWSTV  
DYQIALR<sup>KS</sup>LPDK<sup>N</sup>LLRGFWPKL<sup>TY</sup>LFYKLF<sup>T</sup>LLSWMLSV<sup>V</sup>LL<sup>LL</sup>LV<sup>D</sup>VRTVLL<sup>LL</sup>FLWT  
VGF<sup>I</sup>WAFINHTQFCNSLMEFLYRLV<sup>V</sup>GFIL<sup>V</sup>FTFFNIK<sup>G</sup>QNTKCPM<sup>SC</sup>YYTVRVLGTLG  
ILTVFWIYPLSIFNSDYFIPISATIVLS<sup>LL</sup>FGIIFLV<sup>G</sup>Y<sup>Y</sup>GTYHPNINAGTQHDEPDGKA  
PQRDCRIRYFLMD

>Canis familiaris\_XKR9(ENSCAFP\_34643)  
MKYTKLTFM<sup>SV</sup>LGI<sup>VI</sup>YITDLIVDIWVS<sup>VR</sup>FFYEGQNVFGILT<sup>V</sup>SFMLFGTLVVQCFSY  
SWFKADL<sup>KK</sup>AGQESQCC<sup>FL</sup>LLHCLQGGVFTRYWFALK<sup>NG</sup>YHVAFKNSKTANFTEE<sup>Q</sup>IDSH  
KEVIDRMT<sup>DL</sup>SMLR<sup>LF</sup>FETYLEGCPQLV<sup>L</sup>Q<sup>LY</sup>T<sup>F</sup>LELQANFSQYAAI<sup>L</sup>VSCCAISWSTVA  
YQVALR<sup>KS</sup>LPDK<sup>N</sup>LLNGFCPKFT<sup>YL</sup>FYKLF<sup>T</sup>LLSWKLSI<sup>V</sup>LL<sup>LL</sup>FLDVKIALF<sup>LL</sup>FLWL

GILWAFKKQTQFCASVSMEFLYRVVVGFILTFFFNIKGQNTKCPMFCYYIVRVLATVGI  
LVVFWVSPVSIFNSDYFMSISITIALTLVLGIIIFLIVYYGTFHPNRNEETKPDEIDGKTT  
KRDCRMKYFLME

>Felis catus\_XKR9(ENSFCAP\_16605)

MKYTKLNFMSVLGIVIIYITDLIVDIWVSVRFFHEGQYVFGILTIVSFMFFGTLVVQCFSY  
SWFKADLKKAGQESQHCFLLLHCLQGGVFTRYWFALKKGYHVAFKYSSKTDNFMEEQIDQ  
HKEVIDRMTDLSMLRLFETYLEGCPQLVQLYTLLEHGQANFTQYAAIMVSCCAISWSTV  
DYQVALRKSLPDKNLLNGFCPKLTYLFYKLFLLSWMLSVVLLLFINVKIALFLLFLWF  
LGILWAFKKQTQFCASISMEFLYRVVVGFILTFFFNIKGQNTKYPMFCYYIGRVLVTVG  
ILIVFWVCPVSIFNSDYFIPISITIALSLVLGIIIFLIVYYGTLHPNRNEETKPDEIDGIA  
AERDCRMKYFLME

>Myotis lucifugus\_XKR9(ENSMLUP\_15612)

MKYTKSNFMMSVVGIIYITDLIVDIWVSVRFFHEGQYVFGVLTIVSFMVLVGLVVQCFSY  
SWYKSDLKKAGQESQHRFLLHCLQGGIFTRYWFALKKGYHVAFKYSSKTDNFIKQIDP  
HKEVIDGVTDLSMLRLFETYLEGCPQLVQLYTCLEHGQANISQYAALMVSCCAISWSTV  
DYQISLRKSLPDKNVLTPGCPKLTLYLFYKFFLLSWMLSVVLLLFNLVKIALCCLSFLWF  
LGILWAFKNQTKFCASISMEFLYRIVVGFVLIFFTFNIQGGQNTKCPMSCYYIVRVLATLG  
ILIVLWFCPLSIFNSDYFIPISIIIALALILGIIIFLIVYYGTLHPNKSKERKPDEIDGKP  
VQIECRMKYFLME

>Monodelphis domestica\_XKR9(ENSMODP\_36453)

MGFTKLNFFILVLGILIIYITDLIMDIWVSVNFFCKGQHIFGILTMSFMFLIAAGIVQCFSF  
MWYKEDYQKMGQKGPSCSLIHCFOGGIFIRYWFALRRGYHLAFQCSSSDGLSGRPALTQ  
DPTDLSTPSREEGADAHQTVINEVTDLSMLRLFELYLEASPQLMIQLYSLMESDQADCIQ  
VAAIVTSCCAISSATVDYHIALRKSLLPDKKLLSGYFPRFIYFLYKLLTFTSWILTVGLLT  
VISINLSLILLIILWILGIMWACKQKTTFCTSKCMEILYRGVVGFILIFTFFNVKGENTK  
FPMSAYYVMRALATLGLIVVFWSCIPPDEYQEFFRDFITITIVA AVAFLLGILFLIAYYTS  
FHPNRREEKKIFDEVDGRIPPRACRIRNFLMP

>Gallus gallus\_XKR9(ENSGALP\_35892)

MMKFTKWNFIFFLLGGIIYIADIGVDFWVASKYFYQGQYFWAVLILCFRGLSSSLVTQIFS  
YHWFKNWDWNGTHPGKLDWIFLVHFFHCGIFIRYWFALKYGCQA AFRQDSSGDVSETDPPN  
IIQKQAIQIDVLTIDINMLRVFKTFLETPQLFVQIYVLMYNNHNFYQYAAIIISFCGISFS  
MVDYQISLRKSLPDKKEELEALPKLVLYLFYKLLTITSWILSISLITLLSVRSSVIVLILLW  
SCGFAWTLKQHTTFCKSKEMEYLYRTVVGIIILFTFFNIKGRKTKAYISIIYATHLVTV  
GILLVCLFWKPAVIEKVHLTIVSGLAVISLVLGLIFLAVYYKYFHPTTYCKQRTFFDEVD  
RRGGDNMEVGRFQNFIMQ

>Anolis carolinensis\_XKR9(ENSACAP\_14517)

MIDHESKTMRFKQDLGMMCFGIVVYVADVGADFWIARTYWCKEQYLWCGLILATGFFSS  
VVIQLFSYIWFKEDRAEKLNWKLILLHLFHGGIFTRYWLALNQGFQAACKPKSENILID  
GPTSFIHRKAIYAMADISMLRLFKTYLESTPQLILQVYILMTSDNSTFTQYISITVFSIS  
ISCATVDYQIALRKSLLPDKKTFVKISSKMMYFSYKLLTITSWILSIALLAVLSIKTSIIL  
VAIILWMMGGVGVAWKQHTTFCKSKTPEIVYRVTVGIIILVFTFFNIKGENTKIPMSVYYVIR  
VLIISAISSASLFWKSSFNGKIYLSFMIAAIALALILGIIIFLVIYYAFFHPNIYYPQDVV  
DGPGERNENCRMRAFIMQ

>Xenopus tropicalis\_XKR9(ENSXETP\_58401)

MKFSKWNFLMTIFGIFTLVCDYGVLDLWIAVKYFQQGLYIFSLLTILFIVISNAIVNVFSY  
AWIKDDCTEGNTRKLRWVVIHVL MAGTFLRYWHAVKCGYRAAMSTHSEGDFTKTNKKAV  
DAMTDLSMLRCFKTFLESTPQLILQIYILMEHGQITLLQYATIIISVFSISWSTVDYHMS  
LRSSLENKKEISLGLPAVTYVLYKLLTITSWILSLVFLACNVYIFVALLGILWILGLCW  
AWKQNTFECTNMRMEILYRIVVAVILVLTFFNVKGQRTRVPMSVYYTFRIVATIGILILC  
FLFKESLTKRLLFAVFSIALVLALGLGLMSLILYCLFHPTLHSKDQNDAAADGCVDRSK  
SHYFLSQ

>Takifugu rubripes\_XKR9(ENSTRUP\_30989)

MSYFTKLRWFLTIAGLFMYMADICTDAVLVFTYFKEKHFAFAALTLLFVVVGLLVTQLFS  
SAWYLDLNLGLIKAEETPLPGVSTCGLAALHLLGMGIFVRYHHLLSQGFRLVWRTAEL

PGETLKHQHLLFSLTADLSMLRRLMEAFLESVPQLLLQLYITLGRQECSLIQSVGMTISF  
LNAAWALVDYRRCRLRKS L P D V N E M P F G F P T V I Y L L Y K L G T I T S H I F G Y A L F L I F C T Y S T V  
ALAFIWLVTIWTSHLHTDFCSSRSLEFLYRAIVGVILTFTFFNVKGGQTRDVMIIYYFF  
HSLINILGPLLLFILRPELLAFSVLLCVSVLMASGSVLGLVCLVLIYYLKLHPKEACREAD  
EVDGLGTTKQPKQRLKNFIHP

>Tetraodon nigroviridis\_XKR9(ENSTNIP\_11017)

APLRMTEFTKLRWLLSAGLVMYVADVCTDAALVLTYPKEKHVVCAALTLFLFVGLLVT  
QVFSTAWYWDMDCEKREDMKTTLPVVSKRGLATLHLFGVGFIRIYYQMLKRGFVAVW  
TVEPVEEIKNQHFLEFLGLAADLSMLRLLLEAFLESVPQLLLQLYIVLGGQECSLVQLVGM  
SFSFMNAAWALVDYRRCRLRSLPDRQMPRGLPTAIYLLYKLFITITSRVLGYALLLIFSII  
STVGLAIVWLLGTAWTHRLHTDFCSSQSLEFLYRAIVGVILTFTFFNVKGGQTRDAMITY  
YFLHSLINVLSTLLLFVLRPDLTLAALLCVSTLMAACSVLGLVCLVLIYYLHPTACR  
EAEVDGLEIKTRSKGRLRDLFLYP

>Gasterosteus aculeatus\_XKR9(ENSGACP\_3687)

IQYTKLRWCLTIAGLLLYVGDIGTDIGLAVRYFQKGDVWAGLTLAFALAGLLVTQIFSY  
AWYEDDRNDPVMASVAGKPTVSGLSKGR LAVLHLSGMGIFSRYYLLKKKGFVLTSPHSN  
AAAERNADHCLFCMATDLSMLKLFETFLLESVPQLLLQLYILLAHGSSVQLYLSMAFSF  
FNIAWSLVDRRCRLRSLPRIAAMP SGLPTAIYLLYKFCITITSHILSYTLLALS PYSSI  
GLTVLWLLGTTWTHVLTDFCSSPKLEPLYRAVIGVILTFTFFNVKGGQDAMVPMTIYYLF  
YFFVNVTA PLLLGLLKP EWQTD PFLLT VSGVI FGGSVLGLCFLVLIYYGFLHPKETQRQAD  
EVDGVDVVVKPTRATRRRNFLQP

>Oryzias latipes\_XKR9(ENSORLP\_10106)

LQKMNI PWSTVLYFFGFCLYIMDIVTDISL FVNYIKNGQYLWGGMTMMFVVTGTLSTQPF  
SYVWYRDDDEEPTKLKAGLAVHLFGLGTIFRYHLLKESCRVHRTTANSPTAERTGTEHN  
LLFGMATDLCLMFMFEAFLESVPQILLQLYIIHDQNEGFHQWLSVAFSVSNVAYTLMDF  
RVCLHRLSLPHARQKPSIPSRVLVLYFKLFTITSHILSYSLLLTSLVYSMVALTVLWLLMT  
VWVFLFLKTDCTSKGLEFFYRLIVGFILVFTFFNVKGGQDTGLAMTVYYMLYAIINI IAPI  
LSMFLVPELQTRVFLCITCVIGGTTILGFMCLILYYYLHPRGMQREPDEVDGLDTPKAKA  
TRMRRLFLQP

>Ciona savignyi\_(ENSCSAVP\_4599)

MLSSSHHESLKTQLQHKLLSPMSSHSDTEIDLQTAMP LLPVHYSPQPKSAGYILAHGIS  
AATIEHSNDLSPVELTPENICNKNIQSGDNRKDVDSAPSREGRILDKENVYDNDCKNSQ  
ISNSENNSECSQLSEVNENPKNVTCYSTVCILISCKNICTRFSIVDLVLILGSLGLYIFD  
TATDILNGLSYNKRREENKDNLFYFILTMVVI VLP SFIMQAFSIWWEWEDDSKRNEKRKE  
NGKMVKNTCCKHFFLCIVHVLQVGP IYRYIRAIHHGVKSRRELQGNKKRFDYDKMWKY  
QLSDVSFLRVMESYLE SAPQVVLQIYIMIKTMQTFITVLSCCVSIIGMSSMLVSWQRNL  
RDTLPKELNKKQISICGTIMLFLYRTCTITARCLLWHYF

>Strongylocentrotus purpuratus\_(XP\_011680834)

MSALKWITHICQAGPLHRYVNLVFTGMEARRTRDALDFERLNFQQSDVCMLRLFESFMESAPQVVLQLYI  
MVATNDENFWTGTSAAVSLFSLC WALGAYSRAHRKVRDRKVVSWPGLVLQTLWRIGMISSRVMLVLF  
SVFKAYIFLAVGIHWIGMMVWVHLQKTDFCTHPLERLFNCVAVIYIFCFNLKEGKSRKRVLVYFSIM  
FVENTVLLLWVYSYRTIGEWYNVAGFTIVFGGYGIGVSMILYRYLHPRNDFTLGPKPEKEPSRSLNT  
TPSMSPASSPAALFSPELYRHGHSPPKQRRSDVNHNDAASPLARPLSQTSHLDDDFDKEHGVPQRS  
GKVKQGQGHKVGGRGDSIVRKSSESCVSFNENETISPKVHLDKSTAGNSSVLMNASLMAFRCEISGFGTD  
LVQKFDDDRHSRLTNHVSMSAGGKSGNLTRSLGSLDQSHVPSAAAHCIDSADAARTPFSPDLQOMPE  
IADSPNQIMTAYEAQQIYDSILGIHHPRRNSKRKLFDDDPGKASGRTRSKSGNAVHVKPAQKETGNRS  
GDGGFGNGGPQRVVVTRKYVKDGCCVGRIGTSGQLLDQSKQSHHPVNLGTKNRDKCSEGS HKILTHPAN  
NAVVETKTKEIYDPNGKKIETETT NFQAVKVDMPIDLEGAKPLQGSKDNHDLGHVINEKQKGIQNKPS  
ILIVDVNSARAEHETQIGIAAPRLRAALSRLFKAKERVISRSSHITNKADVHNEGCDKAASVLGCKSDN  
VKGIVAYHDEFPIVVG RPAEHNEETAIDASKSEPNAHAQSTKDLQCATTVLNSNDKTKQGHNIYV KHSGK  
LASGLEDRIITEREEDNRDPCENSNAKAQRNSPTKAGKLLGSLSPKAAIFSTSQRGFNGSHSPLIGGER  
EPGGSRHKYHGRSPAGKTALKRVRS LKGSVPLDSL SLPQGS SPARDDSGKGHSEHERTPIANLKGKIKRA  
LSIKAKIPYEGEVHV DSSPSIKSHLDHDP RRNDNHKTEKALNTISSPQVNVDKASELVMRERPVLVENQQ  
SAPKSAFSPQKFEAISQSNKINPPQKTGVEPYSLPTTLLSSPRGEENRGFAPVSGNMIMNTSPQKNTENT  
KKYSGSPQKTGKEHLSLSKGRTRVTPGKENRGFQPTVKGTVSRQTNNKLGSP TGKPPRRSLNRIPTNL  
VADNVARFDSPSK

>Drosophila melanogaster\_ (FBpp0074004)

MASAEQRTEVDALMMGPI SKLSMLLTVVSI LWRVFSICINWSLAYVYVWMEESYGYCAWTI  
GSILVPMVVTSVIYIHTLKS AHAGEKRIL ERGVYSNAVISYLF RDVYVLNYAFKYS LAKE  
RDDKQAEIEYYQKLMTEECNVSFVRLFDSFLESAPQKILQLA ILLQSTLEFTYRRIALI  
VYFGNIAWCIQAYNHSNRLAQLDKHDIAAKGRFLQFLFLCLTVSRTL CIAYVASIFPIE  
TLIICATLACFYGTIVFVDSPIAKSRPMNYSYCLCFGVVYLFIFTPVKDAPTKYK YAF  
YLTFCLLQNI IACALYIPLYLATAIIALYIVGIVLLIIYYTYCHPNTV RTYF

>Capitella teleta\_ (ELU18097)

VFDLLGNIVGIGSYLSDVVTDCWVAYTHFVRYNWWWFSLT LGFV IIPSLVMTFFSTVWYIQEHRDPH HQH  
IKYSLDDHPSESKKKK VSTRRWVSRFILLFFQVAPVLR YLDSIIFCCRSMWANKKGNHRV KRHWYERMLY  
EDTDATLLRLMECFMEAAPQLVLQLYIISINGLHDEWYNAAAQVLS CVTSLFSLSWAIAAYHKALRLSLA  
DKSNLNWKG FALLILWRVFTIGARISAMALF ASEVSPWIFAAAIAIHWLVMFIWCLTKKTEFCHHSWQEP  
FFKAVMSVYVIFGFLNLLEGYTRFRYIFFYSLVYLENLAMMMVWFWMGGTD MRWFHKGAVVCIVLGLFLVG  
VTFQM VYYK FYHPN

>Nematostella vectensis\_ (XP\_001631494)

RYWNVFRTGWRTRRSTASSEYHSFLSQWRDICMLRLLEAYLESAPQLVLQLYILSYRRRFD MNSDLITA  
IAAACSLVSLAWAIVAYQKSLRDVFCDNVSWTGFFLQVMWRLFMVASRVVAMVLFAS YFNLWLGV AIALH  
WLLMFI FLVTQSTKFCMDNDGRDHPLREMLFDGTIAFIYIFSF FNITEGMTRIRVGI FYSLMFIENS VFV  
LLWYPHRSLFGDVAIAAITIVIGGFFLGLLSMFMYH

>Amphimedon queenslandica\_ (XP\_011409635)

MAIIDSNTLQLVLSPLLIVFASVSSAVSLLLTLVYILSDRLHAERRRVIPAYIVTFLWHLFVIPS R  
IFAMVLFVAVAYGPYVAVVGVHVGAAAI IWTLAERTNFCGDLSTTPPKRYLLELPFVG VVSFI FLFIYFN  
VRDGSTMVRIIVYHLLTAVETLLLSALFYVAYPNLSLSPWVFALS VSSYGLGVAFMFLYAAWHPSRTED  
CFLCIGCPKSCECCPCFSKDGELHLGNVDLPLDGERRRDNPRDEERS SGGDIEGEERPVTGR RTPNQNGF  
YPSTPHRASGSSMNNINRSTGGTPTHVRPSLQLNNHFSSAVEIPRNTSLYGGSGGGEENPYSLPFHHVGV  
PHTGALSLENIKRVSYPRAPSRGSLREGEERKWPVKTKTENLPRRMLPLVTNASDRPTPLRRGSDSQL  
LPGASLNKSKYSNFGKQRHSMIVHPDLQLSSNINLPSPIGEEPGALDGGKWS SLPILHVSSADSPGR  
GRGERGRGRGRIAKERRGSGSLLPSPYSSFMVYTPPTPTVNTSMAASSSSLNPSYPVRSSSQLETRFYLE  
PGAGIGVKRYRHRSLSPDVHSSEGS GCGYPAYSRSANATPKQSPYSSCRSSSGCAPRKRSGSSNPLHSG  
DPMVEFTQLYTS GASPTHMRRPSSRSSARVSTTCDESSDCGAGRRGRTSACSSGVFSSDKSDTGFSVPPT  
GSEVNEPRPVLGVESNDGCGRGEERGRKDKRWQPSVNSDVGMGGDTLV

## **YTH Domain-Containing Family Protein-YTHDF**

>Homo sapiens\_YTHDF1 (ENSP\_359364)

MSATSVDTQRTKGQDNKVNQNSLHQKDTVHDNDFE PYLTGQSNQSN SYPSMSDPYLS SYY  
PPSIGFPYSLNEAPWSTAGDPPIPYLTTYGQLSNGDHHFMHDAVFGQPGGLGNNIYQHRF  
NFFPENPAFSAWGTSGSQGQQTQSSAYGSSYTYPPSSLGGTVVDGQPGFHS DTL SKAPGM  
NSLEQGMVGLKIGDVSSAVKTVGSVSSVALTGVL SGNNGGTVNMPVSKPTSWAAIASK  
PAKPQPKMKT KSGPVMGGGLPPPIKHNMDIGTWDNKGPV PKAPVPQQAPSQAAPQ PQQ  
VAQPLPAQPPALAQPYQSPQPPQTRWVAPRNRNAAFQSGGAGSDSNSPGNVQPN SAP  
SVESHVPLEK LKAAHSYNPKEFEWNLKSGRVFIKSYSEDDIHRSIKYSIWCSTE HGNKR  
LDSAFRCMSSKGPVYLLFSVNGSGHFCGVAEMKSPVDYGT SAGVWSQDKWKGF DVQWIF  
VKDVPNNQLRHIRLENNDNKPV TNSRDTQEVPLEKAKQVLKI ISSYKHTTSIFDDFAHYE  
KRQEEEEVVRKERQSRNKQ

>Macaca mulatta\_YTHDF1 (ENSMMUP\_38261)

MSATSVDTQRTKGQDNKVNQNSLHQKDTVHDNDFE PYLTGQSNQSN SYPSMSDPYLS SYY  
PPSIGFPYSLNEAPWSTAGDPPIPYLTTYGQLSNGDHHFMHDAVFGQPGGLGNNIYQHRF  
NFFPENPAFSAWGTSGSQGQQTQSSAYGSSYTYPPSSLGGTVVDGQPGFHS DTL SKAPGM  
NSLEQGMVGLKIGDVSSAVKTVGSVSSVALTGVL SGNNGGTVNMPVSKPTSWAAIASK  
PAKPQPKMKT KSGPVLGGALPPPIKHNMDIGTWDNKGPV PKAPVPQQAPSQAAPQ PQQ  
VAQPLPAQPPPVAQLQYQSPQPPQTRWVAPRNRNAAFQSGGAGSDSNSPGNVQPNSTP  
SVESHVPLEK LKAAHSYNPKEFDWNLKSGRVFIKSYSEDDIHRSIKYSIWCSTE HGNKR  
LDSAFRCMSSKGPVYLLFSVNGSGHFCGVAEMKSPVDYGT SAGVWSQDKWKGF DVKWI F  
VKDVPNNQLRHIRLENNDNKPV TNSRDTQEVPLEKAKQVLKI ISSYKHTTSIFDDFAHYE  
KRQEEEEVVRKERQNRNKQ



SYYPPIGFPYSLNEAPWSTGGDPPIPYLTTYGQLSNGDHHFMHDAVFGQPGGLGNNIYQ  
HRFNFFPENPAFSAWGTSGSQGQAQSSAYGSSYTYPPSSLGGTIVDGQTFHSDTLNKA  
PGMNSLEQGMVGLKIGDVTTSAVKTVGSSVSSVAMTGVLSGNGGTNVNMPVSKPTSWAAI  
ASKPAKQPQPKMAKGGPVI GAALPPPIKHNMDIGTWDNKGVPKALAPQQVPAQSAFQ  
PQPVVQPLSVQPPPLAQPYQSSQPLPQTRWVAPRNRNAAFGQSSGTGGNSHSPGSTQSG  
SALSAESHVLEKLAHAHSYNPKDFDWNLRSGRVFIKSYSEDDVHRSIKYSIWCSTEHG  
NKRLDGAFRSVGSKGPVYLLFSVNGSGHFCGVAEMKSPVDYGTSAAGVWSQDKWKGFVVK  
WIFVKDVPNNQLRHIRLENNDNKPVNTSRDTQEVPLEKAKQVLKIIASYKHTTTSIFDDFS  
HYEKRQEEEEVVRKERQNRNKQ

>Gallus gallus\_YTHDF1(ENSGALP\_9213)  
MSATSVDPQRPKGQDNKVQNGSLHQKDTVHDNDFEPYLSGQSNQNSYPSMTDPYLSSYY  
PPSIGFPYSLSEAPWSTGGDPPIPYLTTYGQLSNGDHHFMHDAVFGQPGGLGNNIYQHRF  
NFFPENPAFSAWGTSGSQGQQTQSSAYGSSYTYPPSSLGGTIVDGQTFHNDTLNKAPGM  
NSIEQGMVGLKIGDVTTSAVKTVGSSVNSAGMTGALSNGGSSNVNLPVSKPTSWAAIAS  
KPAKQPQPKMKTGTGPVIGGALPPPIKHNMDIGTWDNKGVPKVPAPQQIIPSPQSVFPQ  
QQIVQPVPAQPPPLTQPYQSPQPPQNRWIAPRNRNAAFGQSSGTGNDSNSAGSTQPNP  
VPSGESHPVLEKLAHAHSYNPKDFEWNLNKGRVFIKSYSEDDIHRSIKYSIWCSTEHGN  
KRLDSAFRSMNSKGPVYLLFSVNGSGHFCGVAEMKSPVDYGTSAAGVWSQDKWKGFVVKW  
IFVKDVPNNQLRHIRLENNDNKPVNTSRDTQEVPLEKAKQVLKIIATYKHTTTSIFDDFSH  
YEKRQEEEEVVRKERQNRNKQ

>Anolis carolinensis\_YTHDF1(ENSACAP\_5432)  
MSATSVDPQRPKGQDNKVQNGSLHQKDTVHDNDFEPYLSGQSNQNSYPSMTDPYLSSYY  
PHSISFPYSLSEAPWSTGGDPPIPYLTTYGQLSNGDHHFMHDAVFGQPGGLGNNIYPHRF  
NFFPENPPFSAWGTSGSQGQQTQNSAYGSSYTYPPSSLGGTIVDGQTFHNDTLNKAPGM  
NSIEQGMVGLKIGDVTASAVKTVGSSVNSTGLACALSGNGGSSINLPVSKPTSWAAIAS  
KPAKQPQPKMAKSGPVVGGALPPPIKHNMDIGTWDNKGVPKVPAPQQIIPSPQSLPQPQ  
I IQPIPTQPPPLTQLPYQNPQPPPPQNRWVAPRNRNAAFGQSSGTGNESNSLSGAPANSI  
PGGESHPVLEKLAHAHSYNPKDFEWNLNKGRVFIKSYSEDDIHRSIKYSIWCSTEHGN  
RLDSAFRSMNSKGPVYLLFSVNGSGHFCGVAEMKSSVDYGTSAAGVWSQDKWKGFVVKWI  
FVKDVPNNQLRHIRLENNDNKPVNTSRDTQEVPLEKAKQVLKIIATYKHTTTSIFDDFSH  
EKRQEEEEVVRKERQNRNKQ

>Xenopus tropicalis\_YTHDF1(ENSXETP\_56774)  
FSPKVFPLGRSNNDLISVQNGSLHQKDSVHDNDFEQYLSGQSNQNSYPSMTDPYLSSYY  
PPSIGFPYSLSEAPWSTGGDPPIPYLTPYGQLSNGDHHFMHDAVFGQPGGLGNNIYQHRF  
NFFPENPAFSAWGTSGSQGQQTQNSAYGSSYTYPPSSLGGTIVDGQTFHNETLNKAPGM  
NSIEQGMVGLKIGSNVTASAVKTVGSSVNSVGMPSALSGNGGTSISMPPSKPTSWAAIAS  
KPAKQPQKAKTKPVTIIGGALPPPIKHNMDIGTWDNKGVPKVPMPQQIIPSPQSMPPPQ  
PQLLQPIPAQPPMSQTPYQNPQPPPPQPPQAPQNRWVAPRNRNAAFGQGGGPDGNPLGGA  
QSHSAPGNESHVLEKLAHAHSYNPKDFDWNLNKGRVFIKSYSEDDIHRSIKYSIWCST  
EHGNKRLDSAFRSMNGKGPVYLLFSVNGSGHFCGVAEMKSPVDYGTSAAGVWSQDKWKGF  
DVKWLFVKDVPNNQLRHIRLENNDNKPVNTSRDTQEVPLEKAKLVLKIIATYKHTTTSIFD  
DFSHYEKRQEEEEVVRKVMAPDSC

>Danio rerio\_YTHDF1(ENSDARP\_5746)  
MSTTIDPQTSKQDAKVQNGSLHQKETVHDNDFEPYLTGQSNPNSYQSMTPYLSSYY  
APSIGFPYPLSEAPWSTGGDPPIPYLTPYAPLSNGDHHFMHDTVFGQPGGLGSSIYPHRF  
NFFPENPAFSAWGTSGSQGQQTQSSAYGSSYTYPPSSLGGTLVPDQGTGFPSDTLNKAPG  
MNSLEQGMVGLKIGDVTGGGSGVKTGSSVIGGPPVAAAVATGNGGTPIGLPPPKPTSWA  
AIASKPAKPPQQLKVKSKPGMPMAGGTLPPPIKHNMDIGTWDNKGVPVKVASSLPPIHHH  
QQQPPLHSQGHLPHPHGLPPPQPPMPQAQSLAQQMAMQPPPPQPYQNHAPAPPQTR  
WVAPRNRNPGYGGGSSVDSGSSSGGSGVNGGGGGPPGSGAIESHPVLEKLAHAHSYNPK  
EFDWNLKNGRVFIKSYSEDDIHRSIKYSIWCSTEHGNKRLDSAFRAINGKGPVYLLFSV  
NGSGHFCGVAEMRSPVDYGTSAAGVWAQDKWKGFVDVWLFVKDVPNSQLRHIRLENNDNK  
PVNTSRDTQEVPLEKAKQVLKIIATYKHTTTSIFDDFSHYEKRQEEEEVVRKNLEPAPIQN  
RSRLDQERQNRNKQ

>Takifugu rubripes\_YTHDF1a(ENSTRUP\_12114)  
MSATSIQPQRSGQASKVQNGSLHQKETVHDSDFEPYLSGQSTQNSYQSIITDPYLSSYY

APSIGFPYPLSEAPWSTGGDPPPIPYLTPYGPLSNGDHHFMPDPTVFGQPGGLGSSIYPHRF  
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>Takifugu rubripes\_YTHDF1b(ENSTRUP\_12113)  
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>Tetraodon nigroviridis\_YTHDF1a(ENSTNIP\_6584)  
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>Tetraodon nigroviridis\_YTHDF1b(ENSTNIP\_15460)  
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>Gasterosteus aculeatus\_YTHDF1a(ENSGACP\_3428)  
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>Gasterosteus aculeatus\_YTHDF1b(ENSGACP\_15892)  
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>Oryzias latipes\_YTHDF1a(ENSORLP\_12218)  
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>Oryzias latipes\_YTHDF1b(ENSORLP\_12216)  
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>Homo sapiens\_YTHDF2(ENSP\_444660)  
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>Callithrix jacchus\_YTHDF2(ENSCJAP\_18004)  
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>Mus musculus\_YTHDF2(ENSMUSP\_120414)  
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>Equus caballus\_YTHDF2(ENSECAP\_20585)  
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>Dasypus novemcinctus\_YTHDF2(ENSDNOP\_29952)  
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>Myotis lucifugus\_YTHDF2(ENSMLUP\_11473)  
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>Monodelphis domestica\_YTHDF2(ENSMODP\_13732)  
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>Gallus gallus\_YTHDF2(ENSGALP\_1412)  
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>Anolis carolinensis\_YTHDF2(ENSACAP\_10650)

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>Danio rerio\_YTHDF2(ENSDARP\_107692)

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>Takifugu rubripes\_YTHDF2a(ENSTRUP\_30170)

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>Takifugu rubripes\_YTHDF2b(ENSTRUP\_30168)

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CRADVSSVS

>Gasterosteus aculeatus\_YTHDF2(ENSGACP\_12672)

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ECVKKVTKSQLNKVNIGI

>Oryzias latipes\_YTHDF2(ENSORLP\_17958)  
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YSPSIGFSYSLNEAAWSTGGDPPMPYLASYGQLSNGEPHYLPDAMFGQPGPLGNSPFLSQ  
HGFNFFPSPGIDFSAWGNSSSQGQSGSSGYSSSYAYPPSSLGGAMIDGQSPFAPAANEPIN  
KAPGMNSLDQGMAGLKIIGGATPGGNGEMAPKVVGSGLPGGGPLGPVSSVGPSTMPVPSIA  
PVKASWADIASKPAKQPKLKTGGMAGANLPPPIKHNMDIGTWDNKGTMPKAATPQQ  
VPSVPTNGQPPSQASQPGATAAGNPQMPLSNGQMVPVVSQMGQHQLPPTVQPGVAPMHQ  
PPLSQGPPPPPSQQQQPSQPNRWVPPRNRNTNGFGDAGGSGTGHSPSSGVGVVPGVPSE  
PHPVLEKLRMVNNYNPKDFDWNLKHGRVFIKSYSEDDIHRSIKYNIWCSSTEHGKRLDG  
AYRSLGGKGPLYLLFSVNGSGHFCGVAEMRSPVDYNTSAGVWSQDKWKGRFDVRWI FVKD  
VPSQLRHIRLENNENKPVNTSRDTQEVPLDKARQVLKI IAGYKHTTTSIFDDFTHYEKRQ  
EEEECVKVKTFCHQVEVQGS

>Homo sapiens\_YTHDF3(ENSP\_473496)  
MSATSVDQRPKGQGNKVSQNGSIHQKDAVNDDDFEPYLSSQTNQSNYSYPPMSDPYMPSY  
YAPSIGFPYSLGEAAWSTAGDQPPMPYLTTYGQMSNGEHHYIPDGVFSQPGALGNTPPFLG  
QHGFNFFPGNADFSTWGTSGSQGQSTQSSAYSSSYGYPPSSLGRAITDQAGFGNDTLSK  
VPGISSIEQGMTGLKIGGDLTAAVTKTVGTALSSSGMTSIATNSVPPVSSAAPKPTSWAA  
IARKPAKQPKLKPKNVIGGSAVPPPIKHNMDIGTWEKGSVVKAPPTQPVLPQTII  
IQQPQPLIQPPPLVQSQLPQQQPQPQPQQQQGPPQAQPHQVQPQQQQLQNRWVAPRNR  
GAGFNQNGAGSENFGLGVVPSASPSSEVHPVLEKLRKAINNNYNPKDFDWNLKNRGRVFI  
KSYSEDDIHRSIKYSIWCSTEHGKRLDAAYRSLNGKGPLYLLFSVNGSGHFCGVAEMK  
SVVDYNAYAGVWSQDKWKGFVVKWI FVKDVPNNQLRHIRLENNENKPVNTSRDTQEVPL  
EKAKQVLKIIATFKHTTTSIFDDFAHYEKRQEEEEAMRRERNRNKQ

>Gorilla gorilla\_YTHDF3(ENSGGOP\_27387)  
QSNYSPPMSDPYMPSYAPSIGFPYSLGEAAWSTAGDQPPMPYLTTYGQMSNGEHHYIPDG  
VFSQPGALGNTPPFLGQHGFNFFPGNADFSTWGTSGSQGQSTQSSAYSSSYGYPPSSLGR  
AITDQAGFGNDTLSKVPGISSIEQGMTGLKIGGDLTAAVTKTVGTALSSSGMTSIATNS  
VPPVSSAAPKPTSWAAIARKPAKQPKLKPKNVIGGSAVPPPIKHNMDIGTWEKGS  
VVKAPPTQPVLPQTII IQQPQPLIQPPPLVQSQLPQQQPQPQPQQQQGPPQAQPHQVQ  
PQQQQLQNRWVAPRNRGAGFNQNGAGSENFGLGVVPSASPSSEVHPVLEKLRKAINNY  
NPKDFDWNLKNRGRVFIKSYSEDDIHRSIKYSIWCSTEHGKRLDAAYRSLNGKGPLYLL  
FSVNGSGHFCGVAEMKSVVDYNAYAGVWSQDKWKGFVVKWI FVKDVPNNQLRHIRLENN  
DNKPVNTSRDTQEVPLEKAKQVLKIIATFKHTTTSIFDDFAHYEKRQEEEEAMRRETNYLR  
NNS

>Pongo abelii\_YTHDF3(ENSPPYP\_20890)  
MSATSVDQRPKGQGNKVSQNGSIHQKDAVNDDDFEPYLSSQTNQSNYSYPPMSDPYMPSY  
YAPSIGFPYSLGEAAWSTAGDQPPMPYLTTYGQMSLSKVPGISSIEQGMTGLKIGGDLTAA  
VTKTVGTALSSSGMTSIATNSVPPVSSAAPKPTSWAAIARKPAKQPKLKPKNVIGGSA  
AVPPPIKHNMDIGTWEKGSVVKAPPTQPVLPQTII IQQPQPLIQPPPLVQSQLPQQQP  
QPPQPQQQQGPPQAQPHQVQPQQQQLQNRWVAPRNRGAGFNQNGAGSENFGLGVVPS  
ASPSSVEVHPVLEKLRKAINNNYNPKDFDWNLKNRGRVFIKSYSEDDIHRSIKYSIWCSTE  
GNKRLDAAYRSLNGKGPLYLLFSVNGSGHFCGVAEMKSVVDYNAYAGVWSQDKWKGFV  
KWI FVKDVPNNQLRHIRLENNENKPVNTSRDTQEVPLEKAKQVLKIIATFKHTTTSIFDD  
FAHYEKRQEEEEAMRRENRNKQ

>Mus musculus\_YTHDF3(ENSMUSP\_103983)  
MSATSVDQRPKGQGNKVSQNGSIHQKDAVNDDDFEPYLSSQTNQYRRAKQLFHCNNSY

PPMSDPYMPYSYAPSIGFPYSLGEAAWSTAGDQMPYLTITYGQMSNGEHHYIPDGVFSQP  
GALGNTPPFLGQHGFNFFPGNADFSTWGTSGSQGQSTQNSAYSSSYGYPPSSLGRAITDG  
QAGFGNDTLSKVPGISSIEQGMTGLKIGGDLTAAVTKTVGTALSSSGMTSIATNNVPPVS  
SAAPKPTSWAAIARKPAKPQPKLKPKNVIGGSAVPPPIKHNMNIGTWDEKGSVVKAP  
PTQPVLPPQTI IQQPQLIQPPPLVQSQLPQQQPQPQPQQQGPQQAQPHQVQSQQPQ  
LQNRWVAPRNRGTGFNQNGTGSSENFGLGVVPPVSASPSSVEVHPVLEKPKAINNYPKDF  
DWNLKNRGRVFI IKSYSIEDDIHRSIKYSIWCSTEHGNKRLDAAYSRLNGKGPLYLLFSVNG  
SGHFVCGVAEMKSVVDYNAYAGVWSQDKWKGKFEVKWIFVKDVPNNQLRHIRLENNDNKPV  
TNSRDTQEVPLEKAKQVLKIIATFKHTTTSIFDDFAHYEKRQEEEEAMRRERNRNKQ

>*Rattus norvegicus*\_YTHDF3(ENSRNOP\_60081)  
MSATSVDQRPKGQGNKVSQNGSIHQKDAVNDDDFEPYLSSQTNQNSYPPMSDPYMPYSY  
YAPSIGFPYSLGEAAWSTAGDQMPYLTITYGQMSNGEHHYIPDGVFSQPGALGNTPPFLG  
QHGFNFFPGNADFSTWGTSGSQGQSTQNSAYSSSYGYPPSSLGRAITDGQAGFGNDTLSK  
VPGISSIEQGMTGLKIGGDLTAAVTKTVGTALSSSGMTSIATNNVPPVSSAAPKPTSWAA  
IARKPAKPQPKLKPKNVIGGSAVPPPIKHNMNIGTWDEKGSVVKAPPTQPVLPPQTI  
IQQPQLIQPPPLVQSQLPQQQPQPQPQQQGPQQAQPHQVQSQQPQLQNRWVAPRNR  
GTGFNQNGTGSSENFGLGVVPPVSASPSSVEVHPVLEKPKAINNYPKDFDWNLKNRGRVFI  
IKSYSIEDDIHRSIKYSIWCSTEHGNKRLDAAYSRLNGKGPLYLLFSVNGSGHFVCGVAEMK  
SVVDYNAYAGVWSQDKWKGKFEVKWIFVKDVPNNQLRHIRLENNDNKPVNTNSRDTQEVPL  
EKAKQVLKIIATFKHTTTSIFDDFAHYEKRQEEEEAMRRERNRNKQ

>*Canis familiaris*\_YTHDF3(ENSCAFP\_10721)  
MSATSVDQRPKGQGNKVSQNGSIHQKDAVNDDDFEPYLSSQTNQNSYPPMSDPYMPYSY  
YAPSIGFPYSLGEAAWSTAGDQMPYLTITYGQMSNGEHHYIPDGVFSQPGALGNTPPFLG  
QHGFNFFPGNADFSTWGTSGSQGQSTQSSAYSSSYGYPPSSLGRAITDGQAGFGNDTLSK  
VPGISSIEQGMTGLKIGGDLTAAVTKTVGTALSSSGMTSIATNSVPPVSSAAPKPTSWAA  
IARKPAKPQPKLKPKNVIGGSAVPPPIKHNMNIGTWDEKGSVVKAPPTQPVLPPQTI  
IQQPQLIQPPPLVQSQLPQQQPQPQPQQQGPQQAQPHQVQSQQQQLQNRWVAPRNR  
GAGFNQNGVGGSENFGLGVVPPVSASPSSVEVHPVLEKPKAINNYPKDFDWNLKNRGRVFI  
IKSYSIEDDIHRSIKYSIWCSTEHGNKRLDAAYSRLNGKGPLYLLFSVNGSGHFVCGVAEMK  
SVVDYNAYAGVWSQDKWKGKFEVKWIFVKDVPNNQLRHIRLENNDNKPVNTNSRDTQEVPL  
EKAKQVLKIIATFKHTTTSIFDDFAHYEKRQEEEEAMRRERSETNSF

>*Monodelphis domestica*\_YTHDF3(ENSMODP\_10254)  
MSATSVDQRPKGQGNKVSQNGSIHQKDAVNDDDFEPYLSSQTNQNSYPPMSDPYMPYSY  
YAPSIGFPYSLGEAAWSTAGDPPMPYLTITYGQMSNGEHHYIPDGVFSQPGALGNTPPFLG  
QHGFNFFPGNADFSTWGTSGSQGQSTQSSAYSSSYGYPPSSLGRAITDGQAGFGNDTLSK  
VPGINSIEQGMTGLKIGGDMTAAVTKTVGSALSSTGMTSIAANSVPPVSSSAPKPTSWAA  
IARKPAKPQPKLKPKNVIGGSAVPPPIKHNMNIGTWDDKGSVVKAPPTQPVLPPQTI  
IQQPQLIQPPPLVQSQLPQQQPQPQPQQQGPQQAQPHQVQSQQQQLQNRWVAPRNR  
RGVGFNQNGAGSENFGLGVVPPVSSSPSGVEVHPVLEKPKAINNYPKDFDWNLKNRGRVFI  
IKSYSIEDDIHRSIKYSIWCSTEHGNKRLDAAYSRLNGKGPLYLLFSVNGSGHFVCGVAEM  
KSVVDYNAYAGVWSQDKWKGKFDVKWIFVKDVPNNQLRHIRLENNDNKPVNTNSRDTQEVPL  
LEKAKQVLKIIATFKHTTTSIFDDFAHYEKRQEEEEAMRRERNRNKQ

>*Gallus gallus*\_YTHDF3(ENSGALP\_24954)  
FSLLSYVQRPKGQGNKVSQNGSIHQKDAVNDDDFEPYLSSQTNQNSYPPMSDPYMPYSY  
YAPSIGFPYSLGEAAWSTAGDPPMPYLTITYGQMSNGEHHYIPDGVFSQPGALGNTPPFLG  
QHGFNFFPGNADFSTWGTSGSQGQSTQSSAYSSSYGYPPSSLGRAIADGQAGFGSDTLSK  
VPGISSIEQGMTGLKIGGDMTAAVTKTVGSALSSTGMTSIAANSVPPVSSSAPKPTSWAA  
IARKPAKPQPKLKPKNVIGGSAVPPPIKHNMNIGTWDDKGSVVKAPPAQPVLPQTI  
IQQPQLIQPPPLVQSQLPQQQPQPQPQQQGPQQAQPHQLQQQQLQNRWVAPRNRGV  
GFSQNGAGSENFGLGVVSVSSSPSGVEVHPVLEKPKAINNYPDFDWNLKNRGRVFI IKS  
YSIEDDIHRSIKYSIWCSTEHGNKRLDAAYSRLNGKGPLLLLFSVNGSGHFVCGVAEMKSVVD  
YNAYAGVWSQDKWKGKFDVKWIFVKDVPNNQLRHIRLENNDNKPVNTNSRDTQEVPLEKAK  
QVLKIIATFKHTTTSIFDDFAHYEKRQEEEEAMRRVRNQYYS

>*Pelodiscus sinensis*\_YTHDF3(ENSPSIP\_17846)  
MSATSVDQRPKGQGNKVSQNGSIHQKDAVNDDDFEPYLSSQTNQNSYPPMSDPYMPYSY  
YAPSIGFPYSLSEAAWSTAGDPPMPYLTITYGQMSNGEHHYIPDGVFSQPGALGNTPPFLG

QHGFNFFPGNADFSTWGTSGSQGQSTQSSAYSSSYGYPPSSLGRAIADGQAGFGNDTLSK  
VPGINSIEQGMGTGLKIGGDMTAAVTKTVGSALSSTGMTSIAANSVPPVSSSAPKPTSWAA  
IARKPAKPQPKLKPKNVIGGPAIPPPPIKHNMINIGTWDDKGSVVKAPPSQPIILPPQTI  
IQQPQPLIQPPPLVQSQLPQQQPQQPQQQQGPPQQQAQNHQLQQQQQQQLQNRWVAPRNRGV  
GFSQNNGGSGSENFGLGVVPVSSSPSGVEVHPVLEKLLKAINNYPKDFDWNLNKGRVFI  
KSYSEDDIHRSIKYSIWCSTEHGKRLDAAYRSLNGKGPLYLLFSVNGSGHFVCGVAEMKS  
VVDYNAYAGVWSQDKWKGFVVKWIFVKDVPNNQLRHIRLENNDNKPVTNSRDTQEVPLE  
KAKQVLKIIATFKHTTTSIFDDFAHYEKRQEEEEAMRRERNRNKQ

>Xenopus tropicalis\_YTHDF3(ENSXETP\_46817)  
MSATSDVQRPKGQGNKAVQNGSMHQKDAVNDDDFEPYLSQTNQNSYPPMSDPYMPYSY  
YAPSIGFPYSLGEAAWSTAGDPPMPYLTYGQMSNGEHHYIPDGVFSSQPGALGNTPPFLSQH  
GFNFFPGNADFSTWGTSGSQGQSTQSSAYSSSYGYPPSSLGRAIADGQAGFGSDALSQVP  
GINSIEQGMGTGLKIGGDMTAAVTKTVGSALSSTAGMTSIAANSVPPVSSSAPKPTSWAAIA  
RKPAPKQPKLKPKNVIGGSAVPPPIKHNINIGTWDDKGAIVKTPPIQSVLPPQPVIO  
QPQPLTQPLPMVQNLQPLQQQLQQQGPPHQIQQQQLQNRWVAPRNRGAGFNQNNVSGNE  
NFSLVGVVPVSSSPSGVEVHPVLEKLLKAINNYPKDFDWSLKNRGRVFIKSYSEDDIHRSI  
KYTIWCSTEHGKRLDAAYRSLNGKGPLYLLFSVNGSGHFVCGVAEMKSVVDYNAYAGVWS  
QDKWKGFVVKWVFKDVPNNQLRHIRLENNDNKPVTNSRDTQEVPLEKAKQVLKIIATF  
KHTTTSIFDDFAHYEKRQEEEEAMRRERNRNKQ

>Takifugu rubripes\_YTHDF3(ENSTRUP\_19572)  
MSATTVDQRPKGQGNKAPVQNGSMHQKDGVDNDDDFEPYISGQTNQNSYPPMSDPYMPYSY  
YAPSIGFPYSLGEAAWSTAGDPPMPYLTYGQMSNGEPHFIPDGLFSQPGALGNTPPFLG  
QHGFNFFPGNADFSTWGTSVSQGQSTQSSVYSNSYGYAPSSLGRAIADGQAGFGSDTQLS  
KVPVLNSIEQGMGTGLKLGTEMVSAVTKTVGSPIGGTAGMSSLATNSLPPSVSSSTPKPAS  
WAAIAKKPAKLQPKVKPKANMGMVGGATIPPPPIKHNFNIGTWDDKGSLNKPPLAQTMLP  
PQPLVQQPLLAQHQPQLLQNLPLPHQPQHQQHQPQPQPPGPPPLHHQHPQQPGPPNRWVAP  
RNRGEGFCLGGGVPLSASLCSGELHPMLEKQLALNNYPKDFDWSLKNRGRIFIKSYSED  
DIHRSIKYSIWCSTEHGKRLDGAYRSLNGKGPLYLLFSVNGSGHFVCGVAEMRSPVDYNA  
YAGVWSQDKWKGFVVKWIFIKDVPNNQLRHIRLENNDNKPVTNSRDTQEVPLEKAKQVL  
KIIATYKHTTTSIFDDFAHYEKRQEEEEILRKERNRNKQ

>Tetraodon nigroviridis\_YTHDF3(ENSTNIP\_15673)  
MSATTVDQRPKGQGNKAPVQNGSMHQKDGVDNDDDFEPYISGQTNQNSYPPMSDPYMPYSY  
YAPSIGFPYSLGEAAWSTAGDPPMPYLTYGQMSNGEPHFIPDGVFSGQPGTLGNTPPFLG  
QHGFNFFPGNADFSTWGTSVSQGQSTQSSVYSNSYGYAPSSLGRAIADGQAGFGSDSOLS  
KVPVLNSIEQGMAGLKLGTTEMVSAVTKTVGSPVGGTAGMSSLAASGLPPSISSAPKPAS  
WAAIAKKPAKLQPKVKPKANMVGGAIPPPPIKHNLNIGTWDDKGSLNKPPLAQTMLPPQ  
PLVQQPLLAQHQPQLLQNLPLPHHSLPQPPHLQLSSQAGPPLHQHPQQAGPPNRWVAP  
RNRGEGFCLGGGVPLSASPCSGEVHPVLEKQLALNNYPKDFDWSLKNRGRVFIKSYSED  
DIHRSIKYSIWCSTEHGKRLDGAYHSLGSKGPLYLLFSVNGSGHFVCGVAEMRSPVDYNA  
FAGVWSQDKWKGFVVKWIFIKDVPNNQLRHIRLENNDNKPVTNSRDTQEVPLEKAKQVL  
RIIATYKHTTTSIFDDFAHYEKRQEEEEVLRKERNRNKQ

>Gasterosteus aculeatus\_YTHDF3(ENSGACP\_3924)  
MSATTVDQRPKGQGNKAVQNGSMHQKDGVDNDDDFEPYLSGQTNQNSYPPMSDPYMPYSYA  
PSIGFPYSLGEAAWSTAGDPPMPYLTYGQMSNGEPHFIPDGVFSSQAGALGNTPPFLGQH  
GFNFFPGNADYSTWGTSVSQGQSTQSSVYSNSYGYAPSSLGRAITDGQAGFGSDTQLSKV  
PVLNSIEQGMGTGLKLGTDMAAVTKTVGSPGGTAGMSSMAANSLPPSVNSSAPKPASWA  
AIAKKPAKPQPKVKPKANMGLGGGAIIPPPPIKHNMINIGTWDEKGSLNKPPLAQNMMPPQ  
MVQQPLLAQPPALTAIPHCLLRLHQPFQLHSLQSPQHQPMPGPHMHLSSQPGPPQHL  
HQQPQQPPGPPNRWVAPRNRGEGFGLGGGLPLSASPCSGEVHPVLEKLRALNNYPKDF  
DWSLKNRGRVFIKSYSEDDIHRSIKYSIWCSTEHGKRLDGAYRSLNGKGPLYLLFSVNG  
SGHFVCGVAEMRSPVDYNAYAGVWSQDKWKGFVVKWAFIKDVPNNQLRHIRLENNDNKP  
VTNSRDTQEVPLEKAKQVLKIIATYKHTTTSIFDDFAHYEKRQEEEEALRKERNRNKQ

>Drosophila melanogaster\_(FBpp0084170)  
MRFSLFTMPHNAAKSVEERNIPWSQQVDEASYENLSSPTHDEVSGNDNSMQFYPPFNFK  
ENCNTPWNNMNGRKANANHDSYRRHGHSIPNNTRRDEHQVNPWNSRKPAAQSFRENENDQ  
PSTKLDNRTSDEAQNQEVVAAPKKTWASIASQPAKLTSTRAASTTSNSKKKGGPMPPPP

