Human *ASXL1* (GenBank accession NM_015338)

Zero-frame product (ASXL1)

MKDKQKKKKERTWAEAARLVLENYSDAPMTPKQILQVIEAEGLKEMRSGTSPLACLNAMLHSNSRGGEGLFYKLPGRISLFTLKKDALQW
SRHPATVEGEEPEDTADVESCGSNEASTVSGENDVSLDETSSNASCSTESQSRPLSNPRDSYRASSQANKQKKKTGVMLPRVVLTPLKVN
GAHVESASGFSGCHADGESGSPSSSSSGSLALGSAAIRGQAEVTQDPAPLLRGFRKPATGQMKRNRGEEIDFETPGSILVNTNLRALINS
RTFHALPSHFQQQLLFLLPEVDRQVGTDGLLRLSSSALNNEFFTHAAQSWRERLADGEFTHEMQVRIRQEMEKEKKVEQWKEKFFEDYYG
QKLGLTKEESLQQNVGQEEAEIKSGLCVPGESVRIQRGPATRQRDGHFKKRSRPDLRTRARRNLYKKQESEQAGVAKDAKSVASDVPLYK
DGEAKTDPAGLSSPHLPGTSSAAPDLEGPEFPVESVASRIQAEPDNLARASASPDRIPSLPQETVDQEPKDQKRKSFEQAASASFPEKKP
RLEDRQSFRNTIESVHTEKPQPTKEEPKVPPIRIQLSRIKPPWVVKGQPTYQICPRIIPTTESSCRGWTGARTLADIKARALQVRGARGH
HCHREAATTAIGGGGGPGGGGGGATDEGGGRGSSSGDGGEACGHPEPRGGPSTPGKCTSDLQRTQLLPPYPLNGEHTQAGTAMSRARRED
LPSLRKEESCLLQRATVGLTDGLGDASQLPVAPTGDQPCQALPLLSSQTSVAERLVEQPQLHPDVRTECESGTTSWESDDEEQGPTVPAD
NGPIPSLVGDDTLEKGTGQALDSHPTMKDPVNVTPSSTPESSPTDCLQNRAFDDELGLGGSCPPMRESDTRQENLKTKALVSNSSLHWIP
IPSNDEVVKQPKPESREHIPSVEPQVGEEWEKAAPTPPALPGDLTAEEGLDPLDSLTSLWTVPSRGGSDSNGSYCQQVDIEKLKINGDSE
ALSPHGESTDTASDFEGHLTEDSSEADTREAAVTKGSSVDKDEKPNWNQSAPLSKVNGDMRLVTRTDGMVAPQSWVSRVCAVRQKIPDSL
LLASTEYQPRAVCLSMPGSSVEATNPLVMQLLQGSLPLEKVLPPAHDDSMSESPQVPLTKDQSHGSLRMGSLHGLGKNSGMVDGSSPSSL
RALKEPLLPDSCETGTGLARIEATQAPGAPQKNCKAVPSFDSLHPVTNPITSSRKLEEMDSKEQFSSFSCEDQKEVRAMSQDSNSNAAPG
KSPGDLTTSRTPRFSSPNVISFGPEQTGRALGDQSNVTGQGKKLFGSGNVAATLQRPRPADPMPLPAEIPPVFPSGKLGPSTNSMSGGVQ
TPREDWAPKPHAFVGSVKNEKTFVGGPLKANAENRKATGHSPLELVGHLEGMPFVMDLPFWKLPREPGKGLSEPLEPSSLPSQLSIKQAF
YGKLSKLQLSSTSFNYSSSSPTFPKGLAGSVVQLSHKANFGASHSASLSLQMFTDSSTVESISLQCACSLKAMIMCQGCGAFCHDDCIGP
SKLCVLCLVVR

Frameshift product (ASXL1-TF; TF sequence in red)

MKDKQKKKKERTWAEAARLVLENYSDAPMTPKQILQVIEAEGLKEMRSGTSPLACLNAMLHSNSRGGEGLFYKLPGRISLFTLKKDALQW
SRHPATVEGEEPEDTADVESCGSNEASTVSGENDVSLDETSSNASCSTESQSRPLSNPRDSYRASSQANKQKKKTGVMLPRVVLTPLKVN
GAHVESASGFSGCHADGESGSPSSSSSGSLALGSAAIRGQAEVTQDPAPLLRGFRKPATGQMKRNRGEEIDFETPGSILVNTNLRALINS
RTFHALPSHFQQQLLFLLPEVDRQVGTDGLLRLSSSALNNEFFTHAAQSWRERLADGEFTHEMQVRIRQEMEKEKKVEQWKEKFFEDYYG
QKLGLTKEESLQQNVGQEEAEIKSGLCVPGESVRIQRGPATRQRDGHFKKRSRPDLRTRARRNLYKKQESEQAGVAKDAKSVASDVPLYK
DGEAKTDPAGLSSPHLPGTSSAAPDLEGPEFPVESVASRIQAEPDNLARASASPDRIPSLPQETVDQEPKDQKRKSFEQAASASFPEKKP
RLEDRQSF**VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPPRSPPAGVGLAPGPSQTLKPVLCRSEGREVT
TAIERRPPLPSEGGVARVEVAAGPPMREVAEAAAVVMVVRPVATLSPGEARAPLESVRQIYSEHNYCRLIL**

Human *ASXL2* (GenBank accession NM_018263)

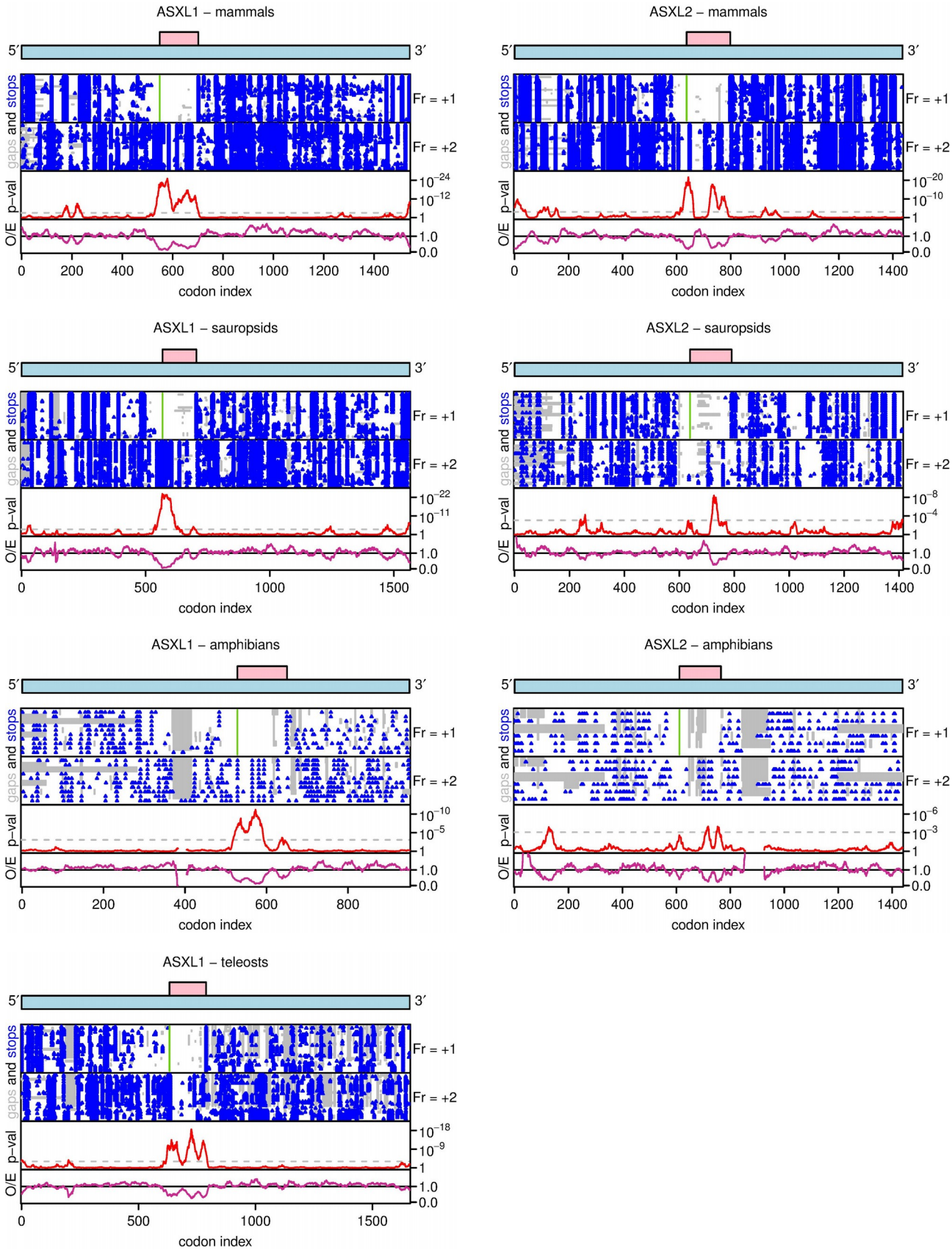
Zero-frame product (ASXL2)

MREKGRRKKGRTWAEAAKTVLEKYPNTPMSHKEILQVIQREGLKEIRSGTSPLACLNAMLHTNSRGEEGIFYKVPGRMGVYTLKKDVPDG
VKELSEGSEESSDGQSDSQSSENSSSSSDGGSNKEGKKSRWKRKVSSSSPQSGCPSPTIPAGKVISPSQKHSKKALKQALKQQQQKKQQQ
QCRPSISISSNQHLSLKTVKAASDSVPAKPATWEGKQSDGQTGSPQNSNSSFSSSVKVENTLLGLGKKSFQRSERLHTRQMKRTKCADID
VETPDSILVNTNLRALINKHTFSVLPGDCQQRLLLLLPEVDRQVGPDGLMKLNGSALNNEFFTSAAQGWKERLSEGEFTPEMQVRIRQEI
EKEKKVEPWKEQFFESYYGQSSGLSLEDSKKLTASPSDPKVKKTPAEQPKSMPVSEASLIRIVPVVSQSECKEEALQMSSPGRKEECESQ
GEVQPNFSTSSEPLLSSALNTHELSSILPIKCPKDEDLLEQKPVTSAEQESEKNHLTTASNYNKSESQESLVTSPSKPKSPGVEKPIVKP
TAGAGPQETNMKEPLATLVDQSPESLKRKSSLTQEEAPVSWEKRPRVTENRQHQQPFQVSPQPFLNRGDRIQVRKVPPLKIPVSRISPMP
FHPSQVSPRARFPVSITSPNRTGARTLADIKAKAQLVKAQRAAAAAAAAAAAAAASVGGTIPGPGPGGGQGPGEGGEGQTARGGSPGSDRV
SETGKGPTLELAGTGSRGGTRELLPCGPETQPQSETKTTPSQAQPHSVSGAQLQQTPPVPPTPAVSGACTSVPSPAHIEKLDNEKLNPTR
ATATVASVSHPQGPSSCRQEKAPSPTGPALISGASPVHCAADGTVELKAGPSKNIPNPSASSKTDASVPVAVTPSPLTSLLTTATLEKLP
VPQVSATTAPAGSAPPSSTLPAASSLKTPGTSLNMNGPTLRPTSSIPANNPLVTQLLQGKDVPMEQILPKPLTKVEMKTVPLTAKEERGM
GALIATNTTENSTREEVNERQSHPATQQQLGKTLQSKQLPQVPRPLQLFSAKELRDSSIDTHQYHEGLSKATQDQILQTLIQRVRRQNLL
SVVPPSQFNFAHSGFQLEDISTSQRFMLGFAGRRTSKPAMAGHYLLNISTYGRGSESFRRTHSVNPEDRFCLSSPTEALKMGYTDCKNAT
GESSSSKEDDTDEESTGDEQESVTVKEEPQVSQSAGKGDTSSGPHSRETLSTSDCLASKNVKAEIPLNEQTTLSKENYLFTRGQTFDEKT
LARDLIQAAQKQMAHAVRGKAIRSSPELFSSTVLPLPADSPTHQPLLLPPLQTPKLYGSPTQIGPSYRGMINVSTSSDMDHNSAVPGSQV
SSNVGDVMSFSVTVTTIPASQAMNPSSHGQTIPVQAFSEENSIEGTPSKCYCRLKAMIMCKGCGAFCHDDCIGPSKLCVSCLVVR

Frameshift product (ASXL2-TF; TF sequence in red)

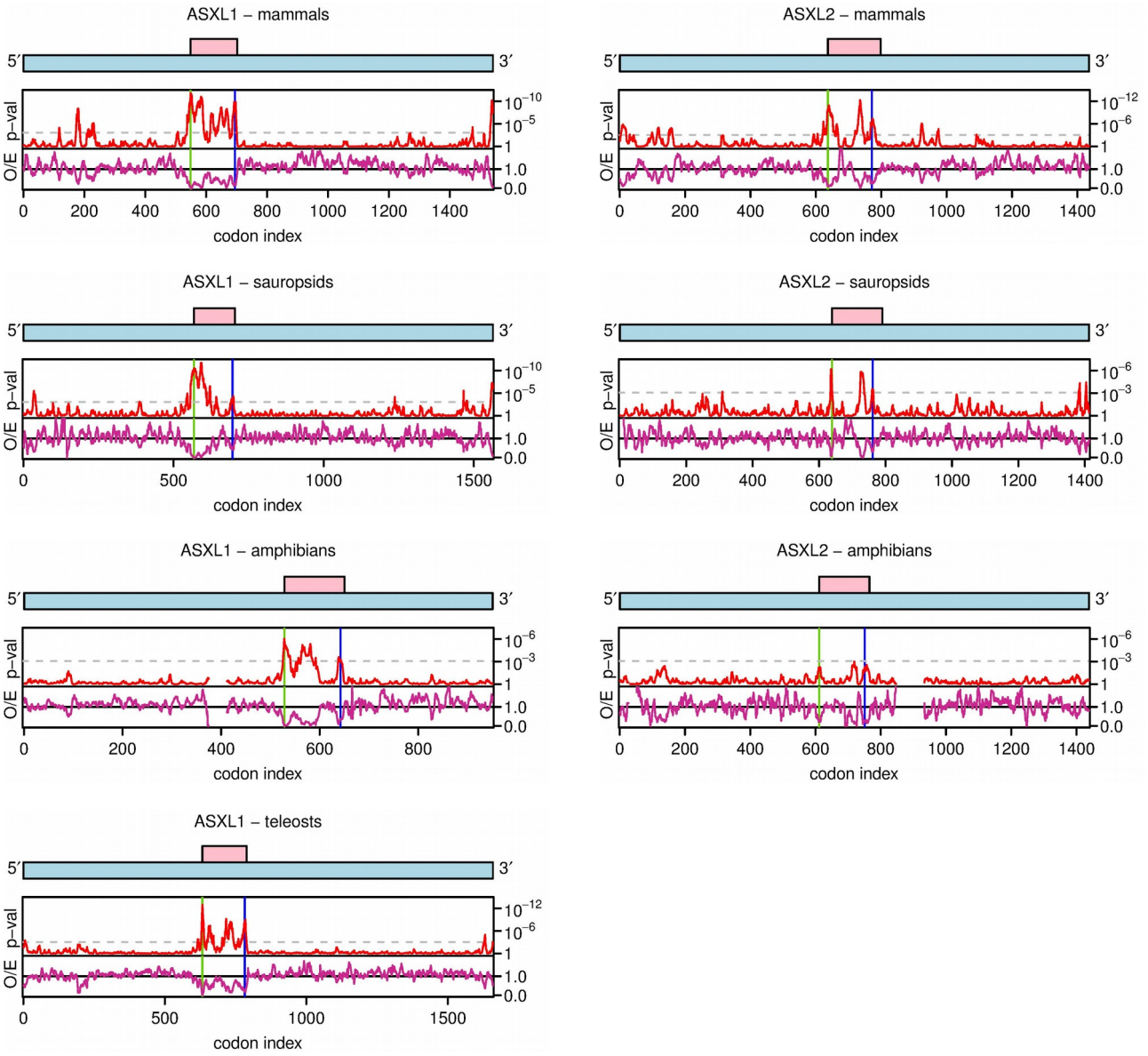
MREKGRRKKGRTWAEAAKTVLEKYPNTPMSHKEILQVIQREGLKEIRSGTSPLACLNAMLHTNSRGEEGIFYKVPGRMGVYTLKKDVPDG
VKELSEGSEESSDGQSDSQSSENSSSSSDGGSNKEGKKSRWKRKVSSSSPQSGCPSPTIPAGKVISPSQKHSKKALKQALKQQQQKKQQQ
QCRPSISISSNQHLSLKTVKAASDSVPAKPATWEGKQSDGQTGSPQNSNSSFSSSVKVENTLLGLGKKSFQRSERLHTRQMKRTKCADID
VETPDSILVNTNLRALINKHTFSVLPGDCQQRLLLLLPEVDRQVGPDGLMKLNGSALNNEFFTSAAQGWKERLSEGEFTPEMQVRIRQEI
EKEKKVEPWKEQFFESYYGQSSGLSLEDSKKLTASPSDPKVKKTPAEQPKSMPVSEASLIRIVPVVSQSECKEEALQMSSPGRKEECESQ
GEVQPNFSTSSEPLLSSALNTHELSSILPIKCPKDEDLLEQKPVTSAEQESEKNHLTTASNYNKSESQESLVTSPSKPKSPGVEKPIVKP
TAGAGPQETNMKEPLATLVDQSPESLKRKSSLTQEEAPVSWEKRPRVTENRQHQQPFQVSPQPFLNRGDRIQVRKVPPLKIPVSRISPMP
FHPSQVS**LPGLVFQSPSLVLTEQEPELLQTSKQKPNWSKHRGQQLPLPPQLLQPPQLEGPFQDLAQGVDKVQERVVKGRLLEEAVQAQTE
SVKLERAPHWNWQELEAGEVRESFYPVVQRLSPSLRPRPPQARHSLIVSLEHNYSKPPQCLQHLPSVEHAQVSHHQPT**

Supplementary Figure 1. Amino acid sequences of human ASXL and ASXL-TF polypeptides.



Supplementary Figure 2. Synonymous site conservation in the *ASXL1* and *ASXL2* coding regions in different vertebrate clades. In each subfigure, the top panel shows a schematic of the zero-frame ORF (pale blue) and the overlapping *TF* ORF (pink). The next two panels show positions of stop codons (blue) in the +1 and +2 reading frames, and alignment gaps (grey) in each

sequence of the sequence alignment. The vertical green line in the +1 frame panel shows the position of the putative frameshift site. The bottom two panels show the synonymous site conservation analysis, with the magenta line (lower panel) indicating the ratio of the observed number of substitutions within a given window to the number expected under a null model of neutral evolution at synonymous sites, and the red line (upper panel) showing the corresponding *p*-value. The analysis uses a 25-codon sliding window. The horizontal dashed grey line indicates a $p = 0.05$ threshold after a correction for multiple testing (namely scaling by [25-codon window size]/ [*ASXL* CDS length].



Supplementary Figure 3. Synonymous site conservation in the *ASXL1* and *ASXL2* coding regions in different vertebrate clades. In each subfigure, the top panel shows a schematic of the zero-frame ORF (pale blue) and the overlapping *TF* ORF (pink). The bottom two panels show the synonymous site conservation analysis, with the magenta line (lower panel) indicating the ratio of the observed number of substitutions within a given window to the number expected under a null model of neutral evolution at synonymous sites, and the red line (upper panel) showing the corresponding *p*-value. The analysis uses a 9-codon sliding window. The horizontal dashed grey line indicates a $p = 0.05$ threshold after a correction for multiple testing (namely scaling by [9-codon window size]/[*ASXL* CDS length]. The vertical green and blue lines show the positions of the putative frameshift site and the conserved EH[N/S]Y, respectively.

Human *ASXL1* (GenBank accession NM_015338) - *TF* ORF region

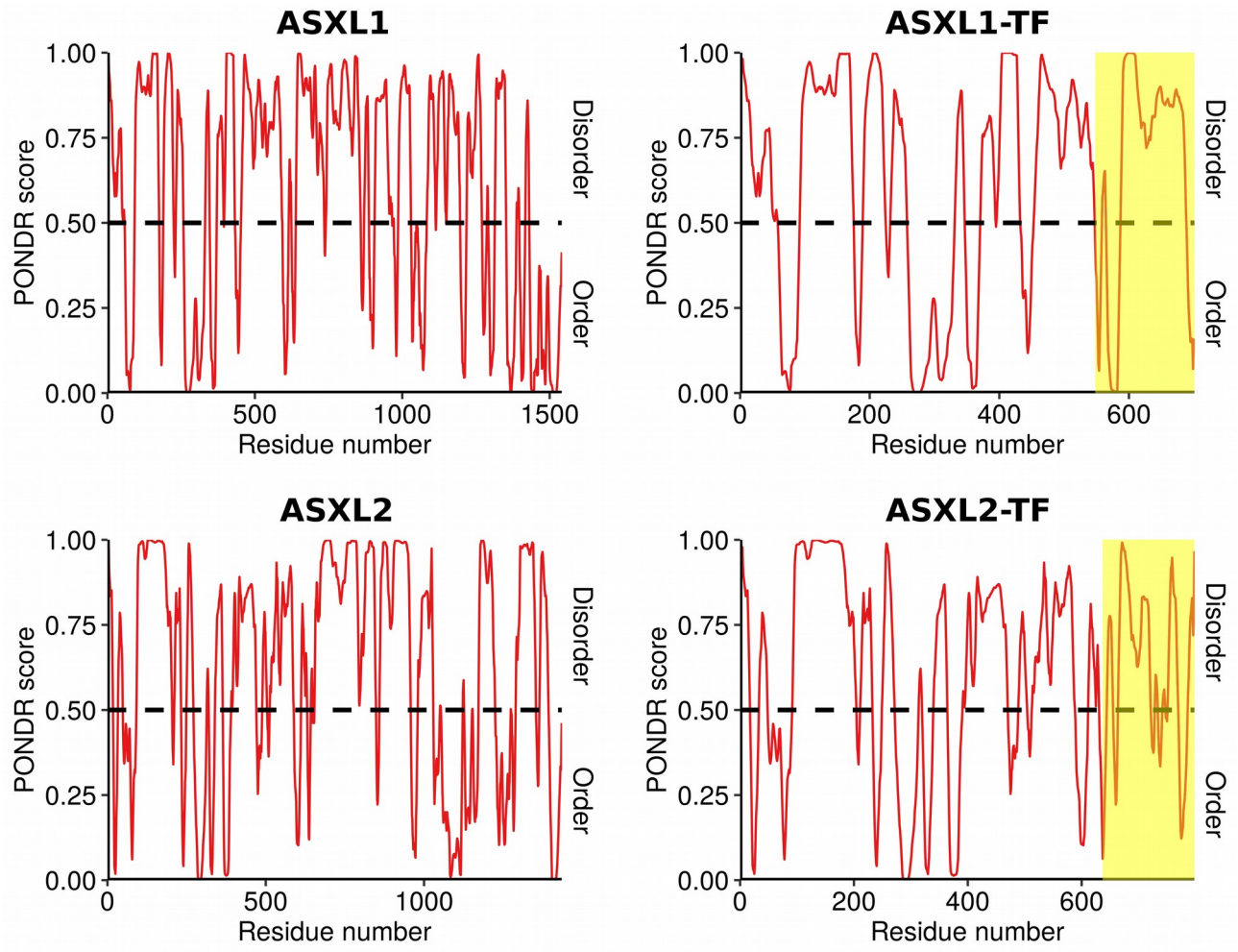
CUG AGC AGU CCC CAU CUG CCA GGC ACA UCC UCU GCA GCA CCC GAC CUG GAG GGU CCC GAA
UUC CCA GUU GAG UCU GUG GCU UCU CGG AUC CAG GCU GAG CCA GAC AAC UUG GCA CGU GCC
UCU GCA UCU CCA GAC AGA AUU CCU AGC CUG CCU CAG GAA ACU GUG GAU CAG GAA CCC AAG
GAU CAG AAG AGG AAA UCC UUU GAG CAG GCG GCC UCU GCA UCC UUU CCC GAA AAG AAG CCC
CGG CUU GAA GAU CGU CAG UCC UUU CGU AAC ACA AUU GAA AGU GUU CAC ACC GAA AAG CCA
CAG CCC ACU AAA GAG GAG CCC AAA GUC CCG CCC AUC CGG AUU CAA CUU UCA CGU AUC AAA
CCA CCC UGG GUG GUU AAA GGU CAG CCC ACU UAC CAG AUA UGC CCC CGG AUC AUC CCC ACC
ACG GAG UCC UCC UGC CGG GGU UGG ACU GGC GCC AGG ACC CUC GCA GAC AUU AAA GCC CGU
GCU CUG CAG GUC CGA GGG GCG AGA GGU CAC CAC UGC CAU AGA GAG GCG GCC ACC ACU GCC
AUC GGA GGG GGG GGU GGC CCG GGU GGA GGU GGC GGC GGG GCC ACC GAU GAG GGA GGU GGC
AGA GGC AGC AGC AGU GGU GAU GGU GGU GAG GCC UGU GGC CAC CCU GAG CCC AGG GGA GGC
CCG AGC ACC CCU GGA AAG UGU ACG UCA GAU CUA CAG CGA ACA CAA CUA CUG CCG CCU UAU
CCU CUA AAU

Human *ASXL2* (GenBank accession NM_018263) - *TF* ORF region

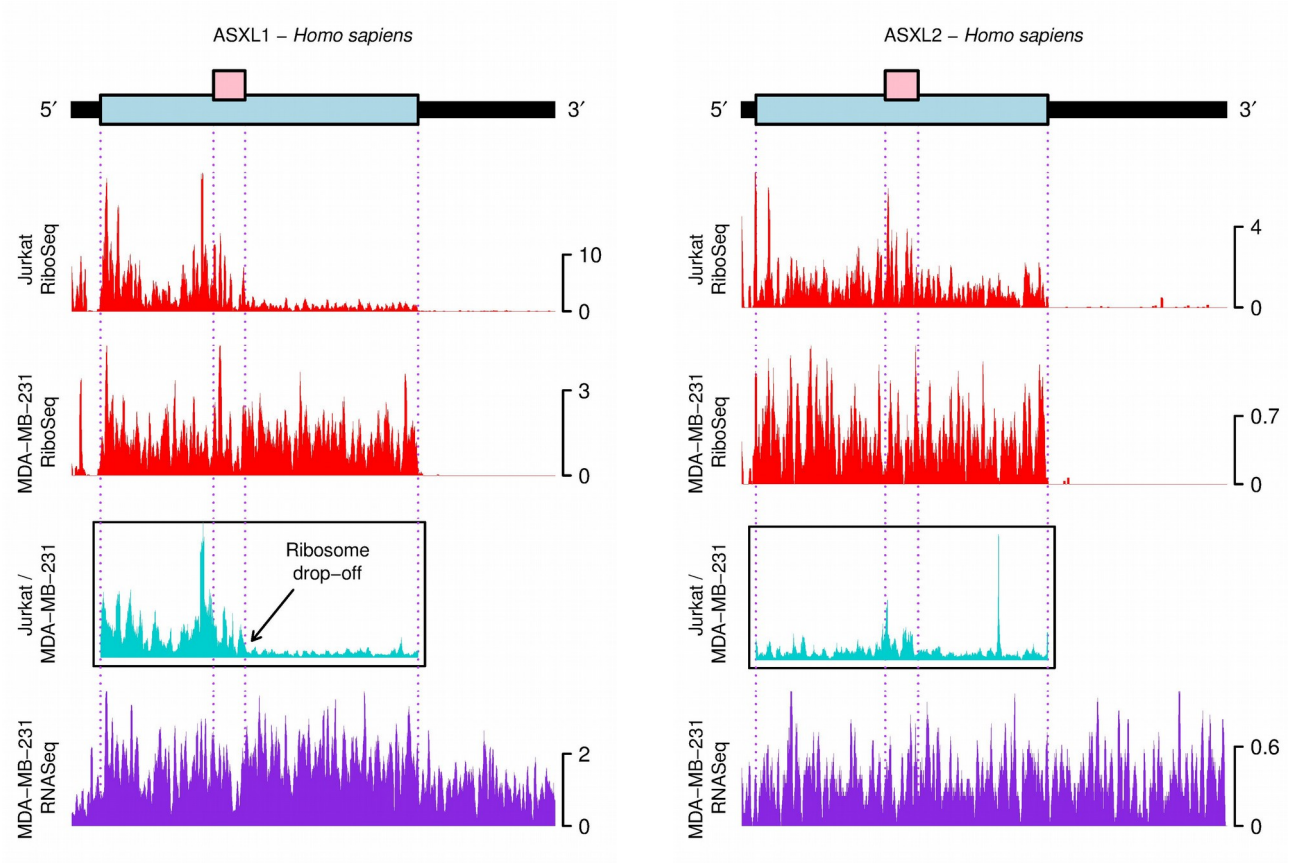
GUG AGC UGG GAG AAG AGG CCA CGU GUC ACU GAG AAU CGC CAG CAC CAG CAG CCA UUU CAG
GUC UCA CCA CAG CCC UUU CUC AAU AGA GGG GAC AGA AUC CAG GUG CGA AAA GUA CCA CCU
CUC AAG AUC CCG GUC UCC AGA AUC UCC CCC AUG CCG UUU CAU CCA UCG CAG GUC UCU CCC
AGG GCU CGU UUU CCA GUC UCC AUC ACU AGU CCU AAC AGA ACA GGA GCC AGA ACU CUU GCA
GAC AUC AAA GCA AAA GCC CAA CUG GUC AAA GCA CAG AGG GCA GCA GCU GCC GCU GCC GCC
GCA GCU GCU GCA GCC GCC UCA GUU GGA GGG ACC AUU CCA GGA CCU GGC CCA GGG GGU GGA
CAA GGU CCA GGA GAG GGU GGU GAA GGG CAG ACU GCU AGA GGA GGC AGU CCA GGC UCA GAC
AGA GUC AGU GAA ACU GGA AAG GGC CCC ACA CUG GAA CUG GCA GGA ACU GGA AGC AGG GGA
GGU ACG AGA GAG CUU UUA CCC UGU GGU CCA GAG ACU CAG CCC CAG UCU GAG ACC AAG ACC
ACC CCA AGC CAG GCA CAG CCU CAU AGU GUC UCU GGA GCA CAA CUA CAG CAA ACC CCC CCA
GUG CCU CCA ACA CCU GCC GUC AGU GGA GCA UGC ACA AGU GUC CCA UCA CCA GCC CAC AUA
GAG

UXX	Last upstream *TF*-frame stop codon
UXX	*TF* ORF stop codon
XXX	Putative frameshift site
AUG	*TF*-frame AUGs (none in *ASXL2*)

Supplementary Figure 4. Nucleotide sequences of the human *TF* ORF regions. Nucleotide sequences are shown for the region between the last upstream in-frame stop codon (orange) and the *TF* ORF stop codon (red); however ribosomes are expected to enter the *TF* frame at the putative frameshift sites (purple). Zero-frame codons are separated by spaces. The absence of *TF*-frame AUG codons in the *TF* region in *ASXL2* and except near the 3′ end of the *TF* ORF in *ASXL1*, argues against independent internal initiation in *TF*.



Supplementary Figure 5. Predicted ordered and disordered regions in human ASXL and ASXL-TF polypeptides. The TF region is highlighted in yellow.



Supplementary Figure 6. Ribosome profiling analysis of human *ASXL*. Transcript maps of *ASXL1* (left) and *ASXL2* (right) are shown at top, with the main *ASXL* ORF in pale blue and the overlapping *TF* ORF in pink. Below, the first two tracks (red) show ribosome profiling from Jurkat T-lymphocyte cells and MDA-MB-231 breast cancer cells. The bottom track (purple) shows RNASeq from MDA-MB-231 breast cancer cells. Plots show histograms of the 5′ ends of reads with a +12 nt offset to map (for ribosome profiling) approximate P-site positions, and smoothed with a 31-nt running mean filter. The y-axis shows the mean read counts after smoothing. The inset plot (turquoise) shows the ratio, within the coding sequence, of the two ribosome profiling datasets after first applying a 61-nt running mean filter to each dataset. Note that the high levels of ribosome drop-off seen in *ASXL1* in Jurkat cells is likely to be a result of suspected somatic mutations in this cell-line rather than highly efficient ribosomal frameshifting (see text).

Supplementary File 1 - accession numbers of sequences used

The subsets of sequences (76 for *ASXL1* and 52 for *ASXL2*) selected to more uniformly cover the phylogeny for the sequence logo analyses are indicated with asterisks.

ASXL1

mammals

XM_015071869	*Acinonyx jubatus*
XM_011223720	*Ailuropoda melanoleuca*
XM_012455205	*Aotus nancymaae*
XM_007193384	*Balaenoptera acutorostrata scammoni*
XM_010841718	*Bison bison bison*
XM_019972246	*Bos indicus*
XM_005887939	*Bos mutus*
XM_600364	*Bos taurus*
XM_006064407	*Bubalus bubalis*
XM_017971854	*Callithrix jacchus*
XM_010960874	*Camelus bactrianus* *
XM_010993907	*Camelus dromedarius*
XM_014554657	*Camelus ferus*
XM_005634922	*Canis lupus familiaris* *
XM_018057698	*Capra hircus*
XM_008074492	*Carlito syrichta* *
XM_013159847	*Cavia porcellus*
XM_017514550	*Cebus capucinus imitator* *
XM_004442480	*Ceratotherium simum simum* *
XM_012052496	*Cercocebus atys*
XM_005384868	*Chinchilla lanigera*
XM_008020495	*Chlorocebus sabaeus*
XM_006860770	*Chrysochloris asiatica*
XM_011959875	*Colobus angolensis palliatus*
XM_004687292	*Condylura cristata* *
XM_016975522	*Cricetulus griseus*
XM_004464052	*Dasypus novemcinctus*
XM_013010673	*Dipodomys ordii* *
XM_013008731	*Echinops telfairi* *
XM_006881688	*Elephantulus edwardii* *
XM_008140954	*Eptesicus fuscus*
XM_014845061	*Equus asinus*
XM_005604562	*Equus caballus*
XM_008525258	*Equus przewalskii*
XM_016187970	*Erinaceus europaeus*
XM_019826661	*Felis catus*
XM_010628451	*Fukomys damarensis* *
XM_008577080	*Galeopterus variegatus*
XM_004061980	*Gorilla gorilla gorilla*
XM_004840576	*Heterocephalus glaber*
XM_019645788	*Hipposideros armiger*
NM_015338	*Homo sapiens* *
XM_013356440	*Ictidomys tridecemlineatus* *

XM_012951056 *Jaculus jaculus **
XM_006740976 *Leptonychotes weddellii*
XM_007446853 *Lipotes vexillifer*
XM_010591603 *Loxodonta africana*
XM_005568667 *Macaca fascicularis*
XM_015149251 *Macaca mulatta*
XM_011766345 *Macaca nemestrina*
XM_011979776 *Mandrillus leucophaeus*
XM_017648617 *Manis javanica*
XM_015481723 *Marmota marmota marmota*
XM_005086071 *Mesocricetus auratus*
XM_012754776 *Microcebus murinus*
XM_005363226 *Microtus ochrogaster*
XM_016200632 *Miniopterus natalensis*
XM_007474452 *Monodelphis domestica **
NM_001039939 *Mus musculus*
XM_013053414 *Mustela putorius furo*
XM_014550680 *Myotis brandtii*
XM_015566642 *Myotis davidii*
XM_014456449 *Myotis lucifugus*
XM_008834843 *Nannospalax galili*
XM_003273514 *Nomascus leucogenys*
XM_004585717 *Ochotona princeps **
XM_004393041 *Odobenus rosmarus divergens*
XM_004272710 *Orcinus orca **
XM_007934547 *Orycteropus afer afer*
XM_008256142 *Oryctolagus cuniculus **
XM_012804162 *Otolemur garnettii*
XM_012151672 *Ovis aries musimon*
XM_015099825 *Ovis aries*
XM_003814739 *Pan paniscus*
XM_019458810 *Panthera pardus*
XM_015537063 *Panthera tigris altaica*
XM_005958892 *Pantholops hodgsonii **
XM_016937663 *Pan troglodytes*
XM_009216344 *Papio anubis*
XM_006985536 *Peromyscus maniculatus bairdii*
XM_007122347 *Physeter catodon*
XM_012637708 *Propithecus coquereli*
XM_006922041 *Pteropus alecto*
XM_011380179 *Pteropus vampyrus*
XM_019748488 *Rhinolophus sinicus*
XM_017884118 *Rhinopithecus bieti*
XM_010352765 *Rhinopithecus roxellana*
XM_016148805 *Rousettus aegyptiacus **
XM_003932071 *Saimiri boliviensis boliviensis*
XM_012553621 *Sarcophilus harrisii **
XM_012933645 *Sorex araneus*
XM_005672837 *Sus scrofa **
XM_004370455 *Trichechus manatus latirostris*
XM_014590207 *Tupaia chinensis **
XM_019950775 *Tursiops truncatus*

XM_008703387 *Ursus maritimus*
XM_006202660 *Vicugna pacos*

sauropsids

XM_009084380 *Acanthisitta chloris **
XM_019500328 *Alligator mississippiensis **
XM_005011000 *Anas platyrhynchos **
XM_008120859 *Anolis carolinensis **
XM_013198496 *Anser cygnoides domesticus*
XM_009870040 *Apaloderma vittatum **
XM_009279537 *Aptenodytes forsteri*
XM_013958321 *Apteryx australis mantelli **
XM_011578340 *Aquila chrysaetos canadensis*
XM_010308576 *Balearica regulorum gibbericeps*
XM_010133415 *Buceros rhinoceros silvestris **
XM_014956841 *Calidris pugnax*
XM_008497766 *Calypte anna*
XM_010162275 *Caprimulgus carolinensis*
XM_009694853 *Cariama cristata*
XM_009993988 *Chaetura pelagica*
XM_009893390 *Charadrius vociferus **
XM_007062481 *Chelonia mydas*
XM_010120851 *Chlamydotis macqueenii*
XM_008172168 *Chrysemys picta bellii*
XM_005499680 *Columba livia*
XM_008634138 *Corvus brachyrhynchos*
XM_010396950 *Corvus cornix cornix*
XM_015881880 *Coturnix japonica*
XM_019539485 *Crocodylus porosus*
XM_009562634 *Cuculus canorus*
XM_009640313 *Egretta garzetta **
XM_005444837 *Falco cherrug **
XM_005239907 *Falco peregrinus*
XM_016303293 *Ficedula albicollis **
XM_015296597 *Gallus gallus **
XM_019509967 *Gavialis gangeticus*
XM_015426170 *Gekko japonicus **
XM_005422200 *Geospiza fortis*
XM_009914948 *Haliaeetus albicilla*
XM_010569380 *Haliaeetus leucocephalus*
XM_017822613 *Lepidothrix coronata*
XM_018073998 *Manacus vitellinus*
XM_010722615 *Meleagris gallopavo*
XM_010178604 *Mesitornis unicolor*
XM_009471438 *Nipponia nippon*
XM_009933575 *Opisthocomus hoazin **
XM_015647794 *Parus major **
XM_009482169 *Pelecanus crispus*
XM_006117868 *Pelodiscus sinensis **
XM_010283841 *Phaethon lepturus **
XM_009511061 *Phalacrocorax carbo*
XM_005524727 *Pseudopodoces humilis*

XM_010084600 *Pterocles gutturalis* *
XM_009318746 *Pygoscelis adeliae*
XM_009093027 *Serinus canaria*
XM_014890102 *Sturnus vulgaris*
XM_002192704 *Taeniopygia guttata*
XM_009962456 *Tyto alba* *
XM_005491248 *Zonotrichia albicollis* *

amphibians

HADQ01029003 *Bombina bombina* *
GEGK01045837 *Leptobrachium boringii* *
GEGL01031110 *Megophrys* *
GECV01019509 *Microhyla fissipes* *
XM_018556374 *Nanorana parkeri* *
GEGH01003348 *Polypedates megacephalus* *
GDDO01068111 *Rana catesbeiana* *
GEGG01008506 *Rhacophorus dennysi* *
XM_018234430 *Xenopus laevis* *
XM_012952772 *Xenopus tropicalis* *

teleost fish

XM_007246841 *Astyanax mexicanus* *
XM_014031322 *Austrofundulus limnaeus*
XM_012820794 *Clupea harengus* *
XM_008318529 *Cynoglossus semilaevis* *
XM_015396824 *Cyprinodon variegatus* *
XM_005162338 *Danio rerio* *
XM_010875623 *Esox lucius* *
XM_012877575 *Fundulus heteroclitus* *
XM_005948017 *Haplochromis burtoni*
XM_019891036 *Hippocampus comes* *
XM_017487517 *Ictalurus punctatus* *
XM_017438828 *Kryptolebias marmoratus* *
XM_019259947 *Larimichthys crocea*
XM_018701579 *Lates calcarifer*
XM_004570926 *Maylandia zebra*
XM_006807161 *Neolamprologus brichardi*
XM_015967370 *Nothobranchius furzeri* *
XM_010784192 *Notothenia coriiceps* *
XM_005465660 *Oreochromis niloticus* *
XM_011473016 *Oryzias latipes* *
XM_020089223 *Paralichthys olivaceus*
XM_007575434 *Poecilia formosa*
XM_015048376 *Poecilia latipinna* *
XM_015004530 *Poecilia mexicana*
XM_008412961 *Poecilia reticulata*
XM_005752308 *Pundamilia nyererei*
XM_017708670 *Pygocentrus nattereri* *
XM_014135258 *Salmo salar* *
XM_016503785 *Sinocyclocheilus anshuiensis*
XM_016273902 *Sinocyclocheilus grahami*

XM_016513134 *Sinocyclocheilus rhinocerous* *
XM_008282558 *Stegastes partitus* *
XM_011619777 *Takifugu rubripes* *
XM_014475275 *Xiphophorus maculatus*

other

GEUG01028913 *Amia calva* *
XM_007885779 *Callorhinchus milii* *
XM_014498298 *Latimeria chalumnae* *
XM_015365106 *Lepisosteus oculatus* *

ASXL2

mammals

XM_015064116 *Acinonyx jubatus*
XM_019808476 *Ailuropoda melanoleuca*
XM_012453268 *Aotus nancymaae*
XM_007191266 *Balaenoptera acutorostrata scammoni*
XM_010840577 *Bison bison bison*
XM_019970597 *Bos indicus*
XM_005895687 *Bos mutus*
XM_002691461 *Bos taurus*
XM_006046228 *Bubalus bubalis*
XM_008981035 *Callithrix jacchus*
XM_010948539 *Camelus bactrianus* *
XM_010992973 *Camelus dromedarius*
XM_006190213 *Camelus ferus*
XM_003432160 *Canis lupus familiaris* *
XM_005686939 *Capra hircus*
XM_008063472 *Carlito syrichta* *
XM_003472847 *Cavia porcellus*
XM_017527302 *Cebus capucinus imitator* *
XM_004418269 *Ceratotherium simum simum* *
XM_012044335 *Cercocebus atys*
XM_005400412 *Chinchilla lanigera*
XM_007971691 *Chlorocebus sabaeus*
XM_006835227 *Chrysochloris asiatica*
XM_011950426 *Colobus angolensis palliatus*
XM_012727612 *Condylura cristata* *
XM_003497015 *Cricetulus griseus*
XM_013013735 *Dipodomys ordii* *
XM_004696413 *Echinops telfairi* *
XM_006880618 *Elephantulus edwardii* *
XM_008162352 *Eptesicus fuscus*
XM_014856740 *Equus asinus*
XM_001918196 *Equus caballus*
XM_008542771 *Equus przewalskii*
XM_007516745 *Erinaceus europaeus*
XM_006930426 *Felis catus*
XM_010604841 *Fukomys damarensis* *

XM_008577069	*Galeopterus variegatus*
XM_004028952	*Gorilla gorilla gorilla*
XM_004839122	*Heterocephalus glaber*
XM_019643761	*Hipposideros armiger*
NM_018263	*Homo sapiens* *
XM_005322571	*Ictidomys tridecemlineatus* *
XM_004663740	*Jaculus jaculus* *
XM_006732866	*Leptonychotes weddellii*
XM_007470793	*Lipotes vexillifer*
XM_003411920	*Loxodonta africana*
XM_005576367	*Macaca fascicularis*
XM_015111861	*Macaca mulatta*
XM_011738081	*Macaca nemestrina*
XM_011972683	*Mandrillus leucophaeus*
XM_017666555	*Manis javanica*
XM_015479905	*Marmota marmota marmota*
XM_005079112	*Mesocricetus auratus*
XM_012788149	*Microcebus murinus*
XM_005360858	*Microtus ochrogaster*
XM_016209133	*Miniopterus natalensis*
XM_001380127	*Monodelphis domestica* *
NM_001270988	*Mus musculus*
XM_004745948	*Mustela putorius furo*
XM_005874900	*Myotis brandtii*
XM_015566378	*Myotis davidii*
XM_014446882	*Myotis lucifugus*
XM_008834991	*Nannospalax galili*
XM_012497462	*Nomascus leucogenys*
XM_004582643	*Ochotona princeps* *
XM_004627442	*Octodon degus*
XM_004394909	*Odobenus rosmarus divergens*
XM_012532454	*Orcinus orca* *
XM_007666728	*Ornithorhynchus anatinus* *
XM_008254661	*Oryctolagus cuniculus* *
XM_003787447	*Otolemur garnettii*
XM_012158262	*Ovis aries musimon*
XM_004005731	*Ovis aries*
XM_003827052	*Pan paniscus*
XM_019450044	*Panthera pardus*
XM_005978907	*Pantholops hodgsonii* *
XM_016948189	*Pan troglodytes*
XM_003908363	*Papio anubis*
XM_006981457	*Peromyscus maniculatus bairdii*
XM_007108431	*Physeter catodon*
XM_012652406	*Propithecus coquereli*
XM_006910290	*Pteropus alecto*
XM_011356536	*Pteropus vampyrus*
XM_008764542	*Rattus norvegicus*
XM_019712755	*Rhinolophus sinicus*
XM_017876853	*Rhinopithecus bieti*
XM_010383018	*Rhinopithecus roxellana*
XM_016121738	*Rousettus aegyptiacus* *

XM_010345790	*Saimiri boliviensis boliviensis*
XM_012539839	*Sarcophilus harrisii* *
XM_013996276	*Sus scrofa* *
XM_004377581	*Trichechus manatus latirostris*
XM_006162196	*Tupaia chinensis* *
XM_004312104	*Tursiops truncatus*
XM_008700579	*Ursus maritimus*
XM_006197176	*Vicugna pacos*

sauropsids

XM_019497675	*Alligator mississippiensis* *
XM_014524044	*Alligator sinensis*
XM_013200279	*Anser cygnoides domesticus* *
XM_009275117	*Aptenodytes forsteri* *
XM_011598858	*Aquila chrysaetos canadensis*
XM_010142315	*Buceros rhinoceros silvestris* *
XM_014961567	*Calidris pugnax* *
XM_010002204	*Chaetura pelagica* *
XM_009890372	*Charadrius vociferus* *
XM_007062817	*Chelonia mydas*
XM_005284123	*Chrysemys picta bellii* *
XM_015859722	*Coturnix japonica*
XM_009563752	*Cuculus canorus* *
XM_014287174	*Falco cherrug* *
NM_001031096	*Gallus gallus* *
XM_010565910	*Haliaeetus leucocephalus* *
XM_017838512	*Lepidothrix coronata* *
XM_010708024	*Meleagris gallopavo* *
XM_005146457	*Melopsittacus undulatus* *
XM_009467461	*Nipponia nippon* *
XM_009943397	*Opisthocomus hoazin* *
XM_009909487	*Picoides pubescens* *
XM_007422356	*Python bivittatus* *
XM_009669652	*Struthio camelus australis* *

amphibians

GFBM010877296	*Ambystoma mexicanum* *
XM_018574722	*Nanorana parkeri* *
GEGH01064887	*Polypedates megacephalus* *
GDDO01077260	*Rana catesbeiana* *
XM_018264742	*Xenopus laevis* *
XM_018089999	*Xenopus tropicalis* *

other

XM_007900450	*Callorhinchus milii* *
XM_006005057	*Latimeria chalumnae* *
XM_015348384	*Lepisosteus oculatus* *

Supplementary File 2 - vertebrate *ASXL1* and *ASXL2* TF peptide sequences

ASXL1

Predicted ASXL1 TF peptide sequences following a +1 PRF at the conserved UCC_UUU_CGU sequence. The conserved EH[N/S]Y motif is highlighted in purple.

mammals

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XM_012553621 Sarcophilus harrisii               VTQLKVFTPKSRSLLKRSPKSRPSGFNFHVSNRPGWLKVSPLTRYAPALSPTQNTPAGAELVPELSQTLRPALCKPEPR------EKL--PQPPLEVGVGQGEVVEGTPMKEAVE--------VRLVTIPSTGEPRGLTEGVRQIYNEHNYCRLVMS
XM_007474452 Monodelphis domestica              VTQLKVFTPKSRSLLKRSPKSRPSGFNFHVSNRPGWLKVSPLTRYAPGLSPTQSTPAGAELVPEPSQTLRPALYKPEPR------EKL--PQPPSEVGVGQGEAVEGTVTKEAVE--------VRLVTIPSTGEPRGLTEGVRQIYNEHNYCRLVMS
XM_004464052 Dasypus novemcinctus              VTQLKVFTPKSHSPLKRSPKYRPSGFNFHVSNHPGWLKVSPLTKYAPGLSPSRTPPAGVGLVPGPLQTLKPVLCRPEPS------ERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVITPSPGESQTSLESVRQIYSEHNYCRLIL-
XM_004585717 Ochotona princeps                 VTQLQVVTPRSHSPLKRSPKSRPSGFNFHASNHPGWLKVSPLTRYAPGSSLSRGPPAGAGLAPGPSQTLKPVPARPQGREATTAIERR--PPLPSEGGVARVEVAEGPPMREAAE-TAAVVMVVRPVASLAPAEPQAALESVRQIYSEHNYCRLVL-
XM_016187970 Erinaceus europaeus               VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYVPASSPSQSPPAGVGPMPGPSQTLKPVLCRSEGQEATTAIERQ--PPLPSEGGVARVEVAAGPRMREVAD-TATVVMVVRPVATVSPGEAQTPLESVRQIYSEHNYCRLVL-
XM_008834843 Nannospalax galili                VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVGPLTRYAPASSQSRSPPAGVGLVPGPLQTLKPVLCRPEGREATTAIEKR--LPLPSEGGVARVEVAAGPSMREVAE-ATAVVMVVRPVVTLSPGEPRAPLETVRQIYNEHNYCRFVL-
XM_012951056 Jaculus jaculus                   VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYVPGLSPSRSPPAGAGLVPGPSQTLKPVLCRPEGQEATTAIERQ--PPLPSEGGVARVEVAAGPPMREVVE---AVVMVVRPVATLNPGESQAPLERVRQIYSEHNYCRLVL-
XM_006881688 Elephantulus edwardii             VTQLKVFTPKSHSPLKKSPKSRPSGFNFHASNHPGWLKVSPLTRYAPGSSPTRNPPAGAGLAPGPLQTLKPVLCRPEPS------ERR--PPLPSEGGVARVEVAAGPPMREVAE-ATTVVMVVRPVATLSPGEPRVPLESVRQIYSEHNYCRLVL-
XM_006860770 Chrysochloris asiatica            VTQLKVFTPKSPSPLKKSLKSRPSGFNFHASNHPGWLKVSPLTRYAPGSSPARNPPAGAALAPGPSQTLKPVLCRPEPS------ERR--PPLPSEGGVARVEVAAGPPIREVAE-AATVVMVVRPVATLSSGEPRAPLESVRQIYSEHNYCRLVL-
XM_013008731 Echinops telfairi                 VTQLKVFTPKSHSPLKRSPKSRPSGFNFHASNHPGWLKVSPLTRYAPGSSLSQSPPAGVGPVLGPSQTLKPVLCRPEPS------ERR--PPLPSEGGVARVEVAAGPLMREVAE-AAALVMVVRPVATLSPGEPRAPLENARQIYSEHNYCRLVL-
XM_007934547 Orycteropus afer afer             VTQLKVFTPKSHSPLKRSPKSRPSGFNFHASNHPGWLKVSPLTRYAPGSSPSRNPPTGAELAPGPSQTLKPVLCRPEPS------ERR--PPLPSEGGVARVEVAAGPPMREAAE-AAAVVMVVRPVATLSPGEPRAPLESVRQIYSEHNYCRLVL-
XM_004370455 Trichechus manatus latirostris    VTQLKVFTPKSHSPLKRSPESRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPIRNLPAGAGLAPGPSQTLKPVLCRPEPS------ERR--PPLPSEGGVARVEVAAGPPMKEVAE-AAAVVMVVRPVATLSPGEPRAPLESVRQIYSEHNYCRLVL-
XM_010591603 Loxodonta africana                VTQLKVFTPKSHSPLKRSPESRPSGFNFHVSNHPGWLKVSPLTKYAPASSPSRIPPVGAGLVPGPSQTLKPVLCRPEPS------ERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGEPRAPLESVRQIYSEHNYCRLVL-
XM_012933645 Sorex araneus                     VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPELSPSQSLPAGAGQGPGPSQTLKPVLCRSEGREATTA-ERR--PPLPSEGGVARVEVAAGPPTREVAE--TAVVMVVRPVATLSLGEARAPLESVRQIYSEHNYCRLVL-
XM_008256142 Oryctolagus cuniculus             VTQLKVFTPKSHSPLKRSPKSRPSGFNFHASNHPGWLKVSPLTRYAPGSSLPRSPPAGAGLAPGPSQTLKPVLGRPEGREATTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLNPREPQAPLESVRQIYSEHNYCRLVL-
XM_008074492 Carlito syrichta                  VTQLKVFTPKSHSPLKRSPKSHPSGFNFHVSNHPGWLKVSPLTRYAPGSSPSRSPPAGAGLVPGPSQTLKPVLCRSEGREATTAIERR--PPLPSEGGVARVEVAAGPSMREVAE-ATAVVMVVRPVATLSPGEPRAPLESIRQIYSEHNYCRLVL-
XM_014590207 Tupaia chinensis                  VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPSRSPPAGDGLVPGPSQTLKPVLCRSEGREATTAIERR--PPLPSGGGVAGVEVAAGPPMREVAE-TAAVVMVVRPVTTLSAGEPQAPLESVRQIYSEHNYCRLVL-
XM_013010673 Dipodomys ordii                   VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPSRTPPAGAGLVPGPSQTLKPVLCRPEGREATTAIERR--PPLPSEGGVARVEVATGPLMREVAE-AATVVMLVRPVATLSPGEPQAPLERVRQIYSEHNYCRLVL-
XM_005086071 Mesocricetus auratus              VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVGPLTRYAPGSSPSRSPPAGVGLVPGPSQTLKPVLCRPEGQEATTAIERR--PPLPSEGGVARVEVAVGPSMREVAE-AAAVVMVVRPVATLSPGEPPVPLERVRQIYSEHNYCRLVL-
XM_016975522 Cricetulus griseus                VTQLKVFTPKSHSPQKRSPKSRPSGFNFHVSNHPGWLKVGPLTRYAPGSSPSQSPPAGVGLVPGPSQTLKPVLCRPEGREATTAIERR--PPLPSEGGVARVEVAVGPSMREVAE-AAAVVMVVRPLATLSPGEPQVPLERVRQIYSEHNYCRLVL-
XM_006985536 Peromyscus maniculatus bairdii   VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVGPLTRYAPGLSPSRSPPAGVGLVPGPSQTLKPVLCRPEGREATTAIERR--QPLPSEGGVARVEVAVGPSMREVAE-AAAVVMVVRPVATLSPGEPQAPLERVRQIYSEHNYCRLVL-
NM_001039939 Mus musculus                      VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVGPLTRYAPGSSPSRSPPAGVGLVPGPSQTLKPVLCRPEGREVTTAIERR--PPLPSEGGVARVEVAVGPSMREVAE-TAAVVMVVRPVATLSPGEPQAPLERVRQIYSEHNYCRLVL-
XM_005363226 Microtus ochrogaster               VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVGPLTRYAPGSSPSQSPPAGVGLVPGPLQTLKPVLCRPEGREATTAIERR--PPLPSEGGVARVEVAVGPSMREVAE-AAAVVMVVRPVTTLSPGEPQAPLERVRQIYSEHNYCRLVL-
XM_004840576 Heterocephalus glaber              VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPSRSPPAGAGLVPEPLQTLKPVLCRPEGQEATTVIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVVTLSPGEPRAPPESVHQIYSEHNYCRLVL-
XM_010628451 Fukomys damarensis                VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPSQSPPAGAGLVPGPLQTLKPVLCSPEGREATTVIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVASLSPGEPRAPPESVHQIYSEHNYCRLVL-
XM_005384868 Chinchilla lanigera               VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPSQSPLAGAGLLPGPSQTLKPVLCRPEGREATTAMERR--PPLLSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGESRAPPESVRQIYSEHNYCRLVL-
XM_013159847 Cavia porcellus                   VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSLSQSPPAGAGLVPGPSQTLKPVLCRPEGREATTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGEPRAPPENVRQIYSEHNYCRLVL-
XM_015481723 Marmota marmota marmota           VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYVPGSSPSQSLPTGAGLVPGPSQTLKPVLCRPEGQEATTAIERR--PPLPSEVGVAQVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGEPRAPLESVRQIYSEHNYCRLVL-
XM_013356440 Ictidomys tridecemlineatus        VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYVPGSSPSQSLPTGAGLVPGPSQTLKPVLCRPEGREATTAIERR--PPLPSEVGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGEPRAPLESVRQIYSEHNYCRLVL-
XM_012804162 Otolemur garnettii                VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPSRSPPTGAGLAPGPSQTLKPVLCKSEGREATNAIERR--PPLPSEGGVARVEVAAGPPMREVAEAAAAAVVMVVRPVATLSQGEPRAPLESVRQIYSEHNYCRLVL-
XM_012754776 Microcebus murinus                VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPSRSPPAGAGLAPGPSQTLKPVLCKPEGREVTTAIERR--PPLPSEGGVARVEVAAGPPMREVAEAAAAAVVMVVRPVATLSPGEPRAPLERVRQIYSEHNYCRLVL-
XM_012637708 Propithecus coquereli             VTQLKVFTPRSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPSRSPPAGAGLAPGPSQTLKPVLCKPEGREVTTAIERR--PLLPSEGGVARVEVAAGPPMREVAEAAAAAVVMVVRPVATLSPGEPRAPLERVRQIYSEHNYCRLVL-
XM_012455205 Aotus nancymaae                   VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPSRSPPAGAGPVPGPSQTLKPVLCRSEGREVTTAIERR--PPLPSEGGVARVEVAAGPPMREAVE-AAAVVMVVRPVATLSPGEARAPLESVRQIYSEHNYCRLVL-
XM_017971854 Callithrix jacchus                VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPSRSPPAGAGPVPGPSQTLKPVLCRSEGREVTTAIERR--PPLPSEGGVARVEVAAGPPMREAVE-AAAVVMVVRPVATLIPGEARAPLESVRQIYSEHNYCRLVL-
XM_017514550 Cebus capucinus imitator          VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPSRSPPAGAGPAPGPSQTLKPVLCRSEGREVTTAIERR--PPLPSEGGVARVEVAAGPPMREAVE-AAAVVMVVRPVATLSPGEARAPLESVRQIYSEHNYCRLGL-
XM_003932071 Saimiri boliviensis boliviensis   VTQLKVFTPKSRSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPSRSPPAGAGPAPGPSQTLKPVLCRSEGREVTTAIERR--PPLPSEGGVARVEVAAGPPMREAVE-AAAVVMVVRPVATLSPGEARAPLESVRQIYSEHNYCRLIL-
XM_012052496 Cercocebus atys                   VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPPRSPPAGAGLAPGPSQTLKPVLCRSEGREVMTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGEARAPLESVRQIYSEHNYCRLIL-
XM_008020495 Chlorocebus sabaeus               VTQLKVFTPKSHSPLKRSPKSRPSGFSFHVSNHPGWLKVSPLTRYAPGSSPPRSPPAGAGLAPGPSQTLKPVLCRSEGREVMTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGEARAPLESVRQIYSEHNYCRLIL-
XM_005568667 Macaca fascicularis               VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPPRSPPAGAGLAPGPSQTLKPVLCRSEGREVMTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGEARAPLESVRQIYSEHNYCRLIL-
XM_011979776 Mandrillus leucophaeus            VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPPRSPPAGAGLAPGPSQTLKPVLCRSEGREVMTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGEARAPLESVRQIYSEHNYCRLIL-
XM_009216344 Papio anubis                      VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPPRSPPAGAGLAPGPSQTLKPVLCRSEGREVMTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGEARAPLESVRQIYSEHNYCRLIL-
XM_015149251 Macaca mulatta                    VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPPRSPPAGAGLAPGPSQTLKPVLCRSEGREVMTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGEARAPLESVRQIYSEHNYCRLIL-
XM_011766345 Macaca nemestrina                 VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPPRSPPAGAGLAPGPSQTLKPVLCRSEGREVMTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGEARAPLESVRQIYSEHNYCRLIL-
XM_016937663 Pan troglodytes                   VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPPRSPPAGVGLAPGPSQTLKPVLCRSEGREVTTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGEARAPLESVRQIYSEHNYCRLIL-
NM_015338    Homo sapiens                       VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPPRSPPAGVGLAPGPSQTLKPVLCRSEGREVTTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGEARAPLESVRQIYSEHNYCRLIL-
XM_003814739 Pan paniscus                      VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPPRSPPAGVGLAPGPSQTLKPVLCRSEGREVTTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGEARAPLESVRQIYSEHNYCRLIL-
XM_004061980 Gorilla gorilla gorilla           VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPPRSPPAGVGLAPGPSQTLKPVLCRSEGREVTTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGEARAPLESVRQIYSEHNYCRLIL-
XM_003273514 Nomascus leucogenys               VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPPRSPPAGVGLAPGPSQTLKPVLCRSEGQEVTTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGEARAPMESVRQIYSEHNYCRLIL-
XM_011959875 Colobus angolensis palliatus      VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPPRSPPAGAGLAPGPSQTLKPVLCRSEGQEVTTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATSSPGEARAPLESVRQIYSEHNYCRLIL-
XM_017884118 Rhinopithecus bieti               VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPPRSPPAGAGLAPGPSQTLKPVLCRSEGQEVTTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGEARAPLESVRQIYSEHNYCRLIL-
XM_010352765 Rhinopithecus roxellana           VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPPRSPPAGAGLAPGPSQTLKPVLCRSEGQEVTTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGEARAPLESVRQIYSEHNYCRLIL-
XM_014554657 Camelus ferus                     VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPASSPSRSPPAGAGLAPGPLQTLKPVLCRSEGREATTAIRKAAXXXXXXXGGVARVEVAAGPPMREVAE-TAAVVMVVRPVATLSPGEPRAPLESVRQIYSEHNYCRLVL-
XM_008577080 Galeopterus variegatus            VTQLKVFTPKSHSPLKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPGSSPSRSPPAGAGLVPGPSQTLKPVLCKSEGREAPTAIERR--PQLPSEGGVARVEVAAGPPMREVAE-MAAVVMVVRPVATLSAGEPRAPLESMRQIYSEHNYCRLVF-
XM_004687292 Condylura cristata                VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRFAPASSPSRSPPAGAGLVPGPSQTLKPVLCRSEGPEATTAIERR--PPLPSEAGVARVEVAAGPPMREVAE-AAAVVMVVRPMATLSPGDPRAPLENVRQIYSEHNYCRLVL-
XM_004442480 Ceratotherium simum simum        VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPASSPSRSPPAGAGLVPGPSRTLKPVLCRSEGREATTAIERR--LPLPSEAGVARVEVAAGPPMREVAE-AAPVVMVVRPVATLSPEETRGPLESVRQIYSEHNYCRLVL-
XM_008140954 Eptesicus fuscus                  VTQLKVFTPKSHSPPKRSPKSRPSGYNFHVSNHPGWLKVSPLTRYAPELSPSRSPPAGAGLVPGPSQTLKPVLCRSEGREATTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPEEPRAPLESVRQIYSEHNYCRLVL-
XM_014550680 Myotis brandtii                   VTQLKVFTPKSHSPPKRSPKSRPSGYNFHVSNHPGWLKVSPLTRYAPELSPSRSPPAGAGLVPGPSQTLKPVLCRSEGREATTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPEEPRAPLESVRQIYSEHNYCRLVL-
XM_015566642 Myotis davidii                    VTQLKVFTPKSHSPPKRSPKSRPSGYNFHVSNHPGWLKVSPLTRYAPELSPSRSPPAGAGLVPGPSQTLKPVLCRSEGREATTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPEEPRAPLESVRQIYSEHNYCRLVL-
XM_014456449 Myotis lucifugus                  VTQLKVFTPKSHSPPKRSPKSRPSGYNFHVSNHPGWLKVSPLTRYAPELSPSRSPPAGAGLVPGPSQTLKPVLCRSEGREATTVIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPEEPRAPLESVRQIYSEHNYCRLVL-
XM_013053414 Mustela putorius furo             VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRFAPASSPSRSPPAGAGLVPGPSQTLKPVLCKSEGREATTVIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVPTLSPAEPRVPLESVRQIYSEHNYCRLVL-
XM_015537063 Panthera tigris altaica           VTQLKVFTPRSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPASSPSRSPPAGAGLVPGPSQTLKPVLCKSEGREATTVIERR--APLPSGGGGRVEVAAGPPMREVAE-AAAVVMVVRPVATLSPAEPRAPLESVRQIYSEHNYCRLVL-
XM_006740976 Leptonychotes weddellii           VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSQLTRYVPASSPSRSPPAGAGLVPGPSQTLKPVLCKSEGREATTVIERR--PPLPSEGGVARVEVATGPPMREVAE-AAAVVMVVRPVATLSPAEPRAPLESVRQIYSEHNYCRLVL-
XM_004393041 Odobenus rosmarus divergens       VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYVPASSPSRSPPAGAGLVPGPSQTLKPVLCKSEGREATTVIERR--PPLPSEGGVARVEVATGPPMREVAE-AAAVVMVVRPVATLSPAEPRAPLESVRQIYSEHNYCRLVL-
XM_015071869 Acinonyx jubatus                  VTQLKVFTPRSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPASSPSRSPPAGAGLVPGPSQTLKPVLCKSEGREATTVIERR--PPLPSEGGVARVEVAAGPGMREVAE-AAAVVVVVRPVATLSPVEPRAPLESVRQIYSEHNYCRLVL-
XM_011223720 Ailuropoda melanoleuca            VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPASSPSRSPPAGAGLVPGPSQTLKPMLCKSEGREATTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPAEPRAPLESVRQIYSEHNYCRLVL-
XM_019458810 Panthera pardus                   VTQLKVFTPRSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPASSPSRSPPAGAGLVPGPSQTLKPVLCKSEGREATTVIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPAEPRAPLESVRQIYSEHNYCRLVL-
XM_019826661 Felis catus                       VTQLKVFTPRSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPASSPSRSPPAGAGLVPGPSQTLKPVLCKSEGREATTVIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPAEPRAPLESVRQIYSEHNYCRLVL-
XM_005634922 Canis lupus familiaris            VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPASSPSRSPPAGAGLVPGPSQTLKPVLCKSEGREATTVIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPVEPRTPLESVRQIYSEHNYCRLVL-
XM_008703387 Ursus maritimus                   VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPASSPSRSPPAGAGLVPGPSQTLKPVLCKSEGREATTVIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPVEPRAPLESVRQIYSEHNYCRLVL-
XM_005672837 Sus scrofa                        VTQLKVFTPKSHSPPKRSPKSRPSGFSFHVSNHPGWLKVSPLTRYAPASSPSRSPPAGAGLAPGPLQTLKPVLCKSEGREATTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGEPRVPLECVRQIYSEHNYCRLIL-
XM_014845061 Equus asinus                      VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPASSPSRSPPAGAGLAPGPSQTLKPVLCRSEGREATTAIERR--LPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPEEPQALLESVRQIYSEHNYCRLVL-
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XM_005604562 Equus caballus                        VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPASSPSRSPPAGAGLAPGPSQTLKPVLCRSEGREATTAIERR--LPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPEEPQALLESVRQIYSEHNYCRLVL-
XM_008525258 Equus przewalskii                     VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPASSPSRSPPAGAGLAPGPSQTLKPVLCRSEGREATTAIERR--LPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPEEPQALLESVRQIYSEHNYCRLVL-
XM_005887939 Bos mutus                             VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYVPASSPSRSPPAGAGLVPGPLQTLKPVLCRSEGREATPAXXXX--PPLPSEVGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGGPRVPLESVRQIYSEHNYCRLVL-
XM_019748488 Rhinolophus sinicus                   VTQLKVFTPKSHSPPKRNPKSRPSGFNFHVSNHPGWLKVSPLTRYVPASSPSRSPPAAAGLAPGPLQTLKPVLCRSEGREATTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGEPRAPLESVRQIYSEHNYCRFIL-
XM_016200632 Miniopterus natalensis                VTQLKVFTPKSHSPPKRSPKSRPSGYNFHVSNHPGWLKVSPLTRYAPALSPSRSPPAGAGLAPGPSQTLKPVLCRSEGREATTAMERR--PPLPSEGGVARVEVAAESPMREVAE--AAVVMVVRPVATLSPGEPRAPLESVRQIYSEHNYCRLVL-
XM_016148805 Rousettus aegyptiacus                 VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPASSPSRSPPAGAGLAPGHLQTLKPVLCRSEGREATTAIERR--PPLPSEGGVARVEVTAGPPMREVAE-AAALVMVVRPVATLSPGEPRAPLESVRQIYSEHNYCRLIL-
XM_011380179 Pteropus vampyrus                     VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPASSPSRSPPAGPGLAPGHLQTLKPVLCRSEGREATTAIERR--PPLPSEGGVARVEVTAGPPMREVAE-AAALVMVVRPVATLSPGEPRAPLETARQIYSEHNYCRLIL-
XM_006922041 Pteropus alecto                       VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPASSPSRSPPAGPGLAPGHLQTLKPVLCRSEGREATTAIERR--PPLPSEGGVARVEVTAGPPMREVAE-AAALVMVVRPVATLSPGEPRAPLESARQIYSEHNYCRLIL-
XM_006202660 Vicugna pacos                         VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPASSPSRSPPAGAGLAPGPLQTLKPVLCRSEGREATTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-TAAVVMVVRPVATLSPGEPRAPLESVRQIYSEHNYCRLVL-
XM_010960874 Camelus bactrianus                    VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPASSPSRSPPAGAGLAPGPLQTLKPVLCRSEGREATTAIERR--PPLPSEVGVARVEVAAGPPMREVAE-TAAVVMVVRPVATLSPGEPRAPLESVRQIYSEHNYCRLVL-
XM_010993907 Camelus dromedarius                   VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPASSPSRSPPAGAGLAPGPLQTLKPVLCRSEGREATTAIERR--PPLPS-----------------------------PVATLSPGEPRAPLESVRQIYSEHNYCRLVL-
XM_007122347 Physeter catodon                      VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPASSPSRSPPAGAGLAPGPLQTLKPVLCRSEGREATTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-ASAVVMVVRPVATLIPGEPQVPLESVRQIYSEHNYCRLVL-
XM_007446853 Lipotes vexillifer                    VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPASSPSRSPPAGAGLAPGPLQTLKPVLCRSEGREATTAIERR--PPLPSEGGVARVEVAAGPAMREVAE-ASAVVMVVRPVATLSPGEPQVPLESVRQIYSEHNYCRLVL-
XM_004272710 Orcinus orca                          VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPASSPSQSPPAGAGLAPGPLQTLKPVLCRSEGREATTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-ASAVVMVVRPVATLSPGEPQVPLESVRQIYSEHNYCRLVL-
XM_007193384 Balaenoptera acutorostrata scammoni   VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPASSPSRSPPAGAGLAPGPLQTLKPVLCRSEGREATTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-ASAVVMVVRPVATLSPGEPQVPLESVRQIYSEHNYCRLVL-
XM_019950775 Tursiops truncatus                    VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPASSPSRSPPAGAGLAPGPLQTLKPVLCRSEGREATTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-ASAVVMVVRPVATLSPGEPQVPLESVRQIYSEHNYCRLVL-
XM_017648617 Manis javanica                        VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYAPASSPSRSPPAGAGLVPGPSQTLKPVLCRSEGREATTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGEPRVPLESVRQIYSEHNYCRLVF-
XM_019645788 Hipposideros armiger                  VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYVPASSPSRSPPAGAGLVPGPLQTLKPVLCRSEGREATTAIERR--PPLPSEGGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGESRAPLESVRQIYSEHNYCRLIL-
XM_006064407 Bubalus bubalis                       VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYVPASSPSRSPPAGAGLVPGPLQTLKPVLCRSEGRAATTAVERR--PPLPSEVGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGEPRVPLESVRQIYSEHNYCRLVL-
XM_600364    Bos taurus                             VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYVPASSPSRSPPAGAGLVPGPLQTLKPVLCRSEGREATTAIERR--PPLPSEVGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGGPRVPLESVRQIYSEHNYCRLVL-
XM_019972246 Bos indicus                           VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYVPASSPSRSPPAGAGLVPGPLQTLKPVLCRSEGREATTAIERR--PPLPSEVGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGGPRVPLESVRQIYSEHNYCRLVL-
XM_010841718 Bison bison bison                     VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYVPASSPSRSPPAGAGLVPGPLQTLKPVLCRSEGREATTAIERR--PPLPSEVGVARVEVAAGPPMREVAE-AAAVVMVVRPVAPLSPGGPRVPLESVRQIYSEHNYCRLVL-
XM_005958892 Pantholops hodgsonii                  VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYVPASSPSRSPPAGAGLVPGPLQTLKPVLCRSEGREATTAIERR--PPPP------RVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGEPRVPLESVRQIYSEHNYCRLVL-
XM_018057698 Capra hircus                          VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYVPASSPSRSPPAGAGLVPGPLQTLKPVLCRSEGREATTAIERR--PPLPSEVGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGEPRVPLETVRQIYSEHNYCRLVL-
XM_012151672 Ovis aries musimon                    VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYVPASSPSRSPPAGAGLVPGPLQTLKPVLCRSEGREATTAIERR--PPLPSEVGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGEPRVPLESVRQIYSEHNYCRLVL-
XM_015099825 Ovis aries                            VTQLKVFTPKSHSPPKRSPKSRPSGFNFHVSNHPGWLKVSPLTRYVPASSPSRSPPAGAGLVPGPLQTLKPVLCRSEGREATTAIERR--PPLPSEVGVARVEVAAGPPMREVAE-AAAVVMVVRPVATLSPGEPRVPLESVRQIYSEHNYCRLVL-
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sauropsids

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XM_008497766 Calypte anna                          VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLKVSPLTRYAPESSPTRSPPA-GAGPGPEPSQTSKPELCRPEPSEK--LPQQPSE-----EGVAQVEGE--AGMKEVVVE------------------EEDPAAAPSTGDPREPVGSARQICSEHNYCRPPV
XM_019509967 Gavialis gangeticus                   VTQLKVFTQKSHSLLKRSPKSHPSGFNFHVSNHPGWLKVSQLTRYAPGSSPTRSPPV-GAGQVPEHSQTLKPVLCKPEPSER--LLQ-PLE-----VGVGQEEEGGAAQIKE----------------------EETPVAIQSTGNQRELMESVRQIYNEHNYCRLPL
XM_019539485 Crocodylus porosus                    VTQLKVFTQKSHSLLKRSPKSHPSGFNFHVSNHPGWLKVSQLTRYAPGSSPTRSPLV-GAGQVPEHSQTLKPVLCKPEPSER--LLQ-PLE-----AGVGQEEGGVAAQIKE----------------------EETPVAIQSTGDQRELMESVRQIYNEHNYCRLPL
XM_019500328 Alligator mississippiensis            VTQLKVFTQKSHSLLKRSPKSHPSGFNFHVSNHPGWLKVSQLTRYAPGSSPTRSPLA-GAGQVPEHSQTLKPVLCKPEPSER--LLQ-PLE-----AGVGQEEEGGAAQIKE----------------------EETPVAIQSTGDQRELMESVRQIYNEHNYCRLPL
XM_006117868 Pelodiscus sinensis                   VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVSSHPGWLRVSPLTRYAPGSSPTQSPLV-GAGLVPEHSQTLKLVLCKPEPSER--PLQLPLE-----VGVGQEEEG-TAPIKEVVVV-----------------VENPVAIESPGDQRELMEGVRQIYNEHNYCRLSI
XM_007062481 Chelonia mydas                        VTQLKVFTQKSHSLLKRNQKSHPSGFNFHVSNHPGWLRVSPLTRYAPGSSPTRSPLV-GAELVPEHSQTLKLVLCKPEPSER--PLQLPLE-----VGVGQEEEG-TAPIKE--VV-----------------EETPVAIQSTGDQRELMEGVRQIYNEHNYCRLSI
XM_008172168 Chrysemys picta bellii                VTQLKVFTQKSHSLLKRNQKSHPSGFNFHVSNHPGWLRVSPLTRYAPGSSPTRNPLV-GAELVPEHSQTLKLVLCKPEPSER--PLQLPLE-----VGVGQEEEG-TAPIKE--VV-----------------EENPVAIQSTGDQRELMENVRQIYNEHNYCRLSI
XM_015881880 Coturnix japonica                     VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLKVSQLTRYATGSSPTRSPPP-GAGAGPELSQTLRPVLCRPEPSEK--LLQPPLV-----VGEAPAEAE--TLRGE----------------------EENPAAIAGVEDQRELDESAHQIYSEHNYSRLSV
XM_010722615 Meleagris gallopavo                   VTQLKVFTQKSHNLLKRSQKSHPSGFNFHVLNHPGWLKVSQLTRYAPGSSPTRSPPP-GAGAGPELSQTLRPVLCRPEPSEK--LLQPPLV-----VXAAPAEGE--TL--R--GV-----------------EENAAAIADAGDQRELVESAHQIYSEHNYCRLSV
XM_015296597 Gallus gallus                         VTQLKVFTQKSHNLLKRSQKSHPSGFNFHVLNHPGWLKVSQLTRYAPGSSPTRSPPP-GAGAGPELSQTLRPVLCRPEPSEK--LLQPPLV-----VGAAPAEGE--TL--R--GV-----------------EENPAAIAGAGDQRELVESARQIYSEHNYSRLSV
XM_014890102 Sturnus vulgaris                      VTQLKVFTQKSHSLLKRSPKSHPSGFNFHVLNHPGWLKVSPLTRSALGSSPARSPPA-GAAPGPGPSQTLPRVLCKPEPSVK--PPLPPSE-----EGAAPAGAE--APMKE--EV-----------------EENPVAVPSTGDPRELMENVRQIYSEHNYSCLFI
XM_018073998 Manacus vitellinus                    VTQLKVFTQKSHSLLKRSPKSHPSGFNFHVLNHPGWLKVSPLTRSAPGSSPARSPPA-GAAPGPGPSQTLRPVLCKPEPSAK--PPPPPSE-----EGVAQAGGE--APMKE--EV-----------------EENPAGVPSTGDPRELMESVRQIYNEHNYSRLFL
XM_017822613 Lepidothrix coronata                  VTQLKVFTQKSHSLLKRSPKSHPSGFNFHVLNHPGWLKVSPLTRSAPGSSPARSPPA-GAAPGPGPSQTLRPVLCKPEPSAK--PPPPPSE-----EGVAQAGGE--APMKE--EV-----------------EENPAGVPSTGDPRELMESVRQIYNEHNYSRLFL
XM_002192704 Taeniopygia guttata                   VTQLKVFTQKSHSLLKRSPKSHPSGFNFHVLNHPGWLKVSPLTRSAPASSPARSPPA-GAAPGPAPSQTLRPVLCKPEPSAK---PPPPSE-----EGAAPAGGE--VPMKE--AV-----------------EENPAAVPSTEDPRELMENVRQIYSEHNYSCLFI
XM_005491248 Zonotrichia albicollis                VTQLKVFTQKSHSLLKRSPKSHPSGFNFHVLNHPGWLKVSPLTRSAPGSSPARSPPA-GAAPGPAPSQTLRPVLCKPEPSAR--PPPPPSE-----EGVALVGGE--APRKE--AV-----------------EENPAAAPSTGDPRELMENVRQIYSEHNYSCLFI
XM_016303293 Ficedula albicollis                   VTQLKVFTQKSHSLLKRSPKSHPSGFNFHVLNHPGWLKVSPLTRSAPGSSPARSPPA-GAAPGPAPSQTLRPVLCKPEPSAK--PPPPPSE-----EG-APAGGE--APMKE--EV-----------------EESPAAVPSTGDPRELMENVRQIYSEHNYSCLFI
XM_009084380 Acanthisitta chloris                  VTQLKVFTQKSHSLLKRSPKSHPSGFNFHVLNHPGWLKVSPLTRSAPGSSPARSPPA-GAGPGPGPSQTLRPVLCKPEPSAK---PPPPSE-----EGVAPEGGE--APMKE--AV-----------------EENPAAVPSTGDPRELMENVRQIYNEHNYSRLFI
XM_005422200 Geospiza fortis                       VTQLKVFTQKSHSLLKRSPKSHPSGFNFHVLNHPGWLKVSPLTRSAPGSSPARSPPA-GAALGPGPSQTLRPVLCKPEPSAK--PPPPPSE-----EGVALVGGE--APMKE--AV-----------------EENPAAVPSTGDPRELMENVRQIYSEHNYSCLFI
XM_009093027 Serinus canaria                       VTQLKVFTQKSHSLLKRSPKSHPSGFNFHVLNHPGWLKVSPLTRSAPGSSPARSPPA-GAAPGPGPSQTLRPVLCKPEPSAK--PPPPPSE-----EGVALVGGE--APMKE--VV-----------------EENPAAVPSTGDPRELMENVRQIYSEHNYSCLFI
XM_010396950 Corvus cornix cornix                  VTQLKVFTQKSHSLLKRSPKSHPSGFNFHVLNHPGWLKVSPLTRSAPGSSPARSPPA-GAAPGPGPSQTLRPVLCKPEPSAK--PPPPLE-----EGAAPVGGE--APMKE--AV-----------------EENPAAVPSTGDPRELMENVHQIYSEHNYSRLFI
XM_008634138 Corvus brachyrhynchos                 VTQLKVFTQKSHSLLKRSPKSHPSGFNFHVLNHPGWLKVSPLTRSAPGSSPARSPPA-GAAPGPGPSQTLRPVLCKPEPSAK--PPPPLE-----EGAAPVGGE--APMKE--AV-----------------EENPAAVPSTGDPRELMENVHQIYSEHNYSRLFI
XM_015647794 Parus major                           VTQLKVFTQKSHSLLKRSPKSHPSGFNFHVLNHPGWLKVSPLTRSAPGSSPARSPPA-GAAPGPGPSQTLRPVLCKPEPSAK--PPPPPSE-----EGAAPAGGE--APMKE--AV-----------------EENPAAVPSTGDPRELMENVRQIYSEHNYSRLFI
XM_005524727 Pseudopodoces humilis                 VTQLKVFTQKSHSLLKRSPKSHPSGFNFHVLNHPGWLKVSPLTRSAPGSSPARSPPA-GAAPGPGPSQTLRPVLCKPEPSAK--PPPPPSE-----EGVAPAGGE--APMKE--VV-----------------EENPAAVPSTGDPRELMENVRQIYSEHNYSRLFI
XM_009993988 Chaetura pelagica                     VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLKVSPLTRYAPASSPARSPPA-GAGPGPEPWQTSRPEPCRPEPSEK----PLPSG-----AGAAPAEGG--ARMQE--GV-----------------EEDPAAEQSAGDPGEIVESVRQIYSEHNYCRLCT
XM_010133415 Buceros rhinoceros silvestris         VTQLKVFTQKSHSLLKRSPKSHPSGFNFHVLNHPGWLKVSPLTRYAPASSPARSPPA-GAGLAPGHSQTLKPVLCRPEPSEK--LLQPPSE-----AGVAQEGGE--APTKE--VV-----------------EETPAAVQSTGDPRELTESGRQIYSEHNYCRLPI
XM_010178604 Mesitornis unicolor                   VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLRVSPLTRYAPGSSPTRSPPA-GAGPGPGHSQTSKPALCKPEPSEK--LPQPPSE-----AGAARAEGE--ALTKE--EA-----------------EENPAAAQSTGDQGELTESVRQIYNEHNYCRLSV
XM_010084600 Pterocles gutturalis                  VTQLKVFTQKSHSLLKRSPKSHPSGFNFHVLNHPGWLRVSPLTRYAPGSSPARSPPAPGAGPVPGPSQTLKPVLCRHEPSEK-LLLQPPSE-----VGAARVEGE--ALTKE--AA-----------------EENPAAVPSTGDPRELTESVRQIYNEHNYCRLSI
XM_009562634 Cuculus canorus                       VTQLKVFTQKSHSLLKRSPKSHPSGFNFHVLNHPGWLRVSPLTRYAPGSSPTQSPPA-GAGLGPEHSQTLKPVLCRPEPSER--LQQPPLE-----EGVAPVEGE--ALTKE--VA-----------------EENPAAVESTGDQRELVESVRQIYNEHNYCRLSI
XM_005499680 Columba livia                         VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLKVSPLTRFAPGSSPSAADPA-G-----------------------------------------------------------------------------------------LAESARQIYNEHNYCRLSI
XM_005011000 Anas platyrhynchos                    VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLKVSQLTKYAPGSSPTRSPPA-GAGAGPEHSQTLKPVLCRPEPSEK--LLQLPSE-----VGVAQAEGE--ALTKE--VA-----------------EENPTATQSTGDQRELMESVRQIYNEHNYCRLSV
XM_013198496 Anser cygnoides domesticus            VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLKVSQLTKYAPGSSPTRSPPA-GAGAGPEHSQTLKPVLCRPEPSEK--LLQLPSE-----VGAAQAEGE--ALTKE--VA-----------------EENPTATQSTGDQRELMESVRQIYNEHNYCRLSV
XM_010120851 Chlamydotis macqueenii                VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLKVSPLTRYAPGSSPARSPPA-GAGLAPEPSPILKPVLCKPEPSEK--LLQPPSE-----AGVARAEGE--TLMKE--VV-----------------EENPGAIQSTGGQRELTESVRQIYNEHNYCRLSI
XM_009962456 Tyto alba                            VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLKVSPLTRYAPGSSPARSPPA-GAGLGPEHSQTLKPVLCRPEPSEK--LLQPPSE-----GGVAGVEGE--ALTKE--VV-----------------EEQPAATQSTGDQRELTESVRQIYNEHNYCRLSI
XM_009933575 Opisthocomus hoazin                   VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLKVSPLTRYAPGSSPTRSPPA-GAGLGPTP--------------------RPPSA-----VGVARAEGE--APTKE--VA-----------------EENPAATQGAGEQRELVESVRQIYNEHNYCRLSI
XM_013958321 Apteryx australis mantelli            VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLKVSQLTRYAPGSSPTRSPPA-GAGPGPEHLQTLKPVLCKPEPSEK--LLQPPLE-----VGVAQAEGE--ALTKE--VV-----------------EENPVAIQSTGDQRELMESVRQIYNEHNYCRLSI
XM_014956841 Calidris pugnax                       VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLKVSPLTRYAPGSSPTRSPPA-GAGLGPEPSQTLKPVLCRPEPSEK--LRQPPSE-----VGVARAEGE--ALMKE--VV-----------------EENPAAVQSTGDQRELMESVRQIYNEHNYCRLSI
XM_009471438 Nipponia nippon                       VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLKVSPLTRYAPGSSPTRSPPA-GAGPGPEHSQTLKPVLCKPEPSEK--LPQLPSE-----VGVAQAEGE--ALMKE--VV-----------------EENPAAIQSTGDQRELMESARQIYNEHNYCRLSI
XM_010308576 Balearica regulorum gibbericeps       VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLKVSPLTRYAPGSSPTRSPPA-GAGLGPEHSQTLKPVLCKPEPSEK--LLQPPLE-----VGVARVEGE--TPMKE--VV-----------------EENPAAVQSTGDQRELMESARQIYNEHNYCRLSI
XM_009893390 Charadrius vociferus                  VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLKVSPLTRYAPGSSPTRSPPA-GAGLGPEHSQTLKPVLCKPEPSEK--LLQPPLE-----VGVAQVEGE--APMRE--VV-----------------EENPAAVQSTGNQRELMESVRQIYNEHNYCRLSI
XM_009279537 Aptenodytes forsteri                  VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLKVSPLTRYAPGSSPTRSPPA-GAGLGPEHSQTLKPVLCKPEPSEK--LLQLPLE-----VGVAQVEGE--APMRE--VA-----------------EENPAAMQSTGDQRELMESVRQIYNEHNYCRLSI
XM_009318746 Pygoscelis adeliae                    VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLKVSPLTRYAPGSSPTRSPPA-GAGLGPEHSQTLKPVLCKPEPSEK--LLQLSLE-----VGVAQVEGE--APMKE--VA-----------------EENPAAMQSTGGQRELMESVRQIYNEHNYCRLSI
XM_009870040 Apaloderma vittatum                   VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLSHPGWLKVSPLTRYAPGSSPTRSPPA-GAALEP-----------------------------------------------------------------------------------ELMESVRQIYSEHNYCRLSI
XM_009511061 Phalacrocorax carbo                   VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLKVSPLTRYAPGSSPTRSPPA-GAGLEPEHSQTLKPVLCKPEPSEK--LLQLPLE-----VGAAQVEGE--ALMKE--VA-----------------EENPAAIQSTGDQRELMESVRQIYNEHNYCRLSI
XM_011578340 Aquila chrysaetos canadensis          VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLKVSPLTRYAPGSSPTRSPPA-GAGLGPEHSQTLKPVLCKPEPSEK--LLQPPLE-----VGVAQVEGE--VLMKE--VV-----------------EENPAAIQSTGDQRELMESVRQIYNEHNYCRLSM
XM_010569380 Haliaeetus leucocephalus              VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLKVSPLTRYAPGSSPTRSPPA-GAGLGPEHSQTLKPVLCKPEPSEK--LLQPPLE-----VGVAQVEGE--VLMKE--VV-----------------EENPAAIQSTGDQRELMESVRQIYNEHNYCRLSM
XM_009914948 Haliaeetus albicilla                  VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLKVSPLTRYAPGSSPTRSPPA-GAGLGPEHSQTLKPVLCKPEPSEK--LLQPPLE-----VGVAQVEGE--VLMKE--VV-----------------EENPAAIQSTGDQRELMESVRQIYNEHNYCRLSM
XM_010283841 Phaethon lepturus                     VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLKVSPLTRYAPGSSPTRSPPA-GAGLGPEHSQTLKPVLCKPEPSEK--LLQPPLE-----VGVAQVEGQ--ALMKE--VV-----------------EENPAAIQSTGGQRELMESVRQIYNEHNYCRLSI
XM_005239907 Falco peregrinus                      VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLKVSPLTRYAPGSSPTRSPPA-GAGLGPEHSQTLRPVLCKPEPSEK--LLQPPLE-----VGVAQVEGE--ALMKE--VV-----------------EENPAAIQSTGDQRELMESIRQIYSEHNYCRLSI
XM_005444837 Falco cherrug                         VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLKVSPLTRYAPGSSPTRSPPA-GAGLGPEHSQTLKPVLCKPEPSEK--LLQPPLE-----VGVAQVEGE--ALMKE--VV-----------------EENPAAIQSTGDQRELMESVRQIYSEHNYCRLSI
XM_010162275 Caprimulgus carolinensis              VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLKVSPLTRYAPGSSPTRSPPA-GAGPGPEHSQTLKPVLCKPEPSEK--LLQLPLE-----VGVAQVEGE--APTKE--VV-----------------EENPAAVQSTGDQGELMESVRQIYNEHNYCRLSI
XM_009694853 Cariama cristata                      VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLRVSPLTRYAPGSSPTRSPPA-GAGPGPEHSQTLKPVLCKPEPSEK--LLQLPLE-----VGVARVEGE--ALMKE--VV-----------------EESPAAVQSTGDQRELTESVRQIYNEHNYCRLSI
XM_009640313 Egretta garzetta                      VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLRVSPLTRYAPGSSPTRSPPA-GAGLGPEHLQTLKPVLCKPEPSEK--LLQLPLE-----VGVAQVEGE--ALMKE--VV-----------------EENPAAVQSTGDQRELMESVRQIYNEHNYCRLSI
XM_009482169 Pelecanus crispus                     VTQLKVFTQKSHSLLKRSQKSHPSGFNFHVLNHPGWLKVSPLTRYAPGSSPTRSPPA-GAGLGPEHSQTLKPVLCKPEPSEK--LLQLPLE-----AGVAQVEGE--ALMKE--VV-----------------EENPAAVQSTGDQRELMESVRQIYNEHNYCRLSI
XM_015426170 Gekko japonicus                       VTQLKVFTQKSHSPPKRNPKSHPSGFNFPVSNPPGWLKVSQPTRYVLGLSPIQSPPA-RTETGPRPLLTLRPVLCQAGPSERLLLLPPPLE-----VGVGRGEGEAAARMKA--AA-----VVVVAAAAAAPAAEAGNPVAAQSAGGPRELTGSVCQIYSEHSYCRFPT
XM_008120859 Anolis carolinensis                   VTQLKVFTQKSHSPPKRNPKSHPSGFNFPVSNHPGWLKVSQPTRYVLGLSPIQSPPA-RTEVGPQPLLTLRPVLCKAVSSERLLLLPPPLPPPLPLGAGVGR-EGASGAQTKA--GAAGATVVVVTTAAAVAAGGGSGRPAAALGAGGRRELVGSVCPIYSEHSYCRLPS
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amphibians

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HADQ01029003 Bombina bombina                VTQFRVVTQKSHDLLKRNPKSLQYGSNFQGSNLPGWIKVCQLTRSVPGSSQVLIPLGGGLLATNLRTVTTVAIT----PDNRLGEGSSGAI-KGGAGLLTVS---EADPQSELLSSRLQIATEHNYCRPLL----
XM_018234430 Xenopus laevis                 VTQFKTFTQKSHSPPKKNPKSLQFGSNFLGSSLPGFIKVCQLTSSIPGSSQTLIPLGAGLLPAHLLTVKPVQLG------EEVVREEAESI-RQEAKPESEK---SENPQRENLESHLQVCAEHNYCRQQPRGTV
XM_012952772 Xenopus tropicalis             VTQFRVFTQKSHSPPKKNPKSHQFGSNFLGSSLPGFIKVCQLSSPIPGSSQTLIPLGAGLLPAHLLTVRPVQLG------EEGAREEAEPL-RQERNPGSER---SDNPQRETPQSHVQVCSEHNYCRPQP----
GEGL01031110 Megophrys                      VTQFRVFTQKSHSPPKKSQKSHQSGSSFLGSNLPGWIKVCQLTRSAQGSSQTLIPLGAGLIPAHLLTVKPVVLN--PQIQEVQAQGEAGVISKGEPGQEPPR---SENPQRNVREDSIQIAAEHNYCRPPL----
GEGK01045837 Leptobrachium boringii         VPQFRVFTQKSHSPPKKSQKSHQSGSSFLGSNLPGWIKVCQVTRSAQGSSQTLIPLGAGLIPAHLLTVKPVVLN--PPLQEVVAQGEAGVVGKGEPGQETSR---PEHPQRDVRADSIQIAAEHNYCSRPPL----
XM_018556374 Nanorana parkeri              VTQLQVFTQKSHSPPKKNQKSPQSGSSFLASNLPGWLKVCQLTRSVPGSSQTLIPLGANLLPAHLLTVRPVAMTSRLPSVVAGVRGEVTATGRRAAGPGTPK---GGDQQREAMERSQQIAAEHNYCRPL-----
GEGH01003348 Polypedates megacephalus       VTQLQVFTQKSHSPPKRSQKSPQSGSSFLASNLPGWLKVCQLTRSVPGSSQTLIPLGASLLPAHLLTVKPVAMTSRPPLVEVVAREEGAPQGREEAGAGTPK---GEDQLSEDIERSQQIAAEHNYCRPLQGR--
GEGG01008506 Rhacophorus dennysi            VTQLQVFTQKSHSPPKRNQKSPQSGSSFHASNLPGWLKVCQLTRSVPGSSQTLIPLGANLLPAHLLTVKPVAMTSRPPLVEVVAREEATPPGGDEAGTGTPK---G-DQLREDTERSQQIAAEHNYCRPLQGR--
GECV01019509 Microhyla fissipes             VTQLHVFTQKSHSPPKKSQKSLPSGSSFLASNLPGWLKVCQLTRSVPGSSQTLIPLGANLLPAPLLTVRPVAVTSRPPLVAVVAREGATAPETEGTGPGTPNGGGGGGRLSEDIERSQQIAAEHNYCRPLQ----
GDDO01068111 Rana catesbeiana               VTQLQVFTQKSRSPPKKNQKSHQSGSSFLASNLPGWLKVCQLTRSVPGSSQTLIPLGANLLPAHLLTVRPVAMTSRPPLVAAAAREEATAPG----------------LSTDIARRQQIAAEHNYCRPLQ----
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other

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XM_007885779 Callorhinchus milii            GPQLIAFGQKGNNQRERSQRCHLLGSSSQESSLRGSSRVSQRTR--SGQGSSARPGQDQAVGEEAAGRGRGPGHWPTSRPEPSKPEPSGKLRLLRPPA----------GEGWRGREKVLVVM-----GEVPLPI-PTEEQRLLNRVWHNISLEHSYAKPVPRAAQRSPGLAAALIVSKVL
XM_014498298 Latimeria chalumnae            VTQLRVFTQKSHSLLKKSPKCHLSGFNFQGSNHAGWLKGSQPTRYVPGLSLAQSP---------QAEPGLVPGHLQISKPVPCRPEHRERPLLPQPPLLLVEGGGLEGGKG-EGAEVVVVKIVEEEEEEKKDKMSAMENQRELHR-RNQILIEHNYCRAVEQ----------VRAGPVL
GEUG01028913 Amia calva                     VTQLTVFTQKSHSPPKKSPKSHLSGFNSPGSNHPGWLKAHQHTRYVPALSLTTKL---------PGGAGLAPGLWLTSKPVPSRPGPNERQLLLLQPLGKVP------GLG-EAREVGVIRI--GEGESTRVPTSPGEARGRLQNLRRLISQEHNYCRPL----------
XM_015365106 Lepisosteus oculatus           VTQLTVFTQKNHSPPKKSPKSLLSGFNSPGSNLPGWLKAHQPTRYVPALSLTARL---------PAGAGLGPGLWLTSKPVPSRPGPSERPLLLLQPLVKAQ------GPG-EAQEEGVA-------ESTRSLLSQEAAREHLQSLRHNITQEHNYCRPPLR----------
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teleosts

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XM_011473016 Oryzias latipes                VPQLTVSVQKSRSQQPKNRRCHPFGFNYPESNLHGSKGTPLTRSAHGLCPPERAHAALELGEHELWQTSKPEPSKPEPRGRPLLLLRPLAKGQGRPVSG--CGLLLGYRIATVNDEEESTQDQPSLEEGGRKEPE-----------MRRRRPVKWRSRNRLQTLIRLEHNYSFNM
XM_019891036 Hippocampus comes              VPQLTGSIQRNRSRQRRNPRCLQSGFNCPESNRPGSKGTPPTRSVPASCPLERPRGGRGRGARGRSQTSKPARSKPVPSGKPLLLLQPLPTGQGRTGSG--CGLLLGYRIATVDREHKNIQGRLSQEEE----------------VEEGEVVGHRSRERLVKRIHLEHSYSVPM
XM_017487517 Ictalurus punctatus            VTQLTVCTQKSRSLQQRNPRSRQSGFSSPGSNLRGSKGRQRTKSVPASCPPTRGRGAVGRG-RAPWRTSRPVPSKPVHSGKPLLLLQPLETGQGLGGAA--RGVVLGYRIAPAGGVRESTRVPLNLEEEEEEEEEEE---------------LMWRARNRLQALIRLEHNYSYPM
XM_007246841 Astyanax mexicanus             VTQLTVCTQKSRSRQPRSPRSRQSGFSSPGSNRPGSKG-QRTKSVPASCPPTRGRGAVGRG-RAPWRTSRPAPSKPVHSGKPLLLLQPLGTGQGLGGAA--RGVVLGYRIAPAGGVRESTRVPLNLEEEEEEEEDEEEE--------EEEEELMWRNRNRLRALIRLEHNYSYPM
XM_017708670 Pygocentrus nattereri          VTQLTVCTQKSRCRQQRSPRSRQSGFSCPGSNRPGSKGHQRTKSVLASCPPTRGRGAVGRG-RAPWRTSRPVPSKPVHSGKPLLLLQPLGTGQGLGGAA--RGVVLGYRIAPAGGVRESTRVPLNLEEEEEEEEEEE---------DEAEQELMWRNRNRLRALIRLEHNYSYPI
XM_005162338 Danio rerio                    VTQLTVCTQKSHSLQQRSPRSRQSGYSSPGSNRPGSRGRQRTKSVPASSPPTKGRGALGRG-RAPWRTSKPVHSKPVPSGKPLLLLQPLGMGEGLGGAA--RGVVLGYRIAPAGGVQESTQVPLNLEEEEGDEEEE----------------LIWRSRNRLRALIRREHNYSCLV
XM_016513134 Sinocyclocheilus rhinocerous   VTQLTVCTQKSHNLQQRSPRSRQSGYSSPGSNRPGSRGRQRTKSVPASSPPMKGHGALGQG-RAPWRTSRPVHSKPVPSGKPLLLLQPLGMGEGLGGAA--RGVVLGYRIAPAGGVRESTQVPLNQEEEE----------------------LIWRSRNRLRALIRLEHNYSRPV
XM_016503785 Sinocyclocheilus anshuiensis   VTQLTVCTQKSHNLQQRSPRSRQSGYSSPGSNRPGSKGRQRTKSVPASSPPAKGHGALGQG-RAPWRTSRPVPSKPVPSGKPLLLLQPLGMGEGLGGAA--RGVVLGYRIAPAGGVRESTQVPLNLEEEEADEEEE----------------LIWRSRNRLRALIRLEHNYSCPV
XM_016273902 Sinocyclocheilus grahami       VTQLTVCTQKSHNLQQRSPRSRQSGYSSPGSNHPGSKGRQRTKSVPASSPPAKGRGALGQG-RAPWRTSRPVPSKPVPSGKPLLLLQPLGMGEGLGGAA--RGVVLGYRIAPAGGVRESTQVPLNLEEEEADKEEE----------------LIWRSRSRLRALIRLEHNYSCPV
XM_012820794 Clupea harengus               VTQLTVCTRKSRSPQQRNPRSHQSGYNSPGSNRPGSRGRQRTKSVPALCPPTRGRGAQGRG-RARSRTSKPGPSRPAPSERQLLLLQPLATGQGRAGAGAARGAVLAYRIAAVGGGPESTRARSSREEAAEEEEA----------------AMWRSRAHLRALIRLEHNYSCPL
XM_010875623 Esox lucius                    VPQSTGSTRRSPSRQLRNPRSHLSGFNSPESNRPGSKGRRPTRSAPASCHPVRARGARGRG-RAPWRTSKPAPSRPGPSARPLLLLQPLGMGQGPAGA----GLVLGYRIAAVEDEHESTQDQSSPEEEEEHQDP----------------EVWRSRDRLRALIRLEHNYSCPI
XM_014135258 Salmo salar                    VPQLTVFTRKSRSRQQRSPRSHLSGFNSPESNRPGSKGRQPTRSVPASCPPARARGALGRG-RAPWRTSKPAPSRPGPSARPLLLLQPLGTDQGRAGA----GLVLGYRIAAVEDELESTQDPSSPEEQE-----------------------MWRSRDRLRALIRLEHNYSSPN
XM_014475275 Xiphophorus maculatus          VPQLTVSVQRSHCRQPKNPRCHLSGFNCPESNLPGSKGTPPTRSAPELCPRPNARGGRARVARGPLPTSRPALSKPVPNAR--LLLRPLARGQGRPVSG--CGLRLGYRMQQRRRT-ESIQDHRXXXXXXGXXEE----------EEEEEMVRLKSRNFLQNLIRLEHNYSFSM
XM_015396824 Cyprinodon variegatus         VPQLTACVQRSRSRQPKSPRCHLSGFNFPESNLPGSKVTPPTRSVPGSCPRRNARGGRGRAARGLWQTSRPAPSKPAPNGR--LLLRPLPRGRGRPVSG--CGLLLGYRIAAANEEAESTQDQSSPEEEEEEEMEE----------EEEEEPMGVKSRTFLRSLIRLEHNYSFPM
XM_012877575 Fundulus heteroclitus          VPQLTVSVQRSRSRQPKNRPCHLSGFNFPESNLPGSKGTPPTRSVPALCPRPNARGGRGRAARGHWQTSRPAPSKPVPSAR--LLLQPLARGQGRPVSG--CGLLLGYRIAAANEEHESIQDLSNPEEEEEEEEEMEE----------EEVTGLRSRNFLRKLIRLEHNYSFSM
XM_015004530 Poecilia mexicana              VPQLTVSVQRSHSRQPKNPRCHLSGFNFPESNLPGSKGTPPTRSAPESCPRPNARGGRVRVARGPSQTSRPALSKPVPNAR--LLLRPLARGQGRPVSG--CGLLLGYRIAAANEEQESIQDQSSQEEEEEEEEEEEE---------EEEEKRVGMKSRNFLQNLIRLEHNYSFSM
XM_007575434 Poecilia formosa               VPQLTVSVQRSHSRQPKNPRCHLSGFNFPESNLPGSKGTPPTRSAPESCPRPNARGGRVRVARGPSQTSRPALSKPVPNAR--LLLRPLARGQGRPVSG--CGLLLGYRIAAANEEQESIQDQSSQEEEEEEEEEEEE---------EEEEKRVGMKSRNFLQNLIRLEHNYSFSM
XM_008412961 Poecilia reticulata            VPQLTVSVQRSHSRQPKNPRCHLSGFNFPESNLPGSKGTPPTRSAPESCPRPNARGGRVRVARGPSQTSRPALSKPVPNAR--LLLRPLARGQGRPVSG--CGLLLGYRIAAANEEQESIQDQSSPEEEEEEEEEE-----------EEEERVGMKSRNFLQNLIRLEHNYSFSM
XM_015048376 Poecilia latipinna            VPQLTVSVQRSHSRQPKNPRCHLSGFNFPESNLPGSKGTPPTRSAPESCPRPNARGGRVRVARGPSQTSRPALSKPVPNAR--LLLRPLARGQGRPVSG--CGLLLGYRIAAANEEQESIQDQSSPEEEEEEEEEE-------------EERVGMKSRNFLQNLIRLEHNYSFSM
XM_008318529 Cynoglossus semilaevis        VPQLTVSVQKSHSRQPRNPRCRLSGFNCPESNLPGSKATPPTRSVPGSCRPMRARGGRGRGVHAPWQTSKHVPSKPGPSAKPLLLLQPLPMGRGQRGSG--CGLVLGYRIAAVEEEHESIPDLLNPGEEEEEEEEEEEEE------EEAVEIKGWMSRDRLRALIHLEHNYSFSM
XM_005465660 Oreochromis niloticus          VPQLTVSVQKSRSRQQKNPRCHLSGFNCPESNLPGSKGTPPTRSVPGSCRPAKARAGRGQGVRAPWRTSKPVHNKPVPSARPLLLLQPLPTGQARPGSG--CGLVLGYRIAAMEDDRESIQDLSSPEEEEVEKKKVKME--------MKQGEVVGWNSRDRLQALIRLEHNYSFLM
XM_006807161 Neolamprologus brichardi      VPQLTVCVQKSRSRQQKNPRCHLSGFNCPESNLPGSKGTPPTRSVPGSCRPAKARAGRGQGVRAPWRTSKPVHNKPVPSARPLLLLQPLPTGQARPGSG--CGLVLGYRIAAMEDDRESIQDLSSPEEEEEEVEKKKVKME-------MKQGEVVGWKSRDRLQALIRLEHNYSFLM
XM_005752308 Pundamilia nyererei           VPQLTVCVQKSRSRQQKNPRCHLSGFNCPESNLPGSKGTPPTRSVPGSCRPAKARAGRGQGVRAPWRTSKPVHNKPVPSARPLLLLQPLPTGQARPGSG--CGLVLGYRIAAMEDDRESIQDLSSPEEEEEEVEKKKVKME------MKQGEVVGWKSRDRLQALIRLEHNYSFLM
XM_004570926 Maylandia zebra               VPQLTVCVQKSRSRQQKNPRCHLSGFNCPESNLPGSKGTPPTRSVPGSCRPAKARAGRGQGVRAPWRTSKPVHNKPVPSARPLLLLQPLPTGQARPGSG--CGLVLGYRIAAMEDDRESIQDLSSPEEEEEEVEKKKVKME------MKQGEVVGWKSRDRLQALIRLEHNYSFLM
XM_005948017 Haplochromis burtoni           VPQLTVCVQKSRSRQQKNPRCHLSGFNCPESNLPGSKGTPPTRSVPGSCRPAKARAGRGQGVRAHWRTSKPVHNKPVPSARPLLLLQPLPTGQARPGSG--CGLVLGYRIAAMEDDRESIQDLSSPEEEEEVEKKKVKME-------MKQGEVVGWKSRDRLQALIRLEHNYSFLM
XM_015967370 Nothobranchius furzeri        VPQLTVSVRKNHSRQPKNPRCHLSGFNYPESNLPGSKGTPPTKSVPGSCPPARARVGRGRGGRGLWQTSKPVPSKPVPSAKPLLLLQPLAKGQGRPVSG--CSLLLGYRIAAMDDEQESIQDLSSPEEEMEEEE-----------------VVRWRSRNHLQALIHLEHNYSFSV
XM_014031322 Austrofundulus limnaeus       VPQLTVSVRKSHSRQTKNPRCHLSGFNYPGSNHPGSKDTPPTKSALGLSPLARARGGRGRGARGRWQTSRPVPSKPVRSAKPLLLLRPLPRGQGRPVSG--CGLLLGYRIAAMDDEHESIQDLSSPEEEEEEEEEE---------EMEEDVMTWRSRNHLQNLIRLEHNYSFSI
XM_017438828 Kryptolebias marmoratus       VPQLTVSVRKSHSQSKNPRCHLSGFNYPGSNRPGSKGTPPTKSALGSCPLAKGPGGRGRGARGPWQTSRPVPSKPVRSAKPLLLLQPLARGQGRPVSG--CGLLLGYRIAAMDDEHKSIRDLSSPEEEEETEEDV----------------MRWRSRNHLQNLIRLEHNYSFLM
XM_011619777 Takifugu rubripes             VPQLTVSVQRSRSRQQKSPGCRRSGFNCPESNLPGSKDTPRIRSVPASCRRGRGRGGRGRGAPAHWRTSKPAPSKPAPSARPLLLLRPLETGHHRQGSG--CGLLLGYRIAAVDDEHKSIRDLSSPEEEEEXEEEE----------EEEGEVVGWRSRDRLQTLIRLEHNYSVPM
XM_020089223 Paralichthys olivaceus         VPQLTVSVRRSRSRQQRNPRCRLSGSNCPESNLPGSKGTPPTRSAHGSCPPVRARGGRGQGAHAPWQTSKPVPNKPGPSARPLLLLQPLATGQGRPQSG--CGLLLGYRIAAMDEEHESTQDQSSPEEEGAEEEEE----------VEAGEMVGRRSRNQLRALICLEHNYCFSV
XM_008282558 Stegastes partitus             VPQLTVSVQRSRSRQQKNPRCRLSGFNCPESNLHGSKGTPPTRSAQGSCRPMRARGGRGPAGRVPWRTSKPVPSKPGPSARPLLLLQPLATGQGRPASG--CGLLLGYRIAAMDDERESIRDLSSPEEEEEEETEME---------MEEGEVVGWRSRDRLQALIRLEHNYSFSM
XM_010784192 Notothenia coriiceps           VPQLTVSVRRSRSRQPKSPRCHLSGFNSPESNPPGSKVTQPTRSAPASCPPARARGRRGRAVRGPLRTSKPAPSKPGPSGRPLLLLQPLAKGQGR-GSG--CGLLLGYRIAAMDDERESIQDLSSPEEEEEEEEEEEEEEEEEEVVVVEEGEVVGWRSRDRLQALIRQEHNYSFTV
XM_018701579 Lates calcarifer               VPQLTVSVRRSRSRQQKSPRCRLSGFNCPESNLPGSKGTPPTRSVPGSCPPARAHGGRGRGAHAPWQTSKPVPSKPGPSARPLLLLQPLATGQGRPGSG--CGLLLGYRIAAMDDERESIQDLSSPEEEEEEEEEEVE-------VEAGGMVGWRSRDRLQALIRLEHNYCFSV
XM_019259947 Larimichthys crocea            VPQLTVSVRRSRSRQPKSPRCRLSGFNCPESNLPGSKGTPPTRSAQGSCPPARARGGRGRGARAPWRTSKPAPSKPGPSARPLLLLQPLATGQGRQGSG--CGLLLGYRIAAMDDERESIQDLSSPEEEEEEEEEEE---------VEEGEVVGWRSRNRLQALIRLEHNYSFTM
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ASXL2

Predicted ASXL2 TF peptide sequences following a −2 PRF at the conserved RG_GUC_UCU sequence. The conserved EH[N/S]Y motif is highlighted in purple.

mammals

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XM_007666728 Ornithorhynchus anatinus            LPGFVFQPPSPVPTEQEPEPWQTSKPKPRWPKH--REQ----RPPPQPPRPPPPPRPPSGEPFPGPARAVEEKVPGAGEEEEGEEEEERHLKEGVQDQVNSVQLEIGGAHWNWQELEAGEVREGCFPVLRGPNPKLRPR-PWERHHLTVSAEHNYSRPPRCHPARQSGDPARASHREPPPGDRHRL-
XM_012539839 Sarcophilus harrisii                LPGFVFQPLSLVPTEKEPEPLQISKQKPSWPKP--REQ-----LPPPPLPQLQL-PLLGGLSQVLA---------LEGEEKE-----HQEKEGIQDRVEPVKLEKG-THWNWQELEAGEVRESFYPMVQRLNPKQRPR-SQARHHLTVSLEHNYSKPPLYHPDLQSVEHVQVAPPQPSLTHPPQL-
XM_001380127 Monodelphis domestica              LPGFVFQPLSLVPTEQEPEPLQTSKQKPSWPKP--REQ-----LLPLPLPPPQL-PLLGGPSQGLA---------QEGEEKE-----QQEEEGIQDQAEPVKLEKG-THWNWQELEAGEVRESFYPTVQRLNPKLRPR-PQGRHHLTVSLEHNYSKPPPYQPELQAVEHVQGAPPQPSLTHPHQL-
XM_004582643 Ochotona princeps                  LPGLDFPSPSLVPTEQGPEPWQTSKPKPSWSKH--RGQ-----LLLQPLPLPPP-PLLVGPSLDPALGADKS---REKEVKG-----KVQEEGVQAQTEPMKVDQA-PPWSWQELEAGEVRESFYPVLQRFSPSLWPR-PQARPSFLVALEHNYSKPPQCLQHLSPVEQDQVPPLQPTERD-----
XM_007516745 Erinaceus europaeus                LPGLVSQSPSLVLTEPEPEPLQTSRPKPSWSKH--SGQ-----LPPPPLPPLPP-PQLAEPFQDLAPEVDKA---QEMVEKA-----DLPEQGVPPQTESVKLERA-PHWNWQELEAGEVRESFYPVAQRLSPSLRPG-SQARHSLLVALEHNYSKPPQCLQPLPPVEHVQVPLHQPTLT------
XM_002691461 Bos taurus                         LPGLVFQSPSLVLTEQEPEPLQTSKQKPSLSKH--RGL-----PPPPPPQPLLP-PQLEGPFQDLAQAVDRV---QGRGVKG-----ELLEEGILTQTKSVSPARA-PHWNWQELEAGEVRESFYPLGQTLSPSLRPG-PQASHSLLVALEHNYSKPPQCLPHLPSVEHVQVSPPQPTFMHSRQL-
XM_019970597 Bos indicus                        LPGLVFQSPSLVLTEQEPEPLQXSKQKPSLSKH--RGL-----PPPPPPQPLLP-PQLEGPFQDLAQAVDRV---QGRGVKG-----ELLEEGILTQTKSVSPARA-PHWNWQELEAGEVRESFYPLGQTLSPSLRPG-PQASHSLLVALEHNYSKPPQCLPHLPSVEHVQVSPPQPTFMHSRQL-
XM_005895687 Bos mutus                          LPGLVFQSPSLVLTEQEPEPLQTSKQKPSLSKH--RGP-----PPPPPPPLLP-PQLEGPFQDLAQAVDRV---QGRGVKG-----ELLEEGILTQTKSVSPARA-PHWNWQELEAGEVRESFYPLGQTLSSSLRPG-PQASHSLIVALEHNYSKPPQCLPHLPSVEHAQVSPPQPTFMHSRQL-
XM_006046228 Bubalus bubalis                    LPGLVFQSPSLVLTEQEPEPLQTSKQKPSLSKH--RGP-----LPPPPPQPLLP-PQLEGPFQDLAQAVDRV---QGRGVKG-----ELLEEGILTQTESVSPARA-PHWNWQELEAGEVRESFYPLGQTLSPSLRPG-PQASHSLIVALEHNYSKPPQCLPHLPSVEHAQVSPPQPTFMHSRQL-
XM_010840577 Bison bison bison                  LPGLVFQSPSLVLTEQEPEPLQTSKQKPSLSKH--RGP-----PPPPPPQPLLP-PQLEGPFQDLAQAVDRV---QGRGVKG-----ELLEEGILTQTKSVSPARA-PHWNWQELEAGEVRESFYPLGQTLSPSLRPG-PQASHSLIVALEHNYSKPPQCLPHLPLVEHAQVSPPQPTFMHSRQL-
XM_004005731 Ovis aries                         LPGLVFQSPSLVLTEQEPEPLQTSKQKPSLSKHTAXGQ----------------PQLEGPFQDLAQAVDRV---QGRGVKG-----ELLEEGILTQTESVSLARA-PHWNWQELEAGEVRESFYPLGQTLSPSLRPG-PQASHSLIVALEHNYSKPPQCLPHLPSVEHVPVSPHQPTFMHSRQL-
XM_012158262 Ovis aries musimon                 LPGLVFQSPSLVLTEQEPEPLQTSKQKPSLSKH--RGQ-----LPPPQLQPLLP-PQLEGPFQDLAQAVDRV---QGRGVKG-----ELLEEGILTQTESVSLARA-PHWNWQELEAGEVRESFYPLGQTLSPSLRPG-PQASHSLIVALEHNYSKPPQCLPHLPSVEHVPVSPHQPTFMHSRQL-
XM_005686939 Capra hircus                       LPGLVFQSPSLVLTEQEPEPLQTSKQKPSLSKH--RGQ-----PPPLPQPQPLLP-PQLEGPFQDLAQAVDRV---QGRGVKG-----ELLEEGILTQTESVSLARA-PHWNWQELEAGEVRESFYPLGQTLPSPSLRPG-PQASHSLIVALEHNYSKPPQCLPHLPSVEHVPVSPHQPTFMHSRQL-
XM_005978907 Pantholops hodgsonii                LPGLVFQSPSLVLTEQEPEPLQTSKQKPSLSKH--RGQ-----PPPPQPQPLLP-PQLEGPFQDLAQAVDRV---QGRGVKG-----ELLEEGILTQTESVSLARA-PHWNWQELEAGEVRESFYPLGQTLSPSLRPG-PQASHSLIVALEHNYSKPPQCLPHLPSVEHLQVSPHQPAFMPSRQL-
NM_001270988 Mus musculus                       LPGLVFQSPSLVLTEQEPELWQTSKQKPSWSKH--KRQ-----QPQQLLQLLQP-PQLEGPFRDLALGVDKV---QERVVKG-----KLLEEEVQAQTQSVQMEKV-PHWNWPELEAGEVRENFYPVVL----NLRPI-CQAKHSLLVSLEHNYSKPPRCLRDLPAVEPAQGPPPQPALTRPHQL-
XM_008764542 Rattus norvegicus                  LPGLVFQSPSLVLTEQEPELWQTSKQKPSWSKH--KRQ-----QPQQQLQQLQP-PQLEGPFQDLAPGVDEV---QERVVKG-----KPPEEGVQAQTQSVQMEKV-LHWNWPELEAGEVRENFYPVI----PNLRPI-HQAKHSLLVSLEHNYSKPPQCLQDLPPVEHAQVSHYQPT--------
XM_006981457 Peromyscus maniculatus bairdii    LPGLVFQSPSLVLTEQEPELWQTSKQKPSWSKH--RGQ-----QPLQPLQLLQP-PQLEGPFPDLGLGVDTA---QERVGKG-----KLLEEEVQAQTEPVQLERV-PHWSWQELEAGEVRESFYQAV----PNLRPM-HHAEHSLLVSLEHSYSKPPQCLQHLPTVEHAQASRYHPT--------
XM_005360858 Microtus ochrogaster               LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGQ-----QPQQPLQLLQP-PQLEGPFQDLAPGVDTV---QERVAKG-----KLVQEGVQAQTESAQLERV-PHWSWQELEAGEVCESFYPVV----PSLRPI-HQASPSLLVSLEHNYSKPPQCLQHIPSVEHAQASHYQPT--------
XM_005079112 Mesocricetus auratus                LPGLVFQSPSLVLTEREPELWQTSKQKPSWSKH--KGQ-----QLQQPLQLLQP-PQLEGPFQDLALGVDTV---QERVEKE-----KLIEEGVQAQREPVQLERV-SHWSWQDLEAGEVRESFYPVV----PNLRPI-HQAKHSLLVSLEHNYSKPPQCLQHLPSVEHAQASHSQPT--------
XM_003497015 Cricetulus griseus                 LPGLVFQSPSLVLTEQEPELWQTSKQKPSWSKH--KGQ-----QPQQPLQLLQP-PQLEGPSQDLALGVDTV---HKRVERE-----KLLEEGVHAQTEPVQLERV-PHWNWQELEAGEVRESFYPV----APNLRPI-HQAKHSLLVSLEHNYSKTPPCLQHLPSVEHAQTPHYQPT--------
XM_006732866 Leptonychotes weddellii            LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGR-----PPPQRPLLPPPRPQLEGPFQDLAPGADKA---PERAVTA-----KPLEEGGQTQTEAANLERA-PPWSWQELEAGEVRESFYPVGQRLSPSLRPR-AQSRHSLMVSLEHNYSKPPRCLQALPAVEPAQGPPPQPALTRPHQL-
XM_004394909 Odobenus rosmarus divergens        LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGR-----PPLQLPPPPPPRPQLEGPFQDLAPGADKA---QERAVTA-----KPLEEGGQAQTEAANLERP-PPWSWQELEAGEVRESFYPVGQRLSPSLRPR-AQTRHSLMVSLEHNYSKPPRCLQPLPAVEPVQGPPHQPTLTRPHQL-
XM_006880618 Elephantulus edwardii              LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--KGQ-----LPPPLPPPLQP-PPLEGPFQDLVQGVDKV---QERPVTG-----KLLEEGARAQTKPLKPEEA-PPWNWQELEAGEVRESFYPVVQRLSPSLRPR-AQARLSLLVSLEHNYSKAPQCLPHLPSAEHAQVSRHHPTLTHPHQL-
XM_004696413 Echinops telfairi                  LPGLVFQSPSLVLTEQEPELSQTSRQKPSWSKH--REQ-----PLQPPLPLLQP-PQLEGPFQVLGQEVDQVQG-QEKVVKG-----KLLGEGVQAPTEPVILERA-PHWNWQELEAGEVRESFYPVVQRLSPSLRPR-TQARPSLLVSLEHNYSKPPQCLPLRLSAEHAQVSPRQPTPSHPHQI-
XM_008834991 Nannospalax galili                 LPGLVFQSPSLVLTEQEPELSQTSKQKPSWSKH--RGQ-----QLQLQQPLLQP-PQLEGPFQDLALGVDKV---QERVMKG-----KLLEAGVQVQTESVQLERT-PHWNWQELEAGEVRESFYPVDQRLIPNLRPS-LQAKPSFLVCLEHNYSKPPQCLQHLPLLEDAQASHYQPTERNPTGKS
XM_003472847 Cavia porcellus                    LPGLVFQSPSLVLTEQEPELSQTSRQKRSWSKH--REP--QQPPPPPPPQLLQP-PQSEGPFPDQALGVDKV---QERVVKG-----RPLEEGVQAQTESVHLERA-LHWNWQELEAGEVRESFYPVQTLNPLRPR-AQARHSLIVFQEHNYSKPPQCLQHLPSVEHAQTPHHQPM--------
XM_004627442 Octodon degus                      LPGLVFQSPSLVLAEQEPGLLQTSRQKRSWSKH--REP-----QPPLLPQPLQP-PLLEGPFLDQALGVDKV---LERVVKG-----KPLEEEVQAQTESVQLERS-LHWNWQELEAGEVRESFYPAVQTLTPNLRSR-PQARHSLIVSLEHNYSKPPQCLQHLPSVEHAQTPHHQPM--------
XM_005400412 Chinchilla lanigera                LPGLVFQSPSLVLTEQEPELSQTSKQKRSWSKH--REL-----QLPLQPQPLQP-PQLEGPFLDQALGVDKV---QERVVKG-----KPLEEGVQAQTESVQLERA-LHWNWQELEAGEVRESFYPAVQTLNPSPRPR-PQARHSLIVSLEHNYSKPPQCLQHLPSVEHAQTPHHQPM--------
XM_004839122 Heterocephalus glaber              LPGLVFQSPSLVLTEQEPELLQTSKQKRSWSKH--REL-----QLQPLPQPLQP-PQLEGPFPAQAPGVDKV---PERVVKG-----KPPEEGVQPQTESVQLERA-LHWNWQELEAGEVRESFYPAVQTLNPQPRPR-PQARHSLIVSLEHNYSKPPQCLQHLPSVEHAQTLHHQPM--------
XM_010604841 Fukomys damarensis                LPGLVFQSPSLVLTEQEPELLQTSKQKRSWSKH--REL-----QPLPQPQPQQL-PQLEGPFPAQALGVDKV---QERVVRG-----KPLEEGVQAQTESVQLERA-LHWNWQELEAGEVRESFYPAVQTLNPNPRPR-PQARLSLIVSLEHNYSKPPQCLQHLPSVEHAQTLHHQPM--------
XM_012727612 Condylura cristata                 LPGLVFQSPSLVLTEPEPEPLQTSKQKPSWSKH--RGQ-----QRLLQPPPLHM-PQLEGPFQDLVPGVDKV---QETVVKE-----KLLEEGAQTQTESVKLERA-PHWNWQELEAGEVRESFYPVVQRLSPSLRPR-PHARHSLLVSLEHNYSKPPQCLQHLPSLEHAQISHHQPTLMHPQL--
XM_004663740 Jaculus jaculus                    LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKP--RGQ-----QLQPLLQRLQP-PQLEGPFQDLALEVDTV---QEQAVNG-----KLLEEGVQVQTESVQLERT-PHWNWQELEAGEVRESIYPVVQRLIPNLRPR--QVRHSLLVSLEHNYSKPPQGLQHLP-MEHAQRSHHQPT--------
XM_004745948 Mustela putorius furo              LPGLVFQSPSLVLTEQEPELSQTSKQKPSWSKH--RGL-----PPP---------PPLEGPFRDLAPGADKV---QEREVTG-----KLLEEGVQTQTEAANLERA-PHWNWQELEAGEVRESFYPVVQSLSPSLRPR-AQTRHSLLVSLEHNYSKPPQGLQQLPVEERAQASPLQPALTPPQQL-
XM_008254661 Oryctolagus cuniculus             LPGLGFQSPSSVLTEQEPESQTSKQKPSWSKH--RGQ-----PLPLPPPPLPP-PPLEGPFQDLAQGVDKV---QEKVAKG-----KLQEEAVQAQTGSVELERA-PHWNWQELEAGEVRESFYPAVQRLSPSLRPR-PQARHSLLVALEHNYSKPPQCLQHLPSAEGAQVSHQQPT--------
XM_013013735 Dipodomys ordii                   LPGLAFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGQ-----QLQPLPQLLQP-PQLEGPFQDLALGVDKV---QERAVRG-----QLPEEGVRAQEESVQLERA-PHWNWQELEAGEVRESFYPVVQRFIPNLRPS-PQAWPSLLVSQEHNYSKPPQGLQYLPTVEQAQVSHQQPT--------
XM_019808476 Ailuropoda melanoleuca            LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGXXXXXXXXXXPPPPPPP-PQLEGPFQDLAPGVDKV---QERVVTG-----KRLEEGVQTQTEAANLERA-PHWNWQELEAGEVRESFYPVVQRLSPSLRPR-PQTRHSLVVSLEHNYSKPPQCLQHLPAAEHAQASHHQPTLTHPHQL-
XM_008700579 Ursus maritimus                    LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGQ---------PXPLLP-PQLEGPFQDLAPGVDKV---QERVVTG-----KRLEEGVQAQTQAANLERT-PHWNWQELEAGEVRESFYPVVQRLSPSLRPR-PQTRHSLIVSLEHNYSRPPQCLPHLPAAEHAQVSHHQPTLTHPHQL-
XM_019643761 Hipposideros armiger              LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGQ-----QPQLLPQPLQP-PPLEGPFQDLAQEVDKV---QERVVTG-----TLLEGGVQTHTESVKLERA-PHWNWQELEAGEVRESFYPVVQRLNPNLRPR-PRARPSLIVSLEHNYSKPPQGLQPLAAVEQASVSHQQLTLTHPHQL-
XM_006835227 Chrysochloris asiatica             LPGLVFQSPSLVLTEQEPELLQTSKQKPNWSKH--RGQ-----LLQLPPPLLQL-PQLEGPFQDLAQGVDKV---PERVVRG-----KLLGEGVQAQTEPMKLERGPPHWNWQELEAGEVRENFYPVVQRLSPNPRPR-TLARHSLLVSLEHNYSKPPQCLLHLPVEPAQVSHHQPTLTHPQQL-
XM_003432160 Canis lupus familiaris             LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGQ----QQPPPPLPPPQP-PPLEGPFQDLAQGVDKV---QERVVTG-----KLLEGDVQTQTEVTHLERA-PHWNWQELEAGEVRESFYPVVQRLSPSLRPR-PQTRHSLLVSLEHNYSKPPQCLQPLPSVEHAQVSHQQPTLMHPHQL-
XM_017666555 Manis javanica                     LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKP--RGQ-----QLRLQPRPPQP-PQLEGPFQDLAQGVDKV---QERVGKG-----ELLKEGVQTRTEPVKLERA-PHWNWQELEAGEVRESFYPVVQRLSPNLRPR-PQTRHSLIVSLEHNYSKPPQCLQHLPSVDPAQMSHHQPTLTHPHQL-
XM_019712755 Rhinolophus sinicus                LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGQ-----QLPLQPQLLQP-PPLEGPFQDLAPGVDKV---QERVVKG-----TLLEGGTQTRTESVKLERA-PHWNWQDLEAGEVRESFYPVGQRLSPNLRAR-PQARHSLAVSLEHNYSKPPQCLQPLPSVEQAQVSHHQLTLTHSHQL-
XM_015064116 Acinonyx jubatus                   LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGQ-----QPPPPPPLPPP-PR--APFQDLARGVDKV---QERVVKG-----SLLEEGVQTQTEPVNPERA-PHWNWQELEAGEVRESFYPVFQRLSPSLRPR-PQTRLSLIVSLEHNYSKPPQCLQHLPSVEHAQVSHHLXVVKN-----
XM_019450044 Panthera pardus                    LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGQ-----QPPPPPPLPPP-PRLEGPFQDLARGVDKV---QERVVKG-----SLLEEGVQTQTEPVNPERA-PHWNWQELEAGEVRESFYPVFQRLSPSLRPR-PQTRLSLIVSLEHNYSKPPQCLQHLPSVEHAQVSHHQPTLTHPHQL-
XM_006930426 Felis catus                        LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGQ-----PPPPPPPLPPP-PRLEGPFQDLARGVDKV---QERVVKG-----SLLEEGVQTQTEPVNPERA-PHWNWQELEAGEVRESFYPVFQRLSPSLRPR-PQTRLSLIVSLEHNYSKPPQCLQHLPSVEHAQVSHHQPTLTHPHQL-
XM_010992973 Camelus dromedarius               LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGQ-----QPPPPPPPLQP-PQLEGPFRDLAQAGDKG---QERGVKG-----RLLEEGVQTQTESVKLERA-PHWNWQELEAGEVRESFYPVVQRLSPSLRPR-PQARHSLTVSLEHNYSKPPQRLQHPPSVEHAQVSGHQPTLAHPHQL-
XM_010948539 Camelus bactrianus                LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGQ-----QPPPPPPPLQP-PQLEGPFRDLAQAGDKG---QERGVKG-----RLLEEGVQTQTESVKLERA-PHWNWQELEAGEVRESFYPVVQRLSPSLRPR-PQARHSLTVSLEHNYSKPPQRLQHPPSVEHAQVSGHQPTLAHPHQL-
XM_006190213 Camelus ferus                      LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGQ-----QPPPPPPPLQP-PQLEGPFRDLAQAGDKG---QERGVKG-----RLLEEGVQTQTESVKLERA-PHWNWQELEAGEVRESFYPVVQRLSPSLRPR-PQARHSLTVSLEHNYSKPPQRLQHPPSVEHAQVSGHQPTLAHPHQL-
XM_006197176 Vicugna pacos                      LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGQ-----QPPPPPPLQP-PQLEGPFRDLAQAGDKG---QERGVKG-----RLLEEGVQTQTESVKLERA-PHWNWQELEAGEVRESFYPVVQRLSPSLRPR-PQARHSLTVSLEHNYSKPPQRLQHPPSVEHAQVSRHQPTLAHPHQL-
XM_004377581 Trichechus manatus latirostris    LPGLVFQSPSLVLTEQEPELLQTSKQKPNWSKH--RGQ-----LLQPQPQPLQL-PQLEGPFQDLAQGVDKV---QERVVKG-----KLLGEGVQAQTESVKLERA-PHWNWQELEAGEVRESFYPVVQRLSPNLRPR-TQARHSLIVSLEHNYSKPPQCLPHLPSAEHAQVSHHQPTLTHPRQL-
XM_003411920 Loxodonta africana                LPGLVFQSPSLVLTEQEPELLQTSKQKPNWSKH--RGQ-----LLQPQLQPLQP-PQLEGPFQDLAQGVDKD---QERAVKG-----KLLGEGVQAQTESVKLERA-PHWNWQELEAGEVRESFYPVVQRLSPNLRPR-TQARHSLIVSLEHNYSKPPQCLPHLPSVEHAQVSRHQPVLTHPHQL-
XM_013996276 Sus scrofa                        LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGQ-----QLLLQPQPLQP-PQLEGPFQDLAQGVDRA---QERGVRG-----KLLEERVQTQTESVKLERA-PHWNWQELEAGEIRESFYPVVQRLSPNLRAR-PQARHSLIVSLEHNYSKPPQWLQHLPSVEPAQESHHQPTLTHPHQL-
XM_008063472 Carlito syrichta                   LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGQ-----QPLPLPQLLQP-PQLEGPFQDLAQGVDKV---QGRVVKG-----RLPEEAVQAQTKSVKLESA-SHWNWQELEAGEVRESFYPVVQRLSPNLRPGPPPA--SLIVSLEHNYSKPPQCLQHLLSVEHAQVSHHQPT--------
XM_015479905 Marmota marmota marmota            LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGQ-----QLQLPQPPLQP-PQLEGPFQDLALGVDKV---QERVVKE-----KLLEEGIQAQMESVQLERA-PHWNWQELEAGEVRESFYPVVQRLSPNLRPR-PQARHSLIVSLEHNYSKPPQCLQHLPSVEHARVSHHQLT--------
XM_005322571 Ictidomys tridecemlineatus       LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGQ-----QLQLPQPPLQP-PQLEGPFQDLALGVDKV---QERVVKE-----KLLEEGVQAQMESVQLERA-PHWNWQELEAGEVRESFYPVVQRLSPNLRPR-PQARHSLIVSLEHNYSKPPQCLQHLPSVEHARVSHHQLT--------
XM_015566378 Myotis davidii                    LPGLVFQSPSLVLTEQEPELLPTSKQKPSWSKH--RGQ-----QPPLPPPLLQP-PQLEGPSQDLAPGVDKA---QERAVKG-----KPPEEGIQTQTESENLERA-PHWNWQELEAGEVRESFYPVVQRLSPNLRPR-PQARHSLIVSLEHNYSKPPQCLR-LPSVEHAHVSHH----------
XM_008162352 Eptesicus fuscus                  LPGLVFQSPSLVLTEQEPELLPTSKQKPSWSKH--RGQ-----QLPLPPQLLPP-PQLEGPFQDLAQGVDKA---QERVVKG-----KLLEEGIQTQTESEKLERA-PHWNWQELEAGEVRESFYPVVQRLGPNLRPT-PQASHSLLVFLEHNYSKPPQCLQHLPSVEHAQVSHH----------
XM_005874900 Myotis brandtii                    LPGLVFQSPSLVLTEQEPELLPTSKQKPSWSKH--RGQ-----QLPLPPQLLQP-PQLEGPFQDLAQGVDKA---QERVVKG-----KPLEEGIQTQTESEKLERA-PHWNWQELEAGEVRESFYPVVQRLSPNLRPR-PQASHSLLVSLEHNYSKPPQCLQHLPSVEHAQVSHH----------
XM_014446882 Myotis lucifugus                   LPGLVFQSPSLVLTEQEPELLPTSKQKPSWSKH--RGQ-----QLPLPPQLLQP-PQLEGPFQDLAQGVDKA---QERVVKG-----KPLEEGIRTQTESEKLERA-PHWNWQELEAGEVRESFYPVVQRLSPNLRPR-PQASHSLLVSLEHNYSKPPQCLQRLPSVEHAQVSHH----------
XM_006162196 Tupaia chinensis                   LPGLVFQSPSLVLTEQEPELLQTSKQRPSWSKH--RGQ-----QPQQQQQLLQP-PQLEGPFQDLAQGVDRV---RERVVKG-----RLPEEGVQAQTEVKLERA-PHWNWQELEAGEVRESFYPVVPRLSPSLRPR-PQAQHSLIVSLEHNYSKPPQCLHHLPSVERAQVSHHPPT--------
XM_007191266 Balaenoptera acutorostrata scammoni LPGLVFQSPSLVLTEQEPELSQTSKQKPSWSKH--RGQ-----QLLLQPQPLQP-PRLEGPFQDLAQGVDKD---QERGLKG-----ELLEEGVQTQTESVKLERA-PHWNWQELEAGEVRESFYPVVQRLSPNLRPR-PQARHSLTVSLEHNYSKPPQCLHHLPSVERAQVSRHQPTLTHPHQL-
XM_007108431 Physeter catodon                   LPGLVFQSPSLVLTEQEPELSQTSKQKPSWSKH--RGQ-----QLLLQPQLLQP-PQLEGPFQDLAQGVDKA---QERGLKG-----ELLEEGVQTQTESVKLERA-PHWNWQELEAGEVRESFYPVVQRLSPNLRPR-PQARHSLTVCLEHNYSKPPQCLHHLPSVERAQVSRHQPTLTHPHQL-
XM_007470793 Lipotes vexillifer                 LPGLVFQSPSLVLTEQEPELSQTSKQKPSWSKH--RGQ-----QLLLQPQLLQP-PQLEGPFQDLAQGVDKV---QERGLKG-----ELLEEGVQTQTESVKLERA-PHWNWQELEAGEVRESFYPVVQRLSPNLRPR-PQARHSLTVSLEHNYSKPPQCLHHLPSVERAQVSRHQPTLTHPHQL-
XM_004312104 Tursiops truncatus                LPGLVFQSPSLVLTEQEPELSQTSKQKPSWSKH--RGQ-----QLLLQPQLLQP-PQLEGPFQDLAQGVDKV---QERGLKG-----ELLEEGVQTQTESVKLERA-PHWNWQELEAGEVRESFYPVVQRLSPNLRPR-PQARHSLTVSLEHNYSKPPQCLHHLPSVERAQVSRHQPTLTHPHQL-
XM_012532454 Orcinus orca                      LPGLVFQSPSLVLTEQEPELSQTSKQKPSWSKH--RGQ-----QLLLQPQLLQP-PQLEGPFQDLAQGVDKV---QERGLKG-----ELLEEGVQTQTESVKLERA-SHWNWQELEAGEVRESFYPVVQRLSPNLRPR-PQARHSLIVSLEHNYSKPPQCLHHLPSVERAQVSRHQPTLTHPHQL-
XM_016209133 Miniopterus natalensis             LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGQ-----QLPLQLQLLQP-PQLEGPFQDLAQGVDKV---QERVAKG-----RLLEEGVQTQVESEKLERA-PHWNWQELEAGEVRESFYPVVQRLSPNLRPR-PQARHSLIVSLEHNYSKSPQCLQHLPSVEHAQVSHHQLTLAHPHQL-
XM_004418269 Ceratotherium simum simum         LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGQ-----QLPLQPQLLQP-PQLEGPFQDLAQGVDKV---QERVVKG-----KLLEEGVQTQRESVKLERA-SHWNWQELEAGEVRESFYPVVQTLSPNLRPR-PQARHSLIVSLEHNYSKPPQCLQHLPLVEHAQVSPHQPTLTHPHQL-
XM_014856740 Equus asinus                       LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGQ-----QLPLQLPLLQP-PQLEGPFQDLAQGVDKV---QERVVKG-----KLLEEGVQTQKESVKLERA-PHWNWQELEAGEVRESFYPLVQTLSPNLRPR-PQARHSLIVSLEHNYSKPPQCLQYLPSVEHAQVSHHQPTLMHPHQL-
XM_008542771 Equus przewalskii                 LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGQ-----QLPLQLPLLQP-PQLEGPFQDLAQGVDKV---QERVVKG-----KLLEEGVQTQKESVKLERA-PHWNWQELEAGEVRESFYPLVQTLSPNLRPR-PQARHSLIVSLEHNYSKPPQCLQYLPSVEHAQVSHHQPTLMHPHQL-
XM_001918196 Equus caballus                    LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGQ-----QLPLQLPLLQP-PQLEGPFQDLAQGVDKV---QERVVKG-----KLLEEGVQTQKESVKLERA-PHWNWQELEAGEVRESFYPLVQTLSPNLRPR-PQARHSLIVSLEHNYSKPPQCLQYLPSVEHAQVSHHQPTLMHPHQL-
XM_016121738 Rousettus aegyptiacus              LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGQ-----QLPPQPQPLQP-PQLEGPFQDLAQGADKV---QERVVKG-----TPLEEEVQTQTESVKLERA-PRWNWQELEAGEVRESFYPVVQRLNPNLRPR-PQTRHSLIVSLEHNYSKPPQCLQHLPSVEHAQVSHHQLTVTHPHQL-
XM_011356536 Pteropus vampyrus                  LPGLVFQSPSLVLTEQEPGLLQTSKQKPSWSKH--RGQ-----QLPPQLQPLQP-PQLEGPFQDLAQGVDKV---QERVVKG-----TPLEEEVQTQTESVKLERA-PHWNWQELEAGEVRESFYPVVQRLNPNLRPR-PQTRHSLIVSLEHNYSKPPQCLQHLPSVEHAQVSHHQLTVTHPHQL-
XM_006910290 Pteropus alecto                    LPGLVFQSPSLVLTEQEPELLQTSKQKPSWSKH--RGQ-----QLPPQPQPLQP-PQLEGPFQDLAQGVDKV---QERVVKG-----TPLEEEVQTQTESVKLERA-PHWNWQELEAGEVRESFYPVVQRLNPNLRPR-PQARHSLIVSLEHNYSKPPQCLQHLPSVEHAQVSHHQLTVTHPHQL-
XM_003787447 Otolemur garnettii                LPGLVFQSPSLVLTEQEPEPLQTSKQKPSWSKH--RGQ-----LLQPPPQLLQP-PQLEGPFQDLAQGVDKV---QERVVKG-----KLLEEAVQAQTESMELEKA-PHWNWQELEAGEVRESFYPVVQRLSPSLRPRPPQTRHSLIVSLEHNYSKPPQCLQHLPSVEHAQMSHHQPT--------
XM_012788149 Microcebus murinus                LPGLVFQSPSLVLTEQAPELSQTSKQKPSWSKH--RGQ-----QLLQLPQLLQP-PQLEGPFQDLAQGVDKV---QERVVKG-----KLLEEAVQAQTEPVELEKA-PHWNWQELEAGEVRESFYPVVQRLSPNLRPRPPQTRHSLIVSLEHNYSKPPQCLQHLPSVEHAQMSHHQPT--------
XM_012652406 Propithecus coquereli              LPGLVFQSPSLVLTEQEPELSQTSKQKPSWSKH--RGQ-----QLLQPPQLLQP-PQLEGPFQDLAQGVDKV---QERVVKG-----KLLEEAVQAQTESVELEKA-PHWNWQELEAGEVRESFYPVVQRLSPNLRPRPPQTRRSLIVSLEHNYSKPPQCLQHLPSVEHAQMSHHQPT--------
XM_008577069 Galeopterus variegatus             LPGLVLQSPSLVLTEQEPELLQTSKQKPSWSKH--RGQ-----QLQPPPQLLQP-PQLEGPFQDLVQGVDKV---QERAVKG-----KLLEEGVQAQTESVKLERA-PHWNWQELEAGEVRESFYPVVQRFSPNLRPR-PQARHSLIVSLEHNYSKPPQGLQHLPSVEHAQVSHHQPT--------
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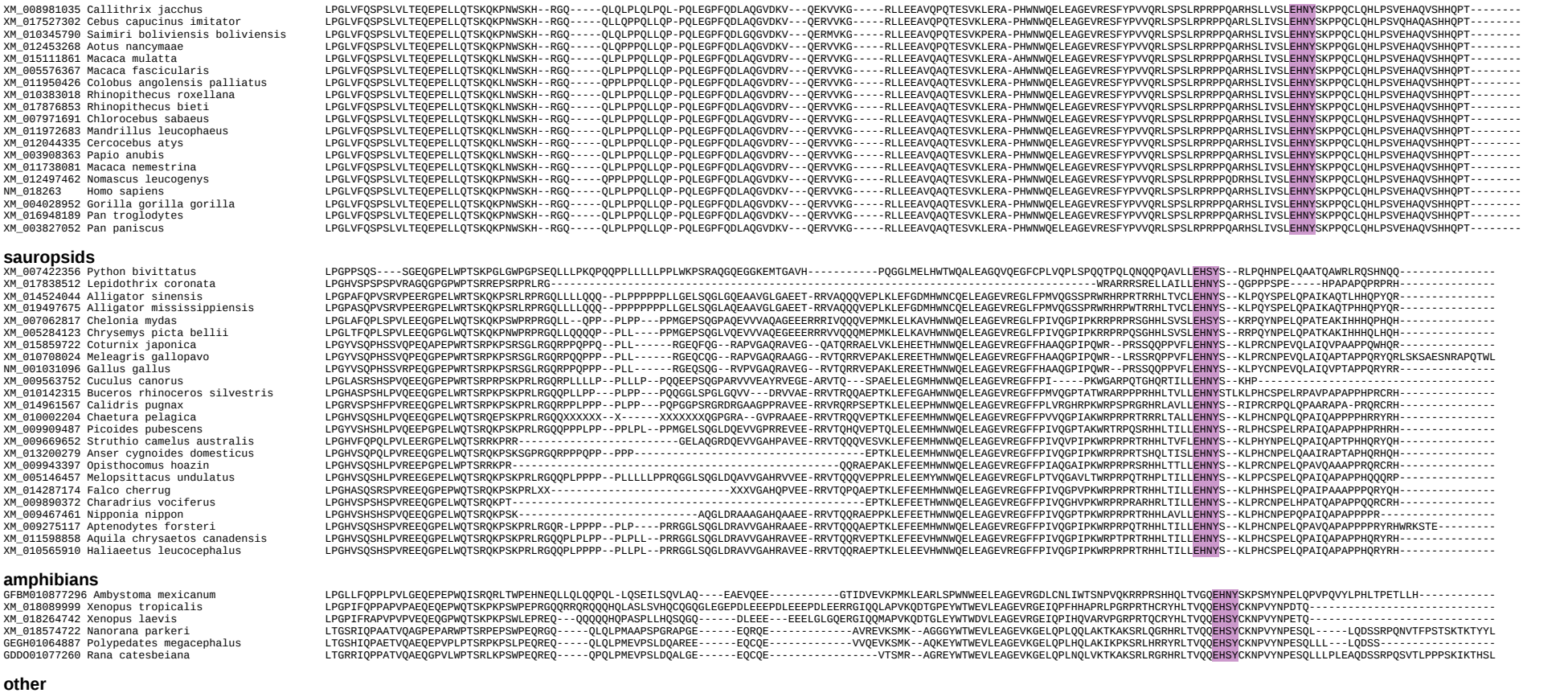
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XM_017527302 Cebus capucinus imitator
XM_010345790 Saimiri boliviensis boliviensis
XM_012453268 Aotus nancymaae
XM_015111861 Macaca mulatta
XM_005576367 Macaca fascicularis
XM_011950426 Colobus angolensis palliatus
XM_010383018 Rhinopithecus roxellana
XM_017876853 Rhinopithecus bieti
XM_007971691 Chlorocebus sabaeus
XM_011972683 Mandrillus leucophaeus
XM_012044335 Cercocebus atys
XM_003908363 Papio anubis
XM_011738081 Macaca nemestrina
XM_012497462 Nomascus leucogenys
NM_018263 Homo sapiens
XM_004028952 Gorilla gorilla gorilla
XM_016948189 Pan troglodytes
XM_003827052 Pan paniscus
sauropsids
XM_007422356 Python bivittatus
XM_017838512 Lepidothrix coronata
XM_014524044 Alligator sinensis
XM_019497675 Alligator mississippiensis
XM_007062817 Chelonia mydas
XM_005284123 Chrysemys picta bellii
XM_015859722 Coturnix japonica
XM_010708024 Meleagris gallopavo
NM_001031096 Gallus gallus
XM_009563752 Cuculus canorus
XM_010142315 Buceros rhinoceros silvestris
XM_014961567 Calidris pugnax
XM_010002204 Chaetura pelagica
XM_009909487 Picoides pubescens
XM_009669652 Struthio camelus australis
XM_013200279 Anser cygnoides domesticus
XM_009943397 Opisthocomus hoazin
XM_005146457 Melopsittacus undulatus
XM_014287174 Falco cherrug
XM_009890372 Charadrius vociferus
XM_009467461 Nipponia nippon
XM_009275117 Aptenodytes forsteri
XM_011598858 Aquila chrysaetos canadensis
XM_010565910 Haliaeetus leucocephalus
amphibians
GFBM010877296 Ambystoma mexicanum
XM_018089999 Xenopus tropicalis
XM_018264742 Xenopus laevis
XM_018574722 Nanorana parkeri
GEGH01064887 Polypedates megacephalus
GDDO01077260 Rana catesbeiana
other
XM_015348384 Lepisosteus oculatus
XM_007900450 Callorhinchus milii
XM_006005057 Latimeria chalumnae