

## Multiple sequence alignments of TAAR proteins from each subfamily.

26 residues suggested to involve with agonist binding in  $\beta_1$ AR are indicated with red asterisks (Warne et al. 2011; Warne et al. 2012). Position-specific conservation scores are computed using Scorecons (Valdar 2002) using the sum of pairs scores. Each position is color-coded based on the conservation scores as follows:

Unconserved <0.5 0.6 0.7 0.8 >0.9 Conserved

### References:

- Valdar WSJ. 2002. Scoring residue conservation. *Proteins: Structure, Function, and Bioinformatics*. 48:227-241.
- Warne T, Edwards PC, Leslie AG, Tate CG. 2012. Crystal Structures of a Stabilized  $\beta_1$ -Adrenoceptor Bound to the Biased Agonists Bucindolol and Carvedilol. *Structure*. 20:841-849.
- Warne T, Moukhametzianov R, Baker JG, Nehme R, Edwards PC, Leslie AGW, Schertler GFX, Tate CG. 2011. The structural basis for agonist and partial agonist action on a  $\beta_1$ -adrenergic receptor. *Nature*. 469:241-244.

(a) TAAR1

human1 -MMPFCHNIINISCVKNNWSNDVRASLYSLMVLII LTTLVGNLIVIVSISHFKQLHTPTNWLIIHSMATVD  
mouse1 --MHLCHAITNISHRNSDWSREVQASLYSLMSLII LATTLVGNLIVII SISHFKQLHTPTNWLIIHSMATVD  
rat1 --MHLCHNSANISHTNSNWSRDVRASLYSLISLII LTTLVGNLIVII SISHFKQLHTPTNWLIIHSMATVD  
cow1 --MSLCHNKINISCVKSSWSNDIRASLYSLMVLII LTTTVGNLIVII SISHFKQLHTPTNWLIIHSMATVD  
horse1 -MMSFCHSIINISCVKSSWSNDVRASLYSLMVLII LTTLVGNLIVII SISHFKQLHTPTNWLIIHSMATVD  
little\_brown\_bat1 --MSFCHNVNISCYNSSWSNDVRASLYSLMVLII LTTLVAGNLIVII SISHFKQLHTPTNWLIIHSMATVD  
flying\_fox1 --MSFCHNIINISCVKSSWSNDVRASLYSLMII I LTTLVGNLIVII SISHFKQLHTPTNWLIIHSMATVD  
common\_shrew1 -MMSSCQNIINTSCVKSSWSNDVRVSLYSLMVLII LITLIGNMIVII SISHFKQLHTPTNWLIIHSMSTVD  
hedgehog1b -----  
tenrecla -----  
elephant1 -----  
armadillo1 -----  
opossum1 --MTFCQEAINGSCIKNSWTNII RIRIPMYCVMILLI LTTLAGNLMVII SISHFKQLHTPTNMLIINSMAIVD  
platypus1 --MQFCSGDRNGSICRTSWSNDNIRVVMYMSMCI I LTTLAGNLMVII SISHFKQLHTPTNWLIIHSMATVD  
chicken1 --MQLCCESVNGSCVKSNWSNIRISMYIFMVCVIL TTVIGNLMVII SISHFKQLHTPTNFLIISMATAD  
lizard1 --MQLCCESINGSCIKSSWSISIQMSMYVSMCLV I LGTVAGNLTVII SIAHFRQLHTPTNFLIISMATVD  
frog1 MQIQYCYESINRSCCKNGWSNII RIRIPMYVFMVST I LATVVGNLAVIISIAHFKQLHTPTNYLIIISMSTVD

\* \* \* \* \*  
human1 FLLGCLVMPY SMVRS AEHCWYFGEV FCKIHTSTDIMLSSAIFHLSFISIDRYAVCDPLRYKAKMNIIV  
mouse1 FLLGCLIMPY SMVRTVERCWFYFGEI LCKVHTSTDIMLSSAIFHLAFISIDRYCAVCDPLRYKAKINIST  
rat1 FLLGCLVMPY SMVRTVEHCWYFGEI FCKLHTSTDIMLSSAIFHLAFISIDRYAVCDPLRYKAKINLAA  
cow1 FLLGCLVMPY SMVRSIEHHSWFGEV FCKIHTSTDIMLSSAIFHLSFISIDRYAVCDPLRYKAKINILV  
horse1 FLLACLMPY SMVRSVEHCWYFGEV FCKIHTSTDIMLSSAIFHLSFISIDRYAVCDPLRYKAKIRIGLV  
little\_brown\_bat1 FLLGCLVMPY SMVRSVEHCWYFGEV FCKIHTSTDIMLSSAIFHLSFISIDRYAVCDPLRYKAKISILV  
flying\_fox1 FLLGCLVMPY SMVRSVEHCWYFGEV FCKIHTSTDIMLSSAIFHLSFISIDRYAVCDPLRYKAKISILV  
common\_shrew1 FLLGLVMPY SMVRTVEHYWHFGEI FCKIHTSTDIMLSSAIFHLSFISIDRYAVCEPLRYKAKINMLA  
hedgehog1b -----  
tenrecla FLLGCLVMPY SMVRSVEHCWYFGEV FCKIHTSTDIMLSSAIFHLSFISIDRYCAVCDPLRYKAKISILV  
elephant1 -----  
armadillo1 FLLGCLVMPY SMVRSVEHCWYFGEV FCKIHTSTDIMLSSAIFHLSFISIDRYCAVCDPLRYKAKISVLV  
opossum1 FLLGLVMPY SMVRSVEKCVYFGEI FCKLHTSTDIMLSSAIFHLSFISIDRYAVCDPLRYKAKISVLV  
platypus1 FLLGCFVMPY SMVRSVEHCWYFGEI FCKIHTSTDIMLSSAIFHLSFISIDRYAVCDPLRYKAKINIFV  
chicken1 FLLGLIMPY SMVRSVEHCWYFGEI FCKIHTSTDIMLSTSI FHLSSFISIDRYAVCDPLRYKAKINAFV  
lizard1 FLLGLVMPY SMVRSVENCWYFGEI FCKVHTSVDIMLSTSI FHLSSFISIDRYAVCDPLRYKAKINTYV  
frog1 FLLGSCVMPY SMVRSVENCWYFGEI FCKVHTSTDIMLSTSI FHLSSFISIDRYAVCDPLRYKAKMNVFS

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human1 ICVMI F ISWSVPAVFAFGMIFLELNFKGAEEIYYKHVHCRGGCSVFFSKISGVLT FMTSFYIPGSIMLCV  
mouse1 ILVMI LVSWSLPVAFAGMIFLELNLKGEELYRSQVSDLGGCSVFFSKVSGVLA FMTSFYIPGSVMLFV  
rat1 IFVMI LISWSLPVAFAGMIFLELNLKGEELYRSQVSDLGGCSVFFSKVSGVLA FMTSFYIPGSVMLFV  
cow1 ISLMI F ISWSIPALFAFGMIFLELNFKGAEEIYYKHSHCIGSCVFFSKTSGVLA FMTSFYIPGSIMLCI  
horse1 IFMMI SISWSIPALFAFGMIFLELNFKGEELYKHVHCHGCAVFFSKTSGVLA FMTSFYIPGSIMLCI  
little\_brown\_bat1 IFVMI F ISWSIPALFAFGMIFLELNLKGEELYKHVHCHGCAVFFSKTSGVLA FMTSFYIPGSIMLYV  
flying\_fox1 IFVMI F ISWSVPAVFAFGMIFMELNFKGAEEIYYKHVHCHGCAVFFSKTSGVLA FMTSFYIPGSIMLCV  
common\_shrew1 IFVMI FVSWVPAIFAFGLIFLELNFKGAEEIYYKHVHCHGCAVFFSKTSGVLA FMTSFYIPGSIMWCI  
hedgehog1b -----  
tenrecla VFVMI F ISWCVPAIFAFAGMIFLELNLKGAEEIYYQHIHCVGGCSVFFSKTSGVLA FMTSFYIPGSIMLSI  
elephant1 ILVMI F ISWSVPAIFAFAGMIFLELNLKGAEEIYYKHVHCHGCAVFFSKTSGVLA FMTSFYIPGSIMLCI  
armadillo1 IFVMI F ISWSVPAIFAFAGMIFLELNLKGAEEIYYKHVHCHGCAVFFSKTSGVLA FMTSFYVPGSIMLCI  
opossum1 VLVMI AISWVPAIFAFAGMIFLELNLKGAEEIYYKHVHCHGCAVFFSKTSGVLA FMTSFYIPGSIMLCI  
platypus1 VLVMI FVSWTVPAIFAFAGMIFLELNLKGEELYQQFLCVGGCSVFFSKTSGVLA FMTSFYIPGSIMLCI  
chicken1 ILVMI LVSWSVPAIFAFAGMIFLELNLKGAEEIYYKHVHCHGCAVFFSKTSGVLA FMTSFYIPGLVMLFI  
lizard1 ILIMI FVSWMLPALFAGMIFLQNLMTGAKETFYKFIYCVGGCSVFFDETSGVVASMVCFYIPGFVVMYI  
frog1 VSLMIVTSWVPTIFAFMVFLELNLKGTESYYYNQVSCFGGCAVFFSQTSGVLA SMVSYIPGFVMLCV

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human1 YYRIYLIAKEQARLIS DANQKL--QIGLEMKNGISQSKERKAVKTLGIVMGVFLICWCPFFVCTVMDPFL  
mouse1 YYRIYFIAKGARS INRTN--V--QVLEGKSAFPQSKETKAAKTLGIMGVFLVCWCPFFLCTVLDPFL  
rat1 YYRIYFIAKGARS INRAN--L--QVLEGESRAPQSKETKAAKTLGIMGVFLVCWCPFFFCMVLDPFL  
cow1 YCRIYFIAKGARS IHDAKQKV--QIGLEERNGISRSRGRKAAKTLGIVMGVFLVCWCPFFVCMVMDPFL  
horse1 YYRIYFIAKGARS INDANKNP--QIGLEEKNGISRSKEGKAAKTLGIVMGVFLICWCPFFVCTVMDPFL  
little\_brown\_bat1 YYRIYLIARGARS INNANQQL--QIGLEEKNGISRNKERRKAAKTLGIVMGVFLICWCPFFVCTVMDPFL  
flying\_fox1 YCRIYFIAKGARS INDSNPKL--QIGLEEKNGISQSKDRKATKTLGIVMGVFLICWCPFFVCTVMDPFL  
common\_shrew1 YYRIYFIAKGARS INDTNQ-L--QPRLEETGNSRSKDMKAAKTLGIVMGVFLICWCPFFFCMVLDPFL  
hedgehog1b YYRIYFIAKGARLIDDTSQ-F--HISLEETNGISRRRERKAAKTLGIVMGVFLICWCPFFVCTVMDPFL  
tenrecla YYRIYFIARGARS INDAKLLK--QIGLEENHGVQSKEQKAAKTLGIVMGVFLICWCPFFVCTVMDPFL  
elephant1 YYRIYFIAKRARS INNANQKF--QIGLEEKNGISQSKERKAAKTLGIVMGVFLICWCPFFVCTVMDPFL  
armadillo1 YFRIYLIAQQARS IRDANQNP--QIGLEEKSGISGSKERKAAKTLGIVMGVFLVCWCPFFICTVLDPFL  
opossum1 YGKIYFIAKGARS IKANQKI--QNGFEEKQLSRKEKAAKTLGIVMGVFLICWCPFFFTVIDPFL  
platypus1 YGKIYFIARGARS INDTAQI--QAGFLEEMHRPSRERKAAKTLGIVMGVFLICWCPFFFTVIDPFL  
chicken1 YRKIYSIAKRARS IDAVSKK--KRYETK-HISFCRERKAAKTLGIVMGVFLICWSPFFFTATDPFL  
lizard1 YGKIYFIAKRARS IKAVMSQA--QIRFQMKHHISRERKAAKTLGIVMGVFLICWSPFFFTATDPFL  
frog1 YGKIYVIARGARS IKDSANQMPQITLVGNQHVSRSDRERKAAKTLGIMGVFLICWTPFFFTATDGFII

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human1      HYIIPPTLNDVLIWFGYLNSTFNPVYAFFYPWFRKALKMILFGKIFQKSSRCKLFLELSS
mouse1      GYVIPPSLNDALYWFYGLNSALNPMVYAFFYPWFRRALKMVLGKIFQKSSRSKLFLELSS
rat1        GYVIPPTLNDTLNWFYGLNSAFNPMVYAFFYPWFRRALKMVLGKIFQKSSRSKLFLELSS
cow1        DYTIPPTLNDALIWFYGLNSTFNPVIYAFFYPWFRRALKIILVKGKIFQKSSRSKLFSE
horse1      NYAIPHSLNDALIWFYGLNSTFNPVIYAFFYPWFRRALKMILFGKIFQKSSRCKLFLESNP
little_brown_bat1 DYTIPPLNDALIWFYGLNSTFNPVIYAFFYPWFRRALKMILFGKIFQKSSRCQLF
flying_fox1 DYTIPPTLNDTLIWFYGLNSTFNPVYAFFYPWFRRALKIILGKIFQKSSRSKLFLESS
common_shrew1 GYTIPPALNDTLIWFYGLNSTFNPVYAFFYSWFRKALKMILSGKIFQKSSRCILLESSP
hedgehog1b DYTIPPALNDTLIWFYGLNSTFNPVYAFFYPWFRRALKMILGKIFQKSSRCKLFLESNP
tenreclia DYTIPQTLNEALIWFYGLNSTFNPVYAFFYPWFRRALKMILFGKIFQKSSRCKLLESHP
elephant1  EYTIPPTLNDVLIWFYGLNSTFNPVYAFFYPWFRRALKMILGNIQKSSRCKLLESNP
armadillo1 DYTISPALSALIWFYGLNSTFNPVYAFFYPWFRRALKLILFGKIFQKSSRCNLFLESNP
opossum1   DYTIPFLNDVLIWFYGLNSTLNPVYAFFYPWFRRALKMIFFGKVFKNSSRCQLFLELNT
platypus1  GYTVPPVLRREALVWLGYNSTFNPVYAFFYPWFRRALKMVLVGRVVFQKGSSTSKLVLETCV
chicken1   NYAAPVLTDTLVWFYGLNSAFNPIVYAFFYMWFRALKTILFGNIFQKSSRQLFLE
lizard1    NYTIPPIVIDAMVWLGYNSTFNPVYAFFYLVWFRALKMIVLGVVFQKSSRIKLFWE
frog1      NYVIPIVIDAFVWIGYLNSTFNPVYAFFYLVWFRALRMILFGKVFHPDSSRTILYSE
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(b) TAAR2

human2 -----MAVSSEQHELHSHFKRRTQTKKKEKFNDCSEYGNRSCPENERSLGVRAAMYSLMAGSIFITIFGN  
mouse2 -----MASFEAQQETFDCESEYNGSCPENERSLGVRAAMYSLMACAIFITIFGN  
rat2 -----MTSFEAQQETFDCESEYNGSCPENERSLGVRAAMYSLMAGAIFITIFGN  
cow2 -----KLLNCSEYGSSCPENERPVGQAAMYSLMAGSIFITIFGN  
horTAAR2 -----MLSPKADPTEKNELPYFKRRTQTKKKEIDCESEYNGSCPENERPVGQAAMYSLMAGSIFITIFGN  
miBat2 -----ETFCNCEYNGSCPEDEKRPGLGVRAAMYSLMAGSIFITIFGN  
megBat2 -----ETFCNCEYNGSCSESERPLGIRAAAMYSLMAGSIFITIFGN  
coShrw2a -----ETFDCESEYNGSCPENERPVGQAAMYSLMAGSIFITIFGN  
hdgHog2 -----MLHLTGPHVIVLFFFLKETIDCESEYNGSCPENERSLGVRAAMYSLMAGSIFITIFGN  
tenrec2a MSCISFFMKKIYKYGVLICYRIPHVLSSFLKATFDCESEYNGSCPESESLGVRAAMYSLMAGSIFITIFGN  
elepht2 -----EMLDCSEYNGSCTENERSVGVRAAMYSLMAGSIFITIFGN  
armad2 -----MYTFMTGAIFFVTVLGN  
Kangar2 -----  
oposm2 -----MLPDRALYLFTEFLKVAFDCESEYNGSCPENERSLGVRAAMYSLMAGSIFITIFGN  
platy\_2 -----MNIPALPKAEAVDCSEYNGSCPENERSLGVRAAMYSLMAGSIFITIFGN  
chicken\_2a -----MFSMNISRDFDCSEYNGSCSDSSRSPGVRGVLYFSIAAAFLVTVSGN  
chicken\_2b -----MFSMNISRDFDCSEYNGSCSDSSRSPGVRGVLYFSIAAAFLVTVSGN  
liz\_2 -----MAFLNSEDVIDCESEYNGSCPEHLRPAIRGAMYITISGIIIVTVLGN

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human2 LAMIISISYFKQLHTPTNFIILSMAITDFLLGFTIMPYSMIRSVENCWYFGLTFCKIHYSDFLMLSIITSI  
mouse2 LAMIISISYFKQLHTPTNFIILSMAVTDFFLLGFTIMPYSMIRSVENCWYFGLTFCKIHYSDFLMLSIITSI  
rat2 LVMIISISYFKQLHTPTNFIILSMAVTDFFLLGFTIMPYSMIRSVENCWYFGLTFCKIHYSDFLMLSIITSI  
cow2 LAMIIVSISYFKQLHTPTNFIILSMAVTDFFLLGFTIMPYSMIRSVENCWYFGLTFCKIHYSDFLMLSIITSI  
horTAAR2 LAMIISISYFKQLHTPTNFIILSMAVTDFFLLGFTIMPYSMIRSVENCWYFGLTFCKIHYSDFLMLSIITSI  
miBat2 LTMIISISYFKQLHTPTNFIILSMAVTDFFLLGFTIMPYSMIRSVENCWYFGLTFCKIHYSDFLMLSIITSI  
megBat2 LTMIISISYFKQLHTPTNFIILSMAVTDFFLLGFTIMPYSMIRSVENCWYFGLTFCKIHYSDFLMLSIITSI  
coShrw2a LAMIISIAFYKQLHTPTNFIILSMAVTDFFLLGFTIMPYSMIRSVENCWYFGLTFCKIHYSDFLMLSIITSI  
hdgHog2 LAVIISISYFKQLHTPTNFIILSMAVTDFFLLGFTIMPYSMIRSVENCWYFGLTFCKIHYSDFLMLSIITSI  
tenrec2a LAMIISIAFYKQLHTPTNFIILSMAVTDFFLLGFTIMPYSMIRSVENCWYFGLTFCKIHYSDFLMLSIITSI  
elepht2 LAMIISISYFKQLHTPTNFIILSMAVTDFFLLGFTIMPYSMIRSVENCWYFGLTFCKIHYSDFLMLSIITSI  
armad2 LTMIISISYFKQLHTPTNFIILSMAVTDFFLLGFTIMPYSMIRSVENCWYFGLTFCKIHYSDFLMLSIITSI  
Kangar2 -----SIQHYALQHPVCGNCWYFGLTFCKIHYSDFLMLSIITSI  
oposm2 LAMIISISYFKQLHSPTNFIILSMAITDFLLGFTIMPYSMIRSVENCWYFGLTFCKIHYSDFLMLSIITSI  
platy\_2 LAMIISISYFKQLHSPTNFIILSMAITDFLLGFTIMPYSMIRSVENCWYFGLTFCKIHYSDFLMLSIITSI  
chicken\_2a MAIIFSIYFKQLHSPTNFIILSMAVTDFFLLGFTIMPYSMIRSVENCWYFGLTFCKIHYSDFLMLSIITSI  
chicken\_2b MAIIFSIYFKQLHSPTNFIILSMAVTDFFLLGFTIMPYSMIRSVENCWYFGLTFCKIHYSDFLMLSIITSI  
liz\_2 LAIIITISYFQRLHSPTNFIILSMAVTDFFLLGFTIMPYSMIRSVENCWYFGLTFCKIHYSDFLMLSIITSI

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human2 FHLCSVAIDRFYAICYPLLYSTKTIIPVIRKRLLLCWSVPGAFAGVVFSEAYADGIEGYDILVACSSSC  
mouse2 FHLCSVAIDRFYAICYPLHYCTKMTIPVRRLLLVCSVPGAFAGVVFSEAYADGIEGYDILVACSSSC  
rat2 FHLCSVAIDRFYAICYPLHYCTKMTIPVRRLLLVCSVPGAFAGVVFSEAYADGIEGYDILVACSSSC  
cow2 FHLCSVAIDRFYAICYPLQYSIKMTIPVIRKRLLLCWSVPGAFAGVVFSEAYADGIEGYDILVACSSSC  
horTAAR2 FHLCSVAIDRFYAICYPLRYSKMTIPVIRKRLLLCWSVPGAFAGVVFSEAYADGIEGYDILVACSSSC  
miBat2 FHLCSVAIDRFYAICYPLRYSKMTIPVIRKRLLLCWSVPGAFAGVVFSEAYADGIEGYDILVACSSSC  
megBat2 FHLCSVAIDRFYAICYPLRYSKMTIPVIRKRLLLCWSVPGAFAGVVFSEAYADGIEGYDILVACSSSC  
coShrw2a FHLCSVAIDRFYAICYPLRYSKMTIPVIRKRLLLCWSVPGAFAGVVFSEAYADGIEGYDILVACSSSC  
hdgHog2 FHLCSVAIDRFYAICYPLRYSKMTIPVIRKRLLLCWSVPGAFAGVVFSEAYADGIEGYDILVACSSSC  
tenrec2a FHLCSVAIDRFYAICYPLRYSKMTIPVIRKRLLLCWSVPGAFAGVVFSEAYADGIEGYDILVACSSSC  
elepht2 FHLCSVAIDRFYAICYPLRYSKMTIPVIRKRLLLCWSVPGAFAGVVFSEAYADGIEGYDILVACSSSC  
armad2 FHLCSVAIDRFYAICYPLRYSKMTIPVIRKRLLLCWSVPGAFAGVVFSEAYADGIEGYDILVACSSSC  
Kangar2 FHLGVAIDRFYAICYPLHYSTKTIIPVIRKRLLLCWSVPGAFAGVVFSEAYADGIEGYDILVACSSSC  
oposm2 FHLCSVAIDRFYAICYPLHYSTKMTIPVIRKRLLLCWSVPGAFAGVVFSEAYADGIEGYDILVACSSSC  
platy\_2 FHLCSVAIDRFYAICYPLRYSKMTIPVIRKRLLLCWSVPGAFAGVVFSEAYADGIEGYDILVACSSSC  
chicken\_2a FHLCSVAIDRFYAICYPLHYSTKMTIPVIRKRLLLCWSVPGAFAGVVFSEAYADGIEGYDILVACSSSC  
chicken\_2b FHLCSVAIDRFYAICYPLHYSTKMTIPVIRKRLLLCWSVPGAFAGVVFSEAYADGIEGYDILVACSSSC  
liz\_2 FHLCSVAIDRFYAICYPLHYSTKTIIPVIRKRLLLCWSVPGAFAGVVFSEAYADGIEGYDILVACSSSC

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human2 PVMFNKLWGTTLFMAGFFTPGSMVVGIIYKIFAVSRKHAHAINNLRNQNQVK-----KDKKAAKTLG  
mouse2 PVMFNKLWGTTLFVAGFFTPGSMVVGIIYKIFAVSKKHARVIDNLPENQNNQMR-----KDKKAAKTLG  
rat2 PVMFNKLWGTTLFVAGFFTPGSMVVGIIYKIFAVSKKHARVIDNLPENQNNQMR-----KDKKAAKTLG  
cow2 PVMFNKLWGTTLFMAGFFAPGSMVVGIIYKIFAVSRKHAHAINNLRNQNQVK-----KDKKAAKTLG  
horTAAR2 PVMFNKLWGTTLFMAGFFTPGSMVVGIIYKIFAVSRKHAHAINNLRNQNQVK-----KDKKAAKTLG  
miBat2 PVMFNKLWGTTLFVAGFFTPGSMVVGIIYKIFAVSRKHAHAINNLRNQNQVK-----KDKKAAKTLG  
megBat2 PVMFNKLWGTTLFVAGFFTPGSMVVGIIYKIFAVSRKHAHAINNLRNQNQVK-----KDKKAAKTLG  
coShrw2a PVMFNKLWGTTLFMAGFFTPGSMVVGIIYKIFAVSRKHAHAINNLRNQNQVK-----KDKKAAKTLG  
hdgHog2 PVMFNKLWGTTLFMAGFFTPGSMVVGIIYKIFAVSRKHAHAINNLRNQNQVK-----KDKKAAKTLG  
tenrec2a PVMFNKLWGTTLFMAGFFTPGSMVVGIIYKIFAVSRKHAHAINNLRNQNQVK-----KDKKAAKTLG  
elepht2 PVMFNKLWGTTLFMAGFFTPGSMVVGIIYKIFAVSRKHAHAINNLRNQNQVK-----KDKKAAKTLG  
armad2 PVMFNKLWGTTLFMAGFFTPGSMVVGIIYKIFAVSRKHAHAINNLRNQNQVK-----KDKKAAKTLG  
Kangar2 PVMFNKLWGTTLFMAGFFTPGSMVVGIIYKIFAVSRKHAHAINNLRNQNQVK-----KDKKAAKTLG  
oposm2 PVMFNKLWGTTLFMAGFFTPGSMVVGIIYKIFAVSRKHAHAINNLRNQNQVK-----KDKKAAKTLG  
platy\_2 PVMFNKLWGTTLFMAGFFTPGSMVVGIIYKIFAVSRKHAHAINNLRNQNQVK-----KDKKAAKTLG

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chicken_2a PIMFNKAWGIVLFTIGLFPACIMLGIYIKIFVVSQKHIRVLSQTHKHKRSDMKNELSKSKDKKAAKTLS
chicken_2b PIMFNKAWGIVLFTIGLFPACIMLGIYIKIFVVSQKHIRVLSQTHKHKRSDMKNELSKSKDKKAAKTLS
liz_2 PIIFNKLWGTILFLFGLFIPGSVMIGIYAKIFAVSKKHSRLIRSKPENSGDEKHKRTSRIKDIIKAAKTLS
          *  *  *                *  *  *
human2 IVIGVFLLCWFPCCFTILLDPFLNFSTPVVLFDAITWFGYFNSTCNPLIYGFFYPWFRRALKYIILGKIF
mouse2 IVMGVFLLCWFPCCFTILLDPFLNFSTPAVLFDALTWFGYFNSTCNPLIYGFFYPWFRRALKYIILGKIF
rat2 IVMGVFLLCWFPCCFTILLDPFLNFSTPAVLFDALTWFGYFNSTCNPLIYGFFYPWFRRALKYIILGKIF
cow2 IVMGVFLLCWFPCCFTILLDPFLNFSTPVVLFDAITWFGYFNSTCNPLIYGFFYPWFRRALKYIFLGKIF
horTAAR2 TVMSVFLLCWFPCCFTILLDPFLDFSTPVVLFDAITWFGYFNSTCNPLIYGFFYPWFRRALKHIIILGKIF
miBat2 IVMGVFLLCWFPCCFTILLDPFLNFSTPVVLFDAITWFGYFNSTCNPLIYGFFYPWFRRALKYIFLGKIF
megBat2 IVMGVFLLCWFPCCFTILLDPFLNFSTPVVLFDAITWFGYFNSTCNPLIYGFFYPWFRRALKYIFLGKIF
coShrw2a IVMGVFLLCWFPCCFTILLDPFLNFSTPVVLFDAITWFGYFNSTCNPLIYGFFYPWFRRALKYIILGKIF
hdgHog2 IVMGVFLLCWFPCCFTILLDPFLNFSTPVVLFDAITWFGYFNSTCNPLIYGFFYPWFRRALKYIILGKIF
tenrec2a IVMGVFLLCWFPCCFTILLDPFLNFSTPAVLFDALTWFGYFNSTCNPLIYGFFYPWFRRALKYIILGKIF
elepht2 IVMGIFLLCWFPCCFTILLDPFLNFSTPAVLFDLITWFGYFNSTCNPLIYGFFYPWFRRALKYIILGKIF
armad2 IVMGVFLLCWFPCCFTILLDPFLNFSTPVVLFDAITWFGYLNSTCNPLIYGFFYSWFRALKYIILGKIF
Kangar2 IVMGVFLLCWFPCCFTILLDPFLNFSTPAVLFDLITWFGYFNSTFNPLIYGFFYPWFRKALKYIILGKIF
oposm2 IVMGVFLLCWFPCCFTILLDPFLNFSTPVVLFDAITWFGYFNSTFNPLIYGFFYPWFRKALKYIILGKIF
platy_2 IVMGVFLLCWFPCCFTILLDPFLNFSTPAMLFDAITWFGYLNSTCNPLIYGFFYPWFRRALKYIVLGKIF
chicken_2a VVMLAFLVCWFPCCFAILLDPFLNFSPVPLFDALNWFGYXXCTHCTLLYIT-----
chicken_2b VVMLAFLVCWFPCCFAILLDPFLNFSPVPLFDALNWFGYLNSTCNPLIYGFFYPWFRKAFKYIVTGKIF
liz_2 IVMGVFLLCWFPCCFTILLDPFLNFSTPAVLFDALNWFGYFNSTCNPLIYGFFYPWFRRALKYIILGKIF

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human2 SSCFHNTILCMQKES-----
mouse2 SSHFHNTNLFQKETE-----
rat2 SSHFHNTNLFQKETE-----
cow2 SSHFHNTNLFQKETE-----
horTAAR2 GSHFHDTNLFQKQAE-----
miBat2 -----
megBat2 SSHFHNTNLFQKETE-----
coShrw2a SSHFHNTNLFQKETE-----
hdgHog2 SSHFHNTNLFQKETE-----
tenrec2a SSHFHNTNLFQKETE-----
elepht2 SSHFHNTNLFQKETE-----
armad2 SSHFHNTNLFQKETE-----
Kangar2 SSHFHNVNLFQKNTRESENCFKLFKV
oposm2 NSHFQANLNFQKES-----
platy_2 NPGFHTNLFQKES-----
chicken_2a -----
chicken_2b NPQLRRTTKLSSE-----
liz_2 QPHFHTANLFPENQ-----

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(c) TAAR3

mouse3 MDLIYIPEDLSSCPKFGNKSCPPTNRSFRVRMIMYLFMTGAMVITIFGNLVIISISHFQKLSHPTNFLI  
rat3 MDLIYIPEDLSSCPKFGNKSCPPTNRSFRVRLIMYLLMTGAMVITIFGNLVIISISHFQKLSHPTNFLI  
cow3 MDLTYIPEDVSSCPTFGNKSCPPTNRHFHVRVIMYSIMIGAMFITIFGNLVIISISHFQKLSHPTNFLI  
horse3 MDLTYIPEDLSSCPKFGNKSCPPTNRTFHVVRVIMYSVMTGAMVITIFGNLVLIMISISYFQKLSHPTNFLI  
miBat3 MDLTYIPEDLSSCPKLGKNSCPPTNRPFQVRMIMYSIMTGAMVITIFGNLVIIMISISHFQKLSHPTNFLI  
coShrw3 MDLTYIPEDISSCPKFGNKSCPPTNRPFHVRVIMYSIMTGAMVITILGNLVIIMISISHFQKLSHPTNFLI  
hdgHog3 -----MISISHFQKLSHPTNFLI  
tenrec3 MDITSIPADLSSCPKFGNKSCPPTNRALHTRLVMSVMTAMMITILGNLVIISIAHFQKLSHPTNFLI  
eleph3 -----YH-----Y-----LWNLVIMISISHFQKLSHPTNFLI  
armad3 MDLTNIPEDLSSCPKFGNRSCPPTNRTFHVRLVIMYLLMTGAMIVTVFVGNLVIIMISISHFQKLSHPTNLLI  
Kangar3 -----  
oposm3 MDLTYIPSDLSSCPKFGNKSCPPTSRLPLSIRLIMYSFMTGAMFITIFGNLVIIMISISHFQKLSHPTNFLI  
platy\_3 MDIISIPANLSSCPKFGNLSCPPTSRLPFHVRVIMYSVMSGAMFITVFGNLVIMISISHFQKLSHPTNFLI

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mouse3 LSMATDFFLLGFVIMPYSMVRVSVESWCYFGDSFCKFHASFDMMLSLTSIFHLCSIAIDRFYAVCDPLHYT  
rat3 LSMATDFFLLGFVIMPYSMVRVSVESWCYFGDSFCKFHASFDMMLSLTSIFHLCSIAIDRFYAVCAPLHYT  
cow3 LSMATDFFLLGLVIMPYSMVRVSVESWCYFGDGFCKFHTSFDMMLSLASIFHLCSIAIDRFYAVCYPLHYT  
horse3 LSMATSDFLLGFVIMPYSMVRVSVESWCYFGDGFCKFHASFDMMLSLTSIFHLCSIAIDRFYAVCYPLHYT  
miBat3 LSMATDFFLLGSVIMPYSMVRVSVESWCYFGEFGFCKFHASFDMMLSLTSIFHLCSIAIDRFYAVCYPLHYT  
coShrw3 LSMATDFFLLGFVIMPYSMVRVSVESWCYFGDGFCKFHASFDMMLSLTSIFHLCSIAIDRFYAVCYPLHYT  
hdgHog3 LSMATDFFLLGFVIMPYSMVRVSVESWCYFGDGFCKFHASFDMMLSLTSIFHLCSIAVDRFYAVCYPLHYT  
tenrec3 LSMATDFFLLGLVIMPYSMVRVSVESWCYFGDGFCKFHASFDMMLSLTSIFHLCSIAIDRFYAVCHPLHYT  
eleph3 LSMATDFFLLGSVIMPYSMVRVSVESWCYFGDGFCKFHASFDMMLSLTSIFHLCSIAIDRFYAVCYPLHYT  
armad3 LSMATDFFLLGCVIMPYSMVRVSVESWCYFGDGFCKFHASFDMMLSLTSIFHLCSIAIDRFYAVCYPLRYT  
Kangar3 --MAITDFFLLGFVIMPYSMVRVSVESWCYFGDGFCKFHASFDMMLSLTSIFHLCSIAIDRFYAVCYPLHYT  
oposm3 LSMATDFFLLGFVIMPYSMVRVSVESWCYHFGDGFCKFHASFDMMLSLTSIFHLCCIAIDRFYAVCYPLHYT  
platy\_3 LSMATDFFLLGFVIMPYSMVRVSVESWCYFGSGFCKFHASFDMMLSLTSIFHLCSIALDRYAVCYPLHYT

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mouse3 TTMTVSMIKRLLAFCSAPALFSFGLVLSSEANVSGMQSYEILVACFNFCALTFNKFVWGTILFTTCFFTPG  
rat3 TTMTASMIKRLFFCWAAPALFSFGLVLSSEANVSGMQSYEILVACFNFCALTFNKFVWGTILFTTCFFTPG  
cow3 TTMTISMIKRLAVCWSAPALFSFGLVLSSEANVSGMQNYEILVACFNFCALAFNKFVWGTILFTTCFFTPG  
horse3 TTMTSSTIKRLLAFCSAPALFSFGLVLSSEANVSGMQSYEILVACFNFCALTFNKFVWGTILFTTCFFTPG  
miBat3 TTMTSMIKRLLAFCSAPALFSFGLVLSSEANVSGMQSYEILVACFNFCALTFNKFVWGTILFTTCFFTPG  
coShrw3 TTMTSTIKRLLAFCSAPALFSFGLVLSSEANVSGMQSYEILVACFNFCALTFNKFVWGTILFTTCFFTPG  
hdgHog3 TTMTSTIKRLLAFCSAPALFSFGLVLSSEANVSGMQSYEILVACFNFCALTFNKFVWGTILFTTCFFTPG  
tenrec3 TTMTSTIKRLLAFCSAPALFSFGLVLSSEANVAGMQGYEVLVACFKFCALTFNKFVWGTILFTTCFFTPG  
eleph3 TTMTSMIKRLLAFCSAPALFSFGLVLSSEANVSGMQSYEILVACFKFCALTFNKFVWGTILFTTCFFTPG  
armad3 ATMTSMIKRLLAFCSAPALFSFGLVLSSEANVSGMQSYEVLVACFKFCALTFNKFVWGTILFTTCFFTPG  
Kangar3 TKMTSTIKRLLAFCSAPALFSFGLVLSSEANVSGMQTYEILVGCFKFCALTFNKFVWGTILFTTCFFTPG  
oposm3 TKMTSTIKRLLAFCSAPALFSFGLVLSSEANVSGMQTYEILVACFKFCALTFNKFVWGTILFTTCFFTPG  
platy\_3 VKMTNGMIKRLAFCSAPALFSFGLVLSSEANVSGMRSYEILVACFNFCALTFNKRWATILFTTCFFTPG

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mouse3 SIMVGIGKIFIVSRHRARALSDMPANTKGAUGVKNLSKKKDRKAAKTLGIVMGVFLACWLPFCFLAVLIDP  
rat3 SIMVGIGKIFIVSRHRARALGNMPENTKGA-GRNLSKKKDRKAAKTLGIVMGVFLACWLPFCFLAVLIDP  
cow3 SVMVGIGKIFIVSKRHARVIDNMPENTKGEVRKNLSKRRKDRKAAKTLGIVMGVFLACWLPFCFLAVLIDP  
horse3 SVMVGIGKIFIVSKRHARLMSNMPENTKGEVKNLSKRRKDRKAAKTLGIVMGVFLACWLPFCFLAVLIDP  
miBat3 SIMVGIGKIFIVSKRHARVISNMPENTKEEVKNLSKKKDRKAAKTLGIVMGVFLACWLPFCFLAVLIDP  
coShrw3 SIMVGIGKIFVVSRRHARVISNMPENAKAEVKNLSKKKDRKAAKTLGIVMGVFLACWLPFCFLAVLIDP  
hdgHog3 SIMVGIGKIFIVSKRHARVISNLPENTKGEVKQTLKSKKDRKAAKTLGIVMGVFLACWLPFCFLAVLIDP  
tenrec3 SIMVGIGKIFIVSKRHARVISNMPENTKGDNRKNLSKKKDRKAAKTLGIVMGVFLACWLPFCFLAVLIDP  
eleph3 SIMVGIGKIFIVSKRHARLISNMPENTKGEKKNLSKKKDRKAAKTLGIVMGVFLACWLPFCFLAVLIDP  
armad3 SLMIGIGKIFIVSRHRARVISNMPENTKGDVKKALSKKKDRKAAKTLGIVMGVFLACWLPFCFLAVLIDP  
Kangar3 SIMIGIYAKIFVVSRRHARLISNMPKNAKEDSRKNISSKKKDRKAAKTLGIVMGVFLACWLPFCFLAVLIDP  
oposm3 SIMIGIYKIFIVSKRHARVISNMPKNAREDSRKNISSKKKDRKAAKTLGIVMGVFLACWLPFCFLAVLIDP  
platy\_3 SIMIGIYGRIFIVSKRHAQVHLNLPENTNSVKKKAISSKKKDRKAAKTLGIVMGVFLACWLPFCFLAVLIDP

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mouse3 YLDYSTPIIVLDLLVWLGYNSTCNPLIHGFFYPWFRKALQFIVSGKIFRSNSDTANLFPEAH-  
rat3 YLDYSTPIIVLDLLVWLGYNSTCNPLIHGFFYPWFRKALEHIVSGKIFRSNSDTANLFPEAH-  
cow3 YLGYSTPMIVLDLLVWLGYNSTCNPLIHGFFYPWFRKALKYIVSGKIFSSHSEANLFPEAH-  
horse3 YLDYSTPMIVLDLILVWLGYNSTCNPLIHGFFYPWFRKALKYIVSGKIFSSHSEANLFPEAH-  
miBat3 YLDYSTPIIVLDLLVWLGYNSTCNPLIHGFFYPWFRRALKYIVSGKIFSSHSEANLFPEAH-  
coShrw3 YLGYSTPIIILDLLVWLGYNSTCNPLIHGFFYPWFRKALKHIVSGKIFSSNSEANLFPEAH-  
hdgHog3 YLGYSTPIIILDLLVWLGYNSTCNPLIHGFFYPWFRKALKHIVSGKIFSSNSEANLFPEAH-  
tenrec3 YLGYSTPMVLDLILVWLGYNSTCNPLIHGFFYPWFRNALKYIVSGRIFSSHSEANLFPEAH-  
eleph3 YLDYSTPIIVLDLLVWLGYNSTCNPLIHGFFYPWFRKALKHIVSGKIFSSHSEANLFPEAH-  
armad3 YLDYSIPMLVLDLLVWLGYNSTCNPLIHGFFYPWFRKALKYIVSGKIFSSHSEANLFPEAH-  
Kangar3 YLDYSTPMVLDLLVWLGYNSTCNPLIHGFFYPWFRMLHSTFYHAKSL-AHSQYSKLVP----  
oposm3 YLGYSTPMVLDLLVWLGYNSTCNPLIHGFFYPWFRNALKYIISGKIFSSHSEANLFPEAH-  
platy\_3 YLDFSTPMIVLDLIVWLGYNSTCNPLIHGFFYPWFRNALKYIISGKIFSSHSEANLFPEAH-

(d) TAAR4

mouse4 MNTPD-PWSSPEVQFCFAAANNSSCPKARPALVVCAMYLMIGAIVMTMLGNMAVIIISIAHFQKQLHSPTN  
rat4 MNSPD-LWYSPETQFCFAAANNSSCPKARPALVVCAMYLMIGAIVMTMLGNMVVIIISIAHFQKQLHSPTN  
cow4 MNSLD-LWNPSEVQFCFALVNNSSCPNRNRSGLSACALYVVMIGAIVMTMLGNLVVIIISIAHFQKQLHSPTN  
horse4 MNSPD-IGNTQEVQFCFALVNNSSCPNRNRSGLSACALYVVMIGAIVMTMLGNLVVIIISIAHFQKQLHSPTN  
megBat4 MNSSD-LWNLTEVQFCFALVNNSSCPNRNRSGLSACALYVVMIGAIVMTMLGNLVVIIISITHFQKQLHSPTN  
dog4 MNSPD-IYNPPELQFCFALVNNSSCPNRNRSGLSACALYVVMIGAIVMTMLGNLVVIIISIAHFQKQLHSPTN  
coShrw4a MNSPD-QWSPPEVEFCFASVNNSSCPNRNRSGLSACALYVVMIGAIVMTMLGNMVFVIIISIAHFQKQLHSPTN  
tenrec4 MNSPD-PWNPPETQFCFAFVNNSSCPKNRVPVFSVFAMYVVMIGAIVMTMLGNIVVIIISIAHFQKQLHSPTN  
elephant4a MNSHD-LWNPPEVQFCFAFVNNSSCPKNRVPVFSVFAMYVVMIGAIVMTMLGNMVVIVSIAHFQKQLHSPTN  
elephant4b MSLPD-PWNSPEVQFCFAFVNNSSCPKNRVPVFSVFAMYVVMIGAIVMTMLGNMVVIVSIAHFQKQLHSPTN  
Kangar4 MNSSD-FWKQTEVQYCFDFVNNSSCPKHVRPAISVWVMYVVMIGAIVMTMLGNFVVIIISISHFQKQLHSPTN  
oposm4c MNTPN-LWKPEVQYCFDFVNNSSCPKHVRPAISVWVMYVVMIGAIVMTMLGNLVVIIISISHFQKQLHSPTN  
oposm4b MNSPD-LWNPSEVQYCFDFVNNSSCPKHVRPAISVWVMYVVMIGAIVMTMLGNLVVIIISISHFQKQLHSPTN  
oposm4a MNSPD-LWNSSEVQYCFDFVNNSSCPKHVRPAISVWVMYVVMIGAIVMTMLGNLVVIIISISHFQKQLHSPTN  
platy\_4a MNPPA-LWNPSPDVQYCFDL-VNNSSCPNRNRSGLSACALYVVMIGAIVMTMLGNFVIIISISHFQKQLHSPTN  
frog\_4a -----MVFIIISVSHFQKQLHSPTN  
frog\_4b -----MDFCSDFNISCLGTRSPASYSVMIIIVMLGAIILTTIGNLMVIIISVSHFQKQLHSPTN  
frog\_4c -----MDLCDFVNNSSCLRTNRPANYSVMFIAMFGAIILTTVGNLVIIISVSHFQKQLHSPTN  
frog\_4d MNDSDFFWNQNTNYCFQDTNNSCPKSNKELSSFSALLLFMLGAIIFTTVGNLMVIIISVSHFQKQLHSPTN  
frog\_4e -----MDFCSDFNISCLGTRSPASYSVMIIIVMLGAIILTTIGNLMVIIISVSHFQKQLHSPTN

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mouse4 FLILSMATDFFLLSCVMPFMSMIRSIESCWFYFGDLFCKVHSCDIMLCTTSIFHLCFISVDRHYAVCDPL  
rat4 FLILSMATDFFLLSCVMPFMSMIRSIESCWFYFGDLFCKVHSCDIMLCTTSIFHLCFISVDRHYAVCDPL  
cow4 FLILSMATDFFLLSCVMPFMSMIRSIESCWFYFGDLFCKVHSCDIMLCTTSIFHLCFISVDRHYAVCDPL  
horse4 FLILSMATDFFLLSCVMPFMSMIRSIESCWFYFGDLFCKVHSCDIMLCTTSIFHLCFISVDRHYAVCDPL  
megBat4 FLILSMATDFFLLSCVMPFMSMIRSIESCWFYFGDLFCKVHSCDIMLCTTSIFHLCFISVDRHYAVCDPL  
dog4 FLILSMATDFFLLSCVMPFMSMIRSIESCWFYFGDLFCKVHSCDIMLCTTSIFHLCFISVDRHYAVCDPL  
coShrw4a FLILSMATDFFLLSCVMPFMSMIRSIESCWFYFGDLFCKVHSCDIMLCTTSIFHLCFISVDRHYAVCDPL  
tenrec4 FLILSMATDFFLLSCVMPFMSMIRSIESCWFYFGDLFCKVHSCDIMLCTTSIFHLCFISVDRHYAVCDPL  
elephant4a FLILSMATDFFLLSCVMPFMSMIRSIESCWFYFGDLFCKVHSCDIMLCTTSIFHLCFISVDRHYAVCDPL  
elephant4b FLILSMATDFFLLSCVMPFMSMIRSIESCWFYFGDLFCKVHSCDIMLCTTSIFHLCFISVDRHYAVCDPL  
Kangar4 FLILSMATDFFLLSCVMPFMSMIRSIESCWFYFGDLFCKVHSCDIMLCTTSIFHLCFISVDRHYAVCDPL  
oposm4c FLILSMATDFFLLSCVMPFMSMIRSIESCWFYFGDLFCKVHSCDIMLCTTSIFHLCFISVDRHYAVCDPL  
oposm4b FLILSMATDFFLLSCVMPFMSMIRSIESCWFYFGDLFCKVHSCDIMLCTTSIFHLCFISVDRHYAVCDPL  
oposm4a FLILSMATDFFLLSCVMPFMSMIRSIESCWFYFGDLFCKVHSCDIMLCTTSIFHLCFISVDRHYAVCDPL  
platy\_4a FLILSMATDFFLLSCVMPFMSMIRSIESCWFYFGDLFCKVHSCDIMLCTTSIFHLCFISVDRHYAVCDPL  
frog\_4a FLILSLAITDCLLGLVIMPYSMVRSLTSCWFYFGDLFCKVHSCDIMLCTTSIFHLFFISVDRHYAVCDPL  
frog\_4b FLILSLAVTDFFLLGLVIMPYSMVRSLTSCWFYFGDLFCKVHSCDIMLCTTSIFHLFFISVDRHYAVCDPL  
frog\_4c FLILSLATADFLIGLVIMPYSMVRSLTSCWFYFGDLFCKVHSCDIMLCTTSIFHLFFISVDRHYAVCDPL  
frog\_4d VLVMSLAIDFLIGLVIMPYSMVRSLTSCWFYFGDLFCKVHSCDIMLCTTSIFHLFFISVDRHYAVCDPL  
frog\_4e FLILSLAVTDFFLLGLVIMPYSMVRSLTSCWFYFGDLFCKVHSCDIMLCTTSIFHLFFISVDRHYAVCDPL

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mouse4 HYVTQITTRVGVFLLISWSVPIFFAFGLVFSELNLI GAEDFVAIDCTGLCVLIFNKLVGLVLSFIAFF  
rat4 HYVTQITVGVGVFLLISWSVPIFFAFGLVFSELNLI GAEDFVAIDCTGLCVLIFNKLVGLVLSFIAFF  
cow4 HYVTKITISLVGVFLLISWSVPIFFAFGLVFSELNLI GAEDFVAIDCTGLCVLIFNKLVGLVLSFIAFF  
horse4 HYVTKITIPVIEVFLISWSVPIFFAFGLVFSELNLI GAEDFVAIDCTGLCVLIFNKLVGLVLSFIAFF  
megBat4 HYVTKITIPVIEVFLISWSVPIFFAFGLVFSELNLI GAEDFVAIDCTGLCVLIFNKLVGLVLSFIAFF  
dog4 HYVTKITIPVIEVFLISWSVPIFFAFGLVFSELNLI GAEDFVAIDCTGLCVLIFNKLVGLVLSFIAFF  
coShrw4a HYVTKITIPVIEVFLISWSVPIFFAFGLVFSELNLI GAEDFVAIDCTGLCVLIFNKLVGLVLSFIAFF  
tenrec4 HYVTKITIPVIEVFLISWSVPIFFAFGLVFSELNLI GAEDFVAIDCTGLCVLIFNKLVGLVLSFIAFF  
elephant4a HYVTKITIPVIEVFLISWSVPIFFAFGLVFSELNLI GAEDFVAIDCTGLCVLIFNKLVGLVLSFIAFF  
elephant4b HYVTKITIPVIEVFLISWSVPIFFAFGLVFSELNLI GAEDFVAIDCTGLCVLIFNKLVGLVLSFIAFF  
Kangar4 HYITKITIPVIEVFLISWSVPIFFAFGLVFSELNLI GAEDFVAIDCTGLCVLIFNKLVGLVLSFIAFF  
oposm4c HYVTKITIPVIEVFLISWSVPIFFAFGLVFSELNLI GAEDFVAIDCTGLCVLIFNKLVGLVLSFIAFF  
oposm4b HYVTKITIPVIEVFLISWSVPIFFAFGLVFSELNLI GAEDFVAIDCTGLCVLIFNKLVGLVLSFIAFF  
oposm4a HYVTKITIPVIEVFLISWSVPIFFAFGLVFSELNLI GAEDFVAIDCTGLCVLIFNKLVGLVLSFIAFF  
platy\_4a HYVTKITIPVIEVFLISWSVPIFFAFGLVFSELNLI GAEDFVAIDCTGLCVLIFNKLVGLVLSFIAFF  
frog\_4a HYCRNITNVLVFLICISWAFSCLYSGLVFSNVHTEGIQNYLATFACTGSCSLAFNKIWAIVITSAICFF  
frog\_4b HYYKICITNVLVFLISWSVSCLYSGLVFSNVHTEGIQHYIASFTCTGSCSLAFNKIWAIVITSAICFF  
frog\_4c HYYKICITNVLVFLISWSVSCLYSGLVFSNVHTEGIQHYIASFTCTGSCSLAFNKIWAIVITSAICFF  
frog\_4d HYYKICITNVLVFLISWSVSCLYSGLVFSNVHTEGIQHYIASFTCTGSCSLAFNKIWAIVITSAICFF  
frog\_4e HYYKICITNVLVFLISWSVSCLYSGLVFSNVHTEGIQHYIASFTCTGSCSLAFNKIWAIVITSAICFF

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mouse4 LPGTVMGVIYIHIFTVAQKHARQIGTGPRTKQALSESCKMKATSKKESKATKTLISVMGVFVLCWLPFFVFL  
rat4 LPGAIMVGIYIHIFTVARKHARKIGTGPRTKRALSESCKMKATSGKESKATKTLISVMGVFVLCWLPFFVFL  
cow4 LPGTVMGVIYIHIFTVARKHAKQIGTGSMKHI GSESCKMKASTKTESKATKTLISVMGVFVLCWLPFFVFL  
horse4 LPGTVMGVIYIHIFTVAQKHAKQIGTGPMKQVRSESKMKAASKKESKATKTLGIVGVFVLCWLPFFVFL  
megBat4 LPGTVMGIYLHIFTVARKHTKQIGTGPMKQVGSKSKMKTSKKEKATKTLISVMGVFVLCWLPFFVFL  
dog4 LPGTVMGVIYHIFTVARKHARQIGMGPPIKQAGSESKMKVSSKTESKATKTLISVMGVFVLCWLPFFVFL  
coShrw4a LPGTVMGVIYHIFTVARKHAKQIGAGPTVKQAGSESKMKASSKESKATKTLISVMGVFVLCWLPFFVFL  
tenrec4 LPGTVMGVIYLHIFTVARKHAQQIGTGPKVKQVGSSEKIKTSKRESKATKTLISVMGVFVLCWLPFFVFL  
elephant4a -----

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elepht4b      LPGTVMVGIIYIHIFAVARKHAKKI DVGPKMKQAGLESKIKTSSKKEKATKTLISIVMGVFLLCWLPFFVM
Kangar4      LPGTVMVGIIYIHIFSVARKHAQQLIPFLT---ESSQSK-----
oposm4c      LPGTVIIVGVYIHIFSVARKHAKQIDTLPNLKQVQGVREKSLSKNKSKATKTLISIVMGVFLCWLPPFFIL
oposm4b      LPGTVMVGVIYIHIFSVARKHAKQIDTLPNLKQAHGKVKKEKALSKEKATKTLISIVMGVFLCWLPPFFVL
oposm4a      LPGTVMVGIIYIHIFSVARKHAKQIDTLPNLK--GGEAKTKASSKKEKATKTLISIVMGVFLCWLPPFFVL
platy_4a     LPGAVMAGIYIHIFAVARRHAKQINTFPGLQQGSLESR---TIKESKATKTLISIVMGVFLCWLPPFFLL
frog_4a      MPGTMIGIYIHIFSVASKQAKLVNRQNVHTDKA--KNKLSFRAESKAAKALSIVMGVFLCWLPPFFIV
frog_4b      IPGTLMIGIYIHIFSVANKQAKHMHNHNHNIQDRPSIQIKVSVRAESKAAKTLISIVMGVFLCWLPPFFIL
frog_4c      IPGALMIGIYMHIFSVARNQAKLVHNHHSFPQDKS--KSKISVRAERKAAKTLISIVMGVFLCWLPPFFIL
frog_4d      IPGNFIIGIYIYIFSVAKKQAKIVHHYPSQDQKPNRSRIKLSLTIETKAAKTLISIVMGVFLCWLPPFSVV
frog_4e      IPGTLMIGIYIHIFSVANKQAKHMHNHNHNIQDRPSIQIKVSVRAESKAAKTLISIVMGVFLCWLPPFFIL

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mouse4       TITDPFIDFTTPEDLYNVFLWLGYNSTFNPIIYGMFYFWRKALRMIVTGTIFRSDSSTSSLHPAHP
rat4         TITDPFIGFTTPEDLYNVFLWLGYNSTFNPIIYGMFYFWRKALRMIVTGTIFRSDSSTSSLHPAHP
cow4         TITDPFINFTTPEDLYNVFLWLGYNSTFNPIIYGMFYFWRKALRTIVSGMIFHPDSSNLSIFPACA
horse4       TITDPFINFTTPEDLYNVFLWLGYNSTFNPIIYGMFYFWRRALRVIVSGRVFCPDSSTLSLFPAHA
megBat4     TITDPFINFTTPEDLYNIFLWLGYNSTFNPIIYGMFYFWRKAVRMIVTGRIFRPDSSTLSLFPAHT
dog4         TIIIDPFINFTTPEDLYNVFLWLGYNSTFNPIIYGMFYFWRKALRMIVTGTIFHPDSSTLNLYPADT
coShrw4a    TITDPFVNFSTPEDLYNAFLWLGYNSTFNPIIYGMFYFWRKALRMII TGMIFRPDSSTLSLFPAHA
tenrec4     TITDPFIDFTTPEDLYNLFWLGYNSTFNPIIYGMFYFWRKALRLIVTGMIFHPDSSTLSLPAHG
-----
elepht4b    IVTDLINF TIPENLSHAFVWLAYFNSTLNPMIYGMFYFWRKALRMIVTGTIFRPDSSTLSLFLAHS
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Kangar4     IITDPYINF TVPEDLYNAFSLWLGYNSTFNPIIYGMFYFWRKAFKMIVTGMIFHPDSSTLSLFPAHA
oposm4c     TITDPYINF TVPEDLYNAFLWLGYNSTFNPIIYGMFYFWRKAFKMIVTGMIFHPDSSTFSLFPAHA
oposm4b     TITDPYINF TVPEDLYNAFLWLGYNSTFNPIIYGMFYFWRKAFKMIVTGTIFRPDSSTLNLFPTH
oposm4a     TVIDPFLNFTTSEDEVYNAFLWLGYNSTFNPIIYGMFYFWRKSFKLI V TGRIFHADSSCLNLFPTH
platy_4a    TLVDPYTFDSASEDVYNTVLWFGYLNAINPIIYALFYFWRKRSALIVNGNIFKAGSSFSHIISV-
frog_4a     TIVDPYINFSTSEHVYSTVLWLGYNFNSALNPIIYALFYFWRKQTFQFII TGNIFKAGSSFQVLSNS-
frog_4b     TVIDPYINF SVPEDLYNVFLWLGYNFNSALNPIIYALFYFWRKQAFACIISGNILKAGSSFQLLTGV-
frog_4c     ALFDPYFNFASANGIYDIVLWLGYNINSTLNPMIYAFFYFWRKCFVLI MKGNIFNADSSSFHVLNS-
frog_4d     TIVDPYINFSTSEHVYSTVLWLGYNFNSALNPIIYALFYFWRKQTFQFII TGNIFKAGSSFQVLSNS-
frog_4e

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(e) TAAR5

human5 -----MRAVFTIQGAE-HPAAFCYQVNGSCPRTVHTLGIQLVVIYLACAAGMLIIVLGNVVFVAVSYFKA  
mouse5 -----MRAVLLPGSGE-QPTAFICYQVNGSCPRTVHPLAIQVVIYLACAVGVLITVLGNLFVVFVAVSYFKV  
rat5 -----MRAVLLPGSGE-QPAAFCYQVNGSCPRTVHPLAIRVLIYLACAVGMLITVLGNLFVVFVAVSYFKV  
cow5 -----MSVVLNQDAEE-RPETFICYQVNGSCPRTIHPLGIQLAIYILSCAAGVLIITVLGNLFVVFVAVSYFKA  
horse5b -----MSAVLDRGAE-HPAAFCYQVNGSCPRTVHPLGIQLVVIYLACAAGMLIITVLGNLFVVLAVAYFKA  
horse5a -----MSTVLDRGAE-HPAAFCYQVNGSCPRTVHPLGIQLVVIYLACAAGMLIITVLGNLFVVLAVAYFKA  
miBat5 -----MSTVLNQGAGE-HPLTFICYQVNGSCPRTVHPLGIRLTIYLACAAGIITVLGNLFVVFVAVSYFKA  
megBat5 -----MSAVLNQGAEE-YPLAFICYQVNGSCPRTVHPLGIQVTIYLVCAGVLIITVLGNLFVVFVAVSYFRV  
dog5 -----MDTVLSQGSSE-RPETFICYQVNGSCPRTVHPLDIQLAIYMACAVGMLITVLGNLFVVFVAVSYFKV  
coShrw5 -----MSATINPGAEEK-QPVALICYQVNGSCPRTIHPLGVQLAIYILCVLGMILITVLGNLFVVFVAVSYFKA  
elepht5 -----MSAVPNQGAEE-QSEAFICYQVNGSCPRTIHPLGIQLAIYILVCAAGLITVLGNLFVVFVAVSYFKA  
armad5 -----MNAVLHPGAEEK-HPVAFICYQVNGSCPRTVHPLGLQLAIYILACATGVLIITVLGNLFVVFVAVSYFKA  
Kangar5 -----  
oposm5 -----MGALQEFVSED-QPITLCYQVNGSCPRTLHPLGIQLIYILACAI GMLITVLGNLFVVFVAVSYFKA  
chicken\_5a -----MGSAQSRSEKGMILIASCYEVNGSCHRTLHPFGVHLAIYILACALGTLITVLGNLLVVIIVSHFQA  
liz\_5 MKSSNWSQSMSSVAEVPTDLLCFKINGSCYRSLYPFQIQFAIYILVCTLGVLMLVGNLLVVISIFHFVKV

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human5 LHTPTNLLLLSLALADMFLGLLVLPPLSTIRSVESCWFFGDFLCRLHTYLDTLFCLTSIFHLCF-ISIDRH  
mouse5 LHTPTNLLLLSLALADMFLGLLVLPPLSTIRSVESCWFFGDFLCRLHTYLDTLFCLTSIFHLCF-ISIDRH  
rat5 LHTPTNLLLLSLALADMFLGLLVLPPLSTIRSVESCWFFGDFLCRLHTYLDTLFCLTSIFHLCF-ISIDRH  
cow5 LHTPTNLLLLSLALADMFLGLLVLPPLSTIRSVESCWFFGDFLCRLHTYLDTLFCLTSIFHLCF-ISIDRH  
horse5b LHTPTNLLLLSLALADLLGLLVLPFSTIRSVESCWFFGDFLCRLHTYLDTLFCLASVFHLCF-ISIDRH  
horse5a LHTPTNLLLLSLALADLLGLLVLPFSTIRSVESCWFFGDFLCRLHTYLDTLFCLTSIFHLCF-ISIDRH  
miBat5 LHTPTNLLLLSLALADMFLGLLVLPPLSTIRSVESCWFFGDFLCRLHTYLDTLFCLVSIHLCF-ISIDRH  
megBat5 LHTPTNLLLLSLALADMFLGLLVLPPLSTIRSVESCWFFGDFLCRLHTYLDTLFCLTSIFHLCF-ISIDRH  
dog5 LHTPTNLLLLSLALADMFLGLLVLPPLSTIRSVESCWFFGDFLCRLHTYLDTLFCLTSIFHLCF-ISIDRH  
coShrw5 LHTPTNLLLLSLALADMFLGLLVLPPLSTIRSVESCWFFGDFLCRLHTYLDTLFCLTSIFHLCF-ISIDRH  
elepht5 LHTPTNLLLLSLALADMFLGLLVLPPLSTIRSVESCWFFGDFLCRLHTYLDTLFCLTSIFHLCF-ISIDRH  
armad5 LHTPTNLLLLSLALADMFLGLLVLPPLSTIRSVESCWFFGDFLCRLHTYLDTLFCLTSIFHLCF-ISIDRH  
Kangar5 -----MHTYLDTLFCLTSIFHLMYIISIDRH  
oposm5 LHTPTNLLLLSLALADMFLGLLVLPFSTIRSVESCWFFGDFLCRLHTYLDTLFCLTSIFHLCF-ISMDRH  
chicken\_5a LHTPTNLLLLSLALADMFLGLLVLPFSTIRSVESCWFFGDFLHFTFLDTLFCCLTSIFHLCF-ISIDRH  
liz\_5 LHTPTNLLLLSLALADLLGLTVLPFSAIRSVESCWFFGDFLHFTFLDTLFCCLTSIFHLCF-ISIDRH

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human5 CAICDPLLYPSKFTVRVALRYILAGWVPAAYTSLFLYTDVVETRLSQWLEEMPCVGSQQLLNKFWGWL  
mouse5 CAICDPLLYPSKFTVRTALRYIVAGWGI PAAYTAFFLYTDVVERALSQWLEEMPCVGSQQLLNKFWGWL  
rat5 CAICDPLLYPSKFTVRVALRYIAGWGI PAAYTAFFLYTDVVERALSQWLEEMPCVGSQQLLNKFWGWL  
cow5 CAICEPLLYPSKFTVRVALRYIAGWVPAAYTAFLLYTDMAERGLHLWLEEMPCVGSQQLLNKFWGWL  
horse5b CAICEPLLYPSKFTVRVALRYILAGWVPAAYTALFLYTDVVERGLSQWLEEMPCVGSQQLLNKFWGWL  
horse5a CAICEPLLYPSKFTVRVALRYIAGWVPAAYTALFLYTDVVERGLSQWLEEMPCVGSQQLLNKFWGWL  
miBat5 CAICEPLLYPSKFTVRVALRYIAGWVPAAYTAFVYTDVVERGLSQWLEEMPCVGSQQLLNKFWGWL  
megBat5 CAICEPLLYPSKFTVKVAFRIFILAGWMPAAYTAFIYTDVVERGLSQWLEEMPCVGSQQLLNKFWGWI  
dog5 CAICEPLIYPSKFTVRVAVRYILAGWGI PAAYTAFFLYTDVVENGLSQWLEEMPCVGSQQLLNKFWGWL  
coShrw5 CAICEPLIYPSKFTVRVAFRIFILAGWVPAAYTAFFLYTDVDRALSEWLEEMPCVGSQQLLNKFWGWL  
elepht5 CAICDPLLYPSQFTLRVAVTYILAGWMPAAYTAVFLYTDVVERGLSQWLEEMPCVGSQQLLNKFWGWL  
armad5 CAICEPLLYPSKFTVRVALRYIAGWVPAAYTAFFLYTGVERGLSQWLEELPCIGSQQLLNKFWGWL  
Kangar5 CAICNPLLYPTKFTVKVAFRIFIVGWGLPATYTAFFVYTDVVEEGLGMLNEMPCVGSQQLLNKFWAWL  
oposm5 CAICDPLLYPTKFTVKVAFRIFIMVWGLPAAYTAFFLYTDVVEEGLGMLNEMPCVGSQQLLNKFWGWL  
chicken\_5a CAICDPLLYPTKFTLRVACMIGVWAVPMVYTSVFLYTKEIAEGLGHFLQDVPVGSQQLLNKFWGWL  
liz\_5 CAICDPLLYPTKFTVRVACTYIAGWVGPVYVTSVFLYSKIIEESLDHFLQDMPCIGSQQLLNKFWGWI

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human5 NFPLFFVPCIMISLYVKIFVAVTRQAQQITLTKSL-----AGAAKHERKAAKTLGIAVGIYLLCWLP  
mouse5 NFPAFFVPCIMISLYLKFVAVTRQAQQIRTLSQSL-----AGAVKREKKAAKTLGIAVGIYLLCWLP  
rat5 NFPAFFIPCLIMISLYLKFVAVTRQAQQIRTLSQSL-----SGAVKREKKAAKTLGIAVGIYLLCWLP  
cow5 NFPVFFFPCFIMISLYVKIFVAVTRQAQQINLTKSL-----AGAAKREKKAAKTLGIAVGIYLLCWLP  
horse5b NFPVFFFPCIMISLYGKIFVAVTRQAQQISTLSRSL-----AGAAKREKKAAKTLGIAVGIYLLCWLP  
horse5a NFPVFFFPCIMISLYVKIFVAVTRQAQQINLTKSL-----AGAAKREKKAAKTLGIAVGIYLLCWLP  
miBat5 NFPVFFFPCIMISLYVKIFVAVTRQAQQISALNKS-----AGAAKREKKAAKTLGIAVSIYLLCWLP  
megBat5 NFPVFFFPCFIMISLYVKIFVAVTRQAQQISSLSKSL-----AGAAKREKKAAKTLGIAVGIYLLCWLP  
dog5 NFPVFFFPCIMISLYVKIFVAVTRQAQQISTLSKNL-----AGAAKREKKAAKTLGIAVGIYLLCWLP  
coShrw5 NFPVFFFPCIMISLYVKIFVAVTRQAQQISTLSKSQ-----DGASKREKKAAKTLGIAVGIYLLCWLP  
elepht5 -----  
armad5 NFPVFFLPCLIMISLYVKIFVAVTRQAQQISNLSRKL-----AGAAKREKKAAKTLGFDGSHVPVPLAP  
Kangar5 NFPVFFFPCVIMISLYVKIFIVANRQAQQISTIDRDMG-----QTGASKREKKAAKTLGIAVGIYLLCWLP  
oposm5 NFPVFFFPCVIMISLYVKIFIVANRQAQQISTMSKGTGTSQGIGASKREKKAAKTLGIAVSIYLLCWLP  
chicken\_5a NFPVFFFPCITIALYVKIFIVANRQARLNNMNSFGAHLH-RGASRSERRAAKTLGAVGVYLLCWLP  
liz\_5 NFPVFFLPCLIMIGLYVKIFIVANKQAKQISNMTNRTGNPQHQLGATKREKKAAKTLGIAVGIYLLCWLP

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human5 FTIDTMVDSLLHFI TPPLVDFIIFWFAFNSACNPIIYVFSYQWFRKALKLLTSQKVFSPQTRTVLDYQE  
mouse5 FTVDTLVDSLLNFITPPLVDFIIFWFAFNSACNPIIYVFSYRWRFRKALKLLSREIFSPRTPVLDYHD  
rat5 FTVDTLVDSLLNFVTPPLVDFIIFWFAFNSACNPIIYVFSYRWRFRKALKLLSREIFSPRTPVADLFHD  
cow5 FTVDTMIDSLNFITPPLVDFIIFWFAFNSACNPIIYVFPYRWRFRKALKLLSREIFSPRTPVTDLYQD

horse5b	FTFDTMVDSELLNFITPPLVFDIFSWFAYFNSACNPIIYVFSYWFRKALKLFLSREIFSPRTPTTDLYQE
horse5a	FTIDTMVDSELLNFITPPLVFDVFIWFAYFNSACNPIIYVFSYRWFKALKLFLSREIFTPTPTTDLYQE
miBat5	FTVDTLVDSLLNFITPPLVFDIFIWLAYFNSACNPIIYVFSYRWFKALKLILSQEVFSPRTPTTDLYRE
megBat5	FTIDTLVDSLLNFVTPPLVFDIFIWFAFNSACNPIIYVFSYRWFKALTLILSREIFSPRTLTTIDLYQE
dog5	FTIDTLVDSLLNFITPPLVFDIFIWFAFNSACNPIIYVFSYRWFKALKLCLSQEIFSPTPTTDLYQE
coShrw5	FTIDTLVDSLLNFITPPLVFDIFIWFAFNSACNPIIYVFSYRWFKALKLILSRELFSPRTPTTDLYQE
elepht5	-----
armad5	-----
Kangar5	FTIDTLVDSLLNFITPPLVFDIFIWFAFNSACNPLIYVFSYSGSRKL-----
oposm5	FTIDTLVDSLLNFITPPLVFDIVIWFAFNSACNPLIYVFSYRWFKALKLVLSREVFSPTPTTDLYQD
chicken_5a	FTIDTMIDSLLNFITPPVLFDTLIWFAYFNSACNPLIYVFSYHWFRAVKLVLTQGIFCSRTSRVDLYQ-
liz_5	FTIDTIVDSLDFITPPVVFDVLIWFAYFNSACNPLIYVFSYHWFRAVKLVLTRQIFSAQTCTIDLYQE
human5	-
mouse5	-
rat5	-
cow5	-
horse5b	-
horse5a	-
miBat5	-
megBat5	-
dog5	-
coShrw5	-
elepht5	-
armad5	-
Kangar5	-
oposm5	-
chicken_5a	-
liz_5	E

(f) TAAR6

human6a -----MSSNSSLLVAVQLCYANVNGSCVKIPFSPGSRVILYIVF  
mouse6 -----MGSNSSPPTVLQLCYENVTGSCVKTPYSPGSRVILYAVF  
rat6 -----MGSNSSPPAVLQLCYENVNGSCVKTPYSPGPRVLLYAVF  
cow6d -----MSSNSSPTAAVQLCYEHLNGSCVKTPYSPASRVILYVMVY  
cow6a -----MSSNSSPNAAVQLCYEHLNGSCVKTPFPLPTSQVILYTVY  
cow6e -----MSSNSSPTAAVQLCYEHLNGSCVKTPYSPASRVILYVMVY  
cow6f -----MSSNSSPTAAVQLCYEHLNGSCVKTPYSPASRVILYVMVY  
cow6g -----M-SNSSPTAAVQLCYEHLNGSCVKTPYSPASRVILYVMVY  
horse6 -----MSDHWSPPAEQLCYENVTGSCVKTPYSPGPRVLLYGVF  
megBat6i -----MSSNSSPPAAEALCCENVTRSCVKTPYSPGCLVLCALF  
megBat6g MFSPPGILKLESHGRDDQEGPNSANVKNSVMSSNSSPPAAAALYENMTGSCVKTPYSPDPRVLYLTLF  
megBat6f -----MSSNSSPPAAEALYENVTEGSCVKMPSSSGPRLVLYALF  
megBat6c MFSPPGKLLKLETHCSRDNKEGPNSPNVKRSIMSSDSPAEEALCCENVTRSCVKTPYSLGCPCLVLCALF  
coShrw6 -----MSSNSSPPAALQFCYENVNGSCVKTPYSPGSRVILYAVF  
hdgHog6 -----MMNSNLSTPADLQLCYENVNGSCLKLPYSPGPRMILYAVF  
elepht6 -----MSPSVNSSTMSSASPPAPEQLCYENVGSCVKSPYSPGPRVLYSVF

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human6a GFGAVLAVFGNLLVMISILHFKQLHSPTNFLVASLACADFLVGVTVMPFMSVVRTVESCWYFGRSFCFTFHT  
mouse6 GFGAVLAVFGNLLVMISILHFKQLHSPTNFLIASLACADFGVGISVMPFMSVRSIESCWYFGRSFCFTFHT  
rat6 GFGAVLAVFGNLLVMISILHFKQLHSPTNFLIASLACADFWGVGVMPFMSVRSIESCWYFGRSFCFTFHT  
cow6d GFGAVLAVFGNLLVMISILHFKQLHSPTNFLIASLACTDFLVGVTVMPFMSVRSVESC-YFGQSFALHT  
cow6a GFGAVLAVFGNLLVMISILHFKQLHSPTNFLIASLACADFLVGVTVMPFMSVRSVESCWYFGQTFCTFHT  
cow6e GFGAVLAVFGNLLVMISILHFKQLHSPTNFLIASLACTDFLVGVTVMPFMSVRSVESCWYFGQTFCTFHT  
cow6f GFGAVLAVFGNLLVMISILHFKQLHSPTNFLIASLACTDFLVGVTVMPFMSVRSVESCWYFGQTFCTFHT  
cow6g GFGAVLAVFGNLLVMISILHFKQLHSPTNFLIASLACADFLVGVTVMPFMSVKSVEESCWYFGQTFCTFHT  
horse6 GLGAVLAVLGNLLVMISILHFKQLHSPTNFLIASLACADFLVGVAVMPFMSVRSVESCWYFGRSFCFTFHT  
megBat6i GFETVLAVFGNLLVMISVLHFKQLHSPTNFLIDSLTYADFLVGVVMPYMSVRSVESCWYFGRSFCFTFHT  
megBat6g GYGAVLAVFGNLLVMISVLHFKQLHSPTNFLISSLACADFLVGVTVMPFMSVRSVESCWYFGRSFCFTFHS  
megBat6f GFGTAVLAVFGNLLVMISVQYFKQLHSLTNFLIASLTYADFLVYVAVLPPFMSVRSVKSHWYFRESFCFTFHT  
megBat6c GFETVLAVFGNLLVMISVLHFKQLHSPTNFLIDSLTYADFLVGVVMPYMSVRSVESCWYFGRSFCFTFHT  
coShrw6 GLGAVLAVFGNLLVMISILHFKQLHSPTNFLICSLACADFLVGVTVMPFMSVRSVESCWYFGRSFCFTFHT  
hdgHog6 GLGAVLAVFGNFLVMISILHFKQLHSPTNFLIASLACADFLVGVTVMPFMSVRSIESCWYFGRSFCFTFHT  
elepht6 GCGALLAVFGNLLVMISVLHFRQLHSPTNFLISSLACADFLVGVTVMPFMSVRLVESCWYFGDSFCIFHT

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human6a CCDVAFCYSSLFHLCFISIDRYIAVTDPLVYPTKFTVSVSGICISVSWILPLMYSGAVFYTGVDGGLLEE  
mouse6 CCDVAFCYSSLFHLFSFISIDRYIAVTDPLVYPTKFTVSVSGICIGVSWILPLVYSGAVFYTGVDGGLLEE  
rat6 CCDVAFCYSSLFHLFSFISIDRYIAVTDPLVYPTKFTVSVSGICISISWILPLAYS GAVFYTGVDGGLLEE  
cow6d CFDAVAFCYSSLFHLFSFISIDRYIAVTEPLIYPIKFTVSVSGICISISWILPLTYS GAVFYTGANEKGLLEE  
cow6a CCDVAFCYSSLFHLFSFISINRYIAVTDPLVYPTKFTVSVSGICISISWILPITYS GAVFYTGANEKGLLEE  
cow6e CFDAVAFCYSSLFHLFSFISIDRYIAVTDPLVYPTKFTVSVSGICISISWILPLTYS GAVFYTGANEKGLLEE  
cow6f CCDVAFCYSSLFHLCFISIDRYIAVTEPLVYPTKFTVSVSGICISISWILPITYS GAVFYTGANEKGLLEE  
cow6g CFDTAFCYSSLFHLCFISIDRYIAVTDPLIYPTKFTVSVSGICISISWILPLTYS GAVFYTGANEKGLLEE  
horse6 CCDVAFCYSSLFHLCFISIDRYIAVTDPLVYPTKFTASVSGMCSVSIWILPLVYSGAVFYTGAYDDGGLLEE  
megBat6i CCDVAFCYSSLFYLFCFISIDRYIAVTDPLIYPTKFTVSVSGICISISSILRVAYPGAVFYTGANDDQGLLEE  
megBat6g YCDVAFCFSSLFHLCFISIDRYIAVTDPLIYPTKFTVSVSGICINISWILPIAYS GALFYSGTDDGGLLEE  
megBat6f CCDAVAFCYSSLFHLCFISIDRYIAVTDPLIYPTRFVSVSGIYISIS-ILPIAYS GAVFYSGAYDDGGLLEE  
megBat6c CCDVAFCYSSLY-LCFISIDRYIAVTDPLIYPTKFTVSVSGICISISSILRVAYLVACSTLAPMMM----  
coShrw6 CCDVAFCYSSLFHLCFISIDRFIAVTDPLVYPTKFTVSVSGICISISWILPLVYSGAVFYTGAYDDGGLLEE  
hdgHog6 CCDVAFCYSSLFHLCFISIDRYIAVTDPLVYPTKFTVSVSGMCI GTSWILPLVYSGGVFYTG-----  
elepht6 CCDVAFCYSSLFHLCFISIDRYIAVTDPLAYPTKFTVSVSGICIGLSWILPITYS GAVFYTGANDDGLLEE

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human6a LSSALNCIGGCQTVNQNWVLDLDFLSFFIPTFIMI ILYGNIFLVARQQA KKIENIGSKTESSESYSKARV  
mouse6 LSSALNCVGGCQVVVNQNWVLDLDFLSFLIPTLVMI ILYGNIFLVARQQA KKIENIGSKTESSESYSKARV  
rat6 VSDAVNCVGGCQVVVNQNWVLDLDFLSFLIPTLVMI ILYGNIFLVARQQA KKIETVGNKAESSESYSKARV  
cow6d LSSALNCVGGCQTVANQNWVLDLDFLSFFIPTLVMI ILYSNIFLVARQQA KKIENIGSKTDSSESYSKSRV  
cow6a LSSVLCNAGGCQIVINQNWVLDLDFLSFFIPTFVMI ILYCNIFLVARQQA KKIENISSKRESSESYSKSRV  
cow6e LSSALNCAGGCQMVVNQNWVLDLDFLSFFIPTLVMI ILYSNIFLVARQQA KKIENISSKRESSESYSKSRV  
cow6f LSSALNCVGGCQIVINQNWVLDLDFLSFFIPTFVMI ILYCNIFLVARQQA KKIENISSKRESSESYSKSRV  
cow6g LSHALNCAGGCQTVNQNWVLDLDFLSFFIPTLVMI ILYCNIFLVARQQA KKIENIGSKTDSSESYSKSRV  
horse6 LSSAVNCVGGCQTVNQNWVLDLDFLSFFIPTLVMI ILYSNIFLVARQQA KKIESTGKTESLSDYSKSRV  
megBat6i LASALNCIGGCQTVANQNWVLDLDFVFFIPTLVMI ILYSNIFVARQQA KRMQNTAGNTELSSESYSKSRV  
megBat6g LASALNCTGSCQRVVVNQNWVLDLDFLSFFIPTLVNDHSL-----  
megBat6f LASALNCIGGCQTVINQNWVLDLDFLSFFIPTLITI ILYSNIFLVARQQA KRMNTTSNTESESSESYSKSRV  
megBat6c -----  
coShrw6 LSNVAVNCVGGCQTVINQNWVLDLFAFFIPSLVMVILYSNIFLVARQQA KKIENISSKTESSESYSKSRV  
hdgHog6 -----  
elepht6 LSSALNCVGGCQTVNQNWVLDLDFLSFFIPTLVMI ILYANIFLVARQQA KKIAT--RESSLSESYSKARV

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human6a ARREKAAKTLGVTVAFMISWLPYSIDSLIDAFMGFITPACIYIEICWCAYYNSAMNPLIYALFYPPWFR  
mouse6 ARREKAAKTLGITVAFMISWLPYSIDSLIDAFMGFITPAYIYIEICWCAYYNSAMNPLIYALFYPPWFK  
rat6 ARREKAAKTLGITVAFMISWLPYSIDSLIDAFMGFITPAYIYIEICWCAYYNSAMNPLIYALFYPPWFK  
cow6d AKREKAAKTLGITVAFMISWLPYSIDSLIDAFMGFITPAYIYIEICWCAYYNSAMNPLIYALFYPPWFR

cow6a	AKRE <b>R</b> KA <b>A</b> AKTLG <b>I</b> TV <b>I</b> AFMISWLPYSIDSL <b>I</b> DAFMGFITPAYI <b>Y</b> IEIC <b>C</b> W <b>C</b> TY <b>N</b> SAMNPLI <b>Y</b> ALFY <b>P</b> W <b>F</b> R
cow6e	AKRE <b>R</b> KA <b>A</b> AKTLG <b>I</b> TV <b>I</b> AFMISWLPYSIDSL <b>I</b> DAFMGFITPAYI <b>Y</b> IEIC <b>C</b> W <b>C</b> AY <b>N</b> SAMNPLI <b>Y</b> ALFY <b>P</b> W <b>F</b> R
cow6f	AKRE <b>R</b> KA <b>A</b> AKTLG <b>I</b> TV <b>I</b> AFMISWLPYSIDSL <b>I</b> DAFMGFITL <b>A</b> YI <b>Y</b> IEIC <b>C</b> W <b>C</b> TY <b>N</b> SAMNPLI <b>Y</b> ALFY <b>P</b> W <b>F</b> R
cow6g	AKRE <b>R</b> KA <b>A</b> AKTLG <b>I</b> TV <b>I</b> AFMISWLPYSIDSL <b>I</b> DAFMGFITPAYI <b>Y</b> IEIC <b>C</b> W <b>C</b> AY <b>N</b> SAMNPLI <b>Y</b> ALFY <b>P</b> W <b>F</b> R
horse6	AKRE <b>R</b> KA <b>A</b> AKTLG <b>V</b> TV <b>V</b> AF <b>T</b> ISWLPYSIDSL <b>I</b> DAFMGFITPAYI <b>Y</b> IEIC <b>C</b> W <b>G</b> AY <b>N</b> SAVNPLI <b>Y</b> ALFY <b>P</b> W <b>F</b> R
megBat6i	AKRE <b>R</b> KA <b>A</b> AK <b>I</b> LG <b>V</b> TV <b>V</b> AFMISWVPYSIDSL <b>I</b> DAFMGFITPAYI <b>H</b> EIC <b>C</b> W <b>C</b> AY <b>-----</b> EL <b>F</b> N <b>L</b> CF <b>I</b>
megBat6g	ARRE <b>R</b> KA <b>A</b> AKTLG <b>V</b> TV <b>V</b> AFMISWLPYSIDSL <b>I</b> EASMGFITPVYI <b>Y</b> E <b>I</b> YPW <b>C</b> AY <b>N</b> SAMNPLI <b>Y</b> ALFY <b>P</b> W <b>F</b> R
megBat6f	<b>---GRKN---</b>
coShrw6	ARRE <b>R</b> KA <b>A</b> AKTLG <b>I</b> TV <b>I</b> AF <b>L</b> ISWLPYSIDSL <b>I</b> DA <b>F</b> VGFITPAYI <b>Y</b> IEIC <b>V</b> W <b>C</b> AY <b>N</b> SAMNPLI <b>Y</b> ALFY <b>P</b> W <b>F</b> R
hdgHog6	<b>-----</b>
elepht6	AKRE <b>R</b> KA <b>A</b> AKTLG <b>I</b> TV <b>V</b> AFMISWLPYSIDSL <b>I</b> DAYMGFITPAYI <b>Y</b> IEIC <b>C</b> W <b>C</b> AY <b>N</b> SAMNPLI <b>Y</b> ALFY <b>P</b> W <b>F</b> R

human6a	KAIKVI <b>V</b> TG <b>Q</b> VLK <b>N</b> SSATM <b>N</b> LFSE <b>H</b> I
mouse6	KAIKVIMSG <b>Q</b> VFK <b>N</b> SSATM <b>N</b> LFSE <b>Q</b> I
rat6	KAIKVIMSG <b>Q</b> VFK <b>N</b> SSATM <b>N</b> LFSE <b>Q</b> I
cow6d	KAIKVIVSG <b>W</b> VFKD <b>S</b> SGSM <b>N</b> LSSE <b>Q</b> M
cow6a	KAIKVIVSG <b>V</b> FK <b>N</b> GSAS <b>M</b> NLFSE <b>Q</b> M
cow6e	KAIQVIVSG <b>R</b> VFKD <b>S</b> SGSM <b>N</b> LSSE <b>Q</b> M
cow6f	KAIKVIVSG <b>V</b> FK <b>N</b> GSAS <b>M</b> NLFSE <b>--</b>
cow6g	KAIKVIVSG <b>Q</b> VFK <b>N</b> SSAS <b>M</b> NLSSE <b>--</b>
horse6	KAIKVIVSG <b>Q</b> V <b>F</b> QD <b>S</b> SAS <b>M</b> NLFSD <b>Q</b> R
megBat6i	L <b>P</b> M <b>-----</b> V
megBat6g	<b>-----</b> Q
megBat6f	KALKVIVSG <b>W</b> VFK <b>H</b> ISSAM <b>I</b> LF <b>F</b> EH <b>M</b>
megBat6c	<b>-----</b>
coShrw6	KAIYIFVSG <b>K</b> VFKD <b>S</b> SAS <b>M</b> NLSSE <b>Q</b> T
hdgHog6	<b>-----</b>
elepht6	KS <b>I</b> KLIVSG <b>Q</b> VL <b>K</b> D <b>H</b> SATM <b>N</b> LFSE <b>Q</b> M

(g) TAAR7

mouse7a MDKLVDFHFLSDQSRMTNEDLFSATSTELCYENLNRSQVRSFYSPGPRLLILYAVFGFGAALAVCGNLLVMT  
mouse7b MATDNDSFPWDQDSILSSDMFSATSTELCYENLNRSQVRSFYSPGPRLLILYAVFGFGAALAVCGNLLVMT  
mouse7d MATGDDSPFPWDQDSILSRDLFSATSTELCYENLNRSQVRSFYSPGPRLLILYAVFGFGAVLAVCGNLLVMT  
mouse7e MATGDDSFLLWDQDSILSRDLFSATSAELCYENLNRSQVRSFYSPGPRLLILYAVFGFGAVLAVCGNLLVMT  
mouse7f MSIADETVSNQDSILSRDLFSATSAELCYENLNRSQVRSFYSPGPRLLILYAVFGFGAVLAVCGNLLVMT  
rat7a MDKLVDFNFLSGQSRMTSEDLSSASSPQLCYENLNRSQVRSFYSPGPRLLILYAVFGFGAVLAVCGNLLVMT  
rat7b MATDDDRFPWDQDSILSRDLLSASSMQLCYEKLNRSCVRSFYSPGPRLLILYAVFGFGAVLAVCGNLLVMT  
rat7c MATDDDSFPWDQDSILSRDLLSASSLQLCYENLNRSQVRSFYSPGPRLLILYAVFGFGAVLAVCGNLLVMT  
rat7d MRVDDDRFPWDQDSILSRDLLSASSLQLCYENLNRSQVRSFYSPGPRLLILYAVFGFGAVLAVCGNLLVMT  
rat7e MATDDASFPWDQDSILSRDLLSASSQLCYENLNRSQVRSFYSPGPRLLILYAVFGFGAVLAVCGNLLVMT  
rat7g MATDDGSFPWTQESILSRDLLSASSPQLCYENLNRSQVRSFYSPGPRLLILYAVFGFGAVLAVCGNLLVMT  
rat7h MATDDSFSPWDQDSILSRDLLSASSPQLCYENLNRSQVRSFYSPGPRLLILYAVFGFGAVLAVCGNLLVMT  
cow7g -----MNSSSPSVAAVQLCYKHLNGSCVKTPYSLGPRLLILYTVFIFGAVLAVFGNLLVMI  
cow7f -----MSSASPSAAAVQLCYEHLNGSCVKTPYSPGPRLLILYTVFIFGAVLAVFGNLLVMI  
cow7e -----MNSSSSTVAAVQLCYEHLNGSCVKTPYSPAPRLLILYTVFIFGAVLAVFGNLLVMI  
cow7d -----MSSASPSAAAVQLCYEHLNGSCVKTPCSPGPRLLILYTVFIFGAVLAVFGNLLVMI  
cow7c -----MSSASPSAAAVQLCYEHLNGSCVKTPYSPGPRLLILYTVFIFGAVLAVFGNLLVMI  
cow7b -----MSSASPSAAAVQLCYEHLNGSCVKTPYSPGPRLLILYTVFIFGAVLAVFGNLLVMI  
cow7k -----MNSSSSTVAAVQLCYEHLNGSCVKTPYSPAPRLLILYTVFIFGAVLAVFGNLLVMI  
horse7b ---MTASPGIRTETPEQGVASPAALQCYENLNRSQVRSFYSPGPRLLILYAVFGFGAVLAVFGNLLVMI  
megBat7o -----MGSDLFPAAEQQLCFENLNASCVKISYSPGPRLLILYTVFCFGSWLAVFGNLLVMI  
megBat7n -----MGSDLFPAAEQQLCFENLNASCVKISYSLGPRLLILYTVFCFGSWLAVFGNLLVMI  
megBat7m -----MGSDLFPAAEQQLCFENLNASCVKISYSPGPRLLILYTVFCFGSWLAVFGNLLVMI  
megBat7l -----MGSDLFPAAEQQLCFENLNASCVKISYSPGPRLLILYTVFCFGSWLAVFGNLLVMI  
megBat7k -----MGSDLFPAAEQQLCFENLNASCVKISYSPGPRLLILYTVFCFGSWLAVFGNLLVMI  
megBat7j -----MGSDLFPAAEQQLCFENLNASCVKISYSPGPRLLILYTVFCFGSWLAVFGNLLVMI  
megBat7i -----MGSDLFPAAEQQLCFENLNASCVKISYSPGPRLLILYTVFCFGSWLAVFGNLLVMI  
megBat7h -----MGSDLFPAAEQQLCFENLNASCVKISYSPGPRLLILYTVFCFGSWLAVFGNLLVMI  
megBat7q -----MGSDLFPAAEQQLCFENLNASCVKISYSPGPRLLILYTVFCFGSWLAVFGNLLVMI  
megBat7g -----MGSDLFPAAEQQLCFENLNASCVKISYSPGLRLLILYTVFCFGSWLAVFGNLLVMI  
megBat7f -----MGRDFFTSAAEQQLCFENLNASCVKISYSPGLRLLILYTVFCFGSWLAVFGNLLVMI  
megBat7e -----MGSDLFPAAEQQLCFENLNASCVKISYSPGPRLLILYTVFCFGSCLAVSGNLLVMI  
megBat7d -----MGSDLFPAAEQQLCFENLNASCVKISYSPGPRLLILYTVFCFGSCLAVFGNLLVMI  
megBat7c -----MGSDLFPAAEQQLCFENLNASCVKISYSPGPRLLILYTVFCFGSWLAVFGNLLVMI  
megBat7b -----MGSDLFPAAEQQLCFENLNASCVKISYSPGLRLLILYTVFCFGAWLAVFGNLLVMI  
megBat7a -----MGSDLFPAAEQQLCFENLNASCVKISYSPGPRLLILYTVFCFGSWLAVFGNLLVMI  
coShrw7a -----MSGDSSPAAAVELCYENLNRSQVRSFYSPGPRLLILYAVFGFGVLLTIFGNLMVMI  
coShrw7b -----MSGDSSPAAAVELCYENLNRSQVRSFYSPGPRLLILYAVFGFGVLLTIFGNLMVMI  
hdgHog7b -----MSSDIPPPAVQLCYENLNRSQVRSFYSPGPRLLILYAVFGFGVLLTIFGNLLVMI  
hdgHog7a -----MSSDIPPEAVQLCYENLNRSQVRSFYSPGPRLLILYAVFGFGVLLTIFGNLLVMI  
tenrec7a -----MSTDEAVHLCYENLNRSQVRSFYSPGPRLLILYAVFGFGVLLTIFGNLLVMI  
tenrec7b -----MNADEAVHLCYENLNRSQVRSFYSPGPRLLILYAVFGFGVLLTIFGNLLVMI  
elepht7a -----MSTELSPPAVQLCYENLNRSQVRSFYSPGPRVMLYLAVFGSGAVLAVFGNLLVMI  
elepht7b -----MSNDWSPPAVQLCYENLNRSQVRSFYSPGPRVMLYLAVFGSGAVLAVFGNLLVMI  
armad7a -----MSSDLSPPAVQLCYEDLNRSQVRSFYSPGPRVLYLAVFGSGAVLAVFGNLLVMI

\* \* \* \* \*

mouse7a SILHFRQLHSPANFLVASLACADFLVGLTVMPPFTVRSVEGCWYFGE SYCKFHSCFEGSFCYSSIFHLCF  
mouse7b SILHFRQLHSPANFLVVSACADFLVGLTVMPPFTVRSVEGCWYFGE SYCKLHTCFDVSFCYCSIFHLCF  
mouse7d SILHFRQLHSPANFLVASLACADFLVGMVMPFMSVRSVEGCWYFGE SYCKFHSCFEGSFCYSSIFHLCF  
mouse7e SILHFRQLHSPANFLVASLACADFLVGLTVMPPFTVRSVEGCWYFGE IYCKLHTCFDVSFCYSSIFHLCF  
mouse7f SILHFRQLHSPANFLVASLACADFLVGMVMPFMSVRSVEGCWYFGD SYCKLHTCFDVSFCYCSIFHLCF  
rat7a SILHFRQLHSPANFLVASLACADFLVGLTVMPPFTVRSVEGCWYFGD TYCKFHSCFEGSFCYSSIFHLCF  
rat7b SILHFRQLHSPANFLVASLACADFLVGLTVMPPFMSVRSVEGCWYFGD IYCKFHSSFDGFCYSSIFHLCF  
rat7c SILHFRQLHSPANFLVASLACADLLVGLTVMPPFMSVRSVEGCWYFGN TYCKFHSCFEGSFCYSSIFHLCF  
rat7d SILHFRQLHSPANFLVASLACADLLVGLTVMPPFMSVRSVEGCWYFGD TYCKLHTSFDVSFCYCSIFHLCF  
rat7e SILHFRQLHSPANFLVASLACADLLVGLTVMPPFMSVRSVEGCWYFGD IYCKFHSSFDVSFCYCSIFHLCF  
rat7g SILHFRQLHSPANFLVASLACADLLVGLTVMPPFMSVRSVEGCWYFGD SYCKLHSCFDISFCSSLLHLCF  
rat7h SILHFRQLHSPANFLVASLACADLLVGLTVMPPFMSVRSVEGCWYFGD SYCKLHTSFDMSFCSSLLHLCF  
cow7g SILHFKQLHSPANFLIASLACADFLVGLTVMPPFTVRSVEGCWYFGE SYCKFHSCFDVSFCYCSIFHLCF  
cow7f SILYFKQLHSPANFLIASLACADFLVGLTVMPPFTVRSVEGCWYFGD RYCKLHSCFEGSFCYCSIFHLCF  
cow7e SILHFNQLHSPANFLIASLACADFLVGLTVMPPFTVRSVEGCWYFGE SYCKFHSCFDVSFCYCSIFHLCF  
cow7d SILHFKQLHSPANFLIASLACADFLVGLTVMPPFTVRSVEGCWYFGE SYCKFHSCFDGFCYCSIFHLCF  
cow7c SILHFKQLHSPANFLITSLACADFLVGLTVMPPFTVRSVEGCWYFGE SYCKLHSCFEGSFCYCSIFHLCF  
cow7b SILHFKQLHSPANFLITSLACADFLVGLTVMPPFTVRSVEGCWYFGD RYCKLHSCFEGSFCYCSIFHLCF  
cow7k SILHFKQLHSPANFLITSLACADFLVGLTVMPPFTVRSVEGCWYFGE SYCKFHSCFDVSFCYCSIFHLCF  
horse7b SILHFKQLHSPANFLIASLACADFLVGLTVMPPFMSVRSVEGCWYFGD TYCKLHSCFEGSFCYCSIFHLCF  
megBat7o SILHFKQLHSPANFLIASLACADFLVGLTVMPPFMSVRSVEGCWYFGE SYCKFHSCFDGFCYCSIFHLCF  
megBat7n SILHFKQLHSPANFLIASLACADFLVGLTVMPPFMSVRSVEGCWYFGE SYCKFHSCFDGFCYCSIFHLCF  
megBat7m SILHFKQLHSPANFLIASLACADFLVGLTVMPPFMSVRSVEGCWYFGE SYCKFHSCFDGFCYCSIFHLCF  
megBat7l -----MPFMSVRSVEGCWYFGE SYCKFHSCFDGFCYCSIFHLCF  
megBat7k SILHFKQLHSPANFLIASLACADFLVGLTVMPPFMSVRSVEGCWYFGE SYCKFHSCFDGFCYCSIFHLCF  
megBat7j SILHFKQLHSPANFLIASLACADFLVGLTVMPPFMSVRSVEGCWYFGE SYCKFHSCFDGFCYCSIFHLCF  
megBat7i SILHFKQLHSPANFLIASLACADFLVGLTVMPPFMSVRSVEGCWYFGE SYCKFHSCFDGFCYCSIFHLCF





hdgHog7a	AFLVSWLPYFIDSIIDAFILGFITPTYYIYGIIVVWFAYYNSAMNPLIYAFFYPWFRKAIKLIATGRFLRENS
tenrec7a	AFLVSWLPYFIDSIIDAFILGFITPTYYIYEILVWSAYYNSAMNPLTYAFFYPWFRKAIKLIITGRVTRENS
tenrec7b	AFLISWLPYFVDSIIDAFILGFITPTYYIYEILVWFAYYNSAMNPLIYAFFYPWFRKAIKLIITGRVMRENS
elepht7a	AFLISWLPYFIDIVIDAFILGFITPTYYIYEILVWFAYYNSAMNPLIYAFFYPWFRKAIKLIITGKVLRENS
elepht7b	AFLISWLPYFIDTVIDAFILGFITPVYIYEILVWFAYYNSAMNPLIYAFFYPWFRKAIKLIITGKVLRENS
armad7a	AFLISWSPYFIDTIIDAFILGFITPAYIYEILVWFAYYNSAMNPLIYAFFYPWFRKAIKLIVSGKVLRENS

mouse7a	STTNLFPE
mouse7b	STTNLFPE
mouse7d	STTNLFPE
mouse7e	STTNLFPE
mouse7f	STTNLFSE
rat7a	SVTNLFPE
rat7b	SATNLFPE
rat7c	STINLFPE
rat7d	STINLFPE
rat7e	SATNLFPE
rat7g	STINLFPE
rat7h	STTNLFSE
cow7g	STVNLFSSE
cow7f	STVNLFSG
cow7e	LTVNLFSG
cow7d	STVNLFSG
cow7c	-----
cow7b	STINLFSE
cow7k	STVNLFSG
horse7b	STINVFSE
megBat7o	STINLLSE
megBat7n	STMNLSQ
megBat7m	STINLLSE
megBat7l	STMNLSV
megBat7k	STINLLSE
megBat7j	STINLFSE
megBat7i	STINLLSE
megBat7h	-----
megBat7q	STINLLSE
megBat7g	-----E
megBat7f	-----
megBat7e	-----
megBat7d	SRINLFS
megBat7c	-----
megBat7b	STINLLSE
megBat7a	STINLLSE
coShrw7a	STIHLLPE
coShrw7b	STIHLLPE
hdgHog7b	STINLFPE
hdgHog7a	SRIYLFSD
tenrec7a	SAIRLFSD
tenrec7b	SAIRLFSD
elepht7a	STTNLFSD
elepht7b	STTNLFSD
armad7a	STINLFSE



(h) TAAR8

human8 MTSNFSQP-VVQLCYEDVNGSCIETPYSPPGSRVILYTAFFSFGSLLAVFGNLLVMTSVLHFQKQLHSPNTNFI  
mouse8a MTSNFSQP-ALQQLCYENTNGSCIETPYSPPGSRVILYTAFFSFGSLLAVCGNLLVVISVLHFQKQLHSPANFI  
mouse8b MTSNFSQP-ALQQLCYENTNGSCIETPYSPPGSRVILYTAFFSFGSLLAVCGNLLVVISVLHFQKQLHSPANFI  
mouse8c MTSNFSQP-ALQQLCYENTNGSCIETPYSPPGSRVILYTAFFSFGSLLAVCGNLLVVISVLHFQKQLHSPANFI  
rat8a MTSNFSQA-PLQQLCYENVNASCICKTPYSPGLRVLLYLMVVFVFGAVLAVCGNLLVVISVLHFQKQLHSPANFI  
rat8b MTSNFSQA-TLQQLCYENVNASCICKTPYSPGLRVLLYLMVVFVFGAVLAVCGNLLVVISVLHFQKQLHSPANFI  
rat8c MTSNFSQA-TLQQLCYENVNASCICKTPYSPGLRVLLYLMVVFVFGAVLAVCGNLLVVISVLHFQKQLHSPANFI  
cow8b MTSNLSQPDTVQFCYENVNRSCIKSSYSPASRVILYTVVFGFGLLAI FGNFLVMMSVLHFQKQLHSPANFI  
cow8d MTSNLSQPDTVQFCYENVNRSCIKSSYSPASRVILYTVVFGFGLLAI FGNFLVMMSVLHFQKQLHSPANFI  
cow8e MTSNLSQPDTVQFCYENVNRSCIKSSYSPASRVILYTVVFGFGLLAI FGNFLVMMSVLHFQKQLHSPANFI  
horse8b MSRGPSPTPAVVQLCYEGVNGSCIETPCLPGARVLLYSAFGLGAVLAVFGNLLVVTAILHFQKQLHSPNTNFI  
horse8a -----MVQLCYEGVNGSCIETPCLPGARVLLYSAFGLGAVLAVFGNLLVVTAILHFQKQLHSPANFI  
megBat8a MTSNLSQASVTLCCYENVNRSCICKTPYSLGRLLIYAVFGLGSLAVFGNLLVMTSVLHFQKQLHSPANFI  
tenrec8 MASNFSQPEALQQLCYENVNGSCIETPYSPPGSRVILYTAFFSFGSLLAVCGNLLVVISVLHFQKQLHSPANFI  
eleph8a MSSNLSHPAVVQLCYENVNGSCIETPYSPPGSRVILYTAFFSFGSLLAVFGNLLVMTSVLHFQKQLHSPNTNFI  
eleph8b MSSNLSHPVVVQLCYENVNGSCIETPYSPPGSRVILYTAFFSFGSLLAVFGNLLVMTSVQHFQKQLHSPNTNFI

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human8 IASLACADFLVGVTVMLFSMVRTVESCWYFGAKFCTLHSCCDVAFICYSSVHLHLCFICIDRYIVVTDPLVY  
mouse8a IASLASADFLVGVISVMPFMSVRSIESCWYFGDAFCSLHSCCDVAFICYSSVHLHLCFISVDRIYIAVTDPLVY  
mouse8b IASLASADFLVGVISVMPFMSVRSIESCWYFGDAFCSLHSCCDVAFICYSSALHLCFISVDRIYIAVTDPLVY  
mouse8c IASLASADFLVGVISVMPFMSVRSIESCWYFGDAFCSLHSCCDVAFICYSSALHLCFISVDRIYIAVTDPLVY  
rat8a IASLASADFLVGVISVMPFMSVRSIESCWYFGDTFCSLHSCCDVAFICYSSLFHLCFISVDRIYIAVTDPLVY  
rat8b IASLASADFLVGVISVMPFMSVRSIESCWYFGDTFCSLHSCCDVAFICYSSLFHLCFISVDRIYIAVTEPLVY  
rat8c IASLASADFLVGVISVMPFMSVRSIESCWYFGDTFCSLHSCCDVAFICYSSALHLCFISVDRIYIAVTDPLVY  
cow8b IASLACADFLVGVTVMPFMSVRSVESCWYFGARFCALHSSCDVAFICYSSLFHLCFISIDRYIAVTDPLVY  
cow8d IASLACADFLVGVTVMPFMSVRSVESCWYFGARFCALHSSCDVAFICYSSLFHLCFISIDRYIAVTDPLVY  
cow8e IASLACADFLVGVTVMPFMSVRSVESCWYFGARFCALHSSCDVAFICYSSLFHLCFISIDRYIAVTDPLVY  
horse8b IASLACADFLVGVTVMPFMSVRSVESCWYFGARFCALHSSCDVAFICYSSLFHLCFISIDRYIAVTDPLVY  
horse8a IASLACADFLVGVTVMPFMSVRSVESCWYFGARFCALHSSCDVAFICYSSLFHLCFISIDRYIAVTDPLVY  
megBat8a IASLACADFLVGMVMPFMSVRSVESCWYFGARFCTLHSCCDVAFICYSSALHLCFISIDRYIAVTDPLVY  
tenrec8 IASLACADFLVGVTVMPFMSVRSVESCWYFGAQFCTLHSCFDVAFICYSSLFHLCFISIDRYIAVTDPLVY  
eleph8a IASLACADFLVEVTVMPFMSVRSVESCWYFGAQFCTLHSCCDVAFICYSSVFLHLCFISIDRYIAVTDPLVY  
eleph8b IASLACADFLVGVTVMPSSVRSVESCWYFGAQFCTLHSCCDVAFICYSSVFLHLCFISIDRYIAVTDPLVY

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human8 ATKFTVSVSGICISVSWILPLTYSGAVFYTGVDNDGLEELVLSALNCVGGCQIIVSQGWLIDFLLFFIPT  
mouse8a PTKFTVSVSGICISVSWILPLVYSSAVFYTGISAKGIESLVSALNCVGGCQIIVNQDQWVLIIDFLLFFIPT  
mouse8b PTKFTVSVSGICISVSWILPLVYSSAVFYTGISAKGIESLVSALNCVGGCQIIVNQDQWVLIIDFLLFFIPT  
mouse8c PTKFTVSVSGICISVSWILPLVYSSAVFYTGISAKGIESLVSALNCVGGCQIIVNQDQWVLIIDFLLFFIPT  
rat8a PTKFTVSVSGICISVSWILPLVYSSAVFYTGISATGIENLVSALNCVGGCQIIVNQDQWVLIIDFLLFFIPT  
rat8b PTKFTVSVSGICISVSWILPLVYSSAVFYTGISATGIENLVSALNCVGGCQIIVNQDQWVLIIDFLLFFIPT  
rat8c PTKFTVSVSGICISVSWILPLVYSSAVFYTGISAMGIENLVSALNCVGGCQIIVNQDQWVLIIDFLLFFIPT  
cow8b PTKFTVSVSGVCIISWILPLVYSGAVFYTGVSDDGMEELVLSALNCVGGCQIIVNQDQWVLIIDFLLFFIPT  
cow8d PTKFTVSVSGVCIISWILPLVYSGAVFYTGVSDDGMEELVLSALNCVGGCQIIVNQDQWVLIIDFLLFFIPT  
cow8e PTKFTVSVSGVCIISWILPLVYSGAVFYTGVSDDGMEELVLSALNCVGGCQIIVNQDQWVLIIDFLLFFIPT  
horse8b PAKFTVSVSGMCSVSWILPLVYSGAVFYTGVSNDGMEELVLSALNCVGGCQIIVNQDQWVLIIDFLLFFIPT  
horse8a PAKFTVSVSGMCSVSWILPLVYSGAVFYTGVSNDGMEELVLSALNCVGGCQIIVNQDQWVLIIDFLLFFIPT  
megBat8a PNKFTVSVSGICISVSWILPLVYSGAVFYTGVSDDGMEELVLSALNCVGGCQIIVNQDQWVLIIDFLLFFIPT  
tenrec8 PTKFTVSVSGMCIISWMLPVYSGAVFYTGVDNDGMEELVLSALNCVGGCQIIVNQDQWVLIIDFLLFFIPT  
eleph8a PTKFTVSVSGICVGIISWILPLVYSGAVFYTGVDNDGMEELVLSALNCVGGCQIIVNQDQWVLIIDFLLFFIPT  
eleph8b PTKFTVSVSGICIGLSWILPFIYSGAVFYTGVDNDGMEELVLSALNCVGGCQIIVNQDQWVLIIDFLLFFIPT

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human8 LVMIILYSKIFLVAKQQAQKIET--TSSKVESSESYKIRVAKRERKAAKTLGVTVAFVMSWLPYTVDI  
mouse8a LVMIILYSKIFLVAKQQAQKIETSVSGNRGESSSESHKARVAKRERKAAKTLGVTVAFVMSWLPYTVDI  
mouse8b LVMIILYSKIFLVAKQQAQKIETSVSGNRGESSSESHKARVAKRERKAAKTLGVTVAFVMSWLPYTVDI  
mouse8c LVMIILYSKIFLVAKQQAQKIETSVSGNRGESSSESHKARVAKRERKAAKTLGVTVAFVMSWLPYTVDI  
rat8a LVMIILYSKIFLVAKQQAQKIETSVSGNRGESSSESHKARVAKRERKAAKTLGVTVAFVMSWLPYTVDI  
rat8b LVMIILYSKIFLVAKQQAQKIETSVSGNRGESSSESHKARVAKRERKAAKTLGVTVAFVMSWLPYTVDI  
rat8c LVMIILYSKIFLVAKQQAQKIETSVSGNRGESSSESHKARVAKRERKAAKTLGVTVAFVMSWLPYTVDI  
cow8b LIMVILYKIFIVAKQQAQKIEN--TGSKAE--SQSYKSRVAKRERKAAKTLGVTVAFVMSWLPYTVDI  
cow8d LIMVILYKIFIVAKQQAQKIEN--TGSKAE--SESYKLRVAKRERKAAKTLGVTVAFVMSWLPYTVDI  
cow8e LIMVILYKIFIVAKQQAQKIEN--TGSKAE--SQSYKSRVAKRERKAAKTLGVTVAFVMSWLPYTVDI  
horse8b VVMIILYSKIFLVAKQQAQKIEH--TGGKAESSESYKARVAKRERKAAKTLGVTVAFVMSWLPYTVDI  
horse8a VVMIILYSKIFLVAKQQAQKIEH--TGGKAESSESYKARVAKRERKAAKTLGVTVAFVMSWLPYTVDI  
megBat8a LVMIILYSKIFLVAKQQAQKIET--TSSKAE--SYKARVAKRERKAAKTLGVTVAFVMSWLPYTVDI  
tenrec8 LVMIILYSKIFLVAKQQAQKIET--TSSKAE--SYKARVAKRERKAAKTLGVTVAFVMSWLPYTVDI  
eleph8a LVMIILYSKIFLVAKQQAQKIET--TSSKAE--SYKARVAKRERKAAKTLGVTVAFVMSWLPYTVDI  
eleph8b LVMIILYSKIFLVAKQQAQKIET--TSSKAE--SYKARVAKRERKAAKTLGVTVAFVMSWLPYTVDI

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human8 LIDAFMGFLTPAYVYEICCSAYYNSAMNPLIYALFYPWFRKAIKILSGLDVKASSSTISLFLF-----  
mouse8a LVDAFMGFITPAYVYEICCSAYYNSAMNPLIYAFFFPWFRKAIKILSGLDVKASSSTANLFLF-----  
mouse8b LVDAFMGFITPAYVYEICCSAYYNSAMNPLIYAFFFPWFRKAIKILSGLDVKASSSTANLFLF-----  
mouse8c LVDAFMGFITPAYVYEICCSAYYNSAMNPLIYAFFFPWFRKAIKILSGLDVKASSSTANLFLF-----

rat8a	LIDAFMGFITPAYVYEICCW	SAYYNSAMNPLIYAFFYPWFRKAIKLILSGEILKSHSSTMSLFSE-----
rat8b	LIDAFMGFITPAYVYEICGW	IAYYNSAMNPLIYAFFYPWFRKAIKLILSGKILKSHSSTTSLFSE-----
rat8c	LIDAFMGFITPAYVYEFCCW	SAYYNSAMNPLIYAFFYPWFRKAMKLILSGKILKSHSSTTSLFSE-----
cow8b	LIDAFMGFITPAYIYEICCW	GAYYNSAMNPLIYALFYPWFRKAMKVILTGGLLNGSSNISLFLE-----
cow8d	LIDAFMGFITPAYIYEICCW	GAYYNSAMNPLIYALFYPWFRKAMKVVLTTGGLFNDSSTISLFSELMRAL
cow8e	LIDAFMGFITPAYIYEICCW	GAYYNSAMNPLIYALFYPWFRKAMKVILLGDF-----
horse8b	LVDAFMGFVTPAYIYEICCW	GAYYNSAVNPLIYALFYPWFRKAIKVIIVSGEVLKDSSTISLFSE-----
horse8a	LVDAFMGFVTPAYIYEICCW	GAYYNSAVNPLIYALFYPWFRKAIKVIIVSGEVLKDSSTISLFSE-----
megBat8a	LIDAFMGFITPTIYEICCW	CAYYNSAMNPLIYALFYPWFRKAIKVIIVSGEVLKDSSTISLFSE-----
tenrec8	LIDAFMGFITPAYIYEICCW	GAYYNSAMNPLIYALFFYPWFRKAIKLILSGEVLKNSSTMSLFSE-----
elepht8a	LIDAFMSFITPAYIYEICCW	GAYYNSAMNPLIYALFYPWFRKAIKLILSGKLLKNSSTIRLFSE-----
elepht8b	-----	-----
human8	-	-
mouse8a	-	-
mouse8b	-	-
mouse8c	-	-
rat8a	-	-
rat8b	-	-
rat8c	-	-
cow8b	-	-
cow8d	S	-
cow8e	-	-
horse8b	-	-
horse8a	-	-
megBat8a	-	-
tenrec8	-	-
elepht8a	-	-
elepht8b	-	-

(i) TAAR9

human9 -----MVNNFSQAEAVELCYKNVNESCIKTPYSPGPRRILYAVLGFVLAFAFGLNLLVMIAILH  
mouse9 -----MTSDFSPPEPEMELCYENVNGSCIKSSYAPWPRAILYVGLGLGALLAVFGNLLVIAAILH  
rat9 -----MELCYENVNGSCIKSSYSWPRAILYAVLGLGALLAVFGNLLVITAILH  
cow9 -----MVNNFSQAEAVELCYQNINGSCVKTSTYTPGPRAILYAVLGLGAVLAVFGNLLVIVILH  
horse9b -----MADTFSQAAAVELCYENVNGSCVKTSTYTPGPRAVLYAVLGVGALLAVLGNLLVITAILH  
miBat9 -----MANNFSQAEAVELCYEHVNGSCVKTSTYTPGPRAILYAFVGLGAVLAVFGNLLVITAILH  
megBat9a -----MVNNFSQAEAVELCYENVNGSCVKTSTYTPGPRTILYAVLGLGAVLAVFGNLLVMIAILH  
hdgHog9 -----MSNNFSQAEVVELCYENVNGSCIKTSYSPAPRAILYTVLGFVLAFAFGLNLLVIAAILH  
tenrec9 -----  
Kanga9 -----MNSSYHLAAVQLCFENVNRSCIKTPYSPIPRMILYVVFVFGSVLAVFGNLLVIAAILH  
oposm9h -----MSINLSQPAAVQLCYENVNGSCIKTPYSPGPRAILYAVLGFVLAFAFGLNLLVITAILH  
oposm9g MELNENSNGEVGINSSYQLKAMEFCFENVNKSCIKTSTYSPIPRMILYVVFVFGFTLLAVFGNLLVITAILH  
oposm9f MELNEDSHREVGINSSYQLKAVEFCFENVNKSCIKSTYSPFPRMILYVVFVFGFTLLAVFGNLLVITAILH  
oposm9e -----MILYVVFVFGFTLLAVFGNLLVITAILH  
oposm9d MELHEDSHREVGINNSYELTAVQFCFENVNKSCIKTSTYSPFPRMILYVVFVFGFTLLAVFGNLLVITAILH  
oposm9c MELHEDSHREVGINHSYQLTAVQFCFENVNKSCIKTSTYSPIPRMILYVVFVFGFTLLAVFGNLLVITAILH  
oposm9b MELQENSLNEVGINSSYQLTAVQFCFENVNKSCIKTSYSPFPRMILYVVFVFGFTLLAVFGNLLVITAILH

\* \* \* \* \*  
human9 FKQLHTPTNFLIASLACADFLVGVTVMPFSTVRSVESCWYFGDSYCKFHCTCFDTSFCFASLFLHLCISVD  
mouse9 FKQLHTPTNFLVASLACADFLVGVTVMPFSTVRSVESCWYFGESYCKFHCTCFDTSFCFASLFLHLCISID  
rat9 FKQLHTPTNFLVASLACADFLVGVTVMPFSTVRSVEGCWYFGDTYCKFHCTCFDTSFCFASLFLHLCISID  
cow9 FKQLHTPTNFLIASLACADFLVGVTVMPFSTVRSVESCWYFGDSYCKFHCTCFDTSFCFASLFLHLCISID  
horse9b FKQLHTPTNFLIASLACADFLVGVTVMPFSAVRSVESCWYFGESYCTFHCTCFDTSFCFASLFLHLCISVD  
miBat9 FKQLHTPTNFLIASLACADFLVGVTVMPFSTVRSVESCWYFGESYCKFHCTCFDTSFCFASLFLHLCISID  
megBat9a FKQLHTPTNFLIASLACADFLVGVTVMPFSTVRSVESCWYFGESYCKFHCTCFDTSFCFASLFLHLCISID  
hdgHog9 FKQLHTPTNFLIASLACADFLVGVTVMPFSTVRSVESCWYFGEIYCKFHCTCFDTSFCFASLFLHLCISID  
tenrec9 -----LCCISID  
Kanga9 FKQLHTPTNFLIASLACADFLVGLTVMPFSTMVRSVESCWYFGESYCKFHCTCFDGSFCYSSLFHLCFISID  
oposm9h FKQLHTPTNFLIASLACADFLVGVTVMPFSTVRSVESCWYFGESYCKFHCTCFDTSFCFASLFLHLCISID  
oposm9g FKQLHTPTNFFIASLACADFLVGLTVMPFSTVRSVESCWYFGDSFCKFHCTCFDGSFCYSSLFHLCFISID  
oposm9f FKKLHTPTNFLIASLACADFLGLTVPFSTMVRSVESCWYFGDNFCKFHCTCFDGSFCYSSLFHLCFISID  
oposm9e FRQLHTPTNFLIASLACADFLVGLTVMPFSTMVRSVESCWYFGESFCKFHCTCFDGSFCYSSLFHLCFISID  
oposm9d FRQLHTPTNFLIASLACADFLVGLTVMPFSTMVRSVESCWYFGESFCKFHCTCFDGSFCYSSLFHLCFISID  
oposm9c FKQLHTPTNFLIASLAWADFLVGLTVMPFSTMVRSVESCWYFGESFCKFHCTCFDGSFCYSSLHLCFISID  
oposm9b FRQLHTPTNFLIASLACADFLVGLTVMPFSTMVRSVESCWYFGESFCKFHCTCFDGSFCYSSLFHLCFISID

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human9 RYIAVTDPLTYPTKFTVSVSGICIVLSWFFSVTYSFISFYTGANEEGIEELVVALTCVGGCQAPLNQNWV  
mouse9 RYIAVTDPLTYPTKFTVSVSGLCIAISWFFSVTYSFISFYTGANEEGIEELVVALTCVGGCQAPLNQNWV  
rat9 RYVAVTDPLTYPTKFTISVSGVICIALSWFFSVTYSFISFYTGANEEGIEELVVALTCVGGCQAPLNQNWV  
cow9 RYIAVTDPLAYPTKFTVSVSGICIVLSWFFSVTYSFISFYTGANEEGIEDLVVALTCVGGCQAPLNQNWV  
horse9b RYIAVTEPLTYPTKFTVSVSGICIVLSWFFSVTYSFISFYTGANEEGIEELVVALTCVGGCQAPLNQNWV  
miBat9 RYIAVTDPLTYPTKFTVSVSGICIVLSWFFSVTYSFISFYTGANEEGIEELVVALTCVGGCQAPLNQNWV  
megBat9a RYIAVTDPLTYPTKFTVSVSGICIVLSWFFSVTYSFISFYTGANEEGIEELVVALTCVGGCQAPLNQNWV  
hdgHog9 RYIAVTDPLTYPTKFTVSVSGICIVLSWFFSVTYSFISFYTGANEEGIEELVVALTCVGGCQAPLNQNWV  
tenrec9 RYIAVTDPLTYPTKFTVSVSGICIVLSWFFSVTYSFISFYTGANEEGIEELVVALTCVGGCQAPLNQNWV  
Kanga9 RYIAVTDPLVYPTKFTVPIISGICIVISWGCSTITYSFLFYTGANDDGLDLVIALTCVGGCQAPLNQDWV  
oposm9h RYIAVTDPLVYPTKFTVPIISGICIVISWGCSTITYSFLFYTGANEVIEGLDLVIALTCVGGCQAPLNQKQWV  
oposm9g RYIAVTDPLIYPTKFTVPIISGICIVISWGCSTITYSFLFYTGANDDGLDLVIALTCVGGCQAAVNQDWV  
oposm9f RYIAVTDPLIYPTKFTVPIISGICIVISWGCSTITYSFLFYTGANDDGLDLVIALTCVGGCQAAVNQDWV  
oposm9e RYIAVTDPLIYPTKFTVPIISGICIVISWGCSTITYSFLFYTGANDDGLDLVIALTCVGGCQAAVNQDWV  
oposm9d RYIAVTDPLIYPTKFTVPIISGICIVISWGCSTITYSFLFYTGANDDGLDLVIALTCVGGCQAAVNQDWV  
oposm9c RYIAVTDPLIYPTKFTVPIISGICIVISWGCSTITYSFLFYTGANDDGLDLVIALTCVGGCQAAVNQDWV  
oposm9b RYIAVTDPLIYPTKFTVPIISGICIVISWGCSTITYSFLFYTGANDDGLDLVIALTCVGGCQAAVNQDWV

\* \* \*  
human9 LLCFLFFIPNVAMVFIYSKIFLVAKHQARKIESTASQAQSSSESYKERVAKRERKAAKTLGIAMAAFLV  
mouse9 LLCFLFFLPTVVMVFLYGRIFLVAKYQARKIEGTANQAQASSESYKERVAKRERKAAKTLGIAMAAFLV  
rat9 LLCFLFFLPTVVMVFLYGRIFLVAKYQARKIEGTANQAQASSESYKERVARRERKAAKTLGIAMAAFLV  
cow9 LLCFLFFIPTVVMVFIYGIKIFLVAKYQARKIESTASQAQSSSESYKERVAKRERKAAKTLGIAMAAFLV  
horse9b LLCFLFFPTVAMVLIYGIKIFLVAKHQARKIESAASQAQSSSESYKERVAKRERKAAKTLGIAMAAFLV  
miBat9 LLCFLFFIPTVAMVLIYGIKIFLVAKHQARKIESTASHAQSSSESYKERVAKRERKAAKTLGIAMAAFLA  
megBat9a LLCFLFFVPTVAMVFIYGIKIFLVAKHQARKIESTASQAQSSSESYKERVAKRERKAAKTLGIAMAAFLV  
hdgHog9 LLCFLFFLPTVAMVFLYGIKIFLVAKYQARKIESTASQAQSATETYKERVAKRERK-----  
tenrec9 LLCFLFFVPTVAMVFIYGIKIFLVAKYQARKIESTASQAQSSSESYKERVAKRERKAAKTLGIAMAAFLV  
Kanga9 LFGFLFFVPTIAMLIIYGIKIFLVAKHQARKIESTSNQTQTAESYTTTE-----  
oposm9h LLCFLFFIPTVAMVLIYGIKIFLVAKYQARKIESSSNQTQASAESYKDRVAKRERKAAKTLGIAMAAFLV  
oposm9g LIGFLVFFIPTIAMLIIYGIKIFLVAKYQARKIESSSNQTQASAESYKERVAKRERKAAKTLGIAMAVFLV  
oposm9f LIGFLVFFIPTIAMLIIYGIKIFLVAKYQARKIESSSNQTQASAESYKERVAKRERKAAKTLGIAMAVFLV  
oposm9e LVGFLLFFIPTIAMLIIYGIKIFLVAKYQARKIESSSNQTQASAESYKDRVAKRERKAAKTLGIAMAVFLV  
oposm9d LVGFLLFLIPTIAMLIIYGIKIFLVAKYQARKIESSSNQTQASAESYKDRVAKRERKAAKTLGIAMAVFLV  
oposm9c LVGFLLFLIPTIAMLIIYGIKIFLVAKYQARKIESSSNQTQASAESYKDRVAKRERKAAKTLGIAMAVFLV  
oposm9b LFEFLFFIPTVAMVLIYYSKIFLVAKYQARNIESSSNQTQASAESYKDRVAKRERKAAKTLGIAMAVFLV



(j) TAARE1

coShrwEla -----MSSNSSSPAVLQLCYENNVNGSCVKTPYSPGARVILYAVFGLGAVLAVFGNLLVMSLIFHFK  
coShrwE1b -----MSSNSSSPAALQFCYENNVNGSCVKISYSPGSRVILYAVFRLGAVLAVFGNLLVVISILHFK  
hdgHogE1 -----MISILHFK  
tenrecEla -----MINNFSQTEAVELCYENNVNGSCIKTHYSPGPRAILYAVLGGGAVLAVFGNLLVITAILHFK  
tenrecE1b MSLRVSNTIISSSSAFPAAPVQLCYENNVNGSCVKSPYSPGPRVLLYVVFVFGAVLAVFGNLLVIVSVLHFK  
elephtE1 -----MSGSCVKSPYLPGRMVLYTVFGCGAVLAVFGNLLVMSVVLHFK

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coShrwEla QLHSPTNFLISSLACADFLVGVTVMPFMSVRSVESWCWYFGQSFCFHTCFDYAFCLSSLFHLCFISTDRY  
coShrwE1b QLHSPTNFLISSLACADFLVGVTVMPFMSVRSVESWCWYFGRSFCTFHTCCDVAFCYSSLFHLCFISIDRY  
hdgHogE1 QLYSPTNFLIASLACADFLVGVTVMPFMSVRAVERCWYFGQSFCFHTCCDVAFCSLFLHLCFISIDRY  
tenrecEla QLHTPTNFLIASLACADFLVGVTVMPFSLVRSVESWCWYFGAQFCTIHSCFDVAFCYSSLFHLCFISIDRY  
tenrecE1b QLYSPTNFLIASLACADFLVGTATVMPFSLVRSVESWCWYFGDSFCTFHTCCDGAFICYSSIFHLCFISIDRY  
elephtE1 QLHSSTNFLIASLACADFLVRVTVMPFMSIRSVVSCWYFEDTFCFYMCCDVAFCYSSLFHLCFISMDRY

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coShrwEla IAITDPLVYPTKFTVNVSGICISVSWILALLYSGAVFYTGAYDDGLEEITSTFSCVGGCQPVINQLFILI  
coShrwE1b IAVTDPLVYPTKFTVNVSGICISVSWILPLVYSGAVFYTGANDDGLEELSNAINCVGGCQPLINQLFISV  
hdgHogE1 IAVTDPLLYPTKFTVSVSGICIGVSWVLAIGYSGAVFYTGVDYDDGLEELVSAITCVGGCQPVVNLWIVI  
tenrecEla IAVTDPLVYPTKFTVSVSRMCIGISWILPVVYSGAVFYTGVDVGMEEELSLALNCVGGCQVVINQDWFLI  
tenrecE1b IAVTDPLVYPTKFTVSVSGMCISISWMLPIVYIGALFYTGAHDDGLEELACDLYCIGRCQLVLNQDQWVLI  
elephtE1 IAVTDPLVYPTKFTVSVSGICIGLSWILPIVYSGAVFYTGVDNDGLEELVSAFSCIGGCQIAVNQGWVLV

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coShrwEla DFLLFFIPALVMMILYSNIFLVARQAKMICLSSIISSKAEALSGTSPKPKVSKGERKAAKTLGITVIVFL  
coShrwE1b DFLLFFIPALVMMILYSNIFLVARQAKMI---DSISSKTEALAGSSKAKVTKRERKAAKTLGITVIAFL  
hdgHogE1 DSVLFFPTFVMMILYSNIFLVARQAKKM---ETVSSKAEALSGTHKARVTKRERKAAKTLGITVVAFL  
tenrecEla NFFLLFIPTLVMIILYSKIFLVARQAKV---EATVSNSESSSESYKARVAKRERKAAKTLGVTVAFFM  
tenrecE1b DFLLFFPTLVMITLYSKIFLVARQAKV---EATVSNSESSSETYKARVAKRERKAAKTLGVTVAFF  
elephtE1 DFLLFFIPTLVMIILYSKIFLVARQAKKI---ENCNSKAESSSGTYKARVAKRERKAAKTPGVTLVVFL

\* \*\* \* \* \* \*

coShrwEla VLWLPDIIDTLIDCFVGYITPSYVYEILCWLAYYNSAVNPLIYALFYFPWFERRAIKLIITGKILKDNSSSM  
coShrwE1b VSWLPYIIDSFIDCFGLV-----  
hdgHogE1 ISWLPYITDSFVDSFLGFIAPPYVYEILYWFYCYNSALNPLIYALFYFPWFRRSIKLIITGQVLKDSSSAI  
tenrecEla ISWLPYMIDSFVDSILGSVTPGYIYEILAWFGYNSALNPLIYAVFYFPWFERRAIKLTGTQVLKDSSTI  
tenrecE1b ISWLPYITDSFVDSYLGIMTPSFVYEILAWFAYNSALNPLIYAAFYFPWFERRAIKLTGTQVLKDSSTI  
elephtE1 ISWLPYMIDSVFYSFLGSMTPSYVYEIFCWFYTYNSTLNPLIYAVFYFPWFERRAIKLIITGKILKDSSTI

coShrwEla NLFSK--  
coShrwE1b -----  
hdgHogE1 NLFSKNT  
tenrecEla NLFSKGT  
tenrecE1b NLFSK--  
elephtE1 NLFPKKA

**(k) TAARM1**

```
KangaM1a -----MYFKQLHSPSNFL
opossum_M1 MASTDQQQTGEVQFCFQNISGSCVKTAQSLGIRTVLYGILGFIIILTVGGNTVVIFSIYFKQLHSPSNFL

          * * *                * * * *
KangaM1a VVSLACADFSLGLTVLPFSTVRSVETCWYFGDGFCKFHSGLDICFCIASMLNLCFISVDRYVAITDPLLY
opossum_M1 VASLACADCSLGLTVLPFSTVRSVETCWYFGDRFCKFHSGLDICFCLASMFNLCFISVDRYVAITDPLLY

                                     * * * * *
KangaM1a PIRFTVLSRVFIALSWTSAFLYSFSLLYTGANEGLDVVHALHCEGNCQIIFNKTWVVIISLLYFIPF
opossum_M1 PIRFTISLSGEFIALSWTSAFLYSFSLLYTGANEGLDVEAMNDFHCEGNCQIEFNKTWVVIITSLYFIPF

                                     * * * *
KangaM1a FIMICLNSKIFAVAKRQARKIEHMGNKTSSEGDKVSKRERKAAVTLGIAVMAFLVFWSPYFITGMIDAFF
opossum_M1 SIMIWLNSKIFAVAKQARKIEQMGNTMSSEGDKVPKRERKAAVTLGIAVMAFFLFWSPYFITIITDTFL

          * * * *
KangaM1a GFTTPPLAFDIMIWFAYSNSAINPLIYAFFYPWFRKPSK-CLKWQI IWINCSSMNLFSE
opossum_M1 GFTTPPLAFDIMIWFAYSNSAINPLIYAFFYPWRKAIKVVLSCKILWINCSSMNLFLE
```

(I) TAARM2

KangaM2a MSGNNGSQPATVQLCYENINGSCIQTTPYSPGPRVILYLAFGSAVILTVLGNLLVMTSILHFKQLHSPANF  
KangaM2b -ESSNESQPAAVQLCYENINGSCIKTSYS PAPRAILYLAFGSGALLAVLGNLLVMTSILHFKQLHSPANF  
KangaM2c -LNSSESQPAAVQLCYENINGSCIKTSYS PGSRVILYLAFGSAVILTVLGNLLVMTSILHFKQLYSPANF  
KangaM2d -----  
KangaM2e MSSSNQSQPAAVQLCYENINGSCIKTSYS PAPRAILYLAFGSGALLAVLGNLLVMTSILHFKQLHSPANF  
KangaM2f LSSSNESQPAVQLCYENINGSCIKTSYS PGPRVILYLVFGSAVILAILGNLLVMTSILHFKQLYSPANF  
KangaM2g MSSSNESQPAAVQFCYDNINGSCIKTSYS PAPRVILYLAFGSGALLAVLGNLLVMTSILHFKQLHSPANF  
KangaM2h -----  
KangaM2i -LSSNESQPAAVQLCYENINGSCIKTSYSSGSRVILYLAFGFGVVLAVLGNFLVITISIFHFKQLHSPANF  
oposmM2c MSNNGSQPAAVQFCYENTNGSCIKTSYS PGFQVILYLTFGFGALLAVLGNLLVMTSILHFKQLHSPANF  
oposmM2b MSNNGSQPAAVQFCYENTNGSCIKTSYS PGFQVILYLTFGFGALLAVSGNLLVMTSILHFKQLHSPANF

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KangaM2a LIASLACADFLVGATVMPFMSVRSVESCWFYFGENYCKVHCYFDGDFCYSSIFHLCFISIDRYIAVTDPLI  
KangaM2b LIASLACADFLVGATVMPFMSVRSVESCWFYFGENYCKVHCYFDGDFCYSSIFHLSFISIDRYIAVTDPLV  
KangaM2c LIASLACADILVGATVMPFMSVRSVESCWFYFGENYCKVHCYFDGDFCYSSIFHLCFISIDRYIAVTDPLV  
KangaM2d -----MVRVESCWFYFGENYCKVHCYFDGDFCYSSIFHLSFISIDRYIAVTDPLV  
KangaM2e LVASLACADFLVGATVMPFMSVRSVESCWFYFGENYCKVHCYFDGDFCYSSIFHLCFISIDRYIAVTDPLV  
KangaM2f LVASLACADFLVGATVMPFMSVRSVESCWFYFGENYCKVHCYFDGDFCYSSIFHLCFISIDRYIAVTDPLV  
KangaM2g LVASLACADFLVGATVMPFMSVRSVESCWFYFGENYCKVHCYFDGDFCYSSIFHLCFISIDRYIAVTDPLV  
KangaM2h -----PLV  
KangaM2i LVASLACADFLVGATVMPFMSVRSVESCWFYFGENYCKVHCYFDGDFCYSSIFHLCFISIDRYIAVTDPLV  
oposmM2c LIASLACADFLVGATVMPFMSVRSVESCWFYFGENYCKVHCYFDGDFCYSSIFHLCFISIDRYIAVTDPLV  
oposmM2b LIASLACADFLMGATVMPFMSVRSVESCWFYFGENYCKVHCYFDGDFCYSSIFHLCFISIDRYIAVTDPLV

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KangaM2a YPTKFTINVLVCIITFSWVLAITYFFSIIGTVNDDGLEELVSALTCVGGCQTAMNQTSVLSVGLFFIIP  
KangaM2b YPTKFTLSVSGICIAFWSWFLAITFSFSLLYTGANDDGLEELVSALTCVGGCQIAVNQTTWVLIDFLFFIIP  
KangaM2c HPTKFTLSVSGICIAFCWFLAITFSFSLLYTGANDDGLEELVSALTCVGGCQTPMNQSWVMIDFLFFIIP  
KangaM2d YPTKFTLSVSGICIAFCWFLAITFSFSLLYTGANDDGLEELVSALTCVGGCQIAVNQNWVLIIEFLFFIIP  
KangaM2e YPTKFTLSVSGICIAFWSWFLAITFSFSLLYTGANDDGLEELVSALTCVGGCQIAVNQTTWVLIDFLVFTIP  
KangaM2f YPTKFTLSVSGICIAFWSWFLAITFSFSLLYTGANDDGLEELVSALTCVGGCQIAVNQTTWVLIDFLFFIIP  
KangaM2g YPTKFTLSVSGICVVFWSWFLAITFSFSLLYTGANDDGLEELVSALTCVGGCQAAVNQTTWVLIDFLFFIIP  
KangaM2h YPTKFTLSVSRICIAFCWFLAITFSFSLLYTGANDDGLEELVSALTCVGGCQIAVNQTTWVLIDFLFFIIP  
KangaM2i YPTKFTLSVSGICITFSWFLAITFSFSLLYTGANDDGLEELVSALTCVGGCQMAVNQTTWVLIDFLFFIIP  
oposmM2c YPTKFTLSVSGICIMFWSWLLALITFSFSLLYTGANDDGLEELVSALTCVGGCQIAVNQTTWVLIDFLFFIIP  
oposmM2b YPTKFTLSVSGMICIMFWSWLLALITFSFSLLYTGANDDGLEELVSALTCVGGCQIAVNQTTWVLIDFLFFIIP

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KangaM2a TLVMVILYCKIFLVAKQQARKIENTSSKGESSSESYKARVSKRERKAAKTLGIAVIAFVLSWFPYFIET  
KangaM2b TLIMVILYCKIFQVAKEQARKIESMSSKTE-SSSESKARVSKRERKAAKTLGIAVIAFLISWFPYFIES  
KangaM2c SLVVVILYCKILLVAKEQARKIESMSSKTE-SSSESYKARVSKRERKAAKTLGIAVIAFLISWIPY----  
KangaM2d TLIMVILYCKIFLVAKQQARKIESMSSKTE-SSLESYKARVSKRERKAAKTLGIAVIAFLISWFPYFIES  
KangaM2e TLVMVILYCKIFLVAKQQARKIESMSSKTE-SSSESYKARVSKRERKAAKTLGIAVIAFLISWFPYFIES  
KangaM2f TLIMVILYCKIFLVAKQQARKIESMSSKTE-SSLESYKARVSKRERKAAKTLGIAVIAFLISWFPYFIES  
KangaM2g TLVMVILYCKIFLVAKQQARKIESMSSKTE-SSSESYKARVSKRERKAAKTLGIAVIAFLISWFPYFIES  
KangaM2h TLIMVILYCKIFLVAKQQARKIESMSSKTE-SFLESYKARVSKRERKAAKTLGIAVIAFLISWFPYFIET  
KangaM2i TLVMVILYCKIFLVAKQQARKIESMNNKNE-SSLENYKARVSKRERKAAKTLGIAVITFLISWFPYFIEI  
oposmM2c TLVMVILYCKIFLVAKHQARKIESMSSKTE-SSSESYQARVSKRERKAAKTLGIAVAAFLIAWFPYFIET  
oposmM2b TLVMVILYCKIFLVAKHQARKIESMSSKTE-SSSESYQARVSKRERKAAKTLGIAVAAFLIAWFPYFIET

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KangaM2a IIDAFGLFITPTTYIYEILVWFAYFNSAMNPLIYAFYFPWFRRAIKLIVTGKVFGRGHTSTIDLFSQVVK--  
KangaM2b IIDAFGLFITPTTYIYEILVWFAYFNSAMNPLIYAFYFPWFRRAIKLIVTGKVFGRGHSSTIDLFSQ----  
KangaM2c -----  
KangaM2d MIDAFGLFITPTTYIYEILVWFAYFNSAMNPLIYAFYFPWFRRAIKLIVTGKVFGRGHSSTIDLFSQANV-  
KangaM2e IIDAFGLFITPTTYIYEILVWFAYFNSAMNPLIYAFYFPWFRRAIKLIVTGKVFGRGHSSTIDLFSQ----  
KangaM2f IIDAFGLFITPTTYIYEILVWFAYFNSAMNPLIYAFYFPWFRRAIKLIVTGKVFGRGHTSTIDLFSQ----  
KangaM2g IIDAFGLFITPTTYIYEILVWFAYFNSAMNPLIYAFYFPWFRRAIKLIVTGKVFGRGHSSTIDLFSQ----  
KangaM2h IIDAFGLFITPTTYIYEILVWFAYFNSAMNPLIYAFYFPWFRRAIKLIVTGKVFGRGHSSTIDLFSQ----  
KangaM2i IIDAFGLFITPTTYIYEILVWFAYFNSAMNPLIYAFYFPWFRRAIKLIVTGKVFGRGHSSTIDLFSQ----  
oposmM2c IIDAFGLFITPTTYIYEILVWFAYFNSAMNPLIYAFYFPWFRRAIKLIVTGKVFGRGHSSTIDLFSQIKAL  
oposmM2b IIDAFGLFITPTTYIYEILVWLCYNSAMNPLIYAFYFPWFRRAIKLIVTGKVFGRGHSSTIDLFSQIKVL

KangaM2a -  
KangaM2b -  
KangaM2c -  
KangaM2d -  
KangaM2e -  
KangaM2f -  
KangaM2g -  
KangaM2h -  
KangaM2i -  
oposmM2c D  
oposmM2b D

(m) TAARM3

KangaM3a -----GSGALLAVFGNLLVMISIFHFQQLHSPANF  
KangaM3b MSSNNGSQSAAVQLCYENINGSCIQTPYSLGPRVILYLVFGSGVVLAVLGNLLVMTSILHFKQLHSPANF  
KangaM3c MSSNNGSQSAAVQLCYENINGSCIQTPYSLGPRVILYLVFGSGVVLAVLGNLFVMTSILHFKQLHSPANF  
KangaM3d -----MTSILTSSSCTLQPNF  
oposmM3f MSDSIGFQPAAVQFCYENVNGSCIQTHYSPVLRFLYLYTYGTGVI LAVLGNLLVMISILHFRQLHSPANF  
oposmM3e MSDSIGFQPAAVQLCYENINGSCIQTPYSPVLRVILYMAFGTGVVLAVLGNLLVMISILHFRQLHSPANF  
oposmM3d MSDSIGFQPAAVQLCYENINGSCIQTPYSPVLRVILYMAFGTGVVLAVLGNLLVMISILHFRQLHSPANF  
oposmM3c MTYNNGSQSSVQLCYENINGSCIHFYPYSGKGRVMLYLYTYGTGVLAILGNLLVMISILHFRQLHSPANF  
oposmM3a MSSSSESQPAVSEFCFENVNGSCIKNPYSQGRLLILYVVFSGAVLAVFGNLLVMISILHFRQLHSPANF

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KangaM3a LIASLACADFLVGATVMPFSMVMSVESCWYFGETFCTFHSCGDTAFCYASLFLHLCFISIDRYAVTDPLV  
KangaM3b LIASLACADFLVGATVMPFSMVRSVESCWYFGESYCKLHTTFDAGFCYTSLFHLCFISIDRYIAVTDPLV  
KangaM3c LIASLACADFLVGATVMPFSMVRSVESCWYFGESYCKLHTTFDVAFCYTSLFHLCFISIDRYIAVTDPLV  
KangaM3d LIASLACADFLVGATVMPFSMVRSVESCWYFGESYCKLHTTFDVAFCYTSLFHLCFISIDRYIAVTDPLV  
oposmM3f LIASLACADFLVGATVMPFSMVRSVESCWYFGNSYCKLHTTFDVAFCYTSLFHLCFISIDRYIAVTDPLT  
oposmM3e LIASLACADFLVGATVMPFSMVRSVESCWYFGNSYCKLHTTFDVAFCYTSLLHLCFISIDRYIAVTDPLT  
oposmM3d LIASLACADFLVGATVMPFSMVRSVESCWYFGNSYCKLHTTFDVAFCYTSLLHLCFISIDRYIAVTDPLT  
oposmM3c LIASLACADFLVGATVMPFSMVRSVESCWYFGNNSYCKLHTTFDAGFCLTSLFHLCFISIDRYIAVTDPLT  
oposmM3a LIASLACADFLVGATVMPFSMVRSVESCWYFGDTFCAFHSCGDTAFCYASLFLHLCFISIDRYIAVTDPLI

\* \* \* \* \*  
KangaM3a YPTKFTVNVSGLCIALSWIIPITYSGSVFYTGANDDGLEELISALTCVGCQVYVQNVMVDFLLFFIP  
KangaM3b YPTKFTLSVSGLCIAFSWIIITLSYSGSVFYTGANDDGLEELVSALTCVGGCQIAVNQNWIIIDFLFFIP  
KangaM3c YPTKFTLSVSGLCIAVSWIITVSYSGSVFYTGANDDGLEELVSALTCVGGCQIAVNQNWIIIDFLFFIP  
KangaM3d YPTKFTLSVSGLCIAVSWIITVSYSGSVFYTGANDDGLEELVSALTCVGGCQIAVNQNWIIIDFLFFIP  
oposmM3f YPTKFTFSVSGLCIALSWAFTMTYSGSVFYTGVSADGLEELISALTCVGGCQIAVNQNWLIHDFLLFFIP  
oposmM3e YPTKFTFSVSGLCIALSWIITMTYSGSVFYTGVSADGLEELVSALTCVGGCQIAVNQNWLIIDFLFFIP  
oposmM3d YPTKFTFSVSGLCIALSWIITMTYSGSVFYTGVSADGLEELVSALTCVGGCQIAVNQNWLIIDFLFFIP  
oposmM3c YPTKFTFSVSGLCIALSWAFTMTYSGSVFYTGVSADGLEELVSALTCVGGCQIAVNQNWLIIDFLFFIP  
oposmM3a YPTKFTFSVSGLCIALSWIIPITYSGSVFYTGANDDGLEELISALTCVGTQVYVQNWVLDLFFIP

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KangaM3a TLVMVILYSKIFLVAKLQARKIENTGSKGESSSESYKARVSKRERKAAKTLGIAVIAFLISWLPYSIDA  
KangaM3b SLVMIILYSKIFLVAKFQARKIENTSSKGASSSEERYKARVSKRERKAAKTLGIAVIAFLISWLPYSIDS  
KangaM3c SLVMIILYSKIFLVAKFQARKIENTGSKRHLHPQRVTK--PECPERKQPNPGHAVIAFLISCLPYSL-T  
KangaM3d SLVMIILYSKIFLVAKFQARKIENTGSKAESSESYKARVSKRERKAAKTLGIAVIAFLISWLPYSLDS  
oposmM3f SLIMIILYSKIFLVAKIQARKIENTGSTGD--SSDSYKARVSKRERKAAKTLGIAVIAFLISWLPYSLDS  
oposmM3e SLIMIILYSKIFLVAKVQARKIENTGSTGD--SSDSYKARVSKRERKAAKTLGIAVIAFMISWLPYSLDS  
oposmM3d SLIMIILYSKIFLVAKVQARKIENTGSTGD--SSDSYKARVSKRERKAAKTLGIAVIAFMISWLPYSLDT  
oposmM3c SLIMIILYSKIFLVAKVQARKIENTGSTGD--SSDSYKARVSKRERKAAKTLGITVIAFLISWLPYSLDS  
oposmM3a SLVMVILYAKIFLVAKIQARKIENTSSKGESLSSESYKARVAKRERKAAKTLGIAVIAFLISWLPYSIDA

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KangaM3a LIDAFVGFITPAYVYEILCWCAYYNSAMNPLIYAFFYPWFRKAIKLIVTGKILQDSSSSMNLFSFSE----  
KangaM3b LIDVFFGFITPAYVYEICCFAYYNSAVNPLIYAFFYPWFRKAIKLIVTGKVLQNGSSTMNLFSEHE---  
KangaM3c HDDAFLILITLPMRLLWLLIITQ-----  
KangaM3d LIDAFVGFITPAYVYEICCFAYYNSAVNPLIYAFFYPWFRKAIKLIVTGKVKYKNW-----  
oposmM3f LIDAFVGFITPAYVYEICCFAYYNSAVNPLIYFFYPWFRKAIKLIVTGKVLHGSSTMSLFSEQE---  
oposmM3e LIDAFVGFITPAYVYEICCFAYYNSAVNPLIYFFYPWFRKAIKLIVTGKVLHGSSTMSLFSEQE---  
oposmM3d LIDAFVGFITPAYVYEICCFAYYNSAVNPLIYFFYPWFRKAIKLIVTGKVLHGSSTMSLFSEQE---  
oposmM3c VIDAFVGFITPAYVYEICYWLGYYNSAVNPLIYAFFYPWFRKAIKLIVTGKILQDGSSTMNLFSEQE---  
oposmM3a MIDAFVGFITPAYVYEILCWCAYYNSAMNPLIYAFFYPWFRKAIKLIVTGKILQDSSSTLNLFSFSEQKGL

KangaM3a -  
KangaM3b -  
KangaM3c -  
KangaM3d -  
oposmM3f -  
oposmM3e -  
oposmM3d -  
oposmM3c -  
oposmM3a E