



Supplementary Material

The Bitter Taste Receptor Genes of the Raccoon Dog (*Nyctereutes procyonoides*)

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Supplementary Material S1.- Primers of the bitter taste receptor genes *Tas2r* in the raccoon dog.

Gene	Primer	5' to 3'	Gene	Primer	5' to 3'
<i>Tas2r2</i>	CAFA-Tas2r2-R	TTTCTCAGGGCTGTATGT	<i>Tas2r19</i>	CAFA-Tas2r19P-F	CTCCCTCTGCCTATGTCT
	CAFA-Tas2r2-F	AGAAGGAAATTGCCCAAA		CAFA-Tas2r19P-R	GCAAAGACTGTCCAGGTAA
<i>Tas2r5-1</i>	CAFA-Tas2r5-F1	GAGATGAAGACAACGAGGAG	<i>Tas2r38</i>	CAFA-Tas2r38-R	GGAGGCATATTCGTGAAG
	CAFA-Tas2r5-R1	ACTTTCCTCAGCGTCTTCTA		CAFA-Tas2r38-F	ACTGACCCTTCTTTGCTG
<i>Tas2r5-2</i>	CAFA-Tas2R5-R2	AGTATAGGCTCAGAGTGC	<i>Tas2r39</i>	CAFA-Tas2r39-R	GATTGTACCCATGAAGCA
	CAFA-Tas2R5-F2	GAGATGAAGACAACGAGGAG		CAFA-Tas2r39-F	TCTCCCTCCAGACACCAA
<i>Tas2r7</i>	CAFA-Tas2r7-R	GTGCCTATCAAACACTACATC	<i>Tas2r40</i>	CAFA-Tas2r40-R	TGGGTTCCAGTCACAGAG
	CAFA-Tas2r7-F	TAATTCTGAAGGGAGGGA		CAFA-Tas2r40-F	ATAACATTGAGTGAGGGTC
<i>Tas2r8</i>	CAFA-Tas2r8-R	TTGCCGGAGAAATGACTA	<i>Tas2r41</i>	CAFA-Tas2r41-R	AGACATCGGTCTTCTCACATC
	CAFA-Tas2r8-F	GCACTAAACCGCTGGGAC		CAFA-Tas2r41-F	CCCCATTACCAGTGTCCC
<i>Tas2r9</i>	CAFA-Tas2r9-R	CTGGTCCAACAGTGAGGT	<i>Tas2r42</i>	CAFA-Tas2r42-R	TGTACCCAACAACAGGAG
	CAFA-Tas2r9-F	GCACTAAACCGCTGGGAC		CAFA-Tas2r42-F	AAAGGAATCCAGCAGAAA
<i>Tas2r10</i>	CAFA-Tas2r10-R	GCCAACCTTTGTCTCATT	<i>Tas2r44</i>	CAFA-Tas2r44-R	GTGACGGTGTATTTCTTA
	CAFA-Tas2r10-F	CTGATTGAGCCACCGAGT		CAFA-Tas2r44-F	CCTGCTTGACATTGGTTA
<i>Tas2r12</i>	CAFA-Tas2r12-R	GTGTCAGCAGCGGGTAAT	<i>Tas2r67</i>	CAFA-Tas2r67-R	CTTTCGGGATTCTTTCTA
	CAFA-Tas2r12-F	TTCCCAAGTCTATGTTCGTGT		CAFA-Tas2r67-F	AGCGAAAGGCTTCACCAT

Supplementary Material S2.- Protein sequences of *Tas2r* genes used in this study.

>Acinonyx jubatusTas2r10

MLSIVEGLLIFIAVSEVLGVLGNGFIGLVNCMDCVKNKFSMFGILTGLATSRICLILVIADGFIKIFSPDMYSSGHLID
YISYLWIIINQSNIFWATSLSTFYFLKIANFSHHMFLWLKGRINWVPLLLMGSLFISWLFSTFPQIVKILSDSKVGNNTTQWL
NMPKSEFFTKQILNVGVLLFLTLFLITCFLLIISLWRHSRRMQLNVTGFQDPSTEAHMKAMKVLISFIILFILHFIGLAIEIACF
TMREKLLFIFGMMTTVLYPWGHSFILILGNSKLLKQASLRALQVQKCC*

>Acinonyx jubatusTas2r12

MASILKNVFMILFAGEFIMGILGNGFIILVNCIDWIRNWKFFVIDFIITCLAISRIVLLCIIILGIGLDVPCEEIWNKNNQLIRFEI
LWTGSNYFCTTCTTCLSVFYFFKIANFSNPIFLWIKWRIHKVLLMIVLAAVFSFCLSLPFDKTVFMSLIKKNVNAERNWTVSF
TMRTYELFLSHMLLNIMFIIPFAVFLASFVLLIRSLWSHTRQMKGRGGDPITKVHVVRAMKSMISFLFFFMYYLSTIMMNL
YVILDSLAKIFANTLVFLYPSGHTFLILWTSKLLKQASLVCVLKLLKCLHLRKPHTP*

>Acinonyx jubatusTas2r2

MASSLSAIPHLIIMSAEFITGITVNGFLVIINGKELIKSRKLTMPQLLCICIGISRFGLLMVL MVQSFFSVFFPLFYRVKIYGAA
MLFFWMFFSSVSLWFATCLSVFYCLKISGFTQSYFLWLKFRISKLMPWLLGSLLASMSIAAVCMDVGYPKNMNN
DFLKNATLKKTELKIRPINGVLLVNLVLLFPLAIFVMCTFMLFISLYRHTHRMQNRSHGVRASASTEAHINALKT VITFFCFFIS
YFAAFMANMTFSIPYGSQCFFVVKDIMAAFPSPGHSVIIIILSNSKFQQPFRLLCLKKNR*

>Acinonyx jubatusTas2r38

MLALTPVLTVSYEKSAFLFLSILEFTVGVLANAFILVNFWDVVRKQPLSNCDLILLSLSLTQLFLHGLLFLDAIQ LTYFQRMK
DPLSLSYQTIIMLWMITNQVGLWLTCLSLLYCSKIARFSTLLHSVASWVSRKVPQMLLGAMFFSCICTAICLGDFFSRSGFT
FTTMLFVNNTFNLQIAKLSFYHSFICTLV SIP?LFLFLVSSGVLIVSLGRHMRTMRAKTKDSRDPSEAHIKALRSLVSFLCL
YVVSFCAALISVPLLMLWHNKIGVMICVGILAACPSIIHAAILISNAKLRRAVETVLLWVQNSLKIGADHKADARTPDL C*

>Acinonyx jubatusTas2r39

MNYLHYPADNEFSPFHILSILTIIGTECIIGIIANGFIMAINIAEWIKNKQFPISRILFFLSVSRIPLOQSFMMIEITFSSTSPHFYNE D
VIYGTFTKVTMFLNHCSLWFAAWLSFYFVKIADFSH?LFLKWKWRISGTDALALWLSMFISLGYSVLFSNDINTMYC NNSSIP
SPNSSKKKYFTETNVVNLVLLYNLGIPIPLIMFIFAATLLIISLKRHTLHMESNATGSRDPSMEAHMGTIKVTSYFLILYISNA V
ALFLYMSNICDANSSWILCKFIMAAYPAGHSILLIQDNPGLRRVWKQLQPQVHLHLKEKQNTTKQAQPALPPPYLDPSPTS
FLPQT*

>Acinonyx jubatusTas2r40

METWRSGPKRMVTVNTDAMDRDTSRFKIVLTVVSVGVECMTGMIGNGFITAIQGAEWARGKRLPVSDCILLKLSFSRLL L
QIWMMLENIYSLFFLVTYNQNTVFIIFKVTMFLNYSNLWLAAWLNIVSCLRIANFAHCLFSMMKRKIRELMPRLGLSLFIS
LCFSFRFSKDIFNVYINSSVPISSNTTEKYFSETNMVNLVFLYNLGIPIPLIMFIFAATLLIISLKRHTLHMESNATGSRDPS
MEAHMGAIKAISYFLIFYFNAVALFISMSNIFDINNSWNILCKIVMAAYPAGHSVLLILGNPGLRRARWRFQHRVHLHL*

>Acinonyx jubatusTas2r41

MQANQQQRERSKEGLCAGLRPPGTKAQGTGVVTRAAETRPGLSAFFMLLFIPLCLLGLILANG?VVLVLGRERLQRGR LPPS
GMILLSLGASRFCLQWVGTVNSFYW?EYSRGPARGFFGLHWDFLNSATFWFSSWHSVLFCKITNFTHTPTFLWLKWR F
PGSVPWLLMAPLLISFIVTLLFFWGNRAVCEGFLIRKFPGNMTRFQWSRTLEVHYFLPLKLRITRVPVCSVFLVSVALLINSL R
RHTGRMRLSAHRPQDPSAQAHTRALKSLVSLIPDALSLASVIDAAGFFSESDWYWPWQILYLCMSVHPFFLISSNLRLRG
VCRQLLLLARGFWVA*

>Acinonyx jubatusTas2r42

MLAGLDKIFLTLSTAEIFIIGMSGNVFVGLVNCSEWIKNQKISFVDFILTCLALSRLTQLLVSLWQSFVMTLSPFFYSTWKS A K
LITLLWRITNHWTTWFTTCLSFYLLKIAHFHSHFFLWLKWRTRNRVLAAILVLSLPLFFDFLVLESNDFFLN VYVMDESNT
LHINDSKTYIKTLILLSFSYTIPIVLSLTVLLFSLVRHIRNLQNLVMGSRDPSTQAHKGAIKMVM SFLLLFTVHFFSIQLTN
WMLLIFWNNKFTKFIMLAIYVFPSPGHSLLILGNSKLRQTALKVLRHLKSTLKREKTVSSQLIDIPGSF*

>Acinonyx jubatusTas2r67

MPSGIENFTLTAAVGAFMIGMLGNGFIALVNCIDWVKHQKLSPADCILTNLAVSRIILLWMILFDSLVMVFWPHLYNIEKLAT
AVNICWTLTNHLATWFATCLSVFYFFRIANFSSHCFWLRRRISRVLLVPLPLGSLFLLVFNKLLVGFSDLWATIYH
NYERNSTWPLDVSKTGHLNSLVLSFIYLIPFLSLTSLLLFLSLMRHTRNVQLNSSSRDFSTEHRRAMK MVISFLLSTVH
FFSIQLTGWIFLLKHHANLAVTLTALFSPGHSFILIFGNSKLRQTALGLLWHLNCHLKMVKPLAS*

>Acinonyx jubatusTas2r7

MLDKVESTLMLIAAGEFAMGILGNAFI GLVNCMNWIKNRKIASIDLILTSLAISRICLLCIILLDYFILGLYDPVYTTGKKMRIID
FFWTLTNHLNVWFATCLSIFYFLKIANFFHPLFLWMKWKIDSAIPKILLGCLAFSVFISLVSENLD DFRSCVKVKKKTNIT
VKCRVNKAQYASIKICLNLLTLPFSVSVISFLLLLSLWRHTRQMKVSATGCRDPSIEAHVGAMKAVISFLLLFIA YYLAF
VATSSYFMPETELAVMIGELIALIYPSHSLILGNNKLRQASLRVLWKVKCILKRRNH*

>Canis lupusTas2r10

MLSILEGLLIFIAVSEILGVLGNGFIGLVNCIDCVKNKKFSMVGFILTGLATSRICLILIIITDGFIFKIFSPDMYSSGNLIDYISYL
WVIINQSSIWFATLSLIFYFLKIANFHHIFLWLKGRINSVLP LLMGSLFISWLF TFPQIVKIINDNRMKSRNTTWQLNMQKSEF
FTKQILLNLGVILLFTLCLITCFLLVSLWRHNRHMQLNVTGLRDPSTEAHVKAMKILVSIIFILYFIGIAIEISCFILPENKLL
FIFGMMTTAIYPWGHSEFILGNSKLRQASLTKLQQLKCEARRLLTAAQIHVGGNGCSRRII*

>Canis lupusTas2r12

MAGTMKNVFMFIAGEFIIGILGNGFIILVNCIDWIRSWKFFLIDFILTCLAISRIFLLCIIMLGIGLDIICKEI WYNDNQLITFEVL
WTGCNYFCTICTVCLSVFYFLKIANSSNPIFFWLKRRIHRLLLIIVLGAVFYFCLSLLLKDIVFKNMIKTKVNTESNVT LNFTAR
KYDLLTSNIFLNMLFVIPFAVSLASFVLLIHSWLNHTRRMKGIDSGDLITEAHVRAMKFMISFLLFFFIYYSNIIIFAYV VLD
SLVAKIFANILVFSYPSGHPFLILWNCKLKQASLYVLRKWKCMNLRKPAYIKHT*

>Canis lupusTas2r2

MISFLSALPHVIVMSAEFITGITVNGFLIIMNCKELIKSRKPTPVQLLCICIGMSRFGLLMVLMIQSFFSVLFPFLFYKVNIFGTAM
LFFWMFFSSVSFWFATCLSVFYCLKIAGFTQSCFLWLKFRISKLMPWLLGSLLASMSIAALCIEADYPKKVVDDALKNAT
LKRTEPKIRQISEMLLVNLALLFPLAIFVMCTFMLFISLYKHTHRMQNGSHGVRNASTKAHINALKT VITFFCFFISYFAAFM
ANMTFSIPYGSHCFVVKDIMAAFPSPGHSIIILSNSKYQQPFRLLCFKKNQ*

>Canis lupusTas2r38

MFLSVLELAVGILTNAFIFLVNFWDVVRQPLSNCDLILLSLSLTRLFLHGLLFLDAIQLTYFQRMKDPLSLSYQTIIMLWMIT
NQAGLWLTCLSLFYCSKIVRFSHTLLCLANWVSRKAPQMLLGAMLFSSACTLLCLGDFFSRSGFAFTTVLLMNNTEFNS
QIVKLNIFYSSIFCTLSIPPFMFFLVSSGVLIISLGRHMRTMKANTKDSGDPSLEAHKALISLISFLCLYVVSFCVALISVPLTM
VWHNKIGVMICVGIACACPSIHAAILISGNAKLRRRAVETILLVWVQSSSLKVRAGHRADLRTPDLC*

>Canis lupusTas2r39

METCNPPENELSPFGILSILTITGTECIVGIIANGFIMAINAAEWIKNKTVSTSGRVLFFLSASRIALQSFTMLEITFSST
SPRFYNEDVMYDTFKVVSFMLELHCSLWFAAWLSFFYFVKIADFSHPLFLKLRISRLMPWLLWLSVLISLGYSMLLSNDI
YTVCNNSSIPSSNSTKKKYFTKTNVNLVLLYNLGIFIPLIMFILSATLLIISLKRHTLHMESNATGCRDPSMEAHGAIKATSY
FLILYIFNSVALFLYMSNIFDINSSWNILCKFIMAAYPAGHSILLIQDNPGLRRAWKRLQPQVHFYKQTP*

>Canis lupusTas2r40

MSRFKIVLTLVPGIECLTGIVNGFITIIHGAKWARGKRLPVTDCILLMLSFSRLLLQIWMMLNENIYSLFRVTVYNQST
VFIVFKVTVIFLNYFNWLAAWLNIFYCLRITNLAHHVFFMMKRKITELMPRLGLSLFISLCSFSPFSTDFHVVYVNSSIP
IRSSNTTEKKYFSETNVVNLVLLYNLGIFIPLIMFILSATLLIISLKRHTLHMESNATGCRDPSMEAHFGAIKATSYFLILYIFNAV
ALFLSMSNIFDINSSWNILCKIVMAAYPASHVLLILGNPGLRRAWKRFQHHVPLHL*

>Canis lupusTas2r41

MQPAVSAFFMLLFLVLLCVLGLANGFIVLVLSRERMRRGRLLPSDVILLSLGLASRFCLQCIGMMNNFYLLHLEEYSTGPAR
QFFGLHWDFLNSATFWFGSWLSVLFCKIASFTHPTFLWLRWRLPGSVPWLLGASLLISFLVTLFFWGNHAVYQGFLIRKY
PGNMTFQQWSRRLEIHYFLPLKFITLSVPCSVFLVSIALLINSLRRHRGRMRRSGHGLQDPSSQAHTRALKSLVSFLILY
ALSFAFLVIDAAGFFCSQSDWYWPWQILYIYLVCTSVHPYIILSNLRLRGGCRQLLLVLRGSQA*

>Canis lupusTas2r42

MLAGLDIIFLTLSTAEFIIGMLGNAFIVLNCSEWVKNRKISLADFILICLAISRIAQLLVSWFESFMMGLSPLFFSTYKLAK
SITLLWRITHHLATWFSTCLSFYLLKIAQFHSLSLFLWLRWRMNRVLAIVLFLFLLDFLMLETFNDLFSNVDAMDESNTL
LYIYESKTFYVKTLILLFSFYIPIILSLTSLLLFLSLVKHIRNLQLNSMGRSDSSTQAHKKAIKMVMMSFLFLFTVHFFSIQLSNW
MFFLFWNKKITKFMILAVYVFPSSHSLILGNSKLRQTALKVWLHLKSSLKREKPNSSLPIDFPESFQ*

>Canis lupusTas2r5

MLTAALPLLMVVAVVEFLIGLVNGVLMVWVSGFEWVRKFNNGSSYNLIVLGLAVCRFLQCLIMMDLSLFPFFQSSRWL
HYLSIFWILVSQASLWFATFLSVFYCRKIMTLEHPVCLWLKQRAYCLSLWCLLVYLMISLLVAHIGLKPYNPSQGNSSILY
PLKSWHYLYIVKLNAGSGLPLMVFLVSSGMLIVSLYRHHKKMEVHTAGRRDAQAKAHITVLKSLGCLLHVYIILASPFISIT
SKSSADLLVFISETVMAAYPSLHVSILILGNPRMKQTCQRILWKTVCWAKS*

>Canis lupusTas2r67

MPSRIENAFVAAAGELITGMLGNGFIVLVNCDLVKNLKSTADCLTSLALSRIILLCIILLDSLLMVFWQHLYAIDKLAK
FISVFWTSLNHLTTWIVTCLNVFYFFKIANFSPHPCFTWLRWRISRVLLVPLGSLFLLFFNFELDTFTNFVWVNLVYQRHERNSI
WLDVSKTLYLNSLIVFSFIYLIPFLLSLASLLLLFLSLMRHIRNVQRNSSSRDFRTEAHKRAMKVMSSFLSMVNFSTILLSG
WFSLLLQNHQANLAVLLSTLVPSPGHFILILGNKLRQAALGLLWHLNCHLKMVKPFAS*

>Canis lupusTas2r7

MPDKVESILMLVAAGEFSMGILGNTFIGLVNCGWIKKRKIASIDLITSLAISRICLLCIILLDCFILVLYPDVYATGKQMRIIDFF
WTLTNHLSVWFATCLSFYFLKIANFFHPLFLWMKWRIDSAIPRILLGCLALSIFISLVVTENLNDDFRCCVVRTKKTNLTVR
CRVKKAKYSSIKICLNLTLFPFSVSLISFLLLLILSLWRHTRQMKFNATGCRDFSIEAHMGAMKAVISFLLLFIAYYLAFLVATSS
YFMPETELAVIIGELIALIYSSHSFILILGNSKLRQASLRVLWVKVYVLKRRNF*

>Chrysocyon brachyurusTas2r10

MLSILEGLLIFIAVSESLGVLGNGFIGLVNCDVKNKKFSMVGFILTGLATSRICLIIITDGFIFKIFSPDMYSSGNLIDYISYL
WVIINQSSIWFATLSIFYLKIANFHHIFLWLGKGRINSVPLLMGSLFISWLFVFPQIVKIINDNRMKSRNTTWQLNMQKSEF
FTKQILLNLGVILLFTLCLITCFLLVSLWRHNRHMQLNVTGLRDPSTEAHVKAMKILVSFIILFIFYFIGIAIEISCFILPENKLL
FIFGMMTTAIYPWGHFILILGNSKLRQASLTKLQQLKCCARRLLTAAQIHVGGNGCSRRII

>Chrysocyon brachyurusTas2r12

MAGTMKNVFMIFAGEFIMGILGNGFIVLVNCEWIRSWKFFLIDFILCLAISRIFLLCHIMLDIGLDIICKEIWNNDNQLITFE
VLWTGCNYFCTICTVCLSVFYFLKIANSSNPIFFWLKRRIRHLLLIIVLGAVFYFCLSLLLKDIVFKNMIKTKVNTESNVTLN
FTARKYDLLTSHIFLNMLFVIPFAVSLASFVLLIHSLNHTRRMKGIDSGDLITEAHVVRAMKFMISLFFFIYYSNIIYFAYV
VLDSL VANIFANILVFSYPSSHFFLILWNCCKLQASLYVLRKLLKWCMLNLRKPAYIKHT

>Chrysocyon brachyurusTas2r2

MISFLSALPHVIVMSAEFITGITVNGFLIHNCKELIKSRKPTPVQLLFCIGMSRFGLLMVLMIQSFFSVLFPFLFYKVNIFGTAM
LFFWMMFSSVSFWFATCLSVFYCLKIAGFTQSCFLWLKFRISKLMPWLLGSLLASMSIAALCIEADYPKKVVDDALKNAT
LKRTEPKIRQISEMLLVNLALLFPLAIFVMCTFMLFISLYKHTHRMQNGSHGVRNASTKAHINALKTVITFFCFYISYFAAFM
ANMTFSIPYGSHCFVVKDIMAAFPSPGHSIIILLNSKYQQPFRRLLCFKKNQ

>Chrysocyon brachyurusTas2r38

MFLSVLELAVGILTNAFIFLVNFWDVRRQPLSNCDLILLSLTLQFLHGLLFLDAIQLTYFQRMKDPLSLSYQTIIMLWMIT
NQAGLWLTTCLSLFYCSKIVRFSHTLLCLANWVSRKAPQMLLGAMLFSSACTLLCLGDFFSRSGFAFTTVLLMNNTFNS
QIVKLNIFYSSIFCTLGSIPPFMFFLVSSGVLIIISLGRHMRTMKANTKDSGDPSEAHIKALISLISFLCLYVVSFCAALISVPLTM
VWHNKIGVMICVGILAACPSIIAAILISGNAKLRRAVETILLWVQSSLKVRAGHRADLRTPDFC

>Chrysocyon brachyurusTas2r39

METCNPPENELSPFGILSILTITGTECIVGIIANGFIMAINAAEWIKNKTVSTSGRVLFFLSASRIALQSFTMLEITFSST
SPRFYNEDVMYDTFKVSFMLELHCSLWFAAWLSFFYFVKIADFSHPLFLKLRWRISRLMPWLLWLSVFISLGYSMLLSNDI
YTVCNNSIPSSNSTKKKYFTKTNVNLVLLYNLGFIFLIMFILSATLLIISLKRHTLHMESNATGCRDPSMEAHIGAIRATSY
FLILYIFNSVALFLYMSNIFDINSSWNILCKFIMAAYPAGHSILLIQDNPGLRRAWKRLQPQVHFYLKEQTP

>Chrysocyon brachyurusTas2r40

MSRFKIILTLVVPGLIECLTGIVGNGFITIIHGAKWARGKRLPVSDCILLMLSFSRLLLQIWMMLENIYSLFRVTYNQNTVFIL
FKVTVIFLNYFNLWLVAVLNIFYCLRITNLAHVFFMMKRKITEMLPWLLGSLFISLCSFSPFSTDIFHVYVNSSIPICSSNT
TEKYFSETNVNLVLLYNLGFIFLITFILSATLLIISLKRHTLHMESNATGCRDPSMEAHFGAIRATSYFLILYIFNAVAL
FLSMSNIFDINSSWNILCKIVMAAYPAGHSVLLILGNPGLRRAWKRFQHHVPLHL

>Chrysocyon brachyurusTas2r41

MQPAVSFAFFMLLFLVLLCVLGLANGFIVLVLSRERMRRGRLLPSDVILLSLGASRFCLQCVGMMNFFYYYLHLEEYSTG
PARQFFGLHWDFLNSATFWFGSWLTVLFCMNIASTHPTFLWLRWLPGPSVPWLLGASLLISFLVTLFFWGNHAVYQG
FLIRKYPGNMTFQQWSRREIHYFLPLKFITLSLPCSFLVLSIALLINSLRRHRGRMRRSGHGLQDPSSQAHTRALKSLVSFLI
LYALSFAALLIDAAGFFCSQNDWYWTWQIIIYLCCTVHPYILILSNLRLRGGCRQLLLLVRGSQLA

>Chrysocyon brachyurusTas2r5

MLTAALPLLMVVAEFLIGLVNGALMVWSFGEWVRKFNGSSYNLIVLGLAVCRFLLQCLIMMDLSLFFPFQSSRWL
HYLSIFWILVSQASLWFATFLSVFYCRKIMTLEHPVCLWLKQRAYCLSLWCLLVYLVISLIIIHIGLKPYNPSQGNSSILY
PLKSWHYLYIVKLNAGSGLPLMVFLVSSGMLIVSLHRHHKKMEVHTAGRRDAQAKAHITVLKSLGCFILHVIYILASPFIT
SKSSADLLVFISETVMAAYPSLHSHVILILGNPRMKQTCQRILWKTVCWAKS

>Chrysocyon brachyurusTas2r67

MPSRIENAFVAAAGELITGMLGNGFIVLVNCDLVKLNKLSTADCILTGLALSRIILLCHILLDSLLMVFWQHLYAID
KLAKFINVFWTSLNHLTIWIVTCLNVFYFFKIANFSPHCFWLRWRISRVLLVPLGSLFLLFFNFELLDFTNFVWN
LYQRHERNSTWLDVSKTLYLNSLIVFSFIHLIPFLSLASLIIIIFLSLMRHIRNVQRNSSSRDRTEAHKRAMKMMVSSLLS
MVNFTSILLTGWFSLLLQNHQANLAVLLSTLVPSGHSFILILGNNKLRQAALGLLWHLNCHLKMVKPFAS

>Chrysocyon brachyurusTas2r7

MPDKVESILMLVAAGEFSMGILGNTFIGLVNCGWIKKRKIASIDLITSLAISRICLLCHILLDCFILVLYPDVYATGKQMRIIDF
WTLTNHLSVWFATCLSIFYFLKIANFFHPLFLWMKWRIDSAIPRILLGCLALS VFISLVVTENLNDDFRCCVTRKKTNLTVR
CRVKKAKYSFIKICLNLLTLFPFSVLSIFLLLILSLWRHTRQMKFNATGCRDFSIEAHMGAMKAVISLIIIIFAIYYLAFLVATSS
YFMPETELAVIIGELIALIYPSHSHFILILGSNKLRQASRLVWVKYILKRRNS

>Cuon alpinusTas2r12

MAGTMKNVFMIFAGEFIIGILGNGFIIIVNCDWIRSWKFFLIDFILTCLAISRIFLLCIIMLGIGLDIICKEIWNQNDNLITFEVL
WTGCNYFCTICTVCLSVFYFLKIANSSNPIFFWLKRRIHRLIIIVLGAVFYFCLSLLLKDIVFKNMIKTKVNTESNVTLNFTAR
KYDLLTSHIFLNMLFVIPFAVSLASFVLLIHSLNHTRRMKGIDSGDLITEAHVRSMKFMISLFFFYIYLSNIIIFAYVLDL
VAKIFANILVFSYPSGHPFLILWTCKLKQASLYVLRKLRWCMNLRKPAYIKHT

>Cuon alpinusTas2r2

MISFLSALPHVIVMSAEFITGITVNGFIIIMNCKELIKSRKPTPVQLFCIGMSRFGLLMVLMIQSSFSVLFPFLFYKVNIFGTAIL
FFWMFFGSVSFWFATCLSVFYCLKIAGFTQSCFLWLKFRISKLMPWLLGSLLASMSIAALCIEADYPKKVVDDALKNAT
LKRTEPKIRQISEMLLVNLALLFPLAIFVMCTFMLFISLYKHTHRMQNGSHGVRNASTKAHINALKTVITFFCFFISYFAAFM
ANMTFSIPYGSCHFFVVKDIMAAFPSGHSIIILLSNSKYQQPFRRLLCFKKNQ

>Cuon alpinusTas2r38

MFLSVLELAVGILTNAFIFLVNFWDVRRQPLSNCDLILLSLTLRFLHGLLFLDAIQLTYFQRMKDPLSLSYQTIIMLWMIT
NQAGLWLTTCLSLFYCSKIVRFSHTLLCLANWVSRKAPQMLLGAMLFSSACTLLCLGDFFSRSGFAFTTVLLMNNTFNS
QIVKLNIFYSSIFCTLGSIPPFMFFLVSSGVLIIISLGRHMRTMKANTKDSGDPSEAHIKALISLISFLCLYVVSFCAALISVPLTM
VWHNKIGVMICVGILAACPSIIAAILISGNAKLRRAVETILLWVQSSLNVRAGHRADLRTPDLC

>Cuon alpinusTas2r39

METCNPPENELSPFGILSILTITGTECIVGIIANGFIMAINAAEWIKNKTVSTSGRVLFFLSASRIALQSFTMLEITFSST
SPRFYNEDVIYDTFKVSFMLELHCSLWFAAWLSFFYFVKIADFSHPLFLKLRWRISRLMPWLLWLSVFISLGYSMLLSNDIYT
VVCNNSIPSSNSTKKKYFTKTNVNLVLLYNLGFIFLIMFILSATLLIISLKRHTLHMESNATGCRDPSMEAHIGAIRATSYFLI
LYIFNSVALFLYMSNIFDINSSWNILCKFIMAAYPAGHSILLIQDNPGLRRAWKRLQPQVHFYLKEQTP

>Cuon alpinusTas2r40

MSRFKIVLTLVVPGIECLTGIVGNGFITIIHGAKWARGKRLPVSDCILLMLSFSRLLLQIWMMLNENIYSLFRVITYNQST
VFIVFKVTVIFLNYFNWLAAWLNIFYCLRITNLAHHVFFMMKRKITELMPRLGLSLFISLCSFPFSTDFHVVYVNSSIP
IRSSNTTEKKYFSETNVVNLVLLYNLGFIFLIMFILSATLLIISLKRHTLHMESNATGCRDPSMEAHFGAIRATSYFLILYIFNAV
ALFLSMSNIFDINSSWNILCKIVMAAYPASHSVLLILGNPGLRRAWKRFQHHVPLHL

>Cuon alpinusTas2r41

MQPAVSFAFFMLLFVLLCVLGLANGFIVLVLSRERMRRGRLLPSDVILLSLGASRFCLQCVGMMNNFYHYLHLEEYSMG
PARQFFGLHWDFLNSATFWFGSWLSVLFCKIASFTHTPTFLWLRWRLPGSVPWLLGASLLISFLVTLFFWGNHAVYQG
FLIRKYPGNMTFQQWSRRLEIHIFLPLKFITLSPVCSVFLVSIALLINSLRRHRGRMRRSGHGLQDPSSQAHTRALKSLVSFLI
LYALSFAASLVIDAAGFFCSQSDWYWPWQILYILCTSVHPYILILSNLRLRGGCRQLLLLVRGSQLA

>Cuon alpinusTas2r5

MLTAALPLLMVAVVEFLIGLVGNGVLMVWSFGGEWVRKFNSSYNLIVLGLAVCRFLLQCLIMMDSLFPFFQSSRWL
HYLSIFWILVSQASLWFATFLSVFYCRKIMTLEHPVCLWLKQRAYCLSLWCLLVYLMISLLLVAHIGLKPYNPSQGNSSILY
PLKSWHYLYIVKLNAGSGLPLMVFLVSSGMLIVSLYRHKKMEVHTAGRRDAQAKAHITVLKSLGCLLHVYIILDSPFSIT
SKSSADLLVFISETVMAAYPSLHVSILILGNPRMKQTCQRILWKTVCWAKS

>Cuon alpinusTas2r42

MLAGLDIIFLTLSTAEFIIGMLGNFIGLVNCSWVKNRKISLADFILICLAISRIAQLLVSWFESFMMGLSPLFFSTYKLA
SITLLWRITHHLATWFSTCLSFYLLKIAQFSHSLFLWLRWRMNRVLAIVFSLFLLDFLMLLETFNDFSNVDAMDESNLT
LYIYESKTFYVKTLLSFSYIPIILSLTSLLLLFLSLVKHIRNLQLNSMGRSDSSTQAHKKAIKMVMMSFLFVHFFSIQLSNW
MFFLFWNKKITKFMILAVYVFPSSSHLILGNSKLRQTALKVWLHLKSSLKREKPNSSLPIDFSEF

>Cuon alpinusTas2r67

MPSRIENAFVAAAGELITGMLGNGFIVLVNCDLVKNLKLSTADCILTGLALSRIILLCIILLDSLLMVFWQHLYAID
KLAKFISVFWTLNSHLTTWIVTCLNVFYFFKIANFSHPCTWLRWRISRVLVPLGSLFLLFFNFELLDFTNFVWN
LYQRHERNSTWSLDVSKTLYLNSLIVFSFIYLPFLSLASLLLLFLSLMRHIRNVQRNSSSRDFRTEAHKRAMKMVMSSLLL
MVNFASILLTGWFSLLLQNHQANLAVLLLSTLVPSGHSFILILGNKLRQAALGLLWHLNCHLKMVSPFPN

>Cuon alpinusTas2r7

MPDKVESILMLVAAGEFSMGILGNTFIGLVNCGIWIKRRIASIDLITSLAISRICLLCIILLDCFILVLYPDVYATGKQMRIIDFF
WTLTNHLSVWFATCLSIFYLKIANFFHPLFLWMKWRIDSAIPRILLGCLALS VFISLVVTENLNDDFRCCVVRTKKNLNTVR
CRVKKAKYSSIKICLNLLTLPFVSLSIFLLLILSLWRHTRQMKFNATGCRDFSIEAHMGAMKAVISFLLFIAYYLAFLVATSS
YFMPETELAVIIGELIALIYPSHSFILILGNSKLRQASLRVLWVKYIILKRRNF

>Felis catusTas2r12

MASVLKNVFMILFAGEFIMGILGNGFIILVNCIDWIRNWKFFVIDFIITCLAISRIVLLCIHILGIGLDVPCCEIWNKNNQLIRFEIL
WTGSNYFCITCTTCLSVFYFFKIANFSNPLFLWIKWRIHKVLLTIVLAAVFSFCLSLPFKDTVFTSLIKNKVNAERNWTVSFT
MRTYELFLSHMLLNIMFIIPFAVSLASFVLLICLSLWSHTRQMKGRGGDPTTKVHVVRAMKAMISFLLFFMYLSTIMMNLAY
VILDSLVAKIFANTLVFLYPSGHTFLLILWTSKLLQASLVCVLLKCLHLRKPTRP*

>Felis catusTas2r2

MASSLSAIPHLIIMS AEFITGITVNGFLVIINGKELIKSRKLTMPQLLCICIGISRFGLLMVL MVQSFFSVFFPLFYRVKIYGASM
LFFWMFSSVSLWFATCLSIFYCLKISGFTQSYFLWLKFRISKLMPWLLGSLLASMSIAAVSLDVGYPKNMNNNDFLKNAT
LKKTELKIGPINGVLLVNLALLFPLAIFVMCTFMLFISLYRHTHRMQNRSHGVRNASTEAHINALKT VITFFCFFISYFAAFM
ANMTFSIPYGSQCFVVKDIMA AFPSGHSVIIIILNNSKFQQPFRRLLCLKKNQ*

>Felis catusTas2r38

MLALTPVITVSYEVKSAFLFLSILEFTVGVLANAFIVLVNFDVVRKQPLSNCDLILLSLSLTRLFLHGLLFDALQTYFQRM
KDPLSLSYQTIIMLWMITNQVGLWLTCLSLLYCSKIARFSHTLLHCVASWVSRKVPQMLLGAMLFSCICTAICLGDFFSRSG
FTFTTMLFVNNTFNLQIAKLSFYHSFIFCTLASIPSLFFLVSSGV LIVSLGRHMRTMRAKTKDSDHPSLEAHIKALRSLVSFL
CLYVVSFCAALVSPLLMLWHNKIGVMICVGILAACPSIHAAILISGNAKLRRAVETILLWVQNSLKIGADHKADARTPGLC*

>Felis catusTas2r42

MLAGLDKIFLTLSTAEFVIGMSGNVFVGLVNCSEWIKNQKISFVDFILTCLALS RITQLLVSLWQS FVM T L S P P F Y S T W K S A K
LITLLWRITNHWTWFTTCLSFYLLKIAHFSHSFFLWLKWRTRNRVLAIVL V L S L P F L L D F L V L E S L N D F L N V Y V M D E S N L T
LHINDCKSLYIKTLILLSFSYTIPIVLSLTVLLFLSLVRHIRNLQLSVMGSRDASTQAHKGAIKMVMMSFLLFTVHFFSIQLTN
WMLLIFWNNKVTKFMILAIYVFPSSHSILILGNSKLRQTALKVLRHLKSTLKREKTVSSQLIDVPGSF*

>Felis catusTas2r67

MPSGIENFTLTA AVGAFMIGMLGNGFIALVNCIDWVKHRKLS PADCILTSLAVSRIILLWMILFDLLVMVFWPHLYNIEKLATA
VNICWTLTNHLATWFATCLSIFYFFRIANFSHRCTWLRRRISRVLVPLGSLFLLVFNYKLLVGFSDLWATYIHN YERNSTR
PLDVSKTG YLNSLVLSFIYLPFLSLTSLLLLFLSLMRHTRNVQLNSSSRDFSTEAHKRAMKMVISFLLSTVHFFSIQLTGWI
FLLK K H H A N L M V T L T S A L F P S G H S F I L I F G N S K L R Q T A L G L L W H L N C H L K M V K P L A S *

>Felis catusTas2r7

MLDKVESTLMLIAAGEFAMGILGNAFIGLVNMCNWKIKRNASIDLILTSLAISRICLLCIILLDYFILGLYPDVYTTGKKMRIID
FFWTLTNHLNVWFATCLSVFYFLKIANFFHPLFLWMKWKIDSAIPRILLGCLAFSVFISLVVSENLNDDFRSCVKVKKKTNTIT
VKCRVNKAQYASVKICLNLLTLFPFSVSVISFLLLLLSLWRHTRQMKISATGCRDPSIEAHVGMKAVISFLLLFIAYYLAFL
VATSSYFMPETELAVMIGELIALIYPSHSLILGNNKLRQASLRVLWKVKCILKRRNH*

>Homo sapiensTas2r10

MLRVVEGIFIVVSVESVFGVLGNGFIGLVNDCIDCAKNKLSSTIGFILTGLAISRIFLIWIIITDGFQIFSPNIYASGNLIEYISYFWVI
GNQSSMWFATSLSIFYFLKIANFNSNYIFLWLSRTNMVLPFMIIVFLLISSLLNFAYIAKILNDYKTKNDTVWDLNMYKSEYFIK
QILLNLGVIFFFTLSLITCIFIISLWRHNRQMQSNVTGLRDSNTEAHVKAMKVLISFIIIFILYFIGMAIEISCFVRENKLLLMF
GMTTTAIYPWGHSEFILGNSKLLKQASLRVLQQLKCEKRKNLVRT*

>Homo sapiensTas2r38

MLTLTRIRTVSYEVRSTFLFISVLEFAVGFLTNAFVFLVNFWDVVKRQALSNSDCVLLCCLISRLFLHGLLFLSAIQLTH
FQKLSEPLNHSYQAIHMLWMIANQANLWLAACLSELLYCSKLIRFSHTFLICLASWVSRKISQMLLGILCSCICTVLCVW
CFFSRPHFTVTTVLFMNNNTRLNWQIKDLNLFYSFLFCYLWSVPPFLLFLVSSGMLTVSLGRHMRTMKVYTRNSRDPSELA
HIKALKSLVSFFCFVVISSCVAFISVPLLILWRDKIGVMVCVGIMAACPSGHAAILISGNAKLRRAVMTILLWAQSSLKVRADH
KADSRTL*

>Homo sapiensTas2r39

MLGRCFPPDTKEKQQLRMTKLCDDPAESELSPFLITLILAVLLAEYLIGHANGFIMAIHAAEWVQNKAVSTSGRILVFLSVSRI
ALQSLMMLLEITISSTLSFYSEDVYAFKISFIFLNFCSLWFAAWLSFFYFVKIANFSPFLFLKLRWRITGLIPWLLWLSVFIS
FSHSMFCINICTVYCNSFPFHSSNSTKKTLYLSEINNVGLAFFNLGIVTPLIMFILATLLILSLKRHTLHMGSNATGSNDP
SMEAHMGAIKAISYFLILYIFNAVALFIYLSNMFINDSLWNNLCQIIMAAYPASHSILLIQDNPGLRRRAWKRLQLRLHLYP
KEWTL*

>Homo sapiensTas2r40

MATVNTDATDKDISKFKVTFTLVVSIEGICITGILGSGFITAIYGAEWARGKTLPTGDRIMLMLSFSRLLLQIWMMLLENIFSL
FRIVYNQNSVYILFKVITVFLNHSNLWFAAWLKVFCYCLRIANFNHPLFLMKRKHIVLMPWLLRLSVLVSFSFPLSRDVFN
VYVNSSIPIPSSNSTEKKYFSETNMVNLFVFFYNMGIFVPLIMFILATLLILSLKRHTLHMGSNATGSRDPSMKAHIGAIKATSY
FLILYIFNAIALFLSTSNIFDITYSSWNILCKIIMAAYPAGHSVQLILGNPGLRRAWKRFQHQVPLYLKGQTL*

>Homo sapiensTas2r41

MQAALTAFFVLLFSLLSLLGIAANGFIVLVGREWLRYGRLLPLDMILISLGASRFCLQLVGTVHNFYSAQKVEYSG-
GL GRQFFHLHWHLNSATFWFCSWLSVLCVKIANITHSTFLWLKWRFPGWVPWLLGSLVLSIFITLLFFWVNPVYQE
FLIRKFSGNMTYKWNTRIETYFPSLKLVIWSIPFSVFLVSIMLLNSLRRHTQRMQHNGHSLQDPSTQAHTRALKSLISFLILY
ALSFLSLIIDAAKFISMQNDFYWPWQIAVYLCISVHPFILIFSNLKLRVFSQLLLLARGFWVA*

>Homo sapiensTas2r42

MATELDKIFLILAIAEFIHSMGLGNVFIGLVNCSSEGIKNQKVFSAFILTCLAISTIGQLLVILFDSFLVGLASHLYTTYRLGKTVIM
LWHMTNHLTTWLATCLSIYFFKIAHFPHSLFLWLRWRMNGMIVMLLILSLFLLIFDSLVLEIFIDISLNIIDKSNLTYLDESKT
LYDKLSILKTLTSLTSPFSLFLTSLFLFLSLVRHTRNLKLSLGRDSSSTEAHRRAMKMVMSFLFLFIVHFFSLQVANWIFFM
LWNNKCIKFVMLALNAFPSCHSFILILGNSKLLQQTAVRLLWHLRNYTKTPNPLP*

>Homo sapiensTas2r5

MLSAGLGLMLVAVVEFLIGLIGNGLVWVWVWFREWIRKFNWSSYNLILGLAGCRFLQWLIILDLSLFPFLQSSRWLR YL-
SIFWVLSQASLWFATFLSVFYCKKITTFDRPAYLWLKQRAYNLSLWCLLGYFIINLLTVQIGLTFYHPPQGNSSIRYP FES-
WQYLYAFQLNSGSYLPLVFLVSSGMLIVSLYTHHKMKVHSAGRRDVRKAHITALKSLGCFLLHLVYIMASPF SITSK
TYPDLTSVFIWETLMAAYPSLHSLILIMGIPRVKQTCQKILWKTVCARRCWGP*

>Homo sapiensTas2r7

MADKVQTTLLFLAVGEFSVGLGNAFIGLVNCDWVVKRRIASIDLILTSLAISRICLLCVILLDCFILVLYPDVYATGKEMRIID
FFWTLTNHLSIWFATCLSIYFFKIGNFFHPLFLWMKWRIDRISWILLGCVVLSVVISLIPATENLNADFRFCVKAKRKTNTLT
WSCRVNKTQHASTKLFNLATLLPFCVCLMSFFLLILSLRRHIRRMQLSATGCRDPSIEAHVVRALKAVISFLLLFIAYYLSFLI
ATSSYFMPETELAVIFGESIALIYPSHSHFILGNNKLRHASLKVIVKVMKILKGRKFQHQKQI*

>Lycaon pictusTas2r10

MLSILEGLLIFIAVSESLGVLGNGFIGLVNDCIDCVKNKKFSMVGFILTGLATSRICLILIIITDGFIFSPDMYSSGNLIDYISYL
WVIINQSSIWFATSLSIFYFLKIANFSSHIFLWLGKINSVPLLMGSLFISWLFVFPQIVKIINDNRMKSRNTTWQLNMQKSEF
FTKQILLNLGVILLFTLCLITCFLIVSLWRHNRHMQLNVTGLRDPSTEAHVKAMKILVSIIFILYFIGIAIEISCFILPENKLL
FIFGMMTTAIYPWGHSEFILGNSKLLKQASLKTLLQQLKCEARRLLTAAQIHVGGNGCSRRI*

>Lycaon pictusTas2r12

MAGTMKNVFMIFAGEFIMGILGNGFIILVNCIDWIRSWKFFLIDFILTCLAISRIFLLCIIMLGIGLDIICKEIWNNDNLITFEV
LWTGCNYFCTICTVCLSVFYFLKIANSSNPIFFWLKRRRI?RLLLIIVLGAVFYFCLSLLLKDIVFKNMIKTKVNTESNVTLNFTAR
KYDLLTSHIFLNMLFVIPFAVSLASFVLLIHSWLNHTRRMKGIDSGDLITEAHVRAMKFMISFLFFFYIYLSNIIIFAYVVDL
SLVAKIFANILVFSYPSGHPFLILWNCKLQASLYVLRKLVKWMNLRK?AYIKHT*

>Lycaon pictusTas2r2

MISFLSALPHVIVMSAEFITGITVNGFLIHNCKELIKSRKPTPVQLLFICIGMSRFGLLMVLMIQSFFSVLFPFLFYKVNIFGTAM
LFFWMFFSFVSWFATCLSVFYCLKIAGFTQSCFLWLKFRISKLMPWLLGSLLASMSIAALCIEADYPKKVDDALKNAT
LKRTEPKIRQISEMLLVNLALLFPLAIFVMCTFMLFISLCKHTRMQNGSHGVRNASTKAHINALKTVITFFCFFISYFAAFM
ANMTFSIPYGSHCFVVKDIMAAFPSPGHSIIILSNSKYQQPFRRLLCFKKNQ*

>Lycaon pictusTas2r38

MFLSVLELAVGILTNAFIFLVNFWDVVRQPLSNCDLILLSLTRLFLHGLLFLDAIQLTYFQWMKDPLSLSYQTIIMLWMIT
NQAGLWLTCLSLFYCSKIVRFSHTLLCLANWVSRKAPQMLLGAMLFSSACTLLCLGDFFSRSGFAFTTVLLMNTEFNS
QIVKLNFFYSSIFCTLGSIPPFMFFLVSSGVLIISLGRHMRTMKANTKDSGDPSEAHKALISLISFLCLYVVSFCAALISVPLTM
VWHNKIGVMICVGIACPSIIHAAIISGNAKLRAVETILLWVQSSLKVRAGHRADLRTPDLC*

>Lycaon pictusTas2r39

METCNPPENELSPFGILSILTIIGTECIVGIIANGFIMAINAAEWIKNKTVSTSGRVLFFLSASRIALQSFTMLEITFSST
SPRFYNEDVMYDTFKVSMFLNHCSLWFAAWLSFFYFVKIADFSHPLFLKLRWRISRLMPWLLWLSVFISLGYSMLLSNDI
YTVCNNSSIPSSNSTKKKYFTKTNVNLVLLYNLGIPIIMFILSATLLIISLKRHTLHMESNATGCRDPSMEAHMGAIRATS
YFLILYIFNSVALFLYMSNIFDINSSWNILCKFIMAAYPAGHSILLIQDNPLRRRAWKRLQPQVHFYLKEQTP*

>Lycaon pictusTas2r40

MSRFKIVLTLVVPGEICTGIVGNGFITIIHGAKWARGKRLLVSDCILLMLSFSRLLLQIWMMLENIYSLFRVTYNQST
VFIVFKVTIVFLNYFNWLAAWLNIFYCLRITNLAHHVFFMMKRKITELMPRLGLSLFISLCSFPFSTDFHVVYVNSSIP
IRSSNTTEKKYFSETNVVNLVLLYNLGIPIIMFILSATLLIISLKRHTLHMESNATGCRDPSMEAHFGAIRATSIFLILYIFNAV
ALFLSMSNIFDINSSWNILCKIVMAAYPASHSVLLILGNPGLRRARRFQHHVPLHL*

>Lycaon pictusTas2r41

MQPAVSFAFFMLLVLLCVLGIANGFIVLVLSRERMQRGRLLPSDVILLSLGSARFCLQCVGMMNFFYYLHLEEYSTGPAR
QFGLHWDFLNSATFWFGSWLSVLFCMKIASFTHPTFLWLRWRLPGSVPWLLGASLLISFLVTLFFWGNHNAVYQGFLIRKY
PGNMTFQWSRRELETHYFLPLKFITLSVPCSVFLVSIALLINSLRRHRGRMRSGHGLQDPSSQAHTRALQSLVSFLILY
ALSFAVLVDAAGFFCSQSDWYWPWQILIYLCSTVHPYILISNLRRLRGGRQLLLLVIRGSQMA*

>Lycaon pictusTas2r42

MLAGLDIIFLTLSTAEFIIGMLGNAFIGLVNCSEWVKNRKLADLADLILCLAISRIAQLLVSWFESFMMGLSPLFFSTYKLA
SITLLWRITHHLATWFSTCLSFYLLKIAQFHSLSFLWLRWRMNRVVLAILVFSLLFLLDFLMLETFNDLFSNVDAMDESNT
LYIYESKTFYVKTLILLSFSYIPIILSLTLLLLFSLVKHIRNLQNSMGRSDSSTQAHKKAIKMVMMSFLFVHFFSIQLSNW
MFFLFWNKKITKFMILAVYVFPSSHSLILGNSKLRQTALKVLWHLKSSLKREKPNSSLSIDFPESFQ*

>Lycaon pictusTas2r67

MPSRIENAFVAAAGELITGMLGNGFIVLVNCIDLKLNKLTSTADCLTGLALSRIILLCHILLDSLLMVFWQHLYAID
KLAKFISVFWTSLNHLTTWIVTCLNVFYFFKIANFSPHCFWTWRWRISRVLLVPLGSLFLLFFNFELLDFTNFVWN
LYQRHERNSTWSDVSKTLYLNSLIVFSFIYLIPFLLSASLLLLFSLMRHIRNVQRNSSSRDFRTEAHKRAMKMVMSS?LS
MVNFTSILLTGWFSLLLQNHQANLAVLLSTLVPSGHSFILILGNKLRQAALGLLWHLNCHLKMVKPFAS*

>Lycaon pictusTas2r7

MPDKVESILMLVAAGEFMSGILGNTFIGLVNCIGWIKKRKIASIDLITSLAISRICLLCHILLDCFILVLYPDVYATGKQMRIIDF
WTLTNHLSVWFATCLSFYFLKIANFFHPLFLWMKWRIDSAIPRILLGCLALSVFISLVVTENLNDDFR?CVRTKKTNLTVR
CRVKKAKYSSIKICLNLLTLFPFSVSLISFLLLILSLWRHTRQMKFNATGCRDFSIEAHMGAMKAVISFLLLIAYYLAFLVATSS
YFMPETELAVIIGELIALIYPSHSHFILILGNSKLRQASLRVLWVKVYILKRRNF*

>Mustela putoriusTas2r12

MASTFKNVFTMIFAGEFIAGLLGNGFIILVNCIDWIRSWKFFLIDFILTCLAISRMLLLCIIMLGIGIDIICEEICYNDNQLMIFEIL
WTGSNYFCITCTACLSVFYLLKIANFNSNPIFFWIKQRTHRLLLIIVLGAVLSFCLSLLFKDVTVFNLIKTVWNPDSNQTLNFT
VRKYDLLTSNIVLNIMFIIPFGVSLASFVLLIHSWVKHTRRMKGTGSGDLITKAHVAMKSMISFLLFFMYWLSNIIIVLY
VMLDSLVAKMFAVMFVFSYPSGHPFLILWNSKLRQASLQVLRKLRWCRNVRKSANP*

>Mustela putoriusTas2r10

MPDKVETTLMLIAAGEFMSGILGNAFIGLVNCMGWIKNRKITSIDLITSLAISRICLLCHILLDCFILVLYPDVYTAGKQMRIID
FFWTLTNHLSVWFATCLSFYFLKIANFYHPLFLWMKWRIDSMIPRILLGCLAVSAFISLVVTENLNDDFRYCVKTKRKANVT
VRCRVNKAQYASIKICLNLLTLFPASLISFLLLILSLWRHNRQMKVSATRCRDFNIEAHVGAMKAVISFLLLIAYYLAFL
VATSSYFMPETELAVIIGELIALIYPSHSHFILILGSKLRQTSITLVWVKVYILNRRNF*

>Mustela putoriusTas2r2

MASSLSAIPHLIVMSAEFITGITVNAFLILINCKELIKSRKLTMPQLLFLCIGMSRFGLLMVLMVQSFFSVFFPLFYRVKVV
GAAMLFFWMFFSSVSLWFATCLSVFYCLKISGFTQSYFLWLKFRISKLSWLLGSLASMSIAALCIEADYPKKANDDDV
LKNATLKRTEPKIRQINEVLLVNLALLFPLALFVMCTFMLLISLYKHTHRMQNGSHGVRNASTEAHINALKTVMTFFCFFISY
FAAFMANMTFSMPYGSHCFVVKDIMAAFPSPGHSIIILSNSKFQQPFRRLLCFKKNQ*

>Mustela putoriusTas2r38

MLTLLTPVITVSYEVKCAFLLLSALEFAVGILTNTFIFLVNIWDVVRQRPLSNCDLILLSLSLTRLFLHGLLFLDALQLIYFQRMK
DPLSLSYQIIVMLWMVTNQAGLWLTTCLSLLYCSKIVRFSHTILLCLASWVSRKVPQMLLGAMVFFSICLCLGDFFSRSGFG
FTTTLFMNNTLNLQITKLNFFYSFIFCTLGSIPPFLFLVSSGVLIVSLGRHMRTMKAKSKSDHPSLEAHIKALRSLISFLCLY
VVSFCAALISVPLMLWRNKIGVMICVGIACPSIHAIIISGNAKLRRRAVETILLWQSSLKVRADHRADPRTPDLC*

>Mustela putoriusTas2r42

MLAGLDTIFLTLTSEFIIGMLGNVFIGLVNCESEVVRNREISLADFIILTCLAISRISQLLVSSFESFMMGLSPPFPYPTHKLA
PVTLLWRITNHLSTWFTTSLIFYLKIAQFHSFLWLRWRMNRVVLAILVFSLFILLFDLLETFNFFWNHAMDESNTL
HINESKTSYIKTLVLLSISYIPIVLSLISLFLSLVKHIRNLKLSMGSRDFSIQAHKKAIKMVVSFLFLFTVHFLSIQLSNWIL
FLFWNNKSAKFIMLAVYIFPSGHSILILGNSRLRQTALNVLWHLKSFLKREKAISLQINLPEPFQ*

>Mustela putoriusTas2r5

MLSAALALLMVVAEFLIGLVGNVGVVWVSFGEWVRKFNNGSSYNLIVLGLAVCRFLLQWLIMMDLSLPLFHSSHWLR
YLSVFWILVSQASLWFAAFLSVFYCRKIMTLEHPVCMWLKQRAYCLSLWCLLGYFMISLVLTLIGLKPYPDSQGNSSILYP
FESWHYLYVLKLNAGSGLPLMVFLVSSVMLIISLYRHHKMKVYTAGRRDARAKAHITVLKSLGCFLLHVVYILASPFSSII
YKSSANLLIIFISVMAAYPSLHVSILIMGNPRVKQTCQRILWKMVCAWRS*

>Mustela putoriusTas2r67

MPSGIENAFLIAATGGFLTGMLGNSFIVLVNCIDWVKGQKLSSADCILTSLAISRIVLLCIILLDSYLMVWVPHLYIIDNIA
KFVNSFWTLNSHLATWFATGLSVFYFKIANFHSCHFTWLRRRISRVLVPLGSLLLLCNFELDTFSNFSVNVYQRY ER-
NSTWSLNVSKTLNLSLIVFSFTYLIPFLSLASLFLSLRRHTRNVQNCNRDFNTEAHQRAMKMVMSFLFLSTVH
FSSILLTGWIFVLLQNSQVNLVAILLSTLFPSSHSFILGNSKLRKTALGLLWHINHHLKTVPKPFIP*

>Mustela putoriusTas2r7

MPDKVETTLMLIAAGEFSMIGLGNVFIGLVNCGWIKNRKITSIDLITSLAISRICLLCIILLDCFILVLYPDVYTAGKQMRIID
FFWTLNHLVSVFATCLSFYFLKIANFYHPLFLWMKWRIDSMIPRILLGCLAVSAFISLVVTENLNDDFRYCVKTKRKANVT
VRCRVNKAQYASIKICLNLLTLLPFSASLISLFLLLILSLWRHNRQMKVSATRCRDFNIEAHVGAMKAVISFLLLFIAYYLAFL
VATSSYFMPETELAVIIGELIALIYPSHSFILGSKKLRQTSLTVLWVKVYILNRRNF*

>Nyctereutes procyonoidesTas2r10

MLSILEGLLIFIAVSESILGVLGNVFIGLVNCGWIKNRKITSIDLITSLAISRICLLCIILLDCFILVLYPDVYTAGKQMRIID
WVIINQSSIWFATSLSFYFLKIANFHHIFLWLGKGRINSVPLLMGSLFISWLFVFPQVQIINDNRMKSRNTTRQLNMQKSEF
FTKQILLNLGVILLFTLCLITCFLLIISLWRHNRHMQLNVTGLRDPSTEAHVKAMKILLSFILFIFYFIGIAIEISCFILPENKLLFIF
GMMTTAIYPWGHFILGNSKLRKQASLTKLQQLKCCARRLLTAAQIIVGGNGCFRRII*

>Nyctereutes procyonoidesTas2r12

MAGTLKNVFMIFAGEFIMGILGNVFIGLVNCGWIKNRKITSIDLITSLAISRICLLCIILLDCFILVLYPDVYTAGKQMRIID
WTGCNYFCTTCTVCLSVFYFLKIANSSNPIFFWLKRIHRLLLIIVLGAFCFLSLLKDIVFKNMIKTKVNTESNVTLNFTAR
KYDLLTSHIFLNILFVIPAVSLASFVLLIHSWLNHITRMKGIDSGDLITEAHVVRAMKFMISFLLFFFIYLSNIIIFAYVVDLSL
VAKIFANILVFSYPSGHPFLILWNCKLKQASLYVLRKLRKWCMLRKPAYIKHT*

>Nyctereutes procyonoidesTas2r2

MISFLSALPHVIIMSAAEFITGITVNGFLIHNCKELIKSRKPTPVQVLFICIGMSRFGLLMVLMIQSFFSVFFPFYKVNIFGTAM
LFFWMMFSSVSLWFATCLSVFYCLKIAGFTQSCFLWLKFRISKLLPWWWGSLASMSIAALCIEADYKPNVDDALKNAT
LKRTEPKIRQINEMLLVNLALLFPLAIFVMCTFMLFISLYKHTHRMQNGSHGVRNASTKAHINALKTVITFFCFYFAAFM
ANMTFSIPYGSCHFFVVKDIMAAPSGHSIILLNSNSKYQQPFRRLLCFKKNQ*

>Nyctereutes procyonoidesTas2r38

MFLSVLELAVGILTNAFIFLVNFWDVVRQRPLSNCDLILLSLSLTRLFLHGLLFLDAIQLTYFQRMKDPLSLSYQTIIMLWMIT
NQAGLWLTTCLSLFCYKIVHFSHTLLCLANWVSRKAPQMLLGAMLSFACTLLCLGDFFSRSGFAFTTVLLMNNTEFNS
QIVKLNFFYSIFCTLGSIPPFFMFLVSSGVLISLGRHMRTMKANTKDSGDPSEAHIKALISLISFLCLYVVSFCAALISVPLTM
VWHNKIGVMICVGIACPSIHAAILISGNAKLRRRAVETILLWVQSSLKVRAGHRADLRTPDLC*

>Nyctereutes procyonoidesTas2r39

METCNPPENELSPFGILSILTITGTECIVGIIANGFIMAINAAEWIKNKTVSTSGRVLFFLSASRIALQSFTMLEITFSST
SPRFYNEDVMYDTFKVSMFLNHCSLWFAAWLSFFYFVKIADFSHPLFLKLRWRISRLMPWLLWLSVFISLGYSMLLSNDI
YTVCNNSIPSSNSTKKKYFTKTNVNLVLLYNLGIFIPLIMFILSATLLIISLKRHTLHMESNATGCRDPSMEAHIGAIRATSY
FLILFIFNSVALFLYMSNIFDINSSWNILCKFIMAAYPAGHSILLIQDNPGLRRRAWKRLQPQVHFYLKEQTP*

>Nyctereutes procyonoidesTas2r40

MSRFKIVLTLVPGIDCLTGIVGNGFITIIHGAKWARGKRLPVSDCILLMFSRLLLIQIWMMLNIYSLLFQVTYNQNTVFIL
FKVTIVFLNYFNWLAAWLNIFYCLRIANLAHHVFMKKKITELMPRLPGLSLFISLFCNFPPSTDFHVVYVNSSIPIRSSNT
SEKKYFTKTNVNLVLLYNLGIFILLIMFILSATLLIISLKRHTLHMESNATGCRDPSMEAHIGAIRATSYFLILYIFNAVAL
FLSMSNIFDINSSWNILCKIVMAAYPAGHSVLLILGNPGLRRRAWKRFQHHVPLHL*

>Nyctereutes procyonoidesTas2r41

MQPAVSACFMLLFVLLCVLGILANGFIVLVLSRERMRRGRLLPSDVILLSLGASRFCLQCVGMMNNFYYYLHLEEYST
GLARQFFGLHWDFLNSATFWFGSWLSVLFCKIASFTHTPTFLWLRWRLPGSVPWLLGASLLISFLVTLLFFWGNHAVYQG
FLIRKYPGNMTFQQWSRRLEIHVFLPLKFITLSVPCSVFLVSIALLINSLRRHRGRMRGGHGLQDPSSQAHTRALKSLVSFLI
LYALSFASLVIDAAGFFCSQSDWYWPWQILYILCTSVHPYILILSNLRLRGGCRQLLLLVRGSQA*

>Nyctereutes procyonoidesTas2r42

MLAGLDIIFLTLSTAEFIIGMLGNAFIQLVNCSEWVKNQKISLADFILICLAISRIAQLLVSWFESFMMGLSPLFFSTYKLGK
SITLLWRITHHLATWFSTCLSFYVVKIAQFSHSLFLWLRWRMNRVVLAILVSLFLLDFLMLLETFNDFLNVNDAMDESNT
LYINESKTFYVKTLLLSFSYIPIILSLTSLLLFLSLVKHIRNLQSSMGRSDSSTAQAHKKAIKMVMSFLFLFTVHFFSIQLSNW
MFFLFWNKKITKFIMLAVYVFPSSHSLILGNSKLRQTALKVWLHLKSSLKREKPNSSLPIDFPESFQ*

>Nyctereutes procyonoidesTas2r5

MLTAALPLLMMVAVVEFLIGLVNGVLMVWVSGEWRKFNSSYNLIVLGLAVCRFLQLCLIMMDLSLFPFFQSSRWL
HYLSIFWILVSAQLWATFLSVFYCRRIMTLEHPVCLWLKQRAYCLSLWCLLVYLMISLLLVAHVGLKPYNPSQGNSSILY
PLKSWHYLYIVTLNAGSGLPLMVFLVSSGMLIVSLYRHHKKMEVHTAGRRDAQAKAHITVLKSLGCFILHVIYILASPFSIT
SKSSADLLVFISETVMAAYPSSLHVSILGNPRMKQTCQRILWKTVCWKS*

>Nyctereutes procyonoidesTas2r67

MPSRIENAFIVAAAGELITGMLGNFIVLVNCIDLKLNKSTADCLTGLALSRIILLCIILLDSLLMVFWQHLYAID
KLARFINVFWTLNHLTTWIVTCLNVFYFFKIANFNSHPCFTWLRWRISRVLLVPLGSLFLLFFNFELLDFTNFVWN
LYQRHERNSTWLDVSKTVYLNLSLIVFSFIYLIPLFLSLASLLLLFSLMRHTRNVQRNSSSRDFRTEAHKRAMKVMSSLL
STVNFTSILLTGWFSLLQNHQANLAVLLSTLVPSGHSFILILGNKLRQAALGLLWHLNCHLKMVKPFAS*

>Nyctereutes procyonoidesTas2r7

MPDKVESILMLVAAGEFSMGILGNTFIGLVNCIGWIKKRKIASIDLITSLAISRICLLCIILLDCFILVLYPDVYATGKQMRIIDFF
WTLTNHLSVWFATCLSFYFLKIANFFHPLFLWMKWRIDSAIPRILLGCLALS VFISLVVTENLNDDFRCCVVRTKKTNTLTVR
CRVKKAKYSSIKICLNLLTLVPLSVSLISFLLILSLWRHTRQMKFNATGCRDFSIEAHMGAMKAVISFLLFIAYYLAFLVATSS
YFMPETELAVIIGELIALIYPSHSFILILGNSKLRQASRLVWVKYILKRNK*

>Panthera pardusTas2r10

MLSIVEGLLIFIAVSESVLGVNGFIGLVNMCDCVKKFKSMIGFILTGLATSRICLILIVVDGFIKIFSPDMYSSGHLIDYISYL
WIIINQSNWFATSLSTFYFLKIANFNSHMFVWLKGRINWVPLLMGSLFISWLFTEFPQIVKILRDSKVVNGNSTWQLNMLKSE
FFTQILVNVGVLLLFTLFLITCFLLIISLWRHSRRMQLNVTGFQDPSTEAHMKAMKVLISFLILFILHFIAGLAIACFTMPEK
KLLFIFGMMTTVLYPWGHSFILILGNSKLRQASRLALQVVKCY*

>Panthera pardusTas2r12

MASILKNVFMILFAGEFIMGILGNFIILVNCIDWIRNWKFFIIDFISTCLAISRVLLCIILLGIGVDVPCCEIWNKKNQLISFEIL
WTGSNYFCTTCTTCLSVFYFFKIANFNSPIFLWLKWRHVKVLLIIVLAAVFSFCLSLPFKDTVFMSLIKSVNAERNRTVSFTM
RTYELFLSHMLLNIMFIIPFAVSLASFVLLIRLSWHSRTRQVKDRGGDPITKVHVRAMKSMISFLFFMYLLSTIMMNLAYVILD
SLVAKIFANTLVFLYPSGHTFLLILWTSKLRQASLCLVKKLKLHLRKPHTP*

>Panthera pardusTas2r2

MASSLSAIPHLIIMSAEFITGITVNGFLVIINGKELIKSRKLTMPQLLCICIGISRFGLLMVLMVQSFFSVFFPLFYRVKIYGAAM
LFFWMFSSVSLWFATCLSVFYCLKISGFTQSYFLWLKFRISKLMPWLLGSLASMSIAAVCLDVGYPKNTNNDFLKNAT
LKKTELKIRPINGVLLVNLALLFPLAIFVMCTFMLFISLYRHTRMQNRSHGVRNASTEAHINALKTVITFFCFISYFAAFM
ANMTFSPYGSQCFVVKDIMAAFPSGHSVIIIILNNSKFQQPFRRLLCLKKNQ*

>Panthera pardusTas2r38

MLALTPVITVSYEKSAFLFLSILEFTVGLANAFIVLVNFDVVRKQPLSNCDLILLSLSTRFLHGLLFLDAIQTYFQRM
KDPLSLSYQTIIMLWMITNQVGLWLTCLSLLYCSKIARFSHTLLCVASWVSRKVPQMLLGAMFFSCICTAICLGDFFSRSG
FTFTMLFVNNTFNLQIAKLNFYHSFIFCTLVSIPSLFLVSSGVLVSLGRHMRTMRAKTKDSRDPSEAHIKALRSLVSFL
CLYVVSFCAALVSVPLMLWHNKIGVMICVGIILAAACPSIHAAILISGNAKLRRAVETILLWVQNSLKIGADHKADPRTPDLC*

>Panthera pardusTas2r40

MATVNTDAMDRTSRFKIVLT?VLSGVECMTGMIINGFITAIHGAEWARGKRLPVSDCILLKLSFSRLLLQIWMMLNENIYSLF
FLVTYNQNTVFITFKVITMFLNYSNLWLAAWLNIVSCLRIANFAHCLFSMMKRELMRLLGLSLFISLRFSSFRFSKDFIN
VYINSSVIPSSNTTEKKYFSETNMVNVLVLLYNGIFIPLIMLIFAATLLIISLKRYTLHKIHPHATGFRDPSMEAHMGAIKAISY
FLIFYIFNAVALFISMSNIFDINSSWNILCKIVMAAYPAGHSVLLILGNPGLRRRAWKRFQHRVHLHL*EQL*

>Panthera pardusTas2r41

MAGLVSDGRCRAWTLFSRPQRSKEGLCAGVGRPPGTKAQGTGVVTRAAETRPGLSAFFMLLFVLPCLLGLILASG?IVLV
LGRERLQRGRLLPSGMILLSLGASRFCLQVWGTVNSFYW?EYRRGPARQFFGLHWDFLNSATFRFSSWHSVLFCKMITN
FTHTPTFLWVKWRFPGPSVPWLLMAPLLISFIVTLLFFWGNRAVCEGFLIRKFPGNMTFRQWSRTLEVHYFLPLKLTLLVPCSV
FLVSALLINSLRRHTGRMQLSAHRPQDPSAQAHTRALKSLVSFLILDALSLASLVIDAAGFFSESDWYWPYWPWQILYIL
CMSVHPSFLISSNRLRGVCRQLLLLARGFWVA

>Panthera pardusTas2r42

MLAGLDKIFLTLSTAEFIIGMSGNVFVGLVNCSEWIKNQKISFVDFILTCLALSRLITQLLVSLWQSFVMTLSPPFYSTWKS
LITLLWRITNHWTTWFTTCLSFYLLKIAHFHSHSFFLWLKWRTRNVVLAAILVLSLPLFLDFLVLLESNDFFLN
VYVMDESNTLHINDSKSLYIKTLILLSFSYTIPIVLSLISLVLLFSLVLRHIRNLQLNFMGSRDPSTQAHKGAIKM
VMSFLLLFTVHFFSIQLTNWMLFIFWNNKFTKFIMLAIYVFPSPGHSLLILGNSKLRQTALKVLRHLKSTLKREKTVS
SLQIDVPGSF*

>Panthera pardusTas2r67

MPSGIENFTLTAAVGAFMIGMLGNGFIVLVNCIDVVKHRKLSPADCILTSLAVSRIILLWMLFDSLVMVFWPHLYNIEK
LATAVSIKWTVTNHLATWFATCLSVFYFFRIANFHRCTWLRQRIRRVLLVPLGSLFLLVFNKLLVGFSDLVAT
IYHNYERNSTRPLDVSKTVYLNLSLVLSFIYLIPLFLSLTSLLLFLSLMRHTRNVQLNSSSRDFSTEAHRRAMK
MVISFLLLSTVHFFSIQLTGWIIILLKKHHANLVTLTSAFFPSGHSLLIFGNSKLRQTALGLLWHLNCHLKMVKPLAS*

>Panthera pardusTas2r7

MCLSNYISPTRSGWIFLYFTMLDKVESTLMLIAAGEFAMGILGNAFIGLVNMCNWKIKNRKIASIDLILTSLAISRI
CLLCIILLDYFILGLYDPVYTTGKKMRIIDFFWTLTNHLNVWFATCLSFYFLKIANFFHPLFLWMKWKIDSAIPR
ILLGCLAFSVFISLVSENLNDDFRSCVKVKKKTNITVKCRVNAQYASVKICLNLLTLPFSVSVISFLLLLSLWR
HTRQMKVSATGCRDPSIEAHVGAMKAVISFLLLFIAYLAFLVATSSYFMPETELAVMIGELIALIYPSHSLILIL
GNNKLRQASLRVLWVKCILKRRNH*

>Ursus maritimusTas2r10

MLSILEGLFIFIAVSESILGVLGNGFIELVNCIDCVKKNKFSMIGFILTGLATSRICLILIIITDGLTKIFFPDMY
SSGNLIDYISYLWVIFNQSSIWFAATSLSVFYFLKIANFHHIFLWLKGRINKVLHLLMGSLSFISWLFSTFPQV
EINERMRKSGNATWNLHMQRSKFFTQKILLNLGVILLFTLCLITCFLLIISLWRHNRSMQLNVTGPRDPSTEA
HVKAMKVLISFIILFIFYFIGIAIEISCFTLPENKLLFISGMVTTAIYPWGHSEFILGNSKLLKQASLRALQRFK
CCEVGRLLTAAQTRVGRNGCSRRII*

>Ursus maritimusTas2r2

MVSSLSAIPHVIVMSAEFITGITVNGFLIHNCKELIKSRKLTMPQLLFCIGMSRFGLLMVL MVQGFVSFFPLF
YRVKIYGAAMLFFWMFLSSLSLWFATCLSVFYCLKISGFTQSYFLWLKFRISKLMWLLGSFLASMSTAALC
VEADYPQNTDSDDGKNDTLKRTEAKIRQINEVLLVNLALLFPLAIFVMCTFMFLFISLYKHTHRMQNGFHG
VRNASTEAHINALKTIVITFFCFFISYFAAFMANMFTSIPYGSCHCFVLKDIMAAFPSPGHSIIILSNSKFQ
QHFRKLLCCLKNR*

>Ursus maritimusTas2r5

MLTAALTLMLVVAEFLIGLVGNGVLMVWSFGWVVRKFNNGSSYNLIVLGLAVCRFLLQWLIMMDLSLFLFQ
SSHWLHNLSVFWILVSQASLWFATFLSVFYCRKITTLEHPVCLWLKQRAYCLSLWCLLGYLMISLVAVARIGL
KPYHLSQGNSSILYPLKSCHYLILKLNAGSGLPLMVFLVSSGMLIVSLYRHHKMKVHTAGRRDARAKAHIT
VLKSLGCFILHVYILASPSIVSKSSADVLIVFISETVMAAYPSLHVSILIMGNPRVKQTCQRILWKTVC
AWRA*

>Ursus maritimusTas2r38

MLTLTPVITVSYEKSAFLFLSALEFAVGILTNAFIFLVNFWDVVRRQPLSNCDLILLSLSLTRLFLHG
LLFLDALELIYFQQMKDPLSLSYQVIIMLWMITNQAGLWLTCLSLLYCSKIVRFSHTILLCLASWISRK
VPQMMLGAMFFSICTLLCLGDFFSRPDFAFTMLFINNTEPNLQIAELNFYHSFIFCILGSIPLFLFLVSS
GVLIVSLGRHMRTMKVKTKDSCDPSLEAHKALRSLVSFFCLYVVSFCAALISVPLMLWHNKIGVMIC
VGILAAACPSIHAAILISSNAKLRRAVETLLWVQSSLKVRADHKADPRTPDL*

>Ursus maritimusTas2r39

MTETCNPPENELSPFYILSILTIIGTECIVGIIANGFIMAINAAEWIENKAVSTSGRILFFLSLSRIALQ
SFMMLEITFSSTCPRFYNEELIYDMFKVSFMLNHCSLWFAAWLSFFYFVKIADFSHPLFLKLRWRIS
RWMPQLLWLSVFISLGYSAFSDIYTVYCNSSIPSSNSTKKKYFTETNMVNLALLYNLGIFIPLTMFIFA
ATLLIISLKRHTLHMESNATGSRDPNMEAHMGAIKATSYFLILYIFNAVALFLYMSNIFDVNSFWN
ILCRFIMAAYPAGHSILLIQGNPGLRRRAWKRLQPQVHLYLKEQTP*

>Ursus maritimusTas2r40

MATVRTDATERDTSRFKIVLTLVVGVECLTGIAGNGFITATHGAEWARGKRLPVSDCILLMFSRLLLQIR
MMLENTYSLFWVTYNQNTVFILFKVTVMFLNYFNWLAAWLNIFYCLRIASFAHPLFSMMKRKITGLMP
CLLGLSLLISLCFSFPSTDFNVYVNSSIPISSNTTEKKYFSETNVVNLALLYNLGIFIPLTMFIFAATLL
IISLKRHTQHMESNATGSRDPSTEAHVGAIKAISYFLILYISNAVALFISMSNIFDINSSGNILCKIV
MAAYPAGHSVLLILGNPGLRKAWKRFQHYVHLHL*

>Ursus maritimusTas2r42

MLAGFDIIFLTLSTAEFIIGMLGNVLIGLVNCSEWVKNRKISLADLILTCLAISRITQLLVSLFESFMMGL
NPPFYSIYKLAKPVTLLWRITNHLTIWFTTCLSFYLLKIAQFSHSLFLWLRMRNRVILAILVFSLLFL
LDFLLEAWNDFFLNHAMDESNTL LFMNESKTFYIKSLILLSFSYIPIALSMTSLLLLFLSLIKHIRNL
QLNSMGRDFSTQAHKRAIKMVVSFLFLFTVHFFSIQLSNWLLFLFWNKNTKFIMLTVYVFPSPGHS
LLILGNSRLRQTALKVLWHLKSSLKKENQFHLYR*

>Ursus maritimusTas2r7

MPDKVETTLMLIAAGEFSVGILGNAFIGLVNMGWIKNRKIASIDLILTSLAISRICLLCIILLDCFILV
LYDPVYTTGKQMRIIDFFWTLTNHLSVWFATCLSFYFFKIANFFHPLFLWMKWRIDSVIPRILLGCLV
SVFISLLVTENLNDDFRYCVKTKKKTNLTVR CRVNAQYASIKIFLNLLTLPFSVSLISFLLLILSLWR
HTRQMKLNATGCRDPSIEAHMGAMKAVISFLLLFIYVCLAFLVATSSYFMPETELAVIIGELIALIYPS
SHSIFILGNSKLRQECLRVLWVKYILNRKNF*

>Vulpes corsacTas2r10

MLSILEVLLIFIAVSEILGVLGNGFIGLVNCDVCVKNKKFSMVGFILTGLATSRICLILIIITDGFIFSPDMYSSGNLIDYISYL
WVIINQSSIWFATSLSIFYFLKIANFSSHIFLWLKGRINSVPLLMGSLFISWLFTFPQIVKIINDNRMKSRNTTWQLNMQKSE
FFTKQILLNLGVILLFTLCLITCFLLIISLWRHNRHMQLNVTGLRDPSTEAHVKAMKILVSFIILFIFYFIGIAIEISCFILPENKLL
FIFGMMTTAIYPWGHFSFILILGNSKCLKQASLKTLOQLKCCEARRLLTAAQIHVGGNGCSRRII

>Vulpes corsacTas2r12

MAGTLKNVFMIFAGEFIMGILGNGFIILVNCIDWIRSWKFFLIDFILTCLAISRIFLLCIIMLGIGLDIICKEIWyNDNQLITFEV
LWTGCNYFCTICTVCLSVFYFLKIANSSNPIFFWLKRRIHRLLLIIVLGAVFCFCLSLLLKDIVFKNMIKTKVNTESNVTLNFT
VRKYDLLTSHMFLNMLFVIPFAVSLASFVLLIHSWLNHTRRMKGIDSGDLITEAHV RAMKFMISFLLFFFIYLSNIIYFAYV
VLDSLVAKIFANILVFSYPSGHPFLLILWNFKLKQASLYVLRKLLKWCMLNRKPAYIKHT

>Vulpes corsacTas2r2

MISFLSALPHVIVMSAEFITGITVNGFLLIMNCKELIKSRKPTPVQLFCIGMSRFGLLMVLMIQSFFSVLFPFLFYKVNIFGTAM
LFFWMFSSVSLWFATCLSVFYCLKIAGFTQSCFLWLKFRISKMPWLLGSLLASMSIAALCVEADYPKKVVDDNALKNAT
LKRTEPKIRQINEMLLVNLALLFPLAIFVMSTFMLFISLYKHTHRMQNGSHGVRNASTKAHINALKTVITFFCFFLSYFAAFM
ANMTFSIPYGSHCFVVKDIMAAFPSGHSIIILLSNSKYQQPFRRLLCFKKNQ

>Vulpes corsacTas2r38

MFLSVLELAVGILTNAFIFLVNFWDVRRQPLSNCDLILLSLSTRFLHGLLFLDAIQLTYFQRMKDPLSLSYQTIIMLWMIT
NQAGLWLTCLSLFYCSKIVHFSHAFLLCLANVWSRKAPQMLLGAMLFSSACTLLCLGDFFSRSGFAFTTVLLMNTEFNS
QIVKLNFFYSSIFCTLGSIPPFMFFLVSSGVLLIISLGRHMRTMKANTKDSGDPSEAHIKALISLISFLCLYVVSFCAALISVPLTM
VWHNKIGVMICVGILAAACPSIIAAILISGNAKLRRRAVETILLWVQSSLKERAGHRADLRTPDLC

>Vulpes corsacTas2r39

METCNPPENELSPFGILSILTITGTECIVGIIANGFIMAINAAEWIKNKTVSTSGRVLFFLSASRIALQSFTMLEITFSST
SPRFYNEDVMYDTFKVSFMLNHCSLWFAAWLSFFYFVKIADFSHPLFLKLRWRISRLMPWLLWFSVVISLGYSMLLSNDI
YTVCNNSIPSSNATKKKYLTMTNVVNLVLLYNLGIFIPILITFILSATLLIISLKRHTLHMESNATGCRDPSMEAHIGAIRATSY
FLILYIFNSVALFLYMSNIFDINSSWNILCKFIMAAYPAGHSILLIQDNPGLRRRAWKRLQPQVHFYLKEQTP

>Vulpes corsacTas2r40

MSRFKIVLTLVPGIECLTVIVGNGFITIIHGAKWARGKRLPVSDCILLMFSRLLLQIWMMLNENIYSLFRVTVYNQST
VFIVFKVTVIFLNYFNLFWFAAWLNIFYCLRITNLAAHVFFMMKRKITELMPRLGLSLFISLCSFPFSTDFHVVYNSSIP
IRSSNTTEKYFSETNVVNLVLLYNLGIFIPILIMFILWATLLIISLKRHTLHMESNATGCRDPSMEAHFGAIRATSYFLILYIFNAV
ALFLSMSNIFDINSSWNILCKVMAAYPASHSVLLILGNPGLRRRAWKRFQHHVPLHL

>Vulpes corsacTas2r41

MQPAVASAFFMLLVLLCVLGLANGFIVLVLSRERMRRGRLLPSDVILLSLGASRFCLQCVGMMNNYYYYLHLEEYSTG
PARQFFGLHWDFLNSATLWFGSWLSVLFCKIASFTHTPTFLWLRWRLPGSVPWLLGASLLISFLVTLFFWGNHAVYQG
FLIRKYPGNMTFQQWSRREIHYFLPLKFITLSPVCSVFLVSIALLINSLRRHRGRMRRSGHGLQDPSSQAHTRALKSLVSFLI
LYALSFAASLVIDAAGFFRSQSEWYWPWQILYILCTSVHPYIILSNLRLRGGCRQLLLLVRGSQA

>Vulpes corsacTas2r42

MLAGLDIIFLTLSTAEFIIGMLGNAFIGLVNCESEWVKNRKISLADFILICLAISRIAQLLVSLFESFMMGLSPLFFSNYKLAK
SITLLWRITHHLATWFSTCLSFYLLKIAQFSHSLFLWLRWRMNRVVLAILVFSLFLFLDFLMLLETFNDFLSNVDAMDESNTL
LYINESKTFYVVKTLILLFSFYIPIILSLTLLLLFLSLVKHIRNLQLNSMGSRDSSSTAQAHKAVKMVMSFLFLFTVHFFSIQLSNW
MFFLFWNKKITKFMILAVYVFPSSHSLILGNSKLRQTALKVLWHLKSSLKREKPNSSLPIDFPESFQ

>Vulpes corsacTas2r5

MLTAALPLLMVVAEFLIGLVGNGLLMVWSFGEWVRKFNSSYNLIVLGLAGCRFLQCLIMMDLSLFPFFQSSRWL
HYLSIFWILVSQASLWFATFLSVFYCRKIMTLEHPVCLWLKQRAYCLSLWCLLVYLMISLLLVAHIGLKPYNPSQGNSSILY
PLKSWHYLYIVKLNAGSGLPLMVFLVSSGMLIVSLYRHHKKMEVHTAGRRDAQAKAHITVLKSLGCFILHVIYILASPFSIT
SKSSADLLVFISETVMAAAYPSLHVSILILGNPRMKQTCQRILWKTVCWKS

>Vulpes corsacTas2r67

MPSRIENAFVAAAGELITGMLGNGFIVLVNCDLVKNLKLSTADCILTGLALSRIILLCHILLDSLLMVFWQHLYAID
KLAKFINVFWTSLNHLTIWIVTCLNVFYFFKIANFSHPCFTWLRWRISRVLLVPLGSLFLLFFNFELLDFTFTNFVWN
LYQRHERNSTWLDVSKTLYLNSLIVFSFIHLIPFLSLSALLLFLSLMRHIRNVQRNSSSRDFRTEAHKRAMKMVMSSLLS
MVNFTSILLTGWFSLLLQNHQANLAVLLLSTLVPSGHSFILILGNKLRQAALGLLWHLNCHLKMVKPFAS

>Vulpes corsacTas2r7

MPDKVESILMLVAEEFMSGILGNTFIGLVTCMGWIKKRKIASIDLITSLAISRICLLCHILLDCFILVLYPDVYATGKQMRIID
FFWTLTNHLSVWFATCLSFYFLKIANFFHPLFLWMKWRIDSAIPRILLGCLALS VFISLVVTENLNDDFRCCVVRTKKTNTLT
VRCRVKKAKYSSIKICLNLLTFPFSVSLISFLLLILSLWRHTRHMKNFATGCRDFSIEAHMGAMKAVISFLLFIAYYLAF
VATSSYFMPETELAVIIGELIALIYPSHSHFILILGNSKLRQASLRVLWKIKYILKRRNF

>Vulpes ferrilataTas2r10

MLSILEGLLIFIAVSEILGVLGNGFIGLVNCIDCVKNKKFSMVGFILTGLATSRICLILIIITDGFIFKIFSPDMYSSGNLIDYISYL
WVIINQSSIWFATSLSIFYFLKIANFSSHIFLWLKGRINSVLPLLMGSLFISWLFQIVKIINDNRMKSRNTTWQLNMQKSE
FFTKQILLNLGVILLFTLCLITCFLLIISLWRHNRHMQNLNVTGLRDPSTEAHVKAMKILVSFIFLIFLYFIGIAIEISCFILPENKLL
FIFGMMTTAIYPWGHSEFILILGNSKLLKQASLKTLLQQLKCEARRLLTAAQIHVGGNGCSRRII

>Vulpes ferrilataTas2r12

MAGTLKNVFMIFAGEFIMGILGNGFIILVNCIDWIRSWKFFLIDFILTCLAISRIFLLCIIMLGIGLDIICKEIWIYNDNQLITFEV
LWTGCNYFCTICTVCLSVFYFLKIANSSNPIFFWLKRRIHRLLLIIVLGAVFCFCLSLLLKDIVFKNMIKTKVNTESNVTLNFT
VRKYDLLTSHMFLNMLFVIPAVSLASFVLLIHSLNHTRRMKGIDSGDLITEAHVRAMKFMISFLLFFIYYLSNIIYFAYV
VLDSLVAKIFANILVFSYPSGHPFLLILWNFKLKQASLYVLRKLLKWCMLNRKPAYIKHT

>Vulpes ferrilataTas2r2

MISFALSALPHVIVMSAEFITGITVNGFLIIMNCKELIKSRKPTPVQLFCIGMSRFGLLMVLMIQSSFSVLFPLFYKVNIFGTAM
LFFWMMFSSVSLWFATCLSVFYCLKIAGFTQSCFLWLKFRISKLMPWLLGSELLASMSIAALCVEADYPKKVDDNALKNAT
LKRTEPKIRQINEMLLVNLALLFPLAIFVMSTFMLFISLYKHTHRMQNGSHGVRNASTKAHINALKTVITFFCFLLSYFAAFM
ANMTFSIPYGSCHFFVVKDIMAAFPSGHSIIILLNSKYQQPFRRLLCFKKNQ

>Vulpes ferrilataTas2r38

MFLSVLELAVGILTNAFIFLVNFWDVVRQPLSNCDLILLSLTRLFLHGLLFLDAIQLTYFQRMKDPLSLSYQTIIMLWMIT
NQAGLWLTCLSLFYCSKIVHFSHAFLLCLANWVSRKAPQMLLGAMLFSSACTLLCLGDFFSRSGFAFTTVLLMNNTEFNS
QIVKLNFFYSSIFCTLGSIPPFMFFLVSSGVLIISLGRHMRTMKANTKDSGDPSEAHIKALISLISFLCLYVVSFCAALISVPLTM
VWHNKIGVMICVGIACPSIIAAILISGNAKLRRAVETILLWVQSSLLKKGAGHRADLRTPDL

>Vulpes ferrilataTas2r39

METCNPPENELSPFGILSILTITGTECIVGIIANGFIMAINVAEWIKNKTVSTSGRVLFFLSASRIALQSFTMLEITFSST
SPRFYNEDVMYDTFKVSMFLNHCSLWFAAWLSFFYFVKIADFSHPLFLKLRWRISRLMPWLLWFSVFISLGYSMLLSNDI
YTVCNNSSIPSSNSTKKKYLTKNVNLVLLYNLGIPIPLITFILSATLLIISLKRHTLHMESNATGCRDPSMEAHIGAIRATSY
FLILYIFNSVALFLYMSNIFDINSSWNILCKFIMAAYPAGHSILLIQDNPGLRRAWKRLQPQVHFYLKEQTP

>Vulpes ferrilataTas2r40

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FKVTVIFLNYFNLFWFAAWLNIFYCLRITNLAAHVFFMMKRKITELMPRLGLSLFISLCSFPFSTDFHVVYVNSSIPIRSSNT
TEKYFSETNVNLVLLYNLGIPIPLIMFILWATLLIISLKRHTLHMESNATGCRDPSMEAHFGAIRATSYFLILYIFNAVAL
FLSMSNIFDINSSWNILCKIVMAAYPASHSVLLILGNPGLRRAWKRFQHHVPLHL

>Vulpes ferrilataTas2r41

MQPAVSFAFFMLLVLLCVLGLANGFIVLVLSKERMRRGRLLPSDVILLSLGASRFCLQCVGMMNNFYHLEEYSTG
PARQFFGLHWDFLNSATFWFGSWLSVLFCKIASFTHTPTFLWRWRLPGSVPWLLGASLLISFLVTLFFWGNHNAVYQG
FLIRKYPGNMTFQQWSRRLEIHYFLPLKFITLSPVCSVFLVSIALLIDSLRRHRGRMRRSGHGLQDPSSQAHTRALKSLVSFLI
LYALSFAASLVIDAAGFFCSQSDWYWPWQILYILCTSVHPYILILSNLRLRGGCRQLLLLVRSGLA

>Vulpes ferrilataTas2r42

MLAGLDIIFLTLSTAEFIIGMLGNAFIGLVNCEWVKNRKISLADFILICLAISRIAQLLVSWFESFMMGLSPLFFSTYKLA
SITLLWRITHHLATWFSTCLSFYLLKIAQFSHSLFLWLRWRMNRVLAIVFSLFFLLDFLMLETFNDLFSNV DAMDENLT
LYIYESKTFYVKTLILLSFSYIPIILSLTSLLLFLSLVKHIRNLQLNSMGRSDSSTQAHKKAIKMVMSFLFLFTVHFFSIQLSN
WIFFLFWNKVKKFIMLAVYVFPSSPPLILILGNSKLLKQTALKVLWHLKSSLKREKPNSSLPIDFPESFQ

>Vulpes ferrilataTas2r5

MLTAALPLLMMVVAEFLIGLVGNGVLMVWSFGEWVRKFNSSYNLIVLGLAGCRFLQCLIMMDLSLFPFFPRSQWI
HYLIIFWILGSEASLWFATFLSVFYCRKIMTLEHPVCLWLKHAYCLSLWCLLVYLMISLLLVAHIGLKPYNPSQGNSSILY
PLKSWHYLYIVKLNAGSGLPLMVFLVSSGMLIVSLYRHHKKMEVHTAGRRDAQAKAHITVLKSLGCFLILHVYILASPFISIT
SKSSADLLVFISETVMAAYPSLHVSILILGNPRMKQTCQRILWKTVCWKS

>Vulpes ferrilataTas2r67

MPSRIENAFVAAAGELITGMLGNCFIVLVNCIDLKLNKSTADCLTGLALSRIILLCIILLDSLLMVFWQHLYAID
KLAKFISVFWTSLNHLTTWIVTCLNVFYFFKIANFHPCTWLRWRISRVLLVPLGSLFLLFFNFELLDFTNFVWN
LYQRHERNSTWLDVSKTLYLNSLIVFSFIYLPFLSLASLLLLFLSLMRHIRNVQRNSSSRDRTEAHKRAMKMMVSSLLS
MVNFTSILLTGWFSLLLQNHQANLAVLLLSTLVPSGHSFILILGNKLRQAALGLLWHLNCHLKMVKPFAS

>Vulpes ferrilataTas2r7

MPDKVESILMLVAAGEFSIGLNTSIGLMYCIGWIKKRKIASIDLITSLAISRICLLCIILLDCFILVLYPDVYATGKQMRIIDFF
WTLTNHLSVWFATCLSFYFLKIANFFHPLFLWMKWRIDSAIPRILLGCLALS VFISLVVTENLNDDFRCCVVRTKKTNTLTVR
CRVKKAKYSSIKICLNLLTLFPFSVSLISFLLLILSLWRHTRQMKFNATGCRDFSIEAHMGAMKAVISFLLFIAYYLAFLVATSS
YFMPETELAVIIGELIALIYSSHSFILILGNSKLRQASLRVLWKIKYILKRRNF

>Vulpes vulpesTas2r10

MLSILKSPLIFIAVSEILGVLGNGFIGLVNCDVCVKNKKFSMVGFILTGLATSRICLILIIITDGFIFKIFSPDMYSSGNLIDYISYL
WVIINQSSIWFATSLSIFYFLKIANFSSHIFLWLKGRINSVPLLMGSLFISWLFQIVKIINDNRMKSRNTTWQLNMQKSE
FFTKQILLNLGVILLFTLCLITCFLLIISLWRHNRHMQLNVTGLRDPSTEAHVKAMKILVSFIFLIFYFIGIAIEISCFILPENKLL
FIFGMMTTAIYPWGHFSFILILGNSKQASLKTLOQLKCCARRLLTAAQIHVGGNGCSRRII

>Vulpes vulpesTas2r12

MAGTLKNVFMIFAGEFIMGILGNGFIIIVNCDWIRSWKFFLIDFILTWLAISRIFLLCIIMLGIGLDIICKEIWIYNDNQLITFEV
LWTGCNYFCTICTMCLSVFYFLKIANSSNPIFFWLKRRRIHRLIIIVLGAIVFCFCLSLLLKDIVFKNMIKTKVNTESNVTLNFTL
RKYDLLTSHIFLNMLFVIPFAVSLASFVLLIHSLNHNTRRMKGIDSGDLITEAHVRAMKFMISFLLFFFIYYSNIIIFAYVVDL
SLVAKIFANILVFSYPSGHPFLILWNFKLKQASLYVLRKLLKWCNLRKPAYIKHT

>Vulpes vulpesTas2r2

MISFLSALPHVIVMSAEFITGITVNGFIIIMNCKELIKSRKPTPVQLFCIGMSRFGLLMVLMIQSFFSVLFPFYKVNIFGTAM
LFFWMMFSSVSLWFATCLSVFYCLKIAGFTQSCFLWLKFRISKLPWLLGSLLASMSIAALCVEADYPKKVDDNALKNAT
LKRTEPKIRKINEMLLVNLALLFPLAIFVMCTFMLFISLYKHTHRMQNGSHGVRNASTKAHINALKTVITFFCFFLSYFAAFM
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>Vulpes vulpesTas2r38

MFLSVLELAVGILTNAFIFLVNFWDVRRQPLSNCDLILLSLSTRFLHGLLFLDAIQLTYFQRMKDPLSLSYQTIIMLWMIT
NQAGLWLTCLSLFYCSKIVHFSHTFLLCLANWVSRKAPQMLLGAMLFSSACTLLCLGDYFSRSGFAFTTVLLMNNTEFNS
QIVKLNIFYSSIFCTLGSIPPFMFFLVSSGVLIISLGRHMRTMKANTKDSGDPSEAHIKALISLISFLCLYVVSFCAALISVPLTM
VWHNKIGVMICVGILAAACPSIIAAILISGNAKLRRAVETILLWVQSSLKVRAGHRADLRTPDLC

>Vulpes vulpesTas2r39

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SPRFYNEDVMYDFTFKVSFMLNHCSLWFAAWLSFFYFVKIADFSHPLFLKLRWRISRLMPWLLWLSVLISLGYSMLLSNDI
YTVCNNSIPSSNSTKTKYLTNTNVNVLVLLYNLGIFLITFILSATLLIISLKRHTLHMESNVTGCRDPSMEAHIGAIRATSY
FLIFYFNSVAVFLYMSNIFDINSSWNILCKFIMAAYPAGHSILLIQDNPGLRRAWKRLQPQVHFYLKEQSP

>Vulpes vulpesTas2r40

MSRFKIILTLVVPGIECLTGIVGNGFITIIHGAKWARGKRLPVSDCILLMLSFSRLLLQIWMMLENIYSLFRVTYNQNTVFIL
FKVTIVIFLNYFNWLAAWLNIFYCLRITNLAHHVFFMMKRKITEMLPWLLGSLFISLCSFTFSTDFHVVYVNSSIPISSNT
TEKKYFSETNVNVLVLLYNLGIFLITFILSATLLIISLKRHTLHMESNATGCRDPSMEAHFGAIRATSYFLILYIFNAVAL
FLSMSNIFDINSSWNILCKVMAAYPAGHSVLLILGNPGLRRAWKRFQHHVPLHL

>Vulpes vulpesTas2r41

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PARQFFGLHWDFLNSATFWFGSWLSVLFCKIASFTHTPTFLWLRWRLPGSVPWLLGASLLISFLVTLFFWGNHAVYQG
FLIRKYPGNMTFQQWSRREIHYFLPLKFITLSPVCSVFLVSIALLINSLRRHRGRMRRSGHGLQDPSSQAHTRALKSLVSFLI
LYALSFAASLVIDAAGFFCSQSDWYWPWQILYILCTSVHPYILISNLRLRGGCRQLLLLVRGSQA

>Vulpes vulpesTas2r42

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LYINESKTFYVKTLLLSFSYIPIILSLTSLLLLFLSLVKHIRNLQLNSMGSRDSSSTAQAHKAVKMVMSFLFLFTVHFFSIQLSNW
MFFLFWNKKITKFIMLAVYVFPSSSHLILGNSKLRQTALKVLWHLKSSLKREKTNSSTIDFPDLS

>Vulpes vulpesTas2r5

MLTAALPLLMMVVAEFLIGLVGNGVLMVWSFGEWVRKFNSSYNLIVLGLAGCRFLQCLIMMDLSLFPFFQSSRWL
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PLKSWHYLYIVKLNAGSGLPLMVFLVSSGMLIVSLYRHHKKMEVHTAGRRDAQAKAHITVLKSLGCFILHVIYILASPFSIT
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>Vulpes vulpesTas2r67

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LYQRHERNSTWLDVSKTLYLNSLIVFSFIYLIPFLSLASLLLLFLSLMRHTRNVQRNSSSRDFRTEAHKRAMKMVMSSLLS
MVNFTSILLTGWFSLLLQNHQANLAVLLLSTFVPSGHSFILILGNKLRQAALGLLWHINCHLKMVKPFAS

>Vulpes vulpesTas2r7

MPDKVESILMLVAAGEFSMGILGNTFIGLVTCMGWIKKRKIASIDLITSLAISRICLLCHILLDFILVLYPDVYATGKQMRIID
FFWTLTNHLSVWFATCLSFYFLKIANFFHPLFLWMKWRIDSAIPRILLGCLALSVFISLVVTENLNDDFRCCVVRTKKTNTLT
VRCRVKKAKYSSIKICLNLLTFPFSVSLISFLLILSLWRHTRQMKFNATGCRDFSIEAHMGAMKAVISFLLFIAYYLAFV
VATSSYFMPETELAVIIGELIALIYPSHSHFILILGNSKLRQASLRVLWKIKYILKRRNF

>Vulpes zerdaTas2r10

MLSILERLSFFIAVSESLGVLGNGFIGLVNCIDCVKNKKISMVGFILTGLATSRICLILIIITDGFIFKIFSPDMYSSGNLIDYISYL
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FFTKQILLNLGVILLFTLCLITCFLLIISLWRHNRHMQLNVTGLRDPSTEAHVKAMKILVSFIILFIFYFTGIAIEISCFILPENKLL
FIFGMMTTAIYPWGHSEFILGNSKLLKQASLKTLLQQLKCEARRLLTAAQIHVGGNGCSRRII

>Vulpes zerdaTas2r12

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LWTGCNYFCTICVCLSVFYFLKIANSSNPIFFWLKRRIHRLLLIIVLGAVFCFCLSLLLKDIVFKNMIKTKVNTESNVTLNFT
VRKYDLLTSHIFLNMLFVIPFAVSLASFVLLIHSLNHNHTRRMKGIDSGDLITEAHVRAMKFMISFLLFFFIYYSNIIIFAYV
VLDSLPEILANILVFSYPSGHPFLLILWNFKLKQASLYVLRKLLKWCMLNRKPAYIKHT

>Vulpes zerdaTas2r2

MISFALSALPHVIVMSAEFITGITVNGFIIIMNCKELIKSRKPTPVQLFCIGMSRFGLLMVLMIQSSFSVLFPLFYKVNIFGTAM
LFFWMFFSSVSLWFATCLSVFYCLKIAGFTQSCFLWLKFRISKLMPWLLGSLLASMSIAALCVEADYPKKVDDNALKNAT
LKRTEPKIRQINEMLLVNLALLFPLAIFVMSTFMLFISLYKHTHRMQNGSHGVRNASTKAHINALKTVITFFCFFLSYFAAFM
ANMTFSIPYGSCHFFVVKDIMAAFPSGHSIIILLNSKYQQPFRRLLCFRKNQ

>Vulpes zerdaTas2r38

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NQAGLWLTCLSLFYCSKIVHFSHTFLLCLANVWSRKAPQMLLGAMLFSSACTLLCLGDFFSRSGFAFTTVLLMNNTEFNS
QIVKLNIFYSSIFCTLGSIPPFMFFLVSSGVLIIISLGRHMRTMKANTKDSSEAHIKALISLISFLCLYVVSFCAALISVPLTM
VWHNKIGVMICVGIACPSIIAAILISGNAKLRRAVETILLVWQSSLKVRAGHRADLRTPDC

>Vulpes zerdaTas2r39

METCNPPENELSPFGILSILTITGTECIVGIIANGFIMAINVAEWIKNKTVSTSGRVLFFLSASRIALQSFTMLEITFSST
SPRFYNEDVMYDTFKVSFMFLNHCSLWFAAWLSFFYFVKIADFSHPLFLKLRWRISRLMPWLLWFSVFISLGYSMLLSNDI
YTVCYCNSSIPSSNKKKYLTKTNVNLVLLYNLGIFLIPLIMFILSATLLIISLKRHTLHMESNATGCRDPSMEAHIGAIRVTSY
FLILYIFNSVALFLCMNSNIFDINSSWNILCKFIMAAYPAGHSILLIQDNPGLGRAWKRLQPQVHFYLKEQTP

>Vulpes zerdaTas2r40

MSRFKIILTLVVPGLIECLTGIVGNGFITIIHGAKWARGKRLPVSDCILLMLSFSRLLLIQIWMMLENIYSLFRVYTNQNTVFIL
FKITVIFLNYFNLWLAAWLNIFYCLRIANLAHHVFFMMKRKITEMLPWLLGLSLFISLCSFPFSTDFHVVYVNSSIPICSSNT
TEKKYFSETNVNLVLLYNLGIFLIPLITFILSATLLIISLKRHTLHMESNATGCRDPSMEAHFGAIRATSIFLILYIFNAVAL
FLSMSNIFDINSSWNILCKIVMGAYPAGHSVLLILGNPGLRRRAWKRFQHHVPLHL

>Vulpes zerdaTas2r41

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PARQFFGLHWDFLNSATFWFGSWLSVLFCKIASFTHTPTFLWRWRLPGSVPWLLGASLLISFLVTLFFWGNHAVYQG
FLIRKYPGNMTFQQWSRREIHYFLPLKFITLSPVCSVFLVSIALLINSLRRHRGRMRRSGHGLQDPSSQAHTRALKSLVSFLI
LYALSFAASLVIDAAGFFCSQSDWYWPWQILYILCTSVHPYILILSNLRLRGGCRQLLLLVLRGSQLA

>Vulpes zerdaTas2r42

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SITLLWRITHHLATWFSTCLSFYLLKIAQFSHSLFLWLRWRMNRVVLAILVFSLFFLLDFLMELETFNDLFSNV DAMDESNT
LYINESKTFYVKTLLSFSYIPIILSLTLLLLFLSLVKHIRNLQLNSMGRSSTQAHKKAVKMVMSFLFLFTVHFFSIQLSNW
MFFLFWNKKITKFIMLAVYVFPSSHSLLILGNSKLRQTALKVLWHLKSSLKREKPNSSLPIDFPESFQ

>Vulpes zerdaTas2r5

MLTAALPLLMMVVAEFLIGLVGNGVLMVWSFGEWVRKFNSSYNLIVLGLAVCRFLQCLIMMDLSLFPFFQSSRWL
HYLSIFWILVQSASLWFATFLSVFYCRKIMTLEHPVCLWLKQRAYCLSLWCLLVYLMISLLLVAHIGLKPYNPSQGNSSILY
PLKSWHYLYIVKLNAGSGLPLMVFLVSSGMLIVSLYRHHKKMEVHTAGRRDAQAKAHITVLKSLGCFLILHVYILASPFST
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>Vulpes zerdaTas2r67

MPSRIENAFVAAAGELITGMLGNGFILLVNCIDLKLNKSTADCLTGLALSRIILLCIILFDSLLMVFWQHLYAID
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LYQRHERNSTWSDVSKTLYLNLIVFSFIYLPFLSLASLLLLFLSLMRHTRNVQGNSSSRDRTEAHKRAMKM
VMSSLLSMVNFTSILLTGWFSLLLQNHQANLAVLLLSTFVPSGHSFILILGNNKLRQAASGLLWHINCHLKMVNPSLL

>Vulpes zerdaTas2r7

MPDKVESILMLVAAGEFSMGILGNTFIGLVTCMGWIKKRKIASIDLILTSLAISRICLLCIILLDFILVLYPDVYATGKQMRIID
FFWTLTNHLSVWFATCLSFYFLKIANFFHPLFLWMKWRIDSAIPRILLGCLALS VFISLVVTENLNDDFRCCVTRKKTNTLT
VRCRVKKAKYSSIKICLNLLTFPFSVSLISFLLILSLWRHTRQMKFNATGCRDFSIEAHMGAMKAVISFLLFIAYYLAFL
VATSSYFMPETELAVIIGELIALIYPSHSFILILGNSKLRQASLRVLWKIKYILKRRNF

>Zebra fishV1R

MIAEAVIRGLLFLSLVLVGVPGNTAVICGFILLVRREGRLSPADAIVLHLCSANLVVSVRCLLEVLATFRIHNVFDDAGCRAV
IFLHRTARSLSIWLTFLLTALQCLSVAPPGSRRAAARALLARSLPAIFLALWLINTSMSVASLLYSIGARNDNRLLQNAINVEFC
FLSFPSRLARDANGAAQVARDVVPMLMAAGSLVLLVYLVRQRRRVQGLRGTAGGAAERRAAVTVVTLVSLYLLVFGLD
NGLWVYTLTVSHTLSSALITDLRLFFTSLYTAVSPLLILVSNTRLRCGKQPETMH*

Supplementary Material S3.- Percent identity matrix can be viewed in Excel file at: <http://dx.doi.org/10.17582/journal.pjz/2018.50.4.1361.1366>