

CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep_msa/HAUS16.ms Tue Feb 1 12:17:34 2022

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                                :.: :.* * **:
Homo_sapiens      -----MSSASVTAFEKEHLWMYLOALGF      23
Pan_troglodytes   -----MSSASVTAFEKEHLWMYLOALGF      23
Macaca_mulatta     -----MSSASVTAFEKEHLWMYLOALGF      23
Canis_lupus_familiaris -----MSSAWVTSFEKEHLWMYLOALGF      23
Felis_catus        -----MSSVWVTSFEKEHLWMYLOALGF      23
Equus_caballus     MEGPPRPQTARREGVVRGPEALGPALSSFAGTLPATKMSSAWVTSFEKEHLWRYLLALGF      60
Bos_taurus         -----MSSAWVTSFEKARLWMYLOALGF      23
Mus_musculus       -----MSSARDSAFEKQHLWMYLOALGL      23
Xenopus_tropicalis -----MQSGTRPQLAWQREHMWLALQGLGF      25
Rhinatrema_bivittatum -----MSGMAAAAFQPHKDHLLWLYLOALGF      28
Latimeria_chalumnae -----MSNWSWPSWQKEHLWMYLLCLGL      24
Chelonia_mydas     -----MSVWEKEHLWHCLLALGF      18
Pavo_muticus       -----MDAEWDWEREHLWLYLLALGF      21
Pavo_cristatus     -----MDAEWDWEREHLWLYLLALGF      21
Gallus_gallus      -----MDVGWDWEKEHLWLYLLALGF      21
1.....10.....20.....30.....40.....50.....60

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Homo_sapiens      EPGP-ATTIACGKIVSHTHLGVNMFDKLNDAFHIIISYFLFQVLDQSLTKEVFKFCWPPFD      82
Pan_troglodytes   EPGP-ATTIACGKIVSHTHLGVNMFDKLNDAFHIIISYFLFQVLDQSLTKEVFKFCWPPFD      82
Macaca_mulatta     EPGP-ATTIACGKIVSHTHLGVNMFDKLNDAFHIVSYFLFQVLDQSLTKEVFKFCWPPFD      82
Canis_lupus_familiaris EPGP-ATVACGKIVSHTHLGVNMFDKLNDAFQIVSYFLFQTLDDQSLTKEVFKLCWPPFD      82
Felis_catus        EPGP-ATTIACGKIVSHTHLGVNMFDKLNDAFQIVSYFLFQTLDDQSLTKEVFKLCWPPFD      82
Equus_caballus     EPGP-ATTIACGKIVSHTHLGVNMFDKLNDAFQIVSYFLFQTLDDQSLTKEVFKLCWPPFD      119
Bos_taurus         EPCL-ATTIACGNTVSHITQFGVNMFDKLNDAFHIVSYFLFQTLDDQSLTKEVFKHCWPPFD      82
Mus_musculus       DPSS-SITFGGKMVPHAHLGENMFDKLNDAFHIVSYFLFKTLDEALAKEVFRDCWPPFD      82
Xenopus_tropicalis ESGV-AATIAGKTLAHVTFGENMFDPKPKDAFYVVFHFLFGKLDNMRCKEVEFRYCWPPIE      84
Rhinatrema_bivittatum EAGA-VAAAAGKLVTHITLGVNMFDPKPKDAFSMIAHFLFSKLDNMRCKETFRHCWPSLD      87
Latimeria_chalumnae EPKA-AASSSGKAGSQVHLGVNMFDPKPKDAFYIVAHFLFMQLDATCSNELFRFCWPPLD      83
Chelonia_mydas     EPGAGAAAAAGKLSHTLSLGVNMFDPKPKDAFHVVAFRLF TKLDHRSVEAFRFCCPPAD      78
Pavo_muticus       NPVA-AELASD---TNLLLGASAFDMPNYSAFHVVAQFLFTKLDKKRAENTFRNCMLPYV      77
Pavo_cristatus     NPVA-AELASD---TNLLLGASAFDMPNYSAFHVVAQFLFTKLDKKRAENTFRNCMLPYV      77
Gallus_gallus      DPKA-AEMSAG---TKLLLGANAFDMPNYSAFHVVAQFLFTKLDKKRAEDTFRNCLLPDV      77
.....70.....80.....90.....100.....110.....120

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Homo_sapiens      QKSDTEFRKHCCIEWIKRISGECGSSFPQVVGSLFLSPGGPKFIHLMYHFARFVAMKYIKS      142
Pan_troglodytes   QKSDTEFRKHCCIEWIKRISGECGSSFPQVVGSLFLSPGGPKFIHLMYHFARFVAMKYIKS      142
Macaca_mulatta     QKSDTEFRKHCCIEWIKRISGECGSSFPQVVGSLFLSPGGPKFIHLMYHFARFVAMKYIKS      142
Canis_lupus_familiaris QKSDTEFRKHCCDWLKKISAECSGSSFPQVVGSLFLSPGGPKFIHLMYHFARFVAIKYIKT      142
Felis_catus        QKSDTEFRKHCCIEWLKKISAECSGSSFPQVVGSLFLSPGGPKFIHLMYHFARFVAIKYIKT      142
Equus_caballus     QKSDTEFRKHCCDWLKKISAECSGSSFPQVVGSLFLSPGGPKFIHLMYHFARFVAVKYIKT      179
Bos_taurus         QKRDVEFRKLFCEWLKKISAECSGSSFPQVVGSLFLFPVGPKEFIHIMYHFARFVAVKYIKT      142
Mus_musculus       QKLDMEFRKHCCIEWLKEISAECSGSSFPQVVGSLFLSPGGPKFIHLMYHFARYVAIKYIKT      142
Xenopus_tropicalis KKRDAEFRKACYEWLKKISDEVGAGFPQVVASIFLSPGGPKFVHLLYHFARYVMLQHIKR      144
Rhinatrema_bivittatum KKRDAEFRKLCCIEWLRKISDECSGSSFPQVVASIFLSPGGPKFVQLMYHFARYVVLQHVKR      147
Latimeria_chalumnae KSGDAEFRKICFEWLKKISDESGSGFPLVVASIFLSPGGPKFIHLMYHFAKYVCLQCEKR      143
Chelonia_mydas     KKGDAEFRKQCCIEWLKKISDECSGSSFPQVVASIFLSPGGPKFIHLMYHFARYVIVQHMKK      138
Pavo_muticus       KPADHEFRKLCSSWLKEISSKEGSGVPQVGTSLFLSPAGHKFIHLMYQFARYVVVENLRK      137
Pavo_cristatus     KPADHEFRKLCSSWLKEISSKEGSGVPQVGTSLFLSPAGHKFIHLMYQFARYVVVENLRK      137
Gallus_gallus      KPADPEFRKLCSSWLKEISSKEGSGVPQVGTSLFLSPAGGKFIHLMYRFARHVVEDLRK      137
.....130.....140.....150.....160.....170.....180

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Homo_sapiens      NSKNSSHHFVETFNIPKQDLHKCIARCHFARSRFLOILQRCVITQKYQENALSVKQVR 202
Pan_troglodytes   NSKNSSHHFVETFNIPKQDLHKCIARCHFARSRFLOILQRCVITQKYQENALSVKQVR 202
Macaca_mulatta    NAKNSSHHFVETFNIPKQDLHKCIARCHFARSRFLOILQREDCVITQKYQENALSVKQVR 202
Canis_lupus_familiaris HSKNSSIRFTETFNVKPQDMHKCIARCHVARNRFLHVLQREDCVITQKYQENALSVKQVR 202
Felis_catus       HSRNSSIHFTETFNVKPQDMHKCIARCHIARNRFLHILQREDCVIREYQENALSVKQVR 202
Equus_caballus    HSKNSSIHCAETFNVKPQDLHKCVARCHVARSRFLOILQREDFVTRKYQENALSVKQVR 239
Bos_taurus        HSKNSSIRFTETFNVKPQDLHICLARCLVARNRFLQVLQREDCVIRKYQENALSVKQVR 202
Mus_musculus      KS-NNSLHFAETFNVKPQDMHKCLARSHVARNRFLQILQREHYVMQKYQENVNLSVKQVR 201
Xenopus_tropicalis DANGASVFISEALQCKIQDPQKALARNKVARQKYLMLVLORENLVIKEYORKAQLLIKQIR 204
Rhinatrema_bivittatum DVEGANSYFYDSLNSKPDVQKALTRNKRAHNRFLQIIQKEDIVVQEQHKAQLMIKQIR 207
Latimeria_chalumnae NVQADCAYPFESVALKIQDVHKVIRHNVAHSQFLQIVQKEDFVIKEYESKVCILDQEDAR 203
Chelonia_mydas    DCEDTNVHFPEAVNSRPHDSYKAAARYVACIRFLOSIOREDFVIREYORKAQLLIKQIR 198
Pavo_muticus      SSADSKKPLVEAVRFSPEGMREANKRCRVACDELLQILLRKDYIIRKYEKTSLCLINEIK 197
Pavo_cristatus    SSADSKKPLVEAVRFSPEGMREANKRCRVACDELLQILLRKDYIIRKYEKTSLCLINEIK 197
Gallus_gallus     SSAESNKPFFVETIRCSPEdTCEANERCRAACNELLOILMRKDYIIQKYEKTSLCLIKIE 197
.....190.....200.....210.....220.....230.....240

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      **              ::*  *  :  :  :  :  :  :  :  :
Homo_sapiens      NLRSECIGLENQIKKMEPYDDH-SNMEEKIQKVRSLWASVNETILMFLEKEREVVS SVLS- 260
Pan_troglodytes   NLRSECIGLENQIKKMEPYDDH-SNMEEKIQKVRSLWASVNETILMFLEKEREVVS SVLS- 260
Macaca_mulatta    NLRSECVGLENQIKKMEPYDDH-SNIEEKIQKVRSLWASVNETILMFLEKEREVVS SVLS- 260
Canis_lupus_familiaris NLRSECMHQENQIKKVESDDE-SNIEEKIQKVRSLWASVNETILILEKEKEVVNAVLS- 260
Felis_catus       NLRSECMGQENQIKKMEPYDDQ-SNIEEKIQKVRSLWASVNETILTFLEKDREVVNAVLS- 260
Equus_caballus    NLRSECIGQENQIKKMEPYDEQ-SNIEEKIQKVRSLWASVNETILTFLEKEREIVS SVLS- 297
Bos_taurus        NLRSECMGLENQIKKMEPCDDQ-SNIEEKIQKVRSLWTVNETILMFLEKEREVVS SVLS- 260
Mus_musculus      NARSECMSLQNIQKRMPEYDEK-SNIEEKIQKVRSLWASVNETILMVVEKERDVISSIFLG- 259
Xenopus_tropicalis DMRSEHVALQNIQIMIEKVNGNISDKDENILKIRCMWNAVMOQLMKMIEKEVDVVDVAVRG 264
Rhinatrema_bivittatum DLRSEYATLQNRLOKMEAKEDQVQRSENIEKKVRGMWASVNETLSFLAEKEEVVDSVLQG 267
Latimeria_chalumnae VQSSE-----EVRSMWAAVRETLSFLVKEREVVDCILKG 238
Chelonia_mydas    DARSECAELHKLLOKMEQNNQKQSNKAERAQKVRSRWASVNETILTFLEKEKEVVD SVVDG 258
Pavo_muticus      QMKSEYAHLLQQLQKMEPKDQNRKDRAQRIQKVRSMWTLIMETFTSLKKEMEIVDSVLES 257
Pavo_cristatus    QMKSEYAHLLQQLQKMEPKDQNRKDRAQRIQKVRSMWTLIMETFTSLKKEMEIVDSVLES 257
Gallus_gallus     QMKSECAHLLQQLQKMEPKKQNKDRAEKIQKVRSMWALIIETFMSLKKEMEIVDSVLEG 257
.....250.....260.....270.....280.....290.....300

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Homo_sapiens      LVNQY-ALDGTNVAINIPRLLLDKIEKOMFOLHIGNVYEAGKLNLLTVIQLLNEVLKVMK 319
Pan_troglodytes   LVNQY-ALDGTNVAINIPRLLLDKIEKOMFOLHIGNVYEAGKLNLLTVIQLLNEVLKVMK 319
Macaca_mulatta    LVNQYALDGTVDVAINIPRLLLDKIEKOMFOLHIGNVYEAGKLNLLTVIQLLNEVLKVMK 320
Canis_lupus_familiaris LVNQY-TLDGTNVAINIPRLLLDKIEKORCOLHIGSVYEAGELNLLTVIRLLNEALKVVK 319
Felis_catus       LVNQY-TLDGTNVTIDIPRLLLDKIEKOMGOLHIGNVYEAGKLNLLTVIQLLNEVLKVVK 319
Equus_caballus    LVNQY-TLDGTDVAINIPRLLLDRIEKOMCOLHIGSVYEAGNLNLLTVIQLLNEVLKVMK 356
Bos_taurus        LDNNY-TLDGTDIAINIPSLLLDKIEKOMCOLHTGNIYEAGKLNILTVFWLLNEVLKVMK 319
Mus_musculus      FVNQY-ALDGAHVAVNIPRLLLDRLIEQICRLQIGNVYEAGKLNLLTIIHLNEVLKIMK 318
Xenopus_tropicalis NIDQY-SLDGTNTTLNIPNLLISRIESEMHRLQMENVYEAGKVNLLTVVQLLNEALKLVN 323
Rhinatrema_bivittatum HVDQY-ILDGASVDLNVPRLLVDKIEENIYKLHIENVYEAGKLNFTVIIQLLNEALKILR 326
Latimeria_chalumnae HIDQY-SLDGTNTTIVTPRLLLDRIESEMHGLQIGNVYEAGKLNFTILLQLLNTLILK 297
Chelonia_mydas    HVDQY-ALDGTNVTINVPRLLEKIEENOMYNLHIGNIYEAGKLNLLTVIQLLNEALKILR 317
Pavo_muticus      HGDQY-IFDGNNVVSVPHLLVDRVESETQEVCTGNLYEDEKLNFLTIVIQLLNEALRILR 316
Pavo_cristatus    RGDQY-IFDGNNVVSVPHLLVDRVESETQEVCTGNLYEDEKLNFLTIVIQLLNEALRILR 316
Gallus_gallus     RVDQY-VFDGTNVVDVNPVPHLLVDKVESGTQEVCTGNLYEDEKLNFLTIVIQLLNEALRILR 316
.....310.....320.....330.....340.....350.....360

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      *      :      :      ::      *      :      *      :      .      :      *      :      *
Homo_sapiens      YERCOADQARLTVDLHYLEKETKFKERLSDLKHMRYRIK-DDLTITIRHSVVEKOGGEWHK      378
Pan_troglodytes   YERCOADQARLTVDLHYLEKETKFKERLSDLKHMRYRIK-DDLTITIRHSVVEKOGGEWHK      378
Macaca_mulatta    YERCOADEARLTVDLHYLEKETKFKERLSDLKHMRYRIK-DDLTITIRQSVVEKOGGEWHK      379
Canis_lupus_familiaris YERCOADPAKLKIDLHFLEKETKLRERLSDLKHIRCKIK-EDLTNIKHSVVEKOGGEWFK      378
Felis_catus       YERYQADPARLTIDLQFLEKETKLRERLSDLKMRCKVK-EDLTITIKHSVAEROGGEWHK      378
Equus_caballus    YERGOADPAPLTIDLRVIEKETKLRARLSDLYMYRYKLK-EELTITIRHSIAEROGGEWHK      415
Bos_taurus        CECCQTDQARLTIDLHFLEKETRFKERLSDLKHMRYKIT-EALKTIRHSIVEKOGGEWHK      378
Mus_musculus      YEHCAGQAGLTINLHYLEKETKFKERLSHMKHMRHKVK-ETVTAVRQSIADKEGKWHM      377
Xenopus_tropicalis GERCLHDCKEIHLDLQYLNKGAKFSEVLTRLNMRQKIKREDLMSIEKSIDKEREWER      383
Rhinatrema_bivittatum HERROIDHKGLKLDVQYIKGKIKFEACVLSRLRHMRYKIRREDLVSVNKSIAEKESSEWDM      386
Latimeria_chalumnae EERHQVVPQGLELDLGCIEEKAKLQADTLAGLKCAARKIR-EVLPSIKESIAQKERDWDE      356
Chelonia_mydas    HERQOVDHEALKLDLQYIEGKTKFONKILLGLKSMRHLKREDHVSIVESIAEKORDWDM      377
Pavo_muticus      DECYWFDSE---NHLQPIVNMTKLQNKMLLHLKAVRLRIE-KEHFILNESNSRROKEWIM      372
Pavo_cristatus    DECYWFDSE---NHLQPIVNMTKLQNKMLLHLKAVRLRIE-KEHFILNESNSRROKEWIM      372
Gallus_gallus     DECSQFDSE---NYLQPIVNMTKLQNKMLLYLEAVRLRIE-KQNFILKESNSRROKEWIK      372
.....370.....380.....390.....400.....410.....420

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      **      .      :      :      :      :      :      :      :      :      :      :      :      :
Homo_sapiens      KWKEFLGLSPFSLIKGWTPSVDLLPPMSPLSFDPASEEVYAKSILCOYPASLPDAHKQHN      438
Pan_troglodytes   KWKEFLGLSPFSLIKGWTPSVDLLPPMSPLSFDPASEEVYAKSILCOYPASLPDAHKQHN      438
Macaca_mulatta    KWKEFLGLSPFSLIKGWTPSVDLLPPMSPLSFDPASEEVYAKSILCOYPASLPDTHKQHN      439
Canis_lupus_familiaris KWKEFLSLSPFSLIKGCTPAVDLLPPMSPLSFDPASEEVYARSILLOYPASLPDTPKQHN      438
Felis_catus       KWKEFLGLSPFSLVKGSTPAVDLLPPMSPLSFDPASEEVYARSILLRYPASLPDIPKQHN      438
Equus_caballus    KWKEFLGLSPFSLIKGWTPAVDLLPPMSPLSFDPASEEVYARSILLOYPASLPDTPKQHK      475
Bos_taurus        KWKEFLGLSPFSLIKGSTPAVDLLPPMSPLSFDPASEEVYARSILLOYPASLPVTPKQHI      438
Mus_musculus      KWKGFLGLSPFRLIKDRPAAVDLLPPMSPLTFDPVSEEVYAKSILFKYPASLPDSHKEPK      437
Xenopus_tropicalis KWEKILGKSPFSLKGLNPALELNPPMAPFSFDPASEEVKSSVFCHYPASLPDYSHKEK      443
Rhinatrema_bivittatum KWEIFLGQSPFNLIKSLNPVLDLQPAVTQFSFDPATEEAFRSSLFCQYPASLPDSSKKDS      446
Latimeria_chalumnae KWGKFLGCCPFG-VNDENPALALLPAMVQLSFEPATEEAYNSVFFQYPASLPDSSQKEF      415
Chelonia_mydas    KWENFLGQSPFSLIKDQNPVLDLLPAMSPLSFDPAATEEAYKSSVFCKYPASIPDTPKRDC      437
Pavo_muticus      KWKSCPG---CSSLCSQDLDLGVLQAVS-----EAEEDCKNYIFCONPGSDSGV-----      418
Pavo_cristatus    KWKSCPG---CSSLCSQDLDLGVLQAVS-----EAEEDCKNYIFCONPGSDSGV-----      418
Gallus_gallus     KWESCPG---WSSLYSQNLDLAVLQAVS-----EAEKECEDDVFCQNTGSDSDIPDLWD      423
.....430.....440.....450.....460.....470.....480

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Homo_sapiens      QENGCRGSDTLGALHDLANSASPFLSQSVS----SSDRNSVTVLEKDTKMGTTPKEKNEA      494
Pan_troglodytes   QENGCRGSDTLGALHDLANSASPFLSQSVS----SSDRNSVTILLEKDTKMGTTPKEKNEA      494
Macaca_mulatta    QENVCRGSDNTLGAHDLANSASPFLSQSVS----SSDRNSVILLEKDTKMRTTPKEKNEA      495
Canis_lupus_familiaris QENDCRRASDIPETIHGLANRNASFLSQPVS----SSDRNSVRILLEKDMKIRTTPRKNET      494
Felis_catus       QENDCRRASDIPATVHDLNRPASFLQPVVS----SSGRNSVRILLEKDMKIRTTPREGNET      494
Equus_caballus    QGNDCCRASDMLGTVCDLANSASPFLVQPVVS----SSDRNSVDLLEKDMKMRTTPRKKNET      531
Bos_taurus        QENNCRRASDTLETKSDPPNSPASFPLQVPV----PLGGDIVTILLEKDTKLVLIREKNET      494
Mus_musculus      QESGSRREVDTPGSVCDGANSPPVFPLOCAA----SSDTNSSTLLEKDPNMRTPIEKTILT      493
Xenopus_tropicalis ALKDLNQDHGGELLQRLIGATVLTSPGRNSSRGIAPIRRRMSLNEKDFK--TPNMNDRIT      501
Rhinatrema_bivittatum QAKGLRRDKDGLSLRD---ATEPIPSAGGRIISPITSNGNCLLPLEKDAHSVASNVKVKC      502
Latimeria_chalumnae HIPESRGNCPENDKATSLSIGRLSFPCSPVALSEESWTSSEKKINEDKLHLSKQSVPVVEV      475
Chelonia_mydas    QANDDKREDAALESIMDTTSTGRMLSHLQSATQSFLTAEPSSVVLEKDVHTTTPKRKERS      497
Pavo_muticus      -----                                -----                        418
Pavo_cristatus    -----                                -----                        418
Gallus_gallus     LSYEDSDGTLKSSMIDSLITPTRRVSSKSSELS--EASENKDLLTEKDLHTEPDSGKEKS      481
.....490.....500.....510.....520.....530.....540

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Homo_sapiens	ISKKIPEFEVENSP L S D VAKNTESSAFGGS LPAKKS D P F O K E Q D H L V E E V A R A V L S D S P Q	554
Pan_troglodytes	ISKKIPEFEVEDSP L S D VAKNTESSAFGRSLPAKKS D P F O K E Q D H L V E E V A R A V L S D S P Q	554
Macaca_mulatta	ISKKIPEFEVENSP L S D V A T N T E S S T F G G S L P A K K S D P F O K E Q D H L V E E I A R A V L S D S P Q	555
Canis_lupus_familiaris	LSNKTPKFEMKNSTSSDTAS-TENITFGGSLPPKNRDPFOKEQDHLVEEVARAVLSDSPQ	553
Felis_catus	PPKETPKFEMEGSSSNTRNTENTIAFAGSLPAKNSDPFOKEQDHMVEEVARAVLSDSPQ	554
Equus_caballus	ISNKIPEFEVEESPSSSIAKNISSSTCGGSLPAKKS D P F O K E Q D Y L A E E V A R A V V S G S P Q	591
Bos_taurus	VPKKTPEFNVENSSSNIVKNIDSSACGGSLPAKKS N P F O K E Q D H L V E E V A R A V L S N S P Q	554
Mus_musculus	-YKTIADSEEDSP L S D T A K N S Q S S V S R G T L P V K R S E P F O K E Q A R L V D E V A R V V L S D S P Q	552
Xenopus_tropicalis	GFQRTDSSSVQKRSDVSWKTAANSPLPHITPTCKQDPKNMARQQLAAQVADYIVSETPR	561
Rhinatrema_bivittatum	VSHRASLSGMDKRHSEEMSLVAQKKFQIE---QNDPLLKAFQQLAQVADEIVSDSPR	558
Latimeria_chalumnae	LNLEACKVKALETLNDDQKSSYMKKQNSK---ISGNLLQKADQLADQVASSIISGSSG	532
Chelonia_mydas	VSQKILKYAVHKPRPTAEWKNEETHVLQSPSAVKREDPVKKAQEQLAEEVADV V V S E S T Q	557
Pavo_muticus	-----	418
Pavo_cristatus	-----	418
Gallus_gallus	VPPEISKDEFEDELTLLESQENSEGPVITQADASVKKEDVLEKAREELAEQIAKMVTSESPO	541
550.....560.....570.....580.....590.....600	

Homo_sapiens	LSEGKEIKLEELIDSLGSNPFLTRNQIPRTPENLITEIRSSWRKAIEEMENRTKEPIQMD	614
Pan_troglodytes	LSEGKEIKLEELIDSLGSNPFLTRNQIPRTPENLITEIRSSWRKAIEEMENRTKEPIQMD	614
Macaca_mulatta	LSEGNEIKLEELIDSLGSNPFLTRNQIPRTPENLITEIRSSWRKAIEEMENRTAEPTQMD	615
Canis_lupus_familiaris	PSNGKEVKLEEIFDSLVSNPFLTRKQIPRTPENLISEIRSSWRKAVELEDNRSTESIQMD	613
Felis_catus	PSKGKELKLQELIDTLVSNPFLTRNQIPRTPENLISEIRSSWRKAVEMEGNRSTELIQMD	614
Equus_caballus	PSRGKEWKLEEQIDSLVSNPFLTRNQIPRTPENLINEIRSSWRKAVKMEENGSTEPIQMD	651
Bos_taurus	LSEEKEVKLEELIDSLISNPFLTRSQIPRTPENLISEIRSSWRKAVDTEENRSTETPIQVD	614
Mus_musculus	LSERKEVELEELIDTLISNPFLTRKQIPRTPENLITDIRSSWRKAVETEDNRSSDGIILVD	612
Xenopus_tropicalis	SSGGRGMELDLILGILSSDPFLSRKEIPRTPENLISDIRSSWRKAIQSEESSDVAS-PVP	620
Rhinatrema_bivittatum	NAAGRGMELDLIIIGLLASNPFLTRKQIPRTPENLISDIRSSWRKAIQTEEPSSEMGEHEAK	618
Latimeria_chalumnae	AFEER--DLDGILKSLTSNPFLTRKQIPRTPENLS--KWNFYWKMLK-----	575
Chelonia_mydas	GGGGKGMELDLIGSLASNPFLTRKQIPRTPENLITEIRSSWRKAIQAQVPSDELVTQTK	617
Pavo_muticus	-----	418
Pavo_cristatus	-----	418
Gallus_gallus	SGGERGIALDDLISLDFNPFLTRKQIPRTPENLLTEIRNSWRKAIQSEDLSDAEIVSTIK	601
610.....620.....630.....640.....650.....660	

Homo_sapiens	AEHREVLPESLPVLHNQREFSMADFILETTVSDFGQSH----	LTEEKVISDC-ECVPQK	668
Pan_troglodytes	AEHREVLPESLPVLHNQREFSMADFILETTVSDFGQSH----	STEEKVISDC-KCVPOK	668
Macaca_mulatta	AEHREVLPESLPVLHNSQREFSMDDFILETTVSDFGQSR----	STEEKVVSDC-KCVPOK	669
Canis_lupus_familiaris	TOHREVLPESLPVLHNPREFSKTSFLSASTVSNSSHSH----	LPEEKVVSDCLKCVPOK	668
Felis_catus	TKDREISPESLPVLHNQREFSRISFLSATSVSDSSHFH----	LPEEKVVSDCLKCMPOK	669
Equus_caballus	PEHREALPESSPVLRDQRELMSASFLSATTVSNSSHSH----	LPEEKVVSDSLKCVPOK	706
Bos_taurus	TERREELPESLPVVHNQKEFSMASFLSAATVSNSSHSH----	LPEEKVVSDCLECVPOK	669
Mus_musculus	ASAREVSSSSSTLHNQREFSLAIFS-----PDFDRSY-----	FPEEKAVSDQLKGLPOK	662
Xenopus_tropicalis	APCMSDTAELESAHCSQIDLSMACFLSTSHASDQNDCSGTRIPPNTSGTCAPSLHSDVGH		680
Rhinatrema_bivittatum	EATKESPVFVQSACNSQIDLSLACFLSTSHIIDPSDS----	LEGKPSLSWVIPVPCPGK	674
Latimeria_chalumnae	-----FTCDLAKNSVWLEIDIYLVLFITCRE-----		599
Chelonia_mydas	MVTKEAPLDLESAICSRIDTSMACFMSSSHMSDPNASN--	LLEGKSSLSWMTAPAP--KK	672
Pavo_muticus	-----	-----	418
Pavo_cristatus	-----	-----	418
Gallus_gallus	-EIIDAPVDASCTIQDKAAISLDGASSSAVPDFSYPL-----	SEQKSQGSCAEFTAQK	654
670.....680.....690.....700.....710.....720		

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Homo_sapiens          HVLTSHTGPPPTQNSD-LLNKKVICKDLECLAFK-KLSETSRMETFS-PAVGNRIDVM 725
Pan_troglodytes       HVLTSHTGPPPTQNSD-FLNKKVICTDLECLAFK-KLSETSRMETFS-PAVGNRIDAM 725
Macaca_mulatta        PVLTSHTGPPPTQNSD-LLNKKVICKDLECLAFK-KLSETSQMETFS-PAVGNRIDVM 726
Canis_lupus_familiaris HTVTSHTGPPPTQNSD-LLSKVMCKDLEGAALQNKLETSRIETFS-PATGNRRVVM 726
Felis_catus           HAGTSHIGGLSTQHQS-VLNKKIMDKGLECAALQNRLETSQIETFS-PAVGNRRVVM 727
Equus_caballus        HKVTSHTGPPPTQNSD-LLNKKIICKDLECTALQNKLETSQIETFS-PAVGSRRREGI 764
Bos_taurus            PVVTTICIGEPPTQNSD-LLNKDIIICMODLCTTLQNKLETSQIETFS-PAVGNRRNVL 727
Mus_musculus          HLVTSGIREFPTEDVSD-LLNKKMIWKDLECATR--LSETSHMDVFS-PVVGSGIDVM 718
Xenopus_tropicalis    QEISHQKSEIDSLKPGDLSLPKESRHADTLINLLDKIEENENADTMKPTENKNKIVF 740
Rhinatrema_bivittatum AAYSN---ELKVCNSAARLKSHEGQQECESEGTVDNYTKGNEIVGAFDLPVVHKSASVI 731
Latimeria_chalumnae   ----- 599
Chelonia_mydas        QLVVSHISEPTQIPATRMPPDNKRSWELGSKHTVSKSLTED--PEEVPFAVDKSMNPL 730
Pavo_muticus          ----- 418
Pavo_cristatus        ----- 418
Gallus_gallus         QRMINQISESLLCFEPGMPEDESSEEELEDTVYGGSTGKTEEQSCIVVEKSLSTPCV 714
                   .....730.....740.....750.....760.....770.....780

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Homo_sapiens          GGSEEEFMKI---LDHLEVSCNKPSTNKTMLWNSFQISSGIS-SKSFKDNDGILHETLP 781
Pan_troglodytes       GGSEEEFMKI---LDHLEVSCNKPSTNKTMLWNSFQISSGIS-SKSFKDNDGILHETLP 781
Macaca_mulatta        GGSEEEFMKI---LDHLEVSCNKPSTNKTMLWNSFQISSGIS-SKSFKDNDGILHETLP 782
Canis_lupus_familiaris GSSEEEHVKI---ADHSKASYKEPFVHKSMWLWDSFQVSSGIS-STSLKDIDFGILHETLP 780
Felis_catus           GSSEEEHVKI---ADHSKASYKEPFVHKSMWLWDSFQVSSGIS-STSLKDIDFGILHETLP 783
Equus_caballus        GSSEEECVKM---LHHPQASYKEPSLHKSMWLWDSFQIASGIS-PRSFKDIDFGILHETLP 820
Bos_taurus            GSSEEDNIKI---SDQSKASYKDFSMYNSMLWNCFOVSSEIS-S-SFKDGDGILHETLP 782
Mus_musculus          SRSKEDCVVP--PDHSQASCIEPSTHKTLLWDSFQRLS-----GIGILHETLP 765
Xenopus_tropicalis    GN-QSISKLIDKTMFISVSGQENLSAHTTSLWNSNVLTCDSDDNHEVIQFGILHETLP 799
Rhinatrema_bivittatum DSPKADVKTMDISILKTSILVRHANSLLHTTSLWDSQMIQTDD-LDSHEVIQFSIQHETLP 790
Latimeria_chalumnae   ----- 599
Chelonia_mydas        DNSAEGYIKTD---ALSPYLQNSSMHTTSLWDASQMVSGTS-SDSHEVIQFGILHETLP 786
Pavo_muticus          ----- 418
Pavo_cristatus        ----- 418
Gallus_gallus         SSEDSSKMNT-----LPSNHLDDLMDKDLQCSASPVLSDS---CEVHDFGMLHETTS 764
                   .....790.....800.....810.....820.....830.....840

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Homo_sapiens          EEVGHLNLSNSSSSSEANFKLEPNS--PMHGGTLLDVGGRQTPESDFNLQALRSRYEA 839
Pan_troglodytes       EEVGHLNLSNSSSSSEANFKLEPNS--PMHGGTLLDVGGRQTPESDFNLQALRSRYEA 839
Macaca_mulatta        EEVGHLNLSNSSSSSEANFKLEPNS--PMHGGILLNVVGGGRQTPESDFNLQALRSRYEA 840
Canis_lupus_familiaris EEVGHLNLSNSSSSSEANFKLEPNS--PLHSSIFPD-VGERPATPGSDCNLQAICRRYEA 837
Felis_catus           EEVGHLNLSNSSSSSEANFKLEPNS--PVHSGIFPDVGERPTTPESDFNLQAICHRYE 841
Equus_caballus        EEVGHLNLSNSSSSSEANFKLEPNS--PMQGGVFPVGV-VEERLATPESDFRLQAICSRYE 877
Bos_taurus            -EVGHISLISPSSTEATFNLEPNS--PMHSGIFTEDVGEKQTPESDFNLQAICSGYEA 839
Mus_musculus          -EVGRLNLSNSSSTSETSFNLEPKS--YVHSDAFADD-VGKGQAIPELDSNLQARLTSYEA 821
Xenopus_tropicalis    ENAGNVSLNSTLG-SWGNEHFESDLPHDFTFDINEHSSRSVEG--KMDIHSIRSRYE 856
Rhinatrema_bivittatum EEVGDLNLSNSSRSLDTDEGKEQSKHRENECNFLNAAATKMVSPRPRVDLQAIRYEA 850
Latimeria_chalumnae   ----- 599
Chelonia_mydas        EELGNISLNSSSKSLTDDEVEGNS----RDSKSLNIVKNDWAAQECKLDLQSI RNRYEA 842
Pavo_muticus          ----- 418
Pavo_cristatus        ----- 418
Gallus_gallus         EELNSRSPNEFVKSESVDFLDLSI-----FIPDNTINKGNTQNLRPDLHFLLSRYEM 816
                   .....850.....860.....870.....880.....890.....900

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Homo_sapiens	LKKSLSK---KREESYLSNSQTPERHKPELSPTPONVQDDTLN--FLDTCDLHTEHIK	893
Pan_troglodytes	LKKSLSK---KREESYLSNSQTPERHKPELSPTPONVQDDTLN--FLDTRDLHTEHIK	893
Macaca_mulatta	LKKSLSK---KGEESYLSNSQTPERHKPELSPTPONVQDDVLN--FLDTRDLHTEHIK	894
Canis_lupus_familiaris	LKKSLSK---KREESGLSNPETLGRHKPELSPTPTNMOTDDMLD--FLDSHDMHVDYTK	891
Felis_catus	LKKSLSK---KREETDFSNPETLERHKPELSPTPRNMOTDDMLD--FLNSHDLHTDYTK	895
Equus_caballus	LKKSLSK---NRGEMYLSSPEPLERHKPELGPTPONTQADDMLD--FLGTRDLHIDYTK	931
Bos_taurus	LKKSPSK---QREEIYLSNPEILERHKPELSLTPQKMOTDDMLN--FLGIHDLHIDYTK	893
Mus_musculus	LKKSLSK---IREESYLSNPKTLEQHKVELSPVAKAVQADDAHT--VWDITQDLFIDYAK	875
Xenopus_tropicalis	LKRTLTLSTLDEEHGDNDSMRFTHKHSSESLTLG-----SAVYSPVEKALTLDLEYLT	911
Rhinatrema_bivittatum	LKRTFKNTIVKDYEEGIYQSPVRRFVKQSESSLSQKVDLESNNMFSPIDKMYTLDFDCLK	910
Latimeria_chalumnae	-----	599
Chelonia_mydas	LKKTVFG---NEADSFQSPSRQFLRCGSEERNLTPG-CTETKEVFSPLGKLYALDAEYIK	898
Pavo_muticus	-----	418
Pavo_cristatus	-----	418
Gallus_gallus	LKKSMG---KEQELHEIPIGEESLSVFSDSLTPTEGERDDLRLS--LERFNLDEEFTE	871
910.....920.....930.....940.....950.....960	

Homo_sapiens	PSLRTSIGERKRSLSPLIKFSPVEQRLRTTIACSLGELP--NLKEEDIILNKSLDAKEPPSD	952
Pan_troglodytes	PSLRMSIGERKRSLSPLIKFSPVEQRLRTTVACSLGELP--NLK-EDILNKSLDAKEPPSD	951
Macaca_mulatta	TSLPMSIGERKRSLSPLIKFSPVEQRLRTTIACSLGELP--NLKEEDIILNKSLDAKEPPSD	953
Canis_lupus_familiaris	PSLCMSLGERKRSLSPLIKFSPVEQRLKTIIPCSLGELLPNLKEEEIILNKSLDANEFQSD	951
Felis_catus	PSLRMSLGERKRSLSPLIKFSPVEQRLRTTVPCSFGEELLPNLKEEEVLNKSLDETNLHQT	955
Equus_caballus	PCSRMSLGERKRSLSPLIKFSPVEQRLRTTIIPCSLGELLPNLKEEEISTKSLDAKESPSG	991
Bos_taurus	PSSRMSLGERKRSLSPLIKFSPVEQRLKTTIPCSLGELLNLTEEEIILNKSLDAEVSPSD	953
Mus_musculus	PSSLVPLDGKTQTVS-LTKAFLVEQKLKTTVPCSLGEFLPSLKKEEISSKSLEARDSLI-	933
Xenopus_tropicalis	TPS---PKDRKLSLPQLISFSPENISSEKQADLLD--VFE-PQDFENPNKTFDFMSSGLD	965
Rhinatrema_bivittatum	TPSRLSMDERKLSLPQLISFSPVEEDLSKHDILH--KLESPGEEQSEKSLDINKCFPE	968
Latimeria_chalumnae	-----	599
Chelonia_mydas	TPSHMSLFERRHTLSPLIAFSPVQAC-KKPRDFLH--NLK---EEENLKEKLDAKESSSD	952
Pavo_muticus	-----	418
Pavo_cristatus	-----	418
Gallus_gallus	IISPVSPLPDKNPSSLSLLTFSKQLEAASHIHEIPDLINKLKDKKEELNETLSLKEPPSS	931
970.....980.....990.....1000.....1010.....1020	

Homo_sapiens	LTR-----	955
Pan_troglodytes	LTR-----	954
Macaca_mulatta	LTR-----	956
Canis_lupus_familiaris	LKR-----	954
Felis_catus	-----	955
Equus_caballus	LKR-----	994
Bos_taurus	STR-----	956
Mus_musculus	-----	933
Xenopus_tropicalis	LHKSTDEGLEQLIKL	980
Rhinatrema_bivittatum	LQTHADEAEELLVEL	983
Latimeria_chalumnae	-----	599
Chelonia_mydas	IKTRKDEAVSHLIEL	967
Pavo_muticus	-----	418
Pavo_cristatus	-----	418
Gallus_gallus	L-----	932
1030.....	