

CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep_msa/POLKaps Tue Feb 14:21:19 2022

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Xenopus_tropicalis      -----MDNKQEAALAPSSKEA      15
Rhinatrema_bivittatum  -----MSLNPDYENLNLLSCRMDSKKTDAPFSDEG      31
Pavo_muticus           -----LSRY-VSGQERYWSSESTMDNMKNVDNGSYNGG      32
Pavo_cristatus         -----LSRY-VSGQERYWS-ESTMDNMKNVDNGSYNGG      31
Gallus_gallus          -----MSTYSIKSQERYWYSESTMDNVKNVDKSSYNGG      33
Anas_platyrhynchos    -----MDNMKKVDDSSSNDG      15
Chelonia_mydas         -----MDSTKKVVNTSDDGG      15
Mus_musculus           -----MDNTKEK--DNFKDD      13
Rattus_norvegicus      -----MDNTKEK--NNFKDA      13
Canis_lupus_familiaris -----MDSTKEKN-GSYKDD      14
Equus_caballus         -----MDSTKEKN-ENYKDD      14
Bos_taurus             -----MGSTKEKSDGTKEKN-DNYKDD      21
Homo_sapiens           -----MDSTKEKC-DSYKDD      14
Pan_troglodytes        -----MDSTKEKC-DSYKDD      14
Macaca_mulatta         -----MDSTKEKC-DSYKDD      14
Callithrix_jacchus     -----MDDTKEKN-DSYKDD      14
Heterocephalus_glaber  -----MDTTKEKN-DNYKDN      14
Latimeria_chalumnae    MPVSGVINGNKPESGCIIEVLVRQAMLHKRELKKDKKITDCKLSNMTSTNEFVS--SSNGG      58
1.....10.....20.....30.....40.....50.....60

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Xenopus_tropicalis      FQFRMGLNDNKAGMEGLDKEKINKIIMEATKGSRFYDNEKKDQVNRIEKLMQOKSOL      75
Rhinatrema_bivittatum  FQFRMGLNDNKAGMEGLDKEKINKIIMEATKGSRFYENELKKDQVNRIEKMMLOKQAI      91
Pavo_muticus           ALLRMGLNDNKAGMOGLDKEKINKIIMEASKGSKFYENELKKDQVNRIEKMMOLKEKI      92
Pavo_cristatus         ALLRMGLNDNKAGMOGLDKEKINKIIMEASKGSKFYENELKKDQVNRIEKMMOLKEKI      91
Gallus_gallus          ALLRMGLNDNKAGMOGLDKEKINKIIMEASKGSKFYENELKKDQVNRIEKMMOLKEKI      93
Anas_platyrhynchos    FLLRMGLNDNKAGMOGLDKEKINKIIMEATKGSRFYENELKKDQVNRIEKMMRLKEKI      75
Chelonia_mydas         FLLRVGLNDNKAGMOGLDKEKINKIIMEATKGSRFYENELKKDQVNRIEKMMOLKDKI      75
Mus_musculus           LLLRMGLNDNKAGMEGLDKEKINKIIMEATKGSRFYGNELKKEKQVNRIVENMMOQKAI      73
Rattus_norvegicus      LLLRMGLNDNKAGMEGLDKEKINKIIMEATKGSRFYGNELKKEKQVNRIVENMMOQKAI      73
Canis_lupus_familiaris LLLRMGLNDNKAGMEGLDKDKINKIIMEATKGSRFYGNELKKEKQVNRIVENMMOQKAI      74
Equus_caballus         LLLRMGLNDNKAGMEGLDKEKINKIIMEATKGSRFYGNELKKEKQVNRIVENMMOQKAI      74
Bos_taurus             LLLRMGLNDNKAGMEGLDKEKINKIIMEATKGSRFYGNELKKEKQVNRIVENMMOQKAI      81
Homo_sapiens           LLLRMGLNDNKAGMEGLDKEKINKIIMEATKGSRFYGNELKKEKQVNRIVENMMOQKAI      74
Pan_troglodytes        LLLRMGLNDNKAGMEGLDKEKINKIIMEATKGSRFYGNELKKEKQVNRIVENMMOQKAI      74
Macaca_mulatta         LLLRMGLNDNKAGMEGLDKEKINKIIMEATKGSRFYGNELKKEKQVNRIVENMMOQKAI      74
Callithrix_jacchus     LLLRMGLNDNKAGMEGLDKEKINKIIMEATKGSRFYGNELKKEKQVNRIVENMMOQKAI      74
Heterocephalus_glaber  LLLRMGLNDNKAGMEGLDKEKINKIIMEATKGSRFYENELKKEKQVNRIVENMMHOKTOI      74
Latimeria_chalumnae    FLSRMALNDNKAGMEGLDKEKINKIIMEATKGSRFYENELKKDQVNRIEKMMHOKAHI      118
.....70.....80.....90.....100.....110.....120

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Xenopus_tropicalis      TDQQIKKAQIQVDRLALELERNRDLRIIVHVDMDAFYAAVEMRDSPELKD KPMVAVGSNS      135
Rhinatrema_bivittatum  TSQQLLKAQLQVDRLAMELEESRDL SRVMVHIDMDAFYAAVEMRDNP ELRDKPMAVGSMS      151
Pavo_muticus           TQQQLLKAQLQVDKLVMELEQSRNLSCTIVHIDMDAFYAAVEMRDNP ELKERPIAVGSMS      152
Pavo_cristatus         TQQQLLKAQLQVDKLVMELEQSRNLSCTIVHIDMDAFYAAVEMRDNP ELKERPIAVGSMS      151
Gallus_gallus          TQQQLLKAQLQVDKLVLELERSRNLSCTIVHIDMDAFYAAVEMRDNP ELKEKPIAVGSMS      153
Anas_platyrhynchos    TQQQLLKAQLQVDRLVMELEQSRNLSCTIVHIDMDAFYAAVEMRDNP ELKEKPIAVGSMS      135
Chelonia_mydas         TSQQLLKAQLQADNLVLELEQSRDLSC TIVHIDMDAFYAAVEMRDNP ELKEKPIAVGSMS      135
Mus_musculus           TSQQLRKAQLQVDKFAMELERNRNLNNTIVHVDMDAFYAAVEMRDNP ELKD KPIAVGSMS      133
Rattus_norvegicus      TSQQLRKAQLQVDRFAMGLERNRNLNNTIVHVDMDAFYAAVEMRDNP ELKEKPIAVGSMS      133
Canis_lupus_familiaris TSQQLRKAQLQVDRYAMELEQSRDLNNTIVHIDMDAFYAAVEMRDNP ELKD KPIAVGSMS      134
Equus_caballus         TSQQLRKAQLQVDKFAMELEQSRDLNNTIVHIDMDAFYAAVEMRDNP ELKD KPIAVGSMS      134
Bos_taurus             TSEQLRKAQLQVDRFAVELEQSRDLNSTIVHIDMDAFYAAVEMRDNP ELKD KPIAVGSMS      141
Homo_sapiens           TSQQLRKAQLQVDRFAMELEQSRNLSNTIVHIDMDAFYAAVEMRDNP ELKD KPIAVGSMS      134
Pan_troglodytes        TSQQLRKAQLQVDRFAMELEQSRNLSNTIVHIDMDAFYAAVEMRDNP ELKD KPIAVGSMS      134
Macaca_mulatta         TSQQLRKAQLQVDRFAMELEQSRNLSNTIVHIDMDAFYAAVEMRDNP ELKD KPIAVGSMS      134
Callithrix_jacchus     TSQQLRKAQLQVDRFAMELEQSRNLNNTIVHIDMDAFYAAVEMRDNP ELKD KPIAVGSMS      134
Heterocephalus_glaber  TSQQLRNAQLQVDRFAMEIEHRRDLNNTIVHIDMDAFYAAVEMRDNP ELKD KPIAVGSMS      134
Latimeria_chalumnae    TEQQLRKAQLQVDKFVMELEQGRDLSSH TIVHIDMDAFYAAVEMKDNP ELRDKPMAVGSMS      178
.....130.....140.....150.....160.....170.....180

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**::**** **::*****::*** **::*** **::**::**** **::
MLSTSNYLARRFGVRAAMPGFI AKKLCPTLKIVPPNF DKYRAV S SEVREILAQYDPNF L P 195
MLSTSNYLARRFGVRAAMPGFI AKKLC PNLVIVPLNFD KYRAV SKDVREILADYD L N F L P 211
MLSTSNYHARRFGVRAAMPGFI AKKLC PHLTIVPLNF EKYRKVS KEVKEILAEYD P H F M P 212
MLSTSNYHARRFGVRAAMPGFI AKKLC PHLTIVPLNF EKYRKVS KEVKEILAEYD P H F M P 211
MLSTSNYHARRFGVRAAMPGFI AKKLC PHLTIVPLNF EKYRKVS KEVKEILAEYD P H F M P 213
MLSTSNYHARRFGVRAAMPGFI AKKLC PHLTIVPLNF EKYGKVS KEVREILAEYD P Q F M P 195
MLSTSNYHARRFGVRAAMPGFI AKKLC PHLTIVPLNF KKYKEVS KEVREILVEYD P S F M P 195
MLATSNYHARRFGVRAAMPGFI AKRLC PQLIIVPPNF DKYRAV S KEVKEILAEYD P N F M A 193
MLATSNYHARRFGVRAAMPGFI AKRLC PQLIIVPPNF DKYRAV S KEVKEILAEYD P N F M A 193
MLSTSNYYARRFGVRAAMPGFI AKRLC PQLIIVPPNF DKYRAV S TEVKEILADYD P N F L A 194
MLSTSNYHARRFGVRAAMPGFI AKRLC PQLIIVPPNF DKYRAV S REVKEILADYD P N F L A 194
MLSTSNYHARRFGVRAAMPGFI AKRLC PQLIIVPPNF DKYQAVS REVKEILT D YD P N F M A 201
MLSTSNYHARRFGVRAAMPGFI AKRLC PQLIIVPPNF DKYRAV S KEVKEILADYD P N F M A 194
MLSTSNYHARRFGVRAAMPGFI AKRLC PQLIIVPPNF DKYRAV S KEVKEILADYD P N F M A 194
MLSTSNYHARRFGVRAAMPGFI AKRLC PQLIIVPPNF DKYRAV S KEVKEILADYD P N F M A 194
MLTTSNYYARRFGVRAAMPGFI AKRLC PQLIIVPPNF DKYRAV S KEVKEILADYD P N F M A 194
MLSTSNYHARRFGVRAAMPGFI AKRLC PHLIIVAPNFD KYRAV S EEVKEILADYD P N F M A 194
MLSTSNYHARKFGVRAAMPGFI AKKLC PGLIIVPLNF EKYRAV S KEVKEILAGYD P N F L T 238
.....190.....200.....210.....220.....230.....240

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.:*****::*:*:*:*   ***:* : : .
MSLDEAYLDITDHLSERLAWPEDKRTFMIRTNNSGGNKPL-----PGKQEV E C      244
LSLDEAYLDLTEHLKERLNWPEDKRITYFLRRDTATENSTK-----EVTTEEVAA     260
MGLDEAYLVNTEHLEERLNWNPEDKRRYFLNTENTTEKNKE-----DINISG--T     259
MGLDEAYLVNTEHLEERLNWNPEDKRRYFLNTENTTEKNKE-----DINISG--T     258
MGLDEAYLVNTEHLEERLNWNPEDKRRYFLNTENTTEKNKE-----DINIPG--T     260
MGLDEAYLVNITEHLEERLNWNPEDKRRFFFRTESTAEKDKE-----DIVSG--K     242
IGLDEAYLVNITEYLEERONWNPEDKRSYFIKRENTAKNGKQ-----DVTAPSELK     244
MSLDEAYLVNITOHLQERODWNPEDKRRYFIKMGNYLKI-----DTPRQEANE     239
MSLDEAYLVNITOHLQERGWPEDKRRYFIKMGNCRKI-----DTPRQEADE     239
MSLDEAYLVNITKHLQERONWNPEDKRKYFIKTGNPLEN-----DKPRKEV N K     240
MSLDEAYLVNITKHLQERONWNPEDKRKYFIKTGS SLDN-----DKPGKEV -K     239
MSLDEAYLVNITKHLEERKNWNPEDKRKYFITAGNSLEN-----DKPGKEVNE     247
MSLDEAYLVNITKHLEERONWNPEDKRRYFIKMGS SVEN-----DNPGKEV N K     240
MSLDEAYLVNITKHLEERONWNPEDKRRYFIKMGS SVENDLONLYIORSITFTDNPGKEV N K     254
MSLDEAYLVNITKHLEERONWNPEDKRKYFIKMGN SVEN-----DNPGKEV N K     240
MSLDEAYLVNITKHLEERONWNPEDKRRYFIKMGN SVEN-----DNPGKEV N K     240
MSLDEAYLVNITKHLQERONWPEEKRSYFIKTGNLAEN-----DEPGKEV N K     240
MSLDEAYLDITEHLKORONWPEHRRTFYIGVENTTKND EE-----KLSRKBEQQ     287
.....250.....260.....270.....280.....290.....300

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[illegible]

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Xenopus_tropicalis      VKEMRFRIEQKTTTLTASAGIAPNMLAKVCS DNKNKPNQYRIFNDKQAIKDFIKDLPIRK 351
Rhinatrema_bivittatum  VKEIRFRIEQKTTTLTASAGIAPNMLAKVCS DNKNKPNQYRIFSHDRQDVMDFIKDLPIRK 374
Pavo_muticus           VKEIRFRIEQKTTLTASAGIAPNTMLAKMCS DRNKNPNQYCRISPERQAVLDFIKDLPIRK 363
Pavo_cristatus         VKEIRFRIEQKTTLTASAGIAPNTMLAKMCS DRNKNPNQYCRISPERQAVLDFIKDLPIRK 362
Gallus_gallus          VKEIRFRIEQKTTLTASAGIAPNTMLAKMCS DRNKNPNQYCRISPERQAVLDFIKDLPIRK 364
Anas_platyrhynchos     VKEIRFRIEQKTTLTASAGIAPNTMLAKMCS DRNKNPNQYCRISPERQAVLDFIKDLPIRK 346
Chelonia_mydas         VKEIRFRIEQKTTGLTASAGIAPNMTLAKMCS DQNKPNQYRISPDRQSVMDFIKDLPIRK 358
Mus_musculus           VKEIRFRIEQKTTTLTASAGIAPNTMLAKVCS DNKNKPNQYQIILPSRSAVMDFIKDLPIRK 352
Rattus_norvegicus      VKEIRFRIEQKTTTLTASAGIAPNTMLAKVCS DNKNKPNQYQIIVPSRSVMDFIKDLPIRK 352
Canis_lupus_familiaris VKEIRFRIEQKTTTLTASAGIAPNTMLAKVCS DNKNKPNQYQVLPNRQAVMDFIKDLPIRK 353
Equus_caballus         VKEIRFRIEQKTTTLTASAGIAPNTMLAKVCS DNKNKPNQYQIILPDRQAVMDFIKDLPIRK 352
Bos_taurus            VKEIRFRIEQKTTTLTASAGIAPNTMLAKVCS DNKNKPNQYQIILPDRQAVMDFIKDLPIRK 360
Homo_sapiens           VKEIRFRIEQKTTTLTASAGIAPNTMLAKVCS DNKNKPNQYQIILPDRQAVMDFIKDLPIRK 353
Pan_troglodytes        VKEIRFRIEQKTTTLTASAGIAPNTMLAKVCS DNKNKPNQYQIILPDRQAVMDFIKDLPIRK 367
Macaca_mulatta         VKEIRFRIEQKTTTLTASAGIAPNTMLAKVCS DNKNKPNQYQIILPDRQAVMDFIKDLPIRK 353
Callithrix_jacchus     VKEIRFRIEQKTTTLTASAGIAPNTMLAKVCS DNKNKPNQYQIILPDRQAVMDFIKDLPIRK 347
Heterocephalus_glaber  VKEIRFRIEQKTTTLTASAGIAPNTMLAKVCS DNKNKPNQYQIILPSRQAVMDFIKDLPIRK 353
Latimeria_chalumnae    VREMRFLIEQKTKLTASAGIAPNMLAKVCS DNKNKPNQYRIPADQAVMDFIKDLPIRK 407
.....370.....380.....390.....400.....410.....420

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Xenopus_tropicalis      VPGIGKVTEKMLKALGIITCTDLYQQRALLSLLFSETSWQNFVHISLGLGSTHVERDGER 411
Rhinatrema_bivittatum  VPGIGKVTEKMLKALGIITCTDLYQQRALLSLLFSETSWQNFVHISLGLGSTHIEKDGER 434
Pavo_muticus           VPGIGKVTEKMLKALGIVTCSLEYQQRALLSLLFSEASXXXXXXXXXXXXXXXXXXDGER 423
Pavo_cristatus         VPGIGKVTEKMLKALGIVTCSLEYQQRALLSLLFSEASXXXXXXXXXXXXXXXXXXDGER 422
Gallus_gallus          VPGIGKVTEKMLKALGIVTCSLEYQQRALLSLLFSEASWRNFLDISLGLGSTHLEKDGER 424
Anas_platyrhynchos     VPGIGKVTEKMLKALGIVTCSLEYQQRALLSLLFSEASWRNFLDISLGLGSTHLEKDGER 406
Chelonia_mydas         VPGIGKVTEKMLKALGILTCNELYQQRALLSLLFSETSWHNFVHISLGLGSTHLEKYGER 418
Mus_musculus           VSGIGKVTEKMLMALGIVTCTELYQQRALLSLLFSETSWHYFLHIALGLGSTDLARDGER 412
Rattus_norvegicus      VSGIGKVTEKMLLALGIVTCTELYQQRALLSLLFSETSWHYFLHIALGLGSTDLARDGER 412
Canis_lupus_familiaris VSGIGKVTEKMLKALGIITCTELYQQRALLSLLFSETSWHFLHISLGLGSTHLARDGER 413
Equus_caballus         VSGIGKVTEKMLKALGIITCTELYQQRALLSLLFSETSWHFLHISLGLGSTHLARDGER 412
Bos_taurus            VSGIGKVTEKMLKALGIITCTELYQQRALLSLLFSETSWHFLHISLGLGSTHLARDGER 420
Homo_sapiens           VSGIGKVTEKMLKALGIITCTELYQQRALLSLLFSETSWHYFLHISLGLGSTHLTRDGER 413
Pan_troglodytes        VSGIGKVTEKMLKALGIITCTELYQQRALLSLLFSETSWHYFLHISLGLGSTHLTRDGER 427
Macaca_mulatta         VSGIGKVTEKMLKALGIITCTELYQQRALLSLLFSETSWHYFLHISLGLGSTHLTRDGER 413
Callithrix_jacchus     VSGIGKVTEKMLKALGIITCTELYQQRALLSLLFSETSWHYFLHISLGLGSTHLTRDGER 407
Heterocephalus_glaber  VSGIGKVTEKMLKALGIITCTELYQQRALLSLLFSETSWHYFLHISLGLGSTHLARDGER 413
Latimeria_chalumnae    VPGIGKVTEKMLNALGITICTELYQQRALLSLLFSEVSWHFLQISLGLGSTCIVRDGER 467
.....430.....440.....450.....460.....470.....480

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** *.*****.~::~~: ~::~~: ***** *:~::~~: ***** *:~::~~: ***** **
Xenopus_tropicalis      KSMSTERTFSEISSSEEQYGLCQELCRDLAQDLQKEGLKGKTVTIKLNKVFVTRALTR 471
Rhinatrema_bivittatum  KSMSTERTFSEISVASEQYTLCCQELCSDLAQDLQKEGLKGKTVTIKLNKVFVTRAKFT 494
Pavo_muticus           KSMSTERTFSEINTAEDQYSLCRELCRELAQDLQKEGLKGKTVTIKLNKVFVTRAST 483
Pavo_cristatus         KSMSTERTFSEINTAEDQYSLCRELCRELAQDLQKEGLKGKTVTIKLNKVFVTRAST 482
Gallus_gallus          KSMSTERTFSEISKAEDQYSLCQELCRELAQDLQKEGLKGKTVTIKLNKVFVTRAST 484
Anas_platyrhynchos     KSRSTERTFSEINTAEDQYSLCQELCRDLAQDLQKEGLKGKTVTIKLNKVFVTRAST 466
Chelonia_mydas         KSMSTERTFSEINTVEEQYRLCQELCRDLAQDLQKEGLKGKTVTIKLNKVFVTRAST 478
Mus_musculus           KSMSVERTFSEISKTEEQYSLCQELCAELAHDLQKEGLKGKTVTIKLNKVFVTRAST 472
Rattus_norvegicus      KSMSVERTFSEINKTEEQYSLCQELCTELAHDLQKEGLKGKTVTIKLNKVFVTRAST 472
Canis_lupus_familiaris KSMSVERTFSEISKAEEQYNLCQELCSELAQDLQKEGLKGKTVTIKLNKVFVTRAST 473
Equus_caballus         KRSRVERTFSEMSKAEEQYSLCQELCSELAQDLQKEGLKGKTVTIKLNKVFVTRAST 472
Bos_taurus            KSMSVERTFSEISKAEEQYSLCQELCSELAQDLQKGLKGKTVTIKLNKVFVTRAST 480
Homo_sapiens           KSMSVERTFSEINKAEEQYSLCQELCSELAQDLQKERLKGKTVTIKLNKVFVTRAST 473
Pan_troglodytes        KSMSVERTFSEINKAEEQYSLCQELCSELAQDLQKERLKGKTVTIKLNKVFVTRAST 487
Macaca_mulatta         KSMSVERTFSEINKAEEQYSLCQELCSELAQDLQKEGLKGKTVTIKLNKVFVTRAST 473
Callithrix_jacchus     KSMSVERTFSEINKAEEQYSLCQELCSELAQDLQKEGLKGKTVTIKLNKVFVTRAST 467
Heterocephalus_glaber  KSMSVERTFSEINKAEEQYDLCCQELCSELAQDLQKEGLKGKTVTIKLNKVFVTRAST 473
Latimeria_chalumnae    KSMSTERTFNEMSKPEEQYSLCHDLCSELAQDLQKEGLKGKTVSIKLNKVFVTRAST 527
.....490.....500.....510.....520.....530.....540

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Xenopus_tropicalis	VGSTVSTEEEIFAVAKEILKAEIDLASPEPLRLRLMGVRVSGFLTTEEEKKHHSKIIGFL	531				
Rhinatrema_bivittatum	VL SAVSTEEEIFTVAREILLRGEIEMASPHPLRLRLMGVRVSSFLSEDEKKKHHSKIINFL	554				
Pavo_muticus	VLSSVSAEDEIFAVAKMLLGTETDSVAPHPPLRLRLMGVRVSGFLSEEEKKYQOKSIKSFL	543				
Pavo_cristatus	VLSSVSAEDEIFAVAKMLLGTETDSVAPHPPLRLRLMGVRVSGFLSEEEKKYQOKSIKSFL	542				
Gallus_gallus	VLSSVSTEDEIFAVAKMLLGTETDSVAPHPPLRLRLMGVRVSGFLSEEEKKYQOKSIKSFL	544				
Anas_platyrhynchos	VLSSVSTEEEIFYAVAKELLGTEIDSVAPQPPLRLRLMGVRVSGFLSEEEKKYQOKSISFL	526				
Chelonia_mydas	VL SAVFTEEEIFAVAKDMLRTEIDGVAPHPLRLRLMGIRVSGFLNEEEKKYQORSIINFL	538				
Mus_musculus	VPAAISTAEEIFAIAKELLRTENVVGSPHPLRLRLMGVRMSTFSSED DRKHQORSIIGFL	532				
Rattus_norvegicus	VPSAISTAEDIFAVAKELLRTETAGSPQLRLRLMGVRMSTFSDDDRKHQORSIIGFL	532				
Canis_lupus_familiaris	VSSVVSTTEEIFAIAKELLRTETADFPHPPLRLRLMGVRLSSFPNEDDRKHQORSIIGFL	533				
Equus caballus	VSSVISTAEEIFAIAKELLRTETADFPHPPLRLRLMGVRVSGFPNEEKKHQRSIIGFL	532				
Bos_taurus	VSTTVSTAEEIFVI AKELLRTETADFPQLRLRLMGVRLSGFPNEEKKHQRSIIGFL	540				
Homo_sapiens	VSSVVSTAEEIFAIAKELLKTEIDADFPHPPLRLRLMGVRISSF PNEDRKHQORSIIGFL	533				
Pan_troglodytes	VSSVVSTAEEIFAIAKELLKTEIDADFPHPPLRLRLMGVRISSF PNEDRKROORSIIGFL	547				
Macaca_mulatta	VSSVVSTAEEIFAIAKELLKTEIDADFPHPPLRLRLMGVRISSF PNEDRKHQORSIIGFL	533				
Callithrix_jacchus	VSSVVSTAEEIFAIAKELLKTEIDADFPHPPLRLRLMGVRISSF PSEDRKHQORSIIGFL	527				
Heterocephalus_glaber	VSSVVSTTEEIFAIAKELLRTETADFPYPLRLRLMGVRISSF PNEDKKHQORSIIGFL	533				
Latimeria_chalumnae	VASVVSTEEIFAIAKELLRTETENAEPPQLRLRLMGVRVSGFLNEEEKCHOKSIINFF	587				
550.....560.....570.....580.....590.....600					

610.....620.....630.....640.....650.....660	
Xenopus_tropicalis	HVSKPGSSSLGQSDKANP---SALATGPQRQSFNNKRAAREHMQEKH---AVCSGFV	585
Rhinatrema_bivittatum	QTGKAARKSSSLPPENLEPRHCSKLALTSHGESSFNKKRVEMQQNNKEPLGDDTVSQQVM	614
Pavo_muticus	KSGKE-LDFPRLQPGKSNQENLTKNSEASSRGSFDDKKRAARQLNCNNVFPSESVGKQHF	602
Pavo_cristatus	KSGKE-LDFPRLQPGKSNQENLTKNSEASSRGSFDDKKRAARQLNCNNVFPSESVGKQHF	601
Gallus_gallus	KSGKE-LDFPRLQPGKSNQENLTKNSEASSRGSFDDKKRAARQLNCNNVFPSESVGKQHF	603
Anas_platyrhynchos	KSGKG-NGFLRLQPGKSNHENFTKNSEASSRESFDDKKRAARQFKCDNVVFNENVGKQLF	585
Chelonia_mydas	KPGKC-ANASLLQPGKSSHEHFTKASETSHRESFDDKKRAARQSSNOELLINKPANKNS	597
Mus_musculus	QAGNQALSSITGDSLDKTDKTELAKPLEMSHKKSFDDKKRSEIRISNCODTSRCKIAGQOAL	592
Rattus_norvegicus	QAGNQGLSPITGCTADRTDKTELVKPLETSRKKSFDDKKRSEIRIPNCODPPRCKIAGEQAL	592
Canis_lupus_familiaris	QAGNQSQSAPGCILEKTDKQFLKSLEMSHKKSFDDKKRSERNWSHQDTFKCEAVDKQSL	593
Equus_caballus	QAGNQTPSATGCRLEKTEKDQFLKPLEMSHKKSFDDKKRSEKWSHQDTFKCETVDDKSL	592
Bos_taurus	QPGNQALSATGCILEKTDKQFLKPAQMSHKKSFDDKKRSEKWSHQDTFTCTETVNNKQSL	600
Homo_sapiens	QAGNQALSAECTLEKTDKDKFVKPLEMSHKKSFDDKKRSEKWSHQDTFKCEAVNKQSF	593
Pan_troglodytes	QAGNQALSAECTLEKTDKDKFVKPLEMSHKKSFDDKKRSEKWSHQDTFKCEAVNKQSF	607
Macaca_mulatta	QAGNQALSATGCILEKTDKQFVKPLEMSHKKSFDDKKRSEKWSHQDTFKCETVNNKQSF	593
Callithrix_jacchus	QAGNQTPSVNGCILEKTNKDKFAKPLKVSHKKSFDDKKRSEKWSHQDTFKCETVNEQSL	587
Heterocephalus_glaber	QAGNQAPSATETYEERTDKQFVKPLKTSKKSFDDKKQSETKWSHQDTSKCETVDDKQNL	593
Latimeria_chalumnae	QNQKQ---ESAQVAANDSAKPSAQIPDAPSAESSFNKKLAARNQNKORSFFAMVAEKRAQ	644

	..	:	**:*:	:	*	.*	.*:*	**					
<i>Xenopus_tropicalis</i>	KSE	DATIS	DSE	GKTET	LD	LEN	VS	QKPE	--FTCPICFLKESDWDLASFNKHIDKCLSRSP	643			
<i>Rhinatrema_bivittatum</i>	PSLR	IL	VAS	VQET	IND	TQ	GLE	KSSE	CHI--LTC	672			
<i>Pavo_muticus</i>	HGVK	SSAN	FVEE	ANK	V	TGL	-Q	KNVCE	-IFTCPVCFEEQSSSNLEEINRHVDECLAGSLV	660			
<i>Pavo_cristatus</i>	HGVK	SSAN	FVEE	ANK	V	TGL	-Q	KNVCE	-IFTCPVCFEEQSSSNLEEINRHVDECLAGSLV	659			
<i>Gallus_gallus</i>	HGVK	SSAN	FVEE	ANK	V	IDL	-Q	KNVCE	-IFTCPVCFEEQSSSNLEEINRHVDECLAGSLV	661			
<i>Anas_platyrhynchos</i>	HDIK	STAN	FVEE	TN	KI	IDL	-Q	NSDVCE	-IFTCPVCFEEQSSSNLEEINRHIDECLAGSHV	643			
<i>Chelonia_mydas</i>	HDIK	SSVN	TMEET	IND	A	IGS	-EN	LNECH	-SLTCPVCFKEQRDSDLEALNRHIDKCLNGTLV	655			
<i>Mus_musculus</i>	QILE	PSQ	ALKK	-L	SES	FETS	ENS	ND	CQ-IFICPVCFREQEGVSLEAFNEHVDECLDGPST	650			
<i>Rattus_norvegicus</i>	QASE	PSQ	ALKK	-M	SES	FKTS	ENS	ND	PQ-IFICPVCFREQEGISLEAFNEHVDACLDGPST	650			
<i>Canis_lupus_familiaris</i>	QTS	HSF	QVL	KKK	MN	EN	L	KTS	ENS	NN	SQ-IFTCPICFREQRSISLEAFNKHVDACL	652	
<i>Equus_caballus</i>	QTS	QS	FQVL	NK	QK	MSEN	LE	TS	ENS	DN	CQ-IFTCPVCFREQGVSLEAFNKHVDACL	651	
<i>Bos_taurus</i>	QTS	QS	FQVL	NK	QK	MSEN	LE	TS	ENS	DN	CQ-IFTCPVCFREQGVSLEAFNKHVDACL	659	
<i>Homo_sapiens</i>	QTS	Q	P	FQVL	KKK	MN	EN	L	EIS	NS	DD	CQ-ILTCPVCFRAQGCISLEALNKHVDECLDGP	652
<i>Pan_troglodytes</i>	QTS	Q	P	FQVL	KKK	IN	EN	L	EIS	NS	DD	CQ-IFTCPVCFRTQGCISLEALNKHVDECLDGP	666
<i>Macaca_mulatta</i>	QTS	Q	P	FQVL	KKK	MSEN	LE	I	P	ENS	DN	CQ-IFTCPVCFRAQGCISLEAFNKHVDACL	652
<i>Callithrix_jacchus</i>	QTS	Q	P	FQVL	KK	-MN	ENSE	I	ENS	DN	CQ-IFTCPVCFRAQGYISLEAFNKHVDACL	645	
<i>Heterocephalus_glaber</i>	QTS	Q	P	FQVL	KKK	IN	EN	L	EIS	NS	DN	CQ-IFTCPVCFREQGVSISLEAFNKHVDACL	653
<i>Latimeria_chalumnae</i>	DMPG	SG	QPS	AA	ESSES	FS	LR	QA-----	L	TC	VL	REQE-ADLESFNRHIDDCLSHP	696
	670	680	690	700	710	720	

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Xenopus_tropicalis	SS-----ELES	SPYKEGA	-----VMMRNEVG	DMEIQCE	--GIHNADVCAKK	681	
Rhinatrema_bivittatum	DS-----SEET	IQHKDGG	-----LLLL	--RSNTDYACP	--SDNKKKSIEIS	708	
Pavo_muticus	KE-----SVEI	SKND-----	FSRENTFS	SFLSHCKNEN	IDDCKENITD	697	
Pavo_cristatus	KE-----SVEI	SKND-----	FSRENTFS	SFLSHCKNEN	IDDCKENITD	696	
Gallus_gallus	ED-----TVEI	SKND-----	LSRENTFN	SFLSHCKNEN	IDDCKENVTD	698	
Anas_platyrhynchos	KD-----TVKI	SKND-----	NSREDTLN	FFPHCKNEN	VEACKNKMN	680	
Chelonia_mydas	KD-----NAEI	STSE-----	NSWENAYH	FSPDNKKKIF	EMCQKNKMN	692	
Mus_musculus	SE-----NSKI	SCYSHASSAD	IGQKEDVHP	SIPLCEKRG	HENG-----EI	690	
Rattus_norvegicus	SE-----NSEMP	SYSHASSAD	IGQC--AHR	AVPLWEKRG	HGDG-----EI	688	
Canis_lupus_familiaris	SG-----ISSV	FHSHASST	EVNKKENV	VPFSFSQSE	KQDYETHORNSEI	696	
Equus_caballus	SE-----NSEM	SSCSHASST	EVNKKENV	VPFSFSLCE	KQDYKARQKN	695	
Bos_taurus	SG-----NSKM	SSCSHASST	EVNEKENV	CDVSLSCE	KQGYETHQKNTEI	703	
Homo_sapiens	SE-----NFKM	FSCSHVSAT	KVNKKENV	-ASSLCEKQ	DYEAHPKIKEI	695	
Pan_troglodytes	SE-----NFKM	FSCSHVSAT	KVNKKENV	-ASSLCEKQ	DYEAHPKIKEI	709	
Macaca_mulatta	SE-----NSKV	FSCSHVSAT	RVNKKENV	-ASSLCEKQ	DYEAHPKIKEV	695	
Callithrix_jacchus	SE-----NSKM	FSCSHVSAT	KVNKKENV	-SSSLYEKQ	DDYEAHPKNREI	687	
Heterocephalus_glaber	SE-----NCKV	STCSQATS	-AVNQENTH	HSFSLWEKQ	DYEAHQKNIEV	696	
Latimeria_chalumnae	DDRLPP	GGFNGEDHAA	ECTSGKTQ	ETCHAA	LTTPYRDTLANEGSPCE	KLTI	756
	730.....	740.....	750.....	760.....	770.....	780

Xenopus_tropicalis	QIG-HIRPL-----DAFDDSGINNTETTTVEDVMNVNMDQSHHSIIATSIKNEYKM	732
Rhinatrema_bivittatum	QINNANKPV-----DVWVDN-----YITRNAEIMECKQGTEDRSKESDRPS---AA	752
Pavo_muticus	QLAGTGQSG-----STSENSSGNGRDKKFTQIVSEKPHREKOPGDLIDIPRNASIQ	749
Pavo_cristatus	QLAGTGQSG-----STSENSSGNGRDKKFTQIVSEKPHREKOPGDLIDIPRNASIQ	748
Gallus_gallus	QLAGTGQSA-----STSENSSGNSRDKKFTQIVSEKPHREKOPGDLIDIPRNASIQ	750
Anas_platyrhynchos	QLGGTGQSA-----SAPDNSASNCTER-FTQIISDKSHREROPGDLSATAGNACIQ	731
Chelonia_mydas	KSDVTVOLT-----KVADNSTSSNTEA-FHKVVAN-TSKEREHSLLSETASNMYLEQ	742
Mus_musculus	TLVDGVDLT-----GTEDRSL-----KAARMDTLENNRSKEE-CPDIPDK-----	729
Rattus_norvegicus	TSGDGADLT-----ETEDRSP-----KAASMDAVGNHSEGEQYPDSQQG-----	728
Canis_lupus_familiaris	N---FIELP-----ETEDNPA-----KAESVDALSDKHSKEE-CASLPSKPFNIEKCC	740
Equus_caballus	TSGDCVELV-----ETIDNPA-----KAEGVDALSNKHSKEE-CSSLPSKPFNVEHCH	742
Bos_taurus	TSVDPIELV-----ETTCKPS-----NTEDTSALSNKPSEEEECSSGLSSKLFNMDF--	749
Homo_sapiens	SSVDCIALV-----DTIDNSS-----KAESIDALSNKHSKEE-CSSLPSKSFNIEHCH	742
Pan_troglodytes	SSVDCIALV-----DTIDNSS-----KAESIDALSNKHSKEE-CSSLPSKSFNIEHCH	756
Macaca_mulatta	SSVDCVALV-----DTIDNSS-----KAESIDALSNKHIGKE-CSNLPKGSFNIEHCH	742
Callithrix_jacchus	SPVDYVDLV-----DTIDNSS-----EAESIDALSNEHSKEE-CSSLPSKSFNIEHCH	734
Heterocephalus_glaber	TSEDCVDLV-----EPKDSLSL-----KARSIDSLRRKHSKEE-HSSLPSK-----	735
Latimeria_chalumnae	YEGRSPEAIRDRSGVVGGLSKSGLPQSPFPKDTLRVSEGDCEETGHASERSAMGSKMS	816
790.....800.....810.....820.....830.....840	

850.....860.....870.....880.....890.....900	
Xenopus_tropicalis	ASEPIYAENLIECKVN--LS-----DTFVAHPSSAAPCEEQSFICPVCNIRODT	779
Rhinatrema_bivittatum	TSNLCYQETFSALPIISLAE-----EVEEQSCSSSEIMEDTALICPVCNLEQKT	801
Pavo_muticus	CLFPKRNSEQENAEQFGRMDH-----TEETSSSSCSFEAKEDSVLVCPVCNSEQKT	798
Pavo_cristatus	CLFPKRNSEQENAEQFGRMDH-----TEETSSSSCSFEAKEDSVLVCPVCNSEQKT	797
Gallus_gallus	CLSPKRNSEQENAVQFGRMDH-----TEETSSSSCSFEAKEDSVLVCPVCNLEQKT	799
Anas_platyrhynchos	CLFPKRITSQEDAEHFGETEH-----TEETSSSSCYFEAKEDNVLVCPVCNSEQKA	780
Chelonia_mydas	NFSSKIISLENAEHFEKSEC-----TOETQPSYSSGAIRDNVLVCPVCNVEQKT	791
Mus_musculus	---SCPISLENETISILS-----RODSVQPCIDEVVVTRALVCPVCNLEQET	773
Rattus_norvegicus	---SCPLSPANETVTSILS-----REDSAQPCIDEVVVTRALVCPVCNLEQET	772
Canis_lupus_familiaris	QNSSSTVSLIED--IASLS-----ROESSQP-----YLOALVCPVCNLEQKT	779
Equus_caballus	QKS-CTVSLINEDVESLR-----ROEP-----VQALVCPVCNLEQKT	778
Bos_taurus	QNS-CTVSLENEDVGSILR-----ROESPQPNLYEIVSDQVLVCPVCNLEQKT	795
Homo_sapiens	QNSSSTVSLENEDVGSF-----ROEYROPYLCEVKTGOALVCPVCNVEQKT	788
Pan_troglodytes	QNSSSTVSLENEDVGSLS-----ROEYROPYLCEVKTGOALVCPVCNVEQKT	803
Macaca_mulatta	QNYSCTVSLENEDVGLLS-----ROESCPYLCFVITGOALVCPVCNVEQKT	789
Callithrix_jacchus	QN-SCTVSLESIEDVGLS-----ROESCPYLCVVTGOTLVCPVCNREQKT	779
Heterocephalus_glaber	--SSCTVSLNEDAVGLLS-----ROESLQPLSFKVITAGOALVCPVCNLEQKT	780
Latimeria_chalumnae	REEDCQSNLSPTQNKSVEGADNRKSGDGOEMSPMENAPESHSTGLGSTLLCPICSLVQQT	876

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Xenopus_tropicalis ADLAAFNHRHVDVCLNKGIIIEKLTEETVILKHPTFSSQHT-----GSAGRGRSGTNTNTKL 834
Rhinatrema_bivittatum TSLALFNHRHVDVCLNKGIIQKLTEENAGPAKSDTATNMQ-----NAGGLGKGQOGINTAV 856
Pavo_muticus TSLMSFNHRHVDVCLNKGIIQELTEKGNRSAKTSDTENSI-----RVGGLSRGQOCTRPLQ 853
Pavo_cristatus TSLMSFNHRHVDVCLNKGIIQELTEKGNRSAKTSDTENSI-----RVGGLSRGQOCTRPLQ 852
Gallus_gallus TSLMSFNHRHVDVCLNKGIIQELTEKDDCSAKTSDTENSI-----RVGGLSRGQOCTRPLQ 854
Anas_platyrhynchos TSLMSFNHRHVDVCLNKGIIQELTEKNNCPAKTRDTENLN-----RPGALSRGPQCTNPLQ 835
Chelonia_mydas TDLSLFNHRHVDVCLNKGIIQELTEQIVCPVKSQIMENSK-----SVGSMGRGHQYMNPTT 846
Mus_musculus SDLTFLFNHVDICLNKGIIQELRNSEGN SVK-OPKESSR-----STD---RLOKASG--- 821
Rattus_norvegicus SDLTFLFNHVDICLNKGIIQELRNSEGN SVK-OPKGSTR-----STD---RLOKASG--- 820
Canis_lupus_familiaris SDLTFLFNHVDVCLNKGIIQELRKDKVNLAN-OPRENTK-----STDNSGRVOKTAT--- 830
Equus_caballus SDLTFLFNHVDICLNKGIIQELRNDEVNPNV-OPKESTK-----STGNSGRVOKTIT--- 829
Bos_taurus SDLTFLFNHVDVCLNKGIIQELRKDKINPCN-OPKESAK-----STDNSGKVOKTGN--- 846
Homo_sapiens SDLTFLFNHVDVCLNKSFIQELRKDKFNPNV-OPKESSR-----STGSSSGVOKAVT--- 839
Pan_troglodytes SDLTFLFNHVDVCLNKSFIQELRKDKFNPNV-OPKESSR-----STGSSSGVOKAVT--- 854
Macaca_mulatta SDLTFLFNHVDVCLNKSFIQELRNDKVNPVN-OPKESSR-----STGSSSGVOKAVT--- 840
Callithrix_jacchus SDLTFLFNHVDVCLNKSFIQELRRDKVNPVY-OPKESSR-----STGSSSGVOKTVT--- 830
Heterocephalus_glaber SDLTFLNEHVDVCLNKGIIQELRNDSVNTIN-EPEESSK-----STGMSNKKVOKTVA--- 831
Latimeria_chalumnae SDLEQFNHRHVDICLNKGIIQELTEEQSCLANTNITNTKNIEYHLAGFSGRGORSANFTA 936
.....910.....920.....930.....940.....950.....960

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**.. . *: :. :.*: *:
Xenopus_tropicalis RTKRPAATNQNPVSKKSKPNPSKNTIDRFFK 865
Rhinatrema_bivittatum RTKRPGFISQQPASKKAKAICSRNTIDKFFK 887
Pavo_muticus GTKRSGLTTSQSASKKAKSINSKHTIEMFFK 884
Pavo_cristatus GTKRSGLTTSQSASKKAKSINSKHTIEMFFK 883
Gallus_gallus GTKRSGLTTSQSASKKAKSIDSKRTIEMFFK 885
Anas_platyrhynchos GTKRSGLTTSQSVSKKAKSSNSKHTIEMFFK 866
Chelonia_mydas GTKRPGLMTPQSTPKKAKPSTSKQTITETFLK 877
Mus_musculus RTKRPGTKTKSSTLKKTKPRDPRHTLDGFFK 852
Rattus_norvegicus KTKRAGRKTGKSTSKRTKPRDPRHTLDGFFK 851
Canis_lupus_familiaris KPKRPGLMTKYASASKKTKPNNSRHTLDVFFK 861
Equus_caballus KTKRPGLVTKHSASKKVKPSNPRHTLDVFFK 860
Bos_taurus KTKRPGLMTKYASASKKPKPNPNRHTLDVFFK 877
Homo_sapiens RTKRPGMLTKYSTSKKIKPNNPKHTLDIFFK 870
Pan_troglodytes RTKRPGMLTKYSTSKKIKPNNPKHTLDIFFK 885
Macaca_mulatta KTKRPGLMTKY-SKKIKPNNPKHTLDIFFK 870
Callithrix_jacchus RTKRPGMLTKYSTSKKIKPNNPKHTLDIFFK 861
Heterocephalus_glaber KTKRPGLMTKYSTSKKIKPNNPRHTLDIFFK 862
Latimeria_chalumnae RNKRPGAPEHRPTMKKSRPNNVNNTIDKFFK 967
.....970.....980.....990.

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