

## CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

**File: /media/morpheus/disk1/fst/pep\_msa/TAFD068 Tue Feb 1 14:42:27 2022**

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		*		
Latimeria_chalumnae	-----MANGFPSLLF-----	PSYYSTGPPNGRAS-----	CNTIGVSGWGGE	34
Rhinatrema_bivittatum	-----MEFPESLF-----	PRFYQVGPSARDPS-----	CGPLVSGWGGE	32
Pavo_muticus	MPPARQGAVSHSGPCPFLCPTADW-AVQRAQSYFRRHRARVRAASVRIIRSRVPALPSSR			59
Pavo_cristatus	MPPARQGAVSHSGPCPFLCPTADW-AVQRAQSYFRRHRARVRAASVRIIRSRVPALPSSR			59
Gallus_gallus	MPPTRQGAVSHIRPCPFLCPTADWRAVPRAQSYFRRRRARVLAASVRIWSRVAPALPSSR			60
Anas_platyrhynchos	-----MEFPAALF-----	PSYFGCGPPKDEAG-----	PAPAAGWGGE	31
Chelonia_mydas	-----MAFPGSLF-----	PAGCRAGPPRDLPR-----	PAPLAGWGG	31
Xenopus_tropicalis	-----MEFPGSLF-----	PSFYSEGPCAREAP-----	TSHSVFGLGE	32
Homo_sapiens	-----MDFPSSLR-----	PALFLTGPLGLSDVP-----	DLSFMCSWRD	33
Pan_troglodytes	-----MDFPGSLR-----	PALFLTGPLGLSDVP-----	DLSFMCSWDQ	33
Macaca_mulatta	-----MDFPHSLR-----	PALFMTGPLGLSDIA-----	DLSFTCSWQH	33
Callithrix_jacchus	-----MDFPSSLR-----	PTLFMTGPLGLNDVS-----	DLS-MCSWQN	32
Bos_taurus	-----MDFPSSLP-----	PSLFMTGPLGQSDVP-----	DLSFMCSWRD	33
Mus_musculus	-----MDFPGTLR-----	PSLFKAGPLGMTDGP-----	DLSFMCSWRD	33
Rattus_norvegicus	-----MDFPSTLR-----	PSLFMAGPLGMTDGP-----	DLSFMCSWRD	33
	1.....10.....20.....30.....40.....50.....60			

Latimeria_chalumnae	YGVVRWSDSSDCQQGE---FVPLHCAKGENWEPVEGIPIP-LLPPNAAACRVPNVSIQELTF	90
Rhinatrema_bivittatum	YGNVQVGESNGQLKAGFAFQPLYKKEGEIWEPEVQAVALP-FLPPNAGSAIPAVVPQDLVY	91
Pavo_muticus	ASH--FPPPPPVLP---FVPLRSHEGESWAPAEAAAVP-LLPPNMSCWVPTVTQDILY	113
Pavo_cristatus	ASH--FPPPPPVLP---FVPLRSHEGESWAPAEAAAVP-LLPPNMSCWVPTVTQDILY	113
Gallus_gallus	TGHRFP PPPPVQPP---FAPLSRHEGESWTPAEAAAVP-LLPPNMGCVPAVTPQDILY	116
Anas_platyrhynchos	HGQVLEAGSGQVPPP---FVPRRSRQGESWEPCEAAAVP-LLPPNDSCWMPPLVPQDILY	87
Chelonia_mydas	YGVQVQAGPSQPQER---FIPLRSKKGERWAPAEACAVP-FLSPNTSCRVP TTLPHDILY	87
Xenopus_tropicalis	HSKVQHSNSAQDGYK---FIPLYRSR AERWSP TSPAPIP-LLPPNPGSGIPPVLVSDIVQ	88
Homo_sapiens	ALTLP EAQPQNSENG-----ALHVT KDLLWEPATPGPLP-MLPPLIDP WDPGLTARDLLF	87
Pan_troglodytes	ALTLP EAQPQNSENG-----ALHVT KDLLWEPATPGPLP-MLPPLIDP WDPGLTARDLLF	87
Macaca_mulatta	ALTLP ETQPQNSENG-----ALHVT KDLLWEPATPGPLP-MLPSLIDP WDPGLTARDLLF	87
Callithrix_jacchus	VLTQPEAQPQN LKNG-----ALHVT KDLLWEPATPGPLP-MLPPLVDSWEPGLTAQDLLF	86
Bos_taurus	ALTLP PASS PQGSQDS-----APHVAKALLWEPDMPGPLP-LLPPGPD PWD PGLTAKDLLF	87
Mus_musculus	ALTLP GSQPQNCKDP-----T LSF AKNLLWEPSTPGPLP LLMPPDPDPWDPGVTAQDLLF	88
Rattus_norvegicus	ALTLP GAQPQNCRDQ-----T S FAKNLLWEPSTPGPLP-LVPPGPD PWD PGLA A QD L L F	87
	.....70.....80.....90.....100.....110.....120	

[illegible]

# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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      :      :      **      * : * :      :      : :      :
Latimeria_chalumnae -RETTIGIRISISTFLQRVQY-QDCPMSCSTFTARQLSTLLGLDIYDIPALLAENLCLEM 206
Rhinatrema_bivittatum -RKLMFKATELRKALVGVKN-RVCPLAHASRKLRFLSYLSRDWLHEIPLVALAEVYGEM 208
Pavo_muticus -TRDITIRMTSLVEKINHMEARRGCPQRQFTSHLRRLFSHLCRDWLFVPLGLLADCVHEEL 230
Pavo_cristatus -TRDITIRMTSLVEKINHMEARRGCPQRQFTSHLRRLFSHLCRDWLFVPLGLLADCVHEEL 230
Gallus_gallus -IRDITIRMTSLVEKINHMEARRGCPQRRFTSHLRRLFSHLCRDWLFEMPLGLLADCVHEEL 233
Anas_platyrhynchos -RDITIRMTALVEELNRLEARRGCPRRHFVSRLRWFSHLCRDWLFVPLGLLADCVHEEL 203
Chelonia_mydas -QENTISVKTLVQELGRREDRRDCPWLPQSPRLRWFSCLSRDWLFVPLGLLAEVHEEL 204
Xenopus_tropicalis -RETTKKMTGMLQSLRHAMH-RDCPYSYSDSQRCLSFACDWLQDIPPVMLGQCVHEGL 206
Homo_sapiens --KTIVSVKKLLQDLGGHQP-WGCPWAYLSNRQRRFSILGGPILGTSVASHLAELLHEEL 198
Pan_troglodytes --KTIVSVKKLLQDLGGHQP-WGCPWAYLSNRQRRFSILGGPILGTSVASHLAELLHEEL 198
Macaca_mulatta --TTIVSVKKLLQDLGGHQP-WGCPWAYLSNRQRRFSILGGPILGTSVASHLAELLHEEL 198
Callithrix_jacchus --TTIVSVKKLLQDLGGHQP-WGCPWASLSNRQRRFSILGGPILGTSVASHLAELLHEEL 197
Bos_taurus --KTIVSVKRLHQDLGGHQP-WGCPWAYLSQRQRRFSILGAPILSTSVASILLGELLHEEL 198
Mus_musculus --MTIVSAKKLLQDLGGHQP-WGCPWASLSRRLRRFSIVGGPVLRSVSLLMGKILLHEEL 199
Rattus_norvegicus --VTIVSVKRLQDLGGHQP-WGCPWASLSRRLRRFSILGGPVLRSVSLLMGRLHEEL 198
      .....190.....200.....210.....220.....230.....240

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      :      :      *****      :      :      * : * : * : * :
Latimeria_chalumnae KGQRNKLLFDEAATGGALQYIPVTDMDRIHEGWLLHPSGEAMNFLNFRKVVVLHMEANRTP 266
Rhinatrema_bivittatum AQQWSRLQFSEAATGGALVWLPWQESARSQKGLVYPGGEAMNQLKFQDVVLEFPEDEAA 268
Pavo_muticus LLOWTSLLLFDDSSSTGGALAWLPPRDASSHVG-RLVYPGGLAMNHLYFQDVVLEE----- 283
Pavo_cristatus LLOWTSLLLFDDSSSTGGALAWLPPRDASSHVG-CLVYPGGLAMNHLYFQDVVLEE----- 283
Gallus_gallus LLOWTSMFLFDDSSSTGGALAWLPPRDASSHVG-CLVYPGGLAMNHLYFQDVVLEGE----- 286
Anas_platyrhynchos LLOWAGLLFDDSPITGGALAWLPPQEASGRVG-RLVYPGAEAMNYLYFQDVVLEE----- 256
Chelonia_mydas ALQWAKLLFDDAPTGGALAWLPTEDVAPAPGGCLVYPGGEAMNLLCFQEVSLQVAG-AL 263
Xenopus_tropicalis AEQWSQLQYSTQNTGGALSYSAYSEG---HYGCLIFPHGEAMNELHFQOVKLNNGG---H 260
Homo_sapiens VLRWEQLLLDEACTGGALAWVP---GRTPQFGQLVYPAGGAQDRLHFQEVVLTTPGD--- 251
Pan_troglodytes VLRWEQLLLDEACTGGALAWVP---GRTPQFGQLVYPAGGAQDRLHFQEVVLTTPGD--- 251
Macaca_mulatta VLRWEQLLLDEACTGGALAWVP---GRTPQFGQLVYPAGGALDRLHFQEVVLSPGD--- 251
Callithrix_jacchus VLRWEQLLLDEACTGGALAWVP---GRTPQIGQLVYPAGGALDRLHFQEVVLA PGD--- 250
Bos_taurus ALRWERLLLD DACTGGALAWVP---GRTPGAGQLVYPVGGAMDTLCFQKVS LTPES--- 251
Mus_musculus AMRWEQLLMDEAFTGGALAWLP---GRTARAGQLVYPSGGALDKLYFQEVSVTS GG--- 252
Rattus_norvegicus ATRWEQLLMDEAFTGGALAWLP---GRTARAGQLVYPSGGALDKLYFQEVSVNS GG--- 251
      .....250.....260.....270.....280.....290.....300

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      : : * * : * : :      :      : :
Latimeria_chalumnae QLNAKQKAEFEFELNGRILQISTSS--VEEEV-----FVG 298
Rhinatrema_bivittatum KPYCKNDPAEFELNGRIQQVAANS--AAEEA-----FVG 300
Pavo_muticus QPRARGLPVQFELNGRIRQVAAAR--VDGQD-----FVG 315
Pavo_cristatus QPRARGLPVQFELNGRIRQVAAAR--VDGQD-----FVG 315
Gallus_gallus QPRARGLPVQFELNGRIRQVAAAR--VDGQD-----FVG 318
Anas_platyrhynchos QPRARGAPAQFELNGRIRQVGAAR--VDGED-----FVG 288
Chelonia_mydas QPRAQGCHAQFELSGRVROVATAQ--VAGEA-----LVG 295
Xenopus_tropicalis RVKLLDPFAVFELNGRIQQVASAKGGSSEEV-----LVG 294
Homo_sapiens NPQFLGKPGRIQLQGPVRQVVTCT--VOGET-----LLA 283
Pan_troglodytes NPQFLGKPGRIQLQGPVRQVVTST--VOGESKALTYTFLPQWLTCYLTLPDPFHPSSALLA 309
Macaca_mulatta SPQFLGNPGRIQLQGPVRQVVTCT--VOGET-----LLA 283
Callithrix_jacchus NPQFLGKPGHIQLQGPVRQVVTGT--VOGET-----LLA 282
Bos_taurus EPQVLSDPGRIQLRGPVIRQVVTST--VOGEA-----LLA 283
Mus_musculus NPRILENPGHVQLRGPVRQVVTST--VOGET-----LLA 284
Rattus_norvegicus NRVLEDPGHIQLRGPVRQVVTST--VOGET-----LLA 283
      .....310.....320.....330.....340.....350.....360

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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***:* . * . * *:: . :::::*****:*: . * : ** . :
Latimeria_chalumnae VRSDYHCGVWRLS--KAANFTPLQVVQTTPATCINVS PHMAGELLVCS ESGAVYLWSVE 356
Rhinatrema_bivittatum VRSDYHCAVWKLS--ADSCPEPLQVVOTQNVATCINVS PHIPGELTVCTENGSLYLWNLE 358
Pavo_muticus VRSDYHCGVWRMPGKTGAAPSPLOVIHTDMPASCLTVSPHLSGELSVCTQSGAVYLWNIE 375
Pavo_cristatus VRSDYHCGVWRMPGKTGAAPSPLOVIHTDMPASCLTVSPHLSGELSVCTQSGAVYLWNIE 375
Gallus_gallus VRSDYHCGVWRMPGKTGAAPSPLOVIHTDVPASCLTVSPHLSGELSVCTQSGAIYLWNIE 378
Anas_platyrhynchos VRSDYHCGVWRVPGRAGAAPSPLOVIRIDVPASCLTVSPHLPGELAVCTQSGAVYLWSVE 348
Chelonia_mydas VRSDHHCAGWRLR--AGTAPAPLQVIRTDAPASCLTVSPHLPGELSVCTLSGAVYLWNVE 353
Xenopus_tropicalis VRSNYHLASWAFS--SODPPRALRVVDI QSPSTCINVS PYLPGELCVCTEQGGLYLWNVE 352
Homo_sapiens VRSDYHCAVWKFG--KOWQPTLLQAMQVEKGATGISLSPHLPGELAICSRSGAVCLWSPE 341
Pan_troglodytes VRSDYHCAVWKFG--KOWQPTLLQAMQVEKGATGISLSPHLPGELAICSRSGAVCLWSPE 367
Macaca_mulatta VRSDYHCAVWKFG--KOWQPTLLQAMQVEKGATGISLSPHLPGELAICSRSGAVCLWSPE 341
Callithrix_jacchus VRSDYHCAVWKFG--KOWQPALLOAIQVDKGATGISLSPHLPGELAICSRSGAVCLWSPE 340
Bos_taurus VRSDHHCGLWKVS--TOGQPAPLOVLQVDKGATGISLSPHLPGELVICSRSGVVLWLSAE 341
Mus_musculus VRSDYHCAWKID--KOGPPALLQVMQVEKGATGISLSPHLSGELAICSRSGAVCLWTPQ 342
Rattus_norvegicus VRSDYHCAVWKID--KQEPAPLOVLQVEKGATGISLSPHLSGELAICSRSGTVCLWTPQ 341
.....370.....380.....390.....400.....410.....420

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** . : : : . * . *::: * *::: .****: * : . : : *
Latimeria_chalumnae TGLQRIHQEMDNLYFNAQSAWRWSDFTAHPRVITYADRTGLNLMVDVRTPGVCSQTLFKIG 416
Rhinatrema_bivittatum TGLNRVRQDADNMFFQDHSWRWSDFTTHPRIVTFGDRTGLELTLDRQSGRRGLTLLKMG 418
Pavo_muticus TGLQRLRHDPQTLFFRDHSPWRWSDFTAHPRVLS CADRTGILCLDARAPTSCHFDFFKVG 435
Pavo_cristatus TGLQRLRHDPQTLFFRDHSPWRWSDFTAHPRVLS CADRTGILCLDARAPTSCHFDFFKVG 435
Gallus_gallus TGLQRLRHDPQTLFFRDHSPWRWSDFTAHPRVLS CADRTGILCLDARAPTSCHFDFFKVG 438
Anas_platyrhynchos TGLQRLRHDPQTLFFRDHSPWRWSDFTAHPRVLS CADRTGIQCLDTRAPSSCHFDFFKVG 408
Chelonia_mydas TGLQRLRHDPQTAFFREASPRWSEFTAHPRVLS CADRTGLQCLDVRAPASRQFDLFFKVG 413
Xenopus_tropicalis TGLELLRHDPDTLLFRDDPEWRWSDYTSHPRVLSYADRTGVQCVDMPAPNSQGLDLFHIG 412
Homo_sapiens DGLRQIYRDPETLVFRDSSSWRWADFTAHPRVLTVGDRGTGVKMLDTQGPPGCGLLLFRLG 401
Pan_troglodytes DGLQQIYKDPETLVFRDSSSWRWADFTAHPRVLTVGDRGTGVKMLDTQGPPGCGLLLFRLG 427
Macaca_mulatta DGLQQVYKDPETLVFRDSSSWRWADFTAHPRVLTVGDRGTGVKMVDITQGPPGCGLLLFRVG 401
Callithrix_jacchus NGLQQVYKDPETLVFRDSSSWRWADFTAHPRVLTVGDRGTGVKMIDITQGPPGCGLLLFRVG 400
Bos_taurus DGLRQIYKDPETLVFRDSSSWRWADFTAHPRVLTVGDRGTGVKMVDITQGPPGCGLLLFRGG 401
Mus_musculus AGLQTIYKDTETLAFRDSPSWRWADFTAHPRVLTVGDRGTGVKMVDITQGPPGCGLLLFRAG 402
Rattus_norvegicus DGLQTIYKDPETLAFRDSPSWRWADFTAHPRVLTVGDRGTGVKMVDITQGPPGCGLLLFCAG 401
.....430.....440.....450.....460.....470.....480

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: ** **** * . * . *::: *:::*****:*:~::~
Latimeria_chalumnae EAAGCQKGERVILPKYLS-----DVHSYHHLITTOYSTYVLDERFPTVTMLKWNHMLQSP 471
Rhinatrema_bivittatum VESDCQGERVITLPKHL-----QVHPCHHLITTOFSLYIVDERFSPVPMKLWDHMLQSP 473
Pavo_muticus EEAKCQQGERVVLPMYLG-----RAHPCQHLVATQFAMYLDERLPLVPVLKWAHMMKAP 490
Pavo_cristatus EEAKCQQGERVVLPMYLG-----RAHPCQHLVATQFAMYLDERLPLVPVLKWAHMMKAP 490
Gallus_gallus EEAKCQQGERVVLPMYLG-----RAHPCQHLVATQFAMYLDERLPLVPVLKWAHMMKAP 493
Anas_platyrhynchos EEAGCQQGERVVLPMYLG-----RAHPCQHLVTTQFAVYLMDERLPLVPVLKWAHMMKAP 463
Chelonia_mydas GEAECSGERVMLPMYLG-----RAHPCQHLVATQFSVYVVDERFPLVPMLRWEHMLEAP 468
Xenopus_tropicalis QEASCQGERVILPQCLR-----GENPAHCLITTOYSVYIMDERFPLVPLLKWDHMFQSP 467
Homo_sapiens AEASCQKGERVLLTOYLGHSSPKCLPPTLHLVCTQFSLYLVDERLPLVPMLKWNHGLPSP 461
Pan_troglodytes AEASCQKGERVLLTOYLGHSSPKCLPPTLHLVCTQFSLYLVDERLPLVPMLKWNHGLPSP 487
Macaca_mulatta AEASCQKGERVLLTOYLGHSSSECLPPTLHLVCTQFSLYLVDERLPLVPMLKWNHGLPSP 461
Callithrix_jacchus AEASCQKGERVLLTOYLGHSSPECLPPTLHLVCTQFSLYLVDERLPLVPMLKWNHGLPSP 460
Bos_taurus AEASCQKGERVLLTOHLGDLGPESLHPMLHLICTQFSLYLVDERLPLVPLLKWNHGLRSA 461
Mus_musculus AEAACQKGERVLLAQYLGQPGQ--TPPSLHLICTQFSIYLMDERLPLVPMLKWDHGLPSA 460
Rattus_norvegicus AEAACQKGERVLLAQYLGQPGP--ASTSLHLICTQFSIYLMDERLPLVPMLKWDHGLPSA 459
.....490.....500.....510.....520.....530.....540

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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      :* : . . :* . ** : *
Latimeria_chalumnae PMFAHVTPGASWDRANKVLLGSQRDQEVLLLOQYKG---GRQLPCQSLGPPRKLASPPDT 527
Rhinatrema_bivittatum PLFAHVNTGGRHERSNKIVLGTQSSQEIILLLOQYIG---GSKFPCQLWGPARKLSCISDF 529
Pavo_muticus PLFADIVPGESG-RSHKALLGTSHTQELLLOQYTGEEKPGGSQMACQLTGPPQQLHRIASC 549
Pavo_cristatus PLFADIVPGESG-RSHKALLGTSHTQELLLOQYTGEEKPGGSQMACQLTGPPQQLHRIASC 549
Gallus_gallus PVFADIVPGESG-RSHKALLGTSHTQELLLOQYTGEEKTGGSSQMACQLAGPPQRLHSVASC 552
Anas_platyrhynchos PLFAQVAPGGPG-RSHKVVLGASRMQELLLOQYTG---GSKSACQLVGPQRLQSIASC 518
Chelonia_mydas PVFAHLSPGQSQERSHKVLLGTQRTQELLLOQYTG---GSHSACQLAGPPRRLHPIYQG 524
Xenopus_tropicalis PCFAHVVPNGTSSQSNKVLLGSQRG-ETILLLOQYTG---GTLTPQMLFPTLSLPPPSEC 522
Homo_sapiens LLLARLLPPPRPSCVQPLLIG-GGGQLQLLHLIAG---EGASVPRLAGPPQSLPSRIDS 516
Pan_troglodytes LLLARLLPPPRPSCVQPLLIG-GGGQLQLLHLIAG---EGASVPRLAGPPQSLPSRIDS 542
Macaca_mulatta LLLARLLPPPRPGCVQPLLIG-GGGQLQLLHLIAG---EGASVPCLAGPPQSLPSRTDS 516
Callithrix_jacchus ILLAQLLPPPRPGCVQPLLIG-GQAGHLQLLHLIAG---EGVSAPRLAGPPQSLPSRTDT 515
Bos_taurus PLLARLLPPPRPGLPQPLLLA-SQGGELQLLHLIAG---VGASTPRLVGLPQSLPTRSDS 516
Mus_musculus PLLARLLPPASPGHPRPLLIG-GGGQLQLLHITG---EGTSMPLAGPPQSLPSITES 515
Rattus_norvegicus PLLARLLPPASPGYPRPLLIG-GGGQVQLLHIAG---EGTSIPQLAGPPQSLPSITDS 514
      .....550.....560.....570.....580.....590.....600

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      * . . : :** * *::* : :*: *::*
Latimeria_chalumnae LGYLQVQVPHRQEVVRERLHSPGAGLTAFST--CHG-TEFLCVFQLSQAGDIFYQMLVNK 584
Rhinatrema_bivittatum LRFSAPQRPHEHLLKERLASPGAGLTAAHQ--KLG-AESLLVFQLSEAGDLFFQPLVYR 586
Pavo_muticus LPHLPTQLPHRHLLQORLSIPAAGLAAVQH--EQGQESLLVFQLSEAGDVFYQTLRHE 607
Pavo_cristatus LPHLPTQLPHRHLLQORLSIPAAGLAAVQH--EQGQESLLVFQLSEAGDVFYQTLRHE 607
Gallus_gallus LPHLPTQLPHQHLLQORLSIPAAGLAAVQH--EQGHQESILVFQLSEAGDVFYQTLRHE 610
Anas_platyrhynchos LPHLPTQLPHRHHLQORLGAPAAGLAAVQH--QGRQEAHVVFQLSEAGDVFYQALRHE 576
Chelonia_mydas LQHLPAQVTPQOGLLCQRLTVPAAGVTAAHA--GQGPLESLLVFQLSEAGDLFYQTLRHE 582
Xenopus_tropicalis LAHLPLVLOPLHODYVAORLASPGAGLAAAHV--TSD-QDSVIVFSLTELGLDFYLLPLHQ 579
Homo_sapiens LPAFPLLEPKIQWRLOERLKAPTIGLAAVVPPLPSAPTGLVLFQLSAAGDVFYQQLRPQ 576
Pan_troglodytes LPAFPLLEPKIQWRLOERLKAPTIGLAAVVPPLPSAPTGLVLFQLSAAGDVFYQQLRPQ 602
Macaca_mulatta LPAFPLLEPKIQWRLOERLKAPTIGLAAVVPPLPSAPTGLVLFQLSAAGDVFYQQLRPQ 576
Callithrix_jacchus LPAFPLLEPKIQWRLOERLKAPTIGLAAVVPPLPSASTPGLVVFQLSVAGDVFYQQLRPQ 575
Bos_taurus LSAFPLLEPKSHRRLQERLKAPTIGLAAAIP--PPASTPVLSLFQLSAAGDVFHQRLHLR 574
Mus_musculus LSAFPLLEPKKQQLQERLEAPVIGLAAVPL---CASAPGLLLFQLSAAGDVFYQHLLRL 572
Rattus_norvegicus LSAFPLLEPKRQQLQERLEAPVIGLAAAPP---CASAPGLLLFQLSAAGDVFYQHLLRIQ 571
      .....610.....620.....630.....640.....650.....660

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Latimeria_chalumnae DAEKEDESITETAGPRTEGPDVPAETVVTDEQV--SQFIIQGTIVYTSDSNMEEE----- 637
Rhinatrema_bivittatum SPASRGPPQRRGVGAPGPATARSPPRRDPGNAQ---SRPSLOGLRGAGGNESEEQKISSD 642
Pavo_muticus AAPTTPVPDQORDEAEAPATPNKGDEAAAPPGSP-----ILFGSEEEEQEE----- 651
Pavo_cristatus AAPTTPVPDQORDEAEAPATPNKGDEAAAPPGSP-----ILFGSEEEEQEE----- 651
Gallus_gallus AAPTTPVPDEGDEAEAPATPNKGDEAAAPPGSP-----ILFDSEEEEQEE----- 654
Anas_platyrhynchos AAPAPAPRQEEEEEE-----ATQEAPGSS-----PLFSSEEEAQEE----- 611
Chelonia_mydas PP-----AESSESAAPASPPSLPAPAAAGQPSP-----TWGASMGSGGEE----- 622
Xenopus_tropicalis AAESQFYWGNDDQFSCSPVSDQGASITNQREQHEGQSPGGPHSPQRASALSNHNAESMIS 639
Homo_sapiens VDSSLRR-DAGPPGDTPDCHAP----- 598
Pan_troglodytes VDSSLRR-DAGPPGDTPDCHAP----- 624
Macaca_mulatta ADSEHRR-DSGPRGDTESDCRAP----- 598
Callithrix_jacchus ADSSPRR-DAQPPGDTRPDCHAP----- 597
Bos_taurus AD-----PG-----PNARAP----- 584
Mus_musculus QASSPRK---VPEQ---ATAPSVQDV----- 592
Rattus_norvegicus QTSSLREPDHPPAPERPASRAAAPVDQG----- 599
      .....670.....680.....690.....700.....710.....720

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## CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

**File:** /media/morpheus/disk1/fst/pep\_msa/TAFDops Tue Feb 1 14:42:27 2022

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<i>Latimeria_chalumnae</i>	-ENAPFQEELVVNLVESNGEKDPAVTDQPGGRFSPVPPRPDAEGDGTFSKVQEAIGSCL	696
<i>Rhinatrema_bivittatum</i>	SESASSEEEERGSGPAHGRCGESTSTGRGD-AQRSDPELTERGSGGESVAERRGEERSPA	701
<i>Pavo_muticus</i>	-----EEE--QTFYLSNLEVIINDEEEEEEEVVATPSAPEEPEP-----HASPKPAPDV	697
<i>Pavo_cristatus</i>	-----EEE--QTFYLSNLEVIINDEEEEEEEVVATPSAPEEPEP-----HASPKPAPDV	697
<i>Gallus_gallus</i>	-----EEE--QTFYLSNLEVIID-EDEEEVVATPAAPEEPEP-----HASPKSAPNV	699
<i>Anas_platyrhynchos</i>	-----EDGEQTFYLSNLEVIINDEEEEE--VGTPVATEEAEP--AERRASQPPPAV	661
<i>Chelonia_mydas</i>	-----SGR-----LPPLPGTVSEGTADAGQAAAPEEARP-----SVG	654
<i>Xenopus_tropicalis</i>	RVEGQTPGGGGATASLPELDPTVCPLSSESDPSTQNGSAPVANGSAPVANGSARVANGCV	699
<i>Homo_sapiens</i>	-----TAS	601
<i>Pan_troglodytes</i>	-----TAS	627
<i>Macaca_mulatta</i>	-----TAS	601
<i>Callithrix_jacchus</i>	-----TAS	600
<i>Bos_taurus</i>	-----AAS	587
<i>Mus_musculus</i>	-----STPS	596
<i>Rattus_norvegicus</i>	-----STPS	603
	.....730.....740.....750.....760.....770.....780	

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Latimeria_chalumnae	QSA-----RR	TGVS	SNIALARYK	VWQKKVRWAYE	VK-MQHPVLS	TTLMLSTKDF	HERF	747	
Rhinatrema_bivittatum	LSR-----AG	ASCC	QRWLKAFLR	EQRQLQGGARPA	-DARPSF	HCRKLF	PTELREQA	752	
Pavo_muticus	PSA-----A	ATLRYRRWL	RALLRAWVGS	P-VSSCR-SGP	PPTLSQRR	LFTRKELS	--E	745	
Pavo_cristatus	PSA-----A	ATLRYRRWL	RALLRAWVGS	P-VSSCR-SGP	PPTLSQRR	LFTRKELS	--E	745	
Gallus_gallus	PST-----A	ATLRYRRWL	RALLRAWVGS	P-ASSCR-SGP	PPTLSQRR	LFTRKELS	--E	747	
Anas_platyrhynchos	PSP-----A	ALRYRRWL	RALLRVWGGSP	-RHACP-PGP	PTISKRR	LFTRKELAA	-P	710	
Chelonia_mydas	PSP-----A	AARYSCWL	KALIRDWRRLP	-EQSQP-QAL	PTISQRR	LFTHGELS	Q-P	703	
Xenopus_tropicalis	YSTNLQ	PENRTGV	SHLS	SSWLRCLQR	WLRA	LLGLVAPKGP	GRPKFRTKKFLKGLE	VGE--	757
Homo_sapiens	WTS-----Q	DTAGCS	QWLKALLKVP	-----LAPP	VWTAPT	FTFTHRQ	MLGSTELRR--	645	
Pan_troglodytes	WTS-----Q	DTAGCS	QWLKALLKVP	-----LAPP	VWTAPT	FTPHHQL	GSTELRR--	671	
Macaca_mulatta	WTS-----Q	DTAGCS	QWLKALLKVP	-----LAPP	VWTAPT	FTFTHRQ	LLGSTIELRR--	645	
Callithrix_jacchus	WTP-----Q	DTAGCS	QWLKALLKVP	-----LAPP	VWTAPT	FTNHHHL	LGSME	LQR--	644
Bos_taurus	WTP-----Q	ATACCS	SRWLEAL	LEVP-----LTP	PVWAAPT	FSHRR	LLGGFEP	QK--	631
Mus_musculus	WTP-----Q	ASARCS	SRWLED	LMELS-----PTR	PLWAPT	FSHRR	FLGHMER	QK--	640
Rattus_norvegicus	WTS-----R	ASARCS	SRWLEAL	MELS-----PTN	PVWAAPT	FSHRR	FLGHMER	QK--	647
	.....790.....	800.....	810.....	820.....	830.....	840			

		:	*	:		*	:	*	:	**	:	*																																															
Latimeria_chalumnae	RGD	P	A	L	Y	L	Q	A	R	E	A	M	R	T	A	M	R	E	R	K	V	L	S	S	D	M	F	S	L	G	S	-	V	P	V	P	D	P	V	D	P	A	A	W	P	D	Q	L	S	K	R	L	T	A	S	W	D	806	
Rhinatrema_bivittatum	QEG	-	A	A	S	A	G	L	R	E	R	F	R	A	C	M	K	R	R	R	V	V	G	Q	E	E	V	G	P	L	Q	A	-	V	A	P	P	E	P	V	D	P	L	A	W	N	D	D	L	S	R	R	L	T	A	S	W	E	810
Pavo_muticus	VAP	S	A	L	-	Q	Q	Y	Q	L	Q	L	R	Q	A	M	R	E	Q	G	R	I	Q	R	W	E	P	A	P	E	P	P	-	-	-	N	P	P	P	-	-	-	L	E	P	N	A	L	S	S	R	L	T	A	A	W	R	798	
Pavo_cristatus	VAP	S	A	L	-	Q	Q	Y	Q	L	Q	L	R	Q	A	M	R	E	Q	G	R	I	Q	R	W	E	P	A	P	E	P	P	-	-	-	N	P	P	P	-	-	-	L	E	P	N	A	L	S	S	R	L	T	A	A	W	R	798	
Gallus_gallus	VAP	S	A	L	-	Q	Q	Y	Q	L	Q	L	R	Q	A	M	R	E	Q	G	R	I	Q	R	W	E	P	A	P	E	P	P	-	-	-	S	P	P	P	-	-	-	L	E	P	N	A	L	S	A	R	L	T	A	A	W	R	800	
Anas_platyrhynchos	AAP	S	A	L	H	Q	-	L	R	Q	R	L	R	Q	A	M	C	L	R	E	R	I	Q	R	W	D	A	A	E	P	P	-	-	-	G	P	P	P	P	P	-	Q	E	P	D	A	L	S	A	R	L	T	A	A	W	G	766		
Chelonia_mydas	TGD	G	A	P	Y	C	R	A	R	Q	L	L	R	Q	A	M	R	E	R	G	C	L	A	P	W	A	L	G	P	P	P	A	P	L	A	M	P	H	P	V	E	P	G	A	W	P	D	D	L	S	K	R	L	T	A	A	W	A	763
Xenopus_tropicalis	--	S	G	P	E	L	A	E	Q	R	T	L	L	E	S	M	K	G	-	G	T	L	V	R	L	D	T	P	P	V	S	G	-	-	-	V	L	G	P	L	N	P	Q	T	W	K	D	P	L	S	Q	R	L	T	A	A	W	N	811
Homo_sapiens	---	E	E	E	E	G	-	R	L	G	V	L	R	K	A	M	A	R	G	L	L	L	Q	R	D	L	G	S	L	P	A	-	A	E	P	P	P	A	P	E	S	G	L	E	D	K	L	S	E	R	L	G	E	A	W	A	700		
Pan_troglodytes	---	E	E	E	E	G	-	R	L	G	V	L	R	K	A	M	A	R	G	L	L	L	Q	R	D	L	G	S	L	P	A	-	A	E	P	P	P	A	P	E	S	G	L	E	D	K	L	S	E	R	L	G	E	A	W	A	726		
Macaca_mulatta	---	E	E	E	E	G	-	R	P	D	V	L	R	K	A	M	A	G	R	L	L	L	Q	K	D	L	G	S	L	P	A	-	A	E	P	P	P	A	P	E	S	G	P	E	D	K	L	S	E	R	L	G	E	A	W	A	700		
Callithrix_jacchus	---	E	E	G	V	V	-	Q	P	G	V	L	R	E	A	M	A	G	R	L	L	L	Q	R	D	L	G	S	L	P	L	-	A	D	P	P	P	A	P	E	S	G	P	A	D	E	L	S	E	R	L	R	E	A	W	A	699		
Bos_taurus	---	V	E	G	-	-	F	V	P	E	G	F	R	R	A	M	A	G	R	L	L	Q	R	R	D	L	G	L	L	P	T	-	E	E	R	P	P	A	P	E	P	G	P	E	D	E	L												

## CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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		*	.	:	:::	**:::	.	.	
Latimeria_chalumnae	GRWSDWWEEM-LGMNVESKVEALRQKRKRQKQAQSRRRRRLSGSFTSSISFQSDLSDFS	N	865						
Rhinatrema_bivittatum	GRWSGWWEK-LGLNRGRKVQALKARRRQOKLARGRR--SLSSSFSSSSSFVSEHDDSSD-		866						
Pavo_muticus	G---EWGAVG-PAGSILQRQALRERRRRQKRNRAHR--SLSASFSSSITYQSELSELS-		851						
Pavo_cristatus	G---EWGAVG-PAGSILQRQALRERRRRQKRNRAHR--SLSASFSSSITYQSELSELS-		851						
Gallus_gallus	G---EWGAVG-PAGSTLQRQALRERRRRQKRSRAHR--SLSASFSSSITYQSELSELS-		853						
Anas_platyrhynchos	G---EWGSGG-AGTSLAQRRQALRERRRRQKAARAHR--SLSASFSSSVTYQSELSELS-		819						
Chelonia_mydas	GGWGEWWEK-LGVTRAHKLHVLDRRRRWKQARSRR--SLSGSFTSSSVTYQSDLSDFS-		819						
Xenopus_tropicalis	GQLGSWWEF-LGLNRHRSKVQSLRERRRRQKLRQAKSLSRLSGSFASSLSLSDSACDMDQ		870						
Homo_sapiens	GRGAAWWERQ-QGRITSEPGRTTRPKRRTQ-----LSSSFS-LSGHVDPSEDTS-		747						
Pan_troglodytes	GRGAAWWERQ-QGRITSEPGRTTRPKRRTQ-----LSSSFS-LSGHVDPSEDTS-		773						
Macaca_mulatta	GRGAAWWERQ-QGRITSEPGRPPRPKRRTQ-----LSSTFS-LSGHVDPSEDTS-		747						
Callithrix_jacchus	GRGAAWWERRRQARTSGPRRPKRPKRRTQ-----LSSTFS-FSGHVDPSPDGTS-		747						
Bos_taurus	FGAAAWWERQ-RGSRAGPGKPKRHKRRTQ-----LSSTFSSLSGRVDLSDAAS-		732						
Mus_musculus	GRVTAWWRRH-RGETSETQTSKRPKRRTQ-----LSSTFSSFTSYLSDPDASS-		741						
Rattus_norvegicus	GQAAAWKKRH-QDQTSGRQSRPKRRTQ-----LSTTFSSFTSYMDSPDASS-		748						
	.....910.....920.....930.....940.....950.....960								

<i>Latimeria chalumnae</i>	VSGWS	SLEKGST	SACSM	EELST	STCT	SASV	TGSI	LKRP	PDRESS	RFNLE	LQEG	RVTE	PPV	SA	925
<i>Rhinatrema bivittatum</i>	---	GQWQ	AGTP	SDLG	SCSL	SIAS	HTSS	SLV	SILK	SPAR	---	---	---	---	901
<i>Pavo muticus</i>	---	---	EGGT	TPR	TPPAT	PREV	VVC	---	SPPR	TP	---	---	---	---	875
<i>Pavo cristatus</i>	---	---	EGGT	TPR	TPPAT	PREV	VVC	---	SPPR	TP	---	---	---	---	875
<i>Gallus gallus</i>	---	---	EGGI	TPR	TPPAT	PREV	AVC	---	SPPR	TP	---	---	---	---	877
<i>Anas platyrhynchos</i>	---	---	DAGP	PRSS	PPAT	PLEV	VVG	---	SPPA	APS	---	---	---	---	846
<i>Chelonia mydas</i>	---	---	AGSQ	PPG	QAHE	QRPP	APM	CHQ	DL	SPPR	RAGR	---	---	---	851
<i>Xenopus tropicalis</i>	---	GSV	WSCH	SEPL	SEPE	PRSP	IGR	KRL	RS	SPPP	GQEP	---	---	---	905
<i>Homo sapiens</i>	---	---	SPHS	PEW	PPAD	ALP	---	---	LPPT	TPPS	---	---	---	---	769
<i>Pan troglodytes</i>	---	---	PPHS	PEW	PPAD	ALP	---	---	LPMT	TPPS	---	---	---	---	795
<i>Macaca mulatta</i>	---	---	PPHS	PEW	PPAD	ALP	---	---	QPM	TPPS	---	---	---	---	769
<i>Callithrix jacchus</i>	---	---	PPHS	PEG	PPAG	ALP	---	---	RSP	ITSP	---	---	---	---	769
<i>Bos taurus</i>	---	---	PAPS	PDHT	LPEAR	---	---	---	QPPR	TPPS	---	---	---	---	754
<i>Mus musculus</i>	---	---	APRS	QDL	STSE	EARL	---	---	QSPR	VPPS	---	---	---	---	763
<i>Rattus norvegicus</i>	---	---	APHS	QDL	SNSE	EACP	---	---	QPPR	TPPS	---	---	---	---	770
	.....	970	.....	980	.....	990	.....	1000	.....	1010	.....	1020			

<i>Latimeria chalumnae</i>	AASSWDSVHKEADIGQAGSTVSLQPFEDDSRIQARKSMLDSLHSQHTPRKQNHALPTRAV	985
<i>Rhinatrema bivittatum</i>	-----QPGSAPGCE-----EQPAELPEREE	921
<i>Pavo muticus</i>	-----PPPS-	879
<i>Pavo cristatus</i>	-----PPPS-	879
<i>Gallus gallus</i>	-----PPPL-	881
<i>Anas platyrhynchos</i>	-----PPPP-	850
<i>Chelonia mydas</i>	-----ALPPAPG	858
<i>Xenopus tropicalis</i>	-----VWADTQD	912
<i>Homo sapiens</i>	-----	769
<i>Pan troglodytes</i>	-----	795
<i>Macaca mulatta</i>	-----	769
<i>Callithrix jacchus</i>	-----	769
<i>Bos taurus</i>	-----	754
<i>Mus musculus</i>	-----	763
<i>Rattus norvegicus</i>	-----	770
	.....1030.....1040.....1050.....1060.....1070.....1080	

## CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

**File: /media/morpheus/disk1/fst/pep\_msa/TAFD068 Tue Feb 1 14:42:27 2022**

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Species	Sequence	Position
Latimeria_chalumnae	SANLSGLSSEPPQVFVGKSSHISAQGVHQTLDHPGEDFSAALISLQVTPQSQVSELLPS	1045
Rhinatrema_bivittatum	AKATGLRRARP-----RSAE-----QEEAREPSGLAPSPGSQP-----WPS	957
Pavo_muticus	-----TEILLS	885
Pavo_cristatus	-----TEILLS	885
Gallus_gallus	-----TEILLS	887
Anas_platyrhynchos	-----VEPMLS	856
Chelonia_mydas	QFWPASPLDSSS-----QRSGGGAQAEAWGSQDVEDSSQLLS	894
Xenopus_tropicalis	SAASTGTLHRDLG-----GNSQTPODSSSTQSHAPNSPLVS	947
Homo_sapiens	-----QEL	772
Pan_troglodytes	-----QEL	798
Macaca_mulatta	-----QEL	772
Callithrix_jacchus	-----QEL	772
Bos_taurus	-----QEL	757
Mus_musculus	-----QEL	766
Rattus_norvegicus	-----QEL	773
	.....1090.....1100.....1110.....1120.....1130.....1140	

	:	...	:	:	:	*		
Latimeria_chalumnae	SQSLHSQDMPDSSSFHSLDRLRPRI	SQNGKKT	LGVD	DYLAALCDP	QQLDRPY	QEEAEIHAGS	1105	
Rhinatrema_bivittatum	SQALRSRGIP	-----	RERRKTIVQ	-----	DYFSELSEGGRE	-----	987	
Pavo_muticus	SQELRSRGIP	-----	KERRRTLRL	-----	DYLSVWAEGPQDPP	-----	917	
Pavo_cristatus	SQELRSRGIP	-----	KERRRTLRL	-----	DYLSVWAEGPQDPP	-----	917	
Gallus_gallus	SQELRSRGIP	-----	KERRRTLRL	-----	DYLSVWAEGPQDPP	-----	919	
Anas_platyrhynchos	SQELRSRGIP	-----	KERRRTLRL	-----	DYLAVWAEGPQDPP	-----	888	
Chelonia_mydas	SQTLSSRGIP	-----	KERRKTLRL	-----	DYLAALFTEPAPEP	-----	925	
Xenopus_tropicalis	SQFLRSRGIP	-----	RERRQTIVQ	-----	DFISLLGAPTEPQTHP	-----	981	
Homo_sapiens	TPDACAQGV	-----	SEQRQMLRL	-----	DYMAKLPPQRDTPG	-----	804	
Pan_troglodytes	TPDACAQGV	-----	SEQRQMLRL	-----	DYMAKLPPQRDTPG	-----	830	
Macaca_mulatta	TPDACAQGV	-----	AERRQMLRH	-----	DYTAKLPPQRGTPA	-----	804	
Callithrix_jacchus	TPDAWSQGI	-----	SERROTLLH	-----	DYMAKLPLQRDTPG	-----	804	
Bos_taurus	TQEPWAQGV	-----	SERQQTLLR	-----	DYMAELPLRTDTPGGASALSSQTPS	-----	800	
Mus_musculus	TQEVWGQGVK	-----	RERRQTLLR	-----	DHTDKLPLKRDTPGP	-----	799	
Rattus_norvegicus	TQELWAQGVQ	-----	HERROTLLR	-----	DYMAKLPLQ-DNPGP	-----	805	
	.....1150.....1160.....1170.....1180.....1190.....1200							

Species	Sequence	Position
<i>Latimeria chalumnae</i>	WAQFSS-----QESFIPSSQSSSRNIPRTIP-----	1130
<i>Rhinatrema bivittatum</i>	-----PPSGSSS-GVKRRP-----	1000
<i>Pavo muticus</i>	-----EAPSSITVQRCIPSSQSQL-----	936
<i>Pavo cristatus</i>	-----EAPSSITVQRCIPSSQSQL-----	936
<i>Gallus gallus</i>	-----EAPSSITVQRCIPSSQSQL-----	938
<i>Anas platyrhynchos</i>	-----EPPSTPGAPLCIPSSQSQL-----	907
<i>Chelonia mydas</i>	-----LSELPAQASSLGSQHWC-----	943
<i>Xenopus tropicalis</i>	-----RNPPDSAFPSQNFSLSQS-----	1000
<i>Homo sapiens</i>	CATTPP-----HSQASSVRATRSQLHTP-----	827
<i>Pan troglodytes</i>	CATTPP-----HSQASSVRATRSQLHTP-----	853
<i>Macaca mulatta</i>	CAATPP-----SSQASSVWTTTRSQLHTP-----	827
<i>Callithrix jacchus</i>	HAGTPP-----SSQASSSTRATHSRQHTP-----	827
<i>Bos taurus</i>	VRATPSRQHAPQDCTVQQLPRGDTPEGTTLLS	860
<i>Mus musculus</i>	-VATPP-----SQASSLQTMFSFRQQT-----	820
<i>Rattus norvegicus</i>	-VATPP-----SQTSSRQTRSFRRQT-----	826

## CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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Latimeria_chalumnae	-----VSSSQREPSASQPRKKKPRMGF	1152						
Rhinatrema_bivittatum	-----ATPASQD---KPQRKRPRMGF	1018						
Pavo_muticus	-----TSSQSQLSASQPRRKRPRMGF	958						
Pavo_cristatus	-----TSSQSQLSASQPRRKRPRMGF	958						
Gallus_gallus	-----TSSQSQLSASQPRRKRPRMGF	960						
Anas_platyrhynchos	-----SSS----SSSQPLRRKRPHMGF	925						
Chelonia_mydas	-----PSSQSQRSIVSQPRRKRPRMGF	965						
Xenopus_tropicalis	-----QSLRSQSRSSQQSKKRPRMGF	1022						
Homo_sapiens	-----VLSSSQPLRKKPRMGF	843						
Pan_troglodytes	-----VLSSSQPLRKKPRMGF	869						
Macaca_mulatta	-----ILSGSQRP RK KPRMGF	843						
Callithrix_jacchus	-----ILSGSQHP RK KPRMGF	843						
Bos_taurus	TPEGATPPSSQTPSFLATRSGSQRLRK KPRMGF	893						
Mus_musculus	-----VHSGSQPPQKKPRMGF	836						
Rattus_norvegicus	-----VLGSHQP RK KPRMGF	842						
	.....1270.....1280.....1290...							