

## CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/DGEQaps Tue Feb 1 11:55:21 2022

Page 1 of 6

Mus_musculus	MAAAAEPGARTWP	SGSGSPRLG	SPAGSPVLGISG	RTRPGSGPERTS	45
Rattus_norvegicus	MATAAESGARTWP	SGSGSPRLG	SPAGSPVLGISG	RARPGSGPERTG	45
Homo_sapiens	MAAAAEPGARAWL	GGGSPRPG	SPACSPVLGSGG	RARPGPGPGPGP	45
Pan_troglodytes	MAAAAEPGARAWL	GGGSPRPG	SPACSPVLGSGG	RARPGPGPGPGP	45
Macaca_mulatta	MAAAAEPGARAWL	GGGSPRPG	SPACSPVLGAGG	RARPGPGPGPGPG	46
Callithrix_jacchus	MAAAAEPGARAWL	GGGSPRPG	SPACSPVLGAGG	RARLGP	46
Canis_lupus_familiaris	MAAAAEPRARAWL	GGGSPRSG	SPSCSPELGGRG	GARAGAGPGPG	44
Equus_caballus	MAATADPGARAWV	SGSGSPRPG	SPASSPDLGGGG	RARPGPGSGPGP	45
Bos_taurus	MAAAAEPGARGWL	GGGSPRPG	SPTSSPELGAGS	RSRSGPGSGPGSG	46
Pavo_muticus	MADGARSVLG		GSPASSPVLSSGRG	HVSSSSSSSF	32
Pavo_cristatus	MADGARSVLG		GSPASSPVLSSGRG	HVSSSSSSSF	32
Gallus_gallus	MADEARSLLG		GSPASSPVLAGRG	RVSSSSSS	31
Chelonia_mydas	MAVGARALLG	SRG	GSPASSPQLGGR	SRSQ	29
Xenopus_tropicalis	MAADGARSRFGNL	GYRGGGGSSNS	SPSSSPKLGGGKIRTP	PLOORRTTASPHSGSSSS	57
Rhinatrema_bivittatum	MEEGARSFNSVAS	PAGG	SPILGRRLG	ORRAGAHS	36

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Mus_musculus	-----RAIG-	SAAPGHSFRKVTLTKPTFCHLCSDFIWGLAGFLCDVCNF	88						
Rattus_norvegicus	-----RAIG-SVAPGH	SFRKVTLTKPTFCHLCSDFIWGLAGFLCDVCNF	88						
Homo_sapiens	-----ERAGVRAPGPAAAPGH	SFRKVTLTKPTFCHLCSDFIWGLAGFLCDVCNF	94						
Pan_troglodytes	-----ERAGARAPGPAATPGH	SFRKVTLTKPTFCHLCSDFIWGLAGFLCDVCNF	94						
Macaca_mulatta	PPGGP	GPGPERAGARAPGSVAGPSFRKVTLTKPTFCHLCSDFIWGLAGFLCDVCNF	106						
Callithrix_jacchus	P-----ERAGARAPGPAAAPGH	SFRKVTLTKPTFCHLCSDFIWGLAGFLCDVCNF	96						
Canis_lupus_familiaris	-----AGGSH	P----QSGHSFRKATLTKPTFCHLCSDFIWGLAGFLCDVCNF	87						
Equus_caballus	-----ERAGARS	PG--PAAPGH	SFRKVTLTKPTFCHLCSDFIWGLAGFLCEVCNF	93					
Bos_taurus	P-----ERSGSR	PPP--PAAPSHSFRKVTLTKPTFCHLCSDFIWGLAGILCDVCNF	95						
Pavo_muticus	-----SSSSAIPPGH	SFRRVTLTKPTFCHYCTDFIWALAGYQCEVCNF	76						
Pavo_cristatus	-----SSSSAIPPGH	SFRRVTLTKPTFCHYCTDFIWALAGYQCEVCNF	76						
Gallus_gallus	-----SSSSAIPPGH	SFRRVTLTKPTFCHYCTDFIWGLAGYLCEVCNF	75						
Chelonia_mydas	-----PPPAPFGAPGH	SFRRVTLTKPTFCHCCTDFIWGLAGYQCDCVCNF	73						
Xenopus_tropicalis	SS-----PGA	KHQQLKAAPPSPAHSFRKVTLTKPTFCHHCCTDFIWGLAGFYQCEVCNF	109						
Rhinatrema_bivittatum	-----REQKA	AVLAPSHLFKRVTLTPTFCNCTDFIWGLAGFYQCEVCSF	81						
	.....70.....	80.....90.....100.....110.....120							

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Mus_musculus	MSHEKCLKQVKTPCTSIAPSLVRVPVAHCFGSLGLYKRKFCVVCRKSL-EVPAFRCEVCE	147
Rattus_norvegicus	MSHEKCLKQVKTPCTSIAPSLVRVPVAHCFGSLGLYKRKFCVVCRKSL-EVPAFRCEVCE	147
Homo_sapiens	MSHEKCLKHVRIPCTSVAPSLVRVPVAHCFGPRGLHKRKFCAVCRKVL-EAPALHCEVCE	153
Pan_troglodytes	MSHEKCLKHVRIPCTSVAPSLVRVPVAHCFGPRGLHKRKFCAVCRKVL-EAPALHCEVCE	153
Macaca_mulatta	MSHEKCLKLVRIPCTSVAPSLVRVPVAHCFGPRGLHKKRKFCAVCRKVL-EAPALHCEVCE	165
Callithrix_jacchus	MSHEKCLKHVRTPCTSVAPSLVRVMAHCFGPRGLYKRKFCGVCRKVL-EAPALRCEVCE	155
Canis_lupus_familiaris	MSHEKCLKHVKTPCASVAPSLVRVPVAHCFGPRGLYKRKFCVVCRKAL-EAPALRCEVCE	146
Equus_caballus	MSHEKCLKHVKIPCVTLAPSLVRVPVAHCFGPRALYKRKFCVVCRRGL-EAPALRCEVCE	152
Bos_taurus	MSHEKCLKHVKTPTCTSVAPSLVRVPVAHCFGPRGLYKRKFCVVCRKGL-EAPGLRCEVCE	154
Pavo_muticus	MSHEKCLKNVNIPCTSIAPSLVRVPVAHCFGPPGHYKRKFCVVCRKSL-ESPAFRCEVCE	135
Pavo_cristatus	MSHEKCLKNVNIPCTSIAPSLVRVPVAHCFGPPGHYKRKFCVVCRKSL-ESPAFRCEVCE	135
Gallus_gallus	MSHEKCLKNVNIPCTSIAPSHVRVPVAHCFGPPGHYKRKFCVVCRKSL-ESPAFRCEVCE	134
Chelonia_mydas	MSHEKCLKHVKIPCTSIAPSLVRVPVAHCFGDLGHYKKKFCVVCRKQL-ESLAFRCEVCE	132
Xenopus_tropicalis	MSHEKCLKHVKTVCSCMAPSLVRVPVAHCFRPPGHYKKKFCVVCRKHLEESLTLRCEVCE	169
Rhinatrema_bivittatum	MSHEKCLKQVKIFCASMTPLSLVRVPVSHCFRQPGHYRKKFCVVCRKQLGESIALQCEVCE	141
	.....130.....140.....150.....160.....170.....180	

# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/DGDDQaps Tue Feb 1 11:55:21 2022

Page 2 of 6

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Mus_musculus	LHVHPDCVPFACSDCRQCHQDGHQDHDTHHHHWREGNLP	207
Rattus_norvegicus	LHVHPDCVPFACSDCRQCHQDGHQDHDTHHHHWREGNLP	207
Homo_sapiens	LHLHPDCVPFACSDCRQCHQDGHQDHDTHHHHWREGNLP	213
Pan_troglodytes	LHLHPDCVPFACSDCRQCHQDGHQDHDTHHHHWREGNLP	213
Macaca_mulatta	LHLHPDCVPFACSDCRQCHQDGHQDHDTHHHHWREGNLP	225
Callithrix_jacchus	LHLHPDCVPFACSDCRQCHQDGHQDHDTHHHHWREGNLP	215
Canis_lupus_familiaris	LHVHPECVPFACSDCRQCHQDGHQDHDTHHHHWREGNLP	206
Equus_caballus	LHVHPDCVPFACSDCRQCHQDGHQDHDTHHHHWREGNLP	212
Bos_taurus	LHVHPDCVPFACSDCRQCHQDGHQDHDTHHHHWREGNLP	214
Pavo_muticus	LHVHTDCILFACSDCRQCHQDGHQDHDTHHHHWREGNLP	195
Pavo_cristatus	LHVHTDCILFACSDCRQCHQDGHQDHDTHHHHWREGNLP	195
Gallus_gallus	LHVHTDCILFACSDCRQCHQDGHQDHDTHHHHWREGNLP	194
Chelonia_mydas	LHVHTDCVPFACSDCRQCHQDGHQDHDTHHHHWREGNLP	192
Xenopus_tropicalis	LHVHTDCVPFACSDCRQCHQDGHQDHDTHHHHWREGNLP	229
Rhinatrema_bivittatum	LYVHADCAFFACSDCRKCHLDGHLDDHTCYHHHWREGNFP	201
	.....190.....200.....210.....220.....230.....240	
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Mus_musculus	RCEWCGVQAHSVCSTALAPECTFGRLRSMVLPPSCVRLLSRNFSKMHCFRIPETMVLELG	267
Rattus_norvegicus	RCEWCGVQAHSVCSTALTPECTFGRLRSMVLPPSCVRLLSRNFSKMHCFRIPETMVLELG	267
Homo_sapiens	RCEWCGVQAHSVCSTALAPECTFGRLRSMVLPPSCVRLLSRNFSKMHCFRIPETMVLELG	273
Pan_troglodytes	RCEWCGVQAHSVCSTALAPECTFGRLRSMVLPPSCVRLLSRNFSKMHCFRIPETMVLELG	273
Macaca_mulatta	RCEWCGVQAHSVCSTALAPECTFGRLRSMVLPPSCVRLLSRNFSKMHCFRIPETMVLELG	285
Callithrix_jacchus	RCEWCGVQAHSVCSTALAPECTFGRLRSMVLPPSCVRLLSRNFSKMHCFRIPETMVLELG	275
Canis_lupus_familiaris	RCEWCGVQAHSVCSTALAPECTFGRLRSMVLPPSCVRLLSRNFSKMHCFRIPETMVLELG	266
Equus_caballus	RCEWCGVQAHSVCSTALAPECTFGRLRSMVLPPSCVRLLSRNFSKMHCFRIPETMVLELG	272
Bos_taurus	RCEWCGVQAHSVCSTALAPECTFGRLRSMVLPPSCVRLLSRNFSKMHCFRIPETMVLELG	274
Pavo_muticus	RCEWCGVQAHSVCSTALAPECTFGRLRSMVLPPSCVRLLSRNFSKMHCFRIPETMVLELG	255
Pavo_cristatus	RCEWCGVQAHSVCSTALAPECTFGRLRSMVLPPSCVRLLSRNFSKMHCFRIPETMVLELG	255
Gallus_gallus	RCEWCGVQAHSVCSTALAPECTFGRLRSMVLPPSCVRLLSRNFSKMHCFRIPETMVLELG	254
Chelonia_mydas	RCEWCGVQAHSVCSTALAPECTFGRLRSMVLPPSCVRLLSRNFSKMHCFRIPETMVLELG	252
Xenopus_tropicalis	RCEWCGVQAHSVCSTALAPECTFGRLRSMVLPPSCVRLLSRNFSKMHCFRIPETMVLELG	289
Rhinatrema_bivittatum	RCEWCGVQAHSVCSTALAPECTFGRLRSMVLPPSCVRLLSRNFSKMHCFRIPETMVLELG	261
	.....250.....260.....270.....280.....290.....300	
	. . . . . * *:::.* *:::.* *:::.* *:::.*	
Mus_musculus	--DGDDGVDSAAIGTGREVLTAES-----TKQTLKIFDGNDSMRKNQFR	311
Rattus_norvegicus	--DGDDGVDGSAAGVTGREVSAATES-----TKQTLKIFDGNDSMRKNQFR	311
Homo_sapiens	----GDGADGSAAGVPGRETQATPES-----GKQTLKIFDGDGDAVRRSQFR	315
Pan_troglodytes	----GDGADGSAAGVPGRETQATPES-----GKQTLKIFDGDGDAVRRSQFR	315
Macaca_mulatta	----GDGADGSAAGVPGRETQATPES-----GKQTLKIFDGDGDAVRRSQFR	327
Callithrix_jacchus	----GDGADGSAAGVPGRETQATPES-----GKQTLKIFDGDGDAVRRSQFR	317
Canis_lupus_familiaris	--DEDDGVDSAAIGTGREVLTAES-----TKQTLKIFDGNDSMRKNQFR	307
Equus_caballus	--EGDDGVDSAAIGTGREVLTAES-----TKQTLKIFDGNDSMRKNQFR	329
Bos_taurus	EWGGGEGADGSAAGVPGRETQATPES-----GKQTLKIFDGDGDAVRRSQFR	319
Pavo_muticus	----EGDDGVDSAAIGTGREVLTAES-----TKQTLKIFDGNDSMRKNQFR	297
Pavo_cristatus	----EGDDGVDSAAIGTGREVLTAES-----TKQTLKIFDGNDSMRKNQFR	297
Gallus_gallus	----EGDDGVDSAAIGTGREVLTAES-----TKQTLKIFDGNDSMRKNQFR	296
Chelonia_mydas	----EGDDGVDSAAIGTGREVLTAES-----TKQTLKIFDGNDSMRKNQFR	290
Xenopus_tropicalis	----EDNENDGIIQGSVKETPTADS-----SKQSLKIYDGHDAVKNQFR	331
Rhinatrema_bivittatum	----EDNENDGIIQGSVKETPTADS-----SKQSLKIYDGHDAVKNQFR	302
	.....310.....320.....330.....340.....350.....360	

## CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

**File: /media/morpheus/disk1/fst/pep\_msa/DGEQaps Tue Feb 1 11:55:21 2022**

Page 3 of 6

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Mus_musculus	LVTVSRLARNEEFVMEALRAYYISEDPKDFQLQALP---LSGNAQALGKAG---TTEEEA	365
Rattus_norvegicus	LVTVSRLARNEEFVMEALRAYYINEDPKDFQLQALPLTLLSGNAQALGKAG---TTEET	368
Homo_sapiens	LVTVSRLAGAEFVLEALRAHHIPEDPGHLELCRLPPSSQACDAWAGGKAGSAVISEE--	373
Pan_troglodytes	LVTVSRLAGAEFVLEALRAHHIPEDPGHLELCRLPPSSQACDAWAGGKAGSAVISEE--	373
Macaca_mulatta	LITVSRLASAEFVLEALRVHHIPEDPGHLELCPLPPSLKACDTWAGGKAGSAVISEE--	385
Callithrix_jacchus	LITVPRLASAEFVLEALRAYHIPEDPGHLELCPLPPSSQACDAWAGGKAGSAVISEE--	375
Canis_lupus_familiaris	VISVPRLARNEEFVLEALRAYVLEDPDRFELQVPVAPVPAGDSGARGRPRGSGAAEEEG	367
Equus_caballus	VITVPRLARSEELLEALRAYYITEDPHNFDLQVLPAAPVQAGETGARGKSRSGGSAAEEEG	389
Bos_taurus	AVTVPRLARSEQVLEALRAYYISEDPOGFQLQALPTPVQLGDTAAAGRVWSTGPAEEEG	379
Pavo_muticus	LISVPRIAKNEEFVVEALRAYYINDDQQEYELQTFQTQALLSDDIIN-----RNDAAEDS	352
Pavo_cristatus	LISVPRIAKNEEFVVEALRAYYINDDQQEYELQTFQTQALLSDDIIN-----RNDAAEDS	352
Gallus_gallus	LISVPRIAKNEEFVVEALRAYYINDDQQEYELQTFQTQALLSDDVIN-----RNDAAEDS	351
Chelonia_mydas	LISVPRIAKSEEFVVEALRAYYVNDQQHYELQTFSSQQLFSDDIIN-----RNDATEET	345
Xenopus_tropicalis	IISVPRIAKSEEFVVEALRAYYIPDEPQDYELQTLMQQLVVSDDIIN-----RNGAMEDG	386
Rhinatrema_bivittatum	LISVPRISKNEEFVVEALRSYYITDDQQNFELKAFQQLVPSDDIIS-----GKGATDGN	357
	.....370.....380.....390.....400.....410.....420	

[illegible]

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Mus_musculus	FGC-----	QVEDK	ERFOLIEVLMSS	SRQVORTVLADE	456
Rattus_norvegicus	FGR-----	QVEDQ	ERFOLIEVLMSS	SRQVORTVVLVDE	459
Homo_sapiens	LGR-----	QAESP	ESFOLVEVAMGCRHV	QRTMLMDE	464
Pan_troglodytes	LGRQVRTLCLLPMPARLGGGSLSPGGQATIPAA	QAEGP	ESFOLVEVAMGCRHV	QRTMLMDE	493
Macaca_mulatta	LGR-----	QAEGP	ESFOLVEVAMGCRV	QRTALMDE	476
Callithrix_jacchus	LGR-----	QAEGP	ESFOLVEVAMGCRHV	QRTVLAEE	466
Canis_lupus_familiaris	LGR-----	QAEGP	EGFOLVEVLMGSRQV	QRTVLQDA	451
Equus_caballus	LGC-----	QAEGA	ESFOLVEVLMGSRQV	QRTVMAD	480
Bos_taurus	LGR-----	QAEGA	EGFOLVEVLMGSRQV	QRTVLADE	464
Pavo_muticus	LGR-----	QTECL	QNFKLVEVLMGSKQV	ORMVLDNQ	443
Pavo_cristatus	LGR-----	QTECL	QNFKLVEVLMGSKQV	ORMVLDNQ	443
Gallus_gallus	LGR-----	QAECL	QNFRLVEVLMGGKQV	ORMVLDSQ	442
Chelonia_mydas	LGR-----	QTECL	QNFKLLEVLMGSKQV	ORMVLDDQ	436
Xenopus_tropicalis	LGR-----	QKENL	ENFRLVEVLMSSKQV	ORMVLPFE	477
Rhinatrema_bivittatum	LGC-----	QENP	ENFRLLEVLMDSRQV	ORMVLSDQ	447
	.....490.....500.....510.....	.....520.....530.....540			

# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/DGDDQps Tue Feb 1 11:55:21 2022

Page 4 of 6

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Mus_musculus	EPLLDRLWDIRQTSVRQVSQTRFYVAETRAAPRVSLFVGGLPPGLSPQDYSNLLHEAMA	516
Rattus_norvegicus	EPLLDRLRDIRQTSVRQASQTRFYVAEARAVTPHVSFLVGGLPPGLSPQDYSNLLHEAMA	519
Homo_sapiens	QPLLDRQLDIRQMSVRQVSQTRFYVAESRDVAPHVSLFVGGLPPGLSPEEYSSLLHEAGA	524
Pan_troglodytes	QPLLDRQLDIRQMSVRQVSQTRFYVAESRDVAPHVSLFVGGLPPGLSPEEYSSLLHEAVA	553
Macaca_mulatta	QPLLDRQLDIRQMSVRQVSQTRFYVAESGDVAPHVSLFVGGLPPGLSPEEYSSLLHEAVA	536
Callithrix_jacchus	QPLLARLQDIRQMSIWQLSOTRFYVAESRNVAPHISLFVGGLPPGLAPKEYSSLLLEAMA	526
Canis_lupus_familiaris	EPLLARLRDIRQTSLRQMSQTRFYVAENRVAPHVSLFVGGLPPGLSTQFYASLLDEAVA	511
Equus_caballus	EPLLDRLRDIRQTSLRQMSQTRFYVVEGRALAPHVSLFVGGLPPGLSSEEYSSLLDEAVA	540
Bos_taurus	EPLLDRLREIRQTSLRQMSQTRFYVAESRVAPRVSLFVGGLPPGLSPQEYRRLLEAVT	524
Pavo_muticus	ELILNRLKDIRKISIRQMNQTRFYIVENSKSTIQVNMFIGGLPPQLSPEEYMNILKDELA	503
Pavo_cristatus	ELILNRLKDIRKISIRQMNQTRFYIVENSKSTIQVNMFIGGLPPQLSPEEYMNILKDELA	503
Gallus_gallus	KLILNRLKDIRKISIRQMNQTRFYIVENSKSTVQVNVFVGGLPPQLSPEEYMNILKDELA	502
Chelonia_mydas	EMILSRLKDIRKTSIRQMTQTRFYIVENSKSVVRVNLFVGGLPPQLSAAEYTNILKDDLA	496
Xenopus_tropicalis	EIIIFDRLNEVRKTSIRQMNQTRFYIEENEKPEIKIHIFISGLPPLLSSEEYTDLLKEHLA	537
Rhinatrema_bivittatum	EVLLVKLNDIRKTSVRQMIQTRFYLVHEKKNLVMVNLVVGGLPPQLSSEEYTNILRDCLH	507
	.....550.....560.....570.....580.....590.....600	
	: : : : * . * * * * : : * : : : * : : : * : : : *	
Mus_musculus	TKAAVSVSVSHVYSLOGAVILDVTCFAEAERLYMLARDTAVHGRPLTALVLPDVL-----	570
Rattus_norvegicus	TKAAVSVSVSHVYSLOGAVILDVTCFAEAERLYMLARDTAVHGRPLTALVLPDVLNLAMSG	579
Homo_sapiens	TKATVSVSVSHIYSSQGAVVLDVACFAEAERLYMLLKDMAVRGRLLTALVLPDVL-----	578
Pan_troglodytes	TKATVSVSVSHVYSQGAVVLDVACFAEAERLYMLLKDMAVRGRLLTALVLPDVL-----	607
Macaca_mulatta	TKATVSVSVSHVYSQGAVVLDVTCFSEAERLYMLLKDMAVRGRLLTALVLPDVL-----	590
Callithrix_jacchus	TEATMVSVSVSHVYSQGAVVLDVACFAEAERLYMLKDTAVRGRPLTALVLPDVL-----	580
Canis_lupus_familiaris	AKAGLVSVSRVYSSQGAVVLDVACFAEAERLYMLVRDTAVHGRPLMALVLPDVL-----	565
Equus_caballus	TKAGLVSVSVSHVYSQGAVVLDVACFAEAERLYMLVKDTVVHGRPLTALVLPDVL-----	594
Bos_taurus	SKAALVTVSHVYSAQGAVVLDVACFAEAERLYMLIRDVAVRGRPLTALVLPDVL-----	578
Pavo_muticus	IKTNVSVLSHVYQAQGAVVLEISCFSEAERIYMLAKDTTVNDKPLNAVVIPEVM-----	557
Pavo_cristatus	IKTNVSVLSHVYQAQGAVVLEISCFSEAERIYMLAKDTTVNDKPLNAVVIPEVM-----	557
Gallus_gallus	IKTNVSVLSHVYQAQGAVVLEISCFSEAERIYMLVKDTTINDKPLNAVVIPEVM-----	556
Chelonia_mydas	IKTNLLSLSHVYSMQGAVVLEMSCFSEAERIYMLAKDTMVNDKQLTAAVIPEVL-----	550
Xenopus_tropicalis	IKDKLVSVIPAYSPQGAVVLEILCFSEAERIFMLVKDTISNNKQLHGVIIIPHIM-----	591
Rhinatrema_bivittatum	IKTNLVSISHVYSQGAVVLEISCFSEAERIYALLKDTQVNNKQLIGIVIPKIM-----	561
	.....610.....620.....630.....640.....650.....660	
	: : : : * : : : * : : : * : : : * : : : * : : : *	
Mus_musculus	HTKLPPDCCPLLVFVNPKSGGLKGRELLCS	600
Rattus_norvegicus	KRCTEGCRGQRIISYEDCQKDLCLGSTKSPQHTKLPPDCCPLLVFVNPKSGGLKGRELLCS	639
Homo_sapiens	HAKLPPDSCPLLVFVNPKSGGLKGRELLCS	608
Pan_troglodytes	HAKLPPDSCPLLVFVNPKSGGLKGRELLCS	637
Macaca_mulatta	HAKLPPDSCPLLVFVNPKSGGLKGRELLCS	620
Callithrix_jacchus	HSRLPPDSRPLLVFVNPKSGGLKGRELLCS	610
Canis_lupus_familiaris	HSKLPPDCCPLLVFVNPKSGGLKGRELLCS	595
Equus_caballus	HTKLPPDCCPLLVFVNPRSGGLKGRELLCS	624
Bos_taurus	HTKLAPDCRPLLVFVNPRSGGLKGRELLCS	608
Pavo_muticus	ASKIPQNCWPLLVFVNPKSGGLQGRDILLYC	587
Pavo_cristatus	ASKIPQNCWPLLVFVNPKSGGLQGRDILLYC	587
Gallus_gallus	ASKIPQNCWPLLVFVNPKSGGLKGRELLCS	586
Chelonia_mydas	HTKLPPDCCPLLVFVNPKSGGLKGRELLCS	580
Xenopus_tropicalis	HEKLPPQETCPLLVFVNPKSGGLKGRELLCS	621
Rhinatrema_bivittatum	CAKLPPDCCPLLVFVNPRSGGLKGRELLCS	591
	.....670.....680.....690.....700.....710.....720	



# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/DGDDps Tue Feb 1 11:55:21 2022

Page 5 of 6

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Mus_musculus      FRKLLNPHQVFELTNGGPLPGFHLFSQVPSFRVLVCGGDGTVGWVLAAL EETRRHLACPE 660
Rattus_norvegicus FRKLLNPHQVFELTNGGPLPGFHLFSQVPCFRVLVCGGDGTVGWVLAAL EETRRHLACPE 699
Homo_sapiens      FRKLLNPHQVFELTNGGPLPGLHLFSQVPCFRVLVCGGDGTVGWVLAAL EETRYRLACPE 668
Pan_troglodytes  FRKLLNPHQVFELTNGGPLPGLHLFSQVPCFRVLVCGGDGTVGWVLAAL EETRYRLACPE 697
Macaca_mulatta   FRKLLNPHQVFELTNGGPLPGLHLFSQVPCFRVLVCGGDGTVGWVLAAL EETRYRLACPE 680
Callithrix_jacchus FRKLLNPHQVFELTNGGPLPGLHVFQVPCFRVLVCGGDGTVGWVLSAL EETRRHLACPE 670
Canis_lupus_familiaris FRKLLNPHQVFELTNGGPLPGFHVFSQVPRFRVLVCGGDGTVGWVLAAL EEVPRRLACPE 655
Equus_caballus   FRKLLNPHQVFELTNGGPLPGFHVFSQLPCFRVLVCGGDGTVGWVLAAL EEMRHHHLACPE 684
Bos_taurus       FRKLLNPHQVFELTNGGPLPGFHVFSRVPCFRVLVCGGDGTVGWVLAAL EDLRHHHLACPE 668
Pavo_muticus     FRKLLNPHQVFELTNGGPLPGFHMFSKVPSFRVLVCGGDGTVGWVLAAL EEEIRHKLVCSE 647
Pavo_cristatus   FRKLLNPHQVFELTNGGPLPGFHMFSKVPSFRVLVCGGDGTVGWVLAAL EEEIRHKLVCSE 647
Gallus_gallus    FRKLLNPHQVFELTNGGPLPGFHTFSKVPSFRVLVCGGDGTVGWVLAAL EEEIRHKLVCSE 646
Chelonia_mydas   FRKLLNPHQVFELTNGGPLPGFHTFSQVPYFRVLVCGGDGTVGWVLAAL EEEIRHKLVCSE 640
Xenopus_tropicalis FRKLLNPHQVFELTNGGPLPGFHTFSRVPYFRVLVCGGDGTVGWVLAAL EEEIRHKLACTE 681
Rhinatrema_bivittatum FRKLLNPHQVFELTNGGPLPGFHTFCQVPYFRVLVCGGDGTVGWVLAAL EEEIRHKLACSE 651
.....730.....740.....750.....760.....770.....780

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Mus_musculus      PSVAILPLGTGNDLGRVLRWGAGYSGEDPFSVLVSDEADAVLMDRWITILLDAHEIDS-T 719
Rattus_norvegicus PSVAILPLGTGNDLGRVLRWGAGYSGEDPFSVLVSDEADAVLMDRWITILLDAHEIDS-T 758
Homo_sapiens      PSVAILPLGTGNDLGRVLRWGAGYSGEDPFSVLLSVDEADAVLMDRWITILLDAHEAGS-A 727
Pan_troglodytes  PSVAILPLGTGNDLGRVLRWGAGYSGEDPFSVLLSVDEADAVLMDRWITILLDAHEAGS-A 756
Macaca_mulatta   PSVAILPLGTGNDLGRVLRWGAGYSGEDPLSVLLSVDEADAVLMDRWITILLDAHDTAS-A 739
Callithrix_jacchus PSVAILPLGTGNDLGRVLRWGAGYSGEDPFSVLLSVDEADAVLMDRWITILLDAHDAAGS-A 729
Canis_lupus_familiaris PSVAILPLGTGNDLGRVLRWGAGYSGEDPLSVLVSVDEADAVLMDRWITILLDAHEAGG-G 714
Equus_caballus   PSVAILPLGTGNDLGRVLRWGAGYSGEDPFSVLVSDEADAVLMDRWITILLDAHEATG-A 743
Bos_taurus       PAVAILPLGTGNDLGRVLRWGAGYSGEDPFSVLLSVDEADAVLVDRWITILLDAHESAC-G 727
Pavo_muticus     PSVAILPLGTGNDLGRVLCWGAGYSGEDPYSILISVDEADDVLMRWITILLDAEEPAEGA 707
Pavo_cristatus   PSVAILPLGTGNDLGRVLCWGAGYSGEDPYSVLISVDEADDVLMRWITILLDAEEPAEGA 707
Gallus_gallus    PSVAILPLGTGNDLGRVLRWGAGYSGEDPYSILISVDEADNVLMRWITILLDAEEPAEGA 706
Chelonia_mydas   PSVAILPLGTGNDLGRVLRWGAGYSGEDPYSVLISVDEADDVLMRWITILLDAQEAVESA 700
Xenopus_tropicalis PSIAVLPLGTGNDLGRVLRWGAGYSGEDPYSILISVNEAENVLMRWITILLDAQEAVDVM 741
Rhinatrema_bivittatum PSVAILPLGTGNDLGRVLHWGAGYSGEDPYSILLSVEDADDILMDRWITILLDALETAETAEAT 711
.....790.....800.....810.....820.....830.....840

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Mus_musculus      ENNVVETEPPKIVQMNNYCGIGIDAELSDFHQAREEEEPGKFTSRFHNGVYVRVGLQKI 779
Rattus_norvegicus ENNVVETEPPKIVQMNNYCGIGIDAELSDFHQAREEEEPGKFTSRFHNGVYVRVGLQKI 818
Homo_sapiens      ENDTADAEPKIVQMSNYCGIGIDAELSDFHQAREEEEPGKFTSRLHNKGVYVRVGLQKI 787
Pan_troglodytes  ENGTADAEPKIVQMSNYCGIGIDAELSDFHQAREEEEPGKFTSRLHNKGVYVRVGLQKI 816
Macaca_mulatta   ENGTADAEPKIVQMSNYCGIGIDAELSDFHQAREEEEPGKFTSRLHNKGVYVRVGLQKI 799
Callithrix_jacchus ENGTADAEPKIVQMSNYCGIGIDAELSDFHQAREEEEPGKFTSRLHNKGVYVRVGLQKI 789
Canis_lupus_familiaris ETGVADVEPPKIVQMSNYCGIGIDAELSDFHQAREEEEPGKFTSRFHNGVYVRVGLQKI 774
Equus_caballus   ENSVADVEPPKIVQMSNYCGIGIDAELSDFHQAREEEEPGKFTSRFHNGVYVRVGLQKI 803
Bos_taurus       EDSEADAEPKIVQMSNYCGIGIDAELSDFHQAREEEEPGKFTSRFHNGVYVRVGLQKI 787
Pavo_muticus     ENGMAEPEPPKIVRMNNYCGIGIDAELSDFHHAREEEPEKFNSRFHNGVYVKVGLQKI 767
Pavo_cristatus   ENGMAEPEPPKIVRMNNYCGIGIDAELSDFHHAREEEPEKFNSRFHNGVYVKVGLQKI 767
Gallus_gallus    ENGVAEPEPPKIVQMNNYCGIGIDAELSDFHHAREEEPGKFNSRFHNGVYVKVGLQKI 766
Chelonia_mydas   ENGILEPEPPKIVQMNNYCGIGIDAELTLGFHHAREEEPGKFNSRFHNGVYVKVGLQRI 760
Xenopus_tropicalis ENGISEPDPKIVQMNNYCGIGIDAELSDFHHAREIEPGKFNSRFHNGVYVKAGLQKL 801
Rhinatrema_bivittatum ENGILEPVPPKIVQMSNYCGIGIDAELSDFHQAREEEPCKFNSRFHNGVYVRAGLQKI 771
.....850.....860.....870.....880.....890.....900

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## CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/DGEQaps Tue Feb 1 11:55:21 2022

Page 6 of 6

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Mus_musculus	SHSRSLHKEIRLOVEQQEVELPSIEGLIFINIPSWGSGADLWGSNDNDRFEKPRIDDGLL	839
Rattus_norvegicus	SHSRSLHKEIRLOVEQQEVELPSIEGLIFINIPSWGSGADLWGSDDNDRFEKPRIDDGLL	878
Homo_sapiens	SHSRSLHKKQIRLOVERQEVELPSIEGLIFINIPSWGSGADLWGSDDTRFEKPRMDDGLL	847
Pan_troglodytes	SHSRSLHKKQIRLOVERQEVELPSIEGLIFINIPSWGSGADLWGSDDTRFEKPRMDDGLL	876
Macaca_mulatta	SHSRSLHKKQIRLOVERQEVELPSIEGLIFINIPSWGSGADLWGSDDTRFEKPRMDDGLL	859
Callithrix_jacchus	SHSRGLHKEIRLOVEQQEVELPSIEGLIFINIPSWGSGADLWGSNDNDRFEKPRMDDGLL	849
Canis_lupus_familiaris	SHARGLHKEIRLOVEQQEVELPSIEGLIFINIPSWGSGADLWGSDDNDRFEKPRMDDGLL	834
Equus_caballus	SHSRSLHKEIRLOVEQQEVELPSIEGLIFINIPSWGSGADLWGSDDNDRFEKPRMDDGLL	863
Bos_taurus	SHSRSLHRAIRLOVEQQEVELPSIEGLIFINIPSWGSGADLWGSDDNDRFEKPRMDDGLL	847
Pavo_muticus	SHTRNLHKDIKLOVDQREVELPNIEGLIFINIPSWGSGADLWGTDSDDRFEKPRIDDGLL	827
Pavo_cristatus	SHTRNLHKDIKLOVDQREVELPNIEGLIFINIPSWGSGADLWGTDSDDRFEKPRIDDGLL	827
Gallus_gallus	SHTRNLHKDIKLOVDQREVELPNIEGLIFINIPSWGSGADLWGTDSDDRFEKPRIDDGLL	826
Chelonia_mydas	SHTRNLHRDIKLVQDQHEVELPSIEGLIFINIPSWGSGADLWGSDDNDRFEKPRIDDGLL	820
Xenopus_tropicalis	SHNRNLHRDMKLQVDQEVELPNIEGLIFINIPSWGSGADLWGSNDNDRYKPRIDDGLL	861
Rhinatrema_bivittatum	SHNRNLHNNLKLOVDQEVELPNIEGLIFINIPSWGSGADLWGANSDSHYEKPRIDDGLL	831
	.....910.....920.....930.....940.....950.....960	

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Mus_musculus	EVVGVITGVVHMGQVQGGLRSGIRIAQGSYFRVITLLKATPVQVDGEPWVQAPGHMIISATA	899
Rattus_norvegicus	EVVGVITGVVHMGQVQGGLRSGIRIAQGSYFRVITLLKATPVQVDGEPWVQAPGHMIISATA	938
Homo_sapiens	EVVGVITGVVHMGQVQGGLRSGIRIAQGSYFRVITLLKATPVQVDGEPWVQAPGHMIISAA	907
Pan_troglodytes	EVVGVITGVVHMGQVQGGLRSGIRIAQGSYFRVITLLKATPVQVDGEPWVQAPGHMIISAA	936
Macaca_mulatta	EVVGVITGVVHMGQVQGGLRSGIRIAQGSYFRVITLLKATPVQVDGEPWVQAPGHMIISAA	919
Callithrix_jacchus	EVVGVITGVVHMGQVQGGLRSGIRIAQGSYFRVITLLKATPVQVDGEPWVQAPGHMIISAA	909
Canis_lupus_familiaris	EVVGVITGVVHMGQVQGGLRSGIRIAQGSYFRVITLLKATPVQVDGEPWVQAPGHMIISAA	894
Equus_caballus	EVVGVITGVVHMGQVQGGLRSGIRIAQGSYFRVITLLKATPVQVDGEPWVQAPGHMIISAV	923
Bos_taurus	EVVGVITGVVHMGQVQSGFRSGIRIAQGSYFRVITLLKATPVQVDGEPWVQAPGHMIISAA	907
Pavo_muticus	EVVGVITGVVHMGQVQSGFRSGIRIAQGSYFRVITLLKATPVQVDGEPWVQAPGHMIISAA	887
Pavo_cristatus	EVVGVITGVVHMGQVQSGFRSGIRIAQGSYFRVITLLKATPVQVDGEPWVQAPGHMIISAA	887
Gallus_gallus	EVVGVITGVVHMGQVQSGFRSGIRIAQGSYFRVITLLKATPVQVDGEPWVQAPGHMIISAA	886
Chelonia_mydas	EVVGVITGVVHMGQVQGGLRSGIRIAQGSYFRVITLLKATPVQVDGEPWVQAPGHMIISAV	880
Xenopus_tropicalis	EVVGVITGVVHMGQVQGGLRSGIRIAQGSYFRVITLLKATPVQVDGEPWVQAPGHMIISAA	921
Rhinatrema_bivittatum	EVVGVITGVVHMGQVQSGFRSGIRIAQGSYFRVITLLKATPVQVDGEPWVQAPGHMIISAA	891
	.....970.....980.....990.....1000.....1010.....1020	

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Mus_musculus	PKVHMLRKAKQKPRKAGA-NRDTRVDTLPAPEGNPL	934
Rattus_norvegicus	PKVHMLRKAKQKPRKAGA-IRDTRVDTLPAPEGNPL	973
Homo_sapiens	PKVHMLRKAKQKPRRAGT-TRDARADAAPAPESDPR	942
Pan_troglodytes	PKVHMLRKAKQKPRRAGT-TRDARADAAPAPEGDPR	971
Macaca_mulatta	PKVHMLRKAKQKPRRAGT-TRDARAD-APAPEGDPR	953
Callithrix_jacchus	PKVHMLRKAKQKPRRAGT-TRDARVDAAPAPEGDPR	944
Canis_lupus_familiaris	PKVHMLRKTKQKPRKSGA-PKDARADGVPAPPEGDPK	929
Equus_caballus	PKVHMLRKAKQKPRKAGT-PKDA-----	945
Bos_taurus	PKVHMLRKAKQKPRKAGP-AKDARADGAPAPPEGDPK	942
Pavo_muticus	PKVHMLKKAKQK-KKTGS-LREMRVDSMSVCKGGR	920
Pavo_cristatus	PKVHMLKKAKQK-KKTGS-LREMRVDSMSVCKGGR	920
Gallus_gallus	PKVHMLKKSQKQXKKKTGS-LREMRADRMVCEGGR	920
Chelonia_mydas	PKVHMLKKSQKQPKKTGS-LKETRTDSVSVTEVGH	914
Xenopus_tropicalis	PKVHMLKKSQKQKKTSA-SKDTKGDSVILNDNGS-	956
Rhinatrema_bivittatum	PKVHMLKKSQKQKQQP-----	909
	.....1030.....1040.....1050.....	