

## CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

**File: /media/morpheus/disk1/fst/pep\_msa/TGSD** **Date: Tue Feb 1 14:45:11 2022**

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		:	* ***:**:*:**: .:..	
Pavo_muticus	MVQDPRGQ---	LVAELLRL-AGT-AGGIVCLCSRAFVEDRKLYKLGKGFYIKDDDESTG		55
Pavo_cristatus	MVQDPRGQ---	LVAELLRL-AGT-AGGIVCLCSRAFVEDRKLYKLGKGFYIKDDDESTG		55
Gallus_gallus	MVQDPRGQ---	LVAELLRL-AGA-AGGIVCLCSRAFVEDRKLYKLGKGFYVKDDDESTG		55
Chelonia_mydas	MPYEPRSR---	LVAELLQ-ADEGASILCLCSRAFVEDRKLYKLGKGFYKEDCDSTG		56
Homo_sapiens	MCCEKWSR---	VAEMFLFIEERED-CKILCLCSRAFVEDRKLYNLGLKGYIIRDSGNNSG		56
Pan_troglodytes	MCCEKWSR---	VAEMFLFIEERED-CKILCLCSRAFVEDRKLYNLGLKGYIIRDSGNNSG		56
Macaca_mulatta	MCCEKWSR---	VAEMFLFIEERED-SKILCLCSRAFVEDRKLYNLGLKGYIIRDSGNNSG		56
Callithrix_jacchus	MCCEKWSR---	VAEMFLFIEDREEDCKILCLCSRAFVEDRKLYNMLGLKGYIIRDSGNNSG		57
Heterocephalus_glaber	MCCEKWSH---	VAEMFLFFEDREKDYKIHCLCTRAFVEDRKLCNLGLKGYIIRGSSNNAG		57
Canis_lupus_familiaris	MCCEKWSR---	VAEMFLFVEDLEEDAGILCLCSRAFVEDRKLCNLGLKGYIVKGNNDAG		57
Equus_caballus	MCCEKWSR---	VAEMFLFIEDLGEDYKILCLCSRAFVEDRKLCNLGLKGYIVQDNGSDAG		57
Bos_taurus	MYCKKWRF---	VAEMCLFLEDLREGSRILCLCSRAFVEDRKLYNLGLKGYIVKDDDNSAG		57
Mus_musculus	MCCEKWNH---	VAEMLLFIEDREEEYKILCLCSRAFVEDRKLYNLGLKGYIVKSSGNAG		57
Rhinatrema_bivittatum	MLCEKWSR---	VAEMILCTEELEEARSLCLCSRAFVDDRDLYYLGLNLGCPKEEKSEV		57
Xenopus_tropicalis	MLSVEWVQ---	VAEMCFYLDVNDKIVCLCSRAFVNDRLNLYLGLGFKG---TGFSRKEG		54
Callorhinchus_milii	---MLWQS---	VAEIFLFVKGLGEADKIQCCLCTRAFVDDRDFYRQGLKGTIYDEDDDEGD		54
Danio_rerio	MMIDYGERNVVPLADIFVQGEETMTIHCLCSRAFVNDRELYRDFKAISSQADSQVQG			60
	1.....10.....20.....30.....40.....50.....60			

	.	.	:	*	:	*	:	*	:	**	:	*	:	*:*:	:*	:	.:	:	.
Pavo_muticus	EEQASEQE	--ND	CPSVTLGVDTDCALDLEEAEELDSEAEMLKMSMGLPLHFGGHS	AHRDFVV	113														
Pavo_cristatus	EEQASEQE	--ND	CPSVTLGVDTDCALDLEEAEELDSEAEMLKMSMGLPLHFGGHS	AHRDFVV	113														
Gallus_gallus	EEQASEQE	--NG	CPTVTILGVDTDCAPDLEEDDLDEAEMLKMSMGLPLHFGGHS	AHRDFVA	113														
Chelonia_mydas	EEQIEEEEKEGNHNPNVTIKNSNNNHLGLEEDELDEAEMLRSMGLPLOFQGGLSAHKFEVA	116																	
Homo_sapiens	DQATEEEEE--GGYSCGTAAESHDSKGIGLDESELDEAEMLRSMGLPLOFGRITAHKDFFEVE	114																	
Pan_troglodytes	DQATEEEEE--GGYSCGTAAESHDSKGIGLDESELDEAEMLRSMGLPLOFGRITAHKDFFEVE	114																	
Macaca_mulatta	DQATEEEEE--GGYSCGTAAESRDNKIGICLDESELDEAEMLRSMGLPLOFGRISAHKNFEVE	114																	
Callithrix_jacchus	DQATEEEEE--GDYSCGTAAESHDSKGLDLLDGNELDSEAEMLRSMGLPLOFGRVSAHKNFEVE	115																	
Heterocephalus_glaber	DQATEEEEE--DDYSHCTAESFENKIDLDSELDEAEMLRSMGLPLOFGRVSEHHNFVE	115																	
Canis_lupus_familiaris	DHATEEEEE--G---GTAESHDSKGLDENELDEAEMLRSMGLPLOFGGISAHKNFEVE	111																	
Equus caballus	EQATEEEEE--GGYSHGTTESHDSKSIGLNESLDEAEMLRSMGLPLOFGGTSAHKNFEVE	115																	
Bos_taurus	EQATEEEEE--GGHSQGPAPHPDNRCPPDPESELDEAEMLRSMGLPLOFGRMSAHKNFEE	115																	
Mus_musculus	DQGTEEEEE--DHGSNGTAAESH-----P NESDLDEAKLMRSMGLPIQFGRMSSHENFEM	110																	
Rhinatrema_bivittatum	EQ--EEEEK---ECLRVVVESIENNALLNEAGCELDSEAEMLMSMGLPLOFGGFSTQKEMPV	112																	
Xenopus_tropicalis	KEDVEDDDD---EDASVVPSINSSISVF AEENELDEAEIMLKMG LPLQ FGGSSYERDYVP	111																	
Callorhinchus_milii	VQKEEGKS--DEDSNSNAESTLNAMEMOESEMDSEAEMLMASMGLPLOFGRSTRHKPVIT	112																	
Danio_rerio	DVEINDGEQLLEDNLCSVD EEEEEEEEDA AV DEETLLMASLG LPVOFASSSKQRRA G-	119																	
	.....70.....80.....90.....100.....110.....120																		

	130	140	150	160	170	180	
Pavo_muticus	KEKYRKR	SNMFKM	KKKKKK	RRKELOO	KHQDKME	GCQDHICGDHKQ	PISDEPAS--ATEQS
Pavo_cristatus	KEKYRKR	SNMFKM	KKKKKK	RRKELOO	KHQDKME	GCQDHICGDHKQ	PISDEPAS--ATEQS
Gallus_gallus	KEKYRKR	GNVFKM	KKKKKK	RRKELOO	KHQDKME	GCQDHICGDHKQ	PVSDEPAS--ATEKS
Chelonia_mydas	SENSRKR	--KIV	KKKKKK	--KKLOO	KHLNEIM	RETWKEDCEDH	NQSFSDDPAL--HTERT
Homo_sapiens	SMN--	TRNKVKIK	KKK----	--HQQ	KYLDEIVQ	ESWRKEYEEDD	ILASDDPS---SIEQY
Pan_troglodytes	SMN--	TRNKVKIK	KKKK----	--KHQ	KYLDEIVQ	ESWRKEYEEDD	ILASDDPS---SIEQY
Macaca_mulatta	SMN--	TRNKVKIK	KKKK----	--KHQ	KYLDEIMQ	ESWRKEYEEEE	ILASDDPS---SIEQY
Callithrix_jacchus	STN--	TRNKAKIK	KKKK----	--HQQ	KYLDEIMQ	ESWRKEYEEDD	ILASDDPS---SVEQC
Heterocephalus_glaber	SMN--	ARNKVKVK	KKKT----	--KHQ	KYLDEIMQ	ESWRKEYEEDD	LLLLSDDPS---SVEQY
Canis_lupus_familiaris	SMN--	TRNKVKIK	KKKK----	--KHQ	KYLDEIMR	ESWRQDYEEDD	ILASDDPS---SVEQY
Equus_caballus	SMN--	TRNKVKIK	KKKK----	--KHQ	KYLDEIMR	ESWRQYEEEDD	ILASDDPS---SVERC
Bos_taurus	SMN--	TRNKVKIM	KKKKK----	--KHQ	KYLDEIKR	ESWR--QCEEDDV	SASDDPS---SSEN-
Mus_musculus	SMN--	ARNKAKVK	QKRR----	--KHQ	KRYLDEMVR	ESWRNDYEEDD	LVVSDDP--SVEHC
Rhinatrema_bivittatum	SEKLNKR	PKVKKT	KKKK----	--ASR	KYLDEIVQ	QVQEELSKGCND	IGFDDLI--TVEET
Xenopus_tropicalis	LDS---	CEKVNKI	WKKKK----	--TKCKR	PLAERIQA	EELAHNASHS	CEEEFPA--DPEQA
Callorhinchus_milii	SSS-----	KKKM	KKKT----	--TTYWC	SEVLGVCKES	PGETLNLVLPD	VPDVLRAQEET
Danio_rerio	-----	QVLAR	PKN-----	--KR-----	-----	-----	TVKCL

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                                * .**.:.* *:* * :.:
Pavo_muticus      AKNSESQVAGEGNCSSS-----LANEALP-----IEQKWEKYWSEYGEGLLWQSWLEKH 221
Pavo_cristatus    AKNSESQIAGEGNCSSS-----LANEALP-----IEQKWEKYWSEYGEGLLWQSWLEKH 221
Gallus_gallus     VKNSESQIAGVGNCSSS-----LANEALP-----IERKWEKYWSEYGEGLLWQSWLEKH 222
Chelonia_mydas    EEKKTCOLLNEDNCENRDC-----PINDALPS--ELKEKWEKYWSEYGEGLLWQSWLEKH 223
Homo_sapiens      ENTRTYELQSKKDTETENP-----PVENTILSPKLEITEKWEKYWNEYGGGLLWQSWQEKH 218
Pan_troglodytes   ENTRTYELQSKKDTETENP-----PVENTLFPKLEITEKWEKYWNEYGGGLLWQSWQEKH 220
Macaca_mulatta    ENTRICELQSKKDTETENL-----PVENTILSPKLEITEKWEKYWNEYGGGLLWQSWQEKH 220
Callithrix_jacchus ENTRRCKLQSKKDTETENH-----PVENTILSPKLDIMEKWENYWNEYGGGLLWQSWQEKH 220
Heterocephalus_glaber ENIRTCELQSKKDIKAENL-----LVENTILSPNLEITEIWEKYWNKYGEGLLWQSWQEKH 221
Canis_lupus_familiaris ESTKTCKLKTKEDIETENL-----PVENTILSPKLEITERWEKYWNEYGGGLLWQSWQEKH 217
Equus_caballus    ENTRRCKLQTKKDIETENL-----PVENTILSPKLEITEKWEKYWNEYGGVLLWQSWQEKH 221
Bos_taurus        ENTRKYKLSQKQGEAESF-----PVENTVGPKEITEMWEKYWNEYGGGLLWQSWQEKH 220
Mus_musculus      ENNRTCEIQSKAGSEVENL-----PVENTILAPKLEVPENWEKYWNEYGGGLLWQSWQEKY 216
Rhinatrema_bivittatum DTAGECLPPEREDSHIVCS-----LADPVLPGDPCFGGDWEKYWNQYGEGLLWQSWQDKH 220
Xenopus_tropicalis DIQGGCNVN-HKDVNTTES-----STLNAPSTESHVKDKWEEYWNQYGGGLLWQHWEKH 217
Callorhinchus_milii GIDAECRLVNIEEGKLKNNESCSRSSEGEPILOVQQTADWEKYWNQYGEGLVWQSWLDQY 220
Danio_rerio       ETSSDYTDANENSEDIAEP-----PCEQICPTS---DEAWLRYWQOHGEGLLWQSWLEKH 186
.....190.....200.....210.....220.....230.....240

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                . .:.*. :.: * * :.:*** ***:
Pavo_muticus      KDVSSPEAMTASEPWNSPDTKEEWEQHYSLEYWYYWEQFYWTNQGWTMESSHTDSVQLN 281
Pavo_cristatus    KDVSSPEAMTASEPWNSPDTKEEWEQHYSLEYWYYWEQFYWTNQGWTMESSHTDSVQLN 281
Gallus_gallus     KDVSSPEAMTASEPWNSPDTKEEWEQHYSLEYWYYWEQFYWTNQGWTMESSHTDSVQLN 282
Chelonia_mydas    MEVELSENAPTSEPWNSPDTKEEWEQHYSLEYWYYWEQFYWASQGWTFVDSPHNDGTEIN 283
Homo_sapiens      PGQALS-----SEPWNFPDTKEEWEQHYSLEYWYYLEQFYWEAQGWTFDASQSCDTDTY 273
Pan_troglodytes   PDQALS-----SEPWNFPDTKEEWEQHYSLEYWYYLEQFYWESQGWTFDASQSCDTDTY 275
Macaca_mulatta    PDQALS-----SEPWNFPDTKEEWEQHYSLEYWYYLEQFYWEAQGWTFDALQSCDTDTY 275
Callithrix_jacchus PDQALS-----SEPWNFPDTKEEWEQHYSLEYWYYLEQFYWEAQGWTFDALQSCDTDAY 275
Heterocephalus_glaber PDQALS-----SEPWNFPDTKEEWEQHYSLEYWYYLEQFYWEAQGWTFDASQSCDTDTY 276
Canis_lupus_familiaris SGQTLT-----SEPWNFPDTKEEWEQHYSLEYWYYLEQFYWEAQGWTFDASQSCDTDTY 272
Equus_caballus    SGQTLT-----SEPWNFPDTKEEWEQHYSLEYWYYLEQFYWEAQGWTFDASQSCDTDTY 276
Bos_taurus        ADQTLT-----PEPWNFPDTKEEWEQHYSLEYWYYLEQFYWEAQGWTFDASQSCDTDPG 275
Mus_musculus      PDQALS-----SEPWNFPDTKEEWEQHYSLEYWYYLEQFYWEAQGWTFDASQSCDTDPY 271
Rhinatrema_bivittatum PELPPAGHVPSSEPWSCPDTKEEWEQHYSLEYWYYWERYQYWAAGWTFDSCSS--GTNIS 279
Xenopus_tropicalis PELSLSGELCSLEPWSSADTKDEWDKCYNECYWSYFEQFYWSNQGWTFDAPNVSKISEI 277
Callorhinchus_milii PDGIES----TSVPWDCPNTKDWQOQHYSEQYWIYHEQFYWVSQGSVDCNNATCSDLG 276
Danio_rerio       PENSSS-----TVQDFSHSQTDWDDHFQIYKYWWEQFYWAAQGWTFDSESYSTTAASE 240
.....250.....260.....270.....280.....290.....300

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                                : :
Pavo_muticus      GVMQETDLSQEMDLVSLTEGSKVLILEPS----PSHTRSEETILTSSAEPHDEIISGVCN 337
Pavo_cristatus    GVVQETDLSQEMDLVSPAEAGSKVLILELS----PSHTRSEETILTSSAEPHHEIISGICN 337
Gallus_gallus     GVMQETDLSQEMDLVSPAEAGSKVLILELS----PSHTRSEETILTSSAEPHHEIISGICN 338
Chelonia_mydas    AYKLETGLPGEADCVSTDAVSHQVLDSELSSYP--PSNISCKENPSSCDEHHNEILSGIGN 342
Homo_sapiens      TSKTEADDKNDKCMKVDLVS----FPSSP-----IMVDNDSGTSDDKHSEILDGIGN 323
Pan_troglodytes   TSKTEADDKNNKCMKVDLVS----FPSSP-----ITVDNDSGTSDDKHSEILDGIGN 325
Macaca_mulatta    TSKTEADNKKDEKCLKVDLVS----FPSSP-----ITVDNDSGTSDDKHSEILDGIGN 325
Callithrix_jacchus TSKTEAD-KKDENC TKVDIVVS----FPSTP-----ITVDNDSGTSDDKHSEILNGIGN 325
Heterocephalus_glaber TAKTEVDNKKNESSAKIDLTS----FPSLPD-----ITVDKESGSS--DHNEILDGINN 325
Canis_lupus_familiaris GSKIEVDSEKDENC MKADLLS----FPSPS-----VTIDSESSSSSDKEHNEILGGISH 322
Equus_caballus    GSKTEVDKKGKNCMKAGLLS----LPSS-----SIGSKSSSSGDKHNEILDGIGN 324
Bos_taurus        GSEIEVDNKKDENHMKADLFT----SPSL-----VGSESSSSGDKHNEILNGIGN 323
Mus_musculus      TSHTTEVD-QNAESSLKADVMT----FSSSP-----NIVEDEIPGSNDNDHNEIITAINN 320
Rhinatrema_bivittatum MSSITDTPFGADGVGAEAATSGGVSELSSCP---AASLACKESPCPNDEQCNVLDRIIS 335
Xenopus_tropicalis QSQSADESNLNIS-----PRMS-----AGDSCLQEDHCKTLVKMSMN 315
Callorhinchus_milii MDVSCANAHESFELLGEPENSADGNFTEPTMDLGFPSNAESAVENTEENIGGEIVSLISN 336
Danio_rerio       ENQNCQGETEALES-----ETKDRSKADASSVTHLIS 273
.....310.....320.....330.....340.....350.....360

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: :
Pavo_muticus      LNLNLDALEQSSAPLTVTSEDLOERS SCNSES QSPCVSSQKEPCDGGARKRRASCENRSI 397
Pavo_cristatus    LNLNLDALEQSSAPLTVTSEDLOERS SCNSES QSPCVSSQKEPCDGGARKRRASCENRSI 397
Gallus_gallus     LNLNLDTSEQSSAPLTVTINEELOEHS SCNKS QSPCVSSQKEPCDGGTRKRRASCENRSI 398
Chelonia_mydas    INLDLEEVEESKLTILTVIYDGHQILS STSSTROCPCVSSQKESCNGGTTKS-ASSENKST 401
Homo_sapiens      IKLNSEEVTSQQLDSCSTSHDGHQQLSEVSSKRECPASG-QSEPRNGGTINEESNSSGNTNT 382
Pan_troglodytes   IKLNSEEVKQSQQLDSCSTSHDGHQQLSEVSSKRECAASG-QSEPRNGGTINEESNSSGNTST 384
Macaca_mulatta    IKLNSEEVKQSQQLDSCSTSHDGHQQLSEVSSRRECPASG-QSEPHNGGTINEESSPPGNTST 384
Callithrix_jacchus INLNSEEEVEQSQLESFISQDGHQQLSEVSCRRECPASS-QSEPCNGGTINEESNLSGNRST 384
Heterocephalus_glaber ITLSSEEEVEQSQLDSSVSCNG---QLSEVYS GKVCPASG-QNEPCNGRT-KASNLSGNRST 380
Canis_lupus_familiaris ISLNSEEEVEQSQLDSSVSCDGHQWLSEVSSSRRECPASG-QSEPCNRT-KDSNLSGNRST 380
Equus_caballus    ISLNSEEEVEQSHLDSSVSCDGRQALSEVNSRRECPASG-QSEPCNGGT-KERSSSGNRST 382
Bos_taurus        LSLNSEKVEQRLDPSLSCDGRQALSEVNSRRECPASG-HSEPSHGGN-TESSLSGSRST 381
Mus_musculus      ITVSAEKVEQSQLDSSQHCD--EPLSEITG-KECPASG-GSDSCNGTP-KENDISENRSS 375
Rhinatrema_bivittatum INLNSEEMEQLDELALRVIDDSHQQPSQTPGERQCPCASNRSEPSDGGAGKKECIVWTXAP 395
Xenopus_tropicalis INLDTEESDQGHPSLVSINEGNQLQTPESFGKHCPDPN-QNEPSDGTG-KKYAASGHTDT 373
Callorhinchus_milii IRLNSGNVDNPSMG--TQCSAYQSPADIASGVCVSDQ--TEPCDGGTISKRCASGGGTST 392
Danio_rerio       LSLLTTEEVD-----MDDGRQPLVCSCADEPCDGGN-RKRPPSSRAACTDASDGNMKQT 324
.....370.....380.....390.....400.....410.....420

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: : * * * * * :
Pavo_muticus      NQSGSQESGNSCSSNDKEQLPLCDQNEDEGGEEPPENRSAKVKRSHELDVDENPVDPPEE 457
Pavo_cristatus    NQSGSQESGNSCSSNDKEQLPLCDQNEDEGGEEPPENRSAKVKRSHELDVDENPVDPPEE 457
Gallus_gallus     NQSGSQESGNSCSSNDKEQLLLCDQNEDEGGEEPPENRSAKVKRSHELDVDENPVDPPEE 458
Chelonia_mydas    NQSDSQEPSRPNS-NDKRGSHNNDKKEDEEEEEPEYKHAKVKRSHELDADENPVADPEE 460
Homo_sapiens      DPPAEDSQKSSGANTSKDRPHASGTDGDESEEDPPEHKPSKLKRSHELDIDENPASDFDD 442
Pan_troglodytes   DPPAEDSQKSSGANTSKDRPHASGTDGDESEEDPPEHKPSKLKRSHELDIDENPTSDFDD 444
Macaca_mulatta    DPPAQDSQKSSGTNTSKDRPRASGTDGDESEEDPPEHKPGKLKRSHELDIDENPASDFDD 444
Callithrix_jacchus DPGAQGSQKSSGTNTSQVRLHASGTDGDESEEDPPEHKPGKLKRSHELDIDENPTSDFDD 444
Heterocephalus_glaber DEPAQESQESSGGNTSKGKLNINQTDGDESEEDPPEHKPSKLKRSHELDIDENLDSELDD 440
Canis_lupus_familiaris NOPAPDSQDSSEASTIKERLHPNSIDGDESEEDPPERKPSKLKRSHELDIDENPDSDFDD 440
Equus_caballus    DQPAQDSQRSSEANTVKDRPHPKHIDGDESEEDPPDHKPSKLKRSHELDIDENPDSDFDD 442
Bos_taurus        DQPAQDSQESSEANTVRDGRHRS GTDGEDDPPPEKRSKLKRSHELDLDENPDSDFDN 441
Mus_musculus      DQPAKELQESSGTNGKGRPHNGADGHESDDDPPEHKPSKVKRSHELDIDENPDSDFDD 435
Rhinatrema_bivittatum DQPGSGPESRRVANDQSLPIRGEERGEDEEEPPENYVAKLKRSHELDCEGKTAVLEE 455
Xenopus_tropicalis SPPVSQRSSGSYWRTPSPAILK---DGDEEDDEPPECKQAKIKRSHELDADEDPNDVLV 430
Callorhinchus_milii VQSAF-HQVPSEASRNNGAPRISQSHKDEEGDPPESRAVKFKRSHELDAEENPTVSVD 451
Danio_rerio       SGSAPMNGSGRPPTKRS--NDEDQSDDDDDDEPPGNRAKVKRAHELDAEEIAEVPVEE 382
.....430.....440.....450.....460.....470.....480

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* * : : : : : : : : : : : :
Pavo_muticus      TCS-ILGFKCGAGQKYGGIPDFTHRSVOYLEKKAKLKSFLDMRKPRKSKNTHIFFTEEP 516
Pavo_cristatus    TCS-ILGFKCGAGQKYGGIPDFTHRSVOYLEKKAKLKSFLDMRKPRKSKNTHIFFTEEP 516
Gallus_gallus     TCS-ILGFKCGAGQKYGGIPDFTHRSVOYLEKKAKLKSFLDMRKPRKSKNTHIFFTEEP 517
Chelonia_mydas    TCS-LLGFKHGTGQKYGGISNFS CRKVQYLDKNALKSQFLDMRPVKRKNKHLFFTEES 519
Homo_sapiens      SGS-LLGFKYGSQKYGGIPNFSHRQVRYLEKNVKLKSFLDMRRQIKMKNKHIFFTKES 501
Pan_troglodytes   SGS-LLGFKYGSQKYGGIPNFSHRQVRYLEKNVKHKSFLDMRRQIKMKNKHIFFTKES 503
Macaca_mulatta    SGS-LLGFKYGSQKYGGIPNFSHRQVRYLEKNVKHKSFLDMRRQVRMKNKHIFFTKES 503
Callithrix_jacchus SGS-LLGFKHGSQKYGGIPNFSHRQVRYLEKNMKHKSFLDMRRQIKMKNKHIFFTEES 503
Heterocephalus_glaber NGS-LLGFKHGSQKYGGIQHFSHRQIRCLEKNMKHKSFLDMRRQMKMKNKHIFFTEES 499
Canis_lupus_familiaris NGS-LLGFKHGSQKYGGISNFSHRVRVYLOKNVKYKSFLDMRRQINMKNKHIFFTEES 499
Equus_caballus    NGS-LLGFQHGSGQKYGGISNFSQRVRVYLOKNVKYKSFLDMRRQINMKNKHIFFTEES 501
Bos_taurus        DGS-LLGFKHGSQKYGGISNFSHRVRVYLOKNMKQKSKSLDMRRQINMKNKHIFFTEES 500
Mus_musculus      NGF-LLGFKHGSQKYGGIPNFSHRQVRYLEKNVKYKSFLDLRKQMPVKS KHLFTEDS 494
Rhinatrema_bivittatum TCA-VLGFKHGSQKYGGISNFSRRKVRVYLEKNVKLKSFLDMHRPVGSKNKHIFFPDDP 514
Xenopus_tropicalis AASTILGLKHGTAQKCGGVSSFSRRTLRYLEKGVKYSQFLDMHRPVKAKNKHIFFTTEEG 490
Callorhinchus_milii ACS-LLGFKHHAGERCK--SNFSHGARYYKDKROLKFKQDMHRPANSKNKHIFFTTEEG 509
Danio_rerio       AWD-ALGLRRGSQPKFESVVKLQAGQSYTGRRREDRKPPEQRKAACKINKHIFFTDDG 441
.....490.....500.....510.....520.....530.....540

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      .      : *      * :
Pavo_muticus      ET--SCKKN-TLKKVEA-FLKQVNEPVEEAMYQKASPLGKVEESSTSSDSEDQESVATAQ      572
Pavo_cristatus    ET--SCKKN-TLKKVEA-FLKQVNEPVEEAMYQKASPLGKVEESSTSSDSEDQESVATAQ      572
Gallus_gallus     ET--SCRKNKTLKKVEA-FLKQVNESVEEAMYQKASPLSKVEESSTSSDSEDQESVATAR      574
Chelonia_mydas    EML-SCQSKTILSKVEK-FLRQVSEPVEETMSQESFAQDKVQGSSTSSDSEEQEQE---SSQ      574
Homo_sapiens      EKPF-FKFSKILSKVEK-FLTWNKPMDEEASQESSHDNVHDASTSSDSEEQDMSVKKG      559
Pan_troglodytes   EKPF-FKFSKILSKVEK-FLTWNKPMDEEASQESSHDNVHDASTSSDSEEQDMSVKKG      561
Macaca_mulatta    EKPF-FKFSKILSKVEK-FLTWNKPMDEEASQESSHDNVHDASTSSDSEEQDMSVKKG      561
Callithrix_jacchus EKPF-FKFSKILSKVEK-FLTWNKPMDEEASQESSHDNVHGTSTSSDSEEQDMSVKKG      561
Heterocephalus_glaber EKTV-FKFSKILSKVCMNFVLYYDK-----      523
Canis_lupus_familiaris EKT--FKFSKTLTKVEK-FLKWINEPMDEEASQESISHDNVQDICTSSDSEEPMSVKKG      556
Equus_caballus    EKTG-FKFSKILSKVEK-FLKWINEPMDEEASQESVSHDNVQDICTSSGSEEPMSVKKG      559
Bos_taurus        EKTG-FKFSKILSKVEK-FLKWINEPMDEEASQESVSHDNVQDICTSSGSEEPMSVKKG      558
Mus_musculus      GKPFVVCCKSVRSKVEK-FLKWVNERVDEETSQDLSQNKMODICTSSDSEEQDMSLEKA      553
Rhinatrema_bivittatum EVVP-QQKNKTLSEVQN-FLKRVSEPMEN-STEDCLLPKGAQGSADSDSEPGSSIEAM      571
Xenopus_tropicalis NAVP---KSRTLNNKVT-FLKEVNKDIQDP-LAETVTLQVEYYSFSSIDSEEQNHPEVKE      545
Callorhinchus_milii EVLG-SKKNKTIKQVQN-FLKRVVLPKDSVNAETNPYTHTSQNLHNCDDTNSNAGG      567
Danio_rerio       PQTTKPKISKALQKVQS-FLOQVQTDALSEDVATTSMPALIGPFDKALASLPTRKEDE      500
.....550.....560.....570.....580.....590.....600

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Pavo_muticus      -----SVRFSIETPELLPSSVVGGEPTGSKLEEEAMD-ATANGAGCQGRGPKCGSGRV      625
Pavo_cristatus    -----SVRFSIETPELLPSSVVGGEPTGSKLEEEAMD-AIANGAGCQGRGPKCGSGRV      625
Gallus_gallus     -----SVRVSMEAPELLPSSVVGGEPTGSKLEEEAMS-AAANSAGCQGREKPECGSGRV      627
Chelonia_mydas    -----SNNFSAKKHDPSSSRIVSYELGTNNLEEEKEEDATASGSSISQSSGRQECHSGRQ      628
Homo_sapiens      -----DDLLETNNPEPEKQSVS---SAGELETENYE-----RDSLL      593
Pan_troglodytes   -----DDLLETNNPEPEKQSVS---SAGELETENYE-----RDNL      595
Macaca_mulatta    -----DDLLETNNPEPEKQSVS---SAGELETENYE-----GDSL      595
Callithrix_jacchus -----DDLLETNNPEPEKQSVS---SAGELETENYE-----GDSL      595
Heterocephalus_glaber -----DDLLETNNPEPEKQSVS---SAGELETENYE-----GDSL      523
Canis_lupus_familiaris -----DDPLQTNPEPEKCNATS---SAGELETEKNE-----GDSTI      590
Equus_caballus    -----DDPLETSNPEPEKCNATS---SAGELETEKNE-----GDSTV      593
Bos_taurus        -----DDPVEMSEAEPPGQHPAVC---PAGEVGAETHD-----GTSPE      592
Mus_musculus      -----DNLMETRDPPEPEKQSVS---SAGELETEKNE-----VGLSV      587
Rhinatrema_bivittatum RPTTPQSLHAGQAACEEVLGSGISCTSNNSITGEEQDD-----AETAAGDNSGK      620
Xenopus_tropicalis -----PSAHLESQSPDSMAKSTVLSNSIWCSKDACAEQ-----DAHHD      583
Callorhinchus_milii KCHRDTPQERGTFIGEEILGTPVSVHVPNSNIFTEEEK-EEFPKCEMAPSPAQEHSTDN      626
Danio_rerio       -----EEASNDTDEEDCETTPQPSRICEEQHIIIP-----DLEEIHE      537
.....610.....620.....630.....640.....650.....660

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Pavo_muticus      LVPLDIPDYLQAEMEDASPVVDE-----KNTAKKKERKRRRKHKFALGEIPPEIAADPE      679
Pavo_cristatus    LVPLDIPDYLQAEMEDASPVVDE-----KNTAKKKERKRRRKHKFALGEIPPEIAADPE      679
Gallus_gallus     LVPLDIPDYLQAEMEDVSPVDE-----KNTAKKKERKRRRKHKMALGEIPPEIAADPE      681
Chelonia_mydas    LVALDIPDYLQVETESVSQVVAEP---TERRNPQKKKNKKKKKNRTTPPSLPPEIAADPE      685
Homo_sapiens      ATPVDEQDCVTQEVPSRQAEETE-----AEVKKKKKKKK---NKKVNLPPPEIAAVPE      643
Pan_troglodytes   ATPVDEQDCVTQEVPSRQAEETE-----AEVKKKKKKKK---NKKVNLPPPEIAAVPE      645
Macaca_mulatta    ATPVDEQDCVTQEVPSRQAEETE-----AEVKKKKKKKK---NKKVNLPPPEIAAVPE      645
Callithrix_jacchus ATIPDEQDCVTQEVPSRQAEETE-----AEVKKKKKKKK---VNLPPPEIAAVPE      641
Heterocephalus_glaber RIIFCEHDCLEKLLYSNGK-----LKVPK-----      546
Canis_lupus_familiaris VIITDKEDGITQITPDSLOVETE-----AESKKKKKKKK---NKSKKVIGLPPPEIAAVPE      642
Equus_caballus    AAVTDREDCVTQDAPVSFQVETE-----AEIKKKKKKKKK---NKKVNLPPPEIAAVPE      646
Bos_taurus        AAGTDTGECVPPQAASDPQEEAE-----AESKKKKKKKK---NKKVNLPPPEIAAVPE      643
Mus_musculus      ATPV--ENCSTEEIPNSPHAETE-----VEIKKKKKKK---NKKVNLPPPEIAAVPE      635
Rhinatrema_bivittatum TAVPPPRLVTLTDIPDYLQLENEA---EGSTQKKKSRKKRK---PKRMPSLPPPEIAAVPE      674
Xenopus_tropicalis NDLNSSRQLVPLEIPDYLQHETE---P-KNGDDKVKKKRK---IKRKTCLPPPEIAAVPH      637
Callorhinchus_milii HDQSDGRQLLPIDIPDFLLPDITQTEQVHELERTKRVKKKNWRKKKKVYQIPSDIAAVPE      686
Danio_rerio       DEADPRGELQPLDVPDFLLPDIAHEDTKKESVQAFKKKKKK---RKRKRDVEMPPPEIAAEPE      596
.....670.....680.....690.....700.....710.....720

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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Pavo_muticus	LIKYWAQRYRLFSRFDEGIKLDREGWFSVTPEKIAEHIARVVAQSFNCNTIVDAFCGVGG	739
Pavo_cristatus	LIKYWAQRYRLFSRFDEGIKLDREGWFSVTPEKIAEHIARVVAQSFNCNTIVDAFCGVGG	739
Gallus_gallus	LIKYWAQRYRLFSRFDEGIKLDREGWFSVTPEKIAEHIARVVAQSFNCNTIVDAFCGVGG	741
Chelonia_mydas	LTKYWAQRYRLFSRFDEGIKLDREGWFSVTPEKIAKHASRVRSQSFNCNIDIVDAFCGVGG	745
Homo_sapiens	LAKYWAQRYRLFSRFDDGIKLDREGWFSVTPEKIAEHIAGRVSQSFKCDVVVDAFCGVGG	703
Pan_troglodytes	LAKYWAQRYRLFSRFDDGIKLDREGWFSVTPEKIAEHIAGRVSQSFKCDVVVDAFCGVGG	705
Macaca_mulatta	LAKYWAQRYRLFSRFDDGIKLDREGWFSVTPEKIAEHIAGRVSQSFKCDVVVDAFCGVGG	705
Callithrix_jacchus	LAKYWAQRYRLFSRFDDGIKLDREGWFSVTPEKIAEHIAGRVSQSFKCDVVVDAFCGVGG	701
Heterocephalus_glaber	-----	546
Canis_lupus_familiaris	LAKYWAQRYRLFSRFDDGIKLDREGWFSVTPEKIAEHIAGRVSQSFKCDIVVDAFCGVGG	702
Equus_caballus	LAKYWAQRYRLFSRFDDGIKLDREGWFSVTPEKIAEHIAGRVSQSFKCDIVVDAFCGVGG	706
Bos_taurus	LVKYWAQRYRLFSRFDDGIKLDREGWFSVTPEKIAEHIAGRVSQSFLESGTIVDAFCGVGG	703
Mus_musculus	LAKYWAQRYRLFSRFDDGIKLDKEGWFSVTPEKIAEHIAGRVSQAFRCDDVVVDAFCGVGG	695
Rhinatrema_bivittatum	LAKYWAQRYRLFSRFDEGIKLDAGWFSVTPEKIAQHIAGRVRSQSFNCNIDIVDAFCGVGG	734
Xenopus_tropicalis	LAKYWAQRYRLFSRFDEGIKLDDEGWFSVTPEKIAEHIASRVRSQSCDCGVVVDVDAFCGVGG	697
Callorhinchus_milii	LVKYWAQRYRLFSRFDEGIKLDQEGWFSVTPEKIAEHIAKRVMSQHFHGVIIIVDAFCGVGG	746
Danio_rerio	LAKYWAQRYRLFSRFDEGIKLDHEGWFSVTPEKIAEHIALRVQDCFNTELIIDVDAFCGVGG	656
	.....730.....740.....750.....760.....770.....780	

	* * * * :	
Pavo_muticus	NAIQFALTSKRVIADVDPVKISLARSNAEVYGVANQIEFVCGDFMVLAAADLKADVFLS	799
Pavo_cristatus	NAIQFALTSKRVIADVDPVKISLARSNAEVYGVANQIEFVCGDFMVLAAADLKADVFLS	799
Gallus_gallus	NAIQFALTSKRVIADVDPVKISLARSNAEVYGVANQIEFVCGDFMVLAAADLKADVFLS	801
Chelonia_mydas	NAIQFALASKRVIADIDPVKISLACNNAEVYGVADQIDFICGDFMLLASHIKADVFLS	805
Homo_sapiens	NTIQFALTGMRVIAIDIDPVKIALARNNAEVYGIADKIEFICGDFLLASFLKADVFLS	763
Pan_troglodytes	NTIQFALTGMRVIAIDIDPVKIALARNNAEVYGIADKIEFICGDFLLASCLKADVFLS	765
Macaca_mulatta	NTIQFALTGMRVIAIDIDPVKIALARNNAEVYGIADKIEFICGDFLLAACLKADVFLS	765
Callithrix_jacchus	NTIQFALTGMRVIAIDIDPVKIALARNNAEVYGIADKIEFICGDFLLAPCLKADVFLS	761
Heterocephalus_glaber	--ILFHLLPERVYIV-----	559
Canis_lupus_familiaris	NTIQFALTGKRVIADIDPVKIDLARNNAEVYGIADKIEFICGDFLLASHLADVFLS	762
Equus_caballus	NTIQFALTGKRVIADIDPVKIDLARNNAEVYGIADKIEFICGDFLLASQLKADVFLS	766
Bos_taurus	NTIQFALTGKRVIADIDPVKIDLARNNAEIVGVVDKIEFICGDFLQLASSLKADVFLS	763
Mus_musculus	NTIQFALTGKRVIADIDPVKIDLARNNAEVYGIADKIEFICGDFLLAPCLKADVFLS	755
Rhinatrema_bivittatum	NAIQFALAGKRVIADIDPVKIDLARNNAEVYGVAEQIEFVCGDFLLASGIRADVFLS	794
Xenopus_tropicalis	NAIQFAKAGNRVIAVDIDPVKLDLARNNAEVYGVTDRIEFIRGDFMLLAQDLKADAVFLS	757
Callorhinchus_milii	NSIQFALTGNRVIAIDIDPVKIDLAQNNARVYGVVEQIEFILGDFMLLASDLKADVFLS	806
Danio_rerio	NAIQFALTGKRVIIDIDPVRLALAHNAAVYGVQRIIDFLQGFLLQAPHLRGDMVFLS	716
	.....790.....800.....810.....820.....830.....840	

Pavo_muticus	PPWGGPDYATAEIFDIQTMICPDGFEIFRLSKKITNNIVYFLPRNADINQIASLAGPGGK	859
Pavo_cristatus	PPWGGPDYATAEIFDIQTMICPDGFEIFRLSKKITNNIVYFLPRNADINQIASLAGPGGK	859
Gallus_gallus	PPWGGPDYATAEIFDIQTMICPDGFEIFRLSKKITNNIVYFLPRNTDINQIASLAGPGGK	861
Chelonia_mydas	PPWGGPDYATAEIFDVRTMISPDGFEIFRLSKKITNNIVYFLPRNADIDQVASLAGPGGQ	865
Homo_sapiens	PPWGGPDYATAETFDIRTMMSPDGFEIFRLSKKITNNIVYFLPRNADIDQVASLAGPGGQ	823
Pan_troglodytes	PPWGGPDYATAETFDIRTMMSPDGFEIFRLSKKITNNIVYFLPRNADIDQVASLAGPGGQ	825
Macaca_mulatta	PPWGGPDYATAETFDIRTMMSPDGFEIFRLSKKITNNIVYFLPRNADIDQVASLAGPGGQ	825
Callithrix_jacchus	PPWGGPDYATAETFDIRTMMSPDGFEIFRLSKKITNNIVYFLPRNADIDQVASLAGPGGQ	821
Heterocephalus_glaber	-----	559
Canis_lupus_familiaris	PPWGGPDYATAETFDIRTMMSPDGFEIFRLSKKITNNIVYFLPRNADIDQVASLAGPGGQ	822
Equus_caballus	PPWGGPDYATAETFDIRTMMSPDGFEIFRLSKKITNNIVYFLPRNADIDQVASLAGPGGQ	826
Bos_taurus	PPWGGPDYATAEIFDISTMMSPDGFEIFRLAQKITNNIVYFLPRNADIDQVASLAGPGGQ	823
Mus_musculus	PPWGGPDYATAETFDIRTMMSPDGFEIFRLSKKITNNIVYFLPRNADIDQVASLAGLGGQ	815
Rhinatrema_bivittatum	PPWGGPDYASTETFDIGTMMSPNGFMIFKLAQMITDNIVYFLPRNTDIDQVASLAGPGGQ	854
Xenopus_tropicalis	PPWGGPDYVSAETFDIRTMC-LDGFEVFRSLKQLTKNIIYFLPRNTDVEQVASLAGPGGQ	816
Callorhinchus_milii	PPWGGPDYVNADIFDLKTMMSPDGCEIFRLSKKISPNIVYFLPRNADIEQVASLTGPGGR	866
Danio_rerio	PPWGGPEYLTADVFNIIQTMTPDGFEIFRLSKMISDNIVYFLPRNADMEQIASLAGPGGK	776
	.....850.....860.....870.....880.....890.....900	

# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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Pavo_muticus	VEIEQNFLNNKLKTITAYFGDLIRPDLS-----	887
Pavo_cristatus	VEIEQNFLNNKLKTITAYFGDLIRPDLS-----	887
Gallus_gallus	VEIEQNFLNNKLKTITAYFGDLIRPDLS-----	889
Chelonia_mydas	VEIEQNFLNNKLKTITVYFGDLIRRDVS-----	893
Homo_sapiens	VEIEQNFLNNKLKTITAYFGDLIRRPASET-----	853
Pan_troglodytes	VEIEQNFLNNKLKTITAYFGDLIRRPASET-----	855
Macaca_mulatta	VEIEQNFLNNKLKTITAYFGDLIRRPASET-----	855
Callithrix_jacchus	VEIEQNFLNNKLKTITAYFGDLIRKPASEPNCAAVGQKIVE	863
Heterocephalus_glaber	-----	559
Canis_lupus_familiaris	VEIEQNFLNNKLKTITAYFGDLIRRSAPES-----	852
Equus_caballus	VEIEQNFLNNKLKTITAYFGDLIRRSAPESSL-----	858
Bos_taurus	VEIEQNFLNNRLKTITAYFGDLIRRSSTSES-----	853
Mus_musculus	VEIEQNFLNNKLKTITAYFGDLIRRPALLKTSSTSEAEV----	853
Rhinatrema_bivittatum	VEIEQNFLNNKLKTITVYFGDLIRRD-----	880
Xenopus_tropicalis	VEIEQNFLNNKLKTMTVYFGDLIRKV-----	842
Callorhinchus_milii	VEIEQNFLNNKLKTITAYFGDLIRNE-----	892
Danio_rerio	VEVEQNFLNNKLKTITAYFGNLIK-----	800
	.....910.....920.....930.....940..	