

## CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

**File: /media/morpheus/disk1/fst/pep\_msa/FYB Date: Tue Feb 1 12:10:45 2022**

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Species	Sequence	Position
Pavo_muticus	-----DGKADVKSILMAKFNVGN	17
Pavo_cristatus	-----DGKADVKSILMAKFNVGN	17
Gallus_gallus	-----MDGKADVKSILMAKFNGGN	18
Anas_platyrhynchos	-----MDSKTDVKSILMAKFNAGN	18
Chelonia_mydas	-----MNGKADVKSILMAKFNTGN	18
Mus_musculus	-----MAKFNTGS	8
Rattus_norvegicus	-----MDGKTDVKSILMAKFNTGS	18
Homo_sapiens	-----MAKYNTGG	8
Pan_troglodytes	-----MDGKADVKSILMAKFNTGG	18
Macaca_mulatta	-----MDAKADVKSILMAKFNTGG	18
Callithrix_jacchus	-----MDGKADVKSILMAKFNTGG	18
Canis_lupus_familiaris	MOPIQWENHKRQTYORASFQGAVCSSSEKGGEEQVHRREGFLEEDTKADVKSILMAKFNTAG	60
Equus_caballus	-----MDGKADVKSILMAKFNTGA	18
Bos_taurus	-----MDGKADVKSILMAKFNTGG	18
Rhinatrema_bivittatum	-----MDGKVDVKSILMAKFNSGN	18
Xenopus_tropicalis	-----MDRSTNVRSIAARFSSAP	18

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Pavo_muticus	S P S E D V S G N I R L S K V T G O P T H S G L Q T R K A V F E K F A S	O G N A A P T S G P S V S	Q K P A H P K P P L A	77									
Pavo_cristatus	S P S E D V S G N I R L S K V T G O P T H S G L Q T R K A V F E K F A S	O G N A A P T S G P S V S	Q K P A H P K P P L A	77									
Gallus_gallus	S P S E D V S G N I R L S K V T G O P T H S G L Q T R K A V F E K F A S	O G N A A S P S G P S V S	Q K P A H P K P P L A	78									
Anas_platyrhynchos	N P S E D V S G N S R P P F K I A G O P L H S G L Q T R K A A L E K F A S	O G N A I T P S G P S T F H K P V H P K T A L G	78										
Chelonia_mydas	N P S E D I V S N P P F K I P G O P S S G L Q A R K A A L E K F T S - - - -	- - - - P P S G P N T F H K S A S P K P S F G	73										
Mus_musculus	N P T E E A A T S S R P F K V A G O S S P S G I Q S R K - - - -	- - - - N L F D N O G N A S P P A G P S S M P K F G I T K P P L A	65										
Rattus_norvegicus	N P T E E V S T S S R P F K V A G O N S P S G I Q S K K - - - -	- - - - N L F D N O G N A S P P A G P S N M S K F G I T K P P L A	75										
Homo_sapiens	N P T E D V S V N S R P F R V T G P N S S S G I Q A R K - - - -	- - - - N L F N N O G N A S P P A G P S N V P K F G S P K P P V A	65										
Pan_troglodytes	N P T E D V S V N S R P F R V T G P N S S S G I Q A R K - - - -	- - - - N L F N N O G N A S P P A G P S N V P K F G S P K P P V A	75										
Macaca_mulatta	N P T E D V S V N S R P F R V T G P N S S S G I Q A R K - - - -	- - - - N L F N N O G N A S P P A G P S S V P K F G S P K P P V A	75										
Callithrix_jacchus	N P T E E V S V N S R P F R V T G P N S S S G I Q A R K - - - -	- - - - N L F N N O G N A S P P A G P S N V P K F G S P K P P V A	75										
Canis_lupus_familiaris	N P T E E V S V N S R P F K V S G O N S P S G V Q A K K - - - -	- - - - N L F N N O G S A S P P A G P S N V P K F G S P K P P L A	117										
Equus caballus	N P T E E I S G N S R P F K V T G O N S P S G V Q A K K - - - -	- - - - N L F D N O G N A S P P A G P S N V P R F G I T P K P P L G	75										
Bos_taurus	N P T E E V S V N R P F K V P G O N S P S G V Q A K K - - - -	- - - - N L F N N O G N A S P P A G L S N V P K F G S P K P P L G	75										
Rhinatrema_bivittatum	I P S E V V S P N S R P F K A Q G - - - -	- - - - N S G L Q A R T A A F E K F N Q P V D T N P A P G P N V L R N A L S P K P P F G	75										
Xenopus_tropicalis	S T M E - - - - - S P E N S L G A P A L K G I H A M A G F E K F S N - - - -	- - - - S P A G V T G - P S G I T P K K P P A	66										
	.....70.....80.....90.....100.....110.....120												

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Pavo_muticus	VKP	STED	KTE	KDP	KPP	YLK	--	PVG	QRF	GVQ	LQAT	N-RES	DGKAG	STK	TP-TK	SSDLAKEE	133		
Pavo_cristatus	VKP	STED	KTE	KDP	KPP	YLK	--	PVG	QRF	GVQ	LQAT	N-RES	DGKAG	STK	TP-TK	SSDLAKEE	133		
Gallus_gallus	VKP	STED	KTE	KDP	KPP	YLK	--	PVG	QRF	GVQ	LQAT	N-RES	DGKAG	YTK	TP-TK	SSDLAKEE	134		
Anas_platyrhynchos	VKPS	ADDK	TE	KDP	KPP	YLK	--	PVA	QRF	GVQ	LQAT	N-RD	NDK	IGCT	KPT-TK	TSDDLAKEE	134		
Chelonia_mydas	VKPS	IED	KTE	RDP	KPP	YLK	HN	NP	VAH	KFG	SPV	TAAN-READ	GKAV	PKYL	LGPKATE	LSKEE	132		
Mus_musculus	AKPT	YEEK	PE	KEP	KPP	FLK	PT	GG	SPR	FGT	QPN	SVS-RD	PEV	KVG	FLKPV	SPKPT	SLTKED	124	
Rattus_norvegicus	AKPT	YEEK	SE	KEP	KPP	FLK	PT	GV	SPR	FGT	QPN	SVS-RD	PEV	KVG	FLKPV	SPKPT	SLTKED	134	
Homo_sapiens	VKPS	SEEK	PD	KEP	KPP	FLK	PT	GAG	QRF	GT	PAS	LTT-RD	PEAK	VGF	FLKPV	GPKP	INLPKED	124	
Pan_troglodytes	VKPS	SEEK	PD	KEP	KPP	FLK	PT	GAG	QRF	GT	PAS	LTT-RD	PEAK	VGF	PKPV	GPKP	INFPKED	134	
Macaca_mulatta	VKPS	SEEK	PD	KEP	KPP	FLK	PT	GAG	QRF	GT	PAN	LTT-RD	PEAK	VGF	PKPV	GPKP	INLPKED	134	
Callithrix_jacchus	VKPS	SEEK	PD	KEP	KPP	FLK	PT	GAG	PR	FGT	PAN	LTT-RD	PEV	KVG	FLKPV	GPKP	INLPKED	134	
Canis_lupus_familiaris	VKPS	SED	KPD	KEP	KPP	FLK	PT	GV	QRF	GPP	ANS	SAT	TRD	PEAK	VGF	PKPI	GPKP	VTVPKED	177
Equus_caballus	VKPS	SEEK	PD	KEP	KPP	FLK	PT	GV	QRF	G	SPAN	SAT-RD	PEV	KVG	FPK	PGG	PKP	FNLPKDD	134
Bos_taurus	VKPS	SEEK	PD	KEP	KPP	FLK	PAG	V	SPR	FGP	QANS	SAT-RD	SEV	KAG	FLKPV	GPKP	INLPKED	134	
Rhinatrema_bivittatum	TKPL	SDD	KTD	ND	PKF	PLR	CNS	ALH	KLGS	SV	HS	SAQ-TEAD	GKAV	FPK	PAG	FKPT	ELQKEE	134	
Xenopus_tropicalis	TKP	GFKP	-VA	EAK	PA	FPK	PS	AG	VNR	TVGS	FN	HAG-KEM	GKGA	PHLR	PA	GFR	TFDQ	HKEE	124
	.....	130	.....	140	.....	150	.....	160	.....	170	.....	180							

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Pavo_muticus      PKSLYPKPAGNKL-LNSAPQEEKEKRPLGTPNFNSEAQEESEKTSFSKVVAGVKEKFMASAT 192
Pavo_cristatus    PKSLYPKPAGNKL-LNSAPQEEKEKRPLGTPNFNSEAQEESEKTSFSKVVAGVKEKFMASAT 192
Gallus_gallus     PKSLYPKLAGNKL-HNSAPQEEKEKRPLGTPNFNSEAQEESEKTSFSKVVAGAKEKFMASAT 193
Anas_platyrhynchos PKPLYPKPAGNKP-LSTAPHEKEKRPLGTPKNSNFAPQEESEAKPVFSKVVAGVKEKFMASAS 193
Chelonia_mydas    PKPMFPPKPPVNF--LSSTAQENDIKPPGPKPTFNSAPQEESEPKPAFPKLAGVKEKFIAAS 191
Mus_musculus      SKPVVLRPPGNK--LHNLNQESDLKTPGPKPGPAPPVPENELKPGFSKVVAGAKSKFMPAA 182
Rattus_norvegicus SKPVILRPPGNK--LHNLNQESDLKTLGPKPGSTPPVPENDLKPFGFSKIAGAKSKFMPAP 192
Homo_sapiens      SKPTFFPWPNGKPSLHNSVNDHDLKPLGPKSGPTPTTPTSENEQQAFFPKLTGVKGKFMAS 184
Pan_troglodytes   CKPTFFPWPNGKPSLHNSVNDHDLKPLGPKSGPTPTTPTTENEQQAFFPKLTGVKGKFMAS 194
Macaca_mulatta    SKPAFFPWPNGKPSLHNSVNDHDLKPLGPKSGPTPTTPTLENEQQAFFPKLAGVKGKFMAS 194
Callithrix_jacchus SKPAFSWPPNGKPLLHNSVNDHDLKPPGPKTGPTPTTPTDSEQQAFFPKLAGVKGKFMAS 194
Canis_lupus_familiaris SKPVFPWPNGKPAHPNVNQEHDLKPPGPKPGSHPTTPTSETEQQAFFPKLAGVKGKFMAS 237
Equus_caballus    SKPVFPWPNGKPLLHNSVNDHDLKPPGPKSGSNPPAQENEQQAFFPKVAGVKGKFMASAT 194
Bos_taurus        AKPAFFPWPNGKPSLHNSVNDHDLK--GPKPGSMPPALENEPKQVLSKLAGAKGKFLSAS 193
Rhinatrema_bivittatum SKPPFSKSPVHKTFLSVAQENGNRVTGSKPSLPAVTQENEVKYVFPKPVSEVRATFTTAA 194
Xenopus_tropicalis PKGPTPRPLGNKP---SLGASQETKTEGVRPYQQLQHKENEKPAFFPKPSALKN-FNLAS 180
      .....190.....200.....210.....220.....230.....240

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      .      :      *      .      :      :      :      .      :      *      .
Pavo_muticus      QENDPKPSFSK-PALAQKPSLNHAVSHNEDTSSKNVFPKHGLAG---SRPNMHSFKATKE 248
Pavo_cristatus    QENDPKPSFSK-PALAQKPSLNHAVSHNEDTSSKNVFPKHGLAG---SRPNMHSFKATKE 248
Gallus_gallus     QENDPKPSSSK-PALAQKPSLNHAAPHNEDTSSKNVFPKHGLAG---PRPNMHSFKATKE 249
Anas_platyrhynchos QENEPRPSSSK-PALAQKPSLNHEVSHSEDTSKNALLHKGAVAG---PRPKIHSFKAAKE 249
Chelonia_mydas    QENDPKPPFPK-PPLGQKPSLNDVSHHEDISNRHAFITKGS--SGSPGPRPKIHSFKLPKE 250
Mus_musculus      QDTSKPRFPR-HTFGQKPSLSTEDSQEE-NTSKNVQKGSVPQLGAKSKGAPFKPPKE 240
Rattus_norvegicus QDADSKPRFPR-HTYGQKPSLSTEDAQEEESIPKNTPVQKGSVPQLGAKSRGSPFKPAKE 251
Homo_sapiens      QDLEPKPLFPK-PAFGQKPLSTENSHEDESPMKNVSSSKGSPAPLGVRSGPLKPAKE 243
Pan_troglodytes   QDLEPKPLFPK-PAFGQKPLSTENSHEDESPMKNVSSSKGSPAPLGVRSGPLKPAKE 253
Macaca_mulatta    QDLEPKPLFPK-PAFGQKPLSTENSHEDESPMKNVSSSKGSPAPLGVRSGPLKPAKE 253
Callithrix_jacchus PDLEPKPLFPK-PAFGQKPLSTDDSHEDESPAKNVSPSKGSPAPLGVRSGPLKPTRE 253
Canis_lupus_familiaris QDHDPKPLFPK-PAFAQKPSLGTDDTHEDESPAKTASLQRPGLHPLGAKAKATPFKPAKE 296
Equus_caballus    PDHDPKPLFPK-PLIGQKPSVSTDDSYEDEIPTKNVAPQKGPLAPLGAKSKTGPLKPAKE 253
Bos_taurus        QDLDPKPLFPK-PVFGQKPMNTDQDEDESPTKTAAPQGRPLVPLAAKAKSGPLKPAKE 252
Rhinatrema_bivittatum QDLEPKPPFPKPVLEQKKSIAQAFHNDSSNKTSPMPKGMVSRATKPNVSSLKPTMG 254
Xenopus_tropicalis -ESEPKNPPFPK-KPLGAKPSGNSVPSAYD--NNKSAFGPKPYLAP----QESKPLKQTKD 232
      .....250.....260.....270.....280.....290.....300

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      :      .      *      :      *      :      :      :      :      *
Pavo_muticus      TDENSNCAETAGSHFSNMALKPTGHWSAS-----QGTPKNAEEKTEEKGVNATRNIFL 303
Pavo_cristatus    TDENSNCAETAGSHFSNMALKPTGHWSAS-----QGTPKNAEEKTEEKGVNATRNIFL 303
Gallus_gallus     TDENSNCAETAGSHFSNMALKPTGHWSAS-----QGTPRNAEEKTEEKGVNATRNIFL 304
Anas_platyrhynchos TDENSNCAETAGSHFSNMALKPTGHWSSS-----QGTAKNMDEKTEEKGVNATRNIFL 304
Chelonia_mydas    TAENSSNGTNSPGGHFTVTTLKPIGNRSTPSSLAYAGQVPKNVEEKTEDNRSGVAKNIFL 310
Mus_musculus      DPEDKDHG--APSSPFGVVLKPAASRGSPG-----LSKNFEEKKEDRKIDAKNIFL 291
Rattus_norvegicus DPEDKDHG--TPSSPFGVVLKPAASRGSPG-----LSKNSEEEKKEDRKIDAKNIFL 302
Homo_sapiens      DSENKDHAGEISSLPFGVVLKPAASRGGPG-----LSKNGEKKEDRKIDAKNIFL 296
Pan_troglodytes   DSENKDHAGEISSLPFGVVLKPAASRGGPG-----LSKNGEKKEDRKIDAKNIFL 306
Macaca_mulatta    DPENKDHAGEISSLPFGVVLKPAASRGGPG-----LSKNGEKKEDRKIDAKNIFL 306
Callithrix_jacchus DAENKDHAGEISSLPFGVVLKPAASRGAPG-----LSRNGEKKEDRKIDAKNIFL 306
Canis_lupus_familiaris DQEIKDHHGGEASSPFGVVLKPAANRSGPG-----LAKNTEKKEDRKIDAKNIFL 349
Equus_caballus    DPENKDHGGETSSPFGVVLKPAASRGGPG-----LSKNIEKKEDRKIDAKNIFL 306
Bos_taurus        EPENKEHGGGETSSPFGVVLKPAANRGAAGG-----LPKNTEKKEDRKIDAKNIFL 306
Rhinatrema_bivittatum NPD-SNNGSDSPVQGFPAVTLKPTIRSVQSP-----FLNONTENNDGPKPSITRNIFL 307
Xenopus_tropicalis PPETNEPPSSVPQT-FPGVALKPTVPKPLQSP-----FLKQAQEDSTGGTKPNVSAKEFF 286
      .....310.....320.....330.....340.....350.....360

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Pavo_muticus      NKIIQEE--SGLSHPKIHKTSTAFAAGKSLGGSEKDDLDSSGTPKRKSLPPLFKLGQP 361
Pavo_cristatus    NKIIQEE--SGLSHPKIHKTSTAFAAGKSLGGSEKDDLDSSGTPKRKSLPPLFKLGQP 361
Gallus_gallus     NKIIQEE--SGSSPPKFHKSTSTAFAAGKSLGGSEKDDLDSSGAPKRKSLPPLFKLGQP 362
Anas_platyrhynchos NKVSQEE--SGSSPPKFRKMSTAFAAGKSLGGSEKEDGDKSSGAPKRKALPPLFKLGQP 362
Chelonia_mydas    SKINQED--SGPTPPKFLKPTAKLAAGGPLRSFREREEDGDKNSTTPKRKALPPLFKLGQP 368
Mus_musculus      NKLNQEE-----PARFPKAPSKLTAGTPWQSQEKE-GDKNSATPKOKALPPLSVLGPP 344
Rattus_norvegicus NKLNQEE-----PARFPKAPSKLTAGTPWQSQEKE-GDKNSATPKOKPLPPLSVLGPP 355
Homo_sapiens      SKINQEEELASGTPPARFPKAPSKLTVGGPWGQSQEKEKGDKNSATPKOKPLPPLFTLGPP 356
Pan_troglodytes   SKMNQEEELASGTPPARFPKAPSKLTVGGPWGQSQEKEKGDKNSATPKOKPLPPLFTLGPP 366
Macaca_mulatta    GKTNQEDSASGAPPSPRFKAPSKLRLVEGPWSQSQEKEKGDKNSATPKOKPLPPLFTLGPP 366
Callithrix_jacchus SKINQEEASASGAPPARFPKAPSKLTVGGPWGQSQEKEKGDKNSATPKOKPLPPLFTLGPP 366
Canis_lupus_familiaris SKMNQEEAASGAPPAPFKTPSKLTVAGSWGQSQEKEKGDKNSAPPKOKPLPPLFTLGPP 409
Equus_caballus    SKINQEEESTSGASPAKFPKIPSKLTVGGPWGQSQEKEKGDKNSAAPKOKPLPPLFTLGPP 366
Bos_taurus        NKITQEEASAPGAPPAPFLKTPSKLSTGPWSQSQEKEKGDKNSATPKOKPLPPLFTLGPP 366
Rhinatrema_bivittatum ARDGSAG--ANVSTSKFQKPNLRPTAGG----SQEKGEEQKDSVTPKRKLLPVPFTLGPA 361
Xenopus_tropicalis NKANQNGS--PGPNVTKFPKVQTFQLNQAAANSQDKLKEQKDTSE-PKRRPLPPLFKLGPP 344
      .....370.....380.....390.....400.....410.....420

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      * *. *** *: : *      : .
Pavo_muticus      PQKPSRPPSVDLERFQ--KSIPRDSPKNEGFKQM-----ASSSAAASPPAPPP 407
Pavo_cristatus    PQKPSRPPSVDLERFQ--KSIPRDSPKNEGFKQM-----ASSSAAASPPAPPP 407
Gallus_gallus     PQKPSRPPSVDLERFQ--KSIPRDSPKNEGFKQM-----APSPAAASAPAPPP 408
Anas_platyrhynchos PQKPCRPPSVDLEKFFQ--KSIPKDS----- 385
Chelonia_mydas    PQKPSRPPPTVELERFR--KNSARDSSNKEAVKQISHSVLS--SPLPPPSHSATQIPPPPP 424
Mus_musculus      PPKPNRPPNVDLTRFR--KADSANSATKSTQTPYSTTS-----LPPPPPTHPASQPP 393
Rattus_norvegicus PSKPSRPPNVDLTRFR--KADSANSNKSQTPYSTTS-----LPPPPPTQPASQPP 404
Homo_sapiens      PPKPNRPPNVDLTKFH--KTSSGNSTSKGQTSYSTTS-----LPPPPPSHPASQPP 405
Pan_troglodytes   PPKPNRPPNVDLTKFH--KTSSGNSTSKGQTSYSTTS-----LPPPPPSHPASQPP 415
Macaca_mulatta    PPKPNRPPHVDLTKFL--KTSSGNSTSKGQTSYSTTS-----PPPPPSHPASQPP 415
Callithrix_jacchus PPKPNRPPNVDLTKFH--KTSSGNSTSRNQTPYSTTS-----PPPPPAHPASQPP 415
Canis_lupus_familiaris PPKPSRPPNVDLTKFR--KAASGNSTSKGQTSYSTTS-----LPPPPPSHPASQPP 458
Equus_caballus    PPKPNRPPNVDLTKFR--KAASGNSTSKSQTSYSTTS-----LPPPPPSHPASQPP 415
Bos_taurus        PPKPSRPPHVDLSKFR--KATSGNSTNKGPMTFSTTA-----LPPPPPSHPASQPP 415
Rhinatrema_bivittatum PQKSPRPPNVDLERFI--KPTVGDLSKGLPNKPAPSHVLRSSSTPPPLPPPVSHPSTQAP 419
Xenopus_tropicalis PQKPTRPPNPNVLEQFKGPKWAGGNKGTANEHRTSALS--ALPPPPPSQISPGAP 397
      .....430.....440.....450.....460.....470.....480

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Pavo_muticus      PPASHPSLH--TPSAPS-----LPPRNVKPSSETINPDTEENYDDVEFLAQ--RMGPGNK 459
Pavo_cristatus    PPASHPSLH--TPSAPS-----LPPRNVKPSSETVNPDPTEENYDDVEFLAQ--RMGPGNK 459
Gallus_gallus     PPSSHPSLH--APAAPS-----LPPRNVKPSSETTNPDPTEENYDDVEFLAQ--RMGPGNK 460
Anas_platyrhynchos -----ESSLFFVC----- 393
Chelonia_mydas    PSASHPSTQ--APPVPS-----LPPRNIKPSDPLNPDNEQSYDDVEFGSD----GHGNT 473
Mus_musculus      LPASHPA---HPPVPS-----LPPRNIKPPDLKHPINDENQDGVMHSDG----TGNL 439
Rattus_norvegicus LPASHPA---HLPAPS-----LPPRNIKPPDLKHPINEENQDGVMHSDG----TGNL 450
Homo_sapiens      LPASHPS---QPPVPS-----LPPRNIKPPFDLKSPVNEQDGVTHSDG----AGNL 451
Pan_troglodytes   LPASHPS---QPPVPS-----LPPRNIKPPFDLKSPVNEQDGVTHSDG----AGNL 461
Macaca_mulatta    LPASHPS---QPPVPS-----LPPRNIKPPFDLKSPVNEQDGVMHSDG----AGNL 461
Callithrix_jacchus LPASHPT---QPPAPS-----LPPRNIKPPFDLKSPVNEQDGVMHSDG----AGNL 461
Canis_lupus_familiaris LPASHPP---QPPVPS-----LPPRNIKPPDLKSPINEENQDGVMHSDG----PGNL 504
Equus_caballus    LPASHPS---QPPVPS-----LPPRNIKPPDLKSPINEENQDSVMHSDG----TGNL 461
Bos_taurus        LPASHPT---QLPAPS-----LPPRNIKPPDLKGPVNEENQDSVMHSDG----TGNL 461
Rhinatrema_bivittatum LPPFPVHIPTHPAPS-----LPPRNIKPATESIALDGGNYDDVEFHSSLEGNAHGS 474
Xenopus_tropicalis LPPPPASSLSIKEPAPSPLFPNLPPIRAPINSIHNDENYDDVEGPSIP-----E 449
      .....490.....500.....510.....520.....530.....540

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Pavo_muticus	DGDQGS	DGEM	YEDIND	IRT-S	-REKEK	SEKEE	KRMDQ	EKKEQ	KEKEK	KEQEI	RKKFK	517	
Pavo_cristatus	DGDQGS	DGEM	YEDIND	IRT-S	-REKEK	SEKEE	KRMDQ	EKKEQ	KEKEK	KEQEI	RKKFK	517	
Gallus_gallus	DGDQGS	DGEM	YEDIND	IRT-S	-REKEK	SEKEE	KRMDQ	EKKEQ	KEKEK	KEQEI	RKKFK	518	
Anas_platyrhynchos	-----											393	
Chelonia_mydas	DGGQES	DGET	YEDIND	IRA-	TSKEQ	EKKRE	KEEKK	LEQ	EKKEQ	REKEK	KEQEI	RKRFK	532
Mus_musculus	EEEQES	GEGET	YEDID	----	SSKER	DKKRE	KEEKK	RLEL	ERKEQ	KEREK	KEQEI	LKKFK	494
Rattus_norvegicus	EEEQES	DGEM	YEDIE	----	SSKER	DKKRE	KEEKK	RLEL	ERKEQ	KEREK	KEQEI	LKKFK	505
Homo_sapiens	DEEQDS	GEGET	YEDIE	----	ASKER	EKKRE	KEEKK	RLEL	EKKEQ	KEKEK	KEQEI	LKKFK	506
Pan_troglodytes	DEEQDS	GEGET	YEDIE	----	ASKER	EKKRE	KEEKK	RLEL	EKKEQ	KEKEK	KEQEI	LKKFK	516
Macaca_mulatta	DEEQES	GEGET	YEDIE	----	ASKER	EKKRE	KEEKK	RLEL	EKKEQ	KEKEK	KEQEI	LKKFK	516
Callithrix_jacchus	DEEQDS	GEGET	YEDIE	----	ASKER	EKKRE	KEEKK	RLEL	EKKEQ	KEKEK	KEQEI	LKKFK	516
Canis_lupus_familiaris	DEEQDS	GEGET	YEDIE	----	ASKER	EKKRE	KEEKK	RLEL	EKKEQ	KEKEK	KEQEI	LKKFK	559
Equus_caballus	DEEQDS	GEGET	YEDIE	----	ASKER	EKKRE	KEEKK	RLEL	EKKEQ	KEKEK	KEQEI	LKKFK	516
Bos_taurus	DEEQES	GEGET	YEDID	----	TSKEK	EKKRE	KEEKK	RLEL	EKKEQ	KEREK	KEQEI	LKKFK	516
Rhinatrema_bivittatum	DESEES	DQEM	YEGID	FRSP	SRKEQ	EIRKE	KEEKK	RQEL	EKKEQ	KEKEK	KEQEI	RKRFK	534
Xenopus_tropicalis	EESIES	DGELY	EGIPGE	SEAFAR	QEPNR	EKEE	KKLEQ	QKKEQ	KEKEK	KEQEI	RKKFK	509	
	.....	550	.....	560	.....	570	.....	580	.....	590	.....	600	

Pavo_muticus	TGPIQ	VLHQ	ARAC	VD	SKGG	KNEL	TVKQ	GDQ	IEIIR	LTDN	PEGK	WLGR	I-KG	CYGY	IKTT	576
Pavo_cristatus	TGPIQ	VLHQ	ARAC	VD	SKGG	KNEL	TVKQ	GDQ	IEIIR	LTDN	PEGK	WLGR	I-KG	CYGY	IKTT	576
Gallus_gallus	TGPIQ	VLHQ	ARAC	VD	SKGG	KNEL	TVKQ	GDQ	IEIIR	LTDN	PEGK	WLGR	I-KG	CYGY	IKTT	577
Anas_platyrhynchos	-----											393				
Chelonia_mydas	SGPIQ	VIHQ	ARVC	MDY	KGGK	NELT	TVKQ	GDNI	IEIIR	LTDN	PEGK	WLGR	T-KG	YYGY	IKTIV	592
Mus_musculus	TGPIQ	VIHQ	ARAC	VD	SKGG	KNEL	SFKQ	GEDIE	IEIIR	LTDN	PEGK	WLGR	TAR	SGYGY	IKTTA	554
Rattus_norvegicus	TGPIQ	VIHQ	ARAC	VD	SKGG	KNEL	SFKQ	GEDIE	IEIIR	LTDN	PEGK	WLGR	TAR	SGYGY	IKTTA	565
Homo_sapiens	TGPIQ	VIHQ	ARAC	VD	SKGG	KNEL	SFKQ	GEDIE	IEIIR	LTDN	PEGK	WLGR	TAR	SGYGY	IKTTA	566
Pan_troglodytes	TGPIQ	VIHQ	ARAC	VD	SKGG	KNEL	SFKQ	GEDIE	IEIIR	LTDN	PEGK	WLGR	TAR	SGYGY	IKTTA	576
Macaca_mulatta	TGPIQ	VIHQ	ARAC	VD	SKGG	KNEL	SFKQ	GEDIE	IEIIR	LTDN	PEGK	WLGR	TAR	SGYGY	IKTTA	576
Callithrix_jacchus	TGPIQ	VIHQ	ARAC	VD	SKGG	KNEL	SFKQ	GEDIE	IEIIR	LTDN	PEGK	WLGR	TAR	SGYGY	IKTTA	576
Canis_lupus_familiaris	TGPIE	VIHQ	ARAC	VD	SKGG	KNEL	SFKQ	GEDIE	IEIIR	LTDN	PEGK	WLGR	TAR	SGYGY	IRT	619
Equus_caballus	TGPIQ	VIHQ	ARAC	VD	SKGG	KNEL	SFKQ	GEDIE	IEIIR	LTDN	PEGK	WLGR	TAR	SGYGY	IKTTA	576
Bos_taurus	TGPIQ	VIHQ	ARAC	VD	SKGG	KNEL	SFKQ	GENIE	IEIIR	LTDN	PEGK	WLGR	TAR	SGYGY	IKTTA	576
Rhinatrema_bivittatum	VGSIE	VLHQ	ARAC	VDY	KGGK	NELSV	KQGDQ	IEIIR	LTDN	PEGK	WLGR	-VKD	SYGFI	IKTTL	593	
Xenopus_tropicalis	TGPIE	AIHQ	AKACT	TDY	KGGK	NELS	IKVG	DAIE	VIRL	NNN	PEGK	WLAR	-MNC	CYGY	IKTTM	568
	.....	610	.....	620	.....	630	.....	640	.....	650	.....	660				

Pavo_muticus	VEIDY	DSLK	TKKQ	----	AVVKQ	PE-IDQ	EVYDD	VGEQ	DSISS	QSGGR	NGAG	KMF	PPPP	SD	631
Pavo_cristatus	VEIDY	DSLK	TKKQ	----	AVVKQ	PE-IDQ	EVYDD	VGEQ	DSISS	QSGGR	NGAG	KMF	PPPP	SD	631
Gallus_gallus	VEIDY	DSLK	TKKQ	----	AVVKQ	PE-IDQ	EVYDD	VGEQ	DSISS	QSGGR	NGAG	NMF	PPPP	SD	632
Anas_platyrhynchos	-----											414			
Chelonia_mydas	VEIDY	DSLK	RKQ	RPSMS	ASLRR	AD-NDQ	EVYDD	VGEQ	DSISS	QSG	RGTV	GMF	PPPL	LPD	650
Mus_musculus	VEIDY	DSLK	RKKN	SLNAV	PPRL	VE-DDQ	DVYDD	VAEQ	DAPN	SHSQ	--SG	SGM	FPPPP	TD	611
Rattus_norvegicus	VKIDY	DSLK	RKKN	TINAV	PPRP	VE-EDQ	DVYDD	VAEQ	DAPN	SHSQ	--SG	SGM	FPPPP	AD	622
Homo_sapiens	VEIDY	DSLK	LKKD	SLGAP	S-RPIE	-DDQ	EVYDD	VAEQ	DDISS	SHSQ	--SG	SGI	FPPPP	-D	621
Pan_troglodytes	VEIDY	DSLK	LKKD	SLGAP	S-RPIE	-DDQ	EVYDD	VAEQ	DDISS	SHSQ	--SG	SGI	FPPPP	-D	631
Macaca_mulatta	VEIDY	DSLK	LKKD	SLGAP	S-RPIE	-DDQ	EVYDD	VAEQ	DNISS	SHSQ	--SG	SGI	FPPPP	-D	631
Callithrix_jacchus	VEIDY	DSLK	LKKN	SLGAL	S-RPTE	-DDQ	EVYDD	VAEQ	DDVSSH	SHSQ	--SG	SGI	FPPPP	-D	631
Canis_lupus_familiaris	VEIDY	DSLK	VKKT	SLGAL	SRALE	-DDQ	EVYDD	VAEQ	DDVSSH	SHSQ	--SG	SGM	FPPPP	PD	676
Equus_caballus	VEIDY	DSLK	RKKT	SLGAL	S-RPLE	-EDQ	EVYDD	VAEQ	DDVSSH	SHSQ	--SG	SGM	FPPPP	-D	631
Bos_taurus	VEIDY	DSLK	RKKG	CLSALS	TRLE	-DDQ	EVYDD	VAEQ	ENVSSH	SHSQ	--SG	SGM	FPPPP	-D	632
Rhinatrema_bivittatum	VEINYE	SLKRR	KP----	IPKQ	EE-NDQ	EVYDD	VGEQ	DSIN	SRIT	IGGS	SGSET	FFPP	PPPD	647	
Xenopus_tropicalis	VNIDY	DSLK	RKKS	TMHM	VKPTR	MEGNDQ	EIYDD	VEDS	NSNK	SSG	----	SGSA	HFP	PPPP	623
	.....	670	.....	680	.....	690	.....	700	.....	710	.....	720			



# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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*****::: . * * ::* **:* :. * :** : : :.
Pavo_muticus      QEIYDGVDDTDAVPRSVSODEDKNDIWSWGILKKLVKDDKKKSVREKTKVNGAEDNGD 691
Pavo_cristatus    QEIYDGVDDTDAVPRSVSODEDKNDIWSWGILKKLVKDDKKKSVREKTKVNGAEDNGD 691
Gallus_gallus     QEIYDGVDDTDSVPRSVSODEDKNDIWSWGILKKLVKDDKKKSVREKTKVNGAEDNGD 692
Anas_platyrhynchos QEIYDGVDDTDTVTRSVSODEDKNDIWSWGILKKLVKDNKKKSVREKATKVNGAEDNGD 474
Chelonia_mydas    EEIYDGIIDDEDVNARSISODEDKNDSRWGLLKMLKGKDDKKKSVREKTKVNEAEDNGG 710
Mus_musculus      DEIYDGIIEEDDDDDGSPQVDEKTNASWGILKMLKGKDDRKKSIRES-PKVSESDNNEG 670
Rattus_norvegicus DDIYDGIIEEDADDGSPQVDEKTNASWGILKMLKGKDERKKSIRES-PKVSESDNNEG 681
Homo_sapiens      DDIYDGIIEEDADDGSTLQVQEKSNWWSWGILKMLKGKDDRKKSIRES-PKVSDSDNNEG 680
Pan_troglodytes   DDIYDGIIEEDADDGSTLQVQEKSNWWSWGILKMLKGKDDRKKSIRES-PKVSDSDNNEG 690
Macaca_mulatta    DDIYDGIIEEDADDGSTLQVQEKSNWWSWGILKMLKGKDDKKKSIRES-PKVSESDNNEG 690
Callithrix_jacchus DDIYDGIIEEDADDGSMLOIQEKSNWWSWGILKMLKGKDDKKKSIRES-PKVSESDNNEG 690
Canis_lupus_familiaris DDIYDGIIEEDADDGSTLQVEEKNNSWSWGILKMLKGKDDRKKKSIRES-PKVSESDNNEG 735
Equus_caballus    DDIYDGIIEEDADDGSTLQVEEKNNSWSWGILKMLKGKDDKKKSIRES-PQVSESDNNEG 690
Bos_taurus        DDIYDGIIEEDAANGSTLQVEEKNWWSWGILKMLKGKDDKKKSIRES-PKDSESDNNEG 691
Rhinatrema_bivittatum DEIYDGIIDEDDVS--SVPODEEKPTTAWAGLLKMITGKDDKKKIEEEKRIQETEEEDLTG 705
Xenopus_tropicalis DDIYDGVDD-GPSDGSVPQDEDKTNANWWSWGILKKLKTTFKKKSVYKY-SEKEDSEENDF 681
.....730.....740.....750.....760.....770.....780

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***** :** .. :. : ** :.
Pavo_muticus      VFMSPTKQFGKDCGSDVYDDVDSSDFPPPPPEFNLP----KSVSLGKGKPDDEKYPQKL 747
Pavo_cristatus    VFMSPTKQFGKDCGSDVYDDVDSSDFPPPPPEFNLP----KSVSLGKGKSDDEKYPQKL 747
Gallus_gallus     LFRSPSTKQFGKDCGSDVYDDVDSSDFPPPPPEFNLP----KSVSLGKGKSDDEKYPQKL 748
Anas_platyrhynchos LSL--TKQFGKDCGSDVYDDVDSSDFPPPP-DFSP----KPVNLGKGKSDDEKDPQKL 527
Chelonia_mydas    SFMNPIKTFGKDAGENDVYDDVESSEFPFPPVVEIGSSLM-MKSLSLGRGKADEKDTRKL 769
Mus_musculus      SSLPSQHKQL--DVG-EEVYDDVDASDFPPPPAEMSQGM-----SVGRAKTEEKDPKKL 721
Rattus_norvegicus SSFSPPHKQL--DVG-EEVYDDVDASDFPPPPAEMSQGM-----SVGKTKAEKDPKKL 732
Homo_sapiens      SSFPAPPKQL--DMG-DEVYDDVDTSDFPVSSAEMSQGT-----NVGKAKTEEKDLKKL 731
Pan_troglodytes   SSFPAPPKQL--DMG-DEVYDDVDTSDFPVSSAEMSQGT-----NVGKAKTEEKDLKKL 741
Macaca_mulatta    SSFPAPPKQL--DMG-DEVYDDVDTSDFPVSSAEMSQGA-----NIGKAKTEEKDLKKL 741
Callithrix_jacchus SSFPAPPKQL--DMA-DEVYDDVDTSDFPVPSAEMSQGP-----NIGKAKTEEKDLKKL 741
Canis_lupus_familiaris SSFSPPHKQL--DVG-DEVYDDVDASDFPAPPAELSOG-----AKAKTEEKDLKKL 783
Equus_caballus    SSFSPPHKQL--DMG-DEVYDDVDASDFPAPPAELSOG-----VKAKTEEKDPKKL 738
Bos_taurus        SSFSPPHKQV--DMG-DEVYDDVDASDFPPPPPIESOG-----AKTKAEKDPKKL 739
Rhinatrema_bivittatum SFTHLSQADA-----EEVYDDVE--DFPPPPKNIISLGINMKSLSLGRGKGEEKDIKKF 757
Xenopus_tropicalis VVVPAPQTPTFS--PDGDVYDDVG--DFPPPPSESLKAH---LKVSTLGRNTEKDNKTL 733
.....790.....800.....810.....820.....830.....840

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* * :***: :***: .***: : : :. :* :* :***: :***: :.
Pavo_muticus      KMTREEKEFRKKFKFEGEIKVLYSTATAQDLSQRKWGSKDLQIKPGEPLEVIQSTDDTK 807
Pavo_cristatus    KMTREEKEFRKKFKFEGEIKVLYSTATAQDLSQRKWGSKDLQIKPGEPLEVIQSTDDTK 807
Gallus_gallus     KMMREEKEFRKKFKFEGEIKVLYSTTTVQDLSQRKWGSKDLQIKPGETLEVIQSTDDTK 808
Anas_platyrhynchos KMMREEKEFRKKFKFEGEIKVLYSTTTVQDLPQRKWGSKDLQVKPGESLEIIONTDDTK 587
Chelonia_mydas    KKMEKEEKEFRKKFKFEGEIRVLYSTMIADLPKKWGAKDLVPKPGESVEVIQIIDDAK 829
Mus_musculus      KKQEKEEKDLRKKFKYDGEIRVLYSTKVASSLTSKKWGARDLQIKPGESLEVIQSTDDTK 781
Rattus_norvegicus KKQEKEEKDLRKKFKYDGEIRVLYSTKVASSLTSKKWGTRDLQIKPGESLEVIQSTDDTK 792
Homo_sapiens      KKQEKEEKDFRKKFKYDGEIRVLYSTKVITTSITSKKWGTRDLQVKPGESLEVIQTTDDTK 791
Pan_troglodytes   KKQEKEEKDFRKKFKYDGEIRVLYSTKVITTSITSKKWGTRDLQVKPGESLEVIQTTDDTK 801
Macaca_mulatta    KKQEKEEKDFRKKFKYDGEIRVLYSTNVITTSVTSKKWGTRDLQVKPGESLEVIQNTDDTK 801
Callithrix_jacchus KKLEKEEKDFRKKFKYDGEIRVLYSTKVASSITSKKWGTRDLQVKPGDSLEVIQNTDDTK 801
Canis_lupus_familiaris KKQEKEEKDFRKKFKYDGEIRVLYSTKVAPALTSKRWGTRDLQVKPGESLEVIQSTDDTK 843
Equus_caballus    KKQEKEEKDFRKKFKYDGEIRVLYSTKVAAASLSSKKWGTRDLQVKPGEALEVIQNTDDTK 798
Bos_taurus        KKQEKEEKDFRKKFKYDGEIRVLYSTKVAPSLSSKKWGNRDLQIKPGESLEVIQNTDDTK 799
Rhinatrema_bivittatum KKMEKEEKEFKKKFKYDGEIRILYSAQVSNMLAAKKWGAKDLPLKPGESLEVIQETDDAK 817
Xenopus_tropicalis KKLEKEEKEFRKKFKYTDEIKVLSTTQIAATLTTKKFGSKDLHKPGESLEIIOHTNETQ 793
.....850.....860.....870.....880.....890.....900

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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:****.:***** *      .**.:*****.:*:*:****
Pavo_muticus      VLCRNEEGKYGYVLRSNL--VENDGEIYDDIGEDCIYDND 845
Pavo_cristatus    VLCRNEEGKYGYVLRSNL--VENDGEIYDDIGEDCIYDND 845
Gallus_gallus     VLCRNEEGKYGYVLRSNL--VENDGEIYDDIGEDCIYDND 846
Anas_platyrhynchos VLCRNEEGKYGYVLRSNL--VENDGEIYDDIGDDCIYDND 625
Chelonia_mydas    VLCRNEEGKYGYVLRSSL--MENDGDIYDDIADGCIYDND 867
Mus_musculus      VLCRNEEGKYGYVLRSYL--VDNDGEIYDDIADGCIYDND 819
Rattus_norvegicus VLCRNEEGKYGYVLRSYL--VDNDGEIYDDIADGCIYDND 830
Homo_sapiens      VLCRNEEGKYGYVLRSYL--ADNDGEIYDDIADGCIYDND 829
Pan_troglodytes   VLCRNEEGKYGYVLRSYL--VDNDGEIYDDIADGCIYDND 839
Macaca_mulatta    VLCRNEEGKYGYVLRSYL--ADNDGEIYDDIADGCIYDND 839
Callithrix_jacchus VLCRNEEGKYGYVLRSYL--VDNDGEIYDDIADGCIYDND 839
Canis_lupus_familiaris VLCRNEEGKYGYVLRSYL--VDNDGEIYDDIADGCIYDND 881
Equus_caballus    VLCRNEEGKYGYVLRSHL--IDNDGEIYDDIADGCIYDND 836
Bos_taurus        VLCRNEEGKYGYVLRSYL--VDNDGEIYDDIADGCIYDND 837
Rhinatrema_bivittatum VLCRNDEGKYGYVLRSNL--MGKDGDIYDDIGDGIYDND 855
Xenopus_tropicalis ILCRNKDGKYGYVLRSNLSTVETDGEIYDDIGEDCVYDND 833
.....910.....920.....930.....940

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