

# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/CKAPAL.pep Tue Feb 1 11:42:51 2022

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Pavo_muticus          -----: * .:----- 6
Pavo_cristatus        -----EERRRQ----- 6
Gallus_gallus         -----MAAAQEERRRQ----- 11
Chelonia_mydas        -----MGRTR-----ATAAQEERONK----- 16
Mus_musculus          -----MVGP GP-----TASAAAEERWOK----- 18
Rattus_norvegicus     -----MVGP GP-----AASAAAEERWOK----- 18
Homo_sapiens          -----MVGP GP-----TAAAAVEERORK----- 18
Pan_troglodytes       -----MVGP GR-----TAAAAVEERORK----- 18
Macaca_mulatta        -----MVGP GP-----TAAAAVEERORK----- 18
Callithrix_jacchus    MTRTRERAAHSSWLP AQR LKKNCHRRVMVGPRP-----A AAAAVEERORK----- 44
Heterocephalus_glaber -----MVGS GP SA-----A-TAASAAAAEEROKK----- 23
Canis_lupus_familiaris -----MVPP GP-----SAAAQEERORK----- 16
Equus_caballus        -----MVS V IIPVVC LRG PWH-----CLRHYITTLQEERORK----- 32
Bos_taurus            -----MAPGW LKGRAN RNASISFGPALPYFRIAGFKPTGANESGRKRGAPAFS----- 49
Rhinatrema_bivittatum -----MEGGVVVR-----KISAE EERRKK----- 19
Xenopus_tropicalis    -----MTMRGSENADWLVRKGRLSLRAKQAGGTDMEKQKSLNAVDEERRRQ----- 46
1.....10.....20.....30.....40.....50.....60

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Pavo_muticus          ----: * * : : . : :----LQEYLEAKRKLK---CPSTKTYLKDRTNHLDPLLKPVSKPERIDRNKKSAAQNVAK 59
Pavo_cristatus        ----LQEYLEAKRKLK---CPSTKTYLKDRTNHLDPLLKPVSKPERIDRNKKSAAQNVAK 59
Gallus_gallus         ----LQEYLEAKGKLK---CPSTKAYLKDRTNHLDPLLKPVSKPERLDNRKKGAVQNVAK 64
Chelonia_mydas        ----LQEYLEAAKGKLK---CPNTKPYLKDRTNQPNPQLPPLSKSGPVVQPKKDVFSKVSK 69
Mus_musculus          ----LQEYLEAAKGKLK---DPNAKPYLKAKNICPKPP-----PSKYTPGPCKK 58
Rattus_norvegicus     ----LQEYLEAAKGKLK---DPNTKPYLKAKNICPKPP-----SSKYTPGPCKK 58
Homo_sapiens          ----LQEYLEAAKGKLK---SNTKPYLKSNNCQNP-----PSKSTIRPKN 58
Pan_troglodytes       ----LQEYLEAAKGKLK---SNTKPYLKSNNCQNP-----PSKSAIRPKN 58
Macaca_mulatta        ----LQEYLEAAKGKLK---SNTKPYLKSNNCQNP-----PSKSTIKPKN 58
Callithrix_jacchus    ----LQEYLEAAKGKLK---SNTKPYLKSNNCQNP-----PSKSTIRPKN 84
Heterocephalus_glaber ----LQEYLEAAKGKLK---NNTKPYLKAKNNCPNPP-----PSKSTIKPKN 63
Canis_lupus_familiaris ----LQEYLEAAKGKLK---COTTKPYLKAKSNRLNPP-----PSKSNII PKK 56
Equus_caballus        ----LQEYLEAAKGKLK---CNTKPYLKAKNNCPNPP-----PSKSTIRPKK 72
Bos_taurus            PGAAFEELKSFENHGA---SWTLRRRGRAAEKAAGVPS SQGKT-----EVPKHQITIGPKK 101
Rhinatrema_bivittatum ----LLEYLAAGKLKPQDSSTKY YLRDVTNRQ NARLPVVS-----KLAPIVKQDKVP 70
Xenopus_tropicalis    ----LQEYLEAAKGKLKP---LTNTKPYLKDC TNSQKPS-----CRPKL 82
.....70.....80.....90.....100.....110.....120

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Pavo_muticus          GTWKDGKLAARPAQ PAGHAALQOS-SRA--SORVAVVRPRQLGKGTELPAG----LVLST 112
Pavo_cristatus        GTWKDGKLAARPAQ PAGHAALQOS-SRA--SORVAVVRPRQLGKGTELPAG----LVLST 112
Gallus_gallus         GTWKDGKLAARPAQ PAGCAALQOS-SRA--SORVAVVQPRQLGKDTKLPA G----LVPST 117
Chelonia_mydas        HIPKDHAPAVKNTRSAGHALQHR S-SNAPGSQRPKTVPPNLLGKSTGPPAN----LLPNK 124
Mus_musculus          DVSNH-VLP SKTTRPINIKFOTKP-ASITASQKPESKPPKLP SRGLTSRCFSSNTDCKQS 116
Rattus_norvegicus     DVTNHVVLPVKPKRSISIKLOPRP-PNTAGSQKPKLEPPKLLGKRLTSECVSSNPYSKPS 117
Homo_sapiens          DVTNHVVLPVKPKRSISIKLOPRP-PNTAGSQKPKLEPPKLLGKRLTSECVSSNPYSKPS 117
Pan_troglodytes       DVTNHVVLPVKPKRSISIKLOPRP-PNTAGSQKPKLEPPKLLGKRLTSECVSSNPYSKPS 117
Macaca_mulatta        DVTNHVVLPVKPKRSISIKLOPRP-PNTTGSQKPKLEPPKLMGKRLTSEYASSNPYSKPS 117
Callithrix_jacchus    DVTDHAVLPVKPKRSISIKLOPRP-PNITASQKLEPPKLLGKRLTSECVSSNPYSKPS 143
Heterocephalus_glaber DVFNYDVL SVKATRPISIKLOSRP-ANITGSQKPKLEAPKLVGKSLTSRGFSSNPCKCKPS 122
Canis_lupus_familiaris DVTNHVALPIKATRPISIKLOPRP-GNLMGSQKPKLEPPKLLGRRLTSGCVSSNSNCKPS 115
Equus_caballus        DVTSHVALPVKATRPISIKLOPRP-SNITGSQKSKLEPPKPLDKRLTSGCVSSNPNCQPS 131
Bos_taurus            DVTNHVALPVKTTRSINIKLOSRP-ANITRSQRPKLEPPK-LGKRLTSES VSSNPNGKPP 159
Rhinatrema_bivittatum SKHAPAAVPARKAKPVNPALOSIS-NTTISQRLLGKAVPSVLSRPSSIGKLPSRKYSQQS 129
Xenopus_tropicalis    PVVCKRGKNVTNAKAVSQENKPRAPSHFFVQQRSSSAQPRVHNRAIVSVIAKPRNASGIN 142
.....130.....140.....150.....160.....170.....180

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      *               :.
Pavo_muticus      NSSAQPGRRLPTSASCLLN----PGRPEE-----TESGQ-PVPGAPCSLNEGL 155
Pavo_cristatus    NSSAQPGRRLPTSASCLLN----PGRPEE-----TESGQ-PVPGAPCSLNEGL 155
Gallus_gallus     NPSAQRRLPTSASRLLN----PGGLEE-----TGSQ-PAAGAPCLLNKGL 160
Chelonia_mydas    SHCVOLNRMASSTCHQLNQIQTGKSENPQTVTDORAVMLTQTGKDPQCGEHSVTENL 184
Mus_musculus      SKPQQQPRAVSFTA-GLSRNPRQCPDIQELKTKQQQQAHHGNAKCTHPETNTHAAKQVVD 175
Rattus_norvegicus SKPQQQHKTVPSTA-GLSRKPRQSPDTQELKAKQQQEARG-TAKCTDPVADTHAEKQSLD 175
Homo_sapiens      SKSFQQCEAGSSTTGELSRKPVGSLNIEQLKTTKQQLTDQNGKCIDFMNNIHVENESLD 177
Pan_troglodytes   SKSFQQCEAGSSTTGELSRKPVGSLNIEQLKTTKQQLTDQNAKCIDFMNNIHVENESLD 177
Macaca_mulatta    SKSFQQREAGSSTTGELSRKPVESLSIEQLKTTKQQLTNOGNAKCTDSVNNTHVENESLD 177
Callithrix_jacchus SKSFQQHEAGSSTT-ELSRKLVGSLNIEQLKTTKQQVTDQNAKCTDSMNNTHAENKSLV 202
Heterocephalus_glaber NKSHQQHEAGSSAKRELSRKSMRLPIAKPKTTKQQLTGQANAKCTDSVDNNYVENKSLD 182
Canis_lupus_familiaris SKGQQ-HKAVSSTTEELSRKTMGSLNMQELKTAQOVADQNTKYADSVNSNHIENEPLD 174
Equus_caballus     SKSQQQHDAGSSTAGELSRKTVGSLNTQELKTTKQVTDQSAKCTDSVDNVVVEKESLD 191
Bos_taurus        GNSQQLRGFGSSTDGKQPRKTMGSLNVQKLKTTKQVTDQRTAKGTDVPDNTHVENESLG 219
Rhinatrema_bivittatum GAIEQLKKTILLNEKQVVR-----TKRQQTVGNRSDGMLTGTINHLQNKLSVTVKSL 182
Xenopus_tropicalis NNPLQEREPDTQTNDINVSCFGPNQTTQETGQEKAAASCAQGCVNNGAEPNGRRDLGSEAE 202
      .....190.....200.....210.....220.....230.....240

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      :.
Pavo_muticus      QERRGCGKENLPAQVATNPVPRNTFQ-----SNGNNAGNKRALAHGSSSGTVSRTV 206
Pavo_cristatus    QERRGCGKENLPAQVATNPVPRNTFQ-----SNGNNAGNKRALAHGSSSGTVSRTV 206
Gallus_gallus     QDRLGCGKENLPAARAATNPVPSNTFQ-----SNGNNLGKKRALAHGSSGAVSRTV 211
Chelonia_mydas    QKMVDCDKVNLPSKTTLESSENRTESGLDIKVSRITGLNKPERKIGLVHRHTLGIAPRN 244
Mus_musculus      GFPDETNNKENLPQALPKPE-KPDPEL--HSIRKPNTGSSNQTKGLAP-KQILSKSSVTQ 231
Rattus_norvegicus GFLDETNNKENLPRTLKPK-KPDSDL--HSIRKPKTGSSNQTKRLAP-KQISSKSSVTH 231
Homo_sapiens      NFLKETNNKENLLDILTEPERKPDPKL--YTRSKPKTDSYNQTKNSLVP-KQALGKSSVNS 234
Pan_troglodytes   NFLKETNNKENLLDILTEPERKPDPKL--YTRSKPKTDSYNQTKNSLVP-KQALGKSSVNS 234
Macaca_mulatta    NFLKETNNKENLPHILTEPERKPDPNL--CTTSKPKTNFSNQTKNSLVP-KQALGKSSVNS 234
Callithrix_jacchus YFLKETNNKENLPQTLSEPERKPDPKL--HTTSKPKIDSYNQTKNSLAP-KPALGKSSVNS 259
Heterocephalus_glaber SVFKELSKENLPQTLSEPEKKPDPAL--CTTSKAKTNSYNQTKSNLTP-KQVSGKSLVNG 239
Canis_lupus_familiaris SFLKEMNNKENLPQTLPDSETPKNPEL--WAIGKPKTNSYNQTKSSLAP-KQALGKSGSNGS 231
Equus_caballus     SFLKEVNKENLPQTLPDSETPKNPEL--RTKSKPKTNSYNQTKSSLAP-KRAMGKSSVNS 248
Bos_taurus        GCLKEMNNKENLPQDLPSERKPNPES--WTINKPQTN---QTKSSLASTREVLDKSSVNS 274
Rhinatrema_bivittatum QKKSFCVIETLPPVPTSKNPKLEIS---TTVTKIGSSNPGTKNSVHRKTVGPTAKNP 239
Xenopus_tropicalis GQENGIDCEKIKEDVFHEGEVAGDKQ---IETQQLQGVINNIDVGPTAGNKERWRTQAGT 259
      .....250.....260.....270.....280.....290.....300

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      :.
Pavo_muticus      KGPDKDRVN-GCQTKVLIQDKFRKALPGSKSAS-QKPGGTTR-PLQPPQLPANS SHLLHK 263
Pavo_cristatus    KGPDKDRVN-GCQTKVLIQDKFRKALPGSKSAS-QKPGGTTR-PLQPPQLPANS SHLLHK 263
Gallus_gallus     RDPKDRIN-SCQAKEVLIQEKFRKPLPGSKSAS-QKPSGTTR-PLQSPQLLANSTHLLHK 268
Chelonia_mydas    VGLKDRVT-ACWTSKELIQNKLAQSPGCKIMCPQRPSSKALGSVPPSQIFTVSRTWLSK 303
Mus_musculus      TALKDRAN-KQFIRNTQIRTQAVKSRPRPTVADSTRPREKPPQAPSHSVPAHNKTOTSK 290
Rattus_norvegicus TALKDRAN-TQLIRNTQIRAQPGKSC-RLPTADSSRPRGKPSQTAPSVSVSAHYKTOTLK 289
Homo_sapiens      AVLKDRVN-KQFVGETQSRFTFVKSQQLSRGADLARPVGKPSRTVPSHFIRTLKSVQSSK 293
Pan_troglodytes   AVLKDRVN-KQFVGETQSRFTFVKSQQLSRGADLARPVGKPSRTVPSHFIRTLKSVQSSK 293
Macaca_mulatta    AVLKERNVN-KQFVGETQSRFTFVKSQQLSRGADLARPVGKPSRTVPSHFIRTLKSVQSSK 293
Callithrix_jacchus AVLKDRVN-KQFVRETQSRFTLPVKSQQISRGADLARPVGKPSRTVPSHILQTLNKKVQSSK 318
Heterocephalus_glaber AVLKDRVNNKQFVRKTOIRTPAQQLQSLSGTDLARP-EKPPRTVPSHFIRTLKSVQSSK 298
Canis_lupus_familiaris AVLKDRVN-KQFVGKTOIRTPPVKSQLSRGTNLARPGEKLPKTVPSHNVQTLGRTOASK 290
Equus_caballus     AVLKDRVNNKQFVGETQIRIPPVKSQLSRGAHLARPVGKPKTVSSHVVQTLKSRIOASK 308
Bos_taurus        AALKEGVI-KPFVEETQISVPPGKSQKLSRVADLIRPGGKPPKTLPSHFVQTLNRTQATK 333
Rhinatrema_bivittatum DPKYIHRN---FANKTOVPKAVDKSKNIYQNP SRGKANGPSVSSCQTYTISRSLPSKQI 296
Xenopus_tropicalis CDMSVKLQ---ESTTRIHHPTVIHKTAPCGSVTORPLGKTLCTYCTIRKTHLYSHKAKQPVSH 315
      .....310.....320.....330.....340.....350.....360

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Pavo_muticus	KPVVKQE-----KNNAAEP	MGKLG	SLMGT	-----LKHS	-----	293
Pavo_cristatus	KPVVKQE-----KNNAAEP	MGKLG	SLMGT	-----LKHS	-----	293
Gallus_gallus	KPVVKQE-----KSNAARG	PVGKLG	SLMGT	-----LKHS	-----	298
Chelonia_mydas	KSGAEKQCL	RPSFVRQ	NTVKLQ	AVGRLGLGRQPTQKQYVKHSRTCKTPGALTVGRSKQQA		363
Mus_musculus	KPMTKNTQD	----ITVNRVRYGKPN	ETKIES	CPATEQKVHKTKPSSQLNVLQGGHNSRHP		346
Rattus_norvegicus	KPVIKNTQD	----IMVNRVRSGRPN	ETKVQPCPATEQRVKHTKPSSSHLSVLQGGHNSRHL		345	
Homo_sapiens	KPVVKNIKD	----IKVNRSGYERPN	ETKIRSYPVTEQRVKHTKPRTPYPSLLQGEYNRRHP		349	
Pan_troglodytes	KPVVKDIKD	----IKVNRSGYERPN	ETKIRSYPVTEQRVKHTKPRTPYPSLLQGEYNRRHP		349	
Macaca_mulatta	KLVVKNIKD	----VKVNRGKYERP	NETKLQSYPVIEQRMKHTKPRTPYNLLQGEYNRRHP		349	
Callithrix_jacchus	KPVVKNIKD	----IKVNRGKYEGT	NETKLRSYPVTEQRMKHTKPRTPYNLLQGEYNRRHP		374	
Heterocephalus_glaber	KPVDKSIKD	----VKVDRGKYEQ	PKETKVQLYTVTEEKVKHAKPKTYLSLLQGGPNSKHP		354	
Canis_lupus_familiaris	KTVVKDIKD	----IKVNRDNRSE	RPNESKLQSHTVTEQKVQTKPWTCPSVLRGGFNRRHP		346	
Equus_caballus	KPVVKDIK	----VNRTRYERP	NETKLQSYTVTEQKEKHTKPRTPYPSVLRGGCNRHP		361	
Bos_taurus	KTVVKDIKS	----IKVNRSKYER	PNEAKLQSYTVTEQKVHKSPPSTHPSVLRGGCNRHP		389	
Rhinatrema_bivittatum	YPKSKTSLA	-----KPGVQTOR	PGPFOPGKTINIVKTERPNCSKDL		338	
Xenopus_tropicalis	CRNSAVQHG	-----LRRSLTS	RASVSONSAICLKQKQDVKSQNMPTASVVTKNEKPMHS		369	
	.....370.....380.....390.....400.....410.....420					

Pavo_muticus	-----SRAPAKPPASSWP	-----QGTTNGPMR	TPGLK	LCIAVQ	WQRP	TVRGGVDR	338	
Pavo_cristatus	-----SRAPAKPPASSWP	-----QGTTNGPMR	TPGLK	LCIAVQ	WQRP	TVRGGVDR	338	
Gallus_gallus	-----NRAPAKPPASSRP	-----LGTASGPT	TRTPSLK	LCIAVQ	WQRP	TVREGADR	343	
Chelonia_mydas	RAGQDLKL	TRCPINSHVSKRPSVMELKAKSKPMSERPNSK	TSCTIAN	WQMNATKKGQCI			421	
Mus_musculus	N-----MRQDQKPVP	PHLGPQ	TSVLOK	SRAISQ	RPNLT	ARNFNS	VIPSTPNMRANK	398
Rattus_norvegicus	N-----MQDQKPVQ	PCLGPR	TSCILQ	SRAISQ	RPNLM	TGDFNS	VIPSTPNIRANK	397
Homo_sapiens	N-----IKQDQKSSQ	VCIPQ	TSVLOK	SKAISQ	RPNLT	VGRFNS	AIPSTPSIRPNG	400
Pan_troglodytes	N-----IKQDQKSSQ	VCIPQ	TSVLOK	SKAISQ	RPNLT	VGRFNS	AIPSTPSIRPNG	400
Macaca_mulatta	D-----IKQDRKSTQ	PCIPQ	TSVLOK	PKAISQ	RPNLT	VGRFDS	AIPSTPSIRPNG	401
Callithrix_jacchus	N-----IKQDPKSTQ	PSCIPQ	TSVLOK	SKAISQ	RPKLT	VGRFNS	AIPSTSSIRANG	426
Heterocephalus_glaber	N-----IKQDQKSMQ	PCFRPQ	I-CVLOK	SKSVNQR	PNLI	AGNFNS	VIPSTPSITANR	405
Canis_lupus_familiaris	N-----IKQDQKSTQ	PCSKTQ	TSCAPQ	SKRTSQR	PNLA	VGSFNS	VIPSTPVITANG	398
Equus_caballus	N-----TKQDQKSTQ	PYFRPQ	MSCV	PKSKATSQ	RPNMT	VGSFNS	VIPSTPSIRTNG	413
Bos_taurus	N-----IKQDQKSTQ	ACCRPQ	TSCYALQ	SKAISQ	RPNLT	VGSFNS	VIPSTPSIRANG	441
Rhinatrema_bivittatum	-----LKKQCSN	PCVSKKPTVR	TVSKSKAT	TDGTGSVP	VKSQQSKGITV	TKKNRLQE		390
Xenopus_tropicalis	G-----LKAQATCKY	GASSAMPNGQQQ	PKHVK	DIVSS	TAFSRVQSSGHQ	TAEFSACSTKPP		424
	.....430.....440.....450.....460.....470.....480							

Pavo_muticus	KDVKAAPPRHTATS	WAGAPKKQPLP	STCSSRTQGNRGEFGSRREMRKPELPRTHGVHAGR		398
Pavo_cristatus	KDVKAAPPRHTATS	WAGAPKKQPLP	STCSSRTQGNRGEFGSRREMRKPELPRTHGVHAGR		398
Gallus_gallus	KDVKTAPSRHTATS	SRAAVPKQSLP	STYSSRTQGNRGEFGSRREMRKPELPRTHGVHAGR		403
Chelonia_mydas	KDLKKASQTCNTK	SKSTLPRN	CTASTCMSRDQASVGRLRNMRTPKRELLRGREVPGNQ		480
Mus_musculus	TLNNK-YNNIFQQAQ	TLDKSKFRKFPPQ	SHFLNKTAPRTQASTAAASRKGAPSAQTOTHPH		457
Rattus_norvegicus	TLNSK-YSSFTQQAQ	TVDKSKFRFPQ	SHFLNKTAPRTQASTAAASRKGAPSVTQOTHPH		456
Homo_sapiens	TSGNKHNNNGFQQAQ	TLDKSKLKKAVPQNHFLNKTAPKTQADVTTVNG	-----TOTNPN		454
Pan_troglodytes	TSGNKHNNNGFQQAQ	TLDKSKLKKAVPQNHFLNKTAPKTQADVTTVNG	-----TOTNPN		454
Macaca_mulatta	TSCNKRNNNDFQQAQ	KARTLK---	KAVVPQNHFLNKTAPK-KADVTTVNE	-----TRTNPN	451
Callithrix_jacchus	T--IKRNNNGFQQAQ	TLDKSKLKKAVPQNHFLNKTAPKTQAGVTTNG	-----TOTNPN		478
Heterocephalus_glaber	T-----NSFQQAQ	TLDKPKLKKTVQKHFLSKTAPKTQASVTTRNGRGVFNATQTNPN			458
Canis_lupus_familiaris	TSGNK-CRNSYEQAQ	TLDKSKLKKTLPNHFLNKTAPKTQAGNKTINGGRVPNGTOTNPN			457
Equus_caballus	PSENK-SNNSCHQKT	WTLDKSKLKKALPRNHFLNKTAPKTQASDTTISGRFPNGTOTNPN			472
Bos_taurus	ATGNK-CNNSCQQR	ATLDKSKFKSAPPQKCFNLKTAPRTQAGGPTISGRGVNGAQTNP			499
Rhinatrema_bivittatum	TALTSEARARKTFH	KQHTSIFRAQDCIAKADATRSFVTPKSVTSRMP	IRKATTEIKAGPR		450
Xenopus_tropicalis	QHQRDIATSNPNV	KQQRNADMTSTEYRKPVETKELTAASMNAQLGVNSNGINGQH			484
	.....490.....500.....510.....520.....530.....540				



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Pavo_muticus	VPKSPTPEDRRRQLEQWLASKGKCYKRPPMTLPP-KKPMKQKEKL--PLRSPVQEEQKPE	455	
Pavo_cristatus	VPKSPTPEDRRRQLEQWLASKGKCYKRPPMTLPP-KKPMKQKEKL--PLRSPVQEEQKPE	455	
Gallus_gallus	VPKSPTPEDRRRQLEQWLASKGKCYKRPPMTLPP-KKPMKQKEKP-PLRSVAVQEEEEKPE	460	
Chelonia_mydas	DPKTPAAENRKQLEQWLASKGKSYKRPPMTLPA-KKPTIKTMMNL--SFWDMEEEE-E	536	
Mus_musculus	GKK-PEGEDRRKQLEEWQSKGKTYKRPPMKFKT-KRKVIEEMNT--SFWKSIEREEE-E	512	
Rattus_norvegicus	VKK-PEGEDRRKQLEEWQSKGKTYKRPPMIFKT-RRKVIEEMNT--SFWKSIEREEE-E	511	
Homo_sapiens	IKKKATAEDRRKQLEEWQSKGKTYKRPPMELKT-KRKVIKEMNI--SFWKSIKEEEE-E	510	
Pan_troglodytes	IKKKATAEDRRKQLEEWQSKGKTYKRPPMELKT-KRKVIKEMNI--SFWKSIKEEEE-E	510	
Macaca_mulatta	IKKKATAEDRRKQLEEWQSKGKIYKRPPMEIKT-KRKVIKEMNI--SFWKSIKEEEE-E	507	
Callithrix_jacchus	IKK-ATAEDRRKQLEEWQSKGKIYKRPPMELKT-KRKAIKEMNI--SFWNSIEKEEEE-E	533	
Heterocephalus_glaber	IKM-TTAEDRRKQLEEWKSKGKIYKRPPMELKT-TKKVIEEMNI--SFWKSIEEEE-E	513	
Canis_lupus_familiaris	IKK-ITAEDRRKQLEEWQSKGKIYKRPPMELKT-KRKVIEEMNI--SFWKSMEKEDE-E	512	
Equus_caballus	IKKKTTAEDRRKQLEEWQSKGKIYKRPPMELKT-KRKIIIEEMNV--SFWKSMEKEEEE-E	528	
Bos_taurus	-CKKIAAEDRRKQLEEWKSKGKIYKRPPMELKT-KRKIIIEEMNI--SFWKSMEKEEEE-E	554	
Rhinatrema_bivittatum	TTGKKAEEERRKKLEEWLNSKGKTYKRPPMLLVPPKKPEKEKWVT--PFWDGIEDDEE--	506	
Xenopus_tropicalis	GTPHMAEDRRKKLEEWLNSKGKTYKRPPMLPT-KKPMKRKTATCSQWDGIEBED--	541	
	.....550.....560.....570.....580.....590.....600		

	: : * * ** * : : : : * ** : *** : **** ..	
Pavo_muticus	KPEQLYLA-RINDLLTECLKLIEEGVPAEELSAILCHEPSAEKCAKFWICKAKLLARSSP	514
Pavo_cristatus	KPEQLYLA-RINDLLTECLKLIEEGVPAEELSAILCHEPSAEKCAKFWICKAKLLARSSP	514
Gallus_gallus	KPEQLYQA-RINALLECLKLIEEGVPSEELSAILCHEPSVEKCAKFWICKAKLLARSGP	519
Chelonia_mydas	KRKOLYVSDKINSMLEACLELTEKGFPSEELFTLLSSVPEAEKFAKFWICKAKLLARNGT	596
Mus_musculus	KKAQLELSKKIDSLTLECLRLIEEGVLPNEIFTIVSSIPEAEKFAKFWICKAKLLASKGT	572
Rattus_norvegicus	KTAQLELSRKINSTLTLECLRLIEEGVLPNEIFTTVSSIPEAEKFAKFWICKAKLLASKGP	571
Homo_sapiens	KKAQLELSKSKINNTLTLECLNLTIEGGVPSNEILNILSSIPEAEKFAKFWICKAKLLASKGT	570
Pan_troglodytes	KKAQLELSKSKINNTLTLECLNLTIEGGVPSNEILNILSSIPEAEKFAKFWICKAKLLASKGT	570
Macaca_mulatta	KKAQLELSKSKINNTLTLECLNLTIEGGVPSNEILNILSSIPEAEKFAKFWICKAKLLASKGT	567
Callithrix_jacchus	KKAQFELSSKINNTLTLECLNLTIEGGVPYNEILNLVSSIPEAEKFAKFWICKAKLLASKGT	593
Heterocephalus_glaber	KKAQLELSNKNINSTLTGCLQLIEEGVLSNEIFTILSSNIPEAEKFAKFWICKAKLLARKGT	573
Canis_lupus_familiaris	KKAQLELSNKNINSTLTQCLQLIEEGVPSNAILTILSSIPEIEKFSKFWILKAKLLASKGT	572
Equus_caballus	KKAQLELSNKNINNTLTLECLQLIEGGVLSNEIFTILSSIPEAEKFAKFWICKAKLLASKGT	588
Bos_taurus	KKAQLELSNKNINNTLTLECLQLIERGVLSNEVFALLSSIPEAEKFAKFWICKAKLLASKGT	614
Rhinatrema_bivittatum	---QQCLTDKIHHTLDECLKLIKEGYPSEQLSAILSRIPERGEKFAKFWICKAKLQERGGP	563
Xenopus_tropicalis	---IIFLSKKINGTILNECLLELIDKGAASEAVNAILSMVPKAEKFAKFWICKAKLLIERGT	598
	.....610.....620.....630.....640.....650.....660	

	:*           ***:           *:           **           *:           **:           ::           .           .:.           :           .	
Pavo_muticus	FDVTGLYEAAVCAGAEPLQELREVVLDDILKTAEQPSGG-----KPEQ	557
Pavo_cristatus	FDVTGLYEAAVCAGAEPLQELREVVLDDILKTAEQPSGG-----KPEQ	557
Gallus_gallus	FDATGLYEAAVCAGAEPLQELREVVLDDILKTAEQPAEGE-----KPEQ	562
Chelonia_mydas	IDMTGLYKAAVCAGAAPIQELREVVEFLKNDNASQGVADPSAEVSSL--IVEDTAEQ	654
Mus_musculus	FDAIGLYEEAIQNGATPVQELQEV-LNVLQDPCRSTEAVTSDTSAAGTN----TTSAEEL	627
Rattus_norvegicus	FDALGLYEEAIQNGAAPIQELQEV-LNVLQDTSRSAAEAVTSDSAAAGTN----TTSAEEL	626
Homo_sapiens	FDVIGLYEEAIKNGATPIQELRKVVNLNILQDSNRRTTEGITSDSLVAETS---ITSVEEL	626
Pan_troglodytes	FDVIGLYEEAIKNGATPIQELRKVVNLNILQDSNRRTTEGITSDSLVAETS---ITSVEEL	626
Macaca_mulatta	FDVIGLYEEAIKNGATPIQELREVVLNILQDSNRRTTEGITSDSLVTETN---ITSVEEL	623
Callithrix_jacchus	FDVIGLYEEAIKNGATPIQELREVVLNILQDSNRRTTEGITSDSLVAETN---ITSVEEL	649
Heterocephalus_glaber	FDVIGLYEEAIKNGAKPIQELREVVLNILQDQNRRTTEGTTSDSLVAVTN----ITSMEEEL	629
Canis_lupus_familiaris	FDVIGLYEEAIRNGATPIQELREVVLKILQDPNRRTTEGVTSDSIVTDTN---ITSTEEL	628
Equus_caballus	FDVIGLYEEAIRKGATPIQELREVVLNMLQDPNRRTTEGVTSDTLVAKTN---ITSIDEL	644
Bos_taurus	FDVIGLYEEAIRNGATPIQELREVVLNILQDRNRRTTEGMTSNLSLVAETN---ITSIEEL	670
Rhinatrema_bivittatum	FDVFGLYELAVRAGAGPIQELREVVFGLNTTESKAVTFEPLPGEDIATVPKNAAAASE	623
Xenopus_tropicalis	FDVVGLYEEAVQVSGAKPIAELRELIFELMRNTSKKRKDEP-----LQSQ	642
	.....670.....680.....690.....700.....710.....720	

# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/CKAPAL.pep Tue Feb 1 11:42:51 2022

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Pavo_muticus      RLQWEPTT*PCPGEROHT-AVTPCRIESALSSLPVSSIKLOVTSVP----- 601
Pavo_cristatus    RLQWEPTT*PCPGEROHT-AVTPCRIESALSSLPVSSIKLOVTSVP----- 601
Gallus_gallus     PVLWEPTT*PCPGEROHT-AVTPCRITESALSSLPVSSIKLOVTSVP----- 606
Chelonia_mydas    PGLQGPRT*PCPSLREQA-VATPQSSLRFLTskpVSLVKLOVVPVP----- 698
Mus_musculus      AKEE-SEQPCPSLTEMETIAAAAAPRIPVSEWDNH-GIKLOVAPIP----- 670
Rattus_norvegicus AKEDDSEQPCPLIERE-RAPAAPRIPMVEWDP-GIKLOVAPIP----- 669
Homo_sapiens      AKKMESVKSLSPKERE-QVTATPRIAKAECHNYPGIKLOIGPIP----- 670
Pan_troglodytes   AKKMESVKSLSPKERE-EVMATPRITAKAECHNYPGIKLOIGPIP----- 670
Macaca_mulatta    AKKMESVKSLSPKERE-QVTATPQIAKAECHNYPGIKLOIGPIP----- 667
Callithrix_jacchus AKEMESVKSLSPKEERE-QAIATPQIAKAECHNYSGIKLOIGPIP----- 693
Heterocephalus_glaber AKNMESGEPCLPPEERD-QVPETPQITKAGQDNHPIKLOISSIP----- 673
Canis_lupus_familiaris ANKTESEMSCLSLNERE-QVTATPQITKAEQDNHPSIKLOIAPIPSPREGHRVPSRDNFC 687
Equus_caballus    TEKMESGNSCLSPKERE-KVIATPQITKLEQNHHPGVKLOIASIP----- 688
Bos_taurus        AKKTESGASCLSPKESE-QMSVTPQITKSEQDGHPIKLOIAPIP----- 714
Rhinatrema_bivittatum TTSEEFQPSYLTKKAAQAVRTPGANLAKGWTAEQGSYLRLOVGEIP----- 668
Xenopus_tropicalis NPVSGYLS*SPASPVWNAVKSRLMPCAERCRCQGS*AVKFOVATLS----- 687
.....730.....740.....750.....760.....770.....780

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Pavo_muticus      -----RAKELPEGQELKFLT*PVRRSLRIERAGSRYPEMLRDHDPVVS 643
Pavo_cristatus    -----RAKELPEGQELKFLT*PVRRSLRIERAGSRYPEMLRDHDPVVS 643
Gallus_gallus     -----RTREMPEGQELKFLT*PVRRSLRIERVGSRYPEMLRDHDPVVS 648
Chelonia_mydas    -----RIKGLSDMDWKFLT*PVRRSLRIEHAISRYPEMLKEHDTVVS 740
Mus_musculus      -----RICGMPEVQDMKLIT*PVRRSARIERTVARYPEMLQEHDLVVA 712
Rattus_norvegicus -----RICGMPEVQDMKLIT*PVRRSARIERTLASYPEMLQERDIVVA 711
Homo_sapiens      -----RINGMPEVQDMKFIT*PVRRSSRIERAVSRYPEMLQEHDLVVA 712
Pan_troglodytes   -----RINGMPEVQDMKLIT*PVRRSSRIERAVSRYPEMLQEHDLVVA 712
Macaca_mulatta    -----RINGMPEVQDMKLIT*PVRRSSRIERAVSRYPEMLQEHDLVVA 709
Callithrix_jacchus -----RINGMPEVQDMKLIT*PVRRSSRIERAVSRYPEMLQEHDLVVA 735
Heterocephalus_glaber -----RKNGMPEVQDMKLIT*PVRRSIRINQAMSHYPEMLQEHDLVVA 715
Canis_lupus_familiaris NCGREETANRPIRTGCAVRISGMPDVQDMKLIT*PVRRSARIERAMSRYPEMLQEHDLVVA 747
Equus_caballus    -----RIYGMPEVQDMKLIT*PVRRSARIERAVSHYPEMLQEHDLVVA 730
Bos_taurus        -----RINGMPEVQDMKLIT*PVRRSARIERAVSRYPEMLQEHDLVVA 756
Rhinatrema_bivittatum -----RLKKGKPALQDLKLL*TPVRRSIRIERVSCYPEILQEHDTVVG 710
Xenopus_tropicalis -----SKKEGGPEWKT*LT*TPVRRSLRINQATSRRSFVLQEHNTVVA 727
.....790.....800.....810.....820.....830.....840

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Pavo_muticus      SLSEILDDDEETQFFFRKNKALPEVAEMEVL*SL----- 676
Pavo_cristatus    SLSEILDDDEETQFFFRKNKALPEVAEMEVL*SL----- 676
Gallus_gallus     SLSEILDDDEETQFFFRMNKALPEVAEMEVLRL----- 681
Chelonia_mydas    SLDEIMAMEDVSQFVFRKNEALLEEDLEL----- 770
Mus_musculus      SLNELLEVDKTECFIFRENEALPVTILGF*EVLES----- 745
Rattus_norvegicus SLNELLEVDNTECFVFRENEALPVTILGF*EILES----- 744
Homo_sapiens      SLDELLEVEETKCFIFRRNEALPVTILGF*OT*PES----- 745
Pan_troglodytes   SLDELLEVEETKCFIFRRNEALPVTILGF*OT*PES----- 745
Macaca_mulatta    SLDELLEMEETKCFIFRRNEALPVTILGF*OT*PES----- 742
Callithrix_jacchus SLDELLEVEETTCFIFRRNEALPVTILGF*OI*PES----- 768
Heterocephalus_glaber SLDELLEVEETEYFVFRKNEALPITILGF*ETLEP----- 748
Canis_lupus_familiaris SLNELLEVEETECFIFRKNEALPVTILGF*KVLES----- 780
Equus_caballus    SLNELLEVEETECFIFRKNEALPVTILGF*OMLES----- 763
Bos_taurus        SLNELLEVEETECFIFRKNEALPVTILGF*PVSES----- 789
Rhinatrema_bivittatum SLNELLDLEETSSSFVYRQNEALPKEINTQILGL----- 743
Xenopus_tropicalis SLGELLEMADETCFLYAGNEAFPEKTHMDILD*MIKQSTTNKPEGGPS 774
.....850.....860.....870.....880.....

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