

CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep_msa/CENPSteps Tue Feb 1 11:38:13 2022

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	* : * : * **** : *** **	: * : :	: : :	* : : ****	
Pavo_muticus	MADEGAVITVCVRVRPLIARES	--ALGDKASLYWKSEGNITVLEVN	----	GTKVFNYDRVFH	54
Pavo_cristatus	MADEGAVITVCVRVRPLIARES	--ALGDKASLYWKSEGNITVLEVN	----	GTKVFNYDRVFH	54
Gallus_gallus	MAEEGAVITVCVRVRPLIARES	--ALEDKASLYWKSEGNITVSEVN	----	GTKVFNYDRVFH	54
Mus_musculus	MAEEASVAVCVRVRPLNSREE	--ELGEATHIYWKTDKNAIYQSD	----	GGKSFQFDRVFD	54
Rattus_norvegicus	MAEEAAVAVCVRVRPLNSREE	--ELGEASHIYWKTDKNAIYQSD	----	GGKSFQFDRVFH	54
Homo_sapiens	MAEEGAVAVCVRVRPLNSREE	--SLGETAQVYWKTDNNVIYQVD	----	GSKSFNFDRVFH	54
Pan_troglodytes	MAEEGAVAVCVRVRPLNSREE	--SLGETAQVYWKTDNNVIYQVD	----	GSKSFNFDRVFH	54
Macaca_mulatta	MAEEGAVAVCVRVRPLNSREE	--SLGETAQVYWKTDNNAIYQVD	----	GSKSFNFDRVFH	54
Callithrix_jacchus	MADEGAVAVCVRVRPLNSREE	--SLGETAQVYWKTDNNAIYQVD	----	GSKSFNFDRVFH	54
Bos_taurus	MAEEGAVAVCVRVRPLNHREE	--APEKDTQVYWKTDNNVIYQVD	----	GSKSFNFDRVFH	54
Canis_lupus_familiaris	MAEEGAVAVCVRVRPLNDREE	--ALGDDTQIYWKTDNNAIYQVD	----	GSKSFNFDRVFH	54
Equus_caballus	MAEEAAVAVCVRRLRPLNSREE	--ALGEDTQVYWKTDNNAIYQVD	----	GSKSFNFDRVFD	54
Heterocephalus_glaber	MAEEAAVAVCVRVRPLNSREE	--ELGEATQIYWKTDNNAIYQVD	----	GSKSFNFDRVFH	54
Rhinatrema_bivittatum	MLEEDAVKVCVRLRPLTQREKNRDQ	DCITLFWKADRCVSQTD	----	GAKCFNFDRVFN	56
Xenopus_tropicalis	MSEEDAVKVCVRVRPLIQREQ	--GDQSTLLWKAGSNTIISQVD	----	GTKSFSFDRVFN	52
Danio_rerio	MTEESAVKVCVRVRPLIKREAS	--ESSEPVQLYWRSDKQAIHQLEDGAQ	TKSFSFDRVFS		59
	1.....10.....20.....30.....40.....50.....60				

	. : * :*:~* *:~* :*::*****:*****:****.***	*: ~* :~*
Pavo_muticus	SCDNTQQVYEDVAVP ^{II} QSAVGNGTIFAYGQTASGKTYTMGNK ^{DS} LGIIPKAIQHVF	114
Pavo_cristatus	SCDNTQQVYEDVAVP ^{II} QSAVGNGTIFAYGQTASGKTYTMGNK ^{DS} LGIIPKAIQHVF	114
Gallus_gallus	SCDNTQQVYEDVAVP ^{II} QSAVGNGTIFAYGQTASGKTYTMGNK ^{DS} LGIIPKAIQHVF	114
Mus_musculus	SNETTKNVYEEIAVP ^{II} SSAIQGYNGTIFAYGQTASGKTHTMMGS ^{ED} CLGVIPRAIH ^{DIF}	114
Rattus_norvegicus	SNETTKNVYEEIAVP ^{II} SSAIQGYNGTIFAYGQTASGKTHTMMGS ^{ED} CLGVIPRAIH ^{DIF}	114
Homo_sapiens	GNETTKNVYEEIAAP ^{II} DSAIQGYNGTIFAYGQTASGKTYTMMS ^{ED} HDLGVIPRAIH ^{DIF}	114
Pan_troglodytes	GNETTKNVYEEIAAP ^{II} DSAIQGYNGTIFAYGQTASGKTYTMMS ^{ED} HDLGVIPRAIH ^{DIF}	114
Macaca_mulatta	GNETTKNVYEEIAAP ^{II} DSAIQGYNGTIFAYGQTASGKTYTMMS ^{ED} HDLGVTPRAIH ^{DIF}	114
Callithrix_jacchus	SNETTKNVYEEIAAP ^{II} DSAIQGYNGTIFAYGQTASGKTYTMMS ^{ED} HDLGVIPRAIH ^{DIF}	114
Bos_taurus	SNETTKNVYEEIAVP ^{II} DSAIQGYNGTIFAYGQTASGKTYTMMS ^{QDY} LGVIPRAIH ^{DIF}	114
Canis_lupus_familiaris	SNETTKHVYEEIAVP ^{II} DSAIQGYNGTIFAYGQTASGKTYTMMS ^{QDY} LGVIPRAIH ^{DIF}	114
Equus_caballus	SDESTKNVYEEIAVP ^{II} DSAIQGYNGTVFAYGQTASGKTYTMMS ^{KDY} LGVIPRAIH ^{DIF}	114
Heterocephalus_glaber	SNETTKNVYEEIAVP ^{II} DSAIQGYNGTIFAYGQTASGKTHTMMGL ^{ED} CLGVIPRAIH ^{DIF}	114
Rhinatrema_bivittatum	SGEPTETVYQEIAVP ^{II} IHSVVQGYNGTVFAYGQTASGKTYTMMG ^{TNS} TCGIIPQAIG ^{DIF}	116
Xenopus_tropicalis	SHESTSQVYQEIAVP ^{II} QSALQGYNGTIFAYGQTSSGKTYTMMG ^{TNP} SLGIIPQAIO ^{EVF}	112
Danio_rerio	AAESTIAQLYDIAP ^{KL} VVSVEGYNGTIFAYGQTSSGKTFTMMS ^{EHNP} GVIPLAMAD ^{VF}	119
70.....80.....90.....100.....110.....120	

	: * . .:****:**:*****:.****. * ** ** .:..** ** **:	
Pavo_muticus	KIICEIPDREFLLRVSYMEIYNETITDLLCNIRKKKPLGIREDVNRNTYVEDLIEE VVVS	174
Pavo_cristatus	KIICEIPDREFLLRVSYMEIYNETITDLLCNIRKKKPLGIREDVNRNTYVEDLIEE VVVS	174
Gallus_gallus	KIICEIPDREFLLRVSYMEIYNETITDLLCNIRKKKPLGIREDVNRNTYVEDLIEE VVVS	174
Mus_musculus	QRIKKFPEREFLLRVSYMEIYNETITDLLCNAQMKPLIREDINRNTYVSDLTEE VVYT	174
Rattus_norvegicus	QRIKKFPEREFLLRVSYMEIYNETITDLLCNQKVPLIREDINRNVYVADLTEE VVYT	174
Homo_sapiens	QKIKKFPDREFLLRVSYMEIYNETITDLLCGTQKMKPLIREDVNRNVYVADLTEE VVYT	174
Pan_troglodytes	QKIKKFPDREFLLRVSYMEIYNETITDLLCGTQKMKPLIREDVNRNVYVADLTEE VVYT	174
Macaca_mulatta	QKIKKFPDREFLLRVSYMEIYNETITDLLCGTQKMKPLIREDVNRNVYVADLTEE VVYT	174
Callithrix_jacchus	QKIKKFPDREFLLRVSYMEIYNETITDLLCGTNKMKPLIREDVSRNVYVADLTEE VVYT	174
Bos_taurus	QKIKKFPDREFLLRVSYMEIYNETITDLLCDTQKMKPLIREDFNRNVYVADLTEE VVYT	174
Canis_lupus_familiaris	QKIKKFPDREFLLRVSYMEIYNETITDLLCDTQKMKPLIREDFNRNVYVADLTEE VVYT	174
Equus_caballus	QKIKKFPDREFLLRVSYMEIYNETITDLLCDTQKMKPLIREDFNRNVYVADLTEE VVYT	174
Heterocephalus_glaber	QKIKKFPDREFLLRVSYMEIYNETITDLLCSAQKMKPLIREDINRNVYVADLTEE VVYT	174
Rhinatrema_bivittatum	KIINENMREFLLRISYLEIYNETITVDLLCDDRKKKPLEIREDVNRNVYVADLSEE VVH	176
Xenopus_tropicalis	KIIOEIPNREFLLRVSYMEIYNETIVKDLLCDDRKKKPLEIREDINRNVYVADLTEEL VMV	172
Danio_rerio	KTIKSFPKFEFLLRVSMEIYNETIVDLLCDSWKKRKPLEIREGNYNVYVADLTEEL VTS	179
130.....140.....150.....160.....170.....180	

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Pavo_muticus      PEQVMEWIRKGEKNRHYGETKMNHSSRSHTIFRMIIESRERSDPAN-ANCDGAVMVSHL 233
Pavo_cristatus    PEQVMEWIRKGEKNRHYGETKMNHSSRSHTIFRMIIESRERSDPAN-ANCDGAVMVSHL 233
Gallus_gallus     PEQVMEWIRKGEKNRHYGETKMNHSSRSHTIFRMIIESRERSDPAN-ANCDGAVMVSHL 233
Mus_musculus      AEMALKWLATGEKNRHYGITKMNQRSSRSHTIFRMILESREKAEPS---NCDGSVKVSHL 231
Rattus_norvegicus AEMALKWLATGEKNRHYGITKMNQRSSRSHTIFRMILESREKAESS---NCDGSIKVSHL 231
Homo_sapiens      SEMALKWITKGEKSRHYGETKMNQRSSRSHTIFRMILESREKGEPS---NCEGSVKVSHL 231
Pan_troglodytes   SEMALKWITKGEKSRHYGETKMNQRSSRSHTIFRMILESREKGEPS---NCEGSVKVSHL 231
Macaca_mulatta    SEMALKWITKGEKNRHYGETKMNQRSSRSHTIFRMILESREKGEPS---NCEGSVKVSHL 231
Callithrix_jacchus SEMVLKWITKGEKNRHYGETKMNQRSSRSHTIFRMILESREKGEPS---NCDGSVKVSHL 231
Bos_taurus        SEMALKWITKGEKNRHYGITKMNQRSSRSHTIFRMILESREKGEPS---NCEGSVKVSHL 231
Canis_lupus_familiaris SDMAKWITKGEKNRHYGITKMNQRSSRSHTIFRMILESREKGEPS---NCDGSVKVSHL 231
Equus_caballus    PEMALKWITKGEKNRHYGITKMNQRSSRSHTIFRMILESREKGEPS---NCEGSVKVSHL 231
Heterocephalus_glaber SEMALNWTIKGEKNRHYGVTKMNQRSSRSHTIFRMILESREKGEPS---NCDGSIKVSHL 231
Rhinatrema_bivittatum PEDVLQWIKKGEKNRHYGETKMNERSRSRSHTIFRMIIESRERTDPGNAENFEGSFMVSHL 236
Xenopus_tropicalis PDHVIQWIKKGEKNRHYGETKMNHSSRSHTIFRMIVESRDRNDSANSENCDGAVMVSHL 232
Danio_rerio       PEQALSWITKGEKNRHYGITKMNQRSSRSHTIFRMILESREKERSDPTAGESADGATIVSHL 239
.....190.....200.....210.....220.....230.....240

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*****:***:***: * *:*** **.*: *****:*. * *:***.*****
Pavo_muticus      NLVDLAGSERASQTGSEGVRLKEGCNINRSLFILGOVINKLCDDPSG-FINYRDCKLTRI 292
Pavo_cristatus    NLVDLAGSERASQTGSEGVRLKEGCNINRSLFILGOVINKLCDDPSG-FINYRDCKLTRI 292
Gallus_gallus     NLVDLAGSERASQTGSEGVRLKEGCNINRSLFILGOVIKKLCDDPSS-FINYRDCKLTRI 292
Mus_musculus      NLVDLAGSERAAQTGAEGVRLKEGCFINRNLFILGOVIKKLSDGOVGGFINYRDSKLTRI 291
Rattus_norvegicus NLVDLAGSERAAQTGAEGMRLKEGCYINRNLILGOVIKKLSDGOVGGFINYRDSKLTRI 291
Homo_sapiens      NLVDLAGSERAAQTGAAGVRLKEGCNINRSLFILGOVIKKLSDGOVGGFINYRDSKLTRI 291
Pan_troglodytes   NLVDLAGSERAAQTGAAGVRLKEGCNINRSLFILGOVIKKLSDGOVGGFINYRDSKLTRI 291
Macaca_mulatta    NLVDLAGSERAAQTGAEGVRLKEGCNINRSLFILGOVIKKLSDGOVGGFINYRDSKLTRI 291
Callithrix_jacchus NLVDLAGSERAAQTGAEGVRLKEGCNINRSLFILGOVIKKLSDGOVGGFINYRDSKLTRI 291
Bos_taurus        NLVDLAGSERAAQTGAEGRLKEGCNINRSLFILGOVIKKLSDGOVGGFINYRDSKLTRI 291
Canis_lupus_familiaris NLVDLAGSERAAQTGAEGVRLKEGCNINRSLFILGOVIKKLSDGOVGGFINYRDSKLTRI 291
Equus_caballus    NLVDLAGSERAAQTGAEGVRLKEGCNINRSLFILGOVIKKLSDGOVGGFINYRDSKLTRI 291
Heterocephalus_glaber NLVDLAGSERAAQTGAEGVRLKEGCNINRSLFILGOVIKKLSDGOIGGFINYRDSKLTRI 291
Rhinatrema_bivittatum NLVDLAGSERASQTGAEGVRLKEGCNINRSLFTLGOVIKRLSDGOAGKFINYRDSKLTRI 296
Xenopus_tropicalis NLVDLAGSERASQTGAEGVRLKEGCNINRSLFILGOVIKKLSDGOAGGFINYRDSKLTRI 292
Danio_rerio       NLVDLAGAERASQTGAEGARFKEGCNINRSLFTLGOVIKKLSDESQKGFINYRDSKLTRI 299
.....250.....260.....270.....280.....290.....300

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**.****** *****:.. .:***:*****:*** :.* * *. * . : .*:***.*
Pavo_muticus      LQNSLGGNAKTVIICTITPVSFDETLSTLQFANTAKRMKNTPKVNEVLDDALLKRYRKE 352
Pavo_cristatus    LQNSLGGNAKTVIICTITPVSFDETLSTLQFANTAKRMKNTPKVNEVLDDALLKRYRKE 352
Gallus_gallus     LQNSLGGNAKTVIICTITPVSFDETLSTLQFANTAKRMKNTPKVNEVLDDALLKRYRKE 352
Mus_musculus      LQNSLGGNAKTRIICTITPASLDETLTTLQFASTAKYMKNTPYVNEVSSDEALLKRYRRE 351
Rattus_norvegicus LQNSLGGNAKTRIICTITPASLDETLTTLQFASTAKYMKNTPYVNEVSSDEALLKRYRRE 351
Homo_sapiens      LQNSLGGNAKTRIICTITPVSFDETLTALQFASTAKYMKNTPYVNEVSTDEALLKRYRKE 351
Pan_troglodytes   LQNSLGGNAKTRIICTITPVSFDETLTALQFASTAKYMKNTPYVNEVSTDEALLKRYRKE 351
Macaca_mulatta    LQNSLGGNAKTRIICTITPVSFDETLTTLQFASTAKYMKNTPYVNEVSTDEALLKRYRKE 351
Callithrix_jacchus LQNSLGGNAKTRIICTITPVSFDETLTTLQFASTAKYMKNTPYVNEVSSDEALLKRYRKE 351
Bos_taurus        LQNSLGGNAKTRIICTITPVSFDETLSTLQFASTAKYMKNTPYVNEVSSDEALLKRYRKE 351
Canis_lupus_familiaris LQNSLGGNAKTRIICTVTPVSFDETLTTLQFASTAKYMKNTPYVNEVSSDEALLKRYRKE 351
Equus_caballus    LQNSLGGNAKTRIICTITPVSLDETLTTLQFASTAKYMKNTPYVNEVSSDEALLKRYRKE 351
Heterocephalus_glaber LQNSLGGNAKTRIICTITPVSFDETLTTLQFASTAKYMKNTPYVNEVSSDEALLKRYRKE 351
Rhinatrema_bivittatum LQTSLGGNAKTVIICTITPAFFEETLSTLQFASTAKHVKNTPHVNETSDEEPLLKRYRKE 356
Xenopus_tropicalis LQNSLGGNAKTVIICTITPVSFDETLSTLQFASTAKHMRNTPHVNEVLDDALLKRYRKE 352
Danio_rerio       LQNSLGGNAKTVIICTITPATVDETSTLQFASAAKRMKNDPHVTEVSDGALLRRYRNE 359
.....310.....320.....330.....340.....350.....360

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Pavo_muticus      ILDLKKQLEEVSVKTOIHAME---KDQLAHLLEEKNSLOKMQEDRIRNLTEMLVTSASFS 409
Pavo_cristatus    ILDLKKQLEEVSVKTOIHAME---KDQLAHLLEEKNSLOKMQEDRIRNLTEMLVTSASFS 409
Gallus_gallus     ILDLKKQLEEVSMKTOIHAME---KHQLAHLLEEKNSLOKMQEDRIRNLTEMLVTSASFS 409
Mus_musculus      IADLRKQLEEVNTKTRAQEME---KDQLAQLLDEKDLLQKVQDEKINNLRMLVTSSSIA 408
Rattus_norvegicus IVDLKKQLEEVNTKTRAQEIIE---KDQLAQLLDEKDLLQKVQDEKIQNLKRMLVTSSSIA 408
Homo_sapiens      IMDLKKQLEEVSLLETRAQAME---KDQLAQLLEEKDLLQKVQNEKIQNLTRMLVTSSSIL 408
Pan_troglodytes   IMDLKKQLEEVSLLETRAQAME---KDQLTOLLEEKDLLQKVQNEKIQNLTRMLVTSSSIL 408
Macaca_mulatta    IMDLKKQLEEVSLLETRAQAME---KDQLAQLLDEKDLLQKVQNEKIQNLTRMLVTSSSIL 408
Callithrix_jacchus IMDLKKQLEEVSLLETRAQAVE---KDQLAQLLEEKDLLQKVQNEKIQNLTRMLVTSSSIL 408
Bos_taurus        IMDLKKQLEEVSLLETRAQAME---KDQLAQLLEEKDLLQKVQIEKIQNLTRMLVTSSSIL 408
Canis_lupus_familiaris IMDLKKQLEEVSLLETRAQAME---KDQLAQLLEEKDLLQKVQTEKIQNLTRMLVTSSSIL 408
Equus_caballus     IMDLKKQLEEVSLLETRAQAME---KDQLAQLLEEKDLLQKVQIEKIQNLTRMLVTSSSIL 408
Heterocephalus_glaber IVDLKKQLEEVNIKTRAQEME---KDQLAQLLDEKDLLQKVQDEKIQNLTRMLVTSSSIL 408
Rhinatrema_bivittatum VLDLKKRLEELEASSEARQKEDIAKEEHAQLLSEIKLLKMEKEDRMRNLARLLVIPSSHV 416
Xenopus_tropicalis ILELKKQLEDLETSSSEIKAQA-MAKEEHSOLLAEIKLLQKEREDRIWHLTNIVVASSQE- 410
Danio_rerio       IVDLKRRLQEVSSVTQTATTATE---RESLCQLLQEKDQLQREQEDRIKNTKLLVTSSNIA 416
.....370.....380.....390.....400.....410.....420

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. : : .: .:
Pavo_muticus      SKQNAKAKRRRRVTWAPGKINQEN-MDYFEDFEKATLTITTKK-MKMSLS SLP----- 459
Pavo_cristatus    SKQNAKAKRRRRVTWAPGKINQEN-MDYFEDFEKATLTITTKK-MKMSLS SLP----- 459
Gallus_gallus     SKQNAKARRRRRVTWAPGKINQEN-VDYFEDFEKNVNHKNKN-ENVSVVTRGRGLIFFD 467
Mus_musculus      LQQELEIKRKRRTWCYCG---KMKDSNYEKEFKVPTSIITRK-RKTSVTSILR----- 456
Rattus_norvegicus LQQELEIKKKRRVTWCFG---KMKDSNYVKEFKIPTNITTRT-RKTSVTPLR----- 456
Homo_sapiens      LQQELKAKRKRRTWCLGKINKMKNSNYADQFNIPNTITTKT-HKLSINLLR----- 459
Pan_troglodytes   LQQELKDKRKRRTWCLGKINKMKNSNYADQFNMPNTITTRT-HKLSINLLR----- 459
Macaca_mulatta    SQQELKAKRKRRTWCLGKINKMKNSNYVDQFNMPNTITTKT-HKLSINVLG----- 459
Callithrix_jacchus SQQELKAKRKRRTWCLGKINKMKNSNYEDQFNLPANITTKT-HKPSLSLLG----- 459
Bos_taurus        SQQELKAKKKRRVTWCAGKINKMKDSNYVNEFNMAVNVTTTRT-HKATVSLG----- 458
Canis_lupus_familiaris SHQELKAKRKRRTWCLGKINKMKDSNYINEFNMSINITTRK-AALTV-VG----- 457
Equus_caballus     SQQELKAKKKRRVTWCVGKINKMKDSNYVNEFNVPENVTTTKT-HKSALTLLG----- 459
Heterocephalus_glaber SQQELKAKRKRRTWCFGKINKMKDSNYVNEFSMPANVTTRR-HRSAVTVLG----- 459
Rhinatrema_bivittatum SDQDLRAKRRRTWAPGKLLNSLCSSEVSDFRITSSMTSAFGKKAKIADLPPIEMDDSS 476
Xenopus_tropicalis SQQDQVRVRRRTWAPGKIHSSSLHGSVSDFDMP SRLPGNFSSKAKFSDLPAPFEIDDS 470
Danio_rerio       LIPKVPKRRTWGGKLLRSAHLNLNEDLCSTDMSFAPVYKKRRADCSLADVGEDMDEFDS 476
.....430.....440.....450.....460.....470.....480

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Pavo_muticus      ----- 459
Pavo_cristatus    ----- 459
Gallus_gallus     A----- 468
Mus_musculus      ----- 456
Rattus_norvegicus ----- 456
Homo_sapiens      ----- 459
Pan_troglodytes   ----- 459
Macaca_mulatta    ----- 459
Callithrix_jacchus ----- 459
Bos_taurus        ----- 458
Canis_lupus_familiaris ----- 457
Equus_caballus     ----- 459
Heterocephalus_glaber ----- 459
Rhinatrema_bivittatum VGTEYSDDDTFHSLFDETDPEVEWNPAAKVLRRAKSASLPTRIDF-----TFDGS 526
Xenopus_tropicalis VCTEFSDFDDPISMIDNNGIDAENNFASKVTRREKASLHOSMMDFEGRISDSVQFHDSSK 530
Danio_rerio       RFDFTIAMEEPNMDMEMSSITVR-----SSS 501
.....490.....500.....510.....520.....530.....540

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Pavo_muticus	-----EAEDSMLIESSER	472
Pavo_cristatus	-----EAEDSMLIESSER	472
Gallus_gallus	-----SSLSAMLIIESSER	481
Mus_musculus	-----EN	458
Rattus_norvegicus	-----EN	458
Homo_sapiens	-----EI	461
Pan_troglodytes	-----EI	461
Macaca_mulatta	-----EI	461
Callithrix_jacchus	-----EI	461
Bos_taurus	-----EI	460
Canis_lupus_familiaris	-----EI	459
Equus_caballus	-----EI	461
Heterocephalus_glaber	-----EI	461
Rhinatrema_bivittatum	QVQESVFNQNAAPPQYKELEMKVDDLENQLKILAREKADEMEKGKGLEEKIVDLQLQLQA	586
Xenopus_tropicalis	EMAECRRASFKEITSLOOQLOSKEEEKROLVCSFELKITELEGQLRDRANKLEMVTDLR	590
Danio_rerio	EGSHFLDSPRASLMQKVSSLESQLEAETQSKCIAEEMNAELQMKLSHLQNMLEAQSAPS	561
550.....560.....570.....580.....590.....600	

	: . :	
Pavo_muticus	DSQCFTVPDQIQDTEWIDGPNMNWTQORDFEESVOLCEA-----	510
Pavo_cristatus	DSQCFTVPDQIQDTEWIDGPNMNWTQORDFEESVOLCEA-----	510
Gallus_gallus	DNQYFTVPDQIQDTEWIDGPNMNWTQKDFEESVOLCEA-----	519
Mus_musculus	SLMKFGESAASSEFEMLNNTLESIAEVEWSSATTLSE-----	496
Rattus_norvegicus	SLMKLGESALSWESEVFDNTLEPLAEAEWSSATALLSE-----	496
Homo_sapiens	DES-----VCSESDVFSNTLDTLSEIEWNPATKLLNQ-----	493
Pan_troglodytes	DES-----VCSESDVFSNTLDTLSEIEWNPATKLLNQ-----	493
Macaca_mulatta	DES-----VCSESDVFSNTLDTLSEIEWNPATKLLNQ-----	493
Callithrix_jacchus	DES-----LCSESDVFSNTLDTLSEIEWNPATKLRLDQ-----	493
Bos_taurus	DES-----LCSESDIFSNTLDTLSEIEWNPATKLLSQ-----	492
Canis_lupus_familiaris	DES-----LCSESDVFSNTLDTLNETEWNPATKLLSQ-----	491
Equus_caballus	DES-----LYSESDIFSNTLDTLSEIEWNPATKLLSQ-----	493
Heterocephalus_glaber	DES-----LCLESDFFCNTPTDLTEIEWNSATKLLNE-----	493
Rhinatrema_bivittatum	KDQRNEMKSCSIETKDLNQLHLTLTESKNTEDIKLEKNVETPELLMNAEDAKDKRTI	646
Xenopus_tropicalis	EHSINAEVQVDFEKEVLRKEMSVLGDSGYNASSSGLQDSSIDRKRLSSSHDECIEHKML	650
Danio_rerio	HEEKNITISELEKOMEDLQRRLETEVQERQTAEKSSISLELKVAELEKPSSEELLHSQN--	618
610.....620.....630.....640.....650.....660	

Pavo_muticus	-----	510
Pavo_cristatus	-----	510
Gallus_gallus	-----	519
Mus_musculus	-----	496
Rattus_norvegicus	-----	496
Homo_sapiens	-----	493
Pan_troglodytes	-----	493
Macaca_mulatta	-----	493
Callithrix_jacchus	-----	493
Bos_taurus	-----	492
Canis_lupus_familiaris	-----	491
Equus_caballus	-----	493
Heterocephalus_glaber	-----	493
Rhinatrema_bivittatum	LEGMTEEVQVPQNNLKDDKLENSHILETPMONFSTETILEERIMLEMKIMELEEVINSIT	706
Xenopus_tropicalis	EQKIADLEEFIKN-----LSKKSSEN	670
Danio_rerio	-----TCERVKKDLEEA	631
670.....680.....690.....700.....710.....720	

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Pavo_muticus      -----LAVEKDI AINEINILQANFNKLVLENEQLKSEINEIKEKLLK 551
Pavo_cristatus    -----LAVEKDI AINEINILQANFNKLVLENEQLKSEINEIKEKLLK 551
Gallus_gallus     -----LAVEKDI AVNEINILQDNFNKLVLENEQLKSEINEMKEKLLK 560
Mus_musculus      -----ENVES-----ELNSLNAQYNDLVLDYEQLRRENEDLKLKLLK 532
Rattus_norvegicus -----ENLES-----ELTSLNTQYNNLVLDYEQLRRENEDLKLKLLK 532
Homo_sapiens      -----ENIES-----ELNSLRADYDNLVLDYEQLRTEKEEMELKLLK 529
Pan_troglodytes   -----ENIEG-----ELNSLRADYDNLVLDYEQLRTEKEEMELKLLK 529
Macaca_mulatta    -----ENIES-----ELNSLRADYDNLVLDYEQLRTEKEEMELKLLK 529
Callithrix_jacchus -----ENVES-----ELNSLRANYDNLVLDYEQLQREKEEELKLLK 529
Bos_taurus        -----ENLES-----ELNSLRANYDNLVLDYEHLLRRENEEMELKLLK 528
Canis_lupus_familiaris -----ENLES-----ELNSLRANYDNLVLDYEQLRQEHEEMELKLLK 527
Equus_caballus     -----ENLES-----ELNSLRANYDSLVLVDYEQLRRENEEMESKLLK 529
Heterocephalus_glaber -----ENLES-----EFNSLLAKYDNLVLDYEQLRRENEEMGLKLLK 529
Rhinatrema_bivittatum TEQRKDDDETDFLEIITQLCAAMLEKKNARYELNDLRAEFDKLVLDHGYLQKQECALMEAQIR 766
Xenopus_tropicalis DAQKSHEQDFMESVQLCEALIAEKANALEELALMRDQFDGVILENETLTKREIADLERSLK 730
Danio_rerio       QLCETVSFEKDAVIAERDMIKHSLDMTTEELESLSKAEKDSLQKEKDALQKDKDALQKDM 691
.....730.....740.....750.....760.....770.....780

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Pavo_muticus      EKIEVDEFEALEKQTQRDHEMQLMHEITNLKNIVSNAEAYNEKLEEEIKSKLEQLKDKEN 611
Pavo_cristatus    EKIEVDEFEALEKQTQRDHEMQLMHEITNLKNIVSNAEAYNEKLEEEIKSKLEQLKDKEN 611
Gallus_gallus     EKIEVDEFEALEKQTQRDHEIQLMHEITNLKNIISNAEAYNEELEIEIKSKLEQLKEKED 620
Mus_musculus      EKNELEEFELLEQKEERDQEMQLMHEVSNLKNLIKHAEEYNQDLENDLSSKVLLKEKEE 592
Rattus_norvegicus EKNELEEFEFLEQREEKDQELQLMHEVSNLKNLIKHAEEYNQDLENDLSSKVLLKEKED 592
Homo_sapiens      EKNDLDEFEALERKTKKQDEMQLIHEISNLKNLVKHAEVYNQDLENDLSSKVLLREKED 589
Pan_troglodytes   EKNDLDEFEALERKTKKQDEMQLIHEISNLKNLVKHAEVYNQDLENDLSSKVLLREKED 589
Macaca_mulatta    EKNDLDEFEALERKTKKQDEMQLIHEISNLKNLVKHAEVYNQDLENDLSSKVLLREKED 589
Callithrix_jacchus EKNDLDEFEALERKTKKQDEMQLIHEISNLKNLVKHAEVYNQDLENDLSSKVLLREKED 589
Bos_taurus        EKNDLDEFEALERKAEKQDEMQLIHEISNLKNLVKHAEVYNQDLENDLSSKVLLREKED 588
Canis_lupus_familiaris EKNDLDEFEALERKAEKQDEMQLIHEISNLKNLVKHAEVYNQDLENDLSSKVLLREKED 587
Equus_caballus     EKNDLHFEALERKAEKQDEMQLIHEISNLKNLVKHAEVYNQDLENDLSSKVLLREKED 589
Heterocephalus_glaber EKNDLDEFEALERKTEKDQEVQLIHEISNLKNLVKHAEVYNQDLENDLSSKVLLREKEA 589
Rhinatrema_bivittatum EKTEINEFEMLEKEAQKEHEAQLMHEITASLKKLVQNAEQFNQLETELEAKLKLKEREK 826
Xenopus_tropicalis ENQETNEFEILEKETQKEHEAQLIHEIGNLKKLVENAEMYNQSLIEDLDTKTKLLKEQEM 790
Danio_rerio       ERRDADEFKLEESKRDRYERELEAENSRLKLNKQSEDMIQKLKADIALMSSELQKKT 751
.....790.....800.....810.....820.....830.....840

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Pavo_muticus      KIKTLQNRVEELQKVEVEKKDTSLSVGDSDKLVEEIQQLSKSLLDSETVALDAKKESAFL 671
Pavo_cristatus    KIKTLQNRVEELQKVEVEKKDTSLSVGDSDKLVEEIQQLSKSLLDSETVALDAKKESAFL 671
Gallus_gallus     KIKILQNRVEELQKVDVEKKDMSLSVGDSDKLIIEEIQQLSKSLLDSETVALDAKKESAFL 680
Mus_musculus      QIKNLQEIYIDA-QKSEKMKIDLSYTS DAT----EDLKQAMRTLSDLDTVALDAKKESAFL 647
Rattus_norvegicus QIKELQRYIDA-QKSETTKTDLSSSEAT----EDLKQAMRTLSDLDTVALDAKKESAFL 647
Homo_sapiens      QIKKLQEIYIDS-QKLENIKMDLSYSLESI----EDPKQMKQTLFDAETVALDAKKESAFL 644
Pan_troglodytes   QIKKLQEIYIDS-QKLENIKMDLSYSLESI----EDPKQMKQTLFDAETVALDAKKESAFL 644
Macaca_mulatta    QIKKLQEIYIDS-QKLENIKMDLSYSLESI----EDQKQMKQTLFDAETVALDAKKESAFL 644
Callithrix_jacchus QIKKLQEIYIES-QKLENIKMDLSYSLESI----EDPKQIKQTLFDAETVALDAKKESAFL 644
Bos_taurus        QIKKLQEIYIES-QKSESRKMDSSYSEST----EDLKQMKQTLLDVETVALDAKKESAFL 643
Canis_lupus_familiaris QIKKLQKYIDS-QKSEDIKTDLSSSEST----EDLKQMKQTLLDVETVALDAKKESAFL 642
Equus_caballus     QIKKLQKYIDT-QKSENVNMDLSYSLENI----QDLKQMKQTLFDAAEVALDAKREAACL 644
Heterocephalus_glaber QIKNLQKYIDS-QKA EKAPSALPFSSENS----EDPKQMRQSFDAETVALDAKKESAFL 644
Rhinatrema_bivittatum ELAGSAKQIEQLQKKIR-NMDITVSMGNTENLCEELCQMKQSFYDAEAVTRDAQKDIAFL 885
Xenopus_tropicalis QLAELRKHTDN-LQKKVRNFDLSVSMGDSERLCEEVQLKQSLCDAAEAVTRDAQKECAFL 849
Danio_rerio       LITTELQGFSGK-----DIVQEVTRLRRSLDDAETLSLETKKWEAFL 792
.....850.....860.....870.....880.....890.....900

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::**  ***.      : :      : :      : :      : :      : :      : :      : :
Pavo_muticus      RTENLELKERMNELLNNHKOMQKDVQ-LYQSQIEAGKANYKKMQADLQKELQSVFQENAR 730
Pavo_cristatus    RTENLELKERMNELLNNHKOMQKDVQ-LYQSQIEAGKANYKKMQADLQKELQSVFQENAR 730
Gallus_gallus     RTENLELKEQMNNELLNNHKOMQKDVQ-LYQSQIEAGKANYKKMQADLQKELQSVFQENR 739
Mus_musculus      RSENLELKEKINELSDSRKOMESDIO-MYQROLEA----KKKMOTDLQKELQAFQEISK 702
Rattus_norvegicus RSENLELKERINELSDSCKQOMENGIO-MYQROLEA----KKQVQADLEKELQAFQEISK 702
Homo_sapiens      RSENLELKEKMKELATTYKOMENDIO-LYQSQLEA----KKKMQVDLEKELQSAFNEITK 699
Pan_troglodytes   RSENLELKEKMKELATTYKOMENDIO-LYQSQLEA----KKKMQVDLEKELQSAFNEITK 699
Macaca_mulatta    RSENLELKEKMQELASTYKOMENDIO-LYQSQLEA----KKKMQVDLEKELQSAFNEITK 699
Callithrix_jacchus RSENLELKEKMKFASTYKOMENDIO-LYQSQLEA----KKKMQVDLEKELQSAFNEITK 699
Bos_taurus        RSENLELKEKMKELASTCKOMENDIO-LYQSQLEA----KKKMQVDLEKELQSSFNEITK 698
Canis_lupus_familiaris RSENLELKEKMKELRSRYKOMENDIO-LYQROLEA----KKKMQVDLEKELQSSFNEITK 697
Equus_caballus    RSENLELKEKMKELASACKOMENDIO-LYQROLEA----KKKMQVDLEKELQSSFNEIAK 699
Heterocephalus_glaber RSENLELKEKMKELANSCKQMEIDIO-LYQSQLEA----KKKIQVDLEKELQSAFNEITK 699
Rhinatrema_bivittatum KSENRALKEEMDQLSNRYKQMEKDVQKISISQLEAGKAHYKOMQSDQLNSLQYALNENTK 945
Xenopus_tropicalis RSENLELKEKMEDTSAWYNQKEKEAS-LFEKQLETEKANYKKMQTDLQKELQSAFNEINY 908
Danio_rerio       RSENISLKERDVTLTTDYGKMEAEVK-MLQDRLEQEKSRFKMQTDLQKELMGAFDENTK 851
.....910.....920.....930.....940.....950.....960

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* . * : *      . :      :      . :      : :      : :
Pavo_muticus      -LNSLMGKVP-----KDLVSLLDLEKKASDLKAELEKALEEN----- 767
Pavo_cristatus    -LNSLMGKVP-----KDLVSLLDLEKKASDLKAELEKALEEN----- 767
Gallus_gallus     -LNLGKVP-----KDLVSLLDLEKKASDLKAELEKALEEN----- 776
Mus_musculus      -LSALVDG-----KGLLSNLELEKRITDLQKELNKEAEEK----- 736
Rattus_norvegicus -LSALVDG-----KGLLSNLELEKRITDLQKELNKEVEEK----- 736
Homo_sapiens      -LTSIDGKVP-----KDLLCNLELEGGKITDLQKELNKEVEEN----- 736
Pan_troglodytes   -LTSIDGKVP-----KDLLCNLELEGGKITDLQKELNKEVEEN----- 736
Macaca_mulatta    -LTSIDGKVP-----KDLLYNLELEGGKITDLQKELNKEVEEN----- 736
Callithrix_jacchus -LTSIDGKVP-----KDLLYNLELEGGKITDLQKELNKEVEKN----- 736
Bos_taurus        -LTSIDGKVP-----KDFLSNMELEKRITDLQKELNKAEEEN----- 735
Canis_lupus_familiaris -LTSIDGKVP-----KGLLCNLELEKRITDFORELNKEVEEN----- 734
Equus_caballus    -LTCLIDGKVP-----KDLLCNLESGRKITDLQKELNKEVEEN----- 736
Heterocephalus_glaber -LTSIDGKVP-----KDLLCNLELEKRITDLQKELNKEVEKN----- 736
Rhinatrema_bivittatum LLTLLMEGKVPVRVQYFYSQILLTIDLLCRVELDKKIIEMTKQLEKRLEENVEEKLKNQLT 1005
Xenopus_tropicalis -LNGLMAGKVP-----KDLLCRVELEKKVSEYKQLEKALEEK----- 945
Danio_rerio       -LTALMDGKVP-----KNLTDNVVLEKTVCDLRKELDQIRERE----- 888
.....970.....980.....990.....1000.....1010.....1020

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. :      *      : :      : :      : :
Pavo_muticus      -----VLLQKKVNELSELO-----TPPNTVEMQ-----QREILLE 796
Pavo_cristatus    -----VLLQKKVNELSELO-----SPPNTVEMQ-----QREILLE 796
Gallus_gallus     -----VLLQKKVNELSELO-----SLPNTVEMQ-----QREILLE 805
Mus_musculus      -----QTLQEEVNLLSELK-----SLPSEVETL-----RRELYE 765
Rattus_norvegicus -----ETLQKEVHLLSELK-----SLPSEVETL-----RRELHE 765
Homo_sapiens      -----EALREEVILLSELK-----SLPSEVERL-----RKEIQD 765
Pan_troglodytes   -----EALREEVILLSELK-----SLPSEVERL-----RKEVHD 765
Macaca_mulatta    -----EALRKEVNLLSELK-----SLPSEVERL-----RKEIHD 765
Callithrix_jacchus -----EALQKEVNLLSELK-----SLPSEVERL-----RKEIHD 765
Bos_taurus        -----ETLRNEVNLLSELK-----SLPSEVEIL-----RKEIRD 764
Canis_lupus_familiaris -----EALHKEVNLLSALK-----SLPSEIEML-----RKEIHD 763
Equus_caballus    -----EALHKEVNLLSELK-----SLPSEVEML-----RKEIND 765
Heterocephalus_glaber -----KALQKQVSLSELK-----SLPSEVEML-----RKEIRD 765
Rhinatrema_bivittatum SLMEELNQKTAKQEQLLTENKELDLAKKNLVTEVEQLQEHKLVSRSSMEMAEAGEKQKLHE 1065
Xenopus_tropicalis -----NALENEVTCLSEYK-----SLPKEVDL-----KQISK 974
Danio_rerio       -----QSLQSKVSELTLP-----AKVDELLG-----QVCV 914
.....1030.....1040.....1050.....1060.....1070.....1080

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      :::  :  *  .  .  :  :  :  :  :
Pavo_muticus      KHEELSLLKLEREKLLSAAADNEVKLNCVTEETIEKSKKELAD--AQLKYVNSNOE----- 849
Pavo_cristatus    KHEELSLLKLEREKLLSAAADNEVKLNCVTEETIEKSKKELAD--AQLKYVNSNOE----- 849
Gallus_gallus     KHEELSLLKLEREKLLSAAADNEVKLNSVTEETIEKSKKELAD--AQLKYINSNOE----- 858
Mus_musculus      KSEELHIITTEREKLFSEMAHKDSRIQGLLEEIGNTRDDLAT--SOLSRRGSDGE----- 818
Rattus_norvegicus KSEELCVITTEREKLFSEMAHKDSRIQGLLEEIGNTKDDLAA--SOLSQRSSDEE----- 818
Homo_sapiens      KSEELHIITSEKDKLFEVVHKESRVQGLLEEIGKTKDDLAT--TQSNYKSTDQE----- 818
Pan_troglodytes   KSEELHIITSEKDKLFEVVHKESRVQGLLEEIGKTKDDLAT--TQSNYKSTDQE----- 818
Macaca_mulatta    KSEELHIITSEKHKLFEVVHKESRVQGLLEEIGKTKDDLAT--TQSNYKSTDQE----- 818
Callithrix_jacchus TSEELHIITSEKEKLFSEVVHKESRVQGLLEEIGKTKDDLAT--TQSNYKSTDQE----- 818
Bos_taurus        KSEELYIYTSEKDKLSSEVVDKESRIQGLLEEIGSTKNDLPTP--POLSCESTDQE----- 818
Canis_lupus_familiaris KSEELYIITSEREKLNSEVVKESRIQDLLEEIGKTKNDLAT--IRLNYESTDQE----- 816
Equus_caballus     KSEELYKITSEKDKLFEVVHKESRIQDLLEEVGKTKSDLAA--SOLNYKRTDQE----- 818
Heterocephalus_glaber TSEELSVITSEKDRLCSEVTQKESSIQGLLEEIGKTKDDLAA--AQLNYKSTERA----- 818
Rhinatrema_bivittatum LQEKLSMVTQEKDELQQIHEKLAERDQVKENFEESTKQLSSIMEELNQKTEKQEQLLSE 1125
Xenopus_tropicalis ASDEIMLLKHGELSSSTRSKQEVILQEQSGQIVELTDKVTQTQSKVQQAEEQYLEMKKM 1034
Danio_rerio        VSEELRSVREERDAVCSAQASVNEAHRQLTEDYSTAQHQLLQMESDLLEAQLKET----- 969
.....1090.....1100.....1110.....1120.....1130.....1140

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      :  :  .
Pavo_muticus      -----YVALKQLHEELEQKYLAMSENBYEQMKLOLEHL 881
Pavo_cristatus    -----YVALKQLHEELEQKYLAMSENBYEQMKLOLEHL 881
Gallus_gallus     -----YVALKQLHEELEQKYLAVSENSEQMKLOIEHL 890
Mus_musculus      -----WQALSLHAELHRHAGVLEERERILKQIEIGAL 850
Rattus_norvegicus -----CQALKSLHVELKHRQEEVLEESERVQOEL--- 847
Homo_sapiens      -----FQNFKTLHMDFEQKYKMLVEENERMNOEIVNL 850
Pan_troglodytes   -----FQNFKTLHMDFEQKYKMLVEENERMNOEIVNL 850
Macaca_mulatta    -----FQNFKSLHIDFEQKYKMLVEENARMNOEIVNL 850
Callithrix_jacchus -----FQNFKTLHKDFEQKYNMVEENERMNOEIVNL 850
Bos_taurus        -----FQDVKNHRIEFQKYKMLVEENAKLNQOIGNL 850
Canis_lupus_familiaris -----FQDFKNHHIELEQKYKMLVEENARMNOELGNL 848
Equus_caballus     -----FQDFKNQHVTEQKYKMLVEENARMSONIGNL 850
Heterocephalus_glaber -----FQDFRILPMALQKYKTLHEENERMNOEMGDL 850
Rhinatrema_bivittatum NEELDPAQRELTTTEVEQLQEEQKISRSSLEMAEEKLEVAQKLHELQKELNMVTOEKDEL 1185
Xenopus_tropicalis HDDLYEKFICTTEETTKNKREADLLREIENLKGTMETLEVKLAATKHELEECQMDKEQL 1094
Danio_rerio        -----QLSQELSDNTQQLHNMQTEHTDILLTSLQEA 999
.....1150.....1160.....1170.....1180.....1190.....1200

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Pavo_muticus      SKDAEESKTALDYVK----- 896
Pavo_cristatus    SKDAEESKTALDYVK----- 896
Gallus_gallus     SKDAEESKTALDYVK----- 905
Mus_musculus      SKEAESLAFSLDSVK----- 865
Rattus_norvegicus ----- 847
Homo_sapiens      SKEAQKFDSSLGALK----- 865
Pan_troglodytes   SKEAQKFDSSLGALK----- 865
Macaca_mulatta    SKEAQKFDSSLGALK----- 865
Callithrix_jacchus SKEAQKFDSSLGALK----- 865
Bos_taurus        SKEAEELGLNLEALK----- 865
Canis_lupus_familiaris SEQAQKLGLSLDALSN----- 864
Equus_caballus     SKEAQTLGLSLDALN----- 865
Heterocephalus_glaber SKEAEHLRLSLDSVK----- 865
Rhinatrema_bivittatum QQIHEKLAERDQLKQDIMEN----- 1206
Xenopus_tropicalis LNKKNFLLQAMQAAFSVASLSDSSPSLSTLVEEKSQDPQIOTDEYHKLISLAKERTSIMVC 1154
Danio_rerio        QQCKEQLSADLASVC----- 1014
.....1210.....1220.....1230.....1240.....1250.....1260

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Pavo_muticus      -----LELSNKIKLEEEKTAEHKHHHLHV-KEELACAHHKLNEMEOLKEQEKIM 943
Pavo_cristatus    -----LELSNKIKLEEEKTAEHKHHHLHV-KEELACAHHKLNEMEOLKEQEKIM 943
Gallus_gallus     -----LELSNKMKEEEKTAEHKHHHLHV-KEELACAHHKLNEMEOLKEQEKIM 952
Mus_musculus      -----AELSHKTQELQKTVE-----GOERLNKMEALREELSR 899
Rattus_norvegicus -----SQKTQELAQKTAE-----GOERLNMEELREKLERR 878
Homo_sapiens      -----TELSYKTQELQKTRE-----VOERLNEMEOLKEQLENR 899
Pan_troglodytes   -----TELSYKTQELQKTRE-----VOERLNEMEOLKEQLENR 899
Macaca_mulatta    -----TELSYKTQELQKTCE-----VOERLNEMEOLKEQLENR 899
Callithrix_jacchus -----TELSYKTQELQKTCE-----VOERLNEMEOLKEQLENR 899
Bos_taurus        -----AELSHKTQELQKTTE-----NOERSKEVEELKKOLESR 899
Canis_lupus_familiaris -----TELSPKSEELLQKTTE-----SOKRLNEVEELKEQLEST 898
Equus_caballus     -----MELSYKTQELQKTAE-----SOERLNEVKELKQOLESR 899
Heterocephalus_glaber -----TELSHNTQEFQKTAE-----GOERLVEVEOLKEELERR 899
Rhinatrema_bivittatum -----IEQLTSLMEELNQKTAKQEQLLTENKELDLAKKNLVTEVEOLQEHKLVKS 1255
Xenopus_tropicalis -----LETERNSLKEQVIDLTSEVSLQAGIGKSDLOKEKODLEDKWKVLVSEMEQLQALTES 1214
Danio_rerio       -----AERDLLLSEKMEGESEE-----LQSLRNTISSITEEQQM 1049
.....1270.....1280.....1290.....1300.....1310.....1320

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Pavo_muticus      EARLETKDSEIQAVLQQLSGCWEEIKTLTQERDHLKQKEESLQAEVDQLKEDIKDT---- 999
Pavo_cristatus    EARLETKDSEIQAVLQQLSGCWEEIKTLTQERDHLKQKEESLQAEVDQLKEDIKDT---- 999
Gallus_gallus     EARLETKDSEIQAVLQQLSGCWEEIKTLTQERDHLKQKEESLQAEVDQLKEDIKDT---- 1008
Mus_musculus      DSSLQSVEKEKVLITTEKLQALKEVKALTQEKKNLQQLQESLQTERDQLRSDIQDT---- 955
Rattus_norvegicus DSSLQSAEKEKNLLTEKLQOTLEEVRLTQEKNDLQQLQESLQTERDQLRSDIQDT---- 934
Homo_sapiens      DSTLQTVEREKTLITEKLQOTLEEVKTLTQEKDDLQQLQESLQTERDQLKSDIHD---- 955
Pan_troglodytes   DSTLQTVEREKTLITEKLQOTLEEVKTLTQEKDDLQQLQESLQTERDQLKSDIHD---- 955
Macaca_mulatta    DSTLQTVEREKTLITEKLQOTLEEVKTLTQEKDDLQQLQESLQTERDQLKSDIHD---- 955
Callithrix_jacchus DSRLQTVEREKTLITEKLQOTLEEVKTLTQEKDDLQQLQESLQTERDQLKSDIHD---- 955
Bos_taurus        DSRLQTVEREKTLITEKLQOTLEEVKTLTQEKDDLQQLQESLQTERDQLKSDIHD---- 955
Canis_lupus_familiaris GSRLQTVEREKTLITEKLQOTLEEVKTLTQEKDDLQQLQESLQTERDQLKSDIHD---- 954
Equus_caballus     DSRLQTVEREKTLITEKLQOTLEEVKTLTQEKDDLQQLQESLQTERDQLKSDIHD---- 955
Heterocephalus_glaber DAQLRAAEQKTLVTERLQSLAEVRLSGQKEALSQLRDSLQAEVDQLKSDIHD---- 955
Rhinatrema_bivittatum RSSMEMAEGEKLEVLTKLHELQEKLSMVTQEKDELQIHEKLQAEVDQKFNFEETKQL 1315
Xenopus_tropicalis QLSLEKMLENLEVTQKQSLQEEEMKNTIKERNDLQTNLEDLKAERDSLQDLSEN---- 1270
Danio_rerio       QEILQSLREQRDQLKTDLEENVEMMIETQAELRDAQEKVKELQGEINRLESGRVEP---- 1105
.....1330.....1340.....1350.....1360.....1370.....1380

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Pavo_muticus      -----VSMNILAHEELRNAQSSLOKSRETQVKLEKIISEKETQILS----- 1040
Pavo_cristatus    -----VSMNILAHEELRNAQSSLOKSRETQVKLEKIISEKETQILS----- 1040
Gallus_gallus     -----VSMNILAHEELRNAQSSLOKSRETQVKLEKIISEKETQILS----- 1049
Mus_musculus      -----VNMNIDTQEQLLNALESQKQHQETINMLKMAAEELSNDLH----- 996
Rattus_norvegicus -----VNMNIDTQEQLLNALESQKQHQETINMLKMAATEEMSDHLF----- 975
Homo_sapiens      -----VNMNIDTQEQLLNALESQKQHQETINTLKSIISEEVSRNLH----- 996
Pan_troglodytes   -----VNMNIDTQEQLLNALESQKQHQETINTLKSIISEEVSRNLH----- 996
Macaca_mulatta    -----VNMNIDTQEQLLNALESQKQHQETINTLKLKIISEEVSRNLH----- 996
Callithrix_jacchus -----VNMNIDTQEQLLNALESQKQHQETINTLKLKIISEEVSRNLH----- 996
Bos_taurus        -----VNMNIDTQEQLLNALESQKQHQETINTLKLKIISEEVSRNLH----- 996
Canis_lupus_familiaris -----VNMNIDTQEQLLNALESQKQHQETINTLKLKIISEEVSRNLH----- 995
Equus_caballus     -----VNMNIDTQEQLLNALESQKQHQETINTLKLKIISEEVSRNLH----- 996
Heterocephalus_glaber -----VSMNIDTQEQLLNTLESQKQHQETINTLKRRLSEETSRNLH----- 996
Rhinatrema_bivittatum -----SSLMEELNQKTEKQEQLLSENEELDPAQRELTTVEEQLEEQKISRS----- 1362
Xenopus_tropicalis -----IEQSIETQDELRAAQEELGGQKQLVDSLQQLVDCVGGVLSPNHDSAGEQEKLS 1324
Danio_rerio       -----DEQREDGQMDTLHQIQLQELQATVVEKERLLSDRSELMEK----- 1148
.....1390.....1400.....1410.....1420.....1430.....1440

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Pavo_muticus	-----	1040
Pavo_cristatus	-----	1040
Gallus_gallus	-----	1049
Mus_musculus	-----	996
Rattus_norvegicus	-----	975
Homo_sapiens	-----	996
Pan_troglodytes	-----	996
Macaca_mulatta	-----	996
Callithrix_jacchus	-----	996
Bos_taurus	-----	996
Canis_lupus_familiaris	-----	995
Equus_caballus	-----	996
Heterocephalus_glaber	-----	996
Rhinatrema_bivittatum	-----	1362
Xenopus_tropicalis	LFKENLQECCEMLRGERDELOTSCALVSELELLREHVKSVEGENIEGAQKLHILENEILG	1384
Danio_rerio	-----	1148
1450.....1460.....1470.....1480.....1490.....1500	

Pavo_muticus	-----VEETLGKTTIN-----	1050
Pavo_cristatus	-----VEETLGKTTIN-----	1050
Gallus_gallus	-----VEETLGKTTD-----	1059
Mus_musculus	-----VKD-RGGARDEAQQKMDGID-EQN---ESAHTLLGGGKDNVETEEQ	1037
Rattus_norvegicus	-----IKG-REGSSDEVEQKLDGID-EENLLAESAHTVVSGSGEDHGGETEEQ	1019
Homo_sapiens	-----MEENTGETKDEFOQKMVGIDKKQDLEAKNTQTLLTADVKNDEIIEEQ	1042
Pan_troglodytes	-----VEENTGETKDEFOQKMVGIDKKQDLEAKNTQTLLTADVKNDEIIEEQ	1042
Macaca_mulatta	-----MEENTGETKDEFOQKMVDIDKKQDLEAKNTQTLLTADVKNDEIIEEQ	1042
Callithrix_jacchus	-----MEENTGQTKDEFOQKMVDIDKKQDLEAKNTQTLLTADVKNDEIIEEQ	1042
Bos_taurus	-----IEENLEETRDEFOQKMVGIDKSONLETTKTQAVITDAEDNELTEEQ	1042
Canis_lupus_familiaris	-----TEENLGEAKDEFOEMVDTDKKQNLKAKNTQALVVNVEDNELTEEQ	1041
Equus_caballus	-----IEENIGENLDEFOQKMVGIDKKQSLEAKKTQVLIADV-DNELTEEQ	1041
Heterocephalus_glaber	-----AEENVRETEHGFHQMIGIDEKQNVAKTTGTLLIAGMKDSEVVEEQ	1042
Rhinatrema_bivittatum	-----SLEMAEEFEKLEVAQKLHELEKLNMTQEKDE-LQQIHEKQLAQRD	1407
Xenopus_tropicalis	TSEEREVLKPVLENVKEENKLEQAEFYCSKINELNEELQMFSEERDLKNDGYAEVKQLQ	1444
Danio_rerio	-----MNTDVTSTFTEQRSELQERLQQLERDSDTMKTHLEEKEQTILQLQSE	1194
1510.....1520.....1530.....1540.....1550.....1560	

Pavo_muticus	----ELKIQLSQMTEELKNITSERDWLAVENKSHRES-----DQLQVL----KKQIFSLT	1097
Pavo_cristatus	----ELKIQLSQMTEELKNITSERDWLAVENKSHRES-----DQLQVL----KKQIFSLT	1097
Gallus_gallus	----ELKIQLSQMTEELKNITSERDCLAENKSHRES-----GELQVL----KEQIFSLT	1106
Mus_musculus	RKIDSLMQENSGLOOTLESVRAEKEQLKMDLKENIEMSIENQEEELRILRDELKROQEVAA	1097
Rattus_norvegicus	RKIDSLMQENSRLOOTLESIIAEKEQLKMDLKENIEMSVENQEEELRILRDELKROQEVAA	1079
Homo_sapiens	RKIFSLIQEKNELOQMLESVIAEKEQLKTDLKENIEMTIENQEEELRLLGDELKKQOEIVA	1102
Pan_troglodytes	RKIFSLIQEKNELOQMLESVIAEKEQLKTDLKENIEMTIENQEEELRLLGDELKKQOEIVA	1102
Macaca_mulatta	RKIFSLIQEKNELOQVLESVIAEKEQLKTDLKENIEMTIENQEEELRILGDELKKQOEIVA	1102
Callithrix_jacchus	RKIFSLIQEKNELOQMLESVRAEKEQLKTDLKENIEMTIENQEEELRILGDELKKQOEIVA	1102
Bos_taurus	RKIFSLIQEKNELOQMLESITAEEKEQLKTDLRENIEMTIENQEEELRFLGNELKKQOEIVA	1102
Canis_lupus_familiaris	RNIFSLIQEKNELOQMLESVIAEKEQLKTDLRENIEMTIENQEEELRILGDELKKQOEILV	1101
Equus_caballus	RKLFSLIQEKNTALROMLECVIAEKEQLKTDLRDSIGMTIENQEEELRILRGELKKQOEIVA	1101
Heterocephalus_glaber	KKICSLIQEKNEFOQMLESITAEEKEQLKTDLKENIEMTIENQEEELRILGDELKROQEVAA	1102
Rhinatrema_bivittatum	QLKQDIMENIEQYSEGINHRS GTTSRKQKISRSSLEMAEEFEKLEVAQKLHELEKLNMT	1467
Xenopus_tropicalis	EKMLATIOEKEELOEILGSLRAERDELRCNLQENIEMSIETQDELRLNVLDELKRKTQLLD	1504
Danio_rerio	LOEKQQQQLDQDQDFSEKTDLOQIQTLKEELEAVLEQKNQTLRLLEESAQQVCVVS	1254
1570.....1580.....1590.....1600.....1610.....1620	

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	1630	1640	1650	1660	1670	1680
Pavo_muticus	QEKNSLQDKLDSLHLKKE	DCGEG	NLESV	TRKSVE	QELLHL	1138
Pavo_cristatus	QEKNSLQDKLDSLHLKKE	DCGEG	NLESV	TRKSVE	QELLHL	1138
Gallus_gallus	QERNSLQYKLDLSHLKKE	FYGEE	NLESVI	QKSVE	QELLHL	1147
Mus_musculus	QEKDHATEKTQELSRTOERLAKITEEK	LEEKNO	KLOET	QOQLLS	T	1141
Rattus_norvegicus	QEKDHVTEKSEELSRRAHERLAEITEEK	LKEKN	NOKLOET	QOQLVSI		1123
Homo_sapiens	QEKNHAIKKEGELSRTCRLAEVEEK	LKEKS	QOQLQEK	QOQLLN	V	1146
Pan_troglodytes	QEKNHAIKKEEELSRTCRLAEVEEK	LKEKS	QOQLQEK	QOQLLN	V	1146
Macaca_mulatta	QEKNHTIKKEEELSRTCRLAEVEEK	LKEKS	QOQLQEK	QOQLLN	V	1146
Callithrix_jacchus	QEKNHTRKKEEELSRTCRLAEVEEK	LNEKS	QOQLQEK	QOQLLN	V	1146
Bos_taurus	QEKNHTIKKEEELSRTCRLAEVQEK	LKEKS	QOQLQEK	QOQLLSA		1146
Canis_lupus_familiaris	QEKNHTIKKEEELSRTYKLAEEVEEK	LKEKN	QOQLQEK	QOLQLLSV		1145
Equus_caballus	QEKNCITIKKEKELSRTCCKLAEEVEEK	LKEKS	QOQLQEK	QOQLLSV		1145
Heterocephalus_glaber	QEKNHAIKKDEELARTCERLAEEVEEK	LKEKS	EQQLQEK	QOQLLNT		1146
Rhinatrema_bivittatum	QEKDELQQTHIEKLQAEERDOLKQDIMENIEQLT	SLMEEL	NOKTAK	QEQLLTE		1518
Xenopus_tropicalis	ELKSQVNCQNTODEOSLGDGDDIONKEALKHHSDOYSAELAEERANTOOLNQLEEKLRK					1564
Danio_rerio	EELRSVREERDAVCSAQASVSEAHOR	LTVDYSTAQ	HQLLQ	MESD		1298

Pavo_muticus	REELSQTKKLL-EMEEMKASEFN-----ESEKVEKTGLTPKWHDCREMSTMTERDDD-F	1192
Pavo_cristatus	REELSQTKKLL-EMEEMKASEFN-----ESEKVEKTGLTPKWHDCREMSTMTERDDD-F	1192
Gallus_gallus	REELSQAKKLLH-EMEEMKASEFN-----ESEKVEQTDLIPKLHDCREMSTMTERDDDDF	1202
Mus_musculus	QEAMSKLQAKVI-DMESLONEFRNQGLALERVETEKLELAQRLHESYEEVKSITTKERNDL	1200
Rattus_norvegicus	QEAMSEMAKVT-DLENLONEFRNQALALERVETERLELAQKLHENYEKMESITTKERNDL	1182
Homo_sapiens	QEEMSEMOKKIN-EIENLNKLNKELTLEHMTETERLELAQKLHENYEEVKSITTKERKVL	1205
Pan_troglodytes	QEEMSEMOKKIN-EMENLNKLNKELTLEHMTETERLELAQKLHENYEEVKSITTKERKVL	1205
Macaca_mulatta	QEEMSEMOKKIN-EMENLNKLNKELTLEHRETERLGLAQKLHENYEEVKSITTKERKVL	1205
Callithrix_jacchus	QEDMNEOKKIN-EMENLNKLNKELTLEHMTETERLEWTKLNHENYEEIKSITTKERKAI	1205
Bos_taurus	QEEMSEMOKKM-EMENLNKLNKELTLERIKIEKIELAQKLHENCEMKFITTKERNDL	1205
Canis_lupus_familiaris	QEEMSEMOKKM-EMENVNNEFRNRLTERIERMERLEVAQKLHENCEMKSITTKERNDL	1204
Equus caballus	QEEMSKMQKM-DMENIKNELRNRELTLERMKMERLELAQKLHENYEDIKSITTKERSDL	1204
Heterocephalus_glaber	QEEMSEIOKKM-EMEKLKSEIONQESRLEHLEMERLELTIOKLHENCEMKSITTKERNDL	1205
Rhinatrema_bivittatum	NKELDLAKNLNLTVEVQLQEHKLVSRSSMEMAEGEKLVEVQKLHLEQKLSMVTQEKDEL	1578
Xenopus_tropicalis	MEEQENLLKSISENLDTSSKYEKAVEFLBLVTMEKDQLLVTLDSLRLTFTLTKELESH	1624
Danio_rerio	LLEAQLKETLSQELSDNTQLHNMOTENDTLTSLQETQCKCELSADIASVCAERDLI	1358
1690.....1700.....1710.....1720.....1730.....1740	

Pavo_muticus	TTQLEN-----	1198
Pavo_cristatus	TTQLEN-----	1198
Gallus_gallus	KMQLEN-----	1208
Mus_musculus	KELQESFEIEKKQLKEYAREIEAAGLOTKEELNIAHANLKEYQEIITELRGSISENEAOG	1260
Rattus_norvegicus	KELQESFEIEKKQLKEYAREMESAGLOTKEQLNIAHANLKEYQEIITELRGSISEKEAQA	1242
Homo_sapiens	KELQKSFETERDHLRGYIREIEATGLOTKEELKIAHIHLKEHQETIDELRRSVSEKTAQI	1265
Pan_troglodytes	KELQESFETERDQLRGYIREIEATGLOTKEELKIAHIHLKEHQETIDELRRSISEKTAQI	1265
Macaca_mulatta	KELQESFETERDQLRGYIREIEATGLOTKEELKIAHIHLKEHQETIDELRRSVSEKTAQI	1265
Callithrix_jacchus	KELQESFETERDQLRGYIREIEATGLOTKEELKIAHIHLKEHQETIDELRRNISEKTAQI	1265
Bos_taurus	KKLOESSEVERNKLKEHIR-----	1224
Canis_lupus_familiaris	KELQESFELEREQLEGFIR-----	1223
Equus_caballus	QKLOESFEVEREKLKEYIRRIEIVKGLETKHEELKIAHMLKEHQETIDELRRNVSEKTAQI	1264
Heterocephalus_glaber	KELRESFEVERDHLKEYISKIEAVGRHTEELSVAHHLKEHQKIIAELRSSIAEKEAQI	1265
Rhinatrema_bivittatum	QQIHEXTQAEIRDVKENFEESTQQLSSLMEELHQKTEKQEQLLSENEELDLTQRELTTEV	1638
Xenopus_tropicalis	KQELHCTTNQTKPETEQSNTOLEEEENAAKKVEELEHQSLDILKKEESKYEMAKETL	1684
Danio_rerio	LSEKMEGESSELOSLRNIISSITEEKQMQEILQSLREQDQLKADLDSNGMLMQAQL	1418
1750.....1760.....1770.....1780.....1790.....1800	

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Pavo_muticus      ----- 1198
Pavo_cristatus    ----- 1198
Gallus_gallus     ----- 1208
Mus_musculus      AS----- 1262
Rattus_norvegicus SS----- 1244
Homo_sapiens      IN----- 1267
Pan_troglodytes   VN----- 1267
Macaca_mulatta    IN----- 1267
Callithrix_jacchus MN----- 1267
Bos_taurus        ----- 1224
Canis_lupus_familiaris ----- 1223
Equus_caballus    INI----- 1267
Heterocephalus_glaber GNA----- 1268
Rhinatrema_bivittatum EQLOEEQKISRSSLEMAEEEKLEVAQKLHEEEKLNMVTOEKDELOQIHEKLOAERDOLK 1698
Xenopus_tropicalis ALVNGEKEQLLSELESKLALHELVIKELDLVROVRESKDQD-----MOTLDEVHRTDVK 1738
Danio_rerio       HGG----- 1421
.....1810.....1820.....1830.....1840.....1850.....1860

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Pavo_muticus      ----- 1198
Pavo_cristatus    ----- 1198
Gallus_gallus     ----- 1208
Mus_musculus      ---TQDTAKSAPELQGEVP---EQELLPVVKEARHSAEKVNGLEPVGHSRTVHSMIME 1315
Rattus_norvegicus ---TQDTGKTNPASQGETPVPR-EQELLPDAAEARASAEKGSELEPVVEHSRTAHSLTTE 1300
Homo_sapiens      ---TQDLEKSHTKLQEEIPVLHEEQELLPNVKEVSETQETMNELELLTEQSTTKDSTTLA 1324
Pan_troglodytes   ---TQDLEKSHTKLQEEIPVLHEEQELLPNVKEVSETQETMNELELLTEQSTTKDSTTLA 1324
Macaca_mulatta    ---IQDLEKSYTKLQEEIPVLNEERELLPNVKEVSETQETVNELELLEEOSTIKDSTTLA 1324
Callithrix_jacchus ---IQDLEKSHTKLQEEIPVLHDEQELLPNVQEVSETQETMDELVLLEQSTTKDSTTLA 1324
Bos_taurus        -----EIEATG--LERKEELQMAHLHLQEHQ-----ETIEELRRTISGNIQK 1264
Canis_lupus_familiaris -----EIEVTIPVLHEEQELLPNVKEVSATQGTMNEGEILKKOSKTKDSMTPA 1271
Equus_caballus    ---QKNLEKSSTEELEEEIPVLHEEQELLNVVEVSDTQETMDELELVKEESKTKDSTTLA 1324
Heterocephalus_glaber ---QEDLEKSTTEVEEQVPVPHEEQKFFPTMKAGGEIQDAVRGLEPIGEQSTAG-- 1320
Rhinatrema_bivittatum QDIMENIEQLTSLMEELNQKTAKQEQOLLTENKELDLAKKNLVTEVEQLQEHKLVSRSSME 1758
Xenopus_tropicalis EVALSPMKLEWSEAESRSQESLQQLHNLDSAIQEREDLQQLILSLREEKSQLTTDLQKY 1798
Danio_rerio       -----POIDTPHDELLOCIQQLREELDATNEEKNQLKSDLQENVEMTIENQEEL 1470
.....1870.....1880.....1890.....1900.....1910.....1920

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Pavo_muticus      ----- 1198
Pavo_cristatus    ----- 1198
Gallus_gallus     ----- 1208
Mus_musculus      GIEIENLRRLTKKLEESQMEISCLTREREDLR----- 1346
Rattus_norvegicus GIEMEILALTKKLEESQKEISCLTKERSDLR----- 1331
Homo_sapiens      RIEMERLRLNEKFQESQEEIKSLTKERDNLKTIKEALEVKHDOLKEHIR---ETLAKIQ 1380
Pan_troglodytes   RIEMERLRLNEKFQESQEEIKSLTKERDNLKTIKEALEVKHDOLKEHIR---ETLAKIQ 1380
Macaca_mulatta    SIEMERLKLNEKFQESQEEIKSLTKERDNLKMIKEALEVKHDOLKEHIR---ETLAKIQ 1380
Callithrix_jacchus SIEMERLRLSEKFQESQEEIKSLTKERDNLKMIKEALEFKHDOLKEHIR---ETLAKIQ 1380
Bos_taurus        NLEKSGTELQEKIQTSDKQEQSFDMKEKVSETKKLMN-EMEQLKEP-----FKDAALLK 1318
Canis_lupus_familiaris RIEIERLGLTAKLPESHEEIKSLTEERDNLKTIKEAVQVQEQQLKEDSREMLAEDSLNIS 1331
Equus_caballus    STETERLRLTEKLVKSPPEIKSLTEERDNLKMVKEALQDEQEQLKEDFR---EALAKIQ 1380
Heterocephalus_glaber LTEAERLRLMEELQESQEEIKCLTQERDDLKIVKEALEVERDHLKEYIR---ETSVKIQ 1376
Rhinatrema_bivittatum MAEGEKLEVQKLHELQEKLSMVTQEKDKLQIHEKLOAERDVKENFEESTKQLSSIME 1818
Xenopus_tropicalis TQHENRCRLEEEFSGSQKLVDIEILKAQLKAAEERLEIKDRDYFELVQTTKTSLVEGKL 1858
Danio_rerio       RAALDKVKDLQKSLLEELQTKQESKHKSQLQELQMQQLREELSVRHERE----- 1519
.....1930.....1940.....1950.....1960.....1970.....1980

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Pavo_muticus      ----- 1198
Pavo_cristatus    ----- 1198
Gallus_gallus     ----- 1208
Mus_musculus      ----- 1346
Rattus_norvegicus ----- 1331
Homo_sapiens      ESQSKQEQSLNMKEKDN-----ETTKIVSEMEQFKP---KDSALLRIEIEMLGLSKR 1429
Pan_troglodytes   ESQGKQEQSLNMKEKHN-----ETTKIVSEMEQFKP---KDSALLRIEIEMLGLSKR 1429
Macaca_mulatta    ESQSKQEQSLNMKEKDN-----ETTKILSEMEQFKP---KDSALLRIEIEMLRLSKR 1429
Callithrix_jacchus ESQSKQEQSLNMNEKDN-----ETTEIMSEMEQFKD---KDTALLRIEIEMLRLSKR 1429
Bos_taurus        LEMEKLELSERLQESH-----EVKAVAKERADLQ--- 1349
Canis_lupus_familiaris EPQNKQEQSFDMKERED-----EAEIIVSELEQLQEQLKAKEAPQPRVGMERLEMSE- 1383
Equus_caballus     EAQDKQEQESCNMKEEDN-----ETKKIVSEMEQLKEQLQARESALLRTEVEKLRWSE- 1433
Heterocephalus_glaber EAQDKQEQPFHVGEKDK-----SIG--VGEVEQLQEQPEAKDAMLLRAEMEKRLSQ- 1427
Rhinatrema_bivittatum ELHQKTEKQEQLLSENEELD---LTQRELTTVEQLQEQEKISRSSLEMAEEEKREVAQK 1875
Xenopus_tropicalis ETPVQDDSVEGSTDQHSVKVEQDRSDQGSVSEKVLEEKLESNQYLLKRLQEQKLELSNK 1918
Danio_rerio       ----- 1519
.....1990.....2000.....2010.....2020.....2030.....2040

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: : : . * : :
Pavo_muticus      -----LQNERDHLRNTVQEAISMNSEVQDELRCQAQNSIROH 1234
Pavo_cristatus    -----LQNERDHLRNTVQEAISMNSEVQDELRCQAQNSIROH 1234
Gallus_gallus     -----LQNERDHLRNTVEEAISMNSEVQDELRCQAQNSIROH 1244
Mus_musculus      -----RTQETLVECTOLKEDARRTLANHLETEEEELNLRCCCLKEQ 1387
Rattus_norvegicus -----RTQEAQVECAQLKDDARRTLANHLETEEEELSLARCCLKEQ 1372
Homo_sapiens      LQESHDEMKSVAKEKDDLQRLQEVLOSESDOLKENIKEIVAKHLETEEELKVAHCCLKEQ 1489
Pan_troglodytes   LQESHDEMKSVAKEKDDLQRLQEVLOSESDOLKENIKEIVAKHLETEEELKVAHCCLKEQ 1489
Macaca_mulatta    LQESHDEMKSVAKEKDDLQRLQEVLOSESDOLKENIKEIAAKHLETEEELKVHVHCCLKEQ 1489
Callithrix_jacchus LQDSHDEMKSVAKEKDDQRLREVLOSESDOLKENIKEIVAKHLETEEELKVARCCLKEQ 1489
Bos_taurus        -----LQEFLOSEKSQLENLREMTAKQLETEEELKVAHCCLKEQ 1389
Canis_lupus_familiaris -----KQEVLOSETNOLKENMREIIAKHLETEEELKVARCHLKEQ 1424
Equus_caballus     LQDSRDDTNSVAKERDDQRLQEVILSESDOLKGN-REIMAKHLESEEEELGFARGHLKEQ 1492
Heterocephalus_glaber LEESRGQVSSLAKERDDLQRLQEAQERDQLTARVREVSEKHQETEAELRVAHCCLKER 1487
Rhinatrema_bivittatum LHELEEKLMVTOEKDELQCIHEKLOAETDOLKODIMENIEQSIETDQLRAAQENLKQ- 1935
Xenopus_tropicalis LEILQQEMEESVLLKDNLQORLECLLNENILLKENIETAVRHQSDTHGQLOKQSQQELEYH 1978
Danio_rerio       -----RLSEHSNTHTDAEQMKADITSITEEQEQLORTLQELRDQLMQT 1564
.....2050.....2060.....2070.....2080.....2090.....2100

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: : : :
Pavo_muticus      QETIAELKES---ISEK-ESQLLKAE---ETTELEKKLTVTENL-----TRVSSEY 1280
Pavo_cristatus    QETIAELKES---ISEK-ESQLLKAE---ETTELEKKLTVTENL-----TRVSSEY 1280
Gallus_gallus     QETIVELKES---ISEK-ESQLLKAEALK-ETAELQKLTVTENL-----THISSEY 1293
Mus_musculus      ENKIDTLTIS---LSQR-ETELSSVRGQALTTAELERKVOELCEKQ---EELTRKETSEA 1441
Rattus_norvegicus ENKIDSLIVS---LSQK-EAELSSVRVQLEVTTGELERKVOELCEKQ---EQLNIKETSEV 1426
Homo_sapiens      EETINELRVN---LSEK-ETEISTIQKLEAINDKLONKIQEIYEKE---EQLNIKQISEV 1543
Pan_troglodytes   EETINELRVN---LSEK-ETEISTIQKLEAINDKLONKIQEIYEKE---EQLNIKQISEV 1543
Macaca_mulatta    KETIDELRVN---ISEK-ETEISTIQKLEAINDKLONKIQEIYKKE---EQLNIKRISET 1543
Callithrix_jacchus EETIDELRVN---LSEK-EAEMSTIQKLEAINDKLONKIQELYEKE---EQL---KQISEI 1541
Bos_taurus        EETIDKLQVD---LSKR-ETEISHIQELETANDKLOKKTOELYEK---QFITIKHISIT 1442
Canis_lupus_familiaris EETIDKLQVD---LSER-ETELSSLQKELEITNNELOKKIQELHEKQ---QFMSTKEHITET 1478
Equus_caballus     EETIAKLREN---LSER-GTELSTSQKELETNEELQKKIQEFHEEQEFISIEENSET 1547
Heterocephalus_glaber EETIDELRVN---LLEK-ETEIAGVQKELEAASEALQTKIQELYEKKEQLIRVKEISEM 1542
Rhinatrema_bivittatum KQLVNELRMQ---IAENSEMREINTATTLOEKLSLMEELQOKTEKEILLKDKEMFHQ 1991
Xenopus_tropicalis LQLANLGGDSDNSPVTQEKETSTECHMPLPEKILLTEELHOKNNEQKLOHEKEELEQ 2038
Danio_rerio       EQTVLQLRAD---LESVCAERERLLMDRSRDVEEMEKMSCLTTEERDALQQTQVQLSD 1619
.....2110.....2120.....2130.....2140.....2150.....2160

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      :      :      :      :      :      :      :      :      :
Pavo_muticus      GKL--LAEKEQIER-----TMNEDISQLEKIAL-LNVEKDELOQMVE 1320
Pavo_cristatus    GKL--LAEKEQIER-----TMNEDISQLEKIAL-LNVEKDELOQMVE 1320
Gallus_gallus     GKL--LAEKEQIER-----AMNEDVSQLEKIAL-LSVEKDELOQMVE 1333
Mus_musculus      QGK--MSELEQLRELLLAQASALONAESDRLRLNTQLEESQEEIMKT-LREEREELRRMOE 1498
Rattus_norvegicus QGK--MSELDHIRALLLTKDSALQSIVESDRLRLNKQLEESQEEIKI-LIKEREELRRAOE 1483
Homo_sapiens      QEK--VNELKQFKEHRKAKDSALQSIESKMLELTNRLOESQEEIQI-MIKEKEEMKRVOE 1600
Pan_troglodytes   QEK--VNELKQFKEHRKVKHSALQSIESKMLELTNRLOESQEEIQI-MIKEKEEMKRVOE 1600
Macaca_mulatta    QEK--VNELKQFKEYLKAKDSTLQSIESKMLELTNRLOESQEEIQI-MIKEKEEMKRVOE 1600
Callithrix_jacchus QEK--MNELEQFKEHLKAKDSALQSIESEMLKLTNRLOENQEEIQI-MIKERDELKRVOE 1598
Bos_taurus        QEK--MSELEQLKEHLKAKDSSLQKESERLKLTEKLGSGQEEIKI-IKEGDELERVOE 1499
Canis_lupus_familiaris QEK--MSELEQLKEQLRVKDSLQNISEKLLTEKLGSGQDKIKI-VIKERDELKRVOE 1535
Equus_caballus    QEK--MSELEQLKEQLKAEELSLRSIEGERLELTERLOESQEEIKV-IMKERDELKRVOE 1604
Heterocephalus_glaber HEK--IHELEKFKELLRAKDSLQGIERDRLELSKRLEESQEEIKI-IIRERDELQKLOE 1599
Rhinatrema_bivittatum AEAKFISELGHQLERLTTSESVLTERTEGKLEITQLHKLQENSS-LTQERDEMOTRE 2050
Xenopus_tropicalis AQVKLKSEVEHLVNSMMELQSSLESLOHEKHDTQORLALKQMQV-VTQEKELQAYD 2097
Danio_rerio       QSEQLRRDLEENQDMVLQLRADLQSVCAERERLLTEKSSDMENLSCLTEERDALQOTVQ 1679
.....2170.....2180.....2190.....2200.....2210.....2220

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      . * . . *
Pavo_muticus      VSKTEKDQKADQESKEK----- 1339
Pavo_cristatus    VSKTEKDQKADQESKEK----- 1339
Gallus_gallus     VSKTENDQKADQESKDK----- 1352
Mus_musculus      ALHVESEQQKESMKEISSK----- 1517
Rattus_norvegicus ALHVEREQQESIKEISTR----- 1502
Homo_sapiens      ALQIERDQKENTKEIVAK----- 1619
Pan_troglodytes   ALQIERDQKENTKEIVAK----- 1619
Macaca_mulatta    ALQIERDQKENTKEIIAK----- 1619
Callithrix_jacchus ALQIERDQKENNKEIVVKF----- 1618
Bos_taurus        ALQKETDQKENTKEIVAD----- 1518
Canis_lupus_familiaris LLOMERDQKANIKEIVAEE-----YQOTISTRNISKKTDOGANIERVI 1579
Equus_caballus    ALQMERDQKENIKEIVAEGQKMKEELKTTTVLLKEYQETISTRNISEKTDOGANIQORDL 1664
Heterocephalus_glaber ALQTERDQKENLNETAAK----- 1618
Rhinatrema_bivittatum ALETTKKQLEEQILERIQIDLTSSDCEKWLHE----- 2082
Xenopus_tropicalis HLTAEVDQKGLDKENIEMG----- 2117
Danio_rerio       QLKDQSEQLRRDLEENQDMVLQLR----- 1703
.....2230.....2240.....2250.....2260.....2270.....2280

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      :      :
Pavo_muticus      -----LTEVLTEMESLQEELQKQEQADIQKNMLAEGEE--K 1374
Pavo_cristatus    -----LTEVLTEMESLQEELQKQEQADIQKNMLAEGEE--K 1374
Gallus_gallus     -----LIEVLTEMENLQEELKQKQEQADIQKNMLVEGEE--K 1387
Mus_musculus      -----LQELONKEYECLAMKTINETQSRCMDHLNQOLEAQKSTLEKVMENVN 1567
Rattus_norvegicus -----LQELQDKEYEYLVKSLNETQGNKCED--LNQOLEAQKSSLEKVMQNVN 1550
Homo_sapiens      -----MKESQEKEYQFLKMTAVNETQKMCIEHLKEQFETQKLNLENITENIR 1669
Pan_troglodytes   -----MKESQEKEYQFLKMTAVNETQKMCIEHLKEQFETQKLNLENITENIR 1669
Macaca_mulatta    -----MQESQEKEYQFLKMTAVNETQKMCIEHLKEQFETQKLNLENITENIR 1669
Callithrix_jacchus -----SQMQESQEKEHQLLKMTAVNETQKNCIEKHLKEQLETQKLSLQNIQDMENVR 1670
Bos_taurus        -----IQELQEEHQLLEMKDVSETWEKICEMENLKKOLEAQKSTLENTEWENIK 1568
Canis_lupus_familiaris ESSDAESQEKIQELQEKHQLKMKTVSETQEKICEMEHLKNQFEAQKSTLENITEMENAR 1639
Equus_caballus    ENSDAELQEKIQELQEEYQLLKMKVSEIQKMCMEYLLKQSEAKSTLENITEMENVR 1724
Heterocephalus_glaber -----LRELGE-EQOCLRVKATSETLEAGRELERLREOLEAQKSTLENITEMENRK 1667
Rhinatrema_bivittatum ---REELNQTYKALLTEAEQLKEALKMSQSGSEAVRTEYLEVQ-EKLLKASISLLEQKFE 2138
Xenopus_tropicalis -----LNFKNEMQKTNEEQCLLNQNKLEQSQHKLKCEIEELMKSLKDKELALETLKE 2171
Danio_rerio       -----ADVEGSGCAERERLLTERDQDLASITKEREQLDLKANREKNQLRTDLEE 1754
.....2290.....2300.....2310.....2320.....2330.....2340

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      : . * : : * . : . * : :
Pavo_muticus      LQNTTEEKLTEEINKLKEKIDKLNEDLNLVTKERQVLEELKEKREYENSELQELGEQCAL 1434
Pavo_cristatus    LQNTTEEKLTEEINKLKEKIDKLNEDLNLVTKERQVLEELKEKREYENSELQELGEQCAL 1434
Gallus_gallus     LQNTTEEKLTEEINKLKEKIDKLNEDLNLVTEERQVLEELKEKTEHENSKLQELGKQCAL 1447
Mus_musculus      LTQRLHETLEEMRSVAKERDELWSMEERLTVERDQKKSLSEETVTKGMEKEEELRVAVHV 1627
Rattus_norvegicus LTQRLNETLEEMKSVAKERDELRSVEERLTADRDQKKSLSEETITKGLEKEEELRVAVHM 1610
Homo_sapiens      LTQILHENLEEMRSVTKERDDLRSVEETLKVERDQKENLRETITRDLEKQELKIVHMH 1729
Pan_troglodytes   LTQILHENLEEMRSVTKERDDLRSVEETLKVERDQKENLRETITRDLEKQELKIVHMH 1729
Macaca_mulatta    LTQILHENLEEMRSVTKERDDLRSVEETLKVERDQKENLRETITRDLEKQELKIVHMY 1729
Callithrix_jacchus LTQILHENLEEMRSITKERDGLRSVEEILKVERDQKETLRETITRDLEKQELKIVHMH 1730
Bos_taurus        LTQRLNENIAEIRSVTKERDDLRSVEETLKVEIDQKENLRETITSRDLERQELRIAQMN 1628
Canis_lupus_familiaris LTQRLHENLEEMRSVTKERDDLRSVEETLKVERDQKENLRETITRDLEKQELRIARMH 1699
Equus_caballus     LTQRLQENLEEMRCVTKERDDLRSVEETLKVERDQKENLRETITRDLEKQELKIAHMH 1784
Heterocephalus_glaber LAQRLHENLEEMRAVTOERDNLRSVQETLTVDSERLAGNLEELALARDLETOEKVRIAHLC 1727
Rhinatrema_bivittatum FTQKTIELQEELSISSQEKDELLQKLTLOTQTERDQLEDIRENIEQSVRIQDDLRITSQEN 2198
Xenopus_tropicalis SEQKVINLQEMEALMLEEELKNSORTVMAERDQLEDLRENVEMSIETQDDLRITQEE 2231
Danio_rerio        NQENLLHLRQELSVSAEKDHLVSEMSREQKEHLEEMKTTEEKL SAVTVERDQLMESN-- 1812
      .....2350.....2360.....2370.....2380.....2390.....2400

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      ... : : : :
Pavo_muticus      LARER---DQFQEMLECIQAESKLEVNLOES----- 1463
Pavo_cristatus    LARER---DQFQEMLECIQAESKLEVNLOES----- 1463
Gallus_gallus     LAQER---DQVQETLECVQAEEKKLEVNLOES----- 1476
Mus_musculus      LEEHQETINKLRKMVSDDYTDIEISHTQGDILKHTNAVVEAQ-----NQDLREKEHQLSQVK 1681
Rattus_norvegicus LQEHQETINELRKSVSDCTDEIAIHGDLHHTHAVIHGDLHHTHANQELQEKGHQLSQVK 1670
Homo_sapiens      LKEHQETIDKLRGIVSEKTNEISNMOKDLEHSNDALK----- 1766
Pan_troglodytes   LKEHQETIDKLRGIVSEKTNEISNMOKDLEHSNDALK----- 1766
Macaca_mulatta    LKEHQETIDELRGIVSEKTNEISNMOKDLEHSNAAALK----- 1766
Callithrix_jacchus LKEHQETIDKLRGVVSEKTNEISNMOKDLEHSNAAALK----- 1767
Bos_taurus        LKEHKETIDKLRGIVSGKTDEISNIQMNLENTNTALKAQ-----IQELOEKEHQOLLKVK 1682
Canis_lupus_familiaris VKEHQETIDKLRGLVSEKTDELSNMQIDLENTNDALKTO-----IQELOEKEHQOLLKVK 1753
Equus_caballus     LKEHQETIDKLRGVVSEKTDEILNMQIHLENTNTALKAQ-----IQELOEKEHQOLLKAK 1838
Heterocephalus_glaber LKEQQETIDELRGVVSEKTDEVSNMRADLQSTD TALKAQ-----AQEHEKKQHOLLQVE 1781
Rhinatrema_bivittatum LKHQNLINELRIQIAKYSNMEEKSREACATLLQEKVSSLMKELQONTARQEQOLLCEK 2258
Xenopus_tropicalis LQQQKDKVQQLTSQISVLEEKISLLENQILHNVTIMKETLS---ERDDLQSKQHILFSEI 2288
Danio_rerio        -TEHNQITIVQLRADLQSACAEKDSLMVERDQSSSCSALS----- 1850
      .....2410.....2420.....2430.....2440.....2450.....2460

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Pavo_muticus      ----- 1463
Pavo_cristatus    ----- 1463
Gallus_gallus     ----- 1476
Mus_musculus      ADLRETVDQME---OLKKKLEAQSTLESREIEKLELTQQLNENLKKITLVTKENDSLK 1737
Rattus_norvegicus ADLRETMDQME---OLKEQLEAQNSTLESIEIEKLLTQQLNENLKEMTLVAKENDDLK 1726
Homo_sapiens      ----- 1766
Pan_troglodytes   ----- 1766
Macaca_mulatta    ----- 1766
Callithrix_jacchus ----- 1767
Bos_taurus        NDLRENMYQTE---OLKKQLETONSILESIEIEKRLRLTQKLHENVEEIKSVTEERDDL 1738
Canis_lupus_familiaris NDLRENMYQTE---OLKEQLQAQHSSTLESVETERLRLSQKLHENLEEIKCVTEERDTLK 1809
Equus_caballus     NDLKENMHQTE---OLKKQLEAQNSTLETIEIEKFLTKQKLHENLEEIKLVAKERDGLR 1894
Heterocephalus_glaber NNLKETVFMQME---OLKKQFEAQNATLESIEGERLRLTQKLEENLEEVQFLTEENESLR 1837
Rhinatrema_bivittatum EEVQQAQQKLASELAELQERLIARESVLRTIEGEKLEVVQQLQKLQEQHGLTQERDDLQ 2318
Xenopus_tropicalis ETLSSLKKEKDFALEQAEEKADAATKIIDLTEKIATIEEQOLLQATNLKETLYEKESLI 2348
Danio_rerio        ----- 1850
      .....2470.....2480.....2490.....2500.....2510.....2520

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                                .: .: .:
Pavo_muticus      -----INKILETEKELKCHQELLISDEKRKAE----- 1489
Pavo_cristatus    -----INKILETEKELKCHQELLISDEKRKAE----- 1489
Gallus_gallus     -----INKILETEKELKCHQELLISNEKMKAE----- 1502
Mus_musculus      IMDEALREERDOLRKSLOOTEARDLENOEKLRIAHMNLKEHQETIDRLMETMS----- 1790
Rattus_norvegicus IMDEALREERDOLRESLRQTEASDLEKEKLRIAHLDLKEHQETIERLMGSA----- 1779
Homo_sapiens      -----AODLKIQEEELRIAHMHLKEQQETIDKLRGIVS----- 1798
Pan_troglodytes   -----AODLKIQEEELRIAHMHLKEQQETIDKLRGIVS----- 1798
Macaca_mulatta    -----AODLKKQEEELRIAHMHLKEHQETIDKLRGIVS----- 1798
Callithrix_jacchus -----AODLKKQEEELKIAHVHLKEHQETINKLRGIVS----- 1799
Bos_taurus        RMEGTLKMERDOLRESLRETAKADLEKEEELRIAHHLKEHQETIDKLRGIVS----- 1791
Canis_lupus_familiaris RAERTLRMEQCOLRESLREKEAODLEKEEELRIVCMHVKEHQETIDKLRGLVS----- 1862
Equus_caballus     RVEETLRLTEREQOLRESLRETEATNLEKEEELRIAHMHLKEHQETIDKLRGIVS----- 1947
Heterocephalus_glaber GVEETLREEGEOLRRERLRRTEAEALQOEELRVAVHSLKEQRETTIDELRLRVS----- 1890
Rhinatrema_bivittatum QTLETLOAERDQHEKCIKENVDLSIKTOEELSMSQEKLRQKQLVEELRTQVVKCSVSIQ 2378
Xenopus_tropicalis HSKEQLALDTEHLRQTLKSKDLALGEMEDRDEAVNKVIALTENISFLEEQISENATTLN 2408
Danio_rerio        -----DGGDLQEILOQGVRELIVQGEELKQKKHQHSDP-----L 1883
                .....2530.....2540.....2550.....2560.....2570.....2580

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                .: .: .: .:
Pavo_muticus      EQEEHLLKVORRSEILQDSLTKNIQOLTETLNSIS-----S 1525
Pavo_cristatus    EQEEHLLKVORRSEILQDSLTKNIQOLTETLNSIS-----S 1525
Gallus_gallus     EQEEHLLKVORRSEILQDSLTKNIQOLTETLNSIS-----S 1538
Mus_musculus      EKTEEISNMKMELENNMKLOEKVQELKTSERQVVKLKAADASEAKK-----ELK 1839
Rattus_norvegicus KRTEEVSDNMMLERANTRLOEKVQELKASELQLLKSKEVAGETKK-----OLK 1828
Homo_sapiens      EKTDKLSNMQKDLNSNAKLOEKIQELKANEHOLITLKKDVNETQKKVS-EMEQLKKQIK 1857
Pan_troglodytes   EKTDKLSNMQKDLNSNAKLOEKIQELKANEHOLFPLKKDVNETQKKVS-EMEQLKKQIK 1857
Macaca_mulatta    EKTDKLSNMQKDLNSNAKLOEKIQELKANEHOLFPLKKDVNETQKKVS-EMEQLKKQIK 1857
Callithrix_jacchus EKTDKISDMQKDLNSNAKLOEKIQELKANEHOLFCKLKKDVSETQKKVS-EMEQLKKQIK 1858
Bos_taurus        EKAEEISNMQMDLNSDAKLOEKVQELKANEQRLFKLKEEISETKKKMC-DIEQLKNEFK 1850
Canis_lupus_familiaris EKTDEIANMQMDLNSNAKLOEKIQOLKANEHOLFPLKEDVSETQKKTS-EIERLKKQOLK 1921
Equus_caballus     EKTDEIANMQMDLNSNTKLQEKIQELKANEHOLFPLKEDVSETQKKMS-EIERLKKQOFK 2006
Heterocephalus_glaber EKTEEMSNNMKMDLETSSVKLOEKIGELKANEHLLVVKLKGDVGETQK-----OLK 1939
Rhinatrema_bivittatum EKSREVQVATSEQEKLSALQELKQKIAEQEOLFDAKKQHDKSQKKLATEVEQLOEELK 2438
Xenopus_tropicalis KVIDENESFSLSRQFSSQMEELRESLTKDFOLEKAKEKEIGDAVN-----NIK 2457
Danio_rerio        SPTHKQKAQLQQLQSLTTEMESLRNRMVLRKDLEDAAATSKMYQELHVSKEELKQOQK 1943
                .....2590.....2600.....2610.....2620.....2630.....2640

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                .: .: .: .:
Pavo_muticus      EKDLLLAERATHSFQLK-----EQISSINQEKDELQKLLQDISSERDQKIELQRSSE 1578
Pavo_cristatus    EKDLLLAERATHSFQLK-----EQISSINQEKDELQKLLQDISSERDQKIELQRSSE 1578
Gallus_gallus     EKDLLLAERATHSSFQLK-----EQISSISQEKDELQKLLQDISSERDQKMELOKSSE 1591
Mus_musculus      EQGLTLSKIEMENLNLAQKIHNLEEMKSVRKERDDLKKLEETILRMERDQKLDNLREAML 1899
Rattus_norvegicus EQGLALSKEIEMENLNLAQKIHNLEEMKSIKERDDLKRMEEILRMKDDQKLDLSREAKF 1888
Homo_sapiens      DQSLTLSKLEIENLNLAQKLHENLEEMKSVMKERNLRRVEETLKLERDQLKESLOETKA 1917
Pan_troglodytes   DQSLTLSKLEIENLNLAQKLHENLEEMKSVMKERNLRRVEETLKLERDQLKESLOETKA 1917
Macaca_mulatta    DQSLTLSKLEIENLNLAQKLHENLEEMKSVMKERNLRRVEETLKLERDQLMESLOETKA 1917
Callithrix_jacchus DQSLTLSRIEMENLNLAQKLHESLEEMKSVMKERYLRRVEETLKLERDQLKESLOETKA 1918
Bos_taurus        CQSLTMNKIEMENLNLAQKLHENLEEMKSVMKERNLRLGLEETLKLERDQLKADLQGSTA 1910
Canis_lupus_familiaris GQSLTLDKIEMENLNLAQKLHENLEEMKSVMQERDNLK-----LERDQLKTNLOETIA 1974
Equus_caballus     AQSLTLDKIEMENLNLAQKLHENLEEMKSVMKERNLRRVEEALKLERDQKLANLOETIA 2066
Heterocephalus_glaber DQSLMLSKMEMENLNLAQKLHENLEEMKSVAKERDGLRSMEEALMLERDRLREELREAAA 1999
Rhinatrema_bivittatum SSKFSLETAEEEEKLQVAEKLHELREKLNSVTQEREELQOMHEKLQAEKDQKKDISKSAE 2498
Xenopus_tropicalis DLTAKISSLEEEILQSADIVNETLSEKENLSHCKQQLASELEQLALTLNSRDHALVQAKR 2517
Danio_rerio        ENTELMEQSSARETQLOQQLNELNEDLTALKVLRDQHDTEIQLRQSEELRSLSREKEDLLE 2003
                .....2650.....2660.....2670.....2680.....2690.....2700

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Pavo_muticus	MHIETSAKLECALN-----	1592
Pavo_cristatus	MHIETSAKLECALN-----	1592
Gallus_gallus	MCIEITSTKLECALN-----	1605
Mus_musculus	K-----	1900
Rattus_norvegicus	K-----	1889
Homo_sapiens	RDLEIQQELKTARMLSKHEKTVDKLREKISEKTIQISDIQKDLKSKDELQKKIQELQK	1977
Pan_troglodytes	RDLEIQQELKTARMLSKHEKETADKLREKISEKTIQISDIQKDLKSKDELQKKIQELQK	1977
Macaca_mulatta	RDLEIQQELKTAHMLSKHEKETIDKLREKILEKTTQISNIRKDLKSKDELQKKIQELRK	1977
Callithrix_jacchus	R-----TQELLK	1925
Bos_taurus	RELETQEQLKIAHIRLKEHQETIDKLRRVSEKTFQVSNIQKDLNKSDEFQKKIQELQK	1970
Canis_lupus_familiaris	RDLETQQELKIALHLKEHQETIDKFRERVSEKTTQISNIQKDLNKSDELQKKIEELQK	2034
Equus_caballus	RDLETQQELKIARMLKEHQETIDKFRERVSEKTTQISNIQKDLNKADELQEK-----	2120
Heterocephalus_glaber	RGLETQQELKTAHQHLKEQQETIEKFRERVSEKTAQISNIQKALDQSKDELQEK-----	2053
Rhinatrema_bivittatum	QAKKQNEDEQQLKSQQLNLLKKKEEEKGNFQTFVSENKVLKETLNTMKDTIAQLEAEKAS	2558
Xenopus_tropicalis	EKDEAANKVASLTDEIRMLSKEMDEFDRDSKESLQKSAHLNEELSTCKTELQMIKQKKEE	2577
Danio_rerio	KSRAEGELLRRDLQTLQDQLEK-----	2025
2710.....2720.....2730.....2740.....2750.....2760	

Pavo_muticus	-----	1592
Pavo_cristatus	-----	1592
Gallus_gallus	-----	1605
Mus_musculus	-----	1900
Rattus_norvegicus	-----	1889
Homo_sapiens	KELQLLRVKEDVNMSHKKINEMEQLKKQFEAQNLSMQSVRMDNFQTKKLHESLEEIRIV	2037
Pan_troglodytes	KELQLLRVKEDVNMSHKKINEMEQLKKQFEAQNLSMQSVRMDNFQTKKLHESLEEIRIV	2037
Macaca_mulatta	KELHLLRMKEDVNMSHKKINEMEQLKKQFEAQNLSVQIVRMDNLELTKKLHESLEEIRIV	1984
Callithrix_jacchus	KELQLLRVKD-VNKYHQKINEMEQLKKQFEAQNLSVQIVRMDNLELTKKLHESLEEIRIV	1984
Bos_taurus	KELQLLKMKD-VSKTHKKVNEMKQKKQFEAQLSMQSVEMDNLHLTKKLYESLEEIRIV	2029
Canis_lupus_familiaris	KELQLLKMKEDVNKTHKNINKMEQLKKQFEAQNLSMQSVEMDNLDTKKLHKCLEEKRII	2094
Equus_caballus	-----	2120
Heterocephalus_glaber	-----	2053
Rhinatrema_bivittatum	LLAEKQDCDSQKATFIQERKQLOELLERVRAERERICLDLQEKDEMSSQLMNEIKMSQTS	2618
Xenopus_tropicalis	INNRLAEKVNEVDELLOQLSSLOQLDQIQKELKHEKLRN-----	2617
Danio_rerio	-----	2025
2770.....2780.....2790.....2800.....2810.....2820	

Pavo_muticus	-----RLKQORDLNDTSVQVNNLL	1609
Pavo_cristatus	-----RLKQORNLDTSVQVNNLL	1609
Gallus_gallus	-----KLKQORDLNDMSVQVNNLL	1622
Mus_musculus	-----AHQNHETMKCGKGLL	1916
Rattus_norvegicus	-----AHQNYEETVQYQKGLL	1905
Homo_sapiens	AKERDELRRIKESLKMERDQFIATLREMIAR-DRQNHQVKP-EKRLIL	2082
Pan_troglodytes	AKERDELRRIKESLKMERDQFIATLREMIARQDRQNHQVKP-EKRLIL	2083
Macaca_mulatta	AKERDELRRIKESLKMERDQFVATLREMIAR-DQQNHQVKP-EKRLIL	2082
Callithrix_jacchus	AKERDELRRIKESLKMERDQFIATLREMIARQDQQNHQVKP-EKRLIL	2030
Bos_taurus	AKERDELRRIKESLKMERDQCREKLRLDIARDQNHQEVKYEKRLIL	2075
Canis_lupus_familiaris	AKERDELRRIKESLKMERDQFRETILREMIASDQQNHQEVKYEKRLIL	2141
Equus_caballus	-----QDQQNIKEVLKYEKMLL	2137
Heterocephalus_glaber	-----DHQPHREARNSGRRSP	2069
Rhinatrema_bivittatum	VQSLQQKLEDMNECLSEKLSKESNLANHIASQDQLELLQNLQEEKRKNNELSNHIDLL	2678
Xenopus_tropicalis	-----YELCEKADLMEKEISVLRLM	2637
Danio_rerio	-----SPTQLQLSLTEERDQL	2042
2830.....2840.....2850.....2860.....2870.....2880	

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Pavo_muticus      DNAEQMDDDSLVS-----AKSLKIKELLEIFPDIRKRY-ECLSTMSL 1649
Pavo_cristatus    DNAEQMDDDSLVS-----AKSLKIKELLEIFPDIRKRY-ECLSTMSL 1649
Gallus_gallus     DNTEQMDDDSLVS-----AKSLKIKELLEIFPDIRKRY-DCLSTMSL 1662
Mus_musculus      CAG-EYCTGRLR-----EKCFRIEKLKRYSEMANDY-ECLNKVSL 1955
Rattus_norvegicus CGGEQHCTGRLR-----EKCLRIEKLKRYSEMANDY-ECLNRFSL 1945
Homo_sapiens      SDGQQHLTESLR-----EKCSRIKELLKRYSEMDDHY-ECLNRLSL 2122
Pan_troglodytes   SDGQQHLTESLR-----EKCSRIKELLKRYSEMDDHY-ECLNRLSL 2123
Macaca_mulatta    SDGQQHLTESLR-----EKCSRIKELLKRYSEMDDHY-ECLNRLSL 2122
Callithrix_jacchus SDAQQQLTESMR-----EKCSRIKELLKRYSEMDDHY-ECLNRLSL 2070
Bos_taurus        CDGNQHHLIGSLR-----EKCCRIKELLKRYSEMNDHY-ECLNRLSL 2115
Canis_lupus_familiaris CNEKHHLTESLR-----EKCSRIKELLKRYSEMYNHY-ECLTRLSL 2181
Equus_caballus     CDGQOHLTESLR-----EKCFRIEKLKRYTEMDSHY-ECLNGLCL 2177
Heterocephalus_glaber CGGEQPLARSLK-----EKGLRIGELLKSYELDNDHY-ECLNRLSL 2109
Rhinatrema_bivittatum NKEISLLQSKQNELHSSQTEIEISKFLSFREERNQQLQELMEKFSYVDTQHSSCLNRISS 2738
Xenopus_tropicalis QNEPQQEEDDVAER-----MDILECKNQEIQLMVKISAVYSDQHSLLTSLSS 2685
Danio_rerio       RRELQKMEKLT-----HIETKAEQLKQKILLESEVHSLSSQSLSEVNC 2086
.....2890.....2900.....2910.....2920.....2930.....2940

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Pavo_muticus      NLKAELDSQKAVIAAILTQLSS--EQSKEVNRLQMENR-----INGHLQSLLNKLK 1699
Pavo_cristatus    NLKAELDSQKAVIAAILTQLSS--EQSKEVNRLQMENR-----INGHLQSLLNKLK 1699
Gallus_gallus     NLKAELDSQKAVVAILTQLSS--DOSKEVNRLQMENR-----INGHLQSLLNKLK 1712
Mus_musculus      DLERETKTQKELSVTVRTKLSLPHQTKEMEKLLTANQR-----CSLEFHRALKRLK 2007
Rattus_norvegicus DLEKETKTQKELSVTIKTKLSLPHYTKIEKLLTANQR-----CSMEFHRILKKLK 1997
Homo_sapiens      DLEKEIEFQKELSMRVKANLSLPYLQTKHIEKLFTANQR-----CSMEFHRIMKKLK 2174
Pan_troglodytes   DLEKEIEIQKELSMRVKANLSLPYLQTKHIEKLFTANQR-----CSMEFHRIMKKLK 2175
Macaca_mulatta    DLEKEIEIQKELSMRVKANLSLPYLQTKQIEKLFTANQR-----CSMEFHRIMKKLK 2174
Callithrix_jacchus DLEKEIEIQKELLMRVKANLSLPYLQTKQIEKLFTANQR-----CSMEFHRVMKKLK 2122
Bos_taurus        DLKKEIETQKELSIRVKANLSLPCPQTKQIQKLLTANQR-----CSMEFHRVVMKLO 2167
Canis_lupus_familiaris DLEKEIETQKELSVTIKANLSLPHSQIKQIEKLLAVNQR-----CSMEFHRIKRFQ 2233
Equus_caballus     DLEREIETQRELIRVKANLSLPHQPTROIQKLLTANQR-----CSMEFHRVMKKLK 2229
Heterocephalus_glaber DLEKEIETQKELSTRVKANLSPOHPQSKQVORLLTASQR-----CSMEFHRVMRKLK 2161
Rhinatrema_bivittatum ELGKEVECKELMAKANEFFSA--TLMPFTKLQNEHLK-----LNTQFQTLHLKFK 2788
Xenopus_tropicalis ELQKETEAKQKQSMNLNIKESLSS--MLSRSGSVQTEHVK-----LNTQLQTLHLKFK 2735
Danio_rerio       SVSPDQNNQSKHLIMAGIETSEEKLTQFTKLOQIMERPVVDQLSDVNREEWAVLYQLVP 2146
.....2950.....2960.....2970.....2980.....2990.....3000

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Pavo_muticus      FLFGRVCSKKKDYHATVNKYVMELYEEKKKQHQLQFQIQCLKKFHLNQ-NEISSQELNVE 1758
Pavo_cristatus    FLFGRVCSKKKDYHATVNKYVMELYEEKKKQHQLQFQIQCLKKFHLNQ-NEISSQELNVE 1758
Gallus_gallus     FLFGRVCSKRKDYHATVNKYVMELYEEKKKQHQLQVQIQCLKRFSDS-NETSQELNAE 1771
Mus_musculus      YVLSIARIKEEQHESINKREMAFIQVEKQNELQIQISLSQTY----RIPARDLQ-IK 2062
Rattus_norvegicus YVLSYITRIKEEQHEFINKFEMAFIQVEKQNELQIKIQLSOTS----NIPSRDSQ-SK 2052
Homo_sapiens      YVLSYVTIKIEEQHESINKFEMDFIDEVEKQKELLIQIHLQQDC----DVPSRELRLDLK 2230
Pan_troglodytes   YVLSYVTIKIEEQHESINKFEMDFIDEVEKQKELLIQIHLQQDC----DVPSRELRLDLK 2231
Macaca_mulatta    YVLSYVTIKIEEQHESINKFEMDFIDEVEKQKELLIQIHLQQDC----DVPSRELRLDLK 2230
Callithrix_jacchus YVLSYVTIKIEEQHESINKFEMDFIDEVEKQELLIKIHLQQDC----DVPSRELRLDFK 2178
Bos_taurus        YVLSYVARTKEEQHESINKYEMAFIDEVEKQNELLMKIQHLQQDY----DVPPGESRDLR 2223
Canis_lupus_familiaris YVLSQITIKIEEQHESINKLEVVFIDEVEKHNLVIKIQHLQQDF----NVPSGELTDLK 2289
Equus_caballus     YVLSHVTIKIEEQHESISKLEMFIDEVEKQNELLSKMOHLQQDD----DVPSRELGLDLO 2285
Heterocephalus_glaber YVLSHVTIKIEEQHESINKLEMAVGEVEKQELR---DRLQRAF---DGPRTESRLHR 2214
Rhinatrema_bivittatum FVCKTFS-LKEEHCSLVQDYEKDLADEKQTDLELLQIKNIKNGTSL-BAASQKYRSDE 2846
Xenopus_tropicalis VVY--RTAAVKEDYSLIQDYEKELASEQKRHDELQLOLQCFEQHGTKWSDSASDELKFCE 2793
Danio_rerio       FIPKERRTINATHTKKTRLNHAIIKIAEAYQRLAHRFHTHFTELQRDVCCFQESRLQD 2206
.....3010.....3020.....3030.....3040.....3050.....3060

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: . * . :
: :
: :
Pavo_muticus      : QSLHMNTQIILKDISEMESELLSIEAELOQEEASTRKETTQFWETCSGHHCDI 1812
Pavo_cristatus    : VW-----QSLHMNTQIILKDISEMESELLSIEAELOQEEASTRKETTQFWETCSGHHCDI 1812
Gallus_gallus     : VW-----QSLHLNTQIILKDVSEMESELLSIEAELOQEEASTRKETTQFWETCSGHHCDI 1825
Mus_musculus      : LS-----QEMDLHIEEILKDFSEND--FLTITKTEFQOVLNRRKEITEFLGKWLNTLFDI 2114
Rattus_norvegicus : LS-----QEMDLHIEEILKDFSEND--FLTITKTEFQOVLNRRKEITEFLGKWLNTLFDI 2104
Homo_sapiens      : LN-----QNMDLHIEEILKDFSESE--FPSIKTEFQOVLNRRKEMTQFLEEWLNTRFDI 2282
Pan_troglodytes   : LN-----QNMDLHIEEILKDFSESE--FPSIKTEFQOVLNRRKEMTQFLEEWLNTRFDI 2283
Macaca_mulatta    : LN-----QNMDLHIEEILKDFSESE--FPTIKTEFQOVLNRRKEMTQFLEEWLNTRFDI 2282
Callithrix_jacchus : LS-----RNIDLHIEEILKDFSESE--FPSIKTEFQOVLNRRKEMTQFLEEWLNTRFDI 2230
Bos_taurus        : LN-----QSMDLHIEEILKDFSESD--FHSIKTEFQOVLNRRKEMTQFLEEWLNTRFDI 2275
Canis_lupus_familiaris : LS-----QKMDLRIEIEILKDLSEND--FHLKTEFQOVLNRRKEMTQFLEEWLNTRFDI 2341
Equus_caballus    : LS-----QKMDLHIEEILKDFSECD--FHSIKMEFQOVLNRRKEMTQFLEEWLNTRFDI 2337
Heterocephalus_glaber : LH-----RLMDLHIEEILKDLSENE--FSSIKIEFQOVLNRRKEMTQFLEEWLNTRFDI 2266
Rhinatrema_bivittatum : LASLKVSLQKKEEFIQKIMEDFSEMEHNLKNVWAELOQEEVDGRKNIMEFLGACTEHNFDA 2906
Xenopus_tropicalis : LEFLNQLLFKKTNIIQCVQDDFSEVQOVLNHHVGSALQEELEQKREFMQWLEEFEDLNIDA 2853
Danio_rerio       : LLLCIS--PAPSQSLCSLQDDFQQLWEQRLSHLLEKROQYLQKLECVLVVLEEGLSRVAAE 2264
.....3070.....3080.....3090.....3100.....3110.....3120

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Pavo_muticus      : EELKEELKKDNERLLQVIKFWTPKGKILLQLSSELDDRTLTCKNADVEWKQKKEKSEEL 1872
Pavo_cristatus    : EELKEELKKDNERLLQVIKFWTPKGKILLQLSSELDDRTLTCKNADVEWKQKKEKSEEL 1872
Gallus_gallus     : EELKEELKKDNERLLQVIKFWTPKGKILLQLSSELDDRTLTCKNADVEWKQKKEKSEEL 1885
Mus_musculus      : ENLKSTIQKENKSIGLVNNFYHSRITAMINESTEFEEERSATRSKDLDOYLKSLKETTEQL 2174
Rattus_norvegicus : ENLKSTIQKENKSIGLVNNFYHSRITAMINESTEFEEERSATRSKDLDOYLKSLKETTEQL 2164
Homo_sapiens      : EKLKNGIQKENDRICQVNNFFNNRIIAIMNESTEFEEERSATRSKDLDOYLKSLKETTEQL 2342
Pan_troglodytes   : EKLKNGIQKENDRICQVNNFFNNRIIAIMNESTEFEEERSATRSKDLDOYLKSLKETTEQL 2343
Macaca_mulatta    : EKLKNGIQKENDRICQVNNFFNNRIIAIMNESTEFEEERSATRSKDLDOYLKSLKETTEQL 2342
Callithrix_jacchus : EKLKNGIQKENDRICQVNNFFNNRIIAIMNESTEFEEERSATRSKDLDOYLKSLKETTEQL 2290
Bos_taurus        : EKLKNGIQKENDRICQVNNFFNNRIIAIMNESTEFEEERSATRSKDLDOYLKSLKETTEQL 2335
Canis_lupus_familiaris : EKLKNGIQKENDRICQVNNFFNNRIIAIMNESTEFEEERSATRSKDLDOYLKSLKETTEQL 2401
Equus_caballus    : EKLKNGIQKENDRICQVNNFFNNRIIAIMNESTEFEEERSATRSKDLDOYLKSLKETTEQL 2397
Heterocephalus_glaber : EKLKNGIQKENDRICQVNNFFNNRIIAIMNESTEFEEERSATRSKDLDOYLKSLKETTEQL 2326
Rhinatrema_bivittatum : TQLCEKIQENKRIQVIQQLTKTLQIMVQRKTQWKIR--NYFKEYELELDKDKVQTEEL 2964
Xenopus_tropicalis : KKLSEGVQQENKRIASTIQLLTKRLKAVVQS--KIQREVTVYLNQFEVKLLETKENREL 2911
Danio_rerio       : MLSEERQHRTEELQELKTLRLSAHADAVIELLERQISRDRKAAERLNTTYFVLLNKCDS 2324
.....3130.....3140.....3150.....3160.....3170.....3180

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:
Pavo_muticus      : LRDLKTLKEQLAPGGSAHLLLEENYKLHTELKAAKQDIKALQVKLQTLNLSVNEAGKNL 1932
Pavo_cristatus    : LRDLKTLKEQLAPGGSAHLLLEENYKLHTELKAAKQDIKALQVKLQTLNLSVNEAGKNL 1932
Gallus_gallus     : LQDLETTLKEQLAPGRSAHLLLEENYKLHTELKAAKQDIKALQVKLQTLNLSVNEAGKNL 1945
Mus_musculus      : SEVYQTLTASQSVVH--LHPTVQPSRDSERQAASGAEQLTSK----- 2216
Rattus_norvegicus : SKVYQSLTVSWSIVR-----PSTQDSKDPRALEAEQLTSK----- 2200
Homo_sapiens      : FKNYQTLKTSLSA-----GAQVNPTTQDNKNPHVTSRATQLTTEKIRELENSLHEAKESA 2397
Pan_troglodytes   : FKNYQTLKTSLSA-----GAQVNPTTQDNKNPHVTSRATQLTTEKIRELENSLHEAKESA 2398
Macaca_mulatta    : FKNYQTLKTSLSA-----GAQVNPTTQDNKNPHVTSRATQLTTEKIRELENSLHEAKESA 2397
Callithrix_jacchus : LKNYQTLKTSLSA-----GAEVNPTTQDNKNPHVTSRATQLTTEKIRELENSLHEAKESA 2345
Bos_taurus        : FKNYQTLKLSLTP-----GALVNPTTQDNKNPHVTSRATQLTTEKIRELENSLHEAKESA 2389
Canis_lupus_familiaris : FKNYQTLKLSLTP-----GIPVNSATQDNKNPHVTSRATQLTTEKIRELENSLHEAKESA 2456
Equus_caballus    : LKNYQTLKLSLTP-----GALVNPTTQDNKNPHVTSRATQLTTEKIRELENSLHEAKESA 2452
Heterocephalus_glaber : LRDCQVLAASLLSAH---GDPASVTLTASESPQVPPGAAQLATQKIQDLESSLHAKESA 2383
Rhinatrema_bivittatum : KSVFKKLTSSATAIN-----FEEETIKLSNQLKASEQEKKMQMKIQMLENDLCKASKDV 3019
Xenopus_tropicalis : MRRIEHHAPSASVME-----EENARLLDKLKTVDQESKKLQSRQKLENELNLVKND 2964
Danio_rerio       : INPLKSSSESERRLEDQRRQTLTLTKAQNGTLPKTEAELLQDNQHLSQLQQAHRHVEE 2384
.....3190.....3200.....3210.....3220.....3230.....3240

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Pavo_muticus	REKDDKINKLQAQIRITTTNSSELTQLOAKLNETEKCLRTSLAENQSLQAKLDKGAELYKE	1992
Pavo_cristatus	REKDDKINKLQAQIRITTTSSSELTQLOAKLNETEKCLRTSLAENQSLQAKLDKGAELYKE	1992
Gallus_gallus	REKDDKINKLQAQIRITTASSELTQLOAKLNETEKCLRASLTENQSLQAKLDKGAKLYKE	2005
Mus_musculus	-----NKIALGAVPYKE	2228
Rattus_norvegicus	-----DKNALGAMPYKE	2212
Homo_sapiens	MHKESKIIKMQKELEVNTNDI--IAKLOAKVHESNKCLEKTKETIQVLQDKVALGAKPYKE	2455
Pan_troglodytes	MHKESKIIKMQKELEVNTNDI--IAKLOAKVHESNKCLEKTKETIQVLQDKVALGAKPYKE	2456
Macaca_mulatta	MHKESKIIKMQKELEVNTNDM--IAKLOAKVNESNKCLETIKETIQVLQDKVALGAKPYKE	2455
Callithrix_jacchus	MHKESKIIKMQKELEVANNI--IAKLOAKVNESNKCLEKQKETIQVLQEKVASGAKPYKE	2403
Bos_taurus	MHKEGKIMKMQKELEMTNDV--IAKLOROVNESNEHLEKTKEMIQVLQDKAALGAKPYKE	2447
Canis_lupus_familiaris	LHKENKIVKMQKELEMTNDI--IAKLOSQVNESNKCLEKTKERIQLLQDKVALGAKPYKE	2514
Equus_caballus	MQKEDKIIKMQKELEMTNDI--IAKLOSQVNESNKCLEKTKEMIQVLQDKVALGAKPYKE	2510
Heterocephalus_glaber	VCKEDEIRRIQKELEMSSDV--NAKLOAKVNESNKFLEKTNAMIQALQDEVALGAKPYKE	2441
Rhinatrema_bivittatum	KLTEEKATVLQKKLESKTAEHELKELETKLLERECHIEKISTEMKGLKAMLQDQAKPYQE	3079
Xenopus_tropicalis	RQKEEKVAVLQDKLLSRTAEADLKEMOLKLTQKQNRLOAAMKDIONLQERVAKGAAPYKD	3024
Danio_rerio	IQEOMKELQVQADASNQKQHEDLQELRVQLMEKQNLVQSLEDKLRHSEALVKSSMTFAAS	2444

.....3250.....3260.....3270.....3280.....3290.....3300

Pavo_muticus	EIDQLKTQLVKCDMERMKQSNFDMKLANYKALAEHQEEQLRKLKEELRRAQOEQDVTVM	2052
Pavo_cristatus	EIDQLKTQLVKCDMERMKQSNFYDMKLANYKALAEHQEEQLRKLKEELRRAQOEQDVTVM	2052
Gallus_gallus	EIDQLKTQLVKCDMERMKQSNFDMKLANYKALAEHQEEQLRKLKEELRRAQOEQDVTVM	2065
Mus_musculus	EIEDLKMQLVKSLEKKATAKEFDKKILSLKATVEHQEEMIRLLRENLRHQAQDTSMI	2288
Rattus_norvegicus	EIEDLKMQLVKIDLEKKAKAKEFEKEMLAIKATVEHQEEVIRLLRENLRNQAQDTSML	2272
Homo_sapiens	EIEDLKMMLVKIDLEKMKNAKEFEKEISATKATVEYQKEVIRLLRENLRSSQAQDTSVI	2515
Pan_troglodytes	EIEDLKTTLVKIDLEKMKNAKEFEKEISATKATVEYQKEVIRLLRENLRSSQAQDTSVI	2516
Macaca_mulatta	EIEDLKTTLVKIDLEKMKNAKEFEKEISATKATVEYQKEVIRLLRENLRSSQAQDTSMI	2515
Callithrix_jacchus	EIEDLKMMLVKIDLEKMKNAKEFEKKITAVKATVEHQEEVIRLLRENLRSSQAQDTSMI	2463
Bos_taurus	EIEDLKMMLVKVDLEKMKNAKEFEKEIASATKATVEYQKEVIRLLRENLRNQAQDTSIL	2507
Canis_lupus_familiaris	EIEDLKMMLVKMDLEKKNAKEFEKEITSTKATVEHQKEVIRVLRENLRNQAQDTSIV	2574
Equus_caballus	EIEELKTTLVKIDLEKMRNAKEFEKEITCTKATVEHQKEVIRLLRENLRNQAQDTSMI	2570
Heterocephalus_glaber	EIEDLKTTLVRSLEKMQTAKEFEKEIISAKATVDHQREVIRLLRENLRRTQAQDTSMI	2501
Rhinatrema_bivittatum	EISKLKTQLVRLMEKMKQSKLMDQKFASVKSCLDDKEENVRLKLEQLRRAQDHDASIL	3139
Xenopus_tropicalis	EIDNLKTQVVKIEMEIKIYSKATDQEIASLKSCLDDKEECLRLKLEELRRAQADSDDTVC	3084
Danio_rerio	ELAALKDKLVKMELEHIAVTTSHKEKISQSSMLEHRGQDVIRKLKETLRKQQQDDEQSFT	2504

.....3310.....3320.....3330.....3340.....3350.....3360

Pavo_muticus	SEKEAPKNPKESQMPMPITCGGSGIVQSTQMLVLKSEQVKLOKENLHLKKOND-----	2106
Pavo_cristatus	SEKEAPKNPKESQMPMPITCGGSGIVQSTQILVLKSEQVKLOKENLHLKKOND-----	2106
Gallus_gallus	SEKAAP---QLSQMPMPITCGGSGIVQSTQILVLKSEQVKLOKENLHLKKOND-----	2116
Mus_musculus	SEQ-DSQLLSK-----PLTCGGSGIVQSTKALILKSEYKRMGSEISKLKQONEQLRKON	2342
Rattus_norvegicus	SEQ-DSHPLRK-----PLTCGGSGIVQSTKALILKSEYKMESEISKLKQONEQLRKOK	2326
Homo_sapiens	SEHTDPQPSNK-----PLTCGGSGIVQNTKALILKSEHIRLEKEISKLKQONEQLIKOK	2570
Pan_troglodytes	SEHTDPQPSNK-----PLTCGGSGIVQNTKALILKSEHIRLEKEISKLKQONEQLIKOK	2571
Macaca_mulatta	SEHTDSQPSNK-----PLTCGGSGIVQNTKALILKSEHIRLEKEISKLKQONEQLIKOK	2570
Callithrix_jacchus	SEHTDSQPSNK-----PLTCGGSGIVQNTKALILKSEHIRLEKEVSKLKQONEELIKOK	2518
Bos_taurus	SEHTDSQPSNK-----PLTCGGSGIVQSTKALILKSEYIRLEKEVSRLKQONEQLMKOK	2562
Canis_lupus_familiaris	SEYTDSPPNK-----PLTCGGSGIVQSTKALILKSGYIRLEKEISKLKQONEQLIKOK	2629
Equus_caballus	SEHTDSQPSK-----PLTCGGSGIVQSTKALILKSEYIRLEKEISKLKQONEQLTKOR	2625
Heterocephalus_glaber	VEPGDPQPPQK-----PLTCGGSGIVQSTKALILKSEYIRLEKELAKLKQONEQLVQOK	2556
Rhinatrema_bivittatum	PEKDQPCPSV-----VTCGGSGIVQSTAMLVMSKSEKTNLEKELAQLKKKYDR-----	3188
Xenopus_tropicalis	IAKDYRKASNF-----PVTTCGGSGIVQSTAMVLQSEKAALERELAHYKKKYHHLSTI	3139
Danio_rerio	DGDEFELKTSSR---ATTTLEKKMEDLQKNAQFESLVSKQEEISKWKRRAYKMKESK	2561

.....3370.....3380.....3390.....3400.....3410.....3420

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                                . :
                                * *
Pavo_muticus      -ILLSNELQLKEELRKWKERA-LKLRERFSRETTQETVPRSPR-----KTVSC 2152
Pavo_cristatus    -ILLSNELQLKEELRKWKERA-LKLRERFSRETTQETVPRSPR-----KTVSC 2152
Gallus_gallus     -VLLSNELQLKEELRKWKERA-LKLRERFSRETTQETVPRSPR-----KTVSC 2162
Mus_musculus      NQLLSDNSQLSNEVKTWEERT-LKRDS--YRETTCE NSPKSPK-VTRIDSKRRONTISQC 2398
Rattus_norvegicus NQLLCDNSQLSKEVKSWEERT-LRRDS--YREASHENPPKSPA-VTGME SKRRONTIASQC 2382
Homo_sapiens      NELLSSNNQHLSNEVKTWKERT-LKREA--HKQVTCENSPKSPK-VTG TASKKKQITPSQC 2626
Pan_troglodytes   NELLSSNNQHLSNEVKTWKERT-LKREA--HKQVTCENSPKSPK-VTG TASKKKQITPSQC 2627
Macaca_mulatta    NDLLSNNQHLSNEVKTWKERT-LKREA--YKQVTCENSPKSPK-VTG TASKKKQITPSQC 2626
Callithrix_jacchus NELLSSNNQHLSNEVKTWKDRS-LKREA--HKQVTCENSPKSPK-VTG TVSKKKQITPSQC 2574
Bos_taurus        NELSS-----ELKTWKERM-LKREVE--HKEVTCENSPKSPK-VTG TPKKKRHHMSSQC 2611
Canis_lupus_familiaris NELLSSNNHLSNEVKTWKERI-LKREA--HREVTCE NSPKSPK-VTITAPKKRPHTPSQC 2685
Equus_caballus     NELLSSNNHLSNEVKKMWKERT-LKREA--HKEVTCENSPKSPK-VTG PASQKROHTPSQC 2681
Heterocephalus_glaber GELLSSNNQQLCSELKAWKERA-RKREA--PQEVSC EALPKSPVRAPRTGITRRPSAPAQC 2613
Rhinatrema_bivittatum --QLRHESLLKEELQKWEKA-VKCTQSSQLEV VHKHLPVSPR-KTETIPMMNTENVSSH F 3244
Xenopus_tropicalis SNS EDDLKKTAKSDVHSSHTGSSHRGFP HKTETTYRHGPVSPGRSEMP SLOPGSPKKS ES 3199
Danio_rerio       RDAPCTPTKRDA PRTPTKRHPALAE TEVNSPKRSVLDSPKSRFFDLRSVPLSLSHHTQF 2621
                .....3430.....3440.....3450.....3460.....3470.....3480

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                                .
Pavo_muticus      SLREPASPSKE----- 2163
Pavo_cristatus    SLREPASPSKE----- 2163
Gallus_gallus     SVKEPTSPSKE----- 2173
Mus_musculus      RAQNLQDPVPK----- 2409
Rattus_norvegicus KERNFQDPVPK----- 2393
Homo_sapiens      KERNLQDPVPK----- 2637
Pan_troglodytes   KERNLQDPVPK----- 2638
Macaca_mulatta    KERNLHDPTPK----- 2637
Callithrix_jacchus KERNLQDPVPK----- 2585
Bos_taurus        KERNVQDPVPK----- 2622
Canis_lupus_familiaris KERNLQDPVPR----- 2696
Equus_caballus     KERNLQDPVPK----- 2692
Heterocephalus_glaber KERNLQDPAPL----- 2624
Rhinatrema_bivittatum KEVSSQETPIP----- 3255
Xenopus_tropicalis HNKR VVSPNRS E MYSQLVMSPGKTGMHKKHVLSPSKAGLHKKRTVSPNRS E IPIQH ALS P 3259
Danio_rerio       FDNSSLGTVPEVS----- 2634
                .....3490.....3500.....3510.....3520.....3530.....3540

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                                . . .
Pavo_muticus      -----SVSQETVTIQYISKPLPLTCPTNFF 2187
Pavo_cristatus    -----SVSQETVTIQYISKPLPLTCPTNFF 2187
Gallus_gallus     -----SLSQETVTIQYISKPLPLTCPTNFF 2197
Mus_musculus      -----DSPKSWFFDNRSKSLPAPHPPIRYF 2433
Rattus_norvegicus -----DSPKSWFFDSRSKSLPAPPPPIRYF 2417
Homo_sapiens      -----ESPKSCFFDSRSKSLSPHPVRYF 2661
Pan_troglodytes   -----ESPKSWFFDSRSKSLSPHPVRYF 2662
Macaca_mulatta    -----ESPKSWFFDSRSKSLSPHPVRYF 2661
Callithrix_jacchus -----ESPKSGLFDSRSKSLSPHPVRYF 2609
Bos_taurus        -----ESPKSWFFDNRSKSLPVPVPVRYF 2646
Canis_lupus_familiaris -----ESPKSWFFDSRSKSLSPHPVRYF 2720
Equus_caballus     -----DSPKSWFFDGRSKSFPAPHPVRYF 2716
Heterocephalus_glaber -----DSPRSRFFDPRS KSFPAPRPAHYF 2648
Rhinatrema_bivittatum -----DSPKDKVSDLRTKYLTISRPIQFF 3279
Xenopus_tropicalis GKAGLHKIHTVSP LKTEGTLFGNLS PCKQONVQENLDS PKNTFFDMKSKSLPY-CPSQFF 3318
Danio_rerio       -----CTPAEPAATAADSS 2648
                .....3550.....3560.....3570.....3580.....3590.....3600

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*..      :      .      .      *      .
Pavo_muticus      DNSNLGTLIDTQ-PAGIESTEDHLKKWFETSEKDKASDCNTQ      2228
Pavo_cristatus    DNSNLGTLIDTQ-PAGIESTEDHLKKWFETSEKDKASDCNTQ      2228
Gallus_gallus     DNSNLSLTLDTQ-PAGTESTEDHFKKWFETSEKDRVSDCNTQ      2238
Mus_musculus      DNSSLGLCPE---PDDVENVEPKTDLCQASLEKD-VSQCKTQ      2471
Rattus_norvegicus DNSSLGLCPEE--PAEIENVDPKANLCQASSGKD-VSECKMQ      2456
Homo_sapiens      DNSSLGLCPEVQ-NAGAESVDSQPGPWHASSGKD-VPECKTQ      2701
Pan_troglodytes   DNSSLGLCPEVQ-NAGAESVDSQPGPWHASSGKD-VPECKTQ      2702
Macaca_mulatta    DNSNLGLCPEVQ-NAGAESVDSQPGPWHASSGKD-VPECKTQ      2701
Callithrix_jacchus DNSSLGLCPEIQ-NAGAESVDSQPGPWHASSGKD-VPECKTQ      2649
Bos_taurus        DNSSLGLCPEEQ-TAEVETEDPQPGPWQMSSGRD-VPECKTQ      2686
Canis_lupus_familiaris DNSSLGLCPEEQ-IAGAENVDPQPGPWHASSGKD-VPECKTQ      2760
Equus_caballus    DNSSLGLRPEEQ-TAGAESVDPOPGPWHASSGQA-VPECKTQ      2756
Heterocephalus_glaber DNSSLGLCPEEQ-AVGTEENVDP--PEFLPSAALRD-APECRMQ      2686
Rhinatrema_bivittatum DNSSFATLPDDVPSENVPEKDPINNWWTAPDKNDVVPECKTS      3321
Xenopus_tropicalis DNSKLGDFSELN--MAETSAKSQSDNWWCDTKKETAPECKTS      3358
Danio_rerio       DSDDEDCSSNAAVMSNAAHKDDWWQIPDASPTKTDINACPTQ      2690
.....3610.....3620.....3630.....3640..

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