

CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep_msa/DNA.fasta Date: Tue Feb 1 11:57:11 2022

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Mus_musculus	-----	
Rattus_norvegicus	-----	
Canis_lupus_familiaris	-----	
Felis_catus	-----	
Equus_caballus	-----	
Bos_taurus	-----	
Homo_sapiens	-----	
Pan_troglodytes	-----	
Macaca_mulatta	-----	
Callithrix_jacchus	-----	
Pavo_muticus	-----	
Pavo_cristatus	-----	
Gallus_gallus	-----	
Chelonia_mydas	-----	
Rhinatrema_bivittatum	-----	
Xenopus_tropicalis	-----	
Latimeria_chalumnae	MSVELIMGQRLLEESQSRNPVFQEQCEEAEPSSQEEQVSGESLPGDIMNRSAPAFQEQCEEA	60
	1.....10.....20.....30.....40.....50.....60	
Mus_musculus	-----	
Rattus_norvegicus	-----	
Canis_lupus_familiaris	-----	
Felis_catus	-----	
Equus_caballus	-----	
Bos_taurus	-----	
Homo_sapiens	-----	
Pan_troglodytes	-----	
Macaca_mulatta	-----	
Callithrix_jacchus	-----	
Pavo_muticus	-----	
Pavo_cristatus	-----	
Gallus_gallus	-----	
Chelonia_mydas	-----	
Rhinatrema_bivittatum	-----	
Xenopus_tropicalis	-----	
Latimeria_chalumnae	EPSQKEMSEVLVAGESLPEETMNGNPGLQDQCEGPESGQEEKNEVQVTGESLPGETMNGN	120
70.....80.....90.....100.....110.....120	
Mus_musculus	-----MHPEVSE---PPVDSVA---	14
Rattus_norvegicus	-----MANGITKGCAPPWTAAD---	17
Canis_lupus_familiaris	-----MSMHPEASGPAVDGRAGQGRAQ	22
Felis_catus	-----MHPETSEPVVDGPAAEQGCAQ	20
Equus_caballus	-----MHPEVSEPVADGGAEQDCAQ	20
Bos_taurus	-----MHPEASEPVVDGVAEQECAQ	20
Homo_sapiens	-----MHPEPSEPATGGAAELDCAQ	20
Pan_troglodytes	-----MHPEPSEPAAGGAAELDCAQ	20
Macaca_mulatta	-----MHPKPSEPAAGGAAELDCTQ	20
Callithrix_jacchus	-----MHPEPSEPEADGAAKLDCTQ	20
Pavo_muticus	-----MQSHSREL--DRGHYGAVIAPEVLGETLSNTGNEAAHARSEG	40
Pavo_cristatus	-----MQSHSREL--DRGHYGAVIAPEVLGETLSNTGNEAAHARSEG	40
Gallus_gallus	-----MQSHSREL--DRGHEAAVIAPEVLRETLSTGNEAAHARSED	40
Chelonia_mydas	-----MAELKMRPPYGETGPEKGIKEEFNEQDMTEESPDCRNGDIQTNNEN	47
Rhinatrema_bivittatum	-----MVTEACGGSLLGGKDANPLRMQPKH	24
Xenopus_tropicalis	-----	
Latimeria_chalumnae	PDLOKQCEEAKPSMEKMSVHVTEESLPGETMNGETVPQDQSEEELESSQEGKSEAQLIGE	180
130.....140.....150.....160.....170.....180	

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Mus_musculus          -----EPSLEESAG-----DHGDAGPGI-----RKEEISETKE      42
Rattus_norvegicus     -----EPLQSDPGHTKQLDETEGSHTH-----SRTEINETKE      49
Canis_lupus_familiaris -----EPGVEQSAG-----DHGDAGPAG-----RKEEINDPKE      50
Felis_catus           -----EPGVESASG-----DHGDADLGG-----RKEAIDDPKE      48
Equus_caballus        KPVVVEPGGELGAEPGAESASG-----DHGNAGQGD-----RKEEINDPKE      60
Bos_taurus            -----EPGVESASG-----DHGNAGEGG-----RKEEMNDPKE      48
Homo_sapiens           -----EPGVESASG-----DHGSAGRGG-----CKEEINDPKE      48
Pan_troglodytes        -----EPGVESASG-----DHGSAGRGS-----CKEEINDPKE      48
Macaca_mulatta         -----ESGLEESAG-----DHGSAGPGG-----CKEEINDPKE      48
Callithrix_jacchus     -----EPGVESASG-----DHASAGLGGC-----CKEEINEPKE      49
Pavo_muticus          CPVSRVSGPEAKLECSEQEPEEKTIENAIGQRQHEDNLNDYSTGDTLQKVQ-KDVKTEEK      99
Pavo_cristatus        CPVSRVSGPEAKLEGSEQEPEEKTIENAIGQRQHEDNLNDYSTGDTLQKVQ-KDVKTEEK      99
Gallus_gallus         CPVSRVSGPEAKLEGSEQVSEKTIENAIGQRQCKDNLNDYSTGDTLQKVQ-KDVKTEQK      99
Chelonia_mydas         SLVK--TELQSQPDVEPEPEEGIKDDVNVQRKSEIILNDYSTGDTMIAVKTEDTKSEEK      105
Rhinatrema_bivittatum -----QDPAQKVGTTDWMKNSQSGDLVNGSDN-----GNSETKDITKQNE--NFKDEYT      71
Xenopus_tropicalis     -----MQSVCAEFVE-----EKDRCQIMNS-----LENEHCVTIDGNAA      33
Latimeria_chalumnae    SLPGIEIMNGNSGLQEQCPEEPVASQEETS KAQVTVKSLLGETITGDTVLQENHKETDKIAA      240
.....190.....200.....210.....220.....230.....240

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Mus_musculus          TCAGPCTTSCPSQQQPSGDNGSEGF-----CTHSRDDREDRGPRMTKQFLQKLCK      92
Rattus_norvegicus     TCVGPCTTSCQSQQQPSGDNGSDGL-----FTHSRDDRDRGPRMTKQFLQKLCK      99
Canis_lupus_familiaris TCVPSPDTSYPSKQKQSGDSRSGSC-----LANERDDQENHSRPMTKSFLOKLCK      100
Felis_catus           TRVGPSDLRYPSEQKQSGDSGADGH-----LGHQTDDKGDHGPRMTKRFIQKLCK      98
Equus_caballus        TNAGPSDTAYQNEQNQSGDSRSDGC-----LANQRDDKEDRGPRMTKSFLOKLCK      110
Bos_taurus            TCVGPLNTSCLSEQKQSGDSWSDGR-----LAHQRADKEDRGARMTKKFLQKLCK      98
Homo_sapiens           ICVGSSDTSYHSQQKQSGDNGSGGH-----FAHPREDREDRGPRMTKSSLQKLCK      98
Pan_troglodytes        ICVGSSDTSYHSQQKQSGDNGSAGH-----FAHPREDREDRSPRMTKSSLQKLCK      98
Macaca_mulatta         ICVGSSATSYSQQKQSGDNGSGGH-----CAHPREDREDQGPMTKSSLQKLCK      98
Callithrix_jacchus     TCVCSSDTSYSQQKQSGDNGSDGH-----FPHPREDRDRGPRMTKSSLQKLCK      99
Pavo_muticus          AINCTSRADQRDEQKLVDHKS VTS-----SFSQKTEEGGGCVRMTKKILODICK      149
Pavo_cristatus        AINCTSRADQRDEQKLVDHKS VTS-----SFSQKTEEGGGCVRMTKKILODICK      149
Gallus_gallus         AINCTSRADQNEQKLVDHKL VTS-----SFTQKTEEGGGCVRMTKKILODICK      149
Chelonia_mydas         TVYTVSKTYQQDEQQSGGDHKL PVTN-----SSSHEAEENKGLRMTKKLLRDICK      155
Rhinatrema_bivittatum GKEPQSKSSQENNFKESDDKLT AHF-----PFNKKEVQENG-PRMTKKFLRDHCK      120
Xenopus_tropicalis     PVCKP-LTGSNCK--KSGDCED-----SSNKEKETGPRMTKKVLREICK      74
Latimeria_chalumnae    TPSGIGTTGDTVETNKQGGSQQNTKMQYYDQKSEIQ LASKKEEKDIGPRMTKKFLRDHCK      300
.....250.....260.....270.....280.....290.....300

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Mus_musculus          QHKLYVTPALNDTLYLHFKGFDRIENLEEYTGRLCLWLECNIGIQR IENLQAQSELRLCLFL      152
Rattus_norvegicus     QHKLYVTPALNDTLYLHFKGFDRIENLEEYTGRLCLWLECNIGIQR IENLQAQSELRLCLFL      159
Canis_lupus_familiaris QHKLYITPALNDTLYLHFKGFNR IENLEEYTGRLCLWLECNIGIQ IENLEAQT ERLCLFL      160
Felis_catus           QHQLYITPALNDTLYLHFKGFDRIENLEEYTGRLCLWLECNIGIQR IENLEAQT ERLCLFL      158
Equus_caballus        QHKLYITPALNDTLYLHFKGFDRIENLEEYTGRLCLWLECNIGIQ IENLEAQT ERLCLFL      170
Bos_taurus            QHKLYITPALNDTLYLHYKGFDR IENLEEYTGRLCLWLECNIGIQ IENLEAQT ERLCLFL      158
Homo_sapiens           QHKLYITPALNDTLYLHFKGFDRIENLEEYTGRLCLWLQSNIGIQ IENLEAQT ERLCLFL      158
Pan_troglodytes        QHKLYITPALNDTLYLHFKGFDRIENLEEYTGRLCLWLQSNIGIQ IENLEAQT ERLCLFL      158
Macaca_mulatta         QHKLYITPALNDTLYLHFKGFDRIENLEEYTGRLCLWLQSNIGIQ IENLEAQT ERLCLFL      158
Callithrix_jacchus     QHKLYMTPALNDTLYLHFKGFDRIENLEEYTGRLCLWLQCNIGIRRIENLEAQT ERLCLFL      159
Pavo_muticus          QHKLYLTPSLNDTLYLHYKGFDRLENLEEYTGRLCLWLECNGLTKIENLEALMELRLCLYL      209
Pavo_cristatus        QHKLYLTPSLNDTLYLHYKGFDRLENLEEYTGRLCLWLECNGLTKIENLEALMELRLCLYL      209
Gallus_gallus         QHKLYLTPSLNDTLYLHYKGFDRLENLEEYTGRLCLWLECNGLTKIENLEALTELRLCLYL      209
Chelonia_mydas         QQKLYVTPCLNDTLYLHYKGFDRLENLEEYTGRLCLWLECNGLTKIENLEAQT ERLCLYL      215
Rhinatrema_bivittatum QQKLYLTPYLNDTLYLHFKGFARIENLEEYTGKCLWLECNGLQKIENLEAQT ERLCLFM      180
Xenopus_tropicalis     QQKLYSTPYLNDTLYLHYKGFMCVENLEEYTGKCLWLECNGLTKIENLDAQT ERLCLFL      134
Latimeria_chalumnae    QLKLYQTPYLNDTLYLHYKGFRL IENLEEYTGRLCLWLECNGLQQIENLENQTELRLCLFL      360
.....310.....320.....330.....340.....350.....360

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Mus_musculus      QVNLLHKIENLEPLQKLDALNLSNNYIKTIENLSCLPVLNTLQMAHNRLTVADIEHLRE 212
Rattus_norvegicus QVNLLHKIENLEPLQKLDALNLSNNYIKTIENLSCLPVLNTLQMAHNRLTVADIEHLRE 219
Canis_lupus_familiaris QVNLLHKIENLESQKLDALNLSNNYIKTIENLSCLPVLNTLQMAHNRLTVADIEHLRE 220
Felis_catus       QVNLLHKIENLEPLQKLDALNLSNNYIKTIENLSCLPVLNTLQMAHNRLTVADIEHLRE 218
Equus_caballus    QVNLLHKIENLDPLQKLDALNLSNNYIKTIENLSCLPVLNTLQMAHNRLTVADIEHLRE 230
Bos_taurus       QVNLLHKIENLEPLQKLDALNLSNNYIKTIENLSCLPVLNTLQMAHNRLTVADIEHLRE 218
Homo_sapiens     QMNLLRKIENLEPLQKLDALNLSNNYIKTIENLSCLPVLNTLQMAHNRLTVADIEHLRE 218
Pan_troglodytes  QMNLLHKIENLEPLQKLDALNLSNNYIKTIENLSCLPVLNTLQMAHNRLTVADIEHLRE 218
Macaca_mulatta   QVNLLHKIENLEALQKLDALNLSNNYIKTIENLSCLPVLNTLQMAHNRLTVADIEHLRE 218
Callithrix_jacchus QVNLLHKIENLEPLQKLDALNLSNNYIKTIENLSCLPVLNTLQMAHNRLTVADIEHLRE 219
Pavo_muticus     QLNLIENRIENLESQKLDALNLSNNYIKTIENLSCLPVLNTLQMAHNRLTVADIEHLRE 269
Pavo_cristatus   QLNLIENRIENLESQKLDALNLSNNYIKTIENLSCLPVLNTLQMAHNRLTVADIEHLRE 269
Gallus_gallus    QLNLIENRIENLESQKLDALNLSNNYIKTIENLSCLPVLNTLQMAHNRLTVADIEHLRE 269
Chelonia_mydas   HLNLINKIENLEPLQKLDALNLSNNYIKTIENLSCLPVLNTLQMAHNRLTVADIEHLRE 275
Rhinatrema_bivittatum QQNLLYRIENLELLKMLDSLNLNNYIKTIENLSCLPVLNTLQMAHNRLTVADIEHLRE 240
Xenopus_tropicalis HQNLVHKIENLDHLQKLDALNLSNNYIKTIENLSCLPVLNTLQMAHNRLTVADIEHLRE 194
Latimeria_chalumnae QQNLIHKIENLEPLQKLDALNLSNNYIKTIENLSCLPVLNTLQMAHNRLTVADIEHLRE 420
.....370.....380.....390.....400.....410.....420

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Mus_musculus      CLRLCVLDLSHNALSDPEILSVLESMPCRLVNLNMGPNVTKHIPNYRRITVTVRLKHLTYL 272
Rattus_norvegicus CLQLCVLDLSHNALSDPEILSVLESMPCRLVNLNMGPNVTKHIPNYRRITVTVRLKHLTYL 279
Canis_lupus_familiaris CLKLCVLDLSHNALSDPEILSVLESMPCRLVNLNMGPNVTKHIPNYRRITVTVRLKHLTYL 280
Felis_catus       CLKLCVLDLSHNALSDPEILSVLESMPCRLVNLNMGPNVTKHIPNYRRITVTVRLKHLTYL 278
Equus_caballus    CLKLCVLDLSHNALSDPEILSVLESMPCRLVNLNMGPNVTKHIPNYRRITVTVRLKHLTYL 290
Bos_taurus       CLRLCVLDLSHNALSDPEILSVLESMPCRLVNLNMGPNVTKHIPNYRRITVTVRLKHLTYL 278
Homo_sapiens     CLRLCVLDLSHNALSDPEILSVLESMPCRLVNLNMGPNVTKHIPNYRRITVTVRLKHLTYL 278
Pan_troglodytes  CLRLCVLDLSHNALSDPEILSVLESMPCRLVNLNMGPNVTKHIPNYRRITVTVRLKHLTYL 278
Macaca_mulatta   CLRLCVLDLSHNALSDPEILSVLESMPCRLVNLNMGPNVTKHIPNYRRITVTVRLKHLTYL 278
Callithrix_jacchus CLRLCVLDLSHNALSDPEILSVLESMPCRLVNLNMGPNVTKHIPNYRRITVTVRLKHLTYL 279
Pavo_muticus     CPSISVLDLSHNALSDPNIVTILETMPNLHVLNLMGNQVIKKITNYRKLTITVRLKQLTYL 329
Pavo_cristatus   CPSISVLDLSHNALSDPNIVTILETMPNLHVLNLMGNQVIKKITNYRKLTITVRLKQLTYL 329
Gallus_gallus    CPSISVLDLSHNALSDPNIVTILETMPNLHVLNLMGNQVIKKITNYRKLTITVRLKQLTYL 329
Chelonia_mydas   CPTICVLDLSHNALSDPNIVTILETMPNLHVLNLMGNQVIKKITNYRKLTITVRLKQLTYL 335
Rhinatrema_bivittatum CPSICVLDLSHNALSDPNIVTILETMPNLHVLNLMGNQVIKKITNYRKLTITVRLKQLTYL 300
Xenopus_tropicalis CPSIRVLDLSHNALSDPNIVTILETMPNLHVLNLMGNQVIKKITNYRKLTITVRLKQLTYL 254
Latimeria_chalumnae CGSISVLDLSHNALSDPNIVTILETMPNLHVLNLMGNQVIKKITNYRKLTITVRLKQLTYL 480
.....430.....440.....450.....460.....470.....480

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****:*****:*** ** *** * .:** :*:** .*:** :*:***: .
Mus_musculus      DDRPVFPKDRACAEAWARGGYAAEKEERQWESREHKKITDSIEALAMIKRRAEERKKAR 332
Rattus_norvegicus DDRPVFPKDRACAEAWARGGYAAEKEERQWESREHKKITDSIEALAMIKRRAEERKKAR 339
Canis_lupus_familiaris DDRPVFPKDRACAEAWARGGYAAEKEERQWESREHKKITDSIEALAMIKRRAEERKKAR 340
Felis_catus       DDRPVFPKDRACAEAWARGGYAAEKEERQWESREHKKITDSIEALAMIKRRAEERKKAR 338
Equus_caballus    DDRPVFPKDRACAEAWARGGYAAEKEERQWESREHKKITDSIEALAMIKRRAEERKKAR 350
Bos_taurus       DDRPVFPKDRACAEAWARGGYAAEKEERQWESREHKKITDSIEALAMIKRRAEERKKAR 338
Homo_sapiens     DDRPVFPKDRACAEAWARGGYAAEKEERQWESREHKKITDSIEALAMIKRRAEERKKAR 338
Pan_troglodytes  DDRPVFPKDRACAEAWARGGYAAEKEERQWESREHKKITDSIEALAMIKRRAEERKKAR 338
Macaca_mulatta   DDRPVFPKDRACAEAWARGGYAAEKEERQWESREHKKITDSIEALAMIKRRAEERKKAR 338
Callithrix_jacchus DDRPVFPKDRACAEAWARGGYAAEKEERQWESREHKKITDSIEALAMIKRRAEERKKAR 339
Pavo_muticus     DDRPVFPKDRACAEAWARGGYAAEKEERQWESREHKKITDSIEALAMIKRRAEERKKAR 389
Pavo_cristatus   DDRPVFPKDRACAEAWARGGYAAEKEERQWESREHKKITDSIEALAMIKRRAEERKKAR 389
Gallus_gallus    DDRPVFPKDRACAEAWARGGYAAEKEERQWESREHKKITDSIEALAMIKRRAEERKKAR 389
Chelonia_mydas   DDRPVFPKDRACAEAWARGGYAAEKEERQWESREHKKITDSIEALAMIKRRAEERKKAR 395
Rhinatrema_bivittatum DDRPVFPKDRACAEAWARGGYAAEKEERQWESREHKKITDSIEALAMIKRRAEERKKAR 360
Xenopus_tropicalis DDRPVFPKDRACAEAWARGGYAAEKEERQWESREHKKITDSIEALAMIKRRAEERKKAR 314
Latimeria_chalumnae DDRPVFPKDRACAEAWARGGYAAEKEERQWESREHKKITDSIEALAMIKRRAEERKKAR 540
.....490.....500.....510.....520.....530.....540

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Mus_musculus      ---DRGETPLPDSEGSIPTSPEAEKQ-PMGEIQK---KMELFVEESFEAKDELFPETP 384
Rattus_norvegicus ---DRGETPLPESEKSIPTSPEAEKQ-PMGEIQK---KMESFVKESFEAKDELFPKPK 391
Canis_lupus_familiaris ASQEGGEEPVPPEENQNVDSMGGKDKSHEEQERQ---KMELFVRESFEAKDELCPEKP 396
Felis_catus       ASQEEGKEPVPDEEDNVDATEEGKEEPPGEEGRRO---QMELFVRESFEAKDELFPKPK 394
Equus_caballus    ASQEKGELP-PDNVENVDAGKEGKEEPPGEDGERRO---KMELFVKESFEAKDELFPKPK 405
Bos_taurus       ASQEQGEEPTPAGAGDVDAEVEGEEPP-GEKDTRO---KIEQFVKESFEAKDELFPKPK 393
Homo_sapiens     ESQERGEMTSSDDGENVPASAEKGKEEPPGDRETRO---KMELFVKESFEAKDELCPEKP 394
Pan_troglodytes  ESQERGEMTSSDDGENVPASAEKGKEEPPGDRETRO---KMELFVKESFEAKDELCPEKP 394
Macaca_mulatta   ESQERGEMTSSDDGENVPASAEKGKEEPPGDRETRO---KMELFVKESFEAKDELCPEKP 394
Callithrix_jacchus ESQERGEMTSSDDGENVPASAEKGKEEPPGDRETRO---KMELFVKESFEAKDELCPEKP 395
Pavo_muticus     YIEERDAGAKH-----GNEDATDTIE----- 410
Pavo_cristatus   YIEERDAGAKH-----GNEDATDTIE----- 410
Gallus_gallus    YIEERDAGAKH-----GNEGAADTLE----- 410
Chelonia_mydas   EKEERDILRKC-----ENGGTTAEQEGEVPPTSYSSDVNTNMSGISNASEETE 443
Rhinatrema_bivittatum KMEEREFFPVL-----NDNATNSTEVN-----PSHSQQQPEOK 394
Xenopus_tropicalis EKEEKGEQPK-----IEEKQ---MGHYQNEESKEK-----IQQFVKETLEAGEEICT--- 359
Latimeria_chalumnae EMKEGGEVPPSECSVEKSTGLASGDSEQQESHQK-----IQKFVDESMEAYEEFLADKE 594
.....550.....560.....570.....580.....590.....600

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Mus_musculus      GG-----EKEELH----- 391
Rattus_norvegicus GE-----GEELS----- 398
Canis_lupus_familiaris -----SLIEELP----- 403
Felis_catus       -----GLVGELP----- 401
Equus_caballus    -----SLIEELP----- 412
Bos_taurus       EE-----PSLIEELP----- 403
Homo_sapiens     SG-EEPPVEAKREDGGPEPEGTLPAAETLLLSPPVEVKGEDGDGEPEGTLPAAEAPPPPPPV 453
Pan_troglodytes  SG-EEPPVEAKREDGGPEPEGTLPAAETLLLSPPVEVKGEDGDGEPEGTLPAAEAPPPPPPV 453
Macaca_mulatta   SGGEELPVEVKREDGDREPEGTLPAAETPLLSPPVEVKGEDRDQPEGTLPVEAP----- 448
Callithrix_jacchus SGGEELPVEVKREDGDREPEGTLPAAEAPPLPPVESKGEGRDGEPEGTLPAAEDPPLPPV 455
Pavo_muticus     ----- 410
Pavo_cristatus   ----- 410
Gallus_gallus    ----- 410
Chelonia_mydas   TQ-----KIKKFVNESMEAHDEVIAEIS----- 466
Rhinatrema_bivittatum LL-----NVVKENVKGCEDCFDKISSEE----- 417
Xenopus_tropicalis YS-----DIGEKNSPSGACTPNVSMHEQ----- 382
Latimeria_chalumnae NS-----KLDTTQHTGEYQQAPTDCSQ----- 617
.....610.....620.....630.....640.....650.....660

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Mus_musculus      ----- 391
Rattus_norvegicus ----- 398
Canis_lupus_familiaris ----- 403
Felis_catus       ----- 401
Equus_caballus    ----- 412
Bos_taurus       ----- 403
Homo_sapiens     EVKGEDGDQEPE----- 465
Pan_troglodytes  EVKGEDGDQEPEGTLPAAEAPPLPPVEAOGEDGGROPEGTLPAAETPPPPPPVEVKGENGD 513
Macaca_mulatta   ----- 448
Callithrix_jacchus ESKGEDRDGEPE----- 467
Pavo_muticus     ----- 410
Pavo_cristatus   ----- 410
Gallus_gallus    ----- 410
Chelonia_mydas   ----- 466
Rhinatrema_bivittatum ----- 417
Xenopus_tropicalis ----- 382
Latimeria_chalumnae ----- 617
.....670.....680.....690.....700.....710.....720

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Mus_musculus          -----VVVVNGAVENPDLSG 406
Rattus_norvegicus     -----VVVGNRAVEDADLSG 413
Canis_lupus_familiaris -----VEVSRQTEDQEPGVLLL 420
Felis_catus           -----VDVTGATEGQGPGGAPL 418
Equus_caballus        -----ADVKGETEGLPEPGGAPP 429
Bos_taurus            -----LDVG-----EPKGVLP 414
Homo_sapiens          -----GTLPAETLLLSPPVKVKGEDGDREPEGTLP 495
Pan_troglodytes       OEPEGTLPAAETPPPPPPVEVKGENDOEPEGTLPAAETLLLSPPVKVKGEDGDQEPGTLP 573
Macaca_mulatta        -----LLSPPVEVKGEDRDQEPGTLP 470
Callithrix_jacchus    -----GTLPAEDPPLLPPVESTGEDGDGEPEGTLP 497
Pavo_muticus          -----DLPREKT----- 417
Pavo_cristatus        -----DLPREKT----- 417
Gallus_gallus         -----DPPGEKT----- 417
Chelonia_mydas        -----SKEDLDSLHTNVTGNIQ 483
Rhinatrema_bivittatum -----ELKDI PDNETNKTQQKQ 434
Xenopus_tropicalis    -----GQHLSPPGKLEVIYQK 399
Latimeria_chalumnae   -----KVYSLTEVEREIDEKLFP 634
.....730.....740.....750.....760.....770.....780

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Mus_musculus          SLAHNQT PVVVTPEESTSP-----VAATD GAR-----TEDIEAVAVEIKERLFIIDDL 453
Rattus_norvegicus     NLAHTQT PVVVTPEEVTSP-----VEATD GAR-----TEDTEAIALETKELFIIDDL 460
Canis_lupus_familiaris GEALKPAAPRATCKEPAPD-----TVAPNTAS PETVAG--DED-----LEVKEKLFIDDL 468
Felis_catus           EETRKPAAPGAACGDSPPQ-----TAATEGALGTGLDG--EEDSGTTKSEAKEKLFIDDL 471
Equus_caballus        AEAPTPAAVGAAWEEESMPQ-----IVAPAGASDTELNG--AGDVGILSLETEVQHFIIDDL 482
Bos_taurus            SEAL-PASPRAAWAELAPQ-----TVATESASGTEPDG--AENLEATRLTKEQLFIIDDL 466
Homo_sapiens          AEAPPPPLPGAAREEPTPQ-----AVATEGVFVTELDGTRTEDLETIRLETKETFCIDDL 550
Pan_troglodytes       AEAPPPPLPGASREEPTPQ-----AVATEGVFVTELDGMRTEDLETIRLETKETFCIDDL 628
Macaca_mulatta        VEAPPPPLPGAAGEEWTPO-----AVAAEGGFVTGPDGTRMEDLETVRLETKETFCIDDL 525
Callithrix_jacchus    AEAPPPPLPGAAREDLTHQ-----AVAAEGAFLTELDGTGPEGADTVNLETKETFRIDDL 552
Pavo_muticus          -----ASERAVVPELAEY--AEIKQIKHETPEKLRRLHEL 449
Pavo_cristatus        -----ASERAVVPELAEY--AEIKQIKHETPEKLRRLHEL 449
Gallus_gallus         -----ASERAVVPELAEY--AEIKQIKHETPEKLRRLHEL 449
Chelonia_mydas        KDVQEANS HKCPNFSTNEEEILVGNMATEGALVTELDSE--AETEQIKLEIPEKLFIDEL 541
Rhinatrema_bivittatum KESSAQEDFISTEKDS PKK-----MSIQGALVTELSE--EEVETIPILEIQNL CIDDL 485
Xenopus_tropicalis    EAKLHQQS TLCTAETGQVS--FVDLKGQFSLTTRLGDE--EDVETIPLRETEKLFVDDL 454
Latimeria_chalumnae   SIIRKET TPKITETTKDT P--LEKMTVQGVLTLELEA--ESIETIPLSDSGKLYIDDL 689
.....790.....800.....810.....820.....830.....840

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Mus_musculus          PDLEDAEGTDVSVEDQI---KETDIPRIQAISSLSDDSDPELDEL SLSTSEATPTGATGA 510
Rattus_norvegicus     PDLEDVDGTDVSVEDQT---KDTGIRKIQAISSLSDDSDLELEELPLSVFEGTPI SPTGA 517
Canis_lupus_familiaris PDLEDA-DVGEALDGQD---E-MCFPKVTAISSLSDDSEPELDYSSLPVLEDTP----DA 519
Felis_catus           PDLEDE-DAGEPLDGQD---E-VCAPKVTAISSLSDDSDPELDYSSLPLENIP----DT 522
Equus_caballus        PDLEDV-DTGEPLDQD---KKMCFPKITAISGLSDDSDSELDRTSLP LLEDAST---DT 535
Bos_taurus            PDLEDV-NAGESLGDRD---REQCFPKITAISGLSDDSDASEPDMDDISLLALENTSS---DT 519
Homo_sapiens          PDLEDDDETGKSLEDQ---NMCFPKIEVISSLSDDSDPELDYTS LFPVLENLPT---DT 602
Pan_troglodytes       PDLEDDDETGKSLEDQ---NMCFPKIEVISSLSDDSDPELDYTS LFPVLENLPT---DT 682
Macaca_mulatta        PDLEDDDETGKSLEDQ---NMCFPKIEVISSLSDDSDPELDYTS LFPVLENLPT---DT 577
Callithrix_jacchus    PDLEDDDEVG-SLQDQA---KIMCFPKIEVISSLSDDSDPELDYTS LPMLEHLSA---DT 605
Pavo_muticus          PDLEDIDVKEFPPEEEIFIQKQEYHPKIEIISSETINDGDSALEESNKTTFEDSVG--EAA 507
Pavo_cristatus        PDLEDIDVKEFPPEEEIFIQKQEYHPKIEIISSETINDGDSALEESNKTTFEDSVG--EAA 507
Gallus_gallus         PDLEDIDVKEFPPEEEIFIQKQEYHPKIEIISSETINDGDSVLEESNKTTFEDSVG--EAA 507
Chelonia_mydas        PDLEDVDVSEFSPIEGNSIRKQACHPKIEIISSEVSDDKDCASEE-NKTLFGNSVT--EEI 598
Rhinatrema_bivittatum PDLEDVDVSEFFAIDEALTNKKVCPMKIEIISGDSGENSEWEENEYESSQK PML--KET 543
Xenopus_tropicalis    PDLEEVDVPELFASDNANMHKQIYRPKIEIVISGDREDS TEWEREIEEQVLSNAL--HSV 512
Latimeria_chalumnae   PDLDDVEFNELSQEE-ALMNKPVYRPKIEIVISAVSDDSDSDWE---ECKSITPRQ--PIV 743
.....850.....860.....870.....880.....890.....900

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CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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Mus_musculus      LSHIFAISKGPST--AATVPFTDICKPIATTDLESQGQD---CGAAASRPPLIQELN-DE 563
Rattus_norvegicus LSHIFAVSKDPSE--AARVPFADICMPTATTDLETQSQD---PSTASSHPLIQELGEDE 571
Canis_lupus_familiaris LSNIFAIPRDTSR--KAETPFTDIFKAA--KRNSETPS---RDTKSPRPLIQELHG-E 569
Felis_catus       LSNIFAIPKDTSR--KAETPFTGILKAAAKRVLETPSL---RDAKSPRPLIQELHD-E 575
Equus_caballus    LSNIFAISKDTSR--KTELPFLDIVKAAAEGLGMORG-----DTKSSHPLVQELDD-H 586
Bos_taurus       LSSIFAVPKDTSWRVETETPFTDILKVAPERDPETQRK-----ASEVPRPLIQELGDDE 573
Homo_sapiens      LSNIFAVSKDTSK--AARVPFTDIFKKEAKRDLEIRKQ---DTKSPRPLIQELSD-E 653
Pan_troglodytes   LSNIFAVSKDTPK--AARVPFTDIFKKEPKRDLEIRKQ---DTKSPRPLIQELSD-E 733
Macaca_mulatta    LSNIFAVSKDTSK--AARAPFTGIFIKEAKRDLEIPKQ---DTESPRPLIQELSD-E 628
Callithrix_jacchus PSNIFAVSKDTSK--QAQAPFTDLFKKEAKRDTEIQKQ---DAEYPRPLIQELSD-K 656
Pavo_muticus      -TSIFSNNMRKIHKEQEKECFRPLVKEFFTEPSH-SEKD---KPAKPCKVLIIEIITOP 560
Pavo_cristatus    -TSIFSNNMRKIHKEQEKECFRPLVKEFFTEPSH-SEKD---KPAKPCKVLIIEIITOP 560
Gallus_gallus     -TSIFSNNARKIHKEQEKECFIPLVKEFFTEPSY-SGKD---KPAKSKVLIQEIITOP 560
Chelonia_mydas    PTAIFSNTCKVPEDSQRETTR-LLVEGLAEPWS-PERDLEIKVKQVKPLKPLIQEIVAE 656
Rhinatrema_bivittatum ATDTSSNIFRKPSHN-QETPSPIAENIIEQNKDLTCEKEAEMDQLKLEPLIQKFSVED 602
Xenopus_tropicalis SLTLTDPLKQGSAPELDLSGLNATVERDSLTYP-----PLRPLIQVLDSEN 558
Latimeria_chalumnae EEVILEPANKEPELVLRPSATGTLVKSPVKEI-----NIEPAPNSPASPD 789
.....910.....920.....930.....940.....950.....960

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Mus_musculus      PAEEAANQPLPPQTCASDPAL---AHPSEGDSDSOLPAATLLGDGADEAESVHP--- 617
Rattus_norvegicus LTEGESNQPLPPQSCASDPTL---AQSEGGD--SOLPAATPLGDGAENEAQSSLYP--- 623
Canis_lupus_familiaris EASD---QSPRSPTCQRDTPPLPPPSSED---GSDLLPASSPENITKENEALSEPE--- 621
Felis_catus       GPSPG---QPRTPPTCRRDTA---LPPSSED---GDSGLLSASPPGNIAEKNGPRLETE--- 624
Equus_caballus    GPSE---PPPTPTTCQRDTS---PPCTED---GSDLLSASPPNGTEKDEAQPETEPKE 637
Bos_taurus       EPSG---PPPLPPVCEGEAVP---APCTED---SDGDLPLAPAPNGPEKDEVOQSEVE--- 622
Homo_sapiens      DPSG---QLLMPPTCQRDAAP---LTSSGD---RSDFLAASSPVP---TESAATPPE--- 699
Pan_troglodytes   DPSG---QPLMPPTCQRDAAP---LTSSGD---RSDFLAASSPADKFISSLNLDPRH--- 782
Macaca_mulatta    DPSG---QPPMSPTCQRDAAP---LTSSGD---GSDFLAASSSVPE---TESATTPSE--- 674
Callithrix_jacchus EPSG---QPWMSPTCQRDAAP---LTSSGDGASDSNFLAASSPGT-----STEKK--- 700
Pavo_muticus      TDNP-----LLSSVCNQ-----WEGSRK---ITFACSGNSS-DGEVQLLTE--- 598
Pavo_cristatus    TDNP-----LLSSVCNQ-----WEGSRK---ITFACSGNSS-DGEVQLLTE--- 598
Gallus_gallus     TDK-----LLSSVCNQDPEP-----SPWEEERK---ITIACSGNSS-DGEVQLLTE--- 602
Chelonia_mydas    IDDI-----LTSAAYNKVDEL-----TPEELDNKDSHIKPSCPENSTEDKKVQCLAE--- 703
Rhinatrema_bivittatum VDEV-----IMTSEQNESGRA-----THPNMNNENNKISSIFSGNSTQKKKEQLAEI--- 649
Xenopus_tropicalis SHQE-----EQEKNMVID-----IPIAPTNTVSELGYRKSTLK--- 592
Latimeria_chalumnae RPIV-----EQSDLWTTLQE-----EHSKSFNNSVQG-KTCPE--- 822
.....970.....980.....990.....1000.....1010.....1020

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Mus_musculus      -----KEPSTRVGLEDIEFGLD----- 634
Rattus_norvegicus -----EEPSTRIGLEDIEFGLD----- 640
Canis_lupus_familiaris -----LVEREAEGDREDIEFGLD----- 639
Felis_catus       -----LTEPEAGG-REDTEFGSD----- 641
Equus_caballus    LAEPEELAEPPGAGADREDIEFGLD----- 661
Bos_taurus       ---PEERLGSEAGENREDIEFGLD----- 643
Homo_sapiens      --TCVGVAQPSQALPTWDLTAFFAPKAS----- 725
Pan_troglodytes   --LPVENIRPGQRLTKQPKTAAANGRCAGHLISSAGASLHPHOTRGASTTGPHSTGQEGV 840
Macaca_mulatta    --TCVGVAQPS-SXPTWDLTAFFAPKAS----- 699
Callithrix_jacchus --EVQSELQPVKPRVRAGLEDAE----- 721
Pavo_muticus      ----GEECYHEPHDD-MDSERGLD----- 617
Pavo_cristatus    ----GEECYHEPHDD-MDSERGLD----- 617
Gallus_gallus     ----GEECCHEPYDD-KDSERELD----- 621
Chelonia_mydas    ----NGGSPQKPQDDNEDIEYGLD----- 723
Rhinatrema_bivittatum ----EGLLVPEsqPDNEDLEYGLD----- 669
Xenopus_tropicalis ----TASFLHVLQMEEDTVWELD----- 612
Latimeria_chalumnae ----KRILIEEISSTSEN DYKEIPLPAMCP----- 848
.....1030.....1040.....1050.....1060.....1070.....1080

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CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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Mus_musculus	-----	634
Rattus_norvegicus	-----	640
Canis_lupus_familiaris	-----	639
Felis_catus	-----	641
Equus_caballus	-----	661
Bos_taurus	-----	643
Homo_sapiens	-----	725
Pan_troglodytes	 RTEGPA	846
Macaca_mulatta	-----	699
Callithrix_jacchus	-----	721
Pavo_muticus	-----	617
Pavo_cristatus	-----	617
Gallus_gallus	-----	621
Chelonia_mydas	-----	723
Rhinatrema_bivittatum	-----	669
Xenopus_tropicalis	-----	612
Latimeria_chalumnae	-----	848
	