

# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/CUI94s: Tue Feb 1 11:53:28 2022

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      :*.:*: *.* * ***:*** *:***:*** ** .***:** :
Mus_musculus      -MVGERRAGNLLVPLGPRLOAYPEELLRORPGHDGHPEYLIRWSVLKCSSE----- 50
Rattus_norvegicus -MVGEQRAGDLMVPLGPRLOAYPEELIRORPGHDGHPEYLIRWRVLKCSSE----- 50
Homo_sapiens      -MVGERHAGDLMVPLGPRLOAYPEELIRORPGHDGHPEYLIRWSVLKCGEV----- 50
Pan_troglodytes   -MVGERHAGDLMVPLGPRLOAYPEELIRORPGHDGHPEYLIRWSVLKCGEV----- 50
Macaca_mulatta    -MVGERHAGDLMVPLGPRLOAYPEELIRORPGHDGHPEYLIRWSVLKCGEV----- 50
Callithrix_jacchus -MVGERHAGDLMVPLGPRLOAYPEELIRORPGHDGHPEYLIRWSVLKCGEV----- 50
Canis_lupus_familiaris -MVGERRAGDLMVPLGPRLOAYPEELIRORPGHDGHPEYLIRWSVLKCGEV----- 50
Equus_caballus    -MVGERRTGDLMVPLGPRLOAYPEELIRORPGHDGRPEYLIRWSVLKCGEV----- 50
Bos_taurus        -MVGERRTGDLTVPLGPRLOAYPEELLRORPGQDGHPEYLIRWSVLKCGEV----- 50
Orcinus_orca      -MVGERRPGDLMVPLGPRLOAYPEELLRORPGHDGRPEYLIRWSVLKCEEV----- 50
Xenopus_tropicalis MLVGERRNGNLLVQLGPKLOAQPEELLRORWSPDGHTEYLIRWAVQNQED----- 50
Danio_rerio       -MVGERRNGNLLVQLGPKLOAYPEELIRORRTHDQTEYLIRWSLLTVEDSSSSGCSNEA 59
Pavo_muticus      -MVNERREGGLLVHLGPLOAYPQELLRORRRGPDGAPEYLVRWCVVGAEER----- 50
Pavo_cristatus    -MVNERREGGLLVHLGPLOAYPQELLRORRRGPDGAPEYLVRWCVVGAEER----- 50
1.....10.....20.....30.....40.....50.....60

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      .      :*: *.:* *.* **
Mus_musculus      -----GKVSSEEEKTEHLLMWLSAPEVYANCPMLLRERPIPKG--POHEPAG 95
Rattus_norvegicus -----GKVSLEEEKTEYLLMWLSAPEVYANCPMLLRERSVSKG--POYEPTG 95
Homo_sapiens      -----GKVGVEEGKAEHILMWLSAPEVYANCPGLLGERALSKG--LOHEPAG 95
Pan_troglodytes   -----GKVGVEEGKAEHILMWLSAPEVYANCPGLLGERALSKG--LOHEPAG 95
Macaca_mulatta    -----GKVGVEEGKAEHILMWLSAPEVYANCPGLLGERALSKG--POHEPAG 95
Callithrix_jacchus -----GKVGVEEGKAEHILMWLSAPEVYANCPGLLGERALSKG--POHEPAG 95
Canis_lupus_familiaris -----GRVGVGEGKTEHILMWLSAPEVYANCPMLLGERALSKG--POHEPAG 95
Equus_caballus    -----GRVGVEEGKAEHILMWLSAPEVYANCPMLLGEPAVSKG--POHEPAG 95
Bos_taurus        -----GRAGVEEGKAEHILMWLSAPEVYASCPDLLGERALSKG--POHETAG 95
Orcinus_orca      -----GRVGVEEGKAEHILMWLSAPEVYANCPMLLGERALPKG--POHETAG 95
Xenopus_tropicalis -----GARGSGAVSQTESKTONILMWMSAEVYANCPDLLGKRKLEG--LGVPEEK 99
Danio_rerio       SGGSGSSSGVGGSSGSTSGESKTESILMWMSTEDVYANCPDLLGKRKADSQRPLLEKEER 119
Pavo_muticus      -----AEGGGSSAGLRSESVAMWLSAEFVRAGCPALLGGERAG--PRAKEER 96
Pavo_cristatus    -----AEGGGSSAGLRSESVAMWLSAEFVRAGCPALLGGERAG--PRAKEER 96
.....70.....80.....90.....100.....110.....120

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      :: :*.* ** ***:*** *:*** .      :: :*:*****.*
Mus_musculus      EVGSFPRDPGGLDELAMTEMEADVRLVRRARQLAEGGTSSLTAAVLHTIHVLSAYASI 155
Rattus_norvegicus EVGSFPRDPGGLDELAMAEEMEDVRLVRRARQLAEGGASNLTVAVLHTIHVLSAYASI 155
Homo_sapiens      VSGSFPRDPGGLDEVAMGEMEADVQALVRRARQLAESGTPSLTAAVLHTIHVLSAYASI 155
Pan_troglodytes   VSGSFPRDPGGLDEVAMGEMEADVQALVRRARQLAESGTPSLTAAVLHTIHVLSAYASI 155
Macaca_mulatta    VSGSFPRDPGGLDEVAMGEMEADVQALVRRARQLAESGTPSLTAAVLHTIHVLSAYASI 155
Callithrix_jacchus VSGSFPRDPGGLDEVAMGEMEADVQALVRRARQLAESGTPSLTAAVLHTIHVLSAYASI 155
Canis_lupus_familiaris GSGSFPRDPGGLDDTAMGEMEADVRLVRRARQLAEGGTSSLTAAVLHTIHVLSAYASI 155
Equus_caballus    GSGSFPRDPGGLDDVAMGEMEADVRLVRRARQLAEGGTSSLTATVLTHTIHVLSAYASI 155
Bos_taurus        GPASFPRDPGGLDDVAMGEMEADVRLVRRARQLAEGGTSSLTAAVLHTIHVLSAYASI 155
Orcinus_orca      GSGSFPRDPGGLDDVAMGEMEADVRLVRRARQLAEGGTSSLTAAVLHTIHVLSAYASI 155
Xenopus_tropicalis ASG-----APEEAALMEMREDVRLVQRAAROMSHS--SGPDSSVLNTIHVLSAYASI 150
Danio_rerio       PSQGFPAD-VTFDEGELSMDKDDVKNLVRRARKOMAKN--SDFGISITHIHVLSAYASI 176
Pavo_muticus      APVPPP---AAPDDASLLEMKADVGLSVRRAGROLAGS--GTPASSVLNTIRVLSAYAGI 151
Pavo_cristatus    APVPPP---AAPDDASLLEMKADVGLSVRRAGROLAGS--GTPASSVLNTIRVLSAYAGI 151
.....130.....140.....150.....160.....170.....180

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      .*.:*:*****:***:* *      :*:***:*** *****:*****:***
Mus_musculus      GPLTGVFRETGALDLLMHMLCNPEQIRRSAGKMLQALAAHDAGSRAHVLLSLSQDGI 215
Rattus_norvegicus GPLTGVFRETGALDLLMHMLCSPEQIRRSAGKMLQALAAHDAGSRAHVLLSLSQDGI 215
Homo_sapiens      GPLTGVFRETGALDLLMHMLCNPEQIRRSAGKMLQALAAHDAGSRAHVLLSLSQDGI 215
Pan_troglodytes   GPLTGVFRETGALDLLMHMLCNPEQIRRSAGKMLQALAAHDAGSRAHVLLSLSQDGI 215
Macaca_mulatta    GPLTGVFRETGALDLLMHMLCNPEQIRRSAGKMLQALAAHDAGSRAHVLLSLSQDGI 215
Callithrix_jacchus GPLTGVFRETGALDLLMHMLCNPEQIRRSAGKMLQALAAHDAGSRAHVLLSLSQDGI 215
Canis_lupus_familiaris RPLTGVFRETGALDLLMHMLCNPEQIRRSAGKMLQALAAHDAGSRAHVLLSLSQDGI 215
Equus_caballus    RPLTGVFRETGALDLLMHMLCNPEQIRRSAGKMLQALAAHDAGSRAHVLLSLSQDGI 215
Bos_taurus        GPLTGVFRETGALDLLMHMLCNPEQIRRSAGKMLQALAAHDAGSRAHVLLSLSQDGI 215
Orcinus_orca      GPLTGVFRETGALDLLMHMLCNPEQIRRSAGKMLQALAAHDAGSRAHVLLSLSQDGI 215
Xenopus_tropicalis GSLAGVFKETGALDLLMKMLCNQEKQIRKNAGKMLRALASHDAGSRAHVLLSLSRDGI 210
Danio_rerio       GSVLVGFKETGALDLLMELLCKNERQTRRSAGKMLRALASHDAGSRAHVLLSLSQDGI 236
Pavo_muticus      GALAGAFKETGALELLMEMLCHKEKPICRGAGEMLRALALHDAGSRATYILLSLSQDGI 211
Pavo_cristatus    GALAGAFKETGALELLMEMLCHKEKPICRGAGEMLRALALHDAGSRATYILLSLSQDGI 211
.....190.....200.....210.....220.....230.....240

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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*****:*****:**** *:*** ::*****:***: **.******:***:..
Mus_musculus      QHMDFDSRYTLLLELFAETTSSTEEHCMALEGIHLPOIPGKLLFSLVKRYLCVTSLLDQLNN 275
Rattus_norvegicus QHMDFDSRYTLLLELFAETTSSTEEHCMALEGIHLPOIPGKLLFSLVKRYLCVTSLLDQLNN 275
Homo_sapiens      QHMDFDSRYTLLLELFAETTSSTEEHCMALEGIHLPOIPGKLLFSLVKRYLCVTSLLDQLNS 275
Pan_troglodytes   QHMDFDSRYTLLLELFAETTSSTEEHCMALEGIHLPOIPGKLLFSLVKRYLCVTSLLDQLNS 275
Macaca_mulatta    QHMDFDSRYTLLLELFAETTSSTEEHCMALEGIHLPOIPGKLLFSLVKRYLCVTSLLDQLNN 275
Callithrix_jacchus QHMDFDSRYTLLLELFAETTSSTEEHCMALEGIHLPOIPGKLLFSLVKRYLCVTSLLDQLNN 275
Canis_lupus_familiaris QHMDFDSRYTLLLELFAETTSSTEEHCMALEGIHLPOIPGKLLFSLVKRYLCVTSLLDQLNN 275
Equus_caballus    QHMDFDSRYTLLLELFAETTSSTEEHCMALEGIHLPOIPGKLLFSLVKRYLCVTSLLDQLNN 275
Bos_taurus       QHMDFDSRYTLLLELFAETTSSTEEHCMALEGIHLPOIPGKLLFSLVKRYLCVTSLLDQLNN 275
Orcinus_orca     QHMDFDSRYTLLLELFAETTSSTEEHCMALEGIHLPOIPGKLLFSLVKRYLCVTSLLDQLNN 275
Xenopus_tropicalis QHMDFESRYTLLQLFAETTSSTEEHCISFEGIHLPQIPGKQLFSLVKRYLCVTSLLDQLST 270
Danio_rerio      QHMDFDNRYTLLLELFAETTSSTEEHCISFEGIHLPQIPGKLLFSLVKRYLCVTSLLMDKLN 296
Pavo_muticus     QHMDFDGRYTLLLELFAEMMSSEHCVSFEGIHLPQIPGRQLFALVKRYLCVTSLLDKLSS 271
Pavo_cristatus   QHMDFDGRYTLLLELFAEMMSSEHCVSFEGIHLPQIPGRQLFALVKRYLCVTSLLDKLSS 271
.....250.....260.....270.....280.....290.....300

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: . : * ::::*.*.*.*.* ***: *** .
Mus_musculus      SPESGAGDQSSPCLTK-----EKSRAQEELEFSMAVGNLISELVRSMGWARNLS-- 324
Rattus_norvegicus SPESGAGDQSSPCLPK-----EKSRGQRELEFSMAVGNLISELVRSMGWARNLS-- 324
Homo_sapiens      SPELGAGDQSSPCATR-----EKSRGQRELEFSMAVGNLISELVRSMGWARNLS-- 324
Pan_troglodytes   SPELGAGDQSSPCATR-----EKSRGQRELEFSMAVGNLISELVRSMGWARNLS-- 324
Macaca_mulatta    SPELGAGDQSSPCATR-----EKSRGQRELEFSMAVGNLISELVRSMGWARNLS-- 324
Callithrix_jacchus SPELGAGDQSSPCATT-----EKSRGQRELEFSMAVGNLISELVRSMGWARNLS-- 324
Canis_lupus_familiaris SPEPGAGDRGSLSPRE-----FSWEKSRGQRELEFSMAVGNLISELVRSMGWARNLG-- 327
Equus_caballus    SPEPGTGDRGSPSPRE-----FSQEKSRGQRELEFSMAVGNLISELVRSMGWARNLS-- 327
Bos_taurus       SPEQGAGDRGSPSPTRED-----LGREKSRGQRELEFSMAVGNLISELVRSMGWARNLS-- 328
Orcinus_orca     SPEPGTGDRGSRPSRED-----FGREKSRGQRELEFSMAVGNLISELVRNMGWARNLS-- 328
Xenopus_tropicalis D-----RPDT-----DKMTLRLRRQFDFSMAMGSLICELVRVMGWVSDR--- 308
Danio_rerio      AGVESTSERQDVGPSSSSSTASYQSEARVQREFEFTMAMANLISELVRVMGWDRNRQLP 356
Pavo_muticus     G-----EEQSEE-----RQESSRVKQEFEFMSAMANLILELVQVMGWDHSH--- 312
Pavo_cristatus   G-----EEQSEE-----RQESSRVKQEFEFMSAMANLILELVQVMGWDHSH--- 312
.....310.....320.....330.....340.....350.....360

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: ***** .. : : *
Mus_musculus      -----EQGALPPRPSRSIFQPCLSGPPPLLLPTIVTTTPR-----KQGRAFRGR 367
Rattus_norvegicus -----EQGALPPRPSRSIFQPCLSGPP-LLLPTIVTTTPR-----KPGRAFRGR 366
Homo_sapiens      -----EQGMSPPRPTRSIFQPYISGPS-LLLPTIVTTTPR-----ROGWVFRQR 366
Pan_troglodytes   -----EQGMSPPRPTRSIFQPYISGPS-LLLPTIVTTTPR-----ROGWVFRQR 366
Macaca_mulatta    -----EQGMSPPRPTRSIFQPYISGPS-LLLPTIVTTTPR-----ROGWVFRQR 366
Callithrix_jacchus -----EQGASPPRPSRSIFQPYISGPS-LLLPTIVTTTPR-----ROGWVFRQR 366
Canis_lupus_familiaris -----EQGTSPPRPTRSIFQPCISGPS-LLLPTMVAITPR-----ROGRAFRQR 369
Equus_caballus    -----EQGTSPPRPTRSIFQPCISGPS-LLLPTIVATPR-----ROGRAFRQR 369
Bos_taurus       -----QOGLTLPTRTRSIFQPSISGPS-LLLPTIVAPPR-----ROGRAFRQR 370
Orcinus_orca     -----EQAASPPRPTRSIFQPSISGPS-LLLPTINVAITPR-----ROGRAFRQR 370
Xenopus_tropicalis -----TPGANIPYVEAQPRVRSIFQPKAQNCPVQVAALPSARPPAPKKKQERGFMP 362
Danio_rerio      FSSSSASRGLDEINNEIQKHTVRSIFQPRFSSSTISIMAAATAMAAVTPPKKKKTNGFKTR 416
Pavo_muticus     -----KLEPLPQKETKPRTRTSIFQPKTPACIANPVPVLSSSHG---COKKONCAFLTS 363
Pavo_cristatus   -----KLEPLPQKETKPRTRTSIFQPKTPACIANPVPVLSSSHG---COKKONCAFLTS 363
.....370.....380.....390.....400.....410.....420

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:*. . * ::: : * :*:~* : : ***** * * . . . . . * * . :*
Mus_musculus      SEFSSRSYGGEYVQQTLPQGMVRRLDDYEEISAGDEGEFQSQSNNGVPPVQVFWQSTGRT 427
Rattus_norvegicus SEFSSRSYGGEYVQQTLPQGMVRRLDDYEEISAGDEGEFQSQSNNGVPPVQVFWQSTGRT 426
Homo_sapiens      SEFSSRSYGGEYVQQTLPQGMVRRLDDYEEISAGDEGEFQSQSNNGIPPVQVFWQSTGRT 426
Pan_troglodytes   SEFSSRSYGGEYVQQTLPQGLRVRMLDDYEEISAGDEGEFQSQSNNGIPPVQVFWQSTGRT 426
Macaca_mulatta    SEFSSRSYGGEYVQQTLPQGMVRRLDDYEEISAGDEGEFQSQSNNGIPPVQVFWQSTGRT 426
Callithrix_jacchus SEFSSRSYGGEYVQQTLPQGMVRRLDDYEEISAGDEGEFQSQSNNGIPPVQVFWQSTGRT 426
Canis_lupus_familiaris SEFSSRCYGGEYVRETLQAGMRVRMLDDYEEVSAGDEGEFQSQSNNGVPPVQVFWQSTGRT 429
Equus_caballus    SEFSSRSYGGEYVQQTLPQGMVRRLDDYEEISAGDEGEFQSQSNNGVPPVQVFWQSTGRT 429
Bos_taurus       AEFSSLSYGGEYVQQTLPQGMVRRLDDYEEISAGDEGEFQSQSNNGVPPVQVFWQSTGRT 430
Orcinus_orca     AEFSSRSYGGEYVQQTLPQGMVRRLDDYEEISAGDEGEFQSQSNNGVPPVQVFWQSTGRT 430
Xenopus_tropicalis HDFPSRNAYVDYIQENLKPGMTVKMLEDYDEISTGDEGIFRQSQSNNGMPPVQVLWSSTGRT 422
Danio_rerio      SDFSSRSAYVEYVDNLKSGMMVRMLEDYEEVSSGDEGEFQSQSNNGMPPVQVWNSLSRT 476
Pavo_muticus     SDFADRSYGVEYVKANLVCGMRVRMLEDCGDVRAGDEGKFLQSGYKMRTAQVLWQSTGQT 423
Pavo_cristatus   SDFADRSYGVEYVKANLVCGMRVRMLEDCGDVRAGDEGKFLQSGYKMRTAQVLWQSTGQT 423
.....430.....440.....450.....460.....470.....480

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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**::*****::*
Mus_musculus      YWVHWHMLEILGPPEEATGDSASAAVEKAGAGAAVLGTV-----CPSWDWKPTHGLYSLPYL 482
Rattus_norvegicus YWVHWHMLEILGPPEEATREPASAAVEKAGAGATALGTA-----CPSWDRKPAHGLYSLPYL 481
Homo_sapiens      YWVHWHMLEILGPPEEATEDKASAAVEKAGAGATVLGTA-----FPSWDWNPM DGLYPLPYL 481
Pan_troglodytes   YWVHWHMLEILGPPEEATEDKASAAVEKAGAGATVLGTA-----FPSWDWNPM DGLYPLPYL 481
Macaca_mulatta    YWVHWHMLEILGPPEEATEDKASAAVEKAGAGATVLGTA-----FPSWDWNPM DGLYPLPYL 481
Callithrix_jacchus YWVHWHMLEILGPPEEATEDKASAAVVKAGAGATVLGTA-----FPSWDWNPM DGLYSLPYL 481
Canis_lupus_familiaris YWVHWHMLEILGPPEEAAEDASAAVEKAGAGAPLLDTA-----LPSWDWKPV DGLYSLPYL 484
Equus_caballus    YWVHWHMLEILGPPEEADRASAAVEKAGAGATMLGTA-----LPSWDWKPVDGLYSLPYL 484
Bos_taurus        YWVHWHMLEILGPPEETTEDTASAAAEAGAGAAVPGTA-----LPSWDWKPV DGLYSLPYL 485
Orcinus_orca      YWVHWHMLEILGPPEETAEDMASAAVAKGAGTAVLGTA-----LPSWDWKPV DGLYSLPYL 485
Xenopus_tropicalis YWVHWHMVQIIIGSGE--QAEEDIQEKVPTLTDNLKVP---PVAQTFQCKPLGGLYTLPYL 477
Danio_rerio       YWVHWHMIEILNGTGGQAEKTEQEKASSLTETLKLITDVAVSQTFFSKPPGGLYSLPYL 536
Pavo_muticus      YWMHWHMLEIIGFGEE-RDDPGGQEEECNLIESFNLD---KAAQPLFSKPPGGLYSLPYL 479
Pavo_cristatus    YWMHWHMLEIIGFGEE-RDDPGGQEEECNLIESFNLD---KAAQPLFSKPPGGLYSLPYL 479
.....490.....500.....510.....520.....530.....540

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.      * : *****::* : * : . : . :
Mus_musculus      QPEPQKNEEESGYLTQAEWWELLFFIKKLDVGEQQPIFONLHEKLDDE--ALGEKALGEI 540
Rattus_norvegicus QPESQKSEE-PGYLTQGEWWELLFFIKKLDLCEQQPIFONLHEKLDK---AVGEKTLGEI 537
Homo_sapiens      QPEPQKNER-VGYLTQAEWWELLFFIKKLDLCEQQPIFONLWKNLDE---TLGEKALGEI 537
Pan_troglodytes   QPEPQKNER-VGYLTQAEWWELLFFIKKLDLCEQQPIFONLWKNLDE---TLGEKALGEI 537
Macaca_mulatta    QPEPQKNER-VGYLTQAEWWELLFFIKKLDLCEQQPIFONLWKNVDE---TLGEKALGEI 537
Callithrix_jacchus QPEPQKNER-VGYLTQAEWWELLFFIKKLDLCEQQPIFONLRENLDE---TLGEKALGEI 537
Canis_lupus_familiaris QPEPQKNEQ-LGYLTQAEWWELLFFIKKLDICEQQPIFONLRENLDE---TLGDKALGDL 540
Equus_caballus    QPEPQKKEE-LGYLTQAEWWELLFFIKKLDVCEQQSIFONLRENLDE---SLSEKALGET 540
Bos_taurus        QPEPQKNEK-LGYLTQAEWWELLFFIRKLDICEQQSIYQSLRENLDE---SLGEKAVGEI 541
Orcinus_orca      QPEPQKNEE-LGYLTQAEWWELLFFIKKLDVCEQQPIFONLRENLDE---TLGEKALGEI 541
Xenopus_tropicalis VGASCGEPG---TLRQDEFWELLFFIKRLEAQEQEVQEIITRSLAEKPSDLDDFALKPV 534
Danio_rerio       MEGSHGDAG---RLSRAEWWEVLFFIKKLEPKQQQEVNNILRQSLDEP-----DAV 584
Pavo_muticus      GEQPSRAAA---TLSRAEWELLFFVKKLEAQEQDEIVRLILOEHTEOLLEPAEDALLQL 536
Pavo_cristatus    GEQPSRAAA---TLSRAEWELLFFVKKLEAQEQDEIVRLILOEHTEOLLEPAEDALLQL 536
.....550.....560.....570.....580.....590.....600

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.      * : * : * .. ... : * * : * :
Mus_musculus      SVPIEMAEGVLQVLNRFEGSNLCDLLNSRIYTKYGLLPKELGSLPSSRRHSCSPPEPEG 600
Rattus_norvegicus SVPIEMAEGVLQVLNRFEGSNLCDLLNSHIYTKYGRLPKEPGRLPSPSRGHSCSTSEPEG 597
Homo_sapiens      SVSVEMAESLLQVLSSRFEGSTLNDLLNSQIYTKYGLLSNEPSSSSSTSRNHSCTPDPEEE 597
Pan_troglodytes   SVSVEMAESLLQVLSSRFEGSTLNDLLNSQIYTKYGLLSNEPSSSSSTSRNHSCTPDPEEE 597
Macaca_mulatta    SVSVEMAESLLQVLSSRFEGSTLNDLLNSQIYTKYGLLSDERSSSSSTSRNHSCTPDPEEE 597
Callithrix_jacchus SVSVEMAEGLLQILSSRFEGSTLNDLLNSQIYTKYGLLPNEPSSLSTSQSHSCTPDPEEE 597
Canis_lupus_familiaris SVPIEMAEGLLQVLSSRFEGSTLSDLLNSQIYTKYGLLPDELSTSSSSSRSHSCTPDPEEQ 600
Equus_caballus    SVPIEMAEGLLQVLNRFEGSTLSDLLNSQIYTKYGLLPDEPSSSSSSSRSHSCTPDAEEE 600
Bos_taurus        SVPVAMAESLLQVLNRFEGSTLSDLLNSQIYTKYGLQPDALSGSSSSQNHSCSTPDPEEE 601
Orcinus_orca      SVPIAMAEGLLQVLNRFEGSALSDLLNSQIYTKYGLPPKALSSSSSSSRSHSSSPVLEEE 601
Xenopus_tropicalis PT--EVAQKILRFLSEHCRGCTLSDLHSSQVYDKYFLRFKTAEPQSS---HSGAFLQE-- 587
Danio_rerio       PHG-RGAQKVLHYLKQNLQASCLGDLLCSHTFIKHYS CGGAGLEDEEMLMDGSFGGQGA 643
Pavo_muticus      PFPaelAQKVLQDLEKRLQSAQSELRSRVYTKYLLRSGAEQ----- 579
Pavo_cristatus    PFPaelAQKVLQDLEKRLQSAQSELRSRVYTKYLLRSGAEQ----- 579
.....610.....620.....630.....640.....650.....660

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: * :
Mus_musculus      SRSAANFS-EKEEACRANAVPPEAEMELASAKTEPPKAQSDSQLFNQLLVTEGMTLPPEET 659
Rattus_norvegicus SESAAFS-EKEES-----PKAAEAPAGAKPESPKAQSDSQLFNQLLVTEGMALAPET 649
Homo_sapiens      SKSEASFSEETESLKAKAEAPKTEAEP TKRTRTEPPMAQSDSQLFNQLLVTEGMTLPTEM 657
Pan_troglodytes   SKSEASFSEETESLKAKAEAPKTEAEP TKRTRTEPPMAQSDSQLFNQLLVTEGMTLPTEM 657
Macaca_mulatta    SKSEANFSSEETESPKAKAEAPKTEAEP TKRTRTEPPMAQSDSQLFNQLLVTEGMTLPTEM 657
Callithrix_jacchus SKSEANFSSEETESPKAKAEVPKTEAEP TKRTRTEPPMAQSDSQLFNQLLVAEGMTLPPEM 657
Canis_lupus_familiaris SKSEANFSSEETESPKAKAEPLKADAEPAGKIEPPMAQSDSQLFNQLLVTEGMALPPEM 660
Equus_caballus    SKSEVTFSGEEAESLKAKAEPPKAEAESAKGKTEPPMAQSDSQLFNQLLVTEGMALSPPEM 660
Bos_taurus        SKSEATFSSEETESPNVKAQPLKAEAPVKGKTELPMASQSDSQLFNQLLVTEGMALPAGM 661
Orcinus_orca      SKSEANFSSEEAESP--KAKPLKLEAEPARGKTEPPMAQSDSQLFNQLLVTEGIALPAEM 659
Xenopus_tropicalis -----SPVQGGLOSKKARAEDSNGADMPTGHTPITAEISDLQLLNLLAQEGLQADPA 640
Danio_rerio       SSS----SSLSSATVSSSSSSASSTMGSSVSKAKKEIVADPVSCGNEKENELPNEDDSK 699
Pavo_muticus      -----RGGGSAMVCSSEGGDAGAVPAKEELSAATALRSDSQLFCELLERAGLRFLQAA 631
Pavo_cristatus    -----RGGGSAMVCSSEGGDAGAVPAKEELSAATALRSDSQLFCELLERAGLRFLQAA 631
.....670.....680.....690.....700.....710.....720

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Mus_musculus      QEAATEMARALRGPGPRS---SLDQHVAAVLATVQISSLDTNLQLSGLCALSQAVEEVTE 716
Rattus_norvegicus QAAATEMARTLRGPGPRS---SLDQHVAAVLATVQISSLDTNLQLSGLGALSQAVEEVTE 706
Homo_sapiens      KEAASEMARALRGPGPRS---SLDQHVAAVLATVQISSLDTNLQLSGLSALSQAVEEVTE 714
Pan_troglodytes   KEAASEMARALRGPGPRS---SLDQHVAAVLATVQISSLDTHLQLSGLSALSQAVEEVTE 714
Macaca_mulatta    KESASEMARALRGPGPRS---SLDQHVAAVLATVQISSLDTNLQLSGLCALSQAVEEVTE 714
Callithrix_jacchus KEAASEMARALRGPGPRS---SLDQHVAAVLATVQISSLDTNLQLSGLSALSQAVEEVTE 714
Canis_lupus_familiaris KEAASEMARGLRGPGPRS---SLDQHVAAVLATVQISSLDTNVQLLGLYALSQAVEEVTE 717
Equus_caballus    KEAAREMARALRGPGPRS---SLDQHVAAVLATVQISSLDTNLQLSGLYALSQAVEEVTE 717
Bos_taurus        KEAAGEMIRALRGPGPRS---SLDQYVAAVLATVQISSLDTSIQLSALCALSQAVEEVTE 718
Orcinus_orca      KEAASEMARALRGPGPRS---SLDQHVAAVLATVQVSSLDTNLQLSGLYALSQAVEEVTE 716
Xenopus_tropicalis DKSKEGSGSGSGTGKGPLSG--TPLEMLVDVLEKVKRRVCG---ADSLDFIIQILKQQPG 694
Danio_rerio       YDDDLLEKMKVFNSPKVQGGKSSLEKMGVVDMMKSSSDSGLQLAGMKVISKITEEGP 759
Pavo_muticus      EHSEAWGGCEGESEG-----GCLAQVQRVVDVILHGDCEAELRVAGLWHMVKVLEEAP 685
Pavo_cristatus    EHSEAWGGCEGESEG-----GCLAQVQRVVDVILHGDCEAELRVAGLWHMVKVLEEAP 685
.....730.....740.....750.....760.....770.....780

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Mus_musculus      RDHPLVRPD--RPLREKLVKTLVDLLTNQVGEKVVVMALRLLYLLMTKHEWRPLFAREG 774
Rattus_norvegicus RDHPLVRPD--RSLREKLVKTLVDLLTNQVGEKVVVLALRLLYLLMTKHEWRPLFAREG 764
Homo_sapiens      RDHPLVRPD--RSLREKLVKMLVELLTNOVGEKVVVQALRLLYLLMTKHEWRPLFAREG 772
Pan_troglodytes   RDHPLVRPD--RSLREKLVKMLVELLTNOVGEKVVVQALRLLYLLMTKHEWRPLFAREG 772
Macaca_mulatta    RDHPLVRPD--RSLREKLVKMLVELLTNOVGEKVVVQALRLLYLLMTKHEWRPLFAREG 772
Callithrix_jacchus RDHPLVRPD--RLREKLVKMLVELLTNOVGEKVVVQALRLLYLLMTKHEWRPLFAREG 772
Canis_lupus_familiaris RDHPLVRPD--RSLREKLVKTLVELLTNOVGEKMLVVLALRLLYLLMTKHEWRPLFAREG 775
Equus_caballus    RDHPLVHPD--RSLREKIVKTLVELLTNOVGEKVVVLALRLLYLLVTKHEWRPLFAREG 775
Bos_taurus        RDHPLVHPD--RFLREKLVKTLVELLTNOVGEKVVVLALRLLYLLMTKHEWRPLFAREG 776
Orcinus_orca      RDHPLVSPD--RSLREKLVKTLVELLTNOVGEKVVVLALRLLYLLMTKHEWRPLFAREG 774
Xenopus_tropicalis EEAQGAKADGRASLRNVVKMLVELLSOMKDKLLAVTCLQLTYIVMAKFDWRVLFATEG 754
Danio_rerio       QERSTLRSDSAQTIRDKVLKMLVEMIGSQPKQN--AVTALLLRNLMLKYEWRVFSATEG 817
Pavo_muticus      QEQHGSKAQGEPTREKLVKAVVELLGAEAEASCPAALALRLVALLMERCDWCVPFATEG 745
Pavo_cristatus    QEQHGSKAQGEPTREKLVKAVVELLGAEAEASCPAALALRLVALLMERCDWCVPFATEG 745
.....790.....800.....810.....820.....830.....840

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Mus_musculus      GIYAVLICMQEYKTSVLVQQAGLAALKMLAIANSSDVPTFIPSRDSIQPLFDTQMTREIF 834
Rattus_norvegicus GIYAVLICMQEYKTSVLVQQAGLAALKMLAIANSSSEVPTFVTGRDSIQPLFDTQMTREIF 824
Homo_sapiens      GIYAVLVCMQEYKTSVLVQQAGLAALKMLAVASSSEIPTFVTGRDSIHSLFDAQMTREIF 832
Pan_troglodytes   GIYAVLVCMQEYKTSVLVQQAGLAALKMLAVASSSEIPTFVTGRDSIHSLFDAQMTREIF 832
Macaca_mulatta    GIYAVLVCMQEYKTSVLVQQAGLAALKMLAIASSSEIPTFVTGRDSIHSLFDAQMTREIF 832
Callithrix_jacchus GIYAVLVCMQEYKTSVLVQQAGLAALKMLAVTSSSEIPSFTVGRDSTHSLFDAQMTREIF 832
Canis_lupus_familiaris GIYAVLVCMQEYKTSVLVQQAGLAALKMLAIASSSEIPTFVTGRDPIHPLFDAQMTREIF 835
Equus_caballus    GIYAVLVCMQEHKTSVLVQQAGLAALKMLAIASSSEIPTFVTGRESIHPLFDAQMTREIF 835
Bos_taurus        GIYAVLVCMQEYKTSVLVQQAGLAALKMLAIASSSEISTSVTSQDSIHPLFDAQMTREIF 836
Orcinus_orca      GIYAVLVCMQEYKTSVLVQQAGLAALKMLAIASSSEIPTLVAGRDSIHPLFDAQMTREIF 834
Xenopus_tropicalis GVRAVLGCMQEHQSSAAVQHAGLSVLKVLTVGRCCEL--RGSPPRYTLNSTDQVIKEIF 812
Danio_rerio       GVKAVLCCMQEYPTCIQVQOIALATLKVIITGASKHDP--RSGVAYLPLSESGTOMMLEIF 875
Pavo_muticus      GVRAVLACMRQHTASTLVQQAGLAALKVLVGAGVAGG--KPS----LLSHADAQLMREIF 799
Pavo_cristatus    GVRAVLACMRQHTASTLVQQAGLAALKVLVGAGVAGG--KPS----LLSHADAQLMREIF 799
.....850.....860.....870.....880.....890.....900

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Mus_musculus      ASIDSATRPGESESLLLSVPAAVVLMNLNTEG-----CSSAVRNGLLLLNLLLCNHH 884
Rattus_norvegicus ASIDSATRPGESESLLLSVPAAVVLMNLNTEG-----CSSAVRNGLLLLNLLLCNHH 874
Homo_sapiens      ASIDSATRPGESESLLLTVPAAVILMLNTEG-----CSSAARNGLLLLLNLLLCNHH 882
Pan_troglodytes   ASIDSATRPGESESLLLTVPAAVILMLNTEG-----CSSAARNGLLLLLNLLLCNHH 882
Macaca_mulatta    ASIDSATRPGESESLLLTVPAAVILMLNTEG-----CSSAARNGLLLLLNLLLCNHH 882
Callithrix_jacchus ASIDSATRPGESESLLLTVPAAVILMLNTEG-----CSSAVRNGLLLLNLLLCNHH 882
Canis_lupus_familiaris ASIDSATRPGESESLLLTVPAAVILMLNTEGFFPGYHLPKRCSSAVRNGLLLLNLLLCNHH 895
Equus_caballus    ASIDSATRPGESESLLLTVPAAVILMLNTEG-----CSSAVRNGLLLLNLLLCNHH 885
Bos_taurus        ASIDSATRPDSESLLLALPAAVILMLNTEG-----CSSAVRNGLLLLNLLLCNHH 886
Orcinus_orca      ASIDSATRPGESESLLLAVPAAVILMLNTEG-----CSSAVRNGLLLLNLLLCNHH 884
Xenopus_tropicalis SSIGSAASGNSTSLRAIPGAISKMLATPG-----CLPSVHNGLLVVQMLTENHA 862
Danio_rerio       ASIGSATPEGSKGLLCAIPSAIDMLMLGTG-----CGLSVRNGLLVVIIMLISSHK 925
Pavo_muticus      ASIGSACGEGSPGLLGAIPAAIRAMQGVPG-----GSSGVQNGLLVVVRMLVDGHR 849
Pavo_cristatus    ASIGSACGEGSPGLLGAIPAAIRAMQGVPG-----GSSGVQNGLLVVVRMLVDGHR 849
.....910.....920.....930.....940.....950.....960

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/CUI94s: Tue Feb 1 11:53:28 2022

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*   ::::   ..   .*
Mus_musculus      TLGDQIIITQELRDTLFRHSG-IAPGTEPMPTTTRITILTMLLSRYSEPRGSPER-AVLETIPS 942
Rattus_norvegicus TLGDQIIITQELRDTLFRHSG-IAPGTEPMPTTTRITILMMLLSRYSEPWGSPER-AALETIPS 932
Homo_sapiens      TLGDQIIITQELRDTLFRHSG-IAPRTEPMPTTTRITILMMLLNRYSEPPGSPER-AALETPI 940
Pan_troglodytes   TLGDQIIITRELRTDLFRHSG-IAPGTEPMPTTTRITILMMLLNRYSEPPGSPEC-AALETPI 940
Macaca_mulatta    TLGDQIIITRELRTDLFRHSG-IAPGTEPMPTTTRITILMMLLNRYSEPPGSPEH-AALETPI 940
Callithrix_jacchus TLGDQIIITRELRTDLFRHSG-IAPGTEPMPTTTRITILMMLLNRYSEPPGSPEH-AALETPI 940
Canis_lupus_familiaris TLGDQIIITRELRTDLFRHSG-IAPGTEPMPTTTRITILMMLLNRYSEPPGSPEHTAALETIPG 954
Equus_caballus    TLGDHIIITRELRTDLFRHSG-IAPGTEPMPTTTHITILMMLLNRYSEPPGSPEHTATLETIPS 944
Bos_taurus        TLGDQIIITRELRTDLFRHSG-IAPGTEPMPTTTRITILTMMLLNRYSKPPGSPERSAAPETPS 945
Orcinus_orca      TLGDQIIITRELRTDLFRHSG-IAPGTEAMPPTTTRITILMMLLNRYSEPPGSPERAAALETIPG 943
Xenopus_tropicalis GLLQMVNCELPAVLQSFVVDPSNSLNWKLDELVQKQLGELLKNKPEADTEATERVQTILA 922
Danio_erio        SLAEQLVACNVSAATLKKCLP--AQNHHSMLAIALNHISMVHKLEKKEQEEHD----- 977
Pavo_muticus      GLADQLVGCDFFVVLQSCWR-AGRDAGCLNAMLALSVINRLAEHRLPRGPMPG-ABALL 907
Pavo_cristatus    GLADQLVGCDFFVVLQSCWR-AGRDAGCLNAMLALSVINRLAEHRLPRGPMPG-ABALL 907
.....970.....980.....990.....1000.....1010.....1020

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:   **   ::   **:  :*   .   .   *   ::
Mus_musculus      TQGDGSPESLIRSLVGD-LSAELFLDLERVLCHEGSPPAAVRPLLRRLQOETOPFLLLL 1001
Rattus_norvegicus TQGDGSPESLIRSLVGD-LSAELFLDLERVLCHEGSPQAMTPLLKRLQOETOPFLLLL 991
Homo_sapiens      IQGDGSPPELLIRSLVGG-PSAELLDDLRLVLCRESGPGGAVRPLLKRLQOETOPFLLLL 999
Pan_troglodytes   IQGDGSPPELLIRSLVGG-PSAELLDDLRLVLCRESGPGGAVRPLLKRLQOETOPFLLLL 999
Macaca_mulatta    IQGDGSPPELLIRSLVGG-PSAELLDDLRLVLCRESGPGGAVRPLLKRLQOETOPFLLLL 999
Callithrix_jacchus IQGDGSPPELLIRSLVGG-PSAELLDDLRLVLCRESGPGGAVRPLLKRLQOETOPFLLLL 999
Canis_lupus_familiaris APGDGSPERLIRSLVGG-PSAELLGLRLVLCRESGPGGAMRPLLKRLQOETOPFLLLL 1013
Equus_caballus    VQGLDGSPPELLIRSLVGG-PSAELLDDLRLVLCRESGPGGAVRPLLKRLQOETOPFLLLL 1003
Bos_taurus        AQQGEGSPPELLIRSLVGG-PSAELLDDLRLVLCRESGPGGAVRPLLKRLQOESQPFLLLL 1004
Orcinus_orca      AQQGEGSPPELLIRSLVGG-PSAELLDDLRLVLCRESGPGGAVRPLLRLQOESQPFLLLL 1002
Xenopus_tropicalis VQEMDSP--ALLSKDSQLCKEVLPALERCVCDNVSMRCHV---PQLLTDSDFFLQLL 977
Danio_erio        FKDTLKL--MLVASLKEMPATKEVIMTLEQLLCLDASQLEDER---NEVTRSRDFTQDLI 1032
Pavo_muticus      LEVREAR--VPAGSLWDGAMPEDVVVALERQLCGVAAIPVGEA---SRQLQERRCFRLLL 962
Pavo_cristatus    LEVREAR--VPAGSLWDGAMPEDVVVALERQLCGVAAIPVGEA---SRQLQERRCFRLLL 962
.....1030.....1040.....1050.....1060.....1070.....1080

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::   ::  :  *  :*:  :   .   *  *   .   .   ::*:
Mus_musculus      RTLDAPGPNRNTLLLTILRVMTRLLDHPETMVLWPHEVLEPCNLCLNGPSSDSEVVOELTC 1061
Rattus_norvegicus RTLDAPGPNRALLLTIVLRVMTRLLDYPETMVLWPHEVLEPCNLCLNGPSSDSEVVOELTC 1051
Homo_sapiens      RTLDAPGPNKTLTLLSVLRVITRLLDPEAMVLPWHEVLEPCNLCLSGPSSDSEIVOELTC 1059
Pan_troglodytes   RTLDAPGPNKTLTLLSVLRVITRLLDPEAMVLPWHEVLEPCNLCLSGPSSDSEIVOELTC 1059
Macaca_mulatta    RTLDAPGPNKTLTLLSVLRVITRLLDPEAMVLPWHEVLEPCNLCLSGPSSDSEIVOELTC 1059
Callithrix_jacchus RTLDAPGPNKTLTLLSVLRVMTRLLDPEAMVLPWHEVLEPCNLCLSGSSDSEIVOELTC 1059
Canis_lupus_familiaris RTLDAPGPNKTLTLLTALRVMTRLLDHPPEAMVLPWHEVLEPCNLCLSGPSSDSEIVOELLY 1073
Equus_caballus    RTLDAPGPNKTLTLLTALRVMTRLLDHSEAMVLPWHEVLEPCNLCLSGPSSDSEIVOELLC 1063
Bos_taurus        WTLDPGPNKTLTLLTALRVMTQLLDHTEAMVLPWHEVLEPCNLCLNGPSSDSEIVOELLC 1064
Orcinus_orca      RTLDAPGPNKTLTLLTALRVMTRLLDHPPEAMVLPWHEVLEPCNLCLSGPSSDSEIVOELLC 1062
Xenopus_tropicalis SCLETLRGEKRLQLSVFRILNKALDFYQEDGLPWHSIEPCLTSLGSSGSDQEVLEQEVVT 1037
Danio_erio        RLMDQHRADRAVQLSILRILTKFLDNQEDLLPWHSIEPCLSMTAFVSDREVVOQFIR 1092
Pavo_muticus      RSLELPGAEKAVGLRIIRVFGAGMFLX-REGPSAPRGREGCAACWLRVAVSP-VVQEA VG 1020
Pavo_cristatus    RSLELPGAEKAVGLRIIRVFGAGMFLX-REGPSAPRGREGCAACWLRVAVSP-VVQEA VG 1020
.....1090.....1100.....1110.....1120.....1130.....1140

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** ***   ** **  :  *  ::  :  *. *  *  :  .  *   *  .*:  :*:  :  *  ::
Mus_musculus      FLHRLALMOKDYAVVLCCLGKEALSKVLDKHSQTLLASELRLHVAECEKYSQCSNLT 1121
Rattus_norvegicus FLHRLALMHKDYAVVLCCLGAKEALSKVLDKHSQTLLASELRLHVAECEKYAQLYTNLT 1111
Homo_sapiens      FLHRLASMHKDYAVVLCCLGAKEILSKVLDKHSQAQLLLGCELRLDLVTECEKYAQLYSNLT 1119
Pan_troglodytes   FLHRLASMHKDYAVVLCCLGAKEILSKVLDKHSQAQLLLGCELRLDLVTECEKYAQLYSNLT 1119
Macaca_mulatta    FLHRLALMHKDYAVVLCCLGAKEVLSKVLDKHSQAQLLLGCELRLDLVTECEKYAQLYSNLT 1119
Callithrix_jacchus FLHRLASMHKDYAVVLCCLGAKEVLSKVLDKHSQAQLLLGCELRLDLVTECEKYAQLYSNLT 1119
Canis_lupus_familiaris FLHRLASMHKDYAVVLCCLGAKEALSKVLDKHSQAQLLLACELRLDLVTECEKHAQLYSNLT 1133
Equus_caballus    FLHRLASMHKDYAVVLCCLGAKEALSKVLDKHSQAQLVLACELRLDLVTECEKHAQLYSNLT 1123
Bos_taurus        FLYRLASTHKDYAVVLCCLGAKDALTKVLEKHSQAQLLLACELRLDLVTECEKHAQLYSNLT 1124
Orcinus_orca      FLYRLASMHKDYAVVLCCLGAKEALAKVLVKHPAQLLLACELRLDLVTECEKHAQLYSNLT 1122
Xenopus_tropicalis FLNRLATTNKDYAVVMCRGLGAKETLSKVLEKQNSALLQANELKDILLADCEKFASLYQKMA 1097
Danio_erio        FLYRLASLNKDYAVVMCRGLGKTDAKLLKALDKHNTSLLMVTELRLDLNDCEKYASLYKKMT 1152
Pavo_muticus      FLHRLATTSKDCAVGMCRAAREAVAKALDKHGPALPLAPALLELVSDCERHAYLYRKLT 1080
Pavo_cristatus    FLHRLATTSKDCAVGMCRAAREAVAKALDKHGPALPLAPALLELVSDCERHAYLYRKLT 1080
.....1150.....1160.....1170.....1180.....1190.....1200

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/CUI94s: Tue Feb 1 11:53:28 2022

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      *:::****:*****:***: :*:::***:****:***:****:***:****:****
Mus_musculus      SSILAGCIQMVLGQIEDHRRITYKPITIPFFDVFLRHLCOGSSVEVKEDRCWEKVEVSSNP 1181
Rattus_norvegicus SLLLAACIQMVLGQIEDHRRITYKPINIPFFDVFLRHLCOGSSVEVKEDRCWEKVEVSSNP 1171
Homo_sapiens      SSILAGCIQMVLGQIEDHRRTHQPINIPFFDVFLRHLCOGSSVEVKEDKCWEKVEVSSNP 1179
Pan_troglodytes   SSILAGCIQMVLGQIEDHRRTHQPINIPFFDVFLRHLCOGSSVEVKEDKCWEKVEVSSNP 1179
Macaca_mulatta    SSILAGCIQMVLGQIEDHRRTHQPINIPFFDVFLRHLCOGSSVEVKEDKCWEKVEVSSNP 1179
Callithrix_jacchus SSILAGCIQMVLGQIEDHRRTHQPINIPFFDVFLRHLCOGSSVEVKEDKCWEKVEVSSNP 1179
Canis_lupus_familiaris SSILAGCIQMVLGQIEDHRRTHQPINIPFFDVFLRHLCOGSSVEVKEDKCWEKVEVSSNP 1193
Equus_caballus    SSILAGCIQMVLGQIEDHRRTHRPINIPFFDVFLRHLCOGSSVEVKEEKWEKVEVSSNP 1183
Bos_taurus        SSILAGCIQMVLGQIEDHRRITYRPINIPFFDVFLRHLCOGSSVEVKEDKCWEKLEVSSNP 1184
Orcinus_orca      SSILAGCIQMVLGQIEDHRRITYRPINIPFFDVFLRHLCOGSSVEVKEDKCWEKVEVSSNP 1182
Xenopus_tropicalis TSILAGCIQMVLGQIEEHRRSQPINIPFFHVFLRNLCOGSSVEVKEDKCWEKIEVSSNP 1157
Danio_erio        TSVLAGCIQMVLGQIEEHRRSHQPINIPFFDVFLRNLCOGSSVELKEDKCWEKVEVSSNP 1212
Pavo_muticus      GSILAGCIQVVLGQIEEHRRSQRPISVPFFDIFLRLNCRGSSVEVKEDKCWEKVHVSSNP 1140
Pavo_cristatus    GSILAGCIQVVLGQIEEHRRSQRPISVPFFDIFLRLNCRGSSVEVKEDKCWEKVHVSSNP 1140
      .....1210.....1220.....1230.....1240.....1250.....1260

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      ***.***** :***:*****.***** *:..*: **: *: :*****:***:
Mus_musculus      HRASKLTDNPKTYWESNGSTGSHSITLHMHRGVLIQRLTLLVASESSYMPARVVVFVGG 1241
Rattus_norvegicus HRASKLTDNPKTYWESNGSTGSHSITLHMHRGVLIQRLTLLVASESSYMPARVVVFVGG 1231
Homo_sapiens      HRASKLTDNPKTYWESNGSTGSHYITLHMHRGVLIQRLTLLVASESSYMPARVVVFVGG 1239
Pan_troglodytes   HRASKLTDNPKTYWESNGSTGSHYITLHMHRGVLIQRLTLLVASESSYMPARVVVFVGG 1239
Macaca_mulatta    HRASKLTDNPKTYWESNGSTGSHYITLHMHRGVLIQRLTLLVASESSYMPARVVVFVGG 1239
Callithrix_jacchus HRASKLTDNPKTYWESNGSTGSHYITLHMHRGVLIQRLTLLVASESSYMPARVVVFVGG 1239
Canis_lupus_familiaris HRASKLTDNPKTYWESNGSTGSHYITLHMHRGVLIQRLTLLVASESSYMPARVVVFVGG 1253
Equus_caballus    HRASKLTDNPKTYWESNGSTGSHYITLHMHRGVLIQRLTLLVASESSYMPARVVVFVGG 1243
Bos_taurus        HRASKLTDNPKTYWESNGSTGSHFITLHMHRGVLIQRLTLLVASESSYMPARVVVFVGG 1244
Orcinus_orca      HRASKLTDNPKTYWESNGSTGSHYITLHMHRGVLIQRLTLLVASESSYMPARVVVFVGG 1242
Xenopus_tropicalis HRANKLTDGNPKTYWESNGSTGSHYINIFMHRGVVARQLYMLVASESSYMPARLVVMGG 1217
Danio_erio        HRANKLTDKNPKTYWESNGCTGSHFINIYMHKGVVIRQLTVLASESSYMPARIVVLGG 1272
Pavo_muticus      HRASKLTDNPKTYWESNGSTGSHYITIHMQCQGVVREMSMLVASESSYMPARVVVLGG 1200
Pavo_cristatus    HRASKLTDNPKTYWESNGSTGSHYITIHMQCQGVVREMSMLVASESSYMPARVVVLGG 1200
      .....1270.....1280.....1290.....1300.....1310.....1320

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      :. : ****:*.: :*.:* ****:*.**:*:::*****:***:****
Mus_musculus      DNVGCISTELNTVNVMPSASRVTLLENLRFWPPIQIRIKRCQGGIDTRVRGVEVLGPK 1301
Rattus_norvegicus DSVGCISTELNTVNVMPSASRVTLLENLRFWPPIQIRIKRCQGGIDTRVRGVEVLGPK 1291
Homo_sapiens      DSTSCIGTELNTVNVMPSASRVILLENLNRFWPIIQIRIKRCQGGIDTRVRGVEVLGPK 1299
Pan_troglodytes   DSTSCISTELNTVNVMPSASRVILLENLNRFWPIIQIRIKRCQGGIDTRVRGVEVLGPK 1299
Macaca_mulatta    DSTSCISTELNTVNVMPSASRVILLENLNRFWPIIQIRIKRCQGGIDTRVRGVEVLGPK 1299
Callithrix_jacchus DSTSCISTELNTVNVMPSASRVILLENLNRFWPIIQIRIKRCQGGIDTRVRGVEVLGPK 1299
Canis_lupus_familiaris DSASCISTELNTVNVMPSASRVILLENLNRFWPIIQIRIKRCQGGIDTRVRGVEVLGPK 1313
Equus_caballus    DNTSCISTELNTVNVMPSASRVILLENLNRFWPIIQIRIKRCQGGIDTRVRGVEVLGPK 1303
Bos_taurus        DSASCINTELNTVNVMPSASRVILLENLRFVWPPIQIRIKRCQGGIDTRVRGVEVLGPK 1304
Orcinus_orca      DGVSCISTELNTVNVMPSASRVILLENLNRFWPVIQIRIKRCQGGIDTRVRGVEVLGPK 1302
Xenopus_tropicalis ENASCITTELNAVNISSAGRVLLLENVTRFWPIIQIKIKRCQGGIDTRVRGLEILGPK 1277
Danio_erio        DDPININTELNTVNVPASASHVVLLENMTRFWPIIQIRVKRCQGGIDTRVHGFEVLGPK 1332
Pavo_muticus      DSPADVTELNAVTVLPSASRVILLENMTRFWPIIQIRVKRCQGGIDTRVRGIEVLGPK 1260
Pavo_cristatus    DSPADVTELNAVTVLPSASRVILLENMTRFWPIIQIRVKRCQGGIDTRVRGIEVLGPK 1260
      .....1330.....1340.....1350.....1360.....1370.....1380

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      .****:*:**** ** ** : *::* :* :. **** :** .* *** *****
Mus_musculus      PTFWPLFREQLCRRTCLFYITIRAAWSRDIAEDRQRLQLYPRLNRLVRHEQNFADRFLP 1361
Rattus_norvegicus PTFWPLFREQLCRRTCLFYITIRAAWSRDIAEDRQRLQLYPRLNRLVRHEQNFADRFLP 1351
Homo_sapiens      PTFWPLFREQLCRRTCLFYITIRAAWSRDIAEDHRRLLQLCPRLNRLVRHEQNFADRFLP 1359
Pan_troglodytes   PTFWPLFREQLCRRTCLFYITIRAAWSRDIAEDRRRLQLCPRLNRLVRHEQNFADRFLP 1359
Macaca_mulatta    PTFWPLFREQLCRRTCLFYITIRAAWSRDIAEDRRRLQLCPRLNRLVRHEQNFADRFLP 1359
Callithrix_jacchus PTFWPLFREQLCRRTCLFYITIRAAWSQDIAEDRRRLQLCPRLNRLVRHEQNFADRFLP 1359
Canis_lupus_familiaris PTFWPLFREQLCRRTCLFYITIRAAWSRDIAEDRKRLQLCPRLNRLVRHEQNFADRFLP 1373
Equus_caballus    ATFWPLFREQLCRRTCLFYITIRAAWSQDIAEDRKRLQLCPRLNRLVRHEQNFADRFLP 1363
Bos_taurus        PTFWPLFREQLCRRTCLFYITIWAQAWSRDIAEDRKRLQLCPRLNRLVRHEQNFADRFLP 1364
Orcinus_orca      PTFWPLFREQLCRRTCLFYITIRAAWSRDIAEDRKRLQLCPRLNRLVRHEQNFADRFLP 1362
Xenopus_tropicalis PTFWPVFKEQLCRRTFLFYTSRAHSWGQEIIRGKRENLLQLFRRLNRLTLTHEQEFADRFLP 1337
Danio_erio        PTFWPVFKEQLCRRTFLFYTTKAHTWCQEIILEDKNLLQLFNKLNLSALKHEQMFADRFLP 1392
Pavo_muticus      PTFWPIFKEQLCRRTFLFCSARAHAWCQEIHRDRGQLQLFGLKLNRLALQHEQDFADRFLP 1320
Pavo_cristatus    PTFWPIFKEQLCRRTFLFCSARAHAWCQEIHRDRGQLQLFGLKLNRLALQHEQDFADRFLP 1320
      .....1390.....1400.....1410.....1420.....1430.....1440

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## CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/CUL19a1s Tue Feb 1 11:53:28 2022

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* ***.***:*****.:*:**.*.:*:** **.:** . *
DDEAAQALGKTCWEALVSPLVQNITSPDAGGVSLGWLLDQYLEHRESTRSRQGPAASFA 1421
DDEAAQALGKTCWEALVSPLVQNITSPDAGGVSLGWLLDQYLEHREKARSRQGAASFA 1411
DDEAAQALGKTCWEALVSPLVQNITSPDAEGVSALGWLLDQYLEQRET SRNPLSRAASFA 1419
DDEAAQALGKTCWEALVSPLVQNITSPDAEGVSALGWLLDQYLEQRET SRNPLSRAASFA 1419
DDEAAQALGKTCWEALVSPLVQNITSPDAEGVSALGWLLDQYLEQRESSQNPLSRAASFA 1419
DDEAAQALGKTCWEALVSPLVQNITSPDAEGVSALGWLLDQYLEQRESSRNPLSRAASFA 1419
DDEAAQALGKTCWEALVSPLVQNITSPDPEGVSLGWLLDQYLEQRESSQNPNVNRASFA 1433
DDEAAQALGKTCWEALVSPLVQNITSPDAEGVSLGWLLDQYLEHRESSRNPLSRAASFA 1423
DEEAAQALGKTCWEALVSPLVQNITCPDAEGVSLGWLLDQYLEQRESSRNPRGRAASFA 1424
DDEAAQALGKTCWEALVSPLVQNITSPDVEGVSLGWLLDQYLEQRESSRNPLSRAAFA 1422
DDEAAQALGR TCWEALIAPLVQSITTPDPGGMSPLHWLLTKYLENVRLSRRPKSRSSVFN 1397
DAEAAEALGR TCWEALITPIVQSITISETSTLSPLSWLMSEYLQNAESSKRCKSSAIFN 1452
DDEAARALGR TCWEALVTIPVQSITSPDSPGISPLAWLLGEYLGTE-----QPRGDAFG 1375
DDEAARALGR TCWEALVIPVVSITSPDSPGISPLAWLLGEYLGTE-----QPRGDAFG 1375
.....1450.....1460.....1470.....1480.....1490.....1500
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SQVRRRLCHLLVHVEAPPPGPSPEPSSQPLSKN-----SKGQDGSPTPA	1463
SQVRRRLCHLLVHVEAPPPGPSPEPSSQPLSKS-----SKSQDGS--PA	1451
SRVRRRLCHLLVHVEPPPGPSPEPSTRPFPSKN-----SKGRDRS--PA	1459
SRVRRRLCHLLVHVEPPPGPSPEPSTRPFPSKN-----SKGRDQS--PA	1459
SRVRRRLCHLLVHVEPPPGPSPEPSTRPFPSKN-----SKGRDRS--PA	1459
SRVRRRLCHLLVHVEPPPGLPPEPSARPFPSKN-----SKGRERS--PA	1459
SRVRRRLCHLLVHVEPPPGPSPEPSTRPIGKN-----SKVRDRS--PG	1473
SRVRRRLCHLLVHVEPPPGPSPEPSTRPFPSKN-----SKGRDRS--PV	1463
SRVRRRLCHLLVHVEPPPGPSPEPSARPPSKS-----SKARDRS--PG	1464
SRVRRRLCHLLVHVEPPPGPSPEPSTRPFPSKN-----SKGQDWS--PG	1462
SRVRRRLTHLLVHVD-SSLPETEALKPPSKTN-----EKSPDSASLPT	1438
SRVRRRLTHLLVHVD-TSTVDTEELKPPIKSGINRSDLNKGKEGKNKETISTVSSSSSSI	1511
SCVRRRLTQLLVHVD-PGGLDPEAAGAAGGKE-----GRNKETPAR	1414
SCVRRRLTQLLVHVD-PGGLDPEAAGAAGGKE-----GRNKETPAR	1414

.....1510.....1520.....1530.....1540.....1550.....1560

.	:	..	**	***	*	**	:	.*	*	:	.*	*	****	:																																										
PTPVCPS	TS	LRNL	TC	CWLS	SVVQ	GOVSR	FLAA	AWRAS	DFV	PRY	CS	LY	QRL	SAGSE	LF	GPR	1523																																							
PAPVRP	ST	TL	LRN	IT	QC	WLAV	VQGO	AS	RFLA	SA	WRAS	DFV	PRY	CD	LY	ERL	ORAGSE	LF	GPR	1511																																				
PSPVLP	SS	SL	LRN	IT	QC	WL	SVVQ	EOVSR	FLAA	AWRAP	DFV	PRY	CK	LY	EH	LR	ORAGSE	LF	GPR	1519																																				
PSPVLP	SS	SL	LRN	IT	QC	WL	SVVQ	EOVGR	FLAA	AWRAP	DFV	PRY	CK	LY	EH	LR	ORAGSE	LF	GPR	1519																																				
PLPVLP	SS	SL	LRN	IT	QC	WL	NV	VQEOVGR	FLAA	AWGAP	DFV	PRY	CK	LY	EH	LR	ORAGSE	LF	GPR	1519																																				
PLPVLP	SS	SL	LRN	IT	QC	WL	SVVQ	EOVGR	FLAA	AWRAP	DFV	PRY	CK	LY	EH	LR	ORAGSE	LF	GPR	1519																																				
PSPALP	SS	SL	LRN	IT	QC	WL	SVVQ	EOVSR	FLAA	AWRAP	DFV	PRY	CK	LY	EH	LR	ORAGSE	LF	GPR	1533																																				
PSPVLP	SS	SL	LRN	IT	QC	WL	SVVQ	EOVSR	FLAA	AWRAP	DFV	PRY	CY	EL	YH	LR	ORAGSE	LF	GPR	1523																																				
PSPVLP	SS	SL	LRN	IT	QC	WL	SVVQ	EOVST	FLAA	AWRAP	DFV	PRY	CK	LY	ER	LR	ORAG	LE	LF	GPR	1524																																			
PSPVLP	SS	SL	LRN	IT	QC	WL	SVVQ	EOVSR	FLAA	AWRAP	DFV	PRY	CK	LY	GR	LR	ORAGSE	LF	GPR	1522																																				
KGT	VS	LL	ST	MT	G	IA	EC	WQ	GV	VQK	VQ	R	F	LE	V	SW	NN	TL	V	P	R	F	C	S	LY	E	L	R	C	A	M	E	E	L	F	G	Q	1498																		
KPK	V	K	N	T	S	S	I	A	A	I	A	L	C	W	Q	G	V	V	R	O	V	K	S	F	L	D	S	T	C	S	V	S	D	F	V	E	R	Y	R	G	M	F	L	R	L	K	N	A	M	E	E	L	F	G	Q	1571
VAV	A	V	K	S	G	G	L	W	D	M	V	R	C	W	R	G	V	V	Q	Q	Q	V	Q	F	L	E	M	S	G	A	L	D	V	V	E	R	Y	C	V	LY	Q	R	L	R	G	A	T	E	E	L	F	G	Q	1474		
VAV	A	V	K	S	G	G	L	W	D	M	V	R	C	W	R	G	V	V	Q	Q	Q	V	Q	F	L	E	M	S	G	A	L	D	V	V	E	R	Y	C	V	LY	Q	R	L	R	G	A	T	E	E	L	F	G	Q	1474		
.....1570.....1580.....1590.....1600.....1610.....1620																																																								

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: * : * . ** . *** : *** : * :
AAFTLALRSGFSGALLQQSFLTAAHIS-----1550
AAFTLALRSGFSGALLQQSFLTAAHIS-----1538
AAFMLALRSGFSGALLQQSFLTAAHMS-----1546
AAFTLALRSGFSGALLQQSFLTAAHVSP-TSSPQGYKLVFQVHLFLLCPFTSFRSPVSYST1579
AAFTLALRSGFSGALLQQSFLTAAHVSP-TSSPQGYKVMSQVHLFLLCPFTSFRSPVS-ST1578
AAFTLALHSGFSGALLQQSFLTAAHMS-----1546
AAFTLALRSGFSGALLQQSFLTAAHIS-----1560
AAFTLALRSGFSGALLQQSFLTAAHMS-----1550
AAFTLALRSGFSGALLQQSFLTTAHMS-----1551
AAFMLALRSGFSGALLQQSFLTAAHMS-----1549
TLFLLSLRQGFCEGLQLSFLTALHIT-----1525
TAFVLALRQGFSGALLQLSILTAMHVS-----1598
AAFVAALQGQFAGALLQLSFLTTLHMS-----1501
AAFVAALQGQFAGALLQLSFLTTLHMS-----1501
.....1630.....1640.....1650.....1660.....1670.....1680

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## CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

**File: /media/morpheus/disk1/fst/pep\_msa/CUL19** **Date: Tue Feb 1 11:53:28 2022**

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		*:*::**	::	::**	**	:...::**:	*			
Mus_musculus	-----	EQFARHIDQQIHGGLLGAAGVGM	LGR	LQRHLEPIMVLS	SGL	ELEA	1594			
Rattus_norvegicus	-----	EQFARHIDQQIQGGLLGAAGVEM	LGR	LQRHLEPIMVLS	SGL	ELEA	1582			
Homo_sapiens	-----	EQFARYIDQQIQGGLIGGAPGVEM	LGL	LQRHLEPIMVLS	SGL	ELEA	1590			
Pan_troglodytes	PSFMVCS	CPFP	CPO	MS	EQFARYIDQQIQGGLIGGAPGVDM	LGL	LQRHLEPIMVLS	SGL	ELEA	1639
Macaca_mulatta	PSFMVCP	CPFH	CPO	MS	EQFARYIDQQIQGGLIGGAPGVEM	LGL	LQRHLEPIMVLS	SGL	ELEA	1638
Callithrix_jacchus	-----	EQFARYIDQQIQGGLIGGAPGVEM	LGL	LQRHLEPIMVLS	SGL	ELEA	1590			
Canis_lupus_familiaris	-----	EQFARHIDQQIQGGLVGGATGVEM	LGR	LQHLEPIMVLS	SGL	ELEA	1604			
Equus_caballus	-----	EQFARHIDQQIQGGLMGGAPGVEVL	LGR	LQRHLEPIMVLS	SGL	ELEA	1594			
Bos_taurus	-----	EQFARHIDQQIQSGLMGTPGVEVL	GR	LWHLEPIMVLS	SGL	ELEA	1595			
Orcinus_orca	-----	EQFARHIDQQIQGGLMGTPGVEML	GR	LWHLEPIMVLS	SGL	ELEA	1593			
Xenopus_tropicalis	-----	EQFARYIDCRIOE-ISTDYNLQALGH	LQ	QFLEFVLF	LD	ELEA	1568			
Danio_rerio	-----	ERFAQYIDKMIQE-SGVDSGSVD	TILN	LQ	QFLEPMLFL	SGL	ELEA	1641		
Pavo_muticus	-----	EQFARYLDRKVQE-LHGAAG---	STG	LQ	QILEPFIVFGGLE	FEA	1541			
Pavo_cristatus	-----	EQFARYLDRKVQE-LHGAAG---	STG	LQ	QILEPFIVFGGLE	FEA	1541			
	.....1690.....	1700.....	1710.....	1720.....	1730.....	1740				

	*****: *.:****. * *** :*:.* ****.*: ** * * :*::	::
Mus_musculus	TTFEHFYQHYMADRLLSLGSSWLEGAVLEQIGPCFPNRLPOLMLQSLHTSEELQHRFHFLF	1654
Rattus_norvegicus	TTFEHFYQYYMADRLLSLGSSWLEGAVLEQIGLCFPNRLPOLMLQSLRTSEELORGFLFLF	1642
Homo_sapiens	TTFEHFYQHYMADRLLSFGSSWLEGAVLEQIGLCFPNRLPOLMLQSLSTSEELORQFHFLF	1650
Pan_troglodytes	TTFEHFYQHYMADRLLSFGSSWLEGAVLEQIGLCFPNRLPOLMLQSLSTSEELORQFHFLF	1699
Macaca_mulatta	TTFEHFYQHYMADRLLSFGSSWLEGAVLEEIGLCFPNRLPOLMLQSLSTSEELORQFHFLF	1698
Callithrix_jacchus	TTFEHFYQHYMADRLLSFGSSWLEEAIVLEQIGLCFPNRLPOLMLRSLSTSEELQLQFHFLF	1650
Canis_lupus_familiaris	TTFEHFYQHYMADRLLSLGSSWLEGAVLEQIGLCFPNRLPOLMLRSLSTSEELQHQFHFLF	1664
Equus_caballus	TTFEHFYQHYMADRLLSLGSRWLEGAVLEQIGLCFPNRLPOLMLRSLSTSEELORQFHFLF	1654
Bos_taurus	TTFEHFYQHYMADRLLSLGSSWLEGAVLEQIGLCFPNRLPOLMLRSLSTSEELORQFHVY	1655
Orcinus_orca	TTFEHFYQHYMADRLLSVGSSWLEGAVLEQIGPCFPNRLPOLMLRSLSTSEELORQFHVY	1653
Xenopus_tropicalis	NSFEHFYRHYLADRLLSLGPSWLESSVVDHIGICFPNRFPOQMLKNLQEQASDLQEQHFLF	1628
Danio_rerio	NTFEHFYRYLYLGDRLLGQQKVWLENAAVVEQIGTCFPNRFPOQMLTNLSESEELQQEFHLY	1701
Pavo_muticus	HTFEHFYRLYLGDRLLAQGPSWLEGAVVEQMGLCFPRRFPOEMLRDIAESEELRRHFRFLF	1601
Pavo_cristatus	HTFEHFYRLYLGDRLLAQGPSWLEGAVVEQMGLCFPRRFPOEMLRDIAESEELRRHFRFLF	1601
	.....1750.....1760.....1770.....1780.....1790.....1800	

	**	*	:	:	:	*****	...	
Mus_musculus	QLQQLDRQLLEQGD	EEWRPEKVEED	EG	ETGRELFT	-DPGPAISVLVLSPRCWPVVSPL			1713
Rattus_norvegicus	QLQQLDRQLLEQGE	EEWKLERLEE	DRG	ETGRELLT	EDPGPAISVLVLSPRCWPVVSPL			1702
Homo_sapiens	QLQRDLKLFLEQ	EDEEEKRL	EEEEEEEEEEEE	EAEKELFIED	PSPAISILVLSPRCWPVVSPL			1710
Pan_troglodytes	QLQRDLKLFLEQ	EDEEEKRL	EEEEEEEEEEEE	EAEKELFIED	PSPAISILVLSPRCWPVVSPL			1759
Macaca_mulatta	QLQRDLKLFLEQ	EDEEEKRL	EEEEEEEEEEEE	EAEKELFIED	PSPAISILVLSPRCWPVVSPL			1758
Callithrix_jacchus	QLQRDLKLFLEQ	EDKEEKGL	EEEEEEEEEEEE	EAEKELFIED	PSPAISVLVLSPRCWPVVSPL			1710
Canis_lupus_familiaris	QLQRDLKLLLEQ	ENEEQGL	EEEEEEA	EEEAELFIED	SSPTVSVILVLSPRCWPVVSPL			1724
Equus_caballus	QLQWFDKLLLDK	EDDEEQGLE	EDDE	---EEEAELFIED	PSPAVSVVLVLSPRCWPVVSPL			1711
Bos_taurus	QLQQLDKLFLEQ	EDEEEQGL	EEEEEEEE	---AEKELFIED	PSPTVSVVLVLSPRCWPVVSPL			1712
Orcinus_orca	QLQQLDKLLLEQ	EDEEEQGL	EEEEEEEEEE	EAEKELFIED	PSPTVSVVLVLSPRCWPVVSPL			1713
Xenopus_tropicalis	CLQEMDTGLL	SDEEGEDM	-----	EEEKSTIGV	GHGLGEEPKHISVLSPRCWAIPSL			1678
Danio_rerio	RLQQLDR	-----	NLEDF	-----	EEEMDEDVPEPEESDVKVLVLSPRCWVVSAP			1745
Pavo_muticus	RLQERDRRL	ERGLG	TES	-----	PEAEVPGAPAVDAVEVEVLVLSPRCWPVVSPL			1651
Pavo_cristatus	RLQERDRRL	ERGLG	TES	-----	PEAEVPGAPAVDAVEVEVLVLSPRCWPVVSPL			1651
	.....1810	.....1820	.....1830	.....1840	.....1850	.....1860		

	** : . * : : : . * * . * : : *	
Mus_musculus	CYLHHPRKHLQAELCDALERFSSFYSHS-----ONCP	1745
Rattus_norvegicus	CYLHQPRKHLPTTEFCDALDGFSSFYSHSEELGTGSWRLRCIPGGRRGKAEATROEC	1762
Homo_sapiens	CYLHHPRKCLPTEFCDALDRFSSFYQS-----QNHP	1742
Pan_troglodytes	CYLHHPRKCLPTEFCDALDRFSSFYQS-----QNHP	1791
Macaca_mulatta	CYLHHPRKCLPTEFCDALDCFSSFYQS-----QNHP	1790
Callithrix_jacchus	CYLHHPRKCLPTEFCDALDRFSSFYQS-----QNHP	1742
Canis_lupus_familiaris	CYLHHPRKCLPTEFCDALDRFSNFYSQS-----QNHP	1756
Equus_caballus	CYMYHPRKCLPTELCDALDCFSNFYQS-----QNHP	1743
Bos_taurus	CYLHHPRKCLPTEFCDALDRFSSFYNS-----QNHP	1744
Orcinus_orca	CYLHHPRKCLPTEFCDALDRFSNFYNS-----QNHP	1745
Xenopus_tropicalis	CYMKDPTKYFPESLCRLNCFKDFYTKS-----QSLQ	1710
Danio_rerio	CYLQDPKHFPAQLCNVLAEFIDFYINS-----ORMY	1777
Pavo_muticus	CYVEEPRRFFPAALSSPLDEFADFWRHS-----QSRP	1683
Pavo_cristatus	CYVEEPRRFFPAALSSPLDEFADFWRHS-----QSRP	1683
	.....1870.....1880.....1890.....1900.....1910.....1920	



## CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/CUL19a Date: Tue Feb 1 11:53:28 2022

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	***:*****.*.:... * ***:***:** ** *:*. * : : *	
Mus_musculus	VLDIGPHRRRLQWTWLGRAELQFGDQTLHVSTVQMWLLLNFNQSEEVSVETLLRNSDLSPE	1805
Rattus_norvegicus	VLDMGPHRRRLQWTWLGRAELQFGDQTLHVSTVQMWLLLNFNQTEEVSVETLLRNSGLSPE	1822
Homo_sapiens	VLDMGPHRRRLQWTWLGRAELQFGQILHVSTVQMWLLLFKNQTEEVSVETLLKDSDLSP	1802
Pan_troglodytes	VLDMGPHRRRLQWTWLGRAELQFGNQLHVSTVQMWLLLFKNQTEEVSVETLLKDSDLSP	1851
Macaca_mulatta	VLDMGPHRRRLQWTWLGRAELQFGNQLHVSTVQMWLLLNFNHTEEVSVETLLKDSALSPE	1850
Callithrix_jacchus	VLDMGPHRRRLQWTWLGRAELQFGNQLHVSTVQMWLLLNFNQKEEVSVETLLKDSNLSPE	1802
Canis_lupus_familiaris	VLDMGPHRRRLQWTWLGRAELRFQDQTLHVSTVQMWLLLYFNKTEEVSVETLLKNSDLTPE	1816
Equus_caballus	VLDMGPHRRRLQWTWLGRAELHFQDQTLHVSTVQMWLLLNFNQMEEVSVETLLKSSDLTPE	1803
Bos_taurus	ALDVGPHRRRLQWTWLGRAELQFADQTLHVSTVQMWLLLFHNQTEEVSVETLLKNSGLSPE	1804
Orcinus_orca	VLDMGPHRRRLQWTWLGRAELQFGDQTLHVSTVQMWLLLNFNQTEEVSVETLLKNSDLSPK	1805
Xenopus_tropicalis	GSDLTQSRRLQWTWLGNAEVOYGSLLQVSTLQMFILLQFNQREEVSFESITQATGLSQV	1770
Danio_rerio	SLTHSKPRRLQWTWLGHAELQYGSCTLYVSTLQMFILLQFNQHEVDVSVEMLQCATGLSPA	1837
Pavo_muticus	GWVCTRPRRLQWTWLGHAELRFQDCVLHVSTLQMYILLRFNSTEEVAVEALLQATGLPAE	1743
Pavo_cristatus	GWVCTRPRRLQWTWLGHAELRFQDCVLHVSTLQMYILLRFNSTEEVAVEALLQATGLPAE	1743
	.....1930.....1940.....1950.....1960.....1970.....1980	

	.. : ** *** . *. * * : . . * * * ** . .	
Mus_musculus	LLHQALLPLTSDNGPLTLEETODYPQGGVLRRLREPRST---HEEVLWLIPPOTYLSVEK	1862
Rattus_norvegicus	LLHQALLPLTSDSGPLTLEEAODFPQGGVLRRLREPRST---HEEVLWLIPPOTYLSVEK	1879
Homo_sapiens	LLLQALVPLTSGNGPLTLHEGQDFPHGGVLRRLHEPGPQR---SGEALWLIPPQAYLNVEK	1859
Pan_troglodytes	LLLQALVPLTSGNGPLTLHEGQDFPHGGVLRRLHEPGPQR---SGEALWLIPPQAYLNVEK	1908
Macaca_mulatta	LLLQALVPLTSGNGPLTLHEGQDFPHRGVLRRLHEPGROR---SGEALWLIPPQAYLNVEK	1907
Callithrix_jacchus	LLLQALVPLTSGNGPLTLHEGQDFPHRGVLRRLHEPGPQR---SGEALWLIPPQAYLNVAK	1859
Canis_lupus_familiaris	LLLQALLPLTSENGPLTLREGQDLPHRGVLRRLRTPGPOH---RGEALWLIPPOTYLNVEK	1873
Equus_caballus	LLLQALLPLTSENGPLTLHEGPDFPHRGVLRRLREPRLOP---RGEALWLIPPOTYLNVEK	1860
Bos_taurus	LLLQALLPLTSDSGPLTLQEGQDFPPRGVLRRLREPGLQP---RGEALWLLPPOTYLNVEK	1861
Orcinus_orca	LLLQALLPLTADSGPLTLQEGQDFPRGGVQLREPGLWP---HGEALWLLPPOTYLNVEE	1862
Xenopus_tropicalis	LIGHALSPLTAKGAILTQE-----EGYLRVNGEARSEPGAGR-VLRLLPOTYLNVEE	1822
Danio_rerio	MLSHALKPLTAEKGLLTHTGSSQDPIKGILRLNKNTLSQSSDRHGXYHLHPKOTYLNVD	1897
Pavo_muticus	LVHQALAPLTHGDGILVQSCTQG--APGALRLNRAALAHASGRH--LRLLPRORYLRAER	1799
Pavo_cristatus	LVHQALAPLTHGDGILVQSCTQG--APGALRLNRAALAHASGRH--LRLLPRORYLRAER	1799
	.....1990.....2000.....2010.....2020.....2030.....2040	

	DEGRTLEQKRNLLSCLLVRILKAHREKGLHIDQLVCLVLEAWQKGPDPGRLGNAAAVGV	1922
Mus_musculus	DEGRTLEQKRNLLSCLLVRILKAHREKGLHIDQLVCLVLEAWQKGPDPGRLGNAAAVGV	1922
Rattus_norvegicus	DEGRTLEQKRNLLSCLLVRILKAHGEKGLHIDQLVCLVLEAWQKGNPPGRLGRSAAVGV	1939
Homo_sapiens	DEGRTLEQKRNLLSCLLVRILKAHGEKGLHIDQLVCLVLEAWQKGNPPGTLGHTVAGGV	1919
Pan_troglodytes	DEGRTLEQKRNLLSCLLVRILKAHGEKGLHIDQLVCLVLEAWQKGNPPGTLGHTVAGGV	1968
Macaca_mulatta	DEGRTLEQKRNLLSCLLVRILKAHGEKGLHIDQLVCLVLEAWQKGNPPGTLGHTVAGGV	1967
Callithrix_jacchus	DEGRTLEQKRNLLSCLLVRILKAHGEKGLHIDQLVCLVLEAWQKGNPPGSLGHAVAGGV	1919
Canis_lupus_familiaris	DEGRTLEQKRNLLSCLLVRILKAHGEKGLHIDQLVCLVLEAWQKGNPPGSLGRTVVGGV	1933
Equus_caballus	DEGRTLEQKRNLLSCLLVRILKAHGEKGLHIDQLVCLVLEAWQKGNPPGSLGRAVAGGV	1920
Bos_taurus	DEGRTLEQKRNLLSCLLVRILKAHGEKGLHIDQLVCLVLEAWHKGNPPGSLGRAIAGGV	1921
Orcinus_orca	DEGRTLEQKRNLLSCLLVRILKAHGEKGLHIDQLVCLVLEAWQKGNPPGSLGRAVAGGV	1922
Xenopus_tropicalis	DEGRTLERKRNIVFCLITQIMKE--EKELHIDNLVFRVIEACQKMESGRS----LKFLSF	1876
Danio_rerio	DAALTLEKRNVIYCLIVQIMKN--EKEMHIDNLVFKVLDRCQKQESNRT----RTSVRF	1951
Pavo_muticus	AESSALERKRNVLCCILTRILKA--EKQLHIDNLVFKVIDACEKGELGPG----LQFLSF	1853
Pavo_cristatus	AESSALERKRNVLCCILTRILKA--EKQLHIDNLVFKVIDACEKGELGPG----LQFLSF	1853

[illegible]

# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/CUI94s: Tue Feb 1 11:53:28 2022

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      * : .. *: *: : : : : ** : * ** *
Mus_musculus      -NKNTETSRPSPE-----AVVALASLQLPAGRTMSPQEVEGLMEQTVRQVOET 2020
Rattus_norvegicus -NQSTETSKPSPE-----AVVALASLQLPAGRTMSPQEVEGLMEQTVRQVOET 2037
Homo_sapiens      -SQS-ETSKPSPE-----AVATLASLQLPAGRTMSPQEVEGLMKQTVRQVOET 2016
Pan_troglodytes   -SQS-ETSKPSPE-----AVATLASLQLPAGRTMSPQEVEGLMKQTVRQVOET 2065
Macaca_mulatta    -SQS-KTSKPSPE-----AVATLASLQLPAGRTMSPQEVEGLMKQTVRQVOET 2064
Callithrix_jacchus -SQS-KTSKPSPE-----AVATLASLQLPAGRTMSPQEVEGLMEQTVRQVOET 2016
Canis_lupus_familiaris -NQTTKTSKPSPE-----AVAALASLQLPAGRTMSPQEVEGLMEQTVRQVOET 2031
Equus_caballus    -TQTTKTSKPSPE-----AVAALASLQLPAGRTMSPQEVEGLMEQTVRQVOET 2018
Bos_taurus        -SQTSETSKISPE-----AVAALASLQLPAGRTMSPREVEGLMEQTVRQVOET 2019
Orcinus_orca      -SQTSETSKPSPE-----VVAALASLQLPAGRTMSPQEVEGLMEQTVRQVOET 2020
Xenopus_tropicalis --QGHSNQPSSSGG-----TEQGVLETVLLPMGRTLSQEDVRALMGQMVAQVSQT 1983
Danio_erio        SSSGGGSGSKADTSLGGLIVPPOHTEDGVLEAVLFSMGRTMTQEEVKQLMORTVQOVAGT 2071
Pavo_muticus      -----SLDENSTDCLNWLNPSMERSEEFLLAMLQVPMGHTLSLEEAKLLMNQTVQOVQDT 1964
Pavo_cristatus    -----SLDENSTDCLNWLNPSMERSEEFLLAMLQVPMGHTLSLEEAKLLMNQTVQOVQDT 1964
.....2170.....2180.....2190.....2200.....2210.....2220

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Mus_musculus      LNLEPDVAQHLLAHSHWGTEQLLSYSDDPEPLLLAAGLRVPOQAQVVPTRPDQCPVCVTP 2080
Rattus_norvegicus LNLEPDVAQHLLAYSHWGTEQLLSYSEDPEPLLLAAGLRVPOQEVPARPDQCPVCISP 2097
Homo_sapiens      LNLEPDVAQHLLAHSHWGAEQLLSYSEDPEPLLLAAGLCVHQQAQAVPVRPDHCPVCVSP 2076
Pan_troglodytes   LNLEPDVAQHLLAHSHWGAEQLLSYSEDPEPLLLAAGLCVPOQAQAVPVRPDHCPVCVSP 2125
Macaca_mulatta    LNLEPDVAQHLLAHCHWGAEQLLSYSEDPEPLLLAAGLCVPOQAQAVPARPDHCPVCVSP 2124
Callithrix_jacchus LNLEPDVAQHLLAHSHWGTEQLLNYSEDPEPLLLAAGLSVPQAQAAPARPDHCPVCVSP 2076
Canis_lupus_familiaris LNLEPDVAQHLLAHSHWGAEQLLSYSDNPEPLLLAAGLCVPOQAQAAPARPDHCPVCVSP 2091
Equus_caballus    LNLEPDVAQHLLAHSHWGAEQLLSYSDNPEPLLLAAGLCVPOQAQAAPARPDHCPVCVST 2078
Bos_taurus        LNLEPDVAQHLLAHSHWGAEQLLSYSDDPEPLLLAAGLRVPOQAQAAPARPDHCPVCVSP 2079
Orcinus_orca      LNLEPDVAQHLLAHSHWGAEQLQRYSDDPEPLLLAAGLCVPOQAQAAPARPDHCPVCVSP 2080
Xenopus_tropicalis LSIDPDTAQHLLIHCKWNVDLLQKYTEEPELLISSGLQVRDPQHPESPQACPVCVSP 2043
Danio_erio        LSLDLDRAEHLLIHCKWNVDLLIQRYTDDPDALVLAAGLKIRNPQAPGPVSHCPVCLSQ 2131
Pavo_muticus      LNIPEDVAQHLLMHCRWNVDFLICYVEDHESLLIFSGLQVENTQRPSPGTHCPVCVNQ 2024
Pavo_cristatus    LSISEDVAQHLLMHCRWNVDFLICYVEDHESLLIFSGLQVENAQRPSPGTHCPVCVNQ 2024
.....2230.....2240.....2250.....2260.....2270.....2280

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* *** * **: :*:*:*:*:*:*:*:*:*:*:*:*:*:*:*:
Mus_musculus      LGPHDDSPSLCCLHCCCKSCWNEYLTTRIEQNFVLNCTCPIADCPAQPTGAFIRNIVSSP 2140
Rattus_norvegicus LGPNDDSPSLCCLHCCCKSCWNEYLTTRIEQNFVLNCTCPIADCPAQPTGAFIRNIVSSP 2157
Homo_sapiens      LGCDDDLPSLCCMHYCKSCWNEYLTTRIEQNVLNCTCPIADCPAQPTGAFIRNIVSSP 2136
Pan_troglodytes   LGCDDDLPSLCCMHYCKSCWNEYLTTRIEQNVLNCTCPIADCPAQPTGAFIRNIVSSP 2185
Macaca_mulatta    LGCDDDLPSLCCMHYCKSCWNEYLTTRIEQNVLNCTCPIADCPAQPTGAFIRNIVSSP 2184
Callithrix_jacchus LGCDDDLPSLCCMHYCKSCWNEYLTTRIEQNVLNCTCPIADCPAQPTGAFIRNIVSSP 2136
Canis_lupus_familiaris LEPDEDLPSLCCMHYCKSCWNEYLTTRIEQNVLNCTCPIADCPAQPTGAFIRNIVSSP 2151
Equus_caballus    LEPDDDLPSLCCMHYCKSCWNEYLTTRIEQNVLNCTCPIADCPAQPTGAFIRNIVSSP 2138
Bos_taurus        LAPDRDLPALCQHSCCKSCWNEYLTTRIEQNVLNCTCPIADCPAQPTGAFIRNIVSSP 2139
Orcinus_orca      LEPDDDLPSLCCMHYCKSCWKEYLTTRIEQNVLNCTCPIADCPAQPTGAFIRTIISSP 2140
Xenopus_tropicalis LSPAHHPTLCCQHLCKSCWKEYLTTRIEQNLALNCTCPTDCLAQPTSDFISKIITSK 2103
Danio_erio        SKESDPPPMMLCCMHYCCRSWQEFLTARIEQNLMNCDCPITDCRAQPTSKFFHNILTDK 2191
Pavo_muticus      LCPTEKPPTLCCMHYCKPCWNEYLTTRIEQNMVLSCTCPISECRAPPTAFICSISSR 2084
Pavo_cristatus    LCPTEKPPTLCCMHYCKPCWNEYLTTRIEQNMVLSCTCPISECRAPPTAFICSISSR 2084
.....2290.....2300.....2310.....2320.....2330.....2340

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.:* **: :*:*** :** *:*****: :* :.:* :*:** * :*:*.***
Mus_musculus      EVISKYEKALLRGYVESCSNLTWCTNPGCDRILCRQGLGSGTTCSKCGWASCFNCSFPE 2200
Rattus_norvegicus EVISKYEKALLRGYVESCSNLTWCTNPGCDRILCRQGLGSGTTCSKCGWASCFNCSFPE 2217
Homo_sapiens      EVISKYEKALLRGYVESCSNLTWCTNPGCDRILCRQGLGCGTTCSKCGWASCFNCSFPE 2196
Pan_troglodytes   EVISKYEKALLRGYVESCSNLTWCTNPGCDRILCRQGLGCGTTCSKCGWASCFNCSFPE 2245
Macaca_mulatta    EVISKYEKALLRGYVESCSNLTWCTNPGCDRILCRQGLGCGTTCSKCGWASCFNCSFPE 2244
Callithrix_jacchus EVISKYEKALLRGYVESCSNLTWCTNPGCDRILCRQGLGCGTTCSKCGWASCFNCSFPE 2196
Canis_lupus_familiaris DVISKYEKALLRGYVESCSNLTWCTNPGCDRILCRQGLGCGTTCSKCGWASCFNCSFPE 2211
Equus_caballus    EVISKYEKALLRGYVESCSNLTWCTNPGCDRILCRQGLGCGTTCSKCGWASCFNCSFPE 2198
Bos_taurus        EVISKYEKALLRGYVESCANLTWCTNPGCDRILCRQGLGCGTTCSKCGWASCFNCSFPE 2199
Orcinus_orca      EVISKYEKALLRGYVESCANLTWCTNPGCDRILCRQGLGCGTSCSKCGWASCFNCSFPE 2200
Xenopus_tropicalis EVIEKEYESLLRGFVENCNLTWCTNPGCDRVLCKEGLGSGAACTKCSWLSCFNCSFPE 2163
Danio_erio        DTIAKYDSALLRGFVECCSNLTWCTNPGCDQILCKENIGSMGTCSKCCWSSCFNCSFPE 2251
Pavo_muticus      EVIAKYEKALLRCYVECCSNLTWCTNPGCDQILLKDGLEYEAACSKCSWISCFNCSFPE 2144
Pavo_cristatus    EVIAKYEKALLRCYVECCSNLTWCTNPGCDQILLKDGLEYEAACSKCSWISCFNCSFPE 2144
.....2350.....2360.....2370.....2380.....2390.....2400

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## CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/CUL19a Date: Tue Feb 1 11:53:28 2022

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\*\*\*\*\*.\*\*\*\*\*.\*.\*.\*.\*.\*.\*\*\*\*\*.\*\*\*\*\*.\*.\*.\*\*\*\*\*  
 AHYPASCGHMSQWVDDGGYYDGMSVEAQS~~KLAKLISKRCPS~~COAPIEKNEGCLHMTCAK  
 AHYPASCGHMSQWVDDGGYYDGMSVEAQS~~KLAKLISKRCPS~~COAPIEKNEGCLHMTCAK  
 AHYPASCGHMSQWVDDGGYYDGMSVEAQS~~KLAKLISKRCPS~~COAPIEKNEGCLHMTCAK  
 AHYPASCGHMSQWVDDGGYYDGMSVEAQS~~KLAKLISKRCPS~~COAPIEKNEGCLHMTCAK  
 AHYPASCGHMSQWVDDGGYYDGMSVEAQS~~KLAKLISKRCPS~~COAPIEKNEGCLHMTCAK  
 AHYPASCGHMSQWVDDGGYYDGMSVEAQS~~KLAKLISKRCPS~~COAPIEKNEGCLHMTCAK  
 AHYPASCGHMSQWVDDGGYYDGMSVEAQS~~KLAKLISKRCPS~~COAPIEKNEGCLHMTCAK  
 AHYPASCGHMSQWVDDGGYYDGMSVEAQS~~KLAKLISKRCPS~~COAPIEKNEGCLHMTCAK  
 AHYPASCGHMSQWVDDGGYYDGMSVEAQS~~KLAKLISKRCPS~~COAPIEKNEGCLHMTCAK  
 AHYPASCGHMSQWVDDGGYYDGMSVEAQS~~KLAKLISKRCPS~~COAPIEKNEGCLHMTCAK  
 AHYPASCGHMSQWVDDGGYYDGMSVEAQS~~KLAKLISKRCPS~~COAPIEKNEGCLHMTCAK  
 AHYPASCSHMSQWMDGGFYEGMTVEAQS~~KLTKLISKHCPS~~COAPIEKNEGCLHMTCAK  
 AHYPASCSHMSQWMDGGYYEGMSMEAQS~~KLAKLISKRCPS~~COAQIEKNEGCLHMTCAK  
 AHYPASCSHMSQWVDDGGYYEGMTSEAQS~~KLAKLISKHCPC~~NOAQIEKNEGCLHMTCAK  
 AHYPASCSHMSQWVDDGGYYEGMTSEAQS~~KLAKLISKHCPC~~NOAQIEKNEGCLHMTCAK  
 .....2410.....2420.....2430.....2440.....2450.....2460

[illegible]

: \* :.:\*: \*\*: \* \*:\*\*\*\*\*.\*:\*\*\*\*\*.\*.:\* :.:\*:\* \* \*\*.\*

ASAIQEVPPPKSFTFLQDACRALEQARKVLAYACVYSFYSDTEYMDVVEQQTENLELHT  
ASAIHEVPPPKSFTFLQDACRALEQARKVLAYACVYSFYSOGTEYMDVVEQQTENLELHT  
VSIAIHEVPPRSFTFLNDACGLEQARKVLAYACVYSFYSDAEYMDVVEQQTENLELHT  
VSIAHEVPPPRSFTFLNDACGLEQARKVLAYACVYSFYSDTEYMDVVEQQTENLELHT  
VSIAIHEVPPPRSFTFLNDACGLEQARKVLAYACVYSFYSDAEYMDVVEQQTENLELHT  
VSIAIHEVPPPRSFTFLNDACGLEQARKVLAYACVYSFYNQDAEYMDVVEQQTENLELHT  
VSIAIHEVPPPKSFAFLSDACRGLEQARKVLAYACVYSFYNQDTEHMDVVEQQTENLELHT  
VSIAIHEVPPPKSFTFLSDACRGLEQARKVLAYACVYSFYNQDTEHMDVVEQQTENLELHT  
VSIAIHEVPPPKSFTFLSDACRGLEQARKVLAYACVYSFYNQDTEHMDVVEQQIEALELHT  
VSIAIHEVPPPRSFTFLSDACRGLEQARKVLAYACVYSFYNQDTEHMDVVEQQTEALELH  
LSVLREEPPLRSLTFLITACRVLEQSRKVLGYACVYSYYNQDSERLDLVLESQOTENLELHV  
VFSINEALQMKSLTFVIDACKILAQARKVLAYS CVYSYYNQDTEKMDVMEQQTEALDLHT  
VSSMSEIPKVRTLTFVLHACKVLEQARKVLAYS CVYSYYNQDTESVDIVEQQTESLELHT  
VSSMSEIPKVRTLTFVLHACKVLEQARKVLAYS CVYSYYNQDTESVDIVEQQTESLELHT  
. . . . . 2530 . . . . . 2540 . . . . . 2550 . . . . . 2560 . . . . . 2570 . . . . . 2580

\*\*\*\*\*::\*\*::\*\*.\*::\*: : :.\*::\*:::\*\*\*.\*\*::\*\*\*\*\* :  
NALQILLEETLLRCRD LASSLRLLRADCLSTGTELLRRIQERLLAILQHSTQDFRVGLQS  
NALQILLEETLLRCQDLASSLRLLRADCLSTGTELLRRIQERLLAILQHSTQDFRVGLQS  
NALQILLEETLLRCRD LASSLRLLRADCLSTGMELLRRIQERLLAILQHSADFRVGLQS  
NALQILLEETLLRCRD LASSLRLLRADCLSTGMELLRRIQERLLAILQHSADFRVGLQS  
NALQILLEETLLRCRD LASSLRLLRADCLSTGMELLRRIQERLLAILQHSADFRVGLQS  
NALQILLEETLLRCRD LASSLRLLRADCLSTGMELLRRIQERLLAILQHSTQDFRVGLQS  
NALQILLEETLLRCRD LASSLRLLRADCLSTGLELLRRIQERLLAILQHSTQDFRVGLQS  
NALQILLEETLLRCRD LASSLRLLRAEHLN TGLELLRRIQERLLAILQHSTQDFRVGLQS  
NALQILLEETLLRCRD LGSSLRLLRAEHLSTGLELLRRIQERLLAILQHSTQDFRVGLQ  
SALQILLED SLLQCEDLGSCVRLLSADKYSSGLELVRRVQERLRGILQHSTQDFRVGFLS  
NALQILLEETLLQCTDLASCVRLLKPEHLNTGLELIRRIQERLVAILQHSTQDFRVGYQS  
NALQILLEETLLQHOD LASSLRLLKAEHFSTGLELVHRIKERLFAILWHSTQDFRVGLEA  
NALQILLEETLLQHOD LASSLRLLKAEHFSTGLELVHRIKERLFAILWHSTQDFRVGLEA  
.....2590.....2600.....2610.....2620.....2630.....2640



# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/CUI94s Tue Feb 1 11:53:28 2022

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      .      :      :      :      :
Mus_musculus      PSV--ETREVKGSNVPSPDQPGSSGLEVEDEEEEEEE-----EEEEEEEEED 2486
Rattus_norvegicus PSV--ETREVKGSNVPSPDQPGSSGLEVEDEEEEEEE-----EEEEEEED 2497
Homo_sapiens      PSV--EAWKAGPNMPGSPQASSGP---EAE-----DDEDD 2472
Pan_troglodytes   PSV--EAWKAGPNMPGSPQASSGP---EAE-----DDEDD 2521
Macaca_mulatta    PSV--EAWETKGNVPVPGSQPTSSGP---EAE-----DDEDD 2520
Callithrix_jacchus PSV--EAWKAGPNVPGSQPGSSGLEVEDEEEEEEE-----DDEDD 2475
Canis_lupus_familiaris PPL--EAREAKGSNVPGSQSGSSGL-EVDDEEE-----DDEDD 2488
Equus_caballus     PSS--EAWKAGSNTPGHQPGSSGL-EVE-----DDEED 2476
Bos_taurus        PSS--ESREAKGNVPVPGSQPGSSSEL-EEE-EEDEE----- 2471
Orcinus_orca      PSS--EAREAKGSNVPGSQPGSSGL-QVE-EEEE-----DDEDD 2477
Xenopus_tropicalis QPDHKEMKLSNVPAFVTNLPAAAN-VAEGASDSGDTGG-----EQDDEEDDY 2449
Danio_rerio       KTG--PDMEAAQASNLNANTDANKESKSDGSGSDSDNNYAGEDPGDEAEEDDEYDDEY 2550
Pavo_muticus      LAD-PAQTKVKLSNVPSAPASLGPKSAILCESPNTDE-----DGSEVEDEEY 2431
Pavo_cristatus    LAD-PAQTKVKLSNVPSAPASLGPKSAILCESPNTDE-----DGSEVEDEEY 2431
      .....2650.....2660.....2670.....2680.....2690.....2700

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      .*: : :*: : :*: :
Mus_musculus      VPEWQH-EFDEE--LDNDSFSYDEE--SENLDRETFFFGDED---EDDESVD 2530
Rattus_norvegicus VPEWQH-EFDEE--LDNDSFSYDEE--SENLDRETFFFGDED---DDDESVD 2541
Homo_sapiens      VPEWQQDEFDEE--LDNDSFSYDEE--SENLDQETFFFGDEE--EDEDEAYD 2517
Pan_troglodytes   VPEWQQDEFDEE--LDNDSFSYDEE--SENLDQETFFFGDEE--EDEDEAYD 2566
Macaca_mulatta    VPEWQQDEFDEE--LDNDSFSYDEE--SENLDQETFFFGDEE--EDEDEAYD 2565
Callithrix_jacchus VPEWQQDEFDEE--LDNDSFSYNE--SENLDQETFFFGDEE--EDEDEAYD 2520
Canis_lupus_familiaris VPEWQQDEFDEE--LDNDSFSYDEE--SENLDRETFFFGDEE---DDDDEAYD 2533
Equus_caballus     VPEWQQDEFDEE--LDNDSFSYDEE--SENLDRETFFFGDEE---EDDDDAYD 2521
Bos_taurus        -PEWQQDEFEEEE--LDNDSFSYDEE--SENLDRETFFFGDEDDDEEDDEGYD 2518
Orcinus_orca      VPEWQQDEFEEEE--LDNDSFSYDEE--SENLDRETFFFGDEE---EEDDEGYD 2522
Xenopus_tropicalis AQDWHEEYDD---DLDEDDFSYDEDEESENFEPSFIFEDDD---AQAY- 2492
Danio_rerio       VPEWHEDYDEE--DIDDDDFSDDDSENNLERGFDPD----- 2587
Pavo_muticus      EPHWQEDYDDDEDDLDEDNFLFYD--ESDNLCDSYFDDDDT-----YD--- 2473
Pavo_cristatus    EPHWQEDYDDDEDDLDEDNFLFYD--ESDNLCDSYFDDDDT-----YD--- 2473
      .....2710.....2720.....2730.....2740.....2750..

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