

# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/STODates Tue Feb 1 14:40:35 2022

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                                     * *: * .*****
Mus_musculus                      -----MYSTNPGSWVTFD      13
Rattus_norvegicus                 -----MCSTNPGSWVTFD      13
Homo_sapiens                      -----MCSTNPGKSWVTFD      13
Pan_troglodytes                   -----MCSTNPGNWTVD      13
Macaca_mulatta                    -----MCSTNPGNWTVD      13
Callithrix_jacchus                -----MCSTNPGNWTVD      13
Bos_taurus                       -----MCSTNPGNWTVD      13
Globicephala_melas               -----MCSTNPGNWTVD      13
Equus_caballus                    -----MCSTNPGNWTVD      13
Canis_lupus_familiaris MKSYFGWSPSEDHRIGWVKKQCCRFPASEPPDTAYLIHRQDHNLIKMCSTNPGNWTVD      60
Pavo_muticus                      -----MCSTNPANWTVD      13
Pavo_cristatus                    -----MCSTNPANWTVD      13
Gallus_gallus                     -----MCSTNPANWTVD      13
Chelonia_mydas                    -----MCSTYPANWTVD      13
Xenopus_tropicalis                -----MFSAKPESWVTFD      13
1.....10.....20.....30.....40.....50.....60

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*: * . * . :..*: * * . : * : * : * : :..
Mus_musculus                      DDPAFQSSQKRKDFSLETQGVCRPNGLKLTLPRLDPPSTPSSASTPLSSPMVDFYFSP      73
Rattus_norvegicus                 DDSLFQSSPKKKDLSLETQGVCRPNGLKLDLPGLRDLNTPSSSTGSTPLSSPMVDFYFSP      73
Homo_sapiens                      DDPAVQSSQKSKNFPLENQGVCRPNGLKLNLPGLREFPSGSSSTSTPLSSPIVDFYFSP      73
Pan_troglodytes                   DDPAVQSSQKSKNFPLENQGVCRPNGLKLNLPGLREFPSGSSSTSTPLSSPIVDFYFSP      73
Macaca_mulatta                    DDPAFQSSQKSKNFPLENQGVCRPNGLKLNLPGLKEFPSSGSSSTSTPLSSPIVDFYFSP      73
Callithrix_jacchus                DDPAFQSSQKSKNFPLENQGVCRPNGLKLNLPGLREFPSGSSSTSTPLSSPIVDFYFSP      73
Bos_taurus                       DDPTFQSSQKSKNFPLENQGVCRPNGLKLNLSGAKKEFPSSGSSSTSTPLSSPIIDFYFSP      73
Globicephala_melas               DDPAFQSSQKSKNFPLENQGVCRPNGLKLNLSGAKKEFPSSGSSSTSTPLSSPIIDFYFSP      73
Equus_caballus                    DDPTFQSSQKSKNFPLENQGVCRPNGLKLNLSGAKKEFPSSGSSSTSTPLSSPIIDFYFSP      73
Canis_lupus_familiaris            DDPAFQSSQKSKNFPLENQGVCRPNGLKLNLSGAKKEFPSSGSSSTSTPLSSPIIDFYFSP      120
Pavo_muticus                      DEPLFQSPQKL----VHNQSSCKANGLKLNLSSTVHESSRSSTSTPLSSPIVDFYFSP      69
Pavo_cristatus                    DEPLFQSPQKL----VHNQSSCKANGLKLNLSSTVHESSRSSTSTPLSSPIVDFYFSP      69
Gallus_gallus                     DEPLFQSPQKL----VHNQSSCKANGLKLNLSSTVHESSRSSTSTPLSSPIVDFYFSP      69
Chelonia_mydas                    DEPLSQSPQKS----VENSNTCKANGLNLANMHKSSSRSTSTNRTPLSSPVADFYLNS      69
Xenopus_tropicalis                DENLFQPGQKSLHFPQGNHYMPKASGLKLNLYN-KSCESTASNPPTNPSTSPVIDFLMTIP      72
.....70.....80.....90.....100.....110.....120

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.*** *:*** **.:...* . * .:~* * .:
Mus_musculus                      GPPSNSPLSTPTKDFPGFPGIP---KAGTHVLYPIPECSSSAPITAGGVGPPLLLTKPD      130
Rattus_norvegicus                 GPPSNSPLSTPTKDFPGFPGIP---KAGTHVLYPIPECSSSGPPTAGGAGPPLSLTKPT      130
Homo_sapiens                      GPPSNSPLSTPTKDFPGFPGIP---KAGTHVLYPIPE-SSSDSPLAISGGESSLLPTRPT      129
Pan_troglodytes                   GPPSNSPLSTPTKDFPGFPGIP---KAGTHVLYPIPE-SSSDSPLAISGGESSLLPTRPT      129
Macaca_mulatta                    GPPSNSPLSTPTKDFPGFPGIP---KAGTHVLYPIPE-SSSDSPLTISGGESSLLTTGPT      129
Callithrix_jacchus                GPPSNSPLSTPTKDFPGFPGIP---KAGTHVLYPIPE-SSSDSPLTIPGGGSSLLPPRPT      129
Bos_taurus                       GPPSNSPLSTPTKDFPGFPGIP---KAGTHVLYPIPE-SSSNSPL-ITATGSSSLATKPT      128
Globicephala_melas               GPPSNSPLSTPTKDFPGFPGIP---KAGTHVLYPIPE-SSSNSPL-IPGAGSSILPTKPT      128
Equus_caballus                    GPPSNSPLSTPTKDFPGIPGIPGIPKGTGTHVLYPIPE-SSSNSPLTIPGAGSSLLPTKPT      132
Canis_lupus_familiaris            GPPSNSPLSTPTKDFPGFPGIP---KAGTHMLYPIPE-SSSNSPLTISGGGSSLLPTKST      176
Pavo_muticus                      GPPSNSPLTTPTREYPG---IQ---KHGIHVLYPIPEWPPNTNL-PSPGVCSSLASQKPS      122
Pavo_cristatus                    GPPSNSPLTTPTREYPG---IQ---KHGIHVLYPIPEWPPNTNL-PSPGVCSSLASQKPS      122
Gallus_gallus                     GPPSNSPLTTPTREYPG---IQ---KHGIHVLYPIPEWPPNTNL-PSPGVCSSLASQKPS      122
Chelonia_mydas                    GPPSNSPLSTPTKEYPGSRCIP---KSGIHILYPIPELSSNINLHPPPGTCSSLAFQKLS      126
Xenopus_tropicalis                SPPRNTPLCTPNRDYSGTPTSTP---TSGSFILHPNAD---VSRIPPTFMESPIVSANIP      126
.....130.....140.....150.....160.....170.....180

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Mus_musculus      .      :      :      * : *.**.* **
Rattus_norvegicus .      :      :      * : *.**.* **
Homo_sapiens      .      :      :      * : *.**.* **
Pan_troglodytes   .      :      :      * : *.**.* **
Macaca_mulatta    .      :      :      * : *.**.* **
Callithrix_jacchus .      :      :      * : *.**.* **
Bos_taurus        .      :      :      * : *.**.* **
Globicephala_melas .      :      :      * : *.**.* **
Equus_caballus     .      :      :      * : *.**.* **
Canis_lupus_familiaris .      :      :      * : *.**.* **
Pavo_muticus      .      :      :      * : *.**.* **
Pavo_cristatus    .      :      :      * : *.**.* **
Gallus_gallus     .      :      :      * : *.**.* **
Chelonia_mydas     .      :      :      * : *.**.* **
Xenopus_tropicalis .      :      :      * : *.**.* **

CSPHVS LPS SHSHT QPTPTL LGFT EDAGP QRVQS -----E A R Q F E Y F Q D H C A F S N P F W K D 184
CSPHVS LPS GHSHT QLTPTA GLTE DASPRGVQS -----E A R Q F E Y F Q D D C A F S N P F W K D 184
CLSHALLPS DHSC THPTPKVGLPDEVNPQQAESLGFQSDDLPOFOYFREDCAFS SPFWKD 189
CLSHALLPS DHSC THPTPKVGLPDEVNPQQAESLGFQSDDLPOFOYFREDCAFS SPFWKD 189
CSSHALLPS DHSC THPAPKVGLPDEVNPHQAESLGFQSDDLPOFOYFREDCAFS SPFWKD 189
CLSHALLPS DHSC THPAPKVGLPDEINSHQAESLGFQSDDLTQFOYFREDCAFS SPFWKD 189
CFSQAS LPS DHSCIHPASKVGLADEMSPHQAESLGFQSD--TPQFOYFREDCAFS SPFWKD 185
CLSHASLLS DHSCIHPAPKVGLPDEMSPHQAESLGFQSD--TPQFOYFQEDCAFS SPFWKD 187
CLSHASLPNDHSC THPAPKVGPSNENSPHQAESLGLQNN-APQFOYFREDCAFS SPFWKD 191
CLSHTSLPSEHACTHPAPKVGLPDEVSPQAESLGFQSD--TPQFOYFREDCAFS SPFWKD 235
SLLLNTDSS SVKTSVSKSVDEGNTDLEGGCDKSD---ESSAVGQFPYFQTDGCFSSPFWKE 179
SLLLNTDSS SVKTSVSKSVDEGNTDLEGGCDKSD---ESSAVGQFPYFQTDGCFSSPFWKE 179
SLLLNTDGS VKTSVSKSVDEGNADLQGGCDKSE---ESSAVGQFPYFQTDGCFSSPFWKE 179
TAPNDNPPKILVSKQGAPEINPTYQESCNKLE---DQLELERFOYFQNDCAFS SLLFWKE 183
LLTNSVLP LTPSPNKASTPKYPCNNYLAS SE-----AAHTEYTIKCAFS SPFWNT 178
.....190.....200.....210.....220.....230.....240

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Mus_musculus      .      :      :      * : *.**.* **
Rattus_norvegicus .      :      :      * : *.**.* **
Homo_sapiens      .      :      :      * : *.**.* **
Pan_troglodytes   .      :      :      * : *.**.* **
Macaca_mulatta    .      :      :      * : *.**.* **
Callithrix_jacchus .      :      :      * : *.**.* **
Bos_taurus        .      :      :      * : *.**.* **
Globicephala_melas .      :      :      * : *.**.* **
Equus_caballus     .      :      :      * : *.**.* **
Canis_lupus_familiaris .      :      :      * : *.**.* **
Pavo_muticus      .      :      :      * : *.**.* **
Pavo_cristatus    .      :      :      * : *.**.* **
Gallus_gallus     .      :      :      * : *.**.* **
Chelonia_mydas     .      :      :      * : *.**.* **
Xenopus_tropicalis .      :      :      * : *.**.* **

EGSAS PFP L D S L A S R K -----P F S P K D K E V P I G H K S L T Q C S L D Y I C E K L E H L H S A E T Q 237
EGGNS QFP F D S L A S R K -----L F S P R D K E V P D D Q K S L N Q C S L N Y I C E K L E H L Q S A E T Q 237
EGSDS HFT L D P P G S K K -----M F S S R N K E M P I D Q K S L N K C S L N Y I C E K L E H L R S A E N Q 242
EGSDS HFT L D P P G S K K -----M F S S R N K E M P I D Q K S L N K C S L N Y I C E K L E H L R S A E N Q 242
EGSDS QFT L D P P G S K R -----M F S S R D K E M P N D Q K S L N K C S L N Y I C E K L E H L Q S A E N Q 242
EGSDS QFT L D P P G S K K -----M F S S R D R E M P I D Q K S L N K C S L N Y I C E K L E H L Q S A E N Q 242
EGSAS QLT F D P P G S R K -----I F S R D K E V P V D Q K G L N Q C S L N Y I C E K L E Y L Q S A E N Q 238
EGSAS QLT F D P P G S R K -----M V P S R D K E M P I D Q K G L N Q C S L N Y I C E K L E H L Q S A E N Q 240
EGSAS QFT F D P P G S R K -----M F P S K D K E M P I D Q K S L N Q C S L N Y I C E K L E H L Q S A E N Q 244
EGSVS QFA F D P P G S R K -----M Y A S R D K D M P V D Q K S L N Q C S L N Y I C E K L E H L Q S A E N Q 288
GC-LSTSPANIN VY G K D K V L D K G T C H S K E K E I C H D Q K S L N Q G S F S Y I C E R L E H L Q A D -G A 237
GC-LSTSPANIS VY G K D K V L D K G T C H S K E K E I C H D Q K S L N Q G S F S Y I C E R L E H L Q A D -G A 237
GCSLSTSPANIN VY R K D K V L D K G T C H S T E K E I C H D Q K S L N Q G S F S Y I C E R L E H L Q A D -G S 238
GCSTNMSPYN V D T Q R K D K K L C R S I C R P K E K D T C H D Q K S L N Q N S F S Y I C E R L E H L Q T ---- 239
ETPTGVS P S D N E R K E K -----G T C D D H Q K S L N Q L S F S Y V C E K L Q H L K T G ---- 222
.....250.....260.....270.....280.....290.....300

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Mus_musculus      .      :      :      * : *.**.* **
Rattus_norvegicus .      :      :      * : *.**.* **
Homo_sapiens      .      :      :      * : *.**.* **
Pan_troglodytes   .      :      :      * : *.**.* **
Macaca_mulatta    .      :      :      * : *.**.* **
Callithrix_jacchus .      :      :      * : *.**.* **
Bos_taurus        .      :      :      * : *.**.* **
Globicephala_melas .      :      :      * : *.**.* **
Equus_caballus     .      :      :      * : *.**.* **
Canis_lupus_familiaris .      :      :      * : *.**.* **
Pavo_muticus      .      :      :      * : *.**.* **
Pavo_cristatus    .      :      :      * : *.**.* **
Gallus_gallus     .      :      :      * : *.**.* **
Chelonia_mydas     .      :      :      * : *.**.* **
Xenopus_tropicalis .      :      :      * : *.**.* **

DPLGDL SMQDPYAGDTVS-FVPHSLFRSQPRAGWSFMLRIPEKKNMSSROWGPIFLKVL 296
DPLGNLSMQSSYAGGTFS-FVPHTLFRSQPKAGWSFMLRIPEKKNMSSROWGPIFLKVL 296
DSLRLSLMHCLCAEENASSFVPHTLFRSQPKSGWSFMLRIPEKKNMSSROWGPIFLKVL 302
DSLRLSLIHCLCAEENASSFVPHTLFRSQPKSGWSFMLRIPEKKNMSSROWGPIFLKVL 302
DSLRLSLMHCLCAEENAPSFVPHALFRSQPEAGWSFMLRIPEKKNMSSROWGPIFLNVL 302
DSLRLSLMHCLYAEENASAFVPHTLFRSQPKAGWAFMLRIPEKKNMSSROWGPIFLKVL 302
DSFGNLSMQCLYAE DPASSFVPHMLFRSQPKAGWSFMMRIPEKKNMSSROWGPIFLKVL 298
DSLGNLSMKCLCAEDTASSFVPHTLFRSQPKTGWSFMLRIPEKKNMSSROWGPIFLKVV 304
DSCGNLSMQCQYAE DTASSFVPHTLFRSQPKPGWSFMLRIPEKKNMSSROWGPIFLKVL 348
DAVGSLPMSSSHEWHKESPAVPHSLFRS WKADGWPFMLRIPEKKNMSSROWGPIYLRVL 297
DAVGSLPMSSSHEWHKESPAVPHSLFRS RKADGWPFMLRIPEKKNMSSROWGPIYLRVL 297
DAVGSLPISSSHEWHKDS SAVPHGLFRS RKADGWPFMLRIPEKKNMSSROWGPIYLRVL 298
DTLGSL SASSLHAWHNLS SFIPYSLFRS QKDGWPFMLRIPEKKNMSSROWGPIYLRVL 299
DPPDDPKHPTAWLENDGPSYIPHS LFRS QKDGWPFMLRIPEKKNMSSROWGPIYLRVL 282
.....310.....320.....330.....340.....350.....360

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	.*:*****:.*:*****:.*. .*:*****:.*. .*:*****:.*. .*:*****:.*. .*:*****:.*.	
Mus_musculus	PGGILQMYYEKGLKPFKEFQLDPHCRLSEPKLENFSMAGKIHTVKIEHVSYSSEKRKYHA	356
Rattus_norvegicus	PGGILQMYYEKGLKPFKEFQLDPHCRLSEPKLENFSMAGKIHTVKIEHVSYSSEKRKYHS	356
Homo_sapiens	PGGILQMYYEKGLKPFKEIQLDPYCRLSEPKVENFSVAGKIHTVKIEHVSYSSEKRKYHS	362
Pan_troglodytes	PGGILQMYYEKGLKPFKEIQLDPYCRLSEPKVENFSVAGKIHTVKIEHVSYSSEKRKYHS	362
Macaca_mulatta	PGGILQMYYEKGLKPFKEIQLDPYCRLSEPKVENFSVAGKIHTVKIEHVSYSSEKRKYHS	362
Callithrix_jacchus	PGGVLQMYYEKGLKPFKEIQLDPHCRLSEPKVENFSVAGKIHTVKIEHVSYSSEKRKYHS	362
Bos_taurus	PGGILQMYYEKGLKPFKEIQLDPYCRLSEPKVENFSMAGKIHTVKIEHVSYSSEKRKYHS	358
Globicephala_melas	PGGILQMYYEKGLKPFKEIQLDNPYCRLEPKVENFSVTGKIHTVKIEHVSYSSEKRKYHS	360
Equus_caballus	PGGILQMYYEKGLKPFKEIQLDPHCRLSEPKVENFSVAGKIHTVKIEHVSYSSEKRKYHS	364
Canis_lupus_familiaris	PGGILQMYYEKGLKPFKEIQLDLHCRLSEPKVENFSVAGKIHTVKIEHVSYSSEKRKYHS	408
Pavo_muticus	AGGILQMYYEKGLKPFKEFQLOPHCKLSEPKLESYNVSGKIHTVKIECVSYSEKRRYHP	357
Pavo_cristatus	AGGILQMYYEKGLKPFKEFQLOPHCKLSEPKLESYNVSGKIHTVKIECVSYSEKRRYHP	357
Gallus_gallus	AGGILQMYYEKGLKPFKEFQLOPHCKLSEPKLESYNVSGKIHTVKIECVSYSEKRRYHP	358
Chelonia_mydas	PGGILQMYYEKGLKPFKEFQLOPYCKLSEPKLENCVSGKIHTVKIEVVSYSSEKRKYHP	359
Xenopus_tropicalis	PGGILQMYYEKGLDKPFKEFQLGQFCRLSEPKVENFSVSDKIHTVKIEHVSYSEKRRYHT	342
	.....370.....380.....390.....400.....410.....420	
	* **.*.:::*****: .: *: .*::::**** ** * : : *** *: ::: *	
Mus_musculus	KTEVVHEPEVEQMLKLGSTEHRDFLEFLTVEEELIKLPATAKPKNKSVEEQEICLDIQD	416
Rattus_norvegicus	KVEVVHEPEVEQMLKLGSTEHRDFLEFLTVEEELVKLPATAKPKNKIYEEQEIHLDILD	416
Homo_sapiens	KTEVVHEPDIEQMLKLGSTSYHDFLDFLTVEEELMKLPAVSKPK-KNYEEQEISLEIVD	421
Pan_troglodytes	KTEVVHEPDIEQMLKLGSTSYHDFLDFLTVEEELMKLPAVSKPK-KNYEEQEISLEIVD	421
Macaca_mulatta	KTEVVHEPDIEQMLKLGSTSYHDFLDFLTVEEELMKLPAVSKPK-KNYEEQEISLEIVD	421
Callithrix_jacchus	KTEVVHEPDIEQMLKLGSTSYHDFLDFLTVEEELIKLPAVSKPK-KNYEEQEISLEIVD	421
Bos_taurus	KTEVVHEPDIEQMLKLGSTEYHDFLDFLTVEEELIRLPAVSKPK-KNYEEQEIFLEIVD	417
Globicephala_melas	KTEVVHEPDIEQMLKLGSTEYHDFLDFLTVEEELMKLPAVSKPK-KNYEEQEVFLEIVD	419
Equus_caballus	KTEVVHEPDIEQMLKLGSTEYHDFLDFLTVEEELMKLPAVSKPK-KNYEEQEISLEIVD	423
Canis_lupus_familiaris	KTEVVHEPDIDQMLKLGSTEYHDFLDFLTVEEELTKLPAVSKPK-KIYEEQEISLEIVD	467
Pavo_muticus	KVEVIHEPEVEQMLKLGTTDYNDFDFTLVTEEELMKLPPTTSKQR-RNYEEQEMTLEIVD	416
Pavo_cristatus	KVEVIHEPEVEQMLKLGTTDYNDFDFTLVTEEELMKLPPTTSKQR-RNYEEQEMTLEIVD	416
Gallus_gallus	KVEVIHEPEVEQMLKLGTTDYNDFDFTLVTEEELMKLPPTTSKQR-RNYEEQEMTLEIVD	417
Chelonia_mydas	KAENVHEPEVEQMLKLGTTDYNDFDFTLVTEEELMKLPATCKQK-RNYEEQEITLEIVD	418
Xenopus_tropicalis	KPEVFHEAEVEQMLKLGTTDHSDLKDFVTAIEEELMNLPLTVKQK-KSYEEPEMLVELVD	401
	.....430.....440.....450.....460.....470.....480	
	:***::.* *:::*****: :: *:::.*. :***:*** * * .*:***: :*: *	
Mus_musculus	SLWGKVTKE-GQLVESAVVTQICCLCFLNGPAECFLALNDRELQKRDECYFEKEPEKKGI	475
Rattus_norvegicus	SFWGKVTKEEGKLVESAVLTQVCCCLCFLNGPAECFLALNDLELQKRDERYFEKEPEKRG	476
Homo_sapiens	NFWGKVTKE-GKFVESAVITQIYCLCFVNGNLECFLLNDLELPRKDESYYEKDSEKKGI	480
Pan_troglodytes	NFWGKVTKE-GKFVESAVITQIYCLCFVNGNLECFLLNDLELPRKDESYYEKDSEKKGI	480
Macaca_mulatta	NFWGKVTKE-GKLVESAVITQIYCLCFVNGNLECFLLNDLELLKRDSEYFEKDSEKKGI	480
Callithrix_jacchus	NFWGKVTKE-GKLVESAVITQIYCLCFVNGNLECFLLNDLELLKRDSEYFEKDTKRG	480
Bos_taurus	NFWGKITKEEGKLVESAVITQISCLCFVNGNTECFLLNDLELQKRNERYFEKDPKKG	477
Globicephala_melas	NFWGKITKEEGKLVESAVITQIWCCLCFVNGNTECFLLNDLELQKRNERYFEKDPKKG	479
Equus_caballus	NFWGKITKEDGKLVESAVITQICCLCFVNGNMECFLLNDLELQKRNERYFEKDPKKG	483
Canis_lupus_familiaris	NFWGKITKEEGKLVESAVITQICCLCFVNGNTECFLLNDLELQKRNERYFEKDPKKG	527
Pavo_muticus	NFWGKVTKEGKLVESAVITHVYCLCFVNGGTDCLFLNDLELQKRDEHYFEKEAEKKWI	476
Pavo_cristatus	NFWGKVTKEGKLVESAVITHVYCLCFVNGGTDCLFLNDLELQKRDEHYFEKEAEKKWI	476
Gallus_gallus	NFWGKVTKEGKLVESAVITHVYCLCFVNGGTDCLFLNDLELQKRDECYFEKEAEKKWI	477
Chelonia_mydas	KFWGKVTKEGKLVESAVITHIYCMCFVNGNTECFLLNDLALQKRDEFYFDKDLKWKI	478
Xenopus_tropicalis	HLWGRINKE-GKMMETSVICRLHCLCFVNGNTECFLLNDLALQKRDEFYFDKDNKRLI	460
	.....490.....500.....510.....520.....530.....540	

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	* : * : * . * : : . * . . * : * * * . * * * * * : * : * : * : . . * * * * *	
Mus_musculus	AILDYHFHTCVKAEFEFSRIIKFVPLDACRFELMRFKTSVEAGELPFAVKSVVTVOGAY	535
Rattus_norvegicus	DILNYHFHTCVNAEEFERISRIIKFVPPDACRFELMRFTSSEGDELFPFSVKISIVTVOGAY	536
Homo_sapiens	DILDYHFHKCVNVQEFESRIIKFVPLDACRFELMRFKTILYNGDNLFPFSILKSVVVVOGAY	540
Pan_troglodytes	DILDYHFHKCVNVQEFESRIIKFVPLDACRFELMRFKTILYNGDNLFPFSILKSVVVVOGAY	540
Macaca_mulatta	NILDYHFHKCVKVQEFESRIIKFVPLDACRCELMRFKTLYNGDDLFPFSILKSVVVVOGAY	540
Callithrix_jacchus	DILDYHLHKCVKVQEFESRIIKFVSLDACRFELLRFKTLYNGDDLFPFLKSVVVVOGAY	540
Bos_taurus	DILDYHFHKCVKAQEFESRIIKFVPLDACRFELMRFKTSHSGEDLFPFSILKSVVVVOGAY	537
Globicephala_melas	DILDYHFHKCVNAQEFESRIIKFVPLDACRFELMRFKTILYSGEDLFPFSILKSVVVVOGAY	539
Equus_caballus	DILDYHFHKCVKDQEFESRIIKFVPLDACRFELMRFKTSYNGEDLFPFSILKSVVVVOGAY	543
Canis_lupus_familiaris	DILDHHFHKCVKAQEFESRIIKFVPLDACRFELMRFKTILYGGEDLPFTLKSVVVVOGAY	587
Pavo_muticus	NILDCHFHSCKVMQEFESRIIKFTPPDACRLELMRFRTQYHGEDLFPFSILKAMVVVOGAY	536
Pavo_cristatus	NILDCHFHSCKVMQEFESRIIKFTPPDACRLELMRFRTQYHGEDLFPFSILKAMVVVOGAY	536
Gallus_gallus	SILDCHFHCCKVMQEFELRIIKFTPPDACRLELMRFRTQYHGEDLFPFSILKATVVVOGAY	537
Chelonia_mydas	DILDYHFHKCVKTHEFESRIIKFTPLDACRLELMRFKTLYIGODLFPFSILKAAVVVOGAY	538
Xenopus_tropicalis	AITNYHFHKCVKAHEFHNSRVIKFIPVDACRFELMRFKTSFNGEEFFFSILKTSAVVOGAY	520
	.....550.....560.....570.....580.....590.....600	

	*****:.*:.. : : *:* : * ***** :*:*:* ** .*****:***:***:..	
Mus_musculus	VELQAFVNMTPAAQGS PHAGALRSCNNIMIHFPVPAQWIKALWTRNLQROKSLKAKMNRR	595
Rattus_norvegicus	VELQAFVNMTPAVQRS PHAGSLRSCNNIMIHFPVPAQWIKALWTRNLQROKSLKAKMNRR	596
Homo_sapiens	VELQAFVNMASLAQRSSYAGSLRSCDNIRIHFPVPQSOWIKALWTMNLQROKSLKAKMNRR	600
Pan_troglodytes	VELQAFVNMASLAQRSSYAGSLRSCDNIMIHFPVPQSOWIKAFWMTNLQROKSLKAKMNRR	600
Macaca_mulatta	VELQAFVNMAPLAQRS SHAGSLRSCDNIMIHFPVPQSOWIKALWTMNLQROKSLKAKMNRR	600
Callithrix_jacchus	VELQAFVNMALVQRS SHAGSLRSCDNIMIHFPVPQSOWIKALWTMNLQROKSLKAKMNRR	600
Bos_taurus	VELQAFVNMAPLVQRPSHAGSWRSCDNIMIHFPVPQSOWIKALWTMNLQROKSLKAKMNRR	597
Globicephala_melas	VELQAFVNMAPLVQRP----SLRSCDNIMIHFPVPQSOWIKALWTMNLQROKSLKAKMNRR	595
Equus_caballus	VELQAFVNMAPLAQRPSHASALRSCDNIMIHFPVPQSOWIKALWTMNLQROKSLKAKMNRR	603
Canis_lupus_familiaris	VELQAFVNMITPLTORPSCASLRSCDNIMIHFPVPQSOWIKALWTMNLQROKSLKAKMNRR	647
Pavo_muticus	VELQAFINMSS TALIPTRLPSVKCCENV MIRFPVPAQWVKALWTMNLQROKSLKAKMNRR	596
Pavo_cristatus	VELQAFINMSS TALIPTRLPSVKCCENV MIRFPVPAQWVKALWTMNLQROKSLKAKMNRR	596
Gallus_gallus	VELQAFINMSS TALIPTRLPSVKCCENV MIHFPVPAQWVKALWTMNLQROKSLKAKMNRR	597
Chelonia_mydas	IELQAFINMSS TSLIPARLHSMKYCENV MICFPVPAQWIKALWTMNLQROKSLKAKMNRK	598
Xenopus_tropicalis	VELQAFILNMSPSFTDNMHFSSAKYCENTIHFVPATWVKALWTVSLQROKSLKTKMNRK	580
	.....610.....620.....630.....640.....650.....660	

	***. * :*****:*:*****.*:*****.*:.* **	
Mus_musculus	ACLGSLQEPESPEPVIOVTVGSAKYESAYRAVVWVKIDRLPDKNSSPDQPHCLSYKLELGSD	655
Rattus_norvegicus	ACLGSLQGPELEPVIOVTVGSAKYESAYRAVVWVKIDRLPDKNTSPDQPHCLSYKLELGSD	656
Homo_sapiens	ACLGSLQELESEPVIOVTVGSAKYESAYQAVVWVKIDRLPDKNSSLDHPHCLSYKLELGSD	660
Pan_troglodytes	ACLGSLHELESEPVIOVTVGSAKYESAYQAVVWVKIDRLPDKNSSLDHPHCLSYKLELGSD	660
Macaca_mulatta	ACLGSLHELESEPVIOVTVGSAKYESAYQAVVWVKIDRLPDKNSSLDHPHCLSYKLELGSD	660
Callithrix_jacchus	ACLGSLHELESEPVIOVTVGSAKYESAYQAVVWVKIDRLPDKNSSLDHPHCLSYKLELGSD	660
Bos_taurus	ACLGSLHELESEPVIOVTVGSAKYESAYRAVVWVKIDRLPDKNSSPDHPHCLSYKLELGSD	657
Globicephala_melas	ACLGSSHEPESEPVIOVTVGSAKYESAYRAVVWVKIDRLPDKNSSPDHPHCLSYKLELGSD	655
Equus_caballus	ACLGNLHELESEPVIOVTVGSAKYESAYRAVVWVKIDRLPDKNSSPDHPHCLSYKLELGSD	663
Canis_lupus_familiaris	ACLGSLHEPESEPVIOVTVGSAKYESAYRAVVWVKIDRLPDKNSSPDHPHCLSYKLELGSD	707
Pavo_muticus	TCLGSLHEIESDPVIOVVSIGTAKYESAYRAVVWVKIDRLPDKNSSADHPHSLSYKLELGSD	656
Pavo_cristatus	TCLGSLHEIESDPVIOVVSIGTAKYESAYRAVVWVKIDRLPDKNSSADHPHSLSYKLELGSD	656
Gallus_gallus	TCLGSLHEIESDPVIOVVSIGTAKYESAYRAVVWVKIDRLPDKNSSADHPHSLSYKLELGSD	657
Chelonia_mydas	TCLGSLHEVESDPVIOVVSIGTAKYESAYRAVVWVKIDRLPDKNSSPYHPYSLSYKLELGSD	658
Xenopus_tropicalis	TCLGSAYEIESEPVIOVTVGTAKYEKAYKAVVWVKIDRLPDKN-SHDQPHSLSCKLELGSD	639
	.....670.....680.....690.....700.....710.....720	



# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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Mus_musculus      QEVPSDWYPPFATVQFSMLEACASRTEVRS LGVESDAQPQKHVCORACYNIQVEIEKKWIQ 715
Rattus_norvegicus QEVPSDWDPFATVQFSMSEACASRTEVRS LGVESDAQPQKHVCORACYNIQVEIEKKWIQ 716
Homo_sapiens      QEIPSDWYPPFATVQFSVPDTCASRTEVRS LGVESDVQPQKHVQORACYNIQVEIEKKWIK 720
Pan_troglodytes   QEIPSDWYPPFATVQFSVPDTCASRTEVRS LGVESDVQPQKHVQORACYSIQVEIEKKWIK 720
Macaca_mulatta    QEIPSDWYPPFATVQFSVPDTCASKTEVRS LGVESDVQPQKHVQORACYNIQVEIEKKWIK 720
Callithrix_jacchus QEIPSDWYPPFATVQFSMPDTCASRTEVRS LGVESDVQPQNHVQORACYNIQVEIEKKWIK 720
Bos_taurus        QEIPSDWYPPFATIQFGILDTTASRTEVRS LGVESDVQPQKHHHRACYNIQVEIEKKWIK 717
Globicephala_melas QEIPSDWYPPFATVQFGILDTCASRTEVRS LGVESDVQPQKHVHORACYNIQPKLYRSVIE 715
Equus_caballus     QEIPSDWYPPFATVQFGMLDTCASGTEVRS LGVESDVQPQKHHHORACYNIQVEIEKKWIK 723
Canis_lupus_familiaris QEIPSDWYPPFATVQFGMLDTCASKTEVRS LGVESDVQPQKHVHORACYNIQVEIEKKRIK 767
Pavo_muticus       QEIPSDWYPPFATVQFVIHDACASGTEVKS LGLES DVQPQKHVIQKAFYNCQVEIEKKWIR 716
Pavo_cristatus     QEIPSDWYPPFATVQFVIHDACASGTEVKS LGLES DVQPQKHVIQKAFYNCQVEIEKKWIR 716
Gallus_gallus      QEIPSDWYPPFATVQFIVHDTCASGTEVKS LGLES DVQPQKHVIQKAFYNCQVEIEKKWIR 717
Chelonia_mydas     QEIPSDWYPPFATVQFVMLDACASGTEVKS LGIECDVQPQKHLNQKTCYNCQVEIEKKWIR 718
Xenopus_tropicalis QEIPPNWNPYAEVHFAMAATTVSGAKVKS LGIESDVOPKHITRKACYNLQVEIERKRRIK 699
.....730.....740.....750.....760.....770.....780

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: * : :
Mus_musculus      --VDGEDADKTGGC V T Q----- 730
Rattus_norvegicus --IDGEDPDKAGGC V T Q----- 731
Homo_sapiens      --IDGEDPDKIGDC I T Q----- 735
Pan_troglodytes   --IDGEDPDKIGDC I T Q----- 735
Macaca_mulatta    --IDGEDPDKIGDC I T Q----- 735
Callithrix_jacchus --IDGEDPDKIGDC I T Q----- 735
Bos_taurus        --IDGEDPDKAGDC V T Q----- 732
Globicephala_melas DVIEGVRDLFAEEGIEEQVLKDLKQLWETKVLQSKATEDFFRNGVHLPLFTLQLPHSLHQ 775
Equus_caballus     --IDGEDPDKAGDC V T Q----- 738
Canis_lupus_familiaris --IDGEDPDKAGDC I T Q----- 782
Pavo_muticus       --LDGEDPDKAGNCLMQ----- 731
Pavo_cristatus     --LDGEDPDKAGNCLMQ----- 731
Gallus_gallus      --LDGEDPDKAGNCLMQ----- 732
Chelonia_mydas     --LDGEDPDKASTCLMQ----- 733
Xenopus_tropicalis --TEGEDPSRPGDC I T Q----- 714
.....790.....800.....810.....820.....830.....840

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Mus_musculus      ----- 730
Rattus_norvegicus ----- 731
Homo_sapiens      ----- 735
Pan_troglodytes   ----- 735
Macaca_mulatta    ----- 735
Callithrix_jacchus ----- 735
Bos_taurus        ----- 732
Globicephala_melas TLQSSTASLLIPAGKTLPTFTTAE LGTSNSSANFTFPGYPVHVPAGVTLOTASGYLYKIN 835
Equus_caballus     ----- 738
Canis_lupus_familiaris ----- 782
Pavo_muticus       ----- 731
Pavo_cristatus     ----- 731
Gallus_gallus      ----- 732
Chelonia_mydas     ----- 733
Xenopus_tropicalis ----- 714
.....850.....860.....870.....880.....890.....900

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## CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/STODates Tue Feb 1 14:40:35 2022

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Mus_musculus	-----	730
Rattus_norvegicus	-----	731
Homo_sapiens	-----	735
Pan_troglodytes	-----	735
Macaca_mulatta	-----	735
Callithrix_jacchus	-----	735
Bos_taurus	-----	732
Globicephala_melas	VPIMVTQTSGRASILQHPFOQVFOQLGPSIIQTSIPQLNPWCLQVTTTEKSORMETVLQQ	895
Equus_caballus	-----	738
Canis_lupus_familiaris	-----	782
Pavo_muticus	-----	731
Pavo_cristatus	-----	731
Gallus_gallus	-----	732
Chelonia_mydas	-----	733
Xenopus_tropicalis	-----	714
	.....910.....920.....930.....940.....950.....960	

Species	Sequence	Length
Mus_musculus	-----	730
Rattus_norvegicus	-----	731
Homo_sapiens	-----	735
Pan_troglodytes	-----	735
Macaca_mulatta	-----	735
Callithrix_jacchus	-----	735
Bos_taurus	-----	732
Globicephala_melas	PVVLRSGLTVDRKRLENATGDTLLHPGNQHKIMSEALLSQPENSOYISLSGVVFPPQLSQM	955
Equus_caballus	-----	738
Canis_lupus_familiaris	-----	782
Pavo_muticus	-----	731
Pavo_cristatus	-----	731
Gallus_gallus	-----	732
Chelonia_mydas	-----	733
Xenopus_tropicalis	-----	714
	.....970.....980.....990.....1000.....1010.....1020	

Mus_musculus	-----	730
Rattus_norvegicus	-----	731
Homo_sapiens	-----	735
Pan_troglodytes	-----	735
Macaca_mulatta	-----	735
Callithrix_jacchus	-----	735
Bos_taurus	-----	732
Globicephala_melas	DSNVEPVLGVSA <sup>1030</sup> MTQNLHGGPLSTGPGQAQHQHTPDVQLRVLKDRMCGWDSVKQPRNTE <sup>1080</sup>	1015
Equus_caballus	-----	738
Canis_lupus_familiaris	-----	782
Pavo_muticus	-----	731
Pavo_cristatus	-----	731
Gallus_gallus	-----	732
Chelonia_mydas	-----	733
Xenopus_tropicalis	-----	714
	.....1030.....1040.....1050.....1060.....1070.....1080	

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Mus_musculus	-----	730
Rattus_norvegicus	-----	731
Homo_sapiens	-----	735
Pan_troglodytes	-----	735
Macaca_mulatta	-----	735
Callithrix_jacchus	-----	735
Bos_taurus	-----	732
Globicephala_melas	VCQYEKIHRSKNKWKFYLLKDGIMCFGGRDYVFQAKAVGDAEW	1176
Equus_caballus	-----	738
Canis_lupus_familiaris	-----	782
Pavo_muticus	-----	731
Pavo_cristatus	-----	731
Gallus_gallus	-----	732
Chelonia_mydas	-----	733
Xenopus_tropicalis	-----	714
	.....1210.....1220.....1230.....1240.	