

# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/COI511.fasta Tue Feb 1 11:46:08 2022

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Mus_musculus          -----
Rattus_norvegicus     -----
Heterocephalus_glaber -----
Homo_sapiens          -----
Pan_troglodytes       -----
Macaca_mulatta        -----
Callithrix_jacchus    -----
Canis_lupus_familiaris MCLYGRRRLYHPPPSPKRAPACGHRRAPGLGASGRSPGAPSRCATPGVRCVSPSPASVSCS 60
Equus_caballus        -----
Bos_taurus            -----
Anolis_carolinensis  -----
Chelonia_mydas        -----
Pavo_muticus          -----
Pavo_cristatus        -----
1.....10.....20.....30.....40.....50.....60

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Mus_musculus          -----MTHRR-----TAQGRRPRLWLLSI 18
Rattus_norvegicus     -----MTHRR-----TAQGRRPRLWLLSI 18
Heterocephalus_glaber -----MAPR-----SNWCRR---LLLS 14
Homo_sapiens          -----MAPR-----RNNGQCWCLLMLLS 18
Pan_troglodytes       -----MAPR-----RNNGQCWCLLMLLS 18
Macaca_mulatta        -----MAPR-----RNNGQCWCLLMLLS 18
Callithrix_jacchus    -----MVPP-----RRNGQCWCLLVLLS 18
Canis_lupus_familiaris VAPGORRDRQLPGCWKDPIGWCTESARPAGQPRPDRRPAPAPPGKVTRDARSWRLWLLS 120
Equus_caballus        -----MAPR-----RNGECWRPLLLLLA 17
Bos_taurus            -----MAPR-----RDAQCWRLLLLLS 17
Anolis_carolinensis  -----MPFS-----HSQRPWTLILLLLL 17
Chelonia_mydas        MFSKLAWIIFLMQSGFIEGQWWWRQLWGTTQT-----TSFVAITVNTITL 46
Pavo_muticus          -----RAWWTWNVLLLEFL 13
Pavo_cristatus        -----RAWWTWNVLLLEFL 13
.....70.....80.....90.....100.....110.....120

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Mus_musculus          ISALLSAVLQT----- 29
Rattus_norvegicus     ISTLLSTVLQT----- 29
Heterocephalus_glaber ISALLSAVTRT----- 25
Homo_sapiens          VSTPLPAVTQT----- 29
Pan_troglodytes       VSTPLPAVTQT----- 29
Macaca_mulatta        VSTPLPAVTQT----- 29
Callithrix_jacchus    VSAPLPAVTQT----- 29
Canis_lupus_familiaris VSALLPAPTRT----- 131
Equus_caballus        VSALLPAVTRT----- 28
Bos_taurus            TSALLPGVIRT----- 28
Anolis_carolinensis  GSSLPTALPT----- 27
Chelonia_mydas        NVSVPKGYVTNGVSRRTTVSTRAPAGSITSTVSSGATGVSSSESTLPGGEAVTNFSKEKA 106
Pavo_muticus          GLSIHACSAA----- 23
Pavo_cristatus        GLSIHACSAA----- 23
.....130.....140.....150.....160.....170.....180

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Mus_musculus          -----RAATGSASQVHLDLTVLIGVPLPSSVSFTTGYGGFPAYSFGPGA 73
Rattus_norvegicus     -----RAATGSASQDHLDTLIGVPLPSSVSFVTGYGGFPAYSFRPGA 73
Heterocephalus_glaber -----RVSTDSASQGHLDLTQLIGVPLPSSVSFVTGYNGFPAYSFGPGA 69
Homo_sapiens          -----RGATETASQGHLDLTQLIGVPLPSSVSFVTGYGGFPAYSFGPGA 73
Pan_troglodytes       -----RGATETASQGHLDLTQLIGVPLPSSVSFVTGYGGFPAYSFGPGA 73
Macaca_mulatta        -----RAATESASQGHLDLTQLIGVPLPSSVSFVTGYGGFPAYSFGPGA 73
Callithrix_jacchus    -----RAATESASQGHLDLTQLIGVPLPSSVSFVTGYGGFPAYSFGPGA 73
Canis_lupus_familiaris -----RSATELASQGPLDLTELIGVPLPSSVSFVTGYGGFPAYSFGPGA 175
Equus_caballus        -----RSATESASQGHLDLTTELIGVPLPSSVSFVTGYGGFPAYSFGPGA 72
Bos_taurus            -----RSATESASRGPLDLTELGVPLPSSVSFVAGYGGFPAYSFGPGA 72
Anolis_carolinensis  -----QVIEERGSKGNDLTTELIGVPLPSSVSFITGYGGFPAYNFGPEA 71
Chelonia_mydas        LSELELKTGKKISQKOKKTERGSKGHLDLTTELIGVPLPLSVSFITGYGGFPAYSFGPDA 166
Pavo_muticus          -----QVIEERGSKEHLDLTTELIGVPLPSSVYFVTGYGGFPAYSFGTDA 67
Pavo_cristatus        -----QVIEERGSKEHLDLTTELIGVPLPSSVYFVTGYGGFPAYSFGTDA 67
.....190.....200.....210.....220.....230.....240

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## CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/COI1541.fasta Tue Feb 1 11:46:08 2022

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	*: ** : : : ** . *: ***: * . ** . * ** : *** : ***** . ***** : *** : : . : **	
Mus_musculus	NVGRPARTLIPPTFFRDFAIQVAVKPNSAQGGVLFATDAFQKVIYGLRLSSVEDGROR	133
Rattus_norvegicus	NVGRPARTLIPSFFRDFAIQVAVKPSSAQGGVLFVITDAFQKVIYGLRLSRVEDGROR	133
Heterocephalus_glaber	NIGRPARTLIPPAFFRDFAVSVMAKPSSTRGGVLFVITDAFQKVIYGLRLSGVODGHOR	129
Homo_sapiens	NVGRPARTLIPSFFRDFAIQSVVVKPSSSTRGGVLFATDAFQKVIYGLRLSGVEDGHOR	133
Pan_troglodytes	NVGRPARTLIPSFFRDFAIQSVVVKPSSSTRGGVLFATDAFQKVIYGLRLSGVEDGHOR	133
Macaca_mulatta	NVGRPARTLIPSFFRDFAIQSVVVKPSSSTRGGVLFATDAFQKVIYGLRLSGVEDGHOR	133
Callithrix_jacchus	NVGRPARTLIPATFFRDFAIQSVTVKPNSSTRGGMLFATDAFQKVIYGLRLSGVEDGQOR	133
Canis_lupus_familiaris	NVGRPARTLIPPTFFRDFAIQSVTVKPSSASGGVLFATDAFQKVIYGLRLSGVEDGGOR	235
Equus_caballus	NVGRPARTLIPPTFFRDFAIQSVTVKPNSARGGVLFATDAFQKVIYGLRLSGAEDGHOR	132
Bos_taurus	NVGRPARTLIPSFFRDFAIQSVRVKPSSPQGGVLFATDAFQKVIYGLRLSGVEDGROR	132
Anolis_carolinensis	NIGRLTRLIPQPFYKDAFIVTVKPNSDHGGVLFATDAFQKTIYLGIRLSPVDDNTOR	131
Chelonia_mydas	NIGRLTSALIPQIFYSDFAIIVTVKPNSDDGGVLFATDAFQKTIYLGMRSLSPVDDGTOR	226
Pavo_muticus	NIGRLTSAIPLPFYRDAFIVTVKPNSDRGGVLFATDAFQKTIYLGIRLSPVDESTOR	127
Pavo_cristatus	NIGRLTSAIPLPFYRDAFIVTVKPNSDRGGVLFATDAFQKTIYLGIRLSPVDESTOR	127
	.....250.....260.....270.....280.....290.....300	

	: * **** . * : *. * * **::*:** *: : :::: : *::*** : * ** .	
Mus_musculus	VILYYTEPGSHVSREAAVFSVPVMTNRWNRFAVITVGEEVALFMDCEEQSQVRFORSSWP	193
Rattus_norvegicus	VILYYTEPGSHVSQEAAAFSVPVMTNRWNRFAVITVGEEAVLFMDCEEHSQVLFORSSRP	193
Heterocephalus_glaber	VILYYTEPGSHLSHEAAVFSVPVMTNRWNHFAVITIGEEVTLLMDCEEHSHVLFORSSQP	189
Homo_sapiens	IILYYTEPGSHVSQEAAAFSVPVMTHRWNRFAMIVQGEEVTLVLNCEEHSRIPFORSSQA	193
Pan_troglodytes	IILYYTEPGSHVSQEAAAFSVPVMTHRWNRFAMIVQGEEVTLVLNCEEHSRLPFORSSQA	193
Macaca_mulatta	VILYYTEPGSHVSQEAAAFSVPVMTHRWNRFAVIVQGEEVALLVDCEEHSRIPFORSPQA	193
Callithrix_jacchus	IILYYTELGSHSVQEVAAFSVPMMTHRWNRFAVIVQGEEVTLVLVDCEEHSRISFORSSQP	193
Canis_lupus_familiaris	VILYYTEPGSHVSHEAAAFSLPVLTHRWNRFAMIVQGEEVTLLMDCEEHSHISFORSSRA	295
Equus_caballus	VILYYTEPGSQSVSHEAAAFSLPVMTHRWNRFAVIRGEESLILDCEEHSVPFFORSSQP	192
Bos_taurus	VILYYTEPSSQVSREAAAFSLPVMTHKWNFYFAVVVQGEEVTLVLVDCEEHGRVPFRSSQA	192
Anolis_carolinensis	IIMYYTEPGSHISREAAASFVKPVMTNKWNRFMAVEDNDIDVLFDCEEYHRVSFORSPHA	191
Chelonia_mydas	IIMYYTEPGSYISREAAASFVKPVMTNKWNRFVTITVQGNIDVLFMDCEEYNRVQFORSSQA	286
Pavo_muticus	IITYYTEPGSSVSREAAASFVKPVMTNRWNRFTVTVQGNIALFMDCEEYQRVQFORSDRA	187
Pavo_cristatus	IITYYTEPGSSVSREAAASFVKPVMTNRWNRFTVTVQGNIALFMDCEEYQRVQFORSDRA	187
	.....310.....320.....330.....340.....350.....360	

	* **...***:*.*** **..* **:*:* :.* ..*:*:::*:**.*	
Mus_musculus	LTFFEPSAGIFVGNAGAMGLERFTGSIQOLTIYSDPRTPPEELCEAQESSASGEASG---FQ	250
Rattus_norvegicus	LTFFEPSAGIFVGNAGATGLERFTGSIQOLTIYSDPRTPPEELCEAQESSASGEASG---FQ	250
Heterocephalus_glaber	LTFFEPSTGIFVGSAGATGLDKFTGSIQOLTIHADPRVPEELCEAQELASGEGSG---LQ	246
Homo_sapiens	LAFESSAGIFMGNAGATGLERFTGSLQQLTVHPDPRTPPEELCDPEESSASGETSG---LQ	250
Pan_troglodytes	LAFESSAGIFVGNAGATGLERFTGSLQQLTVHPDPRTPPEELCDPEESSASGETSG---LQ	250
Macaca_mulatta	LTFFESSAGIFVGNAGATGLERFTGSLQQLTVHPDPRTPPEELCDPEESSASGETSG---LQ	250
Callithrix_jacchus	LAFESSAGIFVGNAGATGLERFTGSIQQLTVHPDPRTPPEELCDAEESSASGETSG---LQ	250
Canis_lupus_familiaris	LAFEPSAGIFVGNAGATGLERFTGSIQQLTIHPDPRTPPEMCETEESSASGESSG---LQ	352
Equus_caballus	LAFEPSAGIFVGNAGATGLERFTGSIQQLTVHPDPGTPPEELCEAEASSASGETSG---LQ	249
Bos_taurus	LTFFEPSAGIFVGNAGATGLERFTGSIQQLTIHPDPRTPPEMCEAEDSSASGETSG---LQ	249
Anolis_carolinensis	LLFESSSGIFVGNAGATGLDRFTGSIQQLTIKPDVRATEDQCEDDDPYTSGESSGRDSVQ	251
Chelonia_mydas	LQFESNSGIFVGNAGATGLKKFTGSIQQLMIKPDPRATEDQCEDDDPYASGDSSTGTSIQ	346
Pavo_muticus	LVFESGSGIFVGNAGATGLEKFTGSIQHLTIIRSDPRATEDHCEDDDPGASGDISGNGSVQ	247
Pavo_cristatus	LVFESGSGIFVGNAGATGLEKFTGSIQHLTIIRSDPRATEDHCEDDDPGASGDISGNGSVQ	247
	.....370.....380.....390.....400.....410.....420	

[illegible]

# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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      : * .      :.      :.      :.      :.      :.
Mus_musculus      -----PVPEGTPETN-LSIIHGSSPEQSGEILNDTLE-VHAMDGDPGTDDGSGDGALLN      348
Rattus_norvegicus -----PVPEGTPGTD-LSITGHSSPEQSGEILNDTLE-VRTVDGNPSTDGSGDGALLN      348
Heterocephalus_glaber -----PVPEGTPETN-LSISQHNSSPEQSGEILNDTLEQVHSLDGDALSDVGS GDRTIFLG      347
Homo_sapiens       -----PVPEGTTLETTNMSIIQHSSPKQSGEILNDTLEGVHSDVDGPITDSGSGAGAFLD      350
Pan_troglodytes    -----PVPEGTPETTNNMSIIQHSSPEQSGEILNDTLEGVHSDVDGPITDSGSGAGAFLD      350
Macaca_mulatta     -----PVPEGTPETTNNMSIIQHSSPEQSGEILNDTLEGIHSDVDGPITDSGSGAGAFLD      350
Callithrix_jacchus -----PVPERTPETTNMSILQHSSPEQSGEILNDTLEGVHSDVDGPITDSGSGAGAFLD      350
Canis_lupus_familiaris -----PVPEGTAETVNLVSLHSIPEQSGEVLNDTLEEVHTVDGAPITDVSGDGAFIH      452
Equus_caballus     TKLSEPVPEGTPETTNNLSVIPHSSPEQSGEIMNDTLEGAQTVDGAPITDVSGDGAILH      363
Bos_taurus         -----PVPEGTKETSNLSDAPHSSPEQSGEILNDTLEAVQTVDGSPITADTSGSGDGVFLH      349
Anolis_carolinensis -----YLLEETVRPT--EIKDQGVTTIAINRKPSESTTIAQEILK---TEAEPHDSVLQG      350
Chelonia_mydas     -----HILDETEPP--TIKEQGS--TNAGNQHESDTTVAQEILK---AEAGSGAIVLQG      440
Pavo_muticus       -----HRVEETSEPA--KIKEQDSVIVETGQSNRESTALMQKILR---EEDGSGASVLLG      344
Pavo_cristatus     -----HRVEETSEPA--KIKEQDSVIVETGQSNRESTALMQKILR---EEDGSGASVLLG      344
.....490.....500.....510.....520.....530.....540

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Mus_musculus      VTDGQG-----LSATATGEASVPVTTVLEAENGSMPTGSPITLAMFTQSIREVDIP---D      399
Rattus_norvegicus VTDGQG-----LSATATGETRVPVTTALEVENGSMPTGSPITLAMFTQSFREVDML---D      399
Heterocephalus_glaber ATEEQG-----SAATAIGEDVETIITAREAEVSSVPTGGPTLVMSTLNPREGTAPGLED      401
Homo_sapiens       IAEEKN-----LAATAAGLAEVPISTAGEAEASSVPTGGPTLSMSTENPEEGVTPGPDN      404
Pan_troglodytes    IAEEKN-----LAATAAGLAEVPISTAGEAEASSVPTGGPTLSMSTENAEEGVTPGPDN      404
Macaca_mulatta     IAEEKN-----LAATAVGLAEAPISTAGEAEAGSVPTRGPTLSVSTQNPPEGVTPGPDN      404
Callithrix_jacchus IAEEKN-----LAATAAGLAEAAISTAGETEAGSVPTGGPTLSMSTQNPEDGVTPGPDN      404
Canis_lupus_familiaris VTEEAHVHTEEGLAATEATGEAEVPTSTAGEAEASSMPTRGPALSLSTEDMGERVITLSVDA      512
Equus_caballus     VIEEGPHPEEGLATTAAAGEAEVVPVSTAEAEASGVPTGGPTLSTFTEDPGERVTPGLDT      423
Bos_taurus         VTEEVN-----LAATAAAGEAKVPISTAWAEAEASSVPTGGGLTSLMPTIEDPGEVTLGAEN      404
Anolis_carolinensis ANKEKG-----VSREKG-----Q      447
Chelonia_mydas     VSREKI-----VSREI-----      349
Pavo_muticus       VSREI-----VSREI-----      349
Pavo_cristatus     VSREI-----VSREI-----      349
.....550.....560.....570.....580.....590.....600

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Mus_musculus      PENLTTTASGDGEVPTSTDGDTADSSPTGGPTLK-----PREEATLGSHGEEWLTIPAVS      454
Rattus_norvegicus LENLTT-ASGDGEVPTSTDVDTEAGTLPTGGPTLK-----PREEATLGSLGEEWSTTVVS      453
Heterocephalus_glaber EEGSAAVGAGEAEVVPVSTAGEVEAGSVSTVGPTLTMSTQSPREETTLG-PGKEWLTSAVA      460
Homo_sapiens       EERLAATAAGEAEALASMPGEVEASGVAPGELDLSMSAQSLGEEATVGPSSDSLTTAAA      464
Pan_troglodytes    EEGLAATAAGEAEALASMPGEVEASGVAPGELDLSMSAQSLGEEATVGPSSDSLTTAAA      464
Macaca_mulatta     EETLAATAAGEAEALASTPWEAEASGVPPGEPDLSMSQSLGEEAAVGPSSDSLTTAAA      464
Callithrix_jacchus EEVLAATAVGEAKVPASTPGEAEASGMPGEPDLSISTQSLREEATVGPNSEESLTTATA      464
Canis_lupus_familiaris EEGSGATAAGEAEVDPGTANETADSVPTGATLSMAVQDPGTGVTLGAVAEGMFTASAA      572
Equus_caballus     EEGSAATAAEEAEVPIGTAGEVEADTVRTGGPTLSTSTQDPGEGVTLGPISSESLTTAVA      483
Bos_taurus         EEGSAATAAGEAEVPSIAREAEASVPTGGGLTLPMTQDPGEMVTLSPISEEGSTTAAA      464
Anolis_carolinensis KGENGQK-EKG--GVPGPPGEASLEETQPGTIGPPVTPGTYGS-----      397
Chelonia_mydas     KGERGEKGEQGPRGPPGPPGKSELEEMQTGIQGPPLGKPKGRDGEPIGPKDGLPGERG      507
Pavo_muticus       -----      349
Pavo_cristatus     -----      349
.....610.....620.....630.....640.....650.....660

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Mus_musculus      --KMPLKAFEEEEASG-----TAIDSLDVIFTPTVVLEQVSRRPDIQATFTPTVVLEET      507
Rattus_norvegicus --KVPLNAFEEEEASG-----TAIDSLD-----AFTPTVVLEQA      485
Heterocephalus_glaber PTEVPLSTPGEEEASG-----ASTDNLA-----VLTPTVAPAHA      494
Homo_sapiens       ATEVSLSTFEDEEASG-----VPTDGLAP-----LTATMAPERA      498
Pan_troglodytes    ATEVSLSTFEDEEASG-----VPTDGLAP-----LTATMAPEQA      498
Macaca_mulatta     ATEVSLSTFEDEEASG-----VPTDGLAP-----LTATMTPEQA      498
Callithrix_jacchus AIEVPLSTFEDEEASG-----IPTDV LAP-----ITATMAPEQA      498
Canis_lupus_familiaris TTEVPGSTSEEEEARQ-----VPTGGLVP-----LPPTAAPEQA      606
Equus_caballus     ATEVALSTFEDEEASG-----VPTDGLVP-----LTPTVPSEQV      517
Bos_taurus         ATDVPLGTFEEEEASG-----VPTINDLAF-----ITPTVASEQG      498
Anolis_carolinensis ---PGLKGEPGPKGEGKDTGVGL-----      417
Chelonia_mydas     LQGLPGLKGEDGLKGEKGETGVGL-----      531
Pavo_muticus       -----      349
Pavo_cristatus     -----      349
.....670.....680.....690.....700.....710.....720

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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Mus_musculus          SGAPTDTQDALTPTVAPQMFMTAEPTDGGDLVASTEEAEFEESGSMPPSGPPLPTPTVTP 567
Rattus_norvegicus     SGTPTDIQAALTTTVAPEQVFTAAPTIDGEDLVSTEEESDEEGSGSTLPIGPPLSKPTVTP 545
Heterocephalus_glaber SRASTDGLAVLTPTVALRQVVTSPDDKEDLEPLATAGREE-TGSAPPDGLPLPVPTAAP 553
Homo_sapiens          VTSGPGDEEDLAAATTEEPLITAG-----GEESGSPPPDGPPLPLPTVAP 543
Pan_troglodytes       VTSGPGDEEDLAAATTEEPLITAG-----GEESGSPPPDGPPLPLPTVAP 543
Macaca_mulatta        VTSGPGDEEDLAAATTEEPLITAR-----GEESGSPPPDGPPLPLPTLAP 543
Callithrix_jacchus    VTSGPGHEEDLAAATTAKPPTTAG-----SEESGSLPPDGPPLPLPTAAP 543
Canis_lupus_familiaris GAPGPGDEGELAAAVTAEPPLTAEA-----EAPFVGSLPERPPLPVPTVAS 653
Equus_caballus        VPSGPGDEEDLAAATTEEPLTAAG-----AEETGGALPEGPPLPIPTVAP 562
Bos_taurus           VTSGPGGDE-DLAAATTEEPLTAAG-----ADTLGSTPPEGPPLPLPSVAP 542
Anolis_carolinensis  -----PGPPGPPGPPGLPASSKG 435
Chelonia_mydas        -----PGPPGLPGPPGPSAPFRG 549
Pavo_muticus          ----- 349
Pavo_cristatus        ----- 349
.....730.....740.....750.....760.....770.....780

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Mus_musculus          KRQVTILV-----GVEAEGSGPVGGLDE 589
Rattus_norvegicus     ERQVTILA-----GVEAEGSDPVWGVDPV 567
Heterocephalus_glaber EGRVTILAQ-----LVHGEMEGQSGPEGEKVCTEAVGSGLGWALDI 593
Homo_sapiens          ERWITPAQREHVGMKGQAGPKGEKGDAGEELPGPPEPSGPVGPPTAGAEAEAGSGLGWGSDV 603
Pan_troglodytes       ERWVTPAQREHVGMKGQAGPKGEKGDAGEELPGPPEPSGPVGPPTAGAEAEAGSGLGWGSDV 603
Macaca_mulatta        ERRVTPAQREHVGMKGQAEPKGEKGDAGEEIPGPPEPSGPVGPPTAGAEAEAGSGLGWGLDV 603
Callithrix_jacchus    ERGVTPAQREHVGMKEQAGPEGEKGDAGEELPSPEPSRVPVGPVGAEEVGSGLGWGSGV 603
Canis_lupus_familiaris ERGVTP-----GEAGEGLFGHPEPARPTGPTVETAEAGSGLGWGSEI 695
Equus_caballus        ERGVTP-----GGAEFVLSGPPGTAEPAAGPTVRAEAEAGSGLAWGLDL 604
Bos_taurus           ESGAPPVSEDFTSHRGQSHGKGEKGEAEEGFPGPPGPAVPTPTVEVEAEAGSGLGWGLDV 602
Anolis_carolinensis  FRRVEIE----- 442
Chelonia_mydas        FSRLEPE----- 556
Pavo_muticus          --RLKPE----- 354
Pavo_cristatus        --RLKPE----- 354
.....790.....800.....810.....820.....830.....840

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***      . : : ** * * * * . *      . *      **      : ** . ** *
Mus_musculus          GSGSG--DIVGNEDLLRGGPPGPPGPPGSPGIPGKPGTDVFMGPPGSPG---EDGAPGEPG 644
Rattus_norvegicus     GSGSG--DIVGNEDLLRGGPPGPPGPPGSPGIPGKPGTDVFMGPPGSPG---EDGAPGEPG 622
Heterocephalus_glaber GSGSG--DLVDQEEFLRGLPGPPGPPGPPGLPGIPGKPGTDVLMGPPGSPG---EDGAAGEPG 648
Homo_sapiens          GSGSG--DLVGSEQLLRGPPGPPGPPGPPGLPGIPGKPGTDVFMGPPGSPG---EDGPAGEPG 658
Pan_troglodytes       GSGSG--DLVGSEQLLRGPPGPPGPPGPPGLPGIPGKPGTDVFMGPPGSPG---EDGPAGEPG 658
Macaca_mulatta        GSGSG--DLVGSEQLLRGPPGPPGPPGPPGLPGIPGKPGTDVFMGPPGSPG---EDGRAGEPG 658
Callithrix_jacchus    SSGSG--DLVGSEQLLRGPPGPPGPPGPPGLPGIPGKPGTDVFMGPPGSPG---EDGAAGETG 658
Canis_lupus_familiaris GFGSG--DLVRSEQLLRGPPGPPGPPGPPGSPGIPGKPGTDVFMGPPGSPG---EDGAAGEPG 750
Equus_caballus        GSGSGSDDLVRSEQLLRGPPGPPGPPGPPGSPGIPGKPGTDIFMGPPGSPG---EDGAAGEPG 661
Bos_taurus           SSGSG--DLVHSEQLLRGPPGPPGPPGPPGLPGIPGKPGTDVFMGPPGSPG---EDGPTGEPG 657
Anolis_carolinensis  GSGSG--DFGKDIEFPRGAPGPPGPPGPPGAPGIPAPDSNAGPPGFPGENGKDGTGEAG 500
Chelonia_mydas        GSGSG--DLDRDNELLRGLPGPPGPPGPPGLPGAPGK--PDSNAGSPGSPG---KDGPSEEPG 609
Pavo_muticus          ELGSG--YADRETEILRGSPGLHGLPAKP-----SPDSVEPPESPG---EDGSAGELG 403
Pavo_cristatus        ELGSG--YADRETEILRGSPGLHGLPAKP-----SPDSVEPPESPG---EDGSAGELG 403
.....850.....860.....870.....880.....890.....900

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* . * * * * * * * * * * * * * * * * * * * * * * * * *
Mus_musculus          PQGPEGQPLDGLDASGQQGMKGEKGARGPNGSAGEKDPGNRGLPGPPGKNGEVGTPGVMG 704
Rattus_norvegicus     PQGPEGQPLDGLDASGQPMKGEKGARGPNGSAGEKDPGSRGLPGPPGKNGEVGIPGAMG 682
Heterocephalus_glaber LPGPEGEPLDGLDAGVGRPGMKGEKGARGPNGSAGEKDPGNRGLPGPPGKNGQAGTPGVTG 708
Homo_sapiens          PPGPEGQPGVDGATGLPGMKGEKGARGPNGSAGEKDPGNRGLPGPPGKKGQAGPPGVMG 718
Pan_troglodytes       PPGPEGQPGVDGATGLPGMKGEKGARGPNGSAGEKDPGNRGLPGPPGKKGQAGPPGVMG 718
Macaca_mulatta        PPGPEGQPGVDGATGLPGMKGEKGARGPNGSAGEKDPGNRGLPGPPGKKGQAGPPGAMG 718
Callithrix_jacchus    PPGPEGQPGVDGATGLPGMKGEKGARGPNGSAGEKDPGNRGLPGPPGKQAGPPGVMG 718
Canis_lupus_familiaris PPGPEGQPGPDGASGLPGMKGEKGARGPNGSAGEKDPGNRGLPGPPGKNGQVGSFGIMG 810
Equus_caballus        PPGPEGQPLDGLDASGLPGMKGEKGARGPNGSAGEKDPGSRGLPGPPGKNGQVGTGVMG 721
Bos_taurus           PPGPEGKPLDGLDASGLPGIKGEKGARGPNGSAGEKDPGNRGLPGPPGKTGQVGPAGVMG 717
Anolis_carolinensis  PRGSPGRFGQDGLIGFAGIKGEKGDQGIQGPVGRKDPGVIQPPGPKQAGANGEPGQPG 560
Chelonia_mydas        PPGPGHPLDGLDMVGPPGKKGKGEKGDGLPGAVGPKGDAGDIGSPGPEGQAGADGQPGKPG 669
Pavo_muticus          PEGPGQLPLDGLDGVVGGPPGQKGEKGDRLPGSVGAKGDTGVTGSTGPKGEAGADGSPGKPG 463
Pavo_cristatus        PEGPGQLPLDGLDGVVGGPPGQKGEKGDRLPGSVGAKGDTGVTGSTGPKGEAGADGSPGKPG 463
.....910.....920.....930.....940.....950.....960

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*      *****      : **
Mus_musculus      PPGPPGPPGPPGPGCTTELGFIEGSGDVRLLSKPTISGPTSP----- 747
Rattus_norvegicus PPGPPGPPGPPGPGCTTKLGFIEGSGDTQLLSKPRISGPPSP----- 725
Heterocephalus_glaber PPGPPGPPGPPGPGCATGLGFEDTEGSGNIRLLNEPRISRPTVS----- 752
Homo_sapiens      PPGPPGPPGPPGPGCTMGLGFEDTEGSGSTQLLNEPKLSRPTAA----- 762
Pan_troglodytes   PPGPPGPPGPPGPGCTMGLGFEDTEGSGSTQLLNEPKLSRPTAA----- 762
Macaca_mulatta    PPGPPGPPGPPGPGCTMGLGFEDTEGSGSTQLLSEPKLSRPTAA----- 762
Callithrix_jacchus PPGPPGPPGPPGPGCTMGLGFEEETEGSGSTQLLNEPKLSRPTAA----- 762
Canis_lupus_familiaris PPGPPGPPGPPGPGCAMGLGFEDTEGSGSIRLLHEPRISGPVAP----- 854
Equus_caballus    PPGPPGPPGPPGPGCATGLGFEDTEGSGSIRLLHEPRISGPTAS----- 765
Bos_taurus        PPGPPGPPGPPGPGCTTGLGFEDTEGSGSIRHLHEP-ISGPTAS----- 760
Anolis_carolinensis P---PGPPGPPGP--GYGFGFEDMEGSGITGLSSESRIPVSRGQNGPAGEMGLQGPIGPK 615
Chelonia_mydas    PQGPPGPPGPPGP--GYGFGFEDMEGSGISLISEPRVPGSRGPNGPVGETGQGRGPMGPK 727
Pavo_muticus      PPGPPGPPGPPGPPT--GVSLGFE-----RSPSTKGQ----- 492
Pavo_cristatus    PPGPPGPPGPPGPPT--GVSLGFE-----RSPSTKGQ----- 492
.....970.....980.....990.....1000.....1010.....1020

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* * * * *: * . *: * ** : *
Mus_musculus      -----SGPKGEKGEQGAKEGADGTSTMG 772
Rattus_norvegicus -----SGPKGEKGEQGAKEGRTDGISTMG 750
Heterocephalus_glaber -----SGLKGDQKDGQPKGERGLDGISTVG 777
Homo_sapiens      -----IGLKGEKGDGPKGERGMDGASIVG 787
Pan_troglodytes   -----IGLKGEKGDGPKGERGMDGASIVG 787
Macaca_mulatta    -----IGLKGEKGDGPKGERGMDGASIVG 787
Callithrix_jacchus -----IGLKGEKGDGPKGERGMDGASIVG 787
Canis_lupus_familiaris -----SGPKGEKGDQPKGDRGMDGASIVG 879
Equus_caballus    -----SGPKGEKGDQPKGDRGMDGASIVG 790
Bos_taurus        -----SGPKGEKGDGPKGDRGMDGASIVG 785
Anolis_carolinensis GDKGDPGVEGSPGSKGEQGPGRPGFPGVAGRPGDEGPKGDKDPGSKGEAGQDGARVVG 675
Chelonia_mydas    GEKGDTPGPGIAGLKGEQGADGKPGFPGVAGRPGDVGPKGDKGDTGSKGEPRDGDASIVG 787
Pavo_muticus      -----PGIAGHPGGVGPKGEKGDGPGQGEPPQDQNDIVG 526
Pavo_cristatus    -----PGIAGHPGGVGPKGEKGDGPGQGEPPQDQNDIVG 526
.....1030.....1040.....1050.....1060.....1070.....1080

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**** * : : . * * : * : * * : * * : * * : *
Mus_musculus      PPGPRGPPGHVEVLSSSLNITNGSMNFSDIPELMGPPGPDGVPGLPGFPGRGPKGDTG 832
Rattus_norvegicus PPGPRGPPGRVEVLSSSLNITNGSMNFSDIPELMGPPGPDGVPGLPGFPGRGPKGDTG 810
Heterocephalus_glaber PPGPRGPPGRIEILSSSLVNITHGSLNFSNIPELLGPPGPDGVPGLPGFPGRGPKGDTG 837
Homo_sapiens      PPGPRGPPGHKVLNSLNITHGFMNFSDIPELVGPPGPDGLPGLPGFPGRGPKGDTG 847
Pan_troglodytes   PPGPRGPPGPIKVLNSLNITHGFMNFSDIPELVGPPGPDGLPGLPGFPGRGPKGDTG 847
Macaca_mulatta    PPGPRGPPGRIEVLSSSLNITHGFMNFSDIPELVGPPGPDGLPGLPGFPGRGPKGDTG 847
Callithrix_jacchus PPGPRGPPGRIEILSSSLNITHGFMNFSDIPELVGPPGPDGLPGLPGFPGRGPKGDTG 847
Canis_lupus_familiaris PPGPRGPPGRIEVLSSALTNITHGFMNFSDIPELVGPPGPDGLPGLPGFPGRGPKGDTG 939
Equus_caballus    PPGPRGPPGRIEVLSSSLNITHGFMNFSDIPELVGPPGPDGLPGLPGFPGRGPKGDTG 850
Bos_taurus        PPGPRGPPGRIEVLSSSLTNITQGFNFSDIPELVGPPGPDGLPGLPGFPGRGPKGDTG 845
Anolis_carolinensis PPGPPGPPGPVIAIPRSLNAGSLTFNISEIKGLVGPDPGMPGLPGFPGRGPKGDTG 735
Chelonia_mydas    PPGPPGPPGPPIIAVPQLLLNDTDGISNFTGIKGLLGSPGPDGRPLPGFPGRGPKGNIG 847
Pavo_muticus      PPGPPGPPGPPIIAPELILLNDTKGILNFTAEKLLGPPGPDGKPLPGFPGRGPKGDIG 586
Pavo_cristatus    PPGPPGPPGPPIIAPELILLNDTKGILNFTAEKLLGPPGPDGKPLPGFPGRGPKGDIG 586
.....1090.....1100.....1110.....1120.....1130.....1140

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.: *: * * : * : * : * : * : * : * : * : * : *
Mus_musculus      VPGFPGLKGEQGEKGEPAIITGDVPLEMMK---GRKGEPIHGAPGPMGPKGPPGHKGE 889
Rattus_norvegicus VPGFPGLKGEQGEKGEPAIITGDIPLEMVK---GRKGEPIVHGAPGPMGPKGPPGHKGE 867
Heterocephalus_glaber LPGFPGLKGEQGEKGEPAIITGDVPLERLK---GKKGEPIHGAPGPMGPKGPPGHKGE 894
Homo_sapiens      LPGFPGLKGEQGEKGEPAIITGDIPLERLM---GKKGEPIHGAPGPMGPKGPPGHKGE 904
Pan_troglodytes   LPGFPGLKGEQGEKGEPAIITGDIPLERLM---GKKGEPIHGAPGPMGPKGPPGHKGE 904
Macaca_mulatta    LPGFPGLKGEQGEKGEPAIITGDIPLERLM---GKKGEPIHGAPGPMGPKGPPGHKGE 904
Callithrix_jacchus LPGFPGLKGEQGEKGEPAIITGDVPLERLM---GKKGEPIHGAPGPMGPKGPPGHKGE 904
Canis_lupus_familiaris VPGFPGLKGEQGEKGEPAIITGDIPLERLQ---GKKGEPIVHGAPGPMGPKGPPGHKGE 996
Equus_caballus    VPGFPGLKGEQGEKGEPTILTGDVPLERLR---GKKGEPIHGAPGPMGPKGPPGHKGE 907
Bos_taurus        VPGFPGLKGEQGEKGEPAIITGDIPLERLR---GKKGEPIHGAPGPMGPKGPPGHKGE 902
Anolis_carolinensis LAGLPQGKKGQGEKGEPAIFASTDSLTELIRPGEKGEPIVGLGPPGPMGPPGNPGPKGE 795
Chelonia_mydas    LTGLQGPKGQGEKGEPAIISADGSLRELTLGRQKGEHGAAGVPPGPMGPFVGPSGPKGE 907
Pavo_muticus      LPGLKGLKGQGEKGESGAIIAADGSLTELLGRKGQKGEAGVVGPMGPMGPIGAPGPKGE 646
Pavo_cristatus    LPGLKGLKGQGEKGESGAIIAADGSLTELLGRKGQKGEAGVVGPMGPMGPIGAPGPKGE 646
.....1150.....1160.....1170.....1180.....1190.....1200

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/COI5r1.fst Tue Feb 1 11:46:08 2022

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*:***** ** *: * : * ***** ***** :: ***::*: . **
Mus_musculus      FGLPGRPGRPGLNGLKGAAGDRGVTLPGLPGPPGLPGPPGPPGPPGAVVNIKGAVFPIPARPH 949
Rattus_norvegicus FGLPGRPGRPGLNGLKGAAGDRGIMLPGLPGPPGLPGPPGPPGPPGAVVNIKGAVFPIPARPH 927
Heterocephalus_glaber FGLPGRPGRPGLNGLKGAAGDRGIMMQLPGPPGLPGPPGPPGPPGAVVNIKGAVFPIPARPH 954
Homo_sapiens      FGLPGRPGRPGLNGLKGTGKDPGVIMQGLPGPPGLPGPPGPPGPPGAVINIKGAIFPIPARPH 964
Pan_troglodytes   FGLPGRPGRPGLNGLKGTGKDPGVIMQGLPGPPGLPGPPGPPGPPGAVINIKGAIFPIPARPH 964
Macaca_mulatta    FGLPGRPGRPGLNGLKGAAGDPGVIMQGLPGPPGLPGPPGPPGPPGAVINIKGAIFPIPARPH 964
Callithrix_jacchus FGLPGRPGRPGLNGLKGAAGDPGVIMKGLPGPPGLPGPPGPPGPPGAMINIKGAIFPIPARPH 964
Canis_lupus_familiaris FGLPGRPGRPGLNGLKGAAGDRGVMPGLPGPPGLPGPPGPPGPPGAVINIKGAIFPIPARPH 1056
Equus_caballus    FGLPGRPGRPGLNGLKGAAGDRGLMMPGLPGPPGLPGPPGPPGPPGAVINIKGAIFPIPARPH 967
Bos_taurus        FGLPGRPGRPGLNGLKGAAGDRGVMPGLPGPPGLPGPPGPPGPPGAVINIKGAIFPIPARPH 962
Anolis_carolinensis LGFPGRPGRPGLNGLKGAAGDRGVIMQGLPGPPGLPGPPGPPGPPGAVINIKGAIFPIPARPH 855
Chelonia_mydas    LGIPGRPGRPGLNGLKGAAGDRGVIMQGLPGPPGLPGPPGPPGPPGAVINIKGAIFPIPARPH 967
Pavo_muticus      LGFPGRPGRPGLNGLKGAAGDRGVIMQGLPGPPGLPGPPGPPGPPGAVINIKGAIFPIPARPH 706
Pavo_cristatus    LGFPGRPGRPGLNGLKGAAGDRGVIMQGLPGPPGLPGPPGPPGPPGAVINIKGAIFPIPARPH 706
.....1210.....1220.....1230.....1240.....1250.....1260

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** .:. . * . : . . : *****:. * * * : * :
Mus_musculus      CKTPVGTAAHPGDPGLVTFHGVKGEKGSWGLPGS---KGEKGDQGAQGGPPGPPVDPAYLRH 1006
Rattus_norvegicus CKTPVGTAAHPGDPGLVTFHGVKGEKGSWGLPGT---KGEKGDQGAQGGPPGPPVDPAYLRH 984
Heterocephalus_glaber CKMPLGTTQPGDPGLVTFHGVKGEKGSWGLPGS---KGEKGDQGAQGGPPGPPVDPAYLRH 1011
Homo_sapiens      CKMPVDTAAHPGSPGLITFHVGVKGEKGSWGLPGS---KGEKGDQGAQGGPPGPPVDPAYLRH 1021
Pan_troglodytes   CKMPVDTAAHPGSPGLITFHVGVKGEKGSWGLPGS---KGEKGDQGAQGGPPGPPVDPAYLRH 1021
Macaca_mulatta    CKMPVDTAAHPGSPGLITFHVGVKGEKGSWGLPGS---KGEKGDQGAQGGPPGPPVDPAYLRH 1021
Callithrix_jacchus CKMPVGTAAHPGSPGLITFHVGVKGEKGSWGLPGS---KGEKGDQGAQGGPPGPPVDPAYLRH 1021
Canis_lupus_familiaris CKTPVDTIHPGNSGLITFHVGVKGEKGSWGLPGS---KGEKGDQGAQGGPPGPPVDPAYLRH 1113
Equus_caballus    CKTPVGTTHPGNSGLITFHVGVKGEKGSWGLPGS---KGEKGDQGAQGGPPGPPVDPAYLRH 1024
Bos_taurus        CKTPVGTTHPGNSGLITFHVGVKGEKGSWGLPGS---KGEKGDQGAQGGPPGPPVDPAYLRH 1019
Anolis_carolinensis CKTTVGTIDNLGNQ-----EITDGRSVNVVPAFKGEKGDGPPGPPGHPLESDYID- 906
Chelonia_mydas    CKMPVGTALPGNQDAN-IHGIKGEKGSWGLHGGPGLKGEKGERGSPGLPGPPLPSYFNFH 1026
Pavo_muticus      CKNTVSNIIYPGNQKVLNVHGAAGNDCWSLYNSVDLKGEKGNRGAPGGPGLPSPSYFNFH 766
Pavo_cristatus    CKNTVSNIIYPGNQKVLNVHGAAGNDCWSLYNSVDLKGEKGNRGAPGGPGLPSPSYFNFH 766
.....1270.....1280.....1290.....1300.....1310.....1320

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*: * :***. . * . : : * ** ** ** . * * : : : :
Mus_musculus      FLNSLKGENEDAS---FRGE---SSN---NLFVSGPPG---LPGYPLGVGKGEAVVGPQ 1054
Rattus_norvegicus FLNSLKGENGDAA---FRGE---SSH---NLFVSGPPG---LPGHPGLAGOKGEAVVGPQ 1032
Heterocephalus_glaber FLNSLKGENGDRG---FKGEKGDNSG---NFFVAGSPG---LPGNPGLAGOKGETIIGPQ 1062
Homo_sapiens      FLNNLKGENGDKG---FKGEKGEKGDINGSFILMSGPPG---LPGNPGLAGOKGETIVVGPQ 1075
Pan_troglodytes   FLNNLKGENGDKG---FKGEKGEKGDVNDISFLMSGPPG---LPGNPGLAGOKGETIVVGPQ 1075
Macaca_mulatta    FLNNLKGENGDKG---FKGEKGEKGDINDISFLMSGPPG---LPGNPGLAGOKGETIVVGPQ 1075
Callithrix_jacchus FLNNLKGENGDKG---FKGEKGEKGEFNGSFILMSGPPG---LPGNPGLAGOKGETIVVGPQ 1075
Canis_lupus_familiaris FLNSLKGENGDRG---IKGEKGDNSG---DFLVSGPPG---LPGSPGLVGVKGETIVVGPQ 1164
Equus_caballus    FLNSLKGENGDRG---LKGEKGDNSG---DFLVSGPPG---LPGNPGLVGVKGETIVVGPQ 1075
Bos_taurus        FLNSLKGENGDRG---IKGEKGDNSG---DFLVSGPPG---LPGSPGLVGVKGEAVVGPQ 1073
Anolis_carolinensis FLNVKGEKGTNG-----EKGEKGDNSG---GFSMSGIPG---LPGRPGLVGVKGETIVVGPQ 954
Chelonia_mydas    FVNSMKGEKGDNGETGFKGEKGEKPSG---GFFMSGPPG---PPGRPGLVGVKGETIVVGPQ 1083
Pavo_muticus      FINSIKGEKGDNG---VKGEKGEKPSG---GFYLTGPPG---PPGRPGLVGVKGETIVVGPQ 817
Pavo_cristatus    FINSIKGEKGDNG---VKGEKGEKPSG---GFYLTGPPG---PPGRPGLVGVKGETIVVGPQ 817
.....1330.....1340.....1350.....1360.....1370.....1380

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**** ***** *: * * ***** ** * :.:. *****:**** :****
Mus_musculus      GPPGIPGLPGPPGFGFRPGVPGPPGPPGPPGPPAILGAVALPGPPGPPGPPGLPGSRNLV 1114
Rattus_norvegicus GPPGIPGLPGPPGFGFRPGVPGPPGPPGPPGPPAILGAVALPGPPGPPGPPGLPGSRNLV 1092
Heterocephalus_glaber GPPGIPGLPGPPGFGFRPGAPGPPGPPGPPGPPAILGAVALPGPPGPPGPPGLPGSRNLV 1122
Homo_sapiens      GPPGAPGLPGPPGFGFRPGDPGPPGPPGPPGPPAILGAVALPGPPGPPGPPGLPGSRNLV 1135
Pan_troglodytes   GPPGAPGLPGPPGFGFRPGDPGPPGPPGPPGPPAILGAVALPGPPGPPGPPGLPGSRNLV 1135
Macaca_mulatta    GPPGAPGLPGPPGFGFRPGDPGPPGPPGPPGPPAILGAVALPGPPGPPGPPGLPGSRNLV 1135
Callithrix_jacchus GPPGAPGLPGPPGFGFRPGDPGPPGPPGPPGPPAILGAVALPGPPGPPGPPGLPGSRNLV 1135
Canis_lupus_familiaris GPPGAPGLPGPPGFGFRPGSPGPPGPPGPPGPPAILGAVALPGPPGPPGPPGLPGSRNLV 1224
Equus_caballus    GPPGAPGLPGPPGFGFRPGSPGPPGPPGPPGPPAILGAVALPGPPGPPGPPGLPGSRNLV 1135
Bos_taurus        GPPGAPGLPGPPGFGFRPGSPGPPGPPGPPGPPAILGAVALPGPPGPPGPPGLPGSRNLV 1133
Anolis_carolinensis GPPGVPLPGPPGFGPAGPPGPPGPPGPPGPPAIYG-SAAVAGPPGPPGEPGLPGTRNLV 1013
Chelonia_mydas    GPPGLPLGLPGSPGYGIVGPPGPPGPPGPPGPPAIYGSAAVAGPPGPPGEPGLPGTRNLV 1143
Pavo_muticus      GPPGLPLGLPGSPGYGIVGPPGPPGPPGPPGPPAIYGSAAVAGPPGPPGEPGLPGTRNLV 874
Pavo_cristatus    GPPGLPLGLPGSPGYGIVGPPGPPGPPGPPGPPAIYGSAAVAGPPGPPGEPGLPGTRNLV 874
.....1390.....1400.....1410.....1420.....1430.....1440

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## CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/COVID19/1541.fasta Tue Feb 1 11:46:08 2022

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	:: .: .*:...*** ***:**:: :. :.*:**..**::**..****.: :* ****.*	
Mus_musculus	TALSDMGDMLOKAHLVIEGTFIYLRDSGEFFIRVRDGWKKLQLGELIPADSPPPPAL	1174
Rattus_norvegicus	TALSDMGDMLOKAHLVIEGTFIYLRESGEFFLRVRDGWKKLQLGELIPADSPPPPAL	1152
Heterocephalus_glaber	TAFSSMDMDLOKAHLVIEGTFIYLRDSTEFFIRVRDGWRKLQLGELIPADSPPPPAL	1182
Homo_sapiens	TAFNSMDDMLQKAHLVIEGTFIYLRDSTEFFIRVRDGWKKLQLGELIPADSPPPPAL	1195
Pan_troglodytes	TAFNSMDDMLQKAHLVIEGTFIYLRDSTEFFIRVRDGWKKLQLGELIPADSPPPPAL	1195
Macaca_mulatta	TAFNSMDDMLQKAHLVIEGTFIYLRDSTEFFIRVRDGWKKLQLGELIPADSPPPPAL	1195
Callithrix_jacchus	TAFNSMDDMLQTAHLVIEGTFIYLRDSTEFFIRVRDGWKKLQLGELIPADSPPPPAL	1195
Canis_lupus_familiaris	TAFSSMDMDLOKAHLVIEGTFIYLRDSTEFFIRVRDGWKKLQLGELIPADSPPPA	1284
Equus_caballus	TAFSSMDMDLQNLAHLVIEGTFIYKDSAEEFIRVRDGWKKLQLGELIPADSLPPPAL	1195
Bos_taurus	TTFNSMDDMLQKAHLVIEGTFIYKDSSTEFFIRVRDGWKKLQLGELIPDDSPPPPAL	1193
Anolis_carolinensis	MTLRNVGNMLQNVHVLVSEGTILIYLSSETSEVFIRVDGWKKMOLGELIPISADSPPPAV	1073
Chelonia_mydas	TTFERNIDSMLOKVHLVAEGTLIYLSSESSEVFIRVRGWRRLOLGELIPADSLPPPA	1203
Pavo_muticus	TTFQNIEGMLEKVHLVTEGTLIYIRETSDFVIRVRNGWRKLQLSELIPVPDES	934
Pavo_cristatus	TTFQNIEGMLEKVHLVTEGTLIYIRETSDFVIRVRNGWRKLQLSELIPVPDES	934
	.....1450.....1460.....1470.....1480.....1490.....1500	

	..* ***.*** *.*: :***:~**~*** :~*** :~*****	
Mus_musculus	SNPYQPPPLNPILSANYERPVLHLVALNTPVAGDIRADFQCFQOARAAGLLSTFRAFLS	1234
Rattus_norvegicus	SNPYQPPPLNPILSANYERPVLHLVALNTPVAGDIRADFQCFQOARAAGLLSTFRAFLS	1212
Heterocephalus_glaber	SNSYQLOPPLNPILSANYENPVHLVALNMPFSGDIRADFQCFQOARAAGLLSTFRAFLS	1242
Homo_sapiens	SNPHQLPPPNPISSANYEKPALHLAALNMPFSGDIRADFQCFQOARAAGLLSTFRAFLS	1255
Pan_troglodytes	SNPHQLPPPNPISSANYEKPALHLAALNMPFSGDVRADFQCFQOARAAGLLSTYRAFLS	1255
Macaca_mulatta	SNPHQLPPPNPISSANYEKPALHLAALNMPFSGDIRADFQCFQOARAAGLLSTYRAFLS	1255
Callithrix_jacchus	SNPHQPLPPLNPISANYERPALHLAALNMPFSGDIRADFQCFQOARAAGLLSTYRAFLS	1255
Canis_lupus_familiaris	SNPHQLPPPRMPLSSISYERPALHLVALNTPFSGDIRADFQCFQOARAAGLLSTYRAFLS	1344
Equus_caballus	SNPHQPQVPLTSVSSVTYERPALHLVALNTPFSGDIRADFQCFQOARAAGLLSTYRAFLS	1255
Bos_taurus	SNPHQPQLSLTISINVNYGRPALHLVALNTPFSGDIRADFQCFQOARAAGLLSTYRAFLS	1253
Anolis_carolinensis	SPGSLHHPASGPGP--NSGRPSLHLVALNTPFSGDMRADYQCFQOARAAGLTSTYRAFLS	1131
Chelonia_mydas	YGFGQSLPALRPVSTINHGKPTLHLVALNLPFSGAMRADYQCFQOARAAGLMSTYRAFLS	1263
Pavo_muticus	SYGFGQSLPVLNPISNTNNGKPALHLVALNLPFSGNMRADFHCFQQAQAGLMTTYRAFLS	994
Pavo_cristatus	SYGFGQSLPVLNPISNTNNGKPALHLVALNLPFSGNMRADFHCFQQAQAGLMTTYRAFLS	994
	.....1510.....1520.....1530.....1540.....1550.....1560	

	***** *:***::*: *****.: **:*.**:.* ****: ::*****::**	
Mus_musculus	SHLQDLSTVVRKAERFGLPIVNLKGOVLFNNWDSIFS GDGGQFNTHIPIYSFDGRDVMTD	1294
Rattus_norvegicus	SHLQDLSTVVRKAERFSLPIVNLKGOVLFNNWDSIFS GDGGQFNTHIPIYSFDGRDVMTD	1272
Heterocephalus_glaber	SHLQDLSTVVRKAERYSLPIVNLKGOVLFNNWDSIFS GDGGQFNTHVPIYSFDGRDVLTD	1302
Homo_sapiens	SHLQDLSTIVRKAERYSLPIVNLKGOVLFNNWDSIFS GHGGQFNMHPIPIYSFDGRDIMTD	1315
Pan_troglodytes	SHLQDLSTIVRKAERYSLPIVNLKGOVLFNNWDSIFS GHGGQFNMHPIPIYSFDGRDVMTD	1315
Macaca_mulatta	SHLQDLSTIVRKAERYSLPIVNLKGOVLFNNWDSIFS GHGGQFNMHPIPIYSFDGRDVMTD	1315
Callithrix_jacchus	SHLQDLSTIVRKAERYSLPIVNLKGOVLFNNWDSIFS GHGGQFNTHIPIPIYSFDGRDIMTD	1315
Canis_lupus_familiaris	SHLQDLSTVVRKAERYSLPIVNLKGOVLFNNWDSIFS GHGGQFNAQVPIPIYSFDGRDVMTD	1404
Equus_caballus	SHLQDLSTVVRKAERYSLPIVNLKGOVLFNNWDSVFS GHGGQFNTHVPIPIYSFDGRDVMTD	1315
Bos_taurus	SHLQDLSTVVRKAERYSLPIVNLKGOVLFNNWDSIFS GHGGQFNTHIPIPIYSFDGRDVMTD	1313
Anolis_carolinensis	SHLQDLLTVVRKTDTRYHLPIVNLKDEILFDNWEAIFS GKGGQFDLRIPPIYSFDGRNVFTD	1191
Chelonia_mydas	SHLQDLSTVVRKSDRYNLPVNLKGEILFNNWESVFTIGSGGQFNIQIPPIYSFDGRNVMTD	1323
Pavo_muticus	SHLQDLFTVVRKTDTRYNLPVNLKGETILFNNWESIFNGNGGQFNIHVPIPIYSFDGRNVMTD	1054
Pavo_cristatus	SHLQDLFTVVRKTDTRYNLPVNLKGETILFNNWESIFNGNGGQFNIHVPIPIYSFDGRNVMTD	1054
	.....1570.....1580.....1590.....1600.....1610.....1620	

	* **** :****. . *: : :*****.*. * *. * *. * ** :*:*:*. * *:***	
Mus_musculus	PSWPQKVVWHGGSNPHGVRLVDKYCEAWRTTDMAVTGFASPLSTGKILDQKAYSCANRLIV	1354
Rattus_norvegicus	PSWPQKVVWHGGSNPHGVRLVDKYCEAWRTTDMAVTGFASPLSTGKILDQKAYSCANRLIV	1332
Heterocephalus_glaber	PSWPQKVVWHGGSSTHGVRLVDKYCEAWRTADMAVTGFASPLNTGKILDQKAYNCANRLIV	1362
Homo_sapiens	PSWPQKVIWHGSSPHGVRLVDNYCEAWRTADTAVTGLASPLSTGKILDQKAYSCANRLIV	1375
Pan_troglodytes	PSWPQKVIWHGSSPHGIRLVDNYCEAWRTADTAVTGLASPLSTGKILDQKAYSCANRLIV	1375
Macaca_mulatta	PSWPQKVIWHGSSPHGVRLVDNYCEAWRTTDTAVTGLASPLSTGKILDQKAYSCANRLIV	1375
Callithrix_jacchus	PSWPQKVIWHGSSPHGVRLVDNYCEAWRTADTAVTGLASPLNTGKILDQKAYSCANRLIV	1375
Canis_lupus_familiaris	PSWPQKVVWHGGSSTHGVRLVDKYCEAWRTADMAVTGLASPLSTGKILDQKTYSCANRLIV	1464
Equus_caballus	PSWPQKAVWHGSSPRGVRLVDKYCEAWRTADTAVTGLASPLSTGKILDQKTYSCANRLIV	1375
Bos_taurus	PSWPQKVIWHGSSSTHGVRLVDQYCEAWRTADMAVMGLASPLNTGKILDQKAYSCANRLIV	1373
Anolis_carolinensis	PAWPQKIIWHGSSPNGIRQISNYCEAWRTADLAVMQQASSLQSGKLLDQKAYSCSNRFIV	1251
Chelonia_mydas	PSWPQKIIWHGSTANGIRLVRNYCEAWRTADMAVMQQASPLTS GKILLEQKPYSCSNKFIV	1383
Pavo_muticus	PFWPQKIIWHGSTTTTGIRLVSNYCEAWHTADLAAMQQASPLKMGKILLDQKAYSCNNQFIV	1114
Pavo_cristatus	PFWPQKIIWHGSTTTTGIRLVSNYCEAWHTADLAAMQQASPLKMGKILLDQKAYSCNNQFIV	1114
	.....1630.....1640.....1650.....1660.....1670.....1680	

# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/COI1601.fasta Date: Tue Feb 1 11:46:08 2022

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*****:::* :
Mus_musculus      LCIENSFMTDTRK- 1367
Rattus_norvegicus LCIENSFMTDARK- 1345
Heterocephalus_glaber LCIENSFMTDARK- 1375
Homo_sapiens      LCIENSFMTDARK- 1388
Pan_troglodytes   LCIENSFMTDARK- 1388
Macaca_mulatta    LCIENSFMTDARK- 1388
Callithrix_jacchus LCIENSFMTDARK- 1388
Canis_lupus_familiaris LCIENSFMTDARK- 1477
Equus_caballus    LCIENSFMTDARK- 1388
Bos_taurus        LCIENSFMTDARK- 1386
Anolis_carolinensis LCIENSYISDIQRK 1265
Chelonia_mydas    LCIENSFIADIRRK 1397
Pavo_muticus      LCIENSFVSDPQGK 1128
Pavo_cristatus    LCIENSFVSDPQGK 1128
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