

# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/MK167.tps Tue Feb 14:03:00 2022

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Mus_musculus	MASSAHLVTIKRSGDDGAHFPLSLSSCLFGRSIECDIRIQLPVVSKRHCKIEVKE-QEAI	59
Rattus_norvegicus	MASSARLVTIKRSGDDGAHFPLSLSSCLFGRSIECDIRIQLPVVSKKHCKIEVKE-QEAI	59
Homo_sapiens	MWPTRRRLVTIKRSGVDGPHFPLSLSTCLFGRGIECDIRIQLPVVSKQHCKIEIHE-QEAI	59
Pan_troglodytes	MWPTRRRLVTIKRSGLDGPHFPLSLSTCLFGRGIECDIRIQLPVVSKQHCKIEINE-QEAI	59
Macaca_mulatta	MGPTRRRLVTIKRSGVDGPHFPLSLSTCLFGRGIECDIRIQLPVVSKQHCKIEIIE-QEAI	59
Callithrix_jacchus	MGPTRRIVTIKRSVGDGPHFPLSLSTCLFGRGIECDIRIQLPVVSKQHCKIEINE-QEAI	59
Canis_lupus_familiaris	MGPTGRLVTIKRSGVDGPHFPLSLSTCLFGRGIECDIRIQLPVVSKQHCKIEISG-QEAV	59
Felis_catus	MGPTGRLVTIKRSGADGPHFPLSLSTCLFGRGIECDIRIQLPVVSKQHCKIEING-REAM	59
Equus_caballus	MGSTGRLVTIKRSGVDGPHFPLSLRTCLFGRGVECDIRIQLPVVSKQHCKIEINK-QEAI	59
Bos_taurus	-----	
Pavo_muticus	MPLFGKIIIIKRNKGTGDIYFPLTASSCLFGRRTECDIRIHLPQVSKEHCKIEVNENKEAI	60
Pavo_cristatus	MPLFGKIIIIKRNKGTGDIYFPLTASSCLFGRRTECDIRIHLPQVSKEHCKIEVNENKEAI	60
Gallus_gallus	MPLFGKIIIIKRNKGTGDIYFPLTASSCLFGRRTECDIRIHLPQVSKEHCKIEVNENKEAI	60
Chelonia_mydas	MPLFGKIVVIKRNKGTGDIHFPLTASSCLFGRKTECDIRIQLPQVSKEHCKIEVNENKEAI	60
Danio_rerio	MPLLKGIVVIKRNKGGDGTETPLTAS-CLFGRKMDCDIRIQLPQVSKEHCKIELNENKELI	59
Xenopus_tropicalis	MPLFGEIVVIKRNKGTGDTHTPLTATTCLFGRKSECDIRIQLPHVSKHEHCRVEVKANKEVF	60
	1.....10.....20.....30.....40.....50.....60	

Mus_musculus	LYNFSSTNPTQVNGVTIDEPVRLRHGDIIITIDRSFRYEDG--NHEDGSKPTEFFPGKSLG	117
Rattus_norvegicus	LYNFSSANPTQVNGTIINEPVQLKHGDIIITIDRSFRYEDG--SHD-GSRPTEFFPRKSLG	116
Homo_sapiens	LHNFSSTNPTQVNGSVIDEPVRLKHGDVITIDRSFRYENE--SLQNGRKSTEFFPRKIRE	117
Pan_troglodytes	LHNFSSTNPTQVNGSVIDEPVRLKHGDVITIDRSFRYENE--SLQNGRKSTEFFPRKIRE	117
Macaca_mulatta	LHNFSSTNPTQVNGSVIDEPVQLKHGDVITIDRSFRYENE--SFQNGRKSTEFFPRKIRE	117
Callithrix_jacchus	LHNFSSTNPTQVNGSVIDEPVQLKHGDVITIDRCFRYENE--SLQNRKSTEFFPRKIHG	117
Canis_lupus_familiaris	LFNFSSSNPTQVNGCAIDEPVQLKHGDVITIVDRSFRYENE--IHQNGSKSTECIGRKRK	117
Felis_catus	LFNFSSSTNPTQVNGSTIEGPVQLKHGDVITVDRSFRYENE--SHEDRRKSTEFFPGORRK	117
Equus_caballus	LFNFSTTNPTRVNGSTFDKPVQLKHGDVITIVDRSFRYENENESHQNGNESTEFFPGORRE	119
Bos_taurus	-----	
Pavo_muticus	LTNLSTVNPTQLNGGYFQQPVPLKHGDVLTIIIDRSFRFEYP-----	101
Pavo_cristatus	LTNLSTVNPTQLNGGYFQQPVPLKHGDVLTIIIDRSFRFEYP-----	101
Gallus_gallus	LTNLSTVNPTQLNGDYFQQPVPLKHGDVLTIIIDRSFRFEYP-----	101
Chelonia_mydas	LINLSTVNPTQLNGNSFQQPAHLKHGDVFTIVDRSFRFEYL-----	101
Danio_rerio	LTNLSSVNPTRINGQVFNQSERLKHGDVLTIIIDRSFRFEYP-----	100
Xenopus_tropicalis	VINLSTVNPTQLNGIAVQQPEVLKHGDVITIIIDRSFRFEQP-----	101
	.....70.....80.....90.....100.....110.....120	

Mus_musculus	KEPSRRASRDSFCADPDGEGQD----TKASKMTASRRSFVYAKGLSADSPASDGSKNVS	173
Rattus_norvegicus	KEPARRASRDTISADPDGKDQD----TKASKMTASRRSFVYAKGLSADSPASDDSKDSVT	172
Homo_sapiens	QEPARRVSRSSSFSSDPDEKAQDSKAYSKITEGKVSQNPQVHIKQVKEDSTADDS-KDSVA	176
Pan_troglodytes	QEPARRVSRSSSLSSDPDEKAQDSKAYSKITEGKVSQNPQVHIKQVKEDSTTHDS-KDSVA	176
Macaca_mulatta	QEPARRVSRSSSFSPDPDEKAQDSKAYSKITEGKASESPQVHNKQVKED-TADDS-KDSVA	175
Callithrix_jacchus	QEPTRRVSRSSSFSSNPDGKAADSKAYLKITEGKVSQNPQVHTKQVKEDSTADDS-EGSVA	176
Canis_lupus_familiaris	QESLLRVSRSSSFSSDPDGKVQDSACSKVSED-VSGSPLVHVKNKAAS TVLDGSGDHVA	176
Felis_catus	QESLHRVSRSSSLSSDPDGKQDSARSASEDSVSGRP---PKNVQAAGTVSGGCEDRVA	174
Equus_caballus	QGSLRRASRSSFSPDPDGKVQDSARSKLTEESVSARALVHVKNVEAADTVSDDSGDHVA	179
Bos_taurus	-----	
Pavo_muticus	---LQSTPKKRRSRSPKDERLQVLHVQVQVAEVELLHKQTSQSGSKSLCCSDNAECKEONTIDE	158
Pavo_cristatus	---LQSTPKKRRSRSPKDERLQVLHVQVQVAEVELLHKQTSQSGSKSLCCSDNAECKEONTIDE	158
Gallus_gallus	---LQSTPKKRRSRSPKDETQVLHVQVQVAEVELLCKQTSQSGSKSLCCSDNAECKEONTIDE	158
Chelonia_mydas	---PQSTPKRKRLSRTPKNETLQVLHVQVQVAEVDLQSPRSKSPQ--TSDKIIECEGQNFGE	156
Danio_rerio	---PPKTPKKRLSGKDKTVQALQEQQEKGTVPVVEKRKSEHSFDTCLKDGSNLP-----	151
Xenopus_tropicalis	---QTNPRSQSTGGNSLSKLVEDEQPSIKGKASKLTKRSEGNVSRTHSRLS-----	151
	.....130.....140.....150.....160.....170.....180	

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Mus_musculus      QDSSG-----HVEQHTGRNIVEPTSGDLFKKSRSTGSS-YREPKSSP-TQSLSNSNEKES 226
Rattus_norvegicus QDSSG-----HVEQHDRRNLGEPSTSGDLFKKFRATRSS-YGDLKSSP-AQSLSNSNKNES 225
Homo_sapiens      QGTTN-VHSSEHAGRNGRNAADPISGDFKEISSVKLVSRYGELKSVPTTQCLDNSSKKNES 235
Pan_troglodytes   QGTPN-VHSSEHAGRNGRNAADPISGDFKEISSVKLVSHYGELKSVPTTQCLDNSSKKNES 235
Macaca_mulatta    QGTPN-VRSSEHAGYNVRNAADPISGDFKEISRVKLVSHYGELKSVPTTQCLDNSSKKNES 234
Callithrix_jacchus QETPD-GHSSEHAGHNGRNAAHRIISGDFREISRVKLMHSHGELKSLSTTQCLDDSQKNES 235
Canis_lupus_familiaris SQTLDVVHSSSEPPGENYRNVTDPATRDYKEDSSVPLVSCNRKLKFFPSTRCLENSENHES 236
Felis_catus       SRTPNVVRPSQLAGGDSRNTTDPTRGDSKEDFSITLASRKGDLPSTRRLENGANNES 234
Equus_caballus    RKTPTVLHSSGLPGDNCRNAMDPGPGDLKEDSSVTLVSRNNGEVKSVPTQCLRKSENND 239
Bos_taurus        -----
Pavo_muticus      -----NKPNTEENLSKAMPAKLQALKSS--KIQEPAKKANEMS 194
Pavo_cristatus    -----NKPNTEENLSKAMPAKLQALKSS--KIQEPAKKENEMS 194
Gallus_gallus     -----NKQSKEENFSKAVPAKPQTLKSC--KIQEPAKKENEMS 194
Chelonia_mydas    K-----DKKSTEEDISRVVPAKHATPKTITYRTAKSNRRENEMS 195
Danio_rerio       -----PTVEQTAEAEFEDAKLKKESSMS 173
Xenopus_tropicalis -----LPISEPHRRSSREKRDLS 168
.....190.....200.....210.....220.....230.....240

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Mus_musculus      PFEKLYQSMKEELDVKSSQK-----SCRKSEPQPDRAAESRE-----TOLLVSGRARAK 275
Rattus_norvegicus PFEKLYQSMKEELDVKSEK-----SHRKSEPQPDRAAESWE-----TERLVSCARPK 274
Homo_sapiens      PFWKLYESVKKELDVKSSQKENVLQYCRKSGLOTDYATEKESADGLOGETQLLVSRKSRPK 295
Pan_troglodytes   PFRKLYESVKKELDVKSSQKENVLQYCRKSGLOTDYTTTEKESADGLOGETQLLVSRKSRPK 295
Macaca_mulatta    PFRKLYESMKKELDVKSSQKENVLQCCRKSGLOTDYTTTEKESAGGLOGETQLLVSCSRPK 294
Callithrix_jacchus PFRKLYQSMKKELGIKSQKENVLQYCRKSGLOTDYTAEKESADVLQGETQLLVSCMSRPK 295
Canis_lupus_familiaris PFRKLYVSMKEEFDVRSEKGNVLQSSKSSGSSHCALENERSGGLQDGTQVVPVSLKSRPR 296
Felis_catus       PFKKLYESMKEELDVKSEKRDVLQSGKSGTRSHHPPEKECSGDLQGGTQVPGSLKSRPR 294
Equus_caballus    PFRKLYESMKEELDVGSEKENVLWSRRKSGSSHCPTEENKSAGGLQGGTRVLVSLKSRPK 299
Bos_taurus        -----MKVELDVNPGKDNVLQNRKSGLOHHCITAGRESADGLQD--ETLVSPKSRRK 50
Pavo_muticus      PFSKLYEKLKHEVKGRRLLQEGNLLQKTGKEDGKSVLLETNAPVPSSCVHELGNNTAKGR- 253
Pavo_cristatus    PFSKLYEKLKHEVKGRRLLQEGNLLQKTGKEDGKSVLLETNAPVPSSCVHELGNNTAKGR- 253
Gallus_gallus     PFSKLYEKLKREVKGRRLLQEGNLLQKTGKEDGKSVLLETNAPVPSSCVYELGNNTTKGKG 254
Chelonia_mydas    PFSKLYELLKNEIDVKTAKD-----
Danio_rerio       PFCELYQMVKQDLVAKSPWR-----
Xenopus_tropicalis PFGELYEMLKSKELNLEHAKTPAKLNMENGDHISTPVTTRRSVGNAKET----- 217
.....250.....260.....270.....280.....290.....300

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Mus_musculus      SSGSTPVTAASS-PKVGKIWTWRWGGMVPVQTS-----TETAKMKTPVRHS--- 321
Rattus_norvegicus SSRSTPVTAATSS-PKVGKSWTWRWGGVGPVQTP-----TETAKMKTPVQKA--- 320
Homo_sapiens      SGGSGHAVAEPASPEQELDQNGKGRDVESVQTPSKAVGASFPLYEPAKMKTIPVOYS--- 352
Pan_troglodytes   SGGSGHAVAEPASPEQELDQNGKGRDVESVQTPSKAVGASFPLYEPAKMKTIPVOYS--- 352
Macaca_mulatta    SGGSDHAMAEPASPERELDQNGKGRDVESVQSPSKAAGASFPLCEPAKMKTIPVOYS--- 351
Callithrix_jacchus SGGGSHAMAEPASPERELAQAKGGRDVESVQTSKVVGASFPLYEPAQMKTPEQYP--- 352
Canis_lupus_familiaris SGRFTQIEADSALGKQGISQTEDRRNDEDAQNPKAMSPSIPPKEMTRAKTLAQR--- 352
Felis_catus       SGRSTQMKADPALGEQGISQTEDRRQGEAEVTPKETRGPIVPEETTETKTILAPR--- 350
Equus_caballus    SGGSTQIKADPVSAEQGSQTEEEKTTDEEPVQTPQETTSPPSGPHLETPTGKTTPAQF--- 355
Bos_taurus        SGRSPHMKADPGLGEQGSQTEGDGSGE-PVQMPKEPKSPGIALTETETRTIRTPVRCSQ 109
Pavo_muticus      -AINENSEECKINRGVLSS-----ELSQSSSVGSAT--- 283
Pavo_cristatus    -AINENSEECKINRGVLSS-----ELSQSSSVGSAT--- 283
Gallus_gallus     ISINENTEERKINQDVVSS-----ELSQSSSVGSAT--- 285
Chelonia_mydas    -----GNEEIPMPROAETN-----AQQISLLIFPSG--- 241
Danio_rerio       -----SEQPKTILARS--- 204
Xenopus_tropicalis -----QELSIGELQFEGQ--- 230
.....310.....320.....330.....340.....350.....360

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Mus_musculus          -----QQLKDEDSRVTGRRHSVNLDEGESEAQAVHKIVTPGKLATRNQAAVE 367
Rattus_norvegicus     -----QQLKDEDSRVPGRRNSVNLDESESEAQAVHKIVTPGKLIVTRNQAQAVK 366
Homo_sapiens          -----QQQNSPQKHKNKDLYTTGRRSVNLGKSEGFKAGDKLTTPRKLSLRNRTPAK 404
Pan_troglodytes       -----QQQNSPQKHKNKDLYTTGRRSVNLGKSEGFKAGDKLTTPRKLSLRNRTPAK 404
Macaca_mulatta        -----QQQNSPQKHKNKDLYTAGRRSVHLGKREGFKAGDKLTTPRKLSLRNRTPAK 403
Callithrix_jacchus    -----RQQNSPQKHKNKDLYTIGRRSVNLGKNKGFKAGDKLTTPRKLSARNRTPAK 404
Canis_lupus_familiaris -----SPHSSSRKRREDSITSSESMLDQREGFGTENETLTPRMFLARNRTPAK 404
Felis_catus           -----SPQTS-RKRQREDMTVAGGSASVNLDOKEGFRTDNKTFTPRKSLTRNRTPAK 401
Equus_caballus        -----SHRSSRRRPSSEDRSVSQSGESVNPQGREGFRADNKTFTPRRSLTRNRTPTN 407
Bos_taurus            QTKMPLWCSPHSPSRRRQSEDPVSGGGRVQSQSLDQSEGSRADDMFTQPKFLPGNQTVPVK 169
Pavo_muticus          -----RKSLSKTPQASVSKEMAEGSGKGGHLQDHEVLNTPGKSRAPEL 326
Pavo_cristatus        -----RKSLSKTPQASVSKEMAEGSGKGGHLQDHEVLNTPGKSRAPEL 326
Gallus_gallus         -----RKSLTKAPQTSVSKEMTEDNGKSGHLQDHKELKP----RGPEV 324
Chelonia_mydas        -----QETQTKEKEAIVGEDIEQSEVKEQEIHVELKQIS----- 276
Danio_rerio           -----QRHEESLTADAQSTPKQLTTPSTKKRRSSKSSDDATKSTTPQS 248
Xenopus_tropicalis    -----ELHVESATLSEKTASALKSPSRGRQSTLSKQEQQLSGKRVSPAK 275
.....370.....380.....390.....400.....410.....420

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Mus_musculus          AGDVASPADTPEHSSSKKR-SIPAKVEAPSAET--QKRLSLTQRLVPGEKKTPKGSFSKP 424
Rattus_norvegicus     VGHVASPANTPEHSSSKKRRIIPADMEVPCAET--QKRLSLTQCLAPGEKKSPKDSFSKP 424
Homo_sapiens          VEDAADSATKPENLSSKTRGSIPTDVEVLPTETETIHNPEFLLTLWLQVERKIQKDSLKP 464
Pan_troglodytes       VEDAADSAAKPENLSSKTRGSIPTDVEVPPPTETETIHNPEFLLTLWLQVERKIQKDSLKP 464
Macaca_mulatta        VEDTADSAAKPENLSSKTRGSIPTDVEVPPPTETETIHNPEFLLTLWLQVERKIQKDSLKP 463
Callithrix_jacchus    VEDAADSAAKPGNLSSKTRGSIPTDVEVLSTEAETIQNDPLLTLWLQVERKIQKDSLHEP 464
Canis_lupus_familiaris VENADNFEDTPEKLFSSKRRSVPPSVDILTAEETQNHITLAPLPVQVERKIQGVSVHQP 464
Felis_catus           VENADNFGDTPEKLFSSKRRSIPTSDVLTPEPETQNHAILAPLPVQVERKIPNSSVHQP 461
Equus_caballus        VENAGNFGNTPEKLFSSKRRSLPTNVDVLTETETIQNTILAPLLVQVEGKIQNDAHLKP 467
Bos_taurus            IG---SFENTPEKLFSSKRRSVPANVDRLTAETEIPPPMISAPLALQVERKIESDLLNKP 226
Pavo_muticus          TPKPHRETDGNAACSLS----YADKIDSSAGTIDKATQAANVTNVSEGDKYVLSTPRPRR 382
Pavo_cristatus        TPKPHRETDGNAACSLS----YADKIDSSAGTIDKATQAANVTNVSEGDKYVLSTPRPRR 382
Gallus_gallus         TPKAHKENDGNAACSLKPKCLIIYVDKINSSAVTVDKLTQPANVTNVSEGDKNVLSTPRPRR 384
Chelonia_mydas        -----TEGNSSKKITN-----EISSANSGEPRTGQDP---- 302
Danio_rerio           SFHTINLEDVTSAG-----VKSTSKQITPSAKKRRSSKSNFEEA 286
Xenopus_tropicalis    SELLLKDTASFQDNGQKQTNDKLTNNRRRSTSNPEAQDVQMTPGKSGGSVSPSRNMSPK 335
.....430.....440.....450.....460.....470.....480

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Mus_musculus          EKLATAAEQTCGSLPGLSSVDISNFGDSINKSEG-----MPMKRRRVSFGGHLRPELFDE 479
Rattus_norvegicus     EKLGTVAQTCGSGITGLSSIDISNCGDSINKSEG-----VPLKRRRVSFGGHLRPELFDE 479
Homo_sapiens          EKLGTTAGQMCSGLPGLSSVDINNFGDSINSEGE-----IPLKRRRVSFGGHLRPELFDE 519
Pan_troglodytes       EKLGTTAGQMCSGLPGLSSVDINNFGDSINSEGE-----IPLKRRCVSFGGHLRPELFDE 519
Macaca_mulatta        EKLDITTAGKMCSGLPGLSSVDISNFGDAINESEGE-----IPLKRRRVSFGGHLRPELFDE 518
Callithrix_jacchus    EKVGVTITGQMCPELPGLSAVDISNFGDSLKNKSEG-----IPLKRRRVSFGGHLRPELFDE 519
Canis_lupus_familiaris EKVGATAGHTCSGLPGHSSVDTSNFGDSNNKIEG-----TPLKRRRVSFGGRLKPELFDE 519
Felis_catus           EKVGAAVGHMHSGLPGRSSVDTSNFGDSINKTEG-----TPLKRRRVSFGGRLKPELFDE 516
Equus_caballus        EKLDTAAGQTRSGSPDLSSVDVGKFGDSINKVEG-----MSLKRRRVSFGGHLRPELFDE 522
Bos_taurus            EKLGPATGQVGPGLSGLDADVSSFGDSINKMEG-----MAAKRRRVSFGGCLRPELFDE 281
Pavo_muticus          RSLRSGFTSPAREARGTDSVSMGTTPAARGDVLEH-----VISADTQGEDAVC-NDSLQQL 436
Pavo_cristatus        RSLRSGFTSPAREARGTDSVSMGTTPAARGDVLEH-----VISADTQGEDAAC-NDSLQQL 436
Gallus_gallus         KSLRSGFMSPAKEVRGTDVSTGTTPATRGDVLLEHESLSAISADNQGEGACRNGSFQQL 444
Chelonia_mydas        -SLGVKATEISNEIQKDVCSRVGDNESCILGK----- 335
Danio_rerio           TVLATPQSSANANLEEKSSDDVQSVGCNTPSMTEK----- 321
Xenopus_tropicalis    SASPKGLHKNVKGSAKVSNNPRQKRSSSELDLPEP-----TPKRRRVSFGGHLSPPELFDK 389
.....490.....500.....510.....520.....530.....540

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      ..  .:  .
Mus_musculus      NLPPNTPLKRGETPTK-----RKS LGTHSPAVLKTIIKERPPSPGKQES---- 523
Rattus_norvegicus NLPPNTPLKRGETPTK-----RKS LGTHSPAGLKKIIKERPPSPGKQES---- 523
Homo_sapiens      NLPPNTPLKRGEAPTK-----RKS LVMHTPPVLKKIIKEQPQPSGKQESGSEI 567
Pan_troglodytes   NLPPNTPLKRGEAPTK-----RKS LVMHTPPVLKKIIKEQPQPSGKQESASEI 567
Macaca_mulatta    NLPPNTPLKRGETPTK-----RKS LVHTHTPPVLKKIIKEQPQPSGKQESTSEI 566
Callithrix_jacchus NLPPNTPLKRGETPIK-----RKS LVVHTPPVLKKIIKGQPRPSGEQQSASEM 567
Canis_lupus_familiaris NLPPNTPLKRGETP-----RRSLVSHTPPVLKKIIKEYPPPSGKEDS-SEN 564
Felis_catus       NLPPNTPLKRGETP-----RRSLVSHTPPVLKKIIKDRPQPSGKEDS-SGL 561
Equus_caballus    NLPPNTPLKRGETPMK-----RRSLATHPTPTVLKKIIKEQSQPSRKEDSPSKI 570
Bos_taurus        NLPPNTPLKRGETPKQ-----RRSLAAHTPTPTVLKKIIKEQPQPSGKEDS-SEV 328
Pavo_muticus      PLEESKGLKQRRNSKQ-----QTPGKSVK--EVLTEICDQTN-VNLKK-RDSG 480
Pavo_cristatus    PLEESKGLKQRRNSKQ-----QTPGKSVK--EVLTEICDQTN-VNLKK-RDSG 480
Gallus_gallus     PLAENKCLKQRRNSKQ-----LTPGKSEKE-EALTEICNQTN-INLKK-RDSG 489
Chelonia_mydas    ---SNKYSKQKRRNSKQ-----LTPRKSLNAEEVLKEIHDITYSVSITKERDSE 380
Danio_rerio       ---STTPVSQKRTPTST-----TPHKFSAGEVVKQILLEPQAEINPKSP----- 361
Xenopus_tropicalis RLPPNSPLKRGATPARRSLSLVTPALMRKSFGGFRQTAIKETFEPTDLALFKGSPAKK 449
      .....550.....560.....570.....580.....590.....600

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Mus_musculus      -----PGITPPRTNDQRRRSGR-----SSGSKFLCETDIPKKAGRKSGN 563
Rattus_norvegicus -----PGVTPPRTNDERRRSGRSLASSGSKFLYETDIPKKAGRKSGN 566
Homo_sapiens      HVEVKAQSLVISPPAPSPRKT-PVASDQRRRSCKTAPASS---SKSQTEVPKRGGGRKSGN 623
Pan_troglodytes   HVEVKAQSLVISPPAPSPRKT-PVASDQRRRSCKTAPASS---SKSQTEVPKRGGGRKSGN 623
Macaca_mulatta    SVEVKAQSLVRSPPAPSPRKT-PVANDQRRRSCKAAPASS---SRSQTEVPKRGGGRKSGN 622
Callithrix_jacchus HLEVMAQSLVTSPAPSPRKT-PVAND---RRSCQAPASS---SKSQTEVSKRGGGRKSGN 621
Canis_lupus_familiaris QLEVTTQPPQRKQSPARDPMQTS PVATDTRRRRSCKAASVPGGSKSPHHTDIPKRGGGRKSGN 624
Felis_catus       HLEVTAQPPQFAGSPARDPRTSPGARDPRRRSPKASSVSGGSKS-HHTDVPKRGGGRKSGG 620
Equus_caballus    HLEVTTQNVVKSPPAQNPRTKSPVANDQRRTSKASSVSSGSKSPCQTDTPKRGGRRSSS 630
Bos_taurus        RLKVTSPDAFMSPLAANAVHASAATPDRCRRLSKVSCVSGVSRSPHQTDVPRKGGRRS GS 388
Pavo_muticus      ----SP--AASKSPRRKSRQSNELTDKSVHSETSTSEEFTELASPASQKSGSGRKRGR 534
Pavo_cristatus    ----SP--AASKSPRRKSRQSNELTDKSVHSETSTSEEFTELASPASQKSGSGRKRGR 534
Gallus_gallus     ----SP--AASKSPRRKSRQSKELTSKSIHSETSTAEEFTELASPASQKSGSGRKRGR 543
Chelonia_mydas    TVEFSPGYNSKSPKGSVRQKKISNKSPPSELLTPERLTISKDASSAGKYHSGAQRGR 440
Danio_rerio       -----KGRSSGGS 369
Xenopus_tropicalis SP SKRS PAKGAS PAKRS PAKGAS PAKRS PAKGAS PAKRS PAKGAS PAKRS PAKGAS PAKR 509
      .....610.....620.....630.....640.....650.....660

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Mus_musculus      LPAKRASISRSQHGILOMICKRRSGASEANLIVAKSWADVVKLGAKQTQTKVAKHVPOK 623
Rattus_norvegicus LPAKRASISRSQHGILOMICKRRSGASEANLIVAKSWADVVKLGAKQTQMKVVKHVPOK 626
Homo_sapiens      LPSKRVSISRSQHDILOMICKRRSGASEANLIVAKSWADVVKLGAKQTQTKVIKHGPOR 683
Pan_troglodytes   LPSKRVSISRSQHDILOMICKRRSGASEANLIVAKSWADVVKLGAKQTQTKVIKHGPOR 683
Macaca_mulatta    LPSKRASISRSQHDILOMICKRRSGASEANLIVAKSWADVVKLGAKQTQTKLIKHGPOR 682
Callithrix_jacchus LPSKRVSILRRSQHGILOMICKRRSGASEANLIVAKSWADVVKLGAKQTQTKVVKHGPOR 681
Canis_lupus_familiaris LPSKRTSIDRSQHEILOMIYSRRRS GASEANLIVAKSWADIVKLGAKQTQAKVVKHGPOR 684
Felis_catus       LLSKRTSIDRSQHDILQRIYSKRRSGASEANLVVAKSWADVVKLGAKQTQAKAVKHGPOR 680
Equus_caballus    LPSKRMSTDRSQHEILOMIYSKRRSGASEANLIVAKSWADVVKLGAKQTQTKVVKRGPR 690
Bos_taurus        LPPQRASLERNQHGILOMICKRRSGASEANLIVARSWADVVKLGAKQAQNKAVKRGPLK 448
Pavo_muticus      RTSGQLTEKALETNAVQEHQDETAGRKDSEAKQELATEGCQKKLDLEDARILR----PHR 590
Pavo_cristatus    RTSGQLTEKALETNAVQEHQDETAGRKDSEAKQELATEGCQKKLDLEDARILR----PHR 590
Gallus_gallus     RTSGQLTEKALETNAVQEHQDETTDRKDSEKQELATEGCQKKLDLEDARILR----PHR 599
Chelonia_mydas    MSSGKMAEETLEGDSSQEP-DKNVDIKGSDVKETLTENYQKKLEVEDANIVLG---PHR 496
Danio_rerio       QDQNPQTPGTNGKTS EVKLSPTS-----PR 397
Xenopus_tropicalis SP AKGAS PAKRS PAKGAS PAKRS PAKGAS PAKRS PAKVATPAKRS PAKVATPAKRS PAKA 569
      .....670.....680.....690.....700.....710.....720

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/MK167.tps Tue Feb 14:03:00 2022

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Mus_musculus      QTSKRQRRPSTPKKPTSNLHNOFTTGHANSPTIVVGRAQIEKVSVPARPYKMLNNMLN 683
Rattus_norvegicus QTRKRQRRPSTPKKPTSSLHDQFTTGHANSPTIVIGRAQTEKASMPARPYKMLNNMLN 686
Homo_sapiens      SMNKRQRRPATPKKPVGEVHSQFSTGHANSPTIIIGKAHTEKVHVPARPYRVLNNFISN 743
Pan_troglodytes   SMNKRQRRPATPKKPVGEVHSQFSTGHANSPTIIIGKAHTEKVHVPARPYRVLNNFISN 743
Macaca_mulatta    SMNKRQRRPATPKKPVGEVHSQFSTGHANSPTIIIGKAHTEKVHVPARPYRMLNNFVSN 742
Callithrix_jacchus PVIKRQRRPATPKKPADAHSQFSTGHANSPTIIIGKAYTEKVHGPAQPYRMLNNFISN 741
Canis_lupus_familiaris QLNKRQRRMNTPKKPVSNVHNQFSTGHANSPTIIIGKAHIEKVNVPTRPYRMLNNFVFS 744
Felis_catus       QLSKRPRKANTPKKPVSGVHSEFSTGHANSPTIIIGKAHLEKVNVPARPYRMLNNFVFN 740
Equus_caballus    QLNKRQKRINTPKKPTGSVHNQFSTGHANSPTIVIGKAHIEKVNVPARPYRMLNNFVFN 750
Bos_taurus        QPGRRQRRANTLKKPPGPFVHSQFSTGHANSPTIVIGKAQLEKVTAAPARPYRVINNFLVS 508
Pavo_muticus      LSSQR-SSGSATVLKDS ETPSEMNTSGLSTEEQ-PGRTKRISQKRISG--DLLPQPLGKR 646
Pavo_cristatus    LSSQR-SSGSATVLKDS ETPSEMNTSGLSTEEQ-PGRTKRISQKRISG--DLLPQPLGKR 646
Gallus_gallus     LSSKR-SSGSATVLKDNESPEINTSGLSTEEQ-PDKTKRISQKRISG--DLLPQPLGKR 655
Chelonia_mydas    LSSKRRCSESVALLRDEVASKINISLPTEDKKSGETKRIPQKRKSGELELLHPFGKR 556
Danio_rerio       NAGKRFQADVPQENKAATSASKNKADTSINGQLHGKISHT-----KVVVPQPKR 447
Xenopus_tropicalis ASPAKRSPAKAATPAKRSPAKGASPARRSPAKAATPARRSPAKAATPARRSPAKAATPAK 629
.....730.....740.....750.....760.....770.....780

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Mus_musculus      RKVDFSEDLSGLTEMFKTP-VKEKQQQMSDITGSVLSNSANLSEROLVNINSGDIPPIIT 742
Rattus_norvegicus WKMDFSEDLSGLTEMFKTP-VKEKQQQMSDVGSLSDSENLSEROLQGTINSEDTPPPTAS 745
Homo_sapiens      QKMDFKEDLSGIAEMFKTP-VKEQPOLTSTCHIAISNSENLLGKQFQGTDSGEEPLPPTS 802
Pan_troglodytes   QKMDFKEDLSGIAEMFKTP-VKEQPOLTSTCHIAISNSENLLGKQFQGTDSGEEPLPPTS 802
Macaca_mulatta    QKMDFKEDLSGIAEMFKTP-VKEQPOLTSTCHVAISNSENLLGKQVQATNSGEEPLPPTS 801
Callithrix_jacchus QKRDFKEDLSGIAEMFKTP-VKEQPOLTSTCHITISNSENLLGKKVQVTSGEEPLPPTS 800
Canis_lupus_familiaris KKMDFNEDLSGLTEMFKTP-AKVKLQTMISLCPKTFNSNEDLLGKEFQVPSNGEKLPLCTS 803
Felis_catus       KKMDFNEDLSGLTEMFQTPAAKGKQPOTMSLRPSAFSDSEDVVRKEFQVPSNGEKLPLCTS 800
Equus_caballus    KKMDFNEDLSGLTEMFKTP-AKERPQRRSVCPITFSNEDLLGKKFQVPSNEENPLLCAS 809
Bos_taurus        KPRDFSEDLSGLPEMFKTP-VKEKLQRMSCPPTFPNSEDLFGLKELPGPHSGEKLPLCTL 567
Pavo_muticus      KRVSFGGHLS--PELFDKSLPPNSPIKRGAIARLSLP-----FGNSPRAVLK 692
Pavo_cristatus    KRVSFGGHLS--PELFDKSLPPNSPIKRGAIARLSLP-----FGNSPRAVLK 692
Gallus_gallus     KRVSFGGHLS--PELFDKSLPPNSPLKRGAIARLSLP-----FGNSPRAVLK 701
Chelonia_mydas    KRVSFGGHLS--PELFDKSLPPNSPLRRGAIARLSLP-----FGNSPRAVLK 602
Danio_rerio       KRVSFGGQLS--PELFDKRLPPDSPLRGATPRLSLGP-----SQKSQSLLR 492
Xenopus_tropicalis RSPAKGASPAKRSPAKAASPARRSPAKAATPARRSPAKAATPARRSPAKAATPARRSPAK 689
.....790.....800.....810.....820.....830.....840

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Mus_musculus      EILGEKVLSSSTRNAAKQOSDRYSASPTLRRR--SIKHENTVQTPKNVHNITDLEKKTPVS 800
Rattus_norvegicus EILGEKVLLSTQNAAKQOSNKYSASSTLRRR--SIKHENTVQTPKNVHNITQIEKKTPAS 803
Homo_sapiens      ESFGGNVFFSAQNAAKQPSDKCSASPLRRQ-CIRENGNVAKTPRNTYKMTSLETKTSDT 861
Pan_troglodytes   ESFGGNAFFSAQNAAKQPSDKCSASPLRRQ-CIRENGNVAKTPRNTYKMTSVETKTSDT 861
Macaca_mulatta    ESFGGNAFFSAQNSAKQPSDKCSASPLRRQ-SIRENGNIAKTPRNTYKITSVETKTSDT 860
Callithrix_jacchus ESFGGNAFFSAQNAAKELPDRCSVSPTLTRP-SIRENGNTATTPRNTYKMTSVEMKTSDT 859
Canis_lupus_familiaris EDLGENVFSMSQNALQEPSNQSPASPALRRQ-AIGVNTNIEKTPG-----S 848
Felis_catus       ETFGENVFPVTQNGPQEPSDKSLASPLVLRQ-SVRNVNIEKTPG-----S 845
Equus_caballus    ENFGESMFPTQNAPELSDKISASPASSKQNMKNVEDMEKTPRNMHKMTGAEMKTPVS 869
Bos_taurus        ENFGEDVFPRTHTVKGPSDQSSASPALRRP-SIKMSEDPVKTPRSTNKTIAAEIKTPVS 626
Pavo_muticus      KGQGLKHFAIQELSVHLQKEKIMSPKSVSAQKSPASSPPASSPASG----- 739
Pavo_cristatus    KGQGLKHFAIQELSVHLQKEKIMSPKSVSAQKSPASSPPASSPASG----- 739
Gallus_gallus     KGQGLKHFAIQELSVHLQKEK-MSPKSVLAQKSP-----PSSSLASG----- 742
Chelonia_mydas    KGQGFKRLVIKDLSEHLQROK-SSQRNLPARRSPAPSPAKRSPAASE-----PALK 653
Danio_rerio       RASTIGLLALRLDEITTGAQKASPKRSVKTSPAKKTPITKAKTPSP-----K 540
Xenopus_tropicalis AATPARRSPAKAATPAKRSPAKAATPAKRSPAKAATPAKRSPAKAATPAKRSPAK 749
.....850.....860.....870.....880.....890.....900

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/MK107.tps Tue Feb 1 14:03:00 2022

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Mus_musculus      ETEPLKTASSVSKLRRSRELRLHLVE---TMNEKTEAVLAENTTARHLRGT-FREQKVDQ  856
Rattus_norvegicus ETEPLKTASSMSKLRRSRELRLHLVK---SKNEKTEAVLAKSITGRHLRKT-FOGQEVNQ  859
Homo_sapiens      ETEPSKTVSTANRSRGRSTEFNRNIQKLPVESKSEETNTETIVECILKRQKATLLQQR-EG  920
Pan_troglodytes   ETEPSKTVSTANRSRRSTEFNRNIQKLPVESKSEETNTDIVECILKRQKATLLQQR-EG  920
Macaca_mulatta    ETEPSKTVSIVNKLRRSMEFRSIQKLPVIESKSEETNTDIVERILKRQKATLLQQR-EG  919
Callithrix_jacchus QAEPSKTVSSANKSRRSTELRNVQKLPAESKSEETNTGIVNCVIGRCQKTIPLQRKR-GG  918
Canis_lupus_familiaris GAEPKRSASNENRLRRSEELRNTRMPGVGPKDGEATDIAESTSGRHLTKIPQRGRNLEG  908
Felis_catus       GAP--KATSSANRLRRSMGPRSIQMPGVGRKDEEAKMDTVENVPGRLLRKTPQREQKLEG  903
Equus_caballus    EAEPMAQAVASANTSRRSVGLRNRLTPGTGKNQEMETGTTGNILGRRLRKTPLQEQKLEG  929
Bos_taurus        TTATPKATSSANRSRRSAELSGVQTPGTGPENQDAKPDTVEDILGRRLRKTQPPELKPER  686
Pavo_muticus      KATPTFALSSPP--SYTKGRFSVSQITTPSPIAEEQNAGVKDMNPKEKNAGQVQTPKSAR  797
Pavo_cristatus    KATPTFALSSPP--SYTKGRFSVSQITTPSPIAEEQNAGVKDMNPKEKNAGQVQTPKSAR  797
Gallus_gallus     KTTPTFTLSSPP--PYTKGRFSVSQVTTTPSPIVEEQNAGMKDMNMEKNADQVRTPKSAH  800
Chelonia_mydas    KASPKLTANSPTSNTPYTKGRFSVSHISTPSPTSKEQGTAAFEVKESERDFTGVETPESFH  713
Danio_rerio       OKSPSTVAKVSTPTPATPKTPASARRASTAVEAAGDISLTGTPRVQGRFSISRISTPSP  600
Xenopus_tropicalis AATPAKRSAPAKAATPAKRSAPAKAATPAKRSAPVKAATPAKRSAPASATPAKRSAPASTYTKGR  809
.....910.....920.....930.....940.....950.....960

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Mus_musculus      QVQDNENAPQRCCKESGELSEGSEKTSARRSSARKQKPTKDLLGSQMVQTADYAEELLNQ  916
Rattus_norvegicus QVQGSSENSQRCCEENSKLSEDEKTSARRSSARKQKLTKDLVGSQMVQTQADCAEDLLNQ  919
Homo_sapiens      EMKEIERPFETYKENIELKENDEKMKAMKRSR-----  952
Pan_troglodytes   EMKEIERPFETYKENIELKENDEKMKAMKRSR-----  952
Macaca_mulatta    EMKEIERPFETYKENIELKENDEKTKAVKRSRR-----  952
Callithrix_jacchus EMKEIERPFETYKENIELKENVEKMKAVKRSRR-----  951
Canis_lupus_familiaris ATEEWESYSEACTKAVQSEENSAMKMAVRRSRR-----  941
Felis_catus       AAKEQESYFEASENDTEPKENSEEVVTVRRSRR-----  936
Equus_caballus    EMQESERSFEMCKKIIIESKENSEKMAVRRSRR-----  962
Bos_taurus        DTKESEKSFQCKQNIKSKENSEKTIIVRRSRR-----  719
Pavo_muticus      VNEDEKTFMLSTPNKLTRRSQ-HALKKTPMKRR-----  829
Pavo_cristatus    VNEDEKTFMLSTPNKLTRRSQ-HALKKTPMKRR-----  829
Gallus_gallus     VNGDEKTFVTTTPNKLTRRSQ-HALKKTPMKRR-----  832
Chelonia_mydas    INQEHQMSVPTTPKQLIRRSIRFSAKRTPMKRR-----  746
Danio_rerio       VQEEKAEAFLDVPQKYATPEIPLKRQSMKSSGRK-----  634
Xenopus_tropicalis FSISRIDTPPQIDVHAPNTEKNELSAQTPRKSRR-----  843
.....970.....980.....990.....1000.....1010.....1020

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Mus_musculus      GQGTIONLEESMHMONTSSISEDQGITKVNIIIVYATKEKHSFKTPGKKAQPLEGPAGLK  976
Rattus_norvegicus EQGTIONLEESMYTQNTSKS-DQGVAKQKVNTVVDATRVKRWSKTPVKMTHPLEGAADFT  978
Homo_sapiens      -----TWGQKCAPMSDLTDLKSLPDT-----ELMKDITARGQ  983
Pan_troglodytes   -----TWGQKCEPMSDLTDLKSLPDT-----ELMKDITARGQ  983
Macaca_mulatta    -----TWGPKCEPTSDLTDLKSLPDT-----EHTKDIACGQ  983
Callithrix_jacchus -----TWGPKGEPVSDLTDLKSLPDT-----ERMKDLAHGQ  982
Canis_lupus_familiaris -----HSEQKWEPVADLTTLTGWEDP-----EPKKDLRGIH  972
Felis_catus       -----YSEQNQEPAADLTPLKTWQDT-----EPKEDLGGIQ  967
Equus_caballus    -----SSELKWEPTADLAALKKLHER-----EPKDDLLDIH  993
Bos_taurus        -----ASELKCEPAADLTTLQRSQDT-----EPPEKQVDIL  750
Pavo_muticus      -----SGAVAVLSAKRRSGAS-----N  846
Pavo_cristatus    -----SGAVAVLSAKRRSGAS-----S  846
Gallus_gallus     -----SGAVAVLDAKRRSGAS-----S  849
Chelonia_mydas    -----SDAVETIHSKRRSGAS-----K  763
Danio_rerio       -----TPKSALKSALNVMSRRSGAS-----R  656
Xenopus_tropicalis -----SISLKKTPGRRSRKLESFEILRSRRSGAT-----E  874
.....1030.....1040.....1050.....1060.....1070.....1080

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/MK107.tps Tue Feb 14:03:00 2022

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      .
Mus_musculus      EHFETPNPKDKPITEDR--TRVLCKSPQVTTEN--ITTNTKPQTSISGKKVDMKEESAL 1032
Rattus_norvegicus EHFETPDLKDEPIGDDE--TKVLCKSPQPKTEN--LKASAKPRSTISRRKVDKKEELSAV 1034
Homo_sapiens      NLLQIQDHAKAPKSEKGKITKMPQCQLQPEPIN--TPTHTKQQLKASLGKVGKVEELLAV 1041
Pan_troglodytes   NLLQIQDHAKAPKSEKGKITKMPQCQLQPEPIN--TPTHTKQQLKASLGKVGKVEELLAV 1041
Macaca_mulatta    DLLQIQDHAKAPKSEKGKITKMPQCQLQPERIN--TPTHIKQQLKASLGKVGKVEELLAV 1041
Callithrix_jacchus ELLQIQDHTKVPSEKDKITKMPCRSLQREPTD--TPTCMNQPKTSLGKVGKVEELLAA 1040
Canis_lupus_familiaris G-LQTPHTQEPMDVGNKTAECQKSSKPEVAG--MPTRMNIQLKTSQORVEQEEPSAL 1029
Felis_catus       GLLRTPIRVQEPKEAENKTAEKROKSSKLELAG--TPAAMSVOLETTPPQKVDLEEEPLAL 1025
Equus_caballus    SVLQTPDQAVKPVDEHVHTKMRKSPKPEPAN--TPTRTNIRLQTPPHKVD--GEGLSAL 1050
Bos_taurus        SLLQTPVHAKEVMDAKNKATRMSCSKSPKPGAVS--IHTRMSTQLKTPSQKVDVGSFS--DL 807
Pavo_muticus      ANLLVAKTWAEEVVKLGVARPQAKAVKKCVQKGR--PARKMARSPKTPEGKIKGPCSTGHA 904
Pavo_cristatus    ANLLVAKTWAEEVVKLGVARPQAKAVKKCVQKGR--PARKMARSPKTPEGKIKGPCSTGHA 904
Gallus_gallus     ANLLVAKTWAEEVVKLGVARPQAKAVKKCVQKGR--PARKIARTPKTPERKIKGHFSTGHA 907
Chelonia_mydas    ANLLVAKSWAEEVVKLGVARPQVAVKKCVLKGK--SAKKLTKSPKTPARKVKGHFSTGHA 821
Danio_rerio       ANLKVLTSWADIVKFGQTKPQIEVATNKKPTKNVVRRTVAPKPKTPLRLRLKNDVSTGHA 716
Xenopus_tropicalis ANLLVAKSWADVVRSGVPKNQKKSEKHARKAVP----TKRKPCKPTPARRIDRIGTGHA 930
.....1090.....1100.....1110.....1120.....1130.....1140

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      .
Mus_musculus      TKRIHMPGESRHNPKILKLECEDIKALKQSE--NEMLT--STVNGSKRTLEKSSKKAQPLE 1089
Rattus_norvegicus TKLIHMSGESRHTPKVLKLEHGDIKALROSE--NEMLA--ATVTGSKRPLEKAKEKAQVPE 1091
Homo_sapiens      GKFTRTSGETTHTHREPAAGDGKSIRTFKESP-KQILDPAARVTGMKKWPRTPKKEAQSLE 1100
Pan_troglodytes   GKLTRTSGETTHTHREPAAGDGKSIRTFKESP-KQILDPAAHVTGMKKWPRTPKKEAQSLE 1100
Macaca_mulatta    GKLTRTSEETTHTHREPAEDGKNMRMFKESP-KQILDPAACVTGMKKWPRTPKKEARSLE 1100
Callithrix_jacchus GKLTRTPAETTHTHTEPAAGDGKSIRAFKESP-KQILNPVAVVTGKRWPRTPKKEAQSLE 1099
Canis_lupus_familiaris RKPTRTPRESTHTHRESGGGDEDIKLFKETP-KRKLDSAEDVTRSKRRSRTPPKKTAQSLE 1088
Felis_catus       GKPIQMPGGSTQSHGEPAGGDRNSGLFNRTPEQKLSPAEKLPGSKRRRPTPKKKNHSLE 1084
Equus_caballus    SKATQTPGEIITHTHREPVDDEKSIKLFKETA-KQEVDPANVTGSKRRRPTPKGKTPPLE 1109
Bos_taurus        RKLSETLGKATPTQRES-RDAKSIQLFKETS-KQKLDPAENSAGSKRRRPTPKGKAPPLE 865
Pavo_muticus      ESPATIVVGRAYSTTVQTAGMVPKVVINPIL-KONMSMDENFTGLTEMFQTPDNKGGKTL 963
Pavo_cristatus    ESPATIVVGRAYSTTVQTAGMVPKVVINPIL-KONMSMDENFTGLTEMFQTPDNKGGKTL 963
Gallus_gallus     ESPATIVVGRAYSTTVQTAGKVPKVVKNPIL-KONMRMEDFTGLTEMFQTPDNKGGKTL 966
Chelonia_mydas    DSPATIVIGKAHTTTVKLVGQAPRVVKNAL-KONMDINESFTGMTEMFRTPVNENQKSP 880
Danio_rerio       ASPATIVVGKAHMRNTQFVGAAPKIVPNVALSKDKMDDEFTGVADIFKTPANSKSKKL 776
Xenopus_tropicalis DSPATILVGRAHTRTVDLTGYPKIVQNCAT-KITNDQNESFTGLSELFNTPAHVKPRRS 989
.....1150.....1160.....1170.....1180.....1190.....1200

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      .
Mus_musculus      DLTCFQELFISP-----VPTNIIKKIPSKSPHTQPVRTPA-----STKRLSKTGLSKVD 1138
Rattus_norvegicus DLTGFEELFLSP-----VPGDKITKMPSPKSPHTSVRTPA-----STKRLSTTGLSKVD 1140
Homo_sapiens      DLAGFKELFQTPGPGSEESMTDEKTTKIACKSPPPESVDTP-----STKQWPKRSLRKAD 1155
Pan_troglodytes   DLAGFKELFQTPGPGSEESMTDEKTTKIACKSPPPESVDTP-----STKQWPKRSLRKAD 1155
Macaca_mulatta    DLAGFKELFQTPGPGTEESMTKEKTTKIACKSPPPESVDTP-----STORPKRGLRKAD 1155
Callithrix_jacchus DLAGFRELFTQPGHTEESMTNEKTTNIPSKTLPPEVDTP-----STQRPKRSLRKAD 1154
Canis_lupus_familiaris DLADLRELFTQPNHKDKSMADGKATKVP CRPPLAEPVNTPT-----SRRRQLETPLQKVD 1143
Felis_catus       DLAGLRELFTQPSHTDKPMTGHQTTKAPCKSPLPGPGNTPA-----SQKRRLETTPQKVG 1139
Equus_caballus    DLAGFRELFTQPVHIKEPMTDDKTTKILYQSPQPEPVIYST-----RMSRRLKTPLRKVD 1164
Bos_taurus        DLAGFKELFQTPHQAKEPMTDDKTTKTPCTSPQSESVNTPS-----RRGR-LRTPSQKVN 919
Pavo_muticus      ALITAHN--MTPTFTAMEISDLHTPEESGEMMVSPLNASDV-----SEQKQDFQDIS-YF 1015
Pavo_cristatus    ALITAHN--MTPTFTAMEISDLHTPEESGEMMVSPLNASDV-----SEQKQDFQDIS-YF 1015
Gallus_gallus     AVTIAHN--FTPTFTAMEISDLHTPEESGEMMVSPLNASDA-----SEQKQDFQDIS-YF 1018
Chelonia_mydas    SLSAAHKIDLTPLSCAKAEGSEVHTPEESGEMVISPLSTSGM-----SQQRKDSQDVVSRF 935
Danio_rerio       LVQNNDCEPEVLPDESSVMKTPPEELGEMIVSPLSVSTAKCGRYNSEAVTRLLLDNQDSS 836
Xenopus_tropicalis GRSGGLP-METPQSIIVDMSLMKTPEELGEMVSPINGSPAT-----TQKKQYSRDAVSRL 1044
.....1210.....1220.....1230.....1240.....1250.....1260

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/MK107.tps Tue Feb 14:03:00 2022

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:                                     *:
Mus_musculus      VRQEPSTLGKRTKSPGRAPGTP-APVQEEENSTAFME--TPKQKLDFAGNSSGSKRRSRT 1195
Rattus_norvegicus VREEPATLGKRTKSSGRVTGTP-APAQEDNDTTTFME--TPKQKLDFTGNSTGHKRRSQA 1197
Homo_sapiens      VEEEFALALRKLTTPSAGKAMLTTPKPAGGDEKDIKAFMG--TPVQKLDLAGTLPGSKRQLOT 1213
Pan_troglodytes   VEEEFALALRKLTTPSAGKAMLTTPKPAGGDEKDIKAFMG--TPVQKLDLAGTLPGSKRQLOT 1213
Macaca_mulatta    VEEEFALALRKLTTPSAGKTMHTPKPTGGDEKDIKAFMG--TPVQKLDLPGLTLPGSKRQLOT 1213
Callithrix_jacchus IEEEFALALRKLTTPSAGKATRTPKLTASDEKDMKALMG--TPVQKLDLVGNLPGSKRQPQT 1212
Canis_lupus_familiaris LEEEPSALRKPTQTTPRKIMLSHREPGNGDEGIKLFKE--TPKQKLDIAEYVTGSKKRSRT 1201
Felis_catus       LEEEPSALRKPTQMPGESTDSHRETGGDDDEDINLFNK--TPGQKPN--PAVTRNKRPRPT 1195
Equus_caballus    VEEELSALRKPTQTTPGESSLSHKPEVG-----AVSEE--APEQKLDPAENVVTGSKRRTGT 1217
Bos_taurus        VQEDLSALRKPPQTPGKATRSPPREPEGGDKGIAVSQE--APEEMLDLAEKVPSAKRRPRPT 977
Pavo_muticus      LRER-ESLKSVFDAIS-TKTPEKRKSVLKEGTGMDSV--SVNPEKQVSRVRSNPNKR--KT 1069
Pavo_cristatus    LRER-ESLKSVFDAIS-TKTPEKRKSVLKEDTGMDSV--SVNPEKQVSRVRSNPNKR--KT 1069
Gallus_gallus     LRER-EPLKSVFDAIS-TETPDKRKSVLKEDTMDSV--SVNPEKQVSRVRSNPNKR--KT 1072
Chelonia_mydas    LRLE-KSPNSAFVAAKLKQTPKKERTVLEEKVEMSNP--LVMPEKHITETVTRAKRLVKT 992
Danio_rerio       LMEDESQTSNKDNISDLKIPSLDQTEKEQATCEMVVE--TPKQKAAQSLCLTGVKRLMKT 894
Xenopus_tropicalis LSPVTPASEEQISEASKDTQLVVKETATLNETRFIKKGAKAQMKKRGTMTGLTGVKRIMRT 1104
.....1270.....1280.....1290.....1300.....1310.....1320

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..      . : **
Mus_musculus      SKNRSQPLEDLDFGQELFQTPAGASDSVTVEESAKISLESSQAEPVKTPASTKRRRSKMSL 1255
Rattus_norvegicus SKNRAQPLEDLDFGQELFQTPAAARTPVTVDESAKVSLESVQPOLVITASTKRLSKTGL 1257
Homo_sapiens      PKEKAQALEDLAGFKELFQTPGHTEELVAAGKTTKIPCDSPQSDPVDTPSTKQRPKRSI 1273
Pan_troglodytes   PKEKAQALEDLAGFKELFQTPGHTEELVAAGKTTKIPCESPQSDPVDTPSTKQRPKRSI 1273
Macaca_mulatta    PKGKAQALEDLAGFKELFQTPVLTEELVAAGKTTKISCKSPQSDPVDTPSTKQRPKRSI 1273
Callithrix_jacchus PKEKAQALEDLDFGQELFRTTPGHTEESVAAGKTTKIRCKSPQSDPVDTPSTKQRPKRSI 1272
Canis_lupus_familiaris PKKMVHSPEDLVGLKELFQTPHEHTQYPMADDKTTKVPCKSPLAEPVNTPTSGRRQIKTIP 1261
Felis_catus       PKKKAHSLLEDLAGLRELFTPNHTDKPMADDPPTKAPCKSPLAELVNTPASRRRLCKTTP 1255
Equus_caballus    PKKKICSLEDLLGFTLFTPDHTEKEPVTDQTTKISCKSPQAEPPVDTPSTRKRSILKTPP 1277
Bos_taurus        PKGKAQPLEDLTGFKELFQTPDQAREPMTDAKTTKTPCKSSQPEPVNTPSRRGR-LRTPS 1036
Pavo_muticus      PSQKLESAEVVSNNVKQPLKTPEQ-----KLEPADALLGIKQLMKTPK 1111
Pavo_cristatus    PSQKLESAEVVSNNVKQPLKTPEQ-----KLEPADALLGIKQLMKTPK 1111
Gallus_gallus     PSQKLESVEVVSNNMKQPLKTPEQ-----KLAPADTLVGKQLMKTPK 1114
Chelonia_mydas    PKQKIKPVEALSGVKRLLRTPKQ-----KTEPVEALSGVKRLLRTPK 1034
Danio_rerio       PKQRAEPIEDLR--GKLLKTPKDR-----KPSQVESLEGIKELLKTPK 935
Xenopus_tropicalis PKQKGKQVIDPVALKKMLRTPKQVES-----LPVESGPNDLVLGLKEIMKTPK 1152
.....1330.....1340.....1350.....1360.....1370.....1380

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:                                     * .      * *.
Mus_musculus      MKVDMK-ELSILEKQTSRGRDAGTP-APMQEGNGTTAIMETPKQKLDFTGNSTGHKRRP 1313
Rattus_norvegicus SKVDVREEPSTLGKRTKSSDTVTGTP-APVQEEENNTMAFMQTPKQKLDFTGNSTGHKRRS 1316
Homo_sapiens      RKADVEGELLACRNLMPSAGKAMHTPKPSVGEEKDIIIFVGTTPVQKLDLTENLTGSKRRP 1333
Pan_troglodytes   RKADVEGELLACRNLMPSAGKAMHTPKPSVGEEKDIIIFVGTTPVQKLDLTENLTGSKRRP 1333
Macaca_mulatta    RKADVEGEFLAFRKLTPAAGKAMHIPKPAVGEEKGINTFVGTTPVQKLDLTENLTGNKRWP 1333
Callithrix_jacchus RKADIEEEFLALRKLTTPSAGKATHTPKLAVGEEKDISTFVGTTPMOKLDLLENLIGSKRRP 1332
Canis_lupus_familiaris QKVDPEEEPSALRKPTQTLRESTSHSGEPGGDDEGIKLFNQTPKQKLDIAENVVTGSKKRS 1321
Felis_catus       QKVDLEEEASALQKSTQMPGESPHREHPVGGDEDIGLFKEQTPQKELDPAENVAGSKRQP 1315
Equus_caballus    QRADTEKELSALRKPMQTPGETVHTHGGPVDEDKIKLLKETPKLRDSEKNETGSKRLP 1337
Bos_taurus        QKVDVEEELSLSGKPPQIPRGTHSDREPADG-EDIKVSKEMPROKMDPADYVTGIKQPS 1095
Pavo_muticus      QKVEPVESLSGIKQLMKTPKQ----KSEPEEVLSAIKQLLKTTPKQKLEPAEVLSGIKQLM 1167
Pavo_cristatus    QKVEPVESLSGIKQLMKTPKQ----KSEPEEVLSAIKQLLKTTPKQKLEPAEVLSGIKQLM 1167
Gallus_gallus     QKLELEESLSGIKQLMKTPKQ----KSEPVDVLSAIKQLLKTTPKQKLEPAEVLSGIKQLM 1170
Chelonia_mydas    QKTEPVEALSGVKRLLRTPKQ----KTEPVEALSGVRLLRTPKQKTELVEALSGIKRL 1090
Danio_rerio       YRGAPVEDMVGVKRMVQTPKQKS-HPVLCATGLQRLKTPQTPKEKSEQEDLTGVKELM 994
Xenopus_tropicalis VKGQPVEDMTGIARIMKTPRR---KQQPVEDMAGIKRIMKTPKQKGTPEVDMTGIKIRM 1208
.....1390.....1400.....1410.....1420.....1430.....1440

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/MK167.tps Tue Feb 14:03:00 2022

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      .*  ..:* : *.  .: **
Mus_musculus      RTPKIRAAQPLEDLDFQELFQTPAGANDSVTVESAKMSLES--QAEPVKTPASTKRLS 1371
Rattus_norvegicus RASKNRAQPLEDLDFQELFQTPAAASDPVTVDES AKVSLESV--QPQLVITPASTKRLS 1374
Homo_sapiens      QTPKEEAQALEDLTGFKELFQTPGHTEEA VAAAGKTKMPCESS--PPESADTPTSTRRQP 1391
Pan_troglodytes   QTPKEKAQALEDLTGFKELFQTPGHTEEA VAVATGKTKMPCESS--PPESADTPTSTRRQP 1391
Macaca_mulatta    HTPKEKAQALEDLTGFKELFQTPGHTEEA VAAAGKTKMPCKSS--PPELADTPTSTRRQP 1391
Callithrix_jacchus QTPKEKAQALEDLAGFKELFQTPGHTEEA VAAAGKTKVPRKSS--PPESADTPTSTRRRP 1390
Canis_lupus_familiaris RTPKKSISLEDLAGLGFELFQTPNQTDKPMADDKTKVPCKSP--LVDPVNTPTIRKRQI 1379
Felis_catus       RTPKKKVHSLLEDLGLRGLFQTPDHTDKPMTGDQTTKAPCKSL--LAGPGNMPASQKRRL 1373
Equus_caballus    RKPKKEAQPLEDLGLKMLFQTPDHTKEPVTEEKTRIPCKSP--QAEPVNMPSTRRRQP 1395
Bos_taurus        RTPKEDVQSLEDLTGFRELFTPTHTNLPRAIVKTPQMLGQSP--QLKPVNMPSTRRGRL 1153
Pavo_muticus      KTPKQKLEPMESLSGIKQLLRTPKQKSEPAEVLSGIKQLLRTPKQKSEPAEVLSGIKQLL 1227
Pavo_cristatus    KTPKQKLEPMESLSGIKQLLRTPKQKSEPAEVLSGIKQLLRTPKQKSEPAEVLSGIKQLL 1227
Gallus_gallus     KTPKQKLEPMESLSGIKQLLRTPKQKSEPAEVLSGIKQLLRTPKQKSEPAEVLSGIKQLL 1230
Chelonia_mydas    RTPKQKTEPVEALSGVKRLLRTPKQKMEPLTDEIALKRLLLKTPAQKKQVNDLVGVCFMK 1150
Danio_rerio       KTPKVKGKPVKELFGLKRLVKTPREKRNPEEDLTG-----VQQLM 1035
Xenopus_tropicalis TTPKEKGQPVEDMVGIKRIMTTPKEKGQPVEDMVGIKRIMRTPKEKGQPVEDMEGLSQIM 1268
.....1450.....1460.....1470.....1480.....1490.....1500

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      :  :  :  :
Mus_musculus      KTDLSKVDVREDPSILGKTKSPGRAPGTPAPVQ--EENDCTAYMETPKOKLESIENTLTG 1429
Rattus_norvegicus KTGLSKVDVREESTLGRKTKSSDVTGTPAPVQ--EENNITAFMQTPKOKLDFITGNSTG 1432
Homo_sapiens      KTPLEKRDVQKELSALKKLTQTSGETTHIDKVP--GEDKSINAFRETAQKLDPAASVTG 1450
Pan_troglodytes   KTPLEKRDVQKELSALKKLTQTSGETTHIDKVP--GEDKSINAFRETAQKLDPAASVTG 1450
Macaca_mulatta    KTPLGKRDVEKELSALKKLTQ-----THIDKVPE--GEDKSIKAFKETAKORLDPAASVTG 1446
Callithrix_jacchus KTPLGERDVQKELLALKRLTQTSGETTHIDKAPG--GEDTGIVKFETAKOKLDPAASVSG 1449
Canis_lupus_familiaris KTPLQKVGLEEEPSAFRKHTQTPRESTHSHREPGDDEDEIKLFNQTPKOKLDFAEIVTG 1439
Felis_catus       ETAPPQKVGLEEKPPSLRKPTQMPPEESTNSHREPG--GDDEDINLFNKTPGOKPN--PAVTR 1430
Equus_caballus    RAPPQKVVEEQEHLISAGKMPALGETTCSHGEPV--DDGKDIAFKETAEQELDPAANVTG 1454
Bos_taurus        RTPSQKMDVQEDLSALRKPOQTGETTQSPREPE--AGDRSIAVSQAPEEMLDLAEKIPA 1212
Pavo_muticus      RTPKQKSEPAEVLSGIKQLMKTP-----REKLEPVESLSG 1262
Pavo_cristatus    RTPKQKSEPAEVLSGIKQLMKTP-----REKLEPVESLSG 1262
Gallus_gallus     RTPKRKSEPAEVLSGIKQLMKTP-----REKLEPVESLSG 1265
Chelonia_mydas    TTQKQKQPVEDKIGISHIMKTSNRIQSEDMVG-----IKRLKTKERVEPVEDMFG 1203
Danio_rerio       KTPKHKGELVEDGMGIKELMQTP-----TEKSPKQKGEFVSSQSG 1075
Xenopus_tropicalis RTPPTENTHPIEEIFGMKQLIKTP-----PKRALGVREGTSG 1304
.....1510.....1520.....1530.....1540.....1550.....1560

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      .
Mus_musculus      LRKQSRTPK-----DITGFQDSFQIPDHANGPLVVVKTKKMFNSPQPESAITRKSRE 1482
Rattus_norvegicus HKRRSRASKNRAQPLEDLDFQELFQTPAAASDPVTVDES AKVSLESVQPQLVITPASTK 1492
Homo_sapiens      SKRHPKT-KEKAQPLEDLAGLKELFQTPVCTDKPTTHEKTTKIACRS--QPDPVDIPTSSK 1508
Pan_troglodytes   SKRQPKT-KEKAQPLEDLAGLKELFQTPICTDKPTTHEKTTKIACRSQPDPVDIPTSSK 1509
Macaca_mulatta    SKRQPRTPORKAQPLEDLAGLKELFQTPICTDKPTTHEKTTKIACRSQPDPVDIPTSSK 1506
Callithrix_jacchus SKKPPRTPKRKAQSLDLTGSKELFQTPVCTDKLTTDENTTKIVCKSPQDPVSDIPTSFQ 1509
Canis_lupus_familiaris SKRRSRTPKKTAQSLDLVLGRLLELQTPNQTDKPVADDKTKVPCRSPLADPVNTPS--R 1497
Felis_catus       SKRRPRTPKKKAHSLEDLAGLRELFTPNHTDKPMADDPITKAPCKSPALAEVNTIPASRR 1490
Equus_caballus    SKGRPRTPKGKTPPLEDLAGFRELFTPVHIKEPMTDDKTKMLYQSPQPEPVIVSTSMS 1514
Bos_taurus        TKGRSRTPKRKTPPLEDLAGFKELFQTPHQAKETMTDEKPTTIPCKSPPAEPVNTIPSTSK 1272
Pavo_muticus      IKQLLRTPKQKSEPAEALSGIKQLMKTPKQKLEPVES--LSGIKQLMRTPEEKLPKPAEVLL 1321
Pavo_cristatus    IKQLLRTPKQKSEPAEALSGIKQLMKTPKQKLEPVES--LSGIKQLMRTPEEKLPKPAEVLL 1321
Gallus_gallus     IKQLLRTPKQKLETAEALSGIKQLMKTPKQKLEPVES--LSGIKQLMRTPEEKLPKPAEILL 1324
Chelonia_mydas    ISRLRLTPREKYL PVDDYVGLQKLMAEPKQKYSNSEL DYVGKEIFDTPKEIKVKVTDLM 1263
Danio_rerio       ISRMKTPKVKEALAEEDFTDLKELIEEPESNS-----CTEEIVTLNVEKETIVAVMD 1128
Xenopus_tropicalis TPSQSGKKATLFTQNKSAQEALPKLTLEKNESEVAVQTDRETEKSKPTPKRGRPAKA 1364
.....1570.....1580.....1590.....1600.....1610.....1620

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/MK167tps Tue Feb 1 14:03:00 2022

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Mus_musculus      RQSRASISKIDVKEELLESEEHLQL-GEQVD--TFQVSTNKVIRSRKPAKRKLDSTAGM 1539
Rattus_norvegicus RLsKTGLSKVDVREEPSTLGKRTKS-SDTVTGTTPAPVQDENNTAFMQTPKOKLDFTGNS 1551
Homo_sapiens      PQSKRSLRKVDVEEEFFALRKRTPSAGKAMHTPKPAVSGEKNYAFMGTPVOKLDLTENL 1568
Pan_troglodytes   PQSKRSLRKVDVEEESLALRKRTPSAGKAIHTPKPAVSGEKNYAFMGTPVOKLDLTENL 1569
Macaca_mulatta    PQSKRSLRKVDVEEEFLALKKRTPSAGKAMHIPKPAVSDEKNINAFVGTTPVOKLDPENL 1566
Callithrix_jacchus AQPKRSLRKADV-EEFSALRKRTSSAGKAMRTPKPAVDDEKNISAVMRTTPVOKLDPENL 1568
Canis_lupus_familiaris ROIKTSLQKVGLEEEPSALRKPTQMLGESTHSHKEPGGDDEGIKRFKDTPKOKLNSAENV 1557
Felis_catus       RLCKTTPQKVDLEEEASALQKSTQMPGESPEHREPVGGDEDIGLFKETPKQELDPAENV 1550
Equus_caballus    RRLKTPLRKVDVEEELSALRKPTQTPGESLSHKEPVGGDKGIIVSEEAEOKLDPAENV 1574
Bos_taurus        RQLKSPPREVGIEEELSVLRRPAQAPGGTRHSEGEAAGDGEDIKAFMEMPROKLDPTENV 1332
Pavo_muticus      GPQQ-----KAKPITDENASEKLLETPIQKKEVLKDVTVGNLINKTPKLKS-QPVED 1372
Pavo_cristatus    GPQQ-----KAKPITDENASEKLLETPIQKKEVLKDVTVGNLINKTPKLKS-QPVED 1372
Gallus_gallus     GPQQ-----KSKPITDENASEKLLETPIQKKEVLKDVTVGNLINKTPKLKS-QPVED 1375
Chelonia_mydas    QENNSP--HIDPKHERESRGNYEREELKQEKRMEDSLEKTSLPFVRSRNRNIKNEQELQE 1321
Danio_rerio       SDSAVIPAEDFIKESDKENVCPEIMEIEVLKSVDHMTTKAVESVTDTEIHANIPKEKL 1188
Xenopus_tropicalis SVKLASDGGKPVNNGTSTHETHPEESREASLQVLASDDKSSAADKATPAKRGRPSKS 1424
.....1630.....1640.....1650.....1660.....1670.....1680

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Mus_musculus      PNSKRMR--CSSKD-NTPCLEDLNGFQELFQMPGYANDSLTGTISTMLARS-POLGPVRT 1595
Rattus_norvegicus TGHKRRS--RASKN-RAQPLEDLDFQELFQTPAAASDPVTVDSEAKVSLESVQPQLVIT 1608
Homo_sapiens      TGSKRRL--QTPKE-KAQALEDLAGFKELFQTRGHTTEESMTNDKTAKVACKSSOPDPDKN 1625
Pan_troglodytes   TGSKRRL--QTPKE-KAQALEDLAGFKELFQTRGHTTEESMTNDKTAKVACKSSOPDPDKN 1626
Macaca_mulatta    TGSKRRL--QTPKE-KAQALEDLSGFKELFQTPSHTEESMTNDKTAKVACKSSOPDPDKT 1623
Callithrix_jacchus TGSKRRP--QTPKE-KAQALEDLAGLKFELFQTPGHTTEESMTNEKTARMACRSOPDPDKT 1625
Canis_lupus_familiaris TGSKRRRSRTPKK-NIQSLEDLAGFRELFTPNQTDKPMADDKTKVPCKSPPLADPVNT 1616
Felis_catus       VGSKRRX--RTPKK-KVQSLEDLVGLKELFQTPHEHTPDPVTVDQTRVPCKSPRAEPVNT 1607
Equus_caballus    TGSKRQT--RTPRKDTQHSLEDLLGFTLFTQTPDHAKPEMTDQTKISCKSPQAEVDT 1632
Bos_taurus        TGIKROL--RTPKE-KVQSLEDLTGFRLEFQTPNHTEKPKAVLKTQMLCTSSQSELIVT 1389
Pavo_muticus      MIGISRIF-KTPKE-KVKPIEDVFGISRLMKTPREKSHPVDDFVGLSRLMAEPQK-NSE 1429
Pavo_cristatus    MIGISRIF-KTPKE-KVKPIEDVFGISRLMKTPREKSHPVDDFVGLSRLMAEPQK-NSE 1429
Gallus_gallus     MIGISRIF-KTPKE-KVKPIEDVFGISRLMKTPREKSHPVDDFVGLSRLMAEPQK-NSE 1432
Chelonia_mydas    NFEHACIS-PKESE-IVKNINIEKEKISDGSPTESHNLNSVILLLTKMDPVQEPAMQ 1379
Danio_rerio       LAQANEESASVEVIDRFLSKDEKNIQSEFVCTSANTSATVEANSTISTAVQENEEPMTK 1248
Xenopus_tropicalis SLSGSPGGGNSVENNTFRHEKNPEEAAPLOVLSTENTSSIGDDKATPAKRGRPCCKRGMSK 1484
.....1690.....1700.....1710.....1720.....1730.....1740

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Mus_musculus      QINKKSLPKIILRKMDVTEEISGLWKQSLGRVHTTQE-----QEDNAIKAIMHPIK 1646
Rattus_norvegicus PASTKRLSKTGLSKVDVREEPSTLGKRTKSSDTVITGTPA-----PVQENNTMAFMOTPK 1663
Homo_sapiens      PASSKRRLKTSLGKVGKVEELLAVGKLTQTSGETTHTHT-----EPTGDGKSMKAFMESPK 1681
Pan_troglodytes   PASSKRRLKTSLGKVGKVEELLAVGKLTQTSGETTHTHT-----EPTGDGKSMKAFTESPK 1682
Macaca_mulatta    PASSGRLKTSLGKVGKVEELLAVGELTQTSGETTHTHT-----EPTGDGKSIKAFMESPK 1679
Callithrix_jacchus PASSQWLRTSLGKVGKEKLLAVSKLTQMPVGTTHTHA-----EPTGDGKSIRAFKESPK 1681
Canis_lupus_familiaris PTIRKRQIKTPVQKVSLEEPSAFRKPTQTPRESTHSHG-----EPGGGDEGIKLFNOTPK 1672
Felis_catus       PASKRRLETPPQKVGLEEEPSALRKPTQMPGESPEHR-----EPVGGDEDIGLFKETPK 1663
Equus_caballus    PTSRRRSRLKTPSQKVDTEKELSALRKPMQTPGETVHTHR-----GPVDDDKDIRLLKETPK 1688
Bos_taurus        PTNRKRQPRILLGKVDTEKELSVLRRHTPASGQTMHTWCR-----EPGVDDKSTESFEETPK 1446
Pavo_muticus      LEMDYVGKVEIFDTPEKT-----KVKSVSVM-----PKQEDTVHPSTN 1468
Pavo_cristatus    LEMDYVGKVEIFDTPEKT-----KVKSVSVM-----PKQEDTVHPSTN 1468
Gallus_gallus     FEMDFVGKVEIFDTPEKT-----KIKSVSVM-----PKQEDTLPPSTH 1471
Chelonia_mydas    WQRESSSSKNVRGHPLQTGLIAPEDKSDQSVENNEKVALSVRKRSRREKKLEMLESLVP 1439
Danio_rerio       SSISNKVQHGRGRVQAQKNKNEVAKAPVS-----SLIEEHKMTDQ 1289
Xenopus_tropicalis SPASSNKDKSVEKNSTPEHEKNLEESNEGTSLOVQTIED-----ASSTSADKATP 1534
.....1750.....1760.....1770.....1780.....1790.....1800

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/MK167tps Tue Feb 14:03:00 2022

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Mus_musculus      ETLQTAADGTRLTRPQTPEKVPLEDHSVFQELFQTSRYCSPLIGNKQTRMSLRSPQ 1706
Rattus_norvegicus OKLDFITGNSTGHKRRSRASKNRAOPLDLDGFQELFQTPAAASDPVTVDSEAKVSLESVQ 1723
Homo_sapiens      QILDSAASLTGSKROLRTPKKGSEVPEDLAGFIELFQTPSHTKESMTNEKTTKVSYRASQ 1741
Pan_troglodytes  QILDSAASLTGSKROLRTPKKGSEVPEDLAGFIELFQTPSHTKESMTNEKTTKVSYRASQ 1742
Macaca_mulatta   QILDSAASLTGSKROLRTPKKGSEVREDLAGFKELFQTPGHTKESMTNEKTTKISYRSSQ 1739
Callithrix_jacchus QILDPAASLTGSKROPKNSKEKAEVLEDLVGFKELFQTPGHTKESMTNEISTKILYSSSP 1741
Canis_lupus_familiaris QKLSAENVVGSKRRPRTPKKKVQSLDVLGKELFQTPSHTDKPMAGDQTTKAPCQSPL 1732
Felis_catus      QELDPAENVVGSKRRPRTPKKKVQSLDVLGKELFQTPSHTDKPMAGDQTTKAPCQSPL 1723
Equus_caballus   LRLDSEENVTTGGKRLPRKPKEKAQPLEDLGLKMLFQTPDHTKEPVTEKKTTTRTPCKSPQ 1748
Bos_taurus       QKLGPAENSAGSKRRPATPKGKAPPLEDLAGFKELFQTPHQAKEPMDDKTITKTPCTSPQ 1506
Pavo_muticus     YSHEHVLEDKGNTSGEDCCQ-Q-KSTSEDQSTQRPTRGRWRKSVHPASIKQAEKDLNLKEL 1527
Pavo_cristatus   YSHEHVLEDKGNTSGEDCCQ-Q-KSTSEDQSTQRPTRGRWRKSVHPASIKQAEKDLNLKEL 1527
Gallus_gallus    CSHEYVLEDKGNTSGEDSQQRKSTSEDQSTQRPTRSRRLRKTIVHPASIKQTEKDLNLKDL 1531
Chelonia_mydas   AKRTRRGKTEDNKQEFTEEHDAKESQRQTTTRNPCRAETVKCVQTDQDFANSTIEAAAV 1499
Danio_rerio      OPLSPAAGRRGRVLEVPETITASPVRSARGRITKQNDQDQEKNIASQVPADSMKIEI 1349
Xenopus_tropicalis AKRRGRPAKRSLSHS PGLKPPVVDVPEDLSTSNEVSNIPGSSHINIDQENNVDLPMEKE 1594
.....1810.....1820.....1830.....1840.....1850.....1860

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Mus_musculus      PGFVRTPTSTSKRLAKTSVGNIAVREKISPVSLPQCATGEVVHPIGPE-DDTENKGVKES 1765
Rattus_norvegicus PQLVITPASTKRLSKTGLSKVDVREEPSITLKKRRKSSDVTGTGPAPVQ-DENNTMAFMQT 1782
Homo_sapiens      PDLVDTPSTSSKPPKRSRLRKADTEEEFLAFRKQTPSAGKAMHTPKPAVGEEKDINTFLGT 1801
Pan_troglodytes  PDLVDTPSTSSKPPKRSRLRKADTEEEFLAFRKQTPSAGKAMHTPKPAVGEEKDINTFLGT 1802
Macaca_mulatta   PDPVDTPSTSSKPPKRSRLRKADVEEEFLAFRKRPSSADKAMHTPKPAGGEEKDINTFTGT 1799
Callithrix_jacchus PDPVDTPSTCKPPKRSRLRKADVEEEFLAFRKLTSPSAGKAMHTPKPAGSEEEKDMKALMRT 1801
Canis_lupus_familiaris AEPVNTPS-RRRQINTPLQKVDPEEPPSALRKPTQTLGKNTHSHKEPEGDDCIRKFKDT 1791
Felis_catus      AGPGNTPASKKRRLETPPQKVGLEEEPPALGKSTQMPGESPEHREPVGGDEDINLFNKT 1783
Equus_caballus   AEPVNTPTSGRRKLPPPPQKVVEQEHLSAGKMPTQALGETTCSHGEPVDDGKDIRAFKET 1808
Bos_taurus       SEPVNTPS-RRGRLRTPSQKVNVEDLSALRKPPQTPGKATQSPREPEGGDKGITVSQEA 1565
Pavo_muticus     QG--LEKKSFOEEMGGVRTSTSVAKN----LGRGRRTNACVVEENISKHNDEKRVETVSS 1581
Pavo_cristatus   QG--LEKKSFOEEMGEVRTSTSVAKN----LGRGRRTNACVVEENISKHNDEKRVETVSS 1581
Gallus_gallus    QG--LEKKSFOEEMGEVRTSTSVAKN----LGRGRRTNARVVEENISKHNDEKRVETVST 1585
Chelonia_mydas   EESEIDKPTLEIMVTEMKGRKSLRVKSRKQLEETKKVSTEMVPEINISVQEAKRSTKETV 1559
Danio_rerio      SECLPVVPKTRKGRKAQDDVDVSTG-----DQHCSDVPEIPEVPIQVPPVVKPGRRK 1401
Xenopus_tropicalis SEPLNLNIGAKKVTKKSQRKKVTEESVQIAVENLVVEQDDEKSAPORRRRGRPPRGGLSST 1654
.....1870.....1880.....1890.....1900.....1910.....1920

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Mus_musculus      TPQTLDSASRTVSKRQGAHEERPQFSGDLFHPQELFQTPASGKDPVTVDETTKIALQS 1825
Rattus_norvegicus PKQKLDFTGNSTGHKRRSRASKNRAOPLDLDGFQELFQTPAAASDPVTVDSEAKVSLES 1842
Homo_sapiens      PVQKLDQPGNLPGSNRRLQTRKEKAQALEELTGFRLEFQTPCTDNPTTDEKTTKKILCKS 1861
Pan_troglodytes  PVQKLDQPGNLPGSNRRLQTRKEKAQALEELTGFRLEFQTPCTDNPTTDEKTTKKILCKS 1862
Macaca_mulatta   PVQKLDPPENLPKSKRRRLQTPKEKAQTLDELDTGFRLEFQTPCTDNPTTDEKTT-KILCKS 1858
Callithrix_jacchus LVQKLDLPENVPGRSRPQTPKEKAQALEDLAGFKELFQTPCTDNPTTDDKTT-KIPCKS 1860
Canis_lupus_familiaris PKQKLYSAENVTRSKRRSRTPKKSISLEDLAGIRELFQTPHEHTQDPMTDGKTINIPCKS 1851
Felis_catus      PGQKLPADNVTGSKRRPRTPKKKVQSLDVLGKELFQTPQTKKTTAVVKTIVPCKS 1843
Equus_caballus   AEQELDPAANVTGSKRRPRTPKGKTPPLEDLAGFRELQTPVHAKEQMTDDKTITKILYQS 1868
Bos_taurus       PEEMLDLAEKVPASAKRRPRTPKGKAQPLEDLTGFKELFQTPDQAREPMTDAKTITKIPYTS 1625
Pavo_muticus     SEMHVATERPRRGKR-----KEAKELKLPD-----ESLESCGKDSWVLQKEPATIKVALQ- 1631
Pavo_cristatus   SEMHVATERPRRGKR-----KEAKELKLPD-----ESLESCGKDSWVLQKEPATIKVALQ- 1631
Gallus_gallus    LEMHVATQPRRGKR-----KEAKELKLPD-----ENLESCGKDSWVLQKEPATIKVALQ- 1635
Chelonia_mydas   VKTHKSIKNETKAAQGNKEAKTGQSLKLKESH-FENTDAPLDVYSSQANRNSIKKTINQT 1618
Danio_rerio      AKTEIKPSSDVDAAIPEVYEINASVPQAPDGSATEFVVQTPVVKPGRRRRKLEKTESKPS 1461
Xenopus_tropicalis TEVLDEALPEEPPTNRRRTGRGRIAEVAKPQQVSTSVESQEVNEELSATKTQTKSTR- 1713
.....1930.....1940.....1950.....1960.....1970.....1980

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/MK107.tps Tue Feb 14:03:00 2022

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Mus_musculus      P Q P G H I I N P A S M K R Q S N M S L R K - D M R - E F S I L E K Q T Q S R G R D A G T P - A P M Q E E N G T T A I M      1882
Rattus_norvegicus V Q P Q L V I T P A S T K R L S K T G L S K V D V R E E P S T L G K R I K S D T V T G T P - A P V Q D E N N T T A F M      1901
Homo_sapiens      P Q S D P A D T P T N T K Q R P K R S L K K A D V E E E F L A F R K L T P S A G K A M H T P K A A V G E E K D I N T F V      1921
Pan_troglodytes   P Q S D L A D T P T N T K Q R P K R S L K K A D V E E E F L A F R K L T P S A G K A M H T P K A A V G E E K D S N T F V      1922
Macaca_mulatta    P Q P D P V D T P T S T K Q R P K R S L K K A D V E E E F L A F R E L T P S A G K A M H T P K P S V G E E K V I N T F V      1918
Callithrix_jacchus P Q T N P V D T P T S T K Q R P K R S L R K A D I E E E F S A H G K L T P S A G K L V H T P K P A V G E E K D - G T F V      1919
Canis_lupus_familiaris P L A E P V N T P T S R R R Q L E I P L Q K L D L E E E P S A F R K P T Q I L R E S T H S Y G E P G G D D E G I K L F N      1911
Felis_catus       P L A E T V N T P T H M K T R L K V A L G K V T V E N E L S A V T K P T Q R P E E A T R T H R E P V G E D E D I R L F K      1903
Equus_caballus    P Q P E L I I V S T R M S R R L K T P L R K V D V E E E L S A L R K P T Q T P G E S S I S H K E P V G D D K G I A V S E      1928
Bos_taurus        P Q P E P V N T P S R - - - - - T P S Q K V N V L E G L S A L R K P Q Q T P G K T T Q S P R E P E G D K G I A V S Q      1679
Pavo_muticus      - - - - - D F I I N D I S I K E D V Q N M K A E S L S S N S Q N E N C Q L Q T D L K Y S E N T R N      1675
Pavo_cristatus    - - - - - D F I I N D I S I K E D V Q N M K A E S L S S N S Q N E N C Q L Q T D L K Y S E N T R N      1675
Gallus_gallus     - - - - - D F I I N D I L I K E D V Q N M K A E S I P S N S Q N E N C Q L Q T D L K N S E N T C N      1679
Chelonia_mydas    H G N N T G Q K G I L D I K E G E F A K N E K M I P Q N I S E T E P E T I S T K D S L G S L Q T V Q S S K T K K A Q N N      1678
Danio_rerio       D - - - - - D A A I E L I H D V S A D V P Q G P N G S T A E E V V Q A P V V K T G R R K K M D K S D      1506
Xenopus_tropicalis - - - - - H Q K A V S E D S T V T A T K K P R G R Q P K V D R E Q K A A E E N T V E K S L      1754
.....1990.....2000.....2010.....2020.....2030.....2040

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Mus_musculus      E T P K Q K L D F I G N S T G H K R R P R T P K N - R A Q P - - L E D L D G F Q E L F Q T P A G A S D P V S V E E S A K      1939
Rattus_norvegicus Q T P K Q K L D F T G N S T G H K R R S R A S K N - R A Q P - - L E D L D G F Q E L F Q T P A A A S D P V T V D E S A K      1958
Homo_sapiens      G T P V E K L D L L G N L P G S K R R P Q T P K E - K A K - - A L E D L A G F K E L F Q T P G H T E E S M T D D K I T E      1978
Pan_troglodytes   G T P V E K L D L L G N L P G S K R R P Q T P K E - K A K - - A L E D L A G F K E L F Q T P G H T E E S M T D D K I T E      1979
Macaca_mulatta    G T P V Q K L D L P G N L P G S K R W P Q T T K E - K A K - - A L E D L A G F K E L F Q T P S H T E K S M T D D K I T E      1975
Callithrix_jacchus G T P V Q K P D L P G N L P G S K R R P Q T P K E - R A Q T H A L E E L A G F R K L F Q T P D H T E E S T A T D K I T K      1978
Canis_lupus_familiaris Q T P K Q K L D S A E N V T G S K R R S R T P K K - S I R S - - L E D L A G L G E L L Q T P N Q I D K A M A D G K A T S      1968
Felis_catus       E T P K Q E L D P A E N V A G S K R R P R T P K K - K A Q S - - L E D L V G L K E L F Q T P - - - D P G T G D - Q T T K      1956
Equus_caballus    E A P E Q K L D P A E N V T G S K R Q T R T P R K D T Q H S - - L E D L L G F T E L F Q T P D H A K E P M T D D Q T T K      1986
Bos_taurus        E A P E E M L D L A E K V P S A K R R P R T P K R - K A Q P - - L E D L T G F K E L F Q T P D Q A R E P M T D A K T T K      1736
Pavo_muticus      E A S A G D S E E M L P L P R - - - - - K R A R E V R K V E N T E E P I A P K R G R R A K N      1716
Pavo_cristatus    E A S A G D S E E M L P L P R - - - - - K R A R E V R K V E N T E E P I A P K R G R R A K N      1716
Gallus_gallus     E A S A G D S E E M L L L P M - - - - - K R A R E V R K V E N T E E P I A P K R G R R A K N      1720
Chelonia_mydas    P T A A M V Y D E R T V L R H G K R I R K G D G K - - - - - Q E A S E T K Q I E I L E N N P T E A N E N T P R R      1729
Danio_rerio       R Q P S E E L E E K T - - - - - L E I V C E S N D A A P E V T E T I P A T R A R R      1542
Xenopus_tropicalis T E L P G D S A L V N N V T P S V R R G R R A R G - - - - - N A N A V T E T V V T E A N L P D L I N N I V L H K      1805
.....2050.....2060.....2070.....2080.....2090.....2100

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Mus_musculus      I S L A S S Q A E P V R T P A S T K R R S K T G L S K V D V R Q E P S T L G K R M K S L G R A P G T P - A P V Q E E N D      1998
Rattus_norvegicus V S L E S V Q P Q L V I T P A S T K R L S K T G L S K V D V R E E P S T L G K R I K S S G R V T G T P - A P V Q E E N N      2017
Homo_sapiens      V S C K S P Q P D P V K T P T S S K Q R L K I S L G K V G V K E E V L P V G K L T Q T S G K T T Q T H R E T A G D G K S      2038
Pan_troglodytes   V S C K S P Q P D P V K T P T S S K Q R L K I S L G K V G V K E E V L P V G K L T Q T S G K T T Q T H R E T A G D G K S      2039
Macaca_mulatta    V Y C N S P Q P D P V K T P T S S K R R L K T S L G K V G V K E E V L P V S K L T Q T S G K T T Q T H R E T A G D G K S      2035
Callithrix_jacchus V S C K S P Q P D P V K T P T S S K R R R K T S L G K A S V K E E L L A V S K L T Q T S G E T T H T H R E P A C D G K S      2038
Canis_lupus_familiaris V P C K S P L A E P V N T P T S R R R Q L E I P L Q E L D L E E E P S A L R K S T Q T P R E S T P S H R K P G G D D K D      2028
Felis_catus       F P C K S P R A E P V N T P A S K R R L E T P P Q K V G L E E E P P A L G K S T O M P G E S P H E H T S G G E D K D      2016
Equus_caballus    I S R K S P Q A E P V D T P T S R R R S L K T P S Q - - - - -      2012
Bos_taurus        T L Y K S P - A E T V N T P T S K R R L K S P P R E V G I E E E L S V L R R P A Q T P R G T R H S G - E A G S D F E D      1794
Pavo_muticus      D Q V K Q A S S E E L H A A T R R L R - - - K Q S A K I M Q E D E Q T S E T A P A G E S E N R T E - - - - V E M K I R Q      1770
Pavo_cristatus    D Q V K Q A S S E E L H A A T R R L R - - - K Q S A K I M Q E D E Q T S E T A P A G E S E N R T E - - - - V E M K I R Q      1770
Gallus_gallus     D Q F K Q A S - E E L H A T T R R L R - - - K Q S A K I M Q E D E Q I F E A V S A K E S E N R S K - - - - V E M K I T Q      1773
Chelonia_mydas    D R G K K V H F E L E E A S S A S L R G K H V L S E G N D K D Q N E T S E N F P S Q A N E N L S R R G R R K E V D L T P      1789
Danio_rerio       - - G K P S R K E N L K T E P A Q I L D E V L S T P T V A V D E K P L T S A A K S G R G R K A K Q - - - - -      1589
Xenopus_tropicalis E Q E S S Q A S P E A K T Q R G K R - - - - -      1824
.....2110.....2120.....2130.....2140.....2150.....2160

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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Mus_musculus	STAFMETPKQKLDFTGNSGSHKRRPQTPKIRAQPLEDLDFQELFQTPAGANDSVIVEES	2058
Rattus_norvegicus	TTTFMETPKQKLESGLDGLTGLRKQSRTPKAKAQYLEDISGFQEGFQTPDHANGPLAVGKT	2077
Homo_sapiens	IKAFKESAKQMLDPANYGTGMRWPRTPKKEEAQSLDLAGFKELFQTPDHTEESTTDDKT	2098
Pan_troglodytes	IKAFKESAKQMLDPANYGTGMRWPRTPKKEEAQSLDLAGFKELFQTPDHTEESTTDDKT	2099
Macaca_mulatta	IKVFKESAKQMLDPANYGTGMRWPRTPKKEEAQSLDLAGFKELFQTPGPTTEESTTDDKT	2095
Callithrix_jacchus	IRAFKESAKPMLDSADYVTGTRWRPRTPKKEEAQSLDLAGFKELFQTPRHTEESTTDDKT	2098
Canis_lupus_familiaris	SELFNQTPKQKLNSAENVGTGSKRSRTPKKNQSLDLAGLRELQFQTPHESQDPMADGKT	2088
Felis_catus	IKLFNKTPKQKLKPADNVGTGSKRRPRTPKKQVQSLDLVGLKELFQTPQ-----	2067
Equus_caballus	-----	2012
Bos_taurus	IKAFTGTTPKQKLDPR-----IKRQLRTPKEKVQSLDLTGFRLEFQTPDHTKEPKAVLKT	1849
Pavo_muticus	KRVNSS-----RNARKHLTEVKSDVYVAPENTQNGQKIKE-----	1806
Pavo_cristatus	KRVNSS-----RNARKHLTEVKSDVYVAPENTQNGQKIKE-----	1806
Gallus_gallus	KRVKSS-----RNATKHSTEVKSNSYGMAPENTQNVQKIKE-----	1809
Chelonia_mydas	DKVSSTSLRKDSLPSDAKQDAALESTASPTKENTSRRGRRKQ-----	1835
Danio_rerio	-----	1589
Xenopus_tropicalis	-----	1824
	.....2170.....2180.....2190.....2200.....2210.....2220	

Mus_musculus	VKMSLESSQAEPVKTPASTKRLSKTGLSKVDVREDPSILEKKIKSPG--TPAPVQEEENDC	2116
Rattus_norvegicus	KKMSFISPPQGSAILTKSIERQSRASMSNMNVKEELLESEEHLQIGE--GIDTLQVPMNN	2135
Homo_sapiens	TKIACKSPPPESMDTPTSTRRRPKTPLGKRDI VEELSALKQLTQT----THTDKVPGDED	2154
Pan_troglodytes	TKIACKSPPPESMDTPTSTRRRPKTPLGKRDI VEELSALKQLTQT----THTDKVPGDED	2155
Macaca_mulatta	TKIACKSPPPESVDTPPTSTRRRPKTPLGKRDI VEELSALKQLTQT----THTDKVPEGED	2151
Callithrix_jacchus	TNIPCKSPPPESVDTPPTSTRRRPKTALGKRNVVEEFSALKRLTQTGGITHTDKAPGGED	2158
Canis_lupus_familiaris	TREPCRSPVPDSV--TPTIRRRQLETTPVQEVLDLEEKPSLRKPTQMLGESTHSRRELEGGD	2147
Felis_catus	-----	2067
Equus_caballus	-----	2012
Bos_taurus	PKMLCQSPLLEPVNITPGRGSLRTPSQKVDQMQRDSALRKPTHTPGVTHHSPKEPEGGD	1909
Pavo_muticus	-----	1806
Pavo_cristatus	-----	1806
Gallus_gallus	-----	1809
Chelonia_mydas	-----	1835
Danio_rerio	-----	1589
Xenopus_tropicalis	-----	1824
	.....2230.....2240.....2250.....2260.....2270.....2280	

Mus_musculus	TAFMETPK---QKLDFTGNSGSHKRRPRTPKIRAQPLEDLDFQELFQTPAGASDSVIVE	2173
Rattus_norvegicus	KVFRSSRKPAKRKLDPTASMPSSKRMRRSSKSDTPSLEDVTGSQQLCMPGHAKDSLNTD	2195
Homo_sapiens	KGINVFRETAKQKLDPAASVTGSKRQPRTPKGKAQPLEDLAGLKELFQTPICTDKPTTHE	2214
Pan_troglodytes	KGINVFRETAKQKLDPAASVTGSKRQPRTPKGKAQPLEDLAGLKELFQTPICTDKPTTHE	2215
Macaca_mulatta	KSIAFKETAKQRLDPAASVTGSKKQLRTPKRKAQPLEDLAGLKELFQTPICTDKPTTHE	2211
Callithrix_jacchus	TGIKVFKETAKQKLDPAASVSGSKKPPRTPKRKAQSLDLTGLKELFKTPVCTDKLITIDE	2218
Canis_lupus_familiaris	DDIKLSKETPKKL-----DPVENVTRSKGKAQFLEDVGVGFKELFQTPELSKEPTAIV	2200
Felis_catus	-----	2074
Equus_caballus	-----	2012
Bos_taurus	RGAAVSREAPEEKPDPAEHSISKROPRTPQKAQLEDLDGFKELFQTPDRANGAMTDD	1969
Pavo_muticus	-----	1815
Pavo_cristatus	-----	1815
Gallus_gallus	-----	1818
Chelonia_mydas	-----	1844
Danio_rerio	-----	1589
Xenopus_tropicalis	-----	1824
	.....2290.....2300.....2310.....2320.....2330.....2340	

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Mus_musculus      ES AKMSLES SQA KPVKTPASTKRLSKTGLSKVDVREDPSTL GKKTSPGRAPGT--PAPVQ 2232
Rattus_norvegicus AS TMFTK--PPQSGPVRTQNNRKS LPKISLRQVDVTGGISVLGKQ--SPGRAL---TAPVQ 2249
Homo_sapiens      KTTKIACRSPQPD PVTPTIFK PQSKRSLRKADVEEESLALRKRTPSVGKAMDTPKPAGG 2274
Pan_troglodytes   KTTKIACRSPQPD PVDTPITIFK PQSKRSLRKADVEEESLALRKRTPSVGKAMDTPKPAGG 2275
Macaca_mulatta    KTTKIACRSPQPD PVDTPITIFK PQSKRSLRKADVEEESLALRKRTPSVGKAMHTPKPSSGG 2271
Callithrix_jacchus NTTKIVCKSPQPD PVDTPITSFQAQSKRSLRKADIEEEFLTLRKTS--AGKVMCTPKPAAG 2276
Canis_lupus_familiaris KATIMPCKSPPAETGSTPTTHMKRYLQIPLGEEDLKKELSPVRKPI LMPGEATHTEQDPGG 2260
Felis_catus       KTTIVPCKSPPLAETVNTPTTHMKTRLKVALGKVTVENELSAVTKPTQRPEEATRTHREPVG 2134
Equus_caballus    -----KVDTEKELSALRKPMQTPGETVHTHRGPVD 2042
Bos_taurus        KLTTMPCTSPPAEPFNTPTSEKRR LKSSPQKVG VKEELSALRRPAQTPRGTRHSEGEQAG 2029
Pavo_muticus      RSPTK---NEREASLGDEAENTQANTTEASRR LKSQSPSGETNKMPTTVLVLESNSIVQE 1872
Pavo_cristatus    RSPTK---NEREASLGDEAENTQANTTEASRR LKSQSPSGETNKMPTTVLVLESNSIVQE 1872
Gallus_gallus     QSPTN---NEREASLRDEAENTQANAREASRR LKSQSPSGETNKMPTTVLVLESNSTVQG 1875
Chelonia_mydas    STSFGGKCTLPGDS SKEEMSESQNVPF EAI VLP TKEKLSRRGRNQVSLTSQAANCTSLR 1904
Danio_rerio       -----ESVKDQTLDDDEMVDGQTVAVANDIKEPEAPVVK 1622
Xenopus_tropicalis -----KNLKNTNVDSVNSAETDVALELEERPNKRST 1857
.....2350.....2360.....2370.....2380.....2390.....2400

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Mus_musculus      EENDSTAFMETPKQKLDFAENSSGSKRRSRT-SKNRSQPLEDL DGFQELFQTPAGASNPV 2291
Rattus_norvegicus ADNGIKAIMETPKETLATAADLTGFTRPQQT-PKEKDQPLEDYGGFQELFQTPAGASDSV 2308
Homo_sapiens      DEKDMKAFMGTPVQKLDLPGNLPGSKRW PQT-PKEKAQALEDLAGFKELFQTPG-TDKPT 2332
Pan_troglodytes   DEKDMKAFMGTPVQKLDLPGNLPGSKRW PQT-PKEKAQALEDLAGFKELFQTPG-TDKPT 2333
Macaca_mulatta    DEKDMKAFLGTPVQKLDLPGNLPRSKRR PQT-PKEKAQPLEDLTGFKELFQTPG-TDKPT 2329
Callithrix_jacchus AEKDMKALMGTPVQKLDLPGNSPGSKRW PQT-PKEKAQALEDLAGFKELFQTPG-MDKPT 2334
Canis_lupus_familiaris DDKDIRLFFKTPKQKLNLAENAPGSKKQPGT-PQKMT HSLLEDLVGLKELFQTP EHTQDPM 2319
Felis_catus       EDEDIRLFFKETPKQKLP EEDVTGSKRQRT-PKKKAQSLLEDLVGLKELFQTPD----PG 2189
Equus_caballus    DDKDIRLFFKETPKLRLDSEENV TGKRLPRK-PKEKAQPLEDL DGLKMLFQTPDHTKEPV 2101
Bos_taurus        DGE EK-AFKKTPKQKLD SAESLTGSKRRPRASLKEKAQPLEDLTGFKELFQTPRQSKEPM 2088
Pavo_muticus      ANRTRRRRGKKDSSEKKT HESAKNVNSELVTPKFKSEAEMEESAPKEPSGCVDEKKIDK 1932
Pavo_cristatus    ANRTRRRRGKKDSSEKKT HESAKNVNSELVTPKFKSEAEMEESAPKEPSGCVDEKKIDK 1932
Gallus_gallus     TNRTRSRRGKKDSSEQKTDESADVNSELVTLKFKSEIEMEESAPKKPSGCVDERKIDK 1935
Chelonia_mydas    GKRNWTE NDDKDAIPKQNVPLGSTTSQAKVNSRKGRRQVELTQAASS TSLQKSSL 1964
Danio_rerio       SGRGRKAKQKAILVEEVDPTVDASIDLPTTEETETTVVKSVRGGRKTTSQKVAVSVEA 1682
Xenopus_tropicalis RGV RGTQQVDELKEPKGKKAKVEHVPKPAELVHIQENLAKENASRAKSVQWHPLLTVKGT 1917
.....2410.....2420.....2430.....2440.....2450.....2460

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Mus_musculus      SVEESAKISLESSQAEPVTRASTKRLSKTGLNKM DVREGHSP LSKSSCASQKVMQTLTL 2351
Rattus_norvegicus TVEESKKMPVESLQPPV RTPASTKRLSKTGLSKVDVREEPSTPGKRITKSDTVIGTPAP 2368
Homo_sapiens      TDEKTTKIACKSPQPD PVDTPASTKQRPKRNLRKADVEEESLALRKRTPSAGKAMDTPKP 2392
Pan_troglodytes   TDEKTTKIACKSPQPD PVDTPASTKQRPKRSLRKADVEEESLALRKRTPSAGKAMDTPKP 2393
Macaca_mulatta    TDEKTTKMPCKSPQPD PADTPASTKQPKRSLRKADVEEESLALRKRTPSAGKAMDTPKP 2389
Callithrix_jacchus TDEKTTKIRCKSTQPD PVDTPSTIQWPKRSLRKA FVEEESLALRKRTPSAGKAMHTPKP 2394
Canis_lupus_familiaris ADGKTTKMPCKSPVTEPVNKPTGRRRQLNTFPQKVDVEEKPSALRKPTRTRRGATHHTQ 2379
Felis_catus       TGDQTTKFPCKSPRAEPVNTPASGKRWLET PPQKVDLEEEPSALRKPTRMPGES PHEHRE 2249
Equus_caballus    TEEKTTRIPCKSPQAEPVNIPTSRKRQPRAPPQKVNEKEDRSARRKPTQTLGR TTRSRRE 2161
Bos_taurus        TDNSIPQMLCQSPQPEPV TITPGRRGHLRTPSKTVDRQEDCSALRKPPQTPGETTHSPRE 2148
Pavo_muticus      ----- 1932
Pavo_cristatus    ----- 1932
Gallus_gallus     SATPVTAVNSDSGVHSHQKQTE NEQVLKSKQTEILQENQTQNNGAMCRRGRIRKVNFELE 1995
Chelonia_mydas    PENDDKEKVPKEDQNVPLENTTEAKANPPRKGRWQVDLTRQAASSTSLRGKSSLPENDD 2024
Danio_rerio       EEKDVS----- 1688
Xenopus_tropicalis PEKNT EET----- 1925
.....2470.....2480.....2490.....2500.....2510.....2520

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Mus_musculus      GEDHGRETGDGKVLAAQKLEPAIYVTRGKQQRSCCKRSQSPEDISGVQEVFOT----- 2405
Rattus_norvegicus VPPE-NDTTTFMQTPKQKLEFTGNSAGHKRRSRTPKTRAQPLEDLDFQELFOTPAGASD 2427
Homo_sapiens      AVSDEKNINTFVETPVQKLDLLGNLPGSKROPQTPKEKAEALDVLGFKELFOT----- 2446
Pan_troglodytes   AVSDEKNINTFVETPVQKLDLLGNLPGSKROPQTPKEKAEALDVLGFKELFOT----- 2447
Macaca_mulatta    AVSDEKN-NTFMEILVQNLDLPGNLPGSKRRPQTPKEKAEALDVLGFKELFOT----- 2442
Callithrix_jacchus AVSDEKNMNTFVETPVQKLDSPGNLPGSKROPQTPKEKAEALDVLGFKELFOT----- 2448
Canis_lupus_familiaris PGGKEDINLFKETLKRKLNPTEENVGTGSKKQPRTPRRNIQSLDLVGLKELFOT----- 2433
Felis_catus       PGGKEDINLFKETLKRKLNPTEENVGTGSKKQPRTPRRNIQSLDLVGLKELFOT----- 2303
Equus_caballus    PVSQDKDSKVFEETARQEQPPASVTGSKROPRAKEKAQPLEDLGLTDVIQT----- 2215
Bos_taurus        PEDGDRGTAVSQEAPKEKPNSAENITAHKRWPRITKEKAQPLEDLGFKELFOT----- 2202
Pavo_muticus      ----- 1932
Pavo_cristatus    ----- 1932
Gallus_gallus     QTSKALGQKRSSFDEEGMTSKLGQQETSENPSSVRRSRRKQVNSIPQAAVS----- 2049
Chelonia_mydas    KEKVPKEDQNVPLG-----NTTEAKANPPRKGRRKQIDLITQAAAS----- 2065
Danio_rerio       ----- 1688
Xenopus_tropicalis ----- 1925
.....2530.....2540.....2550.....2560.....2570.....2580

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Mus_musculus      -----SGHNKDS--VTVDNLAKLPSSSPPLEPT 2431
Rattus_norvegicus PVTVDDESTKVSLESSQPLPVITPASTKRLSKTPGQNKDL--VTLDNLAKMPGSSPPPEPI 2485
Homo_sapiens      -----PGHTEES--MTDDKITEVSCKSPQPESEF 2472
Pan_troglodytes   -----PGHTEES--MTDDKITEVSCKSPQSESEF 2473
Macaca_mulatta    -----PGHTEES--MTDDKMTEVSCKSPQPESEF 2468
Callithrix_jacchus -----PDHTEES--MINEKITGVSCCKSPQPEPF 2474
Canis_lupus_familiaris -----PEHTQDP--MADGKATSVPCCKSPVAEPV 2459
Felis_catus       -----PNHTDKP--MAGDQTTKAPCQSPLAGPG 2329
Equus_caballus    -----PDHTEHEIKMTEDKTTKMPCKSLQVEPV 2243
Bos_taurus        -----PDHAKQP--IMDDHPPAIPCKSP-AEPV 2228
Pavo_muticus      -----IMEDQN----- 1938
Pavo_cristatus    -----MMEDQN----- 1938
Gallus_gallus     -----TFTKQRIILIEDHSDKDESCVKDHDPPSE 2076
Chelonia_mydas    -----TSLRGKSSLPENDGKEKVPKEDQNVPL 2092
Danio_rerio       ----- 1688
Xenopus_tropicalis ----- 1925
.....2590.....2600.....2610.....2620.....2630.....2640

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Mus_musculus      DTSVTSRRQARTGLRKVHVKNELSGGIMHPQISGEIVDLPREPEGEGKVIKTRKQSVKRRK 2491
Rattus_norvegicus DTSVISGRQLRTRLRLNLYVKNELSEDGMHPKMSGEIVDSRAPGGEEKVIKARKQCVKRRK 2545
Homo_sapiens      KTSRSSKQRLKIPLVKVDMKEEPLAVSKLRTSGETTQTHTEPTGDSKSIKAFKESPKQI 2532
Pan_troglodytes   KTSRSSKQRLKIALVKVDMKEEPLAVSKLRTSGETTQTHTEPTGDSSESIRAFKESPKQI 2533
Macaca_mulatta    KTSRSSKQRLKISLVKVDMEKEPLAVNKLRTSGKTTQHTQPTGDSKSIKAFKESPKQI 2528
Callithrix_jacchus KTSRSSRQQLKVSLVKVGMKEELLTVSKLRTSEKTAQTHTEPTGGGKSIKAFKESPRQI 2534
Canis_lupus_familiaris NKPTGRRRQLNTFFQKVDVEEPPSALRKPTTRRRGAT----- 2496
Felis_catus       NKPTNRRRRRLKTPQKVDLEEEPPSALRKPTQLPGESP----- 2366
Equus_caballus    MVPTGRKRRLRAPAQKVDVEDELSARRKPTQTPGEIT----- 2280
Bos_taurus        TRRTGRKKQLRSSPEKVGVE-EPSALRRPSQTPEEATRMQREAEDEKDIKVCKKTSRQK 2287
Pavo_muticus      -----STSATTE----- 1945
Pavo_cristatus    -----STSATTE----- 1945
Gallus_gallus     ATPSSSTEGNPLRRGKRREVAVASQATSSLSLTK----- 2109
Chelonia_mydas    GNTTEPKANPPRKGRRKQVDLTQAAASSTSLRG----- 2125
Danio_rerio       ----- 1688
Xenopus_tropicalis ----- 1925
.....2650.....2660.....2670.....2680.....2690.....2700

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Mus_musculus	LDTEVNVPRSKRQRIIRAET--TLEDLPGFQELCQAPSLVMDSVIVEKTPKMPDKSPEPV	2549
Rattus_norvegicus	LDTAVNLPSSKRQRIAGAEPQTLEDLPGFQELCQAPCLVMDSVIVDKTKVPSKSPPEV	2605
Homo_sapiens	LDPAASVTGSRRLRTRKEKARALEDLVDFKELFSAPGHTEESMTIDKNTKIPCKSPPPPE	2592
Pan_troglodytes	LDPAASVTGSRRLRTRKEKARALEDLVDFKELFSAPGHTEESMTVDKNTKIPCKSPPPPE	2593
Macaca_mulatta	LDPAANVTGSKRQLRTRKEKASALEDLTGFRLEFPAPGHTGQSMIVDKNTTMPCKSPPAE	2588
Callithrix_jacchus	VDPAANITGSKRQLRTRKEKAHILEDPGVFKELGPAAPSHAEESMTTDKNTKLPCKSPPPPE	2594
Canis_lupus_familiaris	-----	2496
Felis_catus	-----	2366
Equus_caballus	-----	2280
Bos_taurus	LVSAENVTVGKSRRLRNIEKAQPTEDPARVKEPFQNPQTEEPASDVKIAPASCOSPPAQ	2347
Pavo_muticus	-----	1945
Pavo_cristatus	-----	1945
Gallus_gallus	-----	2109
Chelonia_mydas	-----	2125
Danio_rerio	-----	1688
Xenopus_tropicalis	-----	1925
	.....2710.....2720.....2730.....2740.....2750.....2760	

Mus_musculus	DDTSETQARRRLRRLVVTEEPPIQKKTTRVVRQTR-----	2584
Rattus_norvegicus	DDTSEIKPRRLKRLGVTEEPPIQRTTTRVLQTR-----	2640
Homo_sapiens	LTDATSTKRCCKTRPRKEVKEELSAVERLTQTSQGQ	2629
Pan_troglodytes	LTDATSTKRCCKTRLRKEVKEELSAVERLTQTSQQR	2630
Macaca_mulatta	SADTATSTKRYPKTRLRKEVKEELSAVERLTQTSQGQ	2625
Callithrix_jacchus	LADTAKNTKRCARTRLRKEVKEELSAVOKLTQTSQGQ	2631
Canis_lupus_familiaris	-----	2496
Felis_catus	-----	2366
Equus_caballus	-----	2280
Bos_taurus	PVIRRRTRQRLRLSPPGKVAVEEPSASTGPTQTTPGDTHTEPVGKGKDSKVLKETSGQKLS	2407
Pavo_muticus	-----	1945
Pavo_cristatus	-----	1945
Gallus_gallus	-----	2109
Chelonia_mydas	-----	2125
Danio_rerio	-----	1688
Xenopus_tropicalis	-----	1925
	.....2770.....2780.....2790.....2800.....2810.....2820	

Mus_musculus	-----	2584
Rattus_norvegicus	-----	2640
Homo_sapiens	-----	2629
Pan_troglodytes	-----	2630
Macaca_mulatta	-----	2625
Callithrix_jacchus	-----	2631
Canis_lupus_familiaris	-----	2496
Felis_catus	-----	2366
Equus_caballus	-----	2280
Bos_taurus	PAENVTVGIRSLRLTLKKKTQPLEDSAGVKELFQKPDQAKEADGDVAVAPGPRPSPPAEFPV	2467
Pavo_muticus	-----	1945
Pavo_cristatus	-----	1945
Gallus_gallus	-----	2109
Chelonia_mydas	-----	2125
Danio_rerio	-----	1688
Xenopus_tropicalis	-----	1925
	.....2830.....2840.....2850.....2860.....2870.....2880	

# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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Mus_musculus          -----NTQKEPISDNQGMEEFKESSVQKQDPSPVSLTIG 2616
Rattus_norvegicus     -----NTHKEPIDSSNGVDEFKESSAQKQDPAISLTIG 2672
Homo_sapiens          -----THTHKEPASGDEGIKVLKQRAKKKPNPVVEEP- 2661
Pan_troglodytes       -----THTHKEPASGDEGIKVLKQRAKKKPNPVVEEP- 2662
Macaca_mulatta        -----THTHKEPASGDEGIKVLKQRAKKKPNPVVEEP- 2657
Callithrix_jacchus    -----AHTHTEPASDGEGTKVFRQRAKKTSNPGVEEP- 2663
Canis_lupus_familiaris -----HSHTQPGGGDEDTKLSAIPKQKLDPAENVITG 2528
Felis_catus           -----HEHGEPVGGDADIGLFKDTPKPKLEPVRNVSR 2398
Equus_caballus        -----HTYGQAPAGDDKDIKVFKEPTRQELDPEENVTR 2312
Bos_taurus            TRPTSRRKRRPKSSPEKVAKEEPTPTPGESTIRGQPARDEEDSRVLKENPRQKLNPAENVITG 2527
Pavo_muticus          -----KRGLQGGDDKKTIVKEDQNPALGNETLOAE 1975
Pavo_cristatus        -----KRGLQGGDDKKTIVKEDQNPALGNETLOAE 1975
Gallus_gallus         -----KCGLOEGDDKKTIVKEDQNPALGNETLOAE 2139
Chelonia_mydas        -----KTSLPENDNKEKVKSKEDQNPVLENITSQAS 2155
Danio_rerio           -----LPEQAEAPILKSVRKRNVIAKETEIDAEPV 1718
Xenopus_tropicalis    -----VKNLADEEAPVSAVKSRRRRQEVKESVPA 1955
.....2890.....2900.....2910.....2920.....2930.....2940

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Mus_musculus          RRNQPRTVKEKTQPLEELT-----SFQEEI AKRIS SKSPQPEEKETLAGLK 2662
Rattus_norvegicus     RRNQPRKVKEKTQPLEELT-----SFQEEIAT RMSCKSPQPEEKKTIVGLK 2718
Homo_sapiens          SRRRPRAPKEKAQPLEDLAGFTELSETSGHTQESLTAGKATKIPCESPPLEVVDTTASTK 2721
Pan_troglodytes       GRRRPRAPKEKAQPLEDLAGFTELSETSGHTQESLTAGKATKIPCESPPLDVVDTTASTK 2722
Macaca_mulatta        SRRRPRAPKEKAQPLEDPAGFKELSEPSGHTQEP LTAGKATKIPCKSPPVVVDTTASTR 2717
Callithrix_jacchus    SRRRPRAPKAKAQPLEDLAGFKELSETPGHSQESLTGKATKIPCKSPPLELVDTTRTSTK 2723
Canis_lupus_familiaris SKRQPRAPKKNVQTLLEDLAGLRELFQTPHEHTQDPMADGKATSVPCCKSPVAEPVKNKPTGRR 2588
Felis_catus           SKRRPRTPKKKVQSLEDLAGLKELFQT---ADPVTGDRRTKAPFOSPLAGPGNKPTNRR 2454
Equus_caballus        SKKQPRIIPKKKAQPLEDLNGLEELIOMP DHTDEPMTEDKTITKMLGKSPQVELVMAPP SKK 2372
Bos_taurus            VRSRLRTLREKTQPLEDPASVKELFQDPDQVKEPEGDVTTIPVPROSPPAKPI TRPTSRK 2587
Pavo_muticus          TNASAREKRKKIDLA AEAK-----SSSLQRCGLSONGDKEANTN 2016
Pavo_cristatus        TNASAREKRKKIDLA AEAK-----SSSLQRCGLSONGDKEANTN 2016
Gallus_gallus         TNASARDKRKKIDLA AEAK-----SSSLQRCGLSONSDKEANTN 2180
Chelonia_mydas        K-----KGRRKQADLT TQAA-----SSTSLRGKSLSPENDGKEKVPK 2192
Danio_rerio           VKRGRRAVADPPPPVAVVP-----SRGRKAVVKSQPEITEDVASPE 1759
Xenopus_tropicalis    KRSRSRREENNAEALTSS-----TTADAVPIALVASESTETPKNKR 1997
.....2950.....2960.....2970.....2980.....2990.....3000

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Mus_musculus          RQLRIQLINDGVKEEPTAQRKQPSR--ETRN TLKEPVGDSINVEEVKKS TKOKIDPVASV 2720
Rattus_norvegicus     KQLRIQLFKVGVEEPTAQRKQPAR--ETRSRLKEPMGNRINVEELKKSTEOKIDPVASM 2776
Homo_sapiens          RHLRTRVQKVQVKEEPSAV-KFTQTSGETTDADKEPAGEDKGIKALKESAKOTPA PAASV 2780
Pan_troglodytes       RHLRTRVQKVQVKEEPSAV-KFTQTSGETTDADKEPAGEDKGIKALKESAKOTPA PAASV 2781
Macaca_mulatta        RHLRTRVQKVQVKEEPSAV-KFTQTSGGTTDADKEPVGEDKGIKAVKESAKOTLAPAASV 2776
Callithrix_jacchus    RHLRTHARKVEVKEEPSAVGKFTQTSGEVADAERESVGKDKGIKASKEPAKOTLAPAACV 2783
Canis_lupus_familiaris RRLKTSPEKVDPEE EPSALRKPTRTRRGATHSHTEPGGGDEDNKLLNKTTKQKVAPAENV 2648
Felis_catus           RRLKTPPKADLKEEPSALRKPTQTPEESTHSLRESGGDDKDKVLFNRTAKQKLGPTENV 2514
Equus_caballus        RRLRVPPQNVDEQEVPSAGRKPTQTLGR TTRSRRGFVDGDKDIKVFEEIARRELDPTASV 2432
Bos_taurus            RRLKASPEKVDIER-PSALREPTRTPGETTHS--EPVHDEKDNRVLKENS KQKLNAAENV 2644
Pavo_muticus          EEQNLPLEPVSLTKVNPLGRGRRK-EALVSH TTNSVSLRGKRGLPADSVREEAPKED-NV 2074
Pavo_cristatus        EEQNLPLEPVSLTKVNPLGRGRRK-EALVSH TTNSVSLRGKRGLPADSVREEAPKED-NV 2074
Gallus_gallus         EEQNMPLEPVSLTKVNPLGRGRRK-EALVSH TTNSISLRGKRDLPA NSVKEEAPKED-NV 2238
Chelonia_mydas        EDQNVPLVNTITEAKANPPRKGRRKQVDLT TQAASSTSLRGKTSLPENDDK EKVPKEDQNV 2252
Danio_rerio           ETVKTVKSTRRRRAKEPETKKEESPLIQTSSEINAAVLPLDKVERVSRGRKTKDS AKDSTI 1819
Xenopus_tropicalis    GRRKANTQLEKVTSDLSVTEVSSKLDLVPEVVNEKAVNKRNTGKRNLSSSDSDSS--- 2054
.....3010.....3020.....3030.....3040.....3050.....3060

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Mus_musculus	PVSKRPRRPKEKAQALE-LAGLKGPIQTLGHTDESASDKGPTQMPCNLSLOPEQVDSFQS	2779
Rattus_norvegicus	TVSKRPRRIPKEKAQTVL-LAGLKGPIQTLGHTTESARDKEPTQMPCNLSLOPEQVDSLQ	2835
Homo_sapiens	TGSRRRPRAPRESAQAIEDLAGFKDPAAGHT--EESMTDDKTTKIPCKSS-PELEDTATS	2837
Pan_troglodytes	TGSRRRPRAPRENAQAIEDLAGFKDPAAGHT--EESMTDDKTTKIPCKSS-PEPEDTATS	2838
Macaca_mulatta	TGSRRRPRAPRENAQAIEDLAGFKDPAAGHT--EESMTDDKTTKIPCKSS-PELVDTATS	2833
Callithrix_jacchus	TGSRRRPRAPRENAHALEDLAGFQDPAPSHF--KESMTSDKATKIACKSL-PEPVDTATS	2840
Canis_lupus_familiaris	MLRKNRPRAPKEKSQAPEELASSKESQ-----	2676
Felis_catus	MGRKNRPRAPN-PTQPLEDLASFRESFL-----	2541
Equus_caballus	TGNKRQLRIPKEKAQPLEDLARYKEVLQ-----	2460
Bos_taurus	IGVRSRLRTLKEKTOPLKDLAGAKELFQKQDGAKEPVSDVTIAPAPHQSP-PAQPVITRR	2703
Pavo_muticus	PLETVASSP-----	2083
Pavo_cristatus	PLETVASSP-----	2083
Gallus_gallus	PLETVASSL-----	2247
Chelonia_mydas	PLENITSQASKKGRRKQVDLTTQAASSTSLQ-----	2283
Danio_rerio	NTSS-----	1823
Xenopus_tropicalis	-----	2054
	.....3070.....3080.....3090.....3100.....3110.....3120	

Mus_musculus	SPRRPRTRRGKVEADEEPSAVRKTVSTSRQTMRSRKVPEIGNNGTQVSKASIKQTLDTVA	2839
Rattus_norvegicus	SPRRPRTRHGKVEADK-PSAVRKTVPTRSRQSVRSRKVTEIDNGTKASKAPVKQTLDTVA	2894
Homo_sapiens	SKRRPRTRAQKVEVKEELLAVGKLTQTSGETTHTDKEPVGEGKGTKAFKQPAKRKLD-AE	2896
Pan_troglodytes	SKRRPRTRAQKVEVKEELLAVGKLTQTSGETTHTDKEPVGEGKGTKAFKQPAKRKLD-AE	2897
Macaca_mulatta	SKRRPRTRAQKVAVKEELLAVGSLTQTSGETAHTDKEPVGEDKGMKAFKQPVKRKLD-AE	2892
Callithrix_jacchus	SKRRLRTRAQKVEVKEEPLAGGQLPPASGETTHTDKEPAGEGNVKAFAKQPSKRKLD-PE	2899
Canis_lupus_familiaris	-----	2676
Felis_catus	-----	2541
Equus_caballus	-----	2460
Bos_taurus	GRQKQLRSPPRKVAVDKPSALSRAQTPGEMTHT--EPVGDEKIKMAKETSRRLNLSAE	2761
Pavo_muticus	-----	2083
Pavo_cristatus	-----	2083
Gallus_gallus	-----	2247
Chelonia_mydas	-----	2283
Danio_rerio	-----	1823
Xenopus_tropicalis	-----	2054
	.....3130.....3140.....3150.....3160.....3170.....3180	

Mus_musculus	KVTGSRRQLRTHKDGVOPLVLGDSKEITQISDHSEKLA-HDTSILKSTQQQKPDVSVKPL	2898
Rattus_norvegicus	KETDSKRQLRTRKNGVOPLVLGDSKEITQISDHSEKLR-HDTNLIKSTLQQKPDVSMKPL	2953
Homo_sapiens	DVIGSRRQPRAPKEKAQPLEDLASFQELSQTTPGHTTEELANGAADSFTSAPKQTPDSGKPL	2956
Pan_troglodytes	DGIGSRRRPPRAAKEKAQPLEDLASFQELSQTTPGHTTEELANGAADSFTSAPKQTPDSGKPL	2957
Macaca_mulatta	DVIGSRRRPPRAPKEKAQPLEDLASFPELSPTPGHTTEELANGAADSFTSAPKKTTPDSGKPL	2952
Callithrix_jacchus	NVIGSRRRPPAPKEKAQPPEDPASFOELSQTTPGHTTEEPANGAG-SFTGTSTKQTPDSGKPL	2958
Canis_lupus_familiaris	-----MPGHTKGLG-DEASSIQETPKQTPDRGKPV	2705
Felis_catus	-----RPDHPKQRG-DAG-SIQGAPKQTPDGGKPV	2569
Equus_caballus	-----MPAHAKKLG-TDAETIKVTPTQTPDRREP	2489
Bos_taurus	NFIGVRSRRKAFQEK--VEDPAGSQEPFQKPDQAELE-SSSTAIKRASKQTVDR-RPV	2817
Pavo_muticus	-----KENQ-----	2087
Pavo_cristatus	-----KENQ-----	2087
Gallus_gallus	-----KENQ-----	2251
Chelonia_mydas	-----GKSSLPENGGKEKVPKENQNVPLGNTT	2310
Danio_rerio	-----	1823
Xenopus_tropicalis	-----	2054
	.....3190.....3200.....3210.....3220.....3230.....3240	

# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/MK107.tps Tue Feb 14:03:00 2022

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Mus_musculus	RTCRRVLRASKEDPKEVLVDTRDH--ATLQSKSNPLLSF---KRKSARDGSIVRTTRALRSL	2954
Rattus_norvegicus	RKCRRVLRITSKEDPKEVLMDTSDL--AALQSKSNLYLSF---PRKSARDGRILKTRTLCSV	3009
Homo_sapiens	KISRRVLRAPKVEPVGDVSTRDP-VKSQSKSNTSLPPLPFKRGGGKDGSVTGTKRLRCM	3015
Pan_troglodytes	KISRRVLRAPKVEPVGDVSTRDP-VKSQSKSNTSLPPLPFKRGGGKDGSVTGTKRLRCM	3016
Macaca_mulatta	KTSRRVLRAPKVEPVADLVSTTDP-VKSQSKSNTSLPPLPFKSGGGKDGSAITGTKRLRCM	3011
Callithrix_jacchus	KISRRVLRAPKVEPVGDEVGTRDP-VKSQSKSNSSLPPPPCKRGCGRDGSGVTGIKRLCFM	3017
Canis_lupus_familiaris	KVLQGVRRAPRGKAVDDLVGQRDPLVESGSEGSVLSLSS---KRKRGTGGQITGMKRLRSA	2762
Felis_catus	KPLARVRRAPRGKPVEDLAGHRDP-VKSRSESSDSPSP---KRKRGNEGGGPGTKRLRSV	2625
Equus_caballus	KMSRRVLRARKTKPMDDLVGTRDP-VQSQSGSRVSPSP---KRKGKGKHSVTGRKRLRSV	2545
Bos_taurus	ETSRRVLRAPKVRFTEDLVGSREP-AKHPGESCVSPSP---EREQGEDGRVTGRKRLRPV	2873
Pavo_muticus	-----LRRGRNRQATFLSEATSS-----	2105
Pavo_cristatus	-----LRRGRNRQATFLSEATSS-----	2105
Gallus_gallus	-----LRRGRNRQMTFLSEATSSA---QGTHSLSKESGRNNHREAKNLISEQASQEKM	2303
Chelonia_mydas	EAKANPPRMGRRKQVDLTQAASSTSLRGKTSLEPNDDEKVPKEDQNVPLENITSQASK	2370
Danio_rerio	-----ITEEANETKP-----SKAVNWNPDVAAKDVEEF	1852
Xenopus_tropicalis	-----SKAVEPVLITITQ-----KRGRGAAAKSLDSETTE	2085
	.....3250.....3260.....3270.....3280.....3290.....3300	

Mus_musculus	APKQEATDEKPVPEKKRAASSKRHVSPEPVKMKH--LKIVSNKLESVEEQVSTVMKTEEM	3012
Rattus_norvegicus	TPKQEATGEKPVHKKQRAASTKRQVSPEPVKVH--LRVSHKRESVEEHISTIMQIEEM	3067
Homo_sapiens	PAPEEIVEELPASKKQVAPRARGKSSEPVMKRSRLTSAKRIEPAEELNSNDMKTINKE	3075
Pan_troglodytes	PAPEEIVEELPASKKQVAPRARRKSPEPVIMKRSRLTSAKRIEPAEELNSNDMKTINKE	3076
Macaca_mulatta	PAPEEITEELPASKKQVAPRARGKSPEPMVMKRSRLTSAKRIEPPVELNSNMKTINKE	3071
Callithrix_jacchus	PVPEEIVQELPASKKQVPPRLRAKSPEPLVMKRSRLTSAKRSERAEPPNSNSMNTINKE	3077
Canis_lupus_familiaris	TSAQDTAEKPPQKRRRTAPREGCDPPEQPLTVKKKLSVVVEKIEVMGDLPRSHREAEK	2822
Felis_catus	TPAQATAEEKPPLKRRGAPREGDPPE--PLTAKRKL--VAERMEVPEDLTSKGRESRTE	2683
Equus_caballus	TTPPEMAEEKPLQKKQRTAPGETLTPSEPSIAEKRLRLAKRIEPPVEELPSN-TKTEKK	2604
Bos_taurus	TAAQDPEDERPLQKKQRTAPRETREPPEPPGVKKRSRLTLAQRTPEGGNLPND--DLKAK	2931
Pavo_muticus	-----	2105
Pavo_cristatus	-----	2105
Gallus_gallus	NYSKGYSRKKNSTSOPDSSRSLOG---LPEDGKDESPPEEQSMLEITPSSSEENPLRLG	2359
Chelonia_mydas	---KGRRKQVDLTQAASSTSLRGKSLPNDGEEKVPKEHQNVPLGNTAEVKANPPRRG	2427
Danio_rerio	EPTADVIEPQLKKSRLCKSPSKASPTESDQSTDLPLRGRGR-----A	1896
Xenopus_tropicalis	VKTIVESAENVTSNKRGRAPSQKTNNPETSKTTTEPVNKNQATEAVAKNTDNAESPCKSR	2145
	.....3310.....3320.....3330.....3340.....3350.....3360	

Mus_musculus	EAKRENPTV-PDQ---NSRYRKKTINVKPRPKFDASA---ENVGIKKNEKTMKTASQET	3064
Rattus_norvegicus	EAKRENPTV-PDQKIPQSRYRKKT-EKQSPKFDASA---EKVGIKKNEKTMKIS-QET	3121
Homo_sapiens	EHKLQDSVP-ENKGISLRSRRQNKTEAEQQITEVFVLA---ERIEINRNEKKPMKTSPEM	3131
Pan_troglodytes	EHKLQDSVP-ENKGISLRSRRQNKTEAEQQITEVFVLA---ERLEINRNEKKPMKTSPEM	3132
Macaca_mulatta	EHKLQDSVP-ENKGISLRSRRQNKTDVEQQITEVLVLA---ERIEINRNE---MKTSPEM	3124
Callithrix_jacchus	EHGVQDSVP-EKKGMSLRARRQNKTDAEQPTTEVFILA---ERIKTNRAKKPMKTPQEM	3133
Canis_lupus_familiaris	GQEVGRMTP-PHQGRSLRSRRPNKMEVEEQRPEPVTAATAAAEKMKTKRSDKKPLKTSQET	2881
Felis_catus	GRGVGRMTTASPQQAMSLRSRRPNKAKLEEQRPEPVKAT--AEKVKTDRNDKKPWKTSQQT	2741
Equus_caballus	GQRVEDATA-PNKGMSLRRSRRPNKTTVEEQRTTEFLISA---EKIKIKRNEKKPMNTSQEM	2660
Bos_taurus	ATDPQEVQAQAPNKGVSRLRSRRPAKTSVEEQRPEVLISE---EKVKIKRSEKKSVPQSQEM	2988
Pavo_muticus	-----	2105
Pavo_cristatus	-----	2105
Gallus_gallus	RKKAVCFKSEDTRSSFLREKHVFCNNRGQKGNLNEDEGTFLNNSSQENRRQLRNKREKV	2419
Chelonia_mydas	RRKQVDLTQAASSTSLRGKGSLEPNDGEEKVPKEHQNVPLGNTTEVKANPPRRGRRKQV	2487
Danio_rerio	AAKKEDLLVEDSQEESLNVKTTTRRGKAVASTATKSEPSSEKASTPLKRRKNEVLIDINEES	1956
Xenopus_tropicalis	RGLRKKAATTDVPEGNIS-----	2163
	.....3370.....3380.....3390.....3400.....3410.....3420	

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Mus_musculus	ELQNPDGAKKSTSRG-QVSGKRTCLRSRGTTTEMPQPCAEAEKTSKPAAEILLIKPOEEKG	3123
Rattus_norvegicus	EPQNPDGPTKKSSSLG-KVSGKRTCLRSRGQTEIPOHEAEKTRKSGAEISIKTOEEKG	3180
Homo_sapiens	DIQNPDGARKPIPRD-KVTENKRCLRSARQNESSQPKVAEESGGQSAKVLQMOKGKG	3190
Pan_troglodytes	DIQNPDGARKPIPRD-KVSENKRCLRSVRQNESSQPKVAEESGGQSAKVLQMOKGKG	3191
Macaca_mulatta	DIQNPDGAWKPIPRG-KVSENKRCLRSVRPNKSSQPKVAEESGGQSAKVLQMOKGKG	3183
Callithrix_jacchus	DIQSPDDGAQKPVRRG-KAGEDKRRLRSVRQNRSPQPVAEESGGQSTGTLLQNOERKG	3192
Canis_lupus_familiaris	KPOSPE--AKSSASGGKAPRESRMCLRSARPSKMPSPDVAEEKQGERRGALVKEQEE-D	2938
Felis_catus	KPOSPE--AKSSASGGKAPRESRMCLRSARPSKMPSPDVAEEKQGERRGALVKEQEE-E	2799
Equus_caballus	KLQNPEDGAKNSTSGG-QVHESRMGLRSGRQNMPLPNVAEEKVRKKRVEIHVESQKEKE	2719
Bos_taurus	KLQSPEDGAKKPASGG-KVEERRTRSRPGRQNPPLPEAAEEKVREGRVDIPAKKQEEKE	3047
Pavo_muticus	-----	2105
Pavo_cristatus	-----	2105
Gallus_gallus	EFKSEAATSTSLQDKGNLPENDNSSETQNKCLASTGSEKNKQSTKEVS-----PAQQPAS	2474
Chelonia_mydas	DLTTQAASSTSLRGKGSLEPNDKEKVPKEDQNVPLGNI TSQASKKGRRKQVDLTSQVASS	2547
Danio_rerio	VIKEPLPKRRGRVANN-----ADVAEEVLSKEKIPAEQDKTEAS	1996
Xenopus_tropicalis	-----VSENGPRANVRESTRGASROK	2184
	.....3430.....3440.....3450.....3460.....3470.....3480	

Mus_musculus	VSGESDVRCLRSRKTR-----VALDSEPKPRVTRGTTKDAKTLKEDEDIVCTKKLRTRS-	3177
Rattus_norvegicus	VSGDPDVRRLRSRQTR-----VTLDNEPKPRVTRGAKKDAKTLKKDEDIVYTKILRTRSH	3235
Homo_sapiens	EAGNSDSMCLRSRKTKSQPAASTLESKEVQVTRSVKRCANPKKAEDNVCVKKIRTRSH	3250
Pan_troglodytes	EAGNSDSMCLRSRKTKSQPAASTLESKEVQVTRSVKRCANPKKAEDNVCVKKIRTRSH	3251
Macaca_mulatta	EAGNSDSMCLRSRKTKSQSAASTLESKEVQVTRSVKRCANPKKAEDIVYVKKIRTRSH	3243
Callithrix_jacchus	EAGNSDSMHLRSRKTKSQSAASTLESESAQGVRRGVKRCANPKKAEDVVCIKKIRTRGH	3252
Canis_lupus_familiaris	VRQPSAPKRLRSRKITDPPGGNALESEPCPRVTRSAKRCANPKKAEDNDHARPKRLRTRRR	2998
Felis_catus	VTQSDVMSLRSRKVKILPGGNALESESQRVTRSAKRCAGNVKKDEDNACVKKIRTRSR	2859
Equus_caballus	ATGHSDSKSLRSRKITIPPKGNTLEGESEQRVTRRANRRRAETIKTDNDNVCIKKIRTRSR	2779
Bos_taurus	GTGHSDPKGSRSRKVSVRPRGNPSETASEQRVTRSAKRCASHLQKESDNVCVKKIRTRSR	3107
Pavo_muticus	-----	2105
Pavo_cristatus	-----	2105
Gallus_gallus	TSRRRKQCLPADVLA PKKLKSDNDENRSPKRGRRNKAKEELDGGGIKTRNPGETDRRT	2534
Chelonia_mydas	TSLREKRHLPEDEKA AKKLKSEYQSIITLQKETRNKTKGELGKGDISMIQSAGGTERTR	2607
Danio_rerio	SKTANRSARGQKKTAQQTDPAPAQTQEPVSGTSTRRGVKKVEEVDVSTVAAPVRRTRR	2056
Xenopus_tropicalis	TAAKENPVVVEESPAKKKRTEPSSSPAQKGKTRATAAKRKNEKPTFVVKTRQTLRTRK-	2243
	.....3490.....3500.....3510.....3520.....3530.....3540	

Mus_musculus	-----	3177
Rattus_norvegicus	OKSETV-----	3241
Homo_sapiens	RDSEDI-----	3256
Pan_troglodytes	RDSQDI-----	3257
Macaca_mulatta	RDSEDI-----	3249
Callithrix_jacchus	QGSEDI-----	3258
Canis_lupus_familiaris	RDDEDI-----	3004
Felis_catus	RDNEDV-----	2865
Equus_caballus	RDNEDV-----	2785
Bos_taurus	RP-----	3109
Pavo_muticus	-----	2105
Pavo_cristatus	-----	2105
Gallus_gallus	SSTRTSARTRK	2545
Chelonia_mydas	ASARTRK----	2614
Danio_rerio	K-----	2057
Xenopus_tropicalis	-----	2243
	.....3550.	