

# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/UACData Tue Feb 14:49:28 2022

Page 1 of 7

```

* :                               :*****:***:
Pavo_muticus      MKSLKSRLR---KHEITII-----AGSALNTDWNKYDDRLMK 33
Pavo_cristatus    MKSLKSRLR---KHEITII-----AGSALNTDWNKYDDRLMK 33
Gallus_gallus     MKSLKSRLR---KHEITII-----AGSALNTDWNKYDDRLMK 33
Mus_musculus      MKSLKSRLW---KQDAPG-----PTSPSPSP---TAVASTQSAEWNKYDDRLMK 42
Rattus_norvegicus MKSLKSRLW---RQDAPG-----PTSPTSP---TAVTSLSIAEWNKYDDRLMK 42
Homo_sapiens      MKSLKSRLR---RQDVPG-----PASSG---AAAASAHAAADWNKYDDRLMK 40
Pan_troglodytes   MKSLKSRLR---RQDVPG-----PASSG---AAAASAHAAADWNKYDDRLMK 40
Macaca_mulatta    MKSLKSRLR---RQDVPG-----PASSGA---AAAAASAHAAADWNKYDDRLMK 42
Callithrix_jacchus MLSLKSIILNVSCISCVLGRFYNSALLMKLAQKGEKNLECNWKISDHATDWNKYDDRLMK 60
Bos_taurus        MKSLKSRLR---RQDAPG-----PAPSGA---AAAASAHAAADWNKYDDRLMK 42
Equus_caballus    MKSLKSRLR---RQDAPG-----PASS---SAAAASAHAAADWNKYDDRLMK 40
Canis_lupus_familiaris MPSSLLLAT---RNQILS-----MMNCWFS---CAPKNRHAADWNKYDDRLMK 42
Rhinatrema_bivittatum MATVGNPCEASHRWDCAQG--FAAWKRS---CRWGLRIRHWFSCITAKDMQTADWNKYDDRLMK 58
Xenopus_tropicalis MKSLKSRLK---KHEVTI-----TQTADWNKYDERLMR 30
1.....10.....20.....30.....40.....50.....60

```

```

*****:***: *****: * ****:***:..****:***:*** ** ** *::: *:
Pavo_muticus      AAERGDVEKVSSILAKKGVSP TKLDVEGRSAFHVVASKGNLDCNLNTILIHGVDITATDAA 93
Pavo_cristatus    AAERGDVEKVSSILAKKGVSP TKLDVEGRSAFHVVASKGNLDCNLNTILIHGVDITATDAA 93
Gallus_gallus     AAERGDVEKVSSILAKKGVSP TKLDVEGRSAFHVVASKGNLDCNLNTILIHGVDITATDAA 93
Mus_musculus      AAERGDVEKVSSILAKKGVHPGKLDVEGRSAFHVVASKGNLECLNAILTHGIDVATRDSA 102
Rattus_norvegicus AAERGDVEKVSSILAKKGVHPGKLDVEGRSAFHVVAAGNLECLNAILTHGIDVATRDSA 102
Homo_sapiens      AAERGDVEKVSSILAKKGVNPGKLDVEGRSVFHVVTSGNLECLNAILIHGVDITTSDTA 100
Pan_troglodytes   AAERGDVEKVSSILAKKGVNPGKLDVEGRSVFHVVAAGNLECLNAILIHGVDITTSDTA 100
Macaca_mulatta    AAERGDVEKVSSILAKKGVNPGKLDVEGRSAFHVVASKGNLECLNAILIHGVDITTSDTA 102
Callithrix_jacchus AAERGDVEKVSSILAKKGVNPGKLDVEGRSVFHVVAAGNLECLNAILIHGVDITTSDTA 120
Bos_taurus        AAERGDVEKVSSILAKKGVNPGKLDVEGRSAFHVVASKGNLECLNAILIHGVDITTSDTA 102
Equus_caballus    AAERGDVEKVSSILAKKGVNPGKLDVEGRSAFHVVASKGNLECLNAILIHGVDITTSDTA 100
Canis_lupus_familiaris AAERGDVEKVSSILAKKGINPGKLDVEGRSAFHVVASKGNLECLNAILIHGVDITTSDTA 102
Rhinatrema_bivittatum AAERGDVDKVSTVLAKKGINPCKLDLEGRSAFHVVASKGNLDCNLSILLHGTDTITASDAA 118
Xenopus_tropicalis AAERGDVEKVSSILAKKGVNPSKLDLEGRSAFHVVASKGNLECLNAILIHGVDITAPDAA 90
.....70.....80.....90.....100.....110.....120

```

```

*****:*****:*****:*****:*****:*****:*****:*****:*****:
Pavo_muticus      GRNALHLAAKYGHALCLOKLLQYNCPTENVDLQGR TALHDAAMSDC SSSIQLLCDHGASV 153
Pavo_cristatus    GRNALHLAAKYGHALCLOKLLQYNCPTENVDLQGR TALHDAAMSDC SSSIQLLCDHGASV 153
Gallus_gallus     GRNALHLAAKYGHALCLOKLLQYNCPTENVDLQGR TALHDAAMSDC SSSIQLLCDHGASV 153
Mus_musculus      GRNALHLAAKYGHALCLOKLLQYNCPTENVDLQGR TALHDAAMADCP SSSIQLLCDHGASV 162
Rattus_norvegicus GRNALHLAAKYGHALCLOKLLQYNCPTENVDLQGR TALHDAAMADCP SSSIQLLCDHGASV 162
Homo_sapiens      GRNALHLAAKYGHALCLOKLLQYNCPTENVDLQGR TALHDAAMADCP SSSIQLLCDHGASV 160
Pan_troglodytes   GRNALHLAAKYGHALCLOKLLQYNCPTENVDLQGR TALHDAAMADCP SSSIQLLCDHGASV 160
Macaca_mulatta    GRNALHLAAKYGHALCLOKLLQYNCPTENVDLQGR TALHDAAMADCP SSSIQLLCDHGASV 162
Callithrix_jacchus GRNALHLAAKYGHALCLOKLLQYNCPTENVDLQGR TALHDAAMADCP SSSIQLLCDHGASV 180
Bos_taurus        GRNALHLAAKYGHALCLOKLLQYNCPTENVDLQGR TALHDAAMADCP SSSIQLLCDHGASV 162
Equus_caballus    GRNALHLAAKYGHALCLOKLLQYNCPTENVDLQGR TALHDAAMADCP SSSIQLLCDHGASV 160
Canis_lupus_familiaris GRNALHLAAKYGHALCLOKLLQYNCPTENVDLQGR TALHDAAMADCP SSSIQLLCDHGASV 162
Rhinatrema_bivittatum GRNALHLSAKYGHSLCLOKLLQYNCPTENVDLQGR TALHDAAMSDCRSSVQLLCDHGACV 178
Xenopus_tropicalis GRNALHLSAKYGHSLCLOKLLQYNCPTENVDLQGR TALHDAAMSDC SSSIQLLCDHGASV 150
.....130.....140.....150.....160.....170.....180

```

```

**** *:***:*****:***:*****:***:*****:*****:*****:
Pavo_muticus      NAKDGDGRTPVLVATQMC RPTVCOLLIDRGADV NARDKQNR TALMLGCEYGCKDAVEVLL 213
Pavo_cristatus    NAKDGDGRTPVLVATQMC RPTVCOLLIDRGADV NARDKQNR TALMLGCEYGCKDAVEVLL 213
Gallus_gallus     NAKDGDGRTPVLVATQMC RPTVCOLLIDRGADV NARDKQNR TALMLGCEYGCKDAVEVLL 213
Mus_musculus      NAKDIDGRTPVLVATQMC RPTICOLLIDRGADV NSRDKQNR TALMLGCEYGCRDAVEVLV 222
Rattus_norvegicus NAKDIDGRTPVLVATQMC RPTICOLLIDRGADV NSRDKQNR TALMLGCEYGCRDAVEVLV 222
Homo_sapiens      NAKDVGDRTPVLVATQMC RPTICOLLIDRGADV NSRDKQNR TALMLGCEYGCRDAVEVLI 220
Pan_troglodytes   NAKDVGDRTPVLVATQMC RPTICOLLIDRGADV NSRDKQNR TALMLGCEYGCRDAVEVLI 220
Macaca_mulatta    NAKDVGDRTPVLVATQMC RPTICOLLIDRGADV NSRDKQNR TALMLGCEYGCRDAVEVLI 222
Callithrix_jacchus NAKDVGDRTPVLVATQMC RPTICOLLIDRGADV NSRDKQNR TALMLGCEYGCRDAVEVLI 240
Bos_taurus        NAKDVGDRTPVLVATQMC RPTICOLLIDRGADV NSRDKQNR TALMLGCEYGCKDAVEVLI 222
Equus_caballus    NAKDVGDRTPVLVATQMC RPTICOLLIDRGADV NSRDKQNR TALMLGCEYGCKDAVEILI 220
Canis_lupus_familiaris NAKDVGDRTPVLVATQMC RPAICOLLIDRGAEIN SRDKQNR TALMLGCEYGCKDAVEVLL 222
Rhinatrema_bivittatum NAKDGDGRTPVLVATQMC RPAICOLLIDKGADV NAGDKQNK TALMLGCEYGCKDAVEVLL 238
Xenopus_tropicalis NAKDGDGRAPVALATQMC RPAICOLLIEKGADV INSRDKQNK TPLMLGCEYGCKEAVDVLL 210
.....190.....200.....210.....220.....230.....240

```

# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/UACData Tue Feb 1 14:49:28 2022

Page 2 of 7

```

: *** .:* :***:***:*****:*** :*: *.: .: :
Pavo_muticus      RKGADVSLVDGLGHDCAYYARIGDNIDILALIKAAVEDSSKA--RDTMKRGQPEQKMNSM 271
Pavo_cristatus    RKGADVSLVDGLGHDCAYYARIGDNIDILALIKAAVEDSSKA--RDTMKRGQPEQKMNSM 271
Gallus_gallus     KKGADVSLVDGLGHDCAYYARIGDNIDILALIKAAVEDSSKA--RDTMKRGQPEQKMNSM 271
Mus_musculus      KKGADLTLLDALGHDSYYARIGDNLDILNLLKTASENTNKGGRRELWRKGPP----- 275
Rattus_norvegicus RKGADLTLLDALGHDSYYARIGDNLDILNLLKTASENTNKGGRRELWRKGPP----- 275
Homo_sapiens      KKGADISLLDALGHDSYYARIGDNLDILTLLKTASENTNKG--RELWKKGPS----- 271
Pan_troglodytes   KKGADISLLDALGHDSYYARIGDNLDILTLLKTASENTNKG--RELWKKGPS----- 271
Macaca_mulatta    KKGADISLLDALGHDSYYARIGDNLDILTLLKTASENTNKG--RELWKKGPS----- 273
Callithrix_jacchus KKGADISLLDALGHDSYYARIGDNLDILTLLKTASENTNKG--RELWKKGPS----- 291
Bos_taurus        KKGADVTLLDALGHDSYYARIGDNLDILTLLKTASENSNKG--RELWKKGPS----- 273
Equus_caballus    KKGADVSLLDALGHDSYYARIGDNLDILTLLKTASENTNKG--RELWKKGPS----- 271
Canis_lupus_familiaris KKGADVSLLDALGHDSYYARIGDNLDILTLLKTASENTNKG--RELWKKGPS----- 273
Rhinatrema_bivittatum KKGADATMVDVLGHDSYYARIGDNLEILALIRAAVENS SKG--RESQKIGPL-----V 290
Xenopus_tropicalis RAGADVNLVDSFGHDCAYYSRIGDNLEILAMIKTAMENSPOG--LDPVRRIVS-----L 262
.....250.....260.....270.....280.....290.....300

```

```

: * . . ** *:***:***:***:***:***
Pavo_muticus      SOKWNRHLHAQEEVNKLYQ---KEHNAQEELEENQDLKDRMREVQEEQRMILLDRISGLQ 327
Pavo_cristatus    SOKWNRHLHAQEEVNKLYQ---KEHNAQEELEENQDLKDRMREVQEEQRMILLDRISGLQ 327
Gallus_gallus     SOKWNRHLHAQEEVNKLYQ---KEHNAQEELEENQDLKDRMREVQEEQRMILLDRISGLQ 327
Mus_musculus      LQQRNLSHTQDEGSVKSTQREQREPHSFQDLEIENEDLREKLRLKIQEQEQRILLDKVNGLO 335
Rattus_norvegicus LQQRNLSHTQDEGNVKSNO---REHHSFQDLEIENEDLREKLRLKIQEQEQRILLDKVNGLO 332
Homo_sapiens      LQQRNLTHMQDEVNVKSHQ---REHQNIDLEIENEDLREKLRLKIQEQEQRILLDKVNGLO 328
Pan_troglodytes   LQQRNLTHMQDEVNAKSHQ---REHQNIDLEIENEDLREKLRLKIQEQEQRILLDKVNGLO 328
Macaca_mulatta    LQQRNLTHMQDEVNVKSHQ---REHQNIDLEIENEDLREKLRLKIQEQEQRILLDKVNGLO 330
Callithrix_jacchus LQQRNLTHMQDEVNVKSYQ---REHQNIDLEIENEDLREKLRLKIQEQEQRILLDKVNGLO 348
Bos_taurus        LQQRNLSQMLDEVNTKSNQ---REHQNIDLEIENEDLREKLRLKIQEQEQRILLDKVNGLO 330
Equus_caballus    LQQRNLTHMLDEVNMKPNQ---REHQNIDLEIENEDLREKLRLKIQEQEQRILLDKVNGLO 328
Canis_lupus_familiaris LQQRNLPYMLDEVNVKSSQ---REHQNIDLEIENEDLREKLRLKIQEQEQRILLDKVNGLO 330
Rhinatrema_bivittatum QMKWHQONSQEEGSVKSPR---STHSMQDLEIENEDLREKLRLKIQEQEQRILLDRVSGLO 346
Xenopus_tropicalis RTRKTKQNSVEEGSVSKSKE-----KSLDLEAENENLREKLRLKIQEQEQRILLDRVSGLO 315
.....310.....320.....330.....340.....350.....360

```

```

*** :* *.:***:***:***:***:*** :* *.:***:***:***:***
Pavo_muticus      LQLIEEQMFADDLENEKDELKKILTTEKEQEEESLRTIEALKAKLKYYEV-DFVSGSGSNF 386
Pavo_cristatus    LQLIEEQMFADDLENEKDELKKILTTEKEQEEESLRTIEALKAKLKYYEV-DFVSGSGSNF 386
Gallus_gallus     LQLIEEQMFADDLENEKDELKKILTTEKEQEEESLRTIEALKAKLKYYEV-DFVSGSGSNF 386
Mus_musculus      LQLNEEVMVADDLESEREKLSLLAAKEKQHEESLRTIEALKKNRFKYFES-DHPGPGSYF 394
Rattus_norvegicus LQLNEEVMVADDLESEREKLSLLAAKEKQHEESLRTIEALKKNRFKYFES-DHPGPGSYF 391
Homo_sapiens      LQLNEEVMVADDLESEREKLSLLAAKEKQHEESLRTIEALKKNRFKYFES-DHLGSGSHF 387
Pan_troglodytes   LQLNEEVMVADDLESEREKLSLLAAKEKQHEESLRTIEALKKNRFKYFES-DHLGSGSHF 387
Macaca_mulatta    LQLNEEVMVADDLESEREKLSLLAAKEKQHEESLRTIEALKKNRFKYFES-DHLGSGSHF 389
Callithrix_jacchus LQLNEEVMVADDLESEREKLSLLAAKEKQHEESLRTIEALKKNRFKYFES-DHLGSGSHF 407
Bos_taurus        LQLNEEVMVADDLESEREKLSLLAAKEKQHEESLRTIEALKKNRFKYFES-DHLGSGSHF 389
Equus_caballus    LQLNEEVMVADDLESEREKLSLLAAKEKQHEESLRTIEALKKNRFKYFES-DHLGSGSHF 387
Canis_lupus_familiaris LQLNEEVMVADDLESEREKLSLLAAKEKQHEESLRTIEALKKNRFKYFES-DHLGSGSHF 389
Rhinatrema_bivittatum LQLSQQEQMVTDDLNEKEELKMLLTTEKEEKEESTKVIIEALKAKLRFYES-NLVAYGGLT 405
Xenopus_tropicalis LQLNQQEQMMSDDLNEKEELKMLLTTEKEEKEESTKVIIEALKAKLRFYES-NLVAYGGLT 375
.....370.....380.....390.....400.....410.....420

```

```

** : * . * . ** ***** . :
Pavo_muticus      NLGKED-LLKQGQAFAVESQ-----SRSMRLRPLELSLPHQSPNSERETLKKELD 434
Pavo_cristatus    NLGKED-LLKQGQAFAVESQ-----SRSMRLRPLELSLPHQSPNSERETLKKELD 434
Gallus_gallus     SNRKED-LLKQGQVFAVESQ-----SRSMRLRPLELSLPHQSPNSERETLKKELD 434
Mus_musculus      SNRKEDMLHKQGQMYTTTPEQCASPGIPPHMHSRSMRLRPLELSLPSQTSYSENEILKKELE 454
Rattus_norvegicus SNRKEDMLHKQGQMYTADSQCTSPGVPPHMQSRSMRLRPLELSLPSQTSYSENEILKKELE 451
Homo_sapiens      SNRKEDMLHKQGQMYMADSQCTSPGIPAHMQSRSMRLRPLELSLPSQTSYSENEILKKELE 447
Pan_troglodytes   SNRKEDMLHKQGQMYMADSQCTSPGIPAHMQSRSMRLRPLELSLPSQTSYSENEILKKELE 447
Macaca_mulatta    SNRKEDMLHKQGQMYMADSQCTSPGIPAHMQSRSMRLRPLELSLPSQTSYSENEILKKELE 449
Callithrix_jacchus SNRKEDMLHKQGQMYMADSQCTSPGIPAHMQSRSMRLRPLELSLPSQTSYSENEILKKELE 467
Bos_taurus        SNRKEDMLHKQGQMYMADSQCTSPGIPAHMQSRSMRLRPLELSLPSQTSYSENEILKKELE 447
Equus_caballus    SNRKEDMLHKQGQMYMADSQCTSPGIPAHMQSRSMRLRPLELSLPSQTSYSENEILKKELE 447
Canis_lupus_familiaris SNRKEDMLHKQGQMYMADSQCTSPGIPAHMQSRSMRLRPLELSLPSQTSYSENEILKKELE 449
Rhinatrema_bivittatum SNKGEDLLGKG--VAMAVQHTQMSVPSHLQPSLLRPLELAGLGGAAP-----ADMD 456
Xenopus_tropicalis GNGKEEVVMKQNSILGVDPQ-----LAAHLPARSQRPLELPGL-----ENTDQRHELE 423
.....430.....440.....450.....460.....470.....480

```

## CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

**File: /media/morpheus/disk1/fst/pep\_msa/UAData/**

Page 3 of 7

	:*	.*:::	*:*.*:::	::* **	*	:: :	:	* *	:::*****:*****	
Pavo_muticus	NMRTC	YGAAKEEIS	KLQRELS	HKVSECKA	LASECERTKEESDGOIKOLEDALKDVKRMF	494				
Pavo_cristatus	NMRTC	YGAAKEEIS	KLQRELS	HKVSECKA	LASECERTKEESDGOIKOLEDALKDVKRMF	494				
Gallus_gallus	NVRTC	YGAAKEEIS	KLQRELS	HKVSECKA	LASECERTKEESDGOIKOLEDALKDVKRMF	494				
Mus_musculus	TILRTYYDSAKQDR	LKLFONELAHKVAECKALALECERVKEDSDEQIKOLEDALKDVKRMY	514							
Rattus_norvegicus	AMRTFCDSAKQDR	LKLONELAHKVAECKALALECERVKEDSDEQIKOLEDALKDVKRMY	511							
Homo_sapiens	AMRTFCESAKQDR	LKLONELAHKVAECKALALECERVKEDSDEQIKOLEDALKDVKRMY	507							
Pan_troglodytes	AMRTFCESAKQDR	LKLONELAHKVAECKALALECERVKEDSDEQIKOLEDALKDVKRMY	507							
Macaca_mulatta	AMRTFCESAKQDR	LKLONELAHKVAECKALALECERVKEDSDEQIKOLEDALKDVKRMY	509							
Callithrix_jacchus	TMRTFCESAKQDR	LKLONELAHKVAECKALALECERVKEDSDEQIKOLEDALKDVKRMY	527							
Bos_taurus	AMRTFCDSAKQDR	LKLONELAHKVAECKALALECERVKEDSDEQIKOLEDALKDVKRMY	507							
Equus_caballus	AMRTFCDSAKQDR	LKLONELAHKVAECKALALECERVKEDSDEQIKOLEDALKDVKRMY	507							
Canis_lupus_familiaris	AMRTFCESAKQDR	LKLONELAHKVAECKALGLECEERIKEDSDEQIKOLEDALKDVKRMY	509							
Rhinatrema_bivittatum	ALRRYCEGAKEEVTKLQQL	EALHKSARCDALAAECEOTQLAADSITRELEDALKDVKRMF	516							
Xenopus_tropicalis	TIRRYEAARDETIKLQEL	SRSSECVLVSRDRCKVESDOOIHOLEDALDRDKRML	483							
	.....490.....500.....510.....520.....530.....540									

	***** :*****:*:.: : * : *:.:*: :* ****:*****:*. :	
Pavo_muticus	DSEGVKQMQTHFLALKDHLTNEAASGNSKLTTELKDQLKEMKTKYEGASAEVGVKLRNQI	554
Pavo_cristatus	DSEGVKQMQTHFLALKDHLTNEAASGNSKLTTELKDQLKEMKTKYEGASAEVGVKLRNQI	554
Gallus_gallus	ESEGVKQMQTHFLALKDHLTNEAASGNSKLTTELKDQLKEMKTKYEGASAEVGVKLRNQI	554
Mus_musculus	ESEGVKQMQTHFLALKEHLTNEAATGSHRIIEELREQLDKGKYEGASAEVGLRSOI	574
Rattus_norvegicus	ESEGVKQMQTHFLALKEHLTNEAATGSHRVEELREQLDKMGKYEGASAEVGVKLRNQI	571
Homo_sapiens	ESEGVKQMQTHFLALKEHLTSEAAAGNHRLTEELKDQLKDLVKYEGASAEVGVKLRNQI	567
Pan_troglodytes	ESEGVKQMQTHFLALKEHLTSEAAAGNHRLTEELKDQLKDLVKYEGASAEVGVKLRNQI	567
Macaca_mulatta	ESEGVKQMQTHFLALKEHLTSEAAAGNHRLTEELKDQLKDMKAKYEGASAEVGVKLRNQI	569
Callithrix_jacchus	ESEGVKQMQTHFLALKEHLTSEAAAGNHRLTEELKDQLKDMKAKYEGASAEVGVKLRNQI	587
Bos_taurus	ESEGVKQMQTHFLALKEHLTSDAATGNHRLMEELKDQLKDMVKYEGASAEVGVKLRNQI	567
Equus_caballus	ESEGVKQMQTHFLALKEHLTSEAAAGSHRLTEELKDQLRDMKAKYEGASAEVGVKLRNQI	567
Canis_lupus_familiaris	ESEGVKQMQTHFLALKEHLTSEAAAGNHRLMEELKDQLKDMKAKYEGASAEVGVKLRNQI	569
Rhinatrema_bivittatum	DSEGVKQMQCQFLALKEHLSQETLAGGGRLAEELQELGEMKSKYEGTSAEVGRLRNLL	576
Xenopus_tropicalis	DSEGVKQMQTHFLALKDHLTQEALSGSSR-AEDMEQLREVKGKYEGASAEVGVKLRNQL	542
	.....550.....560.....570.....580.....590.....600	

	...*::: ::*::: * :*:**:.* : : :: *	..*::
Pavo_muticus	KONELLVAEFKRDEGRIVEENKRLQKELVKLEMERDKRERSVTELEGOLKETAACKLAQSV	614
Pavo_cristatus	KONELLVAEFKRDEGRIVEENKRLQKELVKLEMERDKRERSVTELEGOLKETAACKLAQSV	614
Gallus_gallus	KONELLVAEFKRDEGRIVEENKRLQKELVKLEMERDKRERSVMELEGOLKETAACKLAQSV	614
Mus_musculus	KQSEMLVGEFGRDEGRIVEENKRLQKCGTCEVLERRGRRVTELEGOLKELGAKLALS	634
Rattus_norvegicus	KQSEMLVGEFGRDESRLVEENKRLQKCESTCEIDRERRGRRVTELEGOLKELGAKLALS	631
Homo_sapiens	KONEMIVEEFKRDEGKLTIEENKRLQKELSMCEMEREKKGRKVTMEGOAKELSAKLALS	627
Pan_troglodytes	KONEMIVEEFKRDEGKLTIEENKRLQKELSVCEMEREKKGRKVTMEGOAKELSAKLALS	627
Macaca_mulatta	KONEMIVEEFKRDEGKLTIEENKRLQKELSMCEMEREKKGRKVKMEGOAKELSAKLALS	629
Callithrix_jacchus	KONEMIVEEFKRDEGKLTIEENKRLQKELSMCEMEREKKGRKVTMEGOAKELSAKLALS	647
Bos_taurus	KONEMIVEEFKRDEGKLMEENKRLQKELSMCEMEREKKGRKVTMEGOAKELSAKLALS	627
Equus_caballus	KONEMIVEEFKRDEGKLTIEENKRLQKELSMCEMEREKKGRKVAEMEGOLKELSAKLALS	627
Canis_lupus_familiaris	KONELLVEFRRDEGKLTIEENKRLQKELSMCEMEREKKGRKVAEVEGOVKELSAKLALS	629
Rhinatrema_bivittatum	RQOELLAEELRREEVRLSLENRRLHEEGRTSKSEREQAACRLQELQVQLKDMASQLSLCV	636
Xenopus_tropicalis	RHVELLVQELRRDARLRKENRRLQDEVAVCEERDRAEVQEAR-----EQLALS	595
	.....610.....620.....630.....640.....650.....660	

	::: * .*: . *: :.: ** :	:		
Pavo_muticus	TSEKPFESMKSSLSNEVNEKARKLAETIEGECGKLQAEIWAALKREDSQAKLAQHVKP	EDH	674	
Pavo_cristatus	TSEKPFESMKSSLSNEVNEKARKLAETIEGECGKLQAEIWAALKREFDSQAKLAQHVKP	EDH	674	
Gallus_gallus	TSEKFENMKSSLSNEVNEKARKLAETIEGESEKLQAEIWAALKRECDSQAKLAQHVKP	EDH	674	
Mus_musculus	PTEKPFESMKSSLSNDINEKVRLAEVGRDYESSAQGEIROLKRDLESVR---	AQHIRPEEH	691	
Rattus_norvegicus	PTETFESMKSSLSNDISEKAKRLAEVGRDYESSQGEIROLKRDLESVR---	AQHIRPEEH	688	
Homo_sapiens	PAEKFFENMKSSLSNEVNEKAKKLIVEMEREHEKSLSLSEIROLKRELENVKAKLAQHVKP	EEH	687	
Pan_troglodytes	PAEKFFENMKSSLSNEVNEKAKKLIVEMEREHEKSLSLSEIROLKRELENVKAKLAQHVKP	EEH	687	
Macaca_mulatta	PAEKFFENMKSSLSNEVNEKAKKLIVEMEREHEKSLSLSEIROLKRELENVKAKLAQHVKP	EEH	689	
Callithrix_jacchus	PAEKFFENMKSSLSNEVNEKAKKLIVEMEREHEKSLSLSEIROLKRELENVKAKLAQHVKP	LEE	707	
Bos_taurus	PAEKFFENMKSLLSNELNEKAKKLIDVEREYERSLNETRPLKRELENLKAKLAQHVKP	EEH	687	
Equus_caballus	PTEKFFENMKSLLSNEVNEKAKKLIVEMEREYEKSHGEIROLKRELENSKAKFAQHVKP	EEH	687	
Canis_lupus_familiaris	PTEKPFESMKSLLSSEVNEKVKKIGETEREYEKSLTEIROLRRELENC	KAKLAQHVKP	EEH	689
Rhinatrema_bivittatum	TAERFGNMKSLLTNEVNEKAKOVAVERELAEQQ-----		670	
Xenopus_tropicalis	TTDKFNMRCLLTNEVNEKRALEMAGELTVOQELETahre-----		638	
	.....670.....680.....690.....700.....710.....720			



# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/UACData Tue Feb 1 14:49:28 2022

Page 4 of 7

```

      .      *      .:      :      :      :      :      *      *      *      :      :      *
Pavo_muticus      EQMRSGFEQKNEELEKRVSELSQKNQTLQKELERLOTDNKMLKQOIQVLKTEIKSQNVPL      734
Pavo_cristatus    EQMRSGFEQKNEELEKRVSELSQKNQTLQKELERLOTDNKMLKQOIQVLKTEIKSQNVPL      734
Gallus_gallus     EQMRSGFEQKHEELEGRISELSQKNQTLQKELERLOTDNKMLKQOIQVLKTEIKSQNVPL      734
Mus_musculus      EQLRSRLEQKSGELGKKVSELTILKNQTLQKVEKLYADNKLLNQVHSLTVEMKTRYVPL      751
Rattus_norvegicus EQLRSRLEQKSGELGKKVTELTILKNQTLQKEVEKLYADNKLLNQVHSLTVEMKTRYVPL      748
Homo_sapiens      EQVKSRLQKSGELGKKITELTLKNQTLQKEIEKVYLDNKLLKEQAHNLTTEMKNHYVPL      747
Pan_troglodytes   EQVKSRLQKSGELGKKITELTLKNQTLQKEIEKVYLDNKLLKEQAHNLTTEMKNHYVPL      747
Macaca_mulatta    EQVKSRLQKSGELGKKITELTLKNQTLQKEIEKVYLDNKLLKEQAHNLTTEMKNHYVPL      749
Callithrix_jacchus EQVKSRLQKSGELGKKITDLTLKNQTLQKEIEKVYLDNKLLKEQAHNLTTEMKNHYIPL      767
Bos_taurus        EQLKSRLQKSGELGKKITELTSKNQTLQKEIEKVCLDNKLLTQVNNLTTEMKNHYVPL      747
Equus_caballus    EQLKSRLQKSGELGKKITDLTSKNQELQKEIEKVYLDNKLLTQVNNLTTEMKNHYVPL      747
Canis_lupus_familiaris EQLKSRLQKSGELGKKITDLTSKNQELQKEIEKVYLDNKLLTQVNNLTTEMKNHYVPL      749
Rhinatrema_bivittatum -----QEAKELDQVSMLASVQSVAEADARAAAEQLRQ-----LAAAKQAQQVPL      719
Xenopus_tropicalis ---KKRTEAKLDMLRKEVEEMNVKHSFGREGKQLQAEKVLLLRQIEDLTAQIKSQHVPA      695
      .....730.....740.....750.....760.....770.....780

```

```

      .      :      *::      :      :      *      :      :      :      *      *      :      :      *      :      *
Pavo_muticus      KIHEELKKTSDVTVGDLTKRLFEITRKYNESKAAERLLAEKNSLSENMSHLQAVYLSPE      794
Pavo_cristatus    KIHEELKKTSDVTVGDLTKRLFEITRKYNESKAAERLLAEKNSLSENMSHLQAVYLSPE      794
Gallus_gallus     KIHEELKKTSDVTVGDLTKKLEITRKYNESKAAERLLAEKNSLSENMSHLQAVYLSPE      794
Mus_musculus      RVSEEMKKSHDVNVEDLNKKLSEATQRYTEKKQEAERLLAENDKLTKNVSRLEAVFVAPE      811
Rattus_norvegicus RVSEEMKKAHDVNVEDLNKKLSDATQRYAEKKLEAERLLAENDKLTKNVSRLEAVFVAPE      808
Homo_sapiens      KVSSEDMKKSHDIAIDDLNRKLLDVTQKYTEKKLEMEKLLLENDLSKDVSRLETVFVPPE      807
Pan_troglodytes   KVSSEDMKKSHDIAIDDLNRKLLDVTQKYTEKKLEMEKLLLENDLSKDVSRLETVFVPPE      807
Macaca_mulatta    KVSSEDMKKSHDIAIDDLNRKLLDVTQKYTEKKLEMEKLLLENDLSKDVSRLETVFVPPE      809
Callithrix_jacchus KVSSEDLKKSHNAIDDLNLTLLDVTQKYTEKKLEMEKLLLENDLSKDVSRLETVFVPPE      827
Bos_taurus        KVSSEEMKKSHDVIVDDLNNKLLSDVTHKYTEKKLEMEKLLMENASLSKNVSRLETVFIPPE      807
Equus_caballus    KVSSEEMKKSHDIAIDDLNNKLLDVTQKYTEKKLEMEKLLVENDLSKNVSRLETVFVPPE      807
Canis_lupus_familiaris QVSEEMKKSHDVTVEELKKQLLDVTQKCADQLEMEKLLLENDLSKDVSRLETVFVPPE      809
Rhinatrema_bivittatum RQHTQLKKSYEITVAGLQAQLADATR-----EQEQLLQSIDHLQATYISPE      765
Xenopus_tropicalis ELHAETKRALEVTISQLNORLAESEKTHRKSEMDMEKLOKEKKVLTENISLLQASSTPKE      755
      .....790.....800.....810.....820.....830.....840

```

```

      *..*      .::..      :::      **      *      :      :      :      *      *      :
Pavo_muticus      QHREEMEALKSNGIELEKQLAELQKKYDEEQEKMCKLVSENTAIRESVQDQYVLAATHEE      854
Pavo_cristatus    QHREEMEALKSNGIELEKQLAELQKKYDEEQEKMCKLVSENTAIRESVQDQYVLAATHEE      854
Gallus_gallus     QHKEEMEALKSNGIELEKQLAELQKKYDEEQEKMCKLVSENTAIRESVQDQYVLAATHEE      854
Mus_musculus      KHEKELMGLKSNIAELKKQLSELNKKCGEGQEKIRALMSSENTSLKKTLSQYVPAKTHEE      871
Rattus_norvegicus KHEKELMGLKSNIAELKMQLCELNKKCGEGQEKIRALMSSENTSLKKTLSQYVPAKTHEE      868
Homo_sapiens      KHEKEIIALKSNIVELKKQLSELKKKCGEDQEKIHALTSENTNLKKMMSNQYVPVKTHEE      867
Pan_troglodytes   KHEKEITALKSNIVELKKQLSELKKKCGEDQEKIHALTSENTNLKKMMSNQYVPVKTHEE      867
Macaca_mulatta    KHEKEVTALKSNIVELKKQLSELKKKCGEDQEKIHALTSENTNLKKMMSNEYVPVKTHEE      869
Callithrix_jacchus KHEKEVTALKSNIVELKKQLSELKKKCGEDQEKIHALTSENTNLKKMMSNQYVPVKTHEE      887
Bos_taurus        RHEKEMMALKSNITELKKQLSELNKKCGEDQEKIYSLMSENNDLKTMSHOYVPVKTHEE      867
Equus_caballus    KHEKEIMALKSNIVELKKQLSELNKKCGEDQEKIDSLMSENTNLKKTMSHOYVPVKTHEE      867
Canis_lupus_familiaris KHQKEVTALKSSVADLKRQLLELNKKCGEDREKINALVSENTSLKKTLSNQYVPAKTHEE      869
Rhinatrema_bivittatum LHEKETAAMKSNLVQLQRLQLEELVSHGQEQAKARKLEAANAELQAHQAQ-----EDVLPITTHHK      814
Xenopus_tropicalis IHERELTSMKAKAKELERQLAEQRKREETARACSLQLENTSFR-----EDVLPITTHHK      811
      .....850.....860.....870.....880.....890.....900

```

```

      *      :      :      :      :      *
Pavo_muticus      IKTALSSALEKSNKELSDLKEKNEERKEFMFVE-----      888
Pavo_cristatus    IKTALSSALEKSNKELSDLKEKNEERKEFMFVE-----      888
Gallus_gallus     IKTALNNALEKSNKELSDLKEKNEERKEFMFVD-----      888
Mus_musculus      VKASLNSTVEKTNRALLEAKKRFDDTSQEFVSKLR-----      905
Rattus_norvegicus VKASLSSTLEKTNRALLDKKRLDDTSQEFVSKLR-----      902
Homo_sapiens      VKMTLNDTLAKTNRELLDVKKKFEDINQEFVKIK-----      901
Pan_troglodytes   VKMTLNDTLAKTNRELLDVKKKFEDINQEFVKIK-----      901
Macaca_mulatta    IKMTLNNTLAKTNRELLDVKKKFEDINQEFVKIK-----      903
Callithrix_jacchus IKTTLNNTLDKTNRELLDMKKKYEVINQEFIKLK-----      921
Bos_taurus        IKTALSSTLDKTNRELVDVKKKCEDINQEFVKIK-----      901
Equus_caballus    MKTTLSSSTLDKTNRELLDVKKKFEDINREFVKIK-----      901
Canis_lupus_familiaris VKTALSSTLDKTNRELLDAKKKWEDLNQEFVKIK-----      903
Rhinatrema_bivittatum -EVALSESIAG-----EREEAVRQECALQ-----      838
Xenopus_tropicalis ATSMLTSELDKTKEDLATLKKQVEKECGEKAVLESELQAECSKRAALQAQADRESLKRAD      871
      .....910.....920.....930.....940.....950.....960

```

# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/UACData Tue Feb 1 14:49:28 2022

Page 5 of 7

```

      .      *      : :      : :      : : :      *      : :      : :
Pavo_muticus      -----KENGALKDEVKLLQNQLQTECISLREHDAKVTALSNS      925
Pavo_cristatus    -----KENGALKDEVKLLQNQLQTECISLREHDAKVTALSNS      925
Gallus_gallus     -----KENGALKDKVKLLQNQLQTCVSLKEHDAKVTALNNS      925
Mus_musculus      -----DENEVLRRNLENVQNMKADYVSLEEHSSRRMSTVSQS      942
Rattus_norvegicus -----EENEVLRRNLENVQNMKADYVSLEEHSSRKMNMANQS      939
Homo_sapiens      -----DKNEILKRNLENTONQIKAEYISLAEHEAKMSSLSQS      938
Pan_troglodytes   -----DKNEILKRNLENTONQIKAEYISLAEHEAKMSSLSQS      938
Macaca_mulatta    -----DKNEILKRNLENTONQIKAEYISLAEHEAKMSSLSQS      940
Callithrix_jacchus -----DKNEILKRNLENTONQIKAEYISLAEHEAKMSSLSQS      958
Bos_taurus        -----DENEILKRNLENTONQVKAEYISLREHEEKMSGLRKS      938
Equus_caballus    -----DENEILKRNLENTONQIKAEYISLKEHEEKMSTVGES      938
Canis_lupus_familiaris -----DENEILKRNLENTONQIKAEYISLREHEEKMSAINQN      940
Rhinatrema_bivittatum -----EAHAKLAQLADVRRITCDYVSVQEHREKVAALEKQ      875
Xenopus_tropicalis LQAEMKSIIVREREELQGLKTRTEELSDLAQMRKLIKVDNEYVKLVHVEEKILELQKQ      931
      .....970.....980.....990.....1000.....1010.....1020

```

```

      .      *      . : : * :      . : : * : : : * : : * : : * : :
Pavo_muticus      VRKLOENNAAITAEYKRSREEILQLHGEIEAOKKELDTIQECIKSKYAPVASFEDREQSF      985
Pavo_cristatus    VRKLOENNAAITAEYKRSREEILQLHGEIEAOKKELDTIQECIKSKYAPVASFEDREQSF      985
Gallus_gallus     VRELQENNAAITAEYKRSQEEILQLHGEIEAOKKELDTIQECIKSKYAPVASFEDREQSF      985
Mus_musculus      LKEAQEANAAILADHRQGQEEIVSLHAEIKAOKKELDTIQECIKLKYAPLARLEECCERKF      1002
Rattus_norvegicus LKEAQDAHTALLADYRQGQEEIVTLHAEIKAOKKELDTIQECIKLKYAPLSRMEECCERKF      999
Homo_sapiens      MRKVQDSNAEILANYRKQEEIVTLHAEIKAOKKELDTIQECIKVKYAPIVSFEECCERKF      998
Pan_troglodytes   MRKVQDSNAEILANYRKQEEIVTLHAEIKAOKKELDTIQECIKVKYAPIVSFEECCERKF      998
Macaca_mulatta    MRKVQDSNAEILANYRKQEEIVTLHAEIKAOKKELDTIQECIKVKYAPIVSFEECCERKF      1000
Callithrix_jacchus MRKVQDSNAEILANYRKQEEIVTLHAEIKAOKKELDTIQECIKVKYAPIVSFEECCERKF      1018
Bos_taurus        MKKVQDSNAEILANYKKSQEEIVTLHEEIAAOKRELDTIQECIKLKYAPIISLEECCERKF      998
Equus_caballus    LKKVQANSAEMLANYQKGQEEIVTLHAEIEAOKKELDTIHECIKLKYAPIVSFEECCERKF      998
Canis_lupus_familiaris MKSVQDSNAEILANYRKQEEIVTLHAEIEAOKKELDTIQECIKLKYAPIISFEECCERKF      1000
Rhinatrema_bivittatum VTQAC-----ARRECDQGEIAALRAATKAQNQELDTIQCCIRLKYTPVASAQEQEORL      928
Xenopus_tropicalis KEQILQELSQAHAKNQCSQEEVLRQLTAIRGQKEELDTLQHCISEKYAPLASIEEREQSF      991
      .....1030.....1040.....1050.....1060.....1070.....1080

```

```

      : :      * : : * : :      : :      : :      : :      : :      : :
Pavo_muticus      EATVKELKAQLQEQMRKCEESEESRRCKEENGELKKGIVSIQNDLQQNYVLAEKCHEME      1045
Pavo_cristatus    EATVKELKAQLQEQMRKCEESEESRRCKEENGELKKGIVSIQNDLQQNYVLAEKCHEME      1045
Gallus_gallus     EATVKELKAQLQEQMRKCEESEERRCKEENGELKKGIVSIQNDLQQNYVLAEKCHEME      1045
Mus_musculus      KATEKGLKEQLSEQTHKCRQDEEVKKGQENERLRADLAALQKELQDRNALAEAREAE      1062
Rattus_norvegicus KATEKALKEQLSEQTHKGQVRDEEVKKGQENERLRADLAALQKELQDRNVLVEAREAE      1059
Homo_sapiens      KATEKELKDQLSEQTQKYSVSEEEVKKNKQENDKLKKEIFTLQKDLRDKTVLIEKSHEME      1058
Pan_troglodytes   KATEKELKDQLSEQTQKYSVSEEEVKKNKQENDKLKKEIFTLQKDLRDKTVLIEKSHEME      1058
Macaca_mulatta    KATEKELKDQLSEQTQKYSVSEEEVKKNKQENDRLKKEIFTLQKDLRDKTVLIEKSHEME      1060
Callithrix_jacchus KATEKELKDQLSEQTQKYSVSEEAACKNKQENDKLKKEIFTLQKDLRDKTVLIEKSHDME      1078
Bos_taurus        KATEKELKEQLSEQTQKYNTSEEEAKCKQENDKLKKEILTQKDLKDKNVHIENSYETE      1058
Equus_caballus    KATEKELKEQLSEQTQKCNVREEEARKCKQENDKLKKEISTLQKDLKDKSALIENSHEME      1058
Canis_lupus_familiaris KATEKELKEQLSEQMQKYHVREEEAKKYQENDKLKKEIFTLQKDLKDKNVLIENSHDME      1060
Rhinatrema_bivittatum QATVNELKQQLSEQ-----EQVVEKQWESKRLQAEMLSI-----ERE      967
Xenopus_tropicalis QKSLGALEKELEKERCRSREIQHKLEQHKQDAQDFOKKLESAKLVLOQEAAQ-----QEK      1048
      .....1090.....1100.....1110.....1120.....1130.....1140

```

```

      : :      *      * : :      : :      : :      : :      : :      : :
Pavo_muticus      KMFASKMEELNKQLREMLQKYTGKKDEKDELKES-AKQG---VAVQAAGVSGHLSVEQID      1101
Pavo_cristatus    KMFASKMEELNKQLREMLQKYTGKKDEKDELKES-AKQG---VAVQAAGVSGHLSVEQID      1101
Gallus_gallus     KMFASKMEELNKQLREMLQKYTGKKDEKDELKES-AKQG---VAVQAAGVSGHLSVEQID      1101
Mus_musculus      RALSGKADELKSKQLKDLQKYSQSVKSEREKLVEEKAKQASEILAAQNLLQKQHPVPLEQVE      1122
Rattus_norvegicus RALSRKTEELGKQLKELQKYSQSVKSEREKLVEEKAKQASEILAAQNLLQKQHPVPLEQVE      1119
Homo_sapiens      RALSRKTDELNKQLKDLQKYTEVKNVKEKLVEENAKQASEILAVQNLLQKQHPVPLEQVE      1118
Pan_troglodytes   RALSRKTDELNKQLKDLQKYTEVKNVKEKLVAENAKQASEILAVQNLLQKQHPVPLEQVE      1118
Macaca_mulatta    RALSRKTDELNKQLKDLQKYAEIKNVKEKLVEENAKQASEILAVQNLLQKQHPVPLEQVE      1120
Callithrix_jacchus RALSRKTEELNKQLKDLQKYTEVKNVKEKLAEENARQASEILAVQSLQKQHPVPLEQVE      1138
Bos_taurus        RALSRKTEELNRQLKDLLQKYTEAKKEKEKLVEENAKQASEILAAQTLQKQHPVPLEQVE      1118
Equus_caballus    RALSRKTEELNKQLKDLLQKYTEVKNEREKLVEENAKQASEILAAQTLQKQHPVPLEQVE      1118
Canis_lupus_familiaris RALNRKAEELNKQLKDLLQKYEIKTEKEKLVDNARQASELLAAQTLQKQHPVPLEQVE      1120
Rhinatrema_bivittatum QVLTHRVQELSNALQQLQ-----EKAAQRDHVPQEQFD      1001
Xenopus_tropicalis LALQSLAETHALLQQLQKSEAEMKQKQELREQLKQNKIIGEMKDQLRNQYIPIQEHQ      1108
      .....1150.....1160.....1170.....1180.....1190.....1200

```

# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/UAClusters Tue Feb 14:49:28 2022

Page 6 of 7

```

      :.  *  *  *  *  *  :.  *  :  .  .  :  :  :  :  :
Pavo_muticus      VLKNALGHTIEDLKEALRRKKECYDEETLKVGELQOELLDLK-SSVPMVEYTRMKEMLEQ 1160
Pavo_cristatus    VLKNALGHTIEDLKEALRRKKECYDEETLKVGELQOELLDLK-SSVPMVEYTRMKEMLEQ 1160
Gallus_gallus     VLRSALGHTIEDLKEALRTKKECYDKETLRVGELQOELLDLKSSVPLVEYTMKEMLEQ 1161
Mus_musculus      ALKKSNGTIEQLKEELRSKORCLEREQOTVSQLOQLLENQKNSSVTLAEHLKLKEALEK 1182
Rattus_norvegicus ALKTSNGTIEHLKEELRSKERCLEREQOAVSQLOQLLENQKNSSVTLADHLQKEALEK 1179
Homo_sapiens      ALKKSNGTIENTLKEELKSMORCYEKEQOTVTKLHOLLENQKNSSVPLAEHLQIKEAFEK 1178
Pan_troglodytes   ALKKSNGTIENTLKEELKSMORCYEKEQOTVTKLHOLLENQKNSSVPLAEHLQIKEAFEK 1178
Macaca_mulatta    ALKKSNGTIENTLKEELKNMORCYEKEQOTVTKLHOLLENQKNSSVPLAEHLQIKEAFEK 1180
Callithrix_jacchus ALKKSNGTIENTLKEELKNMORCYEKEQOTVTKLHOLLENQKNSSVPLAEHLQIKEAFEK 1198
Bos_taurus        SLKKSLSGTIETLKEELKTKORCYEKEQOTVTQLRMLLENQKNSSVPLAEHLQVKEAFEK 1178
Equus_caballus    ALEKSLNGTIENTLKEELKNKORCYEKEQOTVTKLQMLLENQKNSSVPLSEHLQIKEAFEK 1178
Canis_lupus_familiaris TLKKSLSNTIEHLKEELKNKORCYEKEQOTVAKLHOMLENQKNSSVPLGEHLRVKEAFEK 1180
Rhinatrema_bivittatum AMQQTILQRTIKDLQEKLMGTAGYEQELKALRQOQOQK-----TFEHMQLKEALER 1052
Xenopus_tropicalis DLKAILS-TKASLEVQLKEHMGLYEKELEKVKSLKELEKQKDGSLPLVLHAEVQAWQK 1167
.....1210.....1220.....1230.....1240.....1250.....1260

```

```

      :  *  *  *  *  :  :  *  *  :  :  *  .  :  :  :  **
Pavo_muticus      EILATKNSLKEKEGESQVKSEIIVKLOAEVRRNQALTDLESKEVIDLSEYNSMKSALAEA 1220
Pavo_cristatus    EILATKNSLKEKEGESQVKSEIIVKLOAEVRRNQALTDLESKEVIDLSEYNSMKSALAEA 1220
Gallus_gallus     EILATKNSLKEKEGESQVKSEIIVKLOAEIQRNQALTDLESKEVVDLSEYNSMKSALAEA 1221
Mus_musculus      EVGIMKASLREKEEESQKKTKEVSKLOTEVQTTKQALKNLETREVVDMSKYKATKNDLET 1242
Rattus_norvegicus EVGIMKASLREKEEESQKKTKEVSKLOTEVQNTKQALKNLETREVVDMSKYKATKNDLET 1239
Homo_sapiens      EVGIIKASLREKEEESQNKMEEVSKLOSEVQNTKQALKKLETREVVDLSKYKATKSDLET 1238
Pan_troglodytes   EVGIIKASLREKEEESQNKMEEVSKLOSEVQNTKQALKKLETREVVDLSKYKATKSDLET 1238
Macaca_mulatta    EVGIIKASLREKEEESQNKMEEVSKLOSEVQNTKQALKKLETREVVDLSKYKATKSDLET 1240
Callithrix_jacchus EVGIIKASLREKEEESQNKMEEVSKLOCEVQNTKQALKQLETREVVDLSKYKATKSDLET 1258
Bos_taurus        EVGIIKASLREKEEESQNKTEEVSKLOSEIQNTKQALKKLETREVVDLSKYKATKSDLET 1238
Equus_caballus    EVGVIKASLREKEEESQNKTEEVSKLOSEVQNTKQALKKLETREVVDLSKYKATKSDLET 1238
Canis_lupus_familiaris EVGMIKASLREKEEESQNKTEEVSKLOSEVQNTKQALKQLETREVVDLSKYKATKSDLET 1240
Rhinatrema_bivittatum DLAASNLHAEKETAVQVKDTEISKLOTEIQSIRAALEEMO-----GKQDLVRAELES 1105
Xenopus_tropicalis RQAETQKRLQEKEEAAQAAEQOLKQKDELHTLRNLQEAQEKEK----EDCTAARIELEQ 1223
.....1270.....1280.....1290.....1300.....1310.....1320

```

```

      :  .  .  :  :  :  :  *  :  :  :  *  :  *  *  :  *  *  .
Pavo_muticus      QVNAIAENLSSVNKKYEEACEEALQAKKSERSLKDEKELLQLRSCSIEQEIKDQKERCDDK 1280
Pavo_cristatus    QVNAIAENLSSVNKKYEEACEEALQAKKSERSLKDEKELLQLRSCSIEQEIKDQKERCDDK 1280
Gallus_gallus     QINTMAENLSSVNKKYEEACEEALQAKKSERSLKDEKELLQLRSCSIEQEIKDQKERCDDK 1281
Mus_musculus      QISNLDKLASLNRKYDQACEEKVSQK-----DEKELLHL---SIEQEIRDQKERCDDK 1292
Rattus_norvegicus QISNLDKLASLNRKYDQVCEEKVSQK-----DEKELLHL---NIEQEIRDQKERCDDK 1289
Homo_sapiens      QISSLNEKLANLNRKYEVEVCEEVLHAKKKEISAKDEKELLHF---SIEQEIKDQKERCDDK 1295
Pan_troglodytes   QISSLNEKLANLNRKYEVEVCEEVLHAKKKEISAKDEKELLHF---SIEQEIKDQKERCDDK 1295
Macaca_mulatta    QISSLNEKLANLNRKYEVEVCEEVLHAKKKEISAKDEKELLHF---SIEQEIKDQKERCDDK 1297
Callithrix_jacchus QISSLNEKLANLNRKYEVEVCEEVLHAKKKEISAKDEKELLHF---SIEQEIKDQKERCDDK 1315
Bos_taurus        QISDLNEKLANLNRKYEVEVCEEVLHAKKKEISAKDEKELLHF---SIEQEIKDQKERCDDK 1295
Equus_caballus    QVSNLNEKLANLNRKYEVEVCEEVLHAKKKEISAKDEKELLHF---SIEQEIKDQKERCDDK 1295
Canis_lupus_familiaris QISNLEKLANLNRKYEVEVCEEVLRAQKQLSAKDEKELLHF---SIEQEIKDQKERCDDK 1297
Rhinatrema_bivittatum QASSREKSVSILQEKYQACEEATKARRKEQAAMEARQALQARSSCIEQEIRELTERYDH 1165
Xenopus_tropicalis KVAQMEQSSSKGNEQATQMSQELQKS-----EESVKLREKSSVIEHEISQLKGRYDE 1276
.....1330.....1340.....1350.....1360.....1370.....1380

```

```

      *  *  *  :  :  *  *  *  :  :  *  *  *  *  *  *  :  *  *  *  *  :  .
Pavo_muticus      SLTTIIDLQKRIQESAKQVEAKDNKITELLNDVERLKQALNGLSQLTYTSGGP-AKRONQ 1339
Pavo_cristatus    SLTTIIDLQKRIQESAKQVEAKDNKITELLNDVERLKQALNGLSQLTYTSGGP-AKRONQ 1339
Gallus_gallus     SLTTIIDLQKRIQESAKQVEAKDNKITELLNDVERLKQALNGLSQLTYTSGIP-AKRONQ 1340
Mus_musculus      SLTTIMELQORRIQESAKQIEAKDNKITELLNDVERLKQALNGLSQLTYSSGSP-TKROSQ 1351
Rattus_norvegicus SLTTIMELQORRIQESAKQIEAKDNKITELLNDVERLKQALNGLSQLTYSSGSP-TKROSQ 1348
Homo_sapiens      SLTTITELQORRIQESAKQIEAKDNKITELLNDVERLKQALNGLSQLTYTSGNP-TKROSQ 1354
Pan_troglodytes   SLTTITELQORRIQESAKQIEAKDNKITELLNDVERLKQALNGLSQLTYTSGNP-TKROSQ 1354
Macaca_mulatta    SLTTITELQORRIQESAKQIEAKDNKITELLNDVERLKQALNGLSQLTYTSGNP-TKROSQ 1356
Callithrix_jacchus SLTTITELQORRIQESAKQIEAKDNKITELLNDVERLKQALNGLSQLTYTSGNP-TKROSQ 1374
Bos_taurus        SLTTITELQORRIQESAKQIEAKDNKITELLNDVERLKQALNGLSQLTYSGSGSP-SKROSQ 1354
Equus_caballus    SLTTITELQORRIQESARQIEDKDNKITELLNDVERLKQALNGLSQLTYTSGSP-SKROSQ 1354
Canis_lupus_familiaris SLTTITELQORRIQESAKQIEAKDNKITELLNDVERLKQALNGLSQLTSPSGSP-SKROSQ 1356
Rhinatrema_bivittatum SLATIGNLQGSIQDSAKQLETKDNKITELLNDVENLKQALNGLSQLTYSSGVPRAKQESQ 1225
Xenopus_tropicalis SLATIEELKSRILSSAKDLKDKDEISALVNDVERLKIAK---AQMTFVVG----KKLS- 1328
.....1390.....1400.....1410.....1420.....1430.....1440

```



# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/UCD Data Tue Feb 1 14:49:28 2022

Page 7 of 7

```

      : ** :*  *::** ::::**:::***:*****.*** ** *  *****::**:*
Pavo_muticus      QVEMLNQVKTLLQQQLADAKRQHQEVVSVYRTHLLSAVQGHMDEDVQAALLQIIMROGL 1399
Pavo_cristatus    QVEMLNQVKTLLQQQLADAKRQHQEVVSVYRTHLLSAVQGHMDEDVQAALLQIIMROGL 1399
Gallus_gallus     QVEMLNQVKTLLQQQLADAKRQHQEVVSVYRTHLLSAVQGHMDEDVQAALLQIIMROGL 1400
Mus_musculus      LVDTLQQRVRDLQQQLADADRHQEVIAIYRTHLLSAAQGHMDEDVQAALLQIIMROGL 1411
Rattus_norvegicus LVDTLQQRVRDLQQQLADADRHQEVIAIYRTHLLSAAQGHMDEDVQAALLQIIMROGL 1408
Homo_sapiens      LIDTLQHGVKSLEQQQLADADRHQEVIAIYRTHLLSAAQGHMDEDVQAALLQIIMROGL 1414
Pan_troglodytes   LIDTLQHGVKSLEQQQLADADRHQEVIAIYRTHLLSAAQGHMDEDVQAALLQIIMROGL 1414
Macaca_mulatta    LIDTLQHGVKSLEQQQLADADRHQEVIAIYRTHLLSAAQGHMDEDVQAALLQIIMROGL 1416
Callithrix_jacchus LIDTLQHGVKSLEQQQLADADRHQEVIAIYRTHLLSAAQGHMDEDVQAALLQIIMROGL 1434
Bos_taurus        LIDSLLQQRVSLQQQLADADRHQEVIAIYRTHLLSAAQGHMDEDVQAALLQIIMROGL 1414
Equus_caballus    LIDALQHGVQTLQQQLADADRHQEVIAIYRTHLLSAAQGHMDEDVQAALLQIIMROGL 1414
Canis_lupus_familiaris LIDTLQHGVKSLEQQQLADADRHQEVIAIYRTHLLSAAQGHMDEDVQAALLQIIMROGL 1416
Rhinatrema_bivittatum QTDVLRQVKALEQQQLAESEKQHEVISVYRAHLLSAVQGRMDEDVQAALLQIVRMREL 1285
Xenopus_tropicalis -YEILQSQVVSLLQRLQLEETQKKHQDIATYRSHLLSAAQGHMDADVDALLQIIMROGL 1387
      .....1450.....1460.....1470.....1480.....1490.....1500

```

```

*
Pavo_muticus      VC 1401
Pavo_cristatus    VC 1401
Gallus_gallus     VC 1402
Mus_musculus      VC 1413
Rattus_norvegicus VC 1410
Homo_sapiens      VC 1416
Pan_troglodytes   VC 1416
Macaca_mulatta    VC 1418
Callithrix_jacchus VC 1436
Bos_taurus        VC 1416
Equus_caballus    VC 1416
Canis_lupus_familiaris VC 1418
Rhinatrema_bivittatum VC 1287
Xenopus_tropicalis VF 1389
..

```