File: /media/morpheus/disk1/fst/pep_msa/GCC Taps: Tue Feb 1 12:11:57 2022 Page 1 of 5

	***: * * * * * * * * * * * * * * * * *	
Pavo muticus	MEKFGMNFGGGPSKKELLETIESQKKQLLNYQARLKDVVIAYKSLINEKEALEASLKVLS	60
Pavo cristatus	MEKFGMNFGGGPSKKELLETIESOKKOLLNYOARLKOVVIAYKSLINEKEALEASLKVLS	60
Gallus_gallus	MEKFGMNFGGGPSKKELLETIESQKKQLLNYQARLKDVVIAYKSLINEKEALEASLKVLS	60
Chelonia mydas	MEKFGMNFGGGPSKKDLLETIETQKKQLLQYQTRLKDVVRAYKSLLKEKEALEASLKVLS	60
Mus musculus	MEKFGMNFGGGPSKKDLLETIETOKKOLLOYOARLKOVVRAYKSLLKEKEALEASIKVLS	60
Rattus_norvegicus	MEKFGMNFGGGPSKKDLLETIETQKKQLLQYQARLKDVVRAYKSLLKEKEALEASIKVLS	60
Canis lupus familiaris	MEKFGMNFGGGPSKKDLLETIETQKKQLLQYQARLKDVVRAYKSLLKEKEALEASIKVLS	60
Equus_caballus	MEKFGMNFGGGPSKKDLLETIETQKKQLLQYQARLKDVVRAYKSLMKEKEALEASIKVLS	60
Bos taurus	MEKFGMNFGGGPSKKDLLEIIETQKKQLLQYQTRLKDVVRAYKSLLKEKEALEASIKVLS	60
Heterocephalus glaber	MEKFGMNFGGGPSKKDLLETIETOKKOLLOYOARLKDVVRAYKSLLKEKEALEASIKVLS	60
Homo sapiens	MEKFGMNFGGGPSKKDLLETIETQKKQLLQYQARLKDVVRAYKSLLKEKEALEASIKVLS	60
Pan_troglodytes	MEKFGMNFGGGPSKKDLLETIETOKKOLLOYOARLKDVVRAYKSLLKEKEALEASIKVLS	60
Macaca_mulatta	MEKFGMNFGGGPSKKDLLETIETQKKQLLQYQARLKDVVRAYKSLLKEKEALEASIKVLS	60
Callithrix_jacchus	MEKFAMNFGGGPSKKDLLETIETQKKQLFQYQARLKDVVRAYKSLLKEKEALEASIKVLS	60
Latimeria chalumnae	MEKFGMNFGSGPSKKELLETIEGQKKQLVQYQVRLKDVVRAYKSLLKEKEALEASLKVLS	60
Rhinatrema_bivittatum	MEKFGMSFGGGPSKKELLDTIEGQRKQLLQYQARLKDVVRAYKSLLKEKEALEASLKVLS	60
Xenopus_tropicalis	MEKLGMSFGGGPSKKELQEQVETQRKQLQQYQGRLKDVVRAYKSLQKEKEALEASLHVLS	60
	1102030405060	
	.::* : : * * * * * * * * * * .* .:	
Pavo_muticus	ASHEADVGLSGAQPACMAASSSSLADPTDDKSSVHSEDSMGTATSADTTASLAS-AK	116
Pavo_cristatus	ASHEADVGLSGAQPACMAASSSSLADPTDDKSSVHSEDSMGTATSADTTASLAS-AK	116
Gallus_gallus	ASHEADVGLSGAQPACVAASSPSLADPADDKSSVHSEDSTGTATSADTTASLAS-AK	116
Chelonia_mydas	VSHETDVGLNGAHLADIASSSVSFADSADDRSSVHSEDSMGTATSVDTAASLTS-AK	116
Mus_musculus	VSHEADVGLSGVQPPGLTFPDSVDDRCSTHSEDSTGTATSLDTAASLTS-VK	111
Rattus_norvegicus	VSHEADAGLSGVQPPGLTFPDSVDDRCSTHSEDSTGTATSLDTAASLTS-VK	111
Canis_lupus_familiaris	VSHEADVGLTGVQPPGLSFPDSADDRCSTHSEDSTGTATSLDTAASLTS-TK	111 111
Equus_caballus	VSHEADVGLGGVQPPGLTFPDSVDDRCSTHSEDSTGTATSLDTAASLTS-TK	111
Bos_taurus	VSHEADVGLAGVQPQGLTFPDSVDDRCSTHSEDSTGTAASLDTAASLTS-TK VSHEADVALTGVQPSGLTFPDSVDDRCSTHSEDSTSTATSLDTAASLPS-TR	111
Heterocephalus_glaber	VSHEADVGLAGVQLPGLTFPDSVDDRCSTHSEDSTGTATSLDTAASLTS-TK	111
Homo_sapiens	VSHEADVGLAGVQLPGLTFPDSVDDRCSTHSEDSTGTATSLDTAASLTS-TK	111
Pan_troglodytes Macaca mulatta	VSHEADVGLVGVQLPGLTFPDSVDDRCSTHSEDSTGTATSLDTAASLTS-TK	111
Callithrix jacchus	VSHEADVGLAGVQLPGVAFPDFVDDRCSTHSEDSTGTATSVDTAASLTS-TK	111
Latimeria chalumnae	VSQEADLSLKSVDAGAGANVADSSDPGDDRCSVHSEDSVGTATSVETAASLTSSTK	116
Rhinatrema bivittatum	VSQEADACLDSTGTVGAVISRVEPTDDLCSVHSEDSIGTSTSVDTGTSVTS-AK	113
Xenopus tropicalis	TTQEPGTLFSESEEAHDDQHSIHSEDSVDTAGSLPS-AR	98
nenopub_croprediib	708090100110120	,
	* :* **: **.* **:	
Pavo_muticus	GEQGAEDDKPAGAAPSLKSEEANGSESGVSTSSGEV-PCAASEADKRVLQLKTQL	170
Pavo_cristatus	GEQGAEDDKPAAAAPSLKSEEANGSESGVSTSSGEV-PCAASEADKRVLQLKTQL	170
Gallus_gallus	GEQGAEDDKPAAAAASLKSEEANGSEGGGGASSGDV-PCAAGEADRRVLQLKTQL	170
Chelonia_mydas	GELGTEDERTAAGASLLKSEEASGSESGVSTGSGDV-PVAANEADKRVLQLKTQL	170
Mus_musculus	GEFGVEDDRAARGPLPPKSEEASGSESGVSSSSGDG-PSAGSEMDKRVHQLKTQL	165
Rattus_norvegicus	GEFGVEDDRVARGPLPPKSEEASGSESGVSSSSGDG-PSAGSEIDKRVHQLKTQL	165
Canis_lupus_familiaris		165
Equus_caballus	GEFGVEDDRLVRGPPPPKSEEASGSESGVSSSSGDG-PSGGGEVDKRLQQLKTQL GEFGIEDDRLARGPPPLKLEEASGSESGVSCSSGDG-PSGGGEVDKRLHQLKTQL	165
Bos_taurus	GEPGVEDDRLARGLPPAKSEEASGSESGVSSSSGDG-TFAGGEVDKRLHQLKTQL	165 165
Heterocephalus_glaber Homo sapiens	GEFGVEDDRLARGLPPAKSEEASGSESGVSSSSGDG-TFAGGEVDKRLHQLKTQL GEFGVEDDRPARGPPPPKSEEASWSESGVSSSSGDG-PFAGGEVDKRLHQLKTQL	
Pan troglodytes	GEFGVEDDRPARGPPPPKSEEASWSESGVSSSSGDG-PFAGGEVDKRLHQLKTQL GEFGVEDDRPARGPPPPKSEEASWSESGISSSSGDG-PFAGGEVDKRLHQLKTQL	165 165
Macaca mulatta	GEFGVEDDRPARGPPPPKSEEASWSESGISSSSGDG-PFAGGEVDKRLHQLKTQL GEFGVEDDRPARGPPPPKSEEASGSESGVSSSSGDG-PFAVGEVDKRLHQLKTQL	165
Callithrix jacchus	GEFGIEDDRPARGPPPPKSEEASGSESGVSSSSGDG-PFAGGEVDKRLHOLKTOL	165
Latimeria_chalumnae	GELTEDDRA-APDPLAAVSSLQKSEETSSSESGISTSSGDQLPSVEADRRVLQLKTKV	173
Rhinatrema bivittatum	GELPEEDTAGVDVAPVAGTPVPRSEEASGSESGVSTASGEG-TAAAGDSEKKYLOLKAOL	172
Xenopus_tropicalis	GGETSEDERPDP-SQRGGIEEASGSESGVSTASGEGGQATAVETDRKMVQLKNQL	152
	130140150160170180	-7 -

File: /media/morpheus/disk1/fst/pep_msa/GCCDaps: Tue Feb 1 12:11:57 2022 Page 2 of 5

8		
	·***.:*:************* ***:	
Pavo muticus	ATLTSALSTVTQEKSRMEASYQADKKKMKQDLDDAVKKVEDETDRLETELRSVQEQLAET	230
Pavo_cristatus	ATLTSALSTVTQEKSRMEASYQADKKKMKQDLDDAVKKVEDETDRLETELRSVQEQLAET	230
Gallus_gallus	ATLTSALSTVTQEKSRMEASYQADKKKMKQDLDDAVKKVEDETDRLETELRSVQEQLAET	230
Chelonia_mydas	ATLTSSLATVTOEKSRMEASYLADKKKMKODLDEASKKAEEDRSKLEAEMKCVOEQLAET	230
Mus musculus	ATLTSSLATVTQEKSRMEASYLADKKKMKQDLEDANKKAEEERGRLEGDLKVLQEQIAET	225
Rattus_norvegicus	ATLTSSLATVTQEKSRMEASYLADKKKMKQDLEDANKKAEEERGRLEGDLKGLQEQIAET	225
		225
Canis_lupus_familiaris		_
Equus_caballus	ATLTSSLATVTQEKSRMEASYLADKKKMKQDLEDASKKAEEERGRLEGELKGLQEQIAET	225
Bos_taurus	ATLTSSLATVTQEKSRMEASYLADKKKMKQDLEDASKKAEEERGRLEGELKGLQEQIAET	225
Heterocephalus_glaber	ATLTSSLATVTQEKSRMEASYLADKKKMKQDLEEANKKAEEERGRLEGEVKGLQEQIAET	225
Homo_sapiens	ATLTSSLATVTQEKSRMEASYLADKKKMKQDLEDASNKAEEERARLEGELKGLQEQIAET	225
Pan_troglodytes	ATLTSSLATVTQEKSRMEASYLADKKKMKQDLEDASNKAEEERARLEGELKGLQEQIAET	225
Macaca_mulatta	ATLTSSLATVTQEKSRMEASYVADKKKMKQDLEDASNKAEEERARLEGELKGLQEQIAET	225
Callithrix_jacchus	ATLTSSLATVTOEKSRMEASYLADKKKMKODLEDANNKAEEERARLEGELKGLOEQIAET	225
Latimeria_chalumnae	STLTNALSTVTQEKSRMEASYQADKKKMKQELDDLASKIEEERGRHEMEVKGLQEQLAET	233
Rhinatrema bivittatum	ATLTSALATVTOEKSRMEASYOADKKLMKOEMEELSKMLETEKGSLEVELRVLOEOLVET	232
Xenopus_tropicalis	STLTSALATVTQEKSRMEASYQADKRNAKQEMEELMLSFVQERTKLQEEIQSIQEQLAET	212
Kenopus_cropicaris	190210220230240	212
	190200210220230240	
	***** *** *** ** ** ** ** ** ** ** ** *	
Pavo_muticus	KARLITQQHDRAQEQSDHAVMLRELQKLLQSERALRQDAELKLEETREVLAGRVCMADRA	290
Pavo_cristatus	KARLITQQHDRAQEQSDHAVMLRELQKLLQSERALRQDAELKLEETREVLAGRVCMADRA	290
Gallus_gallus	Karlitqqhdraqeqsdhavmlrelqkllqseralrqdaelkleetrevlagrvcmadra	290
Chelonia mydas	KARLITOOHDRAOEOSDHAVMLRELOKLLOSERTLRODVELKLEETREALAGRVYVADRV	290
Mus musculus	KARLITQQHDRAQEQSDHALMLRELQKLLQEERTQRQDLELRLEETREALAGRAYAADQV	285
Rattus norvegicus	KARLITQQHDRAQEQSDHALMLRELQKLLQEERTQRQDLELRLEETREALAGRAYAADQL	285
Canis_lupus_familiaris		285
Equus_caballus	KARLITQQHDRAQEQSNHALMLRELQKLLQEERTQRQDLELRLEETREALAGRAYAAGQM	285
	KARLITQQHDRAQEQSDHALMLRELQKLLQEERAQRQDLELRLEETREALAGRAYAAGQM	285
Bos_taurus		
Heterocephalus_glaber	KARLITQQHDRAQEQSDHALMLRELQKLLQEERTQRQDLELRLEETREALAGRAYAADQV	285
Homo_sapiens	KARLITQQHDRAQEQSDHALMLRELQKLLQEERTQRQDLELRLEETREALAGRAYAAEQM	285
Pan_troglodytes	KARLITQQHDRAQEQSDHALMLRELQKLLQEERTQRQDLELRLEETREALAGRAYAAEQM	285
Macaca_mulatta	KARLITQQHDRAQEQSDHALMLRELQKLLQEERTQRQDLELRLEETREALAGRAYAAEQM	285
Callithrix_jacchus	Karlitqqhdraqeqsdhalmlrelqkllqeertqrqdlelrleetreala <mark>gr</mark> syaaeqm	285
Latimeria_chalumnae	Karlitqqheraqeqsdhavmlrelqkllqderasrqdvelrleetrealaekmyaaera	293
Rhinatrema_bivittatum	KARLITQQHDRAQEQSDHALMLRELQKLLQEERDLRQDCELRLEETREVLASRVDVAERV	292
Xenopus_tropicalis	KARLISQQHDRAQEQTDHVIMLKELQRLLQGERDHRQEAELRLEEARQELAGKLAGISEL	272
	250260270280290300	
	* : ::* : *:* : . : .** :::* * :* :: * :*	
Banca		246
Pavo_muticus	EGYELQIKQLSQEVEDLKRELQAVQEERKKPDPRVQDLQEEIANLKNHFQAQLLQE	346
Pavo_cristatus	EGYELQIKQLSQEVEDLKRELQAVQEERKKPDPRVQDLQEEIANLKNHFQAQLLQE	346
Gallus_gallus	EGYELQIKQLSQEVEDLKRELQAVQEERKKPDPRVQDLQEEMANLKNHFQAQLLQE	346
Chelonia_mydas	EE <mark>-SELQTKQ</mark> LSRVVEEL <mark>K</mark> RELQAVQEENS <mark>KPDPR</mark> LQELQDEIASLKSHFQAQLLQE	346
Mus_musculus	EGFELQTKQLTREVEELKGELQTIRDEKNRPDPRLQELQQEAARLKSHFQAQLQQE	341
Rattus_norvegicus	EGFELQTKQLTREVEELKGELQAIREEKNRPDPRLQELQQEAARLKSHFQAQLQQE	341
	EGFELQTKQLTREVEDLKGELQALREEKNRPDPRLQELQEEAACLKSHFQAQLQQE	341
Equus caballus	EGFELQTKQLSREVEELKGELQALREEKNRPDPRLQELQEEAASLKSHFQAQLQQE	341
Bos taurus	EGFELQTKQLTREVEELKGELQALRDEKNQPDPRLKELQEEAACLKSHFQAQLQQE	341
Heterocephalus glaber	EGFELQTKQLTREVEELKGELEAIRDEKNRPDPRLQELQEEATCLKSLFQAQLQQE	341
Homo sapiens	EGFELQTKQLTREVEELKSELQAIRDEKNQPDPRLQELQEEAARLKSHFQAQLQQE	341
_ -		
Pan_troglodytes	EGFELQTKQLTREVEELKSELQAIRDEKNQPDPRLQELQEEAARLKSHFQAQLQQE	341
Macaca_mulatta	EGFELQTKQLTREVEELKSELQVIRDEKNQPDPRLQELQEEAARLKSHFQAQLQQE	341
Callithrix_jacchus	EGFELQTKQLTREVEELKSELQAIRDEKNQPDPRLQELQEEAARLKGHFQAQLQQE	341
Latimeria_chalumnae	GDCELQAKQLSKEAEELRKRLQSAEEDRDRPDPRLQEMQEEITGVKAHFQSQLQQE	349
Rhinatrema_bivittatum	EGYEARARQLSQVLEELRSELRAVQEERHKPDPRVQQLQDEMAGVKKHFQMQLLQE	348
Xenopus_tropicalis	EGRSEVAEEQNRKLRKDLEELRKEIMEARRQGAEPDPAVKKLQAELDRVKEEMHALLQEE	332
-	310320330340350360	

File: /media/morpheus/disk1/fst/pep_msa/GCCDaps: Tue Feb 1 12:11:57 2022 Page 3 of 5

	:* :: *: **.*: ** *::: ***: *.:**:** .*:**::*	
Pavo muticus	:* :: *: **.*: ** *::* ***: **.:* **.:** MRKTAQAEEQLROHAQMEEQRVADLEGQVSEVSGLLGTYEKAKQKDQMVIQKLKDRIVQL	406
Pavo_muticus Pavo_cristatus	MRKTAQAEEQLRQHAQMEEQRVADLEGQVSEVSGLLGTYEKAKQKDQMVIQKLKDRIVQL	406
Gallus_gallus	MRKTAQAEEQLRQHAQMEEQRVADLEGQVSEVSGLLGTYEKAKQKDQVVIQKLKDRIVQL	406
Chelonia mydas	MRKTAQAEEQLHQHAQMEERRVASLESQVSEVSELLGTYEKAKQKDQMTIQKLKDRIVQL	406
Mus musculus	MRKTALAEDQLRQQSQVEEQRVAALESQISEVSELLGTYEKAKQKDQLAIQKLKERLLQL	401
Rattus_norvegicus	MRKTALAEDQLRQQSQVEEQRVAALENQISEVSELLGTYEKAKQKDQLAIQKLKDRILQL	401
Canis_lupus_familiaris	MRKTALAEDQLRQQSEVEEQRVAALENQISEVSELLGTYEKAKQKDQLAIQKLKERILQL	401
Equus_caballus	MRKTALVEDLLRQQSQVEEQRVAALENQISEVSELLGTYEKAKQKDQLAIQKLKERILQL	401
Bos taurus	MRKTAVAEDQLRQQSQLEEQRVVALENQISQVSELLGTYEKAKQKDQLAIQKLKERILQL	401
Heterocephalus_glaber	IRKTALAEDQLRQQSQVEEQRVAALENQISEVSELLGTYEKAKQKDQLTIQKLKERILQL	401
Homo_sapiens	MRKTALAEDQLRQQSQVEEQRVAALENQISEVSELLGTYEKAKQKDQLAIQKLKERILQL	401
Pan_troglodytes	MRKTALAEDQLRQQSKVEEQRVAALENQISEVSELLGTYEKAKQKDQLAIQKLKERILQL	401
Macaca mulatta	MRKTALAEDQLRQQSQVEEQRVAALENQISEVSELLGTYEKAKQKDQLAIQKLKERILQL	401
Callithrix_jacchus	MKKTALAEDQLRQQSQVEEQRVAALENQISEVSELLGTYEKAKQKDQLAIQKLKERILQL	401
		401
Latimeria_chalumnae Rhinatrema bivittatum	MRKVAQTEEQLRQQSQMEEERVANLEAQVSELSELLGTYEKAKQKDQVTIQKLKDRIVQL MRKVALADEQLRQHSQMEEQRVASLESQISEVSELLGTYEKAKQKDQMAIQKLKERIVQL	409
		392
Xenopus_tropicalis	RKKKLDEEQETMQRFLQEEQRICSLESQVSEMSELLGAAETSKQRDQATIRKLRERLIQL	392
	370380390400410420	
B	: *****:::* :. :	466
Pavo_muticus	DQENKTLAIAASSRSPADVNVEEANLDVNVLKDKMEKLKQLLQAAAKKSQPMLDIEKLCE	466
Pavo_cristatus	DQENKTLAIAASSRSPADVNVEEANLDVNVLKDKMEKLKQLLQAAAKKSQPMLDIEKLCE	466
Gallus_gallus	DQENKTLAIAASSRSPADVNVEEANLDVNVLKDKMEKLKKLLQAAAKKSQPTLDIEKLCE	466
Chelonia_mydas	DLENKTLAIAASSRSPVDIHTEEASLDVNVLKDKMEKLKKLLQMAAKKSQPTLDIEKLCE	466
Mus_musculus	DLENKTLALAASSRSSLDIHGDESSLDINVLKDKMEKLKKLLQVAARKSQVTLDVEKLCD	461
Rattus_norvegicus	DLENKTLALAASSRPSLDIHGDESSLDINVLKDKMEKLKRLLQVAARKSQVTLDVEKLCD	461
Canis_lupus_familiaris	DLENKTLALAASSRSPLDSHGEESSLDVNVLKDKMEKLKRLLQVAARKSQVTLDVEKLCD	461
Equus_caballus	DLENKTLALAASSRSPLDSHGEESSLDVNVLKDKMEKLKRLLQVAARKSQVTLDVEKLCD	461
Bos_taurus	DLENKTLALAASSRSPLDSHGEESSLDVNVLKDKMEKLKRLLQVAARKSQVTLDVEKLCD	461
Heterocephalus_glaber	DLENKTLALAASSRSPLDSHGDESSLDVNVLKDKMEKLKRLLKVAARKSQVTLDVEKLCD	461
Homo_sapiens	DLENKTLALAASSRSPLDSHGEESSLDVNVLKDKMEKLKRLLQVAARKSQVTLDVEKLCD	461
Pan_troglodytes	DLENKTLALAASSRSPLDSHGEESSLDVNVLKDKMEKLKRLLQVAARKSQVTLDVEKLCD	461
Macaca_mulatta	DLENKTLALAASSRSPLDSHGEESSLDVNVLKDKMERLKRLLQVAARKSQVTLDVEKLCD	461
Callithrix_jacchus	DLENKTLALAASSRSPLDSHGEESSLDVNVLKDKMEKLKRLLQVAARKSQVTLDVEKLCD	461
Latimeria_chalumnae	DTENKTLAIAASSRTSADIGIDEANWDVNLLKEKLEKVKKLLLLAGKKSQQSLDIESLCE	469
Rhinatrema_bivittatum	DMENKTLAIAASSRSLADLNVEESSLDINVLKDKMEKLKKLLHLAAKRSPRPLDIEKLCE	468
Xenopus_tropicalis	EAENKTLALTSSMQTPSEVTFN	414
	$43044\overline{0}450460470480$	
	: ::*:::************************	
Pavo_muticus	LELPKGTEAGDGEKATALYYQQELKQLKEEFERYKMRAQVVLKNKSVKDGNLAKELEEAQ	526
Pavo_cristatus	LEL <mark>PKGTEAGDGEKATALYYQQELKQLKEEFERYKMRAQ</mark> VVLKNKSVKDGNLAKELEEAQ	526
Gallus_gallus	LEL <mark>PKGTEAGDGEKATALYYQQELKQLKEEFERYKMRAQ</mark> VVL <mark>KNK</mark> SA <mark>KDGNLA</mark> KELEEAQ	526
Chelonia_mydas	LEL <mark>PKGTEAGDGEKATALYYQQELKQLKEEFERYKMRAQ</mark> VVL <mark>KNKSAKDVNFAKELEDTQ</mark>	526
Mus_musculus	PEIMANSEAADGEKATALYYQQELKQLKEEFERYKMRAQVVLKSKNTKDGSLGKELEAAQ	521
Rattus norvegicus	PDIMANSEAADGEKATALYYOOELKOLKEEFERYKMRAQVVLKSKNTKDGNLGKELEAAO	521
Canis lupus familiaris	LEIMPSSEAADGEKASVLYYQQELKQLKEEFERYKMRAQVVLKSKNTKDGNLAKELEEAQ	521
Equus caballus	LEIMPSSEAADGEKASALYYQQELKQLKEEFERYKMRAQVVLKSKNTKDGNLAKELEEAQ	521
Bos taurus	LEIMPSSEAADGEKATALYYQQELKQLKEEFERYKMRAQVVLKSKNVKDGNLGKELEEAR	521
Heterocephalus_glaber	LEIMPSSEATDGEKATTIYYQQELKQLKEEFERYKMRAQVVLKSKNTKDGNLAKELEAAQ	521
Homo sapiens	LEIMPSSEAADGEKATALYYQQELKQLKEEFERYKMRAQVVLKSKNTKDGNLGKELEAAQ	521
Pan troglodytes	LEIMPSSEAADGEKATALYYQQELKQLKEEFERYKMRAQVVLKSKNTKDGNLGKELEAAQ	521
Macaca mulatta	LEIMPSSEAADGEKATALYYQQELKQLKEEFERYKMRAQVVLKSKNTKDGNLGRELEAAQ	521
Callithrix_jacchus	LEIMTSSETADGEKATALYYQQELKQLKEEFERYKMRAQVVLKSKNTKDGNLGKELEAAQ	521
Latimeria chalumnae	VNSSVNSEATDGEKATVLYYQQELKQLKEEFERYKMRAQVVLKNKTTKDSNVVKELEELR	529
Rhinatrema bivittatum	IELAEHTEAADGEKASALYYOOELKOLKEEFERYKMRAQVVLKNKTSKDGHLGKELEDTO	528
Xenopus tropicalis	FNKGEDMDEGPEQHASVLFYQQELQQLKEEFERYKSRAQGVLRTKGAREGELEAGK	470
	490500510520530540	- · •

File: /media/morpheus/disk1/fst/pep_msa/GCCDaps: Tue Feb 1 12:11:57 2022 Page 4 of 5

	** *.** . * * *	
Pavo muticus	EQLADLKEKYVVLQLSSEEVEKQHQLDMEAKRQEFSQLQQLHRQELERCQLEYRERALKL	586
_ · · · · · · · · · · · · · · · · · · ·	EQLADLKEKYVVLOLSSEEVEKOHOLDMEAKROEFSOLOOLHROELERCOLEYRERALKL	586
Pavo_cristatus		
Gallus_gallus	EQLADLKEKYVVLQLSSEEVEKQHQLDMEAKRQEFCQLQQLHRQELERCQLEYRERALKL	586
Chelonia_mydas	EQLAELKEKYIALRLSCEEMEKQHKQEMEAKKQEVSHLQQVHRQDLEKCGLDYRERALKL	586
Mus_musculus	EQLAELKDKYISLRLSCEELESQHQQEAEDWKQELARLQQLHRQELERSQLDFRDRTLKL	581
Rattus_norvegicus	EQLAELKDKYISLRLSCEELENQHQQEAEDWKQELTRLQQLHQQELERSQLDFRDRTMKL	581
Canis_lupus_familiaris	EQLAELKEKYISLRLSCEELERQHQQEAEDWKQELARLQHLHRQELERSQLDFRDRTLKL	581
Equus_caballus	EQLAELKEKYISLRLSCEELERQHQQEAEDWKQELARLQHLHRQELERSQLDFRDRTLKL	581
Bos_taurus	EQLAELKEKYISLRLSCEELERQHQQEAEGWKQELARLQHGHRQELERSQLDFRDRTLKL	581
Heterocephalus_glaber	EQLAELKEKYISLRLSCEELERQHQQEAEDWKQELVRLQQLHRQELERSQLDFRDRTLKL	581
Homo_sapiens	EQLAELKEKYISLRLSCEELEHQHQQEADDWKQELARLQQLHRQELERCQLDFRDRTLKL	581
Pan_troglodytes	EQLAELKEKYISLRLSCEELEHQHQQEADDWKQELARLQQLHRQELERCQLDFRDRTLKL	581
Macaca_mulatta	EQLAELKEKYISLRLSCEELEQQHQQEAEDWKQELARLQQLHRQELERCQLDFRDRTLKL	581
Callithrix_jacchus	EQLAELKEKYVSLRLSCEELEHQHQQEAEDWKQELAQLQQLHRQELERCQLDFRDRTLKL	581
Latimeria_chalumnae	ELHSDLKEKYIALRLSSDEMENQHRQELEAKQLDASRLQQAHKQELERMELEYRDRALKL	589
Rhinatrema_bivittatum	EQLAELKEKYISLRLSGEEAERQHAQELEEKKQESTRLLLSHKQELEKCQAAYREKTLRL	588
Xenopus_tropicalis	KQMAELKERCVSLRLSAEEAESQHKAEMEAAQKQIALMLQSHRQELESVRKEGRDNMARL	530
	550560570580590600	
	***:::*:*:*:*:*:	
Pavo_muticus	EEEMHKQRDRALAVLAEKDQELEQLRSVMLPYAGLQGTKNYMASGTDTASADPPAN	642
Pavo_cristatus	EEEMHKQRDRALAVLAEKDQELEQLRSVMLPYAGLQGTKNYMASGTDTASADPPAN	642
Gallus_gallus	EEEMHKQRDRALAVLAEKDQELEQLRSVVLPYTGLQGSKNYMAPGTDTASSDPPAN	642
Chelonia_mydas	EEEMHKQRDRALAVLSEKDQELEQLRSLAIPYG-LQGSKNYLAPGSDISSDDLMGA	641
Mus_musculus	EEELHKQRDRALAVLAEKDLELEQLRSVALSSG-LPGRRSPVGGVGGGGLGDPADT	636
Rattus_norvegicus	EEELHKQRDRALAVLAEKDLELEQLRSVALS <mark>SG-LPG</mark> RRSPVGGV <mark>GGGGLGDP</mark> DDP	636
Canis_lupus_familiaris		633
Equus_caballus	EEELHKQRDRALAVLAEKDLELEQLRSVALSSG-LPGHRSPVGGGGPGDPADT	633
Bos taurus	EEELHKQRDRALAVLAEKDLELEQLRSVALSSG-LPGRRSPVGGAGPRDQADT	633
Heterocephalus glaber	EEELHKORDRALAVLTEKDLELEOLRSVALSCG-LPGRRSPVGGGGPRDPADT	633
Homo_sapiens	EEELHKORDRALAVLTEKDLELEOLRSVALASG-LPGRRSPVGGGGPGDPADT	633
Pan_troglodytes	EEELHKORDRALAVLTEKDLELEOLRSVALASG-LPGRRSPVGGGGPGDPADT	633
Macaca mulatta	EEELHKORDRALAVLTEKDLELEOLRSVALASG-LPGRRSPVGGGGPGDPADT	633
Callithrix jacchus	EEELHKORDRALAVLAEKDLELEOLRSVALASG-LPGRRSPVGGGGPGDVADT	633
Latimeria chalumnae	EEEMHKQRDRALAILAEKDHELEHLRTLSFSSS-LPGYRSYIDNKLLVDGEEDQDDAQAG	648
Rhinatrema bivittatum	EEEMHKQRDRALAILAEKDQELEQIRSMPPPYG-LQVPKSYVAARTEASPELSAGG	643
Xenopus_tropicalis	EEEVRQHRERVLAVLAEKEQELEKLRETKITSVVPL	566
nenopub_croprearry	610620630640650660	500
	* . *	
Pavo muticus	GSTEILPQALHLSTNAEPTFILYAEQLARKEVEIVALRKQKHKLEMQVHQLQEKVLVEEE	702
Pavo_cristatus	GSTEILPQALHLSTNAEPTFILYAEQLARKEVEIVALRKQKHKLEMQVHQLQEKVLVEEE	702
Gallus_gallus	GSTEILPQALHLSTNAEPTFILYAEQLARKEVEIVALRKQKHKLEMQVHQLQEKVLVEEE	702
Chelonia mydas	ISSENLTQALHLAAANEPTFFLYAEQLARKEVEIVSLRKQKHKLEKEVHQLQERLLVEEE	701
Mus musculus	ASSDSLTQALQLAAANEPTFFLYAEQLARKEVEITSLRKQKHRLEVEAHQLQERLLEEGE	696
Rattus norvegicus	ASSDSLTQALQLAAANEPTFFLYAEQLARKEVEITSLRKQKHRLEVEAHQLQERLLEEGE ASSDSLTQALQLAAANEPTFFLYAEQLARKEVEITSLRKQKHRLEVEAHQLQERLLEEGE	696
		693
Canis_lupus_familiaris	SSSDSLTQALQLAAASEPTFFLYAEQLARKEVEITSLRKQKHRLEVEVHQLQDRLLEEGE	693
Equus_caballus		693
Bos_taurus	SPPDSLTQALQLAAVSEPTFFLYAEQLARKEVEITSLRKQKHRLEVEVHRLRDRLLEEGE	
Heterocephalus_glaber	SSADSLTQALQLAVANEPTFFLYAEQLARKEVEITSLRKQKYRLEVEVHQLQDRLLEEGE	693 693
Homo_sapiens	SSSDSLTQALQLAAANEPTFFLYAEQLARKEVEITSLRKQKHRLEVEVHQLQDRLLEEGE	
Pan_troglodytes	SSSDSLTQALQLAAANEPTFFLYAEQLARKEVEITSLRKQKHRLEVEVHQLQDRLLEEGE	693 693
Macaca_mulatta	SSSDSLTQALQLAAANEPTFFLYAEQLARKEVEITSLRKQKHRLEVEVHQLQDRLLEEGE	
Callithrix_jacchus	SSSDSLTQALQLAAANEPTFFLYAEQLARKEVEITSLRKQKHKLEVEVHQLQDRLLEEGE	693
Latimeria_chalumnae	FINDSLSQALKLAGPNEPTLLLYAEQLARKEVEIGALRKQKHKLEMEVHQLQDKLIMEGE	708
Rhinatrema_bivittatum	FSQDNIAQVLQLNSTGEPTFFLYVEQLSRKEVEIGALRKQKHQLEMEVHQLQERLLVDSE	703
Xenopus_tropicalis	SVLDSIGNGLELSQGASSTFIVYAEQLSRKEAEIGNLRRRKHELESELQSMQEKLAEQ	624
	670680690710720	

File: /media/morpheus/disk1/fst/pep_msa/GCCDaps: Tue Feb 1 12:11:57 2022 Page 5 of 5

	• • • • • • • • • • • • • • • • • • • •	
Pavo_muticus	RHQEEVSALQNEIQKNFRDKSREGANLEYLKNIVYRFLTLPDSVGRQQTLTAILTILHFS	762
Pavo_cristatus	RHQEEVSALQNEIQKNFRDKSREGANLEYLKNIVYRFLTLPDSVGRQQTLTAILTILHFS	762
Gallus_gallus	RHQEEVSALQSEIQKNFRDKSREGANLEYLKNIVYRFLTLPDSLGRQQTLTAILTILHFS	762
Chelonia_mydas	KHREEVSTLQDHIQKNLRDKSREGANLEYLKNIVYRFLTLPDSLGRQQTLTAILTILHFS	761
Mus_musculus	RHREEVGALQSHIEKNMRDQSREGANLEYLKNIIYRFLTLPDSLGRQQTLTAILTILHFS	756
Rattus_norvegicus	RHREEVGALQSHIEKNIRDQSREGANLEYLKNIIYRFLTLPDSLGRQQTLTAILTILHFS	756
Canis_lupus_familiaris	RHRERVGALQSHIEKNIRDQSREGANLEYLKNIIYRFLTLPDTLGRRQTLTAILTILHFS	753
Equus_caballus	QHREEVGALQSHIEKNIRDQSREGANLEYLKNIIYRFLTLPDTLGRQQTLTAILTILHFS	753
Bos_taurus	RHREEVGALQSHIAKHSRDQSREGANLEYLKNIIYRFLTLPDTLGRQQTLTAILTILHFS	753
Heterocephalus_glaber	QHREEVGALQSHIEKNIRDQSREGANLEYLKNIIYRFLTLPDSLGRQQTLTAILTILHFS	753
Homo_sapiens	RHREEVAALQSHIEKNIRDQSREGANLEYLKNIIYRFLTLPDSLGRQQTLTAILTILHFS	753
Pan_troglodytes	RHREEVAALQSHIEKNIRDQSREGANLEYLKNIIYRFLTLPDSLGRQQTLTAILTILHFS	753
Macaca_mulatta	RHREEVATLQSHIEKNIRDQSREGANLEYLKNIIYRFLTLPDSLGRQQTLTAILTILHFS	753
Callithrix_jacchus	RHREEVAALQSHIEKNIRDQSREGANLEYLKNIIYRFLTLPDSLGRQQTLTAILTILHFS	753
Latimeria_chalumnae	RHQEEVGALMDQVKKNIRDQSREGANLEYLKNIIYRFLTLQDSLGRQQTLTAILTILHFS	768
Rhinatrema_bivittatum	QHRDELSSLQEQIQKSLRDKSREGANLEYLKNIVYRFLTLQDSLGRQQTLTAILTILHFS	763
Xenopus_tropicalis	KEEANĪLQEQMKKNVRDRRREGANMEYLKNVLLGYL <mark>T</mark> LPDPRGRQHTLSALLĀVLHFS	682
	730740750760770780	

	*	:*:	:	•	:				* *		: *	
Pavo_muticus	P	EEK	Q	AVI	RK	Q٤	SAF	IS <mark>S</mark>	ww:	LS	GKR	784
Pavo_cristatus	P	EEK	Q	AVI	RΚ	Q٤	SAF	IS <mark>S</mark>	ww]	LS	GKR	784
Gallus_gallus	P	EEK	Q	AVF	RK	Q٤	SAF	IS <mark>S</mark>	ww:	LS	GKR	784
Chelonia_mydas	P	EEK	Q	VIN	I R	HS	IA:	IS <mark>S</mark>	ww]	LS	GKR	783
Mus_musculus	P	EEK	Q	VLN	1R	L	SC	G:	WW	PS	GKR	778
Rattus_norvegicus	P	EEK	Q	VLN	1R	L	SC	G:	WW <mark>I</mark>	PS	GKR	778
Canis_lupus_familiaris	P	EEK	Q	VIN	1R	L	TC	SS	WW <mark>I</mark>	PS	GKR	775
Equus_caballus	P	EEK	Q	VIN	1R	L	TS	GS	WW <mark>I</mark>	PS	GKR	775
Bos_taurus	P	EEK	Q	AIM	1R	L	VC	GG	WW	PS	GKR	775
<pre>Heterocephalus_glaber</pre>	P	EEK	Q	VIM	1Q	L	SS	GS	WW	PS	GKR	775
Homo_sapiens	P	EEK	Q	VIN	1R	L	TS	SAS	WW <mark>I</mark>	PS	GKR	775
Pan_troglodytes	P	EEK	Q	VIN	1R	L	TS	SAS	WW <mark>I</mark>	PS	GKR	775
Macaca_mulatta	P	EEK	Q	VIN	1R	L	AS	SAS	WW <mark>I</mark>	PS	GKR	775
Callithrix_jacchus	P	EEK	K	VVI	1R	L	AS	SAS	WW <mark>I</mark>	PS	GKR	775
Latimeria_chalumnae	P	QEK	Q	VVI	K	ΗÇ	2TS	3-5	WW.	rs	GKR	789
Rhinatrema_bivittatum	P	EEK	Q	VVI	1R	HS	SVC	GG	WW	PS	SKR	785
Xenopus_tropicalis	P	EER	N	AAI	R	ΑÇ	ĮΕ <mark>ς</mark>	SF	RWW.	AC	SNR	704
	_		٠.	7	19	Ο.			!	RC	00	