File: /media/morpheus/disk1/fst/pep\_msa/CEPD20eps Tue Feb<br/> 1 11:40:54 2022 Page 1 of 6

	* : ::: *:*** *** **** **** * :*:**** * :*:*****	
Pavo muticus	MVSRSADRLLIVVSVLEGRCFPKRPKYMLIVEAKFDGEQLATDPVEHTDQPEFATELAWE	60
Pavo cristatus	MVSRSADRLLIVVSVLEGRCFPKRPKYMLIVEAKFDGEQLATDPVEHTDQPEFATELAWE	60
Gallus_gallus	MVSRAADRLLIVVSILEGRCFPKRPKYMLIVEAKFDGEQLATDPVEHTDQPEFATELAWE	60
Chelonia mydas	MVSR-SDQLLIVVSILEGRHFPKRAKHMLVVEAKFDGEQLATDPVDHSDQPEFATELAWE	59
Mus_musculus	MVPK-SDQLLIVVSILEGRHFPKRPKHLLVVEAKFDGEQLATDPVDHTDQPEFATELAWE	59
Rattus norvegicus	MVPK-SDQLLIVVSILEGRHFPKRPKHMLVVEAKFDGEQLATDPVDHTDQPEFATELAWE	59
Homo_sapiens	MVSK-SDQLLIVVSILEGRHFPKRPKHMLVVEAKFDGEQLATDPVDHTDQPEFATELAWE	59
Pan_troglodytes	MVSK-SDQLLIVVSILEGRHFPKRPKHMLVVEAKFDGEQLATDPVDHTDQPEFATELAWE	59
Macaca mulatta	MVSK-SDOLLIVVSILEGRHFPKRPKHMLVVEAKFDGEQLATDPVDHTDQPEFATELAWE	59
Callithrix_jacchus	MVSK-SDQLLIVVSILEGRYFPKRPKHMLVVEAKFDGEQLATDPVDHTDQPEFATELAWE	59
Canis lupus familiaris	MVSK-SDQLLIVVSILEGRHFPKRPKHMLVVEAKFDGEQLATDPVDHTDQPEFATELAWE	59
Equus caballus	MVSK-SDQLLIVVSILEGRHFPKRPKHMLVVEAKFDGEQLATDPVDHTDQPEFATELAWE	59
Bos taurus	MVSK-SDOLLIVVSILEGRHFPKRPKHMLIVEAKFDGEOLATDPVDHTDOPEFATELAWE	59
Heterocephalus_glaber	MVSK-SDQLLVVVSILEGRHFPKRPKHMLIVEAKFDGEQLATDPVDHTNQPEFATELAWE	59
Xenopus_tropicalis	MGYK-SDQ-LIVVSILEGRHFPKRSRHMLVVDAKFDGEQLSTDPVPHLEQPQFATELAWE	58
Rhinatrema bivittatum	MGGK-AEQLLIVVSILEGRHFPKRPRHMLVVEARFDGEHLATDPVDHSDQPEFATELAWE	59
KIIIIIaciella_Diviccaculi	1102030405060	39
	11020	
	:***.**********************************	
Pavo muticus	LDRKALHQHRLQRTPIKLQCFALDPLSSVKENIGYVVLDLRAVQEKKQTPKWYSLLSNKY	120
Pavo_cristatus	LDRKALHOHRLORTPIKLOCFALDPLSSVKENIGYVVLDLRAVOEKKOTPKWYSLLSNKY	120
Gallus_gallus	LDRKALHOHRLORTPIKLOCFALDPLSSVKENVGYVVLDLRAVOEKKOTPKWYSLLSNKY	120
Chelonia_mydas	LDRKALHOHRLORTPIKLOCFALDPVSSTKENIGYIVLDLRAAQEKKOAPKWYPLLSNKY	119
Mus musculus	IDRKVLHOHRLORTPIKLOCFALDPOTSAKETVGYIVLDLRTAQETKOAPKWYOLLSNKY	119
Rattus_norvegicus	IDRKVLHOHRLORTPIKLOCFALDPOTSAKETVGYIVLDLRTAQETKOAPKWYQLLSNKY	119
Homo_sapiens	IDRKALHOHRLORTPIKLOCFALDPVTSAKETIGYIVLDLRTAQETKOAPKWYQLLSNKY	119
Pan troglodytes	IDRKALHOHRLORTPIKLOCFALDPVTSAKETIGYIVLDLRTAQETKOAPKWYQLLSNKY	119
Macaca_mulatta	IDRKALHOHRLORTPIKLOCFALDPITSAKETIGYIVLDLRTAQETKOAPKWYQLLSNKY	119
Callithrix_jacchus	IDRKALHOHRLORTPIKLOCFALDSITSAKETIGYIILDLRTAQETKOAPKWYQLLSNKY	119
Canis_lupus_familiaris	IDRKALHOHRLORTPIKLOCFALDPVSSAKETIGYIVLDLRTAQETKOAPKWYQLLSNKY	119
Equus caballus	IDRKALHOHRLORTPIKLOCFALDPLSSAKETIGYIVLDLRTAQETKOAPKWYQLLSNKY	119
Bos taurus	IDRKALHOHRLORTPIKLOCFALDPSTSARETIGYIVLDLRTAQETKOAPKWYQLLSNKY	119
Heterocephalus_glaber	IDRKALHOHRLORTPIKLOCFALDPSISAKETUGYIVLDLRTAQETKOAPKWHOLLSNKY	119
Xenopus_tropicalis	LDRKTLHOHRLORTPIKLOCFALDTLTSAKESVGYVVLDLRAAQEKKQAPKWYSLLSSKY	118
Rhinatrema bivittatum	LDRKALHQHRLQRTPIKLQCFALDILISAKESVGIVVLDLRTAQEQKQAPKWYPLLSSKY	119
RIIIIacrema_Divictatum	708090100110120	119
	/0	
	·*** *···· **·* · * *** *** · · · · · ·	
Pavo muticus	AKFKSEIKVGIVLETDSKAPVDDLKAKEAPPREGRVSALLSRLDPKSIVPVLNEEEGYHO	180
Pavo cristatus	AKFKSEIKVGIVLETDSKAPVDDLKAKEAPPREGRVSALLSRLDPKSIVPVLNEEEGYHO	180
Gallus gallus	AKFKSEIKVGIVLETDSKAPVDDLKAKEAPPREGRASALLSRLDPKSIVPVLNEEEGYHQ	180
Chelonia_mydas	TKFKSEIQISLVLETDTKAPVDGFKAKEAPPREGKVPALLSGLDPKSILAVLNEEEGYHQ	179
Mus_musculus	TKFKAEVQISLTLETDTKAQVDSYKAKAAPPRDGKVLASLAGVDPKDIVAVLNEEGGYHQ	179
Rattus norvegicus	TKFKSEVQISITLETDTKAQVDSFKAKGAPPRDGKVPASLLGVDPKDIVAVLNEEGGYHQ	179
Homo sapiens	TKFKSEIOISIALETDTKPPVDSFKAKGAPPRDGKVPAILAGLDPRDIVAVLNEEGGYHO	179
Pan troglodytes	TKFKSEIQISIALETDTKPPVDSFKAKGAPPRDGKVSAILAGLDPRDIVAVLNEEGGYHQ	179
Macaca mulatta	TKFKSEIQISIALETDTKAPVDSFKAKGAPPRDGKVPAILAGLDPRDIVAVLNEEGGYHQ	179
Callithrix jacchus	TKFKSEIQISIALETDTKAPVDSFKAKGAPPRDGKVPAILAGLDPRDIVAVLNEEGGYHQ	179
Canis_lupus_familiaris		179
Equus_caballus	SKFKSEIQISIALETDTKAPVDSFKAKGAPPRDGKVPANLSGLDPKDIVAVLNEEEGYHQ	179
Bos taurus	TKFKSEIQISIALETDTKAPVDSFKAKGAPPRDGKVPASLSGLDPKDVVAVLNEEGGYHQ	179
Heterocephalus glaber	TKFKSEIQISITLETDTKAPVDSFKAKGAPPRDGKVPASLSGLDPKDIVAVLNEEGGYHQ TKFKSEIQISITLETDTKAPVDSFKAKGAPPRDGKVPASLPGLDPKDLVAVLNEEGGYHQ	179 179
Xenopus tropicalis	TKFKPEIQLNISLETDNKPAVDTFKAKEAPPRRSKVPGDLAGLEPKSLVPILNEAEGYHQ	178
Rhinatrema bivittatum	TKFKPEMQISLSLEADTKPHIDGFKAKEAPPREGKVPAGVSGLDPKNLVAVLNEAEGYHQ	179
KIIIIIaciema_Divictacum	130140150160170180	1/9
	1301401301001/0180	

File: /media/morpheus/disk1/fst/pep\_msa/CEPD20eps Tue Feb<br/> 1 11:40:54 2022 Page 2 of 6

0		
	***. * : * :**:********** *** **********	
Done mutique	IGPAEYCRDYFVLSVTIAFATQLEQLVPSTVKLPEHQPEFFFYYSLLGNDVTNEPFTDLI	240
Pavo_muticus		-
Pavo_cristatus	IGPAEYCRDYFVLSVTIAFATQLEQLVPSTVKLPEHQPEFFFYYSLLGNDVTNEPFTDLI	240
Gallus_gallus	IGPAEYCRDYFVLSVTIAFATQLEQLVPSTMKLPEHQPEFFFYYSLLGNDVTNEPFTDLI	240
Chelonia_mydas	I <mark>GPPEYCREYFVLS</mark> VTIAFATQLEQLIPSTMKLPERQPEFFFYYSLLGNDVTNEPFTDLI	239
Mus musculus	IGPAEHCTDPFILSVTIAFATOLEOLIPCTMKLPEROPEFFFYYSLLGNDVTNEPFSDLI	239
Rattus norvegicus	IGPAECCTDSFTLSVTIAFATQLEQLIPCTMKLPERQPEFFFYYSLLGNDVTNEPFSDLI	239
Homo_sapiens	IGPAEYCTDSFIMSVTIAFATQLEQLIPCTMKLPERQPEFFFYYSLLGNDVTNEPFNDLI	239
Pan_troglodytes	IGPAEYCTDSFIMSVTIAFATQLEQLIPCTMKLPERQPEFFFYYSLLGNDVTNEPFNDLI	239
Macaca_mulatta	IGPAEYCTDSFIMSVTIAFATQLEQLIPCTMKLPERQPEFFFYYSLLGNDVTNEPFNDLI	239
Callithrix_jacchus	I <mark>GPAEYCTD</mark> SFIMSVTIAFATQLEQLIPCTMKLPERQPEFFFYYSLLGNDVTNEPFNDLI	239
Canis lupus familiaris	IGPAEYCTDSFIMSVTIAFATOLEOLIPCTMKLPEROPEFFFYYSLLGNDVTNEPFNDLI	239
Equus caballus	IGPAEYCTDYFIMSVTIAFATQLEQLIPCTMKLPERQPEFFFYYSLLGNDVTNEPFNDLI	239
Bos taurus	IGPAGYCTDFFIMSVTIAFATQLEQLIPCTMKLPERQPEFFFYYSLLGNDVTNEPFSDLI	239
	IGPAEYCTDAFIMSVTIAFATQLEQLIPCTMKLPERQPEFFFYYSLLGNDVTNEPFNDLI	239
Heterocephalus_glaber		
Xenopus_tropicalis	I <mark>GP</mark> AEYCKDYFVLSVTIAFATQLEQLIPSTLRLPEPQPEFFFYYSLLGNDVTNEPFTDLI	238
Rhinatrema_bivittatum	IGPTDYCRDFFVLSVTVAFATQLEQLIPSTMKLPERQPEFFFYYTLLGNDVTNEPFTNLM	239
	$\dots \dots 190 \dots \dots 200 \dots \dots 210 \dots \dots 220 \dots \dots 230 \dots \dots 240$	
	**:********	
Pavo_muticus	NPNFEPERASVRIRSSADILQVYLCAQSKLQIHLCCGDQSLGSTRIPLSGLLKKGSVEID	300
Pavo_cristatus	NPNFEPERASVRIRSSADILQVYLCAQSKLQIHLCCGDQSLGSTRIPLSGLLKKGSVEID	300
Gallus_gallus	NPNFEPERASVRIRSSADVLQVYLCAQSKLQIHLCCGDQSLGSTAIPLSGLLKKGSVEID	300
Chelonia_mydas	NPNFEPERASVRIRSTVEVLOVYFSAOPKIOIHLCCGDOSLGSTEIPLTGLLKKGNVEID	299
Mus musculus	NPNFEPERASVRIRSSVEILRVYLALH <mark>S</mark> KLQIHLCCGDQSLGSTEIPLNGLLKKGSTEIN	299
<del>_</del>	NPNFEPERASVRIRSSVEVLRVYLALHSKLQIHLCCGDQSLGSTEIPLSGLLKKGSTEIN	299
Rattus_norvegicus		
Homo_sapiens	NPNFEPERASVRIRSSVEILRVYLALQSKLQIHLCCGDQSLGSTEIPLTGLLKKGSTEIN	299
Pan_troglodytes	NPNFEPERASVRIRSSVEILRVYLALQSKLQIHLCCGDQSLGSTEIPLTGLLKKGSTEIN	299
Macaca_mulatta	NPNFEPERASVRIRSSVEVLRVYLALQSKLQIHLCCGDQSLGSTEIPLTGLLKKGSTEIN	299
Callithrix_jacchus	NPNFEPERASVRIRSNVEVLRVYLALQSKLQIHLCCGDQSLGSTEIPLTGLLKKGSTEIN	299
Canis_lupus_familiaris		299
Equus_caballus	NPNFEPERASVRIRSSIEILRVYLALQSKLQIHLCCGDQSLGSTEIPLTGLLKKGGAEIN	299
Bos_taurus	NPNFEPERASVRIRSSIEILRVYLTLHSKLQIHLCCGDQSLGSTEIPLTGLLKKGSTEIN	299
Heterocephalus_glaber	NPNFEPERASVRIRSSVEILRVYLALQPKLQIHLCCGDQSLGSTEIPLHGLLKRGSTEIN	299
Xenopus_tropicalis	NPEFEPERASVRIRSSKEVLCMYLSVQPKLQIHLCCGDQSLGSTDIALTGLLNKASVEIE	298
Rhinatrema bivittatum	NPNFEPERASVKIRSSPDVLRLYFGVHPKLQIHLCCGDQSLGSTEIPLTGLLKKESAEMG	299
	250260270280290300	
	*.:**.* * ******:*:::*::*::*: **:* :	
Pavo_muticus	QHPVAIEGAFVLVPPNRAKQNLPQLPLDMAPSVGVSVILQKECLNVQPSIPSSVPSEP	358
Pavo_cristatus	QHPVAIEGAFVLVPPNRAKQNLPQLPLDMAPSVGVSVILQKECLNVQPSIPSSVPSEP	358
Gallus_gallus	QRPVAIEGAFVLVPPNRAKONLPQLPLDMAPTVGVSVILOKECLNVQPLIPSNVPTEP	358
Chelonia mydas	QHPVAVEGAFSLVPPNRAKQKLPPLALDMAPTVGISVTLQKEGINTQSLIHLDLQTEP	357
Mus musculus	QHPVTVEGAFTLDPPNRAKQKLAPVPLDLAPTVGVSVALQREGIDSQSLIELKTQNGHEA	359
<del>_</del>		
Rattus_norvegicus	QHPVTVEGAFTLDPPNRAKQKLAPVPVELAPTVGVSVALQREGIGSQSLIELKTQNGHEP	359
Homo_sapiens	QHPVTVEGAFTLDPPNRAKQKLAPIPVELAPTVGVSVALQREGIDSQSLIELKTQNEHEP	359
Pan_troglodytes	QHPVTVEGAFTLDPPNRAKQKLAPIPVELAPTVGVSVALQREGIDSQSLIELKTQNEHEP	359
Macaca mulatta	QHPVTVEGAFTLDPPNRAKQKLAPIPVELAPTVGVSVALQREGIDSQSLIELKTQNEHEP	359
Callithrix jacchus	QRPVTVEGAFTLDPPNRAKOKLAPIPMELAPTVGVSVALOREGIDSQSLIELKTONEHEP	359
Canis lupus familiaris		359
Equus caballus	QRPVTVEGAFTLDPPNRAKQKLAPIPVELAPTVGVSVALQREGIDAQSLIELKTQNEHEP	359
Bos_taurus	HRPVTVEGAFTLDPPNRAKQKLAPIPVELAPTVGVSVALQREGMDVQSLIELKTQNEHEP	359
Heterocephalus_glaber	QHPVTVEGAFILDPPNRAKQKLAPVPLELAPTVGVSVALQREGINCQSLVELKTQNGHEP	359
Xenopus_tropicalis	HHPVVVEGAFILTPPNRAKQNLSAVPLEMSPTIGVSIALQKE-IGLQSVHHPKEQPQS	355
Rhinatrema_bivittatum	EQAVVIEGVFILV <mark>PPNRAKONLPPVPVEMAPTVGISVSLOKEGIPSKSSSOLKAETELE</mark> S	359
_	310320330340350360	

File: /media/morpheus/disk1/fst/pep\_msa/CEPD20epsTue Feb 111:40:54 2022 Page 3 of 6

	: *	
Pavo_muticus Pavo_cristatus Gallus_gallus Chelonia_mydas Mus_musculus Rattus_norvegicus Homo_sapiens Pan_troglodytes Macaca_mulatta Callithrix_jacchus Canis_lupus_familiaris Equus_caballus Bos_taurus Heterocephalus_glaber Xenopus_tropicalis Rhinatrema_bivittatum	KQPKKVLSPIGGEAKGLQERSQDVPSQTDHSSAIEDEATESEAESLKFEKGTEL KQPKKKVLSPIGGEAKGLQERSQDVPSQTDHSSAIEDEATESEAESLKFEKGTEL KQPKKKVLSPTGGEAKGLQERSQDVPSQTDHSSAIEDEATESEAESLKFEKGTEL KQPKKKVLSPTGGEAKGLQERSQDVPSQIDHSSPIEDEATESEAESLKSEKGTEL EHSQKRVLSPTRDKTKSPEQRSQSAPSAPLQNGHSPPTKDEATESEVESLQYDKDPKP EHSQKRVLTPIKEKTLTGPKSPRSPAPPPPPNQTPPTKDDATESEVESLQYDKDPKP EHSQKRVLTPIKEKTLTGPKSPRVSPAPPQNQTPPTKDDATESEVESLQYDKDPKP EHSKKKVLTPIKEKTLTGPKSPRVSPVPSHNQSPPTKDDATESEVESLQYDKDTKP EHSKKKVLTPIKEKTLTGPKSPRVSPVPSHNQSPPTKDDATESEVESLQYDKDTKP EHSKKKVLTPIKEKTLTGPKSPRVSPVPSHNQSPPTKDDATESEVESLQYDKDTKP EHSKKKVLTPIKEKTLTGPKSPRVSPVPSHNQSPPTKDDATESEVESLQYDKDTKP QHSKKRVLTPIKEKTLTGPKSPRVSPVPSHNQSPPTKDDATESEVESLQYDKDTKP QHSKKKVLTPIKEKTLTGPKSPSMSPVPPQNLSPPTKDDATESEVESLQYDKDTKP QHSKKKVLTPIKEKTLAGPKSPSMSPVPPQNLSPPTKDDATESEVESLQYDKDTKP QHSKKKVLTPIKEKTLAGPKSPSMSPVPPQNLSPPTKDDATESEVESLQYDKDTKP QHSKKRVLTPIKENTHTGPQSPSESPVPPHNQSPPTKDDATESEVESLQYDKDTKL ELSKKRVLSPVKEKTLTGPKSPSISPAAPPNQTPPAKDDATESEVESLQYDKDTKL ELSKKRVLSPVKEKTLTGPKSPSISPAAPPNQTPPAKDDATESEVESLQYDKDLKT VAAEEVPTTPLKKSANLKEGARSPPPPKPLMFSDSPPTKDEATESEAESIKSDFQAEPPL PKKKTVLSPTLKKSRSPKPRPRSASPTLP-HYSNSPPTKDESTEGEIESLQENDAPI	413 413 415 417 415 415 415 415 415 415 415 415 415
Pavo_muticus Pavo_cristatus Gallus_gallus Chelonia_mydas Mus_musculus Rattus_norvegicus Homo_sapiens Pan_troglodytes Macaca_mulatta Callithrix_jacchus Canis_lupus_familiaris Equus_caballus Bos_taurus Heterocephalus_glaber Xenopus_tropicalis Rhinatrema_bivittatum	KEAGLVGESCRDVNKQYTEELPVFKSQSSAKSLLLSADDAPAAAPQPS         KEAGLVDESCRDVSEQYTEELPVFKSQNSTKSLLLSADDAPAVAPQPN         NKKALN       ALAPVSQSH         TVKGIG       SVPASLAQ         VVKGTG       SIPASLAQ         NPKASS       SVPASLAQ         NPKASS       SVPASLAQ         NPKAGS       SVPASLAQ         NPKAITSVP       ASVAQAVGQ         NPKAVR       SVPASLAQ         NPKAIS       SV	461 461 430 431 429 429 429 433 430 430 430 430
Pavo_muticus Pavo_cristatus Gallus_gallus Chelonia_mydas Mus_musculus Rattus_norvegicus Homo_sapiens Pan_troglodytes Macaca_mulatta Callithrix_jacchus Canis_lupus_familiaris Equus_caballus Bos_taurus Heterocephalus_glaber Xenopus_tropicalis Rhinatrema_bivittatum	* : **::*******:**::**:***************	518 518 518 487 489 486 486 486 487 487 487 501 487

File: /media/morpheus/disk1/fst/pep\_msa/CEPD20epsTue Feb 1 11:40:54 2022 Page 4 of 6

8		
	****.**:*****************************	
Pavo muticus	APIMTSPPIEIRKNMEVFLPOSYCVFHFATTPHOLODTFFRLPLLVELWHKDKTTKDLLL	578
Pavo_cristatus	APIMTSPPIEIRKNMEVFLPQSYCVFHFATTPHQLQDTFFRLPLLVELWHKDKTTKDLLL	578
Gallus_gallus	APIMTSPPIEIRKNMEVFLPQSYCVFHFATTPHQLQDTFFRLPLLVELWHKDKTTKDLLL	578
Chelonia mydas	APIMTNPPVEVRKNMEVFLPQSYCAFDFATMPHQLQDTFFRLPLLVELWHKDKMTKDILL	547
Mus musculus	APIMTNPPVEVRKNMEVFLPQSYCAFDFATMPHQLQDTFLRIPLLVELWHKDKMSKDLLL	549
Rattus_norvegicus	APIMTNPPVEVRKNMEVFLPQSYCAFDFATMPHQLQDTFLRIPLLVELWHKDKMSKDLLL	547
	APIMTNPPVEVRKNMEVFLPQSYCAFDFATMPHQLQDTFLRIPLLVELWHKDKMSKDLLL	546
Homo_sapiens		
Pan_troglodytes	APIMTNPPVEVRKNMEVFLPQSYCAFDFATMPHQLQDTFLRIPLLVELWHKDKMSKDLLL	546
Macaca_mulatta	APIMTNPPVEVRKNMEVFLPQSYCAFDFATMPHQLQDTFLRIPLLVELWHKDKMSKDLLL	546
Callithrix_jacchus	APIMTNPPIEVRKNMEVFLPQSYCAFDFATMPHQLQDTFLRIPLLVELWHKDKMSKDLLL	546
Canis_lupus_familiaris	APIMTNPPVEVRKNMEVFLPQSYCAFDFATLPHQLQDTFLRIPLLVELWHKDKMSKDLLL	550
Equus_caballus	APIMTNPPVEVRKNMEVFLPQSYCAFDFATMPHQLQDTFLRIPLLVELWHKDKMSKDLLL	547
Bos_taurus	A <mark>P</mark> IMTNPPVEVRKNMEVFLPQSYCAFDFATLPHQLQDTFLRIPLLVELWHKDKMSKDLLL	547
<pre>Heterocephalus_glaber</pre>	A <mark>PIMTNPPVEVRKNMEVFLP</mark> QSYCAFDFATLPHQLQDTFLRIPLLVELWHKDKMSKDLLL	547
Xenopus tropicalis	APIMTNPPVEVQKNMEVFLPQSYCAFDFATLPHQIQDTFLRLPLLVELWHKDKMTKDLLI	561
Rhinatrema_bivittatum	APIMTNPPVEVRKNMEVFLPQSYCAFDFATMPHQLQDTFFRLPLLVEVWHKDKMAKDLLL	547
	550560570580590600	_
	*:::***::* ***** *:***** .: : . *.:*::: :* * :*****	
Pavo muticus	GIARLQLSNVLTSEKTRFLGGNGEQCWRQTYNETVSVTAAQGSDTRIAELLYAITLEDYG	638
<del>_</del>	GIARLOLSNVLTSEKTRFLGGNGEOCWROTYNETVSVTAAOGSDTRIAELLYAITLEDYG	
Pavo_cristatus		638
Gallus_gallus	GIARLQLSNVLTSEKTRFLGGNGEQCWRQAYSETVSVTAAQGSDTRIAELLYAITLEDYG	638
Chelonia_mydas	GVARLQLSNVLGLEKTRFLGTNGEQCWRQTCSETVGVMAAQGANNRIAELSYTVTLEDYG	607
Mus_musculus	GVARIQLSNILSSEKTRFLGANGEQCWRQTYSESVPVIAAQGSNNRILDLSYTMTLEDYG	609
Rattus_norvegicus	GIARIQLSNILSSEKTRFLGANGEQCWRQTYSEKVPVIAAQGSNNRIVDLSYTMTLEDYG	607
Homo_sapiens	GIARIQLSNILSSEKTRFLGSNGEQCWRQTYSESVPVIAAQGSNNRIADLSYTVTLEDYG	606
Pan_troglodytes	GIARIQLSNILSSEKTRFLGSNGEQCWRQTYSESVPVIAAQGSNNRIADLSYTVTLEDYG	606
Macaca_mulatta	GIARIQLSNVLSSEKTRFLGSNGEQCWRQTYSETVPIIAAQGSNNRIADLSYTVTLEDYG	606
Callithrix_jacchus	GIARIQLSNILSSEKTRFLGSNGEQCWRQTYSESVPVIAAQGSNNRIADLSYTVTLEDYG	606
Canis_lupus_familiaris	GIARIQLSNVLSSEKTRFLGSSGEQCWRQTYSESVPFIAAQGSNNRIIDLSYTVTLEDYG	610
Equus_caballus	GIARIQLSNILSSEKTRFLGSNGEQCWRQTYSESVPVIAAQGSNNRIIDLSYTVTLEDYG	607
Bos taurus	GIARIQLSNILSSEKTRFLGSNGEQCWRQTFSESVPIVATQGSNNRIVDLSYTVTLEDYG	607
Heterocephalus glaber	GISRIQLSNILSSEKTRFLGSNGEQCWRQTYSESVPVIAAQGSNNRIVDLSYTVTLEDYG	607
	GVTKIQLSNVLSSEKTRFLGPHGDQCWRQTFSERITVTAVEGSKNKVAELSYIITLEDYG	621
Xenopus_tropicalis		
Rhinatrema_bivittatum	GVARLQLSHVLTAAKTRFLGPQGDQCWRQTYSDRISITAVQGTSNQIAELSYTMTLEDYG	607
	610620630640650660	
	***:*:*:*:	
Pavo_muticus	LVKIHEVLVSESSQCVGAGQQRHATHTQLHCASEKQPEPRETLEYKAALELELWKEMQ	696
Pavo_cristatus	LV <mark>K</mark> IHEVLVSESSQCVGAGQQRHATHTQLHCASEKQPEPRETLEYKAALELELWKEMQ	696
Gallus_gallus	LVKIHEVLVSDSSQCVGAGQQRHATHTQLHCASEKQTEPRETLEYKAALELELWKEMQ	696
Chelonia mydas	LVKMHEVLVSDSSQCLGAGQQ-QIPPPQPHHVPETEPEPRETLEYKAALELEMWKEMQ	664
Mus musculus	LVKMREIFVSESSOGVPAVDOKPSSPPPAPCPSEIOMEPRETLEYKAALELEMWKEMO	667
Rattus norvegicus	LVKMREIFVSESSQGMSAVGQRASPPPPPPPAPCPSEIQVEPRETLEYKAALELEMWKEMQ	667
Homo sapiens	LVKMREIFISDSSQGVSAVQQKPSSLPPAPCPSEIQTEPRETLEYKAALELEMWKEMQ	664
Pan_troglodytes	LVKMREIFISDSSQGVSAVQQKPSSLPPAPCPSEIQTEPRETLEYKAALELEMWKEMQ	664
Macaca mulatta	LVKMREIFVSDSSQGVSAIQQKPSSLPPAPCPSEIQTEPRETLEYKAALELEMWKEMQ	664
Callithrix_jacchus	LVKMREIFVSDSSQGLSAVHQKPSSLPPAPCPSEIQTEPRETLEYKAALELEMWKEMQ	664
Canis_lupus_familiaris		668
Equus_caballus	LVKMREIFVSDSSQGVSAIEQKPSSLPPAPCPSEIQTEPRETLEYKAALELEMWKEMQ	665
Bos_taurus	LVKMREIFVSDSSQGLSAVQQKPSSVPPAPCPSEIQTEPRETLEYKAALELEMWKEMQ	665
Heterocephalus_glaber	LVKMREIFVSDSSQGLPAVQQKPSSLPPAPCPSEIQTEPRETLEYKAALELEMWKEMQ	665
Xenopus_tropicalis	LVKVREVVVSESSQSTGQ-EKGSLP-AQTLQSTAPLPEPRETLEYKAALELEMWKEMQ	677
Rhinatrema_bivittatum	LVKVQEVVVSESSQSLGAGQKIAFPSPQSSQVKESQPQPRETLEYKAALELEMWKEVQ	665
	670680690700710720	

File: /media/morpheus/disk1/fst/pep\_msa/CEPD20epsTue Feb 1 11:40:54 2022 Page 5 of 6

	**:* .**::**::************************	
Pavo muticus	EDIFENQLKKKEMARMQALAEEWKKRDEEREALVKKKVAEYTALEEQLQKTLRDLDKRER	756
Pavo_cristatus	EDIFENOLKKKEMARMOALAEEWKKRDEEREALVKKKVAEYTALEEOLOKTLRDLDKRER	756
Gallus_gallus	EDIFENOLKKKEMARMOALAEEWKKRDEEREALVKKKVAEYTALEEOLOKTLRDLDKRER	756
Chelonia mydas	EDIFENOLKKKELAHMOALAEEWKKRDKEREALVKKKVAEYTNLEEOLOKTUTDLEKRER	724
Mus_musculus	EDIFESOLKOKELAHMOALAEEWKKRDRERESLVKKKVAEYSILEGKLOKALTELETREO	724
	EDIFESQLKQKELAHMQALAEEWKKRDRERESLVKKKVAEYSILEGKLQQALTELESREQ	727
Rattus_norvegicus	EDIFENOLKOKELAHMOALAEEWKKRDRERESLVKKKVAEYTILEGKLOKTLIDLEKREO	724
Homo_sapiens	EDIFENOLKOKELAHMOALAEEWKKRDRERESLVKKKVAEYTILEGKLOKTLIDLEKREO	724
Pan_troglodytes Macaca mulatta	EDIFENOLKOKELAHMOALAEEWKKRDRERESLVKKKVAEYTILEGKLOKTLIDLEKREO	724
	EDIFENQLKQKELAHMQALAEEWKKRDRERESLVKKKVAEYTILEGKLQKTLIDLEKREQ	724
Callithrix_jacchus		
Canis_lupus_familiaris		728
Equus_caballus	EDIFENQLKQKELAHMQALAEEWKKRDRERESLVKKKVAEYTILEGKLQKTLIDLEKREQ	725
Bos_taurus	EDIFENQLKQKELAHMQALAEEWKKRDRERESLVKKKVAEYNILEGKLQKTLIDLEKREQ	725
Heterocephalus_glaber	EDIFENQLKQKELAHMQALAEEWKKRDRERESLVKKKVAEYNILEGKLQKTLIDLEKREQ	725
Xenopus_tropicalis	EDLFVNQLKKKELVHMQALAEEWKRRDKEREALVKKKVAEYTVLEEQLQKALADLEKRER	737
Rhinatrema_bivittatum	EDLFENQLKRKELAHMQALAEEWKRRDREREALVKKKVAEYSILEEQLQKTLADLEKRER	725
	730740750760770780	
	** * *: :::::::::::::::::::::::::::::::	
Pavo_muticus	QLLTAESEIQRVKRELQAEHEQNKQELQDSVRRTREECAHQIELERSKIKQLGED	811
Pavo_muticus Pavo_cristatus	QLLTAESEIQRVKRELQAEHEQNKQELQDSVRRTREECAHQIELERSKIKQLGED	811
Gallus_gallus	QLLTAESEIQRVKKELQAEHEQNKQELQDSVRRTREECAHQVELERSKIKQLGED	811
Chelonia_mydas	QLVNAESELQRVKRELQAGHERNFQELQDSVRRVKEECAHQVELERSKIKQLEED	779
Mus_musculus	QLASAEAELQRERKELQLERERNLQELQDSVRRARDDCVYQVELERLKLKQLEED	782
	QLVTAETELQRERKELQLERERNLQELQDSVRRARDDCVHQVELERLKLKQLEED	782 782
Rattus_norvegicus Homo sapiens	QLASVESELQREKKELQSERQRNLQELQDSIRRAKEDCIHQVELERLKIKQLEED	779
Pan_troglodytes	QLASVESELQREKKELQSERQRNLQELQDSIRRAKEDCIHQVELERLKIKQLEED	779
Macaca_mulatta	QLASAESELQREKKELQSERQRNLQELQDSIRRAKEDCIHQVELERLKIKQLEED	779
		779
Callithrix_jacchus Canis_lupus_familiaris	QLASAESELQREKKELQSERQRNLQELQDSIRRAKEDCIHQVELERLKIKQLEED QLVLAESEVQRERKELKSERERNLQELQDSIRRAKEDCVHQVELERLKMRQLEED	783
	QLVIAESELQRERKELKSERERNLQELQDSIRRAKEDCVHQVELERLKIKQLEEE	780
Equus_caballus	QLAIAESEMYLFKLQRERRELKSERERNLQELQDSIRRAKEDCVHQVELERLKMKQLEED	785
Bos_taurus	QLASTESELQREKKELQSEREQNLKELQDSVRRVREDCVHQVELERLKIRQLEED	780
Heterocephalus_glaber	QLANDEMELKKLKAQLQLDCERSIQERQDSIRRVREDCMHQIELERSKAKQLEED	792
Xenopus_tropicalis Rhinatrema bivittatum	QLTSAEAELRKVKSELQADHERGLQELHDSMRRVRDDCVHQVEMEKSKIKQLEED	780
Rninatrella_bivittatulli	790800810820830840	760
	/90010020030040	
	: *:::: :* * * ::*:* .*:** .***:**:**:***	
Pavo muticus	KLRMQQQLYEAENKYKILEKEFQQYKEQQSSKPEIQLQSEINLLTLEKAELERKLESATK	871
Pavo cristatus	KLRMQQQLYEAENKYKILQKEFQQYKEQQSSKPEIQLQSEINLLTLEKAELERKLESATK	871
Gallus_gallus	RLRIQQQLYEAENKYKILEKEFQQYKEQQSSKPEIQLQSEINLLTLEKAELERKLESATK	871
Chelonia mydas	KVRLQQHFYEAENKYKILEKEFQQYKEQQCSKPEIRLQSEINLLTLEKVELERKLESATK	839
Mus musculus	KQRLQQQLNDAGNKYKTLEKEFQQFKDQQNNKPEIRLQSEINLLTLEKVELERKLESATK	842
Rattus norvegicus	KHRLOOOLNDAENKYKILEKDFOOFKDOONNKPEIRLOSEINLLTLEKVELERKLESATK	842
Homo sapiens	KHRLOOOLNDAENKYKILEKEFOOFKDOONNKPEIRLOSEINLLTLEKVELERKLESATK	839
Pan troglodytes	KHRLQQQLNDAENKYKILEKEFQQFKDQQNNKPEIRLQSEINLLTLEKVELERKLESATK	839
Macaca mulatta	KHRLQQQLNDAENKYKILEKEFQQFKDQQNNKPEIRLQSEINLLTLEKVELERKLESATK	839
Callithrix_jacchus	KHRLOOOLNDAETKYKILEKEFOOFKDOOSNKPEIRLOSEINLLTLEKVELERKLESATK	839
	KHRLQQQLNDAENKYKILEKEFHQFKDQQSNKPEIRLQSEINLLTLEKVELERKLESATK	843
Equus caballus	KHRLHQQLNDAENKYKILEKEFHQFKDQQSNKPEIRLQSEINLLTLEKVELERKLESATK	840
Bos taurus	KHRLQQQLNDAENKYKTLEKEFHQFKDQQSSKPEIRLQSEINLLTLEKVELERKLESATK	845
Heterocephalus glaber	KHRLOKOLLDAENKNKTLEKEFOOFKDOOSNKPEIRLOSEINLLTLEKVELERKLESATK	840
Xenopus tropicalis	KLRLQQQLQEAEHKVKLMEKEFLQYKEQQSSKPEIRLQSDINLLTLEKVELERKLELTTK	852
Rhinatrema bivittatum	KLRLQQQLHDAEHKFKLLEKEFQQHKEQQSSKPEIRLQSEINFLTLEKVELERKLESSTK	840
	850860870880890900	313

#### File: /media/morpheus/disk1/fst/pep\_msa/CEPD20eps Tue Feb<br/> 1 11:40:54 2022 Page 6 of 6

0		
	******* ***** ****** *** ******* ****	
Pavo_muticus	SKLHYKQQWARALKELARLKQREQENAMARLKKQQQELEHMRLCYLAAEEKELGKTDRQE	931
Pavo cristatus	SKLHYKOOWARALKELARLKOREOENAMARLKKOOOELEHMRLCYLAAEEKELGKTDROE	931
Gallus_gallus	SKLHYKQQWARALKELARLKQREQESAMARLKKQQQELEHMRLCYLAAEEKELGKTDRQE	931
Chelonia_mydas	SKLHYKQQWARALKELARLKQREQENAMARLKKQQQELEHMRLRYLAAEEKEVGKTERKE	899
Mus musculus	SKLHYKQQWGRALKELARLKQREQESQMARLKKQQEELEQMRLRYLAAEEKETVRTEQQE	902
Rattus norvegicus	SKLHYKQQWGRALKELARLKQREQESQMARLKKQQEELEQMRLRYLAAEEKDTVKTEQQE	902
	SKLHYKQQWGRALKELARLKQREQESQMARLKKQQEELEQMRLRYLAAEEKDTVKTERQE	899
Homo_sapiens		
Pan_troglodytes	SKLHYKQQWGRALKELARLKQREQESQMARLKKQQEELEQMRLRYLAAEEKDTVKTERQE	899
Macaca_mulatta	SKLHYKQQWGRALKELARLKQREQESQMARLKKQQEELEQMRLRYLAAEEKDTVKTERQE	899
Callithrix_jacchus	SKLHYKQQWGRALKELARLKQREQESQMARLKKQQEELEQMRLRYLAAEEKDTVKTEQQE	899
Canis_lupus_familiaris		903
Equus_caballus	SKLHYKQQWGRALKELARLKQREQESQMARLKKQQEELEQMRLRYLAAEEKDTVKTERQE	900
Bos_taurus	SKLHYKQQWGRALKELARLKQREQESQMARLKKQQEELEQMRLRYLAAEEKDTVKTERQE	905
<pre>Heterocephalus_glaber</pre>	SKLHYKQQWGRALKELARLKQREQESQMARLKKQQEELEQMRLRYLAAEEKDTVKTEQQE	900
Xenopus_tropicalis	SKLHYKOOWGRALKELARLKOREOENAMARLKKOOOELEHMRLRYLAAEEKDVVKTEROE	912
Rhinatrema bivittatum	SKLHYKQQWGRALKELARLKQREQDNAMARLKKQQQELEHMRLRYLAAEEKEVVKTERQE	900
	910920930940950960	200
	* *********	
		005
Pavo_muticus	LEDIRNELNRLKQQEQERKQFQDAARDDSACKVDGLHTRKSSENIDDYLSRLMEERDTLL	991
Pavo_cristatus	LEDIRNELNRLKQQEQERKQFQDAARDDSACKVDGLHTRKSSENIDDYLSRLMEERDTLL	991
Gallus_gallus	LEDIRNELNRLKQQEEERKQFQDVR-DNSACKVDSLHTRKSNENIDDYVSRLMEERDTLL	990
Chelonia_mydas	LE <mark>DIRNELNRLKQQE-DKKQSQDSR</mark> -DISVE <mark>Q</mark> A <mark>GS</mark> VHTRQLNESL <b>DDYLTR</b> LIEERD <mark>T</mark> LL	957
Mus musculus	LLDIRNELNRLRQQEQNQYQDCK-EIASGKLGSPRGSGLEEGLDDYLTRLIEERDTLM	959
Rattus_norvegicus	LLDIRNELNRLRQQEQKQYQDYK-EIASGKQGSPRGSGLEEGLDDYLTRLIEERDTLM	959
Homo_sapiens	LLDIRNELNRLROOE - OKOYODST-EIASGKKDGPHGSVLEEGLDDYLTRLIEERDTLM	956
Pan_troglodytes	LLDIRNELNRLRQQEQKQYQDST-EIASGKKDGPHGSVLEEGLDDYLTRLIEERDTLM	956
Macaca mulatta	LLDIRNELNRLRQQEQKQYQDSR-EIASGKKDGPHGSVLEEGLDDYLTRLIEERDTLM	956
Callithrix_jacchus	LLDIRNELNRLRQQEQKQYQDSR-EIASGKKDGPDGTVLEEGLGDYLTRLIEERDTLM	956
Canis_lupus_familiaris	LLDIRNELNRLRQQEQKQYQDSR-EIASGKMDSPRGNALEEGLDDYLTRLIEERDTLM	960
Equus_caballus	LLDIRNELNRLRQQEQKQYQDSR-EIASGKMDSPHGNALEEGLDDYLTRLIEERDTLM	957
Bos_taurus	LLDIRNELNRLRQQEQKQYPDSR-EIASGKMDGPHGSALEEGLDDYLTRLIEERDTLM	962
Heterocephalus_glaber	LLDIRNELNRLRQQEQKQYQDSR-EIASGKMDGLRGSALEEGLDDYLTRLIEERDTLM	957
Xenopus_tropicalis	LEEIRNELNRLRQQED <mark>RK</mark> Q <mark>PP</mark> -D <b>T</b> SANAN <mark>GSPG</mark> ARLKDEGLDDYL <mark>SR</mark> LIEERDTLL	967
Rhinatrema_bivittatum	LEEIRNELNRLKQQEEKKPQDSG-EITSGTKESPQARLLSDGLDDYLTRLIEERDTLL	957
	$\dots \dots 970 \dots 980 \dots 990 \dots 1000 \dots 1010 \dots 1020$	
	****	
Pavo muticus	RTGVYNHEDHIVSELDRQIREAIAKRNATK 1021	
Pavo cristatus	RTGVYNHEDHIVSELDROIREAIAKRNATK 1021	
	RTGVYNHEDHIVSELDROIREAIAKRNATK 1021	
Gallus_gallus		
Chelonia_mydas	RTGVYNHEDHIVSELDRQIREALAKRSSNK 987	
Mus_musculus	RTGVYNHEDRIISELDRQIREVLTKNSAS- 988	
Rattus_norvegicus	RTGVYNHEDRIISELDRQIREVLTKNSASN 989	
Homo_sapiens	RTGVYNHEDRII <mark>SELDRQIRE</mark> ILA <mark>KSNASN</mark> 986	
Pan_troglodytes	RTGVYNHEDRIISELDRQIREILAKSNASN 986	
Macaca_mulatta	RTGVYNHEDRIISELDRQIREILAKSNASN 986	
Callithrix_jacchus	RTGVYNHDDRIISELNRQIREILAKNSASN 986	
Canis lupus familiaris		
Equus_caballus	RTGVYNHEDRIISELDRQIREVLAKNSASN 987	
Bos_taurus	RTGVYNHEDRIISELDRQIREVLAKNNASN 992	
Heterocephalus_glaber	RTGVYNHEDQIISELNRQIREVLAKNNASN 987	
Xenopus tropicalis	RTGVYTHEDRIISELDRQIRETMAKRSNR- 996	
Rhinatrema_bivittatum	RTGVYTHEDRIISELDRQIREAMTKRSSN- 986	
	$\dots 1030 \dots 1040 \dots 1\overline{0}50$	