

CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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Species	Sequence	Position
Equus caballus	-----	
Pteropus alecto	-----	
Bos taurus	-----	
Homo sapiens	-----	
Pan troglodytes	-----	
Macaca mulatta	-----	
Callithrix jacchus	-----	
Mus musculus	-----	
Pavo muticus	-----	
Pavo cristatus	-----	
Gallus gallus	MQISGLSYRGQGGGHSVSPRSLLRGGGGERGRDISFFSTSSSSSSSRDFPPRLPPSLSL	60
Anas platyrhynchos	-----	
Chelonia mydas	-----	
Xenopus tropicalis	-----	
Rhinatrema bivittatum	-----	
Ornithorhynchus anatinus	-----	
	1.....10.....20.....30.....40.....50.....60	

Equus caballus	-----MASLRRSGLAQLQPLLLLLLVVAARAL	26
Pteropus alecto	-----MDL	3
Bos taurus	-----MASFRPFSSRALLPPLLLLLLVAVRAL	26
Homo sapiens	-----MAGR--SHPGPLRPPLPLLVVAACVL	24
Pan troglodytes	-----MAGP--SHPGPLRPPLPLLVVAACVL	24
Macaca mulatta	-----MAGP--SRPGPLRPPL--LLVVAACVL	23
Callithrix jacchus	-----MAGPGPSRPGALRPPLLLLLVVAARVL	26
Mus musculus	-----MVRPRLSFPAPILPLLLLLLAAAPAV	26
Pavo muticus	-----MGG--SGAAATLALGLALGLA-LGG-	22
Pavo cristatus	-----MGG--SGAAATLALGLALGLA-LGG-	22
Gallus gallus	LFLSSFSPPGTKVALLSALCPTRFVQRRGGGLRAMGG--SGAAATLALGLALGLA-LGG-	116
Anas platyrhynchos	-----MGG--RGAAGALAL-LALGLA-LGGG	22
Chelonia mydas	-----MSRFGFFCAAMGGRRSGAAGLSAWALALLAVGLGGC	36
Xenopus tropicalis	-----MGRRWGAPAVLLWTLWALAAVGLGFS	26
Rhinatrema bivittatum	-----MPATAPGL-	8
Ornithorhynchus anatinus	-----MEROGPGRGQGPGRRVPAGPGLLAGRLLLAAVAAL	37
70.....80.....90.....100.....110.....120	

Equus_caballus	P--GADGTCPERALERREEEEANVVLTGTVEEILNVDPVQHTYSCKVRVWRYLYLKGRDVVTQ	84
Pteropus_alecto	P--SRD-----APFPHGLSEQVRVWRYLYLKGDVVTQ	32
Bos_taurus	P--SADGTCPERALERREEEEANVVLTGTVEEILNVDPVQHTYSCKVRVWRYLYLKGDVVAQ	84
Homo_sapiens	P--GAGGTCPERALERREEEEANVVLTGTVEEILNVDPVQHTYSCKVRVWRYLYLKGDIVAR	82
Pan_troglodytes	P--GAGGTCPERALERREEEEANVVLTGTVEEILNVDPVQHTYSCKVRVWRYLYLKGDIVAR	82
Macaca_mulatta	P--GAGGTCPERALERREEEEANVVLTGTVEEILNVDPVQHTYSCKVRVWRYLYLKGEIVAR	81
Callithrix_jacchus	P--GAGGTCPERALERREEEEANVVLTGTVEEILNVDPVQHTYSCKVRVWRYLYLKGDIVAR	84
Mus_musculus	P--GASGTCPERALERREEEEANVVLTGTVEEILNVDPVQHTYSCKVRVWRYLYLKGDVVAQ	84
Pavo_muticus	----WANCPERELORREEEEANVVLTGTVEEIMNVDPVHHTYSCKVRVWRYLYLKGDIVTH	77
Pavo_cristatus	----WANCPERELORREEEEANVVLTGTVEEIMNVDPVHHTYSCKVRVWRYLYLKGDIVTH	77
Gallus_gallus	----WANCPERELORREEEEANVVLTGTVEEIMNVDPVHHTYSCKVRVWRYLYLKGDIVTH	171
Anas_platyrhynchos	----GASCPERELERREEEEANVVLTGTVEEIMNVDPVHHTYSCKVRVWRYLYLKGDIVTH	77
Chelonia_mydas	----SGSCPEPELERREEEEANVVLTGTVEEIMNMDPVHHTYSCKVRVWRYLYLKGDIVTH	91
Xenopus_tropicalis	----RGPCPERELELREEEEANVVLTGTVEEIMNVDPVHHTYSCKVRVWRYLYLKGREIVTN	81
Rhinatrema_bivittatum	----RGRCRG-SLLLR-----CCLIPCNLCI-----	29
Ornithorhynchus_anatinus	GLHGCGGTCSERELELREEEEANVVLTGTVEEILNVDPVHLTYSCKVRVWRYLYLKGDVVTH	97
130.....140.....150.....160.....170.....180	

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      *      .: *.: :*: *      * :.
Equus_caballus      ESLLDGGNKVVIGGFGDPLICDNQVSTGDTRIFFVNPAPPYLWPAHKNELMLNSSLMRIT 144
Pteropus_alecto     ESLLDGGNKVVIGGFGDPLICDNQVSTGDTRIFFVNPAPPYLWPAHKNELMLNSSLMRIT 92
Bos_taurus          ESLLDGGNKVVIGGFGDPLICDNQVSTGDTRIFFVNPAPPYLWPAHKNELMLNSSLMRIT 144
Homo_sapiens         ESLLDGGNKVVISGFGDPLICDNQVSTGDTRIFFVNPAPPYLWPAHKNELMLNSSLMRIT 142
Pan_troglodytes      ESLLDGGNKVVISGFGDPLICDNQVSTGDTRIFFVNPAPPYLWPAHKNELMLNSSLMRIT 142
Macaca_mulatta       ESLLDGGNKVVISGFGDPLICDNQVSTGDTRIFFVNPAPPYLWPAHKNELMLNSSLMRIT 141
Callithrix_jacchus   ESLLDGGNKVVISGFGDPLICDNQVSTGDTRIFFVNPAPPYLWPAHKNELMLNSSLMRIT 144
Mus_musculus         ESLLDGGNKVVIGGFGDPLICDNQVSTGDTRIFFVNPAPPYLWPAHKNELMLNSSLMRIT 144
Pavo_muticus         EILLDGGNKVVIGGFGDPLICDNQVSTGDTRIFFVNPAPQYMWPAHRNELMLNSSLMRIT 137
Pavo_cristatus       EILLDGGNKVVIGGFGDPLICDNQVSTGDTRIFFVNPAPQYMWPAHRNELMLNSSLMRIT 137
Gallus_gallus        EILLDGGNKVVIGGFGDPLICDNQVSTGDTRIFFVNPAPQYMWPAHRNELMLNSSLMRIT 231
Anas_platyrhynchos   EILLDGGNKVVIGGFGDPLICDNQVSTGDTRIFFVNPAPQYMWPAHRNELMLNSSLMRIT 137
Chelonia_mydas       EILLDGGNKVVISGFGDPLICDNQVSTGDTRIFFVNPAPHYLWPEHKNELMLNSSLMRIT 151
Xenopus_tropicalis   DILLDGGNKVMVGFGDPTICDNQVSTGDTRIFFVNPAPRSMWPTRHNEMLNSSLMRIT 141
Rhinatrema_bivittatum -----ILLCCAAIGSALLFLN-----NYKPVYH----- 53
Ornithorhynchus_anatinus EILLDGGNKVVIGGFGDPLICDNQVSTGDTRIFFVNPVPRTVWPDHRHELKLNSSLRLIT 157
      .....190.....200.....210.....220.....230.....240

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      .      *
Equus_caballus      LRNLEEVEHCVE-----DKPGTHFTAPPTPPDACRGMLCGFGAVCEPSAEGPGRASC 197
Pteropus_alecto     LRNLEDVEHCVE-----DKPGTHFTAPPTPPD----- 120
Bos_taurus          LRNLEEVEHCVE-----DKPGTHFTPVPPPTPPDACRGMLCGFGAVCEPSADEPGRASC 197
Homo_sapiens         LRNLEEVEFCVE-----DKPGTHFTPVPPPTPPDACRGMLCGFGAVCEPNAEGPGRASC 195
Pan_troglodytes      LRNLEAVEFCVE-----DKPGTHFTPVPPPTPPDACRGMLCGFGAVCEPNAEGPGRASC 195
Macaca_mulatta       LRNLEEVEFCVE-----DKPGIHFTPVPPPTPPDACRGMLCGFGAVCEPNAEGPGRASC 194
Callithrix_jacchus   LRNLEEVEFCVE-----DKPGTHFTPVPPPTPPDACRGMLCGFGAVCEPSAEGPGRASC 197
Mus_musculus         LRNLEEVEFCVE-----DKPGIHFTAAPSMPDVCRGMLCGFGAVCEPSVEDPGRASC 197
Pavo_muticus         LRNLEEVEHCVEEHRKLLADKPNSYFTQTPPTPRDACRGMLCGFGAVCERSPTDPSQASC 197
Pavo_cristatus       LRNLEEVEHCVEEHRKLLADKPNSYFTQTPPTPRDACRGMLCGFGAVCERSPTDPSQASC 197
Gallus_gallus        LRNLEEVEHCVEEHRKLLADKPNSYFTQTPPTPRDACRGMLCGFGAVCERSPTDPSQASC 291
Anas_platyrhynchos   LRNLEDVEHCVEEHRKLLADKPNSYFTQTPPTPRDACRGMLCGFGAVCERSPTDPSQASC 197
Chelonia_mydas       LRNLEEVEHCVEEHRLLADKPGNYFPFPLPQDVCRGMLCGFGAICERSTTNSSQASC 211
Xenopus_tropicalis   LRNLEEVEHCVEEHRLLADKPG-PVNAQPTLQDVCRGMLCGFGAVCEKSSSTDPSQASC 200
Rhinatrema_bivittatum -----FQTPQPTQDVCRGMLCGFGAVCEKSVTDPSQPLC 88
Ornithorhynchus_anatinus LRNLEEVEHCVE-----DKPGNHFTQSPPPPDACRGMLCGFGAVCERSVAEPAQAC 210
      .....250.....260.....270.....280.....290.....300

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      *:***: *:***:
Equus_caballus      VCKKSACPSVVPVCGSDASTYSNECELQRAQCSQORRIRLLSRGPCGSQDPCSNVTCSEF 257
Pteropus_alecto     -----GSRDPCSNVTCSEF 133
Bos_taurus          VCKKSSCPSVVPVCGSDASTYSNECELQRAQCSQORRIRLLRRGPCGTRDPCSNVTCSEF 257
Homo_sapiens         VCKKSPCPSVVPVCGSDASTYSNECELQRAQCSQORRIRLLSRGPCGSRDPCSNVTCSEF 255
Pan_troglodytes      VCKKSPCPSVVPVCGSDASTYSNECELQRAQCSQORRIRLLSRGPCGSRDPCSNVTCSEF 255
Macaca_mulatta       VCKKGPCPSVVPVCGSDASTYSNECELQRAQCSQORRIRLLSRGPCGSRDPCSNVTCSEF 254
Callithrix_jacchus   VCKKSPCPSVVPVCGSDASTYSNECELQRAQCSQORRIRLLSRGPCGSRDPCSNVTCSEF 257
Mus_musculus         VCKKNVCAPVVPVCGSDASTYSNECELQRAQCNOORRIRLLRQGPCGSRDPCANVTCSEF 257
Pavo_muticus         VCKKTACPVVPVCGSDYSTYSNECELEKAQCNOORRIKVISKGPCGSKDPCAETVTCSEF 257
Pavo_cristatus       VCKKTACPVVPVCGSDYSTYSNECELEKAQCNOORRIKVISKGPCGSKDPCAETVTCSEF 257
Gallus_gallus        VCKKTACPVVPVCGSDYSTYSNECELEKAQCNOORRIKVISKGPCGSKDPCAETVTCSEF 351
Anas_platyrhynchos   VCKKTACPVVPVCGSDYSTYSNECELEKAQCNOORRIKVISKGPCGSKDPCAETVTCSEF 257
Chelonia_mydas       VCKKTTCPVVPVCGSDYSTYSNECELEKAQCNOORRIKVISKGACGSKDPCAETVTCSEF 271
Xenopus_tropicalis   ICKKTACASIVAPVCGSDYSTYSNECELEKAQCNOORRIKVISKGPCGTKDPCSTVSCSY 260
Rhinatrema_bivittatum VCKKTACPLLVAPVCGSDYSTYSNECELEKAQCNOORRMKVISQGPCGSKDPCADVTCSF 148
Ornithorhynchus_anatinus VCRKSPCAPVVPVCGSDGSTYSNECELDRAQCTOORRIKVISKGPCGSKDPCSVSCSEF 270
      .....310.....320.....330.....340.....350.....360

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Equus_caballus      GSTCARSADGQMATCLCPTTCQGAPOGPVCGSDGIDYPSSECOLLRSAACARQKNIFKKFDG 317
Pteropus_alecto    GSTCARSADGQTATCLCPTTCRGAPEGPVCGSDGADYASECOLLRACARQENIFKKFDG 193
Bos_taurus         GSTCVPSADGLTATCLCPATCLGAPEGPVCGSDGSDYPSSECOLLRHACAHQENIFKKFDG 317
Homo_sapiens       GSTCARSADGLTASCLCPATCRGAPEGTVCSDGADYPGECOLLRACARQENVFKKFDG 315
Pan_troglodytes    GSTCARSADGLTASCLCPATCRGAPEGTVCSDGADYPGECOLLRACARQENVFKKFDG 315
Macaca_mulatta     GSTCARSADGLTASCLCPATCRGAPEGTVCSDGADYPGECOLLRACARQENVFKKFDG 314
Callithrix_jacchus GSTCARSSDGLTASCLCPETCRGAPEGTVCSDGADYPGECOLLRACAHQENVFKKFDG 317
Mus_musculus       GSTCVPSADGQTASCLCPTTCFGAPDGTVCSDGVDYPSSECOLLRHACANQEHIFKKFDG 317
Pavo_muticus       GSTCVRSDAGQTAKCACPASCSGVAESIVCGSDGKDYRSECDLNKHACDKQENVFKKFDG 317
Pavo_cristatus     GSTCVRSDAGQTAKCACPASCSGVAESIVCGSDGKDYRSECDLNKHACDKQENVFKKFDG 317
Gallus_gallus      GSTCVRSDAGQTARCVCPASCSGVAESIVCGSDGKDYRSECDLNKHACDKQENVFKKFDG 411
Anas_platyrhynchos GSTCVRSDAGQGAKVCVPASCSGVPESELVCGSDGKDYRSECDLNKHACDKQENVFKKFDG 317
Chelonia_mydas     GSTCARSTDGQAAKCICPSSCGGTAESTVCGSDGKDYRSECDLNKHACDKQENVFKKLDG 331
Xenopus_tropicalis GSTCVRSTDGQTAKCICPATCTGVPEENVVCGSDGKDYHNECOLNKQACDNQENLYKKFDG 320
Rhinatrema_bivittatum GSTCARSADGQSAKICPSSCSGVAENVVCASNGKDYRNECOLNKHACGKQENLYKKFDG 208
Ornithorhynchus_anatinus GSSCVPADGGRSARCLCPASCDVDVPTGTVCSDGQDYPSSHCRSLHACTHHRNIFKKFDG 330
.....370.....380.....390.....400.....410.....420

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Equus_caballus      PCDPCQAGALDDLRLICRVNPRTRRPEMLLRPESCPAPQAPVCGDDGVTYSDCVMGRTGA 377
Pteropus_alecto    PCDPCQAGALNDPSRLICRVNPRTRRPEMLLRPESCPAPQAPVCGDDGVTYDNCVMDRSGA 253
Bos_taurus         PCDPCQAGFLSDLRLICRVNPRTRRPEMLLRPESCPAPQAPVCGDDGVTYDNCVMDRSGA 377
Homo_sapiens       PCDPCQAGALPDPSRSCRNVNPRTRRPEMLLRPESCPAPQAPVCGDDGVTYENDCVMGRSGA 375
Pan_troglodytes    PCDPCQAGALPDPSRSCRNVNPRTRRPEMLLRPESCPAPQAPVCGDDGVTYENDCVMGRSGA 375
Macaca_mulatta     PCDPCQAGALPDPSRSCRNVNPRTRRPEMLLRPESCPAPQAPVCGDDGVTYENDCVMGRSGA 374
Callithrix_jacchus PCDPCQAGAVAELSRSCRNVNPRTRRPEMLLRPESCPAPQAPVCGDDGVTYKNCVMDRSGA 377
Mus_musculus       PCDPCQGSMSDLNHLICRVNPRTRRPEMLLRPENCPAHTPICGDDGVTYENDCVMGRSGA 377
Pavo_muticus       ACDPCKGILNDMNRVCRVNPRTRRVELLSRPENCPKREPVCGDDGVTYASECVMGRTGA 377
Pavo_cristatus     ACDPCKGILNDMNRVCRVNPRTRRVELLSRPENCPKREPVCGDDGVTYASECVMGRTGA 377
Gallus_gallus      ACDPCKGILNDMNRVCRVNPRTRRVELLSRPENCPKREPVCGDDGVTYASECVMGRTGA 471
Anas_platyrhynchos ACDPCKGILNDMNRVCRVNPRTRRAELLPRPENCPKREPVCGDDGVTYDNECVMGRSGA 377
Chelonia_mydas     PCDPCRSTLNDMNRVCRVNPRTRRADLLSRPENCPKREPVCGDDGVTYDNECIMGRSGA 391
Xenopus_tropicalis RCDPCRIAMNNQNKACRVNPRTRQLEMQYRPEYCPVRRDPVCADDGVTYDNCVMTSGF 380
Rhinatrema_bivittatum PCDPCKSALNDLNRVCRVDPQTRRADMLYRPESCPGRKDPVCGDDGVTYDSECLQSA 268
Ornithorhynchus_anatinus PCDPCHGALNDLNRVCRVDPGTRHAAMLLRPESCPAPREPVCGDDGVTYASECAMGRTGA 390
.....430.....440.....450.....460.....470.....480

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Equus_caballus      ARGLLLQKVRSGQCQPDQCPDQCFNAVCLSRGRPRCSCDRVVCDGAYRPVCAHDGHT 437
Pteropus_alecto    ARGLLLQKVRSGHCQPRDQCPDQCFNAVCLSRGRPRCSCDRITCDGAYRPVCAHDGHT 313
Bos_taurus         AQGILLQKVRSGQCQPRDQCPDQCFNAVCLSRGRPRCSCDRVVCDGAYRPVCAHDGHT 437
Homo_sapiens       ARGLLLQKVRSGQCQGRDQCPDQCFNAVCLSRGRPRCSCDRVVCDGAYRPVCAHDGHT 435
Pan_troglodytes    ARGLLLQKVRSGQCQGRDQCPDQCFNAVCLSRGRPRCSCDRVVCDGAYRPVCAHDGHT 435
Macaca_mulatta     ARGLLLQKVRSGQCQSRDQCPDQCFNAVCLSRGRPRCSCDRVVCDGAYRPVCAHDGHT 434
Callithrix_jacchus TRGLLLQKVRSGQCQPDQCPDQCFNAVCLSRGRPRCSCDRVVCDGAYRPVCAHDGHT 437
Mus_musculus       ARGLLLQKVRSGQCQTRDQCPDQCFNAVCLSRGRPRCSCDRVVCDGAYRPVCAHDGHT 437
Pavo_muticus       IRGLEIQKVRSGQCQHQDKCKDECKFNAVCLNRRGMARCSCDRITCDGTYRPVCARDSRT 437
Pavo_cristatus     IRGLEIQKVRSGQCQHQDKCKDECKFNAVCLNRRGMARCSCDRITCDGTYRPVCARDSRT 437
Gallus_gallus      IRGLEIQKVRSGQCQHQDKCKDECKFNAVCLNRRGMARCSCDRITCDGTYRPVCARDSRT 531
Anas_platyrhynchos IRGLEIQKVRSGQCQHQDKCKDECKFNGVCLNRRGAARCSCDRITCDGAYRPVCAHDGHT 437
Chelonia_mydas     IRGLEIQKVRSGHCQPDQDKQAECKFNAVCLNRRGMARCSCDRITCDGAYRPVCAHDGHT 451
Xenopus_tropicalis IRGLEIQKVRSGQCQPDQDKCKDECKFNGVCLNRRGMARCSCDRITCDGAYRPVCAHDGHT 440
Rhinatrema_bivittatum IRGLEIQKVRSGQCQSDVCREPKFSAVCLNRRGMARCSCDRITCDGAYRPVCAHDGHT 328
Ornithorhynchus_anatinus LRGFERRVRKGPQPDQDQCEPKFSAVCLNRRGMARCSCDRITCDGAYRPVCAHDGHT 450
.....490.....500.....510.....520.....530.....540

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Equus_caballus      YDNDWCWROQAECROQRTIPTKHGPGCDQ-RPSPCLGVQCSFGATCAVKNGEAEVCPOAC      496
Pteropus_alecto     HDNDWCWROQAECQQRRAIPAKHQGPCDQ-PRSPCLGVQCPSGAVCTVKNGEAEACACRQAC      372
Bos_taurus          YDNDWCWROQAECQOORSIPMKHQGPCDQ-SPSPCRGVQCPFGAMCAVKNGEAEACACPKAC      496
Homo_sapiens        YDSDCWROQAECRQORRAIPSKHQGPCDQ-APSPCLGVQCAFGATCAVKNGQAACECLQAC      494
Pan_troglodytes     YDSDCWROQAECRQORRAIPSKHQGPCDQ-APSPCLGVQCAFGATCAVKNGQAACECLQAC      494
Macaca_mulatta      YDSDCWROQAECQQRRAIPSKHQGPCDQ-APSPCLGVQCAFGATCAVKNGQAACECRQAC      493
Callithrix_jacchus  YDNDWCWROQAECRHQRAIPSKHQGPCDQ-APSPCVGVQCAFGATCSVKNGQAACECRQAC      496
Mus_musculus        YDNDWCWROQAECROOQTIPPKHQGPCDQ-TPSPCRGAQCAFGATCTVKNGKAVCECQVVC      496
Pavo_muticus        YSND CERQKAEC HQKAAIPVKHSGPCDLGTPSPCLSVECTFGATCVVKNREPVCCEQOVC      497
Pavo_cristatus      YSND CERQKAEC HQKAAIPVKHSGPCDLGTPSPCLSVECTFGATCVVKNREPVCCEQOVC      497
Gallus_gallus       YSND CERQKAEC HQKAAIPVKHSGPCDLGTPSPCLSVECTFGATCVVKNREPVCCEQOVC      591
Anas_platyrhynchos YGNECERQKAECQOKAPVPVKHSGPCDLGTPSPCVSVECTFGATCVVKNREPVCCEQOVC      497
Chelonia_mydas      YSND CERQKAECQOKAAIPVKHSGPCDLGTPSPCLSVACTFGATCVVKNREAVCECQOVC      511
Xenopus_tropicalis  YAND CERQKAEC FOKATIPVKHKGPCDLHSPSPCLNTTCSFGAACVVKNKKAVCECQOVC      500
Rhinatrema_bivittatum YGSE CERQKAEC QORAPIPLKHGEPCLDSTPSPCLSLACTFGATCVVKNKEAVCECQOVC      388
Ornithorhynchus_anatinus FDNLC ELQRAECAORIAIPVKHGDGPCDQGPSPCLDVECPFGASCVVKNQOATCECPOQC      510
      .....550.....560.....570.....580.....590.....600

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Equus_caballus      PGIYDPVCGSDGITYGSTCELEATACTLGQIRVARRGPCDRCGQCRFGALCEAETGRCV      556
Pteropus_alecto     AGIYDPVCGSDGSTYGSACELEATACTALGREIRVARRGPCDRCGQCRFGALCEAETGRCV      432
Bos_taurus          SGVYDPVCGSDGITYGSACELEATACTALGREIRVARRGPCDRCGQCRFGALCEAETGRCV      556
Homo_sapiens        SSIYDPVCGSDGVITYGSACELEATACTLGREIQVARKGPCDRCGQCRFGALCEAETGRCV      554
Pan_troglodytes     SSIYDPVCGSDGVITYGSACELEATACTLGREIQVARKGPCDRCGQCRFGALCEAETGRCV      554
Macaca_mulatta      SSIYDPVCGSDGVITYGSTCELEATACTLGREIRVARKGPCDPGQCRFGALCEAETGRCV      553
Callithrix_jacchus  SGLYDPVCGSDGVITYGSVCELEAMACTLGREVRVVRKGPCDHCGQCRFGALCEAETGRCV      556
Mus_musculus        SGGYDPVCGSDGVITYGSVCELESMACTLGREIRVARRGPCDRCGQCRFGSLCEVETGRCV      556
Pavo_muticus        QGRYDPVCGSDNRTYGNPCELNAMACVLKREIRVKHKGPCDRCGKCFGAICEAETGRCV      557
Pavo_cristatus      QGRYDPVCGSDNRTYGNPCELNAMACVLKREIRVKHKGPCDRCGKCFGAICEAETGRCV      557
Gallus_gallus       QGRYDPVCGSDNRTYGNPCELNAMACVLKREIRVKHKGPCDRCGKCFGAICEAETGRCV      651
Anas_platyrhynchos QGRYDPVCGSDNRTYGNPCELD SMACVLRREIRVKHKGPCDRCGKCFGAICEAETGRCV      557
Chelonia_mydas      LSRYPVCGSDNRTYGNPCELDAMACVLRKEIKVKHKGPCDRCSKCFGAICEAETGRCV      571
Xenopus_tropicalis  QAVYDPVCGSDKRTYGNPCELQSTACTLKKEITILHKGPCDRCGKCFGAICEAETGRCV      560
Rhinatrema_bivittatum QSIYDPVCGSDNRTYGSSELDAMACLLKEMKVHKGPCDRCGKCFGAICEADTGRCV      448
Ornithorhynchus_anatinus PGRYDPVCGSDGLTYGSACELTAMACVLQKEIRIQNRGACDRGSCQFGAICEAETGRCV      570
      .....610.....620.....630.....640.....650.....660

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      **:*** :*****:**. ** .** ***:***: * : *.: * *::** .:~:***: *
Equus_caballus      CPSECVASAQPVCSDGHTYASECELHVHACTHQISLHVASAGHCQTCDGTLCFTFGAVCL      616
Pteropus_alecto     CPSECVASAQPVCSDGHTYASECELHVHACTHQISLHVTATGPCQTCDGVVCAFGALCL      492
Bos_taurus          CPSECVASAQPVCSDGRTYASECELHVHACTHQISLHVASAGPCQTCDGTVCFAFGAVCS      616
Homo_sapiens        CPSECVALAQPVCSDGHTYTPSECMHVHACTHQISLHVASAGPCETCGDAVCAFGAVCS      614
Pan_troglodytes     CPSECVALAQPVCSDGHTYTPSECMHVHACTHOMGLHVASAGPCETCGDAVCAFGAVCS      614
Macaca_mulatta      CPSECVALAQPVCSDGHTYTPSECMHVHACTHQISLHVASTGPCETCGDAVCAFGAVCS      613
Callithrix_jacchus  CPSECVALAQPVCSDGHTYASECMHVHACTHQISLHVASAGPCETCGHAVCAFGAVCS      616
Mus_musculus        CPSECVESAQPVCSDGHTYASECELHVHACTHQISLYVASAGHCQTCDGTCTVCTFGAVCS      616
Pavo_muticus        CPTECVPSQPVCCTDGNTYTGSECELHVRACCTQKNILVAAQGDCKSCGSTVCSFGSTCV      617
Pavo_cristatus      CPTECVPSQPVCCTDGNTYTGSECELHVRACCTQKNILVAAQGDCKSCGSTVCSFGSTCV      617
Gallus_gallus       CPTECVPSQPVCCTDGNTYTGSECELHVRACCTQKNILVAAQGDCKSCGSTVCSFGSTCV      711
Anas_platyrhynchos CPTECVPSQPVCCTDGNTYTGSECELHVRACCTQKNILVAAQGDCKSCGSTVCSFGSTCV      617
Chelonia_mydas      CPTECVSSSQPVCCTDGNTYTGSECELHVRACCTQTNIQVAAQGDCKSCGSVCAFGSRCV      631
Xenopus_tropicalis  CPTECVPSAQPVCCTDGNTYTGSECELHVRACCTQINLQVAAQGDCKTCGNLTCTFGAKCV      620
Rhinatrema_bivittatum CPTECVPSAQPVCCTDGNTYTGNECELHVRACCTQTNLQVAAQGDCKSCGSTVCSFGAQC      508
Ornithorhynchus_anatinus CPTECVPSAQPVCSDGQTYTGSECELHVHACTQCTPLRVVAAQGRCTCGATVCSFGAICV      630
      .....670.....680.....690.....700.....710.....720

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CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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	*** * :	***:::*** . *::: *::: :	** : * ** *****			
Equus_caballus	AGQCVCPRCE	--RPMGPVCGSDGVTYGST	CELREAACROQT	QIEEARAGPCEQAECSG	674	
Pteropus_alecto	AGQCVCPRCE	--HPVGPVCGTDGVTYHS	ACELREAACQOQT	QIEEARAGPCEQAECSG	550	
Bos_taurus	AGQCVCPRCE	--RPPGPVCGSDGVTYGS	SCELREAACQOQT	QIEEAWAGPCEQAECSG	674	
Homo_sapiens	AGQCVCPRCE	--HPPGPVCGSDGVTYGS	ACELREAACLOQT	QIEEARAGPCEQAECSG	672	
Pan_troglodytes	AGQCVCPRCE	--HPPGPVCGSDGVTYGS	ACELREAACLOQT	QIEEARAGPCEQAECSG	672	
Macaca_mulatta	AGQCVCPRCE	--HPPGPVCGSDGVTYGS	ACELREAACROQT	QIEEARAGPCEQAECSG	671	
Callithrix_jacchus	AGQCMCPRCE	--HPPGPVCGSDGVTYDS	ACELREAACROQT	QIEEARAGPCEQLECSG	674	
Mus_musculus	AGQCVCPRCE	--HPPGPVCGSDGVTYLS	ACELREAACQOQV	QIEEARAGPCEPAECSG	674	
Pavo_muticus	GGQCVCPRCE	--QQPLAQVCGTDGLTYDNR	CELRAASCQQQKS	IEVAKMGPCED-ECGS	674	
Pavo_cristatus	GGQCVCPRCE	--QQPLAQVCGTDGLTYDNR	CELRAASCQQQKS	IEVAKMGPCED-ECGS	674	
Gallus_gallus	GGQCVCPRCE	--QQPLAQVCGTDGLTYDNR	CELRAASCQQQKS	IEVAKMGPCED-ECGS	768	
Anas_platyrhynchos	GGQCVCPRCE	--GPPGQVCGTDGLTYGNR	CELRAAACQROQS	IEVARMGPCED-ECGS	674	
Chelonia_mydas	GGQCVCPRCE	--RQPFQVCGSDGVTYDS	PCELQVASCQQKKA	IEVSRMGPCED-ECGS	688	
Xenopus_tropicalis	NNQCVCCLTCE	--RQPYLPVCGSNGVTYDNR	CELKAASCCKOMK	LIEVSRAGSCED-ECGS	677	
Rhinatrema_bivittatum	DGQCVCPRCE	--RQPYLPVCGSNGVTYDS	CKLOAASCQORKV	IEVSRIGPCED-ECGS	565	
Ornithorhynchus_anatinus	DGQCEPCRPD	QGQAPSPVCGSDGVTYSS	ACELRAAACRRAEK	IEEAQAGVCE	689	
730.....	740.....	750.....	760.....	770.....	780

		*****. ** : ** ** ***** ** *:.*.*.* *		*****. ** *	
Equus_caballus	--GSGSGEDGECEQELCRGRGGIWD	EDSED--GLCVCDFSCQSVLRSPVCGSDGVTY	GSE	730	
Pteropus_alecto	--GSGSGEDSECEQDLCRQGGIWD	EDSED--GPCVDFSCQGVLRSPVCGSDGVTY	GTE	606	
Bos_taurus	--GSGSGEDGECEPELRCRQGGIWD	EDSED--GPCVCGFSCQGVLRSPVCGSDGVTY	RT	730	
Homo_sapiens	--GSGSGEDGDCEQELCRQGGIWD	EDSED--GPCVDFSCQSVPGSPVCGSDGVTY	STE	728	
Pan_troglodytes	--GSGSGEDGDCEQELCRQGGIWD	EDSED--GPCVDFSCQSVPGSLVCGSDGVTY	STE	728	
Macaca_mulatta	--GSGSGEDGDCEQELCRQGGIWD	EDSED--GPCVDFSCQSVLGGPVCGSDGVTY	STE	727	
Callithrix_jacchus	--GSGSGEDGDCEQELCRQGGIWD	EDSED--GPCVDFSCQSVPGSPVCGSDGITY	GTE	730	
Mus_musculus	--GSGSGEDNACEQELCRQHGGVWD	EDSED--GPCVDFSCQSVLKSPVCGSDGVTY	STE	730	
Pavo_muticus	--GSGSGDGSECEQDRCRHYGGWWD	EDAED--DRCVCDFTCLAVPRSPVCGSDDVTY	ANE	730	
Pavo_cristatus	--GSGSGDGSECEQDRCRHYGGWWD	EDAED--DRCVCDFTCLAVPRSPVCGSDDVTY	ANE	730	
Gallus_gallus	--GSGSGDGSECEQDRCRHYGGWWD	EDAED--DRCVCDFTCLAVPRSPVCGSDDVTY	ANE	824	
Anas_platyrhynchos	--GSGSGDGSECEQERCROYGGWWD	EDAED--DRCVCDFTCLAVPRSPVCGSDGVTY	ANE	730	
Chelonia_mydas	--GSGSGDDNECEQDRCRYGGSWDE	DVED--DRCVCDFTCLAVPRNPVCGSDGATY	ANE	744	
Xenopus_tropicalis	TDGSGSGEDSECEQDRCRYGGSWDE	DAED--DRCVCDFTCHAVLRILVCGSDGITY	SNE	735	
Rhinatrema_bivittatum	--ASGSGDDAICEQDRCKRYGGSWDE	DAED--ERCVCDFTHAVLRSPVCGSDGVTY	ANE	621	
Ornithorhynchus_anatinus	--GSGSGDGGECEQERCRRLGLWDE	DAEDQDRCICDFSCQTTLRSVPVCGSDGVTY	ENE	747	
790.....800.....810.....820.....830.....840				

	.:* ***	* ..*.*	..	*	*:~	****	*.*	*.*	***	*
Equus_caballus	CELKKTRCESG	RELYVAVG	ACGGPTILAPLP	PAVPPHCAQT	PYGCCQDN	NITAARGVGLA				789
Pteropus_alecto	CELRKARCETQ	AALYVVAQG	TCPPGPTILAPVP	PAVALHCTQT	PYGCCRDNI	TAAQGVGLA				665
Bos_taurus	CELKKARCESQ	PELYVVAQG	ACRGPTILAPLP	PAIPLHCAQT	PYGCCQDN	ITVAQGVGLA				789
Homo_sapiens	CELKKARCESQ	RGLYVAAQ	GACRGPTFAPLP	PVAPLHCAQT	PYGCCQDN	ITAARGVGLA				787
Pan_troglodytes	CELKKARCESQ	RGLYVAAQ	GACRGPTFAPLP	PVAPLHCAQT	PYGCCQDN	ITAARGVGLA				787
Macaca_mulatta	CELKKARCESQ	ELSVAAQ	GACRGPTFAPLL	PVAPSHCAQ	MPYGCCQDN	ITAARGVGLA				786
Callithrix_jacchus	CDLKKARCESQ	RELHVVAQ	GACGGPTFAPLP	PVAPSHCAQT	PYGCCQDN	ITMARGVGLA				789
Mus_musculus	CHLKKARCEAR	ELYVAAQ	GACRGPTILAPLL	PMASPHCAQT	PYGCCQDN	VTAAQGVGLA				789
Pavo_muticus	CELKKTRCEKRO	DLFVTSQ	GACRAFTTTPP	--PLPVVHCS	QTIYGCCPD	NMTLALGVGAA				788
Pavo_cristatus	CELKKTRCEKRO	DLFVTSQ	GACRAFTTTPP	--PLPVVHCS	QTIYGCCPD	NMTLALGVSA				788
Gallus_gallus	CELKKSRCRKRO	DLYVTSQ	GACRALTTTPP	--PLPVVHCS	QTIYGCCPD	NMTLALGVGAA				882
Anas_platyrhynchos	CELKKTRCEKRO	DLYVTSQ	GACRALTTTPP	--PLLVVHCS	QTIYGCCPD	NMTLALGVGAA				788
Chelonia_mydas	CELKKTRCEKRO	DLYVTSQ	GACRVGTTPSP	--PLQVLHCS	QTIYGCCPD	NITVALGVGSA				802
Xenopus_tropicalis	CELKKTRCEKRO	DLYVAGQ	GACRAATTSS	---PPLVPHCS	SHTVYGCCPD	NITAAALGVGLA				792
Rhinatrema_bivittatum	CELKKTRCEKQ	DLHVTGQ	SVCRAAVTSAT	--PPLLHCS	QTVYGCCPD	NVTAAALGVGLA				679
Ornithorhynchus_anatinus	CELKKRRCEQ	LDLYATAQ	GACQASPT	SPPLPLPVL	PCAQTVYGCCPD	GVTAALGVGLA				807
850860870880890900				

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**** *: *  :*:.. **  *****:***** :*****:*****: *****
Equus_caballus      GCPSSCQCNPHGAYGSTCDPALGQCS CRPGVGGLRCRCEPGFWNFRGIVTDGRSGCTPC 849
Pteropus_alecto     GCPSLCQCNTHGSYSGICDPATGQCS CRPGVGGLRCRCEPGFWNFRGIVTDGRSGCTPC 725
Bos_taurus          GCPSSCQCNPHGYSYGGTCDPVTGQCS CRPGVGGLRCRCEPGFWNFRGIVTDGRSGCTPC 849
Homo_sapiens         GCPSSACQCNPHGYSYGGTCDPATGQCS CRPGVGGLRCRCEPGFWNFRGIVTDGRSGCTPC 847
Pan_troglodytes     GCPSSACQCNPHGYSYGGTCDPATGQCS CRPGVGGLRCRCEPGFWNFRGIVTDGRSGCTPC 847
Macaca_mulatta      GCPSSACQCNPHGYSYGGTCDPVTGQCS CRPGVGGLRCRCEPGFWNFRGIVTDGRSGCTPC 846
Callithrix_jacchus  GCPSSACQCNPHGYSYGSTCDPATGQCS CRPGVGGLRCRCEPGFWNFRGIVTDGRSGCTPC 849
Mus_musculus        GCPSTCHCNPHGSYSGTCDPVTGQCS CRPGVGGLRCRCEPGFWNFRGIVTDGRSGCTPC 849
Pavo_muticus        GCPSTCQCNPYGSYGGACDPATGQCS CKPGVGGLRCRCEPGFWNFRGIVTDSKSGCTPC 848
Pavo_cristatus      GCPSTCQCNPYGSYGGACDPATGQCS CKPGVGGLRCRCEPGFWNFRGIVTDSKSGCTPC 848
Gallus_gallus       GCPSTCQCNPYGSYGGTCDPATGQCS CKPGVGGLRCRCEPGFWNFRGIVTDSKSGCTPC 942
Anas_platyrhynchos GCPSTCQCNPYGSYGGACDPATGQCS CKPGVGGLRCRCEPGFWNFRGIVTDSKSGCTPC 848
Chelonia_mydas      GCPSTCQCYPYGSYGGACDPTTGQCS CKPGVGGLRCRCEPGFWNFRGIVTDSKSGCTPC 862
Xenopus_tropicalis  GCPSSCQCCHQYGSYGGTCDPTTGQCS CKPGVGGLRCRCEPGFWNFRGIVTDSKSGCTPC 852
Rhinatrema_bivittatum GCPSSCQCNPYGSYGGTCDPTTGQCS CKPGVGGLRCRCEPGFWNFRGIVTDSKSGCTPC 739
Ornithorhynchus_anatinus GCPSSCQCNPYGSYGGTCDPTTGQCS CKPGVGGLRCRCEPGFWNFRGIVTDSKSGCTPC 867
.....910.....920.....930.....940.....950.....960

.*.. *:*****:*****: * *: *..*..* * **: .: * *: * *:
Equus_caballus      SCDPRGAVRDDCEQMTGLCSCKPGVAGPKCGQCPDGRALGPAGCETVSVVPETCAEIRCE 909
Pteropus_alecto     SCDPRGAVRDDCEQMTGLCSCKPGVAGAKCGQCSHGRALGPAGCETDSSAPKTCAEMRCE 785
Bos_taurus          SCDPRGAVRDDCEQMTGLCSCKPGVAGPKCGQCPDGRALGPAGCETDSSPPKTCAEMLCE 909
Homo_sapiens         SCDPQGA VRDDCEQMTGLCSCKPGVAGPKCGQCPDGRALGPAGCEADASAPATCAEMRCE 907
Pan_troglodytes     SCDPQGA VRDDCEQMTGLCSCKPGVAGPKCGQCPDGRALGPAGCEADASAPATCAEMRCE 907
Macaca_mulatta      SCDPQGA VRDDCEQMTGLCSCKPGVAGPKCGQCPDGRALGPAGCEADASAPATCAEMRCE 906
Callithrix_jacchus  SCDPQGA VRDDCEQMTGLCSCKPGVAGPKCGQCPDGRALGPAGCEADASAPATCAEMRCE 909
Mus_musculus        SCDPQGA VRDDCEQMTGLCSCKPGVAGPKCGQCPDGRALGPAGCEADASAPATCAEMRCE 909
Pavo_muticus        NCDPVGSVRDDCEQMTGLCSCKTGITGMKCNQCPNGSKMGMAGCEKDPSAPKSCCEMSCE 908
Pavo_cristatus      NCDPVGSVRDDCEQMTGLCSCKTGITGMKCNQCPNGSKMGMAGCEKDPSAPKSCCEMSCE 908
Gallus_gallus       NCDPVGSVRDDCEQMTGLCSCKTGITGMKCNQCPNGSKMGMAGCEKDPSAPKSCCEMSCE 1002
Anas_platyrhynchos NCDPVGSVRDDCEQMTGLCSCKTGITGMKCNQCPNGSKLGMTGCEKDPSAPKSCCEMSCE 908
Chelonia_mydas      NCDPVGSVRDDCEQMTGLCSCKTGITGMKCNQCPNGSKLGMTGCEKDPSAPKSCCEMSCE 922
Xenopus_tropicalis  NCDPVGSVRDDCEQMTGLCSCKTGITGMKCNQCPNGSKLGMTGCEKDPSAPKSCCEMSCE 912
Rhinatrema_bivittatum NCDPVGSVRDDCEQMTGLCSCKTGITGMKCNQCPNGSKLGMTGCEKDPSAPKSCCEMSCE 799
Ornithorhynchus_anatinus NCDPVGSVRDDCEQMTGLCSCKTGITGMKCNQCPNGSKLGMTGCEKDPSAPKSCCEMSCE 927
.....970.....980.....990.....1000.....1010.....1020

:* **  * * * * *  *  : :*****:***: ***** :...: *
Equus_caballus      FGASCVEEAGSAHCVCPMTPTCLGANATKVCSDGVTYGNECQLRTIACRQGLDISIQSLG 969
Pteropus_alecto     FGASCVEEAGSAHCVCPMTPTCPGANATKVCSDGVITYGNECQLRTIACRQGLDISIQNLG 845
Bos_taurus          FGASCVEEAGSAHCVCPMTPTCPGANATKVCSDGVITYGNECQLRTIACRQGLDISIQSFG 969
Homo_sapiens         FGARCVEESGSAHCVCPMTPTCPGANATKVCSDGVITYGNECQLRTIACRQGLDISIQSLG 967
Pan_troglodytes     FGARCVEESGSAHCVCPMTPTCPGANATKVCSDGVITYGNECQLRTIACRQGLDISIQSLG 967
Macaca_mulatta      FGALCVEDSGSAHCVCPMTPTCPGANATKVCSDGVITYGNECQLRTIACRQGLDISIQSLG 966
Callithrix_jacchus  FGALCVEDSGSAHCVCPMTPTCPGANATKVCSDGVITYGNECQLRTIACRQGLDISIQSLG 969
Mus_musculus        FGASCVEEAGFAHCVCPMTPTCPGANATKVCSDGVITYGNECQLRTIACRQGLDISIQSLG 969
Pavo_muticus        FGASCVEVNGFAHCECPSPPLCSEANMTKVCSDGVITYGNECQLRTIACRQGLDISIQSLG 968
Pavo_cristatus      FGASCVEVNGFAHCECPSPPLCSEANMTKVCSDGVITYGNECQLRTIACRQGLDISIQSLG 968
Gallus_gallus       FGASCVEVNGFAHCECPSPPLCSEANMTKVCSDGVITYGNECQLRTIACRQGLDISIQSLG 1062
Anas_platyrhynchos FGASCVEVNGFAHCECPSPPLCSEANMTKVCSDGVITYGNECQLRTIACRQGLDISIQSLG 968
Chelonia_mydas      FGASCVEVNGFAHCECPSPPLCSEANMTKVCSDGVITYGNECQLRTIACRQGLDISIQSLG 982
Xenopus_tropicalis  FGATCVVIGGFAHCECPSPPLCSEANMTKVCSDGVITYGNECQLRTIACRQGLDISIQSLG 972
Rhinatrema_bivittatum FGATCVVIGGFAHCECPSPPLCSEANMTKVCSDGVITYGNECQLRTIACRQGLDISIQSLG 859
Ornithorhynchus_anatinus FGATCVVIGGFAHCECPSPPLCSEANMTKVCSDGVITYGNECQLRTIACRQGLDISIQSLG 987
.....1030.....1040.....1050.....1060.....1070.....1080

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* :      * ::      .      *
Equus_caballus      PCQDSSSLPAEVTTPGTRPTSTSVATVGLD--PSRALPLPP-----SALP      1011
Pteropus_alecto     PCQ-----EAVAPGAHPTPVSVATSEGD--LTEALLPPP-----SALP      881
Bos_taurus          PCQ-----EGITSGPRVTSASVAPSALD--LNKAPLPPP-----SALP      1005
Homo_sapiens        PCQ-----EAVAPSTHPTSASVTVTTPGLLLSQALPAPP-----GALP      1005
Pan_troglodytes     PCQ-----EAVAPSTHPTSASVTVTTPGLLLSQALPAPP-----GALP      1005
Macaca_mulatta      PCQ-----EAVAPSTHPTSASVTVTSPGLLLSQALPTPP-----GAPP      1004
Callithrix_jacchus  PCQ-----EAVAPSTHPTSASVIVTTPG--LLSQGLPAPP-----SALP      1006
Mus_musculus        PCR-----ESVAPGVSPTSASMTT--PRHILSRTLASPH-----SSLP      1005
Pavo_muticus        QCH-----ESITHTS--HTMPPTPLPTLP--LDKLIIPPLQLTTTRAPEPTTELATTS--LL      1018
Pavo_cristatus      QCH-----ESITHTS--HTMPPTPLPTLP--LDKLIIPPLQLTTTRAPEPTTELATTS--LL      1018
Gallus_gallus       QCH-----ESITHTS--HTMPPTPLPTLP--LDKLIVPPLQLTTQAPEPTTELATTS--LL      1112
Anas_platyrhynchos QCH-----ESITHTS--HSAPPTPLPTLP--LDKLILPPLQLSTRAPEPTTEVASSPPLT      1019
Chelonia_mydas      QCH-----ESITHVS--HTVQPMPLPTLP--LDKLLHPPPLRLTPRAPDPTETATSS--LL      1032
Xenopus_tropicalis  PCQ-----ETVTHANLQTLSPITGTPSP--IVRTLPTPGTTK-----ITKTKKKIDSFQ      1019
Rhinatrema_bivittatum QCH-----ETITQT-----GPVLRPPPP--AREALAVP-----EPLEPVTDAIK      897
Ornithorhynchus_anatinus QCQ-----ESVTHGAVPTQPATTVPAL--LTQPPDQPHPRAPRPTSQDFEPPAEPKMP      1039
.....1090.....1100.....1110.....1120.....1130.....1140

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      .      *      :      .
Equus_caballus      LAPSSSTPHSRP-----TPRPSRPWTTASI--PRTTERPVLTMPPITASL      1053
Pteropus_alecto     LAPSSSTPRSRP-----TPRP--QPWTTASI--PRTTTRPELTVPPITAP      921
Bos_taurus          LAPSSSTRHSQP-----TSRASSQPWTMASI--PRTTARPVLTMPPVAPS      1047
Homo_sapiens        LAPSSSTAHSQT-----TPPPSSRPRTTASV--PRTTVWPVLTVPPITAPS      1047
Pan_troglodytes     LAPGSTARSQT-----TPPPSSRPRTTASV--PRTTVWPVLTVPPITAPS      1047
Macaca_mulatta      PAPSSSTAHSQT-----TPLHSSQPRTTASI--PRTTVWPVLTVPPITAPS      1046
Callithrix_jacchus  LAPSSSTTHSQT-----TPPPSSRPRTTTSI--PRTTVWP--VPPITAPS      1045
Mus_musculus        LSPSTTAHDWP-----TPLP--TSPQTVVGT--PRS-----TAATPS      1038
Pavo_muticus        MEASPTIARSHP-----TTRRVTTTRPATTPWMTHGV--LKTTVRPLSTSPVVLAT      1066
Pavo_cristatus      MEASPTIARSHP-----TTRRVTTTRPATTPWMTHGV--LKTTVRPLSTSPVVLAT      1066
Gallus_gallus       MEASPTTRSHP-----TTRRVTTTRPATTPWMTHGV--LKTTVRPLSTSPVVLAT      1160
Anas_platyrhynchos EEAKPTPRAHP-----TTRRITARPATTPWMTHGV--AKTTVRPLATSPVLLAT      1067
Chelonia_mydas      FEARPIPRSQP-----ATVRLTARPATTTWTQGI--RRTTIRPLSTAPVVLAT      1080
Xenopus_tropicalis  LVLEATSLR-----PFSSITMREVT--QTHRA--HTSTVRPAITIPVHPT      1061
Rhinatrema_bivittatum LEAMATPRS-----TRRSSTARPAV--TTR--APSTARPIITAPAAALPT      937
Ornithorhynchus_anatinus EPGATVPRTIRPPGTTTPHPWPTTRRITARPSTPAWTTARLPTQARTTARPPLSAPMVLT      1099
.....1150.....1160.....1170.....1180.....1190.....1200

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      ****      . * *      **: : **
Equus_caballus      PAASLASSAFGESGSADGSGDEEL--SGDLEASGAGSGG-----LEPPEGGSAVSPG      1103
Pteropus_alecto     TAASLATSFAFGESGSADG--GDEEL--SGDLEASGAGSGG-----LEAPEGGSAVTPG      970
Bos_taurus          PAASLVTSFAFGESGSADGSGDEEL--SGDLEASGAGSGG-----LESPERDSAGTPG      1097
Homo_sapiens        PAPSLVASAFGESGSTDGSDEEL--SGDQEASGGGSGG-----LEPLEGSSVATPG      1097
Pan_troglodytes     PAPSLVASAFGESGSTDGSDEEL--SGDQEASGGGSGG-----LEPFEGSSVATPG      1097
Macaca_mulatta      PAPSLVASAFGESGSADGSGDEEL--SGDQEASGGGSGG-----LEPFEGSSVATPG      1096
Callithrix_jacchus  PVPSLVASAFGESGSADGSDDEEL--SGDQEASGGGSGG-----LEPLEGSSVATPG      1095
Mus_musculus        DVASLATAIFRESGSTNGSGDEEL--SGDEEASGGGSGG-----LEPPVGSVVVTHG      1088
Pavo_muticus        TQP-----AYAESGSAEGSGDQEMSISGDQESSGA-----GSAGEEEVEESEVTPT      1112
Pavo_cristatus      TQP-----AYAESGSAEGSGDQEMSISGDQESSGA-----GSAGEEEVEESEVTPT      1112
Gallus_gallus       TQP-----PYAESGSAEGSGDQEMSISGDQESSGA-----GSAGEEEVEESQVTPT      1206
Anas_platyrhynchos TQP-----AYVESGSAEGSGDQEMGTSGDQEASGG-----GSAGEEEAEEESQVTPT      1113
Chelonia_mydas      PQP-----AYSESGSAEGSGDPELGISGDQEASGA-----GSAGEEEPEESQVTST      1126
Xenopus_tropicalis  VLQ-----IYDESGSG--SGDEELEASGDQLSGVEPKFPDVEENEQKEAEKRFVAT      1114
Rhinatrema_bivittatum ARE-----PSESSEGSTDSSGDEELESSGEQEASGALALA-----EAVTHQEDKKAIPAT      986
Ornithorhynchus_anatinus PPPPTF--SESESGSAEGSGDEEQ--SGDRETSGMGSAG-----QEKEEEEEEESRTVPT      1150
.....1210.....1220.....1230.....1240.....1250.....1260

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      :***:***:.:***** : * **:* ** : * **: * : :***:*** **:
Equus_caballus      LPVERASCYNSPLGCCSDGKTPSLDAEGSNCPATKAFQGVLELESVEGQELFYTPEMADP 1163
Pteropus_alecto    PPVERASCYNSPLGCCSDGKTPSLDAEGSNCPATKAFQGVLELEGVEGQELFYTPEMADP 1030
Bos_taurus         LPMERASCYNSPMGCCSDGKTPSLDAEGSNCPATKVFQGVLELEGVEGQELFYTPEMADP 1157
Homo_sapiens       PPVERASCYNSALGCCSDGKTPSLDAEGSNCPATKVFQGVLELEGVEGQELFYTPEMADP 1157
Pan_troglodytes    PPVERASCYNSALGCCSDGKTPSLDAEGSNCPATKVFQGVLELEGVEGQELFYTPEMADP 1157
Macaca_mulatta     PPIERASCYNSPLGCCSDGKTPSLDAEGSNCPATKVFQGVLELEGVEGQELFYTPEMADP 1156
Callithrix_jacchus LPPIERASCYNAPLGCCSDGKTPSLDVEGSNCPATRVFQGMLELEGVEGQELFYTPEMADP 1155
Mus_musculus       PPIERASCYNSPLGCCSDGKTPSLDSEGSNCPATKAFQGVLELEGVEGQELFYTPEMADP 1148
Pavo_muticus       PAIERATCYNTPLGCCSDGKTAATDAEGSNCPATKVFQGVLIILEVEGQELFYTPEMADP 1172
Pavo_cristatus     PAIERATCYNTPLGCCSDGKTAATDAEGSNCPATKVFQGVLIILEVEGQELFYTPEMADP 1172
Gallus_gallus      PAIERATCYNTPLGCCSDGKTAADAEGSNCPATKVFQGVLIILEVEGQELFYTPEMADP 1266
Anas_platyrhynchos PAIERATCYNTPLGCCSDGKTAADAEGSNCPATKVFQGVLIILEVEGQELFYTPEMADP 1173
Chelonia_mydas     PAIERATCYNSPLGCCSDGKTAAVDAEGSNCPATKVFQGVLIILEVEGQELFYTPEMADP 1186
Xenopus_tropicalis TVIERASCYNTPLGCCSDGKTPANDAEGTNCPKTKIFQGVLIIELEGQEVFYTPEMSIV 1174
Rhinatrema_bivittatum PTMERATCYNTALGCCSDGKTPAVDAEGTNCPATKVFQGVLIILETVDGQELFYTPEMADP 1046
Ornithorhynchus_anatinus PAVERASCYNTALGCCSDGKTVAVDTETGNCPATKVFQGVLVLEVEGQELFYTPQEMSIV 1210
      .....1270.....1280.....1290.....1300.....1310.....1320

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*****:***:..*:..* ** :***:*** . :***: ****:..*
Equus_caballus      KSELFGETARSIESALDDLFRNSDVKKDFRSVRLRDLGPGNSVRAIVDVHFDPTTAFRAP 1223
Pteropus_alecto    KSELFGETARSIESALDDLFRNSDVKKDFRSVRLRDLGPGNSVRAIVDVHFDPTTTFRAS 1090
Bos_taurus         KSELFGETARSIESALDDLFRNSDVKKDFRSVRLRDLGPGSSVRAIVEVHFDPTTAFRAS 1217
Homo_sapiens       KSELFGETARSIESALDDLFRNSDVKKDFRSVRLRDLGPGKSVRAIVDVHFDPTTAFRAP 1217
Pan_troglodytes    KSELFGETARSIESALDDLFRNSDVKKDFRSVRLRDLGPGKSVRAIVDVHFDPTTAFRAP 1217
Macaca_mulatta     KSELFGETARSIESALDDLFRNSDVKKDFRSVRLRDLGPGKSVRAIVDVHFDPTTAFRAP 1216
Callithrix_jacchus KSELFGETARSIESVLDLFRNSDVKKDFRSVHLRDLGPGRSVRAIVDVHFDPTTAFRAP 1215
Mus_musculus       KSELFGETARSIESALDDLFRNSDVKKDFRSIRLRELGPGLVRAIVDVHFDPTTAFQAP 1208
Pavo_muticus       KSELFGETARSIESALDELFRNSDVKKDFKSIRVRDLGQSSAVRVIVESHFDPATSYTAA 1232
Pavo_cristatus     KSELFGETARSIESALDELFRNSDVKKDFKSIRVRDLGQSSAVRVIVESHFDPATSYTAA 1232
Gallus_gallus      KSELFGETARSIESALDELFRNSDVKNDFKSIRVRDLGQSSAVRVIVESHFDPATSYTAA 1326
Anas_platyrhynchos KSELFGETARSIESALDELFRSSDIKKDFKSIRVRDLGQSSAVRVIVEAHFDPATSYTAA 1233
Chelonia_mydas     KSELFGETARSIESALDELFRNSDVKKDFKSIRVRDLGQSSAVRVIVESHFDPATSYTAA 1246
Xenopus_tropicalis KSELFGETARSIESALDNLFRNSDIKKDFKSIRVRDLGQSSAVRVIVEAHFDPATSYTAA 1234
Rhinatrema_bivittatum KSELFGETARSIESALDNLFRNSDVKKDFKSIRVRDLGQSSAVRVIVESHFDPATSYTAA 1106
Ornithorhynchus_anatinus KSELFGETARSIESALDDLFRNSDVKKDFRSVRLRDLGPGSSVRAIVDVHFDPTTTFRAP 1270
      .....1330.....1340.....1350.....1360.....1370.....1380

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**   ***:***: * : . : :.* :***:***:   **.* :. : .
Equus_caballus      DVGRALLRQIQVSRRRSLGVRRLPQEHVRFMDL----DWFPAFFTGATTGATPAAATARA 1279
Pteropus_alecto    DVGRALLRQVQVSRRRSLGVRRLPQEHMRFMDF----DWFPAFFMGSTTGATPAAATARA 1146
Bos_taurus         DVGRALLRQLQASRRRSLGVRRLPQEHVRFMDL----DWFPAFFT----GATPAAATARA 1269
Homo_sapiens       DVARALLRQIQVSRRRSLGVRRLPQEHVRFMDL----DWFPAFITGATSGAIAAGATARA 1273
Pan_troglodytes    DVARALLRQIQVSRRRSLGVRRLPQEHVRFMDL----DWFPAFITGATSGAIAAVATARA 1273
Macaca_mulatta     DVARALLRQIQVSRRRSLGVRRLPQEHVRFMDL----DWFPAFFTGVTSGAIAAVATARA 1272
Callithrix_jacchus DVGRALLRQLQVSRRRSLGVRRLPQEHVRFMDL----DWFPAFFTGATSGAIAAVATARA 1271
Mus_musculus       DVQALLQIQVSRPWALAVRRRLREHVRFLDF----DWFPFTFTGATGTTAAVATARA 1264
Pavo_muticus       DVQEALLKQIRASKKRTILVKKPQQEHVKFMDL----DWIPRLFTTTTATTTATMAPAT 1288
Pavo_cristatus     DVQEALLKQIRASKKRTILVKKPQQEHVKFMDL----DWIPRLFTTTTATTTATMAPAT 1288
Gallus_gallus      DVQAALLKQIRASKKRTILVKKPQQEHVKFMDL----DWIPRIFTTTTATTTATMAPAT 1382
Anas_platyrhynchos DVQAALLKQIRASKKRTILVKKPQQEHVKFMDL----DWIPRLFTTTTATTTATMAPAT 1289
Chelonia_mydas     DVQRALLKQIKASKRRPILVKKPQQEHVKFMDL----DWIPRLFTTTTATTTATMAPAT 1302
Xenopus_tropicalis DVQRALLRQLKSSKKRAITIKKPIQENVKFLDFGEIPDWVPLMVTTTTTTATTTATSMVATT 1294
Rhinatrema_bivittatum DVQRALLKQIKASRRKTILLKNPQQEHVKFMDL----DWIPVLFTTTTATTTATTTATSMVATT 1162
Ornithorhynchus_anatinus DVARALLKQIRTSKKKAIVVRKQQDHVKFMDL----DWVPTLFTTTTATTTATTTATSSHR 1326
      .....1390.....1400.....1410.....1420.....1430.....1440

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CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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	.	*	:	::	
Equus caballus	TTVARL-PSAVTPRAHFP SHTS-----RPSSRTTAHTPTRRPPTS	1318			
Pteropus alecto	TTVA---SSAVTPRALYFVHTS----RPVSKTTGPTTTRRRPFAT	1183			
Bos taurus	TTVARLPSSAATPRAHFPSHTS-----RPVSRITPPATTTRQPPTT	1309			
Homo sapiens	TTASRLPSSAVTPRAHFP SHTS-----QPVAKTAAAPTTRRRPPTT	1313			
Pan troglodytes	TTASRLPSSAVTPRALHP SHTS-----QSVAKTTAAAPTTRRRPPTT	1313			
Macaca mulatta	TTASRLPSSAVTPRTLHP SHTS-----QPVAKTTAAAPTTRRRPPTT	1312			
Callithrix jacchus	TTASRPPSPSAVTPRAHPGHTS----RPISKTTAAAPTTRRRPPTT	1311			
Mus musculus	TTVSRLSASSVTIPR-VYP SYTS-----RPVGRTTAPLTTRRRPPTT	1303			
Pavo muticus	TRRHTTASAATTAHILR-----QDTAGHPSAKLAAPASTRRPTST	1328			
Pavo cristatus	TRRHTTASAATTAHILR-----QDTAGHPSAKLAAPASTRRPTST	1328			
Gallus gallus	TRRHTTASAATTAHILR-----QDTVGHPSAKLAAPASTRRPTST	1422			
Anas platyrhynchos	TRRYTTASAATTAOGLR-----QDIAVRTSTKLPGPLSTRRPSST	1329			
Chelonia mydas	TQRFT--APTAAHVLP-----PEAMEKPSTKMAGPATTRRPPTT	1339			
Xenopus tropicalis	AVAPTTTTTPVVATTITTVARITPLPRRIIVAVKTTTPVTITIQPVTTTTRMTTRRPVTTTKRPMTT	1354			
Rhinatrema bivittatum	PSRLLATAPHVLH-----PATTGRPPTT	1185			
Ornithorhynchus anatinus	TTTPPGTTPRALSPGHFP-----AATTPRHLLAA	1353			
1450.....1460.....1470.....1480.....1490.....1500				

[illegible]

		*.**:***::*****:*****:****:.*:	
Equus_caballus	VLGPSRSAPAFGGHSFLAFTPLRAYHTLRLALEFRALEPQGLLLLYNGNDRGKDFLALALL	1435	
Pteropus_alecto	ALRAS--VPAFGGRSFLAFTPLRAYHTLRLALEFRALEPQGLLLLYNGNAKGKDFLALALL	1298	
Bos_taurus	ALHFS--VPAFGGHSFLAFTPLRAYHTLRLALEFRALEPQGLLLLYNGNARGKDFLGLVLL	1424	
Homo_sapiens	VLGAP--VPAFEGRSFLAFTPLRAYHTLRLALEFRALEPQGLLLLYNGNARGKDFLALALL	1426	
Pan_troglodytes	VLGAP--VPAFEGRSFLAFTPLRAYHTLRLALEFRALEPQGLLLLYNGNARGKDFLALALL	1426	
Macaca_mulatta	ALGAP--VPAFEGRSFLAFTPLRAYHTLRLALEFRALEPQGLLLLYNGNARGKDFLALALL	1425	
Callithrix_jacchus	VLHAP--VPAFGGHSFLAFTPLRAYHTLRLALEFRTELEPQGLLLLYNGNARGKDFLALALL	1426	
Mus_musculus	VQLPS--VPAFKGHSFLAFTPLRAYHTLRLALEFRATELEPQGLLLLYNGNARGKDFLALALL	1415	
Pavo_muticus	SIRYF--IPSFGGKSYLAFKMMKAYHTVRIAMEFRATELSGGLLYNGQNRGKDFISLALV	1444	
Pavo_cristatus	SIRYF--IPSFGGKSYLAFKMMKAYHTVRIAMEFRATELSGGLLYNGQNRGKDFISLALV	1444	
Gallus_gallus	PIRYF--IPSFGGKSYLAFKMMKAYHTVRIAMEFRATELSGGLLYNGQNRGKDFISLALV	1537	
Anas_platyrhynchos	PIRYF--IPSFGGKSYLAFKMKAYHTVRIAEFRATELSGGLLYNGQSRGKDFISLALV	1439	
Chelonia_mydas	SIRYF--IPAFGGKSYLAFKMMKAYHTVRIAMEFRASELSGGLLYNAQSRGKDFISLALV	1453	
Xenopus_tropicalis	SIKYF--IPGFGGKSYLAFKMMKAYHTVRIAMEFRSSEQNGLLLYNGQSLGKDFISLAVN	1468	
Rhinatrema_bivittatum	TVQYF--IPSFGGKSYLAFTVLKAYHTVRIAEFRALEPSGGLLYNGQIRGKDFISLALV	1299	
Ornithorhynchus_anatinus	AVHYS--IPAFGGQSYLAFTVRLAYHTVRVAMEFRAMEPQGLLLLYNGQNRGKDFISLALV	1453	
1570.....1580.....1590.....1600.....1610.....1620		

CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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      . *::***:**** . :** * :: *::**:* :.:* * * *::**** * *::** ****
Equus_caballus      GGRVQLRFDTGSGPAVLTSVVPVEPGRWHRLSLRHWRRTLSVDGETPVLGQSPSGTDG 1495
Pteropus_alecto     GGRVQLRFDTGSGPAVLTSVVPVEPGRWHRLSLRHWRRTLSVDGETPVLGQSPSGTDG 1358
Bos_taurus          GGRVQFRFDTGSGPAVLTSVVPVQPGRWHRLSLRHWRRTLSVDGETPVLGQSPSGTDG 1484
Homo_sapiens         DGRVQLRFDTGSGPAVLTSVVPVEPGQWHRLSLRHWRRTLSVDGETPVLGESPSGTDG 1486
Pan_troglodytes      DGRVQLRFDTGSGPAVLTSVAPIEPGQWHRLSLRHWRRTLSVDGETPVLGESPSGTDG 1486
Macaca_mulatta       DGRVQLRFDTGSGPAVLTSVVPVEPGRWHRLSLRHWRRTLSVDGETPVLGESPSGTDG 1485
Callithrix_jacchus   DGHVQLRFDTGSGPAVLTSVAVLDLGRWHRLSLRHWRRTLSVDGETPVLGESPSGTDG 1486
Mus_musculus         DGHVQFRFDTGSGPAVLTSVLPVEPGRWHRLSLRHWRRTLSVDGEAPVVGESPSGTDG 1475
Pavo_muticus         GGFVELRFNTGSGMGVITSKVRVEPGKWHQLVVRNRRSGMLAVDGEPHVSGESPTGTDG 1504
Pavo_cristatus       GGFVELRFNTGSGMGVITSKVRVEPGKWHQLVVRNRRSGMLAVDGEPHVSGESPTGTDG 1504
Gallus_gallus        GGFVELRFNTGSGTGVTISKVRVEPGKWHQLVVRNRRSGMLAVDGEPHVSGESPTGTDG 1597
Anas_platyrhynchos   GGFVELRFNTGSGTGVTISKVRVEPGKWHQLVVRNRRSGVLAVDGEPHVGGESPPGTDG 1499
Chelonia_mydas        SSFVELRFNTGSGTGIITSKVPVEPGKWHQLVVRNRRNGMLAVDGEPHVNGESPSGTDG 1513
Xenopus_tropicalis    NGFVELRFNTGSGTGIITSKVPVEPGKWHQLVVRNRRSGMLAVDGEHVNNGESPSGTDG 1528
Rhinatrema_bivittatum SGFVELRFNTGSGTGVTISKVPVPGKWHQLVVRNRRSGMLAVDGEHVNNGESPPGTDG 1359
Ornithorhynchus_anatinus RGFVELRFNTGSGTGVTISKVPVPGKWHQLVVRNRRSGSLVDGEPVVTGESPIGTDG 1513
      .....1630.....1640.....1650.....1660.....1670.....1680

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      *::**::*** * :* . . :*      *::***: * *::** :*      . .::**
Equus_caballus      LNLDTDLFVGGVPEDQASVVLERTSVGLGLRGCIIRLLDINNQRLELSGWQGAATRS SGVG 1555
Pteropus_alecto     LNLDTDLFVGGVPEDQASVVLERTSVSVGLKGCIRLLDVNNQRLELSGWQGAATRS SGVG 1418
Bos_taurus          LNLDTDLFVGGVPEDQASTVLERTSVSIGLRGCIRLLDVNNQRLELSGWQGAATRS SGVG 1544
Homo_sapiens         LNLDTDLFVGGVPEDQAAVALERTFVGAGLRGCIRLLDVNNQRLELSGWQGAATRS SGVG 1546
Pan_troglodytes      LNLDTDLFVGGVPEDQAAVALERTFVGAGLRGCIRLLDVNNQRLELSGWQGAATRS SGVG 1546
Macaca_mulatta       LNLDTDLFVGGVPEDQAAVALERTSVGAGLRGCIRLLDVNNQLLELIGPGAATRS SGVG 1545
Callithrix_jacchus   LNLDTDLFVGGVPEDQAAVVLERTFVGGLRGCIIRLLDINNQLLELSVGPAAAQGS AVG 1546
Mus_musculus         LNLDTKLYVGGLPPEEQVATVLDRTSVGIGLKGCIIRMLDINNQLLELSDWQRAVQSS GVG 1535
Pavo_muticus         LNLDTDLFVGGAPEDQMAVVAERTAAATVGLKGCIRLLDVNNQMYDLREKGS DVL YGS GVG 1564
Pavo_cristatus       LNLDTDLFVGGAPEDQMAVVAERTAAATVGLKGCIRLLDVNNQMYDLREKGS DVL YGS GVG 1564
Gallus_gallus        LNLDTDLFVGGAPEDQMAVVAERTAAATVGLKGCIRLLDVNNQMYDLREKGS DVL YGS GVG 1657
Anas_platyrhynchos   LNLDTDLFIGGAPEDQMAAVTERTAAATGGLKGCIRLLDVNNQLYDLREKGS DVL YGS GVG 1559
Chelonia_mydas        LNLDTDLFIGGVPEDQMAVVADRTSATAGLRGCIRLLDVNNQLYDLREKGS DVL YGS AVG 1573
Xenopus_tropicalis    LNLDTDLFIGGAPEDQMAVVSERTSLVGLKGCIRQLDVNNQLYNLQEGGADVL YGS GVG 1588
Rhinatrema_bivittatum LNLDSDLFLGGAPEDQIPLVAERTSVTSLGLKGCIRLLDVNNQVYDLQEGVDVL YGS GVG 1419
Ornithorhynchus_anatinus LDLDLTLFVGGVPTDQLAVSERTAAAMGLKGCVRLLDVNDRGYELQEGSDVL YGS SIG 1573
      .....1690.....1700.....1710.....1720.....1730.....1740

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      :** .** .** . * : * *      *****:***:**** :*. * **
Equus_caballus      ECGDHPCLPSPCLGGAPCALEAGAFHCQCPPGHFGPTCAEEKNPCQPNPCHGAAPCRVL 1615
Pteropus_alecto     ECGAHPCRPSPCLGGAPCALEAGAFHCQCPPGRFGPTCANENPCQPNPCHGAAPCRVL 1478
Bos_taurus          KCGDHPCLPSPCLGGAPCALEAGRFHCQCPPGRFGPTCADEKDPCQPNPCHGAAPCRVL 1604
Homo_sapiens         ECGDHPCLPSPCHGGAPCNLEAGRFHCQCPPGRVGPTCADEKSPCQPNPCHGAAPCRVL 1606
Pan_troglodytes      ECGDHPCLPSPCHGGAPCNLEAGRFHCQCPSSRGVGPTCADEKSPCQPNPCHGAAPCRVL 1606
Macaca_mulatta       ECGSHPCLPNPCRGGAPCALEAGRFHCQCPPGRVGPTCADEKSPCQPNPCHGAAPCRVL 1605
Callithrix_jacchus   ECGDHPCLPSPCHGRAPCALEAGRFHCQCPPGHFGPTCAEEKNPCQPNPCHGAAPCHVL 1606
Mus_musculus         ECGDHPCLPSPCHGGALCALEAGVFLCQCPPGRFGPTCADEKNPCQPNPCHGSAPCHVL 1595
Pavo_muticus         ECGNDPCHPSPCHHGGICHIEAEMFHCCECHSYTGPTCADERNPCDPTPCHISATCLVL 1624
Pavo_cristatus       ECGNDPCHPSPCHHGGICHIEAEMFHCCECHSYTGPTCADERNPCDPTPCHISATCLVL 1624
Gallus_gallus        ECGNDPCHPSPCHHGGICHVKEAEMFHCCECHSYTGPTCADERNPCDPTPCHISATCLVL 1717
Anas_platyrhynchos   ECGNDPCHPSPCHHGGICHVKEAEMFHCCECHSYTGPTCADERNPCDPTPCHVSATCLVL 1619
Chelonia_mydas        ECGNNPCHPSPCHHGAICHVKEAEMFHCCECHSYTGPTCADERNPCDPTPCHVSATCLVL 1633
Xenopus_tropicalis    ECGNNPCHPSPCHNGAACQVKEAEMFHCCECHSYTGPTCADERNPCDPTPCHVSATCLVL 1648
Rhinatrema_bivittatum ECGNNPCHPSPCHHGGICHIEAEMFHCCECHNGFTGPTCADEKNPCDPTPCHVSATCLVL 1479
Ornithorhynchus_anatinus QCGDNPCHPSPCHHGGICHIEAAXIHCSCLP---GPTCADERDPCQSPCHGAATCLVL 1630
      .....1750.....1760.....1770.....1780.....1790.....1800

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CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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      . *      * * * * : * : * : .      * : : : * . * . * : * : : : : : : :
Equus_caballus      PEGQAKCECPLGRGGPLCQTVSEREN-----SRPFLADFHGFSYLELKGLHTFDRDLGEKM 1671
Pteropus_alecto     PGGEAKCECPPGQGGPLCQTASEQNG-----HQPLLADFSGSSFLELKGLHTFERDLGEKM 1534
Bos_taurus          POGGAQCECPHGREGSLCQTVSEPED-----NQPFLLADFSFSSYLELKGLHTFERDLGEKM 1660
Homo_sapiens         PEGGAQCECPLGREGTFCQTASGQDG-----SGPFLADFNFGFSHLELRGLHTFARDLGEKM 1662
Pan_troglodytes     PEGGAQCECPLGREGTFCQTASGQDG-----SGPFLADFNFGFSHLELRGLHTFARDLGEKM 1662
Macaca_mulatta      PEGGAQCECPLGRGGTLCQTASGQDG-----SGPFVADFNFGFSHLELRGLHTFARDLGEKM 1661
Callithrix_jacchus  PEGGVQCQCPLGQGGTLCQTVSGQDG-----SRPFLADFNFGFSHLELRGLHTFARDLGEKM 1662
Mus_musculus        SRGGAACACPLGRSGSFCETVLENAG-----SRPFLADFNFGFSYLELKGLHTFERDLGEKM 1651
Pavo_muticus        PEGGAMCACPMPGREGEFCERVTEQDH-----TMPFLPEFNFGFSYLELNGLQTFVPDLQDKM 1680
Pavo_cristatus      PEGGAMCACPMPGREGEFCERVTEQDH-----TMPFLPEFNFGFSYLELNGLQTFVPDLQDKM 1680
Gallus_gallus       PEGGAMCACPMPGREGEFCERVTEQDH-----TMPFLPEFNFGFSYLELNGLQTFVPDLQDKM 1773
Anas_platyrhynchos PEGGFMCACPMPGREGDFCERVTEQDL-----SMPFLPEFNFGFSYLELSGLQSFVPDLQDKM 1675
Chelonia_mydas      PEGGAKCECPMPGREGEFCVAVMEQDQ-----TRPFLPEFNFGFSYLELRGLQTFVRELQDEV 1689
Xenopus_tropicalis  PEGGAKCECPMPGREGEFCVKVSNQDL-----NLPFLPQFNFGFSYLEMKGLOTFATDLQDKL 1704
Rhinatrema_bivittatum PEGGAKCECPMPGREGKLCVKVMEQDQ-----TVPFLPEFNFGFSYLELQGLQTSVPDLQDKL 1535
Ornithorhynchus_anatinus PDGGAACKCPMPGREGEFCQTVTDQDELGHHTAPFLPQFNFGFSFLELKGLHTFGGVDGKML 1690
      .....1810.....1820.....1830.....1840.....1850.....1860

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      : * : * * * * * * : * : * : * : * : * : * : * : * : * : * : * : * : * : * :
Equus_caballus      ALEVVFLLARSPSGLLLLYNGQKTDGKGDFVSLALHDDRHLFRYDLGKGAAVIRSKPEVALG 1731
Pteropus_alecto     ALEVVFLLARGPSGLLLLYNGQKTDGRGDFVSLALRDRHLFRYDLGKGAAVLRSKPEVALG 1594
Bos_taurus          ALEVVFLLARSPSGLLLLYNGQKTDGKGDFVSLALHNGLLFRYDLGKGAAVIRSKPEVALG 1720
Homo_sapiens         ALEVVFLLARGPSGLLLLYNGQKTDGKGDFVSLALDRRRHLFRYDLGKGAAVIRSKPEVALG 1722
Pan_troglodytes     ALEVVFLLARGPSGLLLLYNGQKTDGKGDFVSLALQDRHLFRYDLGKGAAVIRSKPEVALG 1722
Macaca_mulatta      ALEVVFLLARGPSGLLLLYNGQKTDGKGDFVSLALQDRRHLFRYDLGKGAAVIRSKPEVALG 1721
Callithrix_jacchus  ALEVVFLLARGPSGLLLLYNGQKTDGKGDFVSLALQDRHLFRYDLGKGAAVIRSKPEVALG 1722
Mus_musculus        ALEMVFLARGPSGLLLLYNGQKTDGKGDFVSLALHNRHLFRYDLGKGAIIIRSKPEIALG 1711
Pavo_muticus        SMEVVFLAKSPSGMIFYNGQKTDGKGDFVSLALHDGYLEYRYDLGKGAAVLRSKPEVPLN 1740
Pavo_cristatus      SMEVVFLAKSPSGMIFYNGQKTDGKGDFVSLALHDGYLEYRYDLGKGAAVLRSKPEVPLN 1740
Gallus_gallus       SMEVVFLAKSPSGMIFYNGQKTDGKGDFVSLALHDGYLEYRYDLGKGAAVLRSKPEVPLN 1833
Anas_platyrhynchos SMEVVFLAKSPSGMIFYNGQKTDGKGDFVSLALHDGYLEYRYDLGKGAAVLRSKPEVPLN 1735
Chelonia_mydas      SMEVVFLARNPSGMIFYNGQKTDGKGDFISLALHDGYLEYRYDLGKGAAVLRSKPEVPLN 1749
Xenopus_tropicalis  AMEVVFLASNPNGLIFYNGQKTDGKGDFVSLSLHDGNLEYRYDLGKGAAVIRSKPEIPLN 1764
Rhinatrema_bivittatum SMEVVFLARIPSGVIFYNGQKTDGRGDFSLALHDGHLEYRYDLGKGAAVIRSKERVALN 1595
Ornithorhynchus_anatinus SMEVIFLAKSPSGLLLFYNGQKTDGRGDFVSLALHDGHLEYRYDLGKGTAVIRSKRELITLD 1750
      .....1870.....1880.....1890.....1900.....1910.....1920

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      : *      * * * * . * * * : : . : : * * * *      . * : * * * * : * * * . * * * . * * *
Equus_caballus      TWTRVSLERSGRKGAMRVDDGPRVLGESPKSRKVPHTVNLNLKEPLYVGGAPDFSCLARAA 1791
Pteropus_alecto     TWTRVSLERNRKGAMRVGDGPRVLGESPKSRKVPHTVNLNLKEPLYVGGAPDFSRLARAA 1654
Bos_taurus          AWTRVSLERNRKGAMRVGDGPRVLGESPKSRKVPHTVNLNLKEPLFVGGAPDFSCLARAA 1780
Homo_sapiens         AWTRVSLERNRKGALRVGDGPRVLGESPKSRKVPHTVNLNLKEPLYVGGAPDFSCLARAA 1778
Pan_troglodytes     AWTRVSLERNRKGALRVGDGPRVLGESPKSRKVPHTVNLNLKEPLYVGGAPDFSCLARAA 1782
Macaca_mulatta      AWTRVSLERNRKGAMRVGDGPRVLGESPKSRKVPHTVNLNLKEPLYVGGAPDFSCLARAA 1781
Callithrix_jacchus  TWTSVSLERNRKGAMRVGDGPRMLGESPKSRKVPHTVNLNLKEPLYVGGAPDFSCLARAA 1782
Mus_musculus        TWVRVFLERNRKGALQVGDGPRVLGESPKSRKVPHTVNLNLKEPLYVGGAPDFSCLARAA 1767
Pavo_muticus        TWISVLLERSGRKGVMRINNGERVMGESP-VRQVPHAFNLNLKEPFYVGGAPDFSCLARAA 1799
Pavo_cristatus      TWISVLLERSGRKGVMRINNGERVMGESP-VRQVPHAFNLNLKEPFYVGGAPDFSCLARAA 1799
Gallus_gallus       TWISVLLERSGRKGVMRINNGERVMGESPSPSRKVPHTVNLNLKEPFYVGGAPDFSCLARAA 1893
Anas_platyrhynchos TWISVLLERNRKGVMRINNGERVMGESPSPSRKVPHTVNLNLKEPFYVGGAPDFSCLARAA 1795
Chelonia_mydas      TWISVSLERNRRKGVMRINNGERVMGESPSPSRKVPHTVNLNLKEPFYVGGAPDFSCLARAA 1809
Xenopus_tropicalis  TWISVSLERSGRKGLMRINNGERVMGESPSPSRKVPHTVNLNLKEPLFVGGAPDFSCLARAA 1824
Rhinatrema_bivittatum TWISVSLERSGRKGLMRINNGERVMGESPSPSRKVPHTVNLNLKEPLFVGGAPDFSCLARAA 1655
Ornithorhynchus_anatinus TWTSVSLERNDRKGLRVNGGERVLGESPKSRKVPHTVNLNLKEPLFVGGAPDFSCLARAA 1810
      .....1930.....1940.....1950.....1960.....1970.....1980

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CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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* :.* **:* : * :* : : * *** : ** :. * *.
Equus_caballus      AVSSGFDGAIQLVSLKGQQLLTQEHVVRADVSSFADHPCTRASGYPCLNGASCLPREAS 1851
Pteropus_alecto    AVSSGFDGAIQLVSLKGHQLLTQEVVRAVDVSSFADHPCTQASGHPCLNGASCVPREGS 1714
Bos_taurus         AVSSGFDGAIQLVSLNGRQLLTRENVVRAVDVSSFADHPCTQAEQPCPLHGASCLPREAS 1840
Homo_sapiens       AVSSGFDGAIQLVSLGGRQLLTPEHVLQVQVDVTSFAGHPCTRASGHPCLNGASCVPREAA 1838
Pan_troglodytes    AVSSGFDGAIQLVSLGGRQLLTPEHVLQVQVDVTSFAGHPCTRASGHPCLNGASCVPREAA 1842
Macaca_mulatta     AVSSGFNGAIQLVSLGGRQLLTPEHVLQVQVDVTSFADHPCTRASGHPCLNGASCVPREAA 1841
Callithrix_jacchus AVSSGFGAIQLVSLGGLQLLTPEHVLQVQMDVTSFADHPCTRASGHPCLNGASCVPREAA 1842
Mus_musculus       AVASGFDGAIQLVSLRGHQLLTQEHVLRADVAPFAGHPCTQAVDNPCPLNGGSCIPREAT 1827
Pavo_muticus       AISTSFYGAVQRIKIGVPLLKEQHRSABEISPFRAHPCTQKP-NPCQNGGTCSPRLES 1858
Pavo_cristatus     AISTSFYGAVQRIKIGVPLLKEQHRSABEISPFRAHPCTQKP-NPCQNGGTCSPRLES 1858
Gallus_gallus      AISTSFYGAVQRIKIGVPLLKEQHRSABEISPFRAHPCTQKP-NPCQNGGTCSPRLES 1952
Anas_platyrhynchos AISSGFGAVQRIKIGVPLLKEPNIRSAEISPFRAHPCTQKP-NPCQNGGSCSPRLES 1854
Chelonia_mydas     AISTSFDGAVQRIKIGVPLLKEENIRSAEISAFRSHPCSQKP-NPCQNGGMCSPRLES 1868
Xenopus_tropicalis AASTSFEGAIQKISIKGLPVLREENIRSAEISTFRSHPCTKKP-FPCQNGGLCSPNKG 1883
Rhinatrema_bivittatum AISTSFDGAIQKITAGGIALKNENKSAEISPFQQHPCMRKP-SPCQNGSVCTPKLES 1714
Ornithorhynchus_anatinus ALSSGFGAIQWISLQGIPLLTKANVQAAAQVQFHGHPCTRAPGQPCHHGGLCLPRLDT 1870
.....1990.....2000.....2010.....2020.....2030.....2040

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Equus_caballus      YVCLCPGGFSGHLHCEKGLIEKSAGDLDTLAFDGRITYIEYLNAVTESELNEIPAPEAPDS 1911
Pteropus_alecto    YECLCPGGFSGHLHCEKGLIEKSAGDLDALAFDGRITYIEYLNAVTE----- 1759
Bos_taurus         YECLCPAGFSGHLHCEKGLIEKSAGDLDALAFDGRITYIEYLNAVTESELNEIPAPETLDS 1900
Homo_sapiens       YVCLCPGGFSGPHCEKGLVEKSAGDVTDLAFDGRITFVEYLNAVTE----- 1883
Pan_troglodytes    YVCLCPGGFSGPHCEKGLVEKSAGDVTDLAFDGRITFVEYLNAVTESELNEIPVPTLDS 1902
Macaca_mulatta     YVCLCPGGFSGPHCEKGLVEKSAGDVTDLAFDGRITFVEYLNAVTESELNEIPVPTLDS 1901
Callithrix_jacchus YVCLCPGGFSGPHCEKGLVEKSAGDLDALAFDGRITFIEYLNAVTESELNEIPVPTLDS 1902
Mus_musculus       YECLCPGGFSGHLHCEKGLVEKSAGDLETDLAFDGRITYIEYLNAVTE----- 1872
Pavo_muticus       YECACQRGFSGAHCEKVIIIEKAAGDAEIAAFDGRITYMEYHNAVTKSP-----DALDY 1910
Pavo_cristatus     YECACQRGFSGAHCEKVIIIEKAAGDAEIAAFDGRITYMEYHNAVTKSP-----DALDY 1910
Gallus_gallus      YECACQRGFSGAHCEKVIIIEKAAGDAEIAAFDGRITYMEYHNAVTKS----- 1998
Anas_platyrhynchos YECACQRGFSGAHCEKVIIIEKAAGDAEIAAFDGRITYMEYHNAVTRS----- 1900
Chelonia_mydas     YECACPRGFSGARCEKVIIIEKAAGDEIAAFDGRITYLEYHNAVTKSP-----EALDY 1920
Xenopus_tropicalis YECVCQRGFSGSQCEKVIIIEKAAGESEAVSFDGKTYLEYHIAVTKSQLTNEIPETGPVDN 1943
Rhinatrema_bivittatum YECGCLRGFSGGLQCDKAIIEKSAGDSEIAAFDGRITYMEYHNAVTK----- 1759
Ornithorhynchus_anatinus YECQCLRGFSGGHCEQVILIEKSAGDPEIAAFDGRITSIEYHNAVTSQLTNEIPAPAGSGS 1930
.....2050.....2060.....2070.....2080.....2090.....2100

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Equus_caballus      GAPPSEKALQSNHFELSLRTEATQGLVLWSGKATERADYVALAIVDGRQLQLAYDLGSQPM 1971
Pteropus_alecto    ----SEKALQNDHFELSLRTEATQGLVLWSGKATERADYVALAIVDGRQLQTYDLGSQPV 1815
Bos_taurus         GAHPSEKALQSNHFELSLRTEATQGLVLWSGKATERADYIALAIVDGRQLQLAYDLGSQPV 1960
Homo_sapiens       ----SEKALQSNHFELSLRTEATQGLVLWSGKATERADYVALAIVDGHQLQSYNLGSQPV 1939
Pan_troglodytes    GALHSEKALQSNHFELSLRTEATQGLVLWSGKATERADYVALAIVDGHQLQSYNLGSQPV 1962
Macaca_mulatta     GALHSEKALQSNHFELSLRTEATQGLVLWSGKATERADYVALAIVDGHQLQSYNLGSQPV 1961
Callithrix_jacchus GALHSEKALQSNHFELSLRTEATQGLVLWSGKATEQADYVALAIVDGHQLQSYNLGSQPV 1962
Mus_musculus       ----SEKALQSNHFELSLRTEATQGLVLWIGKVGGERADYMALAIVDGHQLQSYDLGSQPV 1928
Pavo_muticus       PAEPSEKALQSNHFELSIKTEATQGLILWCGKGLERSDYIALAIVDGFVQMMYDLGSKPV 1970
Pavo_cristatus     PAEPSEKALQSNHFELSIKTEATQGLILWCGKGLERSDYIALAIVDGFVQMMYDLGSKPV 1970
Gallus_gallus      ----SEKALQSNHFELSIKTEATQGLILWCGKGLERSDYIALAIVDGFVQMMYDLGSKPV 2053
Anas_platyrhynchos ----SEKALQSNRFELSIKTEATQGLILWCGKGLERSDYIALAIVDGFVQMTYDLGSKPV 1955
Chelonia_mydas     ALDHSEKALQENHFELSIKTEATQGLILWCGKGLERSDYIALAIVDGYVQMTYDLGSKPV 1980
Xenopus_tropicalis PDDPSEKALLVNQFELSIKTEATQGLILWCGKGTERRAYIALAVVGGYVEMTYDLGSKPV 2003
Rhinatrema_bivittatum ----SEKAMHINLFELSIKTEATQGLILWCGKGLERSDYIALAVVNGFYVEMTYDLGSKPV 1815
Ornithorhynchus_anatinus ASEPSEKALQANHFELSIKTEATQGLVLWSGKATERADYIALAIVDGHLMHSYDLGSKPV 1990
.....2110.....2120.....2130.....2140.....2150.....2160

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CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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Equus_caballus	VLRSTVPVNTNRWLRVAHREOREGSLQVGNEAPVTGSSPLGATOLDTDGALWLGGLEKL	2031
Pteropus_alecto	VLRSTVPVNTNRWLRVAHREOREGSLQVGNEAPVTGSSPLGATOLDTDGALWLGGLEKL	1875
Bos_taurus	VLRSTVPVNTNRWLRVAHRKOREGSLQVGNEAPVTGSSPLGATOLDTDGALWLGGLEKL	2020
Homo_sapiens	VLRSTVPVNTNRWLRVVAHREOREGSLQVGNEAPVTGSSPLGATOLDTDGALWLGGLPEL	1999
Pan_troglodytes	VLRSTVPVNTNRWLRVVAHREOREGSLQVGNEAPVTGSSPLGATOLDTDGALWLGGLPEL	2022
Macaca_mulatta	VLRSTVPVNTNRWLRVVAHREOREGSLQVGNEAPVTGSSPLGATOLDTDGALWLGGLPEL	2021
Callithrix_jacchus	VLRSTVPVNTSRWLRVVAHREOREGSLQVGNEAPVTGSSPLGATOLDTDGALWLGGLPEL	2022
Mus_musculus	VLRSTVKVNTNRWLRVAHREHREGSLQVGNEAPVTGSSPLGATOLDTDGALWLGGLQKL	1988
Pavo_muticus	VLRSTVPINTNHWTHIKAYRVOREGSLQVGNEAPITGSSPLGATOLDTDGALWLGGMERL	2030
Pavo_cristatus	VLRSTVPINTNHWTHIKAYRVOREGSLQVGNEAPITGSSPLGATOLDTDGALWLGGMERL	2030
Gallus_gallus	VLRSTVPINTNHWTHIKAYRVOREGSLQVGNEAPITGSSPLGATOLDTDGALWLGGMERL	2113
Anas_platyrhynchos	VLRSTVPVNTNRWVHIKASRVOREGSLQVGNEAPVAGSSPLGATOLDTDGALWLGMEKL	2015
Chelonia_mydas	VLRSTVPVNTNQWIQIKAYRVHRDGSLOVGNEAPITGSSPLGATOLDTDGALWLGgiekl	2040
Xenopus_tropicalis	VLRSTVPVNTNEWIHIKAVRDNRDGILRVGNEDPVHGSSPFGVKELDTDGALWLGgiekl	2063
Rhinatrema_bivittatum	ILQSTVPVNTNQWIRIKAQRKYRDGSLOVGNEAPVYGSSPLGAKOLDTDGALWLGgiekl	1875
Ornithorhynchus_anatinus	VLRSTVPVNTNRWVRVKAHRVHREGTLOVGNEAPITGSSPLGATOLDTDGALWLGvEKL	2050
2170.....2180.....2190.....2200.....2210.....2220	

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Equus_caballus	PVGQALPKAYGTGFVGCILRDVVVGRRPLHLLEDVAVSRLPELRPCPTP	2077
Pteropus_alecto	PVGQALPKAYGTGFVGCILRDVVVGQRPLHLLEDAVARPALRPCPTP	1921
Bos_taurus	PTGQALPKAYGTGFVGCILRDVVVGQRPVHLLEDAITKPELRPCPAL	2066
Homo_sapiens	TVGPPALPKAYGTGFVGCILRDVVVGRHPLHLLEDAVTKPELRPCPTP	2045
Pan_troglodytes	PVGPALPKAYGTGFVGCILRDVVVGQHPLHLLEDAVTKPELRPCPTP	2068
Macaca_mulatta	PVGPALPKAYGTGFVGCILRDVVVGQRPLHLLEDATAKPELRPCPAP	2067
Callithrix_jacchus	PMGPALPKAYGTGFVGCILRDVMVGQHPLHLLEDAVTKPELRPCPAA	2068
Mus_musculus	PVGQALPKAYGTGFVGCILRDVVVGHRQLHLLEDAVTKPELRPCPTL	2034
Pavo_muticus	SVAHKLPKAYSTGFIGCIRDVIVDRQELHLVEDALNNPTILHCSAK	2076
Pavo_cristatus	SVAHKLPKAYSTGFIGCIRDVIVDRQELHLVEDALNNPTILHCSAK	2076
Gallus_gallus	SVAHKLPKAYSTGFIGCIRDVIVDRQELHLVEDALNNPTILHCSAK	2159
Anas_platyrhynchos	GVAHKLPKAYSTGFVGCIRDVVVDROELHLVEDALNNPTILHCSAK	2061
Chelonia_mydas	GVAHKLPKAYSTGFTGCIRDVIVDRQELHLVEDALNNQPTILHCSAK	2086
Xenopus_tropicalis	SASYKLPKAYSTGFIGCMKDVLVDQQLHLVEDALNKPPILYCSAK	2109
Rhinatrema_bivittatum	GVSYKLPKAYSTGFVGCMEVLVDQELHLVEDAMNHPTVLYCLAK	1921
Ornithorhynchus_anatinus	TVTHRLPKAYGTGYIGCIRDVLVDGRELHLVGDVAVNKPTILQCSAK	2096
2230.....2240.....2250.....2260.....	