

CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep_msa/PDZData2.fst Tue Feb 14:17:27 2022

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*****:** ..*.*.***. :..*: :*::** :*:*: :
Rattus_norvegicus -----MPITQDNALLHLLPLLYEWLQNSLREGGDSPEQRLCQAAIQKLOEYIQLNLAV 52
Mus_musculus -----MPITQDNALLHLLPLLYEWLQNSLREGGDSPEQRLCQAAIQKLOEYIQLNLAV 52
Homo_sapiens -----MPITQDNALLHLLPLLYEWLQNSLREGGDSPEQRLCQAAIQKLOEYIQLNLAV 52
Pan_troglodytes -----MPITQDNALLHLLPLLYEWLQNSLREGGDSPEQRLCQAAIQKLOEYIQLNLAV 52
Macaca_mulatta -----MPITQDNALLHLLPLLYEWLQNSLREGGDSPEQRLCQAAIQKLOEYIQLNLAV 52
Callithrix_jacchus -----MPITQDNALLHLLPLLYEWLQNSLREGGDSPEQRLCQAAIQKLOEYIQLNLAV 52
Canis_lupus_familiaris -----MPITQDNALLHLLPLLYEWLQNSLREGGDSPEQRLCQAAIQKLOEYIQLNLAV 52
Equus_caballus -----MPITQDNALLHLLPLLYEWLQNSLREGGDSPEQRLCQAAIQKLOEYIQLNLAV 52
Bos_taurus -----MPITQDNALLHLLPLLYEWLQNSLREGGDSPEQRLCQAAIQKLOEYIQLNLAV 52
Pavo_muticus MRGCPETAMPITQDNAGVFLPLLWQWLQNSRREGAEGAEQKLCHAAVOKLSEYIQLNFSV 60
Pavo_cristatus MRGCPETAMPITQDNAGVFLPLLWQWLQNSRREGAEGAEQKLCHAAVOKLSEYIQLNFSV 60
Gallus_gallus MRGCPETAMPITQDNAGVFLPLLWQWLQNSRREGAEGAEQKLCHAAVOKLSEYIQLNFSV 60
Xenopus_tropicalis -----MPITQENAAALYALLHRLQNSLREGGDSPEQRLCQAAIQKLOEYIQLNFTL 52
Rhinatrema_bivittatum -----MPITQENAAALYALLHRLQNSLREGGDSPEQRLCQAAIQKLOEYIQLNFTL 50
1.....10.....20.....30.....40.....50.....60

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*: . *****:** : : ** ***** :* . *::** :*:*: :
Rattus_norvegicus DESTVPP-DHSPPEMEICTVYLTKE-LGDTETVGLSFGNIPVFGDYGEKRRGGKKRKT HQ 110
Mus_musculus EENTVPP-EHSPPEMEICTVYLTKE-LGDTETVGLSFGNIPVFGDYGEKRRGGKKRKT HQ 110
Homo_sapiens DESTVPP-DHSPPEMEICTVYLTKE-LGDTETVGLSFGNIPVFGDYGEKRRGGKKRKT HQ 110
Pan_troglodytes DESTVPP-DHSPPEMEICTVYLTKE-LGDTETVGLSFGNIPVFGDYGEKRRGGKKRKT HQ 110
Macaca_mulatta DESTVPP-DHSPPEMEICTVYLTKE-LGDTETVGLSFGNIPVFGDYGEKRRGGKKRKT HQ 110
Callithrix_jacchus DESTVPP-DHSPPEMEICTVYLTKE-LGDTETVGLSFGNIPVFGDYGEKRRGGKKRKT HQ 110
Canis_lupus_familiaris DESVPP-DHSPPEMEICTVYLTKE-LGDTETVGLSFGNIPVFGDYGEKRRGGKKRKT HQ 110
Equus_caballus DESAVPP-DHSPPEMEICTVYLTKE-LGDTETVGLSFGNIPVFGDYGEKRRGGKKRKT HQ 110
Bos_taurus DESSIQP-DRSPPEMEICTVYLTKE-LGDAETVGLSFGNIPVFGDYGEKRRGGKKRKT HQ 110
Pavo_muticus DESKLQAGSCGALDTEICTVYLAQE-MRKTEVLGLSFGNIPALGDYGEKRRGGKKRKG HK 119
Pavo_cristatus DESKLQAGSCGALDTEICTVYLAQE-MRKTEVLGLSFGNIPALGDYGEKRRGGKKRKG HK 119
Gallus_gallus DESKLQAGSCGASDTEICTVYLAQE-MRKTEVLGLSFGNIPALGDYGEKRRGGKKRKG HK 119
Xenopus_tropicalis DESASKY-SQALDMEICTVYLTKE-LGDDGDVGLSFGNIPVFGDYGEKRRGGKKRKR VQN 111
Rhinatrema_bivittatum DESKLQ-QSKLLDMEICTAYLTKE-LIEDTEILGLRFGNIPVFGDYGEKRRSGKKRNM HN 108
.....70.....80.....90.....100.....110.....120

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*****:**:*. *.*.*::**:*:***** *****:*****
Rattus_norvegicus GPVLDVGCIIWVTELKNSPAGKSGKVRLRDEILSLNGQLMVGVDTVGSASYLAECWNGGF 170
Mus_musculus GPVLDVGCIIWVTELKNSPAGKSGKVRLRDEILSLNGQLMVGVDTVGSASYLAECWNGGF 170
Homo_sapiens GPVLDVGCIIWVTELKNSPAGKSGKVRLRDEILSLNGQLMVGVDTVGSASYLAECWNGGF 170
Pan_troglodytes GPVLDVGCIIWVTELKNSPAGKSGKVRLRDEILSLNGQLMVGVDTVGSASYLAECWNGGF 170
Macaca_mulatta GPVLDVGCIIWVTELKNSPAGKSGKVRLRDEILSLNGQLMVGVDTVGSASYLAECWNGGF 170
Callithrix_jacchus GPVLDVGCIIWVTELKNSPAGKSGKVRLRDEILSLNGQLMVGVDTVGSASYLAECWNGGF 170
Canis_lupus_familiaris GPVLDVGCIIWVTELKNSPAGKSGKVRLRDEILSLNGQLMVGVDTVGSASYLAECWNGGF 170
Equus_caballus GPVLDVGCIIWVTELKNSPAGKSGKVRLRDEILSLNGQLMVGVDTVGSASYLAECWNGGF 170
Bos_taurus GPVLDVGCIIWVTELKNSPAGKSGKVRLRDEILSLNGQLMVGVDTVGSASYLAECWNGGF 170
Pavo_muticus GPVLDVGCIIWVTDLKKNSPAGKCGRVRLKDEILSLNGQLMVGVDTVGSASYLAECWNGGF 179
Pavo_cristatus GPVLDVGCIIWVTDLKKNSPAGKCGRVRLKDEILSLNGQLMVGVDTVGSASYLAECWNGGF 179
Gallus_gallus GPVLDVGCIIWVTDLKKNSPAGKCGRVRLKDEILSLNGQLMVGVDTVGSASYLAECWNGGF 179
Xenopus_tropicalis GPVLDVGCIIWVTDLKRQSKAAKCGRMRLRDEVLSLNGQLMVGVDTVGSASYLAECWNGGF 171
Rhinatrema_bivittatum GPVLDVGCIIWVTDLKKHSPAAKCGKRLRDEVLSLNGQLMVGVDTVGSASYLADQCWNGGF 168
.....130.....140.....150.....160.....170.....180

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*****:**:*. *.*.*::**:*:***** *****:*****
Rattus_norvegicus IYLIIMLRRFKQKAHVT-YNG-NSGNSSEPGETPTLELGDQTSKKGKRTKRFVISRPSIS 228
Mus_musculus IYLIIMLRRFKQKAHVT-YNG-NSGNSSEPGETPTLELGDQTSKKGKRTKRFVISRPAII 228
Homo_sapiens IYLIIMLRRFKKKAHST-YNG-NSSNSSEPGETPTLELGDRTAKKGKRTKRFVISRPPAN 228
Pan_troglodytes IYLIIMLRRFKKKAHST-YNG-NSSNSSEPGETPTLELGDRTAKKGKRTKRFVISRPPAN 228
Macaca_mulatta IYLIIMLRRFKKKAHST-YNG-NSSNSSEPGETPTLELGDRTAKKGKRTKRFVISRPPAN 228
Callithrix_jacchus IYLIIMLRRFKKKAHST-YNG-NSSNSSEPGETPTLELGDRTAKKGKRTKRFVISRPPAN 228
Canis_lupus_familiaris IYLIIMLRRFKKQVSP-YNG-NGSSSTEPGETPTLELGDQTVKKGKRRKRFVISRPPTH 228
Equus_caballus IYLIIMLRRFKKQVSP-YNG-NSSNSSEPGETPTLELGDQTVKKGKRRKRFVISRPPTH 228
Bos_taurus IYLIIMLRRFKKQVSP-YNG-NSSNSSEPGETPTLELGDQTVKKGKRRKRFVISRPPTH 228
Pavo_muticus VYLIIMLRRIRKAPLPPSNG-NNSNSCDPKAKPSPEPADRAAONGKRTKRFVITR---T 235
Pavo_cristatus VYLIIMLRRIRKAPLPPSNG-NNSNSCDPKAKPSPEPADRAAONGKRTKRFVITR---T 235
Gallus_gallus VYLIIMLRRIRKAPLPPSNG-NNSNSCDPKAKPSPEPADRAAONGKRTKRFVITR---T 235
Xenopus_tropicalis IYLIIMLRRIRKAPLPPSHG-SKSSASEPKAASSHPVTRTONGKRTKRFVISR--- 226
Rhinatrema_bivittatum IYLIIMLRRIRKAPLPPHGGSSSGCEPKVHPTSEPSARTONGKRTKRFVISRFAAN 228
.....190.....200.....210.....220.....230.....240

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      :..*          :          **          ::          :
Rattus_norvegicus  KTPEDSKSSSGCDTADDPNSLENGADPELGNGHAFELENGPHSLKDVAGPHLERSEADS 288
Mus_musculus      KAPEDSKSNSGCDTADDPSSLENGTDSLENGGHAFELENGPNSLKDVAGPHLERSEADR 288
Homo_sapiens      KAPEESKGSAGCEVSSDPSTELENGPDPELGNGHVFOLENGPDSLKEVAGPHLERSEVDR 288
Pan_troglodytes   KAPEESKGSAGCEVSSDPSTELENGPDPELGNGHVFOLENGPDSLKEVAGPHLERSEVDR 288
Macaca_mulatta    KAPEESKGRIGCEVSSDPSTELENGPDPELGNGHVFOLENGPDSLKEVAGPHLERSEVDR 288
Callithrix_jacchus KAPEESKGSTSCEVSSDPSAELENGPDSELGNGHVFOLENGPDSLKEVAGPHLERSEVDR 288
Canis_lupus_familiaris KATEEPKSSAGCELENDPVSLELDNGPDPLGNGHAFELENGPESLKELAGSHLDGSEADR 288
Equus_caballus    KATEESKSSSTGCELDNDPISGLDNGPDPELGNGHAFELENGPDSLKEVAGPHVDRSEVDT 288
Bos_taurus        KATEESKSSSTGCELDHDPVSELDNGLDPELGNGHAFELENGPDLLKEVAGSHLDRSELDR 288
Pavo_muticus      PGSKESK-----EKPE--HGNGHCTPMEVEVAQPEAPEAEV 269
Pavo_cristatus    PGSKESK-----EKPE--HGNGHCTPMEVEVAQPEAPEAEV 269
Gallus_gallus     PGSKESK-----EKPE--HGNGHCTPMEVEVAQPEAPEAEV 269
Xenopus_tropicalis -TGKESK-----DSEEAQVQENGHYSPMEVDGSHSADAEALGN 261
Rhinatrema_bivittatum NDSKESK-----DGQDSVLENGYCAPMEVANLQPEALEAGD 264
.....250.....260.....270.....280.....290.....300

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      . : . : . : . : * * : * * * * : *
Rattus_norvegicus  EVELRVPKTEAPLSDSNDKRRFSKTGKTDFQSSDCLAREEVGRIWKMEILLKESDGLGIQV 348
Mus_musculus      EAELRVPKTEAPLSDSNDKRRFSKTGKTDFQSSDCLAREEVGRIWKMEILLKESDGLGIQV 348
Homo_sapiens      GTEHRIPKTDAPLTTSDNDKRRFSKGGKTDFOSSDCLAREEVGRIWKMEILLKESDGLGIQV 348
Pan_troglodytes   GTEHRIPKTDAPLTTSDNDKRRFSKGGKTDFOSSDCLAREEVGRIWKMEILLKESDGLGIQV 348
Macaca_mulatta    GTEHRIPKTDAPLTTSDNDKRRFSKGGKTDFOSSDCLAREEVGRIWKMEILLKESDGLGIQV 348
Callithrix_jacchus GTEQRNPKTDAPLTTSDNDKRRFSKGGKTDFOSSDCLAREEVGRIWKMEILLKESDGLGIQV 348
Canis_lupus_familiaris GTEPRIPKTDASLPTNNDKRRFSKSGKTDFOSSDCLAREEVGRIWKMEILLKESDGLGIQV 348
Equus_caballus    GTEHRIPKTDAPLTTSDNDKRRFSKSGKTDFOSSDCLAREEVGRIWKMEILLKESDGLGIQV 348
Bos_taurus        GTEPRIPKTDAPLTTSDNDKRRFSKSGKTDFOSSDCLAREEVGRIWKMEILLKESDGLGIQV 348
Pavo_muticus      NVEEQL-RSSR---GQHRSLSES--SVMDIADQSAQREGSRIWKMHIMKGTDLGLIQI 322
Pavo_cristatus    NVEEQL-RSSR---GQHRSLSES--SVMDIADQSAQREGSRIWKMHIMKGTDLGLIQI 322
Gallus_gallus     NVEEQL-HSTR---GQHRSLSEG--SVMDIVDQSAQREGSRIWKMHILKGTDLGLIQI 322
Xenopus_tropicalis DGDQR-TSRSSDADVQHGYPFNGDCSDSRNDHPARNEGCCIWKMHMLKGDGLGIQI 320
Rhinatrema_bivittatum HAKHQI-ESAEPSPAGGHCWSRP---SEAKESDRSAKREGCCIWKMHMVKGGRWTGNPD 319
.....310.....320.....330.....340.....350.....360

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      * . . : : * . * * * * * * * : * * : * * * * : *
Rattus_norvegicus  SGGRGSKRSPHAIVVTQVKEGGAHRDGRSLGDELLVINGHLLVGLSHEEAVAILRSAT 408
Mus_musculus      SGGRGSKRSPHAIVVTQVKEGGAHRDGRSLGDELLVINGHLLVGLSHEEAVAILRSAT 408
Homo_sapiens      SGGRGSKRSPHAIVVTQVKEGGAHRDGRSLGDELLVINGHLLVGLSHEEAVAILRSAT 408
Pan_troglodytes   SGGRGSKRSPHAIVVTQVKEGGAHRDGRSLGDELLVINGHLLVGLSHEEAVAILRSAT 408
Macaca_mulatta    SGGRGSKRSPHAIVVTQVKEGGAHRDGRSLGDELLVINGHLLVGLSHEEAVAILRSAT 408
Callithrix_jacchus SGGRGSKRSPHAIVVTQVKEGGAHRDGRSLGDELLVINGHLLVGLSHEEAVAILRSAT 408
Canis_lupus_familiaris SGGRGSKRSPHAIVVTQVKEGGAHRDGRSLGDELLVINGHLLVGLSHEEAVAILRSAT 408
Equus_caballus    SGGRGSKRSPHAIVVTQVKEGGAHRDGRSLGDELLVINGHLLVGLSHEEAVAILRSAT 408
Bos_taurus        SGGRGSKRSPHAIVVTQVKEGGAHRDGRSLGDELLVINGHLLVGLSHEEAVAILRSAT 408
Pavo_muticus      TGGRGSKRSPHSIIITHVEEGGSAHRDGRLTAGDELLMINGQSLVGLSHQDAVALLRSAA 382
Pavo_cristatus    TGGRGSKRSPHSIIITHVEEGGSAHRDGRLTAGDELLMINGQSLVGLSHQDAVALLRSAA 382
Gallus_gallus     TGGRGSKRSPHSIIVTHVEEGGSAHRDGRLTAGDELLMINGQSLVGLSHQDAVALLRSAA 382
Xenopus_tropicalis TGGRGSKRSPHGIVVAHVEEGGSADRDGRLKAGDELLMINGQSLVGLSHQDAVALLRSSM 380
Rhinatrema_bivittatum HRRPRIKEITSRHHCTRGGRRSAHRDGRLRSGDELLMVNGKSLVGLSHQDAVAVLRTAA 379
.....370.....380.....390.....400.....410.....420

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      * : * * * * * : : * : . * * * * : * * : * : * : *
Rattus_norvegicus  GMVQLVVASKESSAEDLLKLTSTKSLPDLTS--SVEDMSSWTDNEDQEAAGEDEEG--SGP 464
Mus_musculus      GMVQLVVASKESSAEDLLKLTSTKSLPDLTS--SVEDISSWTDNEDQEAARDDEEG--TGS 464
Homo_sapiens      GMVQLVVASKENSAEDLLRLTSKSLPDLTS--SVEDVSSWTDNEDQEAADGEDE--GTS 463
Pan_troglodytes   GMVQLVVASKENSAEDLLRLTSKSLPDLTS--SVEDVSSWTDNEDQEAADGEDE--GTS 463
Macaca_mulatta    GMVQLVVASKENSAEDLLRLTSKSLPDLTS--SVEDVSSWTDNEDQEAADGEDE--GTG 463
Callithrix_jacchus GMVQLVVASKESSAEDLLRLTSKSLPDLTS--SVEDVSSWTDNEDQEAADGEDE--GTG 463
Canis_lupus_familiaris GMVQLVVASKETSAEDLLRLTSKSLPDLTS--SVEDVSSWTDNEDQEPDGEED--GS 461
Equus_caballus    GMVQLVVASKESSAEDLLRLTSKSLPDLTS--SVEDVSSWTDNEDQEPDGEED--TSS 464
Bos_taurus        GVVQLVVASKENSAEDLLRLTSKSLPDLTS--STEDVSSWTDNEDQEPDEDEG--TGS 462
Pavo_muticus      GMVQLVVASKESAKGDFLKYPSTSLPDLTSTCSVQDSVSTDNKENEEPEEDVKGENVC 442
Pavo_cristatus    GMVQLVVASKESAKGDFLKYPSTSLPDLTSTCSVQDSVSTDNKENEEPEEDVKGENVC 442
Gallus_gallus     GMVQLVVASKESAEGDFLKYPSTSLPDLTSTCSVQDSISCTDNKENEEPEEDVKGENVC 442
Xenopus_tropicalis GIVQLVVASRESSNVDFKYPSTSLPDLVASSAQDVGASSDDKENEEPPYVEEGQDYGTG 440
Rhinatrema_bivittatum GLVQLVVASRDGTEVDFCKYPSSSLPDLIFSTCSSQDLSSSPDNKENEEPAADIKGCCIS 439
.....430.....440.....450.....460.....470.....480

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Rattus_norvegicus  AAVRVTMPGSEESQDVGSSEESKGN-LESPKQGNCKTKLKSRLSGGVHRLSVVEEYNELM  523
Mus_musculus      AAVRGTMGLGSEESQDVGSSEESKGNLESPKQGNCKTKLKSRLSGGVHRLSVVEEYNELM  524
Homo_sapiens      SSVQRAMPGTDEPDVCGAEEESKGN-LESPKQGNKIKLKSRLSGGVHRLSVVEEYNELM  522
Pan_troglodytes   SSVQRAMPGTDEPDVCGAEEESKGN-LESPKQGNKIKLKSRLSGGVHRLSVVEEYNELM  522
Macaca_mulatta    SSVQRAMPGTDEPDVCGAEEESKGN-LESPKQGNKIKLKSRLSGGVHRLSVVEEYNELM  522
Callithrix_jacchus SSVQRAMPGTDEPDVCGAEEESKGN-LDSPKQGNKIKLKSRLSGGVHRLSVVEEYNELM  522
Canis_lupus_familiaris SSVQGAMPGTDEPDSCGPDES KGN-LESPKQGS SKMKLKSRLSGGVHRLSVVEEYNELM  520
Equus_caballus     SSIQGAMPGTTEEPQDVCGPEDSKGN-LESPKQGS SKMKLKSRLSGGVHRLSVVEEYNELM  523
Bos_taurus         SSIQSAMPGTTEEPHDACGPESKGN-LESPKQGS SKMKLKSRLSGGVHRLSVVEEYNELM  521
Pavo_muticus       PETLVAVMETEKSQDTASAEVSKGN-NQSPALGSGILKYRSRSQAGASRLSVGEDDELM  501
Pavo_cristatus     PETLVAVMETEKSQDTASAEVSKGN-NQSPALGSGILKYRSRSQAGASRLSVGEDDELM  501
Gallus_gallus      PETLVAVMETEKSQDAASAEVSKGN-NQSPALGSGILKYRSRSQAGASRLSVGEDDELM  501
Xenopus_tropicalis PSHQAAESETDKFQEKGSSEVPKGV-CRSP T L G N S L L K Y R S R S Q G S G S R L S V G E D D E L T  499
Rhinatrema_bivittatum SQDQGA VTEEDKCDRGCAEGTRGP-CRSP T L G N S F M K Y R S R S Q G G A S R L S V G E D D E L T  498
.....490.....500.....510.....520.....530.....540

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: :*:      : **      ***** *: *      .: *:*:*:*:*:*:*:*:*:*:*:*:*:*:*:*
Rattus_norvegicus  VRNGDP-RIRMLEVS RDGRKHSLPQLLDSTGTSTQ EYHIVKKSTRSLSTTHVESPWRLIRP  582
Mus_musculus      VRNGDP-RIRMLEVS RDGRKHSLPQLLDSTGTSTQ EYHIVKKSTRSLSTTHVESPWRLIRP  583
Homo_sapiens      VRNGDP-RIRMLEVS RDGRKHSLPQLLDSSSASQ EYHIVKKSTRSLSTTQVESPWRLIRP  581
Pan_troglodytes   VRNGDP-RIRMLEVS RDGRKHSLPQLLDSSSASQ EYHIVKKSTRSLSTTQVESPWRLIRP  581
Macaca_mulatta    VRNGDP-RIRMLEVS RDGRKHSLPQLLDSSSASQ EYHIVKKSTRSLSTTQVESPWRLIRP  581
Callithrix_jacchus VRNGDP-RIRMLEVS RDGRKHSLPQLLDSSSASQ EYHIVKKSTRSLSTTQVESPWRLIRP  581
Canis_lupus_familiaris LRNGDP-RVRMLEVS RDGRKHSLPQLLDSTGTSTQ EYHIVKKSTRSLSTTQVESPWRLIRP  579
Equus_caballus     VRNGDP-RARMLEVS RDGRKHSLPQLLDSSGAAQ EYHIVKKSTRSLSATQVESPWRLIRP  582
Bos_taurus        VRHGDP-RARMLEVS RDGRKHSLPQLLDSTGTSTQ EYHIVKKSTRSLSTTQVESPWRLIRP  580
Pavo_muticus       VENGESSYEIAVKYSRGG RKHSLPQQLSAGSRQ EYHIVKKSTRSFSAAQVESPWRLTOP  561
Pavo_cristatus     VENGESSYEIAVKYSRGG RKHSLPQQLSAGSRQ EYHIVKKSTRSFSAAQVESPWRLTOP  561
Gallus_gallus      VENGESSYEIAVKYSRGG RKHSLPQQLSAGARQ EYHIVKKSTRSFSAAQVESPWRLTOP  561
Xenopus_tropicalis VANGDLYRDNDGKISRGG RKHSLPQQLDSVGSRODYNIVKKTTSLSTVQVESPWRLAQP  559
Rhinatrema_bivittatum VENGDPICDLPEKFSRGWRKHSLPQQLDSAGARQ EYHII RKTTRSLSTANVESPWRLAQP  558
.....550.....560.....570.....580.....590.....600

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*:*:* * * * :*****.*:*.* **:******.*:*:* *****.*:*:*
Rattus_norvegicus  SVISIIGLYKEKGKGLGFSIAGGRDCIRGQMGIFVKTIFFPNGSAAEDGRLKEGDEILDVN  642
Mus_musculus      SVISIIGLYKEKGKGLGFSIAGGRDCVRGQMGIFVKTIFFPNGSAAEDGRLKEGDEILDVN  643
Homo_sapiens      SVISIIGLYKEKGKGLGFSIAGGRDCIRGQMGIFVKTIFFPNGSAAEDGRLKEGDEILDVN  641
Pan_troglodytes   SVISIIGLYKEKGKGLGFSIAGGRDCIRGQMGIFVKTIFFPNGSAAEDGRLKEGDEILDVN  641
Macaca_mulatta    SVISIIGLYKEKGKGLGFSIAGGRDCIRGQMGIFVKTIFFPNGSAAEDGRLKEGDEILDVN  641
Callithrix_jacchus SVISIIGLYKEKGKGLGFSIAGGRDCIRGQMGIFVKTIFFPNGSAAEDGRLKEGDEILDVN  641
Canis_lupus_familiaris SVISIIGLYKEKGKGLGFSIAGGRDCIRGQMGIFVKTIFFPNGSAAEDGRLKEGDEILDVN  639
Equus_caballus     SVISIIGLYKEKGKGLGFSIAGGRDCIRGQMGIFVKTIFFPNGSAAEDGRLKEGDEILDVN  642
Bos_taurus        SVISIIGLYKEKGKGLGFSIAGGRDCIRGQMGIFVKTIFFPNGSAAEDGRLKEGDEILDVN  640
Pavo_muticus       SIISNIVLMKQGKGKGLGFSIVGGQDSARGRMGIFVKTIFFPNGAAAADGRLKEGDEILEVN  621
Pavo_cristatus     SIISNIVLMKQGKGKGLGFSIVGGQDSARGRMGIFVKTIFFPNGAAAADGRLKEGDEILEVN  621
Gallus_gallus      SIISNIVLMKQGKGKGLGFSIVGGQDSARGRMGIFVKTIFFPNGAAAADGRLKEGDEILEVN  621
Xenopus_tropicalis SIISNIVLMKQGKGKGLGFSIVGGQDSARGRMGIFVKTIFFSNGAAAADGRLKEGDEILEVN  619
Rhinatrema_bivittatum SIISNIVLMKQGKGKGLGFSIVGGQDSARGRMGIFVKTIFFSHGAAAADGRLKEGDEILLEVN  618
.....610.....620.....630.....640.....650.....660

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* .:***.*****: ***:: *:.*****:* *****.*** :***:*.. * *
Rattus_norvegicus  GIPIKGLTFQEAHTFKQIRSGLFVLTVRTKLLSPSLTPCSTPTHMSRSSSPFNNTSSGG  702
Mus_musculus      GIPIKGLTFQEAHTFKQIRSGLFVLTVRTKLLSPSLTPCSTPTHMSRSSSPFNNTSSGG  702
Homo_sapiens      GIPIKGLTFQEAHTFKQIRSGLFVLTVRTKLVSPSLTPCSTPTHMSRSASPNFNTSSGG  700
Pan_troglodytes   GIPIKGLTFQEAHTFKQIRSGLFVLTVRTKLVSPSLTPCSTPTHMSRSASPNFNTSSGG  700
Macaca_mulatta    GIPIKGLTFQEAHTFKQIRSGLFVLTVRTKLVSPSLTPCSTPTHMSRSASPNFNTSSGG  700
Callithrix_jacchus GIPIKGLTFQEAHTFKQIRSGLFVLTVRTKLVSPSLTPCSTPTHMSRSASPNFNTSSAG  700
Canis_lupus_familiaris GIPIKGLTFQEAHTFKQIRSGLFVLTVRTKLLSPSLTPCSTPTHMSRSSSPFNNTSSGG  698
Equus_caballus     GIPIKGLTFQEAHTFKQIRSGLFVLTVRTKLLSPSLTPCSTPTHMSRSSSPFNNTSSGG  701
Bos_taurus        GIPIKGLTFQEAHTFKQIRSGLFVLTVRTKLLSPSLTPCSTPTHMSRSSSPFNNTSSGG  699
Pavo_muticus       GESLQGLTHQEAIRFKQLKKGVVTLTVRTRLRSPSLTPCATPTLLSRSSSPSSSASSGG  680
Pavo_cristatus     GESLQGLTHQEAIRFKQLKKGVVTLTVRTRLRSPSLTPCATPTLLSRSSSPSSSASSGG  680
Gallus_gallus      GESLQGLTHQEAIRFKQLKKGVVTLTVRTRLRSPSLTPCATPTLLSRSSSPSSSASSGG  680
Xenopus_tropicalis GESLQGLTHQEAIRFKQLKKGVVTLTVRTRLRSPSLTPCATPTMMSRSSSPNSNISLG  678
Rhinatrema_bivittatum GESLQGLTHQEAIRFKQLRGGVVTLTVRTRLRSPSLTPCATPTLMRSSSPNSNISNVSSGG  677
.....670.....680.....690.....700.....710.....720

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	:	*	:	..	:	:	*	:	*****:	*:	*****	*****	***:	****:	*****																																															
Rattus_norvegicus	T	P	A	G	G	G	Q	E	E	G	S	S	S	L	G	R	K	A	P	G	P	K	D	R	I	V	M	E	V	T	L	N	K	E	P	R	V	G	L	G	I	G	A	C	C	L	A	L	E	N	S	P	P	G	I	Y	I	H	S	762		
Mus_musculus	A	P	A	G	G	G	Q	E	E	G	S	S	S	A	S	L	G	R	K	A	P	G	P	K	D	R	I	V	M	E	V	T	L	N	K	E	P	R	V	G	L	G	I	G	A	C	C	L	A	L	E	N	S	P	P	G	I	Y	I	H	S	762
Homo_sapiens	A	S	A	G	G	-	S	D	E	G	S	S	S	S	L	G	R	K	T	P	G	P	K	D	R	I	V	M	E	V	T	L	N	K	E	P	R	V	G	L	G	I	G	A	C	C	L	A	L	E	N	S	P	P	G	I	Y	I	H	S	759	
Pan_troglodytes	A	S	A	G	G	-	S	D	E	G	S	S	S	S	L	G	R	K	T	P	G	P	K	D	R	I	V	M	E	V	T	L	N	K	E	P	R	V	G	L	G	I	G	A	C	C	L	A	L	E	N	S	P	P	G	I	Y	I	H	S	759	
Macaca_mulatta	A	S	A	G	G	-	S	D	E	G	S	T	S	S	L	G	R	K	T	P	G	P	K	D	R	I	V	M	E	V	T	L	N	K	E	P	R	V	G	L	G	I	G	A	C	C	L	A	L	E	N	S	P	P	G	I	Y	I	H	S	759	
Callithrix_jacchus	A	S	A	G	G	-	S	D	E	S	S	S	S	S	L	G	R	K	T	P	G	P	K	D	R	I	V	M	E	V	T	L	N	K	E	P	R	V	G	L	G	I	G	A	C	C	L	A	L	E	N	S	P	P	G	I	Y	I	H	S	759	
Canis_lupus_familiaris	S	S	A	T	G	-	S	D	E	G	S	S	S	S	L	G	R	K	A	P	G	P	K	D	R	I	V	M	E	V	T	L	N	K	E	P	R	V	G	L	G	I	G	A	C	C	L	A	L	E	N	S	P	P	G	I	Y	I	H	S	757	
Equus_caballus	T	C	A	G	G	-	S	D	E	G	S	A	S	S	L	G	R	K	A	P	G	P	K	D	R	I	V	M	E	V	T	L	N	K	E	P	R	V	G	L	G	I	G	A	C	C	L	A	L	E	N	S	P	P	G	I	Y	I	H	S	760	
Bos_taurus	T	S	A	G	G	-	S	D	E	G	S	-	S	S	L	G	R	K	A	P	G	P	K	D	R	I	V	M	E	V	T	L	N	K	E	P	R	V	G	L	G	I	G	A	C	C	L	A	L	E	N	S	P	P	G	I	Y	I	H	S	757	
Pavo_muticus	T	P	V	P	G	-	P	D	E	A	D	G	S	F	S	S	R	K	G	P	G	P	K	D	R	I	V	M	D	V	T	L	N	K	E	P	G	V	G	L	G	I	G	A	C	C	L	T	L	E	N	S	P	G	I	Y	I	H	S	739		
Pavo_cristatus	T	P	V	P	G	-	P	D	E	A	D	G	S	F	S	S	R	K	G	P	G	P	K	D	R	I	V	M	D	V	T	L	N	K	E	P	G	V	G	L	G	I	G	A	C	C	L	T	L	E	N	S	P	G	I	Y	I	H	S	739		
Gallus_gallus	T	P	V	P	G	-	P	D	E	A	D	G	S	F	S	S	R	K	G	P	G	P	K	D	R	I	V	M	D	V	T	L	N	K	E	P	G	V	G	L	G	I	G	A	C	C	L	T	L	E	N	S	P	G	I	Y	I	H	S	739		
Xenopus_tropicalis	T	S	M	P	G	-	S	E	D	G	D	S	T	S	G	S	R	K	G	P																																										

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Rattus_norvegicus	LAPGSVAKMESNLSRGDQILEVNSVNVRAAALSKVHAILSKCPPGPVRLVIGRHPNPKVS	822
Mus_musculus	LAPGSVAKMESNLSRGDQILEVNSVNVRAAALSKVHAILSKCPPGPVRLVIGRHPNPKVS	822
Homo_sapiens	LAPGSVAKMESNLSRGDQILEVNSVNVRAAALSKVHAILSKCPPGPVRLVIGRHPNPKVS	819
Pan_troglodytes	LAPGSVAKMESNLSRGDQILEVNSVNVRAAALSKVHAILSKCPPGPVRLVIGRHPNPKVS	819
Macaca_mulatta	LAPGSVAKMESNLSRGDQILEVNSVNVRAAALSKVHAILSKCPPGPVRLVIGRHPNPKVS	819
Callithrix_jacchus	LAPGSVAKMESNLSRGDQILEVNSVNVRAAALSKVHAILSKCPPGPVRLVIGRHPNPKVS	819
Canis_lupus_familiaris	LAPGSVAKMESNLSRGDQILEVNSVNVRAAALSKVHTILSKCPPGPVRLVIGRHPNPKVS	817
Equus_caballus	LAPGSVAKMESNLSRGDQILEVNSVNVRAAALSKVHAILSKCPPGPVRLVIGRHPNPKVS	820
Bos_taurus	LAPGSVAKMESNLSRGDQILEVNSVNVRAAALSKVHSILSKCPPGPVRLVIGRHPNPKVS	817
Pavo_muticus	LAPGSVAKMDGRLSRGDQILEADSVSLRHAALSEAYAILSECGPVPVSLIISRHPNPKVS	799
Pavo_cristatus	LAPGSVAKMDGRLSRGDQILEADSVSLRHAALSEAYAILSECGPVPVSLIISRHPNPKVS	799
Gallus_gallus	LAPGSVAKMDGRLSRGDQILEADSVSLRHAALSEAYAILSECGPVPVSLIISRHPNPKVS	799
Xenopus_tropicalis	LAPGSVAKMDGRLSRGDQILEADSVSLRHAALSEAYAILSECGPVPVSLIISRHPNPKVS	797
Rhinatrema_bivittatum	LAPGSVAKMDGRLSRGDQILEADSVSLRHAALSEAYAILSECGPVPVSLIISRHPNPKVS	796
790.....800.....810.....820.....830.....840	

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Rattus_norvegicus	EQEMDEV	IARSTYQES	REANSS	PGLGTPLK	SPTS	---	LAK 858
Mus_musculus	EQEMDEV	IARSTYQES	KEANSS	PSLGTPLK	SPTS	---	LAK 858
Homo_sapiens	EQEMDEV	IARSTYQES	KEANSS	PGLGTPLK	SPTS	---	LAK 855
Pan_troglodytes	EQEMDEV	IARSTYQES	KEATSS	PGLGTPLK	SPTS	---	LAK 855
Macaca_mulatta	EQEMDEV	IARSTYQES	KEANSS	PGLGTPLK	SPTS	---	LAK 855
Callithrix_jacchus	EQEMDEV	IARSTYQES	KEANSS	PGLGTPLK	SPTS	---	LAK 855
Canis_lupus_familiaris	EQEMDLV	IARSTYQES	KEASSS	PGSGTPLK	SPTS	---	LAK 853
Equus_caballus	EQEMDEV	IARSTYQES	KEANSS	PGLGTPLK	SPTS	---	LAK 856
Bos_taurus	EQEMDEV	IARSTYQES	KEASSS	PGLGTPLK	SPTS	---	FAK 853
Pavo_muticus	EQEMDEA	IARTTTHRES	KDAGSS	HVSGAVQK	TPSPGVKTKOGETSS	PLSWIMKRFLEPASR	859
Pavo_cristatus	EQEMDEA	IARTTTHRES	KDAGSS	HVSGAVQK	TPSPGVKTKOGETSS	PLSWIMKRFLEPASR	859
Gallus_gallus	EQEMDEA	IARTTTHRES	KDTGSS	HVSGAVQK	TPSPGMKTKOGETSS	PLSWIMKRFLEPASR	859
Xenopus_tropicalis	EQEMDEV	ITRTTHRES	KD--SFHSMGLHLK	SPSPACKPKHGDGPT	SLSWIMKRFLEPASR		855
Rhinatrema_bivittatum	EQEMDEA	ISRTTHRES	KDAISPHVLGIPFKS	SPSPTVKPRNGS	ASLSWIMKRFLEPASR		856
850860870880890900	

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Rattus_norvegicus	KDSLSESELQYFVHDG--QGSLSDFVVGSEDED--HPGSGYETSEDGSLLPVPSAH-	913		
Mus_musculus	KDSLSESELQYFVHDG--QGSLSDFVVGSEDED--HPGSGYETSEDGSLLTVPSPAYR	914		
Homo_sapiens	KDSLISESELQYFAHDV--PGPLSDFMVAGSEDED--HPGSGCSTSEEGSLPPSTSTHK	911		
Pan_troglodytes	KDSLISESELQYFAHDV--PGPLSDFMVAGSEDED--HPGSGCSTSEEGSLPPSTSTHK	911		
Macaca_mulatta	KDSLISESELQYFAHDV--PGPLSDFMVAGSEDED--HPGSGCSTSEEGSLPPSTSTHK	911		
Callithrix_jacchus	KDSLISESELQYFVHDV--PGPLSDFMVAGSEDED--HPGSGCSTSEDGSLPPSTSTHK	911		
Canis_lupus_familiaris	KDALITEAEASHYFAHGV--PGSLSDFVVGSEDED--PPGGCGASEDGLPPSTPAPR	909		
Equus_caballus	KDSLISESELQYFAQDV--PGPLSDFVVGSEDED--HPGSGVC-----STSTHK	902		
Bos_taurus	KDSLISESELQYFAHDA--PGPLSDFMVAGSEDED--PPGSGGSSS-SVEPPSTSPAHK	908		
Pavo_muticus	QGSVSSEAELSQYFSDGTSHIPFSDAVT-GSCDEEQLRQKNRSSLLDDSSLLPAPREAG	918		
Pavo_cristatus	QGSVSSEAELSQYFSDGTSHIPFSDAVT-GSCDEEQLRQKNRSSLLDDSSLLPAPREAG	918		
Gallus_gallus	QGSVSSEAELSQYFSDGTSHIPFSDAVT-GSCDEEQLRQKNRSSLLDDSSLLPAPREAG	918		
Xenopus_tropicalis	QGSVSSEAELSQYFSQDAPSHSSFSDTVATGSDDEEQLRPASGNSLLDDNSAPPCAANAK	915		
Rhinatrema_bivittatum	QGSLSSETELSPYFSQDVPSQS-FSGPVTIGSTDEEQLCQKSSNNSFDDSVIPHSPTAE	915		
910.....920.....930.....940.....950.....960			

CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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      . :          : : : * * . : * : * : * :
Rattus_norvegicus  --KARANSLVTLGSG-RTSGLLHKQVTVARQASLPGSPQVLRNPLLRQRRVRCYDSNGG  969
Mus_musculus      ETGKARANSVLTGSG-RGSGLLHKQVTVARQASLPGSPQVLRNPLLRQRRVRCYDSNDG  973
Homo_sapiens      EPGKPRANSVLTGSG-RASGLFHKQVTVARQASLPGSPQALRNPLLRQRRVRCYDANDA  970
Pan_troglodytes   EPGKPRANSVLTGSG-RASGLFHKQVTVARQASLPGSPQALRNPLLRQRRVRCYDANDA  970
Macaca_mulatta    EPGKARANSVLTGSG-RASGLFHKQVTVARQASLPGSPQALRNPLLRQRRVRCYDANDA  970
Callithrix_jacchus EPGKARANSVLTGSG-RTSGLFHKQVTVARQASLPGSPQALRNPLLRQRRVRCYDANDA  970
Canis_lupus_familiaris EPGKPRANSVSLGSG-RSSGLFHKQVTIARQASLPGSPQALRNPLLRQRRVRCYDTTDA  968
Equus_caballus    EPGKARANSVSLGSG-RVSGLFHKQVAVARQASLPGSPQVLRNPLLRQRRVRC-DANDA  960
Bos_taurus        EPGKARANSVSLGSG-RASGLFHKQVTIARQASLPGSPQVLRNPLLRQRRVRC-SDDDA  966
Pavo_muticus      LTKANGLASSTSGRSS----CLHNKHVESVRPGILSDSPKSARSPPHRRQRRVVFYDGDAS  974
Pavo_cristatus    LTKANGLASSTSGRSS----CLHNKHVESVRPGILSDSPKSARSPPHRRQRRVVFYDGDAS  974
Gallus_gallus     LAKANGLSSSTSGRSS----CLHNKHVESVRPGILSDSPKSARSPPHRRQRRVVFYDGDAS  974
Xenopus_tropicalis ECGAKAECIPASHRNGNIPSPCNKHIVSTRQSSLNSSPQSIKSPSLRQRRIVSYEDDGD  975
Rhinatrema_bivittatum EAGATKVGSGIASLG-----PVNNDVECSROVSLNGSTKSIKSPSLRQRRRIICYDDDAS  968
      .....970.....980.....990.....1000.....1010.....1020

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      . :          : : : * * . : * : * :
Rattus_norvegicus  SDEEDFDGEGDCISLPGVLPGPGRPLVEDDTRPALTTSSKSIDVNKQERLQKPLVSKAC  1029
Mus_musculus      SDEEDFDGEGDCVSLPGVLPGPGRPLVDDTRFALATSSKSIDVNKQERLQKPLVSKAC  1033
Homo_sapiens      SDEEEFDREGDCISLPGALPGPIRPLSEDDPRRVSISSSKGMDVHNQERPRKTLVSKAI  1030
Pan_troglodytes   SDEEEFDREADCISLPGALPGPIRPLSEDDPRRVSISSSKGMDVHNQERPRKTLVSKAV  1030
Macaca_mulatta    SDEEEFDGEGDCISLPGALPAPSRPLAEDNSRCVLISSSKGVDVHNQERPRKTLVSKAI  1030
Callithrix_jacchus SDEEEFDGEGDCISLPGALLDPSRPLAEDDSRCVLISS-KGVDINNQEERPKTLVSKAV  1029
Canis_lupus_familiaris SDEEEFDGEGDCISLPGTLGSPSRPLTEDSSRHVMTSSKATGLNNGEHPKTMVSKAS  1028
Equus_caballus    SDEEELDSEGDICISLPGTLGSPSRPLTEGDSRHVLTSSKVTAINNQEERPKTLVSKAF  1020
Bos_taurus        SDEEEFDGEGDCISLPGTLGSPSRPLTEDNSTHVSTASSKVITGLN-REEHPKTLVSKAS  1025
Pavo_muticus      DDDE-----SSHLQRSQRAKSQEDAGIVITTSSVETDDEIQDSNSS-RYVGTET  1022
Pavo_cristatus    DDDE-----SSHLQRSQRAKSQEDAGIVITTSSVETDDEIQDSNSS-RYVGTET  1022
Gallus_gallus     DDDE-----SSHLQRSQRAKSQEDAGIVITTSSVEADDEIQDSNSA-RHIGTET  1022
Xenopus_tropicalis SEDGDISRK-D-----EGNYKDHLLKNAEDSGIVMST--LDVDEEIPDHNLV-VKCASEA  1027
Rhinatrema_bivittatum DDEDFVKQE-DNLCCQLGPRNMIERNIDKDSGIIITSSIEVDDESQSELP-RIISSEM  1026
      .....1030.....1040.....1050.....1060.....1070.....1080

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      . . . : * : . :          : : * : * :
Rattus_norvegicus  SVPLLGSSLDSEHSILNGTGGTPPKVASLPGSGETPKNGPRGSGRKEMSG----SRSSPK  1085
Mus_musculus      SVPLLGSSLDSEHSIHGGTAGTPPKAASLPGSVETPKNGPGGSRRKEMSG----SRSSPK  1089
Homo_sapiens      SAPLLGSSVDLEESIEPEGMVDAASYAANLTDASAEAPKGPSGSGWKKELSG----SSAPK  1086
Pan_troglodytes   SAPLLGSSVDLEESIEPEGMVDAASYAANLTDASAEAPKGPSGSGWKKELSG----SSAPK  1086
Macaca_mulatta    SAPLLGSSVDLEESIEPEGMVTPSHAANLTASAEAPKGPSGSGWKKELTG----SSAPK  1086
Callithrix_jacchus SAPLLGSSVDLQESVPEGMGTPSQAAKLTDSAEAPKGPSGSGWKKELPG----SSAPK  1085
Canis_lupus_familiaris SVPLFGSSLSLEERVPEGVGDTPSRAAHLTASAEAAKGGSGCPRRKELSG----SRSSPK  1084
Equus_caballus    SAPLLGSSMDLEESVSGGMVTPSHAANLLASAEAPKGGPGCLGRKELSG----SRSSPK  1076
Bos_taurus        SVPLLGSSLDLQESLPGGVDRPLSHAASLLVPSAEAPKGPSGSGRKELSG----SRSSPK  1081
Pavo_muticus      SSPVFSSSVESADS-TPEQIDSPFFPIIAFDYSSVPEVRLSSLSLRELREAQLESKRSPR  1081
Pavo_cristatus    SSPVFSSSVESADS-TPEQIDSPFFPIIAFDYSSVPEVRLSSLSLRELREAQLESKRSPR  1081
Gallus_gallus     SSPVFSSSVESVDS-TPEQIDSPFFPIIAFDYSSVPEVRLSSLSLRELREAQLESKRSPR  1081
Xenopus_tropicalis GTSLCGSSSVESSEDSSVEHMDVSPFFAIKSFYDSAKADARPCSLALKEPTEGPIENKRSPK  1087
Rhinatrema_bivittatum ATPSFGSSSVESEDSALEQIMIDSPFFPIKQFDCSGTNEVHPTSLDVRHREGQLEVKRSPK  1086
      .....1090.....1100.....1110.....1120.....1130.....1140

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      * * . : : :          : : * : * :
Rattus_norvegicus  LEYRVPTDTQSPRSPENHTSPPOKSENLSRHKPVARISPHYKRSDAEEAPG-----  1137
Mus_musculus      LEYRVPADTQSPRSPENGTSPPOKTENLSRHKPVARISPHYKRSDAEEAPS-----  1141
Homo_sapiens      LEYTVRTDTQSPNTGSPSSPOQKSEGLSRHRPVARVSPHCKRSEAEAKPSGSG--TVN  1144
Pan_troglodytes   LEYTVHTDTQSLTNTGSPSSPOQKSEGLSRHRPVARVSPHCKRSEAEAKPSGSG--AVN  1144
Macaca_mulatta    LEYTVHTDTQSPMNTGSPGSPQKQKAGLSRHRPVARVSPHCKRSEAEARPSGSE--TVN  1144
Callithrix_jacchus LEYTVHTDTQSPMNTGSPSSPOQKNEGLSSKHPRVARVSPQCKRSEAEVRPSGSE--AVN  1143
Canis_lupus_familiaris LECKADTSTQCLVNTDTPRLPQKNDNLGSRHKPVARVSPHHRKPEADARPSNPE--TAD  1142
Equus_caballus    LEYKAGTGAQSLVSAERPSSPOQKNDNLGSRHKPVARVSPHHRKPEAEARPSNPE--TVN  1134
Bos_taurus        LECRAGTGTQGPASTDSPSSLOQ--NDSLGRHKPVARVSPHHRKPEAEARPSAE--SAQ  1138
Pavo_muticus      LEHRAVTRVKSMMSSTECRSLQRORTEHGSYNKPVARMLPHSKKCEAPDGAGQCGEIVT  1141
Pavo_cristatus    LEHRAVTRVKSMMSSTECRSLQRORTEHGSYNKPVARMLPHSKKCEAPDGAGQCGEIVT  1141
Gallus_gallus     LEHRAVTRVKSMMSSTECRSLQRORTEHGSYNKPVARMLPHSKKCEAPDGAGQCGEIVT  1141
Xenopus_tropicalis LEHKAVTRVKSMMSIEYPSPPKPAEESCLPSKPTKPLPLVKK-PEGSEHSGKCITDTVQ  1146
Rhinatrema_bivittatum LEHKAVTRVKSMMSIEGPSLPKQKNEDCCSNKPIITRPLHSHKKEEVESAGLNTLETFTN  1146
      .....1150.....1160.....1170.....1180.....1190.....1200

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CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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Rattus_norvegicus  --GTANGPCAQDLKVOASPVKDPVTGRQPGGTAEKELQGNPTPGDSSVPTNCGPASTPCH 1195
Mus_musculus      --ETANGPCAQDLKVOASSVKDPVAGHQPGGTAEKELRGNPTPGDSSVPTNCGPASTPCH 1199
Homo_sapiens      LTGRANDPCDLDLRSVQATSVKVTVAGFQPGGAVEKESLGKLTGDAVCVSTSCELASALSH 1204
Pan_troglodytes   LTGRANDPCDLDLRSVQATSVKVTVAGFQPGGAVEKESLGKLTGDAVCVSTSCALASALSH 1204
Macaca_mulatta    LTGRANDPCDLDLRSVQATSVKVTVAGFQPGGAVEKESLGKLTGDAVCVPTNCELASALSH 1204
Callithrix_jacchus LTGRANDPRDLDESVQATSIKVTVTGFRPGGAVEKESLGKLTGDDGVVPADCEPASALS 1203
Canis_lupus_familiaris LTDGADDP-----VQATPVKEIRTFQPGGTAEKESLGKLTVQEGHVPATWGPASAPPH 1197
Equus_caballus    LTDGASDPCDQDLEVOAASVNVTVPGLGPGGTAEKESLGKLTIEDGRVPTNWGPTSAALPH 1194
Bos_taurus        LTDGASDPRGADLKVDSSIQVTVTGYPGGTVEKESLDKPSVGDGRVPTWGPAGGALPH 1198
Pavo_muticus      LVRNEHESFGLDLEIQAMPLKVVVTGLRPGGAAERGS MGKMTVGDEITTTINSIPVSKMTY 1201
Pavo_cristatus    LVRNEHESFGLDLEIQAMPLKVVVTGLRPGGAAERGS MGKMTVGDEITTTINSIPVSKMTY 1201
Gallus_gallus     LVRNEHESFGLDLEIQAMPLKVVVTGLRPGGAAERGS MGKMTVGDEITTTINSIPVSKMTY 1201
Xenopus_tropicalis LFCSEYESVGLDLEIKESPLSVIITGLRPAKEGKDSVGKLAAGDEIISINGIQVSEMSY 1206
Rhinatrema_bivittatum LTRTEDESFGDLLEIKTSPLRVLITGLQPGGAAERESMGKLAAGDEIVSINGTVPVSGMTH 1206
      .....1210.....1220.....1230.....1240.....1250.....1260

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      :      :      :      :      :      :      :      :      :      :
Rattus_norvegicus  PNTGLPTENPQGAAPCEVPHPGTGWGSSSEHLCSPGKSREVPDSSSETPTVAEQVHQPES 1255
Mus_musculus      PNTGLPTENPQGAAPCEGPHPGTGWGSSSDHPPSPGKSREVRPDSSSETPAVTEQVLQPES 1259
Homo_sapiens      LDASHLTENLPKAASELGQOPMTELDSSSDLISSPGKKGAAPDPSPKTSVDTGQVSRPEN 1264
Pan_troglodytes   PDASHLTENLPKAASELGQOPMTELDSSSDLISSPGKKGAAPDPSPKTSVDTGQVSRPEN 1264
Macaca_mulatta    PDTSHLTENLPEAAPELGQOPMTGLDSSSDLISSPGKKGAAPDPSPKTSVDTGQVSRPEN 1264
Callithrix_jacchus PDASHLTENLPKAAPEPGQQLMTGLDSSSDLISSPGKKGTTHPDGKISVDTGQVSRPET 1263
Canis_lupus_familiaris PDAGHCTENLLGATPEPGQOPGTGLDGP-----GQKGAAPDPGEPASDTGHARRPED 1251
Equus_caballus    PDTGHLTENPPEAAPEWRQOPRMGLDGSDDLVPSPLEQKGAAPDPSPKACVDAGQVRQCED 1254
Bos_taurus        PDASHPTENPPAATS---KQPGTGPDGSPDPLSPGQKEAHPDPSPQTSVDTTEPARRPED 1255
Pavo_muticus      EEICLLMQCLPTSVTLEIQKAASAVSRFTNLILSPAVDTONQADVSSILSAEEELSAGKQ 1261
Pavo_cristatus    EEICLLMQCLPTSVTLEIQKAASAVSRFTNLILSPAVDTONQADVSSILSAEEELSAGKQ 1261
Gallus_gallus     EEICLLMQCLPTSVTLEIQKAASAVSRFTNLILSPAVDTONQADVSSILSTEEELNAGKQ 1261
Xenopus_tropicalis QQTCTDFIQCLPSSVTILGVRKPLSAVDRLSHIIMASGGDQQGPVEQVEILRQENSQCKGFP 1266
Rhinatrema_bivittatum QETCTFIENLPTAITLEMCKAVSAVDRLSIIMSSEADGSRAVAEEMNTEKSEDIILENG 1266
      .....1270.....1280.....1290.....1300.....1310.....1320

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Rattus_norvegicus  LSQPVSPRTSEPESSQGISKMKPPSORCVSPREKASTPPDSSRAWAAPGDSSP-----ST 1309
Mus_musculus      LSQPVSPGTSEPESSQGVSKMKPASQRLSPREKASALPDSSRTWAGPGDSTP-----ST 1313
Homo_sapiens      PSQPASPRVTKCKAR--SPVRLPHEGSPSPGEKAAAPPDYSKTRSASETSTPHNTRRVAA 1322
Pan_troglodytes   PSQPASPRVAKCKVR--SPVRLPHEGSPSPGEKAAAPPDYSKTRSASETSTPHNTRRVAA 1322
Macaca_mulatta    PSQASAPRVAEYKAR--SPVRLPHEGSPSLGEKAVAPPDRSKTRSASETSTPHNTRRAAF 1322
Callithrix_jacchus PSQPALPRVSEYKAR--SPVRLPHEGSHSPGEKAAAPTDCSKTRSASEASTPLNIMRAAA 1321
Canis_lupus_familiaris PGKPVSLGGSESEDR--GQARLAQEHGSSPGKT-----AAPEASSP---RRAAA 1295
Equus_caballus    PKEPVSPRVPKAEDV--PRVRPACERSTSPGKMPARTDFSKTRAAPPEASSPDTSRKVAA 1312
Bos_taurus        PGGPESPRIPKSEDS--TSPGTMAMARPDLEMR-----AAPNASSPCAARKAAT 1303
Pavo_muticus      EGGGLQSAG----- 1270
Pavo_cristatus    EGGGLQSAG----- 1270
Gallus_gallus     EGASLQNAG----- 1270
Xenopus_tropicalis HTADCS----- 1272
Rhinatrema_bivittatum KTNAAADVTTI----- 1276
      .....1330.....1340.....1350.....1360.....1370.....1380

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Rattus_norvegicus  RRIAVPMSTGAAPATAIPQASLV--QERSRGLSGPSKGLGTKELCIPKSLKDGALLED 1367
Mus_musculus      RRAAVPMSIGETRATAIPHPSLLG--QERSRDPSPGSKALETPGHCVPTSLKDRALLEET 1371
Homo_sapiens      LRGAGPGAEGMTPAGAVLPGDPLTSQEQROGAPGNHSAKALEMTGIHAPESSQEPSLLEGA 1382
Pan_troglodytes   LRGAGPGAEGMTPAGAVLPGDPLTSQEQROGAPGNHSAKALEMTGIHAPESSQEPSLLEGA 1382
Macaca_mulatta    LRGAGPGAEGVTAAGAVLPGDPLTSQEQROGAPGNHSAKALEMTGTRAPESSQEPSLLEGA 1382
Callithrix_jacchus LRGVGSGAEGATPAGAILPRDCLAYQEQROEVPGNHSAKALEITGTHVPESWEPSLLEGT 1381
Canis_lupus_familiaris HG-GGPEAEGASPASTVLARGLLASQEDTORVPGDHAKAPOTTGVLVPEAPRGSALWQDA 1354
Equus_caballus    YTEGGPETEGASSAISRLDLSQEEQEVPGNHSAKALQTTGTLSPENAREFALLKGT 1372
Bos_taurus        PRGAGPMAEGAPSTGAGLPQDLMSGEKSQERVLGHHAKAPQTSAVLAPENCQGSALPOGT 1363
Pavo_muticus      -----GGCAVERMTLPDAMTKDVORGTIK----- 1295
Pavo_cristatus    -----GGCAVERMTLPDAMTKDVORGTIK----- 1295
Gallus_gallus     -----GSCAGERMTLPDAVTKDVORGTIK----- 1295
Xenopus_tropicalis -----TPAKVTIEAGNSLTIQ----- 1288
Rhinatrema_bivittatum -----LPDLVPSPVDEITREDLLTDAVKLSHAL----- 1303
      .....1390.....1400.....1410.....1420.....1430.....1440

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                                     .**:** :: :
Rattus_norvegicus  APASGKMSHASSPSGPVATER-----TLSCSPENPVTIDIDNFIEEASEARLS-Q 1415
Mus_musculus      ASASGKLSHAG-PSVPVTTDG-----TLSCSTESPVTDIDKFGEAPEAWLS-Q 1418
Homo_sapiens       DSVSSRAPQASLSMLPSTDNNTKEACGHVSGHCCPGGSGRESPTVDIDSFIKELDASAARS 1442
Pan_troglodytes   DSVSSRAPQASLSMLPSTDNNTKEACGRVLGHCCPGGSGRSPVTIDIDSFIKELDASAATS 1442
Macaca_mulatta    DSVSSKAPQASLSLLPSTDNNTKEACGRVSGQCCPAGSGESPVTIDIDSFIKELDVSAAARS 1442
Callithrix_jacchus DSVSSRAPQTSLSLLPSTDNNTKGACGSVSGHCCPAGSGRESPTVDIDSFIKELDASAVKSP 1441
Canis_lupus_familiaris DSVSQRAPRACPARPSADKAGGACGGVSGHCCPGAGGSGPTVDIDKLLQELGAAEF--- 1411
Equus_caballus    DSVSEGAPOASPARPSPTHKAEQEGCDKELGHSCPRENGGSPVTIDIDRLIKELDASEARLQ 1432
Bos_taurus        DSGSTSAPQAGLALPSLSDKAQEACGGASGPGCPGGNGRCPVTIDIDRLLEVDPVSGARLP 1423
Pavo_muticus      -----SSRAEDCMPVTIDIDLLNOMGAPESRAS 1323
Pavo_cristatus    -----SSRAEDCMPVTIDIDLLNOMGAPESRAS 1323
Gallus_gallus     -----SSRAEDCMPVTIDIDLLNOMGAPESRAS 1323
Xenopus_tropicalis -----CLEAGNDSTVTNIDDFINELDFSGAPSC 1316
Rhinatrema_bivittatum -----HQEDHNVIPVTIDIDDFVNELNYSYEDNNY 1331
.....1450.....1460.....1470.....1480.....1490.....1500

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Rattus_norvegicus  SPQKADCRAGDTEFESQPPGGAGSSSSHHAQMVRSDDTSSPRKTGGTG-SPPPQOWALQP 1474
Mus_musculus      SPQRADCRTHQDIFESQPPGGAGGGSSHG-----KTGGTG-SPPPPQWTFQP 1465
Homo_sapiens       SSQTGDSGSGQEGSAQGHPPAGAGGGSSCRAEPVPGGQTSSPRRAWAAG-APAYPOWASQP 1501
Pan_troglodytes   SSQTGDSGSGQEGSAQGHPPAGAGGGSSCRAEPVPGGQTSSPRRTWAAG-APAHPOWASQP 1501
Macaca_mulatta    SSQTGDSGSGQEGSAQGRPPAGAGGGSSCRAEPVTGGQTSSPRRAWAAG-APPHPOWASQP 1501
Callithrix_jacchus SSQMEDSSCQEGSTQGRPAAGAGSGSSRCVPEVLGGQTSSPRRTWAAG-APSHPOWTSQP 1500
Canis_lupus_familiaris --QTGDRVQGEGRSQGQPPAGAGSGSSRPAEPGMGNLTAPARRAWAAAGQPPPPPWASQP 1469
Equus_caballus    SPQKGDQPSPEGSSQGPAAAGAGGGGSRQAEPMGNQPTLRRAWAAG-QPPHPOWASQP 1491
Bos_taurus        SPGKGDWLSREQAAG-----POLASGSPTPAPRRPGAAG-PAPPPQWAGQP 1469
Pavo_muticus      RTPSRAESPFREDETTMCCCGTDEGCP-GSEPRQVKEELLEKTINCAAN---AQGILG-L 1378
Pavo_cristatus    RTPSRAESPFREDETTMCCCGTDEGCP-GSEPRQVKEELLEKTINCAAN---AQGILG-L 1378
Gallus_gallus     RTPSRAESPFREDETTMCCCGTDEGCP-GSEPRQVKEELLEKTINCAAN---AQGVLG-L 1378
Xenopus_tropicalis DFAK--DSNTTEEMEACVAS-GQGNRVDAETEEAKTELCSSITNFDESTSQSENILA-F 1371
Rhinatrema_bivittatum QVSRVTVEPDKGENMEECMDVKEEGHSEKSSMPDAINNAVYENNTKCTLSSVHAEGIWG-F 1390
.....1510.....1520.....1530.....1540.....1550.....1560

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*****: : :: *. *..*.*.*.*:*. : *
Rattus_norvegicus  SVLDSIHDPDKHLAVNKTFLNNYSRNFSSFHEDSISLSGPGGSSSEP--SPSSMYGNAEDSS 1532
Mus_musculus      SVLDSVHPDKQLAGNKNFLNNYSRNFSSFHED-----GVSEP--SPSSMYGDAEDSS 1515
Homo_sapiens       SVLDSINPDKHFTVNKNFLSNYSRNFSSFHEDSTLSGLGDSTEP--SLSSMYGDAEDSS 1559
Pan_troglodytes   SVLDSINPDKHFTVNKNFLSNYSRNFSSFHEDSTLSGLGDSTEP--SLSSMYGDAEDSS 1559
Macaca_mulatta    SVLDSVNPDKHFTVNKNFLSNYSRNFSSFHEDSTLSGLGDSTEP--SLSSMYGDAEDSS 1559
Callithrix_jacchus SVLDSINPDKHFTVNKNFLSNYSRNFSSFHEDSTLSGLGDSTEP--SLSSMYGDAEDSS 1558
Canis_lupus_familiaris SVLDSINPDKHFTVNKNFLSNYSRNFSSFHEDSTLSGLGDSTEP--SLSSMYGDAEDSS 1527
Equus_caballus    SVLDSINPDKHFTVNKNFLSNYSRNFSSFHEDSTLSGLGDSTEP--SLSSMYGDAEDSS 1549
Bos_taurus        SVLDSINPDRHFTVNKSFSLSNYSRNLSSLHEDSTLSGLGDSTEPSVLSMYGDVEDSS 1529
Pavo_muticus      SVLDSINTGKLFVTNKNLSLNNYSRNFSSLSSEDELPAASCPEGKRSDAFPKSMYGAAEDSH 1438
Pavo_cristatus    SVLDSINTGKLFVTNKNLSLNNYSRNFSSLSSEDELPAASCPEGKRSDAFPKSMYGAAEDSH 1438
Gallus_gallus     SVLDSINTGKLFVTNKNLSLNNYSRNFSSLSSEDELPAASCPEGKRSDAFPKSMYGAAEDSH 1438
Xenopus_tropicalis SVLDSLMEKKFAVDKSCLSYSRNFSSLTEDFSLDQILSSSLD-LPISMYVTAED-- 1428
Rhinatrema_bivittatum SVLDSLNAGKIFTVNKKCLNNYCRNFSSLTETESLPLANHOENRMEDPRSMYGTAEDE 1450
.....1570.....1580.....1590.....1600.....1610.....1620

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*::*: : : : : : : : : : : : :
Rattus_norvegicus  SDPESLAEDPGAAARNNWSPLSP--ESSPKEGSSESEDERIEICSTDGCPGTF----- 1584
Mus_musculus      SDPESLVEDPRAAARNNWPAPPSH--ESSRKEGSSESEDEQIEICAPGGCPETP----- 1567
Homo_sapiens       SDPESLTEAPRASARDGWSPPRSR--VSLHKEDPSESEEEQIEICSTRGCPNPP----- 1611
Pan_troglodytes   SDPESLTEAPRASARDGWSPPCSR--VSLHKEDPSESEEEQIEICSTHGCPNPP----- 1611
Macaca_mulatta    SDPESLTEAPRASARDGWSPPRSR--VSLHKEDPSESEEEQIEICSTNGCPNPP----- 1611
Callithrix_jacchus SEPESLTEAPRASTRDSWSPPRSQ--GSLHKEDPLESEEEQIEICSTNGCPNPP----- 1610
Canis_lupus_familiaris SDPESLTDAPRAATRDNWSPPRSR--RASHKEDTTESEEEQIEICSTNGSPNPPSA---- 1581
Equus_caballus    SDPDSLSEAPRASTRDNWSPPRPH--GSHKEDTMESEEEQIEICSTNGSPNPP----- 1601
Bos_taurus        SDPESLTDAPRAPPRDSWSPPHPRPPEPSHKGDATESEEEQVEICSTDGSPDRP----- 1583
Pavo_muticus      SDADSVTET-FDSASDVLLGPCAAAN-APAVCTALESDDQIEICCNDELQKPSREQRL 1496
Pavo_cristatus    SDADSVTET-FDSASDVLLGPCAAAN-APAVCTALESDDQIEICCNDELQKPSREQRL 1496
Gallus_gallus     SDAESVTET-FDSASDVLLGPCAAAN-APAVCTVLESDDQIEICCNDELQKPSREQHL 1496
Xenopus_tropicalis SDSSEFLDSTSDMISSLQNSCMS----ELQATDSEEEQIEICCDIK--KGDGSAHQF 1481
Rhinatrema_bivittatum SDTESLLDVPSDLTSDSLQLPCLQSSSLSEKNGTDSDEEQIEICCIENNLTHTDGQPLQ 1510
.....1630.....1640.....1650.....1660.....1670.....1680

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Rattus_norvegicus      -VTAPPPPTQVALC---PVLVQQRVAVCKPVGDCICERACFVPGASRT-----S 1627
Mus_musculus           -VPAQAPAAQAGG---AVPSVQQ-TVREPVGDACEKACFMTGASNT-----C 1609
Homo_sapiens           SSPAHLPTQAAICPASAKVLSLKYSTPRESVASPREKAACLPGSYT-----S 1658
Pan_troglodytes        SSPAHLPTQAAICPASAKVLSLKYSTPRESVASPREKAACLPGSYT-----S 1658
Macaca_mulatta         SSPAHLPTQAAICPASAKVLSLKYSTPRESVASPREKAACLPASYT-----S 1658
Callithrix_jacchus     SSPAHLPTQAAVCPGPAKVLPLKYGTQSGSVAGPCEEAGLPGSCN-----P 1657
Canis_lupus_familiaris TAHAAPAPAQAAPCPVLAKVLPKHSALSOVVGNPCERASFVPGTSRL-----S 1629
Equus_caballus         STAAPVPAQAAPCPAVAKVLPLOHSALSEAVGHPRERASFVPGAACP-----S 1649
Bos_taurus             SATALAPARVAACPALATALPPKDGALSQVGAEGHTARFVPGTSTP-----P 1631
Pavo_muticus           TSVTSSSSSLAPPHHCGGKVLQTEDCA--TCGSLESSISKLGLEDSCGS---NSCPSQCS 1550
Pavo_cristatus         TSVTSSSSSLAPPHHCGGKVLQTEDCA--MCGSLESSISKLGLEDSCGS---NSCPSQCS 1550
Gallus_gallus          TSVTSSSSSLAPPHHYGGKVLQTEDCA--MCGSLESSISKLGLEDSCGSP---SSCPSQCS 1550
Xenopus_tropicalis     YDVHQLYPAATLSETP-KDLPDERCGGNTLPGFG---HYTISVDRVT-----VEN 1526
Rhinatrema_bivittatum FAMHPDHTSPPYSES--KGLQTESFAGFYSSAVNEEKHHFALEEYSSSLQNSTYHEKHEES 1568
.....1690.....1700.....1710.....1720.....1730.....1740

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Rattus_norvegicus      IPDSSQPFSSFLDVSSSEEPETWAS-----INASONHMPVCTEGIMDVTSSTSNMGD 1677
Mus_musculus           IPGSSQPFSSFLDVSSLEHETWAG-----VQTSRSHMPGCAEETLAVSSSTGSSVVD 1659
Homo_sapiens           GPDSSQPFSSLLEMSSQEHETHAD-----ISTSONHRPSCAEETTEVTSASSAMEN 1708
Pan_troglodytes        GPDSSQPFSSLLEMSSQEHETHAD-----ISTSONHRPSCAEETTEVTSASSAMEN 1708
Macaca_mulatta         GPNSSQPFSSLLEVSSQEHETHVN-----ISASONHRPSCAEETTEVTSASSAMEN 1708
Callithrix_jacchus     GPNSSQLSSLLDMSSQELETKAD-----LSTSONHRPSCAEETAEATSASSAMEK 1707
Canis_lupus_familiaris IPNASQPFSSVLVDSSQEHHER-HA-----DRIAQNPGPSCEEI-VEATGASSAVES 1677
Equus_caballus         IPNSSQPLSLLDRSSHADT-----RISONHRPSCCEEI-VEAPSASSAVEN 1694
Bos_taurus             QP----PPPLSDVSSQEAEPED-----ARVSQDHRSPSEED-----SGEA 1668
Pavo_muticus           EVSSASLCPSSSIFLPEKNILKN---SVDVPEVYTFHNGALSAEDQVGLGISNGHMKC 1606
Pavo_cristatus         EVSSASLCPSSSIFLPEKNILKN---SVDVPEVYTFHNGALSAEDQVGLGISNGHMKC 1606
Gallus_gallus          EVSSASLCPSSSIFLPEKNIVKN---SVDVPEVYTFHNGALSAEEQVGLGISNGHMKC 1606
Xenopus_tropicalis     IVNSGHPDASPTMSLLNNDSE-----LPCRSEIS-LNDYSALQVQDPMTLGVKDNSTDV 1580
Rhinatrema_bivittatum TANSPTLHPTSSVSMCLKDNKENSVDNIDRCFSELHSCQDSSAINTTEHKTGLEMHKAMNP 1628
.....1750.....1760.....1770.....1780.....1790.....1800

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Rattus_norvegicus      SQSSQMTRHCRNAPFVLGNPDMVNDLGRDLLD----EGAPK-EGAAAASVMRSVFALGAE 1732
Mus_musculus           SQPSQTTTRPCGNPPFVLNRNPDVNGLGQDLLD----EGTPD-KGADASHVMSSVYALGAE 1714
Homo_sapiens           SPLSKVARHFHSPPIILSSPNMVNGLEHDLDD----DETIN-QYETSINAAASLSSFSVD 1763
Pan_troglodytes        SPLSKVARHFHSPPIILSSPNMVNGLEHDLDD----DETIN-QYETSINAAASLSSFSVD 1763
Macaca_mulatta         SQLSKVARHFHSPPIILSSPNMVNGLEHDLDD----DETIN-QYETSINAAASLSSFSVD 1763
Callithrix_jacchus     SEPSKVARHFHSPPIILRSPHVMNGLEHDLDD----DQTLN-QYETINLTVAANLS-LSVD 1761
Canis_lupus_familiaris SQPPKTARRVHNLTVTLNLMVNGLEHEHLLG----NEIPHKKQETTTSATESRSRPFSSVD 1733
Equus_caballus         RQPSKVARHFHSPPIILSSPNMVNGLEHDLDD----DETPKKTQETNGNATENESSSSVD 1750
Bos_taurus             TQPPPGTRPIPSLGLTSPNVNGLEYDHLDD----DKAPPEKQETDVHTAENQASFRAC 1724
Pavo_muticus           CESVEEKGSLHCKKISFCSARNVSGLENNLPEKEGCHDEQRSKSESETVVDNCHNTVTC 1666
Pavo_cristatus         CESVEEKGSLHCKKISFCSARNVSGLENNLPEKEGCHDEQRSKSESETVVDNCHNTVTC 1666
Gallus_gallus          CESDEEKGSLHCKKISFCSARNVSDLENNLPEKEGCHDEQRSKSESETVVDNCHNTVTC 1666
Xenopus_tropicalis     HNVG--LVPLSEGNVYRCHLGLDLSGEN-----MSAVEETIDSHVIPSCITVD---- 1626
Rhinatrema_bivittatum NESSENENVPFHNNKISFCTDILLGKQKNEKE-----ANSKLEMVDSNVLVSSHADLDD 1683
.....1810.....1820.....1830.....1840.....1850.....1860

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Rattus_norvegicus      GPKNGEAVLADLHIAERGNLEDLLQPKTTISRRPILTWFKKEINKDSQGSHLRSTSEKEQS 1792
Mus_musculus           GPKNGEAVLANLHIAKGGNLDGLLOPKPMTISRRPIMTWFKDINKDSQGAHLQSKSEKEQP 1774
Homo_sapiens           VPKNGESVLENLHISESQDLDDLLOPKPKMIARRPIMAWFKEINKHNQGTHLRSKTEKEQP 1823
Pan_troglodytes        VPKNGESVLENLHISESQDLDDLLOPKPKMIARRPIMAWFKEINKHNQGTHLRSKTEKEQP 1823
Macaca_mulatta         VPKNGESALENLHISESQDLDDLLOPKPKMGRRPIMAWFKEINKHNQGTHLRSKTEKEQP 1823
Callithrix_jacchus     VPKNGESVLENLHISESQNLDDLLOPKPKVITRRPIMAWFKEINKHNQGTHLRSKTEKEQS 1821
Canis_lupus_familiaris VPRNGESLLANLHISESQDLDDLLOPKPKMTISRRPIMAWFKEINKHNQGTHTSQKTEKEQP 1793
Equus_caballus         VPKAGESVLANLHISESQDLDDLLOPKPKLTISRRPIMAWFKEINKHNQGTHTSQKAEKEPS 1810
Bos_taurus             VPKNGDSALGNLHISGGQGPEDLLPKPKAISRRPLMAWFREINKHNQGTHTSQKTEMEQS 1784
Pavo_muticus           LAKKETNSLSLSKTDNSHVNATSARAVS-LRSPFPRSRSKDPKANTTHDLP-GKNEKANS 1724
Pavo_cristatus         LAKKETNSLSLSKTDNSHVNATSARAVS-LRSPFPRSRSKDPKANTTHDLP-GKNEKANS 1724
Gallus_gallus          LAKKETNILSLSKTDNSHVNATSARAI-SLRSPFPRSRSKDPKANTTHDLP-GKNEKANS 1724
Xenopus_tropicalis     PSEDEKCVTRSSMEPEVCQEAESCANTNEGPITNCTVTSNV-QVKRETL-EGTTKKS 1684
Rhinatrema_bivittatum PSNNEKCNLINFYNTDRHEVAIPLONTVLTPTKTPQLTKSSEVNKTNIPNLH-DKNESMST 1742
.....1870.....1880.....1890.....1900.....1910.....1920

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Rattus_norvegicus  SMLALGPGSKANMVNTGHRKGVTVPKSPPSRQKSQENKDLPPKSPVETLG-NCOKPKCSP 1851
Mus_musculus      SMLAMSPGSKGNTVNPISHRKGMAVPKSPPPRQKSQENKDLSPKSPVETLS-NCOKPKGSP 1833
Homo_sapiens      LMPARSPDSKIQMVSSSQKKGVTVPHPSPQPKTNLENKDLSSKSPAEMLLTNGOKAKCGP 1883
Pan_troglodytes   LMPARSPDSKIQMVSSSQKKGVTVPHPSPQPKTNLENKDLSSKSPAEMLLTNGOKAKCGP 1883
Macaca_mulatta    LMAVRSPDSKIQIVSSSQKKGVAVPPSPQPKTNLENKDLSSKSPAEMLLTNGOKPKCGP 1883
Callithrix_jacchus LMPAGSPHSKIQMASSSQKKGVAVPPSPPPKTNLENKDLSSKSPAENVLLTNGOKPKYGP 1881
Canis_lupus_familiaris VVPARSPDSKGOVSGSNHRKGVAGPQSPLOPKVSLNKDPPKKGAVETLVNNGOKPKSGP 1853
Equus_caballus    MVPARSPDSKSPVLSSSHKKGVAVPNSPQLKLNLENKDSPKKSSVETLLNNCOKPKSGP 1870
Bos_taurus        TLLARSPDPKAQVLSSSHKKGVPVPDSP-PPRLNLENKDLPRKSSVETLLSNOCOKPKAGP 1843
Pavo_muticus      VTSGRTSNGKVSQSSGTHNCKEAAVPHSPSSQKSKCQESKGTAAQSIMETLLNNOKAKGGP 1784
Pavo_cristatus    VTSGRTSNGKVSQSSGTHNCKEAAVPHSPSSQKSKCQESKGTAAQSIMETLLNNOKAKGGP 1784
Gallus_gallus     VTSGRTSNGKVSQSSGTHNCKEAAVPHSPSSQKSKCQESKGTAAQSIMETLLNNOKAKGGP 1784
Xenopus_tropicalis ATRCNLDMYKPNVPLSKLHTDIKTTLS-----SLDIL--NTQVSKPGP 1727
Rhinatrema_bivittatum QAVSRNSNYKTPSSITLSDDTVTISNCLSSQMLCNDTRRISPRASIDTFPENTHKSSEKSEP 1802
.....1930.....1940.....1950.....1960.....1970.....1980

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Rattus_norvegicus  KLKRLNSKG--KASPEVPVAISTKGSRNDRHKTLPSPQASHKMFSAVSHRLHIADQEEP 1909
Mus_musculus      KLKRLNSKS--KASPEAPVASPAKGGRTDHRKSLPSPQAAHKMLS KAVSHRLHIADQEEP 1891
Homo_sapiens      KLKRLSLKGKAKVNSEAPAAVAVKAGGTDHRKPLISPQTSHTLSKAVSQRLHVADHEDP 1943
Pan_troglodytes   KLKRLSLKGKAKVNSEAPAAVAVKAGGTDHRKPLISPQTSHTLSKAVSQRLHVADHEDP 1943
Macaca_mulatta    KLKRLSLKGKAKVNSEAPAVNAVKAGGTDHGKPLIPPQTSHTLSKVVSQRLHAADREDP 1943
Callithrix_jacchus KLKRLSLKGKAKVSYEAPGANAVKAGGMDHRKPLISPQTSHTLSKVVSQRLHVAEHEEP 1941
Canis_lupus_familiaris KLKRLSIKSKSKASSEAPAAVMAKAGGADPRKPLISPQASHRMLSKAVAHVRHAPHEHLEP 1913
Equus_caballus    KLKRLSIKSKSKVSAEAPAAVATAAGMDHRKSLISPQTSHTLSKVVSHQFHIAEQEGP 1930
Bos_taurus        KLKRLSIKSKSKVSEVPAAHGTGTGSTEHRKALVSPQASHKMLS KAVSHRFTADHEEL 1903
Pavo_muticus      KLKGFTIKSKAKANS DSSSVNLTKVSGADQKRTSVSPQLSPKLLGKKALLPRNSPTNLDL 1844
Pavo_cristatus    KLKGFTIKSKAKANS DSSSVNLTKVSGADQKRTSVSPQLSPKLLGKKALLPRNSPTNLDL 1844
Gallus_gallus     KLKGFTIKSKVKA SSSSVNLTKVSGADQKRTSISPQLSPKLLGKKALLPRNSPTNLDL 1844
Xenopus_tropicalis KLKGLSIKSK---NKEQAQNHPAKADDFRK----LSPQSPKLLAKRASMA DGS TAARDR 1780
Rhinatrema_bivittatum KQKGLNIKSKTKANTEISKANIAKADKFEHRS SISPQSPKLLAKKISVTKNLQKTTES 1862
.....1990.....2000.....2010.....2020.....2030.....2040

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Rattus_norvegicus  KNTAGDTPKPPQCVPE SKPPQAALGSLRTSASDTSIRTFISPLTSPKLLPEQGANSRFFHM 1969
Mus_musculus      KNTAGDTSKPPQCVPE SKPPLAAGSLRTSASDTSIRTFISPLTSPKPLPEQGANNRFFHM 1951
Homo_sapiens      DRNTTAAPRSPQCVLESKPPLATSGPLKPSVSDTSIRTFVSPLTSPKPVPEQGMWSRFFHM 2003
Pan_troglodytes   DRNTTAAPRSPQCVLESKPPLATSGPLKPSVSDTSIRTFVSPLTSPKPLPEQGMWSRFFHM 2003
Macaca_mulatta    DRNTTAAPRSPQCVLESKPPLATSGPLKPSVSDTSIRTFVSPLTSPKPPPEQGVWSRFFHV 2003
Callithrix_jacchus DRNTTAAPRSPQCVLESKPPLATSGPLKPSVSDTSIRTFVSPLTSPKALPEQGMWSRFFHV 2001
Canis_lupus_familiaris GDGPASPRPPPSGPGESGPP-ATPGSPKAPAAETGAWAFAPQAAAKALPEQGACGRWHA 1972
Equus_caballus    DKNAAMATSPQCVLESKPPLAAGSLKPSVSDTSIRTFISPLTSPRTLPEQGACSRFHT 1990
Bos_taurus        DKTAAAPQSPQCVLE GKLP- GTPGSLKPSASDSSIRMFVSPVTPKTLPEQGGCGR LHP 1962
Pavo_muticus      SKSISAASKTLKSELENKSP LVI SEDSLLPALNG---TSSPTACGEMKCGGCGQLIDLQ 1901
Pavo_cristatus    SKSISAASKTLKSELENKSP LVI SEDSLLPALNG---TSSPTACGEMKCGGCGQLIDLQ 1901
Gallus_gallus     SKSISTASKTLKSELENKSP LVI SEDSLLPALNG---TSSPTACGEMKCGGCGQLIDLQ 1901
Xenopus_tropicalis AVRSPVMTKKPEH-KTGLSVQSVDSKASANVSAN---STCSSKNDKMSPPFS-----RR 1830
Rhinatrema_bivittatum DKTNP TLTKMLALDKKKKSS TDVAEEMSSILGT---NLVAREKNEKQ RDLGGSRGPATR 1919
.....2050.....2060.....2070.....2080.....2090.....2100

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Rattus_norvegicus  AVYLES DTSCTPTTSRSPRS GPEGKAPHANS GSASPPASRASIALAGIR-----QSKOF 2022
Mus_musculus      AVYLES DTSCTPATSRPPRYGPEGKVPHANS GSVSPSASRTNIALAGVR-----QSKOF 2004
Homo_sapiens      AVLSEPDRCGCTTPKSPKCR AEGRAPRADS GPVSPAASRNGMSVAGNR-----QSEPR 2056
Pan_troglodytes   AVLSEPDRCGCTTPKSPKCR AEGRAPRADS GPVSPAASRNGMSVAGNR-----QSEPR 2056
Macaca_mulatta    AVLSEPDRCGPATPKSPKGG AEGRAPRADS GPVSPASRNGVSVAGNR-----QSEQH 2056
Callithrix_jacchus AVLSEPDRCGPATPKSPKCG VEGKAPRADS GLVSPAASRNGVSVAGNR-----QSEQC 2054
Canis_lupus_familiaris AARPEPD-----PACAPCGPESRPPPAAPG-----RV 2000
Equus_caballus    TFYSEPDRCGCPAAPRSPKCGPESKAPSVA SGAG-PAASRGSTSTAVNKREVPFPFGQSEQC 2049
Bos_taurus        AVHAEPDRGFPAAPSPPKCGPESRAPLASPGPASPAALRS GTSTVAGKLEVP TPGQGEWS 2022
Pavo_muticus      AWGKPKEKQASMQPAVCQG----- 1920
Pavo_cristatus    AWGKPKEKQASMQPAVCQG----- 1920
Gallus_gallus     AWGKPKEKQASVQPAVCQG----- 1920
Xenopus_tropicalis TGKCANDKSKDEG-FSLRV----- 1848
Rhinatrema_bivittatum TWQCDNRKEIEIGNLSVKV----- 1938
.....2110.....2120.....2130.....2140.....2150.....2160

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CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep_msa/PDZData2.fst Tue Feb 14:17:27 2022

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Rattus_norvegicus      T P G R A D L L V S E A T P Q G I C E K G A E K K V S --- D P P O R T N Q L K I V E I S S E R V P K N A C G D R P P      2079
Mus_musculus          T H S R V D L V L T E A A Q P Q G I S E K G T E K M A S --- D P L E R T N Q L K I I E I S S E R M P K N A C G D K P P      2061
Homo_sapiens           L A S H V --- A A D T A Q P R P T G E K G G N I M A S --- D R L E R T N Q L K I V E I S A E A V S E T V C G N K P A      2110
Pan_troglodytes        L A S H V --- A A D T A Q P R P T G E K G G N I M A S --- D R L E K T N Q L K I V E I S A E T V S E T V C G N K P A      2110
Macaca_mulatta         L A S H M D - S A A D T A Q P R P T G E K G G S I V A S --- D R L E R T N Q L K I V E I S A E T V P K T V C G N R P A      2112
Callithrix_jacchus     L T S H V D - S A A G I A Q P R L T G E K G G S I M A S --- D C L E I T N Q L K I V E I S A E T V P R T A C G N K S A      2110
Canis_lupus_familiaris A C G P M D - P A P A A A Q P G P P S D R G S R V L A A G P R E P L E R T H O L K I V D I S S E R M P K A A C G D K A A      2059
Equus_caballus         V S S Q R D - S A P E A G Q P Q V T S D Q E S K T I A S --- E P L E R A N Q L K I V E I S S E R M P K I A C G D K P S      2105
Bos_taurus            L S S Q T D - S A A E A A L P G V T G D K R S K I I A S --- E P L E R T K O L K I I E I P --- K S T C G D I L A      2073
Pavo_muticus           K S V K V D D F R A R D S Q S K V A S S P L G A T K V E --- Y V K G R T E N S G M N L N T M K S I Y S A D D I R      1974
Pavo_cristatus         K S V K V D D F R A R D S Q S K V A S S P L G A T K V E --- Y V K G R T E N S G M N L N T M K S I Y S A D D I R      1974
Gallus_gallus          R S V K V D D F R A R D S Q S K V A S S P Q G T T K V E --- Y M K G R T E N S G V N L N T M K S I Y S A D D I R      1974
Xenopus_tropicalis     N S S E - - - - - - - - - - - - - - - - - - - - - C P N K T I T S S D S G T K E L I E D I T A E R V P      1878
Rhinatrema_bivittatum T S M D K D D C K M K E H Q P E R T T S F S E V Q K L D - - - - C T H K T I G N H N G G D S S L F F S Q E T D A S Q      1992
.....2170.....2180.....2190.....2200.....2210.....2220

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Rattus_norvegicus      E S D R K G G F L T Q N N C Q E K S A I R L R - Q S E E S S P E H T P F P P S Q A S Q V E R I R W S F S M A K P A T S      2138
Mus_musculus           G S D R K G G F L T Q S N C Q E K S S V R L R - Q S A E S S P K Q P H F P P S Q A S Q G E Q E M R W S Y S M A R L A S S      2120
Homo_sapiens            E S D R R G G C L A Q G N C Q E K S E I R L Y R V A E S S T S H P S S L P S H A S Q A E Q E M S R S F S M A K L A S S      2170
Pan_troglodytes         E S D R Q G G C L A Q G S C Q E K E I R L Y R V A E S S T S H P S S L P S H A S Q A Q Q E M S R S F S M A K L A S S      2170
Macaca_mulatta          E S D R Q G G C L A Q G N C Q E K S E I R L C R O V T E S S T S H P S S L P S H A P Q A E Q E M S R S F G V A K L V S S      2172
Callithrix_jacchus      E S D R W G G C L V G N Y Q K K S E I S L C H P V M E S S T S H L S A V P S H A S Q V E Q E M P G S F S M A K L A S S      2170
Canis_lupus_familiaris G R D R L G G L L A Q G - - - - - E A R P C Q P S G E P A P R R P S S L P P R A S Q L E Q D T P - - - - -      2102
Equus_caballus          E S D R Q G G F L A Q S N C Q E K S E I R L C H O S V E S S P N R P S S L T P R A S Q V E Q E M Q P S F S M V K L A A -      2164
Bos_taurus              E R D R Q G G L L S Q S S H Q E E S E A G L C H P G E S S P N H P S F L P T R V S Q V E L E A Q Q R S V S L A R L S -      2132
Pavo_muticus            Q L D L Q N V G A S A G C S S S L R S P A V Q L E Q Q E G Q E I Q R S F I E V K L S S S S S S S S S S S S - - - - - A S S      2030
Pavo_cristatus          Q L D L Q N V G A S A G C S S S L R S P A V Q L E Q Q E G Q E I Q R S F I E V K L S S S S S S S S S S S S - - - - - A S S      2030
Gallus_gallus           Q L D L Q N V G A S A G G S S S L R S P A V Q L E Q Q E G Q E I Q R S F I E V K L S S S S S S S S S S S S S S A S S      2034
Xenopus_tropicalis      Q Q M A T - - - - - - - - - - - - - - - - - E G P E T H D I R R T F I E V K L S S A L P H A L T S A T - - - - -      1912
Rhinatrema_bivittatum S P L L S S A - - - - - - - - - - F P M T T E E Q P E G Q D L Q R T F I E V K L S S S Q - - - - - L P S E - - - - -      2030
.....2230.....2240.....2250.....2260.....2270.....2280

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Rattus_norvegicus      S S S S L Q L P A - - K L P E S F Q G K S S Q M P A S V G V P K N G V P I G L A G E E S P Y F T P R P A T R T Y S M P A      2196
Mus_musculus           S P S A P Q L P S - - K M P D Y S Q G K S S Q M P A S V G V P K N G V P V L A G E E P P Y F T P R P A T R T Y S M P A      2178
Homo_sapiens            S S S - L Q T A I - - R K A E Y S Q G K S S L M S D S R G V P R N S I P G G P S G E D H L Y F T P R P A T R T Y S M P A      2227
Pan_troglodytes         S S S S L Q T P I - - R K A E Y S Q G K S S L M S D S L G V P R N S I P G G P S G E D H L Y F T P R P A T R T Y S M P A      2228
Macaca_mulatta          S S S - P Q M P I - - R K A D S S Q G K S S L M S D S L G V P R S G I L G G P S G E D H L Y F T P R P A T R T Y S M P A      2229
Callithrix_jacchus      S S S - P Q L P V - - R K A D S S Q G K S S L D S - - L G V T R N G I P G G P S G K D H P Y F T P R P A T R T Y S M P A      2225
Canis_lupus_familiaris --- R P C G A P - - K P C D S P R A R W G Q A P G S P G P P R G G A A A G P - - - - - A R P A T R T Y S M P A      2148
Equus_caballus          S S S S P Q L P P - - R K A D A S Q G K S S Q M S N S L G M A K N G T A G G P A L D D H P Y F M P R P A T R T Y S M P A      2222
Bos_taurus              S S S S P Q L L A - - R K A D P - - - - - G O M G N P L G V P R N G P P V G P V L D D H P Y F T P R P A T R T Y S M P A      2185
Pavo_muticus            S P A P F L Q L P L L E K N E E V N T E M H Q L T E E M G T T E Y F S K V D I A R D R N L C G L S K P V T R T Y S M P A      2090
Pavo_cristatus          S P A P F L Q L P L L E K N E E V N T E M H Q L T E E M G T T E Y F S K V D I A R D R N L C G L S K P V T R T Y S M P A      2090
Gallus_gallus           S P A P F L Q L P L L E K N E E V N T E M Y Q L T E E M G T T E Y I S K V D I A R D R N L C G L S K P V T R T Y S M P A      2094
Xenopus_tropicalis      - - - - - R R Q D G S D K A N I L T N D H F A N V Y M S P R I N N K S I - - - - - V C K P V T R T Y S M P A      1956
Rhinatrema_bivittatum - - - - - E K I E G T I N K K T S K I T A H L E T T V T T S E T S N R - - - - - T P R P I T R T H S M P V      2072
.....2290.....2300.....2310.....2320.....2330.....2340

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Rattus_norvegicus      Q F S S H F G R E G P S P H S P S H S P - Q D P O V P A M G G K L S E K T A K - - - - - G V T N G O G V Y S V K P L L E      2250
Mus_musculus           Q F S S H F G R E G L S P P S P S H S P - Q D P O V T A M S G S L S E K S A K - - - - - G V T N E O G V Y S V K P L L E      2232
Homo_sapiens            Q F S S H F G R E G H P P S L G R S - - R D S Q V P V T S S V V P E A K A S R G G L P S L A N G Q G I Y S V K P L L D      2285
Pan_troglodytes         Q F S S H F G R E G H P P S L G R S - - R D S Q V P V T S S V V P E A K A S R G G L P S L A N G Q G I Y S V K P L L D      2286
Macaca_mulatta          Q F S S H F G R E S H P P S L G R S P - R D S H V P V T S S V V P E A K A S R G G L P S L A D G Q G V Y S V K P L L E      2288
Callithrix_jacchus      Q F S S H F G R E G H S P H S L G R S P - R D S Q V P A T S S G - P E A K A S R A G P P G L A S G O G V Y S V K P L L E      2283
Canis_lupus_familiaris Q F A S H F G R E A Q - - - - - - - - - - A S G G G P P E A R A S R G G V L G L A D G O G V Y S V K P L L E      2192
Equus_caballus          Q F A S H F G R E G H S L H S P N R S H - W D S Q V P V T S S G L L E A K A S R G G V L G L V N G Q G V Y S V K P L L E      2281
Bos_taurus              Q F S S H F G R E G H T P Q S P G R T P - R D G Q I P G T S G G L L E A K A S R G A V L S L A N G Q G V Y S V K P L L E      2244
Pavo_muticus            H L S G H L R - E N C H A V E L H P A Q G P Q G H A A D R K Y P Q A V T G P L Q I V H L S - - - - - L P N Q S G K E Q - I      2145
Pavo_cristatus          H L S G H L R - E N C H A V E L H P A Q G P Q G H A A D R K Y P Q A V T G P L Q I V H L S - - - - - L P N Q S G K E Q - I      2145
Gallus_gallus           Q L S G H L R - E N C H A V E L H P A Q G P Q G H A A D K T C P Q A V T G P L O M V H L S - - - - - L P N Q S G K E Q - V      2149
Xenopus_tropicalis      H L P I F M D D E G T Q T K G Q N H C L I S Q G S V D C - - - - - V L E K Y L H A G N N S P A V A C N Q L K S K - - -      2007
Rhinatrema_bivittatum Q L L R N Y R V E G S T M R Y L E N P V Q T I N M T T C S S G C N S Q A E K L K M G H V S L I S I Q N I Q D G K Q Q M G      2132
.....2350.....2360.....2370.....2380.....2390.....2400

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CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep_msa/PDZData **Date: Tue Feb 1 14:17:27 2022**

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	TSKNLSPVDGRVVSADPETSCLIPDKVKVTRRQ- YCCEQSWPHESTSFFSVKORIKSFEN	2309
Rattus_norvegicus	TSKNLSPVDGRVVSADPETSCLIPDKVKVTRRQ- YCCEQSWPHESTSFFSVKORIKSFEN	2309
Mus_musculus	TLRNPPPPVDVGDVSAVPEASGLIPDKLKVTRRH- YCCEQSWPHESTSFFSVKORIKSFEN	2291
Homo_sapiens	TSRNLPATDEGDIIISVOETSCLVTDKIKVTRRH- YCYEQNWPHESTSFFSVKORIKSFEN	2344
Pan_troglodytes	TSRNLPATDEGDIIISVOETSCLVTDKIKVTRRH- YCYEQNWPHESTSFFSVKORIKSFEN	2345
Macaca_mulatta	TSRNLPATDEGDIIISVOETSCLVTDKIKVTRRH- YCYEQNWPHESTSFFSVKORIKSFEN	2347
Callithrix_jacchus	SSRNLPATDEGDIIISVOETSCLVTDKIKVTRRH- YCYEQNLHSTSFSSSVKORIKSFEN	2342
Canis_lupus_familiaris	TSRTLPAIDGAALISVOESSCQVTDKIKVTRRH- YHSEQNY--ESTSFSSSVKORIKSFEN	2249
Equus_caballus	TSRNLPPEEGDVLISGOETSCLVTDKIKVTRRH- YYSEQNWPHESTSFFSVKORIKSFEN	2340
Bos_taurus	TSGNLPTTDEADVLSAQETSQCLTDRTVTVTRRH- HYSPOQNPWHEATSFFSSVKORIKSFEN	2303
Pavo_muticus	YSSKSSQRMHDTSPSASDVITYAAADKLRSFRRSYYYYELNWPHEPTSFSSVKORIKSFEN	2205
Pavo_cristatus	YSSKSSQRMHDTSPSASDVITYAAADKLRSFRRSYYYYELNWPHEPTSFSSVKORIKSFEN	2205
Gallus_gallus	YSSKSSQRIHDTSPSASDVITYPATDKLRSFRRNYYYYELNWPHEPTSFSSVKORIKSFEN	2209
Xenopus_tropicalis	LPTQDGVQSNEKIVSR-----SEIMRSIRRN-YYELNWCNDPLSLTVKORIKSFEN	2059
Rhinatrema_bivittatum	FSKHQKSDREEYSRYEKNCLSTDKSKTKRN-YYELNWPYEPNSSFSSVKORIKSFEN	2191
2410.....2420.....2430.....2440.....2450.....2460	

	**	::	*	:	:	***...	:	.	*	*****	
Rattus_norvegicus	LANSDRPTAKCATSPFLSVSSKPPINRRSSGSIPSGS---	PSDMT	SRSLRRSLSSCSE	ESQ		2366					
Mus_musculus	LANSDRPAAKSATSPFLSVSSKPPVNRSSGSITSGR---	PSDGT	ARSRLRRSLSSCSE	ENQ		2348					
Homo_sapiens	LANADRPVAKSGASPFLLSVSSKPPIGRRSSGSIVSGSLGHPGDAAARLLRRSLSSCSE	ENQ		2404							
Pan_troglodytes	LANADRPVAKSGASPFLLSVSSKPPVGRSSGSIVSGSLGHPGDAAARLLRRSLSSCSE	ENQ		2405							
Macaca_mulatta	LANADRPVAKSGVSPFLSVSSKPPIGRRSSGSIVSGSLGHPGDAAARSLRRSLSSCSE	ENQ		2407							
Callithrix_jacchus	LANADRPVAKSGASPFLLSVSSKPPIGRRSSGSIVSGSPGHPGDAAVRLRRSLSSCSE	ESQ		2402							
Canis_lupus_familiaris	LANSDRLVAKSGAAPFLSAGGKPPVGRSSGSASGSLGHPGDP	TARSLRRSLSSCSE	SP		2309						
Equus_caballus	LANSDRPVAKSGASPFLLSVSSKPPVGRSSGSVVGSLSHPSD	TARLLRRSLSSCSE	ESQ		2400						
Bos_taurus	LAHSDRPAAKAGASFLSVSSKPPIGRRSSGSVVGSLSHSSDPT	ARLLRRSLSSCSE	ESQ		2363						
Pavo_muticus	LANFDRPIVKAIIDHS---ATRSQLGRRSCSGMAA-ASSPADTP--	RALRRSLSSYG	SAP		2259						
Pavo_cristatus	LANFDRPIVKAIIDHS---ATRSQLGRRSCSGMAA-ASSPADTP--	RALRRSLSSYG	SAP		2259						
Gallus_gallus	LANFDRPIVKAIIDHS---ATRSQLGRRSCSGMAA-SSSPADTP--	RALRRSLSSYG	GTP		2263						
Xenopus_tropicalis	LAHFDKTVMKVIDMNHSPFSSKPPICRRSSGSVPS-EGSLHDAS-	RYLRRSLSSC	DSH		2116						
Rhinatrema_bivittatum	LASFEEKPIIKAIDLHSCFIATKPPIGRRSSGSVSSGITSIHDTI--	RSRLRRSLSSC	SDS		2249						
2470.....2480.....2490.....2500.....2510.....2520										

Rattus_norvegicus	SEASSLLPOMTKSPSSMTLTVSRONPPDTSNKGPSDPD----	KKSILVPVVGIPITSTV---	S	2419
Mus_musculus	SEASSLLPOMTKSPSSVTLTVSRONPPETNNKGHSPDP----	KKSILVPVVGIPISTG---	S	2401
Homo_sapiens	SEAGTLLPQMAKSPSIMLTISRNPPTSSKGSDSEL-----	KKSLGPLGIPIPTM---	T	2457
Pan_troglodytes	SEAGTLLPQMAKSPSIMLTISRNPPTSSKGSDSEL-----	KKSLGPLGIPIPTM---	T	2458
Macaca_mulatta	SEAGTLLPQMAKSPSSMTLTIISRONPPETSSKGSDSEL----	KKSLGPLGIPIPTT---	T	2460
Callithrix_jacchus	SEAGALLPQMAKSPSSMTLTIISRONPPETSRKGSDSDL-----	RKSLGPLGIPIPAAM---	T	2455
Canis_lupus_familiaris	SEAGALGPQLTKSPSSALTIVPRPHAAAAGDQGPDPDFDPDFPKGWLPGPPGPPGPPGAAP			2369
Equus_caballus	SEASTLLPOMTKSPSSMTLTVSRQNAAEASNKGPDSDP----	KKSLGSSGIPITPMG--A	A	2453
Bos_taurus	GEATTVPVMPTLKSPSSMTLTVSRQTADARNKGADSDP----	KRPPGPSGIPAPTA--T	T	2416
Pavo_muticus	SPADAVAKLPITSTEPTRIVEEVMEKEGK-----PORSEE-----	GSTEADQP-FPP	FPP	2303
Pavo_cristatus	SPADAVAKLPITSTEPTRIVEEVMEKEGK-----PORSEE-----	GSTEADQP-FPP	FPP	2303
Gallus_gallus	SPADTVAKLPITSTEPTRAVEGVMEKEGK-----PORSEE-----	GSTEADQPFPFS	FPS	2308
Xenopus_tropicalis	SEVTLAAP-IETPPSVALAVIEKSASDNITQTPVNNE-----	SRIEKKESSP		2163
Rhinatrema_bivittatum	TEATLSPELEQKSPSSIILTYSEONVIDQSKDVPIIDKE-----	KNSSEKIQDKVL		2300
2530.....2540.....2550.....2560.....2570.....2580			

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Rattus_norvegicus	PASPSKRNKSSVRHAQPSVRSRSLQELRTLSPDLDKLCNGEDDSASPGAVLFKFTQLEI				2479
Mus_musculus	PASPIKRNKSSVRHAQPSVRSRSLQELRALSPDLDKLCSGEEDYSASPGAVLFRTQLEI				2461
Homo_sapiens	LASPVKRNKSSVRHTOPSPVRSRSLQELRALSPDLDKLCS-EDYSAGPSAVLFKFTLEI				2516
Pan_troglodytes	LASPVKRNKSSVRHTOPSPVRSRSLQELRALSPDLDKLCS-EDYSAGPSAVLFKFTLEI				2517
Macaca_mulatta	PASPVKRNKSSVRHTOPSPVRSRSLQELRALSPDLDKLCS-EDYSAGPSAVLFKFTLEI				2519
Callithrix_jacchus	PASPVKRNKSSVRHVOPSLVRSRSLQELRALSPDLDKLCS-EDYSAGPNTMLFKFTLEI				2514
Canis_lupus_familiaris	AASPAKRKGKSAGRRAPSAISRSLQELRALSPDLDKLRS-EDFRAGPAAVLFRTLEI				2428
Equus_caballus	PASPIKRNKSSVRHTOPSPLSRSLQELRALSPDLDKLCS-EDFSAGPTAMLFKFTLEI				2512
Bos_taurus	PASPAKRNKSSVRHTQASPLSRSLQELRALSPDLDKLCS-EDFSAGPSAVLFKFTLEI				2475
Pavo_muticus	VASQVRRSRVLG----RLPLSRSLRELRLALSPDLDKLCGEGFSG-PPQPACFKFTLEI				2358
Pavo_cristatus	VASQVRRSRVLG----RLPLSRSLRELRLALSPDLDKLCGEGFSG-PPQPACFKFTLEI				2358
Gallus_gallus	MVSQVRRSRVLG----RLPLSRSLRELRLALSPDLDKLCGEGFSG-PPQPACFKFTLEI				2363
Xenopus_tropicalis	PAAQIRKNKTSSSHIR-PSLSRSKIRELRLALSPDLDKLCTDDFTVEPKAP-QFKTEI				2221
Rhinatrema_bivittatum	CTPPTRRSRPSGGQGRQSAISRSLRELRLALSPDLDKLCDEDFSVEPKENHFKTEI				2360
2590.....2600.....2610.....2620.....2630.....2640				

CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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      * *
Rattus_norvegicus  TPRRSKGSQATSPAGSPARGHADFNSTFLSCPMNGGTRAYTKGNSPPASEPAIATGSRRE 2539
Mus_musculus      TPRRSQGS PATSPASSPARGHADVNGSAFLSCPVNNGNRVYPKGNSSS---PTVPTGSRE 2517
Homo_sapiens      TPRRSPGPPAGGVS-----CPEKGGNRACPGGSGPKTSAAEIPSSASD 2559
Pan_troglodytes   TPRRSPGPPAGGVS-----CPEKGGNRACPGGSGPKTSAAEIPSSASD 2560
Macaca_mulatta    TPRRSPGP-AGGVS-----CPEKAGNRACLGGSGPKTSAAEIPSSASE 2561
Callithrix_jacchus IPKRSPSSPAGGVS-----GPEKGGNRACPGGSGPKTSVSEIPSSASD 2557
Canis_lupus_familiaris VPRRPPASAAGGLNGPTA-----LSCPVRPAAGACPAGSGPKAAEPGAPSSAHL 2477
Equus_caballus    VPRRSLGSPAGGLSGSTA-----LSCPIKGGDKACPGGSRKASEPRVPSSAP- 2560
Bos_taurus        VPRRSRGSPAGGLAGSTA-----LSCP KDGAERACP-----KATDPRAPSSAHD 2519
Pavo_muticus      TPRRSLVLPSQGSPTKAG-----GMGSGSPQDSS-----SGTPGSASDDDT 2400
Pavo_cristatus    TPRRSLVLPSQGSPTKAG-----GMGSGSPQDSS-----SGTPGSASDDDT 2400
Gallus_gallus     TPRRSLVLPSQGSPTKAG-----GTGSGSPRDSS-----SGTPGSASDDDA 2405
Xenopus_tropicalis IPARLCDLPGQNMEPAS-----SNLSNTGLMG-----CSLSGTATD---L 2258
Rhinatrema_bivittatum KPRRSAGFSTENFPNFSK-----SNLSKENKQSGRENGPWTCGSGIAGSTSDDEM 2411
      .....2650.....2660.....2670.....2680.....2690.....2700

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Rattus_norvegicus  EGESVWATPSGKSWSVSLDRLLASVGNQORLQILSLVSGSKSPIILTLIQEAKAQSETKED 2599
Mus_musculus      WGESLRAMPSGKSWSVNLDLLASVGYQORLQAVLSLVSGSKSPIILPLIQEAKAQSENKED 2577
Homo_sapiens      TGEAAQDLPFRRSWSVNLDLLVSAGDQORLQSVLSSVSGSKSTILTLIQEAKAQSENEED 2619
Pan_troglodytes   TGEAAQDLPFRRSWSVNLDLLVSAGDQORLQSVLSSVSGSKSTILTLIQEAKAQSENKED 2620
Macaca_mulatta    VGEAAQDLPFRRSWSVTLDLLVSAGDQORLQSVLSSVSGSKSTILTLIQEAKAQSENKED 2621
Callithrix_jacchus VGETAQDLPCRKSWSVNLDLLVSAGDQORLQSVLSSVSGSKSTILTLIQEAKAQSENKED 2617
Canis_lupus_familiaris VGEATRDLPSGKSWSVNLDLLVSAGDQORLQSVLSSVSGSKSTVTLTLIQEAKAQSENKED 2537
Equus_caballus    VDETTRDLPSGKSWSVNLDLLVSAGHQORLQSVLSSLRKSTILTLIQEAKAQSENKED 2620
Bos_taurus        VGETAQDLPSGRSWSVNLQDLLVSAGDQORLQSVLSSVSGSRSTVTLTLIQEAKAQSENKED 2579
Pavo_muticus      HGGSPDAEHLGNWSLSLDQLLISNLDDQKLQSVLSALVPKCDIASMLQEVKAQVKSKE 2460
Pavo_cristatus    HGGSPDAEHLGNWSLSLDQLLISNLDDQKLQSVLSALVPKCDIASMLQEVKAQVKSKE 2460
Gallus_gallus     HGGSPDVEHLGNWSLSLDQLLISNLDDQKLQSVLSALVPKCDIASMLQEVKAQVKSKE 2465
Xenopus_tropicalis DESRPDGTLSRKSWAISLEQLMVSTQDQONLQAVLTSVSSRSDIISLIQEIKTOSSEKREG 2318
Rhinatrema_bivittatum HDHSVNGKLIKGNWSICLDQLIVSTLDQKLQSVLSALVPKCDIASMLQEVKAQVKSKE 2471
      .....2710.....2720.....2730.....2740.....2750.....2760

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Rattus_norvegicus  ICFIVLNKKEGSGLGFSVAGGADVPEKSVMVHRVFSQGVASQEGTVSRGDFLLSVNGTSL 2659
Mus_musculus      ICFIVLNKKEGSGLGFSVAGGADVPEKSVLVRVFSQGVASQEGTVSRGDFLLSVNGTSL 2637
Homo_sapiens      VCFIVLNKKEGSGLGFSVAGGTDVEPKSITVHRVFSQGAASQEGTMNRGDFLLSVNGASL 2679
Pan_troglodytes   VCFIVLNKKEGSGLGFSVAGGTDVEPKSITVHRVFSQGAASQEGTMNRGDFLLSVNGASL 2680
Macaca_mulatta    VCFIVLNKKEGSGLGFSVAGGTDVEPKSITVHRVFSQGAASQEGTMNRGDFLLSVNGASL 2681
Callithrix_jacchus VCFIVLNKKEGSGLGFSVAGGTDVEPKSITVHRVFSQGAASQEGTMNRGDFLLSVNGASL 2677
Canis_lupus_familiaris VCFIVLNKKEGSGLGFTVAGGTDVEPKSITVHRVFSQGAASQEGTVNRGDFLLSVNGASL 2597
Equus_caballus    VCFIVLNKKEGSGLGFSVAGGTDAPKPIVHRVFSQGAASQEGTMNRGDFLLSINGTSL 2680
Bos_taurus        ICFIVLNKKEGSGLGFSVAGGTDVQPKSIVHRVFSQGAASQEGTVSRGDFLLSLNGASL 2639
Pavo_muticus      AYFVVLKKEEGAGLGFSVAGGIDLEQKSVTVHRVFSKGVASQEGTIQRGDLVLSINGKSL 2520
Pavo_cristatus    AYFVVLKKEEGAGLGFSVAGGIDLEQKSVTVHRVFSKGVASQEGTIQRGDLVLSINGKSL 2520
Gallus_gallus     AYFVVLKKEEGAGLGFSVAGGIDLEQKSVTVHRVFSKGVASQEGTIQRGDLVLSINGKSL 2525
Xenopus_tropicalis VFFVVLNKEEGTGLGFSIAGGIDLEQKSVTVHRVFAKAVASQDTMIEKGDGILSINGCSL 2378
Rhinatrema_bivittatum VYFVVLNKEEGSGLGFSIAGGTDLEQKAVTVHRVFSKGVASQEGTIERGDRILSINGVAL 2531
      .....2770.....2780.....2790.....2800.....2810.....2820

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Rattus_norvegicus  AGLAHSEVTKVLHQAELHKKHALMIKKGNDQPGP-----SFKQEPSSANGKGPFRRTILP 2714
Mus_musculus      AGLSHSEVTKVLHQAELHKKHVLMIKKGNDQPRP-----SFRQEPSSANGKAPFRRTILP 2692
Homo_sapiens      AGLAHGNVLKVLHQAQLHKDALVVIKKGMDQPRP-----SARQEPPTANGKGLLSRKTIP 2734
Pan_troglodytes   AGLAHGNVLKVLHQAQLHKDALVVIKKGMDQPRP-----SARQEPPTANGKGLLSRKTIP 2735
Macaca_mulatta    AGLAHGNVLKVLHQAQLHKDALVVIKKGMDQPRP-----SARQEPPTANGKGLLSRKTIP 2736
Callithrix_jacchus AGLAHGNVLKLLHQAQLHKDALVVIKKGTDQPRPSARQASARQEPPTANGKGLLSRKTIP 2737
Canis_lupus_familiaris AGLAHGDVLKILHQAQLHRDVLVVIKRGNDQPGS-----SSRQD---ANGKSSFRKTS 2649
Equus_caballus    AGLAHGDVLKVLHQTQLHKDVLVVIKKGTDQPRP-----STRQEPPTANGKGLLSRKTIL 2735
Bos_taurus        AGLAHGDVLKALHQAQLHKDVLVVIKKGSDQPRP-----SSRQEPPTANGKGLVSRKTS 2694
Pavo_muticus      ANSVHGDVLNALHQAQLHKLKYAVIVIOKEKDRANN-----SSRLEISATGRKCVGSGKDVS 2575
Pavo_cristatus    ANSVHGDVLNALHQAQLHKLKYAVIVIOKEKDRANN-----SSRLEISATGRKCVGSGKDVS 2575
Gallus_gallus     ANSVHGDVLNALHQAQLHKLKYAVIVIOKEKDRANN-----SSRLEISATGRKCVGSGKDVS 2580
Xenopus_tropicalis QGAAHGYALNALHGAKPHRQAVVVIQERDGEKL-----S-RLDAS--RGRHTTS 2430
Rhinatrema_bivittatum TGSVHGDALNVLHQAQLHKLHRAVIVIKKGKDGERC-----SSRLDSFTMGGKCLTFGKD 2586
      .....2830.....2840.....2850.....2860.....2870.....2880

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CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep_msa/PDZDaps Tue Feb 14 14:17:27 2022
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Rattus_norvegicus	LEPGAG-----RNGAAHDALCVEVLKTSAGL	2740			
Mus_musculus	LEPGAG-----RNGAAHDALCVEVLKTSAGL	2718			
Homo_sapiens	LEPGIG-----RSVAVHDALCVEVLKTSAGL	2760			
Pan_troglodytes	LEPGIENTEQRMQVQQQHSQEGSPRIGRPITVLLGSSAVIRRSVAVHDALCVEVLKTSAGL	2795			
Macaca_mulatta	LEPAVG-----RSVAVHDALCVEVLKTSAGL	2762			
Callithrix_jacchus	LEPGVG-----RSMAVHDAVCVEVLKTSAGL	2763			
Canis_lupus_familiaris	LEPG-IG-----RSVP\$HDALCVEVLKTSAGL	2675			
Equus_caballus	LEPG-MG-----RSTAARDALCVEVLKTSAGL	2761			
Bos_taurus	LEPGTAG-----RSTAAHEALCVEVLKTSAGL	2721			
Pavo_muticus	MEIGTDP-----NLDMDNDVVCVELLKTSAGL	2601			
Pavo_cristatus	MEIGTDP-----NLDMDNDVVCVELLKTSAGL	2601			
Gallus_gallus	MEIGTDP-----NLDMDNDVICVELLKTSAGL	2606			
Xenopus_tropicalis	MTALAGG-----SVDLTDTMCVELNKTSAGL	2456			
Rhinatrema_bivittatum	METRAGV-----TVDLNDAICVELLKSSAGL	2612			
2890.....2900.....2910.....2920.....2930.....2940				

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Rattus_norvegicus	GLSLDGGKSSVSGEPLVIKR	VYKGGAERAGTIEAGDEILAIN	GKPLVLGVHFD	AWNIM	2800							
Mus_musculus	GLSLDGGKSSIAGDGPLVIKR	VYQGGAAEQAGTIEAGDEILAING	KPLVG	LHVHFDAWNIM	2778							
Homo_sapiens	GLSLDGGKSSVTGDGPLVIKR	VYKGGAEEQAGITIEAGDEILAING	KPLVGLMHF	DAWNIM	2820							
Pan_troglodytes	GLSLDGGKSSVTG	DGPLVIKR	VYKGGAEEQAGITIEAGDEILAING	KPLVGLMHF	DAWNIM	2855						
Macaca_mulatta	GLSLDGGKSSVTGDGPLVIKR	VYKGGAEEQAGITIEAGDEILAING	KPLVGLMHF	DAWNIM	2822							
Callithrix_jacchus	GLSLDGGKSSVTGDGPLVIKR	VYKGGAEEQAGITIEAGDEILAING	KPLVGLMHF	DAWNIM	2823							
Canis_lupus_familiaris	GLSLDGGKSSVAGDGPLFIKR	VYKGGAEEQAGTIEAGDEILAING	KPLVGLMHF	DAWNIM	2735							
Equus_caballus	GLSLDGGKSSMSGDGPLFIKR	VYKGGAEEQAGTIEAGDEILAING	KPLVGLMHF	DAWNIM	2821							
Bos_taurus	GLSLDGGKSSMSGDGPLLVR	IYKGGAEEQAGTIEAGDEILAING	KS	LVLGHF	DAWNIM	2781						
Pavo_muticus	GFSLDGGKASIAGDRPLLVKR	IFKGGAAEQAGNIESGDEILAVS	GKSL	LLGLMHYDAWNI	2661							
Pavo_cristatus	GFSLDGGKASIAGDRPLLVKR	IFKGGAAEQAGNIESGDEILAVS	GKSL	LLGLMHYDAWNI	2661							
Gallus_gallus	GFSLDGGKASIAGDRPLLVKR	IFKGGAAEQAGNIESGDEILAVS	GKSL	LLGLMHYDAWNI	2666							
Xenopus_tropicalis	GFSLDGGKASITYGDRPLFIKR	IFKGGAAEQAGKIQAAGDEIIATIGGKYLT	TGLMHYDAWNI	2516								
Rhinatrema_bivittatum	GFSLDGGKASIHGDRPLFIKR	IFKGGVAEHAGTIEAGDEILAIGKKLLL	TGLMHYDAWNI	2672								
2950.....	2960.....	2970.....	2980.....	2990.....	3000						

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Rattus_norvegicus	KSVPEGPVQLVIRK	HRDS	2818
Mus_musculus	KSVPEGPVQLVIRK	HRDS	2796
Homo_sapiens	KSVPEGPVQLLIRK	HRNSS	2839
Pan_troglodytes	KSVPEGPVQLLIRK	HRNSS	2874
Macaca_mulatta	KSVPEGPVQLLIRK	HRNSS	2841
Callithrix_jacchus	KSVPEGPVQLLIRK	HRNAS	2842
Canis_lupus_familiaris	KSVPEGPVQLVIRK	PGILPETSTSSDTH	2763
Equus_caballus	KSVPEGPVQLVIRK	HRNSS	2840
Bos_taurus	KAVPEGPVQLVIRK	HRNSSCSKHW	2805
Pavo_muticus	KSVPEGPVQLLIRK	HRTSV	2680
Pavo_cristatus	KSVPEGPVQLLIRK	HRTSV	2680
Gallus_gallus	KSVPEGPVQLLIRK	HRTSV	2685
Xenopus_tropicalis	KAVPEGPVQLLIRK	HRTAV	2535
Rhinatrema_bivittatum	KSVPEGPVQLLIRK	HRTAV	2691
3010.....3020.....3030		