CLUSTAL 2.1 multiple sequence alignment

Dog MKACTLRQNQDLTYYATRSTSLANFKVHYGGLKGNTSPQMGVESPSHPGLNFPITVLPAT 60

Cattle ------------------------------------------------------------

Brown\_Rat ------------------------------------------------------------

Human ------------------------------------------------------------

Chicken ------------------------------------------------------------

C.\_elegans -------------MSNIPRGVG---------------------------------APPPP 14

Drosophila --------MSLADMGTASRSAGGEGGRHYDLATGGAGSGGHPVGGGLPGGRMTHSLSTPS 52

Dog ATLGFSHGGGCRSAPAARLKEMFLKDLQSSSSPTSLQKSSGKALFNLSCGHLNLAEKEYF 120

Cattle ---------------MLHLKVQFLDDSQKIFVVD--QKSSGKALFNLSCSHLNLAEKEYF 43

Brown\_Rat ----------------MQLERQAGR-----------QKSSGKALFNLSCSHLNLAEKEYF 33

Human ---------------MLHLKVQFLDDSQKIFVVD--QKSSGKALFNLSCSHLNLAEKEYF 43

Chicken ---------------MLHLKVQFLDDSQKIFVVD--QKSCGKGLFNLTCSHLNLAEKEYF 43

C.\_elegans GMNSS------KRGRLVCIKVRMLDDTVAVFHLG--HKAIGQTLLDEVCRHLNLLECDYF 66

Drosophila GVDGTPSTPRHRGGKKLTVRIQMLDDSITMFQVQ--AKALGRVLFEQVCRQLNLLEADYF 110

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Dog GLEFCSHSGN-NVWLELLKPITKQVKN-PKDVVFEFMVKFFPVDPGHLREELTRYLFTLQ 178

Cattle GLEFCSHSGN-NVWLELLKPITKQVK----------------MDPGHLREELTRYLFTLQ 86

Brown\_Rat GLEFCSHSGH-NVWLELLKPITKQVKN-PKEVVFKFIVKFFPVDPGHLREELTRYLFTLQ 91

Human GLEFCSHSGN-NVWLELLKPITKQVKN-PKEIVFKFMVKFFPVDPGHLREELTRYLFTLQ 101

Chicken GLEFCSQAGN-HVWLEPLKPITKQIKN-PKEVLFKFMVKFFPVDPGHLREELTRYLFTLQ 101

C.\_elegans GLSFIDINGN-HCWLDREKTILRQITNGSTDAKFYFVVKFYTPNPIDLEEEYTRYLFTMQ 125

Drosophila GLEYQEVSTHTKYWLDLEKPMNRQVGLSLIDPVLRFCIKFYTPDPAQLEEEYTRYLFCLQ 170

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Dog IKKDLALGRLPCSENCTALMVSHILQSELGDFH--EETAKKHLAQTRYLPNQ-DCLESKI 235

Cattle IKKDLALGRLPCSDNCTALMVSHILQSELGDFH--EETDRKHLAQTRYLPNQ-DDLESKI 143

Brown\_Rat IKKDLALGRLPCSDNCTALMVSHILQSELGDFH--EEMVRKHLVQTQYLPSQ-ACLESKI 148

Human IKKDLALGRLPCSDNCTALMVSHILQSELGDFH--EETDRKHLAQTRYLPNQ-DCLEGKI 158

Chicken IKKDLALARLPCSDKSAALLVSHLLQSELGDFH--EETDQQHLATHRYLPNQ-EYLDNKI 158

C.\_elegans IKRDLALGELHCSDNTASLLSAYLVQSECGDFSSEDYPDATYLSHTRFVPNQTLEFQKKV 185

Drosophila IKRDLATGSLQCNDNTAALMASYIVQASCGDFVPEDYPDHTYLSSYRFVPNQDATMQRKI 230

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Dog MQFHQKHTGRSPAESDILLLDIARKLDMYGIRPHPASDGEGMQIHLAVAHMGVLVLRGNT 295

Cattle VHFHQKHIGRSPAESDILLLDIARKLDMYGIRPHPASDGEGMQIHLAVAHMGVLVLRGNT 203

Brown\_Rat MQFHQQHIGRSPAESDILLLDIARKLDMYGIRPQPASDGEGMQIHLAVAHMGVLVLRGNT 208

Human MHFHQKHIGRSPAESDILLLDIARKLDMYGIRPHPASDGEGMQIHLAVAHMGVLVLRGNT 218

Chicken MHYHRRHRGKTPAESDAQLLDVARKLEMYGIRPHPASDGEGTQINLAVTHMGVLVLRGNT 218

C.\_elegans MDNHRNFIGMTPGESDLAMLEVARRCDFYGVKLHAAKDIDGNDAALSVMHLGIKVFRQLQ 245

Drosophila MENHKKHVGQSPAEADLNLLETARRCELYGMKMHPAKDVEGVPLNLAVAHMGITVFQNIT 290

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Dog KINTFNWAKIRKLSFKRKHFLIKLHANILVLCKDTLEFTMASRDACKAFWKTCVEYHAFF 355

Cattle KINTFNWAKIRKLSFKRKHFLIKLHANILVLCKDTLEFTMASRDACKAFWKTCVEYHAFF 263

Brown\_Rat KINTFNWAKIRKLSFKRKHFLIKLHANILVLCKDTLEFTMASRDACKAFWKTCVEYHAFF 268

Human KINTFNWAKIRKLSFKRKHFLIKLHANILVLCKDTLEFTMASRDACKAFWKTCVEYHAFF 278

Chicken KINTFNWSKIRKLSFKRKHFLIKLHANVAALCKDTLEFTMASRDACKAFWKTCVEYHAFF 278

C.\_elegans LDTTFSWARIRKLSFKRKKLLVKLHPDSYQYLKETVEFSFETRDECKNFWKKCVEHHAFF 305

Drosophila RINTFSWAKIRKISFKRKRFLVKLHPEGYGYYKDTVEFFFEGRNECKNFWKKCVENHGFF 350

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Dog RLSEEPKS-KPKTLLCSKGSSFRYSGRTQRQLLEYGKKGRLRSLPFER------------ 402

Cattle RLSEEPKS-KPKTLLCSKGSSFRYSGRTQRQLLEYGKKGRLKSLPFER------------ 310

Brown\_Rat RLSEEPKS-KPKTLLCSKGSSFRYSGRTQRQLLEYGKKGRLKSLPFER------------ 315

Human RLSEEPKS-KPKTLLCSKGSSFRYSGRTQRQLLEYGRKGRLKSLPFER------------ 325

Chicken RLSEEPKS-KPKALLCSKGSSFRYSGRTQRQLLEHGRKAKMKSLPFER------------ 325

C.\_elegans RCVQAEEPKKETRFFISKGSSFRYHGRTQKQLIDYVREHHKRREPFTRPLRSAASTRKGT 365

Drosophila RCTAVQNTPRRKTRVLSRGSSFRYSGKTQKQIIEFVRENYVKRQNFQR------------ 398

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Dog --------------KHYPSQYHERQCR---------SSPDLLSDVSKQVEDLRLAYG-GG 438

Cattle --------------KHYPSQYHERQCR---------SSPDLLSDVSKQVEDLRLGYG-SG 346

Brown\_Rat --------------KQYPSQYHERQCR---------SSPDILSDVSKQVEDLRLTYG-SS 351

Human --------------KHYPSQYHERQCR---------SSPDLLSDVSKQVEDLRLAYG-GG 361

Chicken --------------KHYASHYDERQCR---------SSPDLLTDVSKQVEELRLAYGSCG 362

C.\_elegans YSSTYGLVTDRPTKHRNGSVYEPNQTDPYNKHQNTHSSMPHIAHISSQPADHSFSGTLDA 425

Drosophila --------------------YKTNSS---------------------------------- 404

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Dog YYRNVNGVHASEPVLDS----------------------RRRNSAVEVTFAAELECSKPE 476

Cattle YYRTVNGVHASEPVLDG----------------------RRRNSAVEVTFAAELEHSKPE 384

Brown\_Rat YYRNVNGVHASEPMLDG----------------------RRRNSAVEVTFAAELEHSKPE 389

Human YYQNVNGVHASEPVLES----------------------RRRNSALEVTFATELEHSKPE 399

Chicken SFRTASGVHTSEPTLDS----------------------RHSGSATAMMFAAELERFKPE 400

C.\_elegans RVGKSVTRDPSTSVTQHRLRQLKRSERCISDVDTVERPQRSSCRPVSHAINISSTSSKEQ 485

Drosophila ------------------------------------------------------------

Dog VDPTLLHQSQSSSSFPFIYTDPVFSTDPDP----RDYFGERSPLSSFQPSSKFADNLMST 532

Cattle ADPTSLHQSQSSSSFPFIYTDPVFITDPDPDTDPRDYFEERGPLSSFQTSSKFADNPMST 444

Brown\_Rat AEAASLHPSQSSSSFTFIYADPVFNTDPEP----IDFFEERSPLSSFQTNSKFVD----- 440

Human ADPTLLHQSQSSSSFPFIYMDPVFNTEPNPNPDPRDIFSERSSLSSFQTSCKFSGNHMSI 459

Chicken VAPTFLPHSKSSSAFPLLYAQLELERAWEP----TDSFSSRNPLTSFRPHHKFTGSSRSP 456

C.\_elegans PDLSVSLPNVLSDDLQMVCKEIEIEQNDPPKSVSGDNFQQRRSSRDYDNVSEDSYRLSDH 545

Drosophila ------------------------------------------------------------

Dog SSGLASKVSPARQLTYTDVPYIPCTGQQVDIMPPQVFFYVDRPPQVPRRSPIMAEENDRP 592

Cattle SSGLTSKVSPARQLTYTDVPYIPCTGQQVDIMPPQVFFYVDRPPQVPRRSPIMAEERERP 504

Brown\_Rat --GHTSKVSPARQLTYTDVPYIPCTSQKVDIMPPQVFFYVDKPPQVPRRSLMMAEESMRP 498

Human YSGLTSKVRPAKQLTYTDVPYIPCTGQQVGIMPPQVFFYVDKPPQVPRWSPIRAEERTSP 519

Chicken SVGNMREVS-ARPLVYMDVPLPPTP-------APQVFFYVDRPPPPP--CHVPSEEEGGA 506

C.\_elegans ERSTRSEVGVGSKFAAATIFNSTFVARKPGSNVVKRVVAHTKSTPNSTDDEEGALKSASE 605

Drosophila ------------------------------------------------------------

Dog DSCLESTIMKPAKRSP-------RNVRMKSFQQDFQELQEAMARTTGRSNINVDLEVEEP 645

Cattle DSCLQSTAVKSAKRSP-------RNIRMKSFQQDFQELQEAMARTTGRSNVNVDLEEQDP 557

Brown\_Rat DSYVDPSAIKPAKRSP-------RNMRIKSLQQDLQELQEAMARTSGRSNINVEPEEEDP 551

Human HSYVEPTAMKPAERSP-------RNIRMKSFQQDLQVLQEAIARTSGRSNINVGLEEEDP 572

Chicken AGGCIPTATKTAMWGP-------SSTWMGELQH------EASHRAAGTS---VGPEGERR 550

C.\_elegans YQTFRHIKEYPFARNANIVPIEIDGPNVDLSARRSPAATTTTTRTYANTTTTVTTTSKVL 665

Drosophila ------------------------------------------------------------

Dog NSEGAFAYSIQEQTPKRSQSQSDMKTIRFPFGSEYRPLGPCPTLS-RKADLFTYMFAEQG 704

Cattle TIEDTFAYNIQEPTPKRSQSQSDMKTIRFPFGSEFRPLGPCPALS-RKADLLTYMFAEQE 616

Brown\_Rat HLDDAFAYNLQEQTPKRSQSQSDMKTIRFPFGSEFRPLGPCPALT-RKTDLFTCTFAEQE 610

Human NLEDAFVCNIQEQTPKRSQSQSDMKTIRFPFGSEFRPLGPCPALS-HKADLFTDMFAEQE 631

Chicken QGARSFDYGLQEQPPKRSWSQSDMKAIRFPYSSEFRPLGPCPALSSRKAGMLQHVLAQQG 610

C.\_elegans TSSGAVLMKPKVISNDHEPSSGTHSSRVSPESGTYGALGPLPGRVITKENMMITPEGFKE 725

Drosophila ------------------------------------------------------------

Dog FPTVLTDQGAAERYIGS----ESSDSESEILKPDYYSLYGKGTRSPMARIRLSSGSLQLD 760

Cattle FPTVLMDQGATERYVPS----ESSDSESEILKPDYYSLYDKGIRSPMARIRLSSGSLQLD 672

Brown\_Rat FPTVLMDQSSAERYVAS----ESSDSESEILKTDYYSLYGKGTKSPRARIRLSSGSLQLE 666

Human LPAVLMDQSTAERYVAS----ESSDSESEILKPDYYALYGKEIRSPMARIRLSSGSLQLD 687

Chicken AAPGLR--RAAERYVGSST--ESSDSDSDLLAADYCSLYGRVLRAPRARVRLSSGSLQLE 666

C.\_elegans KKAKPNPPPKPSFPVQAVHSETEVVREIKTERASSHPLVHMQEEIPFSRAPLKFEDKKER 785

Drosophila ------------------------------------------------------------

Dog EE-DEGVSFNTPTAEDRTLLKPCNYFVA-------------------------------- 787

Cattle EE-DEDVSFNTSTAEDRTLQKPCNYFLA-------------------------------- 699

Brown\_Rat EE-DEAISFGTPGAEDRTLLKPCNYFLA-------------------------------- 693

Human EE-DEDAYFNTPTAEDRTSLKPCNYFLA-------------------------------- 714

Chicken EEEDEEVSSAALVAEERTSRGPSRYFT--------------------------------- 693

C.\_elegans KSSLSRPALISVQSEDNPDVQKCHLFNSDIPYTLTMRNVENTQSLPYSSFKDVSTAKKQG 845

Drosophila ------------------------------------------------------------

Dog ------------------------------------------------------------

Cattle ------------------------------------------------------------

Brown\_Rat ------------------------------------------------------------

Human ------------------------------------------------------------

Chicken ------------------------------------------------------------

C.\_elegans YESNSLKRVSKSPEFKRRKSLDLVPRKRLPSPGNFSAQDHTISPTTPDSDVLEYLLRRRS 905

Drosophila ------------------------------------------------------------

Dog ------------------------------------------------------------

Cattle ------------------------------------------------------------

Brown\_Rat ------------------------------------------------------------

Human ------------------------------------------------------------

Chicken ------------------------------------------------------------

C.\_elegans LLGDKSVIKTKSKRTDPRRQTQPVRFDLPPSPCSPTAGGSTPFISILNDDLFDECVSESR 965

Drosophila ------------------------------------------------------------

Dog ------------------------------------------------------------

Cattle ------------------------------------------------------------

Brown\_Rat ------------------------------------------------------------

Human ------------------------------------------------------------

Chicken ------------------------------------------------------------

C.\_elegans SLHEDMDRLDKTTPHNQSISSFMSQKSRRDSEDSDVMPPPPEEILNKAMISSSRPAPPPP 1025

Drosophila ------------------------------------------------------------

Dog ------------------------------------------------------------

Cattle ------------------------------------------------------------

Brown\_Rat ------------------------------------------------------------

Human ------------------------------------------------------------

Chicken ------------------------------------------------------------

C.\_elegans PPKSLAAAVKVAEMKAAAAGKIYYSGSSRTGKITDSPPFIDDSPKNSSASDAPSVPSPQK 1085

Drosophila ------------------------------------------------------------

Dog ------

Cattle ------

Brown\_Rat ------

Human ------

Chicken ------

C.\_elegans NCFSDF 1091

Drosophila ------