

CLUSTAL X (1.81) multiple sequence alignment

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PGII -----
PGI -----
PGA -----
PGB -----
PGE -----
PGC -----
PGD GTADGSAPASTPAAPAVSSSSKVGKAPAVAATRTSAIPTTFHTTAVRVPLSTSAAAAVTS
XGH -----APS
PGXC -----
PGXA -----SKTPSAPTISAYPKS
PGAX -----FSRSREAACS
PGXB -----SIPRSPLIPGAQIVPASSTA
RGXC -----
RGXB -----AFSPSNQAMAPIALKILLFTSLIV
RGXA -----
RGA -----QLS
RGB -----QLS
RGD -----QVS
RGC -----QLS
RGE -----QLT
RGF -----QLI

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PGII -----DSCTFTT-----AAAAGKAGKAC-----STITLNN--
PGI -----ASTCTFTS-----ASEASESISSC-----SDVVLSS--
PGA -----STCTFTD-----AATASESKTSC-----SDIVLKD--
PGB -----SCTFTS-----ASAAKSGKSSC-----STITLDN--
PGE -----ATSCFTSG-----SEGASSASKSKTSC-----STIVLSD--
PGC -----ATTCTFSG-----SEGASKASKSKTSC-----STIYLSD--
PGD QAVLPAQSSVAGNGGTTCTV-----TE-YASISSAVASC-----SNILLSN--
XGH KVQRAPDSSLHA-RA-VCT---PTAGGDSSTDD-VPATEALSSCG---NGGTIVFPEGS
PGXC -----VPHSSRASRSQQCVVPSKYQASNGMADD-SVAVSQAFQAQCA---TDSVIFEEGV
PGXA PGNFKPASGRQNSTSNVCEV---KPNQT---DA-APGILAAAHTCN---NGGTVFLPPG-
PGAX PPKPFRPLPTSSSRDKTCHV---RSHGDGS-DD-SDYILSALHQC�---HGGKVVFDEDK
PGXB DLRAIGAQHHKYPDRETVTI---RASRNAL-DDVSSDFLWGLKQAN---HGGRLLLKQGE
RGXC -----GNVENNHNVCTV---RANGGHQ-DD-VPNIMAAFKECG---NGGTIFPEDQ
RGXB PSISLSDQARNGHARTICEV---KPGGSSEIDD-VPAlVDALTTTCG---SGGRVIFSNN-
RGXA -----VPSLQKNGTTCTV---IPLGNGQ-DD-VPNILSAVDECG-QTSGGRVVLPAKY
RGA GSVGPLTSAHKAATKTCNVLDYGAVADNSTDIGSALSEAWDAC---SDGGLIYIPPG-
RGB GSVGPLTSASTKAATKTCNVLDYGAKADKSTDIGAPLASAFADC---KSGGLVYVPSG-
RGD GTVGPRTSASAKAAEKVCNVLDYGASANSTIDI-GPPLKEAFQDC---QTGGLVYIPEG-
RGC GPVGPLVDYSTKARNQTCNIIDYGAVADGKTDI-SQALLDAWGNC---SVGGLVYIPPG-
RGE GSVGPLTSVIDKAAVKTCNVCDYGASSDNTTGV-GQPIIDAFTDC---GSGGLIHVPEG-
RGF GPVGPTTQLEDK--DIECNILDYGGVADNETDV-ATSIETTFTECVLNNPKSRLVIPEG-

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PGII -IEVPAGTTLDLTGLTSGTKVIFEGTTTTFQYE-----EWAGPLISMS-GEHIT  
PGI -IEVPAGETLDLSDAADGSTITFEGETTSFGYK-----EWKGPLIRFG-GKDLT  
PGA -ITVPAGETLNLKDLNDGTTVTFEGTTTWEYE-----EWDGPLLRIIS-GKDIT  
PGB -IAVPAGETLDTGLKKGTTVIFEGETTFGYK-----EWKGPLISMS-GTDIT  
PGE -VAVPSGTTLDLTDLNDGTHVIFEGETTFGYE-----EWSGPLVSVS-GTDIT  
PGC -VAVPSGTTLDLSDLNDGTHVIFQGETTFGYE-----EWEGPLVRVS-GTDIT  
PGD -INAPASSTIDLTLGLQTGAAVIFAGETTFGDTYD-----SDFD-PIV-IS-GTDVT  
XGH TYLLNS--VLDLGNCSN-CDIQVEGLLKFASDTDYWSGRTAMISVSDV----DGLKLR-S  
PGXC NYNIFQP--ITATNLSN-VEIRMHGNIHLPLQONITAVQN--IVSDGTSTWFTLEGPKVDWI  
PGXA DFVVATA--LDLTFLLN-IDFAIWGNITFKKIDIDLWTTQAFQYTFQTASLFWRFGNNVN  
PGAX EYIIGTA--LNMTFLKN-IDLEVLGTILFTNDTDYQANSFKQGFQONATTFQLGGEDVN  
PGXB TYVIGKK--LDLTFLLN-IDVQLEGEIQFTNNITYWQANNFYDFQKSITFWRWGGQDIK  
RGXC SYWIATR--LHPT-LKD-VAIEWRGKWTFSNLTWYWRNNSYP IAFQNHAGF IISGDNIT  
RGXB TYHINSV--MNTTWLDD-VEIDLQGTLLWSTNISYWLNHSLPVGYNQSTAWILGGKDIV  
RGXA TYRINQR--MTTHLTD--RLEIGGTLFSDIDYWVNNSYRVDFQONQSSAWRITGHDYV  
RGA DYAMDT--WVSLSGG-KATAIILDGTIYRTGT-----DGGNMILVENSDFE  
RGB DYALST--WARLSGG-EAWALQIDGIYRTGT-----DGGNMIYIEHSSDFE  
RGD DYLLSS--WVSLVYG-SGVALQLDGIYRDKNVT-----DGGNMIYIEHTSDIE  
RGC NYSLAE--DIELKHG-QSSAIQLDGVVMRGRH-----GSYQMILIRDCNDFE  
RGE DYLLKD--WVSSNG-SAWSIQLDGVLHWDSSPS-----AQSYIFAITGGSDSE  
RGF DYLIKR--SVVLSNG-TNWFQLDGLITA-----AYGGNWTV-DPVDFE

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PGII VTGA-SGHLINCDGARWWD--GKGTSG---KTKPKFFYAHGLDSSSITGLNIKNTPLMA  
PGI VTMA-DGAVIDGDGSRWWD--SKGTNGG---KTKPKFMYIHDVEDSTFKGINIKNTPVQA  
PGA VTQS-SDAVLDGNGAKWWD--GEGTNGG---KTKPKFFYAHDLDDSKIISGLYIKNTPVQA  
PGB VKQA-SGAKINCDGARWWD--GKGSNGG---KTKPKFFYAHKLDQSSITGLKVNTPVQG  
PGE VTGA-DGAYLNGDGSRWWD--GEGSNGG---KTKPKFFYAHDLTSSTISGIYIQNSPVQV  
PGC VEGE-SDAVLNGDGSRWWD--GEGGNGG---KTKPKFFYAHDLTSSTIKSIYIENSVPQV  
PGD ITGE-EGHVINGNGEAYWD--GEGSNGG--QDKPDHFIVVKDMYNSKIENLNILNWPVHC  
XGH LT---GSGVIDGNGQDAWDLFASDSS-----YSRPTLLYITGGSNLEISGLRQKN-PP--  
PGXC GPEDVNNGWIDSYGQPWWDANPAGSSGI----DNRPHLMSFKSSQATMKYFRSRK-PIAW  
PGXA IYGD-GKGVIDGAGQYWSAMAEDSSV----MRPCLLGTDLGHATISGLTMLNSPNWF  
PGAX MY---GGGTINGNGQVWYDLYAEDDLI-----LRPILMGIIGLNGGTIGPLKLRYSPOYY  
PGXB IF---GSGVLNGNGQKWyDEFAGKQILVYNTFYRPILFLTDNATRISVEGITQLNSPCWT  
RGXC INGY-GTGGIDGNGNTWYTAEKGDTQ-----PGRPMPFVFWNVSEVIVDSFYVKDPPLWS  
RGXB FEHG-GYGTFNQSGQTWYRYVGSTSN----YPRRPNQLTVSGAMGAVFKGLRFVQSQMWT  
RGXA VGGGPRQGGVDGNGQLWYTWAKGGSN----VFGRPMPVHVFESTRATLRNLAI-RQPQFW  
RGA LYSNSSSGAVQGFYVYHREG-----DLGPRILRLQDVSNFVHDIILVDAPAFH  
RGB LFSSTSEGAMQGLGYEFHADD-----NWSGPRLLRLYEVTDFSVHDFILVDSPSFH  
RGD IFSNNSAGAIQGYGYLFHEQD-----EY-GPRILRLNNTDFSVHDLILVDSPAYF  
RGC FFSGNSRGAIQGFYGYEYLQND-----TYGE-RLLRIQEVNNFVHGHALIDSPSYF  
RGE LSSSNATGAIQGSGLYHRHN-----TYTSPRMLYISGVSDWTVHDLVLDVNSPMPH  
RGF FYSSNGLGAFQGGYIYRNLA-----NTDRPRLVRLISPTNASVHDLILVDSPKFKH

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PGII FSVQAND--ITFTDVTINNADGDTQ-----GGHNTDAFDVGNISVGVNIIK-PWVHNQ  
PGI ISVQATN--VHLNDFITIDNSDGDND-----GGHNTDGFDI SESTGVYISG-ATVKNQ  
PGA ISVESDN--LVIEDVTIDNSDGDSE-----GGHNTDGFDI SESTYITITG-ATVKNQ  
PGB FSILADH--LTITDVTIDNSAGTSK-----GHNTDAFDIGQSTYITIDG-ATVYNQ  
PGE FSIDGST-YLTMEDITIDNTDGDDG-----EAA-NTDGFDIGDSTYITITG-ANVYNQ  
PGC FSIDGST-DLTMTDITVDNTDGDDT-----DLAA-NTDGFDIGESTYITITG-AE IYNQ  
PGD FEIENTE-YLTISGLILNNTAGDAANSKSDGDPAAHNTDGFDIKQSDFLTLN-SWVHNQ  
XGH NVFNSV--KGGATNVVFSNLKMD-ANSKSD--NPPKNTDGFDIGESTYVITE-VTVVND  
PGXC NVKLGQ-DITVSHAIIDATST-----GSFPFNTDGFDI-VEGTNIQITD-SIMYNG  
PGXA NLIANST-DILISNMTMLVESEIS-----DAPAKNTDGDWDIYRSSNIVIQD-SRIVNT  
PGAX HFVANSS-NVLFDGIDISGYSKS-----DNEAKNTDGDWDIYRSNIVIQN-SVINNG  
PGXB NFFVRTN-DVSFDNVYIHAFSTNA-----SSDPANTDGMDSLDVDGVSTN-MRIDVG  
RGXC VNIMNGT-NMRFNNIYCNATAVDA----PWGDNWVQNTDGFDTMDATNIQLTN-FVYQGG  
RGXB MSIIHTS-NSWFDSIYVNNLYD-----DGGSAQNTDGANTIYSKNITLTN-WEVVNG  
RGXA AVLVDSSSHINLDNFYVNATNHDS--SVSPEGWVQNTDGDIDTYRSDHITVTN-WVYQGG  
RGA FVMDDCS-DGEVYNMAIRGGNSG-----GLDGIDVW-GSNIWVHD-VEVTNK  
RGB FSLDCT-NGE IYNMAIRGGNHG-----GLDGIDVW-SNNIWVHD-VEVTNK  
RGD LNLVESY-NGEVYNMIRGASMG-----GLDGIDIS-GANYWIHD-VEVTNG  
RGC IVFDTVT-SGEVYNILIRGVTSVG-----ATDAIDVW-GENMWFHD-IEVSNG  
RGE FVIDGGY-NGEAYNMAICGGDHG-----GLDGIDLY-GGNIWIHL-VMVTNK  
RGF IVDFFAV-NLEAYHLTIRGANLG-----SYDGIDAI-GTNYIYHD-NEVTNR

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PGII DDCLAV--NSGENIWF TGGTCI-GGHGLSIGSVGDRSN--NVVKNVTIEHSTVSNSEN--  
PGI DDCIAI--NSGESISFTGGTCS-GGHGLSIGSVGGRDD--NTVKNVTISDSTVSNSEN--  
PGA DDCVAI--NSGENIYFSGGTCS-GGHGLSIGSVGGRDD--NTVKNVTFIDSTVSDSEN--  
PGB DDCLAI--NSGEHITFTNGYCD-GGHGLSIGSIGGRSD--NTVNDVTISNSKVLNSQN--  
PGE DDCVAV--NSGENIYFSGGVCS-GGHGLSIGSVGGRSD--NTVKNVTFYDSEIKSSQN--  
PGC DDCVAI--NSGENIYFSASVCS-GGHGLSIGSVGGRDD--NTVKNVTFYDVNLKSQQ--  
PGD DDCVAV--TSGSSIVVDNLYCY-GGHGLSIGSIGGKSN--NTVDGVTFSNSQVINSEN--  
XGH DDCVALKPSS-NYVTVDTISCT-GSHGISVGLGKSSD--DSVKNIYVTGATMINSTK--  
PGXC DDAI AVGADSHDTLFRNTIGY-QTHGMSIGSLGKDPDFANISNIRFDDVTVVDGLY--  
PGXA DDCVSFKPNSTQIVI-QNLDCT-GSHGISVGLGQYQGETDIVEDLYIYNISMTDASD--  
PGAX DDCVSFKPNSTNILV-QNLHCN-GSHGISVGLGQYKDEVDIVENVYVYNI SMFNASD--  
PGXB DDCFSKPNSTNIFV-QNMWCN-NTHGVSMGSIGQYAGEMDI IENVYIENVTL LNQON--  
RGXC DDCIAIKPRSYNIDI-QNVTCR-GGNGIAIGSLGQYLED-SSVANIRVDKVNIIIR-YNED  
RGXB DDSISTKANSTDITI-ANCTFT-SGLGIAIGSIGQYNGAFETVERLKI SNITYEKTTH--  
RGXA DDAVAFKGNSTNIHV-ENVTVY-GGPGIAFGSLGQYPRD TDIVENVTVRNVRVQPSFQRA  
RGA DECVTVKSPA-NNILVESIYCN-WSGGCAMGSLGAD----TDITDILYRNVTWSSNQ--  
RGB DECVTVKSPS-KNILIESIYCN-WSGGCGMGSGFGSD----TNVSDITYRNIYTWSSNN--  
RGD DECVTVKSPS-ANVRVENVFCN-HSGGCAMGSLGTD----TNI SNIEFENIYTYNSTQ--  
RGC DECVTVKSPA-HNYLIENIYCN-LSGGTAIGSLGTG----TNI SDIHYRNLYM-NQAD--  
RGE DECVTSKTNS-HNFLIENIYCN-PSGGCAIGSLGSS----VNVTNILYRNVTWDSNQ--  
RGF DECVSVKSPS-HHALVENLV CNQAGSGVSI GSLNVS----AEISNIEARNISIIQGN--

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PGII      ---AVRIKTIS-----GATGSVSEITYSNIVMSGISDYGVVIQQDYE
PGI       ---GVRIKTIY-----KETGDVSEITYSNIQLSGITDYGIVIEQDYE
PGA       ---GVRIKTVY-----DATGTVEDITYSNIQLSGISDYGIVIEQDYE
PGB       ---GVRIKTIY-----GKTGTVENVKFEDITLSDISKYGIVVEQDYE
PGE       ---GVRIKTIY-----GDTGSVSEVITYKEITLSDITDYGIVVEQNYD
PGC       ---AIRIKTIY-----GDTGSVSEVITYHEIAFSDATDYGIVIEQNYD
PGD       ---GCRIKSNA-----DTTGEVYNVKYENITLSGISDYGIDIQQDYE
XGH       ---AAGIKTYPSSG-----DHGTSTVSNVTFDFTVDN-SDYAFQIQSCYG
PGXC      ---AARFKSWG-----GTGLVKNVTWNNIRVFNVT-FPIFVTQSYS
PGXA      ---VARIKVWPGVPA-----DTSGS-TSGGGLGRVNRVITYEHMQSENND-HIISVSQCYE
PGAX      ---MARIKVWPGTPS-----ALSADLQGGGGSGSVKNITYDTALIDNVD-WAIEITQCYG
PGXB      ---GARLKAWAQDV-----GYGRINNVTYKNIQIQNTD-APIVLDQCYF
RGXC      MHN SAYLKTWVGALVPQSSYE-SAGVPRGDGWSIRNVLF SNFNQOGAS-AGPSISQDSG
RGXB      ---AVYFKTWTGDQV-----GYPPN-GGGGGLGYASDIVATNLKTNLKGAPFTISQCTT
RGXA      MNSGVYFKSWIGVNY-----GVPPN-GGGGGHGYVRNVSVENLRLKDVQ-LPVYIDTCLS
RGA       ---MYMIKSN-----GGSGTVNNTVLENF IGHGNA-YSLD VDSYWS
RGB       ---MMLIKSN-----GGSGFVENVLLENF IGHGNA-YSLDIDSYWA
RGD       ---MYMIKSN-----GGNGTVTNC SFKNF IGY SNA-YMLDLDTYWG
RGC       ---ACFLKSN-----NGDGIVKNI IWENVIVHGGP-YPLAIDEAWG
RGE       ---MMMIKTN-----GGLGNVSNIVFENF IGHGNV-NSLDLDSYWS
RGF       ---IAFIKTYP-----GGSGYVKDVTFENFRSLNSL-YGLDINQYWQ
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PGII      DGKPT----GKPTNGVTIQDVKLESVTGSVDSGA-----TEI
PGI       NGSP T----GTPSTGIPITDVTVDGVTGTLEDDA-----TQV
PGA       NGDPT----GTPSNGVTISDVTLEDITGSVDSDA-----VEI
PGB       NGSP T----GTPTNGVKVEDITFKKVTGSVKSSG-----TDI
PGE       DTS-----KSPTDGITIEDFVLDNVQGSVESSG-----TNI
PGC       DTS-----KTPTTGVPITDFVLENIVGTCEDDD-----CTEV
PGD       NGGAT----GDPTNGVKIENISFVNVKGTMSDGK-----DY
XGH       E-DDDYCE-ENPGNA-KLTDIVVSSFSGTTS DKY-----DPVVA
PGXC      DQGASRSGTVNASSAVMMEDFTWSDFAGSINTYQPGDGSCVSDPCWYNVGLPNLKHTEAL
PGXA      SKNQTMCDSY-P-SKLVIEDVLFKDFKGTTSK-----KYDPEIG
PGAX      QKN T T L C N E Y - P - S S L T I S D V H I K N F R G T T S G -----S E D P Y V G
PGXB      D I N A T E C A K Y - P - S A V N I T N I L F E N I W G S S S G -----K D G K I V A
RGXC      D N -----G S Y A G T S K M S I S N V A F V N F T G W V D -----T E K S V V S
RGXB      F S G A S ---G N C T N S K F Q I R D L V F T D I S G T T D S -----S D V A
RGXA      Y L F S E N I T Q Y C D T S T Y E F E D L H F R N I S G N G L A -----T V T D Y P G K N I S F A V
RGA       S M T A -----V D G D G V Q L S N I T F K N W K G T E A D G A -----E R G P I
RGB       S M S A -----V D G D G V Q L S N I T V K N W K G T E A Y G A -----E R G P V
RGD       D E S -----D G D I K Y E N I G F E N W K G T S S N G I -----Q R S P I
RGC       D D R G -----S V G V Q V S N L T F R N W H G E S V S A -----S R P V I
RGE       S M N A -----I D G V G I Y Y H N I T I Y N W T G T A I D G E -----T R P P I
RGF       N T W E -----P D T G S V T L S N L V F K N F S G S V A D G A -----L R P P L
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PGI I YLLCGS-GSCSDWTWDDVKVTGGKK-----STACKNFPSVASC-----  
 PGI YILCGD-GSCSDWTWSGVDLGGKT-----SDKCENVPSGASC-----  
 PGA YILCGD-GSCSDWTMSGIDITGGET-----SSDCENVPSGASCDQ-----  
 PGB YILCGS-GSCSNWTWSGVDTVGGKK-----SSKCKNVPSGASCSD-----  
 PGE YIVCGS-DSCTDWTWTDVDVSGGKT-----SSDCENVPDDISC-----  
 PGC YIACGD-GSCSDWTWTGVSVTGGSV-----SDDCLNVPSGISCDL-----  
 PGD YILCGD-GSCSNFVFTDVDITGGSD-----DSC-NYPSS-GCP-----  
 XGH NIDCGSDGTC-GISISGFVVKAPSGKS---EVLcantpsdlgvtctsgasg-----  
 PGXC IIECHTAQSCKNFVTDNIQLYPQVLEP--ASVICMNATAALNPD LGFTCKNGTYSPLSN-  
 PGXA ELTCSSPDVCHNITVQDINVTPPSGDS--PTFTCNMGNLNLEDITCA-----  
 PGAX TIVCSPDTCSDIYTSNINVTSPDGTN---DFVCDNVDESLLSVNCTATSD-----  
 PGXB DLVCSFDAVCTNITLSNVNLTSPKGTA---EIVCDDIQGGIGVDCVDES VTR-----  
 RGXC TVSCSEVHPCYNIDYDNVVLYPGKNATTAGTGSCKYTADGGVHGLSGC-----  
 RGXB SFQCSAVAPCEDITIENVSLRIAGNTTHAEYLCGNVDGTVGFNCTGDVCGSSATGGC-  
 RGXA ALLCSEKAPCTDLTFQDISITLPGNYT-GKHVLCENAEAEGLPCNS-----  
 RGA KVVCSDTAPCTDITIEDFAMWTEGDEQ--TYTCESAYGDGFCLSDSTT-SYT-TTQT  
 RGB KVVCADGAPCYDITIEDFAMWTEEGDSQ--WYSCESAYGSGYCLQSDDHV-SYSVTTST  
 RGD RILCPDANPCTNITLTAVELWTDTDGYV--KQECSSAYGECECLRQQNGTLASYSFTTTI  
 RGC RLQCDSDVPCYDITIENVNLWANDSNYV--VWQCENAYGDGACLSAEGTKDLETFTSKQ  
 RGE RVICPEDMPCTEITLVQIDLLVEEGRYD--EYYCAIACGSGYCLDSATSTL--TTYTTTT  
 RGF YLFASDLTFATNVTVEEFSVWTEGTTV--VNKISNIFGTGDDSYGENDGIE-SLQSGES  
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PGI I -----  
 PGI -----  
 PGA -----  
 PGB -----  
 PGE -----  
 PGC -----  
 PGD -----  
 XGH -----  
 PGXC -----  
 PGXA -----  
 PGAX -----  
 PGXB -----  
 RGXC -----  
 RGXB -----  
 RGXA -----  
 RGA VTTAPSGYS-ATTMAADLTDFGTTASIP IPT IPTSFY PGLTAISPLASAATTA-----  
 RGB VSSAPSGYS-ATSMAADLTDFGSTVSIPIPT IPTSFY PGATPYSALMANSASTAAASSI  
 RGD TSVPVTAYSPTTTPGLISTSMDDTTT SIPIPT IPTSFY PPGASAYSTLMANM-----  
 RGC TITATPSYA-APTMAADF TFNLPSTSPFT IPPMPTSFY PGATP I STLLHLHGAGGLPSAS  
 RGE YGNSASTGYEAPT MADDLATAFGTTAS IPTPTTPASFFPGVAPVSAVAGSS-----  
 RGF PYTYTSTYITITASPTNWQAPSTPTWALPSTGYGTASPIPVYTPAPLWRP GGIDYNLHYWG

PGII	-----
PGI	-----
PGA	-----
PGB	-----
PGE	-----
PGC	-----
PGD	-----
XGH	-----
PGXC	-----
PGXA	-----
PGAX	-----
PGXB	-----
RGXC	-----
RGXB	-----
RGXA	-----
RGA	-----
RGB	ASHATVHSSSASVAASVPSAVAPSESIPAATSAVVSSAAAIAPSPAVGAQEGSTTSAPSF
RGD	-----
RGC	PISHRRHQ-----
RGE	-----
RGF	SF-----