

Additional file 8. Multiple sequence alignment of BoCNGC proteins. Multiple sequence alignment was performed by clustalX2 and viewed by GeneDoc software package.

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*      20      *      40      *      60      *      80      *      100      *      120      *      140      *
BoCNGC15 : -----MATEQEFTR-----ASRVSGASS-----SVGCYSDYDYEKDEEEEEEEEEEMEE----- : 43
BoCNGC16 : -----MATEQEFTR-----ASRVSGASS-----SIGYSDYDYEKDEEEEEEEEEEMEEQ----- : 43
BoCNGC17 : -----MPSHTNFLFRWIGLFSQKLR-----ETTGISENNNGVGESSSDTTPVLSGGEYACTQVGV-----PA : 58
BoCNGC2 : -----MEMNLRNTFV-----FTENEDSWNRPSVTSVIKKTVRRSF----- : 38
BoCNGC3 : -----MERA-----STMQS-----VHEN-----IKSVRG----- : 19
BoCNGC1 : -----MGFGRDNRVRWF-----EPSSTEYGYGRRARPSLNAVLNVRRGF----- : 41
BoCNGC4 : -----MESKSQVISGHREKFI-----LDSMDPR-----SPEAGLNRCNLNIQRPKRFTQAT----- : 47
BoCNGC5 : -----MFDCTGNGVKSQVISGHREKFI-----LESMDSRYSQSSDNTGLNKCTLNQAPKRFAGGS----- : 57
BoCNGC6 : -----MFDCKVKSQVISGHREKFI-----LDSMDSRYSQ-----GSEAGLSKCTLNQGGSRANGGTG-----QG : 59
BoCNGC7 : -----MAGKPKQTFVSVDDDFKLPSSSSSLTRQHNYSISSISGPHPIQGS----- : 44
BoCNGC8 : -----MYKSQVISGHREKFI-----LDDLDSS-----ASHATGMMTKRNCFGFPVKNRGSE----- : 47
BoCNGC11 : -----MEFKRDNTV-----FYGDEKQILEVTEKRLPLPMFKSSAAL----- : 37
BoCNGC12 : -----MEFKRDNTV-----FYGEEKQILEATEKRQPLPMLKPTTQ----- : 37
BoCNGC10 : -----MELSKDKLLMLYS-----DKKEPKAIAWAVN-----DPMSKSYKLS----- : 36
BoCNGC13 : -----MNKIRSL-----FL-----LPETITSAAS----- : 20
BoCNGC14 : -----MSNLHLHTSAR-----FRN-----FPTAFSRRHH----- : 24
BoCNGC9 : -----MGYGNRSRVS-----FEEDSEVTKPQAVHEETAEKLFKING----- : 37
BoCNGC18 : MASPENDDVPMPLPASDTSSSS-RIMPFTSRSRSTSLANNSSTIDVF-NSSTVVLYGYNHLGTQRRPP-LVQMSDPLS-STRSPEPRFALPPPS-----TGASSDSVVGAS : 101
BoCNGC19 : MASSNGYDDVPMPLFVSDTSSSS-RTRPFTSRSRSVLSLNTSSTIDVFENSSSTVVLSYTDPLGTQRQPQ-LVQMGDPIS-STRN-----LELVS-----KHAHP--YGIT : 94
BoCNGC20 : ---MEKDDVPMPLFVSDSSSLS-RTRPFTSRSRSVSLANTSSIIDGF-DSSTVVLYGTYGFLRTRRRPP-LVQMSGPLS-STRSPEPLFLPPP-----STRDVSSSQPERYPSFATALEHKNS-EEFVLKHAHLRSGQLGMCNDPYCTT : 137
BoCNGC21 : MASPENDDVPMPLFISDTS---RTRPFTSRSRSVLSLNTSSTIDGF-DSSTVVLYGTYGFLRTRRRPP-LVQMSGPLS-STRNPEPLFLPPP-----SVG-ISSSQPERYPSFATALEHKNS-DDEFVLKHAHLRSGQLGMCNDPYCTT : 137
BoCNGC22 : MAPPNEKDDVPMPLFISSSSSSS-RTRPFTSRSRSTSLANTSSAIDGF-DSSNVVLYGTYGFLQTYGRPA-FVQMSASLP-STLIPEPLFLHPTPTGGSSHSIG-VSSSQPERYPSFATALEHKNS-DDELGLG-----SQLEVCNDPYCTT : 138
BoCNGC23 : MVSPNKDKRIHILPISDASSSSQTRVFTSRTRSVPLSNPTDETG---NSNAVILGYAGSLLSQ-RPP-LVPMGTGLSSSTRPEPLFRPAP-----PTRRSSGYFGDLEEVNSSDNDLKHHLRSGQLGMCNDPYCTT : 134
BoCNGC25 : MASPNEKDEFPIILPVSEARPRANTRALNSRNRSVSFSNSTYSTNRV-DNSSVLYGTYGFLRTRRRPPSVQMSGPLYSTRRP-DQSFPPSP-----VQPPDSSLSS-TVDVPSEED-EVVLKNAHLRSGQLGMCNDPYCTT : 136
BoCNGC26 : MAYPNEDEFPIILPVSEARPRANTRALNSRNRSVSFSNSTYSTNRV-ENS-----SGPRRTQSRPSPSVHMSGPLYDTRRPPDQSFPPSP-----VQPPDSSLSSSTTVDIPSEEVVEALLKNAHLRSGQLGMCNDPYCTT : 133
BoCNGC24 : MISPENDDVPMPLFISDASSSSQTRVFTSRTRSVPLSNPTDETG---NSNAVILGYAGSLLSQ-RPP-LVPMGTGLSSSTRPEPLFRPAP-----GPLYSTRP--ESLLPPS-----IEPPDS---SSTVDVRSDE--SVVKNAHLRSGQLGMCNDPYCTT : 120

160      *      180      *      200      *      220      *      240      *      260      *      280      *      300
BoCNGC15 : -ETEKEDEEEEPVVRVTCG-----GRR-NGSPGYSYNKMMMLG---RILDRSKLVQENRNVFLLVATGELVDFELFLITLISVN---DACMCHLVIGWLALTLVTRVRSVIDLLHLWNLIIQFKIARRWEPSPGDSGDGINKED : 172
BoCNGC16 : -EEE-EEEEETHVGVTCG-----IRRRNGSSSYNKMMLG---RILDRSKLVQENRNVFLLVATGELVDFELFLITLISVN---DACMCHLVIGWLALTLVTRVRSVIDLLHLWNLIIQFKIARRWEPSPGDSGDGINKED : 172
BoCNGC17 : FHSTCDQANAPEWRASAGSSLPV-----IQEGSAPDPVRAFRRRLKGFGEVLDERSKLVQENRNVFLLVATGELVDFELFLITLISVN---TGPACTLYMGAFVAVVTVVTRTCLDALHLWVWVWVQFLA---YVSRDS---LVVVC : 193
BoCNGC2 : -----ERKSEKIRNFKQPLT-----FHSQKKNENKKKIIRVMNENDSYLQNNRIFLLLCVVAFAFDPEFFFPVDFPG---RFOKLLKKLEAVACVFRDFIDAFYVWVHMLFQFNTG---FIAPSS---RGER : 155
BoCNGC3 : -----QLKKVYKTLN---TLENARKAILLVCVVAFAFDPEFFFPVDFPG---NFCFTEFKKLAAVVSAIRTFIDTFYVHIFIFNEITE---FIAPSS---QVSLR : 108
BoCNGC1 : -----ERKSDKIRTFKKPLSFN-----SHKNEEKRNATGQKKNILNQGSELQNNRIFLLLCVVAFAFDPEFFFPVDFPG---KHCINLHSSLEIAASVLRDFVDAFYIIEVVFQFRTA---YVSPDS---RVER : 161

BoCNGC18 : MASPENDDVPMPLPASDTSSSS-RIMPFTSRSRSTSLANNSSTIDVF-NSSTVVLYGYNHLGTQRRPP-LVQMSDPLS-STRSPEPRFALPPPS-----TGASSDSVVGAS : 101
BoCNGC19 : MASSNGYDDVPMPLFVSDTSSSS-RTRPFTSRSRSVLSLNTSSTIDVFENSSSTVVLSYTDPLGTQRQPQ-LVQMGDPIS-STRN-----LELVS-----KHAHP--YGIT : 94
BoCNGC20 : ---MEKDDVPMPLFVSDSSSLS-RTRPFTSRSRSVSLANTSSIIDGF-DSSTVVLYGTYGFLRTRRRPP-LVQMSGPLS-TRNPEPLFLPPP-----TSTRDVSSSQPERYPSFATALEHKNS-EEFVLKHAHLRSGQLGMCNDPYCTT : 137
BoCNGC21 : MASPENDDVPMPLFISDTS---RTRPFTSRSRSVLSLNTSSTIDGF-DSSTVVLYGTYGFLRTRRRPP-LVQMSGPLS-TRNPEPLFLPPP-----DSVG-ISSSQPERYPSFATALEHKNS-DDEFVLKHAHLRSGQLGMCNDPYCTT : 137
AtCNGC20 : MASHNENDVPMPLFISDPSRT-RARAFTRSRSRSVLSNPTSSIEGF-DTSTVVLYGTYGFLRTRRRPP-LVQMSGPLS-TRKHEPLFLPHPS---DSVG--VSSQPERYPSFAALEHKNSSEDEFVLKHAHLRSGQLGMCNDPYCTT : 141
BoCNGC22 : MAPPNEKDDVPMPLFISSSSSSS-RTRPFTSRSRSTSLANTSSAIDGF-DSSNVVLYGTYGFLQTYGRPA-FVQMSASLP-STLIPEPLFLHPTPTGGSSHSIG-VSSSQPERYPSFATALEHKNS-DDELGLG-----SQLEVCNDPYCTT : 138
BoCNGC23 : MVSPNKDKRIHILPISDASSSSQTRVFTSRTRSVPLSNPTDETG---NSNAVILGYAGSLLSQ-RPP-LVPMGTGLSSSTRPEPLFRPAP-----PTRRSSGYFGDLEEVNSSDNDLKHHLRSGQLGMCNDPYCTT : 134
BoCNGC24 : MISPENDDVPMPLFISDASSSSQTRVFTSRTRSVPLSNPTDETG---NSNAVILGYAGSLLSQ-RPP-LVPMGTGLSSSTRPEPLFRPAP-----GPLYSTRP--ESLLPPS-----IEPPDS---SSTVDVRSDE--SVVKNAHLRSGQLGMCNDPYCTT : 120
AtCNGC19 : -----MAHTFTFTSRNRSVLSNPSFIDGF-DNSTVILGYTGLRTRRPPVQMSGPIHSTRRT---EPLFSPSP-----QESPDS---SSTVDVPPEDD---FVFKNAHLRSGQLGMCNDPYCTT : 110
BoCNGC25 : MASPNEKDEFPIILPVSEARPRANTRALNSRNRSVSFSNSTYSTNRV-DNSSVLYGTYGFLRTRRRPPSVQMSGPLYSTRRP-DQSFPPSP-----VQPPDSSLSS-TVDVPSEED-EVVLKNAHLRSGQLGMCNDPYCTT : 136
BoCNGC26 : MAYPNEDEFPIILPVSEARPRANTRALNSRNRSVSFSNSTYSTNRV-ENS-----SGPRRTQSRPSPSVHMSGPLYDTRRPPDQSFPPSP-----VQPPDSSLSSSTTVDIPSEEVVEALLKNAHLRSGQLGMCNDPYCTT : 133

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BoCNGC4 : ---KASSGSFKKGRKSGEGLWSI-----GRSIGLGVSRVAVPEDLEVSEKKIFDEQDKFILLNCKLFVASCILAVSDPDLFLYLPFFINDK---AKVCGIDRKLAIVATTTTRTVIDSFILFFHMAIRFRTA---YVAPSS---RVFGR : 177
 BoCNGC5 : ---KTSSSGFKNGFRKSGEGLWSI-----GRSIGLGVSRVAVPEDLVKVEKKIFDEQDKFILLNCKLFVASCILAVSDPDLFLYLPFFINDK---AKVCGIDRKLAIVATTTTRTVIDSFILFFHMAIRFRTA---YVAPSS---RVFGR : 187
 BoCNGC6 : NNNNASSGSFKKGRKSGEGLWSL-----GRSIGL-VSRVAVPEDLVKVEKKIFDEQDKFILLNCKLFVASCILAVSDPDLFLYLPFFINDS---GKCGIDRRLATIAATTTTRTFIDVFNLFHMAIQFRTA---YVAPSS---RVFGR : 191
 BoCNGC7 : ---HNASSGSFKKRFQKSGKGLKSI-----GRSLGFGVYRAVFPEDLVKVEKKIFDEQDKTILLFCNLFVASCILAVSDPDLFFLYLPVINGE---SKCGIDRKLAIATTTTRTFIDVFNLAHMAIQFRTA---YIAPSS---RVFGR : 174
 BoCNGC8 : --KKRASKSFREGVKIGSEGLFSI-----GK----SVTRAVFPEDLRISEKKIFDEQDKTILLNRMVLVISCILAVSDPDLFFLYLPVINDSG---SSCGIDTKLAVTTTTTRTIDVFNLFHMAIQFRTA---YIAPSS---RVFGR : 175
 BoCNGC11 : -----FQKQELGTSKKS-----I-----FKIPRFGRKFVFPENFEIERDKILDEGGDVVLQNRVFLFWCLVALAVSDPDLFFLYLVSVRT-GRSSCTTDLNKLGIIVTFTRTLADLFVFLHIVIKFRTA---YVSRIS---RVFGR : 160
 BoCNGC12 : -----FLKPELVIPKTKNTRL-----FKLPRFGGLKVFPEPFEIERDKILDEGGDVVLQNRVFLFWCLVALAVSDPDLFFLYLSSVNT-GRSSCTTDLNKLGIIVTFTRTLADLFVFLHIVIKFRTA---YVSRIS---RVFGR : 164
 BoCNGC10 : -----LPSALKPPFDNLLAG-----NRISRYTDNNKTKSSKLSWYKTLDEGSEIVLKNWVFIISCMALVLEIDELIYFVPAIGGN-KDYFCAKTIDNLRILVTFTRTLADLFVFLHIVIKFRTG---FIAPNS-TRVGR : 163
 BoCNGC13 : -----NRGSVA-----VRYGSQLVFWR-HCILLDESSIVTYNHNHFLVTSILALDELIDELIYFVPAIVG---GPACTIDVVGLAATVTFTRSVADLFHLLHIFMKFRTA---FVARSS---RVFGR : 124
 BoCNGC14 : -----NNDLQ-----NQRGRSVFSELGDTTLDSEGGDITRNHIFLITCLLALDELIDELIYFVPAIVQA---GTACSIDIGFGILVTFTRTLADLFVFLHIVIKFRTA---FVSKSS---RVFGR : 130
 BoCNGC9 : -----AQISPRKNVKKMTRG-----KSFKAKVLSRVFTEDLGRVKNKILDEGGDITRNHIFLITCLLALDELIDELIYFVPAIVG---KEACTIDIGRLEVVLTIVIRSLADAFVIAQIVIRFRTA---YIAPSS---RVFGR : 159
 BoCNGC18 : SSQPNERNHAYSRTPRVFATSDF-----TLHNALDDDAKWA-----KYFSGITTFESNFVQITTFEALSCLSEVDPDLFFLYPIETK---EERCKIDWTTNVFVIVRSITDGLVALNIVLQER---LAVDLES---TVVGA : 229
 BoCNGC19 : CPSYDNERAAQIPTPRV---SDS-----MVHNARDDDAKGWARREAFATSVDKYLPKIMENHSKVFQSTTFEAFSCLLSEVDPDLFFLYPIEVGQ---SGKCRIDEEDMAIVLVALRSITDVLVFNVDLQCR----- : 213
 BoCNGC20 : CPSYDNRKAAQIPTRVSAIFDS---TFH-----DAKGWARREAFATINRHLPGIMNHSKVFQSTTFEAFSCLLSEVDPDLFFLYPIEVGQ---NNKCIDWVMAHTFVAVRSVTDVLSVNDLQ---FRLAYVAPES---TVVGA : 268
 BoCNGC21 : CPSYDNRKAAQIPSSRVSAFFDS---KFHNALYDDAKGWARREAFATANRYLPGIMNHSKVFQSTTFEAFSCLLSEVDPDLFFLYPIEVGQ---NDKCIDWVMAHTFVAVRSVTDVLSVNDLQ---FRLAYVAPES---TVVGA : 273
 BoCNGC22 : CPSYDNPFAQIPPS-----KLHAMCDDARGWATRFVTSINKFLTCIMNHSKVFQSTTFEAFSCLLSEVDPDLFFLYPIEVGQ---NDKCIDWVMAHTFVAVRSVTDVLSVNDLQ---FRLAYVAPES---TVVGA : 264
 BoCNGC23 : CPSYDNPFAQIPNPTVS---AS-----TFHNALYDDARGWARRFASVNRCLPGIMNHSKVFQSTTFEAFSCLLSEVDPDLFFLYPIEVGQ---NNKCIDWVMAHTFVAVRSVTDVLSVNDLQ---FRLAYVAPES---TVVGA : 271
 BoCNGC25 : CPSYDNRKAAQFHTNRVSDSR-----FRATALYDDARGWAKRFASSVRKLPKIMNHSKVFQSTTFEAFSCLLSEVDPDLFFLYPIEVGQ---NDKCIDWVMAHTFVAVRSVTDVLSVNDLQ---FRLAYVAPES---TVVGA : 270
 BoCNGC26 : CPSYDNLQAAQFHTYGVVSDSRTQVNATHNRQALHDYDRGWDKLEASYVRRCPVPGIMNHSKVFQSTTFEAFSCLLSEVDPDLFFLYPIEVGQ---NDKCIDWVMAHTFVAVRSVTDVLSVNDLQ---FRLAYVAPES---TVVGA : 266
 BoCNGC24 : CPSYDNRKAAQFHTYGVVSDSRTQVNATHNRQALHDYDRGWDKLEASYVRRCPVPGIMNHSKVFQSTTFEAFSCLLSEVDPDLFFLYPIEVGQ---NDKCIDWVMAHTFVAVRSVTDVLSVNDLQ---FRLAYVAPES---TVVGA : 253

p 6 w c 6 DP15 C d R3 D 6 s g

BoCNGC15 : * GTRTRT--RVAPPVKKNG--FFDIFVILPLPQVVLLVWVIFPSLLKRGSVTLVVSIVLLIFLQYLPKTIYHSIRHLRARNATLSEYIFGIVWVGIALNMAVAVPAFAAGACWYLLGVQFSAKGLKEQCENTIMG-----CDLRMLSCREPVY : 314
 BoCNGC16 : * ETRRTSRVAPPVKKKGTFFDIFVILPLPQVVLLVWVIFPSLLKRGSVTLVVSIVLVIFLQYLPKTIYHSVRHLRQNTLSEYIFGIVWVGIALNMAVAVPAFAAGACWYLLGVQFSAKGLKEQCENTIMG-----CDLRMLSCREPVY : 317
 BoCNGC17 : * GKLWDPRLAASHNARSLTGWFVDFVIVLVPQAVFWLWVPLKIREEKVKLIMTILLIFLQYLPKTIYHCIMRRMQVTVTYIFGILWGFALNLIAMFIASHVAGGCWYVLAIQRVASQIRQCMTAN-----CNL-SLSCQEVG : 337
 BoCNGC2 : * GELVQSYKKAIVRYL--KSYEIIDVLSILPLPQVVLLAVVPSMGRPASLVT-KELDKWVIFQYVPRIRIYPLFKEVTRTSELVTEAWAGAALNDFLYMLASHVFCALWYLLISVEREDROWREACKIK-----GCIHAYLYCGGG-E : 296
 BoCNGC3 : * GELVHSHKATRKRL--FFHIVDVCVPIPIQVVVLLIILH---RSDSLVS-QALDKWIIITQVVPRIIRIYPLKKEVTRASCIATKQVGAFFNDFLYMLASHVFCALWYLLISVEREDROWREACKIK-----GCIHAYLYCGGG-E : 247
 BoCNGC1 : * GELVEDPKAIALKYL--SSYEIIDVLSILPLPQVVLLAVVPSMGRPASLVT-KDYIITVIFAQYIPRIRIYPLSEVTRTSELVTEAWAGAALNDFLYMLASHVFCALWYLLISVEREDROWREACKIK-----GCIHAYLYCGGG-E : 303
 BoCNGC4 : * GELVIDPAQIAKRYL--QQYEIIDVLSVLPQIVVWRFLY-TSGANVLAATKQALRYIVLVQYIPRFLRYPLSELKRTAGVFAETAWAGAAYYLLLYMLASHVFCALWYLLISVEREDROWREACKIK-----GCIHAYLYCGGG-E : 319
 BoCNGC5 : * GELVIDPAQIAKRYL--QQYEIIDVLSVLPQIVVWRFLY-TSGANVLAATKQALRYIVLVQYIPRFLRYPLSELKRTAGVFAETAWAGAAYYLLLYMLASHVFCALWYLLISVEREDROWREACKIK-----GCIHAYLYCGGG-E : 329
 BoCNGC6 : * GELVIDPAQIAKRYL--QQYEIIDVLSVLPQIVVWRFLY-TSTGGSVLETKQALRSIILVQYIPRFRRIYPLSELKRTAGVFAETAWAGAAYYLLLYMLASHVFCALWYLLISVEREDROWREACKIK-----GCIHAYLYCGGG-E : 334
 BoCNGC7 : * GELVIDPAQIAKRYL--QRWEIIDVLSVLPQIVVWRFLY-RSRGSDVLAATKQALRSIILVQYIPRFLRYPLSELKRTAGVFAETAWAGAAYYLLLYMLASHVFCALWYLLISVEREDROWREACKIK-----GCIHAYLYCGGG-E : 318
 BoCNGC8 : * GELVIDPAQIAKRYL--TRYEIVDFLAVLPLPQIVVWRFLY-GSKGMDVLPKTKALNIVITQYIPRFRRIYPLSELKRTAGVFAETAWAGAAYYLLLYMLASHVFCALWYLLISVEREDROWREACKIK-----GCIHAYLYCGGG-E : 319
 BoCNGC11 : * GELVKDPKIAKRYL--RSDIIVDIYACLPQIVVWRFLY-SIRSSHSHTTNAVLLVIVQYIPRILYPLSAEIIKATEVVTTAWAGAAYYLLLYMLASHVFCALWYLLISVEREDROWREACKIK-----GCIHAYLYCGGG-E : 308
 BoCNGC12 : * GELVKDPKIAKRYL--RSDIIVDIYACLPQIVVWRFLY-SIRSSHSHTTNAVLLVIVQYIPRILYPLSAEIIKATEVVTTAWAGAAYYLLLYMLASHVFCALWYLLISVEREDROWREACKIK-----GCIHAYLYCGGG-E : 308
 BoCNGC10 : * GELVMDPKAIAKRYL--KSEIIVDIYACLPQIVVWRFLY-ATRSYRFDHSNNDVLLVIVQYIPRIFLYPLSSQIVKATEVVTTAWAGAAYYLLLYMLASHVFCALWYLLISVEREDROWREACKIK-----GCIHAYLYCGGG-E : 308
 BoCNGC13 : * GELVDRPDKAIAKRYL--KSEIIVDIYACLPQIVVWRFLY-AATNGTANHANSTVLLVIVQYIPRIFLYPLNQRIIKTEVFAIAKTAWAGAAYYLLLYMLASHVFCALWYLLISVEREDROWREACKIK-----GCIHAYLYCGGG-E : 270
 BoCNGC14 : * GELVDRPDKAIAKRYL--KSEIIVDIYACLPQIVVWRFLY-ATRSYRFDHSNNDVLLVIVQYIPRIFLYPLNQRIIKTEVFAIAKTAWAGAAYYLLLYMLASHVFCALWYLLISVEREDROWREACKIK-----GCIHAYLYCGGG-E : 278
 BoCNGC9 : * GELVIDSRKIAKRYL--NKSQIIVDIYACLPQIVVWRFLY-NLRGSPMTNTKNTVRFIIFQYVPRMFLYPLSRQIIKATEVVTTAWAGAAYYLLLYMLASHVFCALWYLLISVEREDROWREACKIK-----GCIHAYLYCGGG-E : 301
 BoCNGC18 : * GQLVDDPKKIAKRYL--GKELTIDFIVLPIPIQIILLWVIFPQLLGTSGANNTKNYRAAIVLVQYIPRILRYPLLAGQT-PRGFRFDSALAKFFINLITFMLAGHVGISGWYLLGLQFVNQCLRDAG-GNSS-----FECKQIDCGRENR : 371
 BoCNGC19 : * -----VNRCLR-----ETCEDHMDKCHVEVCKELIDCGLHK-----EKIDICERRNT : 256
 BoCNGC20 : * GQLVDHPRKIAKRYL--GKELTIDFIVMPLPQIILLWVIFPAHLAISGANYAKNLRAAVLFQYIPRILRYPLLAGQT-PTGFIFESAWANFIIINLTFILAGAVGSCWYLLGLQFVNQCLRDAG-GNTD-----RPRELIDCGHGT : 409
 BoCNGC21 : * GQLVAHPRKIAKRYL--GKELTIDFIVMPLPQIILLWVIFPAHLAISGANYAKNLRAAVLFQYIPRILRYPLLAGQT-PTGFIFESAWANFIIINLTFILAGAVGSCWYLLGLQFVNQCLRDAG-GNSD-----HECRNIDCGRGDS : 415
 BoCNGC22 : * GHLFDHPRKIAKRYL--VKEIIDLIVMPLPQIIFWVLPVQLGASGDNYAKNLRAAVLFQYIPRILRYPLLAGQT-PTVFLFESACSS-FVTNITFMLVGVVGSWYLLGLQFVNQCLRDAG-GNSH-----QCRELIDCGHGN : 405
 BoCNGC23 : * GQLVDRPKIAKRYL--GYEIVDIIVMFPQIVLVVPAQLAISGTNYAKNLRAGIIVQYIPRILRYPLLAGQT-PTGFIFESAWANFIIINLTFILAGAVGSCWYLLGLQFVNQCLRDAG-GHSG-----RECRNIDCGHGN : 413
 BoCNGC25 : * GQLVDHPRKIAKRYL--GKELTIDFIVMPLPQIILLWVIFPAHLGTPRSELEKNIIRIVLFQYIPRILRYPLLAGQT-PTGFIFESAWANFIIINLTFILAGAVGSCWYLLGLQFVNQCLRDAG-NYTM-----DERRNIDCARGVN : 412
 BoCNGC26 : * GQLVDHPRKIAKRYL--GKELTIDFIVMPLPQIILLWVIFPAHLGTPRSELEKNIIRIVLFQYIPRILRYPLLAGQT-PTGFIFESAWANFIIINLTFILAGAVGSCWYLLGLQFVNQCLRDAG-NYTM-----DERRNIDCARGVN : 402
 BoCNGC24 : * GQLVDHPRKIAKRYL--GKELTIDFIVLPIPIQIILLWVIFPQLLGTSGANNTKNYRAAIVLVQYIPRILRYPLLAGQT-PTGFIFESAWANFIIINLTFILAGAVGSCWYLLGLQFVNQCLRDAG-NYTM-----DERRNIDCARGVN : 396

g l a y f d p q q q p p l g aw 6 6a h g wy c c C

BoCNGC15 : 460 * YGTTEMVLDRLARLAWARNHQ---ARSVCLSDTNYTYGAYQWTIQLVSNES---RLEKILFPIFWGIMTLSTFGN-LESTTEWSEVVENIIVLTSGLLIVTMLIGNIKVFLHATTS-----RQKQAMHLKMRN : 434
 BoCNGC16 : YGTTEMVLDRLARLAWAQNQQ---ARSICLDINTNYTYGAYKWTIQLVSNES---RLEKILFPIFWGIMTLSTFGN-LESTTEWSEVVENIIVLTSGLLIVTMLIGNIKVFLHATTS-----RQKQAMHLKMRN : 437
 BoCNGC17 : YQFVSPSTSIGFCLSGNLTSVVKKFEMCLDSNGHFYRGLYGNALPVISSN---LAVLILYPIFWGIMTLSTFGNLESTTEWSEVVENIIVLTSGLLIVTMLIGNIKVFLHATTS-----RQKQAMHLKMRN : 461
 BoCNGC2 : DNSQYLIGSCPLMDPEEIKNST-----VENEGTEAEALQSGVPE--MDFFPKKFFCFWNGLRNLSALGQNKITSAFEGEITIAVITICISGLVLEALLIGNMOKYLOSTTV-----RVDMDRVRKRR : 411

BoCNGC3 : NNGRYLNTTCPLIDPDQIIGST-----VNFNGYTDALRSQIVGSKPRDFPRFFFCFWWGLRNLSALGQNLKTSNSVGDIVFALITICVSGLLFVAVLIGNICKYLCSTTI-----FLDMEBKKRD : 364
 BoCNGC1 : VINDYLTTSCPFINPDDITNST-----TFNFGIFTDALKSGIVG--DDFWKFFFCFWWGLRNLSALGQNLKTSKVFGEIIFAVLITICISGLVLFALLIGNMCKYLCSTTV-----REEMRVKRRD : 418
 BoCNGC4 : KG-YDAWDDVKDFLQLRCPVNVTDGE---EPFDFGTYLRALSSGIVS--KKFVSKYFFCLWWGLQNLSTLGGLETSTYVGEVIFSTALAIAGLLFALLIGNMCKYLCSTTI-----RLEEMRVKRRD : 440
 BoCNGC5 : EG-YAAWYTAKSVFLQEKCPVNVTEGE---EPFDFGTYLRALSSGIVS--KKFVSKYFFCLWWGLQNLSTLGGLETSTYVGEVIFSTALAIAGLLFALLIGNMCKYLCSTTI-----RLEEMRVKRRD : 450
 BoCNGC6 : DG-YAAWNTIKESVLQKSCFPVNVTDGD---NPFDFGTYLRALSSGIVS--ESFVAKYFFCLWWGLQNLSTLGGLETSTYVGEVIFSTALAIAGLLFALLIGNMCKYLCSTTI-----RLEEMRVKRRD : 455
 BoCNGC7 : DG-YDVWNKTKESVLQKSCRAELDD-P---NPFDFGTYLRALSSGIVS--QKFITIKYCYCLWWGLQNLSTLGGLETSTYVGEVIFSTALAIAGLLFALLIGNMCKYLCSTTI-----RLEEMRVKRRD : 438
 BoCNGC8 : SSRETEWIKTVPELLKSNCSAKADD-----AKFNKYGYGQALSSGIVS--TTFFSKYFCMLWWGLQNLSTLGGLETSTYVGEVIFSTALAIAGLLFALLIGNMCKYLCSTTV-----RLEEMRVKRRD : 438
 BoCNGC11 : RPDNRNWNQNTV--VFSNCDPSND-----IRFTFGIFADALTRNVVS--P-FLEKYLMLWFLGQLSSYGNLDTSTVLETFMFAITVAIAGLLFALLIGNMCKYLCSTIV-----RLEEMRVKRRD : 419
 BoCNGC12 : REDRNNWQNVTV--VFSNCDPSNK-----IRFTFGIFADALTRNVVS--P-FLEKYLMLWFLGQLSSYGNLDTSTVLETFMFAITVAIAGLLFALLIGNMCKYLCSTIV-----RLEEMRVKRRD : 423
 BoCNGC10 : DARQQQWANVTN--VFRLCDAR-K-----GDFKYGMEFENAITKKVVS--N-FNERKYFCMLWWGLQNLSSYGNLSTTTFIGETTFEAVLTAIAGLLFALLIGNMCKYLCSTIV-----RLEEMRVKRRD : 422
 BoCNGC13 : QPERQYQWNTVQ--VLSHCDATSS-----TTNFKFGMFAFAFTTQVATI--D-FVSN-----SYGNITTSVYLGETTFCTITICIGLILFLLIGNMCKYLCSTMSV-----RVEEMRVKRRD : 373
 BoCNGC14 : DPGRQAWMRITR--VLSNCDARNDD-----DQFQFGMFGDFTNDVTSS--P-FFDKYFCMLWWGLRNLSYGGQLAATLSLSTFSCFCVAGLVFESHIGNVQNYLCSTIA-----RLEEMRVKRRD : 395
 BoCNGC9 : DPQRNSWFESWN--ITTICKPGTR-----EYFEGYIGDAVSTVTS--N-FINRYFCMLWWGLKNSLGLQNLSTYVGEIIFAVVMATIGLVLFALLIGNMCKYLCSTTM-----RLEEMRVKRRD : 415
 BoCNGC18 : TE---VLHAWKINVSANACFQEDG-----FDYGYTLKAVNLTSNCR--WYRYSYSLFWCFQCIISTLAGNQVFSYFFGEVFTMCIIGLGLFALLIGNMCKYLCSTLGR-----RDEEMRVKRRD : 483
 BoCNGC19 : TV---TQAVLNWNVTAACAFQENG-----FRYGYLWRAVNLTHTDN--LPERYIYSLFWCFQCIISTLAGNQVFSYFFGEVFTMCIIGLGLFALLIGNMCKYLCSTLGR-----RNMEMRLRRD : 367
 BoCNGC20 : SA---LSAAWKDNAGASACFQEDG-----FFYGYTLKAVNLTNHS--LFTRYYSYSLFWCFQCIISTLAGNLFYSYFLGEVFTMCIIGLGLLFFALLIGNMCKYLCSTLGR-----RNMEMRLRRD : 520
 BoCNGC21 : SE---AFAAWKGNASASACFQDGG-----FFYGYLWRAVNLTSHS--LFTRYYSYSLFWCFQCIISTLAGNLFYSYFLGEVFTMCIIGLGLLFFALLIGNMCKYLCSTLGR-----RNMEMRLRRD : 526
 BoCNGC22 : ----HVAAWKDNASAIACFQEDG-----FFYGYTLKAVNLTNHS--LFTRYYSYSLFWCFQCIISTLAGNLFYSYFLGEVFTMCIIGLGLLFFALLIGNMCKYLCSTLGR-----RNMEMRLRRD : 509
 BoCNGC23 : NISASLRATWRNSASANACFQEDG-----FSYGYLWRAVNLTHTS--LLTRYYSYSLFWCFQCIISTLAGNLFYSYFFGEVFTMCIIGLGLLFFALLIGNMCKYLCSTLGR-----RNMEMRLRRD : 550
 BoCNGC25 : YARESQIALWRESVSNACFQEGG-----FSFGTYLWRAVNLTQPN--IFTFRYSYSLFWCFQCIISTLAGNQVFSYFFGEVFTMCIIGLGLLFFALLIGNMCKYLCSTLGR-----RNMEMRLRRD : 526
 BoCNGC26 : NLR---ALWRDSEVSNACFQESG-----FSFGTYLWRAVNLTQPN--IFTFRYSYSLFWCFQCIISTLAGNQVFSYFFGEVFTMCIIGLGLLFFALLIGNMCKYLCSTLGR-----RNMEMRLRRD : 512
 BoCNGC24 : YASASLRALWRDSDSVNACFQESG-----FSYGYLWRAVNLTSHS--LFTFRYSYSLFWCFQCIISTLAGNLFYSYVGEVFTMCIIGLGLLFFALLIGNMCKYLCSTLGR-----RNMEMRLRRD : 510

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BoCNGC15 : IEWWMKRRLEFLFCRQVRNRYERQRWAAMRGVDECEMVQNLLEGLRRDIYHLCLDLDVQVPLFQHMD-IVLENICDRVKSILFTKGETIQKEGDAVQRMLFVVRGHLQSSQL--LRDGVKSCCMLGPFNFSDELLSWCRRPFVERLP : 582
 BoCNGC16 : IEWWMKRRLEFLFCRQVRNRYERQRWAAMRGVDECEMVQNLLEGLRRDIYHLCLDLDVQVPLFQHMD-IVLENICDRVKSILFTKGETIQKEGDAVQRMLFVVRGHLQSSQL--LRDGVKSCCMLGPFNFSDELLSWCRRPFVERLP : 585
 BoCNGC17 : MEWWMKRRLEFLFCRQVRNRYERQRWAALGGEDELELHLDLPGLRDRIKYLQVLDLQVPLFQHMD-IVLENICDRVKSILFTKGETIQKEGDAVQRMLFVVRGHLQSSQL--LSKGVVATSTLEPGYLDDELLSWCRRPFIDRLP : 609
 BoCNGC2 : AEQWMHHRMLPEPDLRKRIRRYEQYRWLETRGVDEEENLVSNLEKCLRRDIKRRHCLALVRRVPLEFNME-RLDDAICERIKPCLYTEKSEFLVREGDFVNBMLFIIRGRLESVITDGGRSGFYNRSLIKEGDFCGEELLTWAIDPKSGSNLP : 590
 BoCNGC3 : TEQWMHHRMLPEPDLRKRIRRYEQYRWLETRGVDEEENLVSNLEKCLRRDIKRRHCLALVRRVPLEFNME-RLDDAICERIKPCLYTEKSEFLVREGDFVNBMLFIIRGRLESVITDGGRSGFYNRSLIKEGDFCGEELLTWAIDPKSGSNLP : 590
 BoCNGC1 : AEQWMHHRMLPEPDLRKRIRRYEQYRWLETRGVDEEENLVSNLEKCLRRDIKRRHCLALVRRVPLEFNME-RLDDAICERIKPCLYTEKSEFLVREGDFVNBMLFIIRGRLESVITDGGRSGFYNRSLIKEGDFCGEELLTWAIDPKSGSNLP : 590
 BoCNGC4 : SEQWMHHRMLPEPDLRKRIRRYEQYRWLETRGVDEEENLVSNLEKCLRRDIKRRHCLALVRRVPLEFNME-RLDDAICERIKPCLYTEKSEFLVREGDFVNBMLFIIRGRLESVITDGGRSGFYNRSLIKEGDFCGEELLTWAIDPKSGSNLP : 600
 BoCNGC5 : SEQWMHHRMLPEPDLRKRIRRYEQYRWLETRGVDEEENLVSNLEKCLRRDIKRRHCLALVRRVPLEFNME-RLDDAICERIKPCLYTEKSEFLVREGDFVNBMLFIIRGRLESVITDGGRSGFYNRSLIKEGDFCGEELLTWAIDPKSGSNLP : 600
 BoCNGC6 : SEQWMHHRMLPEPDLRKRIRRYEQYRWLETRGVDEEENLVSNLEKCLRRDIKRRHCLALVRRVPLEFNME-RLDDAICERIKPCLYTEKSEFLVREGDFVNBMLFIIRGRLESVITDGGRSGFYNRSLIKEGDFCGEELLTWAIDPKSGSNLP : 605
 BoCNGC7 : VEQWMHHRMLPEPDLRKRIRRYEQYRWLETRGVDEEENLVSNLEKCLRRDIKRRHCLALVRRVPLEFNME-RLDDAICERIKPCLYTEKSEFLVREGDFVNBMLFIIRGRLESVITDGGRSGFYNRSLIKEGDFCGEELLTWAIDPKSGSNLP : 588
 BoCNGC8 : SEQWMHHRMLPEPDLRKRIRRYEQYRWLETRGVDEEENLVSNLEKCLRRDIKRRHCLALVRRVPLEFNME-RLDDAICERIKPCLYTEKSEFLVREGDFVNBMLFIIRGRLESVITDGGRSGFYNRSLIKEGDFCGEELLTWAIDPKSGSNLP : 588
 BoCNGC11 : TEQWMHHRMLPEPDLRKRIRRYEQYRWLETRGVDEEENLVSNLEKCLRRDIKRRHCLALVRRVPLEFNME-RLDDAICERIKPCLYTEKSEFLVREGDFVNBMLFIIRGRLESVITDGGRSGFYNRSLIKEGDFCGEELLTWAIDPKSGSNLP : 569
 BoCNGC12 : TEQWMHHRMLPEPDLRKRIRRYEQYRWLETRGVDEEENLVSNLEKCLRRDIKRRHCLALVRRVPLEFNME-RLDDAICERIKPCLYTEKSEFLVREGDFVNBMLFIIRGRLESVITDGGRSGFYNRSLIKEGDFCGEELLTWAIDPKSGSNLP : 573
 BoCNGC10 : TEQWMHHRMLPEPDLRKRIRRYEQYRWLETRGVDEEENLVSNLEKCLRRDIKRRHCLALVRRVPLEFNME-RLDDAICERIKPCLYTEKSEFLVREGDFVNBMLFIIRGRLESVITDGGRSGFYNRSLIKEGDFCGEELLTWAIDPKSGSNLP : 572
 BoCNGC13 : TEQWMHHRMLPEPDLRKRIRRYEQYRWLETRGVDEEENLVSNLEKCLRRDIKRRHCLALVRRVPLEFNME-RLDDAICERIKPCLYTEKSEFLVREGDFVNBMLFIIRGRLESVITDGGRSGFYNRSLIKEGDFCGEELLTWAIDPKSGSNLP : 523
 BoCNGC14 : TEQWMHHRMLPEPDLRKRIRRYEQYRWLETRGVDEEENLVSNLEKCLRRDIKRRHCLALVRRVPLEFNME-RLDDAICERIKPCLYTEKSEFLVREGDFVNBMLFIIRGRLESVITDGGRSGFYNRSLIKEGDFCGEELLTWAIDPKSGSNLP : 545
 BoCNGC9 : TEQWMHHRMLPEPDLRKRIRRYEQYRWLETRGVDEEENLVSNLEKCLRRDIKRRHCLALVRRVPLEFNME-RLDDAICERIKPCLYTEKSEFLVREGDFVNBMLFIIRGRLESVITDGGRSGFYNRSLIKEGDFCGEELLTWAIDPKSGSNLP : 565
 BoCNGC18 : VEQWMHHRMLPEPDLRKRIRRYEQYRWLETRGVDEEENLVSNLEKCLRRDIKRRHCLALVRRVPLEFNME-RLDDAICERIKPCLYTEKSEFLVREGDFVNBMLFIIRGRLESVITDGGRSGFYNRSLIKEGDFCGEELLTWAIDPKSGSNLP : 626
 BoCNGC19 : VNKWMHHRMLPEPDLRKRIRRYEQYRWLETRGVDEEENLVSNLEKCLRRDIKRRHCLALVRRVPLEFNME-RLDDAICERIKPCLYTEKSEFLVREGDFVNBMLFIIRGRLESVITDGGRSGFYNRSLIKEGDFCGEELLTWAIDPKSGSNLP : 510
 BoCNGC20 : VEQWMHHRMLPEPDLRKRIRRYEQYRWLETRGVDEEENLVSNLEKCLRRDIKRRHCLALVRRVPLEFNME-RLDDAICERIKPCLYTEKSEFLVREGDFVNBMLFIIRGRLESVITDGGRSGFYNRSLIKEGDFCGEELLTWAIDPKSGSNLP : 663
 BoCNGC21 : VEQWMHHRMLPEPDLRKRIRRYEQYRWLETRGVDEEENLVSNLEKCLRRDIKRRHCLALVRRVPLEFNME-RLDDAICERIKPCLYTEKSEFLVREGDFVNBMLFIIRGRLESVITDGGRSGFYNRSLIKEGDFCGEELLTWAIDPKSGSNLP : 669
 BoCNGC22 : ---HRRFLEKIRKSVRREAEERFNWAAATRGVNEELLFENMEDDLDQDIRRHFI-FLKKVRFSLMDE-SILDAIRERIKPCLYTEKSEFLVREGDFVNBMLFIIRGRLESVITDGGRSGFYNRSLIKEGDFCGEELLTWAIDPKSGSNLP : 646
 BoCNGC23 : VEQWMHHRMLPEPDLRKRIRRYEQYRWLETRGVDEEENLVSNLEKCLRRDIKRRHCLALVRRVPLEFNME-RLDDAICERIKPCLYTEKSEFLVREGDFVNBMLFIIRGRLESVITDGGRSGFYNRSLIKEGDFCGEELLTWAIDPKSGSNLP : 693
 BoCNGC25 : VEQWMHHRMLPEPDLRKRIRRYEQYRWLETRGVDEEENLVSNLEKCLRRDIKRRHCLALVRRVPLEFNME-RLDDAICERIKPCLYTEKSEFLVREGDFVNBMLFIIRGRLESVITDGGRSGFYNRSLIKEGDFCGEELLTWAIDPKSGSNLP : 669
 BoCNGC26 : VEQWMHHRMLPEPDLRKRIRRYEQYRWLETRGVDEEENLVSNLEKCLRRDIKRRHCLALVRRVPLEFNME-RLDDAICERIKPCLYTEKSEFLVREGDFVNBMLFIIRGRLESVITDGGRSGFYNRSLIKEGDFCGEELLTWAIDPKSGSNLP : 655
 BoCNGC24 : VEQWMHHRMLPEPDLRKRIRRYEQYRWLETRGVDEEENLVSNLEKCLRRDIKRRHCLALVRRVPLEFNME-RLDDAICERIKPCLYTEKSEFLVREGDFVNBMLFIIRGRLESVITDGGRSGFYNRSLIKEGDFCGEELLTWAIDPKSGSNLP : 653

e wm h4 lp r6R W t G Ee 6 6p d6 di rh1 6 V f 6d 66da6 g 6 66f6 4G 6 s g 6 g cG eLL W 1

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760          *          780          *          800          *          820          *          840          *          860          *          880          *          900
BoCNGC15 : P-----SSSTVILETTEAEGLDAAQDVKVVYVQHFERYTFVNEKVKRSARYYSPGNRTWAAVAQCLAWRRYKHFLLTSL-----SFIRPRRPLSRCASLGEDK--- : 674
BoCNGC16 : P-----STSTVILETTEAEGLDAAQDVKVVYVQHFERYTFVNEKVKRSARYYSSGNRTWAAVAQCLAWRRYKHFLLTSL-----SFIRPRRPLSRCASLGEDK--- : 677
BoCNGC17 : P-----SSATFVCLDSTEEAFLGSEDLRYITDFERYKFANERLKRRTARYSSNWRWAAVNIQMSNRRYKRTCVG-----GSMSPVSEHS-VEGNSERR--- : 698
BoCNGC2 : I-----STSTVQAQTEVEGFVLSADDLKEVATQYRRINS-KQLRHMFVHESVQNRRTWAACFIQAANKRYCRKLSRALREEEERLENTLQTTDS-----GGNKLNLGAAIYASRFASHALRNVRA : 673
BoCNGC3 : T-----SRSVLTLLTVEGSIILLHDDLKVFASHENRSHS-SRLRHMFREYSANRLWAACFIQAANREHCRKLSRILHAKRD--YHHPQ-----GPQNLGAAIYVSRFVSKALRNQRK : 622
BoCNGC1 : I-----SRTVQALTEVEAFALAAEDLKVAVASQERRLHS-KQLQHTFRFYSVQNRRTWAACFIQAANRRHCRRLARSLTQEEDQFRIAVAKRERR-----AASSSLVATLYASRFASNALRNLR- : 682
BoCNGC4 : S-----SRTVRALTEVEAFALIADDELKVFASQERRLHS-RQVQHTFRFYSQQNRRTWAACFIQAANRRYKRRKLEELRKEEM-----EESSAARLIAGGSSPYSIRATFLASRFAANALRGVRK : 706
BoCNGC5 : S-----SRTVRALTEVEAFALIADDELKVFASQERRLHS-RQVQHTFRFYSQQNRRTWAACFIQAANRRYKRRKLEELRKEEM-----EEE-TAARLIAGGS-PYSIRATFLASKFAANALRSVHK : 714
BoCNGC6 : S-----SRTVARALTEVEAFALIADDELKVFASQERRLHS-RQVQHTFRFYSQQNRRTWAACFIQAANRRYKRRKLEELRKEEM-----EGEGPVASIRATFLASKFAANALRKVHQ : 714
BoCNGC7 : S-----SRTVRALTEVEAFALASEELKVFASQERRLHS-RQVQHTFRFYSHQNRRTWAACFIQAANRRYKRRKMEEAEEAEAVP-----MST-----TGSS--SSMGAAFVTKFAASALRTIHR : 695
BoCNGC8 : S-----SRTVRALTEVEAFALAEDELKVFASQERRLHS-RQVQHTFRFYSQQNRRTWAACFIQAANRRHRRKNAELRRIEEEEDEMGYEDEYDD-----DDAEEDERTPVFTRTESSRLRSTIFASRFAANALKG-HR : 717
BoCNGC11 : S-----SRTVRALTEVEAFALQADDLKVFANQERRLHS-KKLQHTFRFYSHQNRRTWAACFIQAVANRRYKRRMVAKLSLAESFSSYEEEEAVA---VAEEIMSQQGERQSSNPSRHSTSIGKPHFAATILASRFKNTRK---- : 702
BoCNGC12 : S-----SRTVRALTEVEAFALQADDLKVFANQERRLHS-KKLQHTFRFYSHQNRRTWAACFIQAVANRRYKRRMLAKLSLAESYSSYEEELAT---AAEEIMSQQEERQSSTPSRHHTSIEKPHFAATVLAASRFKNTRR---- : 707
BoCNGC10 : S-----SRTVRALTEVEAFALRADDLKVFANQERRLHS-KKLQHTFRFYSHQNRRTWAACFIQAANRRYKRRAMENHLTAVESKQSDDEEEEEEV---VVGKVVVEEEEGVGFSPN-----TKMNIQVMVLASRFAANTRRGV-- : 700
BoCNGC13 : S-----SRSVRLSEVEAFALSADDLKVFVAHQEKRLQS-KKLQHAFRYSHQNRWAGCAEFCVSAWRRYKRRKLAKELSLHESGGYRDETGYNEEGDEENYVGSDDDFEGERLSVDNTNNSQNLGATMLASKFAANTRRGTNQ : 663
BoCNGC14 : L-----SRTVRLTSEVEAFALRADDLKVFANQERRLHS-KKLQHAFRYSHQNRWAGTGFQAVANRRYKRRKLAMELARQEEGDDYYDD-----DDDDQYGGED-MPESSNNVDDNNSNNQNLSATILASKFAANTRRGVLG : 677
BoCNGC9 : S-----SRTVRAIYVEAFALRADDLKEVATQERRLHS-KQLKHKFRFYSHQNRRTWAACFIQAANRRHRRKRYATELRVKEEFQCMFETAS-----MVRNLNSGKFTR----- : 662
BoCNGC18 : TMIRMPKGLLSSRDVWCVTNVEAFSLSVADLLEDVTSLEFNLIEIPREP----- : 674
BoCNGC19 : TMIRMPKGLLSSRAVWCVTNVEAFSLSVADLLEDVTSLEFNLIEIPREP----- : 558
BoCNGC20 : TRIRMPKGLLSSRNRCVTNVEAFSLSVADLLEDVTSLEFRLRNSRVQGAIRYVSPYWRRLRAAMCIQVAVRYYRRLRQLRYTDQS-SYSL----- : 753
BoCNGC21 : TRIRIPKGLLSSRNRCVTNVEAFSLSVADLLEDVTSLEFRLRNSRVQGAIRYVSPYWRRLRAARCIQVAVRYYRRLRQLRYTAQS-SYSL----- : 759
BoCNGC22 : TRIRMPKGLVSNRNRCVTNVEAFSLSVADLLEDVTSLEFLRTHRECGAIR--SPHWRRLRAARCIQVAVRYYRRLRQLRYTAQS-SYSL----- : 734
BoCNGC23 : ---RMLSKGLLSSRNRCVTNVEAFSLSADLLEDVTSLE--FLRSHRVQGAIRYVSPYWRRLRAATCIQVAVRYYRRLRQLRKLSTAKKQYSLELIKDMAKT----- : 789
BoCNGC25 : TRIKMPKGLVSNRNRCVTNVEAFSLSVADLLEDVTSLEFRLRNSRVQGAIRYVSPYWRRLRAAMCIQVAVRYYRRLRQLRLLQDNRMKMSDVPVIGYRLSWSGVVEGSGK----- : 781
BoCNGC26 : TRIKMPKGLVSNRNRCVTNVEAFSLSVADLLEDVTSLEFRLRNSRVQGAIRYVSPYWRRLRAAMCIQVAVRYYRRLRQLRLLQDNRMKMSDVPVIGYRLSWSGVVEGSGK----- : 744
BoCNGC24 : RSIKLPKGLVSNRNRCVTNVEAFSLSVADLLEDVTSLEFRLRNSRVQGAIRYVSPYWRRLRAATCIQVAVRYYRRLRQLRLLQDNRMKMSDVPVIGYRLSWSGVVEGSGK----- : 743

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*          920          *          940
BoCNGC15 : -----LRLYTAILTSPKENPDDDDY---- : 695
BoCNGC16 : -----LRLYTAILTSPKENPDDDDY---- : 698
BoCNGC17 : -----LLQYAAMFMSIREH-DHLE----- : 716
BoCNGC2 : NAAAR-----NSMLPHMLSLLPQKPADPEFPMDET-- : 703
BoCNGC3 : NAAN-----CSISPHMLPPIPHKPADPEFSKN---- : 649
BoCNGC1 : -----QHNTLPLLPKPEPEDFGVDDD-- : 704
BoCNGC4 : NRTAKL----LALSQPTKELLKVQKPEPEPDESADC--- : 737
BoCNGC5 : NRIRKS----NLAPPSTKELVKVQKPEPEPDESADC--- : 745
BoCNGC6 : NRIA-----AKSTKELVIFQKRESEPEPDESADDP-- : 741
BoCNGC7 : NRNTR-----IRELVKLQKPEPEPDEFTAEDAD-- : 721
BoCNGC8 : LRSTE-----SSKRLNLQKPEPEPDEFAE---- : 741
BoCNGC11 : -----TAHKLKDVEVPMLEKPEPEPDESVDGD-- : 728
BoCNGC12 : -----ASRKIKDVDVEMLEKPEPEPDESVDAD-- : 733
BoCNGC10 : -----AAQRVKDVEVEMERFKKPEPEPDESPEPDD-- : 727
BoCNGC13 : KASSSSSTGKKDGSNSLKMPLKPEPEPDESMDKEDV : 701
BoCNGC14 : NQRGSS---RIDPDDPTLKMFKMFKPEPDEGFF----- : 706
BoCNGC9 : -----SGSDSGMVSSIQKPEPEPDESSE---- : 684
BoCNGC18 : ----- : -
BoCNGC19 : ----- : -
BoCNGC20 : ----- : -
BoCNGC21 : ----- : -
BoCNGC22 : ----- : -
BoCNGC23 : ----- : -
BoCNGC25 : ----- : -
BoCNGC26 : ----- : -
BoCNGC24 : ----- : -

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