

## Supporting Information S2: Proteins in Independent Test Set

>sp|O35215|Modified\_Residue:110

MPFVELETNLPASRIPAGLENRLCAATATILDKPEDRVSVTIRPGMTLLMNKSTEPCAHLLVSSIGVVGT  
AEQNRTHSASFfKFLTEELSLDQDRIVIRFFPLEAWQIGKKGTVMTFL

>sp|O55143|Modified\_Residue:205

MENAHTKTVEEVLGHFGVNESTGLSLEQVKKLKERWGSNELPAEEGKTLLLELVIEQFEDLLVRILLAAAC  
ISFVLAWFEEGEETITAFVEPFVILLILVANAIVGVWQERNAENAIEALKEYEPEMGKVYRQDRKSVQRI  
KAKDIVPGDIVEIAVGDKVPADIRLTSIKSTTLRVDQSILTGESVSVIKHTDPVPDPRAVNQDKKNMLFS  
GTNIAAGKAMGVVATGVNTEIGKIRDEMVAEQERTPLQOKLDEFGEQLSKVISLICIAVWIINIGHFN  
DPVHGGSWIRGAIYYFKIAVALAVAAIPEGLPAVITTCLALGTRMAKKNAIVRSLPSVETLGCTSVICS  
DKTGTLTNNQMSVCRMFIIDKVEGDTCSLNEFSITGSTYAPIGEVQKDDKPVKCHQYDGLVELATICALC  
NDSALDYNEAKGVYEKVGAEATETALTCLVEKMNVDTELKGLSKIERANACNSVIKQLMKKEFTLEFSRD  
RKSMVYCTPNKPSRTSMKMFVKGAPGVIDRCTHIRVGSTKVPMTPGVKQKIMSVIREWGS GS DTLRC  
LALATHDNPLKREEMHLED SANFIKYETNLTFVGCVGMLDPPRIEVASSVKLCRQAGIRVIMITGDNKGT  
AVAICRRIGIFGQDEDTVSKAFTGREFDELSPSAQRDACLNARCFARVEPSHKSKIVEFLQSFDEITAMT  
GDGVNDAPALKKSEIGIAMGSGTAVAKTASEMVLADDNFSTIVA AVEEGRAIYNNMKQFIRYLISNVGE  
VVCIFLTAALGFPEALIPVQLLWVNLVTDGLPATALGFNPPDLDIMNKPPRNPKEPLISGWLFFRYLAIG  
CYVGAATVGAAAWFIAADGGPRVSFYQLSHFLQCKEDNPDFDGVDCAI FESPYPMTMALSVLVTIEMCN  
ALNSLSENQSLRMPPWENIWLVGSI CLSMLHFLILYVEPLPLIFQITPLNLTQWLMVLKISLPVILMD  
ETLKFVARNYLEQPGKECVQPATKSSCSLSACTDGISWPFVLLIMPLVVWVYSTDTNFS DMFWS

>sp|O70133|Modified\_Residue:1026

MGDIKNFLYAWCGKRKMTPAYEIRAVGNKNRQKFMCEVRVEGFNYAGMGNSTNKKDAQSNAARDFVNYLV  
RINEVKSEEVPVAVGIVPPPIILSDTSDSTASAAEGLPAPMGGPLPPLHALLKAEENNSGVESGYS GPPT  
WDRGANLKDYYSRKEEQEVQATLESEEVDLNAGLHGNWTLNENAKARLNQYFQKEKIQGEYKYTQVGPDPHN  
RSFIAEMTIYIKQLGRRIFAREHGSNKKLAAQSCALSLVRQLYHLGVIEAYSGLTKKKEGERVEPYKVFL  
SPDLELQLQNQVQELDLEIVPPPVDPSMPVILNIGKLAHFEPSQRQNAVGVVPWSP PQSNWNPTSSNID  
EGPLAYASTEQISMDLKNELTYQMEQDHNLQSVLQERELLPVKKFEAEILEAISSNSVVIIRGATGCGKT  
TQVPQYILDDFIQNDRAECNIVVTQPRRISAVAVAERVAYERGEEPGKSCGYSVRFESILPRPHASIMF  
CTVGVLRLKLEAGIRGISHVIVDEIHERDINTDFLLVVL RDVVLAYPEVRIVLMSATIDTTMFCEYFFNC  
PIIEVYGRTFPVQYEFLEDCIQMTQFIPPPKDKKKKDKEDDGGEDDDANCNLICGDEYGPETKLSMSQLN  
EKETPFELIEALLKYIETLNVPGAVLVFLPGWNLIYTMQKHLENNSHFGSHRYQILPLHSQIPREEQRKV  
FDPVPDGVTKVILSTNIAETSITINDVVYVIDSCKQKVLFHTAHNNMTNYATVWASKTNLEQRKGRAGR  
RPGFCFHLCSRARFDRLETHMTPEMFRTPLEHIALSIKLLRLGGIGQFLAKAIEPPPLDAIIEAEHTLRE  
LDALDANDELTPLGRI LAKLPIEPRFGKMMIMGCIFYVGDAVCTISAATCFPEPFISEGKRLGYIHRNFA  
GNRFS DHVALLSVFQAWDDARMSGEEAEIRFCEQKRLNMATLRMTWEAKVQLKEILINS GFPEDCLLTQV  
FTNTGPDNNLDVVISLLAFGVYPNV CYHKEKRKILTTEGRNALIHKSSVNC PFSSQDMKYPSPFVFGEK  
IRTR AISAKGMTLVTP LQLLLFASKKVQSDGQIVFIDDWIRLQISHEAAACITIRAAMEALVVEVSKQPN  
IISQLDPVNEHMLNTIRQISRPSAAGINLMIGSVRYGDGPRPPKMARYDNGSGYRRGYGGGGYGGGGYGG  
GYGSGGFGGGFGSGGGFGGGFGSGGGFGSGGGFGSGGGFGSGGGFGSGGGFGSGGGFGSGGGFGSGGG  
SGGFGNGGGGYGVGGGYGGGGGGYGGGSGGYGGGGYGGGEGYSISPNSYRGNYGGGGGYRGGSQGGY  
RNNFGGDYRGSSGDYRGSGGGYRGSGGFGQRRGYGGGYFGQGRGGGGGGY

>sp|O70228|Modified\_Residue:132

MTDSIPLQPV RHKKRVDSRPRAGCCEWLRCCGGGEPRPRTVWLGHPEKRDQRYPRNVINNQKYNFFFTFLP  
GVLF SQFRYFFNFYFLLACSQFVPEMRLGALYTYWVPLGFVLAVTI IREAVEEIRCYVRDKEMNSQVYS  
RLTSRGTVKVSSNIQVGD LILVEKNQRPADMIFLRTSEKNGSCFLRTDQLDGETDWKLR LPVACTQRL  
PTAADLLQIRSYVYAE EPNIDIHNFLGTFTREDS D PPISELSIENTLWAGTVIASGTVVGVVLYTGREL  
RSVMNTSDPRSKIGLFDLEVNCLTKILFGALVVVSLVMVALQHFAGRWYLQIIRFLLLSNIIPISLRVN  
LDMGKIVYSWVIRRDSKIPGTVVRSS TIPEQLGRISYLLTDKGTLTQNMVFKRLHLGT VAYGLDSMDE  
VQSHIFSIYTQQSQDPPAQKGPTVTTKVRRTMSSRVHEAVKAIALCHNVTPVYESNGVTDQAEAEKQFED  
SCRVYQASSPDEVALVQWTESVGLTLVGRDQSSMQLRTPGDQVLNLTILQVFPFTYESKRMGIIVRDEST

GEITFYMKGADVVMAGIVQYNDWLEEEECGNMAREGLRVLVVAKSLTEEQYQDFEARYVQAKLSVHDRSL  
KVATVIESLEMEMELLCLTGVEDQLQADV RPTLET LRNAGIKVWMLTGD KLETATCTAKNAHLVTRNQDI  
HVFRLVTNRGEAHLELNAFRRKHD CALVISGDSLEVCLKYEEYEFMELACQCPAVVCCRCAPTQKAQIVR  
LLQERTGKLTCAVG DGGNDVSMIQESDCGVGVEGKEGKQASLAADFSITQFKHLGRLLMVHGRNSYKRSA  
ALSQFVIHRSLCISTMQAVFSSVFYFASVPLYQGFLIIGYSTIYTMFPVFSVLVDKDKVSEVAMLYPELY  
KDLLKGRPLSYKTFLIWVLISIIYQGSTIMYGALLFESEFVHIVAISFTSLILTELLMVALTIQTWHWLM  
TVAELLSLACYIASLVFLHEFIDVYFIATLSFLWKVSVITLVSCLPLYVLKYLRRRFSPPSYSKLTS

>sp|P05063|Modified\_Residue:200

MPHSYPALSAEQKKELSDIALRIVTPGKGILAADES VGSMAKRLSQIGVENTEENRRLYRQVLFSADDRV  
KKCIGGVIFFHETLYQKDDNGVPFVRTIQDKGILVGIKVDKGVPPLAGTDGETTTQGLDGLLERCAQYKK  
DGADFAKWRCVLKISDRTPSALAI LENANVLARYASICQQNGIVPIVEPEILPDGDHDLKRCQYVTEKVL  
AAVYKALSDHHVYLEGTL LKPNMVT PGHACPIKYSPEEIAMATVTALRRTPPAVPGVTFLSGGQSEEEA  
SLNLNAINRCPLPRPWALTFSYGRALQASALNAWRGQRDNAGAATEEFIKRAEMNGLAAQGRYEGSGDGG  
AAQSLYIANHAY

>sp|P05387|Modified\_Residue:99

MRYVASYL LAAALGGNSSPSAKDIKKILDSVGIEADDDRLNKVISELNGKNIEDVIAQGIGKLASVPAGGA  
VAVSAAPGSAAPAAGSAPAAAEKKDEKKEESEESDDDMGFGFLFD

>sp|P0DMV8|Modified\_Residue:597

MAKAAAIGIDL GTTYS CVGVFQHGKVEIIANDQGNRTTPSYVAFTDTERLIGDAAKNQVALNPQNTVFDA  
KRLIGRKFGDPV VQSDMKHWP FQVINDGDKPKVQVSYKGETKAFYPEEISSMVLTKMKEIAEAYLGYPVT  
NAVITVPAYFNDSQRQATKDAGVIAGLNLVRIINEPTAAAIA YGLDRTGKGERNVLI FDLGGGTFDVSIL  
TIDDGIFEVKATAGDTHLGGEDFDNRLVNH FVEEFKRKHKKDISQNKRAVRRLRTACERAKRTLSSSTQA  
SLEIDSLFEGIDFYTSITRARFEELCSDLFRSTLEPVEKALRDAKLDKAQI HDLVLVGGSTRIPKVQKLL  
QDFFNGRDLNKSINPDEAVAYGA AVQAAILMGDKSENVQDLLLLDVAPLSLGLETAGGVMTALIKRNSTI  
PTKQTQIFTTYSDNQPGVLIQVYEGERAMTKDNNLLGRFELSGIPPA PRGVPQIEVTFDIDANGILNVT  
TAKSTGKANKITITNDKGRLSKEEIERMVQEA EKYKA EDEVQRERVS AKNALESYAFNMKSAVEDEGLKG  
KISEADKKKVLDKCQEVISWLDANTLAEKDEF EHKRKELEQVCNPIISGLYQGAGGPGPGGFGAQGPKGG  
SGSGPTIEEVD

>sp|P14618|Modified\_Residue:367

MSKPHSEAGTAFIQ TQQLHAAMADTFLEHMCRLDIDSP PITARNTGIICTIGPASRSVETLKEMIKSGMN  
VARLNFSGHTHEYHAETIKNVRTATESFASDPILYRPVAVALDTKGPEIRTGLIKSGTAEVELKKGATL  
KITLDNAYMEKCDENILWLDYKNICKVVEVGSKIYVDDGLISLQVKQKGADFLVTEVENGGSLGSKKGVN  
LPGA AVDLPAVSEKDIQDLKFGVEQD VDMVFASFIRKASDVHEVRKVLGEKGKNIKIISKIENHEGVRRF  
DEILEASDGIMVARGDLGIEIPA EKVFLAQKMMIGRCNRAGKPVICATQMLESMIKKPRPTRAE GSDVAN  
AVLDGADCIMLSGETAKGDYPLEAVRMQH LIAREAAAIYHLQLFEELRRLAPITSDPTEATAVGAVEAS  
FKCCSGAII VLT KSGRSAHQVARYRPRAPIIAVTRNPQTARQAHLYRGIFPVLC KDPVQEA WAEDVDLRV  
NFAMNVGKARGFFKKGDVVIVLTGWRPGSGFTNTMRVVPVP

>sp|P14824|Modified\_Residue:442,445,446

MAKIAQGAMYRGSVHDFPEFDANQDAEALYTAMKGFGSDKESILELITSR SNKQRQEICQNYKSLYGKDL  
IEDLKYELTGKFERLIVNLMRPLAYCDAKEIKDAISGVGTDEKCLIEILASRTNEQMHQLVAAYKDAYER  
DLES DIIIGDTSGHFQKMLVLLQGTREND DVSEDLVQQDVQDLYEAGELKWTDEAQFIYILGNRSKQH  
LRLVFDEY LKTTGKPIEASIRGELSGDFEKLMLAVVKCIRSTPEYFAERL FKAMKGLGTRDNTLIRIMVS  
RSELDMLDIREIFRTKYEKSLSYMIKNDTSGEYKALLKLCGGDDDAAGQFFPEAAQVAYQMWELSAVSR  
VELKGTVCAANDFNPDADAKALRKAMKGIGTDEATIIDIVTHRSNAQRQQIRQTFKSHFGRDLMADLKSE  
ISGDLARLILGLMPPAHYDAKQLKKAMEGAGTDEKTLIEILATRTNAEIRAIN EAYKEDYHKSLEDALS  
SDTSGHFRRILISLATGNREEGGENRDQAQEDAQVA AEILEIADTPSGDKTSLETRFMTVLCTRSYPHLR  
RVFQEFIKKTN YDIEHVIKKEMSGDVKD AFVAIVQSVKNKPLFFADKLYKSMKGAGTDEKTLTRVMVSRS  
EIDLLNIRREFIEKYDKSLHQAIEGDTSGDFMKALLALCGGED

>sp|P14869|Modified\_Residue:297

MPREDRATWKSNYFLKIIQLDDYPKCFIVGADNVGSKQMQQIRMSLRGKAVVLMGKNTMMRKAIRGHLE  
NNPALEKLLPHIRGNVGFVFTKEDLTEIRDMLLANKVPAAARAGAIAPCEVTVPAQNTGLGPEKTSFFQA  
LGITTKISRGTIEILSDVQLIKTGDKVGASEATLLNMLNISPFSGLI IQQVFDNGSIYNPEVLDITEQA  
LHSRFLEGVRNVASVCLQIGYPTVASVPHSIINGYKRVLALSVEYETFPLETEKVKAFLADPSAFAAAAP  
AAAATTAAPAAAAAPAKAEAKEESESEDEDMGFGFLFD

>sp|P16460|Modified\_Residue:340

MSSKGSVVLAYSGGLDTSCILVWLKEQGYDVIAYLANIGQKEDFEEARKKALKLGAKKVFIEDVSKEFVE  
EFIWPAVQSSALYEDRYLLGTSLARPCIARRQVEIAQREGAKYVSHGATGKGNDQVRFELTCYSLAPQIK  
VIAPWRMPEFYNRFKGRNDLMEYAKQHGIPIPVTPKSPWSMDENLMHISYEAGILENPKNQAPPGLYTKT  
QDPAKAPNSPDVLEIEFKKGVPVKVTNIKDGTTRTTSLELFMYLNEVAGKHGVGRIDIVENRFIGMKS  
RG IYETPAGTILYHAHLDIEAFTMDREVRKIKQGLGLKFAELVYTGFWHSPECEFVRHC IQKSQERVEGKVQ  
VSVFKGQVYILGRESPLSLYNEELVSMNVQGDYEPIDATGFININSLRLKEYHRLQSKVTAK

>sp|P16858|Modified\_Residue:143,213,217,225,261

MVKVGVNGFGRIGRLVTRAAICSGKVEIVAINDPFIDLNYMVMFYDSTHGKFNGTVKAENGKLVINGK  
PITIFQERDPTNIKWGEAGAEYVVESTGVFTTMEKAGAHKGGAKRVIISAPSADAPMFVMGVNHEKYDN  
SLKIVSNASCTTNCLAPLAKVIHDNFGIVEGLMTTVHAITATQKTVDGPSGKLWRDGRGAAQNIIPASTG  
AAKAVGKVIPELNGKLTGMAFRVPTPNVSVVDLTCRLEKPAKYDDIKKVVKQASEGPLKGILGYTEDQVV  
SCDFNSNSHSSTFDAGAGIALNDNFVKLISWYDNEYGYSNRVVDLMAYMASKE

>sp|P17036|Modified\_Residue:23

METQADLVSQEPQALLDSALPSKVPAFSDKDSLGDMLAAALLKAKSQELVTFEDVAVYFIRKEWKRL  
EP AQRDLYRDVMLENYGNVFSLDRETRTENDQEISEDTRSHGVLLGRFQKDISQGLKFKEAYEREVSLKRPL  
GNSPGERLNRKMPDFGQVTVEEKLTPRGERSEKYNDFGNSFTVNSNLISHQRLPVGDRPHKCDCEKSKSFN  
RTSDLIQHQRHTGEKPYECNECGKAFSQSSHLIQHQRHTGEKPYECSDCGKTFSCSSALILHRRHTG  
EKPYECNECGKTFWSSTLTHHQRHTGEKPYACNECGKAFSRSSTLIHHQRHTGEKPYECNECGKA  
FS QSSHLIQHQRHTGEKPYECMECGGKFTYSSGLIQHQRHTGENPYECSECGKAFFRYSSALVRHQRHTG  
EKPLNGIGMSKSSLRVTTELNIREST

>sp|P17183|Modified\_Residue:343

MSIEKIWAREILDSRGNPTVEVDLYTAKGLFRAAVPSGASTGIYEALRLDGDQRYLGKGVLKAVD  
HIN SRIAPALISSGISVVEQEKLNDLMLLELDGTENKSKFGANAILGVSLAVCKAGAAERDLPLYRHIAQLAGN  
SDLILPVPAPFNVINGGSHAGNKLAMQEFMILPVGAESFRDAMRLGAEVYHTLKGVIKDKYKGDATNVGDE  
GGFAPNILENSEALELVKEAIDKAGYTEKMVIGMDVAASEFYRDGKYDLDFKSPADPSRYITGDQLGALY  
QDFVRNYPVVSIEDPFDQDDWAWSKFTANVGIQIVGDDLTVTNPKRIERAEEKACNCLLLKVNQIGSV  
TEAIQACKLAQENGWGMVSHRSGETEDTFIADLVVGLCTGQIKTGAPCRSERLAKYNQLMRIEEELGDE  
ARFAGHNFRNPSVL

>sp|P17844|Modified\_Residue:91

MSGYSSDRDRGRDRGFGAPRFGGSRAGPLSGKKFGNPGEKLVKKKWNLDLDPKFEKNFYQEH  
PDLARRTA QEVETYRRSKEITVRGHNC PKPVLNFYEANFPANVMDVIARQNFTEPTAIQAQGW  
PVALSGLDMVGVAQT GSGKTL SYLLPAIVHINHQPFLERGDGPICLVLAPTRELAQQVQQVAAEY  
CRACRLKSTCIYGGAPKGPQ IRDLERGVEIC IATPGRLIDFLECGKTNLRRTTYLVLDEADRMLD  
MGFEPQIRKIVDQIRPDRQTLMWSA TWPKEVRQLAEDFLKDYIHINIGALELSANHNILQIVD  
VCHDVEKDEKLIRLMEEIMSEKENKTIVFVET KRRCDELTRKMRRDGPAMGIHGDKSQQERD  
WVLNEFKHGKAPILIATDVASRGLDVEDVKFVINYDYPN SSEDYIHRIGRTARSTKTGTAYT  
FFTPNNIKQVSDLISVLREANQAINPKLLQLVEDRGSGRSRGRGGMK DDDRDRYSAGKRGG  
FNTFRDRENYDRGYSSLLKRDFGAKTQNGVYSAANYTNGSFSGSNFVSAGIQTSFR  
T GNPTGTQYQNGYDSTQQYGSNVPNMHNGMNQQAYAYPATAAAPMIGYPMPTGYSQ

>sp|P31786|Modified\_Residue:55

MSQAEFDKAAEEVKRLKTQPTDEEMLFIYSHFKQATVGDVNTDRPGLLDLKGKAKWDSWNKLK  
GTSKESAMKTYVEKVDLKKKYGI

>sp|P41216|Modified\_Residue:544,552

MEVHELFRYFRMPOLIDIRQYVRTLPNTLMGFGAFAALTTFWYATRPKALKPPCDLSMQSVEIAGTTDG  
IRRSVLEDDKLLVYYYDDVRTMYDGFQRGIQVSNNGPCLSRKPNQPYEWISYKEVAELAECIGSGLIQ  
KGFKPCSEQFIGLFSQNRPEWVIVEQGCFSYSMVVPLYDTLGADAITIYNKAELSVIFADKPEKAKLL  
LEGVENKLTPCLKIIVIMDSYGSDLVERGKKCGVEIISLKALEDLGRVNRVKPKPPEPEDLAIICFTSGT  
TGNPKGAMITHQNIINDCSGFIKATESAFIASTDDVLISFLPLAHMFETVVECVMLCHGAKIGFFQGDIR  
LLMDDLKVLQPTIFPVVPRLLNRMFDRIFGQANTSLKRWLLDFASKRKEAELRSGIVRNNSLWDKLI FHK  
IQSSLGGKVRLMITGAAPVSATVLTFLRTALGCQFYEGYGQTECTAGCCLSLPGDWTAGHVGAPMPCNYV  
KLVDVEEMNYLASKGEGEVCVKGANVFKGYLKDPARTAEALDKDGLHTGDIGKWL PNGTLKIIDRKKHI  
FKLAQGEYIAPEKIENIYLRSEAVAQVFVHGESLQAFLIAVVVPDVESLPSWAQKRGLQGSFEELCRNKD  
INKAILDDLLKLGKEAGLPFEQVKGIAVHPELFSIDNGLLTPTLKA KRPELRNYFRSQIDELYATIKI

>sp|P47955|Modified\_Residue:98

MASVSELACIYSALILHDDVTVTEDKINALIKAAGVSVEPFWPGLFAKALANVNIGSLICNVGAGGPAP  
AAGAAPAGGAAPSTAAAPAEKKVEAKKEESESEEDDMGFGFLFD

>sp|P61604|Modified\_Residue:56

MAGQAFRKFLPLFDRVLVERSAETVTKGIMLPEKSQGKVLQATVVAVGSGSKGKGGEIQPVSVKVGDK  
VLLPEYGGTKVVLDDKDYFLFRDGDILGKYVD

>sp|P61982|Modified\_Residue:50

MVDREQLVQKARLAEQAERYDDMAAAMKNVTELNEPLSNEERNLLSVAYKNVVGARRSSWRVISSIEQKT  
SADGNEKKIEMVRAYREKIEKELEAVCQDVLSLLDNYLIKNCSETQYESKV FYLKMGDYYRYLAEVATG  
EKRATVVESSEKAYSEAHEISKEHMQP THPIRLGLALNYSVFYYEIQNAPEQACHLAKTAFDDAIAELDT  
LNEDSYKDSTLIMQLLRDNLTLWTSDDQDDDGEGNN

>sp|P97351|Modified\_Residue:144

MAVGKNKRLTKGGKKGAKKVVDPFSSKKDWYDVKAPAMFNIRNIGKTLVTRTQGTKIASDGLKGRVFEVS  
LADLQND EVAFRKFKLITEDVQGNCLTNFHGM DLTRDKMCSMVKKWQTMIEAHVDVKT TDGYLLRLFCV  
GFTKKRNNQIRKTSYAQHQQVRQIRKKMEIMTREVQTN DLKEVVNKLIPDSIGKDIEKACQSIYPLH DV  
FVRKVKMLKKPKFELGKLMELHGE GSSGKAAGDETGA KVERADGYEPPVQESV

>sp|Q5T4S7|Modified\_Residue:4685

MATSGGEEAAAAAPAGTPATGADTT PGWEVAVRPLLSASYS AFEMKELPQLVASVIESESEILHHEKQY  
EPFYSSFVALSTHYITTVCSLIPRNQLQSVA AACKV LIEFSLRLLENPDEACAVSQKHLILLIKGLCTGC  
SRLDRTEIITFTAMMKS AKLPQTVKTLSDVEDQKELASPVSPELRQKEVQMNFLNQLTSVFNPRTVASQP  
ISTQTLVEGENDEQSSTDQASAIKTKNVFIAQNVASLQELGGSEKLLRVCLNLPYFLRYINRFQDAVLAN  
SFFIMPATVADATAVRNGFHS LVIDVTMALD TLSLPVLEPLNPSRLQDVTVLSLSCLYAGVSVATCMAIL  
HVGSAQQVVRTGSTSSKEDDYESDAATIVQKCLEIYDMIGQAISSSRAGGEHYQNFQLLGAWCLLNSLFL  
ILNLSPTALADKGKEKDPLAALRVRDILSRTKEGVGSPKLGPGKGHQGFVLSVILANHAIKLLTSLFQD  
LQVEALHKGWETDGPPAALS IMAQSTSIQRIQRLIDSVPLMNL LLLTLLSTSYRKACVLQRQRKGSMS SDA  
SASTDSNTYYEDDFSSTEEDSSQDD DSEPILGQWFEETISPSKEKAAPPPPPPPPLESSPRVKSPSKQA  
PGEKGNILASRKDPELFLGLASNILNFITSSMLNSRNNFIRNYLSVSLSEHHMATLASIIKEVDKDGLKG  
SSDEEFAAALYHFNHSLVTS DLQSPNLQNTLLQQLGVAPFSEGPWPLYIHPQSLSVLSRLLLIWQH KASA  
QGD PDVPECLKVWDRFLSTMKQNALQGVVPSETEDLNVEHLQMLLLIFHNFTETGRRAILSLFVQIIQEL  
SVNMDAQMR FVPLILARLLIFDYLLHQYSKAPVYLFEQVQHNLSPPFGWASGSQDSNSRRATTPLYHG  
FKEVEENWSKHFS SDAVPHPRFYCVLSPEASEDDLNR LDSVACDVLFSKLVKYDELYAALTALLAAGSQL  
DTVRKENKNVTALEACALQYYFLILWRILGILPPSKTYINQLSMNSPEMSECDILH TLRWSSRLRISSY  
VNWIKDHLIKQGMKA EHASSLLELASTTKCSSVKYDVEIVEEYFARQISSFCSIDCTTILQLHEIPSLQS  
IYTLDA AISKVQVSLDEHFSKMAAETDPHKSS EITKNLLPATLQLIDTYASFTRAYLLQNFNEEGTTEKP  
SKEKLQGFAAVLAIGSSRCKANTLGPTLVQNL PSSVQTVCESWNNINTNEFPNIGSWRNAFANDTIPSES  
YISAVQAAHLGTLCSQSLPLAASLKHTLLSLVRLTGDLIVWSD E MNPPQVIRTLPLLLLESSTESVAEIS  
SNSLERILGPAESDEFLARVYEKLITGCYNILANHADPN SGLDESILEECLQYLEKQLESSQARKAMEEF

FSDSGELVQIMMATANENLSAKFCNRVLKFFTKLFQLTEKSPNPSLLHLCGSLAQLACVEPVRLQAWLTR  
MTTSPPKDSQDLVDIQENRQLLQLLTYYIVRENSQVGEVCAVLLGTLPMATEMPLANGDGTGFPELMVV  
MATLASAGQGAGHLQLHNAVDWLSRCKKYLQKNNVEKLNANVMHGKHVMILECTCHIMSYLADVTNAL  
SQSNGQGPShLSVDGEERAIEVDSWDVEELAVEEEDSQAEDSDEDSLCKLCTFTITQKEFMNQHWYHCH  
TCKMVDGVGCTVCAKVCHKDHEISYAKYGSFFCDCGAKEDGSLALVKRTPSSGMSSTMKESAFQSEPR  
ISESLVRHASTSSPADKAKVTISDGKVADEEEKPKKSSLCRTVEGCREELQNQANFSFAPLVLDMLNFLMD  
AIQTNFQQASAVGSSSRAQQALSELHTVEKAVEMTDQLMVPTLGSQEGAFENVRMNYSGDQGQOTIRQLIS  
AHVLRVRVAMCVLSSPHGRRQHLAVSHEKGKITVLQLSALLKQADSSKRKLTLTRLASAPVPFTVLSLTGN  
PCKEDYLAVCGLKDCHVLTFFSSGVSVDHLVLHPQLATGNFIKAVWLPGSQTELAIVTADFVKIYDL CV  
DALSPTFYFLLPSSKIRDVTFLFNEEGKNIIVIMSSAGYIYTQLMEEASSAQQGPFYVTNVLEINHEDLK  
DSNSQVAGGGVSVYYSHVLQMLFFSYCQKGSFAATISRTTLEVLQLFPINIKSSNGGSKTSPALCQWSEV  
MNHPLGVCCVQQTGTGVLVVMVKPDTFLIQEIKTLPKAKIQDMVAIRHTACNEQQRTTMILLCEDGSLR  
IYMANVENTSYWLQPSLQPSVISIMKPVKRKTATITTRTSSQVTFPIDFFEHNQQLTDVEFGGNDLLQ  
VYNAQQIKHRLNSTGMYVANTKPGGFTIEISNNNSTMVMGTGMRIQIGTQAIERAPSYIEIFGRTMQLNLS  
RSRWFDFFPTREEALQADKKLNLFIGASVDPAGVTMIDAVKIYGKTKEQFGWPDEPPEEFPSASVSNICP  
SNLNQSNGTGDSDSAAPTTTSGTVLERLVVSSLEALESCFAVGPIIEKERNKNAQELATLLLSLPAPAS  
VQQQSKSLLASLHTRSAYHSHKDQALLSKAVQCLNTSSKEGKDLDPVEFQRLVITARSAIMRPNNLVH  
FTESKLPQMETEGMDEGKEPQKQLEGDCCSFITQLVNHFWKLHASKPKNAFLAPACLPGLTHIEATVNAL  
VDI IHGYCTCELDICINTASKIYMQLLCPDPAVSFSCQALIRVLRPRNKRRHVTLPSPPRSNTPMGDKD  
DDDDDDADEKMQSSGIPNGGHIRQESQEQSEVDHGDFFEMVSESMVLETAENVNNGNPSPLEALLAGAE GF  
PPMLDIPPDADDETMVELAIALSLQQDQQGSSSSALGLQSLGLSGQAPSSSSLDAGTLDSTTASAPASDD  
EGSTAATDGSTLRTSPADHGGSVGSSESGSAVDSVAGEHSVSGRSSAYGDATAEGHPAGPGSVSSSTGAI  
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DGEDEKDKGALDNLLSQLIAELGMDKKDVSKKNERSALNEVHLVVMRLLSVFMSRTKSGSKSSICESSSL  
ISSATAAALLSSGAVDYCLHVLKSLLEYWKSQQNDEEPVATSQLLKPHTTSSPPDMSPFFLRQYVKGHAA  
DVFEAYTQQLTEMVLRPLPYQIKKITDTNSRIPPPVDHSHWFYFLSEYLMIQQTFFVRQRVRLLLFICGS  
KEYRQRLDLHTLDSHVRGIKKLLEEQGIFLRASVVTASSGSALQYDTLISLMEHLKACAEIAAQRTINW  
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ISKVTVKIGDLKRTKMVRTINLYNNRTVQAIVELKNKPARWHKAKKVQLTPGQTEVKIDLPLPIVASNL  
MIEFADFYENYQASTETLQCPRCASVPANPGVCGNCGENVYQCHKCRSINYDEKDPFLCNACGFCKYAR  
FDFMLYAKPCCAVDPIENEE DRKKAVSNINTLLDKADRVYHQLMGHRPQLENLLCKVNEAAPEKPQDDSG  
TAGGISSTSASVNRYILQLAQEYCGDCKNSFDELSKIIQKVFA SRKELLEYDLQQREAATKSRTSVQPT  
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MREEVRQLMCLLTRDNPEATQQMNDLIIGKVSTALKGHWANPDLASSLQYEMLLLTDSISKEDSCWELRL  
RCALSLFLMAVNIKTPVVVENITLMCLRILQKLIKPPAPTSSKKNKDVPEALTTVKPYCNEIHAQAQLWL  
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AARGVLPYVGNLITKEIARLLALEEATLSTDQQGYALKSLTGLLSSFVEVESIKRHFKSRLVGTVLNGY  
LCLRKLVVQRTKLIDETQDMLLEMLEDMTTGTESETKAFMAVCIETAKRYNLDDYRTPVFIFERLCSIIY  
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NNKIIISLDLPVAEVYKKVWCTTNEGEPMRIVYRMRGLLGDATEEFIESLDSTTDEEED EEEVYKMAGVMA  
QCGGLECMLNRLAGIRDFKQGRHLLTVLLKLF SYCVKVKNRQQLVKLEMNTLNVMLGTNLNALVAEQES  
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PYLSFGEVEKMQILVERFKPYCNFDKYDEDHSGDDKVFLDCFCCKIAAGIKNNSNGHQLKDLILQKGITQN  
ALDYMKKHIPS AKNLDADIWKFLSRPALPFILRLLRGLAIQHPGTQVLIGTDSIPNLHKLEQVSSDEGI  
GTLAENLLEALREHPDVNKKIDAARRETRA EKRMAMAMRQKALGT LGMTTNEKGQVVTKTALLKQMEEL  
IEEPGLTCCICREGYKFQPTKVLGIYTFTKRVALEEMENKPRKQQGYSTVSHFNIVHYDCHLA AAVRLARG  
REEWESAALQNANTKCNGLLPVWGPHVPESAFATCLARHNTYLQECTGQREPTYQLNIHDIKLLFLRFAM  
EQSFSADTGGGGRESNIHLIPYIIHTVLYVLNTRATSR EKNLQGFLEQPKWKVESAFEVDGPYYFTV  
LALHILPPEQWRATRVEILRRLVTSQARAVAPGGATRLTDKAVKDY SAYRSSLLFWALVDLIYNMFKKV  
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SVP

>sp|Q60930|Modified\_Residue:32

MAECCVPVCPRPMCI PPPYADLGKAARDIFNKGFGFGLVKLDVKT KSCSGVEFSTSGSSNTDTGKVS GTL  
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VDFDFAGPAIHGSAVFGYEGWLAGYQMTFDSAKSKLTRSNFAVG YRTGDFQLHTNVNNGTEFGGSIYQKV  
CEDFDTSVNLAWTSGTNCTRFGIAAKYQLDPTASISAKVNNSSLI GVGYTQTLRPGVKLTLSALVDGKSF  
NAGGHKLGLALELEA

>sp|Q60931|Modified\_Residue:15,20

MCNTPTYCDLGKAAKDVFNKGYGFGMVKIDLKT KSCSGVEFSTSGHAYTDTGKASGNLET KYKVCNYGLT  
FTQKWNTDNTLGTEISWENKLAEGLKLTLD TIFVPNTGKKSGKLKASYRRDCFSLGSNVDIDFSGPTIYG  
WAVLAFEGWLAGYQMSFDTAKSKLSQNNFALGYKAADFQLHTHVNDGTEFGGSIYQKVNERIETSINLAW  
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LEA

>sp|Q60932|Modified\_Residue:33

MCSFFLVLLLWQNMVAPPTYADLGKSARDVFTKGYGFGLIKL DLKT KSENGLEFTSSGSANTETTKVNGS  
LETKYRWTEYGLTFTEKWNTDNTLGTEITVEDQLARGLKLTFD SSFSPNTGKKNAKIKTGYKREHINLGC  
DVDFDIAGPSIRGALVLGYEGWLAGYQMNFETSKSRVTQSNFAVG YKTDEFQLHTNVNDGTEFGGSIYQK  
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VNAGGHKLGLGLEFQA

>sp|Q61387|Modified\_Residue:56

MYYKFSSFTQKLAGAWASEAYTPQGLKPVSTEAPPIIFATPT KLTSSVTAYDYS GKNKVPQLQKFFQKAD  
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>sp|Q69ZK0|Modified\_Residue:1141

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LQIRIRQNVADSV EKGLTEENVKVLFSNIEDILEVHKDFLA ALEYCLHPEPQS QHELGNVFLKFKDKFCVY  
EEYCSNHEKALRLLVELNKP VPAVRAFLLS CMLLGGRKTTDIPLEGYLLSPIQRICKYPLLLKELAKRTPG  
KHPDHTAVQSALQAMKTVC SNINETKRQMEKLEALEQLQSHIEGWEGSNLTDICTELL LQGNLLKISAGN  
IQERAFFLFDNLLVYCKRKS RVTGSKKSTKR TKSINGSLYIFRGRINTEVMEVENVEDGTADYHSNGYTV  
TNGWKIHN TAKNKWFVCMAKTAE EKQKWL DALIREREQRESLKLGMERDAYVMIAEKGEKLYHMMMSKKV  
NLIKDRRRKLSTV PKCFLGNEFVAWLLEIGEISKTEEGVNLGQALLEN GIIHHVSDKHQFKNEQVMYRFR  
YDDGTYKARSELEDIMSKGVRLY CRLHSLYAPVIKDRDYHLKTYKSVVPGSKLVDWLLAQGDCQTREEAV  
ALGVGLCNNGFMH HVLEKSEFKDESQYFRFHAD EEMEGTSSKNKQLRND FKLVENILAKRLLIPPQEDDY  
GFDLEEKNKAVVVKSVQRGSLAEMAGLQAGRKIYSIN EDLVFLRPFSEVETILNQFFCSRRPLRLLVATK  
AKETIKVPDHPEALS FQIRGTAPPCVF FAVGRGSEAVAAGLCAGQCILKVNGTSVANDGALEVLEHFQA FR  
NHREEALGLYQWVYHSHEDAQLARASQGAPDEDPQEDDQPD SALPLLSLGPQLSLHEDSAVVSLTLDNVH  
LEHG VVY EYMSTAGAKCHVLEKIVEPRGCFRLAAKILEAFVDDSI FVQNCGRLMAMSSAIVTMSHYEFH  
NICDTKLESIGQRIACYQEFAAQLKSRVSPFPKQASLEPHPLCGLD FCPTNCHVNLMEVSYPKTTPSVGR  
SFSIRFGRKPSLIGLDPEQGLNPMAYTQH CITTMAAPSWKCSPAVDEDSQGQGLNDSSYGSASGAPSQQD  
RGLSFL LKQEDREIQDAYLQLFTKLDVALKEMKQYVTQINRL LSTITEPTSAAPAPCDPSLVEETSSSP  
VSESEVDRDTHSGIKKVC FKVSEDEQEDSGHDTMSYRDSYSECNSNRDSVLSYTSVRSNSSYLGSDEM  
SGDELPCDMRIPSDKQDKLHGCL EHLFNQVDSIHALLKGPMVSRAFEETRHFPMKHSWQEFKQKEECTVR  
GRNLIQISIQEDPWNLPSSIRTLVDNIQQYVEDGKNQLLLALLKCTDTELQLRRDAVFCQALVAAVCTFS  
EQLLAALDYRYNNNGEYEESSRDASRKWLEQVAATGVLLHWQSL LAPASVKEERTMLEDIWVTLS ELDNV  
TFSFKQLDENS VANTNVFYHIEGSRQALKVVFYLDGFHFSRLPSRLEGGASLRLHTVLF TKALESVEGPP  
PPGNQAAEELQQEINAQSLEKVQQYYRKLRAFYLERSNLPTDAGATAVKIDQLIRPINALDELYRLMKTF  
VHPKAGAAGSLGAGLIPVSSEL CYRLGACQITMCGTGMQRSTLSVSLEQAAILARSHGLLPKCVMQATDI  
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>sp|Q6P6M7|Modified\_Residue:173

MNPESFAAGERRVSPAYVRQGCEARRAHEHLIRLLEQGKCPEDGWDESTLELFLHELAVMDSNNFLGNC  
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PMATGMSLTLCFLTLRHKRPKAKYIIWPRIDQKSCFKSMVTAGFEPVVIENVLEGDELRTDLKAVEAKIQ  
ELGPEHILCLHSTTACFAPRVPDRLEELAVICANYDIPHVVNNAYGLQSSKCMHLIQQGARVGRIDAFVQ  
SLDKNFMVPVGGAI IAGFNEPFIQDISKMYPGRASASPSLDVLTLLSLGCSGYRKLKERKEMFVYLS  
QLKKLAEAHNERLLQTPHNPISLAMTLKTIDGHHDKAVTQLGSMLFTRQVSGARAVPLGNVQTVSGHTFR  
GFMSHADNYPAYLNAAAAIGMKMQDVLDFIKRLDKCLNIVRKEQTRASVVSAGADRKAEDADIEEMALK  
LDDVLGDVGQGPAL

>sp|Q6P8V7|Modified\_Residue:47

MLRGGSMATAELGVGFALRAVNERNVQQSVARRPRDLPAIQPRLVAVSKTKPADMVIEAYGHGQRTFGENYV  
QELLEKASNPKILSSCPEIKWHFIGHLQKQNVNKLMAVPNLSMLETVDSVKLADKVNSSWQKKGPTEPLK  
VMVQINTSGEDSK

>sp|Q8BLF2|Modified\_Residue:104

MEMYETLGKVGESYGTVMKCKHKDTGRIVAIFIEYKPEKSVNKIATREIKFLKQFRHENLVNLIEVFR  
QKKKIHLVFEFIDHTVLDELQHYCHGLESKRLRKYLQILRAIEYLHNNNIHRDIKPENILVSQSGITK  
LCDFGFARTLAAPGDVYTDYVATRWYRAPELVLKDTSYGKPVDIWALGCMIIEMATGHPFLPSSSDLDL  
HKIVLVKGNLTPHLHNIFSKSPIFAGVVLQVQHPKTARKKYPKLNGLLADIVHACLQIDPAERTSSTD  
LRHDYFTRDGFIEKFIPELRAKLLQEAKVNSFIKPKENFKENEPVRDEKKSFTNTLLYGNPSLYGKEVD  
RDKRAKELKVRVIKAKGGKGDVPDQKKPEYEGDHRQQTADDTQPSLDDKPSVLELTNPLNPSSENSDGV  
KEDPHAGGCMIMPPINLTSSNLLAANLSSNLSHPNLSRLTERTKKRRTSSQTIGQTLNSNRQEDTGPTQVQ  
TEKGAFNERTGQNDQISSGNKRKLNFPKCDRKEFHFPPELPFTVQAKEMKGMEVKQIKVLKRESKKTSSK  
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>sp|Q922Q1|Modified\_Residue:66

MGSSSSTALARLGLPGQPRSTWLGVAAALGLAAVALGTVAWRRTPRRRRQLQQVGTVSKVWIYPIKSCKG  
VSVCETECTDMGLRCGKVRDRFWMVVKEDGHMVTARQEPRLLVLSITLENNYLTLEAPGMEQIVLPIKLP  
SSNKIHNCRFLGLDIKGRDCGDEVAQWFTNYLKTQAYRLVQFDTSMKGRTTKKLYPSESYLQNYEVAYPD  
CSPVHLISEASLVDLNTRLKKVKMEYFRPNIVVSGCEAFEEDTWDELLIGDVEMKRVLSGPCRCVLTTV  
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>sp|Q99L47|Modified\_Residue:152

MDPRKVSELRAFVKMCRQDPSVLHTEEMRFLREWVESMGGKVPPATHKAKSEENTKEEKRDKTTEENIKT  
EELSSEESDLEIDNEGVIEPDTDAPEMGMENAEITEEMMDEANEKKGAAIEALNDGELQKAIDLFTDAI  
KLNPRLAIIYAKRASVFVKLQKPNAAIRDCDRAIEINPDSAQPYKWRGKAHRLLGHWEEAAHDLALACKL  
DYDEDASAMLRVQPRQKIAEHRRKYERKREEREIKERIERVKKAREEHERAQREEEARRQSGSQYGSF  
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QSNPKVMNLI SKLSAKFGGQS

>sp|Q9QWY8|Modified\_Residue:675

MRSSASRLSSFSRDSLWNRMPDQISVSEFIAETTEDYNSPTTSSFTTRLHNCRNVTTLLEEALDQDRTA  
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HNVIFTLDSLLKGD LGVKGDLKKPFDKAWKD YETKFTKIEKEKREHAKQHGMIRTEITGAEIAEEMEKE  
RRLFQLQMCEYLIKVNEIKTKKGVDLLQNLIKYYHAQC NFFQDGLKTADKLKQYIEKLAADLYNIKQTQD  
EEKKQLTALRDLIKSSQLDLPKEVGGLYVASRANSSRRDSQSRQGGYSMHQLQGNKEYGSEKKGFLKKS  
DGIRKVVQRRKCAVKN GILTISHATSNRQPAKLNLLTCQVKPNAEDKKSFDLISHNRITYHFAEDEQDYI  
AWISVLTSNKEEAL TMAFRGEQSTGENSLEDLT KAI IEDVQRLPGNDICDCGSSEPTWLSTNLGILTCI  
ECSGIHREMGVHISRIQSLELDKLGTSSELLAKNVGNNSFNDIMEANLPSPPKPTPSSDMTVRKEYITA  
KYVDHRFSRKTCASSAKLNELLEAIKSRDLLALIQVYAEGVELMEPLLEPGQELGETALHLAVRTADQT  
SLHLVDFLVQNCGNLDKQTSVGNTVLHYCSMYGKPECLKLLLRSKPTVDIVNQNGETALDIAKRLKATQC  
EDLLSQAKSGKFNPVHVHVEYEWNL RQDEMDSEDDDLDDKPSPIKKERSPRPQS FCHSSSISPQDKLALPG  
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PPKPQLGDLPPKPQLSDLPPKPQMKDLPPKPQLGDLLAKSQAGDVSAKVQPPSEVTQRSHTGDLSPNVQS  
RDAIQKQASEDSNDLTPTLPETPVPLPRKINTGKNKVRVKTIYDCQADNDELTFIEGEVIVTGEEDQ  
EWWIGHIEGQPERKGVFPVSFVHILSD