

### **K-type of carbonylation peptide fragments**

#### **K-type of 300 positive peptide samples**

SAPAKGRKKSKMGFQ

ENSLAEDKDGRRKGGK

VTTGIRDKKGVTVKT

QCRLKLLKLERIKDY

NIGYGSNKKTKHMLP

VTGGAASKLSKIRVV

QTTWRKYKLTDLKR

RKLLMLKKEKLEKVQ

QKKWKIMKKAALLIQ

GIGRLILKEEMKARS

DKLTTADKLLGELQE

KLQVLPQKASERLQF

GITNLGYKVLIQPSN

LAEKVFAKVLREEDS

SERSGTPKRRKAPPP

AAKEMEEKISNLKEH

ADAGRDKKEKVFEKH

SSAINILKEKKKREK

GPRLGDAKLKEKFKD

VSGEHKQKGKVKRKL

QQEVVRMKLRLQHSI

DLQEQMNKNKMMPVL

GQQDTIKKALNYSTA

SKVTYLGKELLRYVS

DEKMKAMKRSRTWGQ

KRQLQTPKEKAQALE

KEPVGEGKGTAFKQ

EADRTSSKKTQEI

QRVLDILKSSHAVE

HKKPIDLKAIGKLPI

VKQTVQSKILTTGEN

KRLGRRFKKLDLDS

IPVQLVFNKIKLYW

SQEIKDTKECVQNKE

TRFLEEIKNQDKLNK

CNHIREVKSLEELS

DCSQDLLKKREHHIE

KTLFSCWKSENEKLL

SPPAAACEKGKEQHSQ

AKEHKEPKQKDGAKK

YRIELLRKVREQVLK

RKFVEHVKSQGHKDK

KTLNDSLKKVENKVS  
RQICVTQKLLPAKRS  
TEKEMIQKLDKLELQ  
KQIEKELKQMELIKD  
YDASVRNKQQELHLE  
KHLKTLKTVFSETW  
RSIIGFVKLRSNKVK  
NKVKRSQKLVYMGKL  
YTKKDTKKNNAKSSD  
CNKLLAAKNINLRLF  
SGYEEALKIFQKIKD  
PIKQVEEKPQRAQNI  
EPTERPLKGIQSRLR  
EPAPKKQKLSASVKK  
DKLRISTKKLEEYET  
LQIIPGAKHGNIQVG  
RKLVERRKQVKQLMK  
FKLGNKVKSEVNKLY  
IEEKDLEKLDLVIKY  
ECREEILKFLCIFLE  
GLFAGPCKVINAKDV  
MASLRRPKRIIRGH  
KVPADLLKRAFVRMS  
GNGGVVFKVSHKPSG  
IPEQILGKVSIAVIK  
DSRSLAQKIVATYRL  
NIPPLTMKRIRERFI  
ISGLGGEKDRWTEAA  
RNIYQGVKKKQYDIL  
LKLESKLIKADKLYLQ  
EVQEVKDKAQKIVDE  
KVLMPKLIKAKPIRTA  
LLNRLNRKMEIKPLQ  
HFRSLRTKLLLMSRN  
VIQEIVDKSGVVRVR  
GRNQEKLKKFMIRIG  
KKRIKKRKGEAMALN  
TKEKAGPKGSKVSEE  
ERIFTGNKFTKDTTK  
KILKKINKAIVSKKN  
VANAVFVKNASEIEV  
CIVILTGKDPLGETF  
TEKLAGVKQEVIKES  
EREAELKKLQEARER

KKYLEDVKLQARGQL  
AECVKQAKGVRQQAV  
SISQKKVKIELDKSA  
PLAGKKAKKPAKAAA  
AAKARVTKPKTAKPK  
FQQATKIKKLRAGKL  
SVRGPRIKHVCRAA  
RFQLPLDKGNGKCHK  
MASQRQAKIQRKQK  
VFDKVSEKLGDKRLF  
QGKENLWKENLRKEE  
SGKLYKTKSNKELHG  
DRKTIPIKYPLKEIV  
ASFQAERKFNAAAAR  
GSLGSMKLRKSESK  
ESPHFYRKGTTPPRS  
KKKYEKEKEKNKILR  
IQYVVRLKKENVRLA  
TANIQDLKEEYSRKK  
ERLKRQLKSADLYKD  
DILQALQKLSKDNL  
KHLQQKLKEKDRELE  
GEDDERSKRIWLDYP  
PDLRVVQKYPLLKEP  
TNDFTKIKGWRGKFH  
TLAPVVAKLGNSGAS  
AKEADQLKQDLQEAR  
AKKPAALKPKVPKKE  
PGTTKTTKSSAVPPG  
IDIYLLEKSRVIFQQ  
INRALDAKLSRQFFI  
NKLMTNLKSTAPHFV  
HKLEGNLKLNRSEME  
LEVKSDSKEDENLVI  
KLSLEESKKGKGYDLR  
KETYEKQKGHYLAGK  
SQQMQSGKEYRKDYE  
LLSVKQEKEIQMKMI  
IISFAVQKETQFHTE  
GEKYLQSKEDLRLML  
LMLIELKKKQEAGFA  
VTGREGAKDIDISSP  
IPKMKMPKFSMPSLK  
KLKGPKLKMPMHFK

EMHFKTPKISMPDVN  
NLKGPKMKGDVDVSL  
EKAKSPVKEEVKSPE  
APKKEAPKPKVEEKK  
KARLERFKLRRMKAN  
LQSQEETKERRHSHT  
ADAKKKKKKSWVYEL  
ISLKKAKKPPLPPSR  
IEIKSKNKVRPGSLF  
LAAMDATKLEYERAS  
KEEKKKKKIKTIKSE  
GLGVMPPKAGQTITV  
GLEAAQIKELEELRQ  
ELKAWQEKFFQKEQA  
RKVEEVTKVCEGRRK  
TLVPAGIKSLGLAVS  
REVSQSRKPSASERL  
RGGGSPEKPPSRRRP  
KKFLPVLKEILDRDP  
IHVIQQGKTGNTEKF  
KIIKSSSKVHSFGKR  
ERMKRHQKALVRERK  
EMKKQTLKSLIIKLS  
PPPIKSFKEMKFPA  
QKATTGLKPVDSGCV  
IHKDLIKKPTISTAV  
CRGIIGGKSQRVNGL  
QLDRLLPKLARGSL  
SIVRIIGKMLPLEPC  
KEKELENKLEELKKQ  
KDLQEQNKKNEERMF  
EGKDEDAKSLRTME  
EMSAKRAKDV LHSS  
LLLRMLEKRQMDRAE  
LESMPIKMNFPQK  
SIEKTSKDLAPTSK  
VLAKTPKAETTTKG  
MPRVRKPKTTPTPRK  
KEERVSLKVLAKNFG  
KNPKEEKKPKEKKKK  
SRTVRLLKELRRALG  
ARVTEVMKALKCNVR  
LLLAPSSKKGKARLS  
DMLRLANKDSIGFFI

GDRIQVRKVPPLKIP  
TLADIKAKAQLVKAQ  
KSIRAFKAGFLAEEK  
QMYEEQIKNLEKENY  
AVLLKTKKKGQKKSG  
HGVCSVLKGSEFMFE  
AMPGA EYKAKKAKGD  
RLLDEATKRSNRDSL  
TEHPYKSKKAVWHKL  
LLSVRMGKEEEKLMI  
MVTSLFCKLGVLRH  
HFLPLMEKLKKAAT  
EDGEKEEKAKEDKGG  
VIPVLQTKTRTNVPT  
PEPKKIKKAASPSQ  
TQNSYRAKEPILALR  
DCENLLKLLVLNPI  
LLLAYKIKYPENFFL  
ERKSPEDKKS MILSV  
MYLMLDNKRKEVVHK  
WSQRGKGKVF PKLRK  
RGKAAILKAQVAARG  
AYPRLVVKLMPNGLR  
VPAAYVKKLDPAQSA  
KKFDDFQKDLKANES  
MAASRRAKLNESHRL  
VEHWKELQLAAARG  
TELIRQEKLEQLAAR  
LKQSGQKKS YTLRVR  
KYDAIKFKINQLSEL  
DELKSSVTKDKKII  
GRIRLPRKATKTKKN  
RRKKRAPKADISKSL  
ALMEVMMKEMKGSIR  
SKKIPEEKVPVPVQK  
EKPKAPPKGPEISEK  
PIKGVPKKTPSPIEA  
VVPRSEGKVHTLTLR  
PKIKVDVKFKDTVIL  
LKVTEITKDSVSITW  
LDGGSKIKNYIVEKR  
ESSVLRAKEVTWYKD  
VQEEISQKALRSEEI  
IGAARTTKKRIPNTK

GRNVKSRKLKEIFNK  
PRPPSLKKKQTTKKP  
GAVKGLCKLFLCTLH  
LSSLGGFKLAHGLLE  
HGLLEELKTVLSSHK  
RLIGNESKGEHVPGF  
KAADALGKLISIIHK  
IGSINLKKNEPPLTC  
FEALKYPKFSKAIVI  
LTKQDKLKSPFKFSD  
RKMEVGFKARGQPKS  
FAKNIPVKSKNIRVV  
SKKPDKEKPIKEKDK  
EKLKEILKERELKIY  
KKLALSAKKASTLWR  
VNEQEPCKFLLDVAF  
VFKTRILKIIDGLK  
LQLSKKLKTVLDQAR  
KKKLTSSKPPGELLV  
GLTVGFDDKDMMDIK  
QQLNGVQKQIIICGR  
DDVALVSKALQAEEM  
TGDFESKKNELPDGL  
AARRRFLKLQQDQQE  
SKAKPSYKQKRQRNR  
ETRESETKCLKELPGV  
ANRFLGDKSLTFNET  
LKLEDTPKINSRFFG  
FFGEGTKKMGLAFES  
EKLIKDLKSKEVPEA  
EKLTALTKKYRITEN  
KFLDMLIKKLKSFYD  
SYNETKIKFDKYKAE  
IDLLKIKKITAIIQ  
VSEHEATKCQSFRDH  
YLAPNNLKPVVAEFY  
YAVAVVKKDSGFQMN  
MNQLRGKKSCHTGLG  
LFSSPHGKDLLFKDS  
LSHHERLKCDEWSVN  
EGCAPGSKKDSSLCK  
VPQNTGGKNPDPWAK  
LCLDGTRKPVEEYAN  
AVVTRKDKEACVHKI

YLGEYVKA VGNLRK  
TVKVPMMKRLGMFNI  
RSVQLTEKRMDKVGK  
SNTKVDKKVEPKSCD  
LHTLFGDKLCTVATL  
NECFLQHKDDNP  
LFFAKRYKAAFTECC  
AEFAEVSKLVTDLTK  
LLVRYTKKVPQVSTP  
PVSDRVTKCCTESLV  
CFAEEGKKLVAASQA  
SEVAHRFKDLGEENF  
KAACLLPKLDEL RDE  
SSAKQRLK CASLQKF  
DSISSKLKECCEKPL  
VLLLRLAKTYETTLE  
CCKHPEAKRMPCAED  
SEKERQIKKQTALVE  
KHKPKATKEQLKAVM  
DNEETFLKKYLYEIA  
WLNKTFKCKVNSGA  
VATALAHKYHXXXXX  
VHLTDAEKAAVNLX  
GMYELLKVRPEQLV  
EVERTRNKFLFLKAD  
LTAFTNLKIKHPTYC  
DICTLPDKEKQIKKQ  
AADKTNKNCWGKIG  
KVADALAKAADHVED  
KAGQYTDKGLRKCCE  
MSAKEKGKFEDMAKA  
DDSPDLPKLPDPNT  
KGACLLPKIETMREK  
VGTRCCTKPESERMP  
EKTPVSEKVTKCCTE  
LVLLKHKPKATEEQ  
XXXXX MVKVG VNGFG  
TVDGPSGKLWRDGRG

**K-type of 1949 negative peptide samples**

SIAVQMMKRIHSLE  
SPHEQEIKFFAKILL  
FGEQLIQKSEPLDAV  
MASFSFLKDNSTDVC  
HSRALLVKTTLNISF

IKVLSSSKVLSEEIS  
ETWRLWQKFLDDYSR  
RINEYVGKAATRLSI  
EKQKSEAKDRKVLEI  
EYRLDWAKWKAKIQS  
PGEHVFVKGYEKGQP  
GILDRSSKSQSSASL  
ARLEADEKKQLCVLQ  
QNLQDAAKDMKKFEA  
FVILRDEKWGGNKTY  
RQHPDTLKYSTLMDS  
PTTLIPAKAPEIIDV  
QIQALEDKKEKEMSA  
THFVARLKSWRGNEP  
WYNLLSYKYLKKQSR  
AQPAAPAKVPSPGQQ  
SPQPESFKTSRSSKQ  
AARVTGMKKWPRTPK  
ECLVSAQKVLEGSEL  
VTSNEQVKGYGTHLM  
NRGWFCVKVILCPF  
RILAAGGKSNHLHLW  
NEMASTEKLTDVARY  
GSKDREPKPKRKRKREP  
QWQFLVQKSAEKSQK  
HAPQFPEKEFNITVQ  
KMALEVYKLSLEIEQ  
RNTRILRKCIEKVAK  
KAVMTSIKQLSSEEL  
IRMSARQKQIMEIEE  
HLSSPPTKFFVSTPS  
LENSSGTKSAFVTVR  
EELRDYVKARLKVFY  
IRVCALNKVGLGEAT  
VINYIVEKQDTRKDT  
KCSKTSFKVENLTEG  
FSQPIINKVKPQLLK  
YRVEAAWKLSQWDLV  
KARKLFYKAIVRGKE  
NAEMHKNKLQYFMEQ  
PRLPKLQEEQREL  
ALEVDFEKMKKERDQ  
YSAVNPEKDIHSGLI  
SSVNSLRKAAHEALQ

RNTILWVKENKVPCL  
HTLVESLKLSITDQQ  
ALDEFATKLIQNNHY  
EVL MVWYKQIEQVLI  
NWCSQMDKGMLHFGS  
EKAPATPKTEKKDS  
AIPLLAAKANTKNTS  
ESIHNPKSCPTPEV  
KEYYQRNKSNTIEP  
KREPKEPKEPRKAKE  
VSFIENSKFFEQYEV  
ALLADSEKPSHKSFA  
KLVVTGLKEGAFYKF  
FESHQNYKDVQDPSV  
PLQQFCSKKLFSIPE  
REPAGDGKSIRTFKE  
RYLYTLEKVCQPLYN  
NDVLEHVKHVFVINLI  
QALEDIIKKFASVPE  
KGPALSRKRKKEVDA  
VFLTLYEKVFEDTYT  
TKVPEVSKKIVPQKP  
TEFQNHEKQESQDLR  
QEWFLGAKAAAKESS  
YGALAPFKPSEPGAN  
TTILQHWKKCDSWWA  
CRGLLLPKVVEDRGV  
GDYVDRGKQSLETIC  
NVLQYCRKSGLQTDY  
PKPPSKVKSSSKESS  
GRPLVASKKYRISFK  
MQLPYRAKKFSLYCT  
DLSGADIKAICTEAG  
SKADAPVKWFKDGKE  
DGFVDQKKKLXXXXX  
DVQFYQLKLPMTVA  
LVNPAGEKAVFVNVR  
KEGLLQMKLPEPVKL  
RVNAWQAKANNKQW  
ITGQLGVKPQTGNSI  
GCFWVIKGCSPFLD  
AISDVETKETYSSG  
SKPPGNLKECSPWMS  
LRWTRV NKDYVVYDT

PVAAPEPKKETESEA  
LGTNGTVKYSISAGD  
EETARREKQQLLDVQ  
HQSADRAKSEMATMK  
EPPPSTVKTYHYLVD  
ENYRPLAKTRQQNIS  
LTMEINPKVPVNLRL  
DGPLSPGKMEDISPV  
EMDTDQLKLYEEPLS  
LYRSVYEKNMKIHI  
TEFLALMKKVSXSPL  
DNAPQFLKSKYFTPV  
KPEELVSKELSTWKE  
EKKNEVHKVEMFLGE  
RGPQVDVKGPFVEAE  
EMLTPEEKALLYEAI  
ITLGPPSKPKGPIRF  
IEKSKSLKQTDQPKA  
RNYLPALKVEYNTSA  
KRGAAVKTSGSPRS  
LCNQCRGKKAKNPKE  
EVCRAGSKHSRPIPL  
QKELVLSKPCKFEK  
SRTRDVVKSALGFIK  
STDWSGVKKPIYLSK  
TGASGSFKLNKKASS  
KKAKKPAKAAAASKK  
GSELELAKMTMLLLY  
YYSALSGKSIDGHS  
KGSLEEEKRRAADAL  
GSLEQIMKDRWMNVG  
GETTHTDKVPGGEDK  
PLLPSLLKCLKMDDT  
SLESISTKVIVTQTT  
TSKMDLEKPNYIVPD  
QAHPVMRKCLQSLCD  
FHLVRDVKQGNLPPG  
IMEAPLLKHKDDIED  
TGPPQVGKTGSYLQF  
EEDWEINKDSAVEMA  
RVLQALMKRFYLPGT  
LSFINGYKNIYAEKV  
PLQEAESKVSMALEE  
VNRETDTKRPDARLA

EHSEIHTKLYFLQWL  
ETADQFLKRSLEMRE  
RGHEELRKLESTLDG  
REHPFLVKGGEDLRQ  
TLENGNKQHQLGVW  
ERSAEESKPRSLQEL  
KYQALLSKMRAIDLQ  
NFSPNQTKFTVQRTD  
LVFCERGLQPPRKA  
AFSASARKVVNRDSC  
EKPPPVNKQENAGTL  
LLETGQEKMAGDQKI  
SLLIGVFKHGYERYN  
DITLTNDKPATAIGV  
EVSEIHIKVKPTTKS  
CFPEGLVKSCSETLL  
TAFVQEPKVGETAPG  
PFSSADV KPKVEDLD  
DLSLSGKTL CVTAG  
SIEEPEGKLGPKFK  
INQVNTIKNEAEVIN  
YQPLRRSKRRWVITT  
TAAVQLLKPEGVLVY  
NTSLLSQKKKLEADV  
ESTPLANKPGKQSGH  
SCQLSREKANVKWYR  
DIAEQLLKANPPGKD  
DLTTILTKLAKTDN  
RVMGFPEKSDIFDVD  
EDTATSSKRRPRTRA  
YSIQDWAKRMKALVE  
NSFISIPKMEVKSYP  
AGAQALEKLEAAESL  
MTTQLICKLLRSREA  
LRLLEPVKRAQEMDA  
XXXMAKRKEENFSSP  
IEIGLEGKGFEPTE  
RSVDSSAKREKPVVR  
MESICIMKGMKPERK  
EISESVGKNQFTSES  
APVPRGRKGKTKNQ  
QSPAVLDKADGQKPV  
KLNMMLSKGELLSTL  
YTTQSTIKPXXXXXX

HTQAGWRKEGNLGTH  
AGTERWMKVVTLKPT  
KEAYEHTKAYGYTLG  
WYRLRLLKPQNIIP  
EEFVTSYKALKSRIS  
WNLRLDVKKNPVQDK  
TSLAIAQKLMELKLG  
KVEDLPLKLTIIYSEA  
VTACNPYKPPGPPST  
RGQVDYSKIMNGNLS  
GVIYTVAKEELKKFE  
TWSKDGQKLPPGKDY  
LANSAARKKKLLEAQ  
HPVSGVRKEQGGGCH  
IFTDSEIKDEAFLEY  
GEVQLTAKDFKTHAN  
SPTSPFYKACDTVFK  
SHDNIRVKWFKNDQR  
HMYKMPEKILPKILG  
KEKQEANKQKVPNPS  
ISFDDSSKTQSHSDA  
GAGEEEAKGGKRPKE  
GEEVPAKKTIVS  
VFLDSGRKTRSARRR  
NMVLPDEKGAGALPF  
SSEKLFVKYDLILTS  
TNLTDDLKALYKVAG  
FNEGPCSKILIQCKA  
VVPGASIKYDAVKEE  
MLQVTQAKKSQAIAS  
KLLKELHKESKTRDD  
IEAHEQGKDIDLNKV  
EVREAAAKTFEQLHS  
PIPPDAKELELMFG  
TVWRQADKHNIPRIC  
PRIQQAKTSLQEEM  
QSLAPGKFSPAGVE  
IDFRLFAKLNAFCVI  
TSTSDILKVPKPEPI  
ELYSPVQKANPGTLA  
GATCNNNKLSLSNAI  
EELPEISKTKEAATT  
QDPACSDKAPGMEGT  
QTLAGTQKFSIRPSP

GKGSTFAKASFVASG  
IIPHISTKTIDSWMS  
ITSEERTKHDRQFDN  
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NRFEDCQKEEETKQQ  
HESTSVAKDKSSTAS  
AAHTQSFKQPSCTHI  
IQNVHASKRILFSIV  
ETTTAAPKMTKETAT  
QHTLNYWKEQSLNVS  
YKADTVAKVQGVFEFS  
DFEEQFLKEKRFHDQ  
IVALIAQKGNFSKTS  
LKIEAENKYDAIKFK  
QNEYNAVKEREHFNQ  
IETRLAKNYIWALS  
GAWEQQIKQLEAELS  
WAEMCSIKAVTAIEK  
PVDNHRYKWNGRWWE  
ILLNLEKIPGKNAI  
FAQVFLSKFTMVKNK  
FLAGCQAKVEQAVET  
RIEALQKAAEKGTH  
LRDGQTYKFRVLAVN  
TLSWFPPKDDGGSKI  
DATRLTDKLELCNK  
ENQTEINKPKAKRCL  
NQTVTEFKQLISKAI  
PEAKTPAKEEARSPA  
SSSIFCLKMHKEMIF  
YRCWRAHKEYLAILK  
KKEEKEPKKEIKLP  
HTSVTLLKCTCTISM  
QLWHHWCKKDKELYH  
VSSPVIGKLNISETA  
DYHKTAKINIPADM  
GHTFLEKPPVPPKP  
QVTMPGIKVGGSQVN  
GVSVADQKGKSTVAS  
FLAQADCKLLECRNV  
ALHPNAFKRLGASLA  
SSCIDMGKELLARSH  
NASKEERKRWQATLD  
DSGTYTCKVSNVAGG

TQILEELKKTMDNL  
TVEARLIKVEKPLYG  
TSTTQHNKVSTSPKI  
MSLDFYTKVLKSCRS  
PSPVGALKGSDVILQ  
DAMTHLIKISRIIRT  
GENMTSGKLTVAGGA  
ENRFGVSKPLESAPI  
GTRPGDVKEEAPQEM  
ARPAFNLKKPSKYCN  
HIFFDAAKNLVWKER  
VRYENNLKPVLKHVK  
KYEGAKVKVLEERQR  
FISDGVRKSLKVPE  
GIPPPTLKWEKDGQP  
QELEQENKLFKDDME  
QDNLGLQQLDLQRE  
SEAGVEVKKEVGSI  
AAAEENSKMEQSNLE  
LAMAVIRKKHGMXXX  
ELLETLQKFKAVDKE  
WYQETHEKQQDLNIM  
RSVLESJKRYRFGKD  
LSSHSSKRWDWSKSD  
VQVITHVKEKLFHMD  
ECPDAKLGPKFKMP  
DVETQSGKTVIRLPS  
IDYNPFAKGFRDDGL  
LNETQLKQLVDAQK  
QLSDLNYKVEGEKLK  
WQEKFFQKEQALSTL  
VVSITCLKHKSGGHA  
SASLAHMKAKFRETL  
EEKQTSWKEIDNDFT  
TDEDTFKEFLKCLA  
SCTLLSEKDESSSP  
EKASQLEKTGNDASK  
FSFPASPKVFGGRLY  
CTKPITCKDELAPPT  
KVFERASKDTFQLEA  
MSPDQADKLPQLQGE  
EVLGDGVEKMKSMSQL  
LLEFHYYKCLVLGLV  
DLSAAPAKQFNLEII

GFVLRGAKAETPIEE  
ESFFSNCKSLPEAPL  
QSLDRETKERFVLM  
LRYRQAAKPPDLNPE  
HLNEVSLKLPLSDVA  
LRIVVPLKDTRVKEQ  
SAATQALKRNGAQIA  
DSASIMVKAINIAGE  
NTFSFAEKNFEVNYQ  
ASLENCMKLSQMAVQ  
IQLPVVSKQHCKIEI  
RQSWSVCKQVFPGLN  
MDWGAQQKANRSSE  
SGILDREKEERVSLK  
LSLQSEHKILHDQHC  
PYIAHSQKMQDLFSP  
LTSEETAKMMVKIEA  
RPEEEEPKVEPKKLE  
DMMATLAKSQVTTVK  
EGKEEWEKGDKEVR  
AAVSEDGKSDELLES  
QKELAEQKSVETAKR  
AYEDLSQKYKAAQEK  
NEEIDISKAAQTIE  
KGDKGRYKIVLQNKH  
PFLVMIKNLKKYFT  
SHVILGDKVTKNSSG  
TQEWDNSKSILGVQC  
TPHLRILKVGKDSG  
HLLQYFLKFPAGYE  
TSNGLVTKALEHAFQ  
RADQRKAKLGDSHDL  
RGGSGFLKSGGEMLK  
PDKEKPIKEKDKGQW  
LLFGQRAKTIKNTVC  
GEELVSLKEKSKSPK  
EDDCLAFKVHQYFNV  
FHLEFGEKSNAKIKD  
YFTTQSWKTAQQHLR  
EILQDLQKRLESSEA  
AETEIVCKVVESSI  
LDLKINLKASYIIVP  
VQAASSKERGGVSL  
RAEVHLRKSAFDMFN

FLCIFLEKMGQKIAP  
PKKTRNLKKITREQR  
IQIVYLHKFLMSLLN  
GLDTPCFKTSVNDSQ  
KREVELEKNTKEEED  
SDVWVWETKPKKKARW  
DLSSQLLKVLGTRKL  
GQSQDNEKELAALFQ  
LILKEEMKARSSSYA  
VANLEEGKSYFFRVF  
VFFQSCAKAVMWQKM  
LSSDDYTKKKKKGKK  
TARFLYGKKVEGTAF  
DGAKKARKPREASGT  
FTVQLSNKLIMDIRR  
EKEQLRSKLEEMYEE  
QDLCSIGKEHVFSLE  
VEEGLTYKFHAAWSS  
LSSHDSIKMEIVDHA  
GFIDDAVKKLNELSF  
SSQDVESKRSDKTDF  
QDLEDLIKAKEKEVE  
DPMAGLLKFADDLGM  
PPGQLQVKAQPQARM  
EYDVTMPKVESEIKV  
FTEPAIAKNPYDPPG  
GHRKRASKSPRKTAS  
ESTIGHLKDVVGRIA  
QAEFADLKKLQDLTL  
LPYQNMDKTKTDYTR  
QKEIQVKQQRLELA  
KNDFKPLKTLLQIDI  
EFDVNLSKANVDISA  
PYMVKMLXXXXXXXXX  
RLYRKANKSSKLVSA  
STGTLVSKREVELEK  
TRVVHAAKAALAAFN  
ADEMDRMKKEYTDCV  
YYWGMESKIPVEDNK  
DSFTSAPKQTPDSGK  
FHKSVEIKPSDKHRL  
ETQIIPGKGQEKPLQ  
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SVHSREAKESSAAQA  
ERNIEAGKDDGLTDA  
CSISQELKLSFTYE  
SPQRLCSKHMPQLHS  
VPVPVQKKEAPPAKV  
ALKMSPYKDILETHL  
VSRYGELKSVPTTQC  
QPSLRAAKEHAMPKD  
AKDLEQHKIKQEEIL  
RTLTYTAKPVGIGG  
LKKLEEEKAEAAEAA  
MDAENMRKELAELES  
SPLKEDAKAPEKEIP  
NVSSRGGKKFLPVLK  
EEEVTVVKGQPLYLS  
QEERAFLKVDPELVV  
DSLAAHVKNLLQCES  
KEVMAAYKGKRRSEA  
GLVAQLQKTVKELQT  
RLHTRQMKRTKCADI  
NGFSAMAKTVGLPTA  
QRLLEAQRLEKLT  
KAKAQLCKIEKSKSL  
LPCLSLRKLPPRSEI  
QKLAELEKILESNIKE  
ADSLYVEKIDVGEAE  
XXXXXXMKWVTFISL  
VFRRDAHKSEVAHRF  
DLGEENFKALVLIAF  
CPFEDHVKLVNEVTE  
ESAENCDKSLHTLFG  
EMADCCAQEPERNE  
DNEETFLKKYLYEIA

PELLFFAKRYKAAFT  
ECCQAADKAACLLPK  
DELRDEGKASSAKQR  
LKCASLQKFGERAFK  
RLSQRFPKAEFAEVS  
KLVTDLTKVHTECCH  
DDRADLAKYICENQD  
NQDSISSKLKECCEK  
CEKPLLEKSHCIAEV  
AADFVESKDVCKNYA  
VLLRLAKTYETTLE  
DPHECYAKVFDEFKP  
EEPQNLIKQNCELFE  
FEQLGEYKFQNALLV  
ALLVRYTKKVPQVST  
EVSRLGKVGSKCCK  
QLCVLHEKTPVSDRV  
VDETYVPKEFNAETF  
DICTLSEKERQIKKQ  
TALVELVKHKPKATK  
KATKEQLKAVMDDFA  
DFAAFVEKCKADDK  
TCFAEEGKKLVAASQ  
NECFLQHKDDNPPLP  
XXXXXMGKGDPPKPR  
LDSEAFQKRKQMQUI  
PQLSEYCKMPLKMWH  
IILDTEKCLAGQPK  
KAQAAEMKAVHEAEG  
KVSTEHNKECLINIS  
MHLIQTGKGEAIRIR  
QELISLAKSRYSRCD  
VVFVQTDKPVYKPGQ  
ALKLQKQYLMWGL  
TVPETGRKDTVVKVL  
ALNDHFVKLISWYDN  
AEFAEITKLATDLTK  
SIGLGYHKDLQTRAT  
NCLAPLAKVIHDHFG  
ALVGHLLKGYRHPS  
GRVHESVKRSNCYMV  
EIIQDISKDVVDESN  
VTLGCLVKGYFPEPV  
VFANMQMKLSQSRPI

ADGNFDPKPINTMNF  
VVGYYCLKVPLVVK  
NRTWQDYKRGFGLN  
AEGSPQYKKWYFELI  
GIISPLKLPSLNKE  
KQLRKIVKHEIMSVK  
DGFAESTKRKAAVWP  
LYPMLFNKLKNTISK  
TRHMEAVKTQFLEQA  
VVAASEAKEDSPAQT  
ATAPEDDKAPAEPE  
NNLHLQEKSDDPVK  
EENGMAWKEILNLLY  
QHSPGLDKENVELSP  
TALAELVKHKPKATE  
TVRKQVTKSYKMADE  
EFWANLEKETDWLRN  
DVAVWFSKRLPTFVN  
RFAGPFSKQTQIPDY  
CAIYTYGKPVPGHVK  
DLVPGSFKSQLQEGP  
AAVRQRMKCSSMQRF  
GELLITNKGSELafa  
WLTAYVVKVFLAAN  
ARYEREMKTYIPPKG  
LSGFIPKPTVKKLE  
SVSRVELKPGDNLNV  
RVTAILDKLITMTIN  
NMVIADV KMLSGFIP  
KCCAADDKEACFAVE  
ISCADAEKEIMRLGT  
ANHVLFTKEEHMRPF  
SVRFVCQKGFVLRGS  
VSREINLKDYEGQQK  
QMLFYICKKLTSHQM  
FPNNYWDKFKRKRVI  
GGLVEGAKNIRVTKI  
SSPCSSDKQNVXXXX  
LEEPDLEKVVTYLAG  
RYNMPLEKQQPAFAL  
QYDSTHGKFGTVKA  
KEYDPDGKGIISRKE  
NLLQMTEKFFHAIIS  
DLLVHCGKLCALVYK

PSFSSETKSACKEED  
LMVCNHEKVGLQIRT  
VERSYAVKSGKWYFE  
YAVYLSKSYIYLDT  
MVLSAADKTNIKNCW  
LLKETAFKFKALKKV  
GMRDIPMKYSCQRRRA  
AVINSLEKAFWNWVE  
GMGVPEIKYGDSVCF  
FAYKFLRKILKYVDS  
NSLDFDQKNNKDSNS  
RGNFLEIKNKFLARR  
SLSHSPGKXXXXXXXXX  
NAFERQNKAEGLGMV  
AADFVEDKEVCKNYA  
SVLGMPDKVEDMCPD  
TVKAENGLVINGKA  
LFIVSISKTLANEP  
LQMISASKGEMSPMV  
PPVEPNTKVFPVAVFL  
DQTEQWEKFGLEKRQ  
EIPLQILKTKALSML  
ERAATVTKKTYEIIWH  
FQVELPRKAFITNFS  
EISCWTVKIXXXXXXX  
TDQHGLAKFSIDTSS  
QAELLPSKSVSLIIL  
NTLCDEFKADEKKFW  
PTLSQQRKSQNEQDT  
YINVDCAKLKRLLKE  
SLLNGNSKYMVLVPS  
EAMQAYPKQDRPLPS  
TNVEMILKFFDMFLK  
LLALLLLKDFDSVPP  
VTVQDFLKKQVLTSE  
MSFSAGVKNWVDHMM  
GVELMEAKSQLFLKY  
ALLDERTKKSNRDSL  
ESHQLSKESMAGNK  
SPEALVGKSLYVSVT  
MAPSLTFKEKVTSLK  
PMTVICQKDLSWSML  
KVTSCLKFKEKPTDLE  
EILKSLDKEAIREDN

VTYPGLSKRRLKPEA  
LQLSGPDKVTISLLS  
VAFNFFRKFYNKSED  
VIPELNGKLTGMAFR  
VDESNINKKLFLDSL  
TVYVDAVKDSGRDYV  
RWPSHFQKEAFVKPG  
VREDMETKCFICGIG

### **P-type of cabonylation peptide fragments**

#### **P-type of 126 positive peptide samples**

GKWELYIPPKQNKSV  
PLPRKRPPVTQAAGA  
QRPARRGPPPLARAV  
ASKLQVLPQKASERL  
GYKVLIQPSNRRRAIH  
KVSAAPGPADQKTET  
PASKDTRPKEKRLVN  
GRKSTEFPRKIREQE  
KQRAKKKPNPVEEEP  
YYYWKKTPEAASSRA  
QRNRETAPRTIFQRV  
KSLQAKFPSNLKVSI  
NSRTMLLPLLRRFPE  
EPQKQVQPQVQPQAH  
IAKQSLRPFCTVCNR  
ERKQNLRPMPKKYHS  
SPVQKANPGTLAAEI  
PTLPKRVPRAGEARN  
VVRLSCLPAFKDLIA  
KERKMAVPMPSKRRS  
LKKAGRIPEQILGKV  
ASLKRLKPHVPLGRN  
STKEKAGPKGSKVSE  
VGIPDKIPFKRPCTY  
YQDLGLPCIVILTG  
KTVMGAAPELKVRLE  
AGRLFLIPATIQDKL  
AKARVTKPKTAKPKK  
PNSRFSAPSCGSSEK  
VFKLLECPHLNVRKA  
CSGKKVEPSALACRS  
KEKQPTMPILKNEIK  
RLKNEKEPMVLKLD  
STIPLSHPKIPRCQE

VAKAVECPPRRTTAR  
GSETPDGPLSPGKME  
KQATDVKPKAAKEKT  
KKEEKEKPKKEVAKK  
EVKKETPPKEVKKEV  
KKPAALKPKVPKKEE  
KESLKVGPLDSVTYL  
LFNRIGDPSVDEDAQ  
LGGKLGPDVKLPDM  
KIPKMKMPKFSMPSL  
VDLHLKGPKVKGADAD  
NMPKISMPEIDLNLK  
KSKIKMPKFNFSSKP  
PKGRPDRPRDLELTD  
DSKKEEAPKKEAPKP  
KEEKAKKPEEKPKTE  
ADGRGMLPKRAKAPG  
VVRPEEIPPVPENRF  
RKRVSLEPHQGGTP  
KKATSCFPRPMTPRD  
FPENKKQPYYPFD  
STLERVLPVRFTRH  
VVERRRRPRDSPTLS  
YKPKRGRPKSKEMPQ  
IPREKKPPRPPKKKY  
KIHRNRYPVCTKPYA  
ERSPGGRPIHKRKRQ  
KGSDEKKPFKEKGKT  
RALGVQTPSIRKSLV  
ELIEELHPIKEALE  
NPKEEKKPKEKKKKG  
MDPSAPQPRAETSGK  
ILDLCAPGGKTTHI  
KHTFSVLPGDCQQRL  
RVPRRASPLRTSRSR  
KKKGRPDYAYIPLN  
LLKTHFLPLMEKLLK  
KIKKAASPSQSVRR  
KKAKSPTSPSPPRN  
KKLLVLNPIKRGSL  
RRRAPPPPKRAPSTT  
LPGPEKLPGLRKG  
PDMLKNAPMLKSMKN  
LMEKEVEPEGSKRTD

KLTRCLKPFENSRLR  
SYRTVEKPPKFTEKG  
EIRSHRPTLDALRE  
KVSRTVSPKSFACAF  
KSTLAIDPATSKEIP  
KEPFKAAPHTIHPPC  
KVPIKQVPGGVKQLE  
PAKVPEAPKKIVPEK  
PEEKVPVPIPKKLP  
PEVKPKVVPAPVPE  
RPIKPPGPPINPKLK  
PFVVPDAPKAPEVTT  
TQEGRQQVPAPQQK  
ARKALCDPLEEVREA  
LRLKQPNIPTVK  
KKPLKKKPTPVLLPQ  
VIRSLKRPPPADAPT  
PRKRTHAPSALSPPR  
KQDKLKSFPKFSDSA  
NGGISSPLTGKRQD  
IREATAAPHGKRKRK  
LLVNEQEPCKFLDA  
KTLGIKLPFLVMIK  
ESKKNELPDGLNKKR  
LKLYRLLPMRAAKRP  
ASQRCRDPPSNPVAA  
RRAHTANPLHRCRCG  
AVETEPEPELRQQTE  
VYDAYLAPNNLKPVV  
GLLYCDLPEPRKPLE  
CLDNTRKPVDEYKDC  
EFQLFSSPHGKDLLF  
FFSEGCAPGSKKDSS  
QNTGGKNPDPWAKNL  
KTPKYFKPGMPFDLM  
RNGQWSEPPKCLHPC  
EFLRACTPGASLRKG  
SHFRHGIPFFVKVRL  
ENVGTPCPVSAFPSS  
LSHKDDSPDLPKLKP  
DKGACLLPKIETMRE  
ARLSQKFPKAEFVEV  
KVPQVSTPTLVEVSR  
GTRCCTKPESERMPC

CVLHEKTPVSEKVTK  
ESLVNRRPCFSALTP  
VELLKHKPKATEEQL  
KRVIISAPSADAPMF

**P-type of 792 negative peptide samples**

LCGMLSLPWYSHSD  
SGGSYVYPPVQEFPL  
YIVPDYMPVVYDKLP  
TTAGATQPAAPTPTA  
QMANNFTPPSATPQG  
KGSETYSPNTAYGVD  
STNMGILPSVTMYNF  
GKSTDFAPIKEDFGQ  
HSWQEQAPNQPPGPT  
REKLKAKPLLLQLPI  
SSFIKRQPLVIARLA  
VLGEYYTPALKCEVN  
LRRVAGTPCGVFGQR  
ALEHEYEPYSRLKSD  
VIINQLQPFAEICND  
KSDDPVVPSLFKQKT  
SDFDFSAPKINLEIE  
VGGTIKSPKNNEKNF  
TGRQIFQPLHALRNA  
YLSTEDVPLARMLVP  
PEKEAKSPVKEEAKS  
SHGEKELPQWLREDE  
SPTASQAPNQQAAPT  
LEKQFVKPDGENRAR  
RFMEIESPHINENYI  
RSLWRLEPLRISWSG  
EEYIALYPYSSVEPG  
DALKSREPQAKPQLD  
AIIALFTPTTDPEAE  
SSALGEKPITFYRQA  
PIPKKLKPPPKVPE  
SLSSAGRPGPSEGGD  
RLCNDLPPGTVKLX  
AELEIANPPELQKHL  
NIVGIGKPSKVSECY  
RDIPAMLPAARLPTT  
VMTLKWTPNQLMNGS  
KPSKSTEPILIKDPI  
AELLANMPDPTQDEV

IKLNYALPPPLHQTE  
VQGLGVMPPKAGQTI  
ISQNESRPHFLIELF  
PLVDHTSPSSDLSLLF  
SSTVNGVPSRSPRLV  
TPEDQDLPPCPEDIA  
RCISSALPRRRPPVS  
SSISDHTPWLMPTI  
SLSHSACPTPNPLSR  
MVVCWGHPSDGGSE  
SESSFGKXXXXXXXXX  
RQFDNLKPSGGYITG  
TVLDANDPPIFTLNI  
SWSRISNPSAFSIVP  
SSIALGDPHIPTSPE  
FNQSLKSPSRLGCPG  
PLLASMPAQLPPRD  
IAQDPKQPPDPPVDV  
ECHISGYPSPTVTWY  
KASVVTLPVYLNFR  
NTSSDCRPSESELL  
WVKENKVPCLCNYK  
SWLKDGLPLKESEFV  
EEVDCMDPTCSGRGV  
AESPEVLPHIEKELS  
SCRSEGTPAWYMHGE  
VAFQLHLPLSQRACS  
DRFCLSSPTEALKMG  
QVRVVAQPSLPAVPQ  
WIRDALRPPLQNINS  
HKESFLAPVFTKDEQ  
AAVQKAIPMYKIATK  
WGMESKIPVEDNKRF  
AQNPVDAPGRPEVTD  
SEDSVQVPRNLVGKV  
YPDIGWNPCGGERYL  
IGSKAGVPSKSSGSA  
SLEPHQGPGTPESKK  
LWGCHSAPHGGLIY  
EIGDGFLPVCSLGPG  
GAETLTFPCDRWLAT  
LKASVCKPFLFLLKK  
ESGKIQEPFSAMSKS  
GTQVSQRPGAQALKV

KEQQKDSPVFCRFFH  
QSRPTGVPTPTSMLS  
EMFGVWEPLLEPLEI  
YTEVANIPVARPGRR  
SRLDLDLPGCQAEPP  
YLNKKGNPKKFAFLA  
AIESLVKPQAKKKAG  
ENIDGILPLHDAVAN  
GKLYIEAPTFDLQGS  
VQIKKMEPDEQLRND  
KRKKKKRPEDTAASA  
SERLQRAPLKSVPD  
DPRQLGVPVIARDIE  
ELLSTTHPANKASLT  
SVTVTTIPASQAMNP  
LSAHTILPGSKTREP  
ALKISVAPGLADQKT  
DRGEIIDPFVEVEII  
HKDLIKKPTISTAVG  
DRETILDPNLQATLX  
DGAVPAAPASADAAR  
VLAERKSPEISERIV  
SPHPPLQPLTGSAGQ  
FLPASTAPMQGKRKS  
LNNSSSSPQRSVDQR  
KNALENYPNFRSVVD  
ERLALAGPQLRPEMS  
LKSQTQHPWEKLLNL  
NANQNASPNVPGKRG  
SLEMGILPREIRKLV  
EATPTAAPPTLPPTT  
EKHTHHAPLSPRTFH  
QYRKVLMPLKAKPI  
ALSELVDPFKVKAGQ  
DAEVYNVPLDSQSDD  
DKLTLKIPWKNLYGE  
LSPTLNTPAPVAMPA  
TRSLGEEPVGGLGSL  
EEQVNSLPGSITKAG  
KVVIGFVPLAEIMGY  
TYIELMRPVSELIRS  
PDVEAHGPEWNLKMP  
YFPNRKFPSSSVAFK  
EGSRLSLPRLIDMSA

PRLTPVRPAAASPIV  
PQPGLVVPVPTVRPL  
LLVTAMGPPGGGRND  
KIEKELKPYGSSAIN  
ENLELTNPQEFSSW  
AVDKRFLPDDHGKNA  
PSAFSIVPRRAAKSS  
RLLSLSKPILPQQDN  
IKRQCVWPFIVMMDD  
ANLHPAKPKDFSAFI  
TQITTESPEKTLFSS  
SDCCGQKPTGPGGPL  
ACVTACEPPKTCQDG  
TMATRTSPRLAAQKL  
ALTALTPIQTAALQ  
KLQSILKPMMLRRLK  
RKKMNLKPIMRMNGN  
EKAFEGSPARELDVP  
GSSGAGVPGGAAAAS  
SKQKKVAPRPSIPVK  
LPGSVLSPPPPPLP  
GDSGGLIPGKSLVFA  
NKEEGARPGTLLGTF  
RRTEGQYPSICPRLE  
HEAIIKPEAIEMYI  
HPFASFHPGLNPLER  
PDGLKLYPTLVIRGT  
PQRPASEPHVVPKAV  
EIPKKKVPEERKPVP  
RLFNDSSPVVLEESW  
GDRSGIFPSNYVKPK  
QAIIQIPKASNRT  
EKRDYREPFRRKKDR  
FTNTSLHPQRMKALA  
PQFSSLQPPCFPPVQ  
ACRCSIFPDLSFVTF  
LMDYADLPYQIEDIF  
FIDDINMPVINEWGD  
GTLVLCLPQIKIISA  
ISTSEAAPYAPPSGL  
TPSWLGLPNNAERVL  
DLEDESTPIVKLGDA  
EDVVASLPLCHAALR  
RTHHTGERPFQCHSCG

GNLHLLSPGNSARLT  
EAIDVRPASTRFLP  
EMSDSNSPIPIYSQK  
DSVGVMSPPLSRSSV  
PRSVSRSPIRMSPAR  
NMVNGMGPMGTEGLF  
TNTSVLGPMGGGLTL  
TQGSEKCPQKTTRRD  
EESQHQPDDSNIA  
FAGTEIDPENEELML  
KVTIKDKPAVAPATK  
NHDESLLPESLESMM  
QHLPSVSPSVDAFL  
LNRDLSTPGLEKDSG  
CEELRAAPRQGPAPA  
PSKEEPSVKAEVAE  
NSSRQERPPVKPFIL  
GTEEKKKPSDFKKKV  
GGESSASPGEPQRTL  
QADRKILPFTSMRHQ  
RARTDEVPAGGSRSE  
RFEMEGLPVDES DSC  
LLSQLGQPSIFDTQK  
FDAEDGEPQTCKSMK  
AASLAELPLTPPPA  
ISDTLLPDLSQISP  
NRFTMEVPKKLTEWF  
TPESSLPVALQTPT  
ITESQSSPPPVIDLI  
PLLPSSEPPPAPPLD  
EMVSGFGPIYNYKDT  
VQVLKYEPFLDCALS  
LGRASVVPLPYERLL  
KKTGDNPN SHPEPA  
ARNLFSVPGAPDKPT  
AKVMELLPTHAFSTL  
HAVAWGTPGFLTVML  
TTSQDEAPREELAVQ  
SYQEAQLPALPESVP  
IVEREMAPDFELDAE  
ATLEEGNPTDEVPST  
LLKPEADPRPCERAP  
PKKVAKSPAKAKAVK  
SRRRPRAPKEKAQPL

IPMLYVVPRPGKAAF  
PMNPIPAPLPPDIPS  
GNDSDEEPPAAAPT  
DKVVIQDPYRLPGPP  
FAKSDNQPSTEKAME  
IAKEKRTPAPEPEPC  
SAKITSLPPPPPTLF  
LHLQRINPTTVKMKS  
LDIKAKAPKVKMPDV  
ESGDAPRPPPAATPP  
VDLHRFHPEPYGLED  
RRMQQAAPTDPLPP  
KAVSSADPRAPGESP  
TIELEWEPPAFNGGG  
XXMNTSIPYQQNPYN  
GALMTLGPSVVRYHL  
VTFKANRPFLVFIRE  
VKVAQRSPVDSGTL  
PMKPLLLQPEVLSP  
NLVLKRVSPVLIKK  
MDDLISPGKNKSGR  
PRESACLPEKLEKE  
RAWGCAGPCGRAVFL  
NWRQPELPEVIAMLG  
MDRDCRMPMGLSTGI  
TVENASKPDFTKNSQ  
RTDLYFMPLAGSKLA  
DRGLQLVPVWDIILS  
NALNSCDPWVQAKCY  
TNMGIIIPDFARSGV  
SKTIYTAPLDMLQVT  
RTPPRRMPPPPRHR  
XXXXXMHPPKTPSGA  
YYRQSEVPDSVYQHL  
EKDDSVRPNMTLKAM  
ECLGAAVPARLRKVA  
RSLQKDFPIQILSID  
VSDVAKPNQACIST  
SLKKAKKPLPPSRT  
EKFRIELDLGRFYK  
AARISTSPIRSVRSP  
AFPDGHLPEEALKVS  
ETYTEEDPEGAMSVV  
ALDDAEESPSPPPP

ECTTIEHPFCMYDAD  
GAAGSMSPSRVEANV  
EDVQVLIPFKGRPPP  
EKVSEVLPIQKNDEE  
LKFSSMAPDLDRLE  
HPQRPPSPHPPPHPS  
NRLCFLEPTSNAQNV  
TDEILLNPNNKWFKP  
GKLSNWEPKDDAMSE  
GSGTDMEPSLYRCSN  
FKSDGIIPFAHAIWH  
DMLKRVEPLRNELQK  
FGYIKIIPFYILNAT  
GESKQHIPEKKNEVH  
ATLSVLEPATIVEKP  
LQGGNKSPVTLTAYI  
DIIQVTVDPSPSTSE  
ALGNQSTPAPPTGEV  
FTNFMRSPACDIFNP  
PDVSMVDPEALAEQ  
TSLFSNKPFLKLGAV  
LLCGSDLPLHKMAIQ  
CTVLTLEPNSQVQQR  
YNGKLTGPAAVELKR  
GDASIAAPFTSKLSS  
IRDWLVKPIRDQHVK  
SQVFIDHPVHLKFNV  
AEDVSGMPALCSPIS  
NHARLRTPPPPLSHA  
LSHTLGDPIKIRAWQ  
FQELSQTGHTTEELA  
LGRPPSAPADKDGSK  
GFLSYLGPFNQIFRN  
ESQGEVQPNFSTSSE  
LMLTAGLPELTSVKD  
RPGPHSVPSQAPRLE  
ILDEFYGPEKSLQPI  
KIINFKTPEDARWIL  
DREDQEAPDSDAEVD  
KQNGIPHRGSTAIF  
AGQVAVLPEVQVTQN  
LAELLRGPCGSFDVR  
KAKKRRLPRGFPPSA  
LQRAFPAPAACQCHC

VTRQLYEPLVMQLIH  
EWFLRTPDPTSWYS  
NPKAITAPQMFGRLD  
KLNQHDSPRIKALEK  
MMLCSECPTVFVDAE  
ILKKYGIPFSRITQE  
EKTAAPSPSLLYKST  
AECWRSRPEERPTFE  
TLTYTAKPVGGIGGG  
VTSSQVQPVTIQQQV  
CQTSTVFPLKKKVS  
RTVKDSTPSSLSDP  
QVTDANDPPAFHPQS  
LADTDLSPMDGISTC  
EADASGLPHKLGEED  
KKIIEQPQPSGKQE  
DCFSEEAPDATKHKL  
SGQRSASPSVPGPTK  
KTVKLKSPVLSNTTT  
QKSLSLSPGKXXXXX  
FVASGMGPSASSHGS  
LGCTAATPPSKDPRQ  
QWIRNLVPEFGVSSS  
MRKFLSDPQVHTVLV  
DRSLESNPEQLQAMR  
VASSEAKPAATIRIV  
DLQVRACPFLPVKRRK  
ESVHGTAPDIAGKDM  
XXXXXMVPGEENQLV  
FLRMSKVPTDLAVEE  
DFLKRRLPKLSKSTA  
QECKTKHPHLSLKE  
VLKFSCKPGFTIVGP  
RLEVELYPSEVVEIQ  
TTKSSAVPPGLPVYL  
QLYDDSFMEIRQYL  
KKDTKKYPESTDTES  
SHGDVIRPLRKQVEL  
ESGLMGEPQPQGPPS  
GHETEEFPDEEQLRR  
GDSRGPSPSYLGPR  
ESRYQTLPRGLSGS  
DNANSRLPEDTTSVL  
KAAYLSDPRAPPCEY

IGFLDNWPLLEQWFS  
LFQKKIDPVTMDPEK  
SVAQTGGPPEADGLV  
EMEVCKLPRLSLNGV  
SVQSSHFPSPGSYSVR  
ITEVWGIPSPIDTVF  
SAQDMHVPVPKQLAH  
SKDIPLSPPAQKNDP  
YRGVKVMPFSTACNT  
YQEKLYRPPVLDAL  
PAGPTESPASKGVTA  
WVRCNKMPVKDITYR  
EKECAPTPAPVTRAK  
RHAVKGDQPSPGRHW  
TASLLAIPHTPESSS  
VEAFFYEPYQGAIQG  
FMAVKNWPWMRLFFK  
ENYVQETPLVLSRCS  
MTISWHEPLSDGGSP  
SAEKNQRPRKQTSAP  
FAASSTVPHCEQSCR  
VATPQVSPNTVKRAG  
EEDLLDDPSLEGMCG  
ASYESES PENQTEKE  
WQMWTLLPGFCTRPT  
RQLDRLLPKLARGSL  
GKKVRKMPVSYLGSK  
ICHEISEPRLQNYDE  
IVDVLDVPGPVGTPF  
KKSRLFWE PNKVSSNS  
QRF CIGHPTQEMTFG  
RARSLKFPGLISGCT  
LIKEQLEPPEIDMKN  
HSDSGYEPSFGKSSR  
GLAWARAPQPKAWVS  
ASSVETKPGASKVAT  
LIRCSKPVVLPKGP  
AKKEDKTPIKKEEKP  
GKASIKDPHFLNFNK  
MTMMSHIPSVMKAHG  
ISELTGTPFDVESDS  
DYALLTLPAEFSSQL  
GATAPPAPAEPTPPP  
EIYGKWSPLILNPSY

EGKSLRFPLALEEKQ  
NRFGVSKPLESAPII  
PQLSVCNPHSGKEYF  
SNRKGETPLKVANSP  
YGIWKLIPNGQYEFR  
GGAEERPGTPELAP  
APLNVVPPEVPSEEL  
ELVQAMFPKLNNQER  
GTELSLNPTCAVFIT  
KVFEAKPNSELCKK  
VTSAISLPNIRKPDG  
CDEDHQTPRDGETSH  
VNYCECNPCFNNGSC  
AFYQQTLPNSHLTEE  
VYIESRRPNTPYFIC  
YLAQQIHPVVARICE  
VEDKSDPPEGSEEAA  
XXXMTAEPMSKLN  
KSVHLQKPKPKKKF  
ADSVLLPAAPEGSR  
GCEGSSKPFYNRQD  
RRREQRDPTVHDDVL  
LDGEEEEPEEETTLG  
SGIRAGYPLSERQQV  
MKRESQNPDKDET  
NKVGASDPSSDPQ  
MKVVTLKPTVLEHTV  
ITPKSDVPIQAPHFK  
ENLKIDRPEDAGEKE  
ISDHSETPNMELSCR  
SCSENQEPGYCTVSN  
SFIKQNNPKFSAVQD  
PEDDGGSPITNYVIE  
TLVSGSLPFDGQNLK  
LARYSYNPFEGPNEN  
PASTRFLPQGTRIAA  
LHEIYFLPDHPELKK  
LNDRMTFPEELDMST  
GRIFVFEPGPKAN  
QSKLYHLPPTVGPH  
IKNSNGIPKLKYIPL  
FLEVDEYPEHIKNLV  
QETAEGIPPGSQDSS  
XXXXMSEPGGGGED

VYCLALVPANTLPKT  
RCFLEADPYIDIDQN  
ASLEVEVPAKIHLPK  
KKVPAPVPKKEKVPP  
QVFKPFLPSIIALCM  
YSVYGTEPYIRLGVL  
MSPARMSPARMSPGR  
PVPEEKEPASSPWAS  
KKTfVGEpQRLGSET  
KDMVKMFPLLVEKLR  
LGAMSAAPSQPNSQI  
TDRLVITPLTDRCYI  
SLRQNETPQAAQRS  
LSKDLLKPIQDVNSL  
TASPSSRPVASPGAI  
KSQVRDYPKHNGQIS  
GKDVLRLPSSITTD  
GLETYLGPLQVAYRE  
REYQEYNPYEVLNLD  
RVELLHNPAFCSLAT  
SVVSITGPLIRILGD  
PEQNQDMPPHLPTAS  
RLTPIGDPTMVVEWL  
TCRDEYAPPKAELDA  
GDEDIKIPENPLEPL  
GEIRSVRPLDREKVS  
LSPPPTEPTDGEQAG  
KKELKVGPYANTTRY  
GKDELSKPSSDAESR  
ATLVDQSPESLKRKS  
KLKVLDKPGPPASVK  
CTDSMGVPRALGETW  
ANGDSGDGPSYMSSLS  
LGRVFIHPESPSTGH  
SLKTAHSPNVFLQQG  
DKIQQMNPPEFEMIE  
ALLKDQQPGTFLLRF  
AVG TSAAPVPSDNHX  
EVKISHFPAADLGFS  
CVDGCYCPNGLIFED  
EGVLLTLPRQSGGSG  
ESMENS CPQVTEVTA  
SSSGAVDPSVQRSFT  
XXMMAQFPTAMNGGP

EEVRVRSPTRSPSVK  
CLEENERPLEDQLEN  
SSSSGISPDNRDFYQ  
ATSTSSEPLSSNQPA  
TTCNCKKPDDDTRKG  
MLTGESVPQMKEPIE  
VPGGSVKPKIMSPEK  
ILTTLQEPHDKHLLD  
TNVEDVCPNIPSLEK  
RLEYLEGPTVTSSYR  
QSPTKAKPKVEDEAP  
PPPSTQAPSVNGVCT  
HGDACFLPEECPCTW  
EVSIGSAPLAKQQSY  
NILVELDPDGCPWL  
DDTERRSPTPERTRP  
GSFGYKKPPPATGTA  
XXXXXMAPVHGDDSL  
APQQEELPLSSDMVE  
KKLRSDEPLIDPKPV  
AFTRTVSPGSVSPIH  
QLSELADPLKDELNL  
TPNPLERPIKMGWLK  
FKELFQTPGHTEELV  
EASKEYSPCVAPCGR  
KSFATGRPCKTKKRS  
HPYVTHIPSPTLPGS  
DAWLQTDPEIQSPF  
SEIKISNPTEFQNHE  
HNIENASPATVSRMG  
SLESSSFPLPKQYLD  
TGQLGVKPQTGNSIP  
CSPLMADPLLAGDAF  
FVYKDIKPRKRKKH  
TSANEVSPVSSSGVT  
FQRSRSEPSDAPES  
ADSDGWTPLHCAASC  
VEENNASPHFEPDLH  
NQIGCLTPELSELKK  
ETQAEDHPPRLYGCS  
FKISFGTPAPGFSSM  
GVCTDGEPQPLLGQ  
LSPDSHYPLEEEKTD  
SPISQRLPPKVESLE

AAEFISKPNLEILE  
NKCLIKNPAERADLK  
ELVAAVWPYRRLALL  
RQTVAQMPPQLVELP  
NPALTLWPMFLQGKD  
QDIAKDFPRGEESLE  
VTLKWAKPEYTGDFK  
QHVFSAGPVSDEVLP  
LYPPGRSPLHHAQQL  
HLSSKWLSPSPGVA  
QLAPDPGPAGHTLFQ  
GLCAALEPILSAKTK  
PADVTGLPMPKIEWS  
QKFRFNHPAEAAVLR  
SAMEMNEPQAPAPSL  
FHKVKALPLVSWRR  
AFKRANDPVNYLESK  
VRATRASPDPRAYVP  
KVIKMEEPLPAKVTE  
QQVTAEIPVDLNTRE  
GKVIGEFPGVVHCLD  
MIKKQDQPTFDNSGN  
SASDGYCPREHMLPC  
LKHSPEDPEKYSCFA  
LIKHHLLPLWNDGCI  
SSSLGKKPSLTSESS  
GILKRRYPNSLPALI  
SKRQLQTPKEKAQAL  
VYVDYPGPASLTQIY  
AEEDLTDVRCNSLE  
NSAGRSAPRESRPVI  
FQEFKRPDHKQDFV  
QAESQVEPSYSEQAD  
LTAKQKLPSYILENN  
RSTEGIVPQYDGSSS  
LSLSLAQPLRSERSG  
EMKEIERPFETYKEN  
NATSAFGPNLRYIVK  
VDQKIEHPLQPQGL  
HRR TSAIPRAFRER  
GDFKVTTTPTSTTQH  
VISRTGVPQPTQAQS  
RGKKAKNPKEEKKPK  
YTLKKDVPDGVKELS

GNNDVKQPEGTG MID  
VESEIKVPDVELKSA  
KLGVQVRPENWCSQM  
SWLKDDEPLYIGNRM  
PAYDGGSPIIGYLVE  
LAKILQNPITHSLQV  
KLSSQALPSFGYIKI  
PPARQLGPRSPRVGR  
SKVWYNCPXXXXXXXX  
GKDFERKPLEMNDP  
GQAVTLLPFFTSLTG  
KLAHGQEPWTTDAKI  
PGGKEEAPEPPDGGD  
QMHSTSDPSHRSSSP  
LKNKGIQPLLDVAVTM  
SNIDIRIPTGQLTMI  
CDEHFETPSGSYWDH  
IDKNTKIPCKSPPE  
NAWERRAPLAPKHIK  
TDWEKTKPVTGNLRP  
CYHFGLSPDLPICKE  
EALVIREPITVPERP  
GDMGDTTPAEPPTPE  
FVRPDLGPKMYNAYG  
DQKYRQHPSNFQFKK  
QMSFSQSPFLSIKAS  
FSALRALPDMEVVGL  
TSPEGVAPTSGHDRR  
GSHVNQGPHLGGIY  
GRITDVIPSEAINEL  
VAEYEVTPDDKRKAC  
LVRDPLSPAVRQKET  
GNICVYCPGGPDSDF  
RLLERYIPKHQKCLT  
PLTTALNPPVTATEE  
FLTYHWPPLTFLSPS  
GHGIMEEPELTLIST  
KLDSEAWPGVLD SER  
LRISLTHPTIPFNL M  
ENSIEGTPSKCYCRL  
NESKKTAPRQEAI PD  
INPSTSLPLIGSPPV  
QHRTFIKPKLEGLP  
RVRVVGKPDPECEWY

LQALDLLPLLIQTVE  
WAQQIHSPLTCEQLT  
ITVITLGPPSKPKGP  
AWDSGQGPRLPSSVA  
STIGLNQPSTPTHAA  
GEYDVTMPKVESEIK  
FKTSIFSPMKKEVKT  
DEREFSGPSTPTGTL  
GDEGADEPRGAGRKA  
STSKNTSPMRNSFAH  
LRPHVFMPEVTPDMD  
VDLSLGSPKLKGDIK  
LLVGAKSPNLPEHIL  
ILDGLYGPIAFKDFI  
ARHRCQTPHLLAAXX  
AAAARTEPYCAICTL  
LFHILVTPLFLLSTV  
AQILILEPPYFVKQL  
PPPGQLDPEDQDSEE  
CLVKDYFPEPVTVSW  
TPELSAETPKALEN  
TAALAVAPGPRFLVT  
GRPAEPQPEPEEPAE  
DLRTDAIPIRAAKAA  
AGIAAIGPAKELEAE  
EEITDNYPQAIVYPF  
APPGLQPPAEDEARA  
LVIPPQPPTTGPPRK  
SRGTDGQPLLLPYKP  
KVDALHCPPAAVVTV  
TMKMRILPDQFSPLN  
QVTTVKVPMMKRLGM  
KKACMFEPLPIKLSK  
RQQNTRDPDTMVPLT  
EEALKVSPVSIPAEQ  
IWWANKDPLPPLDPQ  
ELKLSSESPEPGRSPE  
MMGLDLQDLCSLLI  
TRLFVKEPAAFLKRL  
FDMHKRSPLLRAPRF  
ALGRTYHPKCFVCSL  
QESARAVPEKSTAPL  
VVLCNLKPQKMRGVE  
DASSSWGPMQMSASVH

AGVSSGAPPGRNSFY  
PSASERLPDEKVELF  
TVSQFTLPKSVSDGI  
TNSKATTPKPQKPTK  
KESKVEEPRKRETVS  
ALSSVGS PKAKEALN  
EGQTQRQPGSPMYRR  
KKPKTVKPKKVAKSP  
AAVRGSEPISVTWMK  
QFPFADTPDTYKSEA  
LAQADKLPMTDKRVA  
XXXXXMDPPRPALLA  
PEVRSTEPVAPPEQL  
EDEAPPRPPLPELYS  
EKPVDP PPFMFKPVK  
IQTDVVLPSCKKKAP  
ALSLFTVPEDCPIGQ  
SQPRDGWPMMLRIPE  
EGGGRSLPRSSLEHG  
TLSISVQPGEGNAAA  
TKSNDTLPSSHREIP  
ASAEGREPS PQCGGS  
SGGEWKGPQVSSALN  
YTIIQQMPRGNHFTI  
PGQHLLAPEDVISCC  
SLCVNEVPSFYVPMV  
KGVTSILPVLREGVL  
EQAQFTPLADPPDI  
IPLLLPTPEEKPPP  
PPTLSRTPEVQSRVP  
TDQKDSKPPEKATED  
EAMGLGTPSEAIEIT  
IKT LSDVPAPRRLAE  
TLLELLPWALLINE  
RIEGERPDRAKGYD  
WARVTKDPIHPYTKF  
KLLVNFDPKILEVVR  
ESKQATTPASRKSSK  
LVKMKFLPVDDNFSL  
NIETSNFPKLLLALF  
HLDLFLKQPLATQKDL  
LNKLSMKPEPLFRSV  
KDKIH TTPDTPEIRQ  
DAAHGYS PRAIDMSN

KTKEKAQPLEDLAGL  
ECQITGTPKIRVSWY  
FGTLEVMPQNESETQ  
ESEKSDFPPTPVAEV  
FVNKADFPKVRRAKEQ  
SGQLVVIPSDHLPFH  
ATGRPWLPLHTLSVS  
ADLGVSGPKVDIDVP  
WKQVHNYPMFNLLMD  
PPCLQQNPGTMQGVY  
GSAGPVHPLVDPLTA  
AHLFSWIPLSASITP  
LKWNFTTPRDEYIEQ  
VKKTDSQPTSVMLLD  
EGCANRLPNGHVNF  
RGGKKFLPVLKEILD  
STCSSTFPEELSPPS  
RSKLEDDPLYTSYSS  
SVVSQRFQNSIGAV  
SLLALGSPMYSIITP  
ASKGEMSPMVVETLK  
HCLSFTIPRLPSSEE  
IDKTCLSPTPTLEQH  
TIFQERDPANIKWGD  
NTDGLFFPVMSFSAG  
KADIGCTPGSGKNYA  
MTSTSLSPQGISTLE  
KTVGVWSPSPPTCER  
PRERSMWPLRKCPWK  
VDYASKIPAQGGTNI  
NRLCFLEPTSEAKKI  
ETERCLQPLQMMALH  
AVRMKIRPLVGQXXX  
TLVVKGDPRDNRQPA  
LLRRIEHPTAGNIEA  
HVLLTLKPYYAKPYE  
DEEVLTDPKIQALLL  
LISDTKAPKRQEMES  
SSVTFEYPSNAVEDV  
TSSWLVTPKSLGNVN  
KVYDRYIPDLVCVN  
CWYSQWTPAAPQCKA  
SNGYKPAPLDLSDVK  
LGVAEGSPQYKKWYF

IATKQLQPLLNKDSP  
DTWVEHWPEAEQCQD  
GYLAATYPAVGQTSP  
GGEFEMMPLGVNKSP  
LSAEAACPMFNFSIR  
YLCSAVLPLLTRCAP  
MDVSLHLPSRSSPTV  
TIEELKEPEKNGIST  
AIDRFNAPGAQQFCF  
GGFQVLLPLVDQYFT  
ILLTDGEPTVGETNP  
KMLSGFIPLKPTVKK  
EELTYSVPYGREKDV  
SLKFKEKPTDLETRS  
DLGQGLMPVLEAWKA  
SRLANRAPEPPPQV  
RTKKEGIPDARQATR  
GCKEICCPVDPKSV  
FSHIDVSPGSAQVKA  
IILLILCPEIIQDIS  
KAHIQFKPTLSQQRK  
MGNCGHKPESPEVE  
EKASKEAPVKGLLQT  
LKNLLFNPSKPF SRG  
RGGKGISPPSFSSYL  
SRTQWEKPQVKESKR  
NSALDWWPKIDAVYC  
GVQREDVPAADLSDQ  
YRDRSFSPGSYERET  
KVNSGAFPAPIEKSI  
AIMRYGMPPQDAFTT  
KEVKSTAPEATVECA  
SEGNIDSPVSRFMDR  
TLGEKAKPALDDLQ  
GAAFSQKQSNALIG  
SNQAELLPSKSVSLI  
LRNDKDKPLPPLLAR  
EKSLSHSPGKXXXXX  
GYYCLKVPLLVFKRE  
FYQEVANPLLSSVTF  
ALLESSLPDTDPVVS  
EKCLAGQPKDTMRLD  
GTSKAGNPIFYVAR  
YSRIKYDPDLFRMAL

TQKTVDGSPGKLWRD  
EAERSGIPIVTSFYQ  
TNLKIKHPTYCYEMN  
YAAFNNRPPSTWLTA  
ICLAQNSPSTFHYVL

**R-type of carbonylation peptide fragments**

**R-type of 136 positive peptide samples**

ASKLSKIRVVRKSIA  
IIIQSYRMHVQQKK  
HCKAFKIRKHYLHLR  
IHLELRNRTPAAVRE  
LEELDRERCFLLEI  
YEMHKMTRDPLNLAL  
RPPVSGLRRRKPRAT  
KTQRSPVRIPFMQRP  
KQFFKDWRDKDQSDG  
KSEYKSYRLRAQLYK  
KSRDEGPRLGDAKLK  
SLRKLPPRSEISSEK  
RKSTEFPRKIREQEP  
GSVTGKRLRCMPAP  
ELQDMAARQQQIEN  
RKLANAPRPLKKRSS  
ASSRAHRRHRRQAVF  
RALLTAPRSLRRSSC  
TMLLPLRRFPEQVR  
SIDSLKQRLNVAVKE  
EADDEEKERILAQLRE  
VADLEKQRDCSQDLL  
EEEEILRLHQQKEQ  
IELLRKVREQVLKCP  
LLAEVERRIRRGHAR  
PDGENRARFLPGKDL  
WERKQNLRPMPKKYH  
RVLSGRWRLPLRALP  
VSWGKLRVKGWAP  
TLPKRVPRAGEARNL  
EGGHFKLRVTISSNN  
TLVEKEMRVTLAKLL  
GDSRLKMRAELGEYI  
REQEPTERPLKGIQS  
ALAKHKERKMAVPMP  
KDLGLHPRAVSTSF  
CLEVVLCRVEGMTEL

IKGLTYLREKHKIMH  
MQKLNQKRAELKLVV  
RIPQLWKRVSWDSST  
GYKRKVMRMLKRQVS  
ALVPPWTRVYRVQRD  
KCSEETFRFELGGGV  
GAGSGLGRLLALQFA  
SQDKMEIRSCLPKLL  
VDKSGVVRVRVEGDN  
KERLQEVDRDKLGLQY  
YVGKAATRLSILSLL  
RSVFTVMRRQLLEQA  
QRGLTEKREELLSVP  
RKQLIPRHTKTREK  
LLEAEKERNNKLSLQ  
STEPLPGRKQVRDTL  
RQLAIETRKTAAQT  
LSHPKIPRCQERLLR  
RDRPGDPRRKRSSDG  
FKDMDMKRLSMEIEK  
LKRSLEMRERVLGPD  
DRGHEELRKLESTLD  
SGILRQLRQTVEATN  
TAEDLRTRKSKLQEL  
KAAAADGRGMLPKRA  
PPSAASSRYSMRNRI  
SRSYTRSRLASSHS  
HIAQKLFRDGHFNPE  
ETSLNKAREHSLRS  
HVTKTRRRCKTVRVD  
RLSSVFLRVRTNVGV  
GQDGSRRGPQKRGV  
PRVFPPRRPHTPAER  
APYVTLRRGLNAESS  
TSQGKLLRTILFGVK  
IYKPKRGRPKSKEMP  
ENELTFLRSQIAAIV  
IANVFQNRDYQCDTV  
LMEFITSRKRGLWN  
VVRPKDRRVGTSPQG  
RRSVMKRPSSVKSL  
PKTMPRVRKPKTTPT  
HFHTVIARRAGMAAS  
RIKNPKARVTEVMKA

LFTQELARRLKSGV  
WDATEDLRISRTDSF  
ELIRLTQRLRFHKVK  
LPLVSWRRLEFQGE  
FLQVETRRAGERLGW  
LSYRSLRRRVRRLRR  
VGLGLPNRLRFFRQS  
GLAARLQRQFVVRAW  
SLRKGIPRTKSVGED  
ETRQRLLRVTKKEVK  
AIVRQRERESHAAAL  
ASPWKSARLMVHTVA  
LGKRADQRKAKLGDS  
IKSMAASRRAKLNES  
QRMKALARALPLQPR  
SASKASVRSISVEDK  
EEELLNVRRELMVSF  
AQLNIKERLIPPSFT  
SDPIKACRPIKPPGP  
HHVVSGLRENSYFF  
VVESVLRRAKEVTWY  
LKRTKKPRPPSLKKK  
KESLLQDRRQEEDQR  
QEERLEQRLKREEVE  
PEKENAVRDNKVYCK  
EKLHLITRNLQEVLG  
HGKQPSLRAAKEHAM  
NCILDDKRPHVKKAT  
NRRTLLVRPISKQDP  
QADNPLGRSVLRKDI  
GPPTGAGRGPSQLQA  
KVLKNNIRFMNHMKH  
SRLSRHRAVHGPPE  
LAPLNDTRVVHAAKA  
YCDLPEPRKPLEKAV  
CALSHHERLKCDEWS  
VKVPMMKRLGMFNIQ  
YQLEGNKRITCRNGQ  
HKSEVAHRFKDLGEE  
LPKLDELREDEGKASS  
SLQKFGERAFKAWAV  
EKTPVSDRVTKCCTE  
CTLSEKERQIKKQTA  
PLPKEPPRKDPPPKD

XXXXXXERIDGGITG  
RGGEGNARTHGTPDL  
VLGNDGHREVVKEVV  
RGADYSLRAVRMKIR  
QQARLHERGAAEMVL  
LPKIETMREKVLTS  
CTKPESERMPCTEDY  
YLSLILNRLCVLHEK  
TESLVNRRPCFSALT  
VGVNGFGRIGRLVTR  
AITIFQERDPANIKW

**R-type of 847 negative peptide samples**

VTPHTQCRLKLLKLE  
VLSFSETRAHQVVQQ  
ELSKANSRFATTFYQ  
EEAAGSDRASDLDSV  
GSNGVDHRSYRIIRG  
HSGASQHRIARPSRQ  
DSSLGKNRKALAKGL  
IVDEVHERDVNTDFL  
SDVEAHFRAAHENTK  
ELFVKGVREVDYYC  
HASCYGIRPELVNEG  
ASPATVSRMGMVYIS  
RVQRLGERVVDSGRS  
RSLSRFERSARFDIF  
PNTYDIHRLEKILKA  
EKPGGKERGSSASHP  
VTEASPWRATNPFLN  
KKKKKKGRMKKEDNI  
GEPKDVIRKDVRAIL  
PHQLLQRLQEEKDR  
LSLSHFCSRPFCLFG  
TTEAPVKRASLLGDM  
QEECGYLRRHHQEEV  
VSNTLESRLDLIAQQ  
KKKMTKARLERFKLR  
VYTTKSPRERAILGL  
PASPISQRLPPKVES  
GAQMEARPLVQENP  
TKDNEHKRSLTKTPA  
LHVTDAGRKHIAIAW  
INYVLESRLIGTEKF  
SSASLIWRSEAEASV

KFTTEEKRFVESRDV  
EGEQYLFIRIAQNEK  
PPIYTAAREQTPFRH  
IRGNEAGRFRLDITL  
EWDKDVARKLGSTTV  
TDDSGTYRAVCTNYK  
ESKGPMTTRLLLHEV  
LDLKETLRLRILSED  
DELLRHRDEQKPAT  
ALNMLTWRAEQEGGM  
PSSGLKKRPISRLQT  
CVIQSYWRMRQDRVR  
DVWIDVQRRWVYLEG  
WLLAHCGRPQTECRH  
AACVMPSRLKALGTL  
HKQTKKRRILIPSDI  
SIQDWAKRMKALVEQ  
QENCILLRLDNELGG  
SQFNLSGRNPQKQAR  
KSMSIVLRENHQKPE  
LPEEIALRASDGPQL  
EIEKLEFRVRELEQA  
EKQVELYRNGQRLLE  
AKKPAATR KSSKNPK  
EGQEYSFRVRAVNKA  
SISGCKMRLSYLSSR  
RFRTLMMRRRFLSLK  
TYDSYYSRSRSRSRS  
EKETLLQRLTEVEQE  
HWGQQQIRPIKSVIP  
AVPPAKGRTVLEEKV  
DLSTIQERMEELKGQ  
SECGFCLRQFPRSLL  
TPSEAHSRIFESVTL  
RIQVFLARYSYNPFE  
KREKEVARKLEFDGL  
PLKTDIPRHPMPFAA  
CYIFPGGRGDSALFA  
RDMEKVERQAVPQAN  
LDLDSSELRKGIVVRA  
SNQSVLHRWERKQNL  
ECSKTSFRVANLEEG  
MSTIEPHRQVAWKRA  
YKDKRELRS GKKYKI

LEAQVLPRFQPRVLQ  
SPQPPLSRAEAIKQV  
ELEAHLCRMMKHSM  
EKKLEDARARCEGQE  
TYSSAEERMQSEQIR  
GLELSIDRFRLRKK  
SEIRITHRSHHFIPR  
CSKDELERALHYLKN  
HFIPTIGRLRKRAGK  
KQLPQVPRPLQLFSA  
CEPLSNKRNSNSVTN  
HVHEASSRSHAIFTI  
KNPASSKRRLKTSLG  
GPKLEALRAEVSKLE  
WICKCVRCKSCGST  
NCVSGQERGRLGVLA  
KLNETMERQRTEIAR  
NYSESLYRQAMEEAK  
LAMLAKERLQEVDRK  
EEKQEEERSKVDDL  
SEPGANMRHIRKPM  
HVEAVYSRRCVSFIL  
QNQVGIGRPAELKEA  
IHYLMLPRVREELID  
YGLITHQRIHTGEKP  
TGLETPDRKGGGTTE  
KVPPSMRRIRAQKG  
RRELLELRRKGREEK  
PLGLILNRFSADTNI  
GNLSILSRQESSFFT  
IQGKDVLRLLPSSIT  
LNTSIDLRITNVLND  
EKTINQQRIHARIGQ  
KAKEQETRISEEITK  
VLIPFKGRPPPTVTW  
MALEETLRQYQAAS  
PGFKGEGREVDVNL  
RDLLLQTRLVNHVSS  
DNKKKKQRTSSKKKA  
WDDIITNRCFFLSKI  
RKTRSARRRTTQIIN  
YIRISPTRAYNRPTL  
LEEELPKRVRSLSL  
QLKSFPARLRQYASY

STGLLPGRGPGTSAP  
VKAGDSSRLECKIAG  
ATEISTERDLGQCDR  
CREVGLQRRSVQLFC  
EFKQKLCRAEQAFQA  
KVNGCLGRNCKLPIT  
HQAAAATREASSESD  
GAQMLAMRGEQLGVV  
TEGMDDFRYACQSPE  
IKKANMKRENKAYSF  
FSCQRRTRFISLGEA  
NSIEASLRCSVVPR  
ALTDEESRKNWEEFG  
EEKPEEERSAEESKP  
SQELDVKRREAIYND  
EKKSCKIRDKTSKKK  
DVFLDSGRKTRSARR  
KIDHELHRLQALLKH  
LCPEGVHRFQWIRNL  
QDQKVNIRVAVLPCS  
GATTSTIRSSCLVGC  
APMTPAARPEDEYAA  
KNLVQKERELEEQEK  
QFGGIDQRKIFTFAE  
QERDRKFRLEEQKVR  
VVLPLDERAFEKTLT  
ALAVEGKRIGKVLDH  
EFLELKYRLLSLLVL  
AKWFKDGRELSADSK  
RVRPLSKRETKEGGR  
IDVNVIARPSAPKEL  
EAYITATRQYVAQAN  
AQSEAAGRTEPTGPK  
CYFHSGPRGTHDLWD  
VNLVSVGRVLWQWTK  
ALHTEITRNKDSTLE  
LQVNDHVRKVTDQIS  
VTLQSAYRGMKVRKR  
IVTEEHLRRAIGNIE  
CPGMMLWRYPEPRVL  
EDVHIKGRIIDTVAQ  
ELVPPSFRGGKQIDS  
KLQTAIHRVTLAQTA  
VHSPDIYRVVVEGER

DIANVMQRLQDEQEI  
KFVGDATRLTDKILLE  
GLTNPSLRSPEESTE  
KGNEIVLRQDIMPTT  
RSRSGKGRGLPKKGG  
SGAGCSSRDPGPPEP  
LEKIKAKRSDSGKYC  
KFSSKYLRTEHGSEM  
SKSIEKKRGRPPTFP  
RKVFSPIRSEPRSPS  
WYNVENWRTAVTSPD  
HRLIAKSRELYEKTE  
GLLFYSLRLLTMAP  
ESDSFCLRNIMEAPL  
VKEVAWRERYEDSQ  
KLGKVNDRWQHLLDL  
LGYWLEKREVNSTHW  
ERDYLLERRDLAVDF  
IIDEGLKRFIIEITF  
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KKQQQCRPSISISS  
PKVLQDYRKLKNTAE  
IKKLEPSRIVKQDEF  
GKPKVLARTKGSMLV  
AWIPVPARREAEKVP  
SLDWLISRLEAS  
RLKAQEHRAEMEEKG  
DEAKTSARDAALAYH  
PTTRSSARRSQAGVS  
LYYYNFTRTVISSGG  
DTQTIWARTGYLGFL  
NELAYFKRENQELMI  
ETQIDETRMGYKPVA  
ALFPKGSRSVVPRDT  
EVFTYSVRGLYENHK  
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NAALDNLKVVPCYS

ESTSQIERPLSQEPA  
YDGPKNVRSDISDQE  
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GHDEDNTRISSAGCL  
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MTCLSIDRFIAVVHP  
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VYTTAEQRPNAYIPE  
RRVRETQRHISTVKY  
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SWIADCARHHCSSTP  
VLESTTGRENDSQHY  
ELSLNKQRKLNKSES  
AWYMHGERAHYSHTM

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KAWKKHCRGEGKISK  
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QLSEEQGRNLELQVL  
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VLQKCSHRLQELEKN  
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EELHKEIRLIGNESK  
SFLKLTTRAQLGAKS  
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QFLEEEGRTLEDVAR  
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PLSPPQHRYSEGERT  
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LLDSPYARVHIAEDQ  
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LLFRGANRDVRNYNS  
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KKFGGPGRMKQSCVL  
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LDALVMDRVAFVKLL  
VSIEAPKREPQPIKE  
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ECIQMKARLTQELQQ  
AGPGLLPRKPPGLAA  
NFPVHLSRIRRLRAE  
KVDQFVTRFLLRETV  
HYPFENKREFEDAFP  
NNLHSGIRKLEDYLT

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IQSAPNVRFQWFKAG  
ISSPPACRSPSPVAN  
GYPGGKARIIHKESD  
DQRLHTTRSVSMQDE  
APPVTSARFPSWVTF  
DKCNDIIRNKDDTAA  
IEVPISGRPKPTITW  
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VRQEQHKRLEDLRRR  
ITDASALRLVDKAQV  
SILLDFTRGSRGRKN  
FHHCEQCRQYMDFTS  
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IRPRPPSRRAAQSP  
RAARTLYRIELLRKV  
VGGSGLPRGRRPPRW  
MHHPFLRSMAYWIL  
LCTVATLRETYGEMA  
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FKAWAVARLSQRFPK  
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MFLYEYARRHPDYSV  
YSVVLLLRLAKTYET  
FQNALLVRYTKKVPQ  
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CKHPEAKRMPCAEDY  
CTESLVNRRPCFSAL  
PIPQCPPRLDVQTIQ  
WNPIEGERYLSFLRF  
QFLEQAQRELAELLD  
LNFTMNDRHTGPAWN  
CDCELQHRVEAIVAF  
FCQEMKFRNKMVEYL  
QEEQAARIIRNTTA  
LVIEEQLRRAAYLNM  
DDIKCLTRDLQASM  
DMKADVTRLPATJAR  
YLHLLTLRGSVLRVE  
MKCSSMQRFGERAFK

GKNIYVERQRPALGE  
SKPEGTPRGPQVYTM  
KLTGMAFRVPTPNVS  
SLGKVGTRCCTKPES  
GPLSLASRNRSQDSG  
LKNVNNMRIFGEAAE  
CQKGFVLRGSGVIHC  
VVVKLLIRRPECFGP  
CAKQEPERNECFLOH  
TCKKFDLRVTIKPAP  
KATLKNLRKQYRNVK  
LVEVMMARRDDLSFC  
TENAIGSRKFLSLGL  
YHKDLQTRATFMEVL  
ANIHKEQRKFCLAAE  
CSGSLVERRPCFSAL  
YDDKAIERLLDRNQD  
EHMPNDSRLKCLLDP  
VLVFEQVRLLMKSYS  
TEILKWLREILICRN  
SFEVDPTRLEPSESL  
NMGQWKIRAFYEHAP  
FSKKCSGRWKTMSAK  
EIMEACMRDIPTCKW  
VNGILVSRGVKDMEL  
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GLAESGARYTEMPHV  
PLPPLLARVGGNIEV  
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STLQTIYRLSKGRSL  
YPVGTVRLRYICRPGY  
GGITGNMRQEAI DRF  
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ANQDFTNRINKLKNS  
KYLPGLLRSGFYDLL  
GVVWVPFRGADYSLR  
RIPPVAVRLQMSERN  
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VSLHLPSRSSPTVFR  
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YELLKVRPEQLVKH

PMKYSCQRRARLITQ  
VLVNSLHRIITNSAL  
DTTVKKTRRRGQKAE  
EKADMEDREKEDKIK  
SCSRSVSREINLKDY  
WLISKLDRLESSSGI  
PAVNGTLRTSSYEEH  
WVQAVVSRFDEQLPI  
VPLVVFKREKEIARK  
DLSWSMLRGCKEICC  
KGDPPKPRGKMSSYT  
NPDGSPARRVPVVTQ  
IPITSSTRNIRLYPD  
MLQQLRRLVFDVPQ  
IQQLEQRISASGAE  
TSFSNYRTWNVVVH  
EAGGAGTRARSLWRV  
GQPKDTMRLEDEMLV  
DDIAILARYMLMLSF  
FQNAILVRYTQKAPQ  
AHTVVTSRVVNRADT  
GDLYGAERIAELLGL  
QTLWLWARPRAGGAW

### **T-type of carbonylation peptide fragments**

#### **T-type of 121 positive peptide samples**

HLELRNRTPAAVREL  
PRKRPPVTQAAGALP  
LLAKQHKTQRSPVRI  
NEPEAEKTHLFAKQE  
RKSLVMHTPPVLKKI  
GSKRQLQTPKEKAQA  
KDGSVTGKRLRCMP  
DTEEADRTSSKKTCT  
MPRRLTQTGKRKHGA  
GTARRTGTPSDPRRR  
NSKHLNGTITAKYTY  
GKEMLEQTLQKVTEL  
NELLKQKTIELTRAC  
LDTMSKKTALDQLS  
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DLIQHRRRTQDHKIAK  
IEEELKTTKRKMNLK  
VQKANPGTLAAEIRA  
WIWVQLRTGLARDGR

VSAAQGTTGTAPGAR  
FQASLPLTRIDEEEA  
LNDKHLKTLSTVFS  
RPLKSQITVTRHDKR  
DSKNSKKTNTEFLHT  
ERVEQFLTIARRRGR  
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RDLRFVRTAEILAGK  
KDNIPPLTMKRIRER  
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SEVLVQQTQRIRQS  
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VQSIKLITEGASKRI  
YSAEWKSTVSRLGRW  
GAFKAVMTSIKQLSS  
RDKLKFPTPKVVRVP  
VKRGDIFTLEEELPK  
QLIPRHKTREKVD  
NEIVNIRTSLLNLVD  
KQELEVLTANIQDLK  
PKDEDERTVYVELLP  
EKIRLAKTQQASKHI  
EDLGRKRRTMLKIAT  
EVAEKQATDVKPKAA  
EKFKALYTLPRSVDD  
ARIKAKLTQIRRYGE  
SKGELLSTLLTKEKA  
LTKLKAKTDNVVQAK  
QWIRATATALERCSE  
PLGAEKITGELEEMR  
ISNVDVETQSGKTVI  
LPDMSVKTPKISMPD  
RSIRKSSTSSDNFKA  
TPESKKATSCFPRPM  
SVFLRVRTNVGVRVL  
SVSVEKSTSSNRKNQ  
TSPLQSPTKAKPKVE  
SQGKLLRILFGVKR  
STAVGLVTKDPGKKP

LGKKLGSTVGLVAKD  
NYDKILATKKNLDHV  
RAALDKATVLLSMSK  
LLRAGYLTLYGIEAL  
ETKETTTTNKQTSTD  
TPKKPAPTPKEPAP  
RTARAITTRSGQTLS  
KNGKVYFTSDAGIAG  
IALTTYETLRLCLDE  
SSVGWDATEDLRISR  
TEELIRLTQQLRFHK  
NHFLQVETRAGERL  
QTSLIVATLKKMLPI  
DVKSTAFTRSSKEK  
NKEKEMVTSLFCCKLG  
LRIHAHFTGLRYLLY  
TSSPPRKTRRLSPSA  
RLLRIAATPSCHLLH  
PPKRAPSTTLTLRSK  
LRKGIPRTKSVGEDE  
EPARWDTTLPTSPK  
WKKLLEATELKGIKL  
VEKPPKFTEKGNLEV  
LRLLNKHTALRGEMS  
ATRVRNITKKSSHLP  
SYKLKSATGSVVSTR  
ITKKMDKTIPEGRIR  
VARQTLETIRSVGY  
DLKTIYQTCQSTV  
ITKSSTSTIKDKDEL  
VRVTGIPTPVVKFYR  
IMKETRKTVPKIV  
KKLSDISTVVGKEVQ  
SSEPKECTYTIPKLL  
VDVKFKDTVILKAGE  
KILSNNNTSENTLKR  
CLQTLTDTKVFHFD  
KPLKKKPTPVLLPQS  
GISSPLTGKRQDSG  
VLCIIQDTTNSKTVN  
QLSKKLKTVLDQARQ  
LEEIKERTATGLTHI  
KKTILMVTNRRVLCI  
RKIKVSNTLESRLDL

KGFTVKRTLVIHQRT  
LLAPLNDTRVVHAAK  
NETRESETKCLKELPG  
DGTWSPRTPSCGDIC  
RDSARQSTLDKELXX  
AVSEHEATKCQSF RD  
KEGYGYTGAFRCLV  
SSLLEACTFRRPXXX  
LEGNKRITCRNGQWS  
QKLEPLGTELHKN AK  
CLLPKIETMREKVLT  
KVGTRCCTKPESERM  
TPVSEKVTKCCTESL  
EKQIKKQTALVELLK

**T-type of 732 negative peptide samples**

HGSIFSGTAAAPRCEI  
SRNKSGRTALMLACE  
LPAIFEYTVVGEPAP  
SIAFQMPTIAKDGNV  
YDINQIITAVMTHT  
GAAGLEGTAATAAAG  
AREPPGSTAGLPQEP  
KMMHIAATLIQRFR  
CPPGLYQTVPEEHY  
QNIPPSFTKCLKTKMD  
SASAPSSPTGTTVV  
VSPRGMVTRSSPGAG  
DEDDNMSTVMRLRTK  
ARNGISPTNPTKLQI  
RELQARLTLVGKEGP  
NLKFQPPTLGPEPAA  
SHRVGAATAGRLPAS  
PAAASLSTATDGLAA  
PKESMLKTTLTAFGF  
YPEPRVLT LVRITPV  
DSLSPSTIVSGDIP  
RVNKVPVTMTRYRST  
HLRKAAITIQSSYRR  
RLLMASPTRKPEPQV  
QYHKMYRTVKAITGR  
KSKKRNSTQLKSRVK  
KAKEDDKTLSKEPSK  
GGGRNDITGRFTRHL  
ENHPQWDTAIEGDED

DRWNSAFTRKDEIIT  
SEPSDAITCRDDVEA  
PRCAEHGTCRDGKCE  
NGDGGCGTGGRNCSA  
LCKAFVPTCIEQIHV  
DFEVLMKTAHGHLVP  
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RSSRKICTIGIAPWG  
VQGDSQGTPTSSQGS  
YIVQKRETSRLAWTN  
DRKILDDTEDTVVSQ  
CRDELVRTTAQYDQA  
QEKSPVNTKSLFKRL  
IEELLSQTTNPDRFS  
ATQPAAPTPTATITS  
SKKDDFFTSFKISCQ  
EWRRANHTPESCPET  
PSAFYQQTLPNSHLT  
MREEAERTRDELERR  
GHMYMILTPSDIQI  
SPQREVLTVPEANSE  
KLESLVLTHLSRCDS  
FSCGADGTMKMRILP  
KPESIKVTTGDTCTL  
VVKYRAGTSVKLRAG  
LKDLLNTMSQEEKA  
SYSSLLETIEVKGAG  
PHGGAMDTHFANMRS  
KFTSITDTPEQVLAK  
AQEERLKTQKPESV  
NPYSLLDTSEPEPPV  
ICESLEKTKQKISHE  
ECGLGHRTVPLLLAE  
SFIDGLATFQISGAR  
SSAMESLTKHLFAIL  
RKLDSLDTKSIRAF  
PEAKCACTDSMGVPR  
PGPPVNVTVKEISKD  
VSPENLHTEEILVCG  
VNIQLKGTNEYVPRF  
PIAAVLATFVTHAYA  
LESHMILTETLFRKI  
RLTYTERTKSTITLD  
LSRKLRETDSQLLKT

GDKRRVFTFPCLSAF  
VLDEDEETKEPLVQV  
SSQEKVATLTSQLSA  
ESVSSLSTNDFSIPW  
CFIKLCITLNEGKSI  
SICSARVTLREPPSF  
KELNALETSSSAMDM  
SSTCEPSTVAAVLSR  
ILKAALITEENQQLS  
NKYHWEHTGLTLREV  
MRTQEDLTQGLLLID  
DKEGRELTLEKPELK  
HQYKCLKETIQKLSNV  
QAEAVLKTQLQELKKL  
LDCVLDLTMKIHNS  
AKGDRAATLEEGNPT  
LKGTQEITGDDRFEL  
LVVFNHLTPPPPDEH  
VSPLLSRTEFCTAPL  
FGQRLETVAYEQKF  
KRLQEEKTQEKIQEE  
PTGPELDTSYKGYMK  
VTPEVKKTSFHVTNL  
NSSNFMNTTNFQSLR  
SASKHSPTETEESAK  
VEGAKKVTVTELLAG  
ENMNRSETEACFFIC  
EVCQKSLTGYLEKKR  
GLSPGSLTSLAPSTH  
GEQLGVVTNWPPSLE  
LIGPCCATANLEAKW  
AELERLRTQLLSHE  
GQTSMPGTLVLCLPQ  
TLQRTGQTILPSLNE  
VNSSVKRTQIKVTHL  
MASFLYSTALPNHAI  
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DLRKVYGTVLSRHHH  
ALGRDILTKTKQARE  
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XMSLADLTKTNIDEH

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SPAARISTSPIRSVR  
FKGRPPPTVTWRKDE  
AALECYNTFIGERTV  
MAEILSGTESVPLTQ  
LLAPVALTCGSDGSL  
YEGWRIDTYLDIPLV  
QQMCCVSTSIVSFVR  
YEGGAVCTHARSLWR  
KFHGVLTLCLEVVL  
RMVYCSLTDFQKAVY  
SQRVNGLTSSKNSQP  
CSLRPNQTEEGTTP  
HESQISFTIEGPLTS  
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SESPVYPTKFDSEKE  
VEKLLDCTVIVDSVF  
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LGPADQKTGTPTPTS  
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VGKPGIPTGPIKFDE  
QKSDDKVTLERLDK  
RDFVGQRTVTFSSLV  
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KNCREAFTADGDQVF  
EPLPAKVTERHMQIT  
ALMRSEETADLLAEK  
IDHKEKSTEINHEIP  
STERLKKTNEILKGI  
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GPKQASFTDVRDPSL  
KIQQLVNTLKRPKRP  
ICELSFETE HILLQH  
KKALLPPTVSL SATS  
LHNFSIYTLLGKQVT  
KDLVNRYTQNGSLDF  
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LKANQVATGIRYNER  
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AFMDISATDLVLRKV  
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YLRNLPITAHPEVFG  
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VDRHREKTLRLLWKI  
SLKSLILTALQRETE  
RVDALERTLEQKNKE  
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GKPV DGLTTLRNGTL  
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LVSKELSTWKERPAR  
GEAGGGSTAAEEASE  
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VENMILLTIQYLVRL  
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SDKFYKQTVNLQLQP  
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PPHLKPATEKLIVVN  
EVKGAGMTEHYVTQL  
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SPNPDVWTSEQNPPY  
EWPFLIITDLFLKSP  
YEAQKRITQVFELEI  
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GFTFGTATLASGGTG  
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LQPEPINTPTHTKQQ  
GTLVSHVTLRLLKPE  
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QARPGEGTAPLPPPG  
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KHVSRQDTLQQCQAW  
QNEFLGCTDRLVITP  
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GPSGSGKTTVITILM  
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VVVGEIVTEEHLRRA  
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RGASFGSTSVSGSEP  
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EGSDIESTEPQKQCS  
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SKSSQIGTGDLKILT  
NSQLARHTSPSVISD  
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YYGLSGMTKNTFEVF  
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XXMEDSSTDTEKEEE  
SEAINELTVLVLVNT  
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KESDAMSTQDQHVLV  
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GNPRVLDTSRSSISI  
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SSIYKEDTVLHLCLR  
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PFQMDPETGLITVRE  
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NGVSVEDTINLLASL  
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GSQFFITTKPAPHL  
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ERICELTYQAEEDK  
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VAGQIRATQQHDFT  
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RELEIARTNQEHAAL  
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VVVISGDTGCGKTTR  
RVCSKRGTTESKEVL  
DSEDESETIPTDKTV  
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