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RPFNWT $\square S R F D K V L A F N V T A S A \quad P S F S V H T C N L$ | $P$ | $S$ |
| :--- | :--- | :--- | :--- | :--- | :--- |

QP HKLTWTLT DGQTQTLNSTTHTAP $\square$ NTWWPDLFFDLRDI


## QPVTLTWQLLDDELNVRWETTGAHPLWT <br> QPVTLTWQVLDEELYVKWETSGKHPEWT <br> K P L S L T WLLTSSSTGITTVNSTQGEAPLGTWWPELYVCLRSV 


PYNLT WEDTNLETHEANNTLGTAPLNTWWPDLYFNL QVFNVTWRVTNMTGQTANATSLLGTMTDAFPRLYFDLCDLD

QPQNLT WAVLDAHADLNSTSSMAVPGSWFPDLYFDF QTYNVTWVITNVQNNTANATSMLGTLTDAYPTLHVDLCDL QVYNVTWSVNNLGGKIINQTSGMSTLGEFYPDIWFDTCDLC NYSWEVTRTDGTVIGSVVGDGA N P PVIRTDLCKL


——

ALS GPPHWG ${ }^{50}$ LE Y QAPYSSP ${ }^{60}$ GPPCCSGSS GSSAGCSRDC ${ }^{80}$
ALHGPTHWGLDNRPPYSSPPGPPCCSGDKGAVSGCARDCD
$A L H G P T H W G L D N R P P Y S S P P G P P C C S G D K G A V S G C A R D C D$
$A Q L A K P S W G L S D Y P P Y S K P P G P P C C T T D N N P D G C S R D C N ~$
ALSGPPHWGLEYQAPYSSPPGPPCCSGSSGNSAGCSRDCD
AMGAPANWDI ENYFDLQKPPSQPSPRGRLGLDP


AAGSLA WDLPNYDNLAKPP
ATGTWNTGNW
AAG LETWG\PHLTPESQQSAPPNGCGVLYSQVGRGLVRQ
AVG LDTWDIDDYEDPNNDPNPYSSLGYEDTSSGNNL
DAGTWT $\begin{aligned} & \text { VGDWE } \square \text { W } \\ & \text { V }\end{aligned}$
VGDAWEPIVLDPKKPALGNPNVKPGARYLSPNYGCKT
VAG DESWDI PEDTASASQQARPPDSNYE HAY
AIGAP YWDLEGYYDQHNAPSEL LTRADYSGEGCKNQVR
VGNTWE PDVDDPRNVPHETHYPSSNYGCKTA
AAGSPNWDLPDHTDLNNPPSEQKCV
AAG LETWDIPDKSPHELNVSNSACPTMRDFGCACANA AA GTWNTGNW K $\quad$ WGPGGEP CKKG $\square G Q C S L P M A P V P$ AAG LESWDIPESDVSASKRGRPLDSNYN NGAN AAGSL TWDLLDHTDLSPPPEERCVPNGDGSTYGCS AHHGPSYWGLEYQSPFSSPPGPPCCSGGGSSPGCSRDCE
 AVGSWD $\square$ GEWE VKMPRKPECG AGTNRCNT VAG LDTWD■SHCYP KACSNENDLPR FRRSL
ATGSWD
AMGS WD TGQHDDPHNPPTSPTSSGMSPPNRGCG
ADGTWDPLGLVW
GCQHPAQ
VG EEWDPSDQEPYV GYGCKYPA
IGG STWNPSDQEPF PRYGCDQPMR
AAG LDTWD\PTKSP
AAGSWDIGNWEVV
VLGGHNDWGTHLEFDPQEQ
ALGADAAWG TPDYYMPQLTAVNTGDKKTDPGCS SDDPR VG SDWNPSDQEPF
 VADS
AA GS WD $\square$ S K WEVKT P
VGDYWDD
V
ALHGPSYWGLEYRAPFSPPPGPPCCSGSSDSTPGCSRDCE MGRSYTELNDESGTCYASPTNGRPVGLSYGSSYGVS
AG AVGS WD $\square G$
P G D DRVVTSY
VGSDWDPSDHEPFPGY
AVGSWD I GE

MGAPANWDAENYFDLQKPPSQPSPRGRLGLDP
G VM M D T T
VGNTWE P VVLDPSNVKHGARYPSSGYGCKTE

| $T V D$ |
| :--- |
| $I \mathrm{G}$ |

FGRNWGNSHSQSMSTRYGWGDQPWATGGKSYRCG
AVST
A


A HQPFNWTLHAWPSFNVTSGSPSFTTH CT LAG $\square$ P WHAT


A $\square$ G A P A D WD LEALPGFQQPPDQPSPPGHAGYHRGRRHNY A GY DHT D TKM L S S SVI N T F N M G
ASFALPATANPNHQPFNWTLTLLTCES CQGGNQLLTSNVT
】GDDWDETGL

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WGGCGDW
R S M


PHGDGSTLGCSGQFFRANDQ
MAPPRLDPGCSHSLDRNLQ
SSYGTLGCRC $\qquad$
AADFYVCPGQGQSR
SYGTGMRARAR
A Q
KASQFYVCPRDGRSS
MAPKR■DPGCGQPTERNVL
DRKKQQQ
NQ TTWGTGGCSYPRARTR $\square$ AR
LRTLQFYVCPRDGRSS
RSW DRRKQRTLS
PNGVGSTTGCSGQFYRAN $\square$
RCELAHADFYVCPKDGRSR
MAPPRLDPGCSHSLERN【LQ KQ $\square$ S WGA $\square \mathrm{GCSYPRAR}$

TRTASSPFYVCPGEHTQS EPDTSLTPRCNTAWNRGQFYRANLRAAEFYVCPGQGQSR PRTLPRCNTAWNRLKLDQTTHKSNE ATYDEGAGGSKPWKRCALTER
QPLLNSGPGCSHYKQRASLRET RPPTNSGPGCSHF $\square Q R A S \square W K T$ DGPRR HS

R W
RTQQMTAHGCSSPTARCRLAQ
GRQR
RPPTNSGPGYSHFTQQANLRKT RQVAYTTPGCASLSRRKTLASV RTALALHTG

PGYGCHHPGGRMRTRGK
LTDGGTTPACSNSVRRA!LR
FFAHGVFTGCRTPTRRE GKPKCG
PEPSIGDGCRSPGGR
AGTNSLRETPFYVCPKGRWNR PEPSIDGDGCRSPGGR ATR KRTRLYDFYVCPGHTVP EPDTSYTPRCNTAWNRLKLSKVTHAHNEGFCVCPGPHRPR SSCRGGDTACLLTRN NRLLGPQFNPVSGFY/CPASARGS RPPTNSGPGCSHCIQWASLIWET EGGYGRAGGGGRSWHE RQRVSMSRNGFYVCPGFRDGE GCNSPGFRA RTRSDEYVCPGHDRSK CKASDWET WGGCGDW
TSPNRPG MVSHRW SQRSMLSTLTFYVCPGVHRPR HS TCDS DDMQRSDTRDPGYYACPRAGRPS
PGHTVPTGCGGPR
SPLKEMEGGKWR QLQRRVSTSRNGFYACPGFRTGA GLTPLDKQRGSAAVYQQNKFPDEGFYACPGFRTGA RCWYSSLTGLNGPF

GCRTPGGR DHEVTGFY CPTSARG
KRAKTFDFYVCPGHTVP
RCWYDS $\square F G \square S S P W N$ YE $\square S G Y Y G C P A S A R G$ KSTISYP $\square G C S H P R F R \square E \square Q K \square$

DRAHGFYVCPGDGDR
PSGDGSTFGCSGQFYRANL RSAEFYVCPGQPR K
RCWYSSGT GLNGPWN YGVYGYYICPASARG
EHCEGGGRSTGKTSGMVSДEEDKDLALMGHYICPSSNPGR SVRSKRAVIDTSQGHSAQGFWACPGNLR N TTLWCRPELTET IDRESRLWDRPYYVCPGHLDSK QSCWGSKQQYGPHNHLILGFYI CP
SQGHVIQTECRGDPSRHGLYGPYNYDUFGFYVCP
CRLIAQSDFYVCPHDNRPR
SSTYGCKTTDRKKQQQTYPYYCPGHAPGN


R T P H N S Y P P CR H
PTSSAPRCSHPVRRAVLQT S DWYTCPGGKRTR
PFYVGPGGGKGA
$S N K \square P P R P K C S G \quad T P S S G L T G P Y G K T L S G Y Y \square C P P S \square R G$ ASAPSFTTDVLNLT GR $\square$ NIIPGPNSLSATGFYMCP
EKVSPLEEMEGGKWR QLQRRMSISRNGFYACPRFRTGA GCRTP G GR
K S PRNSYPPCRHSS
KRARTFDFYVCPGHTVP
WY V C P G GKRTA HNY S $\quad$ RRQRRALIDDTAQGRAQGFWACPGNLK H KANQHSFVNCEK RGPTREET IVLSATGFYDCPA

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130
140
150
160
EAKSCGGPDSFYCASWGCETTGRDYWKPSSSWDYTTVDNN WARSCGGPEAYYCASWGCETTGRAAWKPTSSWDYITVVSNN
 EAKSCGGPDSFYCASWGCETTGRVYWKPSSSWDYITTVDN EWTHCSGAAHFYCRNWGCETTGDTYWKPTSGWDYITVVTAN S LNT C G GKADFFCK SWGCETS GTARWK PSSSSWDY I R V TAN
 $M K R R C G G A S G Y F C G K W G C E T T G E A Y W N P A S S W D L I V V M K G$



 S L N Y C G GTEN FY CQNWWGCETTGGDTYWRP

 Q ID K C G GPD K FYCA T WGCESSTGTVVLWAPPDRDDLI S L M K K V

 S L N Y C G G $\square$ G D Y Y C R N W G C E T T I N NCRGADKFYCATWGCE KTQTCGGYEQFFCATWGCETTGDAYWKPSSSWDK
 Q TA T C GGPESYFCAYWGCE $G C G G P G E G Y C G K W G C E$
$H C G G A Q D G Y C A A W G C E$ K GTHCGGAQDGYCAA WGCE
ATHRCGGYE E Y F CA A WGC



## A


 WARSCGGPESFYCASWGCETTGRAS
SARGCHDPAHFYCPSWGCETMAYGWSNAPNRDPYLSFRTV CHNPSQFFCPSWGCETMAYGWSGAPNRDPYLSSRVV T $\square$ N N CRGADKFYCAA WGCSNS QL $T R R Q C G G \square E S L Y C A A W K C D T S N D G E W K W K V R \quad P \quad L I E$ TQQK C G GPRE GYCA S WGCES T G WIIN WHP P I T G D LI T V QR H
 HCGGHSDGFCATWGCET 1 GT AHWDPQNKDLITLHKGS E WTHCSGAAHFYCRNWGCETTGDTYWKPTS GWDYITTVTA N Y RKKC G GENDYFCADWSCDSTGEDTWNPPFRGDLI T L R R R T K GTHC G GA QD GFCAA WGCETT GEAWWKPT SS SWDYI TVV R G E $\square$ R R C G GADVVGFCGAWGCETTGTTYWNPSSSWDLI ILRRT
 GSDCGGEDDFYCASWGCETLALDWKKPPTDKLLRLTRE MRKTC G GLE S LYY CKA WS CVTTNDGSWKWHVKPQYIMMSF CHDPAHYFCPSWGCET $\quad$ ACGWS GAPNKD QYL S V Q TGCGGPREGYCGKWGCETTGQAYWKPSSSWDLISLKRR
D Y C G GQ S Y GF C A T WGCDVT FGTA HW
 NEKHCGNPRDFFCK QWNCVTSNDGYWKWPT SQDRVSF S Y V LR HQCGGAPDFYCAAWGCETTGGAYWNPTSTWDLI TVKRG CHDPTHFFCPSWGCETDAHGWS GAPNK DPYLTTLKK G S YCNQPGHYLCAYWDCVTLAREASHWTVKTDQFIPNTG NWKTCGGPDRYYCGSWSCVTSNDGPRQWDVNRDLVKFSFR ERTHCSGAAHFYCHNWGCETTGDTYWKPTS GWDYI TVVAN CGGASTEFCSSWDCVVTGQVWWDPPRKGDLI QVKRK
D CRGEKYFFCGLWGCLTASPV SARGCHDPA HYYCPSWGCVTMAYGWRGAPNRDPYLSFHDA
 $K G T H C G G A Q D G F C A A W G C E T T G E A W W N P T S S W D Y I T V V R G$ STA ACHDPAHFFCPSWGCETMAVGWGKPSNRDPNLYLLSR
 NE EYCGNP QDFFCK Q GSCVT SND GNWKWPVSQDRVVYS FVV

 NCGGADSYYCKHWGCETTGNVYWKPSSSWDYI CHDPTHYYCPSWGCETDA YGSTTPKDKDPYLTLKYG STRRGCHDPTHYYCPSWGCATITHGWSGAPNRDPYLILARAN

 $\begin{array}{ll}S A D G C Q D P T N F F C P S W G C E T D A Y G W R N P P N R D S H L & S \\ Q & C G G P G S G Y C A Q W G C T\end{array}$

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पTTSQAVQVCKDNKWCNP TATQRTNAGKQVTSWTTGHYWG LSSPQAPKACKNNGWCNPLVVRFTGPGKRATSWTTGHEWG ASSSDATTACKNNNWCSPLAISFTDPGKRATSWTSGFTWG LTTNQAAQVCKDNKWCNPLAI QFTNAGKQVTSWTIGHYWG YSHARSSPKWCKNQWCHPLKI AFTESGKRQLNWVRGYTWG YSLIPGGFDLDECTDWCHPLRVTFTEPGKRALGWTKGYTWG
 REPDEPPQGPCKDNYCNPLKINFTVQGKQDRQWLKGNRWG PGPPGLQTNPCTGFLCNPVRLSFTDSGKRYTKWETGQTWG STRRE SGSPGLLSSPCTGFLCNPVRLSFTDQGKRYTRWEDGRTWG ATQDQG NNCEGRCNPLVLQFTQKGKQA SWDGPKMWG YTHTPQPVAPECSGWCQPFKI SFSNPGKRDKEWINGHSWG TTTQDNDC SGYDKSPPGPCKGKYCNPLLIKFTEKGKQARSWDKGNRWG FTWQRGNRNTAFTSVCPPLNITFTSSGKRFLDWTSGRTWG PRPTGTFSGSYTGFLCNPIRFSFTDQGKKYTGWESGRTWG RNRQWMLSVCEQTGWCNPLKDDFTEKGKHSRDWIKGRTWG SDHDNSPSGPCKGKYCNPLLIK LT SDQAVQDSPHG
YTKPDSCDDRVERERKTPLKTTFTDSGKRADGWQTGYTWG YSLSDSKPPC SGWCHPLRI QFTDAGKKYNNWQRGVSWG LGPTGSTTGPCMNFLCNTVRLKFSTEGKKFPSWEARQSWG WQKGSTGTTSMPLLISFTDEGKKATEWQNGYAWG
DTEPCMNFLCNPVRLKASEGKRFPGWEAGQSWG HRRRSLITEPCMNFLCNPVRLKFSNEGKRFPGWEAGQSWG YSHRENDGKHCKNAWCHPLKITFTESGKKAVGWIKGYSWG NTPSNSFQGATRGGRCNPLVLEFTDAGKKA NWDGPKSWG VTQHSSTTGASEGGRCNPLVLQFTQKGRQA SWDGPKMWG YTKPDPDGHTCYSPLSLPLKITFTDSGKRADGWQTGYTWG LGPTGLTRGPCMNFLCNLVRLKFSTEGKRFPGWEARQSWG PDYACASSNQTSKGWCNTLEISFTDARKFNWEYTRGAEWG HPNSKVTSPRKQPGWCNPLQIGFTTAARTAD WTKRESWG ETKGGNIIRGATPGGRCNPLILRFTDAGKRAT WDSPKVWG FPNSQCNCNSNLKGWCNPLLISFTAKGKQA SWSGRYEWG

 NTPSSGVQGATPGGRCNPLVLEFTDAGRKA SWDAPKVWG NRSTPGTYRCTEGGRCNLLKISFTELGKQQTDWTGGKIWG

## NSARWD <br> NSTRWD

 KEKKSPGWEARQSWG DNQRYO DNQRVDCGPCYDGGRCNMLVISFTEAGRKAD WTTGKTWGPGPTGSTGPCMMFLCNLVRLKFSTEGKKIDWEARQSWG KPKHCSFNGPN MCNPLI KKFTNKGKTDPCWEDGLT WG YSHARSSPKWTQNQWCHPLKI AFTESGKRQTNWVRGYTWG GENVRCEQNQFGTYNCNPVKUSFTTEGKRHTGWQSGVTWG AHYPNGTYWACNTGLTPCI SMAVLNWTSDF PDFKEGTCINGAQGRCHPLILTFTAKAREE AWDSPKPWG NTPSSGVQGATPGGRCNPLVLKFTDAGKKA SWDAPKVWG MSYVQPCTRTRYDENCNLTHVRFTEEGKKDRRWVLGLTWG KPPGAPRKNCIVG DCNPVILM PLAWWTDQWEGGKTWG KPCNKAQHGHTRDPDCNLVQIKFLEDGKKETRWTTGLSWG NTPSSDDKGATPGGRCNPLVLEFTDAGKKA SWDGPKVWG PSRPQTCSFNPPN CNPLIIKFTNKGKTDPRWTEGLTWG NADHNN QTPTGSGPGACKDFSCNPLNI SFTPEGRDLTEWIKGRTWG NTYTSSTWIDTGSPKCDYLKI SSYDQSPNGPCKDNYCNP NAGQNN CTWDWFFH SPASKRARCTOTLTVKDPNSNDWFQGRTWG DPDNFH SPASKRARCTQLNLVLRPEDGWLLGRTWG YSHTRSIPKWTQNQWCHPLK QFNDAARKERGWLSGLTWG TTCPNKGKGCPVNPRCDTVSI AFTESGKQQTQGWEDGKRWG TRGGAPTKQGTCNGDCNPVEVKVKTWHKTETGWTRGRMWG NTSQWN II ILTVKDPTNTAWLQGRTYG NTSRWD FPQPDPGHTCYYSRSSDPLKISFTVKGKQAGGWQSGYTWG SNQDNSCT GKCNPLVLQFTQKGRQA SWDGPKMWG QLISPRHQN NRTACSLNGC QGRYCNPLKITFTNLGKSNRDWTRGLRWG QNRTACKGNKCQGKYCNPLKITFTDQGKNSREWKRGLRWG NSPTSYNQFNYGHGRCNYLKI SFTEKGKQEQKWVNGMSWG NSYTQNRQUSCSPSDLDYLKI SFTEKGKREQKWINGMSWG TPGDS $\quad$ RIKIEFTDQGKNDD WKVGRRWG PGPTGLQASCGNGKLCNPVRLSFTDQGKKYTRWESGQTWG WER
NRWDC
ATRWN
MSYVRPCTRTRYDENCNL
NTPRN
GESN
D
TPLRTNDAAS $M V L T V K D P S S T A W L Q G H T Y G$
$F U W L V K N P N D T W L A A R P Y G$ E

GRLD

|  | $R-{ }^{210} \quad 220$ |
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| UniRef90 P11370 |  |
| UniRef90-P21436 | L RLL Y I S G H P GLL I F GV R L K S S L |
| UniRef90- Q5V9X5 | LR |
| UniRef90_M3Z876 | LRFYKERYDDGLTF T 1 K L S |
| UniRef90-Q3U4K5 | LRTYKERYDEGLLFTI RLK K |
| UniRef90-UPI00034F59EE | L RLYES GYDNGLLF TI K L K K |
| UniRef90-D2CNB5 | LRLY R T GYDPIALIFTVSRQV |
| UniRef90-S4X4K0 | WRVYTGAGDPGFIF TII R L K I E SI GP N |
| UniRef90_UPI00034F | LRLYQDGYD T GLLFTI K |
| UniRef90-S6AWZ0 | LRFYETGH PGVQLTI RLLIVTSPPPVV |
| UniRef90_UPI00046BC12B | LRFYASGHDFGLWFTVRLQKRTVGPNL |
| UniRef90-UPI00034FB | LRLYQDGHDNGLLFTVR |
| UniRef90-K0J4M9 | LRLYRTGYDPIALFTVTRRV |
| UniRef90_Q9TTC0 | LRFYVTGH P GVQLTI R L |
| UniRef90-D0E0H2 | 1 RFYKNGYDSGILMTLKLKI |
| UniRef90-F7J5K7 |  |
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| UniRef90-UPI0003444223 | LRWFLS GK R G I I F K I KL RIEEPVGPNL |
| UniRef90-UP100034FE6F0 | $L R L Y Q D G F D S G L L F T V R L K P Q P 1 G P N L$ |
| UniRef90_Q67649 | VQLI R L |
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| UniRef90_Q86834 UniRef90 P31791 |  |
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| UniRef90-UPI0002739E36 | L RLY K S Y H D Y GLS T I K L S |
| UniRef90-W5P7Q2 | L QLDQS GY N GLLLFTVRLKVGPIGPN |
| UniRef90_G3H355 | L R WY LS GP D R GAl F K I R L K |
| UniRef90-W5PI18 | L R L Y Q G Y N G L L F TV R L K |
| UniRef90-UPI000343F792 | L RLYKEYYDEGLIF TII KLS I E T I GP N |
| UniRef90-P97406 | L RLYVS GYD Y GVMFTI QLQGM |
| UniRef90-Q89683 | LRLYRTGTDPITMFSLTRQV |
| UniRef90-F7J593 | L RLYRTGRDPIALLFTVARQV |
| UniRef90-T2HUV9 | L R WY LP GKDRGVI L K I K L Ki D TI T QPV |
| UniRef90-W5PRK2 | L RLY Q S G Y S G L L F TV R L K V |
| UniRef90_Q3TZL0 | LRIYKNEKDFGVTFKI QL L K N TI GPNL |
| UniRef90-Q8BI48 | LRI YKEGT DWGLTFKI QLQKESI GPN |
| UniRef90-UPI000454289A | L RLYRAGKDPVTLFS S Y R QVQ S V |
| UniRef90-UPI000333DDA2 | L RLYMEGKDMGLTFRLQLTKSPP |
| UniRef90-UPI0001CE1EA9 | LRYYATNNNFGFWFKI RLKVTS |
| UniRef90_G917H0 | L RLY K N G Y D T GVRF ELKLKL G |
| UniRef90-W5PHW7 | L WLYQ G Y D N F L F Til R L K V |
| UniRef90_A7XZ51 | L RLYRS GADPVT R F S L T R QV L NVGP RV |
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| UniRef90_E3T928 |  |
| UniRef90-UPI000328B1ED | G G L |
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| UniRef90-UPI00029D4AD0 | I RLYQS GYDNGLLFTVRLKVGS |
| UniRef90-UPI0003337343 | I HLYQRPPFGALKT TLR TR L A P R V |
| UniRef90-_UPI0004541FF8 | L R L Y R T G Y D PVLLFTLHRTS |
| UniRef90-W5NUM3 | I RLYQSGYDNGLLFTVRLKV |
| UniRef90-K7DZ95 | L |
| UniRef90-UPI00034428D3 | GL |
| UniRef90-Q8AGX8 | GRVHDKTGEPGN $\square$ F T $\downarrow$ R L T Q T P $\square$ EPPV |
| UniRef90-F7J587 |  |
| UniRef90-UPI00042AB95C | L |
| UniRef90-P31793 | L RLYRS GT DPVTRFSLLTRQVLNIGPRV |
| UniRef90-M3WQR0 | LYLYQYP LIF GTA $\mathrm{QQ}^{\text {Q }}$ |
| UniRef90-UPI0003C47A0D | L RLY V S GRDPGQLFTПQRR |
| UniRef90-M3WV71 | 1 YLYRGPPYYATVIQ |
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| UniRef90-Q5MNJ6 | LRLYRS GTD |
| UniRef90_K7DZJ3 | L RLYKRGPDDVFLFTLQLR V |
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| UniRef90_Q5J1S8 | MVYYGSGKKPG |
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| UniRef90-UPI000443 |  |
| UniRef90-H6 | FQLD $\square$ GGPHPGGLLTI RLSVETI S T QV |
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| UniRef90-UPI000328D2B5 | I RLYKEGYDYGADFEI QKRLA |
| UniRef90-UPI0003343629 | L RWY LS GKDPGVTFKL RLLVRTLT R P |
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| UniRef90-UPI000328DE0E | I HLYMTSYDS GAFFTI RKR |
| UniRef90- Q5PY\|4 | LGVHILSQ GFVFFI R L QVTAlGPN |
| UniRef90-Q992L2 | CWVHLLSQH FI FYI RLQVTAIGPN |
| UniRef90-13LTA9 | YYGTGRRKGSVLTI RLRI ETMEPPV |
| UniRef90-Q9GLD5 | V VYYRSWGGEGSILTI I RLRILETME |
| UniRef90-Q7ZL00 | RLYTPGQNPGLLFSLQLVTQE $\square$ G $\mathrm{V}^{\text {P }}$ |
| UniRef90-UPI00034F3ACF | CLYQDGHDNRLLFTVKLK |
| UniRef90-UPIC | DDGLFFTIRLK |
| UniRef90-UPI0003288F9D | RLYMTEYDPGAFFII MKRLSAI GPN |
| UniRef90-UPI000328D216 | ARLYAVGHDYGGlISIIKKRSTPIGPN |
| UniRef90-M3X869 |  |
| UniRef90-Q7SLW5 |  |
| UniRef90-UPI0003D07 |  |
| UniRef90-M3Z7P7 |  |
| UniRef90-UPI00032 | ARLYAHGYHHGSLFTI QKRHATTATR |
| niRef90-UPI0003D0BABF | L Y VT GT DPVGLFSLNRQVSPLATR |

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UniRef90-W5PAZ1
UniRef90-Q304Z2 UniRef90-G3GWL9 UniRef90-UPIOOO3292558 UniRef90-F6SDM5 UniRef90_UPI000328BBEC UniRef90_UPI0003C48793 UniRef90_UPI00038EBD66
 YNWT LTRTNDGTVIAFNATY GQP GLYFDLCSLL QPF QVT WILKNGETEELNRTTATQPKDKWWPDLYFHLQQL」

QPFNWT LSQ QD KVIAYNVTAGA PSFTDHFCQL

KPDS LTWLLTSSTGTTDNSTQGEAPLGTWWPELYVCLRSV RPFNWTLSLWQQEKLLANNDTA GVPSFTVHICNL



PFNWTW■I YNPETELLP LAARTMGPRLPWFPDLTFDLCQL」

TGVTVNSTRGVAPRGTWWPELHF
QPVK TT WKLQNGTREMLNSTTALIHPPNTWWPDLYFDL
KPLSLTWLITSDTGDNIHSARGEAPLET W WPDL

QPVR\TWKLQNGTHEMLNSTTADHPPNTWWPDLYFDL
QPAKI TWKLQDGTREVLNLTTEVVPPNTWWPDLYFEL
PMNLTWMVLNATGKVINSTSAIHPQNTWWLDLEFD

QPVK $\square$ T WR $\square$ Q N G $\square R E V L N T T T E T H P P N T W W P D L Y F N L K D L$

QPYN $\square$ T WK $\square R$ NGHTEVLNWTSA $\square$ QP
QPLILTWQVLGPADQVLFTTSK $\square A P P G T W W P D L A F C L K Q \square$
QPFNWTLQTFPEKRILAYNVTSVA
PSFLTHVCPL
QPFNWTLSLWQFEKLLAFNVTAGA
PSFTLHICRL
 QPYQLT WQUTNFKTEVLNETSHVAPDNTWFP QSFQITWMLRNGTGEVLNLTTRIHPPNTW
QPFNWT $\square Q T$ F PEKRVLVANVTSUA
PSFFTHVCPL



$\square N T T T E \square H P P N T W W P D \square Y F$

GNNVNLT T G DTHPPNTWWPDLYFNLKDL QPVK $\square T$ WRLQNGLREVLNTTTETHPPNTWWPDLYFNLKDLL QPVK VT WRLQNGTREVLNTTTKTHPDNTWWPDLYFNLKDL

$R P \square S L T W L I \quad D P T G V T V N S T R G V A P R G T W W P E L H F$
$L$ NSTTTLHPPNTWWPDLYFDL
QPFNWT LS LWQQEKLLTNNDTVGA PSFTVHDCNL QPVKIT WKLQNGTREVLNSTTAIHPPNTWWPDLYFDLKPM QLAKITWKLQDGTRELLNLTTEVHPPNTWWPDLYFDL

QPMNLS W I L S ATTEVINSPSA $\square$ Y P K N T WWP D L E F Y L C L L

PYNLT WQ IID TSGTVLNQTSQDHSKDSWFPDLWVDLREF

[^0]

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UniRef90＿UPI000328B01C
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UniRef90＿W5PAP5
UniRef90＿W5PZ90
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| A G F |  |
| :---: | :---: |
| $\square$ | $P \mathrm{G} L \mathrm{~L} N \mathrm{~N}$ ATPP DV |
| A FGANWS | $\begin{array}{llll} \text { SANWSSQV } & \text { NLPFASG } \quad \text { GSQDUTHNTH } \\ \text { SSGGCGSYSIL } \end{array}$ |
| F GANWT |  |
| F G S S W S | GRNDS SQ】TNNGGCGT |
| T E G | D WD TYA K LQNYNHPNSENQ】FFCASW GCESTGT |
| $F P \mathrm{E}$ | PARTHEEQHNLPV G A G SVDLA A G F G H S |
| VG D Y WD | D PEPDIGGGCRTPGG |
| A K G S W | QRTR |
|  | $C L R \square 1$ |
|  | $Y \mathrm{~V} C \mathrm{~L} R \mathrm{~S}$ V I |

LD S WWP D LY F S L R E LT
$\square \quad \mathrm{P} \mathrm{T} \mathrm{S} \square \mathrm{P} \mathrm{P} \mathrm{N} \mathrm{QVRS} \mathrm{Y} \mathrm{G} \mathrm{F} \mathrm{Y} \mathrm{C}$
$A G \quad T \mathrm{~T}$ G H

 A G $\quad \square$ S F R P E C R VENTRKAK VG F H L P NPHQPFRWILRRAASNEVIK
 $T N L A Y T S S Y S S A \quad F V S C S L H C Y T S P P S R R S R R$

$\square P G L N D Q A T P P D V L C A Y R \quad F N V C P G P P N N E E Y C G N P Q D$ | $F$ | $K$ | $L$ | $Q$ | $L$ |
| :--- | :--- | :--- | :--- | :--- |
| $F$ | $K$ | $L$ | $Q$ | $L$ |

A GS S H Q Q WK WS L I S LE H S T VLA TV VT S GTPS LQQ TETCD

## 】Q T T WT

A A QTRNF GFWACPGH LK $\square C G G L Q H$
HRPYKWTLGSWDDSK $\quad$ LIK T S $\square$ T A GSPSFN $\square T N C E L L G T$

F NCTLS LTWQREKLLVSNVNASAPSFSTGVCNLTGLTASPS

$N L P$ F A S G GS LQ D $\square$ T H N T H


A A G S WD $\square$ GDCLVGHCP LDVP WAVGGADKFYCAVWGCK TRSD

HRPFNWTLTQFDSFNVTAGAPSFTLPFCQLAGFRPKYQ HQPFNWTLSQFDSFNVTVVAPSFTLPFCQLPGFQPKRQ
 A GCSSA $\square$ T

```
4
B
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TANRRSFVNCEKPGP VK T M GF ${ }^{110}$ TREETIVSSATGFYDCPA
QALQDHSFYVCPSDGPPK TETS WARAYLRKEVALQDHFYACPGDGQWE WRQLRRRVSISRNGFYACPGFRTGV
 LRAYRFNVCRGRTRS
RCWYSSLTGLNGP YNHEVVGGYY CPG PPN EARDWDRP QGPWSQPPRGTGPHGRQYDQPQYYVCPKEGSPT I SWDPPPP

GSQTGCGSSKGAEK
RRRTRL
GLQNVDFY LCPGNHPDA
YDFYVCPGHTVP
TVYACPGGKRTY LLDRQALRRNGFFACPGYKTGA
P A VK S T P P
K P VVNVP WKRGKL
NLVRSYGFYCCPG
R NHAFWACPDAPR H PSLTSTPD PR PGRVRRNGFFACPGYKR $K P V V N V P W A R G Y L W M Q Q N L L S Q V Y M C P A S N P G K$ K GF WACLGHQRTK


$\square T R N N R L L G P Q F N P V S G F Y D C P A N G P N$ $\square K E W S P D S V R$ RAGFYACPGYTRET
 SSCRGGNTACLLSRN NRLLGPQFNPVSGFYПCPASARG SNKLPPRPKCSGTPSSGLTGPYGKTLSGYYICPPSVRG RWTNPSGWGCNSPWGKAATRQTVARVSGSYVCPGHSLSR FANSTSHSGC A WEQHKKLTLAQVSGSG TCDGRVPXS

YFNLKDLIKTSWSA $\square$
QTRNF GF WACPGHLKTH SSCRGGDTACLLTRNN NRLLGPQFNPVSGFY DCPASARG EVVTAGTPKFFVLIRD DFPGIVTHNTHPRFYWCSATNPGK Q PACWGSNQ GYGHFNHLISGYYDCP SSSGS

FFCKQGSCVTSNDGNWKWPVSQQDRVKSYS

## WHRPDLSDT <br> WCRPDLSGT

FFVCPGHLPDK
FYVCPGHLP
$\square 1$ WGPKD $\quad$ R R P P GNTPES $\square$ CKNTVGFYYVCPDEGPS $N L K D L V D T P W S E S L T Q Y R G Y T P G M G G A C P G H K Y S$ EVT T A GAPSF $\square T S \square C Q L A P \square S P C \quad \square N Q K G F Y F C P S S N P G R$


## K P V VGVP WARGF LRMQ

GFWACPGHQRTK
STGWEPPTRGDLITLS CVPGPAGLILTGRRFLCNPVRLKF SPQTDTFDACLVVIPCGDLQSQRQLAAADKYLCPSKADAS SDSPVHPGCGTKMKEDFFW S W TFYVCPADGPAH TANRRSFVNCEKPGP TREETVVSSATGFYICPA

LQS QRRLTAAEKYLCPSKADAS
$\square$ ANLDSFVNCEK DGPTRK ETIVSSATGFY I CPA
RQNPNYTTASNSSSCRQTTARDTLQAVIGQGTCDGRVPPE LQMDACAPTTGWGSCGS LSWERDYTKDH KY LCFKDEQLG

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 MRRTCGGFETLYCAAWSYVTSNDGEWKWKVK P S YCNYPNQYYCAYWGCETDASA WAPSMRDKFLTTTTWG CHDRTHYFCPSWGCETIAFGWSGAPNRDPHLSFQHS NEKYCGNPRDFFCKKWSCVTSNDGYWKWPTSRQYNQFNYG
 NEEYCGNPQDFFCKQGSCVTSNDGNWKWPISQQQFNYGHG

 Y $\square E L Q R \square H R D$ $\qquad$ WS $P R S D S P G W G Y G L Q P K \square$ S V K D DLI I AK K WS CVT LA T Y S G G S T R S S T L S I
$\square$ GC G GP GE GYC GK WGCET T GQA Y WK P S S S WDLI SLKR G K MRKTCGEDDALFCASWSCDT TNDGEWKWATKPWY T MS FV WR R K C G GLE S F Y C A K WE CVVAND GEWK WSVAQDLI NDQFT KEKYCGGSGESFCRRWSCVTSNDGDWKWP ISQDRVKFSFV NWK $\square$ C G G $\square$ QD S Y CK S WD CVTSND GSETPGRRWDVGNQDF N NGKHYGNPRDFFYK Q WS CVTTSNDGRKWPTSQDRVSFSYV NYRQCGGMTWYYCKSWSCVTSNDGHWKWQTNNDYVTGSFD T Y CN A P N Q Y Y CA Y WGCET LA T D WK P S T T D QY L T LT R T NWK TCRGGQDYF CKSWDCVTSNDGPRRWEVENDLLNFSFA WK TCGGAQDYFCKSWDCVTSDDGPRCWEI NRDLLNFSFA ATNNCGGADKYYCAVWRCKSMGTVVDWEPPVHGDLI ILLGRV CHDP LHYYCPSWGCETMAY GWSGAPNRDQFLSFSTA
HYCNRPNVYYCSYWGCETRSTGGWTPPKLDSFLSFHWG

## ET

 TDKCGGPQEGYYASWGCETTGDAYWKPFSSWDFITLKRR NGKHCGNPRDFFCKQWNCVTSNDGYWKWPTSQDRVSFSYV

## Y

T C
S G GVP K QT ICRGPASHYCAKWSCVSSNDGDWKWDSTHDRATESEE NWETCGGPQHYFCWSWSCVTSNDGRWKWEVNRDVVNFSFV CHDPSHFYCPSWGCVTMAHGWSGAPNRDPYLSLQVA
 H Q H L C N R
S WE TCGGLQHYFCWSWSCVT SNDGRWRWEVNRDLVNFSFV CHNPSQFFCPSWGCETMAYGWSGAPNRDPYLSLRKT
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S G D E H D D
 S YCNHSEYYFCPYYWGCETDA TPGWWWSHPPRDRYLNVT W $\square$
 $N \square K T C G G M V S R Y C K S W D C V T S N D G Y W N S S T K G F Q Q A L R D E$ SARGCHDPAHYYCPSWGCET $\square$ A Y G WS GAPNK DPY 1 K L V V S DWKTCGGAQDSYCKTWDCVTSNDGPRRWEVNRDLLNFSFA K EKY Y C G D S G E S F C R R WS CVVTSND G D WK WP I S Q D RVVK F S FV N WK DCGGGDQDSYCKS WDCVVTSNDGSETPGRRWDVGNRDDLD TARGCHDPAHYYCPSWGCETMAHGWSGAPNRDSYLSLSFK WK TC WGA QDSYCKTWDCVTSNDGPRRWEVNRRDLLSNFSFA WK TCEGAQDYFCKSWDCVTSDDGPRCWEVNRDDLLNFS FA
$S T K G K R F P R$
$N G R G R F$ $N \underset{\sim}{L}$ R R FP FCHSWEYV TTQHQDWVPS K CHKCKR DYHCSTPGCETESDQGGH RDPFI SI QRV SAlGCQD S LS R FP STLGCQDPTNFFCPAWGCETIAYGWSGAPNKDPHLLFLSST QS HLLC
$\square H$ S DCDN■D E GYCP LDN CP H Y H S G S S R A G $\square S \square K P L P$

[^1] B B B B B B B B B B B B B B B B B B B B B B B B

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NSTRWDL PS GCKPRSQGSKGLWVDCSYLNLTVLQPTDDSWLLGRTWG FSFTQPLPRDESEFYDQEDEIKDEIAQKQEKSWVSGLSWG DSPARCTDQTSNGERDEQDKVTFTEQGKKKTKWKSGLSWG ETKGGNDKGATPGGKCNPLILRFTDAGKRTT WDSPKVWG NTYTSSTWDRTGSPKCDYLKISFTEKGKQENKWVNGMSWG NSTRWD F I WLTV VK NPNDDTWLAARPYG HPFPSGTGNSCGRSQCDLVKVKFTEQGKRDRRWISGLTWG NTPSSD IKGATPGGRCNPLVLEFTDAGKKA SWDGPKVWG $N S G P G R Y V I M E P Y R R S D C$
$Q P Y R G P W D Q D Y Q D L L G N Y V$
K V N N S P
Q H
NRSSPGTYRC
$R P Y R G$
$P L D P A D G \square S P P M S R L D Q V K V M F N E A A K D E R S W V S G L S W G$
$H P S F S S U G Q V F Y G F Y D D Q F K M D M Q V L Q P A D V G W D T G R M W S$
$Q W P N$
GANWRSVN P
PPGCKSPRYASDGNWCQFDY LNDS QPEDEGWDTGKTWG MWNHRFTKYCP DCDLVRLSFTQQGRTENRWI S GLAWG RNKQ $\square$ S CN S $\quad$ DDDYLKISFTEKGKQEQKWVNGMSWG STCPGTCLSKNPKCDIIVISFTKRGKNULPITKTPT STCPGTC PSKNPKCDVVHI SFTER PPRPYGTWRAQPSKLCKQVQI NVTT PNNTNWNYGKSWG CGHHCLRHDPYPKIECNKLVL EPDQTTDQSWMLGRTWG QPDPRDETEFYDQEDDAQVKLMFNQKATQEKSWVSGLSWG CRWHWSQTLTAKRARCTSLIL TVRRPRDSSWLSGHFWG GPYDWSGGIIRMPYGNCEQLYVNVTN NPTDPAWLTGQTWG


 $\square$ NGRRPCHP
STNWRS KPDPRVLGDPTFSESCNYVRIRFNEKSKKEGTWISGLSWG NS GPGKYKVMK LYKDK S C
NFSFVGPVPPYSNWEKDHVKDRFNDKAKKEKAWVNGRSWG $V$ SSSDCAH GSCNPLILTLN FPQDWRWLQGRQFG DKGH
K P L P PRVGDPTFS
KPTPRALGDPTCEESCNYVKDRFNRKKKQKR
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IHFTKGSAPPNCRNQCNPVQUSDTDSTLRDSSPTLNRFYG YPS R R DCKPRTCNPFTLTIMAWNESSKYWLAGRTWG $T S D R T N D A A$
$\square H$
$\square$
$\square$ FTKGSAPPNCQNQCNPVQ S $\quad$ I I T $\square Q D S S P T \square N R F Y G$ TPDQTS L S A G $\square$ T F S $\square K \square P M M \| N$

A P Q WP CQSHNCNPTQ $\quad \square \quad \square$ QDPWNDKW $\quad$ KGRMAS

[^2]

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210
220
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I QVYDGWGAPSATLYVQQVLQPVGPN LYLYQRPDRGTAI QI K LKVQQPVGPN VRYWEPGTDRGGLI RITKEI DTTPP ARLYAYGPDHGSFFTLQKRQASTARP

 AQLYMSNYDY
$\square R I A F T G K D P G A L F T D Q L Q M \square P W T Q N$ KI PFSEKDFGTLFTIQLRQNP口GP I VVDFTGQNPSTFFT QQLEVQPWSQN LLLYKPNSDLGULFT I QLETQKI
$L R L Y \square P G F D V G T M F T Q Q K K \square K P \| G P$
LHLRVGGSHPGLLFTLQLIVHPDGPN

 LQTRTDGF
i TVYYTGWDPGS ILTTRLKTSQLEPP I Q Y Q A G Y P P S 1 RLYVSGTNPGSLIMIKKEAVAIGPNV I QTREVGGDRG\|IVISQDQVHSIGPN DRDYMVSYDYGA FTVVRKVGTVGPN
 LQLQQPGDDPGGLFFIVKEPPQET
 LLLHRAGKDPVTLFSLYRQI TPLS MVYYGSGKQPGSILTIRLKINQLEPP
 LRLYRSGTDPVTRFSLTMRQVLNVGPRV


## F Q $\square$ Y A E WF K P G G $\square$ LVVS Q T $\square \mathrm{EP}$ P

VF LHKPGKNPGVVQ! IQLPVEAVGPNL 1 WLYLS S Y D Y G S F F I I K K

TQMWEPWKDRGGMILIKKEPEPVGPN $I$ QVYD GWGAPSATLYVQQVLQPVGPN IMYYGTGRRKGSVLTIRGRIETMEPPV $R \square G P K P \square F N L P V L L P T A T V A A P V$
पRYYQDGTDTGGTFSTQR
IRWYRS GPHLGGLLMI WKELALPPP

 FQLYAEWFKPGGILVVSQTDEPV
 VRFWEPGSDRGGLIFIKKVRVESPP

## LR L H L Y H Y K K G A NF

LQTRESGGDGKG\|IVVSQVLEP $\square G P N$
LQTYREYYNE I VVSQVLQ $\square Y S \square G P N$ $L$ LID GRGKDPGAMVFIQRK

WR VY $\square \mathrm{P} \square \mathrm{RDPGF} \square \mathrm{F} T \square \mathrm{R} \square \mathrm{T} \mathrm{V}$ R DPA
MGADVRGKDP $\quad$ GFFRLHLITSP $\square$ SPRL
FVLKFKNYGPGVEFTGQRRVSS
MGADVTGKDPDGFFELHLITSPSPT
$\square R \square D G T G R D P Y G \square I R \square Y R$

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898745888845888888888616 7 7 8 8 8 9
B B B B B B B B B B B B
B
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jpssm
jpssm
jpssm

| jpssm | 170 | 180 | 190 |
| :--- | :---: | :---: | :---: |


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[^2]:    lupas 21
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    jhmm

