## QUERY

UniRef90_Q5MQL8 UniRef90-Q403822 UniRef90-W1NH47 UniRef90-UPIO002C36FED UniRef90-B5KLNO UniRef90_W9RD80 UniRef90-MOT108 UniRef90-E3WAM9 UniRef90-F8QRE3 UniRef90-G3C8T8 UniRef90-MOSJW3 UniRef90-BOF3U2 UniRef90-V7CL33
UniRef90_B9A9N2 UniRef90-M4ECRO UniRef90- Q6X2R4 UniRef90-Q41723 UniRef 90 - $\quad$ BKLN UniRef90_Q5MQMO UniRef90_A9XXF0 UniRef90-A0A059BFUO UniRef90-F8QRE4 UniRef90 Q8RVW7 UniRef90-B1P2G4 UniRef90-B4FBD6 UniRef90_G7KFA3
UniRef90 Q4F8N5 UniRef90-U6C6N8 UniRef90-Q0 KkW2 UniRef90-AOEXP8 UniRef90-Q19PT UniRef90-UPIOOO2B461ED UniRet90_A9TXG9 UniRef90_P42815 UniRef90-UPIo002B4131D UniRet90-B1P2G2 UniRef90_W61229 UniRef90-Q4FCQ5 UniRef90-Q41722 UniRef90-A0A059BH32 UniRef90-B9A9N1 UniRef90-Q85205 UniRef90-G8XUS9 UniRef90-U6C766 UniRef90-R43S4 UniRet90_O8LP86 UniRef90-K7NBR4
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 F

Y
YYFQFV
FDYFQFVQQWPPTNCRVRITKRPCNPRPLQYFT YQYFQFVQQWPPTTCADSKKPCYQNPPS DFTIHGLWPSN FDFFYFVQQWPGSYCDTRQSCCYPGKPASDFGI HGLWPNY YDYFQFVQQWPPTNCKVRGKPCSKPRPLQYFTI HGLZ WPSN FDFFYFVQQWPGSFCDTEKSCCYPGKPNADFGIHGLWPNS YFQFVQQWPPTNCRVRSKPCSKPRPLQNFTI HGLWPSN FDFFYFVQQWPGSYCDTQKSCCYPGKPAADFGI HGLWPNY YDYFQFVQQWPPTNCRVR\KRPCNPRPGQNFTIHGLWPSN FDFFYLVQQWPGSYCDTKQGCCYPGKPASDFGIHGLWPNR YQYFLFVQQWPPTTCAVRKKPCYQNPPSKDFTHGGLWPSN YDYFQFVQQWPPTNCRVRTK CSNPRPLQLFTLHGLWPSN FDFFYFVQQWPGSYCDTKRKCCYPGKPAADFSI HGGWPNY DYFQFVQQWPPTNCKVRGKPCSKPRPLQDFT:HGLUPSN YDYFQFVQQWPPTNCRFRNKRPCKPRPGQNFTHHGLWPSN YDFFYLVLQWPGAYCDTKQSCCYPGKPAADFGLHGALPNR YDYFQFVQQWPPTNCRVRKRPCSNPRPGQYFTTHGLWPSN FDFFYFVLQWPGSYCDTKQSCCYPGKPATDFGTHGLWPNY FDFFYFVLQWPGAYCDARKACCFPGKPDADFGIHGLWPNY保 YDYFQFVQQWPPTNCKIRKKCSKPRPLQMFTHGGLWPSN FDFLFFVQQWPGSYCDSRQGCCFPGEPGPYFGI HGLWPNR FDFFYFVLQWPGAYCDSRHSCCYPGKPAADFGIHGLWPNY FDFFYFVQQWPGAYCDTKRQHCCYPRPAADFGQHGGWPNY
 YFQFVQQWPPTTCRLSSKPSNQHRPLQRFTVHGLWPSN
FD F
FDFFY

 Y D Y F Q F V Q Q Q WP P T N C K F R K $\quad$ C S S K P R P
 FDFFYFVQQWS GSYCDTSSSCCYPGQPPADFGIHGLLWPNY Y D YF QFVVRQWPPTNCRVRNKPCSKPRPDQDFTIHGLLPSN FEYLQLVLQWPTTFCHTKPCPTWP PPNNFT

 F DFFYFVQQWPASYCDTRRSCCYPGKPDEDFSIHGLLWPNY

 $\begin{array}{llllllllllll}K & D & P & N & Y & W T & I & H & G & L & W & P \\ P & D & K \\ P & P & A & T & F & K & I & H & G \\ L & W & P & Q & K\end{array}$
YFQFVQQQWPPTTCRVRKRPCTKPRPDQQDFT FE HLQLVLTWPTSFCHKERCDRSSS FDFFYLVQQWPGSFCDTKTGCCFPDKPATNDFS HGLLWPDN
 F DYFAL S L Q WP GT ICA S TR HCCCRSEPDRQTF T WEK LI MVQHWPATVCKEIENNC
 FDFFYF VQQWP P W O
 YF QFVVQWPPTNCRVRNKPCSKPRPLQ\|FTIHGLWPSN



 FNFFYWVTYWPGADCDSQKGCCPPPKGASDFMIHGLWPQF DYFQ FVVQQWPPTNCRVRDKQPCSKPPDQRFTIHGGLWPSN
 Y D YF QFTQQYYQPAVCNSNPTPCNDPTDKLFTVHGLWPSN

 Y D YF QFVVQQWPPTNCRVR DKQPCNPRPDQYFTIHGLLWSN
 FFKMAEQWPPTECRSNP CPT DPQGKFTIHGGLWPSN $F N Q L Q L V L R W P A S F C K G K K C E$ D Y F QFT QQYQPAVCRSNPTP CKDPPDK LFTVVHGLWPNM WK KLI LT Q H WP P TVGCKEADSC R R D S L D Y WTI H GLL WP D K


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 UniRef90-W9RD80 UniRef90-M0T108 UniRef90_E3WAM9 UniRef90-F8QRE3 UniRef90-D7TN77 UniRef90-G3C8T8 UniRef90-MOSJW3 UniRef90-B0F3U2 UniRef90-V7CL33UniRef90 B9A9N2 UniRef90 M4ECR0 UniRef90-Q6X2R4 UniRef90-Q41723 UniRef90-B5KLN1 UniRef90_Q5MQM0 UniRef90_A9XXF0 UniRef90_A0A059BFU0 UniRef90-F8QRE4 UniRef90-Q8RVW7 UniRef90-B1P2G4 UniRef90-B4FBD6 UniRef90_G7KFA3 UniRef90-U6C6N8 UniRef90_Q0KKW2 UniRef90-A0EXP8 UniRef90-Q19PT1 UniRef90_UPI0002B461ED UniRef90_A9TXG9 UniRef90 - P42815 UniRef90_UPI0002B4131D UniRef90-B1P2G2 UniRef90-W6I229 UniRef90-Q4FCQ5 UniRef90_Q41722 UniRef90_G7KFB2 UniRef90_A0A059BH32 UniRef90_B9A9N1
UniRef90 Q852Q5 UniRef90-Q5MQL6 UniRef90-G8XUS9 UniRef90_U6C766 UniRef90-Q8LP86 UniRef90-K7NBR4 UniRef90-Q40246 UniRef90_M4DJN0 UniRef90_Q9SSV1

UniRef90_K3ZWD5 UniRef90_UPI0003AFB5FB UniRef90_Q40116 UniRef90-MOZSY8 UniRef90-A8R5J7 UniRef90_Q06027 UniRef90 W5C7B3 | UniRef90_D8QQS8 |
| :--- |
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70
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 NPKRPSNCRGSLLEDSRKVYPQLRLLNKISWPNVKSGNDTEF NPTKPSNC $\square$ GSQFNESKSPK LRSKLK DDGTYNCSPDNAFNPSKVSDLLSSLRAKWPTLACPSNDGF NPKMPSNCTGSQFKKQNYPYMQSKLKDSWPDVESGNDTKF NDGSYNCDTNNPYNQSEDSDRVSRLQKSWPTLACSNGNSF NDGTYNCDSSNPFERSKISDLVTRMQSEWPTLACGDGTAF NPTMPSNCDGSQFNESRVSPRRSKLKRSWPNVEGSNDTRF NPTTPSNCNGAQFDDRKVYPRRSKLK DSWPDVENGNDTKF
 KTWPQNCNPDSRFDDLRVSDLMSDLQREWPTLSCPSNMKF
 NPWKPSNCTGTQQFK QLLSPQLQQSKLKMTSWPDVVESGDTRF YSNPRSNCNGLQFDARKVSPRRSKLKISWPNVESDNDTKF
 DDGSYNCDPNSPFNPSEVSDLKSSMQKNWPTLACGDGQKF NPRMPSNCTGSQFEWRKYPHMRSKLKISWPDVESGNDTKF

 NPTMPSNCNGTQFKRILSPDLRSDLTRSWPDVESGDDTKF K GKMLDCGSGDDYDDIPDAHMRKQLESDWPNLTSKKYQEF YSGAATQCSGSPFNANA $\quad$ S ILQPGI SEDWPN I N GNNLWL QR DMP DNCPAKEYKS DT DS KK K K L L E E H WP D L T S N N G S E F ENGKWPQNCDSSDDESEISDLISTMEKNWPSLACPSSDGF NKPIVRCRNGAPFDNRKMNKI ENGDNHYWSN KCPPTDGM SEVVCNRSWPFNPKEDKDLLPDMRRYWPDLLHPYSHQF GPNSVVYCNKN FDRTQI SSLENQLDVVWPDVVTGNNTGF NNHTFNCNGNSPFDENQILDLLMSDMQDWPTLACPKNNGF YPWKPSNCSGSQFDGKVYPQLRSKLKKSWPDVESGNDTKF TSTRDNFCK I VKYNKIEDEHKIDALEYGWPNLTSKEDQVF KKCWPEFCNSEPLQLWED KDVLKELDANWPTAKKGGKSIEF DDTWPSCCRRTQFEMDK LDPLKEVVLDKYWPS L Y C C S K S GTC
 YSNPPSNCNGPQFDARKVSPQRSKLKDSWPDVESGNDTQF
DDGTWPQFCDNPFELSQII SDLRRAMNREWGSLDSSNSVEF WIGGPNFCNKSAEFDPDQLQALLDRMNTYWGDLEGDAPQDD NPTMPSNCNGSQFEKKVYPRLQSKLKDSWPDVESGNDTNF

 NPKMPSNCMGSRFNESNSPKLRSKLKRSWPDVESGNDTKF NVGPPTYCNSVPFDNGKTKAVINDLSTCWPDLDRGDNTNF NPKRPSNCAGSRFNFTKVYPQRNKLK $\square$ SWPDVVEGGNVTKF NNGTWPAFCDQTFD DSKVVDLVNKMEKKWTWACPSNETK L NPTTPSNCNGPKFDDRKVYPQRSKLKRSWPDVESGNDTKF NYGWPSCCRPTRFNDNKILMLMP LLEKYWPSLYCGSSSTC Y SKWVANCSPKRFSNSLAPKLEAKLKDSWPNVENGNDTEF RNGPPEKCKTTALNSQKDGNMTAQLE I DWPNVLRSDHVGF S STTPG CNRSWPFNLEEIKDLDPEMRTYWPDVI HSNCSHF NPKPVTKCNSDPFDID QLSSLNDDLNSYWANLKCPSNNGY NPKMPSNCAGSQFAWRKYPHMRSKLKISWPDVESGNDTRF STGRPKYCNPSNVTSHMVKNDQAQLE I DWPNVDRTDHDGF NPTMPSNCIGSQFNESKLYPHRSKLKRSWPDVEGGNDTNF
QTSLQSSKCVTKFNKAMISTLEAQLNDSWPNGKGQSNELD K GTILDNCNPDAKYASVTGGKFVKRNKHWPDLISQNSQGF N G P D P K D C S T T P L N S T K L K N I K A Q L E I I WP N V L R N D HV T F G E E R GFPSNCSAVERPLTRNAVEAAGEIMPSEGLAR



| QUERY | Y LVQV VACFA Q G S T L | $\text { D C T R D T C GANF }{ }^{180} \mathrm{~F}^{190}$ |
| :---: | :---: | :---: |
| UniRef90 Q5MQL8 | F L HEVVFCYGYNALKM | DCNRTACKNQV |
| UniRef90-Q40382 | L Y VYICVDGSGSNLI | ECPRGKCGSSIEF |
| UniRef90-A7ISM3 | L HEVVFCYEYNALKQ। | DCNRTA |
| UniRef90-W1NH47 | L Y Q I Y M V T T S S S 1 | ECPRGGCSSQVEF |
| UniRef90-UPI0002C36FED | L Y QVYLCVD TS GQDi | ECPRGRCASTVQF |
| UniRef90-B5KLN0 | L HEVVFCYGYNALKM | DCNRPGC |
| UniRef90-W9RD80 | L Y QVYLCVDTS S S | E C S GRACGSEIIEF |
| UniRef90-M0T108 | LYQVYLCVDTSAAK | ECPRKRCGSEIEE |
| UniRef90_E3WAM9 | HL HEVVFCYEYNALKQ। | DCNRSA |
| UniRef90-F8QRE3 | L HEVVFCYEYNALKLI | D C NR |
| UniRef90-D7TN77 | L Y QVYLCVD T S GKNi | E CPRGKCGSR】EF |
| UniRef90-G3C8T8 | L HEVVLCLHYNGRAL | DCNNPSCKN |
| UniRef90-M0SJW3 | L Y Q I Y C CVD T WGKELI | ECPRSKCSSRVEF |
| UniRef90-B0F3U2 | L HEVVFCYGYRALK Q | DCNQTACWN |
| UniRef90-V7CL33 | L Y QVYLCVNTSGSDFI | DCPRGKCGSNIEF |
| UniRef90-B9A9N2 | L HEVVFCYEYKAKKQ। | D CNRTACWN NV |
| UniRef90-M4ECR0 | L Y QVYLCVDR S A S GLI | E CPHGKCGAQLEF |
| UniRef90-Q6X2R4 | L HEVVLCYDYDA $\mathrm{V}^{\text {R L I }}$ | DCNRTACGNQ |
| UniRef90-Q41723 | L Y Q I Y C CVD S A S GFi | E CPKGSCGSS\E F |
| UniRef90-B5KLN1 | LL HEVVLCLHYNGRV | DCNHSTCKNN |
| UniRef90-Q5MQM0 | LLHEVVFCYEYNALKQ। | DCNRTA |
| UniRef90_A9XXF0 | LL LEVVLCYEYNALKQI | D CNRTACWSNV |
| UniRef90-A0A059BFU0 | I YQI FVVCVDTSGSELI | ECPRGRCASQVQF |
| UniRef90-F8QRE4 | FLHEVVFCYGYRAKKQ1 | DCNRTACWNNV |
| UniRef90_Q8RVW7 | LLHEVVFCYDYHAKKQ1 | D CNRTGC |
| UniRef90-B1P2G4 | LL HEVVFCYEFNAL | DCNRSRCGNQ |
| UniRef90-B4FBD6 | L Y QLYFCVDAAGDSFV | DCPGRPCGNR |
| UniRef90_G7KFA3 | QL Y Q V Y L C V T S G D F | DCPGKACGSKIE |
| UniRef90-Q4F8N5 | L HEVVFCYDYKAKKQ | DCNRTACWNNV |
| UniRef90-U6C6N8 |  | ECPSEKCASSIVF |
| UniRef90-Q0KKW2 | L Y QLYFCVDSSSVSL | DCPRGKCGPQ। ${ }^{\text {d }}$ |
| UniRef90-A0EXP8 | LLHEVVLCLEYNALKQ1 |  |
| UniRef90_Q19PT1 | LLHEVVLCYGYNALKLI | DCSRPGCGNQ |
| UniRef90_UPI0002B461ED | LYEIYLCVDSSASNF | DCPNSNCASSLEF |
| UniRef90-A9TXG9 | L Y QVYı CVAK G K T LV | ECPRKPCQGSVQF |
| UniRef90-P42815 | LYQI Y L CVDTSASKFI | NCPHGRCDSRVQF |
| UniRef90-UPI0002B4131D | L Y QVYLCVDTS GSEF | K CPRTKCASTIQF |
| UniRef90-B1P2G2 | L HEVVFCYEYNALK |  |
| UniRef90-W6I229 | WL HEVVFCYEFNALK Q | DCNRTACWNNV |
| UniRef90-Q4FCQ5 | LLHEVV口CYDYKAKKQ1 | DCNRTACWNNV |
| UniRef90_Q41722 | L Y QVYQCVDRSASNF | KCPGRACGNKVEF |
| UniRef90-G7KFB2 | LLKVYMCVDTSGSNF | ECPGGSCGDTVQF |
| UniRef90-A0A059BH32 | L Y Q Y Y C V P S GS DLI | KCPKGPCSKEIEF |
| UniRef90-B9A9N1 | L HEVVLCFDYNALVVI | D CNRTACWNNV |
| UniRef90-Q852Q5 | L L HEVVFCYEYKAKKQI | DCNRTACG |
| UniRef90-Q5MQL6 | LLHEVVFCYEYKAKKQ1 | DCNRTACWNNV |
| UniRef90-G8XUS9 | L HEVVYCYDYDALKLI | DCNRTACWNNV |
| UniRef90-U6C766 | Q। F Q V Y I CVD T T G Q N I | ECPTNKCPSSINF |
| UniRef90-R4I3S4 | LLHEVVF |  |
| UniRef90-Q8LP86 | LLEI GI C F D R E | D CRRR |
| UniRef90-K7NBR4 | QMHEVSLCYNHDASAVV | DCPANKCDNYFVW |
| UniRef90-Q40246 | ELLEIGILC F NREGTTVI | A CRRR | UniRef90_M4DJN0 UniRef90_Q9SSV1 UniRef90-K3ZWD5 UniRef90_UPI0003AFB5FB UniRef90_Q40116 UniRef90-MOZSY8 UniRef90-A8R5J7 UniRef90- W5C7B3 UniRef90-D8QQS8 UniRef90-B6TGK1 UniRef90 UPI0003F13DD3 UniRef90-R4I3U3 UniRef90-D8R484 UniRef90-B1NP06 UniRef90-K3ZWC3

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LYEI YLCASTDGKSFIDECPKLSCPDAVVF
LLGQI ELCFSKDLQQLWNCSHAAEPA
WL LIE I VMCFKDDGVTMI NCQPSSCPPNFIF
$\square$ L
ELLEI ALCFDPQAQNVIHCPRPTCNSKG
LYOVYOCVDRSGENLIDCPQGNCKNKG
QLYQ Y L CVVSKENLEUTPCPRSSCHSRVEF
I E EL R L C F DKE LKKPRDC

QLYQLYFCVASDASTIIDCPNSKCTTQVEF
YLSEI R I C F N K S L E L I D C
LL H EVVF
L F QVYLCVDREVK QLIDCPRSKCTDRV
L Y E Y Y C CVDK DAK SFl D CP N L S CP A EVVLF
QLKEIVLCFGNDGTTLIDCPSNTCTSQPKF
LL HEVVF
$\square \mathrm{HE}$ L RLCVNKAGKQFEKFQRSTCGCS
LL HEVV
$\square$ L Q I Y I C LD N Y A K E F VECP
C36FED

## UniRef90 A0A022RZY4 UniRef90-UP10002BCE2DD UniRef90-Q8GS10 UiRef90 CPIOOO32A5AB6

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UniRef90 E2RZ5 UniRef90-A0A016S792 UniRef90_BOFM99 UniRef90-Q8H971 UniRef90-H3B3E6 UniReffo-B8XY56 UniRef90-A4PHV9 Uniref90_-D3TLW
UniRef90_U6PS9 UniRef90_HOVB46 UniRef90-A0A023GDW8 UniRef90-P42814 UniRef90-UPIO0047453DC UniRef90-BOUTF5 UniRef90-Q9AUD4 UniRef90-K7KG07
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UniRef90-B8QEV8 UniRef90-UPI0003B478CF UniRef90-Q7M456
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 FDVLIFTQRWPPTVCYTWKHTCSFPKEKDEWTHGGUPSH YFQFVQQWPPTNCRVHKRPCSNPRPLQYFTVHGLWPSN FDFYVLALDWSPTYCERRNDVQCTPGRGLGFVVHGLWPQY

F H F
FQFVQQWPP TYCRIQKKCCSN
WKKLIMVHHWPPTVCKEVQSNC
YEYFAMAQQWPPTLC VNGGCTDPKDPPDYWTV HGLL WPDK FDQMQLVLTWPPTYCHEKSCTIPARIRTNFRI HGLLWPDN

 $F D Y G M M L T R D Y P T A D C R A D P D S C E D P A E T P D W S I H G G L W P N Y$
 WTKLLTHHWPRTVCMESSCK WDLLIFTQQWPATTCYHWREQCKLPNIKEFWTIHGIWPTK FDYLMLT RIFPTAVCRADPDSCEIPDDTPEWSHHGLWPNF
 FDYFALSGQWPGTYCRSKNACCRGSDAPTQFTIHGLWPDY
 FEYFQLVLTWPPYFCHFNN CNRPTPDNFTVHGLWPDN YDFFMLSETWPATYCGIKNRLLPCAKQPNTFTVHGLWPQN FDYFQLVLTWPASFCYPKNKCQ R R S N NFTI H GLLWPEK EYMQLVLQWPTAFCHTTPCK RDPNNFTIHGLDPDN

## F

 FDF Y VLSSLSWSPSYCADNGNQQCGTGRNYGF VVHGLWPQY


 FDYFMLAQTWPVGFCKDNTCVSPDPTPIKKFKIHGLWPNN FHHYKLAQQWPPT CCRINPTWRCLSQUPNFFTVHGLWPNQ FDVLIFTQNWPVSVCKQKTNTCSPGVNDSSWTIHGI WPTK
 $F D Y Y V L S L S W S P T W C A T E G D P Q C E P G A G Y$ GW L L W G GLL WP Q Y



 F D A LIF TGQHWP Q TV C Y T WK NTC S L P P K EHN E WTII H GI WP S Q
 FDYLL LARMWPATFCESTKCDQ P T YN LIFTIHGLLWPNS F DF FVV T QQWPPAVCQAHGHDCSDPS DVK GWVV H G L WP S R WKKLI MVH H WPMTVCNEKNCE HPPDYWTIH GLLWPDK F D Y WKI S QF WPR GLCHRNPSCLRTKPKPLEFTIHGLWPSN WAMFALRQQWPAGFCEVN NACDTKSLLNTETIHGLYP YN Y T S FM F VQQQ WP E GF CE Y Q G G K R K CK S R P H K F T


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## $\stackrel{s}{s}$

 NMWLE ECNRSWHFNLEETKDLLPDMKDYWPDVTHPPNHSH AQCCWPQYCGGDYDDNALQDLEKQLDQKWPSLKQTNLEEF KMGPQFCNKSLSFNMTALKPGESQLQEKWDDVGYGRESSSNPTRPSNCNGSKENFTKVYPQLRKDKKSWPDVESGNDTKF
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GE PENRTWHF SSGRPKRCSKTPVQSQTNTNKKNALDDRWPDLKYSKMQDF NGSDPKKCKTTILNPQTUTNLTTQLETIWPNVLNRRNVRF QHVMLNNCAKT FQK\TNVRKIKELDDRWPDLEATRTQSF RNGSYPQFCPRKFDGKLIESIEERLTKMWPNLYPKTAESF
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 DRGYPSECGAFPRPPSRQALAEAEGVFPTEGLAR WSKPLQNCDPATIDGVLDIEKRSQLDERWPQLKHSKDDGM HIGPQPASCSNKFDKRIITSSKSALETGWPNLNTQNDMRF VNGPDPENCKVKPTPSQTDDTKPQLEDIWPNVFRADHESF VSTTLNCAAKENFKNDEDDTKKDDLYKRWPDLYCKQHQNF NDTWPACCTRESFNEKEISTLDDALEKYWPSLSCGKPRAC
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 WQK QWDKHGTCSSPTIIDKNHYEETVI RMYEKQNVSYILSK


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 WE HE WK KHGRCSEALLKKQDYFRTALAFRKAFDIVGGLLNQ WQFEWTKHGSCSENEFPKLEYFQLGLDNYAKNNLMDILTK WK Y Q Y Q K H G S C C Q TKY K QI P Y F S L A L R L K D R F DLL T T L R T WK HE WDKHGTCSSTLDSELKYFNQGLEWSKQYVLSDLLEQ WA HE WNKHGTCAESLNSELKYYNMGLAWSQKFMVHDILQA WRYEYTKHGTCAY QL P QFYDYFYQTLSLRKRMKI YDNLEN WK HE WLK H GTCAP DL N NEVK Y F DK GI NWR QE Y LI S DML G H WKYEWIKKHGTCAASLNSQHKYFSKALELYHKADLDGVLKK
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 H G I P GK S Y AVD KI E EA: R D A TQQAYPNLNCDGDPQ KTM
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 F K A

 ANI NPDGRGRTRKDI EDAI RNSTNKEPKLKCQK KKNGII



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FDYYVLALSWSPNWCDDRDAPECAPGAGRGWT HGGWP FDFYVLSLSWSPTWCADNRTQQCRRGENNGFIVHGLWPQN T YFQFVQQWPPTTCRपSSKPSNQHRPपQTFTIHGLWPSN FDFYVLSTSWSPSYCAAEGGOQCDADRDYWTLHGLWPDK FDNYVLALSWSPDYCASRPDDTQQCTKRLGFVLHGLWPQY


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UniRef90-ВЗЗкк89

VD
50
ECNRTWHFNVTE|I K ${ }^{60}$
70 PDMRQYWPDVLHSNRTQF ERGYP DF GFSSPDFCPRRQSD $\quad R V P E A L G R Q Y L D L I P S M M G L$ NGTE



 Y S WP LSSDCGY DTLLP DIDT DK S L L K R L D R R N WP DILI R K P D K T F


 K S Y N L R N C Q N DQL DLDK KI S QL EN KL N K DWP S L K K S Q N Q D F Y S R P I GRCTGNGFLQQNITSI RKELDEDWPSLVISANPAV ERGFPESCPGAPK R\DRQIAVSMEDIMPSHNLV
 ATTNLSSCSNTPFDMNQLGDAT RLMMQWNNDRCPSKNGQQ $N \square S W P D L K Y G N N D K F$

 NRSWPLYNCQFDFD DPEDQKFRQKL DVIDWPDLDKRDPEQGF
 EKGYP Q DCDR S
E R GWP S D C R T D TRDPS EKGWP ENCPTP ERDPS GSRRRETRAMAD DMGS GGLA
 TDGPAFCNKSADFDVSQLSPIVEQLEAHWVNVKNKPDDSLL
 S SMRS SWPTLDACPTN DGF
E T G Y P R
CRSAEAPPS
EAQM CNRDSWPADYSEDKDDLARMMNKWWMADVMGTGGLA

 N N S Y P A D D GSYNCDPDSEFDPSKNYQPDSPIKEVNFAATCW ERGYPS DCEPGAQTPSRDA LESAAAGLY
 $N N T Y P S F C K G A S Y S S S A D Q D L L V E L D Q D W P S L F A L D N N D F$


## ,

 EGP QLLKKYCKPKLTYNYFDKMLNDLDKHWDQLKARKDQPA VTNDRPVPPYNPTTNKCTNVTPTAPGQILVPLKPTTNVAF K Q S Q P SVCCSHEVLNQAD DK L LT PMLT IPWPSVTTTMNNQF ERGWPE YCRTEARDP ARAR ARETMAMADLMGTGGLA AT T DNRCSNKAPFDPNEDTD I P GLLKQYWSNDKCPSNNGQ WP DPRDCPPATPFDLHKLNPILEKLRTEWPDFLSTMDPDF RNGGWPQNCSTSREP DEATVTQMLPDMPSRHL
 XXTMPSNCNGSQFDRKVYPQLRTTKLKKSWPDVEDGNDTKF

 $\begin{array}{ll}\text { H R GWPS Y C R T A E A P P S } \\ E & \text { K GYP D F C }\end{array}$

 RHGHPSNCQGNAFQANASSSELRAQLARKWPTYKNKVREST
 VK D D R PVPPYNPTTNKCNQPIRDKLNKLWPSLMKNTNEDF KEGPEECNKTAEFNSSAVAPLLGELQMYWPNLYDTAANGF HRGWPDHCQTSERPPS RAMMAQMADDMGTP GLA ARGGWPKSCAPRVK LS
 ERGYPQNCPLGASFPSRIALQNASGVYPSESLAR
 $K V G R D P E Y C K T K R Y R K D Q R L E P Q Q L E D I D W P N V S D R K A N R G G F$

 WTVPLFDCADNPNNAY DNPRQDDRRDYYWWNYKLPSHQRW EQ GYPSACQPSAPAPSWF LLRETGDLY PDPGL
 NPTTPSNCNGSQF DARKVSPQRNKLKRSWPDVESGNGGTKF ETGWPS DCRTTASDPS R R AMTRAMTDDMGSAGLA
 YSNPPSNC I G S QF K G L L SP QLR S KL K T S WP DV EG GN D T K F $\mathrm{G} \square \mathrm{N}$

CNSSWHFNSSLDEDLLPDMERSWPDLLEETSSARF
E K GWP E Y C D D D A R N P S RP E DD A I S D I IP S D GL I R
TNGYPESCSTERLDNRVKDQFSVIV
PSPF


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UniRef90_B3RK89

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WTSEYKKHTCASPISNEHE IGRRWRARGTCAAAALDEHG
ARHEWRKGVCSGKSPT WRHEWLKHGTCAAAVLTQNKYFADVRRARDAUAIPPSFQS WDHEWTKHGTCSGPITTDQYDYFAASLKWLQQHSMADVLNE WAMEWNRHGTCSENVFNQQNYFNLAKTLMFTYDLTYIFFN WKHEWDKHGTCADSVRDLNNYFQTGLKLLNKYNMIDVLTK
 VA HQWRKHGSCS GGLPQNEYFATVRQAYQHVNIPPSRRS WRHEWEKHGMCSDYPDKPHDYFTAALDLTTTYNP LEG WKHEWRKHGTCS TFQK $\mathrm{S}^{\mathrm{S}} \mathrm{PF} \mathrm{FHGVNLWARENTTADLEQ}$ W YQWKKHGRCS GLPARDYFALTRKAAARDALPETLRQ WKNAWKKSGACS GLKEKDFFEKALEFRSRLNPLVRLQK WEHEWYKHGRCAVETKDELGYFNTSLNDHWKLPTLKLLAE DEHEWQTHGACS GHDPKEYFARAEDAFSRVTVPQALKT WEGEWNKHGTCSEQTLNQMQYFEVSQDMWRSHNITEDLKN WAMEYEKHGTCAKFS SQNTYLSKACDLWWEENKIKDIFAK


 WGYEYKKHGSCANSMDSVTKYFTKTLELLNKYDVGKALEK DGHQWRKHGSCS GDTQRGYFSATRQAFERDRIPPKVSD WRDE WERHGMCSDYGDDPGSYFTTALNLATTNNPLKGL WEHEWFKHGTCAASTANEYLYFLQGLTLYKEDNLTNVMAE W YQWKKHGTCS GLSAPAYFALSREAYEAVNRPEVFRK W

WEKHGIC WKHEYLKHGTCAVSTKDLSTYCAKGLSLHKHYDISSSFAN WRKQWYKHGSCASPALNQKHYFETVIRMFEKQNVSRLLSM IGHEWRKHGSCS GLSQKDYFTVLRAAREKVTIPSALHS WKHEWEKHGTCAAQLNSQRKYFGTSLALYYHQLDLNSKLLK WGHEWRKHGTCS GLGQEDYFEVLRAAREQVTVPPEYTR ARHEWRQHGSCSGKTPS AYFDDVRRARDMVTIPEIFRG WQHEWEYHGMCSDYPDKPYNYFDAALVLATTYKP WEGEWNKHGTCSEQTLNQFQYFERSQDMWRSYNITEILKN
 WEGEWNKHGTCSEESSNQMQYFERSHEMWYSFNITETLKN WEGEWNKHGTCSEHTLNQMQYFERSYAMWMSYNITGVLKN WKYEWFKHGTCASSLNTQHKYFSKALELYYKKVDLDGLLKK HQWRKHGTC TGLAADGYFDTTRAAFDKVTVPQF IRHEWEKHGTCA GLSQAGYFALSAQVKNAVKIP
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130
140
150
160
VGIKPSSTYYQMTA\|IKEALLTSVYGVITPKVQCDPPEFGEVQ

 SNIRPRRQQTYQPQQIMMAFADDLPSKLDVVCS DFRGKS


 K S MRP GDRVDP QEVARA I SKVTNHEPEVVKRE G $F G \square E P$ S N TY Q $\square S D \square K K T L C S W Y G V I P K$ L Q C LDP P E QE K A Q LDAH RTLDPDDAERAFLAAANPALTGEGVAVTCDR

 S GIE P DN K Q YEK S D I EAA I T K S FGK PA L R CNLNLK Y L L Q LDKRGKAAPDTVE

K A F R L A N P GLL K E D GLLAVVT DR G



 G K LY P G D S Y D L Q QVE S T LTTKF DK K V TVVVKCPNG



 Y RI SPHDRRQYDTIDNLMNVLEREFGYNGSANCIRKPGRRGM A H I Y P R GRKY L VGHMVSAI EFS F GAMPS IVVCKNGSV


 SNIYYPDTQPVNI QSFSDAIQHSFNAKPLVQCYKEN


 MAGNRRVDPMLVEKAFVTANPGMKPDGDSACNRN HR IV V GS SYTFEE IF DAVKTVTQMDPDDKCTEGAPN





 SGILLPSNNP $\square$ DTKFFMDQLAASK $\quad$ GKK PELMCHKGD
$A G \quad G P G T D P E P V E C N R D E S G N S Q$


 $S N \square R P G G Q Y N V R E M A Q A \quad L E R A F G K N T Y L Q C K T N S Q T H E Q$
$G E A$

 $\square \mathrm{N}$ NTLYFSARDIE QMFR QSNP GLDPGDGDAVIDCNNGP
A G Y VP
VVI TEKYPLGGIISAIENAFHATPSLSCSRGAV P A L T T Q T S T S IDDIRAFIA A NPRLRPGMI GVSCK Q S G GVVYE G N S Y N S D A F I N A L S K S L L G V F S P A L E C D K D K D G H ATIEPE GKNRT LLLEI QNAIRRAGTNNMPKLKCQQKVNGMT L L IIK P S
 DI $\quad$ QTRYP D GA G WVNLT GN E I KRRFVEANPGLRADMLTLTRGS
 AS IVVPSTQTWTYSAVVAPDK TATKRTPALLRCKYGKKT

 ASIVPHP
 S QRRVSAADMRAAFLEANDGLPADGVAVTCSSG
Y $\square$ QPA QPFKTS $\square A Q L Q \operatorname{SAFNKANPGIPQTAVAIACS~GGGR}$

$A N I V P S D N R Q Y M S D I K Q A I G Q Q Y N T E P \square V D C L Q G$


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Y Y L S WAP SWCRTRDSNSCDPGRRTGFTVHGLWPQY F D Y Y V L A L S WS P SWCDSRGSPQCDGSRDLGWILH GLLWPQF WD H F I F S M H WP Q S DCDVERNENSCDPRETTTSWI I H GLLWP TN F D Y Y V M S L S WS P E FCDTHPK EK QCS LGGGLVLHGLWP Q Y FDF YVLSLSWSPGFCATRSYTQCES GANLGFVVHGLWPQY $F D Y Y$ Y L S
 WS QLI L T QH WP Q S F CMS Q WS EKHNCT DP S S V K S WS I H G L W

 F DY Y V L S L S WS P NWCDAR DA DQCDDR H DY GWTLLH GLLWP Q N FS H Y TLL A V Q H G A G DC Y E N P K C S S A LDP Q Y P E WT I H GL WP S N
 FD Y Y V L S LL S WS P T WC DAARGAA Q CAADAA DT G WVL H G L WP Q Y FDYYVLALSWSPNWCDARDSAQCDARHDHGWUMHGLWPQL Y D Y F QFVQQESPF VF CK IT GK GCNDLP LDPR DFTIHGLWPSN
 FTQQQ QLAVVCNSNPTP CKDPPEKLFTVHGLWPSN F D F Y VLALLSWSPAYCELNRQQQCGDDKSYRFIVHGLWPQR F D Y YLL SLLSWSPAFCATPADQCGATAPARGFVVMGGWP Q Y FDF Y VLSLS WSPTFCLTHPGNEQCTGKGYGFVLHGLWPQY F D Y Y L L T L S WS P TF CLLTHKD DAQCS GKGYGFVVLHGLWP QY
 F D F Y V L S L L S WS P T Y C Q D R GR S Q C G GP R P F A F V V H GL

D Y IM F VQ F WP GVS CTATNKCT\PK GS SYGFHVH GFWPQL NYLMFTQQWPPVSCLNWKHTCNINDQDDNWTVRGISLDK
 F D Y Y L L S L S WS P TF C L THPENEQCS GKGY GFVVLHGGWPQ Y

## Y D Y M I L S LR WP GTRCNGKPTCCVDPNPEPDFLVETMETYD

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F DYF L LTTLSWPQTTCWANTTCNPCKRLSDSWTLHGLWPNN FDFYVLALSSWSPTYCATAGRNQCRAAKPHRFVVHGLWPQY F DLY KL SLLRWP P S E CNDGQLDK CTP TVLN Y WVI H GII WP T Y
$L L L T Q F W$ DTNP VT GPVDD WTI H GLLWPD H
 $V C N F T P T P$ CKDPPDKLFTVHGLWPSN FD Y Y L LT LS WSPTFCLMHPENEQCTGKGY GFVLH GLLWP QY F DYYVLSLSWSPNWCETRGADQCDARHDYGWVLHGLWPQY F DF YVLALLSWSPSYCEAK S QQ DQCGGRPYSFVVBGLWPQY


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F D Y Y V L S L S WS P THCAKN Q GDQCGVERKF GF IVVHGLLWPQY
FAFYKLSLQWPPSTCTSAPPQNCLGLVPGQFTIHSLWPQD



$F T I H G G W P S N$
FDFFTLSSAWPKTVCQTEKLYCNNTLDVAGWTIHGLWPSR
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F D Y Y L L S L S WT P TYCARDKNGPDPDQRKYGFVVHGLWP QY LKFVLQWPPTFCAAPPGRCKEPQLQHNLTLHGVWPAD $F D F Y V L A L S W S P S Y C E G R S Q Q L Q C G G R P F A F V V H G L W P Q Y$ F DF Y V L S L S WS P SF C A S R S Q Q A Q C G G R P F A FVVVH GLL WP Q Y FDFYVLSLSWSPSFCAEGRSQQCSGRP YSFVVHGLWPQY F D H Y V L S
L

CKDPPDKLFTV HGGLWPNM
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F D Y Y VLS L S WSPNWCDARNA DQCDARHDYGWTLHGLWPQY QT QFWDTNPS

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W YQWRKHGRCS GLSASTYFDETRRATTKTQ\|PELFSR W YQWQKHGRCS GLSARKYFALARRAYDAVNRPGLLRQ WKHEWKKHGTCAESGNTARKYFNVTLSAGEKFNDASGLAQ ARYEWRRHGTCSGKSPT DYFADVRRAREAUT TPPAFQT MMHQWRKHGTCS SGGNATDYFAKLRAAAAKKAGPDPLKA
WKHEYDKHGTCAQSEKLFEAYFTEVMKVFDSVDVAGGLKS WKHEYDKHGTCAQSEKLFEAYFTEVMKVFDSVDVAGGLKS
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f WRYQWKKHGRCS WRYQFTKHGTCSP C
W HKKHGRCS WNHEWRKHGTCAA
$W$ YQWKKHGSCS W HQWKKHGSC WEYEYNKHGKCSDHGLSAQTGYFDLSRQAYDVVTRPAVFRK WKHEWDKHGSCS A GLSAEDYFALSREAYGRVTRPELLRER WNKQWDKHGTCGAKSGGLINYYNTTDTLFKKYPDQSWLSE DQHQWRKHGTCS GGLPSSDYFSKTIRMAFEKVRISPETFTK

 LD HE WAK RRHQWKKHGTCS GLGAMGYLDASDKALGAVKIPQKLQP VRHEWRTHGSCATPR TRDYFASIVQAVQTVGTAADLRP WEAEWKKHGTCSERGLEPVDYFELTRQANEAVRIIPDKFVD PMYEFDKHGTCAYSVYTGEDYDKTVMDLRKRVDVWKILQD WAHE WEKHGTCFPMLKTQLQYFQQALKWIKQFNMYSULKT $\frac{1}{M}$ YNEWDKHGTCS GMAARAYFETDRKARAAVKDP AD
 WKAAWCTYGNC TSLSEVNYFGRADQLRARVDI LRALGS WEGEWNKHGTCSEERLNQMQYFERSHNIWMSYNIAEILKN W HQWKKHGTC TGLSAAAYYQLSREAYGRVVRPAIFRK EWNKDGRCSEQTLNQFQYFERSHAMWGSRNTTNI ZKN WNYEWLKHGTCASATNTPEKYFSKALNLLDEDNMTTLLEK VQHQWRKHGSCS GDTPAAYFEKTRQAFGKVVIPAAFSS WDHE WKFHGQCSDYPTDPLSYF NSALSLRRKNDLAG WEHEWGKHGTCDSPTQEVPDFFDKAVEDFKTLPSYEWLSA WEHEWNKHGTCZSTLETRCDYFEKAAEMFEGLDTYKVLAA VIHEYRAHGTCS GLNPMQYFALARRLFDGINDPERFNN WRKQWYKHGSCASPPLNQTHYFDTVIKMYRKONVSYIGSK MNHEWSKHGTCS GLGAMGY WHQWKKHGTCS
D F

NEWDKHGTCS
YQWQKHGRC
T
 YQWQKHGRC TGLLSSRDYYDATRQAYESLTIPEVFDD HEWAKHGTCS GLLGPTRYEDATAAALATVQI PQQLQP WE GEWNKHGTC I W W HQWKKHGTCAA
W HWK
 A A D GLLTATD
$\qquad$ GLEARYYYALSRLAYEGIERPDLLRR WREEWRKHGMCSDYPDKVTDYFAQVRKAFAKVKIPEALQS WKHEWDKHGYCTSE \VPDVQYFNGATTFARRLDMLKTLEK W HQWRKHGACS GLSPSDYYALSREAYEQVNRPEVFRK WKDVWCTYGTCSS LNQSLYFDRALQLRKKVDPLVNLGS WK HEWKNHGLCSDPADKPVEYFGATLTLAQNYNYDP LKKG WEGEWNKHGKCSEQTLNQMQYFERSHEMWПFHNTTKI LKN WRHEWNKHGTCANNTATEFDFFKKADDVFKKDNISRVMKN WEGEWNKHGACSVEKLNQMQYFERSHDMWLSYNITNILKN VIHQYRKHGTCS GLGPEAYFDKSRELFRSDTVPDKFRN WHHEWSKHGVCADSTSNELDYFNISLALKSRVNLLSRLES WMHEWKAHGACGGTTAQV YFNRINNMLQKGNLFNYLKT WEGEWNKHGRCSEQTLNQMQYFERSHEMWNSHNITEILKN MMHEWTKHGTCS GLNATDYFAKLRGAAAKVAIPEQLK WKHEWRAHGACGGTTPQV YFNTI NNMLQKGNLFNYLKT IYNQWDKHGTC TGLPQRSYFEQIRKARAAVRVPPDFID IYSEWDKHGTCS GLGARAYFETVRKARAAVKVPAEFLD RKHEWEKHGTCHPDNLTQNGYMSKVGNLLNQYNYYKILAS $\square Y N E W D K H G T C S$ GMPAKAYFETVRKARAVIKIPSEFLE HEWRKHGTCA GDDPTAYFDKVRRAYQAVTIPEAF WEHEWATHGTCMSTGAEAVAFFQTVVKLFQTLPTFTFLSN WNREWNKHGACGYPTDNDLHYFQTVIKMYQKQNVSD\|LSK WKHVWKLHGMCSDYPDNPFSYFRTAVSLGDKYIDPDFKG DQHEWDTHGTCS GLSQDEYFTLVERVRRKVAIPTAYQ
 WKHEWEKHGNCSVSVLPQKKYFNANLLLKDKTKILETLKY HQWKKHGTCS GLLSARDYYTAMREAYGRDTRPAAFRR WEHEWSTHGTCSPKGAEAVAFFQUVVKDFKTLPTYDWLSA YFHEWEKHGTCAPAGDSEFKYFYQGIEWSEKYNMRDVLSA STYQYDKHGSCSLTTYNSEDYGNTAV NLYEKVDTWKILQE

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 VG PSEKPDTSSDLKNALSGVTGKTFQFHCLRDKKTKQF
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 LTRRGRISPD RAGAEAFAAAPGLTREGMASCNRG TTAEKDRVSDLKRYFPVPPQ ANDLPDGSKWD AKDIVSLERESNPRMGNHGLAVICKGKV
 TAPVKIRVTDLKRYFDAPPQADF VT VKDYLVSPNEVEAAFDAA NPGLRRDADASCDSR ASVVPHPQTWTYLDUVSADKAGTQTTPGLRCKRDKNNTQ TYSYVPNQQYLLNETRDKI AKMYGAPPAFTC DENG SGMEPFDNPVLAHEDETAUQKVLNVKP DLECEYTKTNNSY
 AQTVPNTQTWKYSDIVSATKTVTQRTPSLRCKRDPRTNTE KAII PETKSYSLEDIEDALVPKIGFSAVVECTTGVLSREY ASIVPHPQTWKYSDIVSPIIKTATGRTPLLRCKYDKST L DERKVMRPASVVED

LTRTVKLPASVVEEAFLKANPGMEPDGVTVGCKAAQDQ AQUVPNTQTWKYSDLVSPIKAATKTTSLLRCKRDPATNTE VNUQPGNQYDYYT LVDAISDGLGVKAQIGCRKNPGTTDQ TRIQPREEPYQAKEVVDAVKQLLGATPEVTCNTHRPSGM\| AGUEPHPKTYTLRELQDALSKSHGMEVTLNCRDSRLLEVW ANEEPKGEKRTRVDUENALRSGTNMVPKMKCQTN NGGRGT

पD K AVKLPARLVEEAF LKANPADEPDMVTVTCADG VA EPKMVAPDEDED AFTKANPGLSAAATSVCDTR L
 ASIVPHPQTWKYSDIVSPDKAVTHRTPLLRCKSDPANNPQ FNVRSGLG ARDIEALFRES NPAMGNHGLAVCKGA MERPRMPASVVEEAFMTANPALFADAVTMTCKGGR HPRRQTTISVQEDKALFEHA NPGLGASSLASCHGR LGDKPSVNYYQVADFKDALARVYRVIPKIHCLPPPQDEVQ LDRMVKPASVVEEAFDKENPALTRDADTITCRQG LETEVRLPASVIEEAFLEANPQDDPDMLTVTCRANRDQ P KSDLSIPATQVERLFVQANPGLEPALVCSKRDV
 SGIIPHTKSYSLDDINDALVPRTGFSFTVVCTRNPFFYED TKVVPREDPYPATEIVNAVKEKVKATPQVQCDNKKDGTL ASVVPHPKTWKYTGVVSADKALTQTTPDLRCKRDPAQQSQ ANUVPSTQTWKYSDIVSPIKKATNRTALLLRCKRDPAPKSQ PR ETQFLSPDDVMAAFAAANPKLDRDMMAVVCAGPGN VSTTPNNVTLKRDMLLDQLKNLFSVNVLTYCSMRKHQPG SGITACNSSFAKKDIVDATRKVFVVTPYLTCITMDSRNRT ASUVPHPQTWKYSDIVAPVKAATKRTPLLRCKPLPAQKPQ SGIIACDSSFARKDEVLALUANVGVSTPYLTCIRRDATNRT AK APKEPRTVTADEVED A AF:|KVNPGLSNAAAAVCDRK AGDYPDNRELTDAEFRAPFTKTLGDSTAMTCQKDSSTGKF LSRDEPKTVTPAAVEAAEAFIKANPNLTNSADAVTNRT EGMTPTTKTFTLSQLTTALKAQTGFTPALDCSSGADNQDS TRUTPRLVPYDAKDVSDADKERDGVYPQUACQKNEVGGTV GPDDYLSTSVTDDERSFARENHGFDADGDAV QCRGR


SDLKETEKMYNTEDLRKVIYPIENVNPVFSCK Y
$\square$

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| :---: | :---: |
| Un |  |
| UniRef90－OPION046613A4 UniRef90－T1FNC2 | EARLCLSKSL VPIPCGRD |
| UniRef90－UPI00045EC585 | YLEEIYVCYDSSGAKAISCAEDSCGKSGロ |
| UniRef90－UPIO0047CE883 | TLEEVRICFSKDLREFQA |
| UniRef90－G7Z2N8 | DVSEVRVCLNKDL GFMNCGQDRCRDR |
| UniRef90－061887 | LLGDIRLCLNKD |
| UniRef90－A4s | F |
| UniRef90－S4RT | LLGQLQMCWSREFS LVNC |
| UniRef90－A7III8 | RLTEVRCLSQDL AFRACPRR |
| UniRef90＿C3JXG4 | VLSEVRICLSKEL RFAGCP |
| UniRef90－UPIOOO30 UniRef90－S9QQ40 |  |
| UniRef90－UPIO0026575B7 | VLSEIKICYSRWNFEVIDCPRSNCGRQS品 |
| UniRef90－D5AM | T D DVRICCTKDL |
| UniRet90－F6RFJ | TUGQUELCLTKQD |
| UniRef90－A3SVB5 | YTQEVRLCLSKTLEPV PCGRDVI |
| UniRef90－UPIO0046D | YLLEVVICFDD |
| iRef90－Q0FGS2 | EARLCLSATLEP VPCGRD |
| UniRef90－T1K1A3 UniRef90 ${ }^{\text {P2XWE }} 8$ | LIDSMYCFEPSSMVPVDCP |
| UniRef90－UPIOOO477B4B5 | VLTEVRICLTKDLEFRAC |
| UniRef90－S9SAD1 | TLSEVRVCLDRSLSP DPCPSDNCPGTVI |
|  | LLHEVFRGKEAFTGCPRS |
| UniRet90＿14KVF2 | LSERVCLTKEL AFTGCPRS |
| UniRef90－J2SNU4 |  |
| UniRef90 B6AVX2 | R QEARVCFSK ALDPVPCGRDT |
| UniRef90 H8FP | T｜SEVRICLDRSLAP I ACPSD |
| UniRef90－UP1000477D | RLKEVR CMTRDL RFRACDRK |
| UniRef90－UPIO002C3E | AMGELRICYDTNETNKFNPTPRACPQNIL |
| O－T110R3 |  |
| UniRef90－T1QR3 UniRef90 F7OFC3 | RLYEVRICMNKDLEFRACDRRACRRDTV |
| UniRef90－14XU41 | ELS EVRVCLDKNL |
| UniRef90 I1ZA |  |
| UniRef90－M0TYF3 | LLSRVRICVSADGKSLTGCPKSNCGSKVKF |
| UniReef90－108571 |  |
| UniRee90 UPIOOO4692055 | EAR C |
| UniRef90－R41388 | LLHEVVFCYEYNALKLTDCNRTACRNQ |
| UniRef90－K7JLS8 |  |
|  | RFRSCRRSGCRARHD |
| UniRef90＿UP100042B2D92 | QLREVRMCFAKPPTEPRDCPMSTCPTGV |
|  |  |
| UniRef90－F8Jg | M |
| UniRet90＿A4UUK8 |  |
| Q4KB |  |
| UniRef90＿Q5LN | F |
| UniRef90－W3RMQ7 UniRef90－UPIooo3b6986 | RLSEVRICMNKDL QFRACDRRACRR |
| UniRer90－UP100038698E6 | ALSEVRVCLSELL RFAGCPKS |
| UniRef90－11ZAR1 | L L |
| iRef90＿V7E9A5 | VLTEVRVCLTKD |
| UniRef90－K2HM90 | AEARICLSRDGLTPRTCGNDA\｜RD |
|  | YL SEEVA CoL SKTLLTPVPCAA |
| UniRef90－UPI000468CDF8 | Yidearicts RDLTPVV PCGSDVI |
| UniRet90－Q2 | VRVCLTRDLQPRV CGADVI |
| Unil |  |
| UniRet90＿UP10004 | QLWEI RLCYNKEMTTVRDCPKDRCRS |
| UniRef90＿M1D443 | FLKQLHFCLDKSLNTFISCPKST |
| UniRef90＿C7D |  |
| UniRef90－UP100042B50E8 | QLLEI RLCFAKKPLSPI DCPHT |
| UniRef90－A3JQX4 | Qi QEARVGLNKDLTPRV何 CGSGV |
| UniRef90－11Z |  |
| UniRef90＿V4APT3 | F NMVDC |
| iRef90－11ZAR2 |  |
| UniRef90 V5SCD4 4 | RVCFSKAGEPVR CGR |
| UniRef90－G4V5B9 UniRef90－M1CMG4 |  |
| UniRef90－M1CMG4 | LLKEVVF |
| UniRef90－D3NX85 | EVRV |
| UniRef90－K4CBC8 | YLSEVTLCTNLGGTSFl |
| UniRet90－E6VC94 | RLSEVRICMSKDL QFRACDR |
| UniRef90－Q1Q1R11 | RLSEVRICMNKDLGQFRACDRRACRRD |
| UniRef90－H0TQS6 | RLSEVRICLTKELTQFRSCDRQACRRD |
| UniRet90－D7A3H8 | RLTEVR C M R ${ }^{\text {d }}$ |
| UniRef90－Q8NK84 | WYFNLKGSTIDGTFVPINAPEGSCPSSGM |
| UniRef90－A4UUL2 ${ }^{\text {U }}$－${ }^{\text {U }}$ | ELVEVTLCSDGNLLTQFIDCCPRYNCPTNHI |
| UniRet90－UPI00036847EE | WLREVRLCFDT ALNPRACGDDRCRAO |
| UniRef90－UP | SIYQVKICYDTKNDRFTECPNENCGTRVVF |
| Ref90 W9R552 | ELYEIYFCVDPKGEKFIDCP |
| et90 UP | SK |
| UniRef90 UPIO004410C49 |  |
| UniRef90－LTFNO0 | SL |
| ef90 G7KCR0 |  |

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UniRef90- X6GLD8 UniRef90-F2TMY8 UniRef90_C9SK90 UniRef90_E9C287

F D F Y L LT L L W W P TFC LT HA S NE Q CS K G Y G F V L H G L WP Q Y HWPETVCETVENDC RDPPDYWTIH GLLWPDK F D Y F M L A V S WA P GYAYK NGKN $\square$ RETKDT P S WII H GLLWPS M F DYYAMALSWSPEHCA IK P A DRDQCSRQLGFVL H GLLWP Q Y YTYFAFEREWPGTVCKVNKCTPSYMGNFNNFNLHGLWPSN FDYYAFSMFWSPT $\quad$ DHSTH $\quad$ RRRAAPVPREDWTVHGLLWPNK $T$ QF W F D Y F T LAAVSWAP GYAYKNGKN DRE T K VT P LDWI H G L L WP S M GPVDSWT IHGLWP D Y FTIHGLWPSN QTQFWDTNPS T GPSNSWTI HGLLWPDN

$F D Y Y L L T L S W S P T F C L T H K D N P Q C T K G \quad Y G F V L H G L W P Q Y$
 $L L L Q T Q A S F W D T D P S$ TGPTDSWT H G L WWP D C

FDYYVLT L N WSPTYCAGREDGQCNGSRPYAFVLHGLWPQY GPS DS WTI H GLLWP D N F D Y F R L A VF WA P GYA Y K Q K K H $\square R \square N K$ V R P S WII H GLLWP S M F D Y Y VMSLS WS PNWCRMEGDDSEQCDEDFGWVLHGLLPQY

WD YFVFS Q WWP QS Q CYYRNGQTCVPA DVT T WTLH GLWPTV FH QYFLVVQTWPPVYCQVHRPEPCRIKPSK FVLHGLWPVN WD Y L QL KL A WP P SYCSEYPCK L PPK LKSRFIIRGFWPTV
 D HII L SHRWPVTECQKK DGNGCNIPP TMRWWIIGGFWPYR

SKCDPP G GYNNF $\square!G G L W P D N$ GPEDAWTIHGLWPDH FDF YVLSLLSWSPSFCEEASERQCSGRPYA FVVHGLWPQY


 T GPD D S WTIIH GLLWP D N
YYTLAVSWSPQYCKTSRGGQCGSGNDFGFTLHGLWPD G
 $F Q Y L T F V Q Q W P K G Y C T T N P S R C Q R N P L P T V F T V H G L W P G N$

## QTQFWDTNPS

T GP\DD S WT ITHG L WP D N
FDLY $\square F S$ QS WQPEFCAGPGCHDPQPYWKTHMTLHGLWPEY $F D Y Y$ K L A L S Y S P E F C L V K GKNQP Q CS R E WIV H GLLWP Q Y


F D FY Y T M T Y QP EFCRENGCQRYE ED WE GQLTTIH GLWPER FDMY L LAA Q WQPTFCFGKGCRAPQSYWRSHLTLHGLWPEL
WK K L F L VH HWPVTVCKMSENDC KDPPQYWTDHGL
F D Y YVL AMSWS P T WCE GRARDAAQCDRRLGWVLHGLWPQY

 Y DFYVYSMTF QPEFCREQRRGHFPGCRDFELTIHGLWPNR FDFYLLAQTWQPAFCSTGNFPGCDQPPDDSWWTIHGLWPD H FDFYLLAQTWQPAFCSTGNFPGCDQPTDFHLTGHGLLWPEN

TGPADSWT L HG LLWPDH
Y T LAA S WS PEFCRTRKDDCSGKHGRF GFVVLHGLLWPE G YDY LLLVVETWPGQFCHSKCCDLPKTTTKPGFTLHGWWPNF WT L H GLWPDR

WKC $\square K L V Q S W P G T F C V V L Q K K C T \prod P E T \square K T W T \square H G L W P N H$ MLL TQ F W

D T DPVTGPTTSWTIHGLWPDH
$F Y T F Q Q Q W P G S I C L T K Q C D N V G N Y K G Q S W A I H G L W P S G$
 WDYFQLI LVWPPSYCSYNS CNLRPGLDDFTIGGFWPTP

 YTYFAFEREWPGTVCKDRQCKPQYMGQFQNFNIHGLWPND



T GPD DSWTI H GLW WP D N

UniRef90 UPI0003AB53F5 UniRef90-F4ZZ40 UniRef90_C6CJF4 UniRef90-G3SEJ7 UniRef90_A0JCX6 UniRef90-Q07465 UniRef90-Q23C55 UniRef90-A0A022T6F1 UniRef90-ROKL47 UniRef90-B7S8A1 UniRef90-Q5Q9W7 UniRef90-A1CKM4 UniRef90-11ZAS1 UniRef90-W4KMR0 UniRef90-UPIO0045E4691 UniRef90-W4FXY7 UniRef90-Q850K0 UniRef90-C6C7N7 UniRef90-M0TYF1 UniRef90_UPI00044091ED UniRef90-F4ZZ41 UniRef90-E3HZY9 UniRef90-M2YJT5 UniRef90-A0JCS7 UniRef90-A3K5S9 UniRef90-W5C422 UniRef90-A7RJ98 UniRef90-V4SW13 UniRef90-Q5DB20 UniRef90-L7FME1 UniRef90-A3VM22 UniRef90-C1BTV2 UniRef90-G5BEN7 UniRef90-C1LYW0 UniRef90- ${ }^{-1} 6 \mathrm{H} 431$ UniRef90-AOAO23XQC4 UniRef90-A4EE91 UniRef90-V6UX13 UniRef90_U1FZH9 UniRef90-M3BS50 UniRef90-UP1000476C1C1 UniRef90-C5FJ55 UniRef90-K9C×57 UniRef90-F5HPQ8 UniRef90-O2W3S1 UniRef90-H1ZS19 UniRef90-U5DH47
UniRef90 G1UJX5 UniRef90-A0A024GFJ3 UniRef90-UP10002DB3FC2 UniRet90-N1MV14 UniRef90-B6GVY8 UniRef90-Q19PX6 UniRet90-B8C4Z3 UniRef90-W2NEL1
UniRef90 A6MZZ UniRef90-A6MZT8 UniRef90-X7F691 UniRef90-AOAO17SC83 UniRef90-C1BK03 UniRef90-B6Q5R3 UniRef90-UPIO002C3DE08 UniRet90-G1E6V4 UniRef90-K0SVF5 UniRef90_V5G3L7 UniRef90-TOQLTO UniRef90-M7Z4P5 UniRet90_S3D201 UniRef90-Q2GBV1 UniRef90-B0E8C9 UniRef90-R9AGC1 UniRef90-U5DC20 UniReffo-O5TIX8 UniRef90-Q6ZYE4 UniRef90 UPI00021A6972 UniRef90-G1E6T8 UniRef90-UPIOOO3C1A41B UniRef90-K1Y3Y3 UniRef90_AOBWS8 UniRef90-Q231N4 UniRef90-C4JVH8 UniRef90-C1LIB1 UniRef90-B2ICQ3 UniRef90-A2W3R1 UniRef90-L7FPE2 UniRef90-GOR5E5 UniRef90-K5Y754 UniRef90-×6GLD8 UniRef90-F2TMY8 UniRef90_C9SK90 UniRef90-E9C287

QRGYPSSCTRERLDPAMEQEFAGLLYPSR QCSYPQDCGNTHFSFSNHSQPTKNYMDTYWVGLYSSTQT
QDGTYEANCDPTRIMKNITSILSSYMSTYWKDYKGDDES QPPKACDVRNMPFDVSKLNRI RHQLDSDWFSV SSDNEHF CDGTYDANCDSSRSYSNLSAILNSYMSTYWKDYQGHDESF
FDRSTDPMTCWRSDIFFNWNRFTTSKISWYTDFAKGYNNK ORSDCMTEWKYTDFGNWNRFTYSKISWYTHFAKGYNNK CDGGFDQYCDSKRKYSNDRADLLDYMGDYWKDFRGDDQDL NPKMPSNCNGSQFDDRKVSPKRAKLKKSWPNVESSNDTKF CDGTFKSSCDSSRAYTGISSLLSSFMDDYWVDINGDNEQF AE ECNRSWHFNLDEIKDLLPDMKMYWPDVIHQSSNRS EDGPHPGFCTKDDNGVRSADGEDTLEKYWPNVKTTHYDSF NPTMPSNCNGTKFDDRKVYPQRSKLRRSWPDVESGNDTKF TKGGWPENC SATVANCEPSCRFDNPDNDALDNAYWPSMCPADDL SATVANCEPSCRFLLNPLNDLMNDLNAYWPSLSCPAQNGK NPTRPSNCVGSHFNESKSPQLTSKLRISRPDVESGNDTQF ERRGWPESCRTDYRPWVPNELIDRMLDIM SN PSRQL CDGTYEANCDDKRNAAGKQDLVSYMNTYWQSN SGSAETF HRGWPAYCPTTQRQPS RQQTAEMADIMGTSGLA

CWPENCNSERLKLWETKDLVTELDANWPTLKGGKSDEF GGKPVNCNSSWPFVESEIQDLEDRMMQRWLAFPDSSKSSA SSGRSSTNTNNQTINSQDMLESNKMNKFWPSLTRNENEQF WPYRPQCSYHGEFDILSLMAILRTEMDYAWPNLTDYKNSKM VVNQNMFCCVNQFTFDDVEDDKKLMRKAHKNWISVSKCKV YDSNLYCNKSLKVDEAVLKALKGQLLTNWPSVRSSTTNSL
SMGTPTCQKKVNFDDSRLALVKEKLLNSWPDYHNKTMPELL CNGGFDQFCDSRRKYSNIRGDLLEYMSEYWKDFRGDDNHL ENGFPEYC
ERGYPANCATSARPPS
GYARSNQDH
CDGTYEANCDHARKYSNISSILTAYMQTYWKDYOGDDON CDGTYEASCDDKRAYTNITQULNAYMSTYWQSNSGSAETF C D GTY Y E Q F C D M G R E Y S N Q Q
 ASGQWPQCCQA FTK LLQNCTKTAYTPLQNFQDWNNRNLDRWPDLANPRFQS F CDTYDSNCDPSRAYTNDNSLLSASYMQTYWVDDNGQNEQF QNGGYPQFCTTDADLIEKA GGDTGVKYWPDVKAHSYPQF NKGYPGNCDVPANMVDK』NKKEDFAFMPSDYLIS FGKEWPQYCRAADLVPRQVIRQN CDGTYEASCDSKRAYSNDTALLQDYMDEYWVDMNGDNEDF SKLKDS WPNVESSNDTKF NDGWPATCTNEPDDTSNFLSPHDELEHKWPNVKSKSHTDF


RRGWPSDCVTPHAPPS RAMTAAMTDVMGSPGLA CDGGFDQFCDSKRHYNNDRRDLLEYMDVYWKDFKGDDLDL PHVWTKLILTHHWPSTFCSDLLPDMMKSWPDLLKPSTTSF CDGGFDEYCDSHRRYGNTRSDLLEYMSEYWKDFRGDDANL VSNGYPSCCTSPYTDAEVQKTUDNDAEFMENWAS DSKCKF FDGWPSNCSREKDDLTSLSSDASEMSDKWPDVKGGH CDGGFDQFCDHKRNYNNIRGDLLDYMKEYFKDYKGDDDS TDGSYPSNCDPSSQDTDDA $\square G M D A \square N Q Y W P D V K T N Y G T D F$
CDGTYDANCDPSREYSNITAI OSYWSNIHCPRTNGTST RDGQFPQYCPSRRLPDAQTLRRNFCTTPSADLM VSGYPSCCKSPYTDAQVSKMIENDMEADSYNWASDTKCKF

TKPSNCDGSQFEFRDSPQLRSKLKKSWPDVKNGNDTNF TMPSNCIGSQFNDSKVYPKRSKLKRSWPDVESGNDTRF MPFDP LIALKS $\square E R E L Q E K W \square D L E R G R T Y S L$
EEN CCKCWHVFPSDWEEDQPDLSRYWPTLLQKSNFSF CDGTYDSSCDPTRAYTGUTGULQSYMQTYWKDYTGDDESF DCEELEACTNNKFKESNLSKTTMTNLDQAWVGFFNPSGSF

 YKNRNMYCCTMFF GPDNV ENAHQWCSMDAYP YMPGVAS CLL NCFYP QKCGSESLDLKKVNSSSRAQDNKYWNGLYNDNNTF
 KGNFYCNDNPARWQDLPPVVELEPNTRSEDDRVMPGTA SALL CD GSYD QYCDSNRRFQNISS IIEESMRMHWKDFRGDDEDLL

UniRef90_UPI0003AB53F5 UniRef90_F4ZZ40 UniRef90-C6CJF4 UniRef90_A0JCX6 UniRef90_Q07465 UniRef90-Q23C55 UniRef90_E5A4B2 UniRef90_A0A022T6F1 UniRef90_ROKL47 UniRef90_B7S8A1
UniRef90-Q5Q9W7 UniRef90_A1CKM4 UniRef90_I1ZAS1 UniRef90_W4KMR0 UniRef90_UPI00045E4691 UniRef90_W4FXY7 UniRef90_Q850K0 UniRef90_C6C7N7 UniRef90_MOTYF1
UniRef90_UPI00044091ED UniRef90_F4ZZ41 UniRef90_E3HZY9 UniRef90_M2YJT5 UniRef90_A0JCS7 UniRef90_A3K5S9 UniRef90_A7RJ98 UniRef90_V4SW13 UniRef90_Q5DB20 UniRef90_L7FME1
UniRef90 A3VM22 UniRef90_C1BTV2 UniRef90_G5BEN7 UniRef90_C1LYW0 UniRef90_B6H431 UniRef90_A0A023XQC4 UniRef90_A4EE91 UniRef90_V6UXI3 UniRef90_U1FZH9 UniRef90_M3BS50 UniRef90_UPIO00476C1C1 UniRef90_C5FJ55 UniRef90_K9CX57 UniRef90-F5HPQ8
UniRef90 Q2W3S1 UniRef90_H1ZS19 UniRef90_U5DH47 UniRef90_G1UJX5 UniRef90_A0A024GFJ3 UniRef90_UPI0002DB3FC2 UniRef90_N1MV14 UniRef90-B6GVY8 UniRef90_B8C4Z3 UniRef90-W2NEL1 UniRef90-A6MZT8 UniRef90-X7F691 UniRef90_A0A017SC83 UniRef90_C1BK03 UniRef90-B6Q5R3 UniRef90_UPI0002C3DE08 UniRef90_G1E6V4 UniRef90_KOSVF5 UniRef90_V5G3L7 UniRef90_T0QLT0 UniRef90_M7Z4P5 UniRef90_S3D201 UniRef90_Q2GBV1
UniRef90_B0E8C9 UniRef90_R9AGC1 UniRef90_U5DC20 UniRef90_Q5TIX8 UniRef90_Q6ZYE4
UniRef90_UPI00021A6972 UniRef90_G1E6T8 UniRef90_UPIO003C1A41B UniRef90_K1Y3Y3 UniRef90_A0BWS8 UniRef90_Q231N4 UniRef90_C4JVH8 UniRef90_C1LIB1
UniRef90_B2ICQ3 UniRef90_A2W3R1 UniRef90_L7FPE2 UniRef90_G0R5E5 UniRef90_K5Y754 UniRef90-X6GLD8 UniRef90_F2TMY8 UniRef90_C9SK90 UniRef90_E9C287
L
A
F
L

130
140
150
160


 SCRAAAQKPLPAQGGSGQCQRQAGQPGQHHGGLRRRWR

 A G IVP TS Q TYTFDAI QQAI K A KPDVDVTL GCRSGALDNEIW S R YKA GFT T K L R DI I G I M K N K L EVVNIVRV Y V L H P Q T G E N



 $\stackrel{+}{H}$



 LT K PLRVGPEVRRAFLDVNRNLTPDMVQIVCSRNR A GDT PDSRTYTLA QIQNAVAKQFGKDPYVGCAS GAMDEDW
 A GIVPS DETYF LSSSIRRDADKQGTGFTANLECNRGVAGETQ


 $H N I D P G N H Y S V Q Q I F D A V M K G M K K D Q P G I K R T Y H N A T K G L$

 S QAKTVAP GEVEEAFIDKANA GLSNAAMIVVTCNR

 A GIJTPSSTTYTLS QI QQALAKNFGKTPY GGAS GAMDEAW Y N RPAKPFRTTVVQDLKSAFIDGSNKQFTANGDAPYCSDSGR A G DT P ND KTY Y L S DLLQA A VKA A F GME IT F N CRNGADLN EA W R P


 GNISPGSNP

 ■QQHVGKHLNTTTARAAYSQTGAMDDVALQCRGEA SSGTFSQGEDR QAVIDKNPRLKANMIELGPKN

 ASIVPBPPQTWTYSDIVAPIKAATKRTPVLRCKPDPAQNK

 VGI K P GSTTYY QMTA I K E AL T S V Y G VT P KV Q C C LPP P E E G E V Q D R L E R P VT LTPA GVVEEEA F L E A N P G WT A D ML T I I T C R A G R I Q




Q GIN P D Y R L Y S T E HI K WA V N Q K L G V M P G V Q CR D R P F G K K Q

 $R G I T P S T H T Y K L A D \square K H A L K E A F G Y A P T I K C D \quad G G G N$ H GIVVP D G R L Y Q L A D I K K K A L K D







 E L K I E TGK L Y HKK D IK K VLK N Y F G VDV S I CCRNDN S





|  | 70190 |
| :---: | :---: |
| UniRef90＿UPI0003AB53F5 |  |
| UniRef90＿F4ZZ40 | WL HEVVLC Y |
| UniRef90－C6CJF4 | ELSEL RVCMDKDL NFQSCGKS |
| UniRef90＿G3SEJ7 | T I GQ TEL C L |
| UniRef90＿A0JCX6 | Y L S E L Fi WY DVK L K L M D C P N GVLP D Y L L |
| UniRef90＿Q07465 | F L R EVV Y i C L N K E GT DAVVTC S |
| UniRef90－Q23C55 | ML F AV D M Y F K A LT GVI S QPQ S S CS T S |
| UniRef90＿E5A4B2 | Y HFDVRGPLQS GEFVPADGTK S S CPA T G $\square$ |
| UniRef90＿A0A022T6F1 | Y LKEI RVCLDHRFKH TS CP |
| UniRef90－R0KL47 | Y HF DVRGSI Q T GEFVPS D G T K S T CPK S G I |
| UniRef90－B7S8A1 | Y LSEL FITCYDVKLKK L M D C P N GVLP N |
| UniRef90＿Q5Q9W7 | ELLEI GIC F N REATEVI A CRRR |
| UniRef90－A1CKM4 | Y HFNVA GS LQ M G F VPS D G LK S C P A T G |
| UniRef90－I1ZAS1 |  |
| UniRef90＿W4KMR0 | WYF HLK G S V ID GKFVA ID A P E G S C S T GL |
| UniRef90－UPI00045E4691 | TIGGQIELCLTK D F RLRNCSEP |
| UniRef90－W4FXY7 | ELS QVFTCYDKDASSNVPT T L R A CSA HVL |
| UniRef90＿Q850K0 | LL H E V V |
| UniRef90＿C6C7N7 | ELSEVRVCLDK Q LK F Q S CASSNCPA |
| UniRef90－M0TYF1 | YLS QI RVCVVSSDGRSIIS CPNSNCSDTVKF |
| UniRef90＿UPIO0044091ED | WYFNLK GSVID GSFVAlDAPK G S CPS S GI |
| UniRef90＿F4ZZ41 | L L H EVVI C |
| UniRef90－E3HZY9 | LQEVRVCMSKDL QPRPCAESR |
| UniRef90－M2YJT5 | Y F Y NVR G SVQTGEFVPVDT T K S N CPSTGI |
| UniRef90－A0JCS7 |  |
| UniRef90＿A3K5S9 |  |
| UniRef90＿W5C422 |  |
| UniRef90＿A7RJ98 | LLA GI R】CLD K S F R P R C C $\square$ Q T H C S D D |
| UniRef90－V4SW13 | L L M EV I L CV D S A T S L |
| UniRef90－Q5DB20 | YL DEVI FCFNVNDT II S C P F S K C P DVFl |
| UniRef90＿L7FME1 | $V Y E V R V C Y D P S S D R F \ R C P K K F C D K K V M F$ |
| UniRef90－A3VM22 | HI QEARICLT T D LD P R P C T R R D C |
| UniRef90－C1BTV2 | L L K El Y T C Y S T Q G NIVD C |
| UniRef90＿G5BEN7 | TI SQI ELCCFTKEDFHLTRNCTEP |
| UniRef90＿C1LYW0 | KLLEVIVCFNRTL R FADCPSTECPSEFTF |
| UniRef90＿B6H431 | YYFNIAGSLQS G K F $\square$ D GQKSNCPSRGI |
| UniRef90＿A0A023XQC4 | RLSEVRICLSSKDL Q F R A C ERRACRRD |
| UniRef90＿A4EE91 | Y I Q EARICMTR GLEFRDCGQD |
| UniRef90＿V6UXI3 | RLKELLWVCLDK QLG P TPPCPAGGTPDN |
| UniRef90＿U1FZH9 |  |
| UniRef90－M3BS50 | Y F Y NVRGSVQS GEFVP ADSTKSNCPSTGI |
| UniRef90＿UPI000476C1C1 |  |
| UniRef90＿C5FJ55 |  |
| UniRef90＿K9CX57 | A LSEVW W CMD RKF RYMACP |
| UniRef90－F5HPQ8 |  |
| UniRef90＿Q2W3S1 | LT EVR】CLD K T L S P MPCPS D C P G TV |
| UniRef90－H1ZS19 |  |
| UniRef90－U5DH47 |  |
| UniRef90＿G1UJX5 | WYF NLK G S A DD G T F VPi T A P K S S C P S S Gi |
| UniRef90－A0A024GFJ3 | LA EIIHMCWAK D P K K R IF CP R D T C R S K F V |
| UniRef90＿UPI0002DB3FC2 | TLDEEI R I C F S K E G 】A EACTEERSCGKNV |
| UniRef90－N1MV14 | WL SEVWLCMNR AMDFTRCP |
| UniRef90－B6GVY8 | Y F Y NVK G NVVD G T Y K A VE T T D S G C P T G |
| UniRef90＿Q19PX6 |  |
| UniRef90－B8C4Z3 | F L S EVRVCF GK G E K E R MVCPEDSCGDEV |
| UniRef90－W2NEL1 | MFSQVFTCWQKDAHNVPTQRRACPAHIL |
| UniRef90－A6MZT8 |  |
| UniRef90－M7AZD6 | TIGQIEFCFTKDLE LRNCTHS |
| UniRef90＿X7F691 | EARLLCLTRDLAP $\quad$ R R CGDDVI |
| UniRef90－A0A017SC83 | Y HFNVAGTLQ T G DFVPSDGLKK S C P A K GV |
| UniRef90－C1BK03 | VLG QIE $\square$ CFNPEF QLENCEK |
| UniRef90－B6Q5R3 | YHY HVA GRLQTGKFEPADAGGSNCPSSGI |
| UniRef90＿UPI0002C3DE08 | HLSEL R ACTNVNKADFIE CPQETCGTN\IF |
| UniRef90－G1E6V4 | ML VEV V L C Y DV P GEPVI D C P R P |
| UniRef90－K0SVF5 | YLSEVRVCFARGE GGAIVCPEDSCGDE |
| UniRef90＿V5G3L7 | YHFNVA GRLLQTGEFVPTDGPKSNCPKTGI |
| UniRef90－T0QLT0 | VLSEVRTCWSVNTKTGGVGSQ\ACPSATL |
| UniRef90－M7Z4P5 | $L$ Y QI Y L CVDK N GETVIDDCPKLHCPE EVV F |
| UniRef90－S3D201 | YHFDVRGSVQTGEFVATDGSKSSCADTGV |
| UniRef90＿Q2GBV1 | WLREVHVCLSRRMKPAR CPGGTKPADTV |
| UniRef90－B0E8C9 | Y I SELRRACTTK A NPQFIT CPQETCGND I F |
| UniRef90＿R9AGC1 | KV HEVWYSFNLE G P LV S GPRDSCSQDVYY |
| UniRef90－U5DC20 | L Y EVYVVC $\mathrm{V}^{\text {D K D A T S V I P C P N F K C S D E I R F }}$ |
| UniRef90＿Q5TIX8 |  |
| UniRef90－Q6ZYE4 |  |
| UniRef90＿UPI00021A6972 | $Y \prod F E D R \ C F D K M L D Q L I D C D R T$ |
| UniRef90－G1E6T8 | IL VEVVLCY D L G K HVINCTRPN |
| UniRef90＿UPI0003C1A41B | V L T Q I K F P L F K NLS |
| UniRef90－K1Y3Y3 | YSY DVRGSVATGEFVKADGQS GSCASTGl |
| UniRef90＿A0BWS8 | LIS V SFCVNEQYQPQR CPCD】Y |
| UniRef90－Q231N4 | ML S VI DLLFI S S DLK S L L K C P |
| UniRef90＿C4JVH8 | YFFNVK G S L Q K P GGSPSNCPAR |
| UniRef90＿C1LIB1 |  |
| UniRef90－B2ICQ3 | LI GELTI G L N A SLA NLI A A S S P T C P R G IV |
| UniRef90＿A2W3R1 | YFTEAWI AVVKT TATTQFPSTQGTCPTS GVF |
| UniRef90＿L7FPE2 | LYEVNVCYDAKGNKLINCPDK |
| UniRef90－G0R5E5 | LL F AI D M Y L NKNLK GAI P CRRNNC |
| UniRef90＿K5Y754 |  |
| UniRef90－X6GLD8 | L I GEL T L G L T |
| UniRef90－F2TMY8 | YHFNVA GPLESKFVPAIPGGPSNCPRNGT |
| UniRef90 ${ }^{-}$C9SK90 | Y HFNVK G S I Q T G VFVPVDGSPSSCPKEGI |
| UniRef90＿E9C287 |  |

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UniRef90 D6MR43 UniRef90- M5FXW8 UniRef90- E2A63 UniRef90_-17MHK2 UniRef90 S8BXV2 UniRef90 L7FPD9 UniRef90-L8GBX UniRef90-F8NG23 UniRef90 UPI0002DBC675 UniRef90-G7JXM3 UniRef90-BOLXW2 UniRef90-K0KFE7 UniRef90 Q9FPU7 UniRef90-UPIO002488A3A UniRef90-N1RY39 UniRef90 Q19PT7 UniRef90 L7FM67 UniRef90-Q5Q9W5 UniRef90_W2S919 UniRef90 A0A011MGI7 UniRef90-H9JLW8 UniRef90-C1FYW2 UniRef90 UPI0004417FAT UniRef90 A8T2R5 UniRef90_UPIO002C37628 UniRef90-G9P2L2 UniRef90 C1L5V8 UniRef90 G6DFF6 UniRef90_W3WWC1 UniRef90_Q8LRQ4 UniRef90 G1E6U6 UniRef90- Q9FPV1 UniRef90-UPIO003761A75 UniRef90 A0A016Q3M2 UniRef90 G8YT11 UniRef90-B0DDC7 UniRef90 S2K1V0 UniRef90 P10281 UniRef90-TOISJ9 UniRef90-V6J6G6 UniRef90 UPIO002657BDE UniRef90-F1R673 UniRef90-O8LP93 UniRef90-G1E6W1 UniRef90 B9JH77 UniRef90-C5X370 UniRef90-P24657 UniRef90_UP10003772390 UniRef90-I3ZD51
UniRef90-A8T2N1
UniRef90-UPIO00455DB58
UniRef90 U2Y6S9 UniRef90-UPI0002C3FAB1 UniRef90-B5X9N3 UniRef90_G3J4N2 UniRef90 A5E348 UniRef90-L7FM79 UniRef90_D7G384
UniRef90 G1E6Yg UniRef90_F5HPR1
UniRef90-O5AK94 UniRef90 UPI00037900ET UniRef90 UPI00026CB57E UniRef90 ${ }^{-}$W1 QF5 52 UniRef90-A0A031HTJI UniRet90 M4XM45 UniRef90-Q8LRS2 UniRef90-H1ZS26 UniRef90-UPI000455EDAF UniRef90 H3GNX7 UniRef90_A8T2NO UniRef90-G1E6T6 UniRef90-V5YU73 UniRet90_M2NLW0 UniRef90-A8T2R1 UniRef90_R4XJP2 UniRef90 CoOH52 UniRet90-M4M862 UniRef90-G8HIA3 UniRef90 Q509W6 UniRef90- D6MR44 UniRef90-EOUJR2 UniRef90-10YUU5 UniRef90 W5KPA5 UniRef90 C5S526 UniRef90_UPI0003766F5A FDFYLLNLSWSPEFCHTHPAAAECAQHRAFTLHGLWPQN

## LVLVQQ WLK D Y



WP T T FCHTYNCPR $\square P D$
NFTIHGLWPDM T GPTNSWTIHGLWPDH FDVVIF TQQWPLTACESSKHHTCLLPKRDEWTIHGIWPTK Y T FIV F EVVEWPATNCLDTKQCSKTNSGNFDNFNI H GLLWPSN LLLTQFW DTNPS VGPVDSWTLHGLWPDN $F V$ VVQ Y WP GDKCDREMCSLPK STEKE GFWLHGFWPQY
 Y T LALLSWSPEYCRGRES QCSRDHGEF GFVLWGGWPE G FS S R WPK TFCQTVKCSKD IQPDLPTEFVMHGLWPAN


Y T LAALSWSPEYCRTRQNQCGGGAQRFGFTLHGLWP

$M \mathrm{~V}$ Y VE Y WP GAKCDGQTCPKGTHKTKERFWLHGFWPQY $H F L L T Q F W \quad D A S P A L G S P E N W T I H G L W P D Y$ D Y Y TLLALSWSPAFCQKQRRNQCDNNKEFGWVIHGLWPQS

LLLT QFW DADPPTGPAEEWTIHGLWPDH S GP D D S WT I H GL WP D Y RTPSNFTIHGLWPDN Y DHFKF VQQWPPAFCATNRCKPGAKQMLMETIHGLWPDN


T G P D DSWT ITH GLWP D N AVCNSSTTP CKDPADKLFTVHGLWPNW

YTLS LIDWQPEHCYAKRNECADPKVRRGFTLHGLWPDG GPSDSWTI H GL WP D Y

## VLALLQWSTPGWWDTHPS <br> Q T QFWD TNP

T GPEDSWT I H GLLWPD N GPADEFTIHGLWPDT S GPSDSWTIH GLWPD N $Y T L A D S W S P Q Y C N D D R F Q C G G R N G R F G F T L H G L W P D G$

 P L W
F L LA A S WEPAFCQTNQKKECRNQDAKNFSLHGLWPMR DFFHHVQQWPGSYCNTNTNATCCKKSAADFGIHGLWPEY T GPSDSWTI H GLLWP D N
Y VLA $\square$ S WQPAFCETAPKKECKS QTATHFTLHGLWPDR FDYYVLNMSWAPAFCDSNSSEDLACETPRDFVLHGLWTQN

G S P S D S WT H G L W WP D N
Y T L A L S WS PEHCK GKETHCS GQNGRF GLIL HGGLWPE G FA YVMHVQTWPGSFCSDNCCPTNNEFFEEGFSIMGYYPQY
 P T GPSDSWTI H GLLWPDN TGPSDLF TLHGLWPDN
 $F N L Y I F A M S W K A E W C Y H Q N F P G C K K P R S F N L T I H G L L W P D Y$

VLVQQ WVP GY GPS DAFTLHGLWPDA
 DAYVLAASWHPAFCETRPDCRSGGEAAHGFSLHGLWPQP Y TLALLTWAPEYCHGNANDECGGSNRFGFTLHGLWPDG YPT GPD DMF TL H GLLWPD N
Y T LA A T WS P QY CRDHGGDQCRSGQRF GFTL HGGLWPD G $D Y Y T L A L S W S P A F C Q K Q K R N Q C G G S A D F G W V I H G L W P Q$ AVCNSNPTP CNDPPDKLFTVHGLWPSN

G S P A D S WT I H GLLWP D N FDMY ILA QS WQPAFCHGKGCSAPQSYWRSHLTLHGLWPEL PKNFT I H GLLWPD K

L L V Q Q WY K T

LGPANEFTDHGLWPD T T G P V D S S WT | I | $H$ | $H$ |
| :--- | :--- | :--- |

$Y L L A D S W Q P A F C Q N H P K A E C N R Y D A S H F T L H G L W P Q P$ D P P D K L F T $\begin{aligned} & V \\ & I\end{aligned} \underset{H}{H} G \underset{L}{G} \underset{L}{W}$ WP S IH GL WP D K
WPTSFCFRPNNICRRTSNNFTDHGLWPEK
Y L L A $\square$ S WQPSFCETKPKPEC $\square$ D R T DKNFALLHGLLWP QP
 H Y Y MLAL S WS P S F C ENQK QK Q C A G N Q N F G WV I H G L WP Q D Y Y ML L VLS WS P S F CA S QREK QCENNRTF GWVV H GlL WP Q
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UniRef90 V6J6G6 UniRef90-UPI0002657BDE UniRef90-F1R673 UniRef90-Q8LP93 UniRef90-G1E6W1 UniRef90-B9.JH77 UniRef90-C5X370
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UniRef90 O5AK94 UniRef90 UPIO0037900E7 UniRef90-UPI00026CB57E UniRef90-W1 QF52 UniRef90-A0A031HTJ1 UniRef90-M4XM45 UniRef90-Q8LRS2 UniRef90-H1ZS26 UniRef90-UP1000455EDAF UniRef90_H3GNX7 UniRef90_A8T2NO
UniRef90 G1E6T6 UniRef90 V5YU73 UniRef90-M2NLW0 UniRef90-A8T2R1 UniRef90-R4XJP2 UniRef90-COOH52 UniRef90_G8HIA3 UniRef90-Q509W6 UniRef90-D6MR44 UniRef90-EOUJR2 UniRef90-10YUU5 UniRef90_C5S526 UniRe90_C5S526


CTGKKYAPFSEKDRDVNDLERHVQMKFDEHYAKDNQPL DGP CDGTYPQFGNRWPEYCRPVEDLDAQURAGHAATPSPQL CDGTYNQFCNNKLDTONDEKLYESMSKYWLSNQNGNDDSL CDTTFNENCDPSRAYTDDATDTLNFMETYWVDMHGENEQF CDGSYGQFCDKSREYSNDTAI LQEYMKKYWPNYEGDDEEF | FGKEWPQYCR PADLVPRTVIRD |
| :--- |
| CTRSPSCEEGEACPMSEDAMEKVLENADLRALCTTPSAQL | ADDMLILELMKRVSEEVSNEVKLRMSRQWKSLSSRDNLQF $T G H H C C N C W P D F H S H L Q E V E P E L T Q L W P S S L G K G H F N F$

$M P G H L Q F C T S E K Y E D F E P G S V L D A L D Q H W \square Q L K G L R N Q P L$ DQQSINARDDYWFDYFLRNPPWARGNWR C RPCAVSDDLKQADRSSDWKDSAETKAALDKMMGTQSGLL CRPTPYVHCTVHYHSVPVHRAPALICIIHHGHCKNRNNTQF ASYCNVPKDQQSKDKQGDWGALTAPKTQLNQVMPGTQSLL NDGTYPGYCSQRPGPAHPERSLDM KSKMLNNCDDDDYKRLMMPNMLKQLEYDWPNLISKKYHDF CDGTYQENCDSSRDYKN GDLLSAYMNQYWLNDDGSSEELC GASTYPSCCSQDFTDTQVEKMTELTKDVSNYWPSMKKCRF
 CDGTYEAFCDNSVDRNDGLYAMSTYKDYGDDESF SGAKHFECCSSFYKDNDVEKRIMEDQRUADNWMSDDMCRF DGTYPTTCSSEPYDHDRVVNA DDVLETMWPNDAGKKYDSF
CDGTPSNGCDSSREYTNVETTYSDMQTYWPSDAESNNDF CSGGYPQFCDTSLDQFGDQTLYDNMNKYWTDINGNNKKF RGREYCGVPAARWRDLPPVEISETTRKALARVMPGTVSQL VGQE WPQYCTSTALLAPELIK CDGTYNQFCDSSLQUSNEEQLLERMHEVWKDVQGDDNNL VGKDWPQYCQAT SGKARSVDEHPRYCQGDDPMVAEQT KKQYLPESPGATL NGSEPKKCKTTULNPQTUTNLTAQLEUTWPNVLNRRHVRF $C D G T Y E E D C D P S R D Y$ TNDTDSTLDYMEDYWLNDDGTAQELD
SGRPPSFCSGEAFDKTERELGLATHGQFWPDVKDPQYAAF QKTMLNCSSEDEYEDITD DHKLKKLASYWPDLTTSKNQGF QQSF
CSGGQGPADGCQNYPKAPAGFVNDLNTYWSS YKGDNNAF CDGTYDANCDDERAYRNTTQLLKHDMQTLWVSDSGSSETF TSKRLNFCGGNQYKTDEVGDKPKADEYRWPNUTSKEDQVF
ESNDYCNVSNVNKNDDSRNWSPATFEDLIEVMPGVASY品 WNGHPSYCKPTNLDPNKDGHLQAQLDIIWPNVYRTDNDGF EGTLLQYCKPKPTFQWDKDQMLDDLDKNWDQLKYTQSYGR STTLNYCDRSVTYDKFTDDQKKDDLDERWPDLTCKDKQSF KHYRLEFCKYATYDEKES VNDDDKDHHWDQLYAKQKQLL STN $\square Y C N D K Q N R W S E M P P \| N L S P D T L T R L V V M P G V A S N L$ TYG CCFCWPVFQSHLQDLEPELSQLWPSLKSKSNFS


UniRef90 D3XL98 UniRef90-Q8L558 UniRef90-13ZLH0
UniRef90 Q2UKU0 UniRef90-Q9UVC5 UniRef90_Q5TIQ7 UniRef90-D6MR43 UniRef90-M5FXW8 UniRef90_E2A631 UniRef90-17MHK2 UniRef90-S8BXV2 UniRef90_L8GBX1 UniRef90_F8NG23 UniRef90-UPI0002DBC675 UniRef90-G7JXM3 UniRef90-B0LXW2 UniRef90-Q9FPU7 UniRef90_UPIO002488A3A
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UniRef9- W5KPA5 UniRef90_C5S526 UniRef90_C5S526

WRYQYKKHGTCSVDLYYNQEQYFDLA\|ELIKEKFDLDKTLKN GKANG【NMVHVPKVCLTNSNTSSDPKKCGGRTILQQSLKT
 WTHEWNKHGTCVTTLDDMFTYFQQAIDDRAKYNLYTILKD WEGEWSKHGKCSEQTLNQMQYFQRSHEMWQSFNITEILRN WREQFNKHGTCSSNLYNQDAYFRLAMALKDRYDLLRULGN WKHEWEKHGTCAKALGNEYKYFEKGLTFLNSYNMIDILPK RDHE WEKHGTCFEG SQTQYYNVVSK HKQYNPISALAK AI Y QWDKHGTCSSRGVYPPMDYMYMALNGYYDRHDDWK LAS YQGN DESLWGARPQTEVVDYFEKAVELNKGLNSYKILAD WEHEWATHGTCSPKGAEAVAFYETVVTLFKTLPTYTWLEQ
 WDEQWKAHGSCSN MDUIDFFKLSLSIYKKISLKEVLGK WAMEYEKHGTCAKFS SQNTY LSKACDLWEENKUKEIFEH
 WKGEYKKHGTCCNNMYNEQAYYDLAMNLKDRFDLLK LISSS WEHEFNKHGTCDETGAEAADYVKKT DSLFKTLPTYKWDAE WGRE WNKHGKCSEQTLNLMQYFQRSHEMWYSFNTTGILKN LI H Q WDKHGSCSSD IYVGNEYMQTALF LYOKYDLWKLLQE WKKEYEKHGTCCDDTYNQVQYFDGATNLKDRFDLLKSFRN WAHE WNKHGTCISTLEPTCYYFTHAANLYSTLNTYATLAA LQGEWEKHGACAFN QAEDYFSKQKSLYNELT LPDF WA HE WTKHGTCAAS DEPGNCYFTKGLEWLKKYTMKNDLNN WEHEWNKHGTCVSTLEPKCYYFQKTVNLFLGLPSYDGLSA WEKEYKKHGTCSSKGAEAVAFFKTVVKLEKKKLPTYGNLAN WKEEWDKHGRCSSQTYDQRQYFERSHNMWMETDLTNTFGN WEHEWGKHGTCDSTMDPSCDFFSKTVSLEKTLPTYQWLAD WS HE WAKHGTCAAP LNSELNYFQNGLEFLKTFTMTD ILEK WEHEWDKHGTCDSTLDPDCDFASKVVELFKSDPTYTWLSA KEWKKHGTCSENVFNQPNYFNLAETLMFRYDLRSILAN WNHEYKRHGDCCSNLYDQRAYFLLAMRLKEKFDLLTTLRT LQ $\mathrm{L} E \mathrm{EAKKHGSC}$
WEHEFNKHGT
I S T L E P S CD YVK K T I S L F K T L P T Y K WL A E WVHEYNKHGTCINTLENVVDYYTAAVTLYDKLNTYEFLAA




 ERHEWIKHGTC TKLSSADDYFGGAAGLIDELDNASAVRD WS HE WSRHGTCSN MDQHSYF LDA LELKARFNLTR ILLD WEHEWGKHGTCDTTDDPGCDFFSKTVSGLEKTMPTYQWLAD ELRHEWAKHGTCC T TAPAPEGFFATA RQAYS WGYEFN KHGTCSTNRYN QDQYF HLLALKKLKNQFDLLK L L R N WEHE WATHGTCSPT GAEADAFFETTVKKLFKTLTTYDWLS Q MAHEWAKHGSC MTRHPEAYFKVSQILWDSLRLPDLDRLL A MYEWSKHGSCAANVYT GEDY DRAT I NI R K QVNI WEKLKE

 WA HEWNKHGTCDNTHENVYNYYS LIYNLFENLPTYKWLVE
 WA ME WSRHGTCSEN I FNQRNYFNLAETLMFT\|DLTSSLLD

 DQHEWAKHGTCMGTT PAAYFARSNGLYGKGLRYPDMDRL
 MQHEWSKHGTCM A GYDPERYFTTSNRRLYGKLLRFPDWAAL $\begin{array}{ll}L Q G E W E K H G A C A F N Q A D & D Y F A K Q K E L G N Q L K K L P D T\end{array}$
 WA HE WATHGTCSPA GAEAVAFFETVVVRVG KTMPTYYTWLAD WQHEWTRHGTCS GLEQVAYFTHAlD LERNETLAP WKHEFNKHGTCSMELTYNQEAYFDLAMKLKDKFDLLRRILGD
 WA HE WSKHGTCVSNLADVFAYFEKTMALRSKYNLYQALSA WEHEWGKHGTC』SPTQEVTDFFNRTVTLFKSLPSYEWLES WEN QYNKHGTACSE LIFDQAA YF DLLA I Y L K D M FDDLLK LL R K WEHEWSKHGTCDSTLDPPCFYFSQAVSLFRGLPTYEWLAN HLHEWDK HGTCYSPT PEEYEVVESIMMTEQUN SSVVRD WS K E WEK H G DC G S T T DD DVNY F ETVI N MY QK Q NVS E L L S K
 WK HEYTRHGICCKNL HLDE EWYKHGTCYGT Y S P FSQQNYF R R N WEHEWDCHGSCSN FSQQNYFQKT LDL HKRYDDAAALAA WKDEWFKHGTCAESMGSPAHYFRTSLKLRTGFDVDNALAN LQGQWEKHGACAFN SAEEYFAKQKALEQSLTL

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UniRef90 KOKFET UniRef90-Q9FPU7 UniRef90-UPIO002488A3A
Uniinefol N1RY39
UniRef90_Q19PT7
UniRef90-L7FM67 UniRef90- W2S919 UniRef90-A0A011MG17 UniRef90-H9JLW8 UniRef90-C1FYW2 UniRef90_UPI0004417FA7 UniRef90-A8T2R5 UniRef90_UPIOOO2C37628 UniRef90-G9P2L2 UniRef90-C1L5V8 UniRef90-G6DFF6 UniRef90-W3WWC1 UniRef90_Q8LRQ4 UniRet90_G1E6U6 UniRef90-Q9FPV1 UniRef90-UPIO003761A75 UniRef90-A0A016Q3M2 UniRef90-G8YT11 UniRef90-B0DDC7 UniRef90-S2K1V0 UniRef90-P10281 UniRef90-TOISJ9
UniRef90 - VGJGG6 UniRef90-UPI0002657BDE UniRef90_F1R673 UniRef90-Q8LP93 UniRef90-B9JH77 UniRef90_C5x370 UniRef90-P24657 UniRef90_UPIO003772390 UniRef90_13ZD51 UniRef90-A8T2N1 UniRef90-UPIo00455DB58 UniRef90_U2Y6S9 UniRef90-UPIOOO2C3FAB1 UniRef90-B5X9N3 UniRef90_G3J4N2 UniRef90_L7FM79 UniRef90-D7G384 UniRef90-G1E6Y9 UniRef90-FHAPR1 UniRef90-UPIO0037900E7 UniRef90-UP100026CB57E UniRef90-W1QF52 UniRef90-A0A031HTJ1 UniRef90_M4XM45 UniRef90-Q8LRS2
UniRef90 $\mathrm{H} 1 Z S 26$ UniRef90-UP1000455EDAF UniRef90 H3GNX7 UniRef90-A8T2NO
UniRef90 G1E6T6 UniRef90-V5YU73 UniRef90-M2NLW0 UniRef90-A8T2R1 UniRef90-COOH52 UniRef90-G8H1A3 UniRef90-Q5Q9W6 UniRef90-D6MR44 UniRef90-EOUJR2
UniRef90
IOYUU5 UniRef90_W5KPA5 UniRef90-C5S526 UniRef90_UPI0003766F5A

HGTTP SKTNTVTDVIEKAIIKAVTKEVPNLINCTGD SSQTM LK SYQMHKHGKYSDIVSPIKAATGRTPTLRCKFDPNNNPQ GGLTESTALAPEQ I SLFRQSNPSLPALTC AGTVPYTETYSLSEI HDALVKAHGAEVVVRCRHHNWNEAW
 AS:VPHPQTWTYSDIVSPIKAVTQTTPKLRCKFPPKSQT

 AG:|TPSSKTYALADLQAAIVKVHGKEATLNCNSGVLTEVW AGUTPSATTYTLAQUQAALKAAHGFDPTLGCKSGADEEXW LERMSRRELTFGMVRREDARANPGMTPQADADR SNGRG HKIFPGNATSYKDVLMNAI QMETRSSPLLLCHREKVNGKT AGUTPTDKTYTKEEVLKVLTDKFGSEPYVGCSKNALNEVW MNALSRQPTLSARKLAEALAAANGGM DPAAFKIVTNRBG AGMKPKTKTYTADEVVDALAEHHGARVTDGCSNGSLSEVW
A

## S

H G V I P AE I VPRHKTYTLDDQLQGAI A A SHGHPDTFRCRGSELQEVW

A G $\square$ T P D MK EMSKS


## H


 ANIK P E GKNRTLVDIVTAI RSATNKAPKLKCQKKAST

 A G I EP T DK TFTAS EDE DADAS QHGARDT DGCQGSTLS EVW


 $M K A L A R R K T L T V G Q F A D A F A R A N K G L K A D M V R V T T T R G N$ FK QMIGNE TLFSEDDRKAFPANTAFRCYK D VT GNQ

 A GVVPD DK QYCLRSI R DAVA A ATGSAPMLECNRNGRNETQ
 LG KDATMRPSEI LTLFHRANPAFPQLSCSQN

 SRQENRNAG NGVVAD GSTYDREWLR DRQAFTARNPDWKPVGVQL NARG A GI K P S C N Q S Y P Y D K V N HL
 A GI T P N S K T Y T K E QI Q S ALS S NF GQDVVYFKCRNNALLSEVW
 PRNG $\| P L P W P K V S H V M S A D S K V T H V T P E L R C R Y Y D Y G N S L$ AKITPGGSY TYTAMQNAIKAAFGVTAKIDCSSGT A GUKPSTT TYT L S Q DQ S ALK S K F GAEVVY A C S N NA DNEVW S E G DGRRPLTA GQFA A A DAAF GRRVLLDCESDGA GR R A G $\square T P D S H T Y S K Q Q \square D E A D K S R F G K E V Y F K C D R N A L D E V W W$ SRGPVTAGAVAAA MAKRNPGLGADMM RVTATKQG
AK $\square$ K PEKKFRTKRDDVNADSQS IDDKKPKLKCKNNNQ
 A G ITTPD DATYELLSDVLDGALES GS G GTPAMVSCDDDADSADS $T P Q L V Q D N V G G Q V D A A K L R A A F G B A A L K C Q Y \quad S N G K H A$

 A G D P GS TPNVA DMHAA KTAF GVDA Q N CNS GVL S E I W











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UniRef90-D6MR43 UniRef90-M5FXW8 UniRef90-E2A631 UniRef90-17MHK2 UniRef90-S8BXV2 UniRef90-L7FPD9 UniRef90_F8NG23 UniRef90 UPIO002DBC675 UniRef90- G7JXM3 UniRef90-B0LXW2 UniRef90_KOKFE7 UniRef90 UPIOOO2488A3A UniRef90_N1RY39 UniRef90-Q19PT7 UniRef90 L7FM67 UniRef90_Q5Q9W5 UniRef90-W2S919 UniRef90 A0A011MGI7 UniRef90-H9JLW8 UniRef90_C1FYW2 UniRef90_UPI0004417FA7 UniRef90 A8T2R5 UniRef90_UPIO002C37628 UniRef90-G9P2L2 UniRef90_C1L5V8 UniRef90_G6DFF6 UniRef90-W3WWC UniRef90_Q8LRQ4
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UniRef90-A8T2N1 UniRef90_UPI000455DB58 UniRef90 U2Y6S9 UniRef90-UPI0002C3FAB1 UniRef90-B5X9N3 UniRef90-G3J4N2 UniRef90 A5E348 UniRef90-L7FM79 UniRef90_D7G384 UniRef90 G1E6Y9 UniRef90-F5HPR1 UniRef90-Q5AK94 UniRef90_UPI00037900E7 UniRef90 UPI00026CB57E UniRef90- W1QF52 UniRef90-A0A031HTJ UniRef90 M4XM45 UniRef90 Q8LRS2 UniRef90-H1ZS26 UniRef90_UPI000455EDAF UniRef90 H3GNX7 UniRef90-A8T2N0 UniRef90-G1E6T6 UniRef90-V5YU73 UniRef90 M2NLW0 UniRef90-A8T2R1 UniRef90-R4XJP2 UniRef90 C0QH52 UniRef90-M4M862 UniRef90-G8HIA3 UniRef90_Q5Q9W6 UniRef90- D6MR44 UniRef90-EOUJR2 UniRef90_IOYUU5 UniRef90 W5KPA5 UniRef90- C5S526 UniRef90_UPI0003766F5A

ELIPEIGI
LLHEVV
$Y$ LTA V EVCMDKNLKAQSCSAVRTCGATQI YFFNVAGP LQTGKF $\quad$ PA A GQTSNCPSKGI
LYFHVKGTDSYVPTDAVDKSTCSGTVIY

Y Y F NLQQ S L I D GVLESYDAPSSDCPTSGD
$M L Q K \square D L I F S K D \square S T L I E A P$
YHYNVYGSAQSGQYVAANGSKSTCPATGI
Y I H DFRVCFNVEQDPFNPGPAE CPDK
YHYNVLGSVQTGKFVPTDGTKSTCPATGV

YLHEI QVCVDKENHNYTNCRTPDCEKDVYF LLWEVVL
YFHQLKGSLLGENFQHTDSSNSKCPSTGD
ELSEI VICFEPKGKNVVSCRRPTC
WLEEVRLCLNTALKPQR CRASAQGAR
$Y H F N V K G S L Q D G Q F V D G S K S S C P D S G \square$
STAETRTCYDKFNPKMTKCPERKCAKEDMF
ELKEI GDCFDP AKNVINCPHPT
Y $\mathrm{H} Y \mathrm{Y} V \mathrm{R}$
ELY I CYNKQW QPMDCPR

WYFNLKGSVIDGKFVA $\square$ DAPEGSCPSSG $\square$

LVEVALCYDVQGSRDINCTRP
ELKEIGI CFNPAADSFFQCRHSN
WLE EV WLCLGLD KRPRSCPAGQGGA
YHFNVQGSI QEGQFVATDGSKSSCPSSGI
YFHHLKGSLKSGSFDP円DALNSKCPNNGI
WYFNVKGSIADGTFVPI NAPK
LINFYVKGRSDYMDTDVL QPGNCRGAVLF
YFYNIKGNADTGEYQPIDTTSPGCSTSGI
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YL HEVFYLIDDSGQPY
VLSEI GVCFDADFKP TDCRSS
WI QLKI H LS RN QT $\square$ GCP
ELTEIGI
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VI SELTIGLSEDA IQPAPGSEPR
LYQHRRCTD
YHFNVKGSLQDGQFVAADGAKSTCPDDVYY LITELTL
QLSAVEACFNKDMQP $\square$ ACVNLKGCAADA $\square$
WYFNLKGS $\|$ D G DFVA $\square \mathrm{DATDSTCSSSG} \mathrm{\square}$
WLQEI RLCYDKNFMPARCAPRDSARAKI
MCTKVTSANKANPEFFDCPQGGCSASVYF VLVQVK $\square P$ LSONDT
YHYNVRGSLQDGDFVPPDGAKSKCKGKVQY

STHEVKDCYDDQDNKFIECPDR
HLNQVYLCLEPDPETHLPGEQVACPPAVV
ILVEVALCHDVSGKRVINCPPP
L S I EI NF NVKGTSPVNTTGSTCSGTVKY
YFYNIKGS ILQQNY LPPIDTSKTNCPSSGD
LAGELRISL
WLDELWLCLDKSFAYARCTPGS
YFHHLRGSIPHGNYVP DDADSSNCPA

$M L V E V A D C Y D V P G R K V M N C P G R$
WYFNLQGSVIDGTFIQIDATDSSCPSSGD
MFS QVFTCWQKDAHH VPTRRCACPPH
$\square M E V V L C Y D V P G K P A \square N C P Q P$
LYFNVK
YFFNVQGS $\square$ QT GSFKPSDGTGSTCPSSGD
YFYNVQGSLVDGTFEA IVGKTGSCGATVKY
MITELWD

| E | L | V | L | WF |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
| E | L | Y | E | G | G |


M T T E L WV
Y NEI FMCFTQDLK AVNCEK
W VQLK Y Y $\quad$ S K N
ELY L C YDK S W QPMDCPQSH

UniRef90 L7FPE5 UniRef90_UPI0002C3D3F2 UniRef90_UPI00028916CA UniRef90_M4BJ83 UniRef90 J2AR59 UniRef90-V5E520 UniRef90-L8MRB5 UniRef90 G21474 UniRef90 UPI0002C3D4A1 UniRef90_H1ZS25 UniRef90 G1E6W7 UniRef90 F8EUC3 UniRef90-W7HL41
UniRef90-J7QSY1 UniRef90 UPI0003D292F0 UniRef90- G1E6Y3 UniRef90-G2Y2L9 UniRef90-G2DWZ1 UniRef90 V4M0F1 UniRef90-M4MB18 UniRef90-W1S865 UniRef90-UPI0003C16C1F UniRef90 LOLLV5 UniRef90_Q9FPV6 UniRef90-Q5AKB1 UniRef90 K9Q873 UniRef90_G1E6V0 UniRef90_M9TDP9 UniRef90-V2XB44 UniRef90_G1E6T5 UniRef90_C4Y9Q5 UniRef90-G4TBL7 UniRef90_H1LNL5 UniRef90 ${ }^{-}$S8EET UniRef90_UPI0003B371D9 UniRef90_S3DQE8 UniRef90 Q0ZL27 UniRef90-F3WZK4 UniRef90_Q8LP81 UniRef90 Q8W018 UniRef90 ${ }^{-}$A0A031JJ36 UniRef90-Q8LP82 UniRef90-A0L2D3 UniRef90_A8DMS3 UniRef90 ${ }^{-}$W1N6D7 UniRef90_UPI0003297FAO UniRef90 E1W3L3 UniRef90- J2GS44 UniRef90_UPI0002C3ED13 UniRef90-B1J8A7
UniRef90 U6HLB0 UniRef90 W9A026 UniRef90-D0Z275 UniRef90 G2R5Ss UniRef90 M2R197 UniRef90-L1LS70 UniRef90_Q0ZL21 UniRef90 X8JUV3 UniRef90 G7SRX0 UniRef90_UPI000479A0D5 UniRef90_F4ZGT8 UniRef90 Q65W07 UniRef90-UPI0003B41308 UniRef90_Q6CAV7 UniRef90 A0A016Q1U4 UniRef90 ${ }^{-}$W6RAU1 UniRef90-G1FL36 UniRef90_Q8L5P4 UniRef90 UPI0004561BCE UniRef90-M4TLH3 UniRef90-UPI0004668230 UniRef90 C5MIZ4 UniRef90 D8U5X UniRef90_S6EDY0 UniRef90_D2VS42 UniRef90 A0A022PH98 UniRef90-A0A031GJ21 UniRef90_Q8LRS6 UniRef90-L7FN52 UniRef90 Q8VWL3 UniRef90-E5FAW4 UniRef90_F9F7F7 UniRef90 D3XL99 UniRef90 J2Q0Q3 UniRef90_J3QDE8 UniRef90 Z5XAIO UniRef90-C5BAM9 UniRef90-S3CKK7 UniRef90_A2YNY8 UniRef90 Q8LP83 UniRef90_UPI00035F568B UniRef90-P81296
 STSFWTTTAADPANNGPKDSTTI HGLWPDY
 $L V L V E Y W P G D K C S K E V C P L G T Q N V K E K F F L H G F W P Q Y$

Y T L A L G WS PE YCRGKTTRQCGSGHFFG $\square$ TLH GLWPE G LLTQRWW NAQPD DGPDDSWTLHGLWPDN


GPADSWTLHGLWPDL YVLAASWQPSFCATRDKKECRSQTPDHFALHGLWPDC GLWPD Y
PPKRDPPFKLFTVHGLWPSN
FNYYTVAADSWTPQYCSTAREQCSGRNGKFGFTLHGLWPDG FILAASWEPAFCQTNQKKECRNQDATNFSLHGLWPMR $L L T Q F W \quad D Y N P A T G P D N L F T Q H G L W G N M$ YLLAVSWQPAFCETKPKTECQRPEATNFALHGLWPQP

FTQQYQPAVCNSNPTP CKDPTDKLFTVHGLWPSD Q T Q F WD T N P S

T GPSDSWTIH GLWP D N
Q T F T 1 HGLWD D T PKGNWTI HGLWPDN DYYMLALLSWSPGFCD $\square$ QREKQCGSNRTGGWVVHGLWPQ TGPSDSWTIHGLWPNY
 YT L A $\square$ T WSPQYCRDPKGDQCGTGNRFGFTLHGLWPDG H GVVWPD P Y S Y C S LKK K HCKRA H LP S EFTI H GL WP D N
 YDSNVLALLSWQSTFCELSRKAECRAPQWQHFSLHGLLPNR

FDSYTLALTWWHPGFCATRRQPPCRDPVLMGFVIHGLWPDT
 D Y Y MLLALS WSPAFCEK QRA QQCSTKN QF GWVV HGLLWPQ YTLAASWSPDYCKTSGDQCAKANGRFGFVLHGLWPES Y S Y A MFV V T WP GS F CS DK C CP T E S S G L E E GF TIIH GF WP Q Y $Y L V Y$ SVT WQP T F CLLMKPSTPGCEEAPERFLTHGDWPQY


 YDSHVLALTTWQPGFCEHDRNGPGKP ECQDHF TLLHGLWPNK $F L$ LT QF W DYSPAAGPSDSWTIHGLWPD H D Y Y T FVLSSWS PAFCEKQRNRQCGLTQQFGWVI HGGLWPQ CAVKPADREQCSRQLGFVLHGLWPQY FDYFKLAVAWSPGFAYKERKKHDRDRDHASWFIHGLWPTM D Y Y ML AL S WS PSFCWT QYEK Q CG $\square$ K K K Y GWVI H GL WP Q S

 LH GVVWPD N $\square H \mathrm{G} V$ WP D N $F L S T Q F W D T N P A T G R P D A T T A H G E W P D F C D G T Y P A Y$ Y D YLV Y A V T WQP TF C L L N P A A P GCK A Y RA DF Y TH G I WP Q S $1 L A V S W Q P A F C E H Q D K P E C Q S Q T A G H F A L H G L W P D G$
 $D Y Y$ ML A LS WS P GF CQA QKERS QCGTQQY GWVIDGGLWP Q D Y F K L A IS Y S P AFCK S KEK NQCFSENKFSWVIH GLWA Q T D Y F MLALLSWSPGFCDSQRRRQCAESNQFGWIVHGLWAQS AVCNSKPTP CKKDPP DK L F TVV H GLL WP SN LVQ F WP GN RCK G G HCADP K T TP P K G G M L N GF WP Q I P K S F C L V N SRKCQRNPLPSNFT H GLWPDN

## $T G P \square D S W T V G G L R P \square H$

 I H GVWPD HY L LA L S WS PEFCRARGEAQCGANR FGF VVHGLWPNG
 LLVVTWGPALCKVDPPNPGCRSGHDGFDLHGLWPQP



IH GVW WP D K


## UniRef90 L7FPE5

 UniRef90-UPIO002C3D3F2 UniRef90-UPIO0028916CA UniRef90-M4BJ83 UniRef90-J2AR59 UniRef90-V5E520 UniRef90-L8MRB5 UniRef90-G21474 UniRef90-UPI0002C3D4A1 UniRef90-H1ZS25 UniRef90-G1E6W7 UniRef90-F8EUC3 UniRef90 W7HL41UniRet90 - 7 OSY 1 UniRef90-J7QSY1
UniRef90 UPIOOO3D292F0 UniRef90-G1E6Y3 UniRef90-G2Y2L9 UniRef90-G2DWZ1 UniRef90-V4MOF1 UniRef90-M4MB18 UniRef90-W1S865 UniRef90-UPI0003C16C1F UniRef90_LOLLV5 UniRef90-O9FPV66 UniRef90-Q5AKB1

UniRef90 K90873 UniRef90-G1E6V0 UniRef90-M9TDP9 UniRef90-V2XB44 UniRef90-G1E6T5 | UniRef90-C4Y9Q5 |
| :--- |
| UniRef90 | UniRef90-H1LNL5 UniRef90-S8EET7 UniRef90_UPI0003B371D9 UniRef90-S3DQE8 UniRef90- Q0ZL27 UniRef90-F3WZK4 UniRef90-Q8LP81 UniRef90_Q8W018 UniRef90-A0AO31JJ36 UniRef90-Q8LP82 UniRef90-AOL2D3 UniRef90-A8DMS3 UniRef90-W1N6D7 UniRef90-UPIO003297FA0 UniRef90-E1W3L3 UniRef90-J2GS44 UniRef90-UP10002C3ED13 UniRef90-B1J8A7 UniRet90-U6HLBO UniRet90-W9AO26 UniRef90-DoZ275 UniRef90-G2R5S9 UniRef90-M2R197 UniRef90-L1LS70 Unireforo-QOZL21 UniRef90-G7SRX0 UniRef90-UPI000479A0D5 UniRet90-F4ZGT8 UniRef90- Q65W07 UniRef90_UPI0003B41308 UniRef90-Q6CAV7 UniRef90-A0A016Q1U4 UniRef90-W6RAU1 UniRef90-G1FL36 UniRef90-Q8L5P4 UniRef90-UPIO004561BCE UniRef90-M4TLH3 UniRef90-UP1000466823C UniRef90-C5MIZ4 UniRef90-D8U5X1 UniRef90-S6EDY0 UniRef90-D2VS42 UniRef90_A0AO22PH98 UniRef90 A0AO31GJ21 UniRef90-O8LRS6 UniRef90-L7FN52 UniRef90-Q8VWL3 UniRef90-E5FAW4 UniRef90-F9F7F7 UniRef90_D3XL99 UniRef90- J2QOQ3

UniRef90 J3QDE8 UniRef90-Z5XA10 UniRef90-C5BAM9 UniRef90-S3CKK7 UniRef90-A2YNY8 UniRef90-Q8LP83 UniRef90_UPIO0035F568B UniRef90_P81296

DSN 50 60

70
SNKHMQCCKNNFMIENVEAMMKSDEVILSDWMSLEKCVF SYTEYPSCCYTQWTSDA STYTSTHPTLQNYWPSLKRCLF VGKEWPQYCAAT
 GSYCGVSSDDINRDETGNWQTDAQTKAELSKVMPGDVSN LVHDGLPVTMWWNKGCDTYNHDDTPPKRLSMTVAHTRSSL

## RQGYPQYCRETTLLPST川INKMAET

YEQKF
HEQSF CDGTWEQFCDKSRESTDISAVMNKYMQKYWRSNNNNDDGL QYCNVDRHKDNRWNGLPEPELSDATRHALSEVMPGTMSLL EDMNNKPRDRLRIWPNIUGHTDEW
CDGSYPTYCHSTPQYHN TTS LT AYMHEYWLPNRGSAETF GRGGPVSCKGSQ DDDTQIRLSPEVMNDLKVAMPGVQSGL NDGWPSCCYRSDFNEKETSTLMDGLEKYWPSLSCGSPSSC NGPDPEKCKATALKSQKIGNMTAQLEIIWPNVLRSDHVGF RDKAWPQYCRAADLVPREVVRDNLLTTPSVQLI
ARTFPASCSRAALP
QEYCDVSEDLKQADRGRDWKDLPDVRERYKSLYPSPT
Q VSTRLQYCKPKPKYITFAGKMLNDLDKHWIQLKYKEPYAR CSYGYPQFCDPSLEINPNGEVIRSNMSYSWKDYHGKDSSF
ESNGYGVSQSRFDKATWSKLPAVEERLQVVMPGTASNL SNGNDPKYCKAPPYQT TKILEPQLVIIWPNVLNRNDHEGF
SNGNDPKYCKAPPYQT
CGGSYNQFCNPDWEFSDSDNDPDNTMQTYWTSNSGSPESL CDGSWESYCDFERQYDEDPSPKQRFMKKFWVSKGSSDASF NANALSVTDHPRFCKGDLPARPKDLLARYLADSPGE QL CDGDYPSNCDSSRDYDDITSLLEDFMQDYWQSDDESNEKF CDGSYPTFCHSTPQNYHDTS LSEYMETYWLPNRGTLEHF NCAPGATYNKDDDPDMIEQMDKRWTELTSKKHQGF EGKDWPQYCKPTYDDTEPGKLPAAVVRRHMCATPSAQLD KSYPLLNCPHTTVLKLENKGLVKKLRVNWPRLKKFQGQKF KGRDWPQYC VSTEDNYCGRKKYRDITDDRETNDLYDRWPDLDCDDKQNF QQCGTRYGFCSDFCDYPEVPLNASVQKNLEEVMPSARYGS WHREGCFVEHRRPRGGFCEMGPPDEFNALNASMPGRASCL AKNR CDCWPMFPSDVQELKAELTELWPSFVRKSNFHF NANARSVTDHPRFCKGDLAPLPDETLEPY SS SPGA KL ARGPAPQWCAAAPLPPPQLLR
SGNSYPSCCANDFTDK QVESMLLADNDVATYWCMTPSPSLL
GNK SGNSYPSCCANDFTDKQVESMLLADNDVATYWGSMKKCRF CTNSPDCTNGEACAMRADEMSAVLANKALRATVTSEPEKGL
WPNMNKCGDGPKYDNNSKKDIFEELQREWADEKGFQHWKF TSCGTKYGYCDRYARLDLSASTVKENAPWMPNFY YQTKF GTYDSSCDPSRAYTNUTQILQAAQYMQTYWKDINGNDESF CDGSFSEDCDPSRDYTDUTSTLDFMNQFWLND DGSNEELD CDGRYDANCAPEREDFNDTAKQNALEYRWPNLLTSKEDQDF NERARRVSDQPRFCRGDLPMVPQEIIEQY LPESPSASL QRGYPSNCTGEQLYPGMEEAFPELYPSRFL
FGRYQDPMPGCQRSDTTFNKNRFVDNK\|LGPLENSDNTKF ATARTVAGHPRLCKGDLPQVEENVVRQYMAESPSPNL
 CDGSYAQFCDKSMEVQSETELLDKMNKIWIPN RGSTDSF KDYCDVSGSLRTADKDGDWRELPETRAALEKMMPGTQSGL EQYMLNDCYGRMYTTIELPGEQNKMNDRWPDLFSGEKQKF CSNVTGDPEYTGAEDRAVLQKYSPETDAFMDVYNGTDEDF ANRHPSNCIQSPGCPAPGVIDALLKDTAFRKIVSAQPEGL ENYCGVAADVRAEDENGNWNASDDLRQTGEKVMPGTQSNL YTGPPSFCTKELFDSQQLGPFEASLAYFLRSPFPASLHSF NANAHSVSDHPRFCRGDLPMVDPA乌1JKY GADSPSANL
CNGKSMAQCRDWSDVRKHPRLCKDYQVIEPY LCASPGADL N NPATCEDTSWTPPRKTDMHPRYCKGNLPKLAPSD\LPY NGPHPENCTNATVNSHRDKNDQAQLK IIWPNVLRTNHVGF RVNAKLRCCLIFKLDENIIFRNRPLVEMIHKNWMSFQQCGY YTRQPQSCTTNNFQRFTDTDDEQRMEESWPDLKAGLSYNF NDGSDPTHCDTNRTYTNDTQDTIDDMNQLWESPDGDNDEL DYDMYDCNPNKEFKKTYDKHLLNKLESRWPQLTSNEYQTF AARDHPRYCRDAPPLNLATLKAN PTQQFCGVPKGGRNPSLAELKKLPQGVQTDLQSMMSDAGVM CDQSPGCPTGSRCTLLPEVMDSLLKNTAFRKIVSAQPEGL
 EGTLLQYCKPKPKFRGIKDQLLDDLDKNRDQLKYPQTHAR


## UniRef90 L7FPE5

 UniRef90-UPIOOO2C3D3F2 UniRef90_UPIO0028916CA UniRef90-M4BJ83 UniRef90-J2AR59 UniRef90_V5E520UniRef90_L8MRB5 UniRef90-G21474 UniRef90-UPIO002C3D4A1 UniRef90-H1ZS25 UniRef90-G1E6W7 UniRef90-F8EUC3 UniRef90 ${ }^{-}$W7HL41
UniRet90 J7OSY 1 UniRef90-UPI0003D292F0 UniRef90-G1E6Y3 UniRef90-G2Y2L9 UniRef90-G2DWZ1 UniRef90-V4MOF1 UniRef90-M4MB18
UniRef90 W1S865 UniRef90-UPI0003C16C1F UniRef90_LOLLV5 UniRef90-O9FPV66 UniRef90-Q5AKB1 UniRef90-K9Q873 UniRef90-G1E6V0
UniRef90-M9TDP9 UniRef90-V2XB44 UniRef90-G1E6T5 UniRef90-C4Y9Q5
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UniRef90
O8LLPK4 UniRef90-O8LP81
UniRef90 O8W018 UniRef90-A0A031JJ36 UniRef90-Q8LP82 UniRef90-AOL2D3 UniRef90-A8DMS3 UniRef90-W1N6D7 UniRef90-UPI0003297FA0 UniRef90-E1W3L3 UniRef90-J2GS44 UniRef90-UP10002C3ED13 UniRef90-B1J8A7 UniRef90 UGHLBO UniRef90-W9AO26
UniRef90 Doz275 UniRef90-G2R5S9 UniRef90_M2R197 UniRef90-L1LS70 UniRef90-QZZL21 UniRef90-G7SRXO UniRef90-UPI000479A0D5 UniRet90-F4ZGT8 UniRef90-Q65W07 UniRef90-UPIO003B41308 UniRef90-Q6CAV7 UniRef90-A0A016Q1U4 UniRef90-W6RAU1 UniRef90-G1FL36 UniRef90-Q8L5P4 UniRef90-UPIO004561BCE UniRef90-M4TLH3 UniRef90-UPIO00466823C UniRef90-C5MIZ4 UniRef90-D8U5X1 UniRef90-S6EDY0 UniRef90-D2VS42 UniRef90 A0A022PH98 UniRef90 A0AO31GJ21 UniRef90-O8LRS6 UniRef90-L7FN52 UniRef90-Q8VWL3 UniRef90-E5FAW4 UniRef90-F9F7F7 UniRef90_J20003 UniRef90-J3QDE8 UniRet90_Z5XAIO UniRef90-C5BAM9 UniRef90-S3CKK7 UniRef90-A2YNY8 UniRef90-Q8LP83 UniRef90_UPIOOO35F568B UniRef90_P81296

STFQMDKHGSCSYDTYKPKQYПETMMFLKKSGKVIWSFDKE FNYEFDKHATCLPSLFSPSDFASDPLNFVKSHDVWAALKN DQHEWAKHGTCMGVTPD AYFARSTGLYDRLRFPDURAL ERHEWIKHGTCTKMSAD DYFATAIDDMGDLNASAVRD LEHEYNKHGTCFTTMRPTCQYFRQIAHKFAERPTYNILAN VTHEYTKHVQCF GMNAERFFTVASTLRDRFAAGPVGRD LLMYWDKHGTCSSSVYGHFDY DQTALNLYNNDDFWKFLQE WAKEWSNHGTCSENVFNQQSYFNLAKTLMFTYDPTADLFT WAKEWRNHGTCSENVFNQQKYFNLAKTLMFRYDLSSILFN WQHEWNKHGTCMSTYNPECDYMDKSVELFKQLDTYKTLAA ERHEWDKHGTCFPGSAAEDYFSRTLALMSQLNASKVQGL WKRQWSECGYCTQYALNTTEYFMMLKKMDHNNNLIDYLIK WADE WRNHGRCSENVFNQQNYFNQAKTLVFAHNLTSTLFN WEHEMNKHGTCYEAGDEVVDFFTRAVGLFKELDTYKALEK HLDEWPKHGTCYEAGSDPDEYFTEAMAALKALNASSVGRQ HFWGHEKHGTCASPVFDEYSYFTTTLNTYLKHNVTDVLYK WEREWIKHGTCGYPTID
QHEWAKHGTCMATR


DDHEWAKHGTCS
ERHEWIKHGTC
TKLLDPAG
W
HR

 WRK Q WE K H G S C S S P I Q Q N Q K H Y F D T V I K M Y Q K Q N V S E I L S R

 LQ GE WEKHGSCAFD SAQQYFAKEQELFSSGKLYWLE WEHEWDKHGTCYETGEDAVTFFETAVALEKELPTYDWLSE WEHEYNKHATCTNTGDE乌VDFFTTAVGLLKTLDSYKALAA WGHEFLKHGTCCEGHATEEAYFKDAMGLKDRFDLDT ILRA MQHEWAKHGTCMPPGYSPGRYFRQSNALYHGLRFPDMNALL WGYEFTKHGSCSDDLYNQEAYFDLALKLKNMFDLLK KLKN LQHEWAKHGTC MTTRPEDYFNLARAFHDADHYPNLEN WRYEYNKHGTCCEATYNQEQYFHLAVALKDKFDLLKSLGN CRHEWWKHGTCRNQ DPNDYFLLATQLTQEVNASAWVQQ WEHEWNKHGTCVEQTLNQMQYFQRSHGMWYPHSITEILKN DRYEYAKHGACDGGVNEEDFFEGARALAEVVNLGDFMLA

 FAHEWQKHGTCSGKR MQEYFQDFVDLNKVVSFDN WNHEWTKHGDCNSVITDQHDYFAASLKLKMYNFTATFER GEYQWKKHGAC QNLDDNAYFLTATKLVEKVDASA GQQ WEHEWGKHGTCDSTGNPSCDFFDRTVSMFQSLPSYSWLSA WEHEWATHGTCSPKGAEAVAFFETVVNLFQTLPTFDWLED GNHEWKKHGVCSQTAMDDDQYFRLAVDVVKSFNDSPALRE

WGKQYNKHGTCCSELFNQDAYFDLAMDLKDKFDDLTVLGK WGKQYNKHGTCCSELENQDAYFDLAMDLKDKFDLLT LQGEWEKHGACAFD DAKAYFDKQREYRTLKLPNYLSR YRHEWDKHGTCS GLLTQQQFHQLLASDLRQRVNIPAAYQS LQAEWEKHGACAFDR AEQYFAKQQALYRTLTLPTV VNHEWAKHGSCMARRPS AY DRASRVLFDALAFPDMDRL WTHEWNKHATCMSTLKDKCDWAHTVVNVFETVNTYKFLEA WQDQWVAHGTCFSSLNRECYYFQKTVSLFKRLPTYEWLRD ERHEWLKHGSCTKMSADGBYFATSVRGDDELNGSAVRD WEYEYNKHGTCCQPRYNQQQYFNLTMKLRDKFDLLSALQN WEHEYNKHGTCITTNRPECQYFKQIVRRFKALPTYDWLAE MKHEWSKHGTCLGS DQRGYFTRFTQLKSAVKYDDEFKK QRHEWVKHGTC TRFMPENYFQTSVDLLEQLNGSEA AR WAHEWNKHGTCFSTDENTYDF DKKVLYNLDWSSVPTYNWLES LQGEWEKHGVCAFNN NANAYFEKQQNLYRTLTLPD WQHEYDKHGTCAA QLP QFRDYF LQQSDK R K SMMS LP S LKK LQGEWEKHGVCAFATPD QFFSKQQELFDELVLPS |  | M M M WEK H GACDF D T A K E Y F E K E R E L L |
| :--- | :--- | :--- | :--- | :--- | :--- | WNK Q W DK H G S C GYP IM NDTYY F Q TVI NMYQKQNVSE ILSK A M Y Q F D TH GTCAMQIVY VIDEYMKTAB H LLFNKY DA WE I L K Q

 WGYEFNKHGTCSMDLYNQHQYFDLALLKLKNQFDLLMKLRN WQAQWAKHGTCFSTLSPECFYFKKAMSLHKRRPTYDWLRD WK Y E Y E K H G L C C E K VY D Q S Q Y F D $\square$ A M KL K D S I D L L I L T T LQHEWAAHGTCAWD
WQHE WS KHGTC $\square S T$ T $\quad$ E P
A P HE WSAHGTCS
 NAGAYFAKARAL RTALDVPDPMT $\square$
 WS HE WSK H GTCSN L S Q
WEHEY LKHHGTCCQKVYD


UniRef90 L7FPE5 UniRef90_UPIO002C3D3F2 UniRef90-UPIO0028916CA UniRef90-M4BJ83 UniRef90-J2AR59 UniRef90-V5E520 UniRef90-L8MRB5 UniRef90-G21474 UniRef90-UPI0002C3D4A1 UniRef90-H1ZS25 UniRef90-G1E6W7 UniRef90-F8EUC3 UniRef90 W7HL41
UniRef90 J7OSY UniRef90 UPI0003D292F0 UniRet90-G1E6Y3 UniRef90-G2Y2L9 UniRef90-G2DWZ1
UniRef90_V4MOF1 UniRef90-M4MB18 UniRef90-W1S865 UniRef90-UPI0003C16C1F UniRef90_LOLLLV5 UniRef90-O9FPV66 UniRef90_K9Q873 UniRet90-G1E6V0 UniRef90-M9TDP9 UniRef90-V2XB44
UniRef90 G1E6T5 UniRef90-C4Y9Q5 UniRef90-G4TBL7 UniRef90-H1LNL5 UniRef90_S8EET7
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UniRef90
O8LLP81 UniRef90-Q8LP81
UniRef90 Q8W018 UniRef90-A0A031JJ36 UniRef90-Q8LP82 UniRet90-AOL2D3 UniRef90-A8DMS3 UniRef90_W1N6D7
UniRef90_UPIOOO3297FA0 UniRef90-E1 W3L3 UniRef90-J2GS44 UniRef90-UP10002C3ED13 UniRef90-B1J8A7 UniRef90-U6HLBO UniRef90-W9A026
UniRef90-D0Z275 UniRef90-G2R5S9 UniRef90-M2R197 UniRef90-LLLST0 UniRef90-Q0ZL21
UniRef90 $\times 8 J U V 3$ UniRef90-G7SRX0 UniRef90-UPIO00479AOD5 UniRet90-F4ZGT8 UniRef90- Q65W07 UniRef90_UP10003B41308 UniRef90-Q6CAV7 UniReffo-G1FL36 UniRef90-M4TLH3 UniRef90-UPIo00466823C UniRef90-C5MIZ4 UniRef90-D8U5X1 UniRef90-S6EDY0 UniRef90-D2VS42 UniRef90_A0A022PH98 UniRef90-A0A031GJ21 UniRef90-Q8LRS6 UniRef90-L7FN52 UniRef90-Q8VWL3 UniRef90-E5FAW4 UniRef90-F9F7F7 UniRef90_D3XL99 UniRef90-J2Q0Q3
 UniRef90-Z5XAIO UniRef90-C5BAM9
UniRef90-S3CKK7 UniRef90-A2YNY8 UniRef90-O8LP83 UniRef90_UPI00035F568B UniRef90_P81296
 NGIRDDYTKYSKSFITDILFRVFNATP\|LFCDGEYFDEDR SRRPVNAGQVASALARANPGLPA EADRVTVNKRG




 A G IVVPTSETYTVSALQQAAAKAAMGEEVVFNCVGGKLVEVW FAAHVGDE $\quad$ TTRDQLKAAFNETFGDRVRVSCKRD GGRN







ANDK PLRTNRTLVDI EN

 A G
$\rightarrow P N Q N L S R N E L F R W M K$
$A G \square T P D S K T Y T L S E L Q S A D Q S A A G D T A S F D C D D G E$

 $R G I \quad P \quad$ G N Y Y T I D D S I Q K A V K A V T R A V P P NL Y C S P D P K T P R M



 ASIVPPNQTWTYSDIVSP DKKQFEEHPSF
HRGEEVSRNALITAFEDAFGDGTGSALSLQCGGPS DR

 E GVVAD GKTKFDK ELL D I AA EKHYGARGGFFTCSSNSV DAF EAMVVGHATEFS KAIREVVFPDNTAFRCCYRDKQGK Q
 Y K E N I G R N I K A D Q F K QV L V D R M G K E A V N R I R L
 NAGGSVSRTQFYEKLADHGNKAAANNFQLICTGD H G $\square R P$ GTA H HYS L K I Q K A $\square K$ S E T Q G V P N V S C F D D R $\square K G \square S$

 EMKGKELFSWLURKN NPQLRHAYLGASRD
SRREPTA








 STMPKNEL FQWMKQ HNPQLLKGRWL GYEKHS




 H
 G GVVPDEKTYTGGEI SDALAKKGTGFSTYLRCSQNEKYGET HRIVP GS SYTFKEIF DAVK TVTQTHPDIKCTKGALL
LK PGPNGTMTA GEVRAAFLKRNRGMTAD GLNVRVNKDN



LLT QFW DFHPATGPSDSWT $\square H G \square W P D N$
$Y V L A D S W Q P G F C E T R P D K E C \square G Q T A T N F S L H G L W P L K$ $L L T Q F W$ D QQVHAGGAEEDWTLHGGWPDL
$Y Y Q \square G L M W P G A Y C A Q T T R G C C M P K P A A D F Y V S G F T V F N$ $\square \mathrm{V}$ LT WAPSFCRVEPSNPACTSGGQTLLLHGLWPQP LLTQF W DWHYSPYEGRED T WTL HGLWSDH FAHYTFA LDAWQPGFCTAGGEGCLPS QPKEE LILAHGLWPS E


## A VCNSNPTP CNDPPDKMFTVHGLWPSS

 LGPADEFTI H GLWPD T I H GVVWPD H$Y$ VLS LS WS PEFCRT RRD QCS GQA GSF GLIV H GLLWP Q G WNRFMLDDLDTPSNCSAESK CDPPGGYNNFII GGLWPVN FDRYVLALSWQTGFCQSNEPDECRSKTKTDFTVHGLWPVD
 LGPSNQFTMHGLWPDT A ACNSNPTP CNDRTDKLFTVHGLWPSK $T G P D D V W T L H G V W P D R$ FDFY LLAALSVAPAFCEDAPQRQCKAGSERDFTLHGGLWPNR


YLLA $\square Y$ WSPEACRASDKA DCEANRF Y F M L Y TLALLSWSPEFCRTRAEDCGGHSGSFGLVVHGLWPEG | $L L A Q F W D P G F$ | $G P E D A F T$ |
| :--- | :--- |
|  | $G P D$ | EYMVVYAEYWFGEKCENEECTFPKTTEKERFYIHGFWPHY WDVLI F T QQWPVT TCYHNPDQECSLPQKKEFTIHGDWPTH

 FILLSASWQPAFCQQTNQKKAECRPDATNF SLHGLLWPMR
LML A AS WEPAFCRSQDRPECRAQTPTHFALHGLWPDD
 GPSDSWTIH GLWPDT DS YV FA LS WQPAFCETHTSKPECKYQAGNFTH HGLWPNK


 F DSYK $\square$ A $\square$ T WTE GFCYTNPKPECNN $\square$ S DYAMTLHGLWPN D D GYVL A A T WQP GFCE HV P K P E C D A L Q A R H L T L L H G L W WP N YTLS II IWT PEHCRDANDMECSGVAARGFILHGLWPD G Y D S YVLAI SWQPAFCELKRKTECRKYGAGHFTLHGLWPNK
 F D Y LV L E QLF VP QF CRDN GTACVSERADVE LTI H GLLWPNY


## 

Y A L VE Y WP GEKCRDNVCALPFSTPYEGFFLHGLWPQN
D S Y VL A $\square$ T WQP GF CE H GK K P ECD A M N A K T L S L H G L WP N K
FA H D T LALLT WQP GFCAT GS GCLP DQPHNLS IGLHGLWASE A ACKFHHTP CKDPPDKLFTVHGLWPSN VAD GL WA D Y
F VLAASWQPAFCEQRQRPECRGQTPTRFSLHGLWPQP FDRYVLALSSWQTGFCQSNEPDECRPQKADYLTVHGLWPVD

 STQFWTSNAPDPANNGPKDSTTIHGFGDPE



T QFWST YTGLEDEGQLLPKGSWT\HGLWPDN FDRYVLALSWQT GFCQSQHEDECRADKADFLTVHGLWPS D

 FT Q Q Y QPAVCNSNPTPCKDPPDKLFTVHGLWPSN $F L L A A S W Q P A F C Q T H Q E P E C S S Q D A S H F A L H G L W P Q P$ LLLT QF W D FHPA $\square$ GPS DSWTI HGLLWA DK
$Y L L A \square Y$ WSPEACRASDKADQCQANSFGFTVVGLLWPN G

UniRef90_UPIO004441151 UniRef90-F1Z4E6 UniRef90-G1FL33 UniRef90-Q0ZL13 UniRef90_F4S1P0 UniRef90-Q3ZPA8 UniRet90_W0 6 P2 UniRef90-B2B5A6 UniRef90-H9BP07
UniRef90 W5A4R7 UniRef90 ${ }^{-}$A1 T967 UniRef90-14YJ36 UniRef90-Q7NZG6 UniRet90-A8T2Q0 UniRef90-L7FMD7 UniRef90-B6QBL8 UniRef90-G1E6W0 UniRef90-Q8LRP1 UniRef90-A0A024F951 UniRef90-D3XL94 UniRef90_UPIO00225E17E UniRef90_C1LYV4 UniRef90-G2SOU5 UniRef90-M2TAL4 UniRef90-F5HPR5 UniRef90-O8LRQ1 UniRef90_UPIOOO4560613 UniRef90-Q3SET5 UniRef90-C1DNT9 UniRef90-E1ZK04 UniRef90_-B8GWY7 UniRef90-A0A023FNQ6 UniRef90-UP1000372F790 UniRef90-Q6C0C7 UniRef90-G3ASG0 UniRef90-UPI0002C3FB88 UniRef90-Q4JJZ6 UniRef90-Q8LRP6 UniRef90-P21338 UniRef90-J6DPP5 UniRef90-LOH252 UniRef90-18TBG2
UniRefo
U7 UniRef90-B7LLJO
UniRef90 - V5E5V1 UniRef90_UPIOO03941772 UniRef90-I2GOY2 UniRef90-L1QLH3 UniRet90-Q1YM20 UniRef90_W6MVQ4 UniRef90-A8T2T5 UniRef90-F4BF02 UniRef90-D2VBY8 UniRef90-L8MJR6 UniRef90-UPI0003B6E964 UniRef90 UPI0004722E2E UniRef90-A8TQ10 UniRef90-D4ZEE4 UniRef90-H3GR32 UniRef90-R11AE8 UniRef90-S7PXK8 8 UniRef90-H8X744 UniRef90-J8PH17 UniRef90-A7ETL6 UniRef90-L7FMY8 UniRef90-G1E6V5 UniReffo-L9P959 UniRef90-G6XGW3 UniRef90-Q8LRQ0 UniRef90-M1CNB4 UniRee90-UPI00035FBF9B UniRef90-R9VSF5 UniRef90-DONSN5 UniRef90_Q1GU05 UniRef90-W3VkG6 UniRef90-UP100047C7BA5 UniRef90-Q8LRR9 UniRef90_Q0ZLO5 UniRef90-Q0ZL07 UniRef90-D8PSB5 UniRef90-A0A023V992 UniRef90-12K8E4 UniRefofo-A6Q8X9 UniRet90_R1E2S5 UniRef90_Q0GDZ9 UniRef90-G8PKZ5
UniRef90 M9MAR8 UniRef90-M9MAR8 UniRef90_D5VDM2 UniRef90_D5VDM2
UniRef90_UPIOOO32A9EBs

AQ SCCTCWP TFASDLQEVEEELKEFWPS DNGSWPQWCPAKPPATREVP AAVVRQMLCTTPSPTL RSTILYDCVVPPDYLSFFHKILNALDKRWPYWYGDDKQYQ CDGSYEASCDSERDYTNTTQLLQDIMNHYWKDQRGNDERF NDCDKTFTKFWDPKLKEELDERWTDLIVSKYQSF KSYCGVEADLKARDRKGDWDMGDETAKRLLVAMPGVKSGL CDGTYDQFCNMTPQYHHGQHELVQFMDRYWLASSGPNSRL SFVMYDCDPLKKYKTIDDTNILTELDARWPQLTSTQFQRF PDRQNCGVPRADDERQLPPVDLAGNVRAELQATMVDTASLD CDGSYSQFCDKSMMLHNLSTSYNEMNEFWLDNMRGHNDYF ENNVLNNCKPKSYKDIRDLPIQNKIYDRWPDLKCMKDQEF CDGTYSNCDSSRAYNDGTTLLQNAGKTDLLNYMDTYTEAF
MVGPDPSNCPDRKFWKREKLLEPQLETDWPNVFRTKNKVF CSGGQGPASGCKNYPGTPAGFMDELNLYWAS YKGDNNAF DFVMNDCYPTKKFTNTKDKA LIKKLPRWPQLTSLNDQEF AGRGGRNWPQW CAARRARPSGAQLARQMCVQPSAQL SMGTPTCQKKVNFDLSRLALVKEKLLNSWPDYHNKTMPEL ERRWMRYGCATRPTPNMPEVKASRKCAKLNSVMPGAGGNS GRGPHPRACADAQPVPAPVLTAHYCMDPSAALM
CSGGPSNGCDSSRNYSGTGASПMDDMNTYWGSYTGDNNSF VKGPDPHDCKTKTNKSQTDDTKPQLG\IWPNVFRADNESF CSGGYDASCDSSRNHGDNATDVLDYMNQYWLDDRGNDNSF EDRRHPAYCAGKFCALPAPALPSETEAALRQFMPATADCLD NNGWPEFCDAANATTSGGADDSEQQKCEWPSFKGSVCPAC PDRVHPRYCRS NTSYPAFCNTTGYNATVLSSLVPLLDQYWPSMNTDNNNVF AKGYPQWCGARK CDGTYQQYCDKEQEVSNVTDLIKKLEPSLLDDYMNGNESF HRNKNLYCCDNWYGPDNFDMEKDLLKEVRNKWMSTTACRF QMGPNFCNNSANFDPDKLNPTEDRLETFWPDLKGMDSTEW WNGYPDYCKQTNLDANKIAYLQAQLDIIWPNVYRSDNVGF ERRWMRFGCATRPIPNLPEARASRMCAKLSEVMPGAGGRS
QNYCDVSAEQKAADKDGSWNTSAETQAALAKAMPGTQSGL DQATFPCYCDQGAPASCAESHPSDAQURLAVAMPGMQSGL R S G
ERRWMRYGCATRPDPNFPEVRASRKCARLSEVMPGAGGRS
CSGGYDSDCDPSRNTNNDASILDDTMNQYWLALNGNDA QL ASCGTSYHSVSPFCSYDAVPMSSSTLALLGQYMPSAAYGS CTGGYDSDCDPSRNSANDASVLQDTMNQYWDALNGNDGQF RGTEYCGVAPAQQRLDKAGRWKPDTAAALAEAMPGARSAL CDGSYEQFCHNSETVQSGKKVLEAFGEYZWKNFNGDDDSK DYGYCTEASFSKYNEEALNHLLDDYYMPSVNYPEDQGFYL KTGPMPFFCGGNFVYSQIQDLLSDMNQYWTDYKN EDPSF RQSCGKNYGHCDGPALRLDSETLEHVRPWMPNFQ FGTSF D G P RSCGTKYGFCKGFCGYPKVPLDNDTRQELNTVMPSAKYGT RSNVYCGDRAGGWEDLPAPDLTAETRVALDRAMPGAMSFL NSCGRDYHKPAHFCQYPQVSLSHDLRSRLNRVMPSAKYAS EKAYKSGNNKGHPRFCKGDLAPDPLETDKPYDCMSPGTRL CANQYYEDCDRARAYSAGQUTKAEYMSAYWVSNDESPAAF CNGSYNQYCQPDWDKFDKPELLKMMKKYWDNTLKSNVEDQ DAHKNLVCCKTDVH■SKAEQ\|ILDDSE\|YQNWЏSVDRCG\|
KECGTHYGSCDGQQFALSKET TDQVAPWMPNFY FERTF LNNCRTNAYNSTMDVREQLKLDDRWPDLTSSKRQKF PHTWWRQGCDLYDHDDQPPVLQSVTQAGWAAVMPHLLKSPL
FNGPDPENCKVKPTASQTIVTKPQLEIVWNVFRADHEGF FNGPDPENCKVKPTASQTIDTKPQLEITWPNVFRADHEGF

 DDADYPQWCRPAKVVPQPVLK KHCDTPSVQL YTGAQUVDVMAKYDP
 CTGSPKYNHFDVKDSDVNKLEHHWLQMKFDEQLAKRKQPL CDGTYESYCDRQYDPNPSPKKLDDYMNAYWINQGGTNAEF NRRWMRFGCATRPDPNLPEARASRKCASAVMPGAGGTSCL KHNDYCGDKHKQWNRLPDTALNDEDKGRLQKVMPGVASSL QNNSYCDVDASQWNRLPHLALSERTIGGLSHFMPGFSSNL NGSDPKKCKAT LINPQTVTDLKAQLEDIWPNVLRKAHVRF RGNFWCGVTRSTRGQLPPVELEDATREELDKVMPGAQSHL
 PDRVHPRYCRPSPPMSPATVKANLCMTPSPWL

UniRef90_UPI0004441151 UniRef90-F1Z4E6 UniRef90-G1FL33 UniRef90-Q0ZL13 UniRef90_F4S1P0 UniRef90-Q3ZPA8 UniRefe90 W W 6 P2 UniRef90-B2B5A6
UniRef90 H9BPO7 UniRef90-W5A4R7 UniRef90-A1 T967 UniRef90-14YJ36 UniRef90-Q7NZG6 UniRef90-A8T2Q0 UniRef90-L7FMD7 UniRef90-B6QBL8
UniRef90 G1E6W0 UniRef90- Q8LRP1 UniRef90-A0A024F951 UniRef90-D3XL94 UniRef90_UPIO00225E17E UniRef90_C1LYV4 UniRef90-G2SOU5 UniRef90-M2TAL4 UniRef90-F5HPR5 UniRef90-Q8LRQ1 UniRef90_UPIOOO4560613 UniRef90-Q3SET5 UniRef90-C1DNT9 UniRet90-E1ZK04 UniRef90-B8GWY7 UniRef90-A0A023FNQ6 UniRee90-UPI000372F790 UniRef90-Q6C0C7 UniRef90-G3ASGO UniRef90-UPI0002C3FB88 UniRef90_Q4JJZZ UniRef90-Q8LRP6
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UniRef90_G8PKZ5 UniRef90_M9MAR8 UniRef90-O8LRP5 UniRef90_D5VDM2
$\qquad$

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## 100

110
WKEEWLKHGSCAACVNSPLLKYFQDCLLKLLRHQFDGYKMLIAD LAHEWGKHGTCMAPTPAD YFNRAAAMYRADR WKNEFLKHGTCGDNRYKQPAYFDLAMR円KDKFDLLGTLRK WENEYUKHGTCCLPDYDQNAYFNLAVDLKDKFDLLDDLAT WQHEWGKHGTCISTLEPKCAFFNRTVDLFQSLDPTYKWLAD WKHEYNKHGTCCSEVYNQEAYFRLAMKLKDKFNLLQULKN WEHEFNKHGTCUNPGLEVVDYFQRAAALERTLINTYHALQT WEYEYRKHGTCCADVFNQSMYFDDSMKLTDSSDLLK DLRT WK SA WKTSGVCS GLDDKAYFQAA AALRSKINPLSRLVS THHEWYTHGTCSGVSPDTYFGDAATLTDDVRRALDPVFRD WQHEYNKHGTCYSTLKPSCDYFKKIVETYKGRPTYRFLEK QTHEYVKHVQCF GYDANEFFSTALQMREAVVVDSDFGR SDSQFDQHGTCAMSNYNNFEYTRTAILLYKKYDVWKILKE WEHEWATHGTCDNTGDEAVDFFQQVVDLFQTLDTYTALAN WATEWRRHGTCSENVFNQQNYFSRAEKLMFEHNLTSTLFS WDKEWMKHGTCGYPTIDNEHYFETVIKMYKKQNVSEILSK WA HEWSKHGTCDSNLTDVYAYFSKTLA RRRQYNLYKVLAD WKYEYEKHGLCCEDVYNQSQYFDWAMKLKDSRDLLNLLKT AMRQWAKHGSCLTIDTPDR YFRITRILHRSLRWPDLDRLL CLERYEYHGVCF GFDPDAYFGTMVRMNQEVKSSP LGQ QHEWAAHGTCAWQEPD AYFADAAELWDRYRRPDLFRL WSHEWSKHGTCVSTLADVYTFFSTALGLRKQYDLYAALAN WETQWEKHGTCGSPTIDKNHYFETVIRMYEKQNVSHYLSK WSHEWNKHGTCVSTLVPSCDFFRTATELHRRYSTYDALAE ERHQWAKHGSCS GLAPAEYFSASAALSARVNDGDELAR GNYEWKKHGTC QTDMDDDAYFRKAVTAVRTVNDSELGQ WDHEWQRHGTCARPTGDRPSFFQAVMRLHEKYDLDVALSE LQHEWQAHGTCNWKT PEAYFKKTRQ亡RERपDVPDL WKHEWQKHGTCAPEDDGLYNYFN
VARAWAKHGSCMVS DPGAYDKVTRILFEGVR DPD WEHEWNKHGTCMSTLNNVADYARTAIALQKELNTFGFLGS WAYEFNKHATCLSTI LNVYDYFSVVYELFENLPTYKWLGD ATYQYDKHGSCTFSVYKPLDYVKTTLLLHERSDYWKDLQE WKHEWQKHGTCAEELDNELKYF WSRQWEKHGDCGSTTDDDVNYFETVINMYQKQNVSEDLSK CLERYEYHGACFGGFDPDAYFGTMVRMNQEQKESEAGGK HRHEWTKHGTCYEDGADADEYFAESLAVLEALNASAVRR CRSLWRKHGSCSEGGLDTTQYGAAVDRGSRRQQDPERYKK WSHEWNKHGTCVSTDADVVDFFTTTVDLFHQYNVFQALEE CRHEWYKHGTC QTQRNADEYFKTAIRLQKEFNQNQAY WSHEWNKHGTCVSTGADVVDFFTTTVDLWEKYNVFEALKE DRHEWLRHGTCYRA DAEEYFADSLIVLGAINASPVERR WVHEFNKHGTCSPSCYDQSNYYRASVDLYEQLPAFKWLSD ARHEWDKHGDC QKVWNQAEYYYISTKI DGVFRDTFLIDD WSHEYEKHGTCAPSLNSEYKFFKATLDLRKSMNDLPSFAA
 C
C WRKEYNKHGTCCQTAMEVVPYFSIVGGKKQLI WEHEYNKHGTCMNTLSNADDFYQKTVEDWSQDDTFQFLST WDHEFNKHGTCDSTIRPEYDYFRDTYNLFKKLDTFAVLKK SQYQFDKHGTCSMKNFGIVNYGKTALRGFKKYDLWKALQE WAHEWRVHGTCSKNNFNQQNYFNLAKTLMFRYDLMSIVFN GAYEWNKHGKC QQADPPDAYF KKAV SAVRVVNDSEVGK HVHEYTKHARCF GYPADRFFVTSMQLRSRLAASG FGL WQRQWDKHGTCSPTIYDKNHYFETVIRMYEKQNVSYILSK

 YNHEFQKHGLCADY ISSAAVTYFTATLSTADRVSS Y S WLAT LQ EWAKHGTCMS RHPAAYFRAAGLLFRAVRFP LEHEYNKHGTCSQADFAVLNYFRQTAHKFAELPTYDDLKA HLHAWTKHGACYEDGADPNEYFAESLSLLSQLNASAVRQ WNKQWDKHGTCGYPTIDKNHYFQTVIKMYQKQNVSQILSK WDHEYTRHGTCCTNLYDQRAYFYXAMRLKDKFDLLTTLRT WAHEFGKHATCTSTHEDVINFFDAVVRAFKQYPTYDTLAS
 HRHEWIRHGTCY GKDAEHYFRDIIALMEQFEQSGV NE
WKHEWKKGTCS
WRKQWKHGACGYPTLSDDAY DRYEWVKHGTCYSD SAEEYYAESLDLMEQLN GSAVRD WSHEWNKHGTCFSEHQDUVDFFSTTTDLFDKYNVFKALEE WNKQWIKHGSCGHPADNDMHYDQTVIKMYQKQNVSEDLSK

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UniRef90
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UniRet90-P21338 UniRef90-J6DPP5 UniRef90-LOH252 UniRef90-18TBG2 UniRef90-B7LLJO
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UniRef90 Q9ZSG5 UniRef90-G6XGW3 UniRef90-Q8LRQ0 UniRef90-M1CNB4 UniRef90-R9VSF5 UniRef90-DONSN5 UniRef90-Q1GU05 UniRef90-W3VKG6 UniRef90-UPIO0047C7BA5 UniRef90-Q8LRR9 UniRef90_Q0ZLO5 UniRef90-Q0ZLO7 UniRef90-A0A023V992 UniRef90-l2K8E4 UniRef90-A6Q8X9 UniRef90-R1E2S5 UniRef90-Q0GDZ9 UniRef90-G8PKZ5
UniRef90 M9MAR8 UniRef90-M9MAR8 UniRef90-D5VDM2

MNALALRSNLTAGAFRKAFAAINPRYPR ESIGLQUNQGG HGMNPGSTYELNDTERATKTVSDEVPSLKCLRKPPGNV HGI RPGATHLTSQKIADAIRSVTQGIPNISCYDDLQGK PPIVPSTSTYTLAQLQAVANKHFGQDAVWNCRGHSLINEVW QGIIPGSTYTVNKIEQADKTVTQEYPNLNCLGDPQ LLFADADGKELDEKQiKQAFDQGFGAGAETGC AGVVPHPRKHYPADVQAALEKYSGGKVVLRCRRDVLHEAW KG|KPGYGTYTGDQ|SRA! K SVVTQNNPNPKCTY ASGGRLTLAEVRRRIDATFGAGTGERVALGCRKTAGEGS KGIVPSTRKYKFADIKRADKEEFGHEPTIHCDGDKDHEVW YLLAQAGQTRSDAEVKDAFAKGYRGA DQLRCAKDGKGRN HR YPGFAYTVKEI GDATKTVTTVYPNMKC SELKEPNKDYN|ED:KRVVENACGAEPDFTCDSGANSY AG YPDDSTYYVSDVQAAAAADHGKTPYFGCSSGALSSAYY AK ${ }^{2} \mathrm{EPDGKKTLLDIENAIRN}$
AGI TPGSNPDTTA MHTAI KNAYGVDAQDNCSGGK【SEDW RRILPGFKYGTGDQUSAAIKKVNQKDPNPKCGYSKAGGRLG SGMPKEELTAGDIRAWMQANPH
FLSDNYGKTVNRSNFDDAVGKAWGKEVKDTCNGNPA S R RQDGSAGDVRSAFSRANP NVADAADGLKANARG AG TTPGSNPNVSDMHAA RQTAFGVDAE TNCASGALSE $\square W$ ANINPDG円ARKRKDMEDAIRNSTNKEPKLRCHT AGIVPSTKTYALAELQAAVEAKYGHGASFRCRGANDNEAW HMGREVDGA LLRERLREN DRSLEQAVVFECRPDPAKRRP AGDEPSSQTYTSARLSRAVEDAFGVRPMVSCFKG

DPGADGTMTAGE RQAF $\backslash A R N G G P A Q G \quad \square N \nabla R \square K Q G$
YDRDAREEGLTAGRTRAAFVDANPEWPE SAVGVHLGPRG



AK $\square E P E G K N R T R V E \square \square K A \square R N G T N G K$
FLAADNYGKTVSRRDFDAAFAKSWGKENVKAVKDTCQGNPA LFA ANDGKPVKAEAMKAAFDKSFGERVKVSCRR

 MRALASRRQTAGSVRRAFAADNRGVTPAMIAVT SDRQG $A G D V P D N K T Y E Q A D V Q A A L K Q A H G A T P F V G C K K G E M N E F W$
$V G L S A R G Q K L S R A A D E A A F D R A F G N G A G E R V T I V C D G A S G$
 AN NPDGLLGRTRKLIESAIRNGTNDK
QGI SPGSKHSFGDIQKA KKVTNNVDPDLKCVQYTKG


 $Y F V K N Q G K R V T V A Q V R H L F D R R F G K R V E M K C R Q G L V$
$D R G T P A L I S G N V E V S A A Q L R S E Y G R R V A D R A D K H C$
$\square \mathrm{L} A \mathrm{~S} N \mathrm{DGEVLT}$ TAQVRAAFDESFGARVEVRCKGGLITE AGIKPDVNRYSLQQLKDAVRQKWGKEASFRCRSGALNEAW AKIEPVGRFWTQKEIEKAI RK
LDPGADGDMTAGEVRKAFIDRNGKDSPEGLNVRVKDGR
UniRef90_UPIOо032A9EB5

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Y Y F
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V H
QL Le $\square W L C V G L D \square K$
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Y $\square \mathrm{T}$ E $\square \mathrm{Q} \square \mathrm{S} \square \mathrm{K}$ A D A N S F $\square \mathrm{P}$ QP H P N C G K T F $V$
VIT E LTWПG LA G D पD E P A D
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VLT QLWF T LDPAGTSY LP S P D D Q CP A S F L
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YYSHVYGTEQYGTYKPTDTTNSTCTSNG Y LT El Q L S LKADAQSFLPQPHPNCGKQF $\square$ | L | H |
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L H
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DSYVLAAVTWQPGFCEHFPKPECDAMNAKT LSSLHGGWPNK DYFKL A I NYSPAFCDYKKNNQCFSDNKFGWIVHGLLWAET

F D Y L V LE Q LF L P Q F CRVNPYPCAPDRARS L LT DHG GWP NY GP L D S T $\square H G G W P D N$

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Y CD GS Y P S Y

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WP P A LCD QK LS CSTTGKPTLDFGVHGLRPNY GPNTSFTNHGGWPD N
TQFWNT YTGLEAQGQKLPPNSFTLHGLWPDL $F I L T$ Q S W $\quad$ IY T S S Y H MVVD QK DQVGP LD S F T I H GLLWK N E
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$V I V T Q Q W A D T$
HAPGAAEE D WT LH H GGL WP E P
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$C D P G Y M N T Y W Q S N D E S S E S F$
$L D$ ERRW WRYGCASRP $\square$ PNAPEVRASRKCDKLSDVMPGAGGNS CSGKDDYKKFTEEKEKNDLDERWPDLKTDKDDCF KCYWPQNCVKPRWYPASEPWAFDKTULPRGKATERTAPA W CDGSYRSNCQPDLEEFHEPELLHDMKKYWDNTEKSNVEDQ PA WW ${ }^{2} K G C D \square Y Q H D D T P P Q L S P A L A K R L S A T V A H T H S S L$ KECGTRYGSCEGPPFSDSKDTDAKVAPWMPNFYYERTFGG CDGKSWDECRDWKD $\square$ RKHPRLCKEYSA $\square$ KPY L CSSPG $\square \mathrm{DL}$


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 KCGQNYGYCGVQQKTNHCAYPPLDLSPQ DSDLLKR DMPSY NDTWPACCSGPQFDKEQDSTLRRPMKKYWPSFCHHEKGSF $C D G M T L H H P Q K Y F K K F G R D D L L D Y M N K Y W D N Q ~ G F P N E E L$
$P K C D G Q G Q R P W T F C D Y P P D E L S E D V R R Q L G Q A M P S A K Y G S$


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CTGGFDA
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UniRef90_V4SNU0 UniRef90_UPI00036CB94E UniRef90-S5U6S6 UniRef90-G4V5C6
UniRef90-B0LW83 UniRef90-M4BSP9 UniRef90-Q9ZSG9 UniRef90_G8ZMQ5
UniRef90 Q40823 UniRef90-W6UCF0 UniRef90_UPIO00479A56D UniRef90_S8FZE1
UniRef90_Q41303 UniRef90-M9LRU9 UniRef90_G4MKH8
UniRef90-Q0ZL25
UniRef90-H8MZ77
UniRef90-B0LW81
UniRef90-V2XWM7 UniRef90_UPIO0046FB92C UniRef90_W5NBS9 UniRef90-Q40822
UniRef90-S6F7K9 UniRef90_C1LGE0 UniRef90-G9P3W3 UniRef90-U5DB72 UniRef90-Q6SPA8
UniRef90_G8W478 UniRef90-Q6SPA1 UniRef90-N1JM76 UniRef90-Q7NZG2
UniRef90_A8T2S8 UniRef90_L2FX00 UniRef90_F8WSJ0 UniRef90_Q94G30 UniRef90-K2R6E9 UniRef90-K4BY42 UniRef90_C5DEU9 UniRef90-B9WG03 UniRef90-W9X6H4 UniRef90-S6EXJ7
UniRef90-Q6FP42 UniRef90_UPIO0046224E4 UniRef90_F2PCN3 UniRef90-WOT887 UniRef90_A0A010R9N4 UniRef90-T1GUS5 UniRef90-Q0ZL18 UniRef90-W8IJ09
UniRef90 \({ }^{\text {B2XCP7 }}\) UniRef90_13T6U4 UniRef90-G4HRQ0 UniRef90-K2RKE1
UniRef90- M5ES13 UniRef90-Q94G36 UniRef90-G4ACN6 UniRef90-Q40801 UniRef90 D1RCK3 UniRef90-E2L9V1 UniRef90_U0G5N9 UniRef90_Q3ZPA3 UniRef90-Q40803 UniRef90-A0A024S067 UniRef90_F1B086 UniRef90_UPI000440C2D9 UniRef90_A2Q225 UniRef90_Q8LLP8 UniRef90-A9MKG2 UniRef90_Q9ZTH7 UniRef90_Q94G43 UniRef90_Q3ZPA9
 AGlEPSCN
HS IVPGGNY T DQE円AKA TRNVTKSDSD VKCVKG K GIVPSTKKYTRQEIEKALNEGFGLQVHLVCDRNQANEVW A Y GMPVA LIKCRPFKQAEYI QNGDKFKLAAINRDYQEKLFY SNDHPSNRTYSGSHDGAA \(\begin{aligned} & \text { L } \\ & H\end{aligned}\) Q F LAKHYGKYVSRADFDAAVARAWGKAFK KCNGNPA Y G I FPGGTTHTVGKFNKTIKA ITQGFPNLVC
 YLEGKKGQVVDQEAVRQAFDHAFGAALSLGCQRDAQQQHS H GUIP D S SHTVQKFEKTVRS
K DI KPSNTTYSLSDDQAALTAGHGADPYDGCSGPRYN
 QGI IPGNKY VVKVIKNDISRVTGQPPKLMCDQNSQG


HG VVPSVKSYSRKQ VSEALNSDFGKDVFFKCDRNKANEDW A GI YPTVRKYKLSQVQEALQKAHGAEVYVGCDNNSDSEIW AKIVPNSTTYTLSQI QGQLAKKYGAVPYVGCSGPRYN
 H NI TP P S N DTYTTK

 A GU TPSSKPYALAEVTRTLERLSGGRVVLRCSG
HGII RGYSY TVQK \(\quad\) N S T \(\square K A \square T R G Y P N D T C A G\)
R GGSELDEKADKQAFDQSFGAGAGDRVRMRCQTVAGRSV
SSIUQPNTK EPLNKILLLLRSTYNVYPQLAC R PWTQKN VFQGARGGHVSLSAVRDRLDSEFGRRVGMTCREVGGTGM
 EKIVFGGQQY TFDEUVEAVKTVLKSVPNIKCVQRPQ
 HQ GQRVQLTHLREMLTQSFGPSNSTKDYLGCKKG
\(F G \square L P S N K T Y S W E S D Q N A L K T Q T G A \square P Y L G C R\)
\(F\) VRTH TGGQEVAVVDLRAAWQAAFGQDTEDQARPHAQR S HKI DPGGYYTADEIIKAVKTVSNLEPNINCMKGPK Q N I TP G G N Y T F A E I I K A A GILLPSTKRYT LR DLEDAVVSSSAHAQPTFRCNRGELDEDW


NGLAPGGNY TS A D I I K AVKTVVSKSEPKDTCDVKVP
F LADNYGKTVSRAAFNSVVEQMWGKDNVKAVKVNCHGNPA


H R DP G S N Y T F N E I F E A V K TVV
\begin{tabular}{|c|c|}
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170 \text { GSIUPFNASK SSCPAFllyY } 190
\] \\
\hline UniRef90－D5BXNO & FKLKGTVASGSFIPENASK \\
\hline UniRet90－UPI0004784D30 & IVELTIGLS \\
\hline UniRef90－W4YKG7 & FLLEVRMCFDLN \\
\hline UniRef90－C5MJ07 & Y YFNVKGSLLKHDFLPIDSSYSNCPSKGD \\
\hline UniRet90－C5ZNX2 & Y \({ }^{\text {I }}\) ELYDCYDTHL RVMDCPN \\
\hline UniRef90－K7 & VLTQLWFTLDPQKLSTFPAN \\
\hline UniRef90 UPIO00373D4EC & MLREVRVYFER \\
\hline UniRef90－P19791
UniRef90 B8M3F0 & Y \\
\hline UniRei90 UPIO003B5EE9A & WLQEVQLCAD QADR \\
\hline UniRei90－UPIO00464ADOF & WLTELQFTLKASTSSFVPQPHPNCGSTF \\
\hline UniRef90－Q41309 & \\
\hline UniRef90－C015R9 & LVQAVQCFARAVDEPTDCP \\
\hline UniRef90－ASE4N2 & YYANLQGNLDPG \\
\hline UniRef90－V4SNU0 & HLKEVITCIDDQGRSFISCDQDRCKPNDRF \\
\hline UniRet90－UPIO0036CB94E & YLQElRVSLP \\
\hline UniRef90－s5U6S6 & \\
\hline UniRef90－G4V5C6 &  \\
\hline UniRet90－M4BSP9 & Q पs VIRTCYDKPTTTQपDCANATATATF \\
\hline UniRef90－Q9ZSG9
UniRef90 G8ZMQ5 & YYHVLQGSLLGEEFKPПDTLRSRCPDKGП \\
\hline UniRef90－G8ZMQ5 & YYHVLQGSLGEefkP \\
\hline UniRef90－W6UCFO & \\
\hline UniRef90＿UPIO00479A56D & \\
\hline UniRef90－S8FZE1 & Y WF NV \\
\hline UniRef90－M9LRU9 & YFNLVRGSVNFGHYEATSTTKSTCPATLKY \\
\hline UniRef90－G4MKH8 & VLNEAWFVYYVKGS \\
\hline UniRef90＿C0ZL25 & \\
\hline UniRef90－H8MZ77 & LLEVGVCFAVD EQRRPAGRMTCPKSV \\
\hline UniRefoo V2XWM7 & YFSHI \\
\hline UniRef90－UPI00046FB92C & VLS QiWF S \\
\hline UniRef90－W5 & \\
\hline UniRef90－Q40822 & \\
\hline UniRef90 S6F7K9 & Y \\
\hline UniRef90－C1LGE0 & QLDEVIFCFNVNLT \\
\hline UniRef90－G9P3W3
UniRef90 U5DB72 & \begin{tabular}{l}
QLNE MYGDKGTGMPCPYFTCSDEDR \\
QLNEVWYYYHVYGAPQRN
\end{tabular} \\
\hline UniRee90－Q6SPA8 & \\
\hline UniRet90－G8W478 & Y \(\square\) T E M Q \(\square\) S \(\square\) N A A T S A F \(\square\) P QPHPNCGA Q \(\square\) \\
\hline UniRef90－G6SPA1 & YSFNVKGSL \\
\hline UniRef90 N1MM76 & YSFNVK \\
\hline UniRef90－N4VND0 & \\
\hline UniRef90＿O7NZG2
UniRef90 A8T2S8 & E】R】S \\
\hline UniRef90＿A8T2S8
UniRef90 L2FX00 & \\
\hline UniRet90－F8WSJo & YFNHVLGTEQYTFKPVRSSTASSCSKT \\
\hline UniRef90－Q94G30 & YFNHVLGTEQYTFKPVRSTASSCSK \\
\hline UniRef90－K2R6E9 & \\
\hline UniRet90＿Q94G28 & \\
\hline UniRef90＿K4BY42 & \\
\hline UniRef90－C5DEU9
UniRef90
B9WG03 & YYHLLQGSLLGEQFEPDDSPRSNCPEEGD \\
\hline \[
\begin{aligned}
& \text { UniRef90-BGWG03 } \\
& \text { UniRefgo W9XH4 }
\end{aligned}
\] & YFYNLQGSVLTGTYKPLDTTTNTKCEDEV \\
\hline UniRef90－S6EXJ7 & Y \(\square\) HNLKGSFSDGFFEPSNTSSTNCPNQ\K \\
\hline UniRef90－Q6FP42 & YYHQLNGS\｜LNEDF凹PLDPLRSRCKDQG\｜ \\
\hline UniRet90 UPI00046224E4 & \\
\hline UniRef90－F2PCN3
UniRef90 W0T887 & Y \({ }_{\text {LFE }}\) \\
\hline UniRef90－W0T887 & VLHEAWYSYS LGEQFIPUTNTNCPE \\
\hline UniRef90－T1GUS5 & \\
\hline UniRef90－Q0ZL18 & \\
\hline UniRef90＿W81009 & \\
\hline UniRef90 B2XCP7 & \\
\hline UniRef90 \(13 \mathrm{TGU4}\) & TLAEVRFCFDKFTLQLINCQNTNCG \\
\hline UniRet90－G4HRQ0 & YYHHLAGRVKGGYYVPTNTTGSNCPKTGD \\
\hline UniRet90－M5ES13 & \\
\hline UniRef90－Q94G36 & \\
\hline UniRet90－G4ACN6 & \\
\hline UniRef90－Q408013 & \\
\hline UniRef90－D1RCK3 \({ }^{\text {a }}\) &  \\
\hline UniRef90－E2L9V1 & \\
\hline UniRef90－U0G5N9 & Y \(\square\) T E LQ \({ }^{\text {l }}\) \\
\hline UniRet90＿Q3ZPA3 & \\
\hline UniRee90－Q40803 & \\
\hline UniRee90－W9WPB0 & YHFSVKGSL \\
\hline UniRef90－A0A024S067
UniRet90 F1B086 & QLSEVYYYYHVYGAAQRN \\
\hline UniRei90－UPI000440C2D9 & VLQEVW \\
\hline UniRef90－A20225 & \\
\hline Uniref90－A9MKG2 & Y \(\square\) TE \(\square\) QFS \(\square\) KASM \(\square\) NF \(\square\) PQPHPNCGTQF \(\square\) \\
\hline UniRef90－Q9ZTH7 & \\
\hline UniRef90 Q94G43 & \\
\hline UniRet90＿O3ZPA9 & \\
\hline UniRef90＿Q5BER3 & Y F Y Y VR \\
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UniRef90_S7RZF5
UniRef90_E1ZB84
UniRef90- Q94G38
UniRef90-W9YZE5
UniRef90-G7E310
UniRef90-Q40821
UniRef90-A6P7J5
UniRef90-Q0GE04
UniRef90-B0LW84
UniRef90 S3DYE3
UniRef90-M2ZU11
UniRef90_-Q94G44
UniRef90_E6X2D5
UniRef90 Q8LLQ1
UniRef90_Q6SPA2
UniRef90_Q0GE06
UniRef90-UPI000455F947
UniRef90 Q6SPB2
UniRef90_UPIOO006CD1FF
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UniRef90 W1IXW4
UniRef90-K3X6S2
UniRef90-Q9SET8
UniRef90 Q41304
UniRef90-UPI0004422BB7
UniRef90-K4CBC7
UniRef90-F1B0D0
UniRef90-W2RMX1
UniRef90-M7TK74
UniRef90_Q94G33
UniRef90-G4V5C5
UniRef90 V7C2L7
UniRef90-Q23HC6
UniRef90_-S8FJF9
UniRef90 F8VCK8
UniRef90-Q9ZSG4
UniRef90_G4Z8A3
UniRef90-F9XHP0 UniRef90 K5WBR7 UniRef90-Q6SPB9
UniRef90-W3XBZ9
UniRef90-A7EEQ5

PDFCNGSY \({ }^{20}\) QYCDLSRQY \(\quad\) DPTTTGKADGT
 \(T\) QFWST YTGLEAQGQLLPKNSWTIHGLWPDN

PDFCNGSYTQYCD \(\begin{array}{r}\text { SR R Q Y D P T T }\end{array}\)
PKDSWT TH GLLWPDN
FTQQYQLAVCHFNPTP CKDPPDKLFTVHGLWPSN
PDYCDGSYTQYCDLSRQYDPTTTGTPSGK
LLVMSWHNSFCETHPNKECRPRNANHLVLHGLWPQP

FTQQYQPAACNSNPTP CKDPTEK \(\square F T V H G L W P S N\) T QF WS T Y T GLEREGQLLPAGSWTIHGLWPDN

NFA \(\square\) N Y F Y P S Y
DYFKLVVNYSPAFCHEKYAFQCFSENKFGWLLHGDWSET YDY LLLE Q IF VP QF CRDNG DT CKPEVVQSELTIHGLLWPNY

A F C \(\square\) T S K \(\square\) D C \(\square L T\) K N A K N WT \(\square\) H G \(\square\) WP N D

F LS T QF WT \(\square\) S TYRESQGQLLPPSSWSVHGLWPDF PKDQWT IH GLLWPDF CRIDPRGLRDFTIHGLWPT

NFATNYFYPQT FSDYVLALSWQTGFCQSQPDECHRQKEPTNWTVVGGLWPDN F D Y L V LE Q LIV VP QF CRDNGTSCVASRAKSEDTDHGLWPNC QF WDTWSENPLPPNEFTLHGLWPDF

T QFWD T DFCNGSYTQYCDLSRQYDPTTYGTSAGT

\footnotetext{
lupas 21
lupas_14
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jnet
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\hline UniRef90_A0A010QHT1 &  \\
\hline UniRef90_Q6CRT & CDGTYAQFCNRESNDDDVWHLLNDDMDMYWKSNTGDDESLL \\
\hline UniRef90_UPI0002A48F67 & AQ RCCNCWPMFQSDVQELKDELVENWPSLLKTKSSFQ \\
\hline UniRef90-S7RZF5 & CDGSYEQYCDRQYDPFHRYDLLDYMNKYWVNQ GASNPT \\
\hline  &  \\
\hline UniRef90 W9YZE5 & \(V \mathrm{~V} P \mathrm{P}\) Y T GP NIGTFLEPFGRYDLLDWM \\
\hline UniRef90-G7E310 & CNGSYPQYCDDGRDKYNQVALLAFMDKYWLGEPTSANDDF \\
\hline UniRef90_Q40821 & NGVQLNDCQPPPNYTNDQNKMFDDLDT HWTQLKGKKD \\
\hline UniRef90-A6P7J5 &  \\
\hline UniRef90-Q0GE04 &  \\
\hline UniRef90-B0LW84 &  \\
\hline UniRef90-S3DYE3 & PVPAWKGPDISTFLAPFGKLDLLAYMNKYWINQGAPNPDF \\
\hline UniRef90-M2ZU11 & \(V P\) PYNGSNIGT F LEPFGKYDL \\
\hline UniRef90_Q94G44 & F CAQSNYTLFQDKKMLDELDKHWLQLQ Y S QRQES \\
\hline UniRef90-E6X2D5 &  \\
\hline UniRef90-Q8LLQ1 &  \\
\hline UniRef90-Q6SPA2 & CLPTVNYTLI ED K K M L D DL DKHWDQL K G L E K Q E A \\
\hline UniRef90-Q0GE06 & DPVNCKPKTKVPQAQQPI DQLE I I WPNVFRADNESF \\
\hline UniRef90-UPI000455F947 & CDGSYD QYCDRQYDPSPDPSKLPDYMNTFWINQGAPNEDF \\
\hline UniRef90_Q6SPB2 & P GLLLMNCGTVT A Y NKFEGEMFNDLDKHWTQLET DKDQS \\
\hline UniRef90-UPI00006C & VCSPPICNNHHTFNATNDKEKDY I Y L E Y F LRFGQNNSQT \\
\hline UniRef90-Q94G26 & CKPLPNYTRFEDKKMDDDLDKHWDQMKDSQDDGF \\
\hline UniRef90-W1IXW4 & CNGKSMEECRDWSD\RKHPRLCKDYQ I I P P L C T S P G D L \\
\hline UniRef90-K3X6S2 & DGYAGCCNNHPYNAADFAKNQPEMKTKWVDPTQSNECE \\
\hline UniRef90-Q9SET8 & T IL L F CSKKRYATNMKDDKKNK\Y\RWPDLLCMNDQKF \\
\hline UniRef90-Q41304 &  \\
\hline UniRef90-UPI0004422BB7 & ECCPYWQLFP S DLT NLVSELNSHWPTFTNLTSFQ \\
\hline UniRef90-K4CBC7
UniRef90 F1B0D0 & \\
\hline UniRef90-F1B0D0 & D A R K \(\square\) S K LD D R WP Q L K Y E Y N F G \\
\hline UniRef90-W2RMX1 & NGS Y T Q C F RQY DPEPSPNTTTA WMEEYWIA Q G P S A EL \\
\hline UniRef90-M7TK74 & CNGSYTQYCDRQYDPEPSPNTTTEPFERWDLLAYMKKHWL \\
\hline UniRef90-Q94G33 & MLVSCLHDSYTLFEDRKMLDDLDKHWDNLKVSQHQEE \\
\hline UniRef90-G4V5C5 &  \\
\hline UniRef90-V7C2L7 & SQLKQYWPNYLNTNDSKF \\
\hline UniRef90-Q23HC6 &  \\
\hline UniRef90_S8FJF9 & CDGSYTQYCDRQYDPDPSPAVLPDYMNKYWINQGAPNHDF \\
\hline UniRef90-F8VCK8 & KRRWQRFGCATRPVPNLPEVRASRKCAREVMPGAGGNSCL \\
\hline UniRef90-Q9ZSG4 & TVLNNCDSQAKYTTVTDDKFDKRDKHWPDLKLSKHQDF \\
\hline UniRef90-G4Z8A3 & GYVSCCNPNSTVTNQPYDMGDKWVDATQESTYDT LCED \\
\hline UniRef90-F9XHP0 & CNGSYT QYCDRQYDPFPSPNTTNAWMNKHWVAQTGPNHVL \\
\hline UniRef90-K5WBR7 & CDGSFNQYCDPPYNGTSVATFDAEFMNKYWINQGAPNDVFF \\
\hline UniRef90_Q6SPB9 & CWPVAEYDDF KGEMFNALDDKHTQLAVPKDQST \\
\hline UniRef90-W3XBZ9 &  \\
\hline UniRef90_A7EEQ5 & CNGSYTQYCDRQYDPEPSPNTTTAYMNKY WIA QLT P N WHL \\
\hline
\end{tabular}

\footnotetext{
lupas_21
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WAHEFSKHATCF STFDVECYGPKYQEHYKETPTWKWLA \({ }^{100}{ }^{100}\) WVHEYNKHGTCDRTGYPDYDYFRDAMKDFHDKDTYQTLKS F WXEKGFGLSCYCSSGVACRVQ RLHRVLED WAHEFSKHATCTSTHEDVINFYDAVVRAFKMYPTYDMLA A WAKYGSCAQFGGGQRDYFGYALAAAKKYDVNAALAS WKNEYEKHGSCCEKSYNQEQYFDLAMGLKDKFDLSNSLGR WGHEFSKHATCYSTFDVPCYFETADKYYRRDPTWEWLNE YSHEFEKHATCTPS FDLQCYFNTAVGYYQRFPTYHFLTS
 WNKQWNKHGSCGRPA \(\square\) NDMHY DQTVIKMY WKHEFLKHGSCGSSRYKQQAYFDLAMK LKDRFDLLRTLRG WA HEFSKHATCFSPNAEIVDFFETAMAYYRQLPTWGWLGA WGHEFSKHATCFSSTFDVPCYFETAIGGYYQKFSTWEWLAK
 WSDEYGKHGTCCEKTYSQEQYFDLAMVLKDKFDLLESFKR WKYQYAKHGSCCQSLYNQNTYFSLALRLK DRFDLLKTLEM WNKQWDKHGSCSPTU1DDKNHYFQTVIRMY WAHEFSKHATCT STFDTACYYETVTKVFQMYPTYNMFAA WIH QYLKHGSCCQELYNQSMYFSLALRLKERFDLLRTLRI SQDLLWREYGSCFN HSQTQYFHQMSQAHQKDNDIEALKA WKRQYLKHGSCCRNDYNQTAYFNLADRLKEKIDLLKTLKD LQAEWEKHGACDFDT AENFFSKQQELFNGLVLPE YNHEFQKHGLCYGAYGDDYEYFRATLNAANTYASATA WKKEYEKHGTCCEKSYNQEKYFDLAMVLKDKFDLSKSFDS WKYQFEKHGTCCSDVYSQSVYFE IAVKGKDSDDLDK ILL T WEKEWKKHGTCAETLNSPNKFFGAALFALRTKYNIDRAFER WKEA WNTYGTCTDERFTPDQYFNRASRLDSELLQSHLTSS WKKEFLKHGSCGIKRYQQAAYFDLAMNLKDK DVLS WAHEYSKHATCFSPHEDVLDFFETVVTYQQRLPTWQWLAE
WARQYAKHGSCCQKAYNQSTYFSLALRMGERFDLLSTLQK WKHEFEKHGLLAPQVFNQYGYFKFGIQLMQKDNLLKTLMK
 SQDLLWKHYGSCYN HSQAQYFHTLSQAHQKFNLVEALKA
WAHEFSKHATCTSTHQDVVDFYLSSVVRAFQKFPTYQMLA A WAHEFSKHATCTSTHQDVVDFYDSVVRAFQKFPTYQMLAA WEYQFKKHGTCCADLFNEEKYFDLALGLKKDRFDLLTTFRS YDHEFQKRGLCYHADGDDFMYFTATLLNTAERLS S WE WLAT WAHEFSKHATCTSTFDDACDFYDAAI RAYKQYPTYDMLAT
 WAHEFSKHATCFSTFDTPCYYTTALSYYSTLPTHTFLSR
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\hline & 170180190 \\
\hline UniRef90_A0A010QHT1 & Q LTEAWYYFHVHGKPQR \\
\hline UniRef90-Q6CRT6 & Y FHSLKGSLLGEKFVP\SAPKSNCPDDN】 \\
\hline UniRef90_UPIO002A48F67 & W FQVK \(\square\) RLSRDLT LGCPHP \\
\hline UniRef90-S7RZF5 & YFHHV \\
\hline UniRef90-E1ZB84 & \(\square W S V E L C L N A S L S S\) D P T A V S P S N \\
\hline UniRef90-Q94G38 & \\
\hline UniRef90-W9YZE5 & \\
\hline UniRef90-G7E3I0 & Y S F Y F Y G R \(\square\) Q D Y A Y R GVDA T A G S P P A F K W \\
\hline UniRef90-Q40821 & \\
\hline UniRef90-A6P7J5 & Y F NHVIGTEQFGNFKT \(\square\) D T TKSTCSPT \\
\hline UniRef90-Q0GE04 & \\
\hline UniRef90-B0LW84 & \\
\hline UniRef90-S3DYE3 & \\
\hline UniRef90-M2ZU11 & \\
\hline UniRef90_Q94G44 & \\
\hline UniRef90-E6X2D5 & LLS E L S \(\square\) S L \\
\hline UniRef90-Q8LLQ1 & \\
\hline UniRef90-Q6SPA2 & \\
\hline UniRef90_Q0GE06 & \\
\hline UniRef90_UPI000455F947 & Y F H HVLGTEQYGFKTLHSTTNSTCNESG口W \\
\hline UniRef90_Q6SPB2 & \\
\hline UniRef90-UPI00006CD1FF & Y \(\square\) R R F E \(\square\) Y F D K D \(\square\) NP T HS CTFEYCPDK \(\square\) \\
\hline UniRef90-Q94G26 & \\
\hline UniRef90 W1xW4 &  \\
\hline UniRef90-Q9SET8 & \\
\hline UniRef90-Q41304 & \\
\hline UniRef90_UPI0004422BB7 & \\
\hline UniRef90-K4CBC7 & Y L N Q VT F C Y T N D A K N F V N C P T S \\
\hline UniRef90-F1B0D0 & \\
\hline UniRef90-W2RMX1 & \\
\hline UniRef90-M7TK74 & \\
\hline UniRef90-Q94G33 & \\
\hline UniRef90_G4V5C5 & \\
\hline UniRef90-V7C2L7 &  \\
\hline UniRef90-Q23HC6 & YLRHFELYLDK DLNPTKTCTYDYCPNK \\
\hline UniRef90_S8FJF9
UniRef90 F8VCK8 & YFSHV \\
\hline UniRef90-F8VCK8
UniRef90 & Y \(\square\) T E LQ F S \(\square\) R A S M \(\square\) NF \(\square\) P Q P H P N C G K Q F \(\square\) \\
\hline UniRef90-G4Z8A3 & LS S \(\square\) R T C Y E K GP T T Q T D CAT \(\square\) T A S A P F E Y \\
\hline UniRef90-F9XHPO & \\
\hline UniRef90-K5WBR7 & V Le EVW \\
\hline
\end{tabular}
lupas_21
lupas_14
lupas_14
lupas_28
jnet
jnet
conf
sol25
sol5
sol0
jhmm

jpssm```

