## QUERY

UniRef90_UPI0003F0643A UniRef90-UPI000457488A UniRef90-W5MWR7
UniRef90_H3A7S4 UniRef90-H2UKA3 UniRef90-UPI0003EA8DDA UniRef90 G3WC24 UniRef90_W5N6U3 UniRef90_V9KCR7 UniRef90-V9K955
UniRef90 W5Q553 UniRef90-UPI0003D09A50 UniRef90_H2U874 UniRef90-M4A5B1 UniRef90-W5MIN2 UniRef90-Q6DCU9 UniRef90_UPI0004626DC5 UniRef90 Q91292 UniRef90-UPI000388A4BF UniRef90-K7FTF0 UniRef90-W5KVU4 UniRef90_J3S8Y5 UniRef90-H2MLN3 UniRef90-E9GKS8 UniRef90-F6R3Z0 UniRef90_UPIO00440BCC3 UniRef90_Q7QEK5 UniRef90-I3JQ03 UniRef90_UPI00046B2E3E UniRef90-H9GG84 UniRef90-M4ATB3
UniRef90-HOZGM UniRef90-W5MLD5 UniRef90_UPIO003C25E90 UniRef90-G3NMC0 UniRef90_A0A034V5Y0 UniRef90-H2MSL5
UniRef90- T1KCK7 UniRef90-UPI00032B15E0 UniRef90_G3NP21 UniRef90-W5MHL6 UniRef90_L5JZ22 UniRef90-H2L458 UniRef90-B4M1H9 UniRef90-UPI000443DAD7 UniRef90-Q59F03 UniRef90-T1G31
UniRef90 Q91687 UniRef90-Q4T476 UniRef90-F8W2J5 UniRef90-M3VUR4 UniRef90-UPI00033152F6 UniRef90 U1LSQ6 UniRef90_UPI000395B9D1 UniRef90-I3JRV8 UniRef90_D7PS99 UniRef90-W5LBD2
UniRef90-K7IRS1 UniRef90-H2RJR5 UniRef90_UPI00042C6005 UniRef90-F6ZK28 UniRef90_UPI0004446BF4 UniRef90-H2LH25 UniRef90 U3J7R2 UniRef90_UPIO0046BE64A UniRef90_Q91778 UniRef90-M3XGN4 UniRef90-UPIO003C29798 UniRef90-G1KEH5 UniRef90_-Q91779 UniRef90_UP10003C28EEB UniRef90_UPIO00265878C UniRef90-H2RNS2 UniRef90_C3ZHF5 UniRef90-L5M4Q7 UniRef90-P34446 UniRef90-UPI00035A1A40 UniRef90 BOW7R8 UniRef90_UPIO0022CA95F UniRef90_C3Z5Z6 UniRef90-M3XL65 UniRef90-B4KSA6 UniRef90 U4U414 UniRef90-H2YKY4 UniRef90-V8PF71 UniRef90-B4QGF2 UniRef90-Q7QIG1 UniRef90-B3NQF5

$\square-$
$N L D P V Q L T F Y A G P N G S Q F G F S D D F H K D S H G R V A T V V G A P$ NLDSVHITTYTGPNGSHFGFSLDFYKDSRGSVAIVVGAP FNLDTESPTLYSGPRGSYFGYSVDFYSPDHRTVNVLVGAP NLDVEKPTVYSGPEGSYFGYSVDFHRPDKNTMSVLVGAP NLDVEKPDVYSGPEGSYFGYSVDFH円PGRNKVSVLVGAP
 F
F
 FNLDSATVSVYSGPRGSYFGFAVDFFTPTAAEMTLLI GAP FNLDVESPAEYSGPEGSYFGFAVDFFVPSASSRMFLVGAP FNLDAERPAVYSGSEGSYFGFAVDFFAPDPSSTFLLVGAP FNNYAEHPTRYRGPDGSYFGYSVDFYQASTDRNTVLVGAP
 LNLD KTPQTLSGPPGSYFGFSMDFYKG $L N W H A S A P T V Y A G P N G S Y F G F A D D F Y R D G K G R M N V V V G A P$
 $F N L D T D N V I V R K G E R D S L F G F S L A M H W Q P Q D K R L L L V V G A P$ D T Q T VLRK DGDPGSLFGFSIALHRQPEDRRILLIGGAP
 F NLDERNPTVVYS GPE GSFFGYAVDFY LDPDSASSASVV GAP

 $F N L D T D H V L$ RKD GELGS LFGFS L A MHRQNPDKVMVLIDGAP LNLDPMMLTFYTGPNGSHFGFSLDFHKDS
$F N L D D T E T I L K Y G D N G S F F G F S V A L H Q Q P Q P D S W L L V G A P$



FNLDTGHVIRKDGEPGSLFGFSLAMHRQNPDKRMLLIGAP Y NIDLDPSYVTHVREPNTMFGFSIALHKGAS GYAQSIVGAP $F N L D P Q N T L R K D G D P G T L F G L S L T F H Q Q L R P D H K V L I$ GAP
 $F N L D V M G A L R K E G E P D S L F G F S V A L H Q Q P R P Q S W L L V G A P$ Y NI DLE L HP LVFRGPNSSFFGYSVLEHYHDNTR WVIVGAP
 FNLDAENVLRKSGDPGSLFGFSVALHQQQNPARRNLVGAP FNLDTENVMQKKGDPGTLFGFSVAFHEQPARKKLLLVGAP


 Y N LDVVEHPLVFNGPNGSLFGYSVLLHQHNENT WLLVGAP $L L \vee G A P$
$F N \square D V R H P V I H R S T P N S L F G Y S \prod D F Y Q Y Q G M N C P L I V G A P$ D RTFPVLK E GP GRALG GFSVVALHRETERRER SLLVGAP FNLDTSFPLLKMGERGSLFGFSVALHQDLKTESYLLVGAP $F N L D V Q F P V I V E G T K G S L F G F S V A L H K Q T E K A K K N L V G A P$ VIVGAP $F N L E P R \square P V V K R S M P D S Y F G F S V A E H Q E P K Y D S W M L V G A P$ FNLDEQQRVVFSGQRGSYFGYSVEFFNNSSSFSILI GAP $V L \vee G A P$ $L L \vee G A P$
$F N I D A K F P V I K Q G T D G S F F G F S V A L H R Q T T K G S D T Y V G A P$ $F N L D Q R F P V I K E G E K G S L F G F S V A L H E Q G S R Q H L L L V G A P$ L N LD P VR LTF Y T GPNGSHFGFSLDFYKDNHGSVAVVVGAP
 FNID T K F S MVKEGTNGSFFGFSVALHKQGEKRYLLLTGAP I LQMDKKHFAEKLVVAGAP $N L D T K F V V L K K G T P E S F F G L S V A L H H$ QTKPEKYLLLGAP $F N L D T R F P V L K E G V P G G L F G F S V S L H R Q S Q Q R Y L L L S G A P$ PRPRSWLLVGAP HS GTDQSMF GFSVAMM $\operatorname{V}$ S N GRPMMLLVGAP FNLDVEQPSVFSGPERSYFGFSVDFFHPDKQSSDVLI GAP F NLDTDEPVVKKGPEGSHFGYSVAQHQDMHHENVLIVGAP Y NV TVESAL L F Q GPPNT LFGY
FNIDTKNVVV HHM A GNYFGYS LDFYHEQKGMPVLVVGAP $F N V D T E S S L V F K G P T D S Y F G Y S V A D L E N S Q G T B W L L A G A P$ Y NLD ID NAKDF SYQRGSYFGFSVA DY T DGGLD S FVILVGAP


$$
\text { D P Q F A T A M P K VRASYFGFS } \square \mathrm{N} \square \mathrm{~L} \text { R P H G }
$$

IFVGAP $M A L V G A P$ FNLDVKGVYTFSNSESSYFGYQVLLH NTASSFRSIVVAP Y N
 YNISPNFPGHKEHERRSYFGFSLVI REKS IVMVAAP

| $V$ | $M$ | A A P |  |
| :--- | :--- | :--- | :--- | :--- |
| $V$ | $L$ | $V$ | $G A P$ |

$V L V G A P$

## QUERY

UniRef90_UPIO003F0643A UniRef90-UPIO00457488A UniRef90-W5MWR7
UniRef90_H3A7S4 UniRef90-H2UKA3 UniRef90-UPI0003EA8DDA UniRet90 G3WC24 UniRef90-W5N6U3 UniRef90-V9KCR7 UniRef90 ${ }^{-}$W50553 UniRef90-UPIIOOO3D09A50
UniRef90-H2U874
UniRef90-M4A5B1 UniRef90-W5MIN2
UniRef90-O6DCU9 UniRef90-UPIO004626DC5 UniRef90 Q91292 UniRef90-UPIO00388A4BF UniRef90-K7FTFO UniRef90 - W5KVU4 UniRef90 J3S8Y5 UniRef90-H2MLN3 UniRef90-E9GKS8 UniRef90-F6R3Z0 UniRef90-UPIOOO440BCC3 UniR Refo-Q7QEK5 UniRef90-13JQ03 UniRef90-UPI00046B2E3E UniRef90-H9GG84 UniRef90-M4ATB3 UniRef90-HoZGM7 UniRef90-W5MLD5
UniRef90-UPIOOO3C25E90 UniRef90_G3NMC0 UniRef90-A0A034V5Y0 UniRef90-H2MSL5 UniRef90-T1KCK7 UniRef90-UPI00032B15E0 UniRet90-G3NP21 UniReffo-W5MHL6 UniRef90-L5JZ22 UniRef90-H2L458 UniRef90-B4M1H9 UniRef90-UPIO00443DAD7 UniRef90-Q59F03 UniRef90-T1IG31
UniRef90- Q91687 UniRef90-Q4T476 UniRef90_-_8W2J5 UniRef90-M3VUR4 UniRef90-UPI00033152F6 UniRef90 U1LSQ6 UniRef90_UPIO00395B9D1 UniRef90-li3JRV8 UniRef90-D7PS99 UniRef90-W5LBD2 UniRef90-KKIRS1 UniRef90-H2RJR5 UniRef90-UPI00042C6005 UniRef90-F6ZK28 UniRef90_UPIO004446BF4 UniRef90-H2LH25 UniRef90 U3J7R2 UniRef90-UPIO0046BE64A UniRef90_Q91778 UniRef90-M3XGN4 UniRef90-UPIOOO3C29798 UniRef90-G1KEH5 UniRef90 ${ }^{-}$Q91779 UniRef90-UP10003C28EEB UniRef90-UP1000265878C UniRef90-H2RNS2 UniRef90-C3ZHF5 UniRef90-L5M4Q7 UniRef90-P34446
 RILGPSQEETGGFLCWRAEGGQCPSLLADRDETRVG RTMGRSQEETGGVFLCPWRTEGAECSSLSFDLRDETQRVD KANQPGIVEGGAVYYCPWPSAPCAQVPFDTTNNRMDRVNG KANQPGIVEGGAVYFCPWPATGRECRQTPFDTTNMURVNG KAKTRQVNEGGSVFYCPWSLSQTDCHADEFDTEGDRTTNN KANQPNVTEGGAVYYCPWSLSQSDCSS|GFDNEGDRYYTD KANQPGVTEGGSVFLCSWPPQGGTCDVLPFDMKGDGTYKF KANQPNITEGGAVYTCPWGRNSSECWQLPFDTTGNRLEDN KANQPQI VEGGAVYKCPWKKGDTSCHQFQFDKTGDRPFKD KANQPGIVEGGQVLKCDWSS HRRCQPTEFDATGNRDYA KANQPDIVEGGQVLKCNWNSNK NCQPIIFDSTGDRYFA KANQPGIVEAGAVYYCPWPGLPDSCRQDPFDNSNNRMMKL KANQPNVTEGGAVYRCSWSQNNCSIINFDQQGTTVLFRLP KANASFSTERGVVYSCPWQTN TPCQELQFDNTDDRKGI RMQQSNVTNGGGVFLCPWDPKGSSCTN NFDTGDRSDSVG KANQAGIVEGGHVIKCGWKMN RDCQPITFDSRGNRDFAP RERSQQANRTGGLYSCDITSPETHCTRVLFDENADPAT KANQPNVTQGGAVYYCPWHRGNTSCTPI EFDQTGSRPHDF RAKALAYQRTGGLYSCDTTAHTDDCNRIEFD
RQKAQQANRTGGLFSCNIETPEDPCTRI QFDETADPT
KANTSQUNEGGSVFYCPWSPGQTHCDSUEDTEAGDRFNE
TAEQPGVTRGGSVFRCSTE TPDQCQSIPFDVTGKTNN
TANNASVVNPGAIFRCKDGDNPNRTCEQL QLGDPAGEYC KANSSSVTERGVVYSCPWG QVGDCKQLLFDNTGE
TANQPGVTKGGAVYRCDTY DDYRCYQLPFDTKGNTYNDQ RARSLENQKTGGLYKCEVTQSNNCERUKFDDNADPR

HGRTTSGNDWT
QAAGQKANRTGGLYACPLTHETNDCKRLTHDEGV
QAAGRGLTRPGALFRCPITPEEYDCERVNIDGDVSLD
LUANESVVNPGDIFRCRIGGNSSGGCEQL QLGHPSGERC
raralgantugalykcemtasp hcerleffocedvr KSYQQGVVEAGAVFKCGMS DGDCNLVKFDSSGNHRNTY KAKALLGSKTGGLYKCEMSMSNTCERVEFDNEEDPK RSAQPGTNRSGNLYQCKITNNLNDCTVIAVD YDPKNLL QADGQQANRTGGLFACPLSDEETDCHRVDIDRG RANSTYSHSPGAVYKCRLHSNPRRCTEMDLGRGNKQRESC DANSSSNQNPGALFKCN| TSNDDNHCEQLPVGDEEDNSC RAKQNQVNVTGVVYQCDLATTSERCQP\|DFDNEEF RAKQDHVNVTGVVYMCDLSTASEHCQPIKFDHKEF KTYQERVVEAGAVFKC TMNDDDCQLVTFDSKGNNRNTM RAKALKNQKTGGLFKC ETSESDNCERVEFDKNN ND RELAVYTNRTGAVYLCPLTAHKDDCERMNDTVKNDPGH QNRQPKTNKSGALWSCP TTMLYYDCEQVVTDTVFGASKLV QSSWTNVSNPGAILKCKIQQNPNRTCDGLEEGNQNGAKC VANSPNUKSPGAI YNCSMLNSQCEQLPPVMEGGVQRC RAVAQRANRTGGLYSCDDTSRG PCTRDEFDND
KANQPGVREGGAVFRCSVEKPLCSEDFFDREGNEKRपNGS QDAEPNGTRTGAVYACPLSATTRDCQRLADELKDEPD REKAEPNNHTGGVYTCPISANQSDCRRMKLDDPTQDYA KANQPRIREGGSVFYCPWSRGREDCSSDEFDRQGDLDNTD QNKQPGTNRSGALWQCPMTSDHHDCVQVITDRSYETDLLT KANQPDIVEGGAVYLICPWSQTNCSIVNFDTEDDVN KANQPDIVEGGAVYYCPWPAEGSVQCRQMPFDNTNNRKNG QASNQNANRTGGLYGCPDTTEPKDCDRLDLD
KEKAPNVNETGAVYACP:SEDRTDCTRMDLVT
REKSQQANRTGGLYSCDITSSNTRCTRVVFDEETDPAN
REQGRSQEETGGVFLCPWRAEGGQCSPLPFDGNDETRKVG RAKALPAQRTGGLYVCDFTSLSTKCDRVSFDDS
REDAEQVNRTGAMYYCPLTMITSDCERMDIGEKADPKNKI

 QAPGQGANRTGGLYACPLTHEPDDCWRVPIDQG
TAASPDSSNGGAVFSCSVTAELCQRVEMDTEG DRRNK RANSDGUVERGAVFSCPWR GSTCQKIEFDSSGDRTNKE KSENPYQQWPGAVYKCRMTTNDRDCR\|VQVDTAD四AEDRN XPGAIYKCQDGQNPNRTCQQL QLGSPGGDRC EAESNNPNRPGAVYACSVNRATCREVHVDKMKGNGKKLNG RANDPDVHEPGAVFQCNWQYRSSCQPVFIDDFGNEKQTWK QNLQPSSNRSGSLFKCPTTQLSNDCEQLKTDGRRTDDEEE


QAAQRKVNETGADYKCSLLNGTCSPYVFDGNGNRNDENTE QNDQPDTNYSGAVFKCPISELDQDCDQUETDLDSLDQSLL RF QGSNPEGGLFNCIVNGANS
TASQTNAVKPGGIYHCPVTTNSEDCTRVKMDLGESTKLNN RDVADNKTRTGAMYTCPLTAVPNDCTQVDFQVKSDPQTND RANQRNDSEPGVIFRCYFESDNCSPYNDDPTGNYDGMPND QAYQRNI NETGAIYKCSFESKPTECVPYRLDRQGNTNYNH RANQRGULEPGVIFRCSLETSNCSSYD DDPNGNKDAEPND

## ouery UniRef90_UPI0003F0643A UniRef90_UPIO00457488A UniRef90_W5MWR7 <br> UniRef90_H3A7S4

 UniRef90_H2UKA3 UniRef90_UPI0003EA8DDA UniRef90 G3WC24 UniRef90_W5N6U3 UniRef90_V9KCR7 UniRef90 ${ }^{-}$V9K955 UniRef90 W5Q553 UniRef90_UPI0003D09A50 UniRef90-H2U874 UniRef90_M4A5B1 UniRef90_W5MIN2 UniRef90-Q6DCU9 UniRef90-UPI0004626DC5 UniRef90 Q91292 UniRef90-UPIO00388A4BF UniRef90_K7FTF0 UniRef90 ${ }^{-}$W5KVU4 UniRef90_J3S8Y5 UniRef90_H2MLN3 UniRef90_E9GKS8 UniRef90_F6R3Z0 UniRef90-UP1000440BCC3 UniRef90-Q7QEK5 UniRef90-13JQ03 UniRef90-UPIO0046B2E3E UniRef90-H9GG84 UniRef90-M4ATB3UniRef90 HoZGM UniRef90-W5MLD5 UniRef90-UPI0003C25E90 UniRef90-G3NMC0 UniRef90-A0AO34V5YO UniRef90-H2MSL5
UniRef90
T1KCK UniRef90-UPIOO032B15E0 UniRef90-G3NP21 UniRef90-W5MHL6 UniRef90-L-LJZ22 UniRef90_H3DE56 UniRef90-H2L458
UniRef90
B4M1H9 UniRef90-UPI000443DAD7 UniRef90-Q59F03 UniRef90-T11G31
UniRef90- Q91687 UniRef90-Q4T476 UniRef90_-_8W2J5 UniRef90-M3VUR4 UniRef90_UPIO0033152F6 UniRef90_U1LSQ6 UniRef90-UPIO00395B9D1 UniRef90-li3JRV8 UniRef90-D7PS99 UniRef90-W5LBD2 UniRef90-K7IRS1 UniRef90-H2RJR5 UniRef90 UPI00042C6005 UniRef90-F6ZK28 UniRef90_UPIo004446BF4 UniRef90-H2LH25 UniRef90-U3J7R2 UniRef90-UPIO0046BE64A UniRef90-Q91778 UniRef90-M3XGN4 UniRef90-UPIOOO3C29798 UniRef90-G1KEH5 UniRef90-Q91779 UniRef90-UPIO003C28EEB UniRef90-UPIO00265878C UniRef90-H2RNS2 UniRef90-C3ZHF5 UniRef90-L5M4Q7 UniRef90-P34446 UniRef90-UPI00035A1A40 UniRef90_BoW7R8 UniRef90-UPIO0022CA95F UniRef90-C3Z5Z6 UniRef90-M3XL65 UniRet90-B4KSA6 UniRef90-U4U414 UniRef90-T2MFQ0 UniRef90-H2YKY4 UniRef90-V8PF71 UniRef90-B4QGF2 UniRef90_B3NQF5 Unirergo_-B3NQFb
UniRef9O_S7MWZ5

90
100
110
120
SQTLQTFKARQGLGASVVSWSDVIVACAPWQHWNVLEKTE YQTFQTFKARQGLGATVVSWSDNIVACAPWQHWNVVEKTD

 TREPI EFKSNQWF GATVKAHKGKVVACAPLYHWRTLLKLTH
 N GHTVTEHKSHQWFGASVRS
NTELLE
K P NPV E
K D DPLEFKSHOWFGASLVRT
PN DPL NG LEFKSHQWF GASVRSKNDKILAACAPLYHWRTEMKQE
 D GSPMEFKSSQWFGATVRSSGDQILACAPLYQWRTFGNAE
 G Y DR MEVVFK S Q WF G A S V N T WK D NIV A C A P L Q H WN A F V G Q D ND P I FKSHQWFGASVRSKNDTVTCAPLYHWRTEKKQE
 ES K E DQ WM GVTV Q S Q G G KVV T C A H RYE K R Q Y V N TV TKHK DDFKSHQWFGATVVRHGDTVLLLCSNDE

## GKTCLGER

GERDNQWLGVSLFR
RHGA A C GHRWK NI Y Y MK NE Q $\quad$ DDTK S NQ WF G A TVV

## $G \underset{D L G}{G}$

 SENK $K$ RESKDNQ A DLSSE K K Y K SHQ WWF GAS V S Q G GK V T CA HRYQRRMFVGSA VE NK E N Q WM G VT V Q S Q G GKJV T CA H RYQRRSF VN T P GD VI ERKSYQWLGATVSTMNDLIVACAPRYVFHTMTPNK RESKED QWMGVTVQS Q G GKIVTCAHRYERRTTVGHT P PRE ADVLKESKENQWLVVVV
 A

LE S K G $\square$ D G Q WM GV R V QSQGGKVVTCAHRYEKRQUVNTK LS SK GTNNQWMGlVVVTSQGVGKNVMACAHRYQQHP S P GE VIDD E D P S Q E ITK E H
 GKTCKE E Q D N Q WL GV S L S R QPK DGQI LAACGHRWKNT H F ML GRHCLAENDNQWLGVSLSRQASKGHVLDAGHRWKNVFYS S A DPSSSESSKEDQWMGVVTVQS Q G GKVVVTCCAHRY EKRRQHVNT K HLLPP V Y K S K DEL NETQA R PTDQEFVKSHQWFGATVRAHKDT VE T QVEFKSRQWFGATVVRSHGNRILACAPRYYWRTEHNTP TKEPIEFKSNQWFGATVKAHKGKVVACAPLYHWRTLKPSP ADTSSQESKENNQWLLGVTVVKS Q G GKVIVTCA H L Y E S R QRVVNQL STNPSE

PSSSE
E S K
T K K
$S Q T F Q T F$
$A D V N V E S$ L
GK TCLE E
NQWMVSVQSQGGKIVDFAHRYERRTGVNTN ENMWLGVSVAS Q GGPNGRVMACAHRYVLWSGS
 A DDRENMWLGVTVAS Q GPNGRVLVCGHRYTVRWSGE
 GAKM EFKSRQWFGASVRSDGEHQLACAPLYQWSTFGVSE GKTCDLEERDNQWLGVT L S RQP GNGSIVVTC GHRWKNIGYMK SHVPI E EK SHQFFGATVVRSDKHDKIVVVAPKY T YFYSK NVTVHHKKSNQWLGASIDDNHS DLQVMICAPRWDDHKFYV $P$ PTSDELKTNQWLGVTVNSGGKENKI FVCAHRYMKVQSKG
 NKEKQ FMGGAIAADVLSGEPGKVA】CGHQYKKVEGSGE $M G V T V Q S Q G G K V V T C A H R Y E K R M Y V T T P$ Y T WDSERRDFQWLGGSMTRDGDKLLVCAPKF $\square A P$ P P Q T DE $\square$ K E G Q WL G V S VK S QK P GGQV LVCAHRYY Q S P D $\square$ S PDQNKESRKNQWMGMSLSGDKNSLLACAPLWS LNSTDSS K T

VEDMWLGVVVVASQRKTYGRVMACAHRYTRGFGS $G L L T A K N K N Y R W L G G A M T R D S D K F L V C A P R F$ PEI RSELKEHQMLGATVDSDGAWFVACAP $G L L E A K G K D F Q W M G G A M T K D S D K F V V C A P R$


|  |  |
| :---: | :---: |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

## ののロローのロ

170
180
190
200
SWDKRYCEAGFSSVVT QAGELVLGAPGGYYFLGLLAQAPV SRDRRGCEAGFSAVVSQDGELVLGAPGGYYFLGFLVRAPI PEGQGVCQAGFSLDFTQDGNLVLGGPGSFYWQGQVFTAGV $P O G Q G O A G F S D F K Q N G D V V G B G S F W Q Q V$ SVGQGYCQGGFSADFTKDGKVVLGGPGSYFWQGQII SAAK $P S G Q G Y C Q G G F S A D F T K N G R V V V G G P G S F F W Q G Q L V S A T K$
$A T G Q G Y C Q G G F S A E F T K T G R V L L G G P G S Y Y W Q G Q I L S A T A$ RGDRRYCEAGFSSD

ADGQGF
ADGQGFCQGGF S

## P

## P

HEKQG

## H H

A
GEYF
GF C Q A G F S $H A M F G T C Q Q G L A$

HE Q
$F G F$
GEQFG
HERFGS YNDKRYCCEQGLS


 GEEHGSCQ
GESY G S CQ A G I
HEFGSCQQGFDMNIFE
HLGFA YCQQGHGASFAKDNQLILGAPGAYDWKGIVVM HEWFAYCQQGHGASFAKDNTVLFGAPGAYQWKGIVRMEPL $H A R Y G V C Q Q G L G \square T F T K$ RGQ YLET GMCQLGTSGGFTQ NTVYFGAPGAYNWKG

 PA GQ GYCQ G GFS A D F T K D GRVVVLGGP GSFYWQ GQQLI SATT





 | $H E Q F G Y C Q A G T S ~ G V L T$ |
| :--- |
| $P A$ | $P A G Q G Y C Q G G F S A D F T K D G R V V L G G P G S$

 KE GMCNLGGISGGDT ETVVVLGATGGNNWKGNVHMTWR SEGQ CNLGUSGGIGGYTDVVLGAVGSYTWQGNVHVIWR HENFGSCQQGVVAATFTRDYHIVFGAPGTYNWKGVVRAELK
 QDGTGMCNMG\｜GSGFTDDGTYFGAPGSYNWQGNPFFVHR GENHGSCQAGMSSFYTEDL IIMGAPGSYYWTGS $\square F V Y N S$ LE S T GMC QMG DS GGFTH NSVVF GAPGAYNWQG

## F

HDR
 $V V E Y S P C R S G$
HAMY GYCHLGTALEFSHDGDVM】AAPGAFHWTGMMFVTSM GEHFASCCQVG $\square$ S SFHTKD F F A $Y$ G M G Q S M G T S A A A
 HEKF GYA QA GTSVVVFS P HFVVPGPD DFTYS G G DYEVVDV
 $H$
$N$
 LENTGMCQMG IT GGFT DNFVYFGAPGAYHWQG LLYY S L S E M GLLS A HV S D D N S L L M GA P G I D Q WK G S VHLLK Q E SYNYMYGEQGFS LHVTVDDGDVLIGAPGVMDWRGTVLRYRQ


## QUERY <br> UniRef90_UPI0003F0643A UniRef90-UPI000457488A UniRef90-W5MWR7 UniRef90_H3A7S4 UniRef90_H2UKA3 UniRef90 UPI0003 UniRef90-G3WC24 UniRef90-W5N6U3 UniRef90_V9KCR7 <br> UniRef90- W5Q553 UniRef90_UPIO003D09A50 <br> UniRef90-H2U874 UniRef90-W5MIN2 UniRef90-Q6DCU9 UniRef90-UPIO004626DC5 UniRef90 Q91292 UniRef90-UPIO00388A4BF UniRef90-K7FTFO UniRef90-W5KVU4 UniRef90_J3S8Y5 UniRef90-H2MLN3 UniRef90-E9GKS8 <br> S <br> A <br> A <br> P

 UniRef90-F6R3Z0 UniRef90_UPIO00440BCC3 UniRef90-Q7QEK5 UniRef90-I3JQ03 UniRef90-UPI00046B2E3E UniRef90-H9GG84 UniRef90-M4ATB3UniRef90-HOZGM7 UniRef90_W5MLD5
UniRef90_UPI0003C25E90 UniRef90-G3NMC0 UniRef90-A0A034V5Y0 UniRef90-H2MSL5 UniRef90-T1KCK7 UniRef90-UPI00032B15E0 UniRef90_G3NP21 UniRef90-W5MHL6 UniRef90-L5JZ22 UniRef90_H2L458 UniRef90-B4M1H9 UniRef90_UPI000443DAD7 UniRef90-Q59F03 UniRef90-T1IG31
UniRef90- Q91687 UniRef90-Q4T476 UniRef90-F8W2J5 UniRef90-M3VUR4 UniRef90_UPI00033152F6 UniRef90 U1LSQ6 UniRef90_UPI000395B9D1 UniRef90-I3JRV8 UniRef90-D7PS99 UniRef90-W5LBD2 UniRef90-K7IRS1 UniRef90-H2RJR5 UniRef90-UPI00042C6005 UniRef90_F6ZK28 UniRef90_UPI0004446BF4 UniRef90-H2LH25 UniRef90_U3J7R2 UniRef90_UPI00046BE64A UniRef90_Q91778 UniRef90-M3XGN4 UniRef90_UPIO003C29798 UniRef90-G1KEH5 UniRef90- Q91779 UniRef90_UPI0003C28EEB UniRef90_UPIO00265878C UniRef90-H2RNS2 UniRef90_C3ZHF5 UniRef90-L5M4Q7 UniRef90-P34446 UniRef90_UPI00035A1A40 UniRef90_B0W7R8 UniRef90_UPIO0022CA95F UniRef90_C3Z5Z6 UniRef90-M3XL65 UniRef90-B4KSA6 UniRef90 U4U414 UniRef90-H2YKY4 UniRef90-V8PF71 UniRef90-B4QGF2 UniRef90_Q7QIG1 UniRef90-B3NQF5 T D N

240
ADIFSSYRPGILLWHVSSQSLSFDSSNPEYFDGYWGYSVA AN I S SYHPGTLLWHVPHQHFTHDFTQEEFDDSYRGYSLA




EEIVKAYYPSYFLDSVAGQ
S QS S LP R LLWSVP
EEL LKKYDLGSYSIA YRNH NOTFY
 NNTLLEMGFYDDPYEVGDESRLNPELVPVPANSYLGFSLD



TANEYK L S T SEVDNRNNQKFVTPY SNQMATKSASAQYDDSYLGYSVA KAFMDRMNKVKFGSYLGYAVG DVVFPYKPPRYGHFGEGGQDYSFSLNNPKEDDSYLGYSST NSTFVDMDFDDGPYEVGNEKFRNPEFVPVPANSYLGFSLD

AS SDPDQLVVYKTPE
ALESTSFE
 NSTLSAADPDQFVYKSLPS QVNVGKAVDVMANSYLGFSLD SADESSYRGTAMIWSVKEEQVSEEVRHGYYEDSYRGYS$V$ V DATFPYKPPFYQPFGTGGQTYSYDVTRPENDDSYLGYSMT NNTLDDMEDYDDPYEVGDASLLDATLVPVPANSFLGFSVD



VKVYNNTMS $E T G D$
GTGGGQ
T LISEYSYKDPE KTMYYSPGTEKTAPDQKYSYLGMSVA E VKAYYPSYF T ENTI SVIVGQVQTRQVQGSYDDSYLGYSVA TSNIS NNTFDMNDFEDGPYEVGGETDHDESLVPVPANSYLGFSLD EQDAESYYPEYLINLVQGQ LQTRQASSIYDDSYLGYSVA EM QKNRP

VHMKCRDTDSD $\stackrel{P}{\text { P }}$
PDDEF
RDGPAHHDNYN EEIVKAYYPGFFLTSVMGQDQTKQ SDDF $\mathrm{S}_{\mathrm{QKD}} \mathrm{TVVY} \mathrm{N}$ SPMQ
$\qquad$ ERSNGQDQTRQDSPVYKYSYGGMSVS AD IIANYSFKD L RK LDA GEKQ TEVAPASYDDSYLGYSVA VTNDDSSDPDQLVYKTEPREKGTRLGHDVADNSYLGFSVD D P N

PDNFG
NPE
PDNSW
NNTFSDTHPDQFVYKTLPPSVQVGKGVDVTMNSYMGFS D ADDFRSYRPGTLLWHVSTQRLTFDSSNPEYFDGYRGYSVA NNTLEDDFFEDGPYETGGENKRDSDLVPAPDNSYLGFSLD DGWEKTDFSYPKMKN TANTFRAYTDSNNQVKFGSYLGYAVG TDYVLQRESWDQKDYSYPDEKRSNSYIGYTTE ETTWDLKETYYPTNKT F N $\square Y$ MGY T ${ }^{1} \mathrm{Q}$ NQTLDLGLLDDGPYEAGGEKEQDPSRDPDPANSYGGFSLD $\mathrm{N} V$ SE $\square F$ NRFDGNF TTPYGNNSLAATDKKSQAFDDNYMGYATA S DLLSDDTVYQSGRANFDDFGLDTSSLLGGS GSFFWTGSDFVYSITSNKFVAFSDSDNQVKFGSYLGYSVG KNQTDRPNTEYGSKEYDHDMMGYSTA
DGEFDSRD
KTQYYGPHDNADSPVPNYSY LGMAVT
$K T Q Y Y G P$
$D E E S ~$
D
SVDGKMQN $\square P S D K D E E S \square R$
LGNLGVYSWTGTVYSTSGSENPLDQSKGDDKNAMLGYAVT
 VT QVDD PSASRRDTSSQKRRKTRGSGDYDDSYFGYSVS EGSFDDRDKTDYRGPLN
T S IA SKPTKLQFT
ADLEATEALDLFTSSTA

VS N $\square R \square S$ S GRQRREMNPNRKCGECNPEPKNFDSYFGYAVS RAA AVPGYDPASRSNVHQEYNRWRRDTHEPVNSYFGYAVS




## QUERY

UniRef90_UPI0003F0643A UniRef90-UPI000457488A UniRef90-W5MWR7
UniRef90_H3A7S4 UniRef90-H2UKA3 UniRef90-UPI0003EA8DDA UniRef90-G3WC24 UniRef90-W5N6U3 UniRef90_V9KCR7 UniRef90-V9K955
UniRef90 UniRef90-UPIO003D09A50
UniRef90-H2U874

## UniRef90 M4A5B1

 UniRef90-W5MIN2 UniRef90_Q6DCU9UniRef90 UPI00046 UniRef90- Q91292 UniRef90-UPI000388A4BF UniRef90-K7FTF0 UniRef90-W5KVU4 UniRef90_J3S8Y5 UniRef90-H2MLN3 UniRef90-E9GKS8 UniRef90-F6R3Z0 UniRef90_UPIO00440BCC3 UniRef90-Q7QEK5 UniRef90-13JQ03 UniRef90-UPI00046B2E3E UniRef90-H9GG84
UniRef90 ${ }^{-}$M4ATB3 UniRef90-HOZGM7 UniRef90_W5MLD5
UniRef90_UPI0003C25E90 UniRef90-G3NMC0 UniRef90-A0A034V5YC UniRef90-H2MSL5 UniRef90-T1KCK7 UniRef90_UPI00032B15E0 UniRef90_G3NP21 UniRef90-W5MHL6 UniRef90-L5JZ22
UniRef90_H3DE56 UniRef90-H2L458 UniRef90-B4M1H9 UniRef90_UPI000443DAD7 UniRef90_Q59F03 UniRef90-T1IG31
UniRef90
Q91687 UniRef90-Q4T476 UniRef90-F8W2J5 UniRef90-M3VUR4 UniRef90_UPIO0033152F6 UniRef90_U1LSQ6 UniRef90-UPIO00395B9D1
UniRef90-I3JRV8
UniRef90-D7PS99
UniRef90-W5LBD2
UniRef90-K7IRS1
UniRef90-H2RJR5
UniRef90_UPI00042C6005
UniRef90-F6ZK28
UniRef90_UPI0004446BF4
UniRef90-H2LH25
UniRef90-U3J7R2
UniRef90_UPI00046BE64A
UniRef90_Q91778
UniRef90-M3XGN4
UniRef90_UPIO003C29798
UniRef90-G1KEH5
UniRef90_Q91779
UniRef90_UP10003C28EEB
UniRef90_UPI000265878C
UniRef90-H2RNS2
UniRef90-C3ZHF5
UniRef90_L5M4Q7
UniRef90_P34446
UniRef90_UPI00035A1A40
UniRef90-B0W7R8
UniRef90_UPIO0022CA95F
UniRef90-C3Z5Z6
UniRef90-M3XL65
UniRef90-B4KSA6
UniRef90 U4U414
UniRef90 T2MFQ0
UniRef90-H2YKY4
UniRef90-V8PF71
UniRef90
UniRef90-B4QGF2
UniRef90_Q7QIG1
UniRef90_B3NQF5
UniRef90_S7MWZ5



## R R R

$R$
$R$
$Q$

 KYREVVGQVYVY K LQEVGQVSVALQEGTTF Q $K L Q E V G Q V S I C L Q L P S G G F$ Y PREVGKVYY R L E ELGKVVYYL KLREVGQVYVY KLQEVGRVYVYLQRTYSRFSN KLYEVGRVYLYLQHKTPNAYS $K L Q E V G Q V S V Y L Q Q S \square G L F$ K DGEUGGAVYIY INQQGRWE GVKPIRLNGT $R V Q E V G R V Y V Y$ VQQPHGMEPNASMVLTGEK GQIGGAAYVY 1 NQEGKWDRVNPI RLNGSK HLDEMGRVYVYLQRSPLKLELRLPHPTGTQMYGRFGSSV GKYEMGRVHVYYQSARLRQFRRSDVLDGGEVSKARFGLAVV

K
K
EEGRVFVY口NS

E VGRVVYVYL NSGSEGKMK

|  |
| :---: |
|  |  |
|  |  |



K L Y IGGAVYVYワNNA KLAEVGRVYLFLQPRGPHALGAPR RLTGT VVGRV GKYDVGRAYVY INQAGRWDK ITPVRLNGT
 STEGAVYLYYNTGKG DDSKYDVRLLGKQ DSRFGWAL GGAVYVYLNQGGHWADV PSLRLCGS QLRDEGQVSVYLSKGNG VMEEGGVLSGDNAFNAHF GR DGEVGGAVYVYMNNQQGRWNNVKPERVGSDM LFGGAVYVYINNNGKNWEKINPIRLLG QQD GKYDVGAVVYVI NRNGKHWDNVVPVPLAGEREKSMFGLAV
 EGGA R L E ELGVYVYLQRGPLLLEPSQTHLMGGKQAYGRFGTSL DGEVGGAVYVY IDNQQGRWNNVKPIRLNGTK RPQEVGRVYVY Q QRPGGMEPTPALTLTGHDAF
 $\qquad$ $V G G A V Y V Y \quad M N V G G R F N S E T S M V L K G P A G S A$ YKEEGGAVYIF R LDE ELGRVYVYLMNENGSFQKRASLLLK XXXXXXXXVKLVGR EESRFGFAL NPR G G OVY Y QKGPLLLEPGQSHLM GKQAYGRFGSSL NPREVGQVYLYLQVNV LVFRNPQILAGTDVF


Q ${ }^{\text {GGGAVV}} \mathrm{G}$ GV
IGGAVYI F MNENGSFQNVSTKVLKGPA $\square \mathrm{GGA} V \mathrm{Y} V \mathrm{~F}$ $\square G G A I Y \vee Y$ I NKNGLLNEVAPVRIVGTK KVEMGGAVYIY MNEGGTFQKSPSLVKGNPDMFGUS KVREEGRVYVY $\square$ NSGSKAEMKE DELEAGSDSYA KEEKGGAVYVYMNLGGGTFHSSANLTLTGPS NS KEEDGGAVYVYNNVRDFSLIDKQWCSMGP HRELGGAAYVY $\square \mathrm{NPS}$ GRWEGARPLRLNGP NPELGGAAYVY NPGEQGRVHIFYQVGNLEFREGTPL EGT DPKGRFGFSVV $K L R E V G Q V S V Y L \quad G R G G F S F Q P P Q M D T G S E V Y A$ GGAVYVYINGAKGIN GSDP IVLIGGPRVSAMF
 DAYDVGKVIVMLQTAPGVFGKQDAVV GDDQWG LDEGRVYVY INREFFSLELLQPSLSGRNVPNARFGTAL
 GGAVYIYSPNNDGRLDNVQP $\mathrm{I}^{\prime} \mathrm{K}$ LHGEKGDS DSHDNGAVYVFVNKGRFWNGMKQLLRCDGTK DS
GGA
G
VADEGRVYFY IN NKNTLSFS QLQAP TS DQGARFGS S K HGGAVYVY ISQAGKKLSQTQPQKLTGGKLDS K E EKGGAVYVYMNLGGAFASHPNLTLTGP NSYDDGAI YVF N



| QU | GANQVAVYRAQ |
| :---: | :---: |
| niRef90 UPI0003F0643A | GASKVAVYR A |
| UniRef90_UPI000457488A | GASKVVVYR |
| UniRef90-W5MWR7 | G V G K V V V Y R A R P |
| UniRef90-H3A7S4 | GAAK TVVLY R A R P |
| UniRef90-H2UKA3 | G V N K A V L Y R S R P |
| UniRef90_UPI0003EA8DDA | GMDKAVLYRARP |
| UniRef90-G3WC24 | G V D K A V V Y R G R P |
| UniRef90 ${ }^{\text {W }}$ WN6U3 | GAGRVAVYR S |
| UniRef90_V9KCR7 | G V D R AVVYR A R P |
| UniRef90-V9K955 | GV DKA I L Y R A |
| UniRef90-W5Q553 | $\mathrm{G} V \mathrm{D} R \mathrm{~A} V \mathrm{~L} Y$ R |
| UniRef90_UPI0003D09A50 | GV V T AVL Y |
| UniRef90_H2U874 | GSGEVSVYRSR |
| UniRef90-M4A5B1 | G L D K A V Y Y R A R |
| UniRef90-W5MIN2 | G A D K A V Y Y A |
| UniRef90-Q6DCU9 | EA DKVFI FRAQP |
| UniRef90_UPI000462 | A Q PVVVVK A Q |
| UniRef90_Q91292 | GADKAVLYRSR |
| UniRef90-UPI000388A4BF | S D V S V Y R S R |
| UniRef90-K7FTF0 | G V D T ALVVYR G R P |
| UniRef90-W5KVU4 | S D S VFI Y R S R P |
| UniRef90-J3S8Y5 | S D TV SVVYR S R |
| UniRef90-H2MLN3 | $G V D K A V L Y$ |
| UniRef90-E9GKS8 | D S R IVVYL |
| UniRef90_F6R3Z0 | WS DSAVVL |
| UniRef90_UPI000440BCC3 | GADKAVLYR |
| UniRef90-Q7QEK5 | ES DKALVF |
| UniRef90_I3JQ03 | S DSAII Y |
| UniRef90_UPI00046 | GANTVAVYRA |
| UniRef90-H9GG84 | S D TVVLYR S R |
| UniRef90-M4ATB3 | N D SVVLFRSCP |
| UniRef90-H0ZGM7 | F S D S AVVLRT |
| UniRef90-W5MLD5 | $S$ D S VFV F R |
| UniRef90_UPI0003C25E90 | GAGKVAVYR |
| UniRef90_G3NMC0 | S D TALI Y R |
| UniRef90_A0A034V5Y0 | A S D K V |
| UniRef90-H2MSL5 | A D AVVI Y |
| UniRef90_T1KCK7 | ETDAVI FLL |
| UniRef90_UPI00032B15E0 | VD T A L L |
| UniRef90-G3NP21 | MS S VVLLLRTR |
| UniRef90-W5MHL6 | LS D S A V V L R T R |
| UniRef90-L5JZ22 | S D S VTI F R S R |
| UniRef90-H3DE56 | S D SVFVY R A R |
| UniRef90-H2L458 | S D SVFVFRARP |
| UniRef90-B4M1H9 | A S DQVY I F K S R |
| UniRef90_UPI000443DAD7 | S DAAFI YR |
| UniRef90-Q59F03 | S D H V VLL |
| UniRef90-T1IG31 | ES S SVVLL R |
| UniRef90_Q91687 | LS D S AVLLR |
| UniRef90_Q4T476 | GVDKAVLY |
| UniRef90_F8W2J5 | LS D S AVVF |
| UniRef90-M3VUR4 | SDSVTVVFRSR |
| UniRef90_UPI00033152F6 | G V D K A V V Y R G R |
| UniRef90_U1LSQ6 | QS SHAIVFKTKP |
| UniRef90-UPI000395B9D1 | S ERIV L L R A R P |
| UniRef90-I3JRV8 | D D T V L FRSRP |
| UniRef90-D7PS99 | D D R I AL LR S R P |
| UniRef90-W5LBD2 | GVDKAVLYRQR |
| UniRef90-K7IRS1 | EADA VA $A^{\text {A }}$ AR |
| UniRef90-H2 | G V D K A V L |
| UniRef90_UPI00042C6005 |  |
| UniRef90_F6ZK28 | S D T V VL |
| UniRef90-UPI0004446 | DE R V AL L R A R P |
| UniRef90-H2LH25 | D D R I A L I R A R P |
| UniRef90_U3J7R2 | S D SVSVFR S R P |
| UniRef90_UPI00046BE64A |  |
| UniRef90_Q91778 | D T V K VF |
| UniRef90-M3XGN4 | S DKIALLRARP |
| UniRef90_UPI0003C29798 | LS D S AVLL R T K P |
| UniRef90_G1KEH5 | SEN LLLLRARP |
| UniRef90_Q91779 | T D R I AL L R S R P |
| UniRef90_UPI0003C28EEB | A D TVALYY A R P |
| UniRef90_UPI000265878C | A S DKAVYL R S R P |
| UniRef90-H2RNS2 |  |
| UniRef90_C3ZHF5 | E S D HVILLR S R |
| UniRef90-L5M4Q7 | R S N S AVLLRTR P |
| UniRef90-P34446 | K S G NAAVLL LTK ${ }^{\text {P }}$ |
| UniRef90-UPI00035A1A40 | ESNMVVLL R T R |
| UniRef90_B0W7R8 | DS A AVT T L L A R P |
| UniRef90_UPI00022CA95F | LS E Q A I LIJK K P P |
| UniRef90-C3Z5Z6 | GEGTA MLFRARP |
| UniRef90-M3XL65 | S D S L F V Y R S R |
| UniRef90-B4KSA6 | NTEAVVFLYRAY |
| UniRef90-U4U414 | ESERALL F |
| UniRef90-T2MFQ0 | S S GKS Fi l R T R P |
| UniRef90-H2YKY4 | S DFVVLLRSRP |
| UniRef90-V8PF71 | S EN |
| UniRef90-B4QGF2 | N A E A VY L Y R A Y P |
| UniRef90_Q7QIG1 | NGEAVYVFRSYP |
| UniRef90-B3NQF5 | N A E EVYLYR A Y P |
| UniRef90_S7MWZ5 |  |

FNLDVSSATDKRGPPGSYFGYS TTPHKVGHHNDIFLVGAP FNLDVYAPIYKYGHEGTYFGYTVAEHFKGDVPGVVLVGAP YNVDSRNVLIFSDPRGSYFGFSVALYA GA GGPLLLAGAP LNLDPVQLTYYAGPNGSHFGFSLDFHKDSHGRVAVVGAP

$$
R S S Y F G Y S L V \square R P T S
$$

$\square \mathrm{F}$ VGAP

YNVDTESALLYQGPHNTLFGYSVVLHSHGANR WLLVGAP YNDDTNHPLLYPNDAHSYFGYSVLLHRDSQENTSWLVGAP $F N L D V E E P T G Q E D A G G F G Q S V V Q F G G S R$ LVVAAP $F N L D T D Q P T T F L M Q S A G \quad F G Y S V V Q Y A N S \quad W V V V G A P$ $F N L D V H R P R L F P G P P E T E F G Y S V L Q H V G G G Q R \quad W M L V G A P$
$D V M G A L R K E G E P G S L F G F S V A L H R Q P R P Q S W L L V G A P$ FNDDTRHPR ILGGSREQFGYTVQQHGEAAGQKWLLVGAP $F N L A P K P N L I \quad$ QKPFSSYFGYT LLLR DKS I I GAP

FNMDTRKPRVIPGSRTAFFGYTVQQHDDDGNKWLVVGAP $F N L Y$ VEEPTVFSEDAAG FGQTVVTQFGGMDVHVLMVVGAP

FNLDTQQTSSFHVDSPGFGHSVAQYGNSR VVVGAP

YNVG $\square$ S GAK $\square F S G P S S E Q F G Y A V Q Q F \square N P E G N \quad W \square L V G S P$
$F N V D Q K N G L S F S G P L E D D F G Y T V Q Q F E N S E G K$ WVLIGSP NIDLQQP IVRTAPEDGYFGYSLVLHQQSLQNTYLIVGAP

UniRef90 G3WF59 UniRef90-UPI0003B3D75B UniRef90-T1FSY6 UniRef90-U6PRM0 UniRef90 E2B366 UniRef90-UPI0001D36CED UniRef90_Q6DQX4 UniRef90 Q9W1M8 UniRef90-H2S2B6 UniRef90_UPI0003F0BF80 UniRef90 UPI00035097F8 UniRef90 UPI00032AF7F4 UniRef90-B4E0Q2 UniRef90_M4AE71 UniRef90 A0A026WI38 UniRef90-UPI00027F65B8 UniRef90_UPI000388AFBF UniRef90-UPI0003F1978F UniRef90 L9JHF4
UniRef90-M7B2L5
UniRef90-UPIOOO329321E UniRef90 UPI0003F0D64A UniRef90 UPI00042C0852 UniRef90_UPI0003EA9CC8 UniRef90-UPI00032A3285 UniRef90 A0A034WCR8 UniRef90_UPIO0038C1199 UniRef90_G3T519
UniRef90_F6RJZ4
UniRef90-H2NNL3
UniRef90-K1PAJ8
UniRef90-13M1Y4
UniRef90 B0XD06
UniRef90-UPI00045DF7B7
UniRef90_G5BYC0
UniRef90 I3JE40
UniRef90 UPI00033194CF
UniRef90_UPI0003F0C9E4
UniRef90-U6D114
UniRef90 UPI000333FC97
UniRef90-HOVTJ8
UniRef90-H2V0XZ
UniRef90-UPI0003F1316F
UniRef90 P53710
UniRef90-UPIO0033334DF
UniRef90-W5UJ85
UniRef90 UPI0004448F75
UniRef90-UPI0003D0FD8A
UniRef90-K7GHG1
UniRef90-M7BYV3
UniRef90-UPI0002A4B237
UniRef90-O18428
UniRef90-Q3V0T4
UniRef90-UPI0003B51DE7
UniRef90 UPI000332F03B
UniRef90_UPI00032A29DE
UniRef90-Q24LN2
UniRef90 G3VIX4
UniRef90-L9KYS4
UniRef90_UPIO0038C21D4
UniRef90 UPI0003AB955A
UniRef90 UPIO0046BA327
UniRef90-V9KB69
UniRef90-G1TDP0
UniRef90_UPI0003D070FA
UniRef90-B3RTH1
UniRef90_UPI000252C302
UniRef90-UPI0003509ADE
UniRef90 I3JL01
UniRef90-UPI0003C2910E
UniRef90-H2RPL2
UniRef90 H3CQ26
UniRef90-UPI0003EC19CA
UniRef90-H2MXB5
UniRef90_G1P981
UniRef90 UPI0003C8728C
UniRef90-H2UZT7
UniRef90_UPIO003BBFE62
UniRef90 F1LP44
UniRef90 H0WKH8
UniRef90-X1YK77
UniRef90_UPI00032AD9F8
UniRef90 H2ZQ43
UniRef90-UPIO0038C26A4
UniRef90-L8Y7X7
UniRef90_UPI0003D0723C
UniRef90 H9JAW0
UniRef90-UPI0003EBD876
UniRef90_E9QDD7
UniRef90 UPI00034F2A8D
UniRef90-І3KA00
UniRef90_UPI0004575E3F

RDNASN TSRPGVLYNCSFHDENTDCTP $\square$ PSSFREFVLKD RA GQ QGTIQAGALFACPYSGNGSQWCEQVRSEYEDKSSYQ RANSTAVNEPGTVFTCAMS GVCKEWLLDSSKNGVFPR RTLGPSQEETGGVFLCPWRAEGGQCSSLLFDDRDETRYVG $R Q P G 1 V E G G Q V L K C D W S S N$ RRCQPIEFDATGNRNYA RASQGSINETGAVYRCPLASGSCSHYVLNDKDNKQF

TANNASVINPGA $\square$ YRCR $\square$ GKNPGQTCEQ $\square$ Q $\square G S P N G E P C$ RGNYTQTNEPGVVYRCTDPGPCVEDEP\IEDKAMYDSQRL LEV VAANQTGRLYDCTAATGVCQP $\square P$ LI H $\square$ HPEAVNMSLL QE $\square K P A N Q T G S L Y Q C D Y R T G K C E P \square H L K \prod P$ WD GPSGDRRGDVYRCPVGGPNNDVVIVLDGSNS $\square Y P W S E$ QA $\square G Q Q A N R T G G L F A C P \square S \square E E T D C S R V D \square D R G$

FETNGGYQTGDDYRCPLSNNGSGNCS KLNLGRDS QAVLQQTTESGTIYKYNLKTD QUIEPFNFAKLRISSS QAFN GLDRSGALYKYDFATKQVKPLKE LGENVAESTY
 RAGQPDIIRGGAVLRCKINPHNCQUIPFDARGNEQRLSPG LEV VAVVQTGQLYDC TFVNGMCQPDS LDHDPPEAVNMS

QEV KAANQTGG $\square$ YQCDYST GQCEPVLLRVPPEAVN

WS GFP ENRMGDVYKCPVDLSTTTCEKLNLQTSTSQQNVT

LS GQPA TRTGDVYKCPVGREGNKCVKLDL
P K N T T NGSNSAEKNTGFVYECRLAQNGCTRIPALSDDTADSN


QE $\square$ KAPNQTGG $\square$ YQCDSSTSKCEP $\square$ QLQVP

QEV KAVNQTGGLYRCDYSTATCEP $\square$ Q $\square$ QVP

EYK $\square N N \square Q S G A V F K C P \square T Q N A S D C H R \square D \square D D N F A T G D M Q$ KGNYSYLIEPGUVYRCEIENPHQE DKPEKIENEKGYDTQL

LLGQPA KRTGDVYKCPVDKEHNTCVKZLEDRKNT


UniRef90 G3WF59 UniRef90_UPI0003B3D75B UniRef90-T1FSY6 UniRef90-U6PRM0 UniRef90 E2B366 UniRef90-UPI0001D36CED UniRef90_Q6DQX4 UniRef90 Q9W1M8 UniRef90-H2S2B6 UniRef90_UPI0003F0BF80 UniRef90-UPI00035097F8 UniRef90-UPI00032AF7F4 UniRef90-B4E0Q2 UniRef90_M4AE71 UniRef90-A0A026WI38 UniRef90-UPI00027F65B8 UniRef90_UPI000388AFBF UniRef90-UPIO003F1978F UniRef90-L9JHF4 UniRef90-M7B2L5
UniRef90_UPIO00329321E UniRef90 UPI0003F0D64A UniRef90_UPI00042C0852 UniRef90-UPI0003EA9CC8 UniRef90_UPI00032A3285 UniRef90 A0A034WCR8 UniRef90_UPI00038C1199 UniRef90_G3T519 UniRef90-F6RJZ4 UniRef90 H2NNL3 UniRef90-K1PAJ8 UniRef90-I3M1Y4 UniRef90 B0XD06 UniRef90-UPI00045DF7B7 UniRef90_G5BYC0 UniRef90 I3JE40 UniRef90 UPI00033194CF UniRef90-UPI0003F0C9E4 UniRef90-U6D114 UniRef90 UPI000333FC97 UniRef90-HOVTJ8
UniRef90-H2V0X7
UniRef90-UPI0003F1316F UniRef90 P53710 UniRef90-UPI00033334DF UniRef90-W5UJ85 UniRef90 UPI0004448F75 UniRef90-UPI0003D0FD8A UniRef90-K7GHG1
UniRef90-M7BYV3
UniRef90_UPI0002A4B237 UniRef90-O18428
UniRef90-Q3V0T4 UniRef90_UPI0003B51DE7 UniRef90 UPI000332F03B UniRef90_UPI00032A29DE UniRef90-Q24LN2 UniRef90 G3VIX4 UniRef90-L9KYS4
UniRef90_UPIO0038C21D4 UniRef90-UPI0003AB955A UniRef90 UPIO0046BA327 UniRef90_-V9KB69
UniRef90-G1TDP0
UniRef90_UPI0003D070FA
UniRef90-B3RTH1
UniRef90_UPI000252C302
UniRef90 UPI0003509ADE
UniRef90 I3JL01
UniRef90-UPI0003C2910E
UniRef90-H2RPL2
UniRef90-H3CQ26
UniRef90-UPI0003EC19CA
UniRef90-H2MXB5
UniRef90_G1P981
UniRef90 UPI0003C8728C
UniRef90-H2UZT7
UniRef90_UPIO003BBFE62 UniRef90 F1LP44 UniRef90 H0WKH8
UniRef90-X1YK77
UniRef90-UPI00032AD9F8 UniRef90 H2ZQ43 UniRef90_UPI00038C26A4 UniRef90_L8Y7X7
UniRef90_UPI0003D0723C UniRef90 H9JAW0 UniRef90_UPI0003EBD876 UniRef90-E9QDD7 UniRef90 UPI00034F2A8D UniRef90-І3KA00
UniRef90_UPI0004575E3F

90
100
110
120
GKTCKEDRDDEWMGVS $\square$ ARQPKADGQVLACAHRWKNDYYE MAVAWTCAHRYQELK
$K E D H$ EDYNDQWFGGVVVSQN $\square P S G Q A L A C G H K Y G K V S$ YLGKNGELLGASLASQGGGA VCAPLMRFH
DKRIVQVKDNAWI GASI AVENKTARVVVCGPRWKVSTHYM SQTLQTFKACQGLGASVVSWSDTDVACAPWQHWNVLEKDE KDVPSEFKSHQWFGASVRPKQDR LACAPDYHWRTEVKQE QWLGGSMTKDTDKLLVCAPR FGVPKN
D GQWMGVRVTSQGPGKNVMMCAHRYQQWVPDA
SMK LHVYKSRQWLGASVTSWHGTLVPCAPLQHWNADQDNL

SGH $\square$ NNEHSWFGGAMS $\square E K S S G F L T V C A P R T \prod M S \square I L D S M$ GLTLAASTNRSWLGPTLHRVCGEIUTVPDALPECPHQEM

## $P E A V N M S L G L S L A A S T N P S Q L L A C G P$ <br> VQTF F R RLVGRLFIDP TVHTC

 UQ GHYMRRQQDPHSF ADVQKESKENQWLGVSVQSQGGK VVTCAHRYESRQRVDQL F GNLVPNATHQWLGGAMEGGSGDKDPLVICAPLLTADY
FNYLRPNTEHQWLGASMDGGSKPLIVCAPLKTATLID

S H E C $N$
$N$

$$
\mathrm{MS} \square \mathrm{G} \square \mathrm{~S} \square \mathrm{~A} \text { T A T N P T R L L A C G P S } V H \text { Q A CR R }
$$

F L N E $\square$ K
QKF $\square \mathrm{DE} \square \mathrm{K}$
 $F \square \mathrm{NE} \square \mathrm{K}$
$\square K E \square K$
$\square K E \square K$
F V E E $\square K$
$\square P K \square R E V K E N M T M G T T L V T N P$ LEDKEGQFMGGALASNGDRF MACGHRYVNFNPSN

QKF TDETK
FVEEIK
G LQQSKSRQWLGGAMDRDADPLIACAPLQTATKLNNGG

PEAVNMS LGLSLAATTNPSQLLACGPTVHQTC

PEA $V$ NMS $\square G L S L T$ A A T T P S R L L A C GP TVH H A C

S YFSHHFAASQWLGASVATGGPGKRADVCAPRFQNDFFNG GMMMW $\square R K Q Y G W \bar{F} G S S I D R \square N G \square L T V C A P R T \| V A L L Y K S D L$

QKF $\$ KE 1 Q
$\square$ QKF $\square$ NE $\square \mathrm{Q}$
VPNLHEVKENMAMGTTVTNPSGGFLACGP DQK QYGYMC

$\square K$ E $\square \mathrm{K}$

QQFQELN

UniRef90 G3WF59 UniRef90-UPI0003B3D75 UniRef90-T1FSY6 UniRet90-U6PRMO UniRef90-UPI0001D36CED UniRef90-Q6DQX4 UniRef90 Q9W1M8 UniRef90 - 2 2S2B6 UniRef90-UPIO003FOBF80 UniRef90 UPIO0035097F8 UniRef90 UPI00032AF7F4 UniRef90-B4E0Q2 UniRef90_M4AE71 UniRef90 ${ }^{-}$A0A026WI38 UniRef90 UPIOO027F65B8 UniRef90_UPIo00388AFBF UniRef90-UPI0003F1978F UniRef90 L9JHF4 UniRef90-M7B2L5 UniRef90-UPIooo329321E UniRef90 UPIO003F0D64A UniRef90 UPIOOO42C0852 UniRef90-UP10003EA9CC8 UniRef90_UPI00032A3285 UniRef90 A0A034WCR8 UniRef90_UPIO0038C1199 UniRef90-G3T519 UniRef90-F6RJZ4 UniRef90-H2NNL3 UniRef90-K1PAJ8 UniRef90-l3M1 Y4 UniRef90 BoxD06 UniRef90_UPI00045DF7B7 UniRef90-G5BYC0 UniRef90_13JE40 UniRef90 UPI00033194CF UniRef90-UPIO003FOC9E4 UniRef90-U6D114 UniRef90-UPI000333FC97 UniRef90-HOVTJ8 UniRef90-H2VOX7 UniRef90-UPI0003F1316F UniRef90 P53710 UniRef90_UPIo0033334DF UniRef90-W5UJ85 UniRef90-UPI0004448F75 UniRee90 UPI0003DOFD8A UniRef90-K7GHG1 UniRef90-M7BYV3 UniRef90 UPI0002A4B237 UniRef90-O18428 UniRef90-Q3VOT4 UniRef90-UPI0003B51DE7 UniRef90 UPI000332F03B UniRef90_UPIO0032A29DE UniRef90-Q24LN2
UniRef90_G3VIX4
UniRef90-L9KYS4 UniRef90-UPI00038C21D4 UniRef90 UPI0003AB955A UniRef90 UPIO0046BA327 UniRef90-V9KB69 UniRef90-G1TDP0 UniRef90_UPI0003D070FA UniRef90- ${ }^{-18 T H 1}$ UniRef90_UPIO00252C302 UniRef90-UPI0003509ADB UniRef90 13 JL 01 UniRef90_UPI0003C2910E UniRef90-H2RPL2 UniRef90- H3CQ26 UniRef90-UPI0003EC19CA UniRef90-H2MXB5 UniRef90-G1P981 UniRef90 UPI0003C8728C UniRef90-H2UZT7 UniRef90-UPIO003BBFE62 UniRef90-F1LP44 UniRet90-HOWKH8 UniRef90-X1YK77 UniRef90_UPI00032AD9F8 UniRef90 H2ZQ43 UniRef90-UPIOOO38C26A4 UniRef90-L8Y7X7 UniRef90 UPI0003D0723C UniRef90 H9JAW0 UniRef90-UPIO003EBD876 UniRef90-E9QDD7 UniRef90 UPI00034F2A8D UniRef90-I3KA00
 SQTRNILGRCYVLSQDLKKSMEDGVEDGGNWYFCKGRNPG SARSETPGWCISLTNNLKPFKFHSPCNGKHWYFCKGRNGG NTSAYTQGACYELNSDLTLGGTYTTCLQKNDPK LDRHN QGПCYGTLASGADAFDREAKRHWLPVFNATRQRKLSDETS EAEKTPVGGCFLAQPQSGRRAEYSPCRGNTLSRVYLENDD KNYGQMRGDCYWV RDTVADTPP亩SDVRTDSLTPSQ FVAHLLTGQCYLLGDDLQAQVQTQDKTWRRVVCDSEHRNN EAFRTPVGACFMSPDSSVQCEQQPFGANEGDWGWDR ACFMGAEGLHRFIWYSPCRSTQMAPUYKKNEY NENK पPTGGCYGVPPD $\square R T S K R \square A P C Y Q D Y$ VK KF
FVYQTMQGMCYSDRVSSMTLK AETSE\|VHFDYSKSSWA DIVFLIDGSGSTKQNDFNRMKGFVQAVMDQFAGMQYSNFP EUASEPTNEHVFRVDNFDALQGUQSQLQEKDFAMEGQSGS KENMY LTGFCFLLVSSSWALQECPRQEQDIVFLIDGSGSI
 LETRDVIGRCFVLSQDLADHDELD GGEWKFCEGRPQG

QSRTSS GSSYYSTGDCSRVNSTFKFARTDAPAFQRCETYMDDDGSN RYSNWMHGVCYYLKNGLAKESNDSFTDKDQERRQYDDGNF QAYMHGLCYWTNNTMGDDSQDRVWQDEQDVKDKNRKPL

H G F N E S GSSYYTTGMCSRVNSNFRFSKTVAPADQRCQTYMDDDGSN NKR EPVGTCY ARSGSTRFEEFSPCRGNVDLLRETVDQY D IVFLIDGSGSIHESDFNQMKDFVRAVMDQFMQYSNLMET NMY LMGLCFLLASPAQRRERLPDALQECPRQDQDVDG Y $\square$ ASDPDDKHFFNVTDESALKDVDALGERDFSDEGKNGT
S $\square$ ASEPTEKHFFNVSDEFALITVETपGER DFATVDQSTA
GSQYYTTGVCCDVSPKFQHLASFVPALQSCPSYVDCDESN Q TASTPSETHAFKVTNYTALNGLLSKLQQSIIHTEGTVGE Y $\backslash A S D P D D K H F F N V T D E A A L K D 甘 V A L G E R \| F S L E G K N G T$
A $\square$ AS $\square$ PTERHFFNVSDEADLLEKAG $\square G E Q \square F S \square E G Q G G D$ HFFSVTDESA $\square K D \square V D A G E K \square F S \square E G Q N G T$ G $\square$ AS $\square P T E K Y F F N V S S A T L L E E A G T \square G D R \square F S \square E G Q G N$ SПASEPTEKHFFNVSDELALLT\VEALGERDFATTDQLAA GQQQYISGVCANVSSSFQILNSVAPAVQ
TNTRSVYGRCFYADRSGNNFQEFQPCEGVGRKDTQS STSSKPDQDHFFNVSDELFLVNLADTLGRKTFATSGNFTS S $ا$ ASKPTEKHFFNVSDELALVTIVKALGERIFATADQTAA FMHGACYWTNNTLHAEKQNRDSWKGEHDKQENENLK

S R D S
KENTYVNGFCF DFDSNDRRQPQRDPETDRGRS LWGEVVDR PAGDHVFQVDNFEALKKTQNQLQEKIFADEGTQTS NENMH $\square$ NGFCF LWASPSWQARRपPAD पQECVMSQFQRPRA QESDSA

NYQYR $\square K G K C K \square L N T L E R F Y G R E S Y D P F \square F \quad K N E D$ D 1 NETMQG $\square C Y$ SIS S NALI IEEKD LKFH D FMSTFWYNPDH SI A S $\square$ PTERFFFNVADEAALLEKAGTDGEHTFSDEGQGGE NIS SEPDQDHFFNVSDEAALVNIVDTLGSRIEATSGNSTS
 GQQQY TSGVCANVSSSFQVLNSUAPWPSDTDFAERFDKT I

$S \square A S E P T A N Y F F N V S D E V A \square S N \square A G T \square G D R \square F N \square T G K G G D$ HTVSS


PDETHAFMVANYSVLDGLLSKLQRNDIRMEGTVGE $E \square A S D P D T E H V F Q V N N F D A L Q G L Q S Q L Q E K I F A \square E G Q R G S$

HFFNVSDERALVT $\square$ VDT T G S K $\square$ FATSGKHTS


## UniRef90 G3WF59

 UniRef90-UP10003B3D75B UniRef90-T1FSY6 UniRef90-U6PRMO UniRet90 E2B366 UniRef90-UP10001D36CED UniRef90-Q6DOX4 UniRef90_Q9W1M8 UniRef90 H2S2B6 UniRef90_UPIO003F0BF80 UniRef90-UPI00035097F8 UniRef90-UPI00032AF7F4 UniRef90-B4E0Q2UniRef90-M4AE71 UniRef90 ${ }^{-}$A0A026WI38 UniRef90_UPIO0027F65B8 UniRef90-UPIOOO388AFBF
UniRef90-UPI0003F1978F UniRef90-L9JHF4 UniRef90 ${ }^{-}$M7B2L5 UniRef90-UPIooo329321E UniRef90-UPIO003F0D64A UniRef90 UPIOOO42C0852 UniRef90-UPIO003EA9CC8 UniRef90-UPIO0032A3285 UniRef90-A0A034WCR8 UniRef90-UPI00038C1199 UniRef90-G3T519
UniRef90-F6RJZ4 UniRef90-H2NNL3 UniRef90-K1PAJ8
UniRef90-13M1Y4
UniRef90-B0XD06 UniRef90-UPI00045DF7B7 UniRef90-G5BYC0 UniRef90 - 13 JE40 UniRef90 UPI00033194CF UniRef90-UPIO003FOC9E4 UniRef90-U6D114 UniRef90_UPI000333FC97 UniRef90_HOVTJ8 UniRef90-H2VOX7 UniRef90-UPI0003F1316F UniRef90 P53710 UniRef90-UPI00033334DF UniRef90_W5UJ85 UniRef90 UPI0004448F75 UniRef90-UPI0003D0FD8A UniRef90-K7GHG1 UniRef90-M7BYV3
UniRet90 UPI0002A4B237
UniRef90-O18428
UniRef90-Q3VOT4
UniRef90-UPI0003B51DE7
UniRef90_UPIO00332F03B
UniRef90-UPIooo32A29DE
UniRef90-Q24LN2
UniRef90-G3VIX4
UniRef90-L9KYS4
UniRef90_UPIo0038C21D4
UniRef90-UPI0003AB955A
UniRef90-UPIO0046BA327
UniRef90-V9KB69
UniRef90-G1TDPO
UniRef90-UPI0003D070FA
UniRef90-B3RTH1
UniRef90_UPIO00252C302
UniRef90-UPI0003509ADB
UniRef90 13 JLO 1
UniRef90_UPIOOO3C2910E
UniRef90-H2RPL2
UniRef90-H3CQ26
UniRef90-UP10003EC19CA
UniRef90-H2MXB5
UniRef90-G1P981
UniRet90_UP10003C8728C
UniRef90-H2UZT7
UniRef90-UPIO003BBFE62
UniRef90-F1LP44
UniRef90-HOWKH8
UniRef90-X1YK77
UniRef90-UPIO0032AD9F8
UniRef90-H2ZQ43
UniRef90-UPIOOO38C26A4
UniRef90-L8Y7X7
UniRef90_UPI0003D0723C
UniRef90- H9JAW0
UniRef90-UPIO003EBD876
UniRef90-E9QDD7
UniRef90-UPI00034F2A8D
UniRef90-I3KA00
UniRef90_UPIo004575E3F
 HQLFGSCOGVSAF YFDYAVCQAGVSAFDDKDGEILGGAPGAHDWKGVVRMEQR EYGACMEGFSAADSG NVVVTGLIGAMKWTGGVYARKS HYNYAFAQVGFSLHWGNSADルALGGPGVFAWTGDTVAQTS FRMMLSPALSLQ ADGQGFCQGGFSDDFTKADRVLLGGPGSFYWQGQLYSDLV
AEEHFMLELGLSAHVTDDNSFLIGAPGVRSWKGSVLVHRG HHWFAYCQQGI IILCDLSGUVRMEATDDFPFPDDDPRETG VGFCQAGUSADIHNKKHVVVGAIGSYYNQGQVYVKGV 1 L GEEHGSCQAGMAGFCTEEL VVVMGAPGSFYWAGTV GENFASCQAGปSSFYTKDLTVVMGAPGSSYWTGSLFVYNTV NPTHGFSVNFASLQGNETISSVVGRPNDNVNGSINVAHFT KIHFTFTQFRTSGLTFTASGILQVVPGDLSSQDGLVLGAV SFQLEMSQEGFSSLGSPDGPV LGAVGAYDWSGGUYLYGS SFRDFTKMLNFVAVMSQFQRPSTGFSLMAFSHGS
SFELEMSQIGFSTHLLEDGGLLFGTVGAYDWDGAVLKESR WHGWCQAGपAAHYTKDGSLLLGAVGSIAWRG


SFQHEMSQEGFSSVLTMDGPV LGAVGSFSWSGGAFLYPD SGSTTPREFGTMINFVKSVMSQFQRPSTQFSNRFQVHFTF AFGLQMSQAGFSAHSLEDGTLVGAVGAYDWNGAVLKETR SFEMEMSQEGFSAMITTPEGPVMGAVGSFSWSGGAFFYPS

STYPWDAVKNF TEKFVQGLDTGPQALTQYGNEPRVVYNLN ALRYQLAQTGFSAQLLDEGQVLLGAVGAFNWSGG


 SFEMEMSQAGFSAHYSQDW IMLGAVGAYDWNGTVVMQKN PAGMSAVVAETS DGTDHLALGAPGSYLLKRIVIRST
 YSFLRYGQYGFSILTANNKTVMAGA GGLSNWEGKVI HFDL

## A

QFS $L M Q F S H T F R V H F T F K D F T Q S S D P G G Y T H T A T A \square L K V I$ SFKMEMSQGGFSALIDSKDAMV FGTVGAYDWSGG

 $N 1$ QLEMSQVGFSADYSPQNDIMLGAVGAFAWSGTIVQETA PIQMEMSQTGFSAHTSNEGVLLGAVGAYEWNGTVVMYTA AMEYELAQAGFSAQDFNKANLLLGAVGGADGSGGVLMRYE
SFEMEMSQTGFSAHTSKVSPVLLGAVGAYDWNGTVVMHTP SFEMEMSQTGFSAHTSKVSPVLLGAVGAYDWNGTVVMHTP HAMFGTCQQGLIAATFTNDYHYMFGAVGAYNWRGUVRLEQN GF GLQQMAQAGFSSHLVKDG VLLGAVGAYDWNGA
SFQMQMAQVGFSADYSPEKDVTLGAVGAYDWSGTVVQQTS HYQDAQVGFSAQ\|LDEGQVLLGAVGAFDWSGG
NFKMEMSQVGFSAHYSSQQDVMMGAVGAYSWSGTVVHQRG SFQFEMSQEGFSAVLTPVSGPFRHRCYSTEWKGVQSLVLGG SFNMELSSSGUSA HSE E Q Q Y $P$ L $L G G$
$A R V P G$
$D L L L$ GFSASFTRDNRIVLGAVGS
SFEHEMSQEGFSA
$A \square R Y Q L A Q T G F S A Q L L D K G Q V L L G A V G T F D W S G G$
$S F Q L E M S Q E G F S A L L S P D G P I L G G A V G A Y D W S G G F F L Y G G$
$\square D Q R G G E E T R T A L G \square N V D G V L L G A V G A Y D W N G A$
S FEMEMSQAGFSAHTSKAGVMLGAVGAFDWNGTVVMQ
SFEHEMSQEGFSAALTSSGPL LGSVGSFGWAGGAFL
SFKMEMSQVGFSAHYSSKQDVMLGAVGAYAWSGTVVHQTG
TFLLEMAEVGFSAHYTPKQSLILGAVGAYDWSGTIVHQSS

UniRef90 G3WF59 UniRef90-UPIO003B3D75B UniRef90-T1FSY6 UniRef90-U6PRM0 UniRef90-E2B366 UniRef90_UPI0001D36CED UniRef90_Q6DQX4 UniRef90_Q9W1M8 UniRef90-H2S2B6 UniRef90_UPI0003F0BF80 UniRef90_UPI00035097F8 UniRef90-UPI00032AF7F4 UniRef90-B4E0Q2
UniRef90_M4AE71 UniRef90-A0A026WI38 UniRef90_UPI00027F65B8 UniRef90_UPI000388AFBF UniRef90_UPI0003F1978F UniRef90_L9JHF4 UniRef90-M7B2L5 UniRef90_UPI000329321E UniRef90-UPI0003F0D64A UniRef90_UPIO0042C0852 UniRef90_UPI0003EA9CC8
UniRef90-UP100032A3285 UniRef90-UPI00032A3285 UniRef90_UPIO0038C1199 UniRef90_G3T519 UniRef90-F6RJZ4 UniRef90-H2NNL3 UniRef90-K1PAJ8 UniRef90-I3M1Y4 UniRef90-B0XD06 UniRef90_UPIO0045DF7B7 UniRef90-G5BYC0 UniRef90-I3JE40 UniRef90_UPI00033194CF UniRef90_UPIO003F0C9E4 UniRef90_U6D114 UniRef90_UPI000333FC97 UniRef90-HOVTJ8 UniRef90-H2VOX7 UniRef90-UPI0003F1316F UniRef90 P53710 UniRef90-UPIO0033334DF UniRef90_W5UJ85 UniRef90-UPI0004448F75 UniRef90-UPI0003D0FD8A UniRef90-K7GHG1 UniRef90-M7BYV3 UniRef90-UPI0002A4B237 UniRef90_O18428
UniRef90-Q3V0T4
UniRef90_UPI0003B51DE7 UniRef90_UPI000332F03B UniRef90_UPI00032A29DE UniRef90_Q24LN2
UniRef90-G3VIX4
UniRef90-L9KYS4
UniRef90_UPI00038C21D4 UniRef90_UPI0003AB955A UniRef90_UPI00046BA327 UniRef90-V9KB69 UniRef90_G1TDP0 UniRef90_UPI0003D070FA UniRef90-B3RTH1 UniRef90_UPI000252C302 UniRef90-UPI0003509ADB UniRef90 I3JL01 UniRef90_UPI0003C2910E UniRef90_H2RPL2 UniRef90-H3CQ26 UniRef90-UPI0003EC19CA UniRef90-H2MXB5 UniRef90_G1P981 UniRef90_UPI0003C8728C UniRef90-H2UZT7 UniRef90_UPI0003BBFE62 UniRef90-F1LP44 UniRef90-HOWKH8 UniRef90-X1YK77 UniRef90_UPI00032AD9F8 UniRef90-H2ZQ43 UniRef90_UPIO0038C26A4 UniRef90_L8Y7X7 UniRef90_UPI0003D0723C UniRef90_H9JAW0 UniRef90_UPI0003EBD876 UniRef90_E9QDD7 UniRef90_UPI00034F2A8D UniRef90-I3KA00

210
220
230
240
 RNTFDLGGLYDEVPLETGGEKAKRPSDVPTPDNSYLGFSMA
 RGRLEGTVVFGVRSRRYG $\operatorname{VCADWVKRYADTAGAYF~}$

 D DDHFNPELIPLLLRNGWFEFWSYSFPMLNESYSFTRFS I D
 NTILARFHGKSVVWDEGPGRPTVEQTSTDYEDGYRGYSVAA KVLNLT DNTYYKLNDEVIMMRRYTYLGGYAVTT
 $\qquad$ RQNFLETYRNTTSISMND GSFSWSGGAFLYSPNMSPTF SGEPSFLNVSRTSTDMNDAYLGYSSQ $K D F \square Y S S N P L S L L D S V Q Q L R G F T Y T A T A \square Q M V T N Q L F S A S$ $V$ WLGEGHRLFPPRTALLEDEFPPA $H G R$
$\mathrm{~V} T \mathrm{~N}$
T
I D S S DPD QL $\mathrm{V} Y$

YPQNMSPTFDSVSQENVDMRDSYDGYSMS G $\square E \square A R Y G Y S Q A A Q N L Y S T P Y S I L K L L L C H F M V L G Y Y N R R$ HLLNKKGQSIVFEVGHSNFFEYTGYAID YNMNTQKPRATIQGPKMA SYKGYAVG
$A L L Y D M Q S R R G C F L N Q T A E D S G A Q Y S Y G G Y$
$P N M S R T F I D N M S Q E N V S M S D S Y L G Y S A E ~$ VLKESSHGRVLPPRSAFQKEFPVKMKNHA AYLGYTVS $\square N D Y R S V K D V V E A A S H D E Q R G G T E T R T A F G D E F A R S E A F Q$ DLNNNK LSTREEGATEDNKYRGYSSA GARKHAKK\LIVITDGQKYRDPLDVIPQAEKAG\|IRYA IGG L N NPRDKVYSTGESTSSEDDSYLGYSSA NMD PTFINMSQENVDMRDSYLGYATE
 SMRPTF $\square$ NMSRGNVD $N Q \mathrm{~V} \quad \mathrm{PQNDTFNVEATKRN}$


ALLYDTRCRWGRFLLNHSADAGAAQYSYDGY K GEV HGHLIF TGUNTTERVNDMNDAYLGGYASE K Y SKQAFEQ\|LQDRNHSSYLGYSVA NGKVIPPKSSY Y

NK V


SMV PQHTGTKTNTFLAM T P P T


N S G

## ESTDTPEKDEFYDPK

 NQMI IPH NTTFQTEPAGGGL NNK HTSNKSHRTKTHTNAPKPQYKGYAVG TGSA $\square \mathrm{F}$ K K AS TDK NMNDMNDAYLGY DQFEKPKTLYSEDFRTHFTFSNFKENPNPASLVTP $\square R Q L$ QDK$A T F V N T T R V D S D M N D A Y L G Y S S A$
$S R A R G F L D N T A A A A D G Q Y S Y L G G$ KELISSVHSGARADHKTGDSLDEWKVIPTAEAKGIIDRAGG
 SGR I DPHRESY SGR Q PEFPEELKNHGAY $\square$ GYTVTSVL GHT $\square F P K E T F D Q \ L Q D R N H$
$\qquad$ G G GIV VP

RGT I DPGKAQFYDPHA
PQQTGFKTMTFMGINTTRLEAFDP RLEAFLRGARQGVKKVMVIVT $S G V L K E T K L G K V I P P K S$ SYQEEFPEALKNHA
$S$ G HL $\quad$ I $F$

## VLLYDTNKCRGHFLNQ

STV
APRHQHTGKAVIFT
DLEGATFVGQEPL
DILPSSAFEFTDDVDAAAQYGYLGY

TSKEKFSF NTTSDERGGYLGYTA PPTRESPPPRHCDNNPKDKVYKTLEDKKDEDDSY LGGYSAT KNDVTF $\square$ NKTRVDSKMN D A Y G G Y A S A NISSLPYHTAEFKPVVPPGWSDVDYYRHTYDSNYLGYSVA


VLKESKHGKVVPPKS SYQDEF PEELGKNHADAYMGYYSV AGNEFVVPKKNTFHNPSVQRYEGMAGYVGYDVQ

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

## UniRef90 G3WF59

 UniRef90-UPI0003B3D75B UniRef90-T1FSY6 UniRef90_U6PRM0
## UniRef90 UPIO001

 UniRef90_Q6DQX4 UniRef90-Q9W1M8 UniRef90-H2S2B6 UniRef90_UPI0003F0BF80 UniRef90-UPI00035097F8 UniRef90-UPI00032AF7F4 UniRef90-B4E0Q2
## UniRef90-M4AE71

 UniRef90-A0A026WI38 UniRef90_UPI00027F65B8 UniRef90_UPIO00388AFBFUniRef90_UPI0003F1978F UniRef90-L9JHF4 UniRef90-M7B2L5 UniRef90-UPI000329321E UniRef90_UPI0003F0D64A UniRef90-UPI00042C0852 UniRef90_UPI0003EA9CC8 UniRef90-UPI00032A3285 UniRef90-A0A034WCR8 UniRef90_UPIO0038C1199 UniRef90-G3T519
UniRef90-F6RJZ4
UniRef90-H2NNL3
UniRef90-K1PAJ8
UniRef90-I3M1Y4
UniRef90_B0XD06
UniRef90_UPIO0045DF7B7
UniRef90-G5BYC0
UniRef90-I3JE40
UniRef90_UPI00033194CF
UniRef90-UPIO003F0C9E4
UniRef90-U6D114
UniRef90_UPI000333FC97
UniRef90_HOVTJ88
UniRef90-H2VOX7
UniRef90-UPI0003F1316F
UniRef90 P53710
UniRef90-UPIO0033334DF
UniRef90-W5UJ85
UniRef90-UPI0004448F75
UniRef90-UPI0003D0FD8A
UniRef90-K7GHG1
UniRef90-M7BYV3
UniRef90-UPI0002A4B237
UniRef90-O18428
UniRef90_Q3V0T4
UniRef90_UPI0003B51DE7
UniRef90_UPIO00332F03B
UniRef90_UPIO0032A29DE
UniRef90_Q24LN2
UniRef90-G3VIX4
UniRef90_L9KYS4
UniRef90_UPIO0038C21D4
UniRef90_UPI0003AB955A
UniRef90_UPI00046BA327
UniRef90_V9KB69
UniRef90_G1TDP0
UniRef90_UPI0003D070FA
UniRef90-B3RTH1
UniRef90_UPI000252C302
UniRef90_UPI0003509ADB
UniRef90-I3JL01
UniRef90_UPI0003C2910E
UniRef90_H2RPL2
UniRef90-H3CQ26
UniRef90-UPIO003EC19CA
UniRef90-H2MXB5
UniRef90-G1P981
UniRef90_UPI0003C8728C
UniRef90-H2UZT7
UniRef90_UPIO003BBFE62
UniRef90-F1LP44
Uniref90-HOWKH8
UniRef9-X1YK77
UniRef90_UPI00032AD9F8
UniRef90-H2ZQ43
UniRef90_UPI00038C26A4
UniRef90_L8Y7X7
UniRef90_UPI0003D0723C
UniRef90-H9JAW0
UniRef90-UPIO003EBD876
UniRef90_E9QDD7
UniRef90_UPIO0034F2A8D
UniRef90-I3KA00
UniRef90_UPIO004575E3F
 VGQALTNKGQLTVVAGAPRTNFTGAVISTARGDMLAEFTA $T S H N M A K Q G R K V Y V V G A P R S D N V G E V Q K V H A H T F L V K V R L$
$V G R F G F W Y E N G E I V S G A T R F G Q H G A V V F L P F T F T E D R F V L$ KKDDILYYAGAAKGAALLGKVLVFTFPTTEMEY DSVKAKL

 SGLADIDRKGELDTVSGAPRGGYSGQVAF $\operatorname{L}$




 S G
 SGKGLMRAEELSFVAGAPRANHK
SGGRPGATKVMVVVTDGESHDGS
SVAVLHNAHGVSYI A GAPRYRQRGAVFKDRPESKEATFVQ

VIS R NSTG $K V Q S L V L G A P R Y Q H T G L V V M F K Q G S W K T S A V I$
 SAHY V
 DGESHDFHKLESVIAGDERYNRQNKSPEEVKKFIKEIEGI

 $\begin{array}{ll}\text { SAT } & V P G D V L Y I A G Q P R Y N H T G Q V V I Y R M G D V Q V L Q A L \\ Y G Y F N S D S Q Q M S Y V A S A P R V Q U Y T D A K R W S Q N M F P M Q T G Y\end{array}$
 AF IWN GVQSLVLGAPRYQ V VGAVLHKTCSVSYVAGAPRYKHHGAVFELQKEGTETSFVL VGSAFQHEGELIAI ASAPSEEH $\square F R V E N F D A D R D \square Q K Q L$






 $S V A V L H K P S G F A Y V A G A P R H R Q R G A V F E L Q E G R T D F V P V L$




## VI LR N

 TG $T$ GRVQSLVGAP SSGISAGSNLPLLVTSAPRYNLLGSVIVYDENMEVPLANF $A V Q R V T S G K R R G Y V V G A P R Y Q H V G K V V L F Y S A A W R A B A A E K$


S
UniRef90 G3WF59 UniRef90-UPIO003B3D75B UniRef90-T1FSYG UniRef90-U6PRMO UniRef90-UPIO001D36CED UniRef90-Q6DQX4 UniRef90-Q9W1M8 UniRef90 - 2 2S2B6 UniRef90-UPIOOO3FOBF80 UniRef90 UPIO0035097F8 UniRef90-UPI00032AF7F4 UniRef90_B4EOQ2 UniRef90-M4AE71 UniRef90 A0A026WI38 UniRef90 UPIOOO27F65B8 UniRef90_UPIOOO388AFBF
UniRef90 UPIOOO3F1978F UniRef90-L9JHF4 UniRef90- M7B2L5 UniRef90-UPIooo329321E UniRef90-UPI0003F0D64A UniRef90_UPI00042C0852 UniRef90-UPIO003EA9CC8 UniRef90-UPIO0032A3285
UniRef90-A0A034WCR8
UniRef90-UPI00038C1199
UniRef90-G3T519
UniRef90-F6RJZ4
UniRef90-H2NNL3
UniRef90-K1PAJ8
UniRef90-13M1Y4
UniRef90-B0XD06
UniRef90-UPI00045DF7B7
UniRef90-G5BYC0
UniRef90-13JE40
UniRef90_UPI00033194CF
UniRef90 UPIOOO3FOC9E4
UniRef90-U6D114
UniRef90_UPI000333FC97
UniRef90-HOVTJ8
UniRef90-H2VOX7
UniRef90-UPIO003F1316F
UniRef90 P53710
UniRef90_UPIo0033334DF
UniRef90-W5UJ85
UniRef90-UPI0004448F75
UniRef90-UP10003DOFD8A
UniRef90-K7GHG1
UniRef90_M7BYV3
UniRef90 UPI0002A4B237
UniRef90-O18428
UniRef90-Q3VOT4
UniRef90-UPI0003B51DE7
UniRef90_UP1000332FO3B
UniRef90-UP100032A2929DE
UniRef90-Q24LN2
UniRef90-G3VIX4
UniRef90-L9KYS4
UniRef90-UPIOOO38C21D4
UniRef90-UPI0003AB955A
UniRef90_UPIO0046BA327
UniRef90-V9KB69
UniRef90-G1TDPO
UniRef90-UPI0003D070FA
UniRef90-B3RTH1
UniRef90_UPIO00252C302
UniRef90-UPIo003509ADB
UniRef90_13JL01
UniRef90-UPIOOO3C2910E
UniRef90-H2RPL2
UniRef90-H3CQ26
UniRef90-UP10003EC19CA
UniRef90-H2MXB5
UniRet90-G1P981
UniRef90_UP10003C8728C
UniRef90-H2UZT7
UniRef90OUPIOOO3BBFE62
Riefo-HLP44
UniRef90-X1YK77
UniRef90-UPI00032AD9F8
UniRet90-H2ZQ43
UniRef90-UPIOOO38C26A4
UniRef90-L8Y7X7
UniRef90-UP10003D0723C
UniRef90-H9JAW0
UniRef90-UP10003EBD876
UniRef90-E9QDD7
UniRef90-UPI00034F2A8D
UniRef90-I3KA00
UniRef90- UPIOOO
UniRef90_UPIo004575E3F

290
300
310
320
SGKKMGSYFGSSLCAVDLNADGDSDLLVGAPMFSEDR
EGEGLSSSFGYDLTVLDLNKDGWDDIVVGAPQYFEKDSE

ESKQTGEYFGAALTSCDVNNDGKDELIVGAPYWAE
TGTQLYGRFGSAI APGDLDRDGYNDVAVAAPYGGPSGR
 SGPGLASSFGYDVAVADFNGDGWEDLAVGAPQFYKKD
LGGEQLGAYFGFAVAVQDVNNDRDDDIIVGAPFFTDKAGTA ASEQVPP LQ H HPTAPSCCMAPPPHHL $\quad$ P P Y LLPPP QGL AGKKMGSYFGSSLCAVDLNGDGLSDLLVGAPMFSElR KGKKLGSYFGASVCAVDLNADGFSDLLVGAPMQSALR LGTQVASYFGHSVAVADINSDGLDDVLI GAPLFMD RVMG MGTQUGSYFGASLCSVDVDGDGSTDLLIGAPHYYEQTR QGEQVGSYFGGTLCAVDLDRDGNTDLLIGAPTYYTP


EGEQLGSYFGSELCPVDVDMNGTDLVAAPFYHDHG
KGQQi GSYYGSEI APVDIDGDGITDLLVAAPMFF
NGTQI GSYFGASLCSVDVDRDGNTDLLIGAPHYYEQTR QGDQI GSYFGSVLCAVDVNKDTDTDLLVGAPMYMNDDKK RGTQ GSYFGASLCSMDMDSDGNTDLLIGVPHYYEQTR

 SSKPLKDHFFALLSTVDFEMEMSQTGFSVHPDKDGMLMGA VGDQMGEYYGFSLVALNAGDSLDELIVSAPMYRDRNDG RGEQUGYFGSVLQTVDVNNDSYTDLLVGAPMYMGPERNE SGEQUGSYFGSVLTTVDVDNDSHTDLLVGAPMYMGEEKEE KGSQMGSYFGASLCSVDVNRDGSSDLLI GAPHFYEQMR KGTQUGSYFGATLCPVDLNGDRNTDLLIGAPHYYEQ

KGSQTGSYFGAS CSSDMDGDGNTNLLIGAPHYYEQTR EGEQMGSYFGSELCPVDTDMDGTTDLLVAAPFYHVHG KEKDFA IEGEAEVELAPTPHSRVPSLWAASPPSDPDGAVG NGQQIGAYFGCELCSVDLTQDGGTDLLIGAPGYHD

RGDHAGEYF

K

## UniRef90 G3WF59

 UniRef90-UP10003B3D75B UniRef90-T1FSY6 UniRef90-U6PRMOUniRet90 E2B366 UniRef90-UP10001D36CED UniRef90-Q6DOX4 UniRef90-Q9W1M8 UniRef90 - 2 2S2B6 UniRef90_UPIO003F0BF80 UniRef90-UPIo0035097F8 UniRef90-UPI00032AF7F4 UniRef90_B4EOQ2

## UniRef90-M4AE71

 UniRef90 A0A026WI38 UniRef90_UPIO0027F65B8 UniRef90-UPIOOO388AFBFUniRef90-UPI0003F1978F UniRef90-L9JHF4 UniRef90- M7B2L5 UniRef90_UPIOOO329321E UniRef90-UPIO003F0D64A UniRef90 UPIOOO42C0852 UniRef90-UPIO003EA9CC8 UniRef90-UPIO0032A3285
UniRef90- A0A034WCR8
UniRef90_UPIOOO38C1199
UniRef90-G3T519
UniRef90-F6RJZ4
UniRef90-H2NNL3
UniRef90-K1PAJ8
UniRefo-l3M1Y4
UniRef90_UPI00045DF7B7
UniRef90-G5BYC0
UniRef90 - 13 JE40
UniRef90-UPIo0033194CF
UniRef90-UPIO003FOC9E4
UniRef90-U6D114
UniRef90_UPI000333FC97
UniRef90-HOVTJ88
UniRef90-H2VOX7
UniRef90-UPI0003F1316F
UniRef90 P53710
UniRef90_UPIo0033334DF
UniRef90_W5UJ85
UniRef90-UPI0004448F75
UniRef90-UP10003DOFD8A
UniRef90-K7GHG1
UniRef90-M7BYV3
UniRef90_UPI0002A4B237
UniRef90-O18428
UniRef90-Q3VOT4
UniRef90-UPI0003B51DE7
UniRef90_UP1000332FO3B
UniRef90-UPIooo32A29DE
UniRef90-Q24LN2
UniRef90-G3VIX4
UniRef90-L9KYS4
UniRef90-UPIo0038C21D4
UniRef90-UPI0003AB955A
UniRef90-UPIO0046BA327
UniRef90-V9KB69
UniRef90-G1TDP0
UniRef90 UPIIO003D070FA
UniRef90 B3RTH1
UniRef90_UPIO00252C302
UniRef90-UPI0003509ADB
UniRef90-13JL01
UniRef90-UPIOOO3C2910E
UniRef90-H2RPL2
UniRef90-H3CQ26
UniRef90-UP10003EC19CA
UniRef90-H2MXB5
UniRef90-G1P981
UniRef90_UP10003C8728C
UniRet90_H2UZTT
UniRef90-UPIOO03BBFE62
UniRef90_F1LP44
UniRef90-HOWKH8
UniRef90-X1YK77
UniRef90-UPI00032AD9F8
UniRet90-H2ZQ43
UniRef90-UPIIOOO38C26A4
UniRef90-L8Y7X7
UniRef90_UPIOOO3D0723C
UniRef90-H9JAWO
UniRef90-UP10003EBD876
UniRef90-E9QDD7
UniRef90-UPI00034F2A8D
UniRef90-I3KA00
UniRef90_UPIO004575E3F
$\qquad$


ETGRVYVY LVAQQ SLLTLQGTLQPEPPQDARFGFAM ETGRVYIYKVGQLLLLF SGTLHAAKKPQDSRFGYSL GGAVYVYMNQGGHWAGVSPLRLACGSPDSMFGDSL


EKGRVYVYSDHKQDGSFSDAH LSGCPGPSARFGFAM GGLEKGKVYYYRLTELNRFDLEGALEDHNGGQNARFGSAL GGQVSVCPLPQRRASWECRAVLREQGHPWARFGAAL EEGRVYLFTITKGILNWHQFLEGPNGLE NARFGSAA
 GGQVSVCPLPRGRAGWHCEVAVLRGVQPWARFGAAL
 Q GKVYVYSLNKTTFQMSLEPIKQTCEPCGARFGTAD VGAYDWNGTVVMQTAKESLIPGKTQFYDPKSEAGYEGLAG AETGRDYIYRNDGATLSLVT

GGQVSVCPMPGVRSRWHCGTTLHEQGHPWGRFGAA
GKVYVYPVNGCSSNSDGCTMKNEPGGARFGTAA Q
N
N
D
FE

GKVYVYALTQKRFAYNSCVKENTNEPCGARFGTAI NTFEAGAVHMHDNQGNANQLNERSLLESPFPSSGHFGTALL
GGQVMCPFPRGRAKWHCDAVLREPGHPWGRFGAA

SHGGQVSVCSGSWQKTKLQCNSILHQQGHPLGRFGAALL
GGQVSVCPDPRGQRARWQCEA LHGEQPWGRFGAAL SFSWSGGAFLYPQNTKPDFDNMSQENVDMADSYLGYSTEM S YGVGGMVRVCVLRNLENLTCTDTLYGKAGNVFGRFGSAGL
1 Q EEGRVYLFTIAKGILNQHQFLEGPEGIEENGHFGYA GRVYVYPINQSCCTLQSAGCTNKNEPCGARFGTAI $\square$ DYF

GGRVSVCPLPR Q GVLL
 EGGRVYY MKKEEGRVYVYRVNKQDGSFSLEHELIGHSRDYARFGFAM MKKEEGRVYVFLRPYCSLAFNRLSEGGPSPTEDARFGMAD GAVYLFHGASGPGISPSHSQRDTGSQGQQHFGQSL QGGQVSVCPLPR GRTRWQCDAVLHGEQPWGRFGAAL
$E T G R V Y Y Y G S G A D R R F G E L E T R G T M S R A R F G L S V$ KY ETGRVYIYHGSGADQRRFGEDETRDGTMSRARFGLSV K पPEVGRIYI FYQKNFYHNFTHLTTI DGKASMGRFGKT QHVGQVLLFQAPQAGGHWSQTQKLEGTQIGGYFGGELJ EEGRVYVYRLSGQAASFSLAHVLTGHAGFARFGFAM
 QGGQVSVCPLPKGRARWRCDTLLREQGHPWGRFGAAL


## UniRef90 G3WF59

 UniRef90-UPIoo03B3D75B UniRef90-T1FSYG UniRef90-U6PRMOUniRet90 E2B366

## UniRef90-UP10001D36CED

 UniRef90-Q6DOX4 UniRef90-Q9W1M8 UniRef90-H2S2B6 UniRef90-UPIO003FOBF80 UniRef90_UPIo0035097F8 UniRef90-UPI00032AF7F4 UniRef90-B4E0Q2
## UniRef90-M4AE71

UniRef90-A0A026WI38 UniRet90_UPI00027F65B8 UniRef90-UPIO00388AFBF
UniRef90 UPIOOO3F1978F UniRef90-L9JHF4 UniRef90-M7B2L5 UniRef90-UPIO00329321E UniRef90-UPIOOO3FOD64A UniRef90-UPIOOO42C0852 UniRef90-UP10003EA9CC8 UniRef90_UPI00032A3285
UniRef90-A0A034WCR8
UniRef90_UPIOOO38C1199
UniRef90-G3T519
UniRef90-F6RJZ4
UniRef90-H2NNL3
UniRef90-K1PAJ8
UniRef90-l3M1Y4
UniRef90-B0XD06
UniRef90-UPIOOO45DF7B7
UniRef90-G5BYC0
UniRef90-13JE40
UniRef90 UPIO0033194CF
UniRef90-UPIOOO3FOC9E4
UniRef90-U6D14
UniRef90_UPI000333FC97
UniRef90-HOVTJ8
UniRef90 H2VOX7
UniRef90-H2VOX7
UniRef90 $-U P 10003 F 1316 F$
UniRef90-P53710
UniRef90_UPIo0033334DF
UniRef90_W5UJ85
UniRef90-UPI0004448F75
UniRef90-UPIOOO3DOFD8A
UniRef90-K7GHG1
UniRef90-M7BYV3
UniRef90_UPI0002A4B237
UniRef90-O18428
UniRef90-Q3VOT4
UniRef90-UPI0003B51DE7
UniRef90-UP1000332FO3B
UniRef90-UPIOOO32A29DE
UniRef90-Q24LN2
UniRef90-G3VIX4
UniRef90-L9KYS4
UniRef90-UPIOOO38C21D4
UniRef90 UPI0003AB955A
UniRef90_UPI00046BA327
UniRef90-V9KB69
UniRef90-G1TDPO
UniRef90-UPIO003D070FA
UniRef90-B3RTH1
UniRef90_UPIO00252C302
UniRef90-UPIo003509ADB
UniRef90_13JL01
UniRef90-UPIO003C2910E
Uninef90-H2RPL2
UniRef90-UP10003EC19CA
UniRef90-H2MXB5
UniRet90-G1P981
UniRef90-UP10003C8728C
UniRef90-H2UZT7
UniRef90-UP10003BBFE62
UniRef90-F1LP44
UniRef90-HowKH8
UniRef90-X1YK77
UniRef90-UPIO0032AD9F8
UniRef90-H2ZQ43
UniRef90 UPIOOO38C26A4
UniRefgo
UniRef90-L8Y7X7
UniRef90-UP10003D0723C
UniRet90-H9JAW0
UniRef90-UP10003EBD876
UniRef90-E9QDD7
UniRef90-UPI00034F2A8D
UniRef90-13KA00
UniRefo- UPIOOO
UniRef90_UPIo004575E3F

 ENLGDDNQDGYHDFAVGAPYE DNGAGKVY:FHGSATGGF TKLGNLDGDGYEDFAVGAPFANDGKGAVYVYLGSKKEFR MCLGDVDYDGYGDFAVGAPYEEESG GAVYIYHGNLDGVF RGAVDIDDNGYPDLIVGAYGASQV KGGVY APAGDLDQDGFND AIAAPYGGEDKKGVVYMFNGRAAGLN ENIGDTNQDNYEDIAVGAPY DGSGRVYLYCGSSTGIN ENVGDTNQDNYED:AVGAPY DGSGRVYLYCGSSTGGN
 VNLGD:DNDGF SVLGDLDMDGYQDVAVGAPWS DGGGGQVF YY LGNSNGLS ASLGDLDGDGFSDVIVGAPWEES NGVIYVYNGDASAMH


GALPDLNQDGFADVAVGAPDEDGH RGALYDYHGTQSGVR AAVPDLNHDGFNDVVAGAPLEDDH RGAVYVYHGTRGTIL
AVLGDLNQDGFPGY
EHI GDINMDGYRDVATSAPYE GSGVVYTYHGSRTGVT TVLGDANGDKLTDVAIGAPGEQE NRGAVYLFHGTSEGIR TSV VSAKNERLYVAGAPRF NHTGKVIIFTGRNNGNL TKLGDINKDGYNDLAASAPFAGADNEGAVVIYFGGPNGLD AAVGDINQDKMTDVA GAPFGDGTSYGSVYIYNGYSDGLR TVLGDVNGDKLTDVAIGAPGEQENRGAVYVFHGASGGUS TSVDVDGDGVTDVLLVGAPMYFNEGRGKVYVYELRQNRFV SGLGDINDDTYKDLVVGA
AL CSLGDTNLDGFGDFAVGAPYDGPNGNGAVYVYHGSPTGPL TVVGDMDGDKLTDVAIGAPGEQE NQGAVYLFHGSGRGVS A PVPDLNGDGFNDLVVGAPLEDEHKGAIYVFFSQQNRIL TVLGDVNGDKLMDVAIGAPGEQENRGAVYLFHGTPDG1S $A V L G D I N Q D G F D I A V G A P F$ DGDGKVFUYHGSSLGVV

AA VGD NadKFTDVA GAP DEDGDSFGSVY YNGHQDGLS APVPDVNGDGFNDLVVGAPLEDDHKGAVYVFFSQQSR1L AALSDINMDGFNDVIVGSPLENQNSGAVYIYNGHEGMI R TVLGDVNGDHVTDVAIGAPGEQDNQGAVYVFHGSRLTI S

 ASVKDLNDDGFNDIVIGAPDEDDHRGAVYIYHGNGNSI R YLGYDVTRDGEEYITGAPRFNHTGRVVIYSLNGSDLVI
 A AVSDLN NDGFNDVVIGAPFENDH RGAVYVYHGHKSNPY AAVKDAKGGKDVAGAPFAGSQRHGAVALYFGGPNGLE AVLGDINGDKLTDVAVGAPGE DENHGAปYVFHGMASSFN
TVLGDVNGDKLTVAVGAPGEQE NQGAVYTFHGASTSTS A AVGDISQDKLTDVAI GAPLGDGASFGSVYIYNGHWDGLS ALWK GVQSLVLGAPRH QHTGKAVIFTQAAGQWR SELRDVNGDGINDVAGAPGEDEHAGCLYLENGERHRTN ASVPDLNQDSYNDVVVGAPLEDDH QGAIYYFHGFQGDIL TSIGDLDQDGFNDVAVGAPFDGNNKTGVVYVYRGDGNGLK AADSDINMDGYNDVIVGSPLENQNSGAVYIYNGDQGTIR AAVTDLNLDGYNDVAIGAPFENDH RGAVYIYHGDQKSLK ASVGDNRDGYVDI AVGAPGEDQSAFGSVYIFNGNHDGUR AAVSDLNLDGFNDVADGAPFENDH RGAVYIYHGENTTLK AGNMDLDGNSYPDLAIGS
 ATVGDISQDKLTDVAIGAPLEDGAGFGSVYVYNGRSTNLS SAIPDLDLDGYSDVVVGAPLE DNQKGVIYIYNGEKRTLN

TVLG NGDG TVLGDVNGDKLTDVA GGAPGEQD NQGAVYVFHGTGFSDS TALGDVNGDKLADVAI GAPGEQENRGAVYLFHGVPRSDS VP:GDVNGDGFNDLLVSAPYEREEQFGAVYLFNGGADGAR ASVGDVSQDKETEVAGGAPLEEGASFGSVYVYNGHRGGLS ASLGDVDGDGHADLAVGAPLEDGA
 NQGAVY
SAI P D L D L

A Q Y SMK|LISGQQP T|L|RMFGQS\| S GGDDMDGNGYPD|V|T||GAF $R K K A T Q V L S S K S G V R Q F G Y S L A G N M D L D K N S Y P D L A V G S L$
 $R R Y S Q R L V G S D Y S L P M R G F S I S E P R D I D G D R Y P D F A V G A Y$

A V P S Q VL E G Q W A A
DEPS QRLDAPSRGAHMFGQGLSRGSD\|DGNGFNDLADGAP
TKAA QVLSSRSRSVTLLGYSLSGNLDVDDNLYPDLAVGSL K N P A QUI K A A S S S N L R T F G S S L L G G GL D M D K N HY T D L L V G A Y $P V P T Q R L D S P F P G P A A F G F A L R G A T D D D G N G Y M D L L V G A F$ $P Q Y S M K L S G \square S P \square L R M F G Q S \square S G G V D M D G N G Y P D V T I G A F$

ATPSQQ DNSPLSSRSAFGFSLRSGVDLDGNGYPDLLVGAW SNFRRNFPAEGENDRTFGFSISEPVDVDGNGYADI AVGAY P S H S Q R I A G S S P R L Q Y F G Q A L S G G Q D L T Q D G L M D L A V G A R $P$ Q Y R Q R I E G S L S RLLH F GQA $ـ S G G T D L T R D G L P D I A V G A Q$

P H P A Q R TA A IS Q T LS YF GR SVD GRLDLD G D DVVDVAVGS Q $P Q Y Q Q R I E A L S P S L S Y F G R S V D G Q M D L D G D E L V D L A V G A Q$
 PSHSQRI ASSSPTLQYFGQSLSGGQDLTQDGLVDLAVGAR



 YNGTLK DSHSYQNARFGSSIASVRDLNQDSYDDVVVGAP

PKAEVT
$\qquad$ GTQVGSYF GASVCSVDDDSDGSTDVVIDGP EK P S QVI P THS QRITT A GAS RIS TFGFSVAGGDDLDGNQYPDMVVGAY
 RKYKQRワAAAAPGLQYFGRSIHGVMDMNDDGVVDLVAVGL P S H S QRI A S S Q $\square$ S L Q Y F G Q S L S G G Q D L S Q D GL N D L A V G A


$T A H S Q R \square A G A S F S L Q Y F G Q S L S G G K D L T M D G L T D L A V G A Q$ ASPSQRIARASAPGLQYFGMSVAGGFDISGDGLADILVGTL
PKAEV P GT Q I GS YFGAS L C S V DVD R D GSS DLVI GAP
 $R K Y K Q R I$ A A VA S GLLMYF GCS I H G Q L D L RSFSQAI DAASFALNGFGDAVSGKI DVDKNGYP



$P N Y K Q R \square S G F A A G L Q Y F G Q S L H G V L D \square N S D G L V D L A V G A L$ TRFSQKI LGSDRALQYFGRSLDGYGDLNGDSITDVSVGAF TSWSQRI RASAPGLHYFGMSVAGGLDFSGDGLADITVGAL

 S SHSQRI DGSSPGLRYFGQSLSGGQDLTMDGLVDLISIGAQ $A K P S Q V L Q G V P G R L S T F G F S L A G G D D L D G N Q Y P D L A V G A Y$ S SHS QRI A GSQP Q I QYFGQSLS G GQDLTRD GLVDLSVGAQ TTPS QVIHGPTEKVRGLGYAMKGGKDVDQNGYPDVILGAY

 EKYS Q A I T A E S P T L S T F G F S L S G G V D L D N N NY T D L A M G A Y
 EKYVQRRIA GD GE SMK F F G Q S I H G IVM D L N D D GII D V T I G ASHSQRI A GASPRLQYFGQSLSGGQDLTMDGLTDLAVGAQ


UniRef90 G3WF59
UniRef90-UPIO003B3D75B

UniRef90-T1FSYG
UniRef90_U6PRM0
UniRef90_E2B366
UniRef90_UPI0001D36CED
UniRef90_Q6DQX4
UniRef90_Q9W1M8
UniRef90-H2S2B6
UniRef90_UPI0003F0BF80
UniRef90_UPI00035097F8
UniRef90 UPI00032AF7F4
UniRef90-B4E0Q2
UniRef90-M4AE71
UniRef90-A0A026WI38
UniRef90_UPI00027F65B8
UniRef90_UPIO00388AFBF
UniRef90-UPI0003F1978F
UniRef90_UPIO003
UniRef90 L9JHF4
UniRef90_M7B2L5
UniRef90_UPIOOO329321E UniRef90-UPI0003F0D64A UniRef90-UPI00042C0852 UniRef90_UPI0003EA9CC8 UniRef90-UPI00032A3285 UniRef90-A0A034WCR8 UniRef90_UPIO0038C1199
UniRef90-G3T519
UniRef90_F6RJZ4
UniRef90-H2NNL3
UniRef90-K1PAJ8
UniRef90-I3M1Y4
UniRef90-B0XD06
UniRef90_UPI00045DF7B7
UniRef90-G5BYC0
UniRef90_I3JE40
UniRef90_UPI00033194CF
UniRef90_UPI0003F0C9E4
UniRef90-U6D114
UniRef90_UPI000333FC97
UniRef90-HOVTJ8
UniRef90-H2V0X7
UniRef90-UPI0003F1316F
UniRef90-P53710
UniRef90-UPI00033334DF
UniRef90-W5UJ85
UniRef90_UPIO004448F75
UniRef90-UPI0003D0FD8A
UniRef90_K7GHG1
UniRef90-M7BYV3
UniRef90 UPI0002A4B237
UniRef90-O18428
UniRef90 Q3V0T4
UniRef90-UPI0003B51DE7
UniRef90-UPI000332F03B
UniRef90-UPI00032A29DE
UniRef90-Q24LN2
UniRef90_G3VIX4
UniRef90-L9KYS4
UniRef90_UPI00038C21D4
UniRef90_UPI0003AB955A
UniRef90_UPI00046BA327
UniRef90-V9KB69
UniRef90-G1TDP0
UniRef90_UPI0003D070FA
UniRef90-B3RTH1
UniRef90_UPIO00252C302
UniRef90_UPI0003509ADB
UniRef90_I3JL01
UniRef90-UPI0003C2910E
UniRef90-H2RPL2
UniRef90 H3CQ26
UniRef90-UPI0003EC19CA
UniRef90-H2MXB5
UniRef90_UPI0003C8728C
UniRef90-H2UZT7
UniRef90_UPI0003BBFE62
UniRef90_F1LP44
UniRef90-HOWKH8
UniRef90_X1YK77
UniRef90_UPIO0032AD9F8
UniRef90_H2ZQ43
UniRef90-UPIO0038C26A4
UniRef90_L8Y7X7
UniRef90_UPI0003D0723C
UniRef90-H9JAW0
UniRef90_UPI0003EBD876
UniRef90-E9QDD7
UniRef90_UPI00034F2A8D
UniRef90-। 3 KA00
UniRef90_UPIO004575E3F

MS D HVVLLRARP SDSVFIYKTRP
 L $\operatorname{LS}$ E KVVVLL

GAEAVY LYRAYP SDSVFVYRARP
 $G D D K V A V Y W G Q P$
$G S D S V V L L R A R P$

$\square N N T A V L F R T Q P$
 STDKALVFKSRP
$G \quad H L L L L R S R P$



TALVFRSRP QVLLLRTRP NAVLLWSR
KSEHA ILRSKP $\begin{array}{ll}G & Q V V Q L W S Q \\ G G & A S L F W S R \\ G & N V V L R S\end{array}$ $G \quad N V V V L R S R P$
$G G A S L F W S R$ EQGQVYVYR
 $E G Q V I V L S S R P$
$G V L L L R S Q P$ G $\quad$ HVLLLRSQP
DTDKVVVRSRP
G $\quad$ QVLLLRSQP G QVLLLRSQP

 GA A AVIVWSR G $\square$ G GAA A $L$ YS R

| $G$ | $K$ | $V V$ | $Q$ | $W S$ | $R$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $G$ | $R V V$ | $Q L$ | $W S$ | $R$ |  |

UniRef90 K1Q7K3
UniRef90－UPI00029D7513 UniRef90－UPI00032A334E UniRef90－UPI0003504CAD UniRef90 Q4SQ95 UniRef90－S9X4Y0 UniRef90－L5KT96 UniRef90－UPI000273A19D UniRef90－H2UIS7 UniRef90＿UPIO0046BF6D7 UniRef90 C3Y3Z0 UniRef90 ${ }^{-}$T1JB00 UniRef90－H3CAF7 UniRef90－13KW08 UniRef90 UPI0003C27855 UniRef90－UPI0003AF8EBF UniRef90－F7DB68 UniRef90－H2M36C UniRef90 G4VIL6 UniRef90－L5K3S7 UniRef90＿F7DB16 UniRef90＿UPI0002C68D77 UniRef90 UPI000180B645
UniRef90－F7BQG0
UniRef90－UPI0000D9F0D8 UniRef90 H2L878 UniRef90－S9WVL7
UniRef90－UPI000359AA1B UniRef90 UPI0004448A6F UniRef90 UPI0003C49E27 UniRef90－UPI0002B46C4 UniRef90－F6Y2R7 UniRef90 UPI00046B9712 UniRef90－UPI00033399D0 UniRef90＿G3H2S3 UniRef90－M4AUD5 UniRef90 UPI00021A40Fs UniRef90－H3A911 UniRef90－UPI000440D746 UniRef90 H9GLT6
UniRef90－U6ITD4
UniRef90＿UPI00046C33C6 UniRef90－UPI0002B42C59 UniRef90 G7YUI6 UniRef90－UPI000373C5AF UniRef90－UPI0003F07621 UniRef90 UPI00037B89FD UniRef90－UPI00037B89FD UniRef90＿UPI0003EC45BF UniRef90－UPI000444673A UniRef90 UPI0003BBC41s UniRef90－K9ZMY9
UniRef90－UPI000477EA30 UniRef90－UPI00045D6A4 UniRef90 C6VXD0
UniRef90＿UPI00037680DE UniRef90－UPI00037680DE UniRef90 UPI0003F16FE3
UniRef90－M3Y0A7
UniRef90－UPI000333931F UniRef90 UPIO00298BFCF UniRef90 UPI000387CD25 UniRef90－HOXE61
UniRef90－F6TJG3 UniRef90 UPI00033438F1
UniRef90 C6W1L5
UniRef90－UPI0004418A51 UniRef90 L5K2K2 UniRef90 UPI0001D55136 UniRef90－UPI0004442D89 UniRef90＿UPI000298B5D0 UniRef90 UPI000414A083 UniRef90－UPI0004400575 UniRef90＿C6W781 UniRef90 UPI00036C4C3E UniRef90 F6RP2 UniRef90－W4Y256 UniRef90－L8M322 UniRef90＿Q4BWI7 UniRef90 E1VMA0 UniRef90－M4A8A8 UniRef90－P05555－2 UniRef90 U6HEQ7 UniRef90－X6DVD9 UniRef90－B4VJ47 UniRef90＿B4VJ47 UniRef90 V6l184 UniRef90－A3VF48 UniRef90－B4VWQ7 UniRef90 UPI00035F06F6 UniRef90－A0YNPO UniRef90＿B2J8ZO
 F N $\square \mathrm{DVKHPR} \mathrm{\square F} \operatorname{T}$ GPEDA $\square \mathrm{F}$ GFSVLQHEADGEK SMLVGAP

YNVDTENALLYKGPPNTLFGYSVVLHSHGANR WLVVGAP $\square N L D P V R L S S Y T G P N G S Y F G F S L D F Y K D S H S S M A G V V G A P$

FNVDVEGP $\square$ TFQ EAAEGFGQSM $\square Q \square G S A S G G G L I I G A P$ PYRLVVGGAP

MGYT HFSGQKGVVIGSP

YNLDVRGARSFSPPAGRHFGYRVLQVGNG
VIVGAP

FNVDVKNSMSFSGPVEDMFGYTVQQYENEEGK WVLIGSP FNVDVKNSMNFSGPVEDMFGYTVQQYENEEGK WVLI GSP FSVDVDGP $\square$ TYQEAAAGFGQSVVQFRGGSAG

RLIVGAP

FNLDVEEPTVFH EDGAGFGHSMAQYGSSR VVVGAP $S \triangle V L L A G P P E A E F G Y S V L Q H V G G G Q R \quad W M L V G A P$


YN IDTVHPEVLASNASRNFGYQVLQFKDAS $\quad 1 \mathrm{~V}$ VAP PGSYFGYSVASYVGQSQSFC LVGAP ANQGFG川SVAGD\NRDGYDDVIVGAP ANQGFGLSVAGD $\operatorname{SNRDGYDDVIVGAP}$

S A A G DVNGD G IDD D\｜I I G A P NSTLEVNQTEAQYGWAVAGDVNGDGYSDLVVGA LDLDKEAHGILEGQPSGRFGSSLALDFNKDGVPDLAVGAP

FFTGNPGDNYG円SVAPD円DADGFSDVILGAA FFTGNPGDNYGUSVAPDIDADGFSDVILGAA

LDLDKEAHGULEGQPSGRFGSALALDFNVDGMPDLAVGAP $N L D T L F P L L K K G E K E S L F G L S V A L H H H L K T G T Y L L V G A P$

TPA I LEANQAGAQFGFSVAGDVNNDGFSDVVIGAP

FNLDVEEPT】FQEDAGGEGQSVVQFGGSR LVVGAP $\square D L D K E A H V I L E G E P S G R F G S A L A D D F N Q D G V P D L A V G A P$ VS LDPSSKILTAQATSYDGFSVAGDDNSDGFSDVIVGAR LDLDKEAHGILEGQPSGRFGSAVALDFNKDGMPDLAVGAP
 RGTNFGYSVAS YVAQSQAFC LVGAP

DEGDRDGПSVAGD\NGDGПDDA I IGAP DEGDRLGISVAGDINGDGUDDA\｜IGAP

QGGPADLAGWSVAGDVNGDGПDDVIVGAF S GDNLGHAVNGDINGDGIDDLIISAP NQPESQFGYSVAGDIVGDGYDDIVVGAP S SAGDVNGDGFDDVI I GAS

UniRef90 K1Q7K3
UniRef90-UPI00029D7513 UniRef90_UPI00032A334E UniRef90 UPIO003504CAD UniRef90 Q4SQ95 UniRef90-S9X4Y0 UniRef90_L5KT96 UniRef90 UPI000273A19D UniRef90-H2UIS7 UniRef90_UPIO0046BF6D7 UniRef90-C3Y3Z0
UniRef90 T1JB00 UniRef90-H3CAF7 UniRef90-I3KW08 UniRef90 UPI0003C27855 UniRef90-UPI0003AF8EBF UniRef90-F7DB68 UniRef90-H2M36C
UniRef90 G4VIL6 UniRef90-L5K3S7
UniRef90-F7DB16
UniRef90_UPI0002C68D77 UniRef90 UPI000180B645 UniRef90-F7BQG0
UniRef90-UPI0000D9F0D8 UniRef90 H2L878 UniRef90- S9WVL7
UniRef90_UPIO00359AA1B UniRef90-UPI0004448A6F UniRef90 UPI0003C49E27 UniRef90-UPI0002B46C41 UniRef90-F6Y2R7 UniRef90 UPI00046B9712 UniRef90-UPI00033399D0
UniRef90_G3H2S3
UniRef90-M4AUD5
UniRef90 UPI00021A40F9 UniRef90-H3A911
UniRef90-UPI000440D746
UniRef90 H9GLT6
UniRef90-U6ITD4
UniRef90_UPI00046C33C6 UniRef90-UPI0002B42C59 UniRef90 G7YUI6 UniRef90_UPI000373C5AF UniRef90_UPI0003F07621 UniRef90 UPI00037B89FD UniRef90-UPI00037B89FD UniRef90_UPI0003EC45BF UniRef90_UPI000444673A UniRef90 UPI0003BBC419 UniRef90-K9ZMY9
UniRef90-UPI000477EA30 UniRef90-UPI00045D6A49
UniRef90 C6VXD0
UniRef90_UPI00037680DE
UniRef90-UPI00037680DE UniRef90 UPI0003F16FE3 UniRef90-M3Y0A7
UniRef90_UPI000333931F UniRef90_UPIO00298BFCF UniRef90 UPI000387CD25 UniRef90-HOXE61
UniRef90-F6TJG3 UniRef90-UPI00033438F1 UniRef90 C6W1L5 UniRef90_UPI0004418A51 UniRef90_L5K2K2 UniRef90 UPI0001D55136 UniRef90-UPI0004442D89 UniRef90-UPI000298B5D0 UniRef90 UPI000414A083 UniRef90- UPI0004400575 UniRef90_C6W781 UniRef90 UPI00036C4C3B UniRef90 F6RP21 UniRef90-W4Y256 UniRef90-L8M322 UniRef90_Q4BWI7 UniRef90 E1VMA0 UniRef90-M4A8A8 UniRef90-P05555-2 UniRef90 U6HEQ7 UniRef90-X6DVD9 UniRef90-B4VJ47 UniRef90_B4VJ47 UniRef90 V6I184 UniRef90-A3VF48 UniRef90-B4VWQ7 UniRef90 UPI00035F06F6 UniRef90-AOYNPO
UniRef90_B2J8Z0

WDGPPN NRKGDVYKCSVGREKNSSC
NK V N LGETA

RTLGRSQEETGGVFLCPWRAEGGQCTSLPFDLNDETREVG
LQTG NVNKTGKVYKCDPGSRRCQE $\square P \square L A A R G S Q F L V C G$ RANAPDLERPGALYRCPLDSHNCSQVVVDTEGSRSGTKRM $K A G Q P G T N H S G A U Y D C P L T S N Q N D C Q K L N \square D$

LD

T E G N N
GGLFWCPLLRSTCSR DD DD $\square$ EKETHMQPGL

GEG $\quad$ NSTGSLYQC QSGTGHCLPDSLRGSNYTSKYL

LDGQPKA RTGDVYKCPV GRERPMPCVKDDDPVNTS LVGQP WNRTGDVYKCPVGRGS LDPCVKLDLPVNTSIPNVT $L Q T G N M N E T G K V Y T C D V G S R R C Q E I P I Q S R A L R C$ GACG
 WD GPSGDRRGDVYRCS $\square \quad G G S H S A P C A K G H L G D Y Q L G$ NGTANGSNNTGVIFTCS $\quad$ AQNG $\square C S P L N G D N N G D D R R \square Y$

GD QNSTGELYQCAVKKGSCQPDP品ASAQTAH RAS QDPSSAT GLVYR $\square \mathrm{D} \square \mathrm{DF} \mathrm{K} \square \mathrm{P}$ Y CSVVP $\square$ AT T DEARREH

FASNPATSQCGAVFVYLGSANG
VIS PGTIVY
FASNPA\|SQCGAVFVYLGSANG
$V I S P G T I V Y$

FADTNNNNNDGSSYVVFGKNSFSSNST■DLSNLGNNGLVI RYFDKGQNNEGAAFI HHGSANGLLSTP
$S$ VGSEQLTYKGAVYVYFGSRQGRISSPPNDTDSCQDTYCN
KFDFG $T$ NNQGAAMVIYGAQNNNGDGYSDVLVGARFYTNVE KFDFGINNQGAAMVIYGAQNNNGDGYSDVLVGARFYTNVE

SVGSEQLTYKGAVYVYFGSRQGRMSSPPNDTDTCQDTYCN REWAEHNNRTGGLYSCSITVDQSDCSRDKLVDPDLDPS

LEV VAANQTGR $\square$ Y DCTAATGVCQP $\square \mathrm{P} \square \mathrm{D} \boldsymbol{\square} \square$
SVGSEQLTYKGAVYVYFGPTRRGMSSRPNVTDTCQDTYCN YYDHGDYNEGGA FI FYGSFDGDDVSKA II LENNRVQSEF S VGSEKLTYTGAVY IYFGSK QGRLSSSPNITDSCLDTYCN

EAS QPGVTNGGAVYKCPVTPDSGS GP CEQVPFDTT YADFPTIKSSGESYVVFGTSNPNSSDELDNDNGSNGFVFQ GGK $\square$ AP H T P VGRSY $\square \mathrm{V}$ G K D D N T A $\square \mathrm{D} \square \mathrm{D}$ A $\square$ A A G T G GF V $\square \mathrm{N}$ QE AKAVNQTGALYQCDYSTSRCHPDPLQVP KARNTYGNTTGLIYRLNDDMEYPDCSRMPIADNNEDRRDF $Y \quad T R S D G V S S T F G A G E T Y V V F G Q S G G F N S Q L D G N N$ Y TRSDGVSSIFGAGETYVVFGQSGGFNSQLDGNN

DADGGGAA SGEAYVVFGKAGG $\quad$ DPE DDDT T DS $\square S D$ GADSNASNSGQDYVLYGKTSDFGSSFDLSTLDGSNGFK RYDNGQADE GAAFVFRGTANGDDSNPSNLLEADQADAAF EASLDGNRYVGESYVVFGSSGGFSSSLDLSGLNGSNGFVI

UniRef90 K1Q7K3
UniRef90-UPI00029D7513 UniRef90_UPI00032A334E UniRef90 UPIO003504CAD UniRef90 Q4SQ95 UniRef90-S9X4Y0 UniRef90-L5KT96 UniRef90 UPI000273A19D UniRef90 ${ }^{-}$H2UIS7 UniRef90_UPIO0046BF6D7 UniRef90-C3Y3Z0
UniRef90 T1JB00 UniRef90-H3CAF7 UniRef90-I3KW08 UniRef90 UPI0003C27855 UniRef90 UPI0003AF8EBF UniRef90-F7DB68 UniRef90-H2M360 UniRef90 G4VIL6 UniRef90-L5K3S7 UniRef90-F7DB16 UniRef90 UPI0002C68D77 UniRef90 UPI000180B645 UniRef90-F7BQG0
UniRef90-UPI0000D9F0D8 UniRef90 H2L878 UniRef90- S9WVL7 UniRef90_UPI000359AA1B UniRef90 UPI0004448A6F UniRef90 UPI0003C49E27 UniRef90-UPI0002B46C41 UniRef90-F6Y2R7 UniRef90 UPI00046B9712 UniRef90-UPI00033399D0 UniRef90_G3H2S3 UniRef90-M4AUD5
UniRef90 UPI00021A40F9 UniRef90-H3A911 UniRef90-UPI000440D746 UniRef90_H9GLT6
UniRef90-U6ITD4
UniRef90_UPI00046C33C6 UniRef90-UPI0002B42C59 UniRef90 G7YUI6 UniRef90-UPI000373C5AF UniRef90_UPI0003F07621 UniRef90 UPI00037B89FD UniRef90-UPI00037B89FD UniRef90_UPI0003EC45BF UniRef90-UPIO00444673A UniRef90 UPI0003BBC419 UniRef90-K9ZMY9
UniRef90_UPIO00477EA30 UniRef90-UPI00045D6A49
UniRef90 C6VXD0
UniRef90_UPI00037680DE UniRef90-UPI00037680DE UniRef90 UPI0003F16FE3 UniRef90- M3Y0A7
UniRef90_UPI000333931F UniRef90 UPIO00298BFCF UniRef90 UPI000387CD25 UniRef90-HOXE61
UniRef90_F6TJG3 UniRef90_UPI00033438F1 UniRef90 C6W1L5 UniRef90_UPI0004418A51 UniRef90 L5K2K2 UniRef90- UPI0001D55136 UniRef90-UPI0004442D89 UniRef90-UPI000298B5D0 UniRef90 UPI000414A083 UniRef90- UPI0004400575 UniRef90_C6W781 UniRef90-UPI00036C4C3E UniRef90 F6RP21 UniRef90-W4Y256 UniRef90-L8M322 UniRef90-Q4BWI7 UniRef90 E1VMA0 UniRef90-M4A8A8 UniRef90-P05555-2 UniRef90 U6HEQ7 UniRef90-X6DVD9 UniRef90-B4VJ47 UniRef90_B4VJ47 UniRef90 V6I184 UniRef90-A3VF48 UniRef90-B4VWQ7 UniRef90 UPI00035F06F6 UniRef90-AOYNPO UniRef90-B2J8Z0

$\square Q N V S K N \square R N S H \square G M T \square T P T S P D G F L V G \square L Q H E W S L K D Y Q$
F L N E $\square \mathrm{K}$
LG Y S VTA G
HFRSLHTTEVVGG SQTFQTFKAQQGLGASVVAWRDN IVACAPWQHWNALENNA PKVHQACGENKYVSHNCYPQSFSQLQRDPDTQPECDKE VEIYRDNKNNMWLGATVRTHQDRVVVCGPMWKNAYFRRY $P V A S D E D K D D Q W L G V S V K S E G \square G G Q V V A C A H R Y$

VK Q S

NGALLGYSMSSAFNNSR
G P $\square$ T VCAPR L S W
F $\square \mathrm{NE} \underset{\mathrm{S}}{\mathrm{S}} \stackrel{\mathrm{S}}{\mathrm{K}}$

F $\square \mathrm{NE} \square \mathrm{K}$

GMTLATDPTDGSVGLSRTCDQNTYLSGLCYDFHQNLQGAM

पPNVTETKENMTFGSTVTNPNGGFDACGPLYAYRCGH EVKENMTFGSTVTNPKGGFLACGPLYAYRCGH PTVHRACGENMH $\square$ NGYCFDQN $\square R Q L R R \square P D T Q P E C P K R A T$

F VEEDR
MSLGLSLAAASHPSRLLACGP TLHRAC NSSQPAVNMHLGMSLLETHGDGGFMACAPLWSRAC

$$
\mathrm{D} \square \mathrm{DP} \quad \mathrm{ANQNG}
$$

$\square G M S \square A S S G A D A Q M \square A C G$
$S G L S R T C$
GT PTPG $\square$ S S W $\square G G T V A A Q N G \square Q \square G C D P R Y \square Y E P \square N Q T V$

S Gla GAKMGNSLDNAGDVNGDGFND\|IAGASQANTGKNKE S GlA GAKMGNSLDNAGDVNGDGFND\|IAGASQANIGKNKE

FVEETK
$N G L N A E D E \quad \square L G Y V S S A G D \square N N D G \square D D L I I G A P N A Y T$


LGWTLLAADVNGDSEPDLVIGSPFAPGG
NQEGAVFVYKGGANGLDワNNPS! IEGNQPGATMGYRVST NQEGAVFVYKGGANGLDLNNPSIIEGNQPGATMGYRVST
$\square G W T L L A T D V N G D S K P D L V I G S P F A P G G G K Q Q G \| V F H S G P$ EDLVEDMWLGVSVASQGYPGGRVLACGHRFVKDYGA

GYSVATGGDVNRDGFSDVLVGAPFFDMGEDNEGVIFVYNG
HPEAVNMSLGLTLAASTNRSWLLACGPTLHRVCGENSY
$\square G W T L L A A D V N G D G A P D L V M G S P F A P G G G K Q K G M V$
A

VNGDGYGDVI IGATGYTNDENFE LG WT LLAADVNGDSEPDLVIGSPFAPGG

GNTEVLDKSNQWF GAT LASSGGRMLACAPRLVWLQTSTSS G $\square \mathrm{NLGDR}$ SGQSVSSARDINGDGFDDIIVGASGADP GQSDQD ASG $\square$ SVANAGDVNGDGLADVI IGAYDSDP PEAVNMSLGLSLAVSTVPQQLLACGPTVGQNC GALEPGISLWIGGLVAAASNGGDGLQLGCDPRYLYTPSAL
 GFVLNGIDERAFLGRSV SGGDINGDRIDDVII GARWANP

GFT TQGGAASDWAGYSVSGAGDVNGDG $\square D D V I V G A F R N D N$ N G $\quad$ AANHKAGIS I SNAGDINNGGDNDLI GTSVSAAGD VDGNGYADLIVGAMHYHNGQDEE NG $\square$ DEFDYSGRSVSSAGDVNGDGFDDLI IGASYADP

UniRef90 K1Q7K3 UniRef90-UPI00029D7513 UniRef90-UPI00032A334E UniRef90 UPI0003504CAD UniRef90 Q4SQ95 UniRef90-S9X4Y0 UniRef90_L5KT96 UniRef90 UPI000273A19D UniRef90- H2UIS UniRef90_UPIO0046BF6D7 UniRef90_C3Y3Z0 UniRef90_T1JB00 UniRef90-H3CAF7
UniRef90-I3KW08 UniRef90- UPI0003C27855 UniRef90-UPI0003AF8EBF UniRef90-F7DB68 UniRef90_H2M360 UniRef90 G4VIL6 UniRef90-L5K3S7
UniRef90-F7DB16 UniRef90-UPI0002C68D77 UniRef90 UPI000180B645 UniRef90-F7BQG0 UniRef90-UPI0000D9F0D8 UniRef90 H2L878 UniRef90-S9WVL7 UniRef90_UPIO00359AA1B UniRef90 UPI0004448A6F UniRef90 UPI0003C49E27 UniRef90-UPI0002B46C41 UniRef90-F6Y2R7 UniRef90 UPI00046B9712 UniRef90-UPI00033399D0 UniRef90_G3H2S3 UniRef90-M4AUD5 UniRef90 UPI00021A40F9 UniRef90-H3A911 UniRef90-UPIO00440D746 UniRef90 H9GLT6 UniRef90-U6ITD4 UniRef90_UPI00046C33C6 UniRef90_UPI0002B42C59 UniRef90 G7YUI6 UniRef90-UPI000373C5AF UniRef90-UPI0003F07621 UniRef90 UPI00037B89FD UniRef90-UPI00037B89FD UniRef90_UPI0003EC45BF UniRef90-UPI000444673A UniRef90 UPI0003BBC419 UniRef90-K9ZMY9
UniRef90_UPI000477EA30 UniRef90-UPI00045D6A49 UniRef90 C6VXD0
UniRef90-UPIO0037680DE UniRef90-UPIO0037680DE UniRef90 UPI0003F16FE3 UniRef90- M3Y0A7 UniRef90_UPIO00333931F UniRef90 UPIO00298BFCF UniRef90 UPI000387CD25 UniRef90-HOXE61
UniRef90_F6TJG3 UniRef90_UPI00033438F1 UniRef90 C6W1L5 UniRef90_UPI0004418A51 UniRet90_L5K2K2 UniRef90 UPI0001D55136 UniRef90-UPI0004442D89 UniRef90_UPI000298B5D0 UniRef90 UPI000414A083 UniRef90-UPI0004400575 UniRef90-C6W781 UniRef90-UPI00036C4C3B UniRef90 F6RP21 UniRef90-W4Y256 UniRef90-L8M322 UniRet90 Q4BWI7 UniRef90_E1VMA0 UniRef90-M4A8A8 UniRef90-P05555-2 UniRef90 U6HEQ7 UniRef90-X6DVD9 UniRef90-B4VJ47 UniRef90_B4VJ47 UniRef90 V6I184 UniRef90-A3VF48 UniRef90-B4VWQ7 UniRef90 UPI00035F06F6 UniRef90-A0YNPO UniRef90-B2J8Z0

KCSDVPFGSMNTNYNKFFAIVPSGLLQTGSKIIFYMVAEFGF
TTQEVVEAAKN $\square$ SRREEGETRTAYA DETACTEAFSPERGA F $\square A S D P D D K H F F N V T D E A A \square K D \square V D A L G E R \square F S \square E G K N E \square$
APQHEQ GKAY IFS DAKE LN I LHEMKGKQ LGSYFGASVC EAEKTSVGGCFVAQLQDGGRAEYSPCRANTMSRVYAENKF

KQNNI
F $\square$ ASDPDEKHFFNVTDESADKD VDA LGER DFS DEGTSGQ DIA LLIDDGSGS IAPDVDFGKMKMFVSEIMKRFRKTDTQFAL T\|LNGDCYEMDASLKTDTVQKPTTVTHPLGHQDNEGG QYYRWGLGUCYA LT QHLDQDNVFDPCENKD KTRA R G R
PSDKHVF QVRDFNALE ITRQNLQDK TFS TEGSQTS E $\square A S D P D T E H V F Q V N N F D A L Q G L Q S Q L Q E K I F A I E G Q R G S$
$S$ SA S K P T A D HVF QVS DF S ALS QF QK QLQ D K TF A DEGQT GS DIA SDPDEKYFFNVTDEAALNDIVDALGDRIFSTLGYNES AASVY LPGGCFEFNERLEE PQLNPADGARCLNVEGSDK P D E R F


KQD LT
$\square Q G H P G F Q E C \square K G N D D L V F L F E F Q K \square L D F M K D V M K K \square S \frac{D}{N} T$

## LHYTTGDCSDVSPTFQVLNSFALVQECSTQLDVVIVLD <br> LHYTTGICSDVSPTFQVISSMAPCSTQLDQVIVLDGSN $D \square A L L I D G S G S \square S W V N F G K M K T F L S E \square M K R F R G T D T Q F A L$

S $\square$ ASAPTEKHFFNVSDELALVTIVEALGERTFATADQAAA GENLYVKGSCLVLDSHLK $\quad$ GI QTVPAALPECPNQVMD IVF GSSVFSSGDCAHVDASFQPRGSLAPTAQRCPTYMDVDGSN

## GDCQ $\square$ GTS VT FAETSPNNVQ】GMGAPNRNTW

F $\square$ AS DPDEKFFFNVT DEAALDD VVDALGDR】FS LEGDEYS FVTGGCFAFNNULSDPQ FLGASTCLNDPDSSR DGNQYLSG■CY LDFKGLEQPKEMTPGFEVRGSLGGTVIGS S D G $\square R$ P T D S R P L H S R N L LG T G Q CA $\square Y$ T G A S M Q Y T S VD A C i

GAAF $\prod$ WY GN $\prod$ AG $\prod$ PSN TPWSNSL


QPAGNYVFQVGSFDALDK TRDNLQAKDFSПEGSQSG SIASAPTEKHFFNVSDEDALVTIVEALGERIFATSDQAAA TSNGKPGQTY VFGSNFDSSFNLNSLNGSNGFVINGQS\|E GHSDUVGAYAFDNGQADEGLVLVYHGGPTGVGTAGFTQU GKQK GiVAVFYSGLSQNNK

EKLNVEAADWLV
AGDVNGDGYSDFLVSATQYDNGESNEGKVSLYMGMSSGFD A GDVNGDGYSDFLVSALQYDNGESNEGKVSLYMGMSSGFD

SRNDKANRRLFLFTRESSRS $\square G G \| V C L G R L F R S Q N E K L N L$ FKLDHMDGRCYLRGNDLQQYDDADMNWQTLDEPCSHLGD
$S G T G V A N V A V S F G Q S N F G Y S D V I A G A L G Y E D Q A V S N T T G A$ $D \square A S E P D D E H V F K V N N F N A L K S I Q D Q L Q N K \square F A L E G Q S S S$ SK GSCLLLGSH WE I DQTVPDALPECPHQEMD VVF

AFHSGPNGSGKAADPRLLHSSLGRLYRTQDEKQSLGRVYG GAAY IFHGSANGITSSPSI I LECNQDFATMGHSVANANDV GRQKGIVAVFYSGSSHSDK EELNVEAANWMV

DKEREPTGTCFVGHSDFTNFVNYSPC_QRTEREDF $N G N S G A G E S Y V I F G T S N S S S F L R S S S L D G S N G F V I N G \square D V$

QA GS GA GRSYVVFGKTSTTA $\square$ D $\square$ SVVAGNTGGFVINGESQ
KENTYVNGLCYLFGSNLLRPPQQFPEALRECPQQESDNNT S PSSKTSSTSASLPGLEVQTGTCALYTGVSMQYTPDDACV

NGKRSAGETYVVFGQNESFGASVDLSQLDGNNGFVINGTD NGKRSAGETYVVFGQNESFGASVDLSQLDGNNGFVINGID GTGKVYI FHSAGTQGDNKSYYGFAHT ILAGSINNE GGVSA GEAYVVFGKSSGTANDDLSSLALSDGFTIRGDA IGAPNASTSYVVFVRSSVLVPNFDLSTLNGNNGFKINGVS GAAFVY $\square G S S A G I Q P \square P I R L E S N V A A G A W Y G C A V A H A G D$ $N G N S F A G E S Y V V F G S D S G F S S S L E L S T G D G S N G F V I N G \square D$

## UniRef90 K1Q7K3

 UniRef90-UPI00029D7513 UniRef90OUPIOOO32A334EUniRef90 UPIOOO3504CAD UniRef90 Q4SQ95 UniRef90-s9X4Y0
UniRef90-L5KT96
UniRef90-UPIo00273A19D UniRef90- H2UIS7 UniRef90_UPIO0046BF6D7 UniRef90-C3Y3Z0 UniRef90-T1JB00 UniRef90-H3CAF7 UniRef90-l3kW08 UniRef90-UPIOOO3C27855 UniRef90-UPI0003AF8EBF UniRef90-F7DB68 UniRef90_H2M360
UniRef90_G4VIL6 UniRef90-L5K3S7
UniRef90-F7DB16 UniRef90-UPI0002C68D77 UniRef90- UPIO00180B645 UniRef90-F7BQG0
UniRee90-UPI0000D9F0D8 UniRet90 H2L878 UniRef90- S9WVL7 UniRef90-UPIOOO359AA1B UniRef90 UPI0004448A6F UniRef90- UPIO003C49E27 UniRef90-UPI0002B46C41 UniRef90-F6Y2R7
UniRef90_UPIO0046B9712 UniRef90-UPIOOO33399D0 UniRef90-G3H2S3 UniRef90-M4AUD5
UniRef90 UPI00021A40F9 UniRef90-H3A911 UniRef90-UPIOOO440D746 UniRef90-H9GLT6 UniRef90- U6ITD4 UniRef90-UPIOO046C33C6 UniRef90-UPIOOO2B42C59 UniRef90 G7YUI6 UniRef90-UPI000373C5AF UniRef90-UPIO003F07621 UniRef90 UPI00037B89FD UniRef90_UPI00037B89FD UniRef90-UPIO003EC45BF UniRef90_UPIO00444673A UniRef90 UPIoo03BBC419 UniRef90-K9ZMY9
UniRef90-UPIOOO477EA30 UniRef90-UPIO0045D6A49 UniRef90 C6VXD0
UniRef90-UPIOO037680DE UniRef90_UPIO0037680DE UniRef90 UPIO003F16FE3 UniRef90- М3YOA7
UniRef90-UPIO00333931F UniRef90 UPIO00298BFCF UniRef90 UPI000387CD25 UniRef90-HOXE61
UniRef90-F6TJG3
UniRef90-UPI00033438F1 UniRef90 C6W1L5
UniRef90-UPIOOO4418A51 UniRef90_L5K2K2 UniRef90 UPI0001D55136 UniRef90-UP10004442D89 UniRef90-UPIOOO298B5DO UniRef90_UPIO00414A083 UniRef90_UPI0004400575 UniRef90-C6W781
UniRef90_UPIo0036C4C3B UniRef90 F6RP21 UniRet90_W4Y256 UniReftoo-L8M322 URe Uniref90-M4ABAB UniRef90-P05555-2 UniRef90-U6HEQ7 UniRef90 X6DVD9 UniRef90-B4VJ47 Unhero B4VJ4 UniRef90-A $3 V F 48$ UniRef90-B4VWQ7 UniRef90 UPI00035F06F6 UniRef90_AOYNPO UniRef90_B2J8Z

SSA\|R SGFGA NG\|VMGTPVVYDSTGGF\|YYRE VF MP GP REGATKVMMGVTGGEMPDGPVLLGAVGSFSWSGGAFLYPQ SFGLEMSQTGFSSHIVEDGDL■LGAVGAYDWNGAVLKETA SFEMEMSQTGFSAHTSKEGGVLLGAVGAYDWNGTVVMHTS AVDLN YADGFS ASADTQASDLLVGAP MQSTIREEGR SFEME LSSSG $\square$ SADFIK GESVVGAAGA $\square D$ WA GGFI DAK Q GFGGQMAQAGFSSHLVKVNEVLLGAVGAYDWNGAVLKDTK D Y T Y GK HETYGYCQVGT GF GLQMAAQAGFSAHLVKDG VLLGADVGANDWNGAVLKDTK GLQMAQVGT SAHTVKKKNQMAGS
GESMEMSQEGFSAVYVPEG VLL

$S F G \square E$
Q Q
SFNMELSSSGUSADLSRGGAVVGAVGAKDWAGGLLYLKA SYQFA AVQFSTSYKTEFDFSDYVKQKDPDTLLEHVKHMLL EMSQSGFSAAYYRD TLVLGSVGSNSWRGS

GSNS $\square Y P$ WES $V T A F \square N D L L Q R M D \square G P K Q T Q V G \square V Q Y G E N V$ SIYY WQSIVTAFLSDQTQVGIVQYGANVTHEFNLNKYSSTI RQYSDEFKEHFDFTEYSRNDPDVDIRRVEOLGGMTHTATA EFKYSQVGFSAKFDDSKELMTGLPNAQLGKGFDALAKG SFQHEMSQEGFSALLTPDGPV LGAVGSFDWS GGVSL SFEMEMSQTGFSAHYSQDWVMLGAVGAYDWNGTVVMQKG
 NTQMAQSGFSVVSHKDTLVLGSVGSNTWRGTLNEYKT AGALDFRRESGGNLRTTGTSEGTAG YAWQGYHIVDTV QFELAQAGLSTQFLDDGNDLDGALGAFDWSGGVIQHNV $G F H F E L A E A G F S S H L T H D G S M L F G A V G A Y D W S G$
$S F E L E M S Q V G F S T H L L E D G I L L G G M V G A Y D W D G A V L R E S$ S LD R C N G A A S YF DGL GMVGAND WT DLV S S SVGSVLCSVGASADGDGDTDVLLVGAPLYYEDRS GGRVGHVY
SFGLEMSQTGFSSHVVEDGILDLGAVGAYDWNGAVLKETS SFGGEMSQTGFSSHVVEDGUL$\square L G A V G A Y D W N G A V L K E T S$
$G Q E E G A C L A G F S A D V F G E A H V V L G M P G S Y D T E G N V F L G H Y$ GQEEGACLAGFSADVFGEAHVVLGMPGSYLTEGNVFLGHYK

GWALTSADLNQDGHLVVGAPG YS LPGH $\square Q \square G R$ SLDQADAEFGTSVSGAGDGDVIVGAPKHDNGQSDEGVASV SLDQADAEFGTSVSGAGDGDVIVGAPKHDNGQSDEGVASV $A F Q Y E M S Q E G F S S A L T K D G P V$
$G E K Q E M S Q E G F R A A Y V S$ GY
I SFEMEMSQTGFSAHYSQDWVMLGAVGAYDWNGTVVMQKG DYSGLSVSSAGDINNDGDDDLIIGAPQA APNGTNSGQA LGSEAFGQLGCAVA PFPKKTFEANSVDAAMGTSLASAGDVNGDGYADILI GCQR PFPKKTFEANSVDAAMGTSLASAGDVNGDGYADLLI GCQR GWAMASADLDNQDGYGDLVVGAPG YSRPGHIQVGRV GWADTSAD LDQDGDLVVGAPG YSRPGHPQVGRV GRVDGYFPPEHQSAFTDSGDKVMGKDGT VT SEVMCNMGISATIT QT EVI VGSPGSYEWQGAPRDSKD GWAMTSADLNQDGHLVVGAPGYSRPGHDHIGR $T S T D L N Q D G D L I V G A P G \quad Y S R T G H I Q U G R$ GWAMASADLNQDGYGDLVVGAPG YSHPGHIQVGR $A F \square Y H G S A \square G F S F N K K N M G F S V A G A G D V N G D G Y S D V V V G$
$S F Q M E M S Q E G D S A L L I P K G P V G L G A V G A Y D W S G G V I L V Q T$

Y F P PNCRSWFT ISGDKAM NGDGYDDVIVGS LTYSNGQLNEGAAFVYYGSANGMSPNP RGEEDFAWLGYSLHAVSVNNRTLLLAGSPTWKNASSLGHL

## SAGDVNGDGYSDVLVGAPN

GF DK $\square H C Q A G F S A Q \square P S D N T L V M G A P G S Y Y \square Q G Q \square F A Q S \square$ GDRSGTSVSGDEDFNGDGPDVI $\quad$ GAPFA DPNSDSSGGES RDASGRSVAG AGDDNGDGDLVVGAP FSDPSGDNAGRS QEMSQEGFRAAYVS GY $\mathbb{Q} M T M V G A N Q W K G G Y K K Y L L$ DF QKMKEFVSTVMEQFKKSKTLFSLMQYSDEFRDHFTFND SAEEGACLSGFSGVLESGDE PGEAYAVLGMPGSYLTEG
VDDLLGYSVSGAGDПNGDG VDDLLGYSVSGAGDIN GDG IDDLIIGTG IVVVGAPGGGKGRIYVFHSQG A GDAA GVSVSAAGDVNGDGUDDVIVGANGGDDGGSAAGEA SNYRSGFSVSAAGDVNGDGDLII GAPGSYVVFGKSSFFSA $L N A D G F S E I V I G A M N Y S N G Q S E E G A D Y \square Y P G T S A G P D A T Q$
$E F D N S G R W V S S A G D V N G D G D L I I G A N G A M P N G N S S A G E S$

UniRef90 K1Q7K3 UniRef90_UPI00029D7513 UniRef90OUPIOOO32A334E
UniRef90 UPIOOO3504CAD UniRef90_UPIOOO3:
UniRef90_O4SQ95 UniRef90_S9X4Y0
UniRef90-L5KT96
UniRef90-UPIo00273A19D UniRef90-H2UIS7 UniRef90-UPI00046BF6D7 UniRef90-C3Y3Z0
UniRef90-T1JB00
UniRef90-H3CAF7
UniRef90 UniRef90 UPI0003C27855 UniRef90-UPI0003AF8EBF UniRef90-F7DB68 UniRef90-H2M360
UniRef90-G4VIL6
UniRef90-L5K3S7
UniRef90-F7DB16
UniRef90-UPI0002C68D77 UniRef90-UPIO00180B645 UniRef90-F7BQG0
UniRef90-UPIO000D9FOD8 UniRef90 H2L878 UniRef90-S9WVL7 UniRee90-UPI000359AA1B UniRef90-UPI0004448A6F UniRef90-UPI0003C49E27 UniRef90-UPIo002B46C41 UniRef90-F6Y2R7
UniRef90-UPIO0046B9712 UniRef90-UPIo0033399D0 UniRef90-G3H2S3 UniRef90-M4AUD5
UniRef90-H3A911
UniRef90_UPIOOO440D746
UniRef90_H9GLT6
UniRef90- U6ITD4
UniRef90-UPIOOO46C33C6
UniRef90-UPIO002B42C59
UniRef90-G7YUI6
UniRef90-UPIO00373C5AF
UniRef90-UPIO003F07621
UniRef90-UPI00037B89FD
UniRef90_UPI00037B89FD
UniRef90-UPI0003EC45BF
UniRef90_UPIO00444673A
UniRef90-UPI0003BBC419
UniRef90-K9ZMY9
UniRef90_UPIO00477EA30
UniRef90-UPIo0045D6A49
UniRef90-C6VXD0
UniRef90-UPIO0037680DE
UniRef90-UPIOO037680DE
UniRef90-UPI0003F16FE3
UniRef90-ММҮ
UniRef90_UP1000333931F
UniRef90-UPI000298BFCF
UniRef90 UPI000387CD25
UniRef90-H0XE61
UniRef90-F6TJG3
UniRef90-UPIO0033438F1
UniRef90-C6W1L5
UniRef90_UPIOOO4418A51
UniRef90-L5K2K2
UniRef90_UPI0001D55136
UniRef90_UPIOO04442D89
UniRef90-UPIO00298B5D0
UniRef90-UPI000414A083
UniRef90-UPIOOO4400575
UniRef90-C6W781
UniRef90-UP100036C4C3B
UniRef90-F6RP21
UniRef90-W4Y256
Uniinefol-L8M322
UniRet90 - Q4BWI7
UniRef90 E1VMAO

| UniRef90-M4ABAB |
| :--- |
| UniRef90 |

UniRef90-U6HEQ7
UniRef90-X6DVD9
UniRef90-B4VJ47
UniRef90-B4VJ47
UniRef90_V61184
UniRef90-A3VF48
UniRef90-B4VWQ7
UniRef90_UPIO0035F06F6
UniRef90-AOYNPO
UniRef90 B2J8Z
 NKNPTFINMSQEHVDMRDSYLGETRDWLGAGQEMGCLGRR DAVLGHYDRRQQDPETFDKEDKFDASDPDDK GGTIVPGKTQFYDPSV VFVYUNGSGAVMNEMETQRFTSE ADIVSSYRPGT
DMKDETFVGNQ
HGKV VPPKFSYKDEFPE RNQ HTATATRKVVELFTSGATKПLMVITDGNGAYLGYSV SYQTAGHPETWDPWPEGG

DGKV
VPPRSSYEDEFPEELK NHG
ПGEA YTTGGQ FINVSTTSGDMKDAYLGYAVQ

NGRI
NTFERVIT
STFKNGKGGQKLKTYEDVSLESDSYLGYSMA
 VE
$\qquad$
SSGTPTSFTGSTNVDELKTTFE
DMQDDTFIGGN LTNTAGAINYVATEVFREELGA

LEERHHQHEKQQDA
THEFN
LNKYSSTEEVLVAAKK DGRRGGLQTMTA GQRGGDRTMTALGDDTARKEAFTEARGARRGVKKVMVIVT $\square R K V V R E L F T S R S G A R S E A S K \square L I V I T D G Q K N D Q L R Y S V G$ DGMSLSFTDTLDPKDYEYN
$F \square N \nabla S Q Q S G D M H D A$ GYSTA NQl 1 DPRNTSFNVESSRKNEPLASYLGYTVN NLLETHFTFTEFQTSRNPRKGLTFTATGDQKVVTDLFHRK TFDDIASDPDERFFFNVTDEAALTD IVDAGENESSFGLEMS QNKV LLDPDMQEASYM
REDFIVSVPRRNLYNDRNLNDFTQPLNGEQDGEYYGHTILL GQNQTRFFNESK

GIILKGKEEESVTFFNATTEEPRFSYLGYSVT
PNERLIPPPQKAFESEFPDRMKNHAAYLGYTVS YYRFARGDGLARNITEFSKVKKTDSSSLGDYSLLGSSSVI RWDQARLTNTAVLQGALGNPL SGKVIPLRESYLLQGALGQEFPEELKNHGAYDGYFGAAVVV RGRELVNAMRLKSSPQDLKHKGFNLGYAVLLDELVRKSVP YKVGNEVRGAVFVYYGSANGLITTPKILEHINSSMGAAVA VYLIVGNDLGLPPVDGDGDKEAHR K EGGFQPSGRFGSALAA $\stackrel{\mathrm{F}}{\mathrm{N}}$ GADL $N G G C S U G N K T L L D A N Q S N A S F G K S V G$
$K K P P T F I N M S Q E N L D M A D$
$K$ NQUL $\quad \square P Q N T$ KPNVTFEPSSIQQNDSYGGYSMA Y UVFGKNGSFDSAlNDAD DDGTNGF IINGQEGDKLGFSVS Y DMGQVDEGLAFLYYGSAAGLNTNTAQENKAGARFGAAVA FQNHEEKPNLGRVYYFPPNCQSLFTDSGDKAMGKDGTSLS YDASTTDNGAAFIYHGSPGGVSIVLEGTQTNEFFGFSVAA

 YLLYGNELGLPPI DLDLDREAHVTLEGFQPSGRFGGSAL DA $\quad$ RGSVLLIEKRAGKLVIGRQTLRGEQI GSYFGNVV VYLIYGNDLGLPPVDLDLDKEAHRILEGFQPSGRFGSALA
 $V Y L D Y G N D \square G L P P V D L D D D K E A H G D L E G F Q P S G R F G S A L A$ ANKHREDDGAAYVFHGSANSTIATTLT IVDSDSQMGNSVA S
NYFHRNLTASLTKNTEKNDNYTKRGVVFSVD

FVQAVMDQFAGTDTLXXXXXXXXI GAP
TQSSKVQKNDYFHRNLTVSLTKDAGKNDNHTERGVFFSVD GK LGTSLSSGHVMVNGTRKQVLLVGAPTHDEKSKMAFLTM DAVLEGDAKE IYMGH
FRTRDEKQPGRVSGYFPPNCQSWFT $\square$ SGDKAMGK LGTS L S YDNGQSDEGAALLYPASGDSLAATVLECNQANAQMGYSVS KMSQPQLRKNTTVPIGTNVERNVNFTERGAYFSVD
 YVVFGSESFDSTLNLSSLDGSNGFMVNGUDARDYSGRSVS
 SNVLNT $N V F F G H Y Q G Q R V L K Q L R L K S T P Q D L K$ HKGFNLG GGDGVG NTEVYIVFGQSEGFNATFDLSQLDGSNGFV 1 NASSGRLV S NTEVYIVFGQSEGFNATFDLSQLDGSNGFVINASSGRLVS GLGGVATATAATTGTNCNASACNYFKEGANNGDKFGFSLA YVVFGRSSGDANVDLSNLT LAADGFIIQGGATDDQAGYSVS DLNLSTDNGSNGFTI IGPSNSGYSVSRAGD DNNDGFDDVI ARIIES
$Y V V F G S D S G F S P L E \square S S L N G S N G F V I N G D D A D D Q S G F S V S$

## UniRef90 K1Q7K3

 UniRef90-UPIO0029D7513 UniRef90_UPIOоо32A334E UniRef90-UPIO003504CAD UniRet90_-Q4SQ95 UniRef90-S9X4Y0UniRef90 L5KT96 UniRef90-UPIO00273A19D UniRef90-H2UIS7 UniRef90_UPIO0046BF6D7 UniRef90-C3Y3Z0 UniRef90-T1JBOO UniRet90-H3CAF7 UniRef90-l3kW08 UniRet90-UP10003C27855 UniRef90-UPI0003AF8EBF UniRef90-F7DB68 UniRef90-H2M360 UniRef90-G4VIL6 UniRef90-L5K3S7 UniRef90-F7DB16 UniRef90-UPI0002C68D77 UniRef90-UPI000180B645 UniRef90-F7BQG0
UniRef90-UPIOO00D9F0D8 UniRef90-H2L878 UniRef90-S9WVL7 UniRee90-UPI000359AA1B UniRef90-UPIO004448A6F UniRef90_UPI0003C49E27 UniRef90_UPIO002B46C41 UniRef90-F6Y2R7
UniRef90-UPIO0046B9712 UniRef90 UPIOOO33399D0 UniRef90-G3H2S3 UniRef90-M4AUD5 UniRef90-UPIO0021A40F9 UniRef90-H3A911 UniRef90_UPIOOO440D746 UniRef90-H9GLT6 UniRef90- U6ITD4
UniRef90-UPIOOO46C33C6 UniRef90_UPIOOO2B42C59 UniRef90-G7YUI6 UniRef90-UPIO00373C5AF UniRef90-UPIO003F07621 UniRef90-UPI00037B89FD UniRef90-UPI00037B89FD UniRef90-UPIOOO3EC45BF UniRef90-UPIOOO444673A
UniRef90-UPIooo3BBC419 UniRef90-K9ZMY9
UniRef90_UPIO00477EA30 UniRef90_UPIo0045D6A49 UniRef90 C6VXDO UniRef90-UPIOOO37680DE UniRef90_UPIO0037680DE UniRef90-UPI0003F16FE3 UniRef90-M3YOA7
UniRef90-UPIO00333931F UniRet90-UPIO00298BFCF UniRet90_UPIO00387CD25 UniRef90-HOXE61 UniRef90-F6TJG3 UniRef90-UPIOOO33438F1 UniRet90_C6W1L5 UniRef90-UPIOOO4418A51 UniRef90-L5K2K2 UniRef90_UPIO001D55136 UniRef90_UPIOOO4442D89
UniRef90 UPIOOO298B5DO UniRef90_UPIOOO414A083 UniRef90_UPIOOO4400575 UniRef90-C6W781 UniRef9-UP100036C4C3B URe90-6RP21 UniRef90-W4Y256
UniRef90 L8M322 UniRef90-Q4BWI7 UniRef90-E1VMAO UniRef90 M4A8A8 UniRef90-P05555-2
UniRef90-U6HEQ7 UniRef90-×6DVD9 UniRef90-B4VJ47 UniRef90_B4VJ47 UniRef90 V66184 UniRef90-A3VF48
UniRef90
B4VWO7 UniRef90-UPIO0035F06F6 UniRef90-AOYNPO
Uniref90_B2J8Z0

A G VF GARGWGMS VFSYPASLLPXSSPWNMVWGESSPPP\| S SA STPDGVLYITGAPRYNHTGRVYHLNKTEVVVSQUL SLGDDDNDGFEDVAVGAPQEDDLRGA】Y $V$ YNGRAEG】APA VGEFDGDLGT

WLLSKG NRKLLAAGAPRYQHVGQVDRRSGGKWDEVQKL GSLISSDGSQLYTAGAPRFNHTGKVIVFTLKNSGNLTVL VIPEAERAGVIRYADGVPTRKHDFGVDNFNTLECDETHLQ AGKFFGD GVEYMAAGAPRHQHRGAVVFFQDGALQPTNTL AADLNGDDGLSDLIVGAPFYKDAGGAIYVYMNRTNYITR TAKS WSGSVTVIGAPRYKHRGAVNRDSFRYQKDEPFP RVTSKKRWG YVVGAPRYQHVGKVVLFYRDPWRAEAEK IAKS WHGSLTVVGAPRYKHRGVVFAVNRENLKNQKIS | PLTKNV $\quad$ IGVGAPRYQHTGSVHIVYKSNWNQKFAI |
| :--- |
| $G N W$ | LUVAYGGPGVPSSAVNGFTDKTTFGNKQNGKNNIKPLMRT SMFLRG GRRLFLSGAPRFRHRGKVIAFQDGAVRVAQSL TGY

SGNFFGTSNAEYTATGVPKYHSKGKSNTHDNSLTHQAL WLP WLDP SGGE TGERN
SAT $\qquad$ DIVRYIIGAGKHFQTKESQE
GVPLYESGAPRFQHTGQVFN LGIDTARKEAFTEARGARRGVKKVMVIVTDGESHDNYQVI DGESHDNHMLKRVIA IA LIGSYNRGNLSAEKFVEEDKSUA
 ARTLWSSQ SATVPG NGARQGAKK E IGGFSIH
AADRTGD AADLTGD GFDELLVAAPMFSGRVFVYRNSGGTLSFVRR
 SDRVYSSASDIVTVFGAPGVPQTKEKKGSGYVVLNVIQLL ALADLNGDGWADVAVGAPLESAERGAVYIVNGHTHYSQRIL
S VGQDRRVRLSLLVSSSMWLDNDYRGIVMILDQAMDLGGDT GLGDVNGDHYGDLIVGAPTTNTAGGMAWVYYGVDNSTTFF $V L D F N K D G V P D L A V G A P Q L T Y N G A V Y V Y F G S K E G R M S T V$
$G F T D V G D G Y D V V G A P Q Y D G N G G G V W V F H V T S A F S T$
 SATVPG GDVLYI AGQPRYNHTGQVMVYRMGDVR\|LQTL SAGDINNDGDDDLI 1 GAPNGDMNAGQSYVVFGKNNNGFVI GAGDVNGDGYADVIVGADTYANGQGAVFIYHGSAAGLSTQ SGHVMVNGNTQVLLVGAPTHDHQGGTARMYATTRDAQSTF GAGDVNGDGIRDVVGAPSYDKLGSSNCSTLGITNFYTK SAGDVNGDGYSDIVIGCYTFDNGQVDEGHAFIYTNESVFV AVLDFNKDGVPDLAVGAPKLAYTGAVYYYFGSRQGPNVT L
ATTDLNNDGWEDLLVGAPFYFHHGGAVYIYMNDSGSSMVL VLDFN VDGVPDLAVGAPQLTYKGAVYVYFGSKQSPNDTI VLDFN KDGVPDLAVGAPQLTYNGAVYVYFGSKRGRMST SA
VLDFN QDGLPD
SVQFNGRNG
SWTSDSLSGMYQAVVGAPRYDH HYYEQTRGGQVSVCPLPRGQRVQWQCEAVLCG
SWTSHSLSFMYRALERNLRTMFTSDSHQLLKHVSSPSASY TLHQGGTGRMYEL
AAGDVNGDGFGDI VGANFYGGGKGAAFVFHGSSIGGQT
SGHVMMNTRTQVLLVGAPTQDHQGGSTRMYDSQPSLLSTF
SAGDINGDGYSDVI GGAPNYDSNEGVAFVYMGSTAPDRTL
SAGDINKDGFSDIVVGVPFYDASGGAVMIYKGVTNNPYIT
TWAPNSVSSMYSLLAKKMQTVFSGANRESPNHVSSPMASY
SAGDFDGDGLTDVIGVPYADSNGASIEVHSGNGSNGFVL
NAGDVNGDGIDDFII GAPNGNRFAGETYVIFGDGNNGFVI
GAGDUNGDGLADLVIGAYRSNDAGRTYVVFGKSDGNGFVI
VIPEADRAGVIRYVIGVPAGEHVFQVD NFEALNTDQNQD
LYKHPQWHSRFTILASSPMWNDYRGVVMLLTEALNQYISD
SAGDVNGDGFDDLIVGAPGGDNGGVNLDLTSLTMAQGFIL
VAGDINGDGDDD:I SAPYARPNGASFNLSQLDGSNGFVL
AGNINGEDNYDIVAVAPGNSSTGAAGNGQVYVYYGNGTA
DGSLLGAGASYVVFGKNSSLSGFGSNLNVSSLDGSNGFK


## UniRef90 K1Q7K3

 UniRef90_UPI00029D7513 UniRef90-UPI00032A334E UniRef90_Q4SQ95 UniRef90_S9X4Y0 UniRef90_L5KT96 UniRef90_UPI000273A19D UniRef90- H2UIS7 UniRef90_UPIO0046BF6D7 UniRef90_C3Y3Z0 UniRef90_T1JB00 UniRef90_H3CAFUniRef90 I3KW08 UniRef90_UPI0003C27855 UniRef90-UPI0003AF8EBF UniRef90_F7DB68 UniRef90_H2M360 UniRef90 G4VIL6 UniRef90-L5K3S7 UniRef90_F7DB16 UniRef90_UPI0002C68D77 UniRef90 UPI000180B645 UniRef90-F7BQG0 UniRef90_UPI0000D9F0D8 UniRef90 H2L878 UniRef90 ${ }^{-}$S9WVL7 UniRef90_UPI000359AA1B UniRef90 UPI0004448A6F UniRef90 UPI0003C49E27 UniRef90-UPI0002B46C41 UniRef90_F6Y2R7
UniRef90_UPI00046B9712 UniRef90_UPI00033399DC UniRef90_G3H2S3 UniRef90 M4AUD5
UniRef90 UPI00021A40F9 UniRef90-H3A911 UniRef90_UPI000440D746 UniRef90_H9GLT6 UniRef90- U6ITD4 UniRef90_UPI00046C33C6 UniRef90_UPI0002B42C59 UniRef90 G7YUI6 UniRef90_UPI000373C5AF UniRef90_UPI0003F07621 UniRef90_UPI00037B89FD UniRef90 UPI00037B89FD UniRef90_UPI0003EC45BF UniRef90_UPI000444673A UniRef90 UPI0003BBC419 UniRef90-K9ZMY9
UniRef90_UPI000477EA30 UniRef90_UPI00045D6A49 UniRef90 C6VXD0 UniRef90_UPI00037680DE UniRef90-UPI00037680DE UniRef90_UPI0003F16FE3 UniRef90 ${ }^{-}$M3Y0A7 UniRef90_UPI000333931F UniRef90_UPI000298BFCF UniRef90 UPI000387CD25 UniRef90_H0XE61 UniRef90_F6TJG3 UniRef90_UPI00033438F1 UniRef90 C6W1L5 UniRef90_UPI0004418A51 UniRef90_L5K2K2 UniRef90 UPI0001D55136 UniRef90_UPI0004442D89 UniRef90_UPI000298B5D0 UniRef90_UPI000414A083 UniRef90_UPI0004400575 UniRef90_C6W781 UniRef90_UPI00036C4C3B UniRef90 F6RP21 UniRef90_W4Y256 UniRef90_L8M322 UniRef90 E1VMA0 UniRef90_M4A8A8 UniRef90_P05555-2 UniRef90_U6HEQ7 UniRef90_X6DVD9
UniRef90_B4VJ47 UniRef90_B4VJ47 UniRef90_V6I184 UniRef90_A3VF48 UniRef90_B4VWQ7 UniRef90_UPI00035F06F6 UniRef90_A0YNPO
UniRef90_B2J8Z0

GP T\|GSGFGQS\|IVADFNNDNKDD\||A|VAPMEGEDEM NS DT I GSYF GASLCSVDVNRDGSPDLLI GAPHFYEQMR HMEMSQ $\square$ GF D G K GE Q I G SYY G S E IN S LDVN GD GVVD L LV GAPMYFSEGRER L V GAPMFMGPDKDE F S QLFK PCFPLNLA I I DADNNGYVD IAVGA

E GTQVGSYFGGVLCG】DVDQNGEMELLVGAPLFYGERR QGEQI GSYFGSELLSMDVDGDGQTDLLVAAPMYYNQGWER D K I I I LE GYS S QVI TA N G G G T T Y MV GA P L C Q G T $K G T Q L A S G F G Y S M V A L D L T N D G V T D L L V G A P V Y L E K G$ TGKEESRFGFA $\square A N C S D L N K D G Y E D I$ AVGAPYEGN K GE Q $\square$ GS Y F G S QL L S M DV D GDGRSDLLVAAPMYYSQ GWER WQYQTGEYFGAEVCTMDINNNDDDTDDLI I SAPMYMEPDRE TGDQ $\square$ GSYFGGS L S TMDVVDG GNTDLLI GAPMYYGEGS SQYQTGAYF GAEVCTMDINNDEDTDLI I SAPMYMEPDRE

 $R$ GEQI GSYF GSEI T SVVDTDDD GVTDLLVGAPMYFSEGRER P Y G S L WQ Y F G Q S V R GIIDLNK D S Y D DLVVSAPLYNEV

## HGTQUGSYFGGELCGVDVDQDGETELLI GAPLFYGEQR

E GK QDLTS F NM E L S S S GI SA D S R GHAVV GA S GE Q I GS YF GSVVLTTVDI DKD SNTDLLVVGAPMYMGTTEKEE QDCEDENDQRFSIVVSTMLTKDLDGTLFGADWQQSPPGLK SKP $\quad$ EK HFF GYTVNSATVVGNVLY I A GQPRYNHTG

 $R G E Q P P A G F S P T V P P T R L S G L A D R N V T A G A V D A H M V F P S G$ TAR HELDT IGSAPPQEHVFRDNFRALGS DQNELHEK $\square F A V$ A LQNHAAYLGGYVSSMLLPGGGRRLFLSGAPRFRHR $T V D Q \square G S Y F G A E L C S V D I D T D G N T D L L V G A P M F F L P E$ VGTLEYGRFGHAMT LGDI NNDGREDI AIISAPFGNSS EGEQVGSYF GSEVCSLDDIDNDHDTDLLVGAPYFHV
L

## 

 GEQIGGGYFGSEVCPVDVDGDGVTDLLVSAPMYLGAQNK Q GSRFGSRFGHAVALIDDNGD GWDDLLI GAPFEQGR GTLS E GS P GVKY F G Q S I H GMDL NGD G L P D D S SV G A QWGH I G S F F G Y S L A T A DL D GNGDA D I IV GSPYF TERK D GR KNDNAYAHFGAAVAS GDVNGDSYNECIVGLPGYGLQKEGA SCQDTYCNDGWTLEAT DVNGD GEPDDVI GSPFAPGGGKQK

 FERQTGEYFGAEVCAMDVYKD
RGEQ IGGSYFGSVLTTVDIDKDSHTDLLVGAPMFMGAEKEE $N G \square N E F D N S G W S V S V G D I S G D G \square D D L I V S A N N A D P N G S G Q$ A A I H F E RNF G SVACA G DVNR D GYA DV I V G A
SGDRRFSRFGEVLHLSDLDNDGVDEII MAAPDRADDGVNS EGTQAESQLGFSVAAGDVNGDGYNDVVAGAVKQSNGEADE T NNKASAQMGLSVAA GDVNGDGYSDVIVGAPTYDNGEASE TNNKASAQMGLLSVAAGDVNGDGYSDVIVGAPTYDNGEASE SCQDTYCNLGWTLLVTDVNGDSEPDLVIGSPFAPGGGKQK SCQDTY CNLGWTLVAAD L NGDGEPD LV MGSPFAPGGGK QK S G D R RYS R F G GVL HLD DL D Q D GLD E I IMMAA PLIA D IT S GL T GPAGSAFGMSVAAAGDLNQDGFQ
SCQD I Y CNLG WTLLAADVNGDSEPDLVIGSPFAPGGGKQK SCQ A V Y CN L G WTL LAA A DVNGDSRPDLVI GSPFAPA G GK QR TGEQI GSYFGSVVLTTVDIDRDSDTDDLVGAPTYMGSEKDE SCQDVYCNLGWTLLAADMNGDSKPDLVI GSPFAPGGGKQK
 F L S L P Y A R LG WAMTSADLNQDGHGDLVVGAPGYSRPG
EQGHPWGRFGAALTVGDVNGDKLSDVAIGAPGEQENR
 SCDQDDAFMGQSVSAGDVNGDGFGDVIVGAE TYSNQQNS NGDRRFSRFGGVLHLSDLDNDGLDEII MAAP LITDVTSGL EANQPDAKFGNSVAAGDVNGDGFGDVIVGAPMYDKNENNE $K L D Q A E S N L G V S V A A G D V N G D G Y S D I L A G A H Q F D H D Q S N E$ FVGVP Y A RLGWAVTSADLNEDGHDDLVVGAPGYSRPGRVG VGEQIVS Y F G Y S V A SVDV N G D GF N
S GlT A GDF S GWSV SA GDFN GD GLAD VII GAPHN F S S L G E $N G I D E F D N S G F S V$ SA G D I N G D GFD DLI I GAF LAA QPN GA GE NGQAS GDFSGYSVAA GDVNGDGRADLII GAYNANG GNGR
 KWGHIGSFFGYSIAAADLNGDEDPEIIVGSPYFSENQRFT Q GDVAD DGAGWSVAAGDVNGDGFDDLIVGAPFGDNGGNAG $N G I D E F D F S G S S V T A G D I N G D G I D D L I I G A P E A D T N D A G E$ NGID EF DFSGSSVTAGDINGDGIDDDLI I GAPEADTNDAGE TGNGAYAQLGYSVAVGDFNDDTYDDLAAGAPEYNPDYVTA Q GDEA GDFAGYSVVAGDVNGDGFADVVVGATSAD GSGAGE S G $\square$ A N S D N S G WSVVHAGDINGDGDDDVVI GAPNADPN GS G Q KCTQDFAQFGWDVSAGDVNADGFDDVIVGAHGYDNGD NG GD S Y D R S GLSVVA G DVNGDGFD DLII GASSADPN GA G E

## UniRef90 K1Q7K3

 UniRef90_UPI00029D7513 UniRef90-UPI00032A334E UniRef90_UPI0003504CAD UniRef90_Q4SQ95 UniRef90_S9X4Y0UniRef90_L5KT96 UniRef90_UPI000273A19D UniRef90 H2UIS7 UniRef90_UPI00046BF6D7 UniRef90_C3Y3Z0 UniRef90_T1JB00 UniRef90_H3CAF7 UniRef90-I3KW08 UniRef90_UPI0003C27855 UniRef90-UPI0003AF8EBF UniRef90_F7DB68 UniRef90_H2M360 UniRef90_G4VIL6 UniRef90_L5K3S7
UniRef90_F7DB16
UniRef90-UPI0002C68D77 UniRef90_UPI000180B645 UniRef90_F7BQG0
UniRef90_UPI0000D9F0D8 UniRef90_H2L878 UniRef90_S9WVL7 UniRef90_UPI000359AA1B UniRef90_UPI0004448A6F UniRef90_UPI0003C49E27 UniRef90_UPI0002B46C41 UniRef90-F6Y2R7
UniRef90_UPI00046B9712 UniRef90_UPI00033399D0 UniRef90_G3H2S3 UniRef90_M4AUD5
UniRef90_UPI00021A40F9 UniRef90_H3A911
UniRef90_UPI000440D746 UniRef90_H9GLT6
UniRef90- U6ITD4
UniRef90_UPI00046C33C6 UniRef90_UPI0002B42C59 UniRef90 G7YUI6
UniRef90_UPI000373C5AF UniRef90_UPI0003F07621 UniRef90_UPI00037B89FD UniRef90_UPI00037B89FD UniRef90_UPI0003EC45BF UniRef90_UPI000444673A UniRef90_UPI0003BBC419 UniRef90_K9ZMY9
UniRef90_UPI000477EA30 UniRef90-UPI00045D6A49 UniRef90_C6VXD0 UniRef90_UPI00037680DE UniRef90_UPI00037680DE UniRef90_UPI0003F16FE3 UniRef90- M3Y0A7
UniRef90_UPI000333931F UniRef90_UPI000298BFCF UniRef90_UPI000387CD25 UniRef90-H0XE61
UniRef90_F6TJG3
UniRef90_UPI00033438F1 UniRef90_C6W1L5 UniRef90_UPI0004418A51 UniRef90_L5K2K2 UniRef90_UPI0001D55136 UniRef90_UPI0004442D89 UniRef90_UPI000298B5D0 UniRef90_UPI000414A083 UniRef90_UPI0004400575 UniRef90_C6W781 UniRef90_UPI00036C4C3B UniRef90_F6RP21 UniRef90_W4Y256 UniRef90_L8M322 UniRef90_Q4BWI7 UniRef90_M4A8A8 UniRef90_P05555-2 UniRef90_U6HEQ7 UniRef90_X6DVD9 UniRef90-B4VJ47 UniRef90_B4VJ47 UniRef90_V6I184 UniRef90_A3VF48
UniRef90 B4VWQ7 UniRef90-UPI00035F06F6 UniRef90_A0YNP0 UniRef90_B2J8Z0


G GRVFVYHRKEMTFQMMTELHGEDGHPLGRFGAAD GKVYVYGLT PETSFDLQGVLEVTNCFQNSRLGSSLL
 GVVYI F L G S KDGIIETPAQIITVDDDPVYMFGYS L $G K V Y V Y G V T P E L A L V L Q G A L E A S D G A Q N A R L G S S M$

G G GRVVYVRR

G GRVV G
G H R
E G GKVV Y

## $G R V Y \vee$



K D WA
$G G R V F I Y Q R K Q L G F E E V S E L Q G D P G$


G GKL Y K A DMQDDTFIIGNEP LTPEVRA
$\qquad$ AYDWS QVVIVRME GRD
 S S LY G GLVSVV

## ERKEGS V I Y A F Q L

GTV Y Y Y GL L N DVI S STAS QIA VGS SMGRFGTT I

$Y$ VF L GFQGT I LK KYKQRGEVPSGALVDLQSYQNSRFGSCI LLPD $\quad$ G R V V V FHGFPRPDYLSRPPVI LDGPSVGGRFGHSV I AV HGA S GGLTEPNKRFYRGGMPNSAFGTSV GIVAVVHSDPSRPEKEKLSVEAADWLLRGEEDFAWFGYSLL $G G V$
$G G$

A RWQCRA $L$ LR GEQPWGRFGAA L VD RE GRVYVCEDNRYFDKPS Q DT TLLRGDVSVRGRFGSSLL Q GKVVYVYALNQVPGR


 $\square G G E D G R V Y V Y K S W L T P C P E E K A Q Y V L I S P$ E A S S R F G S S L GAAFV F YGDND GVDNQKWYMVES | $G$ | $V$ | $A$ | $F$ | $V$ | $Y$ | $K$ | $G$ | $S$ | $A$ | $T$ | $G$ | $L$ | $N$ | $T$ | $A$ | $N$ | $Y$ | $N$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $G$ | $Q$ | $L$ | $K$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $A$ | $F$ | $V$ | $Y$ | $K$ | $G$ | $S$ | $A$ | $T$ | $G$ | $L$ | $N$ | $T$ | $A$ | $N$ | $Y$ | $N$ | $L$ | $Q$ | $K$ |

 NQANSYFGGSVV GLVAFHSGPSQNHREKLSVEAANWLMRGEEDFAWFGYSLL GMVAA FYSDPS WSHKE ELGVEAAANWTVRRGADFSWLGY AL M G GEDGRVY $\square$ YKS WMTPCPEEKA QYVLVSPEASSRF GSSM

G V A A F Y S G P S L S D K E K L NVEA A N WTVVR E E DF S WF G Y S G $1 V A A F Y S G P S Q S N K A K L A V D A A D W M V R G E E D F A W F G Y S$
 GCAFV YHGSAASSATAFK $\square T K E M N Q A D A S F G Y S V$ Y $\square F S$ GERAS $\quad$ KPS Y VQRDE GQKFS G

H $\square \mathrm{H} V \mathrm{GRVY} \mathrm{L} D Y$ GNEDGDLDKEAHGVLEGFQPSGRFGSAV
 LG GED GRVVYVYK S WA APCPE EKA QYVLISPAEASSRR GSSSV GAA
M G GED GRVYVYNGKQDPCPE EKAQYVLISPEAGSRFGSSV
GAAF V Y H GSGAGGLNAVPTTTLESN

## $G V G V \quad L V Y G A P N G L G M V T F L E C$

RVYVVYANGLGLPPADTDLDEEAHAILEGSQPDSAMMGFAV
S Y VVF GNSNPNESFE LS S LD GSNGF I LR G $\square$ S $\square$ G D YP G S S V T Y VVFG S S S F E D T L N L S SLD G S N GFVI N GI DEFD N S GF S V

 K S Q DVGRVYVFYQRGRGEYMHEPPVILKGPRSGGRFGHVV EA Y VV F G GSTPDNDDLT TMPVAQGFI IQGDVTTDNAGRSV TY $1 . V$ F GK E G G F D S F N L S Q L D G S N G F I I

 $S Y V V F G K T S G F S N F N L S S L N G S N G F Q I N G \square A A D D G S G F S V$


## UniRef90 K1Q7K3 UniRef90-UPIO0029D7513 UniRef90 UPIOOOO32A334E UniRef90-Q4SQ95

UniRef90-s9X4Y0
UniRef90-L5KT96 UniRef90-UP1000 UniRef90_UPIO0046BF6D7 UniRef90-C3Y3Z0
UniRef90_T1JB00
UniRef90-H3CAF7
UniRef90 13 KW 08
UniRef90-UPI0003C27855 UniRef90-UPI0003AF8EBF UniRef90-F7DB68
UniRef90_H2M360
UniRef90_G4VIL6
UniRef90-L5K3S7
UniRef90-F7DB16
UniRef90-UPI0002C68D77 UniRef90-UPIO00180B645 UniRef90-F7BQG0
UniRef90-UPIO000D9FOD8
UniRef90-H2L878 UniRef90- S9WVL7
UniRef90_UPI000359AA1B
UniRef90 UPI0004448A6F UniRef90 UPIOOO3C49E27 UniRef90-UPIO002B46C41 UniRef90-F6Y2R7
UniRef90 UPIOO046B9712 UniRef90-UPIO0033399D0 UniRef90-G3H2S3 UniRef90_M4AUD5
UniRef90 UPI00021A40F9 UniRef90-H3A911
UniRef90-UPIOOO440D746
UniRef90-H9GLT6
UniRef90- U6ITD4
UniRef90-UPIOO046C33C6
UniRef90-UPI0002B42C59
UniRef90 G7YUI6
UniRef90-UPIO00373C5AF
UniRef90-UPIO003F07621
UniRef90-UPI00037B89FD
UniRef90-UPIO0037B89FD UniRef90_UPIO003EC45BF UniRef90-UPIO00444673A
UniRef90 UPIo003BBC419 UniRef90-K9ZMY9
UniRef90_UPIO00477EA30 UniRef90_UPIO0045D6A49
UniRef90 C6VXD0
UniRef90-UPIO0037680DE
UniRef90 UPIOOO37680DE
UniRet90 UPI0003F16FE3
UniRef90- М3YOA7
UniRef90-UPIO00333931F
UniRef90_UP1000298BFCF
UniRef90 UPI000387CD25
UniRef90-HOXE61
UniRef90_F6TJG3
UniRet90_UPI00033438F1
UniRef90 ${ }^{-}$C6W1L5
UniRef90-UPIOOO4418A51
UniRef90_L5K2K2
UniRef90 UPIO001D55136 UniRef90-UPIO004442D89 UniRef90-UPIOOO298B5DO UniRef90_UP1000414A083 UniRef90-UP10004400575
UniRef90-C6W781 UniRef90-UP100036C4C3B UniRef90-F6RP21 UniRef90-W4Y256 UniRef90-L8M3222 UniRef90-E1VMA0 UniRef90-M4A8A8 UniRef90 Po5555-2 UniRet90 - $=6 \mathrm{HEQ}$ UniRef90-66DVD9
UniRef90 $\mathrm{B4V}$ S47
UniRef90_B4VJ47
UniRef90_V61184
UniRet90-A3VF48
UniRef90-B4VWQ7
UniRet90_UPI00035F06F6
UniRef90_AOYNPO
UniRef90_B2J8Z0

ACPGDLINKDGFKDLTVGAPYEOD NKGAIVUIENGGAPRME
 AAVSDLNLDNFTDVAIGAPLENDH RGAVYIYHGDKMTLK
 AQIQDMNGDGFRELVVGAPLEDDH QGAVYLFYGQDRTIQ CAVDLDRDGNTDLVIGAPYHTPLNGGRVYVCPGKDPGTT SSAGDLNGDGFTDI AlVGAPNE

GSGAVY
HGTSGLK
AAlGDMNGDGFQELVVGAPLEDDH QGAVYVFYGRGRTTQ AVL PDLNSDGFRDLAVGAPLENHGEGSVYMFNGEGGGUS
 AAAPDLNHDDLTDLVVGAPDEDEH DGAIYYVYHGDGDYDN GALPDLNQDGFADVAVGAPLEDGHNGGALYLYHGTQNGVR ASVRDLNQDSYNVVVGAPLEDNHG GAIYIFHGFPGSIL
 A WLPS GEKKSLLASGAPRY QHVGRVLLFQEPQGGGR AAVKDLNDDGFNDVVIGAPLEDDHGGAVYIYHGSGKTIR NSATVPGDVLYIAGQPRYENHTGQVVIYKMEDGN: CSV DLNSDGKTDLVIGAPFYTPLNGGRVYLLVSQQVGWK GSVGDLNQDQFSDVAGAPYGGVDGKGVVYLYYGTVITPS AAVRDLNLDGFNDVVI GAPLEDDHGGAVYIFHGSGRSLR TVLGDMNGDQMTDVAIGAPGEQENWGAVYLFHGSGQGVS SSLADLNGDGLRDVAVGAPLEENNAGAVYIYLGQRGGMR SSSLDVDGNQINDLAI GAYF

TALGDLDHDG口DDFAlGAPY DAGGGSVIIYHGSKDKK】
AADPDLNQDSYNDLVVGAPLEDEH QGATYVFLGFQGTIL VSMGDVDGDGTEDLAISCPYCSDREKGAVFIYLGKKDSLP SGAGDVNGDGYSDILAGAKHGWPHEAGSVSLTLGSRYGLS
$H$ STMMNNKDTSSVGDLSKQDEKPNLGRVYGYF

TAMGDVNGDKDTDVAGAPGE DENRGAVYMFHGASGGLS AVLPDINADTFNDLAVGAPLENDGQGSIYIFRGEGGRIN PFFPFQTNHVALLLHSRRKKEQNQCQG
SGAGDVNGDGIIADLILSAPFA SSQSGEGYIIFG
ASAGDVNGDGYADVIVGADWYDEGQTGAAFIFHGSAAGTS
DTVRS KEKNQVVI AAGRSSLGARLSGALHIVNGGSD
SSAGDVNADGFSDVVGAPLFHNSSEGAAFIYYGSNQGTQ ASAGDINGDGYDEVIVGAKEYTDTNEGAAF YYGSNTGDD SGLSNR PLLVGSNNEKQNLGRVYGFFP PD

LHGVTVDNRTLLLVGSTWKNASRGRVYGYFP PN
LHSTSVDNRTLLLVGSPSGDEKSLGRVYGYF PD
ASVKDLNLDGFNDVVI GSPLEDDH RGAVYDYHGDGKT $\mathrm{D}_{\mathrm{R}}$
HGVSVNNR GTLLLVGSPHDEKQSLGRVYGYYP
ASAGDVNGDGFSDVIVGAPLFDEVDEGAVFVGHGSDSGL
AVL DFNKDGVPDLAVGAPSVGSKQKGAVYVYFGSKRGSM
SGGQDLTQDGLMDLAVGARG
AVL DFNKDGLLDLAVGAPSEKLSYKGAVYDYFGSEQGRV

AAAGDVNNDGLSDVTTGAPMYDKSNEGAAFVYHGTDAGDS AGAGDVDGDGFSDVMVGARLFDNANEGAAFIYKGSAGGPV A VMDWNLDGVPDLAVGAPSVGSDGTGAVYVFFGTRGKGV
SNAGD 1 NRDGFDDVI I GAPSADSNGAGESYVVFGTDNPSS SNAGDINGDGFDDLI I GAFFADPNGAGETYVI FGSESFGS SSAGDINGDGLADLLIGAPRGRGPNVGHSYVVFGQTDSTA
A VILRNRVQSLVLGAPRY QHIGLVVVMFRENFGTWE LSTGDLDGDGTEDLASCPFCQDVDRGVYVYLGRKNADK SSAGDVNGDGFDDLIVGALYGDNGGAGEAYVVFGGASTTLL SGAGDINGDGDDDLI GAHYAETNDAGEAYIVFGKKGDFD
 SGAGDVNGDGFDDFI LGAPYGDDTNAGEAYLIFGKATGWA AGAGDLDADGYSDVVIGEPWYWDDKTGLVILYYGSPTGDH
SSAGDVNGDGGDDLIIGAYGADPNGQGESYVVFGFSTPTN

UniRef90_K1Q7K3 UniRef90-UPIO0029D7513 UniRef90-UPIOо032A334E UniRef90-UPI0003504CAD UniRef90 Q4SQ95 UniRef90-s9X4Y0 UniRef90-L5KT96 UniRef90_UPI000273A19D UniRef90- H2UIS7 UniRef90_UPIo0046BF6D7 UniRef90-C3Y3Z0 UniRef90_T1JB00 UniRef90-H3CAF7
UniRef90 13 KW08 UniRef90' UPIOOO3C27855 UniRee90 UPI0003AF8EBF UniRef90-F7DB68 UniRef90-H2M360
UniRef90_G4VILS
UniRef90-L5K3S7
UniRef90-F7DB16
UniRef90-UPI0002C68D77 UniRef90- UPIO00180B645 UniRef90-F7BQG0 UniRef90-UPIOO00D9FOD8 UniRef90 H2L878 UniRef90- ${ }^{-19 W V L 7}$ UniRef90-UPIooo359AA1B UniRet90_UPI0004448A6F UniRef90 UPIOOO3C49E2 UniRef90-UPIO002B46C41 UniRef90-F6Y2R7
UniRef90-UPIO0046B9712 UniRef90-UPIO0033399D0 UniRef90-G3H2S3 UniRef90 M4AUD5
UniRef90 UPI00021A40F9 UniRef90-H3A911
UniRef90-UPIO00440D746 UniRef90 H9GLT6
UniRef90- U6ITD4
UniRef90_UPIOO046C33C6 UniRef90-UPI0002B42C59 UniRef90 G7YUI6 UniRef90-UPI000373C5AF UniRef90-UPIO003F07621 UniRef90 UPI00037B89FD UniRef90_UPI00037B89FD UniRef90-UPIO003EC45BF UniRef90_UPIO00444673A UniRef90 UPIo003BBC419 UniRef90-K9ZMY9
UniRef90_UPIO00477EA30 UniRef90'UPIO0045D6A49 UniRef90 C6VXDO
UniRef90_UPIO0037680DE UniRef90_UPIO0037680DE UniRef90 UPIO003F16FE3 UniRef90- МЗҮОA7 UniRef90-UPIO00333931F UniRet90_UP1000298BFCF UniRef90 UPIO00387CD25 UniRef90-HOXE61
UniRef90-F6TJG3
UniRet90 UPI00033438F1 UniRef90 ${ }^{-}$C6W1L5 UniRef90-UPIOOO4418A51 UniRef90_L5K2K2 UniRef90 UPI0001D55136 UniRef90-UPIO004442D89 UniRef90-UPIO00298B5DO UniRef90_UPI000414A083 UniRef90_UPI0004400575 UniRef90-C6W781 UniRet90_UPIO0036C4C3B UniRef90 F6RP21 UniRet90_W4Y256 UniRef90-L8M3222 UniRef90- E1VMA0 UniRef90-M4A8A8 UniRef90_P05555-2 UniRef90-U6HEQ7 UniRef90-X6DVD9 UniRef90- B4VJ47 Unin UniRef90-A $3 V F 48$ UniRef90_B4VWQ7 UniRef90 UPI00035F06F6 UniRef90-AOYNPO UniRef90-B2J8Z0

TMYSQR\|L $\operatorname{LAAD}$ PSHSQRVTGASPSLQYFGQSLSGGQDLTQDGLADLAVGAQ VNIVQALNGEQD GSYFGSEVCGLDDUDQDGUTDLLVAAP EKFVQR\|AAGGDGMKFFGQSIHGVMDLNGDGUTDVTUGGL

S QPSQRTEGDSPGLQYFGRSTHGVMDLGGDGLVDVLVGTQ WQFRQRLSGSSASLKYFGQSLHGVLDVNGDGLVD $M \square C T K T L H G Q T G E V S G H G A S M S E I G D I S G D G Q T D V A \square G A P$ E N Y A QVGLLP LIF S S QPHPLSLGAISDDN


LVF S QR $\square$ S A HDS G $\square Q Y F G C S \square D G G \square D \square T D D D \square A D \square S V G S M$ QQFSQRIAASGFEMKHFGQAVSAMMDSERDKNNLLLVGSQ PQYTQ
GS P T Q $\square$ L T T S G S $\square K$ S F GF S $\square S$ S G G D $\square D \square N G Y P D \square A V G A P$
 RAAPDTTCGDFDTHDSFGWSLSAGIDLDANHAPDLIVGDF NYPDWEVLGTS AMDHLGASVSGAGDLNGDGFSDMIVGDP NNQSWFTISGDKAMGKLGTSLSSGHVLNGDMTQVLLVGAP

PSHSQRTAGSSPRLQSFGQSLS GGQDLTQDGLADLAVGSR PTYSQRIAASASGLKDFGDSISSSYDQSGDGLPDLAVGSK PRDPSGGDGQTLKFFGQSIHGEMDLNGDGLLTDVTIGGL

T NAAVKFQSNQ TNALMGRSVAGAGD $\square$ NGDGYADVLVSAP
TVGNLRLKGLQP DAHFGAAVSGAGDLNGDGYSDVVVGAP QAANPLSIDANKNDTDFGYIVAGLGDINRDGYADFAI GAP QAANPLSVQANKNDTDFGYIVAGLGDI NRDGYADFA GAP CQSSFTISGDKAMEKLGASLSSGHVLVNGTRKQVLLVGAP

GQSWFT ISGDKAMGKLGTSLSSGHVLMNGTDKQVLLVGAP N RQS WF T $\square S G D K A M G K L G T S L S S G H V M \square N E M L T V L L V G A P$ REYAQ
SQSRFTDS GDQAMGK LGTSLSSGSVMVNGTQRQVLLVGAP $\square F V G G S F E G G A R M G F S V S C A G D M N G D G F S D V I V G A P$
SPSPN $\square T \square$ C CQDTYCNLGWALVAA DLNGDREPDLVIGSP SSSPN $\square T \square$ S CKDVYCN $\square G W T L L A A \quad D V N G D H T P D L V I G S P$ K T GMENFESNLP FSDLGQSVASAGDVNGDGFSD\|IVGAP $N V P \square T T L E S N Q D A Q F G C S V K G A G D V D G D G Y S D V I V G A S$ TANPTIIEGNQL DARLGHALSSAGDINGDGFSDVAL GAF SPRPNVTVSCRDKYCNFGWTLLAA DVDGDGAADLVVGSP

P $\square E L S N L D G S N A S F D R S G S S V S N A G D V N G D G \prod A D V I I G A R$ TLNLSSLNGGDDAGDNSGFSVSNAGDVNGDGIDDLII GA DELSAVAQGQGSGNEYSGRSVAAAGDVNGDGLADLII GAP PTYSQRDAASASGLKLFGDSISSSYDQSRDGLPDLAVGSK $P K G S Q R I D G A S P G L Q Y F G Q S L S G G K D L T M D G L M D L A V G A Q$ DEPDQVI HPADRPFSAFGWSMASKSDVDGNMSPDLVVGDY TAAQGII IQGDVAGDQAGFSVASAGDVNGDGFDDLIVGAR ASFN
ASFN
RNYEMVDMGGLVG\|VNGPGKPLSTGDVNGDG\|PDLIIG
SASEGFILQGANGDDRAGTSVSAAGDVNGDGIDDLIVGAH ATTNGFK NG】ATDDQSGFSVSGAGDINADGlDDLVI GAP $P G P Q R I T G N Q T D A F D F F G W S V A A G G D V D G D G D S D L L I G S P$ TPPVAVDDSVSADEDTATSGNVLVNDSDSDGDPLIV

UniRef90 K1Q7K3 UniRef90-UPIO0029D7513 UniRef90-UPIO0032A334E UniRef90 UPI0003504CAD UniRef90 Q4SQ95 UniRef90-S9X4Y0
UniRef90 LKKT96
UniRef90-L5KT96
UniRef90-UPI000273A19D
UniRef90 ${ }^{-}$H2UIS7
UniRef90_UPI00046BF6D7
UniRef90 C3Y3Z0
UniRef90_T1JB00
UniRef90-H3CAF7
UniRef90- 13 KW 08
UniRef90-UPI0003C27855
UniRef90-UPI0003AF8EBF
UniRef90-F7DB68
UniRef90- H2M36
UniRef90 G4VIL6
UniRef90-L5K3S7
UniRef90_F7DB16
UniRef90_UPI0002C68D77
UniRef90-UPI000180B645
UniRef90-F7BQG0
UniRef90_UPI0000D9F0D8
UniRef90- H2L878
UniRef90-S9WVL7
UniRef90_UPIO00359AA1B
UniRef90 UPI0004448A6F
UniRef90 UPI0003C49E27
UniRef90-UPI0002B46C41
UniRef90-F6Y2R7
UniRef90 UPI00046B9712
UniRef90-UPI00033399D0
UniRef90_G3H2S3
UniRef90-M4AUD5
UniRef90 UPI00021A40F9
UniRef90-H3A911
UniRef90_UPI000440D746
UniRef90 H9GLT6
UniRef90-U6ITD4
UniRef90_UPI00046C33C6
UniRef90 UPI0002B42C59
UniRef90 G7YUI6
UniRef90-UPI000373C5AF
UniRef90-UPI0003F07621
UniRef90 UPI00037B89FD
UniRef90-UPI00037B89FD
UniRef90_UPI0003EC45BF
UniRef90_UPI000444673A
UniRef90 UPI0003BBC419
UniRef90-K9ZMY9
UniRef90_UPI000477EA30
UniRef90_UPI00045D6A49
UniRef90 C6VXD0
UniRef90_UPI00037680DE
UniRef90-UPI00037680DE
UniRef90 UPI0003F16FE3
UniRef90-M3Y0A7
UniRef90_UPI000333931F
UniRef90-UPI000298BFCF
UniRef90 UPI000387CD25
UniRef90-HOXE61
UniRef90_F6TJG3
UniRef90 UPI00033438F1
UniRef90 C6W1L5
UniRef90_UPI0004418A51
UniRef90 L5K2K2
UniRef90 UPI0001D55136
UniRef90-UPI0004442D8s
UniRef90_UPI000298B5D0
UniRef90-UPI000414A083
UniRef90-UPI0004400575
UniRef90_C6W781
UniRef90_UPI00036C4C3E
UniRef90 F6RP21
UniRef90-W4Y256
UniRef90-L8M322
UniRef90_Q4BWI7
UniRef90-E1VMA0
UniRef90-M4A8A8
UniRef90_P05555-2
UniRef90 U6HEQ7
UniRef90-X6DVD9
UniRef90-B4VJ47
UniRef90_B4VJ47
UniRef90 V6l184
UniRef90-A3VF48
UniRef90-B4VWQ7
UniRef90 UPI00035F06F6
UniRef90_AOYNP0
UniRef90 B2J8Z0


G QVIMLDS R P
MEN

G KVVLLRSRP $G R G Q V L L L R S R P$ GEGRVLILRSRP G NAVLLSSR VSS SVAVLRARP GA AVLLSSQP GAGKVLILRSR G NAVILWSRP RSDSVFLLKSRP

$G S$
$G A V T V L T L S S R P$
ESDK IVVFRTRP
$G S \quad A V V L W S R$
$D S D Q V V F L R A R$
$D V D$
D
T
H
D
D

D Y DKG
NEGAAFVFDGTP NTGNDFVYYG NTGNIFVYYG THDDV
T RDDV

TYDDV
THDDV
NEGAAF $\square$ FKG
F A
F A
TMNKAFVFYG
NEGAAFDYHG
LY DK G
YAPQGGRQRG
SADR
NVN


Q N D
HAD
NADAAFVYYG
GTGKSY/

UniRef90 B2J8Z0 UniRef90＿M3H477
UniRef90＿M6VJT4
UniRef90＿U5QLR6
UniRef90 B6B7X6 UniRef90＿UPI00036D2B5A UniRef90－B2J063 UniRef90－B4WT36 UniRef90 UPI00036F7985
UniRef90＿B2IZM8
UniRef90＿M6GR08 UniRef90 Q4C0A5 UniRef90＿B4WT86 UniRef90－L8M1Z8 UniRef90 Q5N5L2 UniRef90－Q5N5L2 UniRef90＿D8K4V9 UniRef90＿S3GS41 UniRef90 M6AFR8 UniRef90－N1WKS8 UniRef90－K9XHH1 UniRef90＿C3ZWC6 UniRef90 B4WL54 UniRef90－Q3J9E3 UniRef90＿B4VJN7 UniRef90 B2J3P8 UniRef90 C7PFE8 UniRef90＿F9SK79
UniRef90 K6H5Q4 UniRef90－B4WPK1 UniRef90＿B4WMK8 UniRef90－M6CWL3 UniRef90 D8K4W1 UniRef90 K9Q618 UniRef90＿M6RXV7 UniRef90 L8M3E7 UniRef90 A3VG06 UniRef90＿A3VG06 UniRef90－G7NQZ1 UniRef90 B4W1Z7 UniRef90 B4WT87 UniRef90＿X0TRV6 UniRef90＿S4XNP7 UniRef90 K9XY29 UniRef90－M6TMV1 UniRef90－UPI0002235A4F UniRef90＿F6X2X7 UniRef90－Q7NLY5 UniRef90＿L8LZZ7
UniRef90－B2J5H9
UniRef90 L8LT97 UniRef90 K8LKR3
UniRef90＿L7U2E8
UniRef90 L8LRK2
UniRef90 K2B7G0
UniRef90－D1JDX6
UniRef90－K9X9E1
UniRef90 F9ZJX
UniRef90＿K1RH25
UniRef90＿L8LV73
UniRef90＿L8LR87
UniRef90 F9ZJX4
UniRef90－L8M1K3
UniRef90－F9ZJW9
UniRef90 X0V5K6 UniRef90－D8K4W0
UniRef90＿UPI00046F2B7A
UniRef90＿F9ZJ82
UniRef90 J3C6G0
UniRef90－L8M8K4
UniRef90－UPIO00383278D
UniRef90＿I4IFK8
UniRef90 UPI0003782C61
UniRef90＿UPIO00464679D
UniRef90 F9ZFT2
UniRef90 I4G4F5
UniRef90－K9RP66
UniRef90＿K9Z351
UniRef90 B4WG24
UniRef90 F3NMC1
UniRef90＿N1WF83
UniRef90＿A0A058ZJ55
UniRef90 S5VSE5
UniRef90＿F4F201
UniRef90＿A0M5D7
UniRef90＿E2RK02
UniRef90－UPI0003871F18
UniRef90＿A7TB42
UniRef90－M3ICL1
UniRef90 L8LTP8
UniRef90＿B8LCZ9
UniRef90 K7FB29

STAGD【NGDGFDD【LIGAL

D Y S GRSVAGDVNGDGMDDLI IGAN
DYSGRSVAGDVNGDGI DDLI I GAN GDRSGWSVAGDVNGDGUDDFLIGAP

FNLDVEEPT $\square$ FQEDAGG FGQSVVQFGGSR VVVGAP
 TDGHTEDKAEKDDHFGRADATDFNGDGYADLAVGAP S SAVDLNGDGLSDLI I GAK
 DSSGFSVSNAGDVNGDGFDDVIVGAY $D P G D R S G S S V A G D L N G D G \square D D L I \quad G A D$

N】D GTNGTVIQGTSGSSFARK\SGD\NNDGREDF\I GVDDDGFGYSVAFVAETADVATLLI GAP LD K E A D QV LE GQPS GRFGSAI ALDFNADGVPDIVVGAP

YAD PNGGYSGQSYVVFGSDQGFSADLNLADLDGSNGFRII YAD PNGGYSGQSYVVFGSDQGFSADLNLADLDGSNGFRI YADPNGAGQSYVVFGTNGGFPAALDLSALDGSNGFMUNGU

DAAPNDSSYAGESYVVFGGRGVGRSGRFELSGLDGTNGFV DASPNGVSGAGQSYVVFGTGGDFPAAVELSALDGSNGFVL GYDHPNGGN GAAF VYYGSNRG $\square$ NPTRFSMLTSN■VSGQD GAD PNGEFSGEVYVVFGRSAGFDAAFELSSLDGSNGFVL

LEV VAANQTGRDYDCTAATGVCQPDPDHEAVNMSDGACG FADPNGNSFAGETYVVFGQSEGFNASLNLSELNGSNGFVI NAD PDSRSSGESYVVFGTNAGFGAAIDLSGLNGSNGFVL
 DADPNSKQNAGKVYVIFGKNTSFSGFSLANLNGTNGFVIN

GAD PNGSESGQSYVVFGSSTGFSSSLNLSDLNGANGFA SASPSGREGAGQSYVVFGDPSTATPNITLSVSPTSVNENG

RAD PNGLDSGSSYVVFGKASGFGAAMNFSSLDGSNGFRL RANPNGNYYAGESYVVFGDENLGNSSNLELSNLNGTN

FMLENGTS DCNLPENPLF\|ACGGQKTS KANQPNVTQGGAVYHCPW PPGDDCTP $\square$ DFDHDGARTHDF

AERGQGRAYVIFGGANGDPNNLNVNALGPNGYR\IGNN


UniRef90 B2J8ZO UniRef90－M3H477 UniRef90－M6VJT4 UniRef90－U5QLR6 UniRef90 B6B7X6 UniRef90＿UPI00036D2B5A UniRef90－B2J063 UniRef90－B4WT36 UniRef90－UPI00036F7985
UniRef90＿B2IZM8
UniRef90－M6GR08 UniRef90－Q4C0A5 UniRef90－B4WT86 UniRef90＿L8M1Z8 UniRef90 Q5N5L2 UniRef90 Q5N5L2 UniRef90－D8K4V9 UniRef90＿S3GS41 UniRef90 M6AFR8 UniRef90－N1WKS8 UniRef90－K9XHH1 UniRef90＿C3ZWC6 UniRef90－B4WL54 UniRef90－Q3J9E3 UniRef90－B4VJN7 UniRef90 B2J3P8 UniRef90 C7PFE8 UniRef90＿F9SK79 UniRef90＿K6H5Q4 UniRef90－B4WPK1 UniRef90－B4WMK8 UniRef90－M6CWL3 UniRef90 D8K4W1 UniRef90－K9Q618 UniRef90－M6RXV7 UniRef90－L8M3E7 UniRef90 A3VG06 UniRef90＿A3VG06 UniRef90－G7NQZ1 UniRef90－B4W1Z7 UniRef90－B4WT87 UniRef90－XOTRV6 UniRef90－S4XNP7 UniRef90 K9XY29 UniRef90－M6TMV1
UniRef90－UPIO002235A4F UniRef90 F6X2X7 UniRef90－Q7NLY5 UniRef90－L8LZZZ7
UniRef90－B2J5H9
UniRef90－L8LT97
UniRef90－K8LKR3
UniRef90－L7U2E8
UniRef90＿L8LRK2
UniRef90 K2B7G0
UniRef90－D1JDX6
UniRef90－K9X9E1
UniRef90 F9ZJX2
UniRef90－K1RH25
UniRef90－L8LV73
UniRef90＿L8LR87
UniRef90 F9ZJX4
UniRef90－L8M1K3
UniRef90－F9ZJW9
UniRef90 X0V5K6 UniRef90－D8K4W0
UniRef90＿UPI00046F2B7A
UniRef90 F9ZJ82
UniRef90 J3C6G0
UniRef90－L8M8K4
UniRef90＿UPI000383278D
UniRef90 I4IFK8
UniRef90－UPI0003782C61
UniRef90＿UPIO00464679D
UniRef90－F9ZFT2
UniRef90 14G4F5
UniRef90－K9RP66
UniRef90－K9Z351
UniRef90－B4WG24
UniRef90 F3NMC1
UniRef90－N1WF83 UniRef90＿A0A058ZJ55 UniRef90 S5VSE5 UniRef90－F4F201 UniRef90－A0M5D7 UniRef90＿E2RK02 UniRef90－UPI0003871F18 UniRef90－A7TB42 UniRef90－M3ICL1 UniRef90 L8LTP8 UniRef90－B8LCZ9
UniRef90＿K7FB29
$T \square S G \square D \| L D W S A G S V S S A G D \square N G D G Y W D F L I G A L G G T P$ EGDGSGSPVSSARDFNGDGFDDLIIGASNADP

NFSDGSVSSAGD $\square$ NGDGFDDLI IGALSPYL

NGПAADDRSGПSVSNAGDVNGDGワADLIVGANYADPNGNL NGIAADDRSGlSVSNAGDVNGDGIADLIVGANYADPNGNL AAGDSSGSSVSGAGDVNGDG■DDLVIGAPWADPGGRDNAG

LKGDDAFDRSGWSVSSARDワNGDGDDLIGAPSASPNGPSS NGIAAFDDSGQSVSGAGDVNGDGLDDLVA』SSRFAPPFGP G

T LIA G G G D VN D D GF D D $\square$ VT T A S Y D S $N G \square D G G D R T S R S V S G A G D V N G D G F D D V I I S A Y S A E L N G S S$

PTLHRVCGENSYSKGSCLLLGSHW $\square$ QTVPDATPECPHQEM NG $\quad$ DPGDFSGFSVSGAGD $\square$ NGDGI DDLI IGA LGAEP
 G $\square$ NAGDK $\square G S A \square A S A D V N N D G D S D L I I G A N G A D A N G \square S N T$

## $N G \square A A N D F S G N V S S A G D V N G D G \square D D L I I G A S G A D S N G S Q S$ STNLVYTFRRVGNDTSALNNVNFNVSGTATFSSDYTQTGA

D GVAADDRSGFSVSSAGDVNGDGFDDLIVGAYRADPNGFS GFV VING $\square$ NERDYAGTSVSNAGD $\square$ NGDGUDDVIIGGERAN $\square$

$$
\square G \text { S A G N } V \text { N G D T N S N N K N A P } \square \text { D D F W } \square \text { S N N S D }
$$

TQGSRVQKNDFHMNDTAY $\square$ TKDVGKNDKYTQRGVSFSVDS GPDPVEFKSLQWFGATVRAHNASILACAPLYSWSPPKE E

NVYFAEDVAGTGGDVNQDGFND FIIGAPANNPNGNSAYV ADGHDVF GMSVALSMETQTNSGSVYIFVGSGVWNEEAKIT LG WS LLAADINGDGKSDXVAGSPYAPGGGKQRGFVVAFYS

S GNVRAGESYVVFGGAGGFDARLDLAALDGNNGFTLNGDD NGQLNAGESYVVFGSSSAFGTSFTLSSLDGSNGFVLNGपD
$N G L F N P G S S Y V V F G S S S G F G A S L N L S S L N G S N G F V I N G \square G$ DGKVFIFHSTGTQG\|NTSFYAFANT\|LVGDGASE

S Y V VF GS DMS VD P T F N LS N LD GSNGFA LN G $\square \mathrm{N}$
SGQ SYVVFGSDQGFSAALNLSTLNGSNGFRTNG円A $S G Q \mathrm{SVVVFGSDQGFSAALNLSTLNGSNGFRINGIA}$ PVGRVY $\square$ FHSSGT TGVTASFSGFANNTLTGNLNAD


GESYVIFGGESVGSNGS FELSSDDGRNGFVLNGDDEH PHGGGSGQSYVVFGTGEGFPPVLELSALDGSNGFTLNGSA

## FGSTNAFSANLDLSSLDGSKGFA $\quad$ N G $\square$ N GR $T \square N \quad \square D G \square C \square Y Y G A A S G \square T T T P V I I Y G N P A Y G T F A D$

VGENYVV FGSDAGFDAAFELSS LVGSNGFVLNG DDEF TGGVY $\square$ FHSSGSAG $\square$ N $\square$ TFAGFAS T $\square 1$ TGGAAGD

D VFFLDDGSGS INQNDFNRMKGFVQAVMDMQYSNFPK DHF NGNLSAGETYVVFGNSEGFKASLELSELDGSNGFVING!D $S G E S Y V V$ FGTDVGFDAVLDLSSDDGGNGFVLSGIDAG GDDDAGS VYVLYGSPSGLTSAGNQGWDQDSPNVAGGVEG GKTYVVF GNTIGYSSSFNLS

T L N G T N G FVI N GVV
PDETHAFKVTNYTA LGGLLSK LQQS $\square 1$ HTEGASGD

GQSYVVFGK NTGFSSSLNLSTLNGTNGFA DNG【AAN RSFTATTGRVNFAAGSA $\square$ ARVTINPTGDTT T E P NETA L L T
$H \square F \square G S A \square G \square D W S T D R V F H Q N T A G \nabla P D S A E A$

SGSSYVV FGKASGFSATMNLSNDDGGNGFRLDGVAKE $N$ GQ QDRGQSYVVFGNSNVGSSSLELSNGNGSNGFVINGDA

GSVY LVF GSASVQVS DQGLDLDNPQSTQKVVKDTGGTPST
 GGGREPTGR

TFGGTTTADLSVVNPNDNRFTR\QGFAGDDFGFSVSGAGD SVDGGVNDSFGWSVADDNNRVVVSSNPEGNGKVYVFERDA HFS WSDKGLISVEDAN

PDDFSGSSVSYAGDVNGDGDVLIGAHRAAQNGGSEAGESY EFDFS GSTVSSAGD $\square$ NGDGD LI IGAPFASSNGKDLAGES Y

【DEDGNSHVSVSNAGD VNGDLIIGA ILADPNGQLNA GS S S Y QFGAS $\square A T G D I S G D R Y T D \quad L V V G A P A Y S T S K G R \square Y L Y S Q$

TFDSSGRSVSGAGDVNGDGDLI DGAPG SDPNGSGSGESY
A Y DQS GFSVSSAGDVNGDG\｜DDLIIGAYFADPNGNLSGQS AYDQSGFSVSSAGDVNGDGIDDLI I GAYFADPNGNLLSGS $D R S G W S V S G A G D V N G D G V D D I I L G A P N A D L N S V D R A G Q S Y$
$R F G D A L T T G D I D G D G Y T D$ DFGGS $\square$ STGD $\square$ SGDRYTD $\quad$ LVVGAPAFSTSKGR $\square Y$ VFHS
 AYDNAGFSVSGAGDVNGDGLDDLVINAPGASPNGDYSGQS

 TFGSS $\square$ ATGD $\square$ NGDGYAD DD $\begin{aligned} & \text { LVGAPFTSPNGRHSGESYVV } \\ & \text { LVGAPNWNGSRGR }\end{aligned}$

S GDFNGDGDVA VGAPNTGNGKAY $\square$ FHSAG
QFGFSVASAGDDDVIVSAPYGEDSGENNTGHSY QFGFSVASAGDDDVIVSAPYGEDSGENNIGHSY TFTQFRSQQSLVDP VVQLKGLTFTATGGLQQVVTQLFHHKN DHSGRSVSSAGDVNGDGFDDLI I GAPYADPNGDDSGESYV

GDHFGWSLAAGDFTGDGYADLA GGAPDE DVDGHDDGGAV SGDFSGSAVSNAGDLNGDGDLVIGANFADTNGDSNTGRS

A LHFQLAQTGFSAQJLDEEQVLLGAVGAFDWSG
$S$ FQHEMSQEGFSALLTPDGPVLGAVGSFDWSGGVSL
$N \square S G S S V S G A G D \square N H D G F D D V I D G A P Y A N N F S G Q S Y \quad V$ LTTGRGYTVG SPNSATGTIINDDPAFFPAQFELSSLNG
FDAMGSSLVVGDFNGDGHDDLAVGVPGEDYGSSADDSGLV

DDII DGAPFNDPNGRSNAGESY
GS LLGKS LIAAADVDGDGNVDVA】GAPGFSHKEN】M■LYNS

DS S G DS LS TA GDVNGDGFDDLIVGAPGSHTNQEDGSYYGS $S$ GDLSGSSVSNGGDLNGDGDLVIGAPFANRNGSFFVGESY

## ETGFS $V$ NNAGDND LI GAKGNYDWYGTKKEYK $\square$ DDVIVGARGGDNLNGNNSGTSY

 GAFVVFGKSPYAR $\square G W A M D S A D L N Q D G D L V V G A P G \quad Y S T L G H F Q \square G R$ SASPQSGSSLSSWVSSSNTWYGISAPNLTNGGGTNDSN

## GTVSAGQPYVNVWT D D L LH T QV

HFGMS $\square A \square G K V N N N K Y A D L V I G A P H E N D G S G A N G S G M V$ NFDQQGDQF GYSVDNDGD $\square$ NNDGISVGAFTDDDGGANRGA SFPYGWAMASADLNQDGYGDLVVGAPG YSRPGHVQVGR

VLLGGPGSYFWQGQVMSATQ
YGTPGRSQYGKV

UniRef90 B2J8zo UniRef90 M3 H 477 UniRef90-M6VJT4 UniRef90_U5QLRG UniRef90 B6B7X6 UniRef90-UPI00036D2B5A UniRef90-в2J063 UniRef90 B4WT36 UniRef90-UPI00036F7985 UniRef90-B2IZM8 UniRef90 M6GR08 UniRef90 Q4C0A5 UniRef90_B4WT86 UniRef90-L8M1Z8 UniRef90 Q5N5L2 UniRef90-D8K4V9 UniRef90 S3GS41 UniRef90 M6AFR8 UniRef90-N1WKS8 UniRef90-K9XHH1 UniRef90-B4WL54 UniRef90-Q3J9E3 UniRef90-B4VJN7 UniRef90 B2J3P8 UniRef90-C7PFE8 UniRef90-F9SK79 UniRef90-B4WPK1 UniRef90-B4WMK8 UniRef90-M6CWL3 UniRef90 D8K4W1 UniRef90 K9Q618 UniRef90-M6RXV7 UniRef90_L8M3E7 UniRef90 A3VG06 UniRef90-A3VG06 UniRef90-G7NQZ1 UniRef90 B4W1Z7 UniRef90_B4WT87 UniRef90-X0TRV6 UniRef90_S4XNP7 UniRef90 K9XY29 UniRef90- M6TMV1 UniRef90-UPIO002235A4F UniRef90_F6X2X7 UniRef90-Q7NLY5 UniRef90-L8LZZ7 UniRef90_82J5H9 UniRe990 L8LT97 UniRef90- K8LKR3 UniRef90-L7U2E8 UniRef90 L8LRK2 UniRef90 K2B7G0 UniRef90-D1JDX6 UniRef90 K9X9E1 UniRef90 F9ZJX2 UniRef90-K1RH25 UniRef90-L8LV73 UniRef90_L8LR87 UniRef90 F9ZJX4 UniRef90-L8M1K3 UniRef90-F9ZJW9 UniRet90- XOV5K6 UniRef90-D8K4W0 UniRef90-UPI00046F2B7A UniRef90_F9ZJ82 UniRef90 J3C6GO UniRef90-L8M8K4 UniRef90-UP1000383278D UniRef90_141FK8 UniRef90- UPIO003782C61 UniRef90-UPIOOO464679D UniRef90-F9ZFT2 UniRef90 14G4F5 UniRef90-K9RP66 UniRef90-K9Z351 UniRef90-B4WG24 UniRef90 F3NMC1 UniRef90-N1WF83 UniRef90-A0A058ZJ55 UniRef90 S5VSE5 UniRef90- F4F201 UniRef90-AOM5D7 UniRef90 E2RK02 UniRef90 UPI0003871F18 UniRef90-A7TB42 UniRef90-M3ICL1 UniRef90 L8LTP8 UniRef90-B8LCZ9
UniRef90-K7FB2g $L V F G S A G G F D A R L D L A S L D G S N G F V L N G D D G F D R S G M S V$ VVF GS S S GF GAS L NLS S LD GSNGFVVLNGAAA D D Q S G F S V V LD GSNGFVIDNGDGGGSVVN SQKLIKNAGRTLIYSGASGTRLFDFY GEAAGDSLGVSVA
 GAA G $\square$ A T A DAVT DATT T CVVS GCTYLRGGITNNDKLGFSLA DINGDGFDD I I I GARTA VVF G S DVGF GATLE LSS LD GSNGFVIS GDDA GDVS G Y SVVS
 YVVFGSDQGFSAALNLADNGSNGFASNGITASDYSGRSVS
 TGGAG $\square$ T TATVNAA GVGASSFKTGSATGDKF GYF DSTGN CNYFKE GAANGDKFGFS LA
 $F \vee V N G D V Y$ D F S G Y S V S VVF G GRGVGSGGRFELSDDGTNGFVLKGDDAFDRSGWSV $Y \vee V F G T G E G F P P V L E L S A D G G N G F I I N G V A A A D H S G R S V A$ $N G 1 D \square G D N S$ GHSVS GSNGFAIDNGNGS D $\begin{gathered}\text { V I } \\ \text { Y G G } \\ \text { G }\end{gathered}$ D F F VVF GSDAGFDATLELSSLDGSNGFVLNGDDENGFFGFSVA $V$ FGS GADF DAA LDLSS LDDGRNGFVIDNGDDEFDRRSGYSVS
 $\square N$ G $\square G P G D S D G D S V V$

A Q G $\square$ N T S
FYMFANT L LT GNTA GEQFGASLATGDM VIF GQAADRSGFSDDTLAASDGFRDM GEADSNEAGWSVMA V I F GQAA DRSGFSI DTLAAS DGFRI K GEADSNFAGWSVA


 $Y \vee V F G K K T G L G A N F N L S S L N G S N G F A D A G N Q D D Y S G \square S V S$
 NGTSRDGFVIN GSNNYD GSGYSVD
VFGKSTGFSPSLNLS SLD GTN GFADNGDNEAGDISGGSVS TNGFA $\operatorname{THNG}$ GNNGDRSGWSVSSAGDINGDNDDDLI IGARSA

T I NDPANTAGDMFGNSVA
 $T V D G D G D N Y Q F G S V$ WD QDK E GIR G GSE E GDQF GYA L A
 FRLD GEAA GDHS GD SVV
 FT T $\ \mathrm{NG} \ \mathrm{NSFR} R \mathrm{~S}$ GRSVVS S Y VVRASGFSAAMDLSS LDGSNGFRLDGVKRRNYLGDSVS
 P TWTAESDQEGAYFGISSVG
 AS GFPPN】DLAFLDGTNGFA】 VYVVYGNHSGLP PEDMDLDEKA DQ QLQGHQPS GRFGSAAA I Y I FDK TVIP NTSSTVALNTVAAS PLTGNSSDGFG NPIP Y P F S GRVYVY T RDMELL Y TLLEGN
$F R L D$
GE S

GS Y $\square \mathrm{D}$ Q Y LD N VT WT S Q VG F S VA VS R P K P T P P F Y D L S AMSGMSIS SNFFDGELVAD Q $\square$ D GSNGFTFASDGRFAESLGGAVV
$P \square 1 D G T W R Y A \square P A K A \square T N T F W T Y G S \square H P F E K P K T \square Q V R M G$ NGKGQSDKSGYSVS
$T L M W G S A S G V K D S G A T S T G A G V Y K A T G R K D T \square A W Y \square G M S L$ VYVLF LIKADDTVLKS QKISST TGGFTGGLDDDNDVF GA SVVS
 EQI TASSYPEYF QQEVAGQ LQTRQAAPTHDDSYMMYSVA YLI HS DK GGSFPFHDMDLDECADMS LDGDVPNGRFGY D L A



UniRef90 B2J8zo UniRef90-M3H477 UniRef90-M6VJT44 UniRef90 B6B7X6 UniRef90_UPIO0036D2B5A UniRef90-B2J063 UniRef90-B4WT36 UniRef90-UPI00036F7985 UniRef90-B2IZM8 UniRef90-M6GR08 UniRef90-Q4C0A5 UniRef90-B4WT86 UniRef90_L8M1Z8 UniRef90_Q5N5L2
UniRef90_Q5N5L2 UniRef90-D8K4V9 UniRef90_S3GS41 UniRef90-M6AFR8 UniRef90-N1WKS8 UniRef90-K9XHH1 UniRef90-C3ZWC6
UniRef90_B4WL54 UniRef90_Q3J9E3 UniRef90_B4VJN7 UniRef90_B2J3P8 UniRef90-C7PFE8 UniRef90-F9SK79 UniRef90-B4WPK1 UniRef90-B4WMK8 UniRef90-M6CWL3 UniRef90-D8K4W1 UniRef90_K9Q618 UniRef90-M6RXV7 UniRef90-A3VG06 UniRef90-A3VG06 UniRef90-G7NQZ1 UniRef90-B4WT87 UniRef90-XOTRV6
UniRef90- 4 XNP7 UniRef90-S4XNP7
UniRef90-K9XY29 UniRef90-M6TMV1 UniRef90_UPIO002235A4F UniRef90- F6X2X7 UniRef90-Q7NLY5 UniRef90_L8LZZ7 UniRef90_B2J5H9 UniRef90_L8LT97 UniRef90_K8LKR3 UniRef90-L7U2E8 UniRef90_L8LRK2
UniRef90 K2B7G0 UniRef90-D1JDX6 UniRef90_K9X9E1 UniRef90_F9ZJX2 UniRef90-K1RH25 UniRef90-L8LV73 UniRef90_F9ZJX4 UniRef90_L8M1K3 UniRef90-F9ZJW9 UniRef90-XOVKK6 UniRef90_D8K4W0
UniRef90_UPIO0046F2B7A UniRef90-F9ZJ82 UniRef90_J3C6G0 UniRef90_L8M8K4
UniRef90_UPIO00383278D UniRef90-I4IFK8 UniRef90-UPIO003782C61 UniRef90_UPIO00464679D UniRef90_F9ZFT2 UniRef90-14G4F5 UniRef90-K9RP66 UniRef90-K9Z351 UniRef90-B4WG24 UniRef90_F3NMC1
UniRef90_N1WF83 UniRef90_A0A058ZJ55 UniRef90_S5VSE5 UniRef90-F4F201
UniRef90 A0M5D7 UniRef90-E2RK02 UniRef90_UPI0003871F18 UniRef90-A7TB42 UniRef90-M3ICL1 UniRef90-L8LTP8 UniRef90_B8LCZ9

250
260
270
280
NAGD\|NGDN\|DDLIIGAPGAGKSYVVFGSTNGFNTNGFT SGDFNGD GFADIAVGAPKSNTDGKVFDFHSFYAFANTIL

SAGDLNGDGYDDLLLGAPNGSDSAGESYLVFGDGSNGFTL
GVGDVNGDGYADFVI SAPYGNNSGSAYVVFGKANTTGFA 1


| $I V G D V D Q D G F A E V L A G A W K A D G S G A A Y L Y S G K T H L L L H K F ~$ |
| :--- |
| $S A G D I N G D G \\| D D L I$ | VGNDNGGD YDDIAVGVPGHSGGVGDANNPNTDDNNAVTT DPNGNERAGESYVVFGAVGG

GA GDLNGDGFDDLI $\square G A P R G D T S G Q S Y V V F G T D A G F S A T L$
AYRFATVGGQAYII FGGENNPSLVKTNDLDGSKGF VTSG
GAGDVNGDGFDDF, 1 GAPNGSASGQSYVVFGSNGSNGFA

 $V G N I N G D M Y D D I T V G V P G H N G G T G N G R V Y V Y Y S S N G T D L$ SAGDVNGDGFDDLII GANGAGQSYVVFGKALGFGNNGFVV
S GDLDGD GQPDLVI GAPGYGSPGNQQHDLDVDKEANVVL SARDINGDGQDDLLIGAAPSASPNGGSFELSSLDGSNGFVL
 SAGDVNGDSYNDLIIG
 TGDFNGD GFADI AVGAPKSGG $\square G R V Y I F H S T Y M F A N T I L$ GAGDVNGDGFDDVIIGAPNSYQGYIVFGSDAGFGSNFSVI $G A G D I N G D G F D D L I V G A P N G D Y S G E S Y V V F G S D G S N G F V L$
$T G R T D G D V N S D V V I G S P G F N G V R G R V Y I V R A T A T G G A G G$ GAGDMNGDGFDDLVIGAPDASPNGVSGAGQSYVVFNGFIV KAGDVNSD
SGD
GYTDLVVGAPGYSTAKGR $\square Y V F H S Q G G T G V T T$
NAGD $\square$ NGDGFDDLII GAPDAYANSGSFELFEDDG DNGFII D A GDFNGDGIDDFVVSERNGDGTWGDDDLGSLGAGEGFA $D A G D F N G D G I D D F V V S E R N G D G T W G D I D L G S L G A G E G F A$
$V G R A G Q E P T A R Q T I G S A P P Q D H V F K V D$
$V$ GAGDINGDGADDLTIGATGADPNGASLNDSEANGSNGFVI NAGDVNGDGFDDVII GSYNNNGDTYVVFGTDVGFDAAFELC
SAGDMDGDGYDDVVI GAHTYDNGETNEGRAFVYLGDETGLL AGNFDGD GFDDLAI GAPYAGHGGAGAVHVFRGTAAGLSA GAGDFNGDG $\square$ KDLIIGANRADAHGRSNSGETYVVFNGFVI VGNMNGDNFADLAVGAPGYGAGVGGGFVVNQGKVY $V Y H G A$ SLAVLHRACGRSFVAGAPRHKQHGAVFELQKEGTEADFVL VATQKGDWG LVLGAPRYQHTGKVVRKIAGSWNQWAEV GAGDVNGDGLDDVIVGAPRGGQPVELATLESGTSRNGFVI
 DPSGRSDAGQSYVVFG RTGGFGASLELSSLNGTNGFAL
 SA GD DNGDGFD DLII GAPNGRNSAGQSYVVFGRNSNGFTD A A GDVNNDGYADVLI GSAGDDAQGSVHMYYGSTTTSSWTA
 NA GDV NGDGDD DL IVGSSRTDDNGNVVFGKASGFNAAMDL
 SAGDIN GDGDDDLI I GAPNGSSSGQSYVVFGSNGSNGFTI.
 $N A G D V N G D G F D D V I I G A P N Y S G T S Y V V F G K A F G F N A T M N L$ SAGDVNGDGYDDVIVGAKMYDNGQTNEGRAFVYHNPDWTA
 SA G DVNGD GFDDV IV GAPRAS GF DAAL NLSDLDGTNGFRLL SAGDINGDGDGDLMLSNPSSNGNLGYVYIIVGNGTNGFTL
 $L \operatorname{GDDL} N G G D$ GVVP E
 PSQSVVNGDNFADLVIGAPNYRQAVQFAGDGLNQ
PA G DI N G D GVVD DF L V G A P GK K D S K G V VYVVVF G S S TVVGVQV SAG V N









UniRef90_B2J8zo UniRef90-M3H477 UniRef90-M6VJT4 UniRef90 ${ }^{\text {B6B }}$ BX UniRef90-UPI00036D2B5A UniRef90- B2J063 UniRef90 B4WT36 UniRef90-UPIO0036F7985 UniRef90-B21ZM8 UniRef90-M6GR08 UniRef90_Q4COA5 UniRef90 B4WT86
UniRet90 18 M 178 UniRef90-O5N5L2 UniRef90-Q5N5L2 UniRef90-D8K4V9 UniRef90-S3GS41 UniRef90-N1WKS8 UniRef90-K9xHH1 UniRef90- C3ZWC6 UniRef90_B4WL54 UniRef90-Q3J9E3
UniRef90- B4VJN7 UniRef90-B2J3P8 UniRef90-C7PFE8 UniRef90-F9SK79
UniRef90
K6H504 UniRef90-B4WPK1 UniRef90-B4WMK8 UniRef90-M6CWL3 UniRef90-D8K4W1 UniRef90-K9Q618 UniRef90-M6RXV7 UniRef90_L8M3E7 UniRef90_A3VG06 UniRef90-A3VG06 UniRef90-G7NQZ1 UniRef90-B4WT87 UniRef90-X0TRV6 UniRef90-S4XNP7
UniRef90 K9XY29 UniRef90-M6TMV1 UniRef90-UPlooo2235A4F UniRef90-F6X2X7 UniRet90-Q7NLY5
 UniRef90-L8LT97 UniRef90-K8LKR3 UniRef90-LTU2E8 UniRef90-K2B7G0 UniRef90-D1JDX6 UniRef90_K9X9E1 UniRef90_F9ZJX2 UniRef90-K1RH25 UniRef90-L8LV73 UniRef90-F9ZJX4 UniRef90-L8M1K3 UniRef90-F9ZJW9 UniRet90-X0V5K6 UniRef90_D8K4W0 UniRef90-UPIO0046F2B7A UniRef90_F9ZJ82 UniRef90_-J3C6G0 UniRef90-L8M8K4 UniRef90_UP1000383278D UniRet90_41FK8 UniRef90-UPIO003782C61 UniRef90_UPIOOO464679D UniRef90-F9ZFT2 UniRef90_14G4F5 UniRef90-K9RP66
UniRef90 K9Z351 UniRef90-B4WG24 UniRef90-F3NMC1 UniRef90-N1WF83 UniRef90 A0AO58ZJ55 UniRet90_S5VSE5 UniRef90-A0M5D7 UniRet90_E2RK02 UniRef90 UPIO003871F18
UniRef90 ATTB42 UniRet90-A7TB42 UniRef90-M31CL1 UniRef90-L8LTP8




320 VGDGASEQFGASLATGDISGDRYTDLVVGAPAYSTSKGRS NGSQADDFSGYSVSAGDVNGDGLADLIVGAEGADPEETGR NGIDSADRSGWSVSAGDTNGDGFDDVLIGAYSADPNGNVR HGENTDDNLGYSVAAGDVNGDGKADLLVGAVGYAGGVAGR NLSNLNGSNGFVISVGDINGDGFDDLIIGAPSASFDNGES QGENKGDYFGYSLTASDVDNDARPDLVIGAYRHDVPAGKK NGTDRYERSGDSVSAGDINNDGDDDLIGGGEPFTERYSGE YSNGDYSQFGYSVAVADFNEDNYDDLAVGAPEYAPDATGK NGDDEYDFSGESVSAGDTNGDGFDDILIGAANAPNGDAGE NSSMLDGSNGFVISAGDI NSDGFDDLII GARRADPNGDVS SSPRDIGDLGESVSGGDLNGDGFDDII GGTSEPSLAAGK NGMTAYDRSGFSVSAGDVNGDGDDDLI GAFGADPNGAGQ NGAEVYDFSVVSVSAGDVNGDGVDDVVIGQAGFSGYSAGQ NTITNNKQLGYAVAIAD FNNSGYPDLLAGAPFFTQASTAG TVPNTYAQFGYSIAVANFNGDNYDDVVVGAPEYNPSNNQK NGDDDGNVLGSVSNAGDNGDGFADLIIGAPLASLDGVGK YGKEPNGRFGSAVAVVDLNKDGVNDLAVSAP SVGS NGVDARDALGDSVSTGDINGDGIDDLIVGAPDADPDGSGE NGIAAGDRSGSSVSAGDVNGDGLDDIVIGARFASPNGVDR NGIDSSFSVSDAGDDNDDGDDDLIIGAPEADPNGNSGAGK NGNANDFFGASVSNAGDVNNDGUDDLIIGAYNAASVAGQS PGSSLTDTAGSUAGGDUNGDGHTDIVVGKTVYSNGQSQE SGMFTEGGFGSALASGDFNNDGFDDVAIGSPNEDDDGK TGALTNEDFGRSLATGDISGDRYTDLVVGAPGVTGSSKGR DGVDRGDRFGHSVSAGDVNGDGFDDVII GAYTAAPNGAGE RGMNAYEESGYSVSAGDINSDGFDDLIISAPYSNSNGSGK NSAAAVGGLGTHIATGDVNGDGFTDAVVCA FSLGATGQ NGIDAFDGSGRSVSAGDINGDGFDDLVI GAPDASPSGAGQ HGGNAGENAGWSVSAGDI NNDGDDDVIIGAPDDIGAGMGE AGANNNDQFGYSI AVGNINGGDFDDI AVGAP GNDGGV NGDAPEDDAGFSVSAGDINGDT ${ }^{\text {I }}$ ADLIIGAKEGYNGTSGQ AGKAVNDQFGYSVAAGDVNGDGFDDIIVGSLSDDTASAGA AGKAVNDQFGYSVAAGDVNGDGFDDIIVGSLSDDTASAGA QEKDYAVEGTQSRASSSFQHEMSQEGFSAALTMDGLGAVG S DDLDFSGAS SAGD NGGFDDV GADGADPNGAGE SSLDDGNGFGSASGAGDVNGDGFDDVIVNAPTYNVSYAGT VGDPMFHQFGYALASGDFDGDGKADLAI GVPHEDHGGGGV KGDNSGDSSGSAVSAGDFNGDGDDDLIAAPQADPNGQTN AGGGNAGEFGDSLSAADFNGDGNSDLAIGSPGLGGGFRVS EGEQMGSYFGSELCPVDपDMDGTTDLLVAAPFYHV TGSQRGSRLGIS NGSNDYDSAGIAVSVGDVNGDGLDDVIVGAPGADPDSAGR NGMDLFDRSGAISAGDVNADGI DDLII GASVADPNGSGA NGIKEGDFSGSPVSAGDVNGDGIDDLIIGADSFS SENG NGINSGDYSGWSVSSAGDINGDDIDDLSADPNDNTDRAGQ TNAGGANYFGYSIATGDLNNDGFFDLIVGSPAASTFKGRI GREGVPVFFGSALAAGDFNGDGRSELAI GAPGQTSPGAGA NGSDDNQYFGNDVADGDINGDGYDDI AVTTGLANEPSSSG DSPEAYDLFGRALAAGDFNGDGFDDLALI GVPGESIGTTKR NGTNGFVLEGLNTRAGDINGDGFDDI I SGLDDGSNGFGAVSAAGDVNGDGIDDLVVGSPDLNGNDSGS NGFADDCLKIGFSVSAGDLNGDDFDDLIIGAP YGGQGYVI DGVKSYDLSGHSVSTGDVNGDGFDELII GA SGTGS DGANGFVLEGDNVAAGDVNGDGDDDLI GAFGAEPNGAGE
SGLDGTNGFGWSVSAGDVNGDGLDDVI GAPGADRNGS ESDQEDAQFGTSVTAGDVDNDGNADVIVGAPQFSNP ELSALDGSNGFMIGAGDVNGDGFDDIVIGAYGADSDQSGQ IGISNYESSGTSIASGDINGDGYGDIAVGTSGSGADNGKC SGKTKNEYFGYSIADGDFNKDGKDDIAIIDSGDSTTNNGK PGIDEGGNNGLAVSAGDMNGDGFDDLIIAAPGAGEIINRY TCQYSYCNLGWSLLAADVDGDGNADLVVGSPYAPGGGQQR NAPSAGQGLGSAVQVLDLNEDGKLDLAIGAPVSDPSNPQD QGMEDYARLGSQLAILDWDGDGIPEVAVSSHQTDMYGTEQ SGSTGFRTFGSNITAGDDNNDGIDDIAI GVYSENRAGK
 GATKAQGQAYSQLVATVANTG SGYSYTKNMNTGR DNGTNQDRLGSSIAFADLDGDNRQDLLGAPQNSGQSLSG STMDLDGSNGFVVEDGDVNGDGANDFIVGADGTSGDGESY DGQTSNTYFGSRVGTGDFNGDGYADVLVGAQAYNG QGGAPLDYDGFQVAAGDVNGDGVDDIIIGAPNVFGPDSSS AAGAVKLRTG\|VTG\|GDINGDGFGDIVTGADWNSKTEGDN AGPESADRFGATLAAGDVTGDGRADVLVGAYTEADGTKDE EGDFTGQFNGDVVNDGDLNNDGDEDIIVSARDYDGNPGAG
SCQDTYCNGGTLLAADVNEDGEPDLVGGPFAPGGKKGK SGEQVGLGVSGGAQGASRQLDACPHLLVGAFGVDTAVVYR IGKGQYYNLGTKLLGADIDSDGYRDLIVGSPYAPAGGPQR $N G D G T D E L G Q S V S G T G N V G G S S N D D V I I G A B C N R G S G R$ DDGNQGDHFGYSLAGSG

UniRef90＿B2J8zo UniRef90＿M3H477 UniRef90－M6VJT4
UniRef90 U5QLR6 UniRef90－B6B7X6 UniRef90＿UPIO0036D2B5A UniRef90－B2J063 UniRef90＿B4WT36 UniRef90＿UPIO0036F7985 UniRef90－B2IZM8
UniRef90 M6GR08 UniRef90－M6GR08 UniRef90－B4WT86 UniRef90＿L8M1Z8 UniRef90－Q5N5L2 UniRef90－Q5N5L2
UniRef90－D8K4V9 UniRef90－S3GS41 UniRef90－M6AFR8 UniRef90－N1WKS8 UniRef90－K9XHH1
UniRef9－ $37 W \mathrm{WC}$ UniRef90－B4WL54 UniRef90－Q3J9E3
UniRef90－B4VJN7 UniRef90＿B2J3P8 UniRef90＿C7PFE8 UniRef90－F9SK79 UniRef90－B4WPK1 UniRef90－B4WMK8 UniRef90－M6CWL3 UniRef90－D8K4W1 UniRef90－K9Q618
UniRef90－M6RXV7 UniRef90－＿L8M3E7 UniRef90＿A3VG06 UniRef90－A3VG06
UniRef90 G7NQZ1 UniRef90－B4W1Z7 UniRef90－B4WT87
UniRef90 X0TRV6 UniRef90－XOTRV6
UniRef90＿S4XNP7 UniRef90＿K9XY29 UniRef90－M6TMV1 UniRef90＿UPIO002235A4F UniRef90－F6X2X7 UniRef90－Q7NLY5 UniRef90＿L8LZZ7 UniRef90－B2J5H9 UniRef90＿L8LT97 UniRef90－L7U2E8 UniRef90＿L8LRK2 UniRef90＿K2B7G0 UniRef90－D1JDX6 UniRef90－K9X9E1 UniRef90－F9ZJX2 UniRef90－K1RH25
UniRef90 L8LV73 UniRef90＿L8LR87 UniRef90＿F9ZJX4 UniRef90－L8M1K3 UniRef90－F9ZJW9 UniRef90－XOV5K6 UniRef90＿D8K4W0 UniRef90＿UPIO0046F2B7A UniRef90－F9ZJ82 UniRef90－J3C6G0 UniRef90＿L8M8KK4
UniRef90＿UPIO0038 UniRef90＿14IFK8 UniRef90＿UPI0003782C61 UniRef90＿UPIO00464679D UniRef90－F9ZFT2 UniRef90＿14G4F5 UniRef90－K9RP66 UniRef90－K9Z351 UniRef90－F3NMC1 UniRef90－N1WF83 UniRef90＿A0A058ZJ55 UniRef90＿S5VSE5 UniRef90－F4F201
UniRef90 A0M5D7 UniRef90－E2RK02 UniRef90－UPIO003871F18 UniRef90－A7TB42 UniRef90－M3ICL1 UniRef90＿L8LTP8 UniRef90＿B8LCZ9
UniRef90＿K7FB29

330
340
350


 YLILGAAGGFGANFDLSSLDGSNGFILNGDDEDDYSGRSV SYVVYGKDGTTAVDLDDVGNGNNSLGFTGENAGDESANSVV


## 

## 

## \section*{}

のめのカー
P


PEPRRGPRCRRPRHFNPWMPQVPPLLGRGIPCGD
 S YVVF GRVGGF GA S N L S S L N G S NGF A L N G I IF S D R S G Y S V




 S Y VVF GSNGGFSASNLSSLDNGSNGFTINAVNSGYTSGESV





 GS S Y V GK A S GFA E T L S DLLD N S N S I R L D GV E K D D E S G M WV




## N

PVSDGGKAYVVFGSNDGGGSHDNLTDDLSGNNGFKSFGAAV




F G GE A GR｜V｜Y I Y V T D N CK S WISS P C P E D W $\square$ S P E E GS R F G S A I

## UniRef90 B2J8zo

 UniRef90-M3Н477 UniRefofo-MGVJT4 4 UniRef90-B6B7X6 UniRef90-UP100036D2B5A UniRef90-B2J063 UniRef90-B4WT36 UniRef90-UPIIOOO36F7985 UniRef90-B21ZM8UniRef90
M6GRO8 UniRef90-M6GR08 UniRef90_B4WT86
UniRefto -L8M1z8
UniRef90-Q5N5L2 UniRef90-O5N5L2 UniRef90-D8K4V9 UniRef90-S3GS41 UniRef90-N1WKS8 UniRef90-K9XHH1 UniRef90_C3ZWC6 UniRef90 B4WL54 UniRef90_O3J9E3
UniRef90 B4VJN7 UniRef90-B2J3P8 UniRet90-C7PFE8 UniRef90-F9SK79 UniRef90-B4WPK1 UniRef90_B4WMK8 UniRef90-M6CWL3 UniRef90-D8K4W1 UniRef90-K9Q618
UniRef90-M6RXV7 UniRef90_L8M3E7 UniRef90_A3VG06 UniRef90-A3VG066
UniRef90 G7NOZ1 UniRef90-G7NQZ1
UniRef90-B4W1Z7 UniRef90-B4WT87 UniRef90- XOTRV6 UniRef90-S4XNP7
UniRef90_K9XY29 UniRef90-M6TMV1 UniRet90-UPI0002235A4F UniRef90-F6X2X7 UniRef90-Q7NLY5 UniRef90-L8LZZ7 UniRef90-82J5H9 UniRef90-L8LT97
UniRef90_K8LKR3
UniRef90-L7U2E8
UniRef90-L8LRK2 UniRef90-K2B7GO UniRef90-D1JDX6 UniRef90-F9ZJX2 UniRef90-K1RH25
UniRef90-L8LV73
UniRef90-L8LR87
UniRef90-F9ZJX4
UniRef90 L8M1K3
UniRef90-F9ZJW9
UniRef90-×0V5K6 UniRef90_D8k4W0 UniRef90-UP100046F2B7A UniRef90-F9ZJ82 UniRet90_J3C6G0 UniRef90-L8M8K4
UniRef90 $\cup P 100038$ UniRef90-UPIO00383278D UniRef90-141FK8 UniRef90-UPIOOO3782C61 UniRef90-UPIOO0464679D UniRef90-F9ZFT2 UniRef90_-14G4F5 UniRef90-K9RP66 UniRefoo-K9Z351 UniRef90-B4WG24 UniRef90-F3NMC1
UniRef90-N1WF83 UniRef90-A0A058ZJ55 UniRef90_S5VSE5 UniRef90-F4F201
UniRef90 A0M5D7 UniRef90-E2RK02 UniRef90-UPIO003871F18 UniRef90-A7TB42 UniRef90-M3ICL1 UniRef90_L8LTP8 UniRef90_B8LCZ9
UniRef90_K7FB29

370
380
390
400
SNAGDIINGDNIIDDLII GAPSAVIS GGGQSYVVFGSSSAFS
A VGNINGGNYDDI AVGVPGGGIANNGRVYVYYGDGNVFT
A VGNI NGGDFDD AVGAPGNNGANNGRIYYYYGTGVGAP
SGAGDVNGDGLADVIVGADYADPNGQGRSYVIFGKRNLKP SAAGDVNGDGYDDILIGADFNGLTDAGETYLIYGGTD GSAGDINGDGLADLVI GA YRANNMAGNTYVVYGQLGNLS SNAGDFNGDGFDDLII GVSNYSRYEYGESYVVFGSGSGFG AGMADVNDDAHADVLVGAPNEDAPNSGTVHVFSGLDGALL SSAGDLNGDGDDDLIGGYSANPNGQGESYVVFGRSSAFE SGAGDINGDGFDDILIGASSADPNGAGESYVVFGAASGFS SGAGDVNGDGDDDLIGASNKSYVVFGAADIVPPTRTLFG
 NGAGDVNGDGIDDLII GARNADPNGSGQSYVVFGKKGGLN SGAGDVNGDGFDDLLVGAPGTYPFEGGYSYVVFGASTFPS A ARDLDLDGNADMII TT GDLNLDGRADLITSTRALVANDTAVFLISGTPLLSN SSAGDLNGDGFDDLI GADGARLDGQGKSYVVFGKASGFD SGAGDTNGDGADDLVIGAPGASPNGAGESYVVFGNESSLDD
 AFAGDINNDGFSDIVVGALGQSNDGEGMAYVYYGRATGDN AS HDFDGDGYDDLALGSPYEDKDNAGVVYVSYGTSNGLN SGAGDVNGDGFDDVIIGAYGADPDGTGESYVVFGTDAGFD SGAGDINGDGFDDLIIGAPTADPNGSGQSYVVFGSGVGFG SGAGDVNGDGFDDLVIGAPSADPNGSGQSYVVFGTNTGFP A $A$ ADFDNSGFADLAAAAP NYNLIAGRVEFYTGDGDNTL $N N L G D D N G D G D D D L I G A P G S E D F S P G S S Y V V F G D G N D G N$ DGVGDMNGDGYDDVVVGAYRYTETYWGAAYVIYGGPTGFG DGVGDMNGDGYDDVVVGAYRYTETYWGAAYVIYGGPTGFG ELAL WKGVQSLVLGAPRYQHTGKAADFTQVSGQWRLK SGAGDDNGDGVDDLIIGATNADPNDAGETYVVFGNNEGFK SGAGDFNGDGFDDLII GAPYEKGDEPGESYVVFGTDAGFG GTAGDVNGDGYADVI'GASGYDNEDEGRAFVYHGSSTGRS SSAGDVNGDGDNDVIIGSRNA DAAQGESYVLFGSSNAFP AGGFDFSGDGLADITVG G PPGLRHQPGQC

RGQP
SGAGDVNGDGLDDLIVGTDPDGRYNTEHSYVVFGKRNGRP SNAGDVNGDGUDDLIIGAFKADSNGAGVSYLVFGSANDLN SSAGDVNGDGFDDLIURSEQNFVVFGKSTGFSSSLNLSE TLRDLDNDGRSDVVIGAPLAVVMQGLLYVFNPDPTTGG SSAGDTNGDGFDDLII GTLGADANGRGQSYVVFGRNGGFN AGAGDVNGDGYADMVLGSPEFDRSSAGQTNIFLGSATGFT A AGDFDGDSFADLAVGVPDGTTAGAGAVNIVYGSRDGLW
 SGKNGVLLVNEPYFRISCPGFSETDKQSVGRLHVYSFDTS SSAGDVNGDGFDDLI GAPFA GQSTGASYVVFGKSGNLS SNAGDVNGDGFGDLIVGVWRAAPNGQGSSYVVFGKASGGD SNAGDINGDGGADVVIGAIFGDEDFTGASYVVFGDENLGS GTAGYVNDDVYADVIVGAYEEVEVNEGQVFVYHGSSSGLS SGAGDVDNDGFGDVL:GVGDGGVDVGGGTYVIFGGSSGF SSAGDVNGDGFDDLIISAPFANSYYNSYSGVVFGRAFGLD AGLGDINGDGDPDIAIGGKSSREDYOTOTVVYGSANSLN SNAGDINGDGFDDVIIAAPFANEDYQTQTYVLLGGTD VGG
DSCQLENITTMKSCASCSPFSSDQSVGKVYGYNPPSTKLW DSCQLENDTTWKSCASCSPFSSDQSVGKVYGYNPPSTKLW A AGDVNGDGRDELI GAPHYHADG NTAGDLNGDDDDDIVVGFPSNGTENTGLAFVIFGRFSDLD SGAGDVNGDGFDDVII GAPGA DSYGSSYVIFGRSDFTG TTD DLNGDTHDDLVIGAPNAAVSGTGKVYVIFGNSGSLP STGNDVNGDGFDDVLIGAPYGNNGTGLSFVLAGQASGVL
 LDLGDINGDGYQDLVVGAPGEDLGGTGALTVLYGSASGID




SVGSPY LDD S A ATKAVTVVHLPANEQS GVVYLLNMS GULQR A V A DVS G D GFA DVI G GAPYF DQVGQ G RI I ALL F S A GA G GM


UniRef90＿B2J8Z0 UniRef90－M3H477 UniRef90－M6VJT4 UniRef90 B6B7X6 UniRef90＿UPIO0036D2B5A UniRef90－B2J063 UniRef90＿B4WT36 UniRef90－UPIO0036F7985 UniRef90－B2IZM8 UniRef90－M6GR08 UniRef90－Q4C0A5 UniRef90－B4WT86 UniRef90＿L8M1Z8 UniRef90－Q5N5L2 UniRef90－Q5N5L2
UniRef90－D8K4V9 UniRef90－S3GS41 UniRef90－M6AFR8 UniRef90－N1WKS8 UniRef90－K9XHH1 UniRef90－C3ZWC6 UniRef90＿Q3J9E3 UniRef90＿B4VJN7 UniRef90＿B2J3P8 UniRef90＿C7PFE8 UniRef90－F9SK79 UniRef90－K6H5Q4
UniRef90 B4WPK1 UniRef90＿B4WMK8 UniRef90＿M6CWL3 UniRef90－D8K4W1 UniRef90＿K9Q618
UniRef90＿M6RXV7 UniRef90－L8M3E7 UniRef90＿A3VG06 UniRef90－A3VG06 UniRef90－G7NQZ1 UniRef90－B4W1Z7 UniRef90＿B4WT87
UniRef90－X0TRV6 UniRef90－S4XNP7 UniRef90＿K9XY29 UniRef90－M6TMV1 UniRef90＿UPI0002235A4F UniRef90－F6X2X7 UniRef90－Q7NLY5 UniRef90＿L8LZZ77 UniRef90－B2J5H9 UniRef90＿L8LT97 UniRef90－L7U2E8 UniRef90＿L8LRK2 UniRef90 K2B7G0 UniRef90－D1JDX6 UniRef90＿K9X9E1 UniRef90＿F9ZJX2 UniRef90－K1RH25 UniRef90－L8LV73 UniRef90＿L8LR87 UniRef90＿F9ZJX4 UniRef90＿L8M1K3
UniRef90 F9ZJW9 UniRef90－X0V5K6 UniRef90－D8K4W0 UniRef90＿UPI00046F2B7A UniRef90＿F9ZJ82 UniRef90＿J3C6G0 UniRef90－L8M8K4 UniRef90＿UPI000383278D UniRef90＿I4IFK8 UniRef90－UPIO003782C61 UniRef90＿UPIO00464679D UniRef90－F9ZFT2 UniRef90－14G4F5 UniRef90－K9RP66 UniRef90－K9Z351 UniRef90－B4WG24 UniRef90＿F3NMC1
UniRef90＿N1WF83 UniRef90－A0A058ZJ55 UniRef90－S5VSE5 UniRef90－F4F201 UniRef90－AOM5D7 UniRef90－UPIO003871F18 UniRef90－A7TB42 UniRef90－M3ICL1 UniRef90＿L8LTP8 UniRef90＿B8LCZ9

410
420
430
440
 TTGPNTDDNNAVAYSQFGYSVAVA DFNEDNYDDLVVGAP

VSTDGFVIQGENAVDASGLSVSAAGDVNGDGDT DLVVGAP TS LNLSDLNGSNGGDNSGSSVSSAGDFNGDGFDDLII GAA PS SNGFVLNGDDDGDASGRSVSSAGDVNGDGワDDLVIGAA DESDQPVNTDPQASALDGSAIHAAGDFNNDSVPDFVVGAY ASFNGFVINGDNAGDFSGSSVSSAGDINGDGI DDDI I GAY ASSNGFVLNGIDEDDYSGSSVSGAGDINGDGFDDILIGAS TNGNDTLVGGRKGD $\quad$ GFFG LAGNDFLFGGDNNDVLAGGR EVTKTTELNGNNGFDNLGDSVSIVGDINGDGIDELAVSA GNNGFRING IAAGDNSGTSVSNAGDVNGDGVDDLLI GAN GNNGFRINGIAAGDNSGTSVSNAGDVNGDGVDDLLI GAN A $\square$ SNGFI $1 / N G E L G D R D G H S V G G V G D V N G D G V D D I I L G A P$ TDAANVVIAGVPGLGFSGSFAAAPGDINGDGLVDLII GGT LT NKNYITT GSDGLGNGPGKLISTGDINGDGYPDLII KSYEDTGKGGNVHIVTGPGKPLSTGDVNGDGDPDLMIGSP TSSNGFVINGINAYDGSGFSVSSAGDINGDGFDDLIVGAP PLTAENLDWRVNGTQDYEWFGMRVLGLHREGDPSVLVSSP GRNGFVLNGIDTT DDSGGSVNKVGDVNGDGIDDLII GAL
 S T L D L S S T L N P S S K G N D GVN G I S V
 TAPTLMGNSAATYAAGGGYSIAVA DFNEDGNDDLVAGAP AVSNGFILSGDDEFDFSGFSVSGAGDVNGDGFDDLIIGAF AASNGFVINGNDGDDGFGRSVSGAGDVNGDGDDDLII GAY TTAAATITMVMNGLNVSNYTPLSGGDVNGDGYTDLI FG AASNGFALNGIAAFDGSGWSVSGAGDVNGDGFDDLVIGAP GSNGFVLI GNQDGLGLPGADVSGAGDINGDGDDDILI GSG GNGVRMITGSTATGDADGSQLTAARDLDDDGNADIA1 GAA DVDIDNLTPDEVEGDYLGYDVSAAGDVNDDGLAADLLVGAY
 ASLNLSELNGSNGFVINGGGSVSGAGDLNGDGLDDLIIIGAR

 S R S Q GF I LKG I NA GDLAGNSVSSAGDVNGDG】DDLIVGAP TTGNATTQVTS A $\square A G \square G \square S A N A G G D L N G D G F P D L F V G G$
WRERTGGSQLSPGLRYFGQALSGGQDLTQDGLVDVAVGAQ VELSALESGNSRTGAESGESVGGAGDVNGDGLDDVIVGAP GNNGFVINGIVD DDNSGMSVGNAGDVNADGGDDLIIGAF


 R L P N AKYA G RVVAN ARFGLDVVTGA GDVNNDGY D DVMVMA P $N Q N S S G D A G G S E R E D K F G F S L A$ A GDFDGDSFADLAMVGP A RVDLA TF D GS D GLD R S GYSVVSR GDVNGD GYDDII L GAP GS N G F R L D D E EVP Y S P M T N M S I A GR D A N DL A G Q S T D F G DPF GN GSLVL AV GVP GT DGF IVVDGLDN GSDQLGYSVSGAGDVNGD GFDDLII GAP ANLNLSSSLN GSNGFTDNGSSLSSAGDVNGDGDDDLII GAT DSNGFRLDGE AKGDSSGRSV STAGDVNGDGFDDLLI GAP
 SSADWTAD SNQAN AYFGGSVVGTAGDVNGDGYDEVIVGAB GNVVLIDPSYYPDDILVSGAGDVNGDGVDDFVIGAP G N N GF Al E N ST S P LAA S Y T GVA K A G DI N N D GIN DIAI GTNGFRLNGEAER DQSGHSVSGAGDINGDGFDDVII GAP GTNGFRVEDSANPLSGY SAVSKVGDINGDGYKDIA SAGSDQIDNGLEEYDSAGRSVSNAGDLNGDGLDDLII GAP
 SSLLA SIGAGQGDTFEGNGWAVANGGDINNDKDSDLLI GAP $\square$ DAPN GVLGE WRGSRAYGGSRVVAVQDVDGD GI P D I L I G S P GTNGFEII GEADS DRFGYSVVYA GDVNDD GIDDDVII GA Y $N D V D F P G T P G D D N F T G T S V A E S F E G G G G N D R M I G R G$ S S LIA S I GAGKGDT F A GNGWAVANGGDワNNDKDSDLLI GAP TQAADLVIGGGNSAFSFMGKTLSLAGDINGD GLADDLVL GAP S L NLLDELDAN SVT ILDDT GT GQI GT G DVN G D G K K DLLLLGS P GSDGFVIN GDSD FSQF GNSVSDAGDLNND GIDDLLVVG


 A Q S GS W
KKHSYT QGG GSFDLNNFGKS IDGYSDIDSDGLIEVLVG NRRSWFT $\square$ S GDKTMMGLGASLSSGHVVNGTRKQVLLVGAP

K Q N N M TVAALFE GDRRFAGWVVDWADVNMDGDQDLLFSAP GNAAHRSIT GLDAADGQGIGLLGVKDLNLDGMADIVI． GTDPADSLNGTNGFDARGISPVGAADVNGDGKKDLLI GSAA I I DNVRA P E S D P L G F GH S VALVAAS DSD DTVATVLVGAP

| UniRef90_B2J8Z0 | GTGKSY V ${ }^{\text {a }}$ |
| :---: | :---: |
| UniRef90-M3H477 |  |
| UniRef90-M6VJT4 | LY N |
| UniRef90-U5QLR6 | F A D |
| UniRef90_B6B7X6 |  |
| UniRef90-UPI00036D2B5A | WANNG |
| UniRef90-B2J063 | F G D |
| UniRef90-B4WT36 | N A D |
| UniRef90-UPI00036F7985 | K Y D A V |
| UniRef90-B2IZM8 | G A D |
| UniRef90-M6GR08 | N A |
| UniRef90-Q4C0A5 | S A D |
| UniRef90-B4WT86 | G N D |
| UniRef90_L8M1Z8 | A DE $\square \mathrm{Y} \mathrm{V} \mathrm{V}$ F G K |
| UniRef90-Q5N5L2 | Y A D |
| UniRef90-Q5N5L2 | Y A D |
| UniRef90_D8K4V9 | SAS |
| UniRef90_S3GS41 | N NADVRVFHS |
| UniRef90-M6AFR8 |  |
| UniRef90-N1WKS8 |  |
| UniRef90-K9XHH1 | S A |
| UniRef90-C3ZWC6 |  |
| UniRef90-B4WL54 | S VD S |
| UniRef90_Q3J9E3 | Y A D |
| UniRef90-B4VJN7 | N A D |
| UniRef90-B2J3P8 | GASDGA |
| UniRef90-C7PFE8 | A E G A A F VY H G |
| UniRef90-F9SK79 | Y E D |
| UniRef90-K6H5Q4 | EFD |
| UniRef90-B4WPK1 | R A |
| UniRef90-B4WMK8 |  |
| UniRef90-M6CWL3 | WA NSLY T F H S |
| UniRef90-D8K4W1 | A A G S |
| UniRef90-K9Q618 | FANS |
| UniRef90-M6RXV7 | L D P A $\square \mathrm{F}$ LT S $\square$ P |
| UniRef90_L8M3E7 |  |
| UniRef90-A3VG06 | F NDEG |
| UniRef90_A3VG06 | F NDEG |
| UniRef90-G7NQZ1 | G QVLLLRSL |
| UniRef90-B4W1Z7 | G A D |
| UniRef90-B4WT87 | Y A D |
| UniRef90-XOTRV6 | M Y D N G |
| UniRef90-S4XNP7 | GED |
| UniRef90_K9XY29 | Q A N |
| UniRef90-M6TMV1 | S S D N $\square$ F $\square \mathrm{FH}$ S |
| UniRef90-UPI0002235A4F |  |
| UniRef90_F6X2X7 | G RVLLLRSRP |
| UniRef90_Q7NLY5 |  |
| UniRef90-L8LZZ7 | K A D |
| UniRef90-B2J5H9 | S G Q Y V LF |
| UniRef90_L8LT97 | LA N |
| UniRef90-K8LKR3 | GAGRGFIFHS |
| UniRef90-L7U2E8 | Y E DVGGV |
| UniRef90-L8LRK2 | FAS |
| UniRef90-K2B7G0 | D E G A VA V Y Y G |
| UniRef90-D1JDX6 | D E S |
| UniRef90-K9X9E1 | S A S |
| UniRef90_F9ZJX2 | G A |
| UniRef90-K1RH25 | GAD |
| UniRef90-L8LV73 | Y T A S |
| UniRef90-L8LR87 | GADQSYVIF GRP |
| UniRef90-F9ZJX4 | GSNSSYVIFGR |
| UniRef90_L8M1K3 | Y A G S |
| UniRef90-F9ZJW9 | GS G $\square$ S Y VVF GK |
| UniRef90_XOV5K6 | LEGRAYVYHG |
| UniRef90-D8K4W0 | GVPPYSSYS GR |
| UniRef90-UPI00046F2B7A |  |
| UniRef90-F9ZJ82 | R T N S |
| UniRef90_J3C6G0 |  |
| UniRef90-L8M8K4 | F T N S |
| UniRef90_UPI000383278D | T A D S |
| UniRef90-14IFK8 | F S |
| UniRef90_UPI0003782C61 | N A S R |
| UniRef90-UPI000464679D | $\square A G K A Y V L F G K$ |
| UniRef90-F9ZFT2 | GADS |
| UniRef90-14G4F5 | F A |
| UniRef90-K9RP66 |  |
| UniRef90-K9Z351 | Q A N P V |
| UniRef90-B4WG24 |  |
| UniRef90-F3NMC1 | G N G S VLLLP S |
| UniRef90-N1WF83 | NTGR\\|FVF |
| UniRef90-A0A058ZJ55 | EEGS |
| UniRef90-S5VSE5 | G G D GAVT Y |
| UniRef90_F4F201 |  |
| UniRef90-A0M5D7 |  |
| UniRef90_E2RK02 | T H D E V |
| UniRef90_UPI0003871F18 |  |
| UniRef90-A7TB42 |  |
| UniRef90-M3ICL1 |  |
| UniRef90-L8LTP8 |  |
| UniRef90-B8LCZ9 | GSNTGTVY |

1
 $\square D G K A D Q \square L E G Q P S G R F G S A \square A L D F N E D G V P D L A \square G A P$

DSADMS GWSVAGD $\square$ NNDT $\square$ D D L I I G A Y
lupas_21
lupas_14
lupas_28
jnet
conf
$\square D \square D K E A H R \square L E G Q P S G R F G S A \square A L D F N M D G V P D L A V G A P$
NRGEAFGHALAMDGNR $\quad$ VVGAP

sol0
jhmm

| UniRef90_UPI0002034FB7 |  |
| :---: | :---: |
| UniRef90_A9G423 |  |
| UniRef90_G1MU37 |  |
| UniRef90-U3KGH1 | S $V$ G S Q F LT Y K G A VYVYY F G T E G R G L A P Q P NVT $\square$ T C Q Y S Y C N |
| UniRef90_Q86AV9 |  |
| UniRef90_S4NV56 |  |
| UniRef90-UPI000464474B | WA D P NGNDKFGEVYVLFGTAMGMPASFDLSSLNG】NG |
| UniRef90_K2E216 |  |
| UniRef90_L1KVV9 |  |
| UniRef90_UPI000262D91A |  |
| UniRef90_F9ZJX1 |  |
| UniRef90_D9XL29 |  |
| UniRef90_K4R6C6 |  |
| UniRef90_B8FE89 |  |
| UniRef90_K2BQR2 |  |
| UniRef90-M7BHS6 | CNGE H N S N |
| UniRef90_H2PI25 | S VG S K Q $\square$ T Y K G A V Y VY F G S K Q G R M S S S P N $\square$ T $\square$ S C Q D $\square$ Y C N |
| UniRef90_Q11X11 |  |
| UniRef90_B5GN99 |  |
| UniRef90_A5V249 |  |
| UniRef90_K9QQR9 |  |



F GWS LLAADVDGNGNADLVVGSPYAPGGGKQR

$\square$ QSKKEQHKSVTSSLTQTTEKNDNYTEKGVYFNMQSWATK $\square G W S L L A A D V N G D S E P D L V I G S P F A P G G$ ADASSEGRAGDRFGLSVALDGDYVAVGAPGYD

```
UniRef90_UPI0002034FB7 G Q Q R G F V\A A F Y S Y F N R S N QG
UniRef90-A9G423
UniRef90-G1MU37
UniRef90-U3KGH1
UniRef90_Q86AV9
UniRef90-S4NV56
UniRef90-UPI000464474B
```



```
UniRef90-K2E216
UniRef90-L1KVV9
UniRef90-UPIO00262D91A
UniRef90 F9ZJX1
UniRef90_D9XL29
UniRef90_K4R6C6
UniRef90-B8FE89
UniRef90-K2BQR2
UniRef90-M7BHS6
UniRef90-H2PI25
UniRef90 Q11X11
UniRef90_B5GN99
UniRef90-A5V249
UniRef90 K9QQR9
S \(\square H F D N G A F A K N V R R A F A V M H Q Q S S N H V S K P T A S Y F D K S P\) GRQKGIVAAFYSGPSLSDK EKLNVEAANWTV
DAND \(\square \mathrm{DVGAAYVFY} \quad E \square P D \square G S G N G K T W V R S S G A S S S\)
lupas_21
lupas_14
lupas
conf
conf
sol5
sol0
jhmm
```



```
jhmmm
```


lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm
 VY IVYGNRSGLPREDMDDDEKADQVLEGHQPSGRFGSALA LPDVR QSVGKVYGYSPP STERWFEITTGDKEMGRMGLS LA S


 SFY STA AI
EGQGDHF GEEVV
FRDDGVAAGDSGISVS
FTKSGSTGGRYTVTAPVLKVKGTDGFNLS TNDATVHVFKGGFSATGTAGGHYTIKPPDMGSDAGGPLNL $1 L L G E E G P E P D D T D F G A S E D D S D G M G R A V A$
$F T I D T G A F P R Y Y E E G D W S T Y K N L N A K V I ~$

 SNGF DF NGSGI GEVVK



UniRef90_UPI0002034FB7 UniRef90-A9G423 UniRef90_G1MU37 UniRef90_U3KGH1 UniRef90_Q86AV9 UniRef90-S4NV56 UniRef90_UPI000464474B
UniRef90-K2E216
UniRef90_L1KVV9 UniRef90-UPI000262D91A
UniRef90 F9ZJX1
UniRef90-D9XL29
UniRef90-K4R6C6
UniRef90-B8FE89
UniRef90-K2BQR2
UniRef90-M7BHS6
UniRef90-H2PI25
UniRef90 Q11X11 UniRef90-B5GN99 UniRef90_A5V249 UniRef90-K9QQR9 T T SGA QKDPA GVISDDGDVDGDGYGDIVIGNSWDPGTDTP MANDRQLKPGVITAIGDIDQDGFGDDVSGAYWNGDGTADP TGTLDLNDDGADLIVGDLNNDQMADLILAAPGADGPSDAR NGTVVDQAFGSAMGAGDFNGDGVDDLVVGSGYYTNRTDPK


 TGA SGGGADADSDGNR LVIGAPGSN
lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm

c c c


$>$
B B B B B B B B B $\quad$ B B B B B


[^0]UniRef90_UPI0002034FB7
UniRef90-A9G423
UniRef90-G1MU37
UniRef90_U3KGH1
UniRef90_Q86AV9
UniRef90-S4NV56
UniRef90 UPI000464474B
UniRef90- K2E216
UniRef90-L1KVVg
UniRef90-UPI000262D91A
UniRef90 F9ZJX1
UniRef90-D9XL29
UniRef90-K4R6C6
UniRef90 B8FE89
UniRef90-K2BQR2
UniRef90-M7BHS6
UniRef90-H2PI25
UniRef90 Q11X11
UniRef90-B5GN99
UniRef90_A5V249
UniRef90-K9QQR9
 HSIGSPTWKNCDSNSRCNPSSSDVRQGKVYGY KPPS TTV
LRVADCNADSNADLILGSPHGGGTQRGTVQПFYSSKKRTS LI A ADVNGDGYGDLAVGTDHETVGTAGSVTVLRGSAAGLF LI GDFNNDGDNDFIMGVPYWVSSQRGG YIVYGNPGGIN THLLYDVTNDGRADLLVGAYQNNGSRHGKLFI YKNSNGDFE
 SGDGD $\quad$ NGDGFDDVLVGAPSRSEYREGYVVVVYGSTAGFS S LGD NGDGHDDLVIGAPGEDLKKDAGMVSVI YGWNGGLS


$A A D G D \square N G D E D D D C$
$T V G D V D G D G Y G D I V$
TVGDVDGDGYGD VVAPGEGVGK $\quad$ RQAGAFVSFRSVIFGSK AL NDGW LAVSAPLHSSPGSGAVYLFEFDGVSWV
lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm


UniRef90＿UPI0002034FB7
UniRef90－A9G423
UniRef90－G1MU37
UniRef90＿U3KGH1
UniRef90＿Q86AV9
UniRef90－S4NV56
UniRef90 UPI000464474B
UniRef90－K2E216
UniRef90＿L1KVV9
UniRef90－UPI000262D91A
UniRef90 F9ZJX1
UniRef90－D9XL29
UniRef90－K4R6C6
UniRef90 B8FE89
UniRef90－K2BQR2
UniRef90－M7BHS6
UniRef90－H2PI25
UniRef90 Q11X11
UniRef90＿B5GN99
UniRef90＿A5V249
UniRef90－K9QQR9

GSPKHRTQTGSANGDQFGFALA $⿴ 囗 十 ⺝ ⿱ ⿴ 囗 十 ⺝ 丶 V D D D D E D E V V G S P$ TKHWFTDTGNKAMGRMGLSLASGVMSVAGDTRTVLVVGAP
 TQNTAGVPGTAESADRFGASVR LSDDDTGDGKADLSVGSD
 ATGSQWVVGALTSDDALGGTVRRGRDTNRDGKADLYITAAN TQNTTGVPGTSENEDFFGSAI A AGDVNGDGYADLAVGAR PDTGFVIKGEFPD $\mathrm{D}^{2} \mathrm{RHSGVSVSVVGDINGDGYDDMVIAAA}$ ETGTQSLHGGNETVDGFGGEVLGLSDVTGGDGKADLTVGLDP

 TQSWFSVT GDMERGKLGSSDARGFLSVAGDPREVLVVGVP
SAFPAVDDNE $\square A D N P A V G F T A A G D G D \square N Q D G V N D F D V S A Y$


```
lupas_21
lupas_14
lupas_28
jnet
jnet
sol25
sol5
sol0
jhmm
```

TTD UniRef90_U3KGH1 UniRef90-Q86AV9 N UniRef90-S4NV56 UniRef90_UPIOO0464474B UniRef90-K2E216 UniRef90_L1KVV9 UniRef90-UPI000262D91A UniRef90-F9ZJX1 UniRef90_D9XL29
UniRef90_K4R6C6
UniRef90-B8FE89 UniRef90-K2BQR2 UniRef90-M7BHS6
UniRef90-H2PI25
UniRef90 Q11X11
UniRef90-B5GN99
UniRef90-A5V249
UniRef90_K9QQR9

GENSGAVYS $\square$ R
A VS K VY T Y YGS VLLRG GEDTVSVLLGR L S G WENEA

Y A D GS Y N NRS
TSDS
N N E N WVVY G S K GENSVWVF GSASGAVY



[^0]:    lupas_21
    lupas_14
    lupas_28
    jnet conf sol25 sol5 sol0
    jhmm
    

