ouear
UniRef90_UPIO00383663E UniRef90_S4RR74 UniRef90_V9KSY7 UniRef90 H3B0N2 UniRef90_UPIO004444C36 UniRef90_S4RIK2 UniRef90_H2RR54 UniRef90_V9KNR9 UniRef90_V8P8F7 UniRef90 G1S0D1 UniRef90_-_1PK81
UniRef90_E9GJH0 UniRef90_UPIO0038358DC UniRef90 H2L8B0 UniRef90-UPI0003C0FE25 UniRef90_V9KY00 UniRef90_G3PSE6 UniRef90 M4AC29 UniRef90_G6D963 UniRef90_L9KHL5 UniRef90_UPIO00273C170 UniRef90_F1Q9D8 UniRef90 T1DR15 UniRef90_F9XHA0 UniRef90 E9QF57 UniRef90_UPI0003C45CD6 UniRef90_B6JWC6 UniRef90_UPI000440C26E UniRef90 UPI0002061362 UniRef90_UPI00032A1372 UniRef90_G1KLY9 UniRef90_H3CPJ2 UniRef90 ${ }^{-}$C0H8Z4 UniRef90_UPI0001DE7176 UniRef90 Q6CCM8 UniRef90 UPI0000D5563C UniRef90_W3X7T0 UniRef90_F6VR03 UniRef90_UPI0002A4CB5C UniRef90 R R UEP5 UniRef90_UPIO004412A65 UniRef90_F4RED9 UniRef90 UPI0001CBAB37 UniRef90_W4ZBF8 UniRef90_F0XSS3 UniRef90_A8N5C3 UniRef90_G3NSV 1 UniRef90 F7ENL6 UniRef90_B0D143
UniRef90 F9WX65 UniRef90_C7YR88 UniRef90-E0VZ19 UniRef90-UPIO00441802E UniRef90-H3D4Q6 UniRef90_V2X493 UniRef90_M7SHD8 UniRef90_H2UCL4 UniRef90_S8A3M3 UniRef90 M7BLA0 UniRef90_W1QD16 UniRef90_S2JSV UniRef90_J9VGI9
,
10 K 20
30
40
RAQEKVLQKLGKADETKDEQFEEYVQNFKRQEAEGTRLQR RAQEKVLQKLGKADETKDEQFEQCVQNFKRQEFEGSRLQR
 QVLQKLGKADETKDEHFEQCVQNFNKQLTEGSKLQK RA QEKVLQQKLGKADETKDEQFEQVVDNFKRQESEGARRLQR
 RAQEKVLQKLGKADETKDEQFEQVV DNFRRQESEGSRRLQR RAQEKVLQKLGKADETRDEQFETFVQNFKKQETEGSRLQR RAQEKVLQKLGKADETKDEQFEQCVQNFNKQLTEGTRRQK RAKEKILQNLGKVDRTADEDFDDHLNNFNRQQQNANRLQK RAKEKILQQKVGKVDRTADE』FDDHVQNFNKQQNAANKLQK RAQEKVMQKLGKADETKDTAFEEQVANFNKQMNEGTKLQK RAQEKVLQKLGKADETRDAAFEEMVANFNKQMTEGTKLQK RAQEKVLQKLGKTAETKDEQFEKCAQNFYQQQSEGTTRHK RA QEMVVGKI GKTVETKDEQFEQCANNFTKQQNDSSRLHK RAQEKVMQKLGKADETRDAAFEEMVANFNKQMTEGGKLQK RGKEKVMQRLGKSMETRDDQFERSLQVFNDQQTDGNRIYK RAKEKLLQNLGKVDRTLDD DFEEHLQNFNRQHQQATRLQK
 RAQEK LQQKLGK AETKDEHFEQAAQNFYQQQTEGQKLHK EETKDEHFEQCVMNLHMQQSDGYRIYK
 RA QEKVMQKLGKADETKDLAFEEGVIDFNKQLVEGTKLQK RA GTVLQKLGKADETKDEQFEQCVQNFNKQLTEGSKLQK RA QESVMMKTGHVERTVDRQFETEERRFRSMETAAKKLQK
 K RA QEKVLQQKLGKADETRDVVFEEMVANFNKQMGE GTKGQQ R A Q E K V L Q K L G K T V E T K D E Q F E Q Y A Y N F Q Q Q Q L E G H K L Y K RGKEKV RA QEKVLLQKLGRTTLETKDEMFEQCAYLDNQQQNEGNRRLY RAGTSVMMKTGHVEKTVDREFETEERRYRTMETASTKLNK RAKEKILLQNLGKVDRTADE\|FDEHLQNFTRQQNAANRI QK RAP QQFKAKFNLGEQTKDPVYDDAERRFKELETETKRLHD $V L Q K L G K A D E T K D E Q F E Q C V Q N F N K Q L D M G G G A E Q$ RA QEKVLQKLGKADETRDAAFEEMVANFNKQMTEGTKLQK RTKEKVFQSIGKSDKTKDEVFDEHVNNLAKQSATAAKLQK RA GTT LMQKTGQDERTVDREFADEEAKYK DFEKETNALQQK RAGTTLMQKTGQVERTNDREFQEHEAKFKTMEKNA DALQK RAKERMLRSLGKADETKDQDFDEYVQNFNKQQAAAGKLQR
 RAPQQFKAKFNDGEHTKDSIVQDAERRFDEVEKETKKLHD RAGTTHLQKTGQIERT IDDRET TEEEEKYRVFEKECQALQK RAQEKVLQKLGKADETKDVAFEEGVINFNKQYAEGSKLQR $V L Q K L G K A D E T K D E Q F E Q C V Q N F N K Q L T E G S K L L D$
RAGTTMLQKT

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

 RAGTTLLUQKTGQIERTVVREFTEEEVKFKTFEKECAALQK RAP QQFKAKFNDGEQSKDPDFSDSERRFQELETETKRLLHD RA Q EKVLQK LGGKADETKDAAFEEGVINFNKQYAEGSKLQR RATT QVMMKAGQ $\quad$ GDRTNDREYEVEERRFRVMEAAANNLQK GQKLYK
RAGASVTVRA ADKDIDRDYDMEERRFKTWEKA GTQLAK $R A G Q S I K Q R T G G N D R T V D G E F E E E Y E R F K N L E K K S E K L A K$ RAGTSIMMQKTGQ QERTIDREFAEEEGRYKTMEKETLLNLQK RA QEKVLQK LGKADETKDELFEESVVNFNKQLTEGTKLQK RAGNSVIIDK NVDKT IDDKEYD DEERRYKVLQKAGESSQQK



 RTPHLLTTKVGMSKKSIDPEFEDYARRFAS DETATEKLLK RVQEKMMQKLGKSDQTRDEVFEEFVNNFHKQNASADKLQK RAGTT LMQKTGQVDKTEDREFQDEVNKFKDMEKNTLALQQK RAGTTLLQKTGQIERTDDREFTDEEVKYKTYEKECQALHK RAGASVTVK GVDKVMDKDFDTEERRFKTGKTAGLALQK

TEEEKG VVVDQVSRRYRTMEAASLRLQQK
RAGTTVLQKTGQIERTVDRDFADEEAKYKT LEEKCQALQK RASAGVTVVK SVVKTIDKDFDVQERRYQTLKAAGTNLQK RAKEKLLQSLGKSDKTTDEDFDEYVNNFKKQEANANKLHK RGKEKV MQRLGKSMETRDDLFEYCLQNFSDQQTDGNRIYK RGKEKVMQRLGKSMETRDDLLFEYCLQNFSDQQTDGNRIYK RAQEKVLQKLGKADETRDSAFEELVANFNKQMTEGSKVQR $R A G T T L E Q K T G Q V E R T D D R E F A D E E A K Y R D F E K E T Q A L Q K$
 RAPQSI KQRFNVGEQTSDVVYA DAERRFKDLLTETQKLGT RAGAQVMLKTGHIEETVDKDYEFEEKRFKYMESTSTKLQK RTP Q T L R SKF NVGE DT K D P DYE DA GR RFK S LEETEA K K L A E RAGTTMMQKVGQDEKTNDSEWSELEARRFKVYEKESTALQK RTPHLVTTKVGMSKKSTDPEFDDYQRNFALLETAVEKFLDK RAPQTFRSKFNDGEQTKDPVYEDAGRRFKSLETEAKKLSD

## QUERY

UniRef90_UPI000383663E UniRef90-S4RR74 UniRef90_V9KSY7 UniRef90_H3B0N2 UniRef90-UPION04444C36 UniRef90-S4RIK2 UniRef90-H2RR54 UniRef90_V9KNR9 UniRef90-V8P8F7 UniRef90-T1PK81 UniRef90-E9GJH0 UniRef90_UPI00038358DC UniRef90_H2L8B0 UniRef90-UPIO003C0FE25 UniRef90_V9KY00 UniRef90_G3PSE6 UniRef90_M4AC29 UniRef90-G6D963 UniRef90-L9KHL5 UniRef90_UPI000273C170 UniRef90_F1Q9D8 UniRef90-T1DR15
UniRef90 F9XHAO UniRef90-F9XHAO
UniRef90-E9QF57 UniRef90_UPI0003C45CD6 UniRef90_B6JWC6 UniRef90_UPIO00440C26E UniRef90 UPI0002061362 UniRef90_UPI00032A1372 UniRef90-G1KLY9 UniRef90-H3CPJ2 UniRef90 COH8Z4 UniRef90_UPI0001DE7176 UniRef90 Q6CCM8 UniRef90_UPI0000D5563C UniRef90-W3X7T0 UniRef90-F6VR03 UniRef90_UPI0002A4CB5C UniRef90 R7UEP5 UniRef90-UPI0004412A65 UniRef90-F4RED9 UniRef90_UPI0001CBAB37 UniRef90-W4ZBF8 UniRef90-FOXSS3 UniRef90_A8N5C3 UniRef90_G3NSV1 UniRef90_F7ENL6 UniRef90-F9WX65 UniRef90_C7YR88 UniRef90-EOVZ19 UniRef90_UPI000441802E UniRef90-H3D4Q6 UniRef90_V2X493 UniRef90_M7SHD8 UniRef90_H2UCL4 UniRef90-S8A3M3 UniRef90_M7BLA0 UniRef90_W1QD16 UniRef90_S2JSV8
UniRef90 99 VGI9 UniRef90_UPI0003EACF25 UniRef90-S6ESV9 UniRef90_UPI000444A25D UniRef90_X8JJD6 UniRef90_11CQU9 UniRef90-M5BSQ5 UniRef90-M7P4D7 UniRef90-S8F3B6 UniRef90_Q8WQ54
UniRef90_G7DS92 UniRef90-K5UWJ3 UniRef90_C5MFW0 UniRef90-G2YH18 UniRef90-J4GNB9 UniRef90-A5DLZ9 UniRef90_T1IVT4 UniRef90-UPIO003EC1757 UniRef90_UPIO003EC1757 UniRef90-UPI000443B7A7 UniRef90-D8QB98 UniRef90-S7S5HO UniRef90-Q754D0 UniRef90-B5RUP6 UniRef90_O74352
UniRef90_। 14 YE17 UniRef90-W4KRG2 UniRef90_S9PTY0

E LTRGY TAATKGMQEASMK TTES LTHEVYEP
WY GREDVKMV
 DLRTYLTAVKAMHEATKKLSEVLEEI YEPEWDGRGDVAS I DLRNYLNSVKAMHEASKKLSECLQEIYEPDWQGREDTTAV
 EMKAYMIAAIKGMQQA E L R GY LAA A V K GMQEA
 EF N N Y I R CI R A A Q I A

 DLK A Y MVAV K TMHEA DLK A F L N A V K VMHETSKRLSETMQEVY
 ELRN $\operatorname{L}$ N D A I R DMREASRRRLSQS L F D

 E A K G Y L D S L R A M T A



 DVK A Y H A A V R A M H E M S K R L S Q T L R DV Y D L K $\square$ Y L S S V K G M R E A S K H L S Q S L Y G V Y


 D MGGGSIISGAAMHEASKKLTECLLDDVYEPDWPGREETNKM

$$
E V K \text { Q Y } V C \text { V } V \text { K A M S A A S K S F Y E T L R D V Y E E D W E G Y N Q L N D L }
$$

H A K Q Y M D S T R A ll IA S Q T R L L Q I I E K I Y G D NA F S N E Y K K A L

$$
\begin{aligned}
& \text { H A K Q Y M D S T R A } \\
& \text { D A K } \\
& \hline
\end{aligned}
$$

EA K N Y Lid S L R S M S A S Q L R I V E A M D E F Y T D T Y H K K H Y R Q A A

$$
\text { DTK A Y N E A V S N LF T H GA GFA H SFA N VF H P K H P D S A H T } \square R N
$$

DSKA F D AMRAMTSAQARLAADT DVFYGA A DK S S E GA MA
S S K G Y L D S I R Q IT N S QVT IA E VV S NL Y E E S K Q G A Q Y L Q CV
E S K G Y L D S L R A M T A S Q M R I A E T I D A F Y G D D G V S R S Y K Q A V
D L K A Y L A A V K A M H EA S R R L Q D C L A D M Y E P D WF G K E E L D A L
E A K R Y F A A V N G ML Q H Q I S FA Q A M E E I F K P I S G V M S D G I E A

## QUERY <br> UniRef90_UPI000383663E UniRef90_S4RR74

 UniRef90-H3B0N2 UniRef90-UPIO004444C36 UniRef90_S4RIK2 UniRef90_H2RR54 UniRef90_V9KNR9 UniRef90_V8P8F7 UniRef90_G1S0D1 UniRef90_T1PK81UniRef90_E9GJH0 UniRef90_UPI00038358DC UniRef90_H2L8B0 UniRef90_UPI0003C0FE25 UniRef90_V9KY00 UniRef90_G3PSE6 UniRef90_M4AC29 UniRef90_G6D963 UniRef90_L9KHL5 UniRef90_UPI000273C170 UniRef90_F1Q9D8 UniRef90-T1DR15
UniRef90-F9XHA0 UniRef90-F9XHA0
UniRef90 E9QF57 UniRef90_UPI0003C45CD6 UniRef90_B6JWC6 UniRef90_UPI000440C26E UniRef90 UPI0002061362 UniRef90_UPI00032A1372 UniRef90_G1KLY9 UniRef90-H3CPJ2 UniRef90- C 0 H 8 Z 4 UniRef90_UPI0001DE7176 UniRef90 Q6CCM8 UniRef90_UPI0000D5563C UniRef90_W3X7T0 UniRef90_F6VR03 UniRef90 UPI0002A4CB5 UniRef90 R7UEP5 UniRef90_UPI0004412A65 UniRef90_F4RED9 UniRef90 UPI0001CBAB37 UniRef90_W4ZBF8 UniRef90_FOXSS3 UniRef90_A8N5C3 UniRef90_G3NSV1 UniRef90_F7ENL6
UniRef90-B0D143 UniRef90 F9WX65 UniRef90_C7YR88 UniRef90-E0VZ19 UniRef90_UPI000441802E UniRef90-H3D4Q6 UniRef90_V2X493 UniRef90_M7SHD8 UniRef90_H2UCL4 UniRef90_S8A3M3 UniRef90-W1QD16 UniRef90_S2JSV8 UniRef90_J9VGI9 UniRef90_UPI0003EACF25 UniRef90- S6ESV9 UniRef90_UPI000444A25D UniRef90_X8JJD6 UniRef90_I1CQU9 UniRef90-M5BSQ5
UniRef90-M7P4D7 UniRef90_S8F3B6 UniRef90_Q8WQ54 UniRef90_G7DS92
UniRef90_K5UWJ3 UniRef90_C5MFW0 UniRef90_G2YH18 UniRef90_J4GNB9 UniRef90_-T1IVT4 UniRef90_UPI0003EC1757 UniRef90_UPI0003EC1757 UniRef90_UPI000443B7A7 UniRef90_D8QB98 UniRef90_S7S5H0 UniRef90_Q754D0 UniRef90_B5RUP6 UniRef90_O74352
UniRef90 I4YE17 UniRef90_W4KRG2 UniRef90_S9PTY0

## 

$\frac{\square}{\text { V }}$

## ェ

R
 GKNCDALWE DFHQKLVDSTI NTLETYGTQFPDLKVRVAKR A ERNNELWWEDFHQKLVDDLALLTLDTY L GQFPDIMKTRI A KR AENCDDLWT DYH QK L V D Q A L L T L D T Y

 GK DCD A L W E D F HN K L V D S T L L N L D A Y L Q N F P D L K G RVV K R GTHSDSLWADFHQKVVDQSLLTLDTYLGQFPDIKTRIAKR

 VQSAESLWQDFSHKLADQVLI PLNTYTGQFPEMKKKVEKR S Q N $\square E M L W Q D L G H K M T D Q V L I P D N T Y Q G Q F P E M R K K I I E K R$
 AE D LD TL WLE Y H Q N I T D Q S L L C VD TYY LA QFPEI K A RI A K R VTNNDLLWTDYE EKFADQTVRTMDTYMSHFPEIKDRIAKR
 VEGEDLLWNDHEVKMLDDQAVRTMESYVGQFPDIREKI AKR A Q NMEMLWQDFSHKLGDQVLIPLNTYTNQFPEVRKKI EKR AENNDLLWMDYHQKLVDQALLTMDTY LGQFPDIKSRI AKR AANNNLLWEDYEEKLADQVVRTMENYIGQFSEVKERISKR VEGEDLLWKDYESKLHDQALDTMESYMSQFPDVRDRVAKR TK S I D T


 AEEMDVLWTDFHQKLVDSAVVIMDNYMAQFPDIKARI AKR S N NLDMLWSDYTHKLADQVLIP LDTYQAQFAETRKKI DKR

 V E GE D DL WN DYE A NL DD K ALL CTMESY DS QFPDPQERVVAKR



 D DLD T SFSRE LEAPYRTT I SEPLGKMCAYFPVVNEHI SKR



$$
\frac{\mathrm{H}}{\mathrm{~V}}
$$


 E E L D V $\operatorname{V}$ E T I I K A L LD G P Y R T T V L QEYD QETVVK QLD GPFRETVLDPDINKFASYFSEVVEAAIKKR EKLDEEEARSNLDAAYRATVLE PLGGRFCSYFPEVVNEAIMRR D E LD A GVGRELDAPFRATVLDPI GK LNSYYYTNI DAAAVKR


 V T A Y Q A D M E E L

A E



SQTVVEMLWSDFNHKLSDQVLDPLNNYQNQFAEVRKRVDKR
V E GE D L L WN D Y E V K L L D Q A V RTMME S Y V S S Q F P D V R R D K I A K R
V E GE DL L WN D Y E V K L L D Q A V RTME S Y V S Q F P DVVR D K I A K R
VE EMDTLWWLDYH QNLTTDKSLLGLDTYLA QFPEI KARVAKR





QUERY ..... UniRef90_UPIO00383663E
UniRef90-S4RR74 UniRef90_V9KSY7 UniRef90 H3BON2 UniRef90-UPIOOO4444C36 UniRef90-S4RIK2 UniRef90-H2RR54 UniRef90-V9KNR9 UniRef90-V8P8F7 UniRef90-G1SOD1 1 UniRef90_T1PK81 UniRef90-E9GJHO UniRef90_UPI00038358DC UniRef90-H2L8B0 UniRef90-UPIIOOO3C0FE25 UniRef90-V9KY00 UniRef90-G3PSE6 UniRet90_M4AC29 UniRef90-G6D963 UniRef90-UPI000273C170 UniRef90-F1Q9D8 UniRef90_T1DR15 UniRef90-F9XHAO UniRef90-E9QF57 UniRef90-UPI0003C45CD6 UniRef90-B6JWC6 UniRet90_UPIOO0440C26E UniRet90_UP10002061362 UniRef90-UPIoo032A1372 UniRef90-G1KLY9 UniRef90-H3CPJ2 UniRef90-COH8Z4 UniRef90_UPIOOO1DE7176 UniRef90_O6CCM8 UniRet90_UPIOOOOD5563C UniRef90 W3X7TO UniRef90-F6VR03 UniRef90_UP10002A4CB5C UniRef90-R7UEP5 UniRef90-UPIOOO4412A65 UniRet90-F4RED9 UniRef90_UPIO001CBAB37 UniRef90 W4ZBF8
UniRef90 FOXSS3 UniRef90-A8N5C3 UniRet90-G3NSV1 UniRef90-F7ENL6 UniRef90 F9WX65 UniRef90_C7YR88 UniRef90-EOVZ19 UniRef90-UPIO00441802E UniRef90-H3D4Q6 UniRef90-V2X493 UniRef90 M7SHD8 UniRef90-H2UCL4
UniRef90 S8A3M3 UniRef90_M7BLAO UniRet90 W1QD16 UniRef90_S2JSV8
UniRef90 JgVG19 UniRef90-UPI0003EACF25 UniRef90-S6ESV9 UniRef90-UPIIO00444A25D UniRef90-_x8JJD6 UniRef90_11CQU9 UniRef90-M5BSQ5
UniRef90 M7P4D7 UniRef90-S8F3B6 UniRef90-Q8WQ54 UniRef90-G7DS92 UniRef90_C5MFW0 UniRef90-G2YH18
UniRef90 J4GNB9 UniRef90-A5DLZ9 UniRef90_T1IVT4 UniRef90-UPIO003EC1757 UniRef90-UPIOOO3EC1757 UniRef90-D8QB98 UniRef90-S785H0 UniRef90-Q754D0 UniRef90-B5RUP6 UniRef90-O74352 UniRef90 $14 \mathrm{YE17}$
UniRef90
W4KRG2 UniRef90_S9PTY0 UniRef90_13KWK8

SRKTVYDSARHHDEADOSSKRKDESRTSKAEEFFOKAOK 160
SRKLVDYDSARHHLEALQSSKRKDESRTSKAEEEFQKAQK
SRKLI DYDSARHHLETLQTSTMRNEKRIAKAEEDLKKAQR
 GRKLVDYDSARHHYESLLQGAKKKDETKIAKQKEPLKKKRN SRKLIDYDSARHQLESLQVAGMKNDRKVMKAEDELKKAQK
 SRKLVDYDCARHHLESLQHSRRRDDSKLTKAEEEFQKAQK
 NRKLIDYDSQRHSFQSLQANKRKDDVKLTKGREQLEEARR GRKLVDYDGQRHSFQALQSSKKREEVKIGRAKEQLEEAKR ERKLVDFDSARHHFASVQKGKKKDEAKIAQAEEDLGRAQK GRKLVDYDSARHHLEALQSAKKKDEAK AKAEEEFNKAQA
 GRKRVDYDSSLHTLESLQTAKKRDDTKISKAKEEMLAAKN GRKLVDYDSQRHSFQNLQAAKRRDDVKVHKSREQLEEAKR GRKLVDYDSARHHFESLQTAKKKDEAKIAKAEEELIKAQK NRKLVDYDSARHQLTGLQNAKKRDDTKIGKAEDEMNAAKV GRKLVDYDSQRHSFQSLQAAKRKDDIKVTKGREQLEEAKS NHKMLDYDSMRSKVKKLVEKPDKDPGKLPRTEKETEMAKA GRKLVDYDSARHMFESLNKAKKKEGVK TKXASGLERAAP NHKLLDHDAMRSKVQKLDDKPSSDPSKLPRAEKDATMARE ERKLVDFDSARHHFASIQKSKKKDEAKIAQAEEDLGRAQK NRKLVDYDSQRHSNQAGGAGKKKDEAKMMKAKEQFDEVKR DRKLVDFDSARHHFTSLQKGKKKDEAKDAKPAALDEMAAP XRKVVDYRYQQASRRALQNAKKKPASLLTKAEEDFYKAQA GRKLVDYDSARHHLEALQSAKKKDEAKITKAEEEFNRAQN GRKMVDYDSARHHLEAMQNAKKKDDVK AKAAEEVNRTQUI NHKLMDYDALRHKTKKLDEKPSNDAARLPQAEKEEQMAKE GRKLVDFDSQRHSFQALQNMKKRDDAKIAKGREQLEEAKR DHKQLDYDRHRATLKKLQDKKEKDEKAMWKAEGEVENATQ GRKLVDYDSARHHFESLQNAKKKDETKUAKVRNSLGKTTR GRKLVDYDSARHALMSLQNSKKQDQTKVYKAQEDMNEAKR NKKLLDYDSARSKVRKLDDKPSEDVTKLPKAQQEHDDAKE GRKLVDYDSARHAVNACQSTKKKDEAKTMKAQESFTEAKK GRKLI DYDSARHNLEA SKKKDDQKYDKTQEAYNEARK EHKKLDYDRHRLDAKKDQDKKEKDEKA YKAESDLEQSAQ NKKLLDYDSARSKLKKLIDKPSEDPTKKPRAQQENDEAKE GRKLVDYDSARHHFESLQNAKKKDETKKAKPVSLLEKAAP NKKLLDYDSARSKLRKLDDKPSEDPTKLPKAQQEHDDAKE DHKQLDYDRHNATLKTLQDKKDKDEKALYRAENNVEQATQ EHKRLDYDRHRTALKKLQDKKEKDEKAMWKAEGDVEQATQ GRKLVDYDSQRHNFQSLQSNPKKDDVKVQKAKESLEEAKR DHKKKDYEAAKAKVRRLVDKPAKDSTKLPRAEKELTLAKD NKKMLDYDAARSKMRKLIEKPSEDPTKLPKAQQEHDDAKE GRKLVDYDSSRHHLEALQTAKKRDDVK RKAEEEMNAAKC NKKLLDYDAARSRLRKLVDKPSDDPTKLPKAQQENDESKE EHKKLDFDRHNAKLREKKEKSAKDEKAMWKAENDVEQSTQ DRKLVDYDSARHNYATHKSKKKDGGDKПTKAEEELERAQK NNKLIDYDAMRSKVKKLVEKPDNDPTKLPRAEKEASMAKE AHKKVDYEQAKSKVRRLIDKPAKDATKLPRAEREDQLAKD QKKLLDYDSSRAKVRKLVDKPSEDPQRLPRAEQEANLARE SHKMSDYDAARAKVRKLVEKPSDDSTKLPRAQSEHDEARD EHKKQDYDAAKAKTRRLVDKPAKDASKLPRAEKELNLAKD NKKADDFDAARSKDRKLTEKPSDDPTKFPRAQQEHDEAKD NKKMLDYDAARSKVRRLVDKPSEDATK RRAQAEDDEAKE NKKLLDYDQSRSKVRKLIDKPSEDPSRLPRAEQEANMARE DHKLLDYDRHNNALTKLREKKEKDEKTLFKFEQDFEMAVN NHKLVDYDAVRAKVKRLTDKPSDDDRKLPAEKEAAQAKE EHKLVDYDRYNNSLTKLRDKKEKDEKNLFKLEQDFEIASN ERKMVDYDLRRRELEHAKSKAKVNDQKVQQAEDTHTQAKQ NKKLLDHDSTRTNVRKLQDKPPTDGSKLPMAEKAAADAKD NKKLLDYDAARSRLNKIIAKPSEDPTKLPKAQQEHDDAKE DHKKTDYEQCKSKVRRLIDKPAKDAAKLPRSEKEDADAKE NHKLLDYDAMRAKVKKLVEKPDKDVTKLPRAEKETEMAKA NKKLLDYDSARSRMNKLIQKPSDDPTKLPKAQQEHDDAKE AHKKVDYDMCKAKVRKVIDKPSKDAAKLPRTEKELQVAKE GRKLTDYDSCRHAYQSLSNTKKRDEAKI AKAKEQLDDARR GRKLVDYDSSLHQLEALQTAKKRDDVKISKAKEEMNTAKVV GRKLVDYDSSLHQLEALQTAKKRDDVKISKAKEEMNTAKV GKKMIDYDAARARLRKLDDKPSEDPQRLPRAQAENDETKE EHKLVDYDRYNNSLTKLRDKKEKDEKNLFKDEQDFENASN NHKKLDLDRRHRKYESKRERSPKDDEKLYKAEAELQVARQ NHKKLDYDAMKNKVRKLOEKYGEDESKKSQNQSQLIQLES HKKLLDYDAARTKVRKLTEKPSNDASALPRAQQEMDMCEQ DHKLVDYDRFNNSLDKLRDKKEKDEKNLFKLEQDFEVASN


|  | A ${ }^{\text {a }}{ }^{210}$ KMTK ${ }^{220}$ |
| :---: | :---: |
|  |  |
| UniRef90_UPI000383663E | EISFLCHKLYEVMNKLAEQH |
| UniRef90-S4RR74 | El GLL NHELYEVMVKL GEQHA |
| UniRef90_V9KSY7 | EMGKL NQNLNGVMLQLEHQHS |
| UniRef90-H3B0N2 | EMTKLNQNLHEVMVKLDKDHA |
| UniRef90-UPI0004444C36 | ElSLLVCRELYEVMTKL GEQHS |
| UniRef90-S4RIK2 | E I GQL NHELLDVMVKLEDQHS |
| UniRef90-H2RR54 | EI SLLLQENLYEVMTQLAEQHS |
| UniRef90-V9KNR9 | E I AVL CHKLYEI MSKL GEQHA |
| UniRef90-V8P8F7 | EMGKL NQNLNDVLVTLEKEHA |
| UniRef90-G1S0D1 | EMSKLNQNLNDVLVSLEKQH |
| UniRef90-T1PK81 | ETAKI Y S ELEAI V DKL |
| UniRef90-E9GJH0 | ELS K V H GELESI I D KLA K E S |
| UniRef90-UPI00038358DC | D M G K N Q L S DI M K KL |
| UniRef90_H2L8B0 | EMGNLT Q NLHDI MTKL |
| UniRef90_UPI0003C0FE25 | EMSKLNHDLYNLMTKVEKQHS |
| UniRef90-V9KY00 | EMSKLNQDMYVLMTKQEKEHS |
| UniRef90-G3PSE6 | EMSKLSQNLNDIMTKL |
| UniRef90-M4AC29 |  |
| UniRef90-G6D963 | ESSKVFAELEAI T DKL |
| UniRef90-L9KHL5 | EMSKLNQNLNDVLVNL |
| UniRef90-UPI000273C170 | EMSKLNHDLYEVMSKLEKQYS |
| UniRef90-F1Q9D8 | E IT K N D VLQ TVMKELSAQHP |
| UniRef90-T1DR15 | ETSKVYAELEAIVVDKLATE |
| UniRef90-F9XHA0 | EAYSRMAQVQQYL |
| UniRef90-E9QF57 | EMGK\NQNLYDTLDKLENQ |
| UniRef90-UPI0003C45CD6 | EMSKLNQTLNDVLANLEKQ |
| UniRef90-B6JWC6 | EGYEKMAQVQQYFSTVRDDY |
| UniRef90-UPI000440C26E | DMGKLNLNLVD\MTKLEEQ |
| UniRef90-UPI0002061362 | ESSKVFSEMESIVDKLATD |
| UniRef90-UPI00032A1372 | EMSKLSENLNDIM |
| UniRef90_G1KLY9 | EMSKLNHDLYDVMSKLEKQHS |
| UniRef90-H3CPJ2 | EMSALNHELYNLMKKVETQHS |
| UniRef90-COH8Z4 | El IT F NGDLQNVMKGLKDQYP |
| UniRef90_UPI0001DE7176 | EMSKLNHELYDVMSKLEKQHS |
| UniRef90-Q6CCM8 | ES Y T RLA QVQQYL |
| UniRef90-UPI0000D5563C | EASKIYGELESVVD |
| UniRef90-W3X7T0 | NIFYTMHEKMQ |
| UniRef90-F6VR03 | EMGKLHQGLNDVMVTLESE |
| UniRef90-UPI0002A4CB5C | EMGNLTQNLHDIMTKLEEQ |
| UniRef90-R7UEP5 | ES ARLKS KLMDVT D NLLRD H |
| UniRef90-UPI0004412A65 |  |
| UniRef90-F4RED9 | S G Y EML |
| UniRef90_UPI0001CBAB37 |  |
| UniRef90-W4ZBF8 | EVGKAK G S VS T $\square$ M G D L |
| UniRef90-FOXSS3 | M QL NVFY TLHEKMQQ |
| UniRef90-A8N5C3 | EGYEKLS GVQRYFDNVRDDYA |
| UniRef90-G3NSV1 | E $\square$ GRLDQDLYD |
| UniRef90-F7ENL6 | EMGKLHQGLNDVMVTLESE |
| UniRef90-B0D143 | E G Y E KL |
| UniRef90-F9WX65 | NVFYTLDHEMQS $\square$ ¢ |
| UniRef90-C7YR88 | H E R M Q Q |
| UniRef90-E0VZ19 |  |
| UniRef90-H2AZF2 | D G Y R L A |
| UniRef90-UPIO00441802E | EGYEKL |
| UniRef90-H3D4Q6 | EMHTFTQDFQNVMKELQQLQHP |
| UniRef90-V2X493 | E GYEKLS GVQR |
| UniRef90-M7SHD8 | MQLNIFYTLHERMQQ |
| UniRef90-H2UCL4 |  |
| UniRef90-S8A3M3 | EAYSRMAQVQQYL |
| UniRef90-M7BLA0 | EMSKLNHDLYEVMSKLDEKQHS |
| UniRef90-W1QD16 | E GYARLA QVQQYLD Q |
| UniRef90_S2JSV8 | A S Y Q L E GL |
| UniRef90_J9VGI9 | E GYERLA |
| UniRef90-UPI0003EACF25 |  |
| UniRef90-S6ESV9 |  |
| UniRef90-UPI000444A25D | EGYEKLS GVQRYFDD |
| UniRef90-X8JJD6 | E G Y K K L |
| UniRef90-I1CQU9 | S G |
| UniRef90-M5BSQ5 | LMMEELDQQF |
| UniRef90-M7P4D7 | D GYD R M S K V Q Q F S NVRNQY S |
| UniRef90_S8F3B6 | MMLEKLN GF |
| UniRef90-Q8WQ54 | ElSKVDEDLARVMD GLIA S E A A |
| UniRef90-G7DS92 | E A E K L |
| UniRef90-K5UWJ3 | E G Y E K L |
| UniRef90-C5MFW0 | EGYSRLA Q I Q E Y Le |
| UniRef90-G2YH18 | EAYSRMA QVQQYLDDTREQYA |
| UniRef90-J4GNB9 | EGYEKLS GVQRYFDNVRDDYA |
| UniRef90-A5DLZ9 | EGYSRLA QI Q Q Y LD |
| UniRef90-T1IVT4 | ESTKVNSELSD■MEEDAEE |
| UniRef90-UPI0003EC1757 |  |
| UniRef90-UPI0003EC1757 |  |
| UniRef90-UPI000443B7A7 | EMSKLSHNLND\MTKLEEQ |
| UniRef90-D8QB98 | EAYEKMS GVQRYFDD |
| UniRef90_S7S5H0 | LL L E K L Q GFA |
| UniRef90_Q754D0 | TLINNAMQDL |
| UniRef90-B5RUP6 | ENYNHLNNLQVKLDAQTRQ |
| UniRef90-O74352 | V ${ }^{\text {V }}$ YEKMSHCEDQY |
| UniRef90-14YE17 | EGYEKL |
| UniRef90-W4KRG2 | MLLEKLNEFAE |
| UniRef90_S9PTY0 | F Wl |
| UniRef90_I3KWK8 |  |

## UniRef90 12 Hol

 UniRef90-B6JXP4 UniRef90-T1K6K9 UniRef90-H2MNB7 UniRef90-UPIO0044177FB UniRef90-W9XSL4 UniRef90-R4XCT9 UniRef90-R7SRH5 UniRef90_UPIO004623DCF UniRef90_L5JPJ9 UniRef90 I2JZ66 UniRef90_U5H9H3 UniRef90_UPI000440809C UniRef90-N1JJM2 UniRef90-C3YHW0 UniRef90-B7PLE6 UniRef90_UPI000455E461 UniRef90-UPI000392F696 UniRef90-UPI00044137FC UniRef90_UPIO003AF3DA6 UniRef90-M5FU03 UniRef90-F2U7N8 UniRef90-K5VBS7 UniRef90-G3P9Y9 UniRef90_A8Q666 UniRef90_M5G5Y4 UniRef90-B0CQS6 UniRef90-UPIOO02652455 UniRef90-K5XJZ5 UniRef90-F8QG54 UniRef90-V2Z2G8 UniRef90 T1IGD1 UniRef90-UPI000455F3D1 UniRef90-UPIO00393C9F4 UniRef90-UPI00045606D4UniRef90_UPI0003871783 UniRef90_B3S8L5 UniRef90_H2Z3Q6 UniRef90-A7SPL1 UniRef90_UPIOO045600A6 UniRef90-A8N234 UniRef90_G8YL85 UniRef90_H3EKN4 UniRef90_G3BDH9 UniRef90_A0A024JAJO UniRef90_G7E7Y9 UniRef90_V4A9S8 UniRef90-V8PHP9 UniRef90-B2WIB7 UniRef90-A0A024JNM9 UniRef90_Q4RQR7 UniRef90-W4K592 UniRef90_G4TT81 UniRef90-A5E808
UniRef90-J3Q8B1 UniRef90_A3G115 UniRef90_G8YNM2 UniRef90-C4QZP6 UniRef90_J3NFI9 UniRef90-A0A058ZI27 UniRef90_B6Q4B3 UniRef90-F4RRP6 UniRef90-I1G4T5 UniRef90-E9C923 UniRef90-U5HEG3 UniRef90-L7MC11 UniRef90_M3ZD51
UniRef90-M7WXH3 UniRef90-U6P6U5 UniRef90-K1VMT9 UniRef90-G8JQ56 UniRef90-D5GPY2 UniRef90_UPI0003501E7C UniRef90-M5E817 UniRef90-L8FVN3 UniRef90-I2GVA4 UniRef90 W6MP94 UniRef90-UPIO00443E621 UniRef90-H8X8U5 UniRef90_F1L176 UniRef90-G0SX03 UniRef90-A5E386 UniRef90-M2LR72 UniRef90-JJQ105 UniRef90-J7R407 UniRef90_U9TOZ3 UniRef90-W5J7Z3 UniRef90_G8ZM22
UniRef90_A0A058Z4I

1
RAGNNVMIIK SSDRVT DREYDTEERRYKTLQRAGES L QK
 RAKERF LQ N LGGKADRTTVEELFESSSQVNFNRQQNSATMRQK RTPHLMTSSKI GMAAKSSDPAFDSLNQRFTSGLEKFSEKLLK RAQEKVLQKLGKADETKDVAFEEGVINFNKQYTEGSKLQR RTPHLVTTTKVGMSKKSSDPEFEEYHRAFQTQEQSTEKKLLK




RAGGSVVVKA TDRVSDKDYD $\operatorname{TVQERRFKLIEKSGKELQK}$ RATTSVVMKTGQVEKTNDAEFQREDQMYRTLEKNSNALQK RTP HMVTTKVGMSKK SADDEGDDYERKFSTMEDTVVEKLLK RAP QTLKSRLNF GENTKDLVVYDAERRFQE LETETKKLGD QFLQSSGKAEKSKDETFQDYVGNFNNQQAAADKGLQK RTPHLVTSKVGFSKKSSDPEFDDYNRHFAALEQSTEKLLK RAQEKVLQKLGKTVETKDEQFEQSAYNFQLQQNEGNKLYK RTPHMVTTTKVGMSKKSTXPEFDEYSRKFAAMEGATDKGLK RA QEKVLQKLGKA DETRDVVFEEMVANFNKQMGEGTKLQK
 RQQEK ITRQKLS KTEHVEDEEFAEHVANFNAQAMHATRLHK RTPHMMTSKVGLSKKSNDPEFDDYNRRFSTGLESAAEMLLK RS K EKVVRQRLGKTMESRDDHFEQCFRQFNDQQTDGNRMYK $R A G T Q L M Q K T G Q L E R S D D S R F K E E E H K Y R E L E K H A S A L L K$ RAGTTLMQKTGQLEKTVDSEFQDEE GRYRQFEKEVNQMQK RTPFA V T S R DGMAKKSSDPEFDDYERHFAS LEKKGSEKLIMK $R \square N Q R F T Q M T G F G T Q T \square D E E F D R A E R S F H T L E K T \square K \square F V K$ RTPFQVTSKIGMSKKS KDAEFD DLDRRHFASLETAAERLI K
 RTPFMVTSKVVGMAKKSNDPEFDDYERHFSSMETADVEKLLK RAGTQFLQNLGKVDRTAD DGFDEHLENFNRQQLAAS RLQK
 $R A G T T L M Q K T G Q V E R T D D S E F S E E E Q R Y R S M E R E M V A D L Q K$ R A QEKVLQQKLGKTVETKDEQFEQSAYNFQLQQNEGNKLYK

$R T P H L M S S R V G L A A K S S D P Q F D S L Q Q R F A S L E K Y A E K L L K$ RTPFAVVSRIGMAKKSSDPEFDDWHKQFQAIEQGTEKLLLK RAGGSVAVK NVDK T DDKDFDDEERRYNVLKTAGRNLQK RTKEKLLESSVGKAQRTQDEAFDFHAGNLNKQAKACERLHK RAPQNFRQKLNMGEDTHDPVYADAERRFKE LE LDETK KL S D RAPQSFKQKFNMGTTTKDLVVDDAERRFKEL ESETK KL HD RTPHMLTSKVGMASKSSDPEFDDLNRRFTVVEGNATKLLK VLQNL GKAERTTDEQFDELVIDK DERQQESAHHLQK RTPHNLTTRLGGLAKKSTDPEFNDYERKFAAVEAACQKMHK RAPQTFKAKFNLGE GTKDP $\square Y \square D A E R R E Q E L E K E T K K ~ L H D$ RASTSVMMKTGHVERTDDQDFEFEHRRFMTLEKASRKLQV R A Q E K V L Q K L G K A D E T K D A A F E E GVI N F N K Q Y A E G S K L Q R RTGTTLMQKTGQVERTVDREFAEEETKYKTYEKEVVELQK





 RAQEKVMQKLGKADETKDTAFEEQVANFNKQMNEGTKLQK MLQ K V GQAE KTTD DNYTE FVVNFNK QQLAA S R L Q K RAQERVVMQKLGKADETVDEVFQTHVVNFTKQQAVATRRQK R A P HLLTTSKVGMT T K S S DAET DEELV R K F T G L E E Y T A N L L K A DKTKDEVFEVYLYNFTRQQTAAAKLQK

R A P HM M G S K VGMGK Q S VD A E T NELVRKFSGLEEYTAK LVK RTKEKLLEGIGKAKATQDETFDNHAANLVKQSKSCERLGK RAGTQLMQKTGQVERTVDHQFAEEEAKYR\|MEKECNNLQK

 R A QEKVLQKLGKTVETKDERFEQSAGNFYQQQTEGHKLYK

 RDC $R \square S$ S H $\square$ K H LTTG $\square \mathrm{S}$ LQQ $\square$ K S E EF D D A E K K F R L Q E R L I K S F D RAPQNFRQKLNMGEVTHDPVYEDAERRFKEDE IETK KLND R A K E K L L E G L GK A K A T Q D DVG D Q H A A N L G K Q S K A C D R L Q R M S M K L G Q V E RT D D S A F R S E S E R F K Q
F R QK M N M G




R A P QSFRRQKFNMGEQVEDPVYEDAERRFKELETEVKKLSD RASTAVLQSVGAVDKTVDRQYDEEERRFLQL|ESNTNK|L|MT|


UniRef90-M7WXH3
UniRef90_U6P6U5 UniRef90_K1VMT9 UniRef90_G8JQ56 UniRef90_UPI0003501E7C UniRef90_M5E817 UniRef90-L8FVN3 UniRef90_W6MP94 UniRef90_UPI000443E621 UniRef90_H8X8U5
UniRef90_F1L176 UniRef90_G0SX03
UniRef90_A5E386

|  |  |
| :---: | :---: |
| UniRef90_12H017 UniRef90 B6iJP4 |  |
| UniRef90-T1KGK9 | A A TMDLLWEDLCHKLNDQVTIPLLSTYLSQFSEIIRAKI |
| UniRef90-I2G2R2 |  |
| UniRef90- ${ }^{\text {H2MNB }}$ | AEDCDVLWTDYHQKLVDHALTSMDTY的GFPDI |
| UniRef90-UPIO0044177FB | VAPYQEAMDELQSTIAPELELPTKELQSVLKTIRKTITKR |
| UniRef90-W9XS | CEEYESIVRDLQATLQPEVI APADQLLEVIKVI RKVAVKR |
| UniRef90_R4XC | CESYQA IVNELKTTLSPEL |
| UniRef90-R7SR |  |
| UniRef90-UPIO004623DCF | PDAYVAAIEELKASVVPELVGPIKEFQGILKTIRKS |
| UniRef90-L5JPJ9 | GEKCDVLWEDFHQKLVDGSVLITLDTY |
| UniRef90-12JZ66 | QDFDQETVKQLD |
| UniRef90_U5H9H3 | YKRATEEMEEIDAPYRATVMDPIGKLCSHWPEVNKT |
| UniRef90 UPIO00440809C | VDGYQQLFEELRMS |
| UniRet90-N1JJM2 |  |
| UniRef90 ${ }^{\text {B7PLE6 }}$ | LLELLWDDYHRKMNDQVMAPLNSYDNQFTDVRGR |
| UniRef90-UPIOOO4 |  |
| UniR | SNDLLWDDYEAKLADQAL |
|  | YQAAMEELIHATI ESRVVGPVKEFKEVLKQIRKS |
| UniRef90_UP10003 | QSI TDKSL QDMDMYLSQFPDIKAR |
| UniRef90 M5FU03 | AQET |
| F2UV78 |  |
| UniRet90-K5VBS7 | Q ESLMDELKSAVVPVMGPVKELQGVMKLVRK |
| UniRef90-G3P999 | GLDARTAKELDAPYRATVLDPMGKLCSYFPEVNK |
| UniRef90-M8Q666 | YKQAVVEELDQPYRTGAL |
| UniRef90-B0CQS6 | YETAMEEMRSLIGPELELTPAKELQSVMKLIRKSI |
| UniRef90-UPI00026 | NHLANK |
| UniRef90-K5XJZ5 | - A A |
| UniRet90-F8QG54 | A |
| UniRet90_V2Z2G8 |  |
| UniRet90-TTIGG1 | NIIEMLWQDLSHKL |
| UniRet90 UPIOOO455F3D1 | HEDMDNGVQELDAPFRTTIMEPLGKINSYFPVVNEH |
| UniRee90-UP1000393C9F4 | RYS |
| UniRee90-UP100045606D4 |  |
| UniRet90 UPIO003871783 |  |
| UniRef90 B3S8L5 |  |
|  | AKOLDLY ${ }^{\text {d }}$ |
| 4600A6 | EELKDTLTPEVVGPANDFDAVLKAI RKNI |
| UniRef90 A8N234 | VTOYQNAMEEMQQL |
| UniRef90 G8YL85 | YYTQCVKEFDEETVKQLEPPITKFSNYFNE:DEA K K |
| UniRef90-G3BDH9 | S YREVVLELKETI ETRIVAPAQELLKVIQCIRKMAT |
| UniRef90-A0A024JAJO | CEQYRDVVSEMQATLKP |
| UniRef90-G71 | YRGDMAALKEAI QPELIIPVKEYIELIKKARK |
| UniR | - |
| UniRet90-O5KPB4 | PQDYQTRMEEVRETLLPELVGPCKELVETCKKIRKTISKR |
|  |  |
| A0AO24 |  |
|  | VEDCDVLWTDYHQKLVDHALTSMDTYLGQFPDIKARIAKR |
|  | AHAYKRNVEELDNPYRATIMEPLGKMNAYFPIVNEHIAKR |
| UniRef90-G4TT81 |  |
| UniRef90_A5E8088 | GTYYLQCVQEFDEETVKQVLDPIAKFAHYFVEIDEA |
| J30881 | MSAYQELV |
| A3G115 |  |
| G8YNM2 | EVVKELKETLQPRIV |
| C4QZ | EVVAELQTTEETRVAPAQQLLD |
| UniRef90-J3NFI9 | CEEYYEAVVKDLQETLAPEVIRPANELL |
| UniRef90 ${ }^{\text {B60 } 6433}$ |  |
| UniRe90 F4RRP6 |  |
| UniRet90-F8W5X7 | DLLWQDFHEKLLD |
| UniRef90-11G4T5 | WEDLLKKIQN |
| UniRef90 E9C923 | A A IMVRSCHQFQQHAGELLSQSMNGYVNQFPDLKNRIAKR |
| UniRef90-U5HEG3 | ELMAELRDT ${ }^{\text {a }}$ ( P EV |
| UniRef90-L7MC11 |  |
| UniRet90_M3ZD51 | CDALWEDFHNKLVDSTLLNLDGYLQQFPDLKMRVAKR |
| UniRee90-M7W×H3 | PDHYHELMAELRDAI QPEVTAPLKEYQELLKK1 RKT TK |
| UniRet90 U6P6U5 |  |
| UniRet90_K1VMT9 | DVVIRDLDGPYRATVLEPVGKMCHYFNN |
| UniRet90-G8 | ELVNDLQSTIEDKIVR |
|  | OLKVTLQPELIRPADELMEUIKVIRKTALKR |
| UniRef90 UPIO003501E7C |  |
| UniRef90-M5E817 | M |
| UniRet90_L8FVN3 |  |
|  | OLVA |
| UniRet90_W6MP94 | QEFDQETVKQLDGPFRETVL |
| UniRet90_UPI000443E621 | D |
|  |  |
| UniRef90-F1L176 | TQSLDLQWDDFEKVVNEQLMGSVNTYMAQFVDLKAKVAKR |
| ef90-G0SX03 | EELEGD |
| A5E386 |  |
| UniRef90_M2LR72 |  |
| UniRef90-J3Q105 | E |
| UniRef90 U9T0z3 | PVQSMKAVEEFKDTMSDLVVKPSKDFIDVVKILIKKTIAKR |
|  |  |
| UniRef90- G8ZM22 | CEQYRAIVAELQEVLKPDLILPCADLLKT |
| UniRef90_AOAO58Z414 | T Q |

UniRef90＿12H0I7 UniRef90－B6JXP4 UniRef90－T1K6K9 UniRef90＿I2G2R2 UniRef90－UPI00044 UniRef90－UPI00044177FB UniRef90＿W9XSL4 UniRef90＿R4XCT9
UniRef90＿R7SRH5 UniRef90＿UPIO004623DCF UniRef90＿L5JPJ9 UniRef90＿I2JZ66 UniRef90＿U5H9H3 UniRef90＿UPI000440809C UniRef90＿N1JJM2 UniRef90＿C3YHW0 UniRef90＿B7PLE6 UniRef90＿UPI000455E461 UniRef90＿UPI000392F696 UniRef90＿UPI00044137FC UniRef90＿UPI0003AF3DA6 UniRef90＿M5FU03 UniRef90＿F2U7N8 E UniRef90＿K5VBS7 UniRef90＿G3P9Y9 UniRef90＿A8Q666 UniRef90＿M5G5Y4 UniRef90－B0CQS6 UniRef90＿UPIO002652455 UniRef90＿K5XJZ5 UniRef90＿F8QG54 UniRef90－V2Z2G8 UniRef90－T1IGD1 UniRef90＿UPI000455F3D1 UniRef90＿UPI000393C9F4
UniRef90＿UPI00045606D4 UniRef90＿UPI00045606D4
UniRef90＿UPI0003871783 UniRef90＿B3S8L5 UniRef90＿H2Z3Q6 UniRef90 A7SPL1 UniRef90＿UPI00045600A6 UniRef90＿A8N234 UniRef90＿G8YL85 UniRef90＿H3EKN4 UniRef90＿G3BDH9 UniRef90＿A0A024JAJ0 UniRef90＿G7E7Y9 UniRef90＿V4A9S8 UniRef90＿V8PHP9 UniRef90＿Q5KPB4 UniRef90＿B
UniRef90＿A0A024JNM9 UniRef90＿Q4RQR7 UniRef90＿W4K592 UniRef90＿G4TT81 UniRef90＿A5E808 UniRef90－J3Q8B1 UniRef90＿G8YNM2 UniRef90＿C4QZP6 UniRef90＿J3NFI9 UniRef90＿A0A058ZI27 UniRef90＿B6Q4B3
UniRef90 F4RRP6 UniRef90＿F8W5X7 UniRef90＿I1G4T5 UniRef90＿E9C923 UniRef90＿U5HEG3 UniRef90＿L7MC11 UniRef90＿M3ZD51
UniRef90＿M7WXH3 UniRef90＿U6P6U5 UniRef90－K1VMT9 UniRef90＿G8JQ56 UniRef90＿D5GPY2 UniRef90＿UPI0003501E7C UniRef90＿M5E817 UniRef90＿L8FVN3 UniRef90－I2GVA4 UniRef90＿W6MP94
UniRef90 UPI00044 UniRef90＿UPI000443E621 UniRef90＿H8X8U5 UniRef90＿F1L176 UniRef90＿G0SX03
UniRef90＿A5E386 UniRef90＿M2LR72 UniRef90＿J3Q105 UniRef90＿J7R407
UniRef90 U9T0Z3 UniRef90＿W5J7Z3 UniRef90＿G8ZM22
UniRef90＿A0A058Z4I4

130
140
150
160
EHKKQDYEASKAKVVRK｜LDDKPSKDSSK｜LVVAEKELNLVKD DHKQLDYDRHRSSLKKLQEKKDKDEKHLYQAETAFEAASQ
 D HKLLV DYDRHNNAYSK LRRDKKEKDEQNLGKVVEQEYEAAAA D R KLVVDYDSARHNYAATHKTKKKDGGKIT K PSSSLLDERATP E H KLI D Y D R F N N S LTTK LR D K K E K D E K N L F K L E Q DF E VA T N
 EHKVV D Y D R F N N S L T K L R D K K E K D E K N L F K L E Q D F E V A S N

SR SHKKI D Y E Q A K A K V R R L T D H P S K D A S K L P R A Q R E LDD MA K D NKKLI DYDAARSKAKKLGNKPSDDPTKLRRDAEQEAETAKE NHKLVDYDRFNNSLTKLRDKKEKDEKNLFKLDEQDFEVATN H HK QL D Y DRYRATLKKLLQDKKDKDEKALYKAENDVEQAS Q GRKLVDYDAARHTLATAQQSKKRDDAKLQKAQDECQKAKK GRKKLVDYDKARHSVES LRNSKKKDDDQARQGGEEDLEAK Q E H KLVVDYDRYNNSLTKLRDKKEKDEKNLFKLEQDFENATN GRKLVDYDSARHHLEALQSAKKKDEAKIAKAEEEFNKAQA D HKLV DYDRFNNSLTKLRDKKEKDEKNLFK LEEQDEVAAN

 GRKLLVDYDSSRHHLEAALQTAKKRDDVVKIHKAEEEMNTAKS GRKL DYDATRSRYKKQSDRPSDDPSKLPRMESEHNEAKL
E H Y D KLL L Y D S Y DN KAEK TKEKDRTK QVK EHKLL DFDRFNNSLTKLRDKKEKDEKNLFKLEQDFELASN


NKKLLDYD
GRKLVDYDSARSHHRKLDDKPSDDPDKLP
GRKLI DYDACRHNLD VSTKRKADDRKAK
GRKKVVDYYDAARRRNLEDAMQSAAKKMLE D R K DHKLVDFDRHNNAYSKMRDKKEKDEQALLKVEQDYETAAA
 GRKLVVYDHAKNNFNSGKASSKKGADAKVTKAETEELTQAEQ DHKQVDDDRRNRTYKKYQDKKEKDEEKMYNAEAEIQQAQQ
 GRKLMYYDNAKHSVDVADQMAKKKDEAKVHKAHEDDSNAKQ EHKL
DHKQLDYDRHRAAYKKLEFKK KKDEKAMYKAENDVEAAT

 NKKMID Y DSARSKVRKLTDKP TEDPTKLPAAQKEYEDAKE

 D HK QL D LDDRHKRTYNK Y A DKKEK DEEKKMYNAEAAEV QVA QE NHK QL DLD RA QN S LHK $⿴ 囗 ⿰ 丿 ㇄$ EHKQLDHRANLKKLQDKKEKTMKDEKADYKAEGEVEQATQ NRKHVDYDRYYTALKKAQEKENSNPSDMLRAEQNYNEAKA

 ERKKVVDYDYAKREELEAARQNKKVTEVVKLQQFEDTYMNAKA
 GRKLVDYDKCRHSVES LRNSKKKDDYKLGKAREELEEAK Q S R KLL I D Y D S A R H QL EA L QVVP GMKN DR KVVMKA E DE L K K A Q K EHKLV D Y D R H N N S Y N K L K D K K E K D E K N L F K Y E Q E L E DA T Q GRKLVDYDHAKHTYSSAKASSKKGETKVAKAYTELQQAEA NHKLI DYDASRSSKVRK LVEK PSDDTAKLPRAQSEHDEARE N H K K L D LDPRA H R K Y E T K K E R S V V K D D E K M Y K A E A E L Q W A Q Q DHKQL D YDRHRASLKKLQDKKDKDEKAMYKMEGDVELATQ GRKLVDYDSARHH
DHKLI DFDRHSNSYTK LKKEKQSKEDQNMFKLEHESEASAA

 A HKKV D YE QAKSKVRRLDDKPAKDASKLPRAETELARAKG
 E HKQV D LDRHKRTYKKFEEKKEKDEEKMYNAEAEVVDVAQQ GRKLVDFDSARNNYNTVKASSKKGDEKVVKAAADLQQAET EKKLLDDYDAARSKARKLGEK D DA $\square K L R A A E Q E E E Q A R E$ D HK Qi D LDRHKRKYE QKKERTAKDEEKMYSAQAEVE DAQQ NHKMLD YDAMRSKVKRLVEKPDKDPAKLPRTEKETEM


 NHKKLLDLDRRYNNYKKYESKNPKDEERMFKAQAEMAAAAQQ

 DFKAYNDSLVKELPEVVDLRQPYMDPCFEAMVRLQRRFHE EYEHYNELVKKELPIFFEYRAHFIEPVVSNFYHLQVKDY

UniRef90 ${ }^{12 \mathrm{HOl}}$ UniRef90-B6JXP4 UniRef90-T1K6K9 UniRef90-H2MNB7 UniRef90_UPIO0044177FB UniRef90-W9XSL4 UniRef90-R4XCT9 UniRef90-R7SRH5 UniRef90_UPIO004623DCF UniRef90_L5JPJ9 UniRef90 I2JZ66 UniRef90-U5H9H3 UniRef90_UPI000440809C UniRef90_N1JJM2 UniRef90-C3YHW0 UniRef90-B7PLE6 UniRef90_UPI000455E461 UniRef90 UPI000392F696 UniRef90_UPI00044137FC
UniRef90_UPI0003AF3DA6 UniRef90-M5FU03 UniRef90-F2U7N8 UniRef90-K5VBS7 UniRef90-G3P9Y9 UniRef90_A8Q666 UniRef90-M5G5Y4
UniRef90 B0CQS6 UniRef90 UPI0002652455 UniRef90-K5XJZ5 UniRef90_F8QG54 UniRef90-V2Z2G8 UniRef90 T1IGD1 UniRef90-UPIO00455F3D1 UniRef90_UPI000393C9F4 UniRef90-UPI00045606D4 UniRef90- UPI0003871783 UniRef90-B3S8L5 UniRef90-H2Z3Q6 UniRef90- UPIO0045600A6
UniRef90_A8N234
UniRef90_G8YL85
UniRef90-H3EKN4 UniRef90_G3BDH9 UniRef90-A0A024JAJO UniRef90_G7E7Y9 UniRef90-V4A9S8 UniRef90_V8PHP9 UniRef90_Q5KPB4 UniRef90 B2WIB7 UniRef90_A0A024JNM9 UniRef90-Q4RQR7 UniRef90 W4K592 UniRef90-G4TT81 UniRef90-A5E808 UniRef90-J3Q8B1 UniRef90_A3Gl15 UniRef90-G8YNM2
UniRef90 C4QZP6 UniRef90-J3NFI9 UniRef90 A0A058ZI27 UniRef90-B6Q4B3 UniRef90_F4RRP6 UniRef90_F8W5X7 UniRef90-I1G4T5 UniRef90-E9C923 UniRef90_U5HEG3 UniRef90_L7MC11 UniRef90-M3ZD51 UniRef90-M7WXH3 UniRef90 U6P6U5 UniRef90-K1VMT9
UniRef90-G8JQ56 UniRef90 UPI0003501E7C UniRef90-M5E817
UniRef90-L8FVN3
UniRef90- W6MP94
UniRef90-UPI000443E621
UniRef90_H8X8U5
UniRef90 F1L176 UniRef90-G0SX03 UniRef90-A5E386 UniRef90_M2LR72 UniRef90-J3Q105 UniRef90-J7R407 UniRef90_U9T0Z3 UniRef90_W5J7Z3 UniRef90_G8ZM22
UniRef90_A0A058Z4I4
$D G Y S R L A Q Q Q Q Y$ LD Q
EYSKTHAQLRE IIDCFA
LTMERLQSFAQ
EMSRV
NVFYMLLEKMQQFAD
NLFYTLHEKMQ
MQLNI FYTLNERM
MQLNUFYLLLEKLNSFAE
LMLEKLNGFAE
EIAVLCHKLYEVMMK LGDQHA
EGYARLAQVQQYLDQ
DGYEKL
LMEKMSTFAD
MQLNVFYTLHEKMQR
DMSQV
ENSTVFAFLVEAMQKLA
LMLEKVNS FAE
GTPRLNRDLYEVMSTLDKQHS $\square M M E K L Q$

```
\squareMDE
ASQSVHGELQQYपDAVAD
```

EGYEQL
EGY


NITK
ELAEVRTKLSHVLLNVKDAY
EAGKIKTQMNDLMDGLVDELS
LT LE RLQSFTE
$L$ L $L$ L
EGYSRLAQLQQHLDQ
ECAKLHKQLVT QLDALG
Th L Y Y N RMEEEL
TMHES L E
E I A K VKNDAQE
EMSKLNHDLYDVMSKLENQHS
I MMEKLQSFAD
MQLIVFYTLHERMQRLD
ESYTRLAQVQQYLD
EGYEKLSSVQRYFDD
E GYE
EGYSRLAQDQQYMD
TTYGKLQQFSEYLERLGDTHS
ESYEELNNLQMKLD
T T L Y N R M Q E L

D DTNLMYPMSNEDD
$M Q L N V F Y T L H E K M Q$
LNVLYVSFEK LKKQAE
EMAKDDESYNETMNQ LDHEE
TSTVTSCK LHQ $\square$ SAERSD
GILYTMLDKMQSWGSQH
ENAKVFSFLVDTMQKLA


EGYEKLA GVQRYFDGURDEYA
TLYNRIEDM

MQLNVFYLSMEKLKQFAS
$M Q L N I F Y T L H E R M Q$
TLYNKFQEMQ
EGYARDAQVQQY LDQ
LTLGELRPLLQFSNK
TLYTKTQEM
ECAKYNKTLVTH LDS S LGN
DGYEKLGGVVQYFDGVRDEYA
QMYSTMEEM
S GY
T L Y Y N F Q DM
RILYEKMERL
ETSKVYAELEA V VDKLATE
TLYNRFQEM

UniRef90 G3anM3 UniRef90-H8X4Q2 UniRef90-B6H305 UniRef90-Q0TWN0 UniRef90_UPIO003EDC407 UniRef90-CONQ09 UniRef90-W0T5Z2 UniRef90_T1KA03 UniRef90-D8PLL6
UniRef90 V5H1R4 UniRef90-C4Y920 UniRef90-W6MRD8 UniRef90-M3K3W5 UniRef90-B2VU42 UniRef90_G8YL29 UniRef90_A5E1S9 UniRef90_C5MI96 UniRef90-F4PL20 UniRef90-KOKNI3 UniRef90-F4NYY4 UniRef90_UPI000440BE8B UniRef90-E9BYE1 UniRef90_UPIOOO26574BB UniRef90_C3Y473 UniRef90-J7S8K5 UniRef90-T2MJS4 UniRef90-A5DHM3 UniRef90-G8B684 UniRef90_GOSDC0 UniRef90-Q54NT2 UniRef90-Q0CPN5 UniRef90-G8C1P3 UniRef90_UPI0002657C94 UniRef90-A0A015K3L9 UniRef90-R7VIX5 UniRef90-UPI0001CE0E7B UniRef90-S2J2N7 UniRef90-K0KR14 UniRef90-S9WZB7 UniRef90_UPI0002A48836 UniRef90-J4GNIO UniRef90-G3NTD4 UniRef90-M7BRC7 UniRef90_UPI00046B0E04 UniRef90_UPI0003316AB6 UniRef90-G4TDK9 UniRef90-W5N2R5 UniRef90-E5RYH3
UniRef90 U4LPM5 UniRef90 L5LOU1 UniRef90-B5X6Y2 UniRef90_L8GZ90 UniRef90-A1CDE5 UniRef90_UPIO0033304E0 UniRef90-G3HZS3 UniRef90-E91S54 UniRef90-G3XPW4 UniRef90_UPIO004446BB0 UniRef90_G1T894 UniRef90-I2K2D3 UniRef90_G3B9X0 UniRef90_-14Y6Q0 UniRef90-HOWIX9 UniRef90-UPI00027F2CA1 UniRef90-UPI000328D079 UniRef90-F6TRA3 UniRef90-A8XX10 UniRef90-E2BH86 UniRef90-T1IVY4 UniRef90-K2RJJ4 UniRef90_UPI0003AF56BE UniRef90_G1X8.J9 UniRef90_UPI000258EFD3 UniRef90-I7ZPF4 UniRef90-I1CTZ2 UniRef90_K9FT32 UniRef90-Q5B6S6 UniRef90-F1NZ00 UniRef90-K1WC66 UniRef90_UPI000359C46B UniRef90-S9W9L2 UniRef90-F7DV38 UniRef90-V5FK24 UniRef90-F4NYQ0 UniRef90_C5PBG6 UniRef90-ATTER1 UniRef90_UPI000383BB7C UniRef90_U6DE63 UniRef90-D5GMZ2 UniRef90_V5H8I2
 RAGTQVMLKAGQIEQTVDKEFEFEEKRFRVMESNSLALQK RAPQQFKVKFNDGEHSKDAVYSDAERRFDELEKETKKLHD MGKADETVD IAFNQEHDKLLSQKKMMKRMIK HAYFQQLVT

RAPQTFKARFNVGENTKDAVY DDAERRFQEDEKETKKLHD RAPQSFRQKLNMGQQTSDPVYEDAERRFKELESETKKLSD


RAGVQVMDKAGQMDESTDPEFDY $\square E K R Y R T M E S S M \square R L H K$ MGENTVDPVYADAERRFKEDEEQTKRLSD RAGTQVMLKTGQDEQTVDKEYEYQEKRYKTMESTS DKLQK

RAGAQVMLKTGHDEETVDKEYEFEEKRYRQMEKTSTQLQK RAGTQLMVKTGQLEQTIDKEFEYEEKRFKTMETNLIQLQK RTPQTI RQKFNMGE DTHDAVYEDAERRFKE DE DETKKLSD RTRQRLMTKTGQSEETVDVEYHYEKEKVFS SEERMVRLQK
$R \square P H$ Q $\square A K S S G H A S E T K D D E Y E V Y D A S F K Q L D T L A R Q L A T$ RAQEKVLQKFGKSEETRDHQFEMCVQNLQDQQ ERERRK RMKQGILQRTGQASQTDDEKFVLEEKRFKRGQKSVQSLLR



RAGTQVLVKAGQVDVTVDTEFEFEEKRYRTMQSHSRKLHS RTPQNFREKLHMGDVTHDAVYEDAERRFKE\|EDETKKLND




 RAQE KVLQQKLGGADETKDE QFEQCVVQNFN K QLL
$R L P Y Q L L S K$ KNEGTKDAE YMQLEKVFNEFTKLVEVLAK

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

 $R \bigvee S S H L V Q L T G M A P Q F K D E V F D E A E K K F R L Q E R L I K T F I R$ VLDQKLGKADETKDEQFEQCVQNFNKQLAEGSK LQK $R L S Q L L K Q E A G L V P R T K D K E F D D L E E R F Q W V S L C V T E L K N$

 $K$ N A E R R $\mathrm{L} \mathrm{L}_{\mathrm{R}}^{\mathrm{Q}} \mathrm{R}$
RLSHLLKQEAGLVPRTEDKEFDNLEERFHWVSLCVTELKN RAQEKVMQKLGKNMETKDEQFEQYSQNLLKQQNDGGRLFK $R T T Q Q V K E K V G K A E E T V D V G F N Q E H A K F D L Y Y K G L K K M S K$
 RAQEKVLQQKLGKTVETKDERFEQNAANFYQQQVCGVA $R L S Q L L V Q E A G L V P R T E D K E F D D L E E R F Q W V S L C V T E L K S$

R R TEK L K Q Q VG LS DMVEDKEY DTLA QKFGDNFFQLQLVMR RA QEKVLQKLGKAVE TKDERFEQSANNFYHQQLYKTE QVLQQKLGKADETKDEQFEQCVQNFNKQQVVSGTWQER RAPQTLRQKFNMGEQTKDPVYEDAESRFKELEGQTRKLNT RAGTQVKVRTGQ QDQTVDRQFDFEEKRFKTMETNSLKLQK $\begin{array}{lll}R A P H \\ R \\ R & \text { V S S S S K }\end{array}$ RAQEKVLDQKLGKKADETK DEQF E E YVVQNFKRQQEAE GT R LQR
 $R$ TKEKLLE GIGKAKATQDEVFDQHAANLQKQSKSCERLDK



R L S TRLSAS LGLTNVAVDPEFEELEKQFRSVEKCTFQLAK $R$ RTEKLKQQVGUSDLVEDKEYDALSQRFGDNFFQLQVVMR

RRTEKFRQQVGLSDLFEDKTYDLLAQK LSSGYFQLQVVMR $R R T E K L R Q Q V G L S D M V A D K D Y D A L A Q R F G D N F F Q L Q Q V M B$ $R L S R L L M H E A G U V A K T E D K E Y D E L E E K F G Q V A S S V V T A L K E$ $R \square R G R \square S T N F G \square A \square Q C R D E A F E R E E A R F R S G E K A C Q K M H K$
$R L S Q L L K Q E A G L I P R T E D K E F D D L E E R F Q W V S L C V T E L K N$ RRTEKFRQQVGLSDMFEDKDYDALAQKFSDSFFQLQVVMR RATTTVMQSAGAVEKTDDKEYEAEERRFKNMESKVERLHK RRTEKLKQHVGLSE $\square F T D K D Y D G L A Q K F G E N F F Q L Q L I M R$ R LS QLF KQEAGUVTRTEDREFDDLEEKFHWVADCVNELKS

## UniRef90 G3anm3

 UniRef90-H8X4Q2 UniRef90-B6H305 UniRef90_QOTWNO UniRef90_UPI0003EDC407 UniRef90-CONQ09 UniRef90-W0T5Z2 UniRef90_T1KA03 UniRef90-D8PLL6UniRef90-V5H1R4 UniRef90-C4Y920 UniRef90-W6MRD8 UniRef90-M3K3W5 UniRef90-B2VU42 UniRef90_G8YL29 UniRef90-A5E1S9 UniRef90-F4PL20 UniRef90-KOKNI3 UniRef90-F4NYY4 UniRef90_UPI000440BE8B UniRef90 E9BYE1 UniRef90_UPIO0026574BB UniRef90-C3Y473 UniRef90-J7S8K5 UniRef90_T2MJS4 UniRef90-A5DHM3 UniRef90-G8B684 UniRef90_GOSDC0 UniRef90-Q54NT2 UniRef90_Q0CPN5 UniRef90-G8C1P3 UniRef90_UPI0002657C94 UniRef90-A0A015K3L9 UniRef90-R7VIX5
UniRef90_UPI0001CE0E7B
UniRef90-S2J2N7
UniRef90_KOKR14
UniRef90-S9WZB7
UniRef90_UPIO002A48836
UniRef90-J4GNIO
UniRef90-G3NTD4
UniRef90-M7BRC7
UniRef90_UPIO0046B0E04
UniRef90_UPIO003316AB6
UniRef90-G4TDK9
UniRef90-W5N2R5
UniRef90-E5RYH3
UniRef90_U4LPM5
UniRef90_B5X6Y2
UniRef90_L8GZ90
UniRef90-A1CDE5
UniRef90_UPIOO033304E0
UniRef90-G3HZS3
UniRef90-E91S54
UniRef90-G3XPW4
UniRef90_UPIO004446BB0
UniRef90-G1T894
UniRef90-I2K2D3
UniRef90_G3B9X0
UniRef90-I4Y6Q0
UniRef90 HOWIX9
UniRef90-UPI00027F2CA1
UniRef90-UPIO00328D079
UniRef90-F6TRA3
UniRef90-A8XX10
UniRef90_E2BH86
UniRef90-T1IVY4
UniRef90-K2RJJ4
UniRef90-UPI0003AF56BE
UniRef90_G1X8J9
UniRef90-UPI000258EFD3
UniRef90-I7ZPF4
UniRef90_I1CTZ2
UniRef90_K9FT32
UniRef90_Q5B6S6
UniRef90-F1NZ00
UniRef90-K1WC66
UniRef90_UPIO00359C46B
UniRef90-S9W9L2
UniRef90_F7DV38
UniRef90-V5FK24
UniRef90-F4NYQ0
UniRef90-C5PBG6
UniRef90-F6VCA2
UniRef90-ATTER1

UniRef90_V5H8I2

$D \square R \square Y K E S L R A D T T A Q A G V T E V L S D F Y E E N N \square A H V Y H N A M$ ESKRYHKAVNGMLEHQ GGFSKAI EEDYKPDSEGNPEGDEA NLRSYLESLRILTNSQUNDAESLNSFYGTNTDVQEYYHTV ELKHYLESLRILSNAQVSVSEVLSQFYEAKNDYSHKYRSV
 ESKKYFNAVNGMLDNQUEFAKAVAEDYKPDSEDNPDGDTA
 CIGSHVQACKDASTAQTTVVQHIKEFYWTDSFQRAEYQHA EFKNYLFCDKNMQTASKSLMDTLSEDYEQEWIGHEQDPDK



D A G $\square F R D S \square A A L L S N Q A N M A Q Y \square A V I Y D P E G M V Q K R F Q Q T$ SKKYFNAVNGMLTHQ $\begin{aligned} & \text { S G GF }\end{aligned}$ DUSLYLQHLRESASVKVLAADSFCDI YNERSDMDPECRAH DTKVYNESVVSNDFTYGAGFAQHFTTVIGHPKHPESEHTVARN DLRTY Y A SVK KAMHEASKKLTEECLQEVYEPEWPGRDDTNKD NVATYLDNLETFL RVRPHEHSLDDPVGPTAQYCSLA NVAAYLDNLEAFLRFQPRDY DSKVFADNVIILLESGAKFGEGFANLIFHPLPGEYDLLRQH D 1 SLY LQHI RESASVKVLAADSFCDIYADQMDPERFQKAH ELLRNY TCMKA LDAQASRGYYEAVREVYDSEWTGSDHVRAD NMAVY LDNMEAFL EVQAYFRAVKVMHETSKRLSQTLDRDVYEPDWQGREDLSVVA
 NMAAYMDNLKAF $\quad$ CFRPHEWLLD $\quad$ EKGWDPHQPLXCI


 E LK KY LDDSLVRULTSAQMNVAEVLKSFYGPDNFSEEYYNVT
 ELRGYLAAIKGMQEASMKLTESLHEVYEPDWYGREDVKMV NVAAY L D H DEASLCFRPHESSLGDSEGPVAQYCHLA D L SVVYLQHVRESACVKVLAAMSMWDLYSDKGTSDDEKFHK DVEQCTMHLSEEAMSGDVIAEFLGHYYQPTSDVKK LQDI R


MLSH Q DEFSKS DQE $\square$ YKP $\square$ S E GNPEG

 DAESYSRDVQLYL NQFNEYADSI EDI IGMSPSPYPQLESK DAEMYTRETQASLDRFSEFVTADEAFIDPEDEGKWRVIDV NVASYLQHLEAFL DAVVFRDGVNTLLNSGSSFGASLSTLFQPLGAEYNLATKF SVQQYMEQSQEAMRCQESVVEDIUSDFYDKECVEVTRYKAVV $N V A A Y \square D N L Q D D Y$ LLEALDRLPLSRCRTYMTD MELTFSR DVEMYTQEAQTSMERFSDFIVADEGYDDVAQSNYTELESK EAKGYLDAVRATTVAQQRIAEAI DGFYDESSKGRGYRDAT NVAAY $\square D H \square E T F \square \quad R \square K P Y E C D L E M E G G A V Q Q Y C C F T$

## UniRef90 G3anm3

 UniRef90-H8X4Q2 UniRef90-B6H305 UniRef90-Q0TWN0 UniRef90_UPI0003EDC407 UniRef90-CONQ09 UniRef90-W0T5Z2 UniRef90-T1KA03 UniRef90-D8PLL6UniRef90-V5H1R4 UniRef90-C4Y920 UniRef90-W6MRD8 UniRef90-M3K3W5 UniRef90_B2VU42 UniRef90_G8YL29 UniRef90-A5E1S9
UniRef90 C5MI96 UniRef90-F4PL20 UniRef90-KOKNI3 UniRef90-F4NYY4 UniRef90_UPI000440BE8B UniRef90 E9BYE1 UniRef90_UPIO0026574BB UniRef90-C3Y473 UniRef90-J7S8K5 UniRef90-T2MJS4 UniRef90-A5DHM3 UniRef90_G8B684 UniRef90_GOSDC0 UniRef90-Q54NT2 UniRef90_Q0CPN5 UniRef90-G8C1P3 UniRef90-UPIO002657C94 UniRef90_AOA015K3L9 UniRef90-R7VIX5
UniRef90_UPI0001CE0E7B
UniRef90-S2J2N7
UniRef90-KOKR14
UniRef90-S9WZB7
UniRef90_UPIOO02A48836
UniRef90_J4GNIO
UniRef90-G3NTD4
UniRef90-M7BRC7
UniRef90_UPIOOO46B0E04
UniRef90_UPI0003316AB6
UniRef90-G4TDK9
UniRef90-W5N2R5
UniRef90-E5RYH3
UniRef90 U4LPM5
UniRef90 L5LOU1
UniRef90_B5X6Y2
UniRef90_L8GZ90
UniRef90_UPIOO033304E0
UniRef90-G3HZS3
UniRef90-E91S54
UniRef90_G3XPW4
UniRef90_UPIO004446BB0
UniRef90-G1T894
UniRef90-I2K2D3
UniRef90_G3B9X0
UniRef90-I4Y6Q0
UniRef90 HOWIX9
UniRef90_UPI00027F2CA1
UniRef90_UPIO00328D079
UniRef90-F6TRA3
UniRef90-A8XX10
UniRef90-E2BH86
UniRef90-T1IVY4
UniRef90-K2RJJ4
UniRef90-UPI0003AF56BE
UniRef90_G1X8J9
UniRef90_UPIO00258EFD3
UniRef90-I7ZPF4
UniRef90-I1CTZ2
UniRef90-K9FT32
UniRef90-Q5B6S6
UniRef90_K1WC66
UniRef90_UPIO00359C46B
UniRef90-S9W9L2
UniRef90-F7DV38
UniRef90_V5FK24
UniRef90_F4NYQ0
UniRef90-C5PBG6
UniRef90-F6VCA2
UniRef90-A7TER1
UniRef90_UPIO00383BB7C
UniRef90-U6DE63
UniRef90_D5GMZ2
UniRef90_V5H8I2



120 K QL N S QVI S DLEHPYNQTVLNPIARFNSYYVEVNEAI KKR


 S E Q Y C S I V A E L Q T T L K P D L V K P A Q E L L K I I D R I R K M A T K R


 K QLLND S A I D N L E N P Y N Q T V L N P V A R F N S Y Y T E I N E VI K K R




 VEGEDLLDWND YETKL R DQALVVTMDSYMS QFPDMRERRVAKR HLLMID REALDDFYLRMQRRVI APLEVLLSHFQNPASLI QKR



 V P L K D E L K P D L D LIE K R V V E P A Q E L L K V I E GV R K L A T K R






 R C DS D RKK T QFK E RTEAALVI NP L T Q L L A M FA GPYK L I QK R
 AENNDLLDWVDFHQK LVDDQALLTMMDTYLGGQFPD DK S RI AKR R D LQ R E A F L T F K Q R L E G L V WR P L C S LAARA LVGGPQ N L I K K R
 R C DS DKQF DN FKERTEN LVI T P LN QLLDSMFA GPHKLI QKR
 RD L Q L Q AFPEFK QRLEGLVWQPLCS LAKALGGPQNLIKKR MESE DLLLWN DYE E K L T D Q I V R T M E N Y T G Q F H E V K E R L A K R



 V G N N D L L W W E D Y E E K L A D Q A L R T M E N Y V A Q F S E I K E R I A K R


 GEKCDVLWEDFHQK LVDGSLLTLDTYLGQFPD IK



 NNDLLWMDYHQKLVDQALLTMDTYLGQFPDIKSRIMAKR




 P N S Y QR L M E E L Q E T L A P EL VE P SK E L V E I CKK DR KT CTK R
 IA N N DLLWEDYE QKLA DQALRTMENYVDQF
 WRRFR LAAVREIMMATVRKSVIEPMITMLKKLHDGPQRVMHKR


 $R E L Q L Q A F P R F K Q R D E G L V W Q P L C T L A K A L A G P Q N L V R K R$


| Ref90 G3ANM3 |  |
| :---: | :---: |
|  | KLL DYDAMANK |
| UniRei90-L8 | NRRRVDMDRFKAEVRDLTHPPEKHPDKLPKAQRNYADAKA |
| UniRef90- UPIOOO3EDC407 |  |
| UniRet90-CONQO9 |  |
| UniRei90-T1кАаз |  |
|  | EHKLMDYDRHNNSLMKLRDKKEKDEKNGKLEQEFEVATN |
|  | A |
| UniRe990-WE |  |
| UniRef90-B2VU42 | EHKQMDYDRMRAQVRK |
| UniReifo-A5E1S9 |  |
| -4 |  |
| Refigo-Kokn | AHKKVDYEGAKAKVRRLVDKPAKDASK |
| Ret90-UPIoot | GRKLVDYSARHODDSLESAKKRDDTKINKAKE |
| UniRef90-UPIOOO265 |  |
| UniRef90_C3Y UniRef90_J7S |  |
| UniRet90 T2 | ARKLVDYDHSRHTVDTRRAKKVNDAKKLNAEEDYQKAKE |
|  | EHKRVDLDRHARSYKKQEKKEKDEEKMYKAESELETAQA |
| Reito-O54NT2 | TTRKVDMDRYKNEVG |
|  | DKRLMDY |
| Unireto-G8Clip3 |  |
|  |  |
|  |  |
| Uniifeito-KO | AHKQLDLDRHLNK EAKKEKTPKDEEKLYKAEADVQLAQE |
| Unireeigo-SSWZVB7 | SRKLVDYDNCKERALEA |
| UniRef90_J4GNIO | N |
| UniRef90-M7 | - |
| Unifereto-U |  |
|  |  |
| UniRetoto-E5RYH3 | GRKLVDYDSARHSYESVGNGKKPDDVKVOKAQQE |
| UniRefi90-U4LPM5 | HHKQLDYDRHRATLKKLTDKKEKDEKALYKAEAD |
| Rei90-85 ${ }^{\text {a }}$ |  |
|  |  |
| Unireet90-UP |  |
| Unirete9- | $\stackrel{L}{G}$ |
|  |  |
| UniRef90- UPI0004446 <br> UniRef90 G1T89 | GRKLVDYDSARHHELEAVOAKKKDEAKTAKAEEEFNKAQT |
| G3 |  |
|  | NHKLLDFDRFNNSLSKLREKKDKDEKNLDKDENEFENAQA |
|  |  |

LD K L LD F E RVE E K L LE VG
VT Y E E E E A R H
F D KLL D F HN CTERRAEKLLKDKK T QEELLQSARNNYEALLN
GRKLVVDYDSAKNSFNSLLKASSKKDDPKLAKATVELQNAEQ H DKLL DYDAA DSKSEKYKESK IVQEELDFTAKS Y D K L L D Y D S S TK K V E K N NKEMSKAK QL REEQSMMK S K K R LLPD Y A K F K M L K E S G GK V D S K L K E
GRKLLD Y D S ARHHYESLLQTAKKKDEAK I A QAEEEDIGKAQK


NKKSLDDYDTSRSKVRKLDDKPSEDPSRDSRAEQEANMARE D K R L P E Y A RYKA $\quad$ K D R G D K P D K K T $\quad$ E Q GE Q

 D H K L V D Y D R H N N S L N K L R G K K E K S L S D E K N L F K Q F E V A S G
F D K L L D Y N Y Q L G K T E $M L N A K K K D D A K T A K A E D E F N K A Q \square$
LD K L L D F E RVEEK L L E V G S V S Y E E Q A A R H NKRLMDYTR FKALKDRGDKPDKKTTEQGEQ
S K K L L L Y D R L R S S A R K L V D K P S D D T S K L P KA EA EA N Q A R N
 LD KLLDFERTEEKLAEMGS MTYEEEAIRH

 SRK L VDYDSARHHCVLGKPEAPDKNLTLMLDCWQFQKAQK LD KL L D F E RVE E K L L EVGGS | NKK AV | Y A R YK A |
| :--- | :--- |
| QH K L L |  |
| D Y A A C K A R V D R |  |

 AQLLDELPKFHGAAEDLFTGCVRAFAQSQKDFMK VF E EMNLDLQEELPSDWNR TYQA LNNALLVAEELPQFNQLT LQWWLRQVLCTFVTLQKDLSE TYQALHALLVAELPQFNQLALQWLGHILRAFVALQGDLVK EYEA I NTALKADLPQFMVLATRFIDPLEHSFYYMQ A QLLDELPKFHCCAEELFTSCVRNFAMAQKEFVR


AYEELNTELDRDDQRLCADRNTFFDPCFSTDIQAAARYYQ F Víl NETLKDELPKLYS LTAK LMETCDKNFVQIQTTWFN VF EDLENQELLEDLPVVYNSRDGCYVTVFQNDSNLRDVFYR

 VFEDLNQELLEELPVLYN
VFEEMNVDLQEELPSLWHSRVGFYVNTFQSDAGLEENFHK EYDYYNEMMKNELPVLFKMQGEF QPLFVSLYYMQLNVFY $M Y E N L N D K L K Q E L P Q L D N L R V P F L N P S F E S F D K L Q L R F F N$
$E Y E H Y N N L L K T E L P Q L F F M A Q K F M T P L F H S F Y Y M Q L N G Y Y$

$T Y Q A L N S L L V A E L P Q F N Q L A M R W L G Q \square L R T F V V L Q R D L A E$ A QL L DELPKFHNFAKE LFAS CMRGYASAHCEFVK MYTEMNNELLE ILLPAVYDSRDTFFVDTLQSDFNANSVYQT NYEALNQQLLEEMP LLLDSSAN LVNCLSAFAGARKLLSG MYEALNEQLI EEMPKFFTLSSGGI FLDCTIHFYVARKKFIGG

 NYEALSHQLDEELPGLDDAATK L LVAAAGAFAQARK LLCG FVALNEALKDELPKLYSLTAKLMEACLKSFVHDQTSWFK $\square Y E N L N T \square L D S D L P R L D D L R D P Y M D P I F E A F V K S Q Q K F A Q$
 Q

| UniRef90 G3ANM3 | $\text { ES YRVLN G\|L }{ }^{210} \mathrm{Q} \text { GKDD } \quad 220$ |
| :---: | :---: |
| UniRef90-H8X4Q2 | ENYQQLHQLQSRLDAKTKQ |
| UniRef90-B6H305 | M QLNVFFYTLHERM |
| UniRef90-L8H508 | TAYNLFSDVANQLS H |
| UniRef90-Q0TWN0 | MQLNVFYTLHERMQRLD |
| UniRef90_UPI0003EDC407 | EIAVLCHKLYEVVMTKLGDQHA |
| UniRef90-C0NQ09 | MQLNVF Y TLHDQMQ |
| UniRef90-W0T5Z2 | TLYNKFQDM |
| UniRef90-T1KA03 | KI TEEMMKLLD |
| UniRef90-D8PLL6 | L I LE K ${ }^{\text {L }}$ T S |
| UniRef90-V5H1R4 | ECAKVFGELEA【VDK【AT |
| UniRef90-C4Y920 | ENYARMEEVQKKLD |
| UniRef90-W6MRD8 | TLSSRMEE |
| UniRef90-M3K3W5 |  |
| UniRef90_B2VU42 | EAYSRMAQVQQYLDNTRDQYA |
| UniRef90_G8YL29 | D N Y Q L N NLQTKLD |
| UniRef90-A5E1S9 | ENYQRLNELQTKLDAQTKQ |
| UniRef90-C5MI96 | T L Y $\square$ R MEEL |
| UniRef90-F4PL20 | S MANEWHNMPQMVA G $\square$ N D Q |
| UniRef90-K0KNI3 | E G Y T RLA Ql Q N Y L N |
| UniRef90-F4NYY4 | ALFS KLSEIT QRHFDMH |
| UniRef90_UPI000440BE8B |  |
| UniRef90-E9BYE1 | K TVELLLPMYS S L L R Q Q |
| UniRef90_UPIO0026574BB |  |
| UniRef90_C3Y473 UniRef90 J7S8K | ELYYALLQEGDDILETFQARHS EGYSRLSQIQRYID |
| UniRef90-T2MJS4 | EAARLKHELNDLMDQL |
| UniRef90_A5DHM3 | ENYESLA QLETKLD |
| UniRef90-G8B684 | TLYYSKTQEM |
| UniRef90-G0SDC0 |  |
| UniRef90_Q54NT2 | K V S Y EWS PLPS LT K HVDEYS |
| UniRef90-Q0CPN5 | TLQEKLTSLVDV |
| UniRef90-G8C1P3 | EGYTKLAQVQQYLD Q Q A |
| UniRef90_UPI0002657C94 | R IT K Q L Q L S E |
| UniRef90-A0A015K3L9 | ESYDSLNSL |
| UniRef90-R7VIX5 | A A LDQMY HLM |
| UniRef90_UPI0001CE0E7B | EMSKLNQNLNDVLVSLEK Q |
| UniRef90-S2J2N7 | M I Y A R CFELLNQ |
| UniRef90-K0KR14 | TL Y N K F E M |
| UniRef90_S9WZB7 |  |
| UniRef90_UPI0002A48836 | TTMEELKPLLQQFSN |
| UniRef90-J4GNIO | LMLEKL N GF |
| UniRef90_G3NTD4 | RTLGGELTPLVNLLISKFQEEY |
| UniRef90-M7BRC7 |  |
| UniRef90_UPI00046B0E04 | QAL |
| UniRef90_UPI0003316AB6 | QV L Q |
| UniRef90_G4TDK9 |  |
| UniRef90-W5N2R5 | LS L G ELLKPLL |
| UniRef90_E5RYH3 | DSAKLLTEIRDM |
| UniRef90-U4LPM5 | NI F Y TLHEK MQGLLN |
| UniRef90_L5LOU1 | Q A L Q R |
| UniRef90_B5X6Y2 |  |
| UniRef90-L8GZ900 |  |
| UniRef90_A1CDE5 |  |
| UniRef90_UPI00033304E0 UniRef90 G3HZS3 | EMSK N NHNLYEVMSKLEKQHS |
| UniRef90-E91S54 | ESAKVYSELEA IVDKLANE |
| UniRef90_G3XPW4 | QLQHKLGSLFE |
| UniRef90_UPI0004446BB0 |  |
| UniRef90-G1T894 | EMSKLLNQNLTNDVLVSLLEKQ |
| UniRef90-I2K2D3 | TLSSRMEEM |
| UniRef90_G3B9X0 | EGYS SLNNLQLRLD |
| UniRef90-14Y6Q0 | LILD K V Q |
| UniRef90-HOWIX9 | QALEQLKPLLSLLKE F HEEHS |
| UniRef90_UPI00027F2CA1 |  |
| UniRef90-UPIO00328D079 | $\frac{Q}{\square} A \square F \frac{V}{F} Q_{K}^{Q Q A E G S L T}$ |
| UniRef90-A8XX10 | DASKFHKQIVMQLDKLGE |
| UniRef90-E2BH86 | RVT K Q Y LT L CESLPHLLSSQ |
| UniRef90-T1IVY4 | KLSKEMLS L M D |
| UniRef90-K2RJJ4 | VLSL NFEK |
| UniRef90-UPI0003AF56BE | EMSKLNQNLNDVLVSLEKQH |
| UniRef90_G1X8J9 | MQLNVFYTLHEKMQ |
| UniRef90-UPI000258EFD3 | K T T K R Y LT LCENS T QLT S Q |
| UniRef90-I7ZPF4 | TLQDKLCPLVD |
| UniRef90-I1CTZ2 | TGYEQLE |
| UniRef90-K9FT32 | VLQKFPNDLDRLIS DFNSDHA |
| UniRef90_Q5B6S6 | KI GPLID T FPEEVQK\\|VD |
| UniRef90-F1NZ00 | EVLHEAKKEVEQM |
| UniRef90-K1WC66 | $\square \mathrm{MLLEKLQSFAD}$ |
| UniRef90-UPI000359C46B | QALLRESCAL |
| UniRef90-S9W9L2 | EMSKLDNHLYEVMSKLEKQHS |
| UniRef90_F7DV38 | QV $\mathrm{L}^{\text {Q }}$ |
| UniRef90-V5FK24 | LLQK K L |
| UniRef90 F4NYQ0 |  |
| UniRef90-C5PBG6 | MMQKR |
| UniRef90-F6VCA2 | Q VLQRAERELGQLPHSH |
| UniRef90-A7TER1 | DGYTRLS QVQQYLD Q |
| UniRef90-UPI000383BB7C | E $\square$ AVVLCHKLYEVMTK |
| UniRef90-U6DE63 | Q V L Q R |
| UniRef90-D5GMZ2 | S WA A K LRMTFTEMD |
| UniRef90-V5H8I2 | R A T R E L L T L L M E |

UniRef90 M2MXM5 UniRef90_B8MCJ0 UniRef90_S2JI69 UniRef90_W1QG11 UniRef90_M3BTB9 UniRef90_D4DCI0 UniRef90_M2YR34 UniRef90_T2MB02 UniRef90_E9GEN3 UniRef90_Q4TB28
UniRef90 M2WK55 UniRef90-M2WK55
UniRef90-G3U552 UniRef90_B9W9R1 UniRef90_UPI0003D0FB63 UniRef90 B3RKI3 UniRef90_UPI00027F2CA6 UniRef90-A0A015I237 UniRef90_S4R7V9
UniRef90 UPI000394212C UniRef90_UPI000392F22B UniRef90_UPI00033373E3 UniRef90_K7JLL0 UniRef90_A0A017S8D3 UniRef90_F0UCC4
UniRef90 C4JZ77 UniRef90_C4JZZ7 UniRef90_UPI0003F08FFB UniRef90_V4BDR0 UniRef90_UPI0003D0B5A8 UniRef90_R7YY53 UniRef90_UPI000441D4BA UniRef90_L8X0U6 UniRef90_C5K2M3 UniRef90_UPI00046C2854 UniRef90_Q4S5W6 UniRef90_E2ANJ8 UniRef90_F4QEX7 UniRef90_S2KAN3 UniRef90_S7ZB07
UniRef90_A8PRC4 UniRef90_UPI0003EB00CA UniRef90_D3BME2 UniRef90-S4R171 UniRef90-W1QHP5 UniRef90-KCTZ9
UniRef90_K1QYQ5 UniRef90-M7NS36 UniRef90_G3P9Q9 UniRef90_Q6CWD9 UniRef90-K7FWK9 UniRef90 ${ }^{-}$C9SXL3 UniRef90_W0TFF2 UniRef90_R7TXH1 UniRef90_F1Q7X1 UniRef90_U4KXM8
UniRef90_UPI00035A1393 UniRef90_UPI0003834DAF UniRef90_E4ZG66 UniRef90_Q0UXP6 UniRef90-F4NUS7 UniRef90_UPIO002A4CE89 UniRef90_H0Z036 UniRef90_C4R5P9
UniRef90 H2S939 UniRef90_V3ZGR2 UniRef90_UPI000440C758 UniRef90_UPI000440C3D8 UniRef90_R7YRX8 UniRef90_LOPF67 UniRef90_C1EEF1
UniRef90_G3PZY6 UniRef90_C3YIY0 UniRef90_G3N382 UniRef90_UPI0002659A81 UniRef90_UPI0003EACC17 UniRef90 Q6KC98 UniRef90_UPI0003B554F8 UniRef90_I2K349 UniRef90_UPI0003336C5A UniRef90_Q4SUL0 UniRef90-W5KE93 UniRef90_UPI00020AC670 UniRef90_S8BQK2 UniRef90_G3PX49 UniRef90_D2VOK6 UniRef90_I3KLV9 UniRef90_T0SGS4
UniRef90_T2M4E3 UniRef90_A0A024UN71 UniRef90_B6GVR1 UniRef90_G3VPN6
UniRef90_B7PUD5

TEKLKERVGIAEAFQDAEFDELSHRFGGHF\|RLQICMR
 RAPQNLRQKLNMGETTNDPVYQDAERRFRELEDMTKRLSE RRTEKLKERVGDAEAFQDPAFDDLAHKFGGHFDRLQDCMR RRTEKKLK QHVGIT EMFADKEYD ILLSQRFGDNFFQLQQLVMR R R T E K L K E R V G A A A F Q D P D F D E L A H K F G G H F DR L Q A CMR
 $R A Q E K V L Q K L G K A D E T K D E Q F E Q V V I N F R R Q$
RRTEKL KERVG\|AEVFQDPEFDELAHKFGGHF\|RDQDCMR QVLQKLGKADETKDEQFEQCVQNFNKQLTRGQWQKE



R R G Q M I K H A T G $\square$ S K A TE D E L Y K F Y L E K F K N L E L Q G Q Q L S K $R \bigvee S G H L K H L T G M A S Q \square R D E A F E E E E R G F R G L E R A V K S F L R$ $R$ LSRLFMHEAGWVAKTEE
$R L S A K L S A T L G L T N D$
 RRTEKI KAQVGITTDVFEDKEFSILSSRFSDNFFQLQLIMR






 $R G K E K V L Q K L G K T V E T R D S Q F D H C L Q Q E L D Q Q T D G N R L G B$
 RRAQKFKQVTGFAEPTHD VVFEALLLKFEEQQELVRQLAR R RTEK L R Q QVG $\square$ SEMFS DKEYEYLLSQKF GEHFAELHVIVK
$R L S Q L L K Q E A G L I P R T E D K E F D D L E E R F Q W V S L C V T E L K N$ RTKQKLMTKTGHSDET DDVQYHYEKEK』LAVEERLIDRIQK $\begin{array}{ll}R A Q E K V & L Q K L G K T V \\ R A G A & T\end{array}$

RFKGR $\square S T N L G L S L \square K D E S F D R E E N K F R Q L E K M V K V F V R$




GHVERTNDRDYEVEERRFKTMEAAAMRLQK
 IDSRTVVEREFERETKKAEELLDENVVKKIVYK
 $R$ RA QK $\square K E S V G M A E E V V D E T F N K D F E S Y N M H C A Q V E V V A R$
 KDQEYKSRE QKF G GHFF QL QIVI R
 L K I L T G V E P Q VR D E V F D R E E K L F R S L G K A V R QL V K $R$ VT S H L K I L T R GEPP Q A K D G T F N K E E K L F Q S L E K T V K L C V K



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




LK L LT GVVE P QVR DEVFD K E E K L F R S L E K A VR Q LA K RAGAHV IMKTS KA EVVSVDP EFDRRE EKFKKFNGLTA EL DT $R$ VTNHLKI LTR GES QVKDNTGNREEK LFRCLEKTVRHFVK
$R L S Q L L K Q E A G L I P R T E D K E F D D L E E R F Q W V S L C V T E L K N$ RRAEKL RMTVGLSEMPHDERYEHTTSKFRVQYFKLQLVMK $R L S Q H I K H E T G \| A P K R V D E E F G A L E G F F Y V L E H G I L K L L E$

T QT I K T K L G KA E QTEEDEEF S IL L S N K F K SAAE K A CEEN FVV

 RATNK LLTTKDGATKPSKNVQFDQAFSGFEQLQSGIVNLDN RRTENPRQQVGDSNDFK DKDYEAMARRRFGYERGQLQLVLR


|  | 506080 |
| :---: | :---: |
| UniRef90_M2MXM5 |  |
| UniRef90_B8MCJ0 |  |
| UniRef90-S2JI69 | EAQAFRDSVSALLLTHQAEMASYL SVI YQPTPAAALQAAND |
| UniRef90_W1QG11 |  |
| UniRef90_M3BTB9 |  |
| UniRef90_D4DCI0 |  |
| UniRef90-M2YR34 |  |
| UniRef90_T2MB02 | NVNQYVE IFK D NSFSELLQCAESLDRQFHDSPNPPDE』VKYY |
| UniRef90_E9GEN3 | D $\square$ T A VCE QLK G T S Q $\square$ Q F N $\square$ S E A F A SFY GEANRVDNFRT A Q |
| UniRef90_Q4TB28 | ELA Q VP H GRVHQAAVL |
| UniRef90_M2WK55 |  |
| UniRef90_G3U552 | LA HGGSSLGAVVAHPACPRPSQCWWYVWGGECWPSPSHRCW |
| UniRef90_B9W9R1 |  |
| UniRef90_UPI0003D0FB63 | NMGSYLNNLAVVFLIS K P P E C L L |
| UniRef90-B3RKI3 | S $\square$ K S Y L S R M K E S S E A C N S F C K T $\square$ S NLY E G D $\square$ E S S LYY Q L I |

UniRef90_UPI00027F2CA6 UniRef90_A0A015I237 UniRef90_S4R7V9 UniRef90_UPI000394212C UniRef90-UPI000392F22B UniRef90_UPI00033373E3 UniRef90 ${ }^{-}$K7JLL0 UniRef90_A0A017S8D3 UniRef90_FOUCC4 UniRef90_C4JZZ7 UniRef90_UPI0003F08FFB UniRef90_V4BDR0 UniRef90_UPI0003D0B5A8 UniRef90_R7YY53 UniRef90_UPI000441D4BA UniRef90_L8X0U6 UniRef90_С5К2M3 UniRef90_UPIO0046C2854 UniRef90-Q4S5W6 UniRefifo-E2ANJ88 UniRef90-F4QEX7
UniRef90_S2KAN3 UniRef90_S7ZB07 UniRef90-A8PRC4 UniRef90-UPIO003EB00CA UniRef90-D3BME2 UniRef90-S4R171 UniRef90-W1OHP5 UniRef90-K1QYQ5 UniRef90-M7NS36 UniRef90-G3P9Q9 UniRef90-O6CWD9
UniRef90 UniRef90-K7FWK9
UniRef90 $\mathrm{T} 1 \mathrm{EQ72}$ UniRef90-c9SXL3 UniRef90-WOTFF2 UniR Refo-R7TXH1 UniRef90-F1Q7X1 UniRee90_U4KXM8
UniRef90_UPIOOO35A1393 UniRef90-UPIO003834DAF UniRef90-E4ZG66 UniRet90-Q0UXP6 UniRef90-F4NUS7 UniRef90-UPI0002A4CE89 UniRef90_HOZO36 UniRef90_C4R5P9
UniRef90 H2S939 UniRef90-V3ZGR2 UniRef90-UP1000440C758 UniRef90-UPIO00440C3D8 UniRef90-R7YRX8 UniRef90_LOPF67 UniRef90-C1EEF1
UniRef90 G3PZZ6 UniRef90_C3YIYO UniRef90-G3N382 UniRef90_UPIO002659A81 UniRef90-UPIooo3EACC17 UniRef90-Q6KC98 UniRef90-UP10003B554F8 UniRef90-12K349 UniRef90-UPI0003336C5A UniRef90 Q4SULO UniRef90-W5KE93 UniRef90_UPIO0020AC670 UniRef90-S8BQK2 UniRef90_G3PX49
UniRef90_D2VOK6 UniRef90-l3KLV9 UniRef90-T0SGS4 UniRef90-T2M4E3 UniRef90-A0A024UN71 UniRef90_B6GVR1 UniRef90-G3VPN6 UniRef90_B7PUD5
 NVAAYLDNLQ
NAKK NDLMKDLNKTMTDTSSDTCDTYEATDVPGTQTKEV DLKNFLSAVKVMHESSKRVSETLQEVYSSDWDGHEDLKAL ELGRFVSNFENLLETQUNMARTLDSFYGDDGDSLDYLQMV।
NTQSFMDQLQESVTCHECMVADLADFYDDKQSNAEMQKYQ NTKKYVQSUTDILNYQMEFAGII EEDYKPDTGKATEVENA DMKKSTEADLAAMSSADLLSNPLCDQDQAFVDSMTALDTA DCNKFENNTRALLEHFERSDEDFGNDYDVKFTEDESLSKR ELKRYHSNLTEMLAATDSMFRVIKEMYEPTWIGYTEYVVA ESKGYDDSLRDAFRSYKQAVEDLDAETDKSLDGPYQCVSS GCNQFSRNIQSLLVHFQRTIEDFNADYDIKNDPDESLQKR
 DUECYVSGIQQHVEKFIAFTSAFR LYGAAVPTHHANTAM DGKRMTEANNALLKTQDLLPTPLCQSEDEFRSQDEGWDSA
 DFEQYLDALTEHYQQLNIVF GGFVSVCEVESTWRKWAMAH NVHCYMQHTQEMVSVAVGNVKDMETVYK DS NKKRYRSTC SLSLCSQHLQDSLHLAAQNIIVLQEILQDKDEEVNDCSEK
 DVKRWLEANNAVAKSQDLLNSVLCQQDEELRALVEDWDKS
 NAKRYDEAVSDVLNYQLQFSEVIEEIYKPISEEYNDADKA DGKRLAAAIQEQADAAKSMASHIASLAEPEADARERARQLD NGQCYLQHTQEMVSVAVQNVQDMEDILK DPNKNLTNGSS NMSSCLQHIQDAMPLALQNMMELQEDSHNKVPMSSDTRVH SAKKYEDUMLAAYQSEKKLCSDLDDFCKENDDLRRTVEEW
NVNCYVQYTQEMVPVAVQNVKDMENIITDPSKADTNGSSH DMSLFLKNFEDLMEAQLNLVKTDDSYYGDDGGSDEYLKGL N TSFCLQH $\square Q D A M P L T L Q S I L E L Q E \square S Y S K D E E E N G Y S E T$

NVAAYLDNLQAFLYYRPHEYNTD\PEGPAVQYCNDA DI EMYLNDVDKQITEFGVLAVKFEEFYEERWQ TFTKRT NVETYLDHLQRFLSCKT EEFDLDMDGEKALICY $H S N Q L I E N F H A F S T T L A F G A E D F R D V N T Q E Q A G M V L E K V S$
$N V Q C Y L Q Y T Q E M V S V A V S V Q D V K N I V K D S N K N D G G L V$ ALQGFILSLKGFHASANVLLRAVEDVASPEVRQFVDVFKA EGKKHLESNAALSKMQQRFAQSI KETDERLFNDTQSLQQT AVKGYUAALRGFHTASTLLNRAVEDVSNSESPEVKQFIDV

UniRef90_M2MXM5 UniRef90_B8MCJ0 UniRef90_S2JI69 UniRef90-W1QG11 UniRef90_D4DCIO UniRef90_M2YR34 UniRef90_T2MB02 UniRef90_E9GEN3 UniRef90_Q4TB28 UniRef90-M2WK55
UniRef90-G3U552 UniRef90_B9W9R1 UniRef90_UPI0003D0FB63 UniRef90_B3RKI3 UniRef90_UPI00027F2CA6 UniRef90_A0A015I237 UniRef90_S4R7V9 UniRef90_UPI000394212C UniRef90_UPI000392F22B UniRef90_UPI00033373E3 UniRef90-K7JLL0 UniRef90_A0A017S8D3 UniRef90-F0UCC4 UniRef90-C4JZZ7 UniRef90_UPI0003F08FFB UniRef90_V4BDR0 UniRef90_UPI0003D0B5A8 UniRef90_R7YY53 UniRef90_UPI000441D4BA UniRef90_L8X0U6 UniRef90_C5K2M3 UniRef90_UPI00046C2854 UniRef90_Q4S5W6 UniRef90_F4QEX7 UniRef90_S2KAN3 UniRef90_S7ZB07
UniRef90_A8PRC4 UniRef90_UPI0003EB00CA UniRef90_D3BME2 UniRef90-S4R171 UniRef90-W1QHP5 UniRef90_ICTZ9
UniRef90_K1QYQ5 UniRef90-M7NS36 UniRef90-G3P9Q9 UniRef90_Q6CWD9
UniRef90_K7FWK9 UniRef90-K7FWK9
UniRef90- T1EQ72 UniRef90_C9SXL3 UniRef90-W0TFF2 UniRef90_R7TXH1 UniRef90_U4KXM8 UniRef90_UPI00035A1393 UniRef90_UPI0003834DAF UniRef90_E4ZG66 UniRef90_Q0UXP6 UniRef90-F4NUS7 UniRef90_UPI0002A4CE89 UniRef90_H0Z036 UniRef90_C4R5P9
UniRef90_H2S939 UniRef90_V3ZGR2 UniRef90_UPIO00440C758 UniRef90_UPI000440C3D8
UniRef90_R7YRX8 UniRef90_R7YRX8 UniRef90_LOPF67 UniRef90_C1EEF1
UniRef90_G3PZY6 UniRef90_C3YIY0 UniRef90_G3N382 UniRef90_UPIO002659A81 UniRef90_UPI0003EACC17 UniRef90_Q6KC98 UniRef90_UPI0003B554F8
UniRef90-I2K349 UniRef90_UPIO003336C5A UniRef90_Q4SUL0 UniRef90-W5KE93 UniRef90_UPI00020AC670 UniRef90_S8BQK2 UniRef90_G3PX49
UniRef90_D2V0K6 UniRef90_I3KLV9 UniRef90-T0SGS4 UniRef90-T2M4E3 UniRef90-A0A024UN71 UniRef90_B6GVR1 UniRef90_G3VPN6
UniRef90_B7PUD5

90
WRKYSTAFP 90 K K A AlV|HKRVV 100
110
120
 WH R L R M F VRE HVATVRKGVI DPMLTMLDKLYEGPQKVMTKR
 $R D L T L I A F G E H K A D V Q K R V L A P M I Q C I K L H E G P Q N A D N K R$



 WRRYGQVFNEHKADI TKRVLAPMIQCI KLHE GPQNAI NKR



 K E IA P T H GKE M E E A V K K N I Y P Q I E K F L E L F K A P A A V MK K R RHI A T ESSFP QFKDRVDR LVDSPLSALLASFAGPHKLVQKR QLLQSAVFPEFKQRVGRLVWQPLCSLADMLEGPQQLVKKR E Y L H G T V F P E F K Q R L D R L V C C P L C C S L T E L Q L GAF L E F K Q R L E GLLVWR P L C S L A A K A L S G P Q N L I I K K H
 Y D DM T VA L P E H L D V V R K S V I D P M I S L L K L Y D G P Q R V MR K R WC R F R L A $K$ S QRDKLYKNYTLFVQQRVVSPDNSLLIMFQGPHKLIQKR

 WRRYSMAVREDT T IAALPEVIDNPILTLWKVHDNPQRMMQKR R K L H S T M F P V Y K R R L E H L V Y K P L C N L S E T L K GP H K L I K K R

 VEGED LLWND YEVKLLLDQAVRTMESYVSQFPDVRVRRK


 AS GYETHRKAYE DRTSESSFNKPLLAEY I A Q Y KE V V K K RME E L VGNND LLLWE DYEE K LAADQA LRTMMENYVSQF SEEI K

 E A Q E L L D R K H F Q E TVVR D MVGS P L N T L L A L FEA PGKVI QK R


V

 VK RLEASSSEELNSTAQQKTVI EPMK K LASSVFPSLQQSMRRR KKNGNDPYKHFKDHMEHLVVAP LSSSLLGMFAS PQKLIQKR
 LVVKMDMHMTDDNVVVMRTVLEPPLKKFVSMFPYAQVAVKKR R N N S T N L C K DL M A QL D K LVL T P L S T L RA L F S GPQ KL I Q K R $F E L Q N K A L E D H K A A V R S R V L K P V G D L W E M W V S Y Q K T I E Q R$

 QTNTANLCEDFMA QLD KLVLTPLSALQALFPGPQKLI QKR



HVPVETPYSELKT DMEEEVIKTAKDAREADAPMHKIIAKKR
 $M E V M D V M D Q D V R P A C L E Q V N K P V G Q L D E E F P A Y Q Q C V D K R$
 D Q GS S H K LIF NT N C CKEE K L V L T P L

 K NGK D P Y K Y FK E RME E LV L L P P L T S L Q GMF T A P Q K L I Q K R

 $R D L H L E A F L K F K Q R L E G L V W Q P L C S L A K A L L G P Q N S I K K R$ KEMKEVALVDHR $\square R \| K R H V L T P L D A A L K M C E N P Q K V M L K R$






## UniRef90_M2MXM5

 UniRef90_B8MCJ0 UniRef90_S2JI69 UniRef90_W1QG11 UniRef90_D4DCIO UniRef90_M2YR34 UniRef90_T2MB02 UniRef90_E9GEN3 UniRef90_Q4TB28UniRef90 M2WK55 UniRef90-G3U552 UniRef90_B9W9R1 UniRef90_UPI0003D0FB63 UniRef90 B3RKI3 UniRef90-UPI00027F2CA6 UniRef90_A0A015I237 UniRef90-S4R7V9 UniRef90_UPI000394212C UniRef90_UPI000392F22B UniRef90_UPI00033373E3 UniRef90 K7JLL0 UniRef90_A0A017S8D3 UniRef90_F0UCC4
UniRef90 C4JZ77 UniRef90_C4JZZ7 UniRef90_UPI0003F08FFB UniRef90_V4BDR0 UniRef90_UPI0003D0B5A8 UniRef90_R7YY53 UniRef90_UPI000441D4BA UniRef90_L8X0U6 UniRef90_C5K2M3 UniRef90_UPI00046C2854 UniRef90_Q4S5W6 UniRef90_E2ANJ8 UniRef90-S2KAN3 UniRef90_S7ZB07 UniRef90_A8PRC4 UniRef90_UPI0003EB00CA UniRef90_D3BME2 UniRef90_S4R171
UniRef90_W1QHP5
UniRef90_I1CTZ9 UniRef90_K1QYQ5
UniRef90-M7NS36 UniRef90-Q6CWD9 UniRef90_K7FWK9 UniRef90_T1EQ72 UniRef90_C9SXL3 UniRef90_WOTFF2 UniRef90_R7TXH1 UniRef90_F1Q7X1 UniRef90_UPI00035A1393 UniRef90_UPI0003834DAF UniRef90_E4ZG66 UniRef90_Q0UXP6 UniRef90_F4NUS7 UniRef90_UPI0002A4CE89 UniRef90_H0Z036 UniRef90_C4R5P9
UniRef90_H2S939 UniRef90_V3ZGR2 UniRef90_UPI000440C758 UniRef90_UPI000440C3D8 UniRef90_R7YRX8 UniRef90_L0PF67 UniRef90_C1EEF1
UniRef90_G3PZY6 UniRef90 С 3 YIY0 UniRef90 G3N382 UniRef90_UPI0002659A81 UniRef90_UPI0003EACC17 UniRef90 Q6KC98 UniRef90_UPI0003B554F8 UniRef90_I2K349 UniRef90_Q4SUL0 UniRef90_W5KE93 UniRef90_UPI00020AC670 UniRef90_S8BQK2 UniRef90_G3PX49 UniRef90_D2VOK6 UniRef90_I3KLV9 UniRef90-T0SGS4 UniRef90-T2M4E3 UniRef90_A0A024UN71 UniRef90_B6GVR1 UniRef90_G3VPN6 UniRef90_B7PUD5

K K R|l V|D Y A K C K
140
150
160
S IIE K R G D K P D K K T L
ASE

NHKLLI DYDRHRDADQQKLNVKTEREEKADFKVQQSQLDTATQQ NHK QL DLDDRH Q N S L K K A QL K A E K N E K M E E K V Y K Y E N D V A $\square$ KKKIVDYAKCKSDERRGQKPDKKTME
N K RLMD Y VKYK A $\quad$ K
KKKVVDYAKCKSEERRGQKPDKKTVVE
AS D

NDKCLDFDRAANKAARAKDTKEKD K $\square$ MQTQDEDNDAAE R DKLLDSNGASERAT SRKLLI D Y DSARHHLLETLQMS GMKNDRKMMQAEDELLKKAQQ
 GRKLVDYDSARHHYES LQTAKKKDEAK DAKAEEELVKAQK HNKLLD Y DAMKNK LRRKLDDNPTTNDSPSMKTNQELTTEVES L D K L L
A D K K L
D F

 Y D K L L D Y S A R REASERNRDRPES EELGQAT QK



F DKLLD Y D SVLHKAEKGSKEKAK

 KKRIVDY A ARFKGMIDRGEKPDKKT QEAAD S DKLLD Y E E Y E EK

## RNETGSVTYEEEANM

NKK
$N K R \square M D Y \square R Y K$
TLKDRGDKADKKTTEQGEQ E E I E EKKSETGNVTY

DEEATMN
HDK LLD Y DA A $\square$ S K S EKYYK S K
K K D A T S L A $\square \mathrm{D}$ Q E LIFTAK S DLRRVDMDRYFRDY S $\square K A N K G K D A T S L A K T E A K H Q K T K E$ ALKMIDYDRVR DMKSKGD VPDKALQESAD NKR LPD Y ARFKAAKDRGDKPDRKSTEQGEQ
DHKL DDFDRHTNSYTK LKKEKQAKDDQHMFK LGEHDCEAAAA LD KL L D F E R V E E K L L E V G S TTRKVDMDRYKNELGKLDEKATSSNSKLGPTEEKFKDCKE
 NHKLI DYDRHR LSSLQKLTTKTEREEKQDFK $\square Q S Q L E T A T Q$ $F$ D KL L D Y D S M Q R KV T D GR M M M A L Q S VK N ERK RLLD Y D R HR S N L K K L Q D K K E K T E R A L Y S A E NVVVE H ST Q D LAA S Y K V D S L R H K L Q K L R T P G L K Y E N E K DK DE G K Y D K A L K LD K LLD Y E E I E EKK SETGNMTY BE DEEATRN NRKLMDYDSARHHHDSLLMSKK TQDTKS DQNVAKEDEKT Q K GHKLLDYDSLRAKVKKLAEKPDKDVTKLPRAEKEMEMAKA D LAS S K A D S L K H K L Q K L R T P G L K Y E NE K I K A E S K Y E K A L K





 Y DKFLD YNSYLQR
 LD K LL L Y Y ELL S EKK S S S S YEEQAVA N EQVLQEF QKCQLKNDKYEDRERTGQNKQEQSKKMLNSARE
 E D R KL D F E RYKE HVEKKDKRSDRDNTALAKKHQDDLE HA TAQ ERKRLLDYDRHRANLKKLQDKKEKTERALYNAENMLESSTQQ
 Y D K LL L D Y C S R L E P V E Q SLQ E Y S R Q QL L V E K LQ E K ERT GPNK LE Q GKKA L S A A K E

 A HKKI DYEQCKSKVRRLVDKPAKDAAKDPRAEKELSMAKE YD K LL L Y C CRRLERSSSFASSSSSTTVVSTASPASDAGPAKR GRKKFD Y DVLKTKKLDK LQ DKK S K QL K RLLEGVKXDFEQARF

 LD KLL L X E RVE EK L
EKKAVDY ARFRAMKEKGDK】DKK T K E L A D A
 Y DKLLL D Y C S HLLERSSSFSSASSTTSSSSSPASEDPAPAKR

 D K W L L D Y ARFKVVEAQAGKTDKK $\downarrow$ A E E GE Q
$\begin{array}{llllllllll}Y & D & K & L & L & D & N & G & Y & T \\ Q & H & K & L & L & D & Y & A & A & C\end{array}$
Q H K|LLLD Y A A C K A R

## UniRef90_M2MXM5 UniRef90-B8MCJ0 UniRef90-S2JI69 UniRef90-W1QG11 UniRef90-D4DCIO UniRef90-M2YR34 UniRef90-T2MB02 UniRef90_E9GEN3 UniRef90_Q4TB28 UniRef90-M2WK55 UniRef90_G3U552 UniRef90_B9W9R1 UniRef90_UPI0003D0FB63 UniRef90-B3RKI3 UniRef90_UPI00027F2CA6 UniRef90-A0A0151237 UniRef90_S4R7V9 UniRef90-UPIO00394212C UniRef90_UPIO00392F22B UniRef90-UPI00033373E3 UniRef90 K7JLL0 UniRef90-A0A017S8D3 UniRef90-FOUCC4 UniRef90 C4.J777 UniRef90_UPI0003F08FFB

 UniRef90-V4BDR0 UniRef90_UPI0003D0B5A8 UniRef90-R7YY53UniRef90-L8XOU6
UniRef90_C5K2M3
UniRef90_UPIO0046C2854
UniRef90_Q4S5W6
UniRef90-E2ANJ8
UniRef90_F4QEX7
UniRef90_S2KAN3
UniRef90_S7ZB07
UniRef90_A8PRR4
UniRef90_UPI0003EB00CA
UniRef90-D3BME2
UniRef90-S4R171
UniRef90-W1QHP5
UniRef90_1CTZ9
UniRef90-M7NS36
UniRef90-G3P9Q9
UniRef90-Q6CWD9
UniRef90-K7FWK9
UniRef90 C9SXL3
UniRef90-WOTFF2
UniRef90-R7TXH1
UniRef90_F1Q7X1
UniRef90_U4KXM8
UniRef90_UPIO0035A1393
UniRef90_UPIO003834DAF
UniRef90-E4ZG66
UniRef90-Q0UXP6
UniRef90-F4NUS7
UniRef90_UPI0002A4CE89
UniRef90_HOZ036
UniRef90_C4R5P9
UniRef90 H2S939
UniRef90-V3ZGR2
UniRef90_UPIO00440C758
UniRef90_UPIO00440C3D8
UniRef90_R7YRX8
UniRef90_LOPF67
UniRef90-C1EEF1
UniRef90 G3PZY6
UniRef90_C3YIY0
UniRef90-G3N382
UniRef90_UPI0002659A81
UniRef90-UPI0003EACC17
UniRef90-Q6KC98
UniRef90_UPI0003B554F8
UniRef90-I2K349
UniRef90_UPIO003336C5A
UniRef90-Q4SULO
UniRef90-W5KE93
UniRef90_UPI00020AC670
UniRef90_S8BQK2
UniRef90-G3PX49
UniRef90-D2V0K6
UniRef90_I3KLV9
UniRef90-TOSGS4
UniRef90_T2M4E3
UniRef90_A0A024UN71
UniRef90_B6GVR1
UniRef90_G3VPN6

 QFQA LNETLKDELPKLYALTKKLIEACLDQFDDVQKQWQ AYLTINSLLVSELPTFNHVALKWLTCULCSFVTLQRDLAK
 $T Y L A G N T L L V S E L P T F N Q V A M Q W L G Q \square L R S L V A L Q R D L A K$
NYEA LNQQLLEELPDLLDAVTNDLTS
GYQTLSEELMRDIPLLVNDRQSVFDPAFAAFDNSNSKFFV AY ITSI NGQLVDELPKFFSLTAKYFD LLTGGLALVQLKFYG



Y DA $\square N D T L L D E D P R \square H T L I E K D V E V V M C N F A Q L E K Y W A S$ TYKTMNTLLLNELPRFNGLALQMIWSMLGTFSCLHSNLAS KWEEVNDMCKQHI LE ILEKEQSVYEPADQQLCANLDEWNS DYEALNALLVEELQRFNTAAYTILTNSVVFLVAL

 $D Y E A L N A Q L V E E L Q V F N Q A V R Q V L L N C L Y C F V T L L R D L M F$

| UniRef90 M2MXM5 | 220 |
| :---: | :---: |
|  |  |
| UniRef90 B8MCJ0 | ALQQKLGP LD RFP |
| UniRef90_S2JI69 | ARCYE |
| UniRef90_W1QG11 | TLSSRMEEMSD LLE QF A N |
| UniRef90-M3BTB9 | T WERKLKPLLE |
| UniRef90-D4DCI0 | S $\square$ ERLPQDVNQ\\| I T |
| UniRef90-M2YR34 | TWERKLRPVLE |
| UniRef90-T2MB02 | K CCVVQI NEV |
| UniRef90-E9GEN3 | R】T K S L D L N |
| UniRef90-Q4TB28 | HPGEPPRQLYEVMTKLDAEQHS |
| UniRef90-M2WK55 | T WERKLQPL L E A V D |
| UniRef90-G3U552 | EMSKLNEEVSNFLYGLPEAHS |
| UniRef90-B9W9R1 | E N Y HVLNQLQLKL D A R T R Q |
| UniRef90-UPI0003D0FB63 | KVLEETTRELAQLPHSH |
| UniRef90-B3RKI3 | KM K ELHEM |
| UniRef90-UPI00027F2CA6 | E I A V L CHKLY EVM T K L G D Q H A |
| UniRef90-A0A0151237 | Q GMDFRQ |
| UniRef90_S4R7V9 |  |
| UniRef90-UPI000394212C | AQVLHHAEKELEQLPH G H |
| UniRef90-UPI000392F22B | QVLRQAEKELEQM |
| UniRef90-UPI00033373E3 | Q VLQRAESSSAQLPHHH |
| UniRef90-K7JLL0 | KILKKYMNTSEVV. |
| UniRef90_A0A017S8D3 | L L Q K R L A P L V D |
| UniRef90-FOUCC4 | L Q Q R L |
| UniRef90-C4JZZ7 | LMQKRL |
| UniRef90_UPI0003F08FFB |  |
| UniRef90-V4BDR0 | DTS LQETYSLLDSF |
| UniRef90-UPI0003D0B5A8 | LALQELS PLLSLLQVFQEEHS |
| UniRef90-R7YY53 |  |
| UniRef90_UPIO00441D4BA UniRef90-L8X0U6 | Q VLQEAEGE】AQLPHGH |
| UniRef90-C5K2M3 | LIQQKRFHDDEQ |
| UniRef90_UPI00046C2854 | Q VLQEAEIELAQL |
| UniRef90-Q4S5W6 |  |
| UniRef90-E2ANJ8 |  |
| UniRef90-F4QEX7 | ETS RAFQKAHSQVQNDNE |
| UniRef90-S2KAN3 | LM Q R E W I K LVE Q |
| UniRef90_S7ZB07 | LFQSR LEEHVDDFPD |
| UniRef90_A8PRC4 | SMEKL |
| UniRef90_UPI0003EB00CA | Q V LQRAEGSMAQLPHHH |
| UniRef90_D3BME2 | A MAS E WA HLP A MVS HIND |
| UniRef90_S4R171 |  |
| UniRef90-W1QHP5 |  |
| UniRef90_I1CTZ9 | M |
| UniRef90_K1QYQ5 | Q |
| UniRef90-M7NS36 | T LY EKMKRDD |
| UniRef90-G3P9Q9 |  |
| UniRef90_Q6CWD9 | NMYTFIGTCSEV |
| UniRef90-K7FWK9 | QM LQEAEDELA QLP HS H |
| UniRef90-T1EQ72 | D A G K |
| UniRef90-C9SXL3 | EA Y S RMA QVQQYL |
| UniRef90-W0TFF2 | NMYT F |
| UniRef90-R7TXH1 | DA HQS Y G G Q HVFS QSKD |
| UniRef90-F1Q7X1 |  |
| UniRef90-U4KXM8 | DASKTKMTFME |
| UniRef90-UPI00035A1393 | EAVKVYGELSNTMNGH REHS |
| UniRef90_UPI0003834DAF |  |
| UniRef90_E4ZG66 | T C S K K l Lp L L E |
| UniRef90_Q0UXP6 | TCSKKILPLL |
| UniRef90-F4NUS7 | $N \square R Q \\| V V P L A D A L Q$ |
| UniRef90-UPI0002A4CE89 |  |
| UniRef90-H0Z036 | E A L Q S |
| UniRef90-C4R5P9 |  |
| UniRef90_H2S939 | DMEQLFHSFARQLS |
| UniRef90-V3ZGR2 | EAFKIYSELSLQMNDLQ |
| UniRef90-UPI000440C758 | E\\|GKLSQNMNDILVKLENQ |
| UniRef90_UPI000440C3D8 | ElGGKLSQNMND\\|LVKLENQ |
| UniRef90-R7YRX8 | Q F Y TLLH N |
| UniRef90-LOPF67 | T LY E K M K |
| UniRef90-C1EEF1 |  |
| UniRef90_G3PZY6 |  |
| UniRef90-C3YIY0 | NVYKVLCEL |
| UniRef90-G3N382 |  |
| UniRef90_UPI0002659A81 | EATSRLQK |
| UniRef90-UPI0003EACC17 |  |
| UniRef90-Q6KC98 | E G Y S R L A Q $\square$ Q Q Y $\square$ N R $\square$ P |
| UniRef90_UPI0003B554F8 |  |
| UniRef90-ı2K349 | D L Y |
| UniRef90_UPI0003336C5A | A A Q A Y S EVVQV |
| UniRef90-Q4SUL0 | EMSALNHELYNLMKKVETQHS |
| UniRef90-W5KE93 | E $\square$ GKLS Q M M D I LVKLENQ |
| UniRef90-UPI00020AC670 |  |
| UniRef90-S8BQK2 | RMEGLLD |
| UniRef90_G3PX49 | DMEQLFQSFAQQL |
| UniRef90-D2V0K6 | A LS Q T M $\quad$ E L K N H S S T L |
| UniRef90-I3KLV9 |  |
| UniRef90-TOSGS4 | DVY DLTAKL |
| UniRef90-T2M4E3 | K SREI FEQLAEKVD |
| UniRef90-A0A024UN71 | TSAMV |
| UniRef90-B6GVR1 | MLQTKNRDFQEVISNWS S G Y A |
| UniRef90-G3VPN6 | \ALLK P Y S TVMPLL |
|  |  |

UniRef90_UPIo00334602D UniRef90-J4WM26 UniRef90-F2SPE9 UniRef90-M1W999 UniRef90-E5SOZ3 UniRef90-F7ENG4 UniRef90 G7XUA6 UniRef90-UPIO003D0E061 UniRef90-T1FTZ0 UniRef90-G1X7D9 UniRef90-Q80VK6 UniRef90-A7SOR8 UniRef90_H3AMS2 UniRef90-L8WTI9 UniRef90-Q01AQ8 UniRef90-W1QIS9 UniRef90-K7GUK5 UniRef90-W6MWE1 UniRef90-S9X2H0 UniRef90_UPIOO039918AA UniRef90-UPI0003336935 UniRef90-W3XFC6 UniRef90-F7VSNO UniRef90-W7U744 UniRef90-T1F096 UniRef90-C5MAZ3 UniRef90-M3YC74 UniRef90-F7VLQ8 UniRef90-G2R287 UniRef90_B9W8R0 UniRef90-B7PU93 UniRef90-H3AQU8 UniRef90-W5KTPO
UniRef90_A3LPP0 UniRef90_Q2H3W0 UniRef90-K3WP46 UniRef90-K0K6W9 UniRef90-M7TLZ6 UniRef90-W9XTT1 UniRef90-R9P4A0 UniRef90-D8LF98 UniRef90_S2JCJ5 UniRef90_L7M7J6 UniRef90_S3CP45 UniRef90_H8WWS5 UniRef90-W3XPY3 UniRef90-N4V5X7 UniRef90-H2LQB6 UniRef90-Q6GLN1 UniRef90_G0SBI4 UniRef90-G1Q918 UniRef90-D8M947 UniRef90-M9MFP1 UniRef90_K7GIM4 UniRef90-G1MGE8 UniRef90-V5G914 UniRef90-A4RW89 UniRef90_G2QMA6 UniRef90-B2ZFY0 UniRef90-M7S5X4 UniRef90-D3B2W1 UniRef90-W5N308 UniRef90-E6ZPY7 UniRef90-E7F3M3 UniRef90-F1NKT0 UniRef90-L71222 UniRef90_F6ROW7 UniRef90-D3BE19 UniRef90-E7Q1D9
UniRef90_Q5PPZ5 UniRef90-G1KRH2 UniRef90-G1N2X8 UniRef90-M7ASY2 UniRef90-G8BCV7 UniRef90_G4MUA9 UniRef90_Q4P5Y6 UniRef90_A0A024JND0 UniRef90-H9GE23 UniRef90-V9D9G5 UniRef90-W2RXU1 UniRef90_G9NHC4 UniRef90-C1MX83 UniRef90-K8EHP6 UniRef90-H7BYV6 UniRef90-H2M6A4 UniRef90-A7EFF3 UniRef90-B3S2T1 UniRef90-B0EIA9 UniRef90-E9CIA2 UniRef90_G8YK65

 TMHRQFGKMKRSADEQVSVLLKDFDNADKLLTKI I D


 RRAEKLRQTVGLTDLPADTRYTTAVEKFHDQAAKLKPLMD $R$ VTNHLK LITRGESQVKDNTFNREEKLFRSLEKTVRLCVK $R \square S \square Y \square Q H E A G \square V P K T E D K E F E L L K E N F F \| L E K A V T Q L Q E$

RTSQRLLQNFGSAEKTDDQQFKGLWSCVQEQERDLQEDCA RAPQYI SK LGSTEK $\square$ SDPEFDRIVSEIKGLDKQFETFEL RTREKLLEGUGKAKATQDEVFDQHASNLVKQSKACEKLHK RAGTQMMMRSGKVEGSVDREFDVQEANFKRDAEFTDRLHE

 NDYEDADNVLQKII E LLKEYEDADQLLAR LL
RGVEA $\square$ F QK $\square G V S D G T \square D T E Y E D C K Q R F D R T \square R E L G E L S Q$
TS Q LLKQKDK FASYTVDQEFNEMEQVVIDMDVQVKKMLK RVTNHLK ILTRGEPQVKDNTFNREEKLFRSDEKTVRHCMK EDEEYAKLHERFGDEFLRLQVVLR
 RVTTH TKG ELLDEKTVEEYVSKFVRLETDTKKLHK RLSQY KHETGMDPKVKDMLI DKEEKFFRSLEKAVRLSVK

RAQNKITTIGAAKPSKNVQFDMAYNDYEDADHVLSQID保
 R QSVHRHFGKMKRSADEQVSLLLKDFEEADRLLUKI DE RRQEKVKKVLGPAEDIDDGQYKELVEQFRQLDKATSDFAR RLKENIAAQTGK EAVDNSEFEERSQRVADLKEKVGKVRD ELDERT $\square E E F V S K F V R L E R D T K K L H N$
 EDADY LKLHEKFGDDYLRLQVVLR
 RLSHRIMYEAGUIPKKREDKEFDGGVEHFQULESAVKTLKH $R$ VT NY $L K \| L T R G E S Q V K D N T F N R E E K Q F R S L E K T V R H C V K$
 RRQEKVKKALGPTEDADDGQYKS VVVQFRTGAKKSVASFAR $R$ VTNHLK L LTRGEPQVKDNTFNREEKMFRSLEKTVRHCVK RTSQRLLQSFGTAEKMRDDEFKTLWNSVQQQESGLKE VAQ

EDPEYLKLHEKFGDDY LRLQVVLR RAKHRVLAKVGAAETTVDTK LQVESEKDFTDFKLMKRLNK RMSQMI KHETGDKPKIRDEEFDILEGYFCVLEKGIIELHE RRQEKVKKVVGRAEDVDDTQYKAGVVQFRQL EKATGSFAR RVTSHLKK

QK KKNTDSGGPSKSDVNFENTRKEFKYVSEYVFADHT RAGHSVIIGKNVDKT IDDEYDMEERRYKVLQRAGEALQK
RLSRLFMHEAG\|VSKTEDKEFDEDEEKFQQLATAVTDLKE $R V T S H L K \square L T G G E P Q V K D Q T F N K E E K D F R S L E K T V K S C V K$
RTPQF $\square K Q K \square N Y A S Y T S D E E F N T L E A H F K \square Q E L G L H S L Q D$ R RRQEKVKKVLGPAEDVDDGQYKELVAQFRQLEKATSTFAK
 HSVQRHFGKGKRSADEQVSHLLKDFEEADKLLTKII E
 GGAREPEDPEYLKLEERFSDDYLRLQVVL/R QKNTGTSKRDDEDFNTLWGRVQRQEALLNLI QK RTGQMVLETVRVVDKPKDDDFNNLWRRVQKSDKVLQQLGK
RFSQHIKHETGMAPKVVDEEFDALEGFFAVLDHGILQLLE RRSEKLASTVVVRPHDDEVFVKLHEKFGHDYLRLQVVMR

RK F Y Q $\square$ K T H VGA G Q K TMDS DVVQYAKN K L
KKVDDEHETNVKNYMRLQEVSENLQK
RAPQMDRQRVK LESQTVDEEFDEMYDNLLFIEKS IDRAMSK

UniRef90_UPIo00334602D UniRef90-J4WM26 UniRef90-F2SPE9
UniRef90 C5P7F4 UniRef90-M1W999 UniRef90-E5SOZ3 UniRet90-F7ENG4 UniRef90 G7XUA6 UniRef90-UPIOOO3DOE061 UniRef90-T1FTZO UniRef90-G1X7D9
UniRef90 O80VK6 UniRef90-A7SOR8 UniRef90-H3AMS2 UniRef90_L8WTI9 UniRef90-Q01AQ8 UniRef90-W1 QIS9 UniRef90-K7GUK5 UniRef90-S9×2HO UniRef90_UPIO0039918AA UniRef90-UPI0003336935 UniRef90-W3XFC6 UniRef90-F7VSNO UniRef90-W7U744 UniRef90-T1F096 UniRef90-C5MAZ3 UniRef90-M3YC74 UniRef90-F7VLQ8 UniRef90-G2R287 UniRef90-B9W8RO UniRef90-B7PU93
UniRef90-H3AQU8 UniRef90-W5KTPO UniRef90-A3LPPO UniRef90-O2H3W0 UniRef90-K3WP46 UniRef90-KOK6W9
UniRef90-M7TLZ6 UniRef90-W9XTT1 UniRef90-R9P4A0 UniRefofo-D8LF98 UniRef90- $22 J C J 5$ UniRef90_LMM J 6
UniRef90
S3CP45 UniRef90_H8WWS5 UniRef90-W3XPY3 UniRef90-N4V5X7 UniRef90-H2LQB66 UniRef90-Q6GLN1 1
UniRef90 GOSBI4 UniRef90-G10918 UniRef90-D8M947 UniRef90-M9MFP1 UniRef90-K7GIM4 UniRef90-G1MGE8
UniRef90 V5G914 UniRef90-V5G914
UniRef90_A4RW89 UniRef90_G2QMA6 UniRef90-B2ZFY0 UniRef90-M7S5X4 UniRef90_D3B2W1 UniRef90-W5N308 UniRef90-E6ZPY7 UniRet90- E7F3M3 UniRef90-F1NKTO
UniRef90 L7l222 UniRef90-F6ROW7 UniRef90-D3BE19 UniRef90-E7Q1D9
UniRef90
Q5PPZ5 UniRef90-G1KRH2 UniRef90-G1N2X8 UniRef90-M7ASY2 UniRef90-G8BCV7 UniRef90-G4MUA9 UniRet90_Q4P5Y6 UniRef90-A0AO24JNDO UniRef90-H9GE23 UniRef90-V9D9G5 UniRef90-W2RXU1 UniRef90-G9NHC4
UniRef90_C1MX83 UniRef90-K8EHP6 UniRef90-H7BYV6 UniRef90-H2M6A4 UniRef90_A7EFF3
UniRef90_B3STT1 UniRef90_B0EIA9 UniRef90-J3NUAO UniRet90_E9CIA2
UniRef90_G8YK65

STAFCLQHMQEAMP|L|A|LQSAMGLLHEDSYSKDEAERGCPES DVEYYTQYVHEFLQSSLEGVMRLQNFPEMESKWVQFNTSM SSKAWRDAWSS FTYQARLVQEFEQLYNPIVGASERVVRL DVEFYTRQVSAYVHEFLQYMSSTELVMRLQPSNYPELENK NLQDVCDRTLSTFNHYQSMAQSFLPNSSDSNNSPSQQFAL




PEAEDTVRN
VGAAYKEAQRNVFTHSKRDAELVRQLVESTWEGAPRLARE SLQ KH R N SMS KL LA H S DS I GLLCFRDLLSSQSEGGATQYVEQ
 $D L S L Y L Q H \square R$
$N$ S S S SQQLQQ D S IHLLA A Q N I IGGQQE ILRDKDEVDE CLR SVSLCLLQDMQDALPLALQSVTELQEMSQNPDQEEQGSTDT



Y TKVFAEGMPQ LTTSS TRDAEAFQNDMDPYSNDKYDTHVA NITLCHQHDQDYTCDSLRAVSSVWQFCDNESKRERETRNH DVEF Y T R S A S T Y V H E F L Q YV T A M E LVVYAH I ES R WVQF S VS NAKSWRDSWTALVTTMQLQVTEYEALYDPIVGASDRLKTA



 AFRGF I DS LR GFHVSAQALVQVIDNAYEMKQFAGA IKASF EVLR Y I SHI K S F L N H STCTGEALLDKLFDP QFDQS GYGTS Q DVVEYYTR QVATWVNDF LVRFGSAMEVVMMRSPSSHPEMEAR R C L G WS T R VK DA HE A QLLA L L N Q WC RI Y A VDGMSADTEA E H
 D AKKYEDTMLA LYYCEEKKMSSDLAELGCESPELRRLVVEW
 E LIRAFATASSLETG K WPE LVVAQ GF QDLDDDPYSN FKNSANTD
 NVHCYMQHTQEFRMNSSPFF NFAS YVKNLEEFSAVQLDFY
 DVEFYTRSVSTYVHEFLQYLSS IEDYAHDESKWVQFNVSM $N$ I SFCLQ HI QNTMCHTVR LKLR G G CAEVS CSV
 DMKKSTDADVAMSKSAVRI SSNLLLSNPLCEQDPNTALDTAA

 WRDSWAALASA QLQQVVTEYEGLYDP DAGAS D GQSRH
$D V E Y Y T R Q V T G Y V H E F L Q Y \square S S M E L V M R L Q P S P H P E L E S K$ NVEKYQE II KN I SI LQQNEMAHD LLSFDEPNNLAYQESMRE $N V G A Y L R H L Q N Y L \quad S F R P E E R E L E L D H V A A R C Y K E V A A P$ RCTG WSSSVKKDAHVA QLRLLER WCHHAYEAENRLRA YA QL V

 MKKSTDADLAMSKSAVKLSNPLCEQDEEF LDDMVTALDTAA S L Q K R V K N L K K T F L H D D CVVGKTI T K Y Y H N D H P LAA A C I E T
 $N V A T F L S N T E A F L S S K$


E L K S F A S A A DE T LR G S EHVAAQ GF Q NLA D P Y S N F K N S DVEFYT RKVSEYVHEF DQYLS AMEDVMRDQPSPFPETNT I

 $N \square S W S L Q Q L K V S A T V Q L F P L V S D W L F C M S Y G S D V E Y Q K F H$ A SKA WRESWVSILTTHQHRIVVDESLLLYAPIVGASDDYHGH


 $N V E T Y L F N L Q G F L E C R T E L S$ DIE YYTRQVATWVNDF LRRFDSAMEDFDMEGEKSAVSYKE I



UniRef90_UPI000334602D
UniRef90_J4WM26
UniRef90_F2SPE9
UniRef90_C5P7F4
UniRef90_M1W999
UniRef90_E5S0Z3
UniRef90_F7ENG4
UniRef90_G7XUA6
UniRef90_UPI0003D0E061
UniRef90_T1FTZ0
UniRef90_G1X7D9
UniRef90_Q80VK6
UniRef90_A7S0R8
UniRef90_H3AMS2
UniRef90_L8WTI9
UniRef90_Q01AQ8
UniRef90_W1QQIS9
UniRef90_K7GUK5
UniRef90_W6MWE1

UniRef90_S9X2H0 UniRef90_UPI00039918AA UniRef90_UPI0003336935 UniRef90_W3XFC6 UniRef90-F7VSN0
UniRef90-W7U744 UniRef90_W7U744 UniRef90_C5MAZ3 UniRef90_M3YC74 UniRef90_F7VLQ8 UniRef90_G2R287 UniRef90_B9W8R0 UniRef90-B7PU93 UniRef90-H3AQU8
UniRef90-W5KTP0 UniRef90_W5KTP0 UniRef90_Q2H3W0 UniRef90-K3WP46 UniRef90_K0K6W9
UniRef90_M7TLZ6 UniRef90_W9XTT1 UniRef90_R9P4A0 UniRef90_D8LF98 UniRef90-S2JCJ5 UniRef90_S3CP45 UniRef90_H8WWS5 UniRef90_W3XPY3 UniRef90_N4V5X7 UniRef90-H2LQB6 UniRef90_G0SBI4 UniRef90_G1Q9I8 UniRef90_D8M947 UniRef90_K7GIM4 UniRef90_G1MGE8 UniRef90_V5G914 UniRef90_A4RW89 UniRef90_G2QMA6
UniRef90_B2ZFY0 UniRef90-M7S5X4 UniRef90-D3B2W1 UniRef90-W5N308
UniRef90_E6ZPY7 UniRef90_E7F3M3 UniRef90-F1NKT0 UniRef90_L7I222 UniRef90_F6R0W7 UniRef90_D3BE19 UniRef90_E7Q1D9
UniRef90_Q5PPZ5 UniRef90_G1KRH2 UniRef90-G1N2X8 UniRef90_M7ASY2 UniRef90-G8BCV7 UniRef90_G4MUA9 UniRef90_Q4P5Y6
UniRef90 A0A024JI UniRefo-A0AO24JND0 UniRef90_V9D9G5 UniRef90_W2RXU1 UniRef90-G9NHC4 UniRef90_K8EHP6 UniRef90_H7BYV6 UniRef90-H2M6A4 UniRef90_A7EFF3 UniRef90_B3S2T1
UniRef90 B0EIA9 UniRef90_J3NUA0 UniRef90_E9ClA2
UniRef90_G8YK65
 $R$ D L E K V A L E E H L A Q V R K QV I E P F E QV I K A Y G N P S L A M M K R

 $K \mathrm{~K}$ K T F N Q V D PR S A A Q K H V I A P M A K L L I





 Y K M L Q P G M E E ETM K L F E E R V G E H L K K V S K Q i K N A N K A L K E R

 K Q N S A N L C E D L LMA Q L D K L V L T P L S A L Q A L F P GP Q K L I Q K R
Y

 K M $\quad$ K N Q M Y S NYAA H L Q R L V L M P L S A L L S L F T GP Q K LI


 AKNMGN PYED CHKR L R Q WL
 VK L D G HLL NETVA RYEKRVLTPTGGWLTRANAVKQQVAS F



 AS SMD T AVVD D H L V A DR R C L V D P L K R Y Q GVVFA E V Q A A L K R R P E Q L D A V Y A D L K T D L L Q E V I $K$ K P A V


 R D IE K V A L E K H L A D V R K HVVIE P F E QVI R C Y T N P S L A M K K R L N MR D TY L H D F
 RAFMD DYWT QLDSEI RTS LTTPAVQRMAALF ILPQADI A K R MK RMDSFNQEKVVNQI QKTVIRPLKKFSSVF PSLNMAVKRR

 T F RLLK K A Y T ELLKA D IDE E H I L L K P A A D A R D C I A P I R K T I K K R WVRFNVSMRDHWS QVRKQVIEPFEQVIMSYGNPSDAMKKR




 NK LIENSSNNNWNDSNQ QNYETIIGRTVAR』KSIKDSIISTR


 MK RMDSFNQEKDVNQDQKTVI EPDLKNFSSVVFPSRNMAVKRS D E A Y D A WT R G S K Y K HL I S S I K K L E E V G N I S K Q V S K K I A T R WARFNVSMRDMEK QVRKH VI EPFELVVRCYN HPSLAMMKR




 A A R T Q G GYEDVEFFRKQK DLVTPMDKRLEQFPAYQPCVVDR
 WS QF N L S M R D HVVAK DR K E V DD P I EA V D VD L L E S L H H L I Y N FRK TI A EP L H RL NS IF P HANAA DAK F



UniRef90_UPIo00334602D UniRef90 J4WM26 UniRef90-F2SPE9
UniRef90 C5P7F4 UniRef90- M1 W999 UniRef90-E5SOZ3 UniRef90-F7ENG4 UniRef90 G7XUA6 UniRef90-UPIOOO3DOE061 UniRef90-T1FTZO UniRef90-G1X7D9
UniRef90 Q80VK6 UniRef90-A7SOR8 UniRef90-H3AMS2 UniRef90-L8WTI9 UniRef90-Q01AQ8 UniRef90-W1 QIS9 UniRef90-K7GUK5 UniRef90-W6MWE UniRef90-S9×2H0 UniRef90_UPIO0039918AA UniRef90-UPI0003336935 UniRef90-W3XFC6 UniRef90-F7VSNO UniRef90-W7U744 UniRef90-T1F096 UniRef90-C5MAZ3 UniRef90-M3YC74 UniRef90-F7VLQ8 UniRef90-G2R287 UniRef90-B9W8R0 UniRef90-B7PU93 UniRef90-H3AQU8 UniRef90-W5KTPO UniRef90-Q2H3W0 UniRef90-K3WP46 UniRef90-KOK6W9
UniRef90 UniRef90-M7TLZ6
UniRef90 W 9 XTT 1 UniRef90-R9P4A0 UniRef90-D8LF98 UniRef90-S2JCJ5 UniRef90_L7M7.J6 UniRef90-S3CP45
UniRef90 H8WWS UniRef90 ${ }^{-}$W3XPY3 UniRet90-N4V5X7 UniRef90-H2LQB66 UniRef90-Q6GLN1 UniRef90-GOSBI4 UniRef90-G10918 UniRef90-D8M947 UniRef90-M9MFP1 UniRef90-K7GIM4 UniRef90-G1MGE8 UniRef90-V5G914 UniRef90-A4RW89
UniRef90_G2QMA6 UniRef90-B2ZFY0 UniRef90-M7S5X4 UniRet90_D3B2W1 UniRef90-W5N308 UniRef90-E6ZPY7 UniRef90-E7F3M3 UniRef90-F1NKTO UniRef90-L71222
UniRet90 F6ROW7 UniRef90-D3BE19 UniRef90-E7Q1D9
UniRef90
Q5PPZ5 UniRef90-G1KRH2 UniRef90-G1N2X8 UniRef90-M7ASY2 UniRef90-G8BCV7 UniRef90-G4MUA9 UniRef90-Q4P5Y6 UniRef90-A0AO24JNDO UniRef90_H9GE23 UniRet90-V9D9G5 UniRef90-W2RXU1 UniRef90-G9NHC4 UniRef90 C1MX83 UniRef90-K8EHP6
UniRef90_H7BYG6 UniRef90-H2M6A4 UniRef90-A7EFF3 UniRef90-B3S2T1
UniRef90 BOEIA9 UniRef90-J3NUAO UniRef90-E9CIA2 UniRef90_G8YK65

YDKLLLDYNGYDOR
140
150
160
QKRRLDYERADQQDRSGGKTDEPKMRELVEQ
EDKKLDFERYQGRVDSSRKKTKRDNAALAKAEADLSKATD EDKKLDYERYQGRVDTARKKSRRSDAALAKAELDLAKA $\square E$ EKRRLDYER FEQLRKGGKSPDLKLKELVEQ RDKLLDYEMADSKLQK SYTKATEHVKMHTNMQRMKKCQS YDKLLDYNSYRQR SAGAESDPAKR DDRKLDFERYQGRVDSYAKKTKRDNAALAKAESDLAKATE YDKLLDYNSSGQR R QHKLLDYDNA VIRGKMDPAHEQTKF DRDEVDFLRR EKKLVDY ARYQAMKEKGDK■DKKT KDLADA YDKLLDYNSSLPR SATTESDLAKR EQSFMEYAKHQAKVEKLAEKERTPQNKDEQAEKDDAKAKA SDK LDYEQDEKKM K DHKLLDYDRHNNSLTKLREKKEKDEKNLFKLEQDFEMAVN TDYKVDMDAFDRQLAAMKKKPPKNVDDLSVKEEQARLARQ HYASLDYEKYQQEVQKLADKPDKEHKRKFEVQKRLDEAKD
YRKKDDYDMDRFKADKTEEQAEFAEKETDKHERTLEVAEK FDKLLDFYNCTERAEKLKDKKTLEELQSARNNYEALN
YDKLLDYNSCLQR
YDKLLDYNSYLQR
STGEELDLAKK DNRR ENKRLDYERAQEKVSKLHKKTPKEEASLAKAQEVGARAGD EAYVKDYDSYRRRFNALQDKQVKYEKALYQDQSKDAAAED EQSLQEFTKCQEKVEKYLKRERTGPNKLENSRKSCADAKA YDKLLDCNSSLPRV AKRRLDYERYMQ $\square K A N G K K D D T L A E A V E Q$ ENKRLDYEKAQDKALKLLQRKPAKEDAALAKAEVEVSHAAN KTALLDYDKVYNDHESLLLKQEQSENQLYSDERKLEDTKT NQVAQECVRLEQRAERLIAGRETTGPNKLSECKQALEAARG YDKLLDYNSCPQRPAGTGGG
 SYALVDYDKVYNSHDNLLLKQKKQSQQLFSSERKLEENKV HEEKTLFDHYTRKVMALREAKPKDVEKLVRNEQKYAAITN EFAFLDANKYLUDFQSLNSKDKKQQQNLITRYEKNHEVSKL AKRRVDYE K EDRKLDFERYQSRAESAQKKTKRDNAALAK DQSDLATATE DDREPDYTRYLAEAARGGSK NKLKDDYDHYMRKVRDLKEKPGSDAAKLSNNEAKLTAARQ DQAAQECLRLEQRAERLSGRESTGANRLSECRQALEAARA ENKRVDWERYDDKVNTLQSKKLKRTDRLAKAEEELAGAAD LVFLLDYDKLYNEHEMLCEKQERGEDSLYSDKRKLDESKD TKRRADYEKSMQ LKKAGKKLDKQLVECVEQ
ETKRLDYEKAQDKVKKFQKKTPKDEAQLSKAEYEMSCASE YDKLLDYCC R RLERSSSSSATTSSMSAGSEDPADPARR MDKLLDYENDESKLQETGGK AKRRLDYERYMQ $\square K A N G K K \square D K Q L A E V E Q$
YDKLLDYNSYLQR
AAGEESDDAKK KKAKMDYDHYYFKVEEDQSKPNTDPNKMVRNQDKRQECQT NDREADYSRYRAEITRSGSK EQTLQDYKRLQSKVEKYEEKEKTGPAK【HQAREELRPVKE YDKLLDCNSYLPR RNSKKSDRDAAAAGDESDLAKK EDTKLDFEHYQNRVDNSRKKSDRDNAA DAKTEAEWTKAKD AAYMQDMDAFDRQLGALQKRSPKNADEYAVKEEQARRAKE ENKRLDYEKAQDKALKLQRKPSKEETALAKADAEMARAAD DHKQVDDDRHKRTFKKYEDKKEKDEEKMYNAEAEVHVAQE SKRRLDYEKY凹Q LQKNGKKVDKQLAELVEH DLRRLDMDRYFRDY SIKANKGKDATSLAKTESKHQKTKE

QDKLDDYEPYEEK
YDKLLDYNSYGQR
EQALQDYKRLQSKVEKYEEKEKTGPAKLHQAREEपRPVKD DQYLMDLENSDSKLKSLREKPPKDPSKLPAEENNNKLKKQ
EQALQDYKRLQTKVEKYEDKTGAMDAKDHQAREEDRPVRD EDK LLDYEELEEK QNETGNVTYEEEAAMN YDKLDDYNSLQR LVFLLDYDKLYNEYETLCERQERNELSLYSLKRKLEDSK AKRRLDFERAEQ ETLKKAGKKVDKQLSELVEQ DDREPDYTRYRA ETTRGSSKTVDKKLTE SAS SAN QHKLLDLDRYKAALAKLSAKSVSDEKSFFTTQNNDEDAA Q EDRKLDFERYQNRDDKKTKRSERDDATDTKSQSELDAATE EDRKLDFERYQGRVDNTKSKTKRDRATLTKAETELLQATD QKRRIVWERAEQ DKKAGKSDDPKLKELVEQ RAYMLDVDAYERKDDKARTK SKDPGMAPHREEQYARAQR TAYMRDMDAYERRLETAQNAKKKDMEYDDKSKRKAELSQN PLKKFGSVFPSUNMAVKRREEKTGPAKLHQAREEDRPVRE FHKLLDYEVIEGK GKGASLSFEEQEVVN SKRR\|DYEKW MAAKANGKKSDDKLLSLVKE DGTFKECEKLQAKVDKLIDKSPQQDVKLEQNEKALARVKA HNRRVDMDRYHDSVLSIISKKPPGKQSGLAEAQNKYNVARD ENKRLDYEKQQDKVNKLARKPSKEDTQLARAQEDMATLAE DQKLIEDEKRREKLGKNSKSKDRGSSRAEQAERAVAEAER


D F E A K N K Q L L E E M P R F Y S S R LD Y F Q P S F E S L IR A QVVYY T



UniRef90 UPI000334602D UniRef90-J4WM26 UniRef90-F2SPE9 UniRef90_C5P7F4 UniRef90 E5SOZ3 UniRef90-F7ENG4 UniRef90 G7XUA6 UniRef90 UPIO003D0E061
UniRef90_T1FTZ0
UniRef90 G1X7D9 UniRef90 Q80VK6 UniRef90_A7SOR8 UniRef90-H3AMS2 UniRef90_L8WTI9 UniRef90 Q01AQ8 UniRef90-W1QIS9 UniRef90-K7GUK5 UniRef90 W6MWE1 UniRef90-S9X2H0 UniRef90_UPIO0039918AA UniRef90_UPIO003336935
UniRef90-W3XFC6 UniRef90-F7VSN0 UniRef90-W7U744 UniRef90-T1F096 UniRef90-C5MAZ3 UniRef90_M3YC74 UniRef90_F7VLQ8 UniRef90_G2R287 UniRef90-B9W8R0 UniRef90-B7PU93 UniRef90-H3AQU8 UniRef90-W5KTP0 UniRef90-A3LPPO UniRef90_Q2H3W0 UniRef90_K3WP46 UniRef90-K0K6W9 UniRef90-M7TLZ6 UniRef90-W9XTT1 UniRef90-R9P4A0 UniRef90-D8LF98 UniRef90-S2JCJ5 UniRef90_L7M7J6 UniRef90-S3CP45 UniRef90-H8WWS5 UniRef90 W3ХРY3 UniRef90-N4V5X7 UniRef90-H2LQB6 UniRef90_Q6GLN1 UniRef90 G0SBI4 UniRef90-G1Q918 UniRef90_D8M947 UniRef90 M9MFP1 UniRef90-K7GIM4 UniRef90-G1MGE8 UniRef90_V5G914 UniRef90_A4RW89 UniRef90_G2QMA6
UniRef90-B2ZFY0 UniRef90 M7S5X4 UniRef90-D3B2W1 UniRef90-W5N308 UniRef90-E6ZPY7 UniRef90 E7F3M3 UniRef90-F1NKT0 UniRef90-L7I222 UniRef90_F6ROW7 UniRef90_D3BE19 UniRef90-E7Q1D9 UniRef90_Q5PPZ5 UniRef90 G1KRH2 UniRef90_G1N2X8 UniRef90-M7ASY2 UniRef90-G8BCV7 UniRef90 G4MUA9 UniRef90_Q4P5Y6 UniRef90-A0A024JNDC UniRef90 H9GE23 UniRef90 ${ }^{-}$V9D9G5 UniRef90-W2RXU1 UniRef90_G9NHC4 UniRef90 C1MX83 UniRef90-K8EHP6 UniRef90-H7BYV6 UniRef90-H2M6A4 UniRef90-A7EFF3 UniRef90-B3S2T1 UniRef90-B0EIA9 UniRef90 J3NUAO UniRef90-E9CIA2
UniRef90-G8YK65

```
MWTEK\RTVLS
LYYTVLHTYCE
L Y Y T SLL H N
QFGQQLQQMNSESSQ
N Y Y T V V H N
NVREEVKKVLQQ
YLA S RLEGLLDPLD
QS A Q A LT NLT NLLSSRSSEQ
SVL
LMLEKLQQQF
NLYYA T CASSLSS
DAAKFHKQIVMMQDKLGGE
DVYQKLLATLL
QALE QLKPLLLSLLK
S\CEVQNQLME KVQKLLN
LYYTVLHHNYCE
L Y Y T
QT GEHLSQQEEKVESLLRTQ
EAEVIYSQLCKQLKE
T
LQYY T T D L H
QVS E R
QATTCAHNL
D ME QLA T S F T H QL
DMEQLLA
QF S S R C
QVYEESQKL
RVFQQLD KL
H H Y T LLLH
```

QHRSEWKSL
QAATRAHDLM
QYYTVLMHNYCE
■YYTA LHNYCE
$N \square P N M N R K K N S \square M D K \square N N$
E
M WEK VKMP LQE L G D H VP E
T LA QKMDKF
EMHK $\square$ F GD LT GQ $\square \mathrm{DE}$
HCYTS $\square$ H N
LYY T T L H T Y C E
$M Q \operatorname{LI} \square \mathrm{~F}$ YTLYQRMEEL
D VA QL
D MEQLATSFTHQL
A A L Q V P H QLMEEVHKLN
EMRK TFGDLTEQLDR
ECSEVLQK
EMSRVFGDLAQQVDEVQ
Q V $\llcorner Q E T E G A V A Q L P H R H$
EMHK ${ }^{\text {E }} \mathrm{FGDDTEQDDE}$
VI VAK K Li K VQPV
KMYQE LQND
S S L Q S
H Y Y T M $L$ H T
HYYTSVHT
FMMQRTRDVHSVIVK
EMHK\FGD\SHQLDQ
DMEQLFQSFAQQL
H DN NYWGEASEVSSNF
LYY TF L N
QCSKNCQQL
Q $\square N N N L N S$ Q

UniRef90 B1H1H2 UniRef90-UPIOOO46CF315 UniRef90_W9Y9E3 UniRef90_U3ISRO UniRef90 H3DL01 UniRef90-UPIOOO223564B UniRef90-H2S938 UniRef90 -12FVY1 UniRef90_M4AXM0 UniRef90-N1J6N6 UniRef90-L2FPU1
UniRef90 Q59PE4 UniRef90-M2YA65
UniRef90 - 3 KLLWO
UniRef90_CTYKS
UniRef90_G3ASL6
UniRef90 UP10003330808
UniRef90-F2TSD5
UniRef90 Sob2B9
UniRef90-W9CPE5
UniRef90-W9XHD2
UniRef90- F9X6G5
UniRef90-K1PVX3
UniRef90-H6BLA9
UniRef90-A5DTH4
UniRef90 Q6C126
UniRef90-U4LK90
UniR Refo-M3HQE5
UniRef90-A9UY26 UniRet90_M7WRB2 UniRef90-M7PLZ4 UniRef90-L1JFF4

RRAEKLRQHVGDNEMYEDAEYTKLKDCYDSVENTVRRMINK RVTSHLKILTGGEPQVKDQTFNREEKLFRSLEKTVKLCVK PQVRDE円FDREEKLFRSEAVRLLVK
$R \square S Q H L K \square F T S G V P Q L V D E E F D A L E G F F Y V L E D G \square L Q L L E$ RRQEKVK KLVLGP TED $\mathrm{R}^{2} \mathrm{Q}$ YKAMVTQFRQLEKATTTFSR
 EDAVYAKLHEKFGDDYLRLQVVLR

FSKHEASKDARFESAYQRFCELEDKASLLSN $\square K \| L T G A D T Q V R D E V F D R E E K D F R S L E K A V R Q L V K$ RTPQYFKQKDNGGSYT1DDEEN DLLEQQF DHYERTVKSLLK RVTNHLRULTRGESQVKDNTFNKEEKDFRSDEKTVRHCVK NTVHRQFGKFMKADDSQVSVLLKDFDDADKLLARVID RKFYQVKTHVGAGQKTVDSDVQYSKTKLGESHKKFKNVLA
 NS ILKRMGGKMMKRSDDQQDVGASEFKSTENMLDRLAR VSRTTEREFGREVKRVESLDETSKKLYK RRAEKLRQHVGUNEMYEDQEYTELKVKYDNNDAHLY LVAR KLK K K Y A GVSYTVDEDFDKGENILKSQSVSLKKLDE RAPHRLGFGNGSVEDRVIVEWAKDFKVAQDALHFLTH
 K LIFHTEREDRQDFK RSSQKAKTALGFAENGGDEMFDTLVALVDSTRSGVLRFSN RKTEKLKQTVGLIETYHD RTLHSVQKVVGKVQETKDIEFDELFEKFLDVSARMEKLNR RRAERLRQHVGVSDVFEDGEYSRLKMEYDNNGVHLLIVSK RTKNKLLTVLGAAKPSTNVAYDLAYSDFESTLQRLTTLDS RAPQ $\square \mathrm{FLQRTNGASTN} \mathrm{\square DDE} \mathrm{\| IGQTNFKNLVTNCKHLQV}$ DDADVATDIADVKSYEERLDKLID
$R T P Q L L R R K A N$
$\qquad$ RTKNKLLTVLGAAKPST RRQEKVKKVLGPAEDDDDGQYKALVVQFRQLEKSTGAFAR KQEDVQFEAEVQKDHHMQSASKRLYK
RQTEKLKQNVGVSKVVEDREYAQVRDRYAENDAHLVVRE HTEDRELDVAVQKLIYVEDTIRKLTK R LS RVIKHETGLLPKVEDKDYNDLVETFNMLEKCVAALKE QSMQRRFGRMTTAKNSQVAVLLKDFEDADNLFTKLIE RVTNHLMLLTRGEAQVRDGTFDREEKDFRADEKTVRHCVK DDEVYLKLLHDKFGDDYLRLQVILR AEMQQSIKDYRRMEATMQAILK
PQSFRRKAKDGVFTTDEQFDELHRTLGUVEASTKNLIK RVTNH LK ILTRGESQVNDTTFNKEEKLFRCLEKTVRQCVK

KQQ LEHMGKDDKTVDAEFEKECDNTKELHKRYGSVVA RTFQTVKEAVGTSKKTDDTNVNALRLEDTNLLKKLRKVNQ RTGQRTAHKVGGKRSADADVGSVIAEFKATDEMLMRLEK Y T WLTH HYYVE EMQE

RRAEKDRQHVGDNEMYEDQEYAKTKTSYDNNTAHLFLVTK EDQELDLVVQRLIYVESAIRKLTK RTKERATEKTPNGRDPDDANYLKLDRKYVHEY LQLQVV LK LITGVEPQVRDETFDREEKLFRSLEKAVRQLVK RVTGHLKGLTGGELQVKDETFNKEEKLFRSLEKTVKLCVK
RVTSHपK ILTGGEHQVKDE $\square$ FDREEKMFRNDEKAVR $\square$ CAK
IVPKTVERDFEREYGKDQQDEDQTKKDQK
TQDSПFDEDYRQFEERQAKVKLFEK DKSVLGVNKKT TDTEYESMKKKFNKVITYVEELPK EDQEYLKYCDKFHSEWIHLQFIDR EDEQYRSLVEQLLRQEAGLEALDR RRTEKLKQHVGDTEMFSDKEYDILSQRFGDNFFQLQLVMR

GPKTTDTNFETARREFTAFSEATNNTYQ RVTSHLK\|LTGGEQQVKDQDFNKEEKDFRSLEKTVRLCVK RFTQKLTQSTGLVNQTVDKSFNEEEKKFNNLEKTVKNLIK RLSHRIMYEAG』IPKREDKAFDSLVEHFHDLEAAVKLMKQ RVTTHLKVLTGGEPWVKDMLFDKEEKTFRSLEKAVRLSVK RVTNHLKILTRGESQVKDNTFNREEKDFRSLEKTVRHCVK
 $R$ VT S H L K L T G GEP QVK D Q T F N RE EK L F R SLE K T V K L C F S QSVQRHFGRMKRSADE QVSLLLKDFE EADRLLITKIIDE $T M H R Q F G K M K R S A D E G V$
$E D$
$E$


E M K K Y LT T I E H L D S V D Q R L T C S L V H I N D E F R K I V E D Y H S V
 $N V H W Y L Q H A Q E L V S V A V Q N V L D M G D \square V K E P T K N G M A H S S$
$N V E L Y L Q H L K R S R V V L Q R F D S C R T E E F D L D M D G E K E P \square C F$ RCTA WSLSSVKEA HVAQLK LLDDQWCRAYAVDE EAETR LRAF $N$ V E T Y L L F H L Q Q L F S A P S I I C R M DAEFYSRQV STYVSDHLLRYFSAMELIMRMSPAGYSMIESK DVEF Y T R QV S A YV HE F L Q Y L S S M EL V M RLQ P G S Y P E L E S K
$A$ L R D NSKA WGS L L VNCRD F L N H HVS S L Y E DQEPSKVVLLAK EA $N V Q C Y L Q Y T$ Q V S T CLLT I F F Y K I C I I Y N L A Y F E V L R R C S Q $D V E F Y T R Q V S A Y V H E F L Q Y$ L $V$ S S I E N YP ELLES K WV QF N I S I H SK V S L D S L I E L L P E C S I G I G E S F Q N L I D P Y N N F V S G G S V I


 DLLKT WRE S WE DI L K Y Q S D A A E A F V T L Y K P IP IPA DVVLHK A





 SAHRYMETQMKFLQS GYDNDPQLKR DAMDF DSSHETGLVS

 S L K R Y E E S AK F MVE C G L Q T G Q S L S EI D S LF L N K I N Q Y N MV GL QR WQES ITN QLL RHQTADPNELIFQLYKPIPPERVA DDQG




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









D C Q GYVEA $\quad$ TR RWVGRLCE LAA A A EA WVDAESK LRQFA VV EMKKYT GALVNVDRADQRLSMNLVQSNDEYRKGVEDYESV DVED YNAKAKVWVVED QLIKLGYSAMESFPEDESKWVRFNMSM NVHWY LQHTQV
 STKA WRDA WVS ILLTYQ GRLVQQEFETVVYAP VVGSSEATARNP NTSCY LQN $\quad$ QQEG LLLAVQNVHDLQK LVRDSNHVNGTY LQE

D A MP LAA LQ S VTE LTHE ESHS K D E E QRGDSE AP S Q A DLKKSTDADLAMSKSAVKLSNPLCEQDQEFLNLVTALDTA


 QCLD WS E SL R QCYVA QVGLLEERWRQVYDSAAA GVDER L L R D VE G Y L G

## 


 $N$ I SFTLQHMQDVMPLAAQGVMEMHR LIMDDNHNSNKNLNN $N V S S Y V E Q F Q D T V T$ RQEVV GQNDQEYYLDASTCTEYEQSTQ
 $N$ I SFCLLQHI QAAH

## UniRef90 B1H1H2

 UniRef90 UPIOOO46CF315 UniRef90_W9Y9E3 UniRef90-U3ISR0 UniRef90_H3DLO1 UniRef90-UPIOOO223564B UniRef90-H2S938 UniRef90- 12 FVY1 UniRef90-M4AXM0 UniRef90-N1J6N6 UniRef90-L2FPU1UniRef90 Q59PE4 UniRef90-M2YA65
UniRef90-likLWo
UniRef90_C7YKS5 UniRef90-G3ASL6 UniRef90-UP10003330808 UniRef90-F2TSD5 UniRef90-Sob2B9 UniRef90-W9CPE5 UniRet90 W9XHD2 UniRef90-F9X6G5 UniRef90_K1PVX3 UniRef90-H6BLA9
UniRef90 A5DTH4 UniRef90-O6C126 UniRef90-U4LK90 UniRef90-M3HQE5 UniRef90-A9UY26 UniRef90_MTWRB2
UniRef90 M7PLZ4 UniRef90-L1JFF4 UniRef90_UPI0002C3F278 UniRef90-W2RRIO UniReffo-DONFHO UniRef90-W7HV85 UniRef90-J3NZY3 UniRef90_UPI0003D791A4 UniRef90_Q6BWU3 UniRef90-B2A8W4 UniRefofo-H3H249 UniRef90-V5EZR4
UniRef90 UniRef90-UPIO0029DBEDF UniRef90-U1FTL1 UniRef90-UPIO00258E19C UniRef90_V9KK03 UniRef90-S7ZW81 UniRef90-UPIOOO3315721 UniRet90 K1XWT4 UniRef90-F2U9V8 UniRef90-G3B297 UniRef90_HOVUSO UniRef90-M3B625
UniRef90-AOAO16SA68 UniRef90-UPIO002C3D8F1 UniRef90-M3BZ46 UniRef90-D7FWV3 UniRef90-T1FU46
UniRef90 A9UPC6 UniRef90-V9DR29 UniRef90-A0A026WUC9 UniRef90-S3CR87 UniRef90-H2SJM9 UniRef90-UPIIOOO203A792 UniRef90-B602B88 UniRef90-V9K 05 UniRef90-Q4SCL6 UniRef90-S9X0F5 UniRef90-11CA37 UniRef90-B0ETU6 UniRef90-L8FZD6 UniRef90-W4YTN4
UniRef90-UPIO0045609CE UniRef90-C5FY12 UniRef90-K7FTH6 UniRet90_S9X3F1 UniRefe90-F4QEV3
UniRef90 F6PVC5 UniRef90-A7RUA3 UniRef90-F7BH03 UniRef90-UP10003C18AF8 UniRef90-E9FW84 UniRef90-UPIO002C3FACD UniRef90-RoL232 UniRef90-H6BYC4 UniRef90-C4JN43
UniRef90_FOXKQ8
 TTQ TEKTAQDTVALCNKTFI EPLKKLKEEFAYIRDALAKR
 HSNGNDPYKHFKDSMECSVLVPLTSLQGMFTGPQKLIQKR
K DKRMRT LMLRP L R VLRDLLRGP MLIEDYWS QLDSEURTSLTAVQRIAALFILPQSVIAKR DLNNFRQWPMFEKRMRTLIMKPLCELRDMLVGPKNLIRKR WVQFNVSMRDTEQQVRKHVIEPFEHVIKAYGNPSLAMKKR KQLINDSDANLENPYNQTVLNP円ARFNSYYDEПNEIIKKR LDQCTEAYQEYLDESVRDNAVKLLNQYLERDRKLRAVSESQ QDLEKVALEDHLSQVRKHVIEPFEHVDKAYGNPSLAMKKR EKEYESWNKVSKYKISKIIESKLEECLRVFKTVQKKFKTR SGNAQNPCQDFVTHLQRLVLAPLSALLSLEPGPQKKTQKR








 A STTEVVFQNRYKNK LLNELMT PLKTYNQQF DELLNRCKVA




 REEYEDWSNCASYVECTKTIE PVVEMLSLDSF IKKHILRNR WVQFNVSMRD IE KI A LLER H QVI K CY GNPGLAMKKR
 FDELUQSHSKEHKS RQE VVFSDP I KRFHNVYKHIDVMI K QR

 $T A$ Q IG K TVV Q D M A A L C Q K T FIVE P LIK K L R D E F V L I A A A I A K R
 $P R R R A P G P G D D F A G Q C Q R E V L A P D L S A M L A A L F P G P Q K L I A Q K R$
 Q G E I E K M T H R L S D Q I K R T L I H D P L K K K F V K I F P P N V N D C I K H Y



 KEAQDMGHSQLQQALVKGVVEPI GEWLRDLESIEGLVGB QK IS P K N F R E FK E K VVESVI MP A L T N L L L Q T F R G P S K I I I R K R $R G \square N S \square A \square P D L H D N Y H A D N D P G K R F M K M F P A D N E K V K Q H$ AT QVGKNVQEMTS LCHRMFVEPLKKFRNEFAA DAAAVMKR RDMGTVVVGEHTNNVQEQVIKPVETDIDLYGPPGLABIKQR VKEPKKNGKD PI N A ANTNE GFCNQVVNKMVLAA L

 LK N S Q S S F E H FK D NLE RQVVMP LAALQT LIFS GPQKLI QKR
 $P N P S D \quad N F A A H L Q Q K V L M P L S A D L S L F P G P Q K L I$ QKR
 $\square$ Q A T E T M $\square \mathrm{Q}$
FQKMERDSTRYQNLMN
 $\square K D S A A V W S \square L \square R H T H E L G E P$ VRR $\quad \square$
DRLVDEAWQQLDAEDRSSSVPMAERLARMFSNPKSVVAKR E GY ITLLAPSNYP ELEK P N NGQTGHTSPEKRC PNNDGNPREGGVD QLEKLVVLTPLSALQAALFPGPQKLIDQKR MKRMDAFNQEKPSKSADLVPQMLIRFGSVFPS LNMAVKRA








UniRef90 B1H1H2 UniRef90-UPIO0046CF315 UniRef90-W9Y9E3 UniRef90-U3ISR0 UniRef90_H3DL01 UniRef90-UPIOOO223564B UniRef90-H2S938 UniRef90-12FVY1 UniRef90-M4AXM0 UniRef90-N1J6N6 UniRef90-L2FPU1
UniRef90_Q59PE4 UniRef90-M2YA65
UniRef90_l3KLW0
UniRef90_C7YKS5
UniRef90- G3ASL6 UniRef90_UPI0003330808 UniRef90_F2TSD5 UniRef90-S0B2B9 UniRef90-W9CPE5 UniRef90-W9XHD2 UniRef90-F9X6G5 UniRef90-K1PVX3 UniRef90-H6BLA9 UniRef90-A5DTH4 UniRef90-Q6C126 UniRef90_U4LK90 UniRef90_M3HQE5 UniRef90-A9UY26 UniRef90-M7WRB2 UniRef90_M7PLZ4
UniRef90_L1JFF4 UniRef90_UPI0002C3F278 UniRef90-W2RRIO UniRef90-DONFH0 UniRef90_C4R4R0 UniRef90_W7HV85 UniRef90-J3NZY3 UniRef90_UPI0003D791A4 UniRef90_Q6BWU3 UniRef90-B2A8W4 UniRef90-H3H249 UniRef90-V5EZR4 UniRef90-I1GB97 UniRef90-UPIO0029DBEDF UniRef90_U1FTL1 UniRef90_UPI000258E19C UniRef90_V9KK03 UniRef90-S7ZW81 UniRef90_UPIOOO3315721 UniRef90-K1XWT4 UniRef90-F2U9V8 UniRef90_G3B297 UniRef90-HOVUS0 UniRef90_M3B625 UniRef90-A0A016SA68 UniRef90_UPI0002C3D8F1 UniRef90-M3BZ46 UniRef90-D7FWV3 UniRef90-T1FU46 UniRef90-A9UPC6 UniRef90-V9DR29 UniRef90-A0A026WUC9 UniRef90-S3CR87 UniRef90-H2SJM9 UniRef90_UPIO00203A792 UniRef90-B6Q2B8 UniRef90-F7EN72 UniRef90_V9KS05 UniRef90_Q4SCL6
UniRef90-S9X0F5 UniRef90_UPI00044310F5 UniRef90-I1CA37 UniRef90-B0ETU6 UniRef90-L8FZD6 UniRef90_W4YTN4 UniRef90_UPIO0045609CE UniRef90-C5FYI2 UniRef90-K7FTH6 UniRef90 S9X3F1 UniRef90-F4QEV3 UniRef90-F6PVC5 UniRef90-A7RUA3 UniRef90-F7BH03 UniRef90-UPI0003C18AF8 UniRef90-UPI00042CE27F UniRef90-E9FW84 UniRef90_UPI0002C3FACD UniRef90-ROL232 UniRef90-H6BYC4 UniRef90_C4JN43
UniRef90_F0XKQ8

ITSGDLLSNPLCEQDQHFLDSEKTGPTK|LHQAREELIKPVRE EEWKI SYGULK KYQEKRDKTASHHVKLERERRAEEDASK DKRLLDYNQFKNK RDRGEKLDKKMTERMEQ YDKLLDYNSYLQR STGEEDDGAKK YDKLLDYCSRLE PTTDETSGPARR
 LD KKL L DYE LL L SEK NDRER DHKLDYE VIEGKPK DKRRLDYEKAL S LKKNTGKKVDEK LSYEEQAVAN SKRRLDFERSEQ LKKGGKTVDARLKELVEQ HNKLLDYDAMKNKLRKLDENPTTNDSPSMKYNQELTEVES RKDMKEYDYYKDKVDSLRNTKEKERERDSRNESKLAEVRS YDKLLDYCSHGDERSSSFSSASSTTSSSPSPASEDPGPAKR QKRRVDFER EFALLLDYDKVYNDLETLI IK QEQGELTLK QNNQLFEENKLD DDKKLDFERYQNRVDTSRKKTKRDNAALAKAEMDLSRAKD HSRRVDMDRFHDSVLS $\square$ SKKPPGKQTGLAESQNKYNVARD ENKRLDWERYDDKVNNASKKMKRSDRELAKAEEEQGRAAE EDRKLDFERYQNRADKKTKRSERDNAVLAK A QS DDLAAATE EQSLQEYEKSQAKVEKQKNRERTGQNKLDLSKKAVERTKL DKRLLDYNQFKNK KDRGEKLDKKMTERMEQ
RYAAL DCDKLSNEHKTLAEKQSRETSHDFADGRKDFDAKK AHKKI DYDKASESLHKADKKSEKDKDHDDTLQARFDEATE
 NDKMLDHSRYLAK NTKMLDKPADRRGSEE
NTKDLDY KRYLADYDHYRLKKKGLEDKKEKNQEK LRECEEKLSAAQA EKRKEDFDFASEKLSEISKKGK QSKMLQAQQNYSDAKD DKK\|LDYSTAKNK RDRGEK LDRKMTERLDQ
QQQKALYDHYARKVAGLRESKTKDTERMFRNEQKLAATTQ EYALLDDNKEMLCLERLKAKGNKEQQKDFTTERKLTVCER ENCKLDYERYTSSAESARKKGSRTERELAKAERQLEQATN


 DDREPDYTRYRTEIARGGAK ASAGADKKLTESAN DAR LQELLERQQGKLEKRQASQS $\quad$ A AKLEELTQRKLSSAKS DKKSUDYARWKN ABMMKDRGEKIDKKTSRRMEE EEWKYSYNRVKKLQEKKDRTASHUAKLERERRTEEAAAKD YDKMLDYEKIQEKLR EESSVSYEEKAEASQQ NDKKSDYERFQGKVDSLIHKPKRSDAALAKAEAELDTVAKE YDKLLDHTSSRPR NKRRLDYE KS LTTLKSSGKK DDEKLVELVAQ
EKVASDCEKAKDKYAKLTNSSSSDSSKIDKAKAQKDKAEQ NHALDNYDYLKKSKEKFQELSVKESQKLFNLQRRLEVLRS YDKLLDDYN YLQRSAR
ENMKLDYERFLSRAEKKQNRTDKEESALAKCESDLQQAQL EAARUEYDVYRHELDSLQSQATASPTAGQUAGERAAQQRD TERRLDMDAAHDKFESIAKRPPNKQSGLVEVEQSYNDFKD

 EKRLLDYNQFKNK KDRGEK $\square$ DKKMTERMEQ
EDLVWKYSHNRVKKDQEKKDRTASHDAKDERERREEVAAR AKRRIDFE K L S GVIAKPNDKDAEK ITKQ
YDKLLDYCSRL
ERSSSSRLERSSSFSR Y DKLLLDYNSCHPK $\quad$ K LD KLLD FERVEEKRAETGS VTYEEEATRH YDKMLDY I S RLERSESVKERK
RREQALQDYKRLQSKVEKYEEKTGPVKDHQAREEDRPVKE YDKLLDYNSYLQR EQALLQDYKRLQSKVEKYEEKEKTGPAKLHQVREELRPVKD NRKWIDYDRACHII MEDTKKAVNRQKKGE I PDKALQASSD EKRKEDMEFYNERLMEDTKKAVNRQKGGADAQTDFTYAKE NKRRPDF QRFETLKSQNRK DDEKLAEQVEQ
NDREPDYTRYRNEMLKAGAK KQLGLDA QLQQ GSEDDRR D SSDA $\square K D R G D K P D K K V T E Q G E Q$
YDKLLDYNGCLQR
TAGDELDLAKK MKRMDAFNQEKPSKSADLVPEKTGPAKLHQAREELRPVRD $D G V V G E \square D R S A G K \square K D L Q A K P S K D P H K L P N E Q N F Y N A K K E$ YDKLLD YHSCMQK
HHKCLDYDSWSNKMEK $\square K D K D K \square K Q A K E E L E S A K R N Y$ TDKLLDYENLESKLQETGGK MTYEEEDDKN YDKLLDYNSCPQRPAGTGGG EQLDLARR YDKLLDYNSYLQG AAADESDLAKR DQM KNRKMDMDRHYEKFEQQSKKSAKKQNGLSEAEAKYNTSKG YDKLLDYNSY $\square Q R$ Q DDRKLDFERYQNRVDKKTKRSERDNAALAKAQADLAAATE


## UniRef90 B1H1H2

 UniRef90-UPIO0046CF315 UniRef90_W9Y9E3 UniRef90_U3ISRO UniRef90_H3DL01 UniRef90-UPIOOO223564B UniRef90-H2S938 UniRef90- 12 FVY1 UniRef90-M4AXM0 UniRef90-N1J6N6 UniRef90-Q59PE4 UniRef90-M2YA65Uniref90 -13 KLWO
UniRef90 G3ASL6 UniRef90_UPI0003330808 UniRef90-F2TSD5 UniRef90-sob2B9 UniRef90-W9CPE5 UniRef90-W9XHD2 UniRef90-F9X6G5 UniRef90_K1PVX3 UniRef90-H6BLA9
UniRef90 A5DTH4 UniRef90 O6C126 UniRef90-U4LK90 UniRef90-M3HQE5 UniRef90-A9UY26 UniRef90-M7PLZ4 UniRef90-L1JFF4 UniRef90-UPIO002C3F278 UniRef90-W2RRIO UniRef90-DONFHO UniRef90-W7HV85 UniRef90-J3NZY3 UniRef90-UPIooo3D791A4 UniRef90_Q6BWU3 UniRef90_B2A8W4 UniRefofo-H3H249 UniRef90-I1GB97 UniRef90-UPIO0029DBEDF UniRef90-U1FTL1 UniRef90 V9KK03 UniRef90-S7ZW81 UniRef90-UPIO003315721 UniRet90_K1XWT4 UniRet90-F2U9V8 UniR Refo-G338297 UniRef90-HOVUSO UniRef90-M3B625
UniRef90-AOAO16SA68 UniRef90-UPIO002C3D8F1 UniRef90-M3BZ46 UniRef90-D7FWV3 UniRef90-T1FU46 UniRef90-A9UPC6 UniRef90-V9DR29 UniRef90-A0A026WUC9 UniRef90-S3CR87 UniRef90-H2SJM9 UniRef90-UPIOOO203A792 UniRef90-B6Q2B8 UniRef90-F7EN72 UniRef90_V9KSO5 UniRef90-Q4SCL6
UniRef90 S9XOF5 UniRef90_UPIO0044310F5 UniRef90_-11CA37 UniReffo-BOETU6 UniRef90-L8FZD6 UniRef90-UPIO0045609CE UniRef90-C5FYI2 UniRef90-K7FTH6 UniRef90 S9X3F1 UniRef90-F4QEV3 UniRef90-F6PVC5 UniRet90-A7RUA3 UniRef90-F7BH03 UniRef90-UPI0003C18AF8 UniRef90-UPI00042CE27F UniRet90_E9FW84 UniRef90-UPIO002C3FACD UniRef90-ROL232 UniRef90-H6BYC4 UniRef90_C4JN43 UniRef90_FOXKQ8


DYETADDQVKQTFPPVTEAVQALLPH\|LATQ\|QVQTT\|VG KYERLKADVRVKGRLLEENRVQVMTKQLEKLQGALAAYFS FYEYLRDEVLDDGAKFVEEVKKQLPQQCANCMRSYTDYVN EFDKKLSSCCNRMTRAWEDREKMMNGIVARTVHFQESFFA TYEALNLQMLDELPKLTSLARHVLHVClI IVYGQCK AFNNVNELVPEELPLIHAARFDFLDPSCMTMVAAHTRYLE WEALNLEAKERMKRLLRSTADLVHACQANLIQLHLNWLGG YNHLNQTLKEELPLLFKKSETVSMDALSRFIMLQSEWF


DFEAKNKQLLEEMPKFYHSRTDYFQPSFEALIRAQVVYFT EYEALNAQLVEELQVFNRAALKLLWNCLCCSFITLLRDLMLD AYYGKNAGLLEDELPAFYNSTLTYYFDPSHESLVGAQMEMFR AYVSLNAHLDDELPAFLSLITSTYFDIVLDEFFVGIQAFYWK YMALNDTLKLELPKLSSDNENLKDLCLARLITTGVAWYS AFVALHTQLMDELPQFNYGVQSLVDICVESLARLQAAHH FVALNMALKDELPKLLSLTGKLMEACLNAFVQLQATWLT DYEALNAQLVEELQVFNRTAKKIVMNCLHCFITV
 EALNAQLLEELPLFRQKTMSLVKDCIVLNFAHAKRKFHA AY号GFHSRLLSELPGCDADSHQLLHQLLLTFTGLQK DYEALNAQLVEELQVNQAAKKVVFNCLQCFIA EYEALNAQLVEELQVFNLAARKILLNCLCSFVTL DFKTTNKQLLNDMNTMLDLRADYUEPSLLALIRAETNYYG S Y
DYEALNAQLVEELQVFNRAAKKIVLNCLYCFTTL
AYSAADEHLKNCLPRLLTAVFSLLPHFLGAQVQIQNSLLG EYQAADDHIRSHLPGLIAATFSLLPHTLSAQUE:QNTLLA

UniRef90 B1H1H2 UniRef90 UPI00046CF315
UniRef90-W9Y9E3
UniRef90_U3ISR0
UniRef90 H3DL01 UniRef90-UPI000223564B
UniRef90-H2S938
UniRef90-I2FVY1
UniRef90-M4AXM0
UniRef90-N1J6N6
UniRef90 L2FPU
UniRef90 Q59PE
UniRef90_M2YA65
UniRef90-I3KLW0
UniRef90_C7YKS5
UniRef90-G3ASL6
UniRef90_UPI0003330808
UniRef90-F2TSD5
UniRef90 S0B2B9
UniRef90-W9CPE5
UniRef90-W9XHD2
UniRef90_F9X6G5
UniRef90 K1PVX3
UniRef90-H6BLA9
UniRef90-A5DTH
UniRef90 Q6C126
UniRef90_U4LK90
UniRef90-M3HQE5
UniRef90_A9UY26
UniRef90-M7WRB2
UniRef90_M7PLZ4
UniRef90-L1JFF4
UniRef90_UPI0002C3F278
UniRef90 ${ }^{-}$W2RRIO
UniRef90_DONFH0
UniRef90 C4R4R0
UniRef90 W7HV85
UniRef90-J3NZY3
UniRef90_UPI0003D791A4
UniRef90-Q6BWU3
UniRef90-B2A8W4
UniRef90-H3H249
UniRef90_V5EZR4
UniRef90 I1GB97
UniRef90-UPIO0029DBEDF
UniRef90_U1FTL1
UniRef90 UPIO00258E19C
UniRef90-V9KK03
UniRef90-S7ZW81
UniRef90_UPI0003315721
UniRef90 K1XWT4
UniRef90-F2U9V8
UniRef90-G3B297
UniRef90_HOVUS0
UniRef90- M3B625
UniRef90-A0A016SA68
UniRef90_UPI0002C3D8F1
UniRef90 M3BZ46
UniRef90-D7FWV3
UniRef90-T1FU46
UniRef90_A9UPC6
UniRef90_V9DR29
UniRef90-A0A026WUC9
UniRef90_S3CR87
UniRef90 H2SJM9
UniRef90-UPI000203A792
UniRef90-B6Q2B8
UniRef90_F7EN72
UniRef90_V9KS05
UniRef90_Q4SCL6
UniRef90_S9X0F5
UniRef90 UPI00044310F5
UniRef90-11CA37
UniRef90-B0ETU6
UniRef90 L8FZD6
UniRef90 W4YTN4
UniRef90-UPIO0045609CE
UniRef90-C5FYI2
UniRef90-K7FTH6
UniRef90- $59 \times 3 F 1$
UniRef90-F4QEV3
UniRef90-F6PVC5
UniRef90 A7RUA3
UniRef90-F7BH03
UniRef90-UPI0003C18AF8
UniRef90 UPIO0042CE27F
UniRef90-E9FW84
UniRef90_UPI0002C3FACD
UniRef90-ROL232
UniRef90 H6BYC4
UniRef90_C4JN43
UniRef90_FOXKQ8

EMHKDFTELINQDDQ
NSTKMFTQLMPV
MCRQKFSALMDVLDK $L D$
M L
EMSK
DME Q $\square$ F HS F ARQVS
DMEQLFQ
TWVKK】RNVLE
ENYHVLNQ $\quad$ QQ $L K \square D A Q T R Q$
$F \square A L S Y N P F Y T \| G Q K \square Q D Q Y A$

E $\square$ F NETKK $\square$ FPD
LYYTTDHNYCEQ
HLDNYWGKASEAATNFKDQ
QYYTALHSYCE
HYYTMLH
QLYTVL
EALKIYTD LEDDLSEMKSQH LVKRKLSAAMEISDKLDE

HSYSALY
ELSSKLGE
NALAQLQ
QGNADFEVLYTKSKE
S I K T S WE KVPEMIDDK\PTE
MMKQK LDAGAM I LEKKLE
RMHE
GTLTVFYELQNK LKKSLE
QKYRFVHEFAQRYDQFEEE
T
Q 1
M WQK VKAPLQD
RMQE
NCANTLRDLESTKS QLAT
QA L E QLK PLLSLLK
NTTRLFTHLMPV
STLQLTNQ
HYYTV
MWKEKLGQ
GLTDTLEAFFDQVAATDEEY
QT $\square$ S K MLE F QEK
Q $\square Y$ TT T
GNAELLA
$D T N E W A K V P N L I S A \square A$
QLYTSL
E QL
NLSADCHEHEVKMSD

Q LL QS F
S Y Y TVL
RVLSEAEGKLAQLPH
EMHKDFSEDTSQDDQ

QRQLA W ${ }^{\text {R }} \mathrm{P}$ L
GMNEDWEEVPKK\ENLDPS
EQNELPKDINDULDKFN
ESSK【S GTVLQMVIDLEN
LMQKRL
E M H Q $\square$ F G D $\square$ T Q Q $L$ D Q

A $\square \mathrm{H}$ GEYNND

ECTKLFNSL

HYYTMLH
LYY T S L H N

UniRef90_UPIO00441B55A UniRef90-B2ABK3 UniRef90-FOZJ66 UniRef90-H3C4V9 UniRef90-W9ZPP5 UniRef90-G3RVX1 UniRef90-B0Y3S1 UniRef90-E1FI30 UniRef90_UPI0003505E84 UniRef90-I1FWMO UniRef90 M2VV66 UniRef90-UPI0004542661 UniRef90-ROJMU1 UniRef90-D8LUR7 UniRef90 G2Y038 UniRef90-H9K9U9 UniRef90-N1JI01 UniRef90 E9H7R6 UniRef90-U5GYC4 UniRef90-F4X1L1 UniRef90-L9KNS2 UniRef90_M4BLN4 UniRef90-B0EBM6 UniRef90-N1PSF1 UniRef90 E2A6V5 UniRef90_K3V7C1 UniRef90-G1LOK9 UniRef90_Q5AVC0 UniRef90-A1CAT7 UniRef90-GOSOV3 UniRef90-A0A044V145
UniRef90 A2EFQ5
UniRef90_A0A024JMK9
UniRef90-T1IIW4
UniRef90-E6RF04
UniRef90_U1MAX5
UniRef90-B8PGN4
UniRef90_UPI000383F169
UniRef90-Q0U5R1
UniRef90-I8U4F2
UniRef90-FOZVP8
UniRef90-S4RTW8
UniRef90_U1GQZ5
UniRef90-D5G4R7
UniRef90-H2Z614
UniRef90-B6HW01
UniRef90-A0A017S808
UniRef90_Q756W1
UniRef90-UPI0003B6ABBB
UniRef90 A2F1S6
UniRef90-G8JMP4
UniRef90-D3BE18
UniRef90_G1XQD2
UniRef90_UPIO002C3D66F
UniRef90-H1VBQ9
UniRef90_W6QPD3
UniRef90_A0A024J965
UniRef90_U5HEW4
UniRef90-J9VZY7
UniRef90_A0A016VBZ0
UniRef90-E3LSG2
UniRef90_G5ECK4
UniRef90-Q0CD73
UniRef90-D3BD98
UniRef90-B3RJE9
UniRef90_W6MHY8
UniRef90_UPI00038C0C31
UniRef90-F6S3R3
UniRef90_W4W363
UniRef90-W1PNW5
UniRef90-D2VUF9
UniRef90-R1FRU5
UniRef90_UPIO00350194A
UniRef90_M3ULF8
UniRef90-A7TMB3
UniRef90-E5A0S6
UniRef90_UPI0003D0DD6E
UniRef90-W4HB74
UniRef90-F1A4K0
UniRef90-C4M9E1
UniRef90_W1QBC2
UniRef90-LOPDY7
UniRef90_Q5XIZ7
UniRef90_Q5XIZ7
UniRef90_UPIO00328B5CF
UniRef90-T1IZ06
UniRef90_T1Z06
UniRef90_UPI0003442E3E
UniRef90_M2S116
UniRef90_A5DFV9
UniRef90_C4R660

 $R \square S \square Q L K H E A G \square R E K F R D K D C D V L T Q K L G E S F F Q M Q L V M M$ RRAEKLRQHVGUNGMHVDDEYDALKKVYDNNAAQLYLVEK
 $T K Q S L C E N L G K V E R T V D K E L E E Q U E Q L R I L H K Y Y N Q V L A$
RFRQTITQKTGLRSAT DDGEYSNQEN!VMNDEGAVRSL!N RTKQSI LHKMGRDETTKNAQDDNADEKYTQMGAALDRLRR RVTNHLKULTRGESQVKDNTFNREEKLFRSLEKTLRLCVK
R LT QQMKVA $\square$ GKADVTSDATFD LLHRQFSDVEKNDSALIG
 YEEADRVLTKIIE
TKQMTSEKLGKSSRTVDTELESQDDLLRDVQRKYLNILIR $K L L R S A P K T K P T Q N K L E D T V A A L V D T T R A G V L R F S A$ RVTNHLK L LTRGEPQVKDNTVNREEKLFRSLEKTVRLCVK RTKNKLMMALGAVKPSTNVAFDLVYSDFESTLQRLVKLDS HFKSTVGDSKKTVDKDFKILNKQDDENEKRIKQIDE MTKRSADQQVGAV 1 A SFKATEDMLIDRLAK $T D D T E Y Q K L V E R F S D D Y L R L Q V V L R$
$T$
$V$
$V$ QSVQRQFGRVMKADDSQVARLYKDFDQVDKLLDK V V D QSVQRQFGFMKRSADEQVGILLKDYDQTDKLLGK\|I TKQS $\square C E N \square G K V E R T V D K E \square E E E \square E Q L K Z L H K Y Y N Q M D A$ RAPHRFM GSKSIEDRIIIEWTKDFETANRAFELLAI DNDFEK QLQKLLKRMDE S S SKKKLY R



 DEEFEKAHDSFLA LLHRLVGALLH QSVQRHFGKMKRSADEQVSVLLKDFEDADLLLAKI I D TTTLHRQDGKGKRSADETVAMLIKEVNDAEVLLGKLI E KRNLVVPKTTERDFERECTKMQHLEEDCSRKTAK
QNMSRRFGMTTKSDDSQDAVLLKDFDDADMLLGKIVE
 ATQYVKEKTGVSKSEVNP LDFESACEKYQVLNEQFTTFKS RAPQILKDKLEIGYQFKDKGFDD DQDTFNQUHDSVVSLNA

TNKMRRALGGGPRDTDQSFEQARKEFKHESDHVNSIFE

QNMTRRFGMTTKSDDSQDAVLLKDFDDADMLL GK V V V KTDPRCDQELEILLIQQFDRKQRHVKNLI K R D DMFDTL A ALVVDSTRSSVVLRL S S RFTQQVKVATGQSDVTSDATYDVAYRQFCDVEKNLSTLGS RFTYRMGSSLGVVKVTRDADFDRLVCELDQAERRLVRFNY
 $\begin{array}{rl}R F T & Y R M G S S S L G G V\end{array}$ GPKT $\square D Q N F E S A R K E F D T L D D S V Q N T Y Q$

EDKELDVVVQK LIVVESA!RKLIK EQNTEVLRERC!KLYK
$K$ QRDKVK LGGKAESTQDPEYNDLRDQVKKTENYAKGALK METQVAAVHR

AP Q ILKQQFNVGVQVVDLQQNELATKFNSTRMHDRSLHE





R R T K K L K Q T VGGTENY H D I F YE T L F Q N FQQQQ QQ LT F K K
 ERRRDS QLRGMERAVA T R Q I I S E R L G K T S R T V D T E L E G Q ARRLVVSEKVGGAE GTKDDDDFKMEKKVVVXGRGMRQL


|  | 50 60 60 |
| :---: | :---: |
| UniRef90_UPI000441B55A |  |
| UniRef90_B2ABK3 | NARAWRDSWDSLINSQHNMVVEFEGLVYDPDGHGRERLKET |
| UniRef90_F0ZJ66 | S L L K H K NLQ K T F IHP S S L NKNIQ K Y FPNTHPLANYTTEA |
| UniRef90_C1HBW5 |  |
| UniRef90_H3C4V9 | $N V Q L F V L L Q R F L A C R T E E F D L E L E G E R E A A S V Q E V G T A L R$ |
| niRef90_W9ZPP5 | DCEGYI DEVVKA W |
| niRef90_G3RVX1 |  |
| UniRef90_B0Y3S1 | STRAWRDA WS S L L H Q ERMLC EFDGI YAP I I G S D P T T A K |
| UniRef90_E1FI30 | MSKLFTSNFHRMNEAQK GLAESLLYQLSLKEMSLNAECSSN |
| niRef90_UPI00035 | EDDEANKHAKK |
| UniRef90_I1FWM0 |  |
| UniRef90-M2VV66 | DAQSALDSLQNCCSSQSNFAHSLEAAVRDEAKENDNLE |
| niRef90_UPI00045 |  |
| niRef90_R0JMU1 |  |
| niRef90_D8LUR7 | $N \square E S W C D T N R K L A N E L K R F T N S A G T S S D D M E S Y K D T V M V L$ |
| niRef90_G2Y038 | A SKA WRD A WVSILLSSQLLNTALSSFEELYYQP |
| niRef90_H9K9U9 |  |
| niRef90-N1JI01 | S SKA WRD S WVS I LTTFQKEMTS T F SElTY P D GHGQEPKITP |
| niRef90_E9H7R6 | LSRALLSSHFHHVVSTQQGLGEAFADLAQPELQSEFLCNAE |
| niRef90_U5GYC4 | E M K D WS R R T Q K AL E A QVTMVS GWIDL Y A P I G D EMYP HP S H |
| UniRef90_F4X1L1 |  |
| niRef90_L9KNS2 |  |
| niRef90_M4BLN4 | VL K T Y V S S LK R CHGAA S SVMVVAI E DL Y Q Q S A G S L M M Y L |
| UniRef90-B0EBM6 |  |
| niRef90_N1PSF1 |  |
| niRef90-E2A6V5 |  |
| UniRef90_K3V7C1 |  |
| niRef90_G1L0K9 |  |
| niRef90_Q5AVC0 | S TKA WRD A WS S L LTH Q D RMLV EFES LYAPII GSTEPTSAR |
| niRef90_A1CAT7 | Y T GA WR D A WS SIL L H Q ERMLVEED S I Y P P I I G S S D L L E E |
| UniRef90_G0S0V3 | KQWKD A WT SLA S S QLQLVAEFE GLYDP V G G S E G SRRQ |
| niRef90_A0A044V1 | MS K LF T S S F HQMNEA Q K GLAES LYQLS LKEIS LS A E CSS N |
| niRef90_A2EFQ5 | C I I Q M S Q M QVLS R S GA DLG IS FIT A S Q S S GEAKA I EMF |
| UniRef90_A0A024JM |  |
| UniRef90_T1IIW4 | DFKRCTE CLLA DLA K N E Q KL T S HL C H Y DE KL R T LA E D Y F Sil |
| niRef90_E6RF04 |  |
| UniRef90_U1MAX5 | MAKVFNTHFHRFNEAQKGLAES】YQLSLLKESTLLHSECSSN |
| UniRef90-B8PGN4 | D TKAYTESVSKLFTHGAQYA Q H F A TVVFHPKHPEAEHTDQN |
| niRef90_UPI000383F |  |
| niRef90_Q0U5R1 | S S K Q WR D A WTNI L NHQLAAAVE Y L H L L Y K P LGGEGSA GGS H |
| UniRef90_I8U4F2 |  |
| niRef90_F0ZVP8 | A SK HWQ DQGKTHFS S L Y S F S D ELILK Q S E QLS S SKK S N L S |
| niRef90_S4RTW8 |  |
| UniRef90_U1GQZ5 | A SKA WRDS WS SILLSYQHRVVNEFEGMYAPIVGAADSYHGH |
| UniRef90_D5G4R7 | H T K A WRD S WTE ILVDQT ILLTD SFHD I Y K T P P L P D Y L H A |
| UiRef90-H2Z6I4 |  |
| UniRef90_B6HW01 |  |
| UniRef90_A0A017S808 | D T S A WRD GWS AI L N H Q ERVVGEFKS LYAP IVDVTS R T T K L |
| UniRef90_Q756W1 | ECT R F S TQ $\square$ T NL M N H T Q NLNR GF Q E I |
| UniRef90_UPI0003B6ABBB | A LR Q W L P M |
| UniRef90_A2F1S6 | DLDVI L D SAQKA SKS GAEMTK Y LQQADKANGSSS |
| UniRef90_G8JMP4 | ESEKFSSQQTNLLGHTHNLNKGFHEDNKDYPSALPDVSTR |
| UniRef90_D3BE18 | ALKKR DKNLAKLELDPESLNKKLTKHLPDDHPLHQYSHQ |
| UniRef90_G1XQD2 |  |
| niRef90_UPI0002C3D | TIESSLPK TVVLVSTQHLT I L N S L HL CVQ M S N T P D TL NQI |
| niRef90-H1VBQ9 |  |
| UniRef90_W6QPD3 |  |
| UniRef90_A0A024J965 | Y L R K S $\square$ F Q $\square$ Q K HFDVNS AL A H A WVNWF S A SE D S D L T N |
| niRef90_U5HEW4 | EMREWSKGTKAE LETQVIVVEGWIDMYASLSEEPDADDS L |
| UniRef90-J9VZY7 |  |
| UniRef90_D8M5P6 |  |
| niRef90_A0A016VBZ0 |  |
| UniRef90_E3LSG2 | A AKNFS QVLT QMAEAEKKLSESFYQLS LKEEQIKAQCTT T |
| UniRef90_G5ECK4 |  |
| UniRef90_Q0CD73 | STSAWRDAWSSLLSHQSRMLGEFEGLYAPIVGSADTS T S H |
| UniRef90_D3BD98 |  |
| niRef90_B3RJE9 |  |

LA A Y T R K T A R L R D K A D QLVK QLA D F A NTE GPEMRATVR D LS NPLCEQD QDLLNMVTALDTAA
 GCKK F MA A LA EAY D GD DA FA D A L E E F D DPDS DAGGPVIS K IVRRGYCQK S E A DT K VQ NEVGQQYLVES GMQTNDEVGESSLMK HSKRF DERHRALASSMSGFGLSLTQLANCEADDNPSSLARAA
 A CK RYK LTT LHSSFFSAK QRASE F LQ EFY S


 ASSSYSKLPDAGRSSTVCHMQAMKDGKDGEGCCCQECYS I
 LAREELTNHFYNMVQTQQALGDTFADLSQKSPELQDE NA D K YF GRF C ALLLAA Y I RLVVRQLLDDAASTEQPELRATVRD




UniRef90 UPI000441B55A UniRef90_B2ABK3 UniRef90-FOZJ66 UniRef90_H3C4V9 UniRef90-W9ZPP5
UniRef90 G3RVX1 UniRef90_G3RVX1
UniRef90 B0Y3S1 UniRef90-E1FI30 UniRef90_UPI0003505E84 UniRef90_ITFWM0 UniRef90 M2VV66 UniRef90-UPIOOO4542661 UniRef90-ROJMU1 UniRef90 G2Y038 UniRef90-H9K9U9 UniRef90-N1JIO1 UniRef90-E9H7R6 UniRef90-U5GYC4
UniRef90-F4X1L1
UniRef90_L9KNS2
UniRef90-M4BLN4
UniRef90-B0EBM6
UniRef90-N1PSF1
UniRef90-E2A6V5
UniRef90-K3V7C1
UniRef90_G1LOK9
UniRef90-Q5AVC0
UniRef90-A1CAT7
UniRef90-GOSOV3
UniRef90_A0A044V145
UniRef90 A2EFQ5
UniRef90-A0A024JMK9
UniRef90-T1IIW4
UniRef90-E6RF04
UniRef90_U1MAX5
UniRef90_B8PGN4
UniRef90_UPIO00383F169
UniRef90_Q0U5R1
UniRef90-18U4F2
UniRef90-FOZVP8
UniRef90-S4RTW8
UniRef90_U1GQZ5
UniRef90_D5G4R7
UniRef90 H2Z614
UniRef90-H2Z614
UniRef90 B6HW01
UniRef90-A0A017S808
UniRef90_Q756W1
UniRef90_UPI0003B6ABBB
UniRef90_A2F1S6
UniRef90-G8JMP4
UniRef90-D3BE18
UniRef90-G1XQD2
UniRef90_UPI0002C3D66F
UniRef90-H1VBQ9
UniRef9- W6QPD3
UniRef90-A0A024J965
UniRef90_U5HEW4
UniRef90-JVVZY7
UniRef90-D8M5P6
UniRef90_A0A016VBZ0
UniRef90-E3LSG2
UniRef90_G5ECK4
UniRef90-Q0CD73
UniRef90-D3BD98
UniRef9O-B3RJE9
UniRef90- W6MHY8
UniRef90_UPI00038C0C31
UniRef90-F6S3R3
UniRef90-W4W363
UniRef90 W1PNW5
UniRef90_D2VUF9
UniRef90_R1FRUU5
UniRef90_UPIO00350194A
UniRef90-M3ULF8
UniRef90-A7TMB3
UniRef90-E5A0S6
UniRef90-UPI0003D0DD6E
UniRef9O-W4HB74
UniRef90-F1A4K0
UniRef90-C4M9E1
UniRef90-W1QBC2
UniRef90-LOPDYY
UniRef90_Q5XIZ7
UniRef90_UPIO00328B5CF
UniRef90-T1IZ06
UniRef90_UPIO002B47BE3
UniRef90_UPIO003442E3E
UniRef90-M2S116
UniRef90-A5DFV9
UniRef90_C4R660
EFNDADEHDRQTLP
 QF I ALN ETLKEELPKFFTLCARLVETCLNNLVHI QNGWFR TYRPSIALLLQELPRFHSLALQVLWTVVGAFSCLHRDLAAA WEALNLEAKERMRRLLRCTGEVVRLCQATLVELHLHWYS
EYHAADEH $\square R K C L P P L \square N A A F S L L P Q L L G T Q \square E \square Q N T M D A$ KYEQLKADVKVKLRLLEENRWKVIRKQLLLLHNALIAYSS DYEALNAQLVEELQQVFNRAAKKUVLNCLVFFITL
 ELDA TRGLEDTLETA DPRRRLLVEHVITEFLE $\square S$ QKFYH
DFEAKNKQLLEEMPKFYSSR DDYFKPSFES LVRAQ
MLDEHTAYLEERFQELID $\square G S S \square L R T L I T C E M Y L V K R Q Y E$ AFKDADAHLRETLP
AFQVIDDHLRETLPPIISAAFSILPHLLGAQULIQHALLAA


## S Y T Q $\square$ SET $\square 1$ RE $\square R$ AF VLARDAA $\square T$ PLL

S
S
D
Y
DYQTADDQVAQTFPP TTEAVVSLLPHLLASQVMDQTTLVG E LKTVHAQLLSELPTFLEKRLEYVNPSIMAVIMVQLNYYG $D F E A K N K H L L Q K L P W F C H S Q L$
$E Y Q A A D E H L R Q H L P P L I T A V F S L L P R L L S A Q Q U Q U Q N N U L A$ DYQAADEHLRQ
EF GVADEHLRKTLP
KYSVLNNDFDQGVNR VVMQRAQY LETPFRNFVGDFSKFMC



UniRef90 B2ABK3
UniRef90-F0ZJ66
UniRef90-C1HBW5
UniRef90_H3C4V9 UniRef90-W9ZPP5 UniRef90-G3RVX1 UniRef90_B0Y3S
UniRef90-E1FI30
UniRef90_UPI0003505E84
UniRef90_I1FWM0
UniRef90 M2VV66 UniRef90-UPIO004542661
UniRef90_ROJMU1
UniRef90 D8LUR7
UniRef90-G2Y038
UniRef90_H9K9U9
UniRef90-N1JIO1
UniRef90 E9H7R6
UniRef90_U5GYC4
UniRef90 F4X1L1
UniRef90-L9KNS2
UniRef90 M4BLN4
UniRef90-B0EBM6
UniRef90-N1PSF1
UniRef90 E2A6V5
UniRef90_K3V7C1
UniRef90_G1LOK9
UniRef90_Q5AVC0
UniRef90_A1CAT7
UniRef90_GOSOV3
UniRef90-A0A044V145
UniRef90 A2EFQ5
UniRef90-A0A024JMK9
UniRef90-T1IIW4
UniRef90_E6RF04
UniRef90 U1MAX5
UniRef90-B8PGN4
UniRef90_UPI000383F169
UniRef90 Q0U5R1
UniRef90-18U4F2
UniRef90-FOZVP8
UniRef90-S4RTW8
UniRef90 U1GQZ5
UniRef90-D5G4R7
UniRef90-H2Z6I4
UniRef90_B6HW01
UniRef90-A0A017S808
UniRef90_Q756W1
UniRef90_UPI0003B6ABBB
UniRef90 A2F1S6
UniRef90_G8JMP4
UniRef90 D3BE18
UniRef90-G1XQD2
UniRef90-UPI0002C3D66F
UniRef90-H1VBQ9
UniRef90_W6QPD3
UniRef90 A0A024J965
UniRef90-U5HEW4
UniRef90-J9VZY7
UniRef90 A0A016VBZ0
UniRef90-E3LSG2
UniRef90-G5ECK4
UniRef90 Q0CD73
UniRef90-D3BD98
UniRef90-B3RJE9
UniRef90 UPIO0038C0C31
UniRef90-F6S3R3
UniRef90-W4W363
UniRef90 W1PNW5
UniRef90-D2VUF9
UniRef90-R1FRU5
UniRef90_UPI000350194A
UniRef90_M3ULF8
UniRef90-A7TMB3
UniRef90-E5A0S6
UniRef90_UPI0003D0DD6E
UniRef90-W4HB74
UniRef90-F1A4K0
UniRef90 C4M9E1
UniRef90-W1QBC2
UniRef90-LOPDY7
UniRef90-Q5XIZ7
UniRef90-UPIO00328B5CF
UniRef90-T1IZ06
UniRef90_UPI0002B47BE3
UniRef90-UPI0003442E3E
UniRef90 M2S1I6
UniRef90-A5DFV9
UniRef90_C4R660

TIS T S HE T N S H L I Q Q
QLETEL
DMEQLL
ICNEKF
H Y Y TVVHNYCE
GNAKALQSAMENL
NMSAIL
EASRVVDQDAD

AMAE $\square \mathrm{CNN} \square \mathrm{GE}$
$\square Y Y$ TA L Q N
SVRERWE
HATQLYTQLMP

Q $\square \mathrm{Y} T \mathrm{~S} \square \mathrm{D} Q$
HTTQLYTQLMP $\square$
EMRK T FED LT L $\quad$ QLD
NYYTVIY

S VT N
T WRDTLHKFAQ
RTTHLFSEL
TTRDRLR

EMHKTFGDLTXHLDQ
N L Y T VLH Q
HYYTVVQNYCEQ
RASKLFANLKPRLDD DEK
H Y Y T M
YTLLSNTYSATYEYANEH
KS LEELDKTMSQLS
HYYTVLHTYCE
$N$ L Y Q FL GNCPEVRKLLEK
DMEQLFQ
NLYQFDGNCPEVRKLLEK
SLYQAFA
DFATRHSLMNY DTLEEE

LYYTMLHNYCE
$\stackrel{\rightharpoonup}{N} Y Y T V L H T$
E VQELWDFFAER
MTRDRLRAFAE
RQYE
R $\square$ RSKFQE
GNAKLLE
TLRKLIND
HYYTV
S $\square$ SMNHQSHTA $\square$ LEK
TTAK
QLKETMQT I NNVFK
KAVEVYSRAFQTLER EMHKI FGDLTQQLDR
HATQLYTQLMP
QGYELFSQLYEVLT
EGYTLTHDLKEPLEKL
RMQSA WRDLLPHLEGLSD
K Q Y F N F S $\square$ F N N Q $\square \mathrm{K}$
A L Y T
NLYTVLHQ
$K C H V G L Q Q L L P / D M$
RSAAEYQKALPSVEHTNE
E LDNEIWTKVPNII SSIPE
QSRDI FRFLTRNMDKF
FMDKLTKCLPD
GNQQQLEQ
KAVEVYSSAYRTLE
GNQNALET
QAVQlL DELAEKLKRRXESQA
QAVQULDELADKLKR
QVDLQLT S LEEVFK
E QLS IIDEY!HRK】HEF

| UniRef90_R8BCL1 |
| :--- |
| UniRef90_F1KRG8 |
| UniRef90_T0QZ17 |
| UniRef90_UPI0001795DE3 |
| UniRef90_A0A010Q7P7 |
| UniRef90_G3PX81 |
| UniRef90_D3B0G4 |
| UniRef90_G0P3P7 |
| UniRef90_D6W6I9 |
| UniRef90_F6XMZ3 |
| UniRef90_W2T7N0 |
| UniRef90_A9RYP7 |
| UniRef90_K2l275 |
| UniRef90_Q8T867 |
| UniRef90_B3RPD7 |
| UniRef90_Q5DCU0 |
| UniRef90_J5REP4 |
| UniRef90_S8BRC5 |
| UniRef90_V9KSB3 |
| UniRef90_M2N531 |
| UniRef90_UPI0003F0761F |
| UniRef90_E9C5S9 |
| UniRef90_F1Q8M3 |
| UniRef90_UPI0003942D20 |
| UniRef90_R7QKZ4 |
| UniRef90_UPI00042B32AB |
| UniRef90_D8M8C6 |
| UniRef90_A2EHK6 |
| UniRef90_W8BPY2 |
| UniRef90_E0VVJ4 |
| UniRef90_F1S5V2 |
| UniRef90_UPI0003F1802C |
| UniRef90_E9C8R4 |
| UniRef90_U6NQC9 |
| UniRef90_K3ZQP8 |
| UniRef90_UPI000359701D |
| UniRef90_F6UNM3 |
| UniRef90_-J9K4S8 |
| UniRef90_N6U6K8 |
| UniRef90_R7V646 |
| UniRef90_UPI0002B4C9D0 |
| UniRef90_W4WC45 |
| UniRef90_M3JXQ7 |
| UniRef90_C4Y5A0 |
| UniRef90_W6MI55 |
| UniRef90_C4M128 |
| UniRef90_UPI0002C34E00 |
| UniRef90_A7SDK8 |
| UniRef90_C0H909 |
| UniRef90_J9F3A6 |
| UniRef90_A0A024U9D0 |

110
20
30
40
 $K$ TLAA M GVVA QSVEDPS FE LLCGAFTAMEEALDPHLH

LIMRSFTCIIE
TRQ QLSEKLGRGSRTVDVELEAQDEVLRDNKRKYQHVI K




RATQAVLQKMGASETTDDEQFENTHTNFKR LGEFDTHLEE RARQYTEEKDGHSEKTQDPQFENLQRRADRTKVWTEKLCK


TT R QF GK LMM A D DA DVA QLI S DVK N Y DERLD K LI S T R Q ILSEKLGRGSKTVDLELEAQI ELLRDTKKRYENL L R GLLMKRSEDADVGTVLA EFK A A D D MLLD R L I Q
TRQFDTEKLGGGSYTVDDELQRKDDTMRDNHTQCKRLLQ
TK QILSEKLGRGSRTVDLELEAQIDVLRDNKRKYEHVIG

$R$ LS QQFK VA LE ENAE LLRGRCLKFYK

$\mathrm{T} R \mathrm{Q} \square \mathrm{M}$
MLE


RFTYRMGSSLGVVKVTRDADF DRLVGELDQAARRLVRFNY

RAVQFTEEKLGKAEKTEDPNFEQLVTFCSQVRVMENTVK



## E N L H Y HERELE K T S Q Q $\square K R L V K$

RTPHQLLGR KSDEDR\IQQWEHDLHVSVSGLEFLML
 RAKQYTEEQLGKAEATEDARFESLLEEGAEAFRGRCSKFYK
 LK H K T LT K M GVA Q S L F D P S F EA L S I S F H R I E E S L P H V Y

[^0]

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



STQSSLTQMEKMCFANNQLASS LCNFVLSEDSNDDTEFST QMENVLQPNPTVHEVLGQLMTSAGNDYGPNTALGGALIKV
$D \square Q K W Q E S \square S Q L L V H Q N A D S L Q L F T D Y K Q \square A P E R V A L D K E$ LARRILSTQFYQVVQTQRQUGDAFGELSVKSLELDEE D 1 K SWRNGWEDVLK LQY Y CSEAFASSYKPDEPTSSNYMQK QIA A YTRKTARLRDKGDDVAKALLTYADSETPSMKSGLTS LAESYVNNFTTLVGTQHQLGSLFAEDKTPAGATEFSFNHA

 GCRKYIEGLGEGYDGDIAFVNALETFGGGHNDPGGPVMTK

 SVENFFMDKMEKSIKTNRFSDSMIEAGNDFGPGTAYGSQC LLA A YTRKTA RLRDKADQLVRQLVDFANTEHPEMRATLRS LAQMFSSHLSHMVHDQKQLGNAFSDLSLKSLEDNREFSEN SLQEYTTLLSQLAT CQTRLGAEFVELFTPLWEFSVRNREV
 GARAMASHFSNVVHTQRALGESFSEDAQPEDQEEFVYNCE NAEKYFGQFCVLLAAYTRLVKQLLDFANTENPEMHTTLKN NMEAVLNSNPGMLSSSEYLGBAMTEAGNDFGPDTAYGSAD NAEAVLDYVFEVIVEKQKPLGQDMVEAGTSLGPGTAYG

E VK D LLLAAKNGSRAQRAFSKTLQNFFECDGESQTEDETH
QNKWCKT

 QTEALLQPNPGULTHLETLGKDMEDAGNELGPGTSYGSAT LT QTLANQLTQMMQTQRQLGDAFADLGLKSPELHEE
$V F W K Y Q Q A A N N D L T S N Q G L K M S S S K A Y S Q S N D L Y P T C Q E V V$
$H$


UniRef90_R8BCL1 UniRef90-F1KRG8 UniRef90-TOQZ17 UniRef90-UPI0001795DE3 UniRef90 A0A010Q7P7 UniRef90-G3P X81 UniReffo-D3B0G4 UniRef90-D6W619 UniRef90-F6XMZ3
UniRet90-W2T7N0 UniRef90-W2T7N0
UniRef90 A9RYP7 UniRef90-K21275 UniRefefo-O8T867 UniRef90-B3RPD7
UniRef90-Q5DCU0 UniRef90_J5REP4 UniRef90-S8BRC5 UniRet90_V9KSB3 UniRef90_M2N531 UniRef90-UPIO003F0761F UniRef90-E9C5S9 UniRef90- F108M3 UniRef90-UP10003942D20 UniRef90-R7QKZ4 UniRef90-UPI00042B32AB UniRef90-D8M8C6 UniRef90-A2EHK6

UniRef90 W8BPY2 UniRef90-EOVVJ4 UniRef90-F1S5V2 UniRef90-UPI0003F1802C UniRef90-E9C8R4 UniRef90-U6NQC9 UniRef90 K3ZQP8 UniRef90_UPIOO0359701D UniRef90-6UNM3 | UniRef90_-9K4S8 |
| :--- |
| UniRef90_N6U6K | UniRef90-R7V646 UniRef90_UP10002B4C9D0 UniRef90-W4WC45 Uniinef90-M3JXQ7 UniRet90-C4Y5AO UniRef90-W6M155

UniRef90_C4M128 UniRef90-UP10002C34E00 UniRef90-A7SDK8 UniRef90_COH909 UniRef90_-99F3A6 UniRef90_A0A024U9D0

90
100
110
120 YSDLKAELIUEDUGTIDDR\|IRPATDARDA\|AP\|RKT\|KKR CGNLLKETTNLSTFLDTTVIREAKKFLRLCPVTRMIQKR LHALREQAEAMEQAVTLTVLAPAQALMQRCAFLRLQLQQR QLQDDRTFKEE FGYNAETQKLLSKNGEQVGPANEAEYGPLRKVKQR QTNHKNGMEDLSNAEASFFEEGLSDYVKVLNAVKELLNDR TQRNLTKNGETLLGALNFFISSVNTLCKTTEDTLQSIRQY MAKQDQLAQEKSNMMHQAMVEPMKRYTTDFPHYTQQVKSR
 GLLSKFFLKELRQSKFQESVQRLENMASTQDEVNHKIVRP QAKGGLSEREFVETSARKFIGKPCKYMENCKSISKERKLL RDTVNTDWQEMNDRINNSVLATLGKMIDAARNPLAVIVRD CLGLQKLYSELKKDLQQELLRPAEQAKQSTKQLHKTLKHR TQVALQKNGRVLLAAARFFASNLHTLCKTMEDTFDTLKEF TQKLLAKNGETLLGAISFFDANVKTLVKTVEDTLINNKQY
 KIAATNLHNVLQGEYRA A LKKR1EQLLDEFAEVGKVVKTR
 LAEDLLARVQDYRQRLERKVIDPLKLYGAQVKQTRAEVKKC ADTQKMVAKELLCVAIUSFVIENVNTLVKTIKDTLLTVKQY
 FT TARREDGTYKEVLRSQVEHMLNDKLLQFVDUMKDARKR FAEELAKVQDYRQAEVERVLDPLRLYGTQDKQTRAEIKKF
QQTLGLNQREFIKSANDCFVNPMNKYLE TVMKTVVKER QQTLGLNQREF KSANDCFIVNPMNKYLE MTDMKTVVKER FSYNSET QKVLAAKNGET LLGAALNFFTSTMMEDTLMTVVKLY $\square S Q S L K E F G K L T A S I E D E 11 L P L$ FNLEMQWEDHDESUKDRVLPLENFRKHIGGVKDGKKKF MA QLSERFVTLGETHAKKVGAKVDPMVRHIKKVRHAIAKR EKLIRVLNSEICHKVEESFDETCKEMKKHLENSLKLLKKR CEIESMAVSKYKQTVQKVVISPLLELKKMYNULSARHAGL
 FGYNADTQKLLSKNGETLLGAINFFIKTDEDTMINLKQY


[^1]

|  | UniRef90_R8BC |
| :---: | :---: |
|  | Ref90-F1KRG |
|  |  |
|  | UniRe |
|  | UniRet90-A0A0100 |
|  | UniRef90-G3PX81 |
|  | UniRef90 D3B0G4 |
|  | UniRef90 GoP3P7 |
|  | UniRef90-D6W |
|  | UniRef90 F6x |
|  | UniR |
|  | UniRef90-A9F |
|  | UniRef90-K21275 |
|  | UniRef90-Q8T867 |
|  | UniRef90-B3RPD7 |
|  | UniRef90_Q5DCU0 |
|  | UniRef90-J5RER |
|  | UniRef90 ${ }^{\text {S8B }}$ |
|  | UniRef90-V9K |
|  | UniRef90-M2N531 |
|  | UniRef90-UPIO003F |
|  | UniRef90-E9C. |
|  | UniRef90-F108M3 |
|  | UniRef90-UPIo |
|  | UniRef90_R70 |
|  | UniRef |
|  | UniRef90-D8M8C6 |
|  | UniRef90 A2EHK6 |
|  | UniRef90 W8BP |
|  | UniRef90-EOVVJ4 |
|  | UniRef90-F1S5 |
|  | UniRef90-UPIO003F1 |
|  | UniRet90-Es |
|  | UniRef90-U6NQC9 |
|  | UniRef90-K3Z |
|  | UniRef90-UP1000359 |
|  | UniRef90-F6UNM3 |
|  | UniRef90-J91 |
|  | UniRef90 N6U6K8 |
|  | UniRef90-R7V |
|  | UniRef90-UPIOOO2B4 |
|  | UniRet90_W4W |
|  | UniRef90-M3JXQ7 |
|  | UniRef90 ${ }^{\text {C4Y5A0 }}$ |
|  | UniRef90- W6M155 |
|  | UniRef90 |
|  | UniRef90- UP10002C34E00 |
|  | UniRef90_A7SI |
|  | UniRef90-C0 |
|  | UniRef90 J9F3A6 |
|  | iRef90_A0A024U9DO |

 YDKLIDFESAKRS
DRLVMDYDLLKL DRLVMDYDLLKLDVSRT PDDAKDER QYKLERAWQ KRVRNNE KKQLEKLEKLRQKSPSDRAMGERAQYKLERAWQ ENKRLDYEKAQEKVKKLQKKTPKEDAALSKAEFEMTCASE EFARVEYDAYRTDLEELNLGPRDAATKI ELSQQQFQDHRA LDSLLSFQNWERTVESRRDKHEKSEKELADGQKKDAEAKQ EAARIEYDAYRTDLESMSTKPD GADGLEEAQQGYELHRQ EKVLQEYNKVQAKLEKYEEREQTGANKIQQMKAEVQPVKE NDKLMDYEAAKNKVKSDFMSKFKD
DKASLHYDQVREKFLS L KKDAKPEDVVGFEEDDRNAKS HKTRIDMDRHKEKLESLMKKTGK EGKIVEYQ DKFDAEKE DKRDQDYNKVTKQLDEKRKKLDYDS DKRSNDNEKDK LVKKE AVKRLDLDACKSKLKKAVSTEKAQAFVILQADNDLRAAQS Y SARIE YDAYRNELNQVKNKKPTSDN NRKSADYARYQAHRHA KKS DDR LMDQE AT ENSKLDYERYTSNAESARKKNKREAGVLAKAEKQDDQATK ENARI EYDAYRTDLEELNDGPRDANTKI EHSQQQFQSHKV ENTKLDYERYLSRTEHARRKETKEEAALAAHEQNLAQAQI ASFSAYHQAQQKKLEKDRQKNPGDRHQUSQAESELQKASV ENARDNYDAFRDDLERMQASGKGDTKSAQDARERFDAAKG EAARI EYDAYRTDLEEDNDGPRDANTKDEDSQQQFQDHRE AKAVLDMDSARTRYQQSSKSSSQPGAKSESLREEMEETAN
SAALAEM SAALAEM QKKRQKKLQTERKRDGSRDRDKQRRRKE DS D KN IVTDYDSHRNKCSMYERKGDKFRMKMDHDYQMLQEHTA RKCFILDNKNAQNKFVKAQEKGKNTESR E IARVVFDAYRMDLENTK PELPQSPVTEEAQKNFSHHKE ENLRLDLDSCKSKVRKARSGQ NVQSAERDLRMAQS
 $E T A R D E Y D A Y R T D L E E L$
$Q K L V A A F E K A R D R F L R H R A A G$
NDKLMDYEAAKNKIKSDFMSKFKD
DKASLLYDQAREKYLSSLKKGTRTDVA
TADEDEDHSARS ESARLEYDAYRVDFETVQSGPRETQARLQDSQKKFADHKQ NKVRNNEDKQLEKLDRLRQKSPSDRHTI SQAETNVQKASV EKRRLDLDACKTRVRKTRDSGPTMEELIDKAEHDLKVAQE EMKRLDLDACKNRARKTRSMLGQG
 ENARVEYDAYRADLDAWNQAPRDSTTRRLEDAQKKFSGHKE
 EKQTIVFCQSQERYLNL STKKKQDNVLQEADATLEMAER


 LDLDSCKAKVRKAQT PERDQQAESELRVAQA




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

D Y E A L N K Q L K M T L P R V VD N L NARTFTLVDNVISKDSQFFA A YQTFTRQRMDDI QQLQADEAQ RRAEI FEDMKLHDAKFFS DASRTTQQLEETI DTFQKQKLKDLQKIFSDFIT:EMVFHA

 DYEALNTQVKQQLPKVTEYLTTVCVVLANSM QFMKLRTEVTDKMKFLDENRIKVMHKQLLLFHNADSAYFS EFEKKNNSLLEEMPKFYDASIGY




\begin{abstract}
 TYNDLDEHI KQYVPPDLDADSSFDPYLLYAVENGVSTF YG QF DKLRSSVSVKLK FLEENKIKVMHNQLLAFHNAVSAYFA
 KFDAVRDQLNDKMRLDENRVKVLQKQLLLFHNAISAYFS KYEKMRNDVSVKDKFLEENKVKVLHNQLILFHNAIAAYFA RME GCRDQLSADMYNFMAKEIDYANY FQTLIETQAEYHR RYAMFHDEVIQRFNYDERNMGSFVTAPLRSLV


FEALDNQVKQTLPKVIDVLNTVLRDAMKTVDELDANLIS SFEQARFNLVTSLSNI EAKKRFEFLEAVSGTMDAHDRYFK SFEQARFNLVTS DASRTTHQLEETVDTFQKQKLKDIQKUFSDFVTVEMVFHA
 EFDRQTEITKKLLEGLSSSHAAHLR CLVYFVETQARFYS


## $\stackrel{T}{1}$

V F F DLDDKVRLIIPQVLGTLSEFIN
LYNYLRSELVEDMKNI I STSMLFYNETMIGLI
SFEQARFNLATALSEI EAKKKFEFHEAVSGVMDAHDRYFK EFDRQYEVTKLLLDGGATSHANHGHRALQSFDEAQAQYYA KYEKMRNDVS LKLKFLEENKVKVLHNQLILDHNADAAYYA


[^2]

|  | 210220 |
| :---: | :---: |
| UniRef90_R8BCL1 |  |
| UniRef90-F1KRG8 | T $\square$ S Q L Y E QL |
| UniRef90-T0QZ17 | QAQKKLWD |
| UniRef90-UPI0001795DE3 | K A VEVYS S A F Q A Lien |
| UniRef90-A0A010Q7P7 | LYYTVLHNYCE |
| UniRef90-G3PX81 | GNQQQLEQ |
| UniRef90-D3B0G4 |  |
| UniRef90-G0P3P7 | LVA E Q $\quad$ K R L M T T R K L F N E |
| UniRef90_D6W619 |  |
| UniRef90-F6XMZ3 |  |
| UniRef90-W2T7N0 | E 1 T |
| UniRef90-A9RYP7 |  |
| UniRef90-K21275 | SVSK GWK Q LEETMKEIP |
| UniRef90_Q8T867 | S NSVLLEGLLT F I EPL |
| UniRef90-B3RPD7 | T S Y REL I EL Q K Q |
| UniRef90_Q5DCU0 |  |
| UniRef90-J5REP4 | N M R D $\mathrm{T}^{\text {T }}$ R |
| UniRef90_S8BRC5 | QK Y R FVHEFA QR |
| UniRef90_V9KSB3 | GNQ Q Q L E QVLK Q F |
| UniRef90-M2N531 | QVYTVLD K |
| UniRef90-UPI0003F0761F | K A Le V Y S N A Y Y LM S $\square$ N D E |
| UniRef90_E9C5S9 | GNQEA LASTMHQF |
| UniRef90-F1Q8M3 | GNQ Q Q E ETLK Q |
| UniRef90-UPI0003942D20 | K S Le l L S V LPQ K A HQE |
| UniRef90_R7QKZ4 |  |
| UniRef90_UPI00042B32AB | QGYELLH Q M E P F $\square$ N QV |
| UniRef90_D8M8C6 | Tl S S S G D |
| UniRef90-A2EHK6 | QI S K Y H D |
| UniRef90-W8BPY2 | GNAVA LESTMKQFN |
| UniRef90-E0VVJ4 | K CHQVMQDLQRDLTSL |
| UniRef90_F1S5V2 | K AVEVYS STEQTLER |
| UniRef90-UPIO003F1802C | GNQT QLEE】LAQF |
| UniRef90-E9C8R4 |  |
| UniRef90-U6NQC9 | R $\square$ R SKFQE |
| UniRef90-K3ZQP8 | QGYELLH QMEPY ${ }^{\text {L }}$ N QV |
| UniRef90-UPI000359701D | GNATA LDEATLKQFNDQ |
| UniRef90_F6UNM3 | K AVEVYSKAF Q L E N |
| UniRef90-J9K4S8 | K C HESLMSLQS DL S GFP S |
| UniRef90-N6U6K8 | QCTT $\square$ M T DLQRELSSLASSNA |
| UniRef90_R7V646 |  |
| UniRef90_UPIO002B4C9D0 | Q G Y ELLH Q M P P I N Q V |
| UniRef90-W4WC45 | QGHEVAKDFKPYMTELQ |
| UniRef90-M3JXQ7 | LLSDTFE |
| UniRef90_C4Y5A0 | EMLE Y M A F Y GLLLAK S A E |
| UniRef90_W6M155 | QQVD $\square$ YEF LCSNMGKF |
| UniRef90_C4M128 |  |
| UniRef90_UPI0002C34E00 | QGYELLLY TMEPY |
| UniRef90-A7SDK8 | QCFQYMQDLQRQL |
| UniRef90_COH909 | GNQQQLDQ |
| UniRef90-J9F3A6 | Q $\square$ G AVYDNDNTKDEN |
| UniRef90_A0A024U9D0 | GCQKQLWS ALD ${ }^{\text {L }}$ |

[^3]


[^0]:    lupas 21
    lupas_14
    lupas_28
    jnet
    conf sol25 sol5
    sol0
    jhmm

[^1]:    lupas_21
    lupas_14
    lupas_28
    jnet
    cont
    sol25
    sol5
    jhmm
    jpssm

[^2]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    jhmm

[^3]:    lupas 21
    lupas_14
    lupas_28
    jnet
    conf sol25
    sol5
    sol0
    jhmm
    jpssm

