QUERY
UniRef90_E2Z9G7 UniRef90-UPI0003632788 UniRef90-UPI0003A8606B UniRef90-TOPRN6 UniRef90_R4KMR4
UniRef90-P52046 UniRef90-F9MWN9 UniRef90_E9SRK1 UniRef90-H5XWV3 UniRef90-B8FJA9 UniRef90-D1VRM9 UniRef90-T2MGB5
UniRef90 C7HUS8 UniRef90-C7HUS8
UniRef90_C6PR29 UniRef90-W0ECA7 UniRef90-R4UK97 UniRef90_UPIO003B54765 UniRef90-G7WGK7 UniRef90-C7RDW3 UniRef90_G2LIZ6 UniRef90_C8PR75 UniRef90-A8MFU2 UniRef90_A4WI34
UniRef90- 8 RDP UniRef90_E8RDP9
UniRef90_UP10003FB3A81 UniRef90_UPI000347F266 UniRef90-TOS274
UniRef90-R5V9L8 UniRef90-O29956
UniRef90_UPIO002E9C47E
UniRef90-J7IYA9
UniRef90_V4TJ86
UniRef90-E3HE39
UniRef90_A5FLF7
UniRef90-A2TXY1
UniRef90_F9VPF2
UniRef90-M315P5
UniRef90-D7VWY8
UniRef90-A7S886
UniRef90_C9XNF2
UniRef90-E3E3L6
UniRef90-G8PK98
UniRef90-UPIO004417C20
UniRef90-F6CLW6
UniRef90-X8K4S0
UniRef90-H6Q8Z8
UniRef90-A0A031LJX1
UniRef90_Q9KGA5
UniRef90_Q26GS7
UniRef90_M5P6Y3
UniRef90-X8JKT5
UniRef90_UPIOOO3726265
UniRef90-F2LY45
UniRef90_UPIO0036CC069
UniRef90-D3FY04
UniRef90-X5M905
UniRef90-W3AJ14
UniRef90-A0A059G465
UniRef90_UPI00042A7A50
UniRef90_E3UKK2
UniRef90-A0A022LS45
UniRef90-R9MDH2
UniRef90_R9MDH2
UniRef90_UPI000373372B
UniRef90_UP100029AC028
UniRef90_UP10003FEDC67
UniRef90_UPIO0040B4942
UniRef90_F2IVN1
UniRef90-U5C6C2
UniRef90 ${ }^{\text {Q5V35 }}$
UniRef90_UPI0003B7A8D4
UniRef90_UPIO002F51B81
UniRef90-F4GTL8
UniRef90_C7NG05
UniRef90_K6EAV9
UniRef90-X1TI77
UniRef90_UPIOOO3623D08
UniRef90-E4NRU1
UniRef90_G8PIO2
UniRef90_UPIO003FD76EE
UniRef90-A0M6B3
UniRef90-J3JF51
UniRef90_W9B634
UniRef90_U1WZ19
UniRef90_D0KT61
UniRef90-K6D4K4
UniRef90-G2MI36
UniRef90-I8J242
UniRef90-UPI00037C6F18
UniRef90-W9G883

UniRef90_UPI0003B491B0


$\qquad$
Q
VI L E K E
TE
V


NLLVEDE
 E Y A N L L L 1 RVV K A D Gll A AV I

DNGIVVLT


 E N L L L

 $\begin{array}{ll}\text { E G } & \text { A T } \\ \text { G F } & \text { T }\end{array}$

 | HE R | I | AV L |
| :--- | :--- | :--- |
| D G H | I |  |

V $\begin{aligned} & \text { K V } \\ & R\end{aligned}$

| $G$ | $V$ | $A$ |
| ---: | :--- | :--- |
| $G$ | $A$ | $A$ |
| $A$ | $A$ |  |

$\begin{array}{llll}\text { D D G } & \text { A } & \text { R } & \text { L } \\ \text { K S A } & \text { A } & \text { V }\end{array}$
ENDLIS K

 NKFLLVEK K E $\begin{array}{ll}K E D \\ 1 & 1 \\ M\end{array}$


E T N


## EN LI S E E K




TVIVEIMDNIADVRLNRPKLNALNMEMVWDFVNVFN | E | $T$ | $V$ | $V$ | $E$ | $T$ |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| E | $N$ | $L$ | $L$ | $K$ | $K$ | $E$ |
| E | $H$ | $L$ | $T$ | $E$ | $T$ | $K$ |
|  |  |  |  |  |  |  |

$V A V E V D N N V G F I Q L N R P K N A L C N D L M Y E$
$T \mathrm{~T}$ VLNVER

RTDG $\stackrel{1}{Y}$ | A V V |
| :--- | :--- |
| A V V |

|  |
| :--- | :--- | :--- | E N LL V E T $\quad$ R RGKVGL

K N $\square \mathrm{L}$ L E K D

 | G H | I | $A$ | $L$ | $L$ |
| :--- | :--- | :--- | :--- | :--- |
|  | $T$ |  |  |  |


 $N \longdiv { L } \vee \frac { T } { T }$


$L$ R V T E E D Y I A A Y I
S N TVLL EVVN
$A$
$G Y$
G

 QTILFQK $T$ QNNI A HI LNRPELNALNQQVMAEVATVAA



$\qquad$ | D R | $V$ | $A$ | $V$ | I |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
| D $N$ | $I$ | $G$ | $I$ | $A$ | $T$ | ENVLVVELD



S

$\begin{array}{llll}1 & R & P & 0 \\ R & P & K \\ R & P & K \\ K & P & L\end{array}$

|  |  | K |
| :--- | :--- | :--- |
| Q | L | N |
| N |  |  |



|  |  |
| :--- | :--- | :--- | $\qquad$ TE



## $\begin{array}{ll}\text { R } P \text { P } & K \\ R & P \\ R & E \\ R & K \\ R & K\end{array}$

## S


 EK RGVGGLI N N AL




 T L T V
I S V E B R D R V G Hil E L D R P H R N T I S S D L V V D D L S G A I D
 $\begin{array}{llllll}\text { Q N I } & \text { L } & \text { E E I } \\ \text { E F T }\end{array}$




## ET V


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


## QUERY

UniRef90_E2Z9G7 UniRef90-UPI0003632788 UniRef90-UPI0003A8606B UniRef90_TOPRN6 UniRef90_R4KMR4
UniRef90-P52046 UniRef90-P52046 UniRef90-E9SRK1 UniRef90-H5XWV3 UniRef90-B8FJA9 UniRef90-D1VRM9 UniRef90-T2MGB5 UniRef90-C7HUS8 UniRef90-WOECA7 UniRef90-R4UK97 UniRef90-UPI0003B54765 UniRef90-G7WGK7 UniRef90-C7RDW3 UniRef90-G2LIZ6 UniRef90_C8PR75 UniRef90-A8MFU2 UniRef90_A4WI34 UniRef90-E8RDP9 UniRef90-UPI0003FB3A81 UniRef90-UPI000347F266 UniRef90-TOS274 UniRef90-R5V9L8 UniRef90-O29956 UniRef90_UPI0002E9C47E UniRef90-J7IYA9 UniRef90-V4TJ86 UniRef90_E3HE39 UniRef90-A5FLF7 UniRef90_A2TXY1 UniRef90_F9VPF2 UniRef90-M315P5
UniRef90-D7VWY8 UniRef90_A7S886 UniRef90_C9XNF2 UniRef90-E3E3L6
UniRef90-W3A9V0 UniRef90-G8PK98 UniRef90-UPIO004417C20 UniRef90-F6CLW6 UniRef90-X8K4S0 UniRef90_H6Q8Z8 UniRef90-A0A031LJX1 UniRef90_Q9KGA5 UniRef90-Q26GS7 UniRef90-M5P6Y3
UniRef90- X 8JKT5 UniRef90-UPIO003726265 UniRef90 F2LY45 UniRef90_UPIO0036CC069 UniRef90-D3FY04 UniRef90- X5M905 UniRef90-W3AJ14 UniRef90-A0A059G465 UniRef90_UPIO0042A7A50 UniRef90_E3UKK2 UniRef90-A0A022LS45 UniRef90-R9MDH2 UniRef90_UPIO00373372B UniRef90_UPIO0029AC028 UniRef90_UPI0003FEDC67 UniRef90-F2IVN1 UniRef90-U5C6C2 UniRef90_Q5V357 UniRef90_UPI0003B7A8D4 UniRef90-UPI0002F51B81 UniRef90-F4GTL8 UniRef90-C7NG05 UniRef90-K6EAV9 UniRef90-X1TI77
UniRef90_UPIO003623D08 UniRef90_E4NRU1 UniRef90_G8PIO2 UniRef90_UP10003FD76EE UniRef90-A0M6B3 UniRef90_J3JF51
UniRef90_W9B634 UniRef90_U1WZI9 UniRef90_D0KT61 UniRef90-K6D4K4 UniRef90-G2MI36 UniRef90-I8J242 UniRef90_UPIO0037C6F18 UniRef90_W9G8833
UniRef90_UPI0003B491B0

KLENDKSFRGVILTSDRPGVFSAGLDLTEMCGRSPAHYAG KLETDKDVKVVVITGGGDKSFVAGADIKEMSTKNAVDGRN QLAADDQVRVIIITGAGEKSFVAGADIAFMSQLSPMEAKQ KI DL ETTTRVVII TGAGEKS FVVAGADI SEMSTASDSEAEK AI A QD D EVVY VVVLT GE G K A FVVA GA DI S EMK D L N PMDGRN


 | $A$ | $I$ | $E$ | $K$ | $A$ | $K$ | $D$ | $V$ | $K$ | $V$ | $V$ | $I$ | $L$ | $T$ | $G$ | $S$ | $G$ | $Q$ | $K$ | $S$ | $F$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $V$ | $A$ | $G A$ | $D$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $E$ | $L$ | $G$ | $R$ | $D$ | $S$ | $G$ | $V$ | $K$ | $V$ | $V$ | $L$ | $L$ | $T$ | $G$ | $S$ | $G$ | $E$ | $K$ | $A$ | $F$ |
| $V$ | $A$ | $G$ | $A$ | $D$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

D I E E D E S I R V L V I T GA A G D K A F I A G G D

## 

 SFEADNSI GAIVLTGS DKAFAAGADI QLADNANVRVVLLTGSGEKAFVAGADI AEMSDMNPQQARR
 KLAADEAVRVVI I TG GEKVFAAGADI S QMATSSAVEVAT




## 

,

## 

## 

A
E
A

## \section*{} <br> 

## 

 <br> \section*{A} <br> \section*{A}\section*{K

## K <br> 

## S

## 




## - <br> -

\section*{

##  <br> 

## 

QLIRVNQEVVRVVFTGAG EADRNEKVRVGIVTGARTRAFSAGADI

## R A E



## QUERY

UniRef90_E2Z9G7 UniRef90-UPIO003632788 UniRef90_UPI0003A8606B UniRef90_TOPRN6 UniRef90_R4KMR4
UniRef90-P52046 UniRef90_F9MWN9 UniRef90_E9SRK1 UniRef90_H5XWV3 UniRef90_B8FJA9 UniRef90_D1VRM9
UniRef90_T2MGB5
UniRef90_C7HUS8
UniRef90_C6PR29 UniRef90_W0ECA7 UniRef90_R4UK97 UniRef90-G7WGK7 UniRef90_C7RDW3 UniRef90_G2LIZ6
UniRef90_C8PR75
UniRef90_A8MFU2
UniRef90_A4WI34
UniRef90-E8RDP9
UniRef90_E8RDP9
UniRef90_UPI0003FB3A81 UniRef90_UPI000347F266
UniRef90-TOS274
UniRef90_R5V9L8
UniRef90_O29956
UniRef90_UPIO002E9C47E
UniRef90-J7IYA9
UniRef90_V4TJ86 UniRef90_E3HE39
UniRef90_A5FLF7
UniRef90-A2TXY1
UniRef90_F9VPF2
UniRef90-M3I5P5
UniRef90 D7VWY8
UniRef90_A7S886
UniRef90_C9XNF2
UniRef90-E3E3L6
UniRef90- W3A9V0
UniRef90_G8PK98
UniRef90_UPI0004417C20
UniRef90_F6CLW6
UniRef90_H6Q8Z8
UniRef90_A0A031LJX1
UniRef90_Q9KGA5
UniRef90_Q26GS7
UniRef90_M5P6Y3
UniRef90_-X8JKT5 UniRef90_UPI0003726265 UniRef90_F2LY45 UniRef90_UPIO0036CC069 UniRef90_D3FY04 UniRef90_- X5M905 UniRef90_W3AJ14 UniRef90_A0A059G465 UniRef90_UPI00042A7A50 UniRef90_E3UKK2 UniRef90-A0A022LS45
UniRef90-R9MDH2 UniRef90_UPI000373372B UniRef90_UPI00029AC028 UniRef90_UPI0003FEDC67 UniRef90_UPI00040B4942
UniRef90_F2IVN1
UniRef90_U5C6C2
UniRef90_Q5V357
UniRef90_UPI0003B7A8D4 UniRef90_UPI0002F51B81 UniRef90_F4GTL8 UniRef90_C7NG05 UniRef90_K6EAV9 UniRef90-X1TI77 UniRef90_UPI0003623D08 UniRef90_E4NRU1 UniRef90_G8PI02
UniRef90_UPI0003FD76EE UniRef90_A0M6B3 UniRef90_J3JF51 UniRef90_W9B634 UniRef90_U1WZI9 UniRef90_DOKT61 UniRef90_K6D4K4
UniRef90_G2MI36 UniRef90_I8J242

UniRef90_UPI0003B491B0


 | $R$ | $A$ | $G$ | $E$ | $A$ | $A$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $R$ | $A$ | K |  |  |  |
| $R$ | $A$ | $S$ | $D$ | $N$ | $A$ |
| $R$ |  |  |  |  |  | $\begin{array}{llll}R \\ R & A & S & D \\ \text { N A K }\end{array}$ R V A S D N A K

140
150

UniRef90＿E2Z9G7 UniRef90－UPI0003632788 UniRef90－UPI0003A8606B UniRef90－TOPRN6 UniRef90＿R4KMR4
UniRef90－P52046 UniRef90－F9MWN9 UniRef90－E9SRK1 UniRef90－H5XWV3 UniRef90－B8FJA9 UniRef90－D1VRM9 UniRef90－T2MGB5
UniRef90 C7HUS8 UniRef90＿C6PR29 UniRef90－W0ECA7 UniRef90－R4UK97 UniRef90＿UPI0003B54765 UniRef90－G7WGK7 UniRef90＿C7RDW3 UniRef90＿G2LIZ6 UniRef90＿C8PR75 UniRef90－A8MFU2 UniRef90－A4WI34 UniRef90－E8RDP9 UniRef90－UPI0003FB3A81 UniRef90－UPI000347F266 UniRef90－TOS274 UniRef90－R5V9L8 UniRef90－O29956 UniRef90＿UPI0002E9C47E UniRef90－J7IYA9 UniRef90－V4TJ86 UniRef90＿E3HE39 UniRef90－A5FLF7 UniRef90－A2TXY1 UniRef90－F9VPF2 UniRef90＿M315P5
UniRef90＿D7VWY8 UniRef90＿A7S886 UniRef90＿C9XNF2 UniRef90－E3E3L6 UniRef90－W3A9V0 UniRef90 UPIOOO4 UniRef90－F6CLW6 UniRef90－X8K4S0 UniRef90－H6Q8Z8 UniRef90－A0A031LJX1 UniRef90＿Q9KGA5 UniRef90－Q26GS7 UniRef90－M5P6Y3
UniRef90－ X 8JKT5 UniRef90－UPI0003726265 UniRef90 F2LY45 UniRef90＿UPIO0036CC069 UniRef90－D3FY04 UniRef90－X5M905 UniRef90－W3AJ14 UniRef90－A0A059G465 UniRef90＿UPIO0042A7A50 UniRef90＿E3UKK2 UniRef90－A0AO22LS45 UniRef90－R9MDH2 UniRef90＿UPI000373372B UniRef90＿UPI00029AC028 UniRef90＿UPI0003FEDC67 UniRef90＿UPI00040B4942 UniRef90＿F2IVN1 UniRef90＿U5C6C2
UniRef90＿Q5V357 UniRef90＿UPI0003B7A8D4 UniRef90－UPI0002F51B81 UniRef90－F4GTL8 UniRef90＿C7NG05 UniRef90＿K6EAV9 UniRef90－X1T177 UniRef90－UPIO003623D08 UniRef90－E4NRU1 UniRef90－G8PI02 UniRef90＿UPIO003FD76EE UniRef90－A0M6B3 UniRef90－J3JF51 UniRef90＿W9B634 UniRef90＿U1WZI9 UniRef90－D0KT61 UniRef90＿K6D4K4 UniRef90－G2MI36 UniRef90－I8J242

UniRef90＿UPI0003B491B0

17C20

## 

 x1


170


200
ェー Q W
 ELI YTGNNDKAEEALKM GLVNHVYPGENLMEEAVKGAAKI




## 





 ELI F T G R R MV K A D E A A A I G L V N K V V P P A E E L L L



## E <br> E

## E

## 

－

D
E
E
E
E E E

## 

## 

D

## \section*{ェーய}

 EML LTT EMMFTSEP：



## QUERY

UniRef90_E2Z9G7 UniRef90_UPI0003632788 UniRef90_UPI0003A8606B UniRef90_TOPRN6 UniRef90_R4KMR4 UniRef90-P52046 UniRef90_F9MWN9 UniRef90_E9SRK1 UniRef90_H5XWV3 UniRef90_B8FJA9 UniRef90_D1VRM9 UniRef90-T2MGB5
UniRef90- C 7 HUS
UniRef90_C7HUS8
UniRef90_C6PR29 UniRef90-W0ECA7 UniRef90_R4UK97 UniRef90_UPI0003B54765 UniRef90_G7WGK7 UniRef90_C7RDW3 UniRef90_G2LIZ6 UniRef90_C8PR75 UniRef90_A8MFU2 UniRef9-_A4WI34 UniRef90_E8RDP9
UniRef90_UPI0003FB3A81 UniRef90_UPI000347F266 UniRef90-TOS274 UniRef90_R5V9L8 UniRef90-O29956 UniRef90_UPI0002E9C47E UniRef90-J7IYA9 UniRef90_V4TJ86 UniRef90_E3HE39 UniRef90_A5FLF7 UniRef90_A2TXY1 UniRef90_F9VPF2 UniRef90-M3I5P5
UniRef90 D7VWY8 UniRef90-A7S886 UniRef90_C9XNF2 UniRef90_E3E3L6 UniRef90_W3A9V0 UniRef90_G8PK98 UniRef90_UPI0004417C20 UniRef90_F6CLW6 UniRef90- X8K4S0 UniRef90_H6Q8Z8 UniRef90-A0A031LJX1 UniRef90_Q9KGA5 UniRef90_Q26GS7 UniRef90-M5P6Y3
UniRef90- X8JKT5 UniRef90_UPI0003726265 UniRef90 F2LY45 UniRef90_UPIO0036CC069 UniRef90_D3FY04 UniRef90_- X5M905 UniRef90- W3AJ14 UniRef90_A0A059G465 UniRef90_UPI00042A7A50 UniRef90-E3UKK2 UniRef90_A0A022LS45 UniRef90_R9MDH2 UniRef90_UPI000373372B UniRef90_UPI00029AC028 UniRef90_UPI0003FEDC67 UniRef90_UPI00040B4942
UniRef90_F2IVN1
UniRef90_U5C6C2 UniRef90_Q5V357 UniRef90_UPI0003B7A8D4 UniRef90_UPI0002F51B81 UniRef90_F4GTL8 UniRef90_C7NG05 UniRef90_K6EAV9 UniRef90_X1TI77 UniRef90_UPI0003623D08 UniRef90_E4NRU1 UniRef90_G8PI02 UniRef90_UPIO003FD76EE UniRef90_A0M6B3 UniRef90_J3JF51 UniRef90_W9B634 UniRef90_U1WZI9 UniRef90_D0KT61 UniRef90_K6D4K4 UniRef90-G2MI36 UniRef90-18J242

UniRef90_UPI0003B491B0


220

240

 A K N A P I A V R A S K K A I N T G I D T D M D R A II I I E E K I F S S C F E T AKNAPIAVKLCKAA, NKGMQMDIDSALVYEAEVFGLCTST

 M S K A S F G V T L A K Q A I $N$ N T G M D T D L
 A S K A P KA I Q Y S K S A I E S G S Q T D I E T A M E I E R TS F GLL L
 S SHS QL I V A L CKE S V V S SKGPLAVGMAKQLV A D Q GAVAL RLAAKA AVVNE GQDRMDLL E A G C A M E ASNGA A R R A K A A V E GLLRMDLEAGLEYE HKCFSSLLAFAT
 IS K A P MA I K Y S K $\square$ A I N K GI DLDDLS N A L E L E K DLLA A LLT F A A E K P P L L L A M A K Y A I N F G L E A P Q W V GMMML E A T Q F G L L F S T A T K G K A S L C A A K Q T V N Q GLLN T D L A T G L C I E R D A F A L C L A S

 A A GP P V






 A K N A QL A V R Y S K E A I QLG A Q T DI N T GI D I E SNLD

 ASFSTPIVMMTKESVNRSYEVTLAEGIRFERRLFHSMFAT AS K GRVAV DA GKEAVNAAYELNMSEGLRFERRLFHGLFAT



 A A N GPV A V R Q A K F A I N K G L E T N I E T G L A DE QKA Y E L T DP T A GFGRRVAVQAGKESVNAAYE LSLK DGLHF ERRDFQSLIAT
 MKNGPIAVGLAKRAIVDGFDQTRDEGLKYEASLFGLAFAT
 A GMS R P V T A L T K E A V N R S Y E T T L A E GI R F E R R L F H S L F A L
 GTHSPLIVKMAK QAVNQAYETTGLKSGLQFEKSVFYGTFAT A SMS K T TADA A K Q A V N R S F E T T L E E GLLLAE Q NAF Y A LIF A T

 A D F S L P V T M MVVKE S V N R A Y E T T L A E G DR F

 NAKSRPVTMMMVKESVNAAYETALLS QGVLFERRRLFHAAFAT AKMPP LAA TQUIKEVLLAG GQDASLDAALMLERKAFHLLFAS
 GSKGPLALRLAKAAVNRGAD』EMETALYLEKLAQT』LDGS CQA GP LAVRAAKEAMIRGSDMTME DGLKL E S SLLF NHVMD T A EK S Q A TVVA A K E A VNRSYETTGLREGVLFERRSFQAL FST AQGPPVAQRYTKRAMHNGWEDTVAGLEVEAQSFGLLFTT LR H S P L A A A R LLT A VT R G L N T T $\square$ S E GLLQ DEAS QFARMAP T $M$ K N SPMA IG MAI NAVNANFK E GEENGFDTEVK SF GKCF GT MKNSMDA IGAA I K A I NANYE DGV NGFDTE IN NF GRSFGT A GGPPI A QAFTKQAMRKGWENQ EAGLEIEAQAFGHLMTT A S N G P V A $\square R$ R A K F A DD S G L Q T D L T T G L K L E H L A Y K E T I P T






| QUE |  |
| :---: | :---: |
| UniRef90_E2Z9 |  |
| Ret90_UPIo003632788 | QDRAEG |
| Ref90_UP10003A8606B |  |
| niRef90_T0P | EDQKEGM |
| UniRet90 R4 | EDRLLEGMK |
| Reenopze46 |  |
| Ret9o--9nung |  |
| UniRet90_E9SRK1 |  |
| UniRet90_H5XWV3 |  |
| niRef90_B8F |  |
| UniRet90-D1V |  |
| T2M |  |
| UniRef90-C7HU | DKKEG |
| UniRef90-C6PR | EDQKEG |
| UniRet90-W0ECA7 | D |
| UniRef90_R4UK97 | DDRKEGM |
| UniRet90_UP10003B547 |  |
| UniRef90_G7 | EDQKEGMK |
| UniF |  |
| UniRef90-G2LI | E |
| UniRet90_C8PR75 | EDQKMAM |
| UniRet90_A8MFU2 | EDKDEGM |
| UniRet90_A4W134 | EDVIEGV |
| UniRet90_E8RDP9 | PDAKEG |
| UniRef90 UPI0003FB3A81 |  |
| UniF | E |
| UniRef90-TOS | EDQKEG |
| UniRef90_R5V9 | T |
| UniRe | Q |
| UniRet90_UPlooo2E9C47E | NDQKEGMK |
| UniRet90_J7TYA9 | EDLQEGL |
| UniRef90_V4TJ86 |  |
| UniRef90-E3 | YDQKEGM |
| UniRef90 ASFLF |  |
| UniRef90-A2TXY1 |  |
| UniRet90_-9VPF2 | EDGKEGMK |
| UniRe990_M315P5 | EDQKEGM |
| UniRef90_D7VWY8 | ADKKEGV |
| UniRef90 A7s | DDRKEGM |
| C9XNF2 | KDQKEG |
| UniRef90_E3E3L6 | KDRTEG |
| UniRet90_W3A9V0 |  |
| UniRet90_G8PK98 | MK |
| UniRet90_UPIO004417C | HDQKEGM |
| UniRef90_F6CLW6 |  |
| UniRef90_88 |  |
|  |  |
| UniRee90 ${ }^{\text {A }}$ A0A031LJX1 | EDGKEGMK |
| UniRet90 Q9KGA5 | E D R |
| UniRet90_Q26GS7 |  |
| UniRet90_M5P6Y3 | KDRTEGLQ |
| iRef90_X8JKT5 |  |
| UniRet90_UP10003726265 | YDGO |
| UniR | EDAKEGL |
| UniRef90-UPIOOO36CC069 | E D |
| Re990-D3FY04 | EDREGV |
| UniRet90-×5M905 | EDQKEGM |
| iRet90_W3AJ14 | EDRQEGV |
| UniRef90_A0A059G465 |  |
| UP100042A7A50 | EDR |
| UniR |  |
| UniRet90_A0A022LS45 | DDQTEGM |
|  | EDQKEGM |
| UniRet90-UP1000373372B | ADK |
| niRef90_UP100029AC028 |  |
| UniRef90_UP10003FEDC67 | DQKEGMR |
| UniRef90 UPIO0040B4942 |  |
|  |  |
| UniRet90-U5C6C2 | GD |
| UniRet90_O5V357 | D |
| UniRet90-UP10003B7A8D4 | EDDEGME |
| UniRet90_UP10002F51B81 | DQKEGMR |
| UniRet90_F4GTL8 | EDQKEGMK |
| UniRet90 C7NG05 | DRQIGM |
| UniRef90-K6 | EDKQEGTQ |
| UniRet90-X1T177 | EDYAEGV |
| UniRef90-UP10003623D08 | D |
| UniRet90_-4NRU1 | D |
| UniRet90_G8P102 | NDTKEAL |
| UniRef90_UP10003FD76EE |  |
| UniR |  |
| UniRef90-J3. |  |
| UniRef90-W9B634 | K D ${ }^{\text {d }}$ |
|  |  |
| UniRef90 DOKT61 | , |
| UniRef90 K6D4K4 | E A |
| UniRef90 G2MI36 | EKQEGI |
| UniRef90-18J! |  |
| UniRet90_UP100037C6F18 | E |
| niRef90 | EIGM |
| NRef90_UPI0003B491B | E D Q S E G M |

UniRef90＿UPI0003B6852F UniRef90－UPIO00370D285 UniRef90－W4Q2D7 UniRef90－F4G0A9 UniRef90－X6L4P7 UniRef90－EBTGN9
UniRef90－D7GUE1 UniRef90－UPI0003719050 UniRef90－UPIO0047B90F3 UniRef90－UPIO000584631 UniRef90－K2PQ60 UniRef90－B3R6Y8 UniRef90－E31AH6 UniRef90－F5L5Y3 UniRef90＿LOKSB7 UniRet90－F2NQE2 UniRef90－L7U931
UniRef90
Q01T70 UniRef90－UPI000346B43D UniRef90－V5S917
UniRefefo－D6B7U8
UniRef90－NOEOB5
UniRef90－ITMV56
UniRef90＿F6DOX2 UniRef90＿UPIOOO471A82C UniRef90－052797 UniRef90－M7WMF3 UniRef90－UPIO003FDEOCA UniRef90－C6XRU8 UniRef90－UP100047AEOD6 UniRet90＿U5LED3 UniRef90＿UPIO002558036 UniRef90－D2CDF9 UniRef90－D7AUE5 UniRef90－S7ZJV7 UniRef90－U1YB15 UniRef90－IORU27 UniRef90－UP1000479BCCB
UniRef90－A4EFZ5 UniRef90 ${ }^{-}$W0JKG9 UniRef90－UPIOOO36B28D4 UniRef90－JowwJ6 UniRef90－WOJZ47 UniRef90－UPI00037FE3DA UniRef90－HoRIM7 UniRef90－A0A059MT28 UniRef90＿14XMK4 UniRef90＿－B5WH72 UniRef90 W7YYY0 UniRef90 E3MMFB1 UniRef90＿M7DA10
UniRef90＿15B2X5 UniRef90－M1VCX7 UniRef90－Q39T15 UniRef90－M2WD42 UniRef90－B8FFN1 UniRef90－Q8FLT4 UniRef90－U7D198 UniRef90－A3TR04
UniRef90－UPIO00471B668 UniRef90－UPIo0037EBE7D UniRef90－EотнJO UniRef90－UPIO00478D9EE UniRef90－L7F211 UniRef90＿E8UB20 UniRef90 UPIOOO3813D7D UniRef90＿CoGGI8 UniRef90＿UPIO00255A11F UniRef90＿B3QAK0 UniRef90 UPIOOO3614100 UniRef90－A8RJIO UniRef90－F8ELB1 UniRe990＿L9UT82 UniRef90＿D81S16
UniRef90－UPI000 UniRef90－ToJ432 UniRef90－UP100034ACF82 UniRef90－D3HQR8 UniRef90－F5SA74 UniRef90＿UP10002C301CF UniRef90－UPIOOO35F30E4 UniRef90－AOZ6P9 UniRef90－B5HPC5 UniRef90－HGL42O
UniRef9O－G1KHTS UniRef90＿C8WUA7 UniRef90－S9ZJR9 UniRef90＿RTSAL9
UniRef9o＿woEW67

 L NDSUEHVATI TLNRPPANALSKAVLQELDHVLT
 KLNRPKLNAI NMEMVYDIVQALS TDFETILLERKKGVAYLTLNRPERNALSPEMWKDI QTAGVE NDVODHIAWL
 V VEK K R kLNrpdLnalnsellge SEALA ENDKVEYSKR DYETI DTETRGKVGYI
TDYTSIUTET

EDGMALV
OGAGVTL
EAGVLI


RGRVATLNRELNALNGELVRELDEALL ETLLVERER EYTCIVRARTRGSVGMI YTRVRYEKKDHVACVV

TLQYEKERGIAAQ SKYV V Y
$\begin{array}{llll}R & G & R & V \\ A & G & G & I \\ G & T\end{array}$


ALLRPSVNAINRPMVSEILEAME LTWSHQDMVAEEAGSRPPANALSSGVLKELSGVLD ETVVVETSDD AVCTITLDRPDMNADNSQLLGELVKALE

IMVERRGRVGLVTLNRPALNALNTALMNEVEAVT
TILVERDGRVGT
$\qquad$

T
 TLNRPALNALNSQMMNEVTCAAT NALGMIYFNRPKALNALNNALDEMDTALLD QVEVRGNVGLVADHRPALNALNDETAELLDALQ DTLLVETKGRVGITHNRPALNALNSQVLADVLHAAR EHVLLEK KEHVALI
$\qquad$ GLA音।
TITAEATDRIGVI VRASRNARVGW
 FVREVEDGULLDRPPMNALDADVQRGI IAASQ TVLLEKQGPVAL VIRKDRH VIVTKKNRIATI ET VVERQNAVGV ETHLVER DVDRVGL 1 LFEHTGGIAR LRLDWDGDVATI
 IEVADRGAVRTI QS

$\qquad$ PSP日 SKEVLLRVEENRGUAELMNRPAKNSLGKVFVEELEFETLD
 EDULFD Y YDG\｜A KIITIINRPQVNA FRPQTNNEMLDA MA

UniRef90_UPIO003B6852F UniRef90_UP1000370D285 UniRef90-W4Q2D7 Unii Refo-F4GOA UniRet90-E3TGN9 UniRef90-D7GUE1 UniRef90_UPIO003719050 UniRef90-UPIOOO47B90F3 UniRef90-UPIOO00584631 UniRef90-K2PQ60 UniRef90-B3R6Y8 UniRef90-E31AH6 UniRefo-FFL5Y3 UniRef90-LOKSB7
UniRef90-F2NQE2 UniRef90-L7U931 UniRef90-001T70 UniRef90-UPI000346B43D UniRef90-V5S917 UniReffo-D6B7U8 UniRet90_NOEOB5 UniRef90_11MV56
UniRef90 F6DOX2 UniRef90-UPIO00471A82C UniRef90-052797 UniRef90-M7WMF3 UniRef90-UPI0003FDEOCA UniRef90-C6XRU8 UniRef90-UP100047AEOD6 UniRef90_U5LED3 UniRef90_UPIOOO2558036 UniRef90-O2CDF9 UniRef90-D7AUE5 UniRef90-S7ZJV7 UniRef90-U1YB15 UniRef90-IORU27
UniRef90-UP1000479BCCB UniReffo-A4EF25 UniRef90-WoJKG9 UniRef90-UPIIOOO36B28D4 UniRef90-JowwJ6 UniReffo WoJZ47 UniRef90-UPIO0037FE3DA UniRef90-HoRIM7 UniRef90-A0A059MT28 UniRet90-14XMK4 UniRef90-B5WH72 UniRef90-W7YYYO Uniref90-E3MFB1
UniRef9O-M7DA10 UniRef90-15B2X5 UniRef90_M1VCX7 UniRet90_Q39T15 UniRef90-M2WD42
UniRef90
B8FFN1 UniRef90-A4BXH5 UniRef90-Q8FLT4 UniRef90-U7D198 UniRef90_B9M8K1
UniRef90_A3TR04 UniRef90-UPIOOO471B668 UniRef90-UP100037EBE7D UniRef90-EOTHJO UniRef90-UPIIO00478D9EE UniRef90-L7F211

## UniRef90-E8UB20

UniRef90 UPIO003813D7D UniRef90_COGG18
UniRef90-UPIO00255A11F niRet90_B3QAK0 UniRef90 UPIOOO3614100 UniRef90-A8RJIO
UniRefofo-F8ELB1
UniRef90-D81S16
UniRef90-UPI00037E0413 UniRef90-T0J432 UniRef90 UPIOOO34ACF82 UniRef90-D3HQR8 UniRef90-F5SA74 UniRef90 UPIOOO2C301CF
UniRef90-UPIOOO35F30E4 UniRef90-UPIOOO35F30E4
UniRef90-AOZ6P9 UniRef90- B5HPC5 UniRef90-H6L420 UniRef90-G1KHT5
UniRef90- C8WUA7 UniRef90-C8WUA7 UniRef90_R7SAL9

AADANDKVVRCIIVITGS DKAFAAGADIIKEMAELNFVDVY ${ }^{80}$ GASENKEIGCIILASADDNVFCAGGNIKDFYKFSILEMRN DLEKNEDVHVLLINGEGRFFAAGADVKEFTQVTNP R AD EADGNESVKAVITGNG TFEQDTEVGAIVITGS ERAFAAGADKKMSKSVM AAGNDDSVQVIVISGAG

 AFDQDEG\|GAIVITGS RПHDNRDIRVVIFTGAGDKAFAAGADIGMMAKYSFMDVYK ELKTNRDVGCVVFTGAGEKSFAAGADIAQLNEKGMMDALQ

## V

 SLGSDTVRVLVTGGGE

AFDADNNANAAVISGS A


 ELEETDEVRVVLIHGEGE ELAADRDVWSLVLTGGEGE
EADRSDKVRCVVGGS
RVAD

EFDEDPDI GAII I T GS E
A
A
K EADASDKVRCIIITGS KANSDKNVGAVIINSSSEKFFSAGADI CAREDDQVRVVIVTGAGEKALASGADVREDHDRDYMKM

## 

 ALDADEEVGAIVVTGSGE EKAFCAGADL KAFAAGAD

## $R L D A C P Q T R V V V L T G A D T V F A A G A D L$ $D A R E D A B R G V I V T G A G G A F I A G A D I$


TVRNDDSVRVLVITGAGRGFCAGQDL
QVLANKEIRVLI FTGTGDKAFVAGADISELTQMDALLAAKY RYRDSTIGAIVLTGT DRAFAAGADIKEMANRSFSQARR ELVADKSVRAIVLTGAGKAFMAGADINMVNGWTKGNAAK AFDADHGIGAILLTGS DKAFAAGADIKEMADRGFAEM
 CFEKDPQUGCVVLTGSGAKAFAAGADVLETRDQTFPQTS EASERKDVFAVIVYG GEKVFAAGVDIKQMADWSYTDMVD WLHRQDQARAVILTGTGKKFMAGADIEGYNGFDMGQFFA EERQDLSVRAVVKAAGDKASAGIDLSLLGKLDSDFIVR ELDQDNTIGAIVLTGSG DLADEPRVRAVVLYGGERAFAAGADV K F DNDAEVRAIVLTGS ERAFAAGSDIAEMSGKAAPDMLA KAKKDQEVKAVIITGTGEKVFSAGADIKFLNSATPDEVRD QAKKSEDVRCLLITGNGRGFCAGQDLSDRNVDPNAEMPN DLEADDAI GCILITGS E EKAFAAGADI KEMQPKGFПDM EAEKDPGVGCLVVTGS EKAFAAGADIKEMQAQSYAEM RLEEDDEVRVVVLTGSGEKAFCVGSDVKEFPLVWDDVIGK EAEADGA RVVVLTGAGDEAF $\square$ AGADI GYMKD $\square G T P A A Q N$ AFDAQEEVGCIVITGSGEAFAAGADISAMAGYDYMDVFK SAAGSEEVKAVIVYGGEKVFAAGADITEFTEXSYRDMALD QAAQEDAVRVVVLAGSGEKAFVAGADIAEMNDYTPVQAQG QAVSDREVRCIVLKGSGKGFSSGADLSVSREFGAEADYG A I RKDSSVKVLLLCSKVPKVFCAGADLKERKMMTATEVRD ALGRDPEVRAIVLTG GDKYFAAGADLREMAEAGADED AADADPAVRVVILTGAG KAFCSGGDLRQMQAGPEATADN DVRDNDDVRALVLTGAG RAFSAGADLGEDESFTPGQFRA ALHFDDSVRVVII RSNGAGVFCAGADLKERASMTDVAGDLL A ADAEP QVRAVVVTGGEKAFAAGADIA EMADATAVDMK ELLADDSVRCIVLTG GEKVFAAGGDITSMAGVGA』EV

UniRef90＿UPI0003B6852F UniRef90－UPIO00370D285 UniRef90－W4Q2D7 UniRef90－F4G0A9 UniRef90－X6L4P7 UniRef90－E3TGN9
UniRef90 D7GUE1 UniRef90 UPI0003719050 UniRef90＿UPIO0047B90F3 UniRef90－UPIO000584631 UniRef90－K2PQ60 UniRef90－B3R6Y8 UniRef90－EЗ1АН6 UniRefo－FFL5Y3 UniRef90－LOKSB7
UniRef90
F2NQE2 UniRef90－L7U931 UniRef90－Q01T70 UniRef90－UPIO00346B43D UniRef90－V5S917 Uniref90－DEB77U8 UniRef90－NOEOB UniRef90－F6DOX2 UniRef90＿UPIO00471A82C UniRef90＿O52797 UniRef90－M7WMF3 UniRef90－UPIO003FDEOCA UniRef90－C6XRU8 UniRef90－UPIIO0047AEOD6 UniRef90－U5LED3 UniRef90＿UPIOOO2558036 UniRef90－Q2CDF9 UniRef90＿D7AUE5
UniRef90 S7ZJV7 UniRef90－U1YBI5 UniRef90－IORU27 UniRef90－UPIO00479BCCB UniRet90－A4EFZ5 UniRef90－W0JKG9 UniRef90 UPIOOO36B28D4 UniRef90－JowwJ6 UniRef90－WOJZ47 UniRef90－UP100037FE3DA UniRef90－HoRIM7 UniRef90－A0A059MT28 UniRef90＿l4XMK4 UniRef90－B5WH72 UniRef90 WTYYY0 UniRef90－M7DA10 UniRef90－15B2X5 UniRef90－M1VCX7 UniRet90＿Q39T15 UniRef90－M2WD42
UniRef90 ${ }^{-18 F F N 1}$ UniRef90－A4BXH5 UniRef90－Q8FLT4 UniRef90－U7D198
UniRef90－B9M8 1 UniRef90－A3TR04 UniRef90－UPIO00471B668 UniRef90－UPIO0037EBE7D UniRef90－EOTHJO UniRef90 UPIO00478D9EE UniRef90－L7F211

## UniRef90－E8UB20

UniRef90＿UPIO003813D7D UniRet90－C0GGI8
UniRef90－UPIO00255A11F UniRet90＿B3QAK0 UniRef90－UPIO003614100 UniRef90－A8RJIO
UniRef90－F8ELB1
UniRef90＿L9UT82
UniRef90＿D8IS16
UniRef90＿UPIO0037E0413 UniRef90－TOJ432 UniRef90－UP100034ACF82 UniRef90－D3HQR8 UniRef90－UPIO002C301CF UniRef90－UP100035F30E4 UniRef90－AOZ6P9 UniRef90－B5HPC5 UniRef90－H6L420 UniRef90－G1KHT5
UniRef90＿C8WUA7 UniRef90－S9ZJR9 UniRef90＿WOEWG7

90
100
110
120
 FQEALERLENSIEENKKPVIAAVNGYALGGGNEICLCCDF
 LSDFFGKEGAADTSTRKPVIAAVAGYALGGGCELAMMCDF FGGNFLAHWNKVSTVNKPVIAAVNGFALGGGGELAMMCDV

 QHLVFERMARAVIFCPVPVIAAVNGAAFGGGCELAGACDF
GDYITMNWETIRKIVRPVIAGVAGYALGGGCELAMMCDI NVKKLRDVFNAVANLPQPT，AAVNGYAFGGGFELMLACDF YSQDFFVGWEEFTRARKPIIAAVAGYALGGGCELAMMCDF YSLLGQEVMNAVAALPVPT：AAVNGYALGGGLEELALLACDLD FALRGQGVFRELETCGKPSV Y旨GGPFPSWGGFERGRTPVI

 FGKSLRSTFSFLEDVRVPTIAVVEGVAGGGGGEMALACDID
 RGQAGHPRLTDRFTLSKPVVARVHGYALGGGFELVLACD

 MARLFGEAFETLSRFRGVSIAAVNGFAMGGGLEVALACDLD YNQLYARDTDRFANVRKPVIAAVAGYALGGGCELAMMCD YARDLQNALNLVARIPKPVVAAVTGYALGGGLEELALAADFF YAADWFRHWEDLTRLR DPVIAAVSGFALGGGCELAMMADF FDADYFATWAKLAAVRTPTIAAVAGHALGGGCELAMMCDLL LLNQFAD WDRLALIKKPDIGAVKGFVLGGGFELALCCDM QRFFENETDRFNRTRKPVIAAVAGYALGGGCELAMMCDF
GKKGQSTGALESSDLPVVAGIDGYCGGGGMELATCADD


## い風にくて

， Y A R HAE R H WQAA
S SRF GQAVLDLI


ERHAMNQAVLL
LAAHMQKLYDR
LDNFLGEWDRI
FSKLLQGANNILN
NSHLFQDFTRALARMPKPVI
FQDQGREMYRSIESCGKPVIAAVNGYALGGGFELALACDL NLPRMQQLNNRWENLLQPVIAAVQGTCF FVRRGQAMTSRFENFPKPVIAAVNGLAF
FLADWFQGWEAFAAVRTPVIAAVDGYAE YLADWFQGWEAFAAVRTPVIAAVDGYALGGGCELAMMCDF
WNRALQRTFDEVARLPMPVVAAVTGYALGGGGELALLAADH DRRFSQ WEELRRVRTPI FAKLAVEVTSKIESLGKVVVAALNGSALGGGLELAESCMLL QRELFCDAFEAVVRFPKPIVAMVNGFAMGGGFEFALCCDM


## 

 KLSDWFAIVWEEFT


UniRef90 UPIo003B6852F UniRef90＿UPIo00370D285 UniRef90－W4Q2D7 UniRef90－F4G0A9 UniRef90－X6L4P7 UniRef90－E3TGN9
UniRef90 D7GUE1 UniRef90 UPI0003719050 UniRef90＿UPIO0047B90F3 UniRef90－UPIOO00584631 UniRef90－K2PQ60 UniRef90－B3R6Y8 UniRef90－E31AH6
UniRef90－F5L5Y3
UniRef90＿LOKSB7
UniRef90－F2NQE2
UniRef90－L7U931
UniRef90－
Q01T70
UniRef90 UPI000346B43D UniRef90－V5S917

## UniRef90－D6B7U88

UniRef90＿NoEVB5
UniRef90－11MV56
UniRef90 F6DOX2
UniRef90＿UPIO00471A82C UniRef90－052797 UniRef90－M7WMF3 UniRef90－UPI0003FDEOCA UniRef90－C6XRU8 UniRef90－UPIO0047AEOD6 UniRef90＿U5LED3 UniRef90＿UPIOOO2558036 UniRef90－D2CDF9 UniRef90＿D7AUE5 UniRef90－S7ZJV7 UniRef90＿U1YB15 UniRef90－IORU27 UniRef90－UPU000479BCCB UniRef90－A4EFZ5 UniRef90－W0JKG9 UniRef90－UPIOOO36B28D4 UniRef90－JoWWJ6 UniReffo－WoJZ47 UniRef90－UPI00037FE3DA UniRef90－H0RIM7 UniRef90－A0A059MT28 UniRef90＿14XMK4 UniRef90－B5WH72 UniRef90－W7YYY0 UniRef90－E3MFB1 UniRef90－M7DA10 UniRef90－15B2X5 UniRef90－M1VCX7 UniRef90＿O39TI5
UniRef90－M2WD42 UniRef90－B8FFN1 UniRef90－A4BXH5 UniRef90－Q8FLT4
UniRef90 U7DI98 UniRef90－B9M8K1 UniRef90－A3TR04 UniRef90－UPI000471B668 UniRef90－UPIO0037EBE7D UniRef90－EOTHJO UniRef90 UPIO000478D9EE UniRef90－L7F211

## UniRef90－E8UB20

UniRef90＿UPIO003813D7D UniRef90－COGGI8 UniRef90＿UPI000255A11F UniRef90 B3QAK0 UniRef90 UPIO003614100 UniRef90－A8RJIO
UniRef90－F8ELB1
UniRef90－L9UT82
UniRef90－D8IS16
UniRef90＿UPIO0037E0413 UniRef90－TOJ432 UniRef90 UPIIOOO34ACF82 UniRef90－D3HQR8 UniRef90－F5SA74 UniRef90 UPIOOO2C301CF UniRef90＿OPIOOO35F30E4
UniRef90＿A0Z6P9 UniRef90－B5HPC5 UniRef90－H6L420 UniRef90－G1KHT5
UniRef90 C8WUAT UniRef90－C8WUA7 UniRef90＿R7SAL9
UniRef90＿WOEW67



## 


 ELIMTGKDIDAYEAEKMGLVNKVVPHEKLMEEAKKMASEL

## D

## ロแшロயய <br> \section*{E}

 ECLTARMMDAAEAERAGLVSRVVPADKLLDEVLAAAETV <br> \section*{\section*{}} <br> \section*{\section*{}} ．\section*{

\section*{\section*{

## \section*{ <br> <br> } <br> <br> 

## E

 DE
D EWLWTGRRISVAEAELIEHGIVNRIVAAE

## 山யயயロ

## D

סоס

－
 ELLLTGRKIVDGEAMSMGLVNYCVHA EMALTGDKI DAETALAWGLVSRVVTPAEVQSRAMELATQI

## 

${ }_{\mathrm{E}}^{\mathrm{E}} \mathrm{L}$ L




UniRef90 UPIoo03B6852F UniRef90-UPIO00370D285 UniRef90-W4Q2D7 UniRef90-F4G0A9 UniRef90-X6L4P7 UniRef90-E3TGN9
UniRef90 D7GUE1 UniRef90 UPI0003719050 UniRef90_UPIO0047B90F3 UniRef90-UPIOOOO584631 UniRef90-K2PQ60 UniRef90-B3R6Y8 UniRef90-E31AH6 UniRefo-FFL5Y3 UniRef90-LOKSB7
UniRef90-F2NQE2 UniRef90-L7U931 UniRef90-Q01T70 UniRef90-UPI000346B43D UniRef90-V5S917 Uniref90-DEB77U8 UniRef90_NOEOB5 UniRef90-11MV56
UniRef90 F6DOX2 UniRef90_UPI000471A82C UniRef90-052797 UniRef90-M7WMF3 UniRef90-UPI0003FDEOCA UniRef90-C6XRU8 UniRef90-UPIO0047AEOD6 UniRet90_U5LED3 UniRef90_UPIOOO2558036 UniRef90-D2CDF9 UniRef90_D7AUE5 UniRef90-S7ZJV7 UniRef90_U1YB15 UniRef90-IORU27 UniRef90-UP IOOO479BCCB UniReffo-A4EF25 UniRef90-W0JKG9 UniRef90-UPIOOO36B28D4 UniRef90-JoWWJ6 UniReffo- WoJZ47 UniRef90-UPI00037FE3DA UniRef90-HoRIM7 UniRef90-A0A059MT28 UniRef90_14XMK4 UniRef90_-B5WH72 UniRef90 W7YYYo UniRef90-E3MFB1 UniRef90-M7DA10 UniRef90-15B2X5 UniRef90-M1VCX7 UniRef90-Q39T15 UniRef90-M2WD42
UniRef90 B8FFN1 UniRef90-B8FFN1 UniRef90-Q8FLT4 UniRef90-U7D198 UniRef90_B9M8K1 UniRef90-A3TRO UniRef90 UPIOOO471B668 UniRef90-UPI00037EBE7D UniRef90-EOTHJO UniRef90-UPIO000478D9EE UniRef90-L7F211 UniRef90-E8UB20 UniRef90_UPIO003813D7D UniRef90_COGG18 UniRef90-UPIO00255A11F UniRef90_B3QAK0 UniRef90 UPIOOO3614100 UniRef90-A8RJIO UniRef90-F8ELB1
UniRe990-LGUT82 UniRef90-D81S16
UniRef90- UPI000 UniRef90-ToJ432 UniRef90 UPIOOO34ACF82 UniRef90 D3HQR8
UniRef90
F5SA74 UniRef90-UPI0002C301CF UniRef90-UP100035F30E4 UniRef90-A0Z6P9 UniRef90-B5HPC5 UniRef90-H6L420 UniRef90-G1KHT5
UniRef90 C8WUA7 UniRef90-S9ZJR9


TEKSMTTAMAAKEAVINRSYETTLTEGLLFERRLIFHSLFAT DEKPKLALWMAKNQI NTAREADLKTALLGEKVIVNLLFGT俭 SEKSGLSAIACKEAVNRAYETTLSEGLLYERRLFHALIFAT ASNSKLVSAMAKEAVNAAFELTLNEGTRFEKRLFHTTFAT
 AQNGPVALRQAKYAMNQGANTDLKTGUADEAKAYEDTDPT SKNSKLINSLCKEAVNTSYELTLNEGMHFEKRLFHACFGT AANAPI SIRQAKQAIARGCEMSLADGLAFEDEAYNRTVPS AGFSLPVVMMDKESVNAAYETTLAEGVHFERRLFHATFAT MQNGPLALQQAKYAIQQGMNVDLQTGIADEAKAYEETDPT ADFSLPSVMMAKEAVNRAYETTLAEGLRFERRLEHSLFALL LKNGPLAGGKAKRVIEQGADKDLTEANTLERQGFAELFGS ASKSLPAVYAAKDALQAAQEMPLSEGLRFERQAFAASFAT ASMSLTAAMMTKDCVNRAHETTLAEGIRYERRTFHAMFAT AKGPALALRAAKEAVDAGLETDLDTGLTVERTWFAGLEAT NQKGPVALRMAKRAI NEGVETDLTSALELEEDCYDQVLNT AGYNSPAVRMAKEAVNVAFETSLTEGMRHERRLIFQAFAT VRAAPLSVRADKQAALRSLDLPLEEAFTASYPWEERRRRS ASKGMLAVQAAKEGVNAAYEMSLTNGLHFERRLFHQLFAT ASKSRMASMLVKEAVNTAYESTLSQGISFERKSFHAIFAD ANQAPISIRLIKEAVLKAVDSPLNEGMEFERKNFYLLFST ARKSPUALKAADELLSHSKAEFYNGVEKEAELFGKVFAS AEKSLLATTAVKQAVNRAEETSLAEGLRFERAMFYAMFST AGGPAVALAAAKEAVDRGLETDLDGLEDERLHFAGLFST
AGYSRVAVVAGKEVVNKSQEDSLREGVEYERRLFHGLFGS
AQMSLSATRMAKEAVNRAFESTLAEGLLYERRLFHSAFAT
AKQPPLSLRLIKDSVNKAVDHSLYEGMOYERKNFYLLFSS
GEKSLIATMAAKDAVNRAYETTLAEGLNYERRLFHSLEAT ANGPALAVAATKEAVRQGDEDSLSDGLQLEQDLCDPLYDT MAKGPVAITMAKMAINLGYETDUNGLMIERLLAQTIIFFST VENAPLS RQAKDAVNKGMETDMMGLKDEEDAYNALLNS AGLS GPSVALAKEATNRALETSLAEGLLFERRAFHSLFAT ASKSADATALAKDAVNRAFESSLTEGVRAERALFYSTFAT AGMPPLAVAQTKEVVLAGMDGPLEQALVLERKAFQLLFGS GSNAPVAVKLSLEAVNKGDDADQSEGLALEASYFGLCAGT AKQPPLSLRLTKDSVNQAVHSSLQEGLLYERKNFYLLFAS AKNSPLIVKTVKNSVNSAYETSLNQGLQIEKQLFQSTFAT AVQPTKGLALIKQALHASTTNSFDEQLELERDLQRQAGQT AAKGSVSLRAAKEALQAGLGCDLETACLFENDAFADTFAS DDKGAVVLDDCKKLVYEGGDDPLRGGIDYEQDQFCK LDT ASKSLIATMAAKEAVHTALETPLSQGLVAERRGEHGLFAT SRNSALAVSAAMMALNANFKEGVDGFDAEMEAFG|LCFGT AARSLLSLLLMKECVNQAYETGLGEGLGYERRAFHSLFAT AAGAGKALGYIKAAVYEGDDFPLEQALAVERKYSAENSKT AGGPAYALRAAKEALDSGLETDLQSGLEDERMLEAGLFAT AARPPLAVRFAKKAI NDAQDSSLYAGLLFEQAQSDHCLGT
 AEGPAAALEADKEAVDHGTDTAMSTGGALERALFTGVFAT LAQSPIAVTLTWEALHRGLNVTLEESAHLGADFFGLIAST TKNAPLALQQAKRCVDLLVEVDLTAGMALEAEAYNRCLYS ATQPTKGLALDKRAIQSSWDNSFDEQLDLERDGQTLAGRT AEMPLTAALSAKDVVRRAQETPLSEGVRYERRVFHALFAT A HKPFEA KLIKKGVREDGMVSSDKCFYKNDEFSRSIFKT RNAPTKA GAMKKVLNQSLGSTLEQMLELEAEHQDQLSRT AEMPRQVAMMVKDSVNRAYETTLSEGMKYERALFYSCFAT VTGPSMALRAAKQAIDGGLSDDLASGLALESQLFAALFAT AAKGKLSUKQVMHLLPYAKTKNFDLGGEEEARAFGEVFGT
 NDKGPIAI RMAKRAJDQGLEVDRASALALEEECYEKTLHT A ALPPLAITQDKEVLLAGQDASLDAALMLERKAFQLLFAS AANPPGAVGLARKMLRQACDQTLVEALNTAANNQGGAHQS ATKAPIAIQKVIECVNSHFSKG GFEKEVIEFANAVNT VPRAPIAVRMGKVAINKGDEVDTASGMABERMCYAQNIPT AAMPPLATEQUKECIILLGMDAPLESALLABERRANALLFAS AGYGAIAVQAGKEAVNAALDLPLDQGLRFERRLFQTLFAT

| UniRef90_UPI0003B6852F |  |
| :---: | :---: |
| UniRef90 UP1000370D285 | PDKEEGMK |
| F4G | K |
| 4G0A9 |  |
| niRef90-X6L4P7 | QS GM |
| UniRet90-E3TGN9 |  |
| UniRef90-D7GUE1 |  |
| UniRet90_UPIO003719050 |  |
| UniRet90_UP |  |
| UniRet90-UP | DAREGM |
| UniRef90_K2PC | ADRQEGIIE |
| UniRet90 - - 3 R6 | E |
|  |  |
|  |  |
| UniRef90-Lok: |  |
| UniRef90-F2NQE2 |  |
| UniRef90 L7U931 |  |
| UniRef90 001770 | EDRREGTR |
| UniRef90-UPI000346B43D | EDQKEGMR |
| UniRef90 V5s | HDQk |
| UniRef90-D6B7U8 |  |
| UniRef90_NOEOB5 | D QKIGM |
| UniRef90 11MV56 | K DRILEGL |
|  |  |
| UniRef90-UPI000471A82C | E |
| UniRet90-0527 |  |
| UniRe990 M 7 WMF3 |  |
| UniRef90-UP10003FL |  |
| niRee900 C6XRU |  |
| UniRef90_UP100047AE | EDQKEGMQ |
| UniRef90-USLED3 | EDGQEGM |
|  | EDQREG |
| UniRet90-Q2CD | DDQSEGM |
| UniRet90_D7AUE5 | EDQKDGMR |
| UniRef90_S7ZJV7 | Q |
| UniRef90_U1YB15 | ED |
| UniRe990-10RU27 | S D |
| UniRef90-UPIO00479BCCB | QDQKEGMQ |
| UniRef90 A4EF25 | GM |
| UniRer90-WOJKC | D |
| UniRef90_UP100036B28D4 | dinegro |
| UniRet90_JowwJ | DRKEGT |
| UniRet90_W0JZ47 | Q |
| UniRef90_G9Q | SDR ${ }^{\text {deg GLK }}$ |
| UniRef90_UPI00037FE3DA |  |
| UniRef90_HoRIM 7 | DQTEGM |
| UniRef90-A0АО594T28 |  |
| UniRe990-\4XMK4 |  |
| UniRet90_B5WH72 |  |
| UniRet90_W7Y |  |
| E3MFB1 |  |
| UniRet90_M7DA10 | DDYREG |
| UniRet90_15B2X5 | PDAKEG |
| UniRef90_M1VCX7 | Q |
| UniRet90_Q3975 | D A |
| UniRef90_M2WD42 |  |
| B8FFN1 |  |
| UniRef90-A4 |  |
| UniRef90-O8FL | EDKAEG |
| UniRef90_U7D198 | QDQKEG |
| UniRet90 ${ }^{\text {dgm }}$ |  |
| UniRet90_A3TR04 | KDRAAGM |
| niRet90_UP10004718668 |  |
| UniRef90-UPI00037EBE7D |  |
|  |  |
| UniRef90-UP1000478D9EE | SDQTEGM |
| UniRet90_LTF211 | KDARTGLQ |
| UniRef90-E8UB20 | R |
| UniRef90_UPIO003813D7 | DYRTGTK |
| UniRet90_COGGI8 |  |
| UniRef90_UPI000255A11F |  |
| UniR |  |
| UniRef90_UPI0003614100 | ADQKEGM |
| UniRef90 A8RJJ | EDC |
| UniRet90-8ELB1 |  |
| UniRet90-L9U182 | , |
| UniRet90_D81516 |  |
| UniRef90_UPIO0037E0413 |  |
| UniRe | GV]Q |
| UniRef90-UPI00034ACF82 | EDMREG |
| UniRe90-D3HQR8 | Q |
| UniRef90--5SA74 | GD |
| UniRef90-UP10002C301CF | $D$ |
| UniRet90_UPIOOO35F30E4 | RDQKEGMQ |
| Uni |  |
|  |  |
| UniRef90-H6L42 | E D |
| UniRef90-G1KHT5 |  |
| UniRet90-C8WUA7 | DAR |
| UniRet90_S9ZJR9 | HDQKEGMQ |
| niRef90_R7SAL9 | ADQKEGM |
| UniRef90_woEW67 |  |

UniRef90_UP100047DD2CF UniRef90-X1HMG8 UniRef90-U2B8M5 UniRef90_UPI0003B70C9B
UniRef90_E1QQ72 UniRef90_G0LL49
UniRef90_C1D149 UniRef90-J3GDS0 UniRef90_D8F7G8
UniRef90_H6RSZ6
UniRef90-Q8ESF7
UniRef90_A0A016UTIO UniRef90_G6Y560 UniRef90-H5SB11 UniRef90-B2TGD9 UniRef90-A3VLN4
UniRef90-N1J859 UniRef90 N1J859
UniRef90 N6W8M7 UniRef90-UPI00047E856D UniRef90-Q4UT74 UniRef90_UPI0003045AB7 UniRef90_UPI000314AB40 UniRef90_D7CKX9 UniRef90-E3Q8C6
UniRef90_R7ZIF3
UniRef90-B8KU27 UniRef90-A0A024PIZ7 UniRef90-A0A034VHU1 UniRef90_U2YM81 UniRef90_D7BH90 UniRef90-F8GYJ9
UniRef90 F8L159 UniRef90-U1MAC1 UniRef90-L9PH06 UniRef90_UPI00035988E5 UniRef90_T5KFJ3 UniRef90-F4GRS3 UniRef90_UPI000393E9D1 UniRef90_UPI00037B78A2 UniRef90_UPI0003724F75 UniRef90-B3EMZ7 UniRef90_A0A023CB92 UniRef90-A0A026WGH0 UniRef90_D7CQ25 UniRef90-Q5XW69 UniRef90_Q3IE67 UniRef90-F4L4M3 UniRef90_UPIO003661F07 UniRef90_Q4JXA7 UniRef90-E7QU82 UniRef90-A0A022MLD5 UniRef90-LOA5U2 UniRef90-F1PAZ6 UniRef90_UPI0002D663D0 UniRef90 F6BWZ3 UniRef90_UP1000299DB5F UniRef90-UPI00047C7ED4 UniRef90_Q5QL51 UniRef90_UP100037E0DA0 UniRef90-D1C4Q7 UniRef90_L7W117 UniRef90_C8PZQ5 UniRef90-K5BQY4 UniRef90-M3UVP3 UniRef90-M0E4Z5 UniRef90-G8MLW2 UniRef90-D4GRI7 UniRef90-W0EAL6 UniRef90_UPIO0034FD45C UniRef90_D8TIZ3
UniRef90-D8PS07 UniRef90-F2MW94 UniRef90-UPIO004715736 UniRef90-HOTIV2 UniRef90_G8PJN5 UniRef90_S4Z6T5 UniRef90_UPIO004691C70 UniRef90-A7SS28 UniRef90_W4G0G6 UniRef90-A1K6T9 UniRef90_UPI0003B61D11 UniRef90-A0A022Q3H7 UniRef90-UPIO0046586D0 UniRef90-W5WZ26 UniRef90-F5IT37 UniRef90-H2ZD68 UniRef90-E4WD47
UniRef90 K8EPA2 UniRef90-K8EPA2 UniRef90-B8FCU0
UniRef90_W6RN24
 20

PKMNA DDE QTLLVEYVRKRDGIGYVTLINRPALNAYNLQMRDELYQVLG
 VRIDNGI AEVII NRPPLNLI TLEMRRDLGRIVS
 TDEVHVQI LDNGVATVRISRPDRNALNTSVRQLLAQHFR IVYEKKDHVGFLTI DRSKLNALNVRTVEELKDALK EDVIVEI QENVMM G V F R N R PDRNAF TELVLCETRDRVAVLTMNRPKLNALNYALLKKLRLECLA VYRPENYRGVGA QLARPERNALSLRTMEELVAACE


 V RYA VEDRIA TI TLNRPERNALSEEVIGALVAALA I DLTI E GHVATLTMSNPPANTWTKDTLDALKTTVN
 E Y $\square \mathrm{Q} V$

 YTTLLVEDDDDI ATMTLNRPAMNADNSELLRELVTALE SYIVGGGI ATVTI RRPDLNALNQDVLLELAQVSE

## E D $\square K$

 FEMT EDGI GKIKLSTERHI AVV FDITVGATLTMSN

THFEQDDGIVTLTMDYPPRNALTGSMVDAFLAAF DE HVRYDGEDGIVVVGINRPKANAINKNLVKVMFEAVE

 SELTTLSYEVQERIALI TI ERPELNALNADLLYELGVAFE
 ENLLLTTEE NNI LLVTTFNREKLNALNRRTMLEINHLTN FVRLEVADGVATLRLDRPKMNAISFQVQAELQAAAA
 ET LLVERKGRTALLTLNRPELNALNLTVMREVVAATE LQLDQHGALAVLTVNRPALNALNADTLSEIUAQAVE EVENHTATDTLNRPEYNAFSEEMDANWIKALE VLYTVDGAIATI TLNRPK LNAVTPEMADAVVKAVK $L Q L E Q D G A V A L I R L N R P E V N S L C C C E L A A E L A G V L D$ D H $\square R$ VEKNLDRKTATIIFDRPKFNTISFIDARSHFNEIFQ VNFELYDEVMLI TLDRPKANAIDAKTSHMLGEVFI L LFERRGPVAWVTFNRPERNAMTFAMYDGLARICD
RTGVVYEVRDGVAYLKDDPPANTYTHEMMKQ1 DESSI SNYTNLKLTIDNHIAVLTTLNNPPAHTWTKDSLASLK QLI S

 SEPVL YEQDGHVVVMTLNRPDRNAI TE E EVVDAA DACLD


 $D \square L Y E K A V G E G \| A K I T I N Q P K L N A L A Q E T V K B L D R A F N$ $F V R \backslash E V D G G V G T I R L D R P P V N A L N H Q V Q A E L A E A A R$ EE ULVEDVFKN E GI G R I T EGITVLGLNRPERNSDGRNDGKMVTEVVE
LIVEERKGAVMVWTLDRPDRNALDLEDGEAFAAACD

80
UniRef90 UPI00047DD2CF UniRef90-X1HMG8 UniRef90_U2B8M5 UniRef90_UPI0003B70C9B UniRef90_E1QQ72 UniRef90_GOLL49
UniRef90_C1D149 UniRef90_J3GDS0 UniRef90_D8F7G8 UniRef90_H6RSZ6 UniRef90_Q8ESF7 UniRef90_G6Y560 UniRef90-H5SB11 UniRef90_B2TGD9 UniRef90_A3VLN4 UniRef90_N1J859
UniRef90-N6W8M UniRef90_N6W8M7
UniRef90_UPI00047E856D UniRef90_Q4UT74 UniRef90_UPI0003045AB7 UniRef90_UPI000314AB40 UniRef90_D7CKX9 UniRef90_E3Q8C6 UniRef90-R7ZIF3 UniRef90_B8KU27 UniRef90_A0A024PIZ7 UniRef90_A0A034VHU1 UniRef90_U2YM81 UniRef90_D7BH90 UniRef90_F8GYJ9 UniRef90_F8L159 UniRef90_U1MAC1 UniRef90_L9PH06 UniRef90_UPI00035988E5 UniRef90_T5KFJ3 UniRef90 F4GRS3 UniRef90_UPI000393E9D1 UniRef90_UPI00037B78A2 UniRef90-UPI0003724F75 UniRef90_B3EMZ7 UniRef90_A0A023CB92 UniRef90_A0A026WGH0 UniRef90_D7CQ25 UniRef90_Q5XW69 UniRef90_Q3IE67 UniRef90_F4L4M3 UniRef90-UPI0003661F07 UniRef90_Q4JXA7 UniRef90_E7QU82 UniRef90_A0A022MLD5 UniRef90-L0A5U2 UniRef90-F1PAZ6 UniRef90_UPI0002D663D0 UniRef90_F6BWZ3 UniRef90-UPIO00299DB5F UniRef90_UPI00047C7ED4 UniRef90-Q5QL51 UniRef90_UPIO0037E0DA0 UniRef90_D1C4Q7 UniRef90_L7W1I7 UniRef90_C8PZQ5 UniRef90_K5BQY4
UniRef90 M3UVP3 UniRef90-M0E4Z5 UniRef90_G8MLW2 UniRef90_D4GRI7 UniRef90_W0EAL6 UniRef90_UPI00034FD45C UniRef90_D8TIZ3
UniRef90 UniRef90_F2MW94 UniRef90_UPI0004715736 UniRef90_H0TIV2 UniRef90_G8PJN5 UniRef90_Q89R20 UniRef90_S4Z6T5 UniRef90_UPI0004691C70 UniRef90_A7SS28 UniRef90_W4G0G6 UniRef90_A1K6T9 UniRef90_UPI0003B61D11 UniRef90_A0A022Q3H7 UniRef90-UPI00046586D0 UniRef90-W5WZ26 UniRef90_F5IT37 UniRef90_H2ZD68 UniRef90_E4WD47 UniRef90_K8EPA2 UniRef90_F4QX85 UniRef90_B8FCU0

50
60
70
EASSRD DVVRAVVIVG GERVFAAGADDKAMSQLDGSAMVA





 A WRDDDAVGAVVLTGAGDKAFAAGADVGELQRRVPTAA EANANDRVVKIVIKGAG RAFSAGGDVKTMGVKDPDHTYD AVKFDKNVRVVVLKSDVEGAFCTGADLKERKSMPDEEVPD A I E T D D A I G A V I L T G A G E R A F S A G G D I S E F S A G A DVVA R D E YERDSTVGCIVIMGD ERAFAAGADIRDMS TADTVTM $R V S T D P E V R A V V L T G S G K G E F A G G D V G G M A K R M E A P A G E$ V F A A D P DI R AV I L T G GPKVFAAGADLNQ $\square$ D RMGPVVMME $V$ FERS PQ Q A VIVLNGSS RAFAA GA DI KEMASLDTAAA A SLLNA DRNI YALVITGEGEKFFSAGA DLKDFADGDEARANR
 EA A A A E DVVRVVVLTGAGPKAFVAGADIAEMSELSAMQGRE
 EFSTAARVKAVII T GA GGKAFAA GA DV S EMATMLTAVEVYS AFNESDDTSVI I LTGSQ KAFAA GADI K EMAPLLTBSEA QVNGDPAVRVVLLTGAGEKAFCAGADLKERKGMTDRQVKQ DLNADRDI WALVLTGAGEKFFSAGADLKLFADGSPDTARE K I E K D A A I K A V L L K G E G R FF S A G A D I K E F T S Q G E E D Y K A

 EIS A RK DVRVGGLTGA GERAFCTGADDLKMPPAESFAAELHF CCRN H P DI GVVI L T G E GK D A F C S G G D Q K I R G S E G Y VGN D G KI SHDK SVVRVMVLTGAGRGFCAGQDLSDRADVPGARPVD
 AFDADEGVVGAIVVTGSEKAFAAGADIXEME GMSAA QMLGG RIETEHTARVVI I TAAGKVVSSGGSIDEMERQLKPEYEE

 NARNDENNGVII LTGQGPLAFCSGGDQKDRGDAGYADEK G



 DL P Q R T H L K G I L L G A G D RAF VA GA D I K E F L E M E G DL GR Q

 AL DRDPECGCVVITGS AKAFAAGADIKEMRPQGYLDM
 AFEKDPAVGAVVLTG GEKAFAAGADVKEMQNQTFQD

 $K I M E S N F Y K T V I I T G S G S K A F T A G A D L K E R V S M D S Q E V Q D$ $M L D K D D D V R V I I I R G E G G$ VFTSGGNIMQFMERHPEELSE $R F R D D D S L R V A I \quad T G A E D R F F C G G W D L K A$ A S E GEAVVDAD
 D L N A NK QVTALVVVHGDGEKFFSAGADL NSFAS GDKGAAA E


 VAREDRQDGVIILLTGANHGAFCS G GDQRVRRNGGYVGDDQ

 HLNHD D DI YALVI C G Q GEKFFSAAGDL K LIFAD GDRNAARE AFREDPELRVAII TGAGERFFSAGWDLKAAAAEGEAPDAD
 EANEDKNVRVVILTTG KGRAFCAGLDLLRDGNGLSAASSP T EFEQNPSLQVVAI T GA GQRFFSAGWDLLKGAAA GEAVDA H DARHDDAAGVII LTGEGDKAF CAGGDQK DR GDYGGYRDES

 DARDDNSVGVI, FTGKGTMAFCSGGDQSLRGKEGYADFDN EAGERDDVVAVILYG GQKSFAGGADVKEMAARSYVEMQR HADFDSSVVRVI ILTTG K GNVFCAGGDVKEMLGEANELRMR $\square$ CHENQDI Y VVVLT GA GDKAFCA G GDQNVK GK G G Y DGK D G
 DARDDATVVGVVVLRRGAGDAFCS GGDQSVRGDGGYVDERE



UniRef90_UPIO0047DD2CF UniRef90-X1HMG8
UniRef90-U2B8M5 UniRef90_U2B8M5
UniRef90_UPI0003B70C9B UniRef90_E1QQ72 UniRef90-G0LL49
UniRef90-C1D149 UniRef90_J3GDS0 UniRef90_D8F7G8 UniRef90_H6RSZ6 UniRef90_A0A016UTIO UniRef90_G6Y560 UniRef90_H5SB11 UniRef90-B2TGD9 UniRef90_A3VLN4
UniRef90 N1J859 UniRef90_N6W8M7 UniRef90_UPI00047E856D UniRef90_-Q4UT74 UniRef90_UPI0003045AB7 UniRef90_UPI000314AB40 UniRef90_D7CKX9 UniRef90_E3Q8C6 UniRef90-R7ZIF3 UniRef90_A0A024PIZ7 UniRef90_A0A034VHU1 UniRef90_U2YM81 UniRef90_D7BH90 UniRef90_F8GYJ9 UniRef90_F8L159 UniRef90-U1MAC1 UniRef90_L9PH06 UniRef90_UPI00035988E5 UniRef90_T5KFJ3 UniRef90-F4GRS3 UniRef90_UPI000393E9D1 UniRef90-UPI00037B78A2 UniRef90_UPI0003724F75 UniRef90_B3EMZ7 UniRef90_A0A023CB92 UniRef90_A0A026WGH0 UniRef90_D7CQ25 UniRef90_Q5XW69 UniRef90_Q3IE67 UniRef90_F4L4M3 UniRef90-UPI0003661F07 UniRef90_Q4JXA7 UniRef90_E7QU82 UniRef90_A0A022MLD5 UniRef90_L0A5U2 UniRef90_F1PAZ6 UniRef90_UPI0002D663D0 UniRef90_F6BWZ3 UniRef90_UPI000299DB5F UniRef90_UPI00047C7ED4 UniRef90-Q5QL51 UniRef90_UPIO0037E0DA0 UniRef90_D1C4Q7 UniRef90_L7W1I7 UniRef90_C8PZQ5
UniRef90-K5BQY4 UniRef90-M3UVP3 UniRef90-M0E4Z5 UniRef90_G8MLW2 UniRef90_D4GRI7 UniRef90_W0EAL6 UniRef90_UPI00034FD45C UniRef90_D8TIZ3
UniRef90_D8PS07 UniRef90_F2MW94 UniRef90_UPI0004715736 UniRef90_HOTIV2
UniRef90-G8PJN5 UniRef90-G8PJN5 UniRef90_Q89R20
UniRef90_S4Z6T5 UniRef90_UPIO004691C70 UniRef90_A7SS28 UniRef90_W4G0G6 UniRef90_A1K6T9 UniRef90_UPI0003B61D11 UniRef90-A0A022Q3H7 UniRef90-UPIO0046586D0 UniRef90_W5WZ26 UniRef90_F5IT37 UniRef90_H2ZD68 UniRef90_E4WD47 UniRef90_K8EPA2 UniRef90_F4QX85 UniRef90_B8FCU0
UniRef90_W6RN24
C

## L

F V G K L N ELLII IQMNNLEK K PI

 AAP VAV
 MAQAFGQAFETLS GFRGVSI FHED FFA GWDAFA K LRRTP K I


 YTKS F I E S WS LLLT T I K K P I I A A V S GHALLGGGCEELMMMMCDV




TDHFG
Y R E G I Q R L P LA L H K L E V P T I

$Y R N G \square Q R \square P M A$ L $\quad$ Q H C QVP V $V N R N V L D F Q R N D I R T C P K P V I$
 $\begin{array}{lllllllllll}A & A & L & A & G & Q & D & M & N & T & L \\ A & S & L & P & \square & P & T \\ Y & L & R & E & G & Q & P & L & P & H & M \\ M & M & W & P & I\end{array}$


K R $|$| $L$ | $F$ | $G$ | $D$ | $W$ |
| :--- | :--- | :--- | :--- | :--- |
| $V$ | $T$ | $K$ | $L$ | $T$ |
| $V$ | $E$ | $T$ | $A$ | $Q$ |
| $M$ | $L$ | $K$ | $T$ | $P$ |
| $N$ | $D$ | $F$ | $E$ | $R$ |



$Q F B$
$Y B D$
$Y L E K$
FGPGGFA GLTEAPERSPKPV


| LHANETLS RLE Q TPKLVIA ALNGNTVGGGLEIA M A A D L |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |
|  |  |  |  |  |

## ,

## 

## 

## UniRef90 UPI00047DD2CF

 UniRef90-X1HMG8UniRef90 U2B8M5 UniRef90-UPI0003B70C9B UniRef90_E1QQ72 UniRef90-GOLL49
UniRef90-C1D149 UniRef90-J3GDS0 UniRef90-D8F7G8 UniRef90-H6RSZ6
UniRef90 O8ESF7 UniRef90-A0A016UTIO UniRef90-G6Y560 UniRefon-H5SB11 UniRef90-A3VLN4 UniRef90_N1 J859 UniRef90-N6W8M7 UniRef90_UPIO0047E856D UniRef90_Q4UT74 UniRef90OUPIIOOO3045AB7 UniRef90-D7CKX9 UniRef90-E3Q8C6
UniRef90-R7ZIF3
UniRef90-AOAO24PIZ7
UniRef90-A0A034VHU1
UniRef90_U2YM81
UniRef90-D7BH90
UniRef90-F8GYJ9
UniRef90-F8L159
UniRef90-U1MAC1
UniRef90-L9PH06
UniRef90_UPIOOO35988E5
UniRef90_T5KFJ3
UniRef90 ${ }^{-}$F4GRS3
UniRef90-UPI000393E9D1
UniRef90-UPIOOOO37B78A2
UniRef90- UPI0003724F75
UniRef90-B3EMZ7
UniRef90-A0Ао2ЗСВ92
UniRef90-A0A026WGHO
UniRef90_D7CQ25
UniRef90-Q5XW69
UniRef90-Q31E67
UniRef90-F4L4M3
UniRef90-UPIOOO3661F07
UniRef90-Q4JXA7
UniRef90-E7QU82
UniRef90-A0A022MLD5
UniRef90_LOA5U2
UniRef90-F1PAZ6
UniRef90-UPI0002D663D0
UniRef90_F6BWZ3
UniRef90-UPIO00299DB5F
UniRef90-UPIO0047C7ED4
UniRef90-Q5QL51
UniRef90-UP100037EODA0
UniRef90_D1C4Q7
UniRef90-L7W117
UniRef90_C8PZQ5
UniRef90-K5BQY4
UniRef90 M3UVP3
UniRet90-M0E4Z5
UniRef90-G8MLW2
UniRefofo-D4GRI7
UniRef90-WOEAL6
UniRet90-UPIIO0034FD45C
UniRef90_D8TIZ3
UniRef90 D8PS07
UniRef90-F2MW94
UniRef90-UPIOO04715736
UniRef90-HOTIV2
UniRef90-G8PJN5
UniRet90_O89R20
UniRef90_S4Z6T5
UniRef90 UP10004
UniRef90-A7SS28
UniRef90_W4G0G6
UniRef90-A1K6T9
UniRef90 UPIOOO3B61D11
UniRef90-A0A022Q3H7
UniRef9O-UP100046586D0
UniRef90-W5WZ26
UniRef90-F5IT37
UniRef90-H2ZD688
UniRef90-E4WD47
UniRef90 K8EPA2
UniRef90-K8EPA2
UniRef90- B8FXE
UniRef90_B8FCU0
UniRef9O_W6RN24
RVDGVSAK
RLASEDTQF

RVGAPD VE
RVASERARLV
RVASSGARLV
RVASERARLV
RVASSGARL
IIAGESARF
${ }^{130} \square \mathrm{GQPELLL} \mathrm{G}^{140}$

## 

AI ASERA
I A A A A
I

 IV VASDTAQF
LLS
 E RIA A ATAR RHAADDAVFAES ES RI AEEQAQ $\begin{array}{llr}\text { RIAADNAKF } & \text { AFPP } \\ \text { LYCTETANF } & \text { GQPP } \\ \text { LMAAAHTKL } & \text { GLT T }\end{array}$
$\square$A

RIAEEQAQ RYVAEDAKL MALPEAKVGLLPCAGGTQRLSWLVGEGWAK
 RIAADNARF GQPEVNLGUMAGMGGSQRLTRAVGKPKAM RIAASTA $M F G F P E V C I G S D P A G G G T Q R I V R A V G Q S D A M$ TIAADNAKF GQVGPKVGSFDGGLGSSYLARIVGQKKAR RIAEEQAQ MALPEAKVGLLPCAGGTQNLAWLVGEGWAK VLAAKSASFVEVF CKLGLIPDTGGTYFLPRLVGSARAM RIMAENPKFSDGLNEAQLGGVAPFWFKDTFVNVVGYRMAE RIASEHAKFAESF VKLGIVPGDGGAWFLPRLI GMSRAA RISSNDAK MGLVETTLAUIPGAGGTQRLPRVIGVSLAK DIAADDARF GQPE VRLGG TAAEAWF VFGOTGPKVGSFDGGWGASYMARLVGPKKA TFAAENA 1 FAFAQPGDKVGVMPGMGATQRLTGLIGKAKAM RVASSEAK MGLVETKLAI PPGGGGTQRLPRIVGVAKAK RVASRGAKL GLPEVGLGLIPGYGGTQRLPRLIGQGRAL
 RFASPRARFV LLASESAKF R! ATEESE
$\qquad$  RVAAPTAKL
RVAGEKAQE
Y RIA AVSTKLSESY
 IIA ASAHAF RICTPDARFGDPIA AT G GNCLS RIAESHAQ MA RYASESAQ
RIAGDNAKL
 SIUSENAKF RVMGEKAQF RVMGSGA SMAPEEALLQTDPGARGTHRLTQAVGKSLAM RIAEQQAQ KDGLPETGLGLIPGAGGTQRATRLLGVAKAK IICSENASF ALPETKKGGVPDSGGILRLPKILPPADAN AlASERASF VFAAKSAKFTHAFS RIMAESAKLAAAF IVAADHAQFF TI AADNAQF RVASSNAK RI A GAKALL VIAGESAQF HASENA
THAADNA $R V$ VGDNVK RIGCENSRF
$\qquad$
 RVAASDSKL
RVAGESARF RVAGESAR RIASDRASF R1AAEGVKF
Uniref90_W6RN24

UniRef90_UPI00047DD2CF UniRef90_X1HMG8 UniRef90_U2B8M5 UniRef90_UPI0003B70C9B UniRef90_E1QQ72 UniRef90_GOLL49
UniRef90-C1D149 UniRef90-J3GDS0 UniRef90_D8F7G8 UniRef90_H6RSZ6 UniRef90_Q8ESF7 UniRef90_G6Y560 UniRef90_H5SB11 UniRef90_B2TGD9 UniRef90_A3VLN4 UniRef90-N1J859
UniRef90 N6W8M7 UniRef90_N6W8M7
UniRef90_UPI00047E856D UniRef90_-Q4UT74 UniRef90_UPI0003045AB7 UniRef90_UPI000314AB40 UniRef90_D7CKX9 UniRef90_E3Q8C6 UniRef90-R7ZIF3 UniRef90_B8KU27 UniRef90_A0A024PIZ7 UniRef90-A0A034VHU1 UniRef90_U2YM81 UniRef90_D7BH90 UniRef90_F8GYJ9 UniRef90-F8L159
UniRef90-U1MAC1 UniRef90_L9PH06 UniRef90_UPIO0035988E5 UniRef90_-T5KFJ3 UniRef90_F4GRS3 UniRef90-UPI000393E9D1 UniRef90-UPI00037B78A2 UniRef90_UPI0003724F75 UniRef90_B3EMZ7 UniRef90_A0A023CB92 UniRef90_A0A026WGH0 UniRef90_D7CQ25 UniRef90_Q5XW69 UniRef90_Q3IE67 UniRef90_F4L4M3 UniRef90_UPI0003661F07 UniRef90_Q4JXA7 UniRef90_E7QU82 UniRef90_A0A022MLD5 UniRef90_L0A5U2 UniRef90_F1PAZ6 UniRef90_UPI0002D663D0 UniRef90_F6BWZ3 UniRef90_UPIO00299DB5F UniRef90_UPI00047C7ED4 UniRef90-Q5QL51 UniRef90_UPIO0037E0DA0 UniRef90_D1C4Q7 UniRef90_L7W1I7 UniRef90_C8PZQ5 UniRef90_K5BQY4
UniRef90 M3UVP3 UniRef90-M0E4Z5 UniRef90_G8MLW2 UniRef90_D4GRI7 UniRef90_W0EAL6 UniRef90_UPI00034FD45C UniRef90_D8TIZ3
UniRef90
UniRef90_F2MW94 UniRef90_UPI0004715736 UniRef90_HOTIV2
UniRef90-G8PJN5 UniRef90-G8PJN5 UniRef90_S4Z6T5 UniRef90-UPIO004691C70 UniRef90-A7SS28 UniRef90_W4G0G6 UniRef90_A1K6T9 UniRef90_UPI0003B61D11 UniRef90-A0A022Q3H7 UniRef90_UPIO0046586D0
UniRef90 W5WZ26 UniRef90_W5WZ26 UniRef90_F5IT37 UniRef90-H2ZD68 UniRef90_E4WD47 UniRef90_K8EPA2 UniRef90_F4QX85 UniRef90_B8FCU0 UniRef90_W6RN24


 Y Y L L L GRRI KAE EA LQQ Y GLL HEVVVD
 D L M L T A R Q V S A E E A L Q L GLLV N Y V WS I L T G D M I G A K D A L L D ML L T G R LVV S A E E A E R Y G L A T Y V V D E G A A L E E C A V E V ELIF TARMIGGEEACRIGLVNHCTKADSF SKALEDARE
 E L V L S G Q M l S A E R A L E R R
  R

 ELI YTARRRLNALLEAKDYGIVVEYVFD GHEL QEKA QQLDALEM $K M L C C G E R I D A A A K A E H D G L V E E V V A K G G A K D R A D A L A A A Q V$
 DMHLLT GRFMSAE EAERA GGLV SRRVVPA

E
,

## 


 E I WWYL C R Q Y N A Q E A L L D M G L V V N T V V V P






D


 DMVFTGRFVGAEEADADGLVDEVVAP

E

## 

## 

GL ML T G M P F L T A E R A A D D WGLL I WE A I E D
 EI WFLCRMYSAQQALEMGLVNTVVPDAALEKETVRWCREM
 E L I F T A R K I D S V A A E R I G L V D YA V DA NA A LE KA YA L A R E





 EMWF LAARMYD A K E A L L N M G L V N C V V P L K

UniRef90 UPI00047DD2CF UniRef90-X1HMG8 UniRef90_U2B8M5 UniRef90_UPI0003B70C9B UniRef90_E1QQ72 UniRef90_GOLL49
UniRef90_C1D149 UniRef90_J3GDS0 UniRef90_D8F7G8 UniRef90-H6RSZ6 UniRef90_Q8ESF7 UniRef90_G6Y560 UniRef90-H5SB11 UniRef90_B2TGD9 UniRef90_A3VLN4 UniRef90_N1J859 UniRef90_N6W8M7 UniRef90_UPI00047E856D UniRef90_Q4UT74 UniRef90_UPI0003045AB7 UniRef90_UPIO00314AB40 UniRef90_D7CKX9 UniRef90_E3Q8C6 UniRef90-R7ZIF3 UniRef90_A0A024PIZ7 UniRef90_A0A034VHU1 UniRef90_U2YM81 UniRef90_D7BH90 UniRef90_F8GYJ9 UniRef90_F8L159 UniRef90-U1MAC1 UniRef90_L9PH06 UniRef90_UPIO0035988E5 UniRef90_T5KFJ3 UniRef90-F4GRS3 UniRef90-UPI000393E9D1 UniRef90-UPI00037B78A2 UniRef90_UPI0003724F75 UniRef90_B3EMZ7 UniRef90_A0A023CB92 UniRef90_A0A026WGH0 UniRef90_D7CQ25 UniRef90_Q5XW69 UniRef90_Q3IE67 UniRef90_F4L4M3 UniRef90_UPI0003661F07 UniRef90_Q4JXA7 UniRef90_E7QU82 UniRef90_A0A022MLD5 UniRef90-L0A5U2 UniRef90_F1PAZ6 UniRef90_UPI0002D663D0 UniRef90_F6BWZ3 UniRef90_UPIO00299DB5F UniRef90_UPI00047C7ED4 UniRef90-Q5QL51 UniRef90_UPIO0037E0DA0 UniRef90_D1C4Q7 UniRef90_L7W1I7 UniRef90_C8PZQ5 UniRef90_K5BQY4 UniRef90-M3UVP3 UniRef90-M0E4Z5 UniRef90_G8MLW2 UniRef90_D4GRI7 UniRef90_W0EAL6 UniRef90_UPI00034FD45C UniRef90_D8TIZ3
UniRef90 UniRef90_F2MW94 UniRef90_UPI0004715736 UniRef90_H0TIV2 UniRef90_G8PJN5 UniRef90_Q89R20 UniRef90_S4Z6T5 UniRef90_UPI0004691C70 UniRef90_A7SS28 UniRef90_W4G0G6 UniRef90_A1K6T9 UniRef90_UPI0003B61D11 UniRef90-A0A022Q3H7 UniRef90_UPI00046586D0 UniRef90-W5WZ26 UniRef90_F5IT37 UniRef90_H2ZD68 UniRef90_E4WD47 UniRef90_K8EPA2 UniRef90_F4QX85 UniRef90_B8FCU0
UniRef90_W6RN24

<br>A

A A GP P LA LLA A A K R A|I DEGG|DGSLDAGLDLETRLFTELFGS K T H S P L A V S Y A K Q A V T R G L D L G L K P G L E L E A K L G R R L L A






 VPRGPVAVRLAKVAVDAGAEVSLSNGLIVEQQCYAQVIPT

 S R R A P I A L A Q I K Q AV LT GA DL S LD A GL M I E R KA L Q L L L A T
 CK Q S P S S
A G F G R C K T





A

## L <br> A

## $\frac{L}{E}$

A
 A ANPPEAV RMSKRLLREGQHSRLDSLLELSAAFQAMAHKS




## A

 A A GP P I A Q K Y T K R T I HA GRRTD G E A G L E V E A M G F G H V M A T A GNAPDDLRMSKRLVREGQRMDDPS L L E MS A A FQ G DAHRT

 VIR S A P L S L R Q A K V A V N R G L E V D L H T G L A M E E A L Y A QL L P T


 A A NAPLAVQASKRMMRMGLDNENFSDHVVHVY LQQLDPLFKT





 VPQ GP DA L R MAKQA NRGIEVDLSTGLA EQGCYAQVIPT




| CF | EDQKTGMR |
| :---: | :---: |
| UniRef90－X1HMG8 |  |
|  |  |
| $\begin{aligned} & \text { UniRef90_UPIOO03 } \\ & \text { UniRef90 E1 QQ72 } \end{aligned}$ | QDFQEGI |
| UniRef90－GOLI |  |
| C1 |  |
| UniRet90－J3C | Q QKEG |
| UniRef90－D8F7G8 | 硡 |
| UniRef90－H6RSZ6 | A DKLEG |
| UniRef90＿08E | EDHAEGV |
| UniRef90－A0A016UTIO | KDRLEGL |
| UniRef90－G6 |  |
| iRef90－H5 | EDQKEGM |
| UniRef90 ${ }^{\text {B2 }}$ | HEHRESV1 |
| Ref90－A3VLN4 |  |
| N1J859 |  |
| nireet90－N6W |  |
| iRef90 UP10004 |  |
| UniRef90－Q4UT74 | D D |
| UniRef90 UPIO003045AB7 | DD |
| Ref90 D7C | OQREG |
| UniRef90 E3Q8C6 | NDQKVG |
| UniRef90－R7ZIF | EDRLEGL |
| UniRef90－B8KU27 | HDQKEG |
| UniRef90－A0A024F | A |
| AOAO3 | KDRLLEGLQ |
| UniRef90 U2YM |  |
| Re90－＿7BH90 |  |
| F8GY |  |
|  |  |
| iRet90＿U1MAC1 | Q |
| niRef90－L9PH06 |  |
| UniRef90 UPIO0035988E5 | E |
| 4G | ADQKEGMO |
|  | H |
| UniRer90－UP1000393E9D1 |  |
| UniRef90 UPIO003724F75 | ADHREA |
| UniRef90－B3EMZ7 |  |
| Uni | Q |
| UniRef90－AOAO26WGHO |  |
| UiRe90 ${ }^{\text {d }}$ |  |
| UniRef90－Q5×W69 | EDRKEGFK |
| UniRet90＿－231E67 | KDQREGME |
| UniRet90－－4L4M3 |  |
| UP10003661F |  |
|  |  |
| UniRef90－E7Qu |  |
| 䢕 | DK |
| 䢕 | F |
| iref90＿FPAZ6 | EDRKEGM |
| iRef90＿UPI0002D663 | DDFKEGV |
| 6BW |  |
|  | EDQ |
| UniRef90－UP1000047C7ED4 | EDRNEALL |
|  | D A GuQ |
| Ref90－UP100037EODA0 |  |
| UniRef90－D1C4Q7 | ED |
| UniRef90 LTW17 |  |
| UniRef90－C8PZQ95 | DN |
| UniRet90－K51 | K |
| UniReef90－M3 | EDTMG |
|  |  |
| UniRefo－G8 | ${ }^{\text {A }}$ |
| UniRef90 WOEAL | EEA |
| UniRef90－UPIIOOO34FD45C | D |
| Ref90－D8TIZ3 | R R |
| UniRet90＿D8Ps07 | K ${ }^{\text {R }}$ |
| UniRe90－F2NW94 | EDT EGU |
| UniRee90－UPIO004715736 | E |
| UniRef90－Hotiv2 | PALT |
| niRet90＿G8PJN5 |  |
| UniRet90＿Q8 | G M |
| UniRef90 S4Z6T5 |  |
| UniRef90－UP10004691C70 | E |
| UniRee90－A | KDR |
| UniRef90－W4GOG6 | K |
| 俍iRef90＿A1K6T9 | E |
| UniRet90＿UP10003861D | NDSV |
| UniR |  |
| 586D0 | EDANGMR |
|  |  |
| UniRef90－H2ZDE |  |
| UniRef90－E4WD47 | D D |
| UniRef90 K8EPA2 | GE |
| $90-54$ |  |
| iRef90＿B8FCU0 |  |
| UnRef90＿W6RN24 | A D Y A E G／V |



UniRef90_W4QNZ4 UniRef90_L0K6K3 UniRef90_UPI0003656658 UniRef90_I3YW92 UniRef90_D3AYY9 UniRef90_C3IQZ9
UniRef90-S3VYH6 UniRef90-17C479 UniRef90-UPI0003817060 UniRef90_JOBNG8 UniRef90-R4WJY7 UniRef90_UPI00047CC0D6 UniRef90-A3JBF2 UniRef90_UPI0003A24C96 UniRef90_UPI000361D8F9 UniRef90-UPI000372F9E2 UniRef90-J9SQ10 UniRef90-UPI00046523A3 UniRef90 C1BAZ4
UniRef90_UPI00040F057C
UniRef90-J9FPZ5
UniRef90_T0HKJ4
UniRef90-UPIO0035F1548
UniRef90-MON151
UniRef90-UPI000374687E
UniRef90 I7G713
UniRef90-Q2JA70
UniRef90-H1RYT9
UniRef90_I3CAS1
UniRef90-W8F0U8
UniRef90-M3UJJ7
UniRef90-K8R2J2
UniRef90-N8XDC7
UniRef90_UPI0003778C15
UniRef90_UPIO001CBBEB5
UniRef90_UPI0003803588
UniRef90 WOUX25
UniRef90_UPI000464AC36
UniRef90-B7RT89
UniRef90_UPI0003D3F0CC
UniRef90-D6TM00
UniRef90-H5UN24
UniRef90_A915X7
UniRef90_F2IYW5
UniRef90-A0A059LKD1
UniRef90_UPI0002625762
UniRef90_UPI0003747380
UniRef90-UPI000376E0CF
UniRef90_UPI00037CB429
UniRef90_UPI000255F089
UniRef90-D7B4X4
UniRef90-D3F865
UniRef90-T0IR31
UniRet90_E1ZT47
UniRef90_I2BCX6
UniRef90-W4LU56
UniRef90-D2RPG3
UniRef90-F2MPS3
UniRef90-UPI00036FDC4B
UniRef90-G8MH94
UniRef90_UPIO00462DA3F
UniRef90-UPI0003648C97
UniRef90-UPIO0036F9423
UniRef90-K6DH53
UniRef90_Q1LBRO
UniRef90-W5W6H8
UniRef90-F9U7F1
UniRef90_UPI0003B3B7E6
UniRef90_M7AXQ9
UniRef90-F4CJC6
UniRef90-T1CN79
UniRef90-F5L9G6
UniRef90-K4Q684
UniRef90_UPIO0037EBFF1
UniRef90-V9XNU3
UniRef90_UPIO002DB00B5
UniRef90_UPI000369BC1C
UniRef90-A0A052IDI5
UniRef90_I2JQ99
UniRef90-S0G4H5
UniRef90-F9FMX1
UniRef90-Q97CT4
UniRef90_E6V317
UniRef90_G8RR82
UniRef90-Q3ISR3
UniRef90_K4AW91
UniRef90-KOJVIO
UniRef90-14YN95
UniRef90-V4J9T7
UniRef90-L2TTQ9
UniRef90_B2UA60

QALENDEVV|KVV VI RGAG
60
A A
70
80
 ACEKNTDVRAIVITGSG KAFCAGQDLKEVTEDNPGFKKI TVRFDQETRVVILRSSVSGVFCAGADLKERAQMSQKQASE HARDDANVGVIILTGEGGRAFCSGGDQKVRGHGGYVGDDQ KTAQEPNIRVLIIRAEGP VFCAGADLKERETMSEEEVHS ELAVDPAVRAVVLTGGPDCFVAGADVREFAEATPVQMYE T A A D D D S S $\quad$ S S S S NVRVVILRSLVP AAEEDRDVLCVI LNAAGEKAFCVGGDIKAEVHMDGYTSYD DAETDPETKAVVITGSERAFAAGADINEMASRDVVGMDE RVRDDSAVRVAI TGAGDKAFSAGADLKSWDGRKVELEEF RVCNDEDVRVLVLTGAGERAFCTGADLKKTMPSGDGVARE EAQNDDEVRAVVLTGAGDS FCSGVDLDAFARGPDQEKEL A WANDPQVRSVII TGAGDKAFSAGADLGSRARPPENDYES EARDDASVRVVVLGSAG KVFSAGHDLKEDADGGEAFYEQ KAWGSSEVGAI ALTGAGEKAFCSGGDQKQMETGDYGPSDS H $\square D Q T P E A R V V V L S G E G$ KHFTSGDDLQMDMGMKPARARE E NMEANVVILKSQAPGMFCAGADLKERKDMSEFEVRQ AFAADDEQWVAI I TGAGEKAFCAGHDLKQQAAGG ELDARTDVRAVILTGAGERAFCVGADINQWSSLEPLGMDS QLEADDDVRALLIVGAGDQAFSAGADVQSMAAAAPLDADE EIDKNSEARVIVLSGQGKHFSAGMDLSTFVEVDPARQRE EAQNDPEVRAVVLTGAGDKSFCAGADLKAISRGENLFHPE DVEADDEVWVAVLTGAGDRAFSVGQDLKERAEDTERGATS TLNADPSVRAIVITGGDGSRFFSAGADLNGFAEGDRAHARL DCQDRTD GVIILTGEGGRAFCSGGDQSVRGHGGYVGEDT

 RLGQDDEVRAVVLTGTG KAFCAGADLNWMRAMSREENLA SAKFDKRVRTLILRSAGVGDVCAGADLMERVKMAPNEVAP DLNADPAI YALVITGDGPKFFSAGADLNLFADGDKGTAAE ELRDDPDVRVVILTGGAGDKAFVSGADVINQFEKENAQASEE
 RCHEDQEIGVVIFTGAGDLAFCSGGDQRVRGEGGYVGEDG QFAADTGVRAVVVTSSHEKAFCVGADLKERNSFSDADLVR AAAGDGSVRAILLTGAG RAFCAGQDLGDRMSGTPDLGDT S LEKERGTRAVVLHSAVSGMFCAGADLKERRGMSRDEAKL EVSKDEGVRVAILAGAGPGYCAGHDLKEDKAQNYSRTEQ $A V N V D P Q T R V V I L T G A G S A F S A G G N V K D M G G K P H Q D F Q G$ RASDDQSVGAVIVKSALERVFCVGADINAWQANDVDANQR EAAVDASVRVVVLTGSG RAFCAGGDLNYLESAGTSQAKT DAGEDPDVWAVVITGAGDKAFCAGGDLKEMARAGRQVHTP RFRDDDAALVAVLTGSGEQAFCAGGDLKAVAPLTPEERAA N LA EDDAVRAVVLTGAGEAFCAGVDVTEMGERSPATSMM TVAQERTTRCVVVRSTVPGVFCAGADLKERAGMTQAEAAT
 TVDADDDVNAVTLLGEGP VVFCAGMDLEMMRDRVEPDAE I DYANRKDLGVLLTGSGDRSFVAGADDKEFGGVAASGEDN E LEHNRDVRVVVLTGEGERAFCVGADLKNPSMSGLEYWAA A AEREASVGALVLTR RERAFAAGADIKEMRGRRFPD C RARDDDEVGVIILTGQGDGAFCSGGDQRDRGDDGYLGDDE
 ELPHRGDTRVLVLRGQG RSFCSGGDVANELDDMAPDQLLA TARDDEHVRCVVLSSTHDRTFSSGGNLGGFAEQLPAHKHA K IAQDSDCHAVVVSGAG KLFTAGIDLMEMGARKAWNMRK RFQDDDA LRCAVLTGVG NSFSAGADLKKLIDVVRDTVLD $D L E R E A D V R A V V L A G S S P$ VFAAGADIAEMERKSPAEGLA DVASDEAVVVILVVAGSGGKAFCVGDDLKKERQTLSDEEAAV ACNDADDVRVVILTGTGGKAFCAGSDIAELETY RAE EDRDVRVVVLTGAGGAVFCGGADLEALGTEGPDGVT EFDEDRDVVMTVMGRGG I S SGADISEMKDSDARDM SFNDDADVVCVILLTGTGKAKVFSAGADVVKKTRPPDTSFAEAA DASADPAVRAVVLTATGRGFCAGADLRGAPATTGRVPGD TAASDKTVGVVVLTGTGDKAFCTGGDQSNVHDGDYDGRGV E
K $\mathrm{I}_{\mathrm{GA}} \mathrm{DN}$ SGKVVVLKGS E EI DGNDDIRVAILTGEG D EASDDVRCLVVTGDE SLDADDSVRVIILTGSG RCGRDDAVRVVVLTGEG SFFCAGAD 1 GE I SRDDAEDARG KAFSAGADINNFLDMSDRDAFH



 RAHMDPDVGVIVLTGAGD
PLAANTDVRCIVLRGTG RFFVAGADDRVMRELS EETQH


## UniRef90 W4QNZ4

## UniRef90-LOK6K3

 UniRef90-UPIOOO3656658 UniRef90-l3YW92 UniRef90-D3AYY9UniRef90_C3IQZZ UniRef90-S3VYH6 UniRef90_17C479 UniRef90-UPIOOO3817060 UniRef90-JoBNG8 UniRef90-R4WJY7 UniRef90-UPIOOO47CCOD6 UniRef90-A3JBF2 UniRef90-UPIO003A24C96 UniRef90-UPIO00361288F9 UniRef90_UPIO00372F9E2 UniRef90_J9SQ10 UniRef90_UPIO0046523A3 UniRef90-C1BAZ4
UniRef90-UPIIOO40F057C
UniRef90_-J9FPZ5
UniRef90-TOHKJ4
UniRef90-UPIOOO35F1548
UniRef90-MON151
UniRef90_UPI000374687E
UniRef90-17G713
UniRef90-Q2JA70
UniRef90-H1RYT9
UniRef90-I3CAS1
UniRef90_W8FOU8
UniRef90-M3UJJ7
UniRef90 K8R2J2
UniRef90-N8XDC7
UniRef90-UP10003778C15
UniRef90-UP 00001 CBEBE5
UniRef90_UPIO003803588
UniRef90-W0UX25
UniRef90-UPIO00464AC36
UniRef90-B7RT89
UniRef90-UP10003D3FOCC
UniRef90-D6TM00
UniRef90-H5UN24
UniRef90-A915X7
UniRef90-F2IYW5
UniRef90-AOAO59LKD1
UniRef90_UP10002625762
UniRef90-UPIOOO3747380
UniRef90-UPIO00376EOCF
UniRef90O UPIOOO37CB429
UniRef90_UPIOOO255FO89
UniRef90-D7B4X4
UniRef90-D3F865
UniRef90-ToIR31
UniRef90-E1ZT47
UniRef90-12BCX6
UniRef90-WLLU56
UniRef90-D2RPG3
UniRef90-D2RPG3
UniRef90-UP100036FDC4B
UniRef90-G8MH94
UniRef90-UPI000462DA3F
UniRef90-UPI0003648C97
UniRef90-UPIOOO36F9423
UniRef90-K6DH53
UniRet90-Q1LBRO
UniRef90_W5W6H8
UniRef90-UPIOO03B3B7E6
UniRef90-M7AXQ9
UniRef90-F4CJC6
UniRef90 $\mathrm{T1CN79}$
UniRef90-T1CN79
UniRet90-F5L9G6
UniRef90-K4Q684
UniRef90-UPIo0037EBFF1
UniRef90-V9XNU3
UniRet90_UPIIO002DB00B5
UniRef90-UPIOOO369BC1C
UniRef90-A0A0521DI5
UniRef90_UP100037530B1
UniRef90-12JO99
UniRef90-SOG4H55
UniRef90-F9FMX1
UniRef90-Q97CT44
UniRef90-G8RR82
UniRef90-Q3ISR3
UniRef90-K4AW91
UniRef90-KOJVIO
UniRef90 14 YN95
UniRef90-V4J9T7
UniRef90-L2TTQ9
UniRef90 B2UA6O

TV/AAEDTSFI ${ }^{130}$
140
150
160
TVAAEDTSFILSF AQVGILVISDGGHFFIIPRALITPYQAK $R I A V N D A K F G V T A N I G Q I P T G G S T W R A V E L V G E A K A K$

 $T \cap A A D N A B G G Q T G P K V G S F D G G Y G A G Y L A R M V G H K K A R$
 I I A GRQARFA A QPEVKLGLMPGAGGTQRLDRAVGKFQAM




 $R \| C S D N A Q F G D E V R V G S I P G A G G T Q R L D R A V G Q S D A M$

 S I A A DHA IF GQNGPRVGSFDAGLGTGYLARAIGEKRAR

 $\bar{R} I A D P S A T P F A L D E A G I A T C P G W S G T Q R L V G L V G V G A D K$
 $R$ YCS E N A F F K DA $\bar{V} V A E E R A \quad M F G L P E V K R G L D A G A G G V F R D D E Q L P R K V A L$
 $R L A S E G B Y L I G L P E V K L G L V M P G N G G T P R L D D L I G G V S R A M$ SIAADNARF GQTGPNVGSFDGGFGASYLARVVGQKKAR
 VLTGENAQF A L P AI AVDSAKFC LSEVRLGGVPARTISPYVIRAMGARAAH
 $R \square A E E H A Q$ Q A LPEASVGLLPCAGGTQNLPWLVGEGWAK

 RIA EDHA LMMALPEATVGLLDPCAGGSQWLSWNVGEAWAK $T$ I AADNARF GQTGPRVGSFDAGWGATYLARVVGHKKAR
 $V L A A R S A R F I Q A F S$ KIIGLIPDSGGTWSLARLVGEARAK
 AI SSQEARY ATP GVNI GLFCSTPMVA LSRNLSNKHAM $R \bigvee A S T K A F F A E S F$ VKLGIDPGDGGAWLLPRAVGAARAA




 RV C GRD T Q F RV SA PAARF $R \vee D G R E A K Y$ TI AAENAK F RIA V E T A R F VIACEEASF
$V Y A S E E A S A$ VYASEEAQF VLA A Q S A K F VQ TI A A D N A R F RIAA TNAEFGGG $R V V A R T A K F A F$
$I$
$I$
$V$ VVASEDATF RYCTQDAWFQ $R \cap C D P Q A T F$


 V V A S E T A E F RI A S EN AT F


 I A A DTA Q MGQVGPKVGSVDAGWGTAYLARIVGEKKAR
 RI S DVK T K Y GFPEVNLGI MP GF G GTQRI DD IA G K S Y G M

 TLA S R A K F R I A A T S A K F L M A F T H A R F GI F P S WGLS QKL S R I I GPSRAR
 SI AADNARF GQTGPRVGSFDAGFGAGLMARTVGVK KAK $R \vee M A A S A$ Al| A GESANF
UniRef90_W4QNZ4 UniRef90_LOK6K3 UniRef90_UPI0003656658 UniRef90_I3YW92 UniRef90_D3AYY9 UniRef90_C3IQZ9
UniRef90_S3VYH6 UniRef90_S3VYH
UniRef90_I7C479 UniRef90_UPI0003817060 UniRef90-J0BNG8 UniRef90_R4WJY7 UniRef90_UPI00047CC0D6 UniRef90_A3JBF2 UniRef90_UPI0003A24C96 UniRef90_UPI000361D8F9
Q UniRef90_UPI000372F9E2 UniRef90_J9SQ10 UniRef90_UPI00046523A3 UniRef90_C1BAZ4 UniRef90_UPIO0040F057C UniRef90_J9FPZ5 UniRef90-T0HKJ4 UniRef90_UPI00035F1548 UniRef90_MON151 UniRef90-UPI000374687E UniRef90_I7G713 UniRef90_Q2JA70 UniRef90_H1RYT9 UniRef90_I3CAS1 UniRef90-W8F0U8 UniRef90_M3UJJ7
UniRef90 K8R2J2 UniRef90-K8R2J2
UniRef90_N8XDC7 UniRef90_UPIO003778C15 UniRef90_UPI0001CBBEB5 UniRef90_UPI0003803588 UniRef90- W0UX25
UniRef90_UPIO00464AC36 UniRef90_B7RT89 UniRef90_UPI0003D3F0CC UniRef90_D6TM00 UniRef90_H5UN24
UniRef90_A9I5X7 UniRef90_F2IYW5 UniRef90_A0A059LKD1 UniRef90_UPI0002625762 UniRef90_UPI0003747380 UniRef90_UPI000376E0CF UniRef90_UPI00037CB429 UniRef90_UPI000255F089 UniRef90_D7B4X4 UniRef90-D3F865 UniRef90-TOIR31
UniRef90_E1ZT47 UniRef90_I2BCX6
UniRef90_W4LU56 UniRef90_D2RPG3 UniRef90_F2MPS3 UniRef90_UPIO0036FDC4B UniRef90_G8MH94 UniRef90_UPI000462DA3F UniRef90_UPI0003648C97 UniRef90_UPI00036F9423 UniRef90_K6DH53 UniRef90_Q1LBR0 UniRef90_W5W6H8 UniRef90-F9U7F1 UniRef90-UPI0003B3B7E6 UniRef90_M7AXQ9 UniRef90_F4CJC6
UniRef90_T1CN79 UniRef90_F5L9G6 UniRef90_K4Q684 UniRef90_UPI00037EBFF1 UniRef90_V9XNU3 UniRef90_UPI0002DB00B5 UniRef90_UPI000369BC1C UniRef90-A0A052IDI5 UniRef90-UPI00037530B1 UniRef90_I2JQ99
UniRef90_S0G4H5 UniRef90_F9FMX1 UniRef90_Q97CT4 UniRef90_E6V317 UniRef90_G8RR82 UniRef90_Q3ISR3 UniRef90_K4AW91 UniRef90-K0JVIO
UniRef90-14YN95 UniRef90_V4J9T7 UniRef90_L2TTQ9
UniRef90_B2UA60

 ELVYT A GMI DADEAERDGLVVNHAVPREELDDETVDGIVDGII D $L$
 A LMMLG DKI SALLDAEKL GMV YKVVSS E E WY LCRRQYSA QEALLDMGLVVNTVVPDEELDEAETVQWAQEI







RMILANERVDAATAL RDGLVEEVVPAGQALDAALRLAEAA




力m風mm


## \section*{D}

 E V WF M C K Q Y S A Q E A LDDM G W I N T V V P L E E Q V E D V T M E WA E E M

 E 1 W Y L C R Q Y GA Q E A LDD M G L V

 ELLLLGERIDAREAERDGIVNRVVPAAELDDAVGAWAAKL ELAFTARKMMAPEAESSGLVSRVFQDKQAMEGAFELAADI EMILTGDPDDAEAALRHGLVNRIVEPDGLLAEATVVAQVI


## 

RMFFTGMMVDAAEAHRVGLLVSEVVPA
ELMFFGDALPAAEAERLGLVNRTVPDEELAATARAWAERLC
E I WY MCK R Y T A Q E MA D M GL V N K VV P A A E L E A E VT S WCE TM


E
ELVFT
EVSLTGEMLDAEAAEELGLIFNHVFE

A L ML S A E T I P A E E A QR M G L V Y K V F F D D A S F A V D V A A F A A R L


## UniRef90_W4QNZ4 UniRef90-LOK6K3

 UniRef90_UPI0003656658 UniRef90_I3YW92 UniRef90_D3AYY9 UniRef90_C3IQZ9UniRef90_S3VYH6 UniRef90_17C479 UniRef90_UPI0003817060 UniRef90_J0BNG8 UniRef90-R4WJY7 UniRef90_UPI00047CC0D6 UniRef90_A3JBF2 UniRef90-UPI0003A24C96 UniRef90_UPI000361D8F9 UniRef90_UP10003
UniRef90_J9SQ10 UniRef90 UPI00046523A3 UniRef90 C1BAZ4 UniRef90_UPI00040F057C UniRef90-J9FPZ5 UniRef90-T0HKJ4 UniRef90_UPI00035F1548 UniRef90_MON151 UniRef90-UPI000374687E UniRef90_I7G713 UniRef90_Q2JA70 UniRef90_H1RYT9 UniRef90_I3CAS1 UniRef90_W8F0U8 UniRef90_M3UJJ7
UniRef90 K8R2J2 UniRef90_N8XDC7 UniRef90_UPI0003778C15 UniRef90_UPI0001CBBEB5 UniRef90-UPI0003803588 UniRef90- W0UX25
UniRef90_UPI000464AC36 UniRef90_B7RT89 UniRef90_UPI0003D3F0CC UniRef90_D6TM00
UniRef90_H5UN24 UniRef90_H5UN24
UniRef90-A915X7 UniRef90_F2IYW5 UniRef90_A0A059LKD1 UniRef90_UPI0002625762 UniRef90_UPI0003747380 UniRef90_UPIO00376E0CF
UniRef90_UPIO0037CB429 UniRef90_UPI000255F089 UniRef90_D7B4X4 UniRef90_D3F865 UniRef90-TOIR31
UniRef90_E1ZT47 UniRef90_I2BCX6
UniRef90_W4LU56 UniRef90_D2RPG3 UniRef90_F2MPS3 UniRef90_UPIO0036FDC4B UniRef90_G8MH94 UniRef90_UPI000462DA3F UniRef90_UPI0003648C97 UniRef90_UPI00036F9423 UniRef90_K6DH53 UniRef90_Q1LBR0 UniRef90-W5W6H8 UniRef90_F9U7F1 UniRef90_UPI0003B3B7E6 UniRef90_M7AXQ9 UniRef90_F4CJC6
UniRef90-T1CN79 UniRef90_F5L9G6 UniRef90_K4Q684 UniRef90_UPI00037EBFF1 UniRef90_V9XNU3 UniRef90_UPI0002DB00B5 UniRef90_UPI000369BC1C UniRef90-A0A052IDI5 UniRef90-UPI00037530B1 UniRef90_I2JQ99
UniRef90_S0G4H5 UniRef90 F9FMX1 UniRef90_Q97CT4 UniRef90_E6V317 UniRef90-G8RR82 UniRef90_Q3ISR3 UniRef90_K4AW91 UniRef90-K0JVIO
UniRef90-14YN95 UniRef90_V4J9T7 UniRef90_L2TTQ9

210
220
230
$\square$ T Q S M MVT T ${ }^{2}$ QDTGREAVVKNSKRAINGAVHASDLETAREQEAEIWWEQFAT A A N S P P V $V$ G V A K M P T K A L G LTT K RLLL N N S L H N N L E E QL N ME S K L Q Q DEA A Q S LPK GP I A I RVAK IA IDDKGMNVDIATGMSDEQACYAQVIPT




 AS K GPDAV QLARESVVRRGADMDLAA GL RFERHAFTVLAA T A Q N AP L A V Q A A K E LAD A GPE L G L A G G L RME QMVNKIL M G S AANAPLAMTAAKRLAMNGRELPLAGGLALERQAFGLLRDS ASRAPIAVEDIDKRAVRQGMTHDLPTALDLDSSHQAVVLST NENGPVAVAAAKRVMTET S GMTVDEA FVLVEN RAWDLVVS S S ASSKS P L T L K K G K E AF Y R QA E M S L S E A Y E Y T A R V MVVENMLT L QLS P TA L KVLK Q S L NA DTEHF I A Q G NMAYS TLLKLIF GES

 ARQAPVSVQLTKQLIDAGQGVGLABMTLEAMAALSATT A A GPP I A QKFTKRAAMLDRGWEDT DA GLEELESQAF GHLVVNT
 TCNAPLAVQASKRVAYGAEEGTVPAEWKRTNREFVTLLKT


 AARAPVALQLLTKQLLNAA SGEETGSTLEAMAGALAAST AK Q A PLAI RVIG QSLKSIHEVTLSQGLKQERQHFVWLTAT
C
 AR QSPGSVTA CKTLI QGARSNPLAQSLLPLERELFVGLD DT





 AS K S P L T V A DGK E A YY R Q A E L P L L S E A Y D Y T K D V M V R NL E A

 VANSPVVLRRYKEMATKSWGLPVTSALRL NVGPNPYTS
 A A L P Q SAI RTD KE A AVVRGFGRPLEEGLRDEAECFDRELD D A ASPT LA L GMAKRQF GIAASASSSD QFLEAE FAMQPVVMSQT ALLG GP LAL RMAK QAVNL GLDDMDLH S GMK LDE EACYA QVIP T VNSAPLAVAALKE ILDRTTGECSVEEGYRLMRRHYPEVLHS


 AAGPTLGLGLTKQLIQAAADNSLDQQLDLERDGQRRAGRS
 A L N A P $\square P \mathrm{P}$ I L A K R A VQQ H N L G GL R EAL A RE TAA Q NVCYES
 ARSSPLLLRMGKDAISRRQMDMPLDDALDYLRAQLAIUAFS T A GKS PV AVQGTKVNLVYSRDHSVSEGLRYMATWNMSMLQT ASRRGPVAVRAAKEAVQTGLRE GLEAGLLAEARLLAACMRT A A R A P L G V R WVK QVI D R GMD A P L G T G L Y L E G E S A G H T F G T $R G N V Q V A V R G A K R C M D H A L D M E H S E S F D \square D \square S N$ GCYAA

 A ANGP L A V K SI K T L A L R R T D D L P L S R S V E L E QLLLWGL L R D T A GKAPIAL RYAK QAAQVTVAMPPREGYRFEQNITVALSDT


$\qquad$
A A L
SEKP A T A L GLAK EAI CR S
R Y I K E V M N R
AGSAAAA AGKSLLNQSFESPAEQVFAKGSQAQG\|CYTT A ANGP LAMVRNAKASDLDAS WLDEEDARKDEQRFVVAVMRS
 A A GP T VA Y A K DK E A M A A F S G E LAA A L E V V A R TA A E A G A T A E GP GLA YR LTK QAVGQ S L S N D L E T QL D L EARF QA EA G S S $L Q L S P T A L R V L K A A F N A D S D G G A G L Q Q L A G N A T G L F Y T T$

| UniRef90_W4QNZ4 | A D H [DE Glv |
| :---: | :---: |
| 5658 | DERRE |
| UniRet90 UPIooo3656658 |  |
| UniRet90-D3AYY9 | K Dr |
| UniR |  |
| S3 |  |
| UniRee90-17C479 | ADQKEGAR |
| UniRef90-UPIO003817060 | QDV |
| UniRef90-JobNGe | AAQQEGM |
| UniRef90-R4WJ | KDRIIEGLIR |
| UniRei90_UPIO0047CCOD6 | EDKKVGME |
| UniRet90-A3JB | E |
| UniRef90_UP1000 | ADSR |
| UniRef90 UPIOO | EDRLEGRR |
| Ref90_UP1000372F9 | O S K A |
| Ref90-J9SQ10 | DDAKEG |
| UniRef90-UP100046523 | A |
| UniRef90_C1BAZ4 | A EA |
| UniRef90 UPIIO0000F057C | , |
| UniR | EDR EGLK |
| UniRef90-TOHKJ4 | E C |
| UniRet90-UPIO0035F1548 | KDAKEGLR |
| UniRef90 MoN 151 | DDLMEGVK |
| UniRet90-UP1000374687E | KDMQEAMK |
| UniRet90-17G713 | EDAMEG |
| UniRef90_Q2JA70 | LDSAEGVR |
| UniRet90-H1 | E |
| UniRef90_I3CAS |  |
| UniRef90-W8FOU8 |  |
| UniRet90-M3UJJ7 |  |
| UniRe990_K8R2J2 | EDAAEGIR |
| UniRet90_N8XDC7 |  |
| UniRet90_UP10003778C | EGKEGVQ |
| UniRet90_UPIO001CBBEB5 |  |
| UniRef90-UPIOOO38 | E D |
| UniRer90-woux |  |
| UniRee90 UPIO000464AC36 | EDFREGRR |
| UniRet90_B7RT89 | EDhatalk |
| UniRet90_UP10003D3F0CC | Q ${ }^{\text {d }}$ |
| UniRef90_D6TM |  |
|  | GDRAEGV |
| UniRef90-A915X7 | D DYAEGMR |
| UniRe90-_2YM5 | S |
| UniRef90-A0A059LKD1 | R |
| UniRet90_UPI0002625762 | RDAQEGI |
| UniRef90_UP100037473 | E |
| Ret90_UP1000376E0CF | P D |
| UniRef90 UP100037CB429 |  |
| UniRef90-UP1000255F089 | EDRAEGVR |
| UniRet90_D7B4x4 |  |
| UniRef90-D3F865 |  |
| UniRe990-121831 | EDRREGV |
| UniRef90_E1ZT47 | K D RLIEGL |
| UniRef90-12B | ADASEG |
| UniRet90-W4LU56 |  |
| UniRef90-D2RPG3 |  |
|  |  |
|  | KDFAEG |
| - | EDAQEGVR |
| iRef90_UP1000462DA3F |  |
| UniRef90_UPIO0036480 |  |
| UniRet90_UPIO0036F9423 |  |
| UniRet90_K6DH53 | E |
|  |  |
|  |  |
| UniRef90_F9U7F1 | NDKAEGTK |
| UniRet90_UPI0003B3B7E6 | EDIQEGV |
| UniRef90 | EDAQAALE |
| UniRef |  |
| UniRef90-T1C | SDRTEGMR |
| UniRef90_F5L9G6 | RDHQEGVK |
| UniRef90_K4Q684 | KERKEGV |
| UniRet90-UPI00037EBFF1 | EDAHEG |
| 俍et90_V9XNU3 | dill |
| UniRef90_UPIOOO2DB00B5 |  |
| UniRef90 UPI000369BC1C |  |
| ef90-A0A0521DI |  |
| UniRee90-UPIO0037530B1 | HDAQEGV |
| UniRef90-I2JO99 | DE |
| UniRet90_SoG4H5 |  |
| UniRef90_F9FMX1 | G |
| UniRef90 Q97CT4 | R |
| UniRef90_E6V317 |  |
| UniRef90-G8RR82 | L |
| UniRef90_Q31SP | DDHEEG |
| niRet90_K4 |  |
| UniRer90-K0̌VII | ADHKEAV |
| UniRef90_14YN95 | $\mathrm{HI}$ |
| 90 V4J9T7 | EEAREG |
|  | Q |
| niRef90_B2UA60 |  |

UniRef90 UPI0002E6DC4E UniRef90_UP100047B99AC UniRef90_UPI0002893A4A UniRef90_A9BUT8 UniRef90_B8FG80 UniRef90_C1D8Q1
UniRef90_D8F123 UniRef90-J3CAV2 UniRef90-17MCH4 UniRef90-H5XUU6 UniRef90- X0TR89
UniRef90 G5AMA5 UniRef90_UPI00036E7E8B UniRef90-Q62651 UniRef90 UPI000371ED8A UniRef90_K9NJZ2 UniRef90-Q15P76 UniRef90_UPI00047B2289 UniRef90 A0LI34 UniRef90_L7FGU0 UniRef90_M1GJI9 UniRef90_UPI00037FC932 UniRef90-J1FL10 UniRef90_UPI0003475E38 UniRef90_UPI00045E5F6C UniRef90_UPI000255F1B6 UniRef90_Q65IX2 UniRef90-Q12MV3 UniRef90-N6WQ80 UniRef90_KRZZ $8 ~$
UniRef90_W4MBX5 UniRef90-UPIO0046CDE7B UniRef90_U7FZ76 UniRef90_UPIO0024932D5 UniRef90-A7HQS9 UniRef90_D3F4M2 UniRef90_Q1QCSO
UniRef90_UPIO0047613D1 UniRef90-W4M9P3 UniRef90-F7UHA5 UniRef90_UPIO0036E6F28 UniRef90-H3NXG4 UniRef90-H2ZZE7 UniRef90_UPI000382DBCA UniRef90_UPI000463AC6F UniRef90_UP10001FFDD35 UniRef90-UPI0003046F62 UniRef90_K9MEZ4 UniRef90-UPI000371E781 UniRef90-V9KWV0 UniRef90-A1B645 UniRef90-L5KJR5 UniRef90_UPI000380CBAE UniRef90_UPI000440D775 UniRef90_N1MLJ5 UniRef90-Q46W43 UniRef90_UPI00036AE7A0 UniRef90-UPI000333D182 UniRef90_UPI0003B68F52 UniRef90-E3J4C7
UniRef90-F4CT43
UniRef90_Q8ZV32 UniRef90_W5YL51 UniRef90_G6A054 UniRef90-G4HY94 UniRef90_L1JM70
UniRef90_G8MH87 UniRef90-X0RJR6 UniRef90_U7NUR6 UniRef90_B8GW67
UniRef90_A0A059KR32 UniRef90_UPI00039ED038 UniRef90_UPI0003B48D2F UniRef90-COQBE8 UniRef90_UPI000378AF03 UniRef90_MOHVP4 UniRef90-G4QKD4 UniRef90-A0A017TCN2 UniRef90_I4BRI5 UniRef90_F7QN27 UniRef90-Q21Y80 UniRef90-WOSIB7 UniRef90-V4L327 UniRef90-R4XPV5 UniRef90-Q16CV7 UniRef90_UPI000479BBD5 UniRef90_UP100037E878D UniRef90-UPIO0031CBE49 UniRef90-A8L527
UniRef90-F4GSQ8
UniRef90_N9CXT5
$\qquad$ Y EMRPGVAK S DA SARKHVLHVQLNRPKRNAMNKAFWREMVECFN
 R V RVASDGPI ATMTLCRPKMNTLGFEAWREI QEIQN SEADSVTTSIIHGSVAVI CFNRPKLNAFDDSQRKSFREAAN S DYTDI RYEVKGGIAKI TDDRPQRNAFRPQTLIEVGHADD VVKVAMDGEVACLLLNRPDANADNPELVEALA ERLD
 FVHYEVKERVGYI TLAREKRNALNAEMVSELKRAFA VDHSVEGTTAVITMDRPDHNAFRGRTVDELDASFR $\square T Y E R R N A A A V I T I N R P K R N A L T R S Q T V E E L G D A F N$


D D GVLILT LD D P S R N A Y G G Q L S E E LD G E VD VLYEKRGRI AYI TLNRPEVNAVDDELLDELLWEAWA VLETLENHVARVVIDRPERNAVDRAASDELET IDWR I I FERTGKI AKLTMNRPKHNAFTPLTIDELDDAFT TDHVLVTVE DGVQUVTMNRPKKNADTAEMYKVLADADE LVETEDRGAVRHLILNRPKRNAMHGELVLAIGAALK LVEYQAENHI ATITMNDPK LDNAFSTVLKDAMMAALT

 FLRRVEGAEVMNRKRNSLGKVFVSQLFEAVE
 VTYEVVNGVAWLTI DRPERNALSRAVREGLFDGVH VTLDRDQHTLIITI NRPDRNAVDAAVNQAVGDAME
 VEMDNSTGVAVIKMNSPPVNSLSLEFLTEFADNME LI E DTREGRVALI RLNRPELNALNSALAEELTAAAE


 STTDLI I ADKRNGVGYLGFNRPKHNAISYEMWQGIAKVMA QNPLILTD I K D RVMTVRLNRAKKNALTQDMYLA MGAAVA
 QVEEGIYQLLI NYPERNIIT LIEMRRAI GEALG
 I TLNVSNGVAVIVLNRPDLNAVTTSMCESLIDEAFD
 Li MLLIERRGADAIVTLNRPEMNALSKALRLALHDAVV
 SDYRTISVAIDERVATLTLQRPDVNALDSETHRAI ASAIG SETVIVTAELADGUAWVRFNRPKRNAMSPALNRRMREVLD
 SEEVL! VSRDGAVATLTMNRPAKNALNKALLEALATQLR LVTYEVNDHI ATI TLNRPERNAINGAMRRDLNAAWD
 A G GI A RV T
 1 VRKNTDSSVFHLILNRPQLNALSLDFFFEFPKALT
 Q N T L VEVA DGl A WL R





UniRef90 UPI0002E6DC4E UniRef90 UPI00047B99AC UniRef90_UPI0002893A4A UniRef90_A9BUT8 UniRef90_B8FG80 UniRef90_C1D8Q1 UniRef90-D8F123 UniRef90_J3CAV2 UniRef90_I7MCH4 UniRef90_H5XUU6 UniRef90_X0TR89 UniRef90_UPI00036E7E8B UniRef90-Q62651 UniRef90_UPI000371ED8A UniRef90_K9NJZ2 UniRef90_Q15P76 UniRef90_UPI00047B2289 UniRef90 A0LI34 UniRef90_L7FGU0 UniRef90_M1GJI9 UniRef90_UPI00037FC932 UniRef90 J1FL10 UniRef90_UPI0003475E38 UniRef90_UPI00045E5F6C UniRef90_UPI000255F1B6 UniRef90_Q65IX2 UniRef90_Q12MV3 UniRef90_N6WQ80 UniRef90 K0RZT8 UniRef90_W4MBX5 UniRef90_UPI00046CDE7B UniRef90_U7FZ76 UniRef90_UPI00024932D5 UniRef90_A7HQS9 UniRef90_D3F4M2 UniRef90_Q1QCS0 UniRef90_UPI00047613D1 UniRef90_W4M9P3 UniRef90_F7UHA5 UniRef90_UPI00036E6F28 UniRef90_H3NXG4 UniRef90_H2ZZE7 UniRef90_UPI000382DBCA UniRef90_UPI000463AC6F
UniRef90_UPI0001FFDD35 UniRef90 ${ }^{-}$UPI0003046F62 UniRef90 K9MEZ4 UniRef90_UPI000371E781 UniRef90_V9KWV0 UniRef90_A1B645 UniRef90_L5KJR5 UniRef90_UPIO00380CBAE UniRef90 N1MLJ5 UniRef90_Q46W43 UniRef90_UPI00036AE7A0 UniRef90_UPI000333D182 UniRef90_UPI0003B68F52 UniRef90_E3J4C7
UniRef90_F4CT43
UniRef90_Q8ZV32 UniRef90_W5YL51 UniRef90_G6A054 UniRef90_G4HY94 UniRef90_L1JM70 UniRef90_G8MH87 UniRef90_X0RJR6 UniRef90-B8GW67 UniRef90_A0A059KR32 UniRef90_UPI00039ED038 UniRef90_UPI0003B48D2F UniRef90_C0QBE8 UniRef90_UPI000378AF03 UniRef90_MOHVP4 UniRef90_G4QKD4 UniRef90-A0A017TCN2 UniRef90-14BRI5 UniRef90_F7QN27 UniRef90-Q2IY80
UniRef90-W0SIB7 UniRef90_WOSIB7 UniRef90_V4L327 UniRef90_R4XPV5 UniRef90_Q16CV7 UniRef90_UPI000479BBD5 UniRef90_UPI00037E878D UniRef90_UPI00031CBE49 UniRef90_A8L527 UniRef90_F4GSQ8

A E D R DI R AVVLT G G GERAFSTGADMKGGSGAS GLE Y WA DVEAD D DV RAAVLTGAGDRAFSVGQDLKERSRLNAAGAPT
 QVRAHKGLRCLIITGSGKSFCAGMDFYAAFPEDGALPNQ WAD DTPEVVRVVVLA GEG RHFCA GDDLMMLAGRKRE KLLAA E L D S E E K V R V V I I L K G A G K K A F C A G I D D V S G F S E K S V V E Y R A ELNNS QDVKVIVI LSKFPKAFCAGADITRFTKLS VQTEM
 EAVND D Y I GVVVLTGAGNKAFCTGGDAKEAEAGYS SEMFR $K I A Q D S D C R A V V I S G A G M M F S S G \square D L V D M A S G P G D D V A R$ EI A E D L S VR VVVL R G G GRGGFCSGHDL K Q MLGEGE E E YY Q KI S K D S D CR A V V V S GA G K M F T S G $\square D L M D M A A R \square A W Y$ M R D

 SLDAS DDNVRGVVV SGEG KA
 Y C R E C Q DI A VV I I TG S G DKAFCSSGGDMNVVKGRGGY DM E N G $D \square E A D P D V R A V V V T G A G E R S F C V G A D M S A D A K T G L E Y W A G$ A AEDDETCKVIVLRAEGKVFCAGADLEYLQRLDYHDNLA RAWGDPAVRAVI LTGAGTKAFCPGGDVKQRAEGDYGPTDS
 LAWADRGVQAVILTGAGQKAFCTGGDVKQRAEGDYGPSES
 DFEANDTVLKVA LTGNGGN FCAGADDTAMADPDRNEIEP QFEDDDEGGCVVLTGKGKAFAAGADIEEMSSKDFAQV




 HAEEDEACKVIVLGRA GDVVCAGADLGELQNFGYNENLA $R V R E D A D D R A A V L T G A G G$ TVSAGADLKERAQGGRADANK KAGWDKAI AA IVLTGTGPKAFCTGGDQSA HDGAYDGRGT D A QENS DV K CVVV T GAGKG FCAGGDVKAMGAGPGESPP T $T A D A S E E T S V L I I T G A G G K A F C A G V D L A E L D N D D S S V V L T D E$ $G L R N D N A V R V V V F K S E V K G V F C A G A D L K E R A Q M S N A E V G H$ $K L N K D K D I$ Y ALVLTGDGSKFFSAGADLNVFADGDKQIAAE D A A QDAAVRVVVLTGAGTKAFVAGADIAEMAELTAVAGRD
 AFEAD DTLWVAVLS GSGERAFSVGQDLKELAARLAD GVPS $R$ LD S NE QV NVLVLAAGAG KHFSAGAD LK WMKSMGQA GYDE KLEMDRGCRGAIL TSSSVPRDFSAGLDITEMYGKTPEHCGA A L D A D R GVG A VVVTGS D R A FAA GAD I S E M A EK S A E E MV E
 WYE E EP S L WAVVVVTGEG RAFCAGADLLKDHLSSGSKDE QEA ETEADPSVRVVVLTSSGGPTFCAGADLAEVAAGCAADLNT
 $R L R E D R Q V R V L L F R S G Q K G V F C A G A D L K E R E Q M S E A E V V A$ EAAANPEVRVVLFTGTGNSFCAGNDLQDFLKLDHNTPKD


 TTDADESV RAVIVV GAG RAFCAGADLLSSFERTSDPERGA
 AI K EKPSVVRAVIVTGAGEKAFSAGDDLKMVASGSGPSDSP SLAADAAVRVVLLRAEGE HFAAGADLKEMLGMDEEQARA
 $D L A Y A S D D R A V V V T G A G G N$ MLEGDDSVGAIVLAGAGKA

 QADNDPAVRVVILTATGRAFCAGLDVGSAASGSGDGSSS
 $R$ TRDGHARVLLLTGAGRG F CAGQDLADRAGSEPVDLGY $S L D Q N P$ L QL D S R D DVVR I GI L T GA G G T F S S G M D L K A FA K S G Q R P Y V E GIAVNRDVKAVILRGAGNHFCAGHNLKEMADKGSAYFNA

 EATARADVRAVVVYG GEKVFAAGADIKEMAGLDVAGDTA


UniRef90_UPIO002E6DC4E UniRef90-UPIO0047B99AC UniRef90_UPIooo2893A4A UniRef90-A9BUT8 UniRef90_B8FG80 UniRef90-C1D8Q1
UniRef90-D8F123 UniRef90 J3CAV2 UniRef90-17MCH4 UniReffo-H5XUU6 UniRef90-X0TR89 UniRef90-UPIO0036E7E8B UniRef90-Q62651 UniRef90_UPI000371ED8A UniRef90-K9NJZ2 UniRef90-Q15P76 UniRef90-UPIO0047B2289 UniRef90 AOL134 UniRef90-L7FGUO UniRef90-M1GJI9 UniRef90_UPI00037FC932 UniRef90 J1FL10 UniRef90-UPIO003475E38 UniRef90_UPIO0045E5F6C UniRef90-UPI000255F1B6 UniRef90 ${ }^{-}$Q65IX2 UniRef90-Q12MV3 UniRef90-N6WQ80 UniRet90_KORZT8 UniRef90-W4MBX5 UniRef90-UP100046CDE7B UniRef90-U7FZ76 UniRef90-UPI00024932D5 UniRef90-A7HQS9 UniRet90_D3F4M2 UniRef90_Q1QCSO UniRef90-UPI00047613D1 UniRef90-W4M9P3 UniRef90-F7UHA5 UniRef90-UPIOOO36E6F28 UniRef90-H3NXG4 UniRef90-H2ZZE7 UniRef90 UPIOOO382DBCA UniRef90_UPIOOO463AC6F
UniRef90 UPIO001FFDD5 UniRef90-UPIO003046F62 UniRef90_K9MEZ4 UniRef90_UPIo00371E781 UniRet90_V9KWV0
UniRet90_A1B645 UniRef90-L5KJRs UniRef90-UPIOOO380CBAE UniRef90 N1MLJ5 UniRef90-Q46W43 UniRef90-UPIOOO36AE7AO UniRef90-UPIOOO333DD282 UniRef90 UPI0003B688F52 UniRef90-E3J4C7
UniRef90-F4CT43 UniRef90-Q8ZV32 UniRef90-W5YL51 UniRef90-G6A054 UniRef90-G4HY94 UniRef90-L1JM70 UniRef90-XORJR6 UniRef90 U7NUR6 UniRef90-AOAO59KR32 UniRef90-UPIO0039ED038 UniRef90_UPI0003B48D2F UniRef90-COQBE8 UniRef90-UPIO00378AF03 UniRef90-MOHVP4 UniRef90-G4QKD4 UniRef90-A0AO17TCN2 UniRef90-I4BR15 UniRef90-F7QN27 UniRef90-Q2IY80
UniRef90-WOSIB7 UniRef90-WOSIB7 UniRef90-V4L327 UniRef90-R4XPV5 UniRef90-Q16CV7 UniRef90 UPIO00479BBD5 UniRef90-UPIOOO37E878D
UniRef90-UPIOOO31CBE49 UniRef90-A8L527
UniRef90-F4GSQ8
UniRef90_N9CXT5
 FGSRGQPGWPRLTELTKPVLARVNGYALGGGFELALACDV
 VFEQI YKPFLAVADLPFPVIGALNGHA GGGGFGLAMMCDI TIRRLQRSVTALEACRKPVIAALHGACVGGGLDVALAADL HNRWTRETGNAI RECAKPVIAAVNGPALGAGFGLMAACDI
 HTPKVHALEVIREMPKPVIAAVNGFADGGGQVLQQICDL

 LIGEYKPALMALTQAPKPWI
 RMRTLSEVALQLHELPVPSIAAVNGVAAGGGFSLALACDF
 VPRNLLDVKQLRFLPKPVIAMVNGYAGGGGHVLHIVCDLI

 IS E W D E A H L K A $\quad$ G P F F Y K LA Q G G G L L H K T I R D L P K P V I A A V N G L A I G G G H V L Q GTGPGPMMP S R R L W L D K P V I A A V N G Y A V A G G L E L A L M M D M
 LRR R N G R GFR GQ Q H R I Y K P I I SANPLGFGGDALRRLKVPVIARVNGYAVGGGFEAALACD
 MVS E V A E I S L K L R N I H K P I I A K L E G A V A G A G M N L A L T C C D F

 I DES S N R S G A L Y S M T K P T L A S L P G A A A G A G L S I A L A C DL
 $M S D \square F G Q A F E T L A N F G G V S I A A I N G Y A M G G G L E V A L A C$
 $P P P D F D P Q L G R N D D V A K P T I A A V N G D A F G G G F L L A B A Q Q C D L$ GHRAAWGFAGYVHHISKPTIAAVNGMALGGGTELVLAS DL $F$ GSRGAA GWPRLGDLSK P V

 | $Y$ | $W K V L Q$ | $L$ | $W L$ |
| :--- | :--- | :--- | :--- |
| $F$ | $R$ | $L$ | $L$ |
| $V$ | $N$ | $N$ |  |

 PDGGFGGFVESKRD KPWI

 WGKTLVE $T P V G R F \operatorname{L} F L L A B S A T K P V V$

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


FRRMGDVKAMRKCPQPV

GVRQSQRWWRRDRWYQKPTIAMVNGWCFGGGYGPLFACDL
RVPDLFEMCAAFEEYDAPVVAAVDGLCLGGGFETVMSSDF LSTVGQRLLDRMQDMKKTFVAAVHGPALGGGLELLALACHY FWEPTDNSFESGMELFKPTHAAVHGPCIGYGLTGILFCDF $D A D G A R T T L D L L F N M E K P T: C A L N G A A A G Y G M D T A L G C D$
$V R D G G G Q V T L R I F K C L K P V$

 LF GTCSKMMMSGVDLP QPV I A EVVK GVATAA GCQLVAAT CDLL V T D H Y NP $\triangle V I A L S T M N K P V V A A L N G V A A G A G M S F A L A C D F$




## UniRef90 UPI0002E6DC4E UniRef90-UPI00047B99AC UniRef90-UPIo002893A4A UniRet90_A9BUT8 UniRef90_B8FG80

 UniRef90_C1D8Q1UniRef90 D8F123 UniRef90_J3CAV2 UniRef90_-17MCH4 UniRef90-H5XUU6
UniRef90 - $\times 0$ TR89 UniRef90-G5AMA5 UniRef90-UPIO0036E7E8B UniRef90-Q62651 UniRef90-UPIO00371ED8A UniRet90_K9NJZ2 UniRef90-Q15P76 UniRef90-UPIO0047B2289 UniRef90 AOL134 UniRef90_L7FGUO UniRef90-M1GJI9 UniRet90_UPIo0037FC932 UniRef90 J1FL10 UniRef90_UPIO003475E38 UniRef90_UPIO0045E5F6C UniRef90-UPI000255F1B6 UniRef90-Q651X2 UniRef90-Q12MV3 UniRef90-N6WQ80 UniRet90-K0RZT8 UniRef90-W4MBX5 UniRef90-UP100046CDE7B UniRef90_UZFZ76 UniRet90 UPIOOO24932D5 UniRef90-A7HOS9 UniRef90 D3F4M2 UniRef90-UPI00047613D1 UniRef90-W4M9P3 UniRef90-F7UHA5 UniRef90-UPIo0036E6F28 UniRef90-H3NXG4 UniRef90-H2ZZE7
UniRef90- UPIOOO382DBCA UniRef90-UP1000463AC6F UniRef90-UPIOOOOFFDCD35 UniRef90-UPIo003046F62 UniRef90_K9MEZ4 UniRef90-UPIIOOO371E781 UniRef90_V9KWvo UniRe990-A B6645 UniRef90-LKKJR5 UniRef90 UPIOOO440 UniRef90 N1MLJ5 UniRef90-Q46W43 UniRef90-UPIOOO36AE7AO UniRef90 UPIOOO333D182 UniRef90-E3J4C7
UniRef90- F4CT43 UniRef90-Q8ZV32 UniRef90-W5YL51 UniRefefo-GGAO54 UniRef90 G44HY94 UniRef90-G8MH87 UniRef90- XoRJR6 UniRef90-UTNUR6
UniRef90 B8GW67 UniRef90-A0A059KR32 UniRet90-UPIIO0039EDO38 UniRef90_UPIOOO3B48D2F
UniRef90 ${ }^{\text {CoOBE }}$ UniRef90_UPI000378AF03 UniRef90_MOHVP4 UniRef90-G4QKD4
UniRef90-AOAO17TCN2 UniRef90-14BR15 UniRet90_F7QN27 UniRef90-Q2IY80
UniRef90-WOSIB7 UniRef90-LoWG21 UniRef90-V4L327
UniRef90 R4XPV5 UniRef90-Q16CV7 UniRef90 UPIO00479BBD5 UniRef90_UPIOOO37E878D
UniRef90 UPIO0031CBE49 UniRef90-A8L527 UniRef90-F4GSQ8

VVAASNATF
140
150
160 VGAPEPRVGRLALDDGGIDALLTRRIPHVWAM RFMGDQAG KDGLPEVSLGVLAGTGGTQRLARQVGHSKAL VIASEWASFAWSY VLRGI IPDGGGMYFLPRRVGLAKAK RVAADEGRY RLAAGNATFC

GANF VKEI R GMVSGMAVSYVLPRLVGLKAN


 R|AADNARFSTMPEVRFGLAPDMGGTTRLTHLVGDGQAK RYCAQDACFQ VTEVDI GLLAADVGTLQRLPKVIGQSLVN ATASDKSRF ATPGVNGGLFCSTPMVA RLASADARF ALPEA | $R$ | $A G Q S A R F K A G Y T$ |
| :--- | :--- |
| $T$ |  | MAENAYDYQAFS $T 1 / A A D N A R F V G G$

$R V M A E S A V L V Q A$ RVMAESAIVLVQAYTSS VVATPEARFS QDFARRGLCPDGGGTFTLPRMVGFARAL TVASENA $D F G Q T G P R V G S F D A G L G S S Y L A R V V G Q K K V R$ VFAADHAQF GGTEPRVGRDPLDGGVFQLVRRLPHTQAM S AAAASARFGQAGP KVGSFDAGFGTAYLARVVGEKRAR RVASSTASFALPEPGLGFVPAGGTLVRLVRQVGYAHAM TI ASSTAQFGQAGP RVGSFDAGFGSAFLARTVGEKRAR RIVSDDAT VGGPELKLGLTPAFGGTQRLRNITDTATAL R AETQAQ MALPEATVGLLPCAGGTQNLTALVGEGWAK RIA GESA RLAGEKAKF R A SESARFSEA RIAAESARF VIASDTARF TlAADNA
VYASASATF VYASASAT ${ }_{\mathrm{Q}}^{\mathrm{Q}} \mathrm{F}^{\mathrm{F}}$ A F VN G 1 RI AAENAKFVQAF AFTVPEAKF RПCTPEARF AI ASSNA $\qquad$ GYT F EV RIMASTADMTTAFR E VNIGLI DVGGSRLPALVGLGAK PKVGSVDPGFGTALLARVVGEKKAR LYASEHARFAD THVRVGMLPGWGLSQKLSRLIGLGRAK RVAASSAK MGLIETTRGLLPGAGGSQRLPRIVGVGLAK RISEQHA VMALPEASVGLLPCAGGTQNLALLVGEGWAK RIAADSARL VVAAEHARF GQPEVNLGLI AVVISSEA $\qquad$ AVSEVRIGRGSPW AAPLSWLVPPRIAMM VS STA ALPEEKKGLIAGAGGLFRLPQQLPRKLALL RIMTDYPKYSTG GLEVKLGGVPSVGSPYVNRAIGPRQMR AIAGEGAKF GQPEVKLGVIAGMGGTQRMTKLIGRALSM RILADNPKCLIGLNETRLGISVPFWFKDSLVNIIGHHASE A VI ASSTARF RIVGODA VEALPE VLAGKSASFLLAFS RLATDDSKF VMGPA VYAGTGARLQ $F P$
VLASDRARFCEVF
SIAADTARFQAGP

RLAVTQARF SLA A DNA RLA STSAVFAFGQ RLACDTA VLAAENA

V G 1 VAA VENA GHP LLASENARFAD AVAVERARF RL RI AATDALDF LI ASENASFAD MPEVSLGSLPGSGGDQRLPRVVGVGDAT

 $R V C$ S S PKTQLGLPEVQLGLLPGSGGTQRLPALI GDQQAM RIVSTEAYFQEKF VI ASTSASFS RI MAESAKFAAAF
$R$ R SEAARFAGFV RI A S E A A R F VLAARSASFDQAF
 IVAASNAKF A A A EDARFATS RVA SEQA GLINTSF Ti A AKSAYFLQAF


 UnRef90_N9CXT5



200
UniRef90 UPI0002E6DC4E UniRef90 UPI00047B99AC UniRef90_UPI0002893A4A UniRef90-A9BUT8
UniRef90_B8FG80 UniRef90_C1D8Q1 UniRef90-D8F123
UniRef90 J3CAV2 UniRef90_I7MCH4 UniRef90-H5XUU6 UniRef90_X0TR89 UniRef90_G5AMA5 UniRef90_UPI00036E7E8B UniRef90_Q62651 UniRef90 UPI000371ED8A UniRef90_K9NJZ2 UniRef90_Q15P76 UniRef90_UPI00047B2289 UniRef90 A0LI34 UniRef90_L7FGU0 UniRef90_M1GJI9 UniRef90_UPI00037FC932 UniRef90 J1FL10 UniRef90_UPI0003475E38 UniRef90-UPI00045E5F6C UniRef90_UPI000255F1B6 UniRef90 Q65IX2 UniRef90_-Q12MV3 UniRef90_N6WQ80 UniRef90_K0RZT8 UniRef90_W4MBX5 UniRef90_UPIO0046CDE7B UniRef90 U7FZ76 UniRef90_UPI00024932D5 UniRef90_A7HQS9 UniRef90_D3F4M2 UniRef90_Q1QCS0 UniRef90-UPI00047613D1 UniRef90_W4M9P3 UniRef90_F7UHA5 UniRef90_UPI00036E6F28 UniRef90_H3NXG4 UniRef90_H2ZZE7 UniRef90_UPI000382DBCA UniRef90_UPI000463AC6F
UniRef90_UPI0001FFDD35 UniRef90_UPI0003046F62 UniRef90 K9MEZ4 UniRef90_UPI000371E781 UniRef90_V9KWV0 UniRef90_A1B645 UniRef90_L5KJR5 UniRef90_UPI000380CBAE UniRef90_UPI000440D775 UniRef90_N1MLJ5 UniRef90_Q46W43 UniRef90_UPI00036AE7A0 UniRef90_UPI000333D182 UniRef90_UPI0003B68F52 UniRef90_E3J4C7
UniRef90_F4CT43
UniRef90_Q8ZV32 UniRef90_W5YL51 UniRef90_G6A054 UniRef90_G4HY94 UniRef90_L1JM70
UniRef90_G8MH87 UniRef90_X0RJR6 UniRef90_U7NUR6 UniRef90_A0A059KR32 UniRef90_UPI00039ED038 UniRef90_UPI0003B48D2F UniRef90_C0QBE8 UniRef90_UPI000378AF03 UniRef90_MOHVP4 UniRef90_G4QKD4 UniRef90-A0A017TCN2 UniRef90_I4BRI5 UniRef90_F7QN27 UniRef90-Q2IY80
UniRef90-W0SIB7 UniRef90_LOWG21 UniRef90_V4L327 UniRef90_R4XPV5 UniRef90_Q16CV7 UniRef90_UPI000479BBD5 UniRef90_UPI00037E878D UniRef90_UPI00031CBE49 UniRef90_A8L527
UniRef90_F4GSQ8
UniRef90_N9CXT5
 D L N


 QYILS GQFFDAQKAKDMNVVADVVYPK EK L HEEVVLKYAREV

 ELAFTARKMMADEALSSGLVSRVFPD



 EI WF L CRQYSAKEALDMGLDNTVVPDERLEEETVAWCDEM EI LAF DKP I T A ERALAWGLATRVVADGTALEEAVGMARES $R L A L L A E T V G A E E A K S L G L V T W V V A A D E V D P B V E E L G A R L$
 GLLLTGRRASAAELHRMGLVNEVVPAQQLDEAVDRWVAD

 E V M L T G D R F D V E H M A R $\quad$ GGV I N R V V P P A M L
 $R M I L C G E R I D A A K A E K I G L V E E V V E Q G Q S L S A A D A L A A A V$ D MILTTGRPVQADEALRIGLANRVVPDHESLETAQALAAEII
 DLALTGREVS A E E A Y R L G L V V N R V V P D D R L M D A A E E L A D Q L GLMMTGRMASAVEMERYGLVNAVVPQDELDAEVDRWIADII EVVWFMNH WY T A D E A Y A M N WI N K V V P L L D QVV E E V T L E W C D E I
 EMVMLGDKLKAEDMARLNLVNDVVSNDELDASVLALBTRGL QLL L T G D II L A D K A L E Y GLLV N F V V P R E E L A D NVVYRFARRRL







 D L H L T G RMM DAA E A L R R A G L V $H A L Q L G G L F P P A E A L Q Q V G I V D K V A P K D Q V Q S T A D S V M A Q W$
 E M L L L G R NV S A E E A A Q F GFVVNTVVVPK QNVL Q TAALDWA Q Q I
 E LIF TA R QFD A S E A Y D M GL I N R V L P K D E I D S F V D E Y T E M I
 QLAAF F G D IL L G A D D A L A W W GL I N E V V P A D E L P K V A GA WG R R L E I WY L CRQYDAATA ERWGLVNAVVMAA DLMAEASSWAA DI Y Y L L L G K R M T A E E A L K L G L V D EVVVP P E GL R GR V L E DA R E L
 DWALTGRVFGAAEALEAGLVRSIHPA
 E L T

 $E M L V T G E F I S A E E A R Q R G L V N R V V P A E A L D A E V A R D V D S V I$

 Y HA ML L G E P I D GKK KA A E WGGLVNE SL P L E R L K E R V T E V A K V L $E \square T M T G D Q L S A A E A A E S G I L T D V V A D D E L D E R V D E L V S K L$ $K M M L T G A P V R A K Q A K K Y G I V D D M V P Q S D L D D V A D E M A N K M$


 D MIL T GRPVAADEALQMGL ANRVVDDGQALSAARDLAR QD
 $E V I L T G D M L G A E R A Y G F G L V N R L T E P G G A L D A G A L E L A R A D$

 R MMMLGE K I S GT QA E E WGLVVYK CVVED A D L M T E A R A L A E K L DLVFSGRQVRAAEAEA $\square G G L A D K V V P A D E V H A E A D R M A G R F$

UniRef90 UPI0002E6DC4E UniRef90 UPI00047B99AC UniRef90_UPI0002893A4A UniRef90-A9BUT8 UniRef90_B8FG80 UniRef90_C1D8Q1 UniRef90_D8F123 UniRef90 J3CAV2 UniRef90_17MCH4 UniRef90-H5XUU6 UniRef90_X0TR89 UniRef90_UPI00036E7E8B UniRef90-Q62651 UniRef90_UPI000371ED8A UniRef90_K9NJZ2 UniRef90_Q15P76 UniRef90_UPI00047B2289 UniRef90 A0LI34 UniRef90_L7FGU0 UniRef90_M1GJI9 UniRef90_UPI00037FC932 UniRef90 J1FL10 UniRef90_UPI0003475E38 UniRef90-UPI00045E5F6C UniRef90-UPI000255F1B6 UniRef90 Q65IX2 UniRef90_-Q12MV3 UniRef90-N6WQ80 UniRef90 K0RZT8 UniRef90_W4MBX5 UniRef90_UPI00046CDE7B UniRef90 U7FZ76 UniRef90_UPI00024932D5 UniRef90_A7HQS9 UniRef90_D3F4M2 UniRef90_Q1QCS0 UniRef90-UPI00047613D1 UniRef90_W4M9P3 UniRef90_F7UHA5 UniRef90_UPI00036E6F28 UniRef90_H3NXG4 UniRef90_H2ZZE7 UniRef90_UPI000382DBCA UniRef90_UPI000463AC6F UniRef90_UPI0001FFDD35 UniRef90_UPI0003046F62 UniRef90 K9MEZ4 UniRef90_UPI000371E781 UniRef90_V9KWV0 UniRef90_A1B645 UniRef90_L5KJR5 UniRef90_UPI000380CBAE UniRef90_UPI000440D775 UniRef90_N1MLJ5 UniRef90_Q46W43 UniRef90_UPI00036AE7A0 UniRef90_UPI000333D182 UniRef90_UPI0003B68F52 UniRef90_E3J4C7
UniRef90_F4CT43
UniRef90_Q8ZV32 UniRef90_W5YL51 UniRef90_G6A054 UniRef90_G4HY94 UniRef90_L1JM70 UniRef90_G8MH87 UniRef90_X0RJR6 UniRef90_U7NUR6 UniRef90_B8GW67
UniRef90_A0A059KR32 UniRef90_UPI00039ED038 UniRef90_UPI0003B48D2F UniRef90_C0QBE8 UniRef90_UPI000378AF03 UniRef90_MOHVP4 UniRef90_G4QKD4 UniRef90-A0A017TCN2 UniRef90-I4BRI5 UniRef90_F7QN27 UniRef90_Q2IY80 UniRef90_W0SIB7 UniRef90_LOWG21 UniRef90_V4L327
UniRef90_R4XPV5 UniRef90-Q16CV7 UniRef90_UPI000479BBD5 UniRef90_UPI00037E878D UniRef90_UPI00031CBE49 UniRef90_A8L527
UniRef90_F4GSQ8

LA CAPLSVRADKQMVRAGAGMSPRDAQMLRDPALVIEALLMS VRAAPLAVRAVKEAVLRSVDMPLEQAFATRYVWEERRMRS
 A MSAPVAV QMMKRSI YK GLD WKAREAAEWEAHCQSTT FEM A GK S P LAL R GTK QVLNY S R DHSVAE GLDEQVAHWNAAMLIS A RKS S L A L Q Q A K KAF Y TAA DLDDYSKA FEYMNEAFAR LACAT

 S S K S PVAVQSTKVNLLYARDHSVAEGLSYMASWNMSMLQT SASSSRKA S DGKQAYVRQDEKP L NEAYTECSRDMTENMMT S S K S P VA V Q GS K IN L L Y S R D H S VVDES LD YMAT WN M S MLQ T VNNPPWAVRFGKKAIVAAADSSIMAGGLLLEQDQSAFCCGT AA GPTFAFAQTKK LMREGADRS LAEQQLQAELAAAGLLCGRS
 AR R S L H S F GWAK RLIT DSYSNP F E A HLLEMERTGGVVCCVEH VA GA P V A L A Q TK A L L N E GA D R T L R D A L A GEAARA Q GVVN FA T
 CKNSRQSSMEVTK EMI A RVQEMSSLED GLQYAA EMNA VARGS


 AQFP QQCLRADRRSAYRQWDLELDQALIDEGA ASKGGMAVRMCKEADNVAEETSLAEGLRFERRDFHALFAT
A




 A E S E S A M V T A Y K S LI I D D G Y D S P F G E A L K L AK QSPVAVTACKRLI QKNR』MPINKVLIQERQAFVDLVDS A E A A P L A L R GVLD CVVHAGGECALGEGLVYETAQFGLMFAT


 AGYS R P A T RLA REAVMRAEELSLAEGVAWERRLFHRLFGT

 AANAPLSVRESLK IARAATQEVTEAESILAMMAAVDLLMRS
 A G N A P LT I K A C K Q I V A E V S K D P D D R D L E L C K Q L V D A C F A S
 A D GPT T T L S L I K R QLDD A A G S LT F E Q A L E DEA R S QH I A Y T T
 RE LDP P L A L K E AK K LVVSM MA DAPREVGFDLERKTFGVL RYS AKQAPAAMRATKALLNRPTQADQRDTMDAE GKRFA GL LKKA ASKPASTVVKDGKAAFYQQAEMGLAEAYDYAAEVMVENMLS
 $A A N P P T A L L R M A K R L V R E A A D V S L S T T L D E A A G M Q A M L L C C G$ AK L N P
A S L P GE VLT L I K Y N A R S S A N LT L N E GLRRKERDAFHYT LS L A S I PVEAL S FYK S LIDD GY AVVAFGEGLAALEHERSSAHNRT LA KP RTAADMGK A L FY R Q L E M GQEA A YQSAVVQTMACNMMD

CNVDAGY L QMMKNLI EAQNSNTEEKA LAMERKGFKAF VA H LA KN P VALKA TK D A V R RVG DMAYDEAEDY LVRAQEAAFDN AS K P P LAVVRS $\square K$ QAVN $\square$ TRNVGYDAG GEYASHAWPALA Q S $\square$ S K RVLKK DMMAKALENT
AS GPP LALA GMKRATRDALGGGLEAALNAEKEGQLRCLRS TEAAPLA QRATKEVAWRTATMGWIDSVRFGETMRKVAAVT A ANAPLAVQSAKRMMRVGLSENFNDHVHHVFLQLLPLMRT A A K A P V S V A L I R Q M M WR ML G A D P M E A HK I D S R GIVYERGR S STAPTRGLARTK QA DYASSGNSLEQQLELERSGQQQLGFG


 AD GP TLA Y G S IRRAVAFSASADLTDALANEAELMALTGGS



| UniRef90＿UPIO002E6DC4E |  |
| :---: | :---: |
| UP |  |
| UP100028 | QDAQEGL |
| A9BUT8 |  |
| UniRef90 ${ }^{\text {B8FG}}$ | E |
| UniRef90＿C1D8 |  |
| Ret90＿D8F |  |
|  | A |
| UniRef90－H5XUU6 |  |
| UniR |  |
| UniRef90－G5AN | Q |
| UniRef90－UP100036E7E8B | HD ${ }^{\text {a }}$ |
| UniRef90－Q62651 | QD |
| UniRef90－UP10003 | Q |
|  |  |
| 隹iRef90－Q15P76 |  |
| UniRef90 UPIO0047B2289 |  |
| niR |  |
| UniRef90－LTFGU0 |  |
|  |  |
|  |  |
| UniRef90 J1FL |  |
| UniRef90－UP10003475E |  |
| niRef90 UP1000 |  |
| iRe |  |
| UniRef90－Q651X2 UniRef90 ${ }^{\text {Q12MV3 }}$ 3 |  |
| UniRef90－Q12MV3 |  |
| UniRef90 KorZ78 |  |
| UniRef90 W4MBX5 | EDHKEGVQ |
| UPIO0046CDE7B |  |
| U7FZ76 | EDSLE GVR |
| UniR |  |
| UniRef90－A7HOS9 | D EV |
| UniRef90－D3F4M2 |  |
| UniRet90＿Q1QCso |  |
| UniRet90＿UP100047613L |  |
| UniRet90 W4M |  |
| UniRef90－F7U |  |
| UniRef90－UP100036E6F | EDHKNAVQ |
| 㖪Ref90－H3NX |  |
|  |  |
| UniRef90＿UP1000382DBCA |  |
| UniRef90＿UPI000463AC6F |  |
| UP10001FFDD35 |  |
|  |  |
| UniRef90－K9MEZ4 |  |
| UniRe990－UPIO00371E781 |  |
| ， |  |
|  |  |
|  |  |
| niRef90＿UP1000380CBAE | A |
| UniRef90 UPI000440D775 |  |
| UniRef90＿N1 | E |
| UniRef90－Q46W43 |  |
| UP100036AE |  |
| IRef90＿UP1000333D |  |
| niRef90＿UP10003B68F |  |
| UniRef90 E3J4C |  |
| UniRet90－F4C |  |
| UniRet90＿O8ZV32 |  |
| UniRef90＿W5YL51 |  |
| direigo－G4054 |  |
| UniRet90＿G4HY94 |  |
|  |  |
| UniRet90－G8MH87 |  |
| UniRet90－X07 |  |
| UniRef90－U7NL | PDREEGMR |
| RiRet90＿B8 |  |
|  |  |
| UniRef90＿UP100039ED038 |  |
| niRet90＿UP10003B48D2F |  |
| UniRef90＿C00 |  |
| UniRef90－UPIoo0378AF03 | EGR |
| UniRef90－MOHVP4 | DDYAKA】 |
|  |  |
| UniRee900 A0A017TCN2 |  |
| UniRefag－ABRI5 UniRef90 F70N27 | E |
| UniRef90－FON27 | Q ${ }^{\text {FR }}$ |
| UniRef90 Q2IY | D D |
| UniRef90－LowG21 |  |
| UniRef90－V4L327 | D |
| UniRef90－R4XPV5 | ADAKEGT |
| UniRef90＿116CV7 | R |
| UniRef90－UPI000479BBD5 | SDHRAAV |
| UniRet90＿UP10003 |  |
| ef90 UPI00031CBE49 |  |
| UniRef90－A8L |  |
| Ref90＿F4GSQ8 | GEPQKYM |
| niRef90N9CXT5 | EDAKEG［L］ |



## UniRef90 A0C5H1

 UniRef90-UPI000379E837 UniRef90-K0HXK6 UniRef90_R7WLX3 UniRe99_G8RU65UniRef90_UPIOO04776654 UniRef90_UPIO004704391 UniRef90-U1YBF0 UniRef90-J3GF36 UniRef90_UPI000443C968 UniRef90-A0QRL1 UniRef90_UPI0003B58BEB UniRef90-W3RLN8 UniRef90_UPI00047DBF3A UniRef90_UPI0003681FDA UniRef90-A0A059FCC0 UniRef90_U8MYI5
UniRef90-G4HQQ5
UniRef90-F3L1C7
UniRef90-UP100034B74CA UniRef90_UPI00047A3FCE UniRef90-D5RQX7 UniRef90-A0A059E247 UniRef90-C1GBN8 UniRef90-A0A011TYN7 UniRef90_UPI0003643BFA UniRef90-M7Y155
UniRef90_UPIO0037COA35 UniRef90-W7PZ85 UniRef90-D8JB41 UniRef90_A91BW9 UniRef90-G8PKT2
UniRef90-A0A022LEF6
UniRef90_UPIO00291229F
UniRef90_L7LRY5
UniRef90_UPI00046604A8
UniRef90_L9WLL9
UniRef90-R7CUH8
UniRef90 H5XNZ7
UniRef90-H5XNZ7
UniRef90_UPIOOO3664B68
UniRef90-F7QLG8
UniRef90_UPI0001FFE795
UniRef90-Q122F2
UniRef90-F8GWU3
UniRef90-B9JIE7
UniRef90-F7QPA6
UniRef90-H2TST0
UniRef90_UPI0003087AE3
UniRef90-F7SN45
UniRef90_UPI000401C55C
UniRef90-UPIO00370FFAD
UniRef90_B7RID0
UniRef90-J9S3M4
UniRef90_D2B074
UniRef90-A0A022QQ13
UniRef90-B4RD93
UniRef90-R5Q793
UniRef90_Q47AT2
UniRef90-B2VILO
UniRef90-B9NS51
UniRef90_L7L893
UniRef90 B4WYK3
UniRef90_A0A037ZK68
UniRef90_U2YNT1
UniRef90_UPIO002FB50D5
UniRef90_S3C177
UniRef90-A0A023XS09
UniRef90_UPIO00382848A
UniRef90_Q949D9
UniRef90-M7TDZ9
UniRef90-W9XB20
UniRef90-K2LJK1
UniRef90_L9WLX1
UniRef90_14BBX8
UniRef90-B8MMM8
UniRef90-S3JQS6
UniRef90_UPI00037F023F
UniRef90-Q218F2
UniRef90-N1MA00
UniRef90_UPIO0046E66C3
UniRef90_UPI0003B77FD2
UniRef90_F4LC42
UniRef90_Q0V6R7
UniRef90_G9MZV5
UniRef90-A1C6B3
UniRef90-G7WCX2
UniRef90_UPIO0029A72D7
UniRef90-B7RU41
UniRef90_F1DGH1
UniRef90_Q5YVVK2
 GLFHNRDCRIVVMKGAG RAFCAGLDIKARGENPFGGGFG G AANP GVRAVVMCGAGGRGAFMAGGGDLKARGENPGGGGFG
 YASAEPDVRVALLTGAGEGTFCAGMDVKKAMGQQSPGDSGG SASAEPDVR $K V G K D P D V R C V V I T G A G K A F N A G Q D L A E V T E G D V D F G E F$ DADADPSVRVVIVTGAGRGMFCAGADTREFKVLTPDNVER QI ENDPSVHVVVVTGAGEKAFCTGADMSGVGKTGVDYWAG DLDQDPEIRAVVLTGRGGCFSSGDDLTGMVPELPERLLED QATDDSTVRVIVLTGAGRGFCAGADMKRLSNDSSAGRID
 KAA DEARCTVITGNGRGFCSGANLGKVSGPSPDAGRP
 NAAGDNQVAAVVVSGNG RCFCAGADLKLVNALAEGTFDD GLNRDRQNRVVILTGEGRG FCSGADLKSEDSQAGSYVYK KLRYDDNVAVLVFTGAGEAFCAGMDLKEFFFETKDSPAR ALTADDAVRVIVLTGAGE HFSAGADIA A LELLGTGQLPT K K N TLATHPNLLAIILTGEGSKSFVGGADIAEMASDTPAEARE AFRDDPELRVAVRTAGEKFFSAGWDLKAAAGGDAVDGDY QFRQDNNIVRVVVLEGAGGKSFVSGADIXSKFDKETKEAILS ELDSSPELSVAVLTGAGGNACAGMDLKAFAAGEVPS DPG A A ADPAVRCVVVGGGNRGFCAGHDLKEMANPDHAYYQT RANADPAVRVLLITGAGKAFCAGGDLRHMAEREAQVQAR EAAANPEVRVVLL GAEGKVFCAGHDLKELADGGKAFYQQ GLGDDASCGVVVVTGSGPALSAGHEIGEMIDRTDDEERE ALDAHPGVRVIVLRAQGE HFSSGGDI RGFLEASPEHVSK QLQNDQNCRVVIVSGSGRRIFTAGLDLASMAGRKARHLHG ALGADPAVRVVILTAAGPVFSAGHNLSEDIDRTDEEEQE EVLADDSVRAI ALLGEGP VFCAGMDLEMMRDRGADAGDE
 DAN IDTSVGAVILTGAG K $\square$ R S G G GNVVEMANRDGEQRQA PLQEDTTLRCVVIEAQGRAFCAGHDLKEMRSKPDNYYRE SVAADSGNRVVVIAGEGARAFMAGGDISAFEGPAEERVPT
 RVRDEETVRVLLLTGAG RAFSSGADLTSGGGPSKDSGSK DCQADPAVRAIVI SGS ERGFAAGADIGSLAAASPDEL AADADDNVRAIIVTGAG RAFCAGADLSEGGKTFDRAARA ElWWANNDVKSAVLDSKKPGCFDAGADIVNMDQAADSEEDTK DI A QNEQVRCVVLAA NGKAFCAGHDLKQMANPDKAYYQA RVENEEDVKVVILAAAG KAFCAGADLAYMQDFTPEENDE SASNDHSIKVII I AASG NVFCAGHDLKEDQDGGDLYFKG RAGDDPAVRVIILAANGPAFCAGHDLKEMADGGKAYFAK WALAEESVRVIVLTGTGP SLASDDSVRVIILSGSG GLYNDPSTRIVVMRGAG QLDKDDSVRAIVLKG GDSAFCAGLDIKEAQNAPFGGGFG WVDSTPQARVAI LSGAG KNFCAGDDLAMDAGRSREALRR EIDDNPADRVAILTASGDRAFCVGADVNVWSSMQPDDMRK RLREDGSIRVVILSGAGKAFCAGHDLKQMTQGRQAYFQD
 AVAKDETVRVLVLRGAGGKAFVAGADIAEYQGDKRAAFIA

 TVSRDKA KALVLTGRG KSATDSRVRAVVITGN DRAFAAGADVKEMAALNAVGVLQ KVKADATANVVLLASSVPKVFCAGADLK
ELSNDDTVRTIVLTG KGKSFCAGADLNWMKSMSDEENDK EVSADPSVRCVVLTGAGERAFCPGADI SEFARASAAQAAE WLDDEPSLLVAVLTGAGEKAFSTGADLKEWQEKASARGAN
 ELESAARTRLAAI TGAG KAFVAGADI SEMRGMSVAAAKV Y FDKDES LWVGIITGSG RAFCTGADLREWNEMNKAGVVS $K$ LRDNPSVQGLVFDSGKPDNF DAGADINMDAGKTAQEAQE AVKPGRD RVLVLTGAGTD FCAGADL G GPATGDHHLV AIEDDKAVRCLVLTGAG RAFCTGANLQGRDNKPGKTGAA D $\square$ AQNAEIAVLVIDAEGP VFSSGHNLKEMSDRRQDTMLE KAAEDSEVRVVVIASTGDVFSAGHDLKEMADGGVAFFEE ELDASDDLRIGGLTGAGGS FCAGMDLKGFDRGERPSDEG

 AAAEDAQVEVILLTG GPQCFCAGNDLKDFLDNPP TA VVGNNDDI RALVIAGRGKNFCVGDDLGSFAASSCDQQLT

UniRef90 A0C5H1 UniRef90-UPIOOO379E837 UniRef90-KOHXK6 UniRef90-R7WLX3 UniRef90_G8RU65 UniRef90-UPIOOO4776654 UniRef90-UPIIOOO4704391 UniRef90_U1YBF0 UniRef90-J3GF36 UniRef90_UPIO00443C968 UniRef90-A0QRL1 UniRef90-UPIO003B58BEB UniRef90-W3RLN8 UniRef90-UPIO0047DBF3A UniRef90-UPIO003681FDA UniRef90-A0A059FCC0 UniRef90_U8MY15
UniRef90-G4HQQ5 UniRef90-F3L1C7 UniRef90-UP100034B74CA UniRef90-UP100047A3FCE UniRef90-D5RQX7 UniRef90_A0A059E247 UniRef90-C1GBN8 UniRef90-A0A011TYN7 UniRef90-UPI0003643BFA UniRef90-M7Y155
UniRef90-UPIO0037COA35 UniRef90-W7PZ85 UniRef90-D8JB41 UniRef90-A9IBW9
UniRef90 G8PKT2 UniRef90-A0A022LEF6 UniRef90-UPIOO0291229F UniRef90-L7LRY5 UniRef90_UPIO0046604A8 UniRef90 LOWWLL9 UniRef90-R7CUH8 8
UniRef90 H5XNZ7 UniRef90-AOPRU5 UniRef90-UPIOOO3664B68 UniRef90-F7QLG8 UniRef90-UP10001 FFE795 UniRef90-Q122F2 UniRef90-F8GWU3
UniRef90
-UniRef90-B9JIE7
UniRef90 F7QPA6 UniRet90-H2TSTO UniRef90-UPIOOO3087AE3 UniRef90-F7SN45 UniRef90 UPIO00401C55C UniRef90-UPIOOO370FFAD
UniRef90-B7RID0 UniRef90-J9s3M4 UniRef90-D2B074 UniRef90-A0AO22QQ13 UniRef90-B4RD93 UniRef90-R5Q793 UniRef90-Q47AT2
UniRef90 B2VILO UniRef90-B9NS51 UniRef90_L7L893 UniRef90-B4WYK3 UniRef90-A0A037ZK68 UniRef90-U2YNT1 UniRef90-UP10002FB50D5 UniRef90-s3C177 UniRef90-A0A023XS09 UniRef90-UP1000382848A UniRef90-O949D9
UniRef90 M7TDZ9 UniRef90-K2JIM4 UniRef90-W9XB20 UniReffo-K2LJK1 UniRef90-L9WLX1
UniRef90 $14 B B \times 8$ UniRef90 B8MMM8 UniRef90 S3JQS6 UniRef90_UPIo0037F023F UniRef90 O218F2 UniRef90-N1MA00 UniRef90-UPIO0046E66C3 UniRef90-UP10003B77FD2 UniRef90-F4LC42
UniRef90-Q0V6R7 UniRef90_G9MZV5 UniRef90-A1C6B3
UniRef90-G7WCX2 UniRef90-UP100029A72D7 UniRef90-B7RU41
 8

90
100
110
120
GDTFQNIIFQVDESIIRKPLIVVGINGVALGGG|LELLALNGDII FQGYLADVYlKMRRCPQPVISLVQGAACGGGFAFALASDIV
 FDPTRDDALLKGRRLTKPLIAAVEGPAAAGGTEILQGTDI RIPNFHWKGLLREDLPKPVICAVEGYAVAGGTELLVGTDL WTGEVERMHSLMRSLPQPVIAAVNGYAIGGGNVLQVVCDM RAALTTELQGLVKQMSKPVIAAVNGYAMGGGSGLALSCDL YWKALQELWLRLYQTHLVVIAAINGASPAGGCLLALSCDY LEPNGFAGLSLRETLDVPVIARVNGYALGGGMETVLGADL KIKGLQEADTCDERCRKPVIAAVHGHCIGGGLDMVTACDI ERKDFQRANXYFPAVPKPLIAAI NGPCAGLGLCYALFCDM RRVAGFAAYAA自ERLPQPAI AVVHGAAFGSGCEDAGACDF RLRADPDLMLRHHRPRKPVI LDTHYNPMIVAlREHPHPVI
 FQEYMADMCRA VA
RQQRTHHAV
EDSKSTDMARALHAE Y FINRVHDACKS R RCPVPVI GVGGFGGLQELRDLNKPVVI

LIFRNCSKLMQSVVSLPVPV

L A WNVA $\qquad$

|  | GNLLGEVIETIIDTARVPT |  |
| :---: | :---: | :---: |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  | NANKLGEEDIEHMKKASKITVV

## 




$$
\begin{aligned}
& \text { VSMCSGVMQAVVLCPKPV } \\
& \text { LGNHAQRVSGDWGRIPAPVV } \\
& \text { VTASFPEIMMNLIWESPKPVV }
\end{aligned}
$$

$\qquad$ EGLYGQSAGERTSACRKPVI LFDRCAKMMMSLQSLRQPVI TPANGFGGLTSRRDKPKPI YQMNSRRVFDKLEALGKPV
 VAQGVHHVQSFLLGLPKPT
DARVAH WARAAFKPL DSRLLDDLYETTYSCSKPVI YGKLLDGAMEAI ADCPHPVV PGAGPGDVPGAVRVGKKPVI LVDLCEQVPIRIYEADVPTVAKLEGAVAGFGTSLMNACDL YSELGHRIFSRMEASPVDFIAKIDGYCVGAGVGLALSCDL SMDAPGLAGIPRRSGRKPIIAAVNGICMGGGFEMIANCDM LARQGQQLMAEDAAGPDPVAAAHGACLGGGLEMALACBS DMQIITDMCIA YRLPIPTVARVDGVAVGAGMNLALACDF
 RAQAAQRVIRA: WTGGKPVIAAVEGAAFGAGVSGAMACDR TFAKCSEMMQA RGFGGLTA
$P$ L
SGFGGR MPPSGFGGLSR MPEGGFGGLSR MPEGGFGGLSRGKKPIL SGEGFQGLLQTMRTMPKPVICAVNGLCAGGGGEMVINADL



## UniRef90 A0C5H1 UniRef90-UPIOOO379E837 UniRef90-KоНXK6 UniRef90 R7WLX3 UniRef90_UPIOOO4776654 UniRef90-UPIOOO4704391 UniRef90_U1YBF0 UniRef90-J3GF36 UniRef90_UPIOOO443C968 UniRef90-A0QRL1 UniRef90-UPIO003B58BEB UniRef90-W3RLN8 UniRef90-UP100047DBF3A UniRef90-UPI0003681FDA UniRef90-A0A059FCC0 UniRef90-U8MY15 <br> UniRef90-G4HQQ5 UniRef90 F3L1C7

UniRef90-UP100034B74CA UniRef90-UP100047A3FCE UniRef90_D5RQX7 UniRef90_A0A059E247 UniRef90-C1GBN8 UniRef90-A0A011TYN7 UniRef90-UPIO003643BFA UniRef90_M7Y155
UniRef90-UPIO0037COA35 UniRef90-W7PZ85 UniRef90_-D8JB41 UniRet90-A9IBW9 UniRef90-G8PKT2 UniRef90 A0A022LEF6 UniRef90 UPIO00291229F
UniRef90 UniRef90_UPI00046604A8 UniRef90_L9WLLL9 UniRef90-R7CUH8

UniRef90 H5XNZ7 UniRef90-AOPRU5 UniRef90_UPIO003664B68 UniRef90-F7QLG8 UniRef90-UPIO001FFE795 UniRef90_Q122F2 | UniRef90-F8GWU3 |
| :--- |
| UniRef90 | UniRef90-F7QPA6 UniRef90-H2TSTO UniRef90-UPIOOO3087AE3 UniRef90-F7SN45 UniRef90 UPIOOO401C55C

UniRef90-UPIOOO370FFAD UniRef90-UPIOOO370FFAD
UniRef90-B7RID0 UniRef90_J953M4 UniRef90-D2B074 UniRef9-AOAO22OQ13 UniRef90-B4RD93 UniRef90-R5Q793 UniRef90_Q47AT2
UniRef90-B9NS51
UniRef90_L7L893

UniRef90-B4WYK3 UniRef90-A0A037ZK68 UniRef90_U2YNT1 UniRef90 UPIO002FB50D5 UniRef90-s3C177 UniRef90-UPIOOO382848A UniRef90-Q949D9 UniRef90-M7TDZ9 UniRef90-W9XB20 | UniRef90-K2LJK1 |
| :--- |
| UniRef90 |
| 1 L9WLX1 | UniRef90-L9WLX1

UniRef90 $14 \mathrm{BB} \times 8$ UniRef90 B8MMM8 UniR Ref90-S3JOS6 UniRef90-UPI00037F023F UniRef90_N1MA00 UniRef90-UPIO0046E66C3 UniRef90 UPIO003B77FD2 UniRef90-F4LC42
UniRef90-Q0V6R7 UniRef90-G9MZV5 UniRef90-A1C6B3
UniRef90-G7WCX2 UniRef90-UPIOOO29A72D7 UniRefoo-B7RU41 UniRef90_F1DGH1
UniRef9__Q5YVVK
$\bar{L} V \mid A T E E C K$
130
G|LIPELKLL $\stackrel{140}{1}$
150
160 RIGGESMKMNAAF KLGLACDMGVSYF VIAAEGTRFNLAY NLGTSCDVGASWALPRSVGVRQAL RI AGDNAKL GVPETLLGLIPGGGGTQRLARLIGPSKAK RVAGESAKF GVSEAKWSLYPMGGSAVRLVRQ|PYTVAC RVVAESATLGGLFEAKALFPMGGSAVRLPRQIPYCHAM RLVSEKASFSNVF A AVGAESARF GGYPEVKHGGVAPADVMAGLVEHVGRKAAF VIAADHATF GLTEPRVGRVPDDGGMVKLRERIPHTQAM RLCAADASFS LKEAALGFVADVGVLQRLPLIVGQGDTR RFAAEEASFTTAF ARRGLIAEHGMSWTLPRLVGHSAAA LLAAQGTRFC YPEVGWGTI GATQRLPRAVGARMAK IVAGKSAYFDQ VIAAKSARF $\vee \vee \square G Q S A$
RIASEKSKY AVAANATF RIAGTGARFS G V LASEAKFADSYLRGIPDGGGMYFLPRRVGLSRAK LLASEHAKFADGTHARVGVVPGWGLSQKLSRLIGISSAK IYASGHSSF ALPEIRAGTLADA ATIKLPKRMPYHVAM RICSEKSKF AI CAESARF VVASKTAKF A AAQSAS RIAAPDA RIAAESARFSVS ALALDTATFCT
AVAVDTARF RIASETARY RYCTSDAYFQ A AADTAAF RVDSPDAKY AL RRIGGVPDGGSTWLLARNVGRVRAM VICSDDAKF AMPAAKLSLGYP
 AI SADTAKF AVSGVNVGLFCSTPAVP SRNVPTKQAF A A AADNADFTDAYSGKLGTSPDGSSSWTLPRLVGLRKAM RIASERAQFAESF LRLGLVSGDGGAWFLTRLVGPSKAM VLAAREAYFLQAF VNGGLPDAGTTWLPRQIGRARAQ VVADRTA RปATKSKKTVLGTPEVMLGLLPGAGGTQRLPKMVGLPSAF
 A A SDVSK A 1 AAETAQFSTATPGVN|GGLFCSTPMVA LSRNVHKKNAM RYSTPDARLS $\square$ MMEVKGGLVPDMGMTQTLPRLVSADVAK AIAPDTASF AFTEVRLGVVPAMISVTVL RRLDPRAAA LVASKEAKFMDATHARFG|FPSWGLSQKLSRMLGPGRAR VIAADNARF GFPEMTLGVLPQMGGVSMLSRAVGRARAA RYAAADADFSDAKEDDLGMVADVGTLQRLPRLIGDGMAR
 IVADPAATF GLPEVKVGLVAAAGGLVRLPRAVPEALAR

VVAAAAAKF G
vMGTERSKFTWSY

TISVPGLKF

RICQESSRF VIAANTATF | ALAAEETVF |
| :--- |
| QLASDD | RIFADSAQ VLASSTA RICTDSPKTQLGLPE VVATSRSRFSEII ILCARSAYFLQAF

VIASEDAVLSTAF $V I A S E D A V L S T A F T$
$A F A S K S S R F A T P$ AlCTDTATFCT VVAADNAQF $\checkmark V A A P G A T F$ VIASATAKFC $V \vee A S A B P A V K R G G V A P F A G A M P R L V R T I G K Q R A M$ TVVASANA IF GQA GP R V G SF DA GYGSAF LARVVGEKKAR $V L V S R S A K L R$ L $V$ FVPLGLCPEFGSSLLLPRLLGHARAA $R L A A E D A S F \quad G V R E T K\|G\| V A D V G T L Q R L P G V V G D G H V A$


## UniRef90 A0C5H1

 UniRef90-UPIOOO379E837 UniRef90-K0HXK6 UniRef90-R7WLX3 UniRef90-UPI0004776654 UniRef90_UPIO004704391 UniRef90-U1YBF0 UniRef90-J3GF36 UniRef90_UPI000443C968 UniRef90-A0QRL1 UniRef90_UPI0003B58BEB UniRef90-W3RLN8 UniRef90_UPI00047DBF3A UniRef90_UPI0003681FDA UniRef90-A0A059FCC0 UniRef90_U8MYI5 UniRef90-G4HQQ5 UniRef90-F3L1C7 UniRef90_UPI00034B74CA UniRef90_UPI00047A3FCE UniRef90-D5RQX7 UniRef90-A0A059E247 UniRef90-C1GBN8 UniRef90-A0A011TYN7 UniRef90_UPI0003643BFA UniRef90-M7Y155UniRef90_UPI00037C0A35 UniRef90-W7PZ85 UniRef90-D8JB41 UniRef90_A91BW9
UniRef90 G8PKT2 UniRef90-A0A022LEF6 UniRef90_UPIO00291229F UniRef90_L7LRY5 UniRef90_UPI00046604A8 UniRef90_L9WLL9 UniRef90-R7CUH8
UniRef90 H5XNZ7 UniRef90-H5XNZ7 UniRef90_UPIOOO3664B68 UniRef90-F7QLG8 UniRef90-UPI0001FFE795 UniRef90_Q122F2 UniRef90-F8GWU3 UniRef90-B9JIE7 UniRef90-F7QPA6 UniRef90-H2TST0 UniRef90_UPI0003087AE3 UniRef90-F7SN45 UniRef90_UPIO00401C55C UniRef90_UPIO00370FFAD UniRef90-B7RIDO UniRef90_J9S3M4 UniRef90_D2B074 UniRef90-A0A022QQ13 UniRef90-B4RD93 UniRef90_R5Q793 UniRef90_Q47AT2 UniRef90-B2VILO UniRef90-B9NS51 UniRef90_L7L893 UniRef90-B4WYK3 UniRef90_A0A037ZK68 UniRef90_U2YNT1 UniRef90_UPIO002FB50D5 UniRef90_S3C177 UniRef90_A0A023XS09 UniRef90_UPIO00382848A UniRef90-Q949D9
UniRef90_M7TDZ9 UniRef90-K2JIM4 UniRef90-W9XB20 UniRef90-K2LJK1 UniRef90-L9WLX1 UniRef90-B8MMM8 UniRef90-S3JQS6 UniRef90-UPI00037F023F UniRef90_Q218F2 UniRef90-N1MA00 UniRef90_UPI00046E66C3 UniRef90_UPI0003B77FD2 UniRef90_F4LC42 UniRef90-Q0V6R7
UniRef90 G9MZV5 UniRef90-A1C6B3 UniRef90-G7WCX2 UniRef90_UPIO0029A72D7 UniRef90_B7RU41 UniRef90_F1DGH1
UniRef90_Q5YVK2

K Y اLTT S D $\prod^{170}$ 180

190
200 KYLTSDSIISAQEAYQRG|LVINSVVKKEQ|L|REECIN|I|ARK|I| ELMMT GRFIHADRALAVGLVNQIVPDAELDSAGEVFVEEM E ALLGEAFTADDALRLGLVNRVVPGAELGSVTAALAQRLD DMVFTGRHVRADEALAI GLVDKVVAPDDVYEAARAWAGQF DILLTGRHLTAAEAKEIGLI GYVVPDGSALDKALEDAEVI DLLLTGRAVTAAEALAMGLVNRVVPDGQALAVARELADDV EI WMRCKTYSAHEALDMGLI NAVVPADRLMEEAREWANDV ELADT GEKISADEAYRIGLVNKVFPAVNFETEVMEYASRLL
 S LLLTGRKASAREMADMGLVNEVVPMAELDAAVDRWVEQU ELAYSARTIDGQRAEKDLLVNRVYEDEALLEGANALALE



 E L M L T G QVI GA E D A K A L G L V S RIVVA P DA LI D E A L V T A R A I

 ELSFTGNFLDAHTAERWGLVNRVYEADELVPAAMKLAHDM LLLLLGDNIGAREADEWGLVEKVVEAPEEVDAAVAKWVESL
 DMLVSGEFDDADTADEWGLLSGVTAD


 $H M V M R A K R V T G Q Q A Y D W G F V T E C V P D A E L E S T V D A C V D E E L$
$E L V F T A R K M E A A E A Y Q A G L V S R V F D A Q M M A A A D D$ QMLLTTGETDDAATAAD WGLI NFAVPPA E QLDDTAAAR GLLAA Q I ELVLSGEFIDPAEAKQDGLVNE CDDPERVDERARELADEL DLFVSGRQVKADEALAIGLVKEVVPKEKLDETVHAFAKKL


 EMTLTTSEFLDAESALDRHGUVSKVVADAQLDQVVAEMAER口

 D M MLLT GRNIRA DKAKKMGLVNELVDP


 ELLMLTGRFI GAQRALATGLVSEVVPDDRLEAAAEPYVDEM

Y LAA LT GTRMMDAKRA F ETGGLVVQEDVSAA









 Y L S L T S E RI GA D D A LIR I G L A A K V S P L A N LI A D A EA V A L K V
 $D M \operatorname{L}$







 E L L

## UniRef90 A0C5H1 UniRef90_UPI000379E837 UniRef90_KOHXK6 UniRef90_R7WLX3 UniRef90_UPI0004776654 UniRef90_UPI0004704391 UniRef90_U1YBF0

 UniRef90_J3GF36 UniRef90_UPI000443C968 UniRef90-A0QRL1 UniRef90_UPI0003B58BEB UniRef90_W3RLN8 UniRef90_UPI00047DBF3A UniRef90_UPI0003681FDA UniRef90_A0A059FCC0 UniRef90_U8MYI5UniRef90_G4HQQ5
UniRef90_F3L1C7
UniRef90_UPI00034B74CA UniRef90_UPI00047A3FCE UniRef90_D5RQX7
UniRef90_A0A059E247 UniRef90_C1GBN8 UniRef90_A0A011TYN7 UniRef90_UPI0003643BFA UniRef90_M7Y155
UniRef90_UPIO0037C0A35 UniRef90_W7PZ85 UniRef90_D8JB41 UniRef90_A9IBW9
UniRef90 G8PKT2 UniRef90-A0A022LEF6 UniRef90_UPI000291229F UniRef90_L7LRY5 UniRef90_UPI00046604A8 UniRef90_L9WLL9 UniRef90-R7CUH8 UniRef90_H5XNZ7 UniRef90-A0PRU5 UniRef90_UPI0003664B68 UniRef90_F7QLG8 UniRef90_UPI0001FFE795 UniRef90_Q122F2 UniRef90_F8GWU3
UniRef90_B9JIE7
UniRef90-F7QPA6
UniRef90_H2TST0 UniRef90_UPI0003087AE3 UniRef90_F7SN45 UniRef90_UPI000401C55C UniRef90_UPI000370FFAD UniRef90-B7RID0
UniRef90_J9S3M4
UniRef90_D2B074
UniRef90_A0A022QQ13
UniRef90_B4RD93 UniRef90_R5Q793 UniRef90_Q47AT2 UniRef90-B2VILO UniRef90_L7L893 UniRef90_B4WYK3 UniRef90_A0A037ZK68 UniRef90_U2YNT1 UniRef90_UPI0002FB50D5 UniRef90_S3C177
UniRef90_A0A023XS09
UniRef90_UPI000382848A
UniRef90_Q949D9
UniRef90_M7TDZ9
UniRef90_K2JIM4
UniRef90_W9XB20
UniRef90_K2LJK1
UniRef90_L9WLX1
UniRef90_L9WLX1
UniRef90_14BBX8
UniRef90-B8MMM8
UniRef90_S3JQS6
UniRef90_UPI00037F023F
UniRef90_Q218F2
UniRef90_N1MA00
UniRef90_UPI00046E66C3
UniRef90_UPI0003B77FD2
UniRef90_F4LC42
UniRef90-Q0V6R7
UniRef90_G9MZV5
UniRef90_A1C6B3
UniRef90_G7WCX2
UniRef90_UPI00029A72D7
UniRef90-B7RU41
UniRef90_F1DGH1
UniRef90_Q5YVK2

210
220
230
240
SEK S L Y T|L DAA K A A|I |K N A EEMP|I IS QANKVERQDFNSLLNNT $L A T S P M G L R L T K E G L N M A V D A S L E A A M A G E N R N Q V L C A G T$
 $N N N G P L A V Q A I L K T \| R E T E G M H E N D A F K P D T Q N G \square P V E L D$ $A A S G P$ L $A V Q A D L R T Y R D T L G G P E P E A L K V S D D L G W P V I G S$ LA L S P T S L K M I K Y S L N A D SEH
A A L P T T GMG L I K R A MY Q G LTTMS LEE E T LE YEA $\square S Q E \square A G N T$

 S Q N S P L A V Q A SK DV L N F G DG K S V D E G L N Y V A S I S A N I I P S
 NGCGPLAVEAVIKASVYDTAEMTETDGLAAELARGWPVFDT STGPTV AL A GMRKLI WDATETNLGEALHQERLAAQRTAGRT
 A QNSEY GVVMTRKGIRRTNQDAPLRHAMELENRQQVLGYFS A QK D L T A L R A T K D G Y R Y A LDE M S WD A S I N Y T LA K QV E L
A S R S QLT V QAAKEVVNA IA S GQEPAALAALADWSAQAMAG SHGAPAALALSKTILDQSFELSVEQVFAMGSQAQADCYSS CGSQPDLLKQYKALIDDGYGMNFTAALKEEVKRS\|AHSET


 TANGP LAAVATTK EVIVVKSRGWSEQEMWEKQMQLIIDPVFGS LRKSP QAL GLLAKRVVVNAARQMSLADAYDFA GNVAA ENMM AR HPSAAALRMHKRLLDRDAEQHTVATHGDVVAAFQA DAHAS GSKS A LTVVKTGKEAFY K QADMPDAEA YA YTS KVMA ENMLA A D A S P LTLE DGK QAFYR Q DDLPQDEAYRDMAETMATNAMT R R F S P L A QRTAKKLI NDNEDAP LIKVAIEMEGHCYSRRRSS


 $V A K S N A A V R Y G K R M F Y Q Q L V M P L A E A Y A Y A S E V M A Q N M M E$
 ASSPPTALRMAKQLVRASASSDLSSALELAAASMQABLLCGG A R G P T R A YA L I R Q GI RY S LD H T L T E T L A A E R N S Q R L A GVT
 V N K
$L G K N P V A L K A T K D A M R R V R E M T Y D N A E D Y L L R A Q E A A F D G$ CAKSAVAVRTGKAMFARQLAMPLEEAYAFAGETMACNMLA VKNSANSMRATKLLLRNIHREEREQKLLLAAKMNAESRSH A S K S S R T I A T GK K A FY K Q A E M S L A D A YKY T S EVVMKE N L LR A A K S S M T L A T G K R A F Y E Q R D M P L A E A Y D Y A S Q V M V D N M L A
 I K N N Q D L V L R Y K S V I N D G L K L D L G H A L A L E K E R A H E Y Y $L T T S P M G L R L T K E G L N A V D A P L E A A M A D E N R N Q V L C A R T$
 A AKS P LAT RGLLK EVMNYSRE HSVSD GLNYVATWNAAMLLS
 LA A S P T S V R E S $\square$ AV M A E S D G Q P TVVTAVVRES LSVLD RVLVS AAFPQRCLRADRLSAYQQWDKDQETALRDEGA
L K $\square$ A P L A QAEMK RLLALLQGPDAPAETAKSYEQEVLFRLYST AA GPTRGLVATKMALRESFGRSLDEALAMERDLMRELGRS
 ANNSPDAVIVSREGMRMGWEAPELDAVNLLERGMYSSIDGG A Q GSPTALLALGKK ILNETFEHSAHDUFSLGGSQAQA ICYTS A A K A P $\operatorname{D}$ A L Q Q A K D V L A R A Q E T H L S G GLLA Y E R K A F C L L A A T

 AENSPDSSVICTRAAGLRQGWEASVVEATADTRKEWAE LQK G A T GP R D A I A R T K A LLL N A A P E A D L Q T Q L K A EA K S FA D C A T S
 CK N SPD AL I I ARQG ARMSWE GSVE EAVA LAA A ESYPS L VA G
 AN GP T V A L A L I R K L Y W D S A E N CY Y Q Q Q L D L E CRRS QRIA G A T



 A A NSPDAVIVSREGVVKLGWE G GAEEATRLLIDDTWSRLNEG
 QALP QDAL R DS K R L L K D A H R QELEVT VQRE GLL F I E R L H T A A NAPLAVRGTKFILQQQEDMTTEQSLLLNGMWMMTSLNS


| UniRef90_A0C5H1 | K A AK E GlV |
| :---: | :---: |
| UniRef90-UPI000379E837 | E DVK |
| UniRef90-K0HXK6 | EDFRAGV |
| UniRef90-R7WLX3 | K DRE |
| UniRef90-G8RU65 | E D |
| UniRef90_UPI0004776654 | EDAKEGTR |
| UniRef90-UPI0004704391 |  |
| UniRef90-U1YBF0 | A D H K E G V Q |
| UniRef90_J3G |  |
| UniRef90_UPI000443C968 | D S $\square$ QK A L QV |
| UniRef90-A0QRL1 | P NATEGV |
| UniRef90_UPI0003B58BEB | N D L ${ }^{\text {a }}$ M |
| UniRef90-W3RLN8 | EDFKEGV |
| UniRef90-UPI00047DBF3A | T DWKGAL |
| UniRef90-UPI0003681FDA | A DAKE |
| UniRef90_A0A059FCC0 | A DF GEGV |
| UniRef90-U8MYI5 | HDAGEG |
| UniRef90-G4HQQ5 | T D A |
| UniRef90-F3L1C7 | GCMEEAM |
| UniRef90_UPI00034B74CA |  |
| UniRef90-UPI00047A3FCE | P D L A E G |
| UniRef90-D5RQX7 | REHQEAV |
| UniRef90-A0A059E247 | A D A VE |
| UniRef90_C1GBN8 | D G |
| UniRef90-A0A011TYN7 | E D H E |
| UniRef90_UPI0003643BFA | E D Y K |
| UniRef90-M7Y155 | A DAQEG■ |
| UniRef90_UPI00037C0A35 | K DAQEG |
| UniRef90-W7PZ85 | PDASEGI |
| UniRef90-D8JB41 | D DHREGI |
| UniRef90_A9IBW9 | E D HLRAV |
| UniRef90_G8PKT2 | NDAEEG |
| UniRef90-A0A022LEF6 | CDAQEGM |
| UniRef90_UPIO00291229F | A D F K E GV]E |
| UniRef90-L7LRY5 |  |
| UniRef90-UPI00046604A8 | CDAQEGM |
| UniRef90-L9WLL9 | HDYTEGF |
| UniRef90-R7CUH8 | EDFKEG |
| UniRef90-H5XNZ7 | P EV |
| UniRef90-AOPRU5 | P EHQQRT |
| UniRef90_UPI0003664B68 | D DVA E Gl |
| UniRef90-F7QLG8 | ADFAEGV |
| UniRef90-UPI0001FFE795 | E E A |
| UniRef90_Q122F2 | E E HKG |
| UniRef90-F8GWU3 | QDFAEGV |
| UniRef90-B9JIE7 | DDRAEGM |
| UniRef90-F7QPA6 | A D V R E GV |
| UniRef90-H2TST0 |  |
| UniRef90_UPI0003087AE3 | E GRKEGL |
| UniRef90_F7SN45 | D DVAEG |
| UniRef90-UPI000401C55C | QDCKDGI |
| UniRef90-UPI000370FFAD | S DAKEGV |
| UniRef90_B7RID0 | Y DAQEG |
| UniRef90-J9S3M4 | P NQMEAV |
| UniRef90_D2B074 | AEGQEGI |
| UniRef90 A0A022QQ13 |  |
| UniRef90-B4RD93 | R D F A E GRR |
| UniRef90-R5Q793 | A DAREGL |
| UniRef90-Q47AT2 | A DLL E S I |
| UniRef90-B2VILO | A D AREGL |
| UniRef90-B9NS51 | R D |
| UniRef90-L7L893 | S D TREGI |
| UniRef90_B4WYK3 |  |
| UniRef90-A0A037ZK68 | A DGQEG |
| UniRef90-U2YNT1 | A D PREGV |
| UniRef90-UPI0002FB50D5 | T DMRDAM |
| UniRef90-S3C177 | ENMKEGV |
| UniRef90-A0A023XS | AEHRDAV |
| UniRef90_UPI000382848A | D D R DEGI |
| UniRef90-Q949D9 | QDRDEG |
| UniRef90-M7TDZ9 | E EGQEGI |
| UniRef90_K2JIM4 | Q F Q T G |
| UniRef90-W9XB20 | D N ILE G LR |
| UniRef90-K2LJK1 | A DFREGV |
| UniRef90-L9WLX1 | A DHREGV |
| UniRef90-14BBX8 | AEAHEG |
| UniRef90-B8MMM8 | P NFAEGIE |
| UniRef90-S3JQS6 | PESAA |
| UniRef90-UPI00037F023F | D D |
| UniRef90-Q218F2 | A DFKEGV |
| UniRef90-N1MA00 | E DFAEGV |
| UniRef90-UPI00046E66C3 | HDAAEGI |
| UniRef90-UPI0003B77FD2 | A DAEEGI |
| UniRef90-F4LC42 | A DAREG |
| UniRef90_Q0V6R7 | ENALDEGLQ |
| UniRef90-G9MZV5 | DNIKE GLK |
| UniRef90-A1C6B3 | ENIKEG |
| UniRef90-G7WCX2 | DEAVEG |
| UniRef90-UPI00029A72D7 | P EAKAALR |
| UniRef90-B7RU41 | S DMQEAM |
| UniRef90-F1DGH1 | D GWRDGV |
| UniRef90_Q5YVK2 | K D A A E G |

UniRef90_UPI0003C199CD UniRef90 COOH97
UniRef90
U2UB5 UniRef90-W2UB52
UniRef90 UniRef90 UPIOOO477842E UniRef90-M2WQY6 UniRef90-X71886 UniRef90-Q0CXS5 UniRef90-D9QKS UniRef90-R4KE15 UniRef90-UP100046A9939 UniRef90-UPI0002DBC3FB UniRef90-W4G831 UniRef90-UPI0003FE88C8 UniRef90_C5D0B6 UniRef90-UP10002EA77DD UniRef90-R6H9G9 UniRef90-E4TR92 UniRef90-K1 QSX8 UniRef90-UPIO00455EEEA UniRef90-L5LMX5 UniRef90-UPI0003B3B453 UniRef90- A5P7B9
UniRef90_UPIO002881F7F
UniRef90-F7T5G8
UniRef90-D5W4X6
UniRef90-U5ESR8
UniRef90-UPIO00418ED80
UniRef90-UPI00037B1A90
UniRef90-F8K1A8
UniRef90-A9W9T8
UniRef90-UPIO0042174A1
UniRef90-HOPZC5
UniRef90-UPIOOO2EOBC3D
UniRef90-F6AQ72
UniRef90-C1B512
UniRef90-T1VWE2
UniRef90-LOM093
UniRef90_UPIooo37274B9
UniRef90-D5PEA9
UniRef90-A0AO10ZS65
UniRef90-J1YSs2
UniRef90-KOEM58
UniRef90-E3HKDO
UniRef90-H5T9D2
UniRef90-E8TRG2
UniRef90-H7F7E4
UniRef90-UPIOOO46E6046
UniRef90 WOABI
UniRef90-WOABI6
UniRef90- X4ZV54
UniRef90-UPI00034B08AF
UniRef90-A0AO14LOLO
UniRef90-A3TWW8
UniRef90- ${ }^{-13 J 064}$
UniRef90-A0A031MC19
UniRef90-A8ZUW2
UniRef90_l1D2W2
UniRef90-S9P5S8
UniRet90-K2NUX4
UniRef90-H5UAE5
UniRet90-E4RDEO
UniRef90_L9PJL2
UniRef90-E6VOI4
UniRef90-UPIO0046B1809
UniRef90-UP1000478EFF8
UniRef90-UPIOOO3AD3BAC
UniRef90-V9DC34
UniRef90-W1FWD8
UniRef90-UPIo003F0880D
UniRef90 W1NCQ7
UniRef90
UniRef90-W5TSP8
UniRef90-G7WGP8
UniRef90-UPIO0038237E5
UniRef90-UPIO004642891
UniRef90-H5X9G3
UniRef90-UP100029CC19B
UniRef90-UP10003AD074E
UniRef90 ${ }^{-}$W5YHY2
UniRef90 ${ }^{-}$C9NUI1
UniRef90-UPIO00371D3C6
UniRef90-I4CTY4
UniRef90_B4JE40
UniRef90-K7S6HO
UniRef90-UPI0001FFEE8F
UniRef90 B8FK60
UniRef90-G7CLA9
UniRef90_UPIo00185F4A3
UniRef90-TOLXQ1
UniRef90_J2LAR6
UniRef90_L8HKG6



FILSEVEQGVMTITLNRPDRNSFNDVMHQQLADCLK
HVLLVTLARPDLNCDNTAGHHELHEIWE
TYK IEDGI AWVSFNRPKRNCMSPNGRRMGEILD


AEHVLWSVEGKGVATITLURPERNPLTADSYAELVALFR
NGVADVRLDDAKVNTLNAAMTKELVTVLD
LLLRHDQRGITTLTLNRPQFNALSDAMLQALQTQLD
EYERLKVDVRGPI HVVSFDDAALLAMMSYQQMADFNDYLK
S E
LYKKANHVAR



EATRLDDDDDSSHVATITLSRPKLNSFTRAMHQELGAALDETVLYETDQR I AWISLHRPHVNALNDEMHEELYAALAEWVAVRRHGDGGVAELVLDRVKMNAVSTEMARCVTAACQ
VLSEDDGRGGVVRLTLNRPQFNALSEEMDEALQRELD
AQFQFVDYQYENGIACLHLNRPHRNAVVPELTEALIDGLR
LYEVKEGAATYTLNRPELLNTWNDTVATEMVYALMD

DNVAT
$\qquad$ TH VQVEDRDGVRT
 FLKKERHGAVLLLTMDRAARNALSPDAMDALVDVCA VELNDENAVATVTLNRPEVNAGNEHVISNLIDCFE EKDVIVYVVEETFAVYK NRSAMNAFSDELVEAFHGALD EKDVILQYEVADGTCT VRKDGDI ATIVLNRPERNAISDDMWHTLYERLI ADEVLVEYKGDGIVVI TVNRPERNAVNRAVAGALAEAMG LLDREDRGRVAHLRMNAPKLNALSDEMLAALKEAFE FVRYDVDAGVARITLDRPDRNA乌DVPMRAALLAAVQ LKVEQHGAI AHVLINRPKANAMDEAFWTEMVD\|FD TiLLDUNDSVATITLNRPEMNAWNPAMSRDLGHALA SDTLLSHLEA GVLTLTLNRPKKNAFTGEMYSLAAQALR

 VLNTRDAGGVVTLTLNRPAFNALSEGMLGALETAGG RQAGIVVLGINRAGKNSLSKNLIKMLSKAVD LI LRSDQDGUAVLRLNAPKIDALSEAMLAAMSEMLD VEYEVRDGAATVTVARERNAFTFVMRGEMIIDVFD LLITRHDRVLQLTLNRPARNALNNTLLLLLAEALE RTQKDGIRTIFLNDKKRNALSLAMLESLSDLLH VLRHDERGVTTLTLNRPDYNALSAEMLTABLEDALA SEYETIIFERTGAVARITNRPKANGIDHVLGRELAEAA VEDDERGGVAVTIREAK RNDLGTPVIADLTGAVR TDVT DKDGVAHVAMNRPKDNAMNGTFFSEVGKAFK ETEFVQVERRDGVVTVVMNRPKKNAVNMEMWRELAADFA TVLVEFDEHRRIAWVRFNRPKRNAMNPTLNREMFATLD ADALLVER RSDGVAVLTLNDPDRNAMSDELTAAWKRTIA VEVKDHI A HVQFSRPELDSMNKAFWLDEPKCMQ TRYALTDRVATi SLDRPARNGYTLRMAQELRDALA $V$ VYAKNGSVWTI IMNRPDRNAVDRNMADRLADAFR TKLTTVEVNDKTGIATLTMNRPPVNGLNLELLRDLQQSTE
 TAVEVADGVARLRMDRAEANALNEPMWFGLRDALR VLFRKEDSVALLTLNRPKRNALNQDLLTHLYGHLD
 YGIVERSDA I K VT $\square \mathrm{S}$ DHVGVVT
GVGVMTL UniRef90_L8HKG6

## UniRef90 UPI0003C199CD UniRef90-C0QH97 UniRef90-W2UB52 UniRef90_UPI000477842E UniRef90-M2WQY6 UniRef90-X7IB86

 UniRef90-D9QKS0 UniRef90_R4KE15 UniRef90-UPI00046A9939 UniRef90-UPI0002DBC3FB UniRef90-W4G831 UniRef90_UPI0003FE88C8 UniRef90-C5D0B6 UniRef90-UPIO002EA77DD UniRef90-R6H9G9 UniRef90-E4TR92 UniRef90-K1QSX8 UniRef90-UPIOO0455EEEA UniRef90-L5LMX5 UniRef90_UPI0003B3B453 UniRef90-A5P7B9 UniRef90_UPI0002881F7F UniRef90-F7T5G8 UniRef90-D5W4X6 UniRef90-U5ESR8 UniRef90_UPI000418ED80 UniRef90_UPI00037B1A90 UniRef90-F8K1A8 UniRef90-A9W9T8 UniRef90_UPIO0042174A1 UniRef90-HOPZC5 UniRef90-UPIO002E0BC3D UniRef90-F6AQ72 UniRef90-C1B512 UniRef90-T1VWE2UniRef90_LOM093 UniRef90_UPI00037274B9 UniRef90-D5PEA9 UniRef90-A0A010ZS65 UniRef90-J1YSS2 UniRef90-K0EM58 UniRef90_E3HKDO UniRef90-H5T9D2
UniRef90 E8TRG2 UniRef90-H7F7E4 UniRef90-UPIO0046E6046 UniRef90-WOABI6
UniRef90- X4ZV54
UniRef90_X4ZV54
UniRef90_UPI00034B08AF
UniRef90-A0A014LOLO
UniRef90-A3TWW8
UniRef90-X5J064
UniRef90-A0A031MCI9
UniRef90-A8ZUW2
UniRef90-I1D2W2
UniRef90-S9P5S8
UniRef90-K2NUX4
UniRef90-H5UAE5
UniRef90-E4RDE0
UniRef90_L9PJL2
UniRef90-E6VOI4
UniRef90_UPI00046B1B09
UniRef90_UP1000478EFF8
UniRef90-UPI0003AD3BAC
UniRef90 V9DC34
UniRef90-W1FWD8
UniRef90-UPIO003F0880D
UniRef90-W1NCQ7
UniRef90- W5TSP8
UniRef90-W5TSP8
UniRef90-Q1LD10
UniRef90_G7WGP8
UniRef90_UPIO0038237E5
UniRef90-UPIO004642891
UniRef90-H5X9G3
UniRef90-UPI00029CC19B
UniRef90_UPI0003AD074E
UniRef90-W5YHY2
UniRef90_C9NUI1
UniRef90-UPI000371D3C6
UniRef90-14C7Y4
UniRef90-B4JE40
UniRef90_LOIUC2
UniRef90_K7S6H0
UniRef90_UP10001FFEE8F
UniRef90 B8FK60
UniRef90-G7CLA9
UniRef90-UPIO00185F4A3
UniRef90-TOLXQ1
UniRef90_J2LAR6
UniRef90_L8HKG6

50
DII D D NARARCTVI S STG EIISTDETIKVLIIKAAG
 GAVDDDRVRCVVITGN E QAEADEQVRVVVLTGAG
QAERDDT
WM WMD DEPEVRVGVLTGEGG
ELEYRTDFGVLVLKGEG WAKEQSG GVSLIVKGEG WAKEQSG SLLIVLGAEG
ALDDEDDRVRIIVVIGEGE ALAYAPDI HAVVI TGAGG


60
70 KHFSAGMD|L|SVFTDGEGEAFR ${ }^{80}$ NHFCAGHYLAEMVDSGVKEYRT KAFCAGMDLSEMQA YEEMDG KCFSAGHDLGD\AEGEDVPSAG KVIVAA GADL GELERSDGKEPDA $R A F C A G A D L$
$G A V C A G Q D L G G S D A A D G$
$N$
 TAWSAGMDLKEYFRETEAKGIG KAFSAGVDV ADHTPDKVSR NHFSSGGNVKGFLEASPEHVSH GCF C A GADI A QLQAATEAEVVK RIA SLDE L RAVVVTGAGGNGFCGGGDVFELLDRDMAGLLD ALAHDDQVRCVILAANGRAFCAGHDLREMHATPEAYYQQ KVRMDPECRVIVLTGEGGKSFCAGFNLNELNFEPPADMGR HAREDDDDGVVLLSAEGPSAFCSGGDQKARGEQGYVGDDG KATRDPNVHSMVVKSGKPGCF IDAGADDGMDEAKTAEEVET WFEDQPSLWVVIVTGEG RAFCAGADLMAWGDSNESQMLDA EDWASDQVRSAVLDSSKPGCFDAGADINMDAAKTPQEVMR DLDTDPAVRVILIKGAG RAFCAGDDVNELEGKTAVEYRE $D L G \quad D A R A V M I R G A G$
 QVEKSGA RALVFTGAGRKAFCAGGDLNWMRQMTDADNRA RGMI TAGADLADL DFTPGGMTD
 EAKQDQNVKGIILQGTGD AFCAGADLKSVPKESLDYGHY AVAADHGVRAVVLSSTHDRAFCVGADLKERNSFSDADLGR A I A ANPQARVVVLAGAG KAFCAGHDLKQMQAPDQAYYED $R A G G D G A \quad A V V V V A G R G$ QCLA DASVKLLMVTGAGE AAGTDPEVRVIVFTGAG A LDADGDVKALVLTGSGQ ELQEDSQI RSVILTGA Q R DKA KRGSSHPLD
 AAGRDHGVRALVLTGAGGS FCSGADI SMPEDRHPNHK ELDERDDLTLGI TGAGGS FCAGMDLKAFAGENPSDEKR QIRDNKALRGVVFISAKADNF IAGADINMDARQTAKEAED RAVEDPEVGVIVLAGNG KHFSAGHDIGTPGRGGDQRFAR EINADMSVRAVVLTGAHG VFSSGGNLKTLSAAVGAGLGE RVENDDNIRVMILQSTG KSFSAGADLNWMKKMSEEQNLA RASHDPEVRAVI Q GSQVPGRFSAGLDLTAVHTGAHQKVRA LA WGDNRVRSII LTGSGQKSFCAGGDVKQKAQTGDYGPSR KAAEDSKVLAVVFRGRG

RTFCAGADLGQLVGPETSTS LQQ EVERDEAVKAVIIRSDD EFTRDGDALVAILTGAGGR ELDERDDAVGI TGAGGRAFSAGADLKEMSQTAATDPET L WVDRTESVRVAVI GAGG
 EADHDPEVYAVAITGAG TAFCSGADLRERADRGETWYGP DADKDDAVRVVVLAGAGG K IIEKDERI RCVVLTGAGE ACDAEDDVRAVVLTGT AAGNDEHVRATVITGS ELGTEEDLRATVLAANGP NGPAFCAGALNMAGYTHAENHA DI ASDESVRAVVIAAEG KAFCAGHDLKEMAEPSDGYYQQ ALK S DKKVRTVII RSEVP PGDFCAGADLKERAKMNSSEVGP EI A ADRSVKVVILRSGG RIDADDDVRAVVVTGAG
 EIV S D DLRVIII S S S GP E ESD DLRVI SSSGP AFSSGADLNEMAEKDLPATFD SLQDEHDLHAVVIAAEGGRAFCAGHDLHEMRELGEDDYRQ

 VFDTDDSLKVAVLWGAGGNFCAGADLKADSKGKMNQMDP
 RAVEDDEVKVIVLAGEGGKHFSAGHDIGTVGQGGDQRFAR HLEDDDRCAVVVLTGS DDAFSAGMDLKEYFRETDGKPRS $\begin{array}{lll}E L & R A D T G D R C V V V T G A G & S A F S S G G D L S W L A D T G A V A V R D \\ D & E A N S D A R V I V I S S T G & K H F S A G M D L G V F S D G D P G R M A E ~\end{array}$ SLAQRLDVRCLVLRGNG KHFSAGADLGWMADKSEQENQE SFEADSHALVSVLWGAGG CFCAGADLKALAARGDRNRLNT E $\square E G N K S C$ GLILTSSNPTIFSAGLDILEMYKPDKERIRA KAATDDSLRAIYLRGAGADFCAGVDWSGQRPRTGDLVRR

 QLDADDSVRCVVLT GVGEKAFAAGADVKEMQRDNFADUVT KLWNDREVFVIVI AGN ENVFSAGAELTQFD PDFMDFME


UniRef90_UPI0003C199CD UniRef90_C0QH97 UniRef90_W2UB52 UniRef90-UPI000477842E UniRef90_M2WQY6 UniRef90-X7IB86 UniRef90_Q0CXS5 UniRef90_D9QKS0 UniRef90_R4KE15 UniRef90_UPI00046A9939 UniRef90-WP10002 UniRef90_UPI0003FE88C8 UniRef90 C5D0B6 UniRef90_UPI0002EA77DD UniRef90_R6H9G9 UniRef90_E4TR92 UniRef90_K1QSX8 UniRef90_UPIO00455EEEA UniRef90_L5LMX5 UniRef90_UPI0003B3B453 UniRef90 A5P7B9 UniRef90_UPI0002881F7F UniRef90_F7T5G8 UniRef90_D5W4X6 UniRef90_U5ESR8 UniRef90_UPI000418ED80 UniRef90_UPI00037B1A90 UniRef90_F8K1A8 UniRef90_A9W9T8 UniRef90_UPI00042174A1 UniRef90_H0PZC5 UniRef90_UPI0002E0BC3D UniRef90_F6AQ72 UniRef90_C1B512 UniRef90_T1VWE2 UniRef90_LOM093
UniRef90 UPI0003 UniRef90-D5PEA9 UniRef90_A0A010ZS65 UniRef90_J1YSS2 UniRef90_K0EM58 UniRef90_E3HKD0 UniRef90_H5T9D2 UniRef90_E8TRG2 UniRef90_H7F7E4 UniRef90_UPI00046E6046 UniRef90-WOABI6
UniRef90- X4ZV54
UniRef90_UPI00034B08AF
UniRef90_A0A014LOLO
UniRef90_A3TWW8
UniRef90_X5J064
UniRef90_A0A031MCI9
UniRef90_A8ZUW2
UniRef90_11D2W2
UniRef90_K2NUX4
UniRef90_H5UAE5
UniRef90-E4RDE0
UniRef90_L9PJL2
UniRef90_E6VOI4
UniRef90_UPI00046B1B09
UniRef90_UPI000478EFF8
UniRef90_UPI0003AD3BAC
UniRef90 V9DC34
UniRef90 W1FWD8
UniRef90_UPI0003F0880D
UniRef90-W1NCQ7
UniRef90-W5TSP8
UniRef90_Q1LD10
UniRef90_G7WGP8
UniRef90_UPI00038237E5
UniRef90_UPI0004642891
UniRef90_H5X9G3
UniRef90_UPIO0029CC19B
UniRef90_UPI0003AD074E
UniRef90_W5YHY2
UniRef90_C9NUI1
UniRef90_UPI000371D3C6
UniRef90-I4C7Y4
UniRef90_B4JE40
UniRef90-LOIUC2
UniRef90_K7S6H0
UniRef90_UPI0001FFEE8F
UniRef90 B8FK60
UniRef90-G7CLA9
UniRef90_UPI000185F4A3
UniRef90_T0LXQ1
UniRef90_J2LAR6
UniRef90_L8HKG6

HVRHLQDSFS
D QA R MPVLAAI Q G GC|lGGAVEMTSACD


 HP E WG F A GYVVQHW $\quad$ I S K P P
 A TRQA QRWWRRLDRWNK PTIAMVNGWCFGGGYGPLYS CDLL $M D E V F D S D F H N M Y A N D K P V V A A V N G A A L G G G Y E L V L D F C D M$ LA WN




 SS LIH GF G Q I S R R Q T S N K P I, I A A A V N G S A Y Y G G G V










 RMRVIDATADIALGEFPKPLVAKVDGFAVGAGWNMALLCDF


$G F G G 1$ T A L P P R
 E L E V $V$ Y L G M C R R WR E I P K P TII A M V Q G A C I A G GLL M L A WV C D




 RGFA G LTEAPP R $\quad$ K P L I A A V E G Y A V A G G C E A A A A A A A D
 $N V L R L Q A A F N A V E E C R K P V I$ A A V H G Y CDGGADDLIDSACDMM



 D P RVA H WQ S I A AFAKPLIAA A NGYALGGGGCELAMMCAC $D A L Q L A E M L R T I Y L C P K P V V A K V Q G D C Y A G G M G L V A A C D$


## L

 LA D DLHDALSSSFARMDALLVVSVVNGVAAGAGFSLAMA GDL

 ES E VVYLDGMCR R WR A E I P K P M I A A S V





 I A A G G Q A I F F D R I E E N M K A T F F V A A I A V I L D L Q E CLLT A V E D GVV L T DFMK LP HTGHRVIF S CNKPFI S GDLD S GDLLA K WAR H H F FRKPIVCAVNGYALGGGCELAMMCDV

UniRef90_UPI0003C199CD
UniRef90_C0QH97
UniRef90_W2UB52
UniRef90_A3SDE2
UniRef90_UPI000477842E
UniRef90_M2WQY6
UniRef90_X7IB86
UniRef90_Q0CXS5
UniRef90_D9QKS0

R Y A T A D A F F $\stackrel{130}{C l \mid l} \mathrm{~L}$ VI A A D NARFST $R$
L A S E K A R F
I

140
150
160 VVAADTARF
$V V A A E S A R$
$V$ $\begin{array}{r}\mathrm{G} \\ \mathrm{G} \\ \hline\end{array}$


CHLI P Q G WVR

 $\checkmark$ A A
$V$
A A S E K A Q K F

## 246A939

## 

 R RVASERSKTYF
## R $L G$ <br> LI A S ERA

 $A \vee A$ A D S ARF $R \vee C G E S F K M Q A G Y$ TLASEHA I FK QTDLANGGLTTDMSGSYYLPRIVGYARAA RIIAVKNKKTALGAP EVVMLGGLLPGAGGGTARELAKMVGQKRAR

 P GVVKI G|LF CTTPMV

 $\frac{V L A A R S A S F D Q A}{R}$ $R$ M C P N
$\qquad$ $R \vee A$ A Y D A K L $V$ V AVASTEAR
VVAA E DASF I V A A A NAKF

 | $R$ | $N$ | $L$ | $G$ | $R$ |
| :--- | :--- | :--- | :--- | :--- |
| $P$ | $R$ | $R$ | $C$ | $C$ |

 RFA SEDATTTT

## R

 $\stackrel{R}{ }$ A $H P E V R L G Q$ V V A A K GAKFS


\section*{7274B9 <br> 9 372749} | $R$ | $V$ | $C$ | $S$ | $D$ | $D$ | $P$ | $K$ | $T$ | $V$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $R$ | $V$ | $C$ | $S$ | $D$ | $S$ | $S$ | $K$ | $T$ | $V$ | $F$ |
| $V$ | $V$ | $A$ | $T$ | $P$ | $E$ | $S$ | $T$ | $F$ | $C$ | $Q$ |


| $V$ | A T P | E S T | $F$ |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $I$ | $V$ | $A$ | $A$ | $E$ | $D$ | $A$ | $K$ | $M A F$

$G F$
$A L$

$G Q$ | $A L P E Q K$ |  |
| :--- | :--- |
| $L F$ | $G V Q P$ | $E G C$

$V W W$
$G A G$
$A A G$
$D C G$
$\square A G$
$G G G$
$P G$
$G S G$
 UniRef90-R4KE15 UniR UniRef90 W4G831
UniRef90-UPI0003FE88C8 UniRef90_C5D0B6 UniRef90_UPI0002EA77DL UniRef90_R6H9G9 UniRef90_E4TR92 UniRef90_K1QSX8 UniRef90_UPI000455EEEA UniRef90_L5LMX5 UniRef90-A5P7B9 UniRef90_UPI0002881F7F UniRef90_F7T5G8
UniRef90_D5W4X6
UniRef90_UPI000418ED80 UniRef90 UPI00037B1A90 UniRef90_F8K1A8 UniRef90_A9W9T8 UniRef90_UPI00042174A1 UniRef90_H0PZC5 UniRef90_UPI0002E0BC3D UniRef90_F6AQ72 UniRef90-C1B512 UniRef90_LOM093 UniRef90-UPIO003
UniRef90 UniRef90_A0A010ZS65 UniRef90_J1YSS2
UniRef90 K0EM58 UniRef90-K0EM58
UniRef90 E3HKD0 UniRef90_H5T9D2 UniRef90_E8TRG2 UniRef90_H7F7E4 UniRef90_UPI00046E6046 UniRef90-WOABI6
UniRef90- X4ZV54 UniRef90_UPI00034B08AF UniRef90-A0A014L0L0 UniRef90-A3TWW8 UniRef90_X5J064 UniRef90_A0A031MCI9 UniRef90_A8ZUW2
UniRef90 I1D2W2 UniRef90-S9P5S8 UniRef90_K2NUX4 UniRef90-H5UAE5 UniRef90_E4RDE0 UniRef90_E6VOI4 UniRef90_UPI00046B1B09 UniRef90_UPI000478EFF8 UniRef90_UPI0003AD3BAC UniRef90_V9DC34 UniRef90_W1FWD8 UniRef90_UPI0003F0880D UniRef90-W1NCQ7
UniRef90 W5TSP8 UniRef90_Q1LD10 UniRef90_G7WGP8 UniRef90_UPI00038237E5 UniRef90_UPI0004642891 UniRef90_H5X9G3 UniRef90_UPI00029CC19B UniRef90_UPI0003AD074E UniRef90_W5YHY2
UniRef90_C9NUI1
UniRef90_UPI000371D3C6 UniRef90-I4C7Y4 UniRef90_B4JE40 UniRef90_K7S6H0 UniRef90_UPI0001FFEE8F UniRef90_B8FK60 UniRef90-G7CLA9
UniRef90-UPI00018 UniRef90 ${ }^{-}$T0L XQ1 UniRef90_J2LAR6
UniRef90_L8HKG6


UniRef90 UPI0003C199CD UniRef90_C0QH97 UniRef90-W2UB52 UniRef90-UPI000477842E UniRef90_M2WQY6 UniRef90-X7IB86 UniRef90_D9QKS0 UniRef90_R4KE15 UniRef90_UPI00046A9939 UniRef90_UPI0002DBC3FB UniRef90_W4G831 UniRef90_UPI0003FE88C8 UniRef90 ${ }^{-}$C5D0B6 UniRef90_UPI0002EA77DD UniRef90_R6H9G9 UniRef90_E4TR92 UniRef90_K1QSX8 UniRef90_UPI000455EEEA UniRef90_L5LMX5 UniRef90_UPI0003B3B453 UniRef90 A5P7B9 UniRef90_UPI0002881F7F UniRef90_F7T5G8 UniRef90-D5W4X6 UniRef90_U5ESR8 UniRef90_UPI000418ED80 UniRef90_UPI00037B1A90 UniRef90_F8K1A8 UniRef90_A9W9T8 UniRef90_UPI00042174A1 UniRef90_H0PZC5 UniRef90_UPIO002E0BC3D UniRef90_F6AQ72 UniRef90_C1B512 UniRef90_T1VWE2 UniRef90_LOM093
UniRef90 UPI0003 UniRef90_D5PEA9 UniRef90_A0A010ZS65 UniRef90_J1YSS2 UniRef90_K0EM58 UniRef90_E3HKD0 UniRef90_H5T9D2 UniRef90_E8TRG2 UniRef90_H7F7E4 UniRef90_UPI00046E6046 UniRef90-W0ABI6 UniRef90- X4ZV54
UniRef90-UPI00034B08AF
UniRef90_A0A014LOLO
UniRef90_A3TWW8
UniRef90- X5J064
UniRef90_A0A031MCI9
UniRef90-A8ZUW2
UniRef90-I1D2W2
UniRef90_S9P5S8
UniRef90_K2NUX4
UniRef90_H5UAE5
UniRef90-E4RDE0
UniRef90_L9PJL2
UniRef90_E6V014
UniRef90_UPI00046B1B09
UniRef90_UPI000478EFF8
UniRef90_UPI0003AD3BAC
UniRef90_V9DC34
UniRef90_W1FWD8
UniRef90_UPI0003F0880D
UniRef90-W1NCQ7
UniRef90- W5TSP8
UniRef90-W5TSP8
UniRef90_G7WGP8
UniRef90_UPI00038237E5
UniRef90_UPI0004642891
UniRef90_H5X9G3
UniRef90_UPIO0029CC19B
UniRef90_UPI0003AD074E
UniRef90_W5YHY2
UniRef90_C9NUI1
UniRef90_UPI000371D3C6
UniRef90-I4C7Y4
UniRef90_B4JE40
UniRef90-LOIUC2
UniRef90_K7S6H0
UniRef90_UPI0001FFEE8F
UniRef90_B8FK60
UniRef90-G7CLA9
UniRef90_UPI000185F4A3
UniRef90_TOLXQ1
UniRef90_J2LAR6
UniRef90_L8HKG6
 AEASGFALSSIGKQGFYAQADMTDDQAFHYAKQTIVMNNCS
 DANSPFSSHAANK QLLDEATDMRPMDAGGQWEVMETAGGLGG




 ASGPTFANGMTKKMLQQEWNMGVDEA IEAEAQAQA DCMAT A S GKTKKKTKAK GVVNR L LED T
ADGPTFAHAMTKRMLHQEWDMGVDQADEAEAQAQADCMQT A AKSPVSTRMGKHALNTEEDMSLRDGYRYEQDMTAQUGQT CSKPAI SMARGKALVYQQQMMALPDAYAHAAEVMACNIDD


 AD K S K D S V L K S S K R GLI L S
A QKS P I AVQ $\square A K T A F Y T S E D M G Y Q D Q F A Y M N E A F A R L C T T$ $A A G P T V A L G Q M K Q T L R Q G L S Q D F T S T L A A E A R A Q R I A G N T$ A K R S P Q S L G N T K K L M R E S L S V S Y W D TY Y N S EAAE I Q N N L T R S


 LSMPSTAY GLDMK QNMKA GFEK GLAE VLLEMEVAA QRKA GAS

 A E NS P R S M R V M K Q Q M WE V A P F Q T P H E A A L M A A G L L

 LA GPLPATKKILEVIETGLAAQGTSSGYDAEARAFGELVMT AEG
A A GPPVALAHTKALLNEGADCTLREADANEARAQVGNF
A A NGPLAVAASKQLIVQSQDWTDAELWQKQGAVVGPVMAS $L A G P P A A T R$ L L SVI ETGLT QGRSS GYDAEARAF GQLAMT ATMPRFGLALTKKAVNQAEDMGMRAGMD
AQHSGHALRLTKRLLREGQHTRRDTQLELSAGFQALAHHT

 GLLKA PTALLRF LDK QSFNA DSEM
 LACAPLAVQF $\square K R I V R G G R D L P V D A Q W Q L S D M Y T R A I A Q T$ AA NGP L A V RATVRVVLVESPGWPRDEMFDRRQRPITTVVGNS
 A A K S P L A A



 VN NSPNAVKQAKT LVVRDVVGQTVNDALLADAEADAMURAS



 CK S S R A VI A L G K S CFFY H Q DT K D L RAKSRVALLTTGKA LLSRQRTLDPLGQAYAFAGEVMASNMMA
 A GF P QNCLLRSDRE AVVY GF D DNFFDAALVKLEFEMGGKVVQS A S K S P L A V S GT K A VL N Y A R D H TVVA D G L D YV A T WN S G ML L G A A GP A RAL S ATK QLL NAAA D GSLLEA ALRLES QA QA ARMPSFGLALTKKAVNQAEDMGMRAGMD
T S L S QWVV R GA KMGFR H S R L M S WE A A E D Y A K H D Q A I L L D T
 A ANS P L A V T G C K E M L N Y S R D H S V E D S L R Y M A T WQ A GMF R P


 AS GPTVA $\square G L A K$ Q A $\square N Y$ G Q H A TLD Q A MT Q ELLFNVEL S CRT
A A K S P L A MR GTKYADT Y A R D H T VA D S LDD Q $\square$ A T WN G G Q LVS CKTKA DF LPGYRK LI N D G H N L S A G Q A L D L EKK VFTR F L


SEK S P I A A A L S K K LIV K G S E VP A DVG LE ME S $\square A M M N L Y N S$


UniRef90_UPI0003C199CD UniRef90_C0QH97 UniRef90_W2UB52 UniRef90-A3SDE2 UniRef90_UPI000477842E UniRef90-M2WQY6 UniRef90-X7IB86 UniRef90_Q0CXS5 UniRef90_D9QKS0 UniRef90_R4KE15 UniRef90_UPI00046A9939 UniRef90_UPI0002DBC3FB UniRef90-W4G831 UniRef90_UPI0003FE88C8 UniRef90-C5D0B6 UniRef90_UPI0002EA77DD UniRef90_R6H9G9 UniRef90_E4TR92 UniRef90-K1QSX8 UniRef90_UPIO00455EEEA UniRef90_L5LMX5 UniRef90_UPI0003B3B453 UniRef90_A5P7B9 UniRef90_UPI0002881F7F UniRef90_F7T5G8 UniRef90_D5W4X6 UniRef90_U5ESR8 UniRef90_UPI000418ED80 UniRef90_UPI00037B1A90 UniRef90-F8K1A8 UniRef90-A9W9T8 UniRef90_UPI00042174A1 UniRef90_HOPZC5 UniRef90-UPI0002E0BC3D UniRef90_F6AQ72 UniRef90_C1B512 UniRef90_T1VWE2 UniRef90_L0M093 UniRef90_UPI00037274B9 UniRef90-D5PEA9 UniRef90_A0A010ZS65 UniRef90-J1YSS2 UniRef90_K0EM58 UniRef90-E3HKD0 UniRef90-H5T9D2 UniRef90-E8TRG2 UniRef90-H7F7E4 UniRef90-UPI00046E6046 UniRef90_WOABI6 UniRef90-X4ZV54 UniRef90_UPI00034B08AF UniRef90_A0A014LOLO UniRef90-A3TWW8 UniRef90_-X5J064 UniRef90_A0A031MCI9 UniRef90_A8ZUW2 UniRef90_I1D2W2 UniRef90_S9P5S8 UniRef90-K2NUX4 UniRef90-H5UAE5 UniRef90_E4RDE0 UniRef90-L9PJL2 UniRef90_E6V014 UniRef90_UPI00046B1B09 UniRef90_UPI000478EFF8 UniRef90_UPI0003AD3BAC UniRef90_-V9DC34 UniRef90_W1FWD8 UniRef90-UPI0003F0880D UniRef90_W1NCQ7 UniRef90_W5TSP8 UniRef90_Q1LD10 UniRef90_G7WGP8 UniRef90-UPI00038237E5 UniRef90-UPIO004642891 UniRef90_H5X9G3 UniRef90_UPI00029CC19B UniRef90_UPI0003AD074E UniRef90-W5YHY2 UniRef90_C9NUI1 UniRef90_UPI000371D3C6 UniRef90_-14C7Y4 UniRef90-B4JE40 UniRef90-LOIUC2 UniRef90_K7S6H0 UniRef90_UPI0001FFEE8F UniRef90_B8FK60 UniRef90_G7CLA9 UniRef90_UPI000185F4A3 UniRef90_TOLXQ1

| UniRef90_A6CRN2 |  |
| :---: | :---: |
| UniRef9 | M5A0N9 |
| UniRef90-G8RL48 |  |
| UniRef90_D0J3J1 |  |
| UniRef90_X8IYU7 |  |
| UniRef90_Q5V3S9 |  |
| UniRef9 | 39JLW9 |
| UniRef90_UPI000477C588 |  |
| UniRef90-O85078 |  |
| UniRef90_B6AWV3 |  |
| UniRef9 | UPI0004444AC3 |
| UniRef90-W9B282 |  |
| UniRef90-F1ZA18 |  |
| UniRef90_UPI00046F64DF |  |
| UniRef9 | JPI00047BE94B |
| UniRef90-A5ENE4 |  |
| UniRef90_W8RNP0 |  |
| UniRef90_UPI00036C2854 |  |
| UniRef9 | JPI0004657B6C |
| UniRef90_A0A059MLC9 |  |
| UniRef90-UPI00034C7DBE |  |
| UniRef9 | V8CYE7 |
| UniRef90_UPI0002F3F75E |  |
| UniRef90-A7N2M7 |  |
| UniRef90_A0A016QM77 |  |
| UniRef90_K2RLW6 |  |
| UniRef90-X1G2P1 |  |
| UniRef90-G7LTR3 |  |
| UniRef90- W9AKC5 |  |
| UniRef90_L1N7E9 |  |
| UniRef90-W5TGS0 |  |
| UniRef90-B3Q9C3 |  |
| UniRef90-B9L151 |  |
| UniRef90-UPI00034616E3 |  |
| UniRef90-X0N776 |  |
| UniRef90_UPI0003607924 |  |
| UniRef90-A0A022H0W7 |  |
| UniRef90-K8X9T7 |  |
| UniRef90-K0MNG7 |  |
| UniRef90-UPI000476C7AB |  |
| UniRef90-X0Q4T4 |  |
| UniRef90-UPI0003B741FB |  |
| UniRef90- W4M7J1 |  |
| UniRef90-X5L9G7 |  |
| UniRef90-X5LTJ1 |  |
| UniRef90-19L0U0 |  |
| UniRef90-T1ELIO |  |
| UniRef90-F0P0X7 |  |
| UniRef90_UPI0003B796DA |  |
| UniRef90_UPI0004634EC0 |  |
| UniRef90_UPI000463732C |  |
| UniRef90-UPI000365D105 |  |
| UniRef90_D9XN32 |  |
| UniRef90-UPI00027462B0 |  |
| UniRef90 S5DJ94 |  |
| UniRef90- G8MLT0 |  |
| UniRef90-A8AYW7 |  |
| UniRef90_U1HMI7 |  |
| UniRef90-C5T5G6 |  |
| UniRef90_UPI0003B54ED8 |  |
| UniRef90_K5B7Y2 |  |
| UniRef90_K0VFV6 |  |
| UniRef90_A3V5X8 |  |
| UniRef90-A0A022H128 |  |
| UniRef90-A3HYH6 |  |
| UniRef90 UPI000346819B |  |
| UniRef90 G8RTC5 |  |
| UniRef90_T0R3C2 |  |
| UniRef90-A4GHY1 |  |
| UniRef90_T2ME55 |  |
| UniRef90_R0GBA1 |  |
| UniRef90-B7VL47 |  |
| UniRef90-C7Q6Q3 |  |
| UniRef90-UPI0003FFE86B |  |
| UniRef90-W4KLP4 |  |
| UniRef90-UPI0002FD139B |  |
| UniRef90-C3Z7P1 |  |
| UniRef90 ${ }^{-} 1{ }^{\text {Q1C3 }}$ |  |
| UniRef90-F1VUY2 |  |
| UniRef90_UPI00026CA0DB |  |
| UniRef90_UPI00040EDC99 |  |
| UniRef90_Q1N3H0 |  |
| UniRef90_I1P2Q3 |  |
| UniRef90-W0NFV8 |  |
| UniRef90_K2IN34 |  |
| UniRef90-B8F9Q0 |  |
| UniRef90-UPI00037B53C6 |  |
| UniRef90_L7MIR5 |  |
| UniRef90_U7P939 |  |
| UniRef90-A3VKK9 |  |
| UniRef90_M2YNN2 <br> UniRef90 UPI0003B51FCE |  |

$\stackrel{H}{1}$

TI RLEHVGAVARIVLDRPDRNACPPSMAVEADALS
TVRYETVRDRVAE! HLNHAPVNABDDPVLDALAAALD
VI KGGRAAWI NRPKRALSDRMVGLDAF
TVLSERRGAVRLLTLNRPERNAMNRQLIDDLARAVE
THTSLL QFEVTEQVATLTMNSPKRNADEPAMREELAAAALQ
DVVVRHIDERGVARI ATNRPNVNAWNPEVVVALSDAVE
 SESVVVELERRGSMGDI WLNRPDRNAFTSEMHRRMIDVED
 SETLLRLT R RGDVLVLTINNPPVNAFSPGVPEGLHAGLD KA LLKENEE

EDHGGVRTLTLNRPKRNTLKSEFAEQUVKVI E DPELLALAQALR
$M L K L N D Q D G I A R$ DTVLI ERDRGERVGT

IRLERTGPVAHIVLDRPELDALTAAMWHELRGIVR EVRRHGPVVTVEMRRPERNALSTAMLVGMADAFA ETSVVRYARQGPVATV TVNRPDRNAQNSAMTYALDRAFY TDNNKVLFEKEGKTAVITLNRPQRNALDEESKQLLAAAIIR TEVVLARQQGGVLILTLNRPDRNAWNESLEQRYFALLD VRLDVAGPVAL

DHAGIRIVRITRPARNALNLATKAVLVQELS
LIRTSRDGDVLILTHDNPPVNAFSPGVPEGLKAGLD
TYEKKGR A V NRERNALHPPSHVELEEWD
tVEVRRDDAVAVVALRREKRNALSTHMESELLQALR I IFELRDRIATVTLNRPDMNATTDRLYGELEDLI P LQYEVDGVMRIAFNRPERNAFRPKTVFELLDAFQ
 VLTERRGRVLIVTINRPERNSVNTAVATGIIAAAMD SDELL YEVREHVAY

VLSMKNALSLAMLKSLSDILH
HYSVRDHVGYVW NRPKKNALDADVWFGLPDIIN
L LYEVLDEVAVLTENRPEMNGFNLDPMCQELLAALS S
LVGYSVSNRIAEIVLDRAPVNALSIPLIDALLAALA
THSLLVEDQPSRVRVITLNRPERNALDGPTLAALELAVR

LKDLDGVLSVTLNRPDLLNSLNHPMLSGI AEALR
RLLRQDRDHIARLTLDAPDRNALSAMMLDAKLGGALD RKADGIGWVLFNDPKMNAISMEMSAAIPGDMA NDAVITR REDKG FIKLNRPKRNAMSPELISSLHQSFV ERRGNVLVITNRPERNAVNKAVSVAVGDALY
VTLEKQGTI GILRLNDPSRNALTADMGDRVEELVQ LEVKDEVAVIMLNSPPVNALSANVREGLNNGVS

LKTSRDGNVALITLNRPKLNAWHTAMRNELIAALAA
GDDGVATLLLDRPKLNAWSWEASRQLARLAA
 UATLQLMNPPVNAMDTAMLLELLRSCLK $M V D Y S V N G S V A V L M V N N P P V N A L S H A V R V G L K T G D E$
 VEIKNQIAHVQLSRPEANSMNMDVWLELIPECVK

VLVEFDNGTAFVTLNRPKRNAMNPALNARMLEVLD ETAQVLRESRDGIALLTLDPARNAMSDEMRLKLTEALR TILYEAEDGVAVITI NRPELNSLTPEVLSEMAEAVE LVQELDSEGILRLTLNEGQRNALSEAMLDELYVAFT
 RVTBDDQDGVALVTMNRDKMNALSDDQLDALDAAGE
TKYTVISY PAEGVLLVRTNRPKDNCLNTEANKELERDWG
UniRef90 UPI0003B51FCE

## UniRef90 A6CRN2

 UniRef90-M5AON9 UniRefoto GRRL48 UniRef90-DOJ3J1UniRef90- X8IYU7 UniRef90-Q5V3S9 UniRef90-B9JLW9 UniRef90-UPI000477C588 UniRef90-O85078 UniRef90-B6AWV3 UniRef90-UPIO004444AC3 UniRet90-W9B282 UniRef90-F1ZA18 UniRef90-UPI00046F64DF UniRef90-UPIO0047BE94B UniRef90-A5ENE4 UniRef90-W8RNP0 UniRef90_UPIO0036C2854 UniRee90-UPI0004657B6C UniRef90-A0A059MLC9 UniRef90-UPIO0034C7DBE UniRef90-V8CYE7 UniRef90-UPIo002F3F75E UniRef90-A7N2M7 UniRef90-A0A016QM77 UniRef90_K2RLW6 UniRef90-X1G2P1 UniRef90-G7LTR33 UniRef90-W9AKC5 UniRef90-L1N7E9 UniRef90-W5TGSO UniRef90-B3Q9C3 UniRef90-B9L151 UniRef90-UPIOOO34616E3 UniRef90-XoN776 UniRef90_UPIO003607924 UniRef90-A0A022H0W7 UniRef90-K8X977 UniRef90-K0MNG7 UniRef90-UPIO00476C7AB UniRef90-X0Q4T4 UniRef90-UPI0003B741FB UniRef90-W4M7J1 UniRef90-X5L9G7 UniRef90-X5LTJ1
UniRef90 19 Louo UniRef90-T1ELIO UniRef90-FOPOX7 UniRef90-UPIO003B796DA UniRef90-UPIIOOO4634ECO UniRef90-UPIOOO463732C C UniRef90 UPIOOO365D105 UniRef90-D9XN32
UniRef90_UPIO0027462B0 UniRef90_S5DJ94 UniRef90-G8MLT0
UniRef90 A8AYW7 UniRef90-U1HM17 UniRef90-C5T5G6 UniRef90-UP10003B54ED8 UniRef90-K5B7Y2 UniRef90-KOVFV6 UniRef90-A3V5X8 UniRef90_A0A022H128 UniRet90 A3 ${ }^{2}$ HYH6 UniRef90-UPIOOO346819B UniRef90-G8RTC5 UniRef90-TOR3C2 UniRef90-A4GHY1 UniRef90-T2ME55
UniRef90
ROGBA1
UniRef90-B7VL47
UniRef90-C7Q6Q3
UniRef90-UPIo003FFE86B UniRef90-W4KLP4 UniRef90-UPIOO02FD139B UniRef90_C3Z7P1
UniRef90 K1Q1C3 UniRef90-F1VUY2 UniRef90-UP100026CAODB UniRef90-UP100040EDC99 UniRef90-Q1N3H0 UniRef90-11P2Q3 UniRef90-WONFV8 UniRefofo-K21N34 UniRef90-B8F9Q0 UniRef90 UPIOOO37B53C6 UniRef90-LTMIR5 UniRef90_U7P939 UniRet90-A3VKK9 UniRef90-M2YNN2

EVVEKEED\| $\frac{50}{L T}$ LI LIRGEGKG D DADRDRDVRCVVLTGEGRAFCAGLDMQAQMAGPKGGLGE AVAKNEQARVVVL AAQGKAFCAGHNLKDMAAHTEAYYQQ KISRDGAlRAVVLSSTNPKVFTAGLDLIEAGSMGNHDLRD HAKRQTDVGCVLLTGNGPSAFCAGGDQRETSDGVEDDAPE LAVADKDVNALVITGAGGRASAGYDLGADYDVSDEDWHA RLESDDSVGAVVLTGEGAVFSAGFDLEEVPMGPASEVQS HEAESQELKVIVISAEGPVVFSSGHDLKELTEQGPGYHTE ELAAQAVPAPVVLTGAGTRFFTAGGDIKELEGTGPAEDEG RL DGARAVLLTGEGRAFCSGADLAATGGGGAGSYKA RAGADPAVRAIILASDLPGRFCAGLDIKKLLASPPAGVHA RAKHDDDVRVIVLTGAGDRAFCAGADLGGLGAQQADGAAD QAHDDPDVRVIVLTGAGDKAFCAGADLQNSGAAFAMDFSR DANADPETRVILLTGAG RAFCAGDDQAHVHPDSEDEARD HTQQDRSTRAVILTGAGGHFCSGGDLKNIAAADNGGWLQ VVSAMPHVRAVVLTGEG KSFSAGGDLRWMRGQSSEQRRE ALR DTDARALIIRGAGDRVFCAGFDLDEDSEMGVREFDK LLDTRDDVRAVVLAANGKAFCAGADLNWMAGFSDEENRA ECDADDSURAVVITGRGRAFCAGADLGGFVLDDGGTGEA GAAADADCRAVLLTGAGRGFCAGQDLGDRRGEDPDLGDT YAAARTDVRCLVLRGNGGKHFSSGADLNWMKSMTKKONDE AAEGDAGVRSVVIDGGG RTFDAGADIKTF RLDEDAQVRAVVITGSPGGPFSAGVDLKEVQLSEAEAHE NDERSKTRVVIITG GDDFFSAGIDLNFLQEKDPEGVIP QARQHAADRGLVLVSAKADSFDAGADIAMLDGTSAEQAQD HCDADESVKVIIITGAGKNFSAGGDIKEMASGEAVSY EVRQDDSVWALVITGAGRGFCSGVDLTEAAEPSQNERDD AFDADESASVAVFTGAGGTFCAGADLKAVAAGDAEKKRE RLASDHSVRVVAlRGAGERAFSAGADIREFPSRGLARARA YIGAEPGVRVGVLTGA DGVFCAGADLKGMGRPSQARAAG RAAEDDEVKVVVLAGEG RHFSAGHDIGDHSDKTGAEFAR AANEDEDIGAVVMTGEGRGFCAGADMSYFQNNEASETKA RAREDRDVRSVVLTGAGGHFCSGADLNGGGEEGEMPFRD EAESDPEVRAVVVTGAGRGFCAGADMDDLRALETGDFTT ECGAAADVKVLVIRGQGRAFCAGNDLKWLAGGVLADRAA DADADANVRAVVLTGDAGVFVAGTDLKEMFTFRPTDHDT
 A DAANNDCRVVVLTGAGRGFCSGLDLSDPNPPEAGGGTE SPEVASSRAVVVTGGDSVFSAGADVTEDREMTPHATAE RLRSDPEVGCVILTGAGRGGCAGADLKNRRDLTPLQLSA LAEEDREVGVILLTGEGPSAFCSGGDQRVRGKKGYEGSDG AVDADPAVKVLLLTGQGGHFSAGADIGEFRDDTAEGAAT ELDGSADLSVAVLTGAGGN FCSGMDLKAFLRG EIEADPDI WAAVIGATGERAFCAGADISGGTDASPSRLAL RFRLDRDLRAAVLTGTGDKFFCDGGEHDPVTSLDQSQVLP DADSN DLKVIIISAEGP VFSSGHDLKELTEQGRDYHAE ELDNHDEVRCIVIAGKGDKFSAGDDITMFMSDTPADRKK DAASDNSVK LIVKANGKVFSVGGDLAEMQRAVDADDIQ VRGGRAFAGSDLKWLAEHDPAAHG ETRDDARVRCVVLRGNG RAFDAGGDLASFAKDADQVADD AAASDDAVRAVHLTGSGGD FCAGADWSDRKPRPGNLVRR QIADDTAVRAVIIAGNGKAFCAGHDLREMQDGGAAYFAD EMNQNEEVKVYILEAEGKAFCAGADLSYMQKLSYVENGLE EVSRDDETHVVVLTGAGKAFSAGGDLDQMQLLVDEPHRM ETDRASEFSAIVLTGEG AAIIEDSSVKSIVIICEG RTFIDAGADITEFGQAPKG QUKDDSSARAVILSGSG KDFTSGLDLDEDVGRRAFQDRT AFNTDTAGGALVMTGAGDRAFCAGQELEEAHGFDQARADE RVRFDDSIRVLVLRGSGRAFCAGVDLGRITGRSEAEFAE GLMRDPATRVVVLTGEGRGFCSGMDIQGGGADDGAEAAE EVATSEAE ILI DSGNGRAFSAGGDIKTMLQETDEDFNR ELEKDKSCRALILTSQKPKVFCAGLDI LELYQKPPDYVGQ RGAKDSRVRSIVIIG KGQTFPAGADI REFGKPSKE ELAADDSVRAVLLKGAG KAFGVGGDLASLRSDPTATAMA ALDGARA $\quad V L D A A N G R G F C S G A D V G G G A D P G N T T F K A$ TVAERSDVRAVVLAAEGPAFCAGANLNWMRRMSRDENRE SIDASGEARVIVISSTG KHFSAGMDLSVFSSPKAAPMSG
ELEGDERCGVLVLRGAGQS WSAGMD RLDGDKDVRALVLTGTGG HFCAGGDIAGQGSGSLADGRE AAAGDPATGVIVITGAG RAFCSGVDLKAAASGGEADIEA EAANNPKVRVIVLAANGSACAGHNLKELTDGGKAYFAK EFERDSSVDVAVLHGKGGSFCAGYDLSELAEDTPAEWPQ S A D DGGVRCVVLAAEG RAFCAGHDLKQMRAHDDDRFQA EVSTTKGVRAVVLTGGGKAFCAGLDMASMANLAQDAQGD





 EVFF LGKTYDAAEAADMGMVNDVVPHEDLEDTA EWAERM WLMYTGDLVDAEEALRMHLI NKIVPADQLKQKTENLARKL EILFS GDAI NASRLHQLGVVNRLVPAGAALDPADGGLAGAL E WL LT N RTLGA DEAYEWGVVNRVVSEADFQSRVGE I A RQL
 $S M V L S G D L F S A E E A V R D G L V D R L D E P D T L L T S A D T V A R A A$ RMMMLGERIGAE QAEDWGLI YKAVVDAALDMEAMAALATARL $D L L F T G R D F D A P Q A E A L G L V S R V C D S G L A L A Q A R E L A Q V L$ KLYTGAR
 , R A LMLDGEPVPARSAAEA WGM, WRVAPA RYILSAEVINAAKAEKFGLVHEVVHKLDKKLPEAEALAARLL EMML G GNPlKA TEAKELGLVDELVE GDLREGAVAFARAM

 RLVMLADMI SAAEAHRLGLVSWVQEATEI DAFVDELAGRL ELMALSPRI YGKEAFRLGLTTRLAPDGKLEEETQAFAEKL



 EIVFSAREI LADEALEI GLVQAVVPADRLCETAI EYARRF
 $Y Y L V T G R R M T G Q E A F E L G L A A Q A V P A$
 GYILTGRHMTAQEAHQHG\|VNEVV
DLI LTARAVDAAEALRLGLVTRVVDDANLLDAALETAETL DLI L R GRRFDAS QAERWGVV SEI AAAP GEHI K HAAA EL AFTARKVEAAEA LADGLVSKVVPHDD LLAEARAMAQLI

 Y LLL S A Q WV DAARAREMGLVNEVVDPDALDETTAGFARTL EL ALT GENLAAADAHRFGLVNRI TGEPGGALDATALELAEKI


 H L V M T G E A L T A E K A L LE Y G L L Y R L C E S E K L E K T T E Q L DK K L

 RMADLAE KI SAHEAYEWGLASAVYPADRFDAEVDKV DAAL



YLLMSGKVIS GEEAHQFGVVSKVVAKEDVVAEAI TMA QEM V MMT S GEHVVPAN QCHDMGLVVDEMADEANLEGDAIARAN RI




 EMI S S GRHVPAKKAKEYGI I DEIVV S GDLLKTALLKFAQEV
 E M M L L G E R V A A A K A L D W G M I H K V V A D D A L D A E A F A L A E R L
 $E L$ LF TGRRFDAVEAVTMGVVNYCVPAGEAYKRALELAABE

 EMLLTGEFIDAETARDWALVNRVAD D RLTYTAETFGAEQALHWGVVTEITT


C G Y GKFGLESTKQVLWANLDAGLETALHVENRSQILSVGT AEYSPLAVRDTKQVIDVSLDAPREAALLLEQDAYAVLNNA VQNAPTSVAMSKALLLNKSYATFDQMVEFEQLSQQVAFVG
 ASGPTVRMGHIKGQLNSSFEAGMLASFKEEATLLG DGGG CSRSQTSVRGMNETI GR\LAGQRESDAEVER I RTEAVRS AANGPLAVAATKQVLVQAADWSSDEAFGKQMEIAGHVFGS T A A S P L A QQA AK H AVLSSRAA YP LDDVALSTKF ELIEA YARS TTRS P L A I GAMK GAFSARHNGVSGQA RMAH DQQLSSLY LQT
 A AN GP L A V Q M DK K GKRA EMD
KRGSGNSYKAMKEMDWKS QF S D WE E Y AE LE LHHLQKS LAF T ATKS P $\square V M K D G R D A F M R A V D A D F R R S V E N T A E S F V V V A S T$ ATSDAHALASSMKFMARRALELPLKDGLQMERWMQFRYRES A NGPTQAAYGNYK RGVEKKTYDR SLLSE QL EAERRDAFSANTRT

 ATNAPLTTLKADKHAFVLELEKPESVRRDMAAAQRMIDAACYAS


 | T |
| :--- |
| V |
| V |
| S |

 A AKPSVAMRLDK QRFCEVSEEGFVKT I A A GRRDQMEAYAT A SKS QASAQASKKVIRYGLENGFDKGLQYEAKRFSEVVMT

 L K K P DA A M I K T K K I I AA D S S R S N L L E IL K M E K L G Q T K M R E S



 A A A A P L P Q QL T RQY L WRG LDDEA LDD WEREA QAAL MT T MANSKEANAAHKLLYYRNKMDSMKESLERE ASKS S LTTLA $\square G K R A F Y E Q R E M P L A E A Y E Y A A Q V M V E N M L A$




| UniRef90_A6CRN2 | QD HQEGII R |
| :---: | :---: |
| UniRef90-M5A0N9 | D DFTEGV |
| UniRef90-G8RL48 | GVMAEA |
| UniRef90-D0J3J1 | A DAQEGA |
| UniRef90-X81YU7 | S D T |
| UniRef90-Q5V359 | DEAQE |
| UniRef90-B9JLW9 | KDGQEWMR |
| UniRef90_UPI000477C588 | DESSEGMR |
| UniRef90-O85078 | PHFAERLAM |
| UniRef90-B6AWV3 | RDTKEG |
| UniRef90_UPI0004444AC3 | PDGQEG |
| UniRef90-W9B282 | P VA A G L R |
| UniRef90-F1ZA18 | A D ARE |
| UniRef90-UPI00046F64DF | DEAREGMQ |
| UniRef90_UPI00047BE94B | EDAREGV |
| UniRef90-A5ENE4 | EDAKEGLK |
| UniRef90-W8RNP0 |  |
| UniRef90_UPI00036C2854 | A EHREAV |
| UniRef90_UPI0004657B6C | G D R E GL |
| UniRef90-A0A059MLC9 | A D M |
| UniRef90-UPI00034C7DBE | E EGREGV |
| UniRef90-V8CYE7 | D D VRE |
| UniRef90-UPI0002F3F75E | PDYAEGVR |
| UniRef90-A7N2M7 | PQGQDGLQ |
| UniRef90-A0A016QM77 | QPFQEG |
| UniRef90-K2RLW6 | HDCKEGM |
| UniRef90-X1G2P1 | K D A V S |
| UniRef90-G7LTR3 |  |
| UniRef90-W9AKC5 | T |
| UniRef90_L1N7E9 | A D HREAV |
| UniRef90-W5TGS0 | P ${ }^{\text {d }}$ |
| UniRef90-B3Q9C3 | GETLS G |
| UniRef90-B9L151 | V A F H E GV]R |
| UniRef90-UPI00034616E3 | Q A REGAR |
| UniRef90-X0N776 |  |
| UniRef90-UPI0003607924 | P EHKEAV |
| UniRef90-A0A022H0W7 | S Y N A E AVR |
| UniRef90-K8X9T7 | P D F NQGLE |
| UniRef90-K0MNG7 | P S L E A |
| UniRef90_UPI000476C7AB | ADFAEG |
| UniRef90-X0Q4T4 | ADHSEG |
| UniRef90_UPI0003B741FB | GHAEEGVK F |
| UniRef90-W4M7J1 |  |
| UniRef90-X5L9G7 |  |
| UniRef90-X5LTJ1 | P |
| UniRef90-19L0U0 | P DYMEGV |
| UniRef90-T1ELIO | ESVQNLLE |
| UniRef90-FOP0X7 | EEAE |
| UniRef90_UPI0003B796DA | A DGHEAMQ |
| UniRef90-UPI0004634EC0 | A D Y E GV |
| UniRef90-UPIO00463732C | EDAKEG |
| UniRef90_UPI000365D105 | S DVLE GRR |
| UniRef90-D9XN32 | REAHE |
| UniRef90_UPI00027462B0 | RDGQEG 1 |
| UniRef90_S5DJ94 | E D L R E GV |
| UniRef90-G8MLT0 |  |
| UniRef90-A8AYW7 | E DFKEGV |
| UniRef90-U1HM17 | EDCQEGL |
| UniRef90-C5T5G6 | P A M L A G V Q |
| UniRef90-UPI0003B54ED8 | ADFREGV |
| UniRef90-K5B7Y2 | P D |
| UniRef90_K0VFV6 | ADFKEGL |
| UniRef90-A3V5X8 | R D T DEG |
| UniRef90-A0A022H128 | QD Y LEG |
| UniRef90-A3HYH6 | E DCVKGI |
| UniRef90-UPI000346819B | RDHAEAV |
| UniRef90-G8RTC5 | E D AKEG |
| UniRef90-T0R3C2 | A D Y R E GV |
| UniRef90-A4GHY1 |  |
| UniRef90-T2ME55 |  |
| UniRef90-R0GBA1 | GEPARMME |
| UniRef90-B7VL47 | A ESK |
| UniRef90-C7Q6Q3 | E D A |
| UniRef90_UPI0003FFE86B | E DLAA E GM |
| UniRef90-W4KLP4 | N NIK E G L K |
| UniRef90-UPIO002FD139B | EDHKEGIK |
| UniRef90-C3Z7P1 | E S VQLS I Q |
| UniRef90-K1Q1C3 |  |
| UniRef90-F1VUY2 | A DFAEAI |
| UniRef90_UPI00026CAODB | A DSMEG |
| UniRef90-UPI00040EDC99 | AEGKEGVQ |
| UniRef90-Q1N3H0 | NDMMK |
| UniRef90_11P2Q3 | QDRILE GLL |
| UniRef90-W0NFV8 | K GRDEGLK |
| UniRef90-K2IN34 | EDHAEG |
| UniRef90-B8F9Q0 |  |
| UniRef90_UPI00037B53C6 | HDAQEG |
| UniRef90-L7MIR5 | E AVQGARR |
| UniRef90_U7P939 | E DVAEG |
| UniRef90_A3VKK9 | A N QMEAV |
| UniRef90-M2YNN2 | ENMKEGVR |
| UniRef90_UPI0003B51FCE | E D A\\|E G |

UniRef90_UPIO00376F6FA UniRef90-HOQ5V8 UniRefofo-TOHTE9
UniRef90-I3KNF6
UniRef90-A0AO24ICXO
UniRef90-W9xH11
UniRef90-UPI000255BA9C
UniRef90_UPIo004643A15
UniRef90-A1UD25
UniRef90-Q02CE9
UniRef90-D3F357
UniRef90-D3CYW2
UniRef90-R9VFE8
UniRef90-M7XUS8
UniRef90-E4U535
UniRef90-UPIOO04650E35
UniRef90-K4DHW5
UniRef90-UPIO0037DEBE9
UniRef90-Q475V1
UniRef90-D0LWM9
UniRef90-UPIO00466C40D
UniRef90-UPI0003B7088D
UniRef90-X5QDA5
UniRef90-UPI0003F98CD8
UniRef90 D2VM20
UniRef90-UPI0003747ABF
UniRef90_UPIO003768FE4
UniRef90_L9X314
UniRef90-G8MDK7
UniRef90-C1EB21
UniRef90-UPI0002EF431C
UniRef90-UPIooo3672CF9
UniRef90-E3JAK5
UniRef90-UP10001FFEAAE
UniRef90-UPI00047B3D4E
UniRef90_G41808
UniRef90-A3PQV7
UniRef90 LTKGF1
UniRef90-UPI00037F37B0
UniRef90-D5WHX0
UniRef90-H5XF34
UniRef90 A0AO22H3V6
UniRet90-A0A022GZYO
UniRef90-MOLFB8
UniRefofo-V5SES3
UniRef90-F6EUH7
UniRef90-R4T3A5
UniRef90-N8NWX8
UniRet90 10REZ4
UniRef90_LOWGL3
UniRef90-UPIOOO4673481
UniRef90_V4BZQ5
UniRef90_UPIO002039EE3
UniRef90-UPIO0041DFD41
UniRef90-Q46Y68
UniRef90-O60E84
UniRef90_UPI000427AE76
UniRef90-A0A023GFZ7
UniRef90-A0AO23CQ50
UniRef90-A7JYA8
UniRef90-UPI0001E89C15
UniRef90-LTMTV5
UniRef90-ToSVZ1
UniRef90-UPIO0035F46E0
UniRef90-F5XZ16
UniRef90-UPIOOO38916A1
UniRef90_W8SR79
UniRef90_A71G02
UniRef90-U2ZZ47
UniRef90-S2L.WW6
UniRef90-UPIO00455CE77
UniRef90-U5EHT6
UniRee90-UPI000401CC6F
UniRef90-UPI0001E8926F
UniRef90-H2UJG5
UniRef90-V5FCW9
UniRef90-W0AC80
UniRef90-TOKAF6
UniRef90-S3CS12
UniRet90 $\mathrm{Q} 67 \mathrm{SZ5}$
UniRef90-A4ER39
UniRef90-B1KCK5
UniRef90-M7CM48
UniRef90-K9HTZ6
UniRef90-UPIOOO37FF730
UniRef90-Q83GX0
UniRef90-X6EK23
UniRef90-UPI0003B6BD36
UniRef90-J6F2U0
UniRef90_U3A426

LLQYTV ${ }^{10}$ DA 20
30

NR P HRNAFT|L| ${ }^{30}$
0

$L T L K$ Q Q S D GI R R I L N N P K R N A L S L S MLLK S L R E NI L


T PRVEMRLD D D GLA R ITTLVNP DRNAMTVAMWQQLA S V LDD ENVVVVFE DGIA WVTLNRPARNAINPG IVWEMNAIMD ENVVVV | D | E |
| ---: | :--- |
| D | Y |

$\checkmark \mathrm{V}$ D Y R
Q T V $\underset{T}{V} \underset{V}{V} \underset{N}{E} \underset{L}{V}$ D D A WV
$T V N L H$ Q S
$T V K L C V E$

 L V L R H D H G R V R QV T L A R P PVVA Y N S E L S A E L Q R HFE

RT V E V A D $G \vee \vee A$ $\begin{array}{lll}W & N R P P E \\ T & \text { N } & 1 \\ T & N P P B\end{array}$
$\mathrm{S} N$
V N
N

$\square R$ V

$\mathrm{T} L \mathrm{~L} \mathrm{~T}$
$V L V E K S$ TL D D R AKKN A I T

$2 \mathrm{D}, \mathrm{V}$

L |  | $N$ | $S$ | $N$ |
| :--- | :--- | :--- | :--- |
| $E$ | $V$ | $R$ | $D$ |
| $S$ | $V$ | $E$ | $L$ |
| $R$ | $V$ | $D$ | $D$ |

 | E | l | $D$ | $D$ | $R$ | $V$ | $A$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| I | $S$ | $I$ |  |  |  |  |
| I | $R$ | $D$ | $G$ | $V$ | $A$ | $L$ |



$S K S \square L L$ K V $R A N R V A Y$ RAGADHVTLITLDRPEANACDLEHFHQLANAWK
VQ




 PEPGI ALI VLDAPARNALSREMMSALGRALD RSEVKDGVATV

$\qquad$
T D T L L V
T E DVLL
 NQDGPVLHITLNRP
 SARTAGHDGVLVATLDRPPANALNRPLLLAMIALFR S A P L L T E S R D A A G V $\operatorname{V}$ A R L T M M N R P E A N A




|  |
| :---: |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  | E L N R

 A F N R

T D E I $\qquad$ TLK $\square E R K G R L L T L T M N R P D L A A A D K V M H E E L S E V F Y$ LV T Y A L A D GV A R I A L N D P AL L N A A S E A M G M E L L A A L R
 HVVLVVELNR QPVNAFHEEFWTEYSRVVF D

TI K Y E V V N QV A WV I M N R P K L N A F T E Q M N K E I T K A L K $\square \mathrm{KV}$ D F D Q T A G V

IT T R R D VGTSDNPPIVNALSADVRQGLAAAAA

 RA WA ARDV A AVI LTAAGNRAFCVGGDQKI FNEGSYGTSSN
 A DVDSEDLRVI I L SAKGPVFSSGHDLKELSAQGGEYHTK EVVEDDPDCRCAALTGAGD MFSAGQDLRFTRSADAAADDA WF D NEPS LRVABVTGAGDRAFCVGSDDLEMQRAEPYAYNH ALEED D R CKVMVVTGAGES FS A GMDD K E Y F R A T D K V P P D
 $R V S A D A G V R A V L V T G A G R G \quad F S S G A D L D A G F D P T P E G R T A$ RFNADPSVRVVVLGGSTGRFFCTGADLRQQRSAGPDDRRA
 A A ERDPEVVRAVVLTGAG KAFSAGADLLKRVRAETAEA NLAA
 QLDER D DVVVGVI AGSGP VFSAGMDLKVIAAGGP A AET DSAVVRVILLRG KDEIFTAGNDLEDFMQRPPTS GEA E L R D E A A I R A A L L T G E G S A A F S S G G DQ H A LA S R S A A D GE R NLDADDAVRAIVLTGTPPAFCAGADLGGGKGAGPEDV AL E A D P GVVRVVVLTGGKGRAFSAGADLAFLTELGAEENYR A L S Q D D GVGAAVVTGEGRG FMAGADI KEYAAQTADEFDA AFETDETARVAVL GGVGQSFCSGADLKSLALDADPNAPTAM
 RASD D D DVVKVIVLA GAG KHFSAGHDIGDRASLWYDHYAR
 ALLED DGVRAIVLAGAG RAFSAGFDLKESAEKTAAA WKA A AQADS GVVRAVIVGSRGK FSGGFDITQLKARTE GKPVR A IA S R Q DVVRVVVLAAA GP VFSAGHDLKEMTDRGRAYFTE ALGRDASLRAVVL GAHGQAFSAGADLHWMRAMADEQNRD TIARDRSVRVVILTGAGRAFSAGLDLRGFGDDDLVAAEG
 RFESDDHAWVAI FTGVG RSFMSGADLLKTYAGEADSVNGY RAVKDPEVRAVI LTGAG RAWSSGFDDGEDFEMTA DQWRN
 RADEDPDVRVVVLTGGSGKAFCAGADLVALSSRGERVIPE

 A A ERDPAVKCVVI TGAGDVAFSSGHDLREMLTHQDAASDA AVREDRSVSAVVLTGAGGN FCAGADLGDGGADAERGFRD D A S P E EYHAVVVLS G E G D A F S A G G DVVEAMAEAPRAAE E E EVS G D R D DIA A V V L A A S GP A F S A GHDD K E L N D G GRAF Y A E


 DAQAA D DVVDVVILTGGADP VVFCA GGDLVEDGDSTD
 SFEEDRSLTVAVLVGLGGN FCAGYDLKEDADNPS SVEQD D RGEGDPPPVVIGAGDRFFCAGGDIKEVDGAAAGPIQQ $R L A A D E S V R V V V L G G A G M A F C A G H D L R E M A S P S H D Y Y R R$ EALR R S DVVA V L TGAKGR FSGGFDINAFDKKPKNEKPG RLDADPAVRAVVLTGSGAAHFSYGLDLPAMMAGPRAEFLD





 DLMTSDTQRVIVLLKGTGGKAFCAGHDLKKEMAKGAAE LRD DIA S DPGSDVVVFTGAG RAFSSGGDINWMQEMHPHTFEQ R A G A EARAVI LT GEG $R A F C S G A N L$ D D DA D P L R D G GA Q $R$ LVED D GVVHAVVLYGVGGEAFVAGTDDITQFTHFSPHDADD RI ATDRDCRAVIITGAG RMFTAGLDLQDASAMFTVEADD
 QAS GDESVVRAIV I S GEG RAFS SGQDLAE V D DENMD H GHVV

 A LEVD D R A GVIVLTGKGD AFSAGMDLQGFFRASDARHRA WYDHEPS LLVAI TGGSGLKTFCSGQDDLDEQNQPPPMQMRR QAERDPAVRCVVITGEG RAFCAGQDLQS $\quad$ GGDMP $\square G D L V R$ ALQEDRT KAVILSGAGKAFCAGHDIRQMADGGRAYFED RLNDDPDTRAIVLTGAGGMHCAGGDLSEMHGSTPPALRE QGQK DAEAKVLLLVCEG RTF $\quad$ VA GADI REFGKPMQE EVGGADPSVRVVVLAGSGPS FSAGADLNWMAGYSRDENVE RCDSEDVI RAVVITGT PPAFCAGADLSNR】GEVSATIDP HARVS DKI GAVLLTGNGPRAFCA G GDQKTRRRDGYA YS D S TIE H H A AV R VVI LTGAGNRAFSAGGDDQAWSDKAPDDFGR
 RASSDDAVKAVVTGEG KAFCAGMDLSDMQERPVRDARG

UniRef90 UPIO00376F6FA UniRef90_H0Q5V8 UniRef90-TOHTE9 UniRef90-I3KNF6 UniRef90_A0A024ICX0 UniRef90_W9XHI1 UniRef90_UPI000255BA9C UniRef90_UPI0004643A15 UniRef90_A1UD25 UniRef90_Q02CE9 UniRef90 D3F357 UniRef90-D3CYW2 UniRef90_R9VFE8 UniRef90-M7XUS8 UniRef90-E4U535 UniRef90_UPIO004650E35 UniRef90_K4DHW5 UniRef90-UPI00037DEBE9 UniRef90_Q475V1
UniRef90_D0LWM9
UniRef90_UPI000466C40D UniRef90_UPI0003B7088D UniRef90-X5QDA5
UniRef90_UPI0003F98CD8 UniRef90_D2VM20 UniRef90_UPI0003747ABF UniRef90_UPI0003768FE4 UniRef90_L9X3I4 UniRef90-G8MDK7 UniRef90_C1EB21
UniRef90_UPI0002EF431C UniRef90_UPI0003672CF9 UniRef90_E3JAK5 UniRef90_UPI0001FFEAAE UniRef90_UPI00047B3D4E UniRef90_G4I8Q8 UniRef90_A3PQV7
UniRef90 L7K9F1 UniRef90_UPI00037F37B0 UniRef90_D5WHX0 UniRef90_H5XF34 UniRef90_A0A022H3V6 UniRef90_A0A022GZY0 UniRef90_MOLFB8
UniRef90 V5SES3 UniRef90_F6EUH7 UniRef90-R4T3A5 UniRef90-N8NWX8 UniRef90-IOREZ4
UniRef90 LOWGL3 UniRef90_UPI0004673481 UniRef90_V4BZQ5 UniRef90_UPI0002039EE3 UniRef90_UPI00041DFD41 UniRef90_Q46Y68 UniRef90_Q60E84 UniRef90_UPI000427AE76 UniRef90_A0A023GFZ7 UniRef90_A0A023CQ50 UniRef90-A7JYA8 UniRef90_UPI0001E89C15 UniRef90_L7U7V5 UniRef90-TOSVZ1 UniRef90_UPI00035F46E0 UniRef90_F5XZ16 UniRef90_UPI00038916A1 UniRef90_W8SR79 UniRef90_A7IG02 UniRef90_S2ZZ47 UniRef90_E9CD57 UniRef90_UPI000455CE77 UniRef90_U5EHT6 UniRef90_UPI000401CC6F UniRef90_UPI0001E8926F UniRef90-H2UJG5 UniRef90-V5FCW9 UniRef90-W0AC80 UniRef90_TOKAF6
UniRef90_S3CS12 UniRef90_Q67SZ5 UniRef90_A4ER39 UniRef90_B1KCK5
UniRef90 M7CM48 UniRef90_K9HTZ6 UniRef90_UPI00037FF730 UniRef90_Q83GX0 UniRef90_X6EK23 UniRef90_UPI0003B6BD36 UniRef90_J6F2U0


110

 $V$ V H T C S E V M T L I Q D DP VP V I A M V N G VA T A A G C Q L V A A S C D I I
 $Q R A L Q E Q L K L Q R L S R$


 H I I F L Q Q A V S S







 VLLRKDFDFDMSFWHCRKPVVAAVHGHCLA GA LEVAAACDV






$G M D$
$G V N$



## 

.
$\square \mathrm{L} \times \mathrm{R}$
GVKLL



$$
5
$$



$\rightarrow$ - -

v部 $\stackrel{\text { L }}{5}$







 UniRef90_U3A426

UniRef90_UPI000376F6FA UniRef90-H0Q5V8
UniRef90-T0HTE9 UniRef90-K9GSJ9 UniRef90_13KNF6 UniRef90-AOAO24ICXO UniRef90_W9XHI1 UniRef90_UPI000255BA9C UniRef90_UPI0004643A15 UniRef90-A1UD25 UniRef90-Q02CE9 UniRef90-D3F357 UniRef90_D3CYW2 UniRef90_R9VFE8 UniRef90-M7XUS8 UniRef90-E4U535 UniRef90_UPIO004650E35 UniRef90_K4DHW5 UniRef90_UPI00037DEBE9 UniRef90-Q475V1
UniRef90_D0LWM9 UniRef90_UPI000466C40D UniRef90_UPI0003B7088D UniRef90-X5QDA5 UniRef90_UPI0003F98CD8 UniRef90-D2VM20 UniRef90_UPI0003747ABF UniRef90_UPI0003768FE4 UniRef90-L9X314 UniRef90-G8MDK7 UniRef90-C1EB21
UniRef90_UPI0002EF431C UniRef90_UPIO003672CF9 UniRef90-E3JAK5 UniRef90_UPI0001FFEAAE UniRef90_UPI00047B3D4E UniRef90-G418Q8 UniRef90-A3PQV7 UniRef90-L7K9F1 UniRef90_UPI00037F37B0 UniRef90-D5WHX0 UniRef90-H5XF34 UniRef90_A0A022H3VG UniRef90-A0A022GZYO UniRef90-M0LFB8 UniRef90-V5SES3 UniRef90-R4T3A5 UniRef90-N8NWX8 UniRef90-IOREZ4
UniRef90-LOWGL3 UniRef90_UPIOO04673481 UniRef90-V4BZQ5 UniRef90-UPI0002039EE3 UniRef90_UPI00041DFD41 UniRef90_Q46Y68 UniRef90_Q60E84 UniRef90_UPI000427AE76 UniRef90-A0A023GFZ7 UniRef90-A0A023CQ50 UniRef90-A7JYA8 UniRef90_UPI0001E89C15 UniRef90-L7U7V5 UniRef90-TOSVZ1 UniRef90_UPIO0035F46E0 UniRef90-F5XZ16 UniRef90_UPIO0038916A1 UniRef90-W8SR79 UniRef90_A7IG02 UniRef90_U2ZZ47
UniRef90_S2L9W6 UniRef90-E9CD57 UniRef90_UPIO00455CE77 UniRef90-U5EHT6 UniRef90_UPI000401CC6F UniRef90_UPI0001E8926F UniRef90-H2UJG5 UniRef90-V5FCW9 UniRef90-W0AC80 UniRef90-TOKAF6 UniRef90-S3CS12 UniRef90-Q67SZ5 UniRef90_A4ER39 UniRef90-M7CM48 UniRef90-K9HTZ6 UniRef90_UPIO0037FF730 UniRef90-Q83GX0 UniRef90-X6EK23 UniRef90_UPI0003B6BD36 UniRef90_J6F2U0
UniRef90_U3A426

RFAARSAR $L^{130} S^{13}$
140
150
G $\square K V G L V P D G G C Y F L P R L V G P A K A L$

 G F $\frac{\mathrm{V}}{\mathrm{T}} \mathrm{F}$ G $\begin{array}{llllllll}R & L & G & T & M & E & A & C \\ K & S & F & F & L \\ K & G & L & P & D & S & G & G \\ T & W & L\end{array}$ | $R$ | $G$ | $G$ |
| :--- | :--- | :--- |
| $K$ | $G$ |  | P D S G GTVW

CS T P A VA $V \vee \mathrm{~A} V \mathrm{D}$ T A F F Q $\mathrm{VI} A T P S A Q F$ A 1 A S E D A RI S GEASRF A I A DEKA VLAAESAYFLLAF \begin{tabular}{l}
$V V A A D N A K F$ <br>
\hline$A L C A D E A T F$

 RLCAEGTVFS VVMDEAAR GYT $V$ V A E E K T K FA $V$ V Y 

\& $M$ \& $P$ \& $E$ <br>
$G$ \& $L$ \& $P$ \& $E$ <br>
$A$ \& \& <br>
$G$ \& $T$ \& $P$ <br>
$G$ \& $S$ \& $E$
\end{tabular}

| $R$ | $S$ | $T$ | $P$ | $N$ | $A$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $L$ | $Q$ |  |  |  |  | $V$ YA S E T A K L S | R | V | V | A | $E$ | $D$ | $A$ | $K$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $R$ | $I$ | $L$ | $A$ | $A$ | $D$ | $A$ | $K$ | $Y$ |

 VVMDEEAQ MGFTEVRIGFVAALDVVLLTRAVGEKVAK
 $R \vee C$ T K D A $\square F$ S I IVASDDS F YADPVVRMGLPGVVYFA
 IVMATQAEIR FPETSIGTYVGGGVTDTLPERVGTAKAK TI AD T A R FAEPEVKFG $R \vee A T P K A Q L$ AVA GAAARFCT G LVAA E GVHFC


 RI ASEHATF GVLEPARGLFA GGGT $T I A A A D A B G L G E P E R H V S A P P$ VVATENAYFAESF V V A A D T A T F SVVA ESAK A $\vee$ A A E T A T F
$\square G$ $R V$ CAANAST AFTEVRIGGVVPAVISVTVLPRLDDARAAH
 AYAAEDATFSCAF VVKVGLIPDTGGTFMLPEDVGLRTAK

 RFAAAGAKFTTAF $\begin{array}{lll}C F V S N Q A K F & R D E \\ V V A S T N A V F & L D\end{array}$
P LI ASEQARFAD R L A V Q S A K L $R \vee V E E S A$ ALAAPHARF $A V A A C D$
$R$

$R$ | $R$ | $V$ | $S$ | $T$ | $S$ | $S$ | $A$ | $Q L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $R$ | $V$ | $A$ | $S$ | $A$ | $D$ | $A$ | $K$ | IYA GENAKF RYAK S G S K Al G T P ESRFC | $\mathrm{V} V$ | $A$ | $H$ | $T$ | $T$ | $K$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $T$ | $A$ | $S$ | $E$ | $H$ | $A$ | $V$ | F



 TLASEHAIIFKQTDPDVVAVASEDGGYGSALLARQVGQKRAR
 VYAGDNAAFS MPFVNLGLCPEAASSLLVPQMMGYHRAA
 AVSAESCRF GVVNVNI GLDCSTPMVA LSRNAPRKMVF VFAASDAK $\quad \square G D P H V A V G F V A G D G G A A I W P Q L I G Y A R A K$ $\frac{L}{L} C S E N A Y F F F A F P H V G G V P D G G S S W L L S K A I G R V R A M$ RYCTPSMKF GVP IAR LGNTLSDTNVSRLVDMIGUARTK

 $R V V A D T A S F N T S F B A G B A L T A D S G V S W T L P R L I A R S R A A$



 A A A A A A KL A T DEDAT F | $T V$ | $A$ | $S$ | $T$ |
| :--- | :--- | :--- | :--- |
| $I$ | $S$ | $S$ | $S$ |
| $I$ | $M A$ | $S$ | $S$ |
| $A$ | $A$ | $F$ | $I$ | AV A A E DCRF VVSADTAKYSC RV A L S S A K AVGTTHAKFM R Y M A R D A S I A S E HAKFK RI A E QHVR $R \vee M A K S A Y L$ $R \vee A W K D A K$

UniRef90_UPI000376F6FA UniRef90-HOOSV8 UniRefofo-TOHTE9 UniRef90-I3KNF6 UniRef90-AOAO24ICXO UniRef90-W9XHI1 UniRef90-UPI000255BA9C UniRef90_UPIOO04643A15 UniRef90-A1UD25 UniRef90-Q02CE9 UniRef90-D3F357 UniRef90_D3CYW2 UniRef90-R9VFE8 UniRef90-M7XUS8 UniRef90-E4U535 UniRef90_UPI0004650E35 UniRef90-K4DHW5 UniRef90-UPIO0037DEBE9 UniRet90_O475V1 UniRef90_DoLWM9 UniRef90-UPIO00466C40D UniRef90-UPI0003B7088D UniRef90-X5QDA5 UniRef90-UPIO003F98CD8 UniRef90-D2VM20 UniRef90_UPIO003747ABF UniRef90_UPIO003768FE4 UniRef90-L9X314 UniRef90-G8MDK7 UniRef90-C1EB21 UniRef90-UPI0002EF431C UniRef90-UPIooo3672CF9 UniRef90-E3JAK5 UniRef90-UP10001FFEAAE UniRef90-UPIO0047B3D4E UniRef90-G418Q8 UniRef90_A3PQV7
UniRef90 LTK9F1 UniRef90_UPI00037F37B0 UniRef90_D5WHX0 UniRef90-H5XF34 UniRef90-A0Aо22H3V6 UniRef90-A0A022GZYO UniRef90-MOLFB8 UniRef90-V5SES33 UniRef90-R4T3А5 UniRef90-N8NWX8 UniRef90-10REZ4
UniRef90 LOWGL3 UniRef90-UPIOOO4673481 UniRef90_V4BZQ5 UniRef90-UPIO002039EE3 UniRef90-UPI00041DFD41 UniRef90-Q46Y68 UniRef90-Q60E84 UniRef90-UPI000427AE76 UniRef90-A0AO233GFZ7 UniRef90-A0A023CQ50 UniRef90-A7JYA8 UniRef90-UPIO001E89C15 UniRef90-L7U7V5 UniRef90-TOSVZ1 UniRef90 UPIOOO35F46E0 UniRe990_5XZZ16 UniRef90-UPIOOO38916A1 UniRet90_W8SR79 UniRef90-A7IGO2 UniRef90-U2Z247 UniRef90-E9CD57 UniRef90-UPIOOO455CE77 UniRef90-U5EHT6 UniRef90-UP1000401CC6F UniRef90-UPIOOO1E8926F
UniRef90 H2UJG5 UniRef90-H2UJG5 UniRe90-V5FCW9 UniRef90-W0AC80 UniRef90-TOKAF6
UniRef90_S3CSS12 UniRef90-Q67SZ5 UniRef90-A4ER39 UniRef90-B1KCK5
UniRef90 M7CM48 UniRef90-K9HTZ6 UniRef90 UPI00037FF730
UniRef90- $883 \times 10$ UniRef90-Q83GX0 UniRef90-X6EK23 UniRef90-UPI0003B6BD36 UniRef90_J6F2U0
UniRef90_U3A426

ELLLSGDTUDGTEAERLUGMVNRAYDDAELLDATYAFAARLL ELWFFCRQYTAQQALIEWGLVNKVVPGEQLLDEAKAWAKDA EWAYRADIFDAAEAHEKGLVRAVCPPETLLDEAKAFARSAL GMALLAEPVPAPLAADWGLIWQCVEDEDLPARAHDVAVRL ELTLLGGRISAQRAEAWGLVNRVVSAQDFEAAVDDYAQALC
 YYI MTGETFTGKQAAEFKLVNKAVPAAQLKDATRELAKTL DWVLSGRVFDAAEAYDAGLLTKVVAPDAVLDEALAYARVF ELAMLGERLPAPKADEWGLI NAVHADAELPAAAEALVQKL ELVLLAEDIPATRAAEDGLIARTVPAEELAATVDDLATRL YYIMTGKTFDGKKAASMGLVNSSVPLSQLRAAVVELASNL ELLLGGDLVDAATAYRMGLVNRVAAAGESVDEALAWAARLL ELLLLSDTFTAAEALQMGLINRTVPSDNLENEVTRMAALL EMMLTSKPVKGEEAVNGGLVDAVVPSNQLLDTARKWALD EKLMLGEPFGAKEAYEGGLVTRVLPVAELHAFAGQQARKL DVLLTGRTFDGVEAVRLGLASRCLSAEEVLPAALEAARDI DLLLTGRLLGAEEAKALGLVNRLAAPGKALEEARALAEEV FLLMTGALVPASEFVGAGLVNEIVDAERLMRBVLELAEMI DLILTGRAD DQEALDMGLANRLVPEGQAWDTAVQLAKQL EMAFTAADVKADRAYHFGLVNQVEDSQEMFEAVDKMAKT EFLFLGERMPAERAYQMGMLNRVVSREDLKEETLAWAGR ELLLTAASDDGAEAAEDGLVNEVVPDDKLDDAVNNLATELD EMMLKSKPVKAEEADKLGLVDAIVPADQLIAKATQLAKDI EMLLTGEMVDAQDAARFGLVNRVVAEGEALAAALAMARTI ELMLTGRRFDSAEALRNGLLVDVVPSGELLDRARLSADAV ALAMLGDKI SATEAEKMGMI YKCVALDEDFDQTDDDLALKL EFLLCADTI DARRAFEMGLLNAVVAEDALDDTAFEFAARI EMAFFGDKLPASEAFGLGLVNKVVAADELDAAVGEYVRRL ELALDGRRYDAATLERWGLINLVVPDDKLDEVALSLAQEL ELFLTGETFDARRAAEGGLNAAVPADELDAAVDRYVDSL EIVFSAREDQGEEAVAIGLAEAVVPADRLRDAAIEFAQRF KLAFTGEFFDAERAADLDLVNEAVPADELEKRVTETVDRL EMLLLGERLSAEEAERYGLVNRVVAPERVRDEALGMARAC DLLLSGRTFTAEQAYEYGLVQQVVPPEELSARAMAYADEL
俍 DMIVSGKPVSAPQALQYGILDKIV DGDLLTAAVQFAKTL DLILTGRPVSAQEAYQFGLANRIVPNGQALQCAIEELEEQU
 EMLLMSKPLKGVEAHKFGLVDAVVSADELYSTACSWALEG EMVLTGNQUTAAEAEKYG
NDLLRAERI QAETMQAYGWHDAVLPGNDDREECRQLLAPY RYFLTAELIDAETALSMNIVHQIDP DPKEAVNRMVEHL QMIWEGKTVSAEEAHGLGLVDSLGAGDQMEEEITQRVGAL EIFFVGGNYSAQEAFQMGMVNAVVPHEKLEDFALEWAAED ELMLLGEPLDASRALELGLVTRVVPADDVMKTAYELDARL EALLLGEPFMAEAALEVGLVNRVLPPTEANAYAQAQARKL DLITTGKHVLAAEALKLGLIVDEVVENETDDAADHLANKV EFLMSGDLLTAPRAAEIGLINHAVPAAELDAAVEAYVGKL
 ELAFTARKMLAPEAHQRGLVSHVYADEELKKKALEMASLI ELALSARPFSASEAEKLGLVSNVVEGGKVVAAALELAKAG1 DLLLPPRSISAKDAHDLGGVNKLVPGAELLAEAAAVARAL I ALQLGQLYKP
EVALTGRHITPDEAKQWGLINRIASQESVVAEALDDARLI A MIV T G DPIPAKKAAA IGLVDALVA D DLLLAEAI AFARAV Y Y V MT GEKFD GRRAKELGLVNEAVPGAALKERTRTMAKVL E ALTGRRLTATEALSFHLINRVSSPESLLDETDDLAKKI ELALFGDRVSAAEALSLGLCNRVVPDDQFEPAVAEWAGWL ELLTTGDFMLAPCAAELGLINRSVPAEDDQAEAGADAERI ELMLKGDVIDATTARR|GLVSELSASGHARDAAMAAAARF RYFLTAERLEAQEAYRLGLLHEVVEDEDLHNACDRLVTVL DVMLTGRTFDGEEAQAMGLANSCLPAGEVLPTALAVAHDL RMALFGEVFDADVALRLG|VDHIVESGAGLVAARQDAAQV DLILTGRKVDAEEAFALGLANRLTDDGAAMETALELARQL EWFYRADIFDAAEALDKGLVQSVIAPEDLVDAACDFARSL
 UniRef90-TOHTE9 UniRef90-I3KNF6 UniRef90-AOAO24ICXO UniRef90_W9XHI1 UniRef90_UPI000255BA9C UniRef90-UPIO004643A15 UniRef90-A1UD25 UniRef90-Q02CE9 UniRef90-D3F357 UniRef90_D3CYW2 UniRef90-R9VFE8 UniRef90-M7XUS8 UniRef90-E4U535 UniRef90_UPI0004650E35 UniRef90_K4DHW5 UniRef90-Q475V1 UniRef90_D0LWM9 UniRef90_UPI000466C40D UniRef90_UPI0003B7088D UniRef90-X5QDA5
UniRef90_UPI0003F98CD8 UniRef90-D2VM20 UniRef90_UPI0003747ABF UniRef90_UPI0003768FE4 UniRef90-L9X314 UniRef90-G8MDK7 UniRef90_C1EB21
UniRef90_UPIO002EF431C UniRef90_UPI0003672CF9 UniRef90-E3JAK5 UniRef90_UPI0001FFEAAE UniRef90_UPI00047B3D4E UniRef90_G418Q8 UniRef90-A3PQV7 UniRef90_L7K9F1 UniRef90_UPI00037F37B0 UniRef90_D5WHX0 UniRef90-H5XF34 UniRef90-A0A022H3VG UniRef90_A0A022GZY0 UniRef90-M0LFB8 UniRef90_V5SES3 UniRef90-F6EUH7 UniRef90-R4T3A5
UniRef90 N8NWX8 UniRef90_N8NWX8
UniRef90 IOREZ4 UniRef90-LOWGL3 UniRef90_UPIO004673481 UniRef90-V4BZQ5 UniRef90_UPI0002039EE3 UniRef90_UPI00041DFD41 UniRef90_Q46Y68 UniRef90_Q60E84 UniRef90_UPI000427AE76 UniRef90_A0A023GFZ7 UniRef90-A0A023CQ50 UniRef90-A7JYA8 UniRef90_UPI0001E89C15 UniRef90-L7U7V5 UniRef90-TOSVZ1 UniRef90_UPIO0035F46E0 UniRef90-F5XZ16 UniRef90_UPIO0038916A1 UniRef90-W8SR79 UniRef90-A7IG02 UniRef90_U2ZZ47
UniRef90 S2L9W6 UniRef90-E9CD57 UniRef90_UPIO00455CE77 UniRef90-U5EHT6 UniRef90_UPI000401CC6F UniRef90_UPI0001E8926F UniRef90-H2UJG5 UniRef90-V5FCW9 UniRef90-W0AC80 UniRef90_TOKAF6 UniRef90-S3CS12 UniRef90_Q67SZ5 UniRef90_A4ER39
UniRef90_B1KCK5 UniRef90_M7CM48 UniRef90-K9HTZ6 UniRef90_UPI00037FF730 UniRef90-Q83GX0 UniRef90-X6EK23 UniRef90_UPI0003B6BD36 UniRef90-J6F2U0 UniRef90_U3A426


 CQASRPVVALGKATFQRQMAQGRDAAYATASKVMVDNLASL


 VETSPTSVVALARRLLGRSWGHPPRSAAEDESRVYAGRLRS
ASKNPVILRAAKHGFKRCRELTWEQNEDYLYAKLDQALH R AAGPTRSYAGSKRQLNA WAYSGLAA QLELEADVQQEQAAT AAGPTRAHSANKWLLNRSLDVVDRHT LAAQEEAWVVEALSYT LDKNPVVLRAAKNGLKRCLELTWEQGEDY AENAPSSLALTKQLLASFYGMGLEDALRYAAAAGAWURQS RGNAPASVRALKGLAYQAPDTSFDQQLSSELAAFAQCAAT LEC
AVNAPLAVRTSKQV\NLVQGKSMPEAFEAQRPLMQR\RES A ALPA SSLRETKRLMKGNDVEAVEKKMADEGAVFRRMLVA VELDPATVRSVKAI LHDGS GLDPMEALTAERARFPA LWAA A $\operatorname{A}$ SPMSAA LSKRLLWQGAARSPDRVAELETELH DRVMGT
 SRFPQNCLRNDRLSAYEQVDMDLEAALRNEFYKGTQTLLS ASHSPLIVQSTKHIMNHAEEHS IEDGLAYVKLWNSAFLKS AKMPRLGLQLTKQAVNNAED
LGKSPQA QRMLKYSFNDVDDGLVGQQD FAGETTRDAYMT $A N N A P Q P D A F A K K Q L N Q Q P A D R E E Q I L T A E G D A L L T A M M T$ ASAAPASVQLTKSYVNRSVDSGFSAALEADGA IIAESAQG A DK
A AKSPDT LK $\square$ GKRAFYEQ $\quad$ E MG $L$ S DAYRHASAVMVENMDA VANGPQAVKACKRLVQDVAGQPIDAALREDARRIAD DRAS LANPPLSVEMTKQGMWMALETPWETSIEFENRQQVFTALTT $\begin{array}{ll}A G N A P L T & R R Y K A A V G R G G E L P L D A S A L\end{array}$ A HMPTKALGLIKELYNKSMTNDLDEQLALESKDQDEAAQS ARMPGTAAI KYAKAALNQQQTAGLESSWSYNRETTADLHAT
 AAGPTVAHAVTKQLVRVAVNEGVAAADEAMFELQKPIWAS AAGGGPAALAATKELLQGETARTMPETFERMQALSARFFAS ARHSAGVVREVKTGLETGLYAGADAACEHEWRVSAELQRA EKAPTHVLGMAKRIMNRTFETDRHALLQQEAAVQGLCAAS

 ATYSPRSMALMKRQVLREAGLSLEDSAREATALMLESFGH ASKPP $\square A \square Q G \square K R S L I Y S R D H S V T Q A D D H T V M L Q S A D L N G$ TANSPHAVSLTQQAVWSSLEMPYTQAVEYGFSLVKTQWHH RRCAPNANRVTKQLVLKVGHEPMDSLLDQAARDFADAVNG VGNNQKAVRALLASYHAIDDGQNSGALWQEAAAAREWMKS NTVPPNSLAK LKQAVKA SVDDPYSEGVTKEFQLFMELMSS SAFPQQCMRGDRSSAYYSTASSFTEAMQYEFDTGMQVILK $G R R A P V L Y A A L K H A V N D G Y D D \ E D Q Q R A D V T L A K A A S W I$
$C A K P A A A V A A G K G L F Y K Q L E M G U E A A Y Q L A G Q T M A C N M M D$ C

## AANPPLVVQGTKDVLGHERERRVADGLRYVSAWNAAFLPS

VSQSVAVLRAYKAADEKWKSDEFR DRFFAE $\square$ SRCAE $\square$ WWGS LNNGPQAMQAAKALCLRCDNQPDDHSLEYTSQADATARVS
 NSKSPTAMRMLKKGFNLCDDGLVGQQLAFAGEATRLAAYGT $A Q G P T L A Y A A T K R A L A H A A T H A L P D A L A L E A D L Q D E C A A T$
$A A K P L S S L V E T K R L M K K G Q Q P Q V L A Q M Q E E G A S F G R M L T E$ $A A K P L S S L V E T K R L M K K G Q Q P Q V L A Q M Q E E G A S F G R M L T E$
$S G L G T M G Q G L V K A K M S V V A L E Q D Q K Q L E V G V R A V T S L L E H$ ASKLGTAVRIGGKAFYDQIDLDDDKAYALTGAVMVENMLD
 AKRAPLTVQASKALVGRVQAHR RAAFDASDDWVTTCYMS ASKSPVAVVGSKDNLNYSRDHSVAESLEYMATWNQAMLQT

 ANMPTQA $\square G L I K R S I Q A S W N V T Y E E Y L E Q E A Y G Q R \square A G L S$
A S R S P DA VIVS R A GVREAFEASMERASQDT DQRYADLFKG A D K D A HPVASTRA
LEK N P T T L RQARMAYKYAREMDWELLA E Y
A A QS P D AV IVTTRA GLREAWEA SVVENATKRVSERYDKDFEG ARGBPRAVGWDKRQLNRGLERSLDEVLALEAYHQEDAAAT A S K L G A AVVKVGKEAYYN QLQMMIVEAYAYTS SVIVVENLMQ
 A DEGKPVVR LLKKRAVVEAAFNLDFDE GMKREREELAMECMES

 CGRAPDATELTKMLVNA A EGE ETERVVEA DAGDAAARS


| RRef90_UP1000376F6FA |  |
| :---: | :---: |
| UniRef90 H0Q5V8 UniRef90 ${ }^{-10 H T E 9}$ | EESAEEG |
| UniRef90-K9GSJ9 |  |
| I3KN | R |
| UniRef90-AOA0241CX0 | P |
| UniRef90-UP1000255BA9C |  |
| UniRef90-UPIO004643A15 |  |
| UniRef90-A1UD25 | A D |
| nRef90-002 |  |
| UnRef90-D3F UniRef90-D3C | ADFAEG |
| UniRe990 R9VFE8 |  |
| UniRef90 M7XU |  |
| UniRef90-E4U535 | E DL |
| UniRef90-UP100004650E35 | ADFREGVQ |
|  |  |
| UniRef90-UP100037DEBE9 |  |
| UniRef90-Q475V1 | P |
| DPL000466C40D |  |
| UP1000466C40D |  |
| 隹 |  |
| InRe90-X5QDA5 |  |
| UniRet90-UPIOOO3 UniRef90-D2VM20 |  |
| iRef90_D2VM | DD니 |
| UniRef90-UP10003747ABF UniRef90-UPI0003768FE4 | DEAVEG |
| UniRet90-UPIO00 | A |
| UniRef90-G8MDK7 | PERA |
| UniRet90_C1E |  |
| UniRef90_UPIO002EFL |  |
| Un | E E |
|  | EDQPEA |
| UniRef90-UP100047E3D4E | EDYAEGV |
| UniRef90-G4188 |  |
| UniRet90_A3PQV7 |  |
| niRet90_L7K9F1 |  |
| UniRef90_UP100037F37BC | A |
| UniRef90 D5WHX0 | Q ${ }^{\text {L }}$ |
|  | E OR |
| UniRef90 A0AO22GZYO | QYNAEAVR |
| UniRef90-M0LFB8 | ESHE |
| V5SE | A DA |
| iiRef90-F6EUH7 | $\stackrel{P}{P}$ |
| N8 |  |
| UniRef90-10REZ4 | GFR |
| UniRef90-Low | EEGQEG |
| RiRet90_UP100046 |  |
| V4BZQ |  |
| UniRef90-UPIO002039EE3 |  |
|  | ESADEGVQ |
| UniRef90--600 |  |
| UniRef90-UPIO00427AE | K D $\square$ GEA $\mathrm{V}^{\text {a }}$ |
| Uni |  |
| Unit | E E |
| UniRef90-A7JYA8 UniRef90- UPl0001E89C15 | S ${ }^{\text {S }}$ OREG |
| 7U7V5 |  |
| TosVZ1 |  |
| UP100035F |  |
| liref90 | RDHREATR |
| UniRe | E |
| UniRef90-W8SF | KGTAEGV |
|  | A |
| UniRef90_U2ZZ47 | EDFIEGMQ |
| S2L9W6 | RDFK |
| Ref90_-9CD57 |  |
| RiRet90_UP100045 | S |
| U5E |  |
| UniRef90_UP10004010 | QDHA $\square$ AV |
| niRef |  |
| UniRef90-V5FO |  |
| UniRef90-W0AC80 |  |
| niRef90-TOKA |  |
| UniRef90 S3CS12 | N |
| UniRef90_O67SZ55 | EDAREGIR |
| UniRef90-A4ER39 UniRef90 B1KCK5 | A D T E GM |
| UniRef90 M7CM48 | $\bigcirc$ |
| UniRef90 K9HTZ6 | DEG |
| UniRef90- UP100037FF730 | V ${ }^{\text {G }}$ |
| UniRef90_Q83GX0 |  |
|  | EDLUE GL |
| 03B6BD36 |  |
| Ref90_J6F2U0 |  |
| UniRef90 UЗА426 | $D G K E G V Q$ |


|  | UniRef90_M2W7Y5 |
| :---: | :---: |
|  | UniRef90-M4X473 |
|  | Ref90-M2 |
|  |  |
|  | UniRet90_UPIO0034702FB |
|  | UniRee90 UPIO0037A58D7 |
|  | UniRef90-H5WUI2 |
|  | UniRef90-UP10003607 |
|  | UniRef90-O2N |
|  | UniRef90-R4) |
|  | UniRe |
|  |  |
|  | UniRef90-B81 |
|  | UniRef90_C7YIJ2 |
|  | UniRef90-B1MJZ4 |
|  | UniRef90-85WIF3 |
|  | UniRef90-X0Q254 |
|  | UniRef90 K6VF |
|  | UniRef90-13F |
|  | UniRet90-TOH2G9 |
|  | UniRef90-W9H7D5 |
|  | UniRef90-B1K |
|  | UniRef90-C98, |
|  | UniRef90-UP1000302L |
|  | UniRef90-NOE11 |
|  | UniRef90-A0A023X) |
|  | UniRef90-UPI00037 |
|  | UniRef90_10YQ |
|  | UniRef90-A0R3W6 |
|  | UniRef90-073V |
|  | UniRef90-UPI0003724398 |
|  | UniRef90-UPI000237B1A5 |
|  | UniRef90 UPI00029B286A |
|  | UniRef90-R4SJ34 |
|  | UniRef90-E3HJ08 |
|  | UniRef90-C1ACT8 |
|  | UniRef90-U1L7M9 |
|  | UniRef90- ${ }^{\text {N6YZ14 }}$ |
|  | UniR |
|  | UniRef90-K0E |
|  | UniRef90_UPIO004776BA9 |
|  | UniRef90-E8VL |
|  | ef90 E8MC44 |
|  | UniRef90_K4KG17 |



[^0]

| UniRef90_M2W7Y5 |
| :---: |
| UniRef90-M4X473 |
| UniRef90-M2U780 |
| UniRef90-C4JZ35 |
| UniRef90-UPI00034702FB |
| UniRef90-UPI00037A58D7 |
| UniRef90-H5WUI2 |
| UniRef90-UPI0003607641 |
| UniRef90_Q2N7V6 |
| UniRef90-R4X2M9 |
| UniRef90_UPI000378F604 |
| UniRef90_F2LFA6 |
| UniRef90-B8NXX1 |
| UniRef90-C7YIJ2 |
| UniRef90-B1MJZ4 |
| UniRef90-B5WIF3 |
| UniRef90-X0Q254 |
| UniRef90-K6VPQ7 |
| UniRef90-13R4S7 |
| UniRef90-TOH2G9 |
| UniRef90-W9H7D5 |
| UniRef90-B1KCK4 |
| UniRef90-Q98AB8 |
| UniRef90-UPI000302D876 |
| UniRef90-N0E114 |
| UniRef90-A0A023X) |
| UniRef90-UPI00037097A6 |
| UniRef90-10YQQ0 |
| UniRef90-A0R3W6 |
| UniRef90-Q73VV7 |
| UniRef90-UPI0003724398 |
| UniRef90-UPI000237B1A5 |
| UniRef90-UPI00029B286A |
| UniRef90-R4SJ34 |
| UniRef90-E3HJ08 |
| UniRef90-C1ACT8 |
| UniRef90-U1L7M9 |
| UniRef90-N6YZ14 |
| UniRef90-A4SRR0 |
| UniRef90-K0EVL4 |
| UniRef90-UPIO004776BA9 |
| UniRef90-E8VUX0 |
| UniRef90-E8MC44 |
| UniRef90-K4KGI7 |


lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm

C C C C C


lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm


| UniRef90_M2W7Y5UniRef90_M4X473UniRef90_M2U780UniRef90_C4JZ35UniRef90_UPI00034702FBUniRef90_UPI00037A58D7UniRef90_H5WUI2UniRef90_UPIO003607641UniRef90_Q2N7V6UniRef90_R4X2M9UniRef90_UPI000378F604UniRef90_F2FA6UniRef90_B8NXX1 |  |  |
| :---: | :---: | :---: |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |



[^1]


[^2]

|  | UniRef90_M2W7Y5 |
| :---: | :---: |
|  | UniRef90-M4X473 |
|  | UniRef90-M2U780 |
|  | UniRef90-C4JZ35 |
|  | UniRef90-UPI00034702FB |
|  | UniRef90-UPI00037A58D7 |
|  | UniRef90-H5WUI2 |
|  | UniRef90-UPI0003607641 |
|  | UniRef90-Q2N7V6 |
|  | UniRef90-R4X2M9 |
|  | UniRef90_UPI000378F604 |
|  | UniRef90_F2LFA6 |
|  | UniRef90-B8NXX1 |
|  | UniRef90-C7YIJ2 |
|  | UniRef90-B1MJZ4 |
|  | UniRef90-B5WIF3 |
|  | UniRef90-X0Q254 |
|  | UniRef90-K6VPQ7 |
|  | UniRef90-13R4S7 |
|  | UniRef90-TOH2G9 |
|  | UniRef90-W9H7D5 |
|  | UniRef90-B1KCK4 |
|  | UniRef90-Q98AB8 |
|  | UniRef90-UPI000302D876 |
|  | UniRef90-N0E114 |
|  | UniRef90-A0A023XXE |
|  | UniRef90-UPI00037097A6 |
|  | UniRef90-IOYQQ0 |
|  | UniRef90-A0R3W6 |
|  | UniRef90-Q73VV7 |
|  | UniRef90-UPIO003724398 |
|  | UniRef90-UPI000237B1A5 |
|  | UniRef90-UPI00029B286A |
|  | UniRef90-R4SJ34 |
|  | UniRef90-E3HJ08 |
|  | UniRef90-C1ACT8 |
|  | UniRef90-U1L7M9 |
|  | UniRef90-N6YZ14 |
|  | UniRef90-A4SRR0 |
|  | UniRef90-K0EVL4 |
|  | UniRef90-UPI0004776BA9 |
|  | UniRef90-E8VUX0 |
|  | UniRef90-E8MC44 |
|  |  |



TSGAPVSVADTRQLLWRMAGAPPWVAHEADSKA DYYRGTM TKKSPTAMRMLKYAFNMTDDGMVGQQV FAGEATRLAYMT ASYPPEVTADAKMSDEMAADLDSANARQLERLVYSNLMSG GEGGPAAQKAAKDLVVEAVTRRPDDAT A A L P P L G GVALLKESLTNAA TTMEGALRAEDDYQPDLRRS RGKSALALRLTRKAVREAMASSFASAIKVEQUYLRELVYS ASRGPLASTATKRAI NAAT LISLEDTLTREERGQSTLLRT
 ANGPAMA RGTKHAINADLNLSLDMGLALEERSSRHPDHN

 A GVP $\square \mathrm{NQLVMQKLMDNQAYD}$
RGNSATTMRAAKVVADMCGRPDTAADTELLSRLSDEAHEG ARNAPLAVETSKRVMAHRRNHGSDPMWAMNDDALAAILAS ASGPTVAYAKDKNVLAVAAESSLEEALDAEDAAQSALGAT HAAPTQADGLAKTIMNRTFESSREDIYAQEAMAQASAFHR AEGPAFANGGTKTMLHQEWTMGQEQADEAEAQAQALCMLT ADLDPQASLRLAKHLLKAPGARQTQQQMDDEMWHFMTRVRS AAKPPKALQKSKALLKQELKQAVHFVIDDEARAFSDALQG IGGSSRVGTELTKRMLWSGMEASFESHMQHEGLAQLYVLTT A H NSPKAMQQVKRLCQDCASMPDESALDKTSAMDANIRCS



| UniRef90_M2W7Y5 | EDAKEG |
| :---: | :---: |
| UniRef90-M4X473 | GETVEG |
| UniRef90-M2U780 | T DAREG |
| UniRef90-C4JZ35 | EDRYEALK |
| UniRef90_UPI00034702FB | P EHLEAV |
| UniRef90-UPI00037A58D7 | D VA Q E V Q |
| UniRef90-H5WUI2 | PETKEAI Q |
| UniRef90_UPI0003607641 | P DFAQRV |
| UniRef90-Q2N7V6 | NDOVEGL |
| UniRef90-R4X2M9 | P QRAGL |
| UniRef90_UPI000378F604 |  |
| UniRef90-F2LFA6 | A D L L A A V Q |
| UniRef90-B8NXX1 | $\mathrm{K} D \mathrm{~V}$ |
| UniRef90-C7YIJ2 | KDAKEGMQ |
| UniRef90-B1MJZ4 | A NFA |
| UniRef90-B5WIF3 | EDHQEA $\square$ |
| UniRef90-X0Q254 |  |
| UniRef90-K6VPQ7 | A D V A E G V |
| UniRef90-I3R4S7 | EEAQEG |
| UniRef90_T0H2G9 | DE QAAMR |
| UniRef90-W9H7D5 | S EGREGL |
| UniRef90-B1KCK4 | K D HQAA |
| UniRef90_Q98AB8 | NDALEEG |
| UniRef90_UPI000302D876 | D D A QEGL |
| UniRef90-NOE114 | D DF LDEGV |
| UniRef90-A0A023XXE0 | DQSKA |
| UniRef90_UPI00037097A6 | EAARSFVE |
| UniRef90-IOYQQ0 | EDRDEALQ |
| UniRef90-A0R3W6 | DDHRARL |
| UniRef90-Q73VV7 | G D |
| UniRef90-UPI0003724398 |  |
| UniRef90_UPI000237B1A5 | D D L K E G V |
| UniRef90_UPI00029B286A | NDAAEGTR |
| UniRef90-R4SJ34 | ADHTEAVE |
| UniRef90-E3HJ08 | D A A R R F VE |
| UniRef90_C1ACT8 | E D |
| UniRef90-U1L7M9 | D EAVEG |
| UniRef90-N6YZ14 | DEARAAFR |
| UniRef90-A4SRR0 | EEAQ |
| UniRef90-K0EVL4 | G NFDEAlR |
| UniRef90-UPIO004776BA9 | HDSTEGVR |
| UniRef90_E8VUX0 | E EGQEGL |
| UniRef90-E8MC44 | P ESKA |
| UniRef90_K4KG17 | T EVLEAM |
| lupas_21 |  |
| lupas_14 |  |
| lupas_28 |  |
| jnet |  |
| conf | 028987179 |
| sol25 | B B B B |
| sol5 | B |
| sol0 | B |
| jhmm | $t$ |
| jpssm |  |


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

[^1]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    sol0
    jhmm
    jpssm

[^2]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf
    sol 25
    sol5
    sol0
    jhmm
    jpssm

