QUERY UniRefofo-T11422
UniRef90-DOVOE6
UniRef90_JORAAG UniRef90-F1YRTO UniRef90-E6TUH1
UniRef90
UONN UniRef90 UPl000366F389 UniRef90-K7YYY UniRef90_13THF5 UniRef90_A9D7T2 UniRef90 V4CAV1 UniRef90-G4HLY2 UniRef90-G1Y4L3 UniRef90-UPI0004124F75 UniRef90_B3E411 UniRef90-A0A058ZMM4 UniRef90_UPIO00362899C UniRet90_J5WD88
UniRef90-U7ULJ3
UniRef90 ToL6L4
UniRef90_UPIOO0465DF32 UniRef90-UPIo0037055D7 UniRef90 EOXX71 UniRef90-UPI00037DECBA UniRef90-UPIO004733012 UniRef90-H6LC40 UniRef90-U6NHAO UniRef90-UPI00027F85D4 UniRet90_W6M9E6 UniRef90-B9JTG6 UniRef90-G7W7F0 UniRef90-V8A7B2 UniRef90-HOPXS2 UniRef90-UPIOOO360B692 UniRef90-A0A021 X3D4 UniRef90-D7GXD2 UniRef90-D7CWR6
UniRef90 E8WL75 UniRef90-E8WL75
UniRef90 A3W451 UniRef90-W8X1F0 UniRef90-M1Z9E7 UniRef90-D8QHB3
UniRet90-UPIOOO466EDAB UniRef90-UPIOOO474B164 UniRef90_C6XC87 UniRef90-13VTCO
UniRef90_LOHW56 UniRef90-A9WFC7 UniRef90-UPIOOO3640A45 UniRef90-E3BHX5 UniRef90-UPIOOO35DCC5B UniRef90_O1QZ33 UniRef90_KOAYC7 UniRef90-UPI000477EF2B UniRef90_UP100046D3D21 UniRef90_R5SAK7 UniRef90-L5NA10 UniRef90 FOGUEG UniRer90-FOGUE6
UniRef90-UPIOOO225F89D UniRef90_UPIOOO37B1112 UniRef90_UPIo00373B56A UniRef90-Q81TU1 UniRef90-E6PRS6 UniRef90-FOLPI1 UniRef90-UPIIO003B66A8E UniRef90-UPIOOO3336577 UniRet90_U5T5U3 UniRef90_-W9B824
UniRef90_UPI0004733BBD UniRef90-Q7WG19 UniRef90-UPIO0029A1F3A UniRef90-Q7RYY4 UniRef90-R5E6NO UniRef90-E5WO17 UniRef90- K2JVY7 UniRef90_UPIO004651DD1 UniRef90-M1T3E8 UniRef90 Q31EW5 UniRef90-V5WJV8
UniRef90 F8E8U5 UniRef90-Q607W0 UniRef90_C9Y610
 GGTSVKVRH1LCEKQSKCLEALEKLKGGTRFDEVATQ GKPAEKEVARHVKTKEEAEKVQRLEKEDFEEAKK GEEVEASHILVYTEEEADDIYERYENGEDFATLAQD GAEEINARHIVVKDAEAEAIDAEDGGADFAELARE GK EEVARHILVESEDKAKDLIGKLNGGAKFEDLAKS GKQEIKARHILLESEKEAKNIDKELNGGTDFKLADE ATQAEEEISARHILVETEDEAKALDTEEDAGKDFAELAKE GTAGKVRHLCEKHSKDTEALQKLKDGGKFNEVASQ PEQVRASHLLVETKEEADK YKELQEGADFAAIAKE GGDEVRARHI EEVKASH
KAG GEQURASH AQTPVNEYNASH
$\square S P$ TVARH
$P$ VG
A K S A NEV EOVHAHII AEEEVHASH PEQVAAB GKYELHARH
ПAPDSVRASH GPKGGDAVKVRH

GEEYKAS
KGEQEDHARH
VSNEEFQLAH
MRGTEYRARH
EDEDRARH
VM
S

GQEDOTEYKA GPMMVTQTHARH

## GLKATTAVNVRH

A A E R ARH
GPMM
VGD

## LVKTKEEADALIKGLQGGADFAKLAQQ <br> L L E S

$L V$ K S E
LV E T E D E A K A I K A LVKTKE AKA A


$\qquad$K EVVKARHILVATEAEAKDI IA QLGKGADFAKLAKE SEEIKASH
A EQRRRARH QVGDKEYHARH SEE QRRVSH
$\qquad$
S E T L R A S H
A P V Q E E VVARA S H

 $K V D A S H$
$E Y S A A H$
PETASAKH

GTTEYEAQH
SGAEQRQVSH
GGSAVKVRH
GAEAP
REYKARH
TEDDASH
A QAGDKEYHARHILVADEETANEVKEKLDNGEDFADLAKE $S P D Q V A A L D R K K A E G L L A R A K K G D D F A S L A A A$ SEEWRLANILIPTPESANELYTRLKSGADFGQMADA ASKGAQS $\square \mathrm{NV}$ RHILCEKHGKKEEALAKI RDGADFGAVARE




UniRef90_UPI000423ED70 UniRef90_W8A7S3
UniRef90-I0QQI7 UniRef90_IOQQ17
UniRef90_UPI00047BC06A UniRef90-D7N622 UniRef90-A2SGN4 UniRef90_UPI000362B888 UniRef90_D5ALC8 UniRef90-KOIP36 UniRef90-UPI00036E3E41 UniRef90-K2B551 UniRef90- E3HHH4 UniRef90_A0A011QW58 UniRef90_E4TTT6 UniRef90-A9VU49 UniRef90_UPI0003B67DB6 UniRef90_A1U6G0 UniRef90_A4XX58 UniRef90-A1K9J7 UniRef90_UPIO003751B6D UniRef90_UPI00046CEE62 UniRef90 WOPIH9 UniRef90-Q7NQB0 UniRef90_UPIO00402253A UniRef90-UPI00037F722A UniRef90-E8XU18 UniRef90-R8GPI7 7 UniRef90-R7ZJA5 UniRef90_K1ZP62 UniRef90-F9ZU23 UniRef90-C6E3D6 UniRef90-X1FEW8
UniRef90-W6MEA7 UniRef90_UPI00035C71BB UniRef90-A3J1J7 UniRef90-F4BSW5 UniRef90-Q2SE15 UniRef90-D5WRJ2 UniRef90_EOUUJ3
UniRef90-ROG8S3 UniRef90-V5HGF8 UniRef90-C7RNL7 UniRef90-F7ZH82 UniRef90-J1FGC1 UniRef90-W9VBI5 UniRef90_UPI0003B7499A UniRef90_UPI00036EB513 UniRef90_UPI0003619E2B UniRef90-G8QPR6
UniRef90-E5ALL4
UniRef90-V2UBZ1
UniRef90 G1UV66
UniRef90_AOA024HBQ9
UniRef90_UPIO002F03805
UniRef90-UPI000401A00D UniRef90-V6T227
UniRef90-14X9B1 UniRef90_UPI0003B7BB36 UniRef90_D2EFB9 UniRef90_A0A024HG33 UniRef90_D9SID4 UniRef90-Q31GN2 UniRef90-D2QHY2 UniRef90-V4IV64 UniRef90-B8DPI0 UniRef90-A8IJI6 UniRef90_Q54Z53 UniRef90_R5DXJ6 UniRef90-M7CRE2
UniRef90 G2IVJ4 UniRef90-E8WNS1 UniRef90-Q312E0 UniRef90 H1XSV2 UniRef90-K1ZMN1 UniRef90_Q2SK31 UniRef90_UPIO00370024B UniRef90-D8MN17 UniRef90 E4TSN5 UniRef90_UPIO00477F1A5 UniRef90-D2U2A7 UniRef90-H3NUX7 UniRef90_UPIO003B407EA UniRef90-C3XNY2 UniRef90-E9UCW8 UniRef90_A6VU55 UniRef90_B6BIQ7 UniRef90_UPIO003F6845E

1301020

 $A N T A S A D H L L V D D E N K A N E L L A Q L Q Q Q G A D F Q E L A R K$
 P N SVDAS HIL V E DENKANELYNKI LAAGENFEELAKN A Q A G D K E Y R V R H L L V AR H I L V S T E A Q A N E LLK T A I E K G A S F A E L A Q Q A N K Y H A A A H A P E E E
 QMGNTEYKVRHILVEREDEAKTI IANLVKGAKFDEEAKQ

 A R H L L VA SEEDKCN E L K A A I E G G A D F A Q L A K D
 A A LD A R E F F R A R H $\quad$ I L L V
 A P M MVVEQYHPRHILI RTKARIDQVRDRIMRGAKFADMAK L A A N G GK E Y K A S H

 GAQMVEQTHARHILVKTREKLLGLRERILLKGEDFAKLARE

 K I K A S HI L V K K R S EAD RLL K K EI Q S G T D FAE L A K K
 K E V H A A H I L C C T E K K A L E

$S P E Q \square A A R$ EQRSLSH
 EEEFNASHILLETEEEADAVKEAI DAGANFAATARE
 FFDEKSKAEEVLAEI NNGADFAEMAKE P E K Q V
 SAEEY QVAHILVVRSKAKAEQILDRLKRGEDFAQVAAA


 $\square E P$ E K R R V S Hi L I D A K E K A D A L L A Q L


 P D E Y H L A H I L V A A R E R A D QAF A Q L S G GA D F S QV S A G
 PGGRDAYHLRHILVAAKKQAREI DQRLNNGEDFASSATR APEPMSQTHARHILI RTNERLSQLRLRIVGGDDFATAARA

ETEVVARHI LVVDEAKAKE I AAKAKA GADFAK LAKE T QVKVRHI L CEKEAKLMEAVNLIGS GKTFNSVAQS K EVVRAS HVLVK TE D E A K K L R E D I N A G K S F E D A A R Q E ERRAAHILI DAS AT I A KII QDRLSNGESFA DLAK E $P \square M V E$ Q Y H V R H I L L R T N E RLL LQ I R D R I E R G A S F E EMA K L GNDTRISHIVVRSETEAKQVLAQLKSGGSFSDVARQ E E R V H A R H I L V A A E K K I N N E L Y E R


 RIKI A HI ML Q T EKELKKI YEQLNSGENWFILATK
 E QTNVRHILVIKAREFIA SLLKQRIVSGEDFAELAKE
 GTILMA K T A A A L H H I L V


UniRef90 UPIO00423ED70 UniRef90_W8A7S3 UniRef90-I0QQI7 UniRef90_UPI00047BC06A UniRef90_D7N622 UniRef90_A2SGN4 UniRef90_UPI000362B888 UniRef90_D5ALC8 UniRef90_KOIP36 UniRef90_UPI00036E3E41 UniRef90 K2B551 UniRef90 E3HHH4 UniRef90_A0A011QW58 UniRef90_E4TTT6 UniRef90 A9VU49 UniRef90_UPI0003B67DB6 UniRef90_A1U6G0 UniRef90_A4XX58 UniRef90_R5YCY9 UniRef90 A1K9J7 UniRef90_UPI0003751B6D UniRef90_UPI00046CEE62 UniRef90 W0PIH9 UniRef90-Q7NQB0 UniRef90_UPI000402253A UniRef90-UPI00037F722A UniRef90_E8XU18 UniRef90-R8GPI7
UniRef90_R7ZJA5 UniRef90_B3PKV2 UniRef90_K1ZP62
UniRef90-F9ZU23
UniRef90_C6E3D6 UniRef90_X1FEW8 UniRef90-W6MEA7 UniRef90_UPI00035C71BB UniRef90_A3J1J7 UniRef90_F4BSW5 UniRef90-Q2SE15 UniRef90_D5WRJ2 UniRef90_E0UUJ3 UniRef90_R0G8S3 UniRef90_V5HGF8
UniRef90 C7RNL7 UniRef90_F7ZH82
UniRef90-J1FGC1
UniRef90_M5E024
UniRef90_W9VBI5
UniRef90_UPI0003B7499A UniRef90_UPI00036EB513 UniRef90-UPI0003619E2B UniRef90_G8QPR6
UniRef90-E5ALL4
UniRef90_V2UBZ1
UniRef90_G1UV66
UniRef90_A0A024HBQ9 UniRef90_UPI0002F03805 UniRef90-UPI000401A00D UniRef90_V6T227 UniRef90_-14X9B1 UniRef90_Q4K4X7 UniRef90_UPI0003B7BB36 UniRef90_D2EFB9 UniRef90_A0A024HG33 UniRef90_D9SID4 UniRef90_Q31GN2 UniRef90_D2QHY2 UniRef90_W0TQ78 UniRef90_V4IV64 UniRef90_B8DPI0 UniRef90_A8IJI6
UniRef90_Q54Z53 UniRef90_R5DXJ6 UniRef90_M7CRE2
UniRef90-G2IVJ4 UniRef90_E8WNS1 UniRef90_Q312E0 UniRef90-H1XSV2 UniRef90_K1ZMN1 UniRef90_Q2SK31 UniRef90_UPI000370024B UniRef90_D8MN17
UniRef90_UPI000477F1A5 UniRef90_D2U2A7 UniRef90_H3NUX7 UniRef90_UPI0003B407EA UniRef90_C3XNY2 UniRef90-E9UCW8 UniRef90_A6VU55 UniRef90_B6BIQ7 UniRef90_UPI0003F6845E

SKDPSKDNGGDLLGWSVPSAFVVPFSDAMVKLEKGK F GDGTASNGGDLGFFTRAEMDEAFAEAAFDLVVGEV HSTCPSKRDGGSSGEFRK GDMVPAFDKVVFS Y S S C P SK Q G G D L G S F S K G Q MV P E F E EVVAF S Q E $\square G S V V$

 $K S Q D G A A N G G D L G W F D L T A M V P P F$
 RS EDSAAK GGDLGKF GRGRMVKPFEDAAFAMK KPG ESTCPSKKGGDLGFFKRDMMVKEFSDAAFALK】GE I Y S D A T A P Q G GEELGWLNPGETVPPFEAAMNALKPGEISQ
 Y S ED T GSKEQGGE DFAPGQTVVEFE EAAY K LDDAGQVSE FSEDSAANSGELDPFGTGRMIPSFEEVAFKLQA P $\operatorname{CH}$ E S DAS A LIE G GDMGWRSES QLPSSLVAPVVPDLVEVEPSQ NSSCPSRNGGDLGSFGPGQMVKEFDTVVFSAPVG
Y SEDS SEK G GLLP LLLT T GQIIP SFEKAAFALEIGEVSK S S DAP G DS G G DL G WRQR DRLDPALYS DADR DLRPGELS
FSRPSAEKGGDLGGWFRHKDMDPEFATAAF GL NTGE
YS DTSAESGGDLGWFRLDMMVPAFSEALASLEAGEYSD YS DTSAPLGGEI GWVPPGASDPAFEKAMNALQPGQLS Y S D G S NA K G G DL G WV NM G DLVVPE F NS GKEAQNGGDLLGWFVAGQMVEPF
 Y STD SAAK G GELG GWF S VGTMVDEFNDAAYALLELNTLSE NSEDTGSMGGDLGWSTPGMFVPAFEEAMAQTGIGDDS
 NSTCSATNGGDLGYFPRGKMVPPFEEAAFALKSGEVSDD HS LCS SKKGGSLGFFTRGKMVKEFEKAAFSLAKGELSN


Y S Q CPSK S G GDLG WFF GK GRMVVPEFEKAAFE GEK GK I
 $\frac{\mathrm{V}}{\mathrm{N}}$

## S

N

## F

## K

FS EN S A A N G G E $L$ L
HSTGPAENGGDLGFDTAGERDATFRDAAMELNVGEVS


K S Q DP GVNGGDLGWFNPAGMVPEFGAAVKAQKKGEVSE Y S DAPALQGGGNLGFRPDDRMPNDFAETVQKMQPSQLS NSQAPASKGGDLGFRSTSADPEAMTQAASQLRPGQVN Y S ND SAA N G G DL G WVNLGMMVPEFEEKKMK STPDGQQL S E
 Y S D S G E $\square G G D L E W \square E R D V M D P A F$


F


Y S A Q Q A LE G G DL G WL Q A G QVP T LIF



| $H S E D K$ | $R$ |
| :--- | :--- |
| $\square S$ | $L$ |
| $C$ | $P$ |

Y S I DTA TA DKE LG Y A GRGVYYDPDF
YSDASNTRGGDLGWVNLLGDTVPTFEQAMTSLLPLNTVSQ
CSDATAGTGGDLGWQAKGKMLPEFEKACAKLLK KPG
ASEPSAPLGGDLGWF GRGQMVPEFEQAAFAAAAGQV

$H$
$Y$
F SPQALK G GNMGWGK $\square Q E L P S L$
Y S D G S S S Q G G D L G WI S P G E TVVP E F E R A M N S L Q
r

H
HSDDSAQE GGELGWTNPGQMVPEF $K$ S D G S A L $Q$ G G G E L G WRP A S R LLPP P F $H S \square C P S K R G G D L G E F R Q G Q M V P$ $K S T P S G P K G G D L G Y F A Q G Q M V P$ E F
mmmo
DATFALDENKG


$\begin{array}{lllllllllll}\text { K } & V & F & S & M & K & L & N & E & I & S \\ A & D \\ A & A & T & T & P & V & N & G & I & S & M\end{array}$
$\begin{array}{llllllll}\text { T A } & Y & T & T & P & V & N & G \\ \text { D } L & A & G & M & E & R & G & D\end{array}$

| 1 | $K$ | $D$ | $A$ | $G$ | $M$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $E$ | $E$ | $R$ | $G$ | $D$ | $K$ |
| $D$ | $E$ | $V$ | $V$ | $F$ | $T$ |
| $G$ | $E$ | $V$ | $E$ | $T$ | $S$ | | $V$ | $V$ | $F$ | $T$ | $G$ | $E$ | $V$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $G$ | $T$ | $V$ | $L$ |  |  |  |
| $A$ | $F$ | $K$ | $L$ | $D$ | $K$ | $G$ | AAFAMK GVGEDQ $G$$\begin{array}{lllllllllllllllll}D & A & A & F & S & Q & E & V & G & K & V & G & D \\ E & K & L & F & S & M & V & G & D & I & S & E \\ A & A & M & N & K & L & A & N & E & V & S & E\end{array}$

E K G
$E R A M N ~ S ~ L ~ Q ~ D ~ G ~ Q V V S E ~$ ..... K G E
GAE $\square G$
$\begin{array}{lllll}N & T & E & R & N\end{array}$

E K G
$\mathrm{N} D \mathrm{~K} V \mathrm{~F}$ GMKVVGTVS E
E A A A F AD

UniRef90_UPI000423ED70 UniRef90_W8A7S3 UniRef90_UPIO0047BC06A UniRef90 D7N622 UniRef90-A2SGN4 UniRef90_UPI000362B888
UniRef90 D5ALC8
UniRef90 ${ }^{-}$KOIP36 UniRef90_UPI00036E3E41 UniRef90_K2B551
UniRef90_E3HHH4
UniRef90_A0A011QW58
UniRef90-E4TTT6
UniRef90-UPI0003B67DB6
UniRef90_A1U6G0
UniRef90_A4XX58
UniRef90_R5YCY9
UniRef90-A1K9J7
UniRef90_UPI0003751B6D
UniRef90-UPI00046CEE62
UniRef90_W0PIH9
UniRef90_Q7NQB0
UniRef90_UPI000402253A
UniRef90_UP10003
UniRef90-R8GPI7
UniRef90_R7ZJA5
UniRef90_K1ZP62
UniRef90-F9ZU23
UniRef90_C6E3D6
UniRef90-X1FEW8
UniRef90_W6MEA7
UniRef90_UPI00035C71BB
UniRef90_A3J1J7
UniRef90-F4BSW5
UniRef90-Q2SE15
UniRef90_D5WRJ2
UniRef90_E0UUJ3
UniRef90_R0G8S3
UniRef90-V5HGF8
UniRef90 ${ }^{-}$C7RNL7
UniRef90_F7ZH82
UniRef90 J1FGC1
UniRef90-M5E024
UniRef90-W9VBI5
UniRef90_UPI0003B7499A
UniRef90_UPI00036EB513
UniRef90 UPI0003619E2B
UniRef90_G8QPR6
UniRef90-E5ALL4
UniRef90-G1UV66
UniRef90_A0A024HBQ9 UniRef90_UPI0002F03805
UniRef90-VF1020 V6T227
UniRef90_14X9B1
UniRef90_Q4K4X7
UniRef90_UPI0003B7BB36
UniRef90_D2EFB9 UniRef90_A0A024HG33
UniRef90 D9SID4 UniRef90_Q31GN2 UniRef90-D2QHY2
UniRef90 W0TQ78 UniRef90-V4IV64 UniRef90_B8DPI0 UniRef90-A8IJI6
UniRef90_Q54Z53
UniRef90_R5DXJ6
UniRef90_M7CRE2
UniRef90_G2IVJ4
UniRef90_E8WNS1
UniRef90_Q312E0
UniRef90_H1XSV2
UniRef90_K1ZMN1
UniRef90 Q2SK31
UniRef90_UPI000370024B
UniRef90_D8MN17
UniRef90 E4TSN5
UniRef90_UPI000477F1A5
UniRef90_D2U2A7
UniRef90_H3NUX7
UniRef90-UPI0003B407EA
UniRef90_C3XNY2
UniRef90_E9UCW8
UniRef90_A6VU55
UniRef90_B6BIQ7
UniRef90_UPI0003F6845E

Y T K T P V K S D F G Y HVV I QL D D S R
TSEPVESAFGFHVI EKTD

PVKTNFGFHI I KL
TEAPI K S QYGF HI L K L E DVR
Q GP V R T Q F G Y H L I
G P V Q T E Y G WH V I K L ME S R PV K T E F G Y H I I K R I D
$E L S D D V E S Q F G Y H L \quad R L D$
T G PVVK Q F GHHI I K S V E Q K $P \vee Q S P$ F GWH L I EVEERR

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

PI K T S Y G Y H I I K V T D K K
Q $\quad$ S A P V Q T P Y G WHV I K L I E K Q


 LMRSAA GLLLVVKLVDRR F TRS S PVATEFGWHVI R I E EKR S P V E S Q F G WHVI L H E E N R | $P$ | $V$ | $R$ | $S$ | $Q$ | $G$ | $W H$ | $L$ | $T$ | $V$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $P$ | $V$ | $R$ | $D$ | $R$ | $R$ |  |  |  |  |
| $R$ | $F$ | $G$ | $W$ | $L$ | $L$ | $L$ | $V$ | $E$ | $G$ |
| $K$ | $R$ |  |  |  |  |  |  |  |  |

 $\square G P$ P R S GVG F HI L K V N D $\square$ R P V K S S S H G Y H I I I K L T T E K K PVQQ S F G Y H V I E I T D D K R

 VV K T E F G Y HI I K R T G
A PFKTRFGWHIVQQLERR VMRSPA GFHIV KLI E S R $Q \square S V P F Q S Q F G W H I V K L I E K$
 VVY GPI QTQF GYHLL
 PVQS P F G F HL I EV LERR



TSEPVQSPFGWHLI QVVERR APVKSQFGYHVIVVDDSR



$\qquad$
Q G
P A A E F G Y H

PLVRTQFGYHII PI K T QF GY H I I E V M E R
E L A GPVVRSRYGWHLI R R V E E H R
N T AVLRSPSGFHI LKL VEKR PVKTEF GYHLI KLTK $\quad$ KQ

 $G P \vee R T Q F G H H L I D V T A R$
 VSEPVETQF GWHLI QLTG




| $G$ | $I$ | $V$ | $Q$ | $T$ | $Q$ | $F$ | $G$ | $F$ | $H$ | $I$ | $I$ | $Q$ | $L$ | $I$ | $E$ | $R$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $N$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $\stackrel{P}{~ V}$ K T E Y G Y H I I K L L N D V V


$\qquad$
!G



$P$ T GP L H T Q F GY H I I LKV L Y R



UniRef90 D1DK86 UniRef90_UPIo0046A8F01 UniRef90-C1DHF5 UniRef90-Q39XG7 UniRef90-F4GLI7 UniRef90-13Y834
UniRef90-MTNLL UniRef90-16Z1E4 UniRef90-UPIOOO465BODO UniRef90-UPIO002559E6A UniRef90-N1RBW3 UniRef90-UPIOOO25571EB UniRef90-UPIO0034C846F UniRef90-E8TVV6
UniRef90-R9PGD2
UniRet90-N8VTR5
UniRef90-Q1GZC0
UniRef90-R5IX75
UniRef90-DIVSM7
UniRef90-W0V2J8 UniRef90-UPIO0037372EC UniRef90_L8JQ71
UniRef90-LOK9R7
UniRef90_UPIo002F104B5 UniRef90-M4WUM4
UniRef90-G4N6Z9 UniRef90-UPIOOO3631228 UniRef90-UPIO0034788A2 UniRef90-N1WKY1 UniRef90-H3NML3 UniRef90-A1TUQ0 UniRef90-K2SKA1 UniRef90-UPI00029B4C45 UniRef90-B5EHA5 UniRef90-B1ROEO UniRef90-V2IYZ9
UniRef90_O65LT4
UniRef90 B4F210
UniRef90 R9MK
UniRef90-F2GAS1 UniRet90-C5AD09 UniRef90-WOEW87 UniRef90-G4D714
UniRef90 D3UQK7 UniRef90-V6SA03
UniRef90-UP100046F4CD7 UniRef90-D3VCQ3 UniRef90-B6FWM2 UniRef90-K1YZB6 UniRef90_UPIO0035D5256 UniRet90-L8XYU1 UniRef90-R6DB47 UniRef90-UPIO0036E07F3 UniRef90-UPIO0046630D7 UniRet90 E8WJU0 UniRef90-K2AN82 UniRef90-Q7N8V5 UniRef90-UPIO003827FEB UniRef90-O1JXM1 UniRef90-R7G1U7
UniRef90_W1IQA7 UniRef90-R91H34 UniRef90-A9DXG3 UniRef90-UP1000395D4DC UniRef90-K2MF30 UniRef90_14AMZ5 UniRef90-UP1000360EF89 UniRef90-UP100035D5DA2 UniRef90_1Y Y 38
UniRef90-UPI00029AEAB3 UniRef90-I2JLT6 UniRef90-UPIIO003110B16 UniRef90O-UP100037826D4 UniRef90-Q1BTQ6 UniRef90-GoJ513 UniRef90-G9EPM7 UniRef90-W8G3F1 UniRet90_A9BH87 UniRef90_UPIO004152929 UniRef90-Q2BK15 UniRef90-B8GMM55 UniRef90-V5PM24
UniRef90 E8UX53 UniRef90-UP100047C280A UniRef9-UP1000364DCBC UniRef90-R8AQ33 UniRef90-UPIO0035F10BD UniRef90-UPI0002F98192 UniRef90_T3G400
UniRef90_C7LT93

 E WK A S HI L V K E K A L A D RLY Y Q I K G G A D F S S L A R T A A Q NVTTQTK A R H I L I R T K R RLLA QL R E R I L G G E D F A T L A R A
 P A Q T HA R H L L I E S K A EAAQK L LAA QI R G GA S F E E L A K A

 $\square S$ VT EVVHS R H L L L K A R A K L E Q V A A D I K S GK D F A T A A K Q GKEERRASHILVVKAKA KAQELLAAEVKAPGRFAEDAR K MAKA QARAQHI IVSSEKKALEVILEKKLNGSSFEAMARF

 A QA GDKEYHVRHILLLATEAEAKDVIAKLKGGAKFEDDAKA
 G A P A V E Q T H A R H H L L i K A A Q MQGEERKARHI LLAAVKAKAE QLQKTVVKAPSKAAELAKA
 D SVVEAMHILVVKDE KAKEVVEKLKKGEDFKKVSDE

PRS
P K ASARH

P T GEA QYDVA V S V T E V K A R H I L V K GE T V R A K H L L

Q THVRHIL ASDEVKAQ GPTVSASH I T V S H I L V A D E A K A K E V | $P$ | $D$ | $S$ | $V$ | $R$ | $A$ | $R$ | $H$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $I$ | $L$ |  |  |  |  |  |  |
| $V$ | $T$ | $E$ | $V$ | $N$ | $A$ | $R$ | $H$ | EMAKARHILIKAE GESVV P VKVRHI PETVSAKHILMDTE


 GER L R A R HI L V K A R EK A E A L L K RVVQK GED FA A VA K V






SE QVRALH LVDKSQATSLLDQLRKGANFQTLAKK $\mathrm{K} V \mathrm{~V} \mathrm{Q} \mathrm{V}$ TKTKVRHILIVTRKRLLALKERLANGEDFAALARA PASPEQVQA A EVVRLESVVQT LLLA D GA E F S E VVA A G AEQRHAAHILVEAKAKIEEI QARLLAKGEDFATLAKE K Q T R A S HI L L K TVA L A K ELR QRI LINGESFRDLAKE VK A ERRRASSHILI DAQAKAEDLLAAQINAGADFAELAK E
 GPNASQQLRFQHIFIKAQKKADALLQQAKSGADFERLAKN E IVVKA S H L LFKTKKEDADIKVKAEAAEAGADFHKLAA T
 D Q T KVRHI LI Q TEELI QQLYERLQAGEDFAALARE GK E E E R R A S H I L I K A K A R A V D QRLVS HI L L KA K R Q I S QL Y QRI A S GEDFA A A K E TQTHARHILIDARERIAGLRNRILMGNDFADLARA SEPEYRLSEI IVKAQKKATEALDKAKAGGDFAABAKE
 K E Q V K V $V$ R Hi L I A V K A K A D D L L K Ql K S G G N F A D L A S QEVVNAAHIL I T A Y K Q A LAVVRK QAQNGTEFAKLA LD H I L V K T E K E C L A L K K K L D D GA D F G K L A R Q
 G E E V V R A S H
UniRef90 D1DK86 UniRef90_DIDK86 UniRef90-C1DHF5 UniRef90-Q39XG7 UniRef90_F4GLI7 UniRef90-13Y834
UniRef90
MTNLL UniRef90-M7NLL1
UniRef90 $16 Z 1 E 4$ UniRef90-UPIOOO465BODO UniRef90-UPIO002559E6A UniRef90-N1RBW3 UniRef90_UPIO0025571EB UniRef90-UPIO0034C846F UniRef90-E8TVV6 UniRef90-R9PGD2 UniRef90- N8VTR5 UniRef90-Q1GZC0 UniRef90-R5IX75 UniRef90-D1VSM7 UniRef90-Wov2J8 UniRef90-UPIO0037372EC UniRef90_L8JQ71 UniRef90-LOK9R7 UniRef90-UPIooo2F104B5 UniRef90-M4WUM4 UniRef90-G4N6Z9 UniRef90_UPIOOO3631228 UniRef90_UPIO0034788A2 UniRef90-N1WKY1 UniRef90-H3NML3 UniRef90-A1TUQ0 UniRef90-K2SKA1 UniRef90-UPI00029B4C45 UniRef90-B5EHA5 UniRef90-B1ROEO UniRef90-V2IYZ9 UniRef90_O65LT4 UniRef90 B4F210
UniRef90 R9MK UniRef90-F2GAS1 UniRef90-C5ADO9 UniRef90- WOEW87 UniRef90-G4D7147 UniRef90-V6SA03 UniRef90-UP100046F4CD7 UniRef90-D3VCQ3 UniRef90-B6FWM2 UniRef90-K1YZB6 UniRef90-UPIO0035D5256 UniRef90 L8XYU1 UniRe99-R6DB47
UniRef90-UPIO0036E07F3 UniRef90_UPIO0046630D7 UniRef90-E8WJUO UniRef90-K2AN82 UniRef90-Q7N8V5 UniRef90-UPI0003827FEB UniRef90-O1JXM1 UniRef90-R7G1U7
UniRef90-W1IQA7 UniRef90-R91H34 UniRef90-A9DXG3 UniRef90-UP1000395D4DC UniRef90_K2MF30 UniRef90_-14AMZ5 UniRef90-UPI000360EF89 UniRef90-UP100035D5DA2 UniRef90-IYYL38
UniRef90-UPIO0029AEAB3 UniRef90_I2JLT6 UniRef90 UPIO003110B16 UniRef90-UP100037826D4 UniRef90-UP1000477A9CE UniRef90-Q1BTQ6 UniRef90-GoJ513 UniRef90-G9EPM7 UniRef90-W8G3F1 UniRet90-A9BH87 UniRef90-UPIO004152929 UniRef90-Q2BK15 UniRef90-B8GMM55 UniRef90-V5PM24
UniRef90-E8UX53 UniRef90-UP100047C280A UniRef90-UP1000364DCBC UniRef90-R8AQ33 UniRef90-UPIO0035F10BD UniRef90 UPIOOOO2F98192 UniRef90-T3G400
UniRef90 C7LT93

YSDASAGNGGDLGWFADGVMV ${ }^{60}$ VAFEEAVHAALKPGQV HSDDSAQQGGDLGYFPRGRMVPAFETAAFALDPGEVSE FSQDSADKGGDLGYAGPDVYDPAFEKVLYSLKKEGEVS
ESSCSSAQGGDLGFFGGQMVPEFETAFNLKPGEVSD HSTCPSKKGGDLGWFGPGKMVGEFERAVQKLSHGAVS HSDDSALKGGDLGWVNPGDTVPEFEETMTALATIGT
$H S D D S A L K G G D L G W V N P G D T V P E F E E T M T A L A M G M$
$F S D D P A Q S N G G Y F A L Q M V Y F E N T A T T P V A V S$
RSAENALEGGDMGWRKAAQLPPPFDTQVRDLAVGEVTO HSQDSAVRGGDLGTFPEGKMVPEFDAALKELK NPG HSDDSASQGGELGWTQNGQMVPEFEQVMNTTAEGEDS YSEDKARQGGSLGWKTKGSLDPKFEEVAFALLEPSTTASPK SSSETALEGGEMGWRKAGQLPPPFDSMLSKMSVGDVTE LLSDDSANQGGDLGWTSAEVFDPAFRDALLKLNKGQVSE ESQDSAASGGDLGFFGHGAMVKPFEDAVFSLKKGEISD SSCPSAKQGGDLGEFAKGDMVKSFDKAVFSGPLNEV YSTDSARDGGSLGWVSPGMMVPEFEQVMKDTPVGQVSK YSDASANNGGDLGWTNAGDTVPAFEKAMNALDINELS YSDSSASDGGNLGYFNRGEMAAEFEDAAVNLKVGE
ESKDSATNGGDLGEFTNGQMVQSFNDA IKKMEKGETSD SKDTSAENGGDLDWASPSSFPKVFSDAFVGLKKGQUM SSEANALKGGDLGWKNINEMPTLFSELINDKPKDTUEPG YSEPSGKKGGRLGSFAHGQMVPAFEKKAFSMSVGEVSK YSDDSASKGGDLGWIYPGDTVPEFERAMNEDKPGEVSQ YSEDPGSNGGDLNWVDPESLVPEFREVMNNAPQGQVTK YSEDKGRQGGALGWKAKGTLKAEF NSEDPGSKDNDLGFFGRGTMVKPFEEAAFALKKGETS HSEDPSTNGGNLGYFTALQMVYPFENAAYNTAEGKVSM YSTDKANKGGQLGKVSKNGYDATFVEAAFKLKENEUSE
FSEDKARQGGSLGWKTRGSLLPDFEKVAYELEPSTTMSPK YSQDSAAQGGDLGWRYPNSFVPA
S
Y
N
NS DGESKQGGNL GEFSKGMMVPE F
YSDGT AEK GGDLGWVGKDNMDKD

F S T C P S QR G G D L GEF GK GQMVP E

K S S CSSANGGNLGEFSQGQMVPEF
Y S T DTATKDNGGKPFGPGKMDPAF

YSQDSANNGGDLGWFRRGTMVKAFNDAAFSSKVNEVSE
YSEDSAMRGGELGWNLPSAYDPAFRDALTKLQKGEI SQ Y S DCPSMQ G G D L G L F GK GQMDP EF
F S
QS Q
$N S T C P S$ Q K G G D D $L$ G E F GR G Q M $V V$ K E F
YSDDPSAKTNKGGYFTSLQMVHEFEDAAFAAKIGEVV
FS QDSAN QGGDLGWASP DMYDPAF R D A V Y N N GE I N D I I T D
ESTCPSRNGGELGVFGKGQMTPPFEKAAFALKKGELSK

Y S D A S D A T G G DMGGWR A Q D R L


S

Y
N QCPSKRGGDLGEFRRGDMAPPF

LS
$H S$
Y
$F$

HS QDSAVK G GEL GWADPNMYVP EFDNVVFRKKVLEI

 Y S LD S AVK G G DL G WVT P GE L V P E F E K T M N K L A L N QV S
FS DDSGAS GGDLGWVNPGDMVPA

HSDDSAMRGGDLLGWTDPGDLVPQF


$F$ S DNSKPK G GDLLQWF S T GKMDP S



## UniRef90_UPIO004194107

UniRef90-U2J1T7
UniRef90 E5ARG5 UniRef90-E5ARG5
UniRef90_UPIOOO35C261B UniRef90-U3C2DO UniRef90-L7EFN7
UniRef90 B6GOKO UniRef90 R7C3U0 UniRef90-B9DY54 UniReffo-O26DE6 UniRef90-M3HTJ9 9 UniRef90-17ZBG1 UniRef90-UPIO00375CD8E UniRef90-UPI000415EB3E UniRef90- X0YCU9 UniRef90-A0A037Z5L4 UniRef90-G31Y07 UniRef90-Q2S9C1 UniRef90-U5MXM3 UniRef90-X2H364 UniRef90_UP10003751C19 UniRef90-L1QHP5 UniRef90-D5C4K2 UniRef90-A0A0521743 UniRef90-13YS51 UniRef90 G7FTZ4 UniRef90_UPIOOO382803A UniRef90-B7VIE4
UniRet90_H8Z6G3
UniRef90-B5JTL6
UniRef90 W102T1
UniRef90-H5SD51
UniRef90_O3AFL1
UniReffo-H3KHZ3
UniRef90-UP1000361D6CA UniRef90-UPI000366D43A UniRef90--P4K6G6
UniRef90-F4DBA7
UniRef90-UOG1H5 UniRef90-R5PKH3 UniRef90-A0A011 NL24 UniRet90_C5BPB6 UniRef90-H1RZ29
UniRef90 U4k8M9 UniRef90-K2JLL8 UniRef90-J3VSM5 UniRef90-F2K4J6
UniRef90 F9TR90 UniRef90-UPIO002198618 UniRef90-UPIOOO35CC714 UniRef90-R7BWR7
UniRef90-U5T8G4 UniRef90-UP1000371E6C5 UniRef90-V5FAG0 UniRef90-G2J383
UniRef90-G4QFQ8 UniRef90-D31LP4 UniRef90-UPIO003B30AA5 UniRef90-A3WLC7 UniRef90-G8R6M2 UniRef90_U2QVG5
UniRef90 $10 \mathrm{HXX9}$ UniRef90_UPIO0036166BA UniRef90-J3D2U5 UniRef90_UPIo0047E8292 UniRef90_R8AM50 UniRef90 UPIOOO37CF80E UniRef90_D3RT54
UniRef90 JokCF2 UniRef90-A1WVT5 UniRef90-UPIOOO3693871 UniRef90-UPIOOO467C72B UniRef90-V5C3W5 UniRef90_10AGR9 UniRef90-L1J3X1 UniRef90 M M OLS 36 UniRef90-Q0AZ68 UniRef90-G4MFB1 UniRef90-UPIo003B60F5F UniRef90-W0DWN6 UniRet90-V2KEW4 Uniinefol K7AEO3 UniRef90-A6VW24 UniRef90 A6DQ60 UniRef90-14YHB3
UniRef90 $-\times 5 \mathrm{DG} 16$ UniRef90-UPI0003729C51 UniRef90_UPIO0036497BB Unirefo_UPIoooutciber

PGHAKHILVETEEEAKAILKDLEAGKDFAEIAKE PGEVRASHILKARQKAESLLAQVTAPEQFAKLAQQ EKEVRARHILFRADKKAQDVEAQLKKGADFAKLATE PNKJHLAHILVKTENEAKSVKARVDKGEDFGKVAKE KDEVEASHILIKTTDEADQVLKEVKAGGDFAELAKK EYRVEHILLKVKALDAEDILERVQKGEDFAKLAAA PNKMHLAHILVKTEDEAKKVKKRLDDGEDFAKVAKE EVNASHLLVKAWNKGNSIKNELDNGADFSQLART EAHLAHI QVASEAEAQAIEQALKNGEDFATLAKN TEYHLGHILVKRRAKANDLLKKLRAGDDFAQLAMS GNEQRRASHILIEAKDKAQTLLATIKNPKSFEELAIK KE円KASHILIKAYNKAAEAYKKAVASEDFGKLAKA KTEVNVSHILVKAYEKA DADRTR\|Q\|GESFESIARG HSAHILVKTEEEAKKVKDRLNKGEDFAKVAKE STQYHLGHILIAVKEKAEGIVGSLRGGQDFSQTADS EQSKVRHILVQAKKLIEEIVGKVQAGEDFAELAKA PATVSAKHILVATEEDAKKAKQEIASKESFEEAAKK PANNKDVKGSHILISVPEKANDRINRAQKGESFAKLAAT PEKRTVSHILIDAEEKDAAVAEELKNGASFEELARK TVSAKHLLVDTIEKCEEVRASGEKGETFEDAAKK GPVQVALAQI LVRVRKKAEDVLARLKRGDDFASVAAA
 KQEVRASHILVEAHRAADALRGRLEEGTDFGDMAAB VAVTEVNARHILIKAKEQLEETTRRVNAGESFGDLAQQ PVGSESVEYQHILVTARKEADNLYEQIKQGARFSQLAES
 PEQRQVRHILIEAKKLAEELIKQLKAGKDFATLAKE
PDQARSRHILIKAKAKAES:LKALKGGADFAKLAKK QTQARHILLKTEAEVKALRQR LNGEDFAELARE

\section*{QVMQT} TATA | QYKMGH |
| :--- | :--- |
| OYHVEHI |

GE EERRVSHILFKARARAEELLEEVKSPARFADLARK
PTQAKVRH VAVTEVNARH LIKTKRELNEYIRQDNAGESFGDLAQQ SAHALLHILVKTRAEAEALKKQLAEGAKFGDLARK - QTKTRHILIRTEQQINELYKRAMSGEDFAGLASE
 MVIPQWKVRHILI QVEQRINDLYEQLRHDADFAALAAT GNTEYNLRHIMVKTEKEAQDVLAQLKKGGDFKTLADK
 VEVEEVNARHILVKAEKMLQEFRTKL DEGEDFAKLAKQ PYYSTEVEVGQUMKATQAKLND RARLLAGESFETLAKQ SPTEYRLRQL LAAKRRAQAVDDRLEEGEDFSQLADR EDMVNHULIAAEKKISEUYGELESGSDFETLAKQ PEGGDEVAAR

PEQIHAAHILLRD KARAEQALARVRKGEDFTAVARE隹 QARAQQV DDRARAGGDAALAAE VGPDSVTASH L!KAKVKADS KNLIQSGASFAELAKF VKATEVHARHILLKTRAKLLQLRND LNKKDFAAAARE QAEARHILVPTEEACIELKTKIEGGLDDAAAAAE
 AANSGKEYKASHILIEKEADAKAADAAINKGAKFEELAKK SEEVK
GSKLVE
QYHLGH KAKADAEKLLVK KKGEDFSRLAME MITPEKVT YHIFI KKKEKAQALKDSIKAGADFAELAKK KGVEMMECRHI LVEKHSKAVEILEDINSGKMFNEAARE KEMVQARHILVKDEKTAKEIGKELKKGEKFIDELAKS MQUSHLLVATDKEARELLTQLQQGADFAQLAQE EGVRASH LVKAKQKAEELLAQVKAHPDFAQLAQK VMPEQRQVRHLLIAAEREDTALRARILEGESFADLAAE EERRASHILI AAKDKATRLLEELRKPDTFADVARK EQRRASHIL:KAEQQAQDVLEKVNDGGDFAELAKE EERSASHILIETKKRDEEVEAKLKAGAKFADLAAK QKGAQHDQARHILTEKHSKAAEALEKINNGEKFDKVAME MMPDSVEARHILLQVTNQAEA LAQUDNGADFAELART

PKQFRASHILIKVKKKAEEILARAKKGEDFFNLAYY PKQRAHILVRAQDRIDAAYARLQKGDSFELVCRE


| UniRef90 UPIO004194107 | K PFQTQFGWH\\|MKLDEK |
| :---: | :---: |
|  |  |
| UniRef90-E5ARG5 |  |
| Ret90-UPIO0035 |  |
| Ref90-U3C2D0 |  |
| RRef90-L7EF | EVSNPVQTQYGWHVIKCISR |
| UniRet90- |  |
| UniRef90-87C | ATLMEGDSSUH KLAGER |
| UniRef90-B9D |  |
| iRef90-Q26D |  |
| UniRef90-М3НT |  |
| UniRef90-M4×K | AAVKVDNAYHIIKVLERK |
|  | LVESEFGYH1: ${ }^{\text {L }}$ |
|  |  |
| UniRef90-UP10004 |  |
| iRef90-X0YC |  |
| UniRet90-A0A0372 |  |
|  |  |
|  |  |
| UniRef90- 55 |  |
|  |  |
|  | - PVKTQFGYHLIKVEAK |
| UniRe |  |
| UniRef90-A0AC | AVVQSGNGFH LKVLQR |
|  |  |
|  | GPLRSGAGFH11 KVQDVR |
|  |  |
| B7V | APFKTVHGWHIVEVLDRR |
| UniRe990-H8Z6G3 | YTKTPVKSPSGGFHLVGLGKGVR |
|  |  |
| UniRe990_W1 |  |
| UniRef90 H5SD51 | QGPIRSPSGFH: |
| - | GPVETEFGYHI I YVTDD |
| =60 | HGPVKTQFGYHLLEI TSRQ |
| UniRef90-UPI0003615 |  |
| UniRef90_UPIO | OAFRSQYGWH Q MVENR |
| UniRet90 R4K6 |  |
| 4DB | APFRTSHGWHIVQVEDRR |
| U0G1 |  |
|  | SVYGVFRSGVGFHHVEK ESVKK |
| AOAOO11 | GPFQTQFGWHILEVLDRR |
|  |  |
|  | PQVITESANGFHVLKMVEAKR |
|  |  |
| 2J | DVHGPEKTQFGWHLI K TL SRR |
|  |  |
|  | PFRSQFGWHIL KVEDR |
| UniRef90-F9TRS | PVKOFGY |
|  | TPFKTOFGWH L KVEATR |
| 硣 |  |
| 518 |  |
|  |  |
| UniRef90-V5FAG0 |  |
| G2J | QPFKSGLGWHVFKL EDUR |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
| IOH | PELVRSGAGFHVLKVVERK |
| P10003616 |  |
| UniRef90 J3D2U5 UniRef90-UPI00047E |  |
| UniRef90-R8AM50 | Kı NA QK |
| UniRet90-UP10003 |  |
|  |  |
| iRef90-JoKC |  |
| ef90-A1W |  |
| iRef90 UPIO003693871 | AGPLRTGNGFQLIKL |
| UniRef90-UPI000467C72B |  |
| 5C3 | PDRSPSGFHI KMLEMK |
|  |  |
|  | YTKEPVKTQYGYHII MVQARK |
| iRef90 M M OL36 | T四EPVKQFGYHIILLEDK |
|  |  |
| UniRef90-G4MFE1 | G VVESDFGYHI QATDVK |
| UniRef90- UP10003860 |  |
| W0 |  |
|  | VVETDYGYHI KVVEVK |
| k7A |  |
|  |  |
| niRet90 A6DC | VITHPVVKSKFGFHLVEVYYRK |
|  |  |
|  | DSVTMLATQF Glith vait kr |
|  |  |
|  |  |
| UPI00047C1B23 |  |



UniRef90_D8IU71 UniRef90_D1Y182
UniRef90_C1D893 UniRef90 G2Z6R4 UniRef90_E7RUIO UniRef90-WOTLG9 UniRef90-A0A011PNW3 UniRef90-UPI0003602037 UniRef90 X5DC58 UniRef90_UPI000303EE07 UniRef90-F6GHD0 UniRef90 E0E3F7 UniRef90-HOBSEO UniRef90_UPI0003B79D0A UniRef90_UPI0004723E56 UniRef90-Q11QJ0 UniRef90_UPIO002F73476 UniRef90-UPI000406024E UniRef90 B3QTY6 UniRef90-13D681 UniRef90-X5D7A5 UniRef90_R71958 UniRef90_YOKGW5
UniRef90 UPIO004 UniRef90-UPIO0047CA87C UniRef90_UPI000479F37E UniRef90-E6WQK4 UniRef90-D3PTV3 UniRef90-13IQP9 UniRef90_C7RHF4 UniRef90_N1ZJ40 UniRef90_UPI0003B532E8 UniRef90-A1U1P9 UniRef90_UPI00035C17D3 UniRef90-I811W2 UniRef90-R9PRP0
UniRef90_F5L9Z5
UniRef90_A1S513 UniRef90-J5HLW4 UniRef90-UPI0003744958 UniRef90_U2EJ20 UniRef90_UPI000365CFF1 UniRef90_UP100036DCC7B UniRef90_UPI0004195761 UniRef90-UPI000262CD06 UniRef90_D8F137
UniRef90_UPIO0046A35E3 UniRef90_F5LD62 UniRef90_UPI0004681A4C UniRef90-Q47YG4 UniRef90-F2JRW8 UniRef90_UPI0003B32F9E UniRef90_UPI0003B57422 UniRef90-J3CK77
UniRef90_YOKFT2
UniRef90-G1VGQ4
UniRef90_UPIO003485C62 UniRef90_Q6LV39 UniRef90-E1WYP7 UniRef90-A8ERS7 UniRef90-G5BGW4 UniRef90-B3QQX7 UniRef90_U1LE13 UniRef90_A9NU48
UniRef90_A9C1J9 UniRef90-M4RHS6 UniRef90-J9CUP2 UniRef90_UPI00046989A7 UniRef90-R6ATV8 UniRef90_U3HF44 UniRef90-G5HAX4 UniRef90-E4T5M8 UniRef90-F3LLM7 UniRef90_A3YHJ9
UniRef90-F7RYF4 UniRef90_UPI00036DA52B UniRef90_UPI0003760D60 UniRef90_M1SJ72 UniRef90-F6CTK6 UniRef90_UPI000474BBB1 UniRef90_G2SF37 UniRef90-TOY3B7 UniRef90- X0YPM8 UniRef90-E8LIZ7 UniRef90_UPIO004644FC0 UniRef90_UPI00037CC1E1 UniRef90_UPI00037AE4A1 UniRef90-UPI00036FD7A6 UniRef90-FONYIO UniRef90_UPI000477139B UniRef90-UPI0002376591 UniRef90_UPIO003A29FE7
UniRef90_UPIO0047D2093

1

NS QDSAENGGDDGYFGKGAMVVIKFEDAAFS|L|KQGEDSD NSDGTRSRGGDDGYFSKGQMVPEFEKAAFAGKKGEM K S K DPA QN G GDMGWGNLGVMAKP LA DTLDKPLGK GQ YS QDPSAKSNQLGYFSVGRMVYPFETAAY QTPK GALLS

 HSEDPGMNGGELG Y S EPSAKDGGVI K GTDGTKDNG $\qquad$ GYSGRAQLDP G D L G W
NS GD A A A A G K F A
GQMVSEFEKAAFALKEGEI S
 YSEDPGSAENGGLYENSPQWVEAFKEAAKTQKVGEIGGE GSDGTKTQGGNLGWFTRGMMVQPFEDSCYNATINK
Y S Q D S A VA N GVL G FQ T A D T F V P EFFK H QVE T L PVVGQ Y S D GSAAK G GELL GWVNPGDTVVEFERGMDALQEGEVS ESDDSGARGGDL GLFGLNRMVKPFETAAFAL K KSKPSAAHSGDLGWVNANDVPKAFADATASLSVNQYS
 NS QDTATKGGDLLGSFGRGAMVKPFEDAVFAMKVNQVSD
T S
A
L
L
 Y S DPSKENGGSLLGKFPK GVMVKEF Y S LD T A TKNNA GK LIPAFDSTDTT
 MSQPSAASK Y T QD P G YTQDPG GQNNGGORGWFRPAAF
 HS QDPGSKED GGLY EDVPM WVPEFK QAALDEQEIGVVIGE HSACPSSQGGELGSFGPGMMVREFDEVVFSAPLH K S Q D S A GN G G DL G WA A K GTY P E A F E Y A A DVLDTVGKVV $\begin{array}{ll}Y & S N C P A K K G G D \\ Y & \text { S D D S A N Q G G D }\end{array}$
 TSADPQRGGDLSYFQNNGQMVKPF
 GFASVMTELPLNTLSEVT


 Y G D GT K D T G GELLGY DA Y D SYD Q D F LDD GAK T L E E G QV S N $\square S \| V A S K G G E M G V F E M G Q L P F E M$ NS DAS AKA G G DGLGWSRPGQQFVVPE F Y S D GSASNGGDLGWVNPGDTVPAF YSTNSAKNGGELDHLQKGQTVPEFEKEMNSLGLGEIS

 SLDTSAKNGGALGRFAVEQMVPEFGSAVKALAKGTYSK

 YSEDSALKGGEYDWTDPTTYVSAFRDTLLDSLEKDQISE YSECPSKKGGBDLGFFPRGKMAGPFQEVAFNTPVGA
$F S D V P \quad D G Q G G G A M G M R P L D R$
HSADSALKGGELGWSEPSKYVADFR D


Y
Y Y S T CSAKKGGDLGEFRKGDMVKAR
 NSDDGSRSGDLGYFKNNGQMVKPFESAVF GATS E Y S D GSAANGGNLGWMGPGDLVPEFDQAMNRLQDGEVSN Y S D D S K N D G GY L G Y DEK G S M DEAFENTLFSMQQGDVVK A NSDDSAAK GGELGWADPEMYVPAFKNALAELEPGEYSE HS DDPSARWGHI GW $\square K M G Q T \square E P M E T Y A F N T P V G E L S$ $\checkmark$

| UniRef90_D81U71 | $\text { QSDFGYHII }{ }^{90}$ |
| :---: | :---: |
| UniRef90-D1Y182 | KPVKTDFGYHVIKATDSR |
| UniRef90-C1D893 | QQPFKSDLGWHI FKVENVR |
| UniRef90-G2Z6R4 | S IIRTRFGYHLIKVEDUR |
| UniRef90-E7RUIO | VQTQFGVHLVQVLGRR |
| UniRef90-WOTLG9 | PVRTPFGFHIIQ |
| UniRef90-A0A011PNW3 | VLRSSNGFHLIKLLAKR |
| UniRef90-UPI | GWHI AQVLDKR |
| UniRef90-X5DC58 | GYHI 1 QLVDKQ |
| UniRef90 UPIIOOO303EE07 | KAPIATKFGFHVIKA |
| UniRef90-F6GHDO | PFKTRFGYHVVKVFDKR |
| UniRef90-E0E3F7 | P IVETQFGYHII KL |
| UniRef90-HOBSEO | PVVSRFGVHLI QLLERR |
| UniRef90-UPIO003B79D0 | PVRSRFGYHLI KVNAVR |
| UniRef90-UPIo004723E56 | VETEYGYHI |
| UniRef90-Q11QJo | VKTQF GVV VVKVTGKK |
| UniRet90-UPIO002F73476 | HI VKVLDR |
| UniRef90-UPIO00406024E | PVIQSPFGFHIIKVEERR |
| UniRef90-B3QTY6 | LSPl\|RTPFGYH1 L L |
| UniRef90-130881 | TPIKVDN CH H K KIERK |
| UniRef90-X5D7A5 | EPVETPYGYHIIKRLNAR |
| UniRef90-R71958 | PIKSRFGYH |
| UniRef90_Y0KGW5 | ESEFGYHIIKLN |
| UniRef90 UPIO0047CA | FKTRFGYHLLKLDSLR |
| UP1000479F37E | F |
| UniRet90-E6WQK4 | PFRTDAGWH I ERVARR |
| UniRef90_D3PTV3 |  |
| UniRef90-1310P9 | GPVRTEYGYHLIKVTDKK |
| UniRet90 C7RHF4 | APVKSQFGYHL! |
| UniRef90 N1ZJ40 | VTDTPVKSQSGYHVKM |
| UniRef90-A1U1P9 | GPVETSFGLHLIKLEEDR |
| UniRef90-UPIO0035C17D3 | VVTSPFGLHII RVIDGKR |
| UniRet90_1814W2 | APVRSRF |
| R9PRP0 | GP |
| UniRef90_F5L9 | PVQTDYGFHIIKV |
| UniRef90-A1S513 | QQPVKTQFGYHLLE |
| UniRef90 J5HLW4 | VIKVDGNYHLI KLLDRK |
| UniRef90-U2FJ20 | PVFQAADGYEILKVTDRR |
| UniRef90-UPI000365CFF1 | VETNDGFHIFFVE |
| UniRef90-UP100 |  |
| UniRef90-UP | RLVESQFGFHII KVTDPK |
| UniRef90-UP1000262CD06 | RSRFGFHL I EVEETR |
| UniRef90 UPIO0046A35E3 | PVKTDFGYHI ${ }^{\text {dRVESR }}$ |
| UniRef90-F5L | PVETDYGYHVMK |
| UniRe990_UPIO004681 | P VKTS |
| Q47Y | GPIKTKFGYHL |
|  | PVKTQFGWHLIK |
| UniRef90 UPI0003B32F9E | PVVESSYGYH1 FKLDEKK |
| UniRef90-J3Ck77 | C PVVSRFGVHLI的VVGRR |
| UniRef90-Y0KFT2 | V |
| UniRef90-G1VGQ4 | APVLSPFGYHI |
| UniRef90-UPIO | PFQTEAGWHI |
|  | RSGVGYHII KV |
| UniRef90-E1WYP7 | PVKTPFGYHIIYVEDKK |
| UniRef90-A8ERS7 | PVKTQFGYHVIYLKDK |
| UniRef90- B3QQX7 | GVVESRFGYHLI |
| UniRef90 U1LE13 | RSTFGWHVVQLLDKR |
| UniRef90 ${ }^{-}$A9NU | SAPFKSTHGYHII LAEGRK |
| UniRef90-A9C1J | GPFRSGAG |
|  | KTQYGWHLMQLLEKR |
|  | PSAVGYHIIKMLERK |
| UniRef90-UPIO0046989A7 | GPVKSKFG |
| UniRef90-R6ATV8 | PVLSAFG |
| UniRef90_U3HF44 | $\checkmark$ VTPF |
| UniRef90-G5HAX4 | ET |
| UniRef90-E4T5M8 | QTNGGWH |
| UniRef90-F3LLM7 | PPVRSRFGVHLI QVLERR |
| UniRef90-A3YHJ9 | GPIKTQFGFHLIKV |
| UniRef90-F7RYF4 4 | KTTHGWH |
| UniRef90-UPIO0036 | ETEN |
| UniRef90 UP10003760D60 | ETEF |
| UniRef90 M1 | PVKTEFGWHLI QVLERR |
|  | T DYGII |
| UniRef90_UPI000474BBB1 | KSVHGWHLVQLLDRR |
| UniRef90-G2SF | RTRYGYHVLKVHDRK |
| UniRef90-TOY3B7 | QTRY |
| UniRet90-X0YPM8 |  |
| UniRet90-E8LIZ7 | RSSFGYHLIKLNDIK |
| UniRef90-UPIO0046 | GPVQTDFGY |
| UniRef90 UPP00037CC1E1 | ETSEPIKTSFGFHI |
| UniRef90-UPI00037AE4A1 | KVVETNYGYHI ${ }^{\text {KKTGEK }}$ |
| UniRef90-UP100036FD7A6 | GVVESPFGL |
|  |  |
| UniRet90_UPIO00477139B | TPQLVQTEFGWHVLLVTAR |
| UniRet90_UP10002376591 |  |
| $=E 7$ | APVLTGFGYHIVWVDEK |
| 0047 D |  |

## UniRef90 UPIO0046B0897 UniRef90_UPIOOO37FD792

 UniRef90-C6E384 UniRef90-F3LKA0 UniRef90 ${ }^{-M 1 Z 8 H 2} 2$ UniRef90-D5W7Y9UniRef90 A1STS UniRef90-G7UQC8 UniRef90-13D7S1 UniRef90-A6VME5 UniRef90-R5NPY5 UniRef90_U7G246 UniRef90-IOWDA8 UniRef90-UPI000425AB8B UniRef90-DOWHF2 UniRef90-A0A059LKU7 UniRef90-W6U4E0 UniRef90-BoUTA1 UniRef90_LJJ3Q6 UniRef90-O31248 UniRef90-Q8PP23
UniRef90 C7R7T9 UniRef90-T2SD34 UniRef90-T1C673 UniRef90-UPIO001FFE4B3 UniRef90-X1JND3 UniRef90-TOQED8 UniRef90-Q3B6Y0 UniRef90-M1 UQR8
UniRef90-B8KA26 UniRef90_IXR95
UniRef90-B3EJJ2 UniRef90_UPIO00371FF48 UniRef90-B8BZ65 UniRef90_C1CUT5 UniRef90-I31AA5 UniRef90-UPIO00463E44E UniRef90-UPIO00377F305 UniRef90-I6ZN69 UniRef90-W5X236 UniRef90-F5Y324 UniRef90_R6TON4 UniRef90-R6PDZ1 UniRef90-UPI00037B1096 UniRef90-F9GIU2
UniRef90 B5E9U9 UniRef90-C4WY86 UniRef90-UPIO0038007BD UniRef90_UPIO0042B4596 UniRef90-K6V118 UniRef90-E9FUP3 UniRef90-UPIOOO376F04C UniRef90-F7NXB8 UniRef90-EOWS57 UniRef90-E1ZX16
UniRef90 K6AYR2 UniRef90-LOT1X7 UniRef90-UP1000375DDE4 UniRef90-Q1PW67 UniRef90-F8178 UniRef90-R6SF36 UniRef90_O38XZ9
UniRef90-EO18YO UniRef90-A0A022S2Q0 UniRef90-UPIOOO35ECDC3 UniRef90-E4U6GO UniRef90-B8KWZ4 UniRef90 ${ }^{\text {Q21 J21 }}$ UniRef90-UPIO0046EB2F5 UniRef90-UPIO0037884E8 UniRef90-K3X0K4 UniRef90-D2UFS8 UniRef90- JIKQUO UniRef90-UPIOOO3500FFF9 UniRef90-UPIo003B5303D UniRef90-M1MOJ2 UniRef90 A1BCH8 UniRef90-D1VZZ8 UniRef90-H1Z8Y3 UniRet90-E3T618 UniRef90-N9MF59
UniRet90
UFVW3 UniRef90-UPIOOO3FF2048 UniRef90-A7HIW2 UniRef90_A/HIN2
UniRef9o_V9GMPO


PEAVKVSHTMTKANAKADELYNRALKGEDFATLAKD AEERRASHILIKANAKIVKVREELLQQGKSFEELAKE
 EVRASHILIAAPKDAEELLAQLKAHPDFAQLAQQ
AQSDGMQYHDAHILVTAQKKVEGIKGLLRNEMDFAAAAVR ATVTGTQYQVRHILLKAKAKLNQURADILSGKTFAVAAKE RLAHI QLANEKEALDAYEALQKGADFATLAKE PDVPDKYEIQQIVIKPRDRLRSFREQUNGEKFSTLAVM QEAKARHILVKTEADAKRVISELNKEKEFIDIANR
TQYQVRHVLIKTHAQAQRLHDQIASGQSFAPVAAE P VF GT ELEVGQUVVQPKKKADERLK AQMYATAYKSSHILFDDQATAQEVLDK

                        P
                        \(P D \square P\)
                        H L A E
            SATANHI QLP TE QEAQSVYANVLQNGEDFSALLAKL
            S A T A N
            T E Y HAARH I L L V R A A K A K A I D D
    

K Q

```G N S T P
```K QEYHLGHILIADVEDADEVMKELKAGADFAETAKV T E F E E \begin{tabular}{l}
L T \\
Q L \\
\hline
\end{tabular} A EKK DDA LR L R V \(\square \mathrm{D}\)

SEEQRRVSH EYYDLA H KVTVN Q
 SAKASHILVNTEAEIDDLFTQLSATADFADLAKK
\(\begin{array}{ll}\text { E A } & \text { V } \\ T & \text { K A }\end{array}\) SKSTATVRHLEALKLAQDGAKLDKGEAALAKQ
 VAA A P R R H A A H L L I E S N D K V K L V G E K L S G G A D F S A L A K E

 QSRARHIL L RARAQLAEFKRRVEAGAEFAQLARQ G D MF N A R H L L I K D R Q K A D S LKTMA Q N NAT F QMAA R F



 REMVQ GSGDSRE \(\qquad\) GPEKVQRHILVKEKTLAEQLKKKLQSGADFNKLAQQ VQPE S R S V R HV L V A A Q A K A T E LVVVRARGGA DF S A L A A E S SN E Q Y N I G G H I L I A D A K D R A A D K V V M K L L R



P A Q V L V R H I L V K Q K S L A E S I L A Q V E A GAANFAAALAC

G VT


 VVVP E K R K V A H L L L A K K A Q L
 SPEQRRRASHILLI T LDPPKA TA AQQVAQK DPA GFA E L A R K KAHASHILVDSETLADELLHAELKSAASFAKLAME

 GQGEPSKVRCSHLLVKTKDEALELIQKIIKSGEDFESGAS Q V E P E A V
 \(\mathrm{L} V \mathrm{G} L \underset{S}{Q}\)

PDEACCAR HI
P E \(\square P\)
P

\(P\) E K V

\section*{UniRef90 UPI00046B0897} UniRef90_UP100037FD79? UniRef90-C6E384 UniRef90-F3LKA0 UniRef90_M1Z8H2 UniRef90-D5W7Y9
UniRef90 A1STS UniRef90-G7UQC8 UniRef90-I3D7S1 UniRef90-A6VME5 UniRef90-R5NPY5 UniRef90-E7G2X6 UniRef90-U7G246
UniRef90 \(10 \mathrm{WDA8}\) UniRef90 UPI000425AB8B UniRef90-DoWHF2 UniRef90-A0A059LKU7 UniRef90-W6U4EO UniRef90-BoUTA1 UniRef90_LJJ3Q6 UniRef90-O31248 UniRef90-Q8PP23
UniRef90 C7R7T9 UniRef90-T2SD34 UniRef90-T1C673 UniRef90-F4FWB5 UniRef90-UPIo001FFE4B3 UniRef90-X1JND3 UniRef90-TOQED8
UniRef90-B3EDP UniRef90-Q3B6Y0 UniRef90-M1 UQR8 UniRef90-B8KA26 UniRef90-11XR95 UniRef90-B3EJJ2 UniRef90_UPI000371FF48 UniRef90_B8BZ65 UniRef90-C1CUT5 UniRef90-I31AA5 UniRef90-UPI000463E44E UniRef90-UPIO00377F305 UniRef90-I6ZN69 UniRef90-W5X236 UniRef90-F5Y324 UniRef90-RGTON4 UniRef90-R6PDZ1 UniRef90-UPI00037B1096 UniRef90-F9GIU2
UniRef90 B5E9U9 UniRef90-C4WY86 UniRef90-R7BPC0 UniRet90-UPIO0038007BD UniRef90-UPIo0042B4596 UniRef90-K6V118 UniRef90-E9FUP3 UniRef90-UPIO00376F04C UniRef90-F7NXB8 UniRef90-EOWS57 UniRef90_E1ZX16 UniRef90-K6AYR2 UniRef90-LOT1X7
UniRef90 Q1PW67
UniRef90-F817Y8
UniRef90-R6SF36
UniRef90-C38XZ9
UniRef90-EOIBY0
UniRef90-Q31F26
UniRef90-A0A022S2Q0
UniRef90-UPIOOO35ECDC3
UniRef90-E4U6GO
UniRef90-B8KWZ4
UniRef90 \({ }^{-} 21\) J21
UniRef90-UP100046EB2F5
UniRef90-UPIOOO37884E8
UniRef90-K3X0K4
UniRef90-D2UFS8
UniRef90-JIKQUO
UniRef90-W7RSF4
UniRef90 UPIO00350FFF9
UniRef9O-UP10003B5303D
UniRef90-M1MOJ2
UniRef90-A1BCH8
Uniref90_B5QQ98
UniRef9O-D1VZZ8
UniRef90-H1Z8Y3
UniRef90-E3T618
UniRef90-N9MF59
UniRef90-12EVW3
UniRef90-UPIO003FF2048
UniRef90_ATHIW2
UniRef9__V9GMPO
UniRef90-V9GMPO

YSKGSATKGG
 NSDDPGSKDNGGGVFGKGQMVPEFEQVAFALKVGEVSK
\(H\) SSDAAKGGDGGYINPGMPPEDKAFQLKSGEVSD NSQDSASRGGDLDFFGRGMMAKPFEDAVYAMKTGEISN HSEDSAEKGGDLDF DYKGVFDPEDDEAVSRLK DGEVS

YSDSPALEGGDLGWRSADEDPVAFSDILKGMQAGQIV
 KSNDSAVNGGDLGWLNTGDLPKEFEDAATVLEVGHYST
ESIDDPSKNGGDLGKFQKNQMAPEFSNAVFALKPGS
HSDDSARNGGELGWVNRGEMVPEFEDMMLNTPTGELS
 YSTDSAADGGNVGWDVLNSFVKEYTDALSGLGEGEVS LSEDKARQGGDLGWKSRQDVVGPFAEAAFALGVGQV
YSEDSAAEGGDLGFFDRTRMVKEFTAWAFKLKPGEMS YSMDSAQKGGDLDWVVNGMMPLAFESAVTLLNVGEYSQ
HSTCPSKNGGSLGEFGPGQMVKEFNDVVFTTG
HSTCPSKNGGSLGEFGPGQMVKEFNDVVFTHGNGQVSK
YSDDSKNNGGVVAYQPGDFSKDDFGKQVESLKNGQVSK
VSSSPAAEGGDFGWRTESNMPTLFANVVNFLDTGDISQ
DTIDPAQNGGDLGKFQKNQMAPDFSKAAFALTPGT
YSESPALTGGDLGWRPSTRLPS LIFVEAASKLKPGEHSE
YSTDTATKNKGGRMAAFDNTNTSLDANFKKAAFKLKNGE

r
HSKCPARGGGALGSFGRGQMVPEFDRVVFEDDVGKTHK
YSQDSAQLGGDLGYVQKGELI QSFENAAYGLKEGQVS
YSMDSAPLGGDLGFVQRGELVKPFEDAAYALKDGHVS
HSDCSSRYGGRIRPGPGEMHAEFERAVRNLEPGQLS
KSDDSAREGGSLGWIGEDVMDPAFEEAAFALIK
YSKDSGANGGSLGYAFPEMYVGPFNQAVRTTKPGVINVG
HSEDPGSKDGGLYEDODOWVPE
KSODSAAOGGD GCFGEGDMVAPF
FSDDSKDQGGDLGFTSGDAFPQE

YSDDSKQAGGDI GWQSRVTLVPGYYDAAVTMKVGEV
HSDGSARNGGDLGWANPGMFVPEFEETMNTLAPGQIAE
Y S Q Q M A D P Y T G S S Y F E DD Q L KP E D Y A A DK DL K E G E I S E P V
NSDQSAK Q G GDLGFF GKEEMVEPFSKAAFSMKPNTLS


Y S DCSAKRGGDLGPFTRGTMQKPFEDASFALTDGELSE
YSTDSAVNGGDVGWDVLSNFVTQYTTALKDLSKGQVS
YSEAP D RQQQQGVMGWFTEGSITQRFAPALDELPLHGVTE




Y S D S P A LE G G DLG WR S LD EIIPNAFA QLIR DMKPGQV
HSDASREDGGRLGLRPASRLPELFVSAVEPLQSGEVA
YSDCSSSKK G GDLLGYFVVRKQMVEPFAEAAFALVVGEVVSD
Y S \(\square D T G T K D K W V D T G A A S G F V Q P F Y E E M D K L K P G Q F\)
KSTDTGTKSNG GKLSAFDNTDTSGLDSFKKAAFKLKQGT
Y S TD T GTKKDGGKLPVFDSTDPTFKTAAFKLKTN
Y S DD A F T S E Q GG DL GY I E DND P L VEA A L
YSEGSALQGGDLGWLGIDQ DPTFFNDALNQLEDGE


YSEDFASARNGGRLGTAIAKDDGNIAFAFRKASFALENPG
Y S D D S A Q K G G DLG WLDE GS \(\square D P V F S R T V F A M D A G A V S E\)
Y S D DP GSK DS GGLLYADKTTYVEEFKKAAQTDPLDTLIS D

HSKCSSKKGGDLGTFGQGQMVPEFDHVVFTEEDGVVHK
ASDNSRNQGGDDGWFPDDAFGADFGHQVESDQDGQIS
YS QDSSPNGGYYKMTRKTPFVKEFKDVAFSLQAGEIISQ
HSTDR YTAPY GGDLGGVVNDQHENVPA EYLAKAAEELLKENQ
FSDCSAKAGGDLGAFGRGQMQKPFEDASFALRAGEMS


\(Y\) Y
E S



YSQDPATEGGETGYFRRGTMTPMFERAAFSLEEGTFS D
\(S S D A P G K G G G D D G Y D G R G S G F P E V F D V T F T\)
\(Y S E D P G S K D S G G L Y Q P A G R W V P Q F K E K A D T\)
\begin{tabular}{|c|c|}
\hline UniRef90_UPI00046B0897 & PVVKSPFGYHI I KMIDAKQ \\
\hline UniRef90-UPI00037FD792 & PVKTSFGWHIIRCD \\
\hline UniRef90-C6E & VVKTKFGFHLIKAFDKK \\
\hline UniRef90-F3LL & VIETDFGYHVIT \({ }^{\text {a }}\) T GLR \\
\hline UniRef90-M128H2 & GIVKSKYGFHILKLNETK \\
\hline UniRet90-D5W7Y9 & GIVQTDFGFHIIKVTEVK \\
\hline UniRef90-A1STS3 & GPFKSDLGGHIIKIMDKK \\
\hline UniRef90-G7UQ & GPDRGPSGFQLLKLVETR \\
\hline UniRef90-I3D7S1 & APFKTQFGWHILEVTDNR \\
\hline UniRef90-A6VME5 & NVDGQ \\
\hline UniRef90-R5NPY5 &  \\
\hline UniRet90 U7G246 & PVFETQYGWHFLRVDDDR \\
\hline UniRef90-IOWDA8 & PFETEFGWHTVQLDRKR \\
\hline UniRef90-UPIO00425A & GYSEPFKTKYGWHIIQLDKK \\
\hline niref90_Dow & GLVTSEYGUH KCT \\
\hline UniRef90-AOAO59 & PVFESEHGFHLLLVVERR \\
\hline UniRef90-B0UTA1 & PVKVDNAYHII KVLDMK \\
\hline UniRef90_LJ3Q6 & F \\
\hline UniRef90_O31248 & \\
\hline UniRef90-Q8PP23 & PFRTQAGWHIVQRVGSR \\
\hline UniRef90-C7R7T9 & PlRSPSGFHILKIKDKR \\
\hline UniRef90-T2SD34 & TPVKTEFGYH1I YLISK \\
\hline UniRef90-T1C & \\
\hline F4FWB & TP \({ }^{\text {c }}\) \\
\hline UniRef90-UP10001FF & \\
\hline UniRef90-X1JND3
UniRef90- \({ }^{\text {TOOED8 }}\) - & SGUVKSPFGYHLVKLTGIIK \\
\hline UniRet90- B3EDP2 & GVVETRYGFHL \\
\hline UniRet90-Q3B6Y0 & GI VETRYGYHII QRL \\
\hline UniRef90-M1U0 & G| VETPSGLHLIELLAR \\
\hline UniRet90_B8KA26 & \\
\hline \[
\begin{aligned}
& \text { UniRef90-11XR95 } \\
& \text { UniRef90 B3EJJ2 }
\end{aligned}
\] & APFRTEFGWHELEVINTR \\
\hline UniRef90-UPI000371FF & FETD \\
\hline UniRef90-B81 & GPVQTNFGWH \\
\hline UniRef90 C1CUT5 & QlVQSEFGWHVVLVSKR \\
\hline I31AA & K EA \\
\hline UniRef90 UPIO00463EE & VVRTDFG \\
\hline P10003 & \\
\hline UniRet90-162N69 & G \\
\hline UniRef90 W5X236 &  \\
\hline UniRef90-R6TON4 & DN EGRNGYKII KVD \\
\hline UniRef90-R6PDZ1 & GVVQTPYGYHIILVT \\
\hline UniRet90-UP100037B1 & KTKYGY \\
\hline UniRe990-F9GIU2 & \\
\hline UniRet90 B5E9U9 & SIVRSPAGLHI KLEGKK \\
\hline UniRef90_C4WY86 & DS GV \\
\hline UniRef90 R7BPC0 003807BD &  \\
\hline UniRef90-UPI00042B4596 & KTNYGWHLLQVLSER \\
\hline UniRef90-K6V1 & GPVKSQFGFHLLELKFR \\
\hline 9FUP3 & PVWTDSGVHIL \({ }^{\text {a }}\), \\
\hline UniRef90 UP1000376 & P/RTRYGFHVIQVT \\
\hline UniRef90_F7 & VI GP \\
\hline UniRet90-E1ZX & SPVHTDSG䀦I QRT \\
\hline UniRef90 K6AYR2 & VSQVVQTEYGYH1 QLIEER \\
\hline \begin{tabular}{l}
UniRef90 LOT1X7 \\
UR
\end{tabular} & \\
\hline UniRef90_UPI000375DDE4 &  \\
\hline UniRef90-F817 & GIAHSQFGYHVIEVEAEK \\
\hline UniRef90-R6SF36 & FTTEPVKTSYGYH1: \\
\hline UniRef90-E018Y0 & QVTGPVKTEGGYAII R LDERR \\
\hline UniRet90-Q31F & DVIRSPVGFHII QLQGKR \\
\hline UniRef90_AOAO22S2Q0 & KTKFGWHLLQVISER \\
\hline UniRe990_UP100035ECDC3 & KTSFG \\
\hline UniRef90 E4U6C & V1ETGGR \\
\hline UniRef90 B8KWZ4 & DLSPPVETLFGYH \\
\hline UniRet90-Q2IJ2 & K \\
\hline UniRet90 UPIOOO37884E8 & EVAGPVRSTMGGFHVMKVESRK \\
\hline UniRef90 K K \(\times 0 \mathrm{~K} 4\) & EVAGPVKTQFGWHLVLI GUR \\
\hline UniRef90-D2UFS8 & FRTEAGWHILQRVGER \\
\hline UniRef90_JIKQUO & DPFETTFGFH1 \\
\hline UniRef90 UPIO003550FFF9 & G GPVFTESGIA \\
\hline UniRef90-UPI0003B5303D & MRSNYGYHL \\
\hline UniRef90-M1M0J2 & SVIKSPYGYHLI KVNDDR \\
\hline UniRef90_A1BCH8 & ETRYGYHII QRLEKK \\
\hline UniRef90_B5QQ98 & G \\
\hline UniRef90_D1VZZ88 & KIVETEFGYHIIQLIDKR \\
\hline UniRef90-H1Z8Y3 & D \\
\hline UniRef90-E3T618 &  \\
\hline UniRef90 l2EVW3 &  \\
\hline UniRet90 UPIOOO3FF2048 & R \\
\hline UniRef90 \({ }^{-}\)A7HIW2 & \\
\hline  & \\
\hline
\end{tabular}

UniRef90 UPI00046F2F3E UniRef90_UPI00037877C6 UniRef90-UPIO00289BDA4 UniRef90-N9LKA1 UniRef90_UPIO004732900 UniRef90_G8NBN9 UniRef90_UPI000476F986 UniRef90_UP10003655333 UniRef90_UPIO0036BCCC7 UniRef90-R7DJR8 UniRef90-E01946
UniRef90-17LA11
UniRef90-X11110
UniRef90_W0JKK8
UniRef90 F1 W0C6 UniRef90_UPI00047DFEF4 UniRef90_UPI0003B70667 UniRef90-G2E8X5 UniRef90-A0D615 UniRef90-UPIOOO3711456 UniRef90_B9M731
UniRef90-J1YDI6
UniRef90-K1LSC1
UniRef90-J9G9J2
UniRef90-U2NI02
UniRef90-U2NIO2
UniRef90_UPI00047DFB68
UniRef90-S0FJ32
UniRef90_V6S3Q1
UniRef90_UPI0003B5A1C3
UniRef90-R6FES8
UniRef90 Z9JLU1
UniRef90_UPI0002D6D9F5
UniRef90-S6HEA5
UniRef90-D3B6T1
UniRef90_R5LVL6
UniRef90_UPIO0047126B5
UniRef90-R6XTY2
UniRef90-F3PTV1
UniRef90_S7XBJ5
UniRef90-A0A031LX64
UniRef90_UPI0003B5D6D9
UniRef90_UPI00047D24D3
UniRef90_I3YS49
UniRef90_R7IBX0
UniRef90-S9ZQH4 UniRef90_K1KYH0 UniRef90-A8UJV6 UniRef90_UPI00037417B1 UniRef90_H1XPE0 UniRef90_B8KGN1
UniRef90_V4N8A9 UniRef90_UPI000370BB84 UniRef90_UPIO00311204A UniRef90-G3JOKO UniRef90-F3Y561 UniRef90_UPI00037D7939 UniRef90-B8GNU4 UniRef90_14WYK8 UniRef90_UPI00036A2680 UniRef90-B9Z2N1 UniRef90_R5WQN8 UniRef90-R9B9Q2 UniRef90-UPIO0032A8DBE UniRef90-F4HEQ8 UniRef90-A0P6S3 UniRef90-M7Z7S9 UniRef90-A0PXL5 UniRef90_E3E3EO
UniRef90_V8DAH5
UniRef90-D7JGB3
UniRef90_U2J996
UniRef90-A8UN57
UniRef90-B4W682
UniRef90_W9XPW1
UniRef90_EOWSG9
UniRef90-D2QTA7
UniRef90-M7MKZ4
UniRef90-R517Q9
UniRef90 M5DVM5
UniRef90-U5H1R7 UniRef90-Q0A9Y5 UniRef90_UPIO003B61CF3 UniRef90_R6EWQ7 UniRef90-B8P8M3
UniRef90_S6BVW3 UniRef90-A0A023NV65 UniRef90_UPI00037BBEC1 UniRef90-E4TD52

E ERKLSHILVSVAANAKKLLAEVKAPAAFAEDAKK PDSVKASHILVRTKEEAKKLADSVKKSSKFEELAAS KREVKHI LITADERANDVYAKI QA GMTFAQAAAQ GEMDEARHILFQVRETGEAI LAELRAPERFEELAKE
 EVTVA HI


YK \(\\) A H L L
EQRRASH
EQRRASH I PEMUKVSQ GQEYDVRHI GAKSVVSHLL
YGEEEFRARHI SAERREVAHI PEVKDEVILSQi
\(\qquad\) PERKKFSVI
\(P M \square P\)
A EV V QL
GRQS G

S SAKVSH
P Y \(\square \mathrm{P}\)
\begin{tabular}{ll|l|l} 
E E & Q & \(R\) & \(R\) \\
\hline
\end{tabular}
QYHLQH
QEFHARQLLI PAGPSKKVQAAH
PMVP

Q Q V
P F V P T

TAT V A H
O
PYFGDEVQARHI

\section*{A A}
\begin{tabular}{l}
\(\mathrm{P} Y\) \\
P \\
A \\
A \\
Y \\
\hline
\end{tabular} M TAAPEGRLREFARRVVEGESFSNQARGF

 \(L\) L \(L V K H E A E A R E L L Q Q Y Q D P V K F A Q L A S E\)


 E S L A K Q T R T P K E I D R IIK N ELL R N Y T D F T A L A K L

 \begin{tabular}{l|llllllllll|lllllllllll} 
\\
\(M V\) & \(P\) & \(E\) & \(K\) & \(R\) & \(V\) & \(N\) & \(D\) & \(I\) & \(Y\) & \(K\) & \(K\) & \(L\) & \(N\) & \(Q\) & \(G\) & \(S\) & \(F\) & \(E\) & \(S\) & \(L\) & \(A\)
\end{tabular}\(K Q\) YGN T E YH \(L\) L
\[
\begin{array}{llll}
A & E & R & E
\end{array}
\]

Q Q

PTFGTELKVAQ
\(M L D P D S V G A R A\)
\(\begin{array}{lllllll}P & E & R & R & K & I & S \\ G & H \\ G & E & L & E & I & A & Q\end{array}\)
PHFGTE LDEAQ
P E ERRASH
A P DLIRRVRHILI RVEPGADAARARIRAGEDFAEVARA

PTSSKEAKQR VKH L L

 QYLVSHI LI K TKK QLSSLRSDDIAGKTFAAAAK T


 PTMPATVEVQVIRDEVKNRLRDLAERVNKGADFTMLARLL
 S E E K A A Q S I N A R HI L C E K H S K K E EAL A K L R E GAKFD DV A R E PERKHFSV I QL K TEK

A R Y Y K K K A GYAFDKLALE
VA P D S V K V R H L L Q K D E Q T A D S L L
T T V A L H H I L L K S P L LAA Q DI I N ELLA DGA S F E D L A S N
APTKVRASHLLI KSEKQAREILQNLQAAEDFARVAKA







UniRef90_UPIOOO46F2F3E UniRef90_UPIO0037877C6
UniRef90_UPI000289BDA4 UniRef90-N9LKA1 UniRef90_UPIO004732900 UniRef90_G8NBN9 UniRef90-UPIo00476F986 UniRef90-UPI0003655333 UniRef90-UP100036BCCC7 UniRef90-R7DJR8 UniRef90-EO1946 UniRef90-17LA11 UniRef90-X11110
UniRef90-W0JKK8
UniRef90 F1W0C6 UniRef90-UPIO0047DFEF4 UniRef90-UP10003B70667 UniRef90-G2E8X5
UniRef90-A0D615
UniRef90_UPIoo03711456
UniRef90-B9M731
UniRef90 J1YDI6
UniRef90-K1LSC1
UniRef90-J9G9J2
UniRef90-U2NIO2
UniRef90-E1KRF6
UniRef90-UPIO0047DFB68
UniRef90-SOFJ32
UniRef90_VES3Q1
UniRef90-UPI0003B5A1C3
UniRef90-R6FES8
UniRef90'Z9JLU1
UniRef90-UPIO002D6D9F5
UniRef90-S6HEA5
UniRef90_D3B6T1
UniRef90-R5LVL6 UniRef90-UPIOOO47126B5 UniRef90-R6XTY2 UniRef90_F3PTV1 UniRef90_S7XBJ5 UniRef90-A0A031LX64 UniRef90-UP10003B5D6D9 UniRet90_UPI00047D24D3 UniRef90-13YS49 UniRefoto-RTIIXXO UniRef90-K1KYH0 UniRef90-A8UJV6 UniRef90-UPIOOO37417B1 UniRet90-H1XPEO UniRet90_B8KGN1 UniRef90_V4N8A9 UniRef90-UPI000370BB84 UniRef90_UP1000311204A UniRef90-G3JOKO UniRef90-F3Y561
UniRef90_UPI00037D7939 UniRef90-B8GNU4 UniRef90-14WYK8 UniRef90-UPI00036A2680 UniRef90_B9Z2N1 UniRef90-R5WQN8
UniRef90-R9B9Q2 UniRef90-UP100032A8DBE UniRef90-F4HEQ8 UniRef90-AOP6S3 UniRef90-M7Z7S9 UniRef90 AOPXL5 UniRef90-V8DAH5 UniRef90-D7JGB3 UniRef90_U2J996 UniRef90-A8UN57 UniRef90-B4W682 UniRef90 W9XPW1 UniRe90-M5JBG5 UniRef90-D2QTA7 UniRef90-M7MKZ4 UniRef90-R517Q9
UniRef90
M5DVM5 UniRef90-U5H1R7 UniRet90_QOA9Y5 UniRef90-UP10003B61CF3 UniRef90-R6EWQ7 UniRef90-B8P8M3
UniRet90-S6BVW3 UniRef90-A0A023NV65 UniRef90-UP100037BBEC1 UniRef90-E4TD52
Uniref90_UPIOOO364276D

NSTCPSKNGGDLGKFGRGQMVIKEFEDAAFAAEAGHIIV SSDDSAEQGGDLGFVTQDKMVKPFADAAFALQKGQISD
 YSNCPSGMGGNLGQLSRGQTVPEFEDFVFRLASGEMGD HSKVGAEQGGALGAAPGESTPKPVTKVVFPEKVAEALKGP HSQSPASSGGDMGWFGPGGMSSAFTE VFKLPVFG YSTDTATKNKGGKDSTDTSLDSTFKKAAFKLKTGE VHNGQTDFGEKLGYFTGFKMVYKFENVAFNTNVGDTSE FSQNSAANGGDLGWLTETSAVQFGQKFVSS VG VFNGG YSDDEGSKGNGGLYENPNSWVAEFKEAAITQPVGTVGE YS VDNTTSTKGGKLAPFNMTDKKYDTAFKKAAYKLKDGE SSDDPSAKSNNGGYITAFRMDYPFESAAYNLEVGKISM
Y
SSEDSAPEGGDLDFFG

YSQDPGSRGGFYKMNRKTPFVKEFKEVAFSLNEGEISK
DSGGEAKNNGEMGDFELGQLPHKMEKLIFALKVGEVSQ
SSDEKENPQTQDYNFELTKLDPEVYGQVQDLEEGEVS
\(R S E K R Q C S S Q K G D F R G Q M Q K F E D V A F A L K V G E L S O\)
YSKPSVANNGYIGWVQHGKFRPD AFVEQVSQIDPTL
FSDDPAKDGGDLGTFKKGDMDGEDEAAVSGMKPGEVSD
HSTFSAQNGGELGPLVAGQMDAAFEAAAMALAA EG
YSEDSAVNGGKMKNITKGQMVKPFEAAALNLEVGQПS
YSDGSARDGGELGFSGRGQWVPEFAKVAFSLN GVI DK
KSTD IISRRTGGEMDWMEPDTTAD ELKQANLTEKG
YSEDSARQGGELGFMGRGMLDPTFAAAAFNL TDPK YSEDSAAQGGDLGFFGRGQLAPEYEATALALRQGEDSD
YSDDPGVKENGGQYTFKGEMVEPFENWAFTHAPGD
NTDDTGSKQNGGSYDNKGQMVKPFNDFLLFNNPVGAM
YSDDSSHRGGDLGVFSRGQMQRPFEEATFALKVGEDS
FSDTKAGEGGALGWVRRGDLVDVVDNVIFSLKPGECS
YSEDKGNGGELPRFMGRGELDPAFANVAFNLQ
NSDTTANNGGDMGWFMQNDWGSTFAQHMGEMKDGQVSQ
FSNDSAENGGDVGLIVKGALEQTLEDELYSLREG
FSDCSAKHGGMLDAFTRGQMQKPFEDMSFSLQVGQLS
YSEDPGMGGEFPDYVGRGMLDPAFASVAFNL FSDEKKSF WVS WLQMPAEFEDIVFGLQAGEMS
YSEDSARMGGEMD
FSDDKTTF

TDPK WAPFKSGQAEFEDAAFALE

 YSKDPGSNSKYLGVKRDSPWAKEFKDQAFSLDEGEIS E
DDQPSKARGGDVGWFAPVRVVPQDGQLLPSLKAGQV YGDGTAQRGGDLGWFAKEDFVEEFAEAAFAQQKDVVGTG SSDKSNENDGELEFAYNAGMAPEFKAFSFDNKVGDIM
YSEDSAPKGGDLGYFAKNQDFGAFSERAFNMKVNEVS FSDDSAQDGGDLGYTAGDTFPEAMEEADAALGVGEQS
YSDCPSKKEGGGGWVKGGQMVPEFEEAAFGAELNHVVRC
YSQDPGSASKGGKYRKQPRMVKEFRQVAFADQEGEVSE
YSNDPGSKSKDLGVFAPSQMVPEFGDAVLANEKGKVFT
VSDDTAKTGGDGGLNAGVMEKSFEDAASALKLGEVSN
YSQDRATGGQLLTFNRNSAFDKAFKDVAFTLREGEISK
KSTLSGKKGGDLGWMEPETTLPEFKSA VSDDPMTAGGDLGYTARGDDDPTDEGVLFTMRVGDVSQ
HSDCPSKQGGELGWLQRGQATPEFDRQVFRLREG
YSEDSVSVGGDLGYTSGDTFPETFEEVVLSLEDNEVS RSQDSAANGGDLGFFGRGAMVKPFEDVAFRMQPGQSE
YSDPGTAMQGGEMEMSLNQFVQPFADALEKLQPGQISE
YSDDSKSKGGVLAAYEKGVFGDAFDKAVASLKSGQVS
YSDCSAKRGGDLGAFGRGQMQKPFEDATFALKVGELSD
YSKDSGANGGSUDWNFPEVYEPEFQSMVKNGKVDGUKKG
FSECPSKKGGDLGWFPRGKMAGPFQEVAFNTPVGA
RSTGRKYTGPYGGDLGFVTEAQDSDPAAYPTKAGTLKENE
YSEDSALNGGDLSW DDPNALVPEFRDVMAKTPQGQLSK
YSEDTSKQGGSLGFFGRGMMEPEFSNVAFDD QGQLHEPG YSKDSAARGGELPLTRGQTVQAFEEALFSMKPGEDS
FSDDKSSSNKGGKLSPFKSGQLSSEE FESQAFGLKADG
RSEATRFSGGDLGYSTLDVMPQAYAGADRDKPAGS
FSEDKARQGGSLGWKTRGSLHGDFEKVAYELEPSTTANPK
E KSAEAADGGKMEAFNSYTTTQEKDFNKAAFGLKKGE
KSIISRKNGGTLGWLEASMTLDE
SQMKDQFSK
YSQGSVANGGSYDYFTYNTMVPEFRDYVFQNNVGDM
FS QS S A Q N G G D L G WMTE TS AVVQLGQK FVVNA DFNSN GS GYM
HSACPSKNRKGFAGQHEVDQLPEALYQALTAADGS
HSRCSSEQGGLLGQVSRGETVPEFEDAVLRLPVG
YSQDPGSKSNYMKVNRKSPLVKEFKEVAFSLDEGQDSE HSDCSSHKDGDLGSFGPGQMQKPFEDATYALNVGQ SD Y SiD PY GRSHNMGWVRQGSGMPQIEEARARLVDGEVS
Y S DQ Q A LDD G G D L G WRRLD E \(\square P P A F A D A V S N M K A G D V S P A M\) FSEDPKTSEKDLGFLMKNQTLPEVSSAMVKLKVGEIS YSEDSAATGGLYKNIAKGAMVKAFEAAALNLQEGELSK

UniRef90 UPI00046F2F3E UniRef90-UPIO0037877C6
UniRef90_UPI000289BDA4 UniRef90-N9LKA1 UniRef90_UPIO004732900 UniRef90-G8NBN9 UniRef90_UPI000476F986 UniRef90-UPI0003655333 UniRef90 \({ }^{-}\)UPI00036BCCC7
UniRef90_R7DJR8
UniRef90_E01946
UniRef90-X11110
UniRef90-W0JKK8
UniRef90_F1W0C6
UniRef90-UPI00047DFEF4 UniRef90-UPI0003B70667
UniRef90_G2E8X5
UniRef90 A0D6I5 UniRef90-UPIO003711456
UniRef90_B9M73
UniRef90-K1LSC1
UniRef90-J9G9J2
UniRef90-U2NIO2
UniRef90_UPI00047DFB68
UniRef90-SOFJ32
UniRef90-M5G9S9
UniRef90_UPI0003B5A1C3
UniRef90-R6FES8
UniRef90-Z9JLU02D6D9F5
UniRef90_S6HEA5
UniRef90-D3B6T1
UniRef90 R5LVL6 UniRef90-UPIOO047126B5 UniRef90-R6XTY2
UniRef90_F3PTV1
Uniref90_S7XBJ5
UniRef90-A0A031LX64
UniRef90_UPI0003B5D6D9
UniRef90-I3YS49
UniRef90_R7IBX0
UniRef90-K1KYH0
UniRef90-A8UJV6
UniRef90_UPI00037417B1
UniRef90 H1XPEO
UniRef90-B8KGN
UniRef90-V4N8A9
UniRef90_UPIO00370BB84
UniRef90_UPI000311204A
UniRef90-F3Y561
UniRef90-UPI00037D7939
UniRef90-B8GNU4
UniRef90 14 WYK UniRef90-UPI00036A2680
UniRef90_B9Z2N1
UniRef90-R5WQN8
UniRef90-R9B9Q2
UniRef90-UPI00032A8DBE
UniRef90-F4HEQ8
UniRef90-AOP6S3
UniRef90-A0PXL5
UniRef90-E3E3E0
UniRef90_V8DAH5
UniRef90_D7JGB3
UniRef90_U2J996
UniRef90_A8UN57
UniRef90_B4W682
UniRef90_W9XPW1
UniRef90_M5JBG5
UniRef90-EOWSG9
UniRef90-D2QTA7
UniRef90_M7MKZ4
UniRef90-R517Q9
UniRef90_M5DVM5
UniRef90_U5H1R7
UniRef90_Q0A9Y5
UniRef90_UPI0003B61CF3
UniRef90_R6EWQ7
UniRef90-B8P8M3
UniRef90-S6BVW3
UniRef90-A0A023NV65
UniRef90 UPI00037BBEC
UniRef90-E4TD52
UniRef90_UPI000364276D

90
VVRSEFGFHII QVNDDK
GVVET QFGFHVI K I EDQK
PVK T QYGYHI I E
RLLETRFGLHIVQVLRR
\(G L V G P L E A G G R Y Y L V R V E E\)
YTHDI RSPAGFHIVKVMEER YTATPVKTQYGYHVI LML

PFRTRFGYHI VNVLDKR
SGYFTVETPYGQHIMQVTER
PVKSQYGYHVMKVEKR
YTSQPVQVTTGYEI IKMI
PVRTRYGYHILKVNNK
\(G \stackrel{P}{\mathrm{~L}}\)
PFQTEFGYHI I LVEKI K

PVKSDSGWHIILRTG
PFTKPI QTAYGYHIFKVD
PVKTAAGFH: 1 KLEER
ELS GVVRSEFGYHI I KL
API ETEFGFHI I RLDAKK KVSKIVRTEFGFHII QLDAKR
 PVETAR GFHMIQLLEVR
T G
GIVETEFGYHVIKVDAK
GIVKTDSGLLHLIMRTG
K V S
AVL E T DVGYH I FKVEEKR GPLRGPSGFQLLKLVEVR PFQSEA GWH L L QRL GTR

IVVSTDSGVHI I E
\(\qquad\)

DVTKPFK S A Y GWHIVKRIS LIK \(P\) VK T D F GVVHI I Q

V E ■R
PFASQFGYHI IKVE

YSKPVVQFRGGWAVVQVVATR

PVFKTGLGLHLLKLTDLK


AAVETEAGTHLLLVTDRR PFKTDFGYHI ITLE PVKSAF GYHLIKVTE PFESSFGWH I

LAAFPVESRWGYHVVSVDGIR
A

A P
\(\qquad\)
\(A\)
\(\qquad\)
VVDTDSGVHI I KRT
A PVKSTHGYHF
WSTEPIKVSKGYA I Q QKEK \(P\) FQSPY GWHVL EVLGRR
 DVSKPFKTAYGWHVVKRDKDK TVGPF QTEGGWAVLRVEDRR CESD

 TYLGPI A TRYGYHIVK

PII QTDSGLHLI LRT
 \(K \square S K I V E S E F G F H I I Q L D D K R\) I V D T D S GVHLI
RGPT GFHILKKLERR


UniRef90_UPIO00414EDD6 UniRef90_UPIoo028A104E UniRef90-X1SIS9 UniRef90-C5EOC4 UniReffo-A3XNA7 \begin{tabular}{l} 
UniRef90 \({ }^{-}\)E3HVW9 \\
UniRef90 \\
\hline C5BTY0
\end{tabular} UniRef90-C5BTYO UniRe UniRef90_K2FFW2
UniRef90-Q5DFQ6 UniRef90-W6LRO7 UniRef90-X0xTW8 UniRef90-K4IGR7
UniRef90 R7KD5 UniRef90-R7KD52
UniRef90
Z5XL02 UniRet90-UPIO001E2C205 UniRef90-F9ZKW0 UniRef90-E3H8X9 UniRe90-R9V44
UniRef90-A9GNHO UniRef90-X1SOZ5 UniRef90-R6YMK6 UniRef90_Q1MMY4
UniRef90_H9JKG5 UniRef90-UPI000472C9E8 UniRef90-B7PAM5 UniRef90-S4YF11 UniRef90-M3JVK4
UniRef90 G4PK UniRef90-G4PKG8
UniRef90-LOMPP4 UniRef90_19AMS3 UniRef90-S9PWV9 UniRef90-A3XQU9 UniRef90-Q12LAS UniRef90-F3YCC7 UniRef90-E9F4B1 UniRef90-D8JUF4
UniRef90-N1MKB9 UniRef90-Q55EZO UniRet90-A4VQR4 UniRef90-WOIVZ3 UniRef90-B1XXR6
UniRef90_UPIO002884CF6 UniRef90-A0A024FBJ6 UniRef90-J2EDY3 UniRef90_Q3Y375 UniRef90_JowY44 UniRef90-A2TQ68 UniRef90-D5BPF7
UniRef90_E7RV98 UniRef90-D3PQ96 UniRef90-X0XLZ9 UniRef90_UPI000367A285 UniRef90_UP1000468B805 UniRef90-T1J7S1 UniRef90-F4S2S4 UniRef90-UPI00042056E5 UniRef90-U9SMH5 UniRef90-UP100037630E2 UniRef90-UPI00047CEE7E UniRef90-E1X1P5 UniRef90-D0M168
UniRef90 F5LD84 UniRef90-A8HWU9 UniRef90_K2ES55 UniRef90_UPI000465EDFF UniRef90-A8Q1Q7 UniRef90-R7JKJ4
UniRef90 A7BY UniRef90_UPI000466926E UniR Ref90-S6EYJ4 UniRef90-G8X7J5 UniRef90-W2UNX9 UniRef90 WorLHo UniRef90-UPIO0047D177C UniRef90-A6ET99 UniRef90-E8RB85 UniRef90-UPIO0016A3FE4 UniRef90_Q21WB2 UniRef90-O7MX12 2 UniRef90_B2U9LO UniRef90-UP10003B573AC UniRef90-U5CMS7 UniRef90-R5QRS2 UniRef90-W9AQP3 UniRef90-COBIB9 UniRef90-X11R96 UniRef90_W6WGM1

\section*{KVKASHTLVEKHSQALKVLEELGAGKDFKELARK} GQQVDVRHILKKKDEDELVRKKVNGEDFKEAARE MKVRH LIKPKEKAEKLIKKLDDGADFAKLAKK NKVTVKHVLVAKKKLADDVLKKAQAGEDFEALVKQ TEVKAAA VLEAEARAQD PQRNRYSTIQTKTEDEAKAVLDELKKGADFAALAKT PDEPPRDGVKHILVRTREEAMEARDKIRGGADFGEAVAQ PDEAGQRHMMAMFLESESQAMEASDKGEAGAEDFAEAGAGE PVPMQVEVQHIREAKKKARDYLDRANGGANFGTLARM APADAGEVRCSHLEVKTKEEALEELYKGVANDAQFDE:AKK PEKRTASHILINAKKDAPAALDEVKSPNDFAKIARA
\[
\mathrm{P} M \mathrm{~A}
\]
KVRVSHLLIKTREESDQILKKIRSGEKLSDIAST PERKEASHILIETRDAARQAAAVIAEPATFASVALE EVTVQHI LVAKSATADKVLDALKKDANFTKLAKK APSSPK VRVSHLLVKSKEEAWDFLNLIKEGTNTNDLAAK PDSVQSSHILLRTKAEAKALADSLLABSKLADLAPE AEKRLAAH LINKSDDDAADEAKAAAGESFEALAKT
 AAKGSDEFEADHELIAARERATSAAAVLAEPDQFAELARA KTVTCRHLLVKHQAKLNEYRATV DSGATFEDLAHK VAPRQFRUAQI FVKAKARLDSVKQQLRSGSDFATVARS PEQVRLSVI LLKAHAEGRQLHRRLLAGADFGDLARLL PKSYHISHIVVKSKEAADQVREELGNGSSFSALAME

 K GQKMYTVSYIL LISDETEAR QWIARMLRSGASFEKAARE
 PLFA EQRHDMAMFLESKSQATEVRARLESGESFTELAGE
 SPEQVQCFHLLVKHKELIKEYRNDIESGKSDEELAGE
 RIRASHLLVKTKDEALALTKRIDSGETGGELAVT
PEKRERRNVVSSKDAAAQVLAKAKAGTDFATLAQQ AEERSVEQGLFDDQETAQQAYEAlQAGENYSDV
 EAEHILCAARERAQTLAAVLRAPERFAELARA
TKVQCRHLLVKHREKLQGYRDMM TSGSKFDELAHK
PAQVRASHLLVKHRDTKDEADTQRRNVQTFSQLAGQ
PKEYQDRH LVETAEQAKALIAELEQGKAFGELAKE PVRVRAQHILLKHKEQAVKELEQLKQRENFESLAKE GKKAGINAKASHILLSFKGQANRTKEEAKNPSSFPMLAMT PVFGDEVEVAQUVKKPKRLKEDKRDIEENGSSMAGKATL PGQMRASHLLVKSKEEADQLLKEYAEKKFAELASQ PEMRRDRHILITFDDEAQKLKAQLKTEQDFGAAALK PDFSAEVEVAQLVVETQESRQDADDQLENGSSFATKAVL AT पGENEYKPSATAVNAKDKAKQAYEKAKDGDDFNELAKK PEKRQVSQI VFPSGEEAQAARTK円AEGASFDDIATQ

 SQEVVVAEVFLEVRELADRYYQEVRRGADFRSLARQ





 UniRef90_W2C833 UniRef90 UPIO0037532CE UniRef90 D3FEF4 UniRef90_A0A031HK25 UniRef90_L1QGU7 UniRef90_A2SGH5 UniRef90-A9ILA9 UniRef90_UPI00036B44AD UniRef90_U7FWN7 UniRef90-K2JU11 UniRef90_A9DK59 UniRef90-U1UNY3 UniRef90_K9PHU6 UniRef90 R5JH38 UniRef90_UPI0003D0C508 UniRef90-UPI0002196F92 UniRef90_E6VHK7 UniRef90_B7G5H3 UniRef90_R5GCX6 UniRef90_UPI0003490B9B UniRef90_B6BUU3 UniRef90-D5C2M3
UniRef90_R5R5G0
UniRef90- I1CU07
UniRef90_UPI00037EA0DD UniRef90_Q6D303 UniRef90_V9RXL1
UniRef90_W1N2V5
UniRef90_D6CQI7
UniRef90_R6E6U1 UniRef90_UPI000466FE43 UniRef90_E5YHT3 UniRef90_A8J3E3 UniRef90_A0A015NV83 UniRef90_C4K4L1 UniRef90_UPI0004702A7E UniRef90_UPI0002EB6BF3 UniRef90_D3V0C6 UniRef90_C4R200 UniRef90_G7SQJ6 UniRef90_K2ELT1 UniRef90_A3DCW2 UniRef90_U4WLU4
UniRef90_R8BK11
UniRef90_J6F2S3 UniRef90_U7HY71 UniRef90_UPI000255B2F6 UniRef90_UPI00037F7CF6 UniRef90 A8XW10 UniRef90_W1VU33 UniRef90_UPI00036D10C8 UniRef90-UPI0004655CB0 UniRef90_UPI000361F736 UniRef90_UPI0003B4D954 UniRef90_W5B1Q4 UniRef90-UPI0002E35B61 UniRef90_E4T4J4 UniRef90_X0QG47 UniRef90-UPI0003748116 UniRef90_W0RP94 UniRef90_I2GZM7
UniRef90_UPI000225BB20 UniRef90_R1BZ21 UniRef90- Q0VS58 UniRef90_UPI0003826CE5 UniRef90_UPI0003675CD6 UniRef90_W8YEQ6 UniRef90_H3RPY1 UniRef90-R5BUX5 UniRef90_UPI00037A80F0 UniRef90_D5VH36 UniRef90_UPI00036D4C04 UniRef90_UPI0004765B3F UniRef90_J7SAS6
UniRef90_U1MA34
UniRef90_UPI00047D07FC UniRef90_W7TFZ3 UniRef90_Q0BQ08
UniRef90-H8L 4N2 UniRef90_H8L4N2 UniRef90_UPIO00367B2F4 UniRef90_UPI00047CDB6F UniRef90_S3DKW8 UniRef90_B8AVY9 UniRef90_Q2W0V5 UniRef90_V7Z6X3 UniRef90_UPI0003B68211 UniRef90_W2DDX3

SPEQRQASH\| LLAAEAKANKDAAEAKAAGADFAALAKA
 \(P E R R Q L S N I V V K T K E E A D Q V L A D L G A G T P F E T L V A Q\)
PERRDL E II LTRTEAQANEAKRAI ESGTSWAAAARR


GERVR VRH I L L RARA EAS E \(\square D A P V A E G D R F A T A A A R\)
PERRRASHLMMELPA GASEAKQAAADPAQFAEGARA
ERVRARHLRVDSQQAADR IVAEDRDGLSFEQDARY \(S P A\) Y EAAHIL FAA DEKARGAI AE LKKQPGRFADMAKA

E QVIL Y QIVVVE S E MLLA QELVYY QU E E GES FY DAA HR \(V\) QV M H L V E TEAARMDSSLYQVL SANPD A DFAS Y
G Q GEP A R V R C S H L V TT R S K E E A L E L I Q KI K S G E D F E S L A S Q

PEKRRILLQIVFPNAEEAQAARAKIASGTSFADLAQE


 A EKRRVVABMLLAAEPADCAADRRELLDAGGDFGAAARE V I P E N R N V L Q M V F D N Q D K A MEA LA K


APGD GDARVAA
\(P \vee A Q N A T E A Q\) ARKQALDLVKRAQAPADFAALARS
 ILLQA EKEAD S L K TVI A N G G N F S S I A S L
 A A MAD A RVRASHLLVVKTREEAGAMI EMLVK GEEFAA LAA Q SWIV TES RAEAEKVLRMVEAGESFEALART P F Y E S E L N L S Q L L I K A E K K A N K L V S Q L K K G A N F A K L A I A
 \(M Q V E\) QKKYSMVQLVSDAEAKSVLDELKKGADFSKLAAE
 GK T Q Y HL A E IV LIP A K E T L N N L V K E L Q K G A N F A A L A Q Q
 A S S Q P G K I R A A H L L \(P E R Y H L R Q Q E L Q V K A R A G Q L V K E A R A K K D F A E L A R R\)

\(T\) QV Q C L H L L V K H E E D A D
P H D Y D E \(V\) V R L S NTRVKLLWQIYAPSKQEDNDYYSRLLKQDSSFKEELAMM


 EVKA Q I I K LA DEAK A NEVLEK AKA GADFA QLA K D S GE M L A A R H L F S V R R KAEA I RA QVNTG NFAQLA QK TA S S LVVA DLLKA GA K F E V V LA Q Q




 VVP E T R H A R E \(\triangle M I\) K A E A R M K A V Q D R L \(R E V V V N D K A K A Q Q L L A Q V K S G A D F A G L A S Q\) GDRVQASHULVFATLERAQSALDAVRNPDSEEAVASS EKKRDKDSFGSI A Q E
 AVRARHLLVEVVPLCDSLFEDVKKGAEFHALAAA QKGQTEYRVSEI FI AAHDFADTVIQQLARSGAPFPVVAAC VQPE QRELSHILI SLPHNALAKAQSIAA GANFAERARK E A Y QRAQEACSRARAGEDFSSLAEY

\section*{F} \begin{tabular}{cccc:c|c}
\(E\) & \(\square T\) & \(A\) & \(Q\) & \(V\) & \(Q\) \\
\(T\) & \(C\) & \(D\) \\
\(K\) & \(L\) & \(R\) & \(V\) & \(V\) & \(P\) \\
\(K\) & \(\square\) & \(A\) & \(H\) & \(L\) & \(V\)
\end{tabular}
F S S D E DTAK SVLS EVVKA G A DFAKIA K E

 SHPLS



\begin{tabular}{|c|c|}
\hline UniRef90_B4SLN5 & GPVIKTDFGYHII|KVAAVR \\
\hline UniRef90-W2C833 & QPTLVKTNNGYHLLKVTER \\
\hline UniRef90 C5PHU7 & GLVETQSGV \\
\hline UniRef90-UP100037532CE & FGPVQTTHGWN \\
\hline UniRet90-D3FEF3 & VIVGPVRGQFGWYIVRVT \\
\hline UniRef90-A0AO31HK25 & AGPIETPGGFSILYLTDKR \\
\hline UniRef90-L1QGU7 & EVSAPVKSSFGYHILKVTD \\
\hline UniRef90-A2SGH5 & PRLVHTRFGLHVVEVLQRQ \\
\hline UniRef90-A91LA9 & GVVESPSGLHIVKVTE \({ }^{\text {PFE }}\) \\
\hline \[
\begin{aligned}
& \text { UniRef90_UPIO0036B44AD } \\
& \text { UniRef90_UFWN7 }
\end{aligned}
\] &  \\
\hline UniRef90-K2JU11 & \\
\hline UniRef90-A9DK59 & GVVESPFGFHVIEIEDQK \\
\hline UniRet90-U1UNY3 & LADKPLESRYGWH \\
\hline UniRef90-K9PHU6 & KTEQG \\
\hline & \\
\hline UniRef90-UPIO003D0C508 & GRVFTDSG \\
\hline UniRef90 UPIO002196F92 & EPVKTKAGYQ \\
\hline UniRet90_E6VH & PVQGQFGTVL \\
\hline UniRef90-B7G5H3 & GPIQTQFGWHLIY। QS R \\
\hline iRet90_R5GCX6 & \\
\hline UniRef90 UPIOOO33 & AGPLQTKLGYHILRLE \\
\hline UniRef90-B6BUU3 & EVSQPFKTDLGWHI I QYTDSK \\
\hline \[
\begin{aligned}
& \text { UniRef90-D5C2M3 } \\
& \text { UniRef90 R5R5G0 }
\end{aligned}
\] &  \\
\hline UniRef90-11CU07 & DPPVKTKFGYHI \(]\) MVEDRK \\
\hline UniRef90-UPIO0037EA0DD & PVQSPAGFH \\
\hline UniRef90-06 & D\GWHLLLCEATR \\
\hline UniRef90_V9RX & APVQSAAGFH \\
\hline UniRef90 W1 12V5 & LHERPLASRYG \\
\hline UniRef90- \({ }^{\text {decal }}\) & NVPFVLKSAYGV \\
\hline UniRef90-UPIO00466FE43 &  \\
\hline UniRef90-E5YHT3 & QLS GAVKSSVGYLVVRLNDTK \\
\hline UniRef90_A8J3E3 & \\
\hline UniRef90_A0A015NV & AGPVEVDMGWAVV \\
\hline UniRef90-C4K4L1 & IGPIRSGVGFH \\
\hline UniRet90-UPIOOO4702A7E
UniReigo- UPIOOO2EB6BF3 & GVTQGSHGYD \\
\hline UniRef90-D3VOC6 & GVIKDSGGYAI FRLDD■K \\
\hline UniRet90_C4F & IVESDSGMHLTERLG \\
\hline UniRef90_G75 & GFSKTEFGYH \\
\hline UniRef90-K2ELI & A \\
\hline UniRef90-U4WLU4 & A PIPVEDGYALLHITERK \\
\hline UniRet90-R8BK11 & TVVDTASGL \\
\hline UniRef90 - J6F2S3 & D G \({ }^{\text {d }}\) \\
\hline UniRet90_U7HY71 & \\
\hline UniRet90_UPIO00255 & ET EF \\
\hline UniRef90_UP100037F7CF6 & PVFSSYHG \\
\hline UniRef90 - \(88 \times W 10\)
UniRef90 W1VU33 & GTODTDSGVHI \\
\hline UniRef90-UPIOOO36D10 & \\
\hline UniRef90-UPIO004655CB0 & APVRGPEGYHLIRV \\
\hline UniRet90_UP100 & P \\
\hline UniRef90 UPI & PYETELGLLHI FKVDQR \\
\hline UniRef90-W5B1 & PVQ \\
\hline UniRef90 E4T4J4 & GPJKDEQGVQIFOVMDK \\
\hline UniRef90-X0QG47 & HLVK \\
\hline UniRef90-UPIOOO3748116 & VDPQTYATSYYVVKLNEK \\
\hline UniRef90-W0RP94 & PLVETPYGYH1 \\
\hline UniRef90-12GZM7 & S \\
\hline UniRef90-UPIO00225BB20 & DGYKII KVRD■R \\
\hline UniRef90-R1BZ21 & DHARPETPLGWHVVQM \\
\hline  &  \\
\hline UniRef90-UPIOOO3675CD6 & TDVIKSGGKFYiV \\
\hline UniRe990 W8YEQ6 & DIA GPVEVAGGYAVIELLE \\
\hline UniRef90-H3RPY1 & \\
\hline UniRef90-R5BUX5 & KPFVLKTTYGTHVVLVT \\
\hline UniRef90_UPIooo37A80F0 & TSSVIKADNGLFLGQLE \\
\hline UniRef90-D5VH36 &  \\
\hline UniRef90-UP100036D4C04 & ASGGK \\
\hline UniRef90-UP10004765B3F & VVPRLVNTRYGFHVVRLERR \\
\hline UniRef90-JVSA & GIVETDSGW \\
\hline UniRef90 U1MA34 & ETDSGLLHLI Y \\
\hline UniRef90 W7TFZ3 & SLRGFHLVKI E OLR \\
\hline UniRef90-Q0BQ08 &  \\
\hline UniRef90 H8L4N2 2 & GY Hil WLRDVR \\
\hline UniRef90_R7R453
UniRef90 UP10003 & QTAYY \\
\hline UniRef90 UPI00047CDB6F & QTDEGYVL \\
\hline UniRef90-S3D & GVVETA \\
\hline UniRet90_B8AVY9 & \\
\hline UniRef90- V776X3 & R \\
\hline UniRef90-UPIOOO3B68211 & VGYA \\
\hline & \\
\hline e90 & \\
\hline
\end{tabular}

\section*{UniRef90_A0A024HBA6} UniRef90-V9R8J1 UniRef90-11AV22
UniRef90
U5AV14 UniRef90 \({ }^{-R 5 C 7 X 8}\) UniRef90-A0AO59DP44 UniRef90-Q57YG1 UniRef90_IOBUIO UniRef90_A3UJ90 UniRef90-J9F8V7 UniRef90-FITIC3 UniRef90-U7FLV
UniRef90 B4RFM2 UniRef90_UPIO0046EAFAB UniRef90-A0A011 P9V1 UniRef90-B2IBK0 UniRef90-19L379 UniRef90-Q9RY79 UniRef90-UPIO0034DCOFA UniRef90-Q0VQ86 UniRef90-P23119 UniRef90-UPI00036605B8 UniRef90-OOBTX9 UniRef90-K9TNM9
UniRet90 V9TS43 UniRef90-H6CC90 UniRef90-D2R317 UniRef90-D5CPB0 UniRef90-S4CE38 UniRef90-UPI000374CB54 UniRef90-D7CX94 UniRef90_Q1QXW9 UniRef90-B8LCS5 UniRef90-U7NHW2 UniReffo-CO28P1 UniRef90-B7G3B3 UniRef90-BoU7Z9 UniRef90-A4YQ95 UniRef90-U5P615 UniRef90 EOTG51 UniRef90-UPIOOO2899338 UniRef90-K2CCP9 UniRef90-K9z999 UniRef90-C9AAU8 UniRef90_UPIOOO30F6622 UniRef90 C1F9H4 UniRef90-UPIO003657BA3 UniRef90-K9QLE9 UniRef90-D3E778 UniRef90-TOMEHO UniRet90-W6S5M6 UniReffo-U3HDI8 UniRef90-ROKNY4 UniRef90-F7VGG5
UniRef90-W4S5T2 UniRef90-B1Z6T5 UniRef90_R5XGF2 UniRef90-R5EUM2 UniRef90-A3DIO3 UniRef90-K1J233 UniRef90-Q0C9E3 UniRef90-D6D684 UniRef90-G8LUVO UniRef9O-UPLIOOO464DD43 UniRef90-Q21UP5 UniRef90_K9PHV1 UniRet90 W5SMG UniRef90_R7IU6
UniRef90 E8UCS: UniRef90_W4PUH4 UniRef90-J4VQG9 UniRef90-A0AO24Q624 UniRef90-A1WTQ9 UniRef90-UPI00035C79F1 UniRef90-Q3A8E0 UniRef90-K2FZH3 UniRef90-UPIO001E2DODO UniRef90_SOJZ24 UniRef90-B3RCJ9 UniRef90_J9CMFO UniRef90-UPIO0042B0DF9 UniRef90-G5QEM2 UniRef90-UP100022CAA7D UniRef90-UP10002EC757A UniRef90-D5SU91 UniRef90-G7H9L1 UniRef90-UPI00046E76F9 UniRef90-K9QCA6 UniRef90_HOJoм4

SPPLLEASHILIAAQQEARKLISDLQADPPFARLAAS SEKLLAAHLLVKADKELQKWSQRIASGESFEEAASQ \(K L Q Q \operatorname{V}\) SASREQAQKAAAELAKGADFGQVARD \(P Q G G E E R A V G \square I \quad\) QT \(\quad\) I D QL RQGAPFQAVAQQ
 K R KV A H FEAKKKAEDTLKKVNEPNDFAALVK E
 GETRVLRHLLVA A A R
A S K GADE YR \(\square G E \square Y \square\) \(R Q\|V V T A T P E T R Q I V Q Q\| R Q G G S F V A Y A R Q\) GERLLARHLLFADKAKAQSLGAQARGGADFAVLASA A GAGDARRHVSHILIELNDDRDEAAKAIADGASFADVAAQ
 P E M D L S Q LVQAK EK EM ENRLKQ GEDF GMLA QS E QVVVLS RIVVVETEADKAADELAKAQIDEQGAASF E A L A K E


 ER R RLS MI YI A T Y K MLLEDI R R KVI Q G GDFS DLARV
 P K EVVRVLHIL KK H S S E L L S I L Q EVVK S N AT F E E L A K T
 MEVDH ILLDAKTEAND\| ISRLQDDPSFADLAKH TQVRAAHLLIKARQELESYQHRI DADEAFPKYATS \(P E K R T D Q Q Q V F P N E A D A A A A D K R I R D G E P F E S D A G E\) P R R F R I A Q L V A A K K K L E D D V V R K L R RLLVVSSEKEADSVVARRI QT GDP F GDMARR
 F D D E D LAALE IFF A L Q E GES F QE I AR Q E VEA Q I K VA S E D DA K DV LE EA K K D A D F G EIIA K E PETRK LQQQLSFPSQEEANAAREKDLDAGASLA DIAT E
 D R V V V K K QL N L S M I E EVAA S E D E A E R \(R L Y H L I K A Y N R I V K Y E D L K K N E Y F K N K A R E\) QVQQAA H R R LA D Q A GA D R V Y E E L Q K G L D F D E A V R R R I Y H I LI K H N E K C K N I Y N KLL K N D K D F M D L A K K
E Y NLSEIVFVRVEDHAEEVIQELRKGAPFPDVAAQ V D A GADFDQLASS
A S LGK DEYKPRLIVVK DAATAATVLAELKAGKPFD GLLAR Q PATVSAKHILTTDSEEKCNDILAEKGTSSGEKE FEEAA K K D G T Y V S V R H I L VAA C E K K A Q E I L D E WL A G D S F A A LLA E E

GE G K I R C S H LLVKK S KEEA DE ILRRRIQS GETLGEMA R R P Q TVITSRH L E E EKARMDS I YRVI QN QP DFN R L V E D QK R QLA E D I FKRVK D GES \(\square E E L A K Q\)
PTAYQASLIVLQTKSDAQEAVNELENGSSFDVLARE
 \(R V A L S Q I V V V D L S T A Q K I V Q I L Q Q G A T F C A L A H S\) VNPDIARISSHVFFSSKAKAKDIVVKI KSKKTFEEAVRK PAE G D TD E A R \(\quad\) L E S V Q A T V D A I D E R L N A G E S F Q T L M A E
 P F DP K T V E L Q Q I A L E P Q DR V K G E T M T T V R H L L L I

 DKKAQADDVLEKIKAGGDAEKLAVD \(E V T A Q L I Q V S T E D E A K T V I A D A K D C A D F S K I A K E\) GE WV EAD HI LIFQVREVVAAQTLADVRDPASFAHHARA \(R V K D R Q V L F Q A Q L A R M S L A A A L A H G M L F E D C V K R\) I K V S HIL DSVNAKAQEALDKLKAADKFSELAKE

 PTTFRASLIVLQSESDAQDAVKELDNGSSFDVLARE




\begin{tabular}{|c|c|}
\hline UniRef90_A0A024HBA6 & \[
L \mathrm{~L} \text { VH P L L E S R Y G|L|H|V V|E|L L }{ }^{90} \mathrm{R}^{100}
\] \\
\hline UniRef90_V9R8J1 & P ILHSMF GWHI I K I \\
\hline UniRef90-I1AV22 & P A PVLS R H G WHI I RL \\
\hline UniRef90-R5AV14 & G V V E S H G Y HV I \\
\hline UniRef90_R5C7X8 & PFFT P Q G \(\square\) HIVK C \\
\hline UniRef90_A0A059DP44 & YPEPVLSEHGWHILRLDHR \\
\hline UniRef90-Q57YG1 & P 1 V Q T D S GLLHI I K R \\
\hline UniRef90_IOBUIO & EVSKPVEWEGQYVLVKVQDRK \\
\hline UniRef90_A3UJ90 & \(R \vee P G\) G GFQIVALID R R \\
\hline UniRef90_J9F8V7 & R P F F S P L G \(\square \mathrm{H}\) L V K WMERK \\
\hline UniRef90-F1TIC3 & GDT G VKT S Y G Y HVMKL \\
\hline UniRef90_U7FLV0 & V VS A P V V S D A G V V L 1 K V \\
\hline UniRef90-B4RFM2 & TGTAPVRRSPFGWHVVRLERR \\
\hline UniRef90_UPI00046EAFAB & A A A GPFQVDGGYAVIR \\
\hline UniRef90_A0A011P9V & VIESELLGY HL V R CEA! Q \\
\hline UniRef90-B2IBK0 & T TAPI R L N D G WHILHILD C R \\
\hline UniRef90_19L379 & GPI EVVPG G F DV L L L I D K R \\
\hline UniRef90_Q9RY79 & GLT DVI E S G G K F Y I V KV \\
\hline UniRef90_UPI00034DC0FA & VLP QLV HS R F GLHVVDVQAR \\
\hline UniRef90-Q0VQ86 & A PVVVT D A GVVHLI F V T \\
\hline UniRef90_P23119 & P V L E S P \(\square\) G F HV L F C E \\
\hline UniRef90-UPI00036605B8 & VI H T P EGY RIL L K V \(\quad\) K \\
\hline UniRef90_Q0BTX9 &  \\
\hline UniRef90-K9TNM9 & GPMEDEGRYSLL R L EQR \\
\hline UniRef90_V9TS43 & TVSKPVKSELGWTLFNI LD \\
\hline UniRef90_H6CC90 & DVA GP I S V D D G Y AV 1 Y V Q D \(\square R\) \\
\hline UniRef90_D2R317 & KVANL Y Y Y I L L C D E \\
\hline UniRef90-D5CPB0 & GVLESELGFHVLRCD \\
\hline UniRef90-S4CE38 & P VK NLM T K Q T S Y Y I V K M I \\
\hline UniRef90-UPI0003740 & VIR K D E G C Y L I L V E E R Q \\
\hline UniRef90_D7CX94 & GLT E PI E A A G A FYI V SV \\
\hline UniRef90_Q1QXW9 & LLHARPLASRYGWHLVSLDAR \\
\hline UniRef90_B8LCS5 & E EVVDT S S GVVHI I L R \\
\hline UniRef90_U7NHW2 & LHDRPLAS R Y G WhVV SI D A R Q \\
\hline UniRef90_Q028P1 & P II P T P E G Y R I L K V \(\square\) S K \\
\hline UniRef90_A8FUP4 & PL E S R Y G L H V V K I E G K \\
\hline UniRef90_B7G3B3 & G IV S S D G V H L I Y \\
\hline UniRef90_B0U7Z9 & \(\mathrm{P} V \mathrm{~K}\) GRFGTVVLLRV \\
\hline UniRef90_A4YQ95 & P I R L D D G WHVV K L LD \\
\hline UniRef90_U5P615 & VPA S Q N N G G Y Y I V K V T K K \\
\hline UniRef90_E0TG51 & APVATEEGWYLLIVESR \\
\hline UniRef90-UPI0002899338 & VELD T S F HI I KVVT E \\
\hline UniRef90-K2CCP9 & \(\square \mathrm{GVI}\) E NDEGYYVGKV E D K \\
\hline UniRef90_K9Z999 & PIT T P H GVHI I MVEE E \\
\hline UniRef90_C9AAU8 & SATNTSTYTTEYYIVKM \\
\hline UniRef90-UPI00030F6622 &  \\
\hline UniRef90-C1F9H4 & Y A TQDHKKVIGYAI YKLLDK \\
\hline UniRef90_UPI0003657BA3 &  \\
\hline UniRef90_K9QLE9 & QLVGPVELE G R Y GL FRV \\
\hline UniRef90_D3E778 &  \\
\hline UniRef90-TOMEH0 & IGPVK T P S G Y H I I Y \\
\hline UniRef90_W6S5M6 & KTSD IVESQ F GYFi I GVVD \\
\hline UniRef90_U3HDI8 & S LS QPMH@D GAFEIVRVRSR \\
\hline UniRef90-R0KNY4 & G P VK TE S G Y HI I Y \\
\hline UniRef90_F7V9G5 & A \(\square\) S N P I TVVPG G F VI I SVVNGKR \\
\hline UniRef90-W4S5T2 & P P V R GPGGY HL I RLEEK \\
\hline UniRef90_B1Z6T5 & T PESIAVDNARA I V K L D A K R \\
\hline UniRef90-R5XGF2 & GPVQ TQ F G Y H \\
\hline UniRef90-R5EUM2 & G D Y G LVK T K Y G Y HVM V \\
\hline UniRef90-A3DIQ3 & GDT DIVET GY GYHVVK\E \\
\hline UniRef90-A9H1L4 & \(R \vee A G \mathrm{G}\) G VI A T L NGRR \\
\hline UniRef90-K1J233 & V L G P VR T K F GFHLI K V L Y R \\
\hline UniRef90_Q0C9E3 & \(\mathrm{G} \square \mathrm{V}\) D T A S GVVLI E \\
\hline UniRef90_D6D684 & PFF T P E GI H I L K V I D R \\
\hline UniRef90-G8LUV0 & GLIE T S Y Gl HVA K V I K K \\
\hline UniRef90_UPI000464DD43 & SLS D \\
\hline UniRef90-Q21UP5 & VLPR L V H S R F G L HVVEV V L R \\
\hline UniRef90-K9PHV1 & \(\square G P\) Q T N L G Y H I L R I E \\
\hline UniRef90_W5SMG4 & DISSQPISSKEGFHIVKVTE \\
\hline UniRef90-R71IJ6 & C WS D P I V S D A G V HI L Y \\
\hline UniRef90-E8UCS3 & T GPV K L G S S F I F DV \\
\hline UniRef90_W4PUH4 & S HPFFTPE G \(\square\) HLVKVVDR K \\
\hline UniRef90-J4VQG9 & VSP I I K T DEGYHI AQL I E K R \\
\hline UniRef90_A0A024Q624 & PFVA D N G I A I LYY L H R K \\
\hline UniRef90_A1WTQ9 & GPVETAMGLHVLLCE \\
\hline UniRef90_UPI00035C79F1 & E \(\square \quad\) K N G WYL L RLE D R K \\
\hline UniRef90-Q3A8E0 & IE T P EGFHLL R L D ER \\
\hline UniRef90_K2FZH3 & ES S L G Y HI I R I E D \(\square \mathrm{K}\) \\
\hline UniRef90_UPI0001E2D0D0 & T D L T T Q Y G Y FVVKVED R \\
\hline UniRef90-S0JZ24 & AVT DSSTY Q T T Y Y V V K M \\
\hline UniRef90_B3RCJ9 & VLP QLLES R Y G L Hiv R I Le R \\
\hline UniRef90-J9CMF0 & P FF T P EGli C L V K V L D R R \\
\hline UniRef90-R5MCF4 & Y S S N IVETELGGYHLVYRTETK \\
\hline UniRef90_UPI00042B0DF9 & \\
\hline UniRef90_G5QEM2 & \\
\hline UniRef90_UPI00022CAA7D & Q F S K P LK Q E G Y L I VK LD D \\
\hline UniRef90-UPI0002EC757A & \\
\hline UniRef90_D5SU91 & \(\square \mathrm{l}\) GRA Y QVVFVEER \\
\hline UniRef90_G7H9L1 &  \\
\hline UniRef90_UPI00046E76F9 & \(D \| A G P L Q A G D A Y A V I R L E\) \\
\hline UniRef90_K9QCA6 & \(P \mathrm{P}\) VT P K GVVHI I A V E E I \\
\hline UniRef90-H0J0M4 & \\
\hline
\end{tabular}


\author{
UniRef90_UPI000411E814 UniRef90-K9X4V7 UniRef90 K9VT83 \\ UniRef90-K2BJP4 \\ UniRef90-G5HFM7 UniRef90_U2QKE9 UniRef90 UPI0003A23770 UniRef90-Q10YN0 UniRef90-A3ZXR9 UniRef90 X6G1S4 UniRef90_R5N3P1 \\ UniRef90-D3DI80 \\ UniRef90-R1D4N5 UniRef90_UPI0003B77579 UniRef90-13BV46 UniRef90-UPIO0040FBCAF UniRef90 V6Q544 UniRef90 U2DRA4 UniRef90-V6ULI8 UniRef90-A9A0L1 UniRef90 H1HJl4 UniRef90-R5Q4I1 UniRef90-F9U9C7 UniRef90_G1VB19 UniRef90 W9VUB3 UniRef90-K0CIG4 UniRef90-UPI00045E8F3F UniRef90 I7IU10 \\ UniRef90-K3WE84 \\ UniRef90_UPIO00361BABE UniRef90-A0A024G0Y8 UniRef90 UPI00035EE568 UniRef90-UPI00040A8A76 UniRef90-UPI000363DC1B UniRef90-W2Q636
}

\footnotetext{
lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
ssm
}

\begin{tabular}{|c|c|c|}
\hline \multicolumn{3}{|l|}{\multirow[t]{35}{*}{UniRef90_UPI000411E814
UniRef90_K9X4V7
UniRef90_K9VT83
UniRef90_K2BJP4
UniRef90_G5HFM7
UniRef90_U2QKE9
UniRef90_UPI0003A23770
UniRef90_Q10YN0
UniRef90_A3ZXR9
UniRef90_X6G1S4
UniRef90_R5N3P1}} \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline
\end{tabular}

50
 70

80 HSVDDAVVGGVMGAISREEMPDFIQAATLNVTPGQIIGPF YSADDRIVNGMMGVLSRGSLPDKIRAAV NNTME NNDLGWRKLAELDPSFVNTLAQMKSGEEI T D
 Y
 FSENSAAARGLIPPIRMNMGTPEVESLVFA\(L\)


 NS IETSKNAGKIGKI LRGSLSGEIVEKL FNAEENAVV

 HSQDTAANGGDTGLQALAQQLDPEVRGVVPKLKVGSVSE YSQSSAEKGGDLGFFALEDLLAPQLREAIEELQAGE YGQTGQKTWMTQQYQGAPSMDNDTKNYINSLNTMSVNETK
 YGQTGEKAWFTQQYEMAPTMSVDNRTFVNALLNGEV HSECPAMQEGQLGTVPRGKLYPELDAVLFGMDEGEVS YSDCPSRQGGELGWLGPGQTVAELDRVLARLPAG YSEDGTMERQVGGBRGENPGPYEDAAFSLSAGQDSQ



 YGQTGEKVWFYEHATSMNQENRQFINA\(I M M N A E T G K V E N D A\) HSQHPSYYNG GDTEWLRVEGPTLEMLDSLDVKEVSEI HSTCPSKKGGDLGMFGRGEMVPQFDKMVFEGEVGKLAK

\footnotetext{
lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
jhmm
jpssm
}

\begin{tabular}{|c|c|}
\hline UniRef90_UPI000411E814 & \(R \mathrm{VAGG} \quad \mathrm{GYV}\) I \\
\hline UniRef90-K9 & \(E 1\) D D \\
\hline UniRef90-K9VT83 & KL VGP PLE \(\square\) E G T WA \\
\hline niRef90-K2BJP4 & P \({ }^{\text {a }}\) \\
\hline UniRef90-G5HFM7 &  \\
\hline UniRef90-U2QKE9 & Q GNV I VQ \\
\hline niRef90-UPI0003A23770 & HL \\
\hline iRef90_Q10YN0 & GPFKTNQFWSIF RLE \\
\hline niRef90-A3ZXR9 & \\
\hline UniRef90-X6G1S4 & VVQGAFGPVLLR \\
\hline UniRef90_R5N3P1 & DELANIKVGQANLI L QVMNKK \\
\hline UniRef90-D3DI80 & PI D T G S G Y L L K V I \\
\hline UniRef90_R1D4N5 & GPLQTQF G \\
\hline ef90-UPI0003B7
ef90-13BV46 &  \\
\hline UniRef90-UPI00040 &  \\
\hline UiRef90-V6Q544 & \\
\hline niRef90-U2DRA4 & PVK T D F G Y H I L K \\
\hline UniRef90-V6ULI8 & PVQSAAGYHI I KLVEQQ \\
\hline UniRef90_A9A0L1 & VLD T P L G Y Q L Y L EEDQ \\
\hline UniRef90-H1HJI4 &  \\
\hline UniRef90-R5Q4I1 & QGGV \({ }^{\text {a }}\), QVVDRR \\
\hline UniRef90-F9U9C7 & QHTAVLESPVGFDILM \\
\hline UniRef90-G1VB19 & ATQNL ALT Q GNVILQ \\
\hline UniRef90-W9VUB3 & GIVESEVGLDHLLL \\
\hline UniRef90-KOCIG4 & LH GR PLA S R Y G Wh L \\
\hline UniRef90_UPIO0045E8F3F & E NKGKYY \\
\hline UniRef90-17IU10 & V SNFGWHII K \\
\hline UniRef90-K3WE84 & D S Gll \\
\hline Ref9O-UPIO00361BA & A EPYAGGFGWTLA \\
\hline niRef90-A0A024G0 & \\
\hline f90_UPIO & \\
\hline niRef90-UPI000363DC1B & A I I KV \\
\hline niRef90_W2Q636 & VQTQFGWYVLLCTER \\
\hline
\end{tabular}
lupas_14
lupas_28
jnet
conf
conf
sol25
sol5
sol0

jhmm```

