UniiRet90 R8BL2 Unifeti9-M7SJH4 UniRef90_L2G2G UniRef90-W3X1N1 UniRef90-L8FZL7 UniRef90_W6MGT5 UniRef90-W1QGP6 UniRef90-UPI000441A425 UniRef90-B6QC30 UniRef90-R7Z1Y8 UniRef90-K2R708 UniRef90-F7VP43 UniRef90_U4L4VO UniRef90-J5K218 UniRef90-A7SI64 UniRef90_A5E4Q9 UniRef90-E4ZPJ4
UniRef90 S3CW72 UniRef90_C1G199 UniRef90_C4R7L2 UniRef90-A0A024J7R0 UniRef90-G3B2S0 UniRef90-U1GDV9 UniRef90-E9G1A5
UniRef90- J3PCT0 UniRef90-C5MDV1 UniRef90_UPIO000455EB19 UniRef90_C3Z918 UniRef90_UPI0002654980 UniRef90-S2K833 UniRef90-W7HVS8 UniRef90-F1LCIO UniRef90-F8NUW3 UniRef90_O97183 UniRef90_T2MGQ0
UniRef90-G6CJX9 UniRef90-B6K2N9 UniRef90_Q54DH7
UniRef90_H6C6M3 UniRef90-B6GWS8 UniRef90_UPI0001CBBF53 UniRef90-G4N9Z3 UniRef90-MOS369 UniRef90_UPIO00359D8F2 UniRef90-LOPEQ4 UniRef90_UPIO0044494F8 UniRef90_C1BV58 UniRef90_A9SHD1
UniRef90_W5NJ36 UniRef90-F0ZT58 UniRef90-W5KXU0
UniRef90-H2YEA9 UniRef90-B3RV95 UniRef90-K5W2E9
UniRef90 UPI0003 UniRef90_UPIO003C27140
UniRef90_UPI00034F60CB UniRef90-J3JZ55 UniRef90-F4P8K9 UniRef90_A0A016VXZ2 UniRef90_I1G6S9 UniRef90-U9U469 UniRef90_B9HS44 UniRef90-V2XDD5 UniRef90_UPIOOO265762B UniRef90-H3E9U3 UniRef90-B8PBS2 UniRef90-R4X6D5 UniRef90-C4WTK3 UniRef90_A2ATX1 UniRef90-T1G647 UniRef90_A0A024GLH5 UniRef90_A8PAX3
UniRef90 K5XBU6 UniRef90 F7BOW1 UniRef90-W4K3P5 UniRef90-G4LUYO
UniRef90- W2RKY2 UniRef90-F4Q3D5 UniRef90-E1ZQP2
UniRef90 U9TS65 UniRef90_U5HCM2 UniRef90-M2XDV5 UniRef90_Q5CSH3
UniRef90 S8FH34 UniRef90-S2JI72 UniRef90-F9WWV9
UniRef90_K5W688

## R0

$\qquad$



$\square$ 59D8F2 .
.

1
1020
20
$F \square A H R \square G \square$
30
LQ S MDTE QLE

 PTLAI DLVEISTNTSVLADEFI SHRLGLI PLDSQDVNDLE

 $P$ TLL A 1

## P

P

## P


P


## QUERY

UniRef90_R8BL20 UniRef90-M7SJH4 UniRef90-Q6C2S4 UniRef90_W3X1N1 UniRef90_L8FZL7 UniRef90_W6MGT5 UniRef90_W1QGPG UniRef90_UPI000441A425 UniRef90_B6QC30 UniRef90_R7Z1Y8 UniRef90-K2R708 UniRef90_F7VP43 UniRef90-U4L4V0 UniRef90_J5K218 UniRef90_A7SI64 UniRef90_A5E4Q9 UniRef90_E4ZPJ4 UniRef90_S3CW72
UniRef90_C1GI99 UniRef90_C4R7L2
UniRef90_A0A024J7R0 UniRef90_G3B2S0 UniRef90-U1GDV9 UniRef90_E9G1A5 UniRef90-J3PCT0 UniRef90_C5MDV1
UniRef90_UPI000455EB19 UniRef90_C3Z918 UniRef90_UPI0002654980 UniRef90_S2K833 UniRef90-W7HVS8 UniRef90_F1LCIO UniRef90_F8NUW3 UniRef90_O97183 UniRef90-T2MGQ0
UniRef90-G6CJX9 UniRef90_B6K2N9 UniRef90_Q54DH7 UniRef90-H6C6M3 UniRef90-UPI0001CBBF53 UniRef90_G4N9Z3 UniRef90_MOS369 UniRef90_D8QNS1
UniRef90-UPI000359D8F2 UniRef90_LOPEQ4 UniRef90_UPI00044494F8 UniRef90_C1BV58 UniRef90_A9SHD1 UniRef90_W5NJ36 UniRef90_FOZT58 UniRef90_W5KXU0
UniRef90_H2YEA9 UniRef90_B3RV95 UniRef90_K5W2E9 UniRef90-UPI0003C27140 UniRef90_UPI00034F60CB UniRef90_J3JZ55 UniRef90_F4P8K9 UniRef90-A0A016VXZ2 UniRef90-11G6S9 UniRef90_U9U469 UniRef90_B9HS44 UniRef90_V2XDD5 UniRef90_R7TNL5 UniRef90_UPI000265762B UniRef90_H3E9U3
UniRef90 B8PBS2 UniRef90_R4X6D5 UniRef90_C4WTK3 UniRef90_A2ATX1 UniRef90_T1G647 UniRef90_A0A024GLH5 UniRef90_A8PAX3
UniRef90 K5XBU6 UniRef90-F7B0W1 UniRef90-W4K3P5 UniRef90-G4LUY0 UniRef90-W2RKY2 UniRef90_F4Q3D5
UniRef90_E1ZQP2 UniRef90_U9TS65 UniRef90_U5HCM2 UniRef90_M2XDV5 UniRef90_Q5CSH3
UniRef90 S8FH34 UniRef90_S2JI72
UniRef90_F9WWV9
UniRef90_K5W688
 SNRANQWVGTPVI TDPDGQGSLIAKLGRDQELLKLTCIAKK
 SFRQNGTVGNPVIMDPEGQGSLIAKLLRKGQELKKLSCIAKK




 GDRANEWVGNPVIDTPE GKGPLI AKKLDKGQELLKLTCDARK


 E G A QL G A P V I T D P D GQ G T I I A K L R K N Q E L K L K C I A K K
 NT


 S GPGNLNVGEPVRRD DYD Q G I L L C K L R N H QEEL NIRCI A K K






 N $\begin{array}{llllllllll} & A & G & A & Q & L & G & N \\ N & P & A & C & G & R & H & L & Q & G \\ D & S & H & T & G & E & N & F & G & H \\ N & P & V & T & S & R & N & Q & G & E \\ D & P & P & V & T & S & R & I & K & D \\ D & P & R & V & V & P & V & T & S & R \\ S & N & S & T & & & L & G & Q \\ N & S & A & V & I & P & V & S & S \\ A & D & P & R & Q & D & G & I & G & Q \\ G & E & R & I & N & D & K & I & G & D \\ N & P & R & V & S & R & H & R & D & D \\ G & R & R & V & N & Q & S & V & G & T \\ N & P & R & V & C & P & S & S & A & A \\ D & S & Q & V & V & P & S & I & G & H \\ D & P & N & V & I & P & V & T & S & R\end{array}$ \begin{tabular}{l|ll|ll}
$M$ \& $P$ \& $L$ \& $Q$ \& $D$ <br>
$P$ \& $V$ \& 1 \& $T$ \& $D$

 

$P N A$ \& $D$ \& $T$ \& $S$ <br>
$P$ \& $D$ \& $D$ \& $L$ <br>
$D$ \& $V$ \& $V$ <br>
\hline

 

C <br>
V <br>
C <br>
\hline
\end{tabular} $\begin{array}{llll}K & R \\ K & R \\ K & R \\ M\end{array}$ $\begin{array}{llll}1 & L & I \\ I & V & 1 & V\end{array}$


 DPSI GRAADMGGFESNDTRGILIVVKLRKGQELKLRADARK
 SNNNNSVI
 D S RVVPVVTED DTVYGD Q E D DI L I A K L R R G Q E I K DK A Y A K K CSKRGEYFGHPVGKDPNASPILI CKI RKGQELKAKCTAKK




 D H AVIPDVDFSDPSDANDPRGILIDVKLRRGQELRRLRADARK
 NPDCVSKRRDDTAEYGQEEDILIVKLRKGQEVKAICCYARK





 P Q G E QE E V F A N N P P G P T N K D D I V L A K K L R P G Q E I K L
 E Q GRQKEQF A GDPDSPVSEKILIAAKMRPGQELDDMTMHAHLL NDNVVFDVSASDNVYGNTS GAIDPIVRLRKGQEVVKKADAKK
 GDDR S G $\square$ GRPSVA GDRDTGVVMVVKGKGQQUKMNCIAVK P L L G N Q L
 GPQPGSQNWNEDDNDPDTPPVLIACKIRKGQELRVRCDAKK PKGNQEEKFGDNPPRPVHDDUVIAKL RPGQEMEMELHCQK

QUERY
UniRef90_R8BL20 UniRef90_M7SJH4 UniRef90-Q6C2S4 UniRef90-W3X1N1
UniRef90 L8FZL7
UniRef90_W6MGT5
UniRef90_W1QGP6
UniRef90_UPI000441A425
UniRef90_B6QC30
UniRef90_R7Z1Y8
UniRef90-K2R708
UniRef90-F7VP43
UniRef90_K0KH51
UniRef90-U4L4V0
UniRef90_J5K218
UniRef90_A7SI64
UniRef90_A5E4Q9
UniRef90_E4ZPJ4
UniRef90_S3CW72
UniRef90_C1GI99
UniRef90 C4R7L2
UniRef90_A0A024J7R0
UniRef90_G3B2S0
UniRef90_U1GDV9
UniRef90_E9G1A5
UniRef90 J3PCT0
UniRef90_C5MDV1
UniRef90_UPI000455EB19
UniRef90_C3Z918
UniRef90_UPI0002654980
UniRef90_S2K833
UniRef90_W7HVS8
UniRef90_F1LCI0
UniRef90_F8NUW3
UniRef90_O97183
UniRef90-T2MGQ0
UniRef90-G6CJX9
UniRef90-B6K2N9
UniRef90_Q54DH7
UniRef90_H6C6M3
UniRef90-UPI0001CBBF53
UniRef90_G4N9Z3
UniRef90_M0S369
UniRef90 UPI000359D8F2
UniRef90_LOPEQ4
UniRef90_UPI00044494F8
UniRef90 C1BV58 UniRef90_A9SHD1
UniRef90-W5NJ36
UniRef90-W5KXU0
UniRef90-H2YEA9
UniRef90_B3RV95
UniRef90_UPI0003C27140
UniRef90_UPI00034F60CB
UniRef90_J3JZ55
UniRef90 F4P8K9
UniRef90_A0A016VXZ2
UniRef90_I1G6S9
UniRef90_U9U469 UniRef90_B9HS44
UniRef90_V2XDD5
UniRef90-R7TNL5
UniRef90-UPI000265762B
UniRef90-H3E9U3
UniRef90-B8PBS2
UniRef90_R4X6D5
UniRef90_C4WTK3
UniRef90-A2ATX1
UniRef90-T1G647
UniRef90 A0A024GLH5
UniRef90_A8PAX3
UniRef90_K5XBU6
UniRef90-W4K3P5
UniRef90_G4LUYO
UniRef90-W2RKY2
UniRef90 F4Q3D5
UniRef90_E1ZQP2
UniRef90_U9TS65
UniRef90_U5HCM2
UniRef90_M2XDV5
UniRef90_S8FH34
UniRef90 S2JI72
UniRef90_F9WWV9
UniRef90 K5W688
$G 1$ A K E H A K WG P
GI AKEHAKWAP
GI AKEHAKWAP
GI AKEHAKWMP
GI A K E H A K WS P
GI AKEHAKWM
GI AKEHAKWAP
GI AKEHAKWSP
GI AKEHAKWSP
GFGKEHAKWNP A K E HAK WS P A K E HAKWAP AKEHAKWAP I A K E H S K WA P
GI A K E H A K WS P
GI AKEHAKWSP GIAKEHAKWMP GFAKEHAKWNP
GlAK E H A K WS P
GI AKEHAKWAP
GIAKEHAKWAP
GI AKEHSKWAP
GI AKEHAKWSP
GI SKEHAKWSP
GI AKEHAKWSP
GIA K E HAKWAP
GFGKEHAKWNP
G I A K EHAK WCP
GI AKEHAKWSP
GIA K E HAKWSP
GFAKEHAKWNP
GFGKDHAKWVP
GVAKEHAKWSP
GI AKEHAKWQP
GFGKEHAKWNP
G $\square$ A K E HAK WS P
GFGKEHAKWNP GFGKEHAKWNP
GFGKEHAK WNP
KEHAKWSP
G G K E HAKWS P
GTAKEHAKWAP
GFAKEHAKWNP
GIAKEHAKWCP
GI GKDHAKWSP
GI AK D HAKWSP
GFAKEHAKWNP
G IA K EHAK WS P
GI A K E HAKWS P
GFAKEHAKWNP
G I GKD HAK WS P
GVGKDHAKFSP
GVGKEHAKWSP
GI GK D HAKFSP
GFGKEHAKWQ
GLGTEHAKWNP
GI A K E H A K WS P
$\begin{array}{ll}G l & G K D H A K F S P \\ G & G K D H A K F S P\end{array}$
$G I G K D H A K F S P$
$G F G K E H A K W N P$
GTAKEHAKWSP
GFGKEHAKWNP
GFGKEHAKWSP
GCGKEHAKWSP
GIGKDHAKWSP
GIAKKEHAKWSP
GFAKEHAKWNP
GF GKEHAKWNP GFGKEHAKWNP
GVAKEHAKWSP
GVAKEHAKFAP
GFGKEHAKWNP
$\mathrm{G} \square \mathrm{GK}$ K HAK FS P
GFAKEHAKWNP
S $\square$ GK D HAK F S P
GFGKEHAKWNP
$G V G K E H A K W S P$

| $G$ | $G K E H A K W S P$ |
| :--- | :--- |
| $G V G K D H A K F S$ |  |

Gla K E HAK WS P
GFGKEHAKWNP
G VGKDHAK FSP
GVGKEHAKWDP
GVGDDHAKWSP
GVAKEHAKWSP
GKALEHAKWSP
G G K E HAK WS P
GI GK F H A K W $\square$ P
GI AKEHAK WSP
GVGREHAKWSP
GI A K EHAK WA P
GI AKEHAKWSP


#  


 P S V A A E Y V Y V M N N T S V V I Q D E VL A H R I GMMI P L K PTMADEKVVIINNTTSLQQDEVLAHRLGLI PI K VIDPRKFN PT DAI D LVVEVIENSSCLCDEFI AHRLGGLI PLVSHKAADME

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




## UniRef90 N1PYP9 UniRef90-G1KJC2 UniRef90 - B 4 NOH 9 UniRef90-H2MZM7 UniRef90 L8H8M44

 UniRef90_S8EG49UniRef9O_UPIO0044110FE UniRef90-10YJE2 UniRef90-M7X6B0 UniRef90-UPIOOO4560877 UniRef90-M9LUN7 UniRet90-W2RZZ1 UniRef90-M2RGL5
UniRef90-R7UBF7 UniRef90-L8X0D5 UniRef90-M2MTP9 UniRef90-F2TZG3
UniRef90 AgURC4 UniRef90-D2W3Y1 UniRef90 UPIO0044083AE UniRef90-M5ED40 UniRef90-V3Z1P0 UniRef90-D3TQZ8 UniRef90-E9CIH1
UniRef90 G3ND06 UniRef90 G4TQ08 UniRef90-11IIS1 UniRef90 F4PDW3 UniRef90-K1RM70 UniRef90-H9J5X2 UniRef90-H6BPX3
UniRef90-B6TCC3
UniRef90-A8N5W0 UniRef90-UP10002652CC0 UniRef90-UPIO004404CAB UniRef90-W108B1
UniRef90-F4W6A3 UniRef90-Q93338
UniRef90-O94616 UniRef90-A0A058Z9D0 UniRef90-G4T8FO Uninefoco-KJ.JYY UniReffo-O5BAL5 UniRef90_UPIOO045600F8 UniRef90-UPIO004621A02 UniRef90-R4XFB4 UniRef90-C5DLD4 UniRef90_W6MRC2 UniRef90-E2BIJ1 UniRef90-M2PBE5 UniRef90-I1FUC4 UniRef90-UPIO00252BC62 UniRef90-D7FHB9 UniRef90_N6U2F2 UniRef90-C4XY85 UniRet90_UPIO004407F59 UniRef90_C1GK69 UniRef90-E9BZM2 UniRef90-E9GTW6 UniRef90-D3AXW3 UniRef90-A0A026WCW5 UniRef90-B6A135 UniRef90-Q39212 UniRef90-R7SMG9 UniRef90 QOUUA6
UniRef9-UniRef90-D5GKC0 UniRef90-BOW725
UniRef90 B6GYD UniRef90-B6GYDO
UniRef90-B8NHK UniRef90-C5P1D3 UniRef90-E3JPW7 UniRef90-G3B4V4 UniRet90_-_8N1F7 UniRef90_LTMJV0 UniRef90-Q014VO UniRet90-T2MJF5 UniRef90-K8ENH8 UniRef90-F4Q915 UniRef90-C1EBY2 UniRef90-ROGHJ5 UniRet90_F6YKL2 UniRef90-BODOL9
UniRef90-A3GGP5 UniRef90-A3GGP5
UniRef90 S 7 RW 72 UniRef90-UPIO0042C8115 UniRef90_D7FPF8
UniRef90_B7Q825

DGRDCTCDDYCDNCSIVVLIRILNVIANNSDQNLIKIVIFARDLIFVE YKSEEEEDECDENTLQFQLKMKCSRNPPNELYMNHKVYS YRTEESPENGTEQDTLEYELKVKCTRYKNHKVYSGHLKWL FKK PGEEETDETTLVFKLKVRCTRSNNTNVYSRDLIWE FSRDCDACDGCEYCSVEFTLRAKCDENKTLDVTSKDLKNY YTRDCTCEVRCQYCAIELQLVVACENTTMHITSNMLEVV
KGVFEDAGEADFLDVEMTLNVKCTSEDTMEVTSNDLQLD YNKECDCDQYCPKCSVVLTLSAKCVSSQTMEVTTKDLVLE DHRDCACEDGCDRCSVELTLRARCTTRGNLEVTSRDLDRS YTRDCTCTSNCEYCSVTLSLLVACGEDTTMDITSNHLEVI YRSEDNEEGTPEDTLVFELKVKCTMNKNHKVTSRDMKWI YTRDCACDEFCDNCSVVLQLNVANRNDHNLKVFARDLTVS YMRDCTCDAGCPNCVVKLELHVACRDAHQMEVTTEHLRST YTSDCSCTGHCEKCSVELTLHVKCTESHRDVTSNDLISN YNRDCTCEVHCDFCTVSLMLDVTCGEDGNLDVTSNHLDVI FK닌 DEAND KGDESDGTEODTEFKKKSR TRDT YRSTGEASAEE DAPQNYQD FSRDCDACDGCEHC
FREG
YK
YKSE WLK WF FSRDCDA YTRDCT
YREEVN YREEVNDETGTG <br> \section*{Y
F
F
F} <br> \section*{Y
F
F
F}

FK $\frac{1}{F}$ P GQE
YTRDFAEDEATDINT YPSKTTADEESDQD
WYNKGSEDEPGDYNTVRYE KAICCDSRRPDDIYC

D H G D C A C E D G C D R C S I
 WVDTAG



 S VAA DVVN E A P T E K N T L L E F
 WFR QPN E G D P S D Y N T I V L H L N V E CKKNP P L K L Y S H A H V Y A $Y L A E C D C D G G C N R C T V G L T L E A$
WF F E P N P D GR T D Y N TVVVL S L N V K C E RN P N S S V Y S R H I K W A
 Y T R D C S C A E R C D N C S V E F K L N A R C N $\quad$ D H S Y S V T S L D L $L$ S $Q$


 K P Y E Y T G D D D T A T D V H $\quad L \operatorname{E} L \operatorname{NV}$ V R C Q S D Q T R D V T S D D L I S H




 FLK W Y K K GEPCDYNTV ELLELKVKCENNDPKELYBNAMVYA


F EYRGPNDLAN F FPPA K L E D E S D E H H H L V F E L K IIK C S K N P N NK V M T K H M K W I | $L$ | $P$ | $S$ | $E$ | $Y$ | $V$ | $G$ | $E$ | $D$ | $E$ | $A$ | $K$ | $I$ | $N$ | $V$ | $H$ | $L$ | $N$ | $L$ | $A$ | $V$ | $K$ | $C$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $S$ | $S$ | $D$ | $H$ | $T$ | $L$ | $D$ | $V$ | $T$ | $T$ | $N$ | $H$ | $L$ | $I$ | $C$ | $A$ |  |  |  |  |  |  |  |
| $W$ | $D$ | $Q$ | $S$ | $L$ | $S$ | $E$ | $E$ | $F$ | $T$ | $D$ | $E$ | $N$ | $T$ | $V$ | $V$ | $L$ | $T$ | $L$ | $N$ | $V$ | $K$ | $C$ |
| $T$ | $R$ | $N$ | $K$ | $N$ | $S$ | $S$ | $V$ | $Y$ | $A$ | $R$ | $D$ | $L$ | $R$ | $F$ | $E$ |  |  |  |  |  |  |  |


 Y S R GNSVVTE GC R CAN K F T G G L G C L P F P S F Q I T Q N T T F F S
 ETRRECTCDTACEYC Y R N Q
$F E E G$
YRE
UniRef90_N1PYP9 UniRef90_G1KJC2
UniRef90_B4NOH UniRef90-H2MZM7 UniRef90 L8H8M44 UniRef90_S8EG49
UniRef9O-UPIOOO44110FE UniRef90-10YJE2 UniRef90-M7X6B0 UniRef90-UPIOO04560877 UniRef90-M9LUN7 UniRet90-W2RZZ1 UniRef90-M2RGL5
UniRef90 R7UBF7 UniRef90-L8X0D5 UniRef90-M2MTP9 UniRef90-F2TZG3 UniRef90-A9URC4 UniRef90-D2W3Y1 UniRef90-UPIO0044083AE UniRef90-M5ED40 UniRef90-V3Z1P0 UniRef90-D3TQZ8 UniRef90-E9CIH1
UniRef90 G3ND06 UniRef90_G4TQ08 UniRef90-11IIS1 UniRef90-F4PDW3 UniRef90-K1RM70 UniRef90-H9J5X2 UniRef90-H6BPX3 UniRef90-B6TCC3
UniRef90-A8N5W0 UniRef90-UP10002652CC0 UniRef90-UPIO004404CAB UniRef90-W108B1 UniRef90-F4W6A3 UniRef90-Q93338
UniRef90-O94616 UniRefefo-094616 UniRef90-G4T8FO UniRef90-K7J3Y0 UniRef90-C5BAL5 UniRef90-S7ZRQ4 UniRef90-UPIIOOO45600F8 UniRef90_UP10004621A02 UniRef90-R4XFB4 UniRef90-C5DLD4 UniRef90_W6MRC2 UniRef90-E2BIJ1 UniRef90-M2PBE5 UniRef90-I1FUC4 UniRef90-UPIO00252BC62 UniRef90_D7FHB9 UniRef90_N6U2F2
UniRef90_C4XY85 UniRef90-UPIO004407F59 UniRef90_C1GK69 UniRef90-E9BZM2
UniRef90-W9XDV7 UniRef90-E9GTW6 UniRef90-D3AXW3 UniRef90-A0A026WCW5 UniRef90-B6A135 UniRef90-Q39212 UniRef90-R7SMG9 UniRef90-OOUUA6 UniRef90-D5GKC0 UniRef90-BOW725
UniRef90 B6GYD UniRef90-B8NHK8 UniRef90-C5P1D3 UniRef90 ${ }^{-E 3 J P W 7} 7$
UniRef9
G3B4V4 UniRef90-G3B4V4 UniRef90-L7MJV0 UniRef90 LTMMJV UniRef90-O014VV UniRe990-T2M.F5
UniRef9O_K8ENH8 UniRef90-J7RFU5 UniRef90-F4Q915 UniRef90-ROGHJ5 UniRef90-F6YKL2 UniRef90-BODOL2 UniRef90-A3GGP5
UniRef90 S7RW72 UniRef90-UPIO0042C8115 UniRef90-D7FPF8
UniRef90_B7Q825

100

110
120
SQAGYPPRGSP\| DSDPAQQGPJLLCQLIRRGQELIKLKCVIAKR KHMEWVPLGSQADNRPVHDDILIAQLRPGQEIDVLMHCVK PKGKQGQYYTSSVGCIHEDILIAQLRPGHEMDLRLIAVK KDTNWVPLGNQADVFADHDDIVIAQLRPGQELDVVMHCVK PVGGQAELFADDPPRPVHDDILIAKLRPGQEIEVECRCAK DYSVQAVDFSYPSSRSDDQGUVIVKLRQGQELVLRADARK PTNKPENFGHPDGKDPDVPPILICKIRMGQELRVRCIAKK NHPDVRPVGYPGGYDPENRGILLVKMRKNQELRLKAIARK GGVSDVGKPATNPDPKLQDGILLAKLAKGQELNLRCHAVK DSIDEGPDFGRPVGHDGSMAPIMLVKMSKGQELDIRCIARK PGGGQKNFGHPVGKDPNVPPVLLCKIRKGQELKLKC\AKK PKGNQQEDFKDSI CPVQDDILIAKLRPGQEIDIEMHCVK GVGEQVNDFGNNPPRPHNPKLLAAKLRPGQELEMELHCVK HAEELPPRGFPILMDPEQKGPLLCSLRKGQDLKLRCDAKK LDDGDTSVVPVADQSMQGNHDV:CKIRQGQELKLTCYARK NPSCAPCTLSATSRDNEHNGITVKLKRGQEIKLKATAKK PNKRPEKFGCPVGQEPGVHPVLICKMRPGQQLKARCIAKK
$P K G D Q A E L M S D S P P R I M P D I V I A K M A P G Q A M E M E L H C E K$
 PKGKQAQUYSESDVGPIDDDULITQMRPGHELDIRLAAVK PKGDQEAQFQDAPI APVHDDILIAKLRPGQAVACEMHC1K P IGNQADVFADSVIAPVHDDILIAQLRPGQELDVIMHCVK PQGEQETIFASDPPRAANPNILIAKLRPEQSIHLEMHAVK DPKVQQALGTADPYDSDHRGLIVKLRRGQELRLRADARK PQGDQVEKFKDSPTRPYYDDILITKLRPGQELEAELHCQK
 $P$ QGQQQERFKDGPVEPVSPDILIAKLRPGQEIDMVLHAML DPKVCPTDPFGANASNENRGIGIVKLRRGQELRLRAIARK PLENQEETYGPKAFAPVNKDILIAKLRPGQEIDVKHAKK
 KD ${ }^{\text {K WVPDGRQAEKKKANDILI CKMRPGHEI HLFMHAVK }}$ HNLDTRERGSTRDEFHNREEYLVKKRKGQELNLKAYVKK
 SGGRGEDFGLPVSKSRNGHPILI ASLRKGQELKIRCEAKK
 KDDTFSPVGRQEEIRPVNPDUGAKLRPGQKIDLEMHCDK PAPKHPDFGKPVGHDGSIPP:IVVKMTRGQELDVRCDARK PMGEQSNTLSRFKIGPTQDD PQGKQRETFAKNPVVPADPD
$P Q G R Q V E V F A D Q P V V P C D P D$
$K$ RGK
KDGKWVPIGRQAEMFPNGND $P Q G D Q S Q L F A V H D G R P V D K D$
$R D D K W V P G H Q A E L Y P G N D$

 VQGSQEEQFRDGPIEPVSPDILIAKLRPGQEI DIMMHAHL PLGGQKDTFTPDAVGPVDDKILIAKMRPGHELDIKLHAMK NDHV 1 PVGSSDGRP DTVI PIVKLHRGQEVKLRADAKK KD KWVP GRQADMFPVDED LIAKLRPGHEIHAYMHAVK MPVPNUPLPVPDVTDPNNEG|LIAKLGPGQSLTARMTATK PQGEQATVFASRPPAATNPDVVLAKLRPGQVIEMEAHADK KDLVWEPLGKQFDEFPSGEDULVKMRPGQK, QLSMHADK DERVKPSFGGTGGGSAKSGGILIAKLRKNQQLSLKCDARK PAGRQDKSFAHDPVRAANPDILIAKLRPGQEIDLTMHCIK PVGNQASDYKEADVGPDDDDUISRMRPGHEFDIKMFAVK
 KDIVFEPVGRQAAIFPAYPDILLAKLRPGQKIDIEMHCIK
 KDIKFVPKGRQAADRPTNPDILVAKMRPGQEIDLTMHMHK PDGSQAEMFGNKPPRPVHDDILLAKLRPGQEIDLKMHCVK PLGSQAEIFGNKPPRPVHDD:LLAKLIRGQE:DLKLHCVK PDGRQAEKFSTNIVRPVFDDILI AKLRPGQELDIRMHCVK DAKF LPVNFHPDDSDSEPPGVLIVKLRKNQELVVKCDARK PQGKQLETFADCPVVPSDPDVLAKLRPNQEVSLRVHCLL PDEDQESMFGENPEDPVHDD PNGSSDPEFADNPDAPSDDD
LQVTSBSRDNDPNDY苂EQDD
PYPRGEYFGHPVGKNPGVAPIL! PHGKQAELGKDDPKNPGDAPDLICKIRKGQELKVKCVAKK PSVFNPQFGHPVGKDPSLPPVLIAKIRKGQELKVRCLAKR



| UniRef90 N1PYP9 |  |
| :---: | :---: |
| UniReif90 G1KJC2 |  |
| UniRef90-B4NOH9 | GLGKD |
| UniRef90-H2MZM7 | GIGKD |
| UniRef90-L8H8M4 | EGKE |
| UniRef90 S8EG49 |  |
| UniRef90-UPI00044110FE | E |
| UniRef90_10YJE2 | GIGKDH |
| UniRef90-M7X | H |
| UniRef90-UPI0004560877 | G $\mathrm{G}_{\text {GK }}$ HAKFSP |
| UniRef90- M9LUN7 | GFAKE |
| UniRef90 W2RZZ1 |  |
| UniRef90 M2RGL5 |  |
| Ref90 R7UB | GQD H |
| iRef90-L8X0D | $V \mathrm{GQDH}$ |
| UniRef90_M2MTP9 | GI AKEHAK |
| UniRef90-F2TZG3 | GVGKEHAK |
| UniRef90 A9URC4 | G |
| UniRef90-D2W3 | GVGKGHAKWSP |
| UniRef90 UPIO004408 |  |
| Un |  |
| UniRef90-V3Z1P | GKDH |
| UniRef90-D3TQZ8 | GI GKDHA |
| UniRef90-E9CIH1 | D |
| UniRet90_G3ND06 |  |
| UniRet90_G4TQ08 | SIGRD |
| UniRef90_11IS1 | GI AKDHAKWSP |
| UniRef90-F4F | GI GKEHAKWSP |
| UniRef90-K1RM70 | GI GKDH |
| UniRef90-H9J5 | GI GKD |
| UniRet90_H6BPX3 | D |
| UniRet90_B6TCC3 | D |
| UniRet90_A8N5W0 | GI AKEHAKWS |
| UniRe990 UPI000 | GI GKDHAKFS |
| UniRet90-UPIod | GI GKDHAKFSP |
| UniRet90-W108B1 | GI GADHA |
| UniRet90-F4W6A3 | D |
| UniRet90_-993338 | GFGKE |
| UniRet90_O94616 | GQ |
| UniRet90_A0A058Z9D0 | GI GKDHAKWS |
| UniRef90 G4T8F0 | GI AKDHAKWS |
|  |  |
| UniRet90-Q5BAL5 | GI GADH |
| UniRef90-S7ZRQ4 | D |
| UniRet90-UP100045600F8 |  |
| UniRet90_UPIO00462 A A02 | GVGKEHAKWS |
| UniRef90_R4XFB4 |  |
| UniRet90 C5DLD4 | GI GSDH |
| UniRef90 W6MRC2 |  |
| UniRef90_E2BIJ1 | GI SKDH |
| UniRef90-M2PBE5 | GVGKEH |
|  | Gl GKDHAKF |
| (iRef90_UP1000252BC62 |  |
| D7F |  |
| UniRef90 N6U2F2 | D |
|  | GVGSDH |
| UniRef90-UPIO004407F59 | NVGKEHA |
| UniRef90 C1 | G |
|  |  |
| UniRet90_W9XDV7 | G G D |
| iRef90_E9GTW6 |  |
| UniRef90_D3AXW3 |  |
| UniRef90_A0A026WCW5 | GVGKDH |
| UniRef90_B6Al35 | Gl GKFHA |
| UniRef90_Q39: | GI GKD |
| UniRef90-R7SMG9 | G |
| UniRet90_Q0UUA6 | D |
| UniRef90_A4RSP9 |  |
| UniRet90 D5GKC0 | D |
| UniRef90_BOU | VGKDH |
| UniRef90-B6GYD0 | GI GADH |
| UniRet90 B8NHK8 |  |
| UniRef90 C5P1D3 | GII GQD |
| UniRet90-E3JPW7 | GI GQE |
| UniRet90_G3B4V4 |  |
| UniRef90-F8N1F7 |  |
|  |  |
| UniRef90-L7MJ | GTGQVHAKFSP |
| UniRef90_Q014V0 | G\\|GQEHSKWS |
| UniRet90_T2MJF5 | D |
| UniRet90_K8ENH8 | GK |
| UniRef90 J7RFU5 | GI GSDHAKFS |
| UniRef90-F4Q91 |  |
|  |  |
| UniRef90-R0GH |  |
| UniRef90-F6YKL2 | GFGKEHAK |
| UniRef90_B0D0L9 | GIAKEHAKWS |
| iRef90 A3GGP5 | GVGCDHAKFS |
| UniRef90 S7RW72 |  |
| UPI00042C8115 |  |
|  |  |
| UniRef90- В7Q825 | GTGQDHAKFSP |

UniRef90_A0A059LLC2 UniRef90-B9GFY9 UniRef90_M7PLN2 UniRef90-J914J8
UniRef90-14YBL8 UniRef90-UPIOO04413648 UniRef90-T1KCG6 UniRef90-D8QCE2 UniRef90-R8BYC5 UniRef90-B9S9W7 UniRef90-B6KGB1
UniRef90 R1CTV8 UniRef90-L8WJX6 UniRef90-R1DHL1 UniRef90_A0A017SIW5 UniRef90-E4ZXG8 UniRef90-S4NXL6 UniRef90-K5X518
UniRef90- F6YSX7 UniRef90-F4S444 UniRef90-A7TPZ5 UniRef90_D6WP50 UniRef90_A4SOF8
UniRef90_HAXXA9 UniRef90-D8PQE9 UniRef90_V4P7Y7 UniRef90-V5I0T0 UniRef90-W9XB85 UniRef90-UGIM87 UniRef90-G1XAZ6 UniRef90_UPIO0042B30F2 UniRef90-Q6FXP6 UniRef90-A7AQ72 UniRef90-A0A044U881 UniRef90_14YFV5 UniRef90_Q01F02 UniRef90-K1Y256
UniRef90 UPlo004 UniRef90-UPIO00455EEOE UniRef90-C5M6J2 UniRef90-S7RLW8
UniRef90-U5DCR5 UniRef90-GOTONO UniRef90-D8RH60 UniRef90-UPIO0035A1DFB UniRef90-B2A971 UniRef90-J3QB555 UniRet90_M5G6J6
UniRef90_A8N510 UniRef90_U1HJ21 UniRef90_A9V9D0 UniRef90-J4DPE1
UniRef9O-M1VXQ1 UniRef90_B6KLD3 UniRef90_E3K9Z5
UniRef90_B8MRS0 UniRef90-D8U6A9 UniRef90-R7YJM6 UniRef90_U6NL40 UniRef90_UPIOOO4449954 UniRef90-N4VXB6 UniRef90-KOKLJ2 UniRef90-J41219
UniRef90-T1155W7
UniRef90-E6R474 UniRef90_W9QYH6
UniRef90-G3J8P4 UniRef90-V4UNK9 UniRef90-T1G2S8 UniRef90-A5DTC9
UniRef90-R7SCW2 UniRef90-D7UAJ8 UniRef90-B2WCA1 UniRef90-A0A023B010 UniRef90-C5LCN7 UniRef90 M2XXQ9 UniRef90_A6R4R6
UniRef90-M2T8Z0 UniRef90-FOZYH1 UniRef9-UPIO004414E93 UniRef90-B0EJB9 UniRef90-K4DD13 UniRef90-M0S179 UniRef90-C9SI18 UniRef90-D8TPK6
UniRef90-D3B3A4 UniRef90_A9SM40 UniRef90_U5HJP4
UniRef90_A0A016PYN2 UniRef90_A0A023F271 UniRef90_UPIO0032A666F
UniRef90_F8NR44


$\square$


 PTVA V E HAYVWNNTSVIVHDEVLAQRLGGLVPLDD DDPALME


 PAMAI DKVFI LINNTSMTEDEVLAHRLGLIPI RA DPR


## P

P
P T MA A
P S I A I I E DV F V WN NT S S L V H D D E V L A H R
 P TMAIVEKVFVVNNTSVVADEVEAHRLGLVPIKADPAM





## P

| $P$ | $A$ | $A$ |
| :--- | :--- | :--- |
| $P$ | P | L |
| P | P | I |

P
PTAI DLVEVVENS

P M V
$\begin{array}{lll}\text { P T M A } \\ \text { P T V } & \text { E } \\ \text { E } \\ \text { E }\end{array}$
P T MA I KVVWN

PTVAI D M V E I E V C




 P T L A A


 P


## 



 P T L L A | $P$ | $T$ | $M A$ | $E$ | $T$ | $V$ | $H$ | $L$ | $Y$ | $Q$ | $N$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $P$ | $T$ | $G$ |  |  |  |  |  |  |  |  |
| T | L A | I | T | $V$ | $T$ | $I$ | $E$ | $E$ | $N$ | $S$ |

| $P$ | $T M A$ | $D$ | $L$ |
| :--- | :--- | :--- | :--- |
| $P$ | $H$ | $H$ | $M Q$ |



P T M A I E K V L MVNN N

| $P$ | $T$ | $L$ | $A$ | $E$ | $T$ | $V$ | $Y$ | $I$ | $Y$ | $N$ | $N$ | $T$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $P$ | $T$ | $A$ | $A$ | $D$ | $L$ | $V$ | $E$ | $M$ | $E$ | $N$ | $N$ | $T$ |

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



UniRef90_A0A059LLC2 UniRet90-B9GFY UniRefefo-M7PLN2 UniRef90--J14U88
UniRef90 14 YBL 8 UniRef90-UPIOOO4413648 UniRef90-T1KCG6 UniRef90-D8QCE2 UniRef90-R8BYC5 UniRef90-B9S9W7 UniRef90-B6KGB1 UniRef90-L8WJX6 UniRef90-R1DHL1 UniRef90-A0A017SIW5 UniRef90-E4ZXG8 UniRef90 ${ }^{\text {S4NXL6}}$ UniRef90-F6YSX7 UniRef90-F4S444 Uniinefono-ATTPZ5 UniRef90-D6WP50
UniRet90 A4SOF8 UniRef90-H3АХА9 UniRef90-D8PQE9 UniRef90-V4P7Y7 UniRef90-V510T0 UniRef90_W9XB85 UniRef90-C4JJM6 UniRef90-U6IM87
UniRef90 G1
UZZ UniRet90-UPIOOO42B30F2 UniRef90_-Q6FXP6 UniRef90-A7AQ72 UniRef90-A0A044 881 UniRef90-I4YFV5 UniRet90_Q01F02 UniRef90-K1Y256 UniRef90-UPIOOO455EEOE UniRef90-C5M6J2 UniRef90-S7RLW8 UniRef90-U5DCR5 UniRef90-GOTONO
UniRef90 D8RH60 UniRef90-UPIO0035A1DFB UniR Ref90- 22 A977 UniRef90 J3QB55 UniRef90_M5G6J6 UniRef90_U1HJ21 UniRef90-A9V9D0 UniRef90-J4DPE1
UniRef90 M1VXQ1
UniRef90-B6KLD3 UniRet90-E3K9Z5 UniRef90_B8MRSO UniRef90-D8U6A9 UniRef90-R7YJM6 UniRef90_U6NL40 UniRef90-UPIOOO4449954 UniRef90-N4VXB6 UniRef90-KOKLJ2 UniRef90-J41219
UniRef90-T1J5W7
UniRef90-E6R474 UniRef90_W9OYH6
UniRef90 G3J8P4 UniRef90-V4UNK9 UniRet90-T1G2S88 UniRef90_A5DTC9
UniRef90_R7SCW2 UniRef90-D7UAJ8 UniRef90-B2WCA1 UniRef90-A0A023BOIO UniRef90-C5LCN7 UniRef90-M2XXQ9 UniRef90-A6R4R6 UniReffo- M2T8ZO UniRef90_UPIO004414E93 UniRef90-BoEJB9 UniRef90-K4DD13 UniRef90-MOS179 UniRef90-C9SI18
UniRef90 D8TPK UniRef90-D3B3A4 UniRef90-A9SM40 UniRef90-U5HJP4
UniRef90-AOAO16PYN2 UniRef90-A0A023F271 UniRef90-UP100032A666F
UniRef90_F8NR44

WR 60 YR S ADESLTDRNCTVFRKKVRCWRDSNGSVYSDALEWL YLS FSDKCACSSKCVNCSVQFKLHAVCSDRDQMEVNTRHINPL YNRDCVCLDHCPKCSVELELNKCTTPETVLVTSNHLQDK FHEGVS
Y R
YTRDCTCLS WCQYCA
FMKWYKKDGAYDFNTVEVLDVKCTEDNSMDVTSKHLDVQ Y LS A ANDTPNEKNTVVKKLHASCKRGEPRTVYSEELKWL NRDDCDCADHCSRCSVQYALDVVCERDS LLVTHRDIVAD FRERVGDEDPDEHHVI AFRLEIKCTRGNNSRVLSSHLQWI EDCTC胃SRCKYCSVEDYLNVSSSTNQPVDVTSNNLDVV FNRDCDCMTTCPKCTADFTLEVACNQDETLEVTTRELKYA WFHKATGDEDSDYNTVLRLNKCEETDPDKLYDNHNVYA Y RAEDSTEGTEFDTLEFTLKMKCTSNENHSVNSASVKWH Y RQGDDADGTPEDTLEFELNIKCTKNDLDVLYKHHKVYS DMRGPEGATDMNTLVEKLVARCSRNPNVDVTSGYLDWQ LDNDDLPEDEFTDENTTVLSLNVKCTRNHNAH1YARDLKFE FEYRGEGDAANETNTVLKMHVRCHKERNPDVYSNALTWC YRNT GDEEGTEDDTLQFQLKVKCTRNPNHNVYTRHLTWV
Y L
ENDQP
WFKKPTDEDPSDYNTVVLRLDVECTKNPNAHVYAKDITFH EPNADSGVQGTDRNTVVLKLNVKCERNPNADVYSRHIEFM WFRMPQEGEEDDHNTIVLKLNAECTKNPNAHVYARDIVFE YARDCTCNAFCKDCAVELNLDEFCTVENKRNITSAELISS
 RLDTSDPDEFHDKNTIVMTLNVKCTRNPNAHVYARDLKFE YRDN FQK GDSPNDQNTIVFTLQVACTRYENHKVYS
KPYEYM KBESD
MRDSSVN
YKS ENDAAT
FNEKTNEDVATEKN
YKPKDAEAGSSD DTLQFSLKIRCSRNNNHKVYSRDK KL KPANGDPAECKDFNTVADELNVKEHNDPTKLYHHAHVYA YKRDCPCLGGIDRYCAVYKDIVVCRTEGEMNVTSDHLTMV MDSRSPQNDPTDRDTLIFKLDVTCTRNPNHEVLSRDLVWS TDVF LKPDEENDYNT I MHLHVECTYNENSDVYARDLVFA FKN CEEANDKNSVCFKLKVKYDRNEPNSVYSSFLKW FLKWRKKPEEYDWNTVRLELNVTCTANPNAHVYAKDIVFV YR RQPNQEVTDENALRVSLHVKCTEQSSLPVYAKHIKWE WFKKPTEEEPSDFNTVVLRMNVECSVNENAHVYARDUTFH LRWYKK ATEPSDYNTVVLGLDVECTWGENSSVYAGQLEFL MPDCDEEPEPDPTRNVVFNI NVTCTRNRNSSIYSRAFKWM
 WVDNSV Y

$\qquad$ | D E S |
| :--- |
| ED |
| D |
| $N G$ |

V QL
$\stackrel{F}{\mathrm{Y}}$ AGNNT F LK WYKKA
Y M S N YRPKDST WVDKKLDESYTEDN FRANPNAGALDTDT Y YAKPTDEDEPTSENTVALTLKTKCTETDPDRLYVGHNVYA YKYRTENEEDTAENSLCFKLHVVCTPENLDQVYSRDFVWV YRDCPYCSDHCLHCSVTFELDVQC TEEAMTVTSQDLVSV WFRQPTEGELADYNTVVLHLNVECTNNPHAHVYAKDITFH WYSKPTEEDPTDWNTVVLRLEVVEKETDPDKLYVGHNVYA YTRDCNCLSSSCSSCAVQLELKVSCNTDNTDDVTSNHLEVV FPKDRHFTDPTEEDT:VFTLDVTCTLDSNNKVYSSDLEWE ENDAPNERNTIVYKK
FLRWR
WKRPFEWSNDADMDETAFSL PGKEYTAEDTLFTLKVRCYKDANGEVDS FPDSCPGDRSCQNCTVEFLLSVKATEDRLDKDVTQRDLKSS
 YPD NAGGENNEKNTVFKLHVRCEKGQPRTVKSDELKWL

UniRef90_A0AO59LLC2 UniRef90_B9GFY9
UniRef90_M7PLN2 UniRef90_J914J8 UniRef90_14YBL8 UniRef90-UPIIOOO4413648 UniRef90-T1KCG6 UniRef90-D8QCE2 UniRef90-R8BYC5 UniRefofo-BgS9W7 UniRef90-R1CTV8 UniRef90-L8WJX6 UniRef90-R1DHL1 UniRef90-A0A017SIW5 UniRet90-E4ZXG8 UniRef90-S4NXL6 UniRef90 F6YSX7 UniRef90-F4S444 Uniinefono-ATTPZ5 UniRef90_D6WP50 UniRef90-A4SOF8
UniRef90_H3AXA9 UniRef90-D8PQE9 UniRef90_V4P7Y7 UniRef90-V510T0 UniRef90-W9XB85 UniRef90_C4JJM6 UniRef90_G6iMA UniRet90-UPIOOO42B30F2 UniRef90-Q6FXP6 UniRef90-A7AQ72 UniRet90-A0А044U881 UniRef90_14YFV5 UniRet90_Q01F02 UniRef90-K1Y256 UniRef90-UPIO00455EEOE UniRef90_C5M6J2 UniRef90-S7RLW8
UniRef90 U5DCR5 UniRef90-GOTONO UniRef90-D8RH60 UniRef90-UP100035A1DFB UniRef90- $22 A 971$ UniRef90-J30B55 UniRef90_M5G6J6
UniRef90_A8N510
UniRef90_U1HJ21
UniRef90 A9V9D0 UniRef90-M1VXQ1
UniRef90-B6KLD UniRef90-E3K9Z5
UniRef90_B8MRSO UniRef90-D8U6A9 UniRef90-R7YJM6 UniRef90-U6NL40 UniRef90-UPIOOO4449954 UniRef90_N4VXB6 UniRef90_KOKLJ2
UniRef90-J41219
UniRef90-E6R474 UniRef90-W9QYH6 UniRef90-G3J8P4
UniRef90 V4UNK UniRet90-T1G2S88 UniRef90-ASDTC9
UniRef90-R7SCW2 UniRef90-D7UAJ8 UniRef90 B2WCA1 UniRef90-A0AO23BOIO UniRef90-C5LCN7 UniRef90 M2XXQ9 UniRef90-A6R4R6
UniRef90 M2T8Z0 UniRef90-FOZYH1 UniRef90_UPIO004414E93
UniRef90 BOEJB9 UniRef90 BoEJB9
UniRef90 K4DD13 UniRef90-K4DD13 UniRet9o_C9SI18 UniRef90-D8TPK6 UniRef90 D3B3444 UniRef90-A9SM40 UniRef90-A0A016PYN2 UniRef90-A0A023F271 UniRef90-UP100032A666F
UniRef90_F8NR44

PAGSQSQEGR ${ }^{90}$ SQGPGPVIEDKl $\begin{aligned} & 100\end{aligned}$
ARLRPGQE\|EIECVAVK PNGSEKPDSKPSNPDSTVED:LLAKLGPGQE|ELEAHAVK SESSIMPVHYVDSQGKEEDPILIMKLSKNQQLDMNLIARK GQVANDTSGNLIDPPPDNFGL PQGEQATFFADHPPRPCNENLLAKLRPGQEIEVELHATK PLGNQSSFDKETIK PVNDDULAKISPGQALDLKLHCVK NVQPGQPSGAETYREPDAEPILIARIRKGQALKVRCIAKK PQGRQSEFFSEDA APVNPDILIAKLRPGQEIDCEMHMHK PGGSQKQDFTPKPVSPSEDKI IVAKLGPGQEIELEAHAVK NARGASDLGCPMPVPKEMDGI PIVKLRKNQSVNMRMTATK PQGDQEERFRERELKPVHDDILI AKLRPGQEIVLEAWCEK
 ADGRRREDDGDFEPDASGEHILLVKMRKGQKLHIRASAQL RDMIWEPI GRQAQMFPPGPDILI AKMRPGQEI ALSMHAHK P DGNQASVHKETDVGPVHGDILISKMRPGHELDLHLVAVK GHLRWKPAGDQPAPGPTNPNVVLAKLRPGQSVRMELHALK PKGDQPALFGSQPPKAVQDDULLVKMRPGQEISIGMHCVK PQGKQEETFADSPVVSADPDVLAKLRPGQELSLRAHCIL PEGSQLPEENDQELGCVHDD PIGNQADLFADVDURPVHED PVGEQEEVFANKPPAPTNPNI PNGSSFPEFANNPDTPSYPD PVGRQETYFKDDEI QPVNPD AQGAQQELFAKEPLEAVSPD NPDVRPDTDDFRPFNVKREP PQGRQSSWFSGAGERPVNPD
$P N G S E L P E F A N N P I A P K Y P D$ PHSSQVETFADCPVVPCDPD PSDEQAELFKDNPPKPIHKD NAFKWDPL GDQSVSLPVHDD
PQGGQDPLFTDNPRRVAYPE
DERVKPDTFQGTVSDAAKPG
$K D D K F K P F G N Q D A D E T T N P D$
$P Q G E Q E E D F A N D P T P S P N$
PHGTQAEKFRDTPVVPCDPN
PQGEQDSVFANCPPAPTNPD
$P G G S S T P E S N N P D T P A Y P D$
SRGGQDELEGDRPPKPADDD
PSFSCRQDTQNDIAPRYKD P LPGQDHLKKNKGUGPVDKD $K$ VVFKPGRQVIIRPVNPD
$P K G D Q P E M F G A D P P R P V K D$
PPDQWVPAGPATDPDPNRRP
PVGQQAEVFEGCPPAPINPN
PVGRQVERFKDDPIVPMNPDI
$P Q G Q Q E Q V F G K N G F S V V Y D D$
PSSNQEATFKNNPPKPVHDN
PTGKQVDYFSGADDRPVNPDI
EABEWEPKGDQVPPRPVQNDI
PQGRQTNYFTDGEDQPVNPD
PGGSELPFADPATPKPVHDD
PTGQQVQYFKDEPDVPVNPD
PCGDQEQQFADDPPRIVHED
SHLKWEPAGEQAVPAPTNGN
RDLIKFEPQGNQNPDEPADPD
PQGEQAAVFAGCTPAPTNKE
PIGSQETMFKEEDVGPVDKD
PSGDQKKKFKGKAPKPVNDD
$P K G S E F L L A S E D S K S A D M E N$
$P M G E Q E T Y F S A D V A D V N P D$
PNGSELPLETKPDSNPSSKD
$P V G D Q T Y T D E N E D P K P A D D D$
$P Q G S Q L E K Y K D S V V P C D P D$
PAGAQKTKWKRKEPKPVDPD
PHGSEFPLFSDKSTGPKHPD
KDMRFEPNGNQAHIRSTNPD
PDSEQQKEQYPEPPRPVSED
DQGTSTPESRRPRPVPRRNG PVGROETYNTLSEENGNG KDIDEKPIGGRQAEIRSTNPDI
PHDDQDAMFEEDHPRPVEDD
$P S R R Q E N F G H P V G K D P S V A P$
$P Q G E Q E T T F A D C D K P V D D$
$P Q G E Q E T T F A D C P D K P V F D D \mid$
$P N G S E R P E F S D E P I A P K D A D$
PHGSSLPEFSKKPLGVQFDD
PSGRQLEYFDGNTVRPTNPD
NPEHGVFPVN YQNPDEKP
NDPVEDDVDKQGVLEECKMD
PKGSQAELFGNDTPRAAASG1
RDIVFVPTGRQAEYFPTNPD
P IGGQSS五HKADVGPVHDD
PNGSSLPEFSKKPLGPTNPD
110

LLVKLAPGQEVELECHCVK LIAQLRPGQEIDLLMHCVK VLAKLRPGQAVHMELHAVK LLAKMRPGQKI ELEABHCKK LIAKLRPGQE DVMMAHL LAKLRPGQK DIEMHCIK LLAKVRKGQRLK RAFAKK L L AKLAPGQE: DLEAGCVL $L$ L
L
L
L
V
L
V LI ATMRPGHELDVDAMV
 SLVRMRKGQALKARCVARK LIAKLRPGQAVNMELHAVKK VIMKMRPGQEVNMQLFCEK LITKLAPGQEI DLNVYLEK LI AKLRPRQT:DLSMHMK VLVKMRPGQE: ELKAYGEK
 LLAKMRPGQE: K EMHCVK VVAKLRPGQQ:EASCHAVK

 LIAKLQPGHEVDTRMQCVK LVKLRPGQQVDLHCFARK AKLGPGQE ELEAHAVK
 AKLKPG LAKLRP LLCKLRP LI CKMRP

## 

vLAKLAKG
Llaklapgok d a dakk
LIAKMRPGQSINLSMHAlK
PI MRLRPGQVI DVQLYCEK IIAKLRKGQELKLRCIAKK
 IIAKLGPGQAl ELEAHAVK LLAKLRPGQVLEMDMHMHK VICKMRRGQQK LVARARK PIVKLRPGQALEVQCYCEK CI AKLYKGQE TLRALAKK
 VI VKMRPGHELHVTMKAVK L AKLGPGQE ELEVHAVK

UniRef90 A0A059LLC2
UniRef90-B9GFY9
UniRefefo-M7PLN2
UniRef90 - I4YBL8 UniRef90-UPIOOO4413648
UniRef90-T1KCG6
UniRef90-D8QCE2
UniRef90-R8BYC5
UniRef90- $\mathrm{BgS9W}$
UniRet90
B6KG1
UniRef90-R1CTV8
UniRef90- $\quad$ L8WJX6
UniRef90 R1DHL1
UniRef90-A0A017SIW5
UniRet90-E4ZXG8
UniRef90-S4NXL6
UniRefo
U5X518
UniRef90-F6YSX7
UniRef90-F4S444
UniRef90-ATTPZ5
UniRef90-D6WP50
UniRef90-A4SOF8
UniRef90-H3AXA9
UniRef90 ${ }^{-} 88 P Q E 9$
UniRef90-V4P7Y7
UniRef90_V5IOT0
UniRef90_W9XB85
UniRef90_C4JJM6
UniRef90_U6IM87
UniRef90-G1XAZ6
UniRef90-UPIO0042B30F2
UniRet90_Q6FXP6
UniRef90-A7AQ72
UniRef90-A0A044U881
UniRef90_14YFV5
UniRef90_Q01F02
UniRef90-K1Y256
UniRef90-UPIOOO455EEOE
UniRef90_C5M6J2
UniRef90_S7RLW8
UniRef90_U5DCR5
UniRef90-GOTONO
UniRef90_D8RH60
UniRefololuploo
UniRef90-B2A971
UniRef90-J3QB55
UniRef90_M5G6J6
UniRef90-A8N510
UniRef90 A9V9D0
UniRef90_J4DPE1
UniRef90_M1VXQ1
UniRef90_B6KLD3
UniRet90-E3K9Z5
UniRef90_B8MRSO
UniRef90 D8U6A9
UniRef90-R7YJM6
UniRef90-U6NL40
UniRef90_UPIo004449954
UniRef90-N4VXB6
UniRef90_KOKLJ2
UniRef90-J41219
UniRef90-T1 515 W
UniRef90- E6R474
UniRef90-W9QYH6
UniRef90-G3J8P4
UniRef90 V4UNK
UniRef90-T1G2S88
UniRef90-A5DTC9
UniRef90
R7SCW2
UniRef90_D7UAJ8
UniRef90-B2WCA1
UniRef90-AOAO23BOIO
UniRet90_C5LCN7
UniRet90_M2XXQ9 UniRef90-A6R4R6 UniRef90-M2T8ZO
UniRef90 UPIO004414E93
UniRef90-BOEJB9
UniRef90_K4DD13
UniRef90 MOS179
UniRef90-C9SI18
UniRef90-D8TPK6
UniRef90 A9SM40
UniRef90_U5HJP4
UniRef90-A0A016PYN2
UniRef90-A0A023F271 UniRef90-UPIOOO32A666F
UniRef90-F8NR44

GVGEDHAKF ${ }^{130}$ GMGKTHAKWSP GDGQDHAKYS
GTNKEHAKWGP
GRGNEHAKWSP
G GRDHAKFSP
GII GADHAKFSP
GLGKTHAKWSP
GI GKVHAKWSP
GIGKTHSKWSP
GTAKEHAKWSP
G/GADHAKFSP
GI GQDHAKFSP
G1 GKDHAKFSP
GVGKDHAKFSP
GVGQDHAKFSP
G\|GKDHAKFSP
SNGRDHAKFSP
GIGQEHAKWSP
GI G
GVGKDHAKFSP
GI GKTHAKWSP
GI GADHAKFSP
GI GGDHAKFSP
GIGQDHAKFSP GFGKEHAKWNP GTGQDHAKFSP GMGKTHAKWSP GEGKDHAKFSP GlGKTHAKWSP GLGRDHAKFSP GLGQDHAKFSP GTGKDHAKWSP GVGSDHAKFSP GVGKDHAKFC GVGKDHAKFSP
GLGKTHAKWSP
G) GKDHAKWSP

GI GKTHAKWSP GIGKDHAKFSP
GI AKDHAKFSP
GI AKEHAKWSP
GVGKDHAKFTP
GLGMDHAKFSP
GTGKTHAKWSP GTGKVHAKWSP
GVGKTHAKWSP
GI AKDHAKFSP
GlGADHAKFSP
GRGKEHAKWSP
GIGRDHAKFSP
GVAKDHAKFQ
GVGSDHAKFSP
GI GSDHAKFSP
NVGKDHAKWSP
GIGRDHAKFSP
GVADHAKFSP
G) GADHAKFSP

GI GKTHAKWSP
GI GKDHAKFSP GLGCDHAKFSP
GMGKTHAKWSP
GTGQDHAKFSP
G1 GKTHAKWSP
GVGKMHAKWNP
GVGKEHAKWSP
GI GADHAKFSP
G| GQDHAKFSP
GVAKEHAKWSP
GIGQDHAKFSP
GMGKTHAKWSP

G|GSDHAKFSP
GI GKDHAKFDP
GMGSDHAKWS
GMGKDHAKWSP
G| GSDHAKFSP
GI GKDHAKFSP
GVGKTHAKWSP
GVGKDHAKFCP


UniRef90_J91MY5 UniRef90-M1UUX6
UniRef90- ${ }^{\text {T5AH65 }}$ UniRef90-A0A024G378 UniRef90_G2Q686 UniRef90-MOWSU9 UniRef90_V4JVG1 UniRef90-UPI0002C64BBF UniRef90_B3S4F3 UniRef90-P16925
UniRef90 O4UFV7 UniRef90-Q4UFV7
UniRef90_H2WFC7 UniRef90-S8EGP7 UniRef90_C1BZA1 UniRef90_UPI0002B42F50 UniRef90-J6EWL9 UniRef90-L8FX09
UniRef90 UniRef90-W4JMB8 UniRef90_EOVYJ4 UniRef90-A0D2I2 UniRef90_IOYTG9 UniRef90-UPI00044182E4 UniRef90-G7E608 UniRef90-A0A059BYU3 UniRef90_V7BNG0 UniRef90_C5FSZ3 UniRef90_G0RE40 UniRef90_G7IXS2 UniRef90-A0A023B7T7 UniRef90-V9DGN5 UniRef90-V2Y1G5 UniRef90-K2RIG0 UniRef90-C4R920
UniRef90 R1GU26 UniRef90-FOXE51 UniRef90_A8P6Y5 UniRef90_A2F4R6
UniRef90-F1LOW8 UniRef90-J4GNI8 UniRef90-A0A024J764 UniRef90-M2N9D3 UniRef90-C1MVZ5 UniRef90_C1EOF4 UniRef90-F2UC17 UniRef90-Q235XO UniRef90-S8BXW2 UniRef90-H3FVS3
UniRef90_S3DCA3 UniRef90-A7SL38 UniRef90-C5LDA1 UniRef90-M3CJH1 UniRef90-F6TR29 UniRef90-S3BZ54 UniRef90_W3XP53 UniRef90_W7TINO UniRef90_A3CWH9 UniRef90-B6AC64 UniRef90-E5S6Q3 UniRef90_UPI0002C3E404 UniRef90-Q9AW23 UniRef90-A0A022QIU7 UniRef90_G2YZC4 UniRef90_UPI0004416F1F UniRef90_UPIO002C33E47 UniRef90-J7M4H7 UniRef90_A9BL73 UniRef90-I1GQN8
UniRef90 C1MRA1 UniRef90-M4FGX3 UniRef90-M7SAL9 UniRef90-J3NX08 UniRef90-R7QCA5 UniRef90_A8Q352 UniRef90_F9XBY9
UniRef90_LOAY30 UniRef90-G7ETN5 UniRef90_L7LSV1 UniRef90-Q5CPY6 UniRef90-B4FAR4 UniRef90_-10A0E7 UniRef90-1718S9 UniRef90-J7GAM7 UniRef90_A4HH22 UniRef90-E8R7Q4
UniRef90 Q8SSL9 UniRef90_UPI0003F48E4E UniRef90_A9T5P0
UniRef90_B7G229

FHEKE Q Q YNRDCDCTQNCEKCSVEYGLDVTCPPDEEMNVTSRHLQMD


 Y L S YRNQ FDNFNPGDTPTNKNSDTFTDQDKCDRNRNSKVTTKDLK LK Y DWNCNCQGECDRCTIHFDLRVSNFTNEVLEVTSDDLKQR FKCFADCEEDNDKNSVCFKLKVKYNKFDQSEI YSNDLKWV FPKEKDCDEEPEGDNLIGKKVNVSCTKNDPKQLYHNSSVYS
 YSDK
F M R WF GK A N E E D Y N T I $\operatorname{T}$ T
YAENNTASE

## Y





 Y K K P E A G E D P Y D WN TVV R L E L



## F

 $W \mathrm{~V} D \mathrm{R}$ G V $\operatorname{V}$ E S F T D E N T V V I



 Y K $Y K \quad A E G E$ TLEEDNN F E E K Q
F M S WP K EK DCEEE P D P N V H L V F A F L K W Y R P D $\quad$ DA T D Y N T I $\quad$ R



 TWW H K P A E G E D D H N T I


$F$ R A E D Q D L N E K N S V C F K L C V E C N K Y D D D D YR T T D E P KA E DTVLIFELLKVGSNVDENERVVCS SALE WK


 Y S R D C S C M S
FTENNT
F R D KCQCTDKC



| $L$ | $R$ |
| :--- | :--- |
| $Y$ |  |

GE GDTP T E

F M R V Y R R K S E A G D F N T V
Y WE K G LP $\quad$ VTVVA NTVVK L S L R TK C E F N P P S V L Y K N S S V L S
D Q R E C S C E D GC D R C S V E L S L D A L C T S D R DA N M Y S D E S V F G Y R K P P P K D D P S D Y N T I V M E L N V E CR S T D P K E K Y V N S S V Y A
Y K N H
F K $\qquad$
 Y S R DCTCAD F X D
 RSECSCGGEGCPHCTVMFTLSV
A P E E C A E C T N C E NC F DIV L H L E V EN K D E D K K V V Y T G E L K S E





UniRef90_J9IMY5
UniRef90_M1UUX6
UniRef90_T5AH65
UniRef90_A0A024G378
UniRef90_G2Q686
UniRef90_M0WSU9
UniRef90_V4JVG1
UniRef90_UPI0002C64BBF
UniRef90_B3S4F3
UniRef90_P16925
UniRef90_Q4UFV7
UniRef90_H2WFC7
UniRef90_S8EGP7

110
120



 $P$ L G N Q T D L F P D A D F R P V H D D

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

PNGSEFP LFSNNP IGPKDS
$P S G Q Q K S K Y K G K E P R P V L D D$


$P \square G S Q G T T Y D E V N D G P V L P D$ $P K G Q Q A K L F A A N P L R P V$ HSN $P N G S Q E A L L G P A G A R L V H D D$ $G Q L E W V P R G D Q A S P A P T N P D$
$P R Q D G Q D R G G F G M P M S E H N G$ $P D S M P E F A G N P D S V Y P$
P N GSELPSEDVKPNTSSDSD
 PNGSEKSAADPAPPAPYNLDVIVAKLGPGQEI ELEAHAVK HNQSPPLVPKPEDGGGAGLIAKLTQNQSIKAELLAFK $P Q G M Q A A N F G D E P \square Q A D S P D I L I A K L R P G Q E I D V V M H A H M$ PAGEQESADEDGPRPPTNGKIVLAKLRPGQGVNLVVHAVK PTGRQAELFAENA IQQPVNPDI $P Q G R Q V E T F A D S P V V A A D P D$
 NS F K W I P I G D P Y P P S MV H D D KKWPGGDYPPSMVHDDILVAQLRP
 GSAAQLEQFGGEAPVALHPDV GS A A QLE QF G GEAPVALHPDIV I A K L R R
 D P R V A P V SD D $\quad$ K WQPK GNQKDRFPVVED

 $P$ TP Q QA QKF GP Q D $\square R P$ L $\operatorname{SND}$ P N AE QEERYKDDPPRPVYDDVLITKLRCG $\begin{array}{llllllllllllllllll}H & Q \\ D & T & F & E & P & Q & G & Q & R & Q & P & E & F & P & V & N & P & D \\ T & S & R & S & R & D & N & D & P & N & D & Y & V & E & Q & D & D\end{array}$

 $P M G E Q E T R L A E R V V Q Q A H P D$ 4

## $P$ DD GQE EKFKN CP P K VV HP D

 $P$ QGDQET TFQKDP $\square R V V L G D$
K D IDEFKPF GRQLEYFSPNPD
PASRVENFGSPVGKGVEGDP
$P N G S N M P E F A T N P D G G P T R G D$
$E S Q S Q S \square Y G K N D P M P \square P R D G$
DENFFYQQINPIHYSSDQKP

S D $\square$ T T E L LGGQAAVR PVYP D
$P E G Q Q A D W F S D G V I A P V V N P D$
HED L L CKLRP
PAPRRPDFGKPVGDDPNANG
PNEA QKLQ
 $P$ S D NQRKK F GKTP P K VVVT D D P E G S QLLS M S A P A D E D P
 LI SKLS Q GQRLKLI GVAK K G D

## D P

$P$ VGS Q R EIIFRDV
$P N P Y G P P$ GQPVGK KF S S R
P E G S E M P F N T A E G $\square$ S C Q Y P D

UniRef90_J9IMY5 UniRef90-M1UUX6
UniRef90_-T5AH65 UniRef90_A0A024G378 UniRef90_G2Q686 UniRef90-MOWSUS
UniRef90 V4JG UniRef90-UPI0002C64BBF UniRef90-B3S4F3 UniRef90-P16925
UniRet90 O4UFV UniRef90-H2WFC7 UniRef90-S8EGP7
UniRef90 C1BZA1 UniRef90 UPIO002B42F50 UniRef90-J6EWL9 UniRef90-L8FX09 UniRef90-M5WB66 UniRef90_W4JMB8 UniRef90-EOVYJ44
UniRef90_AOD212
UniRef90 IOYTG9
UniRef90 UPIO0044182E4
UniRef90-G7E608
UniRef90-A0A059BYU3
UniRef90-V7BNGO UniRef90-C5FSZ3
UniRet90 GORE40
UniRef90-G7IXS2 UniRef90-A0A023B7T7
UniRef90-V9DGN5 UniRef90-V2Y1G5 UniRef90_K2RIGO UniRef90_C4R920
UniRef90_R1GU26 UniRef90_FOXE51 UniRef90_A8P6Y5 UniRef90-A2F4R6
UniRef90 F1LOW8 UniRef90_J4GNI8 UniRef90-A0A024J764 UniRef90-M2N9D3 UniRef90-C1EOF4 UniRef90-F2UC17 UniRefto -a235X0 UniRef90-H3FVS3 UniRef90-S3DCA3 UniRef90_AFSL38 UniRef90 C5LDA UniRef90-M3CJH1
UniRef90-F6TR29 UniRef90-E3LHV2 UniRef90- s3BZ54 UniRef90-W3XP53 UniRef90_WTTINO UniRef90-A3CWH9 UniRefofo- B6AC64 UniRef90 UPIOOO2C3E404
UniRef90-Q9AW23 UniRef90-A0A022QIU7 UniRef90 G2YZC4 UniRef90-UPIO004416F1F UniRef90-UP10002C33E47
UiRe90-49173 UniRef90-11GQN8
UniRef90-C1MRA1 UniRef90_M4FGX3
UniRef90-J3NX08
UniRef90_R7QCA5
UniRef90_A8Q352
UniRef90-F9XBY9
UniRef90-LOAY30
UniRet90_G7E7N5
UniRef90_L7LSV1
UniRef90-Q5CPY6
UniRef90_B4FAR4 4
UniRef90 A2SSV7
UniRef90-10AOE7
UniRef90-17859
UniRet90_J7GAM7
UniRet90-A4HH22
UniRet90-E8R7Q4
UniRef90_O8SSL9
UniRef90_UPI0003F48E4E
UniRef90-A9T5P0
UniRef90 B7G229

GIGKTHAKWS
GTGREHAKWSP
GIGADHAKFSP
GIGKEHAKWSP
GVGSDHAKFSP
GVGKVHAKWSP
GI GKTHAKWSP
G $\ddagger$ GKDHAKFSP
GTGADHAKFSP
GTGKMHSKWNP
G| GKVHSKWSP
GI GRDHAKFSP
GVGKEHAKWSP
GIGQDHAKFSP GMGKTHAKWSP GVGADHAKYSP GIGADHAKFSP GI GKTHSKWSP GVGKDHAKFS
GLGKDHTKFSP GTGAEHAKWSP SVGKDHAKFCP GI ALDHAKHCP GVGKTHAKWSP GI GRTHAKWSP GI GADHAKYSP GI GADHSKFSP GI GKTHAKWSP G $\downarrow$ GK $\square$ HTKWSP GKGGDHAKFSP GVGKDHAKFNP GIGSDHAKFSP GLGSDHAKFSP GI GADHAKFSP G| GSDHAKFSP GLGRDHAKFSP G| GRNHAKWSP G) GRDHAKFSP GI AKEHAKWSP GVGSDHAKFSP GI GMDHAKFSP GVGRDHAKWQP GQGKEHAKWSP GVGKDHAKWSP GIGKTHAKWSP GMGKTHAKWSP GDGRDHAKFSP GQGSDHAKFSP GVGKDHAKFSP GI GKDHAKWSP GIGADHAKFSP GFGKEHAKWNP GTGRDHAKFSP GIGADHAKYSP GVGSDHSKFSP GVGKDHAKYSP GlPKDHAKFQ
GIGKTHAKWSP G/GRDHAKFSP GLGQDHAKFSP GIGKEHSKWNP GMGKTHAKWSP GlGRDHAKFSP GI SKEHAKFSP G| GKTHAKWSP GLGKFHAKW
GI GKEHAKWSP GVGKVHAKWSP GDGKEHAKWSP GDGKTHAKWSP GFGWDHSKYSP GYGWDHAKFSP NDGREHAKWSP GFAKEHAKWSP GTGADHAKFSP GIGKTHSKWSP GNGKTHAKWSP GFGKEHAKWNP NDGRVHAKWSP GTGNVHAKWSP NYGKEHAKWQP GRGKEHDKWSP

GI GLEHAKWSP NIAKTHAKFMP GRGKEHAKWSP NVGKVHAKWSP G I AKFHAKWSP $G \bar{S} G N$ DHAKWS
$G \| S K E H K W C P$

UniRef90_J8TJ70 UniRef90-BOCTH8 UniRef90-UPlooo2658A5D UniRef90-Q12ZR3 UniRef90_-05KG24 UniRef90-M3A449
UniRef90 G4MQNO UniRef90-N1PBK3 UniRef90-H81735 UniRef90-FOY1 100 UniRef90-H9GUD4 UniRef90-K3XJ25 UniRef90-D7E8Q4 UniRef90-L1JYV UniRef90-Q4N473
UniRef90 D5U3F4 UniRef90-J8ZX59 UniRef90-F4X4P8 UniRef90-B5Y3D1
UniRef90 Q7RLX3 UniRef90-D8LXL7 UniRef90-U6IM36 UniRef90-W6KEL3 UniRef90 ${ }^{-}$F2HIB5
UniRef90 ${ }^{-}$JoRYG1 UniRef90-13EI10 UniRefofo-DONVB1 UniRef90-E4XCX5 UniRef90-D5EC45 UniRef90-D3RX00 UniRef90-A7IAH5 UniRef90-EOS711 UniRef90-S9WAD7
UniRef90 G0EF28 UniRef90-M5G5V5 UniRef90-×1XW65 UniRef90-L5LLTT6 UniRef90-D2RD94 UniRef90-Q7RN53 UniRet90-Q6C4T2 UniRet90_O8TVB8 UniRef90-F2L3Y7
UniRef90
R9SN57 UniRef90-FOTBA8 UniRef90-GOQT24
UniRef90_R4WPS2 UniRef90_A3DMQ6 UniRef90 B8BWN8 UniRef90-B8GEG5
UniRef90-F7XMN5 UniRef90-13TDW7 UniRef90-B8CCH8
UniRef90- S5ZUX9 UniRef90-KOSEJ9 UniRet90_UPIO00359C8E5 UniRef90_U6KRY9
UniRef90-Q2NFZZ UniRef90-A2BK79 UniRef90-U4L7M8 UniRef90- W7L8P7
UniRef90
F3KMA8 UniRef90-F3KMA8
UniRef90-U6HY3 UniRef90-E1QSA7 UniRef90-C6LSX9 UniRef90-ROKMW6 UniRef90 L11H90 UniRef90-E5SQN3
UniRef90 GOUYR5 UniRef90-W9DQA6 UniRef90-K8F3L5 UniRef90-H1YWAO
UniRef90 UniRef90-RoKLT4 UniRef90-S9V4X7 UniRef90-H2KQJO
UniRef90_UPIOOO35E7323 UniRef90-AODID7 UniRef90-D9PV73 UniRef90-P39471 UniRef90-U6EDPO UniRef90 J3PTY6 UniRef90-F4B765 UniRef90-DOAOL6
UniRef90_V6LY42 UniRef90-H2C8S5 UniRef90-W6LAR9 UniRef90_V6AS69 UniRef90_E1ZC65

20
20 ML A HR GMV ${ }^{30}$
Ts RDVGKLR PTVCIENVYVWDNTSVVVDEVLSQRLGLIPLN $\square D P D L I V$




 PABLALEVVTVLE
PTMATEKDFMADNTS

 PTMAI DWI QLEANSTV PTVALENIYMWENSSLDHDEVLSHRLGLTPLK DDARLLD
 PSDADERVYMRQNTSVIPDEMFAHRLGMIPLN VDPDQLT PVLGI EEVTMDRNTSDLPDEMMAHRLGLIPLYSMKARRMS


 PTLAVDYVDFYLUNSLLYDELIAHR1GGLPLKT DDERYN PTIAA DMVEIGENNTVLPDEVLAHRLGGIPVYSK RELDK
 TMAVENVWVWQNTSVMQDEVLASRLGGVPLRTMNPARLES
 PSLAI EVVTVLENTSVLHDEYI AHRLGLLPIESSSARNFE PTMAVDYVVFYMNTSFLYDETI AHRIGLI PIKTDLERFNM


 PTMAD ETVELLKNDAKDFDEALAHRLGGVPLKT DLESMV
 PTMATDSVVFTMNSSVFYDEYI AHRLGLIPLTSE AALDK PTLAI DLVEYSENSSVLNDEYI AHRLGLVPIRFMAEGSL

 PTMALEHVYMWNNSSLTHDEVLSHRLGLVPLN VDPRLFD
 PIIALDWVQDDANSSVLHDEFIAHRLGGIPLTSDDVDKLQ PTLATEDVNIYKNDAKMFDEVLAHRLGLDPVTDDDSYV PVMAVDVVEVFENNTVLYDEIIAHRLGLIPLTSKEA DQK


 PTVSI DKISIVDNTSVLPDEFLAHRLGLLPLNVSPEDLDF PTMAI EKVFVYNNTGVLRDELVAQRLGLIPIMA DPEIFS

 PTUALDLVEIDKNNTVLPDETLALSFGLIPMYSKK DLV PTLAFDRLLIFDNDGVVLDELLSHRLGLLPVVAGPVHKLE PTMAVEEVMVIGNTSSVYNEVLTHRISGLPFRT DLLENFV
 PVMAVDEVYFDENNSPGYDEILAHRLALLVFVSDEALEHY
 TIAIHSVEFEENTSVLPDEMIAHRLGLIPLTM

 PVMAVDEVYVVENNSPLYDEVLAHRLAVIPFESNDADDYY


## UniRef90 J8TJ70

 UniRef90-BOCTH8 UniRet90-UPIO002658A5D UniRef90-Q12ZR3 UniRef90-Q5KG24 UniRef90_M3A449UniRef90-G4MQNO UniRef90-N1PBK3 UniRef90-H81735 UniRef90-FOY1J0 UniRef90-LOBOC7 UniRef90-K3XJ25 UniRef90-D7E8Q4 UniRef90-L1JYV0 UniRef90-Q4N473 UniRef90-D5U3F4 UniRef90_J8ZX59 UniRef90-F4X4P8 UniRef90-B5Y3D1 UniRefefo-OCRLX3 UniRef90-D8LXL7 UniRet90_U6IM36 UniRef90-W6KEL3
UniRef90 F2HBE UniRef90-F2HIB5
UniRef90 JoRY UniRef90-l3EI10 UniRef90-DONVB1 UniRef90-E4XCX5 UniRet90-D5EC45 UniRef90-D2UXC7
UniRef90 D3RX00 UniRef90-D3RX00
UniRef90 A7IAH5 UniRef90-AOS711 UniRef90-S9WAD7 UniRef90-GOEF28 UniRef90 M5G5V5 UniRef90-X1XW65 UniRef90-A7AWB4 UniRef90-D2RD94 UniRef90-Q7RN53 UniRef90-Q6C4T2
UniRef90 Q8TVB8 UniRef90-F2L3Y7 UniRet90-RgSN57 UniRef90-FOTBA8 UniRef90_G0QT24
UniRef90_R4WPS2 UniRef90-A3DMQ6 UniRef90-B8BWN8 UniRef90-B8GEG5
UniRef90-F7XMN5 UniRef90-13TDW7 UniRef90_B8CCH8 UniRef90_S5ZUX9
UniRef90 K0SEJ9 UniRef90-UPIO00359C8E5 UniRef90-U6KRY9 Uniinefolo 2 NFZ 6 UniRef90-U4L7M8 UniRef90-W7L8P7 UniRef90-F3KMA8 UniRef90-U6HYJ3 UniRef90-E1QSA7 UniRef90-ROKMW6 UniRef90 L11H90 UniRef90-E5SQN3
UniRef90 GOUYR5 UniRef90_W9DQA6 UniRef90-K8F3D5 UniRef90-H1YWAO UniRef90-LOKZP7 UniRef90-S9V4X7 UniRef90-H2KQJo UniRef90_UPI00035E7323 UniRef90-AODID7 UniRef90-D9PV73 UniRef90-P39471 UniRef90_U6EEPO UniReffo-J3PTY6 UniRef90-F4B765 UniRef90-DOAOL6
UniRef90-V6LY42 UniRef90-H2C8S5 UniRef90-W6LAR9 UniRef90_V6AS69
UniRef90_EIZC6 MKETSA DQATDRNTVVFETKLTCERNPNHEVLSSHLVWK FENRNPEQPASSQDTVVFELHIRCTKNSNSSVYSGHLTWV
 WFKKPPPQSDSDFNTVVMTLNVTCRSTDPTEKYVNSNVYA FMKPFKFDNSFDFNTVNLRENVKCTRNPKPNVYASDVEFV WFKKPPPKDPNDFNTVVLSLQVECRETDPKEKYANSNVYA KEECDCKGAGCALCQVTFTLSABEKGBCMVHSRDLKSS
 YSRDYDCDEFCPECSVAFTLDIRCNKDQTHHVTSRYLISN Y TS ENDVPNERNTIVYKLHVSCPKKGSQTVKSGELEWL TQDECTCEEGCPSCEVSUTLSARNTEGPKMVYSGDLISS FKSNFNCEEDNDKNSVCFKLKVKYNKDQSDYLSSNSLMF YKSPEECREFSEDCFVRLSLEGEGGGDEAVTLYSDNVVS YTRDCQCMDFCPECSVEFTLDVKCTEEQTRHVTTADFKSS EQDDDDPSSPTDRNTVVFRLGVSCGSDPNKHVYSKDLVWV

 YSMDCECNSYCQLCSRVFELNIDANEN DKHVFSTHLKYS QDRCSCEGAGCPLCSVTFTMSV E YPKDCSCKSF

GGPGIVYSGDLIS YIIRDCSCDNFCNDCTVEFTLDVTCDTDATHSVTTADELG PHEECSCEEGCPACTVSLTLSVEAPMDEDKTVYSGDLVSA
 QGDCSCGGAGCPSCTVTYTVSV G EGPK VT YARECLCGGGCEECTITGRLDVECPPEE $\qquad$ WTPNAV TDAN
MTPNAV PTDANTTSFEVQVTCTSRPPSELYENSLITYA YKANETCDPPTAQDSLEFELKVKCTRKDSTEVTNNDNMYR YRDKCTCSDKCSRCTVEYSLDVKCM PDKCVCG YKDPY

LPRGLDASEYDDSNTFVLRLNVTCERME I EECETGMVDPAECTVRFTLQVTA DDAKTVYARDLKFD LPDECDCDDYCPKCSVSFTLNKK GPGVVYSKDLVSD YAWNCDCKGECDRCAVHFVLKVQNQGNTTMEVTSGDDLKEK
YKSPEECREFTEDCFVKLDLEGKGEEG
KECVCYDRCPRCCVEFELDVNFDK
ADRCTCEGAGCDRCSTMYTLSV
PKDECNCEDVCPACELSLTLSV EGPGMVYSRDLIPS YKPPEECREFSEDCFVKLELSGEGTPGGVKTLYAGDLV EYGVDVDEVGTDRNTVVFRLNESPHRPFTKHVYTRDLLWA PHRECVCYDRCPRCSVEFDLDVEQERDLPLTVTSRDLDAN YSRDCTCEEFCPECSVEFTLDDVRCNEDQTRHVTSRDLISN FRNPNQ EELSEENSLKKKMHVKCPHQKSMPVYARDLK WID
MPSECDCESGQQCRVSFLLKEKCEENDSKIVYSKDLKSD YKRPEECEKGDPSCYVVLRLEVETGPREERIVYSGDLETS MKWSRKGVDPTVNDTLILHLEVTCQRTDPDKLYTGHTVYA RRPCEDCKENCERCFTKIYIDVEA GDSPKMIYTGDIK
PSKCDCKSEGCSNCKVMLVLD SGDSDVTRTI LSNELTSE
 Y EHEDGDKDHERNTVVFKLDVTAPATYPGSVYSRDVHWV
FKSTHDSS
NSLYFSLKIENKTKDVIDVTSNDIKWL WPSAEAKGADETTNLDKLEKEVSADKEPNGKVFSSQLEWI YITDSHSDNGDPAHVLVFELDVEGQHGQATSVYSGDLKWR
 YKEDCDCDELCNRCSVEMEIDVNNTSETPLLVTCKDIKFD YKDQQNPGSFSQLDPHRFELEAEGAKDVPVTVVYNKLVWK
FPSRILPEEFNPMEHVIFDFKVSCSESGGEVYSSELKWV FPSRILPEEFNPMEHVIFDFKVSCSES
 RPECANCQENCDGCFSKIYYDVEAKDSEVMVYSKDIKSD


PLKCCQSKTGCSNCRVMLVID SGNTDSTRIVTSAEMSSE

UniRef90_J8TJ70
UniRef90-B0CTH8 UniRef90_UPI0002658A5D UniRef90-Q12ZR3 UniRef90-O5KG24
UniRef90_M3A449 UniRef90_G4MQNO UniRef90-N1PBK3 UniRef90-H81735 UniRefolo-For1 10 UniRef90-LOBOC7
UniRef90-H9GUD4 UniRef90-K3XJ25 UniRef90-D7E8Q4 UniRef90-L1JYV0 UniRef90-Q4N473 UniRef90-D5U3F4 UniRef90_J8ZX59 UniRef90-F4X4P8 UniRef90-B5Y3D1
UniRef90 Q7RLX UniRef90-D8LXL7 UniRef90- U6IM36 UniRef90 W6KEL3 UniRef90-F2HBE UniRef90-JoRYG1 UniRef90-13EI10 UniRef90 DONVB1 UniRef90-E4XCX5 UniRef90-D5EC45
UniRef90-D2UXC7 UniRef90-D3RX00 UniRef90-A7IAH5 UniRef90-EOS711 UniRef90-S9WAD7 UniRef90-GOEF288 UniRef90-X1XW65 UniRef90-L5LLTE UniRef90-A7AWB4 UniRef90_D2RD94
UniRef90_Q7RN53 UniRef90-Q6C4T2 UniRef90-Q8TVB8 UniRef90-F2L3Y7
UniRef90
R9SN57 UniRef90-FOTBA8 UniRet90-GOQT24 UniRef90-R4WPS2
UniRef90 A3DMQ6 UniRef90-B8BWN8 UniRef90-B8GEG5 UniRef90-F7XMN5 UniRef90-13TDW7 UniRef90_B8CCH8
UniRef90-S5ZUX9 UniRef90-KOSEJ9 UniRee90-UPI000359C8E5 UniRef90-U6KRY9 Uniinefolo Q 2NFZ6 UniRef90-A2BK79 UniRef90_O4L7M8
UniRef90_W7L8P7 UniRef90-F3KMA8 UniRef90-U6HYJ3 UniRef90-E1QSA7 UniRef90-ROKMW6 UniRef90 LillH90 UniRef90-E5SQN3
UniRef90 GOUYR5 UniRef90_W9DQA6 UniRet90-K8F3D5 UniRef90-H1YWAO UniRef90-LOKZP7 UniRef90-s9V4X7 UniRef90-H2KaJo UniRef90-UPI00035E7323 UniRef90-AODID7 UniRef90-D9PV73 UniRef90-P39471
UniRef90-Q46GD0 UniRef90_U6EDPO UniRef90 J3PTY6 UniRef90-F4B765 UniRef90-DOAOL6
UniRef90-V6LY42 UniRef90-H2C8S5 UniRef90-W6LAR9 UniRef90-V6AS69 UniRef90_EEZC65
 PAGEQEEVFAGNPPAPTNPNIVLAKLRPGQDVHVELHAMK
 D PNVQ PNNRDPEMGQP四KNPTVPPI LI AKMGKGQEIDVLCKAYK HQMTFEPQGKENATRPVNPNILIAKLRPGQTINVRMHCCK

D P

DPDVKPSFGK
P DGNQKDTD VPRPRDKSGi
DPRVSRHREDDASEYGETDE
PQGDQEERLQDD CAMHDD
DHEPNDPMPKNNNDEKMENA
PLPGQEEIDTPNKPGAVFDA
NESGKINDDEVYPVSAEEKGV

DPQAA
E E E D


DP TVKPVYPNIPIVLMAPGQRLHVRAYARL NHSRWKPVGAQAPPSVAKPDIVLVKLRPGQELNIEMHCVK
 NSRGNVNAPMPVPRPPDGGI PIVKLKRGQCLSLKMTATK DP

${ }^{\text {H }}$
HP
D
P
P
D P

FMNSDEDAVRPVKFYSIVPG DPKVCPVDGADGFDPNEQRG
D $P$
DVKPVYDN
QDESHDEG
D
D
P AVPVDEK VKLGPGQHLKLKAIARM

POGSQVGGDPDVR
 NVQVSPAHFEEEQDNAHDEGI SPRVTPVTSRNRDNDPNDY PMSRQKQKFAQDPPAPVHPDTLTKLRPGQETEDFGFLEK DPAVK
D P
RDDQWRPAF DVRPVYDNMPIVVMAPDQRLRLQAYARL DESVK GDDPNVVP DSKNIPIVLLGKNQKLTVEAKLRL PLIPGQEDAFKNSYPAPVSRKVLLNKLGPGDEI MARCLAVK PTGGQKNWGTSSLPAPLDPD LLAKGAPGQRUFCEAYAKLK P $\square G K Q A E T F K S S P P A P V H D U L I T R L R P G Q E L D M E M H C H K$ DSRVGEEVSEDNRVFLVHPDIVLVRLRDGQELGVTCVARK DERVQ AADQNVPITDLKEGQKVVLEAIA HM PKGSQETKFGKEGTKTVHDDILLAKLVPGQEVELEAHCMK DDKVQ
SDDTFDEWANSAVDDORSSPVIAKLGKNQNLKVKCIARK PLPGQEELFGEDQPTVVSPHVLINKGAVGQEEVERCVAVK


## TPAMV DQMM

DPKiQ
TPVSGAIPIVL
PADPNIPIVELKKGQKLVLEALAHM
DPREDGAHRGf NMLKPVLDTVPLVKLKEGEEVEELEALAQL
DPAV

PFGNQKQRLNNV
D
PLPGQEEFGPSSPVDPESRDIPLVLLGKNQKVSLEAKVRGL


| UniRef90_J8T | G\|I AKHHAKWS ${ }^{130}$ |
| :---: | :---: |
| UniRef90-B0CTH8 | GVGKDHAKYCP |
| UniRef90 UPI0002658A5D | GIGKTHAKFSP |
| UniRef90-Q12ZR3 | GYGNKHAKWQ |
| UniRef90-05KG24 | GTAKHHAKWSP |
| UniRef90- ${ }^{\text {M }}$ A449 | GIGADHAKFSP |
| UniRef90 G4MQN0 | GYGWDHA |
| UniRef90-N1PBK3 | G $\square$ GADHAKFSP |
| UniRef90_H81735 | GHGKEHAKFQP |
| UniRef90 FOY1J0 | GCGKEHAKWIP |
| UniRef90 Lobich | GLGKFHA |
| UniRef90-H9GUD4 | GFGKEHAKWNP |
| UniRef90-K3XJ25 | GVGKVHAKWSP |
| UniRef90-D7E8Q4 | GLGKDNAK |
| UniRef90-L1JYY0 | GVGKMHSKWSP |
| UniRef90-Q4N473 | GIGKVHSKWSP |
| UniRef90 DSU3F4 | RGKEHIKWS |
| UniRef90 J8ZX59 | GIGKDHAKWSP |
| UniRef90-F4X4P8 | GFGKEHAKWNP |
| UniRet90-Q7RLX3 | GIGKMHAKWIP |
| UniRef90-D8LXL7 | GVGEDHAKWSP |
| UniRet90-U6IM36 | GI GMDHAKFNP |
| UniRef90 W6KEL3 | NIAKTHAKFMP |
| UniRef90-F2HIB5 | P |
| UniRet90_JoRYG1 | EHA |
| UniRef90_13E110 | GIGKKHSKWSP |
| UniRet90_DONVB1 | GVGKDHAK |
| UniRef90-E4XCX5 |  |
| UniRei90-D5EC45 | GYGHDHAKWQ |
| UniRef90-D2UXC7 | ar |
| UniRet90_D3RX00 | GTGKEHAKFQP |
| UniRef90_A7IAH5 | NK G K |
| UniRef90_E0S711 | GRT |
| UniRef90 S9WAD7 | N】AKVHAKFMP |
| UniRet90-G0EF28 | GYGKEHAKWFP |
| UniRef90_M5G5V5 | SCGRDHAKYSP |
| UniRef90 X1XW65 | GIGGKDAKFSP |
| UniRe990_-5LRT6 | EHAKWNP |
| UniRet90_A7AWB4 | GKFHAKW |
| UniRet90-D2RD94 | K E H |
| UniRef90 Q7RN53 | K ${ }^{\text {H }}$ |
| UniRef90-Q6C4T2 | GHDHAK |
| UniRet90-Q8TVB8 | GLGLEHAK |
| UniRet90-F2L3Y7 | A |
| UniRet90_R9SN57 | GFGKDHAKWMP |
| UniRet90-FOTBA8 | GI GLLEHSKWQP |
| UniRet90_G0QT24 | GK M |
| UniRef | GKD |
| UniRef90-A3DMQ6 | GRGKEHAKWSP |
| UniRe990 B8BWN8 | S |
| UniRet90-B8GEG5 | GKVHAK W |
| UniRet90_-7XMN5 | GYGKEHAK |
| iRef90_13TDW7 | G |
| UniRef90 B8CCH8 | H |
| UniRef90 | GKEHA |
| UniRef90_KOSEJ9 | GISKEHAKWCP |
| UniRef90-UPI000359C8E5 | VEQDHAKWNP |
| UniRet90_U6KRY9 | GLGKTHAKWS P |
| UniRet90_Q2NFZ6 | GLGSEHAKWQ |
| iRef90_A2BK79 | GYGREHAKWMP |
| UniRef90_U4L7M8 |  |
| UniRet90 W7L8P7 |  |
| UniRet90-F3KMA8 | GRGTEHAKWN |
| UniRef90-U6HYJ3 | GVGRDHAKFSP |
| UniRet90-E1QSA7 | GRARNHAKWQ |
| UniRet90_C6LSX9 | GVGHTHAKFQP |
| UniRet90_ROKMW6 | SEHGK |
| UniRef90 LilH90 | GNNRG |
| UniRef90-E5SQN3 | GKEHAKWNP |
| UniRef90-GOUYR5 | GIGVVHAKWSP |
| UniRet90 W9DQA6 |  |
| UniRet90-K8F3D5 | S |
| UniRef90-H1YWAO | NTGMEHAKWQP |
| UniRef90_LOKZP7 | GYGNK |
| UniRef90_R0KLT4 | GI |
| UniRef90 S9V4X7 | GLGllVHTKWSP |
| UniRef90-H2KQJO | GVGRDHAKFSP |
| UniRet90_UP100035E7323 | GTGRKHAKWIP |
| UniRef90 A0DID7 | GFGKMHAKWTP |
| UniRef90_D9PV73 | GVGRDHAK W |
| UniRef90-P39471 |  |
| UniRet90 Q46GD0 | G |
| ef90-U6EDP0 | GQGQEHAKWQP |
| UniRe990-J3P | QEHAKWSP |
| UniRef90-F4B765 | GYGIEHAKFNP |
| UniRef90_DoA0L6 | G |
| UniRef90_V6LY42 | G |
| UniRef90 H2C8S5 | GYGKEHAKFMP |
| UniRef90 W6LAR9 |  |
|  |  |
| UniRef90 E1ZC65 | GTGKDHAKWMP |

UniRef90 F8AlQ5 Uninefefo-D8M326
UniRef90 E3GZ2 UniRef90-AORXU9 UniRef90-Q2FTAO UniRef90_GOU4R6
UniRef90_E6N510 UniRef90_C3N054 UniRef90-LOA8X7
UniRef90 C9ZKR1 UniRef90-BOEHR6 UniRef90_G4VD46 UniRef90-AOB9L4
UniRef90-G3UX UniRef90G4RL48 UniRef90-UKKV52
UniRef90-B1L798 UniRef90_B1L798
UniRef90-C3Z3J6 UniRef90-W6KIA5 UniRef90-GOTTN9
UniRef90-A4HA24 UniRef90-D3E2J8 UniRef90-K4DX57 UniRef90-ABMDY7 UniRef90-UP100035C3F6C UniRef90-G1Q7F7 UniRef90-A2ER03 UniRef90-A0AO31LK31 UniRef90-F4BXF3 UniRef90-X1AZO3 UniRef90-MOSE79
UniRef90 - XoULI1 UniRef90-UPI0003621DCB UniRef90-A9BKT2 UniRef90-G7WKZ9 UniRef90-OOW1V3
UniRef9O-A0A059EY UniRef90-E4XNL9
UniRef90 C 4 V 751 UniRef90-C4V751
UniRef90_O28002 UniRef90_V4JHY3 UniRef90-179×9 UniRef90-UP1000161C68B UniRef90_C6LU00 UniRef90-M1VCT4
UniRef90 A6UW03 UniRef90-LOHKY5 UniRef90-F8AN60 UniRef90-F6BD45
UniRef90 -D9Q275 UniRef90-U3ACO8 UniRef90_J7G2H0
UniRef90_O9YB53 UniRef90-S7XPP5 UniRef90_M5ENPO
UniRef90 V5I7S3 UniRef90-V517S3
UniRef90-UPIooo2C3E526 UniRef90-A5UN55 UniRef90_KOIHB5
UniRef90_H8ZEB8 UniRef90-13T911 UniRef90-L2GLK3
UniRef90_TOL9M2 UniRef90-UP100037EA28E UniRef90-UP100037C593A UniRef90_B3TAN3 UniRefofo-B4VXK9 UniRef90-L2GNQ3 UniRef90-UPIOOO35F00D3 UniReffo-W2TR19
UniRef90-UPIO003F11 F83
UniRef90-TOLRX7
UniRef90-T1GGD1
UniRef90-A4WNA4
UniRef90_D7DRW7
UniRef90_EOSQ92
UniRef90-L019U7
UniRef90-J3JFB7
UniRef90-C4V9J5
UniRef90-TOLUK9
UniRef90-A8A8W5
UniRef90-MOMQ17
UniRef90-UPI000333E00B
UniRef90-I3EFC5
UniRef90-Q6KZP5
UniRef90 ${ }^{-13 T B C 2}$
UniRef90-V8NS85
UniRef90-A3MXZ5
UniRef90-Q9HJD9

PSVAVRTVTIKENTSVLADDYI AHRLGMI PIRHGDDSSTE PSUA
 PVLAFDRYLIEENDSAMPDELEAHRIGGVPVAGPRDHYVT
 PTMAVDYVYFYDNDTSVYDEDAHRLGLLVLKSDDGHKYG
 PSLAA ERVYVSQNTSVMPDEVMCHRLGLDPLAVDPKYFL






 PSTATELVGMLDNTGVMPDEVLCHRLGLTPDNA DPSLLS PVMAVDEVYIVENNSLLYDEVLAHRLAMIPFSSEEAISHY PILAIDEINLYDNTSVLFDEQI GLRIGEVPLVADELDLFS PVMAVDEVVVLKNDSPLYDEDIAGRLGMIPGLTMTDLDTYK




PAMAVDYVDIYGNSSYFYDEVIAHRLAMLPIKTYपDRFNM PSMAI DFAYFYDNDTSVFDEIIAHRLGLLVLKSDEV LNK $P S L A$
$P$
$P$ PTLAAGKKYLYQNTSSTLPDEVLSHRFGLLPMKAGDPRLFK PTMAI EYVTVNENSTVMNDEFLAHRLGGVPVLA DPRRFE PTYA: ENVYFYENSSSMYDETLAHRLALIPUTGKPVISDE PTYAI ENVYFYENTSSMYDELI AHRLGLIPIKGKPVSNDE



 $\stackrel{L}{\mathrm{~L}} \mathrm{Q}$ $P T D A D Q V R V H D T S Y D C D E Y D A H R G G D P D D S T K V Y D E$ PK』A LEDVN』MRNDSAMFNEVLAHRLGLTPLVS NMDAME PS $\square A V H W V Y \square R E N E T V M A D E \| L S H R L G L I P I L A D S S T L K N$ PTMATHYVSVYENNTVFPDEYTAHRLGLIPLEA NPEYFS
 PTLAADDVLIIDNTSVMYDEMLAHR1GLIPUKTDULSLK

 S A DVVEIKENSTVLPDEMVANRLGVPIKNPKHNLI P PTMAFEKIYLYQNTSVIQ PKMADELVEFYESVSPLFDEDIAHRLGLVPVPTDGSLYVP

PVMATDTVVVVNNTSVMYDEFLAQRLGLIPLTTPGHSLPT PTYAIENVFFYENTSSMYDEVLAHRLGMVPIKGKPVSS
 PTLSI DSVRFVENSSVMFDEMIALRLGLVPLTT


PTVATHWVYTRENETVMADE\|LSHRTGLIP\|IVDAKDFER PKLAA ENVNVYDSSLPLIFDEVVALRLGLIPLKTDAKDKER AI DTVDMIENSSVLADEGITHRLGLIPLKTDLSRSDE PAGSI DWVQIDANSSVLHDEFIAHRLGGDGV

UniRef90_F8AIQ5 Unineforo-DMM326
UniRef90 E3GZ2 UniRef90-AORXU9 UniRef90_Q2FTAO UniRef90-GOU4R6
UniRef90 E6N510 UniRef90-C3N054 UniRef90-LOA8X7 UniRef90-C9ZKR1 1
UniRef90 B0EHR 6 UniRef90 G4VD46 UniRef90-AOB9L4
UniRet90 G3UX5 UniRef90 G4RL48 UniRef90_U6KV52 UniRef90-B1L798 UniRef90-C3Z3J6 UniRef90_W6KIA5 UniRef90-GOTTN9
UniRef90 A4HA24 UniRef90-D3E2J8 UniRef90_K4DX57 UniRef90-A8MDY7 UniRef90-UPIOOO35C3F6C UniRef90-G1Q7F7 UniRef90-A2ERO3 UniRef90-A0Аоз1LK31 UniRef90-F4BXF3 UniRef90-X1AZO3 UniRef90-MOSE79
UniRef90 XoULI UniRef90-UPI0003621DCB UniRef90-A9BKT2 UniRef90-G7WKZ9
UniRef90 OOW1V3 UniRef90-A0A059EYD9 UniRef90-E4XNL9 UniRef90-C4V751
UniRefo- O 28002 UniRef90-V4JHY3 UniRef90-I719×9 UniRef90-UPI000161C68B UniRef90_C6LU00 UniRef90-M1VCT4
UniRef90-A6UW03
UniRef90-LOHKY5 UniRet90-F8AN60 UniRef90-F6BD45
UniRet90
D9Q275 UniRef90-UЗAC08 UniRef90-J7G2HO
UniRef90 Q9YB53
UniRef90-S7XPP5 UniRef90_M5ENPO
UniRef90 V5I7S3 UniRef90-V517S3
UniRef90-UPIOOO Ref90 UniRef90-KOIHB5 UniRef90-H8ZEB8 UniRef90-13T911 UniRef90-L2GLK3
UniRef90_TOL9M2
UniRef90-UPI00037EA28E UniRef90-UPI00037C593A UniRef90-B3TAN3 UniReffo-B4VXK9
UniRef90-L2GNQ3 UniRef90-UPIO0035F00D3 UniRef90 W2TRI9 UniRef90-R9T5Y4 UniRef90 UPIo003F11F83 UniReffo-TOLRX7 UniRef90-T1GGD1 1 UniRe99-A4NNA4
UniRef90-D7DRW7 UniRef90-EOSQ92 UniRef90-LOI9U7 UniRef90-J3JFB7
UniRef90-C4V9, UniRef90-B7XJB4 UniRef90-TOLUK9 UniRef90-A8A8W5
UniRef9O-MOMQ17 UniRef90_UPIo00333E00B UniRef90_I3EFC5
UniRef90_Q6KZP5 UniRef90- B3TBC2 UniRef90-V8NS85 UniRef90-A3MXZ5
UniRef90 Q9HJD9

LDs
50

70
EGPGVVYSGDLKS IVDYFEVSAPGNRSSVRLELNETCTGDRPLNVTSKHLKSL MPEECDCDKYCAKCSVSFTLK SGEKQGCVVYSGDLVPS RSQCSCNGAGCPRCTVTLTMSV EGPGVVMSGDLISQ DSQQISFDALDPTRVLLFEVDDVERRGQATSVYSGDEKWR DAEECSCQSGCEKCVVRFVLRAEA ADQPVTVYSRDIK

 YPDECQCGGGCPGCREDFMLTARCTRGPATVHSRDIKFS FPKDEECESGPAECTVRLTLQVTA ARD
DPNR
TVVLELSKKA

YRQEG
Y $\square T E S S Q A S F D P K R V L D F E L E A E A E K N V A V T V Y S G Q L R W V$ FPTDCLCGGGCVECQVTGLLTVRCPADQ Y ${ }^{\text {TISSNQASFTNLDPSRFELDAMGAKDAAVTVYSHQLQWV }}$ NGNYVDKGEYCPRCSVSFSLN ETGPKVVYSRDLKSC FSNQVGFDADDPQRVLVFELAAEGRRDKSTSVYSGDLKWK YPKQKTCEEFCPECSVEFTLDVRCNEDQTRHVTSRDLISN

 VKEKCKCDGGCARCQLVLVLQAK GTGGPGMVYAENLKSK
 LQSECECKGGCSLCQVTLSVSA NEGGPCVVHSS RTEKDMTSDDCEDDSLLFHFKVKHQKNSTNHV VCPDDEVGDFHFEEKKK
QSECSCGGEGCPNCQTSFRLNV GEVKVVYSGDIKYD YGSPEECSENDEHCYVKVYLEAEAGADSTFYVKASDLKFS
 SYWYTCDEEHCRECTFKGTLNVSNDTTKDRVVTDKDIKFD FRR ESDEPSAQNTपCFRLRVPP VVRFSI
DECDHPPDEGCPLCTVTYTLN
VI TFAL
YGSPEECSNASENDSHCFA QVYLEY PEGEFDEDDTVTLA TDV
F DT TAKNKK KLTIILKLEANHPNDGNDAVFSNSVSK RPEECAGKEPSEECFVEVSLEAEVDAEGE TGRYITAG FRT GDLSPTNSUKFHLVKNDTKNITTVYSDSUEVD ПDQRLT四ALCDRGAMLVTSKDLVRSNTIANMYSDEATFG YPRDCDCTDFCQECSVEFTHDVKCTDDQTRHVTTADLKSS GLPDPGDDDYEENNSVMFSLK
MPHECDCKSGCSKCRVLLVLDAEA EEGPKVVYSKEVVS VVRSEVLDELTDENSVKMELNVENTTDKVLTVRSNDVKIV YFK


DNGFDESNSRVIVLDSEAAEN SHTECHCQGYCESCSITCDLVQANTTEGPDTAYSGDUTVSUS PKQECKCDGFCDQCSSKFILKKRNDTDSVISVNGQDLQT D M
KDECVC C G GEPGQPDP
信 NSRDCTCEEFCPECSVEFTLDVRCNEDQTRHSSDTDLVS YVVENNSDEGNENTTLEFELKAKCTRRKNHKM HSGQUKWK YEECATGVADPTECGTRLVLQVTADGDVT VYSGDLTSE
$\square D V C Y K C G D V C E K C Y V H M F D E A V A$ K E GPCTVYS SDL

DKNNCTCENYCDDCALVLILNKTNKTSENDNVLGKDLII FRNECSCEGGCSLCTVSYNI D KTGPGEVYSGDLV


 | $V V K T P E D D E L T$ |
| :--- |
| $F R D Q C S G E G C D$ |
| CR |



YSRDCNCDEFCPDCSVEFS | $\square E D C E S G L V D P S E C T V$ |
| :---: |
| $F$ |
| $F$ |

|  |  |
| :---: | :---: |
|  |  |
| UniRef90-D8M326 UniRet90 E3GZZ2 |  |
| UniRef90-AORXU9 | DSSVK |
| UniRef90-Q2 | VVRPAEDNIPIVKLEKNQKVVIEAQAYM |
| UniRefefo-Gou4R6 | PLPSQEPWGTGQSDDRVHPDIVLTRLGPGQRLKLRATALK |
| UniRef90-E6N510 |  |
| UniRef90_C3N054 UniRef90 LOA8K7 | D DASIKPAYPDTPIVYLAPGQRI |
| UniRef90-C9ZKR1 | GV YPVSSEERGVWLLTLGRSQEINLRVLIRK |
| UniRe990-B0E | VNYRNDVDPIVITQL |
| UniRef90-G4VD46 | NPPDPVSSTILINKLALLGDELEARCVAVK |
| UniRef90-G3UX | M TWVPLGNQADVFPEGDDILI AQLRPGQ |
| UniRef90-G4RL48 | PVYPEMPIVKLAKGQS |
| UniRef90-U6KV52 | LPVPSPSDG\#PIVKLRRNQTISMSCLATK |
| UniRef90-B1L798 | YPANDK1 PI IKMRKGQK |
| UniRet90_C3Z3J6 | DVKPVHDD |
| UniRef90-GotTN9 | DDEEVYPVSSEERGLWL LTLGRSQELDLRIVIRK |
| UniRef90-A4HA | DDDAVFLVHPDILLTKLGPGQRIKLKAIAVK |
|  | GDSR |
| UniRef90_K4DX57 | dedrvip |
| A8MDY | 仿 |
| UniRet90-UP100035C3F6C |  |
| UniRe990-A2ERO3 | EGQREKFGNVA PLHADI PITKIRPG |
| UniRee90-A0А031LK31 | TPISDSiPivLLGKNQK |
| UniRef90-F4BXF3 | DPGV RPAFDK |
| UniRef90 X1AZO3 | Q |
| UniRef90 MOSE79 | NPRVCPVDVAAKAPSSTEQGVIVKLRRGQELKLKAVATK |
| UniRef90-XOUL1 | NKAVK |
| UniRef90-A9BKT2 | KYGVLKSFFKNVPVKPVFKDILI AKLNPGQKI ECECESLI |
| UniRef90-G7WKZ39 | DPGVK |
| UniRef90-Q0W1V3 | VPVDNNVPI ELKQGQKVVASGTARL |
| UniRef90-AAAO59EYL |  |
| UniRef90-C4V751 |  |
|  | DVVFALDN |
| UniRef90_V4JHY3 | GQRVHLVA YARL |
|  | K |
| UniRef90 C6LU00 | HGG\\|SSNYMGSLLGVIEAPSTPILKLAPGES |
| UniRef90-M1VCT4 | SDAQQQVEPVQVQRGI LLTKMLRGQR |
| A6U | FDI PI VK |
|  | GDDKFR PVVPLLIPIVKLKEHQALLLEAEAIM |
| UniRef90-F8AN60 | TG EVVFKHIPIVKLKEGQKLELECEALV |
| UniRei90-D9Q275 |  |
| UniRef90-U3AC08 | DPQV |
| UniRef90-J7G2H0 | K |
| Q9Y | E TPLIYVAPGQRIHVQAFARL |
| UniRef90 S7XP | QQH |
| UniRef90_V5I7S3 | DPRVSKHRDDESSEYGETDEILI IKLRKGQELKVR |
| UniRef90 UPIO002C3E526 | EGKKLFPVG |
| UniRef90_A5UN55 | DSKMK |
| UniRef90-H8ZES |  |
| UniRef90-13T911 | DHTVVPVDFSPDSDSAVNKGIIVVKLRRGQE |
| UniRef90-L2GL | PAEGQDHFS FRFKPNVLVCKMVPGNQVEMTFKADK |
| UniRef90-ToL9M2 |  |
| UniRef90_UP100037EA28E |  |
| UniRet90 UPIOOC | EN P CKLAKGQR FLEADARV |
| UniRef90-R31AN3 | $V \mathrm{C}$ |
| UniRef90-JgD4 | ERKMFNENIPIVKLQRRQKLC |
| UniReef90-L2GNQ3 | DVPGVHCSAALILRLAPGQKLDMICIA |
| UniRei90-W2TRI9 | IKEEQFANDPPRTVFDDI LVAKLRPGQQI EANCHAVK |
| UniRef90-R9T5Y4 |  |
| UniRet90-UP10003F11F83 |  |
| UniRef90-TOLRX | GNPDLVPADKDIPIVKLGPKQA |
| UniRef90-TGGGD1 | GKQStLYKEEDVGVVYSD L S |
| UniRef90-D7DRW7 | NV PLVKLAEGQKLEAECEALV |
| UniRef90-EOSQ92 | PIVILSPGQR S S ELLRARV |
| UniRet90_L019U7 | DENUP |
| UniRef90 | - PVI CKLGTRQN |
| UniRef90-B7) | N |
| UniRef90-TOL | GPKQAL |
| UniRef90-A8A8W5 | N |
|  | MTVPGGNQADVFPAEDND |
| UniRef90 - 13 EFC5 | ( What |
| UniRef90 Q6KZ | GQAML |
|  |  |
|  | PFSFIFLQA |
| ef90 A3MXZ5 | GQSVVVEAYAKL |
| UniRee90-Q9HJD9 | SH PDLIPVDGE P PIVKLGPKQAILITAE |

UniRef90_F8AIO5 UniRef90-D8M326
UniRef90-E3GZ2 UniRef90-A0RXU9 UniRef90_Q2FTAO UniRef90-GOU4R6 UniRef90-E6N510 UniRef90-C3N054 UniRef90-L0A8X7 UniRef90-C9ZKR1 1
UniRet90 BoEHR UniRef90-G4VD46 UniRef90-AOB9L4
UniRef90-G3UXX5 UniRef90 ${ }^{-G 4 R L 48}$ UniRef90-U6KV52 UniRef90-B1L798 UniRef90-C3Z3J6 UniRef90_W6KIA5 UniRef90-GOTTN9
UniRef90_A4HA24 UniRef90_D3E2J8 UniRef90-K4DX57 UniRef90-A8MDY7 UniRee90-UPIO0035C3F6C
UniRef90 G107F
UniRef90-A2ERO3
UniRef90-AоA031LK3
UniRef90-F4BXF3
UniRef90_X1AZ03
UniRef90-MOSE79
UniRef90 - XOULIT
UniRef90 UPI0003621DCB
UniRef90-A9BKT2
UniRef90-G7WKZ9 UniRef90 ${ }^{-}$A0A059EYD9
UniRef90-E4XNL9
UniRef90-C4V751
UniRef90-V4JHY3
UniRef90-1719×9
UniRef90_UPI000161C68B
UniRef90 C6LU00
UniRef90_M1VCT4
UniRef90_A6UW03
UniRef90-LOHKY5
UniRef90-F8AN60
UniRef90-D9Q275
UniRef90_U3AC08
UniRef90_JTG2H0
UniRef90_OYYB53
UniRef90_S7XPP5
UniRef90 M5ENPO
UniRef90-V517S3
UniRef90-UPIO002C3E526
UniRef90 A5UN55
UniRef90-KOIHB5
UniRef90
U8ZEB8
UniRef90-13T91
UniRef90_L2GLK3
UniRef90-TOL9M:
UniRef90-UPIO0037EA28E
UniRef90 UP100037C593A
UniRef90-B3TAN3
UniRef90_R4XXK9
UniRef90 L2GNQ3
UniRef90_UPIOOO35FOOD3
UniRef90-W2TR19
UniRef90 UPI0003F11F83
UniRef90-TOLRX7
UniRef90_TIGGD1
UniRet90 A4WNA4
UniRef90-D7DRW7
UniRef90-EOSQ92
UniRet90_LOI9U7
UniRef90-J3JFB7
UniRef90-C4V9」5
UniRef90-B7XJB4
UniRef90 TOLUK9
UniRet90-A8A8W5
UniRef90-MOMQ17
UniRef90 UPI000333E00B
UniRef90-I3EFC5
UniRef90-Q6KZP5
UniRef90 в3твС2
UniRef90 - V8NS85
UniRef90-A3MXZ5
UniRef90 Q9нJd9

GRGKDHAKWOP
GVGKEHAKWSP GLGKKHAKWRP GRGTEHAKWN
ERGMEHAKWSP G $\square$ GAVHAKWAP GRGRKHAKWQ
GYGKEHAKFDP GRGKEHGKWSP STAKTHAKFMP GTGKFHAKWNP GПGRDHAKFSP RTGKEHAKWQ

GRAREHAKWQ GDGKDHAKWSP GRGKDHSKWSP G $\mathrm{GRDHAK}^{\text {G }}$ GP GI GAVHTKWS SIAKTHAKFMP GПGKEHAKWVP GIGGVHAKWTP GRARDHAKWQ GYGDEHAKFDP GFGKEHAKWNP G $\square$ GSDHAKFQP GYGAEHSKFNP RVGKEHSKWQ GKAKEHVKWQ GMGKDH
GLGRTHTK
GYGRDHVKYSP GПGNNHAKFSP NRGTVHAKWQ GFTKEHAKYQP GTAQTHSKYSP GIGRDHAKFSP NVGRVHAKWSP GTGREHAKFQP GRGFEHGKWSP GMGRTHAKWS GLGRDHAKFSP DRGKDHAKWCP GLGHDHAKWSP GVGKNHAKWQP GTAKEHAKWQ GTGKTHAKWQP GIIGKVHAKWQP GRGRDHAKFQ GTGNDHAKFSP GRGKEHTKWSP GFAKEHAKWSP GFGKEHAKWNP GTGKFHAKWNP GYGKEHAKWMP GTGKDHAKWQP GTGREHAKWMP G $\square_{\text {GKDHAKWS }}$ GRGEQHAKWSP GTGSDHAKWSP GTAKRHAKWQ KTGNDHARFQP GRGTEHAKWN DRGREHAKHQ GIAKDNSKWQ KTGSEHARFQP GTGRDHAKFSP GTAKRHAKWQ

|  |
| :---: |

GRARDHAKWQ
UniRef90_WOK4Q5
UniRef90 L2GV78 UniRef90_L2GV78 UniRef90-D8J326 UniRef90-T1C8D2 UniRef90_M0CUMs UniRef90 E5SNI8 UniRef90_C7NMY7 UniRef90-S7PZS1 UniRef90_G2MJ5 UniRet90_Q98S79 UniRef90_S7W9P7 UniRef90 A0A015JM31 UniRef90-TOKX77 UniRef90-XOYNK UniRef90-C7DIN8 UniRef90 M9SFU1 UniRef90-SOAR36 UniRef90-D6PDG8 UniRef90 UPI00042B2D78 UniRef90_U6MRLO UniRef90-Q6Z5L9 UniRef90_B7XIP8 UniRef90 E2LFN6 UniRef90 UPI0003441C66 UniRef90_Q3LWA1 UniRef90 C6T9J6 UniRef90-F2HHE8 UniRef90-M4YM42 UniRef90_D1J901 UniRef90 V4Y0B1 UniRef90-B3T3X4 UniRef90-A2ATX2 UniRef90 U6LSJ7 UniRef90 EOXP30 UniRef90-R1G3G0 UniRef90_A0A059LD27 UniRef90 G5E3A3 UniRef90-A0A059F0M1 UniRef90_M7ZTZ3 UniRef90 M5VUS2 UniRef90 V6LPE8 UniRef90-X1JNJ2 UniRef90_L2GX97 UniRef90 W7U996 UniRef90 N1JJEE UniRef90-X8J9EE UniRef90_TOLNF0 UniRef90 R7WE45 UniRef90-Q3LWAO UniRef90_G0QDR1 UniRef90 K0SHX6 UniRef90 K0SHX UniRef90-S9VL27 UniRef90_D6GVN7 UniRef90- F9WJU9 UniRef90_A0A058Z879 UniRef90 H0A917 UniRef90 ${ }^{-}$K7MRR8 UniRef90-L7JZJ4 UniRef90_G0QHL7 UniRef90 V5LN77 UniRef90-E3T5Q3 UniRef90-HOXHU6 UniRef90_X6NG38 UniRef90-M5VY08 UniRef90-T1CKE9 UniRef90-TOZFF8 UniRef90 T1BYN6 UniRef90_B5A4G4 UniRef90-AODMR9
lupas 21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm

1
 $P$ T 1
$\mathrm{P} \square \mathrm{T} P \square \mathrm{~K}$
PTLSTDSVRFDENSSVMFNEQLALRLGLVPLST FA I DKVVFYENTSAIFDEYIA HRI GLI PLIT PTFSIDELRVVENSSVMFDEQIGLRLGLVPLTT

EVSRMR

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

 FAlDKVTVYENTSSMFDEYIAHRI GLVPLITPH PKMAI DKVEFYESVTSLFFEVI AHRLGMI PVPT DYDQFT
 PKLAID KVEILESVNVLPDEVIAHRLAMIPIPTHDEGMMH PTDATDLVTVFENTSVLHDEYTVHRLGLLPIVDSNVENFV


PTMAVEKVLVYNNTS VQDE LLAHRLGLIPTHA DPR LFE



PTFSVDHLRVVENSSVMFDEMI GLLRLGVPLTT
TV WETNGPLPDEMI A QRLAMVPI PTNHEEYHF

 TVA ETVVYIDENNSAI WDEMLA QRLGLIPL A

PTVAVEVVYNGM PSIAAEKILVYKNSGDVPEEILANRIGLI PV


T L A F D K A Q F $\quad$ IUQ Y D S E I

PT TA TDLVE LESNTTVLPDEFLAHRDGMVPLD
$P K L A \| S K V N V Y S S L T S L F D E V I A S R L G M V P L P T D \quad L K M N$
T LAAADTDMDFENTSNFNDEFDAHRTGLIPLDSNTGYEAC PTMAVQQLRVNQNQSGLFDEMLANRVGQI PLT PTMALEYVYMWNNTGLI HDEVLSHRMGLI PLN VDPRLFD PTMALEYVYMWNNTGLI HDEVLSHRMGLIPLN VDPRLFD
$T L A D D D V T \| Y K N T S S M F D E V L A A R L G L I P D K T$ PS MA I E DVVY HQNN VYWNE WFANRLGLI PI YA P $\square$ V Y $\square K$


 P A V A I S S K I I F F H K Y V V GLVV P E E V L A A H R L G L PTLAVKEL QVTKNGSGLFDEVLANRLGQVPFT

I A P T DV T V HK N T S V Y P C E L L A H RI G M V P I I S D






| lupas_14 lupas 28 <br> jnet <br> sol25 <br> sol <br> jhmm |
| :---: |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

50 VG TVT 60
RKEECTPDDFAVGDTVTLALDV EGPGTAYSGDLVSS RKEECTCNVSCPECSVTFSLLNA VSNEGMTVNASHLVS D
 PEDYEDGEDVTLALDV PSKGYT DSDEVLFTLLDAS PEGEFEDGDEVTLALDVEGPSREPGTDYSKDLVSS FARECQ QCSDHCSECAVQLTLEKQCRDE
 YENRAKND PNDIINLDINNDYNKGPATAYSGDIESS Y DEKFTDENTIVLSLNVKCTRNPNAHVYARDLKFE YSAECQCDNYCNECSII FYLDVNNNTNKTKLITARNI ETD PFKDCNCSGACKECSVELNLHVKCTEEDTKDVTSKDLVSH
 FQDKCECGEGCPHCTI MYSIN KVGPGTVYSGDLV
 KFLDIDENDQPNEKNTIVFKL ARDQCLCSDHCGRCSVKFNLEATAADVDSQTVTHEDDV Y MSENDVPNERNTVVYKLHVSCKKGSPRTVKSGDLEWL CTCTSYCPYCSLTLLLNVSCPDAVTMDITSNHLEVQ YRN QGDEEGTEIDTLQFRLQVRCTRNPHAAKDSS
FQKMYCLKDQT NSVVVILKNSNFCNSTKDDFCKDFSYR YPENAGDDKNEKNTIVFKLHVRCQVGQPRTVKSDKLKWL
 FQDQCE

LK DYKEEDQITLTLKASPEK
PLDDFEVGDTVTLALDVS
CPLDDFEVGDTUTAPATATSGDIETS
EASCPTCKDGCMTCNMIYTCTAYGSKEGSTTVTAGDMDF YRN SEDQEGTE $\square D T 1$ QLQLKVKCTRNPPKELY YREPSQQDLNEENSLKFKLHVKCPHQNSMPVYSRDLTWD
 KS $\square Y$ EASDDDDFTDVEFVLDVRCASDDTQTVTSD
 DFRDCDCDSHCSRCSVELSLDVSVGRTRP

##  DCDACDGDGSCEYCSVEFHLAARADSGQTLEVTAMDLRST NWEKNPKNKFCKNNSSCFTKDYRCNTFRNR VTPDGYSYY DPEGFDEDDTAVLALDREGETR <br> HYGLDTDDDGTDRNTVVFRLNVSCGRD <br> HYGLDTDDDGTDRNTIVFRLNVSCGRD <br> Y $\square D E Q N P G N F T P L R V L V F D G E A E G A K D A T T L V H S S A D T W V$ <br> NDKV DCGGCDKCQVKASLKVK DREGWVYADE: K

LA GDCDCGGGCDKCQITGEMKVRCPSDRHSQVFTDSLKUD

YLE NAGDDKNEKNT VVKLHVRCQVGQPR

## 

 LSKDCDCDEFCPECSAACMMLDVQCNEDQSCHITSGGDPVSN FSDSCDGDGQCEFCSVEFHLRGKCHSDQTPDFTDKDLLSS
 GPCTVVYAKDVV SECTCNGAGCPSCQVMYS F T KRDS T T




[^0]| UniRef90 W0K4Q5 | $\text { AHGRDHAKHQ }{ }^{130}$ |
| :---: | :---: |
| UniRef90-L2GV78 | GVAKEHAKFC |
| UniRef90_A8PVP1 | GI GKDHAKFSP |
| UniRef90-D8J326 | DVGREHAKHQ |
| UniRef90-T1C8D2 | G DATRHAKFQP |
| UniRef90-M0CUM9 | DRGRDHAKHQ |
| UniRef90-E5SNI8 | G $\square$ GKEHAK WNP |
| UniRef90_C7NMY7 | DKGREHAKHQ |
| UniRef90_S7PZS1 |  |
| UniRef90-G2MJ55 | ERGSDHVK Q S |
| UniRef90-Q98S79 | NS GLLNHAK F S P |
| UniRef90-H0H2H2 | G $\square$ G G D HAKFS P |
| UniRef90-S7W9P7 | D NAKKHAKW |
| UniRef90-A0A015JM31 | GVAKEHAKWSP |
| UniRef90-T0KX77 | NIGKVVHSKWS P |
| UniRef90-X0YNK1 | GFAKNHAKWQ |
| UniRef90-C7DIN8 | GS A L K H AK F Q P |
| UniRef90-M9SFU1 | GTAKKHVKWQ |
| UniRef90-S0AR36 | GRGKEHAKWQ |
| UniRef90-D6PDG8 | GRGRQHSKWS P |
| UniRef90_UPI00042B2D78 | GMGKTHAK WS P |
| UniRef90_U6MRL0 |  |
| UniRef90_Q6Z5L9 |  |
| UniRef90-B7XIP8 | G\IGK T HVIK WS P |
| UniRef90_E2LFN6 | GLAKEHAKWS P |
| UniRef90-UPI0003441C66 | GKDHAKFS P |
| UniRef90-Q3LWA1 | GYSTQHSKYS P |
| UniRef90-C6T9J6 |  |
| UniRef90-F2HHE8 | GNGEAHAKFS |
| UniRef90-M4YM42 | GTARKHVKWQ |
| UniRef90_D1J901 | GRGEEHAKWQP |
| UniRef90-V4Y0B1 | ESGKGHAKQQ |
| UniRef90_B3T3X4 | GVGSEHAK WS P |
| UniRef90_A2ATX2 |  |
| UniRef90-U6LSJ7 |  |
| UniRef90-E0XP30 |  |
| UniRef90-R1G3G0 | G N G K H A K F I P |
| UniRef90-A0A059LD27 |  |
| UniRef90_G5E3A3 |  |
| UniRef90_A0A059F0M1 | N $\square$ G K D H A K Y S P |
| UniRef90-M7ZTZ3 |  |
| UniRef90-M5VUS2 |  |
| UniRef90-V6LPE8 | A P G R V H A K Y S P |
| UniRef90-X1JNJ2 | GRAKDHAKFQ |
| UniRef90-L2GX97 | GTAKEHAKYS |
| UniRef90-W7U996 |  |
| UniRef90-N1JEE0 | G $\square$ G S D H A K F C P |
| UniRef90-X8J9E5 |  |
| UniRef90-TOLNF0 | GRAREHARFQ |
| UniRef90-R7WE45 | G $\square$ GKDHAK WS P |
| UniRef90_Q3LWA0 | GKGSDHTKWC |
| UniRef90-G0QDR1 | GYGTEHAKHQ |
| UniRef90-K0SHX6 |  |
| UniRef90-K0SHX6 |  |
| UniRef90-S9VL27 |  |
| UniRef90-D6GVN7 | GNGAIHTKFTP |
| UniRef90-Q74M82 | GQGKVHSKW $\mathrm{C}^{\text {P }}$ |
| UniRef90-F9WJU9 |  |
| UniRef90-A0A058Z879 |  |
| UniRef90-H0A917 | GTGRDHAKHQ |
| UniRef90-K7MRR8 |  |
| UniRef90_L7JZJ4 | GTAKEHAKYS |
| UniRef90-G0QHL7 | GK GKDHAKHQ |
| UniRef90-V5LN77 | GTGRKHARF |
| UniRef90-E3T5Q3 | G $\square$ E K E D G Y S P |
| UniRef90-H0XHU6 |  |
| UniRef90-X6NG38 |  |
| UniRef90-M5VY08 |  |
| UniRef90-T1CKE9 |  |
| UniRef90-T0ZFF8 | GAGRDHAKWQ |
| UniRef90-T1BYN6 | GTAREHAKWQ |
| UniRef90-B5A4G4 | S $\square$ GLLVH S K Y S P |
| UniRef90-A0DMR9 | GFGKMH |
| UniRef90_L8G5G4 | $\mathrm{G} \square \mathrm{R}$ HELA Q WS |
| lupas_21 |  |
| lupas_14 |  |
| lupas_28 |  |
| jnet |  |
| conf | 25676777889 |
| sol25 | $\text { B } \quad B$ |
| sol5 | B |


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

