## QUERY

## UniRef90_HOZ9R7

 UniRef90-UPI000441F63F UniRef90-A2BGQ1 UniRef90_I3JW88 UniRef90-F3KH92UniRef90_U5EJW5 UniRef90_B0X1Y0 UniRef90_UPIO003340159 UniRef90_UPI000365BC2D UniRef90-D3TTX0 UniRef90-V4T527 UniRef90-S6HPS7 UniRef90-K1P8X7 UniRef90_B4M4D4 UniRef90_A4SJ4 UniRef90-S6GI61 UniRef90-A4Y040 UniRef90-B3P134 UniRef90-K4KLF7 UniRef90-Q1LK80 UniRef90_A9M656 UniRef90-H9JUX7
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UniRef90-UPIO003B6AB55
UniRef90_UPI0002DDBF51 UniRef90-K6E865
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L N C IV A V $\quad$ S Q N M G $R \quad \mathrm{~V} L \mathrm{~L} |$\begin{tabular}{llll|l|l|lllll}
$N$ \& $C$ \& $V$ \& $A$ \& $V$ \& $C$ \& $P$ \& $D$ \& $M$ \& $G$ <br>
$N$ \& $A$ \& $V$ \& $A$ \& $V$ \& $C$ \& $P$ \& $D$ \& $R$ \& $G$

 $M K L S L I V A M A B Q R Q I$ 

\& $K$ \& $L$ \& $N$ \& $L$ \& $A$ \& $A$ \& $A$ <br>
$M$ \& $C$ \& $E$ \& $N$ \& $R$ \& $G$ <br>
$M$ \& $K$ \& $L$ \& $S$ \& $L$ \& $A$ \& $A$ \& $V$ <br>
$C$ \& $Q$ \& $N$ \& $G$ \& $G$ \& <br>
V \& I \& $L$ \& $N$ \& $C$ \& $V$ \& $A$ \& $V$ <br>
$S$ \& $Q$ \& $N$ \& $M$ \& $G$
\end{tabular} VR $R P Y Q V V V A A T R N M G$ M K LA I I V A Q S T NR V I

 $M K \square S M I A A$ A A H D R VI $M L T F N L$
 $M \square R \stackrel{N}{F} \quad \mathrm{~L} \| \mathrm{V} A \mathrm{~V}$ G E N F G I
 M T L L T L I V A R A R N G V I
 A MCRNRGI
 $R T Y Q V \vee V A A T K E M G I$ $M K$ L S I $V$ A Q A Q N R V I I L I WA M D E N R V I
MKKLSLI A A L A E N R V I


 $\mathfrak{L}$ $M T R D R G l$
$R S Y Q V \vee V A A T P D M G 1$ M K K $\quad$ M S L K A A A C MP K L S LIV VA \A H D G V I MRIIAMVWAMSENRVI
$L A B L A A A D A A A N G A B$ I $\begin{aligned} & \text { L M WA M D E N R V I }\end{aligned}$ $V A B M A B A B R N R D$
$\left\lvert\, \begin{array}{llllllllll} & C & L & V & V & A & C & K & H & M \\ G\end{array}\right.$ $V A M V A A M S R N R$ I $\begin{array}{lll}M & T & \text { T } \\ M & \text { T } & \text { L }\end{array}$ $M R \left\lvert\, \begin{array}{lll}A & M & A \\ A & A & Q \\ A & L & N\end{array}\right.$ I S L V VA R GRN GV I M T K I

 $M \mathrm{~F}$ M A I A A M A R N R V I


 $\begin{array}{lllllllll}A & K & V & A & V & A & A & R & A \\ A & Q & N & G & C \\ T & S & A & L & A & A & I & A & R \\ N & G & A\end{array}$ $A \mid V A R R S S N G V$ |  | $S$ | $H$ | $V$ | $A$ | $M$ | $D$ | $E$ | $N$ | $R$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $V$ | $V$ |  |  |  |  |  |  |  |  |
| $S$ | $I$ | $V$ | $A$ | $A$ | $A$ | $E$ | $N$ | $G$ | $V$ | RELTLIVAATNKMG A S $\left\lvert\, \begin{array}{llllllllll}L & T & L & I & V & A & Y & S & T & N \\ \text { I } & A \\ S & L & I & A & A & V & A & R & N & G\end{array}\right.$ $\begin{array}{llllllll}S & L & A & A & V & A & R & N \\ L & A \\ L & V & V & A & R & A & E & N \\ G & V\end{array}$ M T $\square$ V S LI VA A T R N QV I

 \begin{tabular}{|llllllllll}
$I$ \& $S$ \& $F$ \& $V$ \& $A$ \& $M$ \& $D$ \& $E$ \& $N$ \& $R$ <br>
$V$ \& $T$ <br>
$V$ \& $L$ \& $A$ \& $A$ \& $K$ \& $C$ \& $N$ \& $G$ \& $G$ \& $G$

 T I V VA VS S N G I I $\square \mathrm{I}$ L L V A M D K N R L I MTIT LI WA Q GRE GI I RKY Q V V VAA TREMGI 

$M I L$ \& $L$ \& $V$ \& $A$ \& $A$ \& $A$ \& $E$ \& $N$ \& $N$ \& $V$ \& $I$ <br>
$N$ \& $L$ \& $M$ \& $V$ \& $A$ \& $A$ \& $G$ \& $E$ \& $N$ \& $N$ \& $E$
\end{tabular}

 M R K

| $L$ | $l$ | $V$ | $V$ | $A$ | $T$ | $D$ | $S$ | $N$ | $N$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $L$ | $G$ |  |  |  |  |  |  |  |  |
| $I$ | $L$ | $I$ | $A$ | $A$ | $A$ | $C$ | $R$ | $D$ | $M$ | I S L I V A M D K H R L I

PRIVHLI FARAAN GVI


RNDYK
RNEYK

RNELK QRMTS | A |
| :--- | P I $\begin{array}{lllllllllll}R & N & E & L & K & H & F & Q & K & M & M\end{array}$

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


 $G L D N Q M P W H$ $\begin{array}{llllll}G & L & K & G & E & L\end{array} P W R$


 | $L$ | $P$ | $N$ | $D$ | $L$ | $Q$ | $Y$ | $F$ | $K$ | $S$ | $V$ | $T$ | $M$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $L$ | $G$ |  |  |  |  |  |  |  |  |  |  |  |
| $L$ | $A$ | $D$ | $L$ | $K$ | $H$ | $F$ | $K$ | $A$ | $L$ | $T$ | $L$ | $G$ |
| $I$ | $K$ | $S$ | $E$ | $L$ | $K$ | $Y$ | $F$ | $S$ | $R$ | $I$ | $T$ | $K$ | GYKGDLPWR $G R D N B L P D W H$ GQEN DMP WR $\begin{array}{llllll}G & I & N & G & T & P \\ G & R & E & G & D & L \\ P & W R\end{array}$ LWR $G R N N G L$

$G R A N B$
$G$ GK D N QLL $\begin{array}{llllll}G & K & D & G & K & L \\ G & \text { W } & \text { R } \\ G & I & N & N & N & L \\ P & W & H\end{array}$ GK D N KLLP WH $\begin{array}{llllll}G & V & D & N & S & M \\ G & \text { K } & \text { W H } \\ \text { G A M P } & \text { WH }\end{array}$ $G R N N$
$G$
$G$
$G$ GVD N K L P WH $\begin{array}{lllll}G & L & D & K & M P \\ G & W H \\ G & R & N & R & M P \\ G & W & \\ G & K & D & L & P \\ W\end{array}$ $\begin{array}{lllll}G & Y & K & N & D \\ G & P & \text { P } & \text { W K } \\ \text { G } & \text { P } & \text { WR }\end{array}$ $\begin{array}{llll}G & K & N & G \\ G & V & N & N \\ G & L & P & \text { P } \\ \text { G } & \text { W } & L \\ L\end{array}$ $\begin{array}{lllllll}G & R & N & N & K & P & W \\ G & R & D & N & R & L & W \\ G & W & D & N & K & P & W H\end{array}$ $G R D N B L L P W H$
$G K N N X M P$ $\begin{array}{llllll}G & V & D & K & L & P \\ G & W & Y & \\ G & D & \end{array}$ $\begin{array}{ll} & Y \\ H^{\prime} & \\ R^{L} & L \\ L\end{array}$ $\begin{array}{lllllll}G & R & D & G & D & L & P \\ G & W & R \\ G & A & N & Q & L & P & W \\ G & R & N & T & M & P & W\end{array}$ $\begin{array}{llll}G & R & D & N \\ G & R & L & P \\ G & D & N & D \\ G & P & W & H \\ G & D & N & Q \\ L & L & W & H\end{array}$
 GRDGDLPWR
GRNNDLPWH GKDGTLPW $\left.\begin{array}{lllllll}G & K & E & G & K & L & P \\ G & W & R \\ G & D & N & K & L & L & W\end{array}\right]$


$$
\begin{aligned}
& \text { S } \\
& K \\
& K \\
& R \\
& H \\
& H \\
& K
\end{aligned}
$$


GLDNTLPWK
GRHKKLC
GKNNE
GKNNELPWK
GVEGKLPWH
GKDNRLPWH
GRDNDMPWK
WT

GRDNALPWK
GRNQQLLWR
GRDNQLPWR
$G R D N Q L P W R$
$G L E N Q M P W H$
GVDGQMPWH
GKNNQLPWH
GKDNRMPW
GRDGDMPW
GKENQLPWH
GKDNDMPWK

GKDNDMPWK
GKDGALPWK
GKDNGLIWH
GKDNGLWH
GKDNDLIWH
GRDND

CLLCKERFLLDTTSA

 $-\begin{array}{lllllllll}P & A & D & L & K & H & F & K & A \\ K & L & E & L & G \\ P & G & D \\ P & E & D & Y & F & S & R & I & K \\ L & R & R \\ A & F & F & K & R & C & T & L & G \\ Q & H & F & K & R & T & T & M & G\end{array}$ | $L$ | $S$ | $D$ | $L$ |
| :--- | :--- | :--- | :--- |
| $L$ | $K$ | $R$ | $F$ |
| $L$ | $K$ | $L$ |  |
| $L$ | $L$ | $L$ |  |
| $L$ | $L$ | $L$ |  | L $\begin{array}{lllllllllll} & M & M & M & F & T & T & M & T & S \\ P & T & D & L & K & R & F & K & A & Q & I \\ L\end{array}$

| $L$ | $P$ | $A$ | $D$ | $L$ | $K$ | $F$ | $F$ | $K$ | $A$ | $N$ | $T$ | $T$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $l$ | $G$ |  |  |  |  |  |  |  |  |  |  |  |
| $L$ | $S$ | $A$ | $D$ | $L$ | $K$ | $H$ | $F$ | $K$ | $A$ | $l$ | $T$ | $T$ |
| $L$ | $G$ |  |  |  |  |  |  |  |  |  |  |  |
| $L$ | $E$ | $D$ | $L$ | $K$ | $F$ | $F$ | $K$ | $R$ | $V$ | $T$ | $M$ | $G$ |

L | $P$ | $E$ | $D$ | $L$ | $K$ | $F$ | $F$ | $K$ | $R$ | $V$ | $T$ | $M$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $P$ | $T$ | $D$ | $L$ | $K$ | $F$ | $F$ | $F$ | $K$ | $E$ | $I$ | $T$ |
|  | $T$ | $T$ |  |  |  |  |  |  |  |  |  |

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






|  |  |
| :---: | :---: |
| QUERY |  |
| UniRef90_H0Z9R7 | E Y P GVPPADI Q E E N GI Q Y K F EVYEK T |
| UniRef90_UPI000441F63F | N Y T GI P T DI Q E E N GI Q Y K F EV |
| UniRef90-A2BGQ1 | E F P GVPVGLQEDNGVQYVFEV |
| UniRef90-I3JW88 | EFP DVP QELQEENG\\|QYRFKVY |
| UniRef90-F3KH92 | REDYKAEGP NPYDYSFLVLER R |
| UniRef90-U5EJW5 | NDNGVENGVQEENGlQY EFKII Y K K |
| UniRef90_B0X1Y0 | NDADVPEELQEENG\\|QY Q Y K $\square Y E K$ |
| UniRef90_UPI00033 |  |
| UniRef90_UPI000365BC2D | REKKLATGP NS Y D Y S F VVLD R |
| UniRef90-D3TTX0 | EFPGVVPVETQEENG\RYEFKV |
| UniRef90_V4T527 | HRYS SQPLVENNIQ F S FVTY VR |
| UniRef90_S6HPS7 | RQDCV ADQTNPYSYSFVTYKK |
| UniRef90-K1P8X7 |  |
| UniRef90_B4M4D4 | LDEEDTPHGVQEENGIKYEYK\LEK |
| UniRef90-A4SJJ4 | REP HEPDEKNPHPYCFETWQRR |
| UniRef90-W8BUN1 | P D P E T P VGVQEE GEVK Y E Y K I Le K R |
| UniRef90_S6GI61 | RQDYAS DDSNPYAYSFVVYDK |
| UniRef90-A4Y040 | S VEHPASAETPF YAFEVWERR |
| UniRef90-B3P134 | P D S DI P LGVQEENGDHFEYKVLEK |
| UniRef90-K4KLF7 | DERHSAEG SNPYDYSFVVLSRT |
| UniRef90_Q1LK80 | RELH H HSETNGFDYAFVTYER |
| UniRef90-A9M656 | SEDVPA GDKDS YP T R Y MLY ERR |
| UniRef90-H9JUX7 | EEEVP GEKQSEGD\NYYYRIV K R |
| UniRef90-A6UB22 | EEDLQS GEKDS HAMHFVTWRRR |
| UniRef90_A0A023FG61 | EE GVPQEPQQENGDTYRFRVYER |
| UniRef90_C6J4X9 | EEQGVQ D EKNPYDYRFLTYERR |
| UniRef90-W6K9D2 | RERHSAGQGA DHDYSFVVLER |
| UniRef90-UPI0002F86E87 | KEQGLL K L EKNPYEYEFVIVDR |
| UniRef90_G7J765 | PWYS S F T K VE N N $\square$ R Y S F T T Y VR |
| UniRef90-UPI00036A6808 | RQDFA ADGPNPYDYSFIVLKR |
| UniRef90-I3E9M4 | QEKG $\square$ K EKNPYDFEFLI FNR |
| UniRef90_S6HNZ2 | EELHEAAD DKPAFSFEVWER |
| UniRef90_UPI00046E5CFB |  |
| UniRef90_UPI000475615C | EE V V HKDEKNQFDYTFVHYQR |
| UniRef90_L1M4I2 | SQQGPV E E GKPAYHFEVWE |
| UniRef90-UPI000373E398 | RADFGAEGP NPYDYS $\square$ R V |
| UniRef90_17A4Z4 | CQAHPAEGE APAYSFETWQRR |
| UniRef90_S0FM80 | SQPG P R EKNPYAYKFLVYERN |
| UniRef90_B3RI81 | D P DVVS Q EVQE E N GLLKY T F HVYQR |
| UniRef90-A0A022R1Q8 | PWYS S SV IE E N GIMKYCFATY VRR |
| UniRef90_UPI0003F080F7 | D P DVPSEIUQEEK GI Q F K Y EVY EK |
| UniRef90-E4QL53 | EERHV SEQGLP FRYLTYRRN |
| UniRef90-A4B9F5 | REDF QADGPNPYDYSFCVFDR |
| UniRef90_C1DK10 | REEHPA TAQAPGYAFELWER |
| UniRef90-W7KQH7 | REKGTR DERNPYDFEFLI Y K R |
| UniRef90_U2I0C5 | QEK HNKDEKHVYDYTFEVWQR |
| UniRef90-S2KLE1 | RVH GQPQEGQ P PAYAFVEYMRR |
| UniRef90-H3AFF7 |  |
| UniRef90-A0A021XAY6 | DEP 1 PQ GEKDS HAMRFVTWRR |
| UniRef90-UPI00037F4FI | RVAGEESDAQGKVRPEYAFVAYERR |
| UniRef90-F1VYC7 | REPHQS $\square$ S S C GFDFAFVTY QR |
| UniRef90-A1V6H9 | RDAHRA AQP NDFTYAFVVYRRR |
| UniRef90-M5PFL6 |  |
| UniRef90_UPI00034A1418 | RRPAQSAPAE GPGYAFVTYQRR |
| UniRef90-UPI0002558EEA | RDDFKAEGP NPYDYSFIVMDR |
| UniRef90-B4W5U5 | SES HPAGEKDDHAFT F RVLERRR |
| UniRef90_UPI00035C6A3E | R VPHPPDDRHAVAFDFVEYER |
| UniRef90-H2MP65 | EFPDVPSEVQEENGIKKKCQVFKR |
| UniRef90-K4B | PWYS S F PVIEENKI R Y S F T T Y VR |
| UniRef90-UPI00036C52DA | ETAGLVDDENPLAHTFYTYTRR |
| UniRef90-K2JGX2 | $R T N P V L D E A S G L S Y C F V T L Q R$ |
| UniRef90_R7ZNX6 | RKK V D HRQTNDQYSMEFVTLK R |
| UniRef90_G8PTY6 | RTPFDRGEKDSADS SLEI YRRR |
| UniRef90_I2JG24 | RE C Y PVTSAE GLGYSFVTLE R |
| UniRef90-A0A031GI22 | REAHVS EKS GLPYAFVTLER |
| UniRef90_Q05GI2 | RQDFEPSGG NPYPFSFVVYQRT |
| UniRef90-UPI00035D5EE3 | RECYPASD K N E Y Y ALVQY D R |
| UniRef90-UPI000472A6B6 | QVEGEPA A GQ PPYRFLCYQRR |
| UniRef90-S5YZE1 |  |
| UniRef90-M3KH97 | SEDVPA GEKDS HPTRY Q Y Y R R |
| UniRef90-K1 X891 | K E ETVPVGVQQEENGT R Y VF EMWERT |
| UniRef90_UPI00046858EA | RDAQPA ENGYDYDFVTYER |
| UniRef90-C7RLL7 | $R \mathrm{R} \mathrm{V}$ GRSRAAGSDQAPAFDFVVYERR |
| UniRef90_V5UK80 | RE THHSPAPNDFDYAFVTYER |
| UniRef90_UPI0003B6AB55 | AQAHPAQNTE P PGYTFEVWQR |
| UniRef90_UPI0002DDBF51 |  |
| UniRef90-K6E865 | SEKG\ K K E K N P Y D Y D FKI Y ER |
| UniRef90-Q4SM73 | GFPDVPD G $\square$ Q E E N G $\square \mathrm{K}$ Y K C Q V Y K R |
| UniRef90_B9JGK8 | ELAVPEGEKD NYPTRFVRYFRR |
| UniRef90_UPI00035C84A0 | VTQGVT DEKNPYTYA Y HVY GR |
| UniRef90_UPI0003608DD2 | TVSGI R DEKNDYDYRFEEYKR |
| UniRef90-W5ARP | PWYSSSPVVENNDR HSFATFVR |
| UniRef90-R5VIL9 | RTEVV ADEKNEFACSFLLTYER |
| UniRef90_F6GJI6 | S VVVHPQDEDHKYAFSFITYER |
| UniRef90_J2VDP0 | SEDF PAGEKDNYPTRYVVYERR |
| UniRef90_A6SX85 | REQH HSEANGYDYAYVTYER |
| UniRef90-F1QRU7 |  |
| UniRef90_UPI00047E6F22 | \EKGT K D EKNPYDFEFVVYEK |
| UniRef90_H1G137 | RE A H D A D K N P Y P Y T F L T Le R R |
| UniRef90-C5CTW3 | REAHVSA KEGLNYSFVTYER |
| UniRef90-UPI000374DBD6 |  |




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UniRef90-K1L1V8
UniRef90-F8UVT7
UniRef90-UPI000379071F
UniRef90-H8GNC9
UniRef90-A8FEB8
UniRef90-UPIO0036E4D42
UniRef90_UP10003B74EF9
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UniRef90-UPIO003678645
UniRef90-UPIOOO3704DOB
UniRef90_N9U642
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UniRef90 $\mathrm{M} 7 \mathrm{NCZ5}$
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| E |
| Y |}

WEAPGTEE
90 A 100
YDVPEGCLVVNSLEAALEALLKK EAPAGTELVS SDEEAYALCDK YQPDG VLVIDSDDAAI DHARTDAEA YHAHGASR AASUAEALRDA RVFAGCET AASAEALRTA $\square E \square C A A_{A}^{G}$
$\qquad$
110
ATK||Y|VIGGAQ|V
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 EEEEVFVIGGGELL
 YAKEGC TMASLEDAI EMAKE YSAEGIELI $V$
YRPD
 YKAEGCEVV RGVEEALELTK
 FEVPEGHHVVHSLDEAIRLLCISKNLDO



 F KA D G C I L YNVPDGVIVVNSLEDALDAARKDNQN

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Y DAEGCTMFYSVEDFVDYCRKQ






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 WRQDGVEAVA SLPEAL YDAGEHIIVVNSIEEAIK EH DGII WKDNLQSAVDFVRENH YKVPEGHEVVHSLEEAI A GKKEK YKCEGAEVVH SKDEAITLL EPPAAQEVNAESLEQAIEYLRSGPAAA YQAKN VVVMHSLEEVLAFSRE TVVDEREAFYI MEADGG ITCNTLFEAMDIAREHAADEGADEICVIGAAL LIRADGAE VAHSLEDALTLARDRGRCMG YEAPGAELVFSSLEGCLKHYENET FEAPGABELVFSSVEDAKRMAE YHTPGCTVVHTLKEVLERDE YVLEDAVVVNTPDEAV
YDAAGAVVVGSLAAAGQ
UniRef90_v9в3J1


| UniRef90 UPI00036962B3 | $\text { E } \quad 170 \quad \text { GWR Y H F\|V\|T Y QRR }$ |
| :---: | :---: |
| UniRef90 ${ }^{-}$V6SSC9 |  |
| UniRef90-UPI00037B3A63 | EEVRA ADERNEFDCRFQVLER |
| UniRef90-A0A024KDL0 | EPEVPLT GKDTAS FRVKVYERR |
| UniRef90 ${ }^{-}$A0A011REG8 | RRAGRI GS P LAAMDPDFDFVVYERS |
| UniRef90 ${ }^{\text {UPIO }}$ | QSKHRSLPP NDFAYAFVI Y ERR |
| UniRef90-UPI0003B72C02 |  |
| UniRef90-K2BA12 | EEKFSG DEKNKYAYRFLI YRR |
| UniRef90-M1F6Y1 |  |
| UniRef90_E3FN78 | QE HHPATGES GLPHAFLTYER |
| UniRef90-UPI0003790A43 | REE HGPDERNAYPYT FILLER |
| UniRef90-UPI00041837D7 | QE HHGPDDKNKYSYT FLTLEER |
| UniRef90_E6U2F4 | SEKG】 V D K K Y E H F QVFERT |
| UniRef90-K1L1V8 | NE HYEKDKNNQYSFDFVI Y K R N |
| UniRef90-F8UVT7 | ETEHA AD T K NQFPHRFCI Y D R |
| UniRef90-UPI000379071F | REDF EADEKS K LA Y S FVRYEK |
| UniRef90-H8GNC9 | REDV EDDAAAGFRYSFLRLDR |
| UniRef90-A8FEB8 | REKG HRDEKNPYNYEFVVYDK |
| UniRef90_UPI00036E4D42 | REDF KKDEKHPYAYSFVTYRR |
| UniRef90-UPI0003B74EF9 | EEDV $\quad$ PAGEKDNYPTRYVVYDRR |
| UniRef90-Q3SH97 | R A HVVGEKGDVV L F D FVVYERR |
| UniRef90_U6PP01 | EDESARSEVMVENGLEFSFHRY |
| UniRef90_UPI0003678645 | REE HQADEKNECDYT F 1 |
| UniRef90_UPI0003704D0B | EESRVRPPKDAKD D A F S FVDYRRR |
| UniRef90-N9U642 | QRDEVCHQADERNPYAYRFETLER |
| UniRef90_I3Z9Y2 | SEQF SKDDKNEFNFEFVTYKR |
| UniRef90_Q2Y7L3 | REEHV D D S GLEYHFVTLDR |
| UniRef90-A0A044RAS1 | ESE EVVHEENNIKYKYEVY |
| UniRef90-E5ANT5 | RETHRAAPP NDFDYAFVEYER |
| UniRef90-U2CBV0 | RD F HPKDERHAYDFYFVTYNK |
| UniRef90-A0P6D1 | REKLV S K D L H F S FVD Y $\quad$ R |
| UniRef90 ${ }^{-}$W0DT84 | $R Q \quad H H P A D A R H P F A F D F V E Y H K R$ |
| UniRef90-R7LHD4 | SE AHEPDEKNALPYTFAFYQR |
| UniRef90- G8R1W9 | R THHPVDEKHKYSFDFDQYSK |
| UniRef90_Q15PF1 | SES NDPDEKNPHSYRFVTLAR |
| UniRef90-A8UEB2 | R T THDADEKHAHAFSFIT Y L C |
| UniRef90_UPI000365D874 | RQS QPA E NGLQYDFVTYER |
| UniRef90-UPI0003770B85 | RESHT ADDKNQFDHDFIVFERH |
| UniRef90_B1Y5E0 | RE THAADGSDA $\square$ GYERV HHR K |
| UniRef90_A6DH01 | RE_ RHKADSKNDYDYSFVTLEK |
| UniRef90_V4YP55 |  |
| UniRef90-Q0ABL0 | EQQPPSEET NDWPLTYQTLERR |
| UniRef90-R7DJF3 | RED HPADEKHSYPYSFVIYEK |
| UniRef90-S3HHU8 |  |
| UniRef90_C7PKU6 | NE RHEKDEKHAHALTTFQVWER |
| UniRef90_UPI000255B50C | EE FHDKDDRHEYAFTYRTYTR |
| UniRef90_J7LRG0 | $V A P$ A D G W L T A K N G T NYRFTTWR R T |
| UniRef90-H0HTC4 | V F DVP A GEKDS HATRYMVYERR |
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| UniRef90-W8B8D2 | P D P E T P S G $\square$ QEE H GVQYEFKI LQ K |
| UniRef90-M7NCZ5 | ES Q NRYHAKDEKHQHAFSFlTTY |
| UniRef90-U4PV66 | E I P A P A GEKDNYPVLLFTTYMRR |
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| UniRef90-H1H3S2 | E E F H D K A K H Q P P F F L T Y $\quad$ K S |
| UniRef90_D7UY41 | ETPGG H $\quad$ D EKNKYPHAFLVYER |
| UniRef90-UPI0004787BA2 | TEKG】 K D ENNPYEYEFKVYDR |
| UniRef90_B8IF21 |  |
| UniRef90-R7UK12 | S GNDFY NTTVED G G $\square$ Q Y Q F K L Y H R |
| UniRef90-TOMUE9 | EDK HEKDEKHAFDYSFQVYVR |
| UniRef90 ${ }^{-} \times 1{ }^{\text {² }}$ |  |
| UniRef90- ${ }^{\text {H1 YH84 }}$ | RED HQTDEKHQFAYSFITLER |
| UniRef90-H8M9W1 | E DCHEKDEQNPYNFCFQTYER |
| UniRef90-D2PSR9 | $R E P H$ D G F A F VTY VR S |
| UniRef90-W4EKY9 | QSEVNETD D GLK F T Y L V Y ER |
| UniRef90_UPI00037B5B3D | REAHQQAD GVVRYDFVTYRR |
| UniRef90_G9N9M2 | REEEVDE G GQEEA GIK Y E F Q M Wer S |
| UniRef90-P12833 | RS THPADDKNSYACEFDTLLSR |
| UniRef90-C6XMY9 | ETNHA ADEDNDHAFVMRKLVR |
| UniRef90-13CQD3 | RENHRS ETS GLDYAFVTYQRR |
| UniRef90_A0A059ED18 |  |
| UniRef90_F4C3Q8 | EEVEHHESDEKNPYDYS FY LYY K |
| UniRef90-A0A014MFN0 | REDHVSAQ GLPFSFVRYTR |
| UniRef90-D3TQQ1 | $P \mathrm{GPEV}$ P Q TVQVENCICFRYKVLEKR |
| UniRef90-UPI00038190B1 | RESHAP DANNEFPFDFVEYRR |
| UniRef90_R5YBR9 | REDF PADDRHAYAYSFVVYER |
| UniRef90-UPI0003475111 | RAQH HSEKA GLD Y A FVTLRR |
| UniRef90-UPI000368F748 | REEAVSAG G L R Y A FVDYQRR |
| UniRef90-A2SN57 | EHHRMRRQAEAPNTFTYSFAHYRR |
| UniRef90-A3XKR2 | ES YHPKDEKHDYAFTY LTY Y K R |
| UniRef90_B0UV15 | EQQR PADEKNPYACRFLILNR |
| UniRef90_G0J572 | KS $\quad \square \mathrm{HHKDENNPFDFAFVTYRR}$ |
| UniRef90_UPI00028811CF | S V P G VT T D E K N P Y R Y E F TVVWAR |
| UniRef90-M7SVA6 | K E ETVPE G $\square$ Q E E NGT RYEFQMWER |
| UniRef90-S0KMH6 | $R N Q G$ QRDEKNPYDYYFETYQRT |
| UniRef90_C9Y9Z4 | RERHVAA S G LP F SFVTY T R S |
| UniRef90-V4PTB1 | EEAF GKTENDDHDFTLRIYER |
| UniRef90-UPI0003C12EB6 | S LDVPA GEKDS HPTRHVVYERR |
| UniRef90_F2IIW2 | TETVFEQEVDEKHAVSFQVMKYVK |
| UniRef90-R7HRC0 |  |
| UniRef90-18UJW3 | EQQG\T D E K N V Y P H R F L H Y K K |
| UniRef90_UPI00040512DC | ESEHV ADERNPYDYRFITLAR |
|  |  |




## UniRef90 А9Кно9 <br> UniRef90_LOM8V6 <br> UniRef90-_J2IC37

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UniRef90
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UniRef90_A4SVT6


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130
140
150
160
FK EALLPKADKMILDTIINHSFEGDVYFPEWNDKEWKITS
 YRQTLNAPCORLYL YKQALKNDLVDKLDI


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

 GDTHFPD
 EI QEDFEGDTFFPEYDHDDWQ DVHQSFEADVFFPKIDLNTWKETT

## 


 YA QLAMPFAHRLLI
 YA AKALPRASRLYL
 YR QALALADRLRI
 YAQA ND ADRMCI

YAQALSHAR RMY YRAFLDR




Y
FK A Q K Lip
YQEFL Y KEVVNQP KKDC

YKLGLED
 YALCLDPSASRMH YRKLMALIPQADVLY YKMGMEV ANKNEL YKLGLESGLVSELVLL
FESVL PDADRLY

YR QALPLADVLHV
FALLLLDD DATVDRL
YEQFL PMADRMYL YEQFL P PLARRLYK YEEAAADPVADRLCL YSACL

PMATKLYV
$\begin{array}{ll}\text { YRQALR } & \text { YADQLGLL } \\ \text { YRLTME } & \text { VADVLIV }\end{array}$
Y Y ALTMEMP EAD EALLALL YKQAGEVMADKLYL YQHFLRF CHRLYL YQQAIS $\square$ ATH L SL



YAECL $\qquad$ $N$
YEEALEKNRVDEMF
YAEALDRDLVDTMVV
YA QALPDCDEFYL





| UniRef90 A9KH09 | $\square$ K HERDEKNPYPFQFLELR |
| :---: | :---: |
| UniRef90＿L0M8V6 | SE FHDADEQNSHSYCFEIL |
| UniRef90－J2IC37 | REEHPQS AENPLGY |
| UniRef90－UPI000366790 | REDVRD DSAAGFDYSFLKWVR |
| UniRef90－UPI0004722023 | S AEYPADDKNEFSYKFLDLEK |
| UniRef90－Q0AHA5 | ETGGSGL |
| UniRef90－11LQ11 | YSSFPLVEDNLRYSFTTYAR |
| UniRef90＿UPI00041F2F7E | REYF KADKNNDYDYSFVSYDR |
| UniRef90－UPI0004701C38 | TTPG $\square$ K K K K PYDYEFITYVR |
| UniRef90＿Q2HRC6 | PKPGEQERVFQERG】FYMFETY |
| UniRef90－L5N0S3 | ETKGL KDEKNPYD |
| UniRef90－UPI000225B308 | RTKGIR DEKNPYDYYF |
| UniRef90－Q1QJT9 | RCRNRAAAGDAA DYSYV |
| UniRef90＿UPI00046AD626 | REKYRWDD ${ }^{\text {d G L E Y H F V }}$ |
| UniRef90－N6YV91 | RE AHHADADHAFAFDF |
| UniRef90－A3TMG5 | REERDG FAWV |
| UniRef90－E3TFQ6 |  |
| UniRef90－F2BFR1 | REAHTTAD GVRYA |
| UniRef90＿A4ABY4 | RQE N |
| UniRef90－W3Y0L8 |  |
| UniRef90－Q07PL3 | R】RHAAAEGDSA DF |
| UniRef90－W4QEB7 | TEKGT VDEK |
| UniRef90＿UPI0003803662 | EE R R P AGEKDDYPTCYRVYER |
| UniRef90－UPI0000E0ED99 | RE QHQRDEKNPH |
| UniRef90－UPI00047D2EB9 | SE FHEADER |
| UniRef90－B3PTQ3 | T $\square$ A VP A GEK D S |
| UniRef90－B4RGA7 | R |
| UniRef90－A5GBA2 | RETV ENADPYSF |
| UniRef90＿W0TJJ6 | YV ADE |
| UniRef90－UPI000380 | S E EVPA GPSDTA A |
| UniRef90－H3EN70 | S SEEQEEKGVK |
| UniRef90－M4DMC9 | PMCENGVRFAFTTYVR |
| UniRef90－G8TL10 | QLDFT ADEKHAYAYSFQVWER |
| UniRef90－UPI0003653F3F | S TYHPKDDKHDYDFTYL |
| UniRef90－D5WAH3 | RE AHHSNAPNDFDYAFV |
| UniRef90－K2PF20 | VIPAGDRD NY |
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| UniRef90－Q6G2S9 | TQY IPEGDKDS |
| UniRef90－L5MT43 | KREGV VDEKNA |
| UniRef90－F2PG79 | SEHYV ADEKNAYAMDFTVLER |
| UniRef90－UPI000375E87A | RVSFTP DEKNRYNYSFLSYKK |
| UniRef90－U1S806 | NPY |
| UniRef90－R2SKA4 | T VDEKNL |
| UniRef90－A3UE72 | EAAEGDDAG F T L RVLDR |
| UniRef90＿L8Y8W6 | D V |
| UniRef90－Q26HU7 | PADDKHEYAFDFETWER |
| UniRef90－A0A023BXX8 |  |
| UniRef90－UPI0003B778 | A S DLWF |
| UniRef90－C7M6R2 | SERF EKDERHAYGF |
| UniRef90－W7YIS4 | ETEG口T DDKNPYS |
| UniRef90－A0A021VWE2 | RES HRADERNEFDFEYVEYVR |
| UniRef90－C1D4I6 | EEAGQR DSDGLRWRFV |
| UniRef90－UPI00035E245F | MQG EDDDYRYRFLQYER |
| UniRef90－A0LY20 | FHEKDEKHDHSFTYLTYER |
| UniRef90－W2TJF1 | EDESARSEPMTENGTE |
| UniRef90－W6LTT9 | EE QHPADAEHAW |
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| UniRef90－K2ERT9 | LESHTENP DFEFRRLER |
| UniRef90－D7WUQ7 | TAPE GYTFQYQIFER |
| UniRef90－B9JXQ3 | ERDS FA |
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| UniRef90＿UPI00046F881 | SKRGL KNEKNPYDYEFLVYQK |
| UniRef90－F0EXR6 | RERCVS EKGGTAFDLVHYRR |
| UniRef90＿UPI000363AB77 | VTNG NVDEKNRY |
| UniRef90－A0A021VN | VEP T T G W |
| UniRef90－U1KH62 | SEA A Y ADEKNLYSYKFVTLNK |
| UniRef90＿R6ADI6 | AEETEHHEPDEKNKLAYTFTNYRR |
| UniRef90－Q11US6 | HVVHAPDDKN |
| UniRef90－UPI0002F5DE65 | VEHYTADEKNAYD |
| UniRef90－W4PJS1 | HS $\square$ DEKHPCS |
| UniRef90－V7ZH39 | RE RHTADARHAFAFDYVDYRR |
| UniRef90－G2DYG0 | R VERSADERNAFAMTFI EWQR |
| UniRef90－G8UQ25 | RTDV PTDEKNPYPHSFLTYVR |
| UniRef90－D7L | WY S SFPlVENG\RYS F NTYVR |
| UniRef90－K6YRB3 | SEAHQAEPL NPYAYRF |
| UniRef90－UPI0003B6C12B | RERHF NEAGPWHYDFVEYQR |
| UniRef90－D018H5 | KTAFV ADEKNRYNMEFVVLER |
| UniRef90－UPI0002882C27 | S SEEQRADGYTFTYKI FEK |
| UniRef90－R513U7 | RSERMY DEKSGYYYSFLIFTR |
| UniRef90－UPI00047C2362 | E VEHGTDERHKYSFTYETWVR |
| UniRef90－U4K8N3 | K EHF SKDEKNAYNDEFVVLER |
| UniRef90－E1JF74 | EEVLRVHEADSKNAYNFTVKK |
| UniRef90－E2SEF6 | R EHRTGFDVVT |
| UniRef90－F8UVV0 | RTAHSKGPDDE HPFVFVD |
| UniRef90－R7JQ76 | SESFASGK EFPYPFAFEHYRR |
| UniRef90－UPI00046A09FE | GL |
| UniRef90－B8KEM2 | SETFTADEKNAYNMRFVVLEKN |
| UniRef90－UPI00037D7C58 | RTPGEPA ADGTHT |
| UniRef90－A9D3J2 | LSGPVRAEKDS H |
| UniRef90－E4WMG3 | LPEVAPSPRDEA T YRVKVYER |
| UniRef90－A4CPT6 | SH RHPADAQ |
| UniRef90 A4SVT6 |  |






| UniR | 170 |
| :---: | :---: |
| UniRef90-MOPBVG | RETVPAEDADGE |
| UniRef90-W9GIO2 | RV |
| UniRef90-D2U2B2 |  |
| UniRef90-UPIo0046323FA | K |
| UniRef90-E6VI | RDRHПAGPQD |
| UniRet90 UPloo047BC885 | S |
| UniRet90 R6Q517 | $\bigcirc$ |
| UniRef90-Q89G37 |  |
| UniRef90 ${ }^{-18 E C}$ | SLSSTNAD GLLEY |
| UniRef90-UPIO0035C5EFB | NTKG1 KDDKNSYY |
| UniRef90-T5A | SDETLDSLRNEENGTPYEF |
| UniRef90-054277 | VEKGI KDEKNPYDYYF |
| UniRef90-R2SN20 |  |
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| UniRef90_E4TUS2 | REK HHPRDDRHAFEFDYVVYDR |
| UniRef90 W9A9F2 | KGMEKDESNPYDYYFIV |
| UniRef90 ${ }^{-}$W7C0Q8 | RVEGTQ DEKNR |
| UniRef90-C1D068 | DEKNR |
| UniRef90-UP10003B505 | REAHA VDAKHAFAF |
| UniRef90-A0A024Q179 | KTKG EKNETNPYD |
| UniRef90_10DWR3 | TE YHEA |
| UniRet90_D7JDP8 |  |
| UniRef90_N4WM92 |  |
|  | ETP |
| UniRef90-P43791 |  |
| UniRet90-W2C |  |
| UniRet90-UP10003B: |  |
| UniRet90_M2TVB6 |  |
| UniRet90_K125Y0 | EGDVLFSAKQ GLEYQFVVAER |
| GO | GEEVEGIIKYE |
| UniRef90-Q6MID1 | R |
| UniReego-C4GG9 |  |
| UP10004100 | EKSGLNF |
| UniRef90 U2WLCO | QQDGT VDEKNQYPYE |
| UniRet90-B1QY68 | SSDKM IDEKNGLTYSF DNLVR |
|  |  |
| UniRef90_UP70002F7CEAE | FQPKDDK |
| UniRef90-K7TY | SSFPVIESSNTRH |
| UniRef90-Q8EQG | TRAPEDSA |
| UniRet90-K8NYV9 | PTRAPEDSA |
| UniRet90-D1MX70 | SAD |
| M4 | EK WSEliden Prirac |
| UniRef90-D9XN79 | NQEFVVEGVKEFGGVKYV |
| UniRef90-R6YU86 | K Y |
| UniRef90-LoICV9 |  |
| UniRee90 UPIO002F |  |
| UniRef90-ToARZ66 |  |
| 3YA |  |
|  | NVKQD DLRFVRYER |
| UniRet90_U5NC46 | CTPE GLIRFA |
| UniRe990 UPIo0037A6F86 |  |
| UniRef90_OLRO388 |  |
| 9N |  |
| Ref90_UPQN4 |  |
| UniRef90 R7Z2 | G |
|  |  |
| UniRef90-D4LPD33 | EEQTYFDLEYAF |
| UniRef90-A3NOP3 |  |
| UniRef90-UPIOOO4264486 |  |
| UniRef90-M3B5N4 | EGPHPQSVGDEE VT Q D |
| UniRef90-UPIOOO36 | Wat |
| UniRet90-UP100037A00F | K GLR PR |
| UniRef90-UP1000474D8C4 |  |
| UniRet90-Q6A328 |  |
| UniRef90-B3FR85 |  |
| UniRef90-R6DK96 | RE CHSTDEKHLYSYSFVDYV |
| UniRef90-R6F | ENTYFD |
| UniRef90_B4F215 | ENNSH |
| UniRef90-s2x |  |
| UniRef90-R5GTF8 | R |
| UniRef90-K2EWK3 |  |
| UniRet90_A4ATU1 |  |
| UniRef90_ROIEZ8 | EFTGEEVPEDEEEGVKFRFCMYER |
|  | SAGLRYAVSEYVR |
| UniRef90 W3AG | S ${ }^{\text {N }}$ |
| Unireet90-AOAO33UA04 | REYFPRSSDSRP |
| UniRef90-TOI1N5 |  |
| UniRef90- SoNt | TTEGI VDEKNR |
| UniRef90-UP100035F5410 | WSPAEASEEQTYFD |
|  | D |
| A6L | RED HPTDEKHLYPYSFINYSR |
| Ret90_S2Y6L3 | TSETITTD SGLIQYQYMIYKK |
| niRef90 UPI000371 E9C5 | DEPWTVT A G S Q R VRWLLT Y R R |





UniRef90 UPIO00422DFE9
UniRef90-K2FP77 UniRef90_K2FP77
UniRef90_A4C912 UniRef90-K8Z811 UniRef90 UPI0004153F3C UniRef90-R5UBL0 UniRef90_Q5X875 UniRef90_E2Z9X6 UniRef90_UPIO0041E0F4B UniRef90-U1KK46 UniRef90-J2JDP1 1 UniRef90_D4W574
UniRef90-A8QBG1 UniRef90-A6M379 UniRef90_V4LEC5 UniRef90_K7AHV4
UniRef90 S6B7C7 UniRef90 C5ENL5 UniRef90-A0A023Y7E9 UniRef90_G2R8V7 UniRef90_C5S0S9 UniRef90_Q38WX9 UniRef90-W8W233
UniRef90- F9YPZ4 UniRef90-R3WR89 UniRef90-R5J3B3
UniRef90- W7T463 UniRef90-C7P1M2 UniRef90-U7Q3E6 UniRef90_UPI00036AFBAD UniRef90_UPI0003C7E999 UniRef90_UPIO002880AD2 UniRef90-UPI0003B5408E UniRef90-LOAKQ2 UniRef90-M0NJE8 UniRef90_UPI00047BF12D UniRef90_UPIO0042C3890 UniRef90-R5N9Z7 UniRef90-S7HFK5 UniRef90_BONCI3 UniRef90-E8N9N3
UniRef90-N1QE32 UniRef90-C5CC92 UniRef90_R6TX07 UniRef90_UPI000180BE94 UniRef90_N2ABR1 UniRef90_UPI000472BE8F UniRef90-R2PQM8 UniRef90_UPIO00400AD42 UniRef90-D1BJ51 UniRef90-R6W8A1 UniRef90_UPIO003791778 UniRef90_D7NBT0 UniRef90_R5CCV6 UniRef90-J9SEB3
UniRef90 G5IUT5 UniRef90-E5XSE0 UniRef90-LOJZS5 UniRef90_UPIO004024CD4 UniRef90_UPI00047AF6E6 UniRef90_UPI0002631A41 UniRef90-X7R4Q4 UniRef90-W8AOH9 UniRef90-R5KH08 UniRef90_UPIO0037A436A UniRef90-M5BKU6 UniRef90_E3EQH1 UniRef90_UPI00047B64BF UniRef90-F4KJY8
UniRef90 Q3IFF7 UniRef90-E6UAJ7 UniRef90_D2Q8R3 UniRef90-UPIO004171289 UniRef90-K9WDX1 UniRef90-D4YUF7 UniRef90-D1W8T2 UniRef90-C9LK50 UniRef90-H8Z774 UniRef90-B2SDZ8 UniRef90-W7CH87 UniRef90-M7EF02 UniRef90-W7BNE9 UniRef90_V6DYI5 UniRef90_UPI0002488039 UniRef90-UPI000262D05
UniRef90-A0A016UWW2 UniRef90 S7W317 UniRef90-UPI0003
 FESMLED VDRMYVTHI DHSFEGDTYFPEDDWSRWELTD

 FA LADPHAEMLYLT YRMML $\quad$ PYACSKVYY |  | Y | R |
| :--- | :--- | :--- |
| Y | A |  |
| Y | $E$ | $S$ |

F
Y

## Y T LGLLQY

 YRQLLDSADADLI YEQTL P DADRLY I Y E L G L N S P F L H QMY $\begin{array}{ll}Y K Q F L & P Y A K K L Y \\ Y R A L L L & P A L D M E\end{array}$ $\begin{array}{ll}\text { YKHFL } & \text { AFCHQLYGL } \\ \text { FSAFE } & \text { PLIDELVVI }\end{array}$| FSAFE |
| :--- |
| YREF | PYCSKAYV YRLTMAB A ATDLHL Y A A A L A RREARRVLL

,
FKLFA
Y L EA A K L
YRQTMK
YEDFL YKAFL YREAVESEACEATE F YEQFL PDADRLVL Y A A A L G $\square$ A

$\qquad$


 Y EAFL PLADSLYLT

 YCSKAYVTRI DHAYDADTHFPDLDVDQWEMTK Y ERMMT


## Y Y F

Y
Y
Y
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$Y$
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 $F A L F L D R \quad A T R I E L T E V H L D A E G D A S V P A F D P A R W R E T A$
 YAQAMH FA DRLLCLTEEVNDTPDADVFFPE YD G WHEVS

 YKSGL PYATHAN
Y QQFLE
 AFTKKL Y $L_{L}^{L}$

QLNRILL
 DFKETY VI $D$ T V V $D$ A D TH F
$\begin{array}{llllllll}P & E & I & N & L & A & W & S \\ P & D & Y & L & K & \\ P & T & W & V & K & D\end{array}$ T ELYDEYEG $D T Q F$
$D V Y F$ Y F




YKQF L N D
YQAF IN NYTGBKGVVT
Y Q LIFLE DADALLIVTHVEATCGGDTTRFPTMMDWSKWQLTK
YEQFLDR ADQLVITEI PERPGGDARFPEWDAEEWAETD
$F K Q T M T \quad \square A D R L E L T$
Y R EA ID
Y K L A D K D

| Y S Q A | N |  |
| :--- | :--- | :--- | :--- | :--- |
| Y A E A |  |  |

QV D R M Y V T

HVDTLVEGDAHFPAFDPAQWEVVAA E I DLSVDDGDTWFPDYLAADWQLTE KI DHAYQA DTYFPN LDLLEDWEMTE RI H H QFMA DVFFPKL NELVVWSCRS EI HEEFAADTYFPQENKNEWAMTDD
 T R V H H T F D A D A F F P K D DN E R E WQ L V

 T R V E G D F L A D V F F P E V D Y G R F DK S T TI N A D I D G D T R FP P WE P E Q WT E ViA A | $L$ | $D$ | $L$ | $V$ | $A$ | $G$ | $D$ | $H$ | $F$ | $P$ | $D$ | $L$ | $A$ | $R$ | $Y$ | $N$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | T C H HVFEA D T D F VD LD R T E WEV T S WV D T TVVTA DTYFPPVVD A L WVVEVA RVVRSEFECDTFFPVWRRSGQA EMD E I Q A D DD G D T L F EFDE ENWRLT Q

 R V H A H F E A D A F F P E I S D K E WQ L V VI HHSF D GDTKFP P V A WE E WT L I N

 EV HD QYE GDTYFP EV A WD D WREAS $R V L S D F S C D T F F P T P D T P K W V Q R S$ | $K$ | $Q$ | Q E F E G D T Y F P P N |
| :--- | :--- | :--- |
| $H$ | $L$ | $D$ |
| $V$ | $L$ | $L$ |
| $H$ | $G$ | $F$ | E I HHAFN GDTYF PAYP A FHEV

 I EAEPQGDVFFPDFDRGPWREVA

 | Q A |
| :--- |
| $D$ |
| $D$ |
| $D$ |
| $D$ |
| $D$ |
| $D$ |
| $D$ |
| $E$ |
| $D$ |
| $Q$ |
| $Q$ |
| $D$ |
| $E$ |
| $E$ |
| $Q$ | $A$

$G$
$A$
$G$
$G$
$G$
$A$
$S$
$A$
A
G
G
G
A
A
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G
G

 $\begin{array}{lll}P & P & F \\ P & A & W \\ P & D & L \\ P & S & 1 \\ P & Q & L\end{array}$ $\square$ $\square R$ $R L$
$D$
A
S
$D$
D
S $W$
$W$
$W$
$W$
$W$
$W$
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$W$
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F
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$W$
$W$
$W$ E L I Q $\xrightarrow[\mathrm{N}]{\mathrm{Q}}$

[^0][^1]
$\square$



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| UniRef90 UPI000422DFE9 | $\text { SREG } \quad \text { PVDEKNVHPHTYM! }{ }^{170} 180$ |
| :---: | :---: |
| UniRef90-K2FP77 | KEKGMR DEKNPYDYFFCIVD |
| UniRef90-A4C912 | SEKHQS DKSNPYD |
| UniRef90-K8Z811 | RQAHA ADARHADA |
| UniRef90-UPI0004153F3C | R VQHDSDAKNPHDFTT |
| UniRef90_R5UBL0 | HT C F DL L Y Y F S T Y ERR |
| UniRef90-Q5X875 | KEYRQH DNKNQYDM |
| UniRef90-E2Z9X6 | RHDF EKTLSNKYAYSFl DYVR |
| UniRef90_UPI00041E0F4B | RE HHPADAKHAFAFDFVDLER |
| UniRef90_U1KK46 | VQS HEPNDKNKYSHKFVTLQK |
| UniRef90-J2JDP1 | SEPNF KDDTHDYDYTYETYDK |
| UniRef90-Q5P234 | ADAHNEFSFDFVEYRR |
| UniRef90-D4W574 | Q EEDRFNVYER |
| UniRef90-A8QBG1 |  |
| UniRef90-A6M379 | F 1 D EKNGLH |
| UniRef90-V4LEC5 | RRHCA ADEYNAYSMD |
| UniRef90-K7AHV4 | NE AHQAES $\mathrm{L}_{\text {HPYAYRF }}$ |
| UniRef90_S6B7C7 | A K EKNEYDFTVTTFQRR |
| UniRef90_C5ENL5 | CSQMQEYNGDTYE |
| UniRef90-A0A023Y7E9 | PADARHSTAFDF |
| UniRef90-G2R8V7 | A WVGVPRGVQSEAGTEYE |
| UniRef90_C5S0S9 | D 】WSEKDAENAYDCRFMVFER |
| UniRef90-Q38WX9 | QKAGA VDERNQYPHTFEI YQR |
| UniRef90-W8W233 | EIKWENKVS Y Q |
| UniRef90-F9YPZ4 | S VTCLKDDKHAYD |
| UniRef90-R3WR89 | LSEG EKDEENNYDYQFETYQ |
| UniRef90-R5J3B3 | VS DRYTNEPEGEQPMDYEFR $\square$ Y ER |
| UniRef90-W7T463 | V |
| UniRef90-C7P1M2 | RDDRG ELLSFVEYVRR |
| UniRef90-U7Q3E6 | P EEHVPE GVQTENGTEYEFQMWER |
| UniRef90_UPI00036AFBAD | QTDFT KDDKNAYDFT TEVLKK |
| UniRef90-UPI0003C7E999 | RSSHDG YDIVTYQR |
| UniRef90-UPI0002880AD2 | QASAPQQADGYTFVYK $\square \mathrm{FER}$ |
| UniRef90_UPI0003B5408E | S R T GVVGYR |
| UniRef90_LOAKQ2 | R DDRDG FAFV |
| UniRef90_M0NJE8 | RQ |
| UniRef90-UP100047BF12D | REALTARKGDTASAV FTILER |
| UniRef90_UP100042C3890 |  |
| UniRef90_R5N9Z7 | SS RHDR |
| UniRef90_S7HFK5 | RE LHRPDGREKY |
| UniRef90-B0NCI3 | EQTYFDL |
| UniRef90-E8N9N3 | VDPAEEWHT SRTGI RYRFETYRRR |
| UniRef90-N1QE32 | EDEGPVADRAGDQDIAVDFQLYER |
| UniRef90-C5CC92 | V D P APDA WLD S A S GPRHRFERWER |
| UniRef90-R6TX07 | ETPV ETDPENGLQYSFAVYVR |
| UniRef90-UPI000180BE94 | W |
| UniRef90-N2ABR1 | A GEEQTSFDLE |
| UniRef90-UPI000472BE8F | E GEEQTCFDLEFRFTKYERR |
| UniRef90-R2PQM8 | TRPGA VDEKNHYPHHF |
| UniRef90-UPI000400AD42 | KTLRL K L EANPFDFT IKTYERR |
| UniRef90-D1BJ51 | DSTDADGWSTSRTGLRFRFVEHRRT |
| UniRef90-R6W8A1 | E AHSADDRHSHDYAFVDYVK |
| UniRef90-UPI0003791778 | G ${ }^{\text {a }}$ Q Y E WI |
| UniRef90-D7NBT0 | R |
| UniRef90-R5CCV6 | HA ADDRHAYPFAFVDYVK |
| UniRef90_J9SEB3 |  |
| UniRef90-G5IUT5 | VIEEGV VDEKNIYPHRFEFYSK |
| UniRef90-E5XSE0 | EGPWQYS ES GLLRYRFTTFQR |
| UniRef90-LOJZS5 | R DERDG FAFVEYVR |
| UniRef90-UPI0004024CD4 |  |
| UniRef90-UPI00047AF6E6 | REHHA ADARHTFAFDFVELE |
| UniRef90_UPI0002631A41 | REAYPAEGER PAYAFVTLERR |
| UniRef90-X7R4Q4 | SE TYQADEKNAYNMRFTILEK |
| UniRef90-W8AOH9 |  |
| UniRef90-R5KH08 | REK HGKDERHAHEFA |
| UniRef90-UPI00037A436A | T R T P PRNPRDSA |
| UniRef90-M5BKU6 | HEEEVSKGVQEEKGTKYEFQMWDKR |
| UniRef90-E3EQH1 | PGHWKRTQKDDS G $\square$ K R Y RFVTYRK |
| UniRef90_UPI00047B64BF | LT P ET GWLT A ENGKRYR】SLWT R |
| UniRef90-F4KJY8 | E THYPADERNDYPVTQTLYKR |
| UniRef90-Q3IFF7 | E $\square$ QMAADEKNQYSHKFVTLYKN |
| UniRef90-E6UAJ7 | H |
| UniRef90-D2Q8R3 | E GVWQGTQKGSDDIA GFRFVTYEKN |
| UniRef90-UPI0004171289 | EEKGV VDDKNIYPHTFYHLVRR |
| UniRef90-K9WDX1 | IDCQKDAVNPYNYS |
| UniRef90-D4YUF7 | KE QHEPDERNKFAYDFLTYKR |
| UniRef90-D1W8T2 | E HGTDERHAHRYAFVNYVKN |
| UniRef90-C9LK50 | HYA ADEKNEADFTFVDY!R |
| UniRef90-V5RX86 | RD HHEADEKNKYSYDFVKYER |
| UniRef90-H8Z774 | SESR PADARNAYDLRFVTLER |
| UniRef90-B2SDZ8 | KKDDKNEFDFTFSVFEKN |
| UniRef90-W7CH87 | VPGV VDEQNIYEHEYRTYRAR |
| UniRef90-C7H0N2 | ETIE E N GVKK K F C I Y NR |
| UniRef90-M7EF02 | NHSKDQKNPYDFTDATYQK |
| UniRef90-W7BNE9 | RENGTR DAKNDLDFWYGWYEK |
| UniRef90-V6DYI5 | RAD DLAFVTYER |
| UniRef90-UPI0002488039 | SHD DDKTG\AFEFATYQK |
| UniRef90-UPI000262D057 | VEDHAGDDA SPAHSYE $\square$ WDR |
| UniRef90-A0A016UWW2 | EDENARSDVMTENG\NFSFSCYR |
| UniRef90-S7W317 | GWHTSATGLHYRFLLRYE |
| UniRef90-UPI00034A64E9 | ADPADGWHV SRTGIR |
| UniRef90_K2FPY7 | S ERKS S D E K F E Y T F Le Le K |


|  | 110 | $20$ | $30$ |
| :---: | :---: | :---: | :---: |
| UniRef90_Q4JX60 | G M\|I IWA Q T T D G V | G D G A D M P W Y L \| ${ }^{\text {P }}$ | E DLK HFKNATS G |
| UniRef90-K6VVW7 | $\checkmark \mathrm{V}$ A M D Q R C | G K N N D P Wh I P | A DLKKHFKE\T Q G |
| UniRef90-H5TK91 | V WA Q D V G A | GRDNSI P WRV P | P E D M R F R ELT G S |
| UniRef90-F8UVT3 | VLVAAVAENGVI | GA A G GI P Wh LP | E DFKHFKATTLG |
| UniRef90_C7NFY1 | S L T L V V A V A R N G A | G R D G D L P WH L P | G DLK H F K D T T M G |
| UniRef90_D1NV40 | S L N M WAEAFD GAll | GFNGGMPWH L P | E DLK K F K E L T V |
| UniRef90_L7LBN4 | $M T$ ALVWA Q DRTGA | GRRGA ${ }^{\text {R P WR V P }}$ | E DLA HFREVT |
| UniRef90_Q5YPL6 | R T I GL I WA Q T T D GVI | GF ENTI PWRV P | P D M A F R TVTW ${ }^{\text {d }}$ |
| UniRef90_UPI0004675DEE | M NLI VA VDE E WAI | G NRNKL L V S I P | P A MKFFREMT |
| UniRef90_A0A031IIV7 | $\square \mathrm{T}$ HIVA Y T K N HVI | GR D NAMPWH L P | S DLA HFKRTTLG |
| UniRef90-N8TZS0 | V V A M D Q R Cl | G K D N D P WH I S | S A DLK H F K Ell T Q G |
| UniRef90-R4VHW1 | P R $\square$ T FVV VA M A D N R VI | G R D N DLP WR L P | P D M R HFVAL T R G |
| UniRef90_R6RI38 | M NLIVNADK NWGI | G R E N Q L L V H I P | P NDMKMFRQTTTG |
| UniRef90-R9MZG1 | MNLIVAVDENWA | G NKNDL L I R I P | A DHKMFRQETTG |
| UniRef90_UPI00035 | $\square \mathrm{V}$ L I YARAANGA | G R D G D P WR L P | P A D R HFKA L T |
| UniRef90-D4 | MNL I VAVDKNWGI | GYKNKLL L S I P | P E DMKYFRETTTG |
| UniRef90_Y5PK15 | LSIL L V A D Q R V I | S Y K N A P P Wh I P | P N DLK HVVK QLS T G |
| UniRef90_D0LYN1 | $L \vee \vee \vee A D L D G G I$ | ARKGE I P WH L S | S A DLR H FQQLT $\mathrm{T}^{\text {R T }}$ |
| UniRef90_UPI00029B5326 | MKDSLI VAA D ENNGI | G $\square$ D G DQP AFI S | A DLKKRFKAl T T G |
| UniRef90_A5P9U6 | MS L FLI Y A R A A N GAl | G K Q G R L P Wh L P | A DLK K F K A L T M G |
| UniRef90_UPI00037 | I GLI WA Q S A N GVI | G R D N K L P Wh L P | P E DKHFRAVTAG |
| UniRef90_UPI00035DFA4C | KI IA I WA Q D E A GL I | GRDNRLPWH L P | K WQHFKE |
| UniRef90_C3X6T6 | MLI SHVVAMAENRV | GKNGQMPWH I P | EQK\FRNLTVG |
| UniRef90_G7Z6Y2 | M R S LIVAA A M M DV | GRD GRLP W A L P | OGDLR RFKQLTMM |
| UniRef90_V6Q4B8 | AI WA Q D E G L | GK D D AL P WR L P | N D L S F F R N |
| UniRef90_Q2G376 | A R A D N GVI | GRDNALP WR L P | A DLR R F K A L T L G |
| UniRef90_Q96V60 | VA LT V S C GI | $G K G N A L P W R \quad L K$ | K S D M A Y F K RVTS |
| UniRef90-E1VYA2 | GAI WA Q A E N G | GANGTMPWHV P | P D D A HFKRTTA G |
| UniRef90-W0V6F0 | M T Q | $\mathrm{G} \square \mathrm{L}$ NT L P WR L P | P D MA HFKRLTTS G |
| UniRef90_UPI000248FFC3 | FKFI WA EDS Q H A | G NEGHLPWR L P | P EDMHFFRDTTM |
| UniRef90_V1D8P9 | M NAIVIVD K N WGI | G R D N NL L V H L P | S DLLKY F K EKT T G |
| UniRef90-Q1BA63 | M M T VGLI WAQS T S GVI | G R D G G 1 PWH L P | P E DLA R F K E $\square$ T L G |
| UniRef90_G2T118 | M NLI A A V D Q NWA | G NKNEL L VRIP | ADQKFFRETTTG |
| UniRef90-D1BYH5 | A L I WA Q A D TVV | G A G G D I PWRV A | EDFTRFRTLTTG |
| UniRef90_K6TD26 | S I V C A I A Q N DVI | G K D N KLLCH I S | S D DLK R F K E IT SN |
| UniRef90-R6NBB3 | MKAIV CVDKNWGI | G NA D S L L F H I P | E DMAFFKRKTIG |
| UniRef90-M2Y9L6 | LR I V V AL T R N R Glı | G L L G K MPWK L K | K K DLQ F F K E L T L G |
| UniRef90_S6FCT7 | SIIVAKA N N D | GGDNKLLWH I S | S D D K R F K El T S G |
| UniRef90-D3HDY9 | KIVAl WA EDENRL | G V N D G P WR LP | K ELKHFKETTMG |
| UniRef90_Q5V600 | CMKLSSLI A A VA A N GV I | G A G G D P WQ Y | E DLTHFKETTVG |
| UniRef90_D4H815 | MTK A L I VAMTK D RVI | G K N N D MPWH LP | P E DLK LF K A K T T G |
| UniRef90-I0TCT2 | E L N I A A VA A NRAI | G Y R N D MVY F I R | R E DLK R F K Q LT T G |
| UniRef90_N9WEW7 | T L V L A R A A N GV | GA G GK 1 P WH L P | P A DL R R F K QL T M G |
| UniRef90-F8HEU3 | LIAI WAEARNHV | GKNHTMPWH L P | A ELA HFKKTTMG |
| UniRef90_UPI000348FA68 | VR GV GMVWARATNGVI | GA D G G M P W | E DLA HFRQVTGD |
| UniRef90_M1VHU6 | L R IVVVA VA A D WGI | G Y N G Q L P WP HI A | $A E D L A H F K R V T T R$ |
| UniRef90_K5BK15 | M GLI WA Q S T S GVI | G R D G V I P WR L P | P D D A R F K Q I T L G |
| UniRef90_UPI0003720505 | NL I WA Q GMD G | GCNGHMPWH L R | D M I Y F K D S T I T |
| UniRef90_UPI00037C0253 | A EIVFFAARADNGV | G VE G G LPWR L P | D LKRFKAMT T G |
| UniRef90_F0F878 | M Ni NII A A VA A NRAI | G Y Q N D MVY F F I R | R E DL K R F K Q LT T G |
| UniRef90-UPI0003B415EB | T L T L V A A V G R N GV | G DGS SMPWH L P | P A DLRFFKETTMG |
| UniRef90_UPI0003F494CE | RHVTAIVAATSS G Gl | G L N G T LP WR L P | P GEMKY F A K V T S G |
| UniRef90_R5GYF7 | M NLI VA VD K N WA I | G NKGELL VRIIP | A DHKMFRQETTG |
| UniRef90-A0A034TUB3 | M I S M I A A M A N R I I | G K D NQMP WH L P | P A D A WF KRCTMG |
| UniRef90_S0S1Y1 | $M \mathrm{FI}$ S M WA Q D R N GLI | GKD GLLP WK L P | P NDMRFRREHTM |
| UniRef90_N1ZGJ5 | MD I I V V VDENWGI | $G N N G Q L L T K$ | A DLKR F R K M T |
| UniRef90-L7LIX4 | M T T L VWA Q R A GA | GRA GVI PWRV P | E DMRRFKElT G G |
| UniRef90-E1KSB8 | MEINII A A V A K N R A | G Y Q N DVVY FIK | E DLKRFK QLT TG |
| UniRef90-TOILG1 | FLI Y ARAANGT | GRD GALPWR L P | DLMRFKAMT ${ }^{\text {L }}$ G |
| UniRef90-R4W8B5 | $V Y L I A A V A A N G V I$ | GK D GEL P W El P | DMAHFKETTTG |
| UniRef90-F9VXV2 | $R R \vee R L V W A Q G R E A A$ | GRDNTI P WRV | DMARFKEKTLGG |
| UniRef90-F8UVU2 | $R R V \vee L V A A V A R N R V$ | GD GP DIPW ALP | EQRLLFKELTLLG |
| UniRef90-H1Q2H5 |  | G F ENKL DY H I S | S T D L K R F K K LT TG |
| UniRef90-D9VM81 | M TVGGL WA Q T LD G V I | GA G N I PWR L P | E D M A HFKATT LG |
| UniRef90-N4UT78 | L T L I VAA T R N M G I | G A K G T L P WT GL K | K K EMA Y F A R VTKR |
| UniRef90-E3H5Y0 | I SLI V A F D E NRVI | G K N N K P WN I P | E DMEKFKKATMG |
| UniRef90_UPI00037AEEDD | GLI WGQARDAVI | G A G G D I P WhV P | E DFAHFKRTTAG |
| UniRef90-D6S5N0 | LS FVVWAEDNKHQ1 | GYK G HLPWH LP | P A DLA HFKEKTMG |
| UniRef90-I2BFU6 | M GI | GNNGDLPWHPLC | CKDFKHFRALTAT |
| UniRef90-R5XUT6 | MKLIA AVDNEWN | $G N K G G L L F S L P$ | P D DMKFFRTTT S G |
| UniRef90_D8LBA4 | VVIVA A TA G S L Gl | GKNGALPWR L A | A A DMA Y F K R CTS T |
| UniRef90_D7V3W6 | RFI WA ED E D GHI | G Y Q G T P P WH L P | P A DLR HFKD |
| UniRef90_U1P638 | REVVLI VAVDPA GVI | GADGGIPWD L P | PADMAHFERTTTG |
| UniRef90_R9C564 | I SLL I VA M D K N N Gl |  | E DLD Y F K K V T D G |
| UniRef90-H3KC00 | L QLIVA R A R N GVi | G GENRML WHV ${ }^{\text {V }}$ | E D FRFFKSTTMG |
| UniRef90_UPI00047D204D | MKLLM M A A I GKNREL | GLQ G D M P WR AL | K Q DLT F F R D T |
| UniRef90_R4JEX4 | M HIISLI A A I G Q N N El | GL D N K L L WN I K | K E DMNWFRKH T |
| UniRef90-A0A011B164 | M N I VAVDK W W Sl | G N Q G Q L V S I P | PEDKKLFREETMG |
| UniRef90_L7VLL7 | QEWIII AS A D K N WGI | G Y K N K L L V K I P | E DMKHVSAKTTG |
| UniRef90_UPI000379EA94 | K I A A WA ED D NHLI | GANDRLPWR L P | K ELQHFKETTMG |
| UniRef90_V7IB34 | L SLL A AVT D K GI I | GNEGTL ${ }_{\text {G }}$ T T K | K K DL K HFREKTMG |
| UniRef90_UPI0003694DCD | L S I V V I GKNRV I | GCNNKL L WD I P | E D L A R F K K l T T G |
| UniRef90_UPI0003B53780 | I G MV WA Q S L N GV I | GLD G GMP WDV P | E DLQ C F K QV T M G |
| UniRef90_G5JU47 | VAI WAEDSHHLI |  | K K L K HFKE TTM |
| UniRef90_B2ZF14 | YLI A A M G A R RVI | G N G P N I PWK I P | G EQK】FRRLT E G |
| UniRef90_R5EB58 | MQLIVAVDENWA | G NGNKLL VRI P | P EDQKFFRQTTMG |
| UniRef90-V8BMT8 | MR\NI I A A V A K N A I | GYRNKL I Y W L P | O D D L K R K M L T T G |
| UniRef90-D8IKV0 | I SFVWAEDQKHQ | GYKGHLPWR LP | - A D A HFKEVVTMG |
| UniRef90_F3A0D5 | L S I V ${ }^{\text {L M D K N K S }}$ | GQENTI PWR LK | K S D M L R V K ELT T |
| UniRef90_A0A031JAl1 | VL V L A R A D NGVI | GK D G GL PWR L P | P A D L R H F K A L T L G |
| UniRef90-G2LML5 | M NVSLI A A M S K N L V I | $G Y N N K I P W \quad Y \mathrm{~L}$ | O E DL K WF K Q K T i N |
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## UniRef90 Q4JX60

 UniRef90_K6VVW7UniRef90_H5TK91 UniRef90-F8UVT3 UniRe990_C7NFY1 UniRef90-D1NV40
UniRef90 L7LBN4 UniRef90 Q5YPL6 UniRef90-UPIO004675DEE UniRef90-A0A031IIV7 UniRef90_N8TZSO UniRet90-R4VHW1 UniRef90-R6R138
UniRef90 R9MZG1 UniRef90 UPIO0035F78A1 UniRef90-D4J9X4 UniRef90-Y5PK15
UniRef90-D0LY1 UniRef90 UPIO0029B5326 UniRef90-A5P9U6 UniRef90-UPIO003771197 UniRef90-UPIO0035DFA4C UniRef90_C3X6T6 UniRef90-G7Z6Y2
UniRef90 - V604B UniRef90-Q2G376 UniRef90-Q96V60 UniRef90-E1VYA2 UniRef90 UPI000248FFC3 UniRef90-V1D8P9 UniRef90-Q1BA63 UniRef90-G2T118 UniRef90-D1BYH5 UniRef90-K6TD26
UniRef90 R6NBB3 UniRef90-M2Y9L6 UniRef90-S6FCT7
UniRef90-D3HDY9 UniRef90-Q5V600 UniRef90-D4H815
UniRef90- IOTCT2 UniRef90-N9WEW7 UniRef90 F8HEU3 UniRef90_UPIO00348FA68 UniRet90-M1VHU6 UniRef90_UPIOOO3720505 UniRef90-UPIO0037C0253 UniRef90-FOF878 UniRef90-UPIO003B415EB UniRef90_UPIooo3F494CE UniRef90-R5GYF7 UniRef90-A0A034TUB3 UniRef90_SOS1Y1 UniRef90-NIZGJ5 UniRef90-E1KSB8 UniRef90-TOILG1
UniRef90-R4W8B5 UniRef90-F9VXV2 UniRef90-F8UVU2 UniRef90-H1Q2H5 UniRef90-D9VM81
UniRef90_N4UT78 UniRef90 E3H5Y0 UniRef90-UPI00037AEEDD UniRef90-D6S5NO
UniRef90_12BFU6
UniRef90-D8LBA4
UniRef90_D7V3W6
UniRef90-U1P638
UniRef90 R9C564 UniRef90-H3КС00 UniRef90-UPI00047D204D UniRet90_R4JEX4
UniRef90-A0A011B164
UniRef90_L7VLL7
UniRef90 UPI000379EA94
UniRef90_V71B34
UniRef90-UPIO003694DCD
UniRef90-UPI0003B53780
UniRet90-G5JU447
UniRefofo-B2ZF14
UniRef90-R5EB58
UniRef90-V8BMT8
UniRef90-D8IKV0
UniRef90 F3AOD5
Uniref90-3ADD5
UniRef9O-AOAO31JAI1
UniRef90-G2LML5
UniRef90_17KQF4

Y
 WSFEG TKVAHSILEDALEQADTDVKTSEKPELFIIGGGEI
 WARFDEVLVARSWAEALLMA GDGEVFVVGGAGV FDATGAVVV DNDDDALDIARQEADPDDGSEIWVIGGAQL YTAEGAEVLA DLEAALDLVGRAAS DVGVGGE $\left.\begin{array}{lllllll}Y & V & D & G & V & & W \\ W & F & D & G & V & K & V \\ A & H \\ W & A & E & G & C & E & V \\ V & H \\ Y & D & G & G & D & V & V\end{array}\right]$

 F K P D G V E V I H T IVD D $F K P D B G V E V I H$
$L T B P D G V V$ H A A E LE A A LAA A T D L A T P

 | $L$ | $T$ | $L$ | $P$ | $P$ | $G$ | $V$ | $V$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $F$ | $S$ | $V$ | $Q$ | $G$ | $C$ | $D$ | $V$ | $\begin{array}{ll}A L A A & D \\ D & L \\ D & A\end{array}$ WDSTGAEVV RSVGEAVAKA E GAE TFP DLLEQAFAAAAS G $Q \square D T T G W T I L S S P E A V L D W K Q Q$ $Y$ QIP GA HVVVH SVVE E GI A LA K K L K L E



 LD LG Q GTYHAK S L N D A L VL LS C $\square Y$
 $C \square$
$A$ $\qquad$ $S T Q V N R$
$S T G G E E$
$Y I I G G A E$
 ATFPEGVIVMHSLDELLAYEKATDEA $T$ TTSGGAT YKNDHCTVCVGE DDAESLEKELLKHDEEDVFISGGER YMAEGAEVVT SDDDAL
YKVPGAVVVHDMDE WRPDDAVVVATTLDEALDGATQ WRPDDAVVVATTLDEALDGATQ
 TEEEGLCLACNSLESALNMLRLRSFPV

 E YDGCRVFGSVQECIKAAEEY EKDFKGCEVYTSLDEALRHDSTDEQA WQEEGAEPVA SVEEALRLANAPQA FDCEGVTTVT SVEEALAWFEQQ

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| $\begin{aligned} & \mathrm{EQAA} \\ & \mathrm{QA} \end{aligned}$ | GDEETWVI WASSEAASGAEVVHDLATALDT WASSEAASGAEVV HDLATAADT $\quad$ D YRAEGAQVVH TLADAL YVAEGA TVMTSLEDAIEDASQPA $\square \mathrm{R}$ WRAEGAE VATSIVEALTLASGPV

TMFPGCEVYPSLDEALSHVSA WRAPGAEVAGSLAEALALA NDQDNDLITHTSIEHALEVSSQ $Y Q Q K D A Q V V H \quad S V E E L L$ EAVKGY L K K E GVTTVT SI E QAL E VA FKVEENAEVMHS E ELLLA YAKNCSE YTCEG VKKVCHNIQEVLKT $C$ SKETKKY YRADGAEUVAGLLNEALKHDGANEKDA WSAEGAEVVAHSVEQALAMA ANEKA
D K
A
S
DKT

- A
ASAAAERGG
 WTADG VLVA A SI E EAALAVADADDQDR PS S L DCELFPSLEHALE GCSH $\qquad$ $\square A A G$
$Q G P E$

GDGGE1VDFGEEPVRVGSLEQALAFLR LRQGPE
D

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\mathrm{Y}[
$$APGG

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STDAFLQAAAGA


YKVEGAVVVHSSIQELMDELKDY FEAEGVVVVNSVQEALD W

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YQVQDATVVH SKEELLQQELQQ
Y D S
LKEKYKDNPQVEUMNSU DEDTVSWLDENQF
SLKHYSNDEGYSDDSULENGET
WRGEGAEI AH DAASA $\square R \square A A A$
EDKKKGDI WADS DS NA LISAKYN

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| :---: | :---: |
| UniRef90 Q4 |  |
| UniRef90 K6VVW7 | FRQTLEE I A |
| UniRef90-H5TK91 | YEAAMEHASQLR TEI DLLVDGDAFAPEIDPYAWEVAE |
| UniRef90-F8UVT3 | YA A A PP ADEQVLTEIHQSPEGDTFYPLFDRNEWTEVR |
| UniRef90-C7NFY1 UniRet90 - 1 NV40 |  |
| UniRef90- 77 | YSAALQ HABQLLVTEI DMLVDADAFAPPVDLDVWEEAA |
| UniRef90-Q5YPL6 | YETAMD FATELLVTEVQVSVQGDA |
| UniRef90-UPIOOO4675DEE | YRMLL PYCKEAY T R A A |
| UniRef90_A0A031IV7 | FAQTL PLVRRIYVTEIDATLEGDV |
| UniRef90-N87ZSO | FKQT N PVDRLELTHVDLNVEGDI |
| UniRet90-R4VHW1 | YRAFL PMADRIELTRVR |
|  | CDIMVTRLDYAYDAD |
| UniRef90-R9MZ | YRQML PYCDVAHVTKIDYAYTAD |
| UniRef90-UP100035F78A1 | FEAFL PRADRVELTQLHADYDGDTFMPPLGP EWHETAA |
| UniRef90-Y5PK15 | D DMYITVVDGKHQGDTFFPPYTFEDWTVVS |
| UniRef90-DoLYN1 | MQRRGCRHTFYTEI QDRFDCDLFFPAFKDR |
| UniRet90-UPIOOO29B5 |  |
| UniRef90-A5P | FDVFM PL PAKVELTE |
|  |  |
| UniRef90-C3X6T6 | FAQTL P TTDKVYLTIVHAVFEGE |
| UniRef90-G7Z6Y2 | FRETL PIVADL |
|  |  |
| iRef90 Q2G | AD |
| UniRef90-Q96 | QGDTSAPOL TADFALGT |
|  | YAQALEMCL |
| UniRef90-UPIO002488 | S |
| UniRef90-V1D8P9 | N |
| niRet90-Q18 |  |
|  | Y |
| UniRef90-D1B | A DRLEVTE1 DLVVDGDAFAP |
| UniRef90-R6NBB3 | CDTAYVTKDASKPADKFFPNLDESAD |
| UniRef90-M2Y9L6 | ALL VNPacs RV |
|  |  |
| Ref90-D3 |  |
|  |  |
| UniRet90-D4- | YSDAVDM VDE |
| UniRef90-10TC UniRef90-N9 |  |
| UniRe990-F8H | YKAFDGHYDA LLET |
| UniRef90-UPIO00348 | YA AGVPFADRVSETVIDVEVPGDTVAPELD DA WVLAD |
|  |  |
|  | Y GLALPTATRCEVTEVEDDLEGDALAPVLDESWAGTVG |
| P10003720 | Y |
| UniRef90-FOF\& | YK EADAFADRLYLTEIAAAPHADVFFPAYDDGTWTVEA |
| UniRef9-UPIOOO3 |  |
| UniRef |  |
| UniRef90 ${ }^{\text {A0A }}$ - ${ }^{\text {a }}$ (TUB3 | YAACL PMA |
|  |  |
|  |  |
| UniRef90-L7LIX4 |  |
| UniRet90-E1KSB88 | Eil |
| UniRef90-R4प | CMVLTE |
| UniRef90-F9V | AAMQ FATELCLTEIDVDVPGDAFAPEDGPAEW |
|  | D |
| UniRef90- H 1 Q 2 H 51 | YAETL PQAHRLYITQI DDMPQADAFFPLIDPADEWKVH |
|  | YAAALELAAEAKRVLLTRVLGOFECDAFAPDGEGGRWTRGS |
| UniRef90-E3P | YRQVAD |
| UniRef90-UPIO0037A | Y N AA MPVADVL |
| UniF | FEGLKDI VDCLEKTEIDGEFKADTIMPKIDYSAFKLIK |
| UniRef90 I2BF | YGELMESPGTKRLFVTHVSTQFACDT |
| UniRef90-D8LBA4 | YAEAVASELCEKVLLTSVDGRFDCDTHFPAL |
| UniRef90 D7 | FEEFMD EVDILEKTKIHHVFKGD |
| $\begin{aligned} & \text { RefgC } \\ & \text { pofan } \end{aligned}$ |  |
| UniRef90 R9C564 | L |
| UniRef90 H3KC00 | YQQMLDA CAGM |
|  | Y |
| UniRef90_A0A011B164 | YEQFF PYCNTAHVTYIDYMYSADTHFPN |
| UniRet90-L7VLL7 | QLLM PYCTKAY |
| UniRet90 - V71334 | CSTLYITWVHNDFEGD |
| UniRef90-UPIO | YKQMI D DADKLYLTVVDDSPEADTYFPEY TKF |
|  | YDQALDVTTV ERSLFNDDVDGDTYAPELDGS WTLAE |
| UniRef90-G5J | YKAFENYY DEETRTS |
|  |  |
| UniRef90 V8BMT8 | YEQALS $\quad$ IADRLLLTEVNDVPEADAYFPPY EGWKAVQ |
| iRef90 D8IK |  |
| F3A |  |
|  | A |
| UniRef90_G2LML | YKKML FYANKLYLTHUDUNUTGDAYFPKYTLYSWKVLF |
| 7 KQF |  |


| UniRef90_Q4JX60 | $K G H P V D Q E V^{170} \text { I E QP LRYRFCTWTRR }$ |
| :---: | :---: |
| UniRef90-K6VVW7 | STP QKDDKS GI EFEFATYQK |
| UniRef90-H5TK91 | T T A WQ T S S G GLR Y R F V C ¢ LR H |
| UniRef90 F8UVT3 | REHHDGYD |
| UniRef90_C7NFY1 |  |
| UniRef90_D1NV40 | E ES GWK T P S NPDSP $\square$ R F R FVVTYQR |
| UniRef90_L7LBN4 | ASNWQRSST GTMYRFLEYRR |
| UniRef90_Q5YPL6 | A GPERTSTT G L K F R I N R Y VR R |
| UniRef90_UPIO004675DEE | WELEDESEEQTYFDLEYVFTRYRR |
| UniRef90-A0A031IIV7 | E THYDAVEGNDYSFVDRQYDRS |
| UniRef90_N8TZS0 | EQ $\quad$ H I D DK T G $\square$ A FEFA T Y R K |
| UniRef90-R4VHW1 | T THHPADAEHAYAMDFETWER |
| UniRef90_R6RI38 | E SEEQTYFDLE Y VFLLKYQRR |
| UniRef90-R9MZG1 | D SEEQTYFDIA Y HFVKYERT |
| UniRef90-UPI00035F78A1 | REDHAADGAY PAFSFLTYRK |
| UniRef90-D4J9X4 | ADSEERTYFDLEYCFKMYVR |
| UniRef90-Y5PK15 | SEEGQL DGKNTI PHTFLHLVR |
| UniRef90_D0LYN1 | $L \square A E G E E K G I G Y R \square E V W T R T$ |
| UniRef90_UPI00029B5326 | K E GPF EDPK N GL H Y S Y |
| UniRef90-A5P9U6 | TEDFEADG D TPAYSFHTYRR |
| UniRef90_UPI0003771197 | E P D SVGGE WT ES S S GLT Y R F L S W |
| UniRef90_UPI00035DFA4C | EQTFA ADEQNSHAFTVTTYER |
| UniRef90_C3X6T6 | RKE】 E A A I P Y A FVVEFQR |
| UniRef90_G7Z6Y2 | S S APMEENGLFYRYIDLEK |
| UniRef90_V6Q4B8 | $\square$ S EGTM D A ENRYAHT F ETYKR |
| UniRef90_Q2G376 | REEYPAQGGH PAHAFVT F R R R |
| UniRef90_Q96V60 |  |
| UniRef90-E1VYA2 | S D P S LD S E A T S S T G T R Y R F E T W LR |
| UniRef90-W0V6F0 | REEHDS DSTGLHYAFVTYHR |
| UniRef90_UPI000248FFC3 | SREG L L DEQNTIPHRFEHYRR |
| UniRef90_V1D8P9 | E SEPMKENGI R Y R F T K Y ER |
| UniRef90_Q1BA63 | WVGT A G D WT SVS GL R Y R F H S Y Q R |
| UniRef90_G2T118 | D SEEQTYFDLE Y Y F Y R Y ER |
| UniRef90-D1BYH5 | H GHGDWVSPARPESPRYRFRTYVRR |
| UniRef90_K6TD26 | T D Y $\square$ S E Q F $\square \mathrm{DEKNELS} \mathrm{C}$ Y T F $\square \mathrm{NLII}$ K |
| UniRef90-R6NBB3 | REK EESEYNGLRYRFTTYK |
| UniRef90-M2Y9L6 | S EDFE D N GI K F E F LE Y R R |
| UniRef90-S6FCT7 | KSE EKTNSKNDLKKYTFINLSR |
| UniRef90-D3HDY9 | E T F NEKDDKNAYDFT I TVLLE K |
| UniRef90_Q5V600 | RTTHS EFA\\|VRYTRT |
| UniRef90_D4H815 | T E E |
| UniRef90_IOTCT2 | REEHPAAD GNPPYSFVNY |
| UniRef90-N9WEW7 | RED HPADDAGRPAYSFVTFTR |
| UniRef90-F8HEU3 | HERVAKDDKNAYDF I I SRYEK |
| UniRef90_UPI000348FA68 | EGPWRESRAD GTRYRFLEWRRR |
| UniRef90-M1VHU6 | NKHCVSVCVVDEREQLEVEELLVYR R |
| UniRef90_K5BK15 | EW LTTS S T GL R Y RYHHYTR S |
| UniRef90-UPI0003720505 | DQD WT P PVVDQDNP |
| UniRef90-UPI00037C0253 | REDHAA EGDRPAYSFVTLVR |
| UniRef90-F0F878 | QEEHPA $\quad$ T A DHPAYT FVNYıR |
| UniRef90_UPI0003B415EB | RAPGPE PVR A WVTTWERR |
| UniRef90_UPI0003F494CE | W $\square$ GF DVA E E N E E K GI R Y R F EM W |
| UniRef90_R5GYF7 | D S DEQYYF DLT Y H F L K Y ER |
| UniRef90 A0A034TUB3 |  |
| UniRef90_S0S1Y1 | EHVG】 V $\square$ V E E N Q Y P H R F Q W W R R |
| UniRef90 ${ }^{-}$N1ZGJ5 | QLP MQEEEGIKKYAYLTY |
| UniRef90-L7LIX4 | VGE WLY S S T G TLLYRFI D Y R R R |
| UniRef90_E1KSB8 | KEERPKTD DSPAYAFVDYVR |
| UniRef90-TOILG1 | REEHPASGEY PAHAFVTLVR |
| UniRef90-R4W8B5 | DWVElD R DERDG FAFVTYER |
| UniRef90-F9VXV2 | K GEWRTST T GTPYRFI D Y T R |
| UniRef90-F8UVU2 | RETHEGYD |
| UniRef90-H1Q2H5 | EERYAPS ENDPGYAF\\|D Y $\square$ K |
| UniRef90_D9VM81 | D D A Wht S T S GLR Y R VRRYTR S |
| UniRef90-N4UT78 | K EEEVVE G GE $\mathrm{V}^{\text {E E N G T R Y E F Q M WE K }}$ |
| UniRef90-E3H5Y0 | EE $\square Y \mathrm{D}$ |
| UniRef90_UPI00037AEEDD | A T EWT TS S S G L R F RHLR Y TR S |
| UniRef90-D6S5N0 | KESFT ADKKNPYDYSFLTY L T C |
| UniRef90-I2BFU6 |  |
| UniRef90_R5XUT6 | Q S D $\square$ HEN NGLKFRFT T Y K R |
| UniRef90_D8LBA4 | K GEAQEEKGVELS F DEYE |
| UniRef90_D7V3W6 | SE $\quad \square \mathrm{H}$ QADEK N K F Y Y F Le Y K R |
| UniRef90_U1P638 | REEHEGFDV |
| UniRef90_R9C564 | S $\quad \square \mathrm{CHKEN} \mathrm{\square NHKYPHVFT} \mathrm{\square Y} \mathrm{~T} \mathrm{~K}$ |
| UniRef90-H3KC00 | VLD R L E P TETRPFAVEFRRYDRR |
| UniRef90_UPI00047D204D | S T CLG HVEEN G Y S Y S HVLF T R |
| UniRef90_R4JEX4 | T R Y F Y Q G S ENS EYD Y S F SVY K R |
| UniRef90_A0A011B164 | E S S EQTYFDLCYTYYRMYQRN |
| UniRef90_L7VLL7 |  |
| UniRef90_UPI000379EA94 | Q T F HEKDDKNAYDFTVTVFEK |
| UniRef90-V7IB34 | S $\square$ D D T DEES GMKLT FAEYRK |
| UniRef90_UPI0003694DCD | VKEET ${ }^{\text {VE T D NLK Y S F L L L I K }}$ |
| UniRef90-UPI0003B53780 | QDP V D GWH TSKS SVEYRFERWERT |
| UniRef90_G5JU47 | QR F F ERDEQNA YDFTVAVFK K |
| UniRef90_B2ZF14 | TE T $\square$ Q A V ${ }^{\text {V }}$ |
| UniRef90-R5EB58 | E SDEQT Y F DLE Y Y F Y K Y |
| UniRef90-V8BMT8 | KEE HEKDDKHAYEYVFTDY $\square$ K |
| UniRef90_D8IKV0 | KK $\square \mathrm{G}$ K V D EKNKYPYVGWEYER |
| UniRef90-F3A0D5 | REEF KKDDNNEFNYSFLHY■R |
| UniRef90_A0A031JAl1 | RADHPAQG DAPAHSFVTFHRR |
| UniRef90-G2LML5 | $R \mathrm{~K} \mathrm{~K} \square \mathrm{~F}$ ( K K K N P Y N Y S FEl L S R |
| UniRef90_I7KQF4 |  |




## UniRef90 D6DI29

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UniRef90 R5JIC4 UniRef90-G8RKX8 UniRef90_M4ZSL3 UniReffo-R9KC85 UniRef90-LIIME1 UniRef90_R5ZA66 Uniinefon M 7 MVH1 UniRef90_-18TPG1 UniRef90-A9VA22
UniRef90-GOGOR9 UniRef90-K1ZA35 UniRef90-D1XVW4 UniRef90_UPI0004646A53 UniRef90-Q07422 UniRef90-R7H6W8 UniRef90 L8XT57 UniRef90-M4G2V1 UniRef90-UPIO0046E7A2B UniRef90-UPI00046FE6E7 UniRef90-UPIo00237C6DF UniRef90-I4YC41
UniRef90-F1Z5D5
UniRef90-R71X15
UniRef90-G7SR70
UniRef90_B8KU40
UniRee90-АоАогз VIк9 UniRef90-R6UGA1 UniRef90-R5EZW4 UniRef90-UPI0002195A2D UniRef90-C6E4H2 UniRef90-V2YG26 UniRef90-W51J34 UniRef90-Z5X7B1 UniRef90-R5M3U8 UniRef90-TOSY29 UniRef90-D8KLF9 UniRef90-B6B7G6 UniRef90_UPIO00465FB80 UniRef90-UPIO003717718 UniRef90-R6GAN8 UniRef90-F4PBG6 UniRef90-LOGVL6
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UniRef90-U7JZF7
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UniRef90 C4F8V0 UniRef90_U5W8E9 UniRef90-F4EMT8
 YQNFDNVLIFHNLDDALTQSTTLAHHKGLDTIWI GGETI FVAPGATVV QNLETALEDATQPPDPDDGDEVWIGGARM FAREGFEVVHSVDEA RAAVTDEEVAWVI
 YMADGAHVVPLLQDALT
 YAVKGATVVH SREELFLELKQYESEGADVVFVAGGETV YQPAAPVYLHSSLETALERLHAEWLESPVHRAFVVGGAAL FASEGVDVVH SID DEALAAVADEPVA RHAALRGAGAVPVASTEAALKAARAAEGAQEDWVIGGGEV LNYPPGVLVASSLQEAFEFLLSSLSEV IDETAYI I GGASV LAVDGA MLASGPAEATAKADECASARRASEVAVVGGAEETV SQLPACDVMHS SEALD LYQD WSAGAPVRVAGTVDAALAVARAAARDAGSDEVWVI EEDDAAVRVCASLPAALSLLEE EYKDSVDQIFVVGGAQL FA PKNTIVCRSFEE TKEELAKYPTEDIYIIGGGSL



ANGPDSTLAPDLDTALELLQ DEED DEKIGUGGAKL FSPPGCEVI HSGEED YEVCRPEEKVFVIGGGEV
 FRAAPAVIVTQADEEDTKXXALEETTKDPGQVYV FSSYNNENF DGBLLSSMKEVYDLTYEKIFVI WQAPGVDTVH DFPAAI QRGEDQAMLDGADALMVI YKVPG VLTMSSLDAVLDWFQSQ LPRLGGGTVVKDLDALI ESYSDKELFVI FDPFDEVTVVHSLEELQRLDRAEWA KDHLVTVA KTEGCEI AGNLHAADAAAEGEEEIVFICGGAQL FVPQGAE VFSDLDSALAAAPE YRAPGASVAENLEEALHMASQPSDPDDGDEAFVLGGASV YMADGATVVGALDD पKEKENLKVYNNTEDLLDYLDTDNE
 GSVENGAAVDDSV
GPAADTVLPSIGAAVAEA
GNTEEVFL
andolbagdl
HAQGYRRVYG!

 DA KNVTWASTPQUALAAAGA VKEVMVIGGGKV EIKYDNLEFDNSLENVLSKL LLEKYNQLAFI GGESV1V EMEKK DEEDRKKYENETTKLEFYDDFQKVIEDFI GGGEI FR DNVETSDSLNEAL DPDSNDARVFSSVEQALIHLATPQA SDSRVFVIGGAQM DAYPEGVDTASGDDEA ARDTHPDNWPACKSY

DAYPEGVLTASGLDEALALVAH WTGDGAHVVH EFAKK LDKKNAEDVTEGPMVCS SDDERNEYTVHSMQELLEYIENFRQ WQPFDGVLVAHSLDEALGLAA DA EGVEVVHSLAALKKYLKA YK $\square K G A H V C H S L E E A M E W L Q$ SNAADOEVEGSIADSMSAlRAB A YKDDSRTTVVNNIENLKKILKQ WQFPGTQTASGKSEA ALAA YEVKNAE VAHNKEELLELVKDE YRVKGA VVCHSVDETFEFLKQYPQAS DTSASDKLYAKDISSALALLS FEHEGVHSFN DIHEALNFARQ F\|ADKCEIIHSPDEL YNLCA FEGENCYTVS SLEDALKTA FHAPGA IVTHSVGEALTIARGDALRRSARDTYI YTVDNNVEVIHNISEVINKYSKTSEL WRAAG VLVAHSLDEALALDAEDL FVADGAQVAGTLDEALAHGA FSGSHLQTV PTLAEALAAAKTEW E PGAYHARSI HE LWN ILEK IDDPNH GEWSAGATVITEI DLHDGVVVVDGIEAAVSEAHAVCEDDADAEGWIIGGGEV GEWSQGATVLSRLPELSEAHALCELDADA GEWSQGATWASRLPELILAATKYNQ GKTPPHTSLACSYEEALDDARNQ VRNFEGCDTYTSREEALSHCS YQGDNLVSV KSLEDALLLAK FSREGVEVVH SVDEALAAVADEDVA WSAAGAEJVFGSINDLLKVHDDF FKPDHSSFVYHSVDDVLKLIRGQLDTNE

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## UniRef90 D6DI29

 UniRef90 L2F9U4UniRef90
U1RBQ5 UniRef90-B6GC06 UniRef90 J3NK87 UniRef90-D7GU12
UniRef90 R5JIC4 UniRef90-G8RKX8 UniRef90_M4ZSL3 UniRef90-R9KC85 UniRef90-LTIME1 UniRef90_R5ZA66 UniRet90 ${ }^{-}$M7MVH1 UniRef90_-18TPG1 UniRef90-A9VA22 UniReffo-OOGOR9
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UniRef90 Q4P9N0 UniRef90-A8N1E6 UniRef90-S4VsZ4 UniRef90_UPIOO046FOE34 UniRef90-G8SFG8 UniRef90_E3RZJ5 UniRef90-R6GUD3 UniRef90-R7XWA5 UniRet90_R9W142 UniRef90-G5HR93 UniReffo-WGMLO1 UniRef90- Q7UIC9 UniRef90-UPIOO04642982 UniRef90-R5UOR4 UniRef90-UPIO0047AB5BC UniRef90_D5V6S5 UniRef90-UPIOOO255CD70 UniRef90-G9X9X6 UniRef90-A5EPD1 UniRef90-L1QN31 UniRef90-F8UVS4 UniRet90-J4TEL8 UniRef90-U2LUU7 UniRef90-U2JBX8
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Y EKFF
YKDF

YRGMLG
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YQSAL YN

YKKALD
YEATLG
YKKSLEMGIVNRIYMS
YRDAMQY
YTDLLDFATVDKLLVT



YK OLLI H SVDKMFL
YAAALPDAHAQ VL
YA EAMPLAEMLYYL

YASTLDQMD LLEVGTLM
Y TEALA
YRQALS
YGQFL
YTAFL
YEAFED
 YQ GLAFPYAERVILTAVHAEVQGDAFFDLEQLSDWVELS LEAFDGHKFRRIKTVVHHCFEGDTKAPNGDLSGFT YENLLS

PYCDTAY

Y A D
$\checkmark$ ADKMII
VIVSDFDADVFMPEFNADEWTELQ YNEAVDHPACAGDWLTQIDPDYDADAFFPPLSDKAYGGAE YQLI L PVAEHIVRTSIELDVEGDTFAPELGPD WKVTA AKKTSSSPSSPDLELDKIFEFECDTFFP I NDEEWKGRS YKNMLEYAKT YQQLL PMATKLTRTVINKQUVGDTKMPTIDYDRWHEVN YEQFL PYADTVHVTRIDYTYDADTFFKNLENDDWRMTD YNQETEDYSVENLFLTEVDKDHAMDAFD QMDNTQWRKAS YQQWF PLCTELWWTRVWANVSGDTRV DGPDDEFEVS

F|I D Y E Y H A D T Y MVN

D K E GWRVIT D HVHTHIDACAFYPTI PSHFVKTN
 S I LT DFECDTTLSSL RLGEWRRAP

 $V$ HKKLHG G AKF P K I D PKKWKK I Y K I D Y A Y E A D A Y F P R L D E P E WE L A A SVMSD F E C DAVA L R L G E T G WRRTS R DAE F QCDVFVPELGTPAWRELQ
 I S KVHHAD TCFPNLDK S E WQCIE $V$ HK DV L C D T V M D MK HLDA Y E H D P FIH S DVD G DVVYF P K WQ K D E WVVVT D EI EATPKADTFFPLFDRTLYTETF EID AVVEGDTEAP VPGDGWV RV A R E F P C D V F F P A FP R E K D N EA T
 S 1 V HA HLD GDAFFPSVNRDQWELT T I H Y K FP S DTWF P P I KEDETS MTN


 V H GNYQGDAFFPEL PDGFVELH | K | $G$ | $R$ | $A$ | $F$ | $E$ | $A$ | $D$ | $C$ | $W$ | $F$ | $P$ | $D$ | $L$ | $D$ | $R$ | $P$ | $Q$ | $W$ | $R$ |
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| $V$ | $E$ | $E$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $D$ | $D$ | $L$ | $A$ | $V$ | $E$ | $A$ | $D$ | $S$ | $F$ | $A$ | $P$ | $N$ | $V$ | $D$ | $D$ | $S$ | $G$ | $W$ | $V$ | E V

E I E DS SPADAYFPKLNKNDWT
 V V DVE L E S A V S A P A L G S E F E I V S
 R LD Y A Y E A D T WMP NLD K E E WS MVVE
 HI DATVDGDTWFPCYQTAEWKCTF HI NKD YNCDRFFPEMDKS LIFNSNK
 EI HKEYNGDTYFP DYRDDVWEETE E V D K D F D G D A VF P R $\quad$ N E E V WK E V S I LAA P Y E CDSFFPEF

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 DVE DA H P TADVAPE I PA D F HL E K ELDAPTRATPRFP GVNAEVY GEVYAPH P E A F SQTAA

 V D $\begin{array}{llllllllllllll}G & D & F & F & E & F & D & D & F & E & V & L \\ V & D & H & P & D & D & P & A & W & V & A & G & R\end{array}$
$\qquad$
P L A S E A E I

| $P$ | $L$ | $A$ | $H$ | $V$ |
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| $P$ | $V$ | $T$ |  |  |
|  | $A$ | $D$ | $K$ | $V$ |



| UniRef90_D6DI29 UniRef90 L2F9U |  |
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| UniRef90_B6GC06 |  |
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| UniRef90 | J3N |
| UniRef90-D7GU12 |  |
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| UniRef90_G8RKX |  |
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| UniRef90_R5ZA66 |  |
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| UniRef90-C6E4H2 |  |
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| UniRef90'Z5X7B1 |  |
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| UniRef90_C4F8V0 |  |
| UniRef90-U5W8E9 |  |
| UniRef90-F4EMT8UniRef90-17JVS4 |  |
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| PADDRNLYAVTFTEW |
| NGI ${ }^{\text {R }}$ |
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| NENGIVYKRELYVR |
| ES R P DLGLD |
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| E SDEHTYFNLCYSFRMYR |
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| QKDYEAl I E D GKKSPA W |
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[^2]HKKVDNNTTFNYSFVTYSK
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UniRef90-Q89AV2 UniRef90-W6ARN2 UniRef90-E7NUU1
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 | P |
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 R
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30
 MK IILSADEHWA $\square$ GNKGQLLIR $\square G M T W A Q T T D G V I G D G D D M P W H$ VVAMAPDRGI GYRGALPWH (L) VI AAYDRGRA WAQSTTGT MI WAEARGGA



LA LVVAEDEAGW|

 MSKVGIVAALLPEMGI GFQGNLPWR LAKEMKYFREVTTL


MKAIVAVDSKWG|GNKGQLD VSIPEDHRMFRKET VVACLMPGYGG GFQGT PWK SKEMKYFRQLTSS
 MAVVKMTWAQDAEGKLGSGSEMLWHVPADFRHFKQSTVG MPLISLIMAISENRILADSSG|PWDMVPSDLHHFQQKTWR MKISSMAAKSENGVIGKGADIPWMVKGEQLLFKADTF MNLIALVDKKWG ANKGRELVVDIPEDKKLFREETYG MNADSVTPSWG GRDGAL DVRNRADMRRFVELTMG LLAF WWAEDDQHH| GYRGKLPWH DPADLAHFKRMTL
 LVAAVADNGVIAQGGALPWN IPEDTEHYLR
 ${ }_{9}^{40}$ KEKT $\square^{40}$ TT




 | $L$ | $P$ | $E$ | $D$ | $L$ | $R$ | $H$ | $F$ | $S$ | $R$ | $T$ | $T$ | $A$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $L$ |  |  |  |  |  |  |  |  |  |  |  |  |$|$

VME
$\square N V$ V A C L M P S Y G $\square$ G Y Q G K LLP WR $\quad$ L K Q E MA Y F K Q L T T N FT I I A A V G K N L E L G K N G G L I W
 $M N L$




## $G L G N E G G L P W K C N S V D M K H F S S V T S Y$

 ME L





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UniRef90_M5J9S5

# RGHENTIVVPT|LQAG|IKDAEE 

110
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$\qquad$ LDDE E F
QPEEALK
SREELLFE DTLK N

Y ALDPAGVLSATSLDEGLALAED
YDANGAEVIT DVETLI EDAKH
RNVMSNLKI AKNPKQALFFAK
GTWSTGATVGKTMPALL


YPVPGVVTVT SLEQVLEWYHAQEKS
SHLPENVLVFSSIENALYELAKVTDH
WSAEGVEVVAHSIEEAI RLA
FRGADGIVVRHDLEAAL
ПKNTNVLFVN SISKAI QSALYK
NTYTTGVVFVNSKEEALLHAKGYLAEH VQSDTVQSVA G DEEALLQ AKGYLCQG
WSHRGVDVATSPRQAVEMAREA
LEVP E GFVKVYDVETAMKMADDAGAKDQ
RQNVF
TATGTRTVVESPARLVEILGD
ESPARLVEUL
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WKADGA IVANSFENAITTEANIWIDEANKKYKCFI DGGSVV
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LYNRDGIEYQEKPDVLTIVRSTDQADEDVNNVYV
YKAEGATVVNSIDENAKEVDSDNA
EDGR VVQSATTADF KQWLARTPEQEVAV
D D
Y EVKNATVVHD
YAAEGARRVARDLEEALALASADLDRREAETTWV

APFAGQEIVRD FDAVCAAE
WSADGAE VAHSVADAI TLA
YDAPGA TVEPSLESALAALGERTGVED
$\square D \square V E P N G Y D T K S K K N E K L L K E F V N K K N Y$ GTWSNGAFVSRDLPD I
TPDEGVTLVNGV NALTDLDANY GETDAWI


| $L$ | $K$ | $L$ | $D$ | $L$ | $L$ | $F$ | $N S$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |



WSAEGVTVAHDPVA GLNAARALDGADRIMV
FFHKDIQQFNCPDDNADKKALSLQKITNAKKIFIV




| $L$ |
| ---: | :--- |





#### Abstract

GTWSTGATVVKQL P P K HGWWl


WRGVG VRVAHDVATALEVARASEHA
EPPQGAHSLARCLDDLKLTEQPEDANKDRPGMVGGAQV

YTYGNAVIVH SI DEALEELKK

GEWSAGAHVAHEF
VA YDNK


UniRef90-R5D8Q4
UniRef90 V5RJD1
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UniRef90_E7G8M5

## GDWSRGAEVIT GID <br> YERTGGYEVCTSFEDADTAVAGD GAD GVVWL

KEDQGAHFLARSLDDALKLTEQPELANKVDMIWIVGGSSVV



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LKRNGA NVFNNVSDVINYVNK
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L IDDGAFVAHSVAEAAELCKDEATV

DLKHPDLII DNDFENFLNSYK NSSEELII
ETY

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UniRef90-DOBJR3 UniRef90-Q8D3H9 UniReffo-U7MOT4 UniRef90-G5K3J2
UniRef90 - $882 \times 76$ UniRef90-I6X776
UniRef90-101E92 UniRet90-Q89AV2 UniRef90-W6ARN2
UniRef90-ETNUU1 UniRef90-D4H976 UniRef90-M5J9s5 UniRef90-UPIooo363FFB0 UniRef90-Q9KJY6 UniRef90-D3W856 UniRef90-UP100036FB8AD UniRef90 R6GIF4
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UniRef90
UniRef90-10GUJG

Unifeteo Eveem

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## 102

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$\qquad$ 029A1F7D

## manaso

Sorges

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4 37538 DF
37919F9
3618068
UniRef90-I7GNM5
UniRef90-R6BWN3
UniRef90-U1QL95
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UniRef90VOGUJ6
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Y HEARPWVNDIIYLLTQVIDTLLVEADVIKFPQFPPVHWRLLOS ${ }^{160}$
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 FSLMMVPGVNKLERTVINGHYNGDVKMPPINYDQWHLLK FEETVVHPRTRVVHLTVVGRDYPAD
 YASLAAWPYADTELDLSTHVHQEPEGAATFPVVASHEWTEVS FSAAFPRAEAETVVRTEV PEGDVRVEAFDFAGWR YNQMLT SANKLYITH| EKY LLGDTYFPTYDHLPWKDIF


Y

## Y

 Y D A A MPYADELVVTEI ELDVDADTAAPQI GPDEWTLVD



$Y$
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| UniRef90-R7KCD1 | DES EPMTAECGLKYRFDTYK |
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| UniRef90-C2ESE4 | RD EVNEDDQTSCWFETWE |
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| UniRef90_M5J9S5 | GEE $\square$ A S GPADSENDF DYTIVKYSR |
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| UniRef90_UPI00036FB8AD | LED F EA T S NSPEFSYWHYSR |
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| UniRef90_UPI000262A4B9 | A GTPETSRTGLVYRFERWR |
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| UniRef90_B2GC42 | E R H L Q A TES DPACTEEKWV |
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UniRef90 K9X094 UniRef90-F8X1S8 UniRef90-K4EJH1 UniRef90_K9VRS8


| KIIVAMNNHRT | GLNGSMPWH NKEDDQHFRKSTL GYQNKDPWH DKEDFOHFKNYTM |
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| SM VAYSQKKAI |  |
| RAFS VVAADQQHG] | GDGETI PW TVPETLAFFKDQTTK |
| LG\| VACDPQGVi | GKQGKLP WNYL |
| VACSENRV | atarlpwripedwsffrartar |

$\square T A V V A V S \square G N G \Pi G A N G T \square P W R \quad \square P K D M A Y F R A A T \square H$ MFAIVNVDENWGGGADNDMLVH KK DLEFFKETTMG GI GHSGTLPWPRIKTDMSFFARVTSR hRADWAQTHDRVI GDGYDMPW YLPEDLAHFKNTTB MMITGIMAVDPNGVIGVNNKLPWYYPSELKHFHQVT LIAACDEEGGI GRAGQLLTDC PEDMAHFRRTTMG LELIAAVDAENGI GRAGGLLTDC PADMAHFRAETMG KAILACDDEWGI GKNGDLPWPHNPADLRWFKNNTDN MSGLGMI WAQDVTGILGADGGMLWRV PADFAHFKTTTMG MLVIGUMAVDPKGVIGANNGLPWHY PSEEDDHFRQVT G| GNA GVLPWKCNKADMK YFRSSVTSY LKIIAAHDSAFLIGNKNKLPWKVEEDIEHFRN
KLIWAQTKTGVI GKNNQLAW SDDQELQHFRKATWN
 KMI WAQTEKGVI GKDNSLPW STKEEMQHFRTTTLG LTAUVAASLRNGGGSQGTEPWR LSKDMAYFRAVTMH

LIAACDAENGI GRAGQLLVHC PEDMAYFRDATMG MRLVSVAALAENRVI GRDGEVPWPHDEADVRQYRERVAG


> L! A DWAMT QEGL!GNNNTGPW MDKQEGAHFKKTTGF VLMAALDAHGLI GNHDKMPWHVPEELAFFKMKTL LNMLLATDNEHGIGKDNDLAWFC SADLTLFKQKTLN KAI LACDSSGGVSKDGTMPWPKNSKDLKWFKSNTT MI WAQDRTGLLGAQGEMDWRVPADFTHFKAATMG KFSIVVAVNNDNLI GTEYGDPWPYLRQDMNFFRKITTT MKMDFI AACDPRGILGKGNQLPWDYPEDRHFFSHVI MKLLLVVDNKALAKDGKQLM FVDNDGEMFKNYTT


 GL GNAGGLPWKCNSVDMKHFVSVTSY



## VFGKDGD【PWPS $\square$ PEDFK DFREKTDG



MNA TYASGLNGEFALDGTLPWKKNKEDMDFFKHMTA $R K V I L Y \mid A V S L D G Y$ I A DEGGVDW LGGQDKAYKGDYGY MRVRLLAVTDIHGVIATSDDI SWGS REDKADFKEDTTS




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UniRet $90-\mathrm{R} 5 \mathrm{VZ} 14$ UniRef90-F5BFX1 UniRef90-Q23695
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UniRef90-Q27713 UniRef90-W8GMH8 UniRef90-G2RZN2
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 DYDVPSAHHADGVESALEVAATMSRDEDTAYVLGGAEA
 EKYQDLNFENLII ISDITELVKKYTNNDQNNLFVIGGNVV

 TPLQDSHIQSCTDADALLQ DDQHEDVCVVSDLENAVCDKRAFLLMQ
 LYNNK VWIVHNDFDACNPLQALSVVQKNDEVMLIGGGLV
SLAGDRVE VAHS
TAGEAAALGAGREEVVLGGGELV
SQLEGAEVFPSLDAAVVRAEQWAKEQGVNEVMLIGGAQL

QQPATDAEVVCGGLDEALQELETRYDEGKLGK
GDWSTGATVTV
GDWSTGATVTTTVVSMREFLSTQNNS

EFYDDYEFINFSDDEVVNGKLSSTK
WRTEGAVLAAQGLASELGHDPREGDAAGDPRVVFGGEEV NSCFNRGVKCTILSSMLGHQEFLSTQSSSKVFMIGGAQI

 RSAKDVVFSLGQALTELOA KYKEHMSENVNFTNKKDFILKEFKGNTS KDVYIIGGSQI RAHDHDTLIARSLDEAVALLQERRMGSALGHAFVIGGAAL ERADGFMVVQEISE WTLLGRLAFDEPRPIYAIGGAGC AVDAPTAVVASGVEEALELARDDTAGGTDDHVYVLGGGAR SDSD VLPCSDVQALCR EWKKKEEVLYVCGGAQ
 EQREENLYLAKSLEEAIFKAKTMDT ENNK


## \section*{歇}

EDNEDFYD

QEDDNVVVVNGGLTDALTLLGEKEYLAKVDRVFVI NPDNKSYIVFNDINDVL QYAKLNTSKD:F: KENLAKEYSNVII IKSVDELFPILKClKYYKCFIIGGASV EDVKEKVF II DSIDDDQNGLLLLKKLKYYKCFIIGGAQV


$G N$ T A D Y I H G G G L S A A l DVMMA T
SHP T D NVVVCSSSLERA FEHAR
ERNKS GEL PDNFVNDD DDW I S V V VK E
TADNDNVIVFPSIE EA MY GLLA ELT DH

Y Y R P S E NLL I F T S $\qquad$
$K$ N S E N L I F L N E S P I Q V I R F L E K
ASSEKIRFINEDLNEFV 1 K K K K

 GETE HVTGFIVNEAI SDVLERAKSSSA
T S R R P DM F Y H G S V S Q A L S E L Q T T Y WSADGVD A A A SPREAVEMARDA $P Q \square D N E F F F$ F S S I E K A L N A L D F LC E D R T G $\quad$ R F T G E P L D T L L S G L K K K LD Y K P D L I L S C S S R E A V E TLL N K
E D F




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 Y N L A MP FA D R
Y K QLL D A C C S E V IVTTK H DVVNCEA DAY F P NLDDRS D WHTT E
 Y H A L W D R

 Y T E A MQSPCVEKLYLTRVHTAPTCNRFY








 YEQALA DGLPDVLVVSVLDLDATALVRAPGVSTQEWAIDP


 FATAMHEAN
YDLFL P FASRTFLSRTHERNEGDRYFPDLGAEWTEDS

 $W Q L L L B Y R R R A V T R L P G R Y G A D V F L P P L D D G B D C T E$





Y D Q A L A A G L P D V L V V S V LD S D A S VRVRAPA DP VH Q WR LD A

 V K L L W $\quad$ D Y D Q A M A A GLP DVLVVSVLDLDDATADVRAPGDSS QEWVIDP Y Q FD $\square$ F L N HADALIVSVLNDYYDCNLYM KVDYNNFNL
 YKEFLDRNLIKKI Y FTRIINNAY
 A T LIF LEQNLIDEFLLTKINKNYNGDTFFP



 RV F L AT P N A P D S Y F P Y R D L Q S H


Y T L F L K N K L V T D I Y L
FDHFADLGLVNELHI T
Y Q Y Y LDE HY P I A QV Y L S K LK A HVA GEA Y F P N LE K L G Y E VVK
$F \begin{array}{llll}F K Q F F & P Y I & D K I & Y \\ V & T\end{array}$
VQQLMDE DLI DVYNVTII
$V S Y F L D Q D L L D E L I L A \| \quad I P T \square L E G \square P L F P$
$Y Q V H V H T N S F \quad E T Q L G P$ VK ECLV V G L L D D LYVVA I P K VLG G G I LIFPK GSEA VF VLA D

 $\bar{V} N Q Q L M E K C D L I D C E Y H L_{T}^{T}$

## FTQFLNEG』VTD $\square H L T$




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E E S Y P
D F A VIE T WE R
QESQTFYARDAKNPYDFT
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KYREQKADERNPHDMHF
TSQTHYTQDGTAFRFVTY \G D LDMENGUSYRHNKYVR
K E
QENF EADEKNEFAYSFDNYSR FK QVTYER

EQQFT S N $\square \mathrm{NYCYQ} \mathrm{\square WQK}$

VLDEKENLTFCF QREG GDEN YRYTFFTLAR DTENAAVD DKPAYNFEVWER
E GETVEDPQ DDYH IVVYKNN E WVGVTGRWIE E GDVRVQMVGYER ETDWLTSERGNKTPLRYKY ITYVRT
SRGGET
CMFETYER
RRPAK
DCDFE IY DR

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S LSDPQGQWRPVSGARWRVETWR
NFKSRSSY TTKENH $\square$ T CSYHTY
EKK
E E D F D
E F Y $\square E R W \square R$
REAHDGFDVIE Y
ADTWTGRTPQPEKD
S E EAVSS D WA WE GDVAMK $\square$ S GYER KRAGEENCI
ETPYD
K R
NEQKEG
EDG】 RFTLREWARR $C V F C V Y Y K R$
$C S G M H Y R R$
E $\square$ SHEAY ENF L A WEFVELSR
Q
EKTWT EDHG AVEFQDWKKR
RSDAPGTWRPVSGDARWRVETWYR E LEYEKDEYDNTKNDHDSFKKY QTQDLK K CYYENYSYRYTFCT KTED EDDSYRVYHEKWVR AGSDPPGLWRPVSGARWRVETWR
K S EA
QKE
E D K N $\square \mathrm{K}$ M T M Y H Y S K
NEYSH VEVWER

T K T WF
EKHD S VEFQDWK K N
TKE
R LLSSDLEFQPESGTGWRFEEW
TALGVFLGKRKMNTIAYR
EQHF
QELYFDFVTKEEHNY
ETEY EDF $\quad$ A Y $\quad$ Y E K R

SDS GVDDCVREDNGVKYRFEVWERN

REPRDG F DF VGYR
RKSG LVVNQYKNP

 $R K V V L Y$ Y A A S LD G Y A RNGAVDWLSGHGDQEDVDSENGY
 $M R K L T L Y D S I S L D D G Y A D N G G L E W L P N P K E T D Y G Y Q E$ PELLTLIVAATQQMGIGRNGALDWTGLRREMAYFARVTKR


MATAHVF
A Vs LD GF
(
PTEDHGY KCSVFIAASVDGFI ARDGDI DWLHRPEYEASEDS GVTY




## M

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EEONVV|AGQTTYESF
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EQFYQTID | $E Q F Y Q T$ | $D$ |
| :---: | :---: |
| $Q P F F E Q V$ | $V$ | V VPSTTTQNAVVMGRRTWESIPPS LDPAAG

 ENFDAGURTVVMGRDTYDWI ANQDMDWPKRTIIVTSRPDP EAFYRTI DTVVMGRKTYDDIFTDEYPYQGKMGYVYSRSKT
 AAFYKTVGSVVMGRYTYEEVLTEEFPYADRPTYVLSRSEQ PAFLDTVDAIVMGWTTYHQLSPDSWPYEGRPCYVVTHRQK KNTVMVMGAKTFASLP R LLPDRTHMVVTDMPR DNFYQGDGAVIMGSGTYEWI MANDWPYKNVPAFVLSHRAD HE F DK DI D TVVVMGWNTYHQVATEDSPYRGLTTMVVTHRAM EKFFETVDATAMGRKTYEEMLATEKDYPEKENYVFSRQMQ TEMYESIDDI I MGKRTYDYVIEHMEPFPDKKCYVFSNSEK EAFFATIDTTVMGRKTYQELMDEGPGYPETTNYVFSHTRK RRFEETVDTVIMGYRTYMELSDEVWPYSGKEAYVLTHKDI SEFIKNI DTVLMGWNTYHQII PNNWPYGDLYSYVFTHHTK QAFYDGIDDTVLMGNKTYQQLLSFGYPYKGTEGFVIFTRNME $\mathrm{S} \mathrm{D}^{\mathrm{D}} \mathrm{T}$


NAFDADKDVIVMGRGSYEKVRTFDTWFYDRPVVVLSEQLT ESFIATVDALVMGRKTGEKLSFPEWPYEGTPVIALSHHPL EEFYASVDTLIMMGRNTYEQLSPDEFPYEDKTCYIVSRTLQ
 PDFVQTVDTVLMGYTTYHQIRTELSPYAGMQTYVFTHRSE
 EAFVERTDAMVMGRNTLDMVLSFGVDWPYRKVFVLSNTLT YSQFYEI DTVIMGKRTYDWVMDKEFPYKDKKCYVFTRSQL

 A AFTANVDTII LGRKTYDWI GTSHYDNGGRDVFVITRTAR SAFMQGIDAVIMGRKTYDSLDVKFLH KDKQCYVLSTKQH
 YSDFYETVATVMGRKTYDWALNQEDFPYNKECFVVSRSVVN SSFMQS ID CTVMGRDTFETLHFEPYPFATVPVYVLTRNPG YGDF $\square K I D T V I L G R K T Y D K V L T L G \square P F P D K K T F V I T R T A K$ AEFMDRVDALIMGRNTVGMVLSEDCEWPYKPVYVLSNTMK

 A A LMARVDALVMGRNTLDVVLSFGVEWPYKPVFVLSNTDT
 GEDYGYKDTII LGGRTTYDY GTSHYDNGQRDVYV GTRNGR



 Y Q VFF S T Vid A L V M G R H S F E K V EAFIE TIGTVVMMRDTYEERLNQNQPLPDQKIVVFSRNQK YEKLVKHDTVVMGRKTYDQVANKNYPYDSFENYIMTRHPG M GRKTYE TMQS F G NP LTSERVIVVVRTMTP EALY A QF DTLL M G R R T Y E VVRAMGESLDRGKQVIVASRRSLR S DD $D A F L A S V D T I L M G R V T Y E A V R R L G W P Y P G K P T V V V T S R T L$ D D F M K DID TVVLLGGWT TYY E L S S N Q WMY E DCQS Y V FT H R Q Q
 VS DAS WNS WDi TGGRKTF DD LA D GNFP Y LDR R N NVVMTS QK D
 QNFYSRVETVIMGRKTYTRATQRAGSYPDKQSFVFSTTMH



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UniRef90-АоАогзСзட8
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EPDEHVTFINEDIPEFVKQLK
 DPKGELEVWS DGVD TV GRDENVTFVNEDLASFVKGLK LQLPDAEVVNEDPVAFLKNLQ LKLEDARVVHEDPVSFLKGLKE EDLENIFFWNGDLTDLVDKQKESH TKTDELARFYDTQAEFITLVMGFKLS PTPEGLNDTVTDKTAGDIVAVAKKAANGHVDVVVVGGMAL SPHETGHVRWMNGEPAAIVAQQ $\square$ AE TDLTDAVVVDQDPVAFLSQLK KQKIDGELTVDSIDKAITVAKEMK SSNEHVEFVNGDVVEFTKKLKE EPLPDALLVASDPVAFVSALKQ VDRPG|HFTREPLEHLLSVLKKR PATDNIFFT KSSKNITFTSQDPTALLNKLKN
 EPPPGVKLVPADAVGFVRQKE YKFES QYPIYIIFNGTIKNLTTTLVK NKK K GTPVPEALKGKLRFSNLAPADA AAEEGVGNTYVDGGAEII

## ${ }_{9}{ }_{9}$

QD E V S Q E K I IF T RESPC DLV R R L S Q EISPKKTLISGDIEAKVREIKN
SVPEGYEDKLF LLKGDIKDVVEHDNGQG DDTEDVAFVSGDVTQFVNERKEQ

KNDKNILFLKGNPQE I I S S LEKKNDKSAA VIGGGKV



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 PD!GQTKFYTGNLSDLPQELKKKU $L P$ RA G D E VT HCTTPA Q A V D A L R $\operatorname{L}$ R GAAVPEALEGKVRFSSRTPREEMQARQGVQRVWLVGGSLL GENKNVKFVNEDIVDFTNKLKNE- 

TPSGNITTFYTGNITNLVLSLKQEA
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FEEFF PY DDK\F اT


$\square$ QPLIRENRI DRYHI SVI
Q R F L Q A GMLI
D

 ASPFFEAGU $\operatorname{DQQUSL}$ NVHPVLSGAPFFPP ASAFMQHNLVDE QHF IVKERALDEDTTMTRMDEKLFECDTFFPELNSGKWRKVS QSFLRRDGLVADMVI TTVPVLIGGGGRLFGGLQRDDWELVS QTFLEAGLVNELI I

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A ARCLEAHLVDTVEV
FSQLLLA WNLVVDTV
NTLGFL NANLLLDEIIIS
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VQQAL EADLLI DEFY\ISVIPK
V QGALLIEAADOL
N NASFMKESQLVDDE:IYKL
AAABCIS SMGAIID TVVEL
FAELLKKAHEIDNKLIISS
ASQCLLQAQLVDTVEI
QSFLEE QDLIADELLIVINT T I
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UniRef90 R6ITM0
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UniRef90-UPIO004680ECB
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UniRef90 Q2H6E6
UniRef90-A6LKQ9
UniRef90-A0A024K847
UniRef90 UPI00042740A6
UniRef90 H8L837
UniRef90_V5XS34
UniRef90 ${ }^{-}$W4AU91
UniRef90 F4XBH1
UniRef90-Q7Y267
UniRef90-W3V3E5
UniRef90 N9W5T4
UniRef90-V5ZXN7
UniRef90-G5ITV2
UniRef90-S7XSJ9
UniRef90 R8FOH0
UniRef90-R2P164
UniRef90-D9R4E7
UniRef90 R9KZF2
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UniRef90_UPI000368F5E5
UniRef90 G8R8E5
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UniRef90-K5C8P6
UniRef90 Q5B022
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UniRef90-U1SJM2
UniRef90 W8QKD0
UniRef90-L2ENP7
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UniRef90 U2BC99
UniRef90 R9MHC5
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UniRef90-K2CK81
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UniRef90-J3JC83
UniRef90-UPI0003A36E44
UniRef90-F9G6U3
UniRef90 U3CG04
UniRef90_Q0KAM8

GRYY $\square \mathrm{NG} \mathrm{V}$ T Q T E Y G $\square \mathrm{K}$
$T \square M A V N H M P P S V V R \square Q Y R F$

GTEHWNG【VD
LVYEKR

R Y K WE Y D GKF $\square E N G K K F G F Y \square Y E$
$\square \mathrm{STKNYNG} \mathrm{\square VE}$
V V Y E R R

VGEEVTGEWTEEGDVRVRMV NCSFPSGLVQ
$\mathrm{S} Q \square \mathrm{H} \square \mathrm{DA} \square \mathrm{V}$ Q
T T Y H R T
lupas_21
lupas_14
lupas_28
jnet
conf
$1 \quad 10$

$\begin{array}{llllllll}B & B & B & B & B & B & B & B \\ B & & B & B & B & B & B & B\end{array}$ | B B B B |
| :--- |

$\begin{array}{llll}B & B & B & B \\ B & B & B\end{array}$
20
B $B$
B B B
30
В В B

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sol2
$-\infty$

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\section*{50}

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60
$B$
$B$
יוזסנן

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B
B
\(\begin{array}{llll}70 \\ \text { B B B B B B B B } \\ & \text { B B B B }\end{array}\)

E-
\begin{tabular}{|c|c|c|c|c|c|c|c|c|}
\hline sol25 & B & В В В В \({ }^{90}\) & B & B B & \({ }^{100}\) & 110 & В В B B B B & \({ }_{B}^{120}\) \\
\hline sol5 & & B B & B & B B & B & & B \({ }^{\text {B B B }}\) - & B \\
\hline sol0 & & & & B & B & & B B B & B \\
\hline jhmm & & & \(t\) & & & & - & \\
\hline jpssm & & \(\longrightarrow\) & - & & & & \(\Rightarrow t\) & \\
\hline
\end{tabular}

sol25
solo
jhmm```


[^0]:    

[^1]:    
    

[^2]:    K D

