20
30
40

QUERY
UniRef90_Q28F16
UniRef90 A7RYG8 UniRef90-B7PMU0 UniRef90-E9HCX7 UniRef90_A3KLJ3
UniRef90_F6PN13 UniRef90-B3RM04 UniRef90-M3X834
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UniRef90-I1GF70
UniRef90-C3YO29 UniRef90_V9L709
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UniRef90-R7TTF8
UniRef90_V4A1E3
UniRef90-L8HOE9
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UniRef90
UTOPZ75
UniRef90-J3JWY7
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UniRef90-G4MZ62
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UniRef90-TOR1H3
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UniRef90-B2B6X1
UniRef90-S4X167
UniRef90_D5AEH8
UniRef90 UPIOOO46B52D7
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UniRef90_MOSY23
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UniRef90 UniRef90-AOAO16F
UniRef90 H3F6D9 UniRef90-10Z091
Uniinefol-E9G3M7 UniRef90-A0A024G1U8 UniRef90-A9NNZ6 UniRef90 N1QFB6 UniRef90 K K ENX2 UniRef90-A3KLJ2 UniRef90-R8BQ24 UniRef90-D3B2T3
UniRef90-F7B4V3 UniRef90-B4NJ10 UniRef90-A7URN4 UniRef90_D8SJX5

VVPGPAEHP KEEMVPPG H L

 KHPLQNRWALWFFKND KHPLQNRWTLWFFKND KHPLQNRWALWYFKND


KNTWTLWFD NPGKA
K H P L Q S R WAL WF YKNV

$K A V V P G Q A$ EHPL LNRWAL EALRKAPE

A $\square \mathrm{DVGPD}$ | D | $H$ | $K$ | $L$ |
| :--- | :--- | :--- | :--- |
| E | $H$ | $E$ | L |
| L |  |  |  |

K
KHPLQNRWTLWFFKNDKMKQ WEENLQE


K
A P K P G E G
E H P L
K HP L

PTSE E GLE | K | H | P | L |
| :--- | :--- | :--- | :--- |
| K | H | P |  | K HP L ENRWALWFFKNDRNRV K HP N N WAL WYFKND

A G VDP E G
GHF L S S GYTFWF VRRS GAR
EHPLE
K H
APMDYSVKHPLQNVWTLWYYEN $R S V I P P P T K H L L E H S W T H W F D E N P S A R S$

K HPLQNCWT LWYYEND
T E D Q MVK HP L Q N T WT L WY LE N D
PN
$\mathrm{K} \times \mathrm{W} \square \mathrm{T}$ GNAETRKEYSSRKYYLRRNPGPSR

K A V VP APE AR


$R_{P}^{N}$

## E N S WT F WF D $R ~ T ~ P ~ W V F ~ W F ~$

$R \quad P \mathrm{P}$
K
R
$M K K N$
$F K N D$
D RKRTS SAD T WGNHLKK H
 K S K S WA A NL R N K T K D WHA N N L KTKDWHANLKV $\begin{array}{ll}K & R N W A D N \\ S \\ \text { S E N Y A N A } \\ \text { I K R }\end{array}$ PE DYAA YV QP ATESWEENLLKL RNQSWEKNQRE $R Q D K W G N S Q R P$
$R S Q T W E K N Q K E$ RTKS WEDMQNE

K HP $H P$ RNRWALWFFKND RNKEWTANLLKL ELLA GEPSKHPLET RWTLWFD NPKGKRVQASEENMKK A RTS GAS V H R L R D S WVVFWF RPP DSKANGF DEYENTMLHP

K H P L E N S WTFWF D N PMAKSRQAA WGS SLRE HP L E H S WTFWF D NPNGKSKQATWGSSLRP RAQAEGPMEHPLNSRWALWFFKND K AVVPGPA EHPLQQNYTFWYSRRTPGRPTSSQSYEQN KQ APHRLERKWTFWFDNQS KPKQGAAWGSALRK R P H QLG HS WTFWFD S PAAKSSQAA WGSS I R P K H P L E H T WTLWW D NPNGRQKQATWGQTLRS K S V S LP Y Q P H P L E H Q WT FWF D N P S A K S K Q A S WG S S L R S

PSSGPHKLLERKWTFWFDNQS KPKQGAAWGSSGLRK
TA K HPLQHKWALWWFKKND P

$$
A T V P B P A
$$ TPS



 $\begin{array}{ll} & Y \\ Y & E \\ Y & A \\ Y & D \\ F & D \\ Y & E \\ F & E \\ Y & E \\ Y & E \\ Y & D \\ Y & E \\ Y & D \\ Y & D \\ Y & E \\ Y & E\end{array}$ E Q
A D
$D Q$
$D Q$
$E Q$
$E$
$E$
$E$
$D$
$E D$
$D Q$
$D Q$

$E Q$ | $N$ |  |  |
| :--- | :--- | :--- |
| $N$ | 1 |  |
| $N$ | $L$ |  |
| $N$ |  |  | | R |
| :--- |
| R Q |
| K |

$$
\begin{aligned}
& k \frac{L}{L} \\
& \frac{2}{M} \\
& \hline 1
\end{aligned}
$$

G E
, K KTKSWTEN L R R L

N WS E N L
KSKTWQENV R R L L
S S Q S YEQ N KQ
GNTP S Y D Q N L K K
 K QE D WG S S I RP $S K Q A A W G S S$ L $\begin{aligned} & \text { R P } \\ & \text { R }\end{aligned}$ Q G Q G Y S Q A L L L
 $K A V V P G P A$

 $1 L$ L L Y S S S MKK
 RTPG
 NSTQKDGEKEKTERDKNQ

## K H P LQ N S WA MWF FKND

K H P L Q H T WT L WYYEP D
KHP L EHSWWTVWF E EP D D A A K S K
 SRDWKDRR R NKTWE ESSQRK
KRTA WGSSSMP TEPTPSENPLEFTY\|FSYFVRPAGKFD PEEYS QYVQPB

KHP L E H TWTL WY LIEND R SK SWEDMQNE
E VIQ FETKHPLQHRWVLWYD DSKKRRQSNNWE $\square N L K K$


K K H P L Q N N WTLWF DNPNGSRKQT TWGQTLRS

H S L R N S WVFWF RPP $\quad$ P K S NGY $\square A Y E K T V H A$ K H P L Q N K WS L WF D Y R N QQK IS Q D S WA E G L K K

## EAAPS

K H P L Q N K WA L WF FKN DR QK K

K H P L Q H T WT L WY L E VDRTKK
KHP L EHSWT FWF D NPS GKNKQQQWTDSMME
UniRef90_UPI0002C4604A

RNKSWED MQN E
WTD SMN E
SRDWQDNLI L


## 90

100
110
120

UniRef90 Q28F16 UniRef90_A7RYG8 UniRef90_B7PMU0 UniRef90 E9HCX7 UniRef90_A3KLJ3 UniRef90_F6PN13 UniRef90_B3RM04 UniRef90_M3X834 UniRef90-E0VZB6
UniRef90- T2MIV9 UniRef90 ${ }^{-}$V4BGC2 UniRef90_T1FXS7 UniRef90_G5C7J2 UniRef90_I1GF70 UniRef90_C3Y029 UniRef90_V9L709 UniRef90_H2MYQ2 UniRef90 I1BR80 UniRef90_H3B8F6 UniRef90-W5N1P4 UniRef90_F7EJ43 UniRef90_UPI0003C123F7 UniRef90-J9JJT8 UniRef90_UPI00026571A5 UniRef90_T1IXQ5 UniRef90_L8HF00 UniRef90_U5EUM7 UniRef90_UPI000359819C UniRef90_A7REQ6 UniRef90_U9SLK0 UniRef90_F6ZEI9
UniRef90_R7TTF8 UniRef90_V4A1E3 UniRef90_L8H0E9 UniRef90_F1LDT1 UniRef90_TOPZ75 UniRef90_J3JWY7 UniRef90_S8CIU9 UniRef90_D6WJL4 UniRef90_B4NE60 UniRef90_UPI0002246EF5 UniRef90 G3SIC4 UniRef90 M1JJT8 UniRef90_UPI000273FDA7 UniRef90_M0SB76 UniRef90_G4MZ62 UniRef90_D6X3F1 UniRef90_T0R1H3 UniRef90_K1PGU1 UniRef90 A9P259 UniRef90_A0A059LQG8 UniRef90_B2B6X1 UniRef90_S4X167 UniRef90_D5AEH8 UniRef90_UPI00046B52D7 UniRef90_L8Y3S3 UniRef90_MOSY23 UniRef90_L9LCQ1 UniRef90_A0A059CCW1 UniRef90_C1MKP6 UniRef90_B9I127 UniRef90_F6YID3 UniRef90_UPI0004448961 UniRef90_M5Y9E6 UniRef90_UPI0001CBB151 UniRef90_Q7XJB1 UniRef90_W8GH57 UniRef90_H3FVT2 UniRef90_Q9FK59 UniRef90-B8ZZL3 UniRef90_UPI00021A7AF8 UniRef90_A0A023GZ28 UniRef90_A0A016RS51 UniRef90_H3F6D9 UniRef90-I0Z091 UniRef90_E9G3M7 UniRef90_A0A024G1U8 UniRef90_A9NNZ6 UniRef90_N1QFB6 UniRef90_K8ENX2 UniRef90_MOSNE7
UniRef90 A3KLJ2 UniRef90-R8BQ24 UniRef90_D3B2T3 UniRef90_F7B4V3
UniRef90 B4NJ10 UniRef90-A7URN4
UniRef90_D8SJX5
UniRef90_UPI0002C4604A


## QUERY

 UniRef90_Q28F16 UniRef90_A7RYG8 UniRef90 E9HCX7 UniRef90-A3KLJ3 UniRef90_F6PN13 UniRef90_B3RM04 UniRef90_M3X834 UniRef90-E0VZB6 UniRef90 ${ }^{-}$V4BGC2 UniRef90-T1FXS7 UniRef90-G5C7J2 UniRef90_I1GF70 UniRef90_C3Y029 UniRef90_V9L709UniRef90 H2MYQ UniRef90-I1BR80 UniRef90-H3B8F6 UniRef90_W5N1P4 UniRef90_F7EJ43 UniRef90_UPI0003C123F7 UniRef90_J9JJT8 UniRef90_UPI00026571A5 UniRef90_T1IXQ5 UniRef90_L8HF00 UniRef90_U5EUM7 UniRef90_UPI000359819C UniRef90_A7REQ6 UniRef90_U9SLK0 UniRef90-F6ZEI9 UniRef90_R7TTF8 UniRef90_V4A1E3 UniRef90-L8H0E9 UniRef90_F1LDT1
UniRef90 T0PZ75 UniRef90_J3JWY7 UniRef90-S8CIU9 UniRef90_D6WJL4 UniRef90_B4NE60
UniRef90 UPIO002 UniRef90_UPIO002246EF5 UniRef90_G3SIC4 UniRef90_M1JJT8 UniRef90-UPI000273FDA7 UniRef90_MOSB76 UniRef90_G4MZ62 UniRef90_D6X3F1 UniRef90_T0R1H3
UniRef90-K1PGU1 UniRef90-A9P259 UniRef90_A0A059LQG8 UniRef90-B2B6X1 UniRef90_S4X167 UniRef90_D5AEH8 UniRef90_UPI00046B52D7 UniRef90-L8Y3S3 UniRef90_MOSY23 UniRef90_L9LCQ UniRef90_A0A059CCW1 UniRef90_C1MKP6 UniRef90_B91127 UniRef90_F6YID3 UniRef90_UPI0004448961 UniRef90_M5Y9E6 UniRef90_UPI0001CBB151 UniRef90_Q7XJB1 UniRef90_W8GH57 UniRef90_H3FVT2 UniRef90_Q9FK59
UniRef90_B8ZZL3
UniRef90_O77210 UniRef90_UPI00021A7AF8 UniRef90_A0A023GZ28 UniRef90_A0A016RS5 UniRef90_H3F6D9 UniRef90_IOZ091 UniRef90_E9G3M7 UniRef90_A0A024G1U8 UniRef90_A9NNZ6 UniRef90_N1QFB6 UniRef90_K8ENX2 UniRef90_MOSNE7
UniRef90_A3KLJ2 UniRef90_R8BQ24 UniRef90_D3B2T3 UniRef90_F7B4V3
UniRef90 B4NJ10 UniRef90_A7URN4
UniRef90_D8SJX5
UniRef90_UPI0002C4604AQG
QG86B52D7

## 

$=\square c \cdot 130$
140
150
$R \square R D T \square R R \vee \frac{160}{\square}$ EI C G V V V S I R F Q E DI L S I WN K TAN D Q F S TV R I R D T L R R V L
 EICGAVVSI RFAFDII SVWNRDASDQATTNRIR E I C GA V V S V R F A E D I

 EVCGAVVSI RYQEDIL
 E I C G A V I S V R P T E D I V
 DVCGAVTNI RPKGDKI ALWTRDTENR
 E I C GAVVSVRKVF YRVVSWTKTSERNERIETT DVCCGAV I NI R A K G D K I A L WT T H A E N R D A V L DVCG AVINNVRAKGDKI A I WT TNAENREAVTVYIGRKEKE GL EI CGAVVSLHFQEDII EVCGAVINIRAKGDKI


 | $S$ | $I$ | $W$ | $K$ | $T$ | $A$ | $S$ | $D$ | $A$ | $T$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $A$ | T | Q |  |  |  |  |  |  |  |
| A | W | $R$ | $E$ | $A$ | $E$ | $N$ | $Q$ | $E$ | $G V$ |
| $V$ | $H$ |  |  |  |  |  |  |  |  |



 EI C GAVVNVRPKGDKL | $E$ | $V$ | $C$ | $G$ | $C$ | $V$ | $V$ | $S$ | $I$ | $R$ | $K$ | $A$ | $Q$ | $D$ | $R$ | $A$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $E$ | $C$ | $C$ | $G$ | $A$ | $V$ | $V$ | $N$ | $V$ | $R$ | $P$ | $K$ | $G$ | $D$ | $K$ | $A$ |
| $S$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |



 | $V$ | $W$ | $A$ | $T$ | $A$ | $R$ | $K$ | $M$ | $E$ | $P$ | $S$ | $I$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $A$ | $K$ |  |  |  |  |  |  |  |  |  |  |
| $I$ | $W$ | $R$ | $T$ | $A$ | $S$ | $K$ | $E$ | $A$ | $A$ | $V$ | $R$ | I WT SNS Q NRNA I L E $\begin{array}{llllllllll}V & W T & G & N & A & T & D & E & E & G T \\ R & R \\ L & W & Q & A & H & E & G & R & \square & N \\ L & K\end{array}$

 $\stackrel{D}{\mathrm{D}}$

A


| $E$ | $C$ | $G$ | $A$ | $V$ | $V$ | $S$ | $V$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $E$ | $H$ | $F$ | $Q$ | $E$ | $D$ | $I$ | $I$ |
| $E$ | $C$ | $G$ | $A$ | $V$ | $V$ | $S$ | $V$ |
| $R$ | $A$ | $K$ | $Q$ | $E$ | $K$ |  |  |


| $E$ | $C$ | $G$ | $A$ | $V$ | $V$ | $S$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $E$ | $V$ | $R$ | $Q$ | $K$ | $Q$ | $H$ |
| $C$ | $R$ |  |  |  |  |  |
| $D$ | $C$ | $G$ | $A$ | $V$ | $V$ | $S$ |
| $V$ | $R$ | $A$ | $R$ | $Q$ | $E$ | $K$ |
| I |  |  |  |  |  |  |





F CGAVVNVRQKGDK


## D


VGAVVSVRVKQERD EICGVVYSTRYQEYLLSWNRTADGATVK ElCGAVMSTRYNEDIISLWNRNADNNEACYR DICGAVVNIRNKGDKL EICGVVANIRVRDFKI EVCGIVVSIRRNGDCL EICGAVVNVRARQDK VCGAVVNVRARODKK
 LGLWTRDA
促 N:CGAVVNIRYKGDK: GI WTSDANNGTALLE: EICGAVVNVRSKQDKISI WTKNAANEAAQLK EICGAVVNIRGKGDK QVCGAVVNIRGKNNKI s1 WTS S


WNKTASDLGGTTNR WT KNADNEAAQLS I WNKTASDQATTAR

RETMK RLL RDALKRLL RDTMRKLL
GRKKKK
R
 S L WTRTA A NEAVQVAL ${ }^{\mathrm{G}}$ ALWTKNAANETAQVS
 ALLWTKAASNEAVQMS
 A 1 WTKNASNETAQVS AVWTCEADNRDGVTH AL WTRNAANEAAQMG

 SL WTKTAANEATHMG SLWTRDAQRDDDNLR RETMRRVL KQWKEFL GVVYKECL GR | $R D$ |
| :--- |
| G |
| G | GQ

## G G G $G$ $G$ $G$ $G$ <br> G G G

 W
 Q WK WK
 DiCGAVVNLRPKGDKLSVWTADCTNRDGVMK

EVCGAVVSARPGEDVI
E CGAVISIRQKQHR

EVCGAVMSVRNGEDTLSTWTRT
cGUYNARKQGK TVWTRNH
YVNGGVVQVRHKGDKVAI WTSDYKH


QUERY
UniRef90_Q28F16 UniRef90-A7RYG8 UniRef90-E9HCX7 UniRef90-A3KLJJ UniRef90-F6PN13 UniRef90-M3X834 UniRef90-EOVZB6 UniRef90-T2MIV9 UniRef90_T1FXS7 UniRef90-G5C7J2 UniRef90-I1GF70 UniRef90-C3Y029 UniRef90_V9L709
UniRef90 UniRef90-11BR80 UniRef90-H3B8F6 UniRef90-W5N1P4 UniRef90-UPI0003C123F7 UniRef90-J9JJT8 UniRef90-UPI00026571A5
UniRef90 T1IXQ5 UniRef90-L8HF00 UniRef90-U5EUM7 UniRef90_UPI000359819C UniRef90 A7REQ6 UniRef90_U9SLK0 UniRef90-F6ZE19 UniRet90_R7TTF8 UniRef90_V4A1E3 UniRef90-L8H0Es UniRef90_F1LDT UniRef90_J3JWY7 UniRef90-S8CIU9 UniRef90-B4NE60 UniRef90-UPI0002246EF5 UniRet90_G3SIC4 UniRef90 M1JJT\& UniRef90-UPI000273FDA7 UniRef90-M0SB76 UniRef90_G4MZ62 UniRef90 D6X3F1 UniRef90-T0R1H3 UniRef90_K1PGU UniRef90-A9P259 UniRef90-B2B6X UniRef90_S4X167 UniRef90 D5AEH8 UniRef90-UPI00046B52D7 UniRef90_L8Y3S3
UniRef90 M0SY23 UniRef90 L9LCQ1 UniRef90_A0A059CCW1 UniRef90_C1MKP6 UniRef90 B91127 UniRef90-F6YID3 UniRef90_UPIO004448961
UniRef90 M5Y9E6 UniRef90 UPI0001CBB151 UniRef90-Q7XJB1 UniRef90_W8GH57 UniRef90_H3FVT2 UniRef90-Q9FK59 UniRef90-B8ZZL3 UniRef90 UPI00021A7AF8 UniRef90-A0A023GZ28 UniRef90_A0A016RS5
UniRef90 H3F6D UniRef90_IOZ091 UniRef90-E9G3M7 UniRet90_B4N2YO UniRef90 A0A024G1U8 UniRef90_A9NNZ6 UniRef90 N1QFB6 UniRef90_K8ENX2 UniRef90-M0SNE7 UniRef90_A3KLJ2 UniRef90_R8BQ2 UniRef90-D3B2T3 UniRef90-F7B4V3 UniRef90_B4NJ10 UniRef90_A7URN4 UniRef90- D8SJX5 UniRef90 UPI0002C4604A


QLP S Q T M E Y K A H DQS LK DK S S F R N NLPPKFVIGYQAHTDTMSKSGS
GLPVKVVI GYQAHADTATKSG
NLPMKAI GYQSHDDTSSKS GS
NLGPTSTVVETPHGDSASKTSENRF
GLPAKIVIGYQAHADTATKSGS

GLSTKT GYQAHADTATKSNS


EMPAGSVVGYQVHSDSMKTQSSSSAKY
GLSPKTSIN YQUHKDTMVKSSSN
NLPPNTIMEYKAHTESMK
GLPPKMFIGYQAHQDTMTKTGS
NLPSETIMEYKTHNDALKDNSSFRN
GLSPKVIIGYQAHADTATKSNSF
NIPRDITI GFQAHSDTMTKAGS

NLPVNAVLEYKRHDDCLKDQSSYR
DLGKNEVLKFQSHADAAASGSSFQN
NIPQRTIIGYEVHKDTMDKTGSS
DF NET GF FHDDAKKDERAAKNRY
H $\quad$ PPRTVLGYQIHKDTQDKS GS
CLERHNFLQYQLHTDTMDKQGSN
HLPSSLDPIUYK
$\mathrm{N} L \mathrm{~L} P \mathrm{PNT} \mathrm{I}$ MEYKTHTDS $\square K M P G P Q R L L F$
DY NETIGFIFHEDAMRHERSAKNKY

GFPPDTKI E WKSHEGSLQQR
NDPASATMEYKTHNDCLK
NLPQFVVLEYKRHDTSLNDNSSFRN
SI PAKI QIGFQSHRDTMTKTGS
HLPASYLMEYKPHDAALRDNSSYRN
QLGDSVTMGF $\square$ THADAKASNKPS
SMPNDTK IEFKSHDTS IQQQR
DY SNSIGF GFHDDSMRLGRGAKNRY
DY NEKMPYMFHDDAKKMDKLAKNRY
$D L P T K T \square G Y Q V H A D A A T R S N S P$

NLPPNT MMEYKTHTDS | LK |
| :--- |

DF NEKIVYNFHDDSRRDKSNR
 NYSQKA GF L HEDAKKLDRAARNRY GMPETEK\GYMVHDDA $\square$ RLE
DY NETI GF IFHDDAKKDRNAK
GLTQKVTIGYQAHTDTASKS
GLSMKATIGYQAHADTATKSNSARNKF
DVTDK IT YSFHDDSKRRSAKPRY


D
D
V
EI PDSEPDRYEVHKDSSVRTSS


K I A S KVT Y Y Q I H K DVI VK A G S Q
D SNENIGFDFHDDAQKLDRNAKNKY
NLP $\square$ NAVMEYKRHDECLK
NLPDNAVLEYKRHDDCLKDQSSYR
DLDTSATIGYDAHSDAKRD
GIVVKGSVYEAHNDSMKKSGS
GFQAHQLQYQLHKDLLMTKQGS


|  |  |  |
| :---: | :---: | :---: |
|  |  |  |
| UniRet90－M5G047 | TPHPL | LRS WVFWFHHRPPGNKVT NYEDG |
| UniRet90－A1YVX3 | PHEHKL | LEYSYWMWFSRRPARDTTTPTGYGQALRLL |
| UniRet90－W5J8C8 | Pr | LQHTWTLWYL |
| M4 | PESHPL | EHSWTLWFD NPSVKSKQTTWGS |
| UniRef90－F9F |  |  |
| UniRef90 11 CJ | S■K HP ${ }_{\text {c }}$ |  |
| UniRef90 F7W6Z6 UniRef90－HOWHY |  |  |
| UniRef90－F4PD21 |  | HYSWVFWFMHRSPGAK】 QDYTNEIKH |
| UniRef90－B4L3U7 | P | NSEWTLWY LETD |
| UniRef90－V4 |  |  |
| UniRef90－OOUB |  | KCTWVVWFRPPTP KSSDYESUQP |
| $\begin{aligned} & \text { UniRef90-T2MHS7 } \\ & \text { UniRefo-AAO22YD1 } \end{aligned}$ | K HP ${ }_{\text {l }}$ |  |
| UniRef90－F1LUH2 | REHPTKHPL | LQFRWVLWFFKND RSRAWQDNLQL |
| UniRef90－UPIO00393I | GKHPL | QQRWAL WFFKND KSKMWQANLRL |
| RRef90－B4N9 | T K H | QNS WTL WY Lend |
| UniRef90－S88R600 | TKTP ${ }_{\text {T }}$ | RYTWIVWY |
| UniRef90－UPI0004449F99 | QEHPL | LQYTWTI YHDTKTKPAPAEAGDYEAGLTT |
| UniRef90－Q9W5B3 |  | LNNCWTL WY DEND R R K S Wemml k |
| UniRef90－H3G |  | NRWVLWYDNDPKKRNSNESWEENLKN |
| UniRef90 L8IU12 | P | LGNRWALWFFKND |
| F9 |  | KNGWVIYYRPPT NKNSDYEKSIKP |
| UniRef90－Q1t |  | LQNQWSLWFYDND RNKTWEENLIE |
| UniRef90＿O8TA64 | VEVKPGEHPL | QYTYSLWFSRRAPGKQATTQNYDQNLQL |
| $\begin{aligned} & \text { UniRef90-P4866 } \\ & \text { UniRef90-G4T } \end{aligned}$ |  | 俍 |
| UniRef90＿UPI00033 | P | LP RWALWFSKND RSRAWRDSLQL |
|  | THP | QHEWTLFFDTRSAAAPSSASSWEANLRC |
| RRef90－F1L6 | E H P |  |
| niRef90－B5DRH4 | VSSAVKHP | EHTWTLWYL |
| niRef90－T11C32 |  | QNSWTLWYIEND RRKDWKQNLKE |
|  |  | QHAWTMWFFKNN RAKEWKVNQKP |
| UniRef90－Q9NB22 | P | QNKWALWFFKND KMKSWADNLRV |
| S8D | EL | EKKWTFWFDNQS KPKQGAAWGSSLRE |
| UniRetg |  |  |
| UniRef90－F4P5K8 |  | － |
| UniRet90－Q7QD43 |  | ， |
| UP10003C | MEVDPDD ${ }^{\text {P }}$ | QHEYWLWYSRK GAHRATDYSKSLRM |
| UniRef90 E4XUU3 | KHPP | （l） |
| iRef90－C1BRH7 |  | HPWTMWFFKNN RNKEWKVNQKP |
| UniRef90＿D8U194 |  | RWTLWFD NPNQKQTQKQYGQSLRS |
| UniRet90－R4X735 |  | NKWTL WY K P PT G GRGADAWADNKK |
| UniRef90－B5DQZ1 | S | NVWTLWYLEND RSKHWKDMLTE |
| UniRef90－T1GNT1 |  | QWTLWYL EADRSKSWEDLQNE |
|  |  | KKWTFWFDNQS KPKQGVAWGS SLRK |
| UniRef90＿K5XF11 | VPP SAVHPL | RNTWVFYF RQQRSPGNKNVNYEEGLKK |
| UniRef90－－255 |  | QNRWSLWYD |
| UniRef90－UPIO0044089BA |  | QNKWTIYHDRPPPTAPTETGDYEAGLTV |
|  | － |  |
| UniRef90＿U4LPT8 |  | MNKWTLWFTKPPSGKGGN |
| UniRef90 B | KL | DKKWTFWFDNQSKKH GAAWGSSLRK |
| UniRef90－A0A015K7Q8 |  | LQ ${ }^{\text {a WTMYYDSKPPKTPTGKLTYEENLQT }}$ |
| UniRef90 G4L | PEEHPL |  |
| UniRei90 ${ }^{\text {UPIOOOO4414B24 }}$ | P | LQNQWILYYDPPTPFIDPSTESYEAGLSV |
| iRef90－A9S3L1 |  | QHSWTFWFD NPNGKQKQA |
|  |  | QFPWT1FHDTKAPPVPES |
|  | P | QNKWTLWY |
| UniRet90－Q4RV79 | GAGEHPL | QYNYTFWYSRRTPGRPASTQSYEQNIKQ |
| －3NK59 |  | M M |
| UniRet90－S8FRQ2 | VVHP建 | （ RHNWVFWF RQQRGPGTKITNYEEGIKK |
| UniRet90－C4WSX6 | LVVKHPL | LENKWTLWFFEN KSKVWEENI HE |
| UniRef90－UPI000395953A |  | RWADWFFKND RSRAWQDNLRL |
| UniRef90－M4EMX7 |  | SWTFWFD NPSSKSNQTTWGSSLRS |
| UniRet90－C9SFQ1 | A GLK V ${ }^{\text {K }}$ P | EWVTWC RPCQPKGQPYEEYAKSLTA |
| UniRet90＿UPIO0027F2B4D |  | QNRWALWFFLND |
| UniRee90 UPIO0042B337D |  | HKYVFWYTRRTPGVRTQTA YEDNDKK |
| UniRef90－U41 | PPVPESHP | LKMEWVVWYRSPGKSGNKFQDYEKSTHK |
| V2Y |  | LQHSWTDYHDTPTPQSADGSHEYEAGLTV |
| UniRef90－A8N9B1 | PK V | RNTWVFWF RQQRAPGNKVIDYEEGIKK |
| ，Re90＿B4GSE3 |  | ， |
| UniRef90＿A5D | G | NNKWTLWYTKPQVNK S S S N Wh il L |
| UniRef90 UPIO0004411031 | E | LTHTWTLYHDNKTKVPFTOTDEYEAGLTV |
|  | －HPL | TWVFWF RQQRAPGNKDTNYEEGIKK |
| UniRef90－M2MDZ3 |  |  |
| ef90＿U5D |  |  |



## UniRef90 U9SXQ3 UniRef90-EзM9Y9 UniRef90-M5G047 UniRef90-A1YVX3 UniRef90_W5J8C8 UniRef90-M4D9X3 UniRef90 F9FTG5 UniRef90- I1CJX1 UniRet90-F7W6Z6 UniRef90-HOWHY1 UniRef90-F4PD21 UniRef90_V4RHS8 UniRef90-OOUBO8 UniRef90-T2MHS7

 UniRef90-AOAO22OYD1 UniRef90-F1LUH2 UniRef90-UPIO00393D06D UniRef90_B4N967 UniRef90_S8BR60 UniRef90_U1GS81 UniRef90_UPI0004449F99 UniRef90-O9W5B3 UniRef90-H3GXG5UniRef90- B4kW75 UniRef90-L8IU12 UniRef90-F9XHV9 UniRef90-Q1HP11 UniRef90-Q8TA64 UniRef90-P48600 UniRef90-G4T635 UniRef90-UPIOOO3314911 UniRef90_R9P8S5 UniRef90-F1L6U9 UniRef90-B2DBL9 UniRef90-B5DRH4
UniRef90_T11C32 UniRef90-C1BS54
UniRef90 T1EFJ5 UniRef90-T1EFJ5
UniRef90-Q9NB22 UniRef90-S8D1H1 UniRef90-W3X4J7 UniRef90-M4BFM9 UniRef90-F4P5K8 UniRef90_O7QD43 UniRef90_UPIO003C39114 UniRef90-E4XUU3 UniRef90-M2LIWO UniRef90 C1BRH7 UniRef90_D8U194
UniRef90
U4X735 UniRef90_UPIooo21A484F UniRef90-B5DOZ1 1 UniRet90_T1GNT1 UniRef90-A7Y4C8 UniRef90-K5XF11
UniRef90
B4JKT7 UniRef90-Q55FE0 UniRef90_UPIO0044089BA UniRef90-B4PG60 UniRef90-U4LPT8 UniRef90_B9VR18 UniRef90-UPIO003BB81E2 UniRef90-A0A015K7Q8 UniRef90-G4U2M3 UniRef90-D8LBW9 UniRef90-UPIO004414B24 UniRef90_A9S3L1 UniRef90_A8P5B2 UniRef90_L2G9G7
UniRef90 Q4RV79 UniRef90_J3NK59 UniRef90-N1JJK9 UniRef90 ${ }^{\text {S8FRQ2 }}$
UniRef90 C
CWSK UniRef90_UPIooo395953A UniRef90 D2HHU4 UniRef90-M4EMX7 UniRet90-C9SFQ1 UniRef90 UPIO0027F2B4D UniRef90-UPIO0042B337D
UniRef90- U4LNY8 UniRef90 U4LNY8 UniRef90-KoSJKO UniRef90-A8N9B1 UniRef90_B4GSE3 UniRet90-A5DR17 UniRef90-UPIOOO455F27D UniRef90-UPIOOO4411031 UniRef90-M2RK14 UniRef90 M2MDZ3
UniRef90_U5D018

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UniRef90 U9SXQ3 UniRef90-E3M9Y9
UniRef90_M5G047 UniRef90-A1YVX3 UniRet90-W5J8C8 UniRef90 M4D9X3
UniRef90 F9FTG5 UniRef90-11CJX1 UniRef90-F7W6ZZ UniRef90-HOWHY1 UniRef90-F4PD21 UniRef90_V4RHS8 UniRef90-OOUBO8 UniRef90_T2MHS7 UniRef90-A0AO22QYD1 UniRef90-F1LUH2 UniRef90-UPIO00393D06D UniRef90-B4N967 UniRef90-s88R60 UniRef90_U1GS81 UniRef90_UPIo004449F99 UniRef90-Q9W5B3 UniRef90-H3GXG5
UniRef90- B4kW75 UniRef90-L8IU12 UniRef90-F9XHV9 UniRef90-Q1HP11 UniRef90-Q8TA64 UniRef90-P48600 UniRef90-G4T635 UniRef90_UPIOOO3314911 UniRef90-R9P8S5 UniRef90-F1L6U9 UniRef90-B2DBL9 UniRef90-T1IC32 UniRef90-C1BS54
UniRef90 - T1EFJ5 UniRef90-T1EFJ5
UniRef90-Q9NB22 UniRef90-S8D1H1 UniRef90-W3X4J7 UniRef90-M4BFM9
UniRef90
F4P5K8 UniRef90-Q7QD43 UniRef90-UPI0003C39114 UniRef90-E4XUU3 UniRef90-M2LIW0
UniRef90
C1BRH7 UniRef90-D8U194 UniRef90-R4X735 UniRet90-UPIOOO21A484F UniR Refo-B5DOZ1 UniRef90-T1GNT1 UniRef90-A7Y4C8 UniRef90-K5XF11
UniRef90 B4JKT7 UniRef90-Q55FE0 UniRef90-UPIOOO44089BA UniRef90-B4PG60 UniRef90_U4LPT8 UniRef90_B9VR18 UniRef90-UPIIOOO3BB81E2 UniRef90-A0A015K7Q8 UniRef90-G4U2M3 UniRef90-D8LBW9 UniRef90-UPIO004414B24 UniRef90-A9S3L1 UniRef90_A8P5B2 UniRef90-L2G9G7 UniRefto -Q4RV79 UniReffo-J3NK59 UniRef90_N1JJK UniRef90-C4WSX6 UniRef90_UPIO00395953A UniRef90 ${ }^{\text {D2HHU4 }} 4$
UniRef90
M4EMX7 UniRef90-C9SFQ1 UniRef90-UPIO0027F2B4D UniRet90 UPIIOOO42B337D UniRef90-U4LNY8 UniRef90-KOSJKO UniRef90-V2Y7L8
UniRef90_A8NGB UniRef90_B4GSE3 UniRef90-A5DR17 UniRef90-UPIO00455F27D UniRef90-UPIOOO4411031 UniRef90-M2RK14 UniRef90-M2MDZ3

[^0]130
140
150 GRQ $\square K Q T L^{160}$ ELCGACSIRNQEDMWNRNADETPVTNRIRDTLRSVL EVCGCVLSVRTGEDIMSVWTRDGNDQRADDGUKATVMKVE ELCGVVLSVRFQDDHLAVWHRTASDTAAAHRVRDALRRLL E CGVVVNVRAKQERI SI WTKNSSNEAAQVS:GRQWKEFL DVCGAVLSVRNGED GLSIWTRT DGGRVIKIRETMKHVL EVCGAVVSVRKSFYRVALWTKTSKDEEKVEKISKQLRDUL
 EICGAVVSIRHSED\|VSLWNKSADEGR\|NLRIRDTLKRVL ELCGAVVNIRGKNNKISI WTANGNNEAAALEI GGKLRDGL EICGVVASVRQRQDKLALWTKTAANEAAQMGI EVCGIVLSVRSGEDVFSIWTKN QVCGAVVNIRDKGDKLAMWTSLAENVGSVIK RETVKRVL EICGVVAS RORQDK SLWTKTAANEAVOMGVGRKWKERL EVCGAVVNIRTKGDKIALWTSEAENKAGVMH1 GHOYKERL
 EGGAVLSIRNAEDVLSVWTRTGT EVCGAVLSVRSGEDVLNVWTKN $\qquad$ EICGAVVSLRSKVDRIQLWTRSKDDVEKMNG DLCGVVVNIRGKSNKISI WNADGGNQTTVLEI DVCGAVVSVRKAQDRIAI WSATANAEDRQKAI EICGAVINLRSKSNKISI WTANGHNETAVME EVCGAVINIRAKGDKIAVWTREAENQEGVLHI EVCGAVVSVRQGEDVFSI WTKN
EI CGAVVNVRPKVDKIAA WTADAMKQHATIE EICGAVISVRFQED\|ISVWNRTAPDSITTGKI EICGVVASVRQRGDKLALWTRTASNEAVQVNI EICGCTISVRSNEDILATWHKSGADEAVRARI EVCGAVINIRTKRDKIAVWTREAENQEGVLHI EVCGAVCSVKPRGDRISLWVRDRSDVDKVNRI
 EICGAVINMRGKQSKISVWTCNGQNESAIVHI EVCGATVNVRSKMDK: GLCTANGSKSEAVVA:
 EICGAVVNIVPKGDKLGLWTRDASKKDAIVRIM
Q NGVVLSVRNGEDVI

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EICGVVINVRNKANKL
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E I C G V V A S V R Q R Q D K I

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$\begin{array}{llll}E & C & G & A \\ E & C & G & S \\ E & C & R & R\end{array}$

| $E$ | $C$ | $G$ | $A$ | $V$ | $V$ | $S$ | $R$ | $T$ | $K$ | $V$ | $R$ | $R$ |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  | $V$ | $M$ | $G V$ | $V$ | $V$ | $N$ | $V$ | $R$ | $K$ | $A$ | $F$ | $F$ | $R$ |

EICGAVVSVRFQ
EVMGVVVNVRKAFYRVGVWTRSTKSKG\|LMDTGKRFKEVL


EVCGAVI NI RTKGDKI AI WTREAENQEGVTHIGGRVYKE













| UniRef90 U9SXQ3 | $\mathrm{G}\|\mathrm{~L}\| \mathrm{T} P \mathrm{~V} \mathrm{QQ\|L\|EF} \stackrel{170}{\mathrm{~F}} \mathrm{Q} \text { PHSDS } \mathrm{T}_{\mathrm{K}} \mathrm{~K}^{180}$ |
| :---: | :---: |
| UniRef90-E3M9Y9 | ELPQNTVLEYKRHDDCLRDQSSYR |
| UniRef90-M5G047 | NLPASTIMEYKSNNDSLHDRGNFR |
| UniRef90-A1YVX3 | QLPASVPIEYKAHGDCLRATASR |
| UniRef90-W5J8C8 | GLR Q Q I N Y Q HKDTMVKS G |
| UniRef90-M4D9X3 | D Y NSSIGF I I HEDAKK |
| UniRef90-F9FTG5 |  |
| UniRef90-I1CJX1 | N LP E E IVIEFVPHVD |
| UniRef90-F7W6Z6 | S FPSETKVEWKSHDSS】QQR |
| UniRef90-H0WHY1 | GLPPKIVIGYQSHADTATKS GS |
| UniRef90-F4PD21 | SLPANCVMEYKAHKAAVADNSSFRN |
| UniRef90-B4L3U7 | RMESAYVLQYQLHKDTMAKQGS |
| UniRef90_V4RHS8 | DLTDRDT YSFHDDSRRDRS |
| UniRef90-Q0UB08 |  |
| UniRef90-T2MHS7 | TLS QKYLI TYEQHDDTATK |
| UniRef90-A0A022QYD1 | DVTDK Y Y S F HDDSKSQK G G S K |
| UniRef90-F1LUH2 | GLSTKTII GYQAHADTAA |
| UniRef90-UPI000393D06D | GLSQKVAI GYQAHADTATKSGS |
| UniRef90_B4N967 | RLNRQCQLHYHVHKDTIVKRGS |
| UniRef90-S8BR60 | GFPAETVMIFKTHDESI |
| UniRef90-U1GS81 | AFPADTNIVWKSHDDSIA Q |
| UniRef90_UPI0004449F99 | DVSEADGI GLEFQYNTEDRPLPNKFL |
| UniRef90-Q9W5B3 | RMDNDYVLEYQLHKDSKD |
| UniRef90-H3GXG5 | ELGKNETLKYQSHADAAASGSSFQN |
| UniRef90-B4KW75 | GLPPH NLQYQMHKDSMSKQGS |
| UniRef90-L8IU12 | GLSTKT I GYQAHADTATKSNS |
| UniRef90-F9XHV9 | NLPADTNLQWRSHDES $\mathrm{T}^{\text {T T Q }}$ |
| UniRef90_Q1HP11 | Gl HGKIGF QVHRDT MVKHSSTKNLY |
| UniRef90-Q8TA64 |  |
| UniRef90-P48600 | DY NDKMVYSFHD |
| UniRef90_G4T635 | QLGPATILEYKSNNDSMQDKSSFR |
| UniRef90-UPI00033149 | RLSSTAII GYQAHVDTAVKS S |
| UniRef90-R9P8S5 | EVEPGVTLEFSAHSD |
| UniRef90-F1L6U9 | NI P D S D PMRYEAHMDGYVRS GPPRILI |
| UniRef90_B2DBL9 | QLPSTVNLEYKVHRDC |
| UniRef90-B5DRH4 | KLPP LQMKY L L HKDSMTKQGS |
| UniRef90-T1IC32 |  |
| UniRef90-C1BS54 | GI EKQTTLGFEAHDDTMK |
| UniRef90-T1EFJ5 |  |
| UniRef90-Q9NB22 | NLPAKTLISYEAHADTMSKTGS |
| UniRef90_S8D1H1 | DVADK ${ }^{\text {U S }}$ S S F HDDSRKERSSK |
| UniRef90-W3X4J7 | KCPPNTRFDFKSHDESLTQR |
| UniRef90-M4BFM9 | NLP QFVALE YKRHDTSLNDNS S R N |
| UniRef90_F4P5K8 | TELISYLSHSDPQKKKS S |
| UniRef90-Q7QD43 | NLP Q S Q HIE Y K P H G S LK F |
| UniRef90-UPI0003C39114 | NLPASVPMEYK ${ }^{\text {P }}$ HCDS |
| UniRef90-E4XUU3 | KLAP ESLFYQKHTDSASKQGSNKSKY |
| UniRef90-M2LIW0 | ALPPDTELVWRAHSESMTQ |
| UniRef90-C1BRH7 | GI DKK $\mathrm{T}^{\text {T }}$ L GFEAHEDTMKKS G |
| UniRef90-D8U194 | DI S D Q Ki GF SIVFEEKI |
| UniRef90-R4X735 | RLPPSEALDFASHNDAAQ SGS |
| UniRef90-UPI00021A484F | KI HDFETI QYESHDDVVTRS SNRTLF |
| UniRef90-B5DQZ1 | $R L Q S N N L Q Y Q L H S D A M C K S N S S$ |
| UniRef90-T1GNT1 | L LDA A A L N Q Q HS DSMSKQGP |
| UniRef90-A7Y4C8 | D A EKI SYSFHDDSKRRSAKSRY |
| UniRef90-K5XF11 | NLP P T T TLEYKTNNDSMLDQS S R |
| UniRef90-B4JKT7 | HI D S S Y EL R Y Q L H T D NMANS K S |
| UniRef90-Q55FE0 | EI DQTI QYTPHEDF $\square$ RSSKGSKNLY |
| UniRef90_UPI00044089BA | DVSEADGI GLEFQYNSEDRPPPNKFL |
| UniRef90-B4PG60 | HL G DMEI QYQVHKDAMVHHGPN |
| UniRef90-U4LPT8 | KLPARDYVEFSGHTES |
| UniRef90-B9VRI8 | NI T DQ T Y SFHDDSRRRSGKQKSRY |
| UniRef90_UPI0003BB81E2 | GLSTKTVIGYQAHADTATKS |
| UniRef90-A0A015K7Q8 | DLQNEKGI GFQFNEDA |
| UniRef90-G4U2M3 | DVGEEQGVGLEFQYNTEDRPTPNKFI |
| UniRef90-D8LBW9 | QI P S FVQVEYRRHQDNLG |
| UniRef90-UPI0004414B24 | EVSEADGI GLEFQYNTDDR |
| UniRef90-A9S3L1 | DY HEKLGYVFHDDAKRQEKNAKS Y Y |
| UniRef90-A8P5B2 | DVSEADGIGLEFQYNSDDRPPPNKFL |
| UniRef90-L2G9G7 | NLPPGESVEFSGHTDS AHSGSSR |
| UniRef90-Q4RV79 |  |
| UniRef90_J3NK59 | K LP P N E IIE F S GHND A A H S G S |
| UniRef90-N1JJK9 | GFPPDTKVEWKSHDSS $\square$ Q |
| UniRef90-S8FRQ2 | N LPS T TVMEYKSNT DS MQDKSSFRV |
| UniRef90-C4WSX6 | G A Q E K MVYESHADTANKQGSF |
| UniRef90_UPI000395953A | GLSQKVAlGYQAHADTATKSGS |
| UniRef90-D2HHU4 | GLSTKIVI GYQAHADTATKSNS |
| UniRef90-M4EMX7 | GY TETIGFIFHEDAK |
| UniRef90-C9SFQ1 | QCPPNTIFEFKSHDES $\square$ Q HR |
| UniRef90-UPI00027F2B4D | GLPPK】V■GCQSHADRATKSHSNRLLF |
| UniRef90-UPI00042B337D | KLPHGYVMEYKPHDAS L R D S S S R N |
| UniRef90-U4LNY8 | ALPAGTRID WKSHATSL |
| UniRef90-K0SJK0 | RLPREAHLEYKYHQMSLVDKSSFRN |
| UniRef90-V2Y7L8 | DVGEKDNLGLEFQYNTDDRPLPNKFL |
| UniRef90-A8N9B1 | NLPPSTIMEYKTNNDSMQDKSSFRN |
| UniRef90-B4GSE3 | KL TNVEIQYQAHKDAMVQHGPN |
| UniRef90-A5DR17 | KLSDDQKIDFMSHDDSGKKGAEPQLV |
| UniRef90-UPI000455F27D | NLPPSTIMEYKSNNDSMQDKSSFRN |
| UniRef90-UPI0004411031 | DVSET D GIEEFQYNND DRPVPNKFL |
| UniRef90-M2RK14 | NLPLTTVMEYKSNNDSMQDKSSFRV |
| UniRef90-M2MDZ3 | GLPDTEAVEFSGHADS AHAGSSR |
|  |  |

UniRef90 I3T1M7
UniRef90-B4PL23
UniRefofo-B4JMHO UniRef90-M7NNHO UniRef90-L1JVZ5 UniRef90--F2UJ05 UniRef90-UPI0003EC32B1 UniRef90-E7A1W2 UniRef90-K0т9U8 UniRef90-N1JG23 UniRet90_C5DJV3 UniRef90-E9BYG9 UniRef90-D4DFM8 UniRef90-M7NNE2 UniRef90-S8ES46 UniRef90-H8X5X9 UniRef90-T1ETS0 UniRef90-T5A9P4 UniRef90-X8JBX8 UniRef90-13T5Q1 UniRef90_B7FTA6 UniRef90-R1BPC5
UniRef90
K5WZ UniRef90-H3D660 UniRef90-H3CTD4 UniRef90-UPI0002655E7B UniRef90'UPI000185B07A UniRef90-W9REK0 UniRef90-S3BV17 UniRef90-U1HWB7 UniRef90-M1V942 UniRef90-UPIOOO4446B97 UniRef90-UPI0003C919ED UniRef90-T1JUW5 UniRet90_W71880 UniRef90-B5DL57 UniRef90-UPIoo044136F3 UniRef90_K5VUL1
UniRef90_L8X2Z8
UniRef90-D5JG41
UniRef90-F8P3Y6
UniRef90 B4J209 UniRef90-W2RPQ4 UniRef90-UPIO004417F14 UniRef90_D2VV88 UniRet90-B4QKY1 UniRef90_l2GOHO UniRef90-BOYBW4 UniRet90_D8QEA3 UniRef90-R7YLAC UniRef90_UPIO002658D02 UniRef90- UPI0004416D52 UniRet90_B6K3N3 UniRef90-M9MF72 UniRef90-K2RZF2 UniRef90-M3WTU8 UniRef90-S4R8H1 UniRef90-D3PGJ3 UniRef90-M7TA73 UniRef90-W2SLU1 UniRef90_C4JFN3 UniRef90-I1JD62 UniRefofo-A9V159 UniRef90 A8N1Jo UniRef90_W6MV92
UniRef90-R4XEA6
UniRef90-11FXH6
UniRef90_C4Y5P9
UniRef90-H2TZ31
UniRef90 F4RQY4
UniRef90-F6ZFY8
UniRef90-UPIOOO4561867
UniRef90-F5AG41 UniRef90-H9JVP2 UniRef90-H9JVP2 UniRef90-E4YRK5
UniRef90
B4PQM1
$\nabla K H P L M H K W T L W F T K P P G Q R A N T T D A W A D S L K E$
E H P L E N K WT L Y H D S K T P F TVVPES DE Y E A G L TV TV
SKHPLEHRWVLWYFKQEKGK DWLEGQKK




E H PLQFPWTMYH DTKAKSHPPA TQ DYEA GLTV KHPLQNKWALWFFKND

K S K T WEANLRL

VK H PLTRAWTLWFLMP P TPGLLEWNELQKN HKLERKWTFWFDNQS EPNQGAAWGTSLRQ

PEKSVHP LQ FS WTFWYDMP RG $\quad$ WK PS QENWSNNVKP
 RA I E P $\square$ D GHHRLQQYTYCI WYSRRTP

AKEPGPGPAPTSSTAVLTGRRRQPKEGARRQDYEKSTQK
 HPLRNTWVFWF RQQRAPGNKITNYEEGIKK
 PGVHPLRNTWVFWF RQQRAPGNK TTNYEEGDKK R K K C WE EMLSN KHPLEHTWTLWHWQS D
PREHP LLENRWS L WF TK K P S S K VETNE R E H P GDNWND LL K E

K H P L E HVWT L WY LE Y N
K E K G I D Y E D C MK N
VK H P L M H E WT L W F D D S R S P K A T L L S S S S WE A NL R T
EHPL QYTWTI YHDTKSSKHQTESTDYEAGLTV

K ENDVA QTKHP L Q N T WS FWFFKND
GVHPLKNTWVFWF RQQRAPGNKTILNYEEGIVK
K K L N D E WT LWF L K P G G P A Q GL E WS D L L K E
ATEAEKQPHKLLERKWS FWFDNQSK
VK HPLMNAWTLWFTKPPSGK K GA A WGA S L R K

KHPLRSRWALWFFKND
KHP
ANEKK
K S K TRRQANLLL

P L E D S WS FWF FKNDD R K R A E WQD NL I Q

T $\square$ P E P A L H P L K Q K WTY WY L N
VKHPLMNEWTLWF TKPSSGK GDNWNDLLKE
VK HP P R Y S WT FWY SNK K K QRNRDNFDAS MQK
V K HP L F S A WTLWFDSPSTKGAAAAQGWMEDLKK

EHLIT ALERHPL QNKWVLWYLKND K QKEWKDNLRK



PHEHKLL Y S Y WMWFSRRPARDTTTPTGYGQALLRL KN P L E H P Y T F W DSKKR K SVLIKGKNYN DCMK D
$K D S P P G V A$
AKHKLQNTWTLWRVDHDPKK
VKHPLQSKWTLWFTKPPSGK
VK HP L M HE WTLWF TKPPS GK
KELENDT K K H P
$\mathrm{K} T \vee \mathrm{C} P \mathrm{GA}$
EHP
HLISAPERHPLQNK WVLWY LIKNDK QKK
ARHPLQNKWVLWYLKNDKQKK WKDNLIRK

VK H P L N S K WTL WY T K P A N N P K


UniRef90_I3T1M7 UniRef90-B4PL23
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UniRef90_D4DFM8 UniRef90-E4MWP0 UniRef90-M7NNE2 UniRef90_S8ES46
UniRef90 H8X5X9 UniRef90-T1ETS0 UniRef90-T5A9P4 UniRef90-X8JBX8 UniRef90-B7FTA6 UniRef90-R1BPC5 UniRef90-K5WZX8 UniRef90-H3D660 UniRef90-H3CTD4 UniRef90_UPI0002655E7B UniRef90_UPI000185B07A UniRef90_W9REK0 UniRef90_S3BVI7
UniRef90 U1HWB7 UniRef90_M1V942 UniRef90_UPI0004446B97 UniRef90_UPI0003C919ED UniRef90-T1JUW5
UniRef90_W71880
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UniRef90_K5VUL1
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UniRef90-12GOHO
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UniRef90-D8QEA3
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UniRef90_M7TA73
UniRef90 W2SLU1
UniRef90_C4JFN3
UniRef90-I1JD62
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UniRef90_I1FXH6
UniRef90_C4Y5P9
UniRef90-H2TZ31
UniRef90- F4RQY4
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UniRef90 B4PQM1
UniRef90_G0RK06
UniRef90_A6RE73
UniRef90_H2M5M5
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UniRef90-UPI00021A4850
UniRef90-D8LDC6
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UniRef90-H3B5X1
UniRef90-K0KKG0
UniRef90-J9INK1
UniRef90_S2JT11
8

50
60
70
80
 VGRCASVQQWWSLYSHLIRPTALKPYRELSLFKQGIKPMW
 $V$ V S F A S S V E D F F W

,

I GTFSSHVVP T F LAACFSTLLHRPS QLERRHTS Y H V F F K D G I K P M W | $L$ | $G$ | $T$ | $F$ | $N$ | $S$ | $A$ | $E$ | $E$ | $F$ | $W$ | $S$ | $F$ | $N$ | $N$ | $I$ | $Q$ | $P$ | $S$ | $S$ | $A$ | $L$ | $A$ | $L$ | $N$ | $S$ | $N$ | $Y$ | $H$ | $L$ | $F$ | $R$ | $E$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $G$ | $G$ | $E$ | $P$ | $T$ | $W$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $V$ | $I$ | $T$ | $F$ | $G$ | $S$ | $V$ | $E$ | $E$ | $F$ | $W$ | $G$ | $I$ | $Y$ | $N$ | $N$ | $I$ | $A$ | $P$ | $V$ | $S$ | $E$ | $L$ | $A$ | $L$ | $K$ | $S$ | $D$ | $Y$ | $H$ | $L$ | $F$ | $K$ |
| $V$ | $D$ | $G$ | $V$ | $R$ | $P$ | $E$ | $W$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |



 I G E F





 $\checkmark$ V T F K S V V E E F W Gl Q N N I H T A S S L




## $V$

 I A A F S T V V E E F W W M V Y S S H L R R K P R R S I T S F N TVVENFWSLY H HI K T P S QI K V G S D Y C L F K D GII R P M W

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




 V
V
I
A

UniRef90_I3T1M7 UniRef90_B4PL23 UniRef90-B4JMH0 UniRef90_G1XU36
UniRef90 M7NNH0 UniRef90-L1JVZ5 UniRef90-F2UJ05 UniRef90 UPI0003EC32B1 UniRef90_E7A1W2 UniRef90_K0T9U8 UniRef90_N1JG23 UniRef90_C5DJV3 UniRef90_E9BYG9 UniRef90-D4DFM8 UniRef90-M7NNE2 UniRef90_S8ES46 UniRef90-H8X5X9 UniRef90-T1ETS0 UniRef90_T5A9P4 UniRef90- X8JBX8 UniRef90_I3T5Q1 UniRef90_B7FTA6 UniRef90-R1BPC5
UniRef90 K5WZX8 UniRef90-H3D660 UniRef90_H3CTD4 UniRef90_UPI0002655E7B UniRef90_UPI000185B07A UniRef90_W9REK0 UniRef90_S3BVI7 UniRef90-U1HWB7 UniRef90_M1V942 UniRef90_UPI0004446B97 UniRef90_UPI0003C919ED UniRef90_-T1JUW5
UniRef90_W7I880 UniRef90_B5DL57 UniRef90_UPI00044136F3 UniRef90_K5VUL1 UniRef90_L8X2Z8 UniRef90_D5JG41 UniRef90_F8P3Y6 UniRef90 B4J209 UniRef90_W2RPQ4 UniRef90_UPI0004417F14 UniRef90_D2VV88 UniRef90_B4QKY1 UniRef90-I2GOH0
UniRef90 BOYBW4 UniRef90_D8QEA3 UniRef90_R7YLA0 UniRef90_UPI0002658D02 UniRef90_UPI0004416D52 UniRef90_B6K3N3 UniRef90_M9MF72 UniRef90_O04663 UniRef90_M3WTU8 UniRef90_S4R8H1 UniRef90_B2ZFA2 UniRef90_D3PGJ3 UniRef90_M7TA73
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UniRef90-B4PQM1 UniRef90_G0RK06 UniRef90_A6RE73
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E DPECANGGKWTVVTSRKGN|LDTMWLLET|LMALIIGEQLEDAE

 EDPANQDGGKWTLRLRKG\AVRYWEQLVMAIVGDQFNDGD



## E

 EDDANRKGGKWWCRDKKGLAPRLWEDLLLAMLGNHFPS GD

 E DEANAKGGKWQYSFRKGEIINDLWWR GLLAMVI GETGUED D D

 EDPDCANGGKWTMAFPK GKSDTSWWYTVLLAMIGEQFD H G D





## E <br>  <br> 

## 

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UniRef90_I3T1M7 UniRef90-B4PL23 UniRef90-B4JMH0 UniRef90-M7NNH0 UniRef90_L1JVZ5 UniRef90_F2UJ05 UniRef90_UPI0003EC32B1 UniRef90_E7A1W2 UniRef90_K0T9U8 UniRef90-N1JG23 UniRef90_E9BYG9 UniRef90-D4DFM8 UniRef90_E4MWP0 UniRef90_M7NNE2 UniRef90_S8ES46
UniRef90-H8X5X9 UniRef90-T1ETS0 UniRef90_T5A9P4 UniRef90- X8JBX8 UniRef90_I3T5Q1
UniRef90 B7FTA6 UniRef90_R1BPC5 UniRef90_K5WZX8 UniRef90-H3D660 UniRef90_H3CTD4 UniRef90_UPI0002655E7B UniRef90_UPI000185B07A UniRef90_W9REK0 UniRef90_S3BVI7
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UniRef90-O04663 UniRef90-O04663
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UniRef90_R4XEA6 UniRef90_I1FXH6 UniRef90_C4Y5P9 UniRef90_H2TZ31 UniRef90_F4RQY4 UniRef90_UPI0004561867 UniRef90_F5AG41 UniRef90-H9JVP2 UniRef90_H9JVP2 UniRef90-E4YRK5
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D| C G|V V
140
150

 ELCGIVLISIRNSEDLI SVWNRSSDNGRDNLIIIRDLIDKQL
 $D V C G A V V N V R T K G D K I A V W T S D Y E N R E A V T H I G R V Y K E R L$ $E V C G A V C S V R P R G D R V A V W T R A G V G R E A V E R V G R R L V R G L$ E V $V$ C G C V V $V$ V


 EVMGVVVNI RKGFVRLGLWTRSTSNEEVLRAIGKRFREAM E I C G A V V S L R S K V D R I Q L W T R S K K E D V E K I


 EI C GAVVNVRRAQEKI SI WTKNAANEAAQ
EICGAVLSIRHSEDII
 E 1.


 EICGVV ASVRPRQDKI S W WTKTVANRAAVQISGRKWK AL
 D C G L V V S V R K D R GRLLALWNKSALREDLRRS EVVGVSVSVRDREDVVQIWNRDATLDADKAS IL
 D I C G AVLSI R NAE DVLSI WTR VVNNATTLIKIRETIIKRVL


E

E
Q
Q। CGAVVNVRNKAAK


ETCGAVVSVVRPR G DR

| $E$ | $V$ | $M$ | $G$ | $V$ | $V$ | $V$ | $N$ | $V$ | $R$ | $K$ | $G$ | $F$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $E$ | $R$ | $R$ | $V$ |  |  |  |  |  |  |  |  |  |
| $E$ | $C$ | $G$ | $A$ | $V$ | $V$ | $S$ | $L$ | $R$ | $A$ | $K$ | $V$ | $D$ |
| $R$ | $I$ |  |  |  |  |  |  |  |  |  |  |  |


 EII C GCTISVVRQSEDVVQLWNRQ EKPEVKEKII
$\stackrel{\rightharpoonup}{\mathrm{E}}$

## V

 DVCGAVVNVKPNVDK$H \vee N G C V V S I R S K G D R$
SLWT K D WRQS DVTKR
E V C G V V L S V R N GE DV L S
LI C GLVCNVRGKGSKI S MWTKDWSAEEGNNR
 NIC GAVLSI RFNEDILSVWNRNASDH QAVMALRDSDIKRVL
 SI T GVIVVTRPQFYRLSI WTRDAKLRERIEAI GRHFKQVL


 $E V V G V S V S I R D R E D V I Q V W N G N A S C A N K S N I L G R$ DV CGAIVATRPRGNRVQUWMREKSNDERVNGLGKRLMKVL DI DGLSVS ITRKNDDLVQVWNDNSSNI E QCKVLEKI KEVL
 L V
L V
EI C G V V L S LR N P WD Q LS IWWH R N S VD K F VVKK I S E S LK R L QI CGALVRI RKS $\square$ S KVVSVWTKNCEDNEANMEI GQKLLCELV E V M G V V V $V$ N V R K G F Y R I EVMGVVVNVRRKGFYRIGLWTRTVKGKEDLHNIGRKFKEVL
 D I C GAMVRNRTKGDKI SI WTRFAKNKEHVHKIG

 EVNGAVLNVRKDAIRDSLWTK S SDRAKLFPIGMKFRKVL

| UniRef90 I3T1M7 | DVTDKTT $\quad 170 \quad$ YNFHEDAKNRGAKARY |
| :---: | :---: |
| UniRef90_B4PL23 | NIPDTTAMEYKDHCDS LTK |
| UniRef90-B4JMH0 | CLGQKNMMHYQLHKHSMAKHGSH $\square$ |
| UniRef90_G1XU36 | RLGEREQVEFSGHSES AHAGSSR |
| UniRef90-M7NNH0 | NLPDDTILEYKGHKD |
| UniRef90-L1JVZ5 | SLGTEDSIE Y HVVHNDALQ |
| UniRef90-F2UJ05 | DL GKDVAMSYVRHD |
| UniRef90-UPI0003EC32B1 | GLPVKMTDGYQSHADTATKS GS |
| UniRef90-E7A1W2 | ELGPGVVVEWSAH |
| UniRef90-K0T9U8 | EVSNKTSLRYQAHKDAAKSGRSFQN |
| UniRef90-N1JG23 | NLPPSETVDFSGHTESAQ S |
| UniRef90-C5DJV3 | KL GDDAQLEFLPHSTASEKHPQPSLVL |
| UniRef90-E9BYG9 | ALPSTTILEYKNHDQSLR |
| UniRef90-D4DFM8 | AFPPDTN\\| |
| UniRef90-E4MWP0 | D VT D K IT F |
| UniRef90-M7NNE2 | KI P D K EMlEEFYSHSDS AHSGS |
| UniRef90_S8ES46 | DVSEADGIEFQYNND DRPTPNKFL |
| UniRef90-H8X5X9 | QLKDEQKVEF $\square$ SHDA |
| UniRef90-T1ETS0 | QI KRDGCLEYQPHHVASNKSNTS |
| UniRef90-T5A9P4 | DLPGNEQVEFSGHTESA |
| UniRef90-X8JBX8 | DLDP G $\downarrow$ QLEF Q F N S |
| UniRef90-13T5Q1 |  |
| UniRef90-B7FTA6 | QLP SHAQMEYKPHQTSMQDRTSFRN |
| UniRef90-R1BPC5 | GLPADATMEYKKHTDSMRDNSSYRN |
| UniRef90-K5WZX8 | EV S E A D Q I G Le F Q Y T E DRPQPNK |
| UniRef90_H3D660 | GVPP VII GYQSHADTATKSSTTKNK |
| UniRef90-H3CTD4 | N $\\|$ P $\square \mathrm{KAMLL}$ GYQSHDDTSSKS GS T K N M Y |
| UniRef90_UPI0002655E7 | GXPPNIVI GYQ H S D |
| UniRef90-UPI000185B07A | NLPRNETLEFSAHEDS SKSGSTR |
| UniRef90-W9REK0 | DFSDR】T Y S F HDDS |
| UniRef90_S3BVI7 | KLPTSEQLEFSGHTD A Q H S GS TR |
| UniRef90-U1HWB7 | KL GPNEQVEFSGHTDS A HAGSTR |
| UniRef90-M1V942 | GLLPRD LDL EYMVHKDAMA |
| UniRef90_UPI0004446B97 | PYTSFKAVFYKPHMDHHAFEGGR |
| UniRef90-UPI0003C919ED | GLSVKTIIGYQAHADTATKSNS |
| UniRef90-T1JUW5 | NLPLNTIMEYKTHNDSLRDHSSFRN |
| UniRef90-W71880 | ALPVETI I L F K THDESI |
| UniRef90-B5DL57 | PANAGFVLQY LQ HRDNMAQQDS |
| UniRef90-UPI00044136F3 | GLNS ATNMDYKSNNDSLNDKSSFRNTY |
| UniRef90-K5VUL1 | NLPPSTNMEYKSNNDSMQDKSSFRV |
| UniRef90-L8X2Z8 | NLPPSTTFEYKSHNESLQDKGSFRKL |
| UniRef90-D5JG41 | GLR CSVEYVAHADAKKMSNS |
| UniRef90-F8P3Y6 | NLPPSTIMEYKSNNDSMQDKSSFRN |
| UniRef90-B4J209 | QLCEGQ L Q Y QVHSDAMDH T G |
| UniRef90-W2RPQ4 | QLPASEVVEFSGHTD A AHAGS |
| UniRef90-UPI0004417F14 | DI SEGDHI GLEFQYNSEDRPNHNKFI |
| UniRef90-D2VV88 | NLP SQTKLEYKPHQESI |
| UniRef90-B4QKY1 | HM QSRNL Q Y Q $\quad$ H S DAM |
| UniRef90-I2GOH0 | E I T P G L L E F S SHS D DLKQQ |
| UniRef90-B0YBW4 | RLKEADVVEFSGHTDS A HS GS |
| UniRef90-D8QEA3 | DISEADGI GLEFQFNTEDRPQPNKFL |
| UniRef90-R7YLA0 | GLKESEAVEFSGHTDS AHSGSTR |
| UniRef90-UPI0002658D02 | HL NAQTLVCYNSHAETSHKQSS |
| UniRef90_UPI0004416D52 | NLPASTIIEYKSNN |
| UniRef90-B6K3N3 | HLT DKETIEFSAHEDS SKSGSMR |
| UniRef90-M9MF72 | EI GPGVLVEFSAHS S |
| UniRef90-O04663 | DVTDKlT F N N H D D S |
| UniRef90-K2RZF2 | TLKENDQVEFSGHTDS AHSGSTR |
| UniRef90-M3WTU8 | GLPPK IVVGCQSHVDTATKRGS |
| UniRef90 S4R8H1 |  |
| UniRef90-B2ZFA2 | D $\square$ PRNDPLIPESHEDQETKRGTSK |
| UniRef90-D3PGJ3 | ELPS GTVIEYKPHATAMSDHANNRHYF |
| UniRef90-M7TA73 | D YKSPLNFVWKSHNESRAK |
| UniRef90-W2SLU1 | DVPPNCPLKYEDHDSCQKKS GS |
| UniRef90-C4JFN3 | RLKDTDQLEFSGHTESATAGS |
| UniRef90-I1JD62 | KLPHSYVMEYKPHDASLRDNSSYRN |
| UniRef90-A9V159 | RLDSGVLIKYKFHEQ |
| UniRef90_D5GJT4 | KLGVKDFVEFSGHTESAQ S GQSRV |
| UniRef90-A8N1J0 | A YPESTEVEFQSHKDSEKKGKSVRKI I |
| UniRef90 W6MV92 | KLDENDHVEFTSHADSSA |
| UniRef90-R4XEA6 | SL NMDVNMEY I S H |
| UniRef90-11FXH6 | HI LG Q F T I Q Y S H LDVA NK T G S S R T LF |
| UniRef90-C4Y5P9 | KLGDDQKVEFMSHDTFNAKGNAQ |
| UniRef90-H2TZ31 | P HTPFKAVFYKPHEEHHAFEGGR |
| UniRef90-F4RQY4 | E $\square$ NEEVSLEFSPHSGH NHSASKF $\square$ |
| UniRef90-F6ZFY8 | Y K P H Q L H R A F E |
| UniRef90-UPIOO04561867 | GVTLEFSNTG |
| UniRef90-F5AG41 | DY NDMIGF 1 FHEDAKKLDRGAKNKY |

$N \square N V N S Q M D Y R P H N E T L N K$
SVSSKK@ITFKSHRQ
ELPANEQUEFSGHTDS AHAGSTR RLKEEEDLEFSGHTDS A HAGSTR PSIS FKAVFYKSHMEHHAFEGGR NLPANTIMEYKTHNDS LR

K LPARDKFVFQTHSDAVSSDSSFQN
GLPDKALIGYQSHDDTSSKSGS
KLSDADSLEFDSHKDADNRSAKP
$N L P D D V K M D Y E$

UniRef90_R7SDZ4
UniRef90-T1KDF0
UniRef90-F4Q354
UniRef90-C1BMD0
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UniRef90-D8Q307
UniRet90_W4K114
UniRef90_C5M187
UniRef90 A7TRO8
UniRef90-B3P5NO UniRef90-G8JNY1 UniRef90-J3Q2P4 UniRef90-E4XE26 UniRet90 W10906 UniRet90_B5AHC0 UniRef90-L9KUK0 UniRef90- F1L584 UniRef90-UPIO004411320 UniRef90-17GKZ9 UniRef90_UPI0004410D62 UniRef90- G7EB57 UniRef90-T1JZZ6 UniRef90 Q86B22 UniRef90 UPI0004409C86 UniRef90-W6JLI2
UniRef90-R4FKY9
UniRef90_Q28ET8 UniRef90-M2RCPO UniRef90-G3MIP0 UniRef90-K5XKD1 UniRef90-D8LWE9 UniRef90-G7E9R3 UniRef90 C4R650 UniRef90-D3PH42 UniRef90-12GWQ6 UniRef90_12JS39 UniRet90_M5FV00 UniRet90_A2EYP7 UniRef90-TOQNO2 UniRef90-M5E668 UniRef90-A8WKD2 UniRet90-M9M9Y6 UniRet90_B8C4Q6 UniRef90-E4WRDO
UniRef90-H3GYW7 UniRef90-UPI0001CBA545 UniRet90-FOXM46 UniRef90-U5CXZ1
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1
10 20 20 30 40 VK HPLQNEWQLWYWR GEKKEWDLNLLE
 APLE $\quad$ KHPLLRDSWTLWFFKFN KSNDWSDNLVI HPLRNTWVFWF RQQRSPGNKI INYEEGIMK

VQ H P L N S K WT LWY T K P
S PRDLTVKKHPLENEWTLWYYNYDP
AVDKS E S WS DLLRP K EHPLQHSWTLYYDSKTYKPDPS TNAWEENLKE APSVHPLRNTWVFWF RQARRADKGNKDTNYEGGIM R EHPLETAWTFWFDRKS GDRRESDAYVVEGLKQ VKHPLNSKWTLWYTKP $A$ VD K S ET WS D LLL R P A A K K R K L Q N T WT L W $\quad$ GVTS GS E ■S WE D NL S E

QALLNDDLK RHPLDNSWDFWY LSS ADKTKEWDERMTK


KHPLEHEWTLWYYNHDPQN A WEDNLKE SEHPLK QRWTYWY L N D Q W D R S WEKRLKK VK H PLY S S WT LWF D S P S T K GRNLP Q T WMD D I K K

VKHPLYS P WT LWF D R NLLP QTPMTSQGWMED\|KR MTQGGKDHPLKHVWSIKYSHRAEGEHYNEHSYESGMLTT
 VK HP L F S P WTLWF DRNLPQTPMTAA GWMEDI K R TK HPLQ HA WSLWY NGNDAHKSWDENLQRF K H P L L E T WT L WY LD S N R R K K WE D C L M E VK H P L Y S A WT L WF D R N L P Q T P M S S L G WM E D I K S
$D \quad L P$
 $V$ K HPLCS P WTLWF DRNGP QTPAAA Q GWME D
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 VK H P L N S K WT L WY TK P A V DKNESWADLKK P E H PL L H H WVWF Y D S K VPP P S P $\square$ A K D D Y E A NL HV
 K H DAAADEEHS LQTGWCLWYDRKLP KRTDLDTYQSNLQK

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K S K T WQANLR
 $V$ K H P Y Y S P WTL WF D S PAPATP GAAMMGWMED I K R
K P T DGET K A NPMLS WE EK L Q K
VKHPLYS SWTLWF DRNLP QTPMSSQGWMEDI KR
 RTESKEHSLHT GWSFWYDKKLPRNDDVGTYKSNLHR

VK H P LY S P WA LWF D R N■L Q T P M S S A G WM D D $\square$ K R $K N M L K K L R P Y P L R H E W V F W H D R N S \quad N T N E E E W E D Q L K E$ $K L P$ L Q R W $\mathrm{A} L \mathrm{~L}$ WF F K N D
 VK HP L C S P WTL WF D SAS KQDKA K S WD EALLVK
 R K $\square$ S WE D R L L R E VK H P L Y S T WT L WF D $\quad$ N A S K N D K A KN WDE LI Q Q
 YGSNTKE
$W Q C N L R L$

H P L R Y K F A I WY T R R TP G VR NQTSYED IIK K K A MRPLPTQHY WNVWFDRPPTSTNP GEEYHS NLEQ VK HP LY S S WTLWF D S P S P P T P S A A Q G WME DI K K PNEHKL Q Y A Y A L WY S R R N P GK Q N S $\square Q$ S Y D R N L K L K H P L K N M WS F WLYT N A




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I G E F D S V V|E G Y C R Y F N WL K K P P S A|L|DKNSNY H|L|FK Q G|I K P M W V T T F K TVVE D F WA LY N HI E LA S NLI KG S D Y CVVFK L GIIK P M W



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

 I A A F S S A E S F W W G L W W T H L E E P P S S K L Q Q P T T D Y AGTFNTVVEGY R HYSHCVRPNELDPNVNVHLIFRKGVKPMW V T S F

 $V$ VA F D T V E E F W GI F N S I P K A D E L P L K S D Y H H L F R E N I M P E W VIS F N TVIE DF WA IV N H MV C CPA G G L T G H S D F H L F K E G I K P M W
 $V 1$ S F D SVVE E F W GL Y N N I VP P S QL P P K A N Y Y L F K E GII DP A W
 V H S F S TVVE D F WCLLYNNIMH H P S K K L A V V G A D D

 I G T F Q S V

 V V D F D S V E E FW G L Y N N V VPP P S E L P Q K A N Y Y L F K D GlV K P A W I S K F D T V E D F W W L Y N H I QLDS S N L I S G C D Y S
$V$ V S F D SVVE E F WGL Y N NII I P P S QL P G K A N Y Y L F K N G I I P A W
 V I S F F D S V



 I D S F D T V E D F WN L Y F S I D T P S K L N R G C D Y M L F K K G I R P M W $V 1$ G F E S V E E F W G L Y N NIV VP P S LI H L N S N Y Y L F K K E GII K P A W




M W
VEE FS T V E G F WA C Y C H L A R S S L L P S P T D L H F F K N G $\square R$ R $\quad$ L W W
 V I S F E S V E E F W G L Y N N I V A P S A L P Q K A N Y Y
 $V$ A T F R T V E E F W G V F N H I P QP S Q I A P K A D F H I F K D GULE P K W


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 EDEANAE GGKWSYQFKRHNDDELDWLRTLLLAVI GETDDE D D






## 

EDEANSKGGKWWSY
EDAQNAKGGSWTGKKQ

E D A Y N R T G G R WS L N L N N K N QL D R Y WL





## 

## 

## 

ETDRNKNGGMWLLTFEKNQLDPCWLEILMLLVGETHDDSD
 E D E R N A NGGK LT Y Q F R K V D D
 E D X A NAE GGK WS H QFR S K N I D E I WT R Al L S V I G E T I E D D D ED QANSNGGKWTMRNNPSYLDKCWTEIL MSLVGESLDPND

 ED A Q NKHGGK WAFQFKDKNID A L WL HVMLAA GLEDEEDN

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 ERYPN GGCWILRI RKKVLGKMWQDLVLAVVGE

 EDPACS DGGK WTL T FS T GRSSDQSWWLHTVQALVQQEQENHRY
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 E D D S N NVM G G R WL V V V $V$ D K Q R L


## E <br> 







 E D P A N A Q G GR WL L T I D K A D L D N I WWL Y M V L M L I G E NLLP H GE EDPMNESGGVWQVSFRRDPDNDAWLHTVLADVGDNEEES D EDACNRRGGTWRMKCPKQATLRVWRELLLAAIGEQFTDGD


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130
140
150

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Q CGLVYNSRKGGDKI SVWTRHSS EKATLDVGRGLKVAL
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 DVCGAVLSTRKEEDVLTVWHKDRADTAKRERLKDGIVRALD EICGAVVSIRYQEDII SI W
LVTGVIVSTRPQFYRI SI WTRDEKDRKRПETVGKHFKQVL
 EVDGVSVSVRDREDVVQVWNGNAS VVGEATVLEKIYELL EVTGVIVSARPQFFRVSIWTRSAEDDALIRERIGRVFKTVL DVCGAVVQ RAKLGKIAVWTADVRRADGNDKIGK DITGVIVSIRPQFYRISI WTRLARDRERIETVGRYFKMRL EICGAVVNIRGKGDRVSVWTTDCSSAEA KKRI GQKIKDAL NVVGVMMARRNKEDMISVWN EVTGVIISSRKVFWRINVWTKTASANTSFSSVGGKLGKGUL EVNGVVLSSRRAALKI ALWTK SKDEAVLRPIGERFKKVL EVNGGYI NVRQKFNKVSLWMRNREKKAIVMEAGATFKECI QUNGVVLSVRKGTYKFALWTK SEDREPLFEMGKKFKQVL EVTGCVVSMRSRDDRIQLWLRERNDVEKVNALGRRMADLL VVGMAMAIRSKEDMI SLLWNRTASDDKVRHE:CRALLCSALL EVMGVVVNVRRGFYR LVTGVVLQARSNYYR EICGAVISTRYNEDIV DV ${ }^{\top}$ G| SVSAVREREDVI DICGLSVAI RERDDIV EVCGVVLSVRNGEDILSI WTRNASNDATVM EICGAVVSVRGKQERII AI WTKNASNEEAQ EICGAVVSIRFQEDILSI WNRTSNDQMTTSRTRDTLRRVL NVVGIGMAIRSREDLLSVWNEDNSNEKVRFNIGERLKQVL
 LVCGAIV VTRPRGNRIQIWVKEKDNVEKDNSLGKRLINVL EVCGAVINTRAKGDKI AVWTREAENQ EICGAVISLRDGQEKI AL WTKNAANEAVQVSTGKQWKGFL EVCGVVLSVRNGEDILSIWTRSGGGR VLK RETLKRVL

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Ni CGVGLSVRFNSHLISUWHRDSSKKKSRLAMLECVLEELG
El CGAVVSTRFQ
EICGVVVNVRPK CKLGVWVTNDNHKSANDETGRKDKE DI RGI ALAVRSKEFRLALWTGTAEDKELQEADGRSFRKFA DVCGVSVSVRERDDLVQI WNTCGSLAEK ASVLSKVQELV EINGGFVN:RKAGVRFNVWTKTSEVTDEDRQMGVKIKQVL



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$\mathrm{E} L \mathrm{~L}$ T N T R L G L H S H N S K H T
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 AAAPSPGGDPLHSPWTFWLDRSLPG ATAAECASNLKK AATEAKGPHKLHRQWT F
KARDEGPVEHPLQNKWALWFFKNDF SRAWQDNLHL PLKTPWTMWYDRYERG $\square$ SAAEYQANLKK
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$P$ LNTSWSWFLDKTVRG
$A \operatorname{V} H \mathrm{~L} Q \mathrm{D}$ TWDFFVFNYNVGT

VS A A EYEANLKK D WT QR ${ }^{M} Q K$

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VK H P $\square$ Y S A WT $\square$ WF D S P NTKGKT $\square$ P QS WMDD $\square$ K R
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UniRef90 R7V5N5 UniRef90_R7S836 UniRef90-H2WQ48 UniRef90_B4R2M3 UniRef90_E9CI11 UniRef90_P56570 UniRef90_E9QC27 UniRef90_F0ZZ02 UniRef90_R7QML7 UniRef90 F F4Q5R2 UniRef90_G2WUG9 UniRef90 E4XJF3 UniRef90_UPI000023CA20 UniRef90-I2H7G3
UniRef90-B3S4N9 UniRef90_I3MW68 UniRef90-R7Z6X0 UniRef90 W7T260 UniRef90_R9APQ1
UniRef90_R1GYS8
UniRef90_H1VQ91 UniRef90-D2V0B1
UniRef90 A8Q7S7 UniRef90-A0A022PPN7 UniRef90 L1J664 UniRef90_M7T4N3 UniRef90_Q6C1A7 UniRef90_F7VWV4 UniRef90_UPI0003F0AC7E UniRef90_FOZEN5 UniRef90-J9HRR5
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UniRef90-11HVK9 UniRef90_E9H827 UniRef90-U6IQV9 UniRef90_W2SI21 UniRef90_L8G109 UniRef90_D8SVJ0 UniRef90-N1PWI6 UniRef90_G2Q8A4 UniRef90_B5X3V5 UniRef90_UPI000351241C UniRef90_F6VMH3 UniRef90_A3KLJ4 UniRef90_H9K270 UniRef90_J3NGY3 UniRef90_M1WAB1
UniRef90_D3B053 UniRef90_B0WY26 UniRef90_L8WYF9 UniRef90_UPI0002C338F0 UniRef90_B7QBH2 UniRef90_A9V342 UniRef90-C1FDQ6 UniRef90_F2DQJ1 UniRef90_J4UJ53 UniRef90_N1JAU2 UniRef90-A0A022T3A1 UniRef90_G4VCF5 UniRef90_F9WEQ8 UniRef90_M3C692 UniRef90_A0A022QLC9
 $V$ A S F D SVVES F WN TY S Y L N P P S T L P V V T D Y QL F R S GVVR PVW V V A S F D T V E D F WA V F N N L M E P S R L P R N N T Y NL F K Y GU E P K W I Y T V
 I S S S F D T V

 $V Y T V S T V Q G F W S V Y N N D P N V A E L N A R Y S Y H L M R H E R R P D W$ $V$ VT F E S V E E F W G L Y N N I VP P S QLLP QK A N Y Y L F K D G I M P A W







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 VG H F T TLLE S F F D TF A T L H R R P S R L E K N S N Y H FFF K N G V K VSEFDTDEDFWGTINNI P P P S K LIPVGC
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 V D WY F S LY N N I H QPS KL NVGS DF H CF K N K I E P K W IV T F S K A T TFWS V Y H N I P S VA E I Q M R Y S Y H L M R E ERRR P L W


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


 $L$ P T I E S V Q D FWR Y A N NT P V V Q N M K M R D S I Y L F K Q G F K P V W
 L I K F D S VEEFWGLY N N I IA P S KLP P K A N Y Y LF K G G P M W
 V C T V N T V Q G F WA VF N N I P DVA E L K L R Y T Y H L M R G D RR P L W
 PP S QLA C C K K N K TEPKC GS LE SVG





UniRef90_A0A024J8R1 UniRef90-14Y784 UniRef90_A8X610 UniRef90_R7QP45 UniRef90_C3XQT0 UniRef90_B6JVU1
UniRef90 J9JM60 UniRef90-B27F84 UniRef90_M5G2E3 UniRef90_E2BAN0 UniRef90_G2QSF3 UniRef90_R7V5N5 UniRef90-R7S836
UniRef90 H2WQ48 UniRef90-B4R2M3 UniRef90_E9Cl11 UniRef90_P56570 UniRef90_E9QC27 UniRef90_F0ZZ02 UniRef90_R7QML7 UniRef90-F4Q5R2 UniRef90_G2WUG9 UniRef90 E4XJF3 UniRef90_UPI000023CA20 UniRef90-I2H7G3
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UniRef90 A8Q7S7 UniRef90_A0A022PPN7 UniRef90 L1J664 UniRef90_M7T4N3 UniRef90_Q6C1A7 UniRef90-F7VWV4 UniRef90_UPI0003F0AC7E UniRef90_F0ZEN5 UniRef90-J9HRR5 UniRef90_L7MEB6 UniRef90_U6NF79 UniRef90_K1QPN5 UniRef90_G1LV29 UniRef90_UPI000443B0CB UniRef90_F9X2W6 UniRef90_A1YVX2 UniRef90_UPI0002657B7B UniRef90_G4MYT6 UniRef90_R9ADV0 UniRef90_R9ANI5 UniRef90_UPI00022CA295 UniRef90_M7WCV9 UniRef90_UPI0002C2FB79 UniRef90_B6SGM2 UniRef90_G3UDE6 UniRef90-T2MA28 UniRef90_U6HT84 UniRef90_I1HVK9
UniRef90_E9H827 UniRef90-U6IQV9 UniRef90_W2SI21 UniRef90_L8G109 UniRef90_D8SVJ0
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UniRef90-D3B053 UniRef90_B0WY26 UniRef90_L8WYF9 UniRef90_UPI0002C338F0 UniRef90_B7QBH2 UniRef90_A9V342 UniRef90-C1FDQ6 UniRef90_F2DQJ1 UniRef90_J4UJ53 UniRef90_N1JAU2 UniRef90-A0A022T3A1 UniRef90_G4VCF5 UniRef90_F9WEQ8 UniRef90_M3C692
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E DVK NAS G GK WVVYQFNKAPDDD|I|WLNVLL|GVI|GGTMDED Q EDPENDKGGK WI LR LLK K G IVDQLWEDLVLAII G G S DA G G D
 EDECNMRGGYWKMKCFKKDTSVVWKELLLAVIGGEQFTEG EDVHNKNGGKWAFQNK GAADDEMWLNTNYFFVVRESDPTGE


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UniRef90 J9HRR5 UniRef90-J9HRR5
UniRef90 L7MEB6 UniRef90_U6NF79 UniRef90-K1QPN5 UniRef90-G1LV29 UniRef90_UPI000443B0CB UniRef90-F9X2W6 UniRef90 UPIO002657B7B UniRef90-G4MYT6 UniRef90-R9ADV0 UniRef90-R9ANI5 UniRef90_UPI00022CA295 UniRef90-M7WCV9 UniRef90_UPI0002C2FB79 UniRef90-B6SGM2 UniRef90-G3UDE6 UniRef90-T2MA28 UniRef90-U6HT84
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UniRef9O-M1WAB1 UniRef90-D3B053 UniRef90-BOWY26 UniRef90_L8WYF9
UniRef90_UPIO002C338F0 UniRef90-B7QBH2 UniRef90-A9V342 UniRef90-C1FDQ6 UniRef90-F2DQJ1 UniRef90-J4UJ53 UniRef90_N1JAU2 UniRef90-AOAO22T3A1 UniRef90-G4VCF5 UniRef90-F9WEQ8 UniRef90_M3C692

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140 E|I $\mathrm{NG} \operatorname{lV|F|V|N|V|RRAGIRFN|IWTK}$ DI CGAVVSI RAAEDIISVWIIK SVCGMVCNVRTKGSKI SVWTTDSSDPLLIDSVVKEEDYKALL DISGIVLNIKSGKDRLAI WTKSALSADLQMRIGQRWKKTV EVVGLSVSVRERDDII QU WNQNAEAAEKATVVSKFRELL EVMGVVI NMRKGFYRLAVWTKTCSNREVLMEI GTRFKQAL EIV NGAVSVRNGGTK SVVWTSNASKKNADMA GMKDKEVV NVNGCVVSIRNKGDRICLWTRDWRNTEATRRI GSRFREVA
 Q C GVGLSVRFNSHLVSVWHRD EVSGVSI SVRDRDNIVQLWNV RSDLSSQSTIVDRLNKLL
 NLCGVVVNIRGRANKI SI W■ADGENES LVLE
EI T GAVCSLRPKGDRVALWTRTTDESVRVM GEKFKAAV
 DI CGFVLSVRSNRHVI SVWNKSGDDKE IHEKICDQLK
 QLCGVGLSVRFNAHLISVWHRDASKKKSVDAI LRCVLDQL
 EVNGVVLSVRKGNFKI ALWTKSESKEPLQGI GARFKKIL DI CGAYI QI RGKADKLAI WT TDATHKDRILGI GYTM
 QVNGVVVSIRKHQDRVALWLK SSDKADCGQIGVRWKKIL EVCGVIVSPRSSGDVISI WNRHAGNRDFQVKLVRRLKALW

 I I T G GCVAVRKSQFRLNI WVGDKSNDEAIVRI GQQFKESLL LVTGAVCSLRGKGDRITVWTRRKEPVDEVIVSGGQR
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DICGVSVCVRDRDDVVQLWNADARLSEGATVLSR V
EI CGAVCSSVRNGQEIVVSLWNRY I I KK P LVL

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 $R V C G A V V N I R T K G D K I S V W T Q E A E N Q A S V L H I G$

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|  | KVKATDEIVEFSGHSDGKSK ${ }^{180}$ |
| :---: | :---: |
| UniRef90-A0A024J8R1 |  |
| UniRef90-A8×610 | NNPLFDVLRYEDHESCQKKTSS |
| UniRef90-R7QP45 | SDTH EIEYDSFKDAMARRGS |
| UniRef90-C3XQTO | PNTNFPTLFYKPHQAHHAFEKDRTNFY |
| UniRef90-B6JVU1 1 |  |
| UniRef90- B2ZF84 | DTPRSLQLAFE |
| UniRef90-M5G2E3 | GYDПKTEVEFQSHKESEKKQGQSKKLI |
| UniRef90-E2BANO | A LVPNVTFFYKPHQSHHA |
| UniRet90-G20S | ELRPKDNYFYKRHADHAGFRAPPEL |
|  | VNFNAMFYK |
| UniRef90 R7s | DLDTEVTFESHANSEKKNNRAK\\|V |
| Ref90-H2WQ48 |  |
| UniRef90-E9Cl11 | Q PDEPLNFMSHSDA GGSFKV |
| UniRef90-P56570 | SKPDFDVIHYQTHRNCVKKTTS |
| UniRef90_E9QC27 |  |
| UniRef90-FOZZO2 | SVFGRVFKYFPHKQLEKSNGS |
| UniRef90-R7QML7 UniRef90-F405R2 | SFIDGRIFK |
| UniRef90-G2WUG9 | ELRPKDNSFYKRHQDHQGFKAPPEL |
| UniRef90-E4YJF3 | NIPDGLKVKYNVHKDA |
| UniRef90-UPIOOOO2? UniRef9-12H7G3 | ELPASEQVEFSGHT |
| UniRef90-12H/G3 | ELEDDELLDFFHS |
| UniRef90-13N | PHTSFKAVFYKPHEEHHAFEGGR |
| UniRef90-R7Z6X0 | LKDSAYYYKRH |
| UniRef90-B7FTC7 | NLDSQFLQYQTHKDAAESGRSFRN |
| UniRet90 W7T260 | V MD |
| UniRef90 R9APQ1 | N S ${ }^{\text {do }}$ |
| UniRef90-R1GYS8 UniRef90 H1VO91 | D T R E W |
| UniRef90 H1VQ | NTQFEFKSHD |
| UniRef90-D2VOB1 1 | NHGS】T |
| UniRef90-A0A022PPN7 | DVPDKDS YSFHDDARSKKSSGRY |
| UniRef90-LiJ664 |  |
| UniRef90-M7T4N3 | PPKADNYFYKKHS |
| UniRef90-Q6C1A7 UniRef90 F7VWV4 | GVPESVTYEYKVHSDS |
| UniRei90-UPIO003FOAC7E | NVPPNGMLTY品NFNSKREK $\square$ S $\square$ EY |
| UniRef90-FOZEN5 5 | QLPEKFIFS |
| UniRef90-_9HRR5 | QLPEKFIFSYQLH |
| UniRef90-U6NF79 | G |
| UniRet90-K1QPN5 | QEVNFSAMFYKAFYTHQAFESEK |
| UniRet90-G1 | LCPNTIIEYKT |
| UniRef90 UPIOOO443B0CB | GLPPKIVIGYQSHADTATK |
| UniRef90-9X2W66 | RNGSYYKNHNTHSAK |
| UniRef90 UPloo02657B7B | AFTQSFKDEYSTSDDWRQKTGSS |
| UniRet90-G4MYT6 | EDRPKDNYFYKKHSDHAGFKAPPEL |
| UniRef90_R9AD | PSTEMQFKSNS |
| UniRef90 R9ANI5 | GGGLATEVEFVGHK |
| UniRei90 - M $7 \mathrm{WCV} \mathrm{S}^{\text {a }}$ | CKVSSDVEFVSHO |
| UniRef90-UP10002C2FB79 | PHDSFKAVEY |
| UniRef90-B6SGM2 | DY NDKUIYTFHDDSRRDKPSR |
|  |  |
|  | PGFDTTGAFYKAHQSHQAFESGS |
| UniRef90-11HVK9 | DY KDS GFIVHDDAKKDKGPK |
| UniRef90-E9H827 | PNDEFQAVFYKPHQTHHAYEG |
| UniRe90-U1Q2 |  |
| UniRef90_W2SI21 |  |
| UniRe990_L8G109 | YFYKKHS |
| UniRef90 D8SVJo | QDK UFMFHEDAKRGDSKARNRY |
| UniRef90_S8AD | PLPQN YYYKKHSEHKG |
| UniRet90-N1PW16 | ELLKPRECYYYKKHNEHAGFGGPPEL |
| UniRef90-85×3V5 | G $\ P M K M T \Pi G Y Q S H S D T A T K S G S ~$ |
| UniRef90-UPI000351241C | PHTSFKAVFYKPHREHHAFEG |
| UniRet90-F6VMH3 | I I GYQA |
| UniRef90_A3KLJ4 | ATFYKPHHQHDSFEKNR |
| UniRet90-H9K2 | P NVNFSEFYKPHQSHHAEKAPPET |
| UniRet90-M1WAB1 | SPPEDDNYFYKRHRDHSGFKDP |
| UniRef90-D3B053 | PPNSNNS PKYQ $^{\text {PHNTQMNNSQGS }}$ |
| UniRet90_BOWY26 | NLPP S T HMEYKPHCDSLK |
| UniRet90 L8WYF9 | GFPLIATEVEFASHKD |
| UniRef90-UPlo002C338F0 UniRef90 ${ }^{\text {B7OBH2 }}$ ( |  |
| UniRef90 ${ }^{\text {alv }}$ |  |
| UniRet90-C1FDQ6 | GLADNEK GYMVHDDA |
| UniRef90-F2DQJ1 | KDSIEFIHDSD |
| UniRet90 J4UJ53 | D T |
| UniRef90-N1JAU2 | ELQPKDNYFYKKHSDHAGFKAPMK |
| UniRef90 A0A022T3A1 | ELDP NDHFFYKPHQ |
| UniRef90-G4VCF5 UniRef90-F9WEO8 | PP EDAK YFQPVS |
|  | E |
| UniRef90 A0AO22QLC9 | DY NDSDGFDFHD |

UniRef90 F0X8W0 UniRef90_C7YTS8 UniRef90-V4B125 UniRef90_Q4D511 UniRef90 J4WJF6 UniRef90-UPIOOO273C973 UniRef90-X6PC85 UniRef90- M4D812 UniRef90-Q9VAR1 UniRef90_K2RQK1 UniRef90_-JTTN25 UniRet90 W3WS74 UniRef90-D3BOB3
UniRef90-A4RSW4 UniRef90-G9ME73 UniRef90 - H8ZAT7 UniRef90-F2UD07 UniRet90-S9WFO8 UniRef90 BoCQ56 UniRef90-L8H4Z1 UniRef90-G7E3K8 UniRef90-D0A633 UniRef90-A2DLZZ UniRef90-G7YDY1 UniRef90-UP10001CE2CC1 UniRef90-G6DCF9 UniRef90-J3QB74 UniRef90 ${ }^{-}$FOYCUO UniRef90-G3JKJ1 UniRef90-A0Ао2звD01 UniRef90_B8C956 UniRef90-J91C56 UniRef90_O8NJ76 UniRef90_A2E305 UniRef90_M3в9M8 UniRef90-E4YOA2 UniRef90 D8M3G0 UniRef90_D2W2X1 UniRef90-UPIO002C3D990 UniRef90-Q5BEFO
UniRef90 Q8NJ75 UniRef90-EOVFC0 UniRef90-D2VEL1 UniRef90-L5KB55 UniRef90_A0A024JQ01 UniRef90-M8A357 UniRef90-U4L6G3 UniRef90-F9W6W3 UniRet90-H1VG488 UniRef90-M2NG38

UniRef90 - $9 K \times 75$ UniRef90-L8GRC5 UniRef90_UPI0003EE1136 | UniRef90-E4XNU3 |
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| UniRef90 |
| 6 P 307 | UniRef90-A9Bkw4 UniRet90-G3NYH9 UniRef90-W6KIR3 UniRef90 DOP413 UniRef90-B3MSS9 UniRef90-F4Q6T9 UniRef90_B3RUJ7 UniRef90-K71XG8

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UniRef90_D8LWQ5 UniRef90-S8G2H5 UniRef90_J9D7D5 UniRef90-D3BVM4 UniRef90-E9BJ84 UniRef90 L1 IJ52 UniRef90-H3CDU7 UniRef90-S2JN32
UniRet90 S7W5F2 UniRef90 STW5F2 UniRef90-R7S9W2 UniRef90_V5G2H6 UniRef90-S9UX10 UniRet90-B8MK42 UniRef90-W5CTGO
UniRef90 W7HYH UniRef90 W7HYH UniRef90-Q54T63 UniRef90_I3EIK8


AS GGATKHRLQNTWT DWGVKYDPE EALLQKLRPPPLEHTWEFWHDRQPADKVNESNEYESRLVK TLYYDSKTYKPEPSKKKWEASLLH PTQHVWVCYFDKQAKQKKAEDGDYHATLEQ KGSSCENYQSYVKN
PTQHYWDTYFDREQKPDAAGQGEYTAQLEK MENMPARHKLNEEWVLWFDYQDKKYTNNDNWSDSLHK A VP DGPEEHKLCDTWCLYYDNPDDPRNPTDEQYKQNLKK

HRLQTPWTFWFSRKDRDKK LDKKEHMEHLVQ GPHPLEHSWTLYSDSPSERAAATTQSFEAGLRK
GVKRHLLNRPWTLWYDSVST YDCKQWELSLDE ELQLNSPWTFYYFQKPTAEQGDGPYEQCLHK HPLQDSWSYYVYLYY

KSNGLWDECLNK
 RSRAWQDNLHL
KAQNEGPD NSDWGKNLVN

$\square H R A Y T \square W A H M K Q P K F \square Q N \quad T Y D Q V L K P$
HPDESPWTFYDYSSNKGQRAE QDYDKCTTK PLVHSWEFWHDRQDRSTTEEKDTYESRLEL STDPEDCKHPGTSWDVYTRPSSSSNEATDWAKKVK ENTWTLWY HNPQAKLNEQNYSHFYNE EHQLYSKWVFWFDKGGFSNKTQGSYGANVVE

> ETPLQTSWTFWLDKAVKG SKAREYETNLSK

PLETKWTFWYHQEHHEKEKDGSQYRDCLTK
PTQAPLHHNYCLVCLLRSLLPGGATAAECASNLKK
 VKHPLQNKWT LWF TKPPSGK HPLVHSWDFYHDRQDRTTSKNTESYEARLEH HLLNDSWKLWYWRFS GTVVPDVNWTDNLHG HPLENGWAFWYDKY DGPGRTVEEYAAALHN


HP LNRSWT LWYD SSSTYNTESWGLSLVP HKLSQNWVFWYAPRGRKA IAGSDHYDVNLKE KEVATAPAEHPLQTGWSLWYDKKMPKK』DVGTYQSNLQK
 HTLANSYFFYY MPKRPKNMSDY LS GGLNL HWY F YLLDRTY HG LS K DQYEDNLKK KTMRDLPTHH VWKVYFARRPPQDESGHGEYNVQLQQ ATTPLPSQHPLEHTWSFWLMYQA QTKDKKDNWKGTQKR HPLQTNWKFWYFQRDSHKKNKFVDYREKLKD
 KAVVPGPAEHLLQYNYTEWYSRRTPGWPTSSQSYKQNTKQ ESTEPSNQHLLRNVYRFW RTKENGANSQEYENGLED KQNVPA GEHALETGWRFWYYDPAQAVPETTRVYASRLRG
 KGDTEDFKSKIVK

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IGAF SVVGGFGIYDHLVKPADLGNDADIHLFSNPIKPVW

LG SVS T EAFWALYSHCIRPS AASFSTVEEFWSVYNY VRPDELPATTDYHFFREGIQPTW
 $\prod A K V N T V E E F W A V Y S H T D P P S K L K Q N F A L H F F R G D S R A V R$ LA QIS DVK AF WSVFNNFDDT QLK LDRDSHDFHKGVKPVW





 V HTFSTVDDF LSSLYNNGLHPSKLGVGADDHCFKNKI EPKC
 VITFNSVEEFWGVYNNIAPVSELALKSDYHLFKAGVRPEW LAVIHDVVRFWNVWNNFQIA DLALRDSVHLEHKGVKPVW



 $\square \square T V K T V E F F D M L K Y M K P D H A L R T S A Q Y H F F Q E G V K P M W$ I GEFNTVEEFYTYYCF LGRPSEVSDENNYMLFRKGHKPMW
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 MGQ
 GTFTSVS I GTFTSVEPFWRFYSHMVRLRDLTGHSDFHLFKEGDKPMG


 I MTVHSVVEEFFVMLRYMKPLHALRTS SQYHFFQEGVKPMW


 LYDISSDIAVFYRVYNNFPW DK VHTFSTVDDFRSLYKNDLHPSKLGVGADLHCFKNKIEPKC


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D I C GI SVVGVR F N S F L V Q


$E D C G V S V T V K T D V T S D C V W N R N S S R R T V D E D E D G L R N G L$
 KV T G VVMSKRKYHNRLAVWVS DASAT GK K EALKKKALTKEA LV GVMVSVKPKEDII QIWNK DNEDNESVK
$T V Y G V S V S C R Q H V D N Y Q D W T A H S N S K \square N D T G V K S T Q T E L L$ EI CGAVFSPRKFLYRISLWTRSTDENVCMEI GEKWKDII KVNGVVLSVRKDEDILSVWLAPSS RTERDVIRESLRTAL EVCGIVASPKPRDSRIQVWTRSKDKVEDLNALGKKV







|  | 70 |
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| UniRef90_C7YTS8 | EL R P K D A Y F Y K R A D HLGFNPPPEL |
| UniRef90-V4B125 | P DV'T F T A VF Y K |
| UniRef90- Q4D511 | GLPPAMKFIF T P H S |
| UniRef90_J4WJF6 | PEDLSENYFYKKHSDHEGFKVPPEL |
| UniRef90-UPI000273C973 | GHPPRLVIGYQ T H A D PVTXEGS |
| UniRef90-X6PC85 | NLDEESTVEYKFFDQAMADGSTHKN |
| UniRef90-M4D812 | D Y N N S G F I I H E D A K K |
| UniRef90 Q9VAR1 |  |
| UniRef90-K2RQK1 | T LR D NQ Y Y Y K R H S E H A GFRFPN |
| UniRef90_J5TN25 | A L E P |
| UniRef90_W3WS74 | EL R PK D NY F Y K K H S EHAGFKAPPEL |
| UniRef90_D3B0B3 |  |
| UniRef90_A4RSW4 | D $\square$ P E S E K $\square$ G Y M V H D D A $\square$ R L E |
| UniRef90-G9ME73 | P PPKPDHYFYKKHSDHAGFKAPPEL |
| UniRef90-H8ZAT7 | E $\square$ P G NVK ${ }^{\text {V }}$ S F K V H E S A $\square \mathrm{K}$ |
| UniRef90-F2UD07 | $R \quad E L G K I E F L D P H Q V A Q K A K S S$ |
| UniRef90- S9WF08 | T L P E GV T AVF SK H |
| UniRef90-B0CQ56 | GYPEA TEVEF LS HKDSEKK GKPKK】V |
| UniRef90-L8H4Z1 | D LD D V M Y K S S S S $\quad$ K D R S TY K N |
| UniRef90-G7E3K8 | NCHQQVVIAFMPHKTS GHAAPSKL |
| UniRef90_D8PQU9 | GGPLLA TEVEFLS HKDSEKKGKSAKKLI |
| UniRef90_D0A633 | GLLPTT K P I F TA H |
| UniRef90-A2DLZ0 | ELPDK F K D D Y N P F D |
| UniRef90-G7YDY1 | NFPDQ■YFQ |
| UniRef90_UPI0001CE2CC1 | GLS T K T I I G Y Q A H A D $\square$ A T K S N S |
| UniRef90_G6DCF9 | GF K K SI NFHKHNEPI N M |
| UniRef90_J3QB74 | QLP L N CHLLVYKLDADCLS |
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| UniRef90_G3JKJ1 | PEELQTNYFYKRHADHEGFKVPPEL |
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| UniRef90_B8C956 | RLP N HVS M Y Y H T H |
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| UniRef90_Q8NJ76 | ELPNSEQVEFSGHTDS AHAGSTR |
| UniRef90_A2E3Q5 | NLP F K S K I E Y LA H Q |
| UniRef90-M3B9M8 | SPPRDGSYYYKRHNEHAGF |
| UniRef90-E4Y0A2 | D SRFQ】QFQSHRDNARR |
| UniRef90_D8M3G0 | AVEKREKMEFRKH |
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| UniRef90_UPI0002C3D990 | NI EGATVMYY PHDSTL |
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| UniRef90_A9BKW4 | E EELGKK K L Y Y S HS T C LR |
| UniRef90_G3NYH9 | NIPTKA IIG Y Q S H D D S S K S G S T K N M Y |
| UniRef90-W6KIR3 | PLHGLAPPLAFTRHSDLAGGKG |
| UniRef90-A0DZT1 | EMDPNNTFFFKEHSKSLNDKSTMK |
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| UniRef90_B3MSS9 |  |
| UniRef90_F4Q6T9 | N L Y R DE K V V Y K P H |
| UniRef90-B3RUJ7 | PTITLEQAYYK S HQDHQAFEG |
| UniRef90_K7IXG8 | S LVPEVT F F Y K P HRSHHA |
| UniRef90_E9F4V2 | PLPK S ENYFYKRHRDHAGFKTPPE |
| UniRef90 C5LDU6 |  |
| UniRef90-J9J6Z9 | G LP S S VT LY Y K E H Q K S $\square$ K D Q S T M K N |
| UniRef90-X6NTF6 | KLKQKlS Y |
| UniRef90_C5GMJ4 | S PDSA Q S Y Y K R H D EHEGFEA |
| UniRef90_V9L761 | PNDTFKAVFYKPHEEHHAFERGR |
| UniRef90 G3WYY1 |  |
| UniRef90_D8LWQ5 | A LP N TVRV V Y K P N R S A M A N |
| UniRef90_S8G2H5 | $R \mathrm{l}$ R G NLS FQFKSFQMVLKNCGAP |
| UniRef90_J9D7D5 | GF D DQ IGF K L H E N SLK |
| UniRef90-D3BVM4 | P F LP D G CI Y Y R I H A Q D Q S K |
| UniRef90-E9BJ84 | S LAP $\square$ A S V V T K H GEA |
| UniRef90_L1IJ52 |  |
| UniRef90-H3CDU7 |  |
| UniRef90-S2JN32 |  |
| UniRef90-S7W5F2 | D G N K R T T G F K T H N D N L K |
| UniRef90-M7XW12 | SPTSNLQLLDYKPH |
| UniRef90-R7S9W2 |  |
| UniRef90_V5G2H6 | ELR P A S S Y F Y K R H D E H |
| UniRef90-S9UX10 | ALPP S VK L G F A K H |
| UniRef90-B8MK42 | ELRPADSYFYKRHADHEGFRG |
| UniRef90_W5CTG0 | P F P S L A I P Y Y K L H R |
| UniRef90_W7HYH7 | SEDLKKPLVQYKKHSEHKEFR |
| UniRef90_H8ZFJ5 | ELKHA |
| UniRef90-Q54T63 | KI EKLDYKPHFNRLQKE |
| UniRef90_I3EIK8 | E\\|PESSKLI $\quad$ K K A E N A L K |



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H P L F VPFTVKT $\square$ T R NTTKKEP F DFCNS LK K HPLRRKLVLWYTRRTPG TRSQSYEDNIKK
 GWFFKND K K K T WQAN LR R L GQYLLQTP WTFWYDCKV KKNATHEEWQDS L H K K RPLPF Q Y H WT VWY DRHTDAPAASTADYDSRLYV QPHPLEHSWTFWFD NPFAKSKQATWGSSMRS H K L Q H E W S L WVMS Q Q GR S V K D H WQQ NQQ K

$K H L L Q N R W A L C F F K$

$P D S L P L S N K W T M Y F A D T S V T K T N S K N K Y S S T L N P$
EHPLQNTWT F YYYER PASAEDY LKSTHS TSVSTSVVHPLQHTWRFWYDRRENKSKSDFTNYNENLLE SKTKVKKATWLD QVRS

HP L R S T WVF WF RQQRTPGNK $\square$ T NYEE G $\square K K$




MDVP A GPHF LESEWV DWEHR
APDKNKSYEDNMAK D FK Q S LT P KEGNRATWLDQVRS $R P$ P L L N R WA L WF FKND A WQDNLHL LP FQ Y H WTVWY DK Y T P E S D D P S T K N K L Y I L H

K Y H Y Q NPWTL WY D S S SNNVIS YE WNQLLI R HP L K Y TWDVWF SHRS GGEKESRE EWE GGVVR $L$
S N N WTFWY K D K C P E D
R VP S S L WF Y N N D E E D
VEHPLA F Y WTF WVVDNFND KNGTG
 E WRMNFQK

K HPLQNRWGLWFYKND K K A KMYA AN L R K
HPLQHEWVLW FHTGGGKKDANAWKESMKQ


 EAVVPGPA E H P $\quad$ K H E L


ENYLQNTWVF LF DKENRK MATEPTEHALESAWSIWELR
$Y Y E Q Y V N G L V$ E S S K S N Y GENL HR T T T T E E Y L Q Q NV

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 I Y T F S S V E E F WS L Y N N DH H P S K L A V GA DF Y CF K N K I E P K W

 $V$ C D F S T I I E F F WA L F F N L C G P S D S R RLDN F NVV K K GVVR P E W
 VA FFS T I E D F WA L Y N M I Q Q P S A M N W G S D Y Y L F K E G V K P M W





 T




 I G S F N S L L K Q F K N N M W E S L L K T P
 VA K DD S VE T F WS L Y Y T $\square R$ P P S E L K VG C D Y S M F K L G H Q $\square \mathrm{CG}$ TPVRH H GNS S K D QYEATL S R R L E K N A NY H L F K Q G I K P M W $\square G D V D T V E G F W Q F W N S I D D L M K L P K F S T I S V F K N G I X P A W$ A T TL L A T F V S G L L E T F N T I E E K F Y K K N Y K Y M K K S P S S


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3


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 EDPKNANGGFWAMR EDPANSHGGKWVIIVRNSHLDRCWSWLVMGLVGEEDDDDD EDENNKRGGRWLMTLNK QQRHNDLDRYWLETVVTGNS GWT
 E DPANRNGGKWI I RFKKAVS GRFWEDLV
ED A A NVGGGRFQMRVK IVYSNRFWE DL L L G LI GNQCEFNS EAPENSHGGEWQSRMTPQALDLFWENMVLGLVGETVDVGD

 EDPDVCANGGKWTVVIFPKGKSDTS WLYTVCLDSMGGF
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E E WK C G GC CWI L L V Q Y K N L N KI WE DL L L GCi GENF GN S N K DE
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GDPRNK T G GE WF WHLE G DVL D L FWTN LVLGVIDGEA DED GV

EDDANQNSGKGK W
 A V D $\square R$ S K N N K CKCP K WD SYP DT K H P L MP

EDEHNQE G GRWVVKLCRSDSKEYYSTCCVLALLGGNLIFTAPQ



UniRef90_A0CD64 UniRef90-B0EBP1 UniRef90-A4HA98 UniRef90-D2W2X0 UniRef90-C5PCQ1 UniReffo-COUE42 UniRef90-4PYZ UniRef90-L2GSU9 UniRef90-UP10003DOD30B UniRef90-A2G3L7 UniRef90-A2FLM1 UniRef90_G2WU55 UniRef90-E5SEN7 UniRef90-FOZNA6 UniRef90-UPIO003F4A60E UniRef90_L8GFK0 UniRef90 ${ }^{-14 \text { YGV7 }}$ UniRef90-UPIO003C17A13 UniRef90-U9UC16 UniRet90-L2GT99 UniRef90-W5EO29 UniRef90-D8LTT3 UniRef90-UPI00035000F8 UniRef90_UPI0003598B6F UniRef90-A0A059EWW8 UniRef90-A2QR15 UniRef90-V4UA29 UniRef90-C5LC57
UniRef90-I7M629
UniRef90-s9UCm0 UniRef90 UPIOOO3F159EF UniRef90-S9VUR5 UniRet90_L8X273 UniRef90-AODYS9 UniRet90-U9TTS6 UniRef90-Rom004 UniRef90-A2G614 UniRef90-C3XUX1
UniRef90-DOAOV2 UniRef90-A8S565 UniRef90-UPI000444A641 UniRef90-UPIO003F178DA UniRef90-F2SRH3 UniRef90-R4ULY2 UniRef90-F2HIE5 UniRef90-Q240R3 UniRef90-C5KNB7
UniRef90 ${ }^{-14 N N F 7}$ UniRef90-J9VV53 UniRef90_UPIO0026596DO UniRef90-W6L5B7 UniRef90-H2KRT3 UniRef90 F1LDW3 UniRef90-R1BIV2 UniRef90-S7W5N5 UniRef90-K4DYK3
UniRef90 E3KDN2 UniRef90-E3KDN2
UniRef90-HOY8X3 UniRef90-A0A017SET8 UniRef90-A2F639 UniRef90-Q98RU5 UniRef90-W2SAD8 UniRef90-U5H9Y6 UniRef90-UPIO0046BB7FA UniRef90_L1IK18 UniRef90-BOE6V8 UniRef90-B6ABF8
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UniRef90 L9KPM7 UniRef90_L9KPM7
UniRef90_G4YR44 UniRef90_Q27Z17 UniRef90-B4H2B1 1 UniRef90-M5EBB8 UniRef90-W5DG61 UniRef90-BOCUA2 UniRef90-B3KZF7 UniRef90-TOS8D6 UniRef90_FOZEK2 UniRef90_U1HMM2

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Y TNG TS DQAKDPQH TOQWVKDRNKNES DDT KNF MS EI CGARVVDKHNVYRFELWLR SNDGNTAARLLERLRACL EVCGAVI NIRTKGDKDAVWTREAEDQASVLHIGRVYKERL DVCGAVVNVRAKGDK
LICGVVFSPRRVVNRFSTWTGCEKSDSVLNWGKMWKDLV HVLGVSTSVRFNSHLISVWNKLGSNDRSIVALLEKTIIDRLL

VVCGVVCSVRRGGVKПADWLSSREEKLVKPGGDRFKRD IGGVVLSURRNRKVIEVWMRDRDEEQKIKAGGEERRKIL DMCGAGVNVRAKGRK
E CGGDSVSRKKGEWRVADWTRTAEDEETQपRपAQYपRDLL DI CGAVFTTRPKHYTI
GVCGIIAHSKKNFTLISTWTKDQNKYKLLEEDTKWITNCL LICGAVCARRDRGDRVELWUSGDAYSRDUDRIRDLLSMEL EVIGVSVSVRDREDVI QVWNGNASLASEAKVLEKIYKLL E CGAVVSKRKRGDRVAIWTRDKENVLANYAICKNIEKLL EICGAVVRRAERRWKLSLWTRTAADRCTQERUGFFVKDLL EICGAVVSVRGKGEKISLWTKDAANETAQ PTPGV
EVCGAD DNTCTKGDKTSVWTQKVENQTSEDHTGRVYKEHR HVLGVSTSARFNSNLI SI WNKQGYNPKADKALEEVILQRL CI NGVEYNSRRDTURIGVWTKEIDDSKK EVVMKEISKVL
 PVCGSVCSMRKYNCKVALWVGTA DENHLMMVGRRFKESL EICGAVVNVRAKLDKIGI WTADQSKQQANLEI GRKLKDQL NVVGCVLSMRQAEGILSVWVEDEGENVRNGSLRAKVLSLL
 EICGAVFQPRTRGHKMAVWLSNSQDKDT ILRUGRRIKERL HVCGAAVNDRQRSDKVA
EICGARVVDKSTMYRLELWFRK NDDALSKELLAKMQEAL 1 NGDALSDRSQHVIFSVWSKYTPENDQHKNIVKEDKETL


HVLGTSSSVRFNSHLTSVWK■GGNERSTKTLEQTDLERL
 HILGLSYSPRLYQAHISIWTQSGANKQSDAKLEQAVIDGL EVNGVVLSVRKDEDULSLWCAPTSNREQRDLGREALRAAL DFCGAIVTSRPEEDVLSVW
IINGVSISTKKLNNLIIVWTKTTS IIAQNQTINYLITRF
VVNGURLVDKKGNIRUEUWFNDFSNQSARQGLIDQEVETGM

ETTGART\HKNKKDRFELWLR SRDपELADEVRKGMLECL TVNGVALKARERAYLLEVWVTEQS AELMMDUSELLRPLL KI NGVEFTVRTETFKGVWVS
NLNGIMLKLRQNKTTLQLWTASSDEKALARSLRDLLEKVI VITGARVVDKCKEYRLELWTSTKENDEURKRLREAMKEGL QSNG VLS QRSWGASUHLWNNSSEN DKVQSURDVFQNUL
EVTGVRVTHKGNNYRYETWLR GVNRAKADETRNKTLEVI EVCGAVVNIRTKRDK\|ALWTSEAEDKAGVMQI GQ\|YKERL LVTGAVCSLRGKATPRAVWTANGSNEAALDE:GQKGKLFL KMNGIVGSVRPRGNSIALWN TMVDPELLFEVIA WELLSIVA ETCGAVLSVCGKQETI AI WIIKDATNEAAQVQV
ELCGAVTSVCRKSEDIVSL WNRVDGDVKVREKIR LSGDQLCIRENEDFFKIWMKNYSNYUKSDGMKRVSELL EVTGARVVHKNKKDRFELWLR SRDRNLADDEVRKNMVACL


| UniRef90_A0CD64 | $\text { G\|I NE } \quad \left\lvert\, \begin{gathered} 170 \\ \mathrm{~N} \text { V Q H } \end{gathered}\right.$ |
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| UniRef90_B0EBP1 | I PCDGT 1 ¢ Y Y S H P S |
| UniRef90-A4HA98 | R L |
| UniRef90_J7G7Q2 | GI T N NVS L I F F S N |
| UniRef90-D2W2X0 | DILS A GS TL F K F |
| UniRef90-C5PCQ1 | ELRPSSK T Y Y Y K R H DEH |
| UniRef90-Q0UE42 | ELVPK D S Y WY K A H K E H K G F |
| UniRef90_F4PYS2 |  |
| UniRef90_G0U4Z0 | NL D D GALLQYLVHRELMQ |
| UniRef90_L2GSU9 | GY SKELAFKVHENAMK |
| UniRef90_UPI0003D0D30B | T LP P NT M M THT D S $\square$ K T P G S |
| UniRef90_A2G3L7 | EFPQNSTLIFFKFH |
| UniRef90_A2FLM1 | G P L G N NLEAK P M T A P A N E N Q P R K |
| UniRef90_G2WU55 | QCPPNT\FEFKSHDES $\square$ Q HRA |
| UniRef90-E5SEN7 | NVHENVTWE |
| UniRef90-F0ZNA6 | PLLLD ECMFYREH |
| UniRef90_UPI0003F4A60E | GLLPQST@CEYRANRDAASHPSETK |
| UniRef90_L8GFK0 | PKAELRRSPFYKANREHTDF |
| UniRef90_14YGV7 | E 1 |
| UniRef90-UPI0003C17A13 |  |
| UniRef90-U9UC16 |  |
| UniRef90_L2GT99 | D VK F F LS VE Y K D N D E S LK D N S S F R N |
| UniRef90_W5E029 |  |
| UniRef90_Q23Q47 | QLNEDSS $\square$ E Y |
| UniRef90_D8LTT3 | NLHEKLSFDWKA H |
| UniRef90_UPI00035000F8 |  |
| UniRef90_UPI0003598B6F |  |
| UniRef90_A0A059EWW8 | GSEK Y A D F F R S N R E |
| UniRef90-A2QR15 | ELRPSTAYFYKRHDENDGFK |
| UniRef90 V4UA29 |  |
| UniRef90_C5LC57 |  |
| UniRef90_17M629 | D LP D N L I F Y Y K D H VR S LT |
| UniRef90-S9UCM0 |  |
| UniRef90_UPI0003F159EF |  |
| UniRef90 S9VUR5 |  |
| UniRef90_L8X273 |  |
| UniRef90_A0DYS9 | G L Q N K E FEY $\square$ A H |
| UniRef90_U9TTS6 | GHEMKENVKYKKH |
| UniRef90_R0M004 | P H T S F K AVFY K |
| UniRef90_A2G614 | N $\square$ A G K L R F K Y |
| UniRef90-C3XUX1 | PFKEKSS I E Y LH HQDSLR |
| UniRef90_D0A0V2 | HLEDGSLQYFSHRELMQAS |
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| UniRef90_UPI0003F178DA | S L S K N P L M |
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| UniRef90_R4ULY2 | QLK D S DK |
| UniRef90-F2HIE5 | H T P S K L H LE Y F P H T N Q L F K K |
| UniRef90_Q240R3 | GY D P S Q F $\square \mathrm{Y}$ QP HK S HAAHKS S |
| UniRef90_C5KNB7 |  |
| UniRef90_S4NNF7 | $\mathrm{G} \square \quad \mathrm{HGG} \square \mathrm{GF} \mathrm{Q}$ L H R D T MVK H S S T K N L Y |
| UniRef90_J9VV53 | NLPP S T T C P Y A N R |
| UniRef90_UPI00026596D0 | HVGQHF QLEFVLH K A Q K T R K L F |
| UniRef90 W6L5B7 |  |
| UniRef90-H2KRT3 | N F P D K $\square \mathrm{Y}$ F Q |
| UniRef90 F1LDW3 |  |
| UniRef90 ${ }^{-}$R1BIV2 |  |
| UniRef90-S7W5N5 | G\EFFFVSVE Y K D N D E S L K D N S S F R N |
| UniRef90_K4DYK3 | $N L E D G V L Q Y L S H R E L M Q A S$ |
| UniRef90-E3KDN2 | QLPLNCNLVYKLNADCLS |
| UniRef90_H0Y8X3 |  |
| UniRef90-A0A017SET8 | D LR P S G SHAD |
| UniRef90_A2F639 | NIP A N F K I D H S L N K D |
| UniRef90_Q98RU5 | K NYFDDKIEEYSPHKS |
| UniRef90-W2SAD8 | DLRPKSSMEYKMHREHEGFE |
| UniRef90_U5H9Y6 | EPSTNLQLD Y K P H |
| UniRef90_UPI00046BB7FA | NVYE $\mathrm{V}^{\text {K S S K Y K L H N }}$ |
| UniRef90-L1IK18 |  |
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| UniRef90_B6ABF8 | S S L LD G S S C $\square$ S P HFDVK S H S |
| UniRef90_A7SA12 |  |
| UniRef90_UPI0000F21C80 |  |
| UniRef90 B8BW12 |  |
| UniRef90_E2LFA1 |  |
| UniRef90-A0A024TP39 | NTDKKGSCVVY K H S S H |
| UniRef90_K4E5B6 | G DVFSVFYAPHS |
| UniRef90_A2F040 |  |
| UniRef90_G0V274 | GP K P L Q K L E Y F S HQRTMGAPGS |
| UniRef90-W7THJ3 | GVVPD FVWKDHSES |
| UniRef90_B0G0Z1 | FVKYS K F S P K T A LD M |
| UniRef90-L9KPM7 |  |
| UniRef90_G4YR44 | N |
| UniRef90_Q27Z17 | G $\square$ S T K T $\square 1 \mathrm{G}$ Y QA H A D T A A K S |
| UniRef90_B4H2B1 | RLQ S N NL Q Y Q L H S D A M C K S N S S |
| UniRef90-M5EBB8 | ELKK P G $\$ QV E F  \hline UniRef90-C5L4S3 &   \hline UniRef90-W5DG61 &  \hline UniRef90-B0CUA2 &  \hline UniRef90_B3KZF7 & D LP P N T S  \hline UniRef90-T0S8D6 & NQP T K V VIS Y K E H R  \hline UniRef90-FOZEK2 & S $\square$ K Y S K Y SVH K A A $\quad$ LIF K N N K K |
| UniRef90_U1HMM2 | R P A N S E Y Y K K H S E H |

UniRef90 U6IK43 UniRef90-11G8G9 UniRef90-W6LBQ9 UniRef90_E9BLEO UniRef90 F4PU13 UniRef90-A7AQ33 UniRef90-V5AWP7 UniRef90 D8Q618 UniRef90-F1LDA2 UniRef90-I1FLE4 UniRef90-11G8N2 UniRef90 GOQJI1 UniRef90-Q6TEC2 UniRef90-D8M432 UniRef90_AOBLU3 UniRef90 W6L298 UniRef90-A0A059EXJ8 UniRef90_D3BS37 UniRef90 АЗЕЗLЗ UniRef90-B7FU68 UniRef90-FOVK73 UniRef90_J5T4N3 UniRef90 GOUD84 UniRef90_UPIO002C3F499 UniRef90-J9D8Z9 UniRef90 Q5F3V7 UniRef90 F2QM09 UniRef90-E9B072 UniRef90-B3RYC1 UniRet90 W9Y8B3 UniRef90-C9ZQJ9 UniRef90-FOYJH1 UniRef90 U6MCY3 UniRef90- ROMBS8 UniRef90_UPlooo2C3D713 UniRef90_V9E562 UniRef90 C5LIT7 UniRef90-W7AN59 UniRef90-UPIO0026580BC UniRef90 C4LX88 UniRef90 BoEGE6 UniRef90-B4K473 UniRef90-A0A024G2T2 UniRef90 EOSA01 UniRef90-A5K7S6 UniRef90-X1WXG5 UniRef90_A8B3V2 UniRef90-U6LV05 UniRef90_UPI0003B491E8 UniRet90_s9VoW8 UniRef90 Q23JX8 UniRef90-UPIO0033145BF UniRef9- 3 OM858 UniRet90_EOS8M5 UniRet90-D8MA45 UniRef90-K3WHW2 UniRef90-D2V2M3 UniRef90 BoEKV5 UniRef90_D2VKH9
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P G S TH L W G T WE LS CDLP P NSHPPAS GNWLN QVKH E M MLD D L WC L F Y LPT T LGGENDK E E D Y NP T L VF VD $\square$ S T P MP L R N K WV I WE Q IVVK GQDSRNSN DYKCYTMP TPANPKVVAK F S S P P K T
D Y E A G L T V

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RKWSFWFDNQS K P K Q GAAWGTTLRK $H L L Q N T W V I S E Q Y Q Q E E K A D K A R D Y E S S F E K$

E M MLDD DVWSLF Y L P VWGEN $\quad$ KKEENY NPTLVF K P K P GETP DFASLI KH
FNDTWVLWYDNTKKAKT QQTPQY LQ SLNR


A P H PMQYS WTFWH HVRQENKETSSEDWQNTLDQ
$P$ LLAS WDLY A DDHQGSSNTASHSSPTSTMS PETHQLYCNWCFWYDCPSRGNKQDSTSYQDSLNI V $\square$ A K LR P LP F QYRWSVWHSKPD DTAEYLLDRTLVENVAD
 A D T P LP LQ NRWHVWE QQREA GALDRAADYS QNTRD H P LAR S WT FWVD DFA D KN ASME EF EK N L K T
 NSGNEDSKDTYEK D K S
 LDDEWTLFFSNQDRHGDQSHADFMDNIHP AETPLPLQHRWHVWEQDQRENAA DRAA DYSNTRD

S QKK S T GKRW DVLRC LAS QWVLW Q Q N NDESNAK S WGDDLMV HRLRNHYRFW RSQNTVEGKDEFFNGLED HELLHT GWS I WE QR G E L L G K G M A Y G D K L F K $P L S S T H L L R N K W T I Y Y D$ Q GFKQGASPEDYEQSIKQ HHL S S P W $\square$ F WF E S K D S D R ST S $\square T$ S F GE QIQT

LT S NWI I W QNHNDESNDKSWGEDLVN L Q NVWL FLDFDNEVRKENEQCVGG KII S H P L H T A WSI WE LR E EMS K GNYA D KL H K KLETKWTIW W W SVDD S NTK S WS D DLK N H NLDCSWTI WVIDP TRNQTTSHDDYDSSLDN PASGELILGDLLWCLFYLPMGGGENVKESTYDPTLVF

LK DKWVFWY L I PSKGGQNDHWSEYLHP HVLENKWVLSEQYY IE NKTDRLKGYENSFEK HPL HR R WQ WWVHRPCYD GS SYA GT WEPMAK H IVP Y C WTF WHHRYS QPK QR D GKN Y L S RTQT


T S $\square$ N L E K P L S L K T K WVI WE Q $\square K M G D H N H N N D D Y K E H T K P$ TPPPS QPMCLHSAWDLYADDHTSDSTPSTASMPFDPVH LA D P WCLLF Y LDPVGGGENVRDVTYDP T L V F
 $K L L I T K L R P L P F Q Y L W W V W H S K S A G P V A S T T D A Y Q L N L L$ HA LD KL WTI WY H S K LDP T SKY LS TA HEVVQFP Q



EHKLFSEWTFWFD GFSNKSTETYGSNTVP HPLQYGWVIYEQIQFYNESDKKKGYKNSFTY K E E P VP D E P L P L R Y V Wh V W Q E S $\quad$ A $\mathrm{P} \square \mathrm{P}$ P E H HIL P Y CWTVWHH SRRSRLLKQKES IS GEDSVVST | A | $L$ | $I$ | $P$ | $\square$ |
| :--- | :--- | :--- | :--- | :--- | S D T PI P N K WVF WY L I PCKGGQNVHWSEYLHP




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UniRef90 W6KMH3 UniRef90-GoUNF5 UniRef90-UPIO0042CE1B9 UniRef90-C4M2F7 UniRet90_V9D5E1 1 UniRef90-W6MR71 UniRef90-S2IV20 UniRef90_S9U5M0 UniRef90-A0A016W1S4 UniRet90_K2H2X1 UniRet90-D8MON8 UniRef90-UP1000185D8CB UniRef90-A3LVT3 UniRef90-A2E7KO UniRef90-G3ASF7 UniRef90_C4V9K9

LGQCSTVVEFWKVFKMTEKPSELLQSTEAFYLIMRNPYDPQW VGVFDNAEAFWGLWQCL LLPSQLPVNTSYFLFRSFIVPMW RGTENTLNSLKELWKGLSSPSELVSSNLYLERDG|LDPKW
 VGSFATVEEFCRYFNWLKPPSHLERNSNYHLFKSCTKPMW ПYTVRS $\mathrm{TK}_{\mathrm{K}} \mathrm{EFFSVYNN} \mathrm{\square KPANQLFMRECYHVMRHNRRQMW}$ KPQLLKTF VYSFDTVEEFWCDHDQIFKPSKLPGNADFHLFKDGVEPKW 1 CSFNTIEDFWGYWNKLPRDSDVFFDGNQCLFKEGVEPKY
 VGTFNNIQTLMQLWSSLTSP LCSFRTVEDFWQYFNHIPKPSQVKTDEEYSLFKEGUEPEW
 L NVGDVETFWRLWRFVPPPSALLPAFTYHWFRRDVKPNW MRGERRPLW YTNDDSCEQLWQS FSNVGDVESFWRLWRYLPAPSGLPTVYTYSWFRKD:KPEW IGAF YRTFNNVPW TETRQKDSTHTFRAGVKPMW
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VASVATLESFWRLLRYVPPPSASPVPFTYSFFRHDTKPEW VGEFDSUQSFWSLFNNUPKLNELSUGSSYHLMKQG\|KPLW
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FRDGMQPMW LVSFDSVQAFWNLWFNTPQPSEGSTNDADMDFRDGDQPMW R VDSUSSFWRVFNNVPEPKDMGIGTGYLFRDGUNPKW DYTTHSVEEFWG YOS KKOTTDKGDDSFMRGERRPLW VENVADI GAFYRI FNNLPWTS RRGDSTHIFRAGVRPLW IHTCDSVEQMWQVLSNLKPPSELGFNSEIMVFQKGVQPIW
 ISSVGDVASFWRLLRY
TGSFKTAEEFWGTYDATPKDGTMENGSDVSTFKNGTKPTW VCKFTNVEGFWLNWNDITCPTDQPKDDSISI FKLGVEPLW

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UniRef90-11G8N2 UniRef90-I1G8N2 2 UniRet90_G0QJC2 UniRef90-D8M432 UniRef90-A0BLU3 UniRef90-W6L298 UniRef90-A0A059EXJ8 UniRef90_D3BS37 UniRef90-A3E3L3 UniRef90_B7FU68 UniRef90-FOVK73 UniRef90_J5T4N3 UniRef90_GOUD84
UniRef90_UPIO002C3F499 UniRef90_J9D8Z9 UniRef90_Q5F3V7 UniRef90-F2QM09 UniRef90-E9B072 UniRef90-W9Y8B3 UniRef90-C9ZQJ9 UniRef90-FOYJH1 UniRef90-U6MCY3 UniRef90_ROMBS8 UniRef90-UPIO002C3D713 UniRef90-V9E562 UniRef90-C5LIT7 UniRef90-W7AN59 UniRef90_UPIO0026580BC UniRef90-C4LX88 UniRef90-B0EGE6 UniRef90-B4K473 UniRef90_A0A024G2T2 UniRef90_EOSA01 UniRef90-A5K7S6 UniRef90-X1WXG5 UniRef90-A8B3V2 UniRef90_U6LV05 UniRef90_UPI0003B491E8 UniRef90-S9V0W8 UniRef90_Q23JX8 UniRef90_UPI00033145BF UniRef90-J3Q858 UniRef90-EOS8M5 UniRef90-D8MA45 UniRef90-K3WHW2 UniRef90-D2V2M3 UniRef90-B0EKV5 UniRef90-D2VKH9 UniRef90_UPIOO02B479C0 UniRef90-ROKSA2 UniRef90_A0A024VDT1 UniRef90-A0A024TM66 UniRef90-T0L3C8 UniRef90-F4PKQ5 UniRef90-GOTWK3 UniRef90_M4BUU5 UniRef90-A2GAV4 UniRef90_D8M205 UniRef90-S4VWT9
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UniRef90_S9U5M0 UniRef90-A0A016W1S4 UniRef90-K2H2X1 UniRef90 ${ }^{-}$D8MON8 UniRef90_UPI000185D8CB UniRef90-A3LVT3 UniRef90_A2E7KO UniRef90_G3ASF7 UniRef90_C4V9K9

EKPEHANGGRWR|LIRTDRNTDY|LWCELIAMGAVGEKLDSHN EDKTNKDGGRWLL NDNKGVLDNVWDETLMCLI GEVVFDDSD
 EDVKNKDGGKYSVNYMKSRVLDNWFSLLTTVVQESWEHYS EDSMNKDGGHFDYRFKPGDVDEYWNNIVLGLI GCSMPHAN EHARNKNGGT ITVVISKQTMDDAFMTMLMACCGETMAEST




 EDPRNATGGHFEYRLSYGQIDEYWNNLVLGLIGSTVEGSD $\begin{array}{lllll}E & H A R N K N G G T\end{array}$ EDVKNRKGGRWIFF LNKELVDNMWHDLVIEC EDPQNRSGGEWSLRRLTGPVLDKLWE TVVLGGADGEQLDEGD EDPANSEGGHFEYDFPYSQIDEFWNNLVLAI GCTDKHYN


 O

 GDDENKNGGG
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 EDPDNLSGGEWQVALKAEELDDLWEKMVLGMIGEETDLDA
E
 E $\quad$ A FP Q G G C WI L




 EYP RNKRGGGTIIIIIIDKQVLDD TAMTTIIISCAGETFECCST




 EDTSNVGGGRIQQIILNNELCQQYWRDTVCY
EDPDNENGGELLRVTLDHKTLAKFWESIVVLMMGGSUIDCE




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EI CGLSVSQRPTDNIFRIWNMKCGTEVDQKKDYERTIE LL
 LC GLQLCDRDNEMFFK WMKNYSNYLKND LMKKLKDLL E 1 T GAR1 I HK
GICGCVYVEKPNVYKFSTWD ENESYVDEVKKGWKEAD DI C GlVLIKRGNIERDAI WNRDASTPESIESL K K N L L N


NITGARVIDKSNNYRVEDWFRNWEDEAFKASLDAETEKLL RITGARLVDRVSSMRVEVWD DDDDPALTDRIGRWFMK
DINGVVVSDRRDEDII SVWNAN
S L LGVGVSPRPTSVVVELWTASLDDADKTIEFAERFNS LL QGAGGTVSTRDREDLVQTWNTNA RNEKS IRILGET I IERL EVCGDTVSDRDREDLVQDWNTNATLEASKATILNKIHSLL


 H L GLSFSPRANFTHUSIWTKQGDNPRSILLAGSGLSSDL



 HI T GVRL
DISGLVLSVRKDED\|ISDWNSN
DVVGVEFASRETSWRMASWDK
DI CGIVLSVRKDED\|ISTWNSNGDSKNDDKDFEFYQNA L


| UniRef90_U61K43 | $\text { TPQFKTVF }{ }^{170} \text { S F DEYTK }{ }^{180}$ |
| :---: | :---: |
| UniRef90 IG8G | K\HDFETUQYESHLDVVTRS SNRT何 |
|  |  |
| UniRef90-E9BLE0 |  |
| UniRef90-A7AQ33 |  |
| UniRef90-V5AWP7 UniRet90 - D80618 | GAKPLQKपEYFSHQQTQ |
| UniRef90 D8Q618 UniRef90 F11DA |  |
| UniRef90-11FLE4 | PCKEVVDVSHQPHSYQQSFGRSQR |
| UniRef90-11G8N2 |  |
| UniRef90-GOOJII | NपQENSP■EY |
| UniRef90 Q6TEC2 UniRefo- | GLEGRET |
| UniRef90-AOBLU3 | QLKEDRDIEFAFH |
| UniRef90-W6L298 | DGAFATT YYPH EAMQNKA |
| UniRef90-A0A059EXJ8 UniRef90- ${ }^{\text {D3B537 }}$ | GVNFDMTDEFKLNDESMKDNS FRN |
| UniRef90-АЗЕЗЦ3 |  |
| UniRef90-B7FU68 | S ${ }^{\text {TKGRPKFEWKDHS }}$ |
| UniRefoto-BOVK73 | ATKDDGSVGADPRAD DKNHG |
| $\begin{aligned} & \text { UniRef90-J5T4N3 } \\ & \text { UniRefon } \end{aligned}$ | GLPSTTICEYRSNK |
| UniRef90-UPIOOO2C3F499 | D DPRDDFHFFAHK |
| UniRef90-J9D8z9 UniRet90 O5F3V7 | NVNYDLMMEFKNNDDSDRDASSFRN |
| UniRef90-Q5F3V7 <br> UniRef90 F2QM0s | PHTSFRAVFYKPHREHHAFEG |
| UniRef90-E9B072 | GAKAMQKLEYYSH HQKQAATNSL |
| UniRef90-B3RYC1 | GFLRDIRIDDYLIHKDSVK |
| UniRet90-C9ZQ99 | G DAFQVPY ${ }^{\text {de }}$ H S |
| UniRef90-FOYJH1 |  |
| UniRet90_U6MCY3 |  |
| UniRet90-ROMBS8 | ETQYN |
| UniRef90-UPIO002C3D713 UniRet90-V9562 | PVLDEGDVGWKENAEH $\square$ T |
| UniRef90-C5LIT7 |  |
| UniRef90-W7AN59 | ELP S SVSFVIKPLS S |
| UniRef90-UPIO0026580BC UniRef90 C4LX88 | RLNKSFVI |
| UniRef90-C4LX88 UniRef90 B0EGE6 | E $\downarrow$ SPKTSFKFFP |
| UniR |  |
| UniRef90-A0A024G2T2 | GSIDGDECQYKNH |
| UniRef90-EOSA01 | EIDFVITFHYKNHSK【LAYHKS |
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| UniRef90-A8B3V2 | NLQDTSMFHIQ |
| UniRef90-UELVO5 | ATKLDGTIGWK |
| UniRef90 UPIOOO3B491E8 | PQTPFKAVFYKPHKEHHAFEGGR |
| UniRet90-Q23JX8 | QVADIPSLINFKLCFDSIR |
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| UniRef90 J30858 | HLPLNCHLVYKLNADC |
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| UniRef90-K3 |  |
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| UniRef90-TOL3C8 | VRYDVNПYFDSHKRSL |
| UniRef90 F4PKQ5 UniRef90-GOTWK | ALPPNVNMKYQAH |
| UniRef90-M4BUU5 | MLDSNTLIEYKFHANS $\square$ RDMSTFRN |
| UniRef90-A2GAV4 |  |
| UniRef90-D8M205 | QLSAKTS■ETNDYSKWMTKES |
| UniRef90 S4VWT9 |  |
| UniRef90-W6UIP6 | PHPSFKTVY |
| UniRef90-W6UlP6 | PHPSFKTVYYEKH |
| UniRef90-V9CF23 |  |
| UniRef90-J4D800 |  |
| UniRef90-W6KMH | SQQK EYYSHHRSQVASNS |
| UniRef90-G0UNF5 | G GAFPLSYTLHS |
| UniRef90-UPIO0042CE1B9 | PHISFKAVFYKPHEEHHAFEGGR |
| Uniref90-4MM2F |  |
| UniRef90-W6MR71 |  |
| UniRef90-S2IV20 | SSCHD |
| UniRef90 LoAWV1 |  |
| UniRef90-A0A016W1S4 | EVMPGQTLEKYEDHDSCQKKSGS |
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| UniRet90-D8MON8 | EYDYKPD\SFVRHEKA |
| UniRee90 UPIO000185D8CB |  |
| UniRef90-A3LVT3 UniRef90 A2E7K0 |  |
| UniRef90-A2E7K0 UniRef90 G3ASF7 | PNLSNLV |
| UniRef90_C4V9K9 | VRYDLNTYFLLHK |

UniRef90_C5KTW6 UniRef90 S9US19 UniRef90-I7INY4 UniRef90-A0A059EGM4
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1
ASDHGDQDQMLEQKWVLWEQLQA NQKTSPSDWKDLSRS LDDLWCLFY L PQVGESDQEDTYNPTLVF K LQLKKTWVVI WE QNATASGGHSNSTDYKDHTKP G Q


NKETYNKDLEI
H H I LPYCWT DWY HSRSKPKKETDEDYLYS TKE PEHHALLYCWTMWH HLDRAKMKPKESQPGESNGQP LRSRFTFWL SVSKDQNDDNFSDQLKQ HK LNNTWTLWLHLPHD VDWSSSYKK PTDLPLTAAWTLHFSDTTSSHNTTADDYDDAVKA LPQSFPLERRSWTMYFSDTSEKGQQSAHEYNSGLVT ASVPE SHHTLLPYCWTMWYHSRNKKKEQGQKVSEETGVQ HFRWCFWLRNPSGQQQS GWSEQQTL $K Q V I A K \square R P L P F Q Y \square W S V W H S K S Q L Q P T S N S S N N H Q L L D S$

RDWGESFEV
VKHPLYSTWTLWFD NASKNDKAKNRDELIQR HPLPTEWQFWVI QDKWEGKNRNFE I EP RPLPFQYHWTVWYDRHTDAPAAAAADYDSRLY HHVLPYCWTI WHHSRSRPKQSEDANSEDSGQQ SEHVLPYCWAI WHHSRTKTKTKGADSYLQNTRK HPLSLIWSVFYK DENEEEPEKA GLHT

SADTWTDSI I D
PRELPLSASWTLHFSDTSGTKSNSKEAYTGG11 P WCFYHNTT $\square$ KSNTSEYCPF GK L LD N K WT LDW QSKNNWTIDN N N
EWQFWV $\square$ TCRFTDKTQYE $\square E P$

NKTCSYEDSETT
LHNVWKVFFTSKDTVK TDNFSEAFSP HVLPYCWTVWHHSRNKKQQLQLDTYLQTTNQ $K V V I A K \square R P L P F Q Y \square W S V W H S K P D D K G Q Y I V K T L V E N$

LQQ S WAFSFDKDNRK SYDQYMTNLT T DE WT $\square$ WEHYES $\square Q Q R D A K K Q Y$ LE S FK K $K Q L Q E E Y E Q G L E R$
$R V V I T K D R P D P F Q Y R W S L W H S K P D D K D E Y L Q K T$
LECGWSVWE $\square$ RKPKYRQQETAEYATCLTTL



DGQK LHP $\square R D D W F V Y Y \square R \quad A D K D G R S Y D D A C D E$
HNDHHKWRFWV VFCKFLDKQVYE DES
A A EATEKPHPLKDRWFVSYFPVVKQKKFSKDSEEQKGVE
PTKKLHMLKDSWSVFYDP SKREGDDYVVDL


FKDTWVIWESLKQEKKNAQSNNFLDNNFA TFDI WYTDPTSTRGTSKDLYETACCY $\square W A H W T$ FY $\square H \square Q N$ TNDWTYESYYK
 KLPNEWVLYYDKQLFKKMANRANFQAKPHK

ATVPLN HHTLPYCWT TWYY S RAKKNQPSMNQWDPTTNK KL NTYWDVW $\square$ HEN SNVDWSNSYKS KLPNEWVLYYDKQLFKKMANRPNFQAKPHK
HKLSSKWTI
SEKYNASQN $\square \mathrm{DYKRTIVD}$ KESTSSAPDHPLKDKWFVFY DP ASKGNEYEHETKE HLLNQPWKV FTETADNLLAS GVT LDELL
K H QLS C CWELWVDEMSGSFSSS
EADAQMK
PHPLKDRWFVSYFPVVKRKKNDERDFEEHQKS
EKYLQNSWAFSFDN DKRKSYDQYMSNLTT


## UniRef90 C5KTW6 UniRef90-S9US19

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UniRef90 F4R5W9 UniRef90-F4R5W9
UniRef90-A2E990 UniRef90-G7XNB9 UniRef90-Q6BHB4 UniRef90-C4YOX7 UniRef90-L2GN55
UniRef90 A2F774 UniRef90-A2F74
UniRef9O-GOQW16 UniRef90 ${ }^{-}$A0A058Z6S9 UniRef90-M7XOD2 UniRef90_L2GK52 UniRef90-M2Q0P3 UniRef90-E3T4Z0 UniRef90-F4RU44 UniRet90-A2F4E3 UniRef90_M3JUJ9 UniRef90-G8B610
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UniRef90 W9YPS2 UniRef90-А0Ао23В213 UniRef90-C5LK98 UniRef90-I1C7Y1 UniRef90- S9UXP1 UniRef90-UP10002C3F9DE UniRef90-FoVN87 UniRef90-W9VJU1 UniRef90-M4BE77 UniRef90- W6KSK6 UniRef90-C3Y199 UniRef90_A2EF73 UniRef90_C9ZS59
UniRef90 S9U6D5 UniRef90_S9VM54 UniRef90 D8M3Z5 UniRef90-AOBDS7 UniRef90 A0A024XEV8 UniRef90-UPIIOO22C3D820 UniRef90_-Q23313 UniRef90-A0A023B981 UniRef90-F2Y1K9 UniReffo-O22S94 UniRet90-WLLAJ3 UniRef90-J3PWP6 UniRef90-C5MJ04

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 VASVEEFAF MMKQTIYQSLTDUFSELQFFKNG|ISPLWW FFLFDEVRKEN
 TFDFNDMESLAKDWRRFLHEKKMRSTEAICDFKKGVVPAW VGNFNKLSEFYAFHNALDDWHDPDGSVVAYCRKDVKPQW LDYYHS ACTLSTVNDLDYILNKSKDTSEVEKKNDYIDMRKGVEPDW DQHDASLEQLWSSDSSTKTFDMNDGTEFLIFKAGVNPVW
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LD WVATV EELWSTVNSLPKTQSMPVGSTFILSRDGKEASF ACTISTVNDLDY CENTNKSKNSTGNNDYUIMRKGMEPDW YEVATHFDLFKVVNTTAPLEKPTKPDQYFFENSVMPMW

## UniRef90_C5KTW6 UniRef90-S9US19

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UniRef90-L1I7R5 UniRef90_R4TUP9 UniRef90-U5HOV0 UniRef90-A2EG14 UniRef90-E6QZA7 UniRef90-E5SHW1 UniRef90-C4YRU5 UniRef90-A0A023B1V2 UniRef90_S4PT25 UniRef90_W9WYW7 UniRef90-K2H9H1 UniRef90-B7XJ95 UniRef90-F4R5W9 UniRef90_A2E990 UniRef90_G7XNB9 UniRef90-Q6BHB4 UniRef90_C4Y0X7 UniRef90-L2GN55 UniRef90-A2F774
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 E D P R N S N G GTFTVVKMD HSKGY DVWK I FI Q Y I L G E T L S D M K

 VA D N Y R K VV L Y F PT TN K DA F N A S WL R V L L V CM G E S $V V V Y T E$


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UniRef90 C5KTw6 UniRef90-S9US19 UniRef90-I7INY4 UniRef90-A0A059EGM4 UniRef90_A2F456 UniRef90-S9VU36 UniRef90_E2M549 UniRef90_C4V8Y4 UniRef90-A5DIF8 UniRef90-G8YGN9 UniRef90-TOLZM3 UniRef90-A0BIV3 UniRef90_R4TUP9 UniRef90-U5HOVO UniRef90-A2EG14 UniRef90-E6QZA7 UniRef90-E5SHW1 UniRef90-C4YRU5 UniRef90_A0A023B1V2 UniRef90_S4PT25 UniRef90-W9WYW7 UniRef90-K2H9H1 UniRef90-B7XJ95
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UniRef90 W9YPS2 UniRef90-A0A023B213 UniRef90_C5LK98 UniRef90-I1C7Y1 UniRef90-S9UXP1 UniRef90_UPIO002C3F9DE UniRef90-FOVN87 UniRef90-W9VJU1 UniRef90-M4BE77 UniRef90-W6KSK6 UniRef90-C3YI99 UniRef90_A2EF73 UniRef90_C9ZS59 UniRef90-S9U6D5 UniRef90-S9VM54 UniRef90_D8M3Z5 UniRef90_A0BDS7 UniRef90-A5E359 UniRef90_A0A024XEV8 UniRef90_UPI0002C3D820 UniRef90_Q23313 UniRef90-A0A023B981 UniRef90_F2Y1K9 UniRef90_Q22S94 UniRef90-W6LAJ3 UniRef90_G5CSP9 UniRef90-J3PWP6 UniRef90-C5MJ04 UniRef90_UPI0002B42FC8 UniRef90-Q5UQG4 UniRef90-G0QJZ4 UniRef90_A0C2Z3 UniRef90 E9BI36 UniRef90_UPI0002C3D85F UniRef90-B0E7N1 UniRef90-F9WB98 UniRef90-Q4XCV7 UniRef90-S9UB28 UniRef90-M1PBY8 UniRef90-E5SUZ8 UniRef90-E5SQ79 UniRef90_AOBYTO

M|V|TGLRILICDKQGCVVRIIELLWFTAASETAKVEE|LCESVEKCM LVNGIALKVRGRAYVLEVWV TRQTQELMRDLAELWQGVL


G L C GFTAQKK Q N GS LTEDWFGVCEELTVQKADGDKGKSVL
 EICGCTISVRQSEDUVSLWNRVEVDDKVRERI
P S GVVGVYKDNRFKLS

DIS GLVVLSVRKDDDUI SI WNSN
P T GUVGVNKDGRFKLSIWSKN $I$ P $L$ QNEHVNA $\square$ NE $\square K M A L$
NRNGVV!S SRHDED! I S VW

SI I G AVASRRARGDRIEVWLGGTEKSEWDEADKERLSEEL EVCGFVRNDVSAEFAVEI WTRSD DDR
II CGVAIS RRKMTRLEIWLGNGPDPVWVDMDYTHFSRC
YVNGVSVCSDANLFKLSIVVRAYKGVALQWMLRGAASRFL DICGLVLSVRKDEDIISLWNSN

LVNGVSFSMRSQA RDTDWDKTNE
SlVGVAFNEKEKTNRICLWIGDCSESD
$E L C G M Y A K V N Q \square G \square S \square A L W F G P G E L N V$

## $D \square$ CKAWKVIL

NALAEVL
 DICGUVLSVRKDED\|ISVWNSNLNFKK
T LNGVMLKLRPNKYTMQLWMSHSELKAFANSLRESLSKVM TLNGVMLKLRPNKYTMQLWMSHSELKAFANSLRESLSKVM



CVVGAMLNVKSREASLSYWLSEDSLHGHVKATLRTD
FVTGLRLSSRSNASRAEVWFRD DDKDKVRRLRESMEMVM GVVGVVVSKRYRGDRワEI WLDESATENEI DELK
PVCDVI I A ARPNRDRVEVWLNDAAYSAKVANLRQADKDR QVRGVLFSCRQD YKVTVFLSRSCDGDVPKEVAQSMKYTF HCNGIVLC IRQRKHKLEFWTASLEN

EVTGVRVIHKGNNYRFEDWDRGVS RDKADEDRNKTLEVV LVDVVRISHKPHRFRDEVWAHKSSHE R REL E EYFRDLL $H V C G G I V N N M G S G G K \| E I W \square S Q$ TNKDT $\square H N G G Q Y \square R T T L$ ELCGGTVAVKKPGYMFAI WTKTPPNQNGP VYQKIQELV SHADVVGTVYPESLRVEVWLRDRSKVDAVTK
SVCDVVRDSRKPGSKI EVWLQSSNHNEEVASYFKKLAQDC
ESVVQVVRSRFAEHRLEIWFKDEHASLVQSH $\square$ KT ELL
EIC G
HVNGVRVAPKGNG $\ R \square E D W D D T D K N E E V Q \square Q \square K K \square D D W \square L$ DISGIVLSVRKDEDII SVWNSN
$L C G L Q L C I R D N E M F F K I W M K N Y S N Y L K N D G L M K K L K D L L$ QURGVLFSCRAD YKVTHELSRSCEEEVMKKGIEQIRSYN



Nl NG TV S
$N R K G Q L D S S K R N G D R \square E \square W \square A G P S T E E W \square R N \square Q N V L A T E \square$
 Sl N Gliviv
QTNGFRFSVKKSSTRDEDWFNFAENNVIKDDVQKYFEDGL H $\square$ NGLRVAKQGNRIRIELWM D DDPKDQDESIGKLI CLCDIVSAMYKESVRIVEW

 LS GIQLCIRENEIFFKIWMKNYSN
TVCDVILA ARPNKDRVEVWLNDAAYSGKVAHDRTLFEDR
NI NGI TVVSY ISSDAYNFNAATKQN

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UniRef90 C5KTW6
UniRef90-S9US19
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UniRef90-M7X0D2 UniRef90-L2GK52 UniRef90-M2Q0P3 UniRef90_E3T4Z0 UniRef90-F4RU44 UniRef90-A2F4E3 UniRef90 M3JUJJ9 UniRef90-G8B6I0 UniRef90-A9CSU2 UniRef90-V6LPB0 UniRef90 H8X938 UniRef90-H6BKW3 UniRef90-W6L283 UniRef90-W6L283 UniRef90-Q7RBT5
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UniRef90 E5SUZ8
UniRef90-E5SQ79
UniRef90_AOBYTO

G
D A F VT A Y Y P HASHQGGHGTRR


E V N Y N $\square$ S F Q Y K K H S

E L P E VK T G K Y R M H
F P Q $\square R \square F P Y K P$
G
P I Q K PQAEFESFDKSVTFK
GLG GRLSFQQHNTT

G $\square S$ QQS $\square \mathrm{F} \square \mathrm{PHKKHKEF}$
S LDPA VLQVKAH

DC DELSFSFSLHAKH

GLPELKTSRYKKH
GF GTPVEF $\quad$ VYKNHRD
KSGSKQTAHYYSHSSLFFKPSTEELL

NLESDLKLQWLSHR
GFNYNVSFDCKNHQ
ETKVNLII YQTNQDSI

DTKALQKMEYYSHHRSQVASNS
DTKALQKMEYYSHHRSQVASNS
$D \square P$ L NVVSFVIKT
QLP G S VE L E F $\square$ SHRE
RTGNDVIQCDPFK SLKKSRPRRVI
RLDQNAVVDFSS
$\mathrm{D} \square \mathrm{NPNDK}$ K $\square \mathrm{S}$ S

NSGSSNEFDYKEH
$K L 1 P G \square Y(K$
DLPRFKRIKYFTHT
QNVVPKNVNFSLTTSAHGHKNKKKK
P
T T V P S VK
Q $\square$ A E F D $\square R$ Q $\square K ~ L K T Q S H K K K$
GLP H NTSL
GLLTN N N
KHQQNVDLSYKNHS
N
GVDYKGCL FKKHA
$\begin{array}{ll}\text { D M WK QP } & \text { FQ WK SHA } \\ \text { K LI P GI T I }\end{array}$
GSPD $\square$ R S A R Y K K H
PMP
N

SAYPEVKDCYSK
NLIP NMV

# ASAKPHPLKDRWFVTYFPFVQQRAKSGKDFDEQQKP <br> WCLWHDPSSSSKGR LQEDYERGLVQ TTFT IY $\square$ D DEAMPSSSDYSAPGSP QTDNMNYTDSFVQ <br> QPHPLKDRWFVTYFPFVRQKK KGKDFDEQQKP LK T A WVWQFMVKDQLS YG $\square$ NDF $\square$ QS YTP $\square$ <br> T T E E $\square \mathrm{K} \square \mathrm{H} P \square \mathrm{~L}$ QK WS F F $\mathrm{S} \square \mathrm{A} \square \mathrm{RDRYYDEMLCN}$ 




```
lupas_21
lupas_14
lupas_28
jnet
conf
lonf
sol5
sol0
jhmm
jpssm
```


 GVNGIEMKAKGQNFYFFVWV
S I NGUTACDKTKNSTMGI WIK S C E ENTDH LCKEFDE KVSTAKENSRDERFVIYVYTHDWSNEEEVMNGREELKK CVADVVGNVYPESLRVEVWLHKSDFCEKV IVNGIVIKIKEKSYLI QFWVK S
KVITAKPNSRDNRKVI YVYTKDWADEADVMRVRENLRE GFRGLY I IVKDRK IVYAFWFDPAKVEDGN KVKQCIYDE $\square$
lupas_21
lupas_14
lupas_28
jnet

## conf

 sol25 sol5 sol0jhmm
jpssm
$\square G V E Q R \square G Y K R N D E T E Y S E G G K K V T Y$ GSPE DRSARYKKH GSTHRLDFAF LS SHEACLNK NQRKL EEGSKTEVMFEKHKDENQRRPSF

EGSKQSKVMFEKHKDENQQRPSF LGMVEQRIGYKRNDET

lupas_21
lupas_14
lupas_28
jnet conf sol25 sol5 sol0
jhmm


[^0]:    

