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UniRef90 B7VMI8 UniRef90 W8RSW0 UniRef90-UPIOOO16A33E7 UniRef90-A0A011 PKM5 UniRef90 ${ }^{\text {K4IB05 }}$ UniRef90-LINVX8 UniRef90-11ASN5 UniRef90- B7RLJ3 UniRef90-UPIOOO395CFBE UniRef90-D5C4W6 UniRef90_UPI000427132B UniRef90-A0Z4W9 UniRef90-UPIO003694A40 UniRef90-H1Z6X4 UniRef90-B1XYG0 UniRef90-C5ABQ7 UniRef90 UPIO003824B29 UniRef90- UPI000360F6AF UniRet90 UPIOOO47865A4 UniRef90_UPIO00426DB2E UniRef90-UPIO00366725E UniRef90-UPIO0025562E6 UniRef90-UPIOOO362DABD UniRef90-UPIO003728C81 UniRef90-D4ZB04 UniRef90_UPI00029B3F82 UniRef90-A0A023WX58 UniRef90-G4HKA5 UniRet90_WOJOQ4 UniRef90-UPIO003161DD3 UniRef90-A3PM62 UniRef90_C7NAK6 UniRef90-UPIO00348B9DB UniR Refo -UPIOOOM480540 UniRef90-A0A058ZPB0 UniRef90-E8V542 UniRef90-A3UAR9 UniRef90-10JJ48 UniRef90--99ZA43 UniRef90-DOT505 UniRef90-A3QD42
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H5TBLO UniRet90_UPIOOO3B66765 UniRefofo-D3EI64 UniRef90-D3UZV6 UniRet90-F7SRU1 UniReffo-F5ZDIO UniRef90_UPI0003828766 UniRef90-A4C2N7 UniRef90-E8XM19 UniRet90_UP10003C7E844 UniRef90_N9A868 UniRef90-W5YFM7 UniRef90-C7R5UO UniRef90_YoKK61 UniRef90-VVXND6 UniRef90-D8GT56 UniRef90-A6TOV6 UniRef90-L9XHL3 UniRef90_UPIO00366BB73 UniRef90-N6Y8D5 UniRef90-R7CTW4 UniRef90-R6WQM1 UniRef90-UPIOOO468BD55 UniRef90-G2TED6 UniRef90-A71JZ3 UniRef90-HOPV16 MEII RVYYE DTDA G GVVVYHSNYLKYGERGRTEYLR SSPFDWNI RVYYEDTDTGGVVFYANYLKFFERARTEWLR NFHEFKVRVRYAETDQMGVVYHGNYAQYFEMGRVEWLR MEPDFTTYRVIYGDTDAAGVVYNANY円RYFEDGRTEMMR

MVEARDRVIYGDTDQMGVVYYANYFRYFEFARSEYFR SKVFEYPVRVQWEDTDAGGVVYHANYIKFMERARSEALR NTFRWPVTVYYEDTDAGGVVYHANYLKFFERARTEMLR

F T F P $\underset{H}{l} R$ R $V$ Y W E D T D A G G I V TNAFSDPVRVYYEDTDAGGVVYYANYLKFFERCRSEWMR

 QSFA HR CR V Y Y E D T D A G G I V Y Y V N Y L K F M E RART E R L R


HR HPI RVYYEDTDDA GIVVYYANYLKFDERGRSEMVR

 YP I QTR WK DNDA Y GHI NNVT Y LS YF DTA V S L WQ I

$$
\begin{array}{llll}
\mathrm{T} & \mathrm{H} & \mathrm{C} \\
\mathrm{D} & \mathrm{~L} \\
\hline
\end{array}
$$

M N E
EF RVQVYYED T DMGGIVVHAN Y L K Y I ERARSA WVR
 $M T K E H Q L Q V R V R Y S E T D Q M G V V Y H G N Y L P Y F E D G R V E W L R$ TKPFSLDVRVYDEDTDAGGIVYYVNYLKYFERARTAYMR K E F T WP V $R \vee V Y$ Y

MK K | $F$ | $D$ | $Y$ | $T$ | $R$ | $V$ | $R$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $F$ | $Y$ | $A$ |  |  |  |  |
| $F$ | $T$ | $W$ | $P$ | $L$ | $R$ | $V$ |
| $Y$ | $W$ | $E$ |  |  |  |  |

FDWPVRVYYEDTDAGGIVFYANYGKYFERARTE WL R R

 TPGLWPI RI YYEDTDAGGVVFYANYLKFFERARTERLR H Y P Y S L P i TV A F R DLDD A L G HV N NA V Y L T Y F E HA R DGY G L
 F E FTVVRVVYFA

F IPVKVY
H T T K I Q V Y E
HFQP I TTRWHD
SFHFE $\square$ PI K $\square R Y$ CE
THRSTVQVRYAFTDMMG
MSDG

| $G$ | $F$ | $A$ | $M$ | $P$ | $V$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $H$ | $R$ | $V$ |  |  |  |
| $H$ | $F$ | $A$ | $L$ | $R$ | $V$ |

SFAK $L$ R V Y Y E

A P L F R | FP | $V$ | $R$ | $V$ | $Y$ |
| :--- | :--- | :--- | :--- | :--- |
| $R$ | $V$ | $Y$ |  |  |

HRFPVRVF
A RVRV Y V
K K HVVKVKVRYAETD
E P F R Y R L R V R Y S M N K

MFRWPISVVYYEDTDAGGVVYHSNYLNFRERARTEWLK
F D\|Q S R V $Y$
T F HF
LLF R WP I K I R Y C E T D MLLGHVNNVSYFMYFEGGRDEYFE DASGVV Y AQ Y A A FYERARTEMLR
 $M N Q L Q V R V Y Y E D T D S G G V V Y Y A N Y L K F D E R G R S E Y L R$ HLYAVRVYYEDTDLSGI TYHANYLRWFERARSDLLR M K K

FTTKTRIRYS
 MHDNFFHNVKVYFEDTDAGGVVYYANYLKY LERARTAALS

 MSREF $\quad$ WWPVRVYYEDTDVAGVVFYANYLKFYERGRTEWLR $\square F N W P V R V Y Y E D T D A G G V V Y H S Q Y L N F M E R A R T E W L R$ WPMQTRWADNDHYGHVNNVTYYSYEDSAVNGWLI MSNLFEYPLE IR WGDMDALGHVNNVIYFRYFEQTRAAWLA I NETKVVVRYAETDKMGIVHHSNYYIYFEEARTRFI K $M L S N F T W T V V V V Y$ T FENRVVRAETDDQGVVFYGEYFTFQDEAVSEFFR


 MFTYKRRVKFYETDGMRVVHHANY LRYFEEARVEYLR $M \square K Y S R R S V$
$H$




## QUERY

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UniRef90_K9DX88

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SDK【LATLWNDHGLGFAVYKANMDFQDGVEFAEICD\RTS F



 A A DGLN $A V G M Q Q A L L D E$ $\begin{array}{ll}A \\ A & G M\end{array}$


 E L G F A Q L E A A









 S L GF E Q L

A


 SQGLSYQFEAEGFMDAVVEATARYKSPARYDDEAAVRTR|C ALGRDYD L A RGLDNQVVKLTLEWKASARFDDVLEVQVKP QAGFDYHLENTGFFLVVARLECQYKSPLEYDDLVRVETRL AAGVDHYWHQKDYNFVVHKINVKYMRPILMDDLITVTARV SLDUSQQLLEQSLGFVVDDMKIAFDQSAKLDDVLSVSCQV SLGYSQERHEVEVAFTVSRVEVAFRSPARLDDQLIATVAV EKGFHQYMLDEQIGFVVSRMTVDYRKPARLDDLLVVESEI
 SLGFEQLIKKQNIIFAVKSLSAEYKSPARFNDLLNVQTQV MLGDDQAIESGEGAYALSEVHLKYLAPARLDDDVVIETRC SLGITYDMEVSGIILPVISLKCNFIKSALYDDVLTI HTFL
 QHAGFDIRQSPIIGLVV DSACSFFKELDFPDTVEVGVA SCGVGLRALAENISYVVQRMADHYAVPARLDDQLLITAEP YLGFHQLRDDLN LIFVVHSMQTQFKKPARFDDALVVSNQL STTGVDIREDDAIGVVAETSCRYLAELSFPDRLQVGLAVV KTGMSYQMEKDGDMFPLVESNCRYLQGAKYEDKLLIKTWI SAGGNQQLETHGVMFVVKSTAVDYHAPAKLDNELKLTVVV S GIFADLVADGCDLPVVELSVRYHRSDQLGMAVIVKTRM
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## QUERY

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100
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120
T LD GK YK T L Wh Q EVWRPGASRAAVIGGDEMVCLDKEKRLQ



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 NPEG

$\qquad$


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## 

E K L G R A TVVEFE Q Q A WR G G


KNMPS SKI EF DYELFNEKG
TA A S P A R MVMRQEVVRRAD


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 TLIGNASLTFTQAVAR

S ELLS S R A LR Y DYRVVWR

A
 EDFP TARIRFKYNI FNES QKLLVSGETVLAFLNA QTRPT
 AEKPSLRLRITYEVRRGD
A

## 

 A GPGRARMTVFQQAWR
## 

S A L R G S L I I K F A Y R R I WR V V
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I S C K A A S F V L Q Q Q N I Y R $\quad$ I G E




,
 K SVVKTSFHMNQII TN SKIGQSSLRYELAIFKQHDE
ETANTRMMT FA YEMRVA D
Q GYGRVWMNFKQRVLRAE
 LVLGRGSFECRQTILARHPETILIVEADVKIACVNATTKPA
 KELTPVKAKFNYSVIRENDQKEIAKGSTLHAFVNNNFK
A E DGTASSIMF
I EVT G VR NWEYRITRSADE


SKF D GI K M E F A Y E VVCDE A T G K L R S T G S S G H C F T N M T G R V
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| QUERY | $P \nabla P \text { A D I L A S } \begin{gathered} 130 \\ M M A \end{gathered}$ |
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| UniRef90-R0FNR8 | P I P E EVLACI |
| UniRef90-UPI00041AB7E5 | A PPDYVKEKL |
| UniRef90-E8RK37 | PFPQSVLDKI Q A |
| UniRef90_L7UIE4 | RLP P S V A RL |
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| UniRef90-R71A13 | PLPAEIYDMFKA |
| UniRef90-D2YHF1 | A L P Q |
| UniRef90-A0A014NM72 | RIIPNSIVE |
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| UniRef90-K2F3G8 | PI PEFLHCKLEA |
| UniRef90-K9DQK7 | SLPDDVAAKMRA |
| UniRef90-H1XYW8 | PI PHLLLDAV |
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| UniRef90-A0A011PKM5 | S I P A I L R K EA |
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| UniRef90-D5C4W6 | PIPKLI LAEI T G |
| UniRef90-UPIO00427132B | LPPPENIKA |
| UniRef90-A0Z4W9 | RLP A D L RQKI K |
| UniRef90_UPIO003694A40 | LIP SAILE HL |
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| UniRef90_UPI0003824B29 | KAPQYVLD |
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| UniRef90_UPI00047865A4 | RVPDAFRA |
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| UniRef90_UPI000366725E | R 1 P P E I L R RLE A |
| UniRef90_UPI00025562E6 | QFP A |
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| UniRef90-UPI0003728C81 | P I P R EIK K V I Q |
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| UniRef90_A0A058ZPB0 | ALPAENRQQF |
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| UniRef90-K0CGJ3 | RVPD DL R A AL Q |
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| UniRef90-G2TED6 | RIPA ${ }^{\text {I M R E KL }}$ |
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| UniRef90-H0PV16 | PL P D AL R E ML |
| UniRef90_K9DX88 | P L P P E S L \| R A G L |


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 R L K L L D

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 A LGMDYMERED GLAALAVADVSARYKS PARYD D D L VVETR L




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 EKLGS S SMDLHY LVLN Q D QEV CLLT GRGA VVQI GKE GKAV


 VKLGRTS FT IEEYTVVRADDATMLCRAEAVYVLMSGELAK T
 L E DK K A S F K LE Q I Y R E D K A I F E S EVVLMVNIN S K G K P L E E F N G V R F R V S Y R
 HEAGRAS LSVRRQELLRRGPTRLAEAVVTLACVDAVRKAV EKAGGAKMVLQQD R VH LG N S S V R Y E T A L F R N N DT DAAAALGGR FV HVVYV D R Q T R P V
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 SKM GNS SVVDLHY MAKNEA DEDCFTGRGTMVQISATGKGK

 K EM P D V K I I F D Y E V Y N E E G Q K L
 VHVGGA L L D L D Q R L R R GPQE LI RLAVRVACLAAS GAPA D K L K NV S L KL K Y EI R N K N N D I L H T T GY TL L P F FINKN G D I V


 | $E$ | $K$ | $Y$ | $D$ | $G$ | $I$ | $R$ | $V$ | $V$ | $Y$ | $G$ | $Y$ | $S$ | $I$ | $T$ | $N$ | $G$ | $Q$ | $G$ | $E$ | $Q$ | $C$ | $A$ | $E$ | $G$ | $T$ | $S$ | $S$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $H$ | $V$ | $C$ | $C$ | $V$ | $K$ | $T$ | $T$ | $R$ | $P$ | $L$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $E$ | $R$ | $Y$ | $D$ | $G$ | $R$ | $V$ | $A$ | $Y$ | $G$ | $Y$ | $E$ | $V$ | $I$ | $N$ | $S$ | $K$ | $G$ | $Q$ | $C$ | $C$ | $V$ | $T$ | $G$ | $E$ | $S$ | $S$ | $H$ |
| $C$ | $C$ | $V$ | $K$ | $K$ | $D$ | $T$ | $R$ | $P$ | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $E$ | $K$ | $L$ | $G$ | $R$ | $S$ | $S$ | $L$ | $K$ | $L$ | $R$ | $H$ | $H$ | $F$ | $Y$ | $R$ | $R$ | $D$ | $D$ | $G$ | $V$ | $V$ | $Y$ | $A$ | $S$ | $A$ | $E$ | $V$ | EKLGRSSSLKLRHHFYRRD

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

S EVVGEDRFTMME Y QVVVSK K M
$P$ K F P D T R $\square R$ Y E Y E V F K E D
LQ LQVGRVSCTMRQVARR GEDRLAEATVKVGFIMPEARPR THMGRSSFKI GLGMFRQGEDQAAAQAEFTLVVFVPNGKPC $\square D S P A A K M \ F R Y R \ F D P K G$

 A D IG T S S L E Y E Y R A K R K D D G TVVLA D GTVVT QVAVVDT ETEPT TK I G N S S F H L K Q N M Y E K E S G ELLVA E G D SVVVV Q Y D K T E A S E S R L G GASMAF SLGIWRAGEQ
SEI R GARVVDMAQK I T CE G G
R S $1 / \mathrm{S}$ K S S F V M E Y V V V V V S K M G

$R \quad L$
$L$
$L$ $\vee$ SAS G
 TKKSKARLIFNQDIVNSKTSEKDCSGFDVEACLVNETKKM K



 VEVVRGASITMHQQI K K G GDVLLMAASVKVAFVSGGGRAR

 A DLGTSSSVTMTHEIVRT GGEVVAEAEATLVISLDPD GKPV



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 THVGDTSTTMAYEVRDDDGGVVATGETVQVALDPDGQPR SEMRRAS MRFDYEVVNESTGKT TTTGGTWWHVLMGTSRRAV





| UniRef90-B6BW74 | R |
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UniRet90 - 90 P15 UniRef90-B9DP55 UniRef90-UPIO003683547 UniRef90-RGU838
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GKLGNSSVRYEVGVTAAAGDA

## C

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ALS SAMLRAALE
ALPESF!DKVKS
PI PDWMREKI
Si
$\stackrel{S}{\mathrm{P}}$
stidomer
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PLPDWLRGKT
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A $\square$ SDK $\square$ MS A $\square E$
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| :--- |
| RLSGDFYDRINA | RAPASFLEALQ

RLKNEVELYEA s
ALPDELKAALE
KMSEEVVDFLSS RLPP LLLQNA
PWPDDVRARITG

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E V/FPGQRL
60
70
80
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TKCSLVPTK
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RK I G G V R II F D Y E L F N E K N E L L


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 KKEG ITKYVFY QDI FRKS DQKVVVKSTVETVCV



 VKLGASKLTCSYEFKCK

 ESVGTSSVDIHYHATNE $A D G$


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| :---: | :---: |
| UniRef90＿C8WPZ66 UniRef90＿M7CKF4 | RAPREFAEILSS |
| UniRef90－IORNE4 | P\PDA门R |
| UniRef90－G4F4V0 | Al EGEVRDALAA |
| UniRef90－H4GJ14 | SIK K |
| UniRef90－R7NPB7 | Q1 AEEYKQATCA |
| UniRef90－M5E3A4 | VISGDVRA\｜LES |
| UniRef90＿U1LWT5 |  |
| UniRef90－Q1AUF4 | PIPGWVREKDES |
| UniRef90－Q0YRG7 | DVSPALRELLF |
| UniRef90－Q8KCz3 | R V ${ }^{\text {P }}$ |
| UniRef90 R5ENF8 | ${ }_{\text {P }}^{\text {P }}$ |
|  |  |
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| UniRef90－UP10003A5752 | PLPERVRSAF |
| niRef9 |  |
| 俍et90＿R7C |  |
| UniRef90＿UPIod |  |
| UniRef90－14KF UniRefol S5 |  |
| UniRef90－A9D124 | RLPETLSAK |
| UniRef90－UTNL52 | PI EGELR |
| UniRef90－25Y4 | VISDEWP |
| UPI00047 |  |
| iRef90＿Q15T |  |
| UniRef90＿UP100042045AC | P |
| UniRef90－UP／1000381048E | R A E |
| UniRef90－${ }^{\text {d6Y } 4 \text { S }} 7$ | E |
| UniRef90－E014 ${ }^{\text {d }}$ | AVPDAL |
| UniRef90＿G1XHEO |  |
| iRet90＿K0U | A VP |
| UniRef90－A41PJ4 | P：PDDVR |
| UniRef90－B6ATW4 | Kİ DTRRAAFQS |
| UniRef90－UPI00036387 |  |
| UniRef90－A0A031JH |  |
|  |  |
| UniRef90 W4QS |  |
| UniRe |  |
| UP10003078 |  |
| UniRef90－A4YXZ9 | PLTPQUMA AL |
| UniRef90 UPI0003E |  |
| RRef90＿UP |  |
| UniRef90－UP10002F86ECE |  |
| 隹ef90－F6D4Q5 | P P P S RAQL S |
| UniRef90 K9PN49 | ${ }_{P} \mathrm{P}^{\text {P }}$ |
| UniRef90－W12 |  |
| UniRef90－UPIO004636C19 | NLQPELYE\1］E |
| iRef90＿14ZP72 |  |
| B4D7N2 |  |
| K8N | PIPEKLKS |
|  | A |
| UniRef90－R4 |  |
| UniRet90－UPI00037F1003 | VlEGGV |
| UniRef90－UP | RLGAEEREALAA |
| UP0 |  |
| Uni | QLP $\mathrm{M}_{\text {P }}$ |
| UniR |  |
| ei90－UPI |  |
| UniRef90－F7SS | P |
| UniRef90－A1SGF2 | RLTALE |
| UniRef90－UP10003B7412D | T A EER |
| Uni | R |
| Q21T | PL |
| UniRef90－M2A394 | KVPDDLRQRLS |
| UniRef90＿10QYM0 | P P P Q ERD |
| UniRef90－UPIO0035E8 | AlPEE【KTLIQ |
| UniRet90－F2B9X1 |  |
| iRef90－UP100037 | ELVPHFRDALTS |
| UniRef90＿UP10002E82A | GKKN |
| UniRef90－A9 | ELPDWVRE |
| UniReego－A0A |  |
| UniRer90－K9ALIO0024859A1 |  |
| UniRef90＿UP1000478769D | RWAPEYKNRLQ |
| UniRef90－Q8DUU8 | NLKPDFYDKLAA |
| UniRef90 E6UWZ9 |  |
| 37AFB8A |  |
| UniRef90－N1W | PTPPNVRAVLE |
| UniRef90－H3NS34 |  |
| UniRet90－R9NKP3 | P K R K |
| UniRef90－UPI0000E105F2 | KLDDSQRAQLLS |
| Lo |  |
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| Ret90＿UPIOOO2FFD405 | R WT E E |



## UniRef90 B4SB39

 UniRef90-Q2KUSO UniRefofo-ROJZA UniRef90 UPI0003B3CE5A UniRef90-U2KQTO UniRef90-D1A9X7 UniRef90-F4GXF4 UniRef90-UPIo00373E926UniRef9- E4PF82 UniRef90-E4PF82 UniRef90-G5JRU5 UniRef90-W9TRV9 UniRef90 V6K7L8
UniRef90
R7HK06 UniRef90-D9UIC2 UniRef90-E1GTC3
UniRef90-T5KB88 UniRef90-UPIO003069FCD UniRef90-UPI0003B571E5 UniRef90-D2COB3 UniRef90-EOP2R4 UniRee90-UPIO00462A926 UniRef90-K6IY56 UniRef90-H1S2Q3

UniRef90-M5TCM5 UniRef90_UPIOOO4775368 UniRef90_UPIO0037A3527 UniRef90-K9YJ55 UniRef90_UPIO00476506A UniRef90-BORBB7 UniRef90_W7IVJ1 UniRef90-UPIO003787C1C UniRef90-IOHRQ7 UniRef90-UPIOOO370FA3C UniRef90-UPIOOO35C2250 UniRef90 R6F5VO UniRef90-UPI000378B553 UniRef90-L2F8C6 UniRef90-UPI0002DD63CA UniRef90-A4XAM3 UniReffo-DSSUY5 UniRet90-B1KPZ5 UniRef90_UPIOOO37765A7 UniRef90-B9XPY4 UniRef90-A0A022LPTO UniRef90-R5UBH9 UniRef90-UPIO0047A78BA UniRef90-S4A6K9 UniRef90-L8MU13 | UniRef90-D2QYU8 |
| :--- |
| UniRef90 | UniRef90_UPIO00477805C UniRef90-A0A052JBT3 UniRef90_D3SYG5 UniRef90-N9BFE2 UniRef90-K6A8C5 UniRef90-LINUL1 UniRef90-UPIOOO403B768 UniRef90-D3PR14 UniRef90-BoTPS8 UniRef90-S4TL25 UniRef90 H1HPU0 UniRef90-Q1LF27 UniRef90-UPIO004182E2C UniRef90-W6WNH2 UniRef90-R7X2G9 UniRef90-141184 UniRef90-×5M8R7 UniRef90-A0A022H2L4 UniRef90-AOAO21VWX8 UniRef90-M9RJA8 UniRef90-M6T9L7 UniRef90-W9V5B2 UniRef90_C3ZXR6

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UniRef90_S8EA66 UniRef90-UPIO00478AE8B
Uniter
UniRef90_C6XIP1



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HVIGIIFSAYARQGVNTV VVRAE TIDYKYPLLTS SGDTFVVIALITM KLSFATLHLERRIGTPTAALQCDFNDPSRWNDRLRQVLERTV SEAGLDIHGGAALGLCVVESHCNYRAPVSFPDAVDGGLRV QAFSLDLRKANKMRMVIADVHLAYLDEAFYPGELVVGSGA KDGDGYRMEEQGDMLPVDGVTCEYKHSDHFGEHLAVYSYIV GDPVRKGEESLGGLVVARHEDDYRRPMSLFRPVRVETWV QCGWDTRYFEAQVTWVAKTHETNYRAPAYGNDQATMSTWV

| E |
| :---: |
| S |
| L | TIRKGQMNWTRPDVVIANVNCNFYAPMRFGEPVSVVTRV

 ALGLSSEYRADDRAMVVHRHELDYLAPAFQDDTLCLATWI
 RGGDTLALMEAGYVFPITKVGAEYHAPGHFDDELVIETTA FQGHPYLDSSYGDDFHVVHCSUDYKSPAKFDDE EGUVR
DALGWSFADMHGAGQPTAALSTRFVAPSRLGELLTRELRV ENHIFAELHEKGIDAMVSSLITAYKTPGKPGDNFISKLYV AGWNAGSALSDGFGWVVRDHQITYRAAAVGGDEVVVRTWV KLPWDAQVRDTDTDFHTVKAVVEYHAPVRFDEEDRVAVQP SLNLHDFFRHPSMAIPIIHGEIDFFRPLFCGDNTQVGLKA GAGLK LDPDDHGALAHASCDFLRPLTYPASVRVTHRV


 SLGVFARLDEKGVDAVVARMNLQYKTPLRCDDVFVSKLGV HYGLSYMMRKAGFAAPIVKLDNLDYKLSLSFNEQAIVETRY AGGRAWGVGSFVDGVVIRRHEVD


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 $T \mathrm{~V} C N\|P \quad N G N Y A\| F A V H D E A D$


 DNAPDIITECQGLALVTVRVSCEYLSEDFAFDHVIIRMRL SLGDDFEYREQDSGVVVVRHEDDYKSSAMPGETALVATWL
 DGGRDLLEEHRLADPTVRGEVDFLVPSVYGDRLEFTLSV
 QMGLFKQMLEMEDSSPVVSQSTEHRSAVKFDETVIVDTKL
 HFDYDYPMRDSGYGWPVVDMRLKYVRPALFGQKLRIKAT1 K GGYYQMKESGYAWPVIDMQLRYVGSATFGQTLKLRADI ETDYAQMDAQRRTGLPIVKLDCEFSRPSQMGETVMLTLSV| ACGWMERYDCARSSWVI RSHFIDEY LRPSFANENIALATWI
 KHCGLSPDDSKRDGLVVVSSWCEFFSPVSFPAVV EПAYGYEMKASGFAWPVTEMNIRYAHPIVLREKIRMGAGL

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| :---: | :---: |
| UniRef90_B4SE |  |
| UniRef90 O2KUSO | RHGGASFQ AQVRFEGPDGQTRLSARLT |
| UniRef90-KOJZA3 | RLGRSSVRYEVGF |
| UniRef90-U2ZPX4 |  |
| UniRef90-U2 | KYNGFKLELRYDIVCDETGQLCAVATSSHC |
| UniRet90-D1A9X7 | TE1RNASFRLAYHIR DDEQVFATAASVMVA |
| UniRef90-F4GXF4 | VRVGRSS |
| UniRef90_UPIOO0373E926 | SKIKRCS |
| UniRef90-E4PF82 | GKIGNSSFHVIQEAW QGDKQ |
| UniRef90-G5JRU5 | KGAKDGFDYVMTNO DGD |
|  |  |
| UniRef90-V6K7L8 | KAASFTVSYEV KDADA |
| UniRet90-R7HK06 | ESIREKSFKVHQRIVNTVTKEVKSECATVMVA |
| UniRef90-D9UIC2 | LWSGGKTFRVEQTI TRTVDGVAAEVTGVGGILDRERRLV |
| UniRet90-E1GTC3 | RPTESAK VFDYEI HDAVDNTLIATGHSVQV |
| UniRef90-15KB88 | VEWEN RLKDEYELLDAENGQVLTRAMTDQ |
| UniRet90_UP10003069FCD | VDCGRFSLTRRFQLIRPADGKTLLKARTRFA |
| UniRef90-D20 | EEVEN RLLRIAYQI FDVESGQRTTTGYTIQV |
| UniRet90_EOP2R4 |  |
| UPIO00462A | GKLGGSS |
| (1) |  |
| UniRef90-H1S2Q3 | RSSFSLQVRFVGPAGD |
| UniRef90-4T3X6 | RPADETVLCRGSTRWV |
| UniRef90 UPIOO047753 | VRIGGSSLTTSLSLDVAGEDLRRASGETVWVACQTTHTSR |
| UniRef90-UP1000 |  |
| UniRef90-K9YJ55 | UALNPKTFEDEYTIEKKEQQ VATAKTRHVCDNPQTRSQ |
| UniRef9-UPIooo476: |  |
| UniRet90_BoRBB7 |  |
| UniRef90_W71VJ1 |  |
| UniRef90-UP1000 | RELKFASFTLDYRVHGGET |
| UniRef90-10HRQ7 | A HVGRSSVRYEVGGLFAEGEPTTAAAGHFIHV |
| UniRef90_UP10003 | AEWRN RLKVRYE, RDADSGARLTRGHTVQVAVERARKGV |
| UniRef90-R6F5V0 | RKEG LRYIFDHAIHRKSDGR |
| UniRef90-UPIO00378B553 | VDCDAAK QFDYTIYRKSDGAVVAEAST |
| UniRef90-L2F | SLVQEYDFYSTAQQAVA |
| UniRef90_UPI0002DD63 |  |
| UniRef90 A4XAM3 | SEIRAASVTVDYEMY DGDVL |
| UniRef90-D5SUY5 | Q |
| UniRef90 G1WDO1 | RPTEAAKVVFDYETRDPEDERLLATGHSTQVFMDTDYQ |
| UniRef90 UPIOOO37765A7 | EREG VKLVFFEDIYKLPEQTLCAKGRIEAICL QNG |
| UniRef90-B9XPY4 | SEKKSKSLSYLIKKRKLNAPTLVARGTLTV |
| UniRet90_A0A022L | VGGASIDVSYEVWSPVGQVL |
|  | EKIGNKSLTLFQRLL AGDRVCSESRSVMVAFDFSRQSM |
| UniRef90-UP100047A78BA |  |
|  |  |
| UniRef90-L8MU3 | P DK ${ }^{\text {R }}$ |
| UniRef90- V800X8 | VRLGRSSLLDCSVLMRREGEDTVYARARSVVVLSHKTGTSC |
| UniRef90-UPIO00477805 | SKI GAASAEVSYEVWSPVTDELFTVARSTIVFIDDTTGRPR |
| UniRet90-A0AO52JBT3 | LRLGRSSMELELLTLEMVGDDSPYARGRNVLVWMDVANCSK |
| UniRef90-D3SYG5 |  |
| UniRef90 K6A8C5 | YKKGVKLVFEQDIYRESDGALATKGVVESVVVEENGKLT |
| UniRef90-L1NUL1 | KPVEPRLAVTRQTVSFADSGKTSAQADVTLVPVS |
| Unif | VSINHRGCKVSFEI KNLKNNKLSADGWFDFVMIDKTGRGV |
|  |  |
| UniF | VEWEN RLLINYQ |
| UniRet90_S4TL | SWASCELAAEIRSDEG VHIEARSTIAAVDQDTKPR |
| UniRef90-H1HPU0 |  |
| UniRee90 Q9RKW0 | EWGTGKTFRIRQLVTKA DGTVAAEIEAVG |
| Q1L2 |  |
| UniRef90_UPIO004182E2C | TSUGTKSFELAQQVIDDDTQEVKCFCRSVMVTYDLA |
|  |  |
|  | SRLGRSSMTLRUR FAGGNDETRLQATLVLVWVAKGGRPA |
| UniRef90_l4l184 |  |
| UniR | SADGRVR |
| UniRef90_A0A022H2L4 | TRIGRSSVDLCFEL |
| UniRef90-A0A021 VWX8 | GHLGGASIIDVCYEITSGEEEQVYARAVTTLVLIDAATR |
| Uni | TQMRNTSFTMQYATFV DGQITTTGDAVIVLLNADNSKR |
|  |  |
| UniRe | EEIGNSSLQLATSAWNGTEERIR\\|RLKGVMV |
| UniRef90 C3ZXR66 | RK1 GRSSVTYNVGLF GTEDVTALAVGSCVHVFVDTQTKPT |
| UniRef90 H2CD18 | SFVCAMF DGTGECVHTAEADFMWI |
| UniRef90-D4J1T5 UniRef90 B3T5G5 |  |
| UniRef90- J3DIF4 | A WVRNTSFRMEFAVWN GSRVGHGHALCVWVND |
| UniRef90-UPIO003012A96 |  |
| UniRef90-L9P | VEWEN RLKI DYLI TDAATGKRLNRASTTMVAVDDATKEM |
| UniRet90_B1FUW7 | Q |
| er90-V2YB2 |  |
|  | ADMGEQSSPRKYLFLRAADRQVLARAETQWVYVNKTGRPQ |
| UniRef90 R1E | NKLGKSSVTYEIUVFKRGVEEVKAVGEFVHVFVERESQ |
| UniRef90-B81 |  |
| Unit | - |
| UniRef90- UPI000478AE8B | GKLGRSSVRWEVGMFR SDGTLVAEGHFVHVFVGRERRPQ |
| UniRef90-C6XIP1 |  |


| UniRef90 B4SB39 | $\text { ETPEAFVA } \frac{130}{L L}$ |
| :---: | :---: |
| UniRefofo-O2KUSO | PLPD ${ }^{\text {P }}$ |
| UniRef90_U2ZPX 4 | PVPEDLRQVMGA |
| UniRef90-UPI0003B3CE5A | PIPEEGRKALEA |
| UniRef90-U2KQT0 |  |
| UniRef90-D1A9X7 | R F |
| UniRef90-F4G | P WS |
| UniRef90-UP1000373E926 | P L L EVLDAFTS |
| UniRef90-E4PF82 | P1PEDUKARL |
| UniRef90-G5JRU5 |  |
| UniRef90-V6K7L8 | $\mathrm{R}^{\text {R }}$ T ${ }^{\text {a }}$ |
| UniRef90-R7HK06 |  |
| UniRef90-D9UIC | P |
| UniRef90-E1GTC3 |  |
| UniRef90 UPI0003069F | R $\mathrm{PaE}_{\text {e }}$ |
| UniRef90-UPI0003B571E5 |  |
| UniRef90-D2C0B3 |  |
| UniRef90-EOP2R4 |  |
| UniRef90_UPIO00462A926 | RL |
| UniRee90-K66Y56 | K St elva |
| UniRef90-E4T3X6 | A ${ }^{\text {a }}$ |
| UniRef90-M5TCM5 | EVPEEAKAAL |
| UniRef90-UP1000477536 | RLPEDLTARL |
| UniRef90-UP100037A35 |  |
| Unil | TYDHLLS |
|  | PWPADVLCRLGA |
| UniRef90_W71VJ1 | RISQGEREFL |
| UniRef90-UPIO003787C1C | RLteatrefl |
| UniRet90_0 |  |
| UniRef90 UPIOOO370FA3C | AFPERWRDVI |
| UniRef90-UP100035C2250 UniRef90 R6F5V0 |  |
| niRet90 UPI000378B553 |  |
| niRef90-L2F8C6 |  |
| UniRef90 UPIO002DD63CA | PLSTQEKEAL |
| UniRef90-A4XAM3 | RLSAEERAFL |
| UniRef90 D5SUY5 | E\|P P S Y L |
| UniRef90 B1KPZ5 | P 1 FADVK |
| UniRef90 UPIO0037765A7 |  |
| UniRef90 B9XPY4 |  |
| UniRef90-A0A022LPT0 | R LT |
| UniRef90-R5UBH9 | PVPDAWR |
| UniRef90-UP100047t |  |
| UniRee90 S4, | - |
| UniRef90-L8MU13 | StP SSLE |
| UniRef90-V8QQX8 | A WPapVRa ate |
| UniRef90-UPI000477805C | R $\square$ SDAEREA |
| UniRef90-A0AO52JBT3 | A WP A HVLARLGA |
| UniRef90-D3S | A |
| UniRef90 N9BFE | RMSPSFTQA |
| UniRef90-K6A8C5 | RYFDEMLLKRTES |
| UniRet90- UPIO000403B768 | EVSDEMIIAK |
| UniRef90-D3PR14 | SAPLEVQEAF |
| Re |  |
| UniRe990_S4TL25 | S |
| UniRef90_H1HPUC |  |
| UniRef90 -Q9RK | PDPRQRF |
| UniRef90-UPI0004182E2C | P ${ }^{\text {Pr }}$ |
| UniRef90-W6WNH2 | PVPDFIRA |
| UniRef90 R7X2G9 | P |
| iRef90_l4l\|84 |  |
| UniRef90 X5M8 |  |
| UniRef90-A0A02 | PAPASVRDR |
| UniRef90-AOAO21VWX8 |  |
| UniRet90_M9 | PLPDALRQTF |
| UniRei90 W9V5B2 |  |
| UniRef90-C3ZXR6 | PLPDNWKTGLQ |
| UniRef90-H2 | SVPDEVITRAFEA |
|  |  |
| UniRefofo-B3T5G5 | EVPQVIRDNL |
| UniRef90- 3 3DIF | TVPD HLRSKM |
| UniRef90_upio |  |
| UniRef90-L9PF73 |  |
| UniRet90-B1FUW7 |  |
| UniRef90_V2YJB2 | EMAEGTRAGLR |
| UniRet90_UP10003733F3E | A】PAELRA |
| UniReeso-R | DEVRRO |
| UniRef90-198WL1 | IPdevrrqLe |
| UniRef90 S8EA66 |  |
| UniRef90 UPI000478AE8B |  |
| Ref90-C6XIP1 | LWPDVFRKkLE |

UniRef90 A4JRI3 UniRef90_UPI0003634CC3 UniRef90-UPIO003004FE5 UniRef90-K2M4K6
UniRef90_M2PLI9 UniRef90-UPIo0036E8AD UniRef90-B51K73 UniRef90-10xCG5 UniRef90-K2LOH4 UniRef90-A0Z8F9 UniRef90-14EUB8 UniRef90- UPI0003B4E936 UniRef90-B8KJU9
UniRef90-M5UKH1
UniRef90-FoQ235
UniRef90- S8GY23
UniRef90-UPIO004574AF5
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UniRef90-R1IIK9
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UniRef90_D4AELO
UniRef90-UPI00034D5516 UniRef90 K4KJA5 UniRef90-K0JRT2
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UniRef90-A8LLP5
UniRef90-UPIO0034574A7
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UniRef90-F4G2E1
UniRef90 X 5 DETZ4
UniRef90-C3JD60
UniRef90-E6UVA1
UniRef90_UPIOOO307E928 UniRef90-UPIO0036B484A UniRet90-M2VMA5 UniRef90-S3VR48 UniRef90-UPI00036517AC UniRef90-M4UHW3 UniRef90-UPIO003FFC97B UniRef90_UPIO0047DC540 UniRef90_13C9M7
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UniRef90-V8CCJ3
UniRef90_10xTB6
UniRef90 A3ZZG5
UniRef90 W9AJW2 UniRef90-UPI0003067B9F UniRef90_D4HFL4 UniRef90-UP100029A3CAE UniRef90-UPIO004409CAC UniRef90-UP10003B63A45 UniRef90-UP100047BED25 UniRef90_D5UNM3
UniRef90-UPIOOO2F531D3 UniRef90_K9CVT4
Unire90_UPIOO036745BB

F F K PLE P R WS D F D P $\square G H V N N V Y Y$ F E Y F Q $\quad$ G R A Y Y M M $F$ Q DAD PMGVVYHGNYFRFFEEARRVMLDD
 MSP $\square F K R Q H K D H F S E C D P A G Q V F Y P Q Y F V L F N D L I D R W V D$ $R V R F G B T D A A G V L H A P R E L D R W C H E A Y E E S L E E$ S R T E I T F P

$H$ TVAV PMRWSDMDA YQH INNVAFGGYFEMARVDLFF
HEIT LTATAA DLD DMGHVNNTVYLGWCEAARAHAAS A EP F V R R T Q VAA A A DVVDA LQ H T N N T I Y V R WC E E CA WE H S A

$\square Y \mathrm{E}$ L K M K V R D Y E CDDLQ GUVNNAN Y Q H Y DE HTR H E K L A A
T F A V R IG VR GYELDVQGHL N QA V Y L Q YA E HAR WE C L R

 S Y S H WT T I TI RFA DED RMGHVNNSAYSVWVEAARVPF F T M S

F F YRRIVAF QDTDAAGVVYFVNVLADCHEAYEAAAF
$S S \square H \square A$

 ETEI EVNGYDIDAMMIVSNIVYVRWFEDLRTIFVN $\square Q L R W G D M D \square N N H I N N V Q F A R L F E E S R V R$ V R F A HCDPA G IV FFPRYFEMLNGVVEDWWA
MF Q F N Y K I Q K Q D A D

 P F I Y H R T V R F Q D TTD A A G VVVY F A N V L K I C H E A Y E E S L E FRNEVQVRFA HVDAAGIMFYPRYFGLINDLVEDWFA
 $M A D T H L Y E Y Q V Q F Y D C D P M G V V W H G N Y L R F L E V A R G E F L D$ TPLFATNYNVY $\operatorname{CNH}$ T DAGGIVYHANHLVFFENCRRDWFT

FERVYPIVRFSHCDPAGUVFFPQYLVLFNHLLEDWFT

F H T T TPDFTKNYNVY DNHTDAGGIVYHANHMVFFENCRRDWFG $M P G Y Y E D R H T V G F E E T N D V G N V Y Y V N Y L R W Q G R C R E M F L R$ MS QPFRID $\quad$ KKVRHYELDSLGHVNHAVYHQYGEDARLEFDL $M N K \quad H L Y K C P V R W S D M D V Y G V V N N V S I M R L L E E A R V D F I W$ MTVCFTTERMLHEGDCDIS GTAYYPAYLN!LNGVVEEFWA $P N P F D H E V R V E P H H \square D D F Q H T N N V V Y L T W M A K T A W E H S K$

YVFEDVVR DYDTDAQGDAHYAAYYRFFTNTDEKFFN MAMPFEARYRVYWHHTDGAGIAHFSRILAIVEQAEEDFYA S S A Y QHE IR VT WGDCDPAK A YTGR LDPWADLDADNA WWE P H TVT Y Q T R WLD N D Q Y G H L N N S S Y Y L I A D S I I N A Y LV MARTH VDMELRWSDQDAYGHVNNVTGARFLEEARVRTEW
 SVQRRVRFEEVDVMGDVWHGRYPSFCEDARVALGD
 VYTYHIDFVGHVNNIIVVQWLENARVKLIE N Y L

R
 MSAPYSCEI QVRWGDSDRNEHVNNVLYAEYAQEGRVRFFR
$F K L E L P V W W S Q C D P N G H L N V G N F Q V F L H E G R M T A L K$

 K E F T E II T V K K E D D L D D L F HVVNNV R YL Q WI DIA K NH WQ T MSEPFRVRVKVRH F F D 1
FYHP SVGWAEMDPEGKVNDI VGYY
 MANGFVTPVPVRWSD $\quad$ DDMYQHVNHATMVTILDEEARVP FLS PRHFSRPHRIRFSECDPAGIVFYPQYFVLFNDLLEAWVD MTGAVVVDIPL RWSDMDAQGHVNNVRISELVQESRNQAFY



F R Y R F R P R Y Y E D D R Q GVMF NMWYL G Y V D TA I G E F Y A MASSFTKKFTARPEHIDVLGHVNNAVWVQWMEQLSVEHWM

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UniRet90 M2VMA5 UniRef90-M2VMA5 UniRef90-UPIO0036517AC UniRef90-M4UHW3 UniRef90-UPIO003FFC97B UniRef90-UPIIO0047DC540 UniRef90_13C9M7 UniRef90-H8G8A9 UniRef90-V8CCJ3 UniRef90_10xTB6 UniRef90-W9AJW2 UniRef90-UPIO003067B9F UniRet90 D4HFL4 UniRef90-UP100029A3CAE UniRef90-UP10004409CAC UniRef90 UPIOO03B663A45 UniRef90-UP100047BED25 UniRef90_D5UNM3
UniRef90-UPIO002F531D3
UniRef90-K9CVT4
Unire90_UPIOOO36745BB
A

M|I D Y D Y P M L A S G Y M WP VVVEA HLLIK Y VR PA|LYGQQLD|V|RAT|L TSSKKWQWTRH MFVI AH IEANYQKELRPNDDPRIGVRV KTGYNYEMQASGYMWPIIDTRVKYIKPAADLTVRVEAKL QIDYNYQMDASGYVWPVVDMRVKYVRPCTFGQNIT:TATL KHCALLSPATSALIGLVVSSYCHFFSPTSFPDVVDLGLRV TLGYHGVIGARRMGMPTVHLEVDFNAISRFGDQVWLELEV SVNFGYEMEKCGTAFPVVDMKLKYVRSLRFGDTVRVRSYR SFDYDYEMRAHGHMWPVVDMRLKYVASARYGDDIEVTASL DQPTHDEKTGLRRGIVVASHEVTYKRSVVYDEPLKVEDWV SLGMTDAYHRLDRAMAVVEGNYRYLKASHLDDEIDTATWI S GVVIVMPSHDNLTWPRVSAGCEYLGPARFEDVLDVSLFV RFDYDYQMKASGYLWPVVECHLKYVRPALYGQRVRVEAAL AVGLFARLHEEGVDPVVARLTISFKTPLRSGEEFVSKLNL ELNDNS LNSSMIGYVVAN QCSFYRPVGYPQDPLAGMAL D GYDY TMKNDGFAYPIVKMDFKFLNPLFFGDEFKVEDAL HLM KAKAEWLDTVLARQTINFWHETNYPGEVRIGGRL DINLKVFFSNQE】A\P1 DHANVDFRRPMFCGDELTIELMP EI SQKWDWSKHMFVI AKDSCNYGRERRMAKNVRLGMRT QFDYNYQMKDSGYAWPVDESYVRYAQGVIFGQHIRVRATL
 A GFGQERQQHDLVFAVRSMQLDFLKPARLDDALSVSAVL KLGYNYTMKETGYAWPVVELKKKFVRPADFGQLVNVQALL KHLTPSEMLKQNTSPILMHTEIDYKIPLTDHDKPVGKCWL AFSTWFPTRPARLSMLVARQDDEFTATLDYPDPVVVHASV HLGWTETVSQRRLGTPTAKDDTTFVAPSRLGDTLCFHLSV SLGLSEMDLGEGAGVIQKNGFVEYNKQLFLDDSIVIKITE KI DYGYMMSASGYMWPIIDTAVRYVKPIQFNQEI RVTATL ELGFAGYLLEQRFGLPTVHLEADFKADSRMGDDVQLELHV

 A SLGSYKELEKHGVDFVMAETSTRYLSPARFDDLIRINVRV ASGLIEFFTNPSVAYPDIHANVDFFRPDNCGDKLKLRLIP | L |
| :--- | $P P A G T G L D G Q R G T Q A L V V E H R V K Y L A P L N Y R N P A R I D E V W I$ STGWKSLNHDRQTATPTVRLDLTFVKPGFHADQLDFTVI ELNLLNQDDGEVQHFVVSQADLQYQRADLDDEVISVRLDK AGGIDGELRERGLAPVLLEST TTYRRELRSGDEVDVSCRA GUKKNGDAFFDQGSVVVSHSVRYHAPLVHHEPVNITMWV VLGLFPSYARLNRGMVVRRHELEYLAASHEGQRVLIGTWI EVGGPYPNVNEELWFVMVESHAVYHKPVKLGDRLTVLLSV SKGLLHVHGRLNVPRREVYASFLHPLRRGDEVLVRIVWA NACGDQPFIQPSIVGLVISNSCRYYASCSFPTPLKVGLRV KTGMEQHFRGSDPTGPVAGLQDEYTRVLEYSDP TVELWD KYGFGPDWMKQNNCGPVLREEAHFHRELLSGDELINVKL SLHLPEWDMGGYPSVVVDLABQYQQEARFPEVLVIETAV

 GCGVPRWEET
$R I G H N Y Q M R D$ EPFGAQD
$\qquad$ EAGYGYEMREEGDGPMI LRSETDYKVEIRYPETVIVLTQY SLGFGAFEEAKPTHYVVKAVGIVFDLPVTGNGEI AVHLWT
 PAGTGASGTEEGAGTAVAEHRTRYTASLEYGVPVLVDVW
 QCGLDHSLLQSKGVGPVVYKAELNYFDSMRFPDDYVIVTVY QLGFAFAGDVHSTGLLIAEVKVSYKGQVRLTDPLQVTI WV TNGFAGYIGELRFGMPTVRLEADFRADSRMGDDVNLTLDV TNGAQEMLDTGGVVVVSQDVEFLEAPVDGSPLRVAVGC SLGRRDMITGKGTSVILGEVSIKYRRPLLYPDTIIVAHKP EHYPLSKQVELCIVGPVVNKTQAHYKRPLRUGDEPEALMWIN AAGQVPGFSADGVQALVVEHRVRYTAPLEGVPVPVDVWV DRGMPYEMLAAGYDSQVVHVELDYAAGLTDEADTELDMRT


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UniRef90-IOXCG5 UniRef90-K2LOH4 UniRef90-A0Z8F9 UniRef90_14EUB8 UniRef90-UPI0003B4E936 UniRef90_B8KJU9

## UniRef90-M5UKH1

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$\stackrel{1}{T}$
 TK LG NKSFDFEYIVTSDGEDLIHCDGKSTQVMYDEEKKSM TE WEN R RLKVVYVIYDAQT GARLTKGYTMQVAVDEEKTEEM
 VRVGGKSITMA WRCTGAGGEVRMA ATQTDVMTSMDTHAD RRLDSSSFEVRYAFVC DDQPAAEGLTRHVADAAASRQR ME WQN R L K K Y E I Y N A ESGE LCTKAESTQMAMSDAT ME WQN RLK DYRIVHKASGKVLTKAHTIQVAV
TRWRRLTMERQFQI I DNKTGETVLRAKHQFVCI ESTGKPR SGDRAAAFTCHYELF DHGQLAVTGSTLLVPVDFANRPR LDHSGPRSTRVYTVDRDGAGEPLAECRTDWVWVDATGRPK THWNRDTMTRHFQVRRVGDGATLLRAEVRFACI ESSGKPR DRVGTSSVHYRYQI DCAEKPVAVGKVSVVCLGSGGKLV AEYEN RIKDRYEI RDAASGTTLTKGHTVQLAVDAATR
 VWGEGKTWRVEQQVVRKDDGTVAATVSSVCGLLDAERRDV LEIESSFLKFSYLI KKDTLKICKATTSQACI DKNMQTC
 KTWGDDEFEDSYQV FKEVGKKWAARASTKHVCDHPQSKSR CNDGTKSFDFQY II DSDNEETDHAVGYSTQVLI DTANKS $K E W E N$ R LK DEYQIFDAESGKRLTKGFTSQVAVEDETR
 ERCRRASLIFAGQSVRRE GEVLLTAEVVRAACGSDFRPR VEYEN RLKKINYLI SDHKSAEKLTQGSTTQLA I DDIT

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## \section*{}

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## N

A K VGGGS S L E V V H Y E I V V D A G E P V V V V


P QSKTA KFEDVQEMYRQSDNVLVAVARFRQSVDPEKKSR

 TEWRDKSFVQTYRVTRGEDLILDCE EVRIFAAKREGRAV VEWEN RLKI NYLI S DAETGERMTRGSTVQVAVE DASR




S S $\square \mathrm{KP}$ A S LTMMD Y LL VD P VT H
KKAEGVTSTRDVEIVNNTTD KVGARAQTVLAFLDTE GRLV
 QKSEKNRLAFRHDVFSKKTKKLVLTSFVHGLFMDKRKRPB

NRLRAVDFT LGGYEVRSDPDSKPAVIAE TQLAAAFSEE QKLV

 HNPHPTHFGFAAAIWSNSQRTVVATS DSKLVVWDY DR




| UniRef90_A4JRI3 | $\text { QFPPALDER\| } \begin{gathered} 130 \\ V \end{gathered} \mathrm{RA}$ |
| :---: | :---: |
| UniRef90_UPI0003634CC3 | ELPD WVKNDFK |
| UniRef90-UPI0003004FE5 | C FPKAFTDK $\mathrm{C}^{\text {P A }}$ |
| UniRef90-K2M4K6 | RSPDFFlEKMEA |
| UniRef90-M2PLI9 | PMDTDLLEGLQ |
| UniRef90_UPI00036E8AD1 | P VPDDLRA |
| UniRef90-B5IK73 | A L P E PLNR WLEEA |
| UniRef90-I0XCG5 |  |
| UniRef90-K2LOH4 |  |
| UniRef90-A0Z8F9 | R P P K E $\quad$ DD |
| UniRef90_14EUB8 | R L T P A |
| UniRef90_UPI0003B4E936 | RAPVEVAR R F |
| UniRef90-B8KJU9 | R L P K E F |
| UniRef90_M5UKH1 | PVPDTIRTALLA |
| UniRef90-F0Q235 |  |
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| UniRef90-UPI0004574AF5 | E $\square$ P T V F R K C L |
| UniRef90_D1AC88 | P SPAERLRALA G |
| UniRef90-UPI00036E4F3F | APPQALKEIIK G |
| UniRef90-I2EUW8 | $\mathrm{R} \square \mathrm{T}$ E El Vk Q |
| UniRef90_UPI000471EDCF | DPTPEI RSAM |
| UniRef90-Q10XE8 | K L S D EI R R WL L S |
| UniRef90_F0P130 | E I P S WLR |
| UniRef90_N8TF13 |  |
| UniRef90-EODGR9 | A $\square$ T A K E $\square \mathrm{K}$ VL |
| UniRef90_UPI00035D30CF | R WS DALRA |
| UniRef90_G0CCF1 | GMDDALFDALKA |
| UniRef90_UPI00035D9A70 |  |
| UniRef90-K8NUA7 | P V P D A |
| UniRef90-M0QML9 | PMEDDLRSELE |
| UniRef90-H0PTK7 | PWPED【RQAI |
| UniRef90_C3WCQ0 | RVP N S FKEK |
| UniRef90-R1IIK9 | CFPKALTDRLEA |
| UniRef90-X8LIH8 | P 1 P E ALY S AL |
| UniRef90_D4AEL0 | SLP EDFRNSLQ |
| UniRef90_UPI00034D5516 | RWSETERAA |
| UniRef90-K4KJA5 | RMPAEFRAVYE |
| UniRef90_K0JRT2 | P【PD D R R L F E |
| UniRef90_UPI0002F7160C |  |
| UniRef90_UPI000376A0EB | P WCTP $\mathrm{L}^{\text {R K A M Q }}$ |
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| UniRef90_B3Q6N8 | RLPPEFAS |
| UniRef90_UPI0002556127 |  |
| UniRef90-Q1QBI1 | R V P K K L R V ${ }^{\text {a }}$ IE |
| UniRef90_UPI0003F6ABCD | El P Q DVRTKL |
| UniRef90_UPI000404FE4C | RIS E QKKRHL |
| UniRef90-UPI000399F0F3 | A WPDDIRAALL |
| UniRef90_X0QSV6 | RVPK HLRDAIE |
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| UniRef90_UPI000466BB7E | A QP R E |
| UniRef90_UPI00036FEE69 | S LS A A ESAFFE |
| UniRef90_V7ELV1 | P WP E DVKAKLLES |
| UniRef90-A7HSM7 | RMPQEF |
| UniRef90_Q972T9 | E DP K E $\square$ L K L |
| UniRef90_A4WMM7 | ECPQEFVEA |
| UniRef90-B9NVS8 | R P P K D 1 KELL |
| UniRef90-R9PDY2 | AMPGRLREP |
| UniRef90_A8LLP5 | PLT DEMRAIMAS |
| UniRef90_UPI00034574A7 | RL S EEGRA AVE |
| UniRef90_UPI000377A98F | APPKDLGERFE |
| UniRef90_UPI00030959D0 | P I P D A V K Q T L |
| UniRef90-F3YZC3 |  |
| UniRef90-S3UUU6 |  |
| UniRef90_F4G2E1 | E $\square$ P D N I L K S $\square$ |
| UniRef90-X5DEZ4 |  |
| UniRef90-V6HTP4 | P A K F L E A $\square$ |
| UniRef90_C3JD60 |  |
| UniRef90_E6UVA1 | P $\square$ P P S $\square$ R A $\square \mathrm{CE}$ |
| UniRef90_UPIO00307E928 |  |
| UniRef90_UPI00036B484A | RLS DEQRAYLE |
| UniRef90_M2VMA5 | PLA D R TREL |
| UniRef90-S3VR48 | KIT T EFSDKMK |
| UniRef90_UPI00036517AC | EWSEDHRAGF |
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| UniRef90_UPI0003FFC97B | PVPDFDKER |
| UniRef90_UPI00047DC540 | RTTPQQRKQLT G |
| UniRef90_13C9M7 | RLT D D L K NLF |
| UniRef90-H8G8A9 | PAPRD |
| UniRef90-V8CCJ3 | CLLP S E F R E S L S A |
| UniRef90_I0XTB6 | Q F TEE |
| UniRef90-A3ZZG5 |  |
| UniRef90_W9AJW2 | RLAPHHREYLE |
| UniRef90_UPI0003067B9F | AI P AVLR E A |
| UniRef90-D4HFL4 | RLTDGERGAFES |
| UniRef90_UPI00029A3CAE | K L S P EMLRVF |
| UniRef90_UPI0004409CAC |  |
| UniRef90_UPI0003B63A45 | G $\square$ PD ${ }^{\text {d }}$ K E E WE |
| UniRef90-UPI00047BED25 | RTTVEQKELLA G |
| UniRef90-D5UNM3 | P \P D A L R A ALQ Q |
| UniRef90_UPI0002F531D3 | VFVVAVQRALEA |
| UniRef90-K9CVT4 | RVPAEVAA |
| UniRef90_UPI00036745BB | RVVSEEERTAL |

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UniRee90_W5WQC5
UniRef90_UPIOOO35F340C
UniRef90 UPIIOOOOS6A9A21 UniRef90-UPIOOO31E9E17 UniRef90-UP10003B66829 UniRef90-A0A013WL62 UniRef90_D6L8Q1 UniRef90 L8DL08
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UniRef90-Q05VN6
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UniRef90-UPIIO0047A5A5F UniRef90-P56653
UniRef90_UPIO003672C8E
UniRef90-A9E343 UniRef90-U1ZYQ2 UniRef90-G2PN57 UniRef90-O8XL28 UniRef90_UPIOOO3489107 UniRef90-ㄴBBV11
UniRef90-Z5XEG8 UniRef90-UPIO00364C3D5 UniRef90-A0A031FYD4 UniRef90_C7PU57 UniRef90-A3HRY9 UniRef90_UPIO003683EA4 UniRef90-A0AO24KC33 UniRef90-H8XUR0 UniRef90-A0AO24ILC7 UniRef90-A6GUY9 UniRef90-UPI0001FFF39C UniRef90 A9DOS6 UniRef90-UPIO002557BD3 UniRef90-Q39513 UniRef90-R7WNG5 UniRef90-UP10003B6816C UniRef90-C7DA01 UniRef90-13Z8K4 UniRef90_Q7D3B2 UniRef90_UPIOOO3762317 UniRef90_UPIO0026C7020 YLVKVPVRWSDMDVFAHINHARMVTLLEEARDPWLF PVTVHFDD DALGMLHNSRYPLLVERAWAEYWH
 PHVTTYQTRWLDNDQYGHLNNSAYYLVADSVINAFLI SRWFEVEMQVQFFDLDPMEVVWHGRYVKYLEVVRCALLD FHTAVEVRWSDMDAFQHINHARMVTLLEEARDPWLF MEKIVVYEVNVAFGDCDPAGTVFFPNFSRWMDAASLNFFM PFEARYRVYGHHTDAAGLVHFSRLLALVEQAEEDFYA PKPFVCQWQISPEQDDHYNGVNNVAYVSQLERTAWAHSN KLRYSDTDRQGHDNNALFSTFLETGRVELY THTSKVKLRWSDFDRFGHVNNAAY DELLAHEARAKFAA VFHQVYRTRWFDNDMYAHLNNTVYAMLFDSVVNSWAL YVVQVPVRWSDMDVFAHINHARMVTLLEEARIPWLIF HASDYEVQFFDVDSMNIMWHGHYVKYGEMARCAFLD $T \square Y E S T L V V N K D Y U D D L N H V N N V H Y V Q W V Q D V A K A H W Q$

FVTTRKVLFQHCDPAGDVFYPRYFEMUNSVVEEWFE MDNHYEYRHTVGFEETNUVGNVYYVNY SWQGRCREMFLK MAENTVFEFVVKEHHGDSYGHINNATYLEVYEEARWDLIT MSNRHTDTFTAGPEHDDEDGHVNNAVWVTWLQDAASHWS MIQPYEYRHLVGFEETNEVGNVYYVNYLRWQGRCREMFLR TRWHTCHRELRWSDFDQYQHVNNAKYLEFGQDARMVFLK PAFVHPDTVRWADCDVAAIAYTGRIPNFADEADDAWWA TCPVPLRWGDMDPYGHVNNVEVTRVLEEARIAAFG MPSSYTCQDTATPDD DILGHVNNAVWVQWMERVSVDHWN MFTFNYTIKQEDLNYGNHVGNERALLFFQWARESFLR YHATVTVRWSDMDAFAHINHARMVTLLEEAREEWLL MTVQFYDILDPMEVVWHGNYVGYLEVVRGALLD MPTAVIVKR KVRFGDTDAAGVMHFHQLLRWCHEAWEESLE
WYETMN MDVRDGDDNYANHLGNDALLRMAQEARLRLFR MPFMISK P M RFGDCDLTGIAYHPAYLLSMVDVNEAMFA RVFTAALPVRWSDQDLYHHVNHARMDTLLEEARDPWLT RRRVEHVDTDASGVVHFSRYASMLETALEELER TYRGTVYPWQCDHVGHMNVMWYVGKGDEANWNLFA
FSLSTTAGPDDGDGLGHVNNAVWVAWIQDIAGAHWA FHQVHQTRWFDNDMYAHLNNAVYTHLFDTDANTYLD FTYTR\TRFQETDAAGVVYFANLLTLCHEAYEASLA HWLQLKRGVRFGDTDAAGVMHFHQLLRWCHEAWEDSLQ T ws 1 R R R VVR WQDTDAAGHYHYSSVQRWVEAAEAVLLR WПDTDAAG YHNTTVVRFAEAAEAEGMR MHSCRDH RAADDDALGHVNNVVFVQYLHEARDR WRTQVRWAECDVAGDI YHAHLFDWFSESRDQWLM SREDRVEWGHCDPARGVYNPNFYDWMEGGLLALLS MFKFTYKIKEEDVNMGNHVGNERALLFFQYARTEFLKK MEDYYEYRHTVGFEETNLVGNVYYVNYLRWQGRCREMFGH MARS TTMQQRMEFGDCDPAGDVWFPNYHRWLDAASRNYF LLFSTDTQQYTSHVNQGGHLDNAQLLTLVSEARVRFFK EMKVLPEWIDFNGHLNMAYYNVLFDQGVDQAYA SDPMRVLPTDUDDALHVNNGMYFSLMDLGRFDLMV MFFKEFEIRWSDTDANRHLANSAY RNMSHTRMAYLN M MS KTVRTWTVRFSDTDPFGIAHYPRMDDAVHESSDMLME PPHRHAHRVLFGDCDPAGDVYYPRFFAWFDRAFHDWLL MVNGFTTGVHVRWSDTDMYQHINHATMVTILEEARVDFLA

TFTQTFTAHADDIDELGHVNNAVWVRWIQDLSVAHWH
 TTNFRVAPGDLDDLGHMNNGVYFSMFDLGREDQML
VFTKEUS I RWSDLDPNFHLRHSAYYDFGAQHRMELGT NFVYTTTDTVRPTEDNAGNHLANDSMASMUSEARARFLFF


Y T E EFR $\quad$ RRLS DRSPS GHVNNDSF LR Y LDEEA RTAF LA RTQFTTLPT DQDTMRHMNNGVYLS IMD DARFDMLQ $\square T T V R R A V P L D W T D Y N G H M N E A R Y L Q A F G D A T D R F M E ~$ ESRVVI RFQDCDP LQHLNNAKYFDYFFNAREDQVP HEAHVNGGWVDYNGHMTEFRYDQVLGDATDALLD


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UniRef90 C5JAR4 UniRef90-S3PHT0 UniRef90-A0A023XWB9 UniRef90-UP1000429C5CC UniRef90-B8NQW6 UniRef90-L7LBX7 UniRef90 UPIOOO2002F33 UniRef90-C6AQC7 UniRef90-UPI00034CC468 UniRef90_UPI000474521E UniRef90_UPIo0035E2A85 UniRef90-Q6WS80
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UniRef90_A0A013WL62 UniRef90_AOA013V
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UniRef90-F1VZB2
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 SKASDEL QTKYSWFLLSHFIEYKSAAFLNDTIKLKTYU DHSFASLHMDQKKGVPTAGWSVDFRAPSRLGEVLTHTLTP
$S$ L A DRAPDVQAAQAAYWVVRAED DVLM EMD DAVPPFFVRYTTDEFFAEITAFDELSGRMRLD DLGMFP苞AKEKGWAPVVAASTMKYRRSLOPGEBVAVSSFF DTVGYDWYLDRGVQTPFVRMEDDFLSPVTPRHVLECTVRP VPVGTGEVLPEGTQALIAEHRVKYLRPLEYNEPVDVRVWV RDAMWSPARVRAYUWVVTREEISYRGNVGAGESVTVATRV QNNLSETNDGDGNGFI QVEATVQYKKQLFLNQKIEVRTTK SEG EANESLITKSALI ANVAI AYKKPLRHSDPLDVTLWF K DDYNYQMRDSGYAWPVIDMQLRYDGAARFGQRLTLRADL SGPGLRTLLGFDLLPPARAFSLEFLHPVTWDDELSMKVSV RYGVEAHAVFPGI ALPVVHCRADFLKPVHGGDHLQVLVVP DWGYVDELHDDGVGI VVADAATCYLSEAFLGDVLRILVGT
 EEGDPTATLAAG AVMTELAVKYRGQVRADGPIRVRMWC RGAGLDVLSLQGLDLRVRELRVSYRAAARFQDWLLLVPAV R GLTPYLREANRGMAAVQQNISYKRELLAGDVVEIRSTL SLA TAEEQAALVWVVTRHEIDYRGNVREGETVTAETWV QIDYGYAMQASGYVWPIVDTRVKYDAPLEFEQRIHECASV ASGTRQFFGGGSVAVPVIHAESDFQKPLFCGDRVRVNLSP LYG HAQEHWPEUALPVVHCEADFLKPVHGGDCLQVQLEA DLNVFENAKNTGTTWVVGSHQUAYIRPAFVMETVTIQSQL A AGCWDTLIAARTAPVLLSSTMDFRRELRTGDTVDVDLTV R YDVPGYFPVAPRVRYEVEF L VAGFMIAKDADFRGTPLVHAEAQFFHAMHPGDLVAVDVEL QF NLS QLNLGDNTGLIQLNAYVEYRKQLFLDQEIESUDS QAGGAALREQNLAPVLLESHUVFRREVAGETVHVGCEA PPGGTGRPGRETEVPLVVEHRVKYKASLEYRNPLNAKVWV
 RSGTWRKMRRKGWSPVVSGETI S
 S I G WWE LS Q NE GI GLP L V S M DFDFK GQVEA G DAV E IE VTP


 AM GLEER GPETGL DM A A A A L VYKGE GF L K D DF D I A DGA K L Y V M D LI K K Y K A A WV VY N H N I S Y VK P A MV G E WVRIIMSRI $R S G L L R A L R S H G W H A V V T N E T G S F R R P L K P F R A F A V R T R V$ EHDYHA II R DRRDGMGYAHAASDFF DPVLMSERDEVVGVV E L G L T A EMHK QHF GP I L F K E E CVVF K R E I H F G D K I F I T T K M

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


 KLYMDD F $\quad$ M Q K Y K A A WVVVYNHNI A Y V K P A K V G E WV R I R S R L



## UniRef90 Q8XL28

UniRef90_W0JU89
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UniRef90_Z5XEG8
UniRef90_UPI000364C3D5 UniRef90-A0A031FYD4 UniRef90_C7PU57 UniRef90-A3HRY9 UniRef90_UPI0003683EA4 UniRef90-A0A024KC33 UniRef90-H8XUR0 UniRef90-A0A024ILC7 UniRef90-A6GUY9 UniRef90_UPI0001FFF39C UniRef90 A9D0S6 UniRef90_UPI0002557BD3 UniRef90_Q39513 UniRef90-R7WNG5 UniRef90_UPIO003B6816C UniRef90_C7DA01 UniRef90_I3Z8K4 UniRef90_Q7D3B2 UniRef90-UPI0003762317 UniRef90_UPI00026C7020

|  |  |
| :---: | :---: |
| UniRef90 M2YAA8 |  |
| J2JS61 | RLGRTGLTYGFRLC |
| f90-UP1000 | EWEN RLKVNYLISD |
| -8 | TEWEN RLRVDYVI YDAQTNQRMCKAHTTQVAVS |
|  | VKLGTSSVTYQVSISEHDAQQAAALITSTHVFVDRTRRPA |
| UniRef90 W1F | TGWDEKYFHMIHTFFV DDKVVAEGTSRGCVISKTG |
|  | K |
| ef90_AOA059MRS3 | VDFTi Gy Evoapad |
|  | DKVFlQRHVIRRGED |
| UniRef90-A3MVJ5 | RRAVKYRFEVFNLTA |
|  | VACDNKKLARQFQFIRLSDGLTMLNARTEFVCIASSGKPK |
| e90-C5JA | IELRERVI RFEHVMVERGNGEVAAICDLTGVHLDRARKSI |
| UniRef90 |  |
| UniRef90_AOAO23XW |  |
| UniRef90_UPI000429C5 | AKLGSSSVTYEVGVFKQGEEEVKV |
| UniRef90-L7LBX | ERVRAVDFTVGYEVRADPDSRPAVVASTQLVSFDTDTRPR |
| UniRet90-UP10002002 |  |
| 90-C6A |  |
|  |  |
|  |  |
| O-UP | E |
| 90-W5 | G |
| UniRef90 UPI00036CA7D1 |  |
| niRef90-02GB8 | EGPTGARFDRCVEFRNGQGRVIVSARTTWALIDRAGRLL |
| Ref90_Q84 |  |
|  |  |
| UniRef90_UP100035F |  |
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| UniRef90_UP10003 | VSARAATLVLGFELLDSADGSPCVRAQTQLAFYLPETRTV |
| UniRef90 UP1000 | , |
|  |  |
| Ref90-L8DL08 | a V Va T TRMAMVDVaEt L R |
|  |  |
| UniRef90 UPIO0029 |  |
|  |  |
| Q7N | A |
| UniRef90-K2lJN1 | RKGGKSSLD S |
| UniRet90_A0A022LS |  |
| UniRef90-Q08QZ7 | EHVGPASLKLGVKLYREGSGLLLAFGS DMAVVNREGVPA |
| UniRef90-UPIO00419607F | LELLREKSILRVHEMRNAETGEVAAVCEITGVHMDRQRKAl |
| UniRef90-UP10002630A59 |  |
|  | N |
| iRef90-K9 |  |
| UniRef90-Q05VN6 |  |
|  | LQYGKKQLVEITRYNQQKTELKAVMWSSFVHFN |
|  | VRVGASSLHYAFEVR GTQGVAA TGRLSVVHCPPDAKAS |
|  |  |
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| eef90-K2LFQ7 |  |
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| U1ZYQ2 | d |
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 ERLRAVDFVVAYEVRPAGADRPSVVATTQLVAFDIDQRLR
 KRDGSSSLTSECATFRGDELLTVVT ISYVHFAI ATRRPV VEWEN RLKMDYLISDADSGKRLTRASTAQVAV
 EEVRRRAVKYRFEVFNLTAGVKAAEGYVVGVCVDKEGKLV VACDNKKLARQFQFMRLSDGLTMLLNARTEFVCIASSGKPK KK 1 GTSSLIFEQVVYQAEKQGCAAAETVIVQVNKSNRPS $T Y V G K T S F A T T Q R V K D R F G K P C C V I G C T Q V L V D A T G M P R$
$A K L G S S S V T Y E V G V F K Q G E E E V K V V G G Y T H V F V A R E T R P T$ ERVRAVDFTVGYEVRADPDSRPAVVASTQLVSFDDDTRPR VE YE SCIRIDYVIRDVETKQKLTSGSTTQVAVEDKSGEM VEWQN RLKVNYLVSDADSGQRMTRASTVQVAV
OQAEGKYT RIVEIYNANTNKLLAKSETKWCLINKTGRPT GPLGRSRMPC RIEAHGGEQLRLEGALTLVYVDVTLKSE RDVDAARVTLDYRDQHGTEERVA GGTVVLRWYRFAPRPA
$E$ EPTGARFDRCVEFRNGQGRVIVSARTTWALIDRAAGRLL LDLTQTQVAFTFDYVRDGSETLVARGQQRMACMNTDTRPT LADGTTSTRF EVIGSQDGTRCFRGEFVSVFVAAETFEK LSARAATLVLGFELDSADGSPCVRAQTQLLAFYLPETRTV LAEPRGARFDRMMEFTGTDGKVKVAAKSTWAIIDKTGREL EKVRAVDFTIGYEVRAAGDSPPAVVATTRMAMVDVAETLR VEYEHRLKKDYLITDTVTGKRLHRASTTQVALD QRLDPGSFEVHYRFQLDDQD VAHGSIRQLANTSRRAV ADI HRKG[DFIYQVIDDNSGREVARDKTGTVFFDYPARQV TRLGHSSVTLSAAIPTDEGTALVGAVTVLVCVDPSGAAV EKVGAAMFVARHEVRTPDSAPAAVECTSTUAAFDATQRPR EHVGPASSKLGVKLYREGSGLLLAFGSLDMAVVNREGVPA EPPRGARFNRHVRFL GPDGKVRVEAVTTWALIDRSGRLL NRLSKSSVTWEVGVFRQGEEDVKMVGTYTHVFVGRET QRLNPGCFEVRSRFQLDDTD VARGMIRHLAISSTTRKR LQYGKKQLLVEDRMYNQQKTELKAVMWSSFVHFN IRLGRSSMTFGFEVWRNADGKPNCRAVTVHVPDKATGGSA SRWGGKSFRFTYRVLRDDTQQETSRGMTEHVFVGHASRVD KFGTGKTFQMITNNIHKA DGTLSAEITCTLGLMDLGRR VELAQTQREFFDYVRPEGEVLVARGRQRVACMNNRTSPS KEWRRKSFVQRHSVSRGGDVQLVMRADEIVVFAMNDGRAI
$E D F N R Y G D L V F R M T E D S R E V R G G V V F V G R D K V T$ LDYDEKRFHSFQQLUWH SDGWLAATGEGLTLHVDQSGRVA

TVGETSVQFDYTATH DGEVVFGTEHRVCVPVGGDSV VQYSDNFLLVEMKMWNENETELKA ILWWKFFHYNTQ TTWNARQLSLDYQVHC GDRLIASG KRDRADDFTLGYEVRSAPDSRPSVIAETQLAAVHKEQRLV EAPRGARFDRHFRFTGGDGRVRVEGVTTWAMIDRTGRLV


 SKMKASRWSITHELIDDEGN LKAKITVDGAWMDTKLR
 SHDGTTSFSYRYAVF AGDECVATGESTSVHTDGEKPA LEARGKKLRLYHEMIRTGDDELLATCNQLLLHVSLETRRT IDFSKKHLRAEMRMFNKNKTELKALAWMTFVHVDKKQRPT AKSGKNGMRRDWLISDCNTGEILTRASSVWVMMNKTRRLS PRDGRTSFSVAAHAYGRSSDEPADFDSTVVATRATGQPW MGFDAKAMYVEQRFVRPDADERYQGFDRGRFLKRGGGVV LLGEGKKLHLLHRMFDDDGRLLATGEHMLIDHV


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UniRef90-J2JS61

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UniRef90 UPI0001FFF390
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UniRef90_UPI0002557BD3
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UniRef90-13Z8K4
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UniRef90_UPI00026C702d

PLIP PEIRA
RLSPEEKGYLE RWSDEAKA


$R \square T$ GPEREY $\square Q$
AVPQD\RR
A V P E D F L E A
$R$ MPK
PFPPE $\quad$ LSKAKA
P L
PFPAEMVAKFTG
$P \square R N D E K A \square L L$
K MEERVRK GLE
 ELLP P G G I N N R W W L
$R \ P / V E \| V D L F$
TLPAALAARIE
R V P D AL VSAL R
SPTPEWKKAI

RVVPEPLRALAL



TV DELLE
RVPPEVAA
KI PTKFKE
RIS PEEKAYL
EVPEPLRALLQA
ALPEALDRWLEA
ALPESFSAKL PWPDDCRAGLE P $\square$ DDATRADL
RFTRAEREHLM
CDPPSLSSALK
PFAEAl RHA RVPADLSARFL NFPPVLLEKM
P LT E ELQRWL
PLPESIDLWLEA
PWPDE $\square R$ AAL
LLPDP
PWPDAWRAAL
A LTAAQRHFLE
RHNPDLFARFQA
$P$ VP D A V K A A L
K IP E S FLE ILK S
RVP E A $\square$ A R A L
RISPEQKA
EVPADY!
PVPEAFLARLSA
PMPEAVLAKL
G LP D K F LK A F E S
A L P D G L R N S L E

RLS S KHRDY LQ
RIREEIAAPFL
PL EELFEAL
RLPEEWKEKISA DHTGAVMDFLKA

$R M P P Q \square R R R L A A$
 CEPEEVLDAKITA QHSETLMDLFK
K $\square$ PDEVRNEIE
P I D D A TRQLLAA
TIDE
R APSDA ${ }^{T}$ AA


UniRef90 D2V7L1 UniRef90－K2PU41 UniRef90－W4T820 UniRef90＿UPIOOO3F4A58C UniRef90＿M4Z4DO UniRef90－V5AYI1 UniRef90－A3U1×8 UniRef90＿X7YGC2 UniRef90＿U7G6W4 UniRef90－M6MOLO UniRef90－Q2BK40 UniRef90 UPI00037F2C7E UniRef90－SOZA48
UniRef90－S6TQL6
UniRef90－H2MTU6 UniRef90＿UPI0003B42B53 UniRef90－AOAO31HQN2 UniRef90－F2NMX6 UniRef90－UPI000370A1BC UniRef90－C8V480 UniRef90－UP100034AFC4C UniRef90－UPI000363F3ED UniRef90 S6GML4 UniRef90－UPIO00369DA97 UniRef90－Q9TM14 UniRef90－19N893 UniRef90＿UPI000368E9A7 UniRef90－A0JT87
UniRef90－A9EB78 UniRef90 F5YOLO UniRef90－A0A022GEV2 UniRef90－M5Y008 UniRef90－UPI0002D324D6 UniRef90－U3в098 UniRef90－UPI000370C3C0 UniRef90－11JW97
UniRef90 A3X571 UniRef90－A0A058z7U0 UniRef90＿W8VPN2 UniRef90 D2QBM0 UniRef90－${ }^{-23 H 788}$ UniRef90－UPIO0037EBE32 UniRef90－UPI00046E900B UniRef90 G2T1Y7 UniRef90－K9TCM7
UniRef90－C7LRUO
UniRef90－F4LT66
UniRef90 ${ }^{-}$V4QUP7
UniRef90－R91187
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H $\square$ Y E M R ${ }^{10}$ V LP Y D｜L D MN F H L N N A Q Y｜L S F ME HARFDM ${ }^{30}$ K
 $R$ R L WP V A WG D CD M F Q H V N N V T F V R W F E S A R D R Y S E M Q IE P Q W $\square$ D Y N G HL N MAYY HVMF D R A IDD QLWA
TPVVT $\square$ HRAVP $\square D W \square D Y N G H M T E D R Y L H A F G D A S D R L M K$ $R H R D Q R L D$ Q $\quad$ P Q S WTD Y N GHMNEAHY LEAGAAATDRFME


TE VVVPFFDVDMMN【VWHGHYVKY $\square E V A R C A L L D$ FYTEDT LL H DLD YLGHMNNSRYL RECDFARFA HYM $M S R G T L S I T A T A D D I D E L G H V N N A V W V R W I Q D I A V A H W A$ MSEARTLEV VFPEHTNPLGAAFGGFVL GLMDKV
$\square F A T E I D V R A R H \square N G A G H V D N A Q M V V L D S E A R E A F F D$ $F R Q R V A W G E \quad M H G H V N N V T Y V R Y A E T A R V Y F T H$
QPFVVRRRQVRWGECDPAGVVYTATFSDYVIDSAELFYG $M N N T Y F Q K T V$ R W S D LLDANRHLANASYMNFTSFAR\｜AFLR NYSFTTTMTVRDNDINYGGHLGNEAVLAYDQEARMRFL
 HPWQCDIMGHLNTRFYAALFDDASLQF
 K P R F A FERRDFFGDCDQLGUAF TGRI TNFALEADET FWD RTFRHT DDI Y LGKDSNAYANTYFSRYFEWQGVCRERWFH


EVELRWTD $\square$ DAYRHVSHMALVT $\square A D Q G R G R W L D$ PADTNANGD IF GGWIMSQLDLA
PKMRTVSRKVPVDWTDYNGHMNEGRYGQVYSDAADGFLW
VPDDWTDYNGMTESRYLDAFAQSTDRपMA
 MYSKEFEVRWSDLDANRHMANSAYQNFMSHARMAYLM ESRVII RFQDCDPDQHLNNAKYFDYYFNAREDQVY
 PADANPSGDIFGGWVLSQMD\｜A MYQFESRVRYSEVDSERHLTGPAVMDYLQDCCTFQSE पT FTVKPYDUDDTGFVSQIIVMRWIEDLRLDGFQ PRDTNPSGDIFGGWI LAAMDVA
SNILEKEYRTHYYEVNAKGRVLIASLMRYFDDIATQQSR HETTVSPAWTDYNGHMTEFRYLQVLGDATDALLR
 N $\square P K \square V E S S T K \square R F Q D C D P F N H \square N N G K Y D Y F M N H R E D R N Y$ TFA $\square R V P A H W \square D Y N G M T E S R Y$ EAFAFAFATDGFMR VFPKDTNYLGTAFGGFVLSLMDKAAS
NTFTRTFUAAPEHDDELGHVNNAVWVQWLQELSVAHWQ
PMKVIEEWUDYNGHMNMAFYNTVFDKARDALFM
MSY A VPYQDHFEDTMAYGSHHYDTNFRFQCDAREHFFF YTTKYRPGLSDDNQDYTVKKSA LKK LIEDSAGFHTD RFGDMDANGHLNNVALESLHENTRATFNR
KEFES【VKПRFADCDPTGHपNNVKY乌EYMDNAREDHNY LRVLPTDVDLLRHMNNGVYFS IMDIGRMDLLI PKPFVCEWEIQSTHUDHYQHTNNGAYUTRLEKLAWEHSA PLLTLERTVPPDWTDYNNHMNESRYLQCFADASDALLR PADTNPAGDTFGGWLMSQMDLA
VHPWMCDAMGHLNVRHYVAMFDDASFQLLG
QAFQYQDYVHHDWVDYNGHMNDAAYAKVFSDAVDAFID HRQNIVWGEQDSMGHVNNVMYVRFAESGRCNWI H
STTLTVDPAWDDAYGHLNAAHYVGDFDRVGFELLS
KPHVWKARVGLLDMDLVHLNNASYLYNMELARWHLSG

TYRGVVYPNQDDHMEHMNVQWYTAKFDEATWHLFS

$\square R \vee V P R P A D \| N S N H I F G G W V L S Q M D D A$
MFSKTYQVDEKHIDFQGVVDGGYYPFYMEWTRHAFMK
VDYNGHITENRYLQLCGLATDNVLT
UHFRAWPFDLDVNVMTNSRYFALMDLGA RALPNDGDLNGHVNNGRLMTFIDFGRDDWLW
MPALITYRTPVQEDWVDYNGHLRDAYYLLIFSYATDALME

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UniRef90-A3U1X8 UniRef90-X7YGC2 UniRef90_U7G6W4 UniRef90-M6MOLO

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80 AEATAQMLN NY WWMVRTNYDEYKGQAFLGETLTLKTFI
 ELGDGPAMKERQGSTFI TECHVRYQREIHLGDPVQVAVWL

 LI
LIA A A DYY

 H $\square G H N Y M M D E S G Y G W P V I D L Q L R Y V R S A V F G Q K L N V R A S L$ RNGDFMASCKLGARMVVGASTI RYRRSLDFREPFEI RTKV SLGFS ELDDGGLGLIMSDAAVDYKAEAFHGDVLQVGVSC A VASEADQAALVWVVTRHAI DYRGNVAAGETVTGETWV GSYAAARHAENPVVTVAVGRVEFKVPIRSGDLLEGVARV $G$ LGYQQN DVEGVGTVITDAAFQYLAEAFEGETLVFGLAA NFA WMNLVSNKGLGDILRSDKDDYKFPMQYPDKVTVYHKA



 LGMLTLDGDRHLGWADVKDDTTFKKEVHAGTLLSVVTQL


 SFGATHGMMKNDLIWVVSRMQVQVDQYAITWGEVLEI DTWV
$S \quad L G$
E LP N D

 RTGMGAALWKDNYYP LASCKI RYVSSLAYGEDYRVHSRV


 D M D $\|$ GVELLA E Q K QA WV L S S WE I K DRR YP V M G E KI CV E T WP Q Y F S L E Q QL E LG DS P LI GK T R L E Y H K P I M L F D LI E GR M WF
 F V GMDEA A Y N A S G R S F Y TVVE T H I R HLLREVRAA GK P I HACLTV



 VA A VRHA GGAVVTARMDVDFHVPIRVGDAVALDARR


 RVFPAAYHLATRTGRLVTSVVVHYLREAPWPSVLQTAVGV
 RAGGWQK L R AKGFYPVMANETI SFRKSLDLWKKFQLE SRVV
 $R$ VGVDAD YVADSGSYFTVETHIDHLDEVAALQPDKVTTQV


 RT GLAARVMDRQGWMPI I A EHTMTYRKSLGMFKKFKAT LDEI




 Y VGID A QYRSK F G SYY TVVETHLSHWGEVMAGBRVQVVTQV $R N G I A K Q M F K R K W Q P V V S G S T M R F K R A I K P F Q K F A V E T H A$ $\begin{array}{rl}A \\ G L & T\end{array}$ A A R R S R G R A V EKCG YSMDRSPQAAII A H TYFDYFGSVSYPGVIVVGLRV





UniRef90 D2V7L1 UniRef90-K2PU41 UniRef90-W4T820 UniRef90_UPI0003F4A58C UniRef90_M4Z4D0 UniRef90-V5AYI1 UniRef90-A3U1X8 UniRef90_X7YGC2 UniRef90_U7G6W4 UniRef90-M6MOLO UniRef90_Q2BK40 UniRef90_UPI00037F2C7E UniRef90_SOZA48 UniRef90-S6TQL6 UniRef90_H2MTU6 UniRef90-UPI0003B42B53 UniRef90-A0A031HQN2 UniRef90-F2NMX6 UniRef90-UPI000370A1BC UniRef90-C8V480 UniRef90_UPI00034AFC4C UniRef90_UPI000363F3ED UniRef90- S6GML4 UniRef90_UPI000369DA97 UniRef90-Q9TM14 UniRef90_19N893 UniRef90_UPI000368E9A7 UniRef90-A0JT87 UniRef90-A9EB78 UniRef90-F5Y0L0 UniRef90-A0A022GEV2 UniRef90-M5Y008 UniRef90-UPI0002D324D6 UniRef90_U3B098 UniRef90_UPI000370C3C0 UniRef90-I1JW97 UniRef90-A3X571 UniRef90-A0A058Z7U0 UniRef90_W8VPN2 UniRef90-D2QBM0 UniRef90-U3H788 UniRef90_UPI00037EBE32 UniRef90_UPI00046E900B UniRef90_G2T1Y7 UniRef90-K9TCM7 UniRef90-C7LRU0 UniRef90-F4LT66 UniRef90_V4QUP7 UniRef90-R91I87 UniRef90-H9G4W5 UniRef90_UPI0002B43440 UniRef90-A8UMS9 UniRef90_J8UZE0
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CGAD 90
KEASGA DSVRVVEDYHQDSQKLILRRTAEWCLDDKSKRVT QTPEGAKQPRKVEFYCHD QLVVDSATLWDLFDPQKKUK HEVD
】AADEKRLHTFEELRHAGEGWVSATSEGMSVHTDMSKRPQ TSMRGTSMVFSQRUVNA ENKVLNEAEVLVVCVDPDMKPR
 LQGEGKKMQL FHFLKNADGKLAATMETLLLHVDLNTRAS

 QQLDNG
VEWEN KAFYLEQRFVSKKDGFVSA
ADFNKYGCDLLYRLCRDSDGQEIARVKTGUVFFDYQARKV

 VHDPSASFHLQAMILSEARQRPAARVHEDLVTYDKDGKKA AEDRTATFTLLMTARKADNDRDAF IAARLT PI C $\square Q R G A R S \square$ GGMSEDGMUYQF ITHNQDGTHLCHSELTGVWFSMTKRKM

 $L G F D A K A M Y F E Q C M V V K$ GQVYAEAAVMAMRLVDRKGRPV LGAVKGASFDITYCLLQDPVTREDCVKATTHMAFVDATGRVL VHVGESSVGL KVVGRQHDLICFECETKSVFRDASTFKV

 DHVGTSSMDRHEQVTTP TGTVVLEAVSVIVAWNTDSQSR SHI GNSSMSI ELQQVWRAGERELVVEATVHYVADDNNGRPR

 SGWCSRWDYVEQADYSSAGGRLVATFDTRAALLRRQSKMV


 YAFKGFYGYRNFRTTNGQGEELVLAANSVWVYMDMEMRPM SDMGSVKWDVKTELMV DDKI SVTAKQTGCFDHASHRLV LDVGGNSSMDIKLEVWAEAQRELVTEGVFRYVAVDENRRPR
 YDFKGGKFGYRLIKGKEEEI CAYANSUWVLLDSSGKPA LGWDERAFFLEQRFVSRKDGFI CA
DAAGKNGMRRDWDIRDYHTREVDTRATSTWVDMNKETRDS DYYDTSNLRAEMRMFNKDKSHLKAIIWCDFVHFNLIKQKR TRGAGSTVVERMGAMFRPGEPEACAAGTVVQVVGDESGRPV IVEAKGKKVHDWHEMR GEGSRLLAATSEHLLI HMDQNARSA $V R V G R T S M R V R V D V Y R E G E Q Q L A T T G F F V F V A V D E E G R P R$
$P G T P K G A R F A R H A A F A D E N G R D I V T A D S T W A M L D K T G R D A$
 GPTGKNGMRRDWHVRDHRTGQTILRATSVWVMMNKNTRMS DEPTRSTT RDCFRV DREDGTPVCCGGYQVLVGTSRTGELI RKFKRTCAYRDFEIFK DDDKVCVKASSRWFIDD DDKRPV GHLGRTSFVASSALEDDDSCVSLCCKDTVLVLLGDDGAPT DAAGKNGMRRDWII R DRCTKEIITKATSTWVIMNRETRLS
DMMDKRTALVEWLMKALDSDLVYAVLWVKVI HFNKTRKSQ


 LREGRSSMQLHVEAWRGEETQCVTRASFVFVALDDDGRPR EKVGKSS LTYLHEMRGTLDDVLHARMRTVTVRFDDQARSK

 THWDEKYFFMTHRFSVNGT I I IADGTSKGVVKGKQG LEVKDKSLRFLHVMYNAETGKEVATVELLGVVHDRKRKSC
 EKRGRTS $\square R \square D V V A T R G G$


## 都


AK LG K S S V LY E VGGIFAK G E P I V KA VGG S M HVVWVA NE GRPA




| $V$ | $M$ | $Y$ | $C$ | $K$ | $Q$ | $S$ | $V$ | $I$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $V$ | $R$ |  |  |  |  |  |  |  |
| $V$ | $C$ | $V$ | $D$ | $A$ | $T$ | $R$ | $R$ | $P$ |$| \begin{aligned} & \text { I }\end{aligned}$

A H A GK N GM Q R D W I M R S Y Q T D E V L A R A T S T WCMMM V T R R L S

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UniRef90- A3U1X\&
UniRef90- ${ }^{-17 Y G C 2}$
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RLTKEL
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ALPKS VAEFK
PLTPLLAERL

TTPEAFANK

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RVRPELAAPFLS
PVPPLEKQA
PI PPRFLERVNA
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$E$
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a VPNEFKLLAE
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Kl ESSTRQLLDA
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PFPPELQERL
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PVPD
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IPAF $\square R S A T$
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S SPDKTMQHL


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UniRef90 C5XXZ3 UniRef90 W5CVM4 UniRef90-A0A031K707 UniRef90_D4YX19 UniRef90 B9SJZ2 UniRef90_UPIO0046E9FE3 UniRef90-UPIO002559F6F UniRef90-UPIO00372F744 UniRef90'UPI000468DE78 UniRef90-B8ICH0 UniRef90-B4KEK5 UniRef90-A6D1F5 UniRef90-GOLAS2 UniRef90-Q0K6V6 UniRef90 ${ }^{-}$W7KVG3 UniRef90 A0A031MLJ4 UniRef90-UP10002FEC24 UniRef90-G2SK07 UniRef90 BowzW2 UniRef90-UPIO0039BC3C1 UniRef90-B9R0G7 UniRef90-10UX83 UniRef90-H0BIC7 UniRef90-W5DRB1 UniRef90-Z0DC98 UniRef90-U3QQ99 UniRet90_W5YHJ1 UniRef90-15C302 UniRef90-UPI00030861D5 UniRef90 A9D6W6 UniRef90_UPIO0036D45B8 UniRef90_UPIO0037AB800 UniRef90-E6WEJ2 UniRef90-G8PUU6 UniRef90-D5RND1 UniRet90-E7C5H6 UniRef90 A5EYE8 UniRef90-Q8R9K3 UniRef90_UPI000411AC55 UniRef90 D9T714 UniRef90-UPI00045E9457 UniRef90-K2JPT1 UniRef90-R9MTP8 UniRef90-G2XY73 UniRef90-G8MG44 UniRef90-M7QN00 UniRef90_LOIBB5 UniRef90 W4H547 UniRef90-A0Ао23F2A2 UniRef90_UPIOOO34D5011 UniRef90_UP10003B301EB UniRef90-A0A021XEP8 UniRef90-D8K8J4 UniRef90-L9X4H7 UniRef90-M1FGX3 UniRef90-E5Ul35 UniRef90-UPIOOO3F98323 UniRef90-UPIO002D91DA0 UniRef90-D5VNY1 UniRef90-G2DQ09 UniRef90_E1QGR9 UniRef90 14 VPG 5 UniRef90-Q1QPB1 UniRef90_UPIO0040C1205 UniRef90-C7N119 UniRef90_UPIO00479852D UniRef90-H2C6S9 UniRef90-W7AE86 UniRef90-BOUSNO UniRef90_UPIO0037C9087 UniRef90-UPIO002FF12DE UniRet90_E8TY51 UniRef90_R8APK9 UniRef90-UPIO0042B8B4E UniRef90-J9W2E3 UniRef90 UPI000469847A UniRef90-FoLCZ6 UniRef90-TOSE71 UniRef90-B6IMV8 UniRet90_V6JVP2 UniRef90-B4F7Y3 UniRef90-XOXVF7 UniRef90-S6HZ21 UniRef90-L1LV63
UniRef90_B9К2х8

MPQRMDPSDANPAGNVHGGVILKY円DTA PFSRHYRVLPHDMGFRNHLPNYRYLSFI EDNVTGWLY
 LDYNGHLNMAYYHVIFDRGSEAADD MND $\square Y$ YSPME $\square K P D W \square D N G H L N M A Y Y G V L F D T G V D E A C K$

MAEEYR TR TTAMPADANAYGD TF GGWLMS $\square M D M G$ LRVMPRMAD $\square$ NSNGHIF GGWVLS QMD $\square A$
SQLNTYSTEVAPEWDDYNGHMSEAFYVLVFGFATDQVMD EMIVRPEWIDYNGHDNMAYYGVLFDLGSDPFSE HRVELCDTDVTGHYHHSTVIRWVESAEQTLLY
MQTPFRSSMMVKPEWDDUNGHLNMYYNVLFDESVDELYP
TMAVEPDWIDYNGHLNMAYYHVLFDRAVDEAFG PQDADDFRHMNNARYLRELNFASDHYYV PENTNANGDTFGGWIMSQLDLA
MY DKEFEDRWSDVDANRHLANSAYLNFMSHTRMSYDT
YATHLTVRVTDUNSANHLANDSMISMMSEARARFLY SY ITRTIYPEHGFGNGILYAGKMYTMLDEA
TSPDSFSFSPRYTDDDTWRHVNNSRTYQLHLEARVLAHV MENDHREFFKVKFYDTDFTSKVKLFSLDNYMQETSEQHSN

TGRVRSFDVASDGLLSLPALAGYLQEAASRHAA $P A D A N P A G D I F G G W V M A Q M D L A$
MTVKDEWDDYNGHLNMAYYNVLLDKACDQVFE HDTNLYGTIHGGVVMKLIDD
FHRTVRPEW $\square D$ YNGHMSEAFYVLVFGYATDAMM $\square$
HKTFHHATDTYLKDSNAFMNTYFARYFEWQGVCRERWFH TLQUVPLPSDTNPNGDVFAGWLVKQMDIAAATMAG
 MSKPTELTLRTLPADANAAGDIFGGWVMAQMDLA

VIPDWVDYNGHLRDAFYLLIFSYATDALMD WS HLDANMHMRHSAYADFAAQARDEALE PADTNANGDTFGGWLMSQMDMGGAILAKPSDDDMNDHLTNSRYLAMMDFGRVDHMS PADTNPAGDIFGGWLMAQMDLDA
$T V D R Q \square P Q S W T D Y N G H M N E A H Y V E D S A Q A S D R F M E$ PADTNPNQDUFGGWIMSQMDMG $\quad$ C MSDEPHGELTIRPADTNANGDIFGGWLMSQMDSA MTGWYVYRHVVTLDETNMVGNVYFAHFLHWQGHCRERFDH PADTNPSGDIFGGWLMSQMDLA
PADTNPAGDIFGGWLMSQMDLA
MYTFDSRTRYSELDETGHLK K VT WSDHDPFQHVKNAAYVVYVINQCVFREEG

PADTNANGD DFGGWLMSQMD TG
METYDENRTLVQPNHTNMLGKTHGGHVMKWMDE
 MSGPHLLDQRVRPEWDDYNGHLSEAYYVLVFGFATDADMD VHEKEWEINFSQCAPNGALNYTDLCNLLQLTAAEHAD

PGDANAAGD: FGGWVMAQMDLA
TDRDLARPTDTNAAGDVFGGWLMSWTDIA
FSSAFEDRSPHUEGAELAYFEEYPRFADVABERHLE $\square R \|$ IIPRGDTNANGDVFSGWLVKQMDI A

PRDTNPNQDIFGGWI MSQMDLG
LAQTSEVMVRCSDTDLDPMDEMNNGRVLTVYDIGRTDFII TFRTRKWVKPEDLNANGTLFGGSLLRWIEEAADYAIV VNTWDCDEMGHMNVRHYVVRAQEGLIGLAA

PSDTNPNGDTFGGWIMSQMDDG
PHDANPYGNVHGGVIVKLIDTT
VFPHHTNHLDTLFGGQALAWMDKA
PADTNQNGDI FGGWLLSQMDTG
F TKEYP TRYSDUDSNGHVNNVRY $\square R V T A M P G D A N M Y G D I F G G W \square M A Q M D L A A S S$ VKSEDLNHHGTLFAGRMSEWF ETYYSVFPWHTNHFGSLHGGDYMSWLDTAGVLMSS पYTHTDNVRMTDUNTGKHVGNDQMDSLLSEARYRFFC RLADRVWPGDDDMNGHMNNGRYFSVADLGRLDLGL RLSFRVGLLDLDTNGHMNNGRYLTLMDLGRMDLLL

PADTNNNGDIFGGWVMAQVDLA
PADTNPNGDIFGGWIMSQMDUGGALLAK msafhdve $\square$ KVRDYELDQYSVNNADYAT RHELLE EYQVRWS DIDFNGHVNNSRYPEWM MPEDYREKHRVVYYETDVSGQISGGKLVDLLMLASYDQGK FK पNFVVMP ADANPAGDHNNAKYMSGMDEA

## UniRef90 C4XOM1 UniRef90_UPI0003802EB3 UniRef90_K2MUB9 UniRef90-D5QEM6

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 Q LLKQQGKGGLSLNWIISMQEMVYLKEVKFLDKLTVTSTL
 TTAALCAGGRCATVADDRVVFHRPVSVGDEVSIYTHL $L L S L G A E Y R D R R D T L Y T A E V H L C Y V R E L L L G D K V T V T F Q V$




 EMGMGEYDRDSGHTTYTAEFRIRYLREVHEGARLRASLRL R 1 GLD HLD HI GFGEAIKETGCTTYVAEWHDRY LDRELHEGNEVYALFYL


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| E |
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 E T GLLHAGYRES GCSLVTVESHLRYLLDVAEGAHLAVRTRLD


 RLGLDDNREATGSSLFTLELHLNYLHEVKLGAQVEVHTR
 $R T K \square G K A \square F$
 L F AGILAAEITRGRAVTIAVQEMTFMHPVRVGNVVCCYGRC



## 

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 QLGNQRALVKQ保

GGGPNAFSPH AFIVASRHARRTVVTARSEEVSF
$\qquad$ NO N NL
VASRRSRGRAATVAVQSMSF
TAAAKEYKHPENLVCVKVH LSQGNYLLAS VDY
E
RSGVWwKaL
AHGRVVVTDLVANYLAESAARDVVRVVATS
RSGVWWKADRRGWRPVAGDSDARFSSSLQVFQTYELQSRL RSGLWRAVLANKWTPVLSAASIRYRRELRFRRFRLDSR
$\mathrm{E} \square$ A MV

DSMDFLNQHPTNIDIRF
ALGMSEELNEQGYGWVITQHLLEITNRLPKRDEOITDETKA

ERAPGVLRAREDFAMVTVSSRCDFLAELYAAEEVEVRMSL MRKLGLIWVTNRMH CEVYKYPAWGDVVEIETWC
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UniRef90 G2XY73 UniRet90_G8MG44 UniRef90-M7QN00 UniRef90-LOIBB5 UniRef90-W4H547 UniRef90-A0A023F2A2 UniRef90_UPIOOO34D5011 UniRef90_UPI0003B301EB UniRef90-A0A021XEP8 UniRef90-D8K8J4 UniRef90-L9X4H7 UniRef90-M1FGX3 UniRef90-E5Ul35 UniRef90_UPIOOO3F98323 UniRef90-UPIO002D91DA0 UniRef90-D5VNY1 UniRef90-G2DQ09 UniRef90-E1QGR9 UniRef90-IUPG5 UniRef90_UPIO0040C1205 UniRef90-C7N119 UniRef90-UPIOOO479852D UniRef90-H2C6S9 UniRef90-W7AE86 UniRet90-BOUSNO UniRef90_UPI00037C9087 UniRef90-UPIO002FF12DE UniRef90-E8TY51 UniRef90-R8APK9 UniRef90-UPIOOO42B8B4E UniRef90-J9W2E3 UniRef90-UPIO00469847A UniRef90-FOLCZ6 UniRef90-TOSE71 UniRef90-B6IMV8 UniRef90-VGJVP2
UniRef90_B4F7Y3 UniRef90-X0XVF7 UniRef90-S6HZ21 UniRef90 L1LV63
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[^0] EGWDNKYLYFQHHFYVK NKLMADGLTKFLLVNKKGKQS
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TKQGRTSMTIVAVERASQRQKVEGHFVFVALDENGRPR LDYDEKRLRTYQEIHHV DGWLAATAETLSLHVDMNGKVA LDVGPKAYHFCQELDHT DGWVAATGEGLSLHIDRSGRVA SGHGKNGMRRDWHLHDRSTGQTVLRATSKWVMMHKHTRLA RKVGRSSMT G EAWREEEQVKVTEAVFTFVADDDAGRPR RASGKNGMKRDWLIRSQATGHVFVRATSTWVMMNKTRRDR VSAGDKKLHFAYEMFV GDRLVSTEETMALHVDQTTRVV LDVGPRAFHYAQELIASSGGWAATGEGISLHVDQSGKVA


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## 正



 V Y WTE E A AVME QRF VFT RGQKVAATGLVRVSMYDRA QKA I S TGRTS M R I RVQA WRRDHTNRRVTEAVVTFVA LDATAGPR I K G L G K K L H L F H R L M M I D G QVAA TVVETMLLMHVDLKTRRT

,
D D GRE GHRLSMHFEFLRAGRE VARGRQTVACLRPT
 $T E V F P D R Y F G F A S A W S L N Q Q V I V A D F K D C I V F F D Y D \quad R$


—
$\rightarrow$
V $\vee$ AVGAK KV R L C H E M WL


 V GID E R WI Y L E H S M WV K G

## TKFGRTSLTMRAQVRNM TTRELILS $\quad$ K $\square V F V N L D K E G R P T$


 VGTGRS SMQVEVEMTAED DRRVCTTGRFVMIALDSNGSPT


V HEGRTS L Q VTVQA WHAEDEHLI TRGGEFTFVATD DA GRPR

 V K $\square$ G R S S $V$ V Q

 $\bigvee H V G N S S M K V R M E V W V K G Q R Y C V T E A T Y T Y V A V D P E A R A R$
D S S D N A K $\square$ K T VHE $\square$ K S ND $\quad$ VL S A S A T $\square V W K D \square K A K$


 RESNQVTMVFDYYRVQGRTAQLVARGEQTIACMRRTMEPV QEDGRIGGTRRDWILKMLANGEVIGRATSKWVMMNQNTRQQ NYVGRSSMEVGVQVSREDDKVIATTAHLTTVALDENKRPT $\square G H D K K R L H V Y H S L H L V G D E R A L A G N E Q M L L H V D L A G R S A$ I D H D A K RL H V H HL YRPK D GE L L A A SEQML MNI SEAGRAA

| UniRef90_C4XQM1 | A V J P P LI L E ${ }^{130}$ |
| :---: | :---: |
| UniRef90-UPI0003802EB3 |  |
| UniRef90-K2MUB9 |  |
| UniRef90_UPI00037A166B | PAPTAFTARLA A |
| UniRef90_D5QEM6 | P V |
| UniRef90-UPIO0031A3F3B | PFPEDVMEKLQA |
| UniRef90_A3TZE2 | PYPTEIKARL |
| UniRef90-C5XXZ3 | R\P D EVRTE |
| UniRef90_W5CVM4 | RVFPEVSSKLQ |
| UniRef90-A0A031K707 | A I EQE |
| UniRef90_D4YX19 | PLP P |
| UniRef90_B9SJZ2 | K MPEEVRAET |
| UniRef90_UPI00046E9FE3 | P F P D TVA D |
| UniRef90-UPI0002559F6F | AYPPAVQAKLDA |
| UniRef90_UPI000372F744 | PLNDQERKVLM |
| UniRef90-UPI000468DE78 | PMPQNIQDAL |
| UniRef90-B8ICH0 | SFPDDIMAN |
| UniRef90-B4KEK5 | E ${ }^{\text {PP D D L R L WLEA }}$ |
| UniRef90_A6D1F5 |  |
| UniRef90-G0LAS2 | GLTNDLLEKFSA |
| UniRef90_Q0K6V6 | A MPEGFAKRF |
| UniRef90_W7KVG3 | P 1 P |
| UniRef90-A0A031MLJ4 | A L P E D $\square$ R T V M A A |
| UniRef90_UPI0002FEC24A |  |
| UniRef90-G2SK07 | R L P P E V L R |
| UniRef90-B0WZW2 | EMPEEL\RQWLEA |
| UniRef90-UPI00039BC3C1 | P VP A |
| UniRef90-B9R0G7 | P WP E D $\square$ T A NLQA |
| UniRef90-I0UX83 | P \P P |
| UniRef90-H0BIC7 | P FPDS VRERLVA |
| UniRef90-W5DRB1 | K M P DEVR |
| UniRef90-Z0DC98 | R L |
| UniRef90-U3QQ99 | RFPAGUIEER |
| UniRef90-W5YHJ1 | EVPE |
| UniRef90-15C302 | P FP A DVLE R V A A |
| UniRef90_UPI00030861D5 | HFPE EVRERLVS |
| UniRef90-A9D6W6 | P LP A E |
| UniRef90_UPI00036D45B8 | PFSEAVLERLQ |
| UniRef90-UPI00037AB800 | VLP D ELVEHFQ |
| UniRef90-E6WEJ2 | PLIP |
| UniRef90_G8PUU6 |  |
| UniRef90-D5RND1 | P V P |
| UniRef90-E7C5H6 | S EP G G 1 V $A$ |
| UniRef90_A5EYE8 | P $\square$ P K E |
| UniRef90-Q8R9K3 |  |
| UniRef90_UPI000411AC55 | P V D P |
| UniRef90_D9T714 |  |
| UniRef90-UPI00045E9457 | A 1 P A E |
| UniRef90-K2.JPT1 |  |
| UniRef90-R9MTP8 | K L T E EMREK |
| UniRef90-G2XY73 | GV P A NLLEA |
| UniRef90-G8MG44 | PLS GQLQHA |
| UniRef90-M7QN00 | PLPAE |
| UniRef90-LOIBB5 | TIP D |
| UniRef90-W4H547 | IS P T ELLR CL |
| UniRef90-A0A023F2A2 |  |
| UniRef90_UPI00034D5011 | P FPEEV |
| UniRef90_UPI0003B301EB | A LP HEHFEKF |
| UniRef90-A0A021XEP8 | P V P V ${ }^{\text {c }}$ |
| UniRef90-D8K8J4 | P V P D |
| UniRef90-L9X4H7 | A FDEAMLEPFR |
| UniRef90-M1FGX3 | E VP D |
| UniRef90_E5UI35 | P IPREGNAKL |
| UniRef90-UPI0003F98323 |  |
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| UniRef90-D5VNY1 | P WP R $\square$ ARERAEA |
| UniRef90-G2DQ09 | P VPP D L E R A L K A |
| UniRef90-E1QGR9 | A V P P |
| UniRef90_14VPG5 | A V P A |
| UniRef90-Q1QPB1 | $\mathrm{E} V \mathrm{P}$ Q |
| UniRef90-UPI00040C1205 |  |
| UniRef90_C7NI19 | A $\square$ P |
| UniRef90-UPI000479852D |  |
| UniRef90-H2C6S9 | P VT EV |
| UniRef90-W7AE86 | PMPEDFKAKF |
| UniRef90-B0USN0 | A $\square$ P R D |
| UniRef90_UPI00037C9087 | P-PAKПMEA |
| UniRef90_UPI0002FF12DE | PVPEEVRAF【A A |
| UniRef90-E8TY51 | P I P K |
| UniRef90-R8APK9 | P V P K |
| UniRef90-UPI00042B8B4E |  |
| UniRef90-J9W2E3 |  |
| UniRef90-UPI000469847A | R\T E A V I A |
| UniRef90-FOLCZ6 | P V R K E |
| UniRef90-TOSE71 | E P K Y V L E K M |
| UniRef90-B6IMV8 | P VPPA |
| UniRef90-V6JVP2 | DVPEEFAEALR |
| UniRef90-B4F7Y3 | RVSDDVR D |
| UniRef90-X0XVF7 | A VP P 1 L |
| UniRef90_S6HZ21 | PFGEHSLALLQ A |
| UniRef90-L1LV63 | KFASAVETKIS A |
| UniRef90_B9K2X8 | Q\|V|E P E |

UniRef90 C2FSK0 UniRef90-C5C737 UniRef90-O39LC5 UniRef90_UPI000377E291 UniRef90 W8RQC5 UniRef90-UPI0003B68DB8 UniRef90-G8PUD3 UniRef90 Q49ZS5 UniRef90 Q2SNY1 UniRef90-Q3ASY1 UniRef90_S8CX68 UniRef90 G5IKV9 UniRef90-Q39663 UniRef90-G8TMC9 UniRef90-D8TJT0 UniRef90- UPIO004654173 UniRef90-M1IRZ3 UniRef90_UPI00037F7A85 UniRef90 F7Y8V8 UniRef90-M3BXT1 UniRef90-хоMYR6 UniRef90-E8TG54 UniRef90 Q5TVT5 UniRef90- $7714 \mathrm{G1}$ UniRef90-UPIOOO3639653 UniRef90 KoCLV4 UniRef90-UPI0001E89FE9 UniRef90-D3Q324 UniRet90_NoVFK9 UniRef90 C7LNE8 UniRef90-J2WWJo UniRef90_UPIO00466D476 UniRef90-UPI00016C3FED UniRef90-K8NKK0 UniRef90-F2U5B7 UniRef90 Q1QEU1 UniRef90 W1K3A6 UniRef90-R9CNE6 UniRef90-UPIO003F92046 UniRef90 L8JVU3 UniRef90 E1QP66 UniRef90-E9C4S4 UniRet90_U2FM78 UniRef90 A9H7X7 UniRef90-A8H5H3
UniRef90-D8JPX3
UniRef90 H6RBH8
UniRef90- K2PTL2 UniRef90-A0Ао34тTM5 UniRef90-B4NQ83 UniRef90 R4WGDO UniRef90-W1N618 UniRef90-W6QWZO UniRef90 FORPG5

VLPNDTNTFNNLLMGGR|LLYWMDDCSA
FRTRKWVKPEDLNANNTLFGGSLLRWVDE
HEGQVRAEWIDYNGHMNDACYVRVFSESDDRWDD
FHTRKWVKPEDLNANGTLFGGSLLRWVDE
S Y RTAVPAEWVDYNDHLRDAFYLLIFSYATDALMD
FHTRKWVKPEDLNANGTLFGGSLLRWIDE
FSDAAAHVWER MKNPFTVIQQVNEDMDDHNGHMHDAHYNMVFSDA $\square$ NQFNY MQTTMETYKLVLPDTNSNDIYAGWLMSQMDLAAASMAG MQTTMETYKLVLPEHLNHYGFLFGGNLLKWDDEV

VLPNDTNMF GNLMGGRDMYWMD $\square A A A$
KRAFREEHRIVRGYEVSPDQRATMVTMANLLDEVAGNHRT MSDVIRYPRQTMPADTNQNGD $\quad$ FGGW $\square$ MSQMDLA

PADANPNGDVFGGWDMSQMDAAGAMMAY MGGESRLAFRC【PTDDDFNVHLNNARYMMLADLGRपDLFV SDTNLLGTVHGGVIMKLVDDV
VREDWIDYNGHLSEAYYVLVFGFATDALMD TPFVSKPMDIEKDWIDYNGHLNMAYYNVLFDRCSDDAFE $M \square K \square Y K E D F T V R S Y Q T D L N A R M K P S A \square L E V M Q E A A G Q H S E$ TRMRVLPQDLDFMRIVNSGAYLQIMNVAGYRHMG

> PQDTNDMGTVHGGVILK LID S V
> PSDVNFGGKVHGGMVMKWIDQA GYAC
> VFEQTRK $\square$ QLYHTDATGRITGSALCRFAQESAGGHAE PADTNPHGDI F GGWLMS LMDSA
> VFPDHTNHLGTLFGGQALA WMDMA
> $\square Q V P M M P K D T N R H G T I F G G V L L S Y \square D L A G A D T A Q$
> PSDTNPAGDIFGGWLVM WQMDL

SETHVFKV VFPK $\square T$ NHHNTMFGGTVMEMMDEV
FHTRKWVKPECDGLGHLNMRHYMTKVMQARQMFF
VLP SHADTRGVCFGGQDLSWDD
PAWDDHNGHVNGPFYTVMFDCAVTDVMM
ERQLT LRFADVNFGGKVHGGAVMKWDDLAGGYAC
$\square$ NRAFHEHWPVR $\square$ GDTDGQER $\square R \square D A V A R Y \square Q$
RLAFRCLPSDVDTNDHLNNARYMMLADLGRDDGGY
PSDVNFGGKVHGGAVMKWIDDLAAYACSA
MFTKKFAVDEKHVDFQGVVDGLYYPFYMEWTRHAYMK
$\square Q \square T A D P R E T N G F G D \square Y G G W L V S Q M D D A G T A M A Q$
T S $\square$ T
TRMTQVVFPGTTNHHGTLFGGEVLSMMDSAAF DAAT HDTNLYGDISGGWLMHRMDEACE $D V N F G G K V H G G I V M K W M D Q A$
VMP HDSNADGRLHGGVLMEWMVSA QDTNLYGDIPGGWLVSHMDQAAE
QPEHSNSLGNVHGGVILK LCDEC
MVTKYAEKVK DYNHYTNYKGRLFVKTLCDLFNDAAEVQTE
EVTDRFGDVNFGGKVHGGAVMKWIDLA A MAS
 MKALWTEQFTVRTWDVDRNNRLSPSSLVNYFQEVAGNHAT EESNLVGNI YYSNYFIWQGRILDLFLY
 NFSGNVHGGTI LKLLDQVAYACAS DVNFGGNVHGGDVMKWIDQAAYACAA
MGLTYQMKMKDPFDMADMNGHI KDVVLLSLQVSGMQSDEL
$\square R \square M A R P S D V N D A G D I F G G W L M S Q C D D A$
VFPNTTNHYDTLFGGKAMQWMDEV
APPHRRAFRVRYHDLDLNDHVNNVRYAEWA
MSVFFEHE $\square R L N G L D V D G R D Q C K A S A M L N H L Q N A A T L A A E$ I MPNDTNPDHNLMGGNLMRWMDVA
HRDTVRAEWVDYNGHLRDAFYLLIFSFATDALLD
PADANPAGDIFGGWLMAQMDLA
$R V Y Q Q A L R V T H G D V T P L G R S R G D A L I S S W L Q Q A$
Y DK EFNI RYSDIDSNNHVNNVKYVE WADEAV
HETSELIMPHDAN ILGHAFGGA $\square$ MAMVDKAAA

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UniRef90 C2FSKO
UniRef90-C5C737
UniRef90-Q39LC5
UniRef90-UPIO00377E291
UniRef90 W8RQC5
UniRet90-UPIO003B68DB8
UniRef90-G8PUD3
UniRef90-Q49ZS5
UniRef90-Q2SNY1
UniRef90-Q3ASY1
UniRef90-S8CX68
UniRef90-Q39663
UniRef90-G8TMC9
UniRef90-D8TJT0
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UniRef90-M11RZ3
UniRef90_UPIOO037F7A85
UniRef90-F7Y8V8
UniRef90-M3BXT1
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UniRef90 R4WGDO
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UniRef90-K6Y366
UniRef90-EGNB98
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UniRef90-10SML3
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UniRef90-HOE2JO
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50
MAAQKHANSPVVITVSIVIDNVISFKRS\|KLLGEVLTIJEAQV EAADYATLQLGNPRCVTKLEINF DASAKQGDMLEMGLRA S S RIGADA VQLIGNQKVVTKSEINFVSSARQGD\|IELGTTA EAADYAIDQLGNYRVVTKLELNFEASALQGDLIGMGLT

$R$ $\qquad$


FGRTPEMCTRDLIWVLTKMQIVVNRYPTWGDTVE: NSWF
DEGFANLPSMKNVLFVMTRLQVRMFQYPKWGDIVDIQTYF GGMLATEDARGRIATVAVEGMTFHKPVKVGDAVCVHGEC EPGTVVTVAVNRMSFYTPVRLGDIVEVRGGI
EMC $R G K V V T V A V D E V V R N P V K V G D V V C V Y A R C$
RAGLTRLARKNGWA MMMGGLQAMYRERLWRRFEVVSS AGAVAGRHSGGPAVTASMDEMAFREPVRVGDLVHVQAQC ACGLDAAYRERGCSLYTVEAHVRYLDEVPRGSQLAVRTTV LTG YGGKПKAKRGGAVQGASSVRYRRTIPIFTAYKITTKL RLGLRSALLAKNTAWVLTRVEVDMDRYPAFEETFSVETFP RAGGLRLAAEQSWMGVVAASTLRYRRSRRLWDRFEDTSRV
 AAGW SGGYAVTVYVGGIRFIRPI
RLGLMK QLAA ANTAWVLREQAMHVSRYPELGEMVRISTWP AGSVAARYSHGRAVTVAVEGMTFHRPVIVGDEVSVFATL
 AAGSLATRLARGRCATVAVDAMEFDSPVFVGDEVSFFASL HNGVFDALKKLGGFMVLGACTTRFRRSVEPFQAYDLTSQV
RSGLGTQLLRQRWGLVVAGSTGQYKRURAFEKVTMKTKI

VGI PMVDTRAKFYIPS
AFMTATRFSRKRIVTVSSDKПDFKKPDPSGTLVELDGRI
 FYAP\|RVGDIVTVRAGT TAG AAKK RYGLGEPYTARGDGSFFVENHVRYLRELRAGDSVLVNVRL


[^1]

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| :---: | :---: |
| UniRef90_C2FSK0 | TRAFNTS |
| UniRef90_C5C737 | TEFGRTSLTMRAKVRNIVTGEMILTIKIIVFVSLGEDGKPV |
| (eal | TEFGRTSTTLTCEVRNKITRKILTTDKAVEVNLGEDGQPK |
| UniRef90-W8RQC5 | LAYDRKRLHVHLGGYRPDEEQLLAASEQMLMNIDRRGR |
| UniRef90-UP10003868DB8 | THFGRTSLTMRAVVRNMITRK |
| G81 | TSVQENTFTDRHHLFEARTKRLAAVCDQVSISMDLNSRTV |
| UniRet90-Q49Z | YDYNEKSVHFFSIMTNEHGSKVATNEALMLGINRATNKTA |
| UniRet90_O2SNY1 | + |
| Q3AS |  |
| S8 |  |
| Ref90_G5IKV9 |  |
|  | SQSGKLGMGREWLISDCNTGEILVRATSAWAMMNKTRRFS |
| UniRef90 G8TMC9 | SRAFNTSMEITFMSVWGEDALLHYNEAYFTFVALDPNGKPR |
| UniRef90-D8TJT0 | TEEGRLA |
| UniRef90 UPIOOO4654173 | R ${ }^{\text {GNTSMTHHLEVWIKPERYCVTEGVFTYVAIDDAGQSR }}$ |
| UniRet90-M1RZ3 | YVGNTS |
| Ref90_UP100037F7 | S |
| F7 |  |
| M3B |  |
| UniRef90-X0MYR66 | LGAAAKKLRVVHEMYRCDSGAPVATEELFLLHVDRQGSAV |
| UniRef90 Q5TVT5 | 㑑 |
| UniRef90-R714G1 | MPVRRCFFPRYF IFRDSNGUE\GRAATLWVLLDLGTRSM |
| UniRet90_UPIOOO36 |  |
| UniRe990_K0CLV4 |  |
| UniRef90_uploon | NSSMEVFVKVTAEGTRTIAATAFLTFVALDE |
| UniRef90-D3Q324 | AGRTSMEVAVTVADRWNETVATAHLVMVAVDDNG |
| UniRef90-C7LNE8 | ERILCHRD |
| UniRef90-J2WWJo | DRSYRVTQA |
| UniRef90_UP100046 |  |
| UPI | GRTSMTVHVEVFRGAD |
| UniRef90- F2 |  |
| UniRef90 Q1QEU1 | a |
| UniRef90-W1 K3A6 | RSSFEV |
| UniRef90-R9CNE | KHVGNTSVKVHVDIYTEEGRDLAVSGEFTLVSVDENGKPV |
| UniRe990 UPIOOO3F | LIGEETARLCHMMYHGDGRLAATVVEVEHMSLRTMQAF |
| - |  |
|  |  |
| UniRef90-E9C4S4 |  |
|  | A |
| UniRef90-A8H5Н3 | GRTSMHLGVDVKAGDDRHLTTHCVLVMVAVDDDGQP |
| UniRef90-D8JPX3 | VGGRSSMTVKVEVVAEADRKLAMRGSFEMVAVDEHGRPQ |
|  | SALSNRWCNMRIQVSSENGGQIETEMFLITVVIEEAGRPA |
|  |  |
| UniRef90 A0A034TT | I YTGRSSMHIATDVQASDKNRLTTHCIVIMVAVDENGKPT |
| UniRef90-B4NC | S DKFVHCDAICRQRVI DVSMETV |
| UniRet90 R4WGDO | NVNFVQQ LV DGVVFAEATFVA |
| W1N618 | GHS |
| Ref90_W6QWZ0 |  |
| UniRef90-ORPG5 |  |
|  |  |
|  | GHS SMEVGVSAYAVGEPMLTTTSHMVFVAVDRTGSPR |
| UniRef90-W7PZ88 | REIGHSSVKIDVEVWSRDGDELVTEARFVMVALDDKGRDR |
| UniRef90 101818 | T WVGRTS |
| UniRef90-C8X752 | MRTGRSSMDVHVTVSSADQDAVYTEATTVFVAVDAQGRST |
| 55 | SSMHIA |
| UniRet90-Q2 | $V G W D D K F Y L E Q S U W I G E D$ CACQALYRSAITDKNGRPR |
| UniRef90-F7C | YVAIDDHGQPQ |
|  |  |
| UniRef90-UP10002D4E1C3 |  |
|  | DAKKLRVFFSMR GESGDALAAMETLLLHMDAAKRAA |
| UniRef90 UPIO004 | LKGV FGLRNFFMDTKDGERLAVANSIWTLFDFENQPA |
| UniRef90-N9L UniRef90-K0 | S |
| UniRef90-10SML3 | v |
| UniRef90-F5SW53 | STTVKVTVRRDGKNETVAEADTVYVHIDENRQPA |
| UniRef90-S7V911 | VRVGNTSLKVSVEIFTEQGREKAISGTFTFVAlDKDKKPV |
| Ref90 UPI0003B4EE4E |  |
| Ref90-V2Y | RGGRGAIMYRDYDILANGQPVGEAVSGWVLASVDSHKRLS |
| UniRef90- H6L1B1 |  |
| - | LA HDAKRLHLYLEMFAAGDDGAVSASEQMLLHVDTGGKAA |
|  |  |
|  | SGASGLSAEWRTAIRGEHG AAVEAATLWVSVDPETRPR |
|  |  |
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lupas_21 21
lupas_14
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jnet
cotf
sol25
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| UniRef90 C2FSK0 | $\mathrm{P} \\| \mathrm{PE}$－ 130 |
| :---: | :---: |
| UniRef90－C5C737 |  |
| UniRef90－Q39LC5 | AFREQT L A R LD A |
| UniRef90＿UPI000377E291 |  |
| UniRef90－W8RQC5 | P F DEAVLA QVQ |
| UniRef90－UPI0003B68DB8 |  |
| UniRef90＿G8PUD3 | PLT E D F R T A L V ${ }^{\text {a }}$ |
| UniRef90＿Q49ZS5 | PFPEQFAQA |
| UniRef90＿Q2SNY1 | AVP A |
| UniRef90＿Q3ASY1 | EL |
| UniRef90－S8CX68 | K I P D E $\square$ H H R L |
| UniRef90＿G5IKV9 | RVREE |
| UniRef90＿Q39663 | KLPCEVRQE】 |
| UniRef90－G8TMC9 | K V P |
| UniRef90－D8TJT0 | KLP D N L R K Q F L |
| UniRef90－UPI0004654173 | V V P K |
| UniRef90－M1IRZ3 | $\mathrm{R} V \mathrm{P}$ |
| UniRef90－UPI00037F7A85 | PL P E Y LTE |
| UniRef90＿F7Y8V8 | DI DEVVTAL |
| UniRef90－M3BXT1 | PVPPVL |
| UniRef90－X0MYR6 | PFPDATRDQLAA |
| UniRef90－E8TG54 | P F P A D L A R V E |
| UniRef90＿Q5TVT5 | PMPEELKLWLDS |
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| UniRef90＿K0CLV4 | A V P |
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| UniRef90－D3Q324 |  |
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| UniRef90－C7LNE8 |  |
| UniRef90－J2WWJ0 | S VP P |
| UniRef90＿UPI000466D476 |  |
| UniRef90－UPI00016C3FED | EL |
| UniRef90－K8NKK0 | P L |
| UniRef90－F2U5B7 |  |
| UniRef90＿Q1QEU1 |  |
| UniRef90－W1K3A6 | P F P A E MVA K F T G |
| UniRef90－R9CNE6 | S 1 |
| UniRef90－UPI0003F92046 | P WP K R F E A A $\square$ |
| UniRef90＿L8JVU3 |  |
| UniRef90－E1QP66 | P V P E Y V |
| UniRef90－E9C4S4 | P V |
| UniRef90－U2FM78 | P MP A CVM R R V E A |
| UniRef90＿A9H7X7 | P L P P E |
| UniRef90－A8H5H3 | EVPDW |
| UniRef90＿D8JPX3 |  |
| UniRef90＿H6RBH8 | RMT D R F M A P ML $\backslash$ A |
| UniRef90－K2PTL2 | P I D EVMS L L |
| UniRef90－A0A034TTM5 | D V P K WV |
| UniRef90＿B4NQ83 |  |
| UniRef90－R4WGD0 | S VPPEVVQNA】 |
| UniRef90－W1N618 | A V |
| UniRef90－W6QWZ0 | $\mathrm{P} V \mathrm{P}$ P |
| UniRef90－FORPG5 | LVPP LRER |
| UniRef90－UPI00046944D7 | A V P A A |
| UniRef90－K6Y366 | E V P |
| UniRef90－E6NB98 | P L P T K $\square \mathrm{K}$ |
| UniRef90－W7PZ88 | A V |
| UniRef90－101818 | PVPPLLLE |
| UniRef90＿F9ZBU7 | RLP ENVIA |
| UniRef90－C8X752 | A V P A W |
| UniRef90－B5FDQ0 | S V P E WI |
| UniRef90＿Q2PYD3 | QLFDHI |
| UniRef90－F7QJE9 | P I R Q E |
| UniRef90－F8F2E5 | PLPQSLTENL |
| UniRef90＿UPI0002D4E1C3 | P WP Q SLLN AL |
| UniRef90＿UPI00036D9D3E | PLP D |
| UniRef90－UPI00047AB199 | RI T P EMVEA |
| UniRef90－N9DTD6 | P 1 P E |
| UniRef90－K0CM62 | NVP A Y V |
| UniRef90＿10SML3 |  |
| UniRef90＿F5SW53 | A 1 T Q E |
| UniRef90＿S7V911 | KI |
| UniRef90＿UPI0003B4EE4E |  |
| UniRef90－V2YAV1 | A 1 P E |
| UniRef90－H6L1B1 | EVP QVL |
| UniRef90－K7QBB6 | PFDA DVAER】 |
| UniRef90－C4ZKZ4 | VID P |
| UniRef90－H0E2J0 | P NPDEMRAVF |
| UniRef90－K6U817 |  |
| UniRef90＿UPI00047E9DC1 | P $\square$ |
| lupas＿21 |  |
| lupas＿14 |  |
| lupas＿28 |  |
| jnet | － |
| conf | 663788887439 |
| sol25 | B B B B B |
| sol5 |  |


|  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| jhmm |  |  |  |  |
| jpssm | 1 | 10 | 20 | 30 |


|  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- |
| $j h m m$ |  |  |  |  |
| jpssm | - | 50 | 60 | 70 |


| $\substack{\mathrm{jhmm} \\ \mathrm{jpssm}}$ | 90 | 100 |
| :--- | :--- | :--- |
| 120 |  |  |


| jhmm |  |
| :--- | :---: |
| jpssm | - |


[^0]:    

[^1]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol

