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 Y H A R I Y V T L R P S V L D P A G T A V A S GLLK QL G Y Q GVVEDVRI K F N S K V Y Y V T L R P S V L D P A G T A V E S GL H QL G Y E G V E N I R I $M \square K A R V T V T L K N G V L D P Q G K A I E G A L G S L G F D G V G Q V R Q$

 K A R I K V T L K P GV L D P Q G K A I Q N A L G A L G F D GVVNDVR Q $R$ VK T R V F V T L K P S V FD P Q G K T I V D A L R S M G Y T G V Q DV R Q Y H CRI YV T L R P SVLDP A GVAV Q S GL H QL GYEGVEKVRI

 K Y K A KI F V T L R P S V L D P A G T A V V S GL T Q L G Y S N V E S CR I K A NVVHVTLK R GVLDP Q G K A I I G H A L Q S L G F D GVVD DVR Q
$M \square K A R V T V T L K N G V L D P Q G K A I V E A L A S L G F Q G V G H V R Q$ MFKATVFVTLKRESVLDPQGNAVHESLHSLGYDEVGDVRI K Y H A RI Y V T L R P S V L D P A G TAAVQ S G L A H M G Y T D V E S V R I
 KARVIVTLK N GVLDDPQ GKA I E GAL G GLGFD GI G S V R Q $K A K V H V T L K P G V L D P Q G K A V S H A L D A L G F T G V E D V R Q$
 Y R A R V Y V T L R P S V L D P A G A A V E S G L H GLLGY D S V


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MF K VK V V Y T L K E S V L D P Q G A A V K N S L H S M S Y K D V T N V R K A R I H V F L K D GVLLD P Q GEAI S G S L K H L G F E GVVGSVR Q
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 M Y Y K A T I R V T L R P S V L D P A GV A V R S G L Q Q L G Y T GVV N V R I

 K A RVVHVTLK N GVLDP Q GKAI E K T L G N L G F S GVVGDVR Q
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 AARVVVDVMLKPE L DPQGQAVQRALPRLGYEGITEVR $M Y K V K V F I T L R E S V L D P Q G K A V Q N S L H S M D Y S Q V E D V R I$
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 GKY $\square E L T M T A E D Q T Q A E T Q L D E M C D R L$ GKYMELELNTPDRAQAEERVREMCEKL GKY




GK Y $\begin{array}{lllllllllllll}G & Y & M & E & K & E & V & D & D & Q & N & K & A \\ G & Q & E & Q & D & D & Q & M & C & K & K \\ L & L & L & L & L & G & S & D & A & S & A & A & K \\ A & K & L & E & Q & M & C & E & K & L\end{array}$


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G GKFíLLELSETDRAKAEASVDAMCRGL



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GKY GKFMVLTLNSPTKEQAAAQVDEMCKRL






 GK YLLE I M L N L D D R E E A G R DV E E M CRR L | $G K$ | $Q$ | $A$ | $V$ | $W$ | $D$ | $A$ | $A$ | $S$ | $E$ | $A$ | $E$ | $A$ | $R$ | $E$ | $V$ | $A$ | $T$ | $E$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | A C C


 GKYMEVDL EAE S V VDVARERVKHMCDKL GKVF DI ELD DQPAEAAEQKLHQMCQEL








G GKYME
GKYMELTL
GKY DELTLLT GKYIEI ALDATDESTANEQLHRACDEL GKV F DV EMA GA D P A S A R A QL T A A C E K L

GKYL
GRVI F ELA A FTDPERARQTAEDMAR K

 GKVLT T TVVGE KETVEARVKEMCDKL

GKVFDI AVEHDDKAKAEAD G K L F E L L DV A D D T T S D D A A G K V F D L GK FLLE L L E K GNY D LD A KI K E MCEK L GKYMEVII GEDSRAEAEKVA I E ICCRKL N R V VE L DV PATEKAEADQQGEAMARAL
 GKVFDVELDDGNDPAKAEATLLKDACEKL



 GKY LELDLQ TKNRTEAEDRVKAMCEKL
 GKVI ELDLQGSTAEDARKTAEDMAKNL
 GK YMELTVKESD QD IVDVVREMCEK L
 GKAD A


 GK F L E V Q L D A R D S N H A R E L L L D E M C S K L

 GKY Yi E V VI K E S D A QV A C K K VV K E M C D K L GKVI D L D L A E S DP E R A R A EVVA A MCEA L
 GKQ $T$ L L E




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$|A N T| V||E N Y A| I| E$
L A N P V I E N Y R F E

| $L$ | $A$ | $N$ | $V$ | $V$ | $E$ | $N$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| L | C F E |  |  |  |  |  |

LA NPVI ENYRFE
LA NTVI E S Y R V E

| $L$ | $A$ | $N$ | $P$ | $V$ | $E$ | $E$ | $Y$ | $H$ | $F$ | $R$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $L$ | $A$ | $N$ | $V$ |  | $E$ | $N$ | $Y$ | $R$ | $F$ | $E$ |

LA A TVI E N Y A V E

LA A T V V I E N Y A I Q
LA N P V TAENAE

| $L$ | $C$ | $N$ | $P$ | $V$ | $M$ | $E$ | $T$ | $Y$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $L$ | $Y$ | $Q$ |  |  |  |  |  |  |
| $A$ | $N$ | $P$ | $V$ | $M$ | $E$ | $T$ | $F$ | $Q$ |

LA N P V I E N N Y R Y E

LANTVI ENYTI E
$L$
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$L$
LA N P V I I E D Y R FEE

| UniRef90_A7HWB3 | L D E |
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| UniRef90-B4W0W7 | L D E VQ |
| UniRef90-G6CDE2 | 1 Q |
| UniRef90-D3L178 | L |
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| UniRef90-Q38XW9 | V Q |
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| UniRef90_UPI0002F685BD |  |
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| UniRef90-B8HQD6 | L Q EV |
| UniRef90_UPIO003702480 | L |
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| UniRef90_UPI0003B700C9 | V E E |
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UniRef90_UP10003B77CE1 UniRef90_UPIO003B488B4 UniRef90_UPIO00249020A UniRef90 K9SWL4
UniRef90-K21R62 UniRef90-A3JP96 UniRef90-B0T5ZO UniRef90_UPI0003B64031 UniRef90-A2C1L6 UniRef90-UPIO002191853
$K$ A RIV $\bar{L} V|M| L|K S G| V L D P Q G D A|V| Q H A|L| G A|L| G F N G|V| E Q|V| R Q$ KAVVNI ALRNGVLDPAGKAVEHALNSLGFNNASNVRD KVIVNI QLKNGVLDPQGKAVHHALSSLKFDEVGDVRI MRKVTVFI TLK KGVLDPQGKAI QESLNSLGYKEI QEARV MKTVKIFVTLKQGVLDPQGKAVQESLHKLGFPEVKGARV KARVFVTLKPGVLDPQGKAIHHALTGLGFEGVDDVRA MYKVKVYVTLRESVLDPQGVAVKDALHTMNYAEVADVRI KAKVYVTLKKSI ADPQGTAI QGALKKIGYPNI E EVVRI
 $M T R V V V D V M L K P E I L D P Q G Q A V L T A L P R L G V A G I S G V R Q$
FEVEVKVWLKPSVFDPQGHAVHGALVSLGFQGAGEVRI) MYKAKI YVNYKPSVLDPKAEAIKTALTRMDHQNVQDVLY $M K K V T V Y I T L K P G V L D P Q G K A I Q E S L Q S L G Y Q E V E D A R V$ MYNVKVFVTLKKSVLDPQGTAVMGSLKSLNYGEVEDVRI KAIVHVGLKPGVLDPQGKAVADTLGRMGYDEVQGARI
 MYKVKVYVTLRENVLDPQGNAVKGALHSLNYREVQDVRI MYKAKVFVTLRESVLDPQGTAVEQSLHHLGYKEASEVR1

 MF K V K V F F V T L R E S V L
 K A R I Y V T L K E GV L D P Q G Q A I E G A LAA A L G F A G I G S V R Q K A Y V Y V S L K K S V L D P Q G K T I H G A L N K M G Y K G L A D V R Q


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



 RWRAEVEI SLLRPGVNDPQGLAVRDGLRRLGYTEVEDVRV MFKAKVII KRRPSILDPQGKAVEKGAQHLGETNI RNTRII
 AKI HI TFK $\square$ GVLDP Q G K A V H H A L K DL G Y N EVVSEI QM
 $M K N V K V H I T T L K S ~ G V L D P Q G K A I Q Q E L H A D G Y Q E I E E A R V$ RYQARVEVGQLRPSVLDPAGEATRSAAARLGVEGLQS LRI MKFKAQVYVTLRPSVLDPAGTAVQSAMKQMDYHVVEVRI
 MWKAE K KVLK Q SVLDPQGQAVEKA GSLGYGNVEDVRD MA Y T A K I K V T L R Q S I L D V Q G K A V E H A L L N L G Y G S V G S A R I $K A R V H V M L K N G V L D P Q G E A V R H A L G A M G F D G V Q G V R Q$ M Y K V K V F V T L R E SV L D P Q G T A V K N S L H S L S Y $\square E V E E V R \square$ MARVVVDVMLKPEILDPQGQAIARKLPQMGYDGVVAVRQ M Y K V K V $V$ F I T L R E NV L D P Q G T A V
 $K A V V N I Y L K E G V L D P Q G K A V H H A L Q Q L G F R N V E D V R V$ MAK I V V DVVMLKPEILDPQGKAVAAALPRLGFTFAKDVRQ
 $K V N V Y V T L K P G V L D P Q G K A I H H A L E G L G F T G V A D V R A$ MK KVKVYV T L R E SVLLDPQGSAVMGSLHNMGYEEVQDVR】
 $V D V M P K P E, L D P Q Q Q A M Q K A L G R M G F E T V S G V R Q$
 $M G T V V V D V M L K P E I L D P Q G Q A V A G A L P R L G F A Q F N D V R Q$ K A RVTVVMLKDGVLDPQGEAVKHALKSLEYNSVESVRQ K A R I IV T L K S S V L D P Q G K A I A S A L N S L N F E NVVQ SV R Q M K K V H V Y V T L K E G V L D P Q G S A V A R S L H A L G Y D E V Q E V S V ME F $\quad$ A H I H V M P H K E I L D P Q G K A V K L G L Q N L G $\quad$ G Q V S D V R R F R C A
$K V A V N V H L K K G V L D P Q G K A V L D A L E T L G F K N V E D V R V$


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

 MK F T A K I F V T LLR H S V L D P A G T A V K S A L E QM H Q E V E S V R I K A R I D V M L K T G V L D P Q G A A V Q H A L G A L G F E G V N E V R Q


 MA HVVV EVVMPKPEIL D P Q GKAVA GALDPRLGFTGFTGVRQ



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|ANTVI |ESYTV


| L |
| :--- |
| $\mathrm{A} N$ |
| L |
| $\mathrm{~A} N \mathrm{P}$ |
| L |
| L |
| V |
| V |

LANTVI ENORAFD

L A NPVIE YVVR
LANPVMETYAFE
LANVNMETYRFD
LANPVIENYQFD

LA NTV:
$L$
$L$
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$L$
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$L$

$A N P V$
$A N V V D$
$A N D V$

LANPVIEDFSLR

ANVNMETYRYE
LA A N PVIE N WT L E E
LA NVVVIE DYRFE

$\begin{array}{lllllll}\mathrm{L} & \mathrm{A} & \mathrm{N} P & \mathrm{~V} & \mathrm{E} & \mathrm{D} & Y \\ \mathrm{~S} & \mathrm{R} & \mathrm{V} & \mathrm{V} & \mathrm{E} \\ \mathrm{E} & \mathrm{D} & \mathrm{Y} & \mathrm{A} & \mathrm{V} & \mathrm{R}\end{array}$
L A L L V I E D F TVVE

GKYMELEVENNTKNVEQRIEEMCEKL $\stackrel{L}{L} \begin{aligned} & L \\ & L \\ & L \\ & L \\ & L\end{aligned}$
$=L$ S N P V I E DY T Y T GKVIELQV $G K A V L S L E A P D A K Q A E A Q V G V L C D R L$
$G K Y V E V V L E A E N E D Q A K E Q L D Q V C D R L$ GRLIEEDVADTVTDEARONLGEMCEKL AKKFTVDLDAESFDDARQNVDEMCQKL
GKY
 GKFLELT AKSDRDLDVLVKEMCERL
 GKQUVLQUSGTSEEEAKKEVVEQMCEKL GKLEEDVADDTETADADVDAMCRQL GKFLELQLADDAERDVGTAVKEMCEKL GKLLEELDRDGVSD



## 



GRH VLETRAADPEGAGRAAREMCERL
GKYLLFSVDTDSPEKALEXVKTMCEKL R
 GKYFEMD K DDGRSAEDEVEKMCDEL GKVIEDVDADGTSEES GKVTELDAETDKAKAEASVAQMCDKL GKRFELEI DGPATDEALASARKVAEEV GKSDELEEAANKEEARSK VELCSDRL


[^0] \begin{tabular}{llllllllll}
$L$ \& $L$ \& $N$ \& $P$ \& $V$ \& $I$ \& $E$ \& $D$ \& $Y$ \& $R$ <br>
$L$ \& $F$ \& $E$ <br>
$A$ \& $N$ \& $P$ \& $V$ \& $T$ \& $E$ \& $N$ \& $W$ \& $S$ \& $I$ <br>
\hline

 LA N P V I E N Y C FE LA N T V I E N Y R IIE I A N P I I H N Y T I D $\begin{array}{llllllllll}L & N & T & V & E & D & Y & T & F & E \\ L & N & P & V & M & E & N & Y & S & F \\ E\end{array}$ L A N T V I E S Y T V E LA N T V I E D F R Y E LA N P V I E N Y E V H $\begin{array}{llllllll}L & A & N & T & V & E & D & Y \\ R & Y & E \\ A & N & T & V & I & E & S & Y \\ R & I & E\end{array}$ 

$L$ \& $N$ \& $T$ \& $V$ \& $I$ \& $E$ \& $D$ \& $Y$ \& $D$ <br>
$L$ \& $S$ \& $N$ \& $P$ \& $V$ \& $I$ \& $E$ \& $N$ \& $F$ <br>
\hline

 

$L$ \& $A$ \& $N$ \& $T$ \& $V$ \& $I$ \& $E$ \& $N$ \& $Y$ <br>
$R$ \& $I$ \& $E$ <br>
$A$ \& $N$ \& $T$ \& $V$ \& $I$ \& $E$ \& $N$ \& $Y$ \& $R$

 

$L$ \& $A$ \& $N$ \& $T$ \& $V$ \& $I$ \& $E$ \& $D$ \& $Y$ \& $R$ <br>
$L$ \& $Y$ \& $E$ <br>
$L$ \& $N$ \& $T$ \& $V$ \& $I$ \& $E$ \& $N$ \& $F$ \& $R$ \& $I$ <br>
$L$

 

$L$ \& $S$ \& $N$ \& $P$ \& $V$ \& $I$ \& $E$ \& $D$ \& $F$ \& $T$ <br>
$L$ \& $V$ \& $A$ <br>
$L$ \& $N$ \& $T$ \& $V$ \& $I$ \& $E$ \& $E$ \& $Y$ \& $T$ \& $V$ <br>
$R$

 

$L$ \& $S$ \& $N$ \& $T$ \& $V$ \& $I$ \& $E$ \& $D$ \& $Y$ \& $V$ <br>
$L$ \& $D$ \& $D$ <br>
$S$ \& $N$ \& $P$ \& $V$ \& $I$ \& $E$ \& $D$ \& $V$ \& \& $V$ <br>
$A$ \& $S$ <br>
$L$ \& $N$ \& $T$ \& $V$ \& $E$ \& $S$ \& $Y$ \& $E$ \& $I$ \& $E$

 

$L$ \& $A$ \& $N$ \& $T$ \& $V$ \& $I$ \& $E$ \& $S$ \& $Y$ \& $E$ <br>
$L$ \& $I$ \& $E$ <br>
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$L$ \& $E$

 

$L$ \& $C$ \& $N$ \& $P$ \& $V$ \& $I$ \& $E$ \& $D$ \& $Y$ \& $S$ \& $F$ <br>
$L$ \& $S$ <br>
$A$ \& $N$ \& $M$ \& $I$ \& $M$ \& $E$ \& $S$ \& $Y$ \& $S$ \& $F$ \& $E$

 

$L$ \& $N$ \& $M$ \& $I$ \& $M$ \& $E$ \& $S$ \& $Y$ \& $S$ \& $F$ \& $E$ <br>
$L$ \& $N$ \& $P$ \& $V$ \& $T$ \& $E$ \& $D$ \& $F$ \& $E$ \& $l$ \& <br>
$L$ \& $A$ \& $N$ \& $P$ \& $V$ \& $I$ \& $E$ \& $N$ \& $Y$ \& $K$ \& $I$ <br>
$L$ \& $E$

 $\begin{array}{lllll}L A & N & P & T & E \\ L & \text { Y R F E } \\ L & \text { V S LI } & \text { E D F S I T }\end{array}$ 

$L$ \& $A$ \& $N$ \& $T$ \& $V$ \& $I$ \& $E$ \& $S$ \& $Y$ \& $R$ \& $I$ <br>
$A$ \& $E$ <br>
$A$ \& $N$ \& $P$ \& $V$ \& $T$ \& $E$ \& $D$ \& $F$ \& $E$ \& $I$ \& $E$
\end{tabular}

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$I$ \& $A$ \& $N$ \& $P$ \& $l$ \& $I$ \& $H$ \& $D$ \& $Y$ \& $S$ \& $I$ \& $D$ <br>
$L$ \& $S$ \& $N$ \& $P$ \& $V$ \& $:$ \& $E$ \& $D$ \& $Y$ \& $T$ \& $Y$ \& $T$ <br>
$L$ \& $A$ \& $N$ \& $P$ \& $I$ \& $E$ \& $E$ \& $X$ \& $S$ \& $F$ \& $D$

 

A \& $N$ \& $P$ \& E \& E \& X S F \& $D$ <br>
$A$ \& $N$ \& $V$ \& $N$ \& $M$ \& $E$ \& $T$ \& $R$ \& $Y$ <br>
\hline
\end{tabular} LA N P $\operatorname{L}$ V I E T Y T F E $\begin{array}{lllllllll}L & A & N & T & V & I & E & S & Y \\ R & R & T \\ A & N & T & V & E & N & Y & D & I\end{array}$ LAA N A V LA N A V I E S Y TVVS

L S N P V I E DV
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## A

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L A NTVVENYRVE
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UniRef90-F4FR23 UniRef90-A6WFE4 UniRef90_UPIOOO3689C81 UniRef90_UPIO00478982C UniRef90-B8D0M4 UniRef90-UPIO0046E8E06 UniRef90-UPIOO04696112 UniRef90-C2CZC2 UniRef90-UPIOOOO1850A28 UniRef90-W5X495 UniRef90-I4BPJo UniRef9O UPIO003B5C15B UniRef90-A0A059G3T0 UniRef90_B1MHX2 UniRef90-Q8TX84 UniRef90-B8GGS4 UniRef90-Q7M9X6 UniRef90-Q7VC89 UniRef90_U6B4Z5 UniRef90-SOKHVO UniRef90-R3TQD8 UniRef90-UPI000427F9D4 UniRef90 UPIO003B3680E UniRef90-F1T6R1 UniRef90-Q12YM9 UniRef90-F214H9 UniRef90-A0A031HUQ9 UniRef90-A8LXM6 UniRef90-XOVFP2 UniRef90_S3Y1B7
UniRef90 O8TPE9 UniRef90-D1Y4V5 UniRef90-UPIo0036C5F3E UniRef90-MOMUY7 UniRef90-LOKV39 UniRef90 N1W863 UniRef90-C4L297
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UniRef90
NOBFDD UniRef90-M7P5F1 UniRef90-UPIO003730CF7 UniRef90-UP100046FCF3D UniRef90-F4CKG1 UniRef90-C1CYX2 UniRef90-W2BRI1
UniRef90-G8TXD4 UniRef90-UPIO0020D9C10 UniRef90-U1MSS1 UniRef90-SONRU4
UniRef90 F9DT55 UniRef90-B2GLT6 UniRef90-B8EPE4
UniRef90_D3E4C8
(1) MARVIVDVMPKEELLDPQGQAI AGALGRLGFAGVSSVRQ MYFVKVFVTYKESVLDPQGEAVKGAVHRLGFNEIEEIRI TAKINVTLKKSIMDPQGTAVKDAALSMGFDAVDDVRI
 KAHVYVTLKASVLDPQGQTI QNALRKI GFGQVDGVRO


M Y
 MKY TAEINIMTRSEILDPQGKAVKLGLHNLQMDTIDNVR KAVVTVRDKKEVLDPQGDAVKRALTSLGFPGVKGVRV MARVVVHVMPKAEILDPQGQAIVGALGRLGHDGISDVRQ MRYCAEITIQLKQGMLDPEGETIQRALTHLGYA VKSAHA
 KAVVNVGLKKGVLDDQGKAINHALGTLGFKDTSDVRV KVRLIIMLKQGVLDPQGKAINHALHNLSFTEVQDVRV WTVEVKVSLKPSVEDPQGNAVEQALMTLGHTGVSNLRMM KATVYVELKNGVLDPQGKAVSETLSRLGFDEVKSARI KARVIVTLKEGILDPQGKAIEGALKSMDLPGVASVRQ KALVNYYKEGVLDSQGKAVHHALDSLGFESVKDVRD MALAKVYVNYKKSILNPE MGRVVI DVMPKPELLDPQGKAVVGALPRLGFDLFTSVRQ KVKI IITPKKAVLDPQGQAVLNALEHMGYDGVKDVHV
 MRWKIEVKVNLKEGILDPQGST】EKSLHSLGYKDTSKVRV KVIVNVKLKAGVLDPAGKATENALHSLGFDSVNDVRI MLLVKIYVTLKDSVVDVQGEA K KATHTMGYPGVSEVRM MALLVKVYVNYKKSILNPEAQAIQKALGRLGYDNVNDLKL MVKVKVFVTLRESVVDPQGTAVQKALHSMGYKEVQETRI MPTVRVYVTLKPSLLDSAGRTVSGALQKLGFSEVEEVRU MYKATIAVTLRPSILDPEGKAVHHALDNLGYPQVEDVRM KAVVHVALKSGVLDPQGKAVADTLTRMGYKEVEAARID M A TVEVRVSRKPKALDPE
M K F
TAKITVSLKPGVLDPQAKAUGQALGSLGHEPTESLST
FKAKVQVSLRPSVLDPAGEAAKSAAIKLGVKGISKVRII MIKASVIVKLKKDVLDPQGKALKVALSNIGFHNINQIRQ MVFVKVYVTYKESVLDPQGEAVKGALHRMGYSEI EEVRI MYNVKVYVTYKDSVLDPQGEAVKGAVHRLGYSEI DEIRM MYKVTVIVTLKTGILDPQGKTIRQSFQSLDYDGVVDVKT MPTIVVEVMPKPEILDPQGKAI ANALPHLGFTGFSGVRQ MQYRAEVTIERKSGMLDPE MYTVEVFVTYKESILDPQGQAI MQGVHQMGYEAVKNIRQ KLRIFVTLKPGVLDPQGRAIHHALGSLGFAGVEDVRA MPRVVVDVMLKPEILDPQ
MPRLIVDVMPKPELLDAQGQTVERALHNLGYTSVQNLRI MQYQATVTIEQKAGMLDPEGTTAKRALGHLGYA VESVKT MTYGTRLLVFLKEGVLDTQGKTVAASLKGMGYGCLKDLRV MARVVVDVMPKQEILDPQGQAVANALPRQGFEGISQVRQ YTAVVTVRLKRGVLDPEAETTRQALSRLGF GLDELRA MRYETDVIIELKSGMLDPEGTTDKRALEHLGYTP ESVNT MFVAKINVTLKESVLDPQGQTVLRTLHDQGKNSVADLRV MKKVNVYVTLRESVLDPQGVAVKGGLEHLGFAGVESVR MKF QAVVYVKLKEGVLDPQGLTIKKALEKLGYQNVKEVRS MRFRAE TISLKKGMLDPEALAIKHALDNLSFNVESLGT
 MGKIIVEVMPKPEILDPQGKAI KGSLARLGDTSFEHVRQ MKYKATVTVKLKKGVLNPEGRTVKRALEFLGYEGVEDVNT
 MKTATV VVRLKGGVLDPEAETTRGALERLGFEELDSLRS
 MTKVRIFVTYKPSVFDPQGDTIKKTI HNLGHDEVQDVQV MLKAKIYVQLKANVLDPQGKAVTNSLHNLGYTDVDETRU ADVYIELKEGVADPEGESTKKALKLLGFDNVKNVST MKKANVYVTLRESVIDPQGTAADNVLHAKGHDNVKDVRI
 MARVVV DVMPKPEI L D P Q G Q AVTRALARI G $\square$ S GVA DVR Q Y H A KVVFVTLK P SILDP Q GRTVVERALA HLEHANVSGVRV $R V V V N V M P K P E I L D P Q G K A V S A S L R R L G Y E G L S V R Q Q$

 $M \mathrm{Y}$ L $\operatorname{l}$ M T K V T I




| UniF |  |
| :---: | :---: |
| UP100 |  |
| $\begin{aligned} & \text { UniRef90_SOJP91 } \\ & \text { Uninefon F3Z72 } \end{aligned}$ |  |
| UniRet90-B6AU |  |
| Ref90 UPI0003B5C645 |  |
| UniRef90-L8DLS8 | R V S/VE |
| UniReef90-UP100047 |  |
| UniRef90-W9BD50 | VE E |
| UniRef90-СЗхмк9 |  |
| UniRef90-UPIOOO: | VE |
| D |  |
| UniRef90-D20L80 |  |
| UniRef90-S4XUX0 | LA P |
| 隹 |  |
| UniRef90-Q64C02 |  |
| UniRef90_UP10004 |  |
| UniRef90_K9AXA3 |  |
| UniRet90_UP10004633974 |  |
| UniRef90_G6EZD7 |  |
| UniRe90-UP10074223C36 |  |
| UniRe90--uFCT4 |  |
| UniRef99-UP10003B44E12 |  |
| UniRef90-J1FAC5 |  |
| niRe990-F4FR |  |
| UniRet90_A6WFE |  |
| UniRef90-UP100036889 | W |
| UniRet90-UP100047898. |  |
| UniRef90_B8D0M |  |
| UniRet90_UPIO0046E8E06 |  |
| UniRe990 UPIO004696112 |  |
| UniRet90-C2CZC2 UniRet90 UPIO001850A28 | $\checkmark \frac{1}{L}$ |
| UniRef90-W5 |  |
| UniRef90 14 BPJ |  |
| UniRef90- UPI0003B5C15B |  |
| UniRef90-UP10003B5C15B |  |
| UniRef90-A A0592 |  |
|  |  |
| UniRet90-Q87X84 |  |
| UniRef90-Q7M9X6 |  |
| UniRef90-Q7VC89 |  |
| UniRet90 - 683425 |  |
| UniRet90_SoKHVO |  |
| iRef90_R3TQD8 |  |
| niRef90 UP100042 |  |
| UniRet90_UPIO003B3680E |  |
| UniRet90-F1T6R1 |  |
| UniRer90-Q12YM9 |  |
| UniRef90-LEZZ2 |  |
| UniRef90-F214H9 | TKEV |
| UniRef90-A8LXM6 | VED |
| UniRet90-X0VFP2 |  |
| UniRet90_S3Y1B7 |  |
|  |  |
|  |  |
| niRet90_UP100036C5F3 |  |
| iRef90_MOM |  |
| UniRef90_LOKV39 |  |
| UniRet90-N1W863 | VEK】 |
|  |  |
| UniRef90-TOLI75 |  |
| UniRet90-E1R1H7 |  |
|  |  |
| UniRet90 ${ }^{\text {C2K }}$ |  |
| UniRef90-D5Vs | VE |
| UniRet90_S3Y4S7 | VE K |
| UniRef90-D2N |  |
| UniRet90-ETQNK1 |  |
| UniRet90-\1KSD4 |  |
| UniRet90-UP10003FE1EA6 |  |
| UniRet90 U6B7M2 |  |
| UniRet90-B0VGP2 |  |
| UniRet90-NOBFD9 |  |
| UniRef90-M7P5F1 | V Leve |
| UniRef90_UPIO003730CF7 |  |
| UniRef90_UPI00046FCF3D | LH S |
| UniRe |  |
| UniRef90-C1CYX2 | $\llcorner$ A |
| UniRet90-23R11 |  |
| UniRef90-G87XD4 | VPv |
| UniRef90_UPI00020D9C10 |  |
| UniRet90_U1MSS1 |  |
| UniRet90_SONRU4 |  |
| UniRet90-F9DT | IGEV |
|  |  |
| Ref90_B8EPE4 |  |
| UniRef90-D3Е4С8 | I I K M D |

## UniRef90 F7XPP4

 UniRef90-Q01Q55 UniRefe90-A4XKZ8 UniRef90_KYYRX9UniRef90 OO3E77 UniRef90_UPI0003B79F28 UniRef90-A0A010PEV8 UniRef90- V8CZV2 UniRef90-UPI00037A978E UniRef90_UPI00озвззв2С UniRef90 UPIOOO38075A9 UniRef90-G7H752
UniRef90-UPIO002627EBB UniRef90-UPI000225FFED UniRef90-D4MBV1 UniRet90_UPIOOO2D91239 UniRef90-B2IC85 UniRef90-UPIO003748A44 UniRef90-UPIO003790EDC UniRet90_D5EFF4
UniRef90-16Y0B8
UniRef90-E3GX92 UniRef90-UPIO003688784 UniRef90-A0A022LTT4 UniRef90-UPIO0036E2AE9 UniRef90-F4LSF3 UniRef90-UPIOOO36C34A8 UniRef90-H4GK27
UniRef90_- J5PV33
UniRef90-li3ZMF6
UniRef90-D2Z4N8
UniRef90-T2BGG5 UniRef90-UPI00024857B1 UniRef90-UPIO003659AD1 UniRef90-R4T6D1 UniRef90-UPIOOO2EEDOBO UniRef90_H5U3S6 UniRef90-DORNJ6
UniRef90 F6EKG8 UniRef90-UPI0003B2FA79 UniRef90_D5QG08 UniRef90-B3Q142 UniRef90-UPIO003B53FE1 UniRet90-H5SIT4 UniRef90-F2NNU2 UniRef90_G8TH93 UniRef90-A0Аог3х1wo UniRef90-UP10003B73DAA UniRef90-E3CY79 UniRef90-B8EOV9 UniRef90-Q04UP6 UniRef90-D9V868 UniRef90-I6TUL9 UniRef90-D8J9F6 UniRef90-E6LFN3
UniRef90 F3YBA8 UniRef90-U1NMF3 UniRef90-E6KTR7 UniRef90-U3GW79 UniRef90_C8XB37 UniRef90-A2BQR5 UniRef90-UPIO0021931D5 UniRef90-D9PVG7 UniRef90-UPIOOO3B67284 UniRef90-U2HNM3 UniRef90-UPIO00368815F UniRef90-UPIIOOO3B37463 UniRet90-M9VEY5 UniRef90-UPIOOO381D631 UniRef90-A2RJW1 UniRef90_Q7VFQ5 UniRef90-R9SMT7 UniRef90 $17 \mathrm{KUA3}$ UniRef90-UPIO0046FBD7F UniRef90-UPIO003B7681E UniRe990-UPI00046CDA2D UniRef90-UP100040D85EC UniRef90-B1VIJ9

## UniRef90-F6CFA6

UniRef90-UP1000475C1B6 UniRef90-UP10003B46FCA UniRef90-UP1000415FCC0 UniRef90-C7NLB6 UniRef90-UP10004793117 UniRet90-F8E138 UniRef90-FOS3E9 UniRe990-UP10003607CC2 UniRef90_UPIO0047E3ECE
UniRef90_UPIO003B388F8 KARVEVTLKSTVLDPQGQTVRSALNGLGHASTAEVRQ MLKAEIFVYLKKSISDPPGDAVLNSLKSLGFESVEKVRM KVTI YLKLKLEVLDPQGKVI ARALSDLGFVGINEVRQ MDNAKIYVTYKESILDPQGEAIKTALHRLNYENVKAVTV MFLLAKVYVTYKESILDPKGEAVKKAINQLTDTDITSVRI MPRLIVEVMPKPEILDPQGKAI ASALPHLGFTDFSGVRQ $V V D V M P K A E I L D P Q G Q A I S G A L G R L G F D G \Pi A D V R Q$ MKYCGKVVVTLKPGVFDPQGMTI RNALHALSYREVEEVET MARVVVDVVMKPEILDPQGQAI LGALGRLGDEGVNSVRQ KVIVNISLKEGVLDPEGQAI DNTLRNLGFNNFNNIRT MARVVVDVMPKTELLDPQGQAIVGALARLGFGGISDVRQ MLKGVITVMDQPNVLDVQGQAVEGALKHLGFESVEQVR KVRVTVSLKEGVLDPQGKAI GHALHVLEFPEVKEVRV MYFVKVYVTYKESILDPQGEAVKEAVHRLGFTEVAEIRV

FLVKVFIRLRPSVLDPAGEAIKSAANKLGVDG| NSLRI

MNF
 MTFNVKLLVYPKEEVLDSPGKAVAGSLLSLGYSSVKNVRI MPRVVVNVMPKPEULDPQGKAVTGALKRIGFDGMTVRQ
MKYRVKIKIK LKKGMLDP MWQAII IVKYKVGTLDPEAKTIOHALNTLGYQAVTGVET MARVVVEVMPKAELLDPQGQAI HRALGRLGHPGVTDVRQ MFLAQVIITMKKDVLDPQGSA:KSSLSNMGFKNI ESLRQ MYKVRVYTFPRTGVLDPQGSAIKATVSNTGFKDIQDVQT MTNVRIYVTYKPSVFDPQGETIKNSIMALGHDEVADVTV KARVTVTLKSGVLDPQGKAIEGALKALGDEGVASVRQ RAHVYVTLKTTVLDAQGQTIANALRRLHHPQVESVRQ
 MARVVVNVMPKAEILDP KVRVFVSLKEGVLDPQGKAVGHALIASLGFKNVGDVRQ MARVVVDVMPKPEILDPQGQAALGAAGRLGFTGITGIRQ MGRIVVEVMPKPEILDPQGKAIGTSLERMGLTGFSAVRQ MARVVVDVMPKAEI LDPQGQAIVGALGRLGFDGVSEVRQ KFEVEVTLKKEVLDPQGKAVENALGDIGLDNTVKIRQ
 MPTIVVDVMPKAELDPGKAVAGALARTGHTAFSGVR Mrat VHVRLKRSVLDPQGQAIHQAVRTLGYEGDREI R MTYHATLLVELKEGLLDPQGRALEGVLNRLGFNARNI QV MTYTVQVKVMPLKELLDPQGKAVMGGLQNLGLGNПQDVRV MLKVRVLVRPKPGILDPQGEAVKGALPALGFEGVGTVHV MNKVVINISLKEGVLDPEGQAIKTSLSNLGFKNFSDVRT MNYRASVLVYPKRGVLDTQGKAVQATLIRLGHGTLEEVRV MYIUAKI QVVLKESVLDPQGSTVKKVLSEVGEKSVQDVRV MARVVVDVMPKPELLDPQGQAVARALPRLGFSGVADVRQ
 MTGAKVTVMYKESILDPQGEAVKNALLRLDHKEVKDVRM MAKQVEVYVTYKPSVFDPQGEAVKNALYRMDYETVKEVR I
 RIIVEVMPKPEILDPQGKAVGSALPRLGITSFEAVRQ MARVVVNVMPKAEILDPQGQAVQRALGRI GVDGVSDVRQ QVVVNVFLKNGVLDPQGKALEKALHSLNFSRVKEVRM MARVAVDVVIKPEILDPQGKAILAALGRSGHTGI TSVRQ FAVKVFVRLRPSVLDPAGEATKSASIKDGAEGIKSLRQ MARVVVNVMPKQELLDPQGQAVVRALGRIGVTGVSDVRQ MKFMVEVEVMPKAELLDPQGKAVAGALGBLGKDKFTNVDI $M P R V V V N V M P K P E I L D P Q G K A V L Q A L G R I G V T G A S Q V R Q$ MKFLAHINIMPKAELLDPQGKVVVKNLPNIGIIEGVDAVRI MPHVRILI RPKAGILDPQGTAVEQALPQLGFGGASNVRI MSRVVVEVMPKPEILDPQGKAITSVFARLGHDGLT VRQ KARVYVSMKTTVLDPQGQTVCHALINSLGHKETTSVRQ MTKVRVYVAYKASILDPQAQAIKAATHKMGYQEVSDLNV KVKVLVSGKEGVLDPQAKA:AHALCAHGFESLQSVKL MKYDIEVTVYLKEGMLNP KALIDVTLKESDLDPQGAAVKEGLLKLGYH VEGVRI MKFПAEIDIMPDKEILDPQGKAVMLGLHNLE $\square D Q V N D V R D$ KLKFSVTVTLKKDVLDPQGKVVQNTLVNMGMNNLKNIRQ MSRVVVEVMLKSEILDPQGEAVANALPRLGVKGVNSVRV MGRIVVEVMPKPEILDPQGKAVAAGLPRLGFDQFTAVRQ MARVVVNVMPKKEVLDPQGQAIVRALGRLEGSGVQDVRQ $M A R V V V H V M P K A E I L D P Q G Q A V V R A L G R L G V S G V S D V R Q$ MPKIVVDVMPKAELLDPQGKAVAGALARLGNEHFSAVRVV MARVVVDVMPKPELLDPQGQAVARALPRLGFDGVSDVRQ MGHVIVDVMPKPEILDPQGKAIAGALPKLGDEGFTEVRQ RARVLIRPKAGILDPQGVAVERALPALGFAGVANVHV MARVVVNVMPKKEILDPQGQAVVRALGRI GISGVNDVRQ YFVKIFITYRKGVLDPQGDAVEKAAHSLGFEKVKNVKV MARVVVHVMPKAEILDPQGQAVHRADTRIGVQGVTDVRQ MMKVKVYVKLKSGVLDPQGQTILGSVRRLGHDFVKDVRV

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| :---: | :---: | :---: |
|  |  |  |
| UniRet90-A4XKZ8 | GKYJVVYLNEDDIEKAKEEVKLMCEKL | CNPVMEEYKFN |
| UniRef90-K7YRX9 | GKIIEIDLDETD | NTILENYSVS |
| UniRef90-Q03 | GKYFEIK |  |
| UniRef90-UP | G | E |
|  | GK | A |
| UniRef90-UPI | GKYFRVTLEARTREEAERRVREMC | ANPV |
| UniRef90-UPI0003B3382C | GKHFELDV | LANPVEDFSVR |
| UniRef90-UPIO0038075A9 |  | LVNTVIENYHIN |
| UniRef90 | GKRFELEVTDAVD |  |
| UniF |  |  |
| UniRef90-UPIO00225FFEL |  | ANEVIEDFAVE |
| UniRef90 D4MBV1 | G | ANVNMESYRFE |
| UniRef90-B2IC85 | G | NQVVEDFRTE |
| UniRef90-UPIO003 | GKHVTLKLTAADEAEARQMVETACQKL |  |
| UniRef90-UP | GKYFDIELEETDKEKAKKПAEEDCKK | N |
|  | GRYDQLLINSDTAEEARQQVEKMCDDL | $\checkmark \mathrm{N}$ |
| UniRef90-16YOB8 |  | LANTVIEAYEV |
|  | S | SNPVVDY |
| UniRef90- UPA00321T | GKRFELEVADGVSD | ANTVIEDWKVV |
| UniRef90-UPIO0036 | GK | ANLTIEDYSVKK |
| UniF | G | PPVVEDYKFE |
| UniRef90-UPIO0036C34A8 | GKYMELTIE KSERNVEDVVKEVCDRL |  |
| H4G1 | G | F NMETYTYE |
|  | E | DYRVE |
| UniRef90-D2Z4N8 |  | LVNAIVEDYTVK |
| UniRef90-T2BGG5 | AKQUVLDLDESDEQKAKERVKSMCEEL | LVNSVIEDYELT |
|  | GKRFELEVDGVTSDEDERDASTL |  |
| UniRef90 UPI0003659AD1 | SRVVD DVAAETADEARKEGEAM | ANEVI EDFKVE |
| UniRef90 UPIO002EEDC | GKLFHLSVDGDVTEEALATAREA | LSNPVEDV |
| UniRef90-H5U3: | GKRFELVDDVDDV | TNTVIENFTV |
|  |  |  |
| UniRet90 F6EKG8 Uni 90 | GKRFELGVGEADDDA | NTETYHFD |
| UniRef90-D5QG08 |  |  |
|  |  |  |
| UniRef90_UP10003B53FE1 |  |  |
| UniRef90 | EEGSPERARAL | Q |
| UniRef90-G8TH93 | GKNI TLQVEANTPDQAKAIAEEASKK | ANPVMEYFEVV |
|  |  |  |
| UP10003B73D |  | TVI ETYKIN |
| UniRef90-B8E0 | GKVLKL DILGENKEETISKVKKMSEIF | R |
| UniRef90-Q04L |  |  |
| UniRef90-D9V868 | G | R |
|  |  |  |
|  |  |  |
|  |  |  |
|  | $G$ |  |
| U1NMF3 JPI000416 |  |  |
| UniRef90 E6KTR7 | - | NPITEDV VR |
| UniRet90-U3GW79 |  |  |
|  |  |  |
| UniRef90-C8XB37 | GKHFDLEVDDSVTD AAELEEDAGTL | R |
| UniRefor |  |  |
| Uni | IDIITFTMNEESPEDVRREV |  |
| Unil | GKRFETVVDPADDAVL |  |
|  |  |  |
| UniRet90-UP1000368815 |  |  |
| 74 | GRLVELDVENTDELEA | Q |
| UniRef90 - UPI000381D631 |  |  |
| UniRef90 A2R |  | E |
| UniRef90 Q7VFQ5 |  | E |
| UniRef90--R9SMT7 | KSUT TFQMEGENTEEVKSEVVDMCQRL |  |
|  |  |  |
|  |  |  |
| UniRef90-UPIO0046 | GRHDTLTLDTETQEQADQUVQTACQKL | S |
| UniRef90-UP10003B7681E | GKHFE | ANEVIEDYNVV |
| UniRef90-UPIOO040D85EC | G | SNPIIEDV |
| UniRef90-B1VIJ9 | G |  |
| A6 |  |  |
|  |  |  |
|  | GKRFELTVDGPVDEAVLSSVREDADE |  |
| UniRee99-UP1 | GKRFVLAVDA |  |
| UniRef90-UPIOOO4793 | A | Q |
| Uni | GKRFELDVEDNVS KEDLERMAHDL | EDYDVV |
|  |  |  |
|  | GKRFETEVDDSLSED ELHRVAETL | ANTVIEDFEV |
| UniRef90 UPIO0047E3EC |  |  |
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| UniRef90_F7XPP4 |  |
| :---: | :---: |
| UniRef90-Q01Q55 |  |
| UniRef90_A4XKZ8 | S E |
| UniRef90-K7YRX9 |  |
| UniRef90_Q03E77 | 1 |
| UniRef90_UPI0003B79F28 | IE EV |
| UniRef90-A0A010PEV8 |  |
| UniRef90-V8CZV2 |  |
| UniRef90_UPI00037A978E | VQE $\square$ |
| UniRef90_UPI0003B33B2C |  |
| UniRef90-UPI00038075A9 | IIK K |
| UniRef90-G7H752 | R V Q V ${ }^{\text {a }}$ |
| UniRef90_UPI0002627EBB | K |
| UniRef90_UPI000225FFED | V |
| UniRef90-D4MBV1 | 1 L S $L \mathrm{E}$ |
| UniRef90-UPI0002D91239 |  |
| UniRef90-B2IC85 |  |
| UniRef90-UPI0003748A44 | L K E A K |
| UniRef90_UPI0003790EDC |  |
| UniRef90-D5EFF4 |  |
| UniRef90-16Y0B8 |  |
| UniRef90-E3GX92 | VK R 1 |
| UniRef90-UPI0003688784 | L L E I Q |
| UniRef90-A0A022LTT4 |  |
| UniRef90_UPI00036E2AE9 |  |
| UniRef90-F4LSF3 | $\square \mathrm{MEV}$ |
| UniRef90_UPI00036C34A8 |  |
| UniRef90-H4GK27 | VR E |
| UniRef90-J5PV33 |  |
| UniRef90-I3ZMF6 |  |
| UniRef90-D2Z4N8 | V E |
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| UniRef90_G8TH93 | 1 S |
| UniRef90-A0A023X1W0 | V |
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| UniRef90-U1NMF3 | V Q |
| UniRef90-UPI000416D3BA |  |
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| UniRef90-U2HNM3 | I E E |
| UniRef90_UPIO00368815F | VE |
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| UniRef90-I7KUA3 |  |
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| UniRef90-UPI00046FBD7F | 1 K A V |
| UniRef90-UPI0003B7681E |  |
| UniRef90-UPI00046CDA2D | VE |
| UniRef90_UPI00040D85EC |  |
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| UniRef90-UPI0004793117 |  |
| UniRef90-F8E138 | VE |
| UniRef90-FOS3E9 |  |
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| UniRef90_UPI0003B388F8 | $\square \mathrm{A} Q$ |

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VIVNI SLKNGVLDPQGKAVEKA SGENFNVKDVKM MP IVV MTVVKVFVNYKES:LNPEAEA:KQALGRLGYDDVIDLKV MRYQATI LI ELKEGI LDPQGRAVEGVLKGLGHE VEAVRV MARYIVEVMPKPEILDPQGKAI GAGLDRLGFSGFA VRQ QVRVLVSLKNGVLDPQAKAIFHALNAHGFESLKGVKL MKFEVA\NVMPLKDLLDPQGKAVLGGLANLGDHQVEDVRV IKFFIKPRKGVLDPQGRAVAESLKSLGFDNVKDVKV MARVVVEVMPKAEILDPQGQAIVGALGRLGFPGVSGVRQ

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 MARVVVNVMPKAETLDPQGQAVVRALGRIGVTGVADVRQ MPKVTVLVRLKASLDDAQGRVVERALRNLGYDKVQKVRI MIFDIEVKVSLKEGMLNPEATTIERSLALLGYDVKNAKT


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KVKVEVRFKEGVLDPEGQTILNTLNRKGYDFVSDVRV MDKARVTVTLKNGVLDPQGKAIGHALDGLGFEGVGSVRQ $M A R V V V N V M P K A E I L D P Q G Q A V V R A L G R I G V E G V Q D V R Q$ RFRIDVFITNKPAIRDP MGRIVVEVMPKPEILDP KYTAEVYIKLKEGVTDPEGEATKKALNLLGFKNVKRVSS KAKVVGLKEGMLDPEARATRHALANLMFPDDDLT MTYKVEFLITNKEGIRDPEGETVKKFIVDKVTNKVEDVRA MMIKVRVFVTYKQSVEDPQGDTIAKTVHA GHSEVESVQV MGRIVVEVMPKPEILDPQGKAVMGSLPRI GLTGFTGVRQ MSKVKVYVTYKKSILDPQGQAIKSATQKLGYSEDQDIRV MKYHATILI ELKDGLLDPQGRAVEGVLRGLGYR VENVRV

KADI SIIKLKQGVLDPEAKAIQNALKSLGFEGFDYLEM
YTATVTVRPKGSVRDPEAETTRRALTRLGFE DEAITT MPTVVVDVMPKAELLDPQGKAVTGALSRLGVQDFSAVRM MT TVVIVYVTYK Q S V F D P QAESVVLNAM H QL GHEEVK DL TV

KVKVEVKLKEGVLDPQGQTILGSIGRMGYDFATEVRV
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 MK





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| :---: | :---: | :---: |
|  |  |  |
| UniRet90-G9PWU5 | K |  |
| niRef90-UP | EIEFDDEGVEKALEQSQUIADQL | PVIDENFTVS |
|  | D | P |
| Rer | G | R |
| UniRe990-H6RR | GKHFVL | + |
| UniRef90-U1MV13 | GKRFELTVEGEVTDALLEQVRKIADDV | TVI EDVVVR |
| UniRef90-D2RFS0 | VKVYRIEI DTNSKEEAEREVREMCEKL | A NPVIQNYRIV |
| UniRef90-T5KMS8 | G | SN |
|  | ADNEGSAREK ${ }^{\text {d }}$ N |  |
|  | D |  |
| A1 | AKQUK S | V |
| A4AG01 | P |  |
| UniRe90- | GKRFELTTEGESGQAELDAARKAAEEM |  |
| UniRef90-K7QTR6 | GKVLEVVFPAS | E |
| UniRef90-UPIO00309CFF1 |  |  |
|  | G |  |
| UniRef90-UP1000419E770 | R |  |
|  | RFEL DVDA ${ }^{\text {d }}$ - AEDA |  |
| UniRef90 Q83FE6 | GKRFELCVDPVSETCEDDFIRDLAND | VIEDVDIR |
| UniRef90-D6ZEE6 | GKRFELVF DREPDEAEI | H |
| -irefo | El KLDTTDK | NINMESFTYD |
|  | dVt EEGD | NFNMETYSYK |
| UniRe | ELSLTGE RSAVEKQLGELLARV | NPVMEEATYT |
| UniRet90-D1JHRO | E |  |
| UniRef90 O2NF28 | P |  |
| UniRef90- FOTBZ2 | RGQUQDSEGAVKEEVDEMCQRL | LCNPVIHDYTIK |
| UniRef90'D8KPK5 | GKRFETETDGSVS REDLEKVAETL | A ${ }^{\text {a }}$, |
| UniRef90-UP10004782EE4 | G | LANPVVEEFEVR |
| ASUNH5 |  |  |
| UniRef90-UP1000475 | E |  |
| UniRef90 V5PHG7 | GKVFDLELEGSDKAKAEADLKAMCEKL | LANTVIEDYSIA |
| UniRef90- D3P8M4 | GKITELDVENTDNLDQKI | E |
|  | GKFI RLTLESKDEESAVEAAKAMCRDL |  |
|  |  |  |
|  | Q | VIEDYAIE |
| UniRef90-H3ZLZ9 | K |  |
|  | DLEAPDRATAQAR |  |
| UniRef90_UPI0003476693 | RFEFTVEGDVTAEVLAE |  |
| Unit | QTVKP NVEEAVHDMCKNL | E |
|  |  |  |
|  | , | SVE |
| UniRet90 UPIOOO4159482 | G |  |
|  |  |  |
| UniRet90-Co | GRRFELTVDGP V | S |
| D4YN | EKEVEE | R |
|  |  |  |
|  | GKFI ELELDGSQTE AQLHEVCRDL |  |
| UniRef90 A0AO31LLB5 | R |  |
| UniRef90_C7XXZ6 |  |  |
| UP100031 |  |  |
| UniRef90 K2PLM4 | 㑑 |  |
|  | M 1 HFLSQDAQKVKAQAEK |  |
| UniRef90-U1F | ADQFALELAADSAADATERATEMAERL |  |
| UniF |  |  |
|  |  |  |
|  | GKHFELDVDD |  |
| UniReef90-D4 | G |  |
| UniRef90-LOH |  | LVNPVVDYELR |
|  |  |  |
|  |  | PVIQSYRVE |
| UniF | GKYFEVTMSNADEAAAYDEAVAYTEAL |  |
| UniRef90-E6SMP5 |  |  |
| UniRef90-Q7X2X2 | GKYFELDI DVPTAEEAERVAADAAAKL |  |
| UniRef90-UPI000299E92E | K |  |
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|  |  |  |
| UniRet90-V8CFC3 |  | Q |
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| Unif | GKRFELTVDGP DDDAVRAAVQGIADED | SNSVTEDV |
| UniF | R |  |
| UniRef90 UPIOOO400ECOB | GKHITLQDAENEAAAKQIADEASKKL |  |
|  | GKYFLL |  |
| UniRef90 R4VWD4 | ADRYEIVDAA |  |
|  | N |  |
|  |  |  |
|  | A |  |
| UniRef90_R4Z1146 | G | R |
| UniRef90_F4L5E6 | GKHITLTLEAETEEAAREIVDNACRKL |  |


| UniRef90_F2ID53 | V E E |
| :---: | :---: |
| UniRef90_G9PWU5 | V |
| UniRef90-C2ETY7 | V M |
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| UniRef90-C0W240 | VEA A E |
| UniRef90-H6RRG5 |  |
| UniRef90-U1MV13 | V Q |
| UniRef90-D2RFS0 | L K |
| UniRef90-T5KMS8 |  |
| UniRef90-K2E201 | L E QV |
| UniRef90-T1D1W7 |  |
| UniRef90-A1VYM5 | - E K |
| UniRef90-A4AG01 |  |
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| UniRef90-B2V799 | V V E |
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| UniRef90-D6ZEE6 | V E |
| UniRef90-G9WH07 | L S |
| UniRef90-Q049L5 |  |
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| UniRef90-FOTBZ2 | I S A Q |
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| UniRef90-H3ZLZ9 |  |
| UniRef90-K9P582 | L |
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| UniRef90_UPI000361E9F2 |  |
| UniRef90-UPI00036DB5D8 | $\square E E$ |
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| UniRef90-H9BX93 | V |
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| UniRef90-D3RYU6 |  |
| UniRef90_A3CWL6 | V E |
| UniRef90-B4CVY4 | V |
| UniRef90-A0A031LLB5 | VKET |
| UniRef90-C7XXZ6 |  |
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| UniRef90-UPI0003785A77 |  |
| UniRef90-D3UI73 | 1 R |
| UniRef90_U1P3V4 | V T |
| UniRef90-WOZDN9 | I S V VE |
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| UniRef90-LOHJM0 | Ve e 1 |
| UniRef90-I3XR14 |  |
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| UniRef90-E6SMP5 | V E P |
| UniRef90-Q7X2X2 |  |
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| UniRef90_Q5HQA3 |  |
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| UniRef90_UPI000400EC0B |  |
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| UniRef90-H1YE03 |  |
| UniRef90_R4VWD4 | V E A R E |
| UniRef90-C3XDM0 | $\checkmark$ Q E |
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| UniRef90-U1PR94 | V A ERE |
| UniRef90-R4Z1H6 | L A P |
| UniRef90-F4L5E6 | L S A Q E |
| UniRef90_H2J4G9 | L L E T |



## UniRef90 WoJN37

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70
80








 G K R F E L L



 GKK I V
 GKRFEL EVVEGEVT E EVDAAARAAGEQVV L SNPVI EDV



 A K M L K MVVVS S K S E K D A E A IV V K K L C C E E L R I F N P V V S N CTVVK
 GKYFE LTTA GSEAEFAAS R


 GKVFDDLEVASENREQAEATLLKAACEKL LANTVVENTTVE
 G K S I M L L L V N
S K VY


GK R F E L T V E G E VT A D D L D R
 GK H
 S K S Y Q L N V Q G S S E S E A K K I A A E D V A A E K




GK R $\square \mathrm{E}$ L H F D R
GKYFEI E I E K E D D GLI N K LAA K N I






 GK HIV M N L E
GKCLIVAVVAATPEEAGERALKLAWDLRLGNPN


KKYIVGEFTL D D D S Y NV L D E I I A G R I C M K A R GRTYQQVELEADSEEAAQAYGHALAE GL L
GK V VEIV
A R I YGL E F S G $\quad \mathrm{BE} A$
A D S LE NLLQKMIE D Y
GK A D F WF D A E T E E $\square$ A R E QMDLLS DRM L S N TVIE D W


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| UniRef90_UPI00036E80FC |  |
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| UniRef90-X1EQ96 |  |
| UniRef90-M1E569 |  |
| UniRef90_M1E569 |  |
| UniRef90- X1FXT0 |  |
| UniRef90_X1FXT0 |  |
| UniRef90-X0Z8H0 |  |
| UniRef90-Q7URX8 |  |
|  | UniRef90-UPI0003825A15 |
| UniRef90_B5EF34 |  |
| UniRef90-M5A2T5 |  |
| UniRef90-W4UFW0 |  |
| UniRef90_B3E707 |  |
| UniRef90_D6TQR7 |  |
| UniRef90_UPI0003B34E6C |  |
| UniRef90_UPI0003B34E6C |  |
| UniRef90-M2B0Y9 |  |
| UniRef90-A5FS81 |  |
| UniRef90_A5FS81 |  |
| UniRef90_Q39UA4 |  |
| UniRef90_UPI00037ECFD9 |  |
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| UniRef90_LODLN0 |  |
| UniRef90-R5H1L0 |  |
| UniRef90-D2R8C5 |  |
| UniRef90_D7AJ65 |  |
| UniRef90_E4U458 |  |
| UniRef90-A5D2D1 |  |
| UniRef90_Q1Q6R1 |  |
|  | UniRef90_X1ED94 |

1. YKVHVAVVLK GSRDPEGETULRDVVASGVDYVVKVTS

ANALPRQGFEGVSHVRQ


 $M G S V V V D V M P K S T E Q D P Q G R A V T N E A A S R G F S G V V H V R Q$
 $M A \square V E \square R V T N R P H L P D P A G E E V L H E V K A L G I N A V Q R V V_{R}^{R}$ R I E V GF K P GVVT D N E G R TA A R A L E Q A L T E P GP D I R V


 M Y R $\operatorname{V}$



 LA LARGHDGLDVRQ


 MK N WKV EVVYYK P EVVPD TVGGD GI L E D $V$ A D L G S G V D S V R T


[^3]



[^4]

| UniRef90_UPI00038194E1 |  |
| :---: | :---: |
| UniRef90-UPI0003B43A41 | LK E |
| UniRef90_A8MCJ6 |  |
| UniRef90-UPI00036E80FC | R V E |
| UniRef90_E1QUW9 |  |
| UniRef90-D3DGE7 |  |
| UniRef90-N6VSP3 | 1 E |
| UniRef90-B0TEC9 | 1 E P |
| UniRef90_I0JVD4 |  |
| UniRef90-H5UUH5 |  |
| UniRef90-A8UVW1 |  |
| UniRef90_UPI0002F85E7D | VRE |
| UniRef90-R8ZRB3 | VE |
| UniRef90-F6CIZ2 |  |
| UniRef90-D6SRC6 |  |
| UniRef90-X0Y666 |  |
| UniRef90-X0Y666 |  |
| UniRef90- X1EQ96 |  |
| UniRef90-M1E569 |  |
| UniRef90-M1E569 |  |
| UniRef90-X1FXT0 |  |
| UniRef90-X1FXT0 |  |
| UniRef90-XOZ8H0 |  |
| UniRef90-Q7URX8 |  |
| UniRef90-UPI0003825A15 |  |
| UniRef90-B5EF34 |  |
| UniRef90-M5A2T5 |  |
| UniRef90-W4UFW0 | VE |
| UniRef90-B3E707 |  |
| UniRef90-D6TQR7 |  |
| UniRef90_UPI0003B34E6C |  |
| UniRef90-UPI0003B34E6C |  |
| UniRef90-M2B0Y9 |  |
| UniRef90-A5FS81 |  |
| UniRef90-A5FS81 |  |
| UniRef90-Q39UA4 |  |
| UniRef90-UPI00037ECFD9 |  |
| UniRef90-UPI00037ECFD9 |  |
| UniRef90-LODLN0 |  |
| UniRef90-R5H1L0 | WEKVQ |
| UniRef90-D2R8C5 |  |
| UniRef90-D7AJ65 |  |
| UniRef90-E4U458 |  |
| UniRef90-A5D2D1 | LE |
| UniRef90-Q1Q6R1 |  |
| UniRef90_X1ED94 |  |
| lupas_21 |  |
| lupas_14 |  |
| lupas_28 |  |
| jnet |  |
| conf | 98479 |
| sol25 |  |
| sol5 |  |
| sol0 |  |
| jhmm | $\square$ |
| jpssm | $\longrightarrow$ |


[^0]:    

[^1]:    

[^2]:    

[^3]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf
    sol5
    solo
    jhmm
    jpssm

[^4]:    lupas 21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    sol0
    jhmm
    jpssm

