

## QUERY <br> UniRef90_UPI0003F58FC6 UniRef90-E1SSQ5 UniRef90-Q87710

 UniRef90-Q8RB49 UniRef90-H2MBL3 UniRef90-A9B740 UniRef90_C8KY95 UniRef90-13VX02 UniRef90 UPI000476796F UniRef90-UPI000463ABBC UniRef90-W5X4F3
## UniRef90-B3RW17

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UniRef90 C6DKL 7
UniRef90_C6DKL7
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UniRef90-K1QNP9
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UniRef90_J7LBT0 UniRef90_A0A021VUZ7 UniRef90-A0A017H9C1 UniRef90-E0RP49 UniRef90-A4CEA9 UniRef90_U2CL95 UniRef90_S5ZQY1
UniRef90_AFFU73 UniRef90-A9CVL8 UniRef90-D8GI14 UniRef90-T2M2T1
UniRef90-17K1F2 UniRef90-LOHLV2 UniRef90-M8D3C6 UniRef90-UPI0001850766 UniRef90_UPI000375E14A UniRef90-F8FE76 UniRef90-UPIO0041F5D7A UniRef90-N1ZR70 UniRef90-UPI0002E0AF2D UniRef90_U7NZ15
UniRef90_UPIO00377A5BF UniRef90_UPI0002E2738F UniRef90-B5YES7 UniRef90-UPIO0037BF474 UniRef90-W3AB42 UniRef90-Q892U4 UniRef90_A0A031GLN8 UniRef90-X2GYYU9 UniRef90-B9MKK9 UniRef90_Q67RZ3 UniRef90_UPI000248C4EE UniRef90-UPI0003B492C1 UniRef90_R5CBE5 UniRef90_K2N645 UniRef90-UPI00047C27BE UniRef90-R7MUK3 UniRef90_UPIO00258EF43 UniRef90-EONMP2 UniRef90-F2IJM2 UniRef90_UPI00036EAF09 UniRef90_G1WIQ3
UniRef90-E1 X340 UniRef90-D4KDY9 UniRef90-XOZII3
UniRef90-R7PE92 UniRef90_UPI0003B6154A UniRef90-UPIO004758716 UniRef90_R6XNH2
UniRef90_UPI000289538E
 G N T A A GQTAAICI YPRFVPLARKVLREQGTPGIRIATVTNFPHGN GFYAVCVNPYRVKLAKDYLREKNADVKVASVIGFPLGA GFASVCINPCFVDLAYEMLKDT DVVKVCTVVGFPLGA RHTAAVCVYPSRVADAVRSLKAANSSIPVASVATGFPAGQ $R G V G A V C V Y H T F V A T A V Q S L Q G T A D P V A A V S T$
 PPVAAVCVYPSMVPVAAEALKGSKVILIASVAT $\square T$ TGAVCVYHRFVATAVEALQGSGI PVAAVST RRVGAVCVYHQMVPTAVEALQGSGIPVAAVAA RQTGAVCVYSSRVKDAVTANKNNHSQVPIASVAAG PPVAAI CVVYDLVVPVAKDALTGSPVHLASVAT $R Q T G A V C V Y H R Y V S T A V D A L A H T L I P V A A V S T$

 RDTGAVCVYPARVKEAVKYLKQAGANVPVASVATGFPSGQ
 FDFASVCVNPCWVDFCYNQLKETN VKVCTVIGFPLGA
 PSCGAVCVYPNMVRYARKFLGENNSPVHVASVTGFPSGQ GKVGAVCVYPNRVADCVKYLKAANRPDIPVASVTGFPTGQ RGTGAVCVYPTMVSHAVKALEGSNIPVASVATVG LT T GAVCVYHQYVATAVDALRGTGIPVAAVST

FASVCVNPSWVPFCYEKLKDTN VKVCTVIGFP AGLL GEVAAVCVAPRFVHVARRTLTGFGGRAVKVASVCNFPGGD REVGAVCVYPARVTDAVNALKAAGCNDPVASVAAGFPSGQ ERCAAVCVYPTLVPVAKKALAGSGVKVASVATAAF D

FASVCVNPTWVKFVAERLQGT
FASVCVNPTWVKFASSQLADSG
LTTGABVCVYHDMVETAVDALRGTNDP
 KVKVCTVI GFPLGA $\begin{array}{llllllllll}\mathrm{K} & \mathrm{K} & \mathrm{V} & \mathrm{C} & \mathrm{V} & \mathrm{V} & \mathrm{G} & \mathrm{P} & \mathrm{L} & \mathrm{GA} A \\ \mathrm{~V} & \mathrm{D} & \mathrm{I} & \mathrm{C} & \mathrm{V} & \mathrm{I} & \mathrm{G} & \mathrm{P} & \mathrm{L} & \mathrm{GA}\end{array}$
 LTTGAVCVYPTMVPHARAACRGTGIPVASVAT A



TTGAVCVYPMMVSTAVRALEGSGVP
DFASVCVNPTWVKLASEKLHG SEVKVCTVIGFPLGA
$\square$ C C A V CVYPSRVLDAKKALNDANASDIPI ASVSGFPAGQ

HDFASVCVNPYWVKRSAELLAGT DVKVCTVIGGPLGA

$P Q V A A V C V Y P N W V R V A K E S S L F G T S \square K$
FASVCVNPTWVAYAAEQLAG
HHFFSVCVNPTWVKTASEQLKGTG
GFASVCINPYWVKKVAQGLA D
GEVAAVCVWPKLVHVARRTLNTLGGRDVVKVCTVVGFPLGA
GTPAAVCVYPAFVTTARRTLKALDEGQVRIATVTNFPHGG
THTAAVCVYPQFI QTAKDALAGSGLSSVKVATVTNFPQGS
HHFASVCVNPTWVSLSSSLLEGT DVKVCTVTGFPLGA
GFYSVCINPYYI SYAREFLRG
RDTGAVCVVYHRFVVAAAVDALAEGSGDP

FNFASVCVNPTWVATCANELKGT


FASVCVNPYYVKLCKEYLKE
HGFMSVCVNPYWVPLCAELLSGT

GTASVCI PPSYAKQAREYMAGQ
ITPAAVCVYHPFVS IDAAEADAGTGDH
FASVCVVNPTYVGTAYEALAGTGDHVAAVSTMAFPHGL

VNTASVCVYP $\square R L P L I A T M A K D D K E H$
D FK S V CVVNPYWVSTAYE E L R D



GF C AVVCI S PMYI S SLA H ELLLKK T T

HGFASVCVNPYWVKEAASHLAG

S D

EVKVCTTGFPLGA
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## QUERY

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## UniRef90-B3RW17

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UniRef90_A7FU73 UniRef90_A9CVL8 UniRef90_D8Gl14 UniRef90-T2M2T1 UniRef90-17K1F2 UniRef90_LOHLV2 UniRef90_M8D3C6 UniRef90-UPI0001850766 UniRef90_UPI000375E14A UniRef90_F8FE76 UniRef90_UPI00041F5D7A UniRef90_N1ZR70 UniRef90_UPI0002E0AF2D UniRef90_U7NZI5 UniRef90_UPI000377A5BF UniRef90_UPI0002E2738F UniRef90_B5YES7 UniRef90_UPI00037BF474 UniRef90_W3AB42
UniRef90_Q892U4
UniRef90_D4W565 UniRef90-A0A031GLN8 UniRef90-X2GYU9 UniRef90_Q67RZ3 UniRef90_UPIO00248C4EE UniRef90_UPI0003B492C1 UniRef90_R5CBE5 UniRef90_K2N645 UniRef90_UPIO0047C27BE UniRef90_R7MUK3 UniRef90_UPI000258EF43 UniRef90-E0NMP2 UniRef90_F2IJM2 UniRef90_UPI00036EAF09 UniRef90_G1WIQ3 UniRef90_D4KDY9 UniRef90_XOZII3
UniRef90_R7PE92 UniRef90_UPI0003B6154A UniRef90_UPI0004758716 UniRef90_R6XNH2

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DVVFPYRALMAGNEQVGFD

 T P TE V V K V F E A K R A L E D G A D E L D MV I NDGALLKDK D Y E Y VK N





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K D S K L E A L N M I D L T TLL E G E D T E G K I SQMVA K A I K P N

MEK
M D K K
MNYNKY
MEKKRE I
$M N$ I $A$
A D L $\begin{array}{ll}S & K \\ A & L \\ A\end{array}$
$M T P Q D E \left\lvert\, \begin{array}{ll}\text { A } & \text { A } Y \text { I } \\ A & L\end{array}\right.$
$\begin{array}{ll}E & Q \\ A & L \\ A & K \\ L & K \\ A & S \\ L & I\end{array}$



 $\square$ E A A R R A A
$M N$ DAK
M T D T A






$\qquad$

K K K I | $A$ | $D$ |  |  |
| :--- | :--- | :--- | :--- |
| $Q$ | $A$ | $Q$ | $Y$ |
| $A$ | $A$ | $L$ | $L$ |

## M N A

 | $\mathrm{M} K$ | $A$ |
| :--- | :--- |
| $\mathrm{~N} N \mathrm{~N}$ |  |
| N |  | M D I A K Y i


K T Q V


$\qquad$<br>$\qquad$ ${ }^{4} 7$ CEITF

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16 370776 8A8


NNTGEVKKFLANC
MNLAGMI
MEINHYI
KDERAWM MSVAKMI MNDNETLA
$M K D M N$ RQVISL

A WLLKKVNF MKけNaYl TNLAAY। MDNKELAAM1 MKLANKL MEKSKYi
MSETNLTRMI
 LDTLLKPDAT
MKDMNE
T LL L K

| D |
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| D |
| D |

A7

6D5DA2<br> 3A2 D1 061 DTTKPTEKDAQT1,


MDGKEMLKYV KNLSR1 mTAAK MOANY DHTLLAADTTEAQIKQLCAEAVE
TEAASRADRLMDLTSLNDDDHDARIDALCHQAQTPD T T AKAYASDLAS MVDLTTVLE GS DTA GKVRALCAKAARPD


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UniRef90_R5SWW4 UniRef90_Q38XI2 UniRef90-D2TW36 UniRef90-F3ZQR2 UniRef90_UPIO0047CE17F UniRef90-H1PNE6 UniRef90 ${ }^{-}$W1Q5K0 UniRef90-UPIO003748772 UniRef90_A9DZ93
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UniRef90 Q9CFM7
UniRef90-C5LZL7
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UniRef90_A1HNM9
UniRef90_UPI00036D5DA2 UniRef90-H2JBA7 UniRef90-F3Y4E0 UniRef90-S2Z3A2 UniRef90-X4ZHU3 UniRef90-N2IPD1 UniRef90-R7GI71
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50
G A SVICIV 50 wivla y a 60
位




F A S V CI N P F WV HLLA A E E L K D

| $F$ | $A$ | $S$ | $V$ | $C$ | $V$ | $N$ | $P$ | $T$ | $W$ | $V$ | $S$ | $Y$ | $A$ | $A$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $N$ | $E$ | $Q$ | $L$ | $A$ | $G$ | $T$ |  |  |  |  |  |  |  |  |

 RETGAVCVYPARVADCVKSFKAIQP NFK SVVCINPCWVAKCHE ILN G RRTAAVCVYPARVADAVSALKAANAS GTVAAVCVFPRFVPDAKKTLREAGCP GFHSVCVNSSFVYYCAQLLKDT K F A SVVIN P T WV K LAA A ELLA G A HVAAVCVYP QFLSVCRESLENTG D F A SVCVNPCNVKLAHELLKGT $P R T A A V C V Y P S R V E D A V K T L K K$ P S VAA V CVVPALV S KA K E M GHPA AL

 SVA A $V$ CV Y P SL A A A K E K V Q N D F A S S V

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


GFAAVCVNPCFVPLAAELLQG

 GF A TVCVVNP Y WV ETA A NLLK G F Y S S V C C V N S G Y V $G F Y S V C V N G A N V E Y A F S Q V K$
PGCAAVCVYPQRVADVSKHLAAKKK AKK F NVASVVAGFPLGA K F F S V CVVNS C Y V GLAK K A L K D

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

N F R G V
$F L G V C V N P C N V K L A K Q F L K E T G Y N E V V V V V V V G F P L G Q$
 GNTAAI CI YPRFI PLARRK LLTEQNTPNI RIVATVTNFPFGG S HVAAVCVVYARVADAVKQLKLLNSSMPVASVATGFPTGQ GHVA A I CVVYPNFAK I VS S TL E




K F A SVVVNPTWVSYSAERLAGT
H GFY S V CVVNS GQVVP H A A Q C L E G Q R
P GVA A V CVVYP D L V ETAS H ALL R K S G I EVVA S V A T
K NVAA I CVVYPNFAAIVKNTLEVDGVNIACVVA
KFASVCVNPTNVALVAELLKSDDA
HF A S V CVN P T WV $\operatorname{S}$ Y C A S A S L L K E
 A AVCVY T K V P DVCT ALK A MKL
D F A SVVI NASWVQLAA QQLKET
$G P V A A V C V Y P Q F V S L A R H T L N T L G G D T$
$V K \vee C T V G G F P S S Q$

DTA SVV V P P SYVVKQAA Y Y NTL
S D V V $\checkmark \begin{array}{llllll} & \mathrm{K} & \mathrm{C} & T & \mathrm{~V} & 1 \\ Q & V & A & A & V & T\end{array}$



D
F A SVCI NP Y WV P LG HELLKGT
H N F K A A V
F A S V C V V N P T F V S
K F A SVVCVNPCYV T L C S E ILLK E T
D F Y S V CVVNSCYVAAAKKFLAGT
H N F A S $V$ V C I
K F A S
DFK S V CVVNP Y WV S FAHELLLS G
HGFKSCCINPSHARLVSTTL SNTSDVLVCTVIGFPLGA
H D F A S V C V V N P Y WV
GFKMVAI NS Y P V A MCRDFLK D
NNFASVVVNPKWVKEAS CALLKD
GTAASVCI P P S Y V K A A K E Y Y MK D R

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


QGFYAVCVSSCYTRLASRLLKGT
GNTAA V C I Y P R F V G L A R L T L A A Q GT P
PGTAAVCVYPDLAATAKEALAAAGAPDVKVATVVNFPHGD


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UniRef90-B7IFV4
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HTASVCI PPSYVSQASKYLGER
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$\qquad$ $\square K$ TAAVCVYPSKVPDAVQTLKKLGYK

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SEVV|KTCCVI GFP|L|GA S EVKTCVVVGFPLGA VEVCTVI GFPLGA SNTKVCTVVGFPLGA SKVKVCTVI GFPLGA

 V HVGA AVSFPLGQ $Q N V K V A T V V N F P H G G$ SSALVCTVVGFPGGA H P VKVCTVI GFPNGY $V R 1 A T V V N F P S G E$ SELTCAVVGFPLGA
 S E VVAl
 VVASVAT $\qquad$ G $\begin{array}{llll}F & P & A & G \\ F & P & L & G \\ F & P & S & G\end{array}$ E 1 P $P$ V $A$ S V A T G F P S G Q SVAICTVI GFPLGA DVLVCTVIGFPLGA PA ARISATVVN $G F P A G L$
$N F P A G G$ S K V H V V GA A I VDACAVI GFPLGA DI ATCTVI GFPL GA
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HRF Y SVVCVNTCHIDTVVSELKGT
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Di KALVDATR
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EI SEI AK DCHKNNAILKVI
D I K A V VEASK EMERIVSVCREAGVIVKVV



 D S S S V V N





 D I E A V V N $\qquad$ A KGKA LVVKV DI QALLADAVHAKGKLLKV LVAQCRAAAGS
D R S VVA A A


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DI KSVVDIAKEKGKTLVKVV
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V E MCK A VCG G Q A L L K V | $D$ | $N$ | $A$ | $V$ | $V$ | $F$ | $A$ | $A$ | $K$ | $N$ | $P$ | $V$ | $K$ |
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| $E$ | $I$ | $K$ | $K$ | $I$ | $R$ | $E$ | $T$ | $L$ | $P$ | $K$ | $E$ | $V$ |
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GNLLNTL
VAIM

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LTNLLQVLN Q
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पDDTLAVL
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VAVSKT
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$\square \mathrm{AlVEGDAE}$
LKALLEAMGE N

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LGDTERQपEH I A IV
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LGdLLAVAG


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VDTMQELKE VAIVEG
LNDILAIL
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VkTME E
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A GN $\square \square K A \square S E$

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UniRef90－F2L208
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M1 AAYDDHTLLKPEASEAEILKVCAEAAEY A WLLKHAQDYUDHTVLKPTATGADVEKLCNEADNA MVDHTLLKADAGQAAIIKLAEEAKEY
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NLA
MD
 KLFDHTlLKKAT
NDNTDVKKF F F N N C
MSVAKMi D
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## $D \square P K T R E E L A R B C$ <br> M K L

MAADYMDIAPF
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KLN NY：
MNLT T A DLAK MSFN M
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MDTKE円乌KVE
MDIKELSKVDHTLLRPEATWNQIKNICDEGITK MTDLLKASSLRALKLMDLTTLNDDDTNEKVDALCHQAKTPV MELEK LSAVDHTLLAQGATWEEIKAICDDGTKY MENKEIYAHIDHTLLKPFSTWEDIEKLCDEAVEY MNQQAALAFRCMDLTSLGNQDTPEMIEALCAKARYHE MNSSNDTKEELCRMFDHTFLKKAFASDEDFKKLCSEAVQY MTTQLDAATLAVKLMDLTSLNDDDTNASVQAMVTSAEEPNV MDYPD【D【APLIDHALLSPTATPEQVEKWCREAADR MQE $\square Y$ RRCFSLTDLTTLNSTDTPSKVAGMIEKVNPTY KNTARYIEQTVLKPQTTDADIENLVKEAKKY MTVMNLAGITDHTLLKPDASEKDIVALCHEAQE


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| $M$ | $L$ | $P$ | $E$ | $l$ | $K$ | $V$ | $A$ |
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| $N$ | $T$ | $T$ | $N$ | $l$ | $K$ | $V$ | $A$ |



NTTAMVKAF
A L S SAKAF
S STASKTK
NT QL SK A Q
D D DD I A L A
$\qquad$
T T L E D K I F
N PLN NVVN
SVTAA KVVAETLIAA I ERGA
$\begin{array}{lllllll}T & T & T & A & A & K & L \\ Y & G & L & K & T & R & L \\ E & E\end{array}$ S F P E D $\quad$ K I A E C C R M A $V$ V
$\begin{array}{llllllll}N & M & E & T & K & V & F & E \\ T & Y & T & E & A & K & V & \text { Q }\end{array}$





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L N D L L M Q
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LD D $\square$ ER V
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 TELDDKLLETEHAI RQGADEI DYVVNLTELKSGNWDLVRK

 S I S A V K A F E A S EAA K K L G A D EI D MV I NI G K L K E K D Y E YV L N A L L S D V I N E T L I A I $\quad$ E R G A D E I

 SVTEAKVCEVREALAD GADEI DMVINLTDVKNGEFQKVED EDTEAVLAAETK QALAD GADEIDDVVMYKAFCAGRKGAAEE
 NKLKTKLVEATTAQNDGADELDIVWNIVAFKSGEYDY VG T T T K D K V N E S ENAA IA N GA D E




 A
 NTMTETKMIF
$\qquad$ I KVKVF ETVQA I GH GAREVD MVMAI GALLRGREYHAVAD S L A K V K F F E G HLLA L N D G A T E L D M V L N I G A L K A G R H E EVV E D

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S

SK S E I K K A F
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 T F A D V K L F E T E Q A L K K E GAA D E I D D M V V N TF L EVK ALLEVAMAVENGADEVDIVLNVGRMLTGEYDEAAN TTSAVKLHEAQEAAENGATELDVMINLGWLKEGRSEAI YQ



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








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| UniRef90-W9H0L4 |  |
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| UniRef90-R5ZDW6 | L K L E E |
| UniRef90-K4IXS3 | I A I V E G T |
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| UniRef90_B9Y9Z6 | $\square \mathrm{K} \square \mathrm{MEEA}$ |
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| UniRef90-U6ECQ5 | VQ ${ }_{\text {VME E L L }}$ |
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| UniRef90_D8PDY4 |  |
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| UniRef90-S0KMX2 | \A I I E E |
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| UniRef90-R7GP33 | V ${ }^{\text {I I I E E }}$ |
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 LGTYSVCVSPNMLPL TDNR HQFKAVCVSPTYVPYVVEMLEFCPD
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ST ${ }^{\mathrm{H}}$


GGD
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HKFYAVCVNGSRVQYCVEALRGSG PHVATVVTYPSFTKLVRNTLEVDGVNI GNTAAVCTYPRFTPIARKTLNEQGTPD
NFATVCVRAKYVSRAVARLKETG N NVASVCIKPYAURLAVDELERGSS S $\stackrel{F}{\mathrm{~F}}$
HNFATVCVRVGYVAQAVANLKDL

GFYGLCIPPSYVALVRQAF
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TASVCIPASFVKQAAEYVKAQG


保

HTATVCISPSYI GRIREAYGDR HGFAAVCVNPRWVPLVAAELAGT WRVFSVCVRPSDIAHAVERLAGTG
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90
100
D V V I $N$ LL $\left\lvert\, \begin{array}{r}110 \\ \text { W|V|K }\end{array}\right.$
120
STS GVKIL H

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 HKA QVKAAEAA Q SVVRDGADEIDMVIDDA QLKSGDVAGTEA
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 V K P E I K A A E T E R A V A D G A D E V V D M V I N I G Q A I A G D Y D A V A A TSTTAKVAESRQALADGATELDMVLNIGRLRGGDLAAVRD DT TAAKCFMASDAVKNGAGEVDMVINLGWVKEGRYEDVLE GSATAKAAEAADLVRNGAHEVDMVMNVGALQDGNYRVVYD
 ARMEVKVAETALAIQDGADEIDVVMPVGKFLSEDYEGVAE
 Y S TA A E K V S E T Q N A V N D G A S E L

C

Hename ASTAAKLAE MSTK I KAA EADAAVED GA Y DVERK LIEDVKKAVVE GGAE E L
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UniRef90 W6T942 UniRef90-W6R7K7 UniRef90-TOBRK7
UniRef90-E4TMX4

## E

 DI K SVVETGHKANK】VKVI

140 E
 Q ${ }^{T}$ K
K A
A
140 T TVLNHSEK
 EI RQV RAAT G
EI KEIVRVAGEAH
DI QAVVNAGHQANKIVKVV
EI API CEIT
KVPI K

D I A EVATECKKHGAKLKV

| E | K | $Q$ | $V$ | $K$ | $K$ | $A$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  | D | G |  |  |  |  |


EI RAVREA APAPTVLKVI


ELKAVKR
ETGVVLKA
D RAVVRTAHKRGSIVKVI
EIA QI AK LDC
EI A QI C E
DIRGVVEAA

EMSQLVAACHEKDVTCKV
E I A QUA E I C C HE E E R VVLKKV


## D 1 A ELKQACG


$\begin{aligned} & \text { VLA } \text { NATRTACGPM TMMKV } \\ & \text { RAFRKASGG DARVKT }\end{aligned}$
D AAVVEAAG DLITKV

E I A S I C E AE TGAQVVKA




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








 DFFHI A QVCRERRGVTLKKI
 EADKVIERAVNRDILVKK
 DI A SVVVAAV
HV K GVVAVARPAGALVKV VVKACREACAD KALLMKV EI EDIMMAAV
D:AQICDAT GRPVKA
E NA N KAACK GKLLKV DV RAVVGAAGGGRVVKV

E A A MVREA I PGKILKV




DI GAVAEAVHAGGAILKV
EI RALKA L CGE
ELKELREAA PDRVLKL
D GAVVRAV EGHAIVKVI
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UniRef90 A1D852 V NI I
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VK $\square$ M Q E E

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KAAGGI RTLRQVQELLEA SGRPPDPSKFR $\square$ GTSAA
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KASGGI GSYETARSMLDAGAE
K AS GGI RTAEFAAELIAAGADR $\square G L S$
RIGASAG
K A S G GI G S Y D D A M A MIIE A G A E

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| UniRef90-C0CZB7 |  |
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| UniRef90-U5W8K0 |  |
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E $\square \mathrm{NKASLAKMDDGSLLNPFTTTQEDDELVK} \mathrm{\square S} \mathrm{\square DYN}$ MELASRI EHTVLGPTTTWEAVADGLDEANQHG MDUKQYLDSTYLKANDSEAEVSSFIQEADK M DDSCVRADHSLEEMEDMIDAAKKYE TVAELALMDDHSIDDPFHTDKDLEEGVALAKKY QVARLVDHTLLKPEATAQ QVVAVVAEAAE MTLTRAQVAAMIDHTLLKPEATRA DAEAAVAEAAE MSAQRWDRARVAELVDHTLLQPEATTQQVVALVAEAAE MRDSGHEFARMCDATLTGAVATHQEMLEMIKQAKKY ETASRTDHAVLKPWSSVSELEKAIRELEE SGARLARFIQSTLIASDATEERVVAHCRACLEY MTDLKMSVERFAKVFDMATLAPETQEEAIREGCRQAREY MபDLKMTKWDMGKLFDFSVLPKQTTEAE: RKGCQLAKEY QLTKKELAKTIDHTYLKDQGNDMEUKADCYEADYY MDDHELARHLDFANHHGSATTSDTQTLCDOTIK MNVKQYLDSTY【KTASQENTIVVKNA】AEA

MVD LKMDKWS LGKCFDHSVLPKDTTEADVRRGCQEAKAY MLHLVVD ALLKPYLLTLE EVARGARRAEE SARDIAARIDHTVLAPDATRKDMENACVLARAY




M पD F N DPRQVAKA DQFTNVNADLTREGVIKHLNDCLEYQ EMTRDELASYI DYSILKPQFTTEEVVELAHTGINY

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## M G A

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 HFYSVIGQRCYLDEMVEK LKGT LNLRCLIISPTHLRLAREKTNKC GFHAAMVPPDWVPVARRVLAG NDFKLDM』RPDKVALAKKMIQESK N $\square$ A AFY TTPCWTSVVAEALEG NCKAFCFSSSWTPIVAEELKGT GFASVAVHPT IVPLASKLLRDT LGA Y AVCVVSSMVPVAVD HGFHGAFVNP $\square H V A Y A K K \square L G K S G \square$ EGFKLIMI RPEYVAMAKEMIVEAN

NCAAFYASPYWTPVVKEEDEGT GVAA YCVN P LIY A P YVVREELEGT GFKAVFTNPYWTPLVAELLDGSG
 NCAAFYSSPYWTP 1 VVEELGGT


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S S T A SK V $V$ K Q A E IIC Q N G VE D|L|D|IV A N Y G F|I R S G Q WQE FE E ND H DVKRREGVLVAWKA GADELDVVLNVGRLQQ GEDDVVRA

 GSVVEVVTVSEALRAMLSDGADEELDLVVD WELLDNDANAGEA


 H H S LVVKAME GRLLAVDQGAVEVDMVIDVGAAIVGAVDEVMA H HAEVVKAAEAALAVA QGADEI DMVI DVGAAI EGRYEVVET


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E 1 A $A L V A A V$ A





 DVLTMRDAV PPPTVIKVI LETGEEAGDRRIEELCHAVAR
 DVVSVVEVGRAAGAVVKVI LETCLLSDPEKLRA AEIVIN
DI TAVRKAVRA ATLKVIV

D A AVREATKYTS
D K A V T DVA
EGKPVVKAL
ESAEFSGEPLLADVCRVARD


| $D$ | $R$ | $G$ | $V$ | $E$ |
| :--- | :--- | :--- | :--- | :--- |



| $D$ | $R$ | $A$ | $V$ | $E$ | $R$ | $V$ | $G$ | $E$ |  |  |
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| $D$ | $R$ | $R$ | $A$ | $V$ | $V$ | $T$ | $A$ | $A$ | $A$ | $S$ |
| $D$ | $A$ | $A$ | $V$ | $R$ | $A$ | $A$ | $A$ |  |  |  |




| A P V V K V |
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| $D G K P$ | $V$ |
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E $\cap \mathrm{A} A \vee \mathrm{NDAT}$
 DLRAVVGPCHEAGVPVKV DI RAVKEAVG KAVLKV



EVDDCTRMALENGKI AK W
ELKTLREAAG


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| $D$ | $L K V V E A S$ |


| $D$ | $L K V V E A S R$ |
| :---: | :--- | :--- | :--- |
| $D$ | $E A$ |


| $D$ | $Q$ | $E$ | $L$ | $K$ | $T$ |
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| $D$ | $C$ | $G$ |  |  |  |
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|  | EVLKCTQFGLSHHKTVKW

 DVKAVVDVAKPSGVPVKAI



QV DQGTKLGLAHAKWVK W
ELQGQVEKCHNRNALCKT
 E MVVAAVRAAVPAAVLKV
 $T D E L Q E D K E S C R G A R L K V I$
$G L D A F V K A A E G N L T K C$ $D L D S V V G A A G \quad G R V V K V I$ DI AAVVNAVEGRGIIVKA DI AA VREVVGE ELVDFKNAA QGRMTKC EVAECTKLGLDAGKVVKW DVSAVKDAVGE EVEVIR AEMDSDIVLKV E L K EVTHMAHDGGMKVKA


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Q
KASGGDRTADFAAELIEAGASRLGLSGSRAVLDGF
K GS G GI RTREYFLELI DMG\|DRMGVGY
KASGGI RDADTARSMI GAGATRLGLSGSRAVLEGF
KASGGIRTRAAAEEMVAAGATRLGLSS
M P
KASGGワRTLSDAR $\square$ M $\square E A G A S R \square G A S A$
KASGGI RTAEQAAAMLDAGATRLGLSGSRAVLDGFGS K P A G GLNSVMDAC
$K A S G G V R T A A Q A \backslash A M \square R A G A S \quad R V G A S A C$
KAAGGVKTLDLLVKMHAMGVTRFGDGYKNA
KAAGGI RDLSILLEMMEAGCSRFG $\quad \square G L S S A$
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$K$ A S G G $\square R T$ A A A A R A M $\square$ A A GAS R $\square G A S$ A $S V A$
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KASGGDRTAEAAAALTAAGATRDGLS
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KASGGIRTAAAVREDAAAGATRFGVSGTAA
KASGGDS SFEEVLEMVEAGAT$\quad R \quad R G S S G$
 A GTGQFWTANDALMCIAAGDD IDGTRSAK KASGGVGSWSFANRLFDVGAERIGAS
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$K \nabla A G V K D P Q N T F C F \| Q A G A E I I G T R A A M$
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VElLIEGA
$\square \mathrm{A}$

VD VLGT
$\square K \square M E K A R G$
ATELAQAL
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VT TVLA QLEQ

VK TME
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VD V

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ARFRTVVVPPWMVAHAVSM LRCAAV CAYPARVAGAKHYLH GดY GVTVHSSRVVAATVGGQQQPGT CSVAAGFPSGQ RETGAVCVYPTMVPHAVKALEDSVVVTCVIGFPFGA RETGAVCVYPTMVPHAVKALEGSGDPVASVAT GFPAGT




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UniRef90_UPIO003B5C902 UniRef90-R7JKH3 UniRef90 A4T309 UniRef90 UPIO0041DFC61 UniRef90_A2CBL7 UniRef90_UPI000347A3C5 UniRef90 X1JBZ3 UniRef90-V4XYM5 UniRef90_A1SE51 UniRef90_G0EGC6 UniRef90_Q46H12 UniRef90-E4SU23 UniRef90-D2Z780 UniRef90 A0A044R4U7 UniRef90-UPIO0035CEFA UniRef90-U4VDM9 UniRef90_U2B7X5 UniRef90 F9MR28 UniRef90_D2QMI7 UniRef90-A9BE18 UniRef90_A3ZA03 UniRef90-U1ALN4 UniRef90_UPI00037D5780 UniRef90_R7PGD5 UniRef90 UPI000369EFF6 UniRef90-TONN37 UniRef90_QOICJ9 UniRef90 UPI000470ACBA UniRef90-B0P817 UniRef90-X1NIJ3 UniRef90 X5E6J2 UniRef90-D2EEX0 UniRef90_A2BV59 UniRef90_UPI0002F4BFC8 UniRef90_C9AAX7

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A GVDF $\square \mathrm{K}$ TSTGLHPAG
A GVAY $\operatorname{L} K N A S S G Q \square E T A N P T S \prod R Y L V D R A P E$ GRADYVKTSTGWYPCPSTVEQVRIMSREA AGAEFVKTSTGFHPSGASPRAVELMAGA A GlD WVK QS S GWGGCEAIVEHVKILK A DVSGLQSGNGFGPAVTAADI RLLANLAR A GAAYLKNASSGAVEVADPDSVAYLAARVRE


ADAAMVKTSTGFADGGATTAAVERMAAHDP AGAAYLKNASSGADEVASPASIRYLVDRAPA DRPDYVKMNTGWFSRGVEPLEVALAAK IVKP A GA $\square$ GI Q $\square$ GNGF GPSASTNHVSKL
A GADFVKTSTGFSTGGAT DEDVELMREV DGLDDYVKTSSGFCGSPTTEDQVRLLAETMM A G
A GVHT $\square E L L G G V R P E P L V P E D F \square K \square R D Q C P E$


ANVSFLKTNT GHGCRSTPGEVKNTKSHFGDA
GMQF
A GIS AVRTSTQQSQQVPQVDDVLLLSKASE AGAIK NTTGAAGKLAV

DAGAAAVQS GHGFGGPATAEQ $\square$ S RLRSLCR



A GVDFVKNATGALPLPFLLDQAVQFRTLDPRSVGV DGSDFIKTSTGKESVNATFPVAIVMLRADRDFFWKTGVGF AGAS CLQAGNGFGAATTPLQVRKLKELAR GNCAI A GAQWLKTGAGYGP GVTPDLVRRLARLARRRAA GAAGIA
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K IVADGASESQLEALVAAGVERLS $\square R$ ATAP
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    NHPAILSTVIGYPFGY $K L N V C M V I G F P G G Y$

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