## QUERY

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LGGHVNWVRAVSFSPDGKLLATASGDNTVKDWDA SELQTLQGHSGSVYSVAFSPDGQTLASGSRDETVKLWDV GHAGWVHSITFSADGKMLCSASSDHTVKLWDV Q $\square$ A T LT GRSNSVRSVAFSPDGRTLASGNGDKT\|KLWDV
$\square E G H D D T V W S \prod A F S P D G K L I A S G P G G K T \prod K L W D A$ SVAFCPDGQTIASGSHDSSVRLWNV CTQTLEGHRGPVRSVAFSPDGQRVASGSDDNTIKIWDA GHEDDVYAVAFSPDGSRVASGSNDKTIRLWEV Q $\square E \square A S P$ P F D SVSAVRFSPSNDHLDTSSWDTTVRFYDV VLT TCQGHSSWTHSVVFSQDGQTLASGGDDRAVKLWDU ELLESEDDTVNAVQFSRDGSRIVSGSNDGMVRVWDA ECFRTLQGHTDKI WSVAF GHTSTVNSVAF
 PS GLVVVCTGGY RSW
$C / V Q T L E G H G G W V S S V V F S A D G Q R L A S G S D D R T V K \prod W D A$ QVVKPLTGHEGRIRSI AFSPDGTQLASGSDDKTVRLWDA EVVKTLHEHNNWVFSVVFSPDNNLLASGSGDKTVKLWDV QCFKTLKGHSNKVWSITTF
$\qquad$ $\begin{array}{ll}\text { K } \\ \text { K } & \text { E }\end{array}$ K E NDVALE
 CFKTLKGYSNSVFSVAFNLDGQTLASGSTDQTVVRLWDV
 QCRKALQGHTGWI RTVTFSPDGQTFASGCDDRTVVK WHT

KTLKGHTDWVRAIAF
HCLHTWEGHTDWALPVAFSPDGRYLASACN $N C L K V L T G H A G G V L C V A F S P D G K T L A S A S Y D H T V R L W D A$ FEGHEDWVTSVCFLPDGSRVVSGSYDKTLRI WDV NSVYSVAFSPDGKTLASGNDDDTVRLWDV QQ LLKMDGHNSAVYSVCFSPDGATLASGSDDNSVRLWDV

R CYK
KEDNTFKGHSGKVYSVVFNLDGTVLASGGADGTDRLWNV QTLEGHTNSVNSVVFSNDGKLIASGSLDTTIKIWNV KTVKLWSGHGDWVNNVSFSPDGKQI ASGSNDKTIKLWSV MNDFEVTMPPDDSVSALEFSPSQNFLDAGSWDSSVRCWEV

 GHDEPVTAVTLSPDGARIVSSSSDNTIRFWDA K Q $\square$ Q $\square$ LQ G HSRSVKSAQF SRDGTRIVSCSWDKTIRLWDV QGHSRWVASVVFSPDGT LL ASGSYDSTVIRLWKP $\square N D \square T \square N N P P E D S I E D D L S F S P Q Q D L L A D V A S W D K K V R I Y E \square$ ETLHTLTGHTSPVPGVAYSPDGTRIATASDDNTARIWDT

ELLQGHRGKVWSVSFSPDGKYIATATSSDRTVVRLWDV KVLRSFHGHRSEVRCVAMSGDGKRVASGSKDKSVRVWDV GHKRWVNDLAFSPDGSRMVSASGDMTI RLWDA
FETLAGHRNWVKSVAFSPDSKWVASGSDDSTIKI WDA MPVMKPLKGHAKTI WSVAFSPDGDQIVSGSADATLQLWNA

$E L L Q T L D G H S G T V E S L A F S P D G K L L A S G S Y D N T D D L W D$
NGHRDSVLGVAFSRDSTRVVSGSEDGTLRLWDA LEGHTDWVWSVGWSPDGTRLVSGSNDGTIRVWDP KEDSNLT GHNGQVWSVSDSNDSKTIVSGSEDSTIKVWNL CVHTLEGHSSGVTSVAFSHDSTRLASASEDRTVKIWDT E G H T D Y V K C I ECCKT C L Q T L E GHDGPVVSVAFSADGQRLASGSNDRTVVKVWDA LEGHSDEVYSVAFSPDDQMI ASASRDKTVRLW $K K \square Q S L E G N E D D I S A$ QFSPDGTRIVSCSADNTIQLWDV GHQKEVASVDYSPNDQHIASASWDRTLRLWDA

ECLRTLSGHSSYVTSCAFSPDSQFIVSASQDNSLRLWNA LEGHS GNVTSAYFSPDGQTVVSCSWDKTIRLWDA CLKKAWSGHEGWVWSITYSPDGQALASASDDETI KLWNV HNNEVSSVNFSPDGKNVVSASADKNIKIWDL QC【LTFTGHTDCVRSVVMHPDGQRLISAGEDRTWRIWDL

LT GHEDAIYFITFSPDGRILASGSGDNTIQLWNA QLLRTLNGHEESVMSVSWSPDGKTLASGSEDNTIKLW

IMQGHQGTI RALAWHPEGQFLASGGDDHEIRI WDA KT TKVWNGHSEWVWSLAFSPDGQTLASAGADKTIKI WNL QEIRTTFKGHDGWVWSVAFSSPDGKTLASSGSKDKTIMRLWNL

## QUERY

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UniRef90 L8M6F4 UniRef90 UPI000379E967 UniRef90 UPI00047EAC18 UniRef90_V5G1G9 UniRef90_L8MZP2 UniRef90 B8MFB6 UniRef90_G4NDD2 UniRef90_Q7NCT8 UniRef90-UPIO003485F52 UniRef90_K9UX43
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UniRef90 K9W7L0
UniRef90_A0A034WU42
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UniRef90-UPI0002EE20D9
UniRef90-M2QW77
UniRef90_G4TXS2
UniRef90_X6MIE6
UniRef90_A8N0C0
UniRef90_B9WJB3
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UniRef90_R7QKT4
UniRef90_G4TVD6
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A T GEVKHTLKG
STGGQTLKTFQG

ATNKQ KSKYDHRAAVLACCFS
SYDQLQDR LLWTYGH
$R E G Q C L A T W R G R$
VT GQLLGEP PGSSVHSVAFS
TTG
Q G ,
E T G GQ $\square$
$P L L L T$ L $L R$


S T GRCFKTLQG

ATGTLRQTLEG HSGPVLAVAFS
$\begin{array}{lllllllllll}L & G N G\end{array}$ TA E G K H A Y E H D G P V

A T GEQ $\square R \mathrm{~T} I \mathrm{~T}$ GQSD
$S N G Q C C Q T L E G \quad H A S R V K S I T F N$
ATGNARQTLKG
A GNAR H T DWVRAI AF S

K E G S LL R SLLK G
ESGKAIP GPFE

NTGQSKFNL
RTGR Q Q Q L Q EFS A

D G S G
EQTGKTVVPKSMKTMGGPVLDVVCWS

## $\square T G E P L N D P L E$ <br> TTGE <br>  <br> ATGTCRSTLEG <br> ETGAQVGEAL <br>  <br>  <br> $\begin{array}{lllllllll}E & T & G Q Q & G & E & P & L & R \\ E & N & K & V & C & Y & T & L & K \\ G\end{array}$ <br> 


NSGQPIGAPMT GHERGVRSVAF

| $D$ | $E$ | $R$ | $T$ | $E$ | $L$ | $G$ | $R$ | $L$ | $E$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

$P S$ GREIQLLE G
ATGEC
LRTLS G
Q $\qquad$
$\square N G A C T S T G V G$
L I Q T



WSRERKLLRTLUN
HAHTCGQI L R G
ATNKEIRTLKG
ETGQELGTL
LT GMAVVME

H T N S V N GV S F
 H H QRVRSVAFSPDGK LVASGGSDAT S N SVVR SVVAFSPD GRTL A A S GSED K T $\square \mathrm{GH}$ H D A WVTS V A F HD D MI LS V T F S P D GK

GHEHGVNSVAFS

F GHLD HVLAVAFS

GHTGTVVYSVAF
H E AVVVRSVVF

(

GHT BHVYS

GS SHRGSVNSVVFS Q




SSGK QLQCLEG $\quad$ HS D SVVK SVVQFSRDGAR V V S S S DK T
 QT GQTETREPGRGHTSEVYSVSFSPDGKRLLAS GSMDHT

VGHT D WV Y S V A M S E D Q
$\begin{array}{ll} & P \\ P & D \\ A & D \\ P & D\end{array}$


H T D WV R S $V$ G WS P D HGSII PCVAFS H D N HVWSVS $\square$ S N D G T HSS IVNSVAFSHDS
GHTGDVLS VAMSH H T D WAYTVAFH
STGTC NSFYGHENWVWTIAFSPD DRLLASGGSFDHT VT GA C V Q T L E G $\quad$ H G G S VVN SVAA F S A D D Q R H L A S G S Y D A SNGQVIRTLGHSAGVWGVSFSPDSK IVASASGDTT



0 T T | $R H$ | $V$ | S G S G D K T |
| :---: | :---: | :---: | :---: |
| $L I$ | $A S$ |  | GQ TLA S GSQDSS DGNHA Y S G G LD T S $P \begin{array}{r}P \\ P\end{array}$ $P$

$D$
$P$



 | S |
| :--- |
| S | GHTGWVRSVAFSPDGNRIVSGSDDRT WDKM

 $A Q 1 L A S$ $T R L A S$ S $G R R B l \begin{array}{lll}R & R & R\end{array}$ P D
$\qquad$

QUERY
UniRef90_W6SPC1
UniRef90_A0YMI4
UniRef90_B8LXS9
UniRef90_K9QMH3
UniRef90_A0YQ70
UniRef90_B0DF52
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UniRef90_B2AVF6
UniRef90_G4TW87


100
110
120
$A N L G \square C R \square C K$

K Y G D DK LIAA S W $\begin{array}{lll}S & P & D \\ S & G & T \\ S & L & L \\ S & P & D \\ A & S & G \\ A & S & W \\ A & A & S \\ A & S & G \\ S & R\end{array}$ FS P D GRMI A S GSE $\square S$ P D GR T L A S G G N $\begin{array}{llllllllll}\text { S P D G R H } & \text { V } & \text { S G S R } \\ \text { S P } & D & G & K & L & A & S & G S & E\end{array}$ $S P D D S Q M A A S S$ | P D G Q R | A S G S V |
| :--- | :--- | :--- | :--- | A REQNTLITGGSW $V$ K L WH GQT GE HLLKTLQ GHTNQQVMSASW SP D G N L L AT G S E

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






## I K L WN L A G E K L R T L R V









## QUERY

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UniRef90_A0YMI4
UniRef90-B8LXS9
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UniRef90-G4TVD6
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UniRef90_M2QWJ2
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 C

SRLVGMNNSQVQWFRTPLCEDDNGTTEESGTKYQTRDVA
 KLLASGSGDRTLKI WETDTGKCLRTLT GHTQRLRSVA RTLASGSGDDTIKLWDVQTQREIATLTRRSNTVNSV RHIVSGSRDKTVRVWDAQTGQSVMDPL KGHDNWVTSVA KFIASGSRDKTIKLWDVATGEVKQTLESYNYTVLSVT RMLASGSHDQTLKLWDVSTDKCDKTLEGHTNWI WSVAW SRIASSSNDKTVRLWDVDSGQPDGKPLGRGHKNSVLAVA H LLVVAMARLFHI YDI RKMDSPAQTRESS LKKMTRALA KHLVSSGDDCTVRLWDVQTGKA GGYTGHTGGVWSVK K IFASGSRDCRVKLWDADTGQCLATFQEETDLVYAV SRLVSGSADQTVRLWNTKTGQPLGEPLEGH VDTVWAV KTLASCSDDQTVMLWDVNTGEVLRILLNAKHNHGVWSVA CRIASGSDDETV
QRLAS GS GDKTV
$N$ I A S G S A DK TI RI WD TRA DAEGAKL LRGHMDDVYTVA

NI LAT GS GDCLV KL WDV GEGKCITTTLPGHTDGVWSLLS
 KL WDL E G K E L R TLLT EHS S MVM SV A
 K L W E V D T GR C I Q S L A G
$\begin{array}{cccccc}H & T & N & W & R & A \\ G & T & S & R & V \\ Q & A \\ A\end{array}$
KLVAS GSYDK K L L V I G T A D R $K T L A A V S$

I
RL WDTATENTRQTVEGHTDRVKAM

$$
\begin{aligned}
& \text { RWETATGQLLKTLTGHDSRVWSV } \\
& \text { RMWDVATGDCI Q } \\
& \text { IVCHGHTNW }
\end{aligned}
$$ SRVVSGSFDS LASVSGHFNN

RMWDVATGDC| Q VCVGGHTNWV RVWDTESGQAVFAPFESHTLAVLFIA
 TKKVSGNFDNTVKLWDVATGKKITTVTGHRDWILDVGS K LASASEDNTIKLWSLS PMAVVGTANRGLIVYSLENTPTEFKRQDSPYQHRTISTFR SRIV SGGS S D R T VVRQWDAN T GEPDGHPFK G A A A TVVRSVA

## R

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 $V \vee S G$ $K L L V V G$ TRAA A GSSDGT TR ATAS WDGTRLWNTETGKPAGDPF R GHDRWVWSVA QYLVTASEDHTAKLWT LD GQQLDTERRGHQAPLLKSAVVLGVA QLVASASGDKTVRLWVAATRTCRSTL E S S HSDDVTAVA R R A S GS F DK SVVRVWDVETGAQVGEAGGVGHMSPVRRVA T R L V S G S

T $T R L V G S A G G$

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 AT C QYLASGEEN Q I S ASGDMRFVS G
QRITGSKDSTVRIWElR KMIA T A SH NLLASGGDE $K \cup \vee \vee I G L S N N T V Q L W D T Q T$ QTLAS GSRDKTIKLW

## TI WDIDSDRCLKTLQGHGATVWALD W



## QUERY

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UniRef90-AOYMI4
UniRef90-K9QMH3 UniRef90-AOYQ70 UniRef90-BODF52 UniRef90-B8LTB2 UniRef90 ${ }^{-K}{ }^{-142 X 7}$ UniRef90-B2AVF6 UniRef90-G4TW87 UniRef90 UPI0004621BBF UniRef90-UPIO003484B7B UniRef90_UPI0003494B42 UniRef90 G4TJB8 UniRef90-UPI0004127753 UniRef90-G4TUL7 UniRef90-G4TYS4 UniRef90_A7IQV9 UniRef90-M2PLA9 UniRef90-L8M6F4 UniRef90-UPI000379E967 UniRef90_UPI00047EAC18 UniRef90-V5G1G9
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UniRef90 KgU115
UniRef90-B8MUB1
UniRef90-UPIOOO2D3604D
UniRef90-K9WD03 UniRef90-BoC7J8 UniRef90_UPIO0044094BC UniRef90_A7BW04
UniRef90 A0EG79 UniRef90-UPIO0034BEF5F UniRef90_UPI00044096FC UniRef90-UPI0002E14B2F UniRet90-X0НX70
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UniRef90-A0A034WU42
UniRef90-M2PL68
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UniRef90-X6MIE6
UniRef90-A8NOC0
UniRef90-B9WJB3
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## E

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HSDGVNS $\square$ MFSPD GELLVSGSA DST $\square K L W N$ V Y K R
पQGHDSTVTVVAFSPDGSClVSSSWDRTLRLWDS KCEKTLSGHEGRVWSVAFSPDGKKLVSGSDDRTVRI WNL CVQAEEGHTNWVTSVAFSSDGKRVVSGSRDKTVLIVNVV

LE A H T DVVVS S I A F S P D G L F L A S G S Y D K S
NELQTFEG



$K$ LI R T L T G H Q E R V T C V K F S P D G K M I A A A S D D K T I K TVN

 $T$ D $\square A F S P N G Q \square V A \square A N \square D N T V Q L W N$
 $V L R G H L D Q V W S A D F S P D G Q Q R V V S A S L D D G S V R I V N A$
 CLLQTVLE G H S D R V R S V A F S H D S T WL V S A S D D R TVV K I W DV L P N T G S D I R SVA F S S N A S HV A C G L E S G D I Y i C CL QLIR
 H QLK T N GHVQ DVS N Q 1


 LS G H K D E V T D $V$ V $\operatorname{S}$ F S P D G K II A T A S K D K T $V$ K

NDYT $\quad$ P T P $\square$ N D GVQ D LA WS P T S NVLVA GS WDNFVRCWEV $\square K K L T G H T A V V T A V A F S L D G T R I A S G S S D M T I R V W D A$ VPMVH G L WV LDD D DVSD D G A L I A S T G VD K IVV R L WD T $C \square K N F \backsim G H T G Q V I S V G F S P D G K H V V S G S D D W T I R I W D A$ E L S E P P S D A I S AL K F A P D S S RL L V S S WD R HVYYL Y D

 K ELLRTLT GHS D WV TA V A LTT P D GQQVI SAS D D S TIIKV WS L GHSD NVQTI S FSPNGQFLAS GSNDRSI K I WNA
VM D P C D D E V Y S V A F S P D GR HVVVS GC D G H S V M V WD
 QLQLLE GHCNSVRGVQFSSDGSKILSYASDKTIRIWDV

QTFTGHTDSVLAVAFS DGGTLASGSADTTVRLWNT QVLE GHKGAVRSVAFSSDKKRIFSASEDKTIVVWNV PK A N N D WI TSS I S F S P D G K T L A A A S R D K T V V K L W S R LS H D E E N V V S A A F A P D G R QL A T G G D D G T V R L WD L




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\(E L P S P P T D G V T A L R F F A D T P L L L A S S W D G T A R V Y D T\) \(A L T P C G K R V T W G C S N G D \square W D V\)
HESLVKAVAVSPNGSQICSSSEDGTVRLWDT
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LE GHTDKANSVIFSPDSARLYSCSRDGTVR\WDV
 QELGVFNGHKE AVSAV FSPDGKILATGHSEGSISLWD QELGVVFNGHKEYVLSLSFSPDSKTIATSSNDGTARVWSI $S G V S \square A I L S V R Y S H S G R H I V S G S F D G T V V V W D V$ Q CLLKTFK GHNRRV GSVAFSPNGTHLAS GSEDQTVVKIWDM

$\square E G H K N V V Y C \square A F N P F G D R V V T G S F D K T A K \square W D A$
$\square K T \square E$ Q GHTGS ILTVAFSSNSRYLATGSQDNTCKDWDV

 $Q \square A T$
$E M E \| L$ GHQ A IVVRS V K F S P D G Q F I A S G G D D G T V
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RS GQLLTTLGHSRAVNSVSFSPDNK IVVSGSADNT


 H DD CVNSVAFSHDS


SPGKLLQT LEGNNNQDNS\SFSPNQQLLAVADVDG历

## ATGA

 HTGKVRSLALSQDGK $\qquad$ | $L$ | $L$ | $A$ |
| :---: | :---: | :---: |
| $L$ | $L$ | $A$ |
| $R F$ | $A$ |  | $A V A D$

$A S G A$
$A T G G G$
$A S V S$ L H T GHTGAARGAF



D K N G
 $H T G E P P G G P L K$
$Q T G Q S V V G D P M T$
,

## K



## LS N K Q QL HVL

$Q T G R Q D Q V F E G$
$R T G E L V L G P R$ $\qquad$ H S S NVVR
T
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 AT GKP $\square \mathrm{H}$ T

## Q Q Q GTQFN $\stackrel{L}{L} \frac{L}{P}$ Q $T^{T} Q_{l}^{L}$

 HTDRAYAVAF
$\qquad$

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V TGVRR
\begin{tabular}{llll}
\(K\) & \(Q\) & \(T\) & \(L\) \\
\(L\) & \(T\) & \(G\) \\
\(Q\) & \(T\) \\
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\end{tabular}
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K THG G VA GP $\quad$ F $V$ V


 | $H$ | $S$ | $D$ | $S$ |  |
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| $H$ | $H$ | $A$ | $L$ | $A$ | EHEHSVTA V VA F

GHGVLAFSGDGST


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& R ~ A \\
& \text { G K } \\
& \mathrm{D}
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K T G R LVRNNL Y GHS S WV R T V A F S

S S G $\square Q \mathrm{Q}$ Q $V$ I DEDNVNGAQF

 ETGQATGEP FVGHTKEVYCMSVS PNGRLHLASGGACDT D GQQLLNTLP GEDQVWGVAWSADGET $\left\lvert\, \begin{array}{ll}\text { D A S A S K D K T }\end{array}\right.$ SDPARPAPL GEPAEA D G S V R AVAFAPD GNTM AT G GY D GT

 STGGGDEAKLLGGSFEHRAPVLGGCFGADEN EAFTA GMDH Q

 Y T A
 QDLGAAHTLPIVPALSSAVVCIRYSHTGQRLVVSGSEDGT S DLLE HPRPLATLWGHT DAVRTAVFSPDGRTLDATA GND HT
 E GQG $R T G E L V R G \stackrel{L}{L} P$
 QSNAD PVT CRATGGHSASVKCVAFSPDGS Ms G $\square$ R R S RGSLLQMS HNYEIVCTSF
 $\begin{array}{llll}K A F K G L & T & K \\ V & G L Q K S \\ A\end{array}$ HR R R Q $\square A L L E R$ SHT GTVFSVAFSADG
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LSGKQ QQLLEGHNRDNGDKVSPDDSKLISCSNDKTRDWG LS GEQLQNFRGHHVVWNAQFLPDSTTIVSYSWDKTUR WWG S S C
DGTLLIA LKGDKDEDTSVTFSPDGK LLAAGSG
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$S V G G E R Q A T K G H S S W V V N F S R D G S K I V S C S D K T T R V W E ~$ DGRQRAVLSGHGGGDYQATFSPDGGRLATADSAGSVRLWG VTGAHKHTLT GHRENVSVSFSPDDGNSVAASGSWDYTVMTTG
 A S
GTGASDQTLEHVGRVRAVAFSPDGGVLASACGYGTVKGTG DARQKLKTFTTCNQSITLKFNKVGDIFAYTVSYDWSGGVE

 NAKRRI RQYQRY PA SVAALAFSGDGKFLAVG
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 ETG
QTGKELFTL KGHTNSVVAVTPDSKRADSASVDKTDKVWG ATGA YYRTINAHDT $\square E Y L A F D P D S Q L L A S C S S D D T M R L W A$ ETRTQISGPLTGHDGAVAAFGPDGRTLISGGADRTVRQW


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#### Abstract

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TSGGHARATYTVGFSPNGQVLASGSGDRTVKVWNL VLTGHDGVVSDAAFSPDSRVVTTVSGDMTVRMWDP

GHSSAVRSVTYSPDGKTDASASDDKTVKLWSA FKVLKAHLLPLTNVAFNKSGSNFDTGSYDRTCKVWDT $\square Q L L Q S W I G H D D S I D N I T F S P N A E Q I A T A S K D K T V K L W$ KDVEVSSPPDDTVSALEFSPPSTFLIAGSWDCQVRCWEV LSPTHTSYVKSVRFSRSGSLLVSCSLDGACKVW CLKLRGHQHGVWSVQWSPDGQILASGDVNGQDRLWNV LLEGHTDWVWCVAFSPDGAC ASGSLDDTVRL WDS DEGKHGHEEYVTCVIWSWDGRSLASASEDKTIRVWNA KCEKTVQGFRNRDWSVVFNFTNSMDACSSEDNQDHLWNK QGHTGDVNSVSFSPDGSQTASGSRDNTПRПwNA QGHTGDVNSVSFSPDGSQLASGSRDNTVRLWNA LKCHTSSIWSAAFAPNNLHLASASEDNTVQLWDV HSAPDNAVLKVAFASDGS LVSASADKTLKTWTF LLSGHSAAVYSLK KSPSGQHVASCSFDRSILLWDV KILTGHTHSVTCVKWGGDG LLYTSSQDRTI KVWRA HQGSAWACRFRPDDTQLVTAGDDGVVQI WDA HNDRVYAVSVTPDGLKAVSASRDHTLKLWDLL
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K
Q
E
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| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $A$ | $G$ |  |  |  |  |  |  |  |
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| $A$ | $G$ |  |  |  |  |  |  |  |

 HKDTVAALAFT


 | $H$ | $S$ | $G$ | $T$ | $V$ | $W$ | $T$ | $A$ | $F$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $G$ | $S$ |  |  |  |  |  |  |  |
| $G$ | $T$ | $G$ | $N$ | $I$ | $K$ | $S$ | $V$ | $K$ |




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| :---: | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | FRPDGKVLATAGQ VRLWAVPTSDMVGRNGA MRLWDI TGQQPYNLVGHAS GVYSVC $17 K L W A V R T G K L L R I L A G N S N S A R H I A F N$

 | $\mathrm{N} P$ |
| :--- |
| F |
| F |
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 FTYDD $\square R D T G P \square G S V A \square S H D S A Q L A L A S H S F T \Pi H I W N T$ GHTDAlVSLTFSPDGSTLASGGNDNAVRLWDV
पNTR पMFDEHTDTVNNTSFSPDSQLTASASNDKTVKTWNT GTSMQTLNGHCSRVNDARFSPDKKTIVSCSDDCTIRLWDL H REGND $\quad$ FSVNSAAVWSKDNULATASDDSTVKLWD

TLGGHDVIRDVKFFPNSQT VSCSMDKT RR LWD■ WNDQGKLLKT $\square$ MAHNAYSFSPDGHTHAAGYDNTVKLWS V NAVAFSPDGTKLVAGCDDGTAWLUDA

NAHSSSMVNAVA DDSDDKYTFSGSNDQTTKTWE WVTSISFSPDGRYLAAGNRDKTIKILSR GWVTSVADSRDGRRIVSASVDKTIRVWSA GHNGGINVIHSSPDSSKIVSCAMDKTIRLWGS NQHDAAVNTLADTPDNQTLISGSADSTIKLWNL GHSDEVNAVQFSPDGSKIVSCSADKTIRLWEI GSUVYTLTGHSNWVMSVAFSPDGSC|ASGSNDNTVAREWNV NAVAFSPDGSRIASGSEDKTVRI WDS HQGSTSG VLATAARDGRTGFQRSMAFSPDGRTLAVRTGNGSLYLWNV ThTGHNAEVFSVADSPDGKTLASGSGDTTUKLWNL TKPTSRMVGHQKQVNHVTFSPDGSLI ASAGWDNHTKLWNA LQVLRGHKDEVF SCAFNYEGDTIDTGSKDNTCKIY
GHTRE $\square N A V A \square A P N Q R T V V S A G G D S C \prod K V W D T$
 HR DS LSDSQFVFPVNSLCFVPNSNDLYTGGSDGCMSCWNL HEKAVA

F VGH TEWVY
$\qquad$ RTVFSTDGSR1IASTAEDDTMRVWDV ND $\square$ HGPMRGH $\square$ NYVNCVRFSADGSALVSGSSDGTVRMWDV FQVTLVAFSPTGQRLAAGLRGGIIKMWRT FEYDKSDKGHANAITSAIFSPSCKYLDTSSDDSTCRVYDT WDATAGNDRTTLKGNWLAFSPDSKTVASAGADNSARLWNS WVDSVAFSPDGKSIVSGSEDRTARVWDL
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GAVGGYQDTYAVNDTAFHPVHGTLATVGSDGSFSFWDK LWDTASGEGHQGVVSYLSFSPDEKTLLSSSSEVALRLWDV WYQLVGHQSWVLSV VWSPDGRFLASGSADHTVRVWNS GHGGGVNCVAYSPDGARIVSGADDHTVRLWDA GHGRRLRCI AWGPDRRRLATGSDDSTVRVWDT HWATLAGGSREVLDVCFDYAGQRIATASADGSARVYNA HKKGVLSV $\square$

NSVAFSPDGKY VSGSEDGTMRIWDA MVLGPDRSHDW■INSVAFSPDGKYUVSGSEDGTMR\|WDA GAVLRTFSGPSDYVFGVAVSKDGSRTAAGGADSVLFTWNG HSFDRTLI RCGWSSDMRFVASGSADRYVYIWDA
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300
310
D D GTLLQTFQGHDWVIWG|VNCSPDGQR|L|ASCSYDTTVKLWG VT GEI DFVLP GHKI GPASMAFSPDGGILATSD ESGRQLQLFEGHGPVDVVQFSPDGSKIASCSHDSTVRTWG STPRLLGAPDTGHANTVLTFSQDGDTLVSGSYDDTVRIWD ASGAQLRVLE GHQGLVSHDSFSPDGKMLLSSEYKSKGSG STGNDMRGPMHGHSGYVVRFSPDGSLIATGSSDGTVRVW
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GGKASEP VVIRGHADEVISFDATGQT $\square$ LSAS LDDTARVWR HVK D S L
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E GDVLRTTNHDFPVWTVSFSPDGQKПASVSDDQ\TRLWG QS GKEFKKLETHSSVTSVQFSPDGVYI ISGSDDGSIRLWG KNWNLIQTLNGDGEGF TS DSFSPNGETIATSEDKIKLWN DSKQRLKRLSAHHPSHA

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 D GQLWKTFPKHDEVWGIAWSTDGQIIVASASKDKMVKLWG THSTLL NNCKIV
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 PSGQCLQTLSGYNAVWAVAFSPDSQILASCGEDNCIRLWG
 RDGKFITTLRAHAPVYQCAFSADSRLLVTASKDTTLKVWG
 NS LITNTFFGHTDEVTSVKFTKNGQEINSVSDDGTMK』WR TS RKK DEQLPKFDENSDVETVCNGDVLCVATSDDSFKTNP RDPSAPVPVTRTASSGSVTFGPRPDVLASVGSDSAMRVW ENGDELHRFAGHGKGVSVQFSQGGDRALSAGLDGTVRLWK
 APRYCMWKIRGHSRRSSLVFSGSGNQLASASEDFTVKVWS


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促

DARTKLKSTELLDQSTKCAFNHSGQDFAYAVGYDWSKGHE KSGRCEQTFTGHERNVVQAFFPDGKRVISCSDDGSTRAWE
 SNGEAHGVPLKGHRNRAMCVAFSPDGVYIASGDDTIRLWN ATGEC LTLE GHEGAVTCLLWDGRTIASGSNDHDVRLWG GTKQC, AKLEGHDE NGNHLSNLEGHGAVESMVFSQDSETVATASQDETAK WK QTGQTVAGPWEAHSG
STGQDIHGPMRGHDGWVNCVRFSPDNLVVGSSDGT■R■W
Q NAQVDRKDEPPAPPSAT
ETGNLRYHLP GHTGSVATFHPTEP $\square V G S C S S D K T \square$
ETGTRVAELTGHSGRVCLSFSPDGTRLASGGDDGTVRLRR GTGEELVTFSGDSPMICCSVSPDG LTVVAGDSSGKVH QTGQCLQVLEGHDE DFSCTFNYKGN■VITGSKDNT CRIUWR
TDPARATSFDHHGSVSDLAYSPDGRTLASAGDDDKVRLWD $K T G E Q K S K L S G N S G W V V C F S P D G T L I A S G S R D K S L H L W D$
HT GDLLKTLTRHSD $\quad$ E G L A F S F N Q NEHMLAS GDD
D
VS GKQ $\square$ QS $L E E H N D \square N E \square Q L S D D G S K L V S C S S D R T \square R L W S$ HTRKCKRILQGHNWVSSVAVSPNGEWVASGSWDKTVCLWE ETGQVLQSLVGHDEIFSCSFNYEGDTILTGSKDNTCRIWK P S
P S
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VTDRSLTGHTDWI WSV
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ADGTGLRGHDDWV
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RQVVNLAGHRGRV
$R \| V Q P \square P F R G H Q$
ADGTVLRGHEDRV

VLETTMGHTDRTND $\square \mathrm{D}$
RALKSLQGHSRAV
R Q G Q
$T$ LLKTLLGHQNSV
VAPPT

NVIRTVTGHSYSVNAV
QLLQTLVGHEDTVF
$K \square L E T \square S G$
N V A A $\square \mathrm{Y}$ V VQE $\square \mathrm{EHP}$
GCDGSL
EHDQSLAGHTGVIWSV
V S DKPLTGHRGFV
KMATD $\square$ P GHEDEVYGVD

K DGKLLK

Q Q P E S F P G S R S Q $\downarrow$ Y
SQN
T Q V G P $\square \mathrm{KGH}$ T N WV H S V
A A ${ }^{\top}$ K E V V $\square$ S $\square$ Q A H DFF $\square$ S Y
$\square V A Q H \square E G H T N R V T G D D$
$\underset{R}{V} \operatorname{PSSSV}$
R
Q VPP LVGHAHWV
D QLAELQGHAGPV
ADGKTLKGHNAAVW
VCKQVLEGHTEEIF
HYN PNKKTFIY L RASYE
GQSRTRSVESRVVY
GQSRETRTGEQGTVKA $\quad$ R

RCHKGLEGHTNHV
HCLQQLEGHTDEIF
QCLQTLSPEKPY
EELATMRGHED V V
$\underset{\mathrm{S}}{\mathrm{V}} \mathrm{G}$ D S P LT G H T E A $\square$

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EQLA \LRGHEGATYGVISFSPDGQY\|ATASSDETAKDW
LLEGHSKRVDGUKFSPDGTK\|VSYSRDNT 1 R $\downarrow$ WDA
KCYHTFRGHTAE VCLSFNPQSTLVATGSMDTTAK LWDV
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GHTNWVKSVSFSPNGPWLASGSGDGTVRIWST
Q Q V V N N K

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GHKDAVTSVCFNHNMKQLVTGSLDNCVMVWNF VA T LTT GHPG VVRAVEFSP DGQLLVSGGDNGULKFWKL
$V N D V A F T P D G Q H L V S G S L S D W V R V W N V$ QCDMLSGHGAAVYSLAFSPLGKTAASASFDRSI FLWTV



 PT GHRDFVRT』A $\quad$ RAPD GK LAVSASDDSTLKVWDV E LLA GHMGEVMAAAFSPDGQRVVTASVDKTARVWRA
 E LI H T L T G H S G K V A S VA DS P D GE TVVVS G CA D Q T I N I WN L

AF S S DFQT LVT $\square E G N N K \square K \square W K P$ $\square 1 \mathrm{~K}$ TFPAHDDWDSSVRFNPQYNLLASGSGDGHVKLWDF GHSNYVDAVAWSPDGKWIASGSRDKTVQVWNA
 Q H $\square H T L R G H T D Y V R M V A F S P D G K Q I V S G S D D K T V C I W N V$ $L L$ G GHTNAVYHVALSPDGKAVATAGYDGTVLVRKI
 LD G H Q D WV LS V A F S G D GR L A S A G H D G T V R L WD V H T D HVVHAVAFSPD GT TLATGGD DGTVVLLWDV

VLQ A H D R S VS S VRF S A D C R KIVSAS Y D N TVQIWDA Y I R S V C F S P D GK Y L A T GAE D K Q $\square R \| W D \square$

EEATYSVYLSADGRWLASGGGDKTVRVWEV $\square K \square L K G H T N Y V F C V N Y N P Q S N L I V S G S F D E S V R I W D V$

K C L F T L N G H LD Y VR TVVY H H D LP W I I S A S D D Q T I R I WN W Y ALGFRPDGRTLAT GSGDGKVRLWSV
$\square K R L E G H E G F V N C V T Y S P D G K T L A S A S V D F T V R L W K L$ VAFSPNGKHVVSGATD GSVII WDA
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 $\square L S G H K G A I L D L Q W S R D S K T I F S A S A D M T L A S W D I$

LT GHSKGVIAVAFSRDGRTDT TASTDRAVRQWDT CVAFSPDGSRIASGANDKTVRLWDP KELLKVFRGHSSAVSSVRFSPD DRKVVSASD DETVR】WDV

LT GHRGSVTRVVFHPVFN I VSASEDAT $\quad$ VKVWDY
LS G H D E F VT R VVF T P D G K QL F S S S S N G S V I H W HTGPVNSVALST DGSQFVSASADGTI CVWD 1 LD GHGDNICTIAFSHDSRLLASTSRDGTIKVWDS
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 D P F S QVLF S P DARTLAVLT T GRVQLWNV

FEGHGHFVNSVAFSPDGKR\|VSGSRDESVIIWDV
GHT A P $\square$ R A $\square$ A $\square$ S P A S D WF VT A G A D R T VR VWN A
 MNEYHSFGRQEDRVWSLDWSKDGEQ $\operatorname{LGATNSQDNQ\| LIFN}$ Q T LT A HKRAVSA VK F S S D G L L L G S S S A D K T L R T W
$\square K L I K T \prod Q A S Q G W V Q S V A F S P N G K Y D A A G C S N S H F Y T W N V$ $L K G H T K A V M D V D F D P R G G L M A T C S S D L T L K L W D T$

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E
A

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DRTVRLWDVETGQQUG QPLEGHTNWVSCVAF SPD







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©
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D R QV KL W RMSETKAWEVDTCRGHTNNVLSVTFH P H Q

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D N AI HV WD 1 R K K A $\square V$ Y S MA GHMD T IT S

D R GVQ L WD T S T GR LRKTLPERTT



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 D D
D R S $V$ V R L W W

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 SV

TAVELLGHT DEVLLSASFSA DGERVVTASRASSARVWRW

HS DAVK S $\quad \square$ T L S P D G QLL F S G S S D R T $\square N \square W Q \square$ PS A Y Q H LA S L A G LKK K P PA A S S SAE YL A T G GRDKLI KI H S
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 $H D K A V T G V H \quad$ Y S P D GQ I I V S CAK D S T V R IVWDV

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$H N D L V Y S D D$
F S P N G S Y VVTT S S F D S TAK L WD L
QH $\square$ NWVRCARFSPDGRLIVSASDDKT DKLWDK
RPLGTP LTD HSGPVNALAFGPDGHTWASGSDDDTVRLWDP $L I G H V A A V R C V Q F D G \quad R R I V S G G Y D Y M V K I W D P$ VATFGGHSDNVVTRLRFSPDAKKVVSASDDGTVRVY

CLTG GP FRA G NVD S V A F L P D R K R V A S S S S D G T I R I WD A

A QLR S

K LP GHKGTVNDVRFTPNNP IVVSASSDRNLML
$C$ VA TLA GH S G WVVS S V A A V P D G R R V V
$H \square V M S V V F S P D G A Y$ V $V$ V G S Y D R T I I V V W A
HSDVVSD

DD H D GFTNY | $V$ | $K$ | $F$ | $F$ | $P$ | $D$ | $G$ | $E$ | $K$ | $V$ | $S$ | $S$ | $S$ | $N$ | $D$ | $N$ | $T$ | $I$ | $L$ | $W$ | $D$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $V$ | $F$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $V$ | $F$ | $S$ | $P$ | $D$ | $G$ | $T$ | $C$ | $A$ | $C$ | $A$ | $G$ | $S$ | $D$ | $H$ | $T$ |  |  |  |  |  |
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R DE WA GD $\square$ S NF VGCCCI TSSP DGSYAAS GSVGGGTMRMVWHT




 K T G

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A $\square$ GKCMRTLVGHSTTSS LSFSATGDQLASAGFAD
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$R E G Q L L Y T V H G E G A T N T A F S P A G D Y F A S C G A D E Q V M V W K$ REGQLLYTLHGHEGATNTAFSPAGDYFASCGADEQVMVWK
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K GNLLQTFKGHEK $\quad$ YSVAFSPNGKH LLTGSMDKTAK LWG TSRECIHSFEHGGFVNHVDFHPSGTCIAAAGTDNTVKVW
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EFGK LT G LSSEEQE VVAADSPDGGRVAVGYRDGK LIWD LT GKLAKAPLR GHRVSSVSFSRDGQKLVSSSEDESVRVW MTGQALQVLEGHHSLTSVHFSPDSNYILSSSWDRTI RLWG HTGQP: GDPLRGHGGGVRCVAFSGDKLVSGSDDRTIVIWD SNSQCIQTFEGHNS ISLVAFSYDSTRLASASK GTVKVW

ATGECVAT LEGGHSEVYVAVFPDGRRVVSGSDDETVKVWG GTGRLRETLPGHTDTVVTFSPDGRTLATGSADDTARLW SDGNII SELYQGHTDTCIAFSPGGSHIVSCSFDTTDRIWE
 K NRRNNKTLDAHHFVTSLDFHRSTPYVITGSVDQTVKVWQ R GTCLMTLTGHNWVRAIVFHPGGRYLLSVSDDKTLRCW E GQLLHTLKSDPPIDQ AD SPDSQWI ATAASDGMVRLWD QTGRLIMSPLQAPPNGAFAFSPDGKYLVSCCA GTAACTATFEGQSEPWNESDAFSHDYKLLASGKD KSGKELNK LEGHTGWVVSFSPDSD IIASGSTDKT $\square$ R $\square W K$
SGDMSAVAVLKGHSRFVVTFSPDGERVVTGSGDGTARDWT QTRQVLQTLE GHRDVVLAVATNSAQNMIASAS HT GKFI ATLS GHGAVVYVCWSSDSRGIVSASKDSTVVVWE


ERETCDMDDGHKDPVNAVQFSNDGRR■VSGSDTVRVWS LGKEGYSSMTRGVPDNVVA
KTGKVLHTMNHHSAAVSVVFNPKGDILASGSYDKT円NTWG ATGEQQAALRGHDPVNAVTGAPDGTWMATASSDWSVRIWD STGKFLKTYTGHNSKFCISSTFSGKYIVSGSEDNWDLQTR D GKLIAKLIGHEDLVQNFDPDGKQIVSVSSDRTDRLWS D GRHLQTFVS HTAPLTQLAFSPDGETLASAD SQGYLVERLEGGHKDSVYSVAFSPNGLVSGSLDKTTKMWG QTRKIVQKLEGHDTVISVSCHPSQNMI ASGASDKTVKIWT ESGRTLRVMGGHTEVMSVAFSADGRLALSGAEDCTMRLWG


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K T

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## QCLKTL

LY D
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VA D
VCVHTLVGHQS
S N
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ECVATLAGHSVSV
A
R LLYT $\square$ HGHKGPV

## Q

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FKVLRAH L LPLTNVAFNKSGSRFITGGYDRTCKVWDT $L S$ GHQ G EVVY S CK F H P D G R V I A S A GY D R QL

G H K D WVN A $\square$ K LD A A S R T VF S A S D D C T $\square R \square W D \square$
GHRNWVLVIQWSPNGKMLASGDMNGDワCLWDP
$\square M L L R D H T D G V S T V V Y S P D G Q F F A S$ GSRDETVRLLW
VHTLKGHTSWVLAVSWSPDESRTATGSMDNTVRПWDP FKGHKDVVTSVDFNPNTKQLASASKDTFLMI WNL $\square R \square F K G H T N G V M C L Q F \quad E D N Q L A T G S Y D A T I K I W D T$ GHTGRVYTLDFHPEGTLLVSGDTDGQVRLWDP HQDDVRSVSFSPDGQ II T S SRDKTI KL W
QELDTDKGHTNSVTTIAVTSDGRQVISGSYDSTLKVWDL


P N G A Q $\square$ A S G S GDHS $\square R \square W N A$
LS GHASP ILCASFSPTGSLLATGSGDATARLLWNL
 $\square K N V G F S P D R K T L A S V D$
$\square$ VSClAVHPCKEDLVSCGED R DWKV LT PVEELKAHTSWVQVLSWSPDGRYLVSGSKDGDLANWTH LDSHTATVKSVAFSPDGQLI ASASTDQTVKLWN

K F


GHKDSVTSDAFSKNAQKLFSGSRDCTALMWSV. QTFEGHSGSVNSVAFSNDGKRIASGSYDNTVKVWNM

KSTR $\square \square R G H A D W V N S V K \square D T A S R T V F S A S D D \square T V R \square W D D^{N}$ TSWVSSAVFSPDGRTLAGAGDDGKI RRWDL GHTDWLSDCCFHPSGDKLATSSGDTSVKLWDL
QLAADTGHDD VVTSVAFAPDGRTVAAGGGDHTVRLWND HSAGVKCVEYTGLLNGILTGSWDRTVKLWD

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GHTKAVSSVKFSPDGQWLASSSADKLTKTWGA KNDRTDPGHDHSISSVRFDPSGNTLVSASRDKTLRIWDV KNTKTFPGHEHTVSAVRFMPGDQQVVSASRDRTIRIFDV KPLA ILRGHAQAVDEVAFSPKGDRLATGGGDGTVRLWRR ELVHTFRGHEWQVNCVSFSPDGELLASGSWDNTVRLWSL K N $\square$ K T

LEGHEQQVWNVSFSPDGKTVASVSNDNS LRLWSF 1 LAHAGIVTSI A IT PDNKY LDSASEDKTLKLWDI VLRGHTEWIQRUADSPDSHWLATGSWDTTURLWDL

VESMAFDPDGKTLAAGSYDGTVR\WDL $K C L R V L K G H Q R S V E T V S F S P D S R Q L A S G G W D K R V M L W E V$
 SKlK L GA】
$\qquad$ GHSMS IS SVK F SPD GMLLAS CSADNDVVKIWS P GHTS Y V F CVNYN LT S TVLVVSGGCD GDVRIWNP QL L K
 $\square K \square \mathrm{~K}_{\mathrm{R}} \mathrm{R}$ GHTE GVVSVDFSSDSKQIVSGSYDCTIRI WDV M $\operatorname{R} V Q G V A V S P N G R T V A S A S D D G T A R L W D$ $\square K$ D A GHLSWVVHGVMF $S P D$
 GHLS WV
DE K F D E EHDGPVRGIA FHNQQP L F VVSGGDDF KI K V WN Y
 $C \nabla K T \quad$ L G


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 I R L WVPNDKGESTVYKAHTATVRSVS FSSDGQCLVTAS D $V$ K V WN WR T G D C I S T Y T G $\quad$ H R G GVI G L L H F D A T I L A S A S V V R L WR HRA I S LL RQQP VE HRGSA WACRFRP QDSQLVT VGN

 $V$ L M Y D L N S GRE TMC IL CY TVDFYHVFFPALS T CRLWWNVQTRKADGVYDGHTGEVVGAVFAPANSRCFGSCSV



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U8.2S
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## UniRef90 BoJgP8

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UniRef90-K9X9R5 UniRef90-E4WEE1
UniReffo-o9HG10
UniRef90-×6P4L5
UniRef90-K6MLE4
UniRef9-K
UniRef90-X6P6T2
UniRef90-14EH17
UniRef90 $\times 8 \mathrm{~J} 5 \mathrm{~S} 2$
UniReffo-J9MUN6
UniRef90-R7SOF9
UniRef90-D4AM37
UniRef90-D6XBE4
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170
180

200 YYLVVASGDTTINIYDLRNVSRPMQERRSPQKYKTVSIGC KVGAFDHTYSRP TWVVS GS DDCKVGLWDARDS

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




 L S TE F VTR T GYFDHTGGKVPPATEEE $R L I A S C S D D K T V R \square W D I S N R M C I N T F T D S G G F A S Y V$ $R T V F S A S D D C T V R L W D L D T K S C I R T F H G H V G Q V Q Q V V P L P$



 K LVA TG S C D STVVRLWDTRYGGCF R CDEHHDADISSSVS
 $K K G V T A S S D R T V R V W D A D G G R P L H A D K D H A H W D T T L R Y T D$





 K KILSSCSWDCTI RLWD DSEDKCYEWKGHENLIND



 QY LCS GS WDK TVR L WD DETLK LLQQ
 H M I A S C D A C G V I K L WD F R K L L P P V S I D V G P S P G N E V N $P R V V T G S A D G D G H V W D A \square T G G E L V T L S G Q \quad G A M V R S F A$
 EWVMS GSKDRGVQFWDPQTG DLI AS AS D DGAARLWNTSTGVQ\|AVLTTGGNDRKVL
 D
K K VA S G S N D K T I $A$ H L W WN A R S Q R C C V K A

 $K Y$ L L S G S D D H T I R V WE L A T G R C V K TVV Q A H S H F V T C L A W
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 N Y L L S S S E D G T V R L WS L Q T F T C L V GYY K H N Y P V WD T


 GYIVSASHDKTVRVWDAARGTLVHE
 R T L A S G S Q R G Q I R L WN VA D A S S P GMM GT L S GHTGVV MSVVA


 D AVVKHVLE GHDRGVN E FLVTTSYDNLAKVW

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## UniRef90 BoJGP8

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UniRef90 - 14727 UniRef90-Q10WC0 UniRef90_W5W1B6 UniRef90-S7NML8 UniRef90-Q7Q0NO UniRef90-K9Q5L4 UniRef90_AODB19 UniRef90_Q98HK1

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 QFSPDGRYFISASFDKNLKGWDLFVSGSKDSTMKVWDIKT FSPNGEMIUASGSDDKTVRFWDLEGQL DLKWSPNGCQTASASADKTLMLWDSNKGTRDRKCKEHTGC KVKKAKERFLKASQDQGEVVERLVTASDDFTMYLWEPSKQ DFNPSGTCVASTGWDNTLNLWDIRMNKLLQHY
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SFSPDGTTLAASSDDGMIRV FDATNDADDRQVGAPVQA FAP NGKELVSGSDDKTIKLWELNLPRQQYNSAGKGGKC RFSPNSQFVVSCSADKTI RI WDVESGKELKV QFSHDELKVVSCSYDNTI RLWDVLTG KSCKFEG FSPDGRILASAGRDSTIQLWNPLNGDRLA ILA

ALLSTDGAYLVSGFSNGRIRVWSMPSGRLITTPFDGHKD FSNDGKRIASGSYDNTVK SPDSKFVVSGSGDGVI HLWDTVEQAL LQSNANVGIVGGSGYTICSGSSDDTDRLWDVGTAKELID CVSLSDSRMATGSEDSEVRMYSF AFSPDGRMLAAASADSTASLWNVSDPAYPSQVGEPDTGSS FDSSGRVLAQASSTGVI HLLDLKSGKIDHLVGHQSEA WSP DGQRVAAGFDDGVARVWDEVSGKVV
FSPDGRTLAAAATHSVWLYDLIDPQRP ARLVETAG CFSDDGSTLA 1 ACSYM
PCPT GSLFATGSGDMRAR\|WSYGP
FSPDGELVLTALLKDYTARLWKRDGTEVRV
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AFSPDGRTपATAGHDRLVK पWS पDGTLLK
VLEG
YN HDGNTMATSSYDGCTRVWDAASGSCLKTLVD
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THPQ QNMVASASMESDLTVRRVWVDR
$H L A L S T D F V L R T G Y F D H L T G G G G A E G D P T T D E A K R E K A R A$
$Y W P R K S T E F L Y V F L L N Q Q E E E D D Q V I Q C W V R D L N L K G G$
KFSPNGLFVVSCSDDGTICVWDAAKGTPVVGPFQRHT
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TSKDSSTVKTTSDDGTARVWDTSSGPNEKTFEDQTADDF

UniRef90 BoJGP8

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```
LEGPDGHKDSVYSV
``` RCSWSPDGTKVSAGSADRHVYI WDT
！S FKDN
KTLATGGLNSTVKFWRS KKLMFDLPGHADEVYGVDWSPDGLKVCSGGKDKLLK冋W 1 K L Y GYNSMIRSLAFSPNSEQLAVGSRENMLILWDL
 TKPIARMLGHQKQVNHVAFSPDGLLIASSGFDNHTKI WNA VIS QS SPFGPSFESGRTA PPRYIVTSADDSTI RLWET WAEAFSADGTLLATANDDDSVRLWWR KEVKR DCENGVDFVRGVSFSPDNQVIAAATWDKKIILWYW TLDGHTDWV ENGFQLLNDITSTINSAAFSQDAKQLVTGSYDKSCKLWNL CTVAMSEDGRRVASTSFDKSVRVWDV HR \(\square\) KENGVEH \(\square Y\) SVHAlAFHHRYSTFATGGADGFVNMWDG HRGYEVTHAAFNASGALVVSCGTDGKAY IYDT
GASDDHGAAVPLIVFDPAGKMLLSVCLDGUVRLWDLD

 HDDEVLD

N I S L
\(V S\) WEDMS GHS DETMYATD W
\(G Q P D R K F N H G S S V N S V S F\)

\section*{HTGGI}

HRTFEGHKDFVL
WTVAF APNGQF ISAGDDGTIKLWSL HSKCVW \({ }^{\frac{L}{G} \mathrm{~N}}\) SVALATPDGHWVMSGSKDRGVQFWDP
                                    却 FTNS
K L E GHTNSVNSIVFSPDGHSLFSGSTDNTIKRW


CTTFHGHSDEVNSVAFSGDGQYVVGSYDRTVRVWNA F K G H T D GVMSVKYLN
GEMYALG
HTV
\(\square A \square A\) GHRFGVT HTNRVS

FSPDSRTLATGSGDSKVRDWS \(\square\) \(V\) FSHDGESLFSGGADGTVRVW


LA GHEKRIT A AAFSPNGRLVATSSLDGTARVWSI \(\square S \square Q D R S C E H K G A V R R C Y F S Q D G Q L L L S A S D D K T A K V F N L\) VKTFEGHKDFVLSVA A LTPDGNWVLSGSKDRGVQFWDP HQDPVTSVD
ERELKGHSSSGVYSI

FNRDGSCFVTSSDDGLVRLWDS ERELKGHSSGVYSV VVFSHDSKKVASGSYENTVRVWDA LK TYSGQSNEKYCIFANFSVTGGKWIVSGSEDHMIYIWNL

HTAPVTSVG
FSPDSRTVISAGLDKTVLLWN
TD HAPVTFVCFSPNGKYLLSAQLDSSLK LWDP NLINSFKTYHNDTVSDVNFSPDSKILATVGTDGSAKLWTV TPSYDVLSLKDTPDAKYFlSGNSDETLRLWDI \(\square R T\) VGHDNW \(\square\) HDAAVG A VFHPGGKYLLSVSDDKTLRCWDL促 RLVFYSNPDTDVQFSSNGQMILASSYGKR\AI WDV HKAE \(\square \mathrm{S} N \mathrm{~N} \mathrm{H}\)
 PKAGAPDFGMMFDQSSMAFSSDGRTLASASDDGTVRLWDT

TGHSDSVTCVA \(\square\) SHNGSTTAS GSMDKTDRLWTA GHEQD HDHS \(\square\) S S \(\square R \mathrm{~F}\) I PS GAAGAPLSGNNTVSASRDKTLRIWDV

VRVF DGHTNPV
\(N C L A D S P D G R W L A S G G E D G \| I C V W D \square\) LKTYQGHENTKYCDAACFSVTGGKWIVSGSEDKRVYLWDLL

RYEKAAG AHGKSGERLVSASDDFTMYLWDP W \(\square\) QDFDK VVIKYVNDDYSTFDDTQQLCSGSRDSTVRVWD GGIFSVGYSPDGTRIVSGGSDGTICI SDS STRGFNNEVWEVVFAPGGGTVAVACRDQTVQVWNL

 \(\square\) P \(\square\) KGHKGADKLAFSRDGRLLAATTSDKQLQLWNL
 H Y YNVSCVLFHPRADLI DSNSEDRSV R V WDM

\section*{UniRef90 BoJGP8 UniRef90-A9NWA1 UniReffo-GBJPW2 UniRef90 UPIO0020361D9 UniRef90-Q5RD06 UniRef90-T1K8X8 UniRef90 S3DLNO UniRef90_UPIO0047E76D7 UniRef90-Q24FU3 \\ UniRef90_A31XZ8 UniRef90-12CS67 \\ Unireftol-G2XY90 UniRef90-H3A1H5 UniRef90-A2QCU8 UniRef90-XoN8F0 UniRef90-D8FVV6 UniRef90 UPIO002E05433 UniRef90-UPIOO006D0362 UniRef90-R7QQP6 UniRef90- \({ }^{-1}\) 2Y739 UniRef90_G4YIS2 UniRef90-LODDT4 UniRef90-R7S496 UniRef90-V2WVD9 UniRef90- M7Z5U7 UniRef90-UPI000258F133 UniRef90-UPI00034B12BB UniRef90- GON5T1 UniRef90_UPIOOO3290D04 UniRef90-Q4QAA4 UniRef90-K9X9R5 UniRef90-E4WEE1 UniReffo-Q9HG10 UniRef90 \(\mathrm{X6P4L5}\)
UniRef90
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UniRef90 D6XBE4 UniRef90-UPI00038EE17B UniRef90-UPI00041E07DA UniRef90-R4T4J8 UniRef90-×1xWM4 UniRef90 U1GV18 UniRef90-Q6W219 UniReffo-A7RLM8 UniRef90 B4P541 UniRef90-A0A016PY06 UniRef90-R70953 UniRef90-H2YJP4} UniRef90-H6C4S7 UniRef90-K5W7Y6 UniRef90-Q7NF65 UniRef90_U9V8J6 UniRef90-Q23256 UniRef90-K1XCL2 UniRef90-B6BLP1 UniRef90-U7PZG1 UniRef90-UPIOOO3023948 UniRet90_X6LX76 UniRef90 A2F5Q7 UniRef90-L1L770 UniRef90-UPI00046B3E18 UniRef90_M5CD77 UniRef90-E3QCQ9 UniRef90-G3Q2L8 UniRef90-V9DNF4 UniRef90-UPI00037C6CF0 UniRef90-C5M2X1 UniRef90-UPIO00440C0B8 UniRef90-K5UKE1 UniRef90 U7PXI9 UniRef90-X6NIR4 UniRef90-X8J2S1 UniRef90-E3IZK7 UniRef90-G2YUC9 UniReffo-O14727 UniRef90-Q10WC0 UniRef90-W5W1B6 UniRef90-S7NML8
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HYRR \(L\) KK \(\square P G H H G A V T V V F H P S E P \| V L S G S T D\) ATGRCVKTFE GHRDFVLSVAPDNQWVMSGSKDRWDPRTG
KDDTE \(\square\) GT \(\square \mathrm{KGHGPGGVWSFSHDGTM} \mathrm{\square TTGGRDGT} \mathrm{\square K} \mathrm{\square WR}\)
K
RSRRSVQTTEHRFQLLAVADSADGKKVEAGGПDNSTQVWD RDGKFI NTL RGHVAPVCAFSSDSRLLVTCSKDTTLKVWD DEGRLIYTL HGHEGPVLTVAFSRGGEYFASGDRMIVGWG ATGAHVVTLSD HRGRVRSVAFRGDGTALATGCDWHQEGG NKPVTTPETLNGHEKWGVSFSPDGKGIASASKDNTVKLWN EQGLELHTLKGHTDWVWAVALDGKRAMSASNDCTFKIW EKGFELIKMDEKHTSFVHSVAFSPDGKLLATTDSQVYKDW ETGAQVGDALVGHTHWVRSVAMSGDGRRVVSG
FNKKRLCQFHRFPAVSSLIFSHDGSGLAVASS LTGTRRCALHGHLKAVNKVCFSMQGLLTASTDGTARVWG SRRVTVVTLPHQGAVHAAGFRPDGDAFATACEDGTARLWE QTGRTVAGPWEADSGFCVAFSPDSKHVVSGGYDGTVRIWD
RTGKFVATLGGHVGAVLAWSADGRMVVSASKDGTVKIWD DTGKFVAAFRGHVADVYISWSADSRLLLSGSKDSTLKSRE VSSFEQLALMQGHREEVSKGGPNGRHLLTSSGDRTSKLWS NKGKTLKQYTGHDNSKYCIFAFSGKWI DSGSEDCKVYVWK KSGQDHKLMGHESEAHTVVFSQDGESLFSGGSDGTVRTWS
D GKEFATFNHGAAVNNVTFSPDSQFIVSGGDDNDVKDWS DPGTRVHELGNGGGVPALALSPDGTTIVTGGQDSIVRMWT DTGNA QMMLQGHKNSVISVAPSGNLFATGSGDMRARDWR FNKKQLQQILQGHLDSVLKFLHNDTKI IDSYSNDKTURDW
 KSGREFRKFSGGMRGVSVAYSPDGSRVLTGGWDGSVRLW PSDNEQHTWD \(\square \mathrm{DPAGWIM}\)

STRRTEKDIVRAGLGDSMAVSLDGER\|VTWHNDD RSKKD \(\square\) NVFKGHDD \(\square\) NCVDFSCDGN IICSGSWDNT \(\square R F W\)
```

PAGDLV
GGS GAFRRDGQVLATAGRDGR $\square R \square W N$
ATGEM AGPLFCF LPDGDVSVLDTASLGLRAGS TARQP $\square$ AT T $\square$ TGHDA VAAVVFSPDGRTLATAGHDLTARLWN

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ED GSVVATMRRPGEATDVAFSPDSKSVVTASRDGSARDWD QEARVMYTLAGHTNKLRRCMFFNNDRULTAS LDGSLKKVWD RTASA QLMLQGHKNSVISVAPSPSGFATGSGDMRARI WS STGHA LKTLVDVDNDPVVKFSPNGRYVLSSTGNNTLKLW ETGECKE IVPLDGSAHVLSFATDGRGUVTDCG


KKAKPLKYYNGHKNKKYCDFAP LGKHIISGSEDGWSDQTK SGEKLAVFNGHRTTRVLSVSFSNDGKKLISTDDGVAILWW NT TVKVIKTY K DMSGQV WSVVAMTSDKDAFAGSYKTI. QEGKCVRVLPAHEQ \(\square\) S CLRWAP
KSGEKVKEF \(\square\) GHHG \(\backslash V Q C A F F P D C Q Y V V S S S W D E T \square R \prod W\) RQSLA QYMKGHEGPIIDVSVDGKKVATASSDKTAKI WG ASGHLDATLTNLSAGPVLAFSPDGRTLATTASGGTVRLYD
STGKA DEQAKHPSSTTCVSFSRCGRLILSSSADG\|TQTH ERGTNTLTLTDEDGVTTVADSPDTKYVAAGSLDKSVRVWG LNGSCVRIFTGHGPVHALAFSPNGKFLASGATDSWDIGHG
GSGRRLKSMRGHARASTLAFSKDGTVLISGCADNSVRVWD QTKEVVQVLEGHGDVVVVATHPQQNMIASGSSDRSIRIW

SKTKPVTRMVGHQKDNHVTFSPDGLFVASSSWDNHTKDWR ETNKQIK LLFKGHSSYVFCVKFSRNVICSSSNDKTDRWDD TTGELLHGPYQGHSDWISSVSFSPNGKLIVSG QSPSSVATLNGHGDVSSVAWVPGGRTVVSGSWDTTVRLWT STGRCLKTLFGHVEGVWALAGDTLRVVSGAQDMMTKVWG
SNGELLHAATHGGWVTDLCFSPDGKMLISAGGY
\(\square\)

TTRWAPP DP LGTRYSSSDADSPDGRLLAADVDDANVQLWD SSGALLHAATHGGWVTDLCFSPDSKMLVSAGGY
TKRQCl HTFRRENERWILAAHPNLNLFAAGHDSGT
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E RAS LVT T \(\square\) AGHES LVLEFSPDSN LLTASHDGTAR LWG

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140 10 20 30 40
QMLAVMEQPSGSVRVCQFSPDSTCLASGAADGTVVLWN ASGSMDSCLMI WSM \(\square M L \square E G H Q G D \square F S \square E F H P E G Q Y \square A S G G F D R Q \downarrow F \square W N V\)

GHSDGTDD\STSPDGTTMATVSKDKTAR\WNT EVLHTLSGHTASIQAVALISDKNFIISGSYNDLKIWDL CTRVLTGHSSWVRSVAVSADGNFIISGSGDKTVRVWN पsVVNTVHAHTSSITALADHPNGETFATVSDDGHDKLWAL

K \(\square \mathrm{LYGHSGPVYG} \mathrm{\square SFSPDRNYLDSSEDGTVR} \mathrm{\square WSL}\) GHIDNSVSHCRFSPDDKLLASCSADGTLKLWDV \(\square T G H N Y G V N C V R F S P F G T L A A S V S D G Y L I L W N S\) QGHRLPVVKVTFHPVFSQUASASEDTTVKLWDW
MQMLTKFESKSNRVKGTAFHPK पTLLAAS LHSGSTQTWNF LQAHSNAVSSI RFSADGCKI LISASYDKTIGRIWDV DETVLCLAFSRDSELLATGSLDGKVKVWRU
KLLKTCRGHTSVVSSMDYSDDGQFLCSGS DDQTVRVWDM LKGHSDWVNSTHVDTKSRTVFSASDDTTIKLWDL LSGHKGEVFTVKFNSTGTAI ASGSFDKEVFLWGV VKTLUGHDHSVSSVAFLPGDGFLVSASRDKTIKV WEL VQVLGKHDDAVQSIVWSPQHNVLISASWDSTIKVWDP TПQQFQGHTDGVTCLRF NRKYLISGSYDATVKVWDV \(\square Q A H \square G S V R S V S F S N D S R R I V S A S E D K T I R M W D V\) hFDGLRALAFHPTEPVLITASEDHTLKMWNL

\author{
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AHEGTTKSTTFSPNSK TLVSGGADNEGRTWNS QPLKTWRGHSDFI WKIAFSPDSQTIATSSYDRTARLW VMRGHDDVITCLQFY GKRILSGSDDTTLKVWSA HQGVVVGVDTSPDGEII ATGSSDRSIKLWN
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ECVKT\TGHTKGVRSLVF DNQKllTGGLDSTПKVWNY KSFKVLNGHKNDVNGIVFSSGGRYLCSGSHDNTIRLWNV MQLASVTDGHKGPVHSVQYSPSGRYLASGGGDADVKLWEP MQLIASVTD HRSV CVAVSPDGGIL IVGFGESMIRSWSA KCDFTDNGHDDY RGVSFHHDLPWI SCSDDQT:RDWN W LTGHRSPVTKVLFHPVYSVMVSSSEDAS \(\downarrow K V W D Y\)

G \(\square \mathrm{KGVKFSADGNT} \square \mathrm{VS} \square \mathrm{SCND} \square \mathrm{CS} \square \mathrm{WDV}\) VKGLSFHPKRPWVLASLHNGLIQLWD Y LWNF DOTVLEGHSSEVFACAWSPAGSLLASGSGDSTARIWTD QK QTLS GHTDAVRALAVA GGRLFSGSYDSTVRVWDE
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NT SKQ TK \(\square \mathrm{FNGHFGYVWCVKFSPNGR} \mathrm{\square T} \mathrm{\square CSASSDKT}\) DTRQVIRTYEGHVGHVQQVLILPPEYPDEEVLNGASQDNQ
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QTGKKVGTT GKAHQKAVES IVMAPDGKTLV SCSSDNT VNGKLNGKLLKTFGHANPVHDVAFSPNGKT I AT LSKE
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\(\qquad\)



H T GQCTATYRG GHSEAVNCSAFSPDGQ QLATGGGDKE ETFKSLQVLNG HTNAVWSVVAFSNKS SARGRALVLK SANHSRAVRSVAFSAD SAGDTLVRTVATLED QNRQE AC LTG
 RSEKA \(\square Q Y\) QEGHCDT \(\square\) NDAQFSSDGQ VIVSCSDDK
RMSTLIDKFEHDGKRSRPVRGTCFH NQQPLFVSGGDDYK KPQARAFRFVG HKDVVTSVQFS PVGHLLASASRDRT PDGQPSPASVHVLKHSKDVTTLDWNGEGTLLATGSYDGQ NTLQCLDVLKG Q KAAKAVARLRGEGHEAAVNGVVFTAAGGPVCVTGGLDDSF QSRTCIAVLTG HNHYVMCAAFHPKDDLVVSASLDQT E R RTYPVRVLSGHLMDVDCVKFHPNCKY ATGSNDKT


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K T G DVVHRLEG
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 HD SW R S A VDGQG RYIVSGSGDRS KSRTNTKKSLGAGQQDVTVNSVVHLLPKNQEHFVVCNRSST QSASLDVEP \(\quad\) YTFRHDGPVLSLADSSNGE QCFSGG \(\square D A T\) NTGA I A AFAKGNSPDSYVRAVCFSPDGNWLI TGAEDHVV


WK M WAVPS GD I M T GEGHTDWVSDCD FHPS GSKVVTSSG VK VLNP QT GE L H S F T G H R D Y Y Y A VA \(\square\) S P N N S L I A S G S C
 V
 I RLWDANTGIELMQFKNDFDQIWDVD 1 RIH G M K S
 \(P T \square E R Y\) Y VCVWDMETNKQUQFFNGHSSPVYNVK VCVWDMETNKQQQFFNGHSSPVYNVKFSSYHRNVICSSS Q

 WK M WAV P S G DII IMM GE GHS D WVSDCD FHPA GS S L A A T T S G

 I Y L WNAR GK LLRKFSAHQGA \(\square W D \square S \quad \square S\) PDGKTFAS AS G

 V K C WD L E T N KVI R H Y H GHLLS GV Y A L K
 L GWETK S GQLL WRLLGGHT GPVK FC C C FS P D GYLLFAS S S S


 I R L L L


\section*{}






 AR I WN


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 V K L W Q L D S G QR Y Q T L Q G H Q G WV R A L A


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DTTVKワWDFSKAECVHTFTDHTHAVWGCTWHSC DNTIKLWNLKTGELIKTDTDHSHYITS \(\quad\) T DRTI RLWDVLTGNCVRIFTGHKGPI HT
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UniRef90 U9VYY7 UniRet90-F6WIG7 UniRef90-HOEN92 UniRef90-G3H4JJ UniRef90-R7QRF1 UniRef90_B3RKM3

190
Q H T RYVT T \(C^{200}\)
\(R L I V S A S D D K T V K L W D K T S R E C I H S\)
\(E Q V I S G G D D N D J K V W D L R K N S G L Y K L K\)
FCEHGGFVNHVD GHSDTITGLS AGAPGTTADRAARLWDVATQRQTGDGLEPPPSGQNTVFEI SGSSIISFPSNEYTITKVWNDEKYITYNNCTDTHKSSVEVVA TTLISGSQDKTLRLYRLKGKGRNHLLT GGHTGEVLSVA RLVAAGSLDNTVRLWDAQTG YFLERYEGHLDSVYSVA HQLDSGSADGTVVLWDARSGLPVQTLKGHTNAVNNL
SSLASGSEDTTIKIWDWELGELERTIKGHTRAVLDVDY S KFLASGATDGRVLLWDIGHGLMVSELKGHTDTVYALR RKHHLQLINGKTGQDDYLT KLLVSCSTDQTARVWDLATGETKQELRGH EHVVEAA
 KIIJASSSDDDTICLWNAKSGERVRDFKGH ASVVTRA ADQFVVCSRSNTIAIMNMQGQVIRSCTNGKREGGDFVGFA
\(F T I F S A S S D K T I R F W D I K T G K E L Q V L S E H G G V Y S I Q F S S\) YTVCSGSSDNTVRWWDVETAKELTAFKGHEDVVWSVKYSQ DQVITGGDDNVVRVYDDRNNES ELMILQGHSDTVTGLS DGKMLISAGGYLKWWNVVTGQCAKTDDAHAHFCTSDAW NTFASGGSDGFISII WDHNAKKRM
ALVASAGDDAICRVWDLRTGRSMMTLQGHVKQILGL
NTVFSASDDTTVKMWDLATNQCVFGGVGSNGHVGQVETVI NHLVSGSYDGSVRVWRVADGNPACEPL QGHQGWVSSVA SHMVAAFSKGYTSIFNMETQQRVLTLEADGDPTGASRQLN

\section*{\(T\)}


 KVVVSGAYDYFVKVWNPDTGECLHTAAHKARAGHTNRVY RKV IS GSLD HNLKFWDLATGK CUGTDDWDRSEGHTGVWLR NKVVSGSLDRSVKLWNLRDNNANSSSNNSNKSNATCDVTY DLVVSASLDQSVRVWDISGLRKK HSAPTSMTF
 R QLA S G G WDK QV MLWEVVQS G HKLRHLEGHHDSI QSS

 ACLAA GGRDRCLRTWDTRT QDLVQQYAPAHAEGUNSVA
 DLI LSVSDDKTI RVWDLNK
\(S L L A S C S N D Q T V R V W D A A N K E C K D E D R E H E H V V E C D A W A P\)

 DLVVSASLDQTVRVWDISGLRKKN
 RHMYSGSWDRTI RVWDLATLE CKVKLEGHTEAV DYLITTSSYDNTAKLWTNRTWQPLKTLSGHDGKIMSV
 KYLASAGEDRRVRVWDLATGGLMKE
D VVASAS
NQLPQQDI FGNINAVVKYVLEGHDKGVNYAA DLIVSASLDQTVRVWDI
KYI AT GSEDRII RI WDLASKRKITRHAFHGHQVRSFEDQLQR SHIVSGSKDCTVRLWNANTGQPLVRSDCTSGSS RNVVSFATSSTDSMIHVFKIGESHPSRTFSGHQGE

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FAP 210
LLLATGSMDKTVNIIWQFD
 \(\square\) SP DGQFLASGSKDNQI KLWNLQTGQLVRTINTNSVS L GF GSGGRTL DTVSAGGVIRVWDVDTGKEGWAVELSPDGRL FTPNGEYLI SAAKDDSFILWKVDTWRIEDNDHGKSTSALT ASPNNW LLASASADCTVRFWKLNSGRETTCFK

FSPDGKSLASGSLDKSLK LWDLSGSRSRSRCRATFNG CFGRAGDVAASVDADGNVILW WR PG F LDPYSNTLL SCSADKTLSWDARTGLCAQTF
\(N W\) D F IVSGGRDKRVII WDLDRN
FSRDGETLASGSMDNTVRLWDAAKAFDDLETDDFTAATG FGDENGA I ELLEPVNNRIFQSRMRHKKTVRHDQFTADEKT LYHSLSGHSGNVYCCRFSSDGSLDASAAGDKTIIIWS IES QFSPSGHLVASTSLADKTIRDWVPSMKADSTVF
YVLEGHDRGVNWAAFHPTLPLI VSAGDDRQIKLWRMSDTK RFSPNGRFIASCSFDTS IRI WDIETGKE \(\underset{F}{V} S\) S G E W I YA
 CVGLSDSLMASGSEDGTIRLHSFKP


DFNPDGVK TATGSDDNT \(\square K \square W D \square\)
PFVYKGGDLITDSNE SDSEGAGRPSRQEENKA YSPDDGAYIVSGSWDSRSRDQVW
RVISHPTLPVTDTAHEDKHIKFHDNNTGKLIHSMVAHLEA FSPDSRQLASGGWDKRVMLWDVQSGQMLRL

 GFSTDGERLVSASYKDLTTWWDATTGASLALKSDCDWNLKG F F PFSNTLL FVQCDSNHAVVSHTDGKMNGYDLETGQUSLVLAEGDGSKY
AFTPNGESLVSASRDRTIKLWNVNKGTRV
FSSRGDRLLSAGLDKTVRIWQLQNKFSQNFFDSGTTDKS \(S \square Q F D G V H V V S G S L D T S I R V W D V E S G \quad Q L K H T L T G\) KDANGQNNPI IVSASGDNTIKVWTTDGKLIK CLQSDSWRDVSAGDDKTLKMWSLESGQRLLTGTRC VGHKDFVLSVTTTANDY ILSGSKDRGVLFWDTKSGNPLDM EDQMSRGNQAQADMFG NTDAVVKFVLEG
FSPDGKQFASGSGDGRARIWSVDPASP
DFSPNANCLATGSWDSTVRIWWDRVGTPAVFHQELEGHSG SSSQDRTVIVWDA ITGAQRCVLKGHAHWVNF LALSTDDAD LASTAASTNTTTPAVNYPTHLLTSSLDNT@KLWDVATGKC F V S F K WE
\(F\) HS S GNFVLTSSQDGTLKVWDVREARLLFTV
A VSPDGHH \(\square\) CSASGDCS \(\square\) S CWDAETGALIYKVMTGNSGNV
ETA \(\square P T \square N E A D G S E T K K G R N S P F L I S G S R D K T \square K \square W D \square G A\) QFSPDGQMDVSSSTDKTDGLWSVKSGERLKEF

AFNPSGTCDVAPGPGGMDDHMKTGASTELFGTSDATVKHV AFNPSGTC AASAGSDHTVK \(\square W D \square R V N K L L Q H Y\) A I KWDPTGSLLASCSDDWTAKIWSVKQDKCVYDFKEHTKE ALAVGNGVLVSGSYDTTVRFWD』NNN

Y R C DI SPDNQYI ATASYDRTFKFW
GVTPDGGSVIAAGGAEGRVRVWDLATGAERPELENAEPVPV AHP EQNLL AAGHDSGMI
S LAAFNPDSSMLASGGADCTDRDWD DRQGVKHTVPESGGHS
 QQDP GGGSAVPRSGTGPQSQADLF GQPDVV GNVNAVVKYVLEG
 FSPR WDPTGSLLASCSSDDLSAKLWSLKKHDKHVHDFREHSKE AVSSDAT DFSTTSADKTAK!WSFRSSSALHTLS
CISFADEQRIISGSLDNNDKI WNLTS GV
DFSPDSQLI AAAGRQHGVRVWRIEDGELLFH
AFSPDGSEVATASYDGTVVTCD
LLPKNPEHFVVCNRSNTVVIMNMQGQD

EKSGYPTHLLTCSLDNTDKLWEVKSGRALAKYRAHDNGC



LTP DGNWVLS GSKDRGVQFWD \(\quad\) PRT KVVSHPTLPVT TTAHEDRHDKFFDNKTGKM AFSPDGRLLLSGSLDKTLK LWDLSVPQGPGQCRLTFKG

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MAFRTGDVIGFWDVFT
 HKDFVLS GRSMLTV




GTII IRRRLE GHN RYVWTCCAKCEKNSRLLSSWSF DGTVKVWNV

 \(E \| L G A H\)

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HG\D K NLL
KCAWSPDGSKVTAGSSDSLVYVWDV

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YYTMPA H PN L V
VCSELPEDGN
V
V \(\quad\) GHRDS TS \(\square\) AVDPNG \(\square Y\) YMS GSHDCS \(\square R \square W N L\) LLGHRDSVQSSDFSPSADCLATGSWDSTMRIWDLL NQHTNWVRCARFSPDERLI AS CGDDRTIRLWD T QLIVLQGHRHWYGSNQSRNS GCENTGLSGSHDNSVVCWDU \(T G R G H E G A A T A A A F S P R S T L F A S G G A D K V V M V W\) HKKWVTSA GQA \(\square W G D E G H S \square P \square R S \square\) YGHLHSVALAS SPD DRQLAS ASEDRTVRLWDT Y G HLLHSVNHATENLRGDTIA S CDS Y GVVK L WDV \begin{tabular}{l}
\(\square\) \\
\hline
\end{tabular} C C S S V V
 E E K RLIT GASD S E L L R VWD I
FKTMVGRRTVWGLVLS D GQYL ASAGKD G VKLWNL \(\square\)
HQS LT S GMEL

T LE GH Q GE VME \(\square E \square S\) S D GN QI A S V S G D K T V V R L W HT D GVTVCLQF LQ GHRNSVISVAVANRTPDGPKYQVEATGSGDCRARI W HDRGV NWVAFHPTLPLIVSAGDDRLVKLWRM MQNFEGHNA \(\square 1\) TMSVNA QNVFFSGGDNGSMSFWDW
\(N \square S C L C Y S S S G L L G S G S \quad\) WDKN \(\square H \square W K P\) RTGAFDHEERKFYEAVVARFGNSERLVSGSDDNTMFLWNP \(\square R T Q F G H \square E G V W S \square A A D T F \quad R \| V S G A H D R M V K V W D L\) HGHRGR \(\square\) A QAAFSPDSSLFASAGMDRTVMVWNL

L S V
A Y S P DGTR \(\square V S G A Y D G T V R \square W D A\)
\(G \nabla C V M T L V G H D N W V R G \square L F H P A G K Y \square V S A A D D K T V R T W D Y\) NGHSSYVRRAQFSPDGKFIVSCSDDKTIVRIWDV Q K V VLK L E G H S R Y L N GA R I F P C D Q I I A S C S S D N T V R L W D T LEGHDR
\(N W V S F H P T L P L I \quad I \quad S G A D D R Q V K W W R M\) Q V H S G G V \(N\) C
\(\square\) T T \(\square R\) WSP TGPGTMNP
VRKCDGHDDAV


GEQMAS \(\square\) S S R Q TH \(\square H K L S F S K C N L L L A G G G\)

H D R G V
\(H\) D K G V
DASVVD NYA
F H P H Q DLI L S V S D D K T I R VWD L

DASGDAGVTSV GEP LCGHKGEVKAVA LI L L V V S A GDDRLVKLWRM \(\square Y\) T \(\square R\) WSP TGPGTNNP

GHKDCVRCCTF QQLVLASASFDSTVKLWDV

 QR R F V F S D D V D A V VEA V A Y S L K N DVI A S GAA D GRVVRVWNA

 HPGPV\(K S\)

F VWHPVESMVAS CGWD GLIIKV


GNT QLMLQGHKNSVISVAPSPS GGSFATGSGDMRARDWSY \begin{tabular}{l} 
V \\
\hline H
\end{tabular}

T S LA VD P N G \(\square Y\) YM S G S H D C S I R L WN L


UniRef90 UPI0000E1F792 UniRef90-R0J9F5 UniRef90-H9K4C3 UniRef90 Q10V31 UniRef90 UPI0003AD50A UniRef90-UPI0002F3D942 UniRef90-UPI0003050B40 UniRef90- O76734 UniRef90-A9V2K4 UniRef90_C5PFXO UniRef90-K1PNQ8 UniRef90 UPI000478C9A9 UniRef90-H2MCJO UniRef90-U3BI08 UniRef90 \({ }^{-}\)T1KSH3 UniRef90 R9P1P7 UniRef90-M4AT75 UniRef90_G7E963 UniRef90 X6P8F3 UniRef90-U6IKH6 UniRef90-X6P219 UniRef90-X6P1V1 UniRef90 Q01277 UniRef90-D3BVR5 UniRef90_UPI00027F91D8 UniRef90 M9MGI4 UniRef90-Q55SA3 UniRef90-L1I992 UniRef90_C4XZQ9 UniRef90 L8WIC2 UniRef90-UPI00033154FE UniRef90-UPI0003F14D07 UniRef90-H3C0W8 UniRef90- X6P0K4 UniRef90-FOYAW9 UniRef90-K5XAW5 UniRef90 W3XAK0 UniRef90-UPI00035A207F UniRef90-H2ZDP5 UniRef90 \({ }^{-}\)Q9UNX4 UniRef90 \({ }^{-}\)K9X7H0 UniRef90_U5QPB1 UniRef90-G6CKB1 UniRef90 A0YM52 UniRef90-A7SB92 UniRef90-H2ASW5 UniRef90 M7TNB7 UniRef90- Q2H613 UniRef90_-S9XG67 UniRef90_I3MAL2 UniRef90 S9WHZ9 UniRef90-A5DVK4 UniRef90- X 6 P 4 H 8 UniRef90- W7UCK8 UniRef90- D3CYZ9 UniRef90-UPI0004413C01 UniRef90_C4YPV0 UniRef90 UPI0003F0B3D3 UniRef90 \({ }^{-}\)X6P5B1 UniRef90-X6MG57 UniRef90- M4A5Z4 UniRef90 R7TX75 UniRef90_UPI0003F0A9BF UniRef90-F2DCR6 UniRef90-A8IDM5 UniRef90-D6WBF5 UniRef90-W9H112 UniRef90-D8LL95 UniRef90 W4YXX7 UniRef90-H8X5P2 UniRef90_A0A016SBB5 UniRef90-A5DXZ8 UniRef90_G7E9C8 UniRef90_G4TZM6 UniRef90-W9QZ02 UniRef90-T1DNV2 UniRef90-E9GFJ3 UniRef90_A9WII UniRef90_K5WHG1 UniRet90-5M6M6 UniRef90-H2T4T3 UniRef90 A5DB82 UniRef90-K8Z4U6 UniRef90-U2A1U8 UniRef90- F6WIG7 UniRef90-H0EN92 UniRef90-G3H4J2 UniRef90 R7QRF1 UniRef90-B3RKM3 UniRef90 UPIO002C3D511

LE GRLLYTLHGHGPATCVAFSRAGDFFASGGSDEQVMVWK
TSRRILYKLPGHNSVNDI DFHPKEPIVCSGSSDKQI QTGKLI HNLEHLDGVWSIVITPDGKTLISGSWDKTIKSTG AARRQL \(\square N A V G G A L T G D L T F S P D G G T L A T S P G D G T V R L W R\) FTKKII TNFTGESEIRCCADASDG VTVAVGDASGKVH A QGRLVSVLQGHDGVWGVDFAPDGKTLVSAGWDGTVRVWR RNGTTHMMLQGHKNSVISVADSPKVFATGSGDFRSRLWK Q S
TTGYCVKT DQ GH LDDWVRDVFPSPDGRFLMSGGD
RTVAPMVSFDVGHPANRVAFDPTGAVVAIASNDATVKMYE QK GQLLHT LDHHNW \(\square Y T V A \square S P D G N I I A S C S A D Q T I N \square W G\)
FTGKVEKDFVHQGTVLSCD】SHDATKFSSTSADKTAK DWS H S
SS GQCLKTLV GHDNWVLAFSPNGKHLLSVSDDKTMRTWG HRQKFLFSFTQHNWVRCAKFSPDDGLIVSCSDDKTDKLWR SKRTAVQTFRRENDRWVLTAHPELDLLAAG ESGKKLEK

ETGKELIVLE GSEGYVRSVKYSGNTVYSGSDDKMVRDWK RTCKQLHTILKRKHDRRVYSSSP
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S S GK\LYR\P GHT G\VVEFHPNEP|IASCSADKT\square

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RNFTATKTLSGHDEVMCVDFAPAGDLVVSASYDRTFKVWS RTGKCIRT QFGH IEGVWS \(\square\) SADTFRIVSGAHDRLVKVWD

ESKTC CQEFTAHES \(\square\) HDVAFHPSKCY \(\square\) AS A GAD RAGSQEAFLQRLEG HSGNDSCVCYSASGLLASG S SKHClNCLTDGGSATSVNFDFSGTCIASSGSDGSLKDWD RS GKQUE WFCR HEREVNAVEYSPNVICSASNDNTIRFW
EGGEQLQAFEWYDEVWSVAFTPAEDVIISFSGDNTMRFWC STRKSLQRDKGHDKVYSVAFNSDGRQLASGSKDGTVRLWG RVVAPMASFEVGHPANKLAFDPS GGVLADASNDSTIKMYE S SGKLIHSMAHLDDSTSLLSVDPNGLYLLSGSHDCSURLWN A Y L QEI EDPEEPDP ATGELLTSLA GHSDVSA DAFSPDGQFDASGGFDRKDNDWR R GQLEAVLRGHTEIQAIDDDSPDGEFIVSAGNDRTVRTWG
 SPKHE

ETKAWEVDTCRGHNASGCLFHPHQDLILSVGEDKTDRVWD KSGHRFQALDTTAQPGSLDFDNSGSRLICGEADKTLKLWK
NTSSLMVQLKGHAWVNSTAFSPDEGQLASASYSGTTKVWG KETVKSIGRMTGHQGAIIQFSPDGTMIASCSADKSVKLWN QNGKCLHSF GNSSSVSCVGLSDSRFVSG

\section*{A P Y N R VRT \\ TVT A KEADADWPFSSSTS}

SAGEAADVP LEGHSVWCVAFS \(\square\) DGAY \(\square\) AS GSSDNT \(\square\) STYG
KNKRCSKTLEAHHFVTS \(\square\) AFHKSSPYVITGSVD \(\square T V K V W E\) K S GKELKKLKGHSSGVVKYFSYSQTVL S CSADRTVRLWG KSGQEI ETLDGHSGVTGIDDSPDGAIIASCSDDQTIRLWK DTQHCFKTMVGHSEVWGMVLLDRDNRLLTGSADSELRAW NESKAWEVDTHYNNVSCTMFHPRQE LIVSNSEDKSURVWD LE GRAI TTLQ GHT GPVFAVSFSGELFASGGAD \(E Q G H L L Y S L A G H Q P V Y S V A F S P D G E Y L A S G S L D Q S \square H \square W G\)

GEGPVLHTLAGQGPVWGLAFTPDGGRLLTAGGDGA \(\square R \square W\)
NKRVP \(\square K Q F R R E H\) DRFWLDASHPS \(\square N \square F A A C H D S\) NESKAWEVDSHYNNVSSVLFHPNAELILSNSEDKS DRVWD DTKAWEVDTCRGHTGNVLSFHPHQDMILSVSDDKTVRVW QTGRLLDKVKGHDSVYSVAFAPDGKWLVSGSLDKTLKMWA NTSWHL GELLRGPERSVTEVSPGGSQMIS
DS GNLLCTLNGHEPVYSVAFSPNGEYLASGSLDRSMHVWS STGKPLHLYRGAHGGWVTGLHFSPDGKVLVSSGGHVKWW
 QNGQPVAELPGHEGDNSVTFSPDSSLLFSAGYDRVI RVWR

 QNGRCLHTFSNNSSVSCVGLS DSRFAAGLENGTVKMWS
A A A \(\square T\) AP T P HAHQEAVTA \(\square T\) Y HSDEDMSASRDATVMVWG RDGRF \(\square\) GE LDAHGGGVNSVSFSADGKLLATASRDRTIRIWR

K

RQST MCLMLQGHKNSVIS \(\square\) AHSGNSLATGSGDCHARTWT
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ESGAALTGHTDAVYT
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VSNGTLVGHEDAVQLMFD
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K Q T S \(\square\) FKGHTSY V

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S N
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L N K R T
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K C L L T \(\square \mathrm{K}\) G
ANDTTFRGHVAPVYHV

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QK \(\square\) QK \(\square\) K GNARA \(V R C D D\)

MTKRT
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M Q K R T
T C \(\square\) Q T LS G H K D Y V
\(T \mathrm{LV}\) Q T L RGHS DA \(\square \mathrm{FSM}\)
ILD
s V

S
K LLDD \(\square\) L NGHESGVW

QRDHCRSETSKGVYCLQY DDQK VSGLRDNTDKワWDK \(K L L R T L R A H L A G V N A I A W S P V G P T L A S A S D D K S I L L W S P\) A HKDAVWGLSFS G \(\square\) K NRLLDSCSADGTI RLWNP
LE G H T D S I \(\square\) S LA F S P D G K LI A S S S LE Q T I RLWD T
VHSLKGHTRRVQSTASDLSGKFLATASWDCSFKVWND METLNAHDGAVWSI ALDSDQRGFVTGGADKCVKFWDF \(L N G H L D Y I R T V F F H H E L P W I V S A S D D Q T I R D W N W\) \(G P R G V L Q S V A D S A D G R T L A T G G A D R A V R L W N D\) HPEGVKCVKFSRNGTKIVASFDNNTIGIFD


\(\square H T L E G H T H G V N G V C W T R D S A Y V A S V S D D R S V R L W D A\) E VF M M H D D A V L C V D F S R D S E MLA S GS Q D G K I K V WR \(\square\)



H V L E
GHE L A VLR VS FS D D G K L I A S A S R D G N \(\square K L W N\) \(G H G D A V W G L A F S P T S Q R L A S C S A D G T V R I W D P\) GHLD Y I RT TFFHSNYPWIISASDPQTVRI WN W
LS GHTGSVLCLQY DNRVI ISGSS DATVRVWDV

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VRS L A VSANGQTFASGGDDGAVRLWSL \(K K \square Q L T E G D L G \square V M E V K F S P D C S K I V S R S N D K M I R L W D V\) R GLS F S A D GK AI AT S GTD K NI RIWQL
 K V I R H Y H G H L S A V Y S MA L H P T DDVLAATCGRDSTAR I WD M GHFDVVQNIHWSSDSRFFLSASKDLTARI WS L H N R EVV S AVAASPD GR WMAT G S DDK T VA L WE V

QVIT DHQGGVNAI A F SPDSTVLADGGQNAQINLWSK GHKGPVYDVCFSPAGDLLASASQDRSVRLW
\(G V T C A E \square S D D S T M L A C G F A D S M V R I W S L\)

HDEAVLCLGCSRDSEMLVSGSQDGR \(\square K V W K \square\)
H VLE T H T GPL F S L K WN K K G N Y L L S G S VD H S TAVWNA
LN EHA GRVLSATFSPD GR LLATGGADRYVY LYDI HKDAI T GL WSPDENWLISVSKD GLI KI WDL


M D K VK VFEA H T D Y IR S VA VH P T LPP Y L L S S S D D MLI K LLWD W



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VLLGHSGPVTAVSFSPDHTYLLSSSEDATDR LTWSL


H A K CVV S I H L S S N GK Y L GS G S H D K TVV R \(\operatorname{l}\) WDV

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 RTWT DHSLK DHVQGVAYLSWSPDDNYLVTCSNDRD

PNSTDPTVLRGAYEHSDSDWGLVYSAVHQRLL SASADGT SSRHCTETHHVAQSNGECWSLGLSPDQTGCIGTGGNDGE ANDYKNTRTLT GHDHSVSAVRFITPSAGEYLVSASRDKT GSGNPTGPERLTAA TGALLDVDFSGGDSLMVLGAGTDRA ATGSSTRCTHGCLGHLDSVVTDLCFHHEXSKSVIASSSDDQT HNCNVGAIT SSGKLNFEHIRTLQTPDDVLSVKLSPDSRFAASCADGV QTGEQQMALNPKI GRLNAIAVSHDGQWLVVGG KSGK QLQDFDSCDGWVNTMVFSPDSEVLVLGGSLDRT SSPTPVGTLLRRMDTGSQVRSLSFDPNSRWLLA GYDDYT TTGEEIVKLTG HTDSVTSTAFSADGEFVATGGMDGK DTWTNVVCYKGGGHCFP円WDVKFS PHGFYFASCGHDRT VGLPRGNVLLTGLGHTDWLSDCCFH PSGNKLATASGDTT R पG ILIDKFEEHEGPVRGIDFHAVQP LLFVSGADDYL NT TKELVVFEGHSEPVHCVKFSNNHGVVIASASNDKT NTGRCEGVLEG \(H R S R V W D V D\) STRTGGHVASASGDST
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\(\qquad\) D

DG \(\square R M W D L \operatorname{LDQQRPLATLVRFDNSIHT}\) DKTVRVWGVDNNKQIESFNGHSGWVYCVKFSRYYYYYNRQ DSA 1 KLWDMQSLNKRPTP RHLVGHAGPVYGVDF SPEG TGF IVPNAVAHTMRGHRKNVKSVRFVGEEG


 DGDVKLWESKKGTQVGNVRGHS DRNVKIW GLDFGDCHRS LFAHDDSVMYLQFV AKS

 \(D N T V K V W D V R M N R\)
\(D G V A R V W D M R T R S N T H V L L Q H Y Q V H S A V V N S L S F H P S\)
\(D\)
 DCTVRLWDTETGGCDADLEGHGSRVWDVDATR LD \(D G L I R L W D T S S G L C L R T L Q H T D Q A P V A S V Q F S P S S L Q L L A\)


 DLT T KLWDP SDEYKNDRTDPGHDHTVSAVRFDPSSSG

 DRTIKVWSMDTLEFVRTLAGHRRG
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DNIKQW RCPEGNFVQNTSGHNA\|VNCMAVNAD
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DATVRVWDAKSCECVQAFRPP QAGGGGDAAINCVALNPDN
D Y TAKI WSTKTAQVVYNLREHTREVYTMQWCPSVNRRL



D HTAKVWDYQTK S \(\quad\) CVVQTLDEGHTHNVVAVCFHPDLL




D R T I K V WD LERGFCKAS I MCASNCNSVTY GESA


DHSWRLIDLESETE VVLHQEGHSKAVYDDSFQCD
DRNVKIWGMDFGDCHRSLFAHED S S DTCVQF DPK T

D E TI R L WTTD NWQMVVQLI





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 A DQLLVCS \(N N L A L L T N D K E V R G R K I Y E N R C Y I I L G Q K L G E K S D P V T N K W\) SLMATGDAGGLVVLWDV TVKIRAASWTI CTSSKLELVVTTSGNTVEYYSIPYEKREA

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\hline UniRef90-U9TAH9 & SFIAGGVTVNCVVQMPKNADQFVVCNKSS \\
\hline UniRef90-E3JD58 & SPNGNVLAVAGTN TVGGLWRVADGRRIRTVTVGRLLGA \\
\hline UniRef90-K1XHU0 & P SFDGRFILSTGKDQTARI WDASSGEPHDHVVECCVFAP \\
\hline UniRef90_B7JZR8 & SPDGEWLVGGTNEGSVVLLKRDGTLLS S P S K H K \\
\hline UniRef90-H2QGN3 & \\
\hline UniRef90-A0A044RCG1 & AMHPTLNLFAAGHDSGMMVFK \\
\hline UniRef90-A8WTU8 & C \(\square\) RFDEK R V V S GAYDGKMKVWDLQAA \(\square\) D P PRALSSED C \\
\hline UniRef90_T1KZJ9 & F HPVYNMF AS GAPDN【KQWMCPDGDFVQNLSNHKMVNC \\
\hline UniRef90-A0A024G0J7 &  \\
\hline UniRef90-UPI00034F8AAB &  \\
\hline UniRef90-G3JBF6 & CVGLSS S RMASGSEDGEVRLYSFEG \\
\hline UniRef90-UPI0002C33F27 & SRS GNMILT S GRD \\
\hline UniRef90-UPI0002D87642 & DENKVI SASSDMTTK\WNLMT G N CLT TFENENP \\
\hline UniRef90-UPI000273A6AB & KFSPDGRLIVSASDDKTVKLWD \\
\hline UniRef90-B6JX97 & GLVFQDDYI I SCSKDHTIRVWQY \\
\hline UniRef90-B4WNW1 & NIS QSVIALAIDQS F NHAAGYRVIA S T A N EVFW WY SVD G HLE \\
\hline UniRef90 X6P5W8 & PFSPDGTKIVSCSDDKTIRIWDKS G NQ \\
\hline UniRef90-K9TNH7 & FSPDGEMI ASGSGDMTVKLWRKDGT LIMKLTG \\
\hline UniRef90-LODJ20 & AFSPDGKRLASGGAY FRFWDVERGREDRRYPHN \\
\hline UniRef90-X6NCB6 &  \\
\hline UniRef90_W8CDB6 & F M F DQ \\
\hline UniRef90-COSCJ9 & QFSKRGNVLF TASLDGSTRAWDL \\
\hline UniRef90-E1IIN4 & RPGHPGQLAAAGFEAKIY LTWDLNGPDRNPR \\
\hline UniRef90-Q0D0X6 &  \\
\hline UniRef90-M7NN10 & WASESTEST \\
\hline UniRef90-R9PP84 & SSFAHTSLLVGGSEDGL\YMWDQESSEVLQT \\
\hline UniRef90-G3J0L5 & LVS SNSITNIALLAAGVAGPKLSNGNSQIVKET\|VNQNAK \\
\hline UniRef90-A0A024GIQ5 & FHP S GSYLVSTSTDHSIKLWDVREGQLLY \\
\hline UniRef90-B4KNA2 & QFHPNSNYVATGSSDRTVRLWDVLT GQSVRLMT \\
\hline UniRef90-B9GEK6 & VHPTDP YVLSSSDDMLIKLWDWE K GWACTQ \\
\hline UniRef90-M3HHK8 & SVIDFTNKSIVSGSADHTVRVWHVDS R T \\
\hline UniRef90-G7X972 & FDSTGVRLASGSRDTDI IVWDLVAEVGLF K L R G H D Q \\
\hline UniRef90_Q69YK8 & F SPDGRLIVSCSEDKTIKIWDT T NKQCVN \\
\hline UniRef90-A8HPU4 & GKREGGAFLAAVTSPRGEYI Y C L GEDGULYCFGANSGKLE \\
\hline UniRef90-R7QRL0 & YSP NGQFLASGSFDRCLNIWSVKDGT \\
\hline UniRef90-UPI000424E385 & NDTKDEQAI \(\square\) F AP \(\square\) GNTVASSYFS \\
\hline UniRef90-101949 & FSPDNTLLAAGDFSGKVSLFDLTADAPRKSTFVTHLEDG \\
\hline UniRef90-W0VHN5 & KHPTPDRTIELQQGHRTDIRALDIS D D GKLLATASNGL \\
\hline UniRef90-A0A016TVN1 & FHPM GH\|LATGSNDNNTKFW \\
\hline UniRef90-M0RX77 & CMEYDDS T G L A A A GRDVVANDWD \(\square\) R S GRQMQKLL \\
\hline
\end{tabular}
 FSPGAHYLLTGSYDSRVMLSDLQGDLTKNLPVTVVA
VTKDSRYAIVNMGHGG VRDWDPATGKEQDQMIDLELQEE WSP DAEWLATCSMDRTVRDWDPATGKPSGKEFKGHSQPVV PTAEHAHEFVAGMSDKKIVQWDTRAGNEIVQEYD
AVDPNGLYLMSGSHDCSIRLWNLESKTCUQEFTAHRKKSD
TKPSGNLQULTATTNNEVESYRVVAAGKKKAKDAEEDEYS
FHPGGKYLLSASDDKT, RCWDLEAAGKKAKDAE EDCRC
MMPTNRGQFI TSSRDNTLKLVDLRSGRAEVVRTLK
FHPTLP LIVSGADDRQLKGWRMNEAKA
EVAAHSSAVTSSSDSRNGNLILSSGRDNQHKDFDVRTVEM
CFSPN GYVLATGSEDNTGKLWDL
\(\begin{array}{rl}\square S P & N G K F L A S S S D D K S \\ F & R\end{array}\) AFSPDGK ALASGSGDKTVRLWCTKSGKQLQULE

FSPDGSMLAAGCYDGAI YLWQDAD

CFSRDTAULASGGIDDNCIKLWDF
TF TPRGHMIASCDACGVTKLWDF DDDASSVSSVTDAPSHR
K GVYGPDVLAPGGDNLMGMYSFVSHSNLMGMYSFVSHSQN
YSPYDGGNI ICGSYDKTVRLWDVRSGQE! QTLNG
I NETGTLLLSSSKDNSNRLWDLRMLRPLKRFK
DIADNGYHAATSSADNTVRVWDLRQQQADYVIPAHTSVVS
\(F \begin{aligned} & \text { F } \\ & F \\ & N\end{aligned}\) F EKFKKSANGGCGYILCY
UniRef90_A8PXD3
FNPKDSNSFASASTDRTVVVWTL

UniRef90 W6FK21
UniRef90 X6LZZO
UniRef90-D8RD83 UniRef90 M9LRL6 UniRef90_G6FXC6 UniRef90-UPI00039554C7 UniRef90-H6C2K6 UniRef90-UPI000457183D UniRef90_T5AHY6 UniRef90-R7Q475 UniRef90_K1RVR1 UniRef90-F7VVG3 UniRef90-UPI000466D806 UniRef90 X6ND92 UniRef90-UPI000350966D UniRef90-Q5BE22 UniRef90_UPI000350532A
UniRef90 M5E8Z4 UniRef90 A8Q003 UniRef90-I1K4C0 UniRef90-K7GWY9 UniRef90 W7S4Z7 UniRef90_U9TAH9 UniRef90-E3JD58 UniRef90_K1XHU0 UniRef90-B7JZR8 UniRef90-H2QGN3 UniRef90-A0A044RCG1 UniRef90_A8WTU8 UniRef90-T1KZJ9 UniRef90-A0A024G0J7 UniRef90_UPI00034F8AAB UniRef90- G3JBF6 UniRef90_UPI0002C33F27 UniRef90_UPIO002D87642 UniRef90 UPI000273A6AB UniRef90_B6JX97 UniRef90-B4WNW1 UniRef90-K9TNH7 UniRef90-LODJ20 UniRef90-X6NCB6 UniRef90-C0SCs9 UniRef90-E1IIN4 UniRef90- Q0D0X6 UniRef90-M7NN10 UniRef90-R9PP84 UniRef90-G3JOL5 UniRef90 A0A024GIQ5 UniRef90-B4KNA2 UniRef90-B9GEK6 UniRef90-M3HHK8 UniRef90 G7X972 UniRef90_Q69YK8 UniRef90-A8HPU4 UniRef90 R7QRL0 UniRef90-UPI000424E385 UniRef90-I01949 UniRef90-W0VHN5 UniRef90 A0A016TVN1 UniRef90-M0RX77 UniRef90-A0A059AK15 UniRef90 X6NKY1 UniRef90-H9GYX1 UniRef90-W7HV11 UniRef90_M7STY7 UniRef90 G2WTK9 UniRef90-F7BBU2
UniRef90 UniRef90 U4L9C5 UniRef90 C1E7W8 UniRef90_UPI000359AEC5 UniRef90_S8C5Y5 UniRef90 A0A023GKZ9 UniRef90 \({ }^{-}\)T1JD22 UniRef90-UPI000369FEE7 UniRef90-Q2PIP7 UniRef90-A9WJ17 UniRef90_K5WGW4 UniRef90_WODT57 UniRef90 A0A023GKQ1 UniRef90_UPI0003C8A8B8 UniRef90-F9X718 UniRef90-A5K1R5 UniRef90-X6NMW9 UniRef90-E6ZNFO UniRef90-Q5DGI6 UniRef90_K3WJH6 UniRef90_X6N4U1

\section*{250}

T LT GHNNWVNATATNRDGQTLASAGRDG VIK|LWNL DFSPLQSNNNNESNS GVIGGNGYTICSGSHDNTIRVWDI

\(\qquad\)
RTTLRAGVG
\(\mathrm{N} \| \mathrm{T} F \mathrm{~S}\)
LRVLEGHEELVRCDRF LWRGKGHRDVVLSVDFGRTKAGNKRIVSGAYDGKIKVWDL

H T G G V A S V
TAAFSQDSKLIASSSADGTVTVWNA AMSGDGK RAVS GSWDESVRVWDV AVRRLTFSPCGSFLATASADCKGMIFKA

VPS GEPLTGPK GWVNGVAFAPDGRSLAAASSDGRVWVWDL GHTGWINNVKY LDPDGQAl VSCSNDKTIRVWDI

GEFMQNFEGHNADINTDSVNEDNVLFSGGDNGSMSFWDW SPI NAVAWSPAGAHVVSVDKGNKAVLW PGHQLGVSSAVFSPQGSLVITGAKDTSVRFWDT

VT H HPHRNLVATFSEDCTMKSW
\(H P R Y G T F A T G G A D G I V N I W D P\)




LCSDHQHTGRVFRLQFDDF QVVSSSHDDTVLVWD
LAVNED NVLVSGADDGSLYFWDW
I E SITFSRNVVEHRGTEKAVSRKSGLAANSPAAMLNLADS HGAVFDCKFSQDGQHFACTDSHGHLLIFG

GT LRATGNRVASNWSRSC \(\square\) SPDDSYVAAGSADGAVY \(\square W S \square\) LELV PEDNLIVSGDSKGDIKTWNL VHSFCEHGGFV NYVDFHPSGTCIAAAGTDNTVKLWDV \(\square\) SAPDTLRGHLAAVNSVQFNSKTHMIVSASGDHTIVRIWNV
 HTAAVWG】D FSPDGSLI ATSS \(\square\) DETI Ki W T AK QVRTLQGHSGRUVNSVAFSPNGKSLVVGGDSRSAVVRLWNA

RNFRTFTAPSRLSFSCLAVDPSGEVVCAGSDDSFVHDWSV WI IGLAFSADGQTMASASNDDTVRVWDL WEARGRLIKTLVGHDNWVFHPSGKYLFSVSDDKTIRCWDL

HPSSK \(\square G \square T K T S V V S D L T W N K A Q S L L A S C G D D G T V K T W D W\) KPGKKKSNHDWK GVTALADSPDGALYGGATRDGKVRLWDA HGHDGAVNCANFSHDCKYIASGSVDTTLMVWNA
 \(\square\) FEGHSHYVMQVTFNPK DTNTFASASLDRTI KI WNL CYTLRGHTDWVNCVKDHSPSNTDFSASDDTTIRMWDM HVMNVHEKGPLGGABHPHRNVIASYAAEGPLRTW

TRLIKGHSDNVL S LDAFTVDTQDLASGSEDNTワKПWQP WVLSLAFSPDGSLLATGSQSGKI YLWRT WNVKTKMCLRTFECGYCKFLPGGVLVIVGTRSGQLQLFDL

H T K W \(\square\) R S LR M V S D
T \(\square\) L G S D D WT ARMWS V
LKGHSD\ITD\
QFSPDHQTIISCSMDKT\RTWD\| EHADKVIQCRWHTRDGSFLSSSADKTVTLWAH VRAFKGHKQGKFVIKSCFGGADENFVVSGSEDCMIVVWHK \(L M L A W Q P F H L W E S G E G A R L A S C S K D G T V R I W V R\) HH LAA \(\square\) NTITFVDEGRRFMTTSDDKSLRAWDY





A LAFSPSGKFLASASKDETDKVWQV GHLDWVRAVTFSPDGEVLASGSDDKTVRLWDA HQPDKPDEGFNTFIYSVAFNPAGTILAACSGTTIRLWRV
 HEGRVSSC

E VRES \(\square\) AASEPFWPNQSDRPAPPRYMDT GA \(\square D S T \square R L W D T\) SNNMFGASDA ICKFNCCTFHHRLPIIASGSDDKLVKLWRY
 S \(\square\) R F E


UniRef90- X6L 770 UniRef90_D8RD83 UniRef90-M9LRL6 UniRef90 G6FXC6 UniRef90_UPIO0039554C7 UniRef90-H6C2K6 UniRef90 UPI000457183D UniRef90-T5AHY6 UniRef90-R7Q475 UniRef90-K1RVR1 UniRef90 Q5ZK38 UniRef90-F7VVG3 UniRef90_UPI000466D806 UniRef90- X6ND92 UniRef90-UPI000350966D UniRef90-Q5BE22 UniRef90-UPIO00350532A UniRef90 M5E8Z4 UniRef90-A8Q003 UniRef90-I1K4C0 UniRef90-K7GWY9 UniRef90 W7S4Z7 UniRef90-U9TAH9 UniRef90-E3JD58 UniRef90_K1XHU0 UniRef90-B7JZR8 UniRef90_H2QGN3 UniRef90-A0A044RCG1 UniRef90-A8WTU8 UniRef90-T1KZJ9 UniRef90-A0A024G0J7 UniRef90_UPI00034F8AAB UniRef90-G3JBF6 UniRef90_UPI0002C33F27 UniRef90-UPI0002D87642
UniRef90 UPI000273A6AB
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( 290
300 310


 PAGTLCLRTLVEHSGRVFRLQFDEFQUVSSSHDDTULIWD EGEPKPDQKSYHHQ

A T GAAMETSHVDS SMREDAFS QTS S Y \(\square K T E K G V L A V R G D T\) DTGLQQGDALTGHTGVVSHVAMSGDGKVSGSRDRSVRVW AS GGLMATLPSTSPLMCVTVVTKNYVAMGTEDN

AGGSPRTSLPHPGPVTAVAFLPSGAALATAAADGTARTWD KTGEEMHRIEKHSDVRGMD\|SFDGQTIVSCCKDG\IQLWG
KTGYRYQT \(\square\) DTTAQPGS \(\square\) T F DRTG \(\square R \square I T G E A D K T \square K \square W K\) \(\square S\) GTCVRS LPGHGEVTSVEMSDDGMQLLTSSKDNSHRLWD

TDGT LRTTLTGHTGKVQAVACDGRPIAVTGSDDTVRVWE


 KSGGAGENGMHLDHAEV AKK LRYLLSGSRDRTVRLWE

AKAD VVST LKEHTNSVLCCSWSGHGKP LASADKN
 RTNRLLQHYQSHS
KTGQCLGVL HGHRRGDACVHYDGKNDISGSSDLTVRワTG EGNDCVAKLAHDWGDEADAFAPDSRTLITASSDEVISS WR



QT GQLLDQLS GHGPVS S DSFASDGSHVVS GSWDHTVRVWS PGGDPLVLRGHTADAKTVAFSRDGKWVISGALDDAT
QEGR LVVK T \(\backslash\) SHGHF I S CIIRWAPPPR
DEGRD
SNGKERFALSEHHGAAVVVFSADGKQLVSVGRDTTDVANG D 1 EKCL QLERTSDVSTT
\(S N G S L V T T L L R H S T V T T D T F S R D G T L L A A G G D D N N D T L W\) GSPDPNFTLDA HQKGVNCVDYDKPYLDTGSDDHTAKVWK NTNQClKTFGGMENN
AAQHCI ETHVAQSNGECWS DSPDQSGCDTAGNDGELKAW \(R\) VNKLLQHYQVHS GGVCDS FHPSGNYLITASSDGTLKDEG
 DKARKAHGVLEGHTYWVTSWSADGSTLI S GGADGSVYFWD A S S SVIVENIEDAHEAAIWSLDDSDGKRLITGSADKTVKFW

SRGTCEAVLPHAGP LLCVEYSPSDKGVITGSSDGLDKFWE
QTGFP \(\square\) HTW WAHSQG \(\square L L D \square S F D A S N \square L T F S E D Q T \square R \square W G\)

 \(N \square P \square P \square K Y!P Y M Y P M T R A A P H P S G K Y V A Y Q S S D N Q \| V V Y G\)
RTQSC \(\square R T \square D C G Y S \quad L C S S F \square P G D K \square \square A S S T L L D S \square K A H E\)
DDGG LKVT DRGHDVAVATCA WS QS GLVTA
SKRTGVQTFRREH DRFWVMGAHPTLNLFAAGHDGGMDIF
SSGKMVSTM KEHGSPVLCCSWSNLGKPVASSDKN
PE WTP \(\square H S \square S\) GHDK \(\square M G A D \square S P S G K Y \square A T S S F D R T F K \square W T\)
K
K FRK
KDFHALDTL HGHTAPVRGLAFSPPLLASASEDRSARFW STMRLRATME GHEDVVTAGLHPKSHMMLSSASADCKTLKKTWD AS GACLRVSADAPRGHVV WEPDTQRIIEAGGDFW

H FPCVRTFF GHVEGTWALSADHLRLVSGSEDRMMKVWG NENKCLDTL RGHFNNVSSLVFNDDLLLTNSEDRTDRIWR RNNKQLFKLTHETEDYCVQF
ESSEVLQTLEGHGRDT
 \(R\) MYENVATLQHGFDWCKASLSPDGLYAAAGSSSGTLFLW

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UniRef90-E6ZNF0
UniRef90_Q5DGI6
UniRef90 K3WJH6
UniRef90-X6N4U1
UniRef90_A8PXD3


A C G S A D R Q H V S N LI \(\square R \mathrm{GN}\)
\(\square P G P V V Q G P G A G \square F A\)

QDDQTPETHP
R P \(\quad\) QR F K G H T S K N F \(\square\) R CAFAHP

HEEEPSP \(\square\) PNSS \(\square\) T \(\square\) R H
LLVETTTTHDAS

S L VNT T N G H Q D L V

VDE EATP
\(A L S G V L\)

E S \(\square \mathrm{K} \square \mathrm{F}\) S G H N S S V
\(\underset{R}{L L L R S L E G H S E L V R T G Q D \square E K}\)
H LD R 【LN LD P

QTSEPLE LQADLLSVAFRPD

KKGRTLFGHEHP \(\square\) RTV

S CVQTLDGHTHNDSAVFHPELP
S TDE S A M I H DS K
\(R L D Y T L Q G H T G P V F T V\)

EE \(\square\) C T \(\square \mathrm{T}\) G H T G \(\square \mathrm{I}\)
VAGQQPSAPP
KCVKNLT \(\square\) HSASVLS \(\square\) NAGEH

VANDSMKG
TLVHNLKGHAHWD
A N D K
GPVWT \(\square\) Q \(V\) H P D
K LIEKPFAVHGN \(\square\) LYYVHD
\(\square \mathrm{AEQGQPHPP}\)
ARTGTL

KCERTFTGHQGPV
AC \(\square\) HTFRRENDRFW L

R
NTRTGK【EK
A N T Y R L

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UniRef90 - 13 JZT4 UniRef90-F4NTK2
UniRef90-U9T1D2
UniRef90 Q9W3J1
UniRef90-UPIO003F0A9CE
UniRef90-C5DF00 UniRef90-11F5K4 UniRef90 DONIR3 UniRef90-A8IL73
UniRef90- W4HAY3
UniRef90 X6P1R6
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K I I N A N N NPND T T S D VVFHS SFNY YG VS S WD GS LRTVYD GHKDVVTSVVQFSPHGNDI ASASRDRTIRLWDP A H T D S V R C C D \(\square\) ST D G S L V V S A S T D GTAVVVDT QLLQTFKGHTGSVGAARFSPDERTVVSCSSDGTVRLWNV A H T S PVLCVVMSNS GEQCYS GGTD GLI Q GWNY A H S S D Y \(V\) T S L H L T P D \(\quad\) Y I I V A L D N A K I \(R C C A P A P D G G W I A V A G D D G V I R \| C D P\)
GHSQP \(\square A Q V R \square S P N G R W \square A S A S A D G T A R \square W D A\)
 S MVF S P D S K VLAA L R WWT DPGLWRV
\(K L L Q \square F Y G H T K W V N S \prod D Y S N D G Q F \| C S G S E D E T L R V W D V\) \(V L Q A F S G H S N W V M S V A Y N Q D G T R I A S G S R D G T V R L W D V\)

 SERVK S LDLHP TEPWI LA S L Y S GTVYI LD Y QCLLRVLT GHSKSVVETVCFSPDAKWLLSSGGWDKTAILDDV
\(C \square V V Y K G H L F P V W D V R F S P H G Y Y F A S C S Y D K T A R L W\) R A CVVA P D G S W \(\square\) A S A GRYGTIRVWS T IVS LA G A H S GEEI L S T R F S P D G Q S V A S A S A D R S V S M WR T \(M K N L S V V R P H T D A V Y H A C F S K D G Q R I A S C G A D K T L Q V F K A\)
\(\square E \square M H V L G G H S Q P V A \square L C W S P D D R K I T T C S G E T D R V W D V\) TVTCAD V CEDSSLI A \(\square G \mathrm{~F}\) S DSSUKVWSL

VT R V IF H P VF D VMVVS A S E D A T \(\square \mathrm{NV}\) VWD Y WVL I L Q A H D K A VRA \(\square\) T WS H NENWMVS GDD T GQ \(\square K Y W\)


K VLK GHQAKVLCTDWSPDKRH I IS S SQDGRLI IWDA \(K \square M R V I N G H N G W V R C V C V D P D N E W F A T G S N D T T \square K V W D \square\)

HQSVVCCVRFSSDGTMMASGCH KTAQVFDV \(\square S G H T D T V A A L G F N A A G S M L A T A G M D G D C K L W D V\) K Q \(\square\) Q \(\square F N N Y S S Y V Y S V R F S P Y H Q \| V C S S H D A N \prod R F W D F\) S DRVK GVVFHPTEPWLLTGLYNGTVNDYNR
 \(\square H M L S V S R E A G T A V T I S P R G D W V A L G C A A G Q L L V W E W\)


VK GLS F HP K R P WL L A S L H S G A 1 QL LD Y GHFKSVNSVAYSPDEKYLASGSWDNTVKIWEV DCQFICSGSNDSTVRLWDI
 \(\square\) HSSSVTHCRFSPNDKYI AS CSADGTLMLWYA

 LT GH G GRVSRVEFHPSGRYLASASDDTTWRLWDV VLEGHGKAVLAASFDDAGARLVTGSSDNEARVWRV

\section*{VIS GHTRDVYTVSYHPRENHLVTGGYDKSLRLVDV}


> YI SAMVFCPRTSLVYKTFDDSSSIVTCV
> HFDGIRALTFHPVEPVLVTASEDHTLKMWNL



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UniRef90- A8IL73 UniRef90-W4HAY3 UniRef90- \({ }^{-} 6\) P1R6 UniRef90-UPIO004416C52 UniRef90_UPIO003595925 UniRef90_10YM64 UniRe90
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UniRefgo- 6 R145-5 UniRef90-S7NF97 UniRef90-X6PDH3 UniRef90-UPIO00369B5EC UniRef90-G3JIR1 UniRef90-CONXM8 UniRef90_UPIO002652F09 UniRef90-B0R171 UniRef90-M2QXB8 UniRet90-H2MA73 UniRef90-LODDX0 UniRef90-Q01UL3 UniRef90-Q6FJR1 UniRet90-FOXH10 UniRet90-UPI0003FOF5B8 UniRef90-H3CA30 UniRef90-X6P9U8
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 D S Y DP SVLRRGAFI GHT DAVWGLVYS GTHQRLL S C SA D GT NENSTGGSTQQVLGHNKDVTSSLDWNSDGGTLLATGSYDGF
 STGRRTMTLTG
\(H \square G G V L A L T V A P D G S W L G S S G\)
E T GAHDDT LVG
HMAGVSCLAWSPDSGTL ATGSDDKA A S G K LKLLSLTG HVVSTVRGLCVSPRHPYL FS C GEDR Q GS GEVVWHLLLE GHREH V V R S L A FS PN GK LA S G S M D Q T
 T QPATSIPANLSSEKSTGYS SVIFSHNALGRALLVSNDRS RTQS C IDRTFECGYALCCAFL PGDKVVLVGTKTGA

ENATTVSHVKNH HNRSVTACCFDPDSQGVVSVS LDKS QSQT MAKSFEVSEPVRSAKFVTRKQWVVAAA DDMC QTGE \(\quad \square A R \square F S G H Q G A I Q T S M F S L N S Q Y\) Y \(\quad\) G T G S WDY T

T T D S NQP LR \(\square F C G H \square S D V D C V Q F H \quad P N S N Y \prod A S G S S D R T\) GS DLPRPSTAGRNEGARGCAVVA GGLVVSSSDDGT ET GK LLLWEVSYDNF VTCKFSPDGKYVVVGDDVDYG YPPNTNYALLQNLLHKAAI TDDLQWS LTEP LI Y TVVSADH M KSGEKLLEIVKA HDDEVLCCTFSVD DRFVATCSVDKK


A S GK LK L T LA G H VM T VR S \(\square\) A \(\square\) S QR HP LMFS A S E DK L K T G D R K F LVSRPAGSDAYVRAVCFSPDCSKVVAGMPQNT AD GRLL R S LEGESGGALQQWTWHPRGDVVVAGTDDFM ETAKEFQVL HGHT GPVYGDQFSFNGGRYLCS GAADKT


VGGRLEKMQTLE GANGSTTSVEF DPS GCHLLAATYNNA

 QKMTAAANPFK GHTSVVTSVVQFSPDGGTRVASSSSMDRT

ETN QQIQSFNGHSGYVHCVKFSNSHCNVICSSSRDKT
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 A DGAPLAVLEG HQRDVFHARFVGDD WVVTGSDDGT

R T G
Q T \(\square\) K T F T G HEAS \(\square\) S K A \(V\) F N

\(G T G E L V R E \square \quad Q G A T W P V S F S R D G D Y \quad \square A T G G P N H A\) H T GKL QK KLEG HEGGVWALQY EGNDLVSGSTDRS

\footnotetext{
\(\square T\) F NFET QLQA \(\quad\) HECAVRTMTWSRNDMWLL T GDDQGF EKKWSCSQVFE GHTHYVMQUVINPKDNNQFASASSDRT EDGALTTPVCSVYQGHSDVVYSMRIFPAGDK\|VSAGAGPS QKTAPDVEPVYTFRAHRGAVVSVVMSSSGEQCFSGGLDGT \(K T K R C D R S R A M A B S R D G K L L A A A G G L K G E\)
 VDG S L I R N FE N GPK K A P V L
}



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DKT|IK WD \({ }^{130}\)
D H TVK KWDIVRNKP





EGVVRLWDAPAERHRADLSG
Q \(\operatorname{l}\) IS S S V L
\(V\) FNP RARRDAVGSRTCVLSPDG
DEAVFLWDVRAGR


D K TVVRLWDVETSKTLHVFNGY DCVLCVVG S
HGVVALWDAASGSPRLQLQAHGWAHWSPTFED IFMWSGYT


D K S L K K L WN P Q K G T L L K T Y NG H G Y E V L D A

D MLI K L W W WEK G \(\quad\) WMCTQQI FE GHS H Y V M QVVTF N P K D T











D T T L I V WDI K T GE I RHRMVGHTQA DNKEDVFVGCILRTA D









D RTVVK EWDLS K GACSRTI
DA \(\square\) GRVWDD RTGRTAMVLDGHGQA \(\square Y G\)




D K T il R L W D V


\section*{}




E D VLVWDVKRGEQVAVGVT SPVSYLAPPAPPPSESSA S WP



DS QLRVWRLPEVGSRRYIQTGPPAQETDCPHSVRA\|AAHG

DRLVKI WDYQNK
DEKLHLWHALTGERIGKATMDGSRTLGLAFLPDN


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D
F0F5B8
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TYVASGGYDKTVRVWDIRTGRQVQLHEEQTGSVTSV
PHCFGGQSSSLMFSQDSRMPHSYTAFSNSNNDSKSNSVG RLLAVALLDNTVKVFFVDSDKLY AF LNDYGHKLPVRDF TLIAAGSCDKIIRVWCLRTCAPVAVLQGHTGSTTSLQFSP KHLLAASNDFASRVWTLSDQRLRHTLTGHSGKVLT A SHLCSCSSDKTVVLWDVSTGQVVRKFRGHAGVVNCV SFLVSGGFDRTVAI WDVGEGMPYRKDSLKGHSDWVTDVA IVLASSGDHDRVRLWDMSNGRCDKSLKVHAGLAHGCSF KTAADSWLLHGHTGPVYSTSFSPDREQLLTSSEDGTVRDW N LLAVGGLDDCVLTLWDFSKLLTEEY SWVAGGCEDGSVRLWDTESGEWMATFAGHTEGV
HFLCTSSWKKTLKVWC HFLCTSSWDKTLKVWNVHTGEFRNYGACATDMQGHEGSVS

 HYFLSCSHDKSARLWSTDS DFLASCSMDNTSKI WDVHSERCRSTLRGHADSVNSI

 NTLYTCSKDNTIRVWTVSTGELALTLEGHHABVYADAVN RFLGSASYDTSWRLWDVETTEELLLQEGHSREVYAVK RTATDNRVLLGHSGPVYATSFSPDRTMLLSASEDCTVRLW
 RLLAAASDDKVVRTWDTETAQLDDRLEGHSDSVYSI AAITGDEDGIVCI SNTATGRVGGRLVGHEDSVEAVGLSA PLFVSGGDDYK, KVWDYKLRRCLFTLLGHEDDYGRSVQFHH
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 FRGLDDP DDGHPPGADEKGAQQPKKAGTFFVSGGFDAKIK QRLVTASFDGTARVVRADGRGPARVLRG AREPVLRLA A
 \(P Y L F S A G E D K Q I K C W D L E Y N K V L R\)


 D TLV S G S Y D S T V RVWRIVSTGESVHVLUGHS QKVY SVV
 PI T GSEDGTVRI WHS STYRLESTLNYGMERVWCVS GL TRLASSSDDGQI RI WNADST A HLVAS FTNGEI GI FNMETRQLVLSLESNLEAGYG QTYYN




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UniRef90_I3CBW8

YDNDSFAVGSIIDGRCE\| \({ }^{22} \overline{1}\) SCTSPG
\(\xrightarrow{L} \mathrm{H}\) CKD
PDNNDTDRVMKGNQAEVVHQSDVSFAKSRDRACCDCPSGD YFP DGRTIVSCSSDRTI RFWNVESGKE\QKLKGYYPDTC SLADDPNGLYLMSGSHDCSDRLWNLESKTCIQEFTAHRKK A \(I\) K WDPSGMLLASSCSDDMTLKIWSMKQDTCVHDLQAHSKE

\section*{AF D GRRVATGSLDTSVRVWDARDG}

A Y S D D GTAAA WD LAATGELTGRGVEVSPDGTWVLVPEKLTA CFSPNGAY LATGAEDKVI RVWDIN SRQ
 LH P
EFSPNNEFLA \(\quad\) FFVGWGG SLYMFASASPDNDKQWRCPEGN


 \(M A K G P Q R Y M V S T G A D G T V C F W Q W D L E S L K F S P R P L\)
 QFNEEATVI LS GS \(\quad\) D T S I RCWDCRSRRPDPVQ \(\square\) S N NK K WV LS A S K D K T M R L WN \(\square E E\)
G GDKPYLITGSDDHTAKVWDYQTKS
S LH TYSNLVVYKGHNYPVWDVQFSPSAGHDRVARLWGTDQ VA G P D G T WLA S G G D D A T VR \(\\) WDVA T





QFLHFANTLLTASADKTLSLWDARTGLCAQTF
ESSYSS \(\square\) S EAT GSETKRKKP GPF LLLS GSRDKTMK \(\square W D V S T\) GLLAFHHDGSLA GSCGLDALARVWDLRTGR
WHP F HE D L L V S G GF D GS I L Y WI VGQD QP
HACPTSNLLADAFSNYAVELLWDLEANKKMADCS
\(A \square H \square H K N R L V S A S G D C V V K M W D L N T G V C L R D F S G H T R G L A\)

 \(G N P\) S ESSSVATASTSSDURSWRLQQ GQLLDTNFRSE DT





 \(F S P T\) QP LL AS A S WDK TVVRTWDVVS GKGGVEVL F NPKDTNSFASACLDRTVKVWSLGSPHANFTLEAHDKGVN SAD GRRIVSGSYDTTIRIWDAET GAAIGTPLQGHE




GSSANANALAP GRDQGTGFGTGSAPWSALAPQSTGGGMGA
 \(\square\) FHPNSNYVATGSS DRTVRLWDV
\(C \boxtimes G N H\)
SLQNGNTLNSRTGHREAVQHCQFTSDGKTLISSSDDST\Q TIALSPSNALICSGGKEHVLRVWDLQKPEEPPQCFERPAW FSSDSALVASASMDNSVRVWD DQ
DYHRGDDLVVVGFSNGVFGLYQMPDFVCDHLLSDS WE WRS CNNGDSLRFVSGSRDGTARIWQYQQQEWKS IVLDMATKMT 1 FSADNWGLVQ

 HYHGHLSGIYTLSLHPTLDVLVTGGRDSSARVWDMRTKAQ QWCNRQSLLLASCGHDGMVRTWWFDPSTPDTDDDKTHEMK STKGTNRYLTSTGADGTI CFWQWHVKTMKFRDRPV FSPTDNKFATCSDDGTVRTWDF
\(\square \mathrm{RC}\) PTKKGTQFLATGSDDGSAKIFDDRMKPPL
VSWDGRFAATAGEDHTARI WNAKTGDEV FVLG
VLDHERNRCISGSMDSYVKIWDLDTGSCLHNLGGHNMLVG PDPDHSHEFLAGMSDKK IQFDTRTGA TQEMYMKELFTFRG GSNSVALGYDEGS
VGHSAPLIHDTVSPDGK LLAATSRSSTELWS LATWEPMGG KVLSHPTLPITVTAQEDRHIKFFDNNSGKLIDSMVAHLDA FSPDGRLLATASRDKTSKVFDWAKKA
LSP DGKRVAAGGLDKTIRIWSLGEKEGTLLHTLIAHEDA
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KVAYGCEDGVVKLLHCCSFSRDGRVLITGGDDSKVLIWEL

HDESTHD
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VAFHPTKCYTASAGADA LTAKV
保
LA QLQ GHTSLVGQLQLRS DTLVSGGSDGSVRVWSL LRRWDPVTGAVAGMSGFADDPTGTWAVATCMDGTLRRWDV QFTGHEQDIYSLD FARNGKII ASGSGDRSVRLWDL FDEQQNGEDGDEDEDEQDRHPRRKFVASASEDGHIVLWDV GHLSNASRWKFSPDSSMKFSPDSKLLASNGORDGTVKGSSW GHLSNASRWKFSPDSSMKFSPDSKLEASNGRDGTVKLSSV RRSHGGSVHSI GPNEAFSPNGDRVVSAGLDNVILVWNA HRSLFAHQDSGLQFVPHNQDGNGHHFFSCGKDRAVKYWDG पVTVD
VSSVKVSDHE
YNNI 1 SGHFDRRVRFWDT

\section*{CVQT \(\square E G H T H N \nabla S A V C F H P E \square P \square I \square T G S E D G T V R \square W H\)}

FQPDRMFVGHYSDVTCVQYHPNSNYVATGSSDRTVRDWDV
 HSDWVMD LYGAPAGFENTLLRGAWSKDDGGKRVAVGGADRMVCVWEV HLS WVH CVTFSPDGSLFLTSSDDQTI RIW SPLQSNNSDNNKNNSGGVVGGNGYT:CSGSNDKTVR1 WD \(\square K \square S G H N G T V N A V S W N T N P Y L A S A S D D K T V R I W\) GHKAPIHSLAFSTCGRYLATGSADCRVLIWDL GMCLMT LVGRDNV GMCLMTLVGRDNWVHGVLFNSRGKFIGSCADDKTVCLWDH QGEALHG GHGGSVWSLSWHPDGHILASGSNDYTTKFW
\(c \nabla Q F D G\)
 HQPपRVF

Drghag olv cht vive RMDFQGHKDFVL SVAYTPRKSLLASGSKDNQVKLWDA TLSQRGSCEHPSSVTRMCWHPTEPLVFTACLDGASRCWDL HHHFVMSCQ SHTHNVSFAVFHPNDPIIVSGSEDGTVKIWNS HKS QHTHDVLAVAWAPSGKLLASATLDGQIYFWDP \(H D V C S V A Y S P D M S R G A S G S Y D K T V R I W D A\)
\(S D G T K A V F S P D K S Y A M V G S N G S L F\) YVEYYHGNDK QVLRADGFKCGSDGTKAVFSPDKSYAMVGSTNGSLFIWNM GMNPGGGACSEPRSLRLWS K


RQHADSVYSVAFSSDGRYLLSGSLDKNVMLWDL PSMSGFGGSSGSTLGSGAYGGGTGGILGGGLDVAVKF GKVIQTLTGHASNI NSVAYSPDGKYLASSSSDRQUKDWRV

VWNWQSEECTLLKGHNERVKKFDSRLLS WSFDGTVKLWNT VMSVAFGAE

NLFATAGREREVRLFKV
ESYDLKQQGHYFDVNTLAYSPDSQLLATGADDNKVKVWTV GNNLPSGEDKDTKVTMVAWDRYDTTV\TAVNNFLLKVWNS HSGPVASVD HSGPVASVD
 DFALTGHTSTVSAVECQEADPQ IITASTDSTIRLWDL

KFTERSRPGVQ\SCSSFSSGGMFDTTGSTDHVIR \(\square Y Y\) Y HEERD DRGHGADVKCVDWHPTKGLVVSGSKDSQIKFWDP KTFDCTYQVTAVALSDNALKLYTGGDDNVIKVWDG AHLKKAVRAVAFSPNGYRLATGSTDQTIRLWDA

\section*{LLDDRD}

HKKEATS

VLEPGDSA VATFAGHADTVYS \({ }^{\top}\) HKS化AHQDS

AFAPDSRRLALGRYEHCVFLWDL TSLAVDPNGLYLMSGSHDCSI RLWNL AFTPDGRR1ATGGGDGLIR1 WNP RLA WSADGQWLASASADRSIKIFRA MNVKFLPESYNFFSCSKDATVKYWDG

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ERGVCDHTLTKHEPVYSVAFSPDGKY乌ASGSFDKCVHDWN
QTYSAVHRLAA HDNSVTSLQFDDSRTVSGGSDGRVKVWG ATGHPSPTTAHRGAALACAVSPDGRWVASGGRDRTVRLWE ERNEQVANFSTEDGVTTVAISPDNRFVAAGSपDKSVRVWD KSKEVVQK \({ }^{\prime} A A\) HDGVCFWVDVVGDTMVSAGKD
RTGYNFQRFQAAAGDFSMTFDVSGSRLDTEADKTDKDYK ESGQLLRTFEGGGK】TWVNFSPDGKVL
HSGGKV
RSDQQIQVF NGHTAYTLDVEYSPSVICSGSEDNT四RFW EGGGLLRELEGHHMLCSVAFAPGGDVIISSSVDRTMQLWD DKFEQ QRLDGHGEIWALAVSHGGRFVVTASHDKSDRVWD DAPEKLAELESHDKVDSIQFCNNGDRFLSGSRDGTARIWR RTDSSSNEDSQQRVTALDLSFDKNTLLCCSREDTVK RMGE LHADYVGSPVTSVCFSKDGQCILASSLDSTLR
St TYRपENTपNYGLERVWAFGYMKGSRR【VIGYD
ПNGNCVRVMTGHKAVHTपAWSPDGRYASAGVDKWD \(\square\) AYG ATGRA LAVLHGHHTVREASFSPDGAWLATVGGDGSVRVW ESGRVEYKपPGHGTVTAVDFHPREP【LLTASKDGT
ETTKQLITF G GHELLVMS \(\square K Y G S N T \square L S G S D K S V R \square W G\)
AHGHLLAALTGHSSVHALCFSRDGTVLATGGLDCCLKLW RHVAPMITVDVGHPANRVAFDPSGHLLAVASNDGTIKVGT KNKQCMKTLTHEHFVTSLDFHKTAPYVVTGRVDQTVKVWE RKKKSLY IIPAHSN】SQVKFEPQEGYLVTASYDMTAKVWS

> KKVHTSSA DRDKRDSDVLFNHEEIIVSAADNCNR ETGECLRTLV GHEDLVRTLCFDTKHLVSGGYDQSVKVWN
 LK SERVCLLYGHNKVSCVQVSPDGTALSTGSWDYTMRVWA SSGNCVRLLTGHKPIHSIAFSPDGKHLATAGVDKTVVGHG
 RSSRSVLTLTGYNSVISVASSPASPYFATGSGDCFAVIWK \(R T N S C V R T Y G G H E D A V I A D S A D G T M L L T G S D D G T A R V Y K\)
\(T T D A V V K Y V E G H D G V A S H P T L P L V S G S D D R Q V K L W R\)
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DNFENILTLEGHHEVRSLALSPSGNTLVSSSHDRSपRDWE
LEAQLLGTIEGGQCFTSLAFSADGSMLLAAGA
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 KKNKCVXTLNAHHFVTSSLDFHKTAPYVVTGSVDQTVKVWE
AAPPPNYTTFKGHTDFVLSVAFDGRLLLSGSKDRTVRVPS TLEGHTRGVVSFHPSLPLI／ASGADDRTIKLWR
EQTTCV
RSNKK

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SSGFCFVTFTE HTNAVTADHFNNHCLLSASDDGTVRAW ITGQLLHTLSGHDDEVFVAHPFDQRIILSAGHDGNIFI NDGEGVSQ
RDGSELAVLRGAHALNVAVFSPDGQFVATGHNDGLMTLWN RTTREIFLLTGHNNTVTSIQEHEPQI ITGSSDATIRLWG STQHCVQTVVVGGEVTSAAVAEDGRYUVIGSGDGEVKAWS VAGKTMSTLTHHKKSVRALALDNPTEFTFASGSDYUKQWG
GSEEKTAELES HTDKVVAVQFCNNGFVSGSRDGTARTWQ KTGQSLATLHAHNTVMEVKLNLNGNWLLTASRDHDTRNLK RKSHKPLSYLHGHTITSLSLSMDGKYLLSNGMDGCIRVW TTGAHDCITNRAGGIYDLAYSPDGRTLASGHGDGAIRIWK ENGKCRHTLMA HTGADTCFQHDGRKVISGS EKTVKMW N \(\mathbb{C D V P D K F A P Y G Y A L V A P H P N G K Y V A F Q S G D N Q U V V Y A ~}\) GHDKE GGGUEEAHEDWSLAWHPDGHMLCSGSNDHSTKFWT
SSRRYNRDDGHTKAVNAVAFSPDGR\LASGSSDSVIDRWN ESKTCIQEFTAHESIHDVAFHPSKGYIASAGAD
TEDAKQEASLSGFKGPVVRYSPDGQNLVASSADRTVRVFQ AD LTELRAITKLDPDAFLEFAPDGNSLAAG
QKFEC \(\backslash\) QKLAAHSEVWS \(\backslash\) SVSDGTFVISTGHDHS \(\square R \nabla W E\)
AEGYR K \(\square S \square K G H N D W V V D \square S S D K K W \square L S A S K D M T M R \square W\)
NTSARVHSLGGHDSYVKEDNFHP
LEDKPVTELPSEQQTTVYNFDPMGQS\｜VSASVYLYETTNQ

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T QS GSL
T L VRELGSPAEAVWVVFEEEK
AATREFTGHTDDI
\(\square A S G N \square Q G H K D S V Y S V\)
EDDEASE

A \(\quad \mathrm{D} \square \mathrm{R} \square \mathrm{NKKKE} \mathrm{\square Y} \mathrm{VI}\)
ETDEQ \(\square\)
\(R L L A E M K G H T D P V Y\)

K Q \(\square\) QVF N G H T N WVN A V
S DVTMDAGHDDAVQAVFD
GRDKTLLGHESKV

MKTGDLMLHTSWVFHV
NLLKSLA GHDGKVMSVD
S L \(\square \mathrm{GR} \mathrm{LV} \mathrm{G} H \mathrm{~T}\) D T \(\square \mathrm{Y}\)
Q\|GATQETHPN
Y Q C Q T
MNDDTMRGHTNNVSCV \(\quad\) TFHP

KTEEPL
SNTYRLE
T \(\square\) GEPLQGHED

ADTGTL
GSVSVLEGHKNSVISV
Y TESTLRGHVNNVSCV

TATQARRDHKHELGVMD
TTRTTLTHHKKSV
NF \(\square\) Q N L E G H
Y Q Q Q
E E L Q VF RGHKKE
A
STDKSFRGHNNAGYA \(\square \mathrm{D} \nabla \mathrm{A} \square \mathrm{S}\) P R N

GVS RVLRGHTHTLWVL
G N Q P T \(\square\) E G H T D W \(\square\) HA L
ETE
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230
240
YVGSDETSLABAS NVE QVRIYDGS
AFRC \(\square\) KNLTGHYGS \(\square Y\) S \(\square\) RYYLAGTYENA \(\square M V F D \square D T F E C\) FSPDGDLLAVAGKDRTVRVYSLADPTTETLLAEMADHRR YHGGDRPYLISGADDRLVKIWDYQNKT
GHYFDVNCLAYSPDSQLLATGADDNKVKVWTVSSGFCFVT PNAWSGLDSPFSHPHPQTQTQTQTHTHGRENQDKGQGQSQ


HFARDASFLVSGGFDKTVALWDVGEGGCRKFSLKG YRP DGRQLACSTLDGQIHFWDPIDGLLMYTDEGSRDIAG DFHTSGHYMITGSDDAAVKVIDLLEGR L C L
RHPY MFSAGEDNKV CWDLE
FSPNGKYMTT\|SENKQI WDDEKDFQIIKTMECNFKANRP


QFSNSSSRFVSGSRDGTARDWQFKRREWKSTLLDMATRPA
 \(C F P N G E A F V V A S D E G R V A V E Y F D M S A E V V Q K N K Y A F K C\)
\(C\) FQNDGALVCSGGLDAVGRVWDLRTGRTIM \(F Q N D G A L V C S G G L D A V G R V W D\)
lupas_21
lupas_14
lupas_28
jnet
conf sol25 sol5 sol0 jhmm


UniRef90 D8QY94 UniRef90-A0A022R9C8 UniRef90_L8GPG4 UniRef90-_8QQE7 UniRef90 E5SMC6 UniRef90-F6HX91
UniRef90-J9VS75
UniRef90-X6PBE0
UniRef90_T5AKR2
UniRef90-X6P4Y9 UniRef90-UPIOOO2235361
UniRef90-I1L224
UniRef90-B0X8C7
UniRef90-I1CJ35
UniRef90-D3AVR8
UniRef90 Q24CF9
UniRef90-B2B1L2
UniRef90-F6QSC2
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UniRef90-U3JJ06
UniRef90-G6CID3
UniRef90-A0A024MJT8
UniRef90 K1RCW7
UniRef90-M7PMF6
UniRef90-X6MRK7
UniRef90-UPI0003F06731


GQSFQGVEDK \(\square\) T K VTMVA WDRHDNSVIT A VN NMT \(\quad\) KKVWNS HPDKVIS HRKDESGTEMDYPVNCDDFHPDHNTFVTGGSDALVNI WDP TNKNDLEDVKRFRVTMVSWNMDDSLVITAVSDFSIKVWNS




UniRef90 D8QY94 UniRef90-A0A022R9C8 UniRef90_L8GPG4 UniRef90-I8QQE7 UniRef90 E5SMC6 UniRef90-F6HX91
UniRef90-J9VS75
UniRef90 X6PBEO
UniRef90 T5AKR2
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UniRef90-F6QSC2 UniRef90_A7BNW9
UniRef90-U3JJ06
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UniRef90 K1RCW7
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UniRef90-X6MRK7
UniRef90_UPI0003F06731

290
310
TGKC FAMCTGHSAAVGAlIAFSRSFLLTGSRDRSПKFW \({ }^{320}\)
DNFRCVQTLKR HTSSVEALVVDDDGLYSASSDNS \(\square K\)
SDPERAHRLPAHGPDQDVAFAPDSRLLATAGAD
 FRYRNFRTFTTPSSRQFVSLASDGEVICAGTLDSWSMKTG
\(E T G Q C D H S L P G H S T D R C I M V L P H R P I V A V S G S R D Y T L R V W G\)


ETGMKYCTF
E
A D QVLLRRFQDTH

RTKAEIYTLS GHKGTVGSLSPDPQVI SGSMDNTIRLWG
NKNFELATI ENKFYFHSAVFSRNGKYLATGT
ASGSCTQTLE GHGGSVWSVAFSPDG
KTGC L LT ILTHHTRVTACALAPKHPLLATGSMDKTVT DWK
FTGQLIH \(\square\) LMGHDEVFVLEPHPDPRVLFSAGHDGNVIVW
FNRKR\CQLHKFFS\MSVSFNATGTQLADAASY
HTGKLVHILKAHDEIFVLEHSPVESRIMLSAGHD
RK IVKCISTIPA HKNLVVDVRFTSGIYLVSSGYDWSSDDW
RS GQQi QVFNGHTEVNAVAYSPNGNMICSGSWDNTDR
LIK G ITRLA I LYGHNRVSCLSVSPDGTSLCTGSWDYTLRVWA
lupas 21
lupas_14
lupas_28
jnet
conf
cont
sol25
sol5
sol0
jhmm
jpssm


RLLDILS GHEGPVH
RCLHTLRGHTKSVRCV
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SQN
QSADTLTNHKKSV

VLIK S L I G H P D K VM S VD
lupas 21
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jnet
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solo
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jpssm```


[^0]:    
    

