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NHPKDETAAMDGTLRETLVQNTQWPTGLAVDYH NHPKI ETAAMDGTLRETLVQNIQWPTGLAAVDYH $\square Y \square A D D N E I R S \square F P G H S A Y E Q A F Q G D E S V R A M D V H V K$



PFLIFANRYYLDAASMSGEGRRT\HKETGNPNGLTVDYL LY WT DS GT PS LIFSNRHEDRKDDLVKKDYTRTIPTLK R PYLI F T N RHEVRKI DLVKRDYSRI I PMLKNVVALDVEVA PYLLFTNRHEIRRUDLVKRDYSQVVSTQKNAVALDLDVA NTPRI EYSNMDGSNRRGI ATHLFWPNGLTUVA
 $\square P Y$ L $V$ Y T N R H E V V



$\square E L S D L N G G N R R V L I T D L P H P F G L T L H$



## F L L Y S T DE T $\square R G \square S \square D D K D M L T P \square T G H M L S V A \square D F H A A$

 Y I Y WT D R R S I E RAN T S GQN R TII QN HL D YVMDI L VF H S

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 GLRNVRALGFDPRA DQRLYWTDLDTCMDESSNMERE\| I ADDLSHPFGLTMQYR DGFVYWGDVSNRARWNGSDQEVI LSHNMDSPAGLS DD WD SRQAGWNECASSNGHCSHLCLAVPVGGFGCPAHYSLNPDN

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 PIE GKIY WT DWGNTPRI E YSNMDGSNRRVI ADTHLEWPNG
 S RD D HVYWT DVS T DT I

 | $P$ |  |
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| $P$ | N N FMF WT D WGQQA K |
| P G WM F WT D WS DEAR |  |

 $\begin{array}{llllll}P A H G G Y M Y & W T & D & W G E & M & P \\ P & R \\ P & L & \text { I } & V & F & W T \\ D & W G & P & K & P & K\end{array}$
P I D GWMY WT DWGT T P R I
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P E K G WMF WT D WGN K P K I EK S YMD GTNRKVIVVNTGLLGFPN G PERGYLFWTEWGQYPRIERSRLDGSERAVLVNVSISWPNG PSKAYLFWSDWNSPSKI ERSFLDGSNRTAIVTSGVGFPTG LMDVRVYHSNRYSVPSLCQSHNGGCSHLCLLABGSCACPT G




PA D GYMY WT DWGSKPK IERAALDGTDRTVLINNSSLGWPNG
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 PLN GWMY WT DWE E DP K I E R A WM D G S N R N I FITTSKTVWPN G HSSRQSGWNA CAATNGHCSHPVCSFTCGCPNT P T $\square$ G Y L F F S D WS GEPK LERAFMDGSNRKDLVKTKKLGWPA G PTKGY Y Y WTE WG GKPRIVRAFMDGTNCMTVVVDKVGRAN D EGYNYLYWTDWGDHS LI GK IGMMDGTNRSVIVDTKITWPNG PVRGYLIDWAWGVEPKIERSLLNGENRTVIISSKINWPNG
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QUERY
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UniRef90_S9X6F9
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LA VD YHNERDYWADAK $D S V I G S D R \square N G T D P D V A A D S K R G L$
I AVD W DA GNIYWTDQGFDVIEVARLNGSFRYVVIDSQGDK VVLYHRYKQPEMTNSCDRK $V V L Y H R Y K Q P E M T N S C D R K$
$I W A L D S S S R L Y W V D S K D H L$
I ALDLSSSRDYWVDSKDHDISSVDDNGDNRRDLLSSMDQL
LA YHRGWDTLYWTSYTTSTI TRHTVDQYNRDTVVSSTEDH
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DHPF GLAVYE E Y I Y WT D WQ T E R I E K A S K R T GLQQRTIIQQS MDMFSVSVFESYI YWSDRTNGSIKRGSKDNATDSVSLRTG P HPFGLTMFESNI YWT DWYNKSVYRVPRMGYSYPFEVRDA K NVVALDVDRVHLLWSDTTQDKIVRAGPDSASAVEVI AF N



PHIFGFS L L G DY I Y WT D WQRRS IERVNKHNGQDREVIIDQ PRAIT L N Y DHGLI FWT DWGNKRI ERADMDGNNRMTLI KDN P HP Y GLTVVVDNVVYWT DWETGSVVHRANRDN GESMQVI R D K AVALDDWCSDTEFIVWT DVERSTINKAHLNGSYQQRVVHSN P HP F ALTIFEDTMYWT DWNTKTVSAANKINGKGFRSVHEN SHPYALVVLDNHDYWTDWKNNAVHRAEK DGSNHDYMVKN GNFYGLAILHADF IVWSDWARRSVLRSNKYTGSDTVVLRAD

FHDFGLT LY DQY $\quad$ Y WT DFYTKKVYRANKYDGSGQ $\quad$ AMTTS FLAF GLTVYGQHVYWTD $\quad$ STKKIYRANKYDGSALI AMTTS HPFAMTLFDQHI YWTD WNTRSIYRANKYDGSDQIVMDMN HHPFAITVFQDYI YWTDWVKESIYKANKFNGKDRSLVCSG MKPFSLDIFEDKLYWVAKEKGEVWRQNKFGKENKEKVLVV PHPYGI TLEEHNVYFTDWTKMAVVKANKFSESNPQVIVHS
 NHAFGLCHYSNFLFWTEYRSGSIYRLDQAS KAVSLLRNE RNVRAI DYDDRHLYWDDAKQNVI RRAQEDGNQSVTVVSGA PHPFGI S DFEENVFYTDWTKMAVMKANKFEDTHPQTYYQS PHPF GLTQYSDYI YWTDWNLHSII ERADKTSGRNRTQIQQ NDPFAITMSHQYLYFTDRGSGSIYRDNKDGNDTVVTMKGG
 PHPF GLAGHDDHIYWTDWETKSVEKANKMSGDR RETVRAG


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# ${ }^{10} \mathrm{~K} L$ E CANDD ${ }^{20}$ R $\mathrm{V} V \mathrm{~V} \square^{30}$ <br> 40  

ARTDRTEKTNLETGENRETVLSAANVDLFSVAVF ARTDRI EKINLETGENREIVLSAANVDLFSVAVF A R T D R



FLLFSQKNADNRMV!DSPD\|ILPDHS $\square R N V R A D D Y D P D$ ARSDKI ERMDLDTGANREVLLS GSNVDLFSVAVF ARSDKI ERIDDDTGANREVLLSGSNVDLFSVAVF AAKGKV I \begin{tabular}{ll|l|l}
P \& Y \& L \& L <br>
\hline \& F <br>
P \& V \& F <br>
\hline

 

$F$ \& $G$ \& $I$ \& $S$ \& $L$ \& $D$ \& $S$ \& $N$ \& $D$ \& $A$ \& $M$ \& $V$ <br>
\hline
\end{tabular}


 ARTDK
P E N V R
$F \quad L \quad V$

V
V G
GYLLYSDGDHIDRAHMDGSHRTTIVTAIYKATGLTVDYV KI D RTAMD GS GRIT LVVPDVGRANGLTDDYA


PCLIDFTNRRDRKVGLERKEY DQLVEQLRNTVALDAD\K TAGDAK
 SFLLFTKKKD
$P \mathrm{~F}$ L Y F $\begin{array}{ll}A & \text { R }\end{array}$
ARTRE
AR DKRI




ASVIFSNGRDLLVGDTHGRTFSMLVQSQNHAVGVDFHYH ARTDKI ERIDLETGGSREMVLSGSNVDMFSVAVF ARTDKI ERI DLETGGSREMVLSGSNVDMFSVAVF $Y \vee I F$ F ${ }^{\text {T }}$

VLL


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 N G WMY WT D WE E D WMD GS H R DV F V T S K TV L WP N GL S LD D P A NGWMY WT D WE E D WMD GS H R D V
 E QVVYYS DVT $\square N Q V H F N G S G Q R V L V S Q Q G R V E G G A B Y D M V N$ HQKFIWATQFNPERSQTKSS』RNI CSDFRRPRDISADWIT A G N $\quad$ L Y WT T D H G F $N$ N L I
 A GRVYWTNWHTGT ISYRS LPP PAAPPTTSNRHR







A NY
MA Y F A DTT GRQK DD GTERETI L K D D L DNVEGGIAVVDWI MALLF FTDCNERSFMDGSHRKLVVSKDVVCPSGISIDYPS MA L L F F T D CN E R S F M D G S H R K L V V S K D V V C P S Gli S I D Y P S
 Q GIL F WT DWDAT FPRMSGGGRHIVFKDMEWPNGLTTD HLLE







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 GA Y I Y WS DRAHAN GS DR R GHKNDAT E T I TM RTGGL GVVNLK


 E R R L Y Y WT D L $\operatorname{S}$ S S N M L D G A G Q E R E V I A D D D




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 E N L Y W W V E S N L D Q I E V $\operatorname{L}$ A K L N G S F R R T L V A G N M E S P R A I V L $V$ K V F N R A R E K G T N P CA R N N G GRR T CA CA H G Y L S E G G F S C Q


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


 D Y I Y WT D WS QR S I E R A N K T S G Q N R T M I Q N D L D Y V M D I L V F













## E

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UniRef90 UPIO0042C81E9 UniRef90-UP100033475FF UniRef90-UPI00033475FF
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LAI DHRAEKIYFSDATLDKI ERCEYDGSHRHVILKSEP
LALDHSSGYVYWVDDALDVI ARVSTEGGESQVIVRGGGRY VDSKD TTEMNHHPCA DNHICTAMKDGRSR
VDSKDITEMNHHPCADDNH CIAMKDGRSR

L VLDPNKSLMYWCQWDMGKAEVAYMDGTNRKDFVQGNMQW | A |
| :--- |
| A |
| N |

VRPYENPNYFKNI TALAFDYNQRRE
LNSP VRPYENPNYFKNI IALAFDYNQRRE
VTLDIQEQKLYWAVTSRGVIERGNVDGTERMILV HHLI
LTIDFVEKRLYWSDRHLRKESVDFNGVNRRVELAKVMET

- | 1 | $S$ | $R$ | $V$ | $L$ | $K$ | $N$ |
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PRADTVVPEK GY LIFWTEWGQYPRDERSRLDGTERVVLVNS V H P F G L A V Y G D Y
$P N G L T L D L L R G Q L Y W S D T Y L D R I E R \ N T D G T G R E L I V Q N$ LQPVGLTVFENWLYWDDRQQQMIVKI DMT GREGRTVVQAR

A H P WG LVV VHGSFL YYSDEQYEVI E RV D
P F GLA L GP GKTLYFTEFTK GTVMAYNNKSG
SHPFA A DFENYV YWT DWRTNSVVRANKFTGGRQLDQS
S H P F A
D HP HVLAL DENLMFWTNWNHPSII R STLS GNNMQVIVVS

 R H P H A L T ll F E D R I Y WT D R A A N R I S R C N K F N C T E R TVVMAS N



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F
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PK P Y A L D $\square$ Y Q D H


P HV L A L DE C Q NL MF WT NWNQHPS MRSTGTGGNA QVVV S D

SHPF AL TQQQDRWI YWTDWQTKSI QRVDKHSGRNKETVLA N
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PHAF GI SLDFE GHI F YT D WT K M AVVMKANKFT ETS P QEYHK T P HVLALDECQNLMFWTNWNQHPSIMRSTLTGKNAQVVVSD P HVLAL DECQNL MFWTNWNQHPSIMRSTLTGKNAQVVVSD




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VLTPNGLTVDH
L GWPN GLLALD Y
NLLRDVTVFDSRYQP


V ARPMGII AVQNS
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L LTPNGLTIDH
1 NWLRDV I F D Q S VQPR
L P DLMGLKA
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I SNDMNVKMYDADTQ


1 PNLRGLRI YQRH
WQA K S I K V Y H S L R QPE
VIT P N G LTTD H
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$\square G W P N G \square A \square D Y$

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TS WP NGMSVDYQ


NEGVEGLAL
1 Q Sil R GL A V
I Q SI R GLA V
VPDVMGIKI FHRTRK
TSGVVHMKVYDKAAQ
VSKPMD\HAVHPLRQPRG
1 LTP N GLLTMDHR
1 LTPNGLTI DHR
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IS GLLMDVRMFHRNR
VEGLMDI LVVSPHRQ
VT QP H DL SI
1 SQPMG1 1 AV
Q G R V E G L T
F LRPFGVTVYHS LRQP
IL T P N GLITI D H R
L LTPNGLTIDHR
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$\stackrel{L}{L} \mathrm{P}$ WL R GQV R V Y H Q SR
L L R P M D I HVLVKSRQ
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 GYLLYSERT ULKSGHLDETNLNPPIRPFKNVINALAFDYS





AF LLFTNRDS $\square$ RS $\square$ S $\square$ NSNDVA $\square$ P $\square$ TGVKEASA $\square D F D V S$


## PVLFFANRRDTHRFTTKGSRYNDVMKGLKGADGПDVHVR PYLLVTSQEDLMKAGLDVMELSNLLPGIKALAGLDVHVE



FLLFSQKSATNRMVTDSPDTTLPTHSLRNVRATDYDPL


PFLLFANMHD RRDHFDGTSYESLLSQMGVVLADDHDPV SFAVVSTLTEIVGFHMNSSDHSEAMVPVSQVNKTDVHVA

K $\square E K$ S Y M D G S E R Q T $\quad$ V S S $\square$ F WP N G L A $\square D Y T$ ERADMD G GNRQR L I F GMTWPNGGLA L D DP

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 TDTLYWGDNELGS DSRVKRDGTQRETILDWLGGIAMDWVA EGYVYWTDDERRARDDGSDAQTLITNE NHPDGIAVDWVA DLRLVDATHGKENATIVVGGLEDAAAVDFVFNH EQKLYWAVTSRGVIERGNTNRMILVNGLSHPWGVAV YGG
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 DESUYWVDLGKNLLQRAFSRQEKVYNIGKNVSGMAINWIN HGYMYWTDWGERAGMDGSTRKVIVDTDIYWPNGLTI DLDE NDTLIWSDVSQEK MMDCHMNDTLVDKDVSTPDGLAVDWVH

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K N A L GVDVDHSTIY WT DTGQRK\QRATRLGTHVETVIGNG


 AMS Y A MS I A F V R F V S D WA A R S V E R L H
D R P S S L DVV E S T L Y W DS T G K G E L R R Q D K F GR GVVMVR LVK D R H P Y S L S L F E D T V Y WS D RA T H E VVMKAN K WH G G NQ S VVVM T

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 LL G M S L FFA E HL Y Y S D L K S GMI WR AN K Y T GNVVVVTI SP S



Q H P H GMT $\quad$ F E D S VY WS E R Y T S K VM R T N K F H G S N $\square T T \square M S S$ P HPFALTLYEDTLFWTDWNTHSISTCSKHTGGEQRVVHAN $R N V R A M A Y D D R S I Y W V D G R Q N$ IV R A K D D G T
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SHPFA IT ITFED IIY WT DWNTK S ITE K GNKY D G S NRVR LVN $\square$ $\square$ Y P F S i TVVD K Q Fi Y WT DLLQLR GVVYRAE K H T GA G M V E MV K R PHPFALTLEGDTLYWTDWNTHSIHACNKYTGQERREVVSN DHPF GVVAVFED HVWFS DWAKPSLIRVDKRT GQNRVRLRGS

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F VP P G G ITKVVHPLVQPKA
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UniRef90- H2V5G6 UniRef90-UPIO003DECEOE UniRef90-B7QKE3 UniRef90-UPI0003DODB67 UniRef90-T1KX80 UniRef90-H2SS78 UniRef90 T1H7T0 UniRef90 U4U243 UniRef90-Q4RG48
UniRef90-Q4RG48 UniRef90-N6TTM5 UniRef90_C3YYR4 UniRef90-F7E718 UniRef90-R4GEK0 UniRef90-UPI0003C470B0 UniRef90-H2M485 UniRef90-J9JUP9 UniRef90-EOVVX3 UniRef90- - J9K9B1 UniRef90_UPIooo334653C UniRef90-Н9к6м9 UniRef90-R7U545 UniRef90-H9IVH6 UniRef9-H9JR22 UniRef90-K7IYY2
UniRef90 G3NUV7 UniRef90-UPIO0034FAOD8 UniRef90-A0А023EXC6 UniRef90-M4AR51 UniRef90-E2B7S9 UniRef90-Q7PS35 UniRef90_K7F4H4 UniRef90-Q16UK9 UniRef90-V4C597 UniRet90-W8AH69 UniRef90-T2MEP9 UniRef90_UPI00046D63F9 UniRef90-A0A016TNA5 UniRef90-UPI000462D81B UniRef90_UPI0004624C73 UniRef90-W5JMK2 UniRef90-A8JTM7 UniRef90-UPI00021A88A1 UniRef90-UPI00021A88A1 UniRef90_B4L5J5 UniRef90-A0A026X5G0 UniRef90-E2AST3 UniRet90-K1QFX2 UniRef90-F4WMX5 UniRef90 ${ }^{-}$F4WMX5 UniRef90 BoW147 UniRef90-UPIo0033395Bo UniRef90-D2H322 UniRef90-B4GW73 UniRet90-Q7PS28 UniRef90-W5N1G8 UniRef90-UPIOOO2659183 UniRef90 U1MPE3 UniRef90-Q16GY3 UniRef90-A0AO26WGG7 UniRef90-D2A038 UniRef90-UPIO00440E8A7 UniRef90-F7F4J4 UniRef90-E5SSLO UniRef90_E5SSLO UniRet90-M3ZJA3 UniRef90_UPIo0046B35B1 UniRef90-W5JVV2 UniRef90-A0A016SSK7 UniRef90-L9KJI9 UniRef90-Q1L8K6 UniRef90-E3MGD3 UniRef90_W8BVL4 UniRef90-A0A023EW16 UniRef90-UPIO00180B444 UniRef90 UPIIOOO440BBC4 UniRef90-UPIIOOO440BBC4 UniRef90_UPI000022374A UniRef90 A8XEF6 UniRef90-A0A023UK10 UniRef90-W5K6E9 UniRef90-S4R7F3 UniRef90-UPIO002B47D30 UniRef90_UPIOOO258E92A UniRef90-G6CMW5 UniRef90-W4XAP2 UniRef90-A1L1D2 UniRef90 W4VRIO




## Y $\square 1 \mathrm{FSQRNSFGRFMPNTTDSVP} \mathrm{\square PDGKN} \mathrm{\square RADEYDL}$

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\begin{aligned}
& \text { PF }\lfloor\text { MVVKGTQ VD }
\end{aligned}
$$

DGDSTSVADMKGLYRHTILKGLQEPRATVLDPM PLLLYTTQKSUGGLHMNTKHOYYVAKDLSQVIGVVYD
 $\square Y \square A N D T D \square G Y P F N Y S G D H H Q \square S H \square E H \square T G M D V Y Y Q$ LYWADRRT TYKASVQGAHRQKLYSSDKH VSGLTVDWD FLIFSSQLALRGMPFTGSTQEDVVPVTGSPVGLDFDAQ

AASKT SVAT DDGKRKFLFSDRREPASTAVDPD PFLILADHHEI RK\SLDGSNYTLLKQGLSNVISLDFDSR PGVLFHTQENVYSRSKNTNTRTVVVNSTGSUNSVAVDPR

 ПPGILFHTQENIYVASKDTNTRTLIVNSTGSITSLSVDPI SF MMYSDHEGVRGTSDDPTDHTEPTSGTLFAVGVDFHAG VPFIIFSTRHEIRRIDLHSRDYSVLVPSLRNAIIAIDFHFG SFFLYSTTTEIRATPFNEQESDSIAPGLKSSYADDFLYK PTVLIANRYYVRQFDTETPSNFVPATHAARPTAADVDLA
FLLYAQGQQUGYGPLNGTRRTLLSLHGSIVVGIDYDCH

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| :---: | :---: |
| iR |  |
| UniRef90 W5MNC0 | VNTS |
| ef90- G6CX91 |  |
| Ref90-H2 | GIIFWTDVSEEATKQTYWNQTVVVSGL |
| UniRef90-UP10003DE | CWSDSGLELIQC |
| UniRef90-B7QKE3 | FWSDUTVDVI R |
| UniR | DTSRDI Y |
|  |  |
|  |  |
|  | G |
|  |  |
| UniRef90-Q4RG48 | SNNAMTPVSGISQGQDIDFDDQE |
| UniRef90-N6- |  |
| UniRef90 | ${ }_{\text {G }}$ |
| R4 |  |
| UP10003C4 | Y WVDGRQNI IKRAKDDGTQPFTVMKQPHDLSDDUYS |
|  |  |
|  | NHTVCFVHQYNKTNGAKLSCANTDNDSVSDTWDLALDWVS |
| UniRet90-EOVVX3 | QEMIFWVDNTLKRSYMVDARQGVVKAGYPQPTSVSVDWVS |
|  |  |
| UniRef90-UPIooo33 | ALA D WL |
| UniRef90-R7U5 |  |
|  | 俋 |
| H9JR | - |
|  | Y |
| UniRef90-UPI00034FA0D8 | L |
| UniRef90-A0A023EXC6 | FWSDMKLKKIDRGQEPREI ISTGLDLVEGL |
|  |  |
|  | ARKLYWADLQTPAIIDCTRQKVVI ITQNIVYPFSIT QYR |
| Q77 | GGTK |
|  | QDVIYRVHRNGTVQASQNEGV |
|  |  |
| UniRef90- W8AH69 |  |
| UniRef90_T2MEP9 |  |
|  | EHMVYWGDDSENGTLYTMPYTGGNRTEVGSPSTFAVDWLG |
|  | NGTLVWSDIALQKILMCKL |
| UniRef90-UPI0004624C73 | EFHYWHDTEKGLLQRTSLNGSNPET\CYTGKDIAVNWI N |
| UniRef90-W5. | GEQLY |
| UniRef90-A8J | RNTLYWSDTKTRKQNKAVSPFDQTLPGTWAPVALAVDWVG |
|  |  |
|  | TGYLYFTSWHGKMGMDGSNFTRILTDDI AWPNALTIDYFT |
| UniRef90 B4LL.5J5 | GEH1YWINDQNRAHADGSMAEPLLTSGLLDAPEDLAVDWLT |
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 $N D V Q Q M A I D W L T$ DVGSVEGLAYHRAW GETLYWVHGREDDDENCTDYTTPYGGGVGAPYTIAFDWDG S NTLYWSDAEREDYSLQTRHRSIIQHYL GDPVALALDPET EKKVYFTNTALKRDERANEREVLVHKDVDLPEGLAVDWDN
ASVLFWSDWGERPHMDGANRRLIITSSLRWPNALAVDTTT

 GENLCSNNNGGCSQFCFYYHNKTKVCACELGYELASDRRT

RDM I DWSDSGRTASGLIVSKMRFPSTLLKRPRDVAVDWVA

GNGDFWTSSRKGQDKKMDKNERTVLRHDSQPSFWNVDPTH NSTVFFSDDSKYMI FKQK DDGTVAANRVENVESLAFDWDS RGLVCWTENTLEADKCGSNKTTVTDGLDKPEGLA D WYT S GFVSVFP VT DPFGCY LFTGQT VVTVD DQWPNGDTL DLI K K ELI Y WIDTS RPS GRRINRMRLNVVHRTSVPSALAVDWIG ERLL FWTTVSQPFKTGSQPHKALVERNDFEPRSLVLDSPN
 GGWWFWVN $\ddagger E K D H I D G T N Q T D F A P S S G L G L P N A L A L D W V S$

SDLVYWTDVTNSMSNQPYTYR\TNS LPTKG DDGПAVDWLG QRLI FWTPIAQLFKTGSQPHKALIERNIFDPKSLILDSPN DGSLIVGDSYNRKMMKTLHTRDIVTSGVGRDEGIAFDNLG NDTVYWTDMGLNRDSRATWREHIITTTGMISRVEGIAVDWIA
 TGGMFASDQLKDKVKHFDVNDGNLDAKVSRENKI DVDYVGG EQKLYYCDVHRRQNLDGSGREVFVEEDVDNCEGLAVDWMG DNKGVVSDVVARMDMNAQNREVII DDDAGSVEGIAAVDWVG

UniRef90_W5MNC0 UniRef90_W5MNC0 UniRef90_UPIO0046B7A54 UniRef90_G6CX91 UniRef90_H2V5G6 UniRef90-UPIOO03DECEOE UniRef90-B7QKE3 UniRef90-UPI0003D0DB67 UniRet90_T1KX80
UniRef90_H2SS78 UniRef90 T1H7T0 UniRef90-U4U243 UniRef90-Q4RG48 UniRef90-Q4RG48 UniRef90-N6TM5 UniRef90-C3YYR4
UniRef90- F7E718
UniRef90-R4GEK0
UniRef90_B4L5J5
UniRef90_A0A026X5G0
UniRef90-E2AST3
UniRef90-K1QFX2
UniRef90_F4WMX5
UniRef90-F4WMX5
UniRef90-B0W147
UniRef90_UPIO0033395B0
UniRef90-D2H322
UniRef90_B4GW73
UniRef90-Q7PS28
UniRef90-W5N1G8
UniRef90_UPIOOO2659183
UniRef90-U1MPE3
UniRef90_Q16GY3
UniRef90_A0A026WGG7
UniRef90-D2A038
UniRef90_UPI000440E8A7
UniRef90_F7F4J4
UniRef90-E5SSL0
UniRef90-E5SSLO
UniRef90_M3ZJA3
UniRef90_UPIO0046B35B1
UniRef90-W5JVV2
UniRef90-A0A016SSK7
UniRef90_L9KJI9
UniRef90_Q1L8K6
UniRef90-E3MGD3
UniRef90-W8BVL4
UniRef90-A0A023EW16
UniRef90_UPI000180B444
UniRef90_UPI000440BBC4
UniRef90_UPIO00440BBC4
UniRef90_UPI000022374A
UniRef90 A8XEF6
UniRef90-A0A023UK10
UniRef90-W5K6E9
UniRef90-S4R7F3
UniRef90_UPI0002B47D30
UniRef90-UPIO00258E92A
UniRef90-G6CMW5
UniRef90_W4XAP2
UniRef90-A1L1D2
UniRef90_W4VRIO

UniRef90_W5MNC0 UniRef90-W5MNC0 UniRef90_UPIO0046B7A54 UniRef90_G6CX91 UniRef90_H2V5G6 UniRef90-UPIO003DECE0E UniRef90-B7QKE3 UniRef90_UPI0003D0DB67 UniRef90_T1KX80 UniRef90-H2SS78 UniRef90-T1H7T0 UniRef90_Q4RG48 UniRef90_Q4RG48 UniRef90_N6TTM5 UniRef90_C3YYR4 UniRef90_F7E718
UniRef90-R4GEK0
UniRef90_UPI00030 UniRef90_H2M485 UniRef90_J9JUP9 UniRef90_E0VVX3 UniRef90- J9K9B1 UniRef90_UPI000334653C UniRef90_H9K6M9 UniRef90-R7U545 UniRef90-H9IVH6 UniRef90-H9JR22 UniRef90_G3NUV7 UniRef90_UPI00034FA0D8 UniRef90_A0A023EXC6 UniRef90_M4AR51 UniRef90_E2B7S9 UniRef90_Q7PS35 UniRef90_K7F4H4 UniRef90_Q16UK9 UniRef90_V4C597
UniRef90_W8AH69 UniRef90_-T2MEP9 UniRef90_UPI00046D63F9 UniRef90_A0A016TNA5 UniRef90_UPI000462D81B UniRef90_UPI0004624C73 UniRef90_W5JMK2 UniRef90_A8JTM7 UniRef90_UPI00021A88A1 UniRef90_UPI00021A88A1 UniRef90_B4L5J5 UniRef90_A0A026X5G0 UniRef90_E2AST3 UniRef90_K1QFX2 UniRef90_F4WMX5 UniRef90_F4WMX5 UniRef90_B0W147 UniRef90_UPIO0033395B0 UniRef90-D2H322 UniRef90_B4GW73 UniRef90_Q7PS28 UniRef90_W5N1G8 UniRef90_UPI0002659183 UniRef90_U1MPE3 UniRef90_Q16GY3 UniRef90_A0A026WGG7 UniRef90_D2A038 UniRef90_UPI000440E8A7 UniRef90_F7F4J4 UniRef90_E5SSL0 UniRef90_E5SSL0 UniRef90_M3ZJA3
UniRef90_UPI00046B35B1 UniRef90_W5JVV2 UniRef90_A0A016SSK7 UniRef90_L9KJI9 UniRef90_Q1L8K6 UniRef90_E3MGD3 UniRef90_W8BVL4
UniRef90_A0A023EW16 UniRef90_UPI000180B444 UniRef90_UPI000440BBC4 UniRef90_UPI000440BBC4 UniRef90_UPI000022374A UniRef90_A8XEF6 UniRef90-A0A023UK10 UniRef90_W5K6E9 UniRef90_S4R7F3 UniRef90_UPI0002B47D30 UniRef90_UPI000258E92A UniRef90_G6CMW5 UniRef90-W4XAP2 UniRef90_A1L1D2
UniRef90_W4VRI0

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P NKGY $1 \quad$ F WT DWF RPAK

PCNGTDPY TGWGKF GK
WIT RMMFYT N P T GK S

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| $P$ | $E$ | $G K M$ |


P CYGYL Y WT DWGSPAK
A ERGY MYFTNMQERPKI
PHQGFMYWSDWGEHAK, WRAALDGTEREVLFSTGLIDPVA

P E LG KMF WAD S GYS PKI ESSWWLD GSMRTTI AT DGVVGHPTG
P GTGY LY F T S WHLQQAYI GK $\square G M D G S N F T Q I L T H D I A W P N A$

$P T \square G L M F \square A D S$
K RVLRANMDGTVDF PI VF EAAYKVSG
PHHGFLFWTNRADPSSIMRSRLDGRDTHVL
QK S NS IFWTDVVEKDTINRAYLNGSHQTTIVDSNDIDPAG
P T E GKMY WS D Y GVVP PKI GK A NMDGTN S I I L V D D T I PR P E A
P E K R L L F WT DVGGEK M R V M Q S L M D G K E R I VI A S
P T L G L M F VA D S S Q
PNTKFLL WT DWGENPRI ER】GMDGTMRETII NTKDYWPNG



P NKGYI YFSEWDRPANI SRANSDGTGGMVENNVTVGWPNG

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



 PAAGRL F WLDD DGGFTKLAAAGMDGSEP TTILDDTDQYVES PTAGLMFVADGGQVLR A HMDGTHARSIVSEAAYKASG


 P ERGELVVWA A GTQPK I E IA WMDGDRRMLLVIDERIA S PSA


 ECQN LTMFWTNWN EQHS I MRSTGT GKNA QVVVVSTDVLTP NG


 FEDFLYWTDWTNRTVERAHKITGEMRTVILNFTHYRPMG

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| $R$ | $G$ | $A$ | $K$ | $R$ | $L$ | $N$ | $E$ | $I$ |
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| $P$ | $T$ | $A$ | $G$ | $Y$ | $F$ | $F$ | $S$ | $D$ | P T A GY I F F S D WF RPA K I M R A C S D G S H L L P I I I M T T L L G W P N G P ERR Y MIDWTD WGESPKI ERASMDGQS RTVLVNDRII FWPN G SSSGNLVYGTNVVEPAGITVVRPDAPDFRAQUVKAVGGDHS

 LL G G Y I Y VTN Q GY $\square$ QR M H
P T L G WMF WS DWNEKPKVERSS LDGSERVVLVSEDLGWPNG
HPLRQLPYNN
PSKGKLYWSDQGSPAK $\square$ SRCNTDGSS LENTITTTKVTRVQH F NRSLLYWT DVDK I YR GRLSDTGGTGGIEVVVQHGLATPEG
 $P \square Q A L L F W T D W G A S A H \square G R M N M D G S N E M I I L E D T I R W P N A$ II G G Y I Y L V T LIQ GN DHKMHK F S GK TN RLLI AHPSKHTVSH PVEGIMYVSASAHIDKLSMSSGDLMS RTHI FEENLLGBPP

 PSKAFI Y WT DWDNKPKIERSNLDGSNR\|VLVNTNIGWPNG




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UniRef90_UPI0003DECE0E UniRef90_B7QKE3 UniRef90_UPI0003D0DB67 UniRef90_T1KX80
UniRef90_H2SS78 UniRef90_T1H7T0 UniRef90_U4U243 UniRef90_Q4RG48
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UniRef90_N6TTM5 UniRef90_C3YYR4 UniRef90_F7E718
UniRef90_R4GEK0
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UniRef90_UPI0003C470B0 UniRef90_H2M485 UniRef90_J9JUP9 UniRef90_E0VVX3 UniRef90 J9K9B1 UniRef90_UPI000334653C UniRef90_H9K6M9 UniRef90_R7U545 UniRef90_H9IVH6 UniRef90-H9JR22 UniRef90_K7IYY2
UniRef90_G3NUV7 UniRef90_UPI00034FA0D8 UniRef90_A0A023EXC6 UniRef90_M4AR51 UniRef90_E2B7S9 UniRef90_Q7PS35 UniRef90_K7F4H4 UniRef90_Q16UK9 UniRef90_V4C597
UniRef90_W8AH69 UniRef90-W8AH69
UniRef90-T2MEP9 UniRef90_UPI00046D63F9 UniRef90_A0A016TNA5 UniRef90_UPI000462D81B UniRef90_W5JMK2 UniRef90_A8JTM7 UniRef90_UPI00021A88A1 UniRef90_UPI00021A88A1 UniRef90_B4L5J5 UniRef90_A0A026X5G0 UniRef90_E2AST3 UniRef90_K1QFX2 UniRef90_F4WMX5 UniRef90-F4WMX5 UniRef90_B0W147 UniRef90_UPI00033395B0 UniRef90-D2H322 UniRef90_B4GW73 UniRef90_Q7PS28 UniRef90_W5N1G8 UniRef90_UPI0002659183 UniRef90_U1MPE3 UniRef90_Q16GY3 UniRef90_A0A026WGG7 UniRef90_D2A038 UniRef90_UPI000440E8A7 UniRef90_F7F4J4 UniRef90_E5SSL0 UniRef90_E5SSL0 UniRef90_M3ZJA3 UniRef90_UPIO0046B35B1 UniRef90_W5JVV2 UniRef90-A0A016SSK7 UniRef90_L9KJI9 UniRef90_Q1L8K6 UniRef90_E3MGD3 UniRef90_W8BVL4
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| $T$ | $L$ | $T$ |
| $D$ | $T$ | $D$ |
| $D$ | $L$ | $D$ |
| $D$ | $M$ | $D$ |
| $D$ | $M$ | $D$ |
| $D$ | $T$ | $F$ |
| $S$ | 1 | $Q$ |
| $D$ | $Y$ | $D$ |
| $S$ | $L$ | $T$ |
| $D$ | $L$ | $S$ |
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 LAVDTAANLIFW AHGRQI EYAE $\quad$ TGGGNRRVLIA GLQ I A ADVVTMKLYWGVSGSGVI ESGTMDGVTRVIVVRG

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|  | AVDI DA R R V F WCD SLLD Y I | ETVD Y D G NHRFLVLR G Q Q |
|  | T L D IS T Q R V Y F A D S KL D F I | D F CYY G T GRQQVLA ASHY |
|  | S I D F T N D R I Y WS D S K E S R | ESVLP S GEQRRTAVFDGVD |
|  | RD N R T C M P Y M I Y S L R N T | ARYLP D D CADVVL R L Q NLK |
|  | D Y Q D HA V Y WV D T K L NT | E |
|  | DFT D T R LF WY D SEEDVSR | G S C D Y N G S 1 H LPI H S |
|  | D F K E D RVY W | Q HSNLDGT DVKTVV NS |
|  | AV D Y Y N ERL Y W | E S V D N G D D R RVI HKL N |
|  | ¢ Y T D R Y WADAH | A Y T DLE GRHRHVVLS G |
|  |  | D S M N Y N G T QRRTVI K GKQ Y V |
|  | T I D $\square$ S N K ML Y F S T Q HPGY | K SMTT DGAEVHNILSNVNN |
|  | A L D Y ID K R V Y W | F S CDYWGRDVKII L H S HQ Y L |
|  | DYFADKLYWCDARK |  |

 $V T V D\|I S K R V F W C D S D L D Y\| E S V D Y E G A H R V M V L R G Q Q Q$ HAYHPLRQLPYNNPCIENNGGCSHL

 MA L D WLG RNMFI GNKFASNI EADKLDGKTRRTIVLDSNDGN MALDWL GRNMFIGNKFASNI EAIIKLDGKTRRTIVLSNDGN



 V KI VH P L L Q M T A DGQHLSH




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$P R D V V V N P E G G V M Y W S D W G S P C D E R A D M D G G N R K K D I F G Q$ SYPKVI A VLDLDRY ILDDPRHEKI DQADLPNGDNDK TIIDN GSVLHLSVLFEYLYWFDRDSQVVERVEKRSGASRKTMMSN S H P WGLTI H QNHLYYT DLD YEVI ERVDKHNGANMSVMRS G



 RHPFSIVIHEDWMY IT D WRLDAIVRRLHKLT GEQEEIMVRQ







K HP Y GLA IF E DHLY WSDWGTRS I H T CHKFS GKDHRVLARD ALPKALAVHES RLYYLDPLYDKI ERVDLDNGDNPTTIIDN RHPVALDVFENNLYWVTKQTGELVRQDKFGRGVPHTIIKN HPFGLALYEDYLYWTD WLLHAVVRVNKYDSSDYTYLEQN
 SLVS S I A A L N GY I Y WL D ERP GMERI SVL GENRRTEI QK

 AVPDEM

K H P F S $\square$ AVF N D R LY WS D WD T K S I Q S CDKF NGKDRK VVHD VYPFSVTGYRDNI YWT DWNT GDI ERANKFTGANRTRI HNR PHS IVVDPPNGYLYWSEWGTSKSIKKSAMDGSGVSPLRVT

 S Y Y TAFTMHNNRVYWSDRNMGSIMYCDSQKRFFLTI IKT T $K P P V D I K V V H P \triangle I$
THPF GI T IVF GEHVFFS DWR LGA I IQVVRKTDGGDMT』VIRS G




K H L F G L S L LD D Y LY WT D WQRRA $\square$ D R A HK $\square T$ GNNRVVVVD Q

## 

 PRALAALDPGEGILFWTDWDSFPRIDAASMSGSGRRVVGKD
 D LIF S V A AV F G A Y I Y W W S D R A N G S I R R G L K S D A T E A V TMMR S G
 P H M Y A I T V Y K D N L Y WT D WN E K S I F K V S K T GE LVVNVL R G K

P DP Y G L A L Y E D WL DWS E H GS G L V R R V L V H N T S L V Q T L R A F A HPF S I AVVFDE WV YWT E WN $\square K K V Y R A H K L T G L S E M E L V T T$


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L P K L R DIV VI FDDNNQP
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- VHLTGI HAV ASR

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L LNPSDVKVYHKAR
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MLK K S SLAVIHPLAKPGA
MRDAKA



RQTfDVHTYHSGDQPKG LESVTDLHVFHSSRQ KEYAADLTLDYDSR 1) WPNGlALDDS VDKTRGALLSHRHKQ KHQVRDLKVFDVRTQ KHQVRDLKVFDVRTQ
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Y P D पM G पK V
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MA WPNGLTLDH
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1


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 VSSYSRIGYI DLNSNPSYPKYVIKHLYPGLDFDWV VG

A HVIVAADDELVLVGLNRHAAAHAPDEDND VVAVDYDFR
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PF


##  

HGTSVSHLDGSNRKMLIRGLDKPRALVLHPV

 F WV DSTPDVI ERANLDGSGRRTLFTDLVNPRAIVVVSS
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 H N C L Y W A DV T LD C L N G S S G Q E V I I G T G L E T V E A L A F E P I S
 H N C L Y W S D L A L D CL N G S T G Q E VI I N S G L E T V V A L A F E P L S D D T I Y WA D K Q T GVI Y KA A VR DA QRQK LIF KH I S G L A V D W I R


 R N CLL Y WA DI A LDD CL N GS S G Q E VVI R K DL Q N VEA A L T F D P I S
 E HML Y WT DSYEK TI KRAF FP QN LIELLK GLLT K PNAAI A V D D WV G

 D K M V Y WT DI S G P S I S QV S L H T A I I K T DL G S P E Gl A I D H L G $R N L I$ Y WTNAQGQLIFCSTGYS GEKQEDWTEHTVVCAVVDAT

 NRTLY WA Q Q GRGSS $\quad$ Y R $\square S$ QEAV L V L K V V D S V T S M V V D W I H G Q K V F WT D L S A E S | $F$ | $M$ |
| :---: | :---: | EKMLY Y T WNRCSTVNGQNRRVVVSDGVGLRALA

 VD GE S C T SVGGVS A IVVIVE H GLA T P E GLTVV W D A E GTMFWT DWGERAFMDGTERS I VS GS LVWPNGLT IVYD G

 T GTLLYWT DWNREAPKD GQNRRVI VS D GLGGLN ALLTY D SAS E G

WT DEEARATRRASNQENTIXTEVKNPDGDAVDWLA ERKVYWT DLA GRTI NRASEPEDI I NTALTSPEGLAVDVAR E R T L F VT D DA T S S L S S F R LDK D SL L T S Q D DA VTAMA V D WIT E K M V Y WT DVVS A R T I N R V K E R E V V I D D S GVVI S P E G L A A L D V Y H
 T M R $\square$ Y WS DSK L K T DMMRASSDP QRVI

 S S LMY WT DWG S D P KM D GS GR KVLVVS Y GL I WP NGL V L D R D L

A D R $\square$ Y WVD A ME D Y $\square$ A S A D Y F R R $\square$ L WN D D K VT H P F A VA V $\quad$ VK

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UniRef90-Q1T728 UniRef90-W5JDR6 UniRef90-JODP91 UniRef90-A8PWD9 UniRef90_A0A044SR62 UniRef90_E5SL15 UniRef90_UPI0004423546 UniRef90-UPI000161EB28 UniRef90-I3KNQ7 UniRef90_UPI00027F7EBB UniRef90_UPIO0046270B4 UniRef90_UPI000298D248 UniRef90_S7MW60 UniRef90_UPI00046BF000 UniRef90-UPIO002658359 UniRef90_HOVRI9 UniRef90_UPI00046B9645 UniRef90-H2M2E4 UniRef90_UPI0002B4BA99 UniRef90-H3D665 UniRef90-A0A023GME2 UniRef90_UPI0004401C65 UniRef90_H9IUW8 UniRef90-A0A026WJP4 UniRef90_UPI0003D0C070 UniRef90_UPI0003ADF9D6 UniRef90_UPIO00383B93B UniRef90-F6TE37 UniRef90-UPI00032A3BFE UniRef90_UPIO0042BD874 UniRef90-UPI0002C56CFE UniRef90_UPI0002A4BE65 UniRef90-F1RAG3 UniRef90-S9W9S6
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UniRef90 S4TMC4 UniRef90_B4H015
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140
150
160 PQRGQMFWTDWGLKPMVARASMDGSNSDPLVTENTHWPNG

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 SVRGNLYWTDWNDNPKI ETSYMDGTNRRILVQDDLGGPNG
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 P LKKKLIDTDVGRRPVVE
H SVRRQ
$P$ LA K R L F WT D $\square$ GA HPVVVESAS LEGEGRAVVARTHLVSPS G PCRGYI YWTDWGTHT, ER S T L L VGNGRTVIVVEDLLWPNG
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$P Q \square G R$
S DRGL P C A G F F W W SD R G S S P K V A
 PKE GLMF WT DWGDFP GI YRSEMDGSSASCIVVEGVVKWPN G P I GRYLY WA DQGQKPSI QRAYLDGSHRQVIVVENIAAETD $P V N N L M Y W T D W G E E A K I E K S G L N G A D R T T L V K D N V V W P N G$ $P$ QE GVMF WT D WGDK P GI YR S NMDGSAAYRLVSEDVVWPNG WQRASLY WLESSSKP L QRMDLHGRD DNEV WNKTWAEDTS
 PI RGNL Y WTDWNRDPKI EMSSSLYGENRRILVNNDLGLPNG $P L Q G L M Y W S E D G D K P Q I E Q A G M D G S N R K V L I D D E G L G G W P T G$ QQK SLVVFLNTEAVNKIMSCSYDGTGLKTI FNERI KAPT D PVVRGNLVWTDWNDNPK I ETSSYMDGTNRRRILAQDELVLPN G
 $P$ GES LMMFWTD WGDRA GVVRSFMDGTNDVTCIVVEGVVHWPN G P C D A L M Y WT D WG K K P Y I K R A S V N G L N P M A I I E T N L G WP N G
 P P T A VMCFVD LG P QDRI E CASMD GSKRKVL WQKPQVPVG P K K GYMY WS ELLGSK SIIKRAAMDGSSVVVVFMEQVGRVHA
 $W P K R V L Y W V E S G K H \quad L Q S M T L A G K N R Q Q V W M G T W T A D T H$



 STNGYIY WAD WNESPKI EMAYMDGTNRRVLAKDDDS LP P N G

 FA GVVLFVVLTA G G DRP A I T S Y T M D G Q N P K P L


Y R NHFYYTDWRRDGVI
LF WT D WGRSPRIE RAGMD GS D R TVIVT DR VY WPNG GSTGHCWCVDQNGQE ISGTRTGPGSRPMCIDHNTGPSP DG $P E L G W M F W T D W N E R P K I E R S N L D G T E R D L L D N K D D V W P N G$ SSTGTLYWTDWNEAPKIESSSVVDGQNRRVLVQEGIULPNA
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 VA GGKMYWTDSGTG SI ERANLDGSGREPLIT TGGGIPRG SSTGGTLYWT D WNEAPK I Y E R N CL Y W S D L $M Q H G S N A C S Y$
$H L G R N V F W T$ $H L G R N V F W T D \quad S Y L D R I E V A R L D G S Q R R V L I N T G L V N P R A$



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UniRef90 T1H95 UniRef90-UPIO003F0D1D2 UniRef90-T1P7K1 UniRef90 A0A016S358 UniRef90_G1TAQ7 UniRef90_F6U688 UniRef90_A8XVN1 UniRef90 H2YAY4 UniRef90_UPI0002A48C55 UniRef90_UPIO003F0CEC3 UniRef90_G3PVY7 UniRef90-H2YAX9 UniRef90-H2YAY8 UniRef90-H3ELT1 UniRef90 M7AVA1 UniRef90-H2YAY1 UniRef90-H2YAY1 UniRef90-F1KPG1 UniRef90 F1KPG1 UniRef90-H2Y8J2 UniRef90-W2SXR1 UniRef90 Q04833 UniRef90 E9H6F1 UniRef90-K7INX0 UniRef90-G0P113 UniRef90_Q1T728 UniRef90-W5JDR6 UniRef90-J0DP91 UniRef90 A8PWD9 UniRef90 ${ }^{-A 0 A 044 S R 62 ~}$ UniRef90-E5SL15 UniRef90-UPI0004423546 UniRef90 UPI000161EB28 UniRef90-I3KNQ7 UniRef90_UPI00027F7EBB UniRef90_UPI00046270B4 UniRef90-UPI000298D248 UniRef90-S7MW60 UniRef90_UPIO0046BF000 UniRef90 UPIO002658359 UniRef90- HOVRI9 UniRef90-UPI00046B9645 UniRef90-H2M2E4 UniRef90 UPI0002B4BA99 UniRef90-H3D665 UniRef90-A0A023GME2 UniRet90 UPI0004401C65 UniRef90 H9IUW8 UniRef90-A0A026WJP4 UniRef90_UPI0003D0C070 UniRef90 UPI0003ADF9D6 UniRef90-UPI000383B93B UniRef90-F6TE37 UniRef90 UPI00032A3BFE UniRef90 UPI00042BD874 UniRef90_UPI0002C56CFE UniRef90_UPI0002A4BE65 UniRef90 F1RAG3 UniRef90-S9W9S6 UniRef90-D9IEW6 UniRef90 W4YK67 UniRef90-A0A023G053 UniRef90-H2NXLO UniRef90_G6CMW4 UniRef90 I3K1N7 UniRef90-UPI0003F0B33D UniRef90-I3JV27 UniRef90-l2CKX4 UniRef90 X1WE42 UniRef90_UPI000329EC88 UniRef90_UPIO003314505 UniRef90 Q5RI93 UniRef90-W6NG94 UniRef90-V5H055 UniRef90_UPI0003EC28A2 UniRef90_W4LWY0 UniRef90-H2T9F0 UniRef90-UPI0002654C28 UniRef90_I3M2M5 UniRef90-S4PCN9

QHPHA $\square$ A $\square$ FEDSMYYSDRR $\square$ QR $\square Q V Y$ P K Y N G T $\square G T Y P S H T$ GQPFDLA LIFEDRDWDSDQERHQLTSVHKRTGKNLQRDQGS PHGAPIAPH
PHGAPI APH
PSPRGVAVYQDY TYWVDPTWKSLFRADPSNQDDPEKLRDG SYPRA $I T$ FLNDY $I Y$ WYDGRYNSLFRVPDFVTSQTETVRSG
PRA LVLVSTKG LMFWTDWGESA $\square$ YRSEMDGSS $\square$ TH $\square V S Q G$
THPFA TT QFNQHTWYTDWARNVIFRVDQSTGLSRVRLQGS DHPSGLTWYENQVFIVNMGAREAVRCYLYGSKACKAFNDN SHVSSMVVFDDYLYWSDWNDREVVRCDKWTGKNETVIKKT QYPFAVTSYGKNLYYTDWKTNSVVAVDLAVSKETDS
P HGFAITYLSGTLYWTDWQTSSI HSITYFNSSKRKTILGG PHVFGLAAADDFLYWTDWTYRGULRANKHNGENDTVLAQT $\square V H$ TA SPLHRFNGGCSD
GQPFN $\square A V F E D Q L W V S D W E R Q Q \square R T V H K R N G K N L Q W T H S S$
GRPFDLAVFEDR $\square W \square T Y Q K P K Q L R S V H K R T G R K L Q R \square H G N$ D HPFAI AILDQFVYWTDWSTRGVYR
PNGVTI DFDEDKLYWVDAEPKERVERSNMDGTERELIIPS

PRA【TVHPEKGYLFWTEWGQYPR乌ERSRLDGTERMVLVNS

THPFGVT TFADLVIWTD WRTTVIASANKWSGENATVVELG
 QPNGLAFYGDRLFYADSAFDSIVEAT $\quad$ GNGDS QWTHFKKD

SHPFAVAVFKDNMYWDDWKQSM\FVADKDHGFGVSTIDGQ
 KHPINLALFEGTLYWLTAGTGHITSYKLYGPPEMRFNKEQ HGAVVLDYDSMQLYYADVNVDAI RRVNMQNYSDTQVVVSG MPWAI DVFENNLYWASKESQDLFVQDKFGRGRVSVLASS QPRGI AFFNNRLFYADSAFDSIEV
RAKSLD TWGQWLYMSDPLANGI FRMNKNSGDDYQNVVSD
PNPYGIA VGRNLYWSDRNLKRIVVADDTDGPDRKDLHS G
PHPYAIAVFKNEIYWNDWSQLSI FRASKHNGARMETLVDH A G $\square A L L D G Q T M Y W T D N R L E K V F S A S$
S HPLSLTVFE
PHPYA $\$ AVFKNE $\square Y$ YDD WS Q $\square$ S $\square$ FRASKYSGSQME $\quad L A N Q$
DVRSGTSVFLQHDFYTDDTFGVIKRVNKQTGEETKVNDKP NYPFSIVSYADHFYHTDWRRDGIDSVNRDSGQFTEYLPEQ KSPFSVAVFEDGTYWSEMKTRTVQKVDKKTGKNRTVLTKR VNSLAVFEDAVIGLNRKDHQI FMFDK NGDGKKKLLSS
 QYPFSVTSFGKHLYYTDWKTCMCHR
PHPYAI AVFKNDLYWDDWSRMGTFKAQKAGSQNQELIVGR PHVF GVTVHGLYLYWTDWHTKSVKRADKLTGKNVRIFKDK EVHS GUSVVFGQNVYYTDDTFRVIKRAMNKHSGGELNNINGKP $M H P F A M D L F E D S U F W V T R D S G E I Y R Q D K H G R G V K V R V K R N$
 YPFSITSYGKNLYYTDWRRDAVVAVDRTVSKE
 NL FTYGQGMMFWTTIDDAQI TKVWYSKAELVENR DRAFGLSVFEGFVYWSDEVTRSICRANKHNGRDLQALLSN DTHMALDLGSSSILWTTKGSG KRPFSVAVFEDEVFWSEVKTRTVQHMKKTTGKNRAVLIKR

QYPFGLTTDGKNFYYTDWTRVSVVVVDRHLRREVDEFQQK SHPFAVSLYGSDVYWTDWRTNTLSKANKWTGQNVSVIQKT $P E G \square A I D H L G R T V F W T D S V R D R I E V A S L D G S Q R R V I V D S D$

WT D $\square$ INEA ${ }^{\text {I }}$ FSANRDTGSDVNLLAEN HHVFA $\square G V W A G R V Y W T D W E T R A L Z S C R R T P H R R C R V E A R A$

SGLHHMADFEDFVYWTDRENNEAMRVNKYTGQNRSAVVS IIGGVAYDCVEKMVYWTEDTSPS ISKANDIGGGEPTSVISSG $N Y P F S M V Y F A N H Y Y Y T D W R R D G V D S L G R D N Q L T D E Y L P D Q$
NYPFS VVSYDHFYLT DWRRDG\IDTNRTSGQSEEYLPDQ NYPFSLAIHNKHFYYTDWERDGILVI DQSTGKNTDYLP DQ RHPFSIAVFEDRDYYTDWEHDGVITINKFTGGEMRTVMQK FEPMGVTLYKEFIYWSDNKTGEISRANKDDG
QGGNLFTYGQSMMFWTTDDDAQITKVSKAELDENRWFQVD PNGMVLGV
NYPFNMVYYRNHFYYTDWRRDGVIVVNKESSQDTEFLPDQ VEGDTVDSGGQKDYWTDAGRKRIEVADVNGSNRKVLVRD SYSKSREVQRQVMFWTDWGKPGLYRSNMDGSAAHRLVSED

| UniRef90＿S4TMC4 | $\mathrm{R} \mathrm{~T} \square \mathrm{Y} \text { A }\lfloor\mathrm{V}\\|\mathrm{H}\\| \mathrm{Y} \mathrm{H} \text { S A K Q P K }$ |
| :---: | :---: |
| UniRef90－B4H015 |  |
| UniRef90－H3ELT6 | F S K A $\square \mathrm{G}$ V A A $\square \mathrm{H}$ K A $\square$ Q P |
| UniRef90＿B7QNN3 |  |
| UniRef90＿UPIO00393D404 | MV Q P A S $\square$ VVVHP $\square$ A K P G A |
| UniRef90－H9JI24 |  |
| UniRef90－H9JI24 |  |
| UniRef90－H2YAY0 |  |
| UniRef90－H2YAY5 | L Y S VY TLDAFNKDIQ N R |
| UniRef90－U4UD96 |  |
| UniRef90－H3ARQ9 | 】K WP N G $\square$ T V D D E |
| UniRef90－T1H951 |  |
| UniRef90－UPI0003F0D1D2 | M S Q P S G LQ |
| UniRef90－T1P7K1 | ILLNAEDILVDGDSRQP |
| UniRef90－A0A016S358 | IQLP NDLRVVHPMRQP |
| UniRef90－G1TAQ7 | FHPHKQ |
| UniRef90－F6U688 | VEGLDMDIKAVSSKRQ |
| UniRef90＿A8XVN1 | ALLP Y SLKVFHKTLQPE |
| UniRef90－H2YAY4 |  |
| UniRef90－UPI0002A48C55 | F L LP A S V I V LH G LT K P G A |
| UniRef90－UPI0003F0CEC3 |  |
| UniRef90－G3PVY7 | M V P P A S V V V V H P LA K P G A |
| UniRef90－H2YAX9 |  |
| UniRef90＿H2YAY8 | L D HPF Al A I L D Q |
| UniRef90－H3ELT1 | L E DV ${ }^{\text {H A V RVV }}$ |
| UniRef90－M7AVA1 | IS WP N G I S V ${ }^{\text {P }}$ Q |
| UniRef90－H2YAY1 |  |
| UniRef90－H2YAY1 |  |
| UniRef90－F1KPG1 |  |
| UniRef90－F1KPG1 |  |
| UniRef90－H2Y8J2 | Y N P P F DVKVFHESRQP |
| UniRef90－W2SXR1 | KENPMGI SAYHPMAQP |
| UniRef90＿Q04833 | VENLLANIKA LQPRA |
| UniRef90＿E9H6F1 |  |
| UniRef90－K7INX0 | \A G L M D L K VFA HSVQ |
| UniRef90－G0P113 | ERSIFSLKACSHQNQP |
| UniRef90－Q1T728 | LY S TEHFTILQQPSMQP |
| UniRef90－W5JDR6 | L N T P N G T ${ }^{\text {V }}$ |
| UniRef90＿J0DP91 | IP N A H S I R L H |
| UniRef90＿A8PWD9 |  |
| UniRef90－A0A044SR62 | R R VPS VLR V |
| UniRef90＿E5SL15 | L E ELGTLVAFDESVQPK |
| UniRef90＿UPI0004423546 | L N GVMDMKIF Y |
| UniRef90－UPI000161EB28 |  |
| UniRef90－I3KNQ7 |  |
| UniRef90－UPI00027F7EBB | LT G Lim M K ITF Y |
| UniRef90＿UPI00046270B4 |  |
| UniRef90－UPI000298D248 | MAKPVD $\quad$ KVVH H L N Q P |
| UniRef90＿S7MW60 | R S HLLYGI T AVYPY CPA G |
| UniRef90＿UPI00046BF000 | HGQPYGLK】MHEVLQP |
| UniRef90－UPI0002658359 | H R |
| UniRef90－H0VRI9 | Q S R P Y G $\square$ T |
| UniRef90－UPI00046B9645 |  |
| UniRef90－H2M2E4 | LT G VM D L K $\square \mathrm{F}$ Y |
| UniRef90－UPI0002B4BA99 | LDQPMDIK |
| UniRef90－H3D665 | MAKPVDIKVVHHLNQP |
| UniRef90－A0A023GME2 | VENPTGVK |
| UniRef90－UPI0004401C65 | QK V V L KVY SKLS Q |
| UniRef90－H9IUW8 | LD Y I S L K L Y HRAK |
| UniRef90－A0A026WJP4 | DQKYWHFAIMH【S T R P |
| UniRef90＿UPI0003D0C070 |  |
| UniRef90－UPI0003ADF9D6 |  |
| UniRef90＿UPI000383B93B |  |
| UniRef90－F6TE37 | WF QVVDLKVYSKLNQ |
| UniRef90＿UPI00032A3BFE | VT S P G GVLI I QPVLQPK G |
| UniRef90－UPI00042BD874 |  |
| UniRef90－UPI0002C56CFE | S QQPH G $\square$ K VY H E VLQPE |
| UniRef90－UPI0002A4BE65 |  |
| UniRef90－F1RAG3 | R T R $\square \mathbf{L Y G}$ IT T A H A R CPAG |
| UniRef90－S9W9S6 | SAQPFDLQDYHPSRQPQA |
| UniRef90－D9IEW6 | LVNPRAIVADPPS |
| UniRef90－W4YK67 |  |
| UniRef90＿A0A023G053 |  |
| UniRef90－H2NXLO |  |
| UniRef90－G6CMW4 | V／HKPMDLRVLHPARQP |
| UniRef90－I3K1N7 |  |
| UniRef90－UPI0003F0B33D | LS H P L G T H T N H P A L Q P |
| UniRef90－13JV27 | L E S P EGI A I D |
| UniRef90－I2CKX4 | V P NVM G L K A V H |
| UniRef90－X1WE42 | R S HLY G I T V |
| UniRef90＿UPI000329EC88 |  |
| UniRef90－UPI0003314505 | R T HLY E T T L V P P |
| UniRef90－Q5RI93 | QS HLY GI |
| UniRef90－W6NG94 | V S T P M T V R $\square$ Y HRLA Q P K |
| UniRef90－V5H055 |  |
| UniRef90－UPI0003EC28A2 | L K I VDLKVYS K L S Q |
| UniRef90－W4LWY0 |  |
| UniRef90－H2T9F0 |  |
| UniRef90－UPI0002654C28 | Lee PRGI AL HTKRR |
| UniRef90－I3M2M5 | VK WP N GI S V D Q |
| UniRef90－S4PCN9 |  |
| UniRef90 ${ }^{-}$M7AR54 | VQ Y P F S ${ }^{\text {IT S S }}$ |

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UniRef90-H2YAY7 UniRef90-E9HQ28 UniRef90-H3D6S7 UniRef90_A7RIK9 UniRef90-X1WIS9 UniRef90-A0A026W1B8 UniRef90_M7BL86 UniRef90-G3H0H9 UniRef90_UPI00021A57E2 UniRef90-H3ELT7 UniRef90 W8PAB1 UniRef90-D9IEW3 UniRef90-BOWDS5 UniRef90-I1F4X0 UniRef90-UPI0003AEA45F UniRef90_UPIO003C19601 UniRef90-U3IWW9 UniRef90-UPIO00454234E UniRef90-H3CXH4 UniRef90_UPI0002C33DC9 UniRef90-A8TEF0 UniRef90 E9IEH0 UniRef90_UPI0003F06CAE UniRef90-U6CS35 UniRef90 H3BJH0 UniRef90-A0A023G2C5 UniRef90-B1Q2W6 UniRef90-L5MHE4 UniRef90-T1F941 UniRef90-F1KR72 UniRef90-W4XQP9 UniRef90 UPI0001CB9938 UniRef90-H9H6K6 UniRef90-T1F3D0 UniRef90-UPI000298CD81 UniRef90 Q4RND7 UniRef90_UPI0002654DC0 UniRef90_UPI000258D822 UniRef90_HOZSC2
UniRef90-A1Z876 UniRef90_UPI0003F0E786 UniRef90_UPI0003596FBA UniRef90 UPI00035A0B8F UniRef90-UPI0002654C42 UniRef90_W8B8M3 UniRef90-C3YIX6 UniRef90 Q93791 UniRef90-W4ZCF1 UniRef90-C3YJU5 UniRef90 UPI0003C1977C UniRef90-UPI00045433E7 UniRef90_K9T3Y9 UniRef90-K1QKF1 UniRef90 W5JF32 UniRef90-C3YJU1 UniRef90-H2ZDZ1 UniRef90_G3Q842 UniRef90-L7LZM9 UniRef90_UPI0002B8E3A1 UniRef90-UPI0003599F4D UniRef90 W5KPQ0 UniRef90-B4DZC1 UniRef90_W4XK25 UniRef90-H3DWU2 UniRef90-UPI0004438526 UniRef90_K1S6G5 UniRef90-A0A023FMR6 UniRef90 UPI00021A6B79 UniRef90-A8QEE3 UniRef90-W4Z5S2 UniRef90 E2FLQ4 UniRef90 E1FH83 UniRef90_UPI0003B6D1B5 UniRef90-UPI0001CBAE66 UniRef90 C3YHG7 UniRef90-U6IE57 UniRef90_U1MSH2 UniRef90-A7SH94 UniRef90 F1KQE6 UniRef90_U6HT45 UniRef90-C3YXU8 UniRef90 W4YFT1 UniRef90_UPIO0026571CB UniRef90-H2Y628 UniRef90-H0X8N1 UniRef90-UPI0003F0B782 UniRef90-H2VPC4 UniRef90_UPIO002652878 UniRef90_T1K524 UniRef90-UPIO00360ACCD UniRef90_K1QQW7
 V V S N Y Y LYQLNLDTNARKTALYS RNLLGNDFDWA
 GLDYDYT

$P \square L L V A D D F N \square F L S G L R S G K E D \square L A T T D K N \square Y S V D Y D L V$ FILFSVNE ELHTVSLETEDRYDLDDDGSKSNDI STDWD

 Y IVIASEGSLGRISLDTQSGVYVTTPTPNPHSUAVD@Q

LHF QDKVIDGLAFDCV $P V L L V A V Q S E V L S Y G L R S G R E E V L L A T D K E V F S L D Y D P V$ ARVVFTSSQGLRWTS $\square S G G E S G E P A Q Q F P G P G L V V G D A A$

AF LLYMDPNQ R SFSMHGHTQHLLAEDLSDMHGMDYRDS $G F V V V A E E D L L Y N F D \square D R D R V A L T F S N L G M \square S A L A F D W S$

 LVRGTSVIDGIAIDWD


NRTSRAKRDQTWREDVTTG TSRVEGTAVDWT


F LLFS DAYTLVRMDLNSYSFTADSPYTANLVAVSFDST FWLSAGSGNLYRANLDGSNHE ILDPVFMVPRGIT ISYK

ATDRS $\square$ SRLTTEDDGRYEDDNDFHRPDAVDYDRT

VPF L $\square$ FSHGNS $\square$ FR $\square D \square E G M N Y E Q L V A D A G V S V M T D F C Y N$ TEYTVVLDGLHQPRALAVAPR F LLMTDTRS $\square$ YRMD $\square$ NSYSYEVVLHNHDNP $\square$ S $\square D F D S Q$ SR ПEA $\square \mathrm{DYDFQ}$ PG G I Y T DDHQ $\square$ K VLI QNRRDK $\square$ TMFTGESK MTVLANQLKHAVGLTLNVK $\| L V A V G Q D \square A L L D V R T Q A Y R P L A N Q E T K A R A L V Y D L K$
 $L L I A R G M A I R G V Q A D V P G K Q L V I V P H Q \| A V G I D F D C A$

AS LLFTRRHD DRKVALDRDEMTNIVKDTKMAAALDFVFR $\lfloor F \backsim C R G M T I R S V N P D L P G K Q L V V P H Q Q A V G i D F D C Q$ H $\square$ YFAERGLIFVGDFHGED VREELLSGVEAPTGI DYDYR MY WTNRKK $\square Q R A N L D G S N V E D \| V T D V Y P D G \square A \square D V A$ LVSNNFG QLSLESPTHTVLVDELIAPNAFDYSFN
 GPSQQIPLNNDRKPYVIDDYDHV

PF LLVADKGT $\|$ QVD $\square$ S GSKVT LDP LVGVGWPCVLDYDPL VVFARGMT L LQVPSVPTPASTLGLDTSE\|VGVAVDCA $F L L Y A Q G Q Q \square G H \square P L N G T R \square T \square M S \square H G S \square V V G \square D Y D C R$
 D P G

UniRef90_UPI0004418EC1 UniRef90-H2YAY7 UniRef90-E9HQ28 UniRef90-H3D6S7 UniRef90_A7RIK9 UniRef90_X1WIS9 UniRef90-A0A026W1B8 UniRef90-M7BL86 UniRef90-G3H0H9 UniRef90_UPI00021A57E2 UniRef90-H3ELT7 UniRef90-W8PAB1 UniRef90-D9IEW3
UniRef90 BoWDS5 UniRef90-11F4X0 UniRef90-UPI0003AEA45F UniRef90_UPIO003C19601 UniRef90_U3IWW9 UniRef90-UPIO00454234E UniRef90-H3CXH4 UniRef90-UPIOOO2C33DC9 UniRef90_A8TEF0 UniRef90 E9IEH0 UniRef90_UPIO003F06CAE UniRef90_U6CS35 UniRef90 H3BJH0 UniRef90_A0A023G2C5 UniRef90-B1Q2W6 UniRef90-L5MHE4 UniRef90_T1F941 UniRef90-F1KR72 UniRef90-W4XQP9 UniRef90-UPI0001CB9938 UniRef90-H9H6K6 UniRef90_T1F3D0 UniRef90_UPI000298CD81 UniRef90-Q4RND7 UniRef90_UPIO002654DC0 UniRef90_UPI000258D822 UniRef90-HOZSC2 UniRef90 A1Z876 UniRef90_UPI0003F0E786 UniRef90_UPI0003596FBA UniRef90-UPI00035A0B8F UniRef90_UPI0002654C42 UniRef90-W8B8M3 UniRef90- C3YIX6 UniRef90_Q93791 UniRef90-W4ZCF1 UniRef90-C3YJU5 UniRef90-UPI0003C1977C UniRef90-UPI00045433E7 UniRef90_K9T3Y9 UniRef90-K1QKF1 UniRef90-W5JF32 UniRef90-C3YJU1 UniRef90-H2ZDZ1 UniRef90-G3Q842 UniRef90-L7LZM9 UniRef90_UPI0002B8E3A1 UniRef90-UPI0003599F4D UniRef90_W5KPQ0 UniRef90-B4DZC1 UniRef90_W4XK25 UniRef90-H3DWU2 UniRef90-UPIO004438526 UniRef90-K1S6G5 UniRef90-A0A023FMR6
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UniRef9-UPI000360ACCD
UniRef90- K1QQW7
UniRef90_K1QQW7
 TRKI YYADTYYGNLYKATMREDVFSSGTSDTENIAVDWVA
 NETVYWADNSRHHRAWHDVTVLVQSKNTGRVDGI A VVDVGG SGDII IYYDSRSKKLFTFDFVKMKLSDEISSIYSLEFDNHG
 DQKVF WADPSTRWПSMATKKDGMVVRGGKMPDCIVVDWDG NNTVYYADSSLGTINSGGTPTVLVDKDVSDPVGIAIDWCS GGSFFYAD MMDNTVYRQKPDGPVLVTHNDGLVSMSFDWVS
 TNDTYWVDGSN【YKNSGGVIKVII SSISERPTALADDWIG

 HNCLYWADVTLDCLNGSSGQEVIVSSGLETVEALAFEPLS NGTLYWAPQGCGTIYRVSMNERNGDRVQGPVSGLAVDWIH
 D GLLFWTEFSTSFHESGHYTVTPIYNGTTTVNGLAVDWVS

## T IVASGLEDAAAVDFQFSK


$D N V I Y L L D Q G L G V V S V P L N D S Y V L S P T L Q Q P F D M L I D P R D$ GQLCWAQGSTRYCHCEPGFELLDDK, FTCESTDPAP

QGM $\square$ Y WS DF NRGSTNMYTEVETVIQVPGMNPEGDAVDQ $\square \mathbf{V}$ A GNDYWTDHGFNLIEDSRYRSVVISEGLDQPRATAVHPQK NGYMYWTDWGERANLDGSNRTVLVNTSLSWPNGIAVDFTD
 RGNLYWTD WNREAPKNGANRRVLVHSDLGLPNGLTFDPFS
 RRKLY $\square T$ T R $\square R S V N T V G T N D V V L I D T N \square A S P S G \square A F N F Q E$
EDFDYWTSVNGRSPYETGTGLRDDGQQASVPDGПAVDVIS EEKIVWSDMSGHSTRNGTEHKSYFNKELSSPEGI AVDWSS AKEVYWTDVERKTLSAAQDNQRVVVHGLGVPDGLFVDSDN EERDYWVDLQKQLLQKTGSNETLVFGPLSNPVAVDYDATS
 NED $\square$ Y WT DVGSNQ $\square R$ SAS $\square T G S N E K G N S A T P D G U S V D P V S$ $R N L!F W A D T G L R E L H R \square Q S F S T L L E G \prod S S G V E G L A V D W L N$ $R R V L F W D N P L N R Q L M K A S F S D G F T S S L V S T P R Q L S F D W V H$
 RETYYWTEDGELRVHHPGKGTQPLYTDAREVNSISVDWFT

Y G Y $\square Y$ WAD WG HRAYMDGTNKSVI ISTK LE WPNGTT TD YTN ERMMFWDDRSERMPDDGGEDQHIVSRHMHTPESLAVDWVH DERVVWSDDT GHVI RSSSVNGTETKAHDESPEGVAVDWSS


T GM MFWSDSSEKK TYKANERTVVIDDGDTTSDGLAVDWDY EERIVWSDIAGHSILSASINGTNMDTVLKSPEGIAIIDWSS
 HGKMYWADWHSRPKMDGSSSEVLVESMTSFASGLAALDVPN VVPHQIAVDCQE


DK VFYVDHQTQHTDF DSRSHNVYKFDHGADNALAVDWHN EERIVWSDISGHADRSASLNGTFMESVLQSPEGI A D DWS S TQFMYWTDVYHGHISRAGGAQEVLVSGLSSPKGI AVDVTG MMVYWADFKEEY DMS DTKQK LISENDSNDRSVCVDPTET T DYVYWTNGSHRARRDGSGMETII DTGSTLVYYLALDHAG FVCVCTDGFYDADNGNSCVSDLVRDNFFLVTDTYR
 QKTVYWTDVAGRT $\square$ SRASEPET IVNSGVTNAHTLSVLFFW
$S Q K M F V A \square S E N G D H V S D N G V I R V L R E N V I G \square Q N \square A V D W \square G$ $R G A \square Y V G A S D D R G S F A G A G F N A L P L Q N L M L P W A V A F D N R S$

UniRef90 UPI0004418EC1 UniRef90_H2YAY7 UniRef90_E9HQ28 UniRef90_H3D6S7 UniRef90_A7RIK9 UniRef90_X1WIS9
UniRef90_A0A026W1B8 UniRef90_M7BL86 UniRef90_G3H0H9 UniRef90_UPI00021A57E2 UniRef90_H3ELT7 UniRef90_W8PAB1 UniRef90_D9IEW3
UniRef90 B0WDS5 UniRef90-B0WDS UniRef90_UPI0003AEA45F UniRef90_UPI0003C19601 UniRef90_U3IWW9 UniRef90_A8TEF0 UniRef90_E9IEH0 UniRef90_UPIO003F06CAE UniRef90_U6CS35 UniRef90_H3BJH0 UniRef90-A0A023G2C5 UniRef90_B1Q2W6 UniRef90_L5MHE4 UniRef90_T1F941 UniRef90_F1KR72 UniRef90_W4XQP9 UniRef90_UPI0001CB9938 UniRef90_H9H6K6 UniRef90_T1F3D0 UniRef90_UPI000298CD81 UniRef90_Q4RND7 UniRef90_UPI0002654DC0 UniRef90_UPIO00258D822 UniRef90_H0ZSC2 UniRef90_A1Z876 UniRef90_UPI0003F0E786 UniRef90_UPI0003596FBA UniRef90_UPI00035A0B8F UniRef90_UPI0002654C42 UniRef90_W8B8M3
UniRef90_C3YIX6 UniRef90_Q93791 UniRef90-W4ZCF1 UniRef90_C3YJU5 UniRef90_UPI0003C1977C UniRef90_UPI00045433E7 UniRef90_K9T3Y9 UniRef90_K1QKF1 UniRef90_W5JF32 UniRef90_C3YJU1
UniRef90-H2ZDZ1 UniRef90-H2ZDZ1 UniRef90_L7LZM9 UniRef90_UPI0002B8E3A1 UniRef90-UPI0003599F4D UniRef90_W5KPQ0 UniRef90_B4DZC1 UniRef90_W4XK25 UniRef90_H3DWU2 UniRef90_UPI0004438526 UniRef90_K1S6G5 UniRef90_A0A023FMR6 UniRef90_UPI00021A6B79 UniRef90_A8QEE3 UniRef90-W4Z5S2 UniRef90_E2FLQ4 UniRef90_E1FH83 UniRef90_UPI0003B6D1B5 UniRef90_UPI0001CBAE66 UniRef90_C3YHG7 UniRef90_U6IE57 UniRef90_U1MSH2 UniRef90-A7SH94 UniRef90-F1KQE6 UniRef90-U6HT45
UniRef90 C3YXU8 UniRef90-W4YFT1 UniRef90_UPIO0026571CB UniRef90_H2Y628 UniRef90_UPI0003F0B782 UniRef90-H2VPC4 UniRef90_UPI0002652878 UniRef90_T1K524 UniRef90-UPI000360ACCD




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


 RMLYWAEANTRRI EVSTLDDGLQRKVLLSGSIVEVSSIVLDD QKLY WA DAKLSFI HRANLDGSFRQKVVEGSLTHPFALTLD R NI F WT D S QLD RI EVAAKLDGTQRRVLEETDLVNPRGIVTD RNLYWMD GAAGQVLATRLGAAWRTVVLDGDMDQPHSLVLQ QLLYWVDAGMKKI EVANPD GD DR LTIVVNASVHRPRALALV $R L L Y W A S A G S G S V H V G L L D G S A Q R A L V A \quad G L Q T P S A V A V D$

H N L Y WS D T $\square$ T R R $\square$ E M $\square$ R $\square$ E G GS R K $\square \square Y$ A S F A Q S $\square A \square A Y D$

 GNIYFTD GWVHDQACESTFAHCTDVVDTAYSHVNTEFSDA
 QKVF WT E L G A ES I K WI S M D A K K K G TVVVK G IVK S D CMVVD RALEWTDKSKNVI VMTS LGGQELRHGII MGRKARPRHLAA A

 R NII Y WVVD S G Q K K II V GF DF WT E WGKPRRISLDTPDFTDDVLQVDDI RHADAI DYD GFLFWTEWGKPCIGRSRLDGSDQVTLVNSGVMWPNGISID

 KLLC WA DA GTK HLECTFPDGSGRRV 1 NKLY WT D Y G L L N T V VNRA N M D G T E R R I I A S M D I F G


 RNVYYADSMNDEI GVASLNGKFKKSSLVTGGGDEPRAAVM ET I F WT D T D F K T I E S DQ F D G S N QR V L I GYVYWT DVA EHRI QRAY LN GTGMEAIVTSNAIDTADGLALD




 $R \square Y$ YDMQQEEAKPLLY LSDRVVIAAVAYD
 $G Q L Y W A S S H P P A!C A G L G D G R G Y D T V L G K D \square A P E Q L I V V$ L DV V L L S E H D SVVVGGS FD
 R NVYYA D S S R D E G GVVSLD GK Y Q K S L L N E G LiF NPRAA A I D
 QMYVVA E LDD G T S R K T L L P K Gli S D P R A V SHIY WT DSKKS TIELANFEGNMRKTLIQDRVQEPRAI ALLN

 ERIVVWSD DA GHSI LSSASI NGTDEQKFMD TVLKS PE GDAI D


 R NVYYA DSVKD EI GVVASLD GKYQKTLI NEGLVNPRALAI D GNLYWSDE GLLGQVEVAKLDGRFRRVLI GSLDSPMS LVVD ERRVVWS D $\square$ S G H A L R S A S L N G T D E K KF M E S V L Q S P E GI A I D
 R A I F QV D M Q S T T F E

 P Y D I A L D E N IFFTQKSPAPHPVCSMNGMFCRWI IQ GK GQFYR GL A V H
 VS R ID G S Y R K TLI S K D L D K P R A I I V N

UniRef90_UPI0004418EC1 UniRef90_H2YAY7 UniRef90-E9HQ28
UniRef9O H3D6S7 UniRef90_A7RIK9 UniRef90-X1WIS9 UniRef90-A0A026W1B8 UniRef90_M7BL86 UniRef90-G3H0H9 UniRef90_UPI00021A57E2 UniRef90-H3ELT7 UniRef90-W8PAB1 UniRef90-D9IEW3 UniRef90-BOWDS5
UniRef90-I1F4X0 UniRef90_UPI0003AEA45F UniRef90-UPIOOO3C19601 UniRef90-U3IWW9
UniRef90-UPIO00454234E
UniRef90-H3CXH4
UniRef90_UPI0002C33DC9
UniRef90_A8TEF0
UniRef90- E9IEH0
UniRef90-UPI0003F06CAE
UniRef90_U6CS35
UniRef90-H3BJH0
UniRef90-A0A023G2C5
UniRef90-B1Q2W6
UniRef90-L5MHE4
UniRef90_T1F941
UniRef90-F1KR72
UniRef90-W4XQP9
UniRef90_UPI0001CB9938
UniRef90-H9H6K6
UniRef90-T1F3D0
UniRef90_UPI000298CD81
UniRef90-Q4RND7
UniRef90_UPI0002654DC0
UniRef90_UPI000258D822
UniRef90-HOZSC2
UniRef90-A1Z876
UniRef90_UPIO003F0E786
UniRef90-UPI0003596FBA
UniRef90-UPI00035A0B8F
UniRef90-UPI0002654C42
UniRef90_W8B8M3
UniRef90-C3YIX6
UniRef90-Q93791
UniRef90-W4ZCF1
UniRef90
UniRef90_UPI0003C1977C
UniRef90-UPIO0045433E7
UniRef90-K9T3Y9
UniRef90-K1QKF1
UniRef90_W5JF32
UniRef90-C3YJU1
UniRef90 H2ZDZ1
UniRef90-H2ZDZ1
UniRef90_G3Q842
UniRef90_L7LZM9
UniRef90_UPIO002B8E3A1
UniRef90_UPI0003599F4D
UniRef90-W5KPQ0
UniRef90-B4DZC1
UniRef90-W4XK25
UniRef90-H3DWU2
UniRef90-UPIO004438526
UniRef90_K1S6G5
UniRef90-A0A023FMR6
UniRef90_UPIO0021A6B79
UniRef90-A8QEE3
UniRef90-W4Z5S2
UniRef90-E2FLQ4
UniRef90-E1FH83
UniRef90_UPI0003B6D1B5
UniRef90_UPIO001CBAE66
UniRef90-C3YHG7
UniRef90_U6IE57
UniRef90-U1MSH2
UniRef90-A7SH94
UniRef90-F1KQE6
UniRef90_U6HT45
UniRef90_C3YXU8
UniRef90_WMYFT1
UniRef90-H2Y628
UniRef90-HOX8N1
UniRef90_UPIO003F0B782
UniRef90-H2VPC4
UniRef90-UPIO002652878
UniRef90-T1K524
UniRef90-UPIO00360ACCD
UniRef90_K1QQW7
 PRDGYHYWTDWGQNPRI ERCDMDGNHRKSII TDRRLFWNG



 $P L N G L M Y W S E D G E E P Q$
$P L K G Y I Y G V K N G K R L D F$
$L$ PWKGWLFYAEAHRPAKITRCSUDGTNCLVIRNSTVGRPSE
 $G S S G Y C W C V D R N G Q E \| P G T R S E P G S S P M C V E H G G L R P P V G G$
$P G Q G Y L D W T D W N A R P S V S R A N L D G T D G K L L E T K D V V W P N G$ MKHQYMF WAMMASLENVYRANMDGTAPTPIISTDVTQPSS

 $P$ QE GLLMFWT DWGDRPGI FRGDMDGSS $\quad$ GGHIVVSEGVVWPNG PLHRLLFWAQSGDSPKIERSGLDGRDRKALVTHSIVRBNA P DD FMYYWT DWGEVVPKI $P Q K G H L Y W A E W G N A G S I E R A R R G G T I P S I V V N E G V G M V E G$
 CRERMVYWT DVAGRTVSRASLEPGAEPETI I NSGLISPEG
 $\begin{array}{clllll}P F A G L L F V L C A G D A P T & T\end{array}$
 YERTGE $\begin{aligned} & \text { K } \\ & V\end{aligned}$ KVIFWNF
YQTNRLYWDNVDNA $\square Q \square$ S SCDFDGNDKQEDHSESVYWYFD WVGKKLYWTD SETNRI EVASGNGTSRKVLFWQDLDQPRA SKRGNLYWSDWGTHPKI ETSQMDSSSRQLLVTSNLSWPNG PVDGYIYWT D DDVKAI RRSRLDGSDAQFVVTSQVNHPDG YECNRIFYSD GHFGNIQMDNDDWTGRSVVVANVGSVEG LGEYI YWTDWQKRTIERVNKADGSGSTNSCGNNNGGCSH
 RQHQDSDFLIVSQGVMI ARVPLNGRNVRP LI SQQRSHLYG $V V N R K V Y W T H V G T S$ R $\operatorname{E} Y$ SNLDGSEVQSVITS GLGQPVG HSGRNLFFTD SELDTLQVSRLDGSDIDRTLVGTDMINPRA TNNRMVYWTDWGTSPKI ERAMYDGSQRTVLASQRLKFPNG LH GDDVYFSDINSQKVI LVDSPSGE RQQHESGF LLVSQGVVIVRVP $D N G K N V K P D \quad S V A S M A \square G$ PNS GWMYWTDWGNPSKIERAQMDGTQRSVIVNVQGHWPNG LYGRHLYYSDWHENPYI GRVDMDGKNNRVFLNEDVHLPNG
 $\square$ DGGNVYWT DT DRNA I SVARMDGKHFRNVLSTQLDQPRA

 WDSRRLYWTDSEKDTVEVAS LENPELDRSVLVSKHLVNPRG

 ASSGLLYAVFSSHGARIESFFLNGTGVTVLVDTDLGRVNA PEKGYMFLTAKSRQWLI MRCSMDGNDCVDVVKENIKEPTT PAARSLYWINRGQRGRIAAAGMDGSNRQELTVVSMEEPVG CQENTLYWSDMARRSISKVSLVFGAEPVTVIHTDVVTPEG
 VQNKHLYYTDWHRHPVIGRMD $\square$ NGKNVIQFVNNDIGLSNG PTHG PTHG
$\square D N G F D Y W \square D G G T R P K D E R C K L D G S G R T L I F D \square R D Q Y P S A$ PGIGYLFFTDWGHHAFI GRLGLDGTNRDVLYENKLVWPNA

 WS S RNVVYYA D SVK DE IGGVASLLDGRYYKTLINE GLVNPRA AS PGMW
NACRHIY WSDWGTLPK TEQSDDDGGDRMULVSDGLGWPNS PLTDFVYWSDYRN N , KRARRDGTGMETII E DGSSVY G PVSRSLFWDRSEESTLI ESSGLDGSERKTVLEEPGVLARD LRNRHLYYSDWHRENP GRVDLDGRNNDPFVNNELYLPNG VARGFLYFSCWGHNPKI QRTDMDGQNLKTVKTFYHVQPHG WS SRNVYYAD SVVKDE:GVASGLDGKYQKTLIDNEGLVNPRAA PRHGLMYWVD GPRGRIDRAAMDGSGPTTI D TGLRRPCS P IDRKVYWTDV TSKTLSRASLDGNDYQVI ARDGI E PKKGKVYFSDRSEYPRIESVSMDGNDRTTVVGHELVVPNM


 TANNKLYWTDY E L HE I ASSTLQGKERKVLVKTGLQRPRG PWKGLMFWTDWGSDPKI ERASLDGSKREKII YSDI OWPNG



LDKDCVEGRTYWGDTSSKKTVSAKYDGTDSKTFDEDDTES



 L H MY HP A LMMRK DP H P C D E H P C S H F C

LALDVTDDRTYWCDALVDKTEYYNFKTGSRHLLLQ LSGT
 K K DR S IDNRLVWFDETRNRFGCCNFEGGDDTYIPTPDLEP LTVLE ERREL CWVDAGMQRLSCDGLDGRNRRVVFA P P L LAMDHAQNRI YWIDWYGGSLK YCDVSTLPCQTVLRG SWS
路 UniRef90-UPI0001CB9938 UniRef90-H9H6K6 UniRef90-T1F3D0 UniRef90-UPI000298CD81 UniRef90_Q4RND7 UniRef90_UPIO002654DCO UniRef90_UPI000258D822 UniRef90 H0ZSC2 UniRef90-A1Z876 UniRef90_UPI0003F0E786 UniRef90-UPI0003596FBA UniRef90 UPI00035A0B8F UniRef90-UPI0002654C42 UniRef90-W8B8M3
UniRef90-C3YIX6 UniRef90_Q93791 UniRef90-W4ZCF1 UniRef90-C3YJU5 UniRef90_UPI0003C1977C UniRef90-UPI00045433E7 UniRef90_K9T3Y9 UniRef90-K1QKF1 UniRef90- W5JF32 UniRef90-C3YJU1 UniRef90-H2ZDZ1 UniRef90_G3Q842 UniRef90-L7LZM9 UniRef90-UPIO002B8E3A1 UniRef90_UPI0003599F4D UniRef90_W5KPQ0 UniRef90 B4DZC1
UniRef90 W4XK25 UniRef90-H3DWU2 UniRef90-UPI0004438526 UniRef90-K1S6G5 UniRef90-A0A023FMR6 UniRef90-A8QEE3 UniRef90-W4Z5S2 UniRef90-E2FLQ4 UniRef90_E1FH83 UniRef90_UPI0003B6D1B5 UniRef90_UPI0001CBAE66 UniRef90-C3YHG7 UniRef90-U6IE57 UniRef90 U1MSH2 UniRef90_A7SH94 UniRef90-F1KQE6
UniRef9_-U6HT45 UniRef90_C3YXU8 UniRef90-W4YFT1 UniRef90_UPIOO026571CB UniRef90-H2Y628 UniRef90_UPI0003F0B782 UniRef90-H2VPC4 UniRef90-UPIO002652878 UniRef90-T1K524 UniRef90-UPIO00360ACCD UniRef90_K1QQW7

## UniRef90_UPI0004418EC1 UniRef90-H2YAY7 UniRefefo-E9HQ288 UniRef90-A7RIK9 UniRef90-XiWIS9 UniRef90-A0A026W1B8

 UniRef90_M7BL86 UniRef90-G3Нон9 UniRet90-UPI00021A57E2 UniRef90-H3ELTT UniRef90- W8PAB1 UniRef90-D9IEW3 UniRef90_BowDS5 UniRef90 -11F4X0 UniRee90 UPI0003AEA45F UniRef90-UPIOOO3C19601 UniRef90 U31WW9

PDGDAVDWVARNTYWTDTGTDRTE VTRTNGTSRK\|LIEN KSPFSVAVFEDELFWSDLKTRTI QRVEKITGKDRAVLI KR SSTSGLDHYGNKLYWTEKIGDAVRWVEKEPPYTHGVFLAN

 TDPKSIVVDDDYLYWMNRDSGVLYRVDKH RHA 1 QYPFAVTSFGKNLYYTDWKTNSVVAVDVAVSKEMDS
RSPFAAAVCEGQLYWSERKTWSVLRVDKAAGKNRTVLIKR RSPFAAAVCEGQLYWSERKTWSVLRVDKAAGKNRTVLLKR
PHPYAIIVFKNEIVWDDWS WLSSIFRASKFSGSRMEVLVGQ DRPFGLAVFEGFVYWSDAATGSSVCASKHHGRNFTVLLSN PHPFALTLFEDTLYWTDWNTHSLLACNKYTGEGLRELHSN
PRGDQLDLENRYVYWTDVNRSTLERA GLDGSGRTVLIDEG
 PNGLTID DEEQKLYWADAKLSFIHRAN LLDGSFRNML SRPFSIALFEDWLYWSDWGSDSLMACNKYTGRNVALVHHG AHVSSVSAAHNDFHWISRDHASLEYDD
PTSIVLDQLSWK TFWSDDKFHCIGSAN LDGTGПSMLLTQ SDAGTIINELLDWVDNRTNKMNAYNLSTGKVLDVHMTS

## ARYFDLTTYENYVFVSDWA EKMKCDYKDTGVEYFGL NT

 PNGLTIDLEEQKLYWADAKLSFMHRANLDGSFRQKIVVEGS PRADVLDPVAGYMYWTDWGEPKIERADDDGMERVVMVNTS PHMVALDECQNLMFWTNWNEGRVLRSNKYTGSDTKVLRAD ATALDFD LDNRIYWTDSKAKKVTRAFMNGTDLLQDVIEFG TYPFGDA ISHQNYYWTDWKTHKUEVAMKSSGDRUSVPPGG

PEGTATDVISRRLYWADSAKDTMEVASDDDPSRAVITKQ PAGLALDMKENKLYWADDHLKKI TFNLASNDRHDLVSS PNGLAFDSFSQTLCWGDAGTKSUE CDRSDGVGRRRVYDQ

PEGTATD VVSRRTYWTDSVKDTMEVAS LEDPTLRAVLVKN AHLFGI AVDETHLYWTAWNIDGVGRISKS LTGYVRLNLPH

 HNGLAASLGGDRIFYSTWKKKTUWDANKRTGKDMVTGNSS
PRD $\square A \square D \square K R G K M Y W \square D A G T K M \square Q R A N \quad \square D G T N T E \square V L S G$
PNS $\square$ QVSMASGELCFADAGTKKTECTDTYS KQDRTTASN THFYDITFDGEEIMASDWSDDSINFIDD GERTLYFKG RSPVGMFLFDNKVFWADKEDMMIKSVDQRAGNRDHUTAAG PRAIVTNPAYGRLYWSDWNRDGKIDEMSNMDGTDRSVLVKD VSDLTLDLEHDLVYWCDLGTARIEQA RLDGTGRTRIPNR QHPFGUACCMNEVYWTDVRAHRVLKSNKWTGETTSRSSTN VEPLGLAVFESRFFWTDGTE PRAUTVDFTSSTLFWTDWDRDRIESSSLDGLRRKVLVGKG
PNAFGLADFEQKVYWADSVESS $\square H S \square V K Y G D K E S R V D W S \square$ QYPFGLAINEQRLYWTDWKDNRVHSVS
PNMDGDSVDDGYLYWES LVNKRDERMAKSSPSEVEVVVKG PHVFALTVFDDWLFWTDWNMKGVYRAHKFTGEKLQVLVNT

QYPF GLTVHE QRFYWT DWS DNK
$L V V F G \| S L Y F T S \square Y F T D F A S R G L H A A D \square G V E E \square R N \square T R F T$
PNGLTVLLERRQLCWVDAGLQQ $\quad$ CC $\square G \square N G Q N R R \square V Y A P$
PHPFGTAVVDRNTYWTDWTKRQLQRADKHTGLNTGGVGYA PDGLVLDPRSGSLYWVDSSNARIVRAAMDGSNKTIIVSG DRPQLLTAFGGR\|FYNDMS $\quad$ SS SVTKDK
EYPF GLTHNEQRFYWTDWKDNQIVSVS IYG
RSPFGGAIIENYVYWTDTFAMSVNRADKLTGAGETTVVH PNGLTVLEERRELCWVDAGMQRLSCDGLDGRNRRVVFAP YQPYAVKVFG
KWVGGI AVDEDFTYWASFGQDK $\square$ GK $\square$ SKS D $\quad \square N K T V L V D G$ VHAYDVAVRGQFLYWTDWTEQSVLKMDKDTGSGDATVPSD SK $\square F G I$ ALHRERVYWTDWNVPYLQMLDRTNATE
 TKSHHLDHFHNP SKTKDGVISVNKDSGQFTEYLPEQ

 PTAVSLNNEENRLYWADFGRGRVESVEDNGGDRRAHVEMT SHPFGLTVLDDYVYWTDWHDRADIHRTDKRDGGKKEVFVES

T D K T K S ALLISHRYK Q
LYYP T DLHAFHPVRQPAG L E DV H H L F T S H S I L E P E P G QP F GL R VMHELS QP

LDEPRATVL
SGQPFGLKI Y
KEQLRSISIYHNNR
TGSIFSLKACTATNQP SSRFYGLTLYHSSMLNQG LGSPEGI A I D H
MMNSMDLKI Y GHS DQEGG

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MS K A S VLK VLHA VH QP S G

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GAKPFGVS 1 Y GDYNQPTA
LTHPFALTL
I S DLMSLKA
L GWPNGLALDYDERK
I HQPMGII AV

LVNPRGПAV DPYR
1 GLPFALGVSDQY
ASYPFDITV

$\square N N P R E L A$
LS Y P F GLA V
E G YVYGVEFFDQSRQQPG
LDQPTSI RS LDPQSQP
LGLPNGLTFDHEGQQ

| $L$ |
| :--- |
| $H Y S V V S V A V F Q S V L$ |
| $I M S P M E I$ |


LK L P N A LT L
FSSPKAVC $\square$ NHPSTQPS

VK DVVEVKAV
SHRPYDIHVYHPLRQ

A GAPTHVK $\square$ Y S D $\square$ T CTE
LQ Y P F G LT V H N E Q R
$\square \mathrm{F}$ K PMGVHTF

LE Y P F GLT T H N E Q R
LDYPYGI
Y L R P N GUYMVSDDTLPS G
H G H M Y G ${ }^{1}$ T LAA Y S Q
RSHDYGITAVYPY CPAG
GSHPFGMAlDDQY
NRFPYGVSVNHSLYQ
F $\mathrm{I}_{\mathrm{KP}} \mathrm{P}$ YGLAL
ISDMMGLKA
VEWPQGI A IDDSNKK
 LS MDKS GD IT QKLSLSDTQDIELDLR


A M $\square$ FFNTRND $\quad$ S Y $\square K \square K T K E M V T V A T D \Pi K E G H G V S F D$




$L L Y$ VA T T S G L I F $\square$ S LD T GH H T P L L P N A T K VVM VD F D P $\square$


TTQSK』VFYDEHWQEVTSSAHQFEHLGAITEDEA
$\begin{array}{lllllllll} & G & A & & & F & D & E & A \\ I & F & S & V & D & Y & D & L & V \\ V & G & I & A & G & D & Y & A\end{array}$



VN T S F $\square E \square P$ L K G VE F P $\square \mathrm{G}$ VE F D P R
$Y$ D L
R G A $\square Y$ M A D F S S D S Y A L P F G S VS QP DG VD Y D $P$ A



SN $\square H$ AVHNYS LQSSASSTVFQGSDDPGEVVFDYL
$F L L Y S K E R S I S G V S L L N V Q E V Q E L V T N N I S R A L S I V D V N V Q$
$V$ V N GNLVELLLNSN GEVIA T L GLLELTH HATA FA YD SV
$F L L F T Q E N Y$ TRGFNTDGEAHDDVINPSQFPVGDDYNAE



Q T G $\quad V Y A L D V N V E$
S V VFAA $\square$
FM $\square$ IA D HTH $L$ YQAS LLDAR $D T A D F P E V S K P A C V L Y N R N$ NRRDLRLVDAENGNATVVVGGLEDAAAVDFVFV
Y LYFSDNNRDRRVNFDGTGLVNVLTGLDQPQGDEVDLA
$F L M Y S$ Q Q R F I K GKVVLD S D A L L P V V $\square F S L R R D A T V A S H D V E Q A V Q R T G N V S G L A Y D P L$


Y $\square$ I S QRNSFGRLLPNTTDNVPLLVCGKNDRAVVDYDPD

TYFSDSNKVLRANLDGSNVKLLVTPPSNPRY円ADD DA $P L L L V A D R E A\|I Q V D\| S G S K V T L P L V G V G Q P Y A L D Y D P L$ DLNGPHGldaVDPH

D A H N CTTVAQ
S D M F A LABVD F N

T G V T Y D D T

PF L VF A D $\square$ D H $\square$ F Q MA M N D S E Y N V I P S E LT D $\square H A L C \square D Q S$
H R T L P F T S VNQ LA S VD Y L V Q
 TS QNI S SAKLD GT DVKRSVTLS GQDFDME TD FY


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 NNQMFWVNKSK $\square$ YRAS $\square$ DNWQLLP 1 KGLINPTQILYDWVG

T DYVYWSDGGNKKDKRASGMET IDTGNNHT HESLYW GRNLYWTDGTAGQWRGKSEYTVVLDNDLNQPRSLAALDPLD

 GTY $\square Y W V E T A Q G H Q S \square F D T K E V L V G L G L E D P G D M A V D Y L G$ TD YVYWSDFYDEKIYRASGKEVLI DNNLSAlDGLAI DYAG

 EEKI YFSDNRHDYEDPHLI DKMVQRTNNEEDHS L A Y Y P P GGEDFFSDVKHKAHMDAKDNNSADVQGVGVVNGIADEWVS


 GRNDYWTDSERDVISVAKLDGMLI SEHLDQPHGLVLDAQN DKK【FMDDGDMGVIRKCNPDGTVEDSNKLVSDAVAVDWLN

E GLLF WT DWEEGAPRDERCTMKYVGSDGGWPNGDTDDYVL ENKMYFTDVVNGHVDCSSRATRFISDDIVEPNGVAVDWLS GNYIVYSSSVTGYIKRASFTGAISETVINDPHSLSVDWIS HQULY A ADDNK DRSMYPFNPNSAYEPAFQGDENVRIDAMG

 NRTVFWSSTLNRTIYRGSEATSLFTGTSTSVEGLAVDWMA

QPHDDSDD DYS SDGTYWAEEKGQRKNERYNVQTVASWKVSDVKGLNID PLS NNF ILTVDFTHKRMYQ DSTQSAVVSDKDYSPARAFVHHVT TRTDFYVHDSVIVRVDSDGANVVIVAGKNM PSGLAVDSTN

MGAA DERTLIQE HPENVY LLDDDWKR SERTYWTDAKLHTVNRAAVQLQTI SGDHYYPYGIALNLDD RNYLLFSDNSANTI NGGLQGAYVHIGTSSGVGHVAVDWIS TRMVYWTETSGSNIDGTMQSVIVNSSIVGRSENLALDTSR


SNNLFWCDSRLNWVAMSSFYRVLVQDNLNKPEGLALDPDD DKLVYYS SYALYSQS V V GERTLLANGSVSSSVLA YDWI A HTDLY $\square S G V S P K N V S I F R K H \square T V A R S T Q Y Y \square Q S L A Y D P V T$
A R V VY HNG $\square F P$ Q NH L Y Q VN LD N R K ES Q L K DVR WLA Y D WA S R NLVFWDESTAPRMQSRSRTFAEKDGADWEPVALAVDFDG N N C V F F A D IGGRQCLLNGN Q S M E I L V D R D L A S V E GMM Y D Wi S T R K L F F S D Q R H H Y G H I F S V E D I V ENK N N N E T V E S L A Y D P V N RHRVYWTDF QRYQ\|IWGKNKTVVFNTGSYIPGSIQVDSST
ASVLYFCDRNSSELWSTQLNGNEQSQSRER $\square W G M T Y D W \square N$
$\square N A D Y T F H N F S F W Q R P L V T M P T E Y K G R S V V S G Q D A F D F V S$ TKTVY WVEDESQGSQDGKNTKTMMEAGSVYPDRMAMDFTT RGLI YWSDVSEEADKRTEFNKTVVISGLLSPDGLACDWDG

A GK KY WA D DDGNNDES TTS DGTGGLDVFYKPDDDEDDLAN DEH Y Y Y S DVLQDVI YRVMRNGTVLASQNEGVE GL AV DWVS NRNLFWADMRQSKI YFASDDTVDLSAEGGRPDGVAVDVCR


 EEIVYFADRMHNNGS DFS SDTVVQRTQNETVTGUAYDPLD
GGKVYWT D $\square$ GRRANDDGSNVENSLVHGLPGPSGDA $\square$ N $\square M A$ T D Y VY WS DYRNK Q IKRARRDGSGMET II
$K G Y L F W S D V G E R S S L T G T D R M \square L V S S D L Q H P \square G M V T D \square A E$
$H G L I Y Q D S N D N T K D K K V S A V D D P T Q M N Y \square G S D A V D Y S T$ DTNLYYVTSGGDVAYWNISGEVQEVSPDPWVRAVAVDWDG TRTMYLSDDVKNNVSMDGSGHMEVLRGHEYLSHPFAVTLGG

TQT LIF YADKTKK $\square$ SKRQSEPEK $\square V A E N \square I A L S C A D D P \square G$
EKA LY L S E L NTS D DRPGULS WRRDIS GK GTVVDFALDWDS S GHI Y WTNMGMPSLNDGNRRT\|VPQGHTHTPKQIILDKKG



## UniRef90 J9AVX5 <br> UniRef90 V3YVZ9

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 YNLYYLDEEADRIDMYSLSSKLQRNIISDNIGTPKSFTID KNLYY DDSKGTLNVLSTRTVTHRRTLLKNLKRPRAVVVH GYVFWAEGGESRIIERVGKDGESRFALVVSFVGNPVALVLD

##  <br> <br> \section*{} <br> <br> \section*{} <br>  <br> 

$G N$
$K T$
Y W/G G GQP

GHLF
GHLFWLPCDRGA
GNVYTDTRRNA
GNMYFSDAERGE NNIYYFNNAPTTKSICNENDKTCANLIPVDTHROVSLVVD GHVYWSDELTLEDNRMDLDGSNRVTVISSDKG VRGI AD SNIYWCNMEQRRI EMVRGDGRRHRTIAWENDD PRYMLVV M E K L Y F T N M G WH R L E K I A LDD G S S R R TVV V T DV D R P R GVV A I





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


 R K L Y W S D F T G Q R V M R A E L D G S N P T Q Q V V
 D K V Y W
 GK V F WT D E TLLD RIMMSAN L D G S S Q Q I L I N T D D I E S P R A I I V H


 QHMYW GEGNALRVASIKNMSKIFTLPIVVMPISIALH FTLFWTTGPGRT $\square M N A N L N E N K T E V L H K F V D E L P Y G I A C D$
 $D V L Y V V D L L G R R V E V Y D L E N V G R A T V V A A G L D R P D G I A V D$ E M L F Y V D G T K S L I E A V V V T M Y K S R V T I I
 LLLF T D $\square$ S R G IVGMASVD DSEMQTTI ARAVVMPLAVVYH
 N NLIY WC D S M L N WI P A Y N F N N T D
 EHMKNVIALA A D
G H I Y WS D E LT R K V E R M D LD G S N R T T L F TH S G S TVV G L V L D K NLYY DDSRKGTLNVLSTRTVTHRRTLLKNRKRPRAMVVMH R QL Y WTNCK I N TVVEI G L N GTGRETII KQDI DMPRGIVI D

 R NL
 $G \vee A Y D$
 DTGNRTISVAKKDGSSPRTLLTS DI A WPYGLVLDD
 $G N \prod Y$ Y T GLL P Y L Y Y Y I Q Y S M I G V H Q H K T L M D N
 GEVVYWT DWRTNTLAKANKWTGHNVTVVQRTNTQPFDLQVV R T L F WA D I I A K M H V S E N G E P GVVPV V L H N L L T G N S P R G I A L D $K N \square F \| V E S E T R N D Q V I S Y R S Q D \prod Q L V K T V D T Q N T Q N V A L D$ HPK GRI LSCNTD GSDLYTIFDNMSTMPD GI AIID GNDY W DD S EN P H I NV A S S K G Q Y P I V L L S E N L Y H P T S I V L H GKLYWCDREGMRLMRCNLDGS QLETLI EAGHSECVGL AI D
 R NI Y WCD


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UniRef90-H9H9L7 UniRef90-A0A024MM66 UniRef90-UPIOOO3599095 UniRef90-L5M3E2 UniRef90-C3YJV1 UniRef90 W4Z733 UniRef90-E1FP01 UniRef90-H2Z4B6 UniRef90-A0A023EJK8 UniRef90-E4XNH1 UniRef90-U6NSD8 UniRef90-UP10002036DB7 UniRef90-N6SZG3 UniRef90-A0A034V882 UniRef90-UPI00038E996F UniRef90_UPIOOO26520EE
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130
140
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NEQR FYWTDWSDN KIIHSVSUNGDGYMSFPAT
 PRNDDQEY GL ØPRGLLYWADSG DRSISRVLFDGQYRKTVVESNGYLDQP FEDEVFWSEMKTRTVQRMKKMTGKNRAVLI KRDEQPYG PRASTMCFVTAAGNRRVECAAMDGTGRRVL WRRARAPTG SDLGYMFWTEWRQTPRI GRAFMDGTNITYIRQHELGWPNG WPRRVLYWVESGKH LQSGTDDGKDRREVWRGTWTADTQ PPNGYMYWTDWGAHAKIERAGMDGTGRTTLVNTGLRYPNG PKNGKMYWADWHERPVMMSARMDGSRHDELVDNLENFATG PKEG
PKEG
 P N NVSWWTFNSPSYTV SVNNKLYYVGAYSNGEIRRANLGTGGQELIKTSPGYDTG FCRRLLFWTNSNTSATIERIGLDGKDRKVIVNTNMYAPHG WLNRNLYWLDSN VAQUKMQSLSSKGRQVVISHGLKOPRGG AERGYLYFTNMDRAAKI ERAALDGTEREVLFSTGLIRPVA

 FTEQRLYWCDWGQH RUESTDWTGGDRTLFIMQNLQT SGL
 LIM NYVYWTDWRTNSVINR RANKWNGTDVTVI QRTQSQPFG PLAGAVFFVNEGANVTI VCRRHTYWTNSDTYHTTERALLNGSNREVLIDSDLRQPAG FCRRTLFWTNSNTNSSIERTGLDGSERKVIVRGEMYAPHG P إN
PQKGYLFWSDWGEERR YAKRRLYWTDDDTND AERGYLYFTNMDRAAKI SRSDMLGLNREVI ADDLPHPFG AVSGWMFWADNETDNVI YRAYTNGTEREVLFTTGLIRPVA YSTDLLYYAAVLSGLTSASFIYTGYDRQITDLAAAYEVV YSTDLLYYAAVLSGLTSASFIVTGYDRQDITDLAAAYEVV VPGGKVYVITYNNTKKLVRFNLDGTNDETLASNDGGQGVG TSKRFLFWTNRGQFPKI EMANADGTERVTLVDSNFTHPTG QVEGVMDWTDWSAPSRUERANLDGGDRYVIVNSSVIYPNG VYHSVVFWID

## P\|RG

WVSRNTYWTDATYNWПGMTP $\square K H E N K Y K F \square V T K N D F S P H$ PDNDLLLWADTNVLHVVDPGN
PTEGKLYFTHWDAKGKIYSAWLDGTHKTVLADMPMSWPLS TCSRTLFWTNCNGKPTIERSSLEGKERIVIVEKELIFKPMA WIEKYLYWIE GNSQTVMRSTFNGSAVQTVLRSGMDDPRS PYAGLMFVGDNDNARIVRMNMDGSSSMPI I RKGIEESIS S PTEGYIFWTEWSSQPALSRANLDGSDRRPLFSKDVVWPNG PCTRMLYWTNVDSNPTVERSFLNGSHRELVGHSDLLLPNA QTEKKVYFADA RLRAMYKCNDDGSDVQTVLSHGIGQVEG PFSNHLYWTEGGSTPSIKRGSLNNSTQEDFSLSSSSRPTG PEDGLMFFSDNDPNSRIGKAFLDGQNRVIVVYKGLARVLS PWHGSVYTHDQFERKKLDYCTETGQCRQAL
YRAGTSPGTPNRDFFSIQQ\|NDDGSSRTTIVENVGSVEG VANNTMYYSVSAGTDA】WRADLDGGNRSVVNDSGDSDPDG PNKGY1
QLSDRIFWDDVGDFFALESARLDGSDRQLVLKDKHQSPTQ TVNDKI YFDDQNSEE KVANLDGSNMQTVVNTNGTRIYG PVARYIYWSNIGDMP II ERAKLNGKDRETIVDKHIKEIRG PVARYMYWSNIGDMP\|ERAKLNGKDRETIVDKHIKEIRG AMKRLLFWTDVSSHQAI DRARFEGNERKEL
ACRRKLYWTNSNTHPTVESADLAGTNRQVIDDTDDDMPRG
 DNAGKMYWTDTS LTDKIQRANDDGSELLEDLVSQGQSFPQG PRNGLLYWTDY SKSGLYRAEMDGSDQTTMTADDRNPDA DHPCMTLGCDHLCFNRGDQSGVCTCMQGYYLELDGKTCTR PPKGYMFWDDGAGMVVGRANMDGTDPLFLVAYGMTSARA

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UniRef90- V3YVZ9 UniRef90-A0AO23EVS5 UniRet90-C3YXV3 UniRet90_F1Q8F3 UniRef90-W5PJQ6 UniRet90_UPIOOO383405C UniRef90-X1YZB7 UniRef90_UPI00038C284A UniRef90-C3ZZS5 UniRef90-D9ZFIO UniRef90-C3YJU0 UniRef90-C3YJUO UniRef90-UPIOOO1758603 UniRef90-Q7UZ67 UniRef90-W8ADQ4 UniRef90-A8PZ17

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LAYHRGWDTLYWTSYTTSTMTRHTVDQFERETVITSGDDH LA $\square \mathrm{NFVNGELFYTEAPLAGU}$
$\square A D T E D T \quad \prod Y W T D K A D K A V W S Y P K P A Y N K P A T N S S E T Q$ MQ: DYEVNKLYWSGRDSGELYRADLDGANLEVLQTG
LT DDYNNNKLYWVDSSSQULWSSQLDGRSVLALH LAFNAGSAGFYUYTEATGS


UniRef90 J9AVX5 UniRef90-V3YVZ9
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PSALSLAVFEDYVYWTDATKKGVLKVNMYGGDPEQTYETR RHPFSIVIHEDWMY ITDWRLDA\VRLHKLTGEQEEUMVRQ

SL FA TGEGFLLWGTTSTNGTNGCAKSNGG
GHPFGLA $\backslash$ YQGW $\ddagger$ YGDWHLLG $\square H R \square N \square Q Q P T E Q Q \| V W R D$
HFFGLADDDMHVYGTSWFNSY DYK
HHPYSISVFENTVFWSDWTSNSMQTTDKVHGTKSNVLLKL R GMAMYSPDLVTDVSNACSVSNGG
TQSVGLNFFENAMYSPDLVTDVSNACSVSNGG
TQSVGLNFFENHLYF
EPGGLLADTKDAVFWDDRTNRATWSHAKYTSKSVT
PNGIVVDARHKRLYWAEGSRSFIKSVAVDGTDDVQVFAES
FKFYDI ATFQDYFIFTGSKYGGVRDFDKKSGQPATVFHKS
VQPLGLTVLGSHL

A ПFFDVA NHPYSLTILGNSLYCNSLYGRKIFRIDPRHNESQLSVVSDS QHPFGUSVGLNEVYWTDVMAHSVLKCNKWTGNNVTVIDSH
VPSYGLADHNDQLYFSPWYQGTVYAVNRETGKGLAETSRG SPYRLFHFNHRLYYSDTRQNSI GFYNGRELVTLHEN PHA VVDPLRGTMYWSDWGNHPKIETAAMDGTLRETLVDN KPFGI AVDENAVYWTDVNNNALWRFFKSDSRDPEKIREF EPFSLAVTKDAIFWTDHTNRAI WGHAKF
FSVTVFEDEVFWSEMKTRTVQRVQKMTGKNRAVLIKR

VMD LVFHSSRQAGWNECAS
VQPLGLTVLGKHLYWDDRQQQMDERVEKTTGDKRTRVQGR SVSI DVAIIDSNYIYWMDQYSKDLMRADRSGNSSDTFISQQ VNGLAIDYTSKRLYWSDGVQDVVIEYCD FDGKNRHVLLKD PSPFSVAVLEDEVYWSDTKTRSIQKANKNTGKQRNVLIKR PAGLLA DHTSDVLYWADTRTGRI DADGLDGNGRRTVWSG DTQMALDCNAASLDW
GHPFGIAKYFEDIYFSDHLIYNGVYATD FPAGNVALVDMR SVFYGUETFKNYVIVSDQTSNRILVLSNSTGQKMVTPLRT
$\square Y P H R \square D \square F E D Y \square Y G A G \square K N G A \quad F R \square Q K F G N G \nabla M E Y \square N \square N$
S $\square$ PSA LIVYEDRVYWKSSTTFGVKSS $\square$ GVDGQGRRTE $\square$ S D HPDSMAFHNGVVYWVDKRNGTDQRFSVNSNTFRTPLKGS QPSSLADAGKRLYWTDTVANSVWSV
PTGLTVDQAEGR1FWVDAKKD I 1 ESSLLDGTDRKIIVSA $V$ LTSLNFDNQLYYLEKNAKSVSRID DHPFAVALTKDM
SFIVSLTVGEDYVYWTDYSHKKLWSLRKDGSSEKP\|ILRT ADIMHIAIFGSHLYYTAVNRQFITKVNKETG
PRAVVVDSDRRVLYYTDWGSAGHVGRVGLDGSNKVMLTT TAPFQLVINGDRLYWSDFRREQVNSLDLVGGFNPQPVV, NYPFSIVAYANHFYHTDWRRDG $T Q A S G L S Y H Q N F L H A V S Y W T N S M L G V D P T S G S L L Y S R N F P$
$Q L V D L D G G Y Y Y T A W N T Q K V F K V L I N S D G T G T V V V P E ~$
PRAFVLDECQN LMFWTNWNHPS $\square$ MRAA $\square$ SGANVLTLIEKD
PQPTKLASWKDDVY
STVD $\square D \square D Q E F F M \square C N Y D P G R \square T L V K R S T P G E H S D \square Y T A$
EPPGNGAVTNDATYWTDKTTKAVWSHPK
STPSNLAVTKELI FWTDQRHEA:W
PRGUALDVCNSHUYWVNSNNPSUEKSNGDGSNRVTVIKED
WVVDTADDEDFVY
PGALSVDSVHRDLFWTDYSRDAVIWRSALDGTDATIIIDS PNGLTLDAYGQVLYWCDARADSINSVDLVLLRTTVVHRKK AGLSHLAVAGEYVYCTAAYKQElLKIHKTTGTEWMSPVTE DGNHTLFYNGKLFWLDSDTK GIAVRDVNSSDVATVPMA DNVTVLDYDEQRVYWSDVRTQT KRA FINGTGVETVVSD QQPVYLAVDNELYYWSDWVYRAIWTMPKNTSKEKSYFSKR
NYVKTFALFEDYLYFPEPNNEFWYRVSKQSGMDRSEKKSP

CVGDTVDETNGYFYWS QK S Q GRIIFRAK】DNPSEVQVLF IVN $\stackrel{H}{\mathrm{G}}$ G G GALDVPNDRMFVTDFA GSVYSARRLDGSGERNFLFA GFQMAVSNVDEKLYFAEMGTKKIRKCN LDGSSPQDTVSG GNYGIDDFKNNLYWLEGSSGINYR DKYALDRTHVLIQY

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UniRef90 X1YZB7
UniRef90-UPI00038C284A
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UniRef90 K1QLD4
UniRef90-W4XX34
UniRef90-F6WBAO
UniRef90_UPI0002659173
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UniRef90 W8BQ77
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UniRef90-A7T3E9
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UniRef90-K1QXJ2
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UniRef90_A0A026X3S8

GN VVGIKVSH $\square$ NKQPE
$T N R L Y G V K V F S R S \square Q$
$\mathrm{T} A K \square H M \square R \ Y$

DTPVLGMHMYHPVL

VNHPYSLTILGNSL
PNTAYDVIAF
VSHVSNLVVAH
$R R P T G L \square L Y S P$

GEQVYGTTTYADTRQ
ITFGQMGI RAVNDNHDPEG LHFPMDIHVDHPTAQPE

TS QPFSMLVVHEHMQ
VANVTALMI HH
IQWPT
PERPMGV
S G Q P Y G LK $\square \mathrm{MHEVLQPR}$
VA H LT G T H AV
YS LGWGLYVQT\HSQPDG
H GQPYGLK
SSRNGGLA
LM Q P Y S L A V
VS F VAA $\quad$ TH T Y A A S R
SSPPFSLGLVSQDNQP $\square G$
VEKTKSVLISHHYKQP

VP $\quad \mathrm{V} G \mathrm{LV} A F D \nabla Y K$
Q T S V H
PGTLRSTAVFGE
$S P T L S G L K L D S K D \square Q$
FRYPTGVVVF RHQP
AENPNDLIITDNNKQPTA
YGITTIDQNKRP
RSHDYGI TAVYPY CPSG
SLKPFAITVYD
LGRLDSIEIEPGNSQPK
$\square \mathrm{RTPNG} \mathrm{L} A \square \mathrm{DHR}$

D T Y LTS SMVY LDQSRQKK

LY E P L A VA IDD H S N K K

GSHFFGTT
LLGR LET T LYDKS $\qquad$
$\square$ D NAHGLAV
DADPAG1V

LPEPTDLET
QK TVDDAL
QGNLTGIA



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UniRef90_A0A023EKD7 UniRef90_AOAO23EKD7 UniRef90-N6TD61 UniRef90_A0A017T4V2 UniRef90-S7VPC9 UniRef90_W5NKM5 UniRef90_H2YXX3 UniRef90 A0A017TH60 UniRef90-F6X6P0 UniRef90-T1DKI9 UniRef90-EOVL66 UniRef90_W5PGD2 UniRef90_HOWR60 UniRef90 Q0C7S2 UniRef90_UPIO003787097 UniRef90-H9JPT0 UniRef90 UPI00038C24CB UniRef90_UPI0003F12021 UniRef90-W6Q4J6 UniRef90-B1VLG4 UniRef90 G7Y113 UniRef90_UPIO0046C3856 UniRef90_UPI0003C17E66 UniRef90 E0W2Z8 UniRef90_V4CNU0 UniRef90-B6HNM4 UniRef90_UPIOO0440A106 UniRef90 E9HVM5 UniRef90-W4XW16 UniRef90_G3T4E5 UniRef90-A9GLM1 UniRef90 F8CNU2 UniRef90-W4ZEF7 UniRef90-S4XRB5 UniRef90_B4GZE2 UniRef90-A9G769 UniRef90-K7JLJ5 UniRef90 S0ELS9 UniRef90_W4YWR2 UniRef90-A0A017TEEO UniRef90_U6PVU6 UniRef90-T1L5H0 UniRef90_V8A5G6 UniRef90_B1MI34 UniRef90 I1EY80 UniRef90-UPIO00265868A UniRef90_A0A016WCM8 UniRef90-UPI00038326BD UniRef90 V8NU74 UniRef90_UPI0003889F49 UniRef90-UPI0003AEEAC2 UniRef90-W9BL20 UniRef90-I1FM55 UniRef90-E5YT94 UniRef90-L8H5E3 UniRef90_L5JRB8 UniRef90_L9JDY9 UniRef90_B4MSJ0 UniRef90-G8YML3 UniRef90-T1L4Y1 UniRef90-I1F012 UniRef90-G3HUD2 UniRef90-I1FTT1
UniRef90 A9FJJ8 UniRef90-|1GGP1 UniRef90_C3ZU35 UniRef90_B4H4S3

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##  <br> $\square \mathrm{L}$ VA N D T E M H VY P F N Q S H R H T Q L A R L P D V V G M D A L F H

GR LIAVS PK S GKRTTMVSGLSLPD GDDVSPS
 VP QLLVATMDA VR $\square$ S D LD QEVNYT $\square$ T R H $\square$ A VEVT Y LA A P NTVAVN P S LLK S AVVA Q S S E K Q
LT NRNY RFEPDGS QTEIV HD GLLDGLVS TSVA GY A SILWWSNEGGLRRSDVTGENDDTLVNSENEFHIVDIVSY WLFLSSRKMSLRKRSLKHDEAHCLWSDAHN■TGI SVMVH



 LIF A YDRAAVRMSSSHGQDDFRT IIANAT GASGLLAYHHS

 WLILSSRMNSLLRRKTFS GAECLDTESGQYNDSGMSASYN H GIE S M A F D WK


 WL F L S R K T S L R K R S L K H DEA Q CL Q S D H H NI T G I S V D V H K R E
WLL LS R R T S LR K R S L K H DEA Q C L Q S D R N T G TSVNNVH


 P TI L WS A A E GLL L E S DVT GE EVE T LI S NLKNNNGVVDICWY

 P Y L I LAN AT DVWRSQLDGNAES RLLS PQATDK DIDEWY
 $R Q \vee M T V P I R G G N A A F L F K G D P A P Q S I \quad T \quad L D P A$



## $Y A Q M G D V M K V P V G G G T S M S D A N G G N Y P S R \prod A V \quad S$ 

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

Y LLALDNQRSTLKFPTSGEEFTELVVDLNEPDGTAVDPA


$P Y \square L A D G D D G L W K Q P L D S F G P G V F F P N \square R N V S \quad D M D W Y$ H L L F A Q T G K I E R L P L A G S T M T L L H A P D K V I I G L A F D C V RGSV HRIDVVATGESHDLA TGLE EP DGI IVDEA
 $\square P H L V$ I F T S N L L WL A D L D N H A A K R T I S V P S P A V A V A F D
 A I G A N M D WY



 DGHNI YKMP LD G GEPVVLAEGAGAPEHLA QDAQ



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UniRef90_R7VEI8 UniRef90_E4XFX4 UniRef90_K1R4E6 UniRef90_S3CHE8
UniRef90-A0A023EKD7 UniRef90_UPI00046D5ACB UniRef90_N6TD61 UniRef90-A0A017T4V2 UniRef90_S7VPC9 UniRef90_W5NKM5 UniRef90_H2YXX3 UniRef90_A0A017TH60 UniRef90_F6X6P0 UniRef90-T1DKI9 UniRef90-N4UNV2 UniRef90_EOVL66 UniRef90_W5PGD2 UniRef90_H0WR60 UniRef90_Q0C7S2 UniRef90_UPI0003787097 UniRef90_H9JPT0 UniRef90_UPI00038C24CB UniRef90_UPI0003F12021 UniRef90-W6Q4J6 UniRef90_B1VLG4 UniRef90_G7Y113 UniRef90_UPI00046C3856 UniRef90_UPI0003C17E66 UniRef90-E0W2Z8 UniRef90_V4CNU0 UniRef90-B6HNM4 UniRef90_UPI000440A106 UniRef90_E9HVM5 UniRef90_W4XW16 UniRef90_G3T4E5 UniRef90_A9GLM1 UniRef90_F8CNU2 UniRef90-W4ZEF7 UniRef90-S4XRB5 UniRef90-B4GZE2 UniRef90_A9G769 UniRef90_K7JLJ5 UniRef90-S0ELS9 UniRef90_W4YWR2 UniRef90_A0A017TEE0 UniRef90-U6PVU6 UniRef90_T1L5H0 UniRef90_V8A5G6 UniRef90_B1MI34 UniRef90-I1EY80 UniRef90_UPI000265868A UniRef90_A0A016WCM8 UniRef90_UPI00038326BD UniRef90_V8NU74 UniRef90_UPIO003889F49 UniRef90_UPI0003AEEAC2 UniRef90_W9BL20 UniRef90_I1FM55 UniRef90_E5YT94 UniRef90_E9HPR8 UniRef90_L8H5E3
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UniRef90- T1L4Y1 UniRef90-T1L4Y1
UniRef90-11F012 UniRef90-G3HUD2 UniRef90_I1FTT1 UniRef90-A9FJJ8 UniRef90_I1GGP1 UniRef90_C3ZU35
UniRef90_B4H4S3

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



#### Abstract

C G R M F WT S M G H A L S A C G S D V  



$M P P \square F M L D \square L R L D A P \quad N K P P K A L I T G D P A P D G \square D V D H F A$
 K DVLY IVGGNNSALYRYNVSNH QKTK LNDHSVGSVAVDWDS WQIVYFSEGTHUWMKEAVHMS RVFYRGSGLISSSI STDWLY

 N D MI F F F A K E R K K T G K F R K P V A I T N N V G L E G A V K L A V D W
 K N LL F WS D DK TR K V Q S GY G GH DF SLLP GTWAPV A I A A I D W I G



 A T SVVYTTLGPATGSVGDVSSVPREGGDSMPRGLAQDDSGA
 K GHMYWTNMGHRADLDGTNRKTIVTRGVFTPKQlTVAKRS




 Q QVV Y F S E GTL I WMMKEAANMS RIVFYR GSGGLDS SI S I D WL S GRMF WT CMMA P G K F D G GVVY S A NVV D G T DI N T P K Q I V L H S E A






 N GVLYWVDDYRANPDGT GQALCVAAA DA GQPRWLGTDDN
 IVFK DVGDAHALDVSVAG



E N L L F Y S D $\square$ G T LE $\square$ R S Y D T E T D R $\square$ LY G F G S VE D M A VD WVA ATHVYWVNRGREAPADGSMPPDTLAEPQPYPFGDALDDD K GEIJF F YD DAKRRSLHGGNVTLVTGNGAHHワTCMAFDSSS

HEREVAVNGTHK IHVFAY D S L N $H D Y$ WT NMGAD Y NHD GSAHAVVLVGHGGVTPK QLAAADPQA RQNI YWTNMGVPT LVDTNAPPTERN

 E K T IIF WWID A S T G C I R R K C N LDD G S H A K

NDTMY WS NSTGEVVHMWAGADEKFHDSDワRKAR VAFDWLG
 $E G Y A Y F T L M G R P D T P G G A P E I V V D R G R F T T G K Q L A T D P R T$

 A GHIVVADCGSRQVHDGSCVRTMEAPGLRWPWGVAVDAAE





 N
 V $D \quad Y P R \quad G V V V V S S S ~ S ~$

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UniRef90 F4WP07 UniRef90 K1QWL4 UniRef90-K1PTP1 UniRef90-G3HB26 UniRef90_UPIO003DF7F09 UniRef90-R7UVT2 UniRef90-F7WBF0 UniRef90_UPI0003FD4170 UniRef90-W4WRI2 UniRef90-HOVMRO UniRef90-B8NT59 UniRef90-F9G0B0 UniRef90_R7VEI8 UniRef90-E4XFX4
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UniRef90-S7VPC9
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UniRef90-A9G769
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UniRef90-T1L5H0
UniRef90_V8A5G6
UniRef90_B1MI34
UniRef90-UPIOO0265868A
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UniRef90-UPI0003AFEAC2
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UniRef90-I1FM55
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UniRef90- T1L4Y1
UniRef90-T1L4Y1
UniRef90-G3HUD2
UniRef90-I1FTT1
UniRef90-A9FJJ8
UniRef90_11GGP1
UniRef90_C3ZU35
UniRef90_B4H4S3 S S LF WVDSGS GLVERSDLKGDNRRTFVPNEGNDPSALVVD


RKLYFCDREGMSVHRCNFDGTDHQDLIQTGMRFCVGVADD RNLYWVEGENKDNNRNSY IKRDDLTMLQAGUIKYKNIVLID

 $D$ LIUQRDFVGDiVVH DRMYWTNMGANVNMSSRDDGSDKKVLLSDGVPK QLVLVKD NKLYWVD S QTINCANLDGTNHQVLTDEGGSDFRGLDID KKLYWANPKQQ I TRANLNGSQQE PMS LLADVKELMID
 SKLYFADREGMRIMRCNFDGSELEVLI QTGDRWCVGI TVVS N NLFFCDGVKGTVEVYDYERNLHRIIVATNDKRPRGLVVP



 D
R V WT KNIYFVMGGQVCFCSIDD DCNNTVDBIAAANHSFPSKIIAAD RKMYFSTYFGSKDMVSDLAGKNATTLFQFPLVFDTGLTDD ENLYWANLNGTTVMQMPKGGGEPVVVASGQTARDVAVAG

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

 $K K I Y W S N P K Q Q L I T R S S F D G S N R E P V P I V T V A K E L T I A V D$ HFLYWAGKTYVIQRQSMLT GHTDVVTHVKLLVN DMVVD




 QSVVYFSDREGCRVYRCAFDGSNDEVLRDNTGRWCVGVAVVS QY L Y WS CNT S M



 RRIFWTDQKTKCIFRAFLNGSYVQQIVDSGLIGPDGI R
 S DLIFVVVV
$R N L Y T A D Q S F R Q \square A V S K Y D G S M R A V L I Q D D V G K P R S D A L H$ THVYWTFHEGSGGVRRVLRGSMGTGTIETTGGVPNGIAVD

 SVYVVTDSNHRI QKLSQNGRFVGQFGNGQLRFPYQGYAA


QYLYWAGKANTDYRKSLLVGHTDVVVHVAFLVK DLVVD KWLWGGSGGVCRAECLKPGQPSRRKVLEG LDQPMAVT GRLFWCDREGGAVYRCERDGTAVTRLIDNANRECVGDAVD LVYVADTNNHRIQKFSPDGKFVDQFDPGQLSCPVGI TID NKIYVANDRSHSVTVIDGASNETTTLAVGVNPTAVAVNTV RHAYWSQREMGVSSI YQLDLDNKKERLVLRDPRMVRLVEVD GHVVVTDHGNHRVHVWRADGTFVRTFGSRGFQCPRGVAVD HFLYWAGRTYVIQRQSVLTGHTDIVTHVKLLVN DMVVD HFLYWAGKTYVIQRQSLLTGYTDVVTHVKQLVN DMVVD GHLYYTTMHLKRRGLSPQPGKNEEVEYYHLNGLEGSITLD

 HFLYWAGKTYVIQRQSVLTGHTDIVAHVKGLVN DVMAVD
 QFVYYANAGDGGVIKAPDAGGAKTLYQGG

UniRef90 W2T657 UniRef90-R7VGP3 UniRef90_K7EGZ8 UniRef90_W5K5L8 UniRef90_W5K5B0 UniRef90_G7XFW6
UniRef90_F4WP07 UniRef90-K1QWL4 UniRef90_K1PTP1 UniRef90_G3HB26 UniRef90_UPI0003DF7F09 UniRef90_R7UVT2 UniRef90_F7WBF0 UniRef90_UPI0003FD4170 UniRef90-W4WRI2 UniRef90_HOVMRO UniRef90_B8NT59 UniRef90_F9G0B0 UniRef90_R7VEI8 UniRef90_E4XFX4 UniRef90_K1R4E6 UniRef90_S3CHE8 UniRef90_A0A023EKD7 UniRef90-UPI00046D5ACB UniRef90_N6TD61 UniRef90-A0A017T4V2 UniRef90_S7VPC9 UniRef90_W5NKM5 UniRef90_H2YXX3 UniRef90_A0A017TH60 UniRef90_F6X6P0 UniRef90-T1DKI9 UniRef90-N4UNV2 UniRef90_EOVL66 UniRef90_W5PGD2 UniRef90_H0WR60 UniRef90_Q0C7S2 UniRef90_UPI0003787097 UniRef90_H9JPT0 UniRef90_UPI00038C24CB UniRef90_UPI0003F12021 UniRef90_W6Q4J6 UniRef90_B1VLG4
UniRef90_G7Y113
UniRef90_UPI00046C3856
UniRef90_UPI0003C17E66
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UniRef90- S4XRB5 UniRef90-S4XRB5
UniRef90-B4GZE2 UniRef90_A9G769 UniRef90-K7JLJ5 UniRef90-K8W343 UniRef90_S0ELS9 UniRef90_W4YWR2 UniRef90_A0A017TEE0 UniRef90-U6PVU6 UniRef90_T1L5H0 UniRef90_V8A5G6 UniRef90-B1MI34 UniRef90_11EY80 UniRef90_UPI000265868A UniRef90_A0A016WCM8 UniRef90_UPI00038326BD UniRef90_V8NU74 UniRef90_UPI0003889F49 UniRef90_UPI0003AEEAC2 UniRef90_W9BL20 UniRef90_I1FM55
UniRef90 E5YT94 UniRef90_E5YT94
UniRef90-E9HPR8 UniRef90_L8H5E3 UniRef90_L5JRB8 UniRef90_L9JDY9 UniRef90_B4MSJ0 UniRef90_G8YML3
UniRef90-T1L4Y1 UniRef90-I1F012 UniRef90_G3HUD2 UniRef90_I1FTT1
UniRef90-A9FJJ8 UniRef90_I1GGP1 UniRef90_C3ZU35
UniRef90_B4H4S3

130
140 150
SAHRT|IFWSDVGGKPS|L|NRMS DDDRGVDVVL|DSSLIDRTAA



 P STGGSLYWIEKKKD G GII MQS NLDDGRDDQPGFNY DDDCSCP
 AEKGTEYFCDR EGCSVVHRCNVVGSEMEVLVQNPNDWCIG
 SLEAYLYWS TGHAVEVARLNGQDRRYYHLDNGKQVMG

 $S G V K W D Y$ WNDQ ATGR EGCALDGRWRQTVLRDGAGLPNQ

 $P$ TS GLMFVAD

 GTSAYSADPATGEVMKLPL GGGTTVILATGQADVCE
 Y TND R L Y WT DT GYGAMVMSSKLLDGTN K T QI YYRQ G S IV W G STLYWTNDGG SVVMRMALGASGMPEI LFEGDSGPDG


 S Y N G Y V F Y L L R D G I Y R V D L P V VP S G WDA QAMR IVVD S H T L K D




 PRSQKLYWSDR EGRKVMRANLDGSDVEVLYKATSSWCVG SVKAYLYWS TGFAVRCAHLNGENLHPVQLFS GRQVMG


P

 SVQA Y I Y WTSSSSVE GSRLN GESPLVVYEVGDLSGDVVAG



 SNRLLYWPVT GLDDEKPEIWSCDVDG
VANNWLYWT QK GTPKRI FRVS AN QRND DQLLLQDDPEP $V C G D R M Y W T C M G Y P P N V Y S A K L D G S D \square R T V V P R G R H T P K Q$ P E Q G
$D T H A Y W V L R D T G A V L S V Q K D G L G G Q P \quad T T L A T N Q G E V R E$ $P \mathrm{~V}$ S R L M F Y T T QLLRQHSI IRANLDGTNPT LLVSFFSFHPLT


 P F N GWL T M M L RNGETWRI
SVV G Y L Y WA T T Y S VE S A R L N GED Y L I L Q E Q L Q F S G K QVVG
 S YGKNLYY T DWKMNSVV
PTNDWLYWTQK GPS DGGKGRIL

 PFTSRLIWVSDNHNGTGTLMTTDGQNRLFLNNPQYCPPLA EAA GHIVVADHFNHRVQVWHATVGSFLGSFGSEGFQQPTG
 L K Q H Y V Y WVVK G S GMR $\square$ Y R S
KKRRQULDWTQK GPRCGMEDNGGDPERRDDILLDKLPEPDD
 TAAT GLVYVSEEGI CRISSVFTSDGVFVRKFGSVGFSNPYG
 ALRGSTLFSTNMSRNRSVQAMDLVTNNTTVLALGQHFAWR TATGLVYVSEWG K S R I SIFTCEGVFVNSFVREGKQFNNP GNGTLWVVGRGETAEHVVQCSTDGTAMKRFDLLKKSYNFRG


UniRef90-K7JLJ5
UniRef90-K8W343
UniRef90_SOELS9
UniRef90-W4YWR2
UniRef90 A0A017TEE
UniRef90-U6PVU6 UniRef90 T1L5H0 UniRef90-V8A5G6 UniRef90_B1MI34 UniRe90-11EY80 UniRef90-A0A016WCM8 UniRef90_UPIo0038326BD UniRef90-V8NU74 UniRef90-UPIOOO3889F49 UniRef90-UP10003AEEAC2 UniRef90_W9BL20 UniRef90-11FM55 UniRef90-E5YT94 UniRef90-L8H5E3 UniRef90-LJJRB8
UniRef90-L9.JDY9 UniRef90-B4MSJO UniRef90-G8YML3 UniRef90-T1L4Y1 UniRef90-G3HUD2 UniRef90-I1FTT1 UniRef90-A9FJJ8 UniRef90-ITGGP1 UniRef90_C3ZU35

LLLDEETH LYWTDRDGNSLNCANDDGLSHYKVISRGFKE
 TT DLTYEF LYWLVQYRVSLCKEGCGNATIREFAA WSTSD SLDFINVKLFWIQHDTNEISYFGTSDYNGHFILYRQMER LSLDLSDGFLYW

## 

LTFNKDGF $\square Y$ VCDHNYHRV
VVVNPVTNKYVANSGSNSV TVIDGASNETTTVDAGAG LWSDTNSPRLLWTAHNDDI WSSDLKGCHSAPELSSRTGR VAVDAATGNVIVADSGNHRVQVWRADGSFVRTFGSGQFMC LTLDLSDGLLYWLVQDSQCLHRGQSAGDTTUTEFAAWSTE
 FTDDYSRKRIYFPHNENTIWSSSMDGTNVTNDRPNVSRF LAFD KDGLLYVCDYYNKRL
LTLDLSDGLLYWLVQDNQCIHLYTAVLRGRTEFAAWSTSE LAISKDGFLYVCDYAN
LAPEGQDVFWTNGGDY
YGISFDKDGFLYVCDNKNS


UniRef90-R7VGP3 UniRef90-K7EGZ8 UniRef90_W5K5L8 UniRef90_W5K5B0 UniRef90_G7XFW6 UniRef90-F4WP07 UniRef90 K1QWL4 UniRef90 K1PTP1 UniRef90-G3HB26 UniRef90_UPI0003DF7F09 UniRef90 R7UVT2 UniRef90-F7WBF0 UniRef90-UPI0003FD4170 UniRef90_W4WRI2 UniRef90 HOVMR0 UniRef90-B8NT59 UniRef90_F9G0B0 UniRef90 R7VEI8 UniRef90-E4XFX4 UniRef90-K1R4E6 UniRef90_S3CHE8 UniRef90 A0A023EKD7 UniRef90_UPI00046D5ACB UniRef90_N6TD61 UniRef90 A0A017T4V2 UniRef90 S7VPC9 UniRef90-W5NKM5 UniRef90-H2YXX3 UniRef90- A0A017TH60 UniRef90-F6X6P0 UniRef90-T1DKI9 UniRef90-N4UNV2 UniRef90-E0VL66 UniRef90_W5PGD2 UniRef90_HOWR60 UniRef90_Q0C7S2 UniRef90_UPI0003787097 UniRef90-H9JPT0 UniRef90 UPI00038C24CB UniRef90 UPI0003F12021 UniRef90-W6Q4J6 UniRef90_B1VLG4 UniRef90_G7Y103 UniRef90_UPI0003C17E66 UniRef90 E0W2Z8 UniRef90-V4CNU0 UniRef90-B6HNM4 UniRef90_UPI000440A106 UniRef90 E9HVM5 UniRef90-W4XW16 UniRef90_G3T4E5 UniRef90-A9GLM1 UniRef90_F8CNU2 UniRef90-W4ZEF7 UniRef90_S4XRB5 UniRef90 B4GZE2 UniRef90-A9G769 UniRef90-K7JLJ5 UniRef90 S0ELS9 UniRef90_W4YWR2 UniRef90-A0A017TEEO UniRef90 U6PVU6 UniRef90-T1L5H0 UniRef90_V8A5G6 UniRef90-B1MI34 UniRef90 I1EY80 UniRef90-UPIOOO265868A UniRef90_A0A016WCM8 UniRef90-UPI00038326BD UniRef90 V8NU74 UniRef90-UPI0003889F49 UniRef90-UPI0003AEEAC2 UniRef90 W9BL20 UniRef90-I1FM55 UniRef90-E5YT94 UniRef90-E9HPR8 UniRef90_L8H5E3 UniRef90_L5JRB8 UniRef90_L9JDY9 UniRef90_B4MSJ0 UniRef90-G8YML3 UniRef90-T1L4Y1 UniRef90-G3HUD2 UniRef90-_11FTT1 UniRef90-A9FJJ8 UniRef90_I1GGP1 UniRef90-C3ZU35 UniRef90_B4H4S3
$R G \square Y G \square D \square F G D F \square Y F S D F T K G T V E K M H K \square F G K D R S \square V V S G$
QL $\quad$ TTVGEGMMFWTDGGQKTKVWYSKMGRSE
 HEP $\square G L K L T K N G V Y V T D \square G G C V Y L V G T G T K K T V V T Q G$ $R \square$ LIVDKMNUYWYDGKNEYFFMENKENASNPEVKNFY

LQPVGLTVFENWLYWDDKQQQMDEKDDMTGREGRTKVQAR
 PEPDDLEDESETLYWTDRGEHNSLNCAKDEKKEVKDLARH ANPKGITANNGYVYWSDTYNNKIHRVS TNSTNYQVIVGN NMQGPLCYFSEHLLWLQDDRNAV GG DLSGQNTAVINGT
 A GGULDSKNRRIFATDLGGGSVYKFDGMDGGNRKKVYEG HVTTGITSCSGSI Y LDATWNDGTISRDNDETG


KNVTSMS $\triangle V N G \square F Y W T N G V E \quad \square I A E S Y E S T N Y R Y F H N V$ THPFSLRFFEDHLYFSSSN AYPCG IA LDVTA VHWTEPAAGTVMRVPGEAGA AEVVASS


VEPTDDAVDATHVYWSDVETDEVLRMPLEGGAGTEVIAEG TD DK MIDVKSRYLYWTDTRSDQVWR D, RLDGSEKELVLDN YPADVSVKNGFIYYTDQENNEI FETEKESPHRTRSVYKG A $\square G M A L D R Y S G V A Y V T D L D S G G Y A D D \square K T R R K T V V F A E$ NKPKIFYNFRQTVYGVAAFKNDUSKCD
ASVKSFACENNDFLVTDGK
A IGLKDDLLHNN IYLTDLG GNLYRCDR DGKNRVKLLSD EAIGLTTADDTTYYVSELRTGGIRVVNLADGTDREL
ATLGGPLCYFSGRLVWVQDAARAVLS
 ADVKSFACENNDFLVTDGKAVFQQDADSFNGCDLSHIEEF A GGLILDDPANSQQYLTDGG GSVMYRTDMDGNNKEKIYY N SQPTGLAFDRRNLGVSDSGNDRVVEVPAGGGPRRTVMATG NMQGPLCYFHKRLLWSDDQGNNIATI SGKSMSDLTLVV $S Q V V S L A Y A N N V F M A T N F Q E V H V Q E V S T F S G C D L S V L E Y G$ SQVVSLAYANNVFMATNFQEVHVQEVSTFSGCDLS


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

 KQRHAVSLYQDYVYWSDWNTGDIEGVHKTTCENRSLVHSG YPTSIAVDATYVYWTNYDSGTVMKVAK
$A \square G L T Y D K P A K L M Y$ VA D $\square$ NGGVY QVVMETG
$P V G \square T V S E N L G K V F W T Q K N D G R I F S T D A S S R R D \square E L \square A K G$
PRVIGVDATGLYWANAASGTVMRASPDGL VYALAAG RTLRTLTVLSGQIFWSD ERGIKRTPKANGDFDVVSIDS
 P I DIALDDEAGVIYWT DRGNKAQDPASGQAGGEVTVLASG
$\square D A F G D F \| I V E E R D R G N A K L L V L S K R S K E R \square H L N$
$\square S Q G A L E Y Y S G R L F W$

SKAYD 1 F $\square F$ GDHIYYSDSRTGTIRRANKYTGKDIVVINLK

PSA DDVNPVTNK DYVSNTESHNVTVIDGTN NETTTVAT WPISSLAVDRTHFYWIDDVKERRIHKM
PEGVAVDAATGN IVADWGNHRVWRAD
1 S QNALMYYSGRLFWINGYR
i S QNALLVYYSGRLIF WIN
$K E A D G L E R D G D N \square Y$ DAD S GA $\square Y K F S \square S T G T$

$\square S$ QNA $\square M Y Y S G R \square F W \square N G F R$
1 IT A QE $\square$ GQRTSVSVSE

| UniRef90＿W2T657 | $\text { FSHPKG } \square \text { Q } \square_{V}^{250} \text { HPEK WPR }$ |
| :---: | :---: |
| UniRef90－R7VGP3 |  |
| UniRef90－K7EGZ8 |  |
| UniRef90－W5K5L8 |  |
| UniRef90－W5K5B0 | S PP LiF G L Q VY D P Q |
| UniRef90－G7XFW6 | EGCFS GLA |
| UniRef90－F4WP07 | LP NVNRIT AF G T S LQP |
| UniRef90－K1QWL4 |  |
| UniRef90－K1PTP1 |  |
| UniRef90－G3HB26 | TA QLS DTH A V H E Y RQ |
| UniRef90－UP10003DF7F09 | L P SVRRIKALGK S L Q |
| UniRef90－R7UVT2 | VENLRDLKVFY |
| UniRef90－F7WBF0 | FHEP $\square \mathrm{GLKLDLQRKQ}$ |
| UniRef90＿UPI0003FD4170 |  |
| UniRef90－W4WRI2 | LS S L Y M V A I A D P |
| UniRef90－H0VMR0 | GFG NLVIFGSSTQP |
| UniRef90＿B8NT59 | D GF Y T GV TVV |
| UniRef90－F9G0B0 |  |
| UniRef90－R7VEI8 |  |
| UniRef90－E4XFX4 | $\square S K P \square G L T \ V A P Q$ |
| UniRef90－K1R4E6 | LQS LQSLE A Y G S L Q P |
| UniRef90－S3CHE8 |  |
| UniRef90＿A0A023EKD7 |  |
| UniRef90－UPI00046D5ACB | LI N R $\square$ D L H A L T E E T Q P |
| UniRef90－N6TD61 |  |
| UniRef90－A0A017T4V2 | Q $\square$ E P F G $\square$ A $\square^{\text {V }}$ |
| UniRef90－S7VPC9 |  |
| UniRef90－W5NKM5 |  |
| UniRef90－H2YXX3 |  |
| UniRef90－A0A017TH60 | ERS P F GVAVD A S H |
| UniRef90－F6X6P0 | LD WPHAI TVD H |
| UniRef90＿T1DK19 | D HPSALIL |
| UniRef90－N4UNV2 | LG D T T G】AL |
| UniRef90－E0VL66 |  |
| UniRef90－W5PGD2 |  |
| UniRef90－H0WR60 |  |
| UniRef90－Q0C7S2 |  |
| UniRef90－UPI0003787097 |  |
| UniRef90－H9JPT0 |  |
| UniRef90－UPI00038C24CB | P A K F NQFTI I Q T S K P |
| UniRef90－UPI0003F12021 | GFG NLVIFSTYTQP |
| UniRef90－W6Q4J6 | D DRAFGI ALLV |
| UniRef90－B1VLG4 | LDS PYGL |
| UniRef90＿G7Y113 | L H E G $\square \mathrm{G} \\|$ A L |
| UniRef90＿UPI00046C3856 |  |
| UniRef90－UP10003C17E66 | GF D N $\square$ Q Y Y S N S $\square$ QP |
| UniRef90＿EOW2Z8 |  |
| UniRef90＿V4CNU0 | N H Y $\square$ S S FAVS H P H R Y P G G |
| UniRef90－B6HNM4 | EHRAF G $\mathrm{C}^{\text {T }}$ |
| UniRef90－UPI000440A106 | NNTLTA FTLLQPTLKP |
| UniRef90－E9HVM5 | LEDVHHLFTSHSILEPE |
| UniRef90－W4XW16 | DVQALTIVQETLKP |
| UniRef90－G3T4E5 | APRSKHI LAYSPVMQP |
| UniRef90－A9GLM1 | QDHPLG】TV |
| UniRef90－F8CNU2 |  |
| UniRef90－W4ZEF7 |  |
| UniRef90－S4XRB5 | Q D HPLG $\square$ A V |
| UniRef90－B4GZE2 | MTS L |
| UniRef90－A9G769 |  |
| UniRef90－K7JLJ5 |  |
| UniRef90－K8W343 |  |
| UniRef90－S0ELS9 | $\square \mathrm{P}$ E P $\square \mathrm{D}$－ |
| UniRef90－W4YWR2 |  |
| UniRef90＿A0A017TEE0 | LQSPYGLALDD T H |
| UniRef90－U6PVU6 | LPVA S QL F L Y |
| UniRef90－T1L5H0 | PNDPTRIKI ID PRVQ |
| UniRef90－V8A5G6 | QS RTTGV |
| UniRef90－B1M134 | F A E A $\square$ GLA V |
| UniRef90－11EY80 |  |
| UniRef90－UPI000265868A | T S L P $\square$ G G R $\square$ VH S $\square$ K Q P K G |
| UniRef90－A0A016WCM8 |  |
| UniRef90－UPI00038326BD | LS QP A DFTLVHTSLKP |
| UniRef90－V8NU74 | QP F PQS $\quad$ LVVHPLKQ |
| UniRef90－UPI0003889F49 |  |
| UniRef90－UPI0003AEEAC2 |  |
| UniRef90－W9BL20 | F S E A $\square$ GVA L |
| UniRef90－11FM55 |  |
| UniRef90－E5YT94 | G Y G P G A $\square$ A V |
| UniRef90－E9HPR8 |  |
| UniRef90－L8H5E3 |  |
| UniRef90－L5JRB8 |  |
| UniRef90 L9JDY9 |  |
| UniRef90－B4MSJ0 |  |
| UniRef90－G8YML3 |  |
| UniRef90－T1L4Y1 | LD K L I S L V V V P T V Q P |
| UniRef90－I1F012 |  |
| UniRef90－G3HUD2 | S A K F N F T $\square$ I Q T S $\square$ K P |

lupas 21
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jhmm
jpssm


UniRef90_G7QZ08 UniRef90 X8F1Z7 UniRef90 I1EJX1 UniRef90-H5TL50 UniRef90-UPI000349866A UniRef90_R8DAF1 UniRef90-11EY82 UniRef90_C3YMJ9 UniRef90-M7YVJ6 UniRef90 I1FAP5 UniRef90-K6V054 UniRef90-K7JN50 UniRef90 C3ZU68 UniRef90-W8R0D7 UniRef90_-Q8TLB5 UniRef90_C3YT02 UniRef90 Q1YFV4 UniRef90_Q1YFV4
UniRef90_UPIO003F0BBEF UniRef90 C3DWG3 UniRef90 FOP2F5 UniRef90-W4XGC6 UniRef90-ХОТЗЕ8 UniRef90 UPI000381770A UniRef90 ${ }^{-}$W4YVX5 UniRef90-C5CPS5 UniRef90-S9PMT1 UniRef90 Q9HIL7 UniRef90-XOWFK3 UniRef90-W4ZHS0 UniRef90-P13368

70
P S G|V|A|V|D SA G TGQVYIADWGNHRDQVLNPDLTFSHSQFNHPYNLAIDSQG NGFI YWTDLDEGETASTRTDIEVLWDGLPEPDDLHLDPDT NQKAYVTDRSGRKLHGVDLA GHGTDDGGGEVNDVALAPSG NTTVYVGNHGNNTVSVINAATNTVVGTVNVPQGITVSPNG

 SGQIFI ADSNNHRIQVLNPDLTFASGQFQHPRDI AIDSQG THTLYVTDRSDNTUDGATHTVTTTVPVGENPFAVAVDPGT AYD WAA
$A / T D S Q G$ T G QVY $\square$ A DRSNHR $\square$ QVLNPDLTFSHSQFQ $\square P H D \square A D D S Q G$ TNTLLVTDSEKNVVYFDDTVHKKDKATVKFPSSMALSSSG GTKVYVTDRDSTNISTI NTATNTLMEPINDTRNVAFTPDG GRMV VVDSEQKFCLLLQPDGRLIRDQLQYPRFLAVDESR GRRAYVSDKA $\square S$ SVDTASGET $\square G E \square A T G G G P L G I A V H P S G$ TNVIYY VLNQDNN


 MKKLYWNDVVANRIYRANNREVVTFASNEASAGVAIIAKNT GRKR Y V RENLFVVDSAKGRVRVATGDKQVVAKLPTGDDNLVVGP D NS YLYVTNAYSNFVYVLDKNYSVIAKVYWGPSGI AYDPYN



[^1]

[^2]UniRef90_G7QZ08 UniRef90_X8F1Z7 UniRef90-I1EJX1 UniRef90-H5TL50 UniRef90-UPIOO0349866A UniRef90_R8DAF1 UniRef90-I1EY82 UniRef90-C3YMJ9 UniRef90-M7YVJ6 UniRef90_I1FAP5 UniRef90-K6V054 UniRef90-K7JN50 UniRef90-C3ZU68 UniRef90-W8R0D7 UniRef90-Q8TLB5 UniRef90_C3YT02 UniRef90- Q1YFV4 UniRef90_Q1YFV4
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$130 \quad 140$
G A GTVVVTDFNNRVVTLAAGSN
N Q $\quad 150$160 SAGNVYVTEHDNNAVAKLAAGATTS TELPFTGGNTPCG TAATGLVYVSEEGNDRISVFTSDGVFVSKFGSEGFKGPFG TDAALVYVSDGGGSDRTVEDDGDHTVREIV
PTGGRAYVGDFDHGELVEF DDNGTQAERRRSWKVPQA LDGTRAYVTNQNSNTVSVINTATNSVIDTD NVGTEPVG SQGLVYI TDY SNHRI QKFSPDGKLVVQFGTKGSGHPFG PAGNI IVVNVGNGMRLQVFGSDGAYLRTVATVRGGVPCG AAAGRAYTANVTGDDVSVIDVAAGREIGRIPTGRRPYVIA TVATGLVYDGEYGNNDISVFTNEGVFINI GGRGFNYPYG PSTHTVYVTNRNDDTVSVIDGATHTVTATVRVGDAESGVA PNKGYFFFVDKASRARIYRAHLDGTNIVEFRNTSKKYITN TAATGLVYVSEGGNHHI SVFTSDG GNGTLWVVGRGETAHHVVQYSTDGTAMARFDLGDGDYFHG GHSIWVGGGTDNKSI FAYDPKTGKKQREVKLGVMPVA PNGNKVYVTNSGSNTVSVIDTADDNVTATVHVGDSMSD PAGNIIVVNSSRGRLQVFEPDGTYLRTVAWVRGRFPRG
 P I SNTTYVANRQENTV S SVINGKTNTUIGNDPTGSPVA KNDKIAVADYNGNAVKLMNA

DGTDDQT
GSGFYNPYS

 EEKGYLYWTMSGKVARKLLS GSGDTEII YKSMQFGFS APRSRLYALNVQSNDVSVVDMRDGRRPAVIATVKVGKPYG

 T QQDQLFWLVKGS

[^3]
 WR WT LSFD KDGVLYVCDFSNNRD



[^4]UniRef90_G7QZ08


GHSVRVALDGGNAYVCDPSSGRDREVVVAHGEERRVVAEG LSSPDQVTIDGTRAYVTNQASNTVSVINTATNTVIDTVPVG NKPTGLAFDKDGLYVCDYSNNRVVV
DHPEG $\square E A D E T R V Y$ VANWGDNT $\square S V L D A Q T \square K V V R T \square P T G$
PNSVAVDSDTHTVYVTNRNDNTVSMDDGSTYGQDADV SAARTLA $\square$ DRHYVYYLLAHSKSVRRLEKRS
TRPGYVTVDGEN LVVSDWDTHCVYVYD
Q NPNYI TADSSSUYVSNLDDNSVSVIDKHT
F MLK NR PMG $\square$ A ITPDGKKAYVANAESGNVSVIDTATNKVTATVNAG

SHPYAVAESRGKVFVTDQYGSTVTVFDAVTGTRLEQLETG DGPCCLD DDEKTLYVADHDNHCVQVFD

PRKTA\ENDGK ILVCNTGNSE\|IRMN EDGSNDEKDGHG PKLQDISYFNGSLYWTEGSHKGI AVMTNYDQSSRSIETNQ NPPQAVAVDNTNVYVADYNNHRIQKFDSNGG
$G N T T D V A V D N G E V F A T R F T S A D V V R V H$ TDGSVEQVLDQ PNLQSLSYFNEVLVWIARYNNT A YPEGUAAHGDRVYVVNWMDDNVQVLDAASGQKDKT\ATG $G V Q G A L E D P D G T L L V A E A A T G R L V K V D A A E P A G T T V L A E G$



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7
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UniRef90_G7QZ08
UniRef90 X8F1Z7
UniRef90 I1EJX1
UniRef90-H5TL50
UniRef90_UPI000349866A LGGAVCGVGLD H
UniRef90-R8DAF1 V A P T Gl\A
UniRef90-I1EY82
UniRef90_C3YMJ9
UniRef90-M7YVJ6
UniRef90 I1FAP5
UniRef90-K6V054
UniRef90-K7JN50
UniRef90-I1EJ53
UniRef90_C3ZU68
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UniRef90-Q8TLB5
UniRef90- С3YT02
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UniRef90 F0P2F5
UniRef90-W4XGC6
UniRef90- X0T3E8
UniRef90-UPI000381770A
UniRef90-W4YVX5
UniRef90-C5CPS5
UniRef90-S9PMT1
UniRef90 Q9HIL7
UniRef90-XOWFK3
UniRef90-W4ZHS0
UniRef90- P13368
\(\square\) T A P WG \(\square\) A V \({ }^{250}\)
LGAVCGVGLD H VA PTGIA A
```


[^0]:     LAI DYEDGKLYWT DAVREKI ERSNLNGTQREVITTAT
    
    

[^1]:    lupas 21
    lupas_14
    lupas_28
    jnet
    $\qquad$
    sol25
    sol5
    sol0
    jhmm
    jpssm

[^2]:    lupas_21
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    lupas_28
    jnet
    cont
    sol25
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    jhmm
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[^3]:    lupas_21
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[^4]:    lupas_21
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    jpssm

