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VEKELWEKCVA
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保 FAEAAAFHHVCPGLATGYRAAVALARLRSGRSE MKKEITEEAAEFHGHVCPGLAIGYRAAEVGLDELLSGRSE MKDSLWDKAVEFHGHECPGLAI GVRVSDAAKEMLRIGSSE MNKGLWKKCVEFHGHSCPGALAGYKVSEAAKKKMGLDYSK I WKKVI FHGHFCPGABGYAVAKYKNHFLKGGN MDEE LKKVIEFHGHFCPGLAAGYRVAKYVKNHFNKKSE MDKKLWEECVSFHGHECPGLALGFRASEAAIVKDNDTFSK EDFKKCADFHGHDCPGLADGYRFSKKAMDWLRENRAD EKTPWERVAEFHGHECPGLAI GFKACEAA RKMGRRFSA VK DAPFSEVSKFHGHVCPGLTI GYMAAKAGIEEDCVDRDD DFDTAVQFHGHVCPGISI GYRVATLAANHFK DRSK FKEVTEFHGHVCPGSAI GYKAAEAGLNELESSASS LWEKCVAFHGHECPGLAIGGFAAEAAHTWLGMGFSQ FEDCIRFHGHSCPGLASGYRAATAAMEALGVSRPE FEDAVRFHGHVCPGLTGYDAAKAADEKLDAERDV MDMTEWERCVA

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all NSALWDECVSFHGHSCPGLALGYRAAEAAVLKLKLTFSEE EQERWQQCVRFHGHACPGLADGFRQALIAMEALKVKRDG MNK QLWDKAVAFHGHECPGLAI GFKACQAVYEKMAVGTSE

FEEAVAFHGHRCPGLALGYRAAVLGMAALGPRRSE VKPTEWEKAVEFHGHQCPGLAAGYKAAVTAREKMGVRFSV MDQTKWEKAKAFHGHACPGLADGERVCDAVLEKMGVRESS MNREDFKRCAAFHGHVCPGLSTGYRAARAAMAWLAERRSE FDEAAKFHGHVCPGLTGYПAAKAALEKLHTERDII KDDWERCVEFHGHACPGLAI GYRVAQVALAELAALRAA TNMKDFNEAVAF IEKTPWEQVIDF MNQELWEKAVAF a DLRRAVD EKTPWEKCVE $\square N G D M \square S N I E$

YNKVVE MELKKVVEFHGHLCPGGLAGYRVAKYVQKFFGKK
MNE MDROWEDCAQFHGHKCPGLALGYRAAVLAMEKLGLEGSQ MDRQLWDKCVAFHGHACGGLTI GFQAARYAMELLELDFSA MNQKLWEKSVAFHGHHCPGLAAGVRASQEADKALSUSGSE DFSDFQSVVRFHGHTCPGLIIGYRMAKRAMEELGVKRSG KQKLFQKCIEFHGHLCPGGAFGFQAAMAGMDFISEARAL MKEGLWERCTNFHGHSCPGLAI GYKAVEAADETMNTKFSE MNNKGWNECARFHGHKCPGAAVGFKACELAVEKLNVRFSN

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120 YTFGNRKTGEAVRVSVKPDVMGRDPEHRKGEATDEECKEK
 YTFGSRDTGKAFRIAVNPGEDRAIRDRARQGRATEEEKER YTFGSRSSGLALRVAVNSELLHALRTKVFGDTATEAEQEA $F T V G N R N T G A A V R V A F T G G S W Q E D E E Y R Q G Q A T P A E K E R Y$
$F T F Y C R K S N K A V R V V F D P E E M N S D R P K V F S G H A T E E E K A R$

 QGEMDRQERQ
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 FSFFNRKNGKSIRVVLR FTF T CRRSGKAVRVVLKSDFNDEDLDPELSEDRPRVISGA
 FSFYNRTDGKKLRVCLKPGKNN RMMGQVPGMERPQWQAH

 FSFFNRTTGESMRIVLKPS FSFFNRENGDS IIRVVLKQFK G KKMDRGERQAY
GEMSREERERY
 FSFFNRKNGDALRVVLKPRSGDRQKD DDY
YT VVSK QNKAVRVAMRANVFEKLDRSAVFSGQATEEERKE YTFILDRDSSDAVRIVLKDDKIDPKAMKARANVTPEEKAAF YQFHFTGTHELHQI RIA QEVLEHDAAFNDEGLSPREKQNK YTFACRESGRAVRI AVVKGAWQEMKEVRKRGGTASEEEKE FTFFRRDTNEGI RIVLKAFNHSNDRKKWQ
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 YTFI LRRDSDAVRI SQKPEFAPQLMKKFFSGETSEEETAR

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 FTFYSRDKNKALR YYFRGGI DKGMDEDRQKEDGPEDREAF






 YTF $\square \mathrm{NRSSGKTMRFYFK} \quad$ AKGEGQGREQFQ





E E GVVPREER LT LA NRKDNKAVRVIMKPDAMAEDKAFSELRQSASEEELAA FTLHDRQS GRAVRALFVGDKLR K S L L LPDGSMDRQ

 YTFYSRNTGKA I RI Y FKKYMFEEFKKYNSGEVLSKEEELENK

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F $\square F M N R K T G E A V R I$ SVDPAFYDLRGKVLFGEPTPEELQRR
 FTFYHRGDGNAI RIYFRDD LLQEI FRDGRGEEARS K



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F V K A T



 R K E $\square$ S E K

 ILL S P DD ELLF NF S E P T F D L P P K


 F H A L M H KLL HAPAEKV LKI EKI TMDAP K F S ERMQTMRNTPVEKMFDI RFVDAK DPQ A T E E E K E $\quad$ V $L$ L $N$ N M P L L RS QATEKVLSARDEDI LTVVEEVDIPAPE

 QQA RMNRVSLPEEQRLDITADPMDFP

A TPAD QVL F E
L N A QAEEDF QMMKPSYELPE
EYILNAPVDELFDFKDVNVQAPEL
HIE K S NVLL DLP EA DLLS IE
HLKRTRDLLEAPTEALFNL
ATEEEAKMRHTPVEEMLDI RFVDAE $\square P$


$L$ K I I L

RWQ TI QKKLNSPPESLFNLYEVPM
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M Q QI L T AP VE ELLFVCK P T TLK L P E LF DVVK P A V L S L P E

LQ Y I L N A P LD E IF EYK QPK D K LP
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HRAKA M Q L E Q A P E Q L F T I T G TTVA MP P A T E All L S A P DEVVILSVRNV
F L P E R A R L F


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|  | $909100{ }^{90} 110{ }^{120}$ |
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|  | YNRKTGKSVRLVLRPDFASKEESFAYLQKREPEDLFD |
|  | FSLLSRKTGKGVRVSMKPGAFKDLVKKRLAD |
|  |  |
| UniRef90-F1T976 | SFIDDRSSGKSVRLVLK |
| UniRef90 E1YG30 Y |  |
| Uniref90-UP10003738CD2 2 S |  |
|  |  |
| UniRef90-UPI00047C0C70 Y HFYNRTNGKSIRL |  |
| D6 |  |
| UniRef90-14D865 YMFEYTGTTVRVFITINPEILDHLVIPKDLS SRREVQNA |  |
| UniRef90 R6N | YNRKNGKSVRLVLKPEGMSRADSFEY |
| UniRef90-B9M9L8 $\quad$ Y T L Y SRTSGNGVRVVGV |  |
| UniRef90-A6UVC0 YVFYSREHKKGIRVSFKDETTNEMNNMWDKKVSDKERDKL |  |
| UniRef90 S7T3G4 | FTFFDRAAGKGFRLLLRPEAMGRLMGRIDQ ${ }^{\text {a }}$ (LATPEEKAR |
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| UniRef90-TOIV16 |  |
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| Ref90 ${ }^{\text {B8G }}$ |  |
| Ref90-C8 |  |
| UniRef90-027399 Y |  |
|  |  |
| ef90 B 1313 C |  |
| ef90 M1E673 |  |
| 90-G7 |  |
| UniRet90_-F8 | YSRDHQKGURISFMKEKLKDISDEDEKKKLSDELKNK |
| UniRef90-UP100047864D6 FSFYRRSDGKSFRLVAKPFRMDGDDGSRQDMLRRK |  |
| UniRef9-E6VRX1 F |  |
| UniRef90-Q18CR4 |  |
| UniRef90- F3Z1L0 | RRSDGKALRALLRPDAREDMKRI |
|  |  |
| UniRef90 UPI00029A7D21 LTMVKRSTWEGVRVYADAEKLAKYYPPGARELLFNKEERAK |  |
|  |  |
| UniRef90-Q2LY05 F |  |
| UniRef90-X8ISE2 |  |
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| UniRe90-UPI0003791FE1 FS F YR S S G K S R L |  |
| UniRef90-E8R8Y7 $\quad \square T$ LVKRGपWKGVRIYVDHERFSRKY $\square$ PREAELF |  |
|  |  |
|  |  |
| UniRef90-D7CK49 |  |
| UniRef90-R9T784 Y T F R R D |  |
| UniRef90-UPIOOO3B397E1 |  |
| UniRef90-I3RDW3 |  |
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| UniRef90-A0LPL8 |  |
|  |  |
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|  |  |
| UniRef90V4JB56 FSFFHRPSGTG RLLLNPELHKGRGAELAELMSRKQNGEL |  |
| UniRef90-E6W3M9 FRFYRADTNQALRALYQPPA EFAAMKKPAPHEQEKREA |  |
| UniRef90-C6BV06 |  |
| UniRef90-D1Y3D9 |  |
| UniRef90-V4EPM1 FTILSRSNRRAYRFSRKS |  |
| Unief90-KONC74 FT F Y R T QKGFRAVFQDDF |  |
| UniRef90-E5Y9F9UniRef90-O29816 |  |
|  |  |
| UniRef90-R5C215UniRef90- $99 G N 56$$\quad$ FNFYWRDGRRAVRLLLKEMSMGREEKDEYLKKTPPEE |  |
| $\begin{array}{ll}\text { UniRef90-J9GN56 } \\ \text { UniRef90-D3L5M1 } & \text { F S F Y N R } \\ \text { FRF }\end{array}$ | DGKAVRI |
|  |  |
| UniRef9 ${ }^{-}$A1RR19 |  |
| UniRef90-SOG319 FTFFDRDNEKGFRALFQDDADQAFEPANGDSLEEERDAR |  |
| UniRef90-C0QG90 |  |
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| UniRet90-F81269 |  |
| UniRef90-LOR9U1 |  |
|  |  |
| Ref90_R7B501 | FTFFVRDENKA\|V|R|LF|LKSEAGE GMSRDEYQNY |


| UniRef90_UPI00047A3C9A |  |
| :---: | :---: |
| UniRef90-G2FWC0 | Y LEADQLI L G SEETLDFCTI Q K V |
| UniRef90-F7KK64 | F DVKE TKIT L P EPAFASYE |
| UniRef90-Q311H4 | LS AL R K QFYTLP LEEMFSVSGWDMAPRP |
| UniRef90_R5SXG7 | E S L A Y LQE REPE ELLF DVKK P |
| UniRef90-D6SNK8 | LGEEARRRIMES P L E EVFE I K |
| UniRef90-UPI0004667EF5 | RFDRCHSVLNAPI E EFFIVEE |
| UniRef90-A7IA04 | A T A L I K K I L T $\square$ P I GE LTF I E K |
| UniRef90_N9XTB4 | VK E AV |
| UniRef90_B8FBR0 | FWERSNLI L E Q D PVNDF D L N P A S $\square$ E M P |
| UniRef90-D5ECC2 | F A A L R Q EldM T M PVEEL F EI GTV |
| UniRef90-F1T976 |  |
| UniRef90-E1YG30 | Y LK AVD LFSKPFSEVVFHTEEIKFSMPP |
| UniRef90_J1YP88 | VTIDPVNKV |
| UniRef90-UPI0003738CD2 |  |
| UniRef90_Q0W4M6 |  |
| UniRef90-UPI00047C0C70 | LFEVSETNIHLPE |
| UniRef90_D6Z3Z5 | $A R Q N R Q R L M A A D L D E L F T V S E S P A T M P$ |
| UniRef90-14D865 | TLLEADQFLLSSEESMFCSIQK |
| UniRef90-R6NHJ9 | LF DVK E TV I E LP EPADFK S E Q |
| UniRef90_B9M9L8 | E F I L G A P A D QL LT M E EVTMTEPE |
| UniRef90_B5YG02 |  |
| UniRef90-A6UVC0 | M D ELA E KI L N L F D GELLLNI E EVVD $\square$ P E P E |
| UniRef90_S7T3G4 | A A ELRERLMSLDLGEMFSLSVVD |
| UniRef90_D6Z0M8 |  |
| UniRef90-T0IV16 | WQERIACLLAT P P E E I F |
| UniRef90-R6RSF0 |  |
| UniRef90-A1S040 | TREDAEELDKLLFEELGLRMLELPESFFK |
| UniRef90-UPI00037784A1 |  |
| UniRef90-M1NI78 | AEQRI K R F M S L S L E D MF S I E K L |
| UniRef90-10A2W1 | LWNEI GF A L R DA PEEDF K I E EVK |
| UniRef90 E7NQF7 | F DVMA AKIELP E |
| UniRef90-B8GIT8 |  |
| UniRef90-C8X4T7 | ES HLR Q KL M TLS L N DLFEFQSPPSPMPR |
| UniRef90_O27399 | ELT EKI L L M P P H DLFEVRRDVSEKPPE |
| UniRef90_H3ZLR0 | TAEERKQLKGLWEKAAKNMLHI P K K E F K |
| UniRef90_B1I3Q7 | FVRKREEI MEMPET DLLFQVRRVTVEP |
| UniRef90_M1E673 |  |
| UniRef90_G7V6T1 | AKEKSNQILKADLAELVKI QEI P Y E |
| UniRef90_F8AJQ1 |  |
| UniRef90-UPI00047864D6 |  |
| UniRef90-X1SGU2 | EK\QKLLDLEP E E L F D IR E IE F D P P |
| UniRef90-E6VRX1 | LA E L R E RFMVLP LEEMFHIT P L T LS A P R |
| UniRef90_Q18CR4 | I FEITD TKL R L P E |
| UniRef90-F3Z1L0 |  |
| UniRef90-F7V8X4 | L F D L TEVRLA LPE |
| UniRef90_UPI00029A7D21 | L R EL We Eil L L L P R E EF K VERVKV |
| UniRef90_B6YT55 | L WES $\mathrm{H}^{\text {A K M L Y L P K E E F K I E R V K V }}$ |
| UniRef90_Q2LY05 |  |
| UniRef90_X8ISE2 | A V P D R A K I F E |
| UniRef90-L0HF33 | LQALA T A P D E E L L I Q R V S VE |
| UniRef90_F6D850 | $\square \mathrm{MEEEI}$ K KLSEMPD D ELL L I E E L D E K L P E I |
| UniRef90-I3ZUQ7 | LWELLWE EVL H L P R D F K K K RV |
| UniRef90_G9PWV1 | FMAPSREI FAVETAEL |
| UniRef90_Q2FMG4 | F R A $\square$ A Q NLAVVPESSELFT |
| UniRef90_Q9UZY9 | TSEEREKL REL WEELGRKFLYYLPRKVFE |
| UniRef90_UPI0003791FE1 | F DVKETR1TLLP E |
| UniRef90_E8R8Y7 | T PEEVEELRRRWEEVGLS VR N L P E E E F TV |
| UniRef90-D2Z7T7 | LLA P L E ELFELDPREEL |
| UniRef90-D7CK49 |  |
| UniRef90-T4VL79 |  |
| UniRef90_R9T784 | Q HIL L S P A E D F EMS EPRSEMPE |
| UniRef90_UPI0003B397E1 | RS QRI H Q I M N A D LD A LF V S K E $\square$ D |
| UniRef90_B8D6N1 | LWS EI GKMANDPEEEF |
| UniRef90_I3RDW3 | TYEERKELDWKLWEEEDVFEDKR\KVV |
| UniRef90-A0LPL8 | Y LAALAA MPEEEVLLKI GRV |
| UniRef90_V2PX03 |  |
| UniRef90-G2FN05 | A T A El E ELVEAPPEEHFDWREI T FELP K |
| UniRef90-M1P8G8 |  |
| UniRef90-C4XSB8 | ARQCA ARVLASDPESLG |
| UniRef90_V4JB56 | TRTEEERI AVLRVEL |
| UniRef90_E6W3M9 | LCR A $\ddagger$ M E T P L E ALLFRVEEDP T P A P R |
| UniRef90 C6BV06 |  |
| UniRef90_D1Y3D9 | LLT ES D EVLKKPEEA |
| UniRef90_UPI0003AA07FB | DV DQVEKILNLAEENFLEDGE |
| UniRef90-V4EPM1 | K RLLKI N DLL T R S FEE I FT T T Q MPF |
| UniRef90-K0NC74 | I K R L L E A D L K DL F LTT E DVVDV |
| UniRef90-E5Y9F9 | D TERLQAQIKEAGESILSFRKV |
| UniRef90-O29816 | SEEDAKRLSEFWE E T G WK MLEILP |
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| UniRef90-J9GN56 |  |
| UniRef90- D3L5M1 |  |
| UniRef90-M4YJF9 | ELI L N GP LE QVFDVKEPKFDLPE |
| UniRef90-TOINH0 | VEARILQEILTAPDEMLLKVEPVTVVLPE |
| UniRef90_A1RR19 | LMEASAEVLEAPDA I F K I E EVVP |
| UniRef90_S0G319 | TRA I M E A D LA DLFSVA PV |
| UniRef90-C0QG90 | D A I EMIMAA DL D ELLFRVQEIPVKKPARI |
| UniRef90_F81269 | V VEP P I E DVLTT T P W D QV F S V Q K V P EVFFD A V |
| UniRef90_E3PUF1 | L L NHDSKELFDYTEVRHQIPE |
| UniRef90_L0R9U1 |  |
| UniRef90-F8ABF6 |  |
| UniRef90-R7B501 | NT P Y T E L F E\|V |



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UniRef90_A71AW2 UniRef90-Q12WU4 UniRef90_C1F851 UniRef90-G2FN58
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UniRef90_SOFZ86 UniRef90 E8UXF2 UniRef90_15AZW5 UniRef90-Q9HJ63 UniRef90-C6BWW7 UniRef90-D6STP5 UniRef90_A1AP10 UniRef90_Q97AY5
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UniRef90- A9WAQ4 UniRef90-A9WAQ4 UniRef90_UPI00037700C0 UniRef90-R9SHY1 UniRet90_RySHY
UniRef90 UPIO002 2
 DESILAIVETNSCFADGVQVTTGCTFGNNSLIFDDTGKTA PHNLIVFME DDRCGTDAVQAITGCSDGHRSLKHKDFGKFA DEELVVVVENKSCSVDAI QVINGCTFGKGNLVFKDLGKHV RKRLVTYVE $\square \mathrm{DRCATDAI}$ GVVTGCRDGKRALKFRDWGKMA



 G E E R L V



D

GHD L A
GEVVAVVENRTCAADAVQVMSGCT



 S H D L I V Y V V
 NKDFIVVFVEADRCIADAVGAVTGCTDGKRRGKWFDYGKMA REDVVAIVEANNCFADGVQVFTRCTFGNNSLVYLDTGKTA

 RKNLIVFLEIDDRCMADAVQAVTKCSMGKRSLKQMYYGKFA
 ME E L L A F V E T N N C F S D GVVQY DS GCT F GNN A LI F Q D Y GK NA VKELVVILETGGCFGDGVQFATGCTAGKGNLIKKPRGKLA



 $D K R L V T F V E D D R C A T D A I G T V T G C R L G K R V L K F R D W G K M A$ D
D
D

## GERワY A

$G R Q L H A F V E T G M C F G D G V Q F T$


RKRLVTFVVIDDRCATDAI GVVTGCRLGKRALKFRDWGKMA

A V V
 DKRVMV


 MEKLLAAIVVTNNCFAD GI Q FVVTGCTLGNNSSIVYRDLGRTA D HQ MHV F SEPQQGCMQD GIMSAT GATFGKGMI DRMNYGKVA D M
D
R
D

 DRDLVIFLE T DRCVA DAAYVV

 D K R R L V I A A E T D G C F T S G L
 $D E D V V T V A E T D M C G V D A L Q V L L S C T A G K G N V L I R N R G K V A$







 $D R D L$ AI C | G | D | $R$ | $L$ | F | $V$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
|  | $T$ | $C$ | $E$ |  |  |
| $D$ | $E$ | $N$ |  |  |  |
| L | M A | $V$ | $V$ | $E$ |  |

 NKRLYT F VVE

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| :--- |
| UniRef90 |
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UniRet90
-UniRef90-R7CFY8
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UniRef90 Q97AY5 UniRef90-A7NL86 UniRef90 M1QA18 UniRef90-C5Y2R6 UniRef90-UPIO003B44002 UniRef90-G7WNG1 UniRef90-G7WKY8 UniRef90-A9WAQ4 UniRef90-UP100037700C0 UniRef90_R9SHY1 UniRef90_UP10002F2DC9A

100
110
120
Vt VARRDDGRAVIRLLVRPDYREKMFAQRQGSAEERHRFEH LTLVKRGNWEGVRVYVDAEKLKDYYPPGADELFEKVIKRR
 ATFVDLSTGRALRIAAL ESSKQLLARERYP FTLIDTKLQKAVRVQLKAEFFSPFVLQRKQGVLPQDUIGAN FTFFDRKSGKSLRLVLKPEGMTRQESFAYQSCAPKDM FTFHRRRDGVAVRLLARPDLVDPEFAAVREDLNTDELPAL VNFTDDKNRKTIRVSTRDDKVSSFTGFWSDKYTDPTTQRE LLTVRRGTWRGVRVY TDAEKLDKVVRRREGSKEDKEKDHR ATFVDLEAGRAVRVAARESSKELARQLH ATFVDTHTGKALRFNPSPDARMRAAAFASEAVTRWRAQ ATFVNLASGAAVRVTALEEARELSKKYCA A DADCDK VTVAKRDGTGIRLYVKPEAEELFDKVIVNRAGTKEDKKR VTLDDTQTGRAVRVTPKAEAMEFFTEYRMKHCPASKVPAE VSLYNKYNGEGVRVSLNAEALDAWPEMKGWFFKLKTKKEQ FTFARMGERQALRVSLKAGVLDEFVTLMEKEGEREEFYRR FVLIDVVEEKAVRVAVRAEFIKPFMKKRQEGDPPEMDEPE ATFVNLESGRAVRATAREEARTLSESY VTVVDKATGKAVRVTPKAEAMDFFKEYREKGIPASKVPNE
 FSFYNRATGKSVRLVLRP RPEGMTREESFAY YVFQTKDNAEKLQUTVTPKDIEПI TESAVSLGKRERQAK LTVFRRGEKRGVRVYVQPEVGEDWRRVVAERRGSREDAER FSFFDRKTGRGFRALLR
ATF DDRTAGAGVRVAARESSRD DARERFPEMTDKNQQQ VTFYNMDTGEALRVS DADANKKDKSQETRE
YVFYSRNYKKALRISVKGDLFEYVNSLAEDFENYKKSLKE ATFMNLKTGKAVRVNVKNKDGDRVQTVAKMREEVENP




 ATFVDLESGKAVRIVSKESARSLAASKAPQ AMEDKNVDR
 VSLFDKRTGEGVRVHLDVDKMGPWEEVRKKDQDTPQLQAQ VTLIERASNRAVRVSYKPTLAKQDAAKRGQGMEPDADEAE ATHVNLASNEAVRLSPASDVKKPDAAKRGQGMEPDADEAER ATFIDLAPKRAVRIAARESSKDLARTGHAWFKAETENK VTVVKRGEWKGI RVYVDAELFDRVIVRREGDEKELEEFRQ LTMFEKFDGEGIRVYVDPPKLEPWPEDKSWFFKLKPKKEQ ATFVDVKKRQAVRLAPQVDGRQRVRDARAHGERRWDAYHA CTFVNMDTKEAYRIYRKNRCYPPDGG
ATFVDTRTGRAVRVWPQTDLRERVRAARPPE VT YEKFGGKG|RVYVDATKDNAWPELNYFKLKKKKEQDR AIFWYPGKKDAVRIFLKNEFQDKLAKYRKQGLEPTEIPEE LSLFDKHTGVGVRVHODSKLERFPEDKAWFLKLKPKREQ VTFVNREPTKNLRYYLKDNLFKKVDAERKGTKKEQEKMKE LSLYDKYTGEGVRVRLDVDKLDRLKEKPKSEQEPELLRAE ATFVNDDTRVAYRVVSTETSRNDAKEYAPEEEKRDVRRQ MSLGDLKSGRAVRVCVTTSDRPPHHAPKQEQUAFWEKYTQ ATFLNDETHKAFRIVSTEEARD VAVVVYAPEDFPEKSAQ YTFYKRGSEKALRISLKPDALPQFAKLRAGTASPEEEQAS ATFVDTKTNQAIRIAPSPTARSRAATFAPEARSRWE LSVRRNNFEGLRLYMDSDKVKGYFPKRGLELFDKVVKQR VSLFDKSTGKGVRVAVESDKLEPYPVIREWLFKLKPKKEQ

 LILYRPGGKKAlVVHVRNSFMDELSTYRKQGYEPSEIPAG LSLYDKYTGKGVRIMIDTEKLENWPEMKAWFLKLKPKKEQ

 FTLADRK GNGIRLRVKEEGFRNRRDPETEKLDFEKEKEEK VSLFDKHTGEGVRVSVDPAKDDAFPERRGGFLKEKPKK LTLYDKFEGTGVRVFLDPAKIKPWQEIWFYKLKPKAEQDT
 VTFAVRGRDTGVRVRVLPDFREKVAEAAPEPLMEKVIKDR ATFVDTQTGQAFRIAPRPNVRDLARQYAPNARSRW MSVYDKHTGEGVRVW■DGHK PKMKEKPKQEQDSEKपRRE

|  |  |
| :---: | :---: |
| UniRef90_F2NC28 | MWEAKRKLLKMLEVGYKVKV |
| UniRef90-A7IAW2 | TTVLSCIPEEE1 DK |
| niRe990-Q12 | LEELLD |
|  | NQQQMRAYRELPDADLFAEAWVSVTVEP |
| UniRef90-N9YM18 | QVTE |
| UniRef90-H6LBZ7 | LLNEPDKLFDFEKPHFTLPEKV |
| UniRef90-E1JRN7 | A R CAKR LESDPETFFT |
| UniRef90-K2RFD3 |  |
| UniRef90-EOSTT4 UniRe90-OLIUE2 | Q Q M |
| UniRef90-E6QMN5 | EAYQRD P E ELFRQREVT |
| UniRef90-K1YBD9 | YVRQLEAYKTMAEDELFRTEHVSVAIP |
| UniRef90-D9QVR4 | INQLWNERISKPDELFNLEEVNAELS |
| UniRef90 ${ }^{\text {S7VIZ1 }}$ | DSDRLREEMRLAGESILSVAEV |
| F6CH | QEPLMKYLLEGPVEE |
| UniRef90-D3S716 | ENQIIEKVLTSSDDELFNDSWIDIKPPK |
| UniRef90 F8A9H5 | IUAEAVNKVLTMPEEELFNDS |
| UniRef90-E6PYP2 | RELA DE E |
| UniRef90_10ANH5 | DPTNKVMNAPEEMLVNDSE |
| UniR | LMDPLETMFSA |
| UniRet90-UPIo00475BB54 | YQAYLGAYQTWPDAELLFDVQPVTLLTD |
| UniRef90-R5AUF9 | A Q |
| UniRef90-J7IS90 |  |
| UniRef90-QOAM UniRef90 S5VVI | DLVSFWSS A DEDL |
| UniRee90-S5ZJV | EAFEKLLNLSE DFFK】 |
| UniRef90-137 |  |
| UniRet90-A5UN23 | HRFRVTPPEELFNVEKV |
| UniRef90-C9RG64 | K\\|IDKVLKTP |
|  | M MPAKELINV |
| UniRef90-B5YHS | VMEVINLLLESPMEEVLLVGKVE |
|  | NTP |
|  |  |
| UniRef90-UPIO003682D | VAET $\square$ EFVLNTPEEEAF\IQRLP |
|  |  |
| UniRef90 R6HIC UniRef9-UPIO0040F4B2D |  |
| UniRef90_UPIO0040F4B2D UniRef90_UP100047A8347 |  |
| UniRef90-LOF | AETRKAGAAFCSDESI |
| UniRef90-B8DS22 | A G |
| UniRef90-S6AE29 | QMELVDLVWNAPESDVLS $\square$ GEV FQFER |
| UniRef90-UPIO003724B2E |  |
| UniRef90-UPIIOOO3675D01 | NQQQMLA YREDS DA DLFTEEWVRVT |
| UniRef90 UPIO003B35 | DUDLLESEMEAAGDSUCKVEPITVK |
| UniRee90-N01 | ELLLKQASDAGADFCSLAKVQMKPE |
| UniRef90-A0A016QMK5 | S |
| UniRef90-H2C162 | YVLSKDFEEL |
| UniRef90-W2VE13 UniRef90 FORN83 | DIAEFFADLKDED |
| UniRef90-D8FFG 6 | YMASEIKE |
|  |  |
| UniRef90-10ANH8 | D V L Sa |
| UniRef90 ${ }^{\text {M5ECY4 }}$ | LWQEIAEDTEVETEKFFKDEE |
| UniRef90-UPI0003A120D2 | MAESAMDMLSL |
| UniRef90-S7V597 | GYKR MPDDLLFEVQRVG |
| UniRef90-Q2LQ23 | E $\square$ REAGPDELR |
| $\begin{aligned} & \text { Uni } \\ & \text { Uni } \end{aligned}$ | QLAAYKR MPDDVLFSWQE |
| UniRee90-UPI00035CF1A9 | EKGRQAAFALPFDTYFKAASVKAVLPP |
| UniRef90-Q8PWI2 | SQR\\|LEMPEEELFRVSEVNपEPPE |
|  |  |
| UniRef90 C7LUC4 | DS DRLRQE $\square R$ L A GAS $\square \mathrm{CS} V \mathrm{KE}$ I |
| UniRet90_E3Ch |  |
|  | MPESVLFRV |
| UniRet90-E8UXF2 | NVQQMTAYRELSDAELFSVEWVEV |
| UniRef90 I5AZW5 | KIMNDSDLFTVSRVKVNVP |
| UniRet90-Q9HJ63 | ADDPVEWISSLLEDEEDFEYR |
| UniRet90 - D6STP5 | DFERL |
| UniRef90-A1, | DMKDRVLTLADEELLF WNRVR |
| UniRef90 O97AY5 | IDWMPSLSDEQMFEYKFIK |
| UniRef90 M10A18 |  |
| UniRef90-E5Y2R6 | QDEVRLLSESEEDG CKAEPVTMK |
| UniRef90_COQGJ3 3 | PL LREQUR】AGSDLFSSEPV |
| UniRei90-G7WNG1 | HEEATSDLIRA EEAVYTWGMVDLEV |
| UniRef90-G71 | AREAAFALIELPFEELFADETV |
| UniRer90- UPlooos | DILSTPKPKLIKRSKGKVT |
| Un | EMVKRFRETPPEELFNVEKV |
| U |  |

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EMWGTNTS ${ }^{40}$
40 ALLARSAALHSHLCCRQVLGARLGLRAARELDLDPRT ETLLKGSGEAHGHLCPGQVVGVKMAMEGCRLGGLDEPQ EEFKEKAREFHGYPAPGLLTGGYMVELAKSHMPEGTLF AAQAHGHLCAGQULGGRMALHGVTLLGDEDAD ELLKRAGEFHGDLCGGVVMGTKLACYGMETMGMTPGE KTAEDHGHFCPGSALGVMASLYGFSLLGDEDGI EEFKQKAGRFHGDVCRGMRIGTRMTMAGLREEGGLUGAD REHSAALHRHLCPRQVLGARMGILAGRLLGLEPQQ QEYLVMVKAFHGYTAPGVLVGGYMVAAAQQRLPEGVLY LLEMAGKFHGDDCGGIVMGTKLAIHGMEKMQMKPGE EDFLDEAKSFHGYPAPGIVGGMMVDLADENMPEGVLY LEKAVAYHGHLCSGQAIGVKMALYAWELLDGGVM QEFKNKAAEFHGYPAPGLLI GGYMVEMAKAALPPNILF EEFKQRAKDFHGYPAPGLLI GGYMVEAAKGRLPKGTLIF $\square N N E L W K K C A E H H G H E C P G L A Z G Y R A S L Y A A E L L G V E P S P$ QEDLDRAVAFHGHLCGGQMIGTRMARLALEYFHIEDAD
 TLLAEAGAFHGDVCAGIEIGTRMTMCGLRKVGDKGAD EEFLDVAAAFHGNPAPGLILGGYMVDAARAFLPEGTDF Q A LLKRCEAFHGHLLCLGQVVGVRMAQKGLELVAAEDIK ETLLKGSAMAHGHLCPGQVVGVRMADEGCRLI GLDNPR TLLREAEDAHGHLCAGQILGVRLAMLGCERLGIDDPK FMELATWFHNYPAPGLLLGGFMVEEAKRYIPDGVLY EKEFLKYV A AA EFKAAAFHSYAPGLLLGGYMVEMARRHLPEGTLF EDLLRQAEDAHGHLCAGQLLGVRMAMLGCKRLGLRTTD DREYLDLIGRFHSYPAPGLVVGGMVEMAKRHMPEGVLY
$\qquad$
E T
HGHFCPGSALGVMASVHGLINLGLDSSS位俭 DPELIERCDDFHTFAAPGLLIGVFMVDYALELL GPDG EETLERAVEFHGHDGPFVVLGVRMGLIAARELLDAPGE EKELLYSALNDHGHFCGGMPMGYLAGLASLKALGTTRSM AEEFHGCAAPGLLIGGYMVELAKGMLPEGTLF DKELWEKVTEFHGHKCPGIAMGFKMCEAVVLEMDVNTLE YLRRCVAFHTFPAAGLLIATFMVDLAMEKLGAKPG EREFLYSALNMHGHDCGGMPMGYVAGLAALKALGTSRER
 KEDIKKLIKFHGYLSSGALI GYQMLNI AKRELDLH D $K K Q V E K V V D F H T Y L S S G A L I G V Y M F N D A K K L L D F D T D N$
$E E L L L K A A Q L H G H I C P G L A L G V L G A T R V M Q C L Y N N Q E D$ MDKDYLIEMEEFHGGRSPGMLVGAVLLDAAMARMKQT EDFKRCIDFHTFAAPGLLVGVFMVDQALKELGVEREQ ALEKVVPFHGHLSTGAFIGGQMLKIASKLLDIK QEQI RQLSSFHTYAAPGLLGGAMVDYALELLGIR IEKVVPFHGFLTSGALIGDQMLNDARRELDVR S NPELFEKVVPFHGFLSSGALIGGHMLNDAKRGLDVKGE MEELGVGRLDFSGSV $\prod E K \prod 1 P F H G Y \square S S G A M T G \square Q M L T M A K R L D V K$
KYi RKUEKFTGFASPGSVI GTQMYMDAKKLLNFK E RTYLTRCAHFHSAPAPGLLI GAFMVDYALELLNATP I RKVFDFHGHTSTGAFI GLQMYRПAKRELNDE
KELLLKSAQLLGHICPGLALGVLGATTVMQKLYEQGED
KGYi MDCVRFHTFPAAGLLLGVFMVDLALEKLGAKPGD
 LLLGAGQDHGHFCGGVSSGVMASAYGLSELNAGVDG LKDLIKFHGHLCDGLVIAYIE IKEVLKLLFPDGIV
ELIEKGIAFHGHLGPFLVVGWKMGIIALKELNSSGYS D
REYLDLIKNFSGFASPGSVI GAHMLLIARKVL D DEEV NKKTLKKLANFHGHLGPYTVGYKMGLLANEKLGKNP NKKIKDANFHGHLGPYGVGGYKMGKYVREKLGKNPFK


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UniRef90_E3CXS5 UniRef90_J4ULP7 UniRef90_C7LSE1 UniRef90-E6VWY5 UniRef90_R5D5I9 UniRef90_Q649J6
UniRef90_G1WL19 UniRef90_V4JJU1 UniRef90-T2GDY9 UniRef90_Q2LX46 UniRef90_G7Q8L2 UniRef90_E4RKA7 UniRef90_Q3A875 UniRef90_F0NP74
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UniRef90 K0NL66 UniRef90_F4BYU0 UniRef90_A8ZST7 UniRef90_UPI00047E8289 UniRef90_UPI0003B48CF7 UniRef90_17LKM4 UniRef90_G7WNV4 UniRef90_D5XEM9 UniRef90 F2LUR7 UniRef90_UPI0003B55380 UniRef90-W1USZ5 UniRef90_Q0W421 UniRef90_D3PC50 UniRef90_F6D846 UniRef90_Q48940 UniRef90_F0T784 UniRef90_A6UT52 UniRef90_R5PLG1 UniRef90_S0FSW2 UniRef90_W0JD54 UniRef90-A3CUC9 UniRef90_Q2FRC8 UniRef90_U6EB50 UniRef90-H5SQU4 UniRef90_LOHCH5 UniRef90_Q8PWMC
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SEK\|V|C|LAENDSCSVDA\|QS\|LGCTणGSGT\|LT\|KNCGKQA

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 D DKRLIV VYT TR D K NLLK
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 D

 A V
 $R$ K RLLVTAFV GEKD AVVETGKCLPD AVQULTPDSTGNSWMKVVNLGRYA ME A A V K TVVP S L S CLL LD G I Q Q V S A G C T L G R G N SLNFIA GAANSTSAVDAI QYMTGCTIGKQSFFIEDTGTHV $D K E V V V Y V H A G G C F A D G V Q F A T G C T F G K G Q M S K D P R G K W S$
 $N M D K F V$ D


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## N <br> G <br> D

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EALVVVAETI

DEEIV YTCE

GERYTV DACPVWCKE DAFQVVLDCTPGKRGLIVKP LDSKQA
D K K A TA K T E T P S C I ID G DQ FA S G C T LGGK G NVVSIE QE K KP E


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UniRef90

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| UniRef90 |
| $2 G D X Y 9$ | UniRef90-T2GDY9

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UniRef90 E1QEU0

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F NFFDRESGK S VR\| Y F CADVV|E E $\square$ PR S S R A

A
 VTAF V


ATFVVNLRTGAAVRVTEREDGPDKDAAPA V L Y DKFTGK GFRVA DDQEK LK LDWPEDHDWFMKEKPKAEQ




 $V$ S L Y D K Y T G Q G F R V A I D Q D K L E A WP E I K F M K L T
 V TVAKRD GTAM RI A L N P DFE D R DK I VAKREEPTPE E HER ASYDI AS GKAI RI SQRQDV
 $V$ S L Y D K Y T G Q GWR V Y L D A E K L P H M H S WL F K T KP K R E Q D D A ATVVVNLETEKAVRVVAINRKK E E GDNPD F GTDLS
 $V T H V S R E G G N$ L R Y Y L K N DK FLLE K D Y TEAK ELLEEKVVAR R ATFVNLKTDVAWRLHSRGE GDQLPKD


\section*{A} | L |
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| L |
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| $L$ |

## V

## V <br> 

L




| $L$ | $S$ |
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AEFS
S A S $T$
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$S$ $E N A R H \square A E K Y A P E \square T$
$S S K Q R A R D L Y P ~ Q$ DK REQ


 $V$ S L Y D K Y T G E GY R V Y V D A A K L K A WP E A WF M K L R P K A E Q D Q A T F ID D L A Q K G $\square R 1$ A A L E S S K Q R A R E L Y P Q


Y F F L H P VN GRGGLI I K MK P QL L N YEMTKDVQ A QLDQDPA K




 VTVNK Q APE GANSIKGI RIILDDPEKTKDYPKLHAW V TV N K GA GK DEKFVKGI RI YFNAKKTEKYP ILHDWYKKVR ITVNMK QKEE GENTK GVRIILDPTKTDNYPRLHAWYMNLE FY L K N K A G K G WK V S F K P N NRE Y M S E HLDP A NL S S DE K GFA LSLY DKYTGA GWRVY L D S DK LDDHWP HMQSWLI K S TP K K D Q I TA Y D RTTTFNGDRAWLVA EA I P D WP A V H Q K GMP P E E L A E S

 LTMNRPSSDDGFRVKVDVGKLDGTPTDKASDFDGMTMKKK | $I$ | $T$ |
| :--- | :--- | AL V RSKD Q

 FTVVNRAS E ERGG R I FVVDQEKLLKT WP TLDDKKTMTAR LDFE VTVNK QAPS G $\square$ A S I K GVR $\square Y \mathrm{~L}$ D P E K T K N Y P K L H A WT K K L R ATFSSSNGRTVSFRVRGSIAEK DSK LSSHEELED

 ITMNRVSTEKGFRVYVDMEKDKQFPIIDDAWSNSPVFSKH ATF NRFGVVGDNIKGLRDILDANKMQDYPKDYNWYMNDE FS LK NRE GRGWEVHMK D S NRA WUAK QVPAS F SVVAEKGFA $\square A L N R F S E G S G V R V F I D A K K V A A Y P T L Y A G G A D G K A L L E E$
 $A R \square N P W A P$ A GDNIMKGVRILDDPVKTVNYPDLHAWYMKDS VTFLVVRDKQEAVRVSSRPEFSNLFQEVIVQSNRTPEKVAE $F I I Q R B D T G G T V Q V H D K P G V F P E E K S V D P E D \square D R L E K M A E$


V VY TEFSSSD GVKI RLK P LALLK QL P Q D TP D Y




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UniRef90-R5D519 UniRef90_Q649J6 UniRef90_G1WL19
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DFILSKSPGELFTFSA WDAYMAAYQTWPDDDLLTVTPV
RGRQMEAYKRMS DEELEDIEEVRVDVP DMVAFWGS $\square P D E E L \square K I E P I V V K L K K$ DTDLLFAK NQQQMRAYREDPAVELGDHQWV
ATEAAFAVIITYPFEKLFAFERV

 LLAT $\quad$ PD DEALFRLTPVAVPLRP DTERLFREDEEAGDTICSIRPV


I E ELI ER RDDGPGEELG DVQRVSVKDDK LLEQI E E
SLEAl
LVVAKKVLVD $\quad$ R P E D M

## DTEAKE 

$\square M Q L F A E M V E E P A D E M F \square T K R \square K M V V P E$
DSEK\YVQ】RHAGDTHCTVQPV LIF AEIEA

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\text { E E E L F S } \quad \text { T EVNVP } \square R P
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DRTR $\square$ FAE $\square \mathrm{KAGGRA} \mathrm{L}$ CRVAKV
ESMAWALAASDEELLSWRSVTVDF
 $V$
$N$ QQQMLA Y K R M S L L Q D D
$\square R D H S L E M$ V

$L$ REE $\square$ RTA
LFREDEEA GESVCS DQAV
NRQQMLAYREMTDADLFAEQWV
HDNVILD VNAGESEFLAVE VPYKPKK
DSDKLRQQMREAGESVLTMQAVK
RLAEEFLN E PEYFEVREIR LT $\square P$
$\square\llcorner R Q \| K$
A AQQLAAYKRMPDYVLFRVQEV
EGGAREKVIQLPFDELFAVE
$\square F D A G R D \emptyset L S V K P A E F A K R E K$
NQQQMLA YRELADADLFQEQWVRDP L
LIF AEI EA
GTAEIDDEDIDAGR D LLSYE WVRVKVPR
LEEAARKISKRSDEELFSWERGPG
L LQA $\square R K$ K L N WPDKRLLFDV
VAKA AFLGLFNKKFEEIVRVEGPFD AQD IVELERQUEEAS $\square C K V Q R V$ QVDKV
1 L A


HEDA $\square$ SELDKADGD
HEEVVP ILLEA GEDVYSWEFVEDEVPE R I E EI IPILIDAGDSVYSYEFVDIDVP
$T L Q Q L S P D E L F T \square E E L D$
DTEALYYREDEAGDTVCS
F LA GRHELVDTSEALVLD
1 FEMLKKPFNTPVGELID $\square$ K
LFDPRTRGDDLIDEDLL S HERVRVKVPQ
LVEEILD GT GMLSWEKV

HEEVVPVLLEAGDNVYSWKTVDLEVP
LLTAGQQL L S SE
HEEVVPVLLEA GENVYSYEMVD $\square$ DVP
TEEELQKYGRKPGENSFTYQK
LLLEAGEK YYSY
KV I PELLKA GAK TYSWEYKDVKVPK
A QNALQEQIF I A GRQLLSYEKV
$K V P H T E A D F D L A G D S V Y S W E Y V D V E V P P$
VLQLIDDDLEMTE
I L R A GRSVLSW EYVNVRFTPKE
VKEFMDWLARVDEKSLFN
HKDAVAELLNA GEDVYSYEFI
FKAVSFDMLDTPFEEMF HLK
DLESAKKLLNTPPTEELELKKLE
E V $N$ P
ELEDEKY L Y S L P D D QLIF S VE
VLAALEY
FKQKPKD L LE L
IEDLAADMYRMDDTELFTV
$V Q E A A Y R G M P D D V L F E A S W V R D D L E P$

UniRef90 Qow5K5 UniRef90-UPIooo35E4B50 UniRef90-F4BXA4 UniRef90_E8R494 UniRef90 A2STQ9 UniRef90-AOB6H6 UniRef90 ${ }^{-A 0 B 6 H 6}$ UniRef90-A2SSF9 UniRef90_A7H779 UniRef90-GOL417 UniRef90-Q2JN48 UniRef90-F4BYH UniRef90_F4BYH UniRef90-UPIO0036A1694 UniRef90_D1JC28 UniRef90-D1JC28 UniRef90-D1JC28 UniRef90_E1RJ66 UniRef90 D1JCF4 UniRef90-D1JCF UniRef90-D1JCF4 UniRef90- АЗСТК8 UniRef90-UPIO00368493D UniRef90-17LKS8 UniRef90 XOTBR9 UniRef90- UPIOOO40B4112 UniRef90-UPIOO046D4AA3 UniRef90_TOJNQ6 UniRef90 B2DD78 UniRef90-A3CUDO UniRef90-D1UC27 UniRef90 D1JC27 UniRef90-O648F9 UniRef90-B9M913 UniRef90- F8AB17 UniRef90_DIJDA1 UniRef90-C3XM56
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MDREYTEDLIAAFHGLGPYIVLGYRTGRYAREYFCDDAFQ MDKEY IEDLAAFHGHLGPY VVLGYMIGRYARKNLMCSDPR Q LERVVEFHGGAGPWAVVGYRIGMRASRELDLPRDF VD $\square P \mathrm{DFDSVAKAHGH} \mathrm{\square CPG} \mathrm{\square ALGYKMAVIAAEWAGSETH}$ I GVGK A A E K A M S E LGSFAK G I GVVKA A E K A M S E L L S F Q K G
E ELAAKFHGHLGPF\|VLGYRMGKYALQYFDNDPFS

$I$ QRVTE $\square H G G A G P W A V V G Y R M G M R A L Q E E G L H T S R$ LGTNATNYAMTELGFEK G
EELLKRFHGHLGPYAVIGGYRMGEIARKRIP LGFRASEVAKEELPF VYG LGFRASEVAKEELPF VYG

FH GH L GPY $\quad$ VL GYR $\square$ GRYASEYYGNNPFE
L L G Q R A A DVA K E K LP F V V G
L L GQRAADVAKEKLPF VYG
$L \quad L G Q R A A D V A K E K D P B V Y G$


 E DLL R F L A R L H GHRCPMMSIL GAR L GLLAARRALAPEP GV DFMNGVLYHDHFCPGVTSGYLLANFLEREMPLRRSA RAFEFHDHYCPGVISGIFMADYVQTHFPPGSTG

 LLGSRASEVAMKELPFDKDN LYE QLEVVFHGHVCAGSLDGGARLGFAAKEALKAAGGT


K E DT FDD MVK F H GHACD G L Y R G TYA L S VAFK $\square$ L P N G VID
 ELLH GHL G $\square$ Y A TI GVKM GIR A REYFNDGVD EYEREATNFH GELLC GWVII GARMI QHLGLLDWKVHP K F E T LERFHGHVCAGSLMGARLGLAAKTA LKAAGG RAFEFHDHYCPGVMSGDFMADYVQAHFPPGRSG KESLIHEGYNFHGERCDGLALAVVMAMVANLLLGCDLRS
 IKDLIKFHGHFCGGLVRGATALRVAFDRLFPDGLI
 HGGFGTY\|ALG\|RIGLDAKERLKA QAR
 HGHPCVGTGIARRA\|QIGMRTLGDTVPQ $E \square H G H \square G I F A T V G V K M G I R A R E Y F D \square G V D D$ $L I R Q A V N Y H G E E C Q G L A M A V R M A A F A T L T L K K D L R N$ L ERVALV HGGAGPWAVAGYRMGDYALQQLGLPRGS LMQCLEI HNHFCPGVSSGFVLANWMEENYPLK
$E Q W V E L G R R V H G G F G S Y V A L G \square Q \| G L D A M Q R L E A T P R T$
 FHN HI C P G V SP S Y L I T N Y I FQ N FP R G K
 E E WKA AVELHRHLGGDYSLVGAKMGVRAREDLDAPFDV
 $K \square D P L A R V A A V H G G A G P W A V M G Y R M G V Y A L D Q L D \square B V G$ FEDIRKLHG $\square R A Y M A I G Y R V V E V A L K E L G N E \| L S$ FYK QALAHHGEQCLGLELAVKMALLVENHFGQDQSP


 DI L R E A A F H GHVCLGTMIS GYAMDETLLLKYYPATNEF $L A R V A S \square H G G A G P W A V A G Y R M G A H A L R E L G L P G S F$
 HGAFGSY $\square A L G \square \square R \square G D A L Q Q R L H A Q R T E$


HQEECE GLLLAD $\square R M A L I V E E E L G K L N S P$ FEDVCSF LGGHVCLCGAGGYKDAQLAMENLKKDSPE $K A L L E D I X K Y H G E L A M A V A V G F R V L Q E A D K E L Y P E A P P$


UniRef90 Qow5K5

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MHA|V VGCSPP Q S C|L|ADGVQ|lGSGCTTGKRN|L|E|L|RDSDSTA DHGFFVFPEP QTCMVDGLQAVTGATYGK LLI EKYGKLA

 RWRVVHRAPPFRCVADGLSAATGATVGKLNLIIETVDRSA TVLSHT T R C PLLDAL RYTFDLKNHPERLVI ENTNTGS DENI D E N | $L$ | $L$ | $L$ |
| :---: | :---: | :---: |
|  | F | L |

ERELFAMV
 NRFLVVIHESPACIVDGLHAATGASLGKLNLKVESLEKMR


2
NPN YA V HPLS CL


## N

M

## 

DRNTRI I S R S S P C L T D A A IVYL T G GRY Q Y N TF Y V T D S IP GM $M Q A V I A G G T P P E S C C V D G V Q L G C G C T L G K R N D E I$ H E S STMR NERI HVLLCTM NCLPDTFQVLLA GATLGNKRLMLRHTGKMS


 N P N I L A M T D T E E C I D GVI A S S G C T I G K A N L L LI H R S K L W NPN LAMTDTEEC D GVIA S S GCTIGGKNLLLIHRSKLW
 FENFFVLAYAHSCALSALELLM D T NILVLTYT TEKALD GLMQTTSASRGKGNDIHKPYNAPB

 D L LV TTYP VISCMND GLQQVGTGASVVG GLI TVVDDTPRPE
 Y V VH G $\square$ D WCK E D A L MTLLLNATPGKK K Y A D DVClV G KNH D P NIL A MT DTD N
 DRTDLRIASNNSCGGDVASYLTGTRTRRGTHMIRPKRDR R


 MHVVTTYAGNRSCLNDGLQVSTGGTLGHGLITVAEVKRPE




 L K V V S H P L S CMN D GLQQVSTGAS L GRGT I HI DTVNPR


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UniRef90 Qow5K5

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FAFFDKKTENCLY LEVDNSVFDKFMADPDEEVFRRTVKEN NTFKNKKTGQALRYTLPNSVRSQLDSWN QSLTERQRYD FVVQRISTGKTVRVVINADVRTQMKQUESGSFTPADDQDL VTYRRRSTGQAVTLRPSAAFRARFRDVPREGLE
LLLSAEKNGRQVEAHLSRVAEEKAKKFRE
VVIKHKKTGESFRYTIPNSARVLLDGWNKDQKGR
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## FTFKNTT

I SLQLK QDYWE IVKKDUKQG K GGFLTTNN
FTGMSKASGERVIVKFKPEVLSEKARMKKQGLSPEQWQGY
ATFTFKNKKVTLRLKPEYERRVREDGKKYGADTEANWQYV YSTYDSEKTIVFRIR
ITFRNRDTGQSLTLRPSASFVQRFRDVPREKDG
VTDKNAGTMKAVALGFDFDVVNAKCGAKKDDPAW
GTFGNTRTGKRLRYS \|PATAKAQLDDWNRNTT FIVQRTSSGRTVHVKGNPEVKTQMRKDESGKFKPEDDQEIL GILIIWNEGKAVIITFK
GILII WNEGKAVIITFK
Yi IHDRGREEVLVISFDWEKAREDAGVVGDTPSSK■AMSA VTYRRRSTGQAVTLRPSAAFRARFRDVPRETLES PSVTFMYGKERLDLTLKREWQEKПKA FILQRISSGTTIRVMERAGVYPDDLAQEEARL S STWRKKDGRTVRGNVDPG DRDESDADDELFKDEE VTFRNRDTGEALALRPSPRF K YIFTNKK QQSVQVSLNEDFLDYLLKGREESFTPEEYEHN NRVQWFKNGQSLTLTVRPDVINTASQLSEQELFDQE ILLYRTDTKVAV

## YVFACPGEEVVFHLRTVPESVDAVFACSEAVLFDCED

 YALMAPSGETYALVT TSREFLTPAEKПACGTADPFEKAHY IVLYREDTKVAV F $\|$ RWNSKTKTGTLI DMAYSQQELINKYKQETKATAVSE $\square K$ TFRHRATGKTVRLKTAAF DAVYNNLGGIVVRVTYRRRSTGTS TLRPTAAFRTRFKNVPREQLPT FTHTDMKTEQTLRYVIPASAQAFLDR
FQFLRKSTMQTVTVRLQEDWFELRAEHKAGTDTDEQKKKR

## FQTMMENN

VE\|VLKTD DQ
KE\|DTTVTEEN FHFVESEDNMLVR WKKGARELKFVPKH YHDAYHPNKKAVQITYRKHLLEQMDKLWQDELALDKDPHS YAFVITDQGPSVEVTLQPDFLDYLKQGRDNSLSPEDTRQL YAFVTGDNGRAVQLILRPDFLDYMKQGRDGRMTVKDDEAF

|  | 30 |
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| UniRef90_Q0W5K5 | V D ${ }^{\text {D M R M D D T E L }}$ (FEV |
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| UniRef90_Q2JN48 | LA A A G Q EVLQLA DEKLF |
| UniRef90-F4BYH4 | TWEPGNFSHMLPDANVWTHEK T P Y V F M K |
| UniRef90_F4BYH4 | T WEP G N F S H M L P |
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| UniRef90_X0TBR9 | $E \mathrm{~V}$ VQI L R E A G D TVVY S Y R Y VKVP VT |
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| UniRef90_UPI00046D4AA3 | R EALAEEI |
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| UniRef90_D1JDA1 | A A L D F M N L D DELF |
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| UniRef90_T0LUV0 | L |
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| UniRef90_Q2LX24 |  |
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| UniRef90_C4GGN8 | WQARVHA\LQADNPEM\VVEAV |





