## QUERY

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SAS L N DLVVAA GKSYF GTCS DQALLQQNSQNEAIVAS QF

Q A A QAAQS NDAMVKKGRKYFGTCTDPGRDNAGSNAAII KANF


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SASVDKLFKRRGKQLFGASGDNGDMQQGKTEAVFEANF QS GR Y F G T A I A A S R L L G D S T Y S T I A G R E F
S $\square$ D A K F R A K GKKYF G $\square$ A TAQGLLLT T GSNAALI QANF


D TLGSAAGAQGR YFGTAVAAGHLGEADYAATLDREF A A STLGASAAEKGR YFGTAVAANHLGESPYVVTLDTEF


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P S L R E K Y K N Y F F K I G VA V P Y R A L T N P VDVA FI K R H F
PDLHSVFSDY FPIGVAVEPNRLADSDHSQLVAKHF HAADTLGASAAESGR YFGAAVVPSLLSDGAYSSALNADF
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## QUERY

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## G

 GA FTP E N S GK WD T T E P A R G V F N F T N L L A A L V N F A T S


## 


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


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 R G H T L V WH S QL P G WV N N I WD R N T L I Q V I Q N H I A Q V A GRY R

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 RCHTLVWHS QLPEYVNQUTSNATLMSVMENHIRQVVRRYK R GH T L V WH Q QL P R WMY GSFTSAEMEAA L S DHII RTVVVGYR
 RGHTLAWHSQQPAWMERMEG QALRSAMLNHVTRVATYYR

 Y HLLVVWHS QLIPSWVSN IGGDSATLTSVVIENHITTTIAKRYK RGHTLVWHS QTPDWVVRDANGNLL F QRMKTH I NAVMGRYK R G H TLVVWY A QLP S WL K N GNS A S QL N T I LQ S HINTTVVGRYK RGHTCVWHS QLAPWVEAGKDNSTLQSIIKDHTTKLVRHHK R CHA LVWYS QLP S WV S Q G S WN QTLTSVVMETHDNNVMGHYK

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 R S V D P Q A KL Y I N D Y NL D N A NYAK TK GMAD HVVR W W S Q GI P R A T D P N A K L Y I N D Y N L D N A N Y G K T K G M I S H V K K WI S Q Gil P



 RAADPDAVLYINDYNLDQPNYGKTQGMIRNVAKWIAAGVP K K A D P D A KLYI NDYNHYHASYAKTQAMVRNVKNWIS Q GIIP

 K S A D P T A KL Y Y I N D Y N L D D P N Y A K T K G MIIS Y V K K WR S Q Gl P K A A DPSAKRYI NDYNLDNANYAKTKGGASKVKQWIGKGWP R AT DPDAK LYYI NDYNLD SANYAKTRGMINNVNKWVSQGDP

 RQADPSAKLCYNDYNVENWNAAKTQAVVNMVRDFKARGVP R A A D S S V K L C Y N D Y N I E N W S D A K T Q GVV R MVV D F K S R G V P


 RTADP P A A K L C Y N D Y N I E N W S D A K T Q G V Y K M V K D F K A R G V P R S A D P A A K L C Y N D Y N I E D WN A A K T Q G V Y R MV R D F K S R G V P R A A DPAAKLCYNDYNTD GVVAKSTAVYAMVKDFKARGVP RAADPAAKLCYNDYNTD GQNAKSNAVYNMVKMFKQRGVP
 R A A D P A A K L C Y N D Y N D E N WT WA K T Q A VVYS MV R D F K Q R G V P



 HKADPKAKLY I NDFNLDD PNAAKLKAMMIKYVGKWRAA GWP R A A DPNVKLYVNDYNLDSASYSKTDGVANQVKKWLAAGVP

R ADPDAKLYINDYNIE GTGAKA DALYTFVTSSLNAFVP


 HEAD P H A K L Y L N D Y N L E A IGGP K S DA Y Y A L V K S L K A Q H V P RAADPNAKLCYNDYNIDDANANKTRGVYNMVKDFKARGVP RAADPSAKLCYNDYNTD

R
 ADPNAKLCYNDYNTDNWSHAKTQAVYNMVRDFKSRGVP
 A L Y D P D A K L Y Y N D Y N I E S A G S K V T S T $\quad$ L S L V R S L K A R G I K HAVDP HAKLYINDYNLDGPGPKID DAMI ALI KRLQRRGVP R A A D P A A K L Y I N D Y N L D K S D Y A KTRR GMMVA HVVN K WI A A G I P




 KADVDPKP IL A DN DYNMEYSQKA R A A D P A A K L C Y N DYNTD G V N A K S T A V Y N M V K D FK A R G V P



 R A A D P N A K L Y I N D Y N I E G T GVK S TAMM NLI Q S L K A A GTP R A A D P S A K L C Y N D Y N T D N WN WE K T Q A V Y A MV K D F K E R G V P HA A D P N AKLY Y N DYN
 REAPPETKLYYNDFNLETAPEKQTAAV ELVKSSLQSKGVVM RAADPGAKLCYNDYNTDNWTWAKTQAVYNMVRDFKQRGVP K A A D P G A K L C L N D Y N D D F S S G A K L

 R A A D P D T KL Y YN D Y NI EF D GS K Q Q A A L A L V TQ Q MVNE GT P RAADPSAKLYDNDYNLDSVNSKVRGLIDLVKRQRAAGTP | $E$ | $S$ | $G$ | $S$ | $Q$ | $A$ | $M$ | $N$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $A$ | 1 | $K$ | $R$ | $L$ | $K$ | $A$ | $K$ |


Y N A A K T D Y AVVD V K $\triangle$ V Q A A GAP


## QUERY

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 A GASSTDYVNVVNACLSVSKCVGITVWGVSDKYSWRSNDK A GASSTDYVNVAKACLNQPKCVGITVWGVSDNDSWRSDKS QGDNAADYATVTKGCLNEASCVGITVWGVRDPDSWRPEGN A GAAPEDYVNVANACLNVETCVGITSWGVSDKDSWRASDS AGAPSNDYNAVVQGCLSVAKCWGITVWGISDKDSWRQGTN VGASTNDYTAVTRACGQVPQCVGYTVWGVRDPDSWRAQNN
 ANASGNDYATVVKACLNVPKCVGITVWGVSDKDSWRANSN VGASQQDYTAVTQACLDEPKCVGITVWGVRDSDSWRAQNN QNAQASDWTNVVKACLNQANCVGITVWGVRDSDSWRPQGN RTAPANDYATVTKACLNVPKCIGITVWGVSDKNSWRKEHD AQASPAAYANTVRACMNVARCTGITVWGIVRSDSWRASEN VNAAPADYVAVTKACLDVANCVGITVWGLRDPDSWRASNN SNAPSSDYVAVAQGCLAVSNCVGIT SWGVRDVDSWKSSSN GNAQQSDWSNVVKACLNQKNCVGITVWGTRDTDSWRPNGS QGAGANDYVTVANACLNVQKCVGITVWGVSDRDSWRSNEN A GAAPNDYSTLVKACLAVESCVSITSWGVRDPDSWRASTN KQAAPSSYVAAVESCAAI HNCVGVTVWGTSDADSWRASDT DTAPPDDYATVVAACLNVPKCVGITVWGVSDKDSWKGENQ A QAPPVHYANTVKACLAVARCTGITVWGIRDSDSWRRDER DTAPPEDYTAVVEACVNVSKCKGITVWGISDKQSWKAEKE
 AGSQAEQYRGVVQACLAVSRCTGITVWGVVTDKYSWRSSDT AQASATAYTNAVQACMNVARCTGITVWGIRDSDSWRTGEN AQAGTNAYANAVRACLNVARCNGITVWGIRDSDSWRSGEN EGAQADAYARVVDACLAVDRCTGITVWGVTDKYSWRSGGT

 QGASATTYANVTNDCLAVSRCLGITVWGVRDTDSWRSEQT
 IGAAPDDYVAVTQACLDEPKCVGITVWGVRDTDSWRPGNT RIPMPADSAELQRSCLAVDGCAGVTVWGFGDADSWVPDGA
 AGASPSDYVAVAQACLNVSKCAGMTSWGASDKDSWRSSDK
 RMQQKADYESVVGACAAVDGCVGVTVWDYTDKYSWVPSGA RMQQADWYRELTEACLAVRRCVGITLWDYTDRYSWI PAFF RMGQAEDYRAVVEACLAVSRCVSVTTWGFTDRYSWIPDHF RAQQEKDYQTVIQACMNVKGCVGATLWDFTDKYSWVPSTF A GSQAEQYGGVTQACLAVSRCTG\TVWGVTDKYSWRSEDT RMATPADYKTVAQTCLAISRCAGITVWGFGDRDSWVPGTF RMT QAK WY A DVTKACLAVRRCVGITVWDYTDKYSWIPA GA GGSQADAYRRVVQACTAVPRCAGITVWGITDKYSWRSGDT A GAQANAYATVTRACLAVSRCTGITVWGVRDSDSWRTGEN QQNQANAYRQVVQACLAVSRCTGUTVWGVRDTDSWRTGAN AGNQANAYGAVVRACVMABRCAGITTWGIRDTDSWRTGEN R $\square P Q A N N Y K E L M K \square C L A N P N C N T F V M W G F T D K Y T W I P G G A$ RMQQKTDYENVIKACNAVPKCDGVTTWDYTDKYSWVPSTF EGAQASNYDRVTRACMAVARCNGITVWGIRDTDSWRASGT A NAAASDYEAVARACVAVPSCVSITSWGVRDPDSWRASTN RAQQSTDYVNTVSACLATVGCVGITLWDFTDKYSWDPATF WRQQQEDFHTVFKGCLKVERCVGI TAWGVSDKYSWVDTYF
 GGGQQNVYRQVTQACRAVTRCTGITVWGVTDKYSWRSGDT RMQQKTDYDTVISACRAVSGCVGVTVWDFTDKYSWVPSTF
 GGAQANVYRQVTEACMNVERCTGITTWGITDLHSWRGDET $R M P T P A D Y V T V V K A C L D V P Q C D G V T F W G L T D K Y S W V P D G A$ A GAQANTYATVVRACLAVARCNGLTVWGIRDSDSWRS GDT RMQQKTDYTTVI SACQAVKGCVGVTVWDWTDKYSWVPSTF RATQADDYANTVSACLAVTGCI GITIWDFTDKYSWVPSAF
 RAQQKTDYTSVTAACQAVSQCVGITTWDWTDKYSWVPSTF RMQQKSDYQTVI STCMAVEKCVGMTLWDFTDKYSWVPSTF
 (SCLNVPRCVGMTVWGVSDKYSWUPTTF
LERQA QVYREVLQVCLRQPRCKVFTLWGFTDAHSWRGASE A QQQAS DYVVAVRACLEVERCVGVTVWQFTDRYSWVPGTF EGSQANTYRAVVNDCLAVPRCNGITVWGIRDSDSWRSYGT AAQQRADYKSVVSACMRTSACTGITLWGVSDRATWDTGRR
 A GASGNDYATVVKACLSVPKCVGITVWGVSDKDSWRSSSS KQKQAADYKQLVDVFRRHKNLI SVTVWGKDDGNTWLRNDW RAQQSTDYKTASENCLGVPRCAGVTVWGLTDKYSWVPGTF RMQQRKDYEAVISACSAVPACVGVTI WDLTEXYSWVPGGA


QUERY
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UniRef90-S7RF99
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UniRef90_G4N1Y8
A E GLLNSLAVKA GLLYYGTASDTRNFADEPYMSVVTNEF

A G S L D AKFKAKGKNFWGSCADPGTWNNAQNANVLKAQF




QTTKGLKDYYKKY FP $\square G V A V A P R M M D D A A E S G G L L A Q F$
QKTPT LKEA LAA GSHGDE LGVVAVAVNP LTETEYRDVVT DHY
QK, GIGEAFA GKFHI GTALNEWQITDSAGVEVIKNQF
QNATGLNSAFVAHGKKYVGVAVNQRNVSNAEQAALVEQEF
Q NATGLLNSFVAHGKKYWGTCGDQGTMSESANVDVIXANF

PALKDVLKDY FRVGVALPSKVF\|NQKD』ALISKHS
A D GLLNVRAKAA GKKY FGTE I ST TVVMNDANANNIAK QD F
P S LK DVF K A K GLLK Y LGSATD NGELS DAPYVA QLTED F

E E S S S L L K A A F G $\quad$ N K F
PSLSKVYEEY F NI GAAVNLNTIKS QK DLLRKHF
E P A S E L P S L A R S H G DEL G VA VAlV N P LiN D S E Y Q D DV V T D H Y
SLKEAFK PKFHGGTALNARQVHDSATMKVVKKHF


LKDLAKPR FFGAAANTTFLNDEKYTEI AEKQF
QE $\square K G L K D Y$ Y A S Y
EAATSLNEVFVGHNDFYVGTALDADQIKDAKVDSLI RTEF
EAATSLNEVFVGHGKKYFGVATDQGCLNADKNAAII QADF
SASSLKKEASKANPPDLIGAADSGSGLNDANYKRVAAAEH
A A G G V R S L A H TA G L HF GT A V N V V A L T D A P Y S R L L A R E F
QETPS L K D A V G D $\quad$ K F L M GVVA L NVNQSSDTS S I K L V K Q H F



EAAPQALALRDAAPDLVVGSAVAGGFTADQPYRDVLSREF
K N D F R I G V A I P A K C L S N D T D R R MV L K H F
ALKDAYQ GKF LMGAALNVDQIVDRAGVEVVKHHF
D S L D NLA NKAGKRYLGTAI QAYQLPDSAYVKILES QF


ATSSLK EAYKK DFYI GTALSAS QI K DAK QDALI RKEY
D S D A T L R ELLAAKEG DLI GSATN PTYMLDEPKF GEVLAE QF
$F P G V A V N G R S L A A G Q A H L L A D E F$

UniRef90 UPIO00440DBE4 UniRef90_W3XH39 UniRef90-N4VH31 UniRef90_A8P570 UniRef90_J4GN24 UniRef90-T1W8G9 UniRef90_UPI0004415688 UniRef90_UPI000289E714 UniRef90_C7R1S9 UniRef90_UPI0003AD5967 UniRef90 A0A010RNV3 UniRef90_M4FX28 UniRef90_L2GIL4 UniRef90 A4XM52 UniRef90_UPI0004416FFF UniRef90_UPI000407B7D2 UniRef90_B6ZK52 UniRef90-A7F2P3 UniRef90_Q60041 UniRef90_B6QN64 UniRef90-L1KQ68 UniRef90_UPI00034A0AF5 UniRef90_K9FFW7 UniRef90_C4RGZ5 UniRef90-F1CHI3 UniRef90_C7ZH33 UniRef90-N4VDC9 UniRef90_M4GFG0 UniRef90_C6D776 UniRef90_G4TFF9 UniRef90_K9WAK5 UniRef90_E3Q8L2 UniRef90_IOKDV5 UniRef90_Q0V2I8 UniRef90_G1XM94 UniRef90_M2QEW7 UniRef90_G4MLU0 UniRef90-G2QXD2 UniRef90_G4TM72 UniRef90_V2XKL7 UniRef90_K9TC14
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,

 GQQLPE NGQK WETVEP KQGDFVVYTTA DVVPDDAKKN GQQL D TITP S N S M K WE TI QP E Q GVWNF GPADELVAFAKKNRQAV
 GQil T P GNSSMKWGPTEPSRRGTFSYARQGDVVLNDAKNAS QQV S S L T P GN AMKWGSVEPN QGTFNWAEA DQIV DFA EAH GQKV



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 GQQLTGENSMKWESLSPSSQGSYNWGNADQLVAFAENN GKML

 GQVTPENSMKWDATEPNRGQFNFGNSDTLVNWAVSNNKQQI N II MPEHHLKFAPVHPERDRYDFSVADEIVNFAQEHDDKV

 GQVVPENGQKWDSTERSQGVFTYTSGDVVPNVAKANKAD NS S TA GNELKKWDATEPQEGAFDFTRADQAFRFAVDHGMAF GSITPENAMKWEAlQPNRGQFNWGPADQHANAATQRGMEL NSMTPE NAMKMGPI HPE ENRYNWAPADK IDADFAVQH GLKM | $N$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |


 GQVTVGNTQKWQFTEPNQGKFDYRQADEIVNFAKSNQQIV NSSTAENEMKPDSDENGKLKFRFETADKYI EFAQQNGMVV GQYTCENEMKFDALEPSRGTFNYANADRVVAQAQANGMLM GQLTTPGNSMKWDATEPSQNSFSYAGGDADVNLAQANGQLMM NSMTAENEMKPES ILRRRDASYDFTVA DRYI EFAQKH GMVV NS S V P E N H L K WD F V HP E R K K Y N F G P A D Q VV K F A Q S N G Q KV NSIT TAE NEMKP DAL QRTEGQFNFTDA DQYV NFAQQN G NSIVVAENCMKCEVI HPEENRYNLTPADSLVDFGEENGMAV N S I T T A E N D M K F D E I Q P S E G GVVT F E K A D QL A A F A K E N G M K M

 GANTP GNQQKWDATERSSRNVFTYTNGDYQVA WAKN HS Q V V AS ITPENAMKMGPDHPEPDRYHWQDADADVAFAQKNGMKV NSIVAENCMKCQTIHPE S IFTPENEMKWESIEP QQNVFNFTGA DEVVRFAHSVVAKV
 GLVVTPENSSGKWDTTIESSSQGNFNFAGLDDYVVDWATTN GKFA



 NTIITP E N ELK W WE RI H P K P D A Y D F S L SSSLSPENQMKWEYLHPARDTYEFGTADA IVDFAEQHGQVM N


## N

 K S V T A E NHMK F E H L Q P K E G E F T F E Q A D Q I V D FA H S H Q MVV
 GQTTPTNGQKWLFTEPEP G Q T T P

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R GHNCVVWYN QLL|PSWV|S S GTSASELLESAMVVNCTT|LLTHYK
 R C H T L V WH S QL P T WV R C H A L TWH S QL P S WV S D G A S A E ELLTEVI E A HIA NVVVEHYK RGHTCLWHSQLAPWVEAGNDSETLHEIIHEHCYKLVSHYK RGHNCVVWYDEELPAWVVTANNASELLAYVVANHCGTLVGHYR RGHTLVWHSQNPA WLTEDATPAQLRDLLRRHIFAEVGHFK RAHNLAWYE QLPNWLS S GNDNATLQTTLTEHVTSAATHYK RGHTLVWHNQNPNWLTNGSWTPQLSTMLQNHINTEVGRYK
 R GHTLVWHS QLP T WVV DIS S R RELL GVMRNHIWNVAGHFS

 RGHTLVWHNQTPDWFFKDSNKDELLKRLKKHIVYVVGRYK R GHTLVWYS QLAP WVTEDPESEVLSA MQNHITTAMTHFK H G H T L I WH S QL A P WME KI T D S T EMMK AFMQQ H I NTVVVTK Y K RGHTLVVWHS QLPS WLTTTDFTA QELRQQLHRHITDTVVRHK R CHNLCWYNQLPSWVTSGTWTNTLIAVLKNHIKNEVTYYK HGHTLVWHNQLPGWLGQEWSKEELLNILEDHVKTVVSHFR

 RCH NLVVWHS QLDPNWVS SGSWTNTTLLAAAMKNHMITNVVTHYK RGRSSL APSGHSAWFANLRSATSVVRAAMNHHITSVLTHYR R CHNLVWHS QLPSWVTNGNNNATLISIMKNHITNLVQHYK R C H T L V WH S QLA P WV E A G N D N Q TL L K I ME D HI N T V A G R Y K
 RGHTLI WHSQTPSWVFYDENGNLL FARMKRHIDAVVGRYK RGHTF GK LH H Q P P N WV S S $\square$ N NPNTLTS VI Q NHI DKE GGQ WK
 RCHTLTWHS QLPEFVSA GWTRETLTAVIETHISHVVGHFK
 RGHTFVWHQQIPNWLKN IVNKATLTSAIQTHIAAVMGRYK RGHNCVWYMQLPDWIANGTTYHEMIDNVENHCGTLVGHYK R C H A L T WH S QL P N F V K T T A WR D T LITAABIE S H I S N EVVGH F A
 RGHTLVWHSQLPSWVSNSNNNGTLVSVLQNHVTTLVKHFS RGHTLVWHS QLPGWVNNIGDRNTLQSVIQTHISNVAGRYK DGHA LVVWF H A L L P R WVVVE GN S RE E L L $\square$ G H T L V WH H QTP D WVF R P V D R A T L L N CMSNHI Q TVVVGRYK
 RCHTLVWHS QLPSWVNGNWNNQTLQQVMKDHINAVMGRYK
 RGHT LLWHNQLPAWLA QGSDPDELREVVMREHFGAVMGRYQ TGHCLIWWHSQAPRWFRNDVSREVMDERMKEHDYTVVGRYK RGHCLMWHSQDGRWMYSDNPTKEFFQRMKNHIQAVVSRYK R G H T L V W H S Q L P S W W RCHTLVWHNQLPSWVESGNWNRDLTRVINTHVSNVVGHYK RGHTLVWHNQTPEWFFKDENGNEMTERLREYIHTVVGHFK RCHNLVWWNQVPS WVTN GHDNATMIS IMKNHIANVVGHYK R C H T L V WH S QLIP N WV S S G T WT NTLLIA A M K N H I T T N V M T H Y K GHTLVWHSQTPEWFFKDESREAMIERMREYVHTVVGRYR RGHTLVWHSQNPDWLTKGKSKKELRKDLKEHIDTVVGRYR
 RGHTLVWHNQTPEWVFEGADRETLLQRMKEHITAVMNRYK HGHTLVWHAQTPNWFFEGRDPETVVRRMME HLDETLAGRYK HGHTLLWHNQQPDWVQGFFDADELRTVMREHMEALLGRYE $\square G H T L I W H S Q A P R W F F T D E D G N D L I E R M K N H I S T V V G R Y K$ RGHTLVWHSQQPSWVSNGGDNATLVSDMQNHISNVAGHYK

 R GHCCLCWHE LQTP G WL F K DAAA GN TLL L Q RLL K D H I T T V V N R Y K
 D T P P CGT NHVSTEIGRYK K GHTLVWHNQLPGWANSLS GSTAVQQAIRRHIENVMGHFK $N G H V L V W D Q Q L P D W L T Q G H S S D E L K A D L R E H I Q T V V A R Y R$ $\square$ GHCLL TGHTLI WHS QL S P WF CVVDVS PEVLKK RMK DHIITTVVKRYK

 RGHTLVWHNQTP GWVYY GT K DEILAARLKE HIIKEVVGHYK
 VGHTLI WHS QAPDWFFNDVSRDVLI ERMRNHITTVVGRYK RGHNI CWDS QTPSWVTS ITDPTRLKQVLKNHIQGVIGRYK HCHTLVWHS QLPA WVSEGGD NKTLDSIMEDHIKTVMTRYQ T GHCLI WHS QL P E WF CVVDVSPEVL KQRMKTHI QTVVGRYK RGHTLVWHNQTPDWMFENVDRDTLLDARMQTHI ETVVKRYK H GHTLI WH S QLA P WME K I K D S T EMK A FMK D HIITTVIV S K Y K RGHTLVWHNQTPDWVFYVSRDVLLERMKQHISTVVGRYK K GHGLI S QCCNPEYVTDVTDPDELRAVMKTHFNTIMDRYA RGHTLLWHE QVPD WFF LDDVTKDTLLKRLKDHIT TVVGRYK UniRef90_E3QLA4
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UniRef90_UPI000440DBE4
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UniRef90_A0A010RNV3
UniRef9_-M4FX28

G T Y S F D 130 (140
150
160
TV F Y NELL T T YVVTVLTAA G Q C Y S W W V V $N$ N E A ll A D D G T Y R T S $V$ V
 GDVFHWDVVNEAFLDDGTFRPTVFYNTTGTTYFDTVFKAA



 G Q C Y A W W D V V
UniRef90 L2GIL4 UniRef90 A4XM52 UniRef90-UPI0004416FFF UniRef90_UPI000407B7D2 UniRef90_B6ZK52 UniRef90-A7F2P3 UniRef90_Q60041 UniRef90_B6QN64 UniRef90_L1KQ68 UniRef90-UPI00034A0AF5 UniRef90-K9FFW7 UniRef90_C4RGZ5 UniRef90_F1CHI3 UniRef90_C7ZH33 UniRef90-N4VDC9 UniRef90_M4GFG0 UniRef90_C6D776 UniRef90_G4TFF9 UniRef90_K9WAK5 UniRef90_E3Q8L2 UniRef90_IOKDV5 UniRef90_Q0V218 UniRef90_G1XM94 UniRef90_M2QEW7 UniRef90_G4MLU0 UniRef90_G2QXD2 UniRef90_G4TM72 UniRef90_V2XKL7 UniRef90-K9TC14
UniRef90-O52374 UniRef90_B9XH31 UniRef90_G2WZE3 UniRef90-F8FJM8 UniRef90-I1RQU5 UniRef90_F4KXA7
UniRef90 G4TZC5 UniRef90_UPI000475806E UniRef90_X5DCX0 UniRef90_L7UY53 UniRef90_Q0CZS5 UniRef90 Q60042 UniRef90_G2R8G4 UniRef90_A1CUK2 UniRef90_F7YXD6 UniRef90_A1YPP6 UniRef90-E4SE15 UniRef90_19IQ50
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UniRef90 G4N1Y8

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RAADPSTKL170
180
190
200
AFADPDAKLYYNDNLEYASGKSASMLSLVKSLLADDVP


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 H A A D P D A K L Y 1
 RAADPNAKLYYNDYNLE YNGAKTNRVYEAVVIVQNAGAP A A ADPSAKLYYYNDFNVEFGGGKKADTALDSVVKVGKDAGQR
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UniRef90_-OKDV5
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UniRef90_E1APH5
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UniRef90_F4C1D2
UniRef90_G4N1Y8


 SVY QA HKMAQLEK DFKKYSNVI NVTFWGLKD DYS WRRND W $F Q Q Q A T D Y A T V V A C K Q V D A C V G I T T W W G T D D K Y T W I S N S D$ RMQMS A DY Q S V A A A CVVT TP GCI G I T $\square$ WD WT D K Y S WVVP S G D


 S ELLQA ERYC QVV QL L R Q Y R N HI S V T F WGAA D D Y T WULS D N W TNAQAE DYAKLESGFKKHEDVI RVVFWGLN DRRTWRWGQH


 SA QWN ERMS GFLDLFITKHSDIVVVTAWGVS DGDSWKRKDY NMQQAEDYHKVASACVAVKRCVSLTDWGVSDDHSWLPNGH SVVYPWE QYKKVVFSDFRE YKNDI GV T CWGI S D R N T WL R K N Y
 N E E Q L A Y Y H D I V A A C C F S L $M K K Q A V L Y G A M L Q A C L A V P Q Q R S F S T W G A T R D R Y S W I P E F B$ SAA WN NRMK QFF GLLFEKHADVIDSVTAWGVS DS DS WKNDD Y TVAWTERMNDFFRLGLKHQDIIDRTVWGVADQDSWRRTDY
 Q DA L S A RYK E IV S V FIL T H Q DL T R V T F WGVVN DA H S WR R T D Y
 RMTQADYYRRALQSCLDVSSCHSFTVWGLPDKYSWVPGTG


 NQA WNKRMQEFFQLFEKHADVERVTANGVVTDEDSWKNNDY LA E QA ERYGGQFFRLLFTEYSEHIDSVTFWGAAD DY TWWR KN W





| UniRef90_UPI000440DBE4 | $\text { A C P WD S N\|L V } \frac{290}{1} \mathrm{~K} \text { P A F D G\|IV } \mathrm{A} \text { G M }$ |
| :---: | :---: |
| UniRef90-W3XH39 | ACLYY ENLSKKPAYT TV |
| UniRef90-N4VH31 | P L P WD K DL K P K P A Y T A I S S L L |
| UniRef90-W7LQX2 | ALL ${ }^{\text {L M D D Y EKK P A WT SV S S L L }}$ |
| UniRef90_A8P570 | ALLPWDEDFKKKPAYYGIVEGLL |
| UniRef90-J4GN24 | P CP WS S D Y VR K P A F D Gl A $\ddagger$ G F |
| UniRef90-T1W8G9 | ATPYDENYAPKPAYSTLRDTLK |
| UniRef90-UPI0004415688 | ACPWDSNF GKKPAYDGIVAGL |
| UniRef90_UPI000289E714 | P GP Y D A N Y Q PKP AYYGI SEAL |
| UniRef90_C7R1S9 | ALP WNS D Y SVK P A L A ELA Q VM |
| UniRef90_UPI0003AD5967 | PLPFPDENYAKK P A Y R AVVA ALR |
| UniRef90-A0A010RNV3 | ALLWWDASFNKKPAYT SVVSVL |
| UniRef90-M4FX28 | A CLLDD N Y Q K T P A Y T AVA NLL |
| UniRef90_L2GIL4 | P CLYDNNLLK P K P A Y T AVR |
| UniRef90-A4XM52 | P LLFDEYYDGKPAFWALID Y |
| UniRef90-UPI0004416FFF | PLLWDDS Y EKKPAYY T T L T A LR |
| UniRef90_UPI000407B7D2 |  |
| UniRef90_B6ZK52 | A NLLDE D Y GVKPAFRAVQK A L |
| UniRef90_A7F2P3 | A CLWWYS D F SLHPAYN |
| UniRef90-Q60041 | ALI F DENYNPKPCYFA |
| UniRef90-B6QN64 | A CPWDSNYNKKPAYYGI L A GLLK |
| UniRef90_L1KQ68 | A TPMDEGYGRKPAYGELREGL |
| UniRef90_UPI00034A0AF5 | PLLF D R D Y Q K P A Y E AV MEAV S E |
| UniRef90-K9FFW7 | PCPWDANLGKKPAYAGILAAL |
| UniRef90-C4RGZ5 | PVLFDAA GNPKPAYHAVL |
| UniRef90_F1CHI3 | A CPWDSNFQKKPAYNAILNAL |
| UniRef90-C7ZH33 | ALVVWDEEFQKKPAYQGILNAILK |
| UniRef90-N4VDC9 |  |
| UniRef90_M4GFG0 | ALI WDADYNKKPAYSAIL L ( A |
| UniRef90_C6D776 | PLLLFDERLLQAKYAYWALVD |
| UniRef90_G4TFF9 | PLLY Y S NYQPKQAYYSVMDALA Q |
| UniRef90_K9WAK5 | PLIFDASYRPKPAYDALKEVL |
| UniRef90-E3Q8L2 |  |
| UniRef90-IOKDV5 | P LL F DK D GKPKKAYEGVVK |
| UniRef90-Q0V218 | GLLWDDDNYNKKA V Y G G F L S G $\quad$ K |
| UniRef90-G1XM94 |  |
| UniRef90-M2QEW7 | A DI WD D DLQ K K P A Y D GVV |
| UniRef90_G4MLU0 | P CLIFDANMNPKPAYT |
| UniRef90_G2QXD2 | P CLLF A S D Y S R K P A Y D A L VALLLR |
| UniRef90-G4TM72 | P LPFDENYKAKPAFYGIVDALK |
| UniRef90-V2XKL7 | PLLY D S N Y Q P K A Y N AVMSAM |
| UniRef90-K9TC14 | PLI I D E S Y R P K P T Y S A ML E ELLK |
| UniRef90-O52374 | P L L F D G N K S K Y A F WS L |
| UniRef90_B9XH31 | PLLFPDREDK PKPAYASVLETARQ |
| UniRef90_G2WZE3 | ALLLIRQATRKKAW |
| UniRef90_F8FJM8 | PLLFDENLQAKYAYWALV |
| UniRef90-I1RQU5 | PLLWWDDNFNKKPSYTSSLNT |
| UniRef90-F4KXA7 | PLLFD GNYQPKKAFFAVV |
| UniRef90-G4TZC5 | PLLYYDRNYQPKAAYNAVLQAL |
| UniRef90_UPI000475806E | PLPFDDDHAPKPALLAGMVEALRR |
| UniRef90-X5DCX0 | PLLF D R N Y E P K S $\quad$ L VAK L I E E |
| UniRef90-L7UY53 | PLLPFDANYK C K M A Y D Y I K Q |
| UniRef90-Q0CZS5 |  |
| UniRef90-M4G7X9 |  |
| UniRef90_Q60042 |  |
| UniRef90_G2R8G4 | PLPWDSNLQKK P A Y T AI L N A |
| UniRef90-A1CUK2 | A CPWDSNYVKK P A Y N GIL A G L |
| UniRef90-F7YXD6 | P LLF D E N Y Q P K P A F WSVI E SV S K |
| UniRef90_A1YPP6 | PTIFWDDFSPKPAY T A L Q E AL A K |
| UniRef90-E4SE15 | P LLFDSNYQAKYSYWAI VE |
| UniRef90_191Q50 | PLLFDRNYQPKP F V R L L L |
| UniRef90-I6PB27 | P FLF D E N H Q K E S F WKV VQ |
| UniRef90_F2ARX4 | PLLF D G N N N P K P A Y A S I I A L |
| UniRef90_UPI00036927CD | PLPFDDD Y A P K P ALGGMI EALQR |
| UniRef90_UPI00029B4D17 | PLLF D R N N E P K V V D K I I Q |
| UniRef90-M5BSB2 | P L L F S K K Q K P A Y Y SVADAL |
| UniRef90_UPI000374865D | PLLFDENYKPKPAFF QVVD |
| UniRef90_UPI0003653E78 |  |
| UniRef90_V2Y6H5 | VLPWDGNKQPKPAFYALAGAFK |
| UniRef90-G8TBM0 | PMLFDRNGQPKKAFNAVV |
| UniRef90_A5FIE5 | P L PF DK DLK H K P A Y D S L K L |
| UniRef90_L8FQY9 | PLLFD |
| UniRef90_S4Y7R5 | GLL F N D Q Y Q K K T Y N K VLEA L |
| UniRef90_UPI000369FBE0 | P L L F D A S GHAKPAYWS I KLA L |
| UniRef90_R6D7D2 | PLLFDRNY Q P K P F VKEI M |
| UniRef90-D4VIN8 | PLLFDRNHQPKPVVDLI DK |
| UniRef90-K9XKD2 | PLPFD A Q L K PK P A WQ SLTSADA Q |
| UniRef90_Q15SG8 | PLLFDRNSE ${ }^{\text {P K P A Y R A V M T L }}$ |
| UniRef90_Q12603 | PLLFDKNHNPKKAFWEIVK |
| UniRef90_E1APH5 | P TVVYWDDF T P K P A Y D AL L E T L |
| UniRef90_D9TFI1 | P LL F F ED Y S AKPAYWAVI EA |
| UniRef90_UPI00035E12BE | PLLFDRDYQPKPVVNELI K L G K E |
| UniRef90-O13436 | PLI Y DAEYQPKS TYYSTQQALLK |
| UniRef90-B2W0F8 | ALVWDDKYEKKPAYAGLIDGIR |
| UniRef90_R7A1A7 | PLLEFDRNYQPK D F V R M M I E E |
| UniRef90_UPI0004796722 | PLLFDAKHEPKPSFGEVVRAAE |
| UniRef90_UPI00047E8136 | PL L F D T Q L Q P K K A Y Y T I M Q L |
| UniRef90_F8CSY1 | PFLF DE H HK P K P A F WRVVNG |
| UniRef90_L7F547 | P L M F DEEYNPKPAYYA TRDALRR |
| UniRef90-F4C1D2 | PLLFD R N L E R K K A Y Y K V V D |
| UniRef90-E3QLA4 | ALLWWFDDFSKHPAYYGVLEALK |
| UniRef90_G4N1Y8 |  |

## UniRef90 A6WB34

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UniRef90-B1ZNF5 UniRef90-GoL8×3 UniRef90_UPIO00474E335 UniRef90_E4T4X1 UniRef90_UPIOOO36955B0 UniRef90- $07 S 3$ P88
UniRef90 $58 A C B 6$ UniRef90-IOL3Z2 UniRef90-K9PJ14 UniRefofo-J5HRX3 UniRet90-J3PH11 UniRef90-W3XFT6
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UniRef90-C7PYEO
UniRef90_MOCQK9
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SLKEVYKDY FPTGAATAVSDLEDEGQRETLLKHF
TLKDVVGDQ FLIGTAVNVRQVKDTNATNIVKHHF EKEPGLKDLAFAAGSLK GCAVAGGFTADEPYRGVLATEF AVAQLDLHAKKAGLKYFGAATDSPEATYPEYDAIITNEF ATPSLNLAALAARKLYFGTATNNVELNDTAYFELLDKMF ADETIRQLAKERGRF $\square G T I L N S E W F N D E F Q E I$ HKTQF SAQLNLYAKKAGLKYFGAATDSPEAAYPQYDAI LRDHF ANDSLYKAMEKAGRDFIGTALTLR NSTREDEI MDADF STELKSGFKD DFLIGAAVTPKTDDSQK ELLIVQHF ESLKAAYKDA FHIGAAVNP TSLREEAAKKNDFLFGVAVASTDLDDPTASKILQENF ALINVKQDSKDFALGTAVHGRALEDAQYRRUVERDF AAQLPHLAR QSDDDLGVAVAVNPLHDREYRSVVTEHY
 LKDAYADYQGFDGGFAVTSADILQEPNMTIVKENA SEQSLAGAF RNDFLIGAAVNHRTIVSQ SELLKQHY PSLKDAYSDY F R GVAVSPADLEKPEYSELVKAQF QDDTPVKSVLASY FDI GVAVEPPELS GPHAQLLLKHF SLKKLYEE NFY GAAVNDQDVTNAKADDVLKKEF
QDNASLKTLKQAHGKFDIGAAVNVKTIHTQKYNLLCSSQF PALKTLFA GDFRIGAAVNPHTDRSQGHQALAYHF KGLDWYAKKAGLKYFGAATDSPESAYPKYDEI MSGEF DGLNSFAVRRGKYFGTAGDYEDVMNCSWARIATSEF QTLAALGQRHGLKDGTAVNATALNDPQYRRLAASEF PSLPTLKEVVGKFLIGAAVNTDVVWDAKGAEVVKDNF PSLNDWMTCNGKLYFGTAASPSHFDDTRWMEILKNHF ATESTLRTVADSNEFRDGAALDPDALDDPSYWKTAKNEF胃 EAQLTLKEAYKEAGFKMGVAVNDADVSDKASQDVVIDQF

KGLHKDALQAGDKYFGSATDSDAYPQYDY
PSTAEAYA GLFPTGAADEPAH TSGLRAELLKKHV AKCSUDAAFKAKGKKY: GVATDQGLLTRGSNAQLIDDNF ADETLRSLAADKNGIDY GALLNSQWFGGGNYEQLHKSQF


TSLKERAAAKGLFY GAAVRTNSLSDKQFIAANVEEC SQPTMKDVLGKY FLIGAAVNVNTVWDAKAAEVVKKNF ASAQLHALAKKAGLQYFGTASDIVSVADKTYAKIIKREF APSLKEAYASR FRVGAAVNAATVVTHAH WLARHF PAALRRLSERYYHLHIGTAVSTPLLSDAQYARVLAQNY QTPRGLPQLAHTHDDELGVAVAVNPLNDNQYRSVVTEHY GLRKAADKKG LNEGFAVHTSFFNDDPYVKILKENA ASLSERYQEQ FDDGAAVEPYQLEGRQAQI LKHHY HKEKGLNTYAKEAGLKYFGAATDSPGFREPKYDQ1 MSDEF ASAQLNQLLAKQAGLLYFGTATDTPYEREPQYDAABADEF
 SAQTMKETDGKH FLIGAAVSTRNIQDPKVKSAGVDNF HARGDLREDA DSHGVDMGVAAAVDPLEDRTYQQVVSGNY ASTALPTTAVVAGKRYFGSATDNPELNDTTYTSILENYF PLKTAYQK DFLIGNALSAEDLEGVRDDLLKMHH
 TLRDVAEDR DFEVGAAVAAQPLTDPAYKKVLRNEF DVEYRERMAAEF
EGIDRDLLKKHF
UniRef90_A6WB34 UniRef90_V9FRL1
UniRef90-Q47L48 UniRef90-UPIOOO47E7A81 UniRef90 ${ }^{-}$K2QL53 UniRef90_UPIO004006C17 UniRef90-I2EXT0 UniRef90_UPIO00365C752 UniRef90-R4P586 UniRef90-D5EY13 UniRef90-R5FA73 UniRef90-UPIO00368A802 UniRef90-UPIOO034D5C05 UniRef90-F4RD01 UniRef90-Q21HD6 UniRef90-W2ET57 UniRef90-Q7X2C9 UniRef90-LOIK21 UniRef90_R5TWH7 UniRef90 UPIOOO26C6FA8 UniRef90-F4ZME5
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UniRef90_F8DCC3 UniRef90-C5BPD1 UniRef90-Q5I2C6 UniRef90-F8EQW6 UniRef90-G0S8P5 UniRef90-D7B778 UniRef90-LOEF86 UniRef90_QOUMN4 UniRef90-UPIO00470C41D UniRef90-C9RMY6 UniRef90-A41P71 UniRef90-K3ZQ79 UniRef90-UPIO004760C26 UniRef90-UP1000424E1CD UniRet90-S3D199 UniRef90-B9T74 UniRef90-C8WRS4 UniRef9O-UPIIOOO363D980 UniRef90_UP100036E83F0 UniRef90-C7NM83 UniRef90-UP1000255DC0C UniRef90-P07528
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 GMITPGNAMKWDATEPTQNTFTYTKGDAVVTLAKEMGAQA SSUASENQMKWEFVHPQRGRYRFAETDALVEFAQENGQVV $N S V A E N V M K S G R I Q A K E G E F N F E L A D K F V E F G E Q N N M H V$
$N T I S P E N L L K W G S V H P Q P G E Y T F G P A D E Y V A L G E K H N M F V$
 NSAVAENCMKSMFLQPREGEFDFKDADRFVAFGEKNKMQL
NSVTAENAWKPGEIMPKEGVWNGGADSIANFCRENGIKM NQVVAENCMKGEKNHPEVNRFDFTDGDKLADWAEKNGKTL NSITATNDMKMHSVLREDGTFNWERVDKLVNFAESHQHR DSLTPENRMKWSELRPSEDTYDFSLADR1VEFAARKDQEV
 STVTPENVMKWQLVEPNRGTYDWAAADRLVAFAKDNKQLV MKDDATEPNRGQFNFSSADRVYNWAVQNGKQV
NSTTPENSLKFAGIHPEEDEYAFDDGDKIVNFAAENRMMV NAIVAENCMKMEELHPSEDVYDFKAADDFVKFGEENGLTM TSLISAENQMKWDHLRPAQDTYDFADADADMDFAEANGQVV DALVAENCMKSMLLQPREGEFFFDNADKFVEFGEKNNMLI
GQTTPTNGQK WLFTEPSQGEFNFTEGDVASGAASTGQLL NAAVFENELKWYATEPEQGKTNYT DADQMLQFVRANQDTA $G Q I T P A K G M K W M E T E P E R G D Y T F A Q A D Q U A Q L L A K Q G G K L L$
$N V V V A E N E M K F D A T E P K E D E F N F E K G D K M I K Y A Q A N L R V$ GQTTATNGQKWLF DEPEQGVFNFTEGD\|VTD\|AQENHLQQ NSFTPENSMKWESTEPSRNNFTFADADRYAAYAKKNELEV NSTTAENEMKFERVHPLENQYSFEEADKLIEFANNHKLQM NMLVAENVMKPMLLQPTEGQFRFGQADRIVEFARENGMQL NSLTAENEMKFSSLHPEENLYTFENADVIAAFAREQGMAL NSITAENEMKFIUSVHPTEDEYTFEDADR VSFAREHGMKM NSLSPENELKKWNFHOSPDHYDWHKLDRLVKFAKENNMAV DVVTPENAMKPAHVQPEPGRFDFAGADELVDFAEQTGKRV NAAVFENELKKYATEPKPGVLNYTTADRMLEFVRANQDTA
NSITAENEMKFENTHPKPDHYDFKEADQFLAFAENHMMQM TSLTAENTMKWEYVQPRRHTFDWSGPDTVVDFAERNNLTV NSITAENEMKFESVHPAEDVYTFEQADHIAALAAKNNIAL NSITAENDMKPQSTQPVEGEWNWENADKIANFARENKIP NSVVSENNMKNAN HPSKKWNWSDTDHLTEFAKQND SK NSVTMENNMKPEATFDHQKNVRFDRFKSELDFARDNGMTV NSVVAGNAMKP\SLQPSEGQFHWEEADRTVQFAQQHGTA\| NSIVAGNAMKWGPIEPTEGNFNWGPADAIANFARANGLKM NSISPENVMKWAE! HPTPDSFYFDMADKYVALGKKNKMHV DIVTPENCMKPQSLHPSEDVYNFKTADAMLDWCQKNGLKV
 GVLTPGNSQKWDSTEATQGVFNFETADNITNWGLKYGKKI SILTAENAMKWESLEPTRGTYDWTAADQLVEFAARNRQAV NSIVAENCMKGESIHPEEHTYFWDDADRTVKFGEDNGLLEV GSYTAENEMKFDALEPSRGNFNYGNADRIVTAAKADGAHM GQVTPENSQKWKSTEPERGVFNFTTAD NMREAQKNNQLV NAVTPENALKMGPLRPSRHTYDFADADALVNFGVEHDMYV NAVTAENAMKWEEI RPQLDSWQWDIADQMVDFATRHKMHM NTITLENSMKAGLINPQPGVFKFEPGDAYVEFGRKHNMF GQTTPTNGQKWLFTEPSRGVFNFTEGEDVATKARKAGYYLV NMIVAENAMKPASLQPAEGRFNWEPADRIVEFAKANGMEL $G Q V T P E N S M K W D A T E G S R G S F T L G T A D Y L V N W A S T N N K L V$
$N V L V A E N M M K W D A L S P A P E Q Y D W T A S D A L V A F A A K H A Q R L$ NIVVAENEMKFDATEPQEGRFNYNNGDKMVRYAQQNGMRV NSIVAENVMKPDNDQPEEGKFNFAEADQVVRFAKKHHMDI NWAVFENELKWYHTEAEQGRLNYKDSDELLEFCEKHKDQV NSIVAENCMKGEEI HPEENVYDWKDADQTVKFGEENGLTV GQLTPANGQKWFAIEPQENLFNFSYGDVTSKYAKKNKQLL NA AVFENELKWYATEPEQGKVNYTUPDKMLELLRANQUTG
SSVTPENEMKWERTHPAEDTYSFSAADQTVLFARDHGMFV NMVTPENAMKFQFIHPQPDRYAFADADAVVDFAERNDMAV TSVTAENTMKWVNVQPQRHTFDWSGPDTVVGFAERNGADV NTLVAGNALKMGPLIRPERYVFFEDABALVNGGVKNDLLV NSLVAENAMKPESLQPREGEWNWEGADKIVEFARKHNMEL GQTTPTNGQKWLFTEPQQGVFNYTEGNDVTSHAKKHGKYL GQTTATNGQKWLFSEPEEGVFNYTEGEVVSSUAARNGQML NSTTAENCMKSALVQPRQGEWDWELADRFVEFGQQHNMDI NAIVAENCMKGEAI HPEENRYSWDDADATVVFAEDNNMVV NSIVAGNFMKMDAMQPKEGQFVWSEADR VNFAEANDMEV TSMTAENTMKWS LVQPERGEFDFEGPDTLVDFAEEHGMSM GQDTPGNSMKWYATEPEPGVFTFTAGNVIADLAKSNGMVL NVATAGNAMKPDALQPTKGNFTFTAADAMVNKVLAEGMKM SVVTPGNEMKWQVVEPTQGTYDWSGGDRLVQFAQQNHQLV NYVTAENALKMGPLRPDPGVYDFNDADAVVDYARAHDQSV NSIVAENVMKSGMI QVREGEFKFSEADKFIEFGKKHNFHI SSLSPENQAKWEYI HPRRDFYNFYPMDATVRFAEENRQVV

UniRef90 A6WB34 UniRef90-V9FRL1
UniRef90
U47L48 UniRef90-UPIO0047E7A81 UniRef90 ${ }^{-}$K2QL53 UniRef90_UPIO004006C17 UniRef90-I2EXT0 UniRef90_UPIO00365C752 UniRef90-R4P586 UniRef90-DEEY13 UniRef90-R5FA73 UniRef90-UPI000368A802 UniRef90-UPIOO034D5C05 UniRef90-F4RD01 UniRef90-Q21HD6 UniRef90 ${ }^{-}$W2ET57 UniRef90-Q7X2C9 UniRef90-LOIK21 UniRef90-R5TWH7 UniRef90_UPIO0026C6FA8 UniRef90-F4ZME5
UniRet90_M7TKW8 UniRef90-M5VME7 UniRef90-UPIO004621D6F UniRef90-E9NSJ1 UniRef90 W3X6J2 UniRet90-M2RWO2 UniRef90-XORU822 UniRef90-LOEGW5 UniRet90-G4WAA2 UniRef90-UPIOOO379A099 UniRef90-EORPX5 UniRef90-O93976 UniRef90-UPI0003B514F2 UniRef90-UPIO002B4A4DD UniRef90-UPI0002D831BE UniRef90_D7AUR0 UniRef90-E3WF08 UniRef90-K9DZN1 UniRef90-10XCR4 UniRef90-Q7X3W7 UniRef90-R7KW23 UniRef90-G7VZT2 2
UniRef90-GOL8×3 UniRef90-UPI000474E335 UniRef90-E4T4X1 UniRef90_UPIO0036955B0 UniRef90-Q7S3P8 UniRef90-S8ACB6 UniRef90-I0L3Z2 UniRef90-K9PJ14 UniRefofo-J5HRX3 UniRef90_33PH11 UniRef90-W3XFT6
UniRef90_F8DCC UniRef90-C5BPD1 UniRef90-Q5I2C6 UniRef90-F8EQW6 UniRefolo-GOS8P5 UniRef90-D7B778 UniRef90_LOEF86 UniRef90-QOUMN4 UniRef90-UPIO00470C41D UniRef90_C9RMY6 UniRef90-A4IP71
UniRef90-K3ZQ79 UniRef90-UPIOO04760C26 UniRef90-UPI000424E1CD UniRef90-S3D199
UniRef90-B9T7D4
UniRef90-C8WRS4 UniRef90 UPIOOO363D980 UniRef90_UPIo0036E83F0 UniRef90-C7NM83 UniRef90 UP1000255DC0C UniRef90-P07528 UniRefto B2AV20 UniRef90-G2QSH7 UniRet90-J3NMP6 UniRef90-UPIO00463147F UniRef90-131836 UniRef90_UPIO0035E3896 UniRef90-O9Z485 UniRef90_UPI00047567FB UniRet90-B8PIA6 UniRef90-W4BT07 UniRef90_C7PYE0
UniRef90
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KGHGLI SACCNPDYVVAKTGDPVAFRAAMVIEHFTTVIMQRYA RCHTLLWHQQVPDWVKSLS KSEMLLAJLENHTTEVMTHFG RGHTLLWHSQNPEWLEEDYSPEELREALRDHITTVVGRYA HGHTLIWHSQAPRWFFTDVSKEVLTERMKTHIFTVVGRYK VGHTLVWHNQTPNWVFEDASKEALLQRMEDHHINTVAGRYK AGHTLVWHSQLPKFVHKDQSADSVRLIFMTNHINTVAGRYK NGHTLI WHSQLPGFIRGIHSKDSIQTFFTNHIKTVAGHYK DGHTLIWHSQTPAWFFVDKNGKELDERMQKHEXTVVSRYK DGHCLVWHSQPPKWMFTDVSREVLIGRMYNHIMNVVTHYK FGHTLVWHSATPEWVQTNGDPDKLDAFMKNYIVTFVGKYK RGHALLWHQQNPDWLEEDYSEQELRQULHEHVTTVVGRYK RGHVGVWHNQVPQWLKDL DGPGLVNATQNHYKTVLQYYK RGHTLVWHNQLPTWLSSDGFTTTLSNSLKKHI QDQVKHFR RGHTLAWHSQQPGWMQSLSGSS RQAMIDHI NGVMNHSK RGHTFVWHNQVPEWLFKDVSKETLVERLRAHINTLCRRYN TGHVLIWHSQCPE WFCVDKNPEVLKQRMKDHIYTIVNHFK RGHTLMWHSQNPAWLEGDFSPEQLREILKDHITTVVGRYA TGHTLDWHSQAPRWFFKDVSREVLDERMKNHIYTVVGRYK RCHALVWHSQLAPWVEDTNKTWTLSSVIVEHVTQVMEHYK RGHNIFWPKYTPAWVRNDTG NELHSAVNSRIESLMSKYR RGHNCVWYNALPGWVTNTTWTPELAEVVQEHCFNIVRHWE RGHALAWHSQVANWVNNYSGQKELLAVLKNHTTKVVSHWK RCHTLVWHSQLAPWVESTNWTDALSEVIVNHITNIMEYYK HCHTLVWHSQLPAWVSNGGDNKTLTDIMENHIKTVMTRYK RGHTLVWHNQTPPWMFEQSDREALLSRMKAHIIDTVLNRYY RFHTLVWHQQTPAWFFHDRNKKLLLERLENHI RVVVEHFK RGHTLVWHNQTPDWLFENAERDLLLERLRSHI QTVVGRYK RGHTLVWHNQTSDWMFERVDQETLLQRMKSHIRTVMSRYK RGHTFLWHNQNPPFTNRLNDRDRAITILEETITGVLTRYK KGHGLISGCCNPDYVLNITSPAALRAAITTHFEAVMHRYR RGHTLVWHNQTPDWMT DGGPEAARAHLVAHIEAVVGRYR RGHNTFWPKYTPDWVQNDTG EELKSAVDSRIKGLLSRYK RGHTLVWHNQTPDWFFHDHSGQQLDNRMEAHIHAVVTRYK HGHTLLWHNQQPAWLQGTWTPDELRQVIREHMQALMGRYQ RGHALVWHNQTSKWVFELVDKATLFARMKSHDDTVVGRYK RGHCLVWHNQTADWMYHDVSKEVLFERMREHIHTIVNRYK KFHTLFWHQQNAPFILNLSTKEEALAAMDEHIEKI MSHYK RGHTLIWHNQTPDWVFEDGNRELLLARMKSHIETVVKRYK RGHTLIWHSQTPNWIFYDADRELMLKRMENYIKSVMEWYP RFHTLVWHNQTGDWMFKDKNGQPMTDRLETHIRAVAARYK RGHTLLWHNQNPAWLFRDAHRALLIQRLQSHLNAVVSRYN VGHTLLWHSQDGPWMNSVKDSATMANYIRDHI NTVATRYK RGHTLVWHNQTPNWFFEDADKYTVLKRMRDHIHTVVTRYK WGHTLGWHSQTPNWFFQAVNPKTALERLEKHIKTVVGRYK RGHTLVWHNQTSEWLFADVSREALLERLESHIHKVVGRYK RCHALVWHSQLAPWVEAGTWKDELRSVIVSHITNVMTHYK RGHTLVWHQQLPDWVTGGTWNTTLKAVLKNHVTTVATHFK RGHVLVWHSQLPAWLTSGVSKQELRELLRKHITTVVKRYQ RGHTLVWHDALPAWFKTTVNSGNAEKFLLTEHI STVTKHYA DGHCLVWHSQPPRWMFTDVGREVLIDRMYHHI TDVVSRYK RCHALVWHAQVPGWVRNGGNKATLI S $\quad$ METHIKNVVGHFK RCHTLI WYNDLPDWLTTTWDNATLIAVMENHIKEVVTHFR RGHTLVWHNQKPGWFQWDYTPDQLRTFLRDHI HTVAGRYR VGHVLVWHSQVPSWVFQDEDRDALLARMRGHI GKI AGRYA
 VGHTLVWHNQTPAWFFQDKSKEAVAERLHEHIKTVAGRYA RCHALVWHSQLAP WVERNWTKAELRKVIVDHVTRVAGHWR RFHTLVWHNQVGDWFFLDPNKKLL LERLERHVRTVVERYK RGHTTVWHSQLPSWVSSDRDKSTLQTVMVNHINKLIGGYK RGHTLVWHNQLPAWLRDRSSRTEALRLLETHIKTVVGRYR RGHALAWHSQVPGWVNNYNDKKKLLAVLKNHIEKVVGHWK RFHTLVWHSQVPQWFFLDKNKQLLLKRIETHIKTIVERYK RGHCLFWEDAVQPWVRSLQGHH MAALQNRLQSLLSRYK RGHTLVWEQSLPKWFWQDVNSGNVVQILQQHIQTVVGRYA GGHCLVWHSQAPKWMFVDVSREVLIDRMYHHITEVVGRYK RCHNLVWHSQLADWVQKTWTKKTLTAALINHVTNEAKHWK RGHNI FWPKYTPKWVQNLSG DALKSAVNSRI QSLMSKYK RGHTLVWHNQTPSWVFLDSPAKLVEARLEQHI AEVVGHYR HGHTLVWGEALPRWVTEAAFTDAQUQRLADHIATVVGRYK HGHTLLWHNQLPAWLAQGSWPDELHQVMREHMQALMGRYQ RGHALVWHNQTPGWFYWEYTDDQLREFLRDHTHTVAGRYR RGHCLVWHQQTPYWMNDTTSRQELLQ\MKDHITTVVSRYK RFHTLVWHSQVPEWFFDDANKQLLLERMENHIKTVVERYK RCHALVWHSQLAP WVEAKTDWDELRAVIVNHVTRVAKA WK RCHALVWHQQLAPWVGKQWTPETMREAIVRHI HNVAGHWK VGHALVWHSQVPEDFFVYPDRQELIKRMDTHIRTLVERYK VGHTLVWHSQIHDEVFKNADKAALQKKMEEHITTLAGRYK TGHCLVWHSQAPRWMFKDNDGKTLIDRLLYHHITNVVSRYK RGHTLLWHSQVPDWFFTDPNREQLLARMKTHLQTIVNRYK
 HGHVLVWHQQSPAWMNTSTDRDEALANLREHTKRVMEHFG RGHVLLWHNQLTPDWLTTGGVTNGTLRDLLHKHITDEVTHFK RAHTLVWHNQTPEWFQWDYTPEQLEEFTREHVHTAAGRYR VGHTLIWHSQAPRWFFKDVSAEVLAKRMEDHIKTVVGRYK RGHTLEWHSQNPEWLQGDFTDEELRADLKEHIQTVVGRYA

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UniRef90_A6WB34 UniRef90_V9FRL UniRef90-Q47L48 UniRef90-UPI00047E7A81 UniRef90 K2QL53 UniRef90-UPIO004006C17 UniRef90-I2EXT0 UniRef90_UPI000365C752 UniRef90-R4P586 UniRef90-D5EY13 UniRef90 R5FA73 UniRef90 UPI000368A802 UniRef90-UPI00034D5C05 UniRef90-F4RD01 UniRef90_Q21HD6 UniRef90-W2ET57 UniRef90-Q7X2C9 UniRef90-LOIK21 UniRef90 R5TWH7 UniRef90-UPI00026C6FA8 UniRef90-F4ZME5 UniRef90_M7TKW8 UniRef90 ${ }^{-}$M5VME7 UniRef90-UPIO004621D6F UniRef90_E9NSJ1 UniRef90-W3X6J2 UniRef90-M2RW02 UniRef90-X0RU82 UniRef90_LOEGW5 UniRef90-G4WAA2 UniRef90_UPI000379A099 UniRef90-E0RPX5 UniRef90-O93976 UniRef90_UPI0003B514F2 UniRef90_UPI0002B4A4DD UniRef90-UPI0002D831BE UniRef90_D7AUR0 UniRef90-E3WF08 UniRef90-K9DZN1 UniRef90-10XCR4 UniRef90_Q7X3W7 UniRef90-R7KW23 UniRef90-G7VZT2
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UniRef90-K9PJ14
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UniRef90_J3PH11
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UniRef90-D7B718
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UniRef90-A4IP71
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UniRef90_H2JHU2
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 GDI WQWDVVNEAFDDNGQPRQTIWYKAWGGGYI ADAFRWA GK AQ WDVVNEAFADGSGARRDSNDQRTGNDWI EVAFRTA
 GKLKGWDVVNEAI VEDGSYRKSKFYELGGEEFBPAFGYA
 GKVKGWDVVNEAI EDNGVWRKSKF YQQI GED EEF IUWDVVNEMLHFD FYEQKLGPNATLHFFETA G QA WDVINEPFNDDGTWRETMWFNTLNTTYIPDALHAA GKDA E WDVVNEAVNDDYNADNSVWYEGIGAEFVLDSAFVWA

 DVI YCWDVVNEVISDENFLRPSKWLDI A GEDF I AKAFEFA NDIYAWDVVNEVIADEGDLRPSHWLEIAGPDFIAKAFEYA GVFYEYDVVCNEI DDEGRFRNSPWYRADGPEYIVMAFHTA


GRVY Y A W

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GR I $\begin{gathered}\text { H S W WD } \\ \text { G } \\ \text { G V }\end{gathered}$
GRIJK GWDVIN EA FE D D G S Y R K T P Y Y N II


 GRIAT WDVVNEAI ED D GK WRQTSWFKGVGEDYIDHAFRFA GKVQA WDVV NEVI D D D G S Y R P T T WVKGI G DELVVKLS FK Y A

 GQVWA WDVVNEA $\quad$ DD DS GDYRRSFWFRHLGPDYIALAF QWA G QVAE WDVVNESNNEPQWRTGSVWY QGIGPEFIDSAFVWA D D I K Y W DVV N EVVG D D G E LIR D S P WY Q IA G DD Y I K VA F Q TA
 GRIK GWDVI NEAFNDD GTYRETMYYKIIGPEYFELAFKFA
 E E F I H WDV SNEMMLHFD F Y E QR L GP DA TLAF Y E TA G A ALC WDVVNE AV DD D G WLRR P S P WR Q A L G D D Y I E M A FR LA

 GRII K E WDVVNEAI DEE DNFRKSVWYRVIGPDYI DSAF VYA

 GRCLHWDVV N E A L E D D G T WR K S V F F Y NV L G E E Y I K L A F R E A GK I K $\square W D V V$ NEAI DE DK G WRESAWF KTMGA DYVERAFRLA GKLA A WDVVNEAVGD DLKMRDSHWYK IMGDD F I Y NAFTLA GRIK GWDVVNEAFEDDGSYRKTVYYNDIGPEYFELAFKFA GKVH T WDVVNEVVI DGGGGRNSKWKDGDDSDY I ELLAFRYA
 D RVIS WDVVNEAMNDNPSLRKAPWYDAI GPDYLE QAFLAA GKIWQWDVANE FFTD DNPNPNDFWDSHLGT GVVIA DAF R WA DTVDTWDVVNEAVADDGTMRENLWYETFGEEYLDDAFRWA


## UniRef90 A6WB34 UniRef90-V9FRL1 UniRef90 Q47L48 UniRef90-UPI00047E7A81 UniRef90-K2QL53

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UniRefol <br>
\hline
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UniRef90
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UniRef90-O93976 UniRef90-UPIIO003B514F2 UniRef90-UP10002B4A4DD UniRef90-UP10002D831BE UniRet90 D7AURO UniRef90-E3WFO8
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UniRef90_E4T4X1 UniRef90_UPIo0036955B0 UniRef90-Q7S3P8 UniRef90-S8ACB6 UniRef90_10L3Z2 UniRef90_-J5PJR
UniRef90-J3PH11 UniRef90_W3XFT6
UniRef90-F8DCC3 UniRef90-C5BPD1 UniRef90-Q5I2C6 UniRef90-F8EQW6 UniRef90-GOS8P5 UniRef90-D7B718
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UniRef90 K K UniRef90-UPI0004760C26 UniRef90-UP1000424E1CD UniRef90_S3D199 UniRef90-B9T74 UniRef90_C8WRS4 UniRef90 UPIOOO363D980 UniRef90_UPI00036E83F0 UniRef90-C7NM83



 HE A D P D A D L F Y N D F N I HAADPEAELFFWNYSVEDVNDKSDAYLDLVRELLADGVP HAADPKAHLCYNDYNMH HEADPKALLLEYNDYNLEF
RAADPSAKLCYNDYNVEN RQASQNAVLFYNDYN HEADSTIELYYNDYG HDADPQALLFVNDYNVD HEADPDAELYYNDF S

 HKADPDAELCYNDYSLEWGGREGS NKYRGKAQLYYNDYNLE
$R A A D P N A L L E Y N D Y N E F$
$R$ RAADPNALLEYNDYNEF NGNKKIGGAARIVVKIKSYGI R REAAPDAKLY I NDYNTN EPAKRDRLYELVKELLDRGVP HEADPQALLFYNDYNESNPH KRERIYRLVRSLLDQGVP HETDPDALLFYNDYN RKADPNVKLILNDYNNEYKGTIKKGDAFYTLVKGMVVRGVP RAADPDAKLFLNE NLVEVLPKKRQELYEMVAQLVAKGVP


## H

 $\begin{array}{lllllllllllll}F & T & V & K & S & N & A & V & Y & D & L & V & K \\ S & L & K & A & Q & R & V & P \\ N & P \\ N\end{array}$ N EK P E K L H K S Y K L L K S M IDD R G V P MDNPGRREGVVKLI RSLKEK GLLR G $\square$ N P K S D A Y Y A L I $Q$ D L L A A G MARKGKREAVVARMVKSLQEQGIVK H EAADPAA L L F Y N D Y N HEVVD P EALLLI F Y N D Y N E C NPGKREKDYSLVK S LLE N GTP RKYAPETKLGYNDYNSYMA
R E A A P N A RL Y I N D Y N T H AAATTTGGLYNDFNT
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 HEADPKAKLYYNDYNDEQGNKGKHASSMLLLMKRLIME GAP HAADPQALLFYNDYNESHPH KRDKIYTLLKSLLEQGVP

 R A A D P R A L L F Y N D Y N I E N P A D D K T Q F V Y D M A K G L R A Q GV P A Q A D P Q A L L V Y N D Y GL E Y D T P A K R V A V L K L L K S L K S R G T P YAADPDAELYYNDY SMSKPAKRDAVVRLVVRHLKSKGCR RAADPAAKLYYNDYNCDKPGRKATGA QNLI KMVKAAGAP

 RETDSSAQLVYYNDYNMH NPGKRAFLVDYIRKAKKRGVP HDVDP QAHLIYNDYNTE VPTKRDAIMAMAKKLKARGVP

 REA GP D DK L Y DN D Y G T E D S P A K R D R DY E L V K E L L L D K G V P R A A D P A AK L Y I N E Y N LDD S A S Y S K T R GFA S A V K R WV A A G I P


 AK ADP QALL VYNEYGLDYDDDAKRLAVLRLLVGLKSKGTP HAADPDAELYYNDY SMSKPEKREAVCRLVRNLKAKGCR

 H Q A D P GA L L F Y N D Y N E T K P D K R D R I L R L L L E H L L D R G V P HRADPAA L L Y I N E FACEE R NA K S D G L Y R L A R R L L E R G V P
 HRSSDP D A DLL Y Y N D Y D A E G G M N E K S D A

 A EADPAARLYYNDYGI ERPASNKTAGARRLVRMLREAGVR AKADPHAKLFYNDYNLESPGLKVAAA GRLVMMLQDEGIR HEMDPDAHLDYNDYNMH NPGKREF LVNVLRDYKKRGVP NEVDP KA HLMYNDYNDERT GKREATVVEMIKRLQKRGMP HEADPNAELYYNDY SMSKPGKRDAVCRLVRDLKAKGCR READPDAVLVIDNDYG MEGNGNKLNDMVKLVEKLLABKGP NA VDP EA ELY N EF NVE G G G D K S D A L Y E L A S D L V E R D V P
 REVLDWDIKLYYNDYNDDNQNKA QADYSMVKELNEKKKL HAADPKALLFYNDYNDEDGTNAKSDAAYTFIMQLVAQGVPB
 HEADPEAELYYNDY SMANS GKREGVVKMVVELQS QGVG



UniRef90_A6WB34 UniRef90-V9FRL1
UniRef90-Q47L48 UniRef90_UPI00047E7A81 UniRef90-K2QL53 UniRef90_UPIO004006C17 UniRef90-।2EXT0 UniRef90-UPI000365C752 UniRef90_R4P586 UniRef90-D5EY13 UniRef90-R5FA73 UniRef90-UPI000368A802 UniRef90_UPI00034D5C05 UniRef90-F4RD01 UniRef90-Q21HD6 UniRef90-W2ET57 UniRef90-Q7X2C9 UniRef90_LOIK21 UniRef90-R5TWH7 UniRef90-UPIO0026C6FA8 UniRef90-F4ZME5 UniRef90-M7TKW8 UniRef90-M5VME7 UniRef90-UPIO004621D6F UniRef90-E9NSJ1 UniRef90-W3X6J2 UniRef90-M2RW02 UniRef90-X0RU82 UniRef90_LOEGW5 UniRef90-G4WAA2 UniRef90_UPI000379A099 UniRef90-E0RPX5 UniRef90-O93976 UniRef90_UPI0003B514F2 UniRef90-UPI0002B4A4DD UniRef90_UPI0002D831BE UniRef90_D7AUR0 UniRef90-E3WF08 UniRef90-K9DZN1 UniRef90_10XCR4 UniRef90-Q7X3W7 UniRef90_R7KW23 UniRef90-G7VZT2 UniRef90-B1ZNF5 UniRef90-GOL8X3 UniRef90_UPI000474E335 UniRef90-E4T4X1 UniRef90_UPIO0036955B0 UniRef90-Q7S3P8 UniRef90-S8ACB6 UniRef90-10L3Z2 UniRef90-K9PJ14 UniRef90-J5HRX3 UniRef90_J3PH11 UniRef90-W3XFT6
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 DFNKHDDSQEMYKSIVPKAQQYGLTLWGFNDRDTWINGDK RSEQADFYARALQACLNADSCTSFTVWGYTDRYSWIPSTF $R A Q Q A Q D Y A T F V T A C K E T P G C K G V T V W G V G Y P D S W V P S T F$
$N Q Q L S A R Y V E L V K F I K H Q Q H I G V T F W G V G D G D S W K R T N Y$ RTAQESYWSRALKACLAVRECISFTPWGFGDTYSWDPGGA QGASSSTYAAVVNDCLAVSRCLGVTDWGVRDSDSWRASDT SAA WNARMKQFFELFEKHADVDRVTAWGVTDGDSWKNGDY RMQQADYYRRVTEAALAVDGCDSLTLWGVLDKYSWVPGTF ESEWEDRYMDFFNLFLKHSDKISVTLWGVSDATSWKRTDY RA WQAEAYKDTALACVHAENCVGITI WDFYDPFSWVPEGD KEAQA $\square Y$ YEQVLREGFSHPSVNGIMLWTADHPN GCYQ
 REWQKEVYVNATSACVQSAACVG\|TI WDFYDPFSWVPAGN RMNQAD GFERVAKSCLAVKQCVGMTVWGISDQYSWIPGGA SMFLLHEDYKEIFSLLKEYRKHISVTFWGVADDYTWLDNNW IQ QKQADRYREFFEAFRDNRDVSAVVFWGIADSHTWLRTDA LELQAERYESTFRLLYEYREHISVTFWGAADDYTWLRKNW SMYQARRYADVFELLKEYRQVSSVTFWGAADDYTWLDDNW RDPVTPEKEAAQKALYEEEDVSCFVMWGYTDANSWIPBGSF RVPQASVYRRMLDDARAVEACTAFVVWGFSDRYSWIPETF QETQASYLEVVLREGFSHPAVGGDLLWSADDPN RQDQAREYAQVVQACDDVPRCVRVSVWGVSDQHSWIPEWF QERHAERYEMAFRLFNEYKDVI CVTFWGI SDDYTWL RKNW RSAQVAQYDMLFRVMRDHKNVVRVTFWNVYDGDSWLDRNY EQAQQEVYCTLDKI ADEEPNVKSFIMWGYSDNGSWVPGTF MRLQEQRYKQFFDLFREYKEVTSVTFWGAADDYTWLRKNW GTQKNGDWEDFMQRLVEDKKITSVVTLWGLTDALS WRAGEF SAYSNDRYRDLPEAMRQQEHISNVTI WGTDDGNTWLSMDK QVQLA ERYRDIVKLEKKHDK I DRRVTLWGVNDQSSWLRTNY SAQQADRYDRLFQLLREYKEVIAVTFWGAADDYTWLDNNW TAKQAEVYKKLFEI FMKHSKVI RVTFWGLSDTRSWRRGQD SEDQAQRYEAMFRLLKEYREVI SVTFWGAADDYTWLRKNW

 TDVRAGVYEDYLSVVLDEPAVIGVLTWGLSDRYTWNSTYR NMLFNERYDAFFRLYKKHANLERVTLWGVDDGSSWLRTNY $F A Q Q A T D Y G Y V V Q A C M Q V S R C V G I T A W G F T D A H S W I S G G N$ FDTQA Q $\square$ Y A D SVVRACVDVPACIGVTVWGFYDPYSWVNNDT DEVQADYYREVVEACRD A GCDTLVTWGVHDGSSWLRTGD E QQLTADRYVEFFK LIGRKYRDHDRVTFWGVSDKNSWKRTNY DVALADRYA GLEIFYKRDKI DRVTMWGDHDGMSWKRTNY RAQQKEAYKNVVGACVQVKGCDGVTIWDFYDPFSWVPDYF RMDQADYYGRALEACLGVEGCDSFTIWGFTDKYSWVPEGA S L Y A WNDRRDYFEAFRENKDIIGVVFWGIADDHTWLRTDA KGASTSDYQTAVKACLDEAKCVGVTVWGUSDTDSWRASDK PAQLDGQAESYRQALFALDHCRALLTWGFSDRYSWIPSFQ GERQ GQTF R QY LDDII LIE EPNADTY Y I DWGVS DK WS WL G G QK
 LD K N A A A Y E EY L T A ALLQEPAV DGVLTWWGLS DRYTWLA E D R NMQFNERY LAFFK $\quad$ KYKKYAK I ERVVTIWGVD DGTS WL RTNY
 SKNFDHY LE QVLREGFSHPAVNGIMLWTALHSD GCYQ SVYP WVHEP DRPQADRHQDALDNVTLWGVAD DSTWRDDD W $N Q A Q A R Y Y R S M L E L A A D L P A F S G F S T W G F T$ D H Y S WEP E GF



 RA WQK EA Y Q DVVVTA CVVKVVEQCVVGITVVWDF Y DP F S WI P A T F $R L Q L P A D Y A N S V G A C A Q V K G C V G V T V W D F Y D P F S W V P E G A$
 NMLLFNERY LAFFKI YAKHKDQISVVTLWGVSDADSWLRTNY $M L Q Q A Y R Y R E L F D L F D D L G K M D S V T V W G L A D D G T W L D N D A$ DEA Q GE E Y R R VVEA CDLV A R CP GVVTVWGVA DH H S WVV E WF RMQQKTDYYTVVSACMQVEQCVGITVWDWTDK
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 QK QF D D R Y L A FF KL F L D H H D K DS VTh WG I N D G D S WK R T D Y

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| :---: | :---: |
| UniRef90-V9FRL1 | PLPWYQNGKRKRAYDGIAAG |
| UniRef90-Q47L48 | PTIMTEKYERKPAFFALQQTLRE |
| UniRef90-UPI00047E7A81 | ATVMWNDFTRKPAYYALQSS |
| UniRef90-K2QL53 | PLLFDRDNQAKPVVKELIELVR |
| UniRef90-UPI0004006C17 | PLLEDRNYNPKPAFEAV |
| UniRef90-_I2EXT0 | PLLFDREFQKKPAYEAV |
| UniRef90-UPI000365C752 | PLLFDRNSQPKPAFYKVIA |
| UniRef90-R4P586 | PLLFDRNYQPKPFVKDI I A LT QK |
| UniRef90-D5EY13 | PLPFDENFKAKRSLQ |
| UniRef90_R5FA73 | PLLID RNNEVKPVVKE\\|VKLF |
| UniRef90-UPI000368A802 | PCIYDENLK PKPAYYGMLEGLK |
| UniRef90_UPI00034D5C05 |  |
| UniRef90-F4RD01 | ALLLDDNYQPTEAFNCFEQALK |
| UniRef90-Q21HD6 | PLLFDRNLKPKP |
| UniRef90-W2ET57 | ALLYDGNLLQPKSQYYVI QQDL |
| UniRef90-Q7X2C9 | PLLFNNDGSKKAAYSAVLNAL |
| UniRef90_LOIK21 | PLLEDVDGRPKSAFYSIVD |
| UniRef90-R5TWH7 | PLLFDRNYQPKP |
| UniRef90-UPI00026C6FA8 | PGLWD DFTRKPAYYAVQDALDAE |
| UniRef90-F4ZME5 | PLLFDRDYKAKP |
| UniRef90-M7TKW8 | ALLWFEDFSKHPAYDS |
| UniRef90-M5VME7 | MCLTDNNLQNLPAGDVVDKLLKE |
| UniRef90-UPI0004621D6F |  |
| UniRef90-E9NSJ1 | GLLYDKQYKPKPAYDSVMASLK |
| UniRef90-W3X6J2 | PLLWFEDFSKHPAYYGIITEALK |
| UniRef90-M2RW02 | ALLWDETYNKKPAYAGFLKGIKK |
| UniRef90-X0RU82 | PFLFDQFHKPKQSYHEL |
| UniRef90-LOEGW5 | PLLFDRQLQAKPAFWAAIEAAK |
| UniRef90-G4WAA2 | P FLFDESHAPKPAYERVAQ $\square$ P K R |
| UniRef90-UPI000379A099 | PFLFDESHLPKPAFHQ |
| UniRef90-E0RPX5 | PGIFDEKLTPKPVYFAMQE\\|LK |
| UniRef90_O93976 | PLMFNETYYPKGAFYA |
| UniRef90-UPI0003B514F2 | A HVMDEHFRAKPAYS |
| UniRef90-UPI0002B4A4DD | MCLTDANFKNLPTGDVVDKLLKE |
| UniRef90-UPI0002D831BE | PFLFDQNGAAKPAYHH1 |
| UniRef90-D7AUR0 | PLPFDDS Y A P K P A $\mathrm{L}^{\text {N A MVVQTLS R }}$ |
| UniRef90-E3WF08 | PFLFDVNHQTKDSFRRVAALVQ |
| UniRef90-K9DZN1 | PLLFDDNLQPKSSYDKV |
| UniRef90-10XCR4 |  |
| UniRef90-Q7X3W7 | PLLFDTEQRPKEMVKG |
| UniRef90-R7KW23 | PLLFNADLSKKPAFDGMI E G |
| UniRef90-G7VZT2 | PLLEDERLKAKYAYWALVD |
| UniRef90-B1ZNF5 | PLLFDEQLQAKPAYYGVVD |
| UniRef90-G0L8X3 | PLLFDREYQTKKAYDAVI QL |
| UniRef90_UPI000474E335 | PFLFDENHKPKDSFWKVI Q |
| UniRef90-E4T4X1 | ALLFDGELNPKPAYKAVIEA |
| UniRef90-UPI00036955B0 | PFLFDEGHQPKAAFHRLA |
| UniRef90-Q7S3P8 | PLLWFDDFSRHPAYEGVVEAL |
| UniRef90-S8ACB6 | ALPWDKNFQKKPAYYGI AKTL |
| UniRef90-10L3Z2 | ATIYDENYQPKRAYQELKSDL |
| UniRef90-K9PJ14 | PLPLDDSNLQRKLAWNAMARAFDK |
| UniRef90-J5HRX3 | PLLFDREYRPKPVVKEII K M Y RE |
| UniRef90-J3PH11 | ALI WDS SYNKKPAYNAILNGF |
| UniRef90-W3XFT6 | P DL WWANYTTKPAYTAI GDIL |
| UniRef90-F8DCC3 | PLLEDDRYDEKPAYDAVKAALAE |
| UniRef90-C5BPD1 | PLLFDRNFERKPCYDAI AK |
| UniRef90-Q5I2C6 | PLLFNRQMDPKPAYNRLAA |
| UniRef90-F8EQW6 | PLVWDRNRQPKPAFNAI L K VPQK |
| UniRef90-G0S8P5 | PLLWFANFTKHPAYDGVVEAL |
| UniRef90-D7B718 | A TVMDGDFDRKPAYFTLRSLLEE |
| UniRef90-L0EF86 | PLLFDRQLHAKPAFWAV $\square$ D |
| UniRef90-Q0UMN4 | PLLFDGS SQAKAAYNGLCSLL |
| UniRef90_UPI000470C41D | PLPFDEAYAPKPAYHALWQTL |
| UniRef90_C9RMY6 | GLIY D D NLK P K P A F D S |
| UniRef90-A4IP71 | PFVFDPEYNVKPAYWAIID |
| UniRef90-K3ZQ79 | A HLVDADGTINEAGRRYLALLKQE |
| UniRef90-UPI0004760C26 | PLPLDADYNRKLAWNAI ARAF |
| UniRef90-UPI000424E1CD |  |
| UniRef90-S3D199 | A GLFFPNFTRHPAYDGVADA |
| UniRef90-B9T7D4 | MCLTDNNFQNLPAGDVVDNLLKE |
| UniRef90-C8WRS4 | PLLFDVHHRPKEAFWRVVRLAQ |
| UniRef90-UPI000363D980 |  |
| UniRef90-UPI00036E83F0 | PLPFDDSYTPKPA ${ }^{\text {P }}$ ( GMTTALSR |
| UniRef90-C7NM83 | PLLFDEDFDPKPAYFAMKDLL |
| UniRef90_UPI000255DC0C | PLIFDSADNPKPAYYRLLEVL |
| UniRef90-P07528 | PFVFIDHNYRVKPAYWRI |
| UniRef90-B2AV20 | PLLWFEDWSKHPAYYGVQEA |
| UniRef90-G2QSH7 | PLLWFDNFTKHPAYDGMVQTFKQ |
| UniRef90-J3NMP6 | ATLWFDDFSKHPAYDGIIDA |
| UniRef90_UPI000463147F | PLLFDRNKQPKPAYFAVADL |
| UniRef90-I31836 | PLLFDRKDQPKDAYFRLLDL |
| UniRef90_UPIO0035E3896 | SLLID RQYNVKPVVKDI ${ }^{\text {L }}$ KL |
| UniRef90-Q9Z485 | PLLSFDRKLKAKPAYWALVDA |
| UniRef90_UPI00047567FB | PLLPFDEDYVPKPARSGMVDAL |
| UniRef90-B8PIA6 |  |
| UniRef90-W4BT07 | PLLFDRDLQAKPAYYAVID |
| UniRef90-C7PYE0 | A NLYDVNLAPKPVVADLQQDLK |
| UniRef90_M0CQK9 | PLLFDSGNDPKPAYDAI K D T |
| UniRef90-13Z665 | PLLFNRDNTPKSVVSEIMELAAK |
| UniRef90-A6W5F0 | ATVMTDDYERKPAYYALQST |
| UniRef90_H2JHU2 |  |



## UniRef90 W4BKT7

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| :--- |
| UniRef90_R7ZTE | UniRef90_UPIOOO35C95F8 UniRef90-H3GF56 UniRef90-W71694 UniRef90-M4G9K2 UniRef90-A3HZ47

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50
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 NAAVFEDEDKWYTTEPKQGQLNYTGADELLEFVRRNQITV
 S GITTPENQMKPQFVHPAEHLYDFEQGDUI ADFAEENNLLL E WAVF ENEAKWYSNESS QGNVSYANADYLYNWCAEN GIVKV NS S I SAETAMKMKS LRRPSATTYSWSEADNLVKFAEENNKRV NTVTTPENELKKWRI HPKLNTEDFALA
$N V V T A G N A M K P D A M Q P T K G N F T F T A A D D M V N K V L D A G M K V$ NSITLENGMKMYAVHRSPNQYNWKHVDDVVRFAQQNY VR D WAVFENELKWYWTEAQEGQLNYNDADALLDFCDRYGKPV NSTTAENEMKPVEVQPEEGSYTFDAADRIFEFAEAHGTGV NIIVAENAMKPQSLRDGSGLYTFENADKIVDFALAHQIKV SAIVSPENNLKCEMI HPKWDEYTHEVADKYVAYGKKNNMFV NA ATESNACKWETI EPSQNQFNWAACDYTANWQTSRGGKF GSITTPENDMKWAEI HPEPGVYHFSGADAIVEFARANNQEV NSIITSASDMKMNKVMPSEGVYYWGGVDSIVKYAKANNQRLL TS V T P GNALLKWDATEPAENSFTYA QADPL LAYAKA H GLAV NTVVTPENCMKA EVVCPSS GVYYDFKLAADA YVAFAAQENKMFV NMLVPD Y QLLKWDSI R P HPKKFDF TKS DWLAQFAQRHGMF F S SI TA E Y QMK MD IMMY P N Q GVY D WT A S DAIVNYAVDNGFNV
 NTAVFENEMKWYSTERRQQGKVSYETADKMLDFCKANNVLV D S VTA GNAMKMHF VAKEAGAYDFGPADQMLEAAERHAQRL D S I T F G N E L K P D Y V LDD Q N P Q V N F S Q A D A L L K Y C A A N K I P V TVTVFENEMKWYSTERTRGNLDYSVPDAMIQFAKQHNIAV
 NWLV A ENAMKPDALHPAEERFNWDNTDRLVEFAEENGMEVV SWAVF ENELKKWYHTEPQQGQVSYADADALLGFCERHGKRV TVTTFANEMKWYSTENTRGKEDYTTADAMLSFFKKHGVAV QSLAPENELKWTEDHPTPNQYNWNATDRLVSFAEKHSMVV SVAT F A NEMK WY STENSRGVENYKVA DDMLQFCKQNGDAV NAIT A ENAMKAEVVNPRPGVFDFAAADAFVDYGRRHGMFV NTIT A ENHMKWVHI HPEDEKFNWEPADAFVALGEELDNAGI NTATAGNAMKPDALQRTQGNFTETEADAMINVVRGAGMNM GMLTTPGNS M K WD A TE K T Q NVVF S F D S G D A V V A L A A K E M G A K V
 NS LSSPEN GLKKWERVVHP
 AVATTFENEMKWYSTEPAPGRE DYTVP DAMMAFAKSN GI A V NAAVFE NELLKWYATEPSPGKEEYGAADQLLRFVQSNDVTA NAVTLENSMKAEVLHPEPGRWDFERADAFVGFGRRHGMFV $T V T T G E N E M K W Y A N E R E Q G K E T Y T D A D A M V A F A K Q H G D A V$


 SMLTTTENALKMPQFVHPQPDRYDFTGGDLLVDFAAANDMAV SQITTAEWEMKMEYI LQDDGRFRFDRPDAIADFARRHGLRL

 NSLHPENEMKWSFINPMPGHYNWDPDDRLVDFANEHGMLV KVTAFEDEMKWYSTEASPGREDYSASDAMLQFAKNHNVAV NWSVFENELKWYWTEPQKGNLNYKDADDLL NLCAN HNLQL DWAVLENELLKWYYTEAVVQGQVSYADADELINFCDQH GKPV

 NIVVPENCMKWNDLDRPTADTYNFTDADSSVVAFAETHGMKV RVTT TE DEMK WYSNEPSPGREDYSAA DAMLAQFARSHGDAV $G Q T T P T N G Q K W L F T E P A P R L F N F T E G D Y V A D L A A S ~ Q G K L L$
$K Y T V F E N E M K W Y A N E K D Q G K Q D Y N M A D A M L D F V Q K M N D Q Q V$
 NWAVFENE SK WY TNEPSMMGUIDTYDDA DY LYYE F CRRSN GI KV R

## ,

S S I F GDEMKWYSTEYVQGHEDYSVA A ENDMMKMSY E Y VQGSNE Y V A D A ML QFAQQN NIAV
 GQUTP GNS QK WD STEPS QNEFSFTNGDVIADLADANDQKL
 N S L T P E NL M K WG S I H P R L E E Y N F GP M D N L V E L A E K L D A R V N I F TLE NGTKAENIHPQEDVYDFEAT DQLVEYGQANGTTV
 S SLTTPENDMKWDAVHPAPGVYDFASADALVAFAKANHQQV

 NWAVF GNELKKWYATEAERGKVNYQDADDMLDLCDGNNDNV NLLTAE NAMKPYAYKPGTREFDLTDE DALAEQAIANGFKV

S S VT H
 $N \mathrm{IL} \mathrm{V}$ P E N A L
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R A HA|LLVWHDDAAEWMFKDPSRELLLVAR|I Q Y|V|ETV|MTRYK RGHTLVWHEALDP WF QEVVNRQNAEKFLVEHIATVTKHYA RGHALL WHVDAA E WMFT GPDRE LLLLT RLLQSYYIETVMMRYN H GHVLVWHQQTPAWMNTSGGREEALANLRTHIRTVMEHYG $R G H N I F W P K Y T P V W V Q N L T D$ SEELKSAVNSRIQQSLMSKYK



 H GHVLVWHQQSPTWLNTSDGREEALENLRAHIKGVMEHFG HGHAFIWWHSGTPGWI SEMQPDSTMLK IMEDYILTYGSRYK RGHCIFWDNVVQQWLK GL DHDQLMAAVQGRLQGLLTR YA RGHTLLWHNQTGDWMFKEASREQLLARLQTHINTVVGRYR RGHALVWHQQAADWMFRGS GPDELTERLHTYIHDVVTHFK VGHALVWHEQLSPFVHAlK SKDSLSLGMKNHISTVAGRYK RGHTLVWHSQLA GWVNNLRGAAAVDNAMKNHITTIMKHYA R GHTLLWHSQNPQWVSDDWTCEEARDVLEDHVRTVVGRYA F GHNLI WHSSTPKWVEEKASKDSLWKFMEDYIKTYVGRYK RGHTLVWHNQTPAWVVT GADGEPMTARDENHIRNVAABYG MGHTLI WHNQTPAWFFTPNSPEEQKERLRSHIXAVAGRYA RGHTLVWHQALPVWFKEVANRKNAES LLLEEHITTVTKHYG HGHALI WHNATPEWVRNFSGSDTFEAMVKDYIVTVVGRYK
 RGHTLLWHNQLPGWLTTGVSNGTLRDILKRHIFDEAGHFR RGHNVLWNQYQPGWVKDLS A SELLRTATMSRIESVMSHYA F GH TLI WHSATPD WV E ELAD P V A L D D A FMK D Y I H T Y V V G Y K RGHTLVWHSQTPDWFF DWVD K DTMDT RMENY I KNVMEGLA RGHNV FWDDPQPGWVNSLSQS DLNRATDNRLNSVMSRYK RFHTLIWHS QVPEWFF LD K D GKPMLKRLETHIKTIVKRYK RFHTLVWHTQUGDWFFKDANKK LLLLQRLDQHVRAIVGRYK R GHCVFWESNVQQQWVK DL GRDDLLQPAVVARLEGLV SRYA RGHNIVWNDPKY QLQWLDS S GHDFYKAVKQRMIDSVVSRY K GHGLI S S C CNP D Y L L NIT D P K QF R A A MVTHFDA I M H R Y A
 VGHTLVWHQQDPRSVFEGSSKDALLQKMMRHIEQVVGRYA HGHVLVWHQQSPAWMNTTTNRTEALLNDRTHMQQTMMEHFG RCHTLLTWHS QTP Q W I Q S L S K E K M L S A L E N H I T K V M T H F G RGHTLVWHSQLDPNWIVNNPAVPWTLKPVLENHVRTVVRHFK RCHTLVWHSQLAP WV EK QWTPETMREA!VRHIQNVAGHWK
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 H G HV V V WH A Q S P T W L H T A A N G QP L L A N L R T H HVN T V V V E H F G RGHHIIDDPKY QPSWVTALNGPD L Y NAVKRRVDSVVSRYK RGHNI FWENQDPRWVKGLSPED L R S AVNTRIQSLMTRYR VGHTLVWHQQTPDWVFENDNKKELDARMEDHIETVAGRYK HA H TLV F GEANPRWMQ DAPA DRRERDMLDHI STVVGHYR H GHALI WYS QMPAFRALDGQGKRFADAYRNYILAVAGRYR RGHTLVWHSQDP DWFFQNPTREQLRSRMEKHIVTVVGRYK RFHTLVWWNQVPDWFE LDANKELLLERDETHIKTVVERYK VGHTLVWHNQTPDWFFTTADPAQQLERMRQHIALVAGRYA KGHGLISSSCCNPDFVVNITNPKALRAAMT THFEAIMMHRYE RGHNI FWP QYQPGWVNSLSPSDDLSKAADKRDNSVTSRYK
 RGHALVWHESLDPQWFQQVVNHQNAEKVVKHHIETVMGHYR H GHCL AWHQQS GN WLGKSADREEADE QLRABM NGVAGYYK RGHNVVWD D QQME WV S K L S VVP QLKEAMAKR L K NVVTR Y A

 RGHNI FWNNPMPSWTRSLSPAAQLSSAASKRINS VMNSY L


 H GHALVWHPSYQLLPNWAS DSNANFRQDFARHIDTVAAHFA
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 R GHTLLWWHSQNPAWVTAASATWTARAVLEDHI RTVVGHFK RGHCLVWHSQTPDWFFDWVSKDKMIERMENYIKNVMEIIA K G HALV WH TQMPS WVD DALP A WQLRRAALLNRVTTVVSRYK H GHAALVWHS QVVPN F MK NWA G S A E F L A A L D T H I T T T I V D H Y K HGHVLVWHS QSPD WLHTQVDANEALNNLRTHIRTVVKTTGG R C HVVLV WGAA QLP S Y V T S T S WT K T L S D DV L Q A H I T T TTV T H F G



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GKI Y A wDlv viso
140
150
160
GK|I Y A WDVVVINEA $\square$ A DSNGL|RKSPFYELI GPDY TEKTYEFA

 DEFVVWDVNNELLHF N N N F Y E QRLGPNATLEFYRTV DKVISWDVVNEAMSDNGSLRKSPWYYAI GEDYVEQAF LAA GRTYAWDVVNEAVADNPVLRQAPWLAAAGGDYVEYAFRYA GKFLHWDVNNEMLHGD GK F K KRLGES WPYMFKRA GKVVAWDV NEAFADNGDLKNTIWRQKLGPNY:DMAF:FA NKVISWDVVNEAMNDNNALRKAPWYNAIGSDYVEQAFLAA $G K V A G W D V V N E A D D G T G E F R K S D W Y E T M G E G Y I S R A F E L A A$ GRFPHYDVNNEM D D M L L G GSFYQDRDGDD I NAFMFRET GRAYAWDVVNEATEDDQYLRDTRWDEDIGGEDYLRQAFEMA GKIDGWDVVNEALNEDGTYRKSDFDDKLGEDYGVTAFKGA GKAYHWDVVNEALNDGGTDRSSVFSQQUGSDFITKAFTYA
GE G V
D DIA A WDVVNEGLESAGGARKTMWYNAIGKDY:AKAFTYA
 GKVTSWDVVNEAFNDGGSYRNSVFYQRLGEDY SKCFQWA GKLYAWDVVNEPFNEDGTWRSDAFYNALGGDSYVALALNAT GKI WQWDVWDPNPLPNGMNGDNFWVSHLGVGIVADAFRWA GKLPQWDVLNEMLHF NFFESKLGSNAAVE $\square Y K$ FA GKVAGWDVVNEAMNTKGGYRESVWYQALGKDYISKAFRYA TQYYAWDVVNEAWQDNGTPRSSAWTRIFGDNFIEYAFQFA GQVIGWDVVNE NLHFNFFESKLGQNASSVFYNDA NDI QS WDVVNEVIDDGNGLRESPWFKITGTDY円KVAFKTA NKIKSWDVVNEVVEDPDGMRASDWYKITGTDYIETAFRAA GRFGHYDVNNEM
GQVAS WDVVNE
Q GKMDRWDVV GQVDAWDVVNE GRVHAWDVLNEAI NEDGSYRQSDWFNLAGTDYI HLAFRAA $D N V I S W D V V N E A M N D N G A G R T S P W F Q A D G P D Y V E Q A F L A A$ DSCYA WDVANEVMGDNAQMRDSFWYTATGMDFLSTAFKTA GRCYAWDVVNEADEDDGSWRKSVFYRVLGEEYIKDAFREA
 GQAVGWDVVNETVADNGDLRAS $\square W T R N L G D A H M I L A F H H A$ GQVI GWDVVNE NLHFSFYEGRFGWDASTAFYAAA GDFVHWDVSNEMLHFD FYEDRLGGNATADFFSTA GKVHAWDVVNEQI GEDGRYRDTAWYGGDGDALLRDAFRFA GKVI A WDVVNENVHF SYFESQLGQNASSVFYQQA DQVI SWDVVNEAMNDNPPLRNSGWLQAMGPEFDEEAFQAA GQLASWDVVNE NLHFSFFENAMGPKVSYNVFEQA GEFAHWDVNNEMDHF NFYEQRLGANATMEFFSVAA GRIH GWDVVNEVFFDNGQYRTSKWYNAAGKDFIKAAFRKA GRVAEWDVVNEYEDGGTGLRRHLWQQAMGEAYIDTAFAAA GLAAS WDVINEAVDDNGDLRRSAWTDNLGDEHMILAFHHA GKIK Y WDVVNEVI SDKSGLRKSKWKDGYDDDY IELAAFKYA
 GRIDRWDVVTEAKTMGGGLNANDFSRQLGPGYINEAFGDA GQV $\quad$ A WDVVNE
GKFKHYDVNNEM
GRFPHYEVNNEM
LHGA
GETYS WDVVNEA乌V Y DGVR
GKVIH WDVVNE
GKMHSWDVVNEA $\quad$ WP DLLHFSFFEGKLGKDASAEDFKDV GMRTSSPWFQMLGPGYIDLAFRTA

 NDIKSWDVVNEVI DDAPGDRESAWYKITGDEYDKVAFETA GEFVHWDVVNEMLHEADGLRESAWYESRLGKNASYVAFETA GKV 1 A WDVVNE N $\quad$ HFNFFESKMGPNASA $\square F Y N W A$ GQVKSWDVVNEALFDSNGYRQSVFYQFGGPEYIDEAFRRA
 GRCYAWDVVNEALADDGSYRDSIWYKA IGEAYIPRAGAAA GKFRHYDVNNEM $\quad$ LHGS FYQDRLGND RAYMFKTA GKVHGYDVVNEAFFDDGQYRTSKWYNAAGKDFDKRAF DKA GKDHTWDVCNEVLDDSFGLRQSEWDNDISYDY DEDAFQTA GRVSAWDVVNEAITGNWGYRNSDWYKIGGEDYI LEAFRAA EEYYAWDVVNEAWTDDGKPRNSAWVQIFGDNFI EYAFKFA G VVAWDVMNEATADEGLYRPT IIMKKGGPGI DDAFKRAA
 D RVIS WDVVNEAMNDNDSLRRSGWYYAI GPDYIYEAYKTA SQCYSWDVVSESPDSNTLSTTSSLFHQVLGASYIPFSFYWT


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170
80
190
200

## ग


180 EKREHMYQLVKRLLKEKG
200 AEKDPKALLVYNDTELLEYDIPEHRGAILKLLERLKSRGTP
 HQQDPLATLFLNEFNVVETCDSTSDKYIAKIRELKEDGMS REVLWDIKKYYNDYNLDNQNKALSAVYNMVRELNEKKLL
 HRADPSA IL FI N D Y GMEYGNN K R R G L V V K Y V E GMI Q R G I P HQADPNAEELYNDYNLY KPEKSAGAAKLI AS LQDK GI Q REVDNWD $\quad$ K L Y Y N D Y N E D N Q N K A E E A DY S M V K D I N D R K K L HKADPEA』L FYNDFNDERDTVKLH A MLRMI EKLKA QDVP

 EKAAPGTELYYNDFNDE QPKKREGA』RLLKKI DDS GAR


 A A CDPKAMLVYNDYGLEYDSYA KRTAVLKLL ERLLKSRGTP READQDVLLTFYNDYNMCNDQ TKQNAVESMI DELDSDGVS


 RKYAPACKLYYNDFN E YMP QKTTADIMDMAMELKEKG L


 RAAGPEAKLFLSE SLLVETYPGKRQELYDLVSGLVSDNVP $R$ Q $\square D G T V E L F M N E Y N T I E E R G D G A S S P A K Y L Q K L L G G G S G$
 EKADPNAELYYNDYNLW KPEKRDAAIRRCQELRSKGVR
 K S L G L K T K L Y Y N D Y N T N $\quad$ T $\square$ N A K S T A A V F K M I AKVDPHAKLYYNDYNLESPGPKVGAAVGRLVKMLRDEGIR QKADPDAELYYYNDYNVWRA SKRKGILDDFAKEMKA E GI K $R S V D P G A K L C Y N D Y N T D G V N A K S T A V Y N M V K D F K S R G V P$ READPEATLF $\square$ NDYHLEN NPTKRATTLRTVERLLKAGAP $R$ LLDTGNALFMNEFNTLEQPGDMAADPDRYQQRLRQENGA
 H QLDPNALMF LNDYNTLEAPVDTPDKFLQKLWQIQSFGNL

 H QVVDPETELYYNDYN MWKPEKREAAI ALARREMRSEG I K

 R K A G E D A K L L I I N D Y QRYAPDAELYYNDFNAW RPSKRDGGVRMVRMLQQSGI R RAASPGAK LY Y N E NQVEVLPGKRQEL EDVVVRIVA DGVP

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 VKAD GANTLGMNEFNTDEESRD GASTPARYL QK LRENRNA
 R R A A K D A K L Y I N D Y NTE

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 HEADPDAVLF LDNDYNAE GINAKTNAYYALAQEMLAAAGA P
 R A A D P A VIL $V$ Y Y N D Y N I L E Q N N N A K T T K K M V D M V K H K LD P S PLLLFVND Y HVVEDGDDPRPEKYIV LVLDDLEA QGAT R E V G W D I E L Y Y N D Y N D D N Q N K A
 S K Vid P K A K L Y Y N D Y N L E WP S A K T E G A Q R I V K L L K D D G I R



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UniRef90 Q8GYW5
UniRef90-L0EAT5
UniRef9O-F7W2U0
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UniRef90-W4QLG4
UniRef90_F2ZD83

DSGQAYRYK 250
260
270
280 R GQAYRYKELLDLYKKHKDHI S|VLTLWG|LQDEKSY NNQ
 TAGSNSEYAQLLKLYKEHAAHIAAVTFWGLNDATSWRSAQN SDTFSKY LEQVLREGFSHPAVDGIMLWSADRRN KCYR RAAQAY LYAQLFK FREYSDSIAVTFWGMDDGTSWRAEES SMFQAERYEEIFKLLREYRDLFGVTDWGDADDDTWLAD NW VNKRAENGENLYRGAFSHPAVEGIIMWGFWAGNHWRGQDA ERQQAAKYEYIVRSYNALPKQFGIVLDWNVTDNDSWVRPDW MAGNNSQYAQLMKLFKENSKYISVTFWGMDDRTSWRSTQN LQAQADKYQWLAEAY ${ }^{\text {L }}$ RNEQRYGMTVWGFSDKYSWDPSDW CESRAEDLEVVLREAYAHPAVEGVMFWGFMQGHMWRQD SVFRHDDKRTDLKAPTAEDSIDSVTFWGVADDYTWLDGNW SI DHAERYKQFFDALRQRKHI SAVLMWGLHDEVSWLRYDA
 RVPHAERHDAMLEACLAVPSCTSFTVWGFPDASSWVPDVF IFNTHNDTRKMYRSIVPEKQQYGリTFWDFTDRDSWI S GDW S $\square A Q A Y A Y R D L F A L F R R Y A A D T S V T L W G L A D D N T W L R K D A$
 RANPDNNMKEVAAIYNSLPNKYALTIWGLKDDESWLLDDW

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

## 76A6D5

1
1
$376 A 6 D 5$

 S $\quad$ I Y A W W D H R D


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



 EGA QATSYGNVVKACLAVTRCTGMTVWG
$S L G D K P D F A R L P E L L K R Q A Q R F A F T V W G L R D S D T W R P D Q$ A GA Q A Q H L E E V L R E A Y A H P A V Q G V V L W S A WR P E $\quad$ G C Y V



 Q E K L A K R Y A A L F A LAF VAK H S D K I S l T F W G V N D G G S W L R TA Y



 Q S N Q A Q Y L E Q I L R E A H A H P A S D N A D D L E V ML R E S F A H P A V E GVVVLWGFWE LIFMSRANA Y S A A R A D D L E V V R E A Y A H P A V E GV ML WGF M Q G H M WR S H G Q









 RMETPATDANLQQQSTEFANIPSST






 S S S N GE D L E VMMLWEA FA HP S VEGGIMLWGF WE LSSMSRENAN

 RAGAA ER Y A T V L A A C L D V S L C N S F T I W G T L D A Q S W V P N T F


|  | 300 |
| :---: | :---: |
| UniRef90_W4BKT7 | A MLF D S AlL |
| UniRef90-UPI0002F55AA9 | PLPFDSNLKPKLAWNAI ARAFDR |
| UniRef90-W4E475 | A MLF DEQLKAKPAYWG |
| UniRef90-F8FBP6 | PLLFDRDLQAKPAY |
| UniRef90-M1AFK4 | MCLTDPDLNNLPTGNVVDKLLKE |
| UniRef90-L7VLT8 | PLLFDRTLKAKPAYYAVAD |
| UniRef90_S0FT37 | PLLFDDEHK |
| UniRef90-A3DIL1 | A IVDDHDWTVNEAGKRYQALLLKE |
| UniRef90_R9GRC9 | LPFDGNYQKKPAYQG |
| UniRef90-K7A0W0 | PLLFDRNNQPKTAYDA |
| UniRef90-B1A3N2 | PLLFNGNLQAKP |
| UniRef90-UPI0002E85060 | PCIYDEDLNPKPAYYGFLR |
| UniRef90_J3KW61 | A CLVNSDGSVNDAGERFIDLRRE |
| UniRef90-W4DZT5 | PFLIFDEQKQPKASFARLA |
| UniRef90-UPI00036 | PLLFDGKLRPKPAFWA |
| UniRef90-UPI00047AB79A | PLFFDRNNKTKKAYDQVMALKKK |
| UniRef90-V2XCP4 | TLLFDTNYQP |
| UniRef90_UPI0003B2FB2F | PGI F T D D LDP K P A Y H A MLE S LRE |
| UniRef90_E6X9A6 | P TI Y DENLEPKPAYFSVLEGLNE |
| UniRef90-U5VYF0 | PLLFDTRLQAKQAYWG |
| UniRef90-UPI00047BFDCC | PLLYNRNFEPKLARQAI METVK |
| UniRef90_G6FP94 | PLPLD S N M Y K L A WNAI ARAF |
| UniRef90-W7Y6C6 | PLLFDMHFNKKDAYYGVLEGL |
| UniRef90-D8PPF8 | PLIMFDESFKQKPAYTGV |
| UniRef90-UPI000376C058 | A TLHDTNLQPKTAYTTLQQDLR |
| UniRef90-D8SC47 | MCLTDQNFKNLPAGNDVDFLK |
| UniRef90-B5JGI9 | PCLFDEEDEPKPAYHGFAEGLQ |
| UniRef90-R7FED1 | PLLFDEN |
| UniRef90-B9T2E9 | MCLTDNNFKNLPTGDVVDKLMGK |
| UniRef90-R9C8Q1 | PFVFDKNYKVKPAYWA |
| UniRef90_UPI000376A6D5 | PLLFDQQLLQAKPAFWAVVD |
| UniRef90-I1GUC0 | VDAD GTVNEAGQMFLNLQRE |
| UniRef90-ROH0J8 | MCLTDGNFKNLPTGDVVDKLVHE |
| UniRef90_G3Y4A1 | PLMFDEYYNPK |
| UniRef90-D7SXP9 | MCLTDGNFNNLP T G DVLDK $\mathrm{V}^{\text {L }}$ LRQ |
| UniRef90-K8Z0Y9 | PLLFDRERKPKPAFDAVL |
| UniRef90-R7ZTE8 | PLLFDREGNP |
| UniRef90-UPI00035C9 | PLLFDKNLQAKPAYY |
| UniRef90-H3GF56 | PLPWNSALVRKSLY D G I V |
| UniRef90-W71694 | ALPWDVRLSKKPAYTAMY |
| UniRef90_M4G9K2 | A TLLWF DDFSKHPAYDG\\|VEVLKK |
| UniRef90-A3HZ47 | PLPFDRNLD |
| UniRef90_D6KFT7 |  |
| UniRef90-R0CX88 | P LP F D A A GRPKPMF QA |
| UniRef90-K4A7L1 | MCLT DNNFKNLPQGDVVDRLIAE |
| UniRef90-K7TJG7 | MCLTDADFTNLPAGDVVDRLLGE |
| UniRef90_UPI0002D38E40 | PLLED |
| UniRef90-M0RZA8 | MCLTDNNFKNDPTGDVVD |
| UniRef90-16M1A2 | PTLFDKDFQAKEAFYGVADYLRE |
| UniRef90_M4F019 | MCLTDGNFRNLPTGDVVDKLLRE |
| UniRef90-W5DYI9 | MCLT D WNLKNLPVGDVVDRLLQE |
| UniRef90-U5BLZ2 | PLPFD |
| UniRef90-10H995 | PLLFDRNDAPKAAFTALTRVLR |
| UniRef90-B8H365 | PLPLDDAGQPKPMFQALAEVL |
| UniRef90_K6SWI9 | PLLFDRSLQAKPAYWALVD |
| UniRef90-O30700 | PFVVFDPNYRVKPAFWRII D |
| UniRef90-UPI0004679E57 | PLLFDRNYQPKPALDAVL |
| UniRef90-W7E3J5 | PLMFDENYKPKGAFYATHSDLEE |
| UniRef90_V4S6M7 | MCLTDNNFKNLATGDVVDKLLHE |
| UniRef90-A0A022PV01 | $V$ NAEGDLNEAGKRYVALKQE |
| UniRef90-K3XG02 | D GMLTEAGSRFAGLRRE |
| UniRef90-UPI0002483CAF | $P L P M D T N L Q P K L A W N A L A R A F Q Q$ |
| UniRef90-E9NSK4 | PLLFKANLEPKEAYYAVLN |
| UniRef90-J3LL39 | M CLT DNNFKNLPVGDAIDKLLHE |
| UniRef90-UPI0003709346 | PLPFDPEYAPAPAFFAMRE |
| UniRef90-M5VP79 | MCLT DNNFRNLATGNVVDKLLYE |
| UniRef90-V5JB86 | PLLWFEDFSKHPAYDG |
| UniRef90-UPI0003D2 | MCLTDNNFKNLPTGD\VDK\IKE |
| UniRef90_UPI00047B2DCF | P FVVFDPEYKTKPAYWAI M D |
| UniRef90-M4D2N0 |  |
| UniRef90-A3DH97 | S I VNDNWTLNEAGRRFESLMNE |
| UniRef90_UPI0002C3621C | MCLTDENFNNLP T GDVVDKLLRE |
| UniRef90-P14768 | PLLFNDNDQPKPAYQGVVEAL |
| UniRef90-W8F367 | PLPFDDNYQRKPAYDGIVEGL |
| UniRef90-G9EHD3 | GLIY D A Q Y Q |
| UniRef90-B8NXT6 |  |
| UniRef90-A0A023JCX3 | VNAEGDVNEAGRRYLALKQE |
| UniRef90-13Z682 | PLLIDKDFKEKK D I DA |
| UniRef90-O80596 | LVNADGEVNEAGKRFLEI KRE |
| UniRef90-R6XWU8 | PLLIDRELKKKSAYWALMNL |
| UniRef90-G3EGG2 | PLLEDKQLKPKKAFYSVTD |
| UniRef90-UPI00037A5761 | $P \mathrm{GI} \mathrm{I}^{\text {L }}$ D D Y SPKPAFDAMLAS LR |
| UniRef90-R7MKJ9 | PLLFDADYKAKPAYYS IT DGI |
| UniRef90-R1BWA1 | PLLFDREYGLKPAYHGCCD |
| UniRef90-Q59675 | PLLEDNNYNDKPALRGFAD |
| UniRef90_Q8GYW5 | VEGEGEVNEA GKRFLEVKQE |
| UniRef90-LOEAT5 | PLLFDGRYQAKPAYYAVMD |
| UniRef90-F7W2U0 | P CLY Y D M N K G S WFAVAEVLR R |
| UniRef90-Q2H7X4 | A LLWFEDFSKHPAYDGVVEAL |
| UniRef90_A0A010Q1P6 | P GL HEGDYERKPTY |
| UniRef90-W4QLG4 | PFVFDHNLQPKLAFWALVD |

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UniRef90 J3M5Q9 UniRef90-UPI0002B419B0 UniRef90-A0A059BCIO UniRef90 M2A832 UniRef90- W5X4M2 UniRef90 UPYOOO47C2640 UniRef90 UPIO00378753D UniRef90-M2N124 UniRef90-F3H260 UniRef90-K4AL61 UniRef90- B1ZPQ7 UniRef90-W4V5A0 UniRef90-D5KQ14 UniRef90-A9UZL2 UniRef90-W0FQ73 UniRef90- WoFQL9 UniRef90-U2B3R4 UniRef90-E6UAU6 UniRef90 W WZY J3

SQSLIPAD ${ }^{10}$ AAYGPG20 ${ }^{20}$ Q A $\square E A L D A A D A A M G K F Y \square G A A V H W N G L N D E R Y T K N N L D T H Y$ PS L K DVYSSY FK I GTAITTPSDLSSKPTMKLVQKHF D FP G G M I SRT ILLENLDPYQEWF LKKR F
 QTKADFPFGCGMNHH【LTN TDDYQEWFVSRF
A Y A P LKEVYK D Y
$P L R T V A A Q Q G$
AEPSLKDAVGKR

F S I G A A A V K L G E Y N
$P \| K D V Y Q D Y$
A L K D RAAAK G L L Y

T T L K QAY A
Q A Q S GLLK D
NDF LIGGGMNHNLL


APGPE
T
S
L
L

I K QT RANFPY G CA M M N R HV L
V K ORANFPYGAMNRHILTNSDYQKWFVVRF

Q A A ECVERVVRQVVSNSPMGGACIMMRTNMDNEDFVDFFTKHF



TGLNAAATS SGK LWFGTAADTGEAADYYYTQEFNNDF GL N NAA RA D GK LLWF GTAADDPG LDDDRYYMK EYNNDF



T PLGRLA QEKN $\square$ S F GFALN Y RLLSN QDYDALVSREC

## EAGEGDLDLLKNTTD

 SAD GLQALLAARRPGFVI GAAMVADGPLDSDEDYAAADVGEF

S $\square$ KQTRPGFFPLGNAMTPEMLSNXPAYEQWFASRF
A SRF
$S$ LAK A Y E K F R DGAAVSP WQ A S A A H H G L L L Q HF NSFPFGTCINTTVI QNPAFLDFFTNHF
PALRRQPAAEKG $\square R F G F A V D P A K L N D A A Y R Q L V A R Q A$
 QKKPNFPFGAGMNYHI L LSSKEYQQWFASRF


 SATGMA DAAKAVGR YFGTAVVTGEASDPYYMAVLMNRNG

ARAASRRVPFGAAVQVDQFEDASYRALIEREC

VLQKKKAFPFGTCVAA WAYNDGAYRDFDHQHY $F$ LVGAAVGPGHTSDKSGVAVIEEQHF $P S L K D V F A G Y F K V G G A A T A A E L A P K P A K E L F L K H Y$ STTLA GAYKDH FPI GAAVAAGEFDFDSYPABLLAEF ETLRDAAARRG $\quad$ VF GSAI NYWDLQDAAYARLAAA Q Y EAAPSLKELYA GKFDFGAAVPQYAFFDDGLKEMMDAQF


S LA K S Y EK FKK G A A A VA A H N
 LKDTVDFPVGVAI DSRE TAGTASELLLRHF A G T T MLDDVYK D SFKL GVVALPNNVVNSTMDFDTAVKDNF A ATSDQTLLNTYGSKLVGTCVSLSQLQNSATQSVIMQRY SPD GLQALAASRPDFLVGAAVALGPFSDAEYASAVVGDF QSAKGLKKTYANY

AGLAAHARKSGR $A L K D D C K D Y G A B L$
LD P A L K D A Y N H F K $\square$ G A A $V$ V
A EEDLS K L K DAA GKF
A SVTVAQQLL $V$ K K D GK F D F G M A V P
A $\mathcal{P}$ GLQ


## UniRef90_V4QLH9 UniRef90_D5UK72 UniRef90_G8LZ66 UniRef90_A0A022RH16 UniRef90_R7H4M8 UniRef90_K4D1C9 UniRef90_E3L548 UniRef90_R1FM39 UniRef90_G7IEV8 UniRef90 E0RS15 UniRef90_EORS15 UniRef90_UPI00028976F8

 UniRef90_M2B2U6 UniRef90_R8BMK2 UniRef90-W0FRC5 UniRef90_X0RPT9 UniRef90_V7AFT9 UniRef90_B4WP63 UniRef90_UPI0002C35DBD UniRef90-I4VQD3 UniRef90_L0G036 UniRef90_UPIO002B4C456 UniRef90_V4N2I7 UniRef90_Q9M070 UniRef90-B5JLLOUniRef90-M5VJ27
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UniRef90-J3M5Q9 UniRef90_UPI0002B419B0 UniRef90_A0A059BCI0
UniRef90-M2A832 UniRef90_UPI00047C2640 UniRef90_UPI000378753D UniRef90-M2N124
 E QIT P GNQMKPDAI QPTEGTFTFTAAD GLVDWAIEHDMRV
 GS I T T L G N E M K P D S V L D Q K P QV S F A A A K S V L D Y C S E N K I P V


 G L L VP E N A L K W A QV H P A Q D R Y A F A P V D R MV E F A Q A N H Q R M $G Q V T P G N T Q K W Q Y T E P S Q G Q F S F T Q G D V V T S F A E K N G Q Q L$


 N A IT LIENAMMKA E V V H P L P D Q W D F K A A D A F VV D F G Q K H H M F I
 TTTTTFENEMKWYSNEQTPGRVDYSVSDAMIVYAKQMNDAV SQLT A E WEMKMEYMLRDDGSLQQFDRADALAAFARTYGMKVV $K D T S F T N E M K W Y A T E K A R G Q E N Y T V A D S M L K F A E D N G M V V$ NTITT DE T E L M P F K L G A D E D D Y A F E N A D R V L E W A D A H D L P


 NWAVF GNELK WY WTEP QRGQVVSYADAD DLLK LIC SD N GMCVV NQLTP E WEMK ME Y VVQPD GS FRFDAPDR I AA FARA H GMGL $N V V T A E N A M K P G N I S K V K G E Y N F D N A D K L V T W A K E N G G K V$ QLVTAENAMKPDYAYD\|NREFDFQSSNQLVEQUVEHDLLL

 GEATPANDMKYEFTEPQPGVFDFS GSDYFLAFVKATGKQV GGTTPANIMKFMFTEPEQNVFNFTGAQEFLDDAFASHKGV



 T I V T P E N A M K WE A V HP EP DR YT F TAQA DAA L D D A A Q Q H A M K I


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

 S IVAPE NALKWQTVHPEPERYNFAPADAI AGFAKAHEQRM N SI T L E NE MK P D A L E S V V P Q I N F N T V D E V M K DC Y Q N G L K M







 NTITPPENAMKWERI HPKPGRYDFK LAD QLVEFGQKRGMFI
 NSLTAENAMKPS II QQPKE GEFNWVHADRRIVEYA E E H NMRL $N$ LGTAANSSCFAATEGQPGSFNVVDCTSVVLNFAHEHGMTF
 NTLTTAENDMKPNAI APD D WNYSFSQADRLVTAASGANMKM D S L T C E NEMKP Q HL LDDE E ENVSF Q G DRVVADDFARENGMKM

 D QVVTS E N Y M K V E A WY A G T G V D T F R L A H P A L A A D Y A R A A D D L A V N S I T C E N E M K P E S L LDD K E A S VV H F D N C QP SI N Y C E E N G I Q M

 NAAVFENELKKWYATEPAPGKEDYALAADQLLQFVQQSSDAVAA DMVVQEYELKRGTTEPKPGRYDFSGADQII AFAQRHGMRA NSCTMTNLMKSCY ILDQFGSLNFYS DDPTLEWCQETGMKM
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 RGHTLVWHNQTSSLI PRPLPKEEARRLLEEYISTVAGHFR RGHTLCWHRADPDWVTRTVTPDNARQVLTQHIAAVVGRYR

 H GHVLVWH Q Q S A E WL H T DDD GNLLENNL RTHVQTTVVEHFG RGHNVFWPHYQPSWVPS LSP TQLSSAVEERVKSVVSKYK RGHTLVWHQSLPPWFEETVNNRNAEQVMHSHVRTVAGRYR VGHTLVWHNQTPEWFNGTLDPGEELGGTASAKRANSVVARYK VGHTLVWHKQTPEWVFKDQGGMDLSAMMQDH QNVMGHFK RGHNVIWDDPEQGWVKSLSN TALYRAARRRLNSVMSKYR HGHTLVWYAQDGLHFQKLKGPDAFLNAYVAYIQKVTGRYG R G H TVLWDNMQPSWVK NIK DPNDVMNVTLNRINSVMKRYK YGHMLLWDYRTPQWMFTDPNGTPLDANLKTYI QKVATHYR RGHNVFWDDPFYQWVKSLSP QQLASATQKRLNSVMNKYK RGHNI LWDSRQPEWDLSLSP DELREAAAKRMKSVVSRYK H G H T L L WHR S WP Q WF KS AK D S A A FES A VK Q Y I Q A T T LR Y K R CHNLVWVS QVS D WVLN GNWT EDLI A VMQNHIQTMMTHFG HA HALVWHSQMPSWMENYQGDW WLTMMDTHVSTVADHFK R GHCI FWDNMVQQ WVK T L S T D D L S A A V K S RI D G L LTTR Y K
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 RGHNI FWPSTQMGWVKALSGEQQRRATEKRIKSVMSRYS RGHTLVWHSQTPDWIFYLADRELMLTRLDNYMHDVFEWHP RGHAFCWHRALPA WVTHDVTTKQNAEEVLDRQHDATVAGRYK RGHNVLWDNHQPRWVQK LPPKK LRRAAM KRVVNSVARRYS Y G HVVLWWHAQTPDWFFQDADKQLLRDRLATHIDDVARS DA
 HGHTI AFTEAMPRWMQDLPT GTEEE EALLDDYVGTVVTHFA RGHNVVWDDPQMNWVESLSSDR LRAAAVEKRVRSVVSRYA RGHNILWPKYQPEWVKNLTS DELRKAAAKRVDSVVSRYA R GHTFVVWHSQTP DWFFRLVSKEVVMDQRLENFIIKNTFKA LIK RAHAPVWHNQTPEWMYRDGDRPAAPELI YERIIKAMCERYG R GHCVFWD GDVQQWVKNLDDKDQLKS AVQSRLEGLVSRYA RGHTFCWHRSLLPDWVHQTVTPKNAEAVLTAHISTVASHYR RAHTVVWHSQTPSWFFRFVNASTMDARREMYVKTVMNHYG

 RGHNVFWPK Y QP D WVVR S L S P D D L R K A A E K R I N S V V S R Y A
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U5VJ27
UniRef90-M5VJ27
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130
140
150
160
G|VI|PSWDVV|NEPI WNDGG|LRPCDWQKVLGDDY| GILIA LEAA NPIFAFDVVNEVIDEPDGLRRSEWYRILGKSYIADAFRYA DLFYAYDVCNEVVSSYTMPYNNWKTVYGDYSYVTKAFEYA GQLFHWDVVNE NEFFACDVVNEAWKDDGTPRDSAWVKVGGDNFIKPAFEYA
 GRIPAWDVVNEHHGDGKTYRNSLLMRKLGPDFIEAAFRAA GELDAWDVVNENVHFH GG| HAWDVVNEAVGDGSQWRSSPWYQYGGPEYMREAFEYA DVATHWDVVNEAI GDDGLLRDSVYSRTTGMDFIVTAFKTA GQCYAWDVVNEALNDDGTYRTDVFYNTLGNTYIPDAFKAA GVIVSWDVVNEALDDGTNWKTSPWTRTVGEDHVLRAFEFA GKLI SWDVVNENMHF GQMHSWDVVNEQDGRSDGLRKSPWLEFMGPDYVELAFRDT GRVDSWDVVNEQTGDDGNYRDTAWVRGGDELMRLAFGNA GSVKTWDVVNEAFTDEGDFRPSAWYQTLGEDFIKLAFQTA GQVIAWDVENE GKLTGWDVVNENLHWD YFEKMLGANASTSFYNLA GRLAGWNVVNEAUSDTPGLRETSAYRSUGPDYVQLAFQFA GQLIGWDVVNE NLHFNFFESKMGANASALFYNWA GQLIAWDVVNENVHFHGTपRSTFEDNLGKNASAVYYSAA GKVVSWDVANEDFNDNGTDRSTTFKDPI GPFYGRCFRYV DACYSWDVVNEAVAANGSFSSSTWFDVIGPEYFFDAFQFA GKFRHYDVNNEM GQAVGWDVVNEAVAEDGGWRDSDWSQRLGDFHIADAYRTA GKVISWDVLNEAFEDPAGWRDSPWYQAYGSDYI YDAFVFT GHAMSWDVVNEAMLDNPSLRRSGWYHADGDDYVEQAFLIA E

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| N |} GQVIHWDVANE

GQVIA WDVVNENLHFD
GLFYAWDVVNEAMDDDNHMRESLWYQTTGEDYVTQAFHYA GKLHSWDVVNEKDNQPGGWRNSFWFQQLGPAYLDDAFDAA GQLIA WDVMNE SD NLHFRFYEQNLGENASAEFHART GKCYAWDVLSEA DDDRGYPRTSMWSAV GESYVPKCFQWA $G K V I A W D V V N E N L H G D \quad F Y E S K L G A D V S A Q L Y S G V$ GQLIA WDVMNE NLHFSFFEDKLGKNASSRYFKRA DQYPAYDVCNEDFVNDGGAKESKWAQTYGDDYITNAFKYA RDVYA WDVVNEATRDGEFYRNSEYYKLCGAGFIEAAFRSM AKFPHYDVNNEMLHGQ GLISAWDVVNEAI QQPDGDRNSFWYQMLGPRYLDIAFKAA SVVYAWDVVNEYUHATNSGWESVYGQGNYPTFAKKAFRFA GHFRHYDVNNEM DHGRFYRDRLGDDAAALMFREA GKFTHWDVVNENVHF RFFEDKLGENASAEYFNDA GELIAWDVVNE NLHFSFFEDNLGENASSMYYSMA DAVTMWDVVNEADGDTDGLRESVYSRTTGDDFDVTAFKAA GVIYCWDVVNEAVDPDSPADGSPWYDTIGEDYVEMAFTYA DKVIS WDVVNEAVRDNPSNPENWWQQADGDDYI YWAFRYT GRLGSWDVVNEVIAHDGPMRDTFWQRRLGSRHVPLAFRAA GLI SAWDVVNEALQQPDGLRNSFWYQMLGPRYLDIAFKAA GLVEHWDVNNENLHGQW
 GKVAGWDV TE YYA WDVVNEAVDPNTGMRNS LWWMTVGRDFIVKSFEYA
 GVIVSWDVVNEAI DD GTA WKTSPWYKTIGEDFVARAFEAA

 D DVYA WDVV NEAVTAEA I YRSSEYFK LICGA DFITAAAFRAM GKVIA WDVVNE NLH GHFFESRRLGRNASSEVVYRV D QI YS WDVVNETDDPTGE IVRTVFTQALGFDALK IAYEAA NPLRAFDVVNEVIDDGDGMRRSTWYQLLGEEFVDDAFRYA GLIYAVDVVNEAFDVGDGDKNNGWYEVVGPDYYVRAFEYA


 GVI
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A Q I R D W W V V N E VI A D P A G Y R D S P F F R A L G P R Y I D E A L R M S

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 Q E A VDD S P KL Y Y N D F G I E S G N K S V






 R Q Y A P K C K L YL N D Y N H Q A D P H AVI C Y N D Y G LEES D D Q R K R A A V L A M L R D L Q S R H DP A QFDNKTPLF LINEFNTID DQRDSPANYLNKIRRQIRAGGYR HQMDGGA LMSMNE FNTLEQPGDLTGKYLRKLWQIKA GNAA

 D QADRPVKLF INNDYNTE QDAKGTQYEALI RRMLDA GTP



 HKADPDALLC YNDYGLLTHYGESTK K DLSNSVQLLYWNDYNTYMD
 HKLDNKTQLFMNE YNIMMEHDYKNTATPADFRK KLLLENEND
 HEADPKAQLYYNEYG』EGGGPK AKHILELAKWLKDQGAP RKADSDVKLFYNDYNTFQA PKTEAITYLCSSLKEKG


 HA ADPNVKLF LNNDYNVVSNSYS TNDYLRQGQQFKAANVG HEADPDAELYYNDYSLDNPV K R A GVI K LAQAIRARGLR
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 S K Y A S D Y S L F Y N D Y S CM WK G $\quad$ C LI L E N L S E V V K E N G Y E AK S SFSSLFYN D Y NE Y M E S S D $\quad$ I I I K MI N Y I N S G T R Y
 K R A D P L A T L F LLN D F NVVVEVCD D S A D S Y VV R L R QLAA A GV T

 $R K Y A A E G V L Y Y N D Y N T A Y A \quad G K L Y G \| V R M M E P L D E A G T$ QQSDPYATLLFMNDFNVDETCDDTVVSYASRLKEI KE G G GVV UniRef90_UPI0004670A11
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220
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240
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 VAG GLESHFSAPNPAFMRAVLDKDATLGKLPMWLTEVDV


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 DVLPLTKEGQI I GQGMTHPQFERVSVWGVTDGMSWKRTNY QEKLTQRYREIFKLFLKKYRKHLDVVFWSURDQDSWLRTAY SANQAYNLEQVLREGFSHPKVNGIVIWSAWAP W GCYR



## A

## A


FALQAEEYYNSTASCVQVGGCVGUTVWDFDDQYSWIPSSF KMNPNGDRNTFTTAMAEEQKRGGITVWGVSDADSWIPNDW SAENADDLEVMLREAYAHPAVEGVMLWGFWELFMSRDSAH QRRQAAVYAETAEAFMADPQRFAFTLWGLRDRDSWQRGDA
$P H G Q A D L Y K Q L F E V Y K K Y D N I E R V T F W G K T D P Q S W R F Q G Y$
 MAAQA YLYARLYQVYKQYADHISVVTFWGLNDGSSWRSEQN
 RTQQVTDYYNTVGACVDTPRCVGVVVWDFVDTYSWVPSTF RAQQVADYYATVAACAATERCIGITVWDFDDTYSWVPSTF
 DDPMESRPMAVAALYKRYA GVAA LTWGVWDTPHRTAATP

 DDSH
DEGHANYFEQ LLREGYSHPAVKGIIIFG GPR】AGFNV TVNPATYYRDAFDVFRDYHALYSVTVWGDTDARSWRSEQA YDLQANAYGQLLKTALDDGKCQSFSVWGFSDACVYHKNST QEAQAEQYATVLSTCLGSDACVSYTTWGVDDEYDWVQQAH EPNQAEYLEQILREGYCHHAVEGIIMFA GMATAGFNA

 MDQLQRDI KRYLDVVLATRSVSTVVTWGVWDSPHVAGATR TNKGDSDMARINAAQKKTGRIMGITWWGLSDQTTWISNSK SEARADDLEVVLREAYAHPAVEGVMLWGFMQGLMWRQDAY



 QNQQVQFYWNTVNACATTAGCVGVTVWDFDDTYSWDPSTF
$D E A A E V V V S D F L D G L S G Q R P H A V I T W G I S D R Y T W V P D N R$ DDSH
VKGPNQVKEQVLREGYGHPNVNGMDMWAA WHAN GCYV VASDENRRADFYEVLYGHHAVEGDLMWGFWDKAHWRGARA QQALDAQRYRELFAVFAKHHDTIRVTLWGVSDADSWLRTDY
 $D L L A D R Y E A L F T W L R E L S D D I D G V T F W G L A D D H T W L T D N Y ~$
$K C Q Q A A \emptyset Y G G M L K A C L D N D N C R S F E T W G F T D K Y T W L Q D T Y$
$M$ MMQKEAFKA 1 MQLMLKYADQTEAVQVWGLKDNMSWRTGQY GTA QAKKYADMMNLMDRFADQTAVQVWGITDNMSWRK DS H MA AQA QKYA AMFRVEKDNASKDSVTFWGIDDGTSWRKETY $\square A R V E D \ Y G K L F E I Y R S Y S D V I C V T T W G V A D D Y T W M D G Q Y$ NRNAGPYVEEVLREGYGHPNVEGMVMWAAWHAQ GCWA NDQVAAVARDYLDRMFAYPQLDQFLCWGLWDKHSWLQGQR VVGSADYYQQAFDAFREHADLFSVTVWGLTDGRSWRASNN TNAEFQKQADLYKAYFEGMNVTSITVWGIDDAHTWRSGED GANSETEMKSICEVKQAGGNITGITWWGLSDDQSWRQQDH TDSQAEQYATVLAACDRSDTCVSYTTWGVDDTYDWLQQGH DATQAELYESVEKSLKEAANITSVSVWGVRDDWSWRSGKT SNAQAAYLEEVLREGFAHP
A DRDASVAKAFLDVADDNPAMRSVLCWGLSDRYSWLSNSR FEKQANKYEEIFEMIYEMDNITNVTLFGLVDHYRKEDTTN SVYTNNRFKELFKELVRLDWUSNVTLWGVADDHTWERQDA GITKYTEQADKYRAMMEADQTEAVQVWGVTDTMSWRSQSY S NSFDQQTQWNWKEDDTTCRIVA
RGRDAPQDLRARDALVAQAGVRSVFTWGLSDKFSWLRTHR
UniRef90_UPI0004670A11

| UniRef90_V4QLH9 | $P$ VLF D R L GRPKPDAQAFVNAVK |
| :---: | :---: |
| UniRef90-D5UK72 | PLLEDGQLQVKPAYWGVVD |
| UniRef90-G8LZ66 | PLIFDREYKEKDSFWN |
| UniRef90-A0A022RH16 | MCLTDNNFNNDETGNVVDK\IHE |
| UniRef90-R7H4M8 | PLLFGADYKAKPAFYAIDDGL |
| UniRef90-K4D1C9 | TCLTDEKFQNLPTEDVI DQLV |
| UniRef90-E3L548 | ALMFDKDYKPKPAFDSLKAYF |
| UniRef90-R1FM39 | PLLLDEEYRDKPAYHGA |
| UniRef90-G7IEV8 | TLLADTNFQTTPTGQVVDNL |
| UniRef90-E0RS15 | PLLFDGKGDPKEAFFSI DN |
| UniRef90-UPIO0028976F8 | PLVFGPQ G LVKPAS WVV |
| UniRef90-M2B2U6 | PLLFDRQRNPKPAFDAVYELL |
| UniRef90_R8BMK2 |  |
| UniRef90-W0FRC5 | ALLFDSNRNPKPAFYGVLEAAQ |
| UniRef90-X0RPT9 | PLLFDRNMKAKP |
| UniRef90-V7AFT9 | LCLVDNNFKNLPAGNVVDKF $\square$ S Q |
| UniRef90-B4WP63 | PLPLDSDLNRKLA WNAI A |
| UniRef90_UPI0002C | DKNFNNTPSGDVVDKLIAE |
| UniRef90-I4VQD3 | PLLFDRHHQPKPALDAVL |
| UniRef90-L0G036 | PLLFDEEYQ |
| UniRef90_UPI0002B4C456 | MCLTDNNFRNLPTGDVVDKLLKE |
| UniRef90-V4N217 | PVLFDDRGRPKAMAERFVEMVR |
| UniRef90-Q9M070 | LTLADKDFNNTQTGDVIDKLLKE |
| UniRef90-B5JLL0 | PLLFDRNDQKKPAHQSVLKAFSK |
| UniRef90-M5VJ27 | MCLTDNNFKNLPNGDVVDKLIHE |
| UniRef90-G7IEW9 | TLLADADFQNTPTGDVVDKLI LE |
| UniRef90-E4RUD3 | PLLFDDYYKEKQAYKGLLS G $\quad$ K Q |
| UniRef90-W9WRM0 | P G L Y N A D FR |
| UniRef90_R9PH24 | PLLFNS SLLEQKPA\E GVANELK |
| UniRef90-F2E076 |  |
| UniRef90-B0SWF4 | PAPFDDAGRP |
| UniRef90-A9KJ62 | PLLFDKNFAPKDAFFAVIDVAKE |
| UniRef90_UPI0003007199 | PLVFDGDLQAKPAYYA |
| UniRef90-UPI0004675D29 |  |
| UniRef90-F4FBX5 | PLLF D D NLRAKPAYYGAVDG |
| UniRef90-M4F5N6 | LTLADNDFNNTEAGDLIDKLLLQE |
| UniRef90-M2N4K1 | PGLFNTTLVKKAAYDGCFQA |
| UniRef90-D0QF43 | AGLFDGPNTPKAAYDGCLQALQ |
| UniRef90-J4TAV8 | VNLYDDTNAPRSAVDGIRRAIE |
| UniRef90_UPI0001C37869 | PLLFSQGYKPKPAYDKVVAL |
| UniRef90-G7UL32 |  |
| UniRef90_UPI0003D250F2 | MCLTDNNFKNLATGDVVD |
| UniRef90_B9F5S1 | MCLT DNNFKNLPAGDVVDKLI |
| UniRef90-A8R3Y2 | PLLFNDDFTGKNAFYEVVEA |
| UniRef90_E8X6C6 |  |
| UniRef90_B9T2F3 | T TLGDEDFKNTPAGDVVDKLIEE |
| UniRef90-U2YTX2 | PLLFAGDL |
| UniRef90-UPI000370E62A | P CLFDKDFQPKAAYQAADAS\EK |
| UniRef90_U2YXM1 | DFLF AEGKPTPAYAAMREVL |
| UniRef90-UPI000234EA57 | MCLTDNGFRNLPVGDVVDKLI A E |
| UniRef90-B9HN02 | TTLVDKDFKNTPSGDVVDKLI DE |
| UniRef90-UPI0001C374B8 | PCLFWAGFRPKPAYAKV |
| UniRef90-W0FPS0 | PLLFDEHEQPKPCVYQL |
| UniRef90-W5FKY0 | VDADGTVNEA GQMFLNLQRE |
| UniRef90-D715N7 | ALAFGPRGEVKPASWVI |
| UniRef90-15ATA1 | PLLFSSPGVKKAAFDQVQKAYTE |
| UniRef90-J3M5Q9 | LVDADGA ${ }^{\text {V }}$ NEAGRRFLQLRRE |
| UniRef90-UPI0002B419B0 | P LVDMNFKNTAAGDVVDKLLGE |
| UniRef90-A0A059B | TALADMNFDNTPAGDVVDQLIQE |
| UniRef90-M2A832 | PLLFDRDRQPKPAFDAVYELLNE |
| UniRef90-W5X4M2 | ALPFDGDYNPKPAYSA |
| UniRef90-UPI00047C2640 | TRIF DK DYQPKPAYYKI K E A M Q |
| UniRef90-UPI000378753D | PLVFDSRLQAKEVYYAVAD |
| UniRef90_M2N124 |  |
| UniRef90-UPI0003645E2B | P F D A DLR P K A WYATL R NKL |
| UniRef90-F3H260 |  |
| UniRef90-K4AL61 | MCLTDNSFKNLPVGNVVDKLIAE |
| UniRef90-A7J0J1 | ALVVGDNLQLTAAGRRVLELFE |
| UniRef90-B1ZPQ7 | ALLFDREDRAKPALLAAAVDALQ |
| UniRef90-W4V5A0 | PLLFDGQYKAKPAFYA |
| UniRef90-D5KQ14 | PFLFDTEGNRKEAYDRVI QAAQ |
| UniRef90-A9UZL2 | PLPFDKNLQPKPAVAELLS L L Q |
| UniRef90-W0FQ73 | PLLFDDHGNPKPAFYGVVEAVTE |
| UniRef90-W0FQL9 | PLLFDKSMNPKPAFWAVMN |
| UniRef90-A8R3Y3 | P T L M K D Y S LK P AFY AVAD |
| UniRef90-U2B3R4 | PLLFADGFRPKSAYQAVL |
| UniRef90-E6UAU6 | PLLFDDHHAPKACVEKLINAA |
| UniRef90-W4ZYJ3 | MCLTDNNFKNLPAGDRVDKLIAE |
| UniRef90-F3WSK4 | PLPYDDDLHPKP |
| UniRef90-F8A1V8 | PLLFDDFFKAKPAF |
| UniRef90_UPI0003B345AF |  |
| UniRef90-UPI00047EE6D1 | PLLFSTLYAPKASYYKTLDAF |
| UniRef90-D1BKV8 | DLLLD DGEPTPASDALREVL |
| UniRef90-D4PAK9 | PLLFGDNYTKKPAYNSVSALIPE |
| UniRef90 W5C9D3 |  |
| UniRef90-D4Z2D1 | GLPLDDGGMRRKPLWD |
| UniRef90-UPI0003B541A8 | T RIF DRNYEPKPSYYK ${ }^{\text {PKA VMEE }}$ |
| UniRef90-E0IFB1 | PFPFDKQYQAKYAYWGMIEAVK |
|  | PLLFDRSMNPKPAFYAVLEA |

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UniRef90-D9T5J8 UniRef90_UPIooo380BAOD UniRef90 ${ }^{-}$W6S9M1
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UniRef90-UPIO00467B9AO UniRef90_UPI00036EF 104 UniRef90 UPI000470B9EC UniRef90-D5R174
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UniRef90 CoINJ5
UniRef90-UPIo004675BB0
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UniRef90-D1BXQ6
UniRef90-UPI00026CAB36 UniRef90-K7PFK3
UniRef90-A6XB98
UniRef90_UPI0004718A8C UniRef90-T1W6P1
UniRef90-C4RH32 UniRef90-R7U9Q2 UniRef90 SoETI5 UniRef90-M1A1N0
UniRef90-E9NSI8
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UniRef90 G2XONO UniRef90-KOH4D9
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UniRef90-UPI0002DE6B88
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UniRef90-D4LDI7
UniRef90-C5BRL9
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UniRef90-C3YR49
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UniRef90-Q21EL2 2
UniRef90 R7H268
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AAGA T\STEQTMSGYPFGCGMNHQTLTSTGYQEWFASRF
HPFF $\square$ GN $\square T \mathrm{~T}$ GQVRND
FTQYW
SDPTAKAAPVRGVIPYGTAVRTDLLDTEDYKAAVVDHC
SRS L AS $\square$ ATEKH $\square F \square G C G V D N Q M \square K$ AHAPVLTREF FPI GSCINGTVIQDPAFVDFFTNHM ASTSQGSGLKD DFAFKIGTSVSPHELSSGA DFПKKNY HAFPFGTAVDATQLTNPTYQNTLKANF
$P$ LKDLCAD NFMLGVGI NGSTLENPEYMELSKKHF
AESLGDVAKSKN VMFGAAASGA DHD DGYRDLYTSQT
 FRLGTSVSGNEIGNQQAQQF KKNY
GTPLKEAYRDYFKDGVGSSTSTDTVRSAAMVEIIVKYF ASPGLGTLARERG $\triangle$ SFGAAMQSNLLTDPAYGAAFDTEA VGNIWPNDTQDDPTFATYW EAAPTPLKVLGKRKGLNTGNAIGGRYFRDPAYKALMAREC PSLSEIVKD KFKIGTALSPEDMSSQPFMDLLQKHF AAPTANLGADAAGGYLFGAAAAEVIDKDPAYRQLFATQT APGSDEAAAARTGGNASELLHHF ( PPLTDQFADY FM $\square G N \square M N P G D V G N G V T N K M L L H H F$
QAKPGAKTVEQLCHEFWFGAATSNGFVDKSQYEQKFLQDF A GEA L DD DAKRKG LRFGTAVGANQFGDAAYRALVEREC AETTLRAAAAKAGLFAGVAASPNRL, FGMYVGGQEF QTKRDFPDGSMVKSDIITDKKYRDFFYERF $\square K$ QLQNSFPFGSALLRPNMDNEGFNDFFVKNF QI TQTKKSFPFGTAVASDEYGHQQYRDFLNKHF DAQAADNTLLNTYGAQYGGTCINLYQLRDANQLSLLKQQY SGS $\square$ D $\square$ RFKAHGKKY GGATDQGRLTSGSAL

GTTDGTLLNTHGKKYSGAAVNYSQLRDANTLNVIKSQY
RHSFPFGTALALYDTKDSTYRNAAKKYF
HAFPFGSAVTSEWLT GERYRELVDRLF
$S \square K Q L S H E F W F G A A I A N G L G S G S Q Y K K Y F L E N F$
$Q A L K D L C S D Y F G V G I I N G S D L N I D E Y M E L S K K H F$
DAGPALKDLAKAKG MRFGNAMTRKSFRDPAYRALMAREC AGTAEAAMATGKKWVG NTWADGNAPTRFADYW S $\square \mathrm{K}$ QNNANFPFGCAMNQNIVQNGAYQNYFFSRF

TKPY F F FGAAAGPSRVN K K A FFSNEF DFII GTAASYDEFADDMEMELAYKHF
 $R A \square P G \square N T \square A G Q R G G R F G S A A D A G S F A N P A Y A A L L Q R D C$ $\square A S K Q P K F L G S A Y S T A Q A P N \quad F A A Y W$ SASMANGGKFLGNIIAGSVPAS FGTYW SAPSLASLAKAKG DHVGTAMVAHEILNPNKLNYASKEY SLLKAYEKFRTGAAVSSFMTFDPAYRALIRRHY ATSDADAGLARSKF LGNVIASSVPSN AEKGLKDEFADY FRVGNILNSGTIKNSADTANIAKYY FFVGNI TTGGNVRSD
MQQKSSFPFGTAVHADHLGNPAYTDFVLKNF E $\square$ TQTKSHFAWGCAVNA W $\square$ MDDARYRDFFLSNF

## LLNTYGKVFVGN ILNASQ GFFVGNDTTNGNVRND FTQYW

 AAPSLKEAYANR FPMGCAVYSYNLQNPEILSFTKHHY SAASTEKGLKDEFANYFGNILNGSTVKNSTITASVLKDY AALRKISNVKGLVYGAHPGAELTKDQQLQLSTSKECHAFNFGSAASAQTLASDTHRAK $\square$ S T DV EATAASKPVFAKVGARFLGSAASSDDKFAAMSPYF QVAQTKSHFAF GSAVKATALTSGHYRDFFFNNF QA GRA $\square$ DSVRRAE QAFKFGTAVNANLLDADKYRAVLLQLF $G \square R Y G T A V G M K A F A D P K V R D L I L R E C$ KTVGAEF $N \square T$ T S GAVR S DFTR Y W
Y T GALLTVSDLSDQPLMDLVQKHF
F RLGGTFVGRYEI GKA QAQEEIGKKNY
QTSQSFPF GSAVSYQHINSRKYQEYFYKTF $P T G A R K L A Q S V N K P L M G \square G I T A D G L N D P R Y Q G V V T K Y F$ GTAVTGSEIDDEF $\square$ QELLISKHF
KCKGK YFGNDIANSVPS TYTTYW $D F I \quad$ IG TAASYDEFRDP LDMEDATKHF TSLRNLAESKGLI YGGTQRDSAELPDEKFQRIGVREY DSLQA IAARRGGRFGSAVNGVPLADPAYARLIAACC

SATQAPSLCKAYPYFRVGAALSSWLVKDPELVE\|VCRHF HDFFVGN】TTSGNVRSD

UniRef90 UPI00042B5FA2 UniRef90-D9T5J8 UniRef90_UPIO00380BAOD UniRef90_W6S9M1 UniRef90-K0SY78 UniRef90_UPI000380039D UniRef90_C5XSK3 UniRef90_UPI0004672E47 UniRef90_UPI00037C6DEF UniRef90_UPI0003B566E3 UniRef90_D6V6G1 UniRef90-W5E449 UniRef90_A0A011RNV6 UniRef90_UPI000467B9A0 UniRef90_UPI00036EF104 UniRef90-UPI000470B9EC UniRef90_D5RI74 UniRef90_D7CRC9
UniRef90 C0INJ5
UniRef90_UPI0004675BB0 UniRef90_UPI0004648B97 UniRef90_D1BXQ6 UniRef90_UPI00026CAB36 UniRef90_K7PFK3

## UniRef90_A6XB98

UniRef90_UPI0004718A8C UniRef90_T1W6P1 UniRef90_C4RH32 UniRef90_R7U9Q2 UniRef90 S0ETI5 UniRef90_M1A1N0 UniRef90-E9NSI8
UniRef90 V4A2V5 UniRef90_UPI00047D1F5F UniRef90_UPI0003B6E389 UniRef90_L8G611
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UniRef90 K9DCN2
UniRef90_L7UUW2
UniRef90_UPI0001E2F611
UniRef90-E2LK99
UniRef90_R4LKD8 UniRef90_K4D883
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UniRef90_K1PIZ5
UniRef90_C3YR49
UniRef90_F2DAH1
UniRef90_U5MM60 UniRef90_E0RP42
UniRef90_Q21EL2
UniRef90 R7C4U4
UniRef90_R7H268
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## UniRef90_Q11VQ5

 UniRef90_UPI00041D5D38 UniRef90_UPI000477F926 UniRef90_A0A031HQ17 UniRef90_UPI00041DDAF7 UniRef90_W0FLH6 UniRef90_UPI00046461ED UniRef90_B9T2E8
$D Q T$ P E N E GK WG S VE GT R DVY N WS G LDD R TYE YARA N N $\square P \square$ QLVVGEGGLKWFDLRPSEDQFVFDQPDRLIDFADRNGMQM NAVVIDEHLKKWSPTLPGPGRYDFHHVDTMVDFADKHNMEV

 NQGILGNDLKWAA WEN
 R DT T DTALKMMGSIJAPQPGAKHFEAAADKLLQFCTTNARIPM TVTTTFENEMKWYSTEPAPGREDYTVPDAMLADAKQHGIGV


 $A L L V P E W E G K W A A L Q P E E G K F D T R P L D A D L G W A R Q R G R V V$ NQVTPE NAGKWGSVEAERGVMKWTDLDRAYAYAKEQAFPF NMIVAENEGKWQALEPRQGQYNFAPADELYAWAQGQGMLI
 $N Q I T P E N H M K V E A W Y D A E Q N F R H P E A V T L L D F A A A N D L R D$ A ILVPENEMKWQALRPTPDRFDFDRFDAMMAYAQAK GFAV NVLTTAENDMKPDK $N$ QITPENEGKWGSVERSRGSRRDWSKMDADYKYAQDNNNIIF

 NRATIENQLKWQWW NWAVFGNELIRRYWTEAQQGNFNYKDADELLNFCTQNNI QV NSATME NDMKP EA ILDNEEVVVEFNQNASMLKKAKEN GI A L

 SQATPENSMKWDS IER NFGWTGADYLVNWAQTNGKLI
 DEVVNFA E SVVQAK I WHGVSEN QFKWPEYEPKKGK\KRDEMKEYTDFTAQNHWKL S EVVVLES DLK WT S
 N S V T M S N L M K S C Y I LDD Q F G S L S F D S I D P TL K WC Q E N GM M M NMIVAENETKWQALDPKPGPYQWGPADEMFAWARKE GMAV NSVVTAE NAWKP GE IHPK E GVWNFGLA DS DA NFCREN GDKM



 G LLVAENQMKWQAI RPSADGFDFSRFDAMLDWAEAHRMAM $N A V T P E N A G K W G S V E S A R D Q M N W G G L D A A Y N L A K E N G F K F$ NQVTPENSTKWGSVEGSRNNMNWSQADTAYNYARNNGFPF

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

 E WAVVF E N NLLK WT Q N E P N E G Q L E W G L A A D R T L
NSVTVAENEMKPDADESTVPKLNFTTVDNMLKFCFDNGLSM



 N QVT F GNDLLK WNYWENEAHRTQYTL PGLDWWRSKDMYV
 NTATI ES QLLKWQPYENDP ARARNSVDWLVAN GLYV N I V V E NELLKMYVTHNKNATYNFKPADEDL A WA QAN H I A M

 NAVTFENEMKMDAMHDNNNQLDYSRADKI LDDWNTNHPI KV
 SVI TPGNELKWGTDEPNPGAYNDAG

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


UniRef90 UPI00042B5FA2 UniRef90-D9T5J8 UniRef90_UPI000380BA0D UniRef90_W6S9M1
UniRef90_K0SY78 UniRef90_UPI000380039D UniRef90_C5XSK3 UniRef90 UPI0004672E47 UniRef90_UPI00037C6DEF UniRef90_UPI0003B566E3 UniRef90_D6V6G1 UniRef90 W5E449 UniRef90_A0A011RNV6 UniRef90_UPI000467B9A0 UniRef90_UPI00036EF104 UniRef90-UPI000470B9EC UniRef90_D5RI74 UniRef90_D7CRC9
UniRef90 COINJ5
UniRef90_UPI0004675BB0 UniRef90_UPI0004648B97 UniRef90_D1BXQ6 UniRef90_UPI00026CAB36 UniRef90_K7PFK3

## UniRef90_A6XB98

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UniRef90-E0RXQ0 UniRef90-K9DCN2 UniRef90_L7UUW2 UniRef90_UPI0001E2F611 UniRef90-E2LK99 UniRef90_R4LKD8 UniRef90_K4D883 UniRef90_B4W9K5 UniRef90_UPI0002DE6B88 UniRef90_I7A603 UniRef90_E0RMV8 UniRef90_UPI0003B56EBD UniRef90_J3A2K3
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UniRef90_D4LDI7
UniRef90_C5BRL9
UniRef90_K1PIZ5
UniRef90_C3YR49
UniRef90-F2DAH1
UniRef90_U5MM60
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UniRef90_R7H268
UniRef90_UPIO0036CC397 UniRef90_L7URJ8 UniRef90_UPI000380E577 UniRef90_C5BTG8 UniRef90_C3YR46 UniRef90_UPI00016C48EA UniRef90_V4PDC6 UniRef90_UPI00036573E6 UniRef90_P23030 UniRef90_A9F9G9 UniRef90 R9IT07 UniRef90_UPI000463172F UniRef90_R7UZV8 UniRef90_E3KR80 UniRef90_Q47871

## UniRef90_Q11VQ5

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RGHN|I LIWDNPKPDWV MDLLPPEEDQKAATRR|L|KSVVMSRYA
K A H T LVWGS QCP GWVGPNCDGSELRAEDEE WIRDYCTRYP RGHTL AWYGAMPD WTQT DA S PA QAEREEVVHHITTVVVGRYQ K GHVLVWHVTS PPCLE DMSPDEVGSAVVKRHIFTTMGYFR R GHVVLI WG RYP GVGGP T Q L T N E K I L E I M D H H I E T V L N H Y R

 A G H T LI WWS R LDP S D L Q R L R D R P A L R V V R V D Q H I T E E E V S A L R
 R GHCCVI WN E WVIP Q WVVR N M S T H GHVLVWHS QSP DWHH TENGREAALENMRTHIRTVMENF $R$ GHTFVWYSQTPS S LF QENGSYVSKDRMNKRIKNTFS QLK HGHTLI WHRSVP A WA EA A LA D GA GWAPVAA HFEAVLDSRYG RGHVLVWHNQVPDWF F R FVVDKETMLARMESYDRQVMEFYP RGHALL WH DAMPD WLT A ALGGEGPARAQMEAHFDRILLSHTR $R$ LLH TLVWGSQQPA WLA GLS QAEQLEA LESWMRQL AERYP $R$ GHNLI WQK WLPKWVFGAQPAHEAERLLRVHTAAVCGHFG RVHTLVWHS QTPEWFF DYVSPEKMKKRMENY IKSFFTYPD RGMCLI WN E WVP P WDK SMS VE ERRSSFFDSYY DEVVARYV Y GHVLLWHS QTPA WFF QEADKQF LRRDRLRTHIDDDVAKADT RGHNLLWHQWMPRWNFGTRPASEAARLLSQHI DTVCTRYG VGHTLLWHS Q $\quad$ WP A W
 RGHNLYWDKFVQPWLKEMSN DELDRATLQRRAETVTSRYR $R G H N L F W Q K W L P A W V F G A Q P R Q G A E R L M R K H V Q T V C Q H F G$ RGHTLVWHSQA GALQGASQATLNTEIGNAINRWG RGHCILWDRHEPKWLLPMNRSDVIDQVQKRMKYVINHYK RGHNLVWWRYVPANVAALKD DPALAQAIDDHIRDELGALK
 RAHNII WPTFDQN WVKA LSGGSALLRQAVSNRIHSVMMEVK RAHTLVWHSQTPSWFFRNVNSSTMDARLEMYVVTVMNHYG

RAHTLVWHAQTPDWFFRYVSQSVMDARMEFFIKTYMNHYG RGHNFLWETHLPT WVNESLSATELDRALKHHINDIMNRYR RGHALMWSHQGYGFDKHYSNCEEMAEKLKARIYRDLLKEYK RGHCLVWPGWPYRDEALADDPAALAAAVEQRIRSAASARA
 RGHTLIWW QDPKWLPAWVNALDLEA LLREHIKTVCTHMG R GHCL CWHS QFA DWMS T DVVKKEVLYERRLREHIIHTVVNRYK KFHTLVWGSQYPSWLSNISG TARKAAVENWIKAAAQNFP $R G H N V L W P K Y Q P Y W V P G L S A N D L G A A A Q K R L I S V M T K Y K$

R G H TMVWY S Q A GS LQ GASQSTLNTY YGNALLRWG RGHTVLWDKPMNQYWLHDMTPKELLATAIRRIASSMMRYS RGHVLVWHSQTPEFFFHYVTPDVMNKRLEYYIKSVAEHYA HGHTLI WYSQGKEAFAGLSGAAFDRA FDGY I A A LAAGRYR RGHTLLWWHKYFPRRWLVGAAP LAREAERVLDTHVVRTVCGRYG




 KAHTMVWWGSQQPGWI G GLSSAAEQRAEDEEWIRCDYCTRYP RGHNMFWGKDKPSWIPAMSPSNDVHE MQAHVRDDMSHTQ
 R GHCLE WED SVQP WLRS L LHGHH LMA AVQ GRLQQSLLSRYK RGHTLLWHSQTPDWYFRYVTPDVMNKRMEFY』KTVMNHYG






 RGHNLFWARDTPNWLFGPKPKVAAEK LLLRDYIATVADHYG HGHTLVWHSQVPNWMKNYPGDAAAFQTMLDHVKTVAEHFA
 RGHVLVWHSQAPE WFFHDASAEVMDARQQWY
RGNTEVY
RGHCI WA
AT $\square M T W L K A R D A A G V A A A V K E R$
$R G H$ ARS Q Y P GWVD GIITKVGDMRQRMSMILEFFVIMKNYG RGHVLVWHS QAPEWFFHYVDKDTMNLRDEWYI RELLN Y Y T
 RGHVLVWHSQTPDFFFHYATPEVMNKRLEDYVREVAKHYA

 H GHTL F WHEDPDPWAQ GK S FERVKRD Y G GF I S DVVMNHYP


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GQLLG WDIV VINE
140
150
160
$N$ LH F $D T Q F I V D V V N E$
 DR Q
 SEYYAYDVCNEMFVNDGGGMRSFWWVQRLGDGVAPLMFREAA $G Q L D V W D V V N E Y A M H$ VLQDALGPGELARWFELA
 GQVIA WDVVNE NLHYSFFERQFGWDASTAFYAAA GEIVRSWDVVNEALEWRNNLRNTGWLRADGDDY IYEAFLYA TNYHSYDVCNEFVNDGGGMRNSNWVRVYGEEFVVNAFKYA AADETWDVVNEPIHRMDGLRGGTFLQAFGETYVERAFHEA GVI YAWDVVNE RTKYDGNKDNLWYKVIGVEYVEKAFEYA
 RDDF SYDVVNE


D NMVG $\square \mathrm{D} V \operatorname{V}$ N TRIESYDVVNEAVNDGDGLRRSPWYNLLGEEFISLAFEYA GKIYSWDVLNEAFPDGGGSNGNPWFTSWGSDFVVEGFMAAA DTKY DDVVNEPPPHTTPSYKNGDGGDASGWDWIVNSFKWA GRFAEYDLNNEMVH SADGSWDVVNEAIDPDGK $\square R Q N A D T R A F G T D Q 1 D D A F R D A$ SRIA YWDVVNEALDENNTGRRRTFFDAGDTDVI RDSFDRA GKLPHWDVNNEQLHGD FF GQCAEWDVVNEPVDNHE GMFKHYDVI NEMMH $V Y D A D G G L D A V V H W Y Q L A$ DLFYAYDVVNEAWMEDGSTRGSFYWDRLGKDNCVNMFTTA GLVEHWDVNNE SVVYAWDVAN SVVYAWDVANEVIHASNSGWEAVYGNKTNASYVKKAFNYA
 GACYAWDVVNEALNEDGTYRDSVWYRTIGVDYIPLAFKAV SVVYAWDVVNEYLHAGSGGWARVYGSNLGPSYVKKAFQYA GRVYAWDVVNEPI SDTPNFRETIWTHKLGEESVAKALTYA GKITEYDVWNEPIHE SWTFNKCGWGILDSAFIWA
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 NDIF E WDVVNE GMFYGWDVVNEAVSDSGTYRNSWWRVYNSPEFIQNAFVYA $G K V R S W D V V N E P I L D D G S L R D C H W S A R Y G D G Y M L R A F E K A$
$R R I G S Y D V V N E T V D E T G D L R D T S L S R A F G V P M L D H A F R T A$ DIDYLQVVNEPPNHAPAQYRNALGGEGTGWDWVDNAFRTA NAEFI DVVNEPLHQKPSFRNAIGGDGTGWDWVI WSFQQA
 $G L V Y T W D V V N E A I G P P G L Y R W S P W F K A C G E D F L E T A F R A A$ NADF VDVVNEPLHAKPSYRNA ${ }^{2}$ GGDATGWDWVDWSFQEA
 GKLLHWDVNNENLHGDFFERHT TDPDITHKMFQWI
 SVIYAWDVANEYLHPAGSDKATGWQKIVGPAFVKQAFQYA DIDMI DVVNEPLHSPPPYRDALGGDGTGWDWVITSFQLAA
 TQYYAYDVANECISDDSNRGQSPWVQVYGNSFVEHAFTYA

 DAEMD DVVNEALHAPATFRDA $\square G G D G T G W D W V \frac{A R S S F E L A}{I}$ GRLA HWDVNNEMLHASYFMD ALGGDGGGGPQ RYDMFRWA DRLTSWDVVNETVDPTGEVRENAFSRVLGMDTMRMAFEAVT GELDSWDVVNEVLEDNGCWRNSLFYQKLGKDFVANAFRAA DTAMI DVVNEAV PGHQPAGYAQRAFGNNWI QRVFQLA DVAVIDVVNEPPPHTTPSYMNALGGAGSGYDWIVQAFKWA GMFYGWDVVNEAVSDSGDYRHSWWRVYKSEDFIVNAFRYA
 DK IQQWDVNNEKLHGNW RNA AMDVCNEILDKNGNPDNLLPWKRIMGNKWYEEAFRMA GPFYGWDVVNEAI SDGGTYRSSWWKVYGSNEFIINAFKYA GMFYGWDVVNEAISSDTGTYRSTWWKGYQSEEFI NNAFVYA
 QAASWDVFNEIVGEAEPLRDEFLDRNFGLQFVDYCDHDA
GVVYTWDVVNEAIVEDGLYRRSPWFTAAGQDFLPAFRAAR
 G K V I A W DlV VNE NMHF
UniRef90_B9T2E8

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UniRef90 C3YR466 UniRef90_UPI00016C48EA UniRef90-V4PDC6 UniRef90_UPIO0036573E6 UniRef90_P23030 UniRef90_A9F9G9 UniRef90_R9IT07 UniRef90_UPIO00463172F UniRef90-R7UZV8 UniRef90-E3KR80 UniRef90_Q47871 UniRef90-Q11VQ5 UniRef90-UPI00041D5D38 UniRef90_UPI000477F926 UniRef90_A0A031HQ17 UniRef90_UPI00041DDAF7 UniRef90-W0FLH6 UniRef90_UPIO0046461ED
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Y H L E P T TLLFMNEYNTDEYSKDQAATASKYKKKLLEENAH|l RAADPSVKLCYNDYNDENWSYGKTQGVYNMDRDFKSRGVP RQYCPNSULILNNDYNVLDRW GNTSQFIQMAQPADSAGV A DVDPSAQLVINDYNIENPCRDRRQALLDLLRDLKDRDVP




 RLLDSGSALFMNDYNTLEQPGDMAAAPGRYVDRLRQENGA $R$ QVA H DMVLYYNDYNDHVQGKART MYYMVKEINEQYAL RQYAPDCKLY LNDYN EYMSAKTKDLVNMAKTVMKEGDY RAHAPNARLFLNEYGLDYDDPDRRYLFLK LVERLMRAGAP
 RAYFPEAELHLNDYNULF RRESTEQYLEVVALLQERG L REHAPGAQLVYNDYRADEGSAKHRAGVLKLLHDLKSRGAP RKYAPECKLYYNDFN EYMTGKMTAVCEMAERLKKAGN A QVDSKAKLVLNEAQTERDDAAVRSGLDKVVADLKHAGVK DEADRPVTLFINDYNTE QSGKQDRYFALVQRLDAAGVP RASAPHAQLVYNDYMSWEPGNAHRAGVLRLLEGFRARGVP

 KEYAPHAQLVYNDYMRGDTGSAHRAGVLDMLAELKKRGSP KQVGLTTKLCINDYDVEGTQNRKANALYDIVRNYRQ
HLFDPSVKLFTNDFNVVAGSGLTQAYVNLINRLKSTGAP HEIDPTTRLFINDYNILAAGGNHQNRYAEII QYLLDHHAP HQLDPSAFLFVNDCHVEDGSDSRPEKYDEY H HLQEHGAP NKYAPSDDLYYNDYNEQF KTDTLEAFVKTLVDADGL HQTDPKVHLF LNEYDVV ARGAYTQAYKNQADHFKASNTG
 RAADPNAKLY $\square \mathrm{NN}$ YNDTVPH
RAADPNAKLYYNDY ICDRPGRKVTGA QNLIRMVRDAGAP YDCDSYFSLFYNDYNT G YEVTDQIISSVVNFINSDRKD
 RAADPDAVLYLNDYGQLTAGE RAA ADPDABKLYLNDYGQLTAGEPHQQAHLDHI AHLLEVGAP RKYADDVLLFYNDYNTYQA PKTEGYYNLCSHLKEKGVIL HEHAPKAQLVYNDFMGPGLGDDHRAGVLKLLAELKKRGAP READPTGVLIYNDY SCVDPGKRERIVEMVKKMKEAGVP RKYFPNSKLL!NDYNVLNEWSSCLDNY KKVVNDLKDRK L NK ID G S R TVVFNEYNTIE ESRDGVASPSRYLQKIRDRYGG

 NKY

 RQAFPNAKLLINEYGI I ND PS LTTDQYVNI NQLKSRGNL Y Q CILE Y Y H L FYN FYNTYMEVK D
 RKAFPNAKLLINEYG\|ISDPNA
 HS SDPS IKLFLNDYSVL PVSTMTTAURNQAQNFIKSQVP KERDPNAKLFLNDYDIINWW GQTNNYANQDSEFLANGAP HK LDPSAVLFVNDYNVEDGCDSKPEKFVEQIVDLQERGAP

 RKYAPECALYYNDYN EYWDHKRDAIYSMCKSLYEKG L AKNDPKALLVYNDYGDEHDTPAKRAAVLKLLKHLKSKGTP HEADPDAELYYNDY SMSGEKKREAVCRLVKNLKAKGDR

 GQYDPTVLRFLNDYEIFARNGAHRADFDAWLDRDTAAGVL REHDPKTQLVYNDYMSWEAGNEHRKGVLKLLRWFRDNKVP REGDPNADLYYNDYSTENGDPAKFACLLELVDELLEADVP RQYCPNS LLIL
RQYCPYN
Q NHYAPDLELYYNDYNECMGNKSGDEKLLREVKSHETDETR RRYAPDCKLYDNDYN EYMSAKTDDLINMAKTDMKE GDY HEDDRAATLMPNDYDVVS KGDHTSGYRRQLSQYDASGVP K QYAPQMLL F L N DF GAE YMNPKADGLLAA ATSLYKQK L NRYAPATKLYYNDYNECDATKE A GII ELDNAVKEAGTR RKYFPDAVLLINEYNVEMNWNNCRAPYLEMANAVKNAKNL NKYMPAEVLFYNDYN DTVTSKVKGIECQIENVKAPGAR RAAAP DAQLVYNDYMSWEPGNAHRAGVLRLLEGLRARGNVP RENAPSARLVDNDYNDECGTDAKQDHMLRLLDGLRAMGSP RYAAPGQTLCYNDYNAFEPV KRDA QKVDGNATLFLNEFNTLSWNAE
210
220
230
K A A\| G LE GHF S S P N $\square$ A YMRS S LDD LRTMG 1 D CV GLQ THFTGGSPGNFQTTLDSFAALG

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 Q
Q
$V$
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$V$

$D$ | V | P | D |
| :--- | :--- | :--- |
| L | P |  |
| P | P |  |
| L | E | V |
| L | K | V |
| L | Q |  |
| L | P | V |
| L | D |  |
| P |  |  | |  | $W$ | $L$ |
| :--- | :--- | :--- |
| $V$ | $L$ |  |
| $I$ | $L$ |  |
| $Y$ | $L$ |  |
| $V$ | $L$ |  |
| $V$ | $N$ |  |



240 UniRef90_L8G611 UniRef90_G2X0N0 UniRef90_K0H4D9 UniRef90_E2LPD5 UniRef90_A7UG54 UniRef90_IOICW6
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$F E K Q A N A Y A K V F Q M F H D M D N I T N V T V G L V D H Y R E G D Q T N$ NDATAALARDYLDVTLSYPTCRDFLLWGMADHVNWLQAQR
D $\square$ A D DNKMQE LFPVMYEHSAVKG TT LWGYVQGRTW WPNSH GPNQANILNQVLREIHSHNAVQGI MLWTPWDDDRCTNCYA RMQQRQDYQTVI AA CNAVEACVGVTI WDFTDKYSWDPGVF
 KGASSAKDARLAQRYKDVYDTEGMTIWADWKPG TARQTARVTELAEAFTALPQRFAFTVWGLRDTDSWYGRDK
 TGDDNTQDARYKEKFWKHSAVKGVTLWGYDQGQTWDSNTH AGKNDTDQANYYYGDMKAGNISAVVWWGLADDTSWRRNER NDAVASDAK GYLDGMLDVYRQTKEVLA WGMVDKYSWLQNFR HCNYGDYFAMLKKLKEEGVDVIEAVTFWGVTDQDSWLT G S Y SQQQADKYKA DFQAAMDWGRVTAMVCIWGPNDANTWDKSEN EATNDQYMQTHFPVFYNHPNVKGITLWGYVVGSTWRTGT D A A D A A A LE NLLTMFFSHPAVEGVILWHFWDGSNWHQNEA NEPNADGYEDAMRAAFSHPAVEGLLI WGFWDQAHWRP NA SAENADDDEVCDRECFAHPAVEGVVLWGFWEMFMFR NY GCTQSKYYYDLMSA LLSVKNISALVFWGLSDDHSWRRNDR $R G D D Q T Q L Q R Y Q E K F W E H P S V R G V T L W G Y V E G H D W Q S E A Y$
$E K T N D Q E Q L R V M Q L G Y N H P S V K G I T T I W G Y V V G A T W R D G T$ ASKDAAYQKFMNIILQRMDNVSNVTFWNLTDLDTWLSTYY
 VGRQADYTRDFDTLAFSHPKVDAVSTFGDWEPNDWHPKAA DFADDARHAQLFEIFWDNPSVVGVTHWGHLRGEMWRENGY SEPDADGYEDAMRAAFSHPAVEGLLDWGFWDQAHWRP DA TTSQADY LRDYMTMVFSNPAVTEFVQWGFWAGSHWRPDAA $\begin{array}{ll}D D Q T A T V G R & Y L D Q M L S Y K Q T K D V L F W G M P D Q Y N W L Q G F R \\ P V Q Q R Y K A I M Q E Y L D N V P A R G G F T V W G V W D G D S W I A N D W\end{array}$ GDTNDQVQLQNFQAFYNHPHVHGDTLWGYVVGRTWIEGS YTKQA YRYKEIVYDVMREVDAVNGVTVWGVI DGNS WLQD S S TNSTGTYPQDFTAAMKHAENI SCVTLSGTCDESSMGYHRG RDKRAQG DRDVLHLYFSHPAIEGIVLWGFWDKAMSFPAS RDQMNEDYEVI YGICRRVKGCVSVTAWGVTPSDSWDGHGN YTKQAHYFRKIYEAAKALNAFSGITMWGVVDKYSWLQSQN QADPNEAKQTLDPVAWEHPHVAGUTLWGYIQGTTWRNGNG K GSASATDERLAQRYKAVYDTIGMTIWGITDKHSWLQTQY

 H CNS $A E T S D Q A Q L Q$ MQEFYNHPSVVGUTVWGYVVDRTWVEGS
$E S N Q A Q Y L E E V L R E A H G H P K V T G U C D$

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UniRef90_UPIOOO34930EB UniRef90_J719M6 UniRef90 R7CBT2 UniRef90-R7TXS5 UniRef90_D2U8E8 UniRef90_UPI0003B5A792 UniRef90 K9XS72 UniRef90-A4UX65 UniRef90-17L4N8 UniRef90 BOT4M1 UniRef90 R7C9D0 UniRef90_UPI0003B640A8 UniRef90_R5UPI4 UniRef90 H9TEB8 UniRef90-V4NVP6 UniRef90-R7ZL47 UniRef90_D4IVY2 UniRef90 Q8GZB5 UniRef90_UPI0003B44EB5 UniRef90_G2SG44 UniRef90 V2XGP2 UniRef90-J3KW60 UniRef90_UPI00047908D2 UniRef90_F4F3H8 UniRef90-UPI0003B7448D UniRef90-EORYH1 UniRef90 Q4P641 UniRef90_R9GNN9 UniRef90-C3YR47 UniRef90_UPI0003B30E39 UniRef90-IOK8D6 UniRef90-LOK2X5 UniRef90_-10IHY9 UniRef90-UPI000422C878 UniRef90 R7V608 UniRef90-A4UWT5 UniRef90-IOICW8 UniRef90_M5G428 UniRef90 P23557 UniRef90-UPI00047A700E UniRef90_C9RKU1 UniRef90 SODFK9 UniRef90-F7PFV5 UniRef90-M5RC30 UniRef90_UPIO004645C4B UniRef90 D1BXQ7 UniRef90_L7VM99 UniRef90-V4AMW0 UniRef90 M0CLR3 UniRef90-C5NSU6 UniRef90-F4RYZ6 UniRef90_X6BAI5 UniRef90 B814I7 UniRef90-Q1YTG9 UniRef90-R5T8K1 UniRet90_W0IZ26 UniRef90-M0CLN8 UniRef90-A4UWZ7 UniRef90_G8TR78 UniRef90 R5DCU1 UniRef90_K2P331 UniRef90-W0FIJ5 UniRef90-Q2GXB6 UniRef90-H1HNA9 UniRef90_L8GUU4 UniRef90 R6J8K0 UniRef90-V4BGD3 UniRef90-I6AU60 UniRef90-C7NVN5 UniRef90 R7TCF4 UniRef90_UPI0003B789D7 UniRef90-U7D6W1 UniRef90-B9R6T3 UniRef90-M5T6Y4 UniRef90_MOCNIT

PYGAAVY LIPD DT DSRVGEAVVKYC
AEAPTSFPVGVAVSANHSDATERQDVIATHF QAHEYDWGSAI AVNQWPDGTYRERFLDNF $\square A Q G K S K F L G N V I A S T V P S N$

FGNYW LAAKHGFKLGTVINPQQLQKKAYTDMVKADF


LATGQEKFLGGVCCGRQRPN FEAYW
TSLREEAAKKNLLFGSGATNPSYLDDAQFRAVLSEQF GPALKDLYAKY FMMGAAI NGSDKSTAAMANILKKHY STASVDAVSQTRHDFGFGFAVKAPRMYDKNYQKFIYSLS SGSVDAAPLAAGKKRFGCAYSAPQMLDAAY DAFGKYW
 DP $\triangle A Q G K S K F \quad \square G N V I G G N V P S N \quad F V N Y W$

QAAGSLGALAKAKG LRFGSAVGAGPFEDARYRQVLDDEC ESYQSLASLGAEKYGFKFGTNINEAALKNTELTKLIVYHF
 ALATGKSKF $\square G N \| I P S S V P S N$ WDTYW
 HEFWFGAALSNGEADKEQYAEKFLKNF

QTGGAADRVVQVENSFPDGACDNKTADQNPAFVDFFTKHF QS A ASLTEAKG YKFGTCVSYNQINDTQFKNLLKKHC T GVKDALKDYFD YFGFCVSYNDFREPLLQQGLPLHA


HE $\square$ AQTKSHFAFGSAVNAWQMSNGGYADFFFDNF AVRQTSHAFTFGNII GPANGEDADLA GDYGEDF $L V T V N Q V S Q D F L F G N L V P K E P Y K V D L F K E R F K A L F$
 QEVP ILRDCVQQKMGCRLGCALTGDEPWDUPDWNLVTTHF SLLNQVNQTRQSFPFGANI DSWLTREEQMRDYFYNDF KWVGNII PGSVPSN

WDKYW

 SVAQQSHDFNWGTAVHADTLDNDNYREYDPEDF VAMQKHAFGFGNAVNSEVLGAAKYRQVVKKYF AVEMTRHAYHFGSVTVGHLLDNDLYREKVLEDF


EVAMREHDFGFGTAVSAGFDTEDTYREHVTDDF
EIILDKHEFAFGSVVEDQYMLNPDYQNLFYEFF

QTRHKFLFGCAVNNEFKGEEKERAKFIDLDF RHNFGFGAAPRDRRLYGSPYPEE\|RQRF
 QNKQYENTFGA LIF

QVSHRFMFGCAVEDMKTQDEPKQAFDRDRF
QVK Q $\square T H S F \square F G G N T F A T P A M N S K Y E H T F G T \square F$
QQRHE Y RF GVAUNHWLVTNPTYNSR LUQYF

TVRQTGHDF $\square \mathrm{DFGAGFDTGE} K N R A Y E R A F D D V F$ AVSQQEHDFGFGTAVNANTLINSNYREY DPELF DKLYQKFFFKHF
$\square A R A K N L H F G S A F Y Y R D G W D D E Y E K H F L D N F$
TGTAVNSRWVDAQRYQGFVKKYF
HEFNFGDMTNAPQIQSDPYRENRKELF

UniRef90 Q5KQSO UniRet90_U3Q8B8 UniRef90-B2A0C7 UniRef90_W4S3Y1 UniRef90_H1VH43 UniRef90-W4C1Z3
UniRef90 G2MOE2 UniRef90-G5A8P6 UniRef90-A0A024ISH2 UniRef90-UPIOOO4663965 UniRef90_MOCN13 UniRef90 A4UX63 UniRef90-UPI0003B5EF08 UniRef90-G7M400 UniRef90-A4UWT7 UniRef90-K7RHS4 UniRef90_UPI00034930EB UniRef90-J719M6 UniRef90-R7CBT2 UniRet90 R7TXS5 UniRef90-D2U8E8 UniRee90-UPI0003B5A792 UniRef90-K9XS72 UniRef90-A4UX65 UniRef90-17L4N8 UniRef90-B0T4M1 UniRef90-R7C9D0 UniRef90-UPI0003B640A8 UniRef90-R5UPI4 UniRet90_H9TEB8 UniRef90-V4NVP6 UniRef90-R7ZL47 UniRef90-D4IVY2 UniRef90_O8GZB5
UniRef90_UPIOOO3B44EB5 UniRef90-G2SG44 UniRef90_V2XGP2 UniRef90-J3KW60 UniRef90-UPI00047908D2 UniRef90_F4F3H8 UniRef90-UPIOOO3B7448D UniRefifo-EORYH1 UniRef90-O4P641 UniRef90-R9GNN9 UniRef90_UPIO003B30Е39 UniRef90-I0K8D6 UniRef90-LOK2X5 UniRef90-101HY9 UniRef90-UPI000422C878 UniRef90-R7V608 UniRef90-A4UWT5 UniRef90-IOICW8 UniRef90-M5G428 UniRef90 - P23557 UniRef90-UPIO0047A700E UniRef90-C9RKU1 UniRef90-S0DFK9 UniRef90-F7PFV5 UniRef90-M5RC30 UniRee90-UPIo004645C4B UniRef90_D1BXQ7 UniRef90-L7VM99
UniRef90 V4AMW0 UniRef90-M0CLR3 UniRef90-C5NSU6 UniRef90-F4RYZ6 UniRef90-X6BA15 UniRef90 B81417 UniRef90-Q1YTG9
UniRef90 R5T8K1 UniRef90-Wolz26 UniRef90 MoCLN8 UniRef90 A4UWZ7 UniRet90-G8TR78 UniRef90 K2P331 UniRef90-WoflJ5 UniRef90-M5FXR6 UniRef90-Q2GXB6 UniRef90-H1HNA9
UniRef90 $\mathrm{LBGUU4}$ UniRef90-R6J8K0 UniRef90_V4BGD3 UniRef90-I6AU60 UniRef90-C7NVN5 UniRef90_R7TCF4
UniRet90-UPIO003B789D7 UniRef90-U7D6W1 UniRef90-B9R6T3 UniRef90-M5T6Y4 UniRef90_MOCNI7

DQ自TPENEGKWGSVEGTRDQYNWGP पDDTYDYARASG\||PV|| NQFTVENDLKPEYWYDSNHNFRMDNAKKMLTFASKNHLVV NQVTPENAGKWGSVEGTRDVMNWTERDAAYALAKANHIPF NKLTPENSGKWGSVEAVRDQMDWSGLDTAYRLAKANGMPF NQVTPENSTKWDAVEGTRNVMNWGQADMAYNYANNNGFPF NADVPENAGKWGSVEPVRGQMNWGPLDEAYQLAKRNHMQF SRTTPVTEMKWEVMRPSEEVFDFAAADATANFARQHNDSM NQLTAGNПMKMSYLHPTEDNFTFGDADQLVNFAQSNGMTV NKAVPENGLKVPAWEGRYGDLDQDNTRAAIDWMLERDIPT NQVTPENGGKWGSVQSSQNSWNWNDADTAYNWAKSNGAQF NSLTAGNEFKAYSLENGMPAMNYYNADKDAEFAQANGDGD NQVTPENATKWGSVESSRDNMNWSNSDLIYNHAKSKGYPF NQATAENGCKWGSVENSQGNYNASCDVTANHCKSAGIPF NS पSPENEDKWNFFHQSPDHYDWHK DDRLVKFAEANNMAV NSTTLSNLMKPCYLLDEKASLNFDSCKESLDFCKENGTKM NTVTITNALK WRFMESVEGKPSFYVVDKAMEQIKAHNVSV NKLTSENGGKWASVEAVRGQMDWSEFDKAYNFAQDNNITM $N T L V P G N G F N W T R I Q P R P G M P D F S E V T P V Y R D A Q Q \square H A S M$ NIITPEWEMKWAELEPTPGEFNTYNLDKI DDFAVTNNGKV NQVTPENGCKWGSVQASQSSWNWAECDVAYNWAKSRNLTF

GVLVPENELKWYVLRPDAKTFAFERADRTAAFAKAHDTAL NSTTFSNEMKAYSLENSPAVMNFTKADSMVAYAVENGLS NMVVPSNAGKWGSVEGTRDVFNWTNDDAAYRLAKDNGFPF NAVTFGNELKPDAVNDKQENLDFSRADEMLDWNNANPDRV NQATAENGCKWGSVQNSQGSFNWGDCDTAFNHAKTAGITF RDTSFTNEMKWYTTETVRGQENYTRADSMMKLTEENN NSAVTENAMKWHSMEKEKGVVDYGVVDA LLAWTDQHHTP NAVTFGNEFKPDSDKPADGQMDFSRPEKMLDWNDEHQUKV NAVTLGNEMKPDSLEGTVNDVLNYTNPEKMLNWNQEANQUKV CINAGWGSEGTBQMNSGLDAAYALLARDNGFCF

DWAVLENELKWYYTEAVQGQVSYSDADE TAFCDRHGKPV DSDTASNEFKAYSLLDQEACMKYQQADEDCEWAKENGLQU NTATLP FYWGSYEPRRGAPDTERLTRTARWLADHGVTV SVITMENEFKPDFDEVPADMPNFKQMDNDSDMKKDGLKL


EWAVLKANHKWQQNEPQEGQDEWTRADRTMEMLESRGVST NTATLP FYWGRFEPERGRPDTERLRRTAEWLRARGI RL NMAVLP FYWGRYEPTPGMPEWQRNQDALDWCLANGITT NTAVLENQHKWRFWEANQAGADREWSDTATEWILDHGLD NRVTAPSYGAQAWGWPDPAS RERYDATLA WASEODLTL SSVTDGNEDKPDSTEEAEPVLNYKNPEKILNWNEANPLEV NCAITGNDMKWPVMETVENEVQFDVVDKSLEALRQHN|| NQ ASTENACKKWSRWESEPEVFNNECMVAYNAAKKAGLPF NH VIENGCKWYDTEPQPGVSNDTDCKGVQQYADAHGASF NAVTDGNELKPDSLFGTVPNDNFENPEKTLNWNEAHPLEV NQVSPENACTWTVIEKVRGEYDWSGCDRUYYWAQKNNVKF

NTAVMENQHKWALWEDNQ QLADDATNWILDQGLNM DRVTFESELRPHVWKPSRRKYDDF FNKTLPWLLENNISV NQSGPENDLKWAPWAGEWGEFSQQTTKDALQWLKDHDFYT NHIVGENHMKPESWFAGSSMDTFRRHTAMLDFAVANDLTL NYCTLP FYWARFEPVPGKPDTQSLKKAAEWLVSKGCTL NLAVLGNHHKWRFWE GERELSDAATDWLEGRGLD NWATVG GYKWHYNRP PKYTDYDLSVNVTEELLRQGLHV

FYWAFYESVKGOPMIKETKKAAEWLVSNGMA HKATLPNAFYWAFYESVKGQPMIKETKKAAEWLVSNG NYAT ${ }^{\text {P }}$ FYWGQFEADEGKTRTEELKRAADWLKEKGUTV NGATVPGFYWRTGEPEQGRPRFGTHDKAVKFCEERGLRM NQATAENGCKWGSVQSSAYSFNWGQCD【TYNHCTSKGUPF
NSAT $\square P$ Y WKT LEPEQGKPRYPPVDP LEFCESNK $\square$ MA NYGTDP FYWGRYEPEEGQTAYTETMAAARWDREKGVTV SAVVAENDCKWYATEPTRGTFTLSACEAVSSLAGAHGATF

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| :---: | :---: | :---: | :---: |
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NSGVIP FYWSDLEPRRGQMRFPPPDAVLAFCEQHGLVV NKAVMENRHKWDFWENEQ QLADEATEWILNQGLDM NWATITNAMKWHFMEPKKVNYYCQSTTYVFNLHTSDRVKV NMATLPGGYWAGFEPERGRPDTARFGRAARWIRDYGATP
T ILTPEGGMMWGELSAPGEDNFSAGNEIIGFAHENDLAV


RGHCVFWPDYVPDWLKGYS AAEVEQKCWKRVDDVVGRYA KGHPLVWHTVQPEWLLGLP LEEVERLLRARI RREVEGFA KGHTLGWPSGTPTWLLQLSPEVA TDVYKARIMNNVLGFK RGHAALWANRGVDAIPEDVDGEHVRERSHDHI ETIIDYYG KAHPIVWSRFDWMPRSFRDDPSALRAEDERYI TEVAT DLA RGHVLLWHSQTPEWFFHYVTPEVMTKREEWYI REVLTHYK KGQCLVWESKLTEWIQN KTADEDKAA I DRRVKYMTSHYK KYHTFVWGSQEPGFINSLSGDAAKTA VESLI SAAKAKYS
 RGHVLVWHNQTPEWFFHLVDAATMERRLESYI KQVI EFYP RGHVLLWHSQTPEWFFHYVSKEEMDKRLEWYI REVLTHYK NFRSLLWGTHTPNWLNNLDVDETRKAVENWFDKAAMRYP A A FVKY TTDVATHYK
RGHVCVYDYAVPSDVQDNGDTQT $\square R E R S M A H I D E I M N H Y G$ RGHYIAWAPMDFNAIQFVGDPEAHRSWLWQHMRDVLPATS RGHVMVWPSEYLPE GEPENADPEAKQDVLDHIDDI ASATA F GHVLVWHSQTPSWFFQLQNNPADRAFMEARTVELFGTDG KGHPLCWHTLTAP WLLDYTNAE LLQMQL NRIRRDVANFA RGHNIFWGEPY IPSWQHSMSANQLRSEITDHI HGMTSHFK
 HGHTLFWHQEP DRWAQSEK FDRDKHNYGGF\|RDVMERYYP K GHTLCWHTDTAPWLLDMTNEEILMAQM KRINRDVSEFE RGHCLDWPRAAVEHARYSGNKVQLRKLLNDHIVKMVSQYG KGHPLCWHTQTAPWLLNLSNGEILEKQL ERIRRDVTAFK HGHTLVWNDRKWGIPDWLPEDPAEAAPFWERIAE I AARYG RGHVCIWGRSDVGA!PSDVDAET IRERSMAHIEDVITHFG KYHTFVWGSQEPGFIDSFSDQKAAVLSFMERAAA RYK MKNFlT SMDTRYK
K GHA $\square$ I M MRRWGHPDWMSSDRKEMEFYFEKHI QELASRYK EQELLERWI ETMVTGGP
KGHPLCWHTACAPWLMQYSNEEGLRRQL ERIVRDVSAFR
RGHNTFWHQQLPSWLPGTVTATDLQNVIPTHVAGVIKGLG ATPCTWHSQLPPFVSNGTWTPTLTAVLTAHITTVMQHYA KGHALVYGHGHPTWMPDDRN VMDSLFCRHI RQLAQRYG TGHVLLWGGFDYMPQTWTMTAAQLRPRILNHVSDIVTRTK RGHNTFWKNVVPSWQQKDMDPVKDKQAMQKHVTELTHTFK





R GHSVLWW DPVVEWPSPPDLWMLEMRSRIAABIRQI DGTQE


UniRef90 Q5KOS UniRef90-U3Q8B8 UniRef90-B2A0C7 UniRef90-H1VH43 UniRef90-W4C1Z3 UniRef90-G2M0E2 UniRef90 G5A8P6 UniRef90-A0A024ISH2 UniRef90-UPI0004663965 UniRef90-MOCNI3 UniRef90-A4UX63 UniRef90_UPIO003B5EF08 UniRef90_G7M400 UniRef90-A4UWT7 UniRef90 ${ }^{-}$K7RHS4 UniRef90_UPIO0034930EB UniRef90-J719M6 UniRef90-R7CBT2 UniRef90_R7TXS5 UniRef90-D2U8E8 UniRef90_UPI0003B5A792 UniRef90_K9XS72 UniRef90-A4UX65 UniRef90-17L4N8 UniRef90-B0T4M1 UniRef90-R7C9D0 UniRef90_UPIO003B640A8 UniRef90-R5UPI4 UniRef90-H9TEB8 UniRef90-V4NVP6 UniRef90_R7ZL47 UniRef90-D4IVY2 UniRef90_Q8GZB5
UniRef90 UPI0003E UniRef90_UPI0003B44EB5 UniRef90-G2SG44 UniRef90_V2XGP2 UniRef90-J3KW60 UniRef90_UPIO0047908D2 UniRef90-F4F3H8 UniRef90_UPIO003B7448D UniRef90-EORYH1 UniRef90_Q4P641 UniRef90_R9GNN9 UniRef90-C3YR47 UniRef90_UPI0003B30E39 UniRef90-IOK8D6 UniRef90-LOK2X5 UniRef90-IOIHY9 UniRef90_UPI000422C878 UniRef90_R7V608 UniRef90-A4UWT5 UniRef90-IOICW8 UniRef90-M5G428 UniRef90- P23557 UniRef90_UPIO0047A700E UniRef90-C9RKU1 UniRef90-S0DFK9 UniRef90-F7PFV5 UniRef90-M5RC30 UniRef90_UPI0004645C4B UniRef90_D1BXQ7 UniRef90-L7VM99 UniRef90-V4AMW0 UniRef90-MOCLR3 UniRef90_C5NSU6 UniRef90-F4RYZ6 UniRef90-X6BAI5 UniRef90-B81417 UniRef90-Q1YTG9 UniRef90-R5T8K1 UniRef90-W0IZ26 UniRef90-MOCLN8 UniRef90-A4UWZ7 UniRef90-G8TR78 UniRef90_R5DCU1
UniRef90_K2P331 UniRef90_W0FIJ5 UniRef90_M5FXR6 UniRef90-Q2GXB6 UniRef90-H1HNA9 UniRef90_L8GUU4 UniRef90-V4BGGD3 UniRef90-I6AU60 UniRef90-C7NVN5 UniRef90-R7TCF4 UniRef90_UPI0003B789D7 UniRef90-U7D6W1 UniRef90-B9R6T3 UniRef90_M5T6Y4

DTAMT DVVNEAD PSHAPANYAANAFGSDWTTESFRD ${ }^{160}$ NYVKAYDVVNESISDTNGMRNSLWYQDTGEEYI DDSFTWA N DVYAYDVVNEPINDPPDGQDDNTPGSGTTGWDWVLDAFTWA
 GASAFVDVVNEPLHAKPSYRNALGGGATGWDWVIWSFQQA PD DDLMQVANETLHNQPDNRRSDTGNYLGVDWVLEAFRLAA DSCYAWDVANEVMGDDATYRKSFWYTTTGTDYIVDRVK DVIHSWDVVNEPIPDVPGNRRDAWYYGAGPDA KKAFEDA EVVVSWDVVNEAVDTGDGWRHSLFYNYAPPEYI EVMYQAA GELPEWDMHNHPLFYPE $\square W Q D$ GVNY $\square$ DVVNEALHAPASYREA $\square G G G T T G W D W I V W A F T T A$ GVVYCWDVVNEAVADDDPRRTNYFYDVDGPDYVELSFKYA NADF VDVVNEPLHTQPSYKNA $\operatorname{CiGGTGTGWDWIVWSFQQA}$ SPALI DVVNEALHAPSSDRAALGGDGSGWDWIVSSFQLAA A DDF EVVNEFDNDPPNLANDGPGKAANFDWII NAFQMA
 GVVYCFDVVNECVDDGTNGGDNFWYATMGTDYVEKAFTYA GQFSQYDVNNENLH GFWYES KTSSDVSFTENMDKWM PNDAMLEVANEPNHNQPDNRYSDSGNYMGVDWVIDNLRRLA DKVVHVEVVNEPAYDSGRYRPFAFSDKLGMDYIDIAFHAA NVI FCWDVINENPSDTTANPDWSLLKGVTPELRDDIVQVV
 Q D S WDVVNETVDPDGS DRRTVFSDAMGEQTEDVAFHAA
 GLFYGWDVVNEAVN GNTYRDDWWRVYKSNEFI I NAFKYA S SAQLVDVVNEALHAPASFRNSLGGSGTGWDWIVWSFKQA GRVIGWDVMNENVVH DMFYGWDVVNEACSDGGTYRRSNWARIYGPDYILNAFRFA
 S PF DVVQVVVNELLHQDGQEGRANYIGEALGWDWVINAFELA GKFQUWDVVNEPFNEDGTFRSFVLYDULGKSYIDUALQAA

 QWI DA WDVVNEAASDNATANTNWFAMYQNESFI VNAFRYA
 ADFWG【DVLNEVFDDSGNFKKNGYFEVIGGEEGYMEVLKLV
GRDAHWDVNNEM
 GKI NIWDVVNEPVNTDTANTNDFRYNVNNTPWVEQSFKWA

 DLFYGWDVVNEAVSDTGTYRSSWWHVYQSEEFII NAFKFA
GQFVQWDVNNE PDFI QDVVNEALHAPSSGRSGLGGGDGTGWDWVVWSFKTA GLVDTWDVVNEAFN SYV SWDVTNELIGDSTTMSMDAWECVQSANFPYAAWSTA GVVYCWDVVNEAI LDDGSWRNNNWYTIMKEKYVEKAFYYA
 APYMDEVVNGGSRDSYGHYHSGFGGDNDDYKFIATAFKMA
GKVTAWDVLNEPMNENGTLRVFHWAYYLGEDYAVTAFKTA SDI HE WEVVNEVVQHSTTIFDPFTSNPTTSDVVADWYQQA HFVSEWDTINHDI GWGKHTYEKEYGGPEIYAEDMAEA $D V L D E W D V L N E P Y D N H \quad Y$ LDMDAFGDEVMVDWFERA NPMNSWEVVNEVVAGNGMREASPWFRDFGRDFVDMAFRHA GVIDDWDVINEVFNKYDNGDTR $\square$ VRELGR DRVVREVFRAA GKFKHWDVNNENLHLH DRDTE WEVVANEVVHKPGLIEAVNGVAATEDPVLAEWYAAA
 QAVSWDVFNEIVGEQAPLRDEFFDQPFGLQFI DYCDRLA
 G I DMWDVI NEVFDKYDNGDTRDCKELGRVNLVSKVFKEA DDVTEWEVVNEAMHEPWNGEVVPWRSPLLAEWYARADEVR
 DRIMMWDVVNEPVDQAN RGIMPDDYTYKSYKWA YVNAWDVVNEPMDDGNPYDEFYWQDYLGKDYAVKAFNDA GVI G LWDVVNEVFDKYDNA DTRDCKDLGRVGDVKEVFAAA

 PYVHAWDVVNEPMDDDDASDEFYWQDYTPKDYAVEAFK $\square$ A GRFQHYDVENENLHDHH FYEEKLKDPNDTQWMFRET
 GNISHWDI CNEQLHGDW YEQK IQEVRFVDGIFRAM GVVDLWDVIMPVFDKYDNGLTRLCQARGRVETVRLAVQTA HTVQWWSVVNEGANNFSGFEPNLWLDSDGESYIDSAFVWT GKFRHYDVNNEM P ! I A Q WDVLNHP【LHDRMW




UniRefo J79M6 UniRef90_R7TXS5 UniRef90_D2U8E8 UniRef90_UPI0003B5A792 UniRef90_K9XS72 UniRef90-A4UX65 UniRef90_17L4N8
UniRef90_B0T4M1 UniRef90_R7C9D0 UniRef90_UPI0003B640A8 UniRef90_R5UP14 UniRef90_H9TEB8 UniRef90_V4NVP6
UniRef90-R7ZL47
UniRef90_D4IVY2 UniRef90_Q8GZB5
UniRef90 UPI0003 UniRef90_UPI0003B44EB5 UniRef90_V2XGP2 UniRef90_J3KW60 UniRef90_UPI00047908D2 UniRef90 F4F3H8 UniRef90_UPI0003B7448D UniRef90_E0RYH1 UniRef90_Q4P641 UniRef90 C3YR47 UniRef90_UPI0003B30E39 UniRef90_IOK8D6 UniRef90 LOK2X5 UniRef90-IOIHY9 UniRef90_UPI000422C878 UniRef90_R7V608 UniRef90_A4UWT5 UniRef90_IOICW8 UniRef90_M5G428 UniRef90 P23557 UniRef90_UPI00047A700E UniRef90_C9RKU1 UniRef90_S0DFK9 UniRef90_F7PFV5 UniRef90_M5RC30 UniRef90_UPI0004645C4B UniRef90_D1BXQ7 UniRef90_L7VM99
UniRef90 V4AMW0 UniRef90_M0CLR3 UniRef90_C5NSU6 UniRef90_F4RYZ6 UniRef90_X6BAI5 UniRef90_B8I4I7
UniRef90_Q1YTG9 UniRef90-R5T8K1 UniRef90_WOIZ26 UniRef90_M0CLN8
UniRef90_A4UWZ7 UniRef90_G8TR78 UniRef90_R5DCU1 UniRef90_K2P331 UniRef90_W0FIJ5 UniRef90_M5FXR6 UniRef90_Q2GXB6
UniRef90_H1HNA9 UniRef90_L8GUU4 UniRef90_R6J8K0 UniRef90_V4BGD3
UniRef90 I6AU60 UniRef90_C7NVN5 UniRef90_R7TCF4 UniRef90_UPI0003B789D7 UniRef90_U7D6W1 UniRef90_B9R6T3 UniRef90_M5T6Y4



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| :---: |
| V | $V$ D G I Gll Q C H V N S L S A A S A K S V L



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## 5 I

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V


UniRef90_J719M6
UniRef90_R7CBT2 UniRef90-R7TXS5 UniRef90-D2U8E8 UniRef90-UPI0003B5A792 UniRef90_K9XS72 UniRef90-A4UX65 UniRef90-17L4N8 UniRef90_B0T4M1 UniRef90_R7C9D0 UniRef90_UPIO003B640A8 UniRef90-R5UPI4 UniRef90_H9TEB8 UniRef90-V4NVP6 UniRef90_R7ZL47 UniRef90-Q8GZB5 UniRef90_Q8GZB5
UniRef90_UPI0003B44EB5 UniRef90-G2SG44 UniRef90-V2XGP2 UniRef90-J3KW60 UniRef90_UPI00047908D2 UniRef90 F4F3H8 UniRef90_UPI0003B7448D UniRef90-EORYH1 UniRef90_Q4P641 UniRef90-C3YR47 UniRef90_UPI0003B30E39 UniRef90-IOK8D6 UniRef90-LOK2X5 UniRef90-_IOIHY9 UniRef90_UPI000422C878 UniRef90_R7V608 UniRef90-A4UWT5 UniRef90-IOICW8 UniRef90-M5G428 UniRef90_P23557 UniRef90_UPI00047A700E UniRef90-C9RKU1 UniRef90_S0DFK9 UniRef90-F7PFV5 UniRef90-M5RC30 UniRef90-UPI0004645C4B UniRef90_D1BXQ7 UniRef90-L7VM99
UniRef90 V4AMW0 UniRef90-MOCLR3 UniRef90-C5NSU6 UniRef90-F4RYZ6 UniRef90-X6BAI5 UniRef90_B81417 UniRef90-Q1YTG9 UniRef90-R5T8K1 UniRef90_WOIZ26 UniRef90_M0CLN8
UniRef90_A4UWZ7 UniRef90-G8TR78 UniRef90-R5DCU1 UniRef90-K2P331 UniRef90-WOFII5 UniRef90-M5FXR6 UniRef90_Q2GXB6
UniRef90_H1HNA9 UniRef90-L8GUU4 UniRef90-R6J8K0 UniRef90_V4BGD3 UniRef90-16AU60 UniRef90_C7NVN5 UniRef90_R7TCF4
UniRef90_UPIO003B789D7 UniRef90-U7D6W1 UniRef90-B9R6T3 UniRef90_M5T6Y4 UniRef90_M0CNI7

| UniRef90_Q5KQS0 | $\text { GLL } \square \mathrm{T} \text { S NGQQR P A M Q WLLME } 300 \mathrm{H} \mathrm{NR}$ |
| :---: | :---: |
| UniRef90-U3Q8B8 | PCLIFNAD LS $\square$ K P A Y |
| UniRef90-B2A0C7 | IVNSDGSERPAMEWL |
| UniRef90-W4S3Y1 | A YLIRADGTERPALT WLRDYV |
| UniRef90-H1VH43 |  |
| UniRef90-W4C1Z3 | $V N S N G T E R P A M Q W L R N Y L$ |
| UniRef90-G2M0E2 | AYLINYDGSERPALLTWLRSYV |
| UniRef90-G5A8P6 | PLPWYQELVRKRAYDGIAAG |
| UniRef90-A0A024ISH2 | PLPLDD WS F |
| UniRef90_UPI0004663965 | $P L L F N A D L T A K P A D E G V A Q A F R$ |
| UniRef90-MOCNI3 | Y Y S DWT L R PHGEEYRRLLL |
| UniRef90-A4UX63 | G $\square$ VESNGQERAAMTWLK ${ }^{\text {a }}$ |
| UniRef90_UPI0003B5EF08 | S GMYNYDCSRKAEYFRVAKVLE |
| UniRef90-G7M400 | LIT S S GQERPALT WL K S YL |
| UniRef90-A4UWT7 | GIVEADGRERQAMTWLKAYIQ |
| UniRef90-K7RHS4 | A ILALENGSEKPALKWLRSYMR |
| UniRef90_UPI00034930EB | PLLF DRERQPKPALDAVLAVPAE |
| UniRef90_J719M6 | LY $\square$ WDKNAK |
| UniRef90_R7TXS5 | ALVEGNNFVYNQAGTRVKNLIK |
| UniRef90-D2U8E8 | A YLVNKDGSERPALKWLR |
| UniRef90-UPI0003B5A792 | PTPLDDTMHRKPLWSAI A A A I |
| UniRef90-K9XS72 | PHPFDSHMNPKKARDAI AEAL |
| UniRef90-A4UX65 | G V V Q NGNERQAMTWLKQYV |
| UniRef90-17L4N8 | PLLVFDERLLKAKYAYWALVD |
| UniRef90_B0T4M1 | PTPYDDAYK |
| UniRef90-R7C9D0 | CGLFTEDYQPKQSFKEV |
| UniRef90_UPI0003B640A8 | A YLAYSNGAERPALVWLKDYVR |
| UniRef90-R5UPI4 | PLLFDGNYKAKPAYWAYVD |
| UniRef90-H9TEB8 | GlV V S S GNERAAMK |
| UniRef90-V4NVP6 | LTL A D N F K N EVGDLID MLLKE |
| UniRef90_R7ZL47 |  |
| UniRef90-D4IVY2 | PLLFDGEYKAKPAYWALV |
| UniRef90-Q8GZB5 | MCLT D N S F T N L P G NVVDKLIDE |
| UniRef90_UPI0003B44EB5 | PLLFDGNYEPKPAFWVFAQ |
| UniRef90-G2SG44 | A YLVYSNGAERPAMVWLREYM |
| UniRef90_V2XGP2 | A LP WDENLKK A P A Y DG\\|VSGF Q |
| UniRef90-J3KW60 |  |
| UniRef90-UPI00047908D2 | S GLFDETYAAKGSFFSTYEAF |
| UniRef90-F4F3H8 | GLVRADGSRKPAYDALE |
| UniRef90-UPI0003B7448D | PLLFGKNFECKPAYYGVMEAVSE |
| UniRef90-E0RYH1 | PLLFDDLYKPKPAFWVF |
| UniRef90_Q4P641 | PLLFDAKGKPKPAAAAIVDVFKK |
| UniRef90-R9GNN9 | PLPFDSNYKRKAAYQG\\|LEGLK |
| UniRef90-C3YR47 | ALVNGDSFQDNEAGRRWQRLV |
| UniRef90_UPI0003B30E39 | GLVRADGSPKPSYSALHALI K |
| UniRef90-I0K8D6 | GGLLDEAYNPKPVYNVLMKLI K |
| UniRef90-LOK2X5 | L F Y E D WEKKP SYHVYTE |
| UniRef90-IOIHY9 | L WREDWTMKPGAEALVEL |
| UniRef90-UPI000422C878 | PLLFDSNYEPKPCFYVFAD |
| UniRef90_R7V608 |  |
| UniRef90-A4UWT5 |  |
| UniRef90_I0ICW8 | VFEEDWSPSPTGRAALSL |
| UniRef90-M5G428 | PTLFDENGNPKPVYYEVLARFER |
| UniRef90-P23557 | MYLWDKNCNPKPCFYSFLQA |
| UniRef90-UPI00047A700E | PLLFDDFYKPKPAFWVV |
| UniRef90-C9RKU1 | $P \mathrm{GL} \quad \mathrm{K}$ DGVDRPAMTWLKEYFNE |
| UniRef90_S0DFK9 | P CLIWDADYQRKWAYKGFCDGL |
| UniRef90_F7PFV5 | P F F Y E D WS TKPS Y DV |
| UniRef90-M5RC30 | WREDWS IK P A GEVFVDLLV |
| UniRef90_UPI0004645C4B | M YTEDWREKPNAVAWKDAI |
| UniRef90-D1BXQ7 | PLLF NDDLT A K P A F F G |
| UniRef90-L7VM99 | GLL RKDGTTKPSYEELSRLINEE |
| UniRef90-V4AMW0 | ALANGNNVTPNAAGRKVRELLK |
| UniRef90-M0CLR3 | PF FAEGWEEKPALEQY |
| UniRef90-C5NSU6 | VN G N Y Y $\square$ NAA GHRYDNLTK |
| UniRef90-F4RYZ6 | ALLFDNDYKPTKAFKAVRQEL |
| UniRef90-X6BAI5 | P ALFDDGLQPKPAFDAVVRALQ |
| UniRef90-B81417 | GFITVDNRVKPAYDELHKLIK |
| UniRef90-Q1YTG9 | A ALVDRNLLRLKPNGQVWHDLVNK |
| UniRef90_R5T8K1 | GLVRTDNSEKPVYKALR HLI K E |
| UniRef90-W0IZ26 | GLLFD DMRPKPAWHVLQDLVRR |
| UniRef90-M0CLN8 | L FYEDWSEKPAYDV |
| UniRef90-A4UWZ7 | GIVESNGRERQS ${ }^{\text {I T WLKS Y L }}$ |
| UniRef90-G8TR78 | PLLWDDNYNKKDSYTEFLTGLQ |
| UniRef90-R5DCU1 |  |
| UniRef90_K2P331 |  |
| UniRef90-W0FIJ5 | GFVHQDN SLLKPSYEALRGLI |
| UniRef90-M5FXR6 | ATLFD SNGNPKTVTYELDARLQR |
| UniRef90_Q2GXB6 | RVCWT A GMEKKVAYARVVELL R |
| UniRef90-H1HNA9 | S GI Y D K M NEKPAYAVLDGLINK |
| UniRef90-L8GUU4 | LWRQNWQPKPAGTRYLDLV |
| UniRef90-R6J8K0 | P NLWDANYARKHAYKGVA |
| UniRef90-V4BGD3 | A A NGPNVTPNAAGRKVQELLKK |
| UniRef90-I6AU60 | A GLLRADLSPKPSYAMLRRLIRE |
| UniRef90_C7NVN5 | PLFYD DWSTKPAYDV |
| UniRef90 R7TCF4 |  |
| UniRef90_UPI0003B789D7 | VGLVDAAGEPKPSFDALRRLVK |
| UniRef90-U7D6W1 |  |
| UniRef90-B9R6T3 | LVNAEGELNEAGKRYLALLK D E |
| UniRef90-M5T6Y4 | A A MYD RVWNLRPNG |
| UniRef90_M0CNI7 | PF YAAGWEEKPALDRYRDLV |

UniRef90 V6DTQ2 UniRef90-R6P2V3 UniRef90-A4UWZ9 UniRef90-EOUIA1 UniRef90 A4UWZ0 UniRef90_V5WJV1 UniRef90-B0C274 UniRef90 V4IV81 UniRef90-UPI0004203805
UniRef90_K7LLF5
UniRef90 M0CP61 UniRef90 A4UX30 UniRef90_UPI000371F9F1
UniRef90-D5UFE6 UniRef90 ${ }^{-}$V4AGX8 UniRef90- U3AGE0 UniRef90-R5UZF6 UniRef90_V3Z9E5 UniRef90 UPI0003592A16 UniRef90-DON0W5 UniRef90-W2EN53 UniRef90 E4XNV7 UniRef90 D3HX56 UniRef90_WOIUH8 UniRef90-A4UWZ1 UniRef90_L8MW36 UniRef90-E4XQM4 UniRef90-A4UX22 UniRef90 UPI00037AC57E UniRef90 W5E8J9 UniRef90-R7U429 UniRef90-F4L8A5 UniRef90 R5CVJ8 UniRef90-B9TJN8 UniRef90_F8X1K6 UniRef90 UPI00036C4BFD UniRef90 EOXQQ0 UniRef90-T0Z4P2 UniRef90-UPI00035FF2B3 UniRef90 UPI000470805B UniRef90-UPI00045EAF09 UniRef90-P07529 UniRef90-U5C0G6 UniRef90 K9E2l1 UniRef90-R7IER4 UniRef90-D4SV47 UniRef90_UPI00029ADBA1 UniRef90-R6FK88 UniRef90-R7D237
UniRef90-R7L819 UniRef90 HORLG0 UniRef90_UPI00047D4ACB UniRef90-A4UX24 UniRef90_H1HKD2 UniRef90 A6DME7 UniRef90-K5C8G7 UniRef90-W9AJ68 UniRef90 Q6N4J5 UniRef90-R5FMG8 UniRef90-R6E8E5 UniRef90_R5LLT6 UniRef90 R6XEY5 UniRef90_UPIO003B6A4EF UniRef90_C5EFV5 UniRef90 V5X7N7 UniRef90 H5U6E1 UniRef90-IORRT5 UniRef90_R5KXN2 UniRef90 L8D9N2 UniRef90_UPI00036B0BBE UniRef90-WOIWN2 UniRef90 K4D1C6 UniRef90-G0HNS3 UniRef90-FOSMP4 UniRef90-LODEK3 UniRef90 A6C1A8 UniRef90_V3BN25 UniRef90-A9WA42 UniRef90-R7L6F6 UniRef90 L8BDH0 UniRef90-WOIZQ0 UniRef90_D2R4Z6 UniRef90 W4QSY0 UniRef90_W9AN10 UniRef90-H8NYT7 UniRef90_A0A031R8G8 UniRef90 K2CUR0 UniRef90-UPI00016C3A12 UniRef90_K1S1G7 UniRef90 H3LA71 UniRef90-UPI000475FE82 UniRef90_X7FP15

10
20
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40
H Q F DF G S A VS VE HVVT D R $\square$ Y RETFSENF TSLSA ELVMNRHQFLFGCCANTYDTKEKRHKELGFGLLF T S L S AVP $\quad$ AA A GSK WL G N I DA S S VPAN A T RLDFLFGCNFFRHSQDSSEYDKHFKALF LA A GQSKWLGNVIA GSVPAN

FP L G A A V N SA T IS SAK H M
WD R E F
$R P D F L F G C N F F R H P T A G D D Y D R R F K Q L F$ DVEMTDHEFDFGSAVSVGQLTARTYREVFADNF

S L Q DA S $\square E R L N$ FPF GC GTNHHDLTNKDCQSWFREGF A A SVDVTMQE HDFGFGAGVDGAYLLNDPYREY DSEGF
 $S P Y R R W V H R L F$

K H LIF A WG S VVK P DLF D Y A Q Y Q QVY Y H M F
VA QRDHAFLFGCTLANGDDPEPERAELWAGLF EVKMTKNHFPFGATFHHQMDEETXYKNWFDVF


A VRMKRNAFNWGTSTNTQRLLDT $\quad$ TYRDTLLKYF E P L K V LGKRKG L NVGNA $\square$ G GRWFR D P A Y K A L M A R E C S P S Q A K D F T NDW
ESVYS LSQTRHAFNFGGS LASDQDWYDDFKAQFANLF

KAFAAPRSDLKLGCNFARYTSDASRYAKFFAQAF Q $\square \mathrm{E}$ Q $\square$ S H D F $\square \mathrm{F}$ G A H $\square \mathrm{NF} \mathrm{N} \mathrm{QLG} \mathrm{D} \mathrm{A} \mathrm{K} \mathrm{Y} \mathrm{R} \mathrm{S} \mathrm{LY} \mathrm{G} \mathrm{S} \mathrm{L} \mathrm{F}$

K Y W
H D F H H G G $\square$ M S $\square$ WQ F S D P K Y R S K F L D L F


EAYRNLIQQNY
LG S A Y S P S Q A Q D F L K Y W
RDDFMVGCSTKGFTESTPEWKQYFSDLF



K F Y M G V C T H F A Q Y K G D L K L N I K D A G F ASAFEFGDGTHIANYKESSDFY NKVKSYF AKGF LFGGSVHSQHYTVQEREALAAAWC $\square P T P P$ D A S F $\square A A F$

F E $\square \mathrm{G} \mathrm{VN}$ T N Y N Q P VD S VS DS LKK Y G F KRNKQN $\square G$ G $\operatorname{LV}$ VH WAQGSDETLDDLYSKRY AEGRLDTRLAARHLCAPQR AAAAEYGRAF H T T A VRAFEFGDGTH $\square$ A N Y K ES S DFY $\square$ H K VK S Y F A A ASNADLNAEDD LARDA

UniRef90 V6DTQ2 UniRef90-R6P2V3 UniRef90-A4UWZ9 UniRef90-EOUIA1 UniRef90_A4UWZ0 UniRef90_V5WJV1 UniRef90-B0C274 UniRef90 V4IV81 UniRef90-UPI0004203805 UniRef90_K7LLF5 UniRef90 M0CP61 UniRef90 A4UX30 UniRef90-UPI000371F9F1 UniRef90-D5UFE6 UniRef90 ${ }^{-}$V4AGX8 UniRef90-U3AGE0 UniRef90-R5UZF6 UniRef90_V3Z9E5 UniRef90 UPI0003592A16 UniRef90-DON0W5 UniRef90-W2EN53 UniRef90-D3HX56 UniRef90-WOIUH8 UniRef90-A4UWZ1 UniRef90_L8MW36 UniRef90-E4XQM4 UniRef90-A4UX22 UniRef90_UPI00037AC57E UniRef90 W5E8J9 UniRef90-R7U429 UniRef90-F4L8A5 UniRef90 R5CVJ8 UniRef90-B9TJN8 UniRef90-F8X1K6 UniRef90 UPI00036C4BFD UniRef90 EOXQQ0 UniRef90 T0Z4P2 UniRef90_UPI00035FF2B3 UniRef90 UPI000470805B UniRef90-UPI00045EAF09 UniRef90-P07529 UniRef90-U5C0G6 UniRef90 K9E2l1 UniRef90-R7IER4 UniRef90_D4SV47 UniRef90 UPI00029ADBA1 UniRef90 R6FK88 UniRef90-R7D237 UniRef90-R7L819 UniRef90_UPI00047D4ACB UniRef90-A4UX24 UniRef90-H1HKD2 UniRef90 A6DME7 UniRef90-K5C8G7 UniRef90-W9AJ68 UniRef90 Q6N4J5 UniRef90-R5FMG8 UniRef90-R6E8E5 UniRef90-R5LLT6 UniRef90 R6XEY5 UniRef90_UPI0003B6A4EF UniRef90_C5EFV5 UniRef90 V5X7N7 UniRef90-H5U6E1 UniRef90_IORRT5 UniRef90_R5KXN2 UniRet90_L8DIN2 UniRef90-WOIWN2 UniRef90_K4D1C6 UniRef90_G0HNS3 UniRef90-F0SMP4 UniRef90_LODEK3 UniRef90 A6C1A8 UniRef90-V3BN25 UniRef90-A9WA42 UniRef90-R7L6F6 UniRef90 L8BDH0 UniRef90-WOIZQ0 UniRef90_D2R4Z6 UniRet90 W4QSY0 UniRef90_W9AN10 UniRef90-H8NYT7 UniRef90-A0A031R8G8 UniRef90 K2CUR0 UniRef90_UPIO0016C3A12 UniRef90-K1S1G7 UniRef90_H3LA71 UniRef90_UPI000475FE82 UniRef90_X7FP15


KFTTFTNEMKWYSTEKKQGEENYTTADAMLKFTKENDTSV NTATDTNHHKWRFWEQEK HISDGVTQWLLGEGLDV NQATSENGCKWGTVEASKGVYNFGQCDVTANHCQTAGIPF ASYTPGNEMKPENTQKEKGTFTYTSADNAMKYSDRNPMLF DTATLP FYWGTFEPEEGMPRTAALRAAAEHFVSRGAR V V
NEAVFENAYKWRQWTSPHEQEHAH AVIDFLHAHDVEV
NWATVQ DYKWRFNRGNRTNPDYRVAVAATDVLNRNGMKVV NFATLP FYWAGFEAVRGRPDTARDRAAARWFADRGCVV NF GVARNAMKWKQQEKQPGVIDWTKSDD $\square$ NDVFFQQSTPL
NGATVP FYWRTDEPEQGRPRFPPPDKAVKFCEERGLRM NQATAENGCKWGSV DSGGAYNWGQCDVTANHCKTAGIPF NAATVT FYWRYYEPQENQYADAALLQQDAWLKHHGFYL NGGVLRNEMKWYHNEPQMDVYQYDTADYMDDLFEQKNATL NQATSENGCKWGTVEASRGMYNWGQCDLTASHCKTAGDPF

NQVVLENEMKWSAW TDPHNPHEQT $\square$ KG $\square$ QW $\square$ KAHNI NMLVAENEGKWQALEPRQGAYQFGPADEMYAWAKSQGMLV
DGDVPENAGKWGSVEAVRGQMNWGPDDQAYQLAKRNHMQF NYATIDFYWAVHEKEPGGWSYNTDSREK LNWAKAKGMTL EPEEGTYTYTVADEEVALAQAHHMRV

> QP VRGRPDTERLRRTARWFVDRGVVV

DFAT $\square$ P FYPRTTVPEKDCYDYSYVDHALSFLLDKG DTP

NSATV AFYWEHFEMQQGRPRFPAPDPVIDYCKSQGTRVI WMSVEAREGTYDWTQLDALVSAAQSRGISI
NQATSENGCKWGTVEATKGVYNFGQCDVTANHCK $\square Q G \square P F$
NATGFNNAFK
PK L E K S HAEH $\square$ PKA $\square$ QWAKENK $\square$ P $\square$
$G V G T \ R \square M \square P W G G V E P A D N Q F D W D A V D R M \square T S A N A H D \Pi K V$ GVKWLRAFQEWQTIQPTQGTWNWAPADRLVSDATANGUSL

NS $\square$ T $\square$ DEEAKYGS $\ V L G D G T F D F D H \square K K S \square D F A K E T G K Q V$ NSNVPENAGKWGSVEPVRGQMNWGQLDEAYQLAKRNKLQF NCVCVPTH WGIVVEPERGDKHYDVLDEMIKWSKEQGMIV WA AI E P QE GVY D WD KL D LLVAKASERDMGII



WPVIEPYPGVYDWVSTDAQVEAFSDAGLDT LP WNNI EPAPGYWNWSTVDT LVNAAAERNMGI

WESTQPEEGQWRWQAADRVIDALAP LG $\square E$

$N \square H T V R \square G \square P W A G V E A T K G T F D W T R A D R V V A A A A A N \square S \square I$ NS I RTDLSWEWVERKPGVFSYEKSKKLIDTFVDEENNA GFTSFRAGYLWGLVERTPGTMNVADPDTKEDDAYQHGLSQ NTVWVREH S YEQVMGSDSAA WLKRYDEVMLDYRDSNKRV NAAAVG LRWRDIEAAEAQYDWTETDSAUASAQAMGLPV
NSV RDELYWNDVEKQNGVF I IPPNRAKTDQYFQNLQSV GLFSVRVDIDWSTI ERNRGQFDWTNTDRVLAAVVAHGMCP

UniRef90 V6DTQ2 UniRef90-R6P2V3 UniRef90_A4UWZ9 UniRef90-A4UWZ0 UniRef90-V5WJV1 UniRef90_B0C274 UniRef90 V4IV81 UniRef90-UPI0004203805 UniRef90_K7LLF5 UniRef90_M0CP61 UniRef90-A4UX30 UniRef90_UPI000371F9F1 UniRef90-D5UFE6 UniRef90-V4AGX8 UniRef90_U3AGE0 UniRef90-R5UZF6 UniRef90-V3Z9E5 UniRef90-UPI0003592A16 UniRef90-DONOW5 UniRef90-W2EN53 UniRef90-E4XNV7 UniRef90-WOIUH8 UniRef90-A4UWZ1 UniRef90_L8MW36 UniRef90-E4XQM4 UniRef90-A4UX22 UniRef90-UPI00037AC57E UniRef90-W5E8J9 UniRef90-R7U429 UniRef90-F4L8A5 UniRef90-R5CVJ8 UniRef90-B9TJN8
UniRef90 F8X1K6 UniRef90-UPI00036C4BFD UniRef90-EOXQQ0 UniRef90-T0Z4P2 UniRef90_UPI00035FF2B3 UniRef90_UPI000470805B UniRef90_UPI00045EAF09 UniRef90-P07529 UniRef90-U5C0G6 UniRef90-K9E211 UniRef90-R7IER4 UniRef90_D4SV47 UniRef90_UPI00029ADBA1 UniRef90_R6FK88 UniRef90-R7D237 UniRef90 H0RLG0 UniRef90-UPIO0047D4ACB UniRef90-A4UX24 UniRef90-H1HKD2 UniRef90_A6DME7 UniRef90-K5C8G7 UniRef90-W9AJ68 UniRef90-Q6N4J5 UniRef90-R5FMG8 UniRef90-R6E8E5 UniRef90-R5LLT6 UniRef90-R6XEY5 UniRef90_UPIO003B6A4EF UniRef90-C5EFV5 UniRef90-V5X7N7 UniRef90-H5U6E1 UniRef90-IORRT5 UniRef90-L8D9N2 UniRef90_UPIO0036B0BBE UniRef90-WOIWN2 UniRef90-K4D1C6 UniRef90_GOHNS3 UniRef90-FOSMP4 UniRef90-LODEK3 UniRef90-A6C1A8 UniRef90-V3BN25 UniRef90-A9WA42 UniRef90-R7L6F6 UniRef90_L8BDH0 UniRef90-WOIZQ0 UniRef90-D2R4Z6 UniRef90-W4QSY0 UniRef90-W9AN10 UniRef90-H8NYT7 UniRef90_A0A031R8G8 UniRef90 K2CUR0 UniRef90_UPI00016C3A12 UniRef90-K1S1G7 UniRef90 H3LA71 UniRef90_UPI000475FE82 UniRef90_X7FP15

RGHYLLWEEYQTDGGGGMNSAEE\| 100 QAEDTEK\| 110 AEHAAEFE K GHPLVWHE ILPD WLNSDHD IEEKLL
 KYHTFVWGSQEPGFIGGYSDQKGA HLNFMKTAASRYK RGHCLVWHRQTPGWFFERAGRDLLLERLRDHMSVMYQRYG KGHPLVWFHGAPAWA RDKPYAELQDLLRQRVQEDTRRYG RGHYLLWEQSDNSVGGGMSSAEELEALIADKIRNHAAEFE RGHNTFWDN PK LQPEWK LGEAAAERMKSVVSRYK RGHVCLYADVSSFAVPPDIDPEYVREQTLSHVSDIVDYYG KYHCFVWGSQEPGWASGAAGS AKQVLEGLMSAAATRYK YGHTLAWHSQTPTWMWDAPNRETALENLHTHIENVLGYYG KGHPLVWHTVAPQWLVPKPDDEVLR LL RARVQRDAAEFA RGHNI FWGSKDNKYTPDTVMKMELKNAVDERIRYVVSQTK AGAPVVWQRDDAVWDAHEADDEELRSLIDEHVRSLVGHNA
RGHNMFWPNNVPDWVKK D D GNQ $\square N K T \ H E R D K F D T G \square T K$ RGHCMFWPFNNPEWIKGLS AQEFKTTVDDRIAYMTAQTK
KGHPLAWHTETAPWLLDLPNAGDAREQ AAR RREVRDFA RGHT IA WDKNVQDWLLE EDMDVLHDYMMKRVDDVVFRY L HGHTLVWCDRKWSVPDWDPEDPAEAAPFWERISEDAARYG KYHNFVWGSQEPS RGHPLFWNHCDP LWWLEEDTSQEVRGNMDKVDQHMSEFRY RGHAVFWDKHVHQWVQDDTDMTLLEERMMMRTDDVDARYV KYHCFVWGSQEPGWASGAAGS L T N ELLE RWIK GMMEAC G
KGHCLIWGMDDKVPSWMDKEDVTVE VVDRRDQYMSELYR RGHVMVWPSFQHSPKELKNDTAALRALVFRHI EEQLSKMK ALLGAMESWI KGMAEHLG RGHNLIWQDWLPKWVNEYDPAKAAEALLRKHIVTVCEHFG LT NAMEN WVKGMMEACG EFHCGLWGEQQPTWVSNLSPNEQLAAADEHWFAADAQRY RGHPLMWHEVLPDFMTDERD ISAAIEADTVRHVDRLLTNFP RGQNLVWSEQTPSWVFTEPNGTTLTERIQSHIKHLVQHFG
 KGHPLVWHTLTAPWLLGLPTAEVEQVQRARIRRDVADGA

TQMERWVSQVVGQTK TLTTWAMNNWVEGMMKATT KGHPLWFGHQNPKWLFGLP YPELRREAANDARRHVSTYR

TLTFALDDNWDAGMMEATD TLTWAMDNWI RGMMEATG TLT WAMDNWI NGMMEATG HGHPLVWGSRTPTWMYLPNDAAEMKRLTQKRINEMAAYYG V ATLT GTPAWAGNIINGHFDPDEYADFVSAVATRYK KYHCFVWGSQEPGWASGAAG
 QAK QVVDGLATAAAARYS RGHTLIWPKHLPKEVLEHKDNKTLRKACNDMI RRWAK K LA DNSTPQWAAVPGQPDYAGEPADLVAFGDFVTAVAQHYE LYPLAY $\square$ AP WASADGGTRAFPDKDIQYWKDYVGAVVERYR TSSMAMANWI DGMMEATH $R L N T L I F Y Q D C P E Y L Y Q L P K N E E S K R L V K Q K L M D Y V S G Y G$ QFHCG $\square W G A Q Q P \square W V R T \square P P S E Q L A A \quad L E H W F A A \square A Q R Y$ RGHALVWFSPNWECNTWIESYEEVKKLVLERVDFLTTEYK LGTILYT SPA WASAEPESSGLVNHFGDFVGVLAEKYA
 A LLGAMESWDGGMLD HVK LGVAT WWWDVDPANRNVMHPKPSDPQKFSEFAKLAANRYK LGVNATPA WAVQPGYPAVAAPPADNAQYAQFVGAVAERYA QP ILAYSPRWASTGNTESRDWKDWLAPPWHTYVRAVVERYA SGYSLQPFTEDEWR DNQLERDNTDQKVMNRRGESVVSKYR
 QAGP DFRPAALPDWIWWEGDFDTVLGLVVDVVRQTVTRYR RGGCDFAPHGLPDWLESWKDMVNFQSII SHFI ETAITRYT ILILDYGNSKYDN GNYPVTENSDTGFVNYARWLASRYK $V G L N P A V G W G T P D P P E Q G S F Y P P D P Q L F A S F V A T V V N R Y K$ LVQLSVLAYGNPYDGGAYPQTNASAEAYSNFAADVAKKDK
 $M V G P S L T P Q H \square P D W L Y \square W E D F E E L Q Q F V R Q H V E A V V Q R Y K$

CA TTSSP $\square W A A A A G A \square P P H G R P A S P D A Y G V F T A Q V A Q R Y K$ MVI LDYGNANYTP TGYPETTEQDDKFVKYVGFVVSQNK $Y$ GLNSLLILAYGNTAYNAPDYPTAUDGFANYAYWTAKRFK VVMLA Y GMMPPWAGTGDDEFKEPDSWKNFVRLVVKRYR TLGPVIPGMMPPWAAGWAADLPTLAACMCDFLETALNRYK

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UniRef90_V5WJV1 UniRef90-B0C274 UniRef90 V4IV81 UniRef90-UPIOOO4203805 UniRef90-K7LLF5 UniRef90-MOCP61 UniRef90-A4UX30 UniRef90-UPIOOO371F9F1 UniRef90-D5UFE6 UniRef90-V4AGX8 UniRef90-U3AGE0 UniRef90-R5UZF6 UniRef90-V3Z9E5 UniRef90-UPI0003592A16 UniRef90-DONOW5 UniRef90-W2EN53 UniRef90-E4XNV7 UniRef90_D3HX56 UniRef90 WoIUH8
UniRef90 A4UWZ1 UniRef90-A4UWZ1 1 UniRef90_E4XQM4 UniRef90-A4UX22 UniRef90-UPI00037AC57E UniRet90-W5E8J9 UniRef90-R7U429 UniRef90-F4L8A5 UniRef90-R5CVJ8 UniRef90_B9TJN8
UniRef90_F8X1K6 UniRef90-UP100036C4BFD UniRef90-EOXQQ0 UniRef90-Toz4P2 UniRef90-UPI00035FF2B3 UniRef90-UPIO00470805B UniRef90-UPIO0045EAF09 UniRef90-P07529 UniRef90-U5C0G6 UniRef90-K9E211 UniRef90-R7IER4 UniRef90-D4SV47 UniRef90-UPIO0029ADBA1 UniRef90-R6FK88 UniRef90-R7D237 UniRef90-R7L819 UniRef90-HoRLG0 UniRef90-UP100047D4ACB UniRef90-A4UX24 UniRef90-H1 HKD2 UniRef90-A6DME7 UniRef90-K5C8G7 UniRef90-W9AJ68 UniRef90-Q6N4J5 UniRef90-R5FMG8 UniRef90-R6E8E5 UniRef90-R5LLT6 UniRef90-R6XEY5 UniRef90-UPIO003B6A4EF UniRef90-C5EFV5 UniRef90-V5×7N7 UniRef90-H5U6E1 UniRef90-10RRT5 UniRef90-R5KXN2 UniRef90_L8D9N2
UniRef90_UPI00036B0BBE UniRef90-WolWN2 UniRef90-K4D1C6 UniRef90-GOHNS3 UniRef90-FOSMP4 UniRef90-LODEK3 UniRef90-A6C1A8 UniRef90-V3BN25
UniRef90_A9WA42 UniRef90- R7L6F6 UniRef90-L8BDHO UniRef90-WOIZQO UniRef90-D2R4Z6 UniRef90 W4QSYO UniRef90-W9AN10
UniRef90 H8NYT7

GEIVITEWDVIHNHPVVWQS NFRDDP DLGWEAVDEWWQAA DQUDYWDLFNEDTQRFHNPVADWDEKVGKENAVEYAARCV
 PNFI DVVNEALHAPSSDRNADGGSGTGWDWIVFAFEQA DVI DVWDVANEVISDDHFLRPSPYGDULGDDYVAEVFGLA EDVVE WDMHNHPVWQS NFRDT EGLGWPAVDNWWAAA SH1 KA WDVVNEPMREGGTDRDFSWVKYLGKDYAVTAFK GELIAWDVMNENDHFH DD LEWEVVNEVMHSPGFVQAVNGVAATDDPDLREWFAAA SRTEGLDVVNEAIPNPDDWKASLWYMALDWEWVEDAFLKA GLVDTWDVIMPVFTKDENAVTRVAKTVGRVGMVRLAFEEA HDVTDWILLNEQLGHHVLTDELFEDAPPTRAPPLRRWFDYA Y LLKAF EYA
GNLEHWDVNetLhG NKLAHWDVNNELLHGYFYEEHS MGDNAQMRDTFWYKTTGMEFLTTAFKTA GLIDMWDVVNEDFDKYDNGLTRDCREMGRDPMVRMVVDAA GNITDWDI FNEVHHGDDGLFFRRNLGDEDWSEVLDRL GRVKAWDVVNEPMSDGDPKKNFYWQDYLGKDYARVVIKLA DRDKRWDVLNEPV AFYDRTPRGDRMTDDYEGKAFAWA KAELIDVVNEPLHSPSNARNSLGGSGSSGWDWVKTSFEMA PQLDEVDVFNELVTWYNYDHTDLFKEQGKDNVVKEYLTKF GRIPNWDVFNEVAHGDYFRRNLPGGGGGDADWAKVMDRM GYVTAWDVVNENPDDNGGGENFYWQDFLGDDYARDPDKFA GKVDA WDVVNENRHFDGGEN GRFEQWDVYNEQLHGTW GQFTEWDVVNEPYAHHD NRTSGWDVINEPTTDDGNFSEFYWGYYIGKEYATKAFEAA DA!HSYDVVNEAIDPTGGLRSNVFTERLG GYVKAWDVVNEPKDGDGWYNNFYWQDYLGDDYVRTADQLT EDDE WDVYNEWRSKKEGVRRWFESVGGPSEVTEKMLRMA TAVYAWDVINENPNEPDCLEHGPFYNVLGEKYINTMALRAA
 GRVIE EDVINEPVADNNQWRHFYWGYYGGKEYAVKAFEYA DQTKARNVLDEPMDQNNPAEEFYWQDYLGKDYGVKAFQMA GYVTAWDVVNEADSGGGDDNNFYWQDYLGVDYVRDTVAAA DTIQYWDAMNEAHDWANCFELTQEQLIDLTRATTDALRUV GYVTAWDVVNEPNDGDGFYNNFYWQDYLGDNFVRVAVELA GYVTTWEAVNEPDDGDGYYDNFYWQDYGGEDYVRGVVAKA DKVDSWDVVNESATDWGKGDCKSWYGMMPGDYPY DAFKTA NEISGYEI WNEP NAALFYNPDDPTSYTAFLKDAYTA G
 GYVTAWDVVNEPUSPDDAKNNFYWQDYGGDDYVRTAVAAA WD VYEWDVINEPRANH GQITDYEVWNEPNYNGFWAPTPNAAR YTALLKVAYTA GSVKHWELWNEF NGSFAVN GSPSAYAELVKEASTAA GAVTAWDAINETTDPTDAANNFYWQDYLGDDYVRYVIADA GYVTTWDAVNEATTSDDAANNFYWQDYKTPDYVPIVTKGA DVVRSYDVFNELLNRDFDNVKSGWLKHLETSDLCDIITEA PDDDRMQVANEPDHNQPDNRHSDSGNYLGVDWVLQAFRLA DYFDLVDFNEPDQANAKNMTFDEHFADMKEAY ABAGV GRISTYEDWNEPTAR MFFDPVDPAAYTELLKAGYQSI GKISGYEVWNEP NNSTLFYNPVDPAAYTAMLKAAYAA NRFVGWDVINEPDTDDGYYRNFYWGYYGGMDYATRAFEDAA


## D <br> N

 WETTHWDLNNELLH WRGFRKDLYEKKLGPKANDRMFKKV GKIRMWEVAARMNT GGLFGYTEENLLALDARMIDVA GSI RTWTLVSAMNTGGVFGLNEETRLTLTARATED GKVF TYEI WNEWTLGTGMNKKS DPDEGHYFELVKRTSMAA DRIRYWQVWNEP DNPVYWRPAPDPAAYAALLRAVYPA GKNAFYQVWNEWDGGCGMPKFRGTSTPKGADLLKKSYEK GKVRYYEVWNEWYGGTGFLKKAKPDDTTYFKLYKATSEAD GKVHLWHVAA GMNCSRS LS LDGRDAAYEVWNEPNGDIGYRP A L G W W
 GKVKYYEVWNE WTVGGTGMRNKKEDTVPSSVDIVYELVKKTA
 GKVKYYEVWNEWY DDAKNNFYWQDYLGDDYVRTAVADA DHMNLWEEI WNEPNIV GFWS SWF QDA I YFEELIKATSES GK IKYYEIWNEWTNATA $\square$ KPKPRTPPPPEIFVALVKATA

UniRef90_V6DTQ2 UniRef90-R6P2V3 UniRef90_A4UWZ9 UniRef90-A4UWZ0 UniRef90-V5WJV1 UniRef90_B0C274 UniRef90 V4IV81 UniRef90-UPI0004203805 UniRef90_K7LLF5 UniRef90-M0CP61 UniRef90-A4UX30 UniRef90-UPI000371F9F1 UniRef90-D5UFE6 UniRef90-V4AGX8 UniRef90-U3AGE0 UniRef90-R5UZF6 UniRef90-V3Z9E5
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UniRef90-DONOW5
UniRef90-W2EN53
UniRef90-E4XNV7
UniRef90-D3HX56
UniRef90-WOIUH8
UniRef90-A4UWZ1
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UniRef90-A4UX22
UniRef90-UPI00037AC57E
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UniRef90-R7U429
UniRef90 F4L8A5
UniRef90-F4L8A5
UniRef90-B9TJN8
UniRef90_F8X1K6
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UniRef90-Q6N4J5
UniRef90_R5FMG8
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UniRef90-L8D9N2
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UniRef90-K4D1C6
UniRef90-GOHNS3
UniRef90-FOSMP4
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UniRef90-K1S1G7
UniRef90-H3LA71
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UniRef90_X7FP15


RKYGPDMK LF DNDYNDESDWDDNMKS LINWDERWEKDGTK RKYFPHTKLMI NDYNVTEYNDQAR LYLHTDQLLQQERL

 RKYAPDTKLYVNDYNLETTNPSKLAALIDBVKYDEDNGQV RVTNPSATLLLNDFDMSTAYE
HEVAPKMKLCINDYNDETVVNAKSQAMAKVAAGLLAKGAP RQHNPADLLEF NESGLEANLDKCRGGLIDYVTYLENKGAQ RKYYAENDLFVNDYNLESDWDDNVK SLVVHWIKKWEADGVK

 RQYFSDDKLIFI NDYNLESWWDGNKKALVVWI ETWESDGVKK REHFAEHKLFINDYNLESDWDDNAKSLVVEWI NRWEADGVK QNAFPNVKLNINDYKCDG KAADPNALVIAGVLGATTTTGAALD PVTFVQEMYAAGAA RKHGGDNKLFINDYNLESDWDDNLKSLI NWI QRWESDGTV
 KQANPNVKLYLNEYQVSGVKDSFKDSYEKNVQDLLDQGTP RKHGQDIKLFANEYGLEGIGSKKDQGFDDYVKYIDDDSRG KKADPNAVVVAGSVAAVMETPGGPANPVTFLSQMYAAGAY KR DDPSAKI GVSVANLERA DEAGAAGHFDFICDHPYEKDD RKSFAAHKLGI NDYNLESTWDNNMKAMVHWI QQWESDGVH TQGDPSQKLFINDYNLTWDNNKKLESLI HWI SVWWEKGAK
 RKY Y P N
RRNDPNCRDMLNFFNEWQRDNEWCVTVYEYDDRCDAEGMD KAADPSAIVVAGSVVPGPTYPDGAAMPVEFLQGMYDAGAH KAADPDAVVIAGVVGAAVTSGNTDNPIDFI SQMYAAGAA KAADPDAVVLVGGLASVLDFFVITANPVRFVEEMYAAGAY REHAPAMKLYVNEYGLE TNPTKLAKLIDFVNYDDQNSTQ K SIDP S IIEVLTGGTSPTIDNETDLSPASFVKGLYAAGAG $K A A D P N A T V I G G V V G W V T D T P G L A D N A A S Y V Q G M Y D N G A Q$
$R E D S P D A R V V L G G F A M G S R Q P N P D F L Q E F I S T A D K A H W D$ REDSPDAR VVLNGGFAMGSRQPNPDFLQEFISTADKAHWD QREDPQVTLFLNEFN I I ENCDRNDNVAMY
KSGDPNAKVVLGGLANSKVEPSCEKGYLRKLLSDPNFPAG RQVDGESQI YVRVDQPWGDYQAHRLTPWHVVDALLRSGMG RQADPAAQVLI SPWAEWMGSSPFQLGPLHLADYLVRADLG


 K R DDPDAKVI AGSFNP LKTQEVAWFDHDIDLGVLQY KQAVPEMTI LTGGGFSGTVSTERQTGFVRHVVGLGARGF RA I DPRTPVFVSFDQPWGEYDASEDQPLNFADTLDRGEDG AEVGWDLKLVYNDFGLDSPNYEMVKDINERYADVRPNGKP KAVDPTVTVLGGVLGSGKTWGAFTDNPVTFLSKMYAAGAA
 RQYDTD AIVLINGAVSDLSNLEFTKQLYQHGKRYFDDFNV AQVDSGLELVLSVVWGEYRAGGAQTDSPLAFPDDLLRAGVR
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UniRef90 V6DTQ2 UniRef90_R6P2V3 UniRef90-A4UWZ9 UniRef90-EOUIA1 UniRef90-V5WJV1 UniRef90-B0C274 UniRef90 V4IV81 UniRef90-UPI0004203805 UniRef90_K7LLF5 UniRef90_M0CP61 UniRef90-A4UX30 UniRef90-UPI000371F9F1 UniRef90-D5UFE6 UniRef90-V4AGX8 UniRef90-R5UZF6 UniRef90_V3Z9E5 UniRef90_UPI0003592A16 UniRef90-DONOW5 UniRef90-W2EN53 UniRef90-E4XNV7 UniRef90-WOIUH8 UniRef90-A4UWZ1 UniRef90_L8MW36 UniRef90_E4XQM4 UniRef90-A4UX22 UniRef90_UPI00037AC57E UniRef90-W5E8J9 UniRef90-R7U429
UniRef90-F4L8A5 UniRef90-R5CVJ8 UniRef90-B9TJN8 UniRef90-F8X1K6 UniRef90_UPI00036C4BFD UniRef90_EOXQQ0 UniRef90-T0Z4P2 UniRef90_UPI00035FF2B3 UniRef90_UPI000470805B UniRef90_UPI00045EAF09 UniRef90-P07529 UniRef90-K9E2I1 UniRef90-R7IER4 UniRef90-D4SV47 UniRef90_UPIO0029ADBA1 UniRef90_R6FK88
UniRef90-R7D237 UniRef90_R7L819 UniRef90-HORLG0 UniRef90-UPIO0047D4ACB UniRef90-A4UX24 UniRef90-H1HKD2 UniRef90-A6DME7 UniRef90-K5C8G7 UniRef90-W9AJ68 UniRef90-Q6N4J5 UniRef90_R5FMG8 UniRef90-R6E8E5 UniRef90-R5LLT6 UniRef90-R6XEY5 UniRef90-UPIO003B6A4EF UniRef90-C5EFV5 UniRef90-V5X7N7 UniRef90_H5U6E1 UniRef90-IORRT5
UniRef90 R5KXN2 UniRef90-L8D9N2 UniRef90_UPIOO036B0BBE UniRef90-WOIWN2 UniRef90-K4D1C6 UniRef90-GOHNS3 UniRef90-FOSMP4 UniRef90-A6C1A8 UniRef90-V3BN25 UniRef90-A9WA42 UniRef90_R7L6F6 UniRef90_L8BDH0 UniRef90-WOIZQ0 UniRef90-D2R4Z6
UniRef90_W4QSYo UniRef90-W9AN10 UniRef90-H8NYT7 UniRef90_A0A031R8G8 UniRef90_K2CUR0 UniRef90_UPIO0016C3A12 UniRef90-K1S1G7 UniRef90-H3LA71 UniRef90_UPIO00475FE82 UniRef90_X7FP15


 1 DAI GFMGHHQQQYNETMIE GYDTFAEYDDPML V TEFD VDGIGTQMHLSANLK QQDDKMFQTLAASGKL UKVSELDQ EMA GLQGHFASGQP
LDAVGMECHFSQDTPGEDMDGLDRYAQH DVS DRDTEFDM






 1 DA GDQGHLSSNRPPSF
 ㄴ D
 $V D G U G T Q M H V Q A A S \square A Q \| D A M F Q T M A A T G K L V R V T E L D Q$

FDCTG DQWHDHPYDLFSSRE TIKNWYSRYHMPTHLTEDEV FDAISYHPY LYSLPFSNGATQIDQFDGDGNLKVWITEYGQ

 PFFDADAMHPYSAPDRLSEASAQSYSSNTDKKI WFTEFGS


1
RNFDVANDHTNFRSPED I DQEI RETRAILHKPLWITETSY LT G NLEMAVGYEMGRNDNRRLDRFSKL
LAGLGLEMTPGYSAPGSADRDLFDFSK
L S GID L ELRDGYYPNGSHHHDLDD DSK LLNDP LHDTKTDW





UniRef90 V6DTQ2 UniRef90_R6P2V3 UniRef90-A4UWZ9 UniRef90-A4UWZ0 UniRef90_V5WJV1 UniRef90_B0C274 UniRef90 V4IV81 UniRef90_UPI0004203805 UniRef90_K7LLF5 UniRef90_M0CP61 UniRef90 A4UX30 UniRef90_UPI000371F9F1 UniRef90_D5UFE6 UniRef90_V4AGX8 UniRef90_U3AGE0 UniRef90_R5UZF6 UniRef90_V3Z9E5 UniRef90 UPI0003592A16 UniRef90-DONOW5 UniRef90_W2EN53 UniRef90-E4XNV7 UniRef90_D3HX56 UniRef90-WOIUH8 UniRef90-A4UWZ1 UniRef90_L8MW36 UniRef90_E4XQM4 UniRef90_A4UX22 UniRef90-UPI00037AC57E UniRef90_W5E8J9 UniRef90_R7U429 UniRef90-F4L8A5 UniRef90_R5CVJ8 UniRef90_B9TJN8
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EAVQTDYTRDFLLTMAFSKEAVVGVLUSGFWEDDHWRPTGA LE I Q R E Y T E QLYYTLLFSSHPAVEAI TTWWDFPDRQ WMDAP
 NGNSEADYQRVFPALDTNTHVKGITMWGYDTGQTWKD GT
 QAVQAD YTRDF LTVAFSRPQVVGVVSWGFWEEDHWRPTGA FA DQAEMYRYVI E SYKKY A QQYGIT\WGVS D DENWLPD DA
A DEGWNEFRRFLKTVFSHPAVEEF LVWGDNDANHWQGDAP S G GESA QYKR I FPVLWKNTAVKGVTLWGWITGQTWKS GTG ENNQGMKYAELFQIYRNYPKV DEVVLAGVRDRDGWKGGEF
 VVADENTRAD WYRSLVSSHPAVVEGIILDWDY GPQHWRGPNA
 EVA RA D WYE DALLRMYFSHPAVVHGVIDFWGFWDHNMMGS Y $G \vee R D P H T K A D W Y$
QQQQSNVYKNTVAACK QVKRCVGVTDWGYVDNYSWLKTKA L S GHA DEVVVRHYTTVLLSHPSVVAVTYWGLQDGG WLGAP G

$G L A D A A E Q H R L / M A G Y Y K F A Q Q Y G I T N W G V T D G S F W R T D E P$ T D A Q A VVAA NFYR LLWFSHPTVVEGITTWWNLPDGGAAPGENS
 ELIQQA D Y L E L L Y RLVVYS YP HI S GII F L WS YS DR GA WLGAP T

 $K P$ G Q A Y H L E QVLREVVYSHPAVHGIVLDWAWHPQQWR N T S K A N WY E DVL Y L L Y A D P N V E GI I I WGFWSK F H WR P
$R \square G T T S P T A D D \square Q T Q S D V Y Q M \square G \square T \square W T L S D A T Y W Y P D D A$
MSE Y YKF $\square V K K Y F E \square 1 P$ VS QQYG $\square$ THWSPTDDS GWRK G QP
FS D WA E LA R DFYTLAFSHPAVES $\square$ I WWT $\square$ T D LEP P WR GMPA


SEAA QAEWVDLYY LLLDAKPSVTGVYWSRFRDQDA RRFPH
 A D S E S D RYL I RAMALLDRQA GVVRRVIMFRFKDRNGVPYNAY Y A Q S A D Y A ARLLY L L A RT DP WI K GlIWWY DF QD DGIDDESE D N

 E N N Q G M K Y A E L F F Q L Y R N Y Y A A lla T V K L A G V R D R D G WK G G E F P T N Q A A LDMS D M I S S WR QLP Y G G P L M L Y T T R D S WS WLD D D R PT QAARFIIFKYTLLVMSNKNVKGGIWWYDYAD DGVRKNNDN PAAAA QYVVKYTVLAKSRPYI KGI WWY DLIDD DNPADNE HR
 GY V D A A Q H K E M R D L Y il P A A Q Q Y Gil T Q WC AT D D S G WR P G Lip P T NSARYMIKYT FLAKQRDY I KGIIWWY TLADNTSNRESNF


| UniRef90_V6DTQ2 | $\text { Y FD S DWT }{ }^{290} \text { R ENGE QYG D\|LV }$ |
| :---: | :---: |
| UniRef90-R6P2V3 | G GLIT E D L K I K P VY D GLK ELLIK K |
| UniRef90-A4UWZ9 |  |
| UniRef90-E0UIA1 | $G G L L N A D M T P K E S F Y R L R N L L Y Q$ |
| UniRef90-A4UWZ0 | $G I V D A G G R E R A A M T W L K G Y L E$ |
| UniRef90 V5WJV1 |  |
| UniRef90-B0C274 | $G G L L R S D F S P K \square A Y L R L N T L Q K R$ |
| UniRef90_V4IV81 | Y Y ${ }^{\text {P A D WS }}$ LRANGEVYYRNL V |
| UniRef90_UPI0004203805 | P NLWD A S Y GRK H A Y K GVA D G F |
| UniRef90_K7LLF5 |  |
| UniRef90_M0CP61 | F FTASWA |
| UniRef90_A4UX30 | Y S N GVEE T C A L K WL A S Y L |
| UniRef90_UPI000371F9F1 |  |
| UniRef90-D5UFE6 | $G G L V H A D G T P K P S Y D A L R G L I R$ |
| UniRef90_V4AGX8 | GLV S GP P Y RVNA A GKHYLDL I Y Q |
| UniRef90-U3AGE0 | L F RA D WS K K Q G Y HAYADLV |
| UniRef90_R5UZF6 | P LLEDK ${ }^{\text {L }}$ Y Q AK P S Y Y AVVD |
| UniRef90_V3Z9E5 | A ALVNGNYYVNEAGKRYLHLIK K |
| UniRef90_UPI0003592A16 |  |
| UniRef90-D0N0W5 |  |
| UniRef90-W2EN53 | GFV RADGTPKPSYEALVHGLVR |
| UniRef90 E4XNV7 |  |
| UniRef90_D3HX56 | $\square \mathrm{G}$ L WDVNY N R K P A Y A GFA D G L |
| UniRef90_WOIUH8 | GLLED DMRPKPAWHVLQ DLLIHR |
| UniRef90-A4UWZ1 | Y E G GRERAA LT WL K S YL |
| UniRef90_L8MW36 | $\mathrm{G} \square \mathrm{L}$ NKDG】PKPAFTRLNRLINQ |
| UniRef90_E4XQM4 |  |
| UniRef90_A4UX22 | Y S N GVEES C A L K WLI Q Y VE |
| UniRef90_UPI00037AC57E | $\square \mathrm{G}$ L WDANYNRKPTYEGFLEGL |
| UniRef90-W5E8J9 | MCLT D D NFNNLPVGD TVDKLIA E |
| UniRef90_R7U429 | A LVEGMDF Q V NES GRRVR |
| UniRef90_F4L8A5 |  |
| UniRef90-R5CVJ8 | P N $\square$ F D K N Y A R K T A Y K G V C D G |
| UniRef90-B9TJN8 |  |
| UniRef90_F8X1K6 | $\square \mathrm{GL}$ WS L N Y N R K P VY A G F A E G L |
| UniRef90_UPI00036C4BFD |  |
| UniRef90-E0XQQ0 | GLLDEEGNAKPAYHALDQL |
| UniRef90_T0Z4P2 |  |
| UniRef90-UPI00035FF2B3 | $\square \mathrm{G}$ L W K N Y VR K P A Y A GFA D G L |
| UniRef90_UPI000470805B | P NLFDANYGRKHAYKGVCDGI |
| UniRef90-UPI00045EAF09 | G GLVRKDGTPKPSYDALRGLI K |
| UniRef90-P07529 | ALL Y $\quad$ A QYQPKSTYYVVQQALK |
| UniRef90_U5C0G6 | Q GL WDVNLT R K P S Y A G F A D GLK |
| UniRef90_K9E2l1 | VGLWDDANYNRKHVYA GFAEGL |
| UniRef90-R7IER4 | ML $\quad$ Y ENENPRESYFRLL ${ }^{\text {L L L }}$ |
| UniRef90_D4SV47 | A YLINYD GS ERPALLTWL R S YV |
| UniRef90_UPI00029ADBA1 | IGGLWTLNF DRKHTYAGFADGL |
| UniRef90_R6FK88 | $V \mathrm{G} L \mathrm{~L}$ D L N Y NRKP T Y E GF L K G L |
| UniRef90_R7D237 | V G L W DL ${ }^{\text {V Y N R K P A Y G GFANGL }}$ |
| UniRef90_R7L819 | M G L F T R G M N P K P A Y Y A L N NLI N K |
| UniRef90-H0RLG0 | FGLLYETD WT P K P A A QVLA DLLIA Q |
| UniRef90_UPI00047D4ACB | $\square \mathrm{GL}$ WFESFRRKHTFGGFADGLK |
| UniRef90-A4UX24 |  |
| UniRef90-H1HKD2 | T G L W A A N F R K H Y Y A G F A D G LR |
| UniRef90-A6DME7 | MINADGSLNAN |
| UniRef90-K5C8G7 | V G I WD LD Y N R K L I Y E G Y VNGLK Q |
| UniRef90_W9AJ68 | F GLL REDWTPKPAWDVVAAVI A E |
| UniRef90_Q6N4J5 | HGLL R A DFSPRPSFAALATLI R |
| UniRef90_R5FMG8 | VGGLWNES Y Q R K P Q Y E G Y VK G L Q |
| UniRef90_R6E8E5 | C G L WD L N Y S R T P S Y G GFA A GL |
| UniRef90_R5LLT6 | G GVFTENMEPKKAYKFLL |
| UniRef90_R6XEY5 | P NLF D K D Y R K WA Y K G F C D G |
| UniRef90_UPI0003B6A4EF |  |
| UniRef90_C5EFV5 | A GLLD E D EKP K P A Y Y GLKK Y A M K |
| UniRef90_V5X7N7 | L G L WT Y T WD R K P A A DVLK NLIA E |
| UniRef90-H5U6E1 | F GLFHTDWTAKPAAQVLAELI A K |
| UniRef90-IORRT5 | M GLL R A D WT P K P A WGVVS DIIE E |
| UniRef90-R5KXN2 | P NL[FDENYGRK】A Y K G L C D Gl |
| UniRef90-L8D9N2 | A GLVRSDFSPKPALDAVIQA |
| UniRef90_UPI00036B0BBE | DTLIFQT DWT PKPAANVI A Q |
| UniRef90-W0IWN2 | F GLT R H G G P P KPAWSAYQ NLVRE |
| UniRef90-K4D1C6 | MCLTTD Y K F N L P T G D I D QL |
| UniRef90_G0HNS3 | P GLLY T Y D L E PKKAVEVFR ELLSEE |
| UniRef90 F0SMP4 |  |
| UniRef90-LODEK3 |  |
| UniRef90_A6C1A8 | S G L I N P Q G Q P K P A LD T $\square$ T K Y HK Q |
| UniRef90_V3BN25 | F GFYKKDLSKKKVVNEFRT L |
| UniRef90-A9WA42 | GLLRYGNGQAKPAFNAFRTLNQQ |
| UniRef90_R7L6F6 | F GLVK Y DLLT P K P A Y Y A L |
| UniRef90 L8BDH0 | G IL |
| UniRef90_W0IZQ0 | Y GL VT Y D F S P K P VY |
| UniRef90-D2R4Z6 | A GLI DY T GKEKPALD |
| UniRef90-W4QSY0 | A MPYDYDGHAKKALL L GIL |
| UniRef90-W9AN10 | F GVY R S NWTAKP S A QVV A |
| UniRef90-H8NYT7 | F GFFD NKHNPK T A $\square$ Y A |
| UniRef90-A0A031R8G8 | F G L L N R QEQPKAA YEK I A K VAR |
| UniRef90_K2CUR0 | F GL M E N L S P K P VWRWY KLL S Q |
| UniRef90_UPI00016C3A12 | G GLLDA T G R P R P L L A R L R AL |
| UniRef90-K1S1G7 | VGLWD L N Y L R K H T Y A G F A V G L |
| UniRef90-H3LA71 | GILMH NESEKP S |
| UniRef90_UPI000475FE82 UniRef90 ${ }^{-}$X7FP15 |  |

F $\square Y G V N \square R N E H P S \quad A D A S A L L R P A F$


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lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
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UniRef90_G4I1P2 UniRef90-V6M7L5 UniRef90_UPI00035DD3FF UniRef90_UPIO00361C7A6 UniRef90-R71575 UniRef90-B4CV60 UniRef90 UPI00037E13CE UniRef90_A3ZPX4
UniRef90_UPI0003716CFD UniRef90_G6WVE2 UniRef90-A6W6W2 UniRef90-D2Q7B1

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UniRef90 UPI00037FB902
UniRef90_UPIO003737D0D
UniRef90-IOS2T9
UniRef90_UPIO0037C2257

K A N NPNAlVVI ${ }^{170}$ G VLGAVK T 180
 PQIVI I SPTYTTVDGVAGMGDF LRAGGKDW KKVDPKVTVV $R N G I V C T A G T D L R \quad F D E E V L K R S G G R F$ RNVDPGAVVVTGGLSPATDNGSD $\square$ APTTFLTELYDQGVS HQLDPQNRPVTNDYTRD DT $\square P S M D V V C D N R Y Y G W Y N L S G D$ GLAAKSAHINYLEQVIQAGAKDHFDFITLHPYEIL NGVV HNADPGATVLSAGLATTDDTGTWTVAPVTFDQQMYAAGAG RRNDPQTPVLVSFDHPWGDYLSHAHAPI HFAEEIVRANLG RKVDPQVKV VAPCTYWSLDDVVRWTEVVLQKGLL RQIDPDAEIVAAGLAPAAS DEGYSVTIEDFDRGLYDLDAL $R T A D P S A R V L M G G L T A A P A G Q G R L G A A D F L A Q V V A Q T G K T$ HASDPQNRPVTNDYTTD ITERTMDVVCDNRYYGWYNDSGD RQYDPDAKVLAGAVTTKGIESGFA KAATPDVAVVGAATAGVPLDWLEEVFKLGGLRYMDADSVH KAADPNATVI GGVVGAVVDFGSWSINPVRFIAGMYAAGAK KAVDPSVTVIGGVVGSVVDWGNLIWNPVRFLKGMYEAGAR YPA $\square K A \| Q P D A T V I A A G L S R A T G S D A P T K F L A D M Y A N G A R$


UniRef90_G4I1P2 UniRef90-V6M7L5 UniRef90 UPI00035DD3FF UniRef90_UPI000361C7A6 UniRef90-R71575 UniRef90-B4CV60 UniRef90 UPI00037E13CE UniRef90_A3ZPX4 UniRef90_UPI0003716CFD UniRef90_G6WVE2 UniRef90 A6W6W2 UniRef90-D2Q7B1 UniRef90-W8RC89 UniRef90 UPI00037FB902 UniRef90_UPI0003737D0D UniRef90-IOS2T9 UniRef90_UPI00037C2257

210
220
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240
 MDAI SVHPYRYPRSPEAFVGEMKRLKEDGHLKVWDTEFGY FDVVGMHPYSYPALPSDMREMRTVMVERGDKP WATE $\square$ GA LEAAAFAMRMEMDYWATVNKPDSEYGADTDAGMHGTEMFT


 QDVTA $\square G \square H Y S Y P E M P S G N S S W N T F A Q L P R I E I$ WLTE YGM


 GNFDALSFHPYNYNLKQLVQMRQVMDDNGDEEVASTVEYGE $M D A D S F H P Y H Y V Q Q L M E M R A V M V A N G D S G O K K I W A T E Y G Q$
$K F F D A T A M H P Y A E D G D N G W S D L V R V H D L G G K K V W M T E C A P$
lupas_21
lupas_14
lupas_28
jnet conf sol25
sol5
sol0
jhmm
jpssm

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 $\stackrel{\mathrm{P}}{\mathrm{N}}$ | N |
| :---: |
| P T |

$P T G T G T D Q A E I L R D G \square T E Q R A L G F V V Y S L L D R G T D V S D Q N$ EEFQVDYYKTIVACLDERPFVVGETPWNFADGPMRAGGNR DAKKGLDVQAKAYVMGDAEGVACDEWFEGRDGDS G G PTAQAAIIGSSLAQASRLPYVGPVFVHADRDADAFDSEQN FPDSRRRQRQFVESLVSHPQTQAGFWNQFTDATAHVYENN
 PTGQAKMAEDVIRTIKADPRIGGLYWYSWKDQNSSTDENF EEFQRDYYARI NAEI DKRPWFIGEQLWNFADFATFQGGNR PAYQAAYLARSLLLVRTLDNVKGMWWYDFRNDGTDKRERN PTHQA
PTSQAAYLKD $\square Y$ TKWQEMPYTGPLMDYTTRDRGSNQADAT PAGQTAYLKDMWTKWQELPYTGPLYUYTTRDRNSSSDQDT QARGVSQDEQARQILQVLSGVAGAGWSGVRDTDTAKRDNF


UniRef90_G4I1P2 UniRef90-V6M7L5 UniRef90 UPI00035DD3FF UniRef90_UPI000361C7A6 UniRef90-R71575
UniRef90 B4CV60 UniRef90_UPI00037E13CE UniRef90-A3ZPX4
UniRef90_UPIO003716CFD UniRef90 G6WVE2 UniRef90 A6W6W2 UniRef90-D2Q7B1 UniRef90-W8RC89 UniRef90 UPI00037FB902 UniRef90-UPIO003737D0D UniRef90-IOS2T9 UniRef90-UPI00037C2257
lupas_21
lupas_14
lupas_28
jnet conf sol25
sol5
sol0
jhmm
jpssm



[^0]:    lupas_21
    lupas_14
    lupas_28
    jnet conf
    sol25 sol25
    sol5
    sol5
    jhmm

