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1020
NTS GAlLHGA MDANEFLSRYAGGERDFSGVDLRGADLLGADLLGADLLGA ANLSKANLSGANLFGANLSGANLFGA MEAN पNRASLAGANLTGANLREAHLAEANLREA LLKGA MDVSELLARYEAGEREFHNCDLIEANLTGANLSGANFSKA

TVSQFLSNVNLKQVNLRGDNLVYADLSGANLSGADLSGA ANLSDTYLSGTYLSNANLSSANLDGA
EADLSNADLGAKLDQINLEQAKLNNA
VEEPVKGRNGSDADLSDADLSGANLSDADLSGGNLSGT MDTNELLERYSAGERDFRGVDLQQDNLSEVNLTGVIFRRV LNRASLRAANLRGAELRHANLGRANLSGANLSGA MDAAELKGYAAGERDFEGVKLRGADLSGAN SGASLKGS $D L L E M A N L N G S D L S R C D L T S A N L R D A E L K Q V N F R H A$ MNVDEMLGANFTGADLSGADLRSANLTEATFTGVNLSGA LRLYDQGQ ANFTNANLSSANLSDANLSSANFSGA पRGANDRDADLRGVNLTNADLSKADLTGANLSET MKATELLSQYAAGVRDFTEAELSEVNLEGANLSEVILDRA ANFSGALLNDANLGKANLSQAQLNDA MDVNYLLRAYEAGERNFAGVDLRGADLSGVTLIADDLSDA LNQTDLPNVNLSGANLAHANLTMAYLSEADLSNA NWNQWRVKNYETKVDLSKGDLEGANLEGANLEGANLEGV DETTLSRADLTQALLSEADLSGAYLSGADLSGADLKKA LEAAKLLQANLSAANLSQANLNGADLTTANLSEA LQGVNLQEANLHRAKLQVATLYGADLQRANLQEA LSAANGDANLSGANLSGASLRCTDLSSANLSGA NAWRQGANLGGADLQEANLCGANLQGVNLRGANLTGA ANLSEANLTDASLRAANLSLANLSRA पnvanLl RADLS RAQLQSASLDRAELDRADLSRADLFAA LQQADLKGADLRGANLNEADLKSANLEGANLAGA MNTEELLRLYAMGEREFRQVDLGVDLQADNFSQANLTGA ANLSGVNLSGVNLSGANLSGADLSSA LRSANLVNANLSWANLSGARLSGALLRGADLNGV L REVILRN EWRKTYPQG SHANL
LSRVEMIIEADLSAANLQKNNLRGANLQGVNLNKV
LTEANLSEATLRKANLSGVKLCDANLSRANLSEA पNATDLSYADLCGNVNLRGANLTGVNLTHANLKGANLQDA

WREDNPDVK KDLSDADLSGANLSGSNLR
 RANLSGTNLSNADLSNTNFCGANLSGA EAFLQGANKSRANLSGANLVEANLEGANLQGASLSHA LSKIQMKQA $\square A K L L Q R K$ $\qquad$ NLTANL K KADFTNAELR MKVEELLKKYADGETNFSGADLQGTAGMLSAAKKA NALRDADDGNAKLIRSNLCFTNLYKANLIAADLSEA ADLTGADLSTANLTESNLTEADLTRA पEQADपRESDLSGVDLRGSNLCKADLEGAKLSGA LRAANLTNAQLVSADLSCATLNEA LSRAKLVGTNLRGANLVGANLTGATLDGADLSQA LTHADLSHAHFTGADFSGANLRGA EADLSYTNFSGALEQANFEKAKLCHA DADLTKANLLGALMLKCKDPGARLSGA
LKADNLDK पYAAGERFFADAELSGUDLSGQDLTGAlFKGS ADQLTEQFFQHQ DLSGCNFRGLDLKSFDLSGVNLTGA DEGABYLDRANLKNSLSRADLRSANLVLS LEGANDDGANLQGVDLTRANLTGASLKNADLSGG LRGAYQGKRNFANQDYSKAAFGSATLSGIVMSRS QTSQRYQAGERNFQDIDLGRLLDLRGUNHSNANLRGA KTNLSRADLRGNLSANLSANLSEA AKLCRADLRNANMAGANLSKVDLSYA MNAQEILQKYADGERDFSRVTLVHVCLCNANLVGVHLDGA MDANELLKRYENGETKFIEANLGGNLRGADLSRINFKGA QENDAGTANFTGANLSHSKMAGADFTDAMLLGT RGQNLRGAD LHKANLQAADLRDAKLIAASLKEA NNWRKDKFSDQPDLSEADLSGLDLSGANLIGADLNHA
 LQRCDLSLANTQGADLTNAYFSGANLSGADLDES ANLANADLSNSRLEGALKKANLQGA पQFAQLIDAKLAQANLSNADLKQAYLDDADLTEI QARVRRAKLREVQLVEADLRYVDFTGS ANVTNTSFKGAKMTRTNLSRCDLRDH NLSDVDLSESNLSGVNFCGANLKRV EQDLVGNIFSGQNLNGSNFFKAKLTNV $N L S G A N L S Q A N L S E A D L F G A K L S Q A N L S Q A N L S G A N L S G A$ $N$ L S K A N L S G A N L S G A D L S R T H L P G A D L S K A N L S K A N L S G A $N L D E A D L N G A D L R S A N L T E A D M H R V V L T G A D L T E A V L N G A$ NLSGAHFSKANLDGVNFSKADLSKAILMGANLMGANLCEA



 $N L R W V D L S G A D L R W A D L S D A K L S G A N L D G A N L S H A N L L N T$
 S L N Y A N L S Q A N L C N S N L S DA QL DGA N L S GAN L QKA N L S S V N

 VLREANLS QVNLSKAVLEGAFLTEANLTQANLSRADMTNA L L D GANLNGANL SQASLTNADLNGANLAQANLSGADLS GA

 $N$ L S N A D L K R A D L S D A N L S D A N L T N V D L K R A DLL S N A I L K G A



 N L Q G A $N$ L Q R A D L Q


 $N$ L S R A L F N E A I L R D A DL S Q A K L DD C A L C R A NL I H A I FM G A N L N C A D L R E A S L R H A $N$ L K G A D L G G V N L K S A N L N E A D L K S S A N L E G A N L A G A N L K G A


## 35C74BE

 3492D9E
 $N$ L VG A DLGS S PK K EP DA ER S L S L R N Y II R D H N STN GVVFVN D

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

 NMSHAKLVGTNLLSSTQLIGSDLQKTILEDADLTGADI S DA ILS HASSFKSS DDQK A DFTAS ILTTDADFTGAFLSHVLL A Y S $N L R W T D L Q G A D L S G A N L T E A N L S G A N L S G A N L S S A V L V K A$ VLSGANLRDSNLPRASLEDADLSGAKLQGANLAGATLLRA





 $N L R D V N L R G A N L R E V N F S S A F L Q R \square N L R E A N L S G V N F N W A$ $N L N G A N F S G A Q L Y Q A D L S G A D L T G A D L A G A N L S Q A C L A K A$

 F L R G $\quad$ IR L L K N A N L E G A N L S K T D F S R D I P P N N T TAAK G A L N V A T KLVEADFCHS DLTHASFQGANLS QAKLNS ANLREAKMQRA




 DL RSANLSGA LTGANLREANLQQVNFCDADVSQADLTQA
 RLIR A NL R G S SFQ GANLEGADMSGADLSDTDFTHAVLIGT $N L N S A L L Q G A Q L A$ A D A $L^{L} V$
S S S E
L T


 DLSNANLNETNLSNADLSNANLTNADLTRSDLTNANLEYA


 DLSGFDLTGANLAHANLDDVDLTNTTVVGVDFSGCDLSNR


## OUERY

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TLDNATLEGA!LDEAVLNQANLKAANDEQA\LSHANTREA NLSEALLF NLSGTCPGNLSGTCRALSGTVGHCRADSALSALSADCPT DLSRANTT
DI MEANFSKANLCEANLGGADLIEADLFEANLTGANLIGA ILQDANLTSADLNEADLNEADLNEADLSRVNLSNAHLWKA YL SGAYLDVA ILIEANLTEADLNGATLRSTNLTGADMHRVVLTGADLTDA NLKGVNLSGVNLSSVNLNEFDLSATNLSGANLSDANLSGV SLRNAELRQVKLSGAKLDEADLRGANLRWADLSGANLSGA NLSQAFMIRANLTRVNLRQADLTRADLRLTILQDTDLRGA S N LKRANLTEAHLREASLMFANLAQACLYQADLHGAMLHQA RLVDANLSHANLKEANLSNANLSNANLKEANLSNANLSNA
QMEDANLMGVIMPDTKLTRANMVNVNLMTAKLSRSDFSRV DLTYTDLSWANLDGANFTRANLSYGNLSKSSLANANFSYA DLSHANLTGANLKDATLSSSYLSHALIGGANLSEANLNGA KMERAVLIDAEMAGVKLHGAFLPDAKLHKANLSEADLSRT ILDGAILDGAILDNANLTQSDLTVAKLDTATLNEANLHEA NL LK A NLRRADLTESYLNWASLGEADLSEADLTRANLSKA NI NSETNLENVICDYVYLRQDQQERRPHDLNRNFEPGEFT DLTKANLSGAFMV

KSDFNRA NLLH DNVEGTNMTGTKPWAH
$D L I G T N L W K A N L Q G V N L G G A N L R K A C L S G A D L R E A Y L F K A$ NVSDAS LWETRLDEANLSGVDLSYAILIEA DLRGADLT DVDLT GANLA GVDLRGADLTAVNLAGALLIGA DLNRADLGEADLSEANLSGASLVRAYLNRVNLRQANLEEA DLKDTKLANANLS GANLTGVNLVGVQLYSVKGSGANLTEA DFCEADLQEANFQGADLQGADFQGADLEKVNLQGTNLKET KLSSSHLNHA LLFGANLSDANLNGANLSHADLCRADLSGT DLDGVNLS EAKLS DLSGAHMREADMRGVYLREAYLCGANLTGANLTMANLRAAA NLDSANLTNADLTGANLEGANLTNAILNGANATGANFAQA NLNNTDLSRTDCSGANCRNAEMRQANLSHSNFSGANLSGA DLGGVNLKSANLNEADLKSANLEGANLAGANLNGTKLEGV SLQLVNLSQSULTEADLREANLTEALLYKTSLGKAQLQGA ILINANLV
 $\stackrel{N}{N}$
N
$N \square S G A N L S R V D L S E V K L S Q A N L T K A N L S G A D L D K A D L S N L$ QQIDESMVLPDGARIRI GPFLLILNGDELELQDEQNRQPT N LSEANLRNANLSEANLKNANLSEANLNCAILRQVNLNSA $D L R G A R L V R A R G E L T V W G A S L A D A D V G R G A L P G A$

N LDNVDFSNANLSGTNLSGADLSGADLSGAY LS GAYFYDA DFQGANLQ DFRNANFRN
K LMEADLYAANLGRVSADGTQLSHANLTNTDWQGADLSEA NLSRAKLDRANLSNAQLTGANLSSVQALGADLREADLTNA SLVH $N$ FSGANMR MANLAGANLAGRMDLSGVDLTGA $D \square T \square A \| L L D A N L V G A D \square R G A D L S G A T L I G A C L R G A N S Y N T$ $\mathrm{N}^{\mathrm{L}} \mathrm{T}$
NLTNSDLIVNADTGADMSNVNLNGANMSGA LLTESVLIRA $N L Q G A N M Y K T N L Q Q A T D K V A N L S G A K L F L A N L Q G A K L G K A$ ILIDGANDKGANLSHADMHGVNATGAIADHADFSQAKLNSA NLSRAKMAGVNLSRATLSEANMSRATLSGATLSRVTLSGD D
$N F \square A D D F S E A N \square Y Q A E V M G A Y \square Y K A N F Y K A N \square H Q A H L G G A$ NLHGAMMP
NLDEARLSGAKLYGASFYGANFSRTFLKDLDLSGADLQGV NLDQVNI WGADLNGADLSEVNLSGDNLWGAKLRGTDLSYA


C $\square$ EDWH VLVKADLGSA S L R GCNFEDPA G $\square K$ A N $\square E G A N \square K G \nabla D M E G S Q M T G \square N L R V A$ EMTGKVMHLGLSHKWVTWAGC
 QMID ADLS GADLRGA NLCGACLWRVQLSDSQLWGASLCNADLREADLSAAQLIGAA NLHDANLHGATLQGADLRNANLTLAYMLDTNLMNADLRGA $\begin{array}{ll}K T V M A K T Q G M N T D G A L T N A A V G I D P E A L E Q P V A D Q U A E H V \\ N L V A A N \\ L & S G A C L I N A\end{array}$
NMIGGN
DLSFANLEQS LLIETRLARALLVEANLTQAVLNFADLSRT DLSRSRLDATNLSRANLDKANLQGAVISMADLAGANLQRV RMLCANLAAANLHSCNFEDPGGLPANMEGVNLKGANLEGS NLSNSNLSDSKICTANLSHANGQECDLSNTTINQSNLSHA MLDQTNLENAVLERACFGPVECTLKTHSMTSFSTA KLHRSNLSEANLVEANLNQAECINANLYDAELIGAFFYQA NLRNSDLS GVNLQEAVLKRTNLMEADLYEANLVRAMGTEA

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UniRef90_U9W046
 NLSGANLSGADLSGA LFGANLSQANLSQANLRGANLRGA GLTVKANCPGQLSGATCPGPTFPG SFKKAHLLRSNLQEVYLLWADLTEANLRGADLRKADLSGA KLIGADLTGANFREANLMGADLFEANLSGANLSGANLSGA NLWNANLYSANLTSAKLSDAKLGNVNLNGADLSKADLSGA NLSGANLSGANLSGANLSGANLSGANLSGAYLSGAYLDGA VLDGADLSRGNLTGAYLLKTSFKKAYLLRANLEEVNLTEA
 NLTRADLRYADLRGANLTGACLHQADLTRANLCDADLSQA FVHADLTQATLIDADWIGADLSGADLTGAKLYGVSRFGDL ILHWASLKNADLIGAVLQGADMRGADLSQACLIDADVSKA DLKEANLNNANLTGVYFWSVNLSNAQLLGANLSQAYMSST NLQRANLIEANLTEAYLARTNLFGADLTDALLTKAELSSA NLTNCNLTGANFAGANFTKTDLSGANLSGVNLTGADFTRA NLNYTDLCRSDLSGANLNHATLKGANLSDTILENTSFKSA

 KLFQKALETVDL
KLS GANLNGANLRGSHLQHANLCGANLNA $\square$ N $L$ RGADLTGA
NLWKASLHETDLHGANLNDAY LSSLADLSRANLSNATLRMA KL $\square$ GANLSEADLSYADI RDTDMSRTDLSGANLSRTNLIRT NLAGANLAGANLAGVDLTAANLRGVDLAGVDLGGVELAAA DLSEADLKGANLSGANLSGANLSGADLARANLSHADLSGA NLCGSSLVQVDLSGATLSSADLRGTDLNCTNLEKANLKGA SFKRTDLEKTNLQEADLQGADLEEANLQRANLQGANLKEA

 ELSRAKISGTNLTKA ITFNGALLRSAQVTWTTLRGADLTRA NL R WADLNGANLSWADLSEAKLSGANLDGADLSNANLTNA NLKGANLNRASFVKANLEDADLKDVNLNDANLNGANLMKA VLNRAILQRTFLRGANLSQAILSQANLQEANLTDADLTGA NLSSAILKDAYLRDADFKDAVLIDANLEDACLRNANLKDA


 SLSEADLSQADLRNANLAGANFYRANLKGANLYGANLTGS
 YFTGTYFSGTNLSGANLSGANLSGANLSGTDLSGTDLTGA


Y LDNANLTNANFSAARLLGAVLRSTNMKNANLRNADLSRA TLVGAQLVQANLTGATLAKANLMRSDWQGADLSRGNFTQS NLI RANWSGADLSGATLTGAKLYQV $N L A G A K L M G A N F S G A T L T G A N L A G A D A R N A N F S G A D L T D A$ NLQGANLAGADLQGVNMKGVDLVRANLVGANLTEANLRGA ETDLSWTNLRGANLGGANLKGANLRGANIQGA NLASADLSSANLVGANLASVNLTGASLNGADMSTADLTSA NLHMTGLIGANLQGANLNGANLCEANLNAAKLQQADLSEA NFTNVKLRQAVLRKVQMAWTTMRGADLSEAQLFRSKLY WS T GKVDLSGVNLSGADLGDAQLLGANLSRADLTRVNLTAA


NFSEARMGGANLEGANLVAADLREAHLRLVNLKGADLTGA HLKGSNLSKADLSEA LLSHANLRGADLSEAKLNQTNLEHA
 $D L S G Q D L S N L N L S A A D L R Q T T L K G A N L S G T V L A M A D L S M A$
$N L E D \square N F E S S N L K N A N L Q N T N L T N A N L S S A N L T N D N M Q G V$ SMLLADMREANLQSAYMSKADLSGANLSGANLKGAY LSSAA
$T L K N A K L K N C N L R G A T L A G T D L E N C D L S G C D L Q E A N L R G S$ YLDKANFQRANLQESYLTSAYATKANFEQANLQGAYLNGT

LHEANFDRANLTGADLSSADLNYADLSLADLSGANLSGA
 D L R E A N L S G A K L G G A DL R N T R L E G T D L T G A D L R G A D L T GV SLVEANLVRANLTKAKLCGSVLDEANFNQANLTNADLKWT
 $R W C E A T L Y G L D L E G A Q L Q G A R L E K A D L R M V S L R G A D L R G A$
 NLSKANLRKAHLIKA ILLEANLLSDVNLKGANLNRALLSEA NLSASDLN EA DLSNANL E EADLSSVDLSNANLQGANLRGA
 $N L L A D S I L S N A N L S N A N L S Y T N L K N A V L S N A D L S N A D L S S R S$ ATFK E VN FK GTNVK GTSFK G $\square$ D GE T $\square$
 $N L K G A K V G H A N L A G A D F N Q A N L A E A S L T Y A N L A N C N L R G A$ DLAD T T LA GANLTGS $\quad$ MMMGTLLRRSDLNRANLSGCDLRGA


QUERY
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$N \square N$ WAN $\square S$ GAR L S GA

 D L A A A N L TRANLT G NLSGAKLAGAIMPDG
 DFTDADLRDANFSGA CLRGANLQEANFRWA KLTRANLCWSNLIGA SLVHADLTGADLSGA
 NLKDANLSGADLFDA
 EI A GSDWTGVNLEDA NLT GAK ${ }^{\circ} \mathrm{F}$ GT
ELSGANFREADL
KL $\quad$ GTNLRGANLTGA NLSHANLTGATMPDG
 DFGKAVLVGATFR
DLKGAYL RGANLS
$\begin{array}{ll}D L G G A N L Q G A N L N G A \\ D \\ D & M G V E L G G A L K G A\end{array}$

VTA GTLD GANMS GA DLR QADLSRANLKGA NLNGANFQDA IMPDG $N$ GGGADSTANLSGA SLTEADLYQAILIGA NFTSANLTRAVLLDA DLSSSNNLSEVDLRG NLSGANLERSRESG
NLSKAYLDQTNMT
NLRGANLNSAEDSD


N LSYANLMGANDDG
$N L N G T N L C G A D L K K G A$
$\underset{Q}{N V K G A D F E}$
NLEDANFSGAKLSNG NLTNANLMRAEMSSA NLQETDLLGADLTGGA NLMAANFSEANLENA

 NLGGADLSGA
DLTRANLSNDNLSKA DLTGARLCNAQLEGA DLLQEANLRGANLEGA NLEDTILSDAILSNA PWETMELCNTILPDG
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UniRef90-F4BVN7
UniRef90-A2SPN5
UniRef90-Q21PM8
UniRef90-B3QL93
UniRef90_B3EHX5 $D$ V K R L L S G Q GA G Y L S L D GY S W D G F D L R G L D F S G V D F S N L
 $L L A T P$ T K S E L R C Q G L $L$ N F S G T D L L S R L L D $M N$ VD T L L E L L Y T A G K R D F S C C F D
 $F L V K A K L P R V K L S G A T L T G A N L R G A V L W N A N L C S A$ NLA G S DLS RLDDLRNDNFKYA C L H G C K A NLK E S NLSRADL R GANLMLANLLGA $\square S$ A A NLS NANLS E A QLLS RTRLLT DANLY RA DLSVGC

Q A D LT S A D LR G S N LR G A N LM G A R L S EV EADLR GADLRGADLSHAVLRQANLQGA

 YGQGKRNFANQDLAKASLASANLAGVVMSRS

 | $\square L$ |
| :--- | :--- | E A K L T K A N L S K T N L S G A D L S G A I L S R A

 R A E L D G T D L S R A D L R G V N L S A A S L R G A







 E A S HLLIV R Y S IGGQR QF E R A D L L R E A Q L LE G A D L S N L L D D L T R R P P



LREANLR D TEL S GCD L

L N R S L S

ETVLLSES ILWWGT DLTTEANLYRAVLREA

 $M$ DVA E L V S R Y A R GERRNFHED N L N G V S L WK I N L S E A D L S G A


 $A N L T G A N L Q L T D L G G A D L N A A N L I G A$ DFCGANFEEANLEDVEMILTNLVES





 A DLSRLDDLR Y I N FK M A N L S R CN L LA A A
$\square R N A Q L P N A V L V G A R L S G V D L R N A N L A H A D F T G A$
MTPDELKARVQAGEADLRGADLRKARLRGADVSGADLRGA ATLA GVDFSRAFLHGTEVRQASLDTV LLAKYAAGERHFAGMK LIGAKLLSGTLL SHSNFNRA

 | N A | $D$ | $L$ | $R$ | $G$ | $A$ | $D$ | $L$ | $S$ | $N$ | $Q$ | $D$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| G S | $L$ | $R$ | $R$ | $R$ |  |  |  |  |  |  |  |

LVEA E LQ G S EL D GA K L Q GA F L D H A $Q R V N Y N D Q V F C L R R L S F L N L Q N C$ $L L K A K L Q G K T Q F Q G A N L G G T Q L Q S A S L D D A N M H K A$ NAE E L L Q A Y A A GE R R N F R G S D L T G L S L F D T N L S D A D F S E S $M K \square D Q L L N K Y D L G E R N F R E V D L T E V V N D P G N F E S A D D R Q S$ A E L D G A D L A G A R L V D T D L T G A R L A G A R A D L N N R N L S G L D D L S E T D L S Y S D L L G S D L S G T
NK WRRANPS IT P



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UniRef90 K9WYJ6 UniRef90_UPI00037520C1 UniRef90_U9VJQ9 UniRef90-H6NDA7 UniRef90_K9Q3Z2 UniRef90_UPI0003728BC2 UniRef90_B6IXB9
UniRef90_D5VJW3 UniRef90_B4WFS9 UniRef90-U5DEU2 UniRef90_B1XHU4
UniRef90_D5A698 UniRef90_D8FTS1 UniRef90_L8N4Q8 UniRef90_R5QQ91 UniRef90_UPI0003466BA1 UniRef90_K9XPG0 UniRef90-K9T406
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$S F V G A F L S G A N L M N V N L Q G D D F R G A D L R G A N L T G A N L K G A$
 DLSEAILLWGTAFSFANLSQVVLRDADLSNANLIKAMFCGA
 NMEGADLSGADL R GACLTRGAVLTGATMTMTDLTDADVEEA KLMETDFCQS DLTGASFQGSIMSNAKLNGTNLTRAKMQRA
 NLE H AL L D R A N L C D A I L Y T T D L R Y A S LIK E A N L D R A D L T E A
 F L N G L D L H G L N F S A M DLLTETMNM GAK L Y D T N FA G S N L D H A KLADAKLSKANLT GAFLHRADLNRANLVEANLAEANLTSA K L A R R A D L R M A CLLD G A D L R G A D L SLRAANLRRANFYKANLQGANLKVADLSKAKLELANLQGAA D L R A A HMARATFVQCRLDGVHASGVFVEGCSLVGADLGBA

 NLEFSRFSGARMQKANLQAANLEDAWMTKVDLTGANLKNA QLL L G V D L S E A D L S N N S K L V N A Q L A GAANDN S I K L I A A N L S N A
 KLTKANLVEVDLSNARLCGADLSHANLSRADLTEADLTEA

 KLNGAYLVGATLTGAKLSGASLTGVNLRRADLRGVNDCGA

 DLS YADFKRAMCADANFYRAQMRGSDLDAAANLERAVLGGA
 DLSGAKLTDANLE EANLMKACLSGANLVRAKLLRA LLFEA

 $N L$ REANLNGVNFNWANLYEGRLTGAKFDQT LFNEVNLS QT
 RLLRQANLEQADLSGADLTGADLRWSRLLRANLGEALLLARS NFADADLYTANLKEADLQGASLQGADLREVNFSLADLSAA
 D MSGANLRGADLGEANLTGTVMMKVYLIGANLSNANLTAA $N L R Y A N L R G V N M A R A N L Q G A N L S N A N L E N A N L S N A N L E N A$



 KLE GA KL R WA KL E GA KLE GANLRGVKLEGANVKGTULESK
 $T L N R A S L Q Q A N L R L A N L T G A R L V A D Q G W G L F A Q A A Q F K G A$



Q IA WCGLR GADLLS GADLEGAVVAQSDLSGANLSGANLAGA $R L D K T V F R S V D F G G V D L T R D S L K G L S L N R C S F L E A N L G G M$



 DL R GAELQGADL SWASLLQSADL RGANLQQADLSGAKLQGA TLANAYLPYCQLNRDQATAANLRHSELGDAELYQANLAAA R L G K S N F N GA LL K Q A D L S E S II WG T N L E N T N L S K A I L R D T K L T A T C L Q G A DL T R A E L D G A DL T Y A Q L D R A D L S Y A TLL E R A QL T G S N L D G A DL S E A D L S G A I A D Q G S FIDGA NL T A T Q WI E G
 H I T Q C S F K N A R L I DS T S F R GA T L D K N DFSNA K L DA A NLLQE T


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UniRef90_K9SV52
UniRef90-D1JBJ3
UniRef90-K9V8W1
UniRef90-Q2BNSO
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UniRef90-K9WYJ6
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UniRef90_B3EHX5

90
100
110
120
NLIFSTNL SNVNLLYSA $V A \square D A G N H S S \prod N \square S S V L A F V L D G L S S G A D W L N A D G A K F S L$ GFGEVDAEEAVFF ${ }_{\mathrm{N}}^{\mathrm{N}} \mathrm{A}$ $\square$ LSRA MAACADLQGAKLKCCDLTRCSLENANMKGATVKKANLSSVV TLDEWS S GSFEGVVLTGATGDNFVGADLRKA IATQDSVDGFR LRRHRTRQGELEHADTRGARLDGAQVGGG LI NDDT QLDPKWRVIWKDANHGGQKH
RLNGDNFSGARLVGTNLSKAKLCGADLIRANLYAANLSDT GSAYHFLRVPWNDKSHLRILLQRLLIPGREGVARYCMRRVV
 $N L R G C N F Q D P T G V R T N M E G V N L K G A N L E C S N M A G V N L R V A$ II TELLEMTGEILHUGLSHQWIT W
NLEFASLVGANLRGANLSAADFSGANLYGANLSLCNLSGA WN QWRQQNHFVIPDLSGANLRQVNLSEANLSGA

## D

 SRADLQGA $D L Q G A N L L G A Y L G G A D L T G A N D R G A R L V Q A D M R R S D L T G A$ NLSHAQLSHSII IDGDFRPNCDHRTNLSHTNFRKANLSYS N LTDKPDHMSWVGSS GAQGAMLD $\square$ S GFD DRHAPS $\square$ A HMC $\square T$ DLVEANLMGADLSGANLTGARLDKADLRGEDLRSVNLRAA NLSRANLGNAVAIDANFIMANLSGTYFSESDFSRANLSSA SLVKADLSLAKLQQSKLNRADLSDAVLYTTTLRQADLSDV RLTGADLTRVNLGPAEIKDPSGRPTGRS
FLIRADLQRACLNQAYLVAANLNSANLTSASMVNADLSDA LLPNDRRLA KLGKAKLQQMGLIGANLKGANLNGTDLQQANLNAAKLAQAT AMGSANFGGMDLSQVSLVGSMLDGANLIGTRLARSDWRLAA CLSRACLIRATLRKVDLHKAVLTRADLRLADLRYADLGDA C L S R A V C L I C A A ALTRANLRGANLRKSVIFVSILSEADLQDANLMEAKLLSS N
$N$ N R D A NLCTSKLNHACLIGAQLLGANLSGAELT DANLNNA NLSFAR LLDFTQFEGAN LTGCS $\square$ TAAS $\square R$ Q $\square$ NFRHANLAEMNLPGV $L \vee L$ RSCLTFA DLTSVSFQYPPDFARTEKDRTSFVQAVVPYKLLGSDWSYLD GFQPEVAAGEDLSKQDLQUYDLSELDDLTKVNFSGANLEQA $N L T E D L R R G A D R G A N L S W A K L A G A R L$ S NLSNANLTNARLSGAVALHTDFSDAVMRGARVIRANLRNA DLSSAELHGVQMNGANLQKARFSNVELIAANGSGVNARDA NLTGADLRGANLRGANLMGANLTGASLTGAFLSGATLTGC $N L S G A D L R N A D A R D A K F D D A N L S E A D L V A A K L N R A D L Q R A A$
$N L R Y S S L L G A N L S Q A Q L H R A N L S E T N L N E V S F N E A D L S Q A$
 DLRSTSDQDTDLGQAILTNADLSYSNLSGALLYQANLDGA $N F T G A K M K G V K D Q E A D L E D A D L D G \square E D D E D G M E E E L Q Q L I E$ SLRRVDLEESQFHETILLNKADLTEADLVKADLRYADLTEA FLKEVDLSGDNLEGUNLSRAKLNGSNLAGANLTKANLEEA

 KLTADDI ENADLLDD
 LLLQGAALKEAQLQGASLVLANLQGASSLVNAQLQGASLGVA N
$Y$ Y $L$ R A C L R GANLAAEADLSEAS DREADLGGANLGGANLSGA DLSGVDLSQTQUHRCNFQNDSAFGADFSQKDLTGNEFASV NI RSSDLRGALLSEANLDNITLFMVSLDNAQLNDTSFNGA
 N
D S N N LDQHSGVMSLM VKS SSLCCW
NFKQSQDSVETQLSEKWKLVWELVNKNVQFDLQQANLSEA DLTAAYLEFARMSGARLH NLSRANLTQVKLVKADLRKTNLSEANLQGADLRWANLGEA NFEDPSGLKANLEGANLKGVDMEGSQMTGDNLIRMATLKMA DADCQKHERFFQCKPGGGRAVFAWCDLSGLSFRGRVLQDA HLVRGQLA GANLSGARIQGANLAESRLAGAELSGATLSNA DLSGCDFTDSDFTRADLLKTDFHDATLKRANFREARLDVA VLIGTDDSETTLL RCRFHRATDDGCVFDEDTDTDASLIGS TL EGLLFRETWFTRCRFHRATDDGCVFDELTLPGLDFRHA $\underset{D}{N L R L A N F T E A R L I A \square Q G W G L F A Q A T Q F K G A D L T G A Y L E F A}$ D
$D \square R G$
A
D FE
DLSGAELTNADLTNAYLSKASLCGANLAKANLSHAVLYEV DLARAWLNHANLTGARLDEADLTRAQLVRTDLTGAHLDAA SFTGSNFSDAKFDKATLNHANGQQA IFCNASLQQVQWIDG TLLGNYDMGSNMTGADLSGSLMDQAMMDNSTGVDAKMDGA GKIKCDPAQVSRLKEGVSSWNAWYENEDSNKPDDTRVYGA $N$ N T DCVIQGASIFTANTRGACMQKMDFRGHDLGGLD $N$ LR
$N \mathrm{~L}$ K G T N F K G S VF $\square \mathrm{D}$ Q A N L S G A L V S N N T I P S G E K A T P S W A

## UniRef90 A8ZQQ6

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UniRef90 K9WY
Kin UniRef90-UPI00037520C1 UniRef90-U9VJQ9 UniReffo-H6NDA7 UniRef90-K9Q3z2 UniRef90_UPI0003728BC2 UniRef90-B6IXB9 UniRef90-D5VJW3 UniRef90-U5DEU2 UniRef90-B1XHU4 UniRef90-D5A698 UniRef90-D8FTS1
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UniRef90
B3EHK
 MSGATDWSGFNFRGWDLSGVDF AALGDMDFSGVDFGFA TFTRAEVGUADRTVRASNARFREADLEGADGSGADGRGA NपrVatLKNAKLKNNLRGATLAGTDLENCDLSGCLQEA D RDTLLNRADLRLTNLTGANLSGANLTGTDLRYAQLKLV SLRVANLKSANMRNCTLNDADMAGANLESCDLTGCNLKGA DFSQAVLKGHDLSAADLSQANLRNADFTECNLTGCNLTQS FARVADLTDADLAGVSLKGARLNRATLDGANLSQANLYNA DLTDADLTEANLGVNKEANLKGADLRKANLSGA DLSYANLDSAQMTDAQLTNIKLINANLRGANLEGANLSNA CWSGSFLYGTDLGGADLGGADLSEANLGGADLEGANLIGT QLRGVKLAGANLTGAKLRGSCLKGANLNWAKLCQADLISA TLKNANLQNCDLRAAVLAGADLEKCDLSGSDLQEANLRGA

DLRDTVMDGANLSEAQLREANLSGANLSGADLDRVSLNGV NLSKADLSGANLHKAQLRKANLQQAQLKQTNLSEADLDQA LLSETNLEEADLRSANLAGANLTGANLLCAELEGANLSGV FLRHARLNGANLAGVDLRAADLTDAEFEQFSIAGADFTQV SSDALSRAN SDANLSRADLSRANLSRANLSRADLSGA MLRGATLYGLDLSGVQLQAAVLDKADLRGATLTDGDLRGD NFTGALLANTDLRAADLKNADLGGADLGGADLTDADLKGA NLTEAILVKTNLTGSYLSKANFTSANLSMTDLSEADLSSA ELI RADLLREVDLMAALGEADLRDANLSGATLCHANLYRA VLRNANCYRAKFVSANLECCQLQEANLKQANLTAANLHSA DLRAADLSAN NMANLTGADLTDANLQGAYLWGACLDGA TLTGACLNGANLSRAKLNGTFFIESNLDGADLSDSDFTGA SLRYADLSEADLRDVVASGADLSYDNLEKADVRRANFNGS EIFFANLGKASLREADLLGANLMGANLQQA DFHEANLCGT SAKGVLLCKADLAHARMAGANFSNAVLQHADLRGADLRQS NLEGADLRYADLTGANLAGANLSKVNLTGTNLSKADLYNV



HLKKANLSETNLQGVIFTEANLQQANLWAAKLQGANFEKA DLEMAWLSKADLAGANLTDANLQEAKFNDANLANA LLSGA NLERTNLSQANLQWVNFAKANLSEANLEDADLNQANLTEA KLKNCNLRGATLAGTDLENCDLSGCDLQEANLRGSNVKGA
 DFTAALLADCDLAGCNFDKSNLFCADLQLANLMGASLRRA NLAGASAKGAFFGEADLRGARLQRASLRYATFSKANLSFA NLGGACLCEADLRGANLSEAILMGANLQGADLRGVNLFGS RMSGAKLHGSTLRAADLEMTWLSKADLMGADLTDANLQEA
RGGADLTNADLAGVNLKNADLRGATLTRANLEKANLENA VLQGAILRKANLQGAAMSYAKLQGADLVLAELETADLREV NLRTANLERANLRGANLRGADLRYANLRQANLQGANLQQA DLRPGSNRRTNGRANLSSTDLSYAKLSSALLFRANLSGA NLTDAQVQRANLSEARLVEADLTRACLDDADLGATLYAA NLDETHCHKANFSGAHWENANLMDTDFSGADLGRAEI ITNA SL WAAKVSDANLFGASLINAFLERSTFVNSQLKGANLTGA YLEEASFMGMDLSGVNLSYAHLEGADLRHVNFSGADLTHA NLQGCSFARSNLEGQVLAKLDLSGLDLEDANLTGADLSYT FLKDARLSRANLSGTNLRWAKLWDADLGQANLKDANLFET

| Un |  |
| :---: | :---: |
| UniRef90-A01 | NFGNASFDGA |
| UniRef90-UPIO0046C90D3 | DMQGATLNGADLRGA |
| UniRef90-UP1000457472B | NLRGSNV |
| UniRef90-L1QD93 | QTRQADFTGAQTGGA |
| UniRef90-K9U889 | ELTGVDLSQACIVGA |
| UniRef90-Q70 | NLRGANL |
| UniRef90-L1J | NLSGCNFDGATLSGA |
| UniRef9-UP100036E2FE4 | DLGGASLHRAVLTGA |
| UniRef90-D4ZQF4 | FLTNAQVEGAKFKGA |
| UniRef90-UPIO0036B7B62 | DLSNADLISAKLMGA |
| UniRef90-T2GC | DLRRANLVGAKLVGA |
| UniRe | DLSEATLIGANLDNA |
| UniR | NLKDAAF |
| UniRe90- A9WCB3 |  |
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| UniRef90-UPIoo | NLERACLVGTVL |
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| UniRee90-G8/ | DMAGANLSGANLSQA |
| UniRef90-UP10003735EC7 | CFTGATLS |
| UniRef90 UPI0002E38772 | NLMGANLQ |
| UniRef90_E6V514 | NLFGA |
| UP100 | N |
| UniRef90 D1JBJ3 | DLYGADLSGAKL |
| UniRef90-K9V8W1 UniRef90 O2BNS | SLARANLLNADLTGA |
| UniRet90-K9R6 | ILVNAQL |
| UniRef90-K9W | VR L A VMPD |
| UniRet90_UP1000375 | DFSDATEIEADLSGA |
| Uni | DLSHADLSGADLTGA |
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| U5DE |  |
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| UniRef90-R5QQ91 | DLTGVNIMEL |
| UniRef90-UPIo003466BA1 | NL VETDL |
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|  | NL |
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| UniRef90-UPIIOOO34D5318 | LLQNADLRHADLREA |
| UniRef90 R6JTA4 4 | $\mathrm{N} \mid \mathrm{M}$ |
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| UniRef9- UPI0003773E64 | N V A |
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| UniRet90_UPIOOO2D | DLSRADL |
| UniRef90_UP100037D6507 | QFEGCDWSQAKLDAA |
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MDAND|I LKRYAAGNRHF LQMS LQRDNLINDTC|LDGDNFGQS DTNSVRAAYFKGKRDFADCELSGLQLQKLQLAGSNFYQA $N L \operatorname{L}$ $\square N R V D L S$ Y A NLS G VDDLS G A N L S R S D L S Y VDD R E A K AVVN Q CLL D H A D L R G C N L H GAAVFS E C
 A D L S Y $\square$ N L S H A E L N E V Y L M G A N L LT G A A DLLTEANL QNANLIDDELVVYAKL NRA LS A CRA QHASSFT DA DLLSAKFI GA DLVAASFSGS LT A $\square \mathrm{N} F \mathrm{Q}$ G A N L K N T N F I S A N L RLLA N L I E A N L V D A
 A DLSGADLRGANLCGADLRCANLHNA LS RARLLSGRDLRGARFAGAKLENADLREARLEGA $N \sim L R N A R L P D D W M P N A D L D R G V M A P G A$ A GRGKN A GWDLT GA DL R GLDDLS GAVL REA TVE Q A DP K D DM G QLS L E G LDDL S GMNLSRFNFS GMNL R NV ERTDA Q G G D FS GMDLTGGVDFS GMD L R GA R FNKA
 K T WRLLGYR FPR Q S L S G L L S AP N A Y L T T A D


D HADLRGMGS





MTVSDVIAA R Q A GEK D L S G LDD FS H Q D L S G A D L S G A NLS N C EVDFS GADLREWAWDGCTFTKCVFRGA LG R P E L A GKDLA GT DLT GADLS GLDLT GA DLLSLC LT A A KLD RADFVLAKLTGATLCEVSAQDSNFSKA
 $R L A N C A F A A G T S L E N A R F T H A L L V Q C N L R Q U A L N G A$ A $\square R A S$ QS DFSTADFTEANL QQA QLLNECSLDKA L L N Q TQLLH

$\square$ D GA D F RETVLR
RALLENANLSGCRLDGADFSDAMLARA EADMKGVNLPNGSFQYVDLRRTELEKS EARLVGASLAEADLTGADLTGADLEAA T E A Y L L S C E V



D LK WA Y LA
 $D L T E A N L E G A N L E D A D L Q G A D L D G A N L C G A N L R G A$
 $L R \square D Q L K G R A T F A G A Q F S R A T F D Q A C G V G A S F E N A$

 A QMRDVDLRDATLEGADFSGARLKRA

$D A N L Q G V I A R K A N L R G A N L Q R A N L S Q A$ $V L K E A D L S E A D L S$ GAKLNMSVLQQAKLNKAHLS GA $G L N L S N \square K I V G K F L R G A Y L S G A$ NK WREDNPNDEDNFSHANLQNTNLDF VNLKNAQLDST RAAKIRRRLTEAP PDQRNFSGMTLVGADLSGM



 EADW D D R GAPL NALLQEADLS ARLRALVGVTLETDFSQA LS R A L E $D C D F S G S L L N N D F D S Q$
 R ACFD Y A CLL NGANL LQKANGENLFRSRFIESDFSGLNLQKMTANKA
 $V L T S A K L S G A N L V N A R M Q S V Q A S G A E F K Q S V L V G T$
 DTMDEK T R F D D CDF SEARLA H L NLG GMHFQNCRFDRA L E Q A VK S G A N LA G A DLA GANLA GANLA GAY LA C A $N P R T V L N A Y L N G R R D F N G Q N F N Q L N F A Q G E \| P D \square N F R N C$
UniRef90_G6FN44 UniRef90-K9VL09 UniRef90-K9XZ67 UniRef90-K9FMC0 UniRef90-T11X6F3 UniRef90-H7EUQ3 UniRef90_UPI0004646ED9 UniRef90_UPIO003461BF4 UniRef90-L8MR78 UniRef90_A0A038H2S7 UniRef90_Q110D8 UniRef90-K9XYZ0 UniRef90-U9VVD4 UniRef90-K9T2Z4 UniRef90-A0A011NIJ8 UniRef90-R7X641 UniRef90-B2IXY8 UniRef90-A9G439 UniRef90-WOASS8 UniRef90_UPIO00346731C UniRef90-T2J6E0 UniRef90-T2JJG9 UniRef90-B1WW28 UniRef90-M1YZHO UniRef90-K9SKB9 UniRef90-V4RHS4
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60
70
80
$N L S R A N|L| S G A C|L| R R G N F N E A K|L V E T T| L|W R T D| L \mid R E G[L D W A$ RLVK A NL Q A A DLLS GA N L G H A RLI Q A NL R D A NL T E A Y C S T A

 DLTNANLYKADI SQSKLHNTDFQEAFLQGANFSRANLKGA DMAHAQLTDASSLSMATVSRCKLDHAGLRGAHFGSAVITGS



 RLAGSDFSAAVVRQAEFYGAHAQQA LFTDADLSQTCEDDA NLDGTDLQNSNCRYVDGTSADLSRSNLAKADLMEANFSYA

 $N L S G A N L T D V N V N G A D L S G A N L S N A K L A G T D L V S V A D T V G A$ DFSRSNAKWANFTGAQLAGADFRDADLFHATFDDADLSDA





 NLVDAKLIKADCSKTVTTSANLTGADLSRASFKQADLTDT NLSEAYLSVADLGGANLHGANLSSVYADATNFERANLSNA
 K L T G A H L E R A IL L R G A Y L E G A D L S D A H L E GA D L Q G V H L E G A $D L R E A D L S S G A Q L Y L A V L S K A N L A K A N L S L A N L D S A N L L E A$

 FSGAN $\square$ SGAD $\square$ G VNGEATAALSALAA NFSGANLS GAD\|RGVNLEGAVLINTNQDGVRIDLALLKAR




 NLAGGDFSRASMRAVDMEKSNLTGADFVRADLRDADLDDT $T L S Q A R L Q G A S L Q A A R L R D A Q L T G T D L K E A V L A G A D L G G A$ DLQSANLDACVLFEANLMHSHWQNASVHRCLLLSANLEQS $N F S G A N L T R V C L Q D V D L T G A N C S E A N L S D A L A F G L K I C C S$ T L T E A T L A LAANCS D CDFT GA ILLCK LVVTEGAKFERCNFT RA

 I L T GTTFKNANLTNCSFFDAVLTK\|ELTNVNLKKSKF LLVDTVLVMASMRNADLSRARLSGS@MNGVRMSYANCTKA KL S D S NLD Y S NLTTGA DMTNAVLGRTGGQNANVLTGA KLYGA D L F N A N F N G S N I Q L L T S F E G S L I D D K L R G A I N L A G A A E L L S R A D L G R A RLLEDSSLDGVDLSAANLKQAKLTESSFARAAMAGAQLDGA DLT GANLSNANLRGADLTGATFNGAILYQSDLSFAELGNA $D L T E A D L R E A N L R G A D L H G A D L R H A D L R G A D L S N A N L M K T$ LI N G T Q L S C A I A A F T K C P G A I L T K A N L Q G G F L G Y A T L D K A RLDKVS FVKCRLLAVNFDRARLESCAWVDTS FRAAR L CA

 DLT QADLS QANLSKANLSKAY■CHADLN QTILKAANLNQA
 YL S G A DLS GA DL S GA DFSDA Y L S GADL GD TS LLRGAF LRRA NLENS QLYNA SLK A A NLE NANLKNVELDS SNLTSANLKNA DLRGANFSGAALEDANLSEAMLDGADFSNAVLARTKLVRT




 RLY F A D L R G A NL E L C D F R GA DLLS D T NL S D A NLLA GA D F

 Y L V GTNLT QA QLLK GCNL DHANL EA SNLT QANLDEANL S WA VFVK S F F N N S DL N K S TFIE S QFRESYFMGASLIGATL H D S

 $N$ L R EAN L GGA D LS GA LL RGASLQNAN LRGANLSNA HLEFA D L S G A N L S R A DLLS GA K L R C A G L E K A N L T D A KL L H R A N L
 DLRN $\quad$ DDLHGADLSNADFQDADLRGANLSNTNLSNANLANA $N L A D A D L A G A N L A C A N L A D A D L A G A N L A R A N L A R A Y E A G A$

UniRef90 G6FN44 UniRef90 K9VL0 UniRef90-K9XZ67 UniRef90_K9FMC0 UniRef90 T2JS18 UniRef90-T1X6F3 UniRef90-H7EUQ3 UniRef90_UPI0004646ED9 UniRef90 UPI0003461BF4 UniRef90_L8MR78 UniRef90-A0A038H2S7 UniRef90 Q110D8 UniRef90 ${ }^{\text {K9XYZ }}$ UniRef90-U9VVD4 UniRef90 K9T2Z4 UniRef90 ${ }^{-}$A0A011NIJ8 UniRef90-R7X641 UniRef90_B2IXY8 UniRef90 A9G439 UniRef90 ${ }^{-}$WOASS8 UniRef90-UPI000346731C UniRef90 T2J6E0
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UniRef90-A0A017SV88 UniRef90-A1SQY9 UniRef90 UPI0004784041 UniRef90-UPI0003767865 UniRef90_UPI000379333B UniRef90_A9FT56 UniRef90 K9F2Y1 UniRef90-A4VDH1 UniRef90_W0LG84 UniRef90 A0A023CH50 UniRef90 ${ }^{-T 1 X 42 s}$ UniRef90-U7DKJ8 UniRef90_D4DZS4 UniRef90 E2CDX6 UniRef90 A0A017TEQ1 UniRef90_UPI0003613B18 UniRef90 UPI00036F9D1E UniRef90-V5E4Z1 UniRef90-Q8DKH5 UniRef90_D3RSR9 UniRef90 I3CZR3 UniRef90 ${ }^{-}$K2KVP2 UniRef90_S9SM78 UniRef90 E1JV90 UniRef90 UPI00046E18AA UniRef90-G5IY14 UniRef90-V4IKD9 UniRef90 UPI000373571F UniRef90-D6TG54 UniRef90-H6MR42 UniRef90 L7ZNU8 UniRef90 LOIHW1 UniRef90-F4KT62 UniRef90-B2V8SO UniRef90- UPIOO046F4476 UniRef90-S4YIA5 UniRef90_Q8YX84 UniRef90 K9Q3P9 UniRef90-J2TEE1 UniRef90-B1LDT8 UniRet90 C4RYA4 UniRef90 ${ }^{-}$Q7NDI6 UniRef90-A0A031K3F6 UniRef90_I4GY39 UniRef90 AOA023XMF2 UniRef90-A0A023KSM8 UniRef90_D8G7H4 UniRef90-A9GTJ5 UniRef90 F4PRY8 UniRef90-A9IGL5 UniRef90_K9Y001 UniRef90 H2B2V9 UniRef90-K9Z876 UniRef90_UPI0002DD926F UniRef90_A0A059FAX7 UniRef90 L8N2H8 UniRef90-F4XVD1 UniRef90_T1XBC UniRef90 L8M5L2 UniRef90-A0A058WC18 UniRef90_K9Z6R1

NLSHASLIGAY LRDA $\square$ ADFVNFRATK $\square$ NHQTLLDHKCNLI SLRRANLL GAVLMFA NSLVNLSEFNLQRVT RVGEDDLSSANLQKANLQGAILRHA SLLDVCADDTHWPYTTMEACDLTHLTWHGARMLRNVFFKT RLI AI QGWGLFAQAAQFKGADLTGAYDEFARMSGARMHSS ILDSVQGGGKTNWRDATLTGAMARNCGFHGADSHVDMEAA AV RGSDLSG $\square$ N LS QAELSADNDSQVNLSNAHLQGADMLGT DLTQTNLCRATMPDGKISMQGC
RFTRTRLVRAAWDGVQURRASFERAVIDHADLGNAQAQAA NFSYANLHQAELIGGYFYQANFHQANLDKAHLTGDYLLNS ${ }_{N}^{\mathrm{N}}$ $S G V N L V R A$ N ELWADDCESEECHLTGMSPHWDTW RLS GANLF GANLINTRAPRADFGRAYLKD\|LMEGDDISGG $N F R A A D L$
$\square F E E A S$
$\square$$\quad \square K C T N F S G K N R \square T D M S G Q V L V N A$ NLGEVAARGADFGGARLAKA ILQRGELEGARFAGADLRGA DFEYNNMKGVDF DRANLRECNFKGHDFSGVNFTQADLRNA QCLHSDFSNAQFKETQLDEALFDNCAFDGATLDSLLLRNS DLSTY
N
KNLDPNNLKQACFWQYA DYKGKWNTQQQEWEDDEM
NLSDAKLS $\square$ GVFFETNFTNAQLTRAElKGAKLHGALFQNT NMSKANCAKSKFGSA ILDRANLSMSYLYAADURGASLIET K 1 D A
NLS GAHLKKAELLKAHFEKA KLEGSLFCEANLENANLSQSFLMEANLTKANLRKANLSKA ILESVDLAEATGQYASFRDADLDRADLSQGDFKGANFSRA NLDSLRVVGVDRGCSLEGCSFRGANFLRGARLGKADFSDA QFKNMKLIEI TDAHSSLIDDCEFTDCEFGERMDMRCKFVNC VPAFAQNVIVNQEERPNPWIVNGCTIAPKTSCPGVDLRHA
 DLS S I L LATEANLTSANLEGSDLRDADFTGACFRKADLTATNCSGR EMKFPYFTDSKLQDSQFINSNFYLALFYQS ILSNVKFQDT D
DMRRANLSKADFAKVVGRDLDLRECNLQHCVLPGVRLDDA $S \square A D R S A F \square G V T A V G I F D K Q C G L R G H L E N C D F S E C D F S D A$ RQHYTNFQDANMEGCSGCPTTWN
LFEQCDFSDADFKTLMLRQVGFSHCRFQRATDEGCVFDGL QLENADFTNSDLRNATFVRARADGANFQDAKMDQTDFERV RLS RLDLTGADLTGADLTEVTLDACDLTRATLAGAVLVRA IWHNANCHVQLGPKGSWQSADLSQSKWRTCGFRDLQLQGC NFAKTlFTGIQIDFWHF
T LE NQUFDQIVLSDCNFSAAS $\square E N V I F N A \square R \square D N P R F S A A$ N LSRAll LRHS D LRGVEDRYANLQGADLSHADLRGTDFHGSDLRSVKATSA ENHEFVRVGFGAAKMNSTDMINCVFDHCRYNNANLYKS VLQGVKFGGVEQRDAKGQKTGEVW RADLHAT TATDTRFDKANLTKADLTRAMDTDFHDPGATLAYAKLDNQ T I EELDTTGSHUNMEQQSTCCPCNNKY DLTN N EGD GVEFCGT
R
D $\square$ S GSNFY $\square G S \square A F G H A D Q A D F S Q \square Q \square G G N A A V N A G M N G A$ FAAKTLLPQADFSDATLNQCNLRQMPLQRANFSRARLDNC TFADTDFVDTDFSDADLRDAGFHGCTLEYVEFVGAKMADV D
NLRNANFENANLFRTALLVSDAKSNFKNANMLNVRLEDC
Y LLEAYLNKA
 D FR

FTELEYANLNNA
VF DNSNLSEKNLSDKDLTN $\square$ S CMYTNFTNAN $\square$ TKCKLLNT
 N DFNNSALRRAMLQGTRFSRSK $\square$ TGADMSDLKALEVHFDET
$R \square A A D L T G A S L L G A S \square A D A H L G A D M R N Q S M G D M R A V L R S A$ NLSDKDLTNDSCMFTNFSNANLTKCKFDNTNFSAAKLDNT GFKGADLTGARLDGAVAQRADFVEATLMNASLTQADLSQA NLENC
$\square 1$ S STVTNTSF $\square R T R \square E K S \square M Q K A T F T E D V K F E E S A \square E N T$ NL NA A NLT KASSCNCN
T F L S
Q LK MAKTSWRT $\square$ FPDGKRRWW

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UniRef90-B1LDT8 UniRef90-C4RYA4 UniRef90_Q7NDI6 UniRef90_A0A031K3F6 UniRef90_I4GY39 UniRef90-A0A023XMF2 UniRef90-A0A023KSM8 UniRef90-D8G7H4 UniRef90_A9GTJ5 UniRef90-F4PRY8 UniRef90-A9IGL5 UniRef90-K9Y001 UniRef90_H2B2V9 UniRef90-K9Z8Z6 UniRef90_UPI0002DD926F UniRef90_A0A059FAX7 UniRef90-L8N2H8 UniRef90-F4XVD1 UniRef90-T1XBC1 UniRef90_L8M5L2 UniRef90-A0A058WC18 UniRef90_K9Z6R1


#### Abstract

130 140 150 160  NFEGADFRGADLTGAYLTKANLRGANLCGA WLVNQGAKQKNLTGEDLSNANLKGVDFSEADLTKTNFGNS TLEQATLSHANLAGANLTEAELYKANFTEADLSHAMLRRA NL GYGLLYCTFLNHCULRGANLDDASFRGCNFRNANFRNS SLKGKSFAGLELEGCQFTGSDLSGADFSGUVLRQCNFQGA NLHAADLDMTWLSKADLKGANLTDANLQEAKLNDANLGDA Y LSGSNLRGANLRGANLSGANLRKTNLKDADGRDAGLSGA


RFGASSAKGARFDKADLSGADLDAVNLFGGSLRKSNLKGT SLIEANLSGADLRFAKLKKVNFQDANLQETYCRGTNLSEA
 $L M G A S F R Q A H L V G A N F C G A N L E T V D F Y G A N L D$
$S \| K G C Y A F R G V L L G A R L L G T D L S G A D L T G A A A E S A D F S G A$
 $N L A S A I$ FENVLLKKKAKFFRSJLDQDTNFRRSNLLKEAEFDNC DL F EA RLLAR GDL A GALADEVL FYECDLE GARLDRAS LRKA

 WLVDA QLMEANL QETNFNYANLKGANLAGANLTHSRTDSA $L$ LDA DL IG A NLLQDA GLSRANLQDA DLIGANLKNA DLIGGA
K MMRVDCTNADMTEVKMDRAEVARARFNGS $\square$ MRRANLEGS DLSRADLTKVS LICADLSDAHLIGTELHGANLSQANLKHA T R FLLP A DLRET RMRNVNFSAADMNLVRLDGADISRS



 D L K N A D D S G G A D L T G G A N
 D L E S $\operatorname{V}$

 $R L D G L V A G E S L F V R A D F S R A S L R R A N L I D A N L S K S N L L G G$
TLP QPDFSAAKLHKTVFQHCDLQAALFNDARLESCNWVAS SLN GANFK GA R L K Y S D F D RVS A K GA S F E G A N L N GVR F S S A


R L H K S T F $\square \mathrm{D}$ S H L Q K A VFE E A VLQR CSMVNS QADGDDF T R A HARRANFSNSNLLTGADVRYGDFRRAHVNGATAFQANMQWA LIF $\square R A N L R E A D L S D A D L R D C H L N D A N L V R A N L S Q A D L T S A$


$N L E G A$ I LE GANLKGAKLSNTNLKDANLQRAYLRQVNLRDT L N EA YL GYANLNGADLRGANLCGANLNYANLQGANLCGV $D L R G A V L T Q S R F Y D T D F R G A D L R G A D L S N G S F N G A D F R G A$ LVRSLLVEANFSHAKMQKVNFRRADLCSAQLDYADLTNA LF HN A SLLNGADLNNTDLRGVDFSGADLGKARFHKANMAGV RFDHA GLT LT NLVGADLVVGASFVGADGRLASFTGADERGA DLSEARLNEADFRQANGSGSLFIDRCDLSKANLRAANFIAA
 $K F T E A V F D Y V D M R H S N V R G S D F Q K A S F V M T K F S H S D F R K T$

 GAYLD A A DLS GADLTEADLTEANLSGAYLSGA E L VA A NLKNANLTSAELEYANLNNSNLNFANLLENAKFYNA LANARLLNANLGGGAQCEYTNFA GADLSEANCEKARLLDC


 NLE GLN A R N A DLSSRVDLEFASLKGADLTGASLLKNA QL G GA NFTGTEGSN LIFFNHAWLFNTIFIDADFKNACFFNAKVNNV


$N L S K A K L I N A D L T E A S F K F A D L S G A D L R G A T L R K T D F T G A$
$\square L K N A D L Q N T D L T K A D L R N A N L K G A C L K G A K L D G A D L T G A$ MSALIFNGANLS QTKLDAANAQGASFKDVRFVDANLTGT NCFSCNFSYANLQNADLTEANLDNTNLLKSDFTNALLLGT




NLLSKVDLY N A NMSKA

SLVNANFHRACMK
N S E N L T E ATMPD G
TLDGAK FTKAV
VLTGARFQGTNMEG
DFTGARLADATF
D LDGADCLGFNDENA
LLRHANFYGVDFDGA NLDRADLRGANFRGA NLEGANLEGANL
$R \quad$ V G TK L L GA T $\square R H A$
TLUGARFVG
SFEEANLDKATITG
TFFRCRMAGVSL
KLNHTILTKTILNKA

NLK K A DLIGANLSGA
$N \square S E C \square M D \square A D L N N A$
$D L R L S H L E A A N L Y G A$
NME GAAL
NLSGAHLEGAHLED

DLMGSNLEQVNLQEA
TLNGTNF
QL Q I A F MQGAK
LI SKWKLKKAFDAG RVA GADLRGAKVDG VLQQALLRGAALEGA L Q T D A
$\square$ F DEAT LI GSNFEGA
QTDETTL
$\square A Q G V Y$ Q S C C
DLREANLFRTDVSQA
ALPQAQFNGATL
DLTNANLKDADMSGA
DLRGAKLFKAVLSG
N WQHSLLYETNLR
RLENCAFTGTSLQG
RLDNATVGQTNFRDA
NLEGANLNGARLRG
D FTG

HLE GAKLDGANLLGA DLNGARIT EAAQLSVA LLSDTKFDEADCEGA DLK GTSFEKAILTGA

 | $N L T G A N L T G A N L T G A$ |
| :---: |
| 1 | KFHGCDLSGGVMAD

$N$ LLREANLDMGADLS EA KLAGTWEENV
NALNTNFKAANLTKA SAKQTRLTKTNGEGA

DLSGTSFKNATLTGA NVSGARLEQTRW
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K LTAA L T GAVMPDG SLRDAQVDGARFEGA NLCDAQVT
DLTGATVTDTDFEGA
SLKNAYLYNDNT

NLRGANFD
N F N E A D L T G SNL
S L R G A K LDD G A $\square \mathrm{IEG}$
$D \square T D A \square T D A V L P D G$ GWHDADFDGA
SLNNTSLEETNL
DWKDAEVWGTVMPDG DLREANLFRTDLSQA II TDTNFVRANLERA


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UniRef90 B1WZ76 UniRef90_D9V3W5 UniRef90-C9QHY3 UniRef90_K8AIU7 UniRef90_B5GKI5 UniRef90_F7ZG96 UniRef90_D7BQ63
UniRef90_R1DJW9 UniRef90_E3I030 UniRef90_B0C852 UniRef90-W2E3G1 UniRef90_UPI00037624A3 UniRef90_B5HA52
$N|L| S G A N L T D A K \square S F D S L S G A N L I S G A D L S G A D|L| S D A D L S D A$

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





 $N$ L A R A NLT HANLLQ GA DLSSANLDGANLKTAFMGTVKLMRA TI RNTDMM GADMS ETNLNDLDLDSTTKLLFHACFSGASLLENV
 GLAGARLVGTCFHRTWMQRADLSGADATGACFVRAGLDEA DLQQ A V F Y L T N L Q E A T L D S S N CLLEA D LT Q A NLLS Y A WL Y N T
 $N L L Q T A L L K A D L T T A S L R G A R L D K T M L I D G K L L T G Q D L S G M$
 NLVGCSLKHADIRRAELEAA QLHRADLSFAELEAANLIQA NLSNTNMHLVDAHYTNLNNTNLHKVRMSNATLVGVNLNNA
 DWRGADVSECAFFRCDLA QA DFREAACADTAFVECRAPRD $D L S Y A D L$ S H A NLGGHADLSYYADLSHANLTGASVVGANMHNT VI E GA D F S S S T I P R A S F V GA R L V D T K FT GA KV WE S D F
 DFSGVDFTESDHVGSAFRNCTFRRSSLWHSTRRHCSFLGS
 NFNHAQLSDAQFIDCQFFESNISGCRFDYADLKGASFKNC $T L R A C L F D D C A L E A A D F R M A R L D E V Q W Q N C A L A D A A F A G A$



QLD GA DLS GATMDAANFAAACFDGANDARTRARGADVRGA SSDTS QFMRCALEQSLLSSGSTFDRSTFYETPDGGATLDNC C L Y R A D L R G A NL K GA NL F GANLS GANLS GANLGNAMLY CA

 A L S E T N F S K M DL S Q L Q F H E S T L D K C N F S NA K L I Q G GF M WA



 QLSACGWVQSDCNPMSFRHCHLQTCCVVQTDMPGAQESNA VL T E GTF A GA DCS GA S F V R A RLLE QVQ FTQS QLDD DVD F SAA

 II DKANFTKANFTKARLDRAGLERDAARKAVAQEGEVVDLD RLEARA H L K K G A K L L LF A H L Q Q A Y L $R A G C N L D K G A N L R G A D L R G G$
DFTQVLFDEADLSGSNFHQSKMHGASLQRVKAIHTLWMKA $D L R G A N L V K A Q L G G A N L I R A N L R G A K L Q G A D L R G A Q L R E T$
 NFSSSN LYDAYFDSATVLSGANESGANVQRADFTNTTMSGF

 NLEKATLVRASLAGAKADKANFSRVEAYRGDFSG
 NCF GA EFRNCD
 $D Y$ S DA DLGRCMAE GSDWRGVRLLRGTRLLQTAFLQELDRLDDQ NFSGSFMINCDFNS CDFDNSSFFGGVSGENCQFIKASVPNT D L E T R M C Q G C DLLS N E D L R Y Y A H L I I G S D L SFKRTNLRDAQFDCAFDEQGELEGCDFSYSDLLRDAS FKRC
 DMRGANLLENADFRHTNLNDVNFMGASLDATRLDGADLLERA T LTTGA N L R H G NLLY K A R L T G A S L LE NV D L R E A D L R G A D L S S V RLNGARLRGARFDRSDVVGASFKDADLLTGATEHGAT GHKT DLRGANIAGANFDNADLTAARMSKDTAPTATFRNARLVGA NLRNANLQGANLRNTSLLLSNLENANLENANFTAAYL
SF LIG S RLLE GT QWEAA A NLL LEA HFH S C DLLNNTR WQR S KLLS QA RLQEA DLSEVVSMVCPGMERTNLT GAS L RSAYVHAAA QTCV NLGFASFVGGASFPNTKLGKDKLFCTNLDGADLSEAADEAK


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UniRef90 D9VS9?
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UniRefo

U5GKI5 UniRef90- F7ZG96 UniRet90-D7BQ63 UniRef90-R1DJW9 UniRef90 E31030 UniRef90_BOC852 UniRef90-W2E3G1 UniRef90-B4V6M9 UniRef90_UPIO0037624A3 UniRef90-B5HA52 | UniRef90_BSHA52 |
| :--- |
| niRef 90 UPloo |

100
110
120
KLEGAS DNRVHAPQCLFPSAKDDGVGCRGAHFNQS $\square W V E V$
 VFSNADFSEAAFPK LDDAKVCQFTGAKLLDGASF VGANF ERA QLRLLAKTNWRTILPNGKRKWW
$N L K N A H F L E Q A N L N G A T L S N N T I L P S G K K A T A S W S A L H N A$ $\square L N H A T F R H A N L S G D D A T Q A Y C T G T D F S S A N L D T G K F E K T$
RFERTVLQHSTVEGCTMLGSGFVDCRFRPपTVRETDMTV N
L LS GTSGQपDTYGTPCPAVPGTTAPDA $\square$ AD DTNANLKSA DLSHAT QMDGПTDSGGDWSYTNTRHTKDGKODDRGDRLDGALLARA
 SLRGADLS NFSENKSLLKFTRFSEANL
 D
 DMREVNRR
DLTLAQLMDADLGGCDLRGARLVQTNFKGASLVGARLDEA NLSAPDFSHATLTKVNATRASLQGAVFNSAMVSDSQFVQS DLSQANLSYATLTGAYLYGADLSRANLRAAHCSQAYLVRA DLSNADLSNADLSNVSIEESDMQEVLLNSTNTTKSNMKYA EMDHVDLRRANLHAATFNECGAAHAQCGEAWMSMAVVTKT NLK DASFKGCQLAMSQFVSAECFGMEMRDCDLKGANFVRA DFRGNTLKSCHFTQTALSGARLVDVTLHEGSYAECALDEA QAGD\|LQ\|TGLHPRQ\|IVTPERDGWNUNGGCWNGT
LLRRVSLVEATLAYANDTRANDFQANपYपADGKGADLQEA TFVECRLRPLTLV
 FAGVDLAGARLSSPVLDGIVLVDCALSASRWNDCHLAGA DLNMSQFVGAECFGIEFRGCNLKGVDFNRASFANYITQKS ELERCQLIESGTARAVFDGALLGGLAFTQSVLAHASFEEA RWTSCKGSRAHLEFADMSQSWWEESDLSEAFLLAGADLRES DLK FANLALADLSGVKDTSSDVGYSSFDGSDMQMASLDKV NLS MALFTGAKCFGDEFRECNLQGADFGRASFANHDTHKT AMAGSKLSRVELSDADLSDADLSGSSFKSAKLRRARLERT HFMKRT\|LAFVSFWLGTTVWALNQAHFDRLMQTKRCLEC SFAGTQAGDADWSRADLAGARFERWDAPNDVLEDANLEHA TNLMTTLFGDDLRDVDLHESQFERTVFFNCDQRGKRYAKH NGGAN

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S LTGARCHNC
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DLSGASCTQAELSSS LWVEAQपTQVNFEDSKLNQADFQRA DLRGANLNWINW
KLDNAIFDNATLEFANFYGAALERSSFKNSDMKMAGMQSA RLDGNYVMGCKLQGVSLRKASLNRTQFMSSNMTYTTLDGA NWRRARLAAARFQGCKLTGSDFDGDACLGWSLRECLLVGA NFQRARLAGARDDDADAPDTVFEADAAGAMCRAAALRGS N L S
WTEESS पRGTDLEGASFDGARLQSSDLSESNLGEASFYRA VLQSVQFRHVQADRWQPRESSWQDVLFQQSHLQEQEWLDV QFTEADLSQADCRASपMSQSMWISARLSSTHFECCQLARA EGCDVKFDLCNLLANSNWRGASLSGSSFTECKLTGANFSEA TNLDLSYEDLRGUDFSHCDLTGTDFSESKLDRAGLERLIA

ELEGCNFERAHMDCADFVAKAMGCNFANACLAYSVWDHA N
K LLERVRSGTTYपR【LQLSk LLITGQGQGKNFERपNपQGП TANQLYSTASYAQGNLQHMSFQSNTMTGW
GIT GET QLNGVCCEYVYMH
LSDTDLRNA TSAEGALFVSS
$R L V Q C N F K G A A D G A R L R R V A P Q S L F P Q A D M R G A D C R G G$ DSRQVYFCSVYUTGCNLSYANFERQCDEKCDLLFENKWDGA $\frac{1}{R}$ DLRACDLLACDLGGASLRGCRLDGMELLRTRLAGACLDGA DFSTSNLKGSNFSSCDLGHASFNNCDLTKTDFDNSNCTGA NLEG VLADSRWSSCSLLGSSFVDCRYTGTALTECDLSLASFARG KLSMSYFSGANCFGLELLRECDLKGANFSQASFVNHVSHQV SAA DA DWA AHVLKTRSCRRPCWMTACSMTPRWKGCCSGKP RLAASRWRRAVLVRGETDRQAVESEDWPPRPSRRGCPCET KFSNADLIGTTFERSSLFGADFAH
artrfs SDSAD GTAL

RGADLSDA

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UniRef9O K9VW38
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UniRef90_UPI00034B8D4C
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DCSGCDFSDSLLVDVTLRGGTLTDAKFERCDMRRVDLRKT NFQGAS LVRADLSEIHGVGAMFAEADLSGASLRSARLYQA

SFVREQENEASFQNTNMAGADFHKADLHKAEMKSAKLQGA DLENANLSEVDARNADFTNADLTGATLLNGNFTDADFTGA A YLGAADLRGANLHKAGLALTNLSGADLRGADLTAA GMGRSDLRGTNLSG $\square R F R E A N L G E C D L R E C D L R E A D L S G A$ WANLSEADLSGANLSEADLSEADLRGADLSGA $\square L N K A V F D K V K L T G A N L V G V S A D Q A T F R G A N L T K A N F Q N A$ RLWGARLQGTSLRRAHLVGADLRHADLTGADLAGATLVSV

 KLHCANFKKGNLEGATLKGADLTGANLKGTDFTNADLRNV RLDEADDAGADLRQTVWVESRLRGANLVDVKDDGADLRGA
 NLFNAKMNNANLSNANLTGATLSQALLQNANLNNAMLDKA TAMRCVLAQTVLSRATLSQSALMDCDLTNVVLDYATLTNA NLERALFADANLSNASLAKAKLDQALFVKARLDGAGLDGA DLGASCWHSAKVEALVMYEADCRASDWREASGKRCVLVGA NFTDIN AEAADLA WCNLSKVNFAGANLRRTNGRGARLHRA LLNNATDN NTDGSNSDLTMVLIKNSKWNNSTVYSSKLTSSA
 SFAKARMAKVTFVRADLRHTDLAGAALDKTVFIESDLSGL
 ILESAS LIEANFESAVLDAAKMAKANARRANFKGANLYKA VLGGADLRKVDLSDCRLREAGLVGADLREAVLARADLTGA


 RLRAVKVERVVWQDGGVKCDLSRADLEGMEMEGANGAEVG
 FFCSAY TACNLL A A A YANLESALLEKCEGMMNRWHGA
 DLSDMNLRNENLKGAVLVDSNLQRANLQGAKLMGADLQNA TLADCVLLHAKADGSRWAHASLAGSDWREAALSRSVLMEC $K$ FTGCQFTDNQLDGADFSGAQLTQCNFKGASLKQAQLRGV
NLMRVNFSHGDLRNAMLRNAKLQGTHFEGTRMLQTDLIVE $N L M R V N F S H G D L R N A M L R N A K L Q G T H F E G T R M L Q T D L D E L$
$Y F T G A R L G G V L L E Q A E L V M C D F T Q A S L S D D L L R Q C M L Y H C$
$R D H S S S F R R C Q L H Y A D F T Y A N L Q S T D F R D A H F Q H S Q F H A A$

K $\square$ AGSNFSNA $\quad$ LNHAQMEGVDASKAMFTGANLSYADLSHA $T$ GTLPDFGDCDLAFASDKQVKFAKPVFSGSQLVSDEAADA LLRGLSFRKSDVQQLDFSDADLTGSDFRDTVFHGGSLRNA IVVQADARRADFTGSALDGAVFQRATCTGARFSRTNLAGV SAFATNVNFKKANLDRVNFAEAKTYDSNVHGA DANGSLLMQCNLSRANLAGVNLKGADLRGALLEYANMVGA DMLRCTHESSQLQEVQYMRSRLSGVRYQDCQLQQCLWLDC LFSKSLALGA LIFTSAQQLEYADLSYANLSYANLT WANLTAA RLLGASFQHCILREVFLRNASFRKQTLEGLDFEGADLDGA ARKAATPEGVDLTNLNLSYEDLSDDDFSNCDLRGTDFTGA
 VIQRSTYENADLNGSQWQHARGDHLDFSGCEFRNAKLHGA
LSKADLSKADLVGARLIWANLSGADLAEANLSETRLTDA $N L K G A N L A D A S F I G S D L S E A N L Q D A D L S R A Y L K Q T Q L D G T$ NFSGKNLTRTDFSLASLVNSDFRNATLTNS
LLANADVSDADLRGT LLAGANLEQA DFCGAVFKDA LDNDV ELQRADFTGARLTGADFEKAELGRANFGKAVLTGTRFSVA VFDQSDWDDAQLADADFSDARLEQCVFHRARCERTSFA HS NLYGASFKGSDLSRGEFSSDVWGQFNLQECDLSHAELYGD NLDHARLELVRLEQASLRGARLRECQLAHASWRGAHDRDT LFQRATILNGSF LALKNSNLEHAKFQKANLRGCDFTNA DLTGANLEGANLEGAMLTNATLNNSNDDNVNLANAKDYDA RL $\quad$ RKLDLSGLRMREVNLNEADLTDSDLRGTDLAGA
 GLPAAA
RLVNVKDTSAEFLGALVSSTHDEGADWGQPDFTEAVLLGV MLGKGLLENVSFGGAHLSDVDLRAASLTHVDLTKADLSGA VLTNADIGKSDLSGADMTGVDFTRADSQRVDFTASQFMRS YGSNLENTQLTSTDFTQAVLRSAKLQGADVCTA VLNNDDFSDSDLSDADFRKAELIDCSLAHAR NGANFAGA DLSDASMRNMNLQGALISECLLDSAALDGSCVDQLSVTKS DWEGAPDS WCDVMGS
$L T K A T L S G A N L R G A N L T G A E L S G V R D R G T D L R G A D L S A A$

|  | CDVNLLS DA |
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| UniRef90－C5CX63 | DLRGAD |
| UniRef90 A0L8G | NLHDATYTDVQTDGA |
| UniRef90 A6 | LFLDAVLEGSDCSGA |
| Ref90－KgYQ24 |  |
| UniRef90＿B4SGI3 |  |
| UniRef90 J8JWM |  |
| UniRef90 U5L | SDTNFSGAQVGA |
| UniRe | RLLGTRLEEADLRGA |
| UniReef90 Fos | NLRGANLSGANLSEA |
| UROOO3 | N |
| UniRef90－UP100035E6A95 | RTNADMTALS |
|  |  |
| UniRef90＿Q3YQ |  |
| Uni | KIRFAIFQDAYMEG |
| UniRef90＿C4K6J4 | DMTEDELSGAIULTGA |
| UniRef90－UPIOOO3460BAC | DLGELALDQAYLRGA |
| Ref90－A8EY | DFDQAKVDATR |
| Ret90＿DgVs93 |  |
| UniRet90－R61783 | VLDQTDFKGASM |
| UniRef90＿UPI000462F9E4 | KLIGANLA |
| UniRef90－S4XWE0 | SAYQA IFKGATFTGA |
| UniRef90－UPIO0047C7C39 | QCSQSRW |
| UniRef90－B0C | QFYOTCLEGAVW |
| －5 |  |
| UniRef90＿E6V515 |  |
| UniRet90＿B8KDP9 | RWNGAHLFGVNFKGA |
| UniRef90＿A911E， | ALAGQALDGCQFTDA |
|  | DVDGCTFTGAK |
| UniRef90－Q8DMT7 | EMDDMDLRNATLDKA |
| UniRef90－14BF93 | RVQDARFDGADLRGA |
| UniRet90＿A0A0381N | D |
| UniRet90＿B9QUU1 | QLTMANFAGAGLSGA |
| A6F8 | SLQGSDLS RGEFS |
| C1 | RFESVIFSGSNLS |
| UniRet90＿L116Y6 | RLEETNLIAAAVLRGA |
| 隹 | ， |
| Q |  |
| UniRef90＿A8FOX8 | TLIGASMKGSDLSGG |
| iRef90＿R1FJ |  |
| 4C4F4 | N |
| UniRet90＿UP | NFQGADLIRGADLQGA |
| UniRef90 UPIOOO4 | RLTTS SWA |
| 5Cu | NATQA |
| UniRef90－UP10002 | NLI ${ }^{\text {a }}$ A |
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|  |  |
|  | DLT GA |
| UniRef90－UPIO0047A65C5 | A DARFGR |
| UniRef90－E3HVAO | VLKNVRF |
| UniRet90－NOASO4 |  |
| － | ， |
| Q21G15 | NVEGAKLD |
| UPIO0036EF | NLFRADVS |
| UniRef90－D5A5 | NLSAAQLEGANLSGA |
| UniRe |  |
| UniRef90＿A0A059EA |  |
| UniRef90－A0P2 | T DEKALFTKARLDRA |
| niRet90＿UP1000368 |  |
| UniRef90＿UP10003161EE3 | DLSNVNLIAGADLAGA |
| UniRef90 F3h | LFEHSTYRGAKLKHA |
| B80 |  |
| 俍矿O－EOTEH3 |  |
| UniRef90 K9VW38 | DFTGATLT GAYIUED |
| UniRef90－R7LCJ1 | D |
| UniRef90－D6 | D |
|  |  |
| UniRet90－UP10003676535 | RLLMYADFSYALRAA |
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| UniRef90 B1WZ | DVTGASMENLDITNA |
| UniRet90－D9V | RMLGTKFPGADLRGA |
| UniRef90－K8AI |  |
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| UniRe90－B5GK15 |  |
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| $\begin{aligned} & \text { UniRef90-D7BQ63 } \\ & \text { UniRef90-R1DJW } \end{aligned}$ | DLSGAALSDSDLLRGA |
|  |  |
| UniRef90－80C8 | TLA G |
| UniRef90 W2E3G1 | DLRGADLSGFRLNDA |
| UniRef90＿B4V6M9 |  |
| Ref90－B5HA52 |  |
| UniRef90 UPIO0034B8D4C | DITRYVDLQGVkL |

UniRef90 R9LL67 UniRef90-UPIO0035EED08 UniRef90-I4IPGO UniRef90-K9RMH1 UniRe990 F 2 RGO 7 UniRef90-F4L4J3
UniRef90 ${ }^{-D 3 V H D O}$ UniRef90-H0FG07 UniRef90 W0F1T5 UniRef90_UPIO004198E5D UniRef90-J9ICP0 UniRef90 D5RIQ2 UniRef90-R1GQ54 UniRef90-W4DND2 UniRef90_G9ZXP6 UniRef90-O8YZM4 UniRef90-UPIOOO38016A5 UniRef90-L8N292 UniRef90-NOALQ1 UniRef90-17JNL4 UniRef90_A7RX60 UniRef90 K9FGU3 UniRef90-R1GU61 UniRef90_C416G7 UniRef90 Dokew4 UniRef90-UPIO0035E3735 UniRef90-UPI00034A6D72 UniRef90 v5BBI7 UniRef90-W4E8Q6 UniRef90-A8GXG6 UniRet90-S6TXG2 UniRef90 UPIO003732451 UniRef90-W0BG17 UniRef90-A0ZH63 UniRef90_10QVA1 UniRef90 UPI00037017AF UniRef90-15AZD4 UniRef90-UPIOO0470B176
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UniRef90-O9K676
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UniRef90- G6CEU3 UniRef90_UPIo003468AFA UniRef90_CON6V4 UniRef90 K9RFQ7 UniRef90-D7TN08 UniRef90-E6RGB3 UniRef90 ${ }^{-}$K9VY73 UniRef90-С6ХкM6 UniRef90-K9QAR3 UniRef90 C3AKB1 UniRef90-A31W33 UniRef90_V8FW82 UniRef90 UP10002556044 UniRef90 M2XDI7 UniRef90-Q38YU5 UniRef90-R6B194 UniRef90 K7VZR4 UniRef90-R9K8B2 UniRef90-W1SMB6 UniRef90 UPlooo383DFB9 UniRef90-W1SWJ2 UniRef90-Q7VCDO UniRef90-U5BUZ2 UniRef90 UPI0003F62D93 UniRef90-K8GQV3 UniRef90_UPIO00255632B

TDTDLAGATLTDALWARATFER NDSNSTFENCVFNDSAFSFANFDNT FTGALSTGVYFTGALSTGVYFTGA KCRFQKCHMDDQDLTK VLKDTSFFAC FSRAALAGCDFSGASLMQTMFFDA $\square S A A E \square Q Q R \square K Q G E V D L H G C D L S G G V F Q E V S L M G A N D Q G A$ NLTGVNLEGAKLDGALLCHTTMPDG DLRGMKATALLNLTFSGFNFTGA CDFQGSIFDNDTAQDNFVQANFSNT ASFAKSNLRGLELHRAVFDGLDLTEA EADLTDLDARGHSLAHLTFHRVRLAGA NLNQGYLVGANLQGANLQGRDLRNI
EK $\square \mathrm{FNK}$ NDVSSSVTEHASEEETENHC NFQGLNFRDANLAGVNLETANLTGS

LERTDLEDQVFTSVNLSSCDFS
 NDKDLLEEYKVSEA VVEDSSVEEVSLKDVVFDAVIFKNV

GT GTNQSGLDQLT GTNQS GLDQLTGT GGTSFYQANLTEADFTQA乌LK KDLAAVNDSGANDHNSSFAGADARGA DYTKAHEVNSDFQGQDFSGSTFNKT DANDLVRVLQSGRCDLVHADLRDADLQGAELQRANLGQA DRAGEGLSSRLF EDCLFTGCRLEGA DTDLTHADLRKTNLTNATAGADKG RGQDLTGKDFSGKTLPKQDFKTS GER D GAN EGTMVSGT $\square A R L P E R R G V D R A D \square N G A D L T G A S L A G L R$ R


EELDSDFLTKDCEDKNTESNCVENVFTECNLDK FKQVTLLNSSFSRSDLSDVVFEKC ■ARVRSGSSCAGCNLF QGDFSGLESRGLNLSGARLRQA

पt पAk LRWTDLSEANLVRVNLINNCDLVKSNLCRA\|LYEA EFEACQFGSADLRKAVHVNENFRRA DKEFEQCQFUDCDFSHSQFSACRFDEC $\square A T V K Q G A A S C V G C N L F Q A D F S M D D L S G K N L S G S$

NFDDCNFSSSEVENSNFEKVNFFS\| LAGANLSGQDLRWTDLSEANMVRA SGVRIEEANLKHKKLSQGDFREC RGVNFDNVDFGLVYLKPVNFASC GUNLIGADFSEQDLSGVSFQQS KDATFDGCVFNRDDFSNV $\square R W T D L S E A N L I R A N G S N C D L V K A N L R T I L Y D A$ DASMSDASMGDASMSDVSMSDMSMSDA GRVRLSNMVIKNCRFNNTDFKNDDTDV S AD SGLSLAGLNFASVNFSDSRFDDA
RDYERCEFENCLFKNCDFSNGIFLSS
पRWTDLSEANLIRADLSRTDLVKANLSRTILCDA
UniRef90_R9LL67 UniRef90-UPI00035EED08 UniRef90_I4IPG0 UniRef90_K9RMH1 UniRef90_F2RG07 UniRef90_F4L4J3
UniRef90_D3VHD0 UniRef90_H0FG07 UniRef90_W0F1T5 UniRef90_UPIO004198E5D UniRef90_J9ICP0 UniRef90_D5RIQ2 UniRef90_R1GQ54 UniRef90_W4DND2 UniRef90-G9ZXP6 UniRef90_Q8YZM4
UniRef90 K7GGH4 UniRef90_K7GGH4
UniRef90_UPI00038016A5 UniRef90_L8N292 UniRef90_N0ALQ1 UniRef90-I7JNL4 UniRef90-A7RX60 UniRef90_K9FGU3 UniRef90_R1GU61
UniRef90 C4I6G7 UniRef90_C4I6G7 UniRef90_UPI00035E3735 UniRef90_UPI00034A6D72 UniRef90_V5BBI7 UniRef90-W4E8Q6 UniRef90_A8GXG6 UniRef90_S6TXG2 UniRef90_UPI0003732451 UniRef90_W0BGI7 UniRef90_A0ZH63 UniRef90_I0QVA1 UniRef90_UPI00037017AF UniRef90_I5AZD4 UniRef90_UPI000470B176 UniRef90_B3EQH1 UniRef90_A1KP54 UniRef90_D9SRD8 UniRef90_A0ZCK9 UniRef90_I1G2A5 UniRef90-A3IQW0 UniRef90-N9DFE6 UniRef90_Q3J983 UniRef90_UPI0004148A40 UniRef90_K9YQ92 UniRef90-Q7U3U4 UniRef90_V5WQH1
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UniRef90-K9YW26 UniRef90_B2TRR1 UniRef90_B6FKT6 UniRef90_Q9K676 UniRef90_D9QJF7 UniRef90_G6CEU3
UniRef90_UPI0003468AFA UniRef90_C0N6V4 UniRef90_K9RFQ7 UniRef90_D7TN08
UniRef90_E6RGB3 UniRef90_M5PCA7 UniRef90_K9VY73 UniRef90_C6XKM6 UniRef90_K9QAR3 UniRef90_C3AKB1 UniRef90_A3IW33
UniRef90_V8FW82 UniRef90_UPIO002556044 UniRef90_M2XDI7 UniRef90_Q38YU5 UniRef90_R6BI94 UniRef90_K7VZR4 UniRef90_W1SMB6 UniRef90_UPI000383DFB9 UniRef90-W1SWJ2 UniRef90_Q7VCD0
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UniRef90-K9VY73 UniRef90-C6XKM6 UniRef90-K9QAR3 UniRef90 C3AKB1 UniRef90-A31W33 UniRef90-V8FW82 UniRef90-UPIO002556044 UniRef90 M2XDI7 UniRef90-Q38YU5 UniRef90-R6B194 UniRef90 K7VZR4 UniRet90-R9K8B2 UniRef90-W1SMB6 UniRef90-UPI000383DFB9 UniRef90 WiswJ UniRef90-Q7VCDO UniRef90-U5BUZ2 UniRef90 UPI0003F62D93 UniRef90-K8GQV3
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EFTNTNVTHADTSS DSVSRSNFVEFKASGANLSNSSFTSS ELAANASFHKSTLVRTNFSSSGLTGAKFIVTRLTDVKLCTT -
ELKGPDPSGAELKGPDPSGAELKGPDPSGAELKGPDPSGA VLTSTR $\square A G A R W D W A T \square W P P E R A E \square W H$

DLSTARFDATRLTNALFAEANLRGQRFDRCDTMTHFSGA MWQDTNDKDSKFFECTFEAFMVLESQLINCDFTNSELVRG YFTGALSTGVYFTGALSTGVCFTGALSTGVYFTGALSTGV NADALDDNHPTVINNSRFVLVEGRGYKFQTVIPDKQPDTE AFQNAQLNFSSFKNTSLLGCIFDSAEMTGANFTEADMQKC FDGCKARMS QFMRCP पT QS QFA QVQLDRSVFFESPपDDSRFDGCKSFFT NLS ALSVRDSYEDKNLRQLLVTKDLQGKTLDGWDLQSMNLQGA N DGEFADF

FSLAPLSNV SFKNTN $\square E N S \square F Y G A D \square E G S \square \square N N T N F T N Y F E S A D E S G A$ RWELVS WMQCAAPFSQWRGAVLNTSMWTQCELAGADFGEA
RFYEVKK LDDARVGDS LLAKRDVLNLLVSCNGRNKSYDGA KLSGIDWT RAQWPTFNLDPELRFNKSILTHS QVDRSTVLYPVACDYVFLKDQPDDSDPWARRPQDPDATFQ RFKEVNFDHAVFITVNAASAVFTNCSFQHTAMYNCDFSHA RTGHCD
RELLLEFEFEQCMLK
RLRPLT LSGSDWHDA KLVGSNDSEGTFRNVSFNDSNCQY【SFSFSDLKEVDFDNC K NQSGLQ $\square T G T N Q S G \square Q L T G T N Q S G V P \square T G T N Q T G \square Q L T G T$ KPA RDLLKDLHLGYFQDYRQANLRGA

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DDF LI QVRF
ENCVLDFA
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R VT
N LRGTSFRDAVAVPGTYQSERWERPG
DWSALLDERKRGMGFLPFDSLRGCSLGRHCVFFGL K $\square$ I CKGNGSRFDLAVFKKTGLQDTQLNMANFGQSLWESC
N【EG $\square \mathrm{D} \square \mathrm{T}$ GASFHGTMVHPDVIRR $\square \mathrm{RNAGNPCEGMNSRQH}$ NV T
D
RMVDCDGDFASFRFGKFKGTAFTNCRLVSSDYYQAGLTHV AGADGWKD

NFMYNDLKRSNCYNCDFTGSNFNFTSFRGAHFKDCNFFEC


QLIGSDFAEAGDNDVTFDTCQADYTGFNFARMRHVDFKDC KNLEFSRVDDGUADRNVLNLLVTGNGRKKSYVGANDKGA RFDHADWLNGQI C
NFTNKRUSQANRHYCCSWC
LMDRMV
LTSPVSFKQCELSHSSFFELQLKALTMTNCFAKDVDFRHA EMRNCK LLGTNLSDSA LRHVVIIAECLANYASFGFSNVKHV

N
 FITDKEHNITLNKTNFTCANDSKASVKE

GLRDVRFVACK DDYAFNQTRMRHVDFEECSDQEVAFEYV SFDGAVLKDVKFSLVKGDYDNFSGARDSNVLFEEANDSYG STRYYCCTWC
SMSDVSMSDASMSDMSMSDAS $\square$ SDASMSDASMSD $\mathbb{C}$ SMSDA SQTPADH पGAS $\square T P A D Q \square G V P \square T P A D S \square G A S \square T A A D N G A$

MCDPLLMQ
EQRYYCCAW
$K \square G H S V Y D D L L I D N S D L T L C N F E Y M V A K H S T L S S C N L R E A$


UniRef90-I4IPG0
UniRef90-K9RMH1
UniRef90_F2RG07
UniRef90-F4L4J3
UniRef90_D3VHDO
UniRef90-H0FG07 UniRef90-W0F1T5 UniRef90_UPI0004198E5D UniRef90-J9ICPO
UniRef90-D5RIQ2 UniRef90-R1GQ54 UniRef90-W4DND2 UniRef90-G9ZXP6 UniRef90-Q8YZM4
UniRef90-K7GGH4 UniRef90_K7GGH4
UniRef90_UPI00038016A5 UniRef90_L8N292 UniRef90-NOALQ1 UniRef90-17JNL4 UniRef90-A7RX60 UniRef90_K9FGU3 UniRef90-R1GU61
UniRef90 C416G7
UniRef90-DOKEW4 UniRef90_UPIO0035E3735 UniRef90_UPI00034A6D72 UniRef90-V5BBI7 UniRef90-W4E8Q6 UniRef90_A8GXG6
UniRef90 S6TXG2 UniRef90-UPI0003732451 UniRef90-W0BGI7 UniRef90-A0ZH63 UniRef90-UPIO0037017AF UniRef90-ㄴAAZD4 UniRef90_UPI000470B176 UniRef90-B3EQH1 UniRef90_A1KP54 UniRef90-D9SRD8
UniRef90 A0ZCK9 UniRef90-11G2A5 UniRef90-A3IQW0 UniRef90_N9DFE6 UniRef90-Q3J983 UniRef90_UPIO004148A40 UniRef90-K9YQ92 UniRef90-Q7U3U4 UniRef90-V5WQR1
UniRef90-R6Y9N4 UniRef90_R6Y9N4
UniRef90_UPIO0046EA43F UniRef90-U3HIN1 UniRef90_K1ZAQ1 UniRef90-V4T6M9
UniRef90 D2RYS6 UniRef90-19KPS3 UniRef90-UPIO0046F655D UniRef90-M9L7Y3 UniRef90-K9YW26 UniRef90_B2TRR1 UniRef90_B6FKT6 UniRef90-Q9K676 UniRef90-D9QJF7 UniRef90_G6CEU3
UniRef90_UPIO003468AFA UniRef90_CON6V4 UniRef90_K9RFQ7 UniRef90_D7TN08
UniRef90_E6RGB3 UniRef90-M5PCA7 UniRef90_K9VY73 UniRef9-C6XKM6 UniRef90-K9QAR3 UniRef90_C3AKB1 UniRef90-V8FW82 UniRef90_UPIO002556044 UniRef90_M2XDI7 UniRef90_Q38YU5 UniRef90-K7VZR4 UniRef90-R9K8B2 UniRef90-W1SMB6 UniRet90_UPIO00383DFB9 UniRef90 W1SWJ2 UniRef90-Q7VCD0
UniRef90 U5BUZZ2 UniRef90-UPIO003F62D93 UniRef90_K8GQV3


LIGTY $\square$ K DANFQGANLRWANFTNADLENVDFRGADLRGA TLAGSDFSSASLVQTMFFDADLERATLVGARGRHTRFAGA SLSACKVLNCKFCESYDTAFALENADELSYSDFSKAPLKNA
 $Y Q L T A V G K G A N L S R A N F K Q A N L T G T D F T G C N L E G A N F T A A$
$I M T V M G S A S S F Y K A N M P Y C D F S Y A D F S L A N F T K S N L L Y T$ LFAHADCAEATLAGGHFVYCDFSHATLSHADCTGADFSHA TFYRTVFFNCDQRGKNYTQQRFDCCQFTDCALDEAQFNGA TLT GANLFDATLAGANLAGANLTGANLT GVDLDSA
NLKDASFDAAKLNESNLQDADLSRANLTGTQLDCKDLRGA NLTDSNLTEASFINADVNNTTLDNSNLRFADFTGSTLNNV
 HLDDTVAAYADFSGADLSMANLENADIGGSSFVNSNLRDV RLT RCVLLGGNADGLRLNGARLDQVALQDVDLAPVDLAGLD
 AFFGLKKLQGMKMDECULHEVDFRECDGAGAE VVN GQDFAQVMQTHL CLKEAPFIVATVSKVSFNDADLSGSCFSYSTDSAVSFMNA VLRRAHLHHDNLSRAFMEDVLLQESVVYRCNLEGADLRKA NLKNTQFTDCNLQEADFTGTDLTGATFQNCDLLRTTEDHA VLGGNDLRGLNLTGCRLRETSLVDTDLRKCVLRGADLSGA NLK G S ELGGSCKFSKVYY E DCYLVEANLSQTKLKGIDDLTSAC LH HAK NGANLCQANLA GANLTGSDLRYATLKKVKLNDT $N$ LLAGANLKGUNLKQADLTNATFRGANLTNANLTKVQASNT LGGANLGGANLGGANLGGANLGGANLWGANLGGANLGGA
 FQPVSFAGADLTGAKFQGA D LK GF QFA A A D L S GSFFDGCK
 LITKA

KANDSNANLEGALATG
NTSFRGSNTTGA AHGASFRNANLHDAVFTFADLRGADFRGARLYRA LSRAA LLVANLAGARLSGADLRGARLGGAKDTRVRLDDA EFSECDUDQATLAGCRLKEDDLSDCSFTGVHVDDEDLAGC D LF L R Y PGLSALRFA GSDLA GADFSGASLHGADFSAA TFKSAEFVGSNGKKSRKRAKLSRAGLKDVD TGADFTNA
 SLQEADFYQSVLKHTE DQDCQMHGANFAQTDLSDMDLRTC NLTNASFVGAYLEGASFSRATLTGANFSGARLARATLTQA
 NLI

LTNEANLTNAVLARTVLTRSDLGGA N LA QSNFSDTDFRDSLFHQTNVRKANFVGATQFNDDITSN HFQHCS $\square Q N A D F Y E \square Q L K D \square Y$ FTADLNESNFSGAELNGL SNATLDTAKFTKANLTNAVLEGAFAFNAKFDGA KNANLKDATLVGGWFGGADFTGANLDGALLSGA
 CAWGGEQSRATI PGGCQR IF EKCYCEDWDLSRTFSSKDLFRSCHVIRSGFVMGRDEEDG KFDNVILDRTVFSGSVFNDMHFEKQMLSFVWFDECVLNKI


SMSDASMSDVSMSDTSMSDASMSDVSMSDASMSDASMSDA TFANSKLEKVKFDETLLKSSDFFECKLKNVEFDHCNLDGA SLAPADHLRASLTPVDTLGASLTPADSLGASLTPADHLGA SASFDRANFSGANLNSASFIGGSSKKADLKDA


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R F Q D C S L Q N A NF Y GA
$K L D A A D L R G S R V D G A$
TLT G A CVVEN WNI D
DFTNATLT GAVI QDW
D F S GAR L K DVDL R G


DLHTA
$N$ L K A DFREA
TLT T T N LD R A NI S

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


ALND D S FRGATLK



K F N A A LLK DVN
T LVGANLAEAAFD
NF S E SFIl E N S S L R
YF T G A L S T G V Y K T G A
$N L K D C K F T$
$K$
$K$
$K$
$K F H R T K D E H T D F S G A$
$N L H G L A D H A A R W D G A$ QLSQCNFKGASLKAA

T LT G T
$N F S N S N L C G A Q L P$
$D L S$ D CEFTGGVDLQ D
T L Q N I S I VK C D L Q

$D A D A S V L I G A N L A G$
D L Q Q A
QAVVGTNFTNAKMTGA
LF HNTDLR GANFT D
VID Q VD F S GTN
QVAYSAFGAVDWS
ILEK S DFRTA
RTTGARLDDADLRGA $\mathrm{D} \square \mathrm{S}$
$\square F N D V K V E N A D F D$
NQS GVP FP GTNQS G

$\square$ F N D T D $\square$ S E CN F T T A

NF IGAADEGACFKGA
$D L R G A D F R G A T$
$D F$ S D S T I E G $\square \mathrm{MVSD}$
VF D GADLCGADLR


$\mathrm{N} V \mathrm{~V} D \mathrm{~T}$ LF E G A DLLTNA
$\mathrm{V} L \mathrm{D} N$
$K F K N V I F V G T D L S T A$
D $\square E G V$ K V N M A
SFQQL TVSF DK LQQ G
QLNGA
QFEKATFTLELLRGA
DF T S A Q MTGACVE

VI E G A D F S D A V ID
DV SNAKFE
DVSSCSF
II D GADFTDV
$\begin{array}{lllllll}Y & L & K & A & R & L & T \\ R & A & Q L \\ R & Y & D & A & D & T & G A A D \\ D & T & D & A\end{array}$
$D \square N \mathrm{~N}$ C D $\square \mathrm{T}$ G $\square \mathrm{K} \square \mathrm{NG}$
D L VG C
$D F K D C N L A Y A K F S G A$
DID GADFSEVILRR
LL R G A T V S S A
1 I D A S F L R G V I I
S $\square$ S D A S M S D A S M S D A
NFD H T S L K G $\square \mathrm{D} \square \mathrm{S}$
$S L T P A D S L G A S L T P A$
QLA GAELRGASLE
NI Q G S DFTNNIL R
$\square \mathrm{I}$ N N T I L K EVVFT T A

10 SGQCDFDGQQMQGVRYQRADMAGADFDGV
$R \square F K K R R F H D R E L K G Q S F D Q V H F Q D V D F N S V R F D Q V$
 LE GLDFS GLNLKRSQFSESEVSNC
 FEGCAFENVLFSENTFTRLEVTDC $N Y E K R N$ T TGGLVDLTGQ FSGTNLHSVNYSNRNLSDTNLSGR RDCDFSYSNIANTDFTGVSAADC LAA GANLAANMDL R WTELSEANLVRA SGCSNLTS IDDLSGVDLSGAEFAGCELTSV RAGRSGAVDLSFCDLRRRQLVDCDFTGARLDYA
 DFSGQCLDMFDFYGANLDHT WWKGS $D \square S G A D L G G A Y L R D A Y L S G A D L S G A$

FENELIS GCKDKNAKDCDP

 DLD K CD Y S N IDDL DA K


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KRPRNRVQPANFQPANFQPANFQPANFQPANFQPANFQPA RFGHVLMDSCVANYASFSFSKMKQVKFQQTAFNKADFFEC LLCNLACNDTALLQGCYVGDCLLDDCGLIDRCEVNGAEDERS


LIF KECYMPFSNFSDSKDKSVGFEKSDLSNGD\VESNLQDT HAPSSTWQDVVVRDCRLGAVPWYGATLTRVEVHGGKLDYV $\square Y$ S DTNDHCVIYSDTNLHFVIYSDTNLHCVIYSDTNLHFV SMSKFRMTNG
SPR DKAKSPNYRTGEYTGAVVENVDFTNVKRMGEEDRYYC
SS $\square$ GG $\square$ FAGCEA $L$ K D $\square$ NMS DMNLSSVSSMSSLFAGMT
S W $\square R$ VQFKDCK $V G \square D D N E A A L N N V T F D H C Q \square D \square A M L C D M$ QFVNCQFDHVLFNDNQMSETY ISFCKQKALEUKDCSLTSL NLTSTAWP GAMLDAS TYTATHMQ GGCQFHELDERWWSFTDEQDGRMDSSADAWWQK TANSVMTEG DFQASGFSNSKFENCTFVKCNFREASLKDCTFANCTFSQC RARSVIFT

GCRFGYLNLRGAKWRDVVFRDC
 N

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                                    c c c c c c c c c c c c c c c c c c c c c
                    COCCCCOCCCCCOCCCO
```




[^1] | 0 | 3 | 3 | 1 | 3 | 4 | 4 | 4 | 2 | 1 | 0 | 3 | 4 | 3 | 2 | 1 | 4 | 6 | 6 | 4 | 1 | 4 | 5 | 6 | 4 | 1 | 4 | 5 | 6 | 4 | 1 | 4 | 5 | 6 | 4 | 1 | 4 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

|  | 170 |
| :---: | :---: |
| UniRef90_UPI00036F3929 |  |
| UniRef90_F4XWD7 | NFQPANFQPANFQPA |
| UniRef90_UPI000403D6EA | K LS G C T V S |
| UniRef90_L7ZMS3 |  |
| UniRef90_F5XJW4 | T T T P E Q LY P LS G A |
| UniRef90_UPI00037D0D8D | $\mathrm{K} \\| \mathrm{S}$ |
| UniRef90_K9ZGG3 | R F Y D A D $\square$ T G A D F T D A |
| UniRef90_B2J260 | DFTDA |
| UniRef90_R3TWW3 | $\square \mathrm{N}$ Q |
| UniRef90_A0A021VNS3 | DVT R A T L R D VDLLR G |
| UniRef90_D5A2R2 | DFRGA II T GADFT D |
| UniRef90-W4ZHB3 | 1 Y S D T |
| UniRef90_R7KQZ8 | A $\square$ N S C Q V S G VT $\square \mathrm{DG}$ |
| UniRef90_B1XIT4 |  |
| UniRef90-UPI00041D59A1 | E NMSAMFAGCT |
| UniRef90-I8QYT3 | S LT DLELA G CVA S G G |
| UniRef90-19KZA7 | ALKNIDLS T CKFE |
| UniRef90_UPI0002E41E58 |  |
| UniRef90_F0Q2R8 | S $\square$ N G A $\square$ I C |
| UniRef90_UPI000469E7CB |  |
| UniRef90_K9Z3S8 | R F Y D T N I E G A F T G A |
| UniRef90_UPI000287BA08 | TFENCNLEN |
| UniRef90_W4NA11 | K LQEA GLR G T T M |
| UniRef90_E9AIX8 |  |
| UniRef90_UPI0003787AF8 | E F K N CNF D N A I I T D |
| UniRef90_K8EBJ1 | NMKGANFEGALLSS |
| lupas_21 |  |
| lupas_14 |  |
| lupas_28 |  |
| jnet |  |
| conf | 146640224315789 |
| sol25 | $\begin{array}{lllll}B & B & B & B & B\end{array}$ |
| sol5 | B B B B |

mm
jpssm


[^0]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    sol0
    jhmm
    jpssm

[^1]:    lupas_21
    lupas_14
    lupas_28
    jnet conf sol25 sol5 sol0 jhmm
    jpssm

