QUERY

## UniRef90_UPI00035FABEC

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1
10
20 MS TFRLALIQLQVSS DKS DNLTRACSLVREAAKQGANTVS MSKVTVGI CQLDVLEDKQANIEKAVKMI DRAADAGAELVV $M Q R Y K V A V C Q M D I$ H Q E K E K NLVVRAREMM A RAA K Q GA R L V V M S $M$
$M$ K MKTALCLQMSVISENKERNI A HA SEFRLALVQLLVSPVKADNLSKARGMVRDAAQQGAKVVA MKNFQVALCQMKVVEDKSENIAHARSMISEAASK ADLVI

SPFKIAALVQLNVGFNKTANLAAHAREKILEAACKNGAQVIV SKFKVAGCQLAVGDKKPVNI QRAKAAVEEAARNGAQVVS
 RPFRI GLVQLAASTANKNENLKNACAQISEAVNNGSQMVV MRI A V CQLNSRDDREANLTVARAGLENAADRGADDAV MS S LIKVALVQMKMDADPKKNLSKADEKIKDAKKKGAQIVC MQKLKVALVQQALRPDREKMVAATSAQIREAAAQGAKLVL MRVAVCQLNSRDDRKANLVAAEALI DRAADAGADLVL


 MSNFKLACL QLSVTADKTVNLDKTKSK LDESRNGAKVI V FRIALLQLKVGPNKSQNVANALTRIRSAKDDGARVVA MTTLRLALVQLLVNSNKRSNIEKAVSFIERAKKQSADVVI MKIAAVQQANTADREANLARSLKAIGEAATAGARLVV $M K S Y L A A A I Q M T T V P D D Q K N L A Q A E E L I D D A D R Q G A E L V G$ RTLPVA LVQERNHGDADANLSVIEQRVAEAARAGAKLVL MAP LIRVALVQQRCGPDPDDNLHRTLTAI AEAAGRGAGLVL
 KVKVALVQLASSASKAANLARAGQFIERAMTEQPDLVV $M K I S L I Q F P V T G D R P A N F A Q V R S H V H T A A A A G S D L A V$ MTSFLAAACQLTSTADKQQNFETCAELVREAARLGACMAF A NFA A E E Q DRA ARRGADLVGG MSRFKAALIQLNSRADLDFNLQKCEKLAEEAVSGGAKLLG MKIALLCQTTVHKDWHKNLRNAERVIADAVKTKADMVV
K NDVI GLVQMACTDDVEANLQKA DDGIRQAARQGAQDVC
TPMKI ALLI QLDRVDNSKQNNLDRACAFIA QSKQGGADMAI MNTVVVALVQMSCVENPQENLAKAEKCIREAAAGGANVVC MRAYRAAAVQMTSVPDLAKNLAQAEELI DLATRQGAELVS

RNFRLAMI QLAAAADKAANLAHAKEMIAQAVVGGPDVVV NYR I A LI Q M S M G A D P E A N L E R A L G R V R D A A R L G A N V V C MKISLLI QLD DAGNPQANYASAERQI RTAAADGAEVVI MSKVKFAALQLTKSWDLEDNLEKAKKAIREAAQNGANVIL $M K \square A L I Q L N D A G R P E K N K L R A E K M L R E A L K A G P D V V V$ MTNVRAALVQTNWTGDKESMIVAHEEYTRAAAAQGAQVI C $V$ K VGLV QMA C G Q N P D D N L REA VQ GIRR RAA E K GA QIV C $K P F R L S L V Q L G G T G D K A A N L V H A K E M V L K A A Q Q K T D L I V$

 MANFRLALI QLHVSAVKTDNLNRACRLVRTAAGQGAKI MSFMRTGGI QQSNTGNIQDNIERLEKSI RQLAKK GA QIVV $M K V A L I Q Q A N T A D V C S N R E R L A A K I R E A A R R G A E L V V$
 $M K I A A V Q L T S K D D W Q \square N F A E \square A A Q V K N A A L K G A K D V V$ MAIVRAALTQTT WT GDEESMVRKHEDFVRKAAAEGAQVI C

 MS QLKVGLI QHSNTDDNDANFAKTIQGIREAAAQGAKLVC
 S QVKL A LI

$\qquad$ K Y K $\square A$ V QLA TGADKS $K N L R V G Q V Q Q A C S$ M AT

RTLK GAVGLQAAF GSNK E ENFSTCKS LI EKSAALGAKVI F MLAAVI QMNSSADRQANLAQAADLLRRAAGQGAGLGV
T T LTTVAVVVQQPA WP DKA Q S L S A S E E GI R S A A K Q G A QL V L $\checkmark$ AVA Q C CASNNLI I K NL K T CVVELLEKASRD GAKMVF

 MQRFTVGLI QMAPEKTKDAS IAKAAGMVERAARDGAR LVC K P L K L
M K K
MK S $K$ I A $\begin{array}{lll} & \text { C } \\ \text { I }\end{array}$


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| UniRee90-F6CLX3 | - |
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| UniRef90-A9NNV1 | EDWNGPYSNASFPVYAEDTDSPSTSML |
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| UniRet90-B5EG15 |  |
| UniRef90-F4QB | CPYSTAVFKEYSETVD |
| Uni | S |
| UniRef90-V7 | NCPYDNAYFWDYAEEKFGETWQRL |
| UniRef90-K4E0 | MCPYGTKY |
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| UniRef90 U9U8S9 | NSPYGTQYFAEYAENISQGESAKLSEAA |
| UniRef90 Q17052 | CFNSPYGTQH |
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| UniRef90-AOAO22T537 | LPECFNSPYGDQHFSKYAED:PSGETSALSNAAKNFKINV |
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| UPIOO04 | P |
| UniRef90 QOA8P4 | LQELHRGRYFCQQCFDQAEPVPGPTTDALGTAAREHGVVV |
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| UniRef90 M1ZDC4 | LYRSQYFCQDRFRLAEPIPGPSTKALGPLAKELS V V |
| UniRef90 X8JDX5 Uni | HMHFPTYAET:KSESVKVL |
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| Uni | LPENFAFMGPEAEKARLAPEIAERAEEFLAKMAQRYQVFI |
|  | LPECFNSPYGCDFFPKYAESLPWCKLSALAK ATGCYIVG |
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| UniRef90- BOAZIO | FL |
| UniRer90-W4RW63 |  |
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| UniRef90_UPI0003B5C285 | LQELHTGLYYFCQHEFDLAESDPGPSTEWLGGLAKELGGVVL |
| UniRef90-V4 |  |
| UniRef90 ${ }^{\text {O OASS3 }}$ |  |
| UniRef90-E1QH72 | A GP |
| UniRef90 L9UB56 | D G |
| iRef90- 994747 |  |
| iRef90-X4ZF9 |  |
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| UniF |  |
| iRef90-F3Z0M0 | LPELLFATAYFCQTEDHANESLPGPTTEAMAEVARKAKVTL |
| ef90-B6HP43 | - |
| UniRef90_W4Y188 | LP EACDYUQPAESVEYAEDINGPTMSAKKQLARDAKVW |
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90
100
110
120
GKLYNTCSV

IGGGSTPEED
GPD GS L LVKHRKDHLFD DDV


## ,


$\checkmark$ G G S MP E
$\checkmark$
$\stackrel{V}{V}$



## VTSLI EK R AP GLLYHNTAVVIDEKDGSI A GKYRKMHIPD D

I A GSFHEPDPEHTWNTMLVFDRAGALAASYRKVHLYDVED




## V







$\stackrel{\text { A }}{ }$


VGGSVASKQDNGTTNSMYIFNRSGELAGEYSKLHL
PVS YFEKAGNTFFNSLVMIDDADGTVLENYRKSHIPDGP

VPLFEKRSAGLYHNSADVFDTDGSVAGHYRKMHIPD

VGSIFERRMNGVYHNTAVVFERDGTHAGLYRKMHEPDDPG

VLSLFEKRAPGLYHNTAVVLERDGTI AGKYRKMHI PDDPA
SLGGFQEKDDEHLFNTHVVVDDGGNI RDTYRKDHLEDVDT

LLPVYEEEQPGVYYNTAAVVDADGSYLGKYRKNHEPHVEK
PTSFFPELDGPHHYNSLAMIGPDGEIQGVYRKSH|PDGPG
VSSLFEKRATGLYHNTAVVIESDGSIAGKYRKMHIPD
VASLFEKRTDGIYHNTAVVIDADGKYLGKYRKMHIPDDPH

VGGGFPIPVDGKVSNTALMINANGEELARYEKVHLEDVNL

VGGSIPEYWEKKYYNTSLTFDPSGNLDGKHRKVHLIFDIDD
VGSLEERRAPGLYHNTAVVMERDGTLAGKYRKMHIPDD
VAGSVAKKTAAGVTNTMIVADRSGQIVSEYSKLHLF
SAGFHIKKDENRVYNSHVMLNSEGVITAVYNKAHLIFDDDV
VVGTEAERTPGKAHNTCPVLDPTGRLVGVYRKDHL FDDAA
VGSLFERRAPGLYHNTAVVYDRAKGRVGQYRKMHP PDDPG
SMGVHELSHDPRIYNTHLLIDSQGSTIETYRKLHLF
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VAGSFEKRAHGLYHNTTAVLDADGAYLGKYRKMHYPDDPG
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UniRef90_G6CU90 UniRef90_A0A024UPC5 UniRef90_UPI000344623D UniRef90-W4Q553 UniRef90-S9XE56 UniRef90_UPI000369A653 UniRef90_UPIO0039C0BF6 UniRef90-B5EG15 UniRef90-F4F638 UniRef90-F4QBM3 UniRef90_C5DNJ4 UniRef90_V716B4 UniRef90-K4E0Q3
UniRef90 U5EWS5 UniRef90-A6EHJ8 UniRef90_U9U8S9 UniRef90-Q17Q52 UniRef90_H3C368 UniRef90-A0A022T537 UniRef90-B8GR26 UniRef90-K9X8W7 UniRef90-UPI00047B065F UniRef90_Q0A8P4 UniRef90_UPI00037B66FA UniRef90-B812S9 UniRef90_Q75CV6 UniRef90_GOVNF1 UniRef90_UPI0003F18AED UniRef90_UPI0002002A79 UniRef90_U1HJI7 UniRef90-S3UPM0 UniRef90-D4J6D0 UniRef90-D1Y5M0

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UniRef90-N1UXH2 UniRef90-K9TAN6 UniRef90_UPIO003B46272 UniRef90_S6BM74 UniRef90_L8D6W1 UniRef90_C1DWQ9
UniRef90-Q2JM88 UniRef90-N1J9Y3 UniRef90-K9YFR9 UniRef90-BOAZIO UniRef90-W4RW63 UniRef90-M2ZVQ1 UniRef90_UPIO003B5C285 UniRef90-S5Z2Q8 UniRef90-V4C3H4 UniRef90_Q0ASS3
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UniRef90_G2ISV4

130
140
150
160
T 140
PGKIT FQESKTLSPGDSFSTFDTPYCKVGLGICYDMRFAE
PGGI SVKESATLGYGNQVTVVPASFGSFGVAICYD\RFPE

E

## A

## P

## P

$P$
$P$
P
$P$ GK IT Y F N P G DT

P
fkVwetryakTgVgTcwdowype


## $P$ $P$ <br> $P$ $P$ $E$ $E$ $P$ $F$ $P$ $P$ $P$ $H$ $P$

## K

KDGVSFE
PGKITFTESRTLAA
E EKVFTPGDH
PGQGPMQESNSTMPGCS
PDGNTYRES
PGKDTFKEAVVPGDQLPPVVEVPGRVGLSICYDVRFPE

E G GQYY S E S SVI T A G DEVCVVVEEFGPI GVAICYDVVRPE
YYEKFYFTPGDTGYR VFDTKFARIGVLI CWDQWYP E
$P$ GGQRFRESDTMLTMGDKVTTFETEFGGMGLLVCYDFRFPE
F

| $P$ | $D G N T$ | $Y$ |
| :--- | :--- | :--- |
| $P$ | $G$ | $E$ |

MDE
Y S EKYY F
FWEKFYFR
DPGFYEKF GNLGGW NGF
$P$ G G IT T F K E S S E T L L S G G T K L T S S F D T E F G K $\quad$ G

P G R IIR F R E S DVLLS P GN K ITVVID P E Y G K I I A V A I I C Y D I R F P E






YEEKFYFRPGNTGFKWNGPRTQGHQTKLGVGVCWDQWYPE
PDDEHYSESDADEPGNEVVVVDSPDGRLGLAVCYDQRFPE


PD GNTY QE S QTVVK A GVVSLPCI SPEYGKI GL SVVCYDVRFPE
$P D G N T Y K E S S T V Q A G D T L P Q I F P E L G K I G L S V C Y D V R F P E$
MDE HL Y L A A GKEK G L F T LDD GHKFA GLI C Y DII R F P E
PGK G T F RES DVLS P GNKVT I I H P E Y G K I AVAI C Y D I R F P E
DPGYYEKFYFTPGDDGFEPI QTSVGKLGLEVCWDQWYPE

GPGYMEKFYF RPGNTGFKVWDTRFGRIGVGICWDQWFPE


Y EK K Y D E H L Y L Q P GA S K G L F D L D G $\quad$ S S A GV I C Y D I R F P E

DPGFYEKFYFTPGDLGFASFDTPVGPVGTLICWDQWFPE



$P$ TGESWRESNSYVA GEQPVATQTPWGR|LGLT\|CYD\|RFPA
QUERY
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UniRef90_G6CU90
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UniRef90_S9XE56

LA Q




 MAMIAARKGCLLAMIYPGAFNMTTGPMHWELLQRARAVDNQ LA HLMAQQGCSMLLYPGAFNMTTGPKHWELLGRARANDCQ


 A A RLM A L A G A D L L I Y P T A I G WD PR D D A WV T I QR S H A V A N G

 EWQKMESMGADMCVVPAAFNMTTGPAHWELTFRARALDNE LA WKYA AAGTSF LVYPGAFNMFTGPDHWELSARARAMDNQQ LARDYRNAGCDMLI YPGAFNMKTGPLHWELLDARGRANDNQ A A R L T S L MM GAD F L V Y P T A $\square$ G WA T T Q DE GT NTEAQYNA WQ T $\square$
 WA HS S SRKGAQLLLVYPGAFNMTTGPAHWELLQRARAVDNQ $M A R L Y R N K G C S L L V Y P A A F N M T T G P L H W Q L L Q R S R A N D N Q$
 A A R L M A LA GAELLLLYP TA IG WDPGDD QWVLSSHRGHAVVANG A A R L M A L A G A E V L L Y P T A L G WT P D D R P WML A QR G H A V A N G AS RUT ALMMGAEVVMFYPTADGWATQY DA WQTIQRSHAVAN G LY S QMSEAGAKI IITPASFNMTTGPDVWE LLVRARALDN Q $L$ A MVCARRGAY AMVYPSAFNTTTGPLHWHLL ARARSVVNQ

 LA T I A A A R K G A F L L VYP G A A N T T TG GPMHWSLQQGRARAMDN Q






 WDRKHVLLGA KVL F DPAEWP E P R LDDHWRTVLTCRAAIEN Q
 MAMIAA RKGCVAMIYPGAFNDTTGP LHWE LLQRARAVDNQ LY R ALLRARGANVVVVPAAFNLHTGGRDHWETGLRARAAIENGQ
 LA QI YTQKAVDNQVV
A A R L M A L R G A E LL LI YP TA A G WT R QK DA W I ISQR G HAVAN G A A R L M A M Q GA Di LI YP TA I GTERQRQA WQIVQRGHAVANG $\square$ Y QL RF QHEAQI LLVPSAFTKVTGQAHWEILLRARAI ETQ


 $\square$

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## QUERY

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C Y V I A A A Q I G G D G P G L P C L L G R S M ll I D P W G T A L A CMMP D R T G
LPVIAPNRVGTEPD GURFWGNSFIDGPQGEFLARADDHET



CYV A VNRVGGHETGGMTFWGSGFVAGPQGELLAESTS E EA C Y VV A A A Q VG Q H N A K R S S Y G H S V I I D P WGA V V A QA S D T N E FFVMGVNQCGQHSSSRETFGHTVCYSPWGDNLGQLEHEPG $Y F V V V P N R V G A E S N E F N F Y G T S Y V A D P Q G N Y V G E L G T E E E$
 A WVI A GA Q G GF HVVGGRETWGHS MVVVDP WGSVLAACQERGNG $\square$ DVI SVNRVGHEADGILFWGNSFVTGPQGEFLABSETEED
 CYVIAPA QVGTHYERRQCHGHAMIVDPWGTILADA GGEP G CFVALCSPARSLE GYPAYGHSLVVDPMAQVIABAGEGEE A YVIAPAQTGNHYARRHSHGHAMIVDPWGIVLSDAGEDEG CYVI A PA ATGNHYGMRYSHGHAAMVVDPWGTVLDNA GVVM G CFI I A C N R A GS DPN N K F A GHS MV I G P WG DVIA E G G E G E E L P V L V VA N R I G Y Y P P D GA K F WG T S M FV A G P N A S I Q S E L D E N E D
 C Y V V A A A Q IGK HNNKRTS Y GHSSMVVDD WG TV I A Q CK D G T D H AVSNVIPVIDGDEGGQVFYGSSEVVSHTGEVVSELGRSEG CFVLAAAAQWGPHGQGRESFGQAMI TNPWGEVVAQCPPGPG QPVLVANRVGFEGDGDQFWGGSFVCGPQGELLAHAGEETE CYVI AS A QI GRHNEKRISYGHAMIVVDPWGTVLARCPE E P S C Y V V A CN RAGSDPAN VFAGHSMII DPWGEILCEA GE GE E
 C Y V A A A A RAGGK H N E K R E S Y G D S I I D D P W G TV I A R L P P D R T G
 CYVI A A A Q T GKHNNDKRASY GHAMIV VDP WGAVI A Q C S E GE G CFI I A CNRAGRDPNNL FAGHSMIIDPWGKVLAE GTDKE E



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NFSAAEEQUID
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40 RVVCQLT SKNDLEANFEVAKGMMKRAKERKAKMVF MS 1 RVAAAQMT
RVSTMNTGDK MRKMRVSVQMSAENKERNLDVAEEMDRKAVGEKPDLVV MRK KIGVLQMHNTASAEDNRMRLLAEGITDLAKRGAQLVV SLLVALVQQSNSDHVEHNLQKS1EGUQEAVSKGAQLVV MNILRVGLIQQRCTDNRQANIDTSURGLREAAAQGAHLAV RSFNLAFIQLK DGVDKAENLKHACDMIRTAASKKPDLIV TVHLAVVQMHMTDQLEDNVERAAEHVREAARRGAQVIL MSSMRVACI QMNSGADREANLEQASLLLQQAASAGAELAV MQNTRAAVI QTVSTTDPEANIRTMRRLVRQAADAGADWAV
 $R$ TLKVGMVQQSCGKDI AANIAKGEANIRDCAAKGAQLVV RVAALQMNSRGEVAPNLARADDLLADAARRGAQLAV
ST $\square A V A A \square Q A A \square T T D T A S N V K H \square A G F V R E A A A R G A Q V V L$ MKIS LI QMK MTEDMEHNFKKAEELIREAAKENPDTI A MSKFTAAA! QMRSGVDPKKNAETFEALVREAAGKGATYVQ MRQVKVAAIQMQCSKNPEENRKKAEKMIRKAAGDGANLIL VRIAVAQMTAGGDQAANLNTCARLAKEAVEAGCRMLF SHWRIAMI QCDVAGEPEVNRTKIEEAMERAAAEKPDVIL TKYKMGAVQMATGPNVSANLFEVERLIKEAADQGAQLVV MSVFRAAAVQMRSGESPERNAADMERLVREAAAQGADYIQ MKTGII QQHNTADRNDNMRRLDDKIKALASEGAELVV
 RVALVQMVSSAKITANLQLTEQYLIQAREQEASLVV MK IACI QLNVAADPDKNFHNVQMLIEKVVNEGAELVV VRAALVQAAWSGDTESMVAKHEEYVREAARQGAGLIGG TPFQVAALQMVSTPDVTRNLAEARRLIAEAADEGAQLVL KDVTLACVQLLVGPDKAQNLSRARDKVLEASRAGARIVV RKFKIA ALQTKASKVKEQTLSYVQEALEEAGKNGAKVSI RVAAI QMVSGHDIDANLREAEQLLARAAEQGASVAV MSIAVIQMVSQDDVLANLSAARRLLEQAAESGARLAV MGVIKLGICMPVTASKEQNLSRARQMAAEAARAGARVVV RTLKVGLVVQNPAGSDVEANKAQLAGLIADAASTGAKVIL MKKFVAAAVQMVSGCGLEANLARADQLLAEAAARGASLAV REVMVSALQFACTDDVATNVATAERLVRAAHAKGANLIL MKVSLVQMNSVRDKEKNLRDADRLARQAVEQGSRLVV MSK TVAVLQFACSWDDPRNLDEAERRVREAAAAGARLIL MAEVTVAATQMACTDNESRNIDRVCELVREAAAMGAHIVL। MKVS AQDDTAGNVSKNYERTANALQKALANHPDVIV $M K V G L L Q Q R V T E D V R A N M R H D A E G I E R L A D D G A Q L V V$ MQN RAAAVQMLSSTDPDANRDTMKRLVRQAAEQGADWVL AAAI QMASGTNLTANLQETRRLITAAAQSGARLVV FRLALI QLHVSTVKSDNLNKACGLIRKATAQGAKVVA MTLHVALL QQACSGSREDNLNASERAI RRAAAEGARLIL MK KVALQLIALDADIUSN DAVSALVEEAASRGAQLVL MAELRVGUVQQPCTPEREINLKMSEEGIVRAAAGGAKLVL

M
MSSVRVGLI QMTSGADPEDNLAYIEQQLGAMQGKGVDWVI MREVTVAATQMPCGWDVSENLKTAERLVREAAEKGAQVIC MRAALIQMTSTDDPAENLETVKTMMAEAVRGGAGFVL VRAALVQRKWTGSKESMVASAVEATASAASQGAQVVCC KTVRVAAAQMTSVNDLMTNFATCSRLVQEAALAGAKLIC MNEMNI ACVQMDIDGGADENNKTVVRYMEQDAKEADVVV MKVAALQMVSATDLQANLAQALELLREAHTQGAELAA $R V I K L A L A Q D R D H G D A E T N R G A I L R H I E E A A Q A G C G L L L$
$T H K A A A I Q M C S G V D P A R N A E T M A R L V R A A G H G A I Y V Q$
$T$ AAA QMVSSPSVAENLATAAMLLAQAADAGAQLAV MSVFRAAAI QMRSGVDPQRNAADLAVYVAEAAGKGAVYVQ MVNLKLALLQMEVLENKAGNVEKACNLLKQAALQAADIMV MKTVTTAALQRSWSENTEENVQRAEDWI RTAAAKGAHLIL MTTFLVAAIQMDTTSNQDQNLSVVADFI GEAAKKGAKLI A AAVGQLCATACDKSNLIQCQTLVRKAALAGAKVLF RSFTAAAVQLRPQQSLQQNLAAAGALIEQAAEAGSRLVV MKVAVVQMESSTDREKNIEASYRLLEKA KNSDLVV MSEFRVACLQTCTGTTPEENLTTMTSRINEAAREGADFIL GAQMV
MTTLRAAVVQVNAGPETGPNLEAAGTLVRRARDAGAELIC RTLSVAAI QTSYGMDLVANI KKTEGFI REAAAKGAQVIL
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PDGSSYRESSSTTPGSTMP PVVDVPGR|V|G|V|I|CYD|V|RFPE PGKVRRVESEFSSHGNEIPPVCTPVGNVAMSICYDLRFAE
$P G G A V Y K E S S F T E A G A E L A A V E T P F G V V G L T V C Y D L L R F P E$
FWEK FYFRPGNLGY PDVFETADGKVGMYICYDRHFPE
P G GMSYRESDTISRGEEVVTYRVGETTVGCAICYDDRFPE

$P$
YEEKY Y K E S DT $\ddagger$ A S GDA
DGESYY
LGERYAEA DT AAAGTS VPCSVALGDFRFGLSICYDIR FP E
DPGFYEKFYFTPGD LGFEPVQTSVGRLGVLVCWDQWYPE
K D G P VLRESK SVE P GSEDP P FETPI GRVVGSAI C F D L R F P E
F Y EK F Y F T P GDMGFK P IHTSVGDLGV LVVWDQWYPE
PDEAYRESATFVAGPPTPNVVDTPFGRLGLSVCYDLRFPE

YEEKFYFRPGNTG FKVVPTRYGTIGVGICWDQWFPE
EDQYFEKGS
D NGES WRESSAYEPGTQAVVADLDPAKKLGFGICYDVRFPQ DHYYQEKFYFTP GDTGFRVGQTRFGTVGDGUCWDQWFPE
PNGPVLMESRSTAPGSEAVVVDTPAGRLGLTMCYDRLFPE

D N GE S WRESAA YEPGTEAVII P INDA KLGGFAVCYDLLRFP Q
D P A Y Y EK F YF TP GDMGFHPIDTSVGRLGVLVCWDQWYPE
GPGYHEKYYFNPGDTGFKVWQTRYAK』GVGICWDQWFPE
AT GES WRESSVVYGP GDRVVAVVNTPWGRMGMS I CYDMRFP D








Q GESYC ESNTDRPGATPTKATTPLADDIAFGICYDLRFP
G P GY Q E K F Y F N P G D T G F K V V F K T K F A T DG
PDTEAYTESRVFERGDAVVVVDTPVGRMGLAICYDLRFPE
YQE KEYFSPGDTGFRVWDTAVGRLGVGICWDQWFP

DPAYYEKFYES S GDDGFHP DETVGVRDGVVVWD WYP



P G K $\square$ R F Q E S E T L S S A G D S F S VV F D T P Y C K V G L
YYEKFYFTP
DPGYYEKFYFTPGDLG
YEEKYYFRP
GREHFDEARVNDGGVHFDLKVDVFGTRIGVGICWDQWYPE

 GPGYCEKFYFTPGDTGFQVFSTRFGRIGVGICWDQWFPE TPEETYRESDGYRPGTKA VVAETPFASI GMTICYDVRFPH FWEK F Y F R P GN L G Y



DPGYYEKYYFTPGDDGFTPDDTADGQLGVLVCWDQWFPE


EQRFFKPGS
A G GVR L K E T D S TVP GF GPGYQEKF
D S GIVT S R
KDGPILQE
PTSKTYRE
DNGERHSESVFEKGDARPAIFNGSGDPLGVLICYDLRFPE
PGG円TT F K
PGKIT F RESD
P GGESYRRESATY T A G N K F T T F F D T P P F C K V G G V G I C Y D L L R F A P
GPGYQEKYYFRPGDTRFKVWDTRFGRLGVGICWDORFAY


AEAE LLVPGERIETASIDGVSIGVT TCYDLRFPE

SETETYAESSGYAPGACAVVAQTDVGAI GMTVCYDVRFAY D H Y Y QEKFYFTP GDTGFKVWET RYAK IGG GI CWDQWFP E

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UniRef90 UniRef90＿UPI0003B5E274 UniRef90＿UPI0003B4CCA1 UniRef90＿UPIO0035EC80B
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L｜YRH｜LVGAGAE｜LL｜M｜IPAAFTAFTGKDHWQVLLUQARA｜I｜ENT

 LIFRALRDDKGAEVIVLPAAFT LMTGKDHWEVLARARAI ET Q A A R L M A L E GAELLLI YPTA IG YERQRDAWAIVVQRGHA VANG

 LY RHYADSGCDVVCVVAAFTEQTGHAHWQTVLRARAI ENQ

 A A RLLMA LDNGA DLL LYY P C K E E Q E M Q R Q A WQ L V QR G H A V A N G

 LVVRTLAL Q E DK I L F VVAA QWPM LR DH HWQILN EARA IENQ $\begin{array}{lllllllllllllllllllllll}L & F & R & A & E & A & L & A & G A & N & V & T & A & P & A & A & T & R & T & G & E & A & H\end{array}$

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 L Y Q Y L T QR GA QLL L SVVP S A FTAVVTGAAHWEVLLIRARA I E NG WL R A H A L A G A K V L F I P A Q WP ES R
 LYRRMGDCA L MVVPSAFTYTTGRAHWEMLLRARAVENQ
 QAVMCQK QGA QVLVYPGSFAMGTGPGHWELLLLRARA LDNM LYTAL REAGAELI TAPAAFTAVTGAAHWEVLI RARAA ETQ
 AA RLMALAGAEELLLYPTADGWSPSDDEAEKARQKEAWANG


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CARSSMA L L G A D V L L F P P T A All
WERKLMSSGAKILLFVSAQWPDV RIVKQWEILLRAARAA ANM
AARLMALQGAEILVYPTADGYERQREAWTTVQRGHAVANG

MA EAYGQLGCKLLVYPGAFDMITGASSWEIFQRARAVDNQ

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 A GTCCPE 1


## v

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VA GMF T P A D D G RVVKNTMI A A G L



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पDE DPAYYEKFYFTPGDMGFVPVHT DPGFYEKFYFTPGDMGFEPIETSVGK ADGESWRESNAYRPGEEVVVDDTPVGRLGLTTCYDLRFPA
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DNGESWRESAAYRPGSEARVLSDPFAEMGFAI CYDVRFPT
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EDKYLSAGHEEDH
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GAESYDESRSDEPGSELVCFDGPCGRVGLSVCYDLRFPE
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PNGESWRESATYAAGER
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AETE
SFS SE
YLTPGEEIVVIDET
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SDVRHGQTPNVIDD
KEWFTPGESFPVFSLDGWK GEA CYDRFAE
PDGPS $\mathbb{C R E S S G T V A G H E D G V C E T P L A R L G L T V C Y D L R F P E ~}$
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FTE SATVAPGDEPVVITVDGVGVGLTLCYDVRFPE
VG GYVESRQAISGDSLVTADSPAGRLGVSI C DHYYQEKFYFYPGTGFKWDTRFCKGGCWDWFP SDHYYQEKFYFKPGNTGFKVFKTMYGNVGIGGCWDQWFPE RD
EDQY品KAS S
NDSHHYRES
SFALEDC
 PDGTGYRESATFGRGEDVVTYQADGSTVGCTICYDVRFPA ED MHFKESLFLKNGTTATVVDTEFGKI GIGGLCDVRFP DPSFYEKFYRTGKGEDFPVFETPIGNGGMQVCYEUGFPE ADAHKCYRSDTETPGDRVVTTETPFGRLGLSUCDVRFPH GYGSRERTLLTRGSEVVTCELGGIRFGISTCYDLRFPE A WATAGECWRHY YKESDRVIAADPADPQLLRV NGFTI GMQTCYDLRFPE ADGQVYEESAYFQAGDQPVLAQVDDLNGGMTTCYDLRFPH YYEYRESDRVIPADPCEPQLLEVDGFTVGMQTCYDLRFPE FWEKFYFKPGNLGY
F LESEVVEPGAUTAPATFTVADVTFGKVGVYUT
DPAFYEKFYFTEGDLGFNPIQTSVGK■GVLICWDQWYPE DSGESWRESNAYQPGEALSVTETPAGRLGLTICYDDRFPA SDTKQYRESDAFCPGKQUVVVDTPMGKLGLA CCYDIRFPD
QRESDW
$R G T E S Y D E S R T V G E P G E P M T F D A G G L R F G L M T C Y D L R F P E ~$
ADTRHYHESATTEAGEQUVVVDTELGRUGLSICYDLRFAE
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GEAV
GE

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170
GWRALGLE GAE
180
190

200 | $L$ | $Y$ | $R$ | $T$ | $L$ | $A$ | $Q$ | $A$ | $G$ | $A$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $N$ | $N$ |  |  |  |  |  |  |  |  |
| F | $R$ | $D$ | $L$ |  |  |  |  |  |  |
| $A$ | $R$ | $A$ | $G$ | $A$ | $E$ |  |  |  |  |
| $V$ | $Y$ | $S$ | $A$ | $L$ | $S$ | $R$ | $A$ | $G$ | $A$ |
| $D$ | $D$ |  |  |  |  |  |  |  |  | VF NP S A T S R GLS G Y L WQ|LEQP A A A V A N E

 A V LLVPSAFFKKTGQAHWHTLLKARAI ENQ AVRTLALLA GADLVVVPTANMRPYEF VAQVLVPTRAYENQ SAR SMVLKGAEMLFYPTA 1 GGSEPSDAHWQQVMQGAAAANM LYR R LIDDAGAE LVVLVPSAWPYP R DEHWETLLSRARAMENQ
 GARLLLGLNGAEVVFNPSATVAGLSQYDWK LEQPA HAVANG
 AARLMAMRGAEVLI YPTA DGWAASDPQWQTIQRGHAVANG T T R RLV D A GADVVVVMPA E WVVP PLKED HWTTLLRARAAI ENT LA RAL A E Q DVDLI CVPA A WFKEHKVDHWETLLKARAI ENT
 A A R LMALQGAELLLI YPTADGWESNDDA WRIVQRGHAVANG A A RIM TLLK GAQLLLYPTAI GYRKMREAWDAVQRGHAVANG A A RLMAMRGADIL FYPTAI GWQRQFGA WQTI QRAHAVANS




 NTRRRLALA GAEVVILVPTANMAPYDF VCEVTVRARAYENQ


 L Y R A L A Q A G A Q I L T Vip A A F S P A T G P G H W E P L L R A R A I E T G

 $W I R T Y A L Q G M K V L F V P A Q W P N P R L Q H W R Q L L I A R R A A I E N Q$ WL R TLSLLDSRI I FVVAEW PTVRMPQWRRLLAARAI ENQ

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

 LF QTFRDYGAEVI FAPSTFMKKTGEAHFHLLNRARAVDTQ AAKCLADLQGADFIVYPTADGTEPEFPD GETY LIHWHAAAT G




 VT RLLLA DA GADVVLVPA E WVRPDKEYHWQTLLRARAI ENT


 LYQKSF L H GA QVLLMPSAFAMKTGEAHWETVLRCRADETQ



 L Y L K L R Q K GANVIVVPAAFTLQTGKDHWETLLLRARAI ETQ



 A GRVLALDRGCDDLACQNYPDPMGADPYHWHLGRVRAGENN TS R AL VDA GA DVI A L P A E WV P P L K E Y H WNTLLRARAIE NT

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UniRef90 A6D043 UniRe90-A6DO43 UniRet90-F7QGJ2 UniRef90-R5LRHO UniRef90-G8RW43 UniRef90-C8VXJ9 UniRef90-R1CSK3 UniRef90-UPIO00380052A UniRef90-UP100040FBFED UniRef90_UPIOOO4 UniRef90-UP10002EA7EA9 UniRef90-A8GK59 UniRef90-UPIO0036BA54A UniRef90-C7GZE3 UniRef90_UPIOOO3106E54 UniRef90-V8C869 UniRef90-B7VIB9 UniRef90-UPIo003670F94 UniRef90-A4Y180 UniRef90-A0QXL6 UniRef90-D5BMW7
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 SFVVACNRVGFGGGSEFFGGH SFVAUNRVGSDDNDGGHSGIYNPGGDELLTGNDQPQ CYVLACGQGGVHPCGRRTFGHSMLDDPWGEVVACMAMGEG MYVVAVNGSGNDGKTTYAGHSMVIDPNGQII EEADAQEA VHLVAAAQTGVHEDGRATYGHSLVVDPWGEI LLDMGEAPG CYVVACNRVGADP KNVFGGHSMFI GPWGEI AEAGDQAM SYVLAAGQT GPHCAGQSMIVDPMGVTLASAGEAPG AYVVGGNRVGTAGDGTEHAGDSRIVSPMGELLATASGVET CYIVSPT IIARDDNLSKNAYAHSLCVAPSGEIIKDLDEEEN VPVIVANRIGHEESEIDFYGGSF:ADGTGAVVTQVGGVPG VWVAAAGTSSGH YLVVSCNCAGENQGTQFLGHSMIVDPWGTPI ASSDHQER LFLVGCNFASGTKG KFAGESAI FDPWGVNI ANHDEEDG SYVLAAAQVGAHDGKRVSWGHAMIVDPWGSIIAQCPDKPT SYVIAAAQGGTHGGVRETYGHSLI I DPWGAVVGQVKRQPG VYTALANMVGLDNENDFFGESQIVHPSGREII YKGKNNEE CFIVAAAQVGQHNERRNSYGHALIVDPWGTVLAEVEDGEG CYVVAAA LAPDQVGNDYCGRSLVVDPYGKILLDMKKKQG CWIVAANQCGTHPCGRETWGHSMVISPWGEVQGQDEQQTG VYVIACNSVGDVNNGNTYAGHSIVIDPNGNVVEEAGNQEE CFIIAAAQAGKHESGRETYGHSLIVDPWGEILAEGNTDTG IPVIAANRYGLEESSDEFYGGFITDATGELLCESGRGDD GFVAAVDQAYPGDDGPSGVGGSVVASPTGDVLAAAGDDPG AFLVACNLVGNGGGKQQFCGGALMLDPKGNLIAEAFDREG CYVVAAAQVGQHNNKRCSWGHAVAFDPWGKCIADDGDAPG VPVIASNRVGVEEGKYVFYGSSFISDQTGTLVAQADTSDC VPVAAANRIGTEYSSLCFYGNSFLADETGELLARASRDDA VYLAYANHSGEENGLGYDGLSSVCGPNGAVLAMAGTGEE CVILAPAQVGSHGPTRRTWGHSMAVDAWGEVLLSADDREG CWVVAAATWGRHEEKRFTYGHSLVI DPWGHVVAKVSDGEG IFIAGCSPARDENATYVSFANSMAVDPWGISLGNCGEEEG FIDAANRTGTEKGETIFGGGSRIVDPFGEILVQTENESD LPTADNRVGFEPDGDEFWGHSFISGAQGEILAHLGDKEG SWILAVGQGGNHPCQRETWGHSMVVDPWGRVVAQLDQDPK VYLAFANSFDTDCGGSGVFGADTFAFPRHEAI D GDASG VYVVAA CYVAA DQIAPAGSGNSVILDP CYVVAPGQMGTHADGRVTYGHSLIVAPWGEIVAEAQDGED VYVLAAG GSGPAGAGNSAIVDPMGVAVAALGEAPG NGI MVVPNRFGTEGLITFYGSSFI SDPYGRVLAQAPRDEA YFVAANNR $\square G T E D D A V T F Y G S S Y F V D P R G N Y V G E S E N A E E$ VYVAAA位
 CFVLGAAQWGQHNGSRETWGQSMIVGPWGNILAQKAQGTG VFVAAA VFMVAANQGGOHENGROTYGHSMLVDPWGEVLATLPEGEG VFMVAANQTGQHENGRQTYGHSMVVDPWGELLHCQKMATG $C F V V A C N R V G T H G A A S F F G A S A V I D P W G E T L V E A G E V E T$
$S Y V L A P A Q T G D H A A S R S T W G H S L A V S P W G E V L A D A G T A P G$ SFVMAANQVGTHEDGRITWGQSIVINPDGEIVGEAGDEAG $A Y V L A C G T A G T H$ AGVELAGHSVVVDPWGAVLAEAGPGEE

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MRAAAVQDNLSGILKEQNGEKSLMYIKKASDGGDLVV MTPVRAAVLQLGC PDEENAADRVRRVLGEDRQTQADLVV RVITVAATQMCCTSPEENVKKAESLIRDAASRGAQIVL VAVVQFAPSDDRAHNBGTVAALLADAVERGARLVVI RIALAQIIEVPTDHESMVAVVRGAVAEAAQEGAHLVL MKVGFVQMEPKLDLINTNLSKAEKLIGEAARQGAKLIV TPVGUAVAQFAPGADRAQNLAAMHTLAATAVRRGASLVV|
PFP TAATQMVSTPSVAQNLSTAARLVADAAARGAQLVL MTQDKVAALQMVSTPEVAENFASATRLVAAAAQQGAQLVL MTK RIA VCQMTSVADKAANLSVVSQLVRDAAKEDVKMIF MTAVAVAVVQFAPGDDRVHNREVVSGLVAVAAERGARLVV MKIGUVQDTTAGDKMKNFALAAESIRRAADQGADLIV
MRVALAQTDCRGDVEGNLADAERIIKQAAEREADLVV KVAAIQMSMSTSLEANVDKALLNLVAEAADDGAKIIV RPMRVAAAQACPSGDVVANAATAGAMVREAAEAGARVVV MANWRLSADQLCSTPAPEQNLAAVARYLQQLQQQFPHLVA MNTVKVAAAQFAPHFNLSKTVEKTCNLISEAGKNGAKLIV RTVGVAVAQFAPAADESANLEVVATLVARARSRGAKVVL M

MRTSGAQDCSVPDVSRNTDAVCELTMRASSENSDLV MNK KVYTLQGKWTGDFDSNNKWYKDEALKLKGKDDDLLV LKVATLQMTSGVDPEANFAATVAATRTAAGEGAAMLF $N K V R I A V V Q Q A P T T D P D A D L E R I G K L T H A A A Q C G S N V I C$
$S I V R A T V Q A S V Y N D T P K T I E K A E K L A E A A S N G S E A V V$ MANLLAALQQTSTPDVTENLNFVEQQLAQLTVNEPALVV MKIAVAQTETRDDPAYNLQKAERWI AEAAFNQAELIL MKEHIAACVQDAIKPNDQRNIEKAAYWLERAAKEEAELVV LTLACVQTTLVWDRQANFERFEELLEQA RGADEVV KFRVSAVQYHLHSSFEQFADQVTHYVRTAQEFDVDFIL KSVRVAAVQTSPVMNDDDTVEKTLTLIKKAGEMEASIVV TVAAGQLAPAGRIAENVDRTLRAMRDARSAGVDLLV MRLAVAQI DTGADPSANLELTREYATRAKAAGAELVVJ $T P V R V G L V Q H R W L A D P D Q L R D Q L D E G V R L A V A Q G A R A V F$ MRASLLQ DDVGESVESRRHRVTSLVRD QAGADLVV MNKFRDALLQLAVNYNKAQNLEKTSRKUREAASKGAKMVV



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## ADE

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SDTGSYRES L V W
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S E P $\qquad$
YYEDEYFRP $G P S D G D P$
$K T V R P G T$
$W A K T V$
WAKTGDEPVKVFDTPI GNI GII QI CMDLISYPE GYQS $\square$ AVGYVESKLLTPGESLSVVDSPVGPVASTTCYDLRFPG D GVGGEVNEWNMAPGDSFQIFETVKGKIALLTCYDI EFPE
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 TSVILAADQSPPAGAPRGIGRSAAVGPLGRIRQELGLEPG VFSITANRIGEER GLRFIGMSQINSPKAEILLRAEDKEE V YVAA A $\square F I$ AA ANKVGDE DDYVYFGESEVI NPNGHCVFKSLNNED CYVLASGQGGRHENGRRTWGHSMLIDPWGKVCDVLPEGEG CYVLASAQGGEHVNGRRTWGHSMLVDPWGEIVSVLPEGEG
 AFI AAAGQARPETSGPTGLGHSTVVDPFGHRVMELGYEPD CWVVFVNRVG DEAGVRFWGGSRVLDPWGSVVTAAPDWEE CDPVVANRVGLEPSPDRFWGNAFVTSAAGEIVARGDNAET CYVAVGECGTGPRNDGASMTVDPLGVIVARAAETDA $M Y T L L A N H V G T A T G G W D T C G A S A V W D P T G R L V A E A G P T E E ~$
$C F V A P N Q T G V H A G R E T Y G H S L I V D P W G R V L A D A G N A E G$ MFVINVCQAVRKDDEWINSGNSCII NPRGEIIAGBSNRQE L $Y$ V $A G A \quad D H P P P L G V G H S V V V D P Q G V P V V S I G T S T$ $L Y V V A P A T V P E Y T D G F T T Y G H A L A V V G P W G S V L A D L G D T E A$
$L F V V T C S P A R D P N A D Y M D W G H S S L I G P F G E V I A T A G H E E A$ CFVIAPGQTGTHASARDTYGHSLVVGPWGEVI DDAGEAPA EYVFSGTEEDLDTPDSVVCAGGSVIISPSGTVLAGPYDGEA $A F A V M V N R V G E G D G D L T F A G G S A V V D P F G N M L V E A G R E E A$
$C W V V A V A K A G V E D G H H L I G G S L I V N P D G E V V A E A V T G D E$ $V Y \vee L A A B C D A P G G S G N S A L D P M G D P L A S G G E A E G$
 CFLISANCVG HTRHVLLGGYSQVVDPWGVVRAQAGESEA LIFI AAA GQARPGGDGPTGDGHSVIVGPDGTRIAEGGYGEE $C W V D A A A Q T S D H A D G R A T Y G H S L V I S P W G E V V L D M G E A P G$
$M Y V A Y V N R T G P E G E F E F V G L S C I A G P D G V V R T R A G R G E E$ $\square F V V Y A N R C G V E N G L E Y C G Q S V I V G P D G V D L A R A G L G E T$ AFIAACDQAQPEQSNPLGVGHSIVSSPTGEVLGQDDTTPG


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 A Y LL LAVN NA AHSNGLNDICADRDEEPFGAASLAIDPLGMELARLESEG



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$C Y V G A V N R V G T D G K G L V Y T G D S H U L D F Q G E S L L S A G E A D G$
$\square Y$ VVT TGT\GS LIPTVDFMRGNFDVPFPPRGTLAEGDNDDM NRLFIAACDRHGSEGVEWVQGSVIVDADGYPQAEGEGGEQ CFVIAAAQTGTHEDGRVTYGHSLVIDPWGEVLLDMGDAPG CFVI GCNQYVQSQPEIMCPGGSCIVDPFGQYVIEPYNKED VYVI AANRGD EEEGVSFIGRSQILDPSGAVLASADRGDA $T F V V A S G Q G N P A S G G P T G L G H S A V V S P G G S P L V T G G G E P E$ NGIMVVPNRFGDEGTVNFYGSSFISDPYGRVLAQAPRDPA $A F V L A C G T A G T H$ A G V $V$ P QA GHS $\square V V D P W G E V L A Q A G A G E E$


I ITAADDLELLYKVREKGSVWRDRRTDLYTDWS LLLATLNLAEARNKRRYNHLHQDRRPSLY VGFAA DLATLHDDRARDPALKHRRP


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T PHERK YGKRPWQUGAGNELIFDTDAGRIGICYDVEFPE
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F $\square$ NP HLLLP GEYVVFETAFGRIA N CYGRHHPLL F DPERTH QHALEKRYGEGFNVWRNEGWKCGGMA CYNDRNVEE | L |
| :--- |
|  | YYEDTYFRAGFESGGDKGLPLFHTPWGRLGVVICYDGWFPE



$M$ KEY WRSSTEEHQVFQTDKFKAGLLI CWDLDAWP

| ml W | GMGDA A |
| :---: | :---: |
| 1 Q E | SRNVDAGDA |
| M1 W | GQGDGA |


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| :---: | :---: |
| UniRef90- C5AIZ9 |  |
| UniRef90_S6KG60 | V |
| UniRef90-A1 | N |
| Ref90 | TAYLLAQDGAQLIL VPSNSPARQPHEAWHAILQAQAMAHG |
| UniRef90-M3BC | A |
| 俍Ref90_C2FU | NVRATKL |
| ef90 looxV |  |
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| UniRef90-J9Y | M |
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| UniRef90_UPI00046F6B59 | AWR MGLKGAD |
| UniRef90-E8VW70 | MLAEQGVQTIFVPFWTDTKNGYQR |
| UniRet90-F2LK96 | ARYALMAQHEQI HCAQFPGVGPDFAEQIDVTDRHHALESG |
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| UniRef90-Q4J) | HFVAMAAAGAKVMVVPSSWADGPGKEQWRELTAARALDSA |
| WoJQB1 | , |
| UniRef90-A8TVX8 | LLKGVEIVMLGYNTPNHLRMFHNHLVMQASAYQNS |
| UniRef90-P9W | AVCASWGSGPGKEQWT |
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|  | P SRVLA EGADLVL |
| UniRet90-R7BMY | AALKGCDLLVYPAAWVD |
|  |  |
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| UniRef90-UP1000405B57D | D |
| J9T3 |  |
| er90-D2Q8 | dill |
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| Ref90-U6HT2 | (VG) |
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| UniRef90 Q6RWJ3 | ARYSLMTQHEEMHCAQFPGSMQIFADQMDVTIRHHALESG |
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| Ref90 |  |
| ef90 |  |
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| UniRef90-Q6RWE1 |  |
| Ref90 ${ }^{-}$N1UV2 |  |


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| Ref90- S6k | APNRNDLDGGMQFIGMSHII EPSGTTLTRAGLEDG |
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| UniRef90-UPIOOd | CYVLFANRVGTE DGVTFFGGSAVVD |
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| UniRet90_C2FU | VYVVFSNPIGMDDDQLK NGCSMMLDPFGD |
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| Ref90-U10003874 | AA |
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|  |  |
|  | SYVAAAGQADPGDAAPTGVGGSLVASPLLGEVVVSAGTQPQ |
|  | A |
| UniRef90-K7A |  |
| P10004679 | ER |
|  | SRVGI RD |
| W6 | CFSVSAARCGLDDGKYDLVGGST VGPDGKIV VASQ E E |
| UniRef90-UPIMOO4 | VRNVDFMHANYGQAAVITPNDIPFPKNGI |
|  | FLVGINNV GEGACGNSKILSPMGKVIARSADKEE |
| UniRet90_UP10002E9F387 | M |
| UniRef90-G4RE44 |  |
| UniRet90-UP1000414 |  |
| X5LQQ0 | $N$ |
|  | VY\| RKVDFMRANYGQAAVITPNDIPFPPAGILSEGITNDDM |
|  |  |
| UniRef90 UPIO00405B57D | VYVPTVDFMRANYGQAAILTPNDIPFPPGGVAASGGNQDM |
|  |  |
| UniRef90-D2QPE8 | VVGVAKAGTE GHHDMGGSIIVDPDGEVIAEAETEDE |
| 7ZXX9 | N |
| F3KUU4 | LNIVCANRTGTER GQSFIGQSLIVDAHGWPLAGPAPQDT |
|  |  |
| UP1000 | TYVLSAAQWGA |
|  |  |
| UniRei90-UPIO0029A1FB5 |  |
| UniRee90-UPIO00444A386 |  |
| UniRet90_Q6RWK7 |  |
|  |  |
|  | C |
| UniRee90 UPIO0028A1399 | C |
|  | VWMVASNSVGGTEDAYPWTGGSQLSPKGEVLACAGETDG |
| 13 |  |
| 3HL13 |  |
|  | A |
| W6 | CYVLASNQFGDDPEAVVQAGGSC |
| UniRef90-Q6R1 | KAUSGGCNTA |
| UniF |  |
| UniRef90-UPIO00375 | Q |
|  | VFAAMVNRVG EGVGEVFAGGSSVVDPFGRRLLFEAGAQES |
|  |  |
| 40F4 |  |
|  | CYVAI AGSVDIQYAQSMVFTPCDFSFPTNGIKAEAPNTEM |
| UniRef90-R1AY37 | LYU I SANRSNTEDD F HMVGASADWSPEGKKLAEAPNEST |
|  |  |
| 7 | GGVGK SGERGGRTVGHSTMTPG |
| 4APU9 |  |
| UniRet90 UPIO0046AFEC2 |  |
|  |  |
|  |  |
| UniRef90-R4QE |  |
| UniRef90 Q6RWJ3 | G |
| P10003 |  |
| B5ZGP |  |
| UniRef90-A8ZME4 |  |
|  |  |
| UniF | C |
| P1000441289C | AYVLHCTAVCTEHDGLLFHGHSCVLGPDGRRJLTALLHGEG |
|  |  |
| UniRet90_O2CC45 |  |
| RRef90 _M5S |  |
|  |  |
|  |  |
|  | G |
|  | SFVLHTTAVMSDAGSVPGGGSSAIFGPDGRLVAEPETEEG |
|  |  |


UniRef90_GoluH9 UniRef90-HOQ3P8
UniRef90_C3J870 UniRef90_C3J870
UniRef90_UPIo004230F71 UniRef90-O5KLT5 UniRef90-E7H236 UniRef90-UPIOOO364F29B UniRef90-UPIO0046AF46C UniRef90-E1W0Y7 UniRef90-UPIo0047B9AB4 UniRef90-R4V6A5 UniRet90-X7X500 UniRef90-X7F5W7
UniRef90 KOUTN4 UniRef90_UPI0003686FB5 UniRef90-11DV49 UniRef90_W7QK14 UniRef90_UPI00047C298C UniRef90-J31F55 UniRef90-K6U5Z6 UniRef90-H2K833 UniRef90-D9T4Z8 UniRef90 C9RT97 UniRef90-UP1000476CD26 UniRef90-D7W356 UniRef90_L9XIK5 UniRef90_O04W18 UniRef90-A0A059LH38 UniRet90-A3SP79 UniRef90 - W3WNP6 UniRef90-UP100037D2D2B UniRef90_UPIO0037511E18 UniRef90_UPIOOO47BOF35 UniRef90-HOJO17

UniRef90-G2FW51 UniRef90_C8WFJ2 UniRef90-UPIO0037CC56F UniRef90_19WL71 UniRef90_C0QUN3 UniRef90-T1W6G5 UniRef90-G1N7DO UniRef90_UPI000255B4BD UniRef90-G8B9M3 UniRef90_UPIO00255787A UniRef90-Q1GRP3 UniRef90-L2FPC7 UniRef90-R7DLD2 UniRef90_UPI0000E105FE UniRef90-A0A023BNZ8 UniRef90-L7WAE7 UniRef90-UPIO002E653C9 UniRef90_UPIO003634C02 UniRef90-G9NQS3 UniRef90_UPIOOO258E130 UniRef90-E6PZ49 UniRef90-W2T903 UniRef90-R5J9E0 UniRef90-UPIOOO3B546FE UniRef90-Q6RWF8 UniRef90-UPIo003F7E173 UniRef90-WOLBV5 UniRef90-V8C7H6 UniRef90-T1E3U0 UniRef90-D5WSF9 UniRef90-E6RLP6 UniReffo-A1HU09 UniRef90-B7Q536 UniRef90-UPIOO04715D33 UniReftoo-O1R113 UniRef90_W6KAK6 UniRef90-R4LIK1
UniRef90-D3Q4Y1 UniRef90-Q6RWR1 UniRef90-F4CEC2 UniRef90-UPIOOO36F0086 UniRef90-C5FYL6 UniRef90-B5JMH4 UniRe990_W9YDX0
UniRef90_UPIO00046A63F6 UniRef90-S7PYY3 UniRef90-W9VKV2 UniRef90-UPIIO0047AC19E UniRef90-B5YJ78 UniRef90_IODVP1 UniRef90-1814P0 UniRef90-M7PS95 UniRef90-M8DJ93 UniRef90-W5GJL4 UniRef90_O6RWL5 UniRef90 UPIO004763E12

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VS Y QSDFC ${ }^{40}$ MTTVRVAAVQLAPDLESAGTVDKVCRALLEAGEKGARMVV MRISLAQFTPKKSKDYNLSRILDYLKEAGKQGADLVL SSATVAVCQLRSTSDPVHNLKDSEKVIRNAVAAGAKACF ENLAAARSLIERSETAGADLLV RRVTVGLIQMHWAADPEEHVATLMDGVATVASAGASVVF MKIAALWQTTPDDDDGNSLKKLAAAVEAAVRAQADLLV MR:ALAQVLSTADPQRNLVTVRDYARQAKEVGASLVV
 M R E RAALTQATWTGDKESMLAKHERFVAQAAARGAQVIC $M K T A V I Q L D D T E S V A E R T E R V A E L V A E A Q A G V D V V V$ VRLGLVQWQMRNMKDINFEQMEFFVDAVSDYKSDFIL

 $R P \square T V A A V Q A Q P V G D V A G N A G A A A R L V A R A \quad E G A R V V V$ RPFDI ALABMTPAGDIGANLAKMETIIHECKRKFPRLLL

 FTLA AQPPGDGLPEERLGWLRDHL ATLQATDLLL $K \| V K V G A V Q A E P V W D L E G S V D K T I A L I E Q A A A D G V Q V L G$
$M Q U A L L Q L A S P G E V D R U A R V T G M I ~ D A E H D H D T D L E V$
KPFQVASTQFNPTLNREKNVEEMAEVVRKAAERDADLVV MS QLRTSLVQCDLRWNPEANHTHLEKLLGELDSRDTDLVV

 QLPVVETKAAQTERVVAMVAKARRNMPDLVV

UniRef90 Goluha UniRef90-H0Q3P8 UniRef90-C3.J870 UniRef90_UPI0004230F71 UniRef90_OSKLT5 UniRef90-E7H236 UniRef90_UP1000364F29B UniRef90-UPIO0046AF46C UniRef90-E1W0Y7 UniRef90_UPIo0047B9AB4 UniRef90-R4V6A5 UniRef90-X7X500 | UniRef90 - 775 F 7 |
| :--- |
| UniRef90 KoUTN4 | UniRef90-UPI0003686FB5 UniRef90-11DV49 UniRef90-W7QK14 UniRef90-UPIO0047C298C UniRef90-J31F55 UniRef90-K6U5Z6 UniRef90-H2K833 UniRef90-D9T4Z8 UniRef90 C9RT97 UniRef90-UP1000476CD26 UniRef90-D7W356

UniRef90-L9XIK5
UniRef90-Q04W18 UniRef90-A0A059LH38 UniRef90 A3SP79 UniRef90'W3WNP6 UniRef90-UP100037D2D2B UniRef90-UP10003751E18 UniRef90_UPIO0047B0F35 UniRef90-HOJO17 UniRef90-G2FW51 UniRef90-KoWNT5 UniRef90_C8WFJ2 UniRef90-UPIIOOO37CC56F UniRefefo-l9WL71 UniRef90-C0QUN3 UniRef90-T1W6G5
UniRef90 G1N7DO UniRef90-G1N7DO UniRef90-G8B9M3 UniRef90_UPIO00255787A UniRef90-Q1GRP3 UniRef90-L2FPC7 UniRef90-R7DLD2 UniRef90-UPIO000E105FE UniRef90-A0A023BNZ8 UniRef90 L7WAE7 UniRef9O-UPIIOOO2E653C9 UniRef90-UPIOOO3634C02 UniRef90-G9NOS3 UniRef90-UPIOOO258E130 UniRef90-E6PZ49 UniRef90-W2T903 UniRef90-R5J9E0 UniRef90_UPIo003B546FE UniRef90-Q6RWF8 UniRef90-UPIO003F7E173 UniRef90-WOLBV5 UniRef90-V8C7H6 UniRef90-T1E3U0 UniRef90-D5WSF9 UniRef90-E6RLP6
UniRef90 A1HU09 UniRef90_A1HU09
UniRef90_B7Q536 UniRef90-G4YNY1 UniRef90-UPIO004715D33 UniReftoo-O1R113 UniRef90-W6KAK6 UniRef90-R4LIK1
UniRef90 D3Q4Y1
UniRef90-D3Q4Y1
UniRef90
Q6RWR1 UniRef90-F4CEC2 UniRef90_UPIOOO36F0086 UniRef90-C5FYL6 UniRef90-B5JMH4 UniRef90-W9YDX0 UniRef90-UPIO0046A63F6 UniRef90-S7PYY3 UniRef90-W9VKV2 UniRef90-UPIO0047AC19E UniRef90-B5YJ78 UniRef90-IODVP1 UniRef90_184PP UniRef90-M7PS95
UniRef90 M8D.M93 UniRef90-M8DJ93 UniRef90_W5GJL4
UniRef9O-Q6RWL5 UniRef90_UPIOOO4763E12

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FPEFFNAPMDASEADRNपADYTEETINRMRDDALSYNVNI FPETFVPYYPYFSFYEWAVSVPGPVTQAVGEAARRAGAVV FPEVMTTGFSMHLEADAEPFESSPSLQSVRAMVQQYGVA
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UniRef90_GoIUH9 UniRef90-H0Q3P8
UniRet90_C3J870 UniRef90-C3J870
UniRef90_UPIOOO4230F71 UniRef90-O5KLT5 UniRef90-E7H236 UniRef90-UP1000364F29B UniRef90-UPIO0046AF46C UniRef90-E1WOY7 UniRef90-UPIo0047B9AB4 UniRef90-R4V6A5 UniRef90-X7X500 UniRef90-X7F5W7
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UniRef90_C9RT97
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UniRef90-R7DLD2 UniRef90-UPIOOOOE105FE UniRef90-A0A023BNZ8 UniRef90 L7WAE7 UniRef9O-UPIIO002E653C9 UniRef90-UPIO003634C02 UniRef90-G9NQS3 UniRef9O-UPIOOO258E130 UniRef90-E6PZ49 UniRef90-W2T903 UniRef90-R5J9E0 UniRef90-UPIO003B546FE UniRef90-Q6RWF8 UniRef90-UP10003F7E173 UniRef90-V8C7H6 UniRef90-T1E3U0 UniRef90-D5WSF9 UniRef90-E6RLP6 UniReffo-A1HU09 UniRef90-B70536
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UniRef90-D3Q4Y1 UniRef90-Q6RWR1 UniRef90-F4CEC2 UniRef90-UPIOOO36F0086 UniRef90-C5FYL6 UniRef90-B5JMH4 4 UniRef90-W9YDX0 UniRef90-UPIO0046A63F6 UniRef90-S7PYY3 UniRef90-UP100047AC19E UniRef90-B5YJ78 UniRef90-loDVP1 UniRef90-1814P0 UniRef90 ${ }^{-M 7 P S 95}$
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100
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120
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SVGVHEGPEDERVYNTVLI GKDGGILASYRKTHLFDVEP SVGVGEGPEDERVYNTHVLIGKDGGLLASYRKMHLEDVEP VHASLYERSDADDFNTAILVAPDGSRVARTRKLHIPVTAG LIIGLPAPHGTLPFNSCI AIDEMGIQQADYHKTHLYG AAGMFTPGVDQRVRNTLLVAGS QVDTHYDKTHLYDAFG YLG YAELDGDRQFNTSULVDGNGAIDGKYRKIHIPGQDG VAGMPVYDDNVLYNVAYLCRRDGTVDQHYKLHATPDERF IFGYAEKTPEGRHFNTSLLTDRAGAVVGKYRKVHLPGHSE
 VAGSMPYEVGGKLYNSGFLCRRDGS WEQYDKVHVTPAEK
 GLGFAVKVDEKGENKYVVISKEGNGAQYDKDHPFSYGG LCGTVVECDGDRYYNTAVLLDDHGEVVVKARKTHRFAAEM VIGAAVRHPDRRRTISSLVVDPAGTVTAAYDKQQLWSGE
 LVGLFEKDEHDHLFKAYVCVDKTGGKAKYRKLHPFGDE CGGWIQKNPKGKPFNTVSVVSPKGELELRYSKDHPFTFGG AYGYA EAAEGRLYNSAQCLDKSGQPIGHHRKLTLPPGYE VVLGYSERDGASLYMGQSFISHEGEILHHRRKIKPTHVER HLGSFVEAADGRLHNTSVVVGPDGAVVTAYRKVHDF HAGSVVERDPDGPYNTSLVFSPAGELVSAYRKIHRFGFDK VFGMPEVDEKTNMYYNSAALVVGPDGYIGKYRKTQLWETEM TGSVAIVDQGEYYNRMVWATPEGSLR YYDKRHLFRMAG LVGMVEQRKGQNKPYDSHVILTPNEEPNVYRKAHLGRSEL VIGLA ENDNGRFYNTTLLITPEG TALKYRKTHLWASD VVGVT ERSEATLYCTALFFAPDGTLDGKHRKDMPTATER TGSMAVKTVTGDYVNRLYFVTPDGAV SYYDKRHLFRMAG TGGSHPTRVEGGEGASEUR NGGYTFLRDGSVHESQKL I AGFAELADDGTLFNSATVVDGSGVRAVYRKTHLWDREK VSP胃RDEDHGGTLWNTAVVISNSGALLGKSRKNHIPRVGD VVNCTVRREGGTVTGSSLMYSPAGELVADNTKQIYIGHER LDGFCERYSGTTLFNSVAVIDADGQILNVHRKLMPTNPER HSGSMPDDDGQRRVNRSHVIAADGRI RARYDKIHMFDVQL IVTGSMPLRKEDGLYNVGFLCRRDGSYDMYEKVHK VAGPTPSPDPNKMFATAWCFDPSGELVAQYNKTHLEDVSD


 VSSDRDESKDDVLWNAAVVISNSGKVDGKSRKNHDPRDGD SGGHPTRTDDGDIQNVGYVFLRDGSVHAQEKVHPTPDERS SGGVNERDGGTLYNTQLLFDADGRIDQRRRKITPTHYER GGSVADRTTKGAVNRFLLVEPGGRVHFYDKRHLFAMAG
 VYGYAERSEDGRMYNALQCVGPEGSSLGNYRKDHLAGAEG A GSVLVTQGSKKANRFYWVQPNGEVGYYDKRHLECLGN

[^1]


UniRef90_UPI00037D2D2B UniRef90_UPI0003751E18 UniRef90-H0JOI7 UniRef90_HOJOW
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UniRef90_C0QUN3
UniRef90-T1W6G5
UniRef90 G1N7D0
UniRef90_UPI000255B4BD UniRef90_G8B9M3 UniRef90_UPI000255787A UniRef90_Q1GRP3 UniRef90_L2FPC7 UniRef90_R7DLD2 UniRef90_UPI0000E105FE UniRef90_A0A023BNZ8 UniRef90 L7WAE7 UniRef90-UPI0002E653C9 UniRef90_UPI0003634C02 UniRef90-G9NQS3 UniRef90_UPIO00258E130 UniRef90_E6PZ49 UniRef90_W2T903 UniRef90_R5J9E0 UniRef90_UPI0003B546FE UniRef90_Q6RWF8 UniRef90_UPI0003F7E173 UniRef90_W0LBV5 UniRef90_V8C7H6 UniRef90-T1E3U0 UniRef90_D5WSF9 UniRef90_E6RLP6
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UniRef90-W6KAK6 UniRef90_R4LIK1 UniRef90_D3Q4Y1 UniRef90_Q6RWR1 UniRef90_F4CEC2 UniRef90-UPI00036F0086 UniRef90_C5FYL6 UniRef90_B5JMH4 UniRef90_W9YDX0
UniRef90_UPI00046A63F6 UniRef90_S7PYY3 UniRef90_W9VKV2 UniRef90_UPIO0047AC19E UniRef90_B5YJ78 UniRef90_I0DVP1 UniRef90_I8I4P0 UniRef90-M7PS95 UniRef90-M8DJ93 UniRef90-W5GJL4 UniRef90_Q6RWL5
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180
190
200 ARYTLMA QHEEI HQFPGSMVGNDFAEQIAVTDRHHALESG WCRNRANE YDLLDDVAN WPEPRRLVWSTLLARARAMENNL
 LSII LTRLGAEVLLFPSAFTVKTGRDHWGTLCRATAIGYQ
 $V$ A R D L A L R GA DL I I T P TANMAPFDSVAT RLVPARAEENA

 GWRNY G LA GAELVFNPSAT
 $V$ A R T L LA L S G V LYRAQLDSDATAFVI PAAWPMA RVVHWRVLLRARAMENQ


 I F Q A A S K A A QI ITTVA A S WP E DRE E H WV T L L K A R A I E N Q
 LAARYLA VVH GAELLLVPCAWESPF HAPFQKFAMARA I DNT
 $N V R A T R L L G A E I I F M P H V T M C T P G R D W L M K W L P A R A C D N G$


 L R Y HE Y A Q G VQQ HI A S WP WL Y HETGEASYRAS QFMAIIE GC
 L F RGGLVDAGAQAFVVPAGWP ERRRAHWTLLARARRAVVEN WM TASSSAQTISALPARAQQNG
 SARALA QLGADDLLIVTNGNMDPYGPTHRTAIMARAAENQ LR QVMYA GGVNI WCAPTVDQRE DWQVSMRHI ACQYMTRAD






 PRAAMYAQGTNLHVACWPGSDHNTKDDTRFIARMFRSDFP
 L S R Y Y S I K G CH TIVV NDS A S P NP S K KY F E T L L E A R A I E N T L R Y Y E Y TQ G VQQ H HV S SWP WP YHDT GEAD QRISSQNMAMEGQ NWMMF GLNGAEIVFNPSATTSHTSEPLWSDEARNAADANS FRTAMYAKGVNL WCAP TVDDRDRWQATMQHDAVEGR NWMMYALNGAEEDFNPCPTKLLLDSEPMWADEARSAAAIANH VWSRNVNNEYDLLIYMASWPQARRLAWDTLLCAARALENM
 WARQQLENGPNSQPVYVANWPERRSHAWKTLLTARAI ENQ


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## UniRef90 Goluh9 UniRef90-H0Q3P8 UniRef90-C3J870 UniRef90-UPI0004230F71 UniRef90_Q5KLT5 UniRef90-E7H236 UniRef90_UPI000364F29B UniRef90_UPI00046AF46C UniRef90_E1W0Y7 UniRef90_UPI00047B9AB4

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UniRef90_UPI000476CD26
UniRef90_D7W356
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UniRef90_C0QUN3 UniRef90_T1W6G5 UniRef90-G1N7D0 UniRef90_UPI000255B4BD UniRef90_G8B9M3 UniRef90_UPI000255787A UniRef90_Q1GRP3 UniRef90_L2FPC7 UniRef90_R7DLD2 UniRef90_UPI0000E105FE UniRef90_A0A023BNZ8 UniRef90 L7WAE7
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UniRef90_UPI00046A63F6 UniRef90_S7PYY3 UniRef90_W9VKV2 UniRef90_UPI00047AC19E UniRef90_B5YJ78 UniRef90-I0DVP1 UniRef90_I8I4P0 UniRef90_M7PS95 UniRef90-M8DJ93 UniRef90-W5GJL4 UniRef90_Q6RWL5 UniRef90_UPI0004763E12

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$T W V V G V A K A G D E D G H P D M A G S \square D V D P N G Y V V A R A Q T E D E$ $T S L V Y S N L V G A E A B G L T F V G G S R V V S G D G D V I V E C C G G A B$ $C L V \vee A C N T A G T H$ ARAEMGGHSAVVGPLGEVLAEAGSDEE C Y V A I A N N M D IQ Y A Q S ALLFTP S DF AFP TT GI KKA A A P N S E M
 C FVVVNVSN A W G C P Y A Q S A V F T P C D F F S F P S N G I K A E A T N T E M
 Y T L S A V G GV TGE R A GRAQVS GHS TVVAAP E E L L L A S L D E E E A MYVVFANSVGG TDPWRFNGGAAVYDPEGRPLARADTGED $V$ Y V A A CN Q I G S S S SFHFFGGLS SI Y GPD GRKI A A ANMRE E
 CYVIGSNHSGT QS GRHHAGES LVAGPRGEIIAKATDDTS

 TFVAVSS QVLTEKNKTPGGGFSMI F GPD GKPLCEP DGEE K ATLIA CNAVGQQHDVALGGHSRVVAPTGEVLVEAGTEEG A Y ML A C GTAATHADVVEQA GHS IVVDDPWGEV LAEA GA GEE MY IVSANRSNTEKD FHMDGGSAVWSPNGEKLAEAQDEPT A Y V V G V N R V G Q D A K G L A Y S G D S M L V D F K G E P L

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





 C F V MV C T Q I CK DESAARCRGFSMM Y S P WG QELAATPPN E E G CF V A I A N L P R V



 Y Y TCA $\square$ N RVPAHHDFGHFYGSSYITAPDGRTPGLSRSKDG


 CYVM GVNRVGND GNGDYHS GDSMVI DPDGEVLGHKAHEEA $V Y V A G C N R V G E D G N G L N Y S G D S L I I S P Q G E I L A Q A \quad E P G$
 L $F$ L AV S N Q M G QPR T L D F C G G S A V Y D P T GVLVV T G L G K P G CYVVGVNNRVGED GNGIAHSGGTAVYDFKGEPLDKANDDQQ
 CFV I HT TAVTS QRGGTPGGGCSAIVGPDGRRLTKSETEEG CYVVVCGSVGNQYAQSSVFSPSDFAFPHDAVMSESPN TEM
 $L V V V S A N Q T G A \quad V G G M R F L G Q A K V V G P A G N I L A R T W G K A G$

 CYVAI A NNMD DQYAQSAVFTPSDFAFPTNGVKAEAPNAEM CYV VLS GTVGTVVPADEMIDNQRDYGFPRDGUVEEATNQEV A Y V L HCTA AVCNEE GQEPGGGHSAADGPDGRRRLTKPDLDE G


 TFVLHATTVVIGLKGNTPGGGYSCVIGBDGRMLSEPDLEAE G

 SYVVGVNRAGTDGNGHPYSGDSTIVDPLGENLVELDEREQ CYVVVTGSVGGNQYSQSSVVSPSDFAFPHDAVMAETPNTEM VYLVPTVD F M R A N F G Q A A V LTTPN DVP F P P R GV LVVE G E N N D M EYTFGGHEEEPSPETAVCPGGSADIDPSGTVLVAPYEGEA


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| :---: | :---: |
| UniRef90 GOIUH9 |  |
|  | LKATERAPDKDRKKEPVYDD |
| UniRef90-UPI0004230F71 | DVP |
| UniRef90-O5KL | E: DGTVKETRGQ1 P AlQ ${ }^{\text {a }}$ |
| UniRet90-E7H236 | ALM |
| UniRet90-UPIO0046AF46C | LFFGTLTRDALQTARGKQCHLRD |
| UniRef90-E1W0Y7 | VDLD ${ }^{\text {a }}$ |
| UniRef90-UPIod | YVCDMTLADG |
| Unif | VVDLDMDKLK Q |
| UniRef90-X7 |  |
| UniRef90-K0 |  |
| UniRef90-UP1000368 | SVVE VADD |
|  | VIFSDLDLTRLTVVRAEGSVLKDRRKDLFDLRWR |
| UniRef90-UPI00047C298C | VADVDLSLLRELHSFGAVLKDR |
| UniRef90-J31F: | EVIVDLDMSLI DKRKRMMDSRGHSRPELLSLL |
| UniRef90-K6U526 | V VSN EMND |
|  | VLVARLDPDALAATRAA |
| UniRef90-D9T4Z8 |  |
| 6CD26 | a VaEAQRAN |
|  | SFSAVITPQKLTQA GGYRYIKARRPELYREI |
| UniRef90-L9xIk |  |
|  |  |
| UniReer90-A0AO59LH |  |
| W3 | AR |
|  | NLRDIDKPKAF |
| UniRef90-UP10003751E18 |  |
| UniRef90-UP1000047B0F35 | 1 |
| UniRef90-HOJOU | TLIADRINHTRRS |
| UniRef90 KoWNT5 | QFSVELDFSQLEVARKDYRYLQDQRLK |
| UniRef90-C8WFJ2 | VLVADI DLSDTIKARYDLDVSGHGRPDIFETKV |
| UniRee90-UP100037CC56F | S $L^{\text {D }}$ |
| UniRef90-19WL71 | I A A A d S |
| UniRerso-COQUN |  |
| UniRef90-G1N7D | LLVVEMDLNLCRQVSDKWNFKMTGRYEMYADK |
| UniRet90-UPIO00255B4BD | VIYAD |
| UniRef90_G8B9M3 |  |
| P100 | LYADIDLEAARTARKALDVSGHNRPDLFNLEV |
| UniRef90-Q1GR |  |
| UniRef90-2 7 D | $\checkmark$ DLDLLJELHTSVRNKDRRQDLYELRLK |
| UniRet90_UPI0000E105FE |  |
| UniRet90_A0A023B | V |
| 7WAET | D |
| UniRef90 UPI0002E653C9 | D |
| UniRef90-G9NQS |  |
| UniRef90-UPIO00258E130 | L 1 CELD |
| E6P | VLTAELDKEVVRGKFDFDVVGHARADVFRLLV |
| W2T903 |  |
| UniRet90-R5J9E0 |  |
| UniRef90-Q6RWF | $\checkmark \vee 1] A D$ |
| UniRet90 UP10003F7E173 |  |
|  |  |
| UniRef90-T1E3U0 |  |
| UniRe90 T1E3U0 | WI DILADVDRHRSHFTMLRERRPECYHETVR |
|  | LLTDTLNKAPLDEFRAKFPAHLDA DAFTL |
|  |  |
| UniRef90-B7 | EVDLDYLSTVRKQTPIMKHHRNDLYDVI |
| UniRef90 G4YNY1 | VFADLDKKLLIAARTLVDSCGHSRPDM |
| UniRer90-OPlood4 UniRet90 Q1R113 | VTTLQLDLQRLPAARRDYOYQDCRIGLI |
| UniRef90 W6KAK | Trab |
| R4LIK | AVAELDAESAAROVSHDERPETYRD |
|  |  |
| UniRef90-Q6RWR1 | EVIADIDLAQI DARKRLMDASGHNRPELLS |
| 4 C | VLLTDVDLYALKELLHEYGTVMKDRRTDLYKV |
| UniRet90_UP10003 | VADLDLKRLRGFRKGTVKKRRH |
| UniRet90-C5FYL6 | VADLDMARVVMNKGFIGD |
| UniRef90-W9YDX0 | LVIADVDFDMAlMARSFLDLCGHSRPDL |
| 6A63F6 |  |
| UniRet90-S7PYY3 | DLELCRQGKEKI |
| W9 | L I AD DP |
| IRet90-UPI00047AC | Fin Yevran pla |
| iRe990-IODV | MVI AELDLSLLSTGRRWM SGRRPELYNILTK |
|  |  |
| UniF | TMFSDMDLEKLKLTRNEGSVLKDRRDDLYSLK |
|  | D |
| 90-WGGJL4 |  |
| Ref90 |  |
| ef90 |  |


| UniRef90_V6J1X3UniRef90_F2EZZ2UniRef90_K1 Y8U7UniRef90_UPI00036FCBFFUniRef90_R5CVJ5UniRef90_A0A059AFF3UniRef90_UPI000225ED28UniRef90_A0A023NP93UniRef90_UPI00047581F9UniRef90_E3ZHF0UniRef90_E3PUA1UniRef90_A3HXT3UniRef90_G7Q6R9UniRef90_A9API2UniRef90_M3TNK5UniRef90_UPI00036F549CUniRef90_K4IJ15UniRef90_UPI0002485506UniRef90_D8PCZ9UniRef90_N8Z4P6UniRef90_C5C0T7UniRef90_H8GH90UniRef90_V8YBA6UniRef90_R5WM49 |  |  |  |
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 MQAL NI TLVQGAT RWDAPANREYYGELVRRVAGK TDLVV $M Q A$

PVRVFVVQYMMKNSFHDFAHQCEYYVD!SSDYKSDFIV
$K V K V C L V Q S P V F F D K E K T L Q K L E R L C E K Y A K E G N Q L I V$ MAAFRLAL CQ DNPTGDVDGNTAK LIAHLESARRAGAEMVV



$M P G L K V S L L Q Q P L V W D G A A N L R H F D V L L D E L T G R D L I L$ MK I A L I S L N I WWED K D K NL I LIC E KN I Q K A V E GKA DLI I NPLRVSLVQGETRWDPEANREYYGDLI G ALLHDTDLVV SSFKVALVQMKPKPDAEHNFAHAAEQIRDAADQGAALAV

 MK I A $\square$ A Q I N CTG D LAA GNVAK ILDDYANRAKAAGDQVMV
 VRIAATVQYRRVTSFAEFLKYDEYFVDVVADYKSDFVV
 MASIRRVAVI QWNIKDLIDENHREACA YIIRDAAS QGAELAV $M T V M S I A G L Q L A L P A N Q N N F D T \| A R E V R N V K K R F P H V V V$

M S D


 KAAAVQLAPNLDRTSTTSVVIDAMGEARRNGAEFIV MNDLRTTPI QTD\|IWNKEVNLNKQQITLQKLKGT
MTKQVV A AL L QVGSSPGTKETLKKILSYEQEIKEKGVIILV $R K \| T V A A A Q V A V H K D R P E T L S R L I ~ S L L L E Q A S Q K G V E V L V$ $M N V A V V T Y E P R W D K E R N L N R I$ I GYL E CAAARGANLVV FKAAAVQTAPVFDTNATVEKVVRLI DEAADHGAQLVA SNARDSVVQWQMRPSTEDLLQQQIDFFVDAAAGYKDDLLD MKVAF FQF DPKGK $\square$ D Y NL K K I E K S L S R I K NL L NL V MKNLHVVGIQADIWENPAENLKFFEDKIKNLSAS TDLVI

 MAV R A A A A A H F G DLL




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| :---: | :---: |
| UniRef90-F2EZZ2 | FPEIFTTQLMSFLNDKSPSQYTPEYIELTFSSLAVRYNVNI |
| UniRef90-K1Y8U7 | MCTTGGDRKN |
| UniRef90-UPI00036FCBFF | LFSTGYHFLNQKRHSEPIPEGPTTQTLIR\SNKNKTS |
| UniRef90-R5 | ATGFDTASP |
| iRe | FPEAFVGGYPRGSTFGVIIGNRT |
| UniR | FPELTFTLMLLSAEEKELSPRYTPKIRQKLSEMALSYNTNT |
| UniRe | - |
| UniRef90-UP10004 | EYHENSFNVESEDLKRLETUSKNYEMYL |
| UniRef90-E3ZHF0 | SNGYAAPFDEAFDKPLHPEFTDALKKHAKEYQVG\\| |
| UniRet90-E3PUA1 |  |
| UniRef90-A3HXT3 | - |
|  | AVSGYPPEDLLIKPDFLDACMDRAGEIIRASTGLTV |
| UniRef90-A9API2 | S |
| UniRef90-M3TNK5 | V |
| UniRef90-UP100036F549C | SMDAAALAEEEQGPSRAWMLEQAARLDAVV |
| UniRef90-K41J15 | SKYNHLSEPEADRP ITKNKMSELS |
| UniRef90-UPI000248: | YPA EDLLLRPSLAKRTVQAFEQLATVKD VM |
| UniRef90-D8 |  |
|  | M |
| UniRef90-C5C0 |  |
| UniRef90 H8GH90 | F QLT AMQSLLDGYIE LLHRGLAHQHGCY |
| UniRef90-R5WM49 |  |
| G8X |  |
| UniRef90_F9Z5G0 | A |
| Unil | A |
| UniRef90-M6T6X7 | - |
|  |  |
|  |  |
| UniRef90 H9H642 | AWTMPFAFCPWTEFAESAEDGPTTRLCQRAHGLVVVSS NFAFLIGGDEKLDRASELSKKCTNFLKTMSQRYQVFFL |
| UniRef90-E1ZJ33 | c |
|  | P WFVWA WAMQFMNDYHKQALIEKAAADNQI Q |
| UniRef90-R1EGX4 | PWS WANSVVSNVEFMDEYFQRAAVREAGIE |
|  |  |
| A7M142 |  |
| UniRef90-F4X989 | LFIPPGYPYGMYYDNSUVVPG |
| UniRef90 - 7 A1A ${ }^{\text {U }}$ | F |
|  |  |
| UniRef90-UPIO00423A9E4 | - |
|  |  |
|  |  |
|  | MNSHSLSEPVDGT |
|  |  |
|  | TAA SGYP WHDWMGAPA WIGA |
| ef90-A0A059AAX7 | AFVGG |
| UniRef90-W6W542 | A |
| UniRef90-S3BQU66 |  |
| UniRef90 H5 |  |
|  |  |
| UniRef90-UPIO0047B | LPETFTSGFSNDADDRAETMDGPTVQWMRDWAKDLNAAV |
|  | YHLTGWPEEPSAASPE |
|  | EMCNSGYVFANKEEAEEAGKGETYAVVNDAAATGVAL |
| UniRef90-UPIooo262745B | FPECFTPAYPNWSTDFNCVNTGRGDLEPLQRAAKENRTTV |
| UniRef90-S6ACK6 | SLTGYPP EDLLLRDGFYAACDQALFGLARDTQGIT |
|  | FSELAVAGPDPA |
|  |  |
| UniRef90-UP1000463C2CB | A da R dma |
|  |  |
|  |  |
| UniRe | FPEECITTGSMFEEARKIAAAAAEESVPFLESLAGKLLQMTL |
| UP100040 | FPEYSTQGПMYDPKEMFIPGEETEIFGEACRQANTWGVFS |
|  |  |
| UniRef90-W0 | FGEALLPGYPFWYYLKQAVEDEAGHLDAVCAAAAKHNI AV |
| UniRef90 M2V9D4 | P A |
| UniRet90-UPIOOO4713583 |  |
| UniRef90-I4ZRL3 |  |
| UniRef90-A0A059DYC1 | GP DDA ${ }^{\text {a }}$ ATSEYTPRFVEFMEKLIV |
| UniRef90-ATEX | P S WI |
| UniRef90 UPIO003671E12 | S |
| UniRef90_R7D | FPEMFTTG FSMNSRNLAETENGET SRLKYWANTYEFAL |
| UniRef90_C4Q | LPEALLGGYPFKRYFKEAIJDLDGEEI RELAQLLSNRTGAF |
|  | FPRWWF EHGDITANPNIAPLASAKDL |
| UniRef90 C5CLB6 | SAYPYWSWDGNPDQ GSPWFEKLARSADEIUN |
| UniRef90-M1PBT3 | FPEMFNAPLLANFDQQNPAMAMRSLAESMLQMAMKYNINI |
|  | LPELCNSGYNFRDFKFAEEDPHGKSSQFLISLAKQKKCFI |
| UniRef90-A2T | LPEMFT G G F MQPKNVAESMNGLLSIT WMKKIANEYDIAI |
| iRet90_F4C5 | MNVEKCA ERMDGQ |
| UniReef90-A0AO59MUD1 | LGGYPSLGGGD |
| $\begin{aligned} & \text { effol } \\ & \hline \end{aligned}$ |  |
| iRef90_M1XNJ8 |  |
| f90-R4Z5 |  |
|  | MFNSG FSMQPAKVAQSMQGNTVKWMQQQAEQLIAA |
| UniRef90 W7LT19 |  |
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| UniRef90＿V6J1X3 |  |
| 砛俍90－F2EZZ2 |  |
| UniRef90－K1Y8U7 | FGLITQEGDDP HFHSQVLLSSTGQLLACYNKRHLFGPD |
| iReef90－UP100036FCBFF | IIAGIAERYGNRSYNAAVIIGPNG YLGKYRKDHLFDTEK |
| Ref90－R5CVJ5 | CGSVAVFDGDGRARNRLYFVLPDGS YYYYDKHHLFAYGG |
|  | HASALDVPDGYTLYCTILFFDPQGRYLGK |
| iRef90－UPI00 | IGGSHPTRMDDGDINNVAVCLIDGS |
| niRef90 A0A023 | C GSLADREGDKVFNRLI WARPDGS FAQYDKRHLIFRMAG |
| UP100047 |  |
|  |  |
| 析 |  |
| A3HX |  |
| UniRet90＿G7Q6R9 |  |
| Un | $V$ |
| f90－M3TNK |  |
| 90－UP100036F549C |  |
| － | S GSMPEMLNNKLYNVGYLCMRDG |
| UniRef90－D8PC7 | $V$ VVGYVGQGGRHELYNEAAVLSDRRILATYRK |
| 90－N8 | QTEDGQRFNS AAVMKD |
|  | GTVERGADQSRRNIVAVA |
| UniRef90－H8GH90 | QSGTEPVRDEGEDYRNRAYLFMPNGEFDYQD |
| ei90－V8 | RFYNRMYFVKPSGEF |
| UniRef90 G8XAH5 | GNY YNRMLFVHP |
| UniRef90－F9Z5G0 | ENGKYYNRLIAAFPEGNCRYYDK |
| W1 |  |
|  |  |
| UniRef90－H9G7 | VSPMRDEAHGGTLWNTAVVVASSGAILGKTRKNHIPRIGGD |
| UniRet90－A0A011T | $\stackrel{\mathrm{V}}{ }$ |
|  |  |
| UniRe990＿UPloo0473 |  |
| UniRef90 E1ZJ33 | 1 |
| UniRet90－N9 |  |
| UniRef90－H2ZHM5 | VSPlRDEEHGGVLWNTAVVISNTGNVLGKSRKNHTPRVGD |
| Ref90－A7M142 | R |
|  |  |
| 028 | LMGSIMILDNDAVYNRMLLVAPSGELQ HYDKLHLFAYGN |
| UniRe990＿R7A1A |  |
|  |  |
|  | VVGVI EREGATLYCTALFFGPDGSLMGKHRKLMPTGTER |
| er90－D7CRV |  |
| UniRee90－UTSV1 |  |
| P100047 |  |
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| ef90 ${ }^{\text {W }}$ 6 |  |
| Ref90－S3BQU6 | V |
| ef90－H5V7H9 |  |
| Ret9 |  |
| 47 | T GSVQLRTDNGVSNRLLFVTPDGDVQ Y ${ }^{\text {a }}$ |
|  | CAGTFVSQAPKPDLNTSDFI DHNGNLLGTYTKTNLWIPER |
| UniRee90－UP1000475C935 | VYGYP EREDGNVYNTVRL DGSGAPLAGYRKNHLEGDLID |
|  |  |
| UniRef90 S6ACK6 |  |
| UniRef90－S6HBM6 | IVPGHFERVGDRDYNTSIVIPEGTIVNRYHKMFPF |
| UniRet90 |  |
| UniF | I AGSHPTRVENGRIENISYIFLRDGRIFEQPKIHPTPNER |
| UniReef90 V2 | VVGVIVERHGGTLYCTVIF：DPSDGLVGKHRKLVPTGSER |
|  |  |
|  | VNGSLFERAEDRVFNTSVSPKGEVARYRKMFPFLPYE |
| $\begin{aligned} & \text { UniRef9 } \\ & \text { UniRe9 } \end{aligned}$ | SLVLINNKGE |
| UniRef9 | $V T G S V A D V E D G Q Y Y N R L V W A R P D G S L V ~$ |
|  | MLGCIERRGGYSVYCSRVHIGAD |
|  | S |
| UniRef90－UPIO004713583 | A |
| 14ZRL3 |  |
| UniRet90 A7EXV9 | R K |
| UniRef90－UP10003671E12 | AVIGTNERDHGSLFNTQLFFDADGTLLLKRRK |
|  | A |
|  | TAGVVERAGSTLYCTMVYIDPVKGYVGKHRKLQPTGTER |
| UniRef90－ 0550 | dotvy |
| Ref90＿D6EA66 | A |
| niRef90＿C5CLB6 | GVNERSRFGVGTIYNTLVTIDADGRILGRHRKLVPTWAEK |
| iRef90＿M1PBT3 |  |
| UniRet90＿To |  |
|  | TGSLVIED GNQFYNRLVFILQPSGKIDVYDKRHSFT |
| － | AGSLIIEDGGK YYNRFIWMKPD |
|  |  |
| effeo | CVGYCEAGGDNRYNAAVSLTGDG VLGRHRKVHLPAAEV |
| Ref90 |  |
| et90＿R4Z518 |  |
|  |  |
| UniRef90 W7LTI9 UniRef90 ${ }^{\text {B3PGU3 }}$ | T |
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| UniRef90-V6J1x3 |  |
| UniRef90-2EEZZ2 | SNGWHWADPGTNG |
| iRef90-UP100036FCBFF | CFDKGDLP |
| Ref90-85CVJ5 | EDK HYVSGNRRVVVEYKGVR |
| UniRef90-A0A059AFF3 |  |
| UniRef90-UPI |  |
| UniRef90 A0A023N | EHT RYGSGNERLIVELIKGWR |
| UniRef90-UP100047 | $\checkmark W$ deas |
| UniRef90-E3 | TCDFSLECLLQHGTEFKTCEFDGIKLGV |
| UniRef90-E3PUA1 | WWG\\|QPGH |
| UniRef90-A3HXT3 | LVW A AEASGDSLVTFDTKGGKLGGLICWENYMPLL |
| UniRef90 G7Q |  |
| UniRef90-M3TN | EHEHYAAGMSYSSGTGYDVFDTPVGRVGLQI CYDKAFPE |
| UniRef90-UP100036F549C | EHEHYAAGS |
| UniRef90-K4IJ15 | KDWGMQKGS |
| UniRet90-UPIOOO2485506 | FDE KRYFNEGHQHLVFEYLGHKFGVLICED |
| UniRef90-D8 | FDE SRYFHPGSRLPLLVLNGATDGV |
| UniRefofo-N8Z4P66 |  |
| UniRef90 C5C0T7 UniRef90-H8GH9C | VRESDFLDAGAPDDDGAPLVVDVIVVRVGVLTCYDLRFPE |
| UniRef90-V8YBA6 | A DA 1 RPGKAVQVFDGPCGRVG |
| UniRef90-R5WM49 | AVVEYGGVRFLLLVCYDLRFPV |
| iRet90_G8XA | KEEAVFTAGKEKVIVEYKDWK CLQ Ch |
| UniRet90-F9Z5GG0 |  |
| UniRef90-M6T |  |
| UniRef90 H9G7A1 | A |
| UniR 90 - H H 42 | FNEATYYMEGTLGPHSAPETVFQTPFGRTAVNTCY |
| UniRef90-UP1000473FFB7 | PDGNDYKESSTIGAKYPPVVD\PGLCKIGLS |
| UniRef90-E1ZJ33 | GNTGH P/VFETAFGRIAVN |
| UniRef90-N9JDJ | GEGDGSD®A |
| UniRef90-H2ZHM5 | KVFQTSFGRIGVNICY |
| UniRef90-A7M142 | EHQHYVAGDTRLVVAWRGWRILPLVCYDLRFP |
| UniRef90-F4X9 | VVW |
| UniRef90-UPI0002888 <br> UniRef90-R7A1A0 | EDKYFKKGDKT |
|  | RA |
| iRef90-UPIO00423A9E4 | DGS ${ }^{\text {a }}$, TPVFETEVGHIGAAl CWENYMPD |
| UniRet90-D7 |  |
| UniRef90-UPIO0047D59 | EAKSFSAGNSHCIV VAHKGFNICLLI CY |
| UniRef90-10GCV UniRef90 O5NX | SGFGVTEAFGGVMGMA CNDRRWS |
| UniRef90-Q6 | TVFGEGDGSDLAVHSR |
| UniRef90-A0A059AAX7 | V |
| UniRef90-W6W542 | - PYERKWFAQEDRRQVLVTRGGIRLGFLICYDVEFPE |
| UniRef90_S3BC | R |
| iRef90- O 30 TO 0 | G NSLEIVN |
| UP | D |
| UniRef90-F9FMV0 | HQVIDTPGGRVGILVCWD |
| UniRef90-UP1000475C935 |  |
|  |  |
|  |  |
|  | FDEV |
|  | ED ${ }^{\text {L }}$ (YYTAGTARTVVQYNNISFLLQTCYDILRFPD |
| UniRef90 UP1000463C2CB | YWWDDEGGS SLTAUDTDCGP GVLICYDSEFPE |
| UniRee90-V2) | Q |
|  |  |
| Ret |  |
|  |  |
|  | DT RMAGEHERYSMGHDRVIVTLKGFR LLSVCYDLRFPV |
| UniRef90 WOH2K7 | LT W |
|  |  |
| UniRef90-14ZRL3 |  |
| UniRef90-A0AO599 | HWWNTQGGRGNS VIQTDCGPGVMICYDSEFPE |
|  | G |
| UniRef90-UP10003671E12 |  |
| UniRefot ${ }^{\text {C4 }}$ | T |
| UniRef90-Q55QK6 | YPDPEFIDQLEKRYFEPGD |
| UniRef90 D6EA66 | SWAGRGDEPFMFGTPWGPVG |
| UniRef90_C5CLB6 |  |
| UniRef90 M1PBT3 |  |
| UniRef90 Ton |  |
| 㖪 | VFTAGKKR |
| UniRef90-A0A059MUD1 |  |
| UniRet90_U5W677 | T $P$ |
| UniRef90_M1XNJ8 | AE LLVPGDRLPTAEVCGHTAAVTTCYDLRFPE |
| niRef90-R42518 |  |
| ef90-W7 | as |
|  | RMAGEHTRYAMGNQRLIVEDKGWQVLPLICYDDRFP |
| niRef90-F6io6e | LFWGFADCS |



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| :---: | :---: |
| UniRef90_V6J113 UniRef90 F2EZ2 |  |
| UniRef90 ${ }^{\text {K }}$ K1Y8U7 | AANNWGGNQSDGFSGESGVMCPIDRGM |
| UniRef90-UPIO0036FCBFF | ANRVGTEKRTPNNSLNFTGQSQVV |
| UniRef90-R5 | CYVIGANRTGCDPLCR YAGGSAVI |
| UniRef | EYVFAGTDDDLNPDSVVCAGGSVI |
| UniRef90_UPIC | CFTVLSGNVGNLPNMDIQYAQSCII |
| UniRef90_A0A023 | SYVVGLNRVGVD |
| UniRef90-UP10004 | CFVVGCNQY |
| UniRef90-E3ZHFO | AMANYPGHNW |
| UniRet90-E3PUA1 | VYTV Ma TVD |
| Ref90-A3HXT3 |  |
| G7 | ANL |
| UniRef90-A9API2 | AYMVLVNRAGP GDRYTFAGQSHVADPFGCV |
| UniRef90-M3TNK5 | QVFWVASNQSGTFGSLRYVGNAKIVDPGGN |
| UniRef90-UP100036F549C | CYVAAVNRIGADGNGYPHAGDSQV |
| UniRee90-K4IJ15 | AGSVDIQYAQSAVFTPSDF |
| iRef90_UP10002 | ANQVCG QDDLIFDGTSFV |
| UniRet90_D8PO | DELVDGCSM1 |
| UniRef90 N8Z4P6 | CNQVGGHDDLVFDGTSFVLNKSGEVLQAAS |
| - |  |
| 俍90-H8GH90 |  |
| 90-V8 |  |
|  | 俍GVNVGDPAAR YAGDSALVDFKGRMVEAGGGER |
| RiRet90-G8XA |  |
| UniRef90 F9Z5G0 | AFVAGVNCVGEDDNGLTYSGDSMVADARGREVGSSPGNEA |
| UniRef90-M6T6X7 | CYVVISGSVDDQYAOSAVFTPSDFAFPHDCVAAESP |
| UniRef90 |  |
| UniRef90_A0A011T6S4 |  |
| UniRef90-H9H642 | CA $\square$ NRVGVERFPREFPAHRDFGYFYGSSYVSAPDGD |
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| UniRef90-R1EGX4 | CFVMIIASQILTEKNRDRCRGFSMIYAPDGRELVKPPGEEG |
| UniRef90_H2ZHM5 | ALNRVPAHKDFGHFYGSSYVASPDGRTPGLSRTRDG |
| A7 | AYVAGCNRVGSDGNGHHYRGDSRINPQGDINAASEPHQA |
| UniRet90-F4X9\% | CYF NCNMYFTRDDEVVCRGGSCVVDPYGH |
|  | AGYi GCSCAGGESTQDLVFGGHDLIAENGTPLLETSKKFEQ |
| UniRef90-H5 | VFVVSSNLTGVTGSLRFLGQAKVVGPGGEILATTRSKGG |
| UniRef90-UP1000423A9E4 | TFVLSACHQGNDPKTVLIRGGS\\|IVNPLGEIVAGPYDREA |
| 90-D7 | $\frac{V Y}{M}$ |
| 1H5V | MY VSANRSNTELGFHMIGSSAWSPGGKKLVEAPEKED |
| -UPI00047D |  |
| UniRet90_10GCW5 | TFVVGVAKAGVEEGVDHIGGSC I APSGEIIARCTTGDE |
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| UniRef90-W6W |  |
| UniRet90-S3BQU6 | CLAAPDGTVPRADGSSA |
| Ref90-H5V779 |  |
| UniRef90_Q30 | RVGVJGNNLEYCESSNMFNANGEQVYFEQUDEM |
| UniRef90 | AAVNRVGTDGNGLVYAGDSAVIDFLGNPLSECADMEV |
|  | EGFFGCSQV |
| UniRef90-UPIo00475C935 |  |
| iRef90_BOV | Q |
| UniRef90-UPIOOO262745B | S |
| UniRef90_S6 |  |
| UniRet90_S6HBM6 | VDINGL S S |
| UniRef90 R5LM25 | CYV GSNRIGCDE OCSYDGGSAl VDAKGNLLSUAENCEQ |
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UniRef90 E3Q566 UniRet90-B4HKE6 UniRef90_UPIO004038AB1 UniRef90-UPIO00464E84F UniRef90 ${ }^{-}$X1FSY4 UniRef90_UPIOOO372D0A1 UniRef90_UPIO00370508A UniRef90_UPIOOO427B416 UniRef90-UPI0003B55C89 UniRef90-R6CTY4 UniRef90_UPI00035E379D UniRet90_Q9UBR1 UniRef90-A8ZX63
UniRef90_QOFVHO
UniRef90-G9Z306 UniRet90-G6A4Z2 UniRef90-12GRC2 UniRef90-A3Y529
UniRef90_K8XE03 UniRef90-A6E8G2 UniRef90-X0т4S3 UniRef90-UPI000262A23B UniRef90-UPIOOO38054F5 UniRef90-W81K45

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UniRef90 - IOLLFO
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 FRLTIAQLNPTGDLAGNAAQAKDAWEQAKAAGADMVA NTCKTALVQAEPVFNKSASLKKTLQYISEAASQKPDLIVI
 MRILACQDNIPASREKQLQHIDADIKELINKQVDLVV

MALVGEWAARASEAGAELAV K N
mSRVTLAACQYADETDWDSYERHLRALVAEAAEQGASLVL MKLAALQMQSAGDVATNLDRARAAKEAAAREATLLM DATVDKVCRLIEEAADNGARLVA SYVRDGVVQWQMRGSFDDFLQQVEFFVDTVARYQGDLIL M


FKAAATHAAPVFDATATTDKAVSLIHEAARAGAGLVA MDRLKLGLLHLSVHKAPNENRNEILNYAKEAALSGANLIV SRAATVQGCHRADKQYNLSVVENF DIQAHLSENANQLLV
 MKI SLLQLKDK KKPEENIDKV DEQUNKTKNLNGHIVL MDGLKI ATAQFNRSGDKAYNLSVIDALSAKAAAAGADVI A MTPLTVABWQYCPAGREENQRAAELLADAARQGAGLAC MEKLRVTVVQLINAHGDFDGNLKKIYNADDVAEKNQSDFVV MTPFAIAGVQMYVNALVP NVDGMIQRLDILMTRFPQMVL MPPFKIAVIQLYV PLPADNFARAVKF REAAAQECHLAV RKDTVAAAQVAVHKDRPETLSRLISLLEQASQNGVEVLV STYTLAMAQPRAGPDGSANVAHAVRLVEQAA GADLVC MQNLAVTLIQCELAWEPEDNRRQTGELI DTUSGL TDLIV

TVLVAAVQAEPEWDLQAAVDKTCSLI WDAAQRGVRLI A MRIALAQПRSGTDPAANLQLVGKYAGEAATAGAQLVV RSMSUALAQLNWVGDMEGNTERMLOTLNEQQKAGADLVM

KFKAAVCHIDAPVFDAEACVEKACDWHAEAARNGAELIIA NKVKTALTQMHPVVAPEVNFAKAESYIRSAASRGCSLAV MTALTLATAQLSAGDVENDARHRVFMQAAAEQGVQLEV MTPLTLAAAQ\SUAGDLPGNIARHQAFMR\AAEQGVQLLV

TLKIALLAQTHLVGDIDANVQNAVRNAKHAHETGADLIV RTFKVAAVQAEPAWDLEGSVNKTIKIINEAASNGAKII G DGEANLAFFDTLL ADLDGKDLII
 MSTLKLTLLQQPLVWDAPANLRHFDMLL APDQQRDVIV $T V V R L G L V Q W Q M R K D Y D S L V S Q D E F F V D A V S D Y Q S D F I L$ TNGRLTLAQLNVVGDIEANAARARRVEHDARAAGSDFIV $\square R V A V M Q P A A T G S V E Q N L A A \Pi E A A A R E S A A A G A R L L V$ LRVASVQYMQRGSFDEFKK II TYY YDVVHDYRCDFVL FRTTLAQLNATGDLEGNAQKALTAWRAARDAGADLVA $\square R L A A C Q Y A D H E T W E A Y A D H L Q A L C A K A D D A G A R L L L$

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UniRef90_I2GRC2 UniRef90-A3Y529
UniRef90-K UniRef90_K8XE03 UniRef90_A6E8G2 UniRef90-X0T4S3
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UniRef90-C8X5L0
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 APELLSVSGYSFDD IAK FT ETAD GETVQAL RQLAEKY GVYI




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## UniRef90_E3Q566 UniRet90-B4HKE6

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 CPGSVIVFI DDTGEVLARHRKI QLFGE LDD CPGSVAVLDEDGIYRNRCWLFGPDGVIGQQDKLMMTRFER IA G FA ELD GNDD Y N S A V Y V D G D A T P TVVYRK S HL Y G D Y E $V I G V N E R N R H G D G Y N T V V T I A D D G R I L G R H R K L V P T W A E K$ $V$ SG SVV E Y R DN KLIF NVS F L CRRRD GT WDT QY K L H H I




 $V G G F P C L T D G R V V N S A A V F R N G E L V T V Y D K V H L F D A E$
 GVGLIERAPD GGLYSSYVVCLPDGERRVHRK
VPGTI C EVVHE E L R N MAY FLAA GTGEDCGSYQKKNLDHPER
 QPGSLLPVRDADGMYRNRAWLFGPGGELGHQDKLIDMTRFE VA G S L P V A H A GA F V N R A Y VFG P S G L L G Y Q D K L M M A GNAYELDPNFPYFQTCFVIDPSGSVVLRYRRLNSMFAPT

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 | $V P G S V C E R G P E G Q F N T Q L V L I S P E G E L V$ | $G Y Y R K$ |
| :--- | :--- |
| $A L G$ | $Y$ | A

SLGLSERVVVVGCLWNANLI IGADGARIVNHHRKKVMLWQE E Q VLGFAERDPTNDFYNSAIALSPS GDTVCLFHKITAETRWA GVGF DE K G G D D L L Y N S Y A V C M P D G K I H H I H R K L H A F E H P N I
 GS I L R K T S K GK F N LA GL F E K D A Q D R LLYKA YVCVDKN G L VAK Y R KLLHPA
AA G VLLAA E GRD DY DAAVLVGPSGDLLGVYRRASLWEGE



 $V$ WSRTERCDDGRNR LVVYVT GRDGDPVLRYARTHPAT IPP $V G S \square M T R D E D K F F N R S F F C Y P D G R M L T A D K R H L F D G D$
 I A GMF TP T GDGRVVNTLI AA GPPN QPDAHYHKIHLYDAFG L V GHPWRE G D K K L Y NA L S L F A Q GK L L G R Y FK Q Q L P N Y G V A V GTVVGT DHASDKPRNRMVVLHDDGMVWAGYDK HF L P P N Y G V
 $V V \mathrm{P}$ G M P


 V GGSAA DQ TEK GAVNRFLLVEPEGKV H HY DKRHLFRMA D $V$ LGVVVEASPERHVYCTAVTI DPARGIVGAHRKDVPTWEER



 I A GSHPVVVSD TEVQNI CFI F LRRDGSVHEQPKIHPTPDEK VFSRHE EHPNKAPYNTLILMNNKGEVVQKYRKIMPW
AMA DGGPTDDGVHDHNA YYILQQGQLVAEVLKHHDPN FNV


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| UniRef90_E3Q566 | S |
| UniRef90-B4HKE6 | KGGGRFKESETM |
| UniRef90-UP10004038AB1 | LVW SPGDGN |
| UniRef90-UPIO00464E84F | RYAAGRERLVLEWKG |
| UniRef90-X1FSY4 | GGNEHCSWDAGSVPGM |
| UniRef90-UPIO00372DOA | ELVFAPGFGGPTLNDDGDVVALAVCADFTHAS |
| UniRef90-UP100037050 | LVWGFGDGSTM |
| UniRet90 UPIOOO4278416 | EHQKYSKGTKKVITDYKGWKLCPQVCYDLRFPA |
| 90-UP10003B55C89 | PHEYGTEFVVVETVLGRAGLSNCYDWFPE |
| UniRef90 UPIOOO35E379D | DEKDVEAGTEFKVCDVDGTK\\|GLMICYDREYPE |
| UniRef90_Q9UBR1 | FNESTYYMEGNLGH |
| UniRef90-A8ZX63 | FEE |
| UniRef90-Q0FVH0 | SGP可 |
| UniRef90-G9z306 | ANEHQFYQAGDERVVEE |
| UniRet90_R6A422 | KGYoytagtrplvi |
| UniRef90_12GRC2 | RLV |
| UniRe990_A3Y529 | AAELKYFKRGNH LSVFEVDGVRAGIICYDMRFPE |
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| UniRef90-A6E | V |
| UniRef90-X0- |  |
| UniRef90_UPIO00262A23B | RD |
| UniRef90-UPI00038 |  |
| 03 | RSLFRAEKPSTRLFAHRGVTCGMLVCYDVEFPE |
| UniRef90-UP100034 | LT WAPGDASALTVHD |
| UniRef90-C8X5L0 |  |
| UniRef90-UPI00037 | TAGAQTC LFTVKDSQLALTI CEDITWQPG |
| UniRef90-B30SQ6 | SAGHHVRAFN SRKLGK GVALCEDCWHMS |
|  |  |
| UniRef90-11W47 |  |
| UniRef90-Q3Z7G2 |  |
| UniRet90-101LFO | GPLCLVDTDFGPMGVM |
| UniRet90-W4P2E9 | WYPGDCTYVSEGPKGLKVSLVVCDD |
| UniRefo- 2 L | GOPH |
| UniRef90-C7ZDY8 | LKHADGRPVRAGMV |
| UniRef90-G2SOW9 | VFDTPWGVK |
| UniRef90 S6 | K V |
| UniRet90_UPI0003B43 |  |
| UniRet90-K9F | WDK YLDC M GL |
| UniRef90 ToBSN8 | WWGIAEGNETHVFDTDCGK |
| UniRef90-A0A034WAP1 | GNTGH PVVETDFGKILANICYGRHHPQ |
| UniRef90_O0RD84 |  |
| UniRet90_-12MTZ5 |  |
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| UniRef90 A0AO24H5Z7 | FGEGYAR TTVDLPA GRVGLNCCDAWYPE |
| UniRef90-TOZWF3 | AGDE |
| UniRef90-UPIOOO35D97EA | GDGAGLKVVETGIUG |
| B3QW |  |
| UniRef90-V3BHX9 |  |
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| UniRef90-UPIO00369F157 | HL |
| UniRef90-UP1000360 | DYLAAGEPLDALDPTLGRDGL QVSYDLRFPE |
| JP10003 | $\checkmark$ |
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| UniRef90 F9T302 | KHRHTFVSPHMSSGDQYTVVETPQGWR |
| UniRef90-A1D103 | SKDTPHQ VISTPLG |
| UniRet90_Q5KFLO | DQLEKRYFEPGDYGFKSVMTVVGLINHGAVSVIC |
| UniRef90 A1T9W2 | GEDG EKLVSPADTFGNFEVDG\| PMGVVVCSEMWTPE |
| D7JG45 | FFTR |
| niRef90_Q2Z071 |  |
| UniRet90-A0A017S | GDCTGDSLLNVVDTSVGRV |
|  | FTE SRTVAPGREPVVVVVDGVRVGLTVCYD\|RFPA |
| UniRef90-A4TMX0 UniRef90 E3EMF5 | SAGDRTVVVD K GVR Glvil Ced wlod |
| UniRet90-15CKF4 |  |
| UniRef90-H1V6H4 |  |
| UniRef90_4KUU1 | GQGGGALQWGND |
| UniRet90-14XYS | GTGGANMGD |
| H8GH35 | G |
| UniRee90-L8WGW8 | $V V Q T K Y G R L G S D N C T I L K A H F Y S Q H P Q I F V G G W W P A$ |
| UniRet90 | EHHHYA |
| UniRet90_A6FX13 |  |
| UniRef90-UP10003B793EC | YFREGKESLVFDFFGVPTAVSICEDVWQ |
| UniRef90 W8UON5 UniRef90 U2BZY1 | GN LICTYDTCGK |
| UniRef90-EЗF3प9 | E RRYFAAGP\\|SGPVAFEGGPRIGLPICEDAWFPD |
| UniRef90-UPIIOO047967A9 |  |
| UniRef90 UPI0004779F85 |  |
| UniRef90 D6YUS1 |  |
| UniRef90 UPI000467B119 | FEAGDVT GPYVVNGLRI GSPVCEDAWYGD |
|  |  |
| UniRef90-T5L0C0 |  |
| Ref90_D8EYk | IICNDLIWHPA |

## UniRef90_E3Q566 UniRef90-B4HKE6

 UniRef90_UPIO004038AB1 UniRef90-UPIO00464E84F UniRef90 ${ }^{-}$X1FSY4 UniRef90_UPIOOO372DOA1 UniRef90_UPIo00370508A UniRef90_UPIOOO427B416 UniRef90_UPI0003B55C89 UniRef90-R6CTY4 UniRef90_UPIO0035E379D UniRef90-Q9UBR1 UniRef90-A8ZX63UniRef90 QOFVHO UniRef90-G9Z306 UniRet90-R6A4Z2 UniRef90-12GRC2
UniRef90
-UniRef90-A3Y529
UniRef90_K8XE03 UniRef90-A6E8G2 UniRef90-X0 44 S 3 UniRee90-UPI000262A23B UniRef90-UPIO0038054F5 UniRef90-W81K45 UniRef90-UPIO00345EF7A UniRef90-C8X5L0 UniRef90-UP10002FD5CDB UniRef90-UP1000370ECB4 UniRef90-B3OSQ6 UniRet90-W9V4X5 UniRef90-X1IW47
UniRef90-Q3Z7G2
UniRef90-101LF0 UniRef90-W4P2E9 UniRef90-W5WOS8 UniRef90-B2JHN4 4 UniRef90-G2SOW9 UniRef90-S6AVS9 UniRef90-UPI0003B4350E UniRef90-K9PP84 UniRefofo-A2TRJ4
UniRef90 - TOBSB Uninef90-TOBSN8 UniRef90-A0A034WAP1
UniRef90 O0RD84 UniRef90_OORD84
UniRef90 12MTZ5 UniRef90-D3SP25 UniRef90-A0A024H5Z7 UniRef90-P20960 UniRef90-ToZWF3 UniRef90-UP100035D97EA UniRef90-B3QW29
UniRef90-V3BHX9 UniRef90_V3BHX9
UniRef90_UP10003788EEC UniRef90-B3E4K9 UniRef90-F8E7JO UniRef90-UPIO00369F157 UniRef90-UPIO003607CE1 UniRef90_OPIOOO36CA53-
UniRef9O-A6LMVO UniRef90 F9T302 UniRef90-UPIO00469BA4E UniRef90-A1D103 UniRef90-Q5KFLO UniRef90-A1T9W2 UniRef90-D7JG45 UniRef90-Q2Z071 UniRef90-A0A017S4P9 UniRef90-F7WLX4 UniRef90-A4TMXO
UniRef90 E3EMF5 UniRef90-15CKF4 UniRef90-H1V6H4 UniRef90-l4kUU1 UniRef90-l4XYS4 UniRef90_O6RWR2
UniRef90_H8GH35 UniRef90-L8WGW8 UniRef90-D8MNJ1 UniRet90-A6FX13 UniRef90-UPIO003B793EC UniRef90-W8UON5 UniRef90-H2BZY1
UniRef90-E3F3U9 UniRef90-UPIO0047967A9 UniRef90_UPIO004779F85 UniRet90-DGYUS1 UniRef90-E3HT91 UniRef90-UPIO00467B119 UniRef90 LOFRC6 UniRef90-T5LOCO
UniRef90-D8EY

HZ7


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SRAA $L Y A Q G E D \square H V A C W P G S D R N R S Y S \square S V S A \square M R P E D V R$ $F C R N R Y A L D F D L Q I F V A N W P A P$ R R A HA WKTLLLRARA DE NLL F GPP LDA EAGAELLLVTVVSAWPES GGELYYDDFTVVNAE KA S C HAAAAADQGADLYAAGVLI SEKGYAVDTADLQGYARQHS

 SAR I L M L K G A E I L V P N D C G G S M R PRDQALLSTAA YENM

 V WS RN R D DY D LAL Y VA NWPAPRS LH WQS L L LAAR A I EN Q

 S L R N Q K E E Y D V L L L I A S WP D K R S D H WN A LI IM A RA DE N Q





 WMRQQPDAEATTEYVCVANWPAPRRTPWRVLLRARAVENL


## V

 IG
N

 $T T R Q L T S Q G V E V L L H P V L T G T T D R D A E L A D A R R A T A V Q F Q$


 LKY H TAA WP PVRHHS GGSELFSMSREGTRIL AQTYAMESS L Y T E LARRGAQLIAVCASWGFRS GQ
P DDAVVKAAGAEVVLVSDNASPYNREKPYDRKTLMAABCQRT
 AFRELLI RDGARVIVCPAFWLADEYKH
HPRRAAAQAGANVYAA GVLI SEGGYAKDSALLQQYAAEHR HARAAA QS GA GI YAA GVLI SEK GYAAD TAL LAQ GYA VE HA ARTVLYT Q GEQI HVAPTLNP GSERWLSAMRQDANEGR IIA ENRREGA DLLLTVNASPFHAGKDRQREAVVCGQDKAA FAPHEGGSPYEASSRMTQMVAMEGSAFGQVGCQVVSKEGA VF S RNSNDYDLALYVVANWPAPRAAHWQALLLAR A DENQ A R F A L WT Q A P EVV HVALL WPGSPRLLTGDITTRFAAMA AR

 VAEAMAESGAEI LVVPNGSPYSRGKY DVRVQRMVSRVTEN

 $\begin{array}{lllll}L & A R Y D & \text { R }\end{array}$

 | $V$ | $A$ | $R$ | $A$ | $L$ | $A$ | $A$ | $D V$ | $L A$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

## UniRef90_E3Q566 UniRef90_B4HKE6

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UniRef90_G9Z3Q6 UniRef90_R6A4Z2 UniRef90_I2GRC2 UniRef90-A3Y529 UniRef90_K8XE03 UniRef90_A6E8G2 UniRef90-X0T4S3 UniRef90_UPI000262A23B UniRef90_UPI00038054F5 UniRef90_W8IK45
UniRef90_UPIO00345EF7A
UniRef90_C8X5L0 UniRef90_UPI0002FD5CDB UniRef90_UPIO00370ECB4 UniRef90_B3QSQ6 UniRef90_W9V4X5
UniRef90-X1IW47
UniRef90_Q3Z7G2
UniRef90-IOILF0 UniRef90_W4P2E9 UniRef90-W5W0S8
UniRef90_B2JHN4
UniRef90_C7ZDY8
UniRef90_G2S0W9
UniRef90-S6AVS9
UniRef90_UPI0003B4350E
UniRef90_K9PP84
UniRef90-A2TRJ4
UniRef90_T0BSN8 UniRef90_A0A034WAP1 UniRef90_Q0RD84
UniRef90-I2MTZ5 UniRef90_A0A024H5Z7 UniRef90-P20960 UniRef90_TOZWF3 UniRef90_UPI00035D97EA UniRef90_B3QW29 UniRef90_V3BHX9 UniRef90_UPIO003788EEC UniRef90_B3E4K9 UniRef90-F8E7J0 UniRef90_UPIO00369F157 UniRef90_UPI0003607CE1 UniRef90_UPI00036CA53A UniRef90_A6LMV0 UniRef90_F9T302 UniRef90_UPI000469BA4E UniRef90_A1D103 UniRef90_Q5KFLO UniRef90_A1T9W2 UniRef90_D7JG45 UniRef90_Q2Z071 UniRef90_A0A017S4P9 UniRef90_F7WLX4 UniRef90-A4TMX0 UniRef90_E3EMF5
UniRef90_I5CKF4 UniRef90_H1V6H4 UniRef90-14KUU1 UniRef90_14XYS4 UniRef90_Q6RWR2 UniRef90_H8GH35
UniRef90_L8WGW8 UniRef90_D8MNJ1 UniRef90_A6FX13 UniRef90-UPI0003B793EC UniRef90_W8U0N5 UniRef90_H2BZY1
UniRef90 E3F3U9 UniRef90_E3F3U9
UniRef90_UPI00047967A9 UniRef90_UPI0004779F85 UniRef90_D6YUS1 UniRef90_E3HT91 UniRef90_UPI000467B119 UniRef90_LOFRC6 UniRef90_T5L0C0

E ETP YAD E $\square K$ A A L G A MP A N G G S C V VA N P D G T WL L P P P $\square$ G E S C YVA AVNRVGT DGNGLAYDGDSAVVDFDGQPQVELHGREQ WHI VAN QVGNVGHAVDYGHSRIIDDPTGA I I AD T GSEE G $M A V L M A N H G G L D T G G W Q S A G R S C D W S E D G S L I V T A P C T G B D$ CFVLSANQVA GDPGDVLSVGNSVIVSPDGDVLAGATEGET $C Y V V G V N R I G F D E N N H E Y I G H S Q V I D D E L G N Q I L D A E E N L G$



 A Y V A GCiNR V G T D G N G H H Y R G D S R I I S P Q G E I L A T A D A H Q A NADMMIIRRNSYPSDEFACRGGSCII DPYGHYWTEPWDKET




 C

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 VY VGANVGNEASLSY WGNEVAADGNSVVADLEEA CYUVISCNCAGFNR ONOYDGHSAlVDPGOVSIASGGDFED

T TYVAVANASGFDGVYSYFGHS
 IESAL TS RAFENTAAVAFCGLS SVNMP L LGTLGG DE DGEE
 CYAV HA A D AP WT Y A V E D A V VGA A GVVYA P D GVVVA S G G WN E P G AYVVSANTAGIIDSPIPVDGGSK\|IDHRGIVVAETATGES

 $V L W V S A N Q S G S \quad F G S L R F V A S A K V V D A G G A V L A T T G T R P G$

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


UniRef90_E3Q566 UniRef90 B4HKE6 UniRef90-UPI0004038AB1 UniRef90 UPI000464E84F UniRef90 X1FSY4 UniRef90-UPI000372D0A1 UniRef90-UPI000370508A UniRef90 UPI000427B416 UniRef90 UPI0003B55C89 UniRef90-R6CTY4 UniRef90_UPI00035E379D UniRef90 Q9UBR1 UniRef90-A8ZX63 UniRef90_Q0FVHO UniRef90-G9Z3Q6 UniRef90-R6A4Z2 UniRef90-I2GRC2 UniRef90_A3Y529 UniRef90 K8XE03 UniRef90-A6E8G2 UniRef90-X0T4S3 UniRef90_UPI000262A23B UniRef90- UPI00038054F5 UniRef90-W8IK45 UniRef90_UPI000345EF7A UniRef90 C8x5L0 UniRef90_UPI0002FD5CDB UniRef90_UPI000370ECB4 UniRef90_B3QSQ6 UniRef90-W9V4X5 UniRef90-X1IW47 UniRef90_Q3Z7G2 UniRef90 IOILF0 UniRef90-W4P2E9 UniRef90-W5W0S8 UniRef90_B2JHN4 UniRef90_C7ZDY8 UniRef90-G2SOW9 UniRef90-S6AVS9 UniRef90 UPI0003B4350E UniRef90 UniRef90-A2TRJ4 UniRef90_TOBSN8 UniRef90 A0A034WAP1 UniRef90_Q0RD84 UniRef90-12MTZ5 UniRef90 ${ }^{-}$A0A024H5Z7 UniRef90-P20960 UniRef90-T0ZWF3 UniRef90 UPI00035D97EA UniRef90-B3QW29 UniRef90_V3BHX9 UniRef90 UPI0003788EEC UniRef90 B3E4K9 UniRef90- F8E7J0 UniRef90-UPI000369F157 UniRef90 UPI0003607CE UniRef90 UPI00036CA53A UniRef90-A6LMVO UniRef90 F9T302
UniRef90 UPI000469BA4E
UniRef90-A1D103
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UniRef90_Q2Z07
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UniRef90 F7WLX4
UniRef90-A4TMX0
UniRef90-E3EMF5
UniRefgo 5CKF4
UniRef90-H1V6H4
UniRef90-I4KUU1
UniRef90-14XYS4
UniRef90 Q6RWR2
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UniRef90-L8WGW8
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UniRef90-D6YUS1
UniRef90-E3HT91
UniRef90-UPI000467B119
UniRef90 LOFRC6
UniRef90 T5L0C0
UniRef90_T5L0C0
UniRef90-D8EYK2

IR Y CTLDPAFVRRERQNFPSGHYSRPEVTRLIV VATSTISAAALAAHREHFPAMLDA DAFELQ MVVIC E
L L V V
LLRAEDDGGA \AEGKYDFDVAGHSRPD DFTDEV VFII ELDKNKMLETRNK LINGLDK DVFE IVM TLVVTI DTDRLARVRE
$M A V G K \| V R A V Q D N F R$ LLRFPALDAD
LYYADFDMDAIREYRNS
L LVAK LDDNLCQQVNDVWNFKMTGRYEMYARE
VI MGELSKDLVRRKKDLLPY $\square R$ N DDP
$A D A H V D L E R T E D G W R A L$ L



LVVADVPD
LI FGDVD RTARERARRQNPY $\frac{1}{D E D R T A L F R}$
WL LCELDFAALHDVRLRGQVFTRR
LI FAD NPASFADSRLENTYRGR

LGIVEF
LLDGEDDFSQVRRTRDHSSHFDD
Fi T CTLSYSALTSFREAFPAWQD
1 VRGE
LLVLD LDDPALTR
1 LEVAFDPSLAKRVAAESDAFRQRRPDLYQL
VQYAELS SLI RDARKNMQSQNH LYKLHR
LLVLDLD L
MI SAEL DPALVGASPAQ RWDETRRPELYARL




VVVGDVDLELLRRSRNSGSV
L LVTELDLNLCRQVKDFWNFPMTQRDPGYA
$V A Y A T V D L A M L S S A R A G M Y H D R D R R P D A Y$
LKVVSLD
LLTAELDLDAVDRVRTH

 VFYVE V P TEA GK DHKNGDWLSERNPALYA
$I V Y A E L D G G L L T G R R W \square$ HGRRPELYGD

II STE 1 DTNKI S I A KNN DETGLNHDRNDDY
FVTAGLYKEHLQNA GGCRY NA R R R P ELGYGD
VATATVYPRKRRKAADRLPFRAD
$V L V A S L A A G R S T Q \quad$ AQDRRTPLFSPLSQ IVVLDD P
MI IADLDPNELDTGRRWM R DGRRPEDYREDAQ MFPDEI DLDMVRRQRETLKSFRDRSTD MGVATVDMAVLEDAEENYADRSD
LVIAATDLDDAK IGKQKFNFGLHRQPHQYS IITQ LVTATVDLDRLRWLRAHDDSLRARRPELYGELV
VKTVELDMGFQAKIRERFPVIKD
AA QVTLDSAALQAYRDGFPCHLD
LVIAEIINPDKVLGNRCFVDSCGHSRPDL

LG LIFDLDTDAEHQTTGD DADDPDPDEEVYT $\square A$ YAELD DAKC IVPKQFQDVVGYNRFDVFEFKV

LVIARRDDEH
L L I A
 1 GVVDF
1 LYAD
I L NAELSLENLREYRERFPAWRDA DAFSLL
LIVADLDLDAVARERHNLDVAGHHRPELLQLHV
HL
ALDAQLSLATLQTYREKFPAFRD
STLLVDVDLDLLKELHAFGSVRDRRKDLYSLKRK TVSH I DFTRCE
$V A T S T L D A S G L A G H R Q R F P A M D D A R F E L$
LLIADLDAAALADGRRRNTHLADRRPDLY
I I F A DLHLNDLFESRSSGSVLRDRRHDLFSVVW
$V$ QYAELSTSLIRDARKNMQSQNH LGKLVHR
AVQHLDDTRTAD
GATARLSLAAARDLAPHNHLFGDRRAELY


UniRef90_UPI0004003376 UniRef90-E4U5Z5 UniRef90-E6WNA5
UniRef90_X1T3Q0 UniRef90-T0XR90
UniRef90-N6XDK5 UniRef90-A0A021 W9Z0 UniRef90-UPIO0047EB043 UniRef90_B3EE39 UniRef90_UPIO00475A0EB UniRef90-UPI0003199AD2 UniRef90_UPI0003FAE4FC UniRef90_UPI00047C5479 UniRef90-A0A031IY07 UniRef90_UPI0002DB440A UniRef90-G2RLD1
UniRef90_Q28LZ9
UniRef90-U0EZW0
UniRef90_UPI00047B77C9 UniRef90-W4HMM3 UniRef90-Q9RRQ5 UniRef90_UPI00035FF91D UniRef90-A0A024K710 UniRef90-IOG2L9 UniRef90-JON9X0 UniRef90_NOB6M6 UniRef90_UPIO0036B6C01 UniRef90_UPI0002FE50F7 UniRef90-M1VV58 UniRef90-Q0VSC6 UniRef90-FODYX1 UniRef90 C6XZU0 UniRef90_UPI0003B50FD2 UniRef90-N1JR39 UniRef90-H1ZDJ4 UniRef90-C5ZWP5 UniRef90-UPIO0035E01FE UniRef90-A2BJQ5 UniRef90-C9LGB5 UniRef90_UPI00041B1045 UniRef90-R7AS89 UniRef90_UPIO0034B0FAD UniRef90_W6XC52 UniRef90_S3ZL13 UniRef90_L1L832 UniRef90_UPIO00361CA84 UniRef90-UPI0003139C48 UniRef90-14JH49 UniRef90-E6VDVO UniRef90-D7VXB1 UniRef90-D8MT62 UniRef90-M1M8H4 UniRef90-Q8W0T9 UniRef90_UPI000465DA68 UniRef90-R7COH1 UniRef90-K5ZULO UniRef90-A9NVZ9 UniRef90_UPIOO0345A764 UniRef90-R5SK36 UniRef90_UPI00028A11E7 UniRef90_UPI00035FAEF6 UniRef90_C4U1V5 UniRef90-W6YVB5
UniRef90-HOJ5B0 UniRef90-UPIO003BB5F178 UniRef90-KOV1N5 UniRef90_G4LZ99 UniRef90_D1P3T1 UniRef90-R9N1M2
UniRef90 K7T1Z7 UniRef90_W2UK10 UniRef90-R6ULK3 UniRef90-UPIO0035E1ECA UniRef90_UPI0003759DFE UniRef90_UPI000289111F UniRef90-L8XYE7 UniRef90_UPI000375467E UniRef90_D5BRM6 UniRef90_M3B195 UniRef90-A7E859 UniRef90-A3V9J9 UniRef90_R9V6B0 UniRef90_R5KL83
UniRef90_S7VBD4 UniRef90_UPI000375E2C6 UniRef90-L7ETK6 UniRef90_L7EIK6
UniRef90_UPIOO037E5D49 UniRef90-JOVEC7 UniRef90-T1AQG0 UniRef90-C5GG23

 | V | $T$ | $l$ | $R$ | I | $A$ | $Q$ | $T$ | $D$ | $S$ | $V$ | $A$ | $N$ | $F$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $V$ | $H$ | $L$ | $A$ | $I$ | $C$ | $Q$ | $Y$ | $V$ | $A$ | $S$ | $N$ | $S$ | $S$ |

 I T I S TVVTF N I WW G E K



TFRLT LAA QLN P T G D L G G NAK LVREAFAEAKAEDSDFDA
$T L I \quad G L A Q A P A R G D L E A N L H T H L M Y V E Q S S Q L G A N L V M$ $M K I A L A Q D N P T G D F T G N T K K D L E F A A R A S E Q G A E L V V$ MTPFA A G $\quad$ QQ Q Y VNP LQ SNVD GMI HR LDVVCLARFPW $M S V L R V A A A A Y P V R F S W Q D Y A A E L G R W V E E A A R Q R A Q L L V$ K SLR R A VA QTTVRLDPRANGAEMRRGMRQASETGARLL H
 KFKVAAMHASPVFDTAKTVDKACSLI E EAASNGASMVV $M R \square A L A Q L N P T G D L V G N A R R A A E A H A Q A K T L G A D V I V$
 I R LAA CQYA DE E T WDAYAA HLTE LDC AAAAA R GS QLL L $M R \| D M A Q Q N L V G D \square E G N A Q R V I A A S D E A R R L G G A D L V E$ SFRVVAAVQAAPVFNLDATDDKAI GLI GQAAQEGVELI A
 MSTTRFALAQQIDVGDLDGNAAKVIATTRMARERADVVV
 MKI A A LQQLS L EK SQKEI KNYLEDAHSQKDVLIL




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








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



$R K L N D S L A Q L N W V G D \square E G N C D R M L Q V V E Q \quad Q S Q N T D V V M$
 $M R V A \square L Q L P S I G M G S \quad N K L E S Y A R \square A N Q K G V K L M L$
 $N I F K V A D L Q L N A I N M D N S L K K G I A C R K A K E L G A D I A V$
 $R R$ A TA A A H F G R D L T F D L S R V A A L A E E A R GA GA A V LV $M Y N L Q I A M E D Q N S R G D V A R N R Q Q I I D E R I E R A V S E G A E L I V$
 $M 1$ I SA QF TARPDVGANVATMAGGVREAAGKGAA VA
TFRLTLAALNNVVGDDPGNADMARAAWTAAKEAGADMVM $M K L C A V Q L A S K G D L P G N D Q R H L A C D E A A A A F G A E L V V$

 MPRMRLAVA QTVIREDPRDATELRRSLMREAHQAGARLVA MP QL R L AL NQIDDSRGDIAKNADSVLRWTRHSAEQGAHLVA
 $R R V V V A A D Q M D C T W D A D R N D A V A E R L V R Q A A A A G A Q I I L$

UniRef90 B7G8X8 UniRef90 UPIOOOO4003376
UniRef90 E4U5Z5 UniRef90-E4U525 UniRef90-E6WNA5 UniRef90-1T3Q0 UniRef90-N6XDK5 UniRef90-A0A021 W9ZO UniRef90_UPIO0047EB043 UniRef90-B3EE39 UniRef90-UPIO00475AOEB UniRet90-UPIO003199AD2 UniRef90-UPIO003FAE4FC
UniRef90-UPI00047C5479 UniRef90-UPIOOO47C52
UniRef90-A0A031IY07 UniRef90-UPI0002DB440A UniRef90-G2RLD1

## UniRef90-Q28LZ9

UniRef90-UOEZWO
UniRef90-UPIOOO47B77C9 UniRef90-W4HMM3 UniRef90-Q9RRQ5 UniRef90-UPIOOO35FF91D UniRef90-A0A024K710 UniRef90-10 G2L9 UniRef90-Jongxo UniRef90-Nob6M6 UniRef90-UPIO0036B6C01 UniRef90-UPIO002FE50F7 UniRef90-M1VV58 UniRef90-Q0VSC6 UniRef90-FODYX1 UniRef90 C6XZU0 UniRef90-UPIO003B50FD2 UniRef90-N1JR39 UniRef90-H1ZDJ4

UniRef90 C5ZWP5 UniRef90-UPIO0035E01FE UniRef90-A2BJQ5 UniRef90-C9LGB5 UniRef90_UPI00041B1045 UniRef90-R7AS89 UniRef90-UPIOOO34BOFAD UniRef90-W6XC52 UniRef90-S3ZL13 UniRef90-L1L832 UniRef90-UPIOOO361CA84 UniRef90-UPIOOO3139C48 UniRef90-I4JH49 UniRef90-E6VDVO UniRef90 D7VXB1 | UniRef90-D8MT62 |
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| UniRef90 M1 M8 | UniRef90-O8W0T9 UniRef90-UPIOOO465DA68 UniRef90-R7COH1 UniRef90-K5ZULO UniRef90-A9NVZ9 UniRef90_UPIOOO345A764 UniRef90-R5SK36 UniRef90-UPIO0028A11E7 UniRef90-UPIo0035FAEF6 UniRef90-C4U1V5 UniRef90_W6YVB5 UniRef90-H0J5B0 UniRef90-UPIOOO3B5F178 UniRef90-K0V1N5 UniRef90-G4LZ99 UniRef90_D1P3T1 UniRef90-R9N1M2

UniRef90 K7T1Z7 UniRef90 ${ }^{-K 7 T 1 Z 7}$
UniRef90
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FPEMFTTGYQLLDLVMKQA FAEDVQRVTADLAAELHDGP FPELSLTGYELDLADELDAFDLSTPAIKALSASAATHNTTV FPELSVCGYPPADFLE KDAFVERHEIAAWTAAASHPSVLV QMVLFSELDAPFGPLNKYALPSENEEALDKFREAASRNRVWL FPEYAGLHHDDRGLDPALQPLLPEVLALHERLAREHGVTL FSEGTGCFPHKRELSEGGPDWSRYQWEALREELEETRKLA
 FPELFLNGYPPEDLVLKLAFQDATRVELEREACARCADGPA FPEMALNGYPVEDLALRPEFAHASR DALRDAADAADRAG LPEYAGLRSDLQGSiAGDQPLIPAWRALCEDLARRLQLYL
 FPENFPGGYPRDFLDEDEFWESCEKSAQQEAAKHCNGUAC FPETTLSGFTNNAERAYVKDACGOTVFFRKQVDHWGLPA FGEYFFGSFFKTLEQTKKSQLVSKIETQLAALLSNEYPMGF YGEMFFGGYPPEDLVMRPAFENACEVEEFAKTTSEDGPGA




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UniRef90_F9U7X3



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| UniRef90_B7G8x8 |  |
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| UniRef90-E6WNA5 | VRGDRFT VFDTPWGVKAGVLICWDNNLVE |
| UniRef90-X1T3Q0 | LLFYSRGDGSY FNVYDTRYGKLSAMGCGEHLNSL |
| UniRef90-ToxR90 | FDENRYFQSGN ENTILRYRNVTIGVNTCEDIWYPK |
| UniRef90-N6XDK5 | FDEERYFESGA |
| UniRef90_A0A021 W9, | FDERRYFDVDPDGEACVFEVKGRESVSVGVV CEDLWFAE |
| UniRef90 UPI00047EB043 | GMP GELLRYFSAGQHTRATDSKRLGRUGVAICEDEWHVS |
|  | AFGFQESTIIIAPGSAIAGFELILGVYGLATCYDLRFPE |
| UniRef90-UPIOO | FDEQRWFKAGR TLDVLRFHGCDIGMVICEDLWQD |
| UniRef90-UP1000 | YWGLKGGD MLRTYDTDAGKIGTLICYDVE |
| UniRef90-UP10004 | HWATRGGGK PFLLDTPWGKI GL |
| UniRefol - AAOC3IYOT | GAVVEFGADR1 S |
| 90 UP10002DB4 | GKDNVMLSVKGN |
| G2R |  |
| Ref90_Q28LZ39 |  |
| UniRet90_U0EZV | C |
| UniRef90-UP100047B77C9 | FDEQRYFEEQPVADTVCEDAWNDKDFWPRQLYPVDPVDALL |
| UniRee90-W4HMM3 | PGAGVRVFGAGGVQFGVA CYDSEFPH |
| UniRef90-UPI00035FF91D | MYSPGSTPVTFETDGM |
| UniRee90-A0A024k710 | E RRYFVPGDLAEPVT\\|KGVSTG\|P\|CEDIWWAE |
| UniRef90-10G2L9 |  |
| Uni |  |
|  | PNYGVFDEKRVFAAGPMPGPLNVRGVRI GVPICEDIWASE |
| UniRef90-UPIO0036B6 | FDEL RYFAPGTRLSUTEVNDVRLGIVVCEDIWQPG |
|  | WN |
| UniRef90-M1V588 | KRYFOPGKDACTFDIDGWT GIT CED WHAG |
| UniRef90 FODYX1 | CKFGEGDGSDLTVVDTSLGKIGSLCCWEHVQPG |
| UniRef90-C6XZUO | PASHFECI DFQGIK |
| UniRef90-UP10003E | SAGERHVVLS do $^{\text {aVVRVGLAIICED }}$ |
| UniRef90-N1JR39 | EN |
| UniRef90 H1ZDJ4 |  |
| UniRet90_C5z | WNEARFFANTLPKLIKTPPIFNAGGFKFSVFGYELHFDE |
| UniRee900 UPI00035E01 | PGPVNF |
| Uni |  |
|  | KQLFTAGERRTIVNWGFR LLQTCYDLRFPG |
| UniRef90 UPIO0041B1045 | FDEY WDGY RFEPAQKFKCIDFMGHK |
| UniRef90-MAS889 | DVWDKYLDCYGLEGVFPVAKTATGNLAALASEEVWYP |
| UniRef90-W6XC52 | DGAGLRVVDTPVGRIGGLICGENTNP鸟 |
| UniRe990_S3ZL13 |  |
| UniRet90_L1L832 |  |
| UniRef90-UP1000361CA84 | GGAALTLGADTVAL |
| UniRef90-UP10003139C48 |  |
| UniRef90-E6VDV0 |  |
| UniRef90 D7VXB1 | R |
| UniRet90-D8MT62 |  |
| UniRet90 M1 M8H4 | KRYFNGNKPS |
| UniRef90 Q8V | PGDUTLKESDTFTGGQETTIVDTDVGR1 Gl Gl CHD |
| UniRef90-UP1000465DA68 | FDEFRNFVAGDRS LVVRFHGVDIGIAI CEDI WVDD |
| UniRef90-R7COH1 | YDKHNCFKKGSFSPGEKOLVVNWKGHRLALY CMYDLRFPD |
| UniRef90-A9NVZ9 | VIWGFGDGS |
| UniRef90-UPIO00345A764 | LRAFDACGARMATLI CNDAWQPM |
|  |  |
|  | DLWDGA |
| UniRef90 UP100035FAEF6 | DVAVA CED WHSM |
| UniRef90- | - |
|  | GT ORPLVYEHKGAKLGLLICEDL W |
| UniRef90-UPIO003B5F178 | YS $V$ Q $\square$ S R WLFECNEMPSFRVASELCEDLW |
| UniRef90-KOV1N5 | G |
| UniRef90 G4LZ299 | UVIQNTPVGNLGLAICYDMRFPE |
| UniRef90 R9N1M2 |  |
| UniRef90-K7T1Z7 | N P IEAVKP PMIEAVDGFKFAVMGGYETHFDP |
| UniRet90 W2UK10 | D LVYGKGDEKTIIQYKGWKLCPQVCYDLRFPV |
| UniRef90-R6ULK3 | EKYMTPGNDFYVGELD |
| UniRef90-UP10003 | P WG |
|  |  |
| UniRe990 UPIO00289111F | SSGVIEPGDALHG |
| UniRet90_L8XYE7 |  |
| UniRe990_UPIO00375 | V |
|  | ORNFAGAMPGPVVRGL |
| UniRef90 M3B195 | G ${ }^{\text {a }}$ |
|  | L GliPlice in mwa |
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| UniRet90_R5KL83 | DKVY |
| UniRef90 STVBD4 4 | $\stackrel{A}{A}$ |
|  | 俍 |
| UniRef90-UPI00037E5D49 | RYFEPGLQANYFTLDKVHIGVTVCEDLWNDE |
|  | L |
| UniRef90 T1AQG0 | DTGLKVWTTRYGRIGGR |
| UniRef90-C5GG23 | APGATGSKASVQTDFGCDST CGENGNPD |
| UniRef90_F9U7X3 | KRYFQAGSTPLVLEHLGLRGGLSVCEDII |

## UniRef90 B7G8X8 UniRef90-UPIOOO4003376 UniRef90-E4U5Z5 UniRef90-X1 1 ЗQ0 UniRef90-ToxR90 UniRef90-N6XDK5 UniRef90-A0A021 W9ZO UniRef90-UPI00047EB043 UniRef90-B3EE39 UniRef90-UPIO00475A0EB UniRef90_UPIO003199AD2 UniRef90-UPIO003FAE4FC UniRef90-UPIO0047C5479 UniRef90-A0A031 YO7 UniRef90-UPI0002DB440A UniRef90-G2RLD1 <br> UniRef90-Q28LZ9 UniRef90 UOEZW0 <br> UniRef90-UPIOO047B77C9 UniRef90 W4HMM3 UniRef90-Q9RRQ5 UniRef90_UPIo0035FF91D UniRef90-A0A024K710 UniRef90_10G2L9 UniRef90-JoN9X0 UniRef90-NoB6M6 UniRef90-UPIO0036B6C01 UniRef90_UPIo002FE50F7 UniRef90_M1VV58 UniRef90-Q0VSC6 UniRef90-FODYX1

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UniRef90 A3V999 UniRef90-R9V6B0 UniRef90_R5KL83
UniRef90_S7VBD4 UniRef90-UPIO00375E2C6 UniRef90 L7ETK6 UniRef90-UPIo0037E5D49 UniRef90-JOVEC7 UniRef90-T1AQG0 UniRef90-C5GG23
 PLAKTMTAGVDWVIVNASPFEVDKHQQRLHVLQQRDAESG TATTVALQGAEIIYVPSASPAPANVERWATLARAVSGEHG NARITALMGADILAPHQTGGTHGRGWLMRWLPSRAHDNG FKLALLGMGTQUHIAQWPSFGMYPDPIDFNIRQFAYEGK GPLYHQTLDGDVVNLSASPFHAGKREVRESMLKTRAADNG PLAATANAGARLVLVPNASPFERDKHAQRDALLETRVQET LIRHLREQGVDLLYIVSAHYYRWKVDKNRA P PGARAVENK VPYLLAHQGAKLLFVLMSSPGRMSPSQWQTLAGTYAFLFS GPVSGA GVGVVVSPNASPYERSKDDDRLPLVARRAAEAG LA RLLSEERMQLLFVPYLTDTHNAYMRVRHCAAARADENE VMRYEGAMGARVGNATALAKCHGKALGSTTVNAAVLQNG HAKDAQDAGADVYLVSALISSQNGYEHDSELLADDAQTHR MTRYPASQGAKVVFYVAQWTYKNVDHWKALLKARATENG
 MQQWKADAAALI LNISASPFCQGKPAVRERMLAAGAQRHR TTRQLTSMGAEVLLHPVLTGTTDRDAELARARAATAAQFQ LARAQAELGAELLVVPSFTASRAGFTRVRVGSMARALENQ VCEHLVDNGARLLLCPNGSPYWRNKQDTRKELVLARVNED
 VVET LIAETGAELI ISPNGSPFDWHKPDTRMNIAVARVTES GPVPYAAAGVDVLCLNASPFERGKAEVRLSVVQRRAAEAG LGRHLAEAGADLILVPSCTDTVAGFHRVRVGAQARALENQ KHSRWYGRAAQILTYPSAFTVRTGQAHWETLLRARALETQ PAAQLQKAGTD LNLNASPYRDNKADERFDQVQARCRETG TKYAMYAQHEQIHIAAW
NNPLYDASPMDMINIAASPFSYCHDEERVVVLSDNARKYN GPVAEAEHTDVLLTINGSPYEEGKTQ DRLDLARRRAAEVH LDF ANLPAEVMIVIANWPEKRANHWQALLKARAADENQ FWLKFKQNNVD CVLLASASTFDSSPRWRNIIKMRAFLNS VCETLAESGAEILLVPNGSPYYRGKVD\|RHQVVIKGVIES IARSLLLEGA
FSRNRNDYD $\square$ ALLAASWPSSRQDAWTTLLKARA $\square E N Q$ DNPMYLECPMDV VNCSASDEVTGKSEYRRSLISGQSARLL STAHASAGATVIVNCSASDEVTGKSEYRRSLISGQSARLL ARYALDAQGEQI HISSWPALWPTRRPSSGGNFNNVAANRA GRVPATRTAGALLSINASPYEQNKDDQRLELVRKRAQEAG NKYAMYAQHEQVHIAAWPTAYALGAEANLAATQTYALEGG HALQAARSGANL YASGVLVSENGYATDSALLQGYAREHD IIRGYQSVDVILHPAN ARYALMAQGEQVHDAPSDHPDGTGGYDTQDGARARAAAHS FARNNDDYDAVLYVAN WPEKRVGAWEHLLKARADENL YARDAARRGANL YATGVLVSEKGYHNDCEYLARWSRDYK VMKMYNGMQDDVLTVLNASPFDDNKEDKRLDUAKKSAKEL LAMLYRSKGAHLICYPSAFNMSTGELLWDLMQKSRA GPVAKARTPGLVLVPNGSPFERAKEDVRQSLVRKRAKDDG VAQKAKAMGAE LAACNASPYEAGKARQRERTVVGHAAAA WSRNEDRYDTAUY $\triangle$ AN WPESRRDDWNRLLRERADENQ
DPWLAAQDGAEVLLVPTNSAAVGGDDYWRDLVHHDARMQQ PCLEIKKKKADMVLVTAAWPPGKCCSDPVSVWETCSKLCG PVRAVRDAGADIVTLNASPYHQDKPAERLRLLEQRAAEVS AS DASRTPGLVVVPNGSPFERNKDDVRLALVQKRAREIK WS RN QQDYDLALYVANWPAARAKHWQTLLAAR A $\square E N Q$
PVQAARDAGAEVISLNASPYHQDKPAERLRLLAEHAQDVQ PPSHCLAGATVI ANLSASNEVIGKSRYRRNLVSAQSARLV
$M V R D L A V R G A Q I D A V A A F G R P R L H A W E L M T R S R A L E N G$ SHLRYAKNAHVLSYPSAYTTRTGEAGHWHTLIRARAIENQ P DDNVKGAGAELVLTINASPYDLHKEHDRSDLLEEHCQRT PGISHGLAGAILLVNLSASNETUGKDVYREMLVKSSSAKD

 SARALVEAGAELLLVPSCTDTDAGYHRVRWCAQARAVEQQ PVRAQYEAGVRLLLVPSCTDTAAGATRVRVGCLARALENR CDVLCC
VSRHLA WLGAELVNVVQT PTAGRAQEDPVNQANA $\square V N Q$ V VECLQESGADM
1 AARAAADGCALLVATSLYGSDGGREERDRDFPADARDHG LACWENTDHAAAWPALSTDSGFELVADAQDEALMKNHADT AVCENADKGAEVLAVPNGSPYYRGKVETRHGVMRARVEET HAAAAREHGADLYLV SVAKTAKGIREGYAHYPEVARELS DFSAMRDQYEAMMVANW PETRAEQWKTLLKARADENQ GF WE HPLYERDULNLSASPFTQGKDRVREQMLASDAKSHG GRVPAAARAGLLLSINASPFERDKDDTRLELVRKRAQEAGG
EFWGRRSYGVDFIVNLSASPYTVNKQRFREAMLSHSAVRF EFWGRRSYGVDFIVNLSASPYTVNKQRFREAMLSHSAVRF
A $\square Y S$ YS $\square D Y P \prod V H V A S W P A H F G P S \prod A P D D M Q R N \prod L A A S \square S$ $P T R Q A V E A G A Q I I N I D A S P F H V G K R A E R E A L V A R R S G E H A$

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| :---: | :---: |
|  | UniRef90-UPIOO |
|  | UniRef90-E4U5 |
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|  | UniRef90 ${ }^{\text {A A0A021 W9 }}$ |
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|  | UniRef90 JoN9x0 |
|  | UniRef90- NoB6M6 |
|  | UniRef90 UPI0003686C01 |
|  | UniRef90-UPI0002FE50F7 |
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UniRef90-S7VBD4 UniRef90-UPI000375E2C6 UniRef90-L7ETK6 UniRef90-UPIO0037E5D49 UniRef90-JOVEC7 UniRef90-T1AQG0 UniRef90-C5GG23

VVYVIAVANAAGFD GVFTYFGHSAlII GCDGRTLIGECSTENG ${ }^{220}$ CPIVYVNNCGG QDELVFDGHSLVLDSDAETVVEPHCQPC CPVVYVNNCGG QDELVFDGHSLVLDSDAETVVEPHCQPC LFIGLSNGIGGDDNGERTGGAMVLDPYGRIVNEWSAED TYVVYTNLVGG QDELVFDGQSLVIGAEGEYLSGRGKFAEDD
 GYVFLANAVGSHD GMVSDGNSLLVDDPEGCVVVSAGEVEE CWVAGVGQARPPDAMPMGDGYSTVADGFGRVHAEDGPDPE APLVYANQVGG QDDLVEDGDSFVVGAGGSLLARAPQFEH
CFVAVTGSVGNHYSQAVVFTPCDFAFPFNGIKSEATNTEM CFVAITGSVGNHYSQAVVFTPCDFAFPFNGIKSEATNTEM LLVLMANHGGP SGGWACAGRSAIWAADGSLLA FPVLLSNFVGETGGWETAGQNRVWDVNG
VYVIACNSVHKDHVGNTYAGHSMVIDPNGNIIEEGGDQEE GLPMAY LNLLGGQDDQVFDGGSFVLNRGGALAVQMPQFEA FPVLLCNHILK TGGWDTCGKNSVWNAQGKLAGTSDNQQG AFVVLVNQVGGD DGLVFDGSSLVIDPAGKVVSRACFAED CYVIDVNGL CYALHAADAPWTSADEDAVGRAGLYAPDGMVAQGEWNAPG YWVSYAAHAPQ SVIAPSGIAAPNGQWLCPADGTPG

 GLPLAY LNQVGGQDELVFDGASFVLNGDCS LAVQDPAWRE VPVVYANLVGG QDELVFDGGSMVVAADGAIIGRAPFTEH $V A V L Q S P T V G L A P W S P A L D E N P D R G M P A D G V V A Q S S E L C Q$ SWVVASAQVGRHNDKRVSYGRSLVVDPWGEVRIRLSTMEE

## पpLLYVNQVGA QTE\|IFDGGSLAFDAKGNLIDEPYFKEA

 APMIYVNQVGG QDDLVFDGGTFVVDTDGTLLQRPMFMED CHYLSANR GKEYFEESYRGESQLVNPDGKVLAKAAATES ELPMVYCALLGGQDELVFDGASFAFNADRSLAFQMSQFEE
CYVLGANRTGDDP H पHYTGGSVAYSFSGA信ADDEDKVC
CAYTYANAGEGESSQDLVFGGQNTIAENGLSEARFENQ AYVVSANSAGDANTADPTDGGSKIVDYRGLILAETASGES KAFGIISAGYMDAGMRDYRAATMFVDPTGSPVGDMSDDEG CTTAYLAMMGGQDELVFDGDSVVVDKDGEVVARAPQFEG CFAVLMAN HVGVEQGGWVAAGSSRIVGPDGSPLGKPLDEEG CHVVTCNRVGQDVVDAFYCGSSRVYSPKGEVMLQLSENQA FEAKVFNTVAGSPFDATARKYSMITDPSGKPISEMQADEG MYTMSVNLAGYD GVFYYFGEGTVCNYDGNVIQQGHRNPE SFVFGLNRIGTDGNNLFYQESSHCFFADGKEISRKQGN MAVLMANHALP TGGYQSAGKSALWDESGRQVVAGGEGEQ SCDUVYANSVGGQDELVFDGSSFIVNKEGDYLKKLNSWHE APLAYVNMTGA QDDLVFDGDSTVATANGDIVARAPQFDG


CYVVMVNRVGSE NGVSFWGGSRTVDPFGQVVAEAPLDEA VPVIVCNQTGYHERMDMREAESAVIVEGQRLFTYKGDPA LPLVYVNTIGGQDELVFDGGSACVDAGGQVRVVAPYWQA APLAYVNMTGG QDDLVFDGDTIVVDKDGQLLARAPQDDT AYVAGCNRVGDDDNGHYYQGDSVILDAQGEILAQAEPGQA
 AQVWVICASDYVDDGTLKWGWSAVIHPFCTVLAGPHTEEK GLPLIYLNMVGGQDDQVFDGASFGMDAQGELAFQFREFDE MPVLMANCVGPADTFIGAGGSAAWDSQGRLLASLDDHEG AYVIAVNRVGDGDGLHYDPGSHVYDWLGRDV SIRVSEK VPILYANQAGGNDDLLFDGRSCAAAPDGKDFARAKFAED CTTAYLAMVGGQDELVFDGDSTVVDKDGEVIARAPQTEG QQPIYYANQVGGNDDLIGDGRSFALNKQGEVVCRAPQGKED RASAHCFEAKCFGAGRLDEGARFFLGPTGAPLGDELIDEG

CFVINS VAAVVSNEA DDAYGGDEA\|LGPNGS VAGPFEEEG $\square P \| V Y A N L V G G Q D E L V F D G A S F V A D G A G R I L H R A V F E E D$

| UniRef90 B7G8X8 | U Q Y A QL |
| :---: | :---: |
| UniRef90_UPI0004003376 | CVVEVRFD AT GI R PVMS D F |
| UniRef90_E4U5Z5 | VLLA DVDPGRIP PVVRYDNPMLAD |
| UniRef90_E6WNA5 | L V V A DL D TS LLAATGRRWI H GRR P NLY GML |
| UniRef90-X1T3Q0 | I VTA EI SLEDALPHKMELNLLGHTRWDILSL |
| UniRef90_T0XR90 | V I IS E I DV D R VF GVRLLHDPRRR |
| UniRef90_N6XDK5 |  |
| UniRef90_A0A021W9Z0 | W L VA D |
| UniRef90_UPI00047EB043 | C L L T T |
| UniRef90_B3EE39 | SLDVPVDF TEVKR T R L H S S HFLDEDLRLI S |
| UniRef90_UPI000475A0EB | LAVVELDPQRADAARAATGTLANRR |
| UniRef90_UPI0003199AD2 | $L \mathrm{~L} V$ A DV SVEAVE CAP G T Y E GLEVVR R |
| UniRef90_UPI0003FAE4FC | 1 L I S DVDLS LL E S L H F H G SVLLD K R N D L Y A |
| UniRef90_UPI00047C5479 | MY TA T I DL S L A T A IFF K S P L I D D F R P D K Y $\square$ E L Y K |
| UniRef90_A0A031IY07 |  |
| UniRef90_UPI0002DB440A |  |
| UniRef90_G2RLD1 | T I T A E $\square \mathrm{H} \square \mathrm{Q}$ K VTT E |
| UniRef90_Q28LZ9 | GLE QVDFARGD D G WVA K D GVK A R LP EA Y E A D Y R |
| UniRef90_U0EZW0 | LL I C T M S K N H L |
| UniRef90_UPI00047B77C9 | L V I V D |
| UniRef90_W4HMM3 | MFPILEVDFDVVRRQRET LK S F R D R G N D |
| UniRef90_Q9RRQ5 | WLIH DLD FARTRRVREAGHVLNWRDRD |
| UniRef90_UPI00035FF91D | LAFADIA T NPENPAR P WRRTARGDLYR |
| UniRef90_A0A024K710 | DF I V |
| UniRef90_I0G2L9 |  |
| UniRef90_J0N9X0 | $L$ QYA QLSVQQ $\dagger$ R D A R K |
| UniRef90_N0B6M6 | A L V |
| UniRef90_UPI00036B6C01 | LL CVVD L DVS D A R R |
| UniRef90_UPI0002FE50F7 | WL Y A D D L E EVRRVR S H G Q VF $\square$ R R |
| UniRef90_M1VV58 | $\square \mathrm{GFV}$ V L D L E Q VERVR R M M PL R R R S V P E $\square$ T |
| UniRef90_Q0VSC6 | A L V |
| UniRef90_F0DYX1 |  |
| UniRef90_C6XZU0 |  |
| UniRef90_UPI0003B50FD2 | L A Y F T L D T R |
| UniRef90_N1JR39 | L L L WEL D Y E R L R D WRER F P A L K D |
| UniRef90_H1ZDJ4 | L I L I DI NVNEVN H P P F G S L I T K |
| UniRef90_C5ZWP5 | L L I V T L D K K Y L K E $\square$ K E C WK F |
| UniRef90_UPI00035E01FE |  |
| UniRef90_A2BJQ5 |  |
| UniRef90_C9LGB5 | A K S VE $\square$ D LP S L I S F R Q K F P F LQ D A D M Y |
| UniRef90_UPI00041B1045 |  |
| UniRef90_R7AS89 | T $\square \mathrm{Y}$ A D $\$ D L E R L E CER R R M T T Y Q D Y R F V S F T LD R K  \hline UniRef90_UPI00034B0FAD & MAFAEIDLA ALRRYRRRNNLLSRQR L E L L M A  \hline UniRef90_W6XC52 & $\square$ ¢ Y A E FDL NRCVE P K Q F H DVVGY N R F DVF S L |
| UniRef90_S3ZL13 | CVVVLD L L |
| UniRef90_L1L832 | LLV A D I D L L I L L K A A D P A G H Y A K A D A T RLL |
| UniRef90_UPI000361CA84 | V L V |
| UniRef90_UPI0003139C48 |  |
| UniRef90_I4JH49 |  |
| UniRef90_E6VDV0 | I VTA EL F P R LVVDKAREHW |
| UniRef90_D7VXB1 |  |
| UniRef90_D8MT62 | L V I A |
| UniRef90_M1M8H4 |  |
| UniRef90_Q8W0T9 | TVIGEMDLT T $\square$ Q S T R H A $\square$ |
| UniRef90_UPI000465DA68 | L M V V L D |
| UniRef90_R7C0H1 | F A V F E |
| UniRef90_K5ZUL0 | \L I VE L |

LVT G D LDDLGEVRRLRHRLP LLQDPRFGLLSRELQ $V L F C E W D E G K M R \square R S R T V E V V / H$

L V V VE ID

LMPVQL
MIVSEIDLEYLEAERRRM


QVATVTFEELKLVTE Q
VLYGEI D $\square$ N RLRMERRKMNTFACGRRE
LLIVDLDRKSLIESRKGWGF
$V L Y A V L T K S N S D K L R N K L R F L E D R$
$I$ QIVEFNMDEDRNYREH G I WG DRKPF LYE Y $\square S Q$
WQFAR LDLEA I R E LR H S GQVNNH
LVVA EVVDVEITTTARRARDHLGERRPEAYS
WACHELDLSALERSRESAQVANDR
T LS S VVDF DRVSAARK
V VT A DVPD
 VI RHVDLEKGDDGWRIVP L I MLD
LRVAD DP GAVRHARTEFPQTNDRKNTFYKMLY VLI VELD
ASVTVVVDLDTTSAVSMARPWRRTARAGLYEPHV
CVVLDLDL
CVVMVDFD E EVRDDRTSF
$\square G Y A H M D L E E C V E P K R F H D V V G Y N R F D \square F N D$
$\square L Y A D V S A N D L V I P K Y V T D Y A G H N R P E L F A$
UniRef90_F9U7X3

UniRef90 E6PC67 UniRef90 S7VDJ6 UniRef90-K4LCU6 UniRef90_A3TTDO UniRef90 E8R617 UniRef90-UPIO004796FOF UniRef90-W9BSL9 UniRef90 L1KL60 UniRef90-E5VJA5 UniRef90-X5EDA7 UniRef90-R7GV65 UniRef90 U5VTI5 UniRef90-G2QRY6 UniRef90-B7QCP4 UniRef90 UPI00047B9A06 UniRef90 ${ }^{-}$W5NU03 UniRef90-L7M2U8 UniRef90-A9A0B8 UniRef90_UPI00029AB933 UniRef90- S9PFJ7 UniRef90-UPIOOO35C4047 UniRef90 UPIOO034B34B6 UniRef90 UPIOOO346A808 UniRef90-X0РMC9 UniRef90-L8EKF5 UniRef90 UPIOO03FA9362 UniRef90 $\mathbf{x 5 U U 3 7}$ UniRef90-K2C9J6 UniRef90 E3QH37 UniRef90 UPI000379BD58 UniRef90-UPIO0030A9D69 UniRef90-UPIo003130BB6 UniRef90 W8H7N9 UniRef90 W7MUW UniRef90-12EPW8 UniRet90_D2Z3W0 UniRef90 Q0UPB3 UniRef90- R6NPE3 UniRef90-E1REV0 UniRef90-UPI0003B59570 UniRef90- UPIO004725C77 UniRef90-X1CE57 UniRef90-A7NHPO UniRef90 ${ }^{-}$B5Y8Q1 UniRef90-M7S973 UniRef90-M1NAV6 UniRef90 UPI000255A9D5 UniRef90 N1MPH5 UniRef90-KotRL2 UniRef90-11E902 UniRef90 W3ASM8 UniRef90 E6SEG7 UniRef90-G8YU69 UniRef90 UPIO00365DC6E UniRef90 UPI0003B348D2 UniRef90-A1TR01 UniRef90-W9ZCL4 UniRef90 R5CRA3 UniRef90 B9GL17 UniRef90-C7MHT4 UniRet90_J3C913 UniRef90-R5FK42 UniRef90-U3APA6 UniRef90-V4A196

R VAl $\mathrm{V}^{10}$
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40 MK G MKVALLHLDLSGGPDANLPMLQQALGLAAGEGANWVV FRITLCQLNPT GD DA GNAALAARQAWETGKAA GADLV A MSSLRAAAI QTDLRS DYPARFTALAELIIDHAVGTGPKLVV LA AV QA EPRR DDEPDSAFEAEVVSATLESHPQLVI
$\qquad$ $R A A D V Q A A P V P$
$R V A A C T G H A A A$
$L R$ VA CA QVPVD VPVDVEHPRMASAVSEAVVSAAAQAGAALIV $A$ $V T V A T C S L N W V L D W E G N L G R \ I E S \square H Q A K A A G A R L R V$
$R \| V C A Q L A V V G D L R G N R A R S A A A V R D A A A L G A H V I V$ RKVTV ATCALNWALDEEGNLQRILKSIIEDAKHRGARYRL $R K \bigvee T L A V C T L N Q W A D F D G N Y R R I L K S I D E A K A K G A S F R S$
$M K V A A V Q M A L V G R V E K N M R A A E A L A K E A F D Q G A Q M V I$
MKLALVQLNYHGNYEENSNK\|IAHIEEAKERGDDMVA $M R L V K I G L A S V N V T G A F A R N V D A A L E L A R Q M A A D D V T V G V$
 $M R Q L R I A L A Q V D V V G D L E G N R A L V V Q H T R R A A G E G V H L V L$

MKI AI A QL N P TGDIT N NAQQI I SAAKTAAKQNVRLLL
 $M Q N \square K \square A \square A Q \square P S K G D V S A N \square K S H L L A D E K A A K A G \square S Y L V$
$K K \square R \square V L A Q L N L H G D \square D G N \square N K H \square Q A A \square K A R D E K A D V I V$ RSVKVAVT QAEPAWDLPAAVEKTCMLMKEAASNGAQLI A MKIALLWQAPPTGRIDAVFRA\|CQQLRAASAAGAGLLL MKAALVVNRMKSSMRENLNDI LNNYIKKASQENSDLVI MRDGHFQLISKGDFDGNLAKVVESLKRADRDRDEVVS FTAAAVQASPVLDPDATVEKAVGLI HEAAAAGATLI A $T V K V G A V Q A E P V W D L E G S V D K T I S L I E K A S A D G D Q V L G$ KVASSAQYP ITTHKS LDDHWRIE QWVAKADVRDAEILL K K L KI A CVQLLRARDVE E RRES LREA LDDGDREAS GA QMVV NNLRVAACHIDPILNARATTAKALSFINRAATRKANLIV 1 KVAAVTPKVVADPVENT $\quad$ VR I KAAAVMEAAANGAKVIV


$M R L C A A Q \square R P V G D \square A R N A A R H F E \square V D L A D A C H A D V V F$ $M K I$ GLA QI NPVGDFNGNKQKILHALDALKE AEIVV ITVVA TCNLLNWALD F E G N T K RII I E S I V K A K E A G A S L R V
 $K K \square S \square A G \square Q L T$ T Q G D $\square$ A A N $L R$ R A EA L I R A AP G H A M F V
 $R V A A C T L P V V A D P A R N A D A V L E Q A R A C S D E G A A V A I$


TFRLTLAQLNPTGADAANAEQARFAWEAGKAAGAQMVA MRVAAAQASSPGGPEANVGNHLRFAEAAASEGVKLLV $S K C K V A A D Q A E P C W D L K G S I A K T I G G I Q E A A G K G A N V I G$

 $M M L A A A Q T P V R G N D E A N L L D H Y R L I E D A V Q N G Q Q L I A$



[^2]



LPELVTSGYVFASAAEAASVADTPADPVFGAWADAAGGAV GPELEDCGYGCWDHYYESDTLLHQVLAALLESPVTQDDA C GPELEVTGYGCADHFYESDTLLHSWLAS LLERDPTCEGGUMV

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 TPCEMVV L T G Y P P V LPEMALTGYDDQPEVPFHEP I PGPATQQISEVTRKYGVYA

FPELSLTGYAPPLATSLASSAADPCLNALQQRSDAHNDVI FPELALTGYPPEDLLENRDFL QQSQQALREDARSVPRNQ


पPE LSSTGYGDEVFARREELAEERCRSFFGALAADVGAY $\square$
FPELVLTSYTCADLFHQTVLIDKTMLDELAEATRGRE\|VA FPELCLTGYADDDLLLQDPLLDAAEEADARLVEASAELLAP




lupas_21
lupas_14
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jnet
conf
sol25
sol5
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jhmm
jpssm


A Y GF LRRRREDGAFC DSHAVDRGSRLVAVYDKMHDCDMGA
VVGTPY LMDHK LYNCAAVLHGGHYGEFYERRWFTPGREEV VLVVGAPLVRGARVFNCAVVIHRGAI LGTYREFYERRHFG LVGTVEPNHQAHTTGGKPLFNSTALLENGKVKQMFHKRLL 1 PGSIVEPPNSGDYNTALVFNPAGELVSYYRKDFPWR $\overline{A L G Q G G P \square F Q A G R L Y N A Y F I L E N G K I A A T V L K H H L P N D S V}$

 SIGMPVIKGSERYNCQVLCFNMWDANDGNYREDRWFTA WK
 VYGNTELISGDHAYNSAFACSPDGVVSTYQKDHPVEGAWC

lupas_21
lupas_14
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jnet
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lupas_21
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UniRef90 E6PC67 UniRef90-S77VDJ6 UniRef90-K4LCU6 UniRef90-A3TTDO UniRef90-UPIO004796FOF UniRef90-W9BSL9 UniRef90-L1KL60 UniRef90-E5VJA5 UniRef90-X5EDA7 UniRef90-R7GV65 UniRef90_U5VTI5 UniRef90-G2QRY6 UniRef90-B7QCP4 UniRef90-UPI00047B9A06 UniRef90-W5NU03 UniRef90-L7M2U8 UniRef90-A9A0B8 UniRef90_UPI00029AB933 UniRef90- S9PFJ7 UniRef90_UPIOOO35C4047 UniRet90_UPIOOO34B34B6 UniRef90 UPIO00346A808 UniRef90-X0РMC9 UniRef90-L8EKF5 UniRef90-UPIO003FA9362 UniRef90-X5UU37 UniRef90-K2C9J6 UniRef90 E3QH37 UniRef90 UPIO00379BD58 UniRef90-UPIO0030A9D69 UniRef90-UPIO003130BB6 UniRef90 W8H7N9 UniRef90 ${ }^{-}$W7MUW1 UniRef90-12EPW8 UniRef90-D2Z3W0 UniRet90 QoupB3 UniRef90-R6NPE3
UniRef90-E1REV0
UniRef90 UPI0003B59570
UniRef90-UPIO004725C77
UniRef90-X1CE57
UniRet90-A7NHPO
UniRef90-B5Y8Q1
UniRef90-M7S973
UniRef90-M1NAV6
UniRef90-UPIo00255A9D5
UniRef90- N1MPH5
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UniRef90-11E902
UniRef90 ${ }^{-}$W3ASM8
UniRef90-E6SEG7
UniRef90-Q8YU69
UniRef90_UP1000365DC6E
UniRef90-UPI0003B348D2
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UniRef90 R5CRA3
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FSQVMAMEGACYVLVCSQVLTEDSKAKTGLEKFDYARAP PSCNLALSGADIIFNLSASDELIGKHDYKGLLAQQSARMD PHAELALNGVEVFMNASGSHHQLRKLDVRLRAFIGATHTC
$P S A E A A L A G A T V V A N L S G S P \| T G A E D R M A R T S A R T Q ~$ PSAEAALAGATVVANLSGSPDTIGRAEDRKMARSTSARTQQ HPENASKKETSIVYIASTFFSPNGDPNAYRDLQNYAQKHK PPSTRQA GGGA TNLSASNVVIGKADERALLCASQSARAM
CHMDMFEDGVETVNGSGSHHQLKKGYTRGELVKKATFKC

| lupas_21 lupas_14 |
| :---: |
| lupas_28 |
| jnet |
| conf |
|  |
| sols |
| jhmr |
| jipssn |



UniRef90 E6PC67 UniRef90-S7VDJ6 UniRef90-K4LCU6 UniRef90_A3TTDO UniRef90 E8R617 UniRef90-UPIO004796FOF UniRet90_W9BSL9 UniRef90-L1KL60 UniRef90 E5VJA5 UniRef90-X5EDA7 UniRef90-R7GV65 UniRe990 U5VTI5 UniRef90-G2QRY6 UniRef90-B7QCP4 UniRef90 UPI00047B9A06 UniRef90 ${ }^{-}$W5NU03 UniRef90-L7M2U8 UniRef90-A9A0B8 UniRet90 UPIo0029AB933 UniRef90- S9PFJ7 UniRef90-UPIOOO35C4047 UniRef90-UPIOOO34B34B6 UniRef90 UPIOOO346A808 UniRef90-XOPMC9 UniRef90-L8EKF5 UniRef90 UPIO003FA9362 UniRef90- X5UU37 UniRef90-K2C9J6 UniRef90 E3QH37 UniRef90 UPIO00379BD58 UniRef90-UPIOOO30A9D69 UniRef90-UPIO003130BB6 UniRef90 W8H7N9 UniRef90 W7MUW1 UniRef90-12EPW8 UniRet90_D2Z3W0 UniRet90 Q0UPB3 UniRef90-R6NPE3 UniRef90-E1REV0 UniRef90 UPI0003B59570 UniRef90- UPIO004725C77 UniRef90-X1CE57 UniRef90 A7NHPO UniRef90 B5Y8Q1 UniRef90-M7S973 UniRef90-M1NAV6 UniRef90 UPI000255A9D5 UniRef90 N1MPH5 UniRef90-K0TRL2 UniRef90_11E902 UniRef90 W3ASM8 UniRef90 E6SEG7 UniRef90-Q8YU69 UniRef90-UPI000365DC6E UniRef90 UPI0003B348D2 UniRef90-A1TRO1 UniRef90-W9ZCL4 UniRef90 R5CRA3 UniRef90 B9GL17 UniRef90-C7MHT4 UniRef90-J3C913 UniRef90 R5FK42 UniRef90-U3APA6 UniRef90-V4A196

210
220
230
240
CFVLYAGlLAGFE GGKGMTGSSRADAPSGEMJLVEADASEA 1 PVLMVN CIGHCDNFKSAGQTSIWDKNGLLI GQLQSHEG LPVWVCNQTGNREADDFSQAQSVVVADGKALFSYSGLQPA GLPLI Y LNMTGGQDDQVFDGGSFGLNPGGRMAFHMPVFDQ A YVVAANQGATHYPPYSWPGGSMIVDYDGRTVTQASPGPG $\square$ IVVSVNCA GPTGRGHSLIVDPEGGVI DALDDDSG CFVLAAGT IQQSRDDGQLQFGGSMIIAPDATVLAQAGSRTE

】P \AVADRCGHER GEEFTGGS IVGHDGVPDAGPHARPA C GYVYSSCGFGESTQDVVYGGNAFVYENGTLVAESKREEQ ATIAYVNMVGG QDELVFDGDSMDVTAGGELLTRAQFTSE GGVYLYANQQGCDGERLYFDGCAMI IVNGDVVAQSLNDVE VHVALVSSARDETGSYDTWGHSMLVDPAGKMGQSAGTAEE RVFVACCDRTGDERGVAWTGGTVIVGADGWPDATPPSGFA GGIYLLANQKGCDGDRLYYDGCALIAMNGSIFAQSLDDVE

 QCTIA YSNALGSNDGLIDGGGGFI NQNGKPVAEEPRFRQG CVVVQAGDVDWSPAVDENRGAAAVYAPPGVVAEGAMDAPG NAALAYVNMVGGQDDLVFEGDSLVVDAEGELVARAPQTEE QKPILYANQVGGNDDLVFDGHSVALNSSGEVVCKAKGFDD LIFVASANDGGKDLYNDFWGGSSVVYY $\square G G K Y T D D Q A N Q T R$

MLVAMANH NQPTGAWSP $\square G K S A \prod W F A G K L L A C A N E T E D A$ $C F V V C A T A W G G S \square G A D S G G C F T A I V A P D G S L L A E P \square R G E R$ $R V A \| V V N N V G G Q D E L V F D G G S M V I N E N G E L M S H A$

AVVA Y A NYAGAEAAGDVGGLSVIAGPDGQPDAMAGRGEA EQMKKTNAAANYDDEYYFGGAFSVDKEGRLISYFEDGQEG VFFVRGNNVAPGI DESVAYGDSYI LDPNGEMVVRTRHQED DIVAGDDEEAAQMLRRERSADSGIVGPDGRPVSEPVDKEG

CYVA WS PAVD $\square$ NYGFGAFYTTPDKNDPEGDISDSETQKEG VWIAMANKSGMENRSVVYCGRSGDYDPSGRSVAALGSDPG


SGYVYSGCGFGFSMDYGPDGSEDCKPPGEEG SGY GGVYMYSNHQGCDGGRLYYDGCSCVVVNGEVVAQSDRDSE AAYLYAAAGEGESTTDLAWDGQTFVYECGDLLGETERFPQ MNVLMSNFS GESWGYPSGGKSAFWNNKGELVAQMNDSD $\square$ YVAS S NLT GYDGSHYTFPGGSSVIGPS G
AAYVFAAAGWGESTTDLAWDGQASIHEMGACLASGERFAM GGVYLFNNCDGCDGGRCYYDGNAMISDNGDFIAQGPQEVI
AYAYCSAGSLESTTDLVFSGHSLI AENGKLLCEPLTSDY
lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm
 UniRef90_S7VDJ6 UniRef90_K4LCU6 UniRef90-A3TTDC UniRef90-E8R617 UniRef90-W9BSL9 UniRef90-L1KL60 UniRef90-E5VJA5 UniRef90-X5EDA7 UniRef90-R7GV65 UniRef90 U5VTI5 UniRef90-G2QRY6 UniRef90-B7QCP4 UniRef90-UPI00047B9A06 UniRef90 ${ }^{-}$W5NU03 UniRef90-L7M2U8 UniRef90-A9A0B8 UniRef90 UPI00029AB933 UniRef90- S9PFJ7 UniRef90_UPI00035C4047 UniRef90 UPI00034B34B6 UniRef90 UPI000346A808 UniRef90-XOPMC9
UniRef90_L8EKF5 UniRef90 UPI0003FA9362
UniRef90 ${ }^{-}$X5UU37
UniRef90-K2C9J6
UniRef90 E3QH37 UniRef90 UPI000379BD58 UniRef90-UPI00030A9D6s UniRef90_UPI0003130BB6 UniRef90_W8H7N9 UniRef90 ${ }^{-}$W7MUW1 UniRef90-l2EPW8 UniRef90_D2Z3W0 UniRef90 Q0UPB3 UniRef90-R6NPE3 UniRef90-E1REVO UniRef90 UPI0003B59570 UniRef90- UPI0004725C77 UniRef90-X1CE57 UniRef90_A7NHP0 UniRef90 B5Y8Q1 UniRef90-M7S973 UniRef90-M1NAV6 UniRef90-UPI000255A9D5 UniRef90 N1MPH5 UniRef90_KOTRL2 UniRef90-I1E902 UniRef90 W3ASM8 UniRef90-E6SEG7 UniRef90_Q8YU69 UniRef90 UPI000365DC6E UniRef90 UPI0003B348D2 UniRef90-A1TR01 UniRef90-W9ZCL4 UniRef90 R5CRA3 UniRef90 B9GL17 UniRef90-C7MHT4 UniRef90-J3C913 UniRef90 R5FK42 UniRef90-U3APA6 UniRef90-V4A196 UniRef90_R6NH98


LLVADLGNVGDRRDSDHNHALTDRRPDLYPV. LVVSQI DVDK LIRTERRRNTSFVHRRFELFR L L I H D L D VVTATVDLEEVRSYRAA I
$L V P A D V D L Q Y L A A E R L Q M L M V E Y K R$ V ADVDLADAADKTASPRNDLLGDRRPELY V LT ATLDLEDIRSYRAE $\square$ VTTATLDLEDVRAYR
FVLADLLDLTRRHSPET $\square$ P
VVDVETD
FAAAVVDLDRTLRLRTENTTWRSDR
WVKA SVDLDRVAASRRDGRVL
LLVA DLE LLAAGRRSDPALRVRR

$L$ AVA E
VVIAD LD F M LIDKRKR LMDSRGHSRPELLSLL

$\square V Y G E\|D \square A R C \square A P K Q M H D\| I G H N R F D \square F S L$
WLIEMLDFEK $\square$ NQVRADGQVFNY
VLVEEIDLS
TVYSEDDMERLVSERRRMSTFA
AI VTIDTNT

FA!AEIDRA

$\checkmark V M L D V D$
$\mathrm{L} \subset \vee \mathrm{CD} \mathrm{L}$
VVTATIDLEE $\square$ RAYR
MLI I E
AIUSHVDLERGAE
LTMADVNLADLSWARAEGTVLRDRRLDLYHDEW
$V V V L S V D A G T L R T V R A Q F P Y R Q D A R$
ILI CEI DLNLI QQIRDKWCFQMTQRTEDYA
LYi A DVDLQKi VQERARDTTYPD
RSVAD DLDMLRQERMRMGTFDDNR

AlT H
$\square L Y A D V D L S F R A M M Q Q N \square D L V G H S R P D L L S L$
LI IT QI DVEKDRNERRTN
$\vee \vee L A Q V D L D A V A S G R G S \square S S F Q$
ATVADIDLDRLVAERRRMSTFDDRRTHAQRDE

LI IA DVDVER GGERDRTGTFADRREE VTTATI DLEDVR SYRN
$\|$ L DT DV D E R I R S DRAKKS SFTDCR

[^3]


[^0]:    FPE A F IS A Y P WQ R Y Y E S S VA V P G D IT D DL G K A A Q E A D V Y L DPECGLTGYVFD DVVHAAALEVDGPELARVASAASSGSGGMV LP E A A M R R A F G N S L A D D AA E P L D G P WA N A V R T IA A R G L G I A V
    

[^1]:    VLGFSENDHNSDYMAQAT TSGATGEILMKRRKFKPTHVER $V A G S M V E E D E D G E L Y N V A Y L C H R D G N I D R Q P K$ LHDTPQER LLVGFLERDAEGVFNTTVLITPEDGMALRYRKAHLWPDE CFSIMEQNPEGNPYNSGLIIDDQGEI QLYYRKLHP VCVGYCEADGDDRYNAALCLTGDG LGRHRKVHLPAAET
     IAGMNSERAGGRLYNTQLYLCHADGTVDARRRKLTPTYHER LAGSVPVLEHGELFNDAYFCRSSGEVESQRKIH
    VLGFAEALDTHSVYISQAIISPKGELLMHRRKIKPTHMER VAGSHPMEDDGSLQNVCPI FAPDGSHTLQPKLHI
    SLGFA ENDNNSVYDAQALTDSDGKLLMTRRKLKPTHMER GLPVKNEVLQGKDLFNAAYFDEAGKVKAVVKKALLPTYDV CVGYAEATDEGKHFNTCVYFGREGRVLSKYRKVHLPGTFE ALG FSENDNNSVYDAQAITDSDGKMLMHRRKLKPTHME YL G MERRGGHSIYASLVYIDQCGEKSVHRKLQPTHDER GVGLPVKEEDDKYNSAVILAEQKVIDTYHKIYGPNYSV GGSLVIEEGGR FFNRLIWATPDTADEYYDKRHLIFMAR I GSGMPEEGGREFFFNRLLWATPDTADEYYDKRHI
     VSIGVNERDGGTIYNTQLSFDSADGTLLGKRRKLMPTALER VMGLNEKVQDAPIYNSLITIGSGGRILNHHRKLVPTFTER

[^2]:    lupas 21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    sol0
    jhmm
    jpssm

[^3]:    lupas 21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    sol0
    jhmm
    jpssm

