## QUERY

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 $V$ KA E EVVKELVVEKLISVGLSSHNHAATVISDVLI HADLIR

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 SQKFDWEKLQKFCSDVFIKAGVKREDAETVAESLI QADLR TVIVQS QELQQQLIQNKLAAA GL SEEHAA VVAE HLVAA BAS $T$ V V I

 $R V T K E Q L K D L I V T K L H K A G L T V D H A G V V A D V L V H A D A R$
 VHVNEPTLRTKTQNI FLA $\square$ GCSQQQHAELAADVLI RSDMR
 TKKI S A ETLETFIT ELLFEKANMSKKDAVFHAKAVVKSNDW
 T LQUSE

D Q L I
 S Q TLPFAELVQLLQQIFQRHGASPGVAQVLAHNCATAQRD V A A NDAEQFVREVLVANGVSADNADDVARCLIAACDLR

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

 R V S K Q E L T D L I Q T K L T K A G L H E E H A E V V A D V L V F A D A K
 KVTK QALF DLI QQKLMKAGLPEEAAYDVADVLTFADHR RVTTKRELHELI RTKLSRAGLSVDHADVVADVLVHADVR
 VIVVS P D KL H NL I K N K L E K A G L K S E H A D E V A K HLV VFA D S C KVVKEKELQEFCTEVLKAAGVPGDDAGIVAASLVDADLA

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


 YSAKDLKN F C DDVL K A VGMGEGDASIVVD SLDKANDD KYFSSDELDAFATKI FAATGMADADAATIAGDLVKANLR
 VTVEPNKLLQLI K EKLMAAGLKEAHAQETAKHLVFADAC
 I T A N Q L R T F T E Q I F I A DGGCS E T D A R L A A D V L V S A D L
 FPQQLKDFTYSVFLQMGCPEEDARQAGEVLLSADLLR

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 T R ID F D A L
 S S
 AELK K LMMKKLMRAGLKEDHADI TAE ILLTWSDER
 VP K ELRELFKAKFVLNGMPETFADRAADVLVWADAR
 KPSEAITFAKTLLVKS GLPEDDAS LMAECLVQADTR
 V V V S K K E L R VIF V LE CL D KV GCCSPSHAQQLAADILIDCS D YR
 Y P Y R QL F DF T REI F L K MGCP PKDAKLAAEVLLEADLR H Y I Q A T DL Q E F VIT QL LI A N QTS P D H A A I VA K CLL V A A D L R YVVSK E D E H K F V T D V V K K R L G V R E E D A K L A A DVVV V Q S D V T
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GSHSHGT 50
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70
80 GSLSHGVFRMPGYVSSLNSGWVDGKAVAEIEDVGPAFVRV
 GVDTHGDNRIPSYIERIRQGVLDPKASPSLSQVTPVVARI GVHSHGVLRTEHYVKRLAKGGI NADSDFSVERKGRAAALF
 GI H SHGAVRVDYYAER』AKGGMNRTPQITFEETGPSSGIV GVSSHGVLRTEHYVKRMLMGGMNANPEFKVERKGSAGALF
 GVDTHGMNRIPSYMERI RQGVLDPTAQPVFNRVTPVVGQV GVESHGDNRIPSY LDARIRQGVLDPAADPSLRQITPVVAQV
 G 1 HSHGAVRLQYYAERTAKGGFNDEPQI EFEQTGPSTAIY GVV SHGVARLSGYVRLWEKKRINATPDIQUVHETPTTATV
 GSLSH GMFRIPGYVSSLQS GWVNGAALPVVEDTGGAFIRV GUHSHGAVRVEYYSERMAKGGITNRPDFRFEQTGPTSGIFF GQA GHGLSRIPSYVEQLTAGKVKGTEAPSIISSKGSVIRV GVDSHGVTRVP $V Y V K R L K E G A V N P R P N \square K V I Q D N N S T L L V$
 GAHSHGVFRVPGYISSMASGWVDGTAVPVVEDVASGFVRV
 GVESHG1 NRIPSYLAR1ARGGIDPLAVPTVEMVTGCVAKV GVDSHGINRIPSY:AR1/RHKVLDPLASPVVTQKTPVVAQV GHFSHGLNRLEMYVNEVSSGLSDPKAKPTVIKESPSTAYV GVDSHGVLRVEHYLTRIKAGGINDTPNPKDTKTSRSTLLY GI HSHGAMRVEYYAERIAKHGIXNQPQFNFEETGPSSGGL GRHSHGAVRVEYYAERIAKGGLTVHPRYQFEKTGPSTACFF
 GIHSHGAVRVDYYAERIAKKGVTVDPKMSFEKTGPCTGGF GVDTHGMNRMPSYMERVRQGVLDAAAQPELKQVTPVVAHV
 GRHT H GVV R L P L L Y V N R L R R G L I D P R P
 GI HSHGAMRV
GVDSHGTSRL Gl| DS SHGVSR1/P GI HSHGAARLVHGYIREWEEDRINAKPAVKIVGETPSTAVI GVDTHGSNRIPSYMERVRQKVLDVSAS PQLQQDTPVVALV GVDSHGVARLPGYVRLYDGGR|NPTPHMRVVHETPSTAVV GVDSHGVARLDGYVRLWEAGRI NARPKVKVVHESPSTAVI GVHSHGAVRMDYYAERIAKGGITLAPKLSFEKTGPATGIF GADSHGVFRMPGYVSTLQSGWVDGRAVPQVHDVAPGFVRV GVTSHGVQRVAGYLKRMEDGIIERKTDISVVQDSFATALL
GI E S H G L L A R R L P D
 $\mathrm{G} V \mathrm{D} S \mathrm{~S}$ H G G V M R V GIIK S H G V S R FP V V L R R $\quad$ Q M G A V N P Q P Q D S M E Q R T P V L L K V





 G II S H G I A R L K T Y F D L L AR T G K I N P P K P E II K I I R E K S S T A T I




## QUERY UniRef90_UPI000366DF4E UniRef90_UPI00047D7F37 UniRef90 U4WIT4

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UniRef90_A0A017S4S0 UniRef90_D2QD70 UniRef90_W7ZIR1 UniRef90_UPI00034BCD0D UniRef90_C8ZWP9 UniRef90_UPI000361E064 UniRef90_Q8EMJ6 UniRef90_R9GZ43 UniRef90_UPI0003645F84 UniRef90_G5JLX7 UniRef90_W6TWT0 UniRef90_W9X0H1 UniRef90_UPIO00288C46B UniRef90-J2P142 UniRef90-WOAED0 UniRef90_W7L473
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UniRef90_E5Y2L8

D ACNGFAQPALAAARSLLIDKARSAGVADLADRGSHHFAA DAKGGFTQPAFFAAKPLLIEKVKTNGVAVLAIRRSHHFSA
 DGHNAFGFI SATMAMGRAI EMAKEYGI GMVSVHNSNHFGM D G D N GMGHV IGK E A M D Y S I Q L S K E N G G V V GV IN S S H CGA $D$ G D E G L G Q V V G Y R A M R I A I E K A R K S GI G V VVV R N S N H Y G I $N G H N Q L G A L V G S K A L D L A L H K A K E K G A A D V G V K G S N H F G T$ H GQNGAGQVVVLEATKHAIEMAKRSGGAAVGVRKTSHSGA D G D N GMGHVI TKEAMDEAI K LISKENGGGVVGVIVSSHCGA HGDNA LGHYVSYQAMKKAI ELAKTSGI GVVGVKEMGHS GA HGDNGVGQYIANNALAEAIPLAKESGVAVVGISKMSHSGA D GRNTFGF LCAHLGMKHAIEIARTYGIGMVSVKHSNHFGM DGHNGFGFVAANTAMERAIAMAKDYGIGMVSVTHSNHFGM DGDNGAGHVVAKLGMDEAI K I A K K E NGIA IVGMRRMGHSGA D GDAGLGLVVAPFAMKVAIEKAKTAGTGWVSVKNSNHYGI
 HADNTL GHYAAYHAMEEAIRMAEENGIAAVGVKEMGHSGAA

 DAKNGFAQPALIAARAMLVERARQYGIGLLALRRSHHFSA DGDGAAGFIVAREAMKRAIEKARVGGIAAVGAVNSNHFGA
 D GDDGMGQVIGQKTIE IGIEKAKKNGGVHDGVTRSSHFGA E GDNGSGFVAAEKAMDQAIEDAKETG母AVIGIRNDSHSGA DAHNGFGFVAADAGMTACIGSARTYGIGMASIKHSNHFGM DA GNGFAQPALAAARPLLVSKAREAGIAVLIIIRNSHHFAA D GRNGWGFVAADMGMAAAIEAAKVYGIGMTSIKHSNHFGM D A KHGFAFPA LDSLA DNE LTNATKKYGI AAVVVSNSHEFGQQ D GHNALGPDP SLLAVRTAITLANQHGUGVVGVSHSNHFGM D GQNGFGFITAHKAMDTAIKMARDYGIGMVSVKHSNHFGM
 DGDDGFGHVIADEAMNHA\QMAKENGVGMVTADNSSHCGA DGDNGFGHAISKQAMAAAITQASESGMSAVAVKNSSHCGA

 D GDNGAGHVAAKQAMREAVNDAKENGVAVVGVRRIGHSGA EA DNGVVGHYASNEALKK AI RLAKETGGGVVGVHQMGHS GA H G D N G I G Q Y VA E K A L K Y A I E M A K E N GV A VV GVVELDS H S G T DANDGWGQVASERAVELAVRKAGEVGSAWVGVRNSNHNGT D GKNGFGFVAARMGMTAAIESAKTFG IGMASVSHSNHFGM D A GNGFA QPAYRAAYSALVAKARANGVALLA I RNS H H FAA A DGGNGLGPVVAWRAMEEAVGLSRLYGMAGIAVRQSNHAGA DGKNAFGFLAGHMGMTAAIKMAKEFGDGMVSCKHSNHFGM
 $D G D L G A G L M V A P E A M K T A D K K A E T A G T G W V A I R N S N H F G \square$ $H G D N G V G Q F V A D Q A D E Y A I D Q A R E S G A A D V G V K R D S H C G A$
 DGDNG LGGHIVVCYHADKKAVKMAKASGI TAIAI KNSNHFGT

 D GDRGLGLIVGPWAMQVAIVKARIAGTGWVAVVRNSNHF G IV


 D A N N GWGQVA GVVKAMEMAIQKAGQYGTS FVGV SNSNHEGT
 F G D N A A GH L V A Y KA M D KA A I M M A K E T G L DGDGGLGGVVVAPFAMKVAIEKAR】YGSGWVAVKNSNHFG $\square$ DAQNTFGFLAGCKAVDEAINMATTYGVGIVAVKNSGHYGM D GDDGFGHVICDMAMDRAMDMAKKNGVGMVTAVNSSHCGA
 D GNY GA GQVVAHKAMEDS I EKA E E S G $\square$ GLVVAVKNSNHF G $\square$ DADHGLGHPASKKAMDHAIQQLAKNNGIGAVAVQNSSHCGA
 DGKNAFGFVSAHQGMEAAIEAAKVYGIGMVSISHSNHFGM EGDNGCGYVAATKAMEQAIEMAKKNGIAVVGVRNDSHS GA D G D D GMG QIV A E K A V S E GVVK K A K E H G S A N I A V T R S T H F G A DGCNGLGQIVGKYCMELAI DKARKFGIGGLVTARGSNHYG\|
 D GDNGFGFIVASSKAMKDAI RRAETYGIGDVTAEHSNHFGM SGNNGLGQVIGKFCMELAIDKAKEFGIGMVSARNSNHYGI



 D G D A Gll G LV V A P K V M K L V V M E K A E K V

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LWPDVEPFAE ${ }^{130}$ GGLVALLSMVN ${ }^{140}$
MTCVVPHGAA ${ }^{150}$
QPLFGTNP
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L

LSYYVKKAAEADLI ALSMCNASDSMVVP
-
GYYARQAALEGMVAMTVCQSDPMVVPFGGTEPYFGTNP

SASYVQQAVEADMMSLVFTNSSPALPAWGGREKLMGVSP

SGYHALMAVERDMIGFAMTNASPLVAPTFSNERMLGTNPM SAWUVQQAVDAGMMSVVFTNSSPALPAWGGKEKLLGVSP LWPDVEPFAEEGLVALSVVNSMTCVVPHGADRPLFGTNP LWPDVEPFADEGLVAGSFVNSMACVVPHGGHKAVFGTNP LLAYFVEQAASCDFVALSVCQSDPMVVPFGGAEDYFGTNP GAYFVKQGVEEDMITFAMSNAPSTMAPWGGVRPYFGTNP LA WIVERAAENDMVAVSVCQSDPMVVPFGGSEPFFGTNP LWPDVEPFAREGLVALSVVNSMTAVVAPGGGREKYLGVSP

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A GYHAMEALSKDMIGMAMTNAGNYY GWK F A E A NLI G G T M T N S T P N V
A GYHAMKALSKDMIGMAMTNASPLVAPTF

| MYY T L M A R E G C | $G F L T$ T N G G P Al A P W |
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220 GVD R D GLDP T Q E P R A I LD G GA L L P F G GHK G S A L S MMVVELLA

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 ALDANGSHTTDPAAALQ GVMLPMGGPKGSAMLSMMDVVS




 ALDKD GKQTD DPEAALE GVVMLMGGPKGS GLS SMMDVVS
 AVDSEGAGTTMP F K KVNALLPIAGPKGYGLMMMVDVLS 1 Q D K D GQ S T R D P LGGVK DGGALLPH GS QK GYGLGAVVDI FS

 ALDA E GRP TN DPD KALDDGGVMMLPMGGP K G S G L A A MMMDV F S GV D S L G Q P T Q D P R A L L E G G A L L P F G G H K G S A L S M M V E L L C ATDKEGKPTDDPQKAFDGYLMPMGDYKGLGLAYVVDILS

 AI D NK GQPTTDSNSALK GTVLPFGGPKGYGIAMMIDIMS
 ALDKE GKSTDEPAKALDGGVMLPMGGPKGS GLLAVMMDVVS GVDRHGQPTTDPKADLDGGALLPFGGHKGSALSMMVELLA ALDKDGQATTDPAAALDGGVMLPMGGPKGSGLADMMDVFS
 GLDSK GRETTDPREVI NGGWMMPIA GYKGTGGAMMMDVEA ALDEHGS PTTDPASALR GVMLPMGGPKGSALSIMMDVFS


 AVDKNGEATTDP F FKVQALLPDAGPKGYGLGMMVDVLA A L D S D G N P T T D P A E A L K G S I L P F G A H K G Y A L S L M I E V I A
 A V $\operatorname{D}$ G S S G N P T T T N P H $\quad$ E V $V$ K AV D R K G V P T T N P H $\quad$ DVGALLDIIS GPKGYGLMMVVDILS AI T Q E GLP T T DAKEALK GSVLPLGGPKGSGLAIMLDILS ALDAEGRPTDDPTAALGGVMLPMGGPKGSALSIMMDVFS
 ALDAE GKHTDDPAKALE GLMLPMGGPKGSALAIBMDVFS


 AVDKD GNPTGDP AMDEDGNPTNDPNAALK GAVLPMGGAKGAALALAVEILS ALDDVDGNPTTDAAKAFE GVCLPFGGVKGSVLATLMDLVS V Q D K D G K G T T D V D A L K K G G S M L P H S G H K G Y I L G S I V D I B S AVDAEGNPTTNPH N TVNGLLPDSGPKGYGLMMMVDILA ALDAEGKRTDDPSKALQ GVMLPMGGPKGSGLS DMMDVFS A QNAEGQPTTDANAVRNGGALLPHGSHKGYGLGAIVDI FS




 ALLD A S G G R T T T D P V $\operatorname{D}$ A A L L K G G V V L
 GVDADGRPTTDPAAVLDGGALLAFGGHKGSGIAMMMEIMA $G V D A K G V P T T N P D D V I N G G F L S P V G G P K G F G L A D M A E D L$
 AL D GE GRPTEDPAEALLK GVVMLPMGGPKGSGLAVMMDVFS A V D E K G N P VT DP N A I D K K GRATTDAK EADLE GTVLPFGGPKGYAMAAMM DIMS AVDKDGNPTTDPYAVN ALEDPAGPKGYGLMMMVDILS A MDTD GKVVT DSEKALKAGGEEKNSGYKGYGLATMVVVLC
 A LDND GK DT T DPEKAYDA G GEERNSGYK GY GLA TMMVEVLS
 CDDKN GYS T TMPS EMIN G G A L L P P G S G H K G Y C L L A S M V V




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AALTGGYFSGEFDWSGHKGAQTPWTGQLLIVVDPDKGAGQ $A A L T G G Y F S G E F D W S G H K G A Q T P Y T G Q F F V V I D P A R G G N D$
$G L L T G S A F G P H V V T M Y G D Y N K K R K L G H F L F A I M P A V F T D$ GILLGLP F GNKVVSMYHDLKE YRNLGQLHIVINPAYP T S Q GVLSGSSFAGNVTGPYDPSKPAGVGHFIMALKPDLLDSD
 GI L S G GTWSK HV KNTNEKG S NVCHFFMADDDEMAMPM GVLTGAGF GRYVNNMYENWNDPQNVGHFFLAIDINSFMPE $G M L L G L P F G K H V S S M Y N D L T K G R D L G Q F D L L I D P Q R F T D D$


 AVLSGANYGPWVPPFPHPNPVGEGLGHFFGAMRVDAFRPD
 $A V L S G A N Y G P W V P P F V S T D P V G K G I G H F W G A M R D D G F R P D$ $G V L S G S A F A G G V T G P Y$ D MS QP GDVGHFLVADKPDLFMS D
 GVISGGVFSHQMKSMYANPEEPSLTGHFMIVLDDSKMIPE


 GVLS GSAFAGDVTGPYDP SKPSDVGHFLVAIMPDDFMSN A GLLTDSKF GFE ASS S LDDSE GDSPDDV G QLLI AA DP GFF S G D
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GVLS G S A F A G HVVTN P Y D P SK
 QP T T G H Li F GA I NVVA FMS E
 A L GAA F GP HV SKMYGDYEQNRELGHFYMAIDPNVFTGN



 GVLT GASF GASMPRMYDDPA PQRVGHDFSAID DEVFMPD
 A ALTGGNNFSEFDWSGHPGAQTPWTGELIIAI DPAKSAGR AVL S GA G DGPGVKNPYNDDSGPANVGHFFWALNPSGBGSD
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 AVLSGANYGPWVPPFVAFLDPPENI GHFIGAMRIDAFRPE G M L L G L P F G K N V S S M Y S D L T GVVL L G L P P F G K R R V T S S M Y S D L T T E D R N

 $G V L S G A N Y G P W V P P F A T A G G V G V G T G H F F G A M R D D A F R P D$
 GVLGGAANYGPWVPPFLLAADPVGMGLGHFFGAMRDDAFRPE GSLLGGLPFGKHVSSMYADLT EKRRLLGQMFLVIDPKRFTDS $A A L T G G D F S F D F S W E Q H P G A Q T P R T G Q L L I V M D P S A G S G A$ G V L T G S L F GK R I P R QY D D P Y P Q QL G HL F GA A N I E N F GP E SILS GANYGPWVPPFVAPDLPGEGIGHFHGAMRIDGFRPA
 $A V L S G A N Y G P W V P P F V A T D P V G E G I G H F D G A M S D D G F R P Q$ GLIMSGASFAGGVNDQYHVLDKPQGVGHFFMVFRPDVFSTT
 GL L T G A A T G P HVVK S L Y D N WN D P Q N V G H L F L TVVD D D
 ALLTAS AFGPHVTKMYGDYDQYRRLGHFFIAI DTEAFAPA $G V L V G A G F G K D V A W Q Y S E G N K P A N V G H F I I L V K A D A F M E M$ GVLSGSAFAGGVTGPYDP SKPADVGHFLVAIKPDLFMDD GI L L GVPF GKHVVS SMYHDCSKGREL GHMHIVMDPKRFTNE $G V L S G A G F G P R V R H D Y G D Y E A P Q N V G H F F Q F D D V N A F M P A$
 GVLS G GNYGPNI RNWKKAD REANLGQCFI AI NPEVVAPG S I G G A E M G T K I K G T A N P K D K C T K G D L F I A I N P DA F WD D GVLS GAAFGGEVGDQYKE ARPQNVGHCFIAIKPDDFMSE GILSGSHFGPNI RQWKG SKEDADLGHCFMAINPEAFCCG
 G MA GSAFGK S R Q WK T T D T P A D LG Q C F I A D D D C FAP G AVLS GANWGPFTVPFADNSALPKGIGGFFGAWEDDGFRDN AVLSGANYGPWVPPFVSDNPVGEGIGHFFGAMRIDAFRPD GVFSGAAFAGHVANPYDP SRPADVGHFLVADKPDLFMS Q AVVA QA A Y G L D IG DKFDPNTEPERIGHFMLALDVSKF LDE AVVS GA GYGPWAPP F VSEDPVGEGLGHF LGAMRID GFRPN GVMS GSAWGHKDV GP Y H Y DKKS GAGHF I TMNI DA FRPA

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| UniRef90-U6EEE9 | D |
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| UniRef90-K8E4 | VKEIY Y Y |
| UniRef90 DoGmoo | EKGLYEYL |
| UniRef90-A0A023X | V |
| UniRef90-A1WA14 | PATEWAEL |
| UniRef90-G8TTH0 | DRDLYNQL |
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| Ref90 - Plooo3058 | PP EP |
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| UniRef90 UPI000288868F |  |
| UniRef90-UP100036B2E73 | PANVEEELTAVA |
| UniRef90-C3MH59 | I |
| UniRef90-E4TU18 | LP A V |
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| UniRet90 A0A017S | PTV A S |
| UniRef90 W7ZIR1 | A V V S |
| UniRef90-UPIOOO34BCDOD | LPPVVRDL |
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| UniRef90-UPIO00361E064 | A TWQR |
| UniRef90-Q8E | El |
| UniRef90-R9 | PVVK |
| UniRef90_UPIOOO3 UniRef90 G5JLX7 | - |
| UniRer90-G5JLX | VVVHD |
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| UniRef90-J2P142 | NLTKEL |
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| UniRee90-W7L4] |  |
| niRet90_O5W |  |
| UniRef90-B8F |  |
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| UniRef90-UPIO00 | V |
| UniRef90-UP10004258876 | G |
| UniRef9-UP1000422. |  |
| UniRef90-H1LON2 | 硡 |
| UniRef90-L2G234 |  |
| UniRef90-UP1000258E2 |  |
|  | PEGSVRAVREVA |
| UniRef90-H3FZN1 | KKSQIKHL |
| UniRet90_FoSB |  |
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| UP10003765DA5 |  |
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| UniRef90 J3NPK0 UniRef90-B2GFBC | $\checkmark$ |
| UniRef90-G4V698 | GHYSHGLNRLEMYVQDIQKGVCSTDLEPTIVKETVSTALV |
| Re90- | G ${ }^{\text {d S S GVARLHTYVDMLEDGRINPRPNDKIVREKASVATJV }}$ |
| UniRef90-UP |  |
| UniRef90-C92 | GFTSHGI GRFPQYITALKVGNINPKPNDKVVKESPATAVI |
| UniRef90-H6L |  |
| UniRef90 A0AO26W283 | GHFSHGMNRMQMYVKDIENKITDPAARPRIVITDFQADAVV |
| UniRef90 BOVEY1 UniRe90- UPIOOO421DC6E | GVESHGVGRLV |
| UniRef90-L7Z |  |
|  |  |
|  | GCASHGLYRILGCTNTLASGGVVPDAEPHIEPSSGGIVKV |
| UniRef90_UPIO | GHFSHGMNRMQAYVLSIKNGITNPSAKPKVVNDFQAVALI |
| UniRef90 UPIO002626490 | GVDSHGVTRVKNYIDRLEQGVVNWEHSMSV |
| UniRef90 UP10004721D56 | GVDSHG\|AR |
| UniRef90-F6D2Y0 |  |
| UniRe990-F9TI | GVHSHGVMRVEHYCKRIAEGGMNVRPQYKIEEVSPSVAVL |
| $90-$ Q4FMG7 | GLSRLKMYCDRISKKVINPKAKIKVKKISQSIAHV |
| UniRef90-AOAZ | GVYRLLVCVRSLRKGKVDPQAVPTLRRLSSSUVAV |
| UniRef90-AOAO2 | GHFSHGLNRLQMYVTDIQKGVCQPSGSPVIVNELPATALV |
| UniRef90-UPIoo | GDHSHGAVRVEYYSERISKGGTNCTPHFRFEATGPCSGIF |
| UniRef90-TOH | GCTSHGLYRLLVAANSVERGVVVPDAVPEVSEPAQALVRV |
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| UniRef90_UPIOOO374 | GVDSHGVARLSGYVRLWEAKR1 NARPNILKVVEETPSTATV |
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| UniRef90 W4WST2 |  |
| UniRet90-F4GWR9 | GVESHGVVRTP TYLRRVIEGMDDPHRADR। EQDSGATVLV |
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| UPIOC | GTDSHGISRLPIVAKRFMDKRINVNPDIVKVKKAPSVLQI |
|  | NGEGOPEVKKESPSVAKV |
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| UniRef90-A6×303 | GCKSHGVYRIEGCLRTLKSGKVVADADPVVTTDDSAVVRV |
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| UniRef90_uplooozde |  |
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| UniRef90 ${ }^{\text {B519V7 }}$ | GIESHGVQRLKRYVDGIKVGAVNVHPNDKVVKESPVFAVL |
| UniRef90-W8QTYO | ECKSHGIYRLLGCIATLKTGKVNPGAVPEVVDHAPSUVRV |
| UniRef90 E3TDM0 |  |
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| UniRef90-F5YDC4 <br> UniRt90 UPIO004105B07 | G |
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| UniRef90_UPIO00360F | $\frac{V}{M}$ |
| UniRei90-UPIO0046835ED | GCASHGLYRVLGCVSSLKAGKVVADADPEVIDQAPALVRV |
| 22 | ECQSHGLYRLLVCVHT:RNGKVDGHAVPEVVDQAKAIVRV |
|  | GHPSHGMLRLPWYLDRLASGATAPVADPR V |
| UniRef90 M7TTH1 UniRet90 |  |
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| UniRef90 A8XF97 | (1) |
| UniRef90-Q2LTF1 | G川PSHGVARLRRYVDGMSNGTILPHSKPIIVREAPSTATV |
|  | GIDSHGTNRIVMYHELTKDGNI DITEAQPEIVMETPVSAVI |
| UniRei90-UPI00047BC9F2 |  |
|  | G\| |
| 5 |  |
| UniRet90-A8WSP8 | GQGGHGFRRIPVYVRQARVNVVDGKARPVATKVKPGVLSV |
| UniR | GISTHGVSRLAI YLERLDAGVVEKENRITIERESPAALVV |
|  |  |
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| W2T | GHYSHGLNRLHIMYNDLAEKSTASEGEPLIIKQKGSTAWV |
| W6N6J3 |  |
| UniRet90_UPIO0040FBBFF |  |
| UniRei90-UPI00047C71B0 | GSDGHGVIRLPQYVKR\\|RTGGПNTRPNTRVITERAAMAVV |
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| Uni | MNRLEMYINDLA NSTDGAAVPVVLKETPATAWV |
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| UniRef90 UPI00035FBB6A | G |
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| 35 | GCASHGLYRLLGCTATLRAGKVSPDAMPKLHEMAPALLRV |
| G22 | GIIESHGISNLPIGVKRAKLGLYNLSGDIDILDKDIPLLLI |
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UniRef90_G2S3T0
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 D G D N G A G H V A A K L S M D R A 1 E M A K E N G V
 N A N G GF S QLA F S L G LDP L LI E K T K E N GI A L L A I N H CVVH F S A





 HA DN GA GHVVAAK LA ME EA IQQLAKEN GVVAVVGIRRQMGHS GA

 D G D H GL G QL A MVVKA A D HAV E L A R D S G A G WV S I C N S S H C G A D AKHGFAPLAVVTGVPALIAAAAKEDGDAALAIHDCYBESA $D G K N G L G Q V I G K Y C M E L A B E K A K K F G U G M V A A R G S N H Y G \square$ D G GNNFGAYVGLCALDLAI ERARRNGACVLGVKGSNHYGT
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D GD R A LG AVSATHAMRMAMEKAHTAAGIGFVVAVNNSDF DGA



 $N G N N L L G P V V G N F C M S L A L$ K K A Q DVGGI GWVVAN G S N H Y G $D G H N A F G F L G A H M G M C A A I A M A Q T L G I G M V A V K R S N H F G M$ D G S N L L G P V G K F S M E DA I K K A K E A GVVGFVSAK G S N H Y G D GH D GM GHVI GVVR S M N M A I E K A K K C G L A M V V V R N S S T H Y G l D GHNGFAPLALARGREPDAAKAREHGDAALGVTNDYHFAA DFDNGCGGVAAKMGMDKAIAMAKKNGUAVVGURRMSHS GS $D G D N G L G Q V V V S H A V E L A Q Q K A K D N G M A W V G T R N S N H A G A$ D G DN G G Y WV A T K A TEKA I EMA K EN GVA IV GMANVSH T GA D AK G GFSQLAF QA GLP VLVVEKARQC GIAALAADNRCVVF SA



 D A K Q GS S LLAAFEMGLVPLVEKANRNGIAVLGINNSFHFSA


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 D A R H GLA F P A



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SAWLVQQAADAGMMSLLVFTNSSPALPAWGGRERLMGVSP\｜ LS Y YVKRAAENGGVAIAMCQSDPMVVPYGGSENYFGTNPII
 A GYYPLQALERDDLIGWAMTNSTAALVAPDWGAERMLGTNPM

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LAA YTGYAAKH D CVVG C $\square$ T T T





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L A D
WE P A
S GYYTMMAMEQGLIGFNCTN
A GWYTLRAMKAGCI GMSMTN
LWPEVEAVAATGLVGLAMN

A GYYS DLA S LQ DMIGGV VIS TEPAMA P

LWPEVVEALA E R GLAAAMAMCPSSYATVVAPAGGGTKPLLLGTNP F


## L

## L

LW W EMEMMLTAA GLVVALACTPSHAWVAPA GGSKPVVFGT

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 TFCVPA GNREPMI LD MATSVVARGRIILAQQVGEEI PEGW AF GWPRSGDYPYVFDFATSVVAARGELELYRRAGKQLPEGW




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A
A 1 AFGWP RA GHNPFF FDMA AFAWPRPGRTPFVFDFATSAI ARGED S AA APGGRYGTVVMDDAN AFGWPRAGQNPYVFDFATSVVAAGKL SLLGAPGRKKGDNF V LD M A T T A
 AF GWPRVVGAHPY IF DFATSAAVARGEV E L Y QR S GRAALPE G W AVAMPAEPYPFLFDCSTTVVTRGKLEMYNKMEKPLPEGW CMAAPGMDGDSFFLDMASTTVAYGKI EVADRKGETWPSTW

 A F A FP S F K E P E V V I D F A S S T V A Y G K V E I A QR E G E K V P P AF GIP TY G E F P F V L D M S L SVV A G G K L T L A D K K K E K I P M D W



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 AV DAEGKHTTDP FAVSG A L DKE GNVT T DP HK IEN GVVD S G Q GCN DP RVVLLE E G A L L T F G E H K G T A L
 A I T K D GEPTTDAQEAMD GMVLPVGGPKGYGLALLADVLD A QDAEGMPTDDSNAVKSGGGLLPHGSHKGYGLGAIVDIVS





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 AVD Q A GLSTNDAVAALD GAVLPVGGAKGFGLAMAD DILS

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 AVDPNGEPTTDPESALA GSVLPFGGPKGYGIADMVEVMA AV D A D GNPTTDPEAALA GAMLPFGGHKGSAI STMI ELLAA $A V D A D D G K P T \quad T \quad D P P H K V V N A L R A$
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\& GI D A DGALTS GDPNEV
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$\mathrm{G} \square \mathrm{E}$ S H G V $\mid \mathrm{A}$ R|L GCVSHGLFRLPGYVATLKSGKVNGKAKPTVTKLAGAVVQV



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



 GHY S H G M N R L E E L Y L N D M K S G V C D A N A K QVI L K E

GQ
SH GVSRVPMYVAHLRH
GHSHGLYRLLVCVKSMREGQVDPQALPTLSDRSAGDVAV


 GHDSHGVGMIPRYVDSLRDRELKLNAHASVVKDVGAVLTV GHYSHGLNRLGMYVRDIQEG』CMKDGVPK\|LKKNAASAWV


ECH
ECASH S G C I NR
GHFSHGLNRLDMYVQ D L K A
 GCAS H G L L













 ECHESHGGLYR L L N CVVK T L A A G K V V
 GII S S H G L N R V A R F V

 GI Y S H GAGR LP I Y Y D R I K D K I Q N PVT K LT IVVK N KATAVV







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UniRef90
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B


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 A GWYPMRAMKE GFVGUSMTNTSPLMAPTRAMEAAL G



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A

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| :--- |
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A $\square$ AFPAGEEPPVVDD\ATSSATAYGK\|IE\|AKRKNAE\|PHGW AFGWPRPGKSPMI FDMATAVMARGEVGGAARDGHTVMEGV

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 AFAWPRPD GLDFVVDFATSAVARGE DELHRRAGNSLAEGW


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 A D S D GQPTTDALAAL



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 AVNK D GVPSTVAA AVLGNGATEVLGGHKGYGNGMIAELES









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260

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 GVLSGAAFLTHVKSWVDEPEAPQDLGHAFVLI DAKRLGTS SALSVSPFLKALTNDDASGHKKPYHGHFLICCINPDFFMGE S ILSQGGTSN KCMVGGKSNDCHGFMAI NPEFFGDP GPLIGDRMGHQTQPANASGDGKPQHGEF LLALDPQAFLGA AALQAGSFLKMLSGKDEEGNKDPY LGHFFI AI DTEAFMGA GPLDGDLTSAESLAYDEGSRSSPYGGELLI A I DPRRMLGE GLMSNAAYLTHVKSWVDAPDQPQDLGHFFI LI DT TRRGGSA

 AAL QGGQFLKALSGFDEAGERRPRLGHFFLADDDEAFTEE A GLTGDVFSYEAQENDNNDGGPPSGGEF DMALNPEDIAGS AAVAGANRGQEMGSFMENDGLP 1 GNGQFFDALEPKUFSGG GILADAAWGPY DRRWK DGTKKANLGQCF AAVKLDDFAP AVLSGANWGPFAVPFA SK TGQGKGIGHFFGAWDIS GFQDP
 GVLSGSAFGDGVTGPY QAKKRGGTGHF: AMDNDAFQSD GALTGGQLSFENDFGDCVGAQTPKAGQLLIVIDPERGGNN

 GVVT GAGDSHGVHSMYGDFENPGNSGHFFMAVD $\square$ NTLMPM SILSMGLTSNHSIQQ NGKGGTCHGFDAIDPAAFGDE
 A GLTGGNFSFEFDWSKHPGAQTPWTGQLLI VIDPDKGAGQ GAL DGDLTSPESDDYDGGAGASPYHGELLLAFDPAVFAGD GVLTGSHFGSKVAGPYEANKTSGCGHLLITTDVKAMMPA GVLAGAHYGKNI RRW GTTERDADLGQCFI AVDPKAFFPG
 $G V L S G G L Y A S Q V K R Q R A D Y S S V A E S S H T F I G G R D N D F M E E$
$G P L I G D L T S A E S L A Y D D G A G A S P Y H G E L I L A M D P E R F L G E$ A ILSNGLAATSGIDK DQE G G CGGCSQUFIVIDPYAAGTK $G V L N G A A F G S D V V D F T S D T T S P T N T G Q F V M A L D P A A F G G D$
$T$
$T$ ALLSAGSPTNEDDK $\square$ GKGSCTGASQIFMVFDPTQLGGA GVLTGSNCSYEASMFATTEGGPPNVGQTIIAMDPAFFSGG AVLSGANYGPWVPPFVAADPVGQGI GHFFGAMRVDAFRPD SILSGGSSTAKITQSSEKETGI SQVYMCDDTKLFPNS SALAQGAF LRQLSGFSDDGKKPYRIGHFFMAINDENLIDA

 $G \square L A G S A Y G P N D R K$ Y GD LGQQANLGQCFVALNPTYFAPG A ALAGGNFMKALSGVTEDGPRMYGLGHFFFVVDPEAFTGG A GLTGANFAYEASSLFDDKDGPPRLGQFILVLDPKTVGGE GILTLGRTVTKVGQ GECEEYGLTQVFI AIIRPEVLNQD
$S$ I ${ }^{\top}$ GAAF GRDV A S G SVISNGAI GPTLKRVYGDFDGGLNKGQLFMAVVDISSRMPE GLLSGMDVGRDVSEMYGESSEPRQLGHYYSAI NIDSFTPS GILSGSNYGHHIRSWSHTGGGPANLGHCFVAVNPGSFAPG GVLAGGRFAGDMGNLYSDWELTQDNAHVFIVIDATRGAGB GVMIG DFTSSEALDFLGTTALAPRHGELII AMSPERFAPG A V LA D G DA THE 1 G GRQE E ETG
 GVLTGAAF GSHVNS $\quad$ SF QS GNPPANVGHGFILLDDKHWMDL


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niref90_хвкзү2
 DWNDHAE GFFDK IVY EQDGTRLPGDRRDSNRAKHDKE GVVV

## T E E A <br> A

 E QLA RAG TI CR QLRASEKIVFTA R T D R V D E PGERRHKNR DFENMCDLNSRLRNSKPVLVAGDKEEANMKADKAGGIKY ELRQRAEALFAAI TGQG ARRLPSQRRFAARQRSEREGVWV ENDARAERLFSQUVDQG ARLPSQRRYETREKNKRNAVEI


 SFKK IA GDI MRELRGAERDYT D P T D RAETLFEGGILGQG ARLPSQRRYDARQRSLQHGVSL
 $E G A Q R A Q A L F D G I V$ Q Q GARLPSQRRYEARKRSKDA GV F L


## G

N A EA EA DA F V E WVKK GA ERIIYAP

 D A GRHLQQAEVLFEGAQGARLP
 F HARAETLFEGGVEQG ARLPSQRRFEARERSARDGVTQ


 NWEKHCDDFFQKLLS DDGGVLDGGSRRHKNR
LFE K Q

 DF A GRI SVLCDRLIDA GQERLP
 AFKKTAGNILRNLRGQERIVYTGEKEHDVWMYRKDKGVPV


 NPLDRAEALFEA LGGQG ARLLP
HFAQRSAA HFAQRSAA
AREASGER VLGE IAAQG A RLPSQRRFAARERSIAQ GVRV




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, SFKKTTGEDVROLRGEDRIYTCGEKENLSWLGEKDKGVPV
S on IID ETVAYTKSAEEIYYPGERTLHTRKENTEKGIPV
 FEERLLT DLL N F I R NMQPVVMVPGDREREHMATVDDQE GI H Y




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| UniRef90-G6D4W1 | PQQQ1 D |
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| UniRef90-W6WMK1 | SKELYDELS GL |
| UniRef90-Q4PNG0 | P A PLFS KLK Ki A |
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| UniRef90-Q1YDL3 | P DNVVADL N A I A |
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| UniRef90-UPI00034638F4 | DRE\WQEVLA |
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| UniRef90 ${ }^{-18 K 3 Y 2 ~}$ | GEAVQKEF\E |



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 $G V Y S H G V N R F P R V I S Y L D Q G E D D P K A S A D C E L R F G A L E R W$
 $G V$ H S H G L A R L P T Y C A H A K V G K l D G K A TP T L S R R P R P G L V R V DCQSHGMYRLIGCVRTMQSGLVSPSALPVITHPTAAVVQV $G L R T H G T S R I E S Y G S R L R \| G G I N P A P S I T T E X V A P A L Y R L$

 ECHS SHGL Y R L DG C V Q A AR N G G L D THAA E P E IM D Q A P A I TARV
 $G V Y$ S H G V N R FPR R F $\quad$ V Q Q L



 GLT T H G L L S RI E S Y G E R LAA S G GI S A S A E P A L E S LA PA I A R V @ค


 GUV S H G V N N R FP R F I Q Q L E N G DVVDP DA E P T KVVLS L G A I E Q W G S E S H GL F R I K D Y L A I K S G Y V N G D P N P K V V DVA P G F IR V GHYSHGLNRMDMYVKDIKSGVCAVDGEPLAEKQSAATALV








 GID SHGVARVPHYLNRLTGGTLNPRPQLQFTETGAATGQL GL A S H G V
 $G V A S H G I G R I P V Y T Q R L R S G V V N A R P Q F R L S A G D G A T A H L L$

 DCQSH GLFRLFMCVQTMQAGKI DGHAQPQVAPSENAIVRV


## A








 $G V D S H G G L$
$G M W$
$G$

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$\qquad$ 11

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 HGHSGP GVYNAHKAMERALE LAKENGGGCVMLHHTNHWMR NGNLGGGVLNASKAMDRACELADKYGIGVVALNNTNHWMR D GANGGGPLVGMRALETAMTSAREVGGGAAFARASNHFGP D G D M GLG Y V I G E Y A M N LA A E K A K N $\square G G G A V A T V N A N H F G U$ NGDNALGHLVMNKAVDIAI EKVKQHSVCWVGSHY GNHS GA D G G A GL G H P A A LM GMD LA I EK ALDA H DV G VV SVVNS H HF GA N A G GLAFPACAMADEQAGLRAREHGVAFIGVGNSHHFGE



 DAQRAYS LLLAFQEGLPHLVEKTRRNGVAVLAINNCFHFSA DGDNG $\square G P L V G H R A L D L A M T A A R E Q G I A C V F V R G S N H F G P$


 D A H Q A G NLT A KKMMDRAMELASQNGVGIVAGRNANHWMR DGGNAVGPLAGMKALRAAMEVAEEFGIGMAFVRGSNHFGP D A H Q A I G NLTAK QMMDRAMLLA DQHGI GVVALRNANHWMR
 DARYGFSPLAFERGLPA LVASTREHGVGALVLQHCFHFSA D A GSGGAYPACAMAVAEGLKRAGEYGVAFVGVGNSHHFGA
 $D G N A G F G Q V V A H E A M Q L G D E K A K M H G L A A V A L R N A B H D G R$
 D A D G GF GHVVAT QYAMEWAL E TVVEK Q GI A L I GII KN N S HA GA D GNRAMGQVVSKYAMD DAI EKAKKSGI GMVVIVNSNHYGI
 EGNN ILGPAVGKFADDLADQKAAKEAGIGFVTVKGSNHFGG
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 HADNAAGQVAAKMGMEHAIKTAQQNGVAVVGISRMGHSGA D A H D GLGQQVAATKAMELAIEKAEQFGVGYVGLRNGSHYGT
 D A A HGFAYPALELAALAWLPAAARRNGIAMAGUHRSHHCGV
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 D GDNGPGQVVGTKAMNDAIERAKRYGVGVVGVRRSHBYGD
 DARSGFSNAAFELGGDVLAEQARHFGIAALAISDCTHFAA D A R N GF A QRALLSAAHPLIMAAVEKTGVAIVAI RNSHEFS A D A A D GLS F P A CE LADVQQAMDRARSQGLALAGI CNSYHFGA D GNA A M GHP T SRMAMELDADEKALDACDMGAVSVFNS QHF GA NAAGGFSNAAFEAGLPKLVERTRTLGVAAMVINDCTHFAA
 DAREGMSLLAVQEAMPTLIEKARRYGMAALAVNNCFHFSA D G GRGF G QV I A F E A MVE GI ERARRMGDCAL GLRDVHHDGR
 D A NHTMGQQVSAFTMDHVVSKAQRHGDSVGVVRHSNHFGA DAHNGFAPLAHKYGLEKLIQQAATFGIAGLAI QRCHHFAA
 D A D A GLGHTPAVMGMRDAIDAARAHGVGVACVRNSHHFGA
 UniRef90-U1TY67 UniRef90_UPIO0047924F7 UniRef90-U4KK21 UniRef90-H0A7H5 UniRef90-A5NOY5 UniRef90_A6UVS1 UniRef90-M1SM89 UniRef90-I4YYI6 UniRef90_E3HVG3 UniRef90-G8QXN3 UniRef90-D2SBU9 UniRef90-U2UBW7 UniRef90-D0CT95 UniRef90_A81509 UniRef90-D4XGM5 UniRef90-A0B157 UniRef90-S6GIO8 UniRef90-U4Q182 UniRef90_UPI0003B2E363 UniRef90-G9Y5M0 UniRef90_Q65WJ9 UniRef90_C4SXT3 UniRef90_UPI00028A2BC4 UniRef90-MOMRC0 UniRef90_UPI0002375A6C UniRef90-A0A052J4T9 UniRef90_I2ER79 UniRef90-L8BE68 UniRef90-J2EMH8 UniRef90-C8P5W1 UniRef90_C0R1X7 UniRef90-R5JBL0 UniRef90_C7N716 UniRef90-K1PWW1 UniRef90-G9ZV26
UniRef90-H6MWQ5 UniRef90-W3AKP3 UniRef90-J5HK02 UniRef90-B9JPX6 UniRef90_H2L9S5 UniRef90_UPI00035E4A9C UniRef90_UPI0003F61B14 UniRef90_UPI00034BAEE3 UniRef90-A3SH90 UniRef90_UPIO00409E11D UniRef90_UPIO0046FOAA6 UniRef90-A1BBN2 UniRef90_UPIO0021963EE UniRef90-R5GM47 UniRef90_UPI0002555439 UniRef90 UPI00029B01DF UniRef90-H1LUN4 UniRef90-F5Y1T0 UniRef90-A0A017HT13 UniRef90 D8FWZ8 UniRef90_UPIO00366A7EF UniRef90-A0A017K831 UniRef90_R5IMRO UniRef90-A6CKT1 UniRef90_UPI00036D5A2F UniRef90_K2LLF6 UniRef90-W0HXS5 UniRef90-H4FB83 UniRef90-I5BZ26 UniRef90_D0CP08 UniRef90-G2H942
UniRef90 Q1YIU0 UniRef90_UPIO00463E9F5 UniRef90-A2BJM3 UniRef90-S3NHQ2 UniRef90-F4LXLO UniRef90_LOLVU3 UniRef90-A0A024JOV3 UniRef90-A0A016XKM1 UniRef90-B2TGA7 UniRef90_UPIO00380BC35 UniRef90-H1Y042 UniRef90_UPIO00479B8DB UniRef90_Q1GM21 UniRef90-UPIO0031DDCA2 UniRef90-G2ISY1 UniRef90_JOLN25 UniRef90_G9ZLE4
UniRef90_UPIO004784358 UniRef90_K0RAM6 UniRef90-F21296 UniRef90_X4ZAI6
UniRef90_UPI0002E61030 5

LWP EVESLLAEEGLV|ALLAMTPSHAF|VAPAGGQAPLL|GTNP|l|


 GGAYGWQAANLGKIGGCFTNTMPNMPAWGGVEPKIMNNPF
 $\begin{array}{ll}T G Y Y \\ A & S \\ V & V \\ V & R \\ K & L A\end{array}$ A GYYATMAAERGLI GGVYMAVGNANHMPW
A GYHLEALADLGGMVGLALSSNSPAAMPAWGGKRPMLGGTNP
PGAYGLLLAAKENCI GI LIWTNTDVNMPPWGAKAAHLLGNNPM
A MWFT RRAAHDGVVAVLTTNASPAMAPWGGREKRVGTNPW
GGSYGWQAAEA GYI GI CWSNTMPNMPAWGGKERRIGNNPL



L WPETEALA ER GLVGFACVSYMPAVAPAGGKEPLFGTNPI
L GWY A E RVVA E H GLLSII A LIS T S EALLV H P WGARKAMMIGTNPI



LWW E V A A A
A A Y H L E P C
G G A
G
GGGYWAEQCA
$V$ S P Y S Y $\square A A E Q G F A$
A GYYARKALDAGLVGAGSNATTTDAPSGGSDARL

A G WY GMRAME Q G L I
CA Y S A MLDA LIERNML GLLTWTN GAPGMAPWGGARNG
AMYYTRRAAHDGCVVSILTTNASPAMAPWGGREKVLIGTNPVW
GGTYGKYVAENGYVAI MWTNTEACMPAWGSKECRLGNNPF







 GTFY VA EMAK QGMFGMDMSNVDPNMAVDPGGKMMTVGMNNP $A G L W A E K D A R Q D M \square G M A F T N T R T C G I P T Y G R E R D L G T N$ G


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 LWPEVEAFA LWPEIDEACVAAGLVSFHFVNGDLLVAPL AGYYARMAAKAGLIGMVATNTNPGVAP
 A GYYATMASSQGCVGLTGTNARPSIAPTFGVEPMLG A A NY LEDATRNNCI AWVFTASSPALPP $M G \square P V A R M A E K G L V A L A F A N A P A S \square P A$


AFSWPRPGTFPYTFDFATSVVVARE\|VLHRRAGEADPEGW CVAAK GEGDDEFVVLDMAT TTVALGKVEVKHKDGEQDPMGW
 VI AVP RA Q GH VVVLD MALSS QYAY GK LQENALSNK SLAVB G

 A I A I K G K K Y Y Y S L D M A T A S L A R G K L L E A VR L G K E I P E G C
 A AVFPRRGGARLVI DLSLSQVARGKLMIAARDNQPIPLGW VVADP H G EVVPV L L DV A M S MFS Y G K L E M Y N R L G K E L P I P G SIA AP GPDGTVL AL DIANTAVARGKIMDAKNRGEPIIPDTW LAFPKS DGAHGVVDCALSQFSYGKLEEARQKGVMLSVPG S A VP GPNE EPAI I D Q S A S T IA K S EVVMKHAREGRPI PV G W
 GF GVV NPNGRPFMLDMA $\square$ SVAARAKI RNALKRGEPI PGDW SFAWPRPGKVPLVFDMATASMAVGEVK DAARDGHKVPDGT A $\square G V P T$ GGAPFMMDTATSVVSMGEI HDHANRRQPI PSHW AFSWPRPGTTPYTFDFATSVIARGDI ELHRRAGKTIPEGW VMAVPRESG PLVLDMAMSQYAYGKLQVTRLLKGEKLLPFPG
 GF GVVPGHDGRHF L L D M A M S V A A R A K I R N A L KA G Q S $\bar{A}$ S MP A S P Y P F L M D M S T S I I TMMGKV
 AF GWPRPGPHPFVFDFATSAIARGDLELHRRHGTPLPPGC AAVFPRRRGGPLLMDLSLSEVARGKLMIAARDGQPIPQGW

 AFGFPAS PHPFMFDGATSAVAGGKIQVADKKGTEXPGEW S Y GFP GKKDF LL GDMATSEVVSLGRIATARENNETVVMHW
 AVAVP ADPVPFLFDASTTVVTRGKLEMYNKMGKPLPEGW CLAAPAKDGDDFVLDMATTSVVALGGK EDQERKGESMPNGW G A VPA GESPPVVVLDMAMSVSA GGKVVRAAKRGEKVVPGW

 AFAAPRAEGPPLVFDQASSTMSHGDVQVAAREGRLLPEAS SVAAPAKDGDSFVLDTATSAVALGKVELSERHGDSSIPDGW
 AFAAPT ESDAVVSDDMATSTSAMGKVLI ARATGGQQVPDTW


 AF GWPRRQGREPYVFDFATSSVAARGEDEDHRRAGKPDPEGW





 AVALPAEKHLPVLLDMATSRVSRGKLLVNMKKGEPVPDDW S I S





 AF GWPRLDNPPYVFDFATSVAARGEI E W HRRAGKPLPEGW


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## UniRef90 E1V609

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UniRef90 U40
Uni UniRef90-UPI0003B2E363 UniRef90-G9Y5M0 UniRef90-Q65WJ99 UniRef90-Q0K4E0
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UniRef90_C7N716 UniRef90_K1PWW1 UniRef90-G9ZV26 UniRef90-H6MWQ5 UniRet90-W3AKP3 UniRefofo-j5HKO2 UniRef90-B9JPX6
UniRef90-H2L9S5 UniRef90-UPIO0035E4A9C UniRef90-UPI0003F61B14 UniRef90-UPIO0034BAEE3 UniRef90-A3SH90 UniRef90-UP1000409E11D UniRef90-UPIO0046F0AA6 UniRef90 A1BBN2 UniRef90_UPIO0021963EE UniRef90-R5GM47 UniRef90_UPIO002555439 UniRef90-UPIO0029B01DF UniRef90-H1LUN4 UniRef90-F5Y1T0 UniRef90-A0A017HT13 UniRef90-D8FWZ8 UniRef90-UP1000366A7EF UniRef90-A0A017K831 UniRef90_R5IMRO UniRef90-A6CKT1 UniRef90-UPIO0036D5A2F UniRef90 K2LLLE UniRef90-WOHXS5
UniRef90 H4FB83 UniRef90-15BZ26 UniRef90-DOCP08 UniRef90-G2H942 UniRef90_UPI000463E9F5 UniRef90 A2BJM3 UniRef90-S3NHO2 UniRef90-F4LXLO UniRef90-ALAO24JOV3 UniRef90-A0А016XKM1 UniRef90-B2TGA7 UniRef90-UP1000380BC35 UniRef90-H1Y042 UniRef90-UPIO00479B8DB UniRef90-O1GM21 UniRef90-UPIOOO31DDCA2 UniRef90-G2ISY1 UniRef90-JOLN25
UniRef90-G9ZLE4 UniRef90-G9ZLE4
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UniRef90_UPI0002E61030
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 A DDKNGEDTEDPYD VVDKEGNDTTDPAKGLEGCNLPFGGPKGYGLALABELLS VIDGQGQPVTDSGQAFRQGDGSDMGGHKGYGLGLIAQL S GFDSEGNMTTDPGKILETHQVFPDGYWKGSGLSLVLDLIC A LTADGAPTTDPEEGV DGVLLPMAGHKGYAAAFMMDVLS GYDEEGHLLTRDPAEGEKSWRVLPVGYWKGSGLSILLDDLIA ALDKAGQPTTDPKAALLAGGTMVPAGGYKGAGLALIVEMFA A DAEGRPTTDAAAGMAGAMLTFGSYKGSALSTMI ELLA ATDAHGKPTTDPKAALD GFLLPDGGHKGYGLALVVDLFA GLGPDGELTDDPQEILK GVLLPFGGYKGSA SMMVELMA ALDENGNPTTDAAAAKKGALAPFGQAKGYALGLGFELLV AVDQTGAPTTDPAEALA GAMLTFGGHKGSALSTMIGLLA GYDKDGNLTDEPGPDEQSMRTLPTGYWKGSSMADLLDAMA GFDDNNNPTRDPATVEKNRRLMPMGFWKGSGLSVVLDMMA GFDNDGNLTRDPADALENRRLLPMGYWKGSGLALVLDMAA TMNSAGEDTSNAKEVLYNGSKEITGGHKGYGFALTVVELFTC GVDSDGQPSTDPLAVAQGAMLAFGGHKGSALSAMVELMA ALDADGQPTTDPKAGLA GSMLPAGGVKGAMLAMMVELLV GYDAVGNLTDDPNATLKSWRSMPVGYWKGAGLSLLLDLES ATDANGKPTDDPRAALD GFLLPDGGHKGYGLALVVDLLA VVDKDRQVVTDPKEAEDIGNQEVNANYKGMGNSIVVELLT GVNEEGKDEVNPQHLEDNGSSQLFGSHKGYGFSLLVEFLT A A DKTGKETNDPSAYLPLGGSEESSGYKGYGLAMMVEVLC ALDSAGRDTQDPAEALEAGGTLLPLGHKGFGGAVMGELLA GFDKDGNITDDPGALEDSMRIMPMGYWKGSAFSAMLDLLG GFDDEGNPTREPSVVEKNRRLMPMGFWKGSGASUVLDMLA GCDPQGKITADPKRVLTGGGLVPGGGYKGYGLGMMVEVFC ATDAEGNPTTDAAAALDGAMLTFGGHKGSALSTMI ELLA GVDDAGNPSTDPNAI SALLPAAGPKGYGLAFLVEILG LID DHGQPTEDPSVMQPFGSLLAFGGHKGYAAATLCE G AVDAEGRPTTDPEAALA GSLVSTGGYKGWGLGLMVELLA LLDKQGKPTTD LKGYGMLVPMAEHKGFGVAFIVELFA AMDASGQPTTDPEAALA GAMLPFGGHKGSAI GTMI ELLA VAKNGNEPVYDHTQTEDFGVSENTGSHKGFGLGIIVEVFT MVDPDGIPTKNPQYYQEGGALLPMGGHKGYGFSLLVDALS AVDENGVGTTDATAFEKLFYANPNGGHKGFGLALLVETLC
 GFDENGNLTSDPGEDEKSRRMLPTGYWKGSSFALILDLVA ADDTEGAPATDPERALA GAALPFGGHKGSALSTMI ELGG AVNEEGE PDTDELREMVALKPDAEHKGYALGGMIDMLC
 ALA ALTKDGKQTTDAKEALE GFVLPMGPKGSGLATIIDTLS ALDAAGQPTTDAQAALD GVVLPMAGPKGSGGGLMMELLA SMRMLPAGOWKGSALAAMVELLC GFTAEGQLTDDPAPIEASM
 AMVDRDGNPTTDARAAALG

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| :---: | :---: |
|  |  |
| UniRef90- 7 T 7506 6 | TFRETAGGICRELRGAERIYTAGE |
| iRee90 ${ }^{\text {U17 }}$ | AMQQEAEEFLAWVRGEAEILVPGEW |
| iRef90-UPloo047924F7 | HQQQVEETI AFAKDADNILYPGEQALRKRHENEKEGIPVV |
| UniRef90-U4KK21 |  |
| UniRet90-H0A7H5 | VLAGRMEDFKDIIRSTPPVRLPGDTEFDALRRQRREGVSU |
| UniRef90-A5NOY5 | NLEDKLSEYLNELRNSKRIYTHGEKEDESYKDKMENG\PM |
| UniRef90-AGUVS1 | EFMEKVDALIEELKNSKP |
| UniRet90-M1SM89 | EFTARVDALVDDLKGVNQ |
|  | DVEAIVRPVREDNPV |
|  | VEVLVDAMLEDDGV |
| UniRet90-G8QXN3 |  |
| UniRef90_D2SBL | AYEARVRQLVDEVQGFDGV |
| UniRef90-U2UBW7 | KSTDQIEELVKDLRSSGQV |
| UniRef90-DOCT95 | GFDRNINGLVEA |
| UniRef90-A81509 | SAAARMA |
| UniRef90- A0 | GWDARMADYAALLHGSQPV |
| S6G108 | EHSEKLFAKLEAMEGI |
| UniRef90- U4Q182 | EALRAL EPADGFPAVVIPGERGRACRDQRLKEGV |
| UniRef90-UPIIOOO3B2E363 | AEDVFERIVEQG ARLPSQRRFEARQRSAQNGV |
| UniRef90-G9Y5M0 |  |
| iRef90_Q65WJ9 |  |
| OK | WLAARMQDFAALLHGSKPVIVPGE\ELDKLARQREKGI AM |
|  | QAERDN |
| UniRef90-UPIO0028A2BC4 | NFSEYLNEIRASEKAEGRIY! HGEKEDESYEDKTRNGI |
| UniRef90_MOMRC0 | GYERRIGSLVDQLEGFDEVLLPGEPEARTREERLAEGIPL |
| UniRef90 UP10002375A6C | QQRAEQLFQA |
| UniRe990 A0 | ERAVER ETMLADD |
| UniRef90_12ER79 |  |
| UniRef90_L8B |  |
| UniRef90 J2EMH8 | WLQARMIDFATULHAASPVIVPGEUELKKMRRYLQDGVPM |
| UniRef90 CoR1X7 | ETKLITVQSFI DDI RKEPAISIPGERKEACSKVYQKEGIP |
| UniRef90-R5JBL0 | EWSTYLQELRDSEKGQDRI YTHGEKEAEKEEAYKKSGVPI |
| UniRef90-C7N716 | HFSEYLKELRCAADGATRIYTHGEKEVLAQEHRRKNGVPV |
| UniRet90_K1PWW1 |  |
| UniRef90_G9Z | RVGEMAGALKGSDELLPGERAARTEAAHTRTGIPV |
|  | ASVGALIDEVKSADEIFYPGELEDRAER |
| UniRef90 W3AK | 㑑 |
| UniRef90 J5Hk | EKLKRIMDYVTSAEPAQPVRLPGHKQ AVEADHHANGLPV |
| UniRef90-H2L9 | RMSDLLSIIQRNQDPVLTPGDPERASLKKCEEGGILY |
| UniRef90-UP100035E | SRDNQAERLFGAITDQG ARLPSLRRYEARARSLAHGY |
| UniRef90-UPI000 | EFTKRSQALVELLAHATEPVLVPGEPEERTRAERL |
|  | AMQQEAEAFLHWVKGDQAILIPGEWEAANRAARLAQGIPI |
| UniRef90-A3SH90 | DFGARLEQVARAVAQDEGARMPGQG |
|  | mithatalinavvag |
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| UniRef90-UPIO0021963EE | Q ITNRFSRYLQDI REDPA |
|  | M |
|  | D |
| UniRef90_UP100029B01DF | ELKAKATRMFNRIRPGTKIMUPGDREYRNYDQNLKQGVVI |
| UniRef90 H1LUN4 | KWDYRVERADSAHPSDPPV |
| UniRef90-A0AO17HT13 | DPAARAEVLFAAILGQGPARLPSQRRFAARARTEVEGIP |
| UniRef90-D8FWZ8 | ALLSQVTQAIQEVKAQGEILFPGEPEYESETNREEVGIPI |
| UniRe | EFFERIETLVAAMLQDAQVRLPGARRDERERAARASGUDL |
|  |  |
| UniRef90-R5IMR0 | EFRRNVDALIDEIKGTDEVLMPGETEFRAEA |
| UniRef90-A6CKT1 | EFYKNMEKKVKETEGFDRVFMPGEDEDDRKKQR |
| UniRef90 UPI00036D5A2F | SRADELVARAKASPAIHMPGERENQRAAAAERDGL |
| Uni | A LDRFAVLAGAID GMDGARLPGRRRQALKARLLAEGVPC |
|  |  |
| UniRef90-H4 |  |
|  | DPMARAETLFEAMVGQG ARLPSQRRFAAREKALAEGIRL |
| UniRef90-DoCP08 | ERLFADILDQG ARLPSQRRFAARARNTTRGYEV |
| UniRef90_G2H942 | AAALLGHVLDQPATRLPGARRFELQRQAHREGVA |
| 90_Q1YIU0 | EADLDR |
| UniRef90_UPI00046 | GGRVAGLVQMLRDM |
| UniRet90_A2BJM3 | EKMIEEIKSAD |
| UniRet90_S3NHQ2 | YYLNSAEQLFKGYEEQ QIRMPSARRYKARAENLASG\\|N |
| UniRef90-F4L) | KYıEYLSEFLQKLRGASRVYTHGEKEILNSVDRMKNG\| |
| UniRef90-A0AO24JOV3 | GFASRLQHLCGRLTAAGQDRLPGARRFANRAAAEKWGIPPI |
| UniRef90-A0A016XKM1 | AYAERIEALVAAMCAEEGVRVPGDQRERKAERARELGVKI |
| B2T | $\bar{M}$ |
| UniRef90- UPI000380BC35 |  |
|  |  |
| 20479B8DB |  |
| UniRef90-01GM2 | ERLFADIDAQG ARLPSQRRYAARARNLERGLEI |
| ef90-UP100031DDCA | $\mid$ |
| ef90_G21 | A HDARAEALFEGDTGQG ARLPSERRFAARRRTPAEGVTI |
| UniRef90_JoLN25 | D N W |
| UniRef90 G9zLE4 | GTNP\RVPGDREIIQNVDCNLKNGVV |
| UniRef90-UP10004784358 |  |
|  | GEFLKA |
| Un | KMEYGI NKVK |
| Ref90 | DMDVLLDTLR |


| UniRef90＿E1V6Q9 | PATLYQEDDR ${ }^{330}$ |
| :---: | :---: |
| UniRef90－UPIooos59AF3B | HRSQIEFADGLA |
| UniRef90－C7N5Q6 | GESVQKE |
| UniRef90－U1TY67 | DSNSWQQ |
| UniRef90－UPIC | HESV |
| UniRef90－ 41 | LEEVWKKI ESL |
| UniRet90－H0A | A A ED |
| UniRef90＿ASNOY5 | N ${ }_{\text {dVLVK }}$ |
| UniRef90－M1SM89 | STELQES |
| UniRet90－14YYI6 |  |
| UniRef90－EЗН | Q |
| UniRef90－G8QX | G |
| UniRef90－D2SBUS | G |
| UniRef90－U2UBW7 | Q |
| UniRef90－DOCTS | A TLD |
| UniRef90－A81509 | a LLD |
| UniRef90－D4XG1 | a Aly |
| UniRef90－AOB | GAAQLAM |
| UniRef90－S6G | NSDLVEQLRLS |
| UniRef90＿U4Ql82 | A EEVWQQ |
| UniRef90－G9Y5M0 | DDGVWDDV |
| UniRef90－G65WJ9 | DDTVWAKL |
| UniRef90－Q0K4 | DPAVKALL |
| UniRef90－C4 | NDNVW |
| UniRef90＿UP100028A2BC4 | NDNTL |
| UniRef90－MOMRCO |  |
| $\begin{aligned} & \text { UniRef90-UPIO002375A6 } \\ & \text { UniRef90_AOA052J4T9 } \end{aligned}$ | PRALYEE |
| UniRef90－12ER79 | N V WEE |
| UniRef90－L8BE | DASSWQA |
| UniRet90－J2EMH8 | E |
|  | DDKTAEETA】 |
| UniRef90－COR1X7 |  |
| $\begin{aligned} & \text { UniRef90-R5JBL } \\ & \text { UniRef90_C7N71 } \end{aligned}$ | LPKTMEENK |
| UniRef90－K1PWW1 | ， |
| niRet90＿G9ZV26 | V |
| H6MWQ | QTRDD |
| UniRef90－W3AK | E |
| UniRef90－B9JPK | 荗QWLA |
| UniRef90－H2L9S5 | NVV |
| 35 |  |
| UniRet90＿UPI0003F61B |  |
| Un | DTTSW |
| UniRef90－A3SH90 UniRef90－UPI000409E11 | E EHAVWNQ |
| UniRef90－UPIO00046F0AA6 | PETLV |
| UniRef90－A1BEN2 | TGAEVAQ |
| UniRef90－UPI00 |  |
| 55 |  |
| UniRef90 UP1000255543 | $0$ |
| UniRe90－H1LI | DEK\WSQTIQAlA |
| UniRef90－F5Y1T0 |  |
| A0AO17 |  |
| UniRet90＿D8FWZ8 |  |
| UniRef90＿UP1000366A7 |  |
|  | QPFQISELINEQA |
| UniRef90－A6Ch | 硡 |
| UniRef90－UPIO0036D5A2 | GEQDL |
| UniRe990 K2LLF6 | DDALLRE |
| UniRee990－wohXS5 | D EGV |
|  |  |
| DOC |  |
| UniRet90－G2 | NSLHEDL |
| UniRef90－Q1YIL | S S KL |
| Re990－UP10 |  |
| IiRet90＿A2BJM3 | VFND |
| S3NHQ2 | N |
| UniRef90－F4L UniRef90－ U－ | N |
| UniRef90－A0AO24JOV3 | SPGALL |
| UniRef90 A0A016XKM1 |  |
|  |  |
| UniRef90＿UPIOOOz |  |
| UniRe990＿H1YO42 |  |
| UniRef90 UPIO00479B8DB |  |
| UniRef90－UPI00031DDCA2 | DPATWRQ |
| UniRef90－G2ISY1 | ARELY |
| UniRef90－JOLN25 |  |
| UniRef90－G9ZLE4 | N |
|  |  |
| UniRef90－F21296 | SADIVNDLN |
| 90－X480 |  |
| Ref90 UPI0002E61030 | STTTLE MLE GL |

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UniRef90 C6XSR UniRef90-C6LAM1 UniRef90-X5L016 UniRef90-D2Q379
UniRef90 E1QYDO UniRef90_UPI0002492F68 UniRef90- J3ASK0 UniRef90-UPIOOO2490493 UniRef90_UPIO0037BE396 UniRef90-J1ROA6 UniRef90-A6E2Y3 UniRef90-U2V2U8 UniRef90-АоАо52J1Yз UniRef90-Q01XF2 UniRef90_UPIoo03726BB3 UniRef90-S5XZB8
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TMKTSVKDAHALVCETLMRCNVRADNAASVATALVTAEAS RLAFDEDKSEIKRVLVKYGMPEEKAETCARIHTETAYD R NYQDEQSFLENVFAAYDFTKEDSKLLADTLVDADLD HLSLAEAETLVVEALLRNRVSPENARAVADALVAAEAA VPFDFMKQFMKDTVVAYGVPEAEAETSAEVLIEADRR SKRIEHSELDQFFKEALIAVGTPSHVAEVEAEIGAEVDLC I PLDELEQKTAQALI AHGAANWVAVEVAKAVRQAESVV
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LEGFCQQVFRAHGLAAPDAELAARVLVNSDAR THSFQASYLHAMTRAVLMAADTPRHDAENVAELLVNANLA TRVSADELLELATRAVRNAGATPETATATARALVYADSC QRVDGVQLELFARAVLEKAGCEVPSAEAVAWSLTEGSVR VT KVDNLINFVSEVFSHSESSPEEAKRLATYLTTANLT BTPDALHALARDALDAVGSTAASAEATARALVYADMR
 VEADRLAR GAALLKAAGASEEEAQAVATGGVNANLA VDAAQWR WGEACLQTWDFSDADASCLASLMAETSSLW $k$ KLS DAQAl AF GQRLLAAQGVPDDIDARDVAEHLVESDRV TRYFPGDALTAFGTTALTAAGLEHDAADLTSRSLVWSDLR PASELRDWGRRCLAAMRVPQADAAALADSLVQTSLW KVPEKESQAYVSKLFQTIGGEKKHADVVADHLTMAEMR KITLDSARQFARSVLAAQGVPADHADDVAEHLVEADRS H LIQAERLRQLCETAALRRGLSATHAAWFAHGLVRTS SM VSYDGLTRHVMD LEKDGYTESQARDTAEVLVEADAR


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GHQSHGLDRILJPYVARLLRTGAMKAKSEPSIVVADTGGMLLL GVYSHGYQRFPRVI EYI DKGYI HVNAIPEKLAGVGAAERW GVYSHGLNRFPVFVKVVQKGLIKANALPALLARNGABERW GVFSHGLNRFPVVVDYLRKGGIDPKAEAVCTASFGAMERW GVSSHGUMLVPMYVARLNAGGVTREREDEVLHADAGAASVA



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 GHDSHGIVHLPKYVLELEESLIQPGAADEVKRESPSMAAL
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GYTHGLNRFPVFIDFVKQGLIATKAGPEKTGGFGALEQW GVHSHGVRLLPVMVENIQAGLTNPNPEVKDLAEFPASVLA GNLICGLYYLESYCSQLDTGRVNGTIEPIVSDPRTASVYV GVHSHATRAVPGYVRGVISGNINPNPNLQTLEDNPASVLL
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 GIYSHGUQRDTMYEKKLNAGYVDREAKDQVVKQVPNCVVV GYTSHGLSILPNYRRVLAEGFVKADGRAKLLNDRGAMLAF GTHSHGLLRLPLYVTALRSGGINPRPVLRWTRESGATAVLV GQASHGLNRIPFYTQKLEHGGYKANPHMKILREDAGVALL GYVSHGLS LPNYRRA:ESGNVNPTGRAACVLDRDMLMVF GCASHGIYRLLVAANTLAKGKVVRDAVPVLSEPARALARV AVPSHGVARLAFYRKNLEGGFAFTDREPQVVRETPVSLVV GI ESHGIAMLVEYDVRRKTRPDNMKPSPRLLRDVPVAALM

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 DGNGGPGQCVSNYAMDLAI RKGKESMI GLVSVRNSNHYGI DADGALGQVAMQAAVRRVI DAGGAHG1AAVAVSNSSHYGA DGDNGLGQVVMRETVDWAAQSAQNHGVSVAAVENSSHYGA HGGQGQGDVVAHRANALADDLAREAG\|AAVGVSDSSHCGA DADNSLGHVAGTYAMNMAIEKAETTGFASVAVRNSNHYGA DAHFG|GQLNGUYSMNLAIKKAKEHGVGVVTTKKSSHYGD DGQQGFGQVVAKQALTEGMARAQTHGLVVVSLANAHHLGR DAADGLAFDACALALSTGIERARTFGTAAASVTRSHHFGA DAQHGFAYPALDLMMDHLPDMTRTQGMAMAAIHRSHHAGV NGNMGPGILNALYCADRAMELLADQYGI GMVG/ RNTTHWMR DAGNGYAYPADDLAVAELSIVAREQGI ALAABSRSHHAGV DAQRSTGNTTARHMMERATTLADQHGIGLVALLRNANHWMR DGNLGLGYVGPYCMKLADEKAKKHGVGFVVAQNSTHYGD DGNLGPGILNAQFAMNRAMQLARDNGI GCVALKNTNHWMR ETDRGDGRYVSAVGMDMADERAETG| GAATARGVAHWGR DAQFGFAQPAFERADPLALKTVTETGTCSLAVSHSHTCTS DGDRGLGHVVGDRAMNAAEKESASTGVALVRNSNHFGA DGNWGFGYVVSERAMQUT: DKAKEHGVAATTVYQQSHVGR DAALGFAYPALELADTELPAVTRSQGVAVAADRRSHHCGA DANKNMGQTATAFAEKQLTKKTQKLGLSVAVIRNSNHFGT DGHLGFGITNAWFCMDEAI RLASENGI GMVALRNTNHWLR DADHGHGALAAYRAMDKAI ELAETCGIGAVSIRNSSHFGP DGCRGFGQHIUGKVVVQEA| ENTRKHGQCTVTVRNAHHRGR HGGNGFGQLTGRLAMEQALDRVRQFGVCIIGLAQTHHLGR DGNLGSGULNALKCTDRAI DLAKANGMGLVALRNTNHWMR DADAAPGQYAAKVAMEDAIAAAGKTGDAVVGVTNSNHFGV DAQGGMGTTVSQQAMDAVIAKACEHGAGFATVRDSNHFGD DGGNGFGHHTARKAMERAI EKAKEADTCSVTLVHTGHDGR DAADGMAFPACALAVETLIGRAREHGSAVASVTRSHHFGV DGKFGYGQTVTPVAVKLGI EKCKKAGLAAVALRNSGHLGR DARRALGLWSATEAMDLAVERARTYGVGLVSVRGGTHFGC DAADGLAFAACEDADATGDERARTFGTAAASVTRSHHFGA DGERGLGPVVMMDAMRVTRRПLKETGLA RAAIRNANHMGM EGGRGYGQRVAREA $\square A A G \prod E R C R A G G S V V T L R H A H H V G R$ DGNWGFGFHVNAKAMALTIEKAKTANVAACTVFRQSHVGR DGMGGLGHPVAAQAMRMAVDKAFEHGVGAVSVRNSHHFGA HGGRGHGUVVAHRANEAAMALAREAGVGAVGVSDSSHCGA DGNQGPGNLNANFCMDRADSLASSVGVGMVGLAHTNHWMR DAQQAMGQLASTEVMDRLI RVARKNGIAFATVRNSNHFGA DGDNGFGQHVGKAVMQQAIIERARQYGQCIVTLRRTHHLGR DADGALGQVAMNAAVERVSRLARENGVGVVSVQNSTHYGA HGARGLGVVAHRANQLAMELARETGVAAVGVDDSSHCGA
 DGNGGFGQHVGKTVMTRAIERVRQHGHCIVTLRKSHHLGR EGGGGFAQLAFAVGKPALIAKARAYGDAALALNNVVHAA DADAAPGVVAGSHAARLASELARECGVGVVAVANSNHFGA


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 VADYPDMAAQADLIGMMTARTSKSVAPFGGREARLGTNA AATYLQQAIDAGLAALVLTNAPPLMPVWGGRSAFLGTSPF AGYYARMAAKQGLIGGIALTNTRPLVVPPNATEAFLGSNAF AGAYALNAAQKGYMGAAFCNSDSFVRLHDGAMRFHGTNP I
 GGYY T R M A A E A A WY A MQA L $L G E Y A E C A A$
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 A GL W A E R A A K R G CMA V A M T N T R K C C I V T F G K E R L L A $L G Y Y T T M A A D A$
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 A FA MP
 VVA $\square$ PRKEG PI LLDMAMS QFSYGKL NIFKNSGKKMPFEA GFA T P V A GA D P V V F D F S T S S M S H G DL Q L L R A E GR D V P P V G T

AFACPRRRPPSLVIDDSLA


AFAAPAA QNEPF VLDMATTTVAANKVKVYDFHDKPLPEGW

 S MAFPRAD GEPLCLDMATTADP WNRVMNARRDGVALAPGV


 C A G


AF T F
 VIAVPRANGFPFCI

 A MALPAKNGGIVFQFDQSTSA IALGKITMASAAGEAIPDGW



 SFAVVPVA GQKPWLLDMATSADPYNRVKGYRSLLGREDPEGV


 AFAAPADREKAFVLDMSTTAVTRGKLEVYGRQNTPDPTMW SVGVP T GDDAPFVI DFATSMIAGGKMMFAQSRGVNLPEGC
 AFACPRLEKEPFCLDMATSMI PWNKVEAARKTGKQL PEGT CVG $\ P R$ Q G Q D P $\triangle V L D F A T S V V A G E K C L V A S R G G K K L P D G A$ ALAAPAGEHPPFALDMSTTVVVTGRVRSAARAGEHVPEGW A AVFPRANGKP LMIDDSLSHVARGKIMVAARDGKPIPEGW AIGIPAA GHPFVLDLATS IVSMGKI NNHAMRGLAIPP G W CVTI PRPGEGP IL L DMATSRI ALLGKVRLLMNKGELVPEGH

 AAAFPLKKND FVFDGATSTVSLGRIVVLEKUNEQDPGEW CFAGPLPGGPPFLVDMATSSIAVNKARVLAARGEPAPDGA

 S I GVVPAKKHFPVVLDCATSVVAQGKVSVAETENKPIP GNW CFAGPMPNGPPLVVD】ATSAIA DNKARVLAEKGEPAPENS AF GWPRAPAPPFVVDFATSKVARGEVELHRRAGKADPEDW CFAAPARD GDLYY LDMATSSQISYSQVVKHFRRNGMALPSGW



UniRef90_UPI00046FB097 UniRef90-R5XMD5 UniRef90_C6XSR8 UniRef90-X5L016 UniRef90-D2Q379 UniRef90-E1QYD0 UniRef90-UPI0002492F68 UniRef90_J3ASK0 UniRef90_UPI0002490493 UniRef90 UPIO0037BE396 UniRef90-J1R0A6 UniRef90-A6E2Y3 UniRef90_U2V2U8 UniRef90-A0A052J1Y3 UniRef90 Q01XF2 UniRef90_UPIO003726BB3 UniRef90_S5XZB8 UniRef90-C0D7T1 UniRef90-R5IDC9 UniRef90-A0A014M511 UniRef90_UPI0003821A3C UniRef90_FOSSM2 UniRef90_U5BYS4
UniRef90 F6CYY? UniRef90-F6CYY2
UniRef90-K1LKP7 UniRef90_UPI00025555D3 UniRef90_UPI0003B35DCB UniRef90- S2D9F4 UniRef90_UPI000470C05F UniRef90-R5C8A7 UniRef90-FORTY1 UniRef90_UPI000364E6C8 UniRef90_UPI00021A5FDD UniRef90_UPI0004717FE4 UniRef90-A9IQ62 UniRef90_12F8M3 UniRef90-F0M668 UniRef90-UPI000305544E UniRef90-D4XJ34 UniRef90_UPIO00374158A UniRef90-J1F5G6 UniRef90_UPI0003A1D692 UniRef90 C6DD67 UniRef90-A0A038GZP4 UniRef90-K2M8Q8 UniRef90-R7PN37 UniRef90-UPI0002491093 UniRef90-B9JD86 UniRef90-V3T530 UniRef90-FOYEV8 UniRef90_UPI0003B77504 UniRef90_UPI0003658A8A UniRef90-A3YAl3 UniRef90-Q0FE25 UniRef90_UPI0003B6D8B4 UniRef90-UPI000369D251 UniRef90_UPI000363C483 UniRef90-B6JJQ8 UniRef90-C9M4P7 UniRef90_G5IJD9 UniRef90_UPI00046EE25D UniRef90_LOB5K0 UniRef90_A0A038CYX5 UniRef90-UPI000468EAAE UniRef90-UPIO0047B5A4F UniRef90_K9RNE8 UniRef90_G9PSC7 UniRef90-N2IXT9 UniRef90_UPIO0036C5616 UniRef90_UPIO0035F3005 UniRef90_L8GX63 UniRef90_U1H9Q6 UniRef90-D6KEN0 UniRef90-R4X436 UniRef90-F6BXR4 UniRef90_UPI00046CE2E0 UniRef90_UPIO00464EA38 UniRef90_A0A058YNK6 UniRef90-E3HXJ1 UniRef90_UPI00041B7E75 UniRef90_A0A023D0C2 UniRef90-K4TRF4 UniRef90-UPIO0034A55FO UniRef90_UPI000479E6B2 UniRef90-R6MZM8 UniRef90-Q1LQY1 UniRef90-UPI0002630450 UniRef90-C5A802 UniRef90-D2Z5Z4 UniRef90_D6ZYD0 $A L D A Q G Q S T T S P D A A L N G V V L P M G G P K G S G L G L M M E L D A$
 GFDKD GHLLTKDPDAV DKSRRTMPTGYWKGAA LS FMLDVMA

 $V T D A A G N Q T T D P S V M F N E G A L T T F G Q H K G F G L A L L G D L L G$
 GFDAD GRLLTDDPAAILATNRVLPDGFWKGSGYSLLLDVI G AAAPDGGDAHDAPSLLESGAGTEFGGHKGYGLAVMVDILC

 LVDAD GTILSEDPHVTKGTGAI RAFGDHKGSGGAFICELL G
 AVDRD GRATT DP HAAAQA GA I AP F G D A K GYGG G L A I E L L V L V D E E GR P T Q D P K VM F R Q G A L L P V G E H K G Y G L A L V A E L L A











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UniRef90 F6CYY? UniRef90-F6CYY2
UniRef90 K1LKP7 UniRef90_UPI00025555D3 UniRef90_UPI0003B35DCB UniRef90- S2D9F4 UniRef90_UPIO00470C05F UniRef90-R5C8A7 UniRef90-FORTY1 UniRef90-UPI000364E6C8 UniRef90_UPI00021A5FDD UniRef90_UPI0004717FE4 UniRef90-A9IQ62 UniRef90-I2F8M3 UniRef90-FOM668 UniRef90_UPI000305544E UniRef90-D4XJ34 UniRef90_UPI000374158A UniRef90-J1F5G6 UniRef90_UPI0003A1D692 UniRef90-C6DD67 UniRef90-A0A038GZP4 UniRef90-K2M8Q8 UniRef90-R7PN37 UniRef90_UPIOO02491093 UniRef90-B9JD86 UniRef90-V3T530 UniRef90-FOYEV8 UniRef90_UPI0003B77504 UniRef90_UPI0003658A8A UniRef90-A3YAl3 UniRef90-Q0FE25 UniRef90_UPI0003B6D8B4 UniRef90_UPIO00369D251
UniRef90_UPI000363C483
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UniRef90-UPLO002630450
UniRef90-C5A802
UniRef90-D2Z5Z4
UniRef90-D6ZYDO
UniRef90 U2YU73

G A L $\quad$ LG G A V G T D
 TVLTNANSVAR GTF G G GVLTGSRYGTGVVGPYVPDHRSGCGHLVVAIDDRADMPD GVLSGGGWGDRVRPLYREPDRPNDCAHLLFLADDPELLGGE

 GVLSGSGFMDEVHGPYDP VNRSRAGHLMDALNVAAFQPE A ALTGG GAMLGEFMSKEADEFSGGTSLLPRHGALVVALDPATFAGR AAMANGKSGSQMD DEGRGSCTGACQVFVALDPY GFGSE GTVSGGSAMPEVGNRKQKPGDPDNGGHFFMA 1
 GALLGQKGSASTAESDNRDGGPPPRGELILAFDPEALSGG A MANGNSGFDMD EEGRGSCVCCQAF A YDPYLGTR




S

 AGLTGGAFTYEDDAEAPEGAHTFATGQQFVVINPERGGND
 GALSGAGCTSQ GGSRVGNGVFVTVINVPSFVDS
 AGLSLGRWSAETYS GSQAGVSHFFGCFSLELFGDE SSSLT DATFAYETVDDWSNPASRMNNGHLVVGDDAAAFGGD AGLSSAVYAFQKEDIWDNPASAMNNGHFLIAGNPGHFNGR GPLNGNPFGPH\|SPMYEQLQRPREL

 A ALTGGKTERTAKG GKGTGASQVFMLFDPRQLGGA AALTGGKTERTAKG EGKQIINSMLSILIDPQKLGGA AALSGAQFGSEAGSFLTEEGPRSRVGHLFWLLDPDALAGS AGLTSAQFGHQSSSLFDDKGAPPALGQLIIAIDPKATGGV AVLTDGIGAAGMDQ KGYGSCGGCS GlLAQGS 1 SADTNTGKHDFS A GLTGSNYAFEASSGFDDQGPPPADGQFFLTIDPSFFGDD
 TAFQSGPFGEAVCGDDRATGKPMPLGHFFLAI DIAPLCPD

 A AFTGSVNSLDVKGLKLPEGKPHDLGQCY\|ILDPNTHGN GPLSGGLMGINKRFQPGDAPPEKRVSHFFFAINIASFTDA GILTGLGFG HDPAGKHNDGCFMAAFNVDAFRPA GVMSGSAFGGEVRNQNSDFEHPQNVGHAFVTFRPDAVTDS AGLT NATYAADASSFLDANGPSPATGQLIVAFDPKIIGGA GILAQGS ISADTNKPGH HDFSQFLLTDNPELFGND STISMGNTVAGAGRDEGD EHGVSQMFLAGDYQKLVPE $A V L S G M R L S F D L L P M N G P D S T P R A L G A F V L A M K P G A F V P E ~$

 TLLSSAGNSTYKDGGLKKNEAA

 GALAGHGFGRHLH DTPGSTGRVGHFFAAFRDDLFRPD GL NGHF DTGRGAMGGQFMQVLNVSAFTPE
 GALTTGTGATS SDRRFANGMMAFYIDPKVIDTS
 A ALAGAQFGAEAGSFLTAEGKRSRIGHLFWIIDPGALAGD AALAGSNNLAPDVNGTLDD HPANKGDLLILI DPSAGAGP $G V L S G G G T \ Q P A D P R K G A \| V N N L F S V L I D P G R F G D P$ $G L E T G G G F G V E P \square G \quad R H N D G C F M A V F N V A A F R P D$ GTLGGSAMAARHAARRRPD EPDDVGHFFLALDPDAFAGG GPLNGNPHGPHDGPMYEQLGRPRELGAFFIAIDPARFAGG
 AI FS Q GS $\square$ AA DLGNGKHD I SHFFMVI DP T LIF I S K GVLSGGGTI QPEHPRNGVATNNMFAILLDPQVFNAD A SLTTAA F AHQTQD $\square$ TWVEESSRMNTGHLVI ALDDTGAFTGR
 AGL GMPFDFEEE




UniRef90 UPIO0046FB097 UniRef90-R5XMD5 UniRef90-C6XSR8 UniRef90 ${ }^{-}$x5L016 UniRef90-D2Q379 UniRef90-E1QYD0 UniRef90_UPI0002492F68 UniRef90-J3ASK0 UniRef90_UPIOOO2490493 UniRef90_UPIO0037BE396 UniRef90-J1ROA6 UniRef90-A6E2Y3 UniRef90-U2V2U8 UniRef90-A0A052J1Y3 UniRef90 Q01XF2 UniRef90_UPIO003726BB3 UniRef90-S5XZB8 UniRef90-COD7T1 UniRef90-R5IDC9 UniRef90-A0A014M511 UniRef90-UPI0003821A3C UniRef90-FOSSM2 UniRef90-U5BYS4 UniRef90-F6CYY2
UniRef90 K1LKP7 UniRef90_UPIO0025555D3 UniRef90-UP10003B35DCB UniRef90-S2D9F4 UniRef90_UPIO00470C05F UniRef90-R5C8A7 UniRef90-FORTY1 UniRef90-UPI000364E6C8 UniRef90 UPIO0021A5FDD UniRef90-UPIO004717FE4 UniRef90-A91Q62
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UniRef90-C9M4P7
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UniRef90_U2YU7

EFDAR\|IAELVVGQMHGHDQVIFILPGEDEDHNAATTDRGGTEY AEAAKLKDIQNSVHANKKIRYPGEGTDIRRKENTELGI PVV A LIDAEVLAYTEAVKAGGQVSYPGERTLQTRDENEEKGIPV SVTDSIVDADAAVEEGGEVRCPGMGEHRSRRDNLENGIPV EFGARMDDYIASI KNCPEVLVPGELENRADER AGGGVVL GFRQRSSAALERVRGVDRLVMPGELEADRARQQRRTGVLV





 QWQEEAERLFARLEGQPGLRLPGARRHQNRATTTE EFEARMEQMVQELKKAQKIFVPGEMEWAKRE
ETRDQLQRDRASVTGAERVRLPGERFPKLRAENERDGDPV AARDRGETLFDAIEGQG ARLPSARRYRARARNTRAGVPV EYDKWMGQYETHIKGVEDVLFPGEVEKRTEVSRLQDGVNI AWSDKMDS LDQDLKSSKEIVRYPGENIGARIGKENMDQGIVPI QRAQRAERLFADVIDQGARLPSQRRQAAQQRNLRNAVNV
QWADQRDDLKSQVFEGQVRYPGERMLDLRKQNMELGVPV QEQKRLSVFLEELRGKDRIYTHGEKARETMAARDNGVIPV
 A Y L G RVREFVEMLRDAGMDRQPGDRRYANRAEAADRGI PVV EFQETAENYI DRLHGAGDAKYPGEDEYTSKLINLKEGVVL
 YFYERCQQVI ELVVSQDEGTRLP
SFEEEVDDVI
STLHD HGEHIVDGVVSSKKADGKIYYHGEKEAMERDRAVRDGIP HTEARVADLQQRVRMSGPVHAPGDPERAREAEA A TSVQL EAAEQVGQLQTAVQESGPNAVPGQFEYDSEESNEHTLQL A A LDA GVVVAAMAMELSQAPPRVPGDPEAAAQVERLRDGLDV EFTEAVDAEIRTVRGVERDYLPGELEWLHQQDALRNGIPL A I IA RFSDYL QE I RELPAVYVHGDKEQLSY LDAKENGINI AVADQIANSVEPAEADSRVMYPGASTWQRREDNRQRGVPV ATYQQL $D E W V R Q S R D D N E L L L P G D K E K Q T Y R Q R Q E N G I F V$ RYQQRI ETLIELMLVDDDVRLPGYRRHEDAAASESTGIVL
 VLK GNVESMFDRI RNLDQIMMPGDREYKRFDDNKVAGVAMI
 TFERNSTKLLDALRGSGRIWTAGELEHDARARHAQGGLSV


 AFKTEEVAR DYFARADSLVDRAKGFDNIVMPGETEAQRAEKAKREGIAV GILTHFAELASSIDTQPGARLPGSRRLKLRDTAEANGIEV DLKKSAEEMFDRLRPGTEMMIPGDREYRRYAENLKQGVVI EVAEKVADLLASTKDEDRIVYPGQRKQEIKEDNLKNHIPV DFTAGMQRYVEVLRSSPPVMAPGDRE WVVADDREKRGVPL

 E DQENLLNE I DQFTHDGPPMYPGERTLSSTRDKNQKEGMMV
 EFRQAMDQLLSDLRGHDQVWYAGLKEIQAQEAASREGVPV A YQQGVRAFLDGUKGFDEVLVPGDYEHRSRVQRDAHGVDV



 EWQAEI DAMVAYAKAAEPVLVAGEPERLAAAERQRHGIVPV KFKQEVADFARYLKSTPPVFYPGEDEYLREQERGKNGVVV AVEAEMDDLID
 QFK K Q WRTQEVGAFIDYLHGVDRVQYPGEYEAMNRARRAEAIEF THTERVRHLQERVRSSSRVYAPGD DEHETARRAGED VTL $P D A A T V G R M A A E L A A Q P G P R M P G D P E Y A A E A A R D R T G I P$ NWEEEVEAFVRYLHGFDQVQYPGEYEAMHRAAAATH LEI AVAGRAEALFDADEGQGARLPSARRYAARARSLAEGVR AFTAGVSSLMQAI RETERVQVAGDPQKAADARRTAQGI PL


330
D PE ETWKKMECEL
 N E E I WM QVVK PPATVAELNALA ERSGLDGL
GEAVQREFVQ


 D EVVSWQEFVAL

 AGGNWDQLVKAA

 S
SDETLAADKAT
DDKTVAELKTH

 DEVSWQQFKAL
$D N G T A A Q L A E A A$ NSK TWEQVLDQL $P \square A L \square E T L$ NETIWDEMLAKA ETGVIESLQAL



 PQPLFDHLTAL D AVTWE E D L L E
 PPALKKEMAEWS SQKTWENLLQ DDKTLQQVKRTC EGADWDSLAKKLA EPGLWREFLHWS GPNLYQKLKND
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UniRef90 H5WRV8 UniRef90-LOB4U0 UniRef90-S9RX36 UniRef90_UPIOOO361B721 UniRet90_S3H5E3 UniRef90_O87901 UniRef90-G9A9K7 UniRef90-UPI00036A0BC6 UniRef90-D7BCN6 Uniref90_UPI000362D915


VLVAADDLRTFSAALLEKGGLNAEQARTTADVFVWAALR FAADTLTAFVTRLFAAVGVPDNEAATVARSLVGANLR ITSLASIFDQSRAALITHGAAPWVADTVAQAVRRAEAT VRATLTSIDRFCRAVFIAAGADEATSDGATRAMMHGTRLL RUKVKDADQLITELFQAKSCSDYEAKTAAERLCGSNLK
TRLSLAAAEDLGFRALRANRVSELQARSTVRALVAAER 1 TVTEDEVI TRKALVAHGAAEWITAKEAAQAVAWAEAR T $\square \mathrm{T}$ PAAEMLQLIFNA\|LLKQGFTPEKARQCAEVFTNNS\|D TIAADSLTKFAEAMLLAGGATPEEARTTSVSLVDANLR TLVPVSEARAKAEEALLKAGADPGNAALQADLLI EAELR
 TS AAAGLTAFVRDIFVGEGCSAEEAGRIGRYLVAANLT RVPFADLYAVLEKTMSRLGLDAPEAAQLSARLFAETTRD KTMRLDETEELARGALEQAGASAEQAASVARSTRLAERD R AVSELEDFMRRVLLRCDTDEASAEAVTQALVTASRM

RFDAAQLHRQVVGULSAWGMPPEPAAATATVMVETDLS
(
LRELAVTLLERRNAPTESARLQADLLIEAELR $\square Q A E P L K N V S T L L K K G G S C D E E A Q V V A D H L V R S N A$
K LSTTEAKQKAEAMLVANDTAPENAGSVANALVLAEAD QTLSSSVLRSQCARULEAAGSTPAEAAQVADNLVLANLS H Y LDELQHLAAAALAAAGANPDMAESTARALVHADSQ RTMSPGALTDLIRGALMRSRTSEDNAASVAGALLAAELLA RRLDAPNLTAFCTAVLVRAGARVDDAECVARHLVEANLK
 FSVDSLREFALAALAASGVPEDDAALTAYSLVQADQR DAALCADSLVQADDW
TVEVAEARAFMERCMVATGVTSAHASVLAEVLACADHR TSLVIEAEARRFMHDCLRRVGVPFEKLRSISDFLLAADYR TARDRLKEYLKSSLIKANTTENLAQDVAENLVESSFK VTVQADRLDDFVAQVFERAGSSKAEARRIGSYLTTANLT TSLI DEQEARWLASTALVEAGVPEDDADLVAAALVDTSLR RLTPDELHDLAHGHLTRTGYGEAHARAVASFLTTCQMD TKP TSRQALEDFAAALLQAGGFSEQYAKQSAELLVWANMR T SVDAARSVSERVLLNDDVAEHAADQVDLLLEAELR T■YLSASRLKSWTKEVFMKLTLSEEHATLMSEVLVESDLL KRLDHKYLKRQVKKVWLKAGSGAREATLTADHLVGANLS QRLQASELERLVTGLFVHAGVLEPDAATWSRSLVGANLR
 RIPDHDATDGKR VTFSADLLRRYATDLETAAGLSAQAAGRVSDALIEADLS RVEREALERFMKAVLGRAGADEASASAATRALVTASRM VRVPGAELQARTVEALLAAGDGHEAAEAAGEVLVDAERR TVRVPHDDLLRFTSAVFSAHGDPPERAKAAATALCHGDIV VTLPAALLMRQAETILTGWGMPEDDAVQTAELMVETDLF KLAAKQLEHVSRLVLKALGCKEKEAGIVSRHLVEANLIR
 R!TDAEVLRAAAAALIRAGGSAPEEAGVVARHLVEANLA RK QSQYLRAQCATILVASGSSTDEANKVSANLVMANLS



HGAPRDHAALQARVLVTAEMK THTTALPRLQAAMRTLVRGFGSSAAEVDAVVDNLIEANLT $K L D Q Q A D T F G Q K I D A Q G V P V D D A F D V S E H L V T S D Q V$
 AEVLVEAELR

## VDVLEAQRFVSQVFSAMQVPKQAASEMADALIAADYM

RVIAKD LEAFSASLLEAGGFRADYARQSAELLVWANDR TVTLSLDEARADCTSAADGAGASKETASSDALAAVAAEAD KLALAELQRALSSHFQSLGLSPEHATQFSEVILEAEAE

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 GHP S H G L L R L

 GL E S H G A L L V E Y N E R R LTTRP


 GHDDS H G V $V$ M R R V
 GNK $\$ C G L Y Y L E S Y CQ QL VTGRVV GTVE PVVSQPKD GVVKV G D D S H GVRLLP H Y VK GL I E GRIV R QPKVALASAF GAVGVL



 GYESH GVVMRDP YY L D A I Q S GEVVVPA A E LLK LID Q GA A RVVA $G V P S H G L L R L E R R L I R R I G N G A I D P R T R G R H D W R G D G L L H V$
 GI H G M GI G R L D M Y L K D L Q H G T V D T A E P E I DS T S VTAHV
 GKGSHGLLRLPRYVRGIEHGHVDPTGDVEVTDERGGAAAV GFTSHGI TN LTRYLP LLDSGRCDPRAEPRIVTRDGASVLL GAD G H G I GLASHGLSRVAQYAGHLRCGRVNGEARPRVQQRKPAALLV GLPSHGLQRLPL I L S RLDKGLADARARGSGIDRRQAFLSM
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 GH D S H GVVGIL P A Y A G H D R R G QV CDLD A D D T V L T D T T V L L R V
 $G \| A S H G L L R L P L Y V R A L E T G G D A S V P E D A L V R D G G A T A V L$



 DCGSHGLLFRLFMCVETMRRGTIDDGTA EPDIVTDDDSAVVVRA

 GHDS H G V G M I P K Y V L S WQ A G E L L Q L N R QVVSVV Q Q A G S L L S G V $V$ D S H G V V










 GA D S H G V L R $\quad$ P R Y I E M A E L G IVVK G D A K P E L S R E F G A V A V I


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 DAHYGFGQTAGPFATELGIARARQNGVADVALRHAGHLGR
 $D G D G G L G H E P A D S A M E T A D A K A T P A G V G V V S V M N S G H E G A$ D A GHGFAHAADDAGWRDFTDAARGNGIAAMTVHRSYNCGV
 DADNGPGQSAGK RTMERLI SMSKRTGVVAVGVVRNSNHF GT D A D R A PGPVVALSAAADEAVTRARVSGVAAVGVRRTVVTGA $D G Q W G L G Q V Q A A R L L D L I L D R A A K V L G L A A G T A R D C G H V G R$ $D A D A A P G P V A L S L A M H Q A V S M A R S S G V A W V A V R G T V H T G A$ D A GF GFAQAGFTRGLPKAVVEVRKNGICLLAVGQABTCTS D A D N G H G G L A T F V $A$ M D D H A V D F A D R H GI S A V A I R N S S H F G P D A K Q GF G QV A GE YA VDDE GI T RAA K H GM SVI G L K N S G H LG R S GDRGF GQRTGREAMLLAAI ERVKTTGDCLDTLASTCHLGR DADNGYYQ QAAAAARDE LIAALARENGIAAFTCSNCHHLGG D A GYGY A F P A LDD LAVEA LPEIA R A QGIAAAYVARSHEFGQ
 $D G Q W G F G Q V Q A D R L F E L L A P L A A Q Q E G L A V G T M I Q S G H D G R$ D G Q N G L G PVVA RA A L D A S E R A R R L GV A A A A VVGSNHIGM
 D G D N A S G L IVGG E A L K I C I R S A K E K GI A A V A V K N S G H F G C

 DARRA L GLVAATAEAMDLAAVERARRYGVVGMVGVVRGATMEGM
 D GDNGMGHLVMSVAVVHAVADAREDGVAWVGVRRSNHAGP

 $N G N N L L G P V V G N F S M E L A I Q Q K K Q S G V G W V V A K G S N H Y G \square$
 D A GS G L A Y P A C A LA A A L A I E R A R Q H GVVA F VAV A N S H H F G A DA G G GWGAPA GQRLI HQAGAKAKSGGLAAATLGNAHHLGR
 DGGS GLGQVVMQVAVDWALERTREHGVSAIAVENSSHYGA D GREAMGQVVAA QAMAEAMARAAAAGI GAVAVRNSNHEGT

 D ARDAFGQVI GREVMRWAI GRVRTTGIAAVAAI RDSHHLAR
 DADGALGVLAGLAATRLAADRAKAFGVAAVGVRNSNHFGA




 DA D R AP GP IG MA RAMEVAITRAREVHVGWCVARDDTHAGA
 HGGQGLG VVVAHRANRLAME』AREAGVAAV GVSDSSBCGA E GNRGLGQHVGRVVVEQAKARAFDKGVQDLTVRNSHHLGR D A D GME GHLVA E DAMMLA IAETARETGUA AVAVRRAQHMGV D A D D GLGGHLAAY RAMEHAVEMAE QVGMGAVAVGNASAFGA D A D GGG G QVAA GMAAEWCASRAATHGLAAVAVMGNNHVGM
 D GCHSLGHATALLADQTAVAKSELSGMGSVVVRHSNHFGA SGER GF GQRVVAREAVVDAAI WRVVRETGVVALLVTVRNTHMMGR $D G Q N A P G P V V A N F C M D D A I R K A R N Q G U G Y V A A R R S N T D G M$
 DGEQGYYGQVIAAKAATENAAIARARETGAAAVLVALMNCCHHMGR
 TGHRGPGNDAAHAAMARAMELATEHGLGAVALGDTYHWQR
 D GDDGLGHWQLQKASEIASERAMVNGIAAVGVGRSNHCGA DANHSIGQIVAMKAMNMAVEKAHKVGIGVVSMRNASHIGF E GAS GLG PVVAMAADERDSPHDPDLGUGLVAVRNANHLGM D GDAGFGQVI GREAMA LAASERARAHGNCIVALGNSHHLGR NGNKGFGQHVGKVVIKQADDRANKHGQCIVTVNNCHHLGR

 $D G H N A P G P V V A N F C M D L A L Q K A R E V G I G W V S A R S S N C I G B$ DAHNGFGFVAAHAGMQRAVAMAQTFGIGLVSVKHSNHFGM D G DRVVPGATGMSMAVDKAVELAEKFGIGLCSIVRTSHAGA D A Q GGAAHTAFDRSFDE IAKAAR LFGVTVVAQKNAYTCGA



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CFAFPTEKGN\|I I LDMADSEAARGK\| RDLAQKNGER\|| LIGW AFGVKGRNS Y FMLDMVSSMKD DGS I EWALTK HE Y I P HLLW T $\square G G V P G A D P$ H P F V L L D M A T GLI S M G K V AFACPDPGRAP VVVDLS LS KVARGNI MAARQRGEA I PE GW AAGFPVAGAEPI I LDFATSAVAEGKVLVASQGGKPLPEGV VIDAVPRA Q GHHVVI DMAMS QFSYGALASYAK RGQPDPDPG SFAAPAEPGRPFVLDMATTTVASGKVRNKDVEGQLMPPGW SVAAPGEGGALLVI DQSASVIAAKSEI LLRRARTGDPIIEPEW

 A I A V P A K A H VP L L L D M A TAA A A LIGK I R QA KA S G T P L P E G A
 SVAVPA GRHPVVLLDMATAVIALGRIAQHKASGRPLPEGA S F A V P A S G GVAMKFDFS TS A V A L G K I TMAKA A G Q K




 $\overline{A I I} G V P C G B \quad A P L V L D F S T S A T A E G K V R V K K D A G Q A V P E G W$


 AFGADGKDSH FMLDMAASTKSMGALEWAYLNDDRIPS S W AF ACPMTGRDPLVI D LSSLSVVARGRIMVAAQKGEPIPPEW $A V G L P T \quad D P P F N L D L S T A S L S R G A V E E A A R A G E S L P E G V$ ALAAPAGDRPPFVLDMATTVAPTGRVRAAARAGQSVPAGW
 A AVFPRRAGPPLVIDLSLSEVARGKLMVAAKQGKTIPEGGW







 $S$ CGAP
AF GADAT HSHFMLDMAVTMKE $\square$ GAVEWAY DKNEDIPN T W CVGDPDASKAPDILLDFATSKKDARNKARDA WEQGLPL K E GC C I A V P C G E G P P L V L D F A T S A I A M G K VVRV A R N A G K T
 A F A WP R G D T D P L V F DLLA T S A FA R GEEV E L




 SVAVVPRQDGPPACLDMASTAIPWNRVMNARREGHALPE GVV


 SVAAPAGQHPPFLLDMSTTTVPTGKVRAAARAGVDVPAGW

 AFAAPAGRNEDFALDMATTTVVAANKVKVVYYQQKDLPAGW


 CLLA AP G GEMP A FVV D M S T TVVV S T G R V R A A A R L L G E R I P E G W

 C I GVV PA GRPPVVLDDATSMIAQGKTRVAHNKGEAVAE GC CFAIPLPN GRPYFID MATSSMA I NKARVLATKGLKADNGS
 A CA A T S D R PLVVVDLATSVVSMGKI HHHAANGSAI PE G W
 SIAA PSRNARPVVLDMSTAAVA LGGVMMAAKDAGKSIPPDW SLAA P A A D GPP PVI DQSSSATAFVVNVRQAAQS GEEI PEGW



A VD S Q GNP TNDPEKA|L|Q GNMLA\| G G $\square$ K GF G|L|AM|V|ND|I MA

 AL DAEGRPTTDPAAALA GTMVP LGGAKGTALALLMVELL A LI E P D GR LS R D P R T LIF GPGA I RA FGE HK G S GLAALMCELI A






 ASDSRGYDTTDPEEADMLAPL G GEFGFKGA GLLA GISSEIL S
 GLLDPE GNASTDDNAILLETRSLLLPF GEHKGAAAIAFMMDEVL G



 A L D R D GQP T T DPKAGLE GSMLPDTSPK GAMLALIVVELV A NNKDGMVTDNPTEAL NGTLQPLGGYKGYGLAVIVDALTV

 $L Q D D D G G P V T D P A A F D R G Q A H L R W G G Y K G F G L G L A V E V L G$ $V$ V D R A GS T I T D A S LLA Y S G GP STE T G G H K G F G L LVSKDGSAITDPKRSGE GLLLD DGGHKGSGGAALML GL L A


 ASD S R G $\square E T N D P K$ AV L D G G GL M P S S G Y K G Y G L A MLVVE IFC


 LVVDQD GTLLSE D P H V A Q G K G A
 AVDREGRETTD AEAAAAGSVLAFGGHKGSGLAVLLEAFA AMDAS GRPTADPQAADD GLILPMAGHKGSAMISAVMDVLS A Q ND D M N Q S N D P K A V L T G G G L E D A G G Y K G Y G L A M MVV V


 A LDADGKPTTDPEAAMR GAMCTFGGHKGSAGLSLMVELLA

AI DRNGDATQNAAEAKE
ALDENGNSTVVDPKEAMK
AVDKD GNET 1 NPSEAENLIG GA 1 A AP F G GP K G Y A L L G S V L HV G A H K GY M F GLL A A E I F S
 A L P MA GPKGSGLSSLMI E CL A A I D A D G N P A T D P N $\quad$ T VA A L L P M A GAKGS G L S L M I E M L A GVDRHGQPTRDPAAVLDGGALLPFGGHKGSAIAMMVEVLA ALDDTGRDATDPVARALRPLGGPQQGYKGYGLALMIDELLC
 AL D A D G DAT T DPAEAMK GLL LAPVGGAKGFALLSFMDDLLA A A D A E G RVVT RTP GEVA A LDP GGSEFGFK GA G L G G MVVEV L S
 $L V D D A G E P V T D P T R F D D G T A H L T W D Q H K G F G L G L M V E V L A$ V S DEHGEAVTDSALGMEYGGLEETGGHKGYGLAMLAQL LA $L Q N H A G H P S H D P R V M W E Q G T L R P M A H H K G G G L L A A T E F L A$
 $V V D A R G D A V T S S R E G M M P L G G L E Q N G G H K G Y G[L A M M A Q Q L A$




 LD D Q GRAT TDPRRVIP P F GALLLTFGTRKGYGLAALMCELL G

 ARDSDGGVTTNAANAMK
 GVV S K G $\square$ A T T D P T R V K AL DAKGKPTTDAKKAMK
 AP T A K A MK
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15

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UniRef90-UPI000361B721 UniRef90_S3H5E3 UniRef90_Q8T901 UniRef90_Q0CI59
UniRef90_G9A9K7 UniRef90_UPI00036A0BC6 UniRef90_D7BCN6 UniRef90-UPIO00362


 GALTGSGTA GPGPKRFCNGMLSITLTPEAFGGD

 A T L T G M DH G F R MLDPM T EDMSTP R G VG HFF L V M H P GA F S D R
 SVLVGAPD FAAFHSDDPQGRKHRQNADLLI ALLDPAAF GDP GGLLSGGRSSH PDAAAAKGNNVVELVLDPKRFSGH S GLT A NP PVSSFHSGK PEGRRHRQNAVLL AVVDSAFTPD A GLTGSVNSLDVAGLKLPDGKPHDLGQTYILIDPGF QA AVLTGMKLSFDI APMPGPDSAPRGLGAFVLAMKPEAFLDK
 $G \square L S G G G T I H \quad P G N P R E G A I V N N M T T I V I D P S K D V G M$ A ALA G GT LSVDN QERESFGALNIVKGGATLI AI DPSRFGNA

 $G A L S G G V T A R P V P Y P K$ S S LA GAALGRDVRGTLDDTA TALDGAQFGFEACSFFEEEGN


 ALVPGAGDGPR EEAAEPAGPDDDDGCFLLAVAPGRLRPE AS I ${ }_{\text {S G A A }}$ GTVLNGAAF GSEVVDFNADSSTETNNGHFLLDALDVARFMPE
 $G L L A G S K Y G P N \square R K W R A T G G$ VANLGQCFI AINPEAFAPG A GLTGSHYAYEASSFDDAQGPPPGTGQLLIALNPDSFGGN G A LiTG G GTVWHR $\quad$ T
 $G V L G G A G T \square \quad$ QPDHP GALTGNGATK AGSKNRAA GGLA A GDF A HETQDDWDNP A AS DN DGHFFLAMDPAKFRDA

 $G V M S G A N Y A T R V P R W W S E S G C N P N L G L V M L A L D P C D F V P D$ A ALT G GQTERHADK GVVKTTVNNMLSLLIDPQFLACD
 GALSGGATGPD RPFANGMFSIVVDPQRIDPA AVLTGSPPDWQLEQGEGTPGRSRGVGHFVLALDPGAFSGH GPLIGDMTSLESMAYAEGRPEAPYHGQIIVAFDPARESGG A GLVGASFGHEASSMFDGMGGPPDVGQLIIADDPAABSGS

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



 GPLNGNPFGPH LSPMYEQLDKARRLGAFFIVI DPARFAGG
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 A LVVPGA GLGGPSQAALS VDRAPDDDI GYFVLAMAPAALLRPG GPLAGASFAA TRPAGGMPDIGHFFLVIDPAAFGDP
$G L L S G G G T S$ Q $\quad$ QPERPRQGGILNQMTAFVVDPAQTGSP

 GTLA G S A F A A T T R P PGA DPDIGGFFLAINPTAFGPA
 A ALTASTFSFDAPSFFDGAGPPAAVGHVVI AI NPGAVAGD A MLA G GRSAHQQDT
 GA L A G A A V G T DVVK G TVVH P E E V C T K G D L F I A I A P E M F G S P A A LA GS ALAP DARGTL DS QSPCNKGDVVFI LI EPSSLAPG
 QALS GHGRAEEVT RW G G G WVFVQVMDPEAFAGD


 SVLGGNPDISAAALLTDKRDAGFNGLIIALSPTAFGPAD



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 $A$ I AA ET RTY


 E F DA DVVDRLI E DIVK GVP EVVLLP GEDEARAME ENDET GVVPV

 R

 A WKQEYDAMLAYVRASRPILI A GEPERQARQQRQAEGI TI I AFGDY $\square T$ R CIAEI EGNGAARVPGDGRLKKRAAAEAD GVEV AFPERMAGLAAGLYAEDGARMPGTRRRLAARAKAAAB GL EL AF Y DRLDSQVSDATAENTGSRMPGQNKVLNEA HFAAFVTQLVDY DRGCNEITLPGDPERKLYAARKSGGGBV

D

D F E A EASAFLRSLRNADEI RLD GERSVAR DRERTA I EV
EFRSDAAALFGALLGCPPVRYPGWPEDARSRERRAHGVDL
 A


AFGHEVQAFVDWVRGCDA ILLPGEPEREARRRRAEA $\quad$ P I DFESEVDALADAVPGVERLLLPGERGDTVRRDRLEAGI PLL
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| UniRef90_R5KTF5 | K I |
| :--- | :--- |
| UN L I L E E Y |  |



MDLTALTEFTAAVFRHHGLPAGRARTAAHALVHGDLT
TARYGADALDSFCRAVFDAAGADEATADAATRAMMHGSRL
DADTLTDLLAFAIFKAAGLEPDKAHAVAE ILVEADLM
$N V T I A K I K K A S H A A L S H H G A E D W D A D A V A Q A V A R A E S L D$
MSLSEIHNLTRSVLDREGASPEHADSVADCVRNAERD

Y L NP HTARQVCA QAVKRRGVSTEHAKWFANALVDTSLM
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VKYDELCRVTKEMFMGLGYSDGQASTVTECLVEADLIR
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Y DVSTLKNFMKDVFIGLLGVPEEDAEICADVLI TSDLLR
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RYVDVN E A R S F I E R C M Q S V G T K P S H A A A L A EVVLVKA D Y R


$R R F Q P D S V R A Q \square D E T L R G L G A D E R T R T V C A D V M Y D T D L M$
TRYDRTQLDSFAT KLMLEAGMEAEKAIDVANILME GDLM
V $\operatorname{V}$ A E R V V
VRMPAAALQAWAAGVLQAFDVSACHAQATAQALVRTSLR
TRYRAEDLEALARGLFERAGMPAEKASDVAAVLVEGDLGF


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


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


$\rightarrow$ A K T L

HVP Y Q D L S D WA RTC LTT EA GAS GEVVARNV S Y Y L L E G D L L



LT Q F A K Q I L T R A GME A D K A E T TA A VV LV E G D M I
$\square S \square S D I R Q T A E A A L L A H G A G P F Q A A E V S K A V A R A E E T$





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 GI TSHGLTNLTRYLKLFEDGRCDPAAEPEVLADRGAAVLL GVDSHGVRLLGHYVATMTQGRVNPRPAPRILSEFGAVATL GHTTHGLALLAPWYLESDRNGVMTKSGAPRVISDRGACVAW GNVICGLYYLESYCSQLTSGRVSGTVEPVI SRPKSGAVRA GASSHGMYRVPGYIRSLRSGKVRGDADPSLTRVNDTVMRC

 GTYSHGVNRFPVF SQVDQGH KLNAEPECVNSLGALEQW

## 

 Gll
GHDSHGVGMLPEYVRFI GQGTMHPNTPARLIKDAGAVLQF
$G C G A H G L Y R L L V A A H S V A T G V V V P D A D P V L E R R A A G V V R V$




 GVDSHGISMLPYYASEDAKGHLDPTAVPEVAHSFGAVVRVV





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 GFS THGLDRLLNNCQWLRDGKSLAKGQPVVLRERAAVANW

 GHDTHGLAALLVPYVREVVSKGAMTTSGEPDVVIDRPAALVW QRHTHGVALI PLYLD QL R N QLMEKD GS PEVVVKDTGSTVVW GHE T H G V S L L S WY V E A L E D G S L A K K S G S Y E V V V N D R G A A F V W

 GSKAVGFAHLLDYLD GFVKGRDAKDAEPAVDSNVPAVMRV


GN Q GVVKLVTHA LDKSPLSAAH

## GMDSHGLAN L GRY LDPLLA

GYSTHGLIDRLDNCQWLERGESQPKGQPQVLQQRAAVANW GFRTHGMRRLPYNVK QL Q S GAARGSGEVSVINHRAAVETW





 GVGHHDIVNFPSRVERLMS GKI TVNP E F S LLLA S Y GCMMESW



 $G H S T H G V R L L P \square Y \backslash K D \square E T G N M N D A G E$
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 DGHSGVGYCI ADLAVKKTIEKAKKTGVCMTTVRQANHYGF
 DGGVGMGHVIAYHAMKLAI EKAKKYGLGAVAVRNSTHFGD DGHRGFGHIVAEQAMTLAI DRAQAHHFATLSLRNSFHLGR SGQHGFGQVVARQAVAQGI ERAQTHGVAVISSEAHHLGR SGDRGFGQRTGKEAMQAAI ERVKTTGVCLMTLSSTCHLGR DGNGGFAQLAFETGRDALVAAARANGIAALALNVVHFAA DYGKAPGAVAMMHAAGKAGDLAEKFGI GWCSARAISHAGA DADNAHGALAAYEAVGDAVKRAREFGLGAVADRGSHFGA AAHGGFGQVAAELAAATCARTAKESGVATVAVRGNNHTGM DADGAMGQVAGPLAVRLGLEALETSASVLDAVQSCGHLGA DADHGFGHPVSVRAMDAAIEAAEKFGVGIGSVRNANHFGA DGCNLLGPVVGKFCMELAIKKAKEAGI GWVVAN DARRGI SLTAFEAGLIPHLVEKARTAGLAALAINNCYHFSA DGRYLPGPWLIIKAMETAELMARSCGTGTVVIRCSNHITAC DGEVGYGQVIAREATDRADARAKAGACVLALRNAHHIGR DAKGADGYLAAYRATELAI KKAKAGGVGIVGVSDTFFAGM EGKRGFGHTGAHLAMTEAIAAAGNFGVGVGVVNRTNHYGA EGHFLPGPWLVKTAMEKAATRMQEHGVVTTAATHSHHLAC HGDHALGQPVLELALQACLDRAASQAVVACHI EACGHLGA DGRKLPGPWLLRRATAEALSRAKRFGLGAVAIQRSHHTAC DARRTFGDWSASQAMELACARASRHGIGMVSLRGATHDGC DGERGYGQRVVREAVDAAMERVAHTGIVLLTVRNSHHMGR DAQFGFAQPAFAYGLPVALDAARQAGIASLAVGHAHTCTS
 DGDNALGQVVMTRATELALEKARQSGLAWVGTVHSNHAGA DAKGGLAQLGFDRAFEELQTRASTYGVTVFALKNSYTAGE DCGNGTGRYASATAMDQAVSQASQFGAGVCLAKNTSHWGR
DGNYLLGPYLVQRALDHCREAAKVYGGGVSLKRSHHTAC DGNCGMGHVIAYKAMKHAMEKAKKYGLGAVAVKNSSHFGC NGNRGFGIFALKQAGELAIQRAQQYGCATINLRNCSHTGR DGRSDPGVWLATKAVDLAVERAATHGDAAVAIRRSHHDGC DAQFLPGPYVVPQAIDAACKMAKQAGTGTVVVRRSQHVAA DSDRALGLWAAADAMGSAADRAERHGIGLVSVRNATHFGC DGQGGLGQVVAHHAFEQAMARARQQPLVACHVRATGHLGA HAHNGFGQHAAKVADNAADERAKAKGFCLLTLRHAHHLGR NGRRLPGPWLVHKGIDALIARARELGTAALVIHHSHHIAC DGRYLPGLWLMDQALNLAFERVPEHGVVTFA RRSHHLAC DGKSLPGAWLLTKALEQACERVGDHGVVTAAIRNCHHTCA NARFGFAQPAFARALPQAlAAARDVGUATLTVAHAHTCTS SAQNALGQVSAAVAVELAAARAREHGVSVVSVRHAFHFGT DSRRALGLWAAAEAMDLAAERARRHGVGLVSVRNATHFGC DGGCGLGPVIDGKAMKLALQKAKKYGLGAVAVRNSTHFGU DSRRALGLWSAAEAMDTAVERAGKHGIGLVSVRDATHFGC DARKGUAQLGFDQAFDELTTRAATYGIVALSSSNSFTVGE DGRRGFGQLTGREAVDVGIETAAEHGVSVVGDRNGSHLGR DAAGALGLWQAGAAMELAAERAERYGLGLVSVRRATHEGC DAQRLPGPYVMPMADNEADQMAKQAGTGTITVRRSQHTAS DANALPGLYVAPLAVEKACEMALINAGTGTVVVRRCEHVAS DAGDALGVVAGLRGVELADDRARRGVGVVGVQRSNHFA DGHLGAGLLNACTATERAMVLAESHGLGCVGLANTNHWMR DGDFSFGQVLGHEVVRLAEEDCRDNGLGDIGLRNAGHLGR DADDGLGHLAGYTAIEYAMTMAGEVGMGAVAVGNSSHFGA DAHGEFSPLAFSRGAPLLAEKARRHG\AAMADNHCDHLSA DGKRLPGPWLTLRAMETAMARARDYGTGTVTIRRSHHIAC DGK HSVGISLWSLLIEREYDSPVTAIAVRNASHVGY NGRRLPGSWLISRADDTALERDEQHGVVTVAIANSHHTGA DARHALGQLTGDQAMTLAVDKARAHGIGAVAVRRAFHFGG DGQYSFGQVLGHHVVREACEVVQSEGLALIGLRHAGHLGR DARGGAAHTGFDRIAEDLAKTARLDGGVADFSQKNAYTAGA EADHAHGALAAYRAMDQATDLASRHGIGAVADRDSSHFGP NADAGLAQFALESHLGPLLATAREQGVAVAAVRNTYTTGE DGGDQVGYLVGMRALAALAMSKARERGI AVVGAHNTWYTGM DGDNGLGHLTAYRATALADEDARECGIGAVGADRSSHFGA DGGGGLGHWQLWRAAELAAERCATYGVAAVSVGNSGHCGA NGHRGFGPLNARQAMERACELAKQYGGGMVALANNNHWMR

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## A

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 AFAAPAGPRPPDVLDMSTTVVPTGRVRGAARAGQPIPDEGW
 A M TV V GPDAP LMHFDFS TSAVADGKDTMAKAAGEADPLGW

C F T A P

 CVGVPA V
 AFGWPRDGAAPFVFDFATSAVARGEDELLHRAAGTPDPDDD




 AVGYP TASG PVLLDVSTS ITTNGMVGRLHKQNSQLPYPW
 A F A A P VP
$A \cup G V P A S \quad P$
A F A A P VA GR
AFGAPSPD RPM LDMSTALMTNGGVAAYRQRGRA PHPR ALACPA G GAHPFVLDMSTTVVPTGRIRAAAREGREIPPGW CVAFPA GEHPP F L LDDA TS MVAYGKTARVY LAAGKTFDEEV A AGFPRSQAPHFVFDDATSAVAMGRLSEWRDRGEEDPEEW AFSVVPGAGGDAMQFDQSTTTVADGKITMAKAAGQTIPEGW
 SFAAPVDNRAPLVI DQASSATAFVNI RQAAERGEMIPEGW A $\square$ G $\square P$ GS Q GEPIV L DMAMS QAA VGKI ATMHREGQANTE HL AI GIP GREQPILIDDSMS TITNGSVNKARAAGEKLDHHA TIGTP T DEMFPFL FDAATS II QRGKVEVYERDNKDLPKNT
 AVGVPSSNN PLLEDISSFSMTAAGKVRQAKANGTRLPYKA SIAAPALDGHPFVLDMSTTVVPTGRVRAAARAGSPVPAGW AFALPVAGRAPLVFDMANSVVARGHAAQAVREGQAIPSEW CFAWPFKGGRPAMVDFATSSMMALNKARVMSVEGKQAAPGQ
 A $\square G Y P G T T G \quad P V L V D I C A S I T T V S M A R T K A A A G V N F D Y P W$ A AGFPTS A DPILI DVSASITTTTMTQNLAKAGKKFPEAW AMT DP GEDAP LMMADFSTSAVA LGK $\square$ TMAKAAGEA $\square P$ MG W
 AI A IIPARVDEPLVVDMAMSATAMGKIRIAEANGEADPTGW
 TAGAPTDENFPFLIDCATS $\square$ DRRGKVEVYDRDHQPDPD A VA A P A L T D H P F V L D M S T T V V P T G K V
 GF G DP GF DEFPVVVVD QA T S QV A H G K I TAAR SVVDK D E V P P G W
 AVGVP S S G D P




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 $\begin{array}{ll}A L G Y P T & N K \\ V & G\end{array}$
$\begin{array}{llllll}\mathrm{V} F & A \\ \text { A H Gll } & \mathrm{P} & \mathrm{R} & \mathrm{S} & \mathrm{N} \\ \mathrm{C} & \mathrm{T} & \mathrm{S}\end{array}$

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$\qquad$ GR GCLLPFGGYK
ALDKDGNDTAEPDEVV ${ }^{\mathrm{G} T \mathrm{TLS}^{2} \mathrm{~S}}$
NENKR GFDDDGHLTTDPHVLWENKRLLPMGFWKGS SMAVVLDMLL GDRNGNETADPAPMWRRAALMPMGRYKGAGLCFACELLA
 VINSEGKYETDASTVLK LI DAQGNATRDPSVVFDGGALTAFGQHKGFGLALLGDLLG IVDDQGQPAVDPRWLMEFGALLAFGQHKGSGLALVCSLLG MFDNEGRLTNDPSVMWDPGALRPDARHKGGGLIMAAELLA GHAPDGSDTTDAAAVLA GAMRTFGGHKGSALALMVELLA A TDANGVETQDPHAV AAILPMAGPKGSGLSLMIEVLS ASDAQGVNVTDPAEVEMLALGGALFGYKGAGLAGLSEVLS AVDAEGVPTTNAEALALGGALLPMGGHKGGGAMMMVECLA
 GVDSTGQITTDSKGLLPLGGSEETSGYKGYGLAMMVEMFC LKDHQGNATDQPSVLFDKGSMMPGGGHKGYALGGMMVALT LTDERGAPTRDPGVMFRDGALLPFGGHKGYGLALACELLA AVDDAGAPDHDAQEDYRRGQDFFTGGHKGSALATMVQLLS IQNADGQATSDPGALFPPGTVYPVGGHKGFALGLWVEMMT ALDAHGHPTTDPRAADQ GAMQPMAGHKGLGLAMVVECLA LMDAQGKPSTDPNAADPPGTLLPEAGHKGFSIGLIVELLT LAADDGSPVTDPAAFDRGEAHLQWGAYKGFGLGLLVEVLG MLDAAGQPTANPAAMHEQGALRPDAAHKGGGLVAAIEFLA MTPA
AVDAEGNPTTDPDSALK
AI DKEGNPTTDPDSALK VIDTAGRPTTVASKAHE AIDENGQSTMDSREADK GLDRHGKATADPAADLE GLLQPFGGHKGLGLAMVAEALA GSVVSMGGYKWGFGLMAE I A A GGVLPFGGHKGYGLSVAA QAL GALLAFGGARGANIALMVEILA GAVTPMGQHKGAGLALMFELLT KGKGEDTAGYKGYGYATVVELLS LSDPDGEWTDDPLTFFESPGSSIJALGYKGYGLTLFSEVWS ALGPDGQPTTDPVRALQ GAMQPDAGHKGLGLAMLVECLA LIDADGYPSVDPGVLFPAGALLPFGEHKGFGLSLMIEMMA LMDNEGNPTTDPEQTTPRGSLMLLGGHKGFGLALMVEALT AFTVAGEPTDDPREVTERGGTMMPKGHKGFGLGLVELLG AVDADGQPTTDPDAALK GALVSAAGPKGWAFGLLVEVMA ATDAAGRATTSATEAUQ GMLLPAAGPKGFGLAVAIDLC LEDAQGEPVTDPAAFDRGEAYLRWGAYKGYGLGLAVEVLA LITKNGRSQNDPHETLKN AVDQNGKPTTDAREAVK GLLVAFGGARGANIAMMMEVLA AVDVNGATTTDPAAVH AL LPFGGHKGSALALAVELLS TIDDNGEPVRDAGQFEDVGALLPNTGHGFGLAVAMELIA LAGPDGQPVTDPGAFDRGEAHLLWGEFKGFGLGLMVEVLA
 AVDANGRGTTDPEQAT GADKAGHPTNDPKDVLY LGGEEETGGYKGY MVDGQGQDSQDPATIYGPGAlQTFGQHKGSGLGLACELLA AANAEGKVSRVPGEVAALPLGGSSFGFKGAGLGGMVEILS AYGKDGGWTTDAAEVLDGGAIATFGGHKGAGLALCIELLA
 AVDPEGKVTTNPQRALEGALLPLGGEKGFYLMLTLELLV AMDKQGRPSDDPDVVVNGGGTLLPHGHKGYGMALLAEVLS ATDRTGTPTTDPTEALVGGLLPAAGHKGYGLALVVDILT MVDETGADSDYPNPREGVGALQTFGEHKGSGLGLACELLA GVGPDGRPTSDAEQLLR GTKYP ПGGHKGFGLABLCELLT A SDAAGDDTTEAAAVEMLAPLGHAFAFKGAGLAGLVELS AVDDNGAPTRDARTAVEEGALLPFGGHRGGNLALMGEMLA AYDFDGVPTRDPAAALDGAFAVWGGHKGSGLAMVVQLL AADAEGAPTHNADEPLGGAGYGFKGAALLAGVATLLSAVLM

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S Q| $\square$ A GAlLAGAAFAP|L|KEGAGPDD\|GHFC|L||DPGFFGPE GVLTGSSHS GKTKDPFDDFS GPQNMGHLFIITNPK IFS GN

 ALLPGAGLGPATEAWGSPSGQDDNIGFTVLVVAPAELTPE
 A GMT G S V N S LDVGGGLK LDPDGEPHGLGQFY L L L DPAVHS D GPLDGETTSYETAREDNQDGGPPLGGELIVAMSLDIISGK A LV PG A GT GPHP D A LD G D G G R D D D I G F F V A A DA P G A L A D D





G S F S G G G
A Y A P EREVPDR\|VNNMMADLIDPNVFGAQ A ALTGGRTERTADG KSKGIINSMLSVLIDPARLGGA G LLS G G GT $\square$ D GPLIGDLLTSAESDAWDAGRKGSPLGGELII ALDPA GFLGA $S V L V G \operatorname{NAVIAPF} \mathrm{~L}$ RGEKNGGFNGLVLAVNPAAFGDP SAFSDAPDLSAELLLPMVSDDMSPRGLGAFVMALDPEAFAGT G L L G G T I SPRVVHK QRAEPERAMDCA QLFI ALDD A A F GD P GAMAATAGSLDARNDLKSSGAVGRQGGFVWLVKPDAFVGQ A ALS G S D QPGDVA GRQS IGYFFLAI DPRAF GGA G L G G G DF GPN DR RWK DADRVANLGQCFVA DPESBAPG GPLIGDMTSAQSLAHDEGAGVVPMHGELILAFDPASFLGA S GLA G F
GA LA G GLDPAL $R$ VQAPA QWGASVMVQIMDPEAFGGD GALLAGAPPAL $\quad$ PENLRPGRVVNNVLAFLIDDPARVSDG A A L P GA GQPGNDDG YQD DGYFFLADDPAAFGPG AALTGHGRS ESPKKWGASVY I QLMDPAAFGGT
 R QPAVPGBE $A L V P G A R D G A T S$ RGRA

 A GLA G GVLS QDVKPLKAPEGAPHDLGQYYIVIDPASASG GLVAGARMM A GTT GANWSLDDAPSF EEGSHSPGVGLFIV AI NPELLAPD

A ALQ E G I YY LR DT DG
GDAALHCEPEMNWMLLH A I DLLKQLRDQ Q G L G GYG $M A L S \quad$ QYGRRQGSDDGDA NSIWVQVI DPEAFGEK ALLPGAQLGPTPEALAGDAGRDDDDGFLALAFSPAKLRPD ASMGGDASAPDAVT GTAGSAANASAFALVVNPA LTTTGR G L S GGDTDAE DHQAGGSAHNHMFALLIDDPDKASDR G GL S GF G
Q GLS G H G
Q G ${ }^{\text {Q }} \mathrm{L}^{-}$G
$H$ G
$R \square P P T G W G A T V F M S L Y D P A A F G G Q$
$K$ GRANTPS GVVFSQSAFLQVVIDPAFFAGD
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GALSD GAVGAAVRPDYGE DDKPYDCSVF SLYDPSAFGGE
 A GMTGGNWSDDAPH YAEGSESPGVGLFLVVLDPDALV$H$
$A L L P G A D L G P A L Q G D G G P H G R D D G \square G F F V L A D A P D L L R P D$ A GVTGANWSMDAPSF AEGSESPGVGLFLVALLX GIIFSAD AALAGGAD HDKDNANDWASCVVAIIDPTLF QPG $G I L G G S B R V F G Q G E S G N V N N G A A F F V V D P L V F T D R$
 LGLTGYGRA DAMDDGEQNTLFVQVIDPEAFAGK $A V L V G G P D D F E M P H \square$ GTAVEGRNVAHLLLALDPEADGGE $T L L S G G R S T A D I S Q Q T L E \quad Y G V S Q V F I A B I D L D Q L G D G$


 AVWIGDHLSSESS EADGGLLAPNHGTLHIALDPAAFAAT
 AF LT GSAVG P QVRGVLNT EHPPNKGEVMIII DP QAVPGHGGRAADPTGTTDGIFLQVIDPQAFAGD GVLSGGGYGGGVRGLYADTSAPNDCAHFFLALDVSAFGDS $G A L T G G Y G G Q R G L$
 A GLS GANWSLD APWF TGGGPDNPGTGLFILAGIP KLLDP
 $M L A G G G R S S L S A A E Q G N G Q P G V G L F S L V L D P D F F B G$ GMMSGAA ADPPGDSDCGFFVLLVDPAVLTPD GTTVDADFIPMVS KDDVSTPRNMGHFFI AI DPARFAGA
 Q GLS GS GRSKKPKSM
SVLT A E N A VH T $\square$ GT F E D E $\square \mathrm{G}$ L S Q M MI A I D P S A A T G E QALSGYGGRADAPKGTNAAVTVQVFDPAAFGGE
M A A GSSA $\square P S T \square S G F$

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UniRef90＿UPIO004641938 UniRef90＿L8HB35 UniRef90－G6A1A9 UniRef90＿UPIO003624B54 UniRef90－B7G5R1 UniRef90＿C8N9H3 UniRef90＿A0A022H126 UniRef90－W7L4G4 UniRef90＿UPI00047C9907 UniRef90－UPIO0037E6288 UniRef90＿UPI0002626F74 UniRef90－E1R4C9 UniRef90＿UPI000464D342 UniRef90＿A4WXM7 UniRef90＿UPI000364FC52 UniRef90＿UPI000382F1E7 UniRef90－J3HKW7 UniRef90＿Q0RXU9 UniRef90＿UPIO0035E0EBC UniRef90－R6UHK1 UniRef90＿UPI00037D1EAC UniRef90＿W9XZ89

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 AFEERVTTLAGQDTGSPKALLPGQLEAERQDTARRTGVPL
 DFEKRMKDQLARLNRRYGVHIPGVSKATATEKAAARGITV
 DA LERLGAQLDTLREQHEVYIPG R S VA C DFATGMRAYLDQLRAVGKVMAPGDREWAVEEQRMRDGUDV
 AFKDEMTFLYEQCNENNKVRMPGQHALLRRQKSLKEGFELC QTDA VVDGILAYDKASKPVLYPGEPEWRTMEEHRKNGDPVV


| UniRef90_UPI00047A8993 | S D A L L A QLLT ${ }^{330}$ L $\mid C$ |
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| UniRef90-D7B3F0 | E A ELLY A EL A ELA |
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| UniRef90-J3CIT8 | S STVVA AL |
| UniRef90-UPI0003944EAB | HEEIWWQ |
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| UniRef90-G9PRV1 | S PE\\|VD\L K EVA |
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| UniRef90-UPI0002EDB75B | S DGMVQA |
| UniRef90-UPI0003F0AD27 | H $\square \mathrm{N}$ LI NA A D K $\mathrm{l}^{\text {a }}$ |
| UniRef90-UPI000463C7A8 | R RAVLEDIEALS |
| UniRef90-T2L912 | P D GVPEALADWS |
| UniRef90-G8AR50 | D P D TVRALH Gl |
| UniRef90-W9WR35 | EKSVLDSLQGL |
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| UniRef90-Q21D51 | A D QVWA GLVRLA |
| UniRef90-F6AZG2 | S SALINELQALIA |
| UniRef90-Q11CF6 | S PGIVAGLAESA |
| UniRef90-R4TBU5 | ADAVYRELRAAA |
| UniRef90_UPI00036928CC | S DNEWAA ILGAA |
| UniRef90-UPI000310B491 | QRHAWESAQRLA |
| UniRef90-UPI000469B043 | EQNVWDLMEKLA |
| UniRef90-F8GXC1 | NKRVVERL |
| UniRef90-L8F902 | P DKLAA Q L H DVA |
| UniRef90_V9GBL3 | P S SLVA TLEK Y C |
| UniRef90-131822 | HQKIVK |
| UniRef90-UPI00037C1789 | $P G D V V A E L Q K$ |
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| UniRef90-UPI000369E736 | PADLMRRL |
| UniRef90-UPI00030A6855 | YPG』MAALQPHA |
| UniRef90-Q5QTW6 | S SATLKVLQHCA |
| UniRef90_UPI000475E8A4 | S S P L Y R |
| UniRef90-J0U8J5 | P A GL R A ELQ L L |
| UniRef90_A8AN61 | P A |
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| UniRef90-C5CKI2 | A GELAQRLNQFA |
| UniRef90-S3BHB8 | PAHLYDELAGL |
| UniRef90-W4NGR1 | PTDVMERVRA |
| UniRef90-X1A1G6 |  |
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| UniRef90-TOQSA5 | EASLLWGQL |
| UniRef90-V4YLY5 | S VER】AAMQDTA |
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| UniRef90-UPI00037D1EAC | FPGIID G |
| UniRef90_W9XZ89 | P A KlV I D QL R Q |

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UniRef90 H1LED6 UniRef90-A814Z4 UniRef90-UPI00035D35A2 UniRef90-D5RIH1 UniRef90_UPI000225F2EB UniRet90 Q1QWQ4 UniRef90_UPI0004727F19 UniRef90-K2KSC0 UniRef90_I1FEP1 UniRef90_UPI000472B868 UniRef90-F4B9D2 UniRef90-W1FVU9 UniRef90_A4EJ04 UniRef90-J2LP66 UniRef90-S9QTC6 UniRef90-A0A052J234 UniRef90_M7MKW2 UniRef90-D6KG43 UniRef90-X1DFS3 UniRef90-V9DS06 UniRef90 T0U9D UniRef90-I4KQ45 UniRef90_UPI0001BC2BBF UniRef90_A4MVY7 UniRef90_B9CEZ3
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UniRef90-F8GQC9 UniRef90-V2R889 UniRef90-X0SGL3 UniRef90_UPI0002885204

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K RLS STTDAT RTTAALIRHGAAPWIAAEVARAVRAAESI




 VS P K DAREFVVVK CMMTVGGTSPD HA GQLA DLLLL DA D L V KLTADRMRHMAEATLTALGGTAAEARLVAGHLVEANLR
TRFAAKS LCLLFSEAALRAAAGADGPSAQDATRAMLHEGSLH VD A R A M E R L V G VV F E R A G C E S V E A R R R D A R R L T G A S L R



RYREADLSAFCEAALRAAGADAPTVDAATRAMMHASRLL
 Q TL S F E T L R ERIDEQI F L R A GMNAVQA GALSRAI AAGERD LT DLLTALFAEAGATAEVAETTAS LVVGDLL


TAARLTEWVAAVLQHAGVAPGHASVAAEVMVRTEDR

$K \vee S V T Q D E T Q S R A A L L A H G A G T T Q A A A V A K A V A R A E A D$ $H Y R H D D L D H Y A Q A L L T A A G L E P A K A T A V A E I L V E G D L M$

 E E LH GFVH R A M $\square$ A VG A N E A D A A Y M A D QL I D S E L A
$R \square T \square E K A G R \square A D D A \square R R \square G Y P A A D \square P T \square R D H L L D S E \square R$ RRFTLDEAVDWVKHLCESKGCSPAVALSSLAHATVAAQAR $T \vee S L P A T E L E R L C T S A I L D A G G S E K L A A S L A A A A T V A A D R R$
 E A A WRDVA F D A IVRRA GASEAVAHSGADAVIDSAELA
VVVQQAEAEALAMRACLAAGAREATARSLVNATLSAALY
 T YRIILPTAAHDLVVRKAYTHRGYTAAEAEDAARFCEMASVH
$R M T \square D E V R E \square A V R \square L R R H A F S E A H V Q A D A D T L V A G E R D$


## H A R A V A A T L V D G L M 

 S T M I S A A G L Q A F A Q A L L A S A GL H E P G A S L V A E S L V WA DLLR E E E A Q II LDDMLMYA QMR
$R\|V E A T M S Q F\| V E L L T S V S M P E S K A R F L A D W L V T N D D R$

## UniRef90 W1N8W9

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UniRef90 C6B4N9 UniRef90-C6B4N9
UniRef90 W6X9C9 UniRef90-A6UJP8 UniRef90_UPIO0047A1552 UniRef90_H9TTX5 UniRef90_C1D4D2 UniRef90_S9S9C0 UniRef90_UPIOO0471218C UniRef90-UPI000468DCAE UniRef90-K2D0Q2 UniRef90-A5W4C6 UniRef90_UPI000381FE1B UniRef90-UPI000368FAEB UniRef90-M4RE05 UniRef90-IOHS74 UniRef90-X6CLQ5 UniRef90_V5WG62 UniRef90-F4DXU3
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UniRef90-A4SB62
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GYG $\square$ A G $\square$ A R $\square L S \square$ A D R $\square$ A A R S A GS F AP $\square$ TVTS QS AT T A QL
GNQAVGFRHLADYDPGFSSGRDNPRAEPR DSRAGA IVFKS DKDQVGTAHLFDYLDGLEAGRINGAAVPRSVNRDPAAHLV $G A Y S H G D N R F P R F I Q Q L E Q G D I V P N A I P T K V L S L G S Q E Q W$
$G S K A V G F A H \square P D Y L D G F V I G G R I A A D A E P D V S F P A L D A D R A$

GPSTLGFPHMVDYLDSFREGRTNGDPAPTCERPYPAFFVA GPPTLGFPHLVDYLHGF LEGRINCDPKPRSDRAFPAFLVS G $\square$ RTHNA $\square K A L H L D H \square F G S G G C K P G A E \square K V E K P F A A S Q V W$


NRQPQRVFTRTAPATGRD
 G $\square R$ THNG $\operatorname{GKALHLDHLFGSGSKGCVPGAQ\square ESRFAAARDW}$
GHDTHGLALLAPYVGELERGTMTRSGEPEVLSDRGASLLW GPPTLGFPHFVDYLDGFREGRINREPKPRLDRAFPAFLVS


GHATHGLALLPRY LKEDSEGATQRRGE DRR DSEKGACLLW GSPGHGVSRIPQYTAWLASGDMNGQAQPRPGLS DPALTVV G $\square$ H SHGAVRVEYYAERI SKGGTNREPEFRDEETGPCSAIL GND


DAQGGTAQLGVDRCFDSLCHAAHANGMATLSQCNSFTSGE DADGGIVQLAFDEVFDRFAQSATDLGISILNTMNAFPAGE DAHQAI GNLTAKKMMDRAIELASQHGVGVIALRNANHWMR DARGGIA QLAYDRVFDELVGRSNTYGVVTLAVSNSFTVGE MKEAIA I A SEFGSASVAVRNSNHFGP D A D Q G $\$ A QLGFDLAFDDLTAAVRNFGLAIITQTNSYTAGE DADRGI AQLGFDLAFPDLLEAVRNFGVAVLTQTNSYTAGE DA QLKLGQSVAFEAMETCMKLADQYGI GQVSVDNAFHYLW DAHGGFSQCAFR LG $\square$ PHLLEKARSQGIIAMAVNRCVHFSA $G Q \square A G T F A M G V A \square K K A K Q S G L S M V G C Y N M Y H V G R$ MHAFFR
DADFGLAHAASYEAMDEA TALARHAGTGAVTVHHSTHYGA RANRLPGAWVMGEATRLVLDRVTDHAVVTVTI ANCSHDGC
 DGRRLPGPSLVLSGIDTLAPRARQYGSATLVI RRSHHDAC DADRG
 DAAMLPGHWVLHQA $\square Q A A \square Q R V P A Q G M V S \prod A V R H M G H S G A$ EGDRCAGALGMR】AAGQAIAGARQAGASLVLLRETTHTGA HADNAA GQVAAKMGMEHAI KTAQQNGVAVVGlSRMGHSGA NANFSMEAIAMEQAVNMVIEKAKAMGIAIVGTHGDGSSGA

## UniRef90_W1N8W9

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GGSYGWHAVEKGYAA\|LVTNTESCMPAWGAAEQSTGNNP|L LGYFTEQIARRGLIGLGMTNASPIVAAPGGKTRVIGTNPI


 L A A Y L L R AT K S N L VMMLLAS P S V Q S V A P F G G T R P L F T P N P I
 CQHYTKK DANAGMVGMSFTNTSPDMFPCRSSE GLGGTNPL
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$\rightarrow$


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LA S Y L QP F VER GL MP I I MTPA AVK S V A P
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L AA H H L EAVAAAEGLV GVLAF GNAPAAMPAA GGRRAMDGT





MLDAQGNATDEPGVLFENGTILPGAGHKGFGLAVLIEALT ALDQERRPTTDPGAALA GWRVRPDGEHKGFGLALMHEVLT AFDPAGRPTTDAAVALQ GAFTVWGGHKGSGLALV

 GVDRDGQPTDEPRAIL
ALN $\square D G Q A T T D A V E A L E \quad G V L L P A G H K \square A N \square G \square M V E S L A$ AVDKHGNSTRDASAAAEGATLTFDNSYKGSGLAMVVEILS ILDGYGAPSDDPSAFFPPGSILPAFGHKGFALGLMVETLTM AYDAAGAPTDDPAAALE GAFGVWGGHKGSGLALVVQLL 1 GVEKGGKLSTNPE
A QDKNGVLTKDPNEVLDGGADRTFDGYKSSNLALVIELLA ATDQTGAVTTDPAKAV LGALLPFGGYKGANI ALLVEVLS ASDADGVDTLEGKKAAMLAPMGGEFGFKGAALAGLAEILS AVDRSGQPTTDAREADE GALLPFGGYKGANDALIVELLA

 AI DTDGQPTTDPEAALDAGAMLPFGGHKG ILTNRGTVSDDPEDFFPPGSDLPAFGHKGFALGLMVEADT ALDPSGAATVDAEAALA GSLLPFGGVKGSNVALMLELLA LVTADGEWSDDPHTFFAENASADALGYKGYGLTLFSE WS AVDSDGKET LDDPNDVYKDGGYLPNAGYKGYGLA MMVETDC A L DGAGQPTTAADAALE GALLPMAAHKGMGLADMAECAG

 VMDGHGAASDNPSVLFEKGTILPDSGHKGYGLSLLVEALT T
 AVDPAGQPTTDPAAALR GALLAWGGARGSALSMIVQALG VNQS
AATEDGTPTTDPEKAV GYNAEGEDTTDPKA\VDSKRLLPTGGWKGSGMSLIVDLLV A WDEHGNMTTVPEEALK GALAVWAGAKG AVDETGQPTTDPTDVK GLLP $\square A G A K G Y G L M M M V D \| L A$
 S GFDDEGNLTRDPS\VEKTVVCCQWDFGKLVYLSCWI AVDEHGRPTTDARAADNGLLLPFGGARGANLAMMMELLA
 AVDEEGNATHDAEKALGMGALLPFGGRKGANVALLVEMLA AVDAEGNPTDDPHKAQ WLLPFGAHKGYGLSLLI EVMG GFDDDGNPTRDPATVEKNRRLMPMGFWKGSGLSSVLDMDA GWTSRASRPPMPAPRCEAPCSL
LVDKHGNPSTDPNDFYDGGSDLPDGEHKGSADGDMMEVLG AI DKDGKPTTDPETALE GAMLPFGGHKRSAI STMDELLA ALNEQGHPTLDASQARFDQPLGGMAYHKGAALAGLVTILS LVDADGAPTDDPAVLRADPPGTADFGYKGFGFGLMSEALS AVDKDGNPTTDPNAAVGSMMPFGAHKGYGLSLDNELVG ALDAQGNPTTDPAKGLE GSMLPAGGAKGAMLALIVELLV LLDAEGNASRDPAVTEPPGTVLPPFGHKGFGLALLI DALTT


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

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UniRef90_E4R658 UniRef90-Q1YYK8 UniRef90_B2JFU3 UniRef90_M7T5B8
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 A GLTGGVVSRDVNPLKAPDGPPHDLGQYYLLMDPDLLSG $A G V T G A N W S L D A G D F R A G G S E S P G A G M L V I G G I A P D R L D D E$
$S V L S G S A F S T H I H G T K E R K G E I N R K G D F F F V V D I S K F I P N$ SVLSGSAFSTHDHGTKERKGE DNRKGDFFFVVDDSKFIPN GA $\square G S G C S L D A K G \quad R H D L I Y M A L D P T G F C K E$ A GLSGAAWSLDAGHFLS GEHPVNAGMTVIAALPAAAADS GGLAGFG $\quad$ RADPSEGWGATVFMTLYDPAADGGD AALTGSVLSTEASAFGNDEGGPPHVGQFLIADDPGHFSAG GGLA GH G RADPADGWGATVFMSLYDPAAFGGA GILAGSSFGKNVRLW GQSHKAADNGQCFVAIDQECFAPG GLLAGLLSGGGTLQPGNPRAGG\|LNNMTTILIDPARLADM

 GALVQADS ZKNWS KLKATGTPENWGNLVMMADPEILTSK GAGVGHG RKDAPDQWGASATAMAVI DPRMFGGE A GVAGPN LSAEDPDMFEDSAQPQRDGHMLI AVDPARFGGP GLLGDAPASIDDKGT
 GALTGSRVGTVVDG GWGGTYILIDPGVFLGD AGLGGFG RKDGVKQWGAAVTVLTFDPAFFGGD SALGGFG $R K D G V K Q W G A A V T V L T F D P A F F G G D$
$R K D A P T G W G A S V T V M V I D P T L F S G Q$
$S G L A G F G \quad R A D P S E G W G A T V F M T \square Y D P A A F C G E$

 $V H L L G M L A G A S A A P V G V S D C G F L A V V L D P S K L G D A$ S GLA G H G RKDKPDAWGASVCTMAIDPAFFGGE GLLGGGKFSFEQSKGEA $G L L A G A A L D P R G Q V Q Y$ | $N Q$ | $F A V D P N M C N G N$ |
| :---: | :---: |
| $G F$ | $F$ |


$G$ A GG $\square W S \square E S P S F \quad D K G G Q S P S \square G V F \square A M N P A F F$ GE GLWPGADFSG LINKNGGWGNLFIADKPDワFTDN A ALSGFG RKDAPQGWGAAVMVMVIDPVCFGGE GMMS GAA A GlA A H A DPSGVSDCGFFIVLFDPGADTEG
RADAP DQWGASVFVMVVDPEHHGGR $A V L T G A M \square D P R M \square Q M T D D F A T P R N V G H F C I V L D P A R F V G R$ $G P L V G A D \square G K D A K N W G N L I M V I D P K M L G Q A$ AGLSGAAWSLDAGDFRS GNRTPNVGLTVIAI APAA TDP AVLTGMTDSFD $\square$ APMGGPDSTPRKMGAFVLALKPDAF DDP A GLTGSSWSMDGADFL TGDRSPDTGMTLIAAAPTA ADK
 GAFVGAKMGYDAKDEYD QGLSGHG RRDAPGRWGASVYLQLIDPDAFAGD

S A L G GF G
RKDAPTQWGASATVMVIDPARFGGQ IHGGGRFSVDAPAF DSGQENPGTGLFVIAIAPDAF DP $M A L S$ AL $G V L S G G P F A S N G R K W K S D P R V A N L G Q T F M A L D P N C F A P C$











A GVT G GNWSMDAPH Y AKGSESPGVGLFVVAVKADVFAAD GALAGALFSFEVSPMGADHHDSWKCGHFVQVLDPGAFGDA A GL S G GPWSLDTPSFRE GSASPAVGLTVVAMMPGR TDD A GLS GGPWSLDAPDFRS GTQSPAVGLSVI A IMPRENTDA

$G \square F T G G R C S \quad V F E D Y V E G N G \square L F F V M R P D L F R E A$ $G I M D G D R T S P E V L D F L G T T T$ LSSPVHGELIIAAFSPEAPAPA AVLSGADPDPTTTAQAQEGHKPQNVGHIMVAFDPARFDGQ 1 AL PGYG R R S S P D R Y GQ Q V F L QVLDPARFCGE
 $T S L T G A Q F G A Q A D S F F V K E G N R P K L G Q A F I V V D P S A L S G S$ G GLA G H G A GL S G GP WS LD T P DF R S GT T S P A V G L S V I A I MP GP GA A G GVFSRGGT $V$ N PAHKRHGS I I NSMFSVLVVA DMLIDA QGLSGYG R R AAPTGlVTNDYLHILDPEAFGGA $G I L L G L P F G R Q V S S M Y E D L H A G R N L G Q L H L V I N P A F F S S C$


GA VGGDFLNESK
GALVGGDFLNESK
$G F L A G V P V D K K R R T N L Y E G A$

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UniRef90 F8GQC9
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UniRef90_X0SGL3
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|  | 290 | 320 |
| :---: | :---: | :---: |
| UniRef90_W1N8W9 | D A CNA V VEGlQ A HLLA A R P V V R W | G G S T WR NR N S V/A P L $\mathrm{D}^{\text {V }} 1$ |
| UniRef90_A6DXL7 | VFFDRL A QVAEGATTEAGARMP | GQG K K P CDPVTV |
| UniRef90_E4R658 |  | GK GKEQAYARAVREGI S L |
| UniRef90_Q1YYK8 |  | G A NF $\square$ E NQF A DI E |
| UniRef90_B2JFU3 | AFVRQMDWLGDACRGTAGVRMP | GDRGLNLKREQLRDGVAL |
| UniRef90_M7T5B8 | K F K S NVD S M I R H I K G F E DI Y L P | GEPE SLLEKEK RLK E G I L L |
| UniRef90_C6B4N9 | DFPERAKA Q L E RLR SRGVRIP | GDRTMPASV A ET D R L DV |
| UniRef90_W6X9C9 | E A LR R M W WLGDACRSHDPVRL | GDRAMARRGEQLA H GVRL |
| UniRef90_A6UJP8 | $R \mathrm{~F}$ SEA $\square \mathrm{DNLVAS}$ HEAA GVRLP | GHSGR K Q A V FV |
| UniRef90_UPI00047A1552 | DFLRQTDWL GEACR GVSEVRM | GDRGLS R R K E Q A R D Gl MLL |
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| UniRef90_UPI000471218C | DFFERIED Y I E Y WKA T GEVLI | GEKEER I L R QRSEEGLPL |
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| UniRef90_K2D0Q2 | AFMKEVSAI DK RVKGVVDEILI | GERARAFNTKVMNLGI EVV |
| UniRef90_A5W4C6 | AF LDE TS F L S R P L D P ERPVRRL | $G Q A G L A L L R R Q A V E Q G V S L$ |
| UniRef90_UPI000381FE1B | E A ALR L D RLA A SV Q A S G G R L | GGTRVLP E E L D ERTPLEL |
| UniRef90_UPI000368FAEB | FCHRLTAHTQRLNEDFNVHI | GQRQRAA Q |
| UniRef90-M4RE05 | $A L A T R V S Q L A K R L R S L P P V L F$ | GDKERAA】A Q H H D S VP |
| UniRef90-10HS74 | E Y LD RVEVLVA EMLA DEGVRL | GARREALRRRAASEGI EVV |
| UniRef90-X6CLQ5 | QFRASVTKLI D Q I E A S R PV RV | GRS S A A KRREAENA GI EVV |
| UniRef90_V5WG62 | DEKVSAQELLT AL NGYDRVR Y | GQQSQERRNSHLKNG\\|RLL |
| UniRef90_F4DXU3 | EFKAEMDHFVGACLDSRPVRMP | GHA G I D R R A K A FEQ GLELL |
| UniRef90-G4F6X2 | A F LD E T D H L I E A V N P Q P V VRMP | GQA GLS R R D K Y LE Q G l P L |


EFKRQMDWLADACRGVESVRMPGDGGMTRRAAQLAGGVRD D T P R G L L Q L S R Q L Q E H N L R L P G A A A A E R E L Q S R H E G I G L EFAESVRN TRPVVDGGSAVRVPFRRSAARRAETDRR GI EVV



$N Y$ L E R ID S HVQVLLEREHGVY IP G
RQREFKDHVDV
 AF LDE ETDYLARRVEAGQHVRLPGQAGLTRRDEFLREGIPL

 S LADVRGADHFRRLEDLGVVHVPGRRSVHRTDDADIIGGI AFDAGMTRYLDTLRTSPAVMAPGDREWQVAKQRDAHGVK】
 D LK Q S A T K M F D RI R A GTM I MI P G D R E Y K H Y DE N L K Q GVVI
 AF A Q Q ME F LA EA CRADR P V R L P G D QA A R GIAARAEAE GLA L

A F LDETDF LAARQCLDSEPVRLPGQSGLAKRQRYLRDGDPL D Y S QRVT DHLDRLHASFGVDFG RKRSLEAVVEL
 S F A D Y M HEEWA A Q L L R G G G A Q A R L P G A R A A A A C E Q A A A L A D G G L R E
 TFERQTGHVADACRASRPVRTPGEKGDALAARQKQDGVAL
 D F T A Q V E E F I T H V V K G S G P L R V P G E A S V



$F A A R \square A A Q \square D R L S K A \quad G V R \ P G$ AFMQRDGELAASALRGAPRIYLPGEMEAELSAERLKNGLPL $G L V E R A R R Q T A R L Q E \quad H G V F M P G V S G D D \quad Y P R P G S E G L K M$ QI E R A R A HVVRRL Q D H GVVF IP G


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 EF QY E M GEYMQPIPGYD RATLPGULEAEREKERRKT GIVQV|

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DDGLLWREVVQALA PDPLWAQVRDLA P LAAYDAFR
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R PAVVAALEA

AEAEWQG\|VKAA
D P S
SQGAWEDTLA
GADTWALI ETLA
 AENTAAELSGWA

D DVT Y R QVR D 1 A
D E
DEATFEALDRM
PSLLWSDIR
PEDVLAA RGAA
PDDVVTELQK
HDTTRPALE
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DEPRYDR

PEAVVTALRREA SEELLLARLRK

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DARLDDDK
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SEGHCRVLRE:
DPATAEAFAQLS EEDVYRRLK PPKTGAALRHWA

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SDALLRVLQRCA
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PAA LARELEA
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PDALWDLVKKLS

 AAKTWAELGRDA NDEVWDKLLA
$\qquad$

A VTTDEA DVVA


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 $T L N \square G S A \square A T A T S L L E A A G V P T Q E A A T T A R C I V A S D R W$ MRK■GWDAEDAALQAE【MTAAELC
PEFLHFSLSQVAQAAGMSEEHAGYワADA\VFAHRQ RVMPDAMQGFISEAFQKAGTTAEDATHIAHLLVLTDLR MTTACTRAGVPGKGTDRVVEHYLDGELR

VPTEQHNALVAAAYQHRGYTADEAAQAARFSAFASHH K $\square$ K $\square$ A E $\square$ K E K V $V$ K F L VT S GMNE H D A K $\square$ M T G L V VE QEMV $K$ VT F E Q LK A AFNRVLISRGVDSETADACAEMFARTTES HRFDAQTLHSFDQAVVRQMGSEEQEAKLVADHLIAANLA

HRF L A T D $\square$ HQFVVS $\square$ FTH HGSTPGEATLVADHLIAANLA


TT TNELTAAVAKTVIDAGVSREVAQVLARNCASCRRD $R V R A D E L V T L V A H V F A A H G L P E A R A R I A A E A L C H G D L T$

## 

$T V S \square Q V A D L Q Q S \| L K V L T R Q G L F G A D S Q H V \square D Y \square L W L P A W$


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UniRef90- F7T9L8
UniRef90-W1CMM2
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UniRef90 X1H266
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UniRef90-Q5ARM7
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 GNQFSPVGE पKGKHARLISN $\square$ GDVKEEVAV DKNSMKLI GVYSHGVNRFPRFTQQDENGDTTPDAQPKRПTSLGATEQW GHDSHGUGMDPSYVRSWSQGHLQDNHHAKIVKEAGAAVT $\frac{\square}{M}$

GHDSHGVGMDPSYVK HAGGF $\square$ Q $\square$ NRHATVTKDAGAVVTL


GTtGHGLFRVPGYVKSLTSGWADGTVTGEAHQVESSYLr/V GSPETGVADLTRHLPLLKNGLVVPHAEPLMDADRGAAALI

PRVVYDGGVA $\square R \square$

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

GG $\square \mathrm{H} \square \mathrm{PY}$ YSSMVRAMD $\square \mathrm{GE} \square \mathrm{DPRGR} \mathrm{\square LTVRDQPSLVH} \mathrm{\square}$


UniRef90_D7G0G7
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UniRef90-E7T4Jg
UniRef90 V6EK40
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 NGNKRSGMVALETAVEKALQKAKATGFAICGTHNTYTTGM D GDD GLGHWQLQKASEDASERAMVNGDAAVGVGRSNHCGA NANQSPGMLAAVNAADLALQKDRDGPIAIVTAYNSTSSGQ DGQYGYGQUVGVQALELGIARAKQHGSCIATLAHAHHLGR DGKGSSGYYTLTLLMAKAAI EKAREYGIA IAFGGNHNDGGS DGDGGMGHFASYHAAKAAVKKAKEMGLGAATSRNHFHFGS DGRREVGPLSADFAVRLAARKARRLGVGVVGMVNCQRYG\|

NANKK $\square G Q A T A Y E A \square D E C \square K \square A D Q Y G \square G Q V S \square D N A F H Y \square W$
 DAQRS $\square G N L T A K K M M D R A D E L A A D H G \prod G L V A L R N A N H W M R$ DGDRAFGQVAAHEAMALGIEKAHQHGIAAAVALHNSHHDGR DGDQGLGFVIGHHAMMEAIHRAEKTGAGFIAVRNSTHFGA

DGNAGFGQVVAHEAMQ $\square$ G $\square$ EKAKQHGMAA $\square$ A $\square$ RNAHHVGR DARRCSGFLVAEAAMDRACELAEAYGTGCVAVDNAFHYDF MAEA $\square K R A E \square Y G \square G M V S V N H S N H F G M$ $D G D N G L G S V V G T R A M Q R C L E N A R T R G \square A L V G V R N S T T G G M$

NGRSGFAQPATAADEQTTEQMDTETGVAVVAVHDTHHFSA DYRRALGLWAVGDAMDRAVTRAGRFGVGLVSLRGDGPFGR

DCSSCFAPDAVAGTTLDLAGTARQSGDAAVFDRGVRGFGR DYRRAPGLWAVGDAMDRAVSRAGRYGVGLMSVRGVGPFGR

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conf
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SolO
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$\square G Y W A E Q C A A A G L \square S \square H F V S G D P M V A P F R G K D S R F G T N R C$
MGEGVMGMSYTNTSPLVVPTRAKECTDGTNP【
GAHYVLRASAKGY ITATCTGA DPEVVPTGGTRKSMGTNPQ AATYVLQA LQANMISLVFTSSAKQMPPFGGKETPLGDAPG MA Y Y A M L A LP Q H A $\square G F A A T N T E L K \square P P W G G V T P A B L G N N P F$

A LE HDMDGDS LTQGGKGDVAPGSRGKGVGDNVI MNEGVLGMAFTNTSPAMYPTRSSKPALGTNPLL LRPDLEPWSRKGFTGLATVASGQLMTAQGRTEAVMSTNPLC AGHHAARALDHAMIGLVLA AGGEPGQPMNPL
MAPHGGTEGRFGTNPI LGYYVEKDASKGLVGDVSSGSTPTVAAFGSAEKNFGTNPL $L G Y Y T E K L G K R G L V G \| M F G N A E P A V V M P G S S R K M \square S T T P I$
 PEAVVANLAHRGLDGFMVSSTGRAFSPVGDRTPRVAGHRS


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UniRef90-H3AK14
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UniRef90-X0XY12
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A DDKEGKPVTDPTKAVRLGGTPTLGSYKGFGLGVLVD\|LS GADAQGRETNDPTQVLNGGGLEDSGGYKGYGLAMMVEVMC LLDGQGQPTTDPDALFPPGALRPVGTYKGYGLA LVNELLA

GCDSSGK $\square$ S T DPAKVLEGGGLVP $\square G G Y K G Y G \square G M M V E \Pi F C$ VQDKDGNPSDDPD ILTQGGAMLPHGGHKGYGMLGAMVDIS IFDKDGRPTTDPNEFHAHAC VGGHKGYSLCLLTELLA


VIGEDGKTRTDTHQ\|LQDGDGEETAGYKGYGYSAVVE\|LS LLDAQGQPTTDPGVMHQYGALTAFGLRKGYADATMCEILG AVDMDGNPVTEVAKILPLGGTPQLGSYKGFGLTVVVDILC


VIT RPGSEAA VIT NEGKTETDPGRILEDGKGEETSGYKGYGYATLVELLS AYAPDGQPTQDPTAALA GALAVWGGHKGSGLA TVQLL

 $A L D G A G R P T R V A A \quad D V A A L L P R G G Q \square G S L L G L T V E L L A$

IIS SNGNSKTDPE VLNKGEGEATSGYKGYGYATFAEILS TIDDDGEPVRDAGQFEDVGA LLPNTGHKGFGLAVAMELIAA $A F D K E G Q P$
UniRef90 D7GOG7 UniRef90-L1IVT8 UniRef90 UPI000368FC87 UniRef90-R1E2S1 UniRef90-UPI00023784E1 UniRef90 B7RZN2 UniRef90-UPI0003B675B7 UniRef90_D5ZQ67
UniRef90-H2UX31 UniRef90 FODYR5 UniRef90-Q5DB34 UniRef90-D5EQQ7 UniRef90-UPI00037FDBCB UniRef90-K2E4K9 UniRef90_D0DC89 UniRef90_E7T4J9 UniRef90 V6EK40 UniRef90-X1HKK4 UniRef90-H2Y422 UniRef90_UPI0003793955
UniRef90 F7T9L8 UniRef90-W1CMM2 UniRef90-H3AK14 UniRef90-X1H266 UniRef90-FOYG19 UniRef90-Q5ARM7 UniRef90_V9CB50 UniRef90_W4LYA5 UniRef90-X1U411 UniRef90-U3TSR7 UniRef90-X1FKM4 UniRef90_J0XFB5 UniRef90-E2XSG4 UniRef90_E4BFLO UniRef90_D8HUQ1 UniRef90-X0XY12 UniRef90-M2VHXO UniRef90_M2W1V6 UniRef90 FONGE5 UniRef90-XOV5R6 UniRef90-A0A011V1R8 UniRef90 R4SWG6 UniRef90-XORVD5 UniRef90-U1P240 UniRef90_D5SV56


GVLS GS SAS L LQESTPETRGNAGDHFFGALRDDSFLPE GILA GAHYGKNVRKW GTTER\ADLGQCFIXVDPKAFHPG GI LSGGGTCRPETHHKNDT ILNNMFSVILDPNRFAGS $G L L S N A A Y L T H V K S W V D A P D E P N L G H F F L L I D T R R L G S Q$
$G \square L A G A Q Y S N K \square R V W K V T D K V A N \square G Q C F V A D N P K C F A P$ GVLPGANFGPFIPPNLAFMPMPKGMGHFFGALSDDGFMAE AFGGGSLPSVRSKVGGGDGGDKRTCNFLFQAWHPDALAPA $S V L T V A G F G G Q V G D R Y K D A K P Q D A G H C F I A D K P D C F S V D$ $C S L S G A R F G F E T E S L F D D D G E P A R L G Q A F L A I D P A A L A G D$
 GALSGGRTTHDATLLTGTDA IFF NMTTIILNPDAFDAP STLSGGLSVLEKESGPSTRGKA NHFFGALRDDGFMPD G $\|$ GGAQWGPS $\square R K W M S T T T$ DAN $\square G Q C F V A I N P D G F A P$ $G V L S G V A$
 GMMTGAS ADPEGLTDCGFFLVALNPALLTDP G A
SFLTGSALGSDVKGVLNT ESPPNKGEVLIGDNPSFFAG GPLLG HVAGAGR HVAQAH AFRRCGVFGGAVDPEAFTTE

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

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UniRef90 LivT8 UniRef90- UPIO00368FC87 UniRef90-R1E2S1 UniRef90-UPIOOO23784E1 UniRef90 B7RZN2 UniRef90_UPI0003B675B7
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$\square F K K \square S G D \square R S D R S A E R \Pi Y T A G E K E Y D A W E R K D K G A P D$ AMQREAEEFLAWVRGEAEI LVPGEWETRNRAAREREGIPL
EFKERMDAMIKAHHGVDRIVLAGEVEQE MERQRRQGI

RRA GWKRQHSMMESQSDG■SV
GFYRAASALFGSMLGWDP\RYPGWREAQHLEQCRALGVPL VFKKTAGNIMRGLRGADRIYTAGEKEYDAUVSRGKTGIP DYRRRVTEYAQDLRNTKPVRVPFDRSATERSKRLANSUDV

YREE DEK LRRET L G $\quad$ DEFPGEHGFKCKSE
$\square$ VKEGMDALISDMKGFDE $\$ TVPGEPEWWTMERRDKEGDY


C C C


| UniRef90_D7G0G7 | $\text { EKNLYEGMK }{ }^{330} \text { A A }$ |
| :---: | :---: |
| UniRef90-L1IVT8 |  |
| UniRef90-UPI000368FC87 |  |
| UniRef90-R1E2S1 | PK Q $\square \mathrm{WES} \$ CR T A  \hline UniRef90_UPI00023784E1 & DAATWDE\\|VA  \hline UniRef90-B7RZN2 & LENHWA  \hline UniRef90_UPI0003B675B7 & GEAHQEQLKTVA  \hline UniRef90-D5ZQ67 & DEALLYKRLQARA  \hline UniRef90-H2UX31 & H $\mathrm{H}^{\text {NVV }}$ V Y M |
| UniRef90-FODYR5 | NDELLDELTNAL |
| UniRef90_Q5DB34 | P P VLL ESLINRLA |
| UniRef90-D5EQQ7 | S SAEI EAFNEIA |
| UniRef90-UPI00037FDBCB | NRAVLREL |
| UniRef90-K2E4K9 | KDEDWKKFQ |
| UniRef90-D0DC89 | P G H L L E E $\square$ E A L A |
| UniRef90-E7T4J9 |  |
| UniRef90-V6EK40 |  |
| UniRef90-X1HKK4 |  |
| UniRef90-H2Y422 | P K NVVD Y M N G V ${ }^{\text {a }}$ |
| UniRef90_UPIO003793955 | DENSWRLVVSTA |
| UniRef90-F7T9L8 | A A DVLALLVRHA |
| UniRef90-W1CMM2 |  |
| UniRef90-H3AK14 |  |
| UniRef90-X1H266 | LP A पVED L K EVA |
| UniRef90_FOYG19 |  |
| UniRef90-Q5ARM7 | A D A ERKMFTESA |
| UniRef90-V9CB50 | P D TLLA QLR G M C |
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| UniRef90-X1U411 | N Q N L Q Q Q |
| UniRef90_U3TSR7 | DSNSWQQICAAA |
| UniRef90-X1FKM4 |  |
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| UniRef90_E4BFLO |  |
| UniRef90-D8HUQ1 | A GPVRRELDALA |
| UniRef90-X0XY12 | NKSLQEDI |
| UniRef90-M2VHX0 | D D R V Y R M I E L A |
| UniRef90-M2W1V6 |  |
| UniRef90-FONGE5 |  |
| UniRef90-X0V5R6 | D DE $\square$ Y EK $\square$ LD T A |
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| sol25 | B B B |
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[^3]:    lupas_21
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    jnet
    conf
    sol25
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