## QUERY

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 MKPPSFEYFVPTTLDEAVALLAQHGGEAKVLAGGQSLVPM MDPSAFTYHRPQTLEEVFELLGRHGDQAKLLAGGHSLLPA M RPASFEYHRATSLGHALELLAEFGEDGRPIAGGQSLVPM MKSPQFDYVRPGSLDQVLALLAEHGDEAQVLAGGQSLVPT MITPPFDYVAPRTVAEAVQLLRKHGYEAKVLAGGQSLIPM MKPAAFDLLRPDSLEEALQALTAHQEDDKALAGGQSLIPM
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$M K P P P F A Y A R A T G V P E A L A L L R D A G E D A K I L A G G Q S L V P L ~$ PAPFEYARATTVDEAIGLMERYGDTARLVAGGHSLLPM DPAPFDYVRATTVENALELLARYGPESRVVAGGHSLLPM MKPAPFDYHRPDSVAGATQMLSEFGDDAKLLGGGQSLVPM PGPFEYERATSVDHATGLDRLGDGAMIVAGGHSLLPM MYPAQFNYFAPKSVDETLELLDKFRDDAKILAGGQSLI IL
 MYLPDFDYYAPQTI QEACSLLTQFGDKAKLLSGGTDLLVKK MKAAPFAYHRVESVKQAVDLLDEYGDEAKILAGGQSLVPM M1PAQFDYVRAESAAHTIELLSEHGEDAKLIAGGHSLLPM MIPPAFEYHRPTDLASAVSVLQEHGDEARCLAGGHSLIPM PASFAYERASSVRDALDLLRRHGPDARPIAGGHSLLPM MLDPKFEFHEPESIEKALVLKKQFNSGARFLAGGTDLLVY MIPPAFEYARPTSVAEAVRALADGGEDAKVLAGGQSLLPL PAEDRYYRPSTLDEALKLLGELSEKARILAGGTDLVLD PARFEYERATSVEDALRLGGQLGDEARLIAGGHSLLPM MTPPQFEYVRPGSLEEALSALAEAGEEAKPLAGGQSLLPL MIIPAAFDYACPESVGEAIRMLAESGEGTKVLAGGQSLLPM MKAAPFAYHRPDTVADAVSMLGEFGDDAKILAGGQSLVPM MKARAFAYRRUESLQEALAAFAACEGEARYLTGGQSLLPA MIPSAFEYVRAASVEEALRLLQESNGEGKLLAGGHSLVPD MYMPDFAYHAPQTLDEACTLLAELLGNKAIVLAGGTDVLHK QFYRPTQLSEALELLQQYPEATLVAGGTDLGLE MKPAFEYYEPASLAEASDLMRRLGKDASLIAGGTDLLVE MKPAPFEYHRAHDVRGAVELLTELGDDAKLLAGGQSLVAM MPRGFKYGRVSTIDEALSLLNEYDGAKVLAGGMSLMPM MAPARYARPALDETFALLAEHRDDARLIAGGQTLLAT MDFLRPSTLEEALAAKSAHPDAVPIMGGTDVMVE
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 PATFAYERADSVPHAIALLERYGPDARIVAGGHSLIPM FNY解APKLPEALQMLADYKESAVLFNGGTDVVVR PAALEYERASDVDHALNLLGRYGDTAKLLAGGHSLLPM

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





 $M K$ L R L A N F E Y L I DI N D L G E L G Y I T T G P D E V V MKLRLSRPEWLI DI NDLYELDFILRDGNKLRVGALTRHTT
 MKLRLESPKNI I DI NKI P GLLSYI KEEEGYLKI GALTRYS D

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


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

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

 VERRS E EVVA A A Q P L L R Q A L R L V A H P V I R N R G T V V G S L V H A D






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PAAEYGAVALALGARMEAVSSAGSREIAADDFFTGLDENS
PAADLPTAITVLEATMILQGPGGKRAVPASDFFGGYFETA
$P G N D M P G L M Q A L D A S F T L M G P D G T R E V A A R D F F E G A Y T T T$
$P S E D L S A A F S A L R A S V V I S G T N G D R V V A V R D F H R G P Y E T$ PA GDTLPALLVYDAVALVESPDGKREI PLLTDFFKGPGKTD
PAGDLPAVVLAMDGELVAEGPRGRRAIPAREFFVDYGQST
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$P A G D L P A V V L A L G G V C H V R S A G G A R D I P A A G F F V D W M T S A$
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$P S A D Y P A V A L A Y D A K M V L D S S S G E R E V S A K D F F K G P F T T E ~$
$P G N D M P G L M Q C L D A T F I R R G N G E R E V K A R D F Y H A A Y M T E$

| QUERY | E P G ELLT A I R ITP VP P T |
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| UniRef90_K6X286 | VEQNEMLI EVR |
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| UniRef90_A1TFK6 | L A A DEILT AV |
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| UniRef90-B9M8E7 | I APGELLADI T |
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| UniRef90-F1VWE9 | MDADEI I VACEFPL |
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| UniRef90-UPI0001FFE71B | L EPDEVI |
| UniRef90-UPI000375B0B8 | VEPNELLIQLRVPVRP |
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## UniRef90_UPI0003 UniRef90 $\times 1 \mathrm{AC10}$

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UniRef90-A9D825 UniRet90-NoDZGO UniRet90_C7DH64 UniRef90-Q8GUQ8
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UniRef90- C 1 E9P4 UniRef90-Q0K316 UniRef90-IOGHW6
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1 10
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 GGUTWYRPVCLQNLLELKANY PDAKLLVGNTEVGIE MKPVNFDYARPGDVGAALKLISDDSLTVKIMAGSQSLGPM MKPAAFQYHQPTSVTEATDLLAEYEHDAELMAGNQSLGIV MFPDKFEYYAPKSLEEAAEFLNGH EDAKVLAGGQSLIPL MKAVAFSYHAPGSLPDALARLGAGTDVAKTMGGGQSLGPM MK ELDYFFPKTLEEALQUKNDLKGSIKVIAGGTDLVVH
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MAYERPRDLA SALASMLAAAGGSAKII AGGQSLGPM MKPAPFAYERPRDLNSALSMLAAAGGSAKIVAGGQSLGPM FDYQRPSTLDEALQLKAKYKDKALFLAGGTDLIVN MKPAPFDYLRVETVDEAVEALRQEGGDARIIAGGQSLMPM MVLPQFEYLAPKTI GEACNLLLELGSTARVMAGATDLDPP GLK WYRPLCLQNLLELKARYPEAKLVVGNTEVGIDE MAEQRFSHHQPANLEALLDLMARFRTDVLVMAGGTDLVPA GGDEWYRPDQLQHVLDLKARY PDAKLVVGNTEIG:E NEQQFYRPTRLSDVLNLLQQY PAATLVAGATDLGLE
 NPGYSLLAGGTDLMVK M IPSTFAYVAPETLDDALSILAASDDDTKVMAGGQSLIPL GDMDFHRPATLTEALEYKAR NPGAVPIAGGTDVMVE MFPPQFGYRRAESADEAIALLAEFSDDVRLLAGGHGLLPD MRPGFTWLAPDTTEEAVALLREHGSGARVIAGGQSLEAB MK YKAHSVAEAVAGLRQAD
AGAQRFFTPDSLEALWDVLDKH SFGYFRPSSVEEALTKLNEA PEAKMLAGGQTLLPT AGGLKWFRPLRLQHVLDKKRYPDAKLVVGNTEVGI E MKAAPFAYVRPSRLSDATAELAETRGGGKVIAGGQSLAPV MKPAPFDYRSPATLDDVVTALAEGPGARVLAGGQSLLPA $M D E L A P S T W A E A L A A K A E R P D A K P V A G G T D V M V E$
$Y F A P V S A D G L A R V L G E H P D A T L L A G G T D V G L W$ MKPAPFDYARPRDLDAALTLLG NNASAKVMAGGQSLGPM FDYVKPQTLEEALDYLNQ NSDTKI LA GGTDLMVL
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UniRefo-

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 P PSDLNPLWMASRAEFRITNCNGVRSDPAKDFFLGYRKVD PSADWHSIMAAVGAKVMLRGPKGERTIVVEEYMVGALEAD PAGNYPTVLTALLDGDLHVASTDGERTVAASEYFIAYMFTD PANDFPAVMLALGAEFEVTSARGKRDIQAEDFFTDDFTTA PAADWVVVMTACLGARTEIGASGTGTREVAMEAFMKGYRSTD PAGDSIPALFVLLSKLHVKSVEGSREIPDEDFFLGPGKTA PAADYPAVLTALDATMKVRSKKGTREVKAHDFFKGPFSVD PAADWVNALSALGAEVEIAGPAGTRRLTGAQFFTGALSTA PAGDTHPVLLASGARMELASVRGSRLVAAERFYLGPGRTV PAADWFSALAALGAQVTLRSLAGARTMALEAFVVGALESA PAADNAPVLLAYGARLEIAHQHGSRWLPYVDFHQGYRKTA PSLDSAPALLCYEATVHCASPLSQREIPVTEWFDAPRKTA PSAELPGSLMTLGGSVHLRAGRKHRTLTAGEFFTGMMATAA PSCDTAPNLLAQGAKILVQGPNKDRVIQDEDFFDGVKKTS PAADCAAPLLVHGASLVLVERGGRRQVPLAKFFTGPGQTV P GDGPPALIAFGAELTLRSAQGQRTMPLEDYFLSYGKQD PISDLNPLWMVTGAKFQI DDCKGKRMTAAENFFLGYRKVD PIGDLPPVLLSLDAEVRLASLMGERVIPLATFFKGYRQTD PSADLPPALIVADATVELKCSGSSREVSLSKFFTGPRETD PSAELPLSLI ALGGSVRLASRRRRRTVPAAEFFLGMMSTA PAADTVPALIALGAEVTLSSKEAVKTUPLDELFLGPGRTV $P \square S D L N P L X M A A G A T F R I D X C K G \| R T T L A E K F F L G Y R K V D$ PAGDWPAVALAADVVVHVRSLRGTRKDPDKDFFTYMFTAD PAGDGHPPLVASGAHLELSSVRGVRRIPAPEFFTGVKRNV PDSDLNP LWMAAGAKFRVDDCKGTRTTXAEKFFCGYRKVN PSADPPAAALVSEATLVARGSDGRREDDAADFFGGDGETA PRFDVPAFAVGVDAVLRISGAGGDRTLPAGEFLLGNGLTAA PAADTAPPLLVLEAKVNI IGPDGEKIVPINEFFTDVKKNI TSADSAAPTVALEAELEI AGPNGTRRIPIAGFHTGPGKVA P पGDMAPVLLALGAEVVLRSRAGERRLPLEDFFVGYRRTA PAADYPAALVALDA\|VTHA RDLPADTFFTGMFETA PISDLNPLWMAAGAKFITDCKENVRTTKAEDFFVGYRKVD P S DLNPLWMASRAMFQI DDCKGKRTTLAEDFFMGYRKVD PAADYPAALLALGATVVTQ KRAIAAEDFFLGMFETP PAAELPAVACCLDAELTLTGPSGHRRVSARDFFHGAMTTA PAAELPALLVALDGVVHARGPRGDRRIGADAFYLGPGRTA PSGDMDPPTCVYEGVVHVASHHGERRVPDMEFDTGPRRNV PAGDSHPALLAADAVVEIASARGTREVPVAEFFTGVKRNA P GDSMPVLAGGRLTNGPDGRREMPLEDYFDDYGRQD PAADWVSVLTALLDARVALRSTSGVRQVALGDFIVGAGQSC PGADLSAPLLVYNGKVHIASSEGSRTI DIDKFFTGVKKTV PAADYPAALLAMGATIHTASENTREVVADDFFTGMFETA PAADYPAAVLGLGAELRRTDRRAIPADSFFKGLFETE SAAEFPAVLLATEATVVARSRDGERRIPCQDFFGSHFQTA PAAELPAVLLAADAVFTAHGPAGTRTIDARDFFLGPHRTA PAAEDLAPLWMAAKAKFRADDCKGVRTVLAENFFLGYRKVAD QCADTVPALMVLDACVVLESVAGRREVPIVDFFPGPKKSD PGNDHPAISMALEAVFVLQGPQGERKVKATEFFQDTYMTA PAADYPAAVLGLAATIVTGBDRRIAADDFFVDMYETA
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| UniRef90 UPI00034852AE | LAPDEVTVDVVFPRP |
| :---: | :---: |
| UniRef90-X1AC10 |  |
| UniRef90-A0A038H3H3 | REPDELVESVRFPL |
| UniRef90_U7G528 | LQP GEFI HS I H $\square$ P V |
| UniRef90_S6I575 | KRADELVVEVRFP |
| UniRef90-14C4Q4 | MEP GEI LTTEIVVPKQ |
| UniRef90_G8MMV4 | LE E G E I I T A V L L P K L P |
| UniRef90_D3D1Y9 | L E E D EL LT GI T FP |
| UniRef90-X6KUF2 | L ERGD I V T G I VLP AP |
| UniRef90-A9D825 | LED GELVVAVEI T A P |
| UniRef90-N0DZG0 | $V$ G D GEL L T A I RIP K |
| UniRef90-C7DH64 | A A Q E I I TS L VFP K |
| UniRef90_Q8GUQ8 | MGSNEILLSVVLP |
| UniRef90-F1LK56 | LA GDEILLLSVFLP |
| UniRef90-K8PQ70 | L Q P GEMLV S V TVVPKLS S |
| UniRef90-MOMGH9 | L A E D ELI T GV SVVDREP |
| UniRef90_TON7S0 | L N T GE I L T K I K |
| UniRef90_C1E9P4 | L K P D EVLT AVAL P L |
| UniRef90_Q0K316 | LA D GELI A A V RV |
| UniRef90-I0GHW6 | L K ENEI I M GVEF |
| UniRef90-H2C5R9 | L N P G EV L E E I R IP R |
| UniRef90-A7ID07 | L A A GEI L VAVRVPKVP |
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| UniRef90_D6V1Q5 | KA D D E M I E A V S FP |
| UniRef90-R5F5E5 | LEP GE\\|V T G I VIPP P |
| UniRef90-F1LJY7 | LA S NEILLLSIFLP |
| UniRef90-E1QK85 | REPMEVI EAI RVPPAPP |
| UniRef90_19WL35 | RQP GEFVESVRI PR P |
| UniRef90-F1LK12 | LA S DE ILL S I F L P |
| UniRef90-K8GFE9 | L Q P G EVIV S V R |
| UniRef90-X1I3C9 | CQ T GELL L T F I F V P L P P N |
| UniRef90_K2N5H7 | IIA EGEMI E AVA FPV |
| UniRef90_G7W7T2 | LKP GELLI T T I S F |
| UniRef90_F1LK54 | L A T GEI L L S V F LP |
| UniRef90_G4HWH2 | V A D D I L T HVELPK P |
| UniRef90_D3Q645 | L EPDELIT A I LV P A |
| UniRef90_V9PWQ5 | L E X E I L H S V FLP |
| UniRef90 ${ }^{-}$M0DJW9 | L R D GELLTEI RLP |
| UniRef90_F4CLV9 | I G Q D E L L A V V L P P P A T |
| UniRef90-F1LJT7 | I R S S E I L L S I FL P |
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| UniRef90-F4D9P4 | L Q P E I L VAFHF |
| UniRef90-S9QKK3 | L A A GEVLACVDVPAQP |
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| UniRef90-F1LJW6 | L G P NEI L L S I F L |
| UniRef90-F1LJT3 | L A P D E I L L S I F L |
| UniRef90-D0LKQ2 | L E D T EII I K EVAFPIP |
| UniRef90_G2P4W0 | L T P D EI L T S V R L P V |
| UniRef90-D3D2V8 | L A P D EV AVA V El P |
| UniRef90 H0UP08 | L K P GEVVVTRI T L P VP |
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| UniRef90_UPI00034AA85B | LK S GE L V T A V HV P K |
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| UniRef90-T1BBQ2 | L D P D El L T AVEFP LP |
| UniRef90-R7Y1T0 | L N H G ELLT G V E L P V |
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| UniRef90_E1R8T0 | V HPGELVTEI R FP |
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| UniRef90-F1LJX6 | LA R D E I L L S VF LP |
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| UniRef90_UPI0004676EBC | LR P G EVI C A I R I P K P P S |
| UniRef90-A3MUJ8 | L E R G EVLTEVRRLKCP P |
| UniRef90-F1LK13 | L M S NEILLLSL LL P |
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| UniRef90-U2QLS7 | L R P D E L L A R I R I P A P P |
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| UniRef90-F4CPP2 | L E P E ELLVEVVAFPV |
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| UniRef90-F7NDC2 | L T Q G E I L T A I R I |
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 LTEHPAVQDAFP LLLATACHTIGGNQIVRNATIGGNIVNAA



 EERVACETSACKAIDEQLKWFAGNQIKNVASVGGNICTAS VA N S A DVK K H N P A L A A LA G G I G D P AVVRHMGTLGGSLANND $C$ C

## V

V
$\begin{array}{lll}P & L & L \\ A & V\end{array}$

V V
I

II E K S A S LK E Y LP ILS QA A A DVGS P QI RNRGTIGGNVVTAS $V A S N A E V R S A L P A L A D L A G H I G D R Q V R A M G T L G G S V A N N D$

AFA ALARHWPELGELDERFASPPVRNAGTLGGNVANGS AYA EI CKHYPELSEMWQRFASLPIIRNAGTLGGNVANGS

 VVESDAVWEQATAFAEATKNIGDLQVRNDGTVGGNIAQAH
 I SSSADIIE LAAPALAAASASVGSPQIRNRGTVGGNCGNAS $V L G K M$ GEYHPSYA ELIDRRYGSDQVVRNAATIGGNDAN GS






 VIDA D P T V R E WFP A L V E A A A L V G S V A I R N RA S L I A N SA N G S $V A T S D T V Q K A D P A L A Y L A S L I G G D A V R H R G T I G G S D A N N D$ RELAS RKIP GLEII QETASKVGD DQVRNMGTVGGSLSNAD VANHS GLRDACHAIS EMGGWI GDPHVRHR GTIGGGSIANND VA D H A E E L K R R VL $L R V D P N V V Q Y W P N L A G S A S Q T G A P A I Q N R A T L G G N I C N A S$

 VA T S A A


 I E L S P L V T K R A P L I R R A 1 L R D P S VV R D H Y P L L QD C GH DL A S Y QV R N R A P I M G NVV N A S

 AFA ALLEEDYPELAEELARRFASPPARNAATVVGNNITNGS
 A A RAALTS MFP QMEELWDRIGGEQVRNMGTVGGNIANGS

AERPAHETSSSCKAFDE Q $\square K W F A G T Q I V N D A S V G G N I C T A S$ SEA A DRDAFPHLSAYWDR■AGWQVRNMGTIGGNIIANGS


 L QEMS DKTSSCKAILE QLKWFAGXQXKNVASVGGNICTAS






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UniRef90- UPIO0045444CC UniRef90-W9GNM8 UniRef90-E8TYD1 UniRef90-UPIO00466C03D UniRef90-F6BQB2 UniRef90-GOLH75 UniRef90-G8ALE2
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130

 P I S DL NPVVFMASCCSVTMASTDGTRRVWMDGFFIGYRRTV A A A EMPAVLALLGGGSVEVEGPA GGRTIPADELFVGPLES S PAADYQAALIVVDSSVVVYGPKGSRTVNFADFVKDVFTPD $P$ I S DLLNPAFWGANAVLVAKSASEETEI HMSQFFTGYRKTA


 P A S E L P P A C V V A L D A T P T A D Y P A A V L A L G A T V V T T SAADSATPSSLIVYEARLVIDASAEGTRVI PVLDGFHTGPGKVA PAA E LDPAVAA CLLDATLLT RNRD GERTVAAASDFFTAAMTTA
 PAADYPAACLALDAK\HTTGRLIEADEFFKGMFETA P I G D S P P P L L A A G A TVVT L R S K D S T R S L P L E D F F $P \| G D G G P V L L A L G A S L V L R R G K E Q R T L P L E Q F Y L G Y K Q T A$ PAAEWPVV ATVLGAQFDLAGPGGRRTVAAEQFFTGPFQTLL
 $P A A D G V P A L L D A D D A Q V E L A A P S G M R R M P L S D F D T G P R A T A$ $P \| S D L N P V W M A A G A T F T L A G G T G E R T V L A K D F F L A Y R K V D$ P I S D L N P L W I A A G A K F R I D D K Q S V R T I L A K E F F L S Y R K V D PAGDLLPALLA YKAEFELVSDKGKERVLAKDFFTGPKKAV PSACYPAAVLGLGATVHTTHBRIAAADDFFGGMFTTA $P I G \operatorname{DWP} P V L L A L G G A I A L Q S N A G V R E I P L D D F F L D Y R K T A$
 PI GDAMPALI AL GARVVLASVRGRRSLALEDFYLDYMKKD PI GDSPPWLI AL GAQVVLRGPAGQRVMPLEALYLDYMKKD $P$ I G D S P P P L I A L G A T L TLL R S LE G QR KMPL E DFF I A Y G R Q D $P A A D Y P A G L V G L G A T V V T T$ E $T$ E DAAD DFFTGMFETA
 PASDLPAAALAVDAS IVVRGPDGEREDAPEAFFSGAFS T T P DS DL N P LLWMA S R A KF QI DD S N GVVRA SDA ENF F LGGYR K V D
 PAGDT $\square P A L L A Y H A V V N V N G P Q G V R T I P L N E F F M G P G R T V$ P $\square G D N P P A L I A L G A T L H L R H G E D T R Q M P V E D F F L D Y G K Q D$ $P$ S GEMTSVVLALTD GSVTVATPDGAETVGWRDLFVGP LETS PAADC DPPLIVLNAS CVI A GPNGERELDVEQFCTAP GQDA




 $P$ I G D MP PALI AL GA QLV L R Q GEVVRRTIDPLEDFFVA Y GK QD

 PSADYPALFTALDATMVIRSRRGTREVKAGEFFKGAFTTA PAADYPSAMLALLATIHT$D Q R E I A A D D F F T G M F D T A$
 PAADNAPALLAYNAELEIIGPSGYRRLPYRDFHLSYRRTA
 A ASEWCLVATLLDAQIVVTSARGERTIPARDFFQSDFTTA
 $P \square G D T P P A L I A B G A T L T D Q S K D G T R S I A D E D F F R D Y G K Q D$ PAADYPAAMLAALDAVIVVT

 P S SE QP CFTTA LD GVLTIIARYE DHRELPMAD WALMYMTPA P C S DMAP A L LLCLG A QARI A S SKGTREVVPFKEFFTGGVKKTV
 PIG DGPPVLI A LGAELT L RKGNERRSI PLEDFFI DYGK QD PSADMAAPLMVLDSSAHI AS L R GERTVPLEEFFVFVRENA P I G D S M P AL I AL G A R L R L H RL G V E R E L A L E H F Y L G Y Q H N A P I G D TPP P A L I A C G A TL R R R R H G D E T R E L

 PSA DYPAALIAMDAKVKKITSRKGDRVVVNKSFAKDMFTPD
 $P$ I G D TP P V LI S L G A EVVT L Q K K G G S R T L P L E E F F I D Y GK Q D


 PAAELPMMSLLLNAKLGIASSAGRRTVDPAEFFLGALTTD P I S DL NPLWMSAKARFQI DDCKGMRTTLAKDFFLGYRKDD

 PI GDSMPWLIAVVGEVVLQGPAGQRVLPLEAFYLDYQKKD
 P I G D A A P L L L A L D A R L M M R C G T V


| UniRef90 K2MR64 | RAKGEFVVES\|l ${ }^{170} \mathrm{l} \mathrm{V} \mid$ PKP |
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| UniRef90-J5JCD3 | LAPD A I I A S I R I P V |
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| UniRef90_UPI000369A449 | L ETGELLVSLKI PAPPT |
| UniRef90-UPI000374DB89 | LAPDELI KWV |
| UniRef90-UPI00036D3D01 | L LP DELLVVAVEVP |
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| UniRef90-R7XSF9 | TQPEELVTSV |
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| UniRef90-G8MFU6 |  |
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| UniRef90-W7NZ70 | RQPDELLTRVILPA |
| UniRef90-_Q5FT65 | RQPGEFVEALTIPTP |
| UniRef90-A0A058ZQ01 | RAPGEFVESITIPRKPS |
| UniRef90- X 0 SHR7 | LEEDEMLDEVQVPPQPT |
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| UniRef90-K8PTP1 | L GDDDLLT T D EFPPKLP |
| UniRef90-F1LJQ9 | LASDEILLSV |
| UniRef90-UPI0003B73A1F | MAPQEMI T D |
| UniRef90-D3L168 | LR S DELLK S V K ПP LP |
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VITKQHKQYA Q
60
70
80 MKLGVESPGLLVDVTRAAELRQVVQHPDADIGGAAVTLTD
 MKHRLAAPSDLIDLRGI GGLAGUEVSGRNVTDGAMTTHAA MKFKNQLFPMII CPAWI P ELL NAVVEHGPEGI SFGAACALS S
 ARMQS GEVP LV N I A A L A E L K E I T D N N G GVVSI G A GVVC T D MSANLARPGHLI GLAALGGLNEIALDADTHLHI GAMTTYAR
 $V T K Q H R V L D T I I T V G G L \quad M T D I D E T P Q G L T I G A G V R Y A$



 I N D R WE K P D VV I D I K K L K E L E Y I R V E E N T I Hi G A L S T F T Q $V T K Q H R D F P V M I D V R V E D L R H V E E G P H S L F F G A G V T H R$










## 

## v

E7





## 




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




 RVVTARRR E DI L D I T G G L A G L R GI A DA G D H F R I G A LTR WS D

 T N K Q F R DV G D L L Y L G D V R E L H E V V E H D G P L L R I G A A V P L

 0361 A845
J8K0
 MKLQDETPTHLYDVNHUGLDRDEGTREGGLRGGALVRNSD MTKQLRDDNLPL FLGGCTDLLSTAEVTDRDMRLGAGLTGAR MKERLVEAQYIVDVKGIGELKKIYVPGKGLLIGATVTLEF VTKQHRDLSVLIDISKVRDLQMIEERLGVLYFGAGVTHTE VTKQLRVLPELLWTGDVAELRRVERRDDGLLIGAAASLI
 QGAKPFRDNVLDDINGLVSLRGI AETETHWVLGARTTWTD VKFKHMVYPVIVQPVLIPELSRI ENTEEGVRVGASVTLMD RGDGPVPQNVLDVTRLPGFRGUDTDTGWRUGAAATWTD MSKGELKADGLVDLSKLPDVRRUSVDGNEVKVGSLTTFTQ RRTEPEFENDVVFDNGIRELKNTNSDENYIYGGAGCTYTE VNDRHARAGVTI AVDGLPELRTLTWNPDSVEVGAGLDNSE VKFKHFVYPVLI LPNQVKEMREDTELDDAIKIGASTTLQM MNLRLARPEMLVDLRGLAALRACSIEGETVALGACIVTHAE MKYDVERPGRLIDISHLPLAKVEETTGGGLREGALVPNSD GRDRNKPQTLVNISGLAGLCDINETADTVEIGSGVNLNR LNFDHRRPDALLDGRVPELHEHGDGGRIVGAAVPYR
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AFA A|L|TA QWP Q|L|HRFATRFA G|L|P|V|RNS GTLLGGN|V|ANGS

 V E K T LLETEVFRGVLEQLRWFAGKQVKSVASLGGNI DTAS
 1 I L V R H PLI S QRYPLLVTACKTI GSLQLRNRATIGGNIVNAA

 $E A Q T A L A R L H P D L G E L V R R I G A V Q V R N A G T I G G N I A N G S$
 $V R D$ LIA DHHPSYAEMDRRYGSAQVVRNAATVGGNVAN GS MEKSSALLTEAFP ILSDSAGKDA GPVVRNRGTLGGSIGGED



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$0 \ll-0>$
 A V CKHYK D EL H EMWQRFAS QP I R NT GTVGGGSVANGS


 $V$ LE T

A
AFS M
LAA AD VV R
LEELSLLEASKFAAI HKQI KYFA GRQI RNVGTPAGNLATAS




 LAADSRVRKDYAVLAKALLAGAS GQLRNKATTAGNLCDAT
 AFTALIA QNS GWQE LARRFASKQIKNAGTLGGGNIAN GS C VAE RLHRQLPGLALAAGSVGSRQVRNRGTIGGNLGTAS

 $A$ V A A N P Q V V A A DP A L A E
 A Y A
 EDAWAALVQHWPELREMALRFAGPPVRHAGTLGGNVANGS L A A H G LVV R A R LDP V L

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


 EEAA WA ALVVAEHP QLAAEMWRRFASSPPVVRHAGTMMGNVMANGS $L$ L

 VARADLPPA FDGLKQAARMVGS $\square Q Q Q N A G T V G G N I C N A S$
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 LA WH P L V M E R Y P L L S S A L L A G A S A QL R N M A S T G G N L C C A T

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P\|IGDSMPLLIJALLRAQVVLAQARGERQLPLLEDGYTGYRQNV NPSDMAVALAALDATVQLHGPEGERTVPVTDFHRLPGDTV PSAEMPAVIRLDGSVTVQSVRGREVAAKDLFLGPGESS PAADYPAGLLALLAT
PTSDLNPVFMASGTKLTIVSRGTRRTVPMDHFFPSYRKTL PAADWVSAMTALGAQLVIRNAHGKRREPMAGFMRGAYRTA DSADSLCGLVVLDAVLETESMDGAREGPMDQFYLGPGKTV $P C A D S M P P L I I Y D A E E L R S L R G T R R M L V S E F V T G G Y R T C$
$P S S D A P G C L A A L E A D F E L S S G G V R H I A A S D F F D D A F R T A$ P MGDGLPPLLALGARLALASARGERVVEADSFFTGYRKTL PIGDTPPALIAGGTELLRHGETRRTMPLEDYFLTYGKQD PSAEQPLCLLTLGGSLQLRRRRRARSVAAADFFVGMMATA AAADSVAALTALDASFVMIGSSGERTVSMDQLHGKSGNVI P TGDNPPALTALGATLHLRHRDGARQILLEDFFIAYGKQD PGGNYPSVLVAMGGEIELLSTDHTRTVDATDYFTADTTDS XXXXXXXXXXXXXXXXXXGTRTVLAEDFFLGYRKVD PAADGVPPLLTLNATVELSSTDGTRQMPISAFLQGVRKTD VAGDGVSAMTTLDATVVLESVRGTRQMKLTDFFDGKRRNA PIGDLPPMLIALGANLFLRRGETMRNLPLEDFFDAYGRQD P GDAPPVLMALGAE ILRRGPERRTLRLQDFFIDYGKQD PSACYPSAALACGATIVT SOREMAAGEFLGLFETA PVGDSAPLLLVLQARLLLLSPKGSREVPREKFFLGYRKT PAAELPAVLAVLGGTVEAVSARGRRTIPAAAFFRGPLESA VAGDSTMAFLALNAKVVLKNSYGQRVMSLREFYEGKGNCQ
 P $\square G D N A P A L I A G A T H L R R G D D R E L P L E D F F D D G K Q D$ PAADYPAALLALKATV KTNKREITADEFFQGLGMTA TSADSASTLFAWDADVEDTGPEGDRKLPDREFYDKAGKVD PIGDSPPLLALDAQVLRKGENTRTLALEDYFI DYRITA P GDTPPALA ALGATVVLRKGRSRIAQLERFFIEYGKQD P IGDTPPPLIALGARLTLRRGNKRRTISLEDFFIAYGKQD PISDLNPVFLGTNSTIVAKSLDKTVEIPMSDFFKAYRQTA P:SDLNPVFMAAGCKLTLMDKEGTRVVPPNGFFTGYRRTV TSADSASSLEALNAQLKLVSQQSERLVFIVRFYLGPGRVA PIGDSMPGLDALGAR ILRRGERVREMPLEDYYLGYQKNA SAAELPVALTALNATVVARSSRGERCTSAQDFFVGTMTTAA PI SDLNPIFMAAKCTEVVSHSRGTHFVVMDEFFTGYRKND PISDLNP FMAAGVKNVCSDKHGSRTIPMDHFFDGYRRNV PVGDTDPFLMVMNAKLTLTGSDSVRTVNDNNFYKGYKDFN VSADSACAALIHEFELVVESPEGERTESUNGFHTGPGRTV PAAEDPAVACCLGARIELAGPAGRRTVDARGFFVGAMTTA PTGDSMPAL!AQSAKLVLRCGEQVRKLALDEFYIAYQKNA PIGDSPPLLIAGNAQLVLRKGAESRTLALEDYFIDYRVTA PAGDLHPMLLAAGADVELSSVRGSRWVPADGFYRDGGGTV NRCDTAPVLVAMNAQVVVRSKGSERVFPGAELUYSGVGERT PSACYPSAALASGAT TTKG PSACYPAGVLGSGATVVT PAACYPSAVLGLGATVVT
PAAD GVPPLLTLDASVELASAD TSADSASSLCCLDASVELASADGVRVLPAGGFVLGNRKTA PIGDSMPWL IAALGTELMLYGVDGQRIMPLEEDFYIGYGKSA PIGDTPPLI ALGATLTLRKGAERRTIALEDFFIAYGKQD PIGDSAPVLLALDAVLLLKRGPVQRRLPLADFYLDYMKNA PAGDTLPPLHALDALAELASRHGRRRLPLAELVRGPGQTA PSADTAPILVAMNATVAAYGKNGGREIPAGEFFTGVKRTC PAADSVPALVAAGAKAVVVGPGGKRTI AVEAVPTGPGKTS
 HPSDMAVAMRLLDAQVETIAADGRRSIPIADFHKDPGDTA PAADSVPAMIAAGAVARIAGPDGLRDIPVADVPTGPGKTC PDGDNAPALIALGATLHLRHGDTRRQMPLEAFFLGYGQQD $P A A C Y P A A V L G S G G T V$ VT NARQDADDFFEGMFTTT PYVDMSGPAVLFDAEVHAVS DEGERWLPVDGLVLGPAMTQ P GDLDP CLI ALGARLYLRKGEDMRVLDLERFFVEYGKQD PAGDAHPPLLAGGAEIEVESARGVRMIPAAEFYTGVKRSA PSSELPLCFI AlLKGQLKLKSLFSQRIVNAEDFFVGPLLTS PAADGVPGLLVLDAEVELRSAAATRHLPLQEFILGNRRTA PISDMLPILMANEVVLELQSADGVRKVRLDHFFTGYRKT\| PAAD GIPPLLTLDAEVEVIGPDGPRRMPLAQFDTGVRRTE PAADTVTALVTLDAKARLDSDKGSRRVLVAELLCGGAGKTN


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




| UniRef90 K0HVG2 | $\text { MAP DELL } \bar{V} R \\|^{170} V V \mid P R P$ |
| :---: | :---: |
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| UniRef90-Q2CJG5 | LLEEGELITEVR |
| UniRef90-B3E0C | LQPGEVIVSVWIP K P |
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| UniRef90-UPI0004728E9B | LRPAEI QTGILIPR |
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| UniRef90-Q1QPF9 | L D PKEI I T AI ELLPA |
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| UniRef90-UPI000471E5DB | LQAGELLTKI |
| UniRef90_D8HVA9 | LEPDELITGVLL APA |

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UniRef90_Tos7uo

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PFTYQPKT SDALAEWYTQH
GПKWLR AKTVEDALLAEWYT

KMYSFD\|VR
QFFAPKNVDD FAYDTPAT FFAPSSFQSAEAAAADRR FTYETPAS

NNFDYARVSDVAEAVKLKAET MQYHTPSSFSEAVTLSNSADGDAKFIAGGTNLIDL MQYHTPSSFSEAVTHSNSADG EYKYRPIVTLEQLLQUKTY PG SFEYANPATVQEAVALLSAKWGE

## MK A

MK P
MK EDYEAYSVEEAVKLRLEH AFTYRRSEDVAGA』A LLATSGP NNFTYURATSVKDAVQRST HTPTSREE VLKALIKK NPSAQLVAGSTDLSLQ NRFSYARPSDTAEAVREVGA DPSARFIAGGTNLVDL PFSYARPERIEEALALKAB NNFQYSR ASDIAHAI RLLAA MKPFAF

T WY

 NQFKY $\triangle$ SPENKEKTLKLLEEEGVNACLVAGSTNVLPD NRFSYERADTTAGAVSAMSQTPSARF|AGGTNLVDLL FAAPASDDGAAGYSRHPDADLVAGATDVGLW
 KPDTFRWYRPVTLQQLLEDKD VCPSAKLIGGSTETQ円E MK P FEYQRAGNVGEAI RDVARDH
KNGP AYKLPQSAKQLVDLLKALY TWYRPTRLEELLQLKADH TWYRPTTLDQLTDLKEKY FAAPASI ASLAKLYSQHDYYMPKSKEELFSLIESNDDSFDIISGGTDLFAK SFHAPRTLDE LLAAVCEAKPRARLLAGSTDVGLW AFDYVRAGDTGEALR QGAGEETRFI AGGTNLLDL $M S V R P F Q L S K P R S V E A V R D L R D D G A T A A G G T D L I T$
 FQYSKAASIDKALAA
 K DGNVTYHHPVKDDELKKL TKNKNFKFLAGGTDLNLQ NPFRYERASDASSADALLAQAPNGA YLGGGTNLIDH AFTYERAQS
 SWYRPTTVQELLNEKA EYVAAKLAVGNTEVGVA WПKPHDVADLARARDESPEARIVAGATDVGLW FDYRRAHDVQHALALLAA DPEARYGGGGTNLVDL PKTWEEDPDCLRQMTEKSKFLGGGTDLI DK A DSYERATDVADAVRAAQQ TWITSPIVTKKLLEAKAK PRTVAEMOELLLA VNPAPVVGNTSVGPE NGFGYDRPGTVQEAVEAYAA QPGARYLAGGTNLVDL
 SVDWIRP GTLKEALKLKTGL KFNDVSWYRPVSLKELLELRDKFKPTAKLVVGNAEVGFE KFNDVSWYRPVSLKELLELRDKKPKYRLVMGNTEIETE


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UniR UniRef90-IOHW75 UniRef90-G8PH06 UniRef90_UPIO002375094 UniRef90_G8QQH1 UniRef90-K8Z4A8 UniRef90-F4B9F0 UniRef90-L7FBPO UniRef90_UPIOOO2626201 UniRef90-A5EPN4 UniRef90_UPI000378C8FF UniRef90_UPI000469648E UniRef90-H6C377 UniRef90-A9BIT8 UniRef90_Q025B6 UniRef90_R5IHU8 UniRef90_K1E4S8 UniRef90_LOM217
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UniRef90_T0S7U0
,

## \lll

VK F K V V $\frac{50}{V}$ V 60
60
70
MKFKHCDYPVLVSPAMI AETLATVERTEALLKLGGAVTLGT



 $V$ T K Q G R



$M R L R L A N P E Q L I D L A G I A E L A G I R R A G N A L A G I A M T R H M D$
 LKLLRII RPS YLVDI T K L K E L L H Y L N K E E K E Y K L G A TIIT H

-




 $\frac{L}{F}$ K G F L D E P S QLI DI S R L E MKR I S R T T N G GLL I GALVV S T A







 AV G GP DR DP IL DD S GL S A L R GUT R E-
I
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## V V V

 L R D G I A T P S R R L V D L G G L G L D R V E W W L P D G TVVR I G A L C R N A

 I K F K A L R M P




 V K F K H F LLYP VL I N P I Q V P E L L E E I H E E S E D S I Y F G A A V S L M E VTK R H R V L P E L L H M G D L MRE:IE E T P E GLK L G A GVV Y A E


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,

K\| 1 KPD
90
100 110
Kivill MLHWFAGKQ\| IRNVAAVGGNIIMTGS FKEPKESTRFFSALNQMLHWFAGKQI RNVAAI AGNI MTGS
 LE Q $\square C E D A Q P F A M I L K Q I R Y F A G R Q I R N V G T P A G N L A T A S$


EDAFRA VA A HYPDA A GG HRRFAS L P I R A A Y Q A QYYPDETELWQRFASLLPV | V |  |
| :--- | :--- |
| V | $R$ |
| V |  |
| R |  |
| I | K |
| V |  | R LIE T E T A NHA A MA LEHVCRRAERYPLLSQALLAGASGQLRNMATVGGNLMQRT

 VAAE AGAYPALAALASQDGDPAVRNRGTIGGSLANND AFA $\quad 1$ LD KHFPAFS GLLKRIGGEQVRNMGTIGGNIAN GS
 VAE QFLTAIDPDLELVISRIGSKQVRASGTVGGNIANGS
 IA E S E M V

Y E LSK L

## L

H P DI R
A A P L R R D Y $\perp L S R A!L A G A S Q Q$

 LA Y HP LI E QRYP LLASAI LAA GASA QLRNMASVGGNLMQR
 LADHADVRRDYPILSRALLAGASQQIRNMATVGGNLLQRT

 $V E \quad P Y M R A D D P D L G E L F R R \| G S K Q V R A R G T V G G N V A N G S$
 LETDCDEAQAFVAIK KQDRYFA GRQI RNVASPA GNIVTAS


| $\bar{V}$ |
| :---: |
| F |
| E |
| $\square$ |

V
$\qquad$

- $<$ -

LA D R T I R A
L A A N E TVR

\section*{| V | $A$ | $A$ | $D$ |  |
| :--- | :--- | :--- | :--- | :--- |
| L | T | Q | P | L |
| L | L |  |  |  | <br> $\qquad$} GS

## L

$\stackrel{L}{\mathrm{~L}}$
L
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V

| L | A |
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| V | E |
| T | A |

##  <br> $\perp-$

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130
140

160 PISDLNPLFMAAGCVLTQSHSKGDRLVTMDNFFTGYRRNI $P A A D G V P P L L A L M A B E E L A S A K G K R V L P M E A F D R G V R Q T A$
 PI S DLLNPVFVATNSTLLAKSLKETTEIPMATFFKGYRQTA P 1 GDTPPALI ALGATLHLRRGDDMRSLPDEDFFLDYGRQD
 P I GDSMPWLIAALGADVVLQGSTGTRTLAALEDFYLGYQKKD
 $P$ I GDGSPALDALGAVLHLRRGAARRSMPLEDFFLEYGKQD RCHDMSVALAALEAVVVVRSDGGERRMAGADFHRLPGDTV $P \square S D L N P V F L A T N S V I I A K N D N G E D E L P M A E F F K G Y R T T A$
 P I A DTPPTLIVLGARLILRKGKSRRTLPLEDFFDDYKVQD PIGDSMPALI TLDTMLRLRCGEQTREISLADEYLDYQKTA PAACYPAAVLGLGATVVT DRRRIAADDFFVGDYTTA P DGDMPPMLIVLGAEIELQSNRGRRTLPLESFFI DYGKQD PAACYPSAVLGLGATIFT, NRREIVADDFFLGMYSTA
 PSADYPAALLVLDAKVKIKGPSGERLEEFSSFDKDMFTPD PAGDTBPGVLAADAQLELASTTGTRLVVPGHEFFTGPGRTV PAGDTHPVLLATGARVEVASVRGTRMIEADDFYVGVKKHS HPSDMCVALAALDATVQVTGAQGERAIAFADFHRLPGDNT PAADSVPGM1 AAGATVSVVSSSGTAEVRVEDTPVGPGDTN
 PAADLIPPLMALDSKIELSSINGKRHVPLDQYIVGPYKTA RCWYYGPALDAGGAKVKLVSAKGPREVPASAFFVVPREDA TSADSASTLHAWEATI ELTGVNGKRYLPDKDFYIKAGTVD
 HPSDMAVAMRLLDAVVETVNPDGRRRIPI DAFYLPPGTTT


 P NS DLLNPVLLA A GRCSVVLLLDSKD GKREV L

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


 PAADGVVPD MAMDAAVVVVGADGTRVEPLDAF ITGPRRTT P $\$ S DLNPVFVATMTILVAKSLEGDTEIPMGEFFKGYRSTA HPSDMAVAMAALDAVIVQVEGPRGKRAIPVLEFHRLPGDTN
 PI SDMNPVLTAAGVREVASRAGGRRSVHMM GLFTGYRRN








 PIS DLDPVLMAAEAVI QAHTANGTEDIPMADFFVGYRRTA



 YAWDPPTVLHALDDARVRLDGPNGRRTVAVEDFYPAG GTTV P I S D M N PV L TAA G V R L K V A GK L R ERFVVNMGNFFTGYRRNV
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 HPSDMCVALAALDAVVQVTGPEGEREIPFAEYHRLPGDTT
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(II G A G/VSVER





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 L K N N K I T D Y N N I Dil T K I K E F K T I Y E T K Y F
 L K L G V A C P S L L V D V




 M G R A ESSRPR RVV D L R R A G L A R I SVVE R S R L C L G A M CT Y S D
 $M \operatorname{L}$
 FA GHREKPARIL GLGAVAELRALEI GEAS LIRIGAGLPYGA







 HNLI AK F E R PVLEI NEVNELKGIGEDENNIII GALTT F DE

 $M K N R V Q N P C T L V N I M T I P D L D S I T V N N E E C N V G A L V S L H E$ L K L Gl A S P T A L V DVVR V V V G D Q V E E L P R G G V R I G A G V T N S E $L K L G I V A P S R L V D V S G L G L D T V E E T P E G G L R V G A T V R N S D$ $M R R G V T Q P E T L I D T T G I A E D K Q L V A D G S G L T I G A G V T L A S$ T K F K H A DIY S TMMI HP S R I P G L Y D V V S T P D D F L VI G S C A S L S S


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 $V N K G Q L R P A G L V G L G R I N E T R G W Q Y Q D G N A L L G A G L T H A R$ $V$ N A GRLLR PAALI GLGRI TE LLRGWRYEDGGTADVLGA GLTHA I K F K GE F Y P VFI S A A G L P E L R L VN S E D G GVIVVGA G H SLLA Q

 $\square K F V S R G M K T V I D L K S V P E Q R L E F V E G E G L Y V G A N T K D F D$ MKEGVVEQPQQLVDINRLLELEKIEGDNNGLSIGALVKNS D V T K A M R S L P R V A F I $\operatorname{G}$ Q C C P D L

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AYA WH EAKQYPELTEMWQRFASLLPIRNAGTLLGGNI ANGS

 A A A NA LVQA DAACLA QASSMVGSNQI RNSSTLAGNVVNAQ
 VK DPEENTQUYRALLKHLRTLAGSQIRNMASLGGHVVSRH TAYHPQVEARYPLLSAAI LAGASPQI RNMASNGGNLCIAT VKDPEEQTQTYRAL LKHLRSLA GQQURNDASLGGHVISRH LANHKLIVEQYPLLSQALLSGASPQLRNMATTGGNLCIAT
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 I A A ELGDRLPGIAQASRTVGSPQURNRGTVGGNLGGAS
 L REMEAVAERLPSFGELLRRYASEQVRNAATIGGN:ANGS FETDAVGGGLGNLLRVVVSHDGHPPI RARGTMIGSLAYAH

 LA WDPRVAADYPLLSSAIMAGASPQLRNAATTGGNFCDAT 1 KKSPLIPQVL KDSALGDAGPPI RNDATDGGNDCNAS LAAHPLVRTRYPVLAQAILLGASAQLRNMATVGGNLCDAT VAAHPLVRSRYPVLSQALLQGASGQLRNDATVGGNLCVAV

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 $L$
GK S E L I LDNDKRI PDY L K K LDP I AQMASPSIIRNMGTIGGNIGNSS
 LERHPQVRRHAAALARAAASVGSTQURNRATLGGNVAHAS TAYHEQVAKRYPLLAKAMLAAGASAQLIRNMATNGGNVCDAV TAWNELVEQRYPLLSKAILAGASPQLRNMATNGGNLCIAT

 $V A D F P L V R Q N Y P I L S R A I L A G A S Q Q I R N V A T V G G N L M Q R T$
 V A T ASVIP GLACLAAGI G

## L W E

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ARTPSSQEWFS

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 $P$ I G D MP P AL I A L GA T L E LA H GE D GRA L P L E DYF DA Y G K Q D $P A A D S A V A L V A L G A K A R D L T G R E E E V V P V E E V Y A G F G K S R$



 PA G DMLPPDLTALDARVVTVNSKNEKRRTVNDDVAPGSPQK NYSDLNPDLAAGNATINVI SKEGERQDPLDHFLEKSPEAS PA GDSLDPAL LVLDAWASMI GPQGDRRLPFAQLQAGDGQGG
 H P S D M A VA MRA L D A QVVEI RQTS GERTVLPVGRDYLLPPGDNA H P S D L A A A MVA L D A TAVV L G P D GERRVVPI G GLLYRLPRD TV





 PAAD GI PPLLALDAVVEIIAARSRRQMALQQFLQQDAGLR HPSDMAVALAALDATVVRVTGPDGEREVPVTEGHRLPGDTV PAACYPAGALGSGATUT T NTRDIAADDYFQGMFETA $P \square G D A L P P L L A D G A T E V Q S A A H G A R S L P V A E F L T G Y R R T A$ PAGDLHAPDLAAAGAVEVESARGTRMIPATEFYVGVKRNS

 PIS DMNPILGTAACAKLKVGSKVETRDVYMGGFFTGYRKNT PAAEWPVV ATILLGAELDDLVGPDGCRTVAAERFFTGPESTV
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 HPS DMAVAALVMLDALVEVVSVRGDRRIMVADFHREPGETV H P S D L A V A L TA A L A V V R I R T A D G E R TVVPAA E L H R L P R D T V HPSDMAVAMAALDAEVELLRADGSRRVADT DFYRLPGETVV
 Y P GDMAVAL AALDAVV IVQGPGGERRVALDDFYRLPGDT T FSGDLAAPALLVLGAEVEIAGPDGRRRIPLGELYVEDGRAA
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 P A A D S L P A L A CLL E A RA L V VT P E GE EVVRP L G S L I S GP GE S A







 $P \| S D L N P V F V A L L N A Q F R L K M E R G E R V V N A S D F F Q G Y R K V D$ $H P S D M C V A L A A L D A V V H V E G A G G A R K L P F G E L H R L P R D T V$ HPS DMAVAMQLLDDAEI HTVLQD GERVI PDEDFYTDPA ETV
 $P \square G D S M P A$ LI A L G T E V V L QR G DTMR R A L P L E D LY LA Y Q K TA


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MK

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MDF $\square R P \square T W A D A \square A A Q A A Q P G A T P V Q G G T D V M V E$ AFGYTVARDPVEAVRMAAEDS NSTFVAGGTDLLNL NPFHWKVAQSASEAAADKQQSG SQL MK SFTYERATSPA QAAAAVAGRTGAKFLAGGTNLLDL UTWITPGTLSDLLELKMKYPKAPLVMGNTSVGLD
保
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MK N

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有 $M K Q F Q Y V R A A N Q K A A T S A L T K N A S A Q F \| A G G T N L I D L$ M ${ }^{2} P F D F E Y Y K P P S V Q M A V E L L H K Q G K H P M Y Y G G G T E I I T W$ MRP FAYGHPGDVAEAVRDVAA EPNAVFLAGGTNLVDH
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 $\checkmark$ A A LAVHPDVRR



 CAA DMRVRRQDWPMLA QA LDA GASPQLRNRATTGGNLCQAT
 DELP E ERT QTYRALLKHL RT LA G













 $L$ A A D P R V V E R Y P M L S E A L L $\begin{array}{llllllllllllllllllllllll}L & E & G & D & A & A & L & A & A & Y & P & P & L & G & D & A & V & R & E & I & A & T & P & L \\ A & A & D & R & A & S & G & T & V & G & G & N & L & C & Y & A & T \\ S & A & A & P & A & V & E & S & L & L & L & A & A & S & A & Q & L & R & N & M & A & L & G & G\end{array}$

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







## UniRef90 A8LXS1

 UniRef90 UPIOOO2694EDA UniRef90-W8AIP2 UniRef90_J2JS57 UniRef90 BoUGP2 UniRef90_UPIO003B68E69 UniRef90_UPIo0037204CA UniRef90-R4XFF8 UniRef90_Q1NHPO UniRef90-A6UIQ1 UniRef90_B5HT43 UniRef90-D715L6 UniRef90-A0A024YT99 UniRet90-R4KAU5 UniRef90-E1YM15 UniRef90-M3BAW3 UniRef90-A0A031GTZ7 UniRef90_AOAO24F2M4 UniRef90_UPIOOO3607839 UniRet90-Q1YFX1 UniRef90-D6U5B8 UniRef90_UPIO00374D321 UniRef90 M5ENEOUniRef90 Q1Q9R8 UniRef90-Q1Q9R8 UniRef90-S2YX99 UniRee90-UPI00026C704E UniRef90-UPI0002F2FA5D UniRef90-F9FZQ6 UniRef90-UPIO00369EDC5 UniRef90-A2FQ61 UniRef90-D2ASD8 UniRef90-T2IQC7 UniRef90-D6YRB3 UniRet90_B1Z5B5 UniRef90_TOKJQ9 UniRef90-UPIOOO478B5E9 UniRef90-V5GG41 UniRef90-L7EQ29 UniRef90_B2WC19 UniRef90-K9V096 UniRef90-UPIO0047EB558 UniRef90_UPIO0036A7613 UniRef90_UPIOOO3B679D2
UniRef90 UPIOOO47E9F94 UniRef90-UPI00035F6086 UniRef90_UPIo003B5C060 UniRef90_Q841K9 UniRef90-WOAEQ5 UniRef90_Q6LQT3
UniRef90-UPIO00255E55D UniRef90_K6DRC0 UniRef90 UPIOOO36DB576 UniRef90-UPIO0036F3F52
UniRef90- W9CFL4 UniRef90- H 1 Q 5 C 2 UniRef90- UPIOOO3B3FC03 UniRef90-×50H15 UniRef90_19A305 UniRef90_S3HCl6 UniRef90-F6V519 UniRef90-A0A021W7Z3 UniRef9-18T1Z9 UniRef90-Q9N683 UniRef90-Q4RMT5 UniRef90 UPIOOO36FE286 UniRef90_C7Z881 UniRef90-UP10000478FAB8 UniRef90-UP100037DD15D UniRet90_G8QQU7 UniRef90O-UP1000367F2C7 UniRef90-UP10004290CCB UniRef90_T1AJ52 UniRef90 UPIOOO4685A75
UniRef90 K6BR78 UniRef90 G2MH75 UniRef90_M41M08 UniRef90-UP100037EBCE1 UniRef90-UP1000248C99A UniRefo-44EA3 UniRef90-H5WS50 UniRef90-E5D275 UniRef90-LOSZL7 UniRef90_LF8M1 UniRef90-Kouso9


YPGDWAVIALLTAFDANLIAVVIGPSGTRS\|P\|HDLVPPRETT HPSDMAVAMMALDASVEVQASDGDRTI ALGDLYCLPGETV
 HPGDMAVAMRVLDAAVETVDATGARTIPIAEFHRLPRDTT RCWDLAPALIALGAAVKIVGPEGEKTMSLEDFFTLPRENV PDSDGNPLFMATNTTLYYKQAGKEEVFPVDDFFTGYRQTA HPSDMCVALAMLDAVVHLSGPAGERQVPLTDFHVLPGETV HPSDMAVAMAVLDARVETVSPGGERSIPLGDLYLLPGTTA HASDLAVALVALDAVVHI QGVAGPRQVPLTDFYLPASENV HPSDMCVAMAAI GAQVTVQGPNGVREIPFGDFHLLPGSTA PTGDALPVLAALEAVLVIAGPDGQRE:PVSDHLLAGREM MCMDTPPALIALGAQVTIVGSTGEKVINIEDFYTQKSKNI PGSDMNPVLLASGAKVVTRSANGTVVLP: ETFFQGYRKIIA
 HPSDMAVALAAFDAVISYETAEGPGDLPDDAFYLPVGETA
 HPSDMCVAFAALDAVVHLSSATGTRTLPLTDLHRDPGDTV YHGDFAQALIALDAVVDVEGRHGTRQ:RFAKLHQLPGETD
HPSDMAVAMRLLDATIETLKADGTRQI PGKDFYGLPKETV HPSDMAVAMRLLDATVETLKADGT VCNA RCGYFHHNHAVLGASSHCVAP $\square G W \square Y L P G D E$ HPSDMAVALAALDATVVVLGAGGETRIPVTQLHRLPRETV RCHDLLCVALAALDAVVHVRSPQAGRCLSFEQFHRLPGDNI P पS DSAPVLLAAGAKVKI HQARGTTEIPLSSWFLSYRTTA
 HPSDMAVALAALGTSVHVEGLRGARRVADPGLHRLPRDTV RCPYYYDTAFPCNAVVEVQGMEGKREIPLDDFHRLPGDTN RCNDLAVALVAFDALVVLKNQQGERR1 ADDDFFLLPGDTD PISDSAPVLLAAGAKVVVRHAKGTFDIPLSSWFIRYRTTA PAGDMLPLLYVYNAKLLLRSDNGDRDVADGDFIQGPRRDQ

Y







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



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

 HPS D M A V A M R A L D A TVVETVVNA S G Q R R I P I A D F H R LPP GR TA
 $P N S D L N P V L A A G S S R V S V L S S G G R R Q V P L D D F F Q G F G K T A$ P A GESHP P L L A T D A V V E




$P$ Y S D A P A V L V A H A A R V TVVAS A H G T R T V
H P S D M A V A L S A L D A V V H V L G P D G E R T I P F T

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



$P$ IG D S M P C L LA L GA T L L L S R R L E T R R L P L E N F Y T GM K A N A

LI L N P L WMA S R A D F N V V D S K G I R TV HA K D F F L G





| UniRef90_A8LXS1 | $\mathrm{L} \mid \mathrm{T} \text { P G E F\|I \|T T\|\| }{ }^{170} \mathrm{R}\|\mathrm{~V}\| \mathrm{P} \mathrm{M} \mathrm{~T} \mathrm{P} \mathrm{~T}$ |
| :---: | :---: |
| UniRef90-UPI0004694EDA | LAAGDLI T AVTLPKP |
| UniRef90-W8AIP2 | I A A DELI T RI DVVPALP |
| UniRef90-J2JS57 | LT P GELI T A I EVVPALP |
| UniRef90-B0UGP2 | L R P D EL I T A V T L P R |
| UniRef90-UPI0003B68E69 | LQSNEIVVEVQVPP |
| UniRef90_UPI00037204CA | L E P GETL A GL R F L |
| UniRef90_R4XFF8 | L P E D AVI S R L E I P A |
| UniRef90_Q1NHP0 | L K P G D L V T GI EL P P P |
| UniRef90_A6UIQ1 | L A H GEM ${ }^{\text {I }}$ T GVVTL P P P P |
| UniRef90-B5HT43 | V R R G ELI T AVEI S A LP |
| UniRef90-13NN46 | L Q H GEL I T SVVSIP L L P T |
| UniRef90-D715L6 | LQPHELI THVILDAP |
| UniRef90_A0A024YT99 | L CPGEL I GFVRVPL |
| UniRef90-R4KAU5 | L ELD E MV TMI R V P K P |
| UniRef90-E1YM15 | L K P T D F V K Q i Hil P T P P |
| UniRef90_M3BAW3 | L S R D AVIVQ V I L P $\ddagger$ P P |
| UniRef90-A0A031GTZ7 | LQP GELITTSVTL P PP |
| UniRef90-A0A024F2M4 | V T A DEI AT GI LI PVP |
| UniRef90_UPI0003607839 | L P A G A V VT GI T L P P A P |
| UniRef90-Q1YFX1 | LE P GEL I T A V R L P R P |
| UniRef90_D6U5B8 | HEP D E I L R E I Y L P |
| UniRef90-UPI000374D321 | LE A GEL I T A I E L P S S P |
| UniRef90-M5ENE0 | \|L A A D EV I T A I N |
| UniRef90-Q1Q9R8 | LET GELI THIVVLPAP |
| UniRef90_A4EZ00 | L E E GEI I T SVRCE ${ }^{\text {P }}$ |
| UniRef90_S2YX99 | L P P GALI T HVVSLP P A P |
| UniRef90_UPI00026C704E | L E H G DL I TAVELPPPPAS |
| UniRef90_UPI0002F2FA5D | L A A D ELV L G I EL P |
| UniRef90-F9FZQ6 | LPE D GVI T E I V I P L P |
| UniRef90_UPI000369EDC5 | L D P G D I T GVEEI PGP |
| UniRef90_A2FQ61 | L S P Q DV I T Q I DVVPL |
| UniRef90-D2ASD8 | L D P G D L I T AVELP P L P |
| UniRef90-T2IQC7 | L Q P GELI TAVIL P |
| UniRef90-D6YRB3 | L R D D E I I V A I ElV |
| UniRef90-B1Z5B5 | L H A DELLVAVLLAPPH T |
| UniRef90_TOKJQ9 | LP E D GV I T Q I V V P LP P |
| UniRef90_UPI000478B5E9 | RFHNEIVAE |
| UniRef90_V5GG41 | L P A G A VI T K L FVVP |
| UniRef90_L7EQ29 | L N K N E MV A E I K L P L |
| UniRef90-B2WCI9 | L P P D A A L H R I R I |
| UniRef90-K9V096 | LQQ GELVTAVILPP |
| UniRef90_UPI00047EB558 | RRS DEL L T RVVFVTLP |
| UniRef90_UPI00036A7613 | LE A D EL I T HVTTLDAP |
| UniRef90-UPI0003B679D2 | LQPGELI T AVRLPAP |
| UniRef90_UPI00047E9F94 | LE P DELI R A I RVV A P A S |
| UniRef90_UPI00035F6086 | MRPGELI T R V DVVPR |
| UniRef90_UPI0003B5C060 | LKP GELI TA I EL PALP |
| UniRef90_Q84IX9 | L R D D E I I VA I E V |
| UniRef90_W0AEQ5 | L D A GELI TAVVTLPKP |
| UniRef90_UPI00045DC789 | L K P E Q V L V S V F I P V |
| UniRef90-Q6LQT3 | L H Q GEVLTHVVI P K |
| UniRef90-UPI000255E55D | L ER S ELI TAAI EII |
| UniRef90-K6DRC0 | L E K G EFLVQI |
| UniRef90-UPI00036DB576 | I R P GELI TGVVLPAAP |
| UniRef90_UPI00036F3F52 | LQQPGELI TA I HLL APP S |
| UniRef90-W9CFL4 | L P P D A V I VD I R V P L P |
| UniRef90-H1Q5C2 | L R H GEL I TGVVDI P |
| UniRef90_UPI0003B3FC03 | L E P D ELIVA V TVV |
| UniRef90-X5QH15 | LQQ GELI TA I ELPAP |
| UniRef90-19A305 | L A P D A L V T AVRL A R P |
| UniRef90_S3HCI6 | LQ H GEI I R AVVLPP P |
| UniRef90_F6V519 | ALLK T EVLSSI FLP |
| UniRef90-A0A021W7Z3 | L G K GEL I T S V T L P K P |
| UniRef90-18T1Z9 | \|L T S D EL I T A V TLLP K P |
| UniRef90-Q9N683 | I E A HEVLLGI HF |
| UniRef90_H9KJ19 | I S S E El L L Sil Q ${ }_{\text {P }}$ |
| UniRef90-Q4RMT5 | L R P E E V V V S V F I P |
| UniRef90-UPI00036FE286 |  |
| UniRef90_C7Z881 | LP E D GVIT Q I I P L |
| UniRef90_UPI000478FAB8 | K VD GL V T A FWI P Y P |
| UniRef90_UPI00037DD15D | LEHGELI TAVELPASP |
| UniRef90-G8QQU7 | L A P D EL I VEV L M P K LP S |
| UniRef90_UPI000367F2C7 | L R P T ELVTTEI I LP Y R P |
| UniRef90_UPI0004290CCB | L H H G DL I T A I EL P D T P |
| UniRef90_T1AJ52 | L A P GEL LTAV HL P A |
| UniRef90_UPI0004685A75 | L A A GEVIVRI T L P L S P |
| UniRef90-K6BR78 | L M P GELI T A V T L P K P |
| UniRef90-G2MH75 | CGDDELLTELTVPP |
| UniRef90_M4IM08 | LHP GELVTAITVRKTP |
| UniRef90_UPI00037EBCE1 | I ERGELI T GVELIP |
| UniRef90_UPI000248C99A | L E N GEFLV |
| UniRef90-14EWA3 | L E H G E LVTA |
| UniRef90-H5WS50 | L Q P GEFI Q A I Eli P R |
| UniRef90_K0UR99 | $L Q A+L$ L L G I E L P P |
| UniRef90 E5D275 |  |
| UniRef90-L0SZL7 | $\square \mathrm{L}$ H G E L I E S $\square \mathrm{MLPA}$ |
| UniRef90_L7F8M1 | HREGELI T AVEI PA Y P |
| UniRef90-J2RIW4 | LERGEEMVMAINI P A A P |
| UniRef90_K0US09 | V GP T E LI T A V EL P P |
| UniRef90_A0QWI1 UniRef90_UPIO0036C7520 |  |

UniRef90 F3S7U6 UniRef90-UPIOOO420C809 UniRef90-19C4K7 UniRef90-A1ZVS8

AFAYS R ${ }^{10} \mathrm{VT}$ LGAVVQA ${ }^{20}$

PFSYSRPTNVENAVQELA GPARAKFDAGGTNLLDL MS GPALRVVRPRDAAEAG EALSRHGGEARFAAGATAA QL D
 TEAST


SFE WQRATSGL GYKPLAGGQSLSTL
M R P
F E Y V R A A D A A S SVVA A V A A VA E A K F LiA G G T N L V D L
 M R P TYERATSAG

NPFDYQRAEDAD SAVAAVAGRPAAAFLGGGTNLVDH



QPENLQELQALRSRLKGПCCFTAGGTLLRTQ MKP FNHDNASSLEEASKVLIDSEKKACCDAGGTDLLGC KYFSPTSLEELENLKSNTNG VLFSGGTDLFVK F DHRRAGTVDDADGLAS VPGARYFAGGTNLLDL
N NFKY L K A DTPA A A DAA VA D NAASNTVVAGGTNNLIDDL K P P K M WF P T T V E EA WA I K QKYNKEASY I A G GT F L QL Q SFAYVRAGTVE EAVAEVAADPEAAFLAGGTTQVDL M N S G ${ }^{-}$

PFSLSSRPAT L A E A VTA G SA A
$M Q F E R P G S L Q E A G R Q L Q A \quad D G T M P G G G G T T G L Y D L$


QYVRAESLEEAYGLYQKKNN

## P E N

M K
$S F D Y V R P A S I G E A D A \quad A$
$G G V K W Y R P D K L Q H V L D K S R$
SFELTAPTSVDDAVA
$M \square S$ F E F E Y Y K P A S I DEAT T L LD Q A G K

$$
\text { P A A V } \mathrm{V} \stackrel{\mathrm{~L}}{\mathrm{P}} \mathrm{~V}^{\prime}{ }^{\prime}
$$

$M R P$ FEDQTAGNPSDADQDASRAQSGARYGAGGTDLMAG
 M R P

DYVRAEDP V S A S R A
AF DYIRAS D ID SARQ A
$M \square G F D F E Y Y R P A T S N E A V K L L Q A G V P$


F R A E SVQD ALRLLSE
A YARATSSLEQALAALAEARDPVVTLAGGTDLMTL
$\qquad$


 NFTYKNPASVEEAVSFLME PGTVAMGGGTDLLGV

QY $\square R$ A K S L E E A YE LYQK RQN
YFANSLDEADS ILLSDRERSLVPI AGGTWLMRS NQFHYTRVT T PKAAVMALSQES GAYFLAGGTNLIDL NRFEYLRPATVAEAVAAGA GAGSAF LAAGG

DVI QPRSLHEAWERKTAFGDSARYVAGGTNLVDL

$M L S N V N E Y F R P K T V E E A Y E L M Q N D R D H S \square F L S G G T \| V A L M$
 $G A L K W Y R P L R L K H V L D L K D R Y P D A K L V V G N S E V G I E$ NPFQFTRVTTPKAAITAITKES GTYFLAGGTNLIDLD

NSVCWE QHRT\GN L LEMKCQH P Q FR LI L I LS P L G IDD
$M$ VGSESSWHRPR SVVE YYRVIDASDGS GTKVVVAGNTS S GVV
 WRPGDAWLGGGTYLFSE

E F Y K P
PRSRDD


## UniRef90 F3S7U6

## UniRef90-UPIO00420C809 UniRef90-I9C4K7

 UniRef90-A1ZVS8 UniRef90_UPI0001D541D7 UniRef90_I2GJF9UniRef90-B1ZCP2

## UniRef90-A6E7Q2

 UniRef90_UPI00035CA15E UniRef90_UPI00035E4BA2 UniRef90-W3RLP9 UniRef90-H6QCP8 UniRef90-E6QRH8 UniRef90-A0A022GRB7UniRef90_X1CJU4 UniRef90-E6NA79 UniRef90_UPI000382ED22 UniRef90-D8WWW0
UniRef90_A4FE95 UniRef90_S7V1B5
UniRef90_M1ZMM5
UniRef90-D9VM30 UniRef90-W4BXD6 UniRef90-Q6AMH2
UniRef90_A6LMM0 UniRef90-A1T6U2 UniRef90_D9W7I8 UniRef90_UPIO0036F3431 UniRef90-J8TBI2 UniRef90-M3BLH3 UniRef90-K1V8S9
UniRef90 R0FUH7 UniRef90-M5RHB6 UniRef90_UPI00047D3EE4 UniRef90-A5V3K0 UniRef90-F5Y5C9
UniRef90_UPI00036D28BB
UniRef90_A8L799
UniRef90-D9WF31
UniRef90-A8RMZ2
UniRef90-R6BKS9
UniRef90_UPI0004138B49
UniRef90-M0T9Z1
UniRef90-F4CUA7
UniRef90-Q9KBF1
UniRef90_UPI0003F5FC94
UniRef90-UPI0002D61ABD
UniRef90-H0RZ99
UniRef90-B4RG29
UniRef90-X7FAG7
UniRef90-K6BFR5
UniRef90_UPIO00416A344
UniRef90_UPIO0035CC61C
UniRef90-D1B830
UniRef90-K6DPQ6
UniRef90-Q3M1C8
UniRef90_M7A075
UniRef90_UPIO003B3587D
UniRef90_E6SMM6
UniRef90_A9W3H2
UniRef90-O32145
UniRef90-B5JHX9
UniRef90-UPI0003AD6BD4
UniRef90_A0A017HIW6
UniRef90_C6W770
UniRef90_C0D021
UniRef90-R5RK64
UniRef90-M9R1M5
UniRef90-IOK8T2
UniRef90_UP10003F83A42
UniRef90-BOUJQ8
UniRef90-UPIO003B66ED9
UniRef90-B4R1X4
UniRef90-12F3Y5
UniRef90-F2GBB2
UniRef90-R6HC57
UniRef90 F1LJU22
UniRef90-D2QDT2
UniRef90_UPI00047DF580
UniRef90-UPIO0042BAFEA
UniRef90-A3DLF7
UniRef90-G1KTA7
UniRef90-R7W5N8
UniRef90-R5WR98
UniRef90-H0HPR7
UniRef90_UPIOOO4651206
UniRef90-Q0S843
UniRef90-K1ZLM5
UniRef90_UPIO0038287B9
UniRef90-E8R9B1
UniRef90_R1EFE6

MKA DVIE P 50
M ARVNSIQFDAVIDLKGIPECSQLEVSGGKLKI GAAQTLTN $M R E H V E Q P Y A L V D V T G L P A$ A DEPTAEGGLLI GAAVRNTA MKFKNMDFPMIVCPAWDPELNSVEHGPEGISFGAACPLSD $M K V N V E Q P N Q L I D D N R L P L N T I D E L D N G G L R L G A L V T N A D$
 MKYFDTDAAELVDVNTIPQHHAIEEPDGGLRLGALTTNAE WEAGTEAPRHLIDLGSUEGLSGI WLQDGDLA GGALTALDD RPETMRHTAVRHVFRAGEQPPI WREDDDVSMSGACTAAQ MKLDVMQPEQVIDI NALDDLGEI RLDGDGLYLGAMDRMSE



 $M K$ I GARATHND $M K L G \square A S P E L L V D V T R \square P L G G V E P L A D G G V R V G A G V R N S D$ PPQRFADREWVFP DTPQEIRLTPQGCRIKAGTTLET KNHHDTYHP II LHPVRDPEMHVVSSTNNRLVI GAACCLA Q WEGGLVAPEHMISLARIPEMSGISILGDEIVI GAMTRLKE
 $M K S G V E N P T V L V D V N R L G L D A V V R T A A G G V A D G S G T N S A$ MKLGVAGPGLLVDVSRLPYDRIEHRDDGSVLI GATVRNGD WKYDLTHPDRLVDI NGLSEDKTDTEPDGGLRLGALVSNAA REKGMVLPPHLI SLKKIPELDFCQTEEKSVVIGANVPLSN MRDEVFRPARLVDITRLP LRG1RRDGEVLTAGALTTMEE
 MK LNVLKPSRGSFVKPL LDDDSVSVKESTLVVGAGCTMSQ
 LQEDVRRPARLVSLGRLDDCGGIEVTPGGVRLGAGATMAA MKDEVETPTHLIDVQDLGFDKIEKTAEGGLRRGALVTNTD

 LKMRKRPFGTA DLSDDLG DDQ EEDEKEFR GAYVS DRE MKGGVSRPDRLVDVTHLPGLDTIKLPDGGLRIGALVRNAD $M K L D V L T P R H V Q D \prod N A L P \quad L R G \square D T A D G L R D G A L E R M S D$ GRVNQLKSGA IIDLKGISECFELKMDGTNMLLGAAQSLTK ARERGWEKKTFLDI SELKELKEILETEDFVEI GAAVTLTE VNAGLLRPAALVSLGRLGELRGWEYQDGHALLGACLTHAR
 MKLDI ERPAHLI DVGRLP LAADEETPEGGLRI GAMATNSQ MKLEVMAPETLVDVSRL DFGGIAEDGDGLRI GATVTNSD MKCGVERPARLVGI SHLQALDQITVDDRKVYI GASAKMSQ ARLNQDETGAVIDI NSI RECRVYQFNTSELVI GATVTLTH MRETVERPAHVVDI NALPYKD KTVNRQGLRVGSGVRMSE $\square N$ RHGDPGPLVDLTSVPELRRLQLGGDQLLSSGVTFAE ARTNKITTDAII DLKGIPECHLLKVRGDELVI GAAVSLNK
 ${ }^{P}{ }^{\circ} \mathrm{Q}$

| LRELKLRQAT |
| :--- |
| 1 HQ GLARPRR |
| PQPALAR |

LLDI GRLGDLRGMERAEGQWRI GALVTLAE WDKGTLPKQHLIDLSAL GWPAAESLEAGLRLSATGTIAE KGEEDK D HLVSLEGIDEMRGDSTSDTHVSIGGLTSLNE

 MK RGVVTSPAAKL
 MKREVVVPERLI DINKLP LATDEKTATGLRI GAMAKNSA




 LKMGKHSFGTAIDLCDLG LDEI EETENEFRI GAMATLRQ
 LRSGVDRTPLLVDLAALRGQAVRVEGGPGLVLDADARMAD
 REALGVYDRYL REAEV
LKMGNRNDST LDPGRLDSFTRVSLRK

WE
PTVTRLVDDSRMGWEPLTRAEDGSLEAAATCTLSR
 WENGGLMPEHMIRLDTI PGLRGITEHKQRIQQGALTSLRE UniRef90_R1EFE6

## UniRef90 F3S7U6 UniRef90_UPIO00420C809 UniRef90-19C4K7 UniRef90_A1ZVS8

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UniRef90_M1ZMM5 UniRef90_D9VM30 UniRef90-W4BXD6 UniRef90-Q6AMH2
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UniRef90 R0FUH7 UniRef90_M5RHB6 UniRef90_UPI00047D3EE4 UniRef90_A5V3K0 UniRef90_F5Y5C9 UniRef90_UPI00036D28BB UniRef90_A8L799 UniRef90_D9WF31 UniRef90_A8RMZ2 UniRef90_R6BKS9 UniRef90_UPIO004138B49 UniRef90_M0T9Z1 UniRef90_F4CUA7 UniRef90_Q9KBF1 UniRef90_UPI0003F5FC94 UniRef90_UPI0002D61ABD UniRef90_HORZ99 UniRef90-B4RG29 UniRef90-X7FAG7 UniRef90_UPIO00416A344 UniRef90_UPI00035CC61C UniRef90_D1B830 UniRef90-K6DPQ6 UniRef90_Q3M1C8
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UniRef90_R1EFE6

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100
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120

T A A HP|LV|RARYP|LL|AAA\|L|AGGSPQV|RNMATNGGN|INQRT $\square A E Y N$ A F P L L S ETI KR DA DHTI Q GK DT IGGNLAGT
 V WQ SEEMMQAHFPRLSQYLKLVSSTQURNMGTIAGNLVNAS $V E K T L V K T E V F R G V L E Q L R W F A G K Q V K S V A S I G G N I I T A S$
 C CLLND P L L G R H A P IVVA Q A I RTVI G WSVVRNVA TVGGNVVSRT

 IA A H S G L G G Y F P A L V Q A V T A A A S P Q I R N R A T L G G N L L Q R P
 V A




CAAQALLHQ
LAESPLVLS GYA GLA HAASKTAASIL

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





 AAAHPEMARQFPVVSEALLNSASPQVRNVATIGGNLCIAT LAADERVRRDYGVLTRAIVAGASGQLRNKASTAGNLIIAT

 LIETN E A L N T Y T G A FA E S VK H I V GVVQFRNVATVVGGSLWGRY LA HDAA FAKAYPA VA EAL LDS GASA QLRNAA TVGGGNLCDAT MQHPVEETSS
VARHPGV
I R D A G L
 A A DHP II R R DYPVVIA DA LRRLA ASAQLVRNMASLGGNVLQRT


## UniRef90 F3S7U6

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UniRef90 A6LMMO UniRef90-A1T6U2 UniRef90-D9W718 UniRef90_UPIoo036F3431 UniRef90- J8TBI2 UniRef90-M3BLH3 UniRef90-K1V8S9
UniRef90 ROFUH7 UniRef90-ROFUH7
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RCHDMCVA ${ }^{130}$ A KYRESALPLMLSKCSLQVMTQGGVVQLPFLQAFKG KLQ
 PISDLNPVFMASGAKLTLVSRGTRRTVPMDHFFPGYRKTL
RCYYY
GC CLPALLALDAALDLTAAGRERVALADWL GRAA RCYDMCVALAALNAVVNIEGPDGDRQLPFADFHRDPGDTN PGGSLPALLAADASLVWDGEDGERTEKLADWLSEPD PD
 PAANYDPVLVALGAEVVVREKGAVKRMTVESYVKGPYET
 PAADTAPPLLVLEAK
GERD ${ }^{2} P A \Pi M A S L D G Q V K \Pi M G \Pi D G E K V V$
HPSDMADAMRAGDAMVETVRADGSRTVPVVDDHTDPGETT PDADPPILIALGATITMVGPNGERTVPLEEFFTGPGRTV PDADMAVFFLA DAVVRVQGPGGHRGVPGKFHRDPRDTV PDADMAVFFLALDAQLLLISRTGERRVALKNFFKDYKQVD PTGDSTPVLLALEASVLLADADGEREVPLADYFTGYRQSV GVGDTLPALLVYDAKLHWLTDSGIERIRSVSSWLQGGKDGS
 HPSDMAVALVALDAVAHLRSVDGTRTVPVAEGYRDPRETV
!

R
GFGDL
GCGDLLPSLLLTI

KKHDMATILLAAGAVNIMSLSRGLENLPGEEFLQG SP
 HASDLAVALVALDAVVHLRGARGERQVPLRDFHRLPGSTD FPGDMAVAMRVLDAYVETIDPAGQRRIPMADFHRLWGDTV

$P R G D L L T H T A A Q A E V L L A S E D G S R A G L D D F L S A G R ~$ | PRGDLLTFLTAAQAEVLLASEDGSRAAGLDDFLSAGR |
| :--- |
| $H P S D M A V A L A A L D A T V C V Q G P D G E L R I P L T E L L R L P R D T V$ | PSADCASMMLALDTELVLVSVRGERTVRQKDVYLGAYKTD GFSDVMTVFRAMGAKVQLHHAG



G WS DVSTCLLT TGSSLMDYGVDGYQRMLVSDYF HPSDMAVAMIALDAKVNVKNANNTRQIALREFYREPGETVV GFSD IVTVFMAMDSYVELFEGG $\quad V \mathrm{~V}$ LIEEFVDMKYDKD

HPSDMC $\square$ A LVA LDDATVNVSGPKGDRK IPFSEFHRLPGDNT RCP YFGTAVVFTADPDCVATHPSGERTIPVTEFYRPDAETV

 F P S D


 S CS DLLLPTMLVLLGTELEI TES A QTKTVLLEEDYI NSEGR



| UniRef90_F3S7U6 |  |
| :---: | :---: |
| UniRef90-UPI000420C809 | LLKK GEFLV S I S I |
| UniRef90-19C4K7 | LEPGE |
| UniRef90_A1ZVS8 | KQP T E YV |
| UniRef90-UPI0001D541D7 | LS PEE ILLSI |
| UniRef90_I2GJF9 <br> UniRef90-B1ZCP? | P |
| UniRef90-A6E7Q2 | LKDGELI SSI DL |
| UniRef90-UPI000350 | RARVRLLA Q V R |
| UniRef90-UPI00035E4BA2 | KHPHDVLE |
| UniRef90-W3RLP9 | $\square$ A A GEI I S GFR 1 PP S |
| UniRef90-H6QCP8 | E K G L V V ${ }^{\text {dV }}$ |
| UniRef90-E6QRH8 | LQAGELI TAVK |
| UniRef90-A0A022GRB7 | LEHGELILA ${ }^{\text {L }}$ EL |
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| UniRef90-D8WWW0 | LAQNETVTKFT |
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| UniRef90-D9VM30 | RRPGELI RAVRVP |
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| UniRef90_UPI00036D28BB | LKPGELI T AVTLPKP |
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| UniRef90_A8RMZ2 | LQS NEI I K E MRFPSP |
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| UniRef90-M0T9Z1 | LANDEVLLSV |
| UniRef90-F4CUA7 | L R P GELI TEIVVVPR |
| UniRef90-Q9KBF1 | L EKGEFLVQVI |
| UniRef90_UPI0003F5FC94 | L EGGEWI RSVRI RKQK T |
| UniRef90-UPI0002D61ABD | L HP A ELLA HVR |
| UniRef90-H0RZ99 | L Q P A D L T S I R P P A G P |
| UniRef90-B4RG29 | L DP GELI T A V V L |
| UniRef90-X7FAG7 |  |
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| UniRef90_UPI000416A344 | L EP GECLVQl |
| UniRef90-UPI00035CC61C | LRS GELI TSLLTVPA |
| UniRef90-D1B830 | QS P LDL I V S FRV |
| UniRef90_K6DPQ6 | LK D G QFLVQl |
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| UniRef90-UPI0003B66ED9 | LL T A V L L P K |
| UniRef90-B4R1X4 |  |
| UniRef90-I2F3Y5 | LLP T GELIT HVMLLKR |
| UniRef90-F2GBB2 | LANDELI TH\| S I |
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| UniRef90-A3DLF7 |  |
| UniRef90_G1KTA7 | LS PMEVIVSVF |
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| UniRef90-R5WR98 | I L Q V I |
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| UniRef90_R1EFE6 | LIE P D ElVIV |

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UniRef90
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Unii effo-Toad
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NYVKAGSLSEAYELNQK K S
EYVRPQSLEEAYELVQNRKN
AEWRDGDAWLAGGTNLVDL MTWDSPVTLKELDKAKAKY PQAPVVMGNTSVGPD TLHSPTSLEKLSADFKSMPHVDKFVSTGTRLIDS TYRYAHSRADL S WHNPDSVQE LQNLLESHEDNTKLVVGNTGMG
$T N G V W$
WY HPKS

EYARPATLEEAWQLNQKRPN
$R V V_{V}^{G G}$
MLW
PTDTKEAWTLREKFHLQSCFVAGGTLLQTQ NYVKVKTLEEAYELNQAR NSRMMGG MMW SWYNPVSVKELQSLLKKGNNGARIVAGNTGMG TWHWPRSVEEYYKLVGSGKSGTKVVVGNTAAGVY
FEYLLRPKTLVELLRRALDR
GAVILAGGQTLLPE KWICATSFGHAFGLKSKTSKEVKWVVGGSKAGVY WYHPRSTQELHTLEDSNGNSVKIVASNTGAGVY
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M \(\square T\) VK
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NYTKPDTLEAAYE【NQKRAN AQPLAGGTTLIDLD
N Y YAKKP配VLGG M는 FPFRYLKATDEQ AAALRAAAEKLTIAAGCTDLLPS QYVKAQSGEEAYALLTKNRNN QTLGGTMWMCW ADWRDGDAWLAG
NYVKAKTPEEAYELNQAR SSRI MGG MMW EYAMPETLDEAYT\｜LKSRKGN Q $\downarrow$ GGCAWL ADWREGDTWLAGGTWLFST
PDNRQWYRVRTVDEVFELLAPLEPDAMLVAGNTGHGVY
 EWRDGDVWLAGGTVVFGE GGDT WYRPLKLKHLLDLKSRYPAAKLVVGNTEVGIE WYQPTGLSEAFSIKANLNSTVKLVNGNTGKGVF GDSQWYWPKTLTELFGALSQVANGYMLVAGNTAHGVY

YRAATCRADLAL SWHRP胃STELLKLNNSNGTREVFLGGGTWLYSE EWVTASSRADLTGLSASDA $V V A G G T W D F S Q$ SWHRPTSTKELQNILNNHANGVRIKVVTNNTGMG WYCPKSIKQYYKLVNSGESSVKVVVGNTSTGVY PRHRRDANAALKA GPGTRYLGGGTLVVRA RPTRREDVLKMKAQFAEAKLVVGNTELGVE NFSY保ANSATASQAAQQAGAMLLAGGTTLDDLL MK QFFRPATLTQATELKQRFQENAVWFAGGSKLNAN MK YFEHESAATFDEAVSLLKESPKGTVVMAGGSDLIGV

 MELVQPQSLEEAYETLTKRKNNGAVAGGGSAKLRM DFKSPETLDEAYELLMKSKMN KILGGCHFL GYQWYWPKT VE DFEALEEDSDEFMLVAGNTAHGVY SYVRPRSLDEAYTLLTQKKNAFVLGGG MAW QWFRPTTVDDLIVKTIQDNGKNYKMVFGNTGYGVY

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 VQPATLEEAYQALTSNRSNAVL GGCAFL


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 L E T H A G L N A Y H D A M K H S V E H l I GlV Q F R N C A T V G G S I F GR Y
 $V$ K DPE EKT QTY HALLKHLGTLA GS QI R N M
 MPAQRGWRAHPLLFQCATA LLLASFKVWNVATVGGNICRSF $\square E L H E G G N A Y T E G V R E S V R H V V G V Q L R N L A T V G G S V Y S R F$ A I E H F E CVVQVF R KIA E H MEKI AS TFIVRNSASVVGGNVVMA Q L E L H K G L A D Y N G A MR E S VR H I V GVQ FRNCATVGGS I F G R Y


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 AI EALRED GIF CKI A DHMEKVASPFVRNTASLGGNLDMAQ I AS N DTVVCA ETPALA QLAD QVGDPSVRNRGTGGGALASNH LRDARFIPA AL R E ALLGFVYSRHVRNQSTIGGEIAAR Q LID F LDD FKKA GSADAK HL R KVASSPHVRNA GSVGGNLIMA Q AI EVVFD GTPVFRKI S SHLLSKVASPFVRNTATVGGNLLMAQ A I E H T E E D MVYYK KIA D H M E K V A S GFI Q N S A S L G G N LVVMA Q L ELH P GLLK A A FGMMKACTR HIVVGVQFRNCATVGGGS I F G R F DSRDPVQTEGMVALRDHLKVVANHQVRNEASVAGNIHMAT A DEALKSSNHFCKIAVHMEKIASEFVRNTASIGGNLMMAQ







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## L EVHPAAANH

L E AVQ F

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|  |  |
| UniRef90 X5QHV3 | GPS |
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| UniRer90-L8KKL | AGPM\\|SLCAGLDGVATILGPGGSRTVPVADFVTGDMKNC |
| UniRef90-H3ER88 | PTSDFCTTFMALNWRVRLLNLSTSRTLSADQFFTSANKTA |
| UniRef90-L7KKX2 | A SMVSLASGLDGSALVWRPDGTYTVA |
| UniRef90-C7H5L7 | GFSDVLTMFLALNASVELYKGG |
| UniRef90-V4UD81 | GFSDVLTMFLAMNSYVELYKGG CEKIPMKEFAQMKKDRD |
| UniRef90-G2lLU0 | HPSDMCVALLMLDAVIHLSGPDGERSVPLAGFHLLPDETV |
| UniRef90-K4A4Z2 | FASDIIATILLAAGSTVTILVASKRLCITLEEFLQQP P P |
| UniRef90-x5LAR3 | PAGAMLSLATTLDGHLTVWRADGEYRLPVAEFVTGAGANV |
| UniRef90-UP1000303F6 | SVGTFAPLMVALDATYEIWNLKGERRVAAKEFQVGYRQTI |
|  | ATLDGTLELRRVGSSRRL |
| UniRef90-A0AC | DMNPLLTAMGAKVENENSVSRRUVPLKEFFVSYRRVA |
| UniRef90-A0PW13 | S DLAVALVALDAVVLTRQVAGHRRFGLAELYR |
| UniRef90-L7ZZM1 | GFGDAIPALLTMDAEVSYFDGKT ${ }^{\text {SKTEKLDHWL }}$ |
| UniRef90-D4M2V0 | GFSDVLTALLALDDFVELYNGTVR |
| UniRef90_B9MY | CDIATLLLAAGSFVNIITDTMHEKLSLEDFLE |
| UniRef90 K3ZQ | DQDİAT LLLAAGSSLRLQVSSERLTUTLEEFLQMPYKT |
| UniRef90-P64558 | EESVLLPVLLALDAELVFGNG ETLS |
| ef9-E2F408 |  |
| U2F400 |  |
| UniRef90- G5IEG2 | GFSDVMTAMMALD TYVELYRGGN |
| UniRef90-C9YFE4 | SVVLVLGALAAKVKVSWKSGS |
| UniRef90-UPIOO02B4B237 | SDVSTIILLAVGSM\| SIS SGS SEEVIMLDEF |
| UniRer90- UPI0004660E53 | GDFAQAL ALDAMVENGRSGRNL |
| UniRef90-R50TC6 | GFSDVLTLFMALDCEVELYP TGRVSIKKFANMKFTKD |
| UniRef90-A1TFV1 | PAGAMISLASALDGTVTVWSADGSYVVP】GEFVTGAGSNV |
| UniRef90 UPIOOO37AE |  |
| UniRef90 U5WVX6 | GTSRHCCA |
|  | DVLT AFLCLLDCD |
| UniRef90-D6XY38 | GSGDSI PALLASGASV |
|  | GPVISLCAGLDGVAVLAPGGGSRTVP |
| UniRef90-R5R036 | GFSDFLTPLLALLDTSVVLYKRG S SIS SLETFMTMPYEK |
| UniRef90-D7BR85 | PAGPMITLTVALEATYELWAPDGSRTVDALDFVTGDNQNT |
| 5JE | S DLFVLFEA |
| UniRet90-UPIO00359E1C2 | FASDVETMFETVGAKLINI GSSDGVQQYTLLDFLKLDMK |
| Un | GFSDVLTMFLALDSWVELYHGG |
| UniReef90-C6WMP2 | , |
| 232 |  |


| UniRef90_UPI00042C59A5 | L\|EPEG|I S ESAY Y|! |
| :---: | :---: |
| UniRef90_UPI00042B44D5 | LD S K T L L S $\square$ K I P CWES |
| UniRef90-G6YFL6 |  |
| UniRef90-X5QHV3 | LG H G E M |
| UniRef90-R5TVM2 | L VR\I I K |
| UniRef90-R7GP22 | L D I L V R V I V K K T P |
| UniRef90_W1K3U7 |  |
| UniRef90_L8TKI5 | $\square \mathrm{A} P \mathrm{GE}$ L L R S $\square \mathrm{H}$ LP A |
| UniRef90_S9WLW9 |  |
| UniRef90_H3ER88 | L E A D E I I T V L L VPV V P |
| UniRef90_L7KKX2 | LA E GEVLRAI DI P |
| UniRef90-C7H5L7 | L L V R V IV P K |
| UniRef90_V4UD81 | LD CRSVLLSI EI P |
| UniRef90_R6WF81 | I L V R R I IV K K V/P |
| UniRef90_G2ILU0 | LK P GELI T G V ELL P P P |
| UniRef90-K4A4Z2 | CDPRTLLLSIVVP |
| UniRef90-X5LAR3 | LAP D DVVRSVHLPA |
| UniRef90_UPI000303F6BA | L Q P Q EVLRRVLI P V |
| UniRef90_H9UL67 | L D E G E L L T R I RIP |
| UniRef90-A0A024UAY3 | LA P T EVI VRVLI P L |
| UniRef90_S6CP51 | I L T HVYYI K K T P |
| UniRef90-A0PW13 | L H P GEL L VA I EII P V G P |
| UniRef90_L7ZZM1 | RQNKELLTGVILP |
| UniRef90-D4M2V0 | KA DKDILVSVIV |
| UniRef90-B9MYM8 | LD S E S L L T S V K I P K |
| UniRef90_K3ZQ07 | $L \mathrm{~L}$ L S $\triangle \mathrm{Y} \\| \mathrm{P}$ R |
| UniRef90_S9Q907 |  |
| UniRef90-P64558 | D R L LTE I IITK DP |
| UniRef90-D8RLG8 | A Y P S SLLTM I F P P L |
| UniRef90-F2E408 | CDAK TILLSI FVVP |
| UniRef90_UPI00023B288B | LD S K S L I S I K IP |
| UniRef90_G5IEG2 |  |
| UniRef90_C9YFE4 | LPVD A I Y E S I VIP |
| UniRef90-UPI0002B4B237 | L G P K CVLL S V K I P |
| UniRef90-H5YFC7 | L R P G EL I S A F S V |
| UniRef90-UPI0004660E53 | E EI I V |
| UniRef90_R5QTC6 | I L T K V I I K A P T |
| UniRef90-A1TFV1 | LRS G DVLR S L W L P A |
| UniRef90-UPI00037AE910 |  |
| UniRef90_U5WVX6 | LE P GELIVG TEVP LG P |
| UniRef90_R7G7E9 | 1 I T HVIV |
| UniRef90_D6XY38 | 1 I VD I A I P V |
| UniRef90_UPI000378371C | LAP GELL R S V H L P A |
| UniRef90_R5R036 |  |
| UniRef90_D4J7X1 | E I I E K V I K K |
| UniRef90-D7BR85 | LT P G E I L R R I DI P A |
| UniRef90_W5JE76 | LR K R I I L N I T L P A |
| UniRef90_UPI000359E1C2 | G K V I V S VELPKYS T |
| UniRef90-R6SDN7 | 1 L VRV I V K K |
| UniRef90_C6WMP2 | LG R G S YL R S I TVVP A |
| UniRef90-A0A023XLM4 | LTP G D L I R Q I D I P |
| UniRef90-E5D272 |  |
| UniRef90_I1FK63 |  |
| UniRef90_A5CSA3 | $\square R ~ P ~ G ~ D V L \sqrt{\text { R S I HVPPA }}$ |
| UniRef90_Q9VF52 |  |
| UniRef90-C8XED2 | LR P G EVLR A V D L P |
| UniRef90_V7B6R9 | L G L E S V L L S I K I P |
| UniRef90-H0R463 | L D S G DVLRA I RLPA |
| UniRef90-G7KHF8 | L S Le S I L L S I Kil P S Le T |
| UniRef90-Q69R21 | L D H S T L L L S I Fil P |
| UniRef90-W9B5K5 | L A A G DVVR SVFLPA |
| UniRef90-X5XR15 | R A $\quad$ V V T S V F A L P |
| UniRef90- Q58198 |  |
| UniRef90-A0QRZ4 | LA A A D V L R S VH\P A |
| UniRef90-N6V1K5 |  |
| UniRef90-W1JPN3 | L M P G D L I R Q $\square$ D $\square$ P |
| UniRef90_UPI000464EA6B |  |
| UniRef90-S5ZM11 | R S S S Y V IT K I R I P |
| UniRef90_J7U8Q7 | D D RLI THLI L Q D P |
| UniRef90-R5F1W6 |  |
| UniRef90-T1DD03 |  |
| UniRef90-S8E7W0 |  |
| UniRef90-T0E017 | I L T K I Y I K K |
| UniRef90-R6JVA4 | I IVVS I IVK K K P |
| UniRef90_UPI00036C102C | LP P G H L V TR I I L P |
| UniRef90_UPI0003624635 | I L VKL Y ${ }^{\text {V K K }}$ |
| UniRef90-B2S229 | R HRSHVI TRIRL P |
| UniRef90_D6S7Z6 | 1 L VEVII P |
| UniRef90_C5X3L5 | $\square \mathrm{D}$ A T T L L L S Fi P |
| UniRef90_B3M2Y9 | V L K A F HL P A Y P |
| UniRef90-E1R1M4 | $F \quad \mathrm{LIEKOVI}$ |
| UniRef90-R5NU75 | $R \quad D V \mathcal{V}$ R L I V K K T P |
| UniRef90-K1Q8Q7 |  |
| UniRef90-M2CJN8 | REE K F $\square$ I S R $\square$ R $\square$ P |
| UniRef90-T0Q6S7 | V I L V A M T L P |
| UniRef90-D8KXX2 | LS LIE S V L L S I K I P |
| UniRef90-X6GJ02 | H Al V T S V GFS LP |
| UniRef90_W0FMC0 | D K L V S $\mathrm{T}^{\text {V }}$ |
| UniRef90-F7NJ07 | I L V R I 1 Y 1 |
| UniRef90_U4WN13 | L L P HEI L L Q I TV |
| UniRef90-Q7Q6W3 UniRef90_A0A034VGH7 |  |






lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm

| UniRef90_UPIO004728C0CUniRef90_T1P8E3UniRef90_A0A026WM97UniRef90_V9IH93UniRef90_F2U7X3UniRef90_UPIO00464C28AUniRef90_R5SNN1UniRef90_C6DXM7UniRef90_Q177D6UniRef90_B4KB72UniRef90_K4AYL0UniRef90_T3GK16UniRef90_B3M2Y7UniRef90_G6D326UniRef90_UPIO0034C105BUniRef90_D7EK62UniRe90_A7UTT2UniRef90_UPI0004757C58UniRef90_A7RU77 |  |
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GC TLAA $\begin{array}{r}130 \\ \hline\end{array}$ 140 150

lupas_21
lupas_14
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jnet
conf
sol25
sol5
sol0
jhmm
jpssm


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UniRef90 UPI0004728C0C
UniRef90-T1P8E3
UniRef90-A0A026WM97
UniRef90-V9IH93
UniRef90- F2U7X3
UniRef90_UPI000464C28A
UniRef90-R5SNN1
UniRef90-C6DXM7
UniRef90 Q177D6
UniRef90_B4KB72
UniRef90-K4AYLO
UniRef90-T3GK16
UniRef90-B3M2Y7
UniRef90_G6D326
UniRef90-UPIO0034C105B
UniRef90 D7EK62
UniRef90_A7UTT2
UniRef90_UPI0004757C58
UniRef90_A7RU77
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    A QKK\VIRS\S\PPA
RTT
HGK\LLLNVLLPPLST
HGK\LLLNNVLL
\squareCP\Q|LVGLM\P\PP S
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lupas 21
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lupas 21
lupas_14
lupas_14
lupas_28
lupas_28
jnet
jnet
conf
conf
777744889888547849
777744889888547849
sol25
sol25
sol5
sol5
sol0
jhmm
jpssm

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