QUERY

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 NTRNRTAAAALEGCVEGVTQIATHGRVDSELFDACD $A K N \frac{Y}{Y} Q D\|A\| A Y A A V C$

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Q N QVMP LA AMCQ $\square$ SK LVVQKCARYGTFNENEVEGGL



F E D R II A A LAA A M A Q A V
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$R$ R T L L
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$N Q V M A D A A M C Q D T K A V Q K V A C T G G S D T D Y E M Q Q Q L$
N QI M A L A A MC QVA I QVQK L A K Y G Q A Q Q S D I E P L L


E ERVLALA GLVGATTLAQQLANDGRCDEVAMAGSVV T DRDHALILAGVFQAARLTFELARYGRTEEDALEASII


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$L M E R C M A F A G I L Q A D T Q V Q S L A R L G E C D D A E L D S A C S$
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 A D NVN R I $P D N M E K I$ RALLLA GI RSSVLWRQMGGSRLQLLEFRAAKIKA P HVANQVRAILMAGI RASMLWRQLGGKRWHLVFKRKALLK SENAARVRALLLAGI RSTMLWRQVGGKRWHMLFFRSRLKP


 P DVVN K I R S I L LA GI R S VI L WR QCGGS R WKFG FYRK K I QN
 P D NVVNKV RALLLCGI RAAVLWRQKGGNRWQLMFASNKLL K RHMPE QVRTI L L S G V R FALL WHQQ G GRR WKLVLGRS GIRR LR DQE KI R CLLEFSGI RA IVLWKQYGGNQLQLIVFRYSIIK
 P D NVVNKVRALLLSGI RAAVLWRQKGGRRWQFLFQSAKIMA



 S S I Q N R $\quad$ R A L L L A G I R A A V L WR QL G G K R R H F QDNQNRIRALLLAGI RSAMLWRQTGGSRWQ\|LFGRRRLEG

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| UniRef90-G2DA96 | A A HQLLDSIA |
| UniRef90-A0YBV8 | MARDLLQDL |
| UniRef90-B4SIN3 |  |
| UniRef90_Q5QZ03 | T A Q Q L L |

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NRDQRQADALAGVFQAAVVVDELARTGRYDSRAWETLI NQRHKAMALAGIFQATALVQQLARTGELSRTDLDCLM YHD IVIALAGACQSASLVPELSHNGTTEPKDY】TA! RFEDQVIALAGVAQSARLVDRIAVNGQSPELFMNASI

 AYTFHDKAIALSGUYQAAQLVFEGATYGQAPSHAYQATV $A K N Y Y D \square T \square A \square A G \square C Q S A R L V Q Q \square A H Q G H C D A D A \square H V S$

QQRTLALAAVFQAAQLADDTADRGDCDPRAFEALI AKNYYEllTLALAGVCQAAHLVQQLAHQGHCNNAALQMSL SNPLKEQTLALAGVAQAARIVDQLSRTGTYPVEYLEASL SKLLYNQVLPLSGVY DAA QMI QEI ARSGHDSDTHLEMML PLDD NDQQRVVALAGMAQAA IIVQQVARTGRVHHEAVDTDI
HS $\square$ Q
ERSLALAGDFQSAALVRDLARTGKVEKLAFDTSII
H
EQTLAAAGMC
alvill
SLETQUYALAGLCQAAKLVRSKVARSTOANPAEVDDCL
RFEEQALAAGAAMQALGLVRELATAGRLDDAQAEPLM
TDHDRVI ALAGVVQAADLVRAIAQRGQANPEDVEACL
KK■YS
NRLYPLCALAAMTAH
ERTTALAGLYQAVNCVDR:A
TTRNRTLALAALFQNIDGVMQIARKGNVDEDLYKSAL
$R N Q V \square A L S A V M Q A A \square L V D R L A T T G S I D Q N E V R N P L L$
$S K P T Y Q Q T Q A L A A I E Q S A G Q V Y K L A Y T G E S D A D K T K F S M$
LREQTLALASLLQTTTLVDQLASTGTCDSRGNKVSL $R A L A L A A L V Q A L A Q V R R V A D T G Q A E E S V L A T A M$
$N P W Q Q R V I A L A A \prod A Q S \prod A A V K Q L A D R G Q V G N E Q R D A L L$ DRVLALAGLGQALRQVRRTAETGQADARVLATAL $\square R E Q T I A L A G V A Q A A R I$
$R Q Q V L A L A A V V Q G T V L V D Q L A R T G Q A E P Q A L E A S$

TTEDQTIAAAGVEQASQLTHMTAMMGLNNEQLIKASLL
PLAQRTLALAALTQAVYLVDCIARKGVMDAEDCKVLM
EQVLALAGMVQALAQVRQVARYGHSDPRRTEPCL
NFEEQVI ALA GVAQA ARMVDQVAKTGTFPSAFFEASL
ADRRRDRTLALAGII RSALLVQNIARNGEQPGPLLATCI

$\square A G G A V F E C A V M A D Q I A T R G D A D P A V L E S L F$
TEQQLLSLAVVMQAALVVERTADYGSAPMREHQALL
HDDNERTLALAGVFQAARLVRDLARHGRADEQAMAASI


VRRIADTGESNEEDLETC QEQADTLLAVIMQSVQCIREVARTGDTETSRYEPLI
 ПRQRA TALLAADTQAVYLVDSDARKGLA DAEDCRTLM NDLRGQTI GLAGAMQSAILVDRFAKDHEYDTEYATGLI

RDKTLALAAVFQAAGLVNDLARRGQCDSEAEAFLL QVMALGAI FQSAALADRVASTGQCPEDQARVLI $P \square H R R U V A L S A L A H V A L M V N G V A R A G R C D A D V A K R M I$ ASPEQERTEALGAVFQALGEVRSI AERGQHDATRTETCL

QNRLLALAGVFQAAQLTHMTA AMTGDSGNFYFEQLI QT $\square A \square A S \square F Q S S A L V H Q D A V S G K C D S H T N K A S L$

VRRI A ETGHSEVATVRTAM
ASREMDQVLALAG\|LQALEQVRAIAAHGHADPRRMEPCL
REQTLALAAMLQAVTLVDQVARSGQSDPAATEASL
QNRELA
SASFDDRVLALGALAQSLQQVRSTAETGQSRSDAAEAVL
LAT T GQCPERDLSALL
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KNYHDVVLALAGVCQSAKLVHQLATESRADSDFETAL SLKQQTLCFAAICQAVAQVSKIAHTGTWDEEEARIVV

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ASILIKTDSDS|VITDIIYGGLSGGLKLG LIEQLHEQMTG YKI

 KSLFEFEASNTAEIFQG LGGVRLGLQTLEAAMGKSSAPE ESVLKTNANKAEDIYKNHK YLHTGFKVLSEQLSGN K
 DSLYCDNPEQTLDVFGGDVANGQGGVETEENQMRGQTASN
 NSVIDLNPGSTLGVFGGSETNLRLGLETLGGVENASSRQG EGVMALDAETFDATYYRPGLLRDGMS LLLNSLNKDSAGG HSLFSFDAEDVEGVFGNDQGVKGGLQNLAAGLAHGDDET ETILNLNPTSYADLFKSSD HFKPGLKTLKDALJAR HGKG QSIVTMDVKSVEHVYGGTLQGLRLGLQALVDLLTATKDKQ ASVANLSPAEPLDVYGKDVANLQAGYQCLVDQLGDNQRK NSLLKLDAASSDEIYGDMRQNLRSGLQLLEKQLGNPS

 QSTLNLTPDTPLDVYGGSLDHLKPGSKLITEMLGRGGNRK YSUVVTDPKRTED YGGLPHNLSLGLKTLSDLIEKKRDSM HSLFQVDAENVESVFGEPGVLANGARQLVAQLTGQP E MSLLVDDAPTIESLYGG VSEMRVGLRALNHQLGGATNAA
 ATLLNQNPSSLKDLYGAKENLEEGFSTMNQFMQNKAAEA QSIVVTNSTVEEVFVSPKDLSTGLNALKVVLGKKSKSM DSVFRIDAESAAAVYGGVQA

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 $N \begin{aligned} & L \\ & L \\ & \text { R R A } \\ & N\end{aligned}$

- A N
$R$
$G$ ASQG

RSVLVMDTDAVSDПYPQQRS TTPG DTWDEGSMKGDDSTP EGAMNLAAPASYADVFPSVTA LRPGLVLLRRAGSGSQKTP
 DSVFRDDAESPEAVYGGMGDLRPGLVLLRDYFG NRN RSVLALDSKDSLRALGDUDS LERSGLALLCPLLQRGPGNA PSLLRTNAADDADYYGEPHDPLTRGRDAFLRVENGKNDQQ DSVFRVDAASPEAVYGAA SNVAPGLRLLHNYF HNQG RGLLGTMDGGVADLYGGREA LYPGLRLLVEQLSAPRE NSLFDFDGGNTEK FGGT RTLERGURALRDLLSGNDYGE

$P S L L R Q N Q A R$ LEDYF LDE $\quad A P F E K G R A L L V N F L I N G$


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VNPEQARYSAS|LV|F|L|EKQLIS GRKDM|LIKT|IRNG|V|EKAKLQS AGS QVMRYMLSI QLLAANRASKDSALMNQLAERLDRIQQQA
 LS N TL R Y V F GIL HLERKKNA DATMQA TVRSRLE HTAFKA



L Y S NLTTRY

 AS AD LTTRYTLSLMILE SGTMMRYFLSILHLEGKFAARGDLQQVVHNRLQHSSYKA
 V S



K
$Q$
$Q$
Q
Q
Q Q N R N L I N Y VL S M T L Q A K L A S N K E ML D T L G K R V V I R Q Q A RNLELLTRYAVQVI KLERELAKRPDLLADLGDGI REAESKR
 $\mathrm{K} \square$ QHKE I I S

RNTVL Y Y ALALLNL $R$ S A Q V $V$ N Y Y $V$ V I S M I M L K DVDI TRYII ATLAL

SHVD
ERRAVMRYCLGVLHL
 SDTEI A K A $\qquad$ A D P $\qquad$ L P RLA A L
$N \square A M G V Y, R G L \frac{L}{L}$
 PHMRPLN TYRAVMRYALAL NL A A R P L S S Y G L A A L L N

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UniRef90-UPIO0037C4776
UniRef90-X2H514 UniRef90-D2TYW0 UniRef90-UPI0003A2B92E UniRef90_G5LPZ2 UniRef90-UTG4M2 UniRef90_U3U2E5 UniRef90-A0Z1Z3 UniRef90_UPI00036985E2 UniRef90-A4BDP2 UniRef90-A3WPJ4 UniRef90-A8PLS9 UniRef90-F7NXH4 UniRef90_UPI00035F8608 UniRef90_W6MA36 UniRef90-J1Y8A4 UniRef90-Q0A8N6
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 P HMAERVRAVLLSGVRFSLLWRQQGGHRWQULLTRKRIRQQ EETANKVRAVFLAGVRSALLWRQLGGSRTDFFLRKRALVV



 SSIQQAKVRALLFTGIDRAVLWQQIGGNRLQLMFSRQRLIT
$P Q V Q A K V R A S L L A G \square R A A V L W H Q V G G G R D Q L M F S R H R L T T$ ENKAARIRALFLAGVRAAFLWHQFGGRRWHLLFQRKPILS
S QVQSKVRSC
EGNAEMI RALLLCGVRSAFLWRQLGGRRWKLTFQRGRDRT PRNQYLI RTLLLCAVRSAVLWRQMGGKRRHLLFSRGKLAK E A NAEKV RTLLLEGGIVCALLWRQAGGRRWQFMLQRQKIQN AETDNRI RAALLAGVRSAALWRQLQGTRWQLFLMRHTFIR PLVQHKVRALLLAAI RAVVLWRQSGGSRLHFIFKRKALL N $K M V Q S R V R A L L M A A I R S A V L W R Q L G G K R R N I I ~ F Q R Q K Y L Q Q$

 PENANRI RALLLAGI RAAMLWRQSGGG

## IA IQQEKI RCLL FS GI R S VVL WKQFEGNEFK IIG FR

 $G N N P A K V R A L L L G G R R A A M L Y R Q L G G G R L A L L F Q R S R Q F K$ A D T A N H I R A L L L A G I R S V S L WK S Q G GK T WH L L L N K K K T L R A D N A A K I R A L L L A GIIR A A ML WH QVGGGR R WQL L F F K H R V RP






 P G V V A E l R A L L L A A L R S A V L WR Q L G G S V W D F F







 E D K A A R I R A L F L A G V R A A F L WH Q L G G R R WH L L F Q R K R L l D K H T T N H I R A L L L A GII R A V S L WK S Q G GK T WH L L F N K K K I L N A S N A D K I $R$ R A L L L A G I R A A V L WR Q M G GK R WH F F F T A R K R L L Q


 $P A L Q Q Q Q I R A L L L A G L R S A V L W R Q L G G R R R Q F L F S R Q R M V K$
 PGVVA EVVRAVLLASVRSAVLWRQLGGSYWDILLRRRAMVA A GVVVA E I R A MLL LA A L R SA V L WR QL NG NLLDD F L L T K R A MAA

 E E D T V RI R A L L L A G V R A A V L WR QA G G S V F T T F WE R S A L C L
 P GMA ERVVRAI LLAAGVRAAWLWHRLGGRRWHLVATRGQQLG $E D N A A A R A R A L F L A G V R A A F L W H Q A G G$



 TET DNRVVRTLLLCGVRAASLWRAYGGNRWNLLEARRKLER

 $P A N A A R I R A L L L A A I R A A Y L W R Q A G G N R L S L A F N R N R L F T$






| UniRef90 UPIO0037BEB11 | $\mathrm{E} \text { \ENLLLKQ } \prod^{210}$ |
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| UniRef90 E1VQD4 4 |  |
| UniRef90-UPIO00467CB7B | TAEELDT |
| UniRef90-F3L100 | TAKT L ShLQ |
| UniRef90-C7RB73 | TANAYLA |
| UniRef90-CH8Z048 | AARDYL |
| UniRef90-S3N | D $\dagger$ RE LAQMQYQ |
| UniRef90 UPIOOO37C4776 | $A \square Q A \square_{1}$ |
| UniRef90-X2H514 | $\begin{aligned} & \text { A AQQLDQTDDT } \\ & \text { QAKEILAH } \end{aligned}$ |
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| UniRef90-G5LPZ2 | QAKQ |
| AHपTPEL |  |
| UniRef90-U7G4M2 | Q \E SI |
| UniRef90 U3U2 |  |
| UniRef90-A0Z1Z3 |  |
| UniRef90_UPIOOO36985E2 | EARQILT |
| UniRef90-A4BDP2 | QAQHLLADTS |
| UniRef90-A3WPJ4 | AVNELLS |
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| UniRef90 UPIOOO47B2790 | A E E L L |
| UniRee90-s6H0 |  |
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| UniRef90-12J | QTKQL |
| UniRet90-H8GIQ1 | ELENLL |
| UniRef90-V2U9M4 | El QA LAQMQYEL |
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| UniRet90-Low9J2 |  |
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| niRef90-K0CF |  |
| UniRet90-UPIOOO4720590 | Q T ETL |
| UniRef90_S6CFV9 | TARSLL |
| UniRet90-UPIOOO3B66060 | TARSLL |
| UniRef90-UPIO00479A383 | A VDa Hi |
| UniRef90-K2LAZ4 | VAQSMI |
| UniRef90-A1WWW0 | A ARDL |
| UniRef90_U1KQ34 | Q |
| UniRef90-A0AO21W7Z2 | Stile |
| Uniref90-B2197 | A ERA |
| UniRef90- QOFO81 | A M A |
| UniRef90-L8XZM3 |  |
| UniRef90-F9ZQC5 | ESRDLLAHLSS |
| UniRef90-85JWU9 | CAGO |
| UniRef90-A0A011TDU2 | QAQQL -1. |
| UniRef90 UPIO003B39315 | E $\square$ RA】 |
| UniRef90-K2FI2 |  |
| UniRef99- U100037133FA | S Le ${ }^{\text {a }}$ |
| UniRef90-UPI00047A1730 | A |
| UniRef90 B7J7A0 |  |
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| UniRef90-G9ZC17 | ALRGL |
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| UniRet90_UP10003A8E172 | A 1 |
| UniRef90_UPP00036F5B8B | RAREAL |
| UniRef90-UP10003B3FOAD | EARALLSt ${ }_{\text {d }}$ |
|  | Y ${ }^{\text {A }}$ |
| UniRef90-UPI0004670310 | SLQRLL |
| UniRef90-S6V2H9 | EL ${ }_{\text {P }}$ |
| UniRef90_A5EVB5 | A |
| UniRef90_UP1000372D696 |  |
| niRef90_ANNOQ0 niRef90 UPIOOO25563E6 |  |
| niRef90_UPIO0025563E6 | C A Q N Y L Q Q I |

 HTLRDQALSLAGVAQFALYAHELAADGRDTPQRDGDAK EERT LA $\square A G \square F Q A \square A \square V R A L A T Q G Q A D S S A Y A A S \square$ AKNYYD $\square$ T $L$ A $\square S G \square C Q S A R L V Q Q L A H Q G H C D A D A L H V S L$ ARPDAQETMALAALFQADSEVRGIAEHGRRDSRRDRPCL




UniRef90 E8LHH9 UniRef90_U2FUX UniRef90-V6PCJ5 UniRef90 ${ }^{-}$T1APC3 UniRef90-UPI000262B0AE UniRef90_G9W061
UniRef90 ${ }^{-}$C8NAE7
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UniRef90_TOZEG5
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lupas_14 lupas_28
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jhmm
jpssm

 A DGMIT RMALTVLRIERRLMADGPRLEHLQQGLRDAQRQA QDEVLPRDAMAVIQLERRFAGDAETDAKVDAGLARDAPLL LN A ELTRYTLSLMVLERKLSSAKGALNTLGDRIRGA NDEQNLRYSAQLLHVERRLAKKAALMAVLKERLHAAERQA QNLQLTRYLVAMMQLERRLARDKQRLQALDSDLDRARSQA



C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C


UniRef90 E8LHH9 UniRef90_U2FUX1 UniRef90-V6PCJ5 UniRef90 ${ }^{-}$T1APC3 UniRef90 UPIO00262B0AE UniRef90-G9W061
UniRef90 C8NAE7
UniRef90 R4VP43
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UniRef90_T0ZEG5
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C C C C C C


UniRef90 E8LHH9 UniRef90_U2FUX1

ID NQE LI R A|LLLAA A EADQARARTQLMAAVRCAIMWRQCGGGFDSLFFRRKALLK
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PDMVNRDRALLLTGVRAAALWRAYGGNRWQLLFARGSFDE A GNAAMI RSLLLSAI RAAGLWRANGGGRDRLVLQRRAVVE EK K QQRIRALLLAVVRAVILWRQLGGS


|  | 210 |
| :---: | :---: |
| UniRef90_E8LHH9 | Y A R Q |
| UniRef90-U2FUX1 | SLENT |
| UniRef90_V6PCJ5 | QAKQILA HLLTPEL |
| UniRef90_T1APC3 | LARGLQS R A |
| UniRef90-UPI000262B0AE | A V D R A L R |
| UniRef90_G9W061 |  |
| UniRef90-C8NAE7 | A M T T L |
| UniRef90-R4VP43 | S A R A QL |
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| jpssm |  |

