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UniRef90_Q2SLT5

40 $F H S A R Q V E A L N Q S L A D L S G D I S V S F E F F P P N S E G M E N T L W$

 I S Q K L A QA N GK P T F S S Y A K E $\square$ D HL L H TLA D L N GN $\square$ NAS FEFFFPAK NEKMEMLL W

 S G
S Y A Q G $\ E S L N Q S L S E L S G B$ S
F H Y A Q G E SLNQSLS ELS


$\mathrm{K} \square \mathrm{RD} \mathrm{D}$ FRE
SGEKSFSFEF
S GRPSF
$G R P L F$ G/V
S P LF A NLD GDVGVSFEFFFPPK SEKMEA N W VKEKLAEAS GRPSIVFEFFPPKTA Q GVQNLY

LA N A A H R P V V V S F E F F F P P P K T D $\mathrm{K} \square \mathrm{GE}$ D TA

## A

 $\square$ S EKLAEAA GRP GH T LER WA Q GER $\_$AP LPA ARPAI
A S R T A T $\square$ A D L L A E G G E P M F S


1 S
MREAQRALEA PLFS GLPGD DDVS

| K | I | I | D | K |
| :--- | :--- | :--- | :--- | :--- |
| K | I | N Q K |  |  |
| I | S | D | T | I | N D

$\begin{gathered}\text { SQKKHPRVVFSF } \\
\text { KESNVPFYSF }\end{gathered}$
$\mathrm{K} \| \mathrm{S}$ D T I N
FKTQGKTFYS

| $\boxed{L} P$ | $G$ | $D$ | $l$ | $D$ | $V$ | $S$ |
| ---: | ---: | :--- | :--- | :--- | :--- | :--- |
|  | $F$ |  |  |  |  |  |
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NHRLSRAARRPRVSF
$\begin{array}{rl}E D R G R P & D \\
G R & P \\
R & S \\
S & F\end{array}$
T $\square$ R E L I S
$\begin{aligned} & \text { S GRRS } \\
& A G D L N\end{aligned}$
K T NL
$\mathrm{K} \mathrm{V} \mathrm{V} \mathrm{DK} \square \mathrm{NK}$
$\begin{aligned} & \text { A A G E } \square \text { S Y S F } \\
& \text { N E GRTYWS }\end{aligned}$
A R K P D GLLSVS F E F F F P P K T T D A M E S T L
LSFEFFPPKTQEGVEKLR
MTEVVMPAMPTRPAISSFEFFPPKTEEMERTLW

> | $\mathrm{D} P \mathrm{C}$ |
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| $\mathrm{G} \quad \square \mathrm{E}$ |
| P | A A GDRSFSFEFMPPRGEVGERKLWW A A GK P T L S F E VFF P P K TVVDA Y E P V E E K $\square$ S A S F E FFP P K N QA ME E T L W

FFHADQHEVLNQRLCELDGQLNDSFEFFPPRFNEDEES L W

$$
\begin{aligned}
& \text { KKGPVFS F EFFPPRDDA QEQQL W }
\end{aligned}
$$

SRTPAIRDLLA NGTRSFSF
RRNLAEAA GERSYSSFEFFPPPKNEAGERT$L$

> K RVFSVEFFP PKDEAGAERLAA
> M Q D S D N N T S
> S Q T Q F K R R F S F E F F P P K T P E G M E K L |

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UniRef90-D9QK43 UniRef90-U3U6W2 UniRef90 FOW2Q3 UniRef90-A8IAY6 UniRef90_C7QA95 UniRef90_UPIO003B37BBE UniRef90-HOUR05
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UniRef90 Q2SLT5
 QSI ERLKVLEPKFVSVTYGANSGTRDRTHKVIKDIKERTG QSI ERLSVLKPKFVSVTYGANSGERDRTHSVIKSIGEKTG SSVQRLAPLAPKFVSVTYGANSGVRDRTHNVIERIQQQTD DRMDRMHDLGPAFI DI TWGAGGRHSQLTCEMVNAAQSHYG DSDHRLAPLKPKFVSVTYGANSGERKRTHSUVKRQQQDTG ASIHRLAPLSPSFVSVTYGAGGSTRERTHATVARIVKETD NSVHRLKTLQPKFVSVTYGANSGERDRTHLII KEI KEQTG NSIERLKVLKPQFVSVTYGANASTRDRTHKVIQDUVTQTD ERLDRMASFEPEWI DVTWGAGGSTAQKTDEI CATAQKYCG K S V ERLAPLKPAYMSVTYGANSGERDRTHDVVKRIQNETG HSIERLAPLKPRFVSVTYGANSGVRDRTHKVIERIHNETQ TRMDRMASLEPDFCDMTWGAGGSSAQLT DDISANAQKLSG DALDRDEAVSPTFVSVTYGAGGSSREGTVRNTERDANETT

 DRMDRMHGLGPAFIDITWGAGGRLSDLT CEMVNVAQSVYG E AVQRDEPLSPEFVSVTYGAGGGTRDRTHEVVSRDAHETS ETVTRLAPLSPAFVSVTYGAGGSTRERTARTVKRILDETA QSIRRLAPLAPSFVSVTHGAGGSTRERTHATVCRIQDETG
 ETI NRLAPLDPKFVSVTYGAGGSTRERTHSTITRILKETA QTLRELQRLRPDFVSVTYGANGSNRDRTDRITRDI ERETG TCVKRLAPLAPSFVSVTYGAGGSTRERTHDTVTAI TRDMG ASVEKLAPLDPAFVSVTYGAGGSTRERTHRTVSRLVQETG ESVVKRLERLQPHFVSVTYGAGGSTRERTHATVARLARETGR A SIETLSPLGPRFVSVTYGAGGTTRERTHATVAKDARETP DRMDRMHGFGPQFIDDTWGAGGRHSKLTCEMVKVAQSVYG SSVKTLEPLDPRFVSVTYGAGGSTRERTHDAVRRIVAETG $G T R E R L E R L N P A Y F S V T F G A G G S T Q D R T F E T V D D I Q R N S T$
$D R L G R M L L F E P L F D D V T V G G A G S T S A L T L E D A E K A Q N V C G$ SRI DRMASLQPAAYIDITWGAGGSTAKRTLEMSKTDQKYFG SAA EELKPLDPHFVSVTYGAGGSTRERTHKTVARDDAEAG E S I N R LAP L GPSFMSVVTYGAGGSTRERTHQTVARLAKEAGV RSVERLAPLDPTFMSVTYGAGGSTRERTHATVARMVTDTV DAAVRKLAETKNPRFVSVTYGAAGGSTRRDRTHRTVARMVTDTV QAA TRRLAPLDPAFVSVTYGAGGSTRERTHRTVKRI LDETS
 STIQRLETLSPSFVSVTYGAGGSTRERTHRTVERILKETP QAYHALARLD DRMERMQRYGPEFVDVTWGAGGTSADLTMDIVATSQSVYG
 QAISRLAPLAPDFVSVTYGAGGSTRERTHATIVALLAETS
 EAI RRIEQVDPAFVSVTYGAGGSTQDRTVRTTEQI AQVTT KALEDLATLDPGFVSVTEGAGGSTRAKTVELVLRIKQEAG AAI KRLEPLNPKFVSCTYGAGGSTRERTHETLVDIRNKTN A ALPKLKALKPEYVSCTFGAGGSTLSYTPETVRHLREEHG DAIRRVESLEPNFVCMTYGAGGSSRGRTVDLVGRIATETT RAACEIAKLKPAFMSVTYGAGGGTSRYTVDIADTIKGYG ASVKRLEPLKPRFVSVTYGAGGSTRERTHRTVKRI DDETS ERMDRMVAYGPTECDI T WGAGGSTADLT DDIASRMQNVVC



 RTIEALKDLSPGFISVTYGAGGTSRDRTVEDASXIRNGYG
 ATVVARLAALQPAFFSVVYGAGGSDQDGTYGTVCQVVAQTGB RAI RELEPLRPSFVSITYGAGGTTRDTTVAVTERVATETT KTVEELKDVNPDFVSSVTYGAGGSTREKTVEWTLKLKRNYN SRI A RMVA LNPDSVSVTWGAGGTTKDRSLDDAGLTQLEHG
 ATARELAAYHPDFFSCTYGAGGSTRDRTQSTVLQLDSEVQ TA LDRELERLQPSFVSVTYGAGGSTREGTVAVTER A A TETT
 NALRRVEAVAPSFVSVTYGAGGSTRTGTVRATQAIAENTT PRLKRMQSYGPDF CDVTWGAGGTTSDLTMDQATYMQQEVG
 DRICRMSQLGPDFIDITWGAGGSTSNDTTEFVKTAHEQFG A AREELMRMQPAFFSVTYGAGGSTRERTFEAIQADQTHSG
 KARKRLGALKPEFYSVTFGAGGSTRKGTLETVKDVMNKDG

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$\begin{array}{lllll} & K & P & A & A \\ \mathrm{~V} & \mathrm{H} & \mathrm{L} \\ \mathrm{A} & \mathrm{A} & \mathrm{V} & \mathrm{P} & \mathrm{H}\end{array}$
L Q A AP HLLT

LTM I G H L
L E T A V V H L
V P P A A HL
L E T C M HL
L K P A A H L T

L P A A A HV T
L E T CMHL
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L R T MA HL PAAAHLL
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1 P A A A HL
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## ,



vatath
V P A A A H L
$V$ P P A A H L

L T P V A H L


| $L$ | $E$ | $A$ | $V$ | $P$ | $H$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $L$ | $T$ | $P$ | $I$ | $G$ | $H$ | $L$ |


| $L$ | $T$ | $P$ |  | $G$ | $H$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $L$ | $E$ | $T$ | $M$ | $M$ | $H$ |
| $L$ | $L$ | $L$ |  |  |  |

l $\begin{aligned} & \text { E } \\ & \text { L A A A }\end{aligned}$
$\begin{array}{ccccc}L & N & P & L & A \\ L & L & H \\ L & A & H \\ L\end{array}$
L L

$\begin{array}{llllll}L & D & A & A & P & H \\ L & T & P & V & A & H \\ V & T & P & L & A & H \\ L & K & P & A & A & H\end{array}$
V
L S P P A A A H L
$\begin{array}{llllll}L & K & P & A & A & H \\ L & L & V & A & P & H \\ L\end{array}$
$M \mathrm{D} \| \mathrm{L} \mathrm{M} H \mathrm{~L}^{\mathrm{L}}$ T

03B37BBE

| L |
| :--- |
| L |
| L | | L | A | $L$ | $A$ | $H$ | $L$ |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $L$ | $T$ |  |  |  |  |  |
| $L$ | $V$ | $M$ | $A$ | $H$ | $C$ | $T$ |

$\begin{array}{llllll}I & E & T & A & P & H \\ L & L & P & M & A & H \\ L & L & V & M & M\end{array}$

## 3

LIAA A P H L| $L$ | A | $A$ | $P$ | $H$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $L$ | $V$ | $P$ | $V$ | $A$ | $H$ |$\begin{array}{ll}L & V \\ M & P \\ M & \text { M M H }\end{array}$LR R P V A H

L R P A G H L
$\begin{array}{llllll}\mathrm{L} & \mathrm{E} & \mathrm{C} & \mathrm{C} & \mathrm{M} & \mathrm{H} \\ \mathrm{D} & \text { A } & \text { A } & \mathrm{P} & \mathrm{H} & \mathrm{L}\end{array}$
$\begin{array}{llllllll}\text { L } & \text { A A P } & H & L & T & C & V \\ L & P & V & A & H & C & T & A \\ V\end{array}$
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## QUERY UniRef90_A0A023SEM0 UniRef90_J7U0S7

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UniRef90 Q1D7X5 UniRef90_K9GSU5 UniRef90_UPI00035D0998 UniRef90_E4N9T4 UniRef90_C0D4X0 UniRef90_UPI00037DBB2B UniRef90_O80585 UniRef90_J9DXZ6
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UniRef90_N0DZ80 UniRef90_UPI00037D663C UniRef90_UPI00035E0129 UniRef90_UPI0003B6CA6F UniRef90_UPI0004411422 UniRef90_M3D6H6 UniRef90-UPI00036AD7F3 UniRef90-UPI000479B091 UniRef90_Q2Y5Z3 UniRef90_Q7VRL4 UniRef90_F3ZJ61 UniRef90_A0A059LID2 UniRef90_D9WNY5
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UniRef90-Q2SLT5


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EMYAT DLVALLKA EA DFDI S VAAAYPEGHPEARSAQS DLLN

T R F A C D L V K L L R S V A D F D I S V A A Y P E V V H P DAAANAAQA DL I N
F RYAKDLVRYI RARYGDHI GVAGYPEGCDDHRDVDLLI EH

 K $\square$ Y A D HL V SLL K K R H DF DI S V A A Y P EVVHPDAKNA QA DLL H



 GHHAEE LVVRLVQS LG DF CVVGVAAFPDRHPRSSSDFDTADARY F RYASEEVVRI RAEGYFSLGGAGYPEGHVECRDREXDLLH FRHANELVEFI RSENHFHI EVACYPEVHPQAASAESDL KN Y A N A V E L V A G L K A $\square$ AP F DI S V A A Y P EVVHPDADCPQSDLD N

 QRYANELVSGIRE QF GFSI GVAAAYPE GHPESPSSLEK DI Y Y

 Y A F A A DLVEGLKKVADFEISVVAAYPETHPQAASPEADLDN Y Q S S A DLV A I KK R H G D $\square E V$ V V S A Y P E K H P E A R D F D A D I D T GQNATELVRLVKSLGNFCVGVGAFPDAHPEHYDFDLDARD Y A Y A A DLIE GLK AV A DFEISVVAAYPEVHPHALSARDDLD N Y A NAAALTEAARRVGDFEVTVGCYPETHPESANREADIDW

 Y E N A A D L I A G L T K I A D D F E I S V A A A Y P E V V H P D S P D R Q S D L D N
 F N Y G DD L V R Y I R KAF DF F L GVGGGY D SHQEQTEFDLDI S Y
 Y Q N GAELVAGLKGIADFDI YASTAELVA IRRRRAPE $\square E$

 GDHAVELVRLI KESGDFCVGVAAFPEKHPRSADWDSEI RH Y K G A A E LV E G L LLK R H P F E I S V A A Y P E T H P E A L S A Q S D L D N

 F S H A V D L V R Y I R K N Y G F C I A V V A G HP E GHMDD N E D K E D D L L R
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 GDPNEELVRLVRDLGDFCVGVSAFPYGHPRSQDLDTDTEY GD HADDLVVRLISSLGSFTVGVAAFPDVHPESPDLGHDVEV F RYASEMVRFI R E EDFF CLGGGACYPE GHVETPSRDD DL R H Y A Y A A D LV A GLLKKVADFEI SVAAYPE DHPEAQSAEADI DN FHYASDLVEYHDHDGFFHI EVAAYPEMHPQSGDAHSDLAN GDPMAELVEEDK G LGDFCVGVAAFPQMHPRSVSWDEDDRH Y R Y A S QLI REI K E S G D F CI GAACYP E GHVESANK SVVDMD Y YANGAELTAGI RE $\square$ GGDFEVSVSAYPERHPDSADWDEDID N
 YANATEL AQAI QRVGGFQTSI GVYPEKHPESPS DDHDI DV


 F S Y A CDLVRYLRRFGNFCI GAAAYPEGHDECQDPSKDLDF F P H A V D L I R H L R LAA F G DCLI A A A A Y P E G H V EA E D L E E D L R Y



 F RYA K DL I V H I K K T Y G D HI G I A G Y P E G[LDE T C GA D E H I DY S GMGMDDVVEFI RA ETGGFHVEVVAACYPEMHPQARNFEAADLAN

 A GQS S DLV R H I R Q E H WF C I A V A GYPEAHPDATNYESDDLD


F RYANELVEFI RAETGFH I

F RYA A S E V E F R A E TVWF H EVVAA YP EMHPQAKSPQD DVQS

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UniRef90
Q2SLLT

220
 PGILPVSNYQTLAKFAGFTNVKI PRWMHQRFEGLDDDQMT PGULPVSNFKQLQRFAGMTNVR1PGWLGTMFEGLDDDPES PGI MPISTYAAFIRRANWTKCHVPPEWYEADEPVKNDDAA PGULPVTNFKQLQKMAKDTNVKVPHWMHKMYEGLDDDQTT PGLLPVTNFKQASNFATRTGASVPAWLLKRFEGLDDDPET PGILPVSNFKQASRFAAQNNVKVPGWMAKQFNGLDDDPTT PGILPVSNYESLVKFAGPLNVKIPSWLHKRYEGLEQDPET
$P G M M P I Q T Y G G F R R M T S L C K T F I P E H I N K A L E P I Q D D D S A$
PGUVPIHNFKQVSGFAKRAGATVPSWLARRFEGLEDDPAT
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$P G \operatorname{LPVTNFAQVQRFSAACGAGVPDWLADLFAGLDDDPET}$
PGIMPITNFRQIEKFAVMCGATIPKDLVEKLEKVENSPEE
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PGIMPVTNFKAFMRRANWTKIRIPPEWLEALLEPMVKNDDAA
PG|MPMHNFKQARNFVTRAGTTVPDWLAEKFDGLDDDAET

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PGGMPVMNYASVVKMSAMCGTDVPAWMEKLFEGLDEHPGA
PGI

| $P G P$ | MPMSFAAVQKMSGLCGTAIPDWMEGLEDGLDERPAA |
| :--- | :--- | :--- |
| $P G I$ | $M P L M N F E Q Q A R F A A A C K A D M P R W L A Q R M E A W K D D P Q S ~$ |

PGI MPI QTYAGFVRMTTLSKTKVPQYIMDNLEPTKDNDEE
PGI MPI HNYSRFIKFTQFCDVTVPDSVSKTLESLKHDDSS
PGILPITNVAKAREFAGQCGAEIPQWMDNLFEGLDQRPAA

$P G I V P V S N F K Q T A S F A A R A G A T V P D W F A A R F D G L D N D V Q T$
PGVMLQPNFNGLKKMAGMCGAKIPDWYDTLYEGLDEDKDT

PEIMMVTNVRQIERFA QLSNAAFPRALAEQVLAVEADPAA
PGI MPVSNFAAVQRMSAMCNTDVPAWMGRLFDGLDQHPAA
$P G \mid L P I D N F D Q V V K F S S G C G T T I P D W L S R R F A G L D D D A E T$
PGIMPITNYQQLARFSDLCGAEI PRWI RKQLESFGDDLES

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PG MPITNFSQLTRFSEMCGAEI PRWVARRLESFGDDREA
PGI MPVTSYRQLRRFTEVCGASIPGPLLAKLLERHQDDPKA
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PGIMPIMTYGGFKRMTGFCKTKVPAEISDALEAIKDNDEA
$P G V M P V T N V A Q D K R D T G L T G Q A F P A D L E R S L M A V E G D K A A$
A GIF PVLNAGQVQKIVSLCGVSLPPRFTRIVARYANSPAA AGVFPVLNPKQVERIVSLCGVSFPPKFTRMVARYADDPGA
PGLMPVTNLRQLQRMSQLMGTPLPAAVVSRLEAVGEDAAA
AGVMPITNYAQLMRFSAACGAEIPRWI RLRLEALQDDKPA
PGVMPVTRMATIERSAQLSGAPFPPHLLERFERFAGDETA
AGI MPI LNLLSQVERFTKMCAAGVPEGLIESMQN KSKEG
PGIMPI QTYASFLRMTKLCATSVPPKMMSDLVPDRHDDQK
PEVMPVTSPTTLVRADELSGCSVPADLAAAVEAAGDDRAA
PGIMPISTYAAFLRRANWTKAHVPPHWMEALEPDKNDDAA
PGIMPITNYSKLARFSDACGAEIPRWIRKQLEAYGDDVES
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PGI MPINRFSQLARFSDTCGAEMPRWIRKRLEGYGDDTAS

PGIMPIVSAAGFKRMTSFCKTRIPEEVRAALDACGDDEAA

P GI M L Q P N F K GLLK R DS NLC GA S L P A WL H E L Y D G L E E D Q E T

$P$ GIMPI TNYT QLARRFSDACGAEIPRWIRRRLLEGFGEDRDA



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250
260 270

280
RKLVGANTAMDMVKTLSREGVKDFHFYTLNRAEMSYATCH RNMVGASIADDQVRVLSQEGVKDFHFYTLNRSELTYAICH RKLVGASVAMEMVKLLSREGVKDFHFYTLNRAELTYAI CH RQLVGANVADDMVKVLAREGVKDFHFYTLNRAELTYAICH VRDI GK DL VAQMCRRI LDA GI H H L HFYTMNDAQATRMI LE RNLVAASIAMDMVKILSKEGVKDFHFYTLNDSELTYAI CH RKLI A A AVAAEQVTDLVDRGVTDDHFYTLNRADLVYAICCH RQLVGASQAIDDMVRILSREGVKDFHFYTLNRAEMTYALCH RNLVGAS IAAI DMVRVLRNEGIKDFHFYTLNRSELTYAI CH VKKYGVDLCVQMCRDLLAA GTPGVHFYTLNQEKAVTAQLE




 RQLVAATVAAEMCRRLVAGGVRDFHFYTLNRAELS YAI CH


 VKEI GK GLI A DMCRRLLAA GI NHLLHFYTMNLAQSTVLVLE R RMV S A A M A A E QV RLL Q A N GI D E F H F Y T L N R P D L T Y A I A R

 R R L A A VT TVAD QCR DLVRRGVE DLHFYTLNRADIAYAVCH

 $V R E V G K G L V A D M C R K L D D A G I L H D H F Y T M N L A Q A T R M V L E$ $R Q L V S A T I A A A M C R R L Y A G G V R Q F H F Y T L N R A E L S Y A A C H$
 $V$ I H Y GI E Q G T A M C E K L I A E G V P GLL H F Y T L N L E H S V S R I L E R QL V S A T I A A E MCRRRL YA GGI R H Y H F Y T L N R A D L A Y A I C H
 HALVASAVAAEQVLDLVERGVGDFHFYTMNRADLVFAICH RQLI A A AVAAE QVLDLVDHGVKDFHFYTMNKADLVYAVCH




 $\square R A F G L D V V T D L C R R L V D A G V P G L D H$ Y TLLNAATAS KAACE





 R RLVAAAVAAE QVLDLNARGITEDHFYTMNRSELVYALCH




 L A E A $G \operatorname{A} V A$



 V R E V G R D L I V E F C Q K L L D F G L M H L H F Y T M N L A Q A V T M V L E I Q A F GE QVVVTEMCERL LA G GAP GLLHFYT L N QA A P S L A I WK




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| UniRef90-K3WKM9 | GL |
| UniRef90-S3B5D8 | ${ }^{\mathrm{N}} \mathrm{L}$ G |
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| UniRet90-060CG9 |  |
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| UniR |  |
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| UniRe990_D5VF | V |
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| Re90-QALW3 |  |
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| UniRef90-Q1D7X5 | A L |
| UniRe | V ${ }^{\text {G }}$ |
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10 VVR 20
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K V I E K $\quad$ I Q E A L L

$K \ K D R L S E \quad N R V N D S F E V F P P K T D A G Y G K V L$
ERFTRSLAAMADTTPTS FEFFPPKDDAAAEQLWW
$\mathrm{K} \square \mathrm{RD} \mathrm{M} \mathrm{L}$
K G N T T $V$ V S F E F $\quad$ I F P P P K T T Y P P M E T


EK】R【LR】E
MRELIE


K LTEEK AAYYK
T P L F A G LP G D $\square$ AV S F E F F P P K S D A L M A QL W
VS F EF F P P K TEKME Q T L W
A A GKTVSSFEFWAPKTEKGERNLWW
M T E R L R
T D R P V F S V F FMP P R DEA DERRLLW


$V$ S I E F F P P K T D E M E K V L W
$\square R E L L A$ R R GERS F S F E F FP P P K S E A G T R V L
$R S L A E L$
R
R
E
K
K Q
$K \square \mathrm{I}$ K L N Q K
$\mathrm{K} \square \mathrm{S}$ Q K V S Q S Q
$\mathrm{G} \underset{\mathrm{K}}{\square} \mathrm{H} \stackrel{\mathrm{F}}{\mathrm{S}} \mathrm{S} \frac{\mathrm{L}}{\mathrm{F}}$
$\stackrel{G}{\mathrm{G}}$


| $K$ | $L$ |
| :--- | :--- |
| $H$ | $E$ |
| $S$ | $V$ |
| $V$ | $T R Q A E$ |


| $\mathrm{N} K$ |  |
| :--- | :--- | :--- |

                    WWS
            HL SVATRRAE
                K \(\square\) A S L F A E
                    MPS D A V S
                        KTVFS
                K \(\square\) T NK \(\square\) AKAEGR \(\stackrel{\text { WW S }}{ }\)
    
$S \square A D R Q S D P S V S$
K $\square$ S K K $\square E$ QA QN K $\downarrow$ WWS
A A GKPNVSFEFFPTKTEAGHEKLL

$\square R R S R Q Q L Q G P L N A S F E F F F P P$ K K N L E K M A E S S L W W
$\vee$ S P R A N L S
K LQ T LFEE
$K K V V F S$
$K$
$K V V L D S$
$K K V V F S$
$K V$
$K$
F E F F P P K T

| $L$ | $E$ | $F$ |
| :--- | :--- | :--- | :--- | :--- |
| $F$ | $F$ |  |

I SG Q $P L F S$
 QK S I Q D R L Q Q A A
$\mathrm{K} \square \mathrm{K} \mathrm{D} \square \mathrm{FERK}$
M N R S G DKWF S R E K M R R R I E S G
S K L S E K I A K VSQK $\square$ AEKEDR
K $\square$ K D $\square$ F E R K
QK F
F
V
F
 QRFS
$\qquad$ FVF SFEFPPKTDAGKEKLLK
$\mathrm{K} R$
K K

E N
S H K QLL $K$
P
K
$\qquad$
S Q MKQPVI
$P G R T P L S$
A $L R E A L A G$
K K G

$\square D L L L K$ | 1 |  |
| :--- | :--- |
| $V$ | $S$ |
| $K$ | $F$ | $\begin{array}{r}\mathrm{R} P \mathrm{~T} \\ \mathrm{P} \\ \hline\end{array}$ AVVS

K I IDK DKEAEEAAKPPTAVSFEFFPPKTEKMEQTLW


M N AK $L$ QPV $\quad G A A L P A$ H DLSVS F E FFPP K TE A MQA QL W NTK TP P I S F E FYPPPQTPE GVVEK L T T

$K \square S E \square L K$


## UniRef90_R4SMY9 UniRef90_M5W952 UniRef90_J6F727 UniRef90_U7PSQ6 UniRef90_R6PVR7 UniRef90_E6SBW1 UniRef90 V7I5K9 UniRef90_S9Q4L7 UniRef90 A3DBL

 UniRef90_UPIO00348504A UniRef90_E9HJT0 UniRef90 UPI0004041BD2 UniRef90_R7XVN6 UniRef90_E3HDJ7 UniRef90_S7QEM1 UniRef90_UPI0003C7FC54 UniRef90_Q2G3D0 UniRef90_X5MC11 UniRef90_F3NRH0 UniRef90-W7IPY1UniRef90-R6PFI2 UniRef90_UPI000378E9FC UniRef90_J9DV71 UniRef90_C5WDM7 UniRef90_UPI00035D4636 UniRef90 UPI00035D97E UniRef90 IOIE44 UniRef90_UPI0003047C4E UniRef90_E9V1K6 UniRef90_E9S7Z4 UniRef90_A0A011NHS8 UniRef90_D4M5K9 UniRef90-G4SUH3 UniRef90_UPI000455F4A9 UniRef90_S2YPP3 UniRef90_UPI00038237F0 UniRef90_U2YJT0 UniRef90_C3X5P9
UniRef90_D5MF95 UniRef90_R7FCF5 UniRef90_A1HTM2 UniRef90-M9M1W1 UniRef90_L0GVX6
UniRef90_H5WZT8 UniRef90_A6NZH7 UniRef90_F8E883 UniRef90_UPI0003B750F5 UniRef90_A0A059FVJ5 UniRef90_V9HGD1 UniRef90_S7RQC8 UniRef90_N2JAH6 UniRef90_UPI000474F6FB UniRef90-F5T3R2 UniRef90-A3V5L3 UniRef90_E2CKI6 UniRef90-D5X3Y1 UniRef90_B5EN13 UniRef90_R6BEH9 UniRef90-KOIX50 UniRef90 UPI0004574C43 UniRef90_F8P6Q6 UniRef90_UPI00046AB84D UniRef90_D5EJ13 UniRef90_D8U7H4 UniRef90_U2ETB8 UniRef90_J4GI53
UniRef90 A0Y9Q7 UniRef90-D3L3E3 UniRef90_UPIO00375B3E2 UniRef90_S0FJG6 UniRef90_C6WT29 UniRef90_UPI00047D198D UniRef90_U2AID8 UniRef90_M1PT18 UniRef90_A0A023NYT4 UniRef90_Q47JN9
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 D R DE RMRNLGP EF IDD T WGA G G K NA DL T S S L V Q V C Q E T G ERMERMHLFGPKFI DI T WGA GGHVAELLTAEMVTQAQTYFG EATEEDA ALKPSEI SVTYGAGGGTSKNTVKVASHDQNDLG



 RAVRELE PLDPAFVSITYGAGGSSRDRTDRTTGRIAQETT R AI T E L E P YR P T F V S SVTYGA G G S S R D T TVVRDT GRIAARETS


 N ALRRRVEAVAPDFVVSVTYGAGGSTRSGTVRATERIVADTT K A V R E L E G L D P A F V S V T Y G A G G S S R D R T I R T T G R MAT ETT
 Q Q S L L Q L S S L K P K F V S S S I E R L A P L Q P K F V S V T Y G A G G S T R E R T H N T TVAAMMIK ETM

 ST T D GLA P L K P D F $\quad$ SVVTYGA G G S G S N A T I G I C EMI K E K Y G
 A V H K K L S R L N P D F F S V T F G A G G S T R D K T F D TVVVK I Q E R G






 D Q V Tr R L R A V E P R Y I S V T Y G A G G S T R A G T F E TVV D WL C D Q G












 $E R D D R M V A Y G P \square F C D I T W G A G G S T A D V T V D D A T A M Q N Q V C$








 D TVQTLAPLGPRFVSVTYGAGGTTRELTRDAVATLHKSSG H T I D E L S KLL N P D F I S V T Y G A G G S T T R N T V K TVVERRLA P L N P E F V S I T Y G A D G S T R E R T H QV I E S L L T K T N QAVHKLAPLQPEFVSVTYGAGGTTRERTHATVCRLDQETG
 DCI QR L E P L A P A F V S V T Y G A G G S T R E RTHETVVARIIRQETR



## UniRef90_R4SMY9 UniRef90-M5W952 UniRef90-J6F727 UniRef90-R6PVR7 UniRef90-E6SBW1 UniRef90-V715K9 UniRef90_S9Q4L7 UniRef90-A3DBL

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UniRef90 A0Y9Q7 UniRef90-D3L3E3 UniRef90_UPIO00375B3E2 UniRef90-SOFJG6 UniRef90_C6WT29 UniRef90_UPIO0047D198D UniRef90-U2AID8 UniRef90-M1PT18 UniRef90_A0A023NYT4 UniRef90_Q47JN9 UniRef90-A4J6K4 UniRef90_UPIO003600D49 UniRef90_UPIO0035EA29F UniRef90_A8UU31 UniRef90-E1ARJ5 UniRef90_UPI000466D7C6 UniRef90-UPIO00262CE5E UniRef90-W9H006 UniRef90-W7TSL1
UniRef90_R5V8J4 UniRef90-H6SN05 UniRef90-D5CU81 UniRef90_S9QM77

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 GGPHTDLVSFIKEHYDAAVGVAAFPEGHVSAESLEQDALV FKYAHQLVKQI KERGGFSI GGAFYPEGHQESNDLM DLFH FTHGVDLVAYI RSSPEFSI GVAAYPDGHTDRTDEDGELDH MTHAVELVELAREDGGLTVGVAAFPEGHPDAEDLDHDARM Y A NAAELVAGLKQIAPFEISVAAYPESHPDSPDQQADDDN YANAAELAAGISKIAPFEISVGCYPEKHPESASFDADIDLC GDPMAELVHLI KESGDFCVGVAAFPEMHPRSTDWDTDVAH GNYADELVALVRELGDFCVGVAAFPYGHPGCTDDDADTDN FKYASELVEYLKKESSDSIAVAAGPEGHKECESDEKDDQY TGMGTDLVSGLKATSDFDVSVAAYPEKHPESPDFDADI EM FDHADQLVELAKSIGGFKI GVAAFPDGHPASNFFDKDIKV RDYASDLVYLLKKI GDFDI SVAAYPEVHPEAKSAQADLIN YARTSDLVAGIKRIGDFKVSVSAYPEKHPEAATDDADIDA GDPNRELVSLVRESGDFSI GVAAFPERHPRSPDWESDIRH RRHAADLVALIKQ $\ G G F G V G V A G F P E G H P G T P N R M E E M D H$ FRYAEEVVRFIKEFRGFGVGVAGFPEGHPATKNRLKEMDF EDYA DDVVRLAKERGDFRI GVAAFPEGHPSAESIEADADV FRYAAELI ELIKESGDFNI LGACYPEGHPEAPNMVEDIRH

 FVHGDDLVKHIRKNYGFDI AIA GFPEYHDPPEERDAEMRY


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Y A Y A S D L V E GI K K IAA D F DVVSV S GYP E R H P E S S G WD M E I E N
$F$ H H A R D L V A F I R A EM GF HIVEVAA Y P EMHP QA R S P L D D L Q H
 Y R Y A S D L I D DI K Q Y G G F D I A A A C Y P E V H P E A A D LE E D L L H

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





 F R Y A S DLVAA FI R S E T G F RII E V A A Y P E DH P Q A K T P E S D L Q A
 F R Y A S E LV R F I R D Y T G F H I F R Y A N E L V E F I R A E T WF S I E V A A Y P E WH P Q A R S P K D D L E A


 GDHAHELVSLVRADSGAFSVGVAAFPERHPRSPDWESEMRH

 YA Y A A D L V A G L K R A A D F E I S V A A Y P E S H P Q A T S PA D D L D N K G Y A I D L V R L I R E E H G F C V A V G G H P E G H H H R E D L D K E I E H




## UniRef90 R4SMY9 UniRef90-M5W952 UniRef90-J6F727 UniRef90-R6PVR7 UniRef90-E6SBW1 UniRef90-V715K9 UniRef90_S9Q4L7

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UniRef90 D5MF95 UniRef90_R7FCF5 UniRef90-A1HTM2 UniRef90-M9M1W1 UniRef90-LOGVX6 UniRef90-A6NZH7 UniRef90-F8E883 UniRef90-UPI0003B750F5 UniRet90-A0A059FVJ5 UniRef90_V9HGD1 UniRef90-S7RQC8 UniRef90-N2JAH6 UniRef90-UPIO00474F6FB UniRef90-F5T3R2
UniRef90 O1KOZ7 UniRef90-A3V5L3 UniRef90-E2CKI6 UniRef90-D5X3Y1 UniRef90-B5EN13 UniRef90-R6BEH9 UniRef90-KOIX50 UniRef90-UPI0004574C43 UniRef90_F8P6Q6 UniRef90_UPIO0046AB84D UniRef90-D5EJ13 UniRet90-D8U7H4 UniRef90-U2ETB8 UniRef90-J4G153
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210
220
230
240
PGIIMPLTTPRTLHTS ${ }^{210} K$ KSGAPAPRRLDDRLEPLAGDPKA PG|MP NNYKGFIRMTGFCKTKIPAEVTAALEPVKDNEEA
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PGI MPI ATYASFMRRVNHMGCKVPARWVEKLEPVKNNDDA
PGIMPVTNGKQ ARDCELSGTILPERFRADVDRFGDDPKA
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$P G V M P I Q S Y D S L R Q D A K L S K L E V P Q E I T D I L A P M K D N D E A$
PGVMPLTTVRTLDKTVELSGAGVPPSLERRLAPHRDDPKA PGIMPI LNLNSMSRMVELSGREMPDEVRARIEPLAETPEE

PGIMPILJFAQVARMAELSGAEMPREVLDVIEPI ADDKAA PGULPVSNVAQTRKFAAACGAAMPAWMDGLFEGLDTHPAS

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

PEI MPATDFRQIDARFAELSHATFPDDLARRLEAARENSAE
AGI MP TTSAKGMRRMAELAGSRYPASLLKSVKRAVDADDA
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$P G 1 M P V T N S R Q M T R D C K L S G T V L P Q R F H A L L D R F G E K P E A$
$P G I M L Q P N F N G L K K F A K M C G A S V P D W L H K L Y E G L D D D A D T$
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PGIMPLTTPRTLHKTПELSGATPPRWLLERLEPLSDDPKA
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PEI MPI ANLRQIERFKQLSNSTFPEELENRLRAVKDDPMA
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PEI MPATDVRQIGRFAELSGASFPGELARRDDAVRDDPAA
PGILPDENWTGARKFAKRCGARVPGWVEDAFEKADRD DR AGI MPATNSKSLLNDAKLSGCNIPYNLSAMDERERNNPQA PGILPVTNFNTLVRFAGACGASI PHSLSTLFEGLDEDPTT PGILPITNFTRALEFAGSCGAAIPPWMADLFAGLDNDPET PGVMPI QNYTLFRRMTSFCRTRVPAEMWEQLAPIKEDEEA AGIMPVTNSKQUTRMVSMCGASLPRKFTRTLQKYEDNPTA PGILPVVGFATAKRFAGACGASVPAWMDELFDGLDNDPET
$P$ GI MPI GRFS QLARFS DNCGAGI PRWMRKTMEGYGDDSES


| UniRef90_R4SMY9 | R\|L|G|L VP |
| :---: | :---: |
| UniRef90-M5W952 | NL G |
| UniRef90-J6F727 | E L G |
| UniRef90-U7PSQ6 | EL D WLP |
| UniRef90-R6PVR7 | N L |
| UniRef90-E6SBW1 | N L |
| UniRef90-V715K9 | S |
| UniRef90-S9Q4L7 | A L G V T P |
| UniRef90-A3DBL1 | NI G |
| UniRef90_UPI000348504A | R |
| UniRef90-E9HJT0 | Q L G |
| UniRef90-UPI0004041BD2 | RL GL A P |
| UniRef90-R7XVN6 | A L Q |
| UniRef90-E3HDJ7 |  |
| UniRef90-S7QEM1 | GL G W |
| UniRef90-UPI0003C7FC54 | A |
| UniRef90-Q2G3D0 | L L G L R P |
| UniRef90-X5MC11 | 1 L G V R P |
| UniRef90-F3NRH0 | $\overline{\mathrm{N}} \mathrm{L}$ G |
| UniRef90_W7IPY1 | R L GL VP |
| UniRef90-R6PFI2 |  |
| UniRef90_UPI000378E9FC | LI GI |
| UniRef90-J9DV71 | $\overline{\mathrm{N}} \mathrm{L}$ G |
| UniRef90_C5WDM7 | TL GI |
| UniRef90-UPI00035D4636 | L L G |
| UniRef90_UPI00035D97EC |  |
| UniRef90-IOIE44 | S L G ${ }^{\text {l }}$ T P |
| UniRef90-UPI0003047C4E | A L G V |
| UniRef90-E9V1K6 | K L NVT |
| UniRef90-E9S7Z4 |  |
| UniRef90-A0A011NHS8 | RL GL |
| UniRef90-D4M5K9 | NL |
| UniRef90-G4SUH3 | N L L |
| UniRef90-UPI000455F4A9 | ELNLVP |
| UniRef90-S2YPP3 |  |
| UniRef90-UPI00038237F0 | LL G L K P |
| UniRef90_U2YJT0 | L L GL R P |
| UniRef90_C3X5P9 | R L G L |
| UniRef90-D5MF95 | A |
| UniRef90_R7FCF5 | A V G |
| UniRef90-A1HTM2 | NTSL |
| UniRef90-M9M1W1 | Y L G L P |
| UniRef90-LOGVX6 | R L G |
| UniRef90-H5WZT8 | RLGGLR |
| UniRef90-A6NZH7 | SL |
| UniRef90_F8E883 | N $\mathrm{L}^{\text {N }}$ |
| UniRef90-UPI0003B750F5 | NL GL |
| UniRef90-A0A059FVJ5 | LLGLK P |
| UniRef90_V9HGD1 |  |
| UniRef90-S7RQC8 | ELQLVP |
| UniRef90-N2JAH6 | NL G |
| UniRef90-UPI000474F6FB | $N \mathrm{~L}$ GL |
| UniRef90-F5T3R2 |  |
| UniRef90-Q1K0Z7 | R L |
| UniRef90-A3V5L3 | A L G T P |
| UniRef90-E2CKI6 | ML G M |
| UniRef90-D5X3Y1 | D L G |
| UniRef90_B5EN13 | NLG |
| UniRef90 R6BEH9 |  |
| UniRef90-K01X50 | A 1 |
| UniRef90_UPIO004574C43 | R L G |
| UniRef90-F8P6Q6 | NL QW |
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| UniRef90-D8U7H4 | RLGLL |
| UniRef90-U2ETB8 |  |
| UniRef90_J4GI53 | EL NLVP |
| UniRef90_A0Y9Q7 | N L |
| UniRef90-D3L3E3 |  |
| UniRef90-UPI000375B3E2 | R L R E $\square$ P |
| UniRef90_S0FJG6 | N |
| UniRef90-C6WT29 | N V |
| UniRef90_UPI00047D198D | R L G V |
| UniRef90-U2AID8 |  |
| UniRef90-M1PT18 | S L G VR |
| UniRef90-A0A023NYT4 | R L |
| UniRef90_Q47JN9 | R L G |
| UniRef90-A4J6K4 | N V G |
| UniRef90_UPI0003600D49 | NL |
| UniRef90-UPI00035EA29F | NL GLL |
| UniRef90-A8UU31 | A 1 |
| UniRef90_E1ARJ5 | N V |
| UniRef90-D0CVY1 | A L G $\square$ T P |
| UniRef90-UPI000466D7C6 |  |
| UniRef90_UPI000262CE5E | ALGV |
| UniRef90_W9H006 | M L G V R P |
| UniRef90-W7TSL1 | S L GLT |
| UniRef90-R5V8J4 | A |
| UniRef90-H6SN05 | A L G V R P |
| UniRef90-D5CU81 | R L G Y |
| UniRef90-S9QM77 | A L G VT P |
| UniRef90_UPI0003B3A15? | N/L |



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 UniRef90_M5ED31 UniRef90_C5EGI3 UniRef90_R5HAZ5 UniRef90_D7B1U2UniRef90_H4FBW2 UniRef90-A1BH63 UniRef90_UPI00047B4A46 UniRef90_C8XCS7 UniRef90_W0P269 UniRef90_UPI0004632B04 UniRef90_G9PTS1 UniRef90_UPI00047EBAF2 UniRef90_UPI00037BBD6E UniRef90_UPI00047A69C8 UniRef90_Q31EK9 UniRef90_UPI000429F467 UniRef90_UPI000464D609 UniRef90_B9R5L3 UniRef90_W8X8E9 UniRef90_C3WBE8 UniRef90_J3D5D5 UniRef90-UPI00047D3A24 UniRef90_E9T6J1 UniRef90_R5YF19 UniRef90-UPI00031C3288 UniRef90_G2NGI5 UniRef90_Q8KA62 UniRef90_J6HQJ6 UniRef90_UPIO0035CDB8A UniRef90_UPI0004641E86 UniRef90_T1EFD8 UniRef90_UPIO00475B3DD UniRef90_R9N2H2 UniRef90_Q1GFY3 UniRef90_F9XHC5 UniRef90_UPI00037AC382 UniRef90_E9DS87 UniRef90-H2ANE8 UniRef90_C7DB10 UniRef90_Q3J7R3 UniRef90_D4H136 UniRef90_P53128
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UniRef90 A1AMZ4

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V
FEAF GAEVVAQLCRRLMEGGAPGFHFYTLNLARPTLRVLE













| UniRef90_G3IHM4 | Q $\mathrm{L}^{\text {G }}$ |
| :---: | :---: |
| UniRef90-Q0A6D1 | D L Q |
| UniRef90-C6X8F9 | R |
| UniRef90-A0A021WX92 | R A |
| UniRef90-K2DAH0 | E |
| UniRef90-I4YIV3 | E L N |
| UniRef90-UPI0003B49EE8 | R L |
| UniRef90-R4KG82 | N |
| UniRef90-UPI0004621A0C | E L N L VP |
| UniRef90_LORDD1 | A |
| UniRef90-Q83X56 | N |
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| UniRef90-D5AMW6 | $A L G V N P$ |
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| UniRef90-C5EGI3 |  |
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| UniRef90-A1BH63 | N |
| UniRef90_UPI00047B4A46 | Q1 A |
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| UniRef90_W0P269 | M L D L |
| UniRef90_UPI0004632B04 | NL GLA P |
| UniRef90_G9PTS1 | N |
| UniRef90-UPI00047EBAF2 | S |
| UniRef90-UPI00037BBD6E | LL GMR P |
| UniRef90_UPI00047A69C8 | R L G |
| UniRef90_Q31EK9 | A L |
| UniRef90_UPI000429F467 |  |
| UniRef90_UPI000464D609 | A V |
| UniRef90-B9R5L3 | M L G M |
| UniRef90-W8X8E9 | NL GL |
| UniRef90_C3WBE8 | NI G |
| UniRef90-J3D5D5 |  |
| UniRef90_UPI00047D3A24 |  |
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| UniRef90-R5YF19 | N L |
| UniRef90_UPI00031C3288 | NL G/VT |
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| UniRef90-J6HQJ6 |  |
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| UniRef90-UPI0004641E86 |  |
| UniRef90-T1EFD8 | S L G\|LR P |
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| UniRef90_UPIO0046A128D | A L G V T P |
| UniRef90_D1Y625 | N |
| UniRef90-E4AEA0 |  |
| UniRef90-E1G613 | QLGLLWP |
| UniRef90_G2T7P6 | ML G L R P |
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| UniRef90-K0ТВА8 | A L G |
| UniRef90_UPI0003B2F3B2 | NL |
| UniRef90-F4LAX7 | A L |
| UniRef90-A5Z3D9 |  |
| UniRef90_C7N1R9 | A L |
| UniRef90-H1PQ34 | N I |
| UniRef90_Q0VL81 | NL G M |
| UniRef90-R5T1B9 | NL |
| UniRef90_UPI00047473EA | NL NL |
| UniRef90_Q89B13 | I |
| UniRef90-E8WLN6 | GLLP |
| UniRef90-A1AMZ4 | $\mathrm{G} \mid \mathrm{L}$ I P |


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R5ZG. UniRef90-UPI00047B69D9 UniRef90-W4HPC7 UniRef90-B8J2Y5 UniRef90-UPIO00377159B UniRef90-UPIO0029A0F3A UniRef90_M4ZXK7
UniRef90 D3R577 UniRef90-F8EPB0 UniRet90-Q6CKM1 UniRef90-E2ZDC2
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| :---: | :---: |
| UniRef90_G2JD15 | LKRKIDAGAHEAITQFFFEADAYFRFRDACADAGIITARII |
| UniRef90-FOJGR2 | VHLKVRKGAKFLVTQLFFDNRMYFDYVERLKLMGSDVPVI |
| UniRef90-F1 | KVQAGADAAITQYFYNADAYFRFVDSARKHGVQVPIV |
| UniRef90-D4 | LKEKVDAGCEFLTTQMFFDNNLLYNFMYKALKHGLDVPVV |
| UniRef90-D5G9 | LVEKVKAGADFIMTQLEFYDADKYDWFEKLLREEPSGVPVV |
| UniRef90-H5WSQ7 | FAAKVKAGANSATTQFFFNPDAYFHFVDEVRALGGVDVPIV |
| UniRet90-A6GU55 | FVHKVNCGANSAITQYFFNDDAFLYFRDQVQH RI |
| UniRef90_S3UL28 | LKDKVEAGASYLVSQLFFLNSSFGAFLD |
|  | K K EEAGADHAITQLFFDNNYFYEFLNKVEEKGI QLPI Q |
| UniRef90-UP100036AF7F3 | TRVKDDAGSFVVTQLFFDVREYFDFVSRLRSNGVNPV |
| UniRef90-F3YV77 <br> UniRef90-R5EB75 | TKFK DRGADF |
| UniRef90-UPI0004641C66 | KRKLDAGATEALTQFFFEAETFFRFRDA |
| UniRef90-C9RM26 | LKEKVEAGADFLTTQMVFDNNLFFSFLYK |
| UniRef90-R3X106 | LKRKVDCGTNQLDTQLFFDNNYFYTFKEKCDDAAI EVPI Q |
|  | LKRKVDAGCEYLTTQMFFDNNDFFNFMYRTREAGITVP1 |
|  | EKVQAGADF MTQLTYDFETYQKFEERLRNHPKSIPI |
| UniRef90-A9KQY7 | KVDCGADHLISQLFFDNDYFFNFLEKARNKGMTVP1 E |
| UniRef90_UPIO00382CF48 UniRef90-D5GMM8 | FAAKVQAGADSAI T Q M F F NADAYFNFVERAQAAGVSAP |
| UniRef90-R6JAM1 | LKTKVEAGADHLISQLFFGNDIFHAYREKLDLAGISVPLE |
| UniRet90-M5GA04 | LKKVDAGADFIIT QLFYDADGFLMWL |
| UniRef90-c8X2 | LGLKFQTGGDFA TQMFFDNAMYWRML |
| UniRef90_13CCL4 | FVQKVNAGADSAITQYFYNADAYFYFVEAAQKLGVTIP |
| UniRef90-A8ZV44 | LKLKVVDQGAEFIITQYFYDNAYFLINFVERCRKSGI TI P I |
| UniRef90-O75G11 | LKLKVDAGTDFLVSQLIFFVNSUFENFLNLVRKVGI QVPV |
|  | KEKVDMGASFVVTQMFYDVDN |
| UniRef90_U7Q2L8 UniRef90 A4BD39 | LVEKVQAGADFVMTQLIFFDHAAYAHFLAHPSGAFKDIP |
| UPI | GKLGNGGNFIVTQLFFDNDKYFAFVDK |
| UniRef90_A0A0211 | FKRKVRAGADGAI T QYFYNADAYFRFVDDVRAAG |
|  | KRKY AGADSALSULYYNADAYYGF |
| UniRef90-S9SONO | RKFDAGASSAI TQFFFRPETFFRFRDA |
|  | KLRAGAEYSITQMFFEVEHYLLRLRD |
| UniRef90-UP10003B5C46B | LKDKLDAGANSAITQYFFNADAYFYFLDACEKAGMDKP |
| UniRet90-Q4JWA8 | TLAKLRAGAQYSITQMFFDVDHYLRLRDRLAKADPEKPI |
| UniRef90-R6FUH1 | LKIKQEAGASHFISQLFGDNEYFYSFMDKTIEKGMTVPI |
|  | GKFEAGANSALCYFYPDSYFYODC |
| UniRef90-R50UU64 |  |
|  |  |
| UniRef90 U7ULD1 | KEAAGAGKFLSQLFFDNTIFYRFRERTAAAG1TAPI E |
| UniRet90-C7LW31 | LRHKVASGADFVITQLFFDNDRYFDFVVRARAAGIGVPI |
| UniRet90-A8LPW3 | LKRKIDAGAHSAl TQFFFEAETFFRFRDRCAKAGI DAP |
| UniRef90-FOZ1Y3 | KAKVNAGAEVLSQLCFDNAFFRFQEACR A |
| UniRef90- Q0FF75 | LKAKFDAGADSAISQFFFDKEDFLRFRDK |
| UniRef90-Q1YUX2 | EKFKAGADRAI TQYFYSADAYLKFV |
| UniRef90 A9UZU5 | KVDAGADLI 1 T QMVFDAPVYGAFLKACKAYGINIPVV |
| UniRef90 R6HCU | KKVAGCEF VAQMCFDNNMYNYMY |
| UniRet90 B8BRT9 | LKEKLDAGADFVISQFFYDVNVFDDYVKRCRK |
| UniRef90-W7HYD5 | LREKTAAGADFIMTQFFYDVGAYL |
|  | KLRAGAEYSIT QMFFDV |
| UniRef90-UPIO002490032 | LKQKVDCGTEHLLISQLIFFDNQCFYDFTKQARQAD |
| UniRef90-UPIOOO3B6FBEF | LKYKVDAGAEALISQLFFDNDAFFNFNEECKDAGIDVPV |
| UniRef90-A3LUC7 | EKCDVGADFI ${ }^{\text {T }}$ OMFYDVDNF |
| UniRef90 A0A058Z2L4 | KVDAGADF VTQLFYDVEEY |
| Un | VKAGGDF |
| UniRef90 F3L3H5 | KFDAGANAA1 TQYFFSA |
| UniRet90_UPIO00477CBAA | LKAKVRAGAEYSVVQMFFEADDYLLRL |
| UniF | FAAKARAGADSAITQYFYNADAYFRFVDD |
| UniRef90-R5ZGJ1 | LK QKQDAGASFFVTQLFFDNECFYRF |
| Ref90-UPIO004 | GAEVLLSQLFFDNDK |
| UniRef90_W4HPC7 | GADEALTQFFFDADAF |
|  | DKMRSGADFAV |
| UniRef90_UPI000377159B | LKRKVDSGATRALTQFFFDNNDFERYLERVRRAGDTDPV |
|  | ADKMR的 ADFAITQFFFE |
| UniRef90-D3R577 | LKAKVDAGASHLISQLFYDDD |
| UniRet90-F8EPB0 | LKQKIADGADYMVTQMFFDNQKYFQFVKRCREAGITIP |
| UniRet90_O6CKM1 |  |
| UniRet90-E2ZDC2 | QF |
| UniRef90-A9C | LKKK1KAGAEYVVTQMFFDNQKYFEFVEKCRSEGITVP |
|  | LKQKVEAGADYVVTQMFFDNTKFIGEFVKEARAMDI NVP |
| UniRef90-E4TDS8 | LKKKVEAGADYIVTQMFFDNQKYFDFVDRCRSEGIGVPi |
| UniRet90-G1WIU8 | LKEKQDAGASFLVTQLFFDNQYFYRFRELAERAGI TVPI |
| UniRef90-M7PJ19 | FKRKVDAGADSAI T QYFYNDDAYDYFVERCEKAGIDIPI |
|  | NASISQLFF SADS |
| UniRef90-UPI0003B5D5C4 | LKLKQDSGAEYVVVQYFYDNDFFFSYVDQCRKAGVT ${ }^{\text {L }}$ |
|  | LKAKLDAGANAAVTQYFFNVESYFYFMDRCAAAGI TQPI H |

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PG|I|MP|ITNASN|LDRFADGTGAE\||PRWDRKQ|L|QAYGDDSES PGILDVNNWTRVVRFAEATGAVI PAWVDEAYDKADRDGRE

A G V M P I T N Y T QLLMRFSSDMC GA E I PR WI R R L A L A S Y G D D S E S

P GLLMPI Q S Y S M L K R IT K L S GA S L P A Y I L R RLDD DVK G D D E A

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



T GII M P I T A A K QL G T SLV S L S G T S V P T K L S S MVVA K Y A D N P D D
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A GI MPVVVNKKQIERMVTMCGASI PSKLAKILQRYEMEEEA


A G V M P I Q S Y A S F L R M T K L C A S R V P P S LI A S L E P DR H D D E A
P GI LP P M H L N T VVKRDS S L C G A T L P P A F L Q Q L E E A E G G P A A



PGIMPI ATYASTLRRANHMKCNVPKEWMEALDHVKNDDVA

PGI MP I TN YSNLLVRFSDACGADI PRWMRKAL ETCSDDDVR
$P G V L P V L S L A S I K R F A S L C G A T L P P A Y M A K L A D A A G G A A A$
$P G I M P I D S N F S Q L R R F S D L C G A E I P R W V A Q R M Q A Y G D D V D S$
A G I M P V T N K K Q I E R MV S L C G A T L P
P GI M P I T N Y T Q L A R F S DA C G A E I P R WA R R RL E G C G D D L D A
$P G I L P V Q S W A G A R R F A E R C G T A I P P A T A Q A F E N A E R D G T A$



$P G L M P I T S L R S V R R Q M E L A G A A L P P K L E K R L A A A G D N R P A$
A GIIMPV DN K K QI E R ITT T L C G S N V P K K FMM K I M D R Y E H D P DA
P GIIMM I I N F D N L L V R F S R N C G A E I P R WLLK K R M E S Y Q S P E D
PGIMPVTNWKSARNFATRCGASVPAALDEAYAAADRD DR
A GI MP A H NPK QLKNDAKMSNCSVPF DLAAAMDDRFAGNPKA

A GI M P VT S K S Q I E R MI AL C G A S L P Q K F R R A I DA Y G D D P T A


PGI I P I ENWTRARQFA LRRCGTKVPAWLDEA YAAA AR DGRE
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A GIMPCTNAKSVQRMVTMCGASLPLKFTKMINRYGDNPEAA
PGILDPVENWSKTKDFAKRCGMDAPQWMSKA YENCKNN E E
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PGI MCI QNAGGFKRMTAFCKSRTPAALRAAVEAAGDDKEA


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



$P G L L P V N R F A S V E K F A G K C G A R 1 P$





$P G L K P L A T K K Q L S L L P H R F H V D L P E A L I H E V E K C E N N Q Q$
P GI M P V T GF A KLLMRFS DTC GA EI P R WL RLLKLQS YA D DTES
A GI MP FM G K S QI S R MVVFMC GA SLLPSPVIVKILAAKYENDP E S


P G L L P Q S F A S L R RVLA L C G A N I P

KRMVELS GCALPDDLSTRLQSAAGDRAA




P GLK K P I A T R K QL N LI P H R F KVVDLPD DVI MAVVRCKDNK A

P G I K $\quad$ P V $V$ A A K
P G L K P I A T K S Q L S L I P H R F K V V D L P D D L V TAA T K A N N N N E A
A G I M P FM GK Q Q I S R MVV M C G A S L P S P V I K L L A R Y E D D A D S


| $A$ | $G$ | $l$ | $M$ | $P$ | $V$ | $T$ | $S$ | $A$ | $K$ | $Q$ | $L$ | $G$ | $T$ | $T$ | $V$ | $T$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $A$ | $S$ | $G$ | $T$ | $T$ | $V$ | $P$ |  |  |  |  |  |  |  |  |  |  |  |
| $A$ | $G$ | $I$ | $M$ | $P$ | $I$ | $T$ | $N$ | $S$ | $S$ | $N$ | $L$ | $M$ | $R$ | $F$ | $A$ | $D$ | $S$ |
| $C$ | $G$ | $A$ | $D$ | $I$ | $P$ |  |  |  |  |  |  |  |  |  |  |  |  |


PGGUM 1


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NKKAVFS K F NFSFE VPP FENFSSEKLY
$\mathrm{K} \square \mathrm{NQCFKDHQ}$


K Q K T S $F \vee F S$

[^0] LTELTS K T K $K$
$K \|$ D R L

## S

 $S K M P D I$ K D C V L S S F E LHEP IF
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EEEKNK $\square$ Y CSFEFYPPRSSAAGOR K VTEH $\square \mathrm{KK}$ K NGNTLIF
 KIT E HI S Q A S K TLLFS FE ILPP LLK G Q S L H D ML





$E Y \square K D \square H R D K \prod A \quad T G K P A \square S F E F F P P K T E K G E A Q L F$
 $K \square D \mathrm{LI} \mathrm{D}$ S NEKTAFSFEDLPPDKGTMEQQLW




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 K I I D K I K E L K G E P F Y S F E F F P P K T D N G L R N L L
 K I ID HI Q N A K GK TLLFS FELLPP AK GQS I Q S $\square Y$
 $K$ VT D H I K N A K K T LF S L EV LP P L R DETIQNLIF S Q Q K S K T K K VKLM T S Q TPSLLSFEVVFPPNPAVGNEKIL
 K I T D H L K N A K S T T L F S F E K I T K H 1 QK A T K P L L F S F E I I P P V K K K S I K Q L Y
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 KVTEHIANAR ETLFS FEVIPPDLKGRR DDELLY $T$ VAQNINEA GQF FSFEFFPPKDKSTWPVFM KV DE HI DKATN P LFS FE IVPPPRGSS $\square Q D I V$ KLAPLFAPGRPS
 LS A S A PLD SLDEPAPEAPKRRALSFEVIPPRHDADEEK LE



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 A Gl IE PLMEFKPPFVDVTYHPGGKKRPGTVGICAALMSRFQ


 KNI DPLMMEKPPFIDVTYSREERTRPGTDGI CASLKHKYN
 DNIDPPMMEFKPPF DDVTTSREERMRPGTLGUCASVKHKYN HTAPE LLK $\square$ QPDYCSVTYGAGGSTRGKTLEMVSRDQKDFG KNDDPLMEFKPSF DDVTYSRESRMRPGTLGDCASIQYKYN NAVETMKTMNPGFTAVTCGAGGSGSMGTLKTSCELVQGHG S S MKRLEEPLSPSFVSVTYGAGGSTRERTHSTVSRIVNETA

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160
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 S P Y A L D L V K F I RHHSHF QI K VA A YPEMHPQAKSFAHD DEQ
 F D HASDLI RSI KEKGDFYVMAAAYPEGHDDSHNLVEDI KN FRFAKDLVMRLADEGF_CVGAAAYPEGHDECTDFRASVAH FEHASDLLAAYI R R RPNLSI YGACYPETHPEAASPEEDI EN $\square M S A R D L V R L V R K Q W G D H I V V A A Y P E T H P Q A Q T Q Q D D L D N$ YSYASELVEQVANMNNFCIVGVAAYPEKHFEADDHDIDFQY


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 KHEYSHAI E L E E Q DN RFNQGI A CYP EKHDEAPN L E S D L M W
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 KHEYY HABI QLQE QINN F N Y G V A C Y P E K HE E S P N DE D D F Q H A A D LVVAFTR EHP D M G I G V A A Y P A P HP E S R S FA D D R R Y HPYACDLVKQDTNLNDFCIGVAGYPEKHDEAPSLNSDRKR K H Q Y S H Al ELEAQI NDFNQGIAACYPEKHEEAPNMEQDI YW
 HCYANELVGQIKDHADFCVGVAGYPEKHLESPSLETDLKK HAYASELLQHVVDMNDFClGVAGYPEKHFESPNLDTDFRY HEHATDLQEQVNRFNQFSYGMACYPEKHEEAPNMESDLFY YRYAE EL DWWLTKRLKHFQVGGIAAFPE GHHQSESSLAADTKY GNDPMELVEELTKETAHFQVGIASSFPEGHYRAPTLEADTEF FACALDLVKYMRTNYGFSIQVAGYPEGHPDRDNYA IDLD Y HAFAADLVKQLYEMNEFCVGVAGYPEKHFEAPSLNNDIAH


 F V W W

 FKYAIDLVRYIRGQYGFCIGVAAYPEGHVEGNDDDHDMPY H Q Y A NELV S QI K DMNHFCIGVVSGYPEKHLEAPSMDSDDHF Y A H A S DLVKKI K S Y G DF CVVGGATYPEGHPEAAGLDEDLE H HSFAT DLLEQVANMNQFCIGVAGYPEKHFESPNFNTDFKF $\begin{array}{lllllllllllllllllllllllllllll}G & D & H & A & D & Q L V & E & M & A & M & K & L & G & G & L & E & V & G & V & A & A & F & P & D & G & H & P & A & S \\ N & F & L & E & K & D & D & V \\ R & H & E & N & A & H & A & E & L & E & E & Q & N & D & F & N & Y & G & V & A & C & Y & P & E & K & H & E & E & S \\ P & N & A & E & Q & D & L & L & W\end{array}$ HPYALDLLQQVKSMNNFCVGVAGYPEKHMEAPNLKTDDIVY FRYATDLI EFIGKEAPNFDI I GACYPEGHPDSPNQISDIQN
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Unepolvel

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| UniRef90-G1UT54 | E V G |
| UniRef90-A0LY75 | A V |
| UniRef90-F0R8M1 | A |
| UniRef90-D0J903 | A V |
| UniRef90-D5BKM2 | A V |
| UniRef90-C6XUY3 | A |
| UniRef90-R5VH43 | E V |
| UniRef90-E0DG42 | NL G M A P |
| UniRef90-D8KNN6 | NL GMAP |
| UniRef90-R1BLH4 | R L G |
| UniRef90_G8R385 |  |
| UniRef90-UPI0003663874 | QL G $\square$ |
| UniRef90-R7D7U6 | A L |
| UniRef90_UPI0004407A6B | GL Q WI |
| UniRef90_G2J4N5 | RL G L |
| UniRef90-H6BSG9 | R T GL |
| UniRef90-G8YA65 | RSDLR P |
| UniRef90_UPI0003F4E027 | K L Q L R P |
| UniRef90-W0THR2 |  |
| UniRef90-K5XGF3 | D L Q WT |
| UniRef90-C4R2L4 | K S S |
| UniRef90-UPI000363A81F |  |
| UniRef90-D2RMA4 | N |
| UniRef90_C2FTE2 |  |
| UniRef90-UPI00037A6A69 | NL GL |
| UniRef90-R6TC36 |  |
| UniRef90-UPI00034A24CD | A L |
| UniRef90-Q5M088 |  |
| UniRef90-S4XDE5 | NLGMAP |
| UniRef90-C4ZCX7 |  |
| UniRef90_UPI00041326B7 |  |
| UniRef90_L7WAQ4 | A |
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| UniRef90-UPI00038278A3 | D A G $\square$ |
| UniRef90_UPI000248754E | N |
| UniRef90-UPI0004061ACD | NLGMAP |
| UniRef90-R5IQN9 | A V |
| UniRef90-A4QFN6 | NL G M A P |
| UniRef90-A4CPQ8 | A V |
| UniRef90-R6F3U1 | R L |
| UniRef90-R7JAV1 | E I |
| UniRef90-C6BZ56 | D L |
| UniRef90-H5TCE3 | K V G W |
| UniRef90-UPI0003B2E80E | HAGLR |
| UniRef90-R5H5U9 | N1 |
| UniRef90_UPI0004765757 | R I G I |
| UniRef90-A0A031FNZ2 | E A GV |
| UniRef90-B6JY06 | ESGLLY |
| UniRef90-A6L1E2 |  |
| UniRef90-U5Q604 | R I |


| UniRef90_L0R852 |  |
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| UniRef90 |  |
| UniRef90_B7IHI8 |  |
| UniRef90- R7KAM7 |  |
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| UniRef90_Q4P1E8 |  |
| UniRef90-C4GHL3 |  |
| UniRef90-E4T515 |  |
| UniRef90-R7MBG7 |  |
| UniRef9 | S6ET00 |
| UniRef90-12H5Z0 |  |
| UniRef90_Q6FNS |  |
| UniRef90-UPIO002D8FC27UniRef90 GoWBM0 |  |
|  |  |
| UniRef90-W0F3M6 |  |
| UniRef90-R6LYY2 |  |
|  |  |
| UniRef90-S7TD |  |
| UniRef90-UPI0003699DF5 |  |
|  |  |
| UniRef90_F2HLT8 |  |
| UniRef9 | D4IP78 |
| UniRef90_UPI00036698A1 |  |
| UniRef90_W0ERU2 |  |
| UniRef90-L8WIJ3 |  |
| UniRef9 | UPI0003499C |
| UniRef90_UPI0003B67E82 |  |
| UniRef9 | U7LWW6 |
| UniRef90_UPI00047A6077 |  |
| UniRef90 S7U0Z7 |  |
| UniRef90-R6ABC4 |  |
| UniRef90-I2FQ18 |  |
| UniRef90_R9AC58 |  |
| UniRef90-W2C792 |  |
| UniRef90_R5YAA9 |  |
| UniRef90-B2A780 |  |
| UniRef90-U1REG7 |  |
| UniRef90_UPI00047C1AB7 |  |
| UniRef90-G8JM58 |  |
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| UniRef90-D1B158 |  |
| UniRef90_G4ZJB0 |  |
| UniRef90-S8F9X2 |  |
| UniRef90-UPI00047921FC |  |
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| UniRef90_R6FP44UniRef90 $16 Z 779$ |  |
| UniRef90-UPI0003B31DA4 |  |
| UniRef90-O74927 |  |
| UniRef90-UPI0003769A1A UniRef90-UPI000237B8C0 |  |
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| UniRef90-R6H5F9 |  |
| UniRef90-A8QAM7 |  |
| UniRef90_L8DHR6 |  |
| UniRef90-B5Y6J3 |  |
| UniRef90-A0A022K: |  |
|  |  |
| UniRef90-S0NZ87 |  |
| UniRef90'Z9JTR8 |  |
| UniRef90_R7JR40 |  |
| UniRef90-U2IZ05 |  |
| UniRef90-R5P4M1 |  |
| UniRef90-UPIO0029AEFC4 |  |
| UniRef90-W9EG40 |  |
| UniRef90-C0XTK2 |  |
| UniRef90-S9QAG0 |  |
| UniRef90-UPIO004682BC9 |  |
| UniRef90_F8C3P9 <br> UniRef90 UPI000405C3F7 |  |
|  |  |
| UniRef90-X6NKF5 |  |
| UniRef90-Q9RA47 |  |
| UniRef90-K0KI23 |  |
| UniRef90-12H327 |  |
| UniRef90-N1UX45 |  |
| UniRef90-H0Q523 |  |
| UniRef90-L1JWQ8 |  |
| UniRef90-B111G0 |  |
| UniRef90-F8N9G5UniRef90 UPI000374D3AB |  |
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| UniRef90-B2GHG1 |  |
| UniRef90-C0QKS2 |  |
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| UniRef90-K9ENS9 |  |
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|  |  |
| UniRef90-G7W6Z5 |  |

20 30
KESGQF FSFEFFP ${ }^{20}$ P KEKTTWPAFMM $N L Y K N Q S D P S V S F E F F P P R D D K A E S S F Y$
 K D F FI S I EVIP P LR GHSADNLY




K $\square$ T E K L Q K N H N N L N G H P T F S FE Y F VP K T D Q G VQ N N


LS T T S P A E T $\square$ A E LLTT RAE RP LTS FE FMPPRSEE DVY RLLW A QK T P FVVS LE F YP P K ERE QWGAFF $K \square T E H \square E K A N G K T L F S F E V I P P K K G N N \square Q E L Y$


K H T DRTAFSSLEVLPP LKGTG $\square E K \square Y$ $T \mathrm{~L} V \mathrm{~S} F \mathrm{~F} V \mathrm{MPP} \mathrm{P}$ KPEAAPQFW R D K M K E H L L E K S T Q K T A F S F E
 $L 1 / N N T G K T A F S$ F E L L L P P P L K G N S

SAR $\square \mathrm{DEK} \square \mathrm{NDSTQDA}$ AFS
$\mathrm{V} W$

K VT DK I K Q G R
$\square 1 \mathrm{~S} \square \mathrm{~V} P \mathrm{PNRGHSAED} \mathrm{\square F}$

ARTPARTALSFELIPPRHDADEAKLK

E M SRRPALSYELIPARGDASLEKVR
EEMKNKTLLSFELEPPKTEKGLQNLP
I K Q L L N D E T D E K H F S F E V L P P L K G G N G T A S L F

AEHQPSFS LELTP LGGNSEQQALL
 APTRARFSFEVFPARSGAAALALG
 $K \square R D L L K A R R G \quad P L F S$ S E F F P P K D P E GE E A L L
$K \square T E$ L $L$ K E RTS P CVVS LEFFP PK TE E GK R N L L RTAETAVPPSLLSYELYPPAKPSAEDALL MS ADYPFSVE IFPA QTSE GRLRLA K F Y S L E FFPP NT LE GARSL I
Q GHFA VT AE GPPPKGAS GETVRR

 F 1 T A EVVMP P K G G DP S H M GHFAFT GEVVGPPR GAN VEALK
FHSAP

K S K K L E E R R R L L N A Q GEFVVSCEIGPPKSTDAE $\begin{array}{llllllll}S & L & L & R & S & A & I & A \\ N & A & R & Q & A & E A\end{array}$ | N H K F |  | 1 | $T$ | $A$ | $E$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| G S | L | V | T A | A |  |

A A L A GEF LVT A EVAP P K G G DP T H MLE


UniRef90 LOR852 UniRef90_COQAY2 UniRef90-UPIO0040081E8 UniRef90-UPI0003B536DF UniRef90_B7IH18 UniRef90-B7GB47 UniRef90-R7KAM7 UniRef90-Q4P1E8 UniRef90-C4GHL3 UniRefofo-E4T515 | UniRef90-R7MBG7 |
| :--- |
| UniRef90 S6ET00 | UniRef90-12H5Z0

UniRef90-Q6FNS2 UniRef90-UPIOOO2D8FC27 UniRe990-GOWBMO UniRef90_WOF3M6
UniRef90 R6LYY2 UniRef90-K7SIH2 UniRef90-S7TD98 UniRef90-UPIO003699DF5 UniRet90_R7GLM7 UniRef90-F2HLT8 UniRef90-D4IP78 UniRef90-UPIOOO36698A1 UniRef90- WoERU2 UniRef90-L8WIJ3 UniRef90-UPIOOO3499C97 UniRef90-UPI0003B67E82 UniRef90 U7LWW6 UniRef90_UPI00047A6077 UniRef90-s7U0Z7 UniRef90-R6ABC4 UniRef90-12FQ18 UniReffo-R9AC58 UniRef90-W2C792
UniRef90 R5YAA9 UniRef90-B2A780 UniRef90-U1REG7 UniRef90-UP100047C1AB7 UniRef90-G8JM58 UniReffo-D5HB29 UniRef90-D1B158
UniRef90 G4ZJB0 UniRef90-S8F9x2 UniRef90-UPIIOO047921FC UniRef90-R6FP44 UniRef90-16Z779 UniRef90-UPI0003B31DA4 UniRef90-O74927 UniRet90-UPIIO003769A1A UniRef90 UPIOOO237B8C0 UniRef90-R6H5F9 UniRef90-A8QAM7 UniRef90-L8DHR6 UniRef90-A0AO22KSIO UniRef90_D7WBR8 UniRef90-SONZ87 UniRef90-Z9JTR8 UniRef90-U2IZ05 UniRef90-R5P4M1 UniRef90-UPIO0029AEFC4 UniRef90 W9EG40 UniRef90_C0xTK2
UniRef90_S9QAG0 UniRee90-UPI0004682BC9 UniRef90-F8C3P9 UniRef90-UPIO00405C3F7 UniRefto - X6NKF UniRef90-K0K123 UniRef90-12H327 UniRef90-N1UX45
UniRef90-HOQ523 UniRef90-L1JWQ8 Uninefol-B1IGGO UniRef90-F8N9G5 UniRef90-UP1000374D3AB UniRef90-M7NLU7
UniRef90
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UniRef90_C0QKS2 UniRef90-C8W678 UniRef90-K9ENS9 UniRef90-M1 X082
UniRef90 U9Q6U2 UniRef90-UP10003485A5C UniRef90_G7W6Z5
UniRef90_X1F4N6
 GVVDALSALNPAYMSMTFGAGGSTSEGSFQAVKRMMDEKN DHLNPLMEFKPSWINVTYHRSETAFPGTVG円CAADMNHYS RTI DRLAEVDPAFISVTFGAGGSSRQRSLTVLRYMLEHTR KA!DKIMPYNPAFISVTKHPPELEYYGTMGIVAALKMRYN ARMHRMRDLQPAFTDMTWGAGGSTAELSDQLA LYAHNTG RALKSDKSVGPDFVSVTYGAGGEGADTTADVASIADDAFG NRIARMHNLEPSWLHVTWGAGGTTGGKSLELAGRIQKQQH LVRQELKQFNPQFFSCTSGAGGSTREGTLQTVRDILNE Q EELRVLKKYNPSLVSLTYGASGSGARFSKEDMKTLLG LE DRDDKMY LN DRIDKMYQNSPQF:DVTWNASGSTNLSTNELVSNTQSVLG ERMERMSALDPDVIVTVTWGAGGSTSEKTLELAQUAQRDLN ERMGRMSAMDPLFITVTWGAGGTTSDKTLNLAQLISKEFN DHLDPDMGFKPAFINVTYHRSERKRPGTESICAALMNKYN RATDELVPLRPDFMSVTYGANGSRRDRTLRCTQHMVASG EEAEKLKAVDPDFVSVTYGAGGGTQDNTLETAARLKNETG NNDDPLMEFNPPFIDVTTSREEKMRPGTVGICAAIKHKYD KTDDSRTDSPDMSTYGAGGGTSAHTVALAKDIHEKYD AAVEPLMALDPAYVNITGHREGRRRPGTVGISAAI QNRD A AVEPLMALDPAYVNITFHREGRRRPGTVGISAA1 QNRYG
 TRITGLASLKPlAASVTWGAGGSTRDRSLDLAAFCQAENG QTLKEMQDLAPHFDSVTASNNKFNDEETVRLADYMHNDLS NVVDALMPFDPPFIDVTSHSAERKRPGTLGLCAAI EGRFG RLLQTLESYHPDYIAVTSSKRSGWLEGTTAFUERISRTTS
 NRUARMRALDPSWI HVTWGAGGTTGGKSLELAGALUCERGG
 DTI DALREFDPKYINITSHRSEKSRPGSVAVAAAIQYKYR KTVDNLARLKPDFISVTYGAGGTNSDGSLEVSEYVKNK G STIDETLKEFNPLFMNTTSHRDERKRPGTVAVAASIQHKYG ARMARMSAMHPLFVTVTWGAGGTTSEKTLELAEFAQRDMN STVDHLVAARPDFVSVTYGAAGGDRTTAQTVVRRILEHAP QTVDAALQPTFVTLTWRSAFKDEALWLRIGAHI QNEFQ QTVDLLREFDPKYUNVTHMRSERRRPGTVAVAAALQNKYN ETI DLLREFDPKYMNTTHRSERRRPGTVAVAAAL QNKYN NVLDDIVKYNPPFIDITSHPAERKRPGTLGICALI QNKYN
 NADDRLKEFDPKYDNTTHHSESDYPGSVAIAAAI QNKYG
 ARVARMSELQPGWVHVTWGTGGSTRDASMELAARVQRKGA KAVDELITDYPSFTNVTRGAAETTYPGTVGLTAALMEKYS QTVAQLEHTAPDYVSVTSRTGYQNFARVLELTDHVLEHTR DLVAGLAAYKPDYIAVTSSRRSGWLEGTADFIARLVESTN DTLDELQDLGPHFISVTCSNNADLKTTTLKLAGY:QKTLN GTIDHLMKYNPSYISCTYGAGGGNVGANREVCQMI KN AG


 HAVQHLSAAGPDFTSVTYGANGSNRDASVDLLKYLRDHTD EKAKWLKGY VDAVNITDNPRATVKMSSFAGAIILDKE G NIIDKLIEFDPKYINITTHHSERKRPGTVAIAAAIQNKYK

R DRTGRMSALEPLFVTVTWAAGGTAADKTLELSTTCQKEDN DTVRRLVAQGPEFISVTYGAGGCTREASLAALQLVRAAGG ARVDRLAKLQPEFVDVTWNMESG KRAIETLVAAKAVCS HAA LLRDCTDAQNVTDNQSAVVHMCSLAAAVHVLQAG DHLDMVRDFEPNYINITTHHSERRRPGTVAVAAAI QKRYK RTIEELEPTRPDHVSVTYSGDEQRRDSSLALLDHLLARTS
 MA QQLKGRVHAVNDTDGSRAVLRMSSLASALLKQVG RSTDAMAQAGPDFFSVTHGHSGGRGV SREALRHLRRTTR EKVAHLKGV VDMANITDNQTAMVRMSSWA ASLI CMEGG REYARMLKNHVDAANLTDCQTAMVRUSS ASAWHCLEEGG M A


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| RRef90-UP100040081E8 | PDGHKYAI DLQKQVTNFCLGTAGYPEKHFEAPNL |
| UniRef90-UPI0003B536L | - |
| UniRef90-B71H18 | DYAYQ |
| UniRef90 B7GB | FTCALDLVEFIRSLPDFHLAVAGY |
| UniRef90-R7KAM7 | FHHASDL |
| UniRef90 Q4P1E8 | FQHATD |
| UniRef90-C4GHL3 | SRYANELVALVKQKFGDHFHTAA |
| UniRef90-E4T515 | HEHKNA |
| UniRet90-RTM | YAKDLV |
| UniRef90-12H5 | ECTDLVKYIRVRYGFDIGVAGY |
| UniRef90-Q6FN | EDQWDLVRYIKENYGFCI GVAAYPEGHCEEQD |
| UniRef90-UPIIOOO2D8FC27 | GHACELVRQIARMNEFCI GVAGYPEKHCEAPNPAEDN |
| UniRet90_GOWBM0 |  |
| UniRet90_W0F3M6 | VRKTDFCI GVA |
| UniRet90_-R6LY | HASDLVYQIKNIPDICL GGACYPEGHPEADDKTADIAN |
| UniRef90 K7SIIT | GGNATELVRLVKRVNGACVGVGAFPDCHPASGDLDLDAR |
| 俍 | YAKE VAQMQNLNDFCIGVAGYPEMHPQAPSLQTDLA |
| UP10033699 |  |
| UniRet90 R7GLM | OQYACQLVKELKKDYDDFEVGGACYPDGHPESPS |
| UniRef90-2HL18 | PQGHAHAVDLVRQUADMNIGVAGYPEVHAEARD |
| UniRei90-UPIO0036698A1 | YASELLEQVVDLNDFCIGVAGYPEKHDTAPNIESDLKF |
| Un |  |
| UniRe990-L8WIJ3 | HAEDLVTYIKQHNHFCIGVAGYPDGHSEGGS |
| UniRef90_UP10003499C97 | FRYATDL |
| UniRef90 UPIO003B67E82 | GFQKNDLVKQVDAMNDFCVGVGGYPEKHFEAPNLSWDUMR |
| UniRet90-U7LWW6 | SKNEDEDFDV |
| UniRef90_UP100047A60 | RLAVGVAAYATRHPESPSFDHDIEA |
| UniRef90_S7U0 | CDFDLVTFAREFPGLCVGVAGYPQPHPQSPTVAEDLRW |
| UniRef90-R6ABC4 | GGAA |
| UniRef90 R9AC58 | HSSDLVHYIRQRHGFCIGVAAYPECHKDSSSAAQDLNY |
| UniRef90-W2C792 | HEPDNAELYHDHTPFSYGMACYPEMHEDALSSMDDDVRY |
| UniRet90-R5YAA9 | Al DLQQQVNRFNEGYAGYPEKHDEAPNLETDLRH |
| UniRet90_B2A780 |  |
| UniRef90-U1REG7 | , |
| UniRef90_UPI | QRDKFDLINQVNNLNKFSFGVAGYPEKHEEAPNLDSDVYW |
| UniRet90_G8JM58 | FRYAVDLVRYIKHGNDFCVGVAAYPEGHCEEQSPLRDLPF |
| UniRet90-D5HB29 |  |
| UniRe90_Dibis8 | - |
| UniRet90_G4ZJB0 | NAVDLI KLIREEGFCIACAGYAEVHTESWNHPLDLQR |
| UniRef90_S8F9X2 | GNAHAI DLEKQINDFNNGLFCYPEKHEEAPNMEQDI YW |
| UniRet90 UPI0004792 | SATQLIHLIRTVEARRDAVATFPAGNPAATTQDEEIQR |
|  | KHEHAHAVVELQQQI NNFNYGVACYPEKHEEAPNQETDLYW |
| UniRef90_162 |  |
| UniRet90_UP10003B3 | K |
| UniRei90 UPI0003769A1A | MDCHPYATGLQEQVN |
| UniRee90 ${ }^{\text {UPIOO0237B8C0 }}$ | SRHQFDLIHQVNNLNKFSYGVAGYPEKHEEAPNLDSDIYW |
| UniRef90-R6H |  |
|  | RQNATDLV |
| UniRef90-L8DHR6 | GDYAEELVRLVRDLGDFHVGVASFPEGHHRADDLEQDTRG |
| 55 | HTYAVDLVQQ A M M DFC GVAGYPEKHFEAPNLEEDMKH |
| A0A022K |  |
| UniRet90_D7WBR8 |  |
| f90_S0NZ87 |  |
| UniRef90 Z9JT |  |
|  | Yatdl |
| UniRef90_U2IZO | HRHTTELIKQVNHFNEFVYGVACYPEKHEEAPNLEQDLRY |
| UniRef90_R5P4M1 | - |
| UniRef90_UPIO0029AE | - |
| 90E |  |
| 0x |  |
| UniRet90-S9QAG0 |  |
| UniRet90-UPIO004682BC9 | RGRTEELVELVAEARAERPAVAAYPNGHPLSRSRAEDIEW |
| UniRet90--8C3 | PVFDLDSUQLGDEIKGKKPCFFIGAVENPFADPLEFRPLR |
| UP1000405C3F7 |  |
| X6NK | $y$ |
| niRet90_O9RA | FRYAAELVALIRERYGDSVGGAAYPEGHPESESLEADLRH |
| UniRet90_K0K123 | AV |
| UniRef90-12H3 |  |
| N1U | GPEVSLVELI REVEESHVGVAAYPNPHPESPSFQHDVEV |
| UniRef90-H0Q523 | FPHAVELVRFIREETGYHI DVAAYPETHPQARSAEHDLAC |
| ef90_LJWQ8 | NASELVSYIRHKYGFSLSVAGHPGKHPASSSKEEDLEH |
| ef90 B111G0 | ( GNHQLVGLRRLCEGRPELFVGAVENPFAGPLPLIVLR |
| F8N9G5 |  |
| UniRef90_UP1000374 | GELVELVREVEQRHVGVAAYPTRHPESPSFRHDVEV |
| UniRef90-M7NLU7 | - |
|  | YKYAVELVQQIARMNDFCIGVAAYPEKHYEAPNLEEDLRH |
|  | R |
| B2GHG1 |  |
| UniRef90- ${ }^{\text {CoQKSS2 }}$ | DSMQLIGMVKKMRDEGKF TF ${ }^{\text {GGAAANPFAEPFEWRVHR }}$ |
| UniRef90-C8W678 | R |
| UniRef90-K9ENS9 | KAGDHESVRLLRTMGQLNQGMFAGAAVDPQSPSWSGLOKR |
| UniRef90 | R |
|  |  |
| UniRef90-UPI0003485A5C | R |
| G7W6Z5 | R |
| UniRef90- $\times 1 \mathrm{~F} 4 \mathrm{N6}$ |  |

## UniRef90 LOR852 UniRef90-COQAY2 UniRef90_UP100040081E8 UniRef90-B7IHI8

 UniRef90-B7GB47 UniRef90-R7KAM7 UniRef90-Q4P1E8 UniRef90-C4GHL3 UniRefofo-E4T515 UniRef90-R7MBG7UniRef90 S6ET00 UniRef90-12H5Z0
UniRef90-Q6FNS2 UniRef90-UP10002D8FC27 UniRe90-GOWBMO UniRef90-R6LYY2 UniRef90-KKSIH2 UniRef90-STTD98
UniRef90 UP10003 UniRef90-R7GLM7 UniRef90-F2HLT8 UniRef90-D4IP78 UniRef90-UPIOOO36698A1 UniRef90- WoERU2 UniRef90-L8WIJ3 UniRef90-UP10003499C97 UniRef90-UPIIOOO3B67E82 UniRef90'U7LWW6 UniRef90-UPIOOO47A6077 UniRef90-S7U0Z7 UniRef90-R6ABC4 UniRef90-12FQ18 UniRef90-R9AC58
UniRef90 W2C792 UniRef90-R5YAA9 UniRef90-B2A780 UniRef90-U1REG7 UniRef90-UP100047C1AB7 UniRef90-G8JM58 UniRef90-D5НB29 UniRef90-D1B158 UniRef90_S8F9x2 UniRef90-UPIO0047921FC UniRef90-R6FP44 UniRef90-16Z779 UniRef90-UP10003B31DA4 UniRef90-O74927 UniRet90 UPIIOOO3769A1A UniRef90-UPIOOO237B8C0 UniRef90-R6H5F9 UniRef90-A8QAM7
UniRef90 L8DHR6 UniRef90-B5Y6J3 UniRef90-A0А022KSIO UniRef90_D7WBR8 UniRef90-SONZ87 UniRef90-Z9JTR8
UniRef90
U7JR40 UniRef90-U2IZ05 UniRef90-R5P4M1 UniRef90-UP100029AEFC4 UniRef90-W9EG40 UniRef90-C0xTK2 UniRef90-UPI0004682BC9 UniRet90--8C3P9 UniRef90-UPIOOO405C3F7 UniRefofo-X6NKF5 UniRef90-Q9RA47 UniRef90-KOKI23 UniRef90-12H327 UniRef90-N1UX45
UniRef90_HOQ523 UniRef90-L1JWQ8 UniRefol-B11IGO UniRef90-F8N9G5
HS



| UniRef90_L0R852 | A |
| :---: | :---: |
| UniRef90_C0QAY2 | RL |
| UniRef90-UPI00040081E8 |  |
| UniRef90-UPI0003B536DF | $R \square G \square R$ |
| UniRef90-B7IHI8 |  |
| UniRef90-B7GB47 | A L G |
| UniRef90-R7KAM7 |  |
| UniRef90-Q4P1E8 | GLGWK |
| UniRef90-C4GHL3 | $\mathrm{R} \downarrow$ |
| UniRef90_E4T515 |  |
| UniRef90-R7MBG7 | N |
| UniRef90_S6ET00 | N |
| UniRef90-I2H5Z0 | KL NL |
| UniRef90_Q6FNS2 |  |
| UniRef90-UPI0002D8FC27 | A L |
| UniRef90-GOWBM0 |  |
| UniRef90-W0F3M6 | E V |
| UniRef90-R6LYY2 | NL |
| UniRef90-K7SIH2 |  |
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| UniRef90_UPI0003699DF5 | EL |
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| UniRef90-W9EG40 |  |
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| UniRef90-Q9RA47 |  |
| UniRef90-K0KI23 | K S S L |
| UniRef90-12H327 |  |
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| UniRef90-G7W6Z5 | GA GLL |
| UniRef90_X1F4N6 | $\square \mathrm{A} G \mid \mathrm{L}$ L |

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$S \xrightarrow{10}$ E

30 30 40 KSRLEQVLK

 FFHANQREALNQSLAEVQGQINVSFEFFPPRTSEMEQTLW


 $M S T T T P S K L Q K \square L A A \quad G H F G V T T E C G P P R S C D G G G V$ $S R L E R V L K A G H G V T S E C G P P R G S D P E E \| K K$
 GEFVVTLVVE V VP P K G $\quad$ DD S S K E


Q G
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EK L
$\square \mathrm{Y}$ S N $\square \mathrm{QRR}$ R A A
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MA Q S LRETLN S

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## A V

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 NKLQD K L L A A VK K


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S GAFAVT GELGP PKSADPEVVRK S GRRFFSLEFFPPHTTEGLI NLL



NKEFLITAEVTPPKGGNPTRMLE P F Y S I E I F P P S T E S GLLN NLK

K T E S R L E K L L A
 DAVSNRFRAA KKFIVTAEVMPPKGANPQHML $K \square R D \quad 1 \mathrm{~L}$ K D

## QTPQV

 $\begin{array}{lllllll}\mathrm{V} & \mathrm{H} & \mathrm{N} & \mathrm{K} & \mathrm{E} & \mathrm{F} & \mathrm{L} \\ \mathrm{V} & \mathrm{T} A \\ \mathrm{D} & \mathrm{P} & \mathrm{Q} & \mathrm{R} & \mathrm{V} & \mathrm{T}\end{array}$$R$ L E K A L E D P Q
E F LIT A E TT P P K G G N A S H MLE
AERS LIGARワA $\qquad$
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GEFVSMVEIVPPK G IDDATREL K S RLAAK I S A VT P L S E | $E$ | $L$ | $A$ | $R$ |
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| $A$ | $V$ | $K$ | $A$ |
| $A$ | $D$ | $A$ | $S$ |

GHFA A T T E E L A P P D S A D P E E V Y Q RLA D A A

KHQPLHEKAKTERTVIVELDTPRHLETEDYI K K S K LQ K T L E S H S K
A E R S K I G S M I A A K ERPSLLP ERVKEAR S GK F
$R L R R A D \mid$

| $S$ | $R$ | $L$ | $Q$ | $Q$ | $A$ | $Q$ |
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| $S$ | $R$ | $L$ | $G$ | $Q$ | $M$ |  |


AITAELMPPRGGDPTRSLK GKFA
$K S K L G R K L S E$ HKEQLQDVVAE

HRF ILTAEVVPP Q GVE VTKCV
RKSVIVELDPPKHLD TGRFM
S GRFVVTVEIAPPDSADP SVLL

K F L V T A E V S S P K G T R Y S V $V$ PLLE
K A
R GE F A V T T E L N P P D S A D
 RTAVRAKEFLI TAEVAPPKGSNPTH

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N K F V V T V E L L D P P K T L L N L D K I L S

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$K A \quad R L L K G R V D A V N \square T D C Q T A \square V R M S S \square G A G L L V Q A E G$ K RVDIFANSQPLFVDVTWDPASEKVTSSSSLADCILNFCLD I EMANTLK GRVHAVNDTDGSRAVLGMSSLASAIILKHG
 V $A$
$K Q L K G R V H G V N V T D G S R A V L R M S S M A S A L L L Q Y G$ NFLSDDRKYRPLFCAITSKSTSRTSESRFELARMII KNYG EAARPLAEV, VDADNATDASGANCHMSSDGICS LLTRAG KA KYLDGIVDAVNVTDNQTAMVRMSSLAASFDVKQQGG SAAEKDAALKPSFISVTYGAGGGTSKNTVSIASHIKDDFG


MAL WLKNRVHAANTTDGSRAVVRMSSLA ASATLYQHD DVYERAA IFDGWVDGINDASGANAHMSSVGDCAALLTRMG E GARMLKQLGVHAINVPDSPRASTRMSAGSMCLQIEQKVG AKVRRCHEAGVDAINIPDGPRASARVSPMITALVILREVG RA R LIF GYVDAMNATDGSGAHCHMSSVGMCS LLTRKG VGAKALHDAGIDALTLADNSLATPRDSNVAVGSVVKEQLG MA QLLKDRVHAINDTDGSRAVMRMSPVASAILLQQG RAADHLRGW VDAVNVTDNAGANVRVSSLAGSLALLEEAG AHHGEMLRDYCDAINLADNQTAVVRLSSGASGUVLQQQG $\square A$ QL LK DKVHAI NMTDGSRAVMRMCSLAMS RLLLENG NGASQL HK LGVDAINVPDSPRASARMSAQSLCVQIQQQVG EGAAALHEAGADAVTMADNSLATPRDDNLAMGSMLQAQTD KKAAMLKD CVDAVNLTDNQTA IVRISSFASS LACLQE G $K A D L L R D C V D A V N V T D N Q G A R V R M S S L G G A V$ LAQRAG RMAKLLGDRVHGVNVTDGSRAVMRMSSIAAASTLLLQNG AGAEALKKAGADAVTMADNSLAVTRMSNMALAHLVQRETG NA HRLKHRVHGDNDTDGSRAVMRMSSLVAAILKQAG DGATMLAGLGVHVINVPDSPRASARMSAQSLCDQLQQKSG QVAQDLKEKVDAVNVTDSPMAKMKMSS MMAGHFIQEETG ETARRLQERGVDAI NIPEGPRARSRMGADFLGKIIQDQVG EGASALKQAGI DALTMADNS LATPRQSNMAMAAL:QQQLG ARAERFRGLVDAMNVTDGAGGNCHMSSVAAASAILAHAG DA RHLKGRADALNVTDNQCSDMHMSSLAFSKLLLDEGG

 EGARQLTAAGAHAVTMADNSLASPRISNLAMASLVKHQDD
 MAL EA RKLYGLGVDALN I TDCPMANMRMSPIALAAHLLQNHLN



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SLGNHOLGAKIIRDEGVFANGGAGNPFADPLEFRVFR SFDSMQLVQTVRYMRDEQPNMFVGAAANPFGDPFHGRVPR F DNS DDLLTLIKKYKNFEVIVTAYPEMHPNTDSFEKEVCF EMYAADLVGLLKEVADFD TSVAAYP
D DDSMQLLQLVRRMRDEGKFMFVGAAANPFADPFEDRVPR YKHSVELVKQKAMNDFCVGVAGYPEKHFECTNLEQDIKH DLVPSGLIKLIKQGFNLGVDHSGTSIGNDTAAEPEQEIKN TFGNQELMVLRNMRDQGKVWGGLGAAANPFADPFEFRVAR KFGDHDSIQLIQELKAGGPAFFIGAAENPFADPFKYRAAR KAGDHESVRLLQLI GKLNAGLFVGAADDPQCGSWSGLQRR SFGNHQLIRIVKEIKGQEPRFFIGAAANPFADPFEFRVMR SFGDHQLI QTVKLMRDDCPQMFIGAAENPFADPFDVRVSR FANATELISFGREKMDFCDGGGCYPEKHPNAKTGEEDVRN KVGDHESVRLLQLISKLNNGFFAGAAVDPQLKSWSGLQRR KMFDVDAIGLTKLVRDMNYGLDDGGHSDGQSCGFDNEVRR PVNELESVRLLQQVTAFNSGLFAGAAADPHASSWSGLSRR KAGDHESVRLLRVIGQLNQGFFAGAAVDPQSASWSGLQQR KAGDHESVRLHRTLVDGGLDLFAGAAVDPQSKSWSGLQSR SVGDHPFARPVFEVTNSGVDFAGNPLGNLNAQDLSSEATER RINSFQLIRMLRKLRDEARFDSGGFFVGGVANPNVERAAR FDRAFQLVQLIREVSADYLGGAVAAYPAGSIQTRTDAVQA KFGDHQLVQTVKKMRDEGKFMFIGAAANPFADPFEDRVMR TMNLVNMVKVMKTEGKDMSGMF $\downarrow$ GAAANPFADPFEYRVIR FYNTSDFVK FLAGHELEVIVSAYPEPHPDSEGFAFDLRL $P V G D H D S V Q L L R A \square R Q M E S G F C A G A \| V T P E A P D E P Q L I K$ KAGDHPLIRKLNQGSDWNTDLFAGAAVDPQCPSWSGLQRR RVHELIESJVLLQQVSAFNRGEFAGTAADPHCASWSGLSRR FACARDLVRYUHDTYGFCVSVAGYPEGHPSRADHQKELEY SFGDHDSVQLLQALKGLGPAFFVGAAAAPEAEPFPGTFYK SVYDVDSVGLLKMIKALNSGFFCAGTTANPNDLRDEAMEK KAGDHESVRLNKTLPDGATDLFPGAAVDPQSSSWSGLKSR SFDSMQLI QMIKCMRDEGKFMFПGAAANPFGDPNELRVMR KVHEFESVRLLQQICDKKTFMFAGAAADPNCRNKRSLENR KRGDNPSVYDCDSUGLAKDACSLNNGFNPLNPDDDLEDDK KAGDHESVRLLQVIQKMNGGQFVGAAVDPQCPSWSGLQR QAGALDMURWUREEYGFSTGCAGYPLGHPQAPSYKADLMY MAAYPEVHPEAKSAQADLIN KFGNHQLLGMMRDMRDEQKFQCGEADKAHEPRLFLGCAAR DDAN SVTTTDFQYACQLVRF DRSHYGDYFTICVAGSY KVFDFESVRLDKALPHGATDLFAGAAVDPQSPSLSGLKSR SRYDVDSIGLLKLISAFNRGYFCAGTTANPNDLRDEALEK SRYANEVELUKNEYGFHDEDAAYPEYHPQARSAEDDLNH SNHALDVVKFIRKENDFALDAVAGYADVDPQSPSWSGLKSR DLDSVSLLRALKTMRDEGVFLSGGAAENPCVTPVEWRPDR D DSVQM QMVRDMRDKGUFMFDGAAANPFADPFELRVMR PVHELDSI RLEKPMNDGALDDFPGAAVDPQSTSWSGLQSR YRYACELIEDIKQQGDFCI GAACYPEGHVETEHKKDDISN SAGDHKLLKLIDKLNDGHLDLFAGGAVDPQDKSWSSVKRR KNGDHPEAKGVFDVFSSTI DEAAGAVVNPGATDLDGEIRR FNHANDLVAFVHQRPDFSI ASACYPNCHPEATGFVDDIAH KAGDHESVRLDKSLPDGPLELFAGAAVDVQSKSKSGLQRR QADCMSLLETIRIMRDNSKFLSGGAAINPFAPPQDFRVHR KMFDVDAVGLTRIVRDMNHGLDTGGAANPGVPDLDAEVRR KVFDVDSUGLTSVVHNLNTGIFUGVGANPCAVDLEREDDR K IGDFDLIRLISQFNGQKTNFSTGAAFNPNVRHDDKAVER KAGDHESVRLLRLIDKLNHGHFPGAAVDPQSPSWSGLQRR EQGDHPLMAAARSLRDEGVLLSGRSVDPAPRWSPGPSADR NVYDDDSLQMLKMLDGMRKGYFANCAANPFGDLFEYRVLR KVHEFESVKLLKQI OSFNNGTFAGAAADPSYKNLKIVKMR KVFDVDAIGLVNUVRNLNCGLDIGKNSDGESTGFDQEVRR DYASFDLI AMI KEMNGEKTNFTVAGAFNPNVRSVERAVAR SFYDVDSUQQLMDFNKMKPELFLGAAANPFADPFEFRVQR RAGDHQLTGLARTLRDEGVLASGGTVENPFAPPLSLRAER
 QAGDHESVRLLQLI GKLNQGLFPGAADDPQSPSWSGLQQR KLGNYPLVNVVRBLNGASTGFT DGCAANPGVPDIDNEVRR TRFDTNSIGVIKTVQKLNQGFDTNDNGNLGADDLDEEVAR $K M F D \square D S I G L T V V H Y L N V D L S G N P G G N P G A L D L E Y E L R R$ KMGDFELGQLTKQMNERKTSFSVAAAFNPNVRHLERAVAR SQGDHDAVSLLHVARGMAPRLFIGATCNPFVPPFVDRIAN SCGDHQLIELVRKL DSGFDLAGNILDGGTSFCAIDQLIK

 K IGDFELFQLIKKLNEKKANFSVAGAFNPNVRVVERAVKR KAGDHESVRLDKALPDDPTNLFAGAAVDPQLKSWSSVQKR
KAGDHESVRLLQILEKLNRGFFPGAAVDPQLPNWSSGQRR KAGDHESVRLDQQIEKLNRGFFPGAAVDPQLPNWSSLQRR EVYDVDS:GLVRMVNKLNNGYF IGGAVNPTAQDLTKEIVK


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$A G \prod F L L K S A K N A E F \square N R V P G V H \prod E Q A T \prod D R \square A K A E N P L A E$ A GIIPIK SLKMAAYMNKVPGVNIPQDLIRTIEVASDRAAV A GIMPCTNKKQDERTT QITGVPLPKKFSAILDRYQNSKEA A GI FLLKSAKNAVFLNKVPGVQIPDHIIQRLADAAHPLEE C GVGBLASARTARWMSNVPGVHIPDTI I ERLEGAKD A GI WPLTSVKNAEFMKNDLKVSMPDEI LSRMAANAASPEH A GVWPL $\square$ SYRNAEFMNNVPGVMVPREILERMARCET REE



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 A GUWPLTS S $\square G \vee L P L T S Y K M A Q Y L Q N V P G V E I P$

## AGVWP VS RNAEFMNEVPGATVPEVDMDALDPVKEDDEQ

 I GGI MP LT S SRNAEFMDEVPGGIKLTEDVIMQRLRACKSKEES $V G V G T L S S A K A L D R W M H V P G V H V P E A V L Q R D G S A T D Q K A E$ AGLIPLKSLGMAEYMNKISGI HVPDEIMMDRMKEASSPLEE CGVGPLTSARTARWMANVPGVHIPDAVIARLEGAAD F GVMPLVSYRNANF $\square$ NELLPGITIPDWI I DRF SMDMSKEE AGILDPVRSVKALLQYMKKVAGMEIPDSLI ERMKKAEDP IGIIMPLTNIRNAEFLHEVPGDKLSDEVLERMRACGDDREA A GI F LLKSAKNAQFI NRVPGVDIPQHII DRLGAAEDPGYE AGIFLLKSAKNAQFI NRVPGVNIPQATIERLERASNP VGVLPLKSYKMAVNLAKVPGIEIPDYILERLKNNGKG 1 GI MPLK S F K MVEYL N KL P GI FVPSEVKERMRGKDUniRef90 UPI000361F15B UniRef90_V4KY68 UniRef90-J4A019 UniRef90-V2AI95 UniRef90_A8ZXJ9 UniRef90_UPI00035DC51C UniRef90_H5SL32 UniRef90_UPI00037102BE UniRef90_Q1PVP9 UniRef90_K8GQJ5 UniRef90_Q2RJ84 UniRef90_AOLN01
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RK L DP $\square K G R \square H G M N D T D N T A V M R M S P F A M G H \square K T G$ EGAKALMDAGADTITMADNSLASPRISNMALGSKLQQHG ERACVFDGF VDAMNATDGSGANCHMSSVGMCAALTRMG

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 A GATALSEAGADMITMADNSLGSVRDSNMALASVLKQRGG Q GAK AL Q DS GVDA I TMA D N SLLASPRVDNLALGSMVK QHLS
 GCCE LHNAGADAI TLADNSLANVRMSNMALGALMKHRFG



 D A A R QL E E E QVVDVI NVA D S P MA R VR L G A L ATARLI QERTR

 D A A HI L K Q S HVVDVVTMP DSPSGRTRADSLILMAEKVVHKETGG EGAEILQQQAGADAVTMADNSLASPRVSNMAMGARLKYEKN $R G A Q T L S Q A G A G A I T L S D G P L A N P T I S N V A L A A Q L K Y Q Y G$ ESAHYLK LQ N VVDVLTFP DSPSGRTRVVSVLMAAEKVRRATG K GAKVLKEAGVDAVTLADNSLASPRIDDNALAA QI KED $K G A Q R L K A A G V D G I T L S D N S L A T V R I A N A T I A A Q L K L S Y G$
 DAA HLLLQRS GVVDVLTPDDSPS GRTRADS L L MAEKVARET G







GAA S LAASGGADA $\square T \square A E N P L A S P R L S N \square A L A N L I R A R T D$ E GAKA I R DA GADALTLADNSLASPRMDNQTLAMLLMEE G


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D M T S F D M|I R M I K QLINE G|I|AF S GKPAFNPNVKHLDKAVRR K S G DH D S V QLL S MI R K M M N G S D LIY G NP LE S APEFMMQMLK
 KMGDHDSVVSLI HAVVK QLESSGFAKGAVVSPCSDSVVDAQLA K

 KHEHAHASELQEQVNNFNNGYAGYPEKHDEAPNMDIDLMF $R D N S F T$ LIKLLA DLN GRGAGFADGGCVFNPNSQRMEVVQAER FEHAADVVVFI RQQFGFCVCVAGYPQMHPESPSKKLDLYY P DHAS DLI KYLLRATTGFCIAAGACYPDVHPETGNRVDDINN
 DVTS F GLI NMIK QF NGERTSESVGAA FNPNVRVI DKAVQR
 DMTSFE II RMI K QLDNDQKAKFVVGAAFNPNVRHLDKAVAR
 $K$ VF DMESVVRLL RLI HNLNRGIFPGAAVDPQSKSWS GLQRR KHNTVDLI R LIDK KMNGGSTDFNDACTMAPTSSRKPE HEMEK D Y N S F DL I KLCK QFNE GRRLNFSVGAA FDPNVRHLD KGVQR
 QA GDHSLLEMARRMRDESCFESGRP $\square$ ANPFVPPRAWRAQR
 $K \square T S F D L I$ R LI K QF NGKKTNFSVAGAFNPNVRHDDKAVKR
 QA DCMSLLEIARGMRDDAHFESGGAAENPFAPPFEWRPHR

FFS $\square$ GVA GFPE GH DDCP DKE T D SRY
S $\square$ G D H P LIE I A K A L N E GH D M M G IG T T A N P GA D D LD K E $\square R \mathrm{R}$ DLNSFTLI KLLNGLNGSGTRFTIGAAFNPNTQRMDVQAGR K I N S F DL I HY Y K QM N G E S T S F S V A A A F N P NVRNNLNRAVGR KVGDFELVVQLIKKFNDEKARFHVGAAFNPNVLNLEKAVREL SRFDFNSI KLMQYVKEMNDEVFAGGALNYHGANPAAII E R QVDSMSLLEVIAGLRDKKAFVSGGAAENPFVPPQDFRPYR RIN S F DLI R MVVKQLNE QRGRFVVGGAAFNPHVVRMEAADRR
 PVFNFDSVGLMNII SDMNQEQFAGKPVNQGRVNFKVELER

 $P$ VY D LDD SVQLSSRLEGGYDIASSFTKGAVCNTEPDQP LQLMK

 $T$ T G D HELI R AVT L L N G G T D L S G A D LT GP T D I G D L S V EKK R
 QADCMSLLETIRGMRDKAEFLSGGAASNPFAPPYDFRPYR

 RVGDFELL KMI KEMNDKS DGPAVGGAFNPHVRHLKAAVKR K I G D M E L I A M I K Q F N D R K TN N F S V A A A A F N P N V R N L D K T V G R
 SMK LI QLI STMNKELFPEDP DNVGGALNLNLLKPEAELAK






 KMGDHDSDGLIDKKISDYKTDFFTGGVANPGYKELNRELGR RYNSFEELIRMTKQLNE HSAQF IVGTAANPYVRNFETAA QR
 PVFNFDSVGMMKIVQEMNSDTFYGGAINHNRMNTKAETER SVGET DLLSH LINQGRNMGTGFCLGAAFNPNVTHLQGQVNK PVMMMKL L QTMNE E V F DGDK DT YGGA DNQNRDNTK FEI DR Y DVSS L ELL LE LIGKKLNEGDSFSGKPAFNPNVRNVERAVPR K VY DLH SVVELMQMIKKFNAGFAVGGAFNPNVRNVERACKM
 KLGDFELMKLDKQLNKQATD FRVAGAFNPNAYRTTVVSTKS

 A K P VF D L V S L D H A V K R L E E GF A K G A V V S P C S D S V D

 PTAERDEVKNVYQFNSRKLAMTVLGALNLNARNFDVELRR $T K G D H D S V Q L L S M V K K D T Q G Y D F S G N Q L E G T P H F T V G V M K$ $K$ I G D F S LI K QL N Q GH GYS GA S L K K A T HF TVAAA F N P N V K N PVMNFDSI GMMNDISSDMNEEISYGGADNHNRDNLNDEIER S F K LLMELI NDMNE EF FKGDTI H $\square G G G A N L N V L N K E V E F N R$
 DVRS Y ELI GMLDC F NK GRTNFR DGAAFNPNTRNMAMQVRR K I G D F P L I K QMNEFSGKS LGKATNAAFNPNVKHLDKAVRR


|  |  |
| :---: | :---: |
| UniR |  |
| UniRef90－A2CD52 | LERKKEAGARFLQTQMVMKPAVLEHFCNEVANPLGLPVL |
| UniRee90－UP | ERKTGAGADYUMTQPIYDAEMFGKLREATR HLDIPIF |
| UniRef90－R5X1 | MERKVAAGADYFQTQAVFEPEKFTKFMEKAKQF GKPVQ |
| UniRef90－X0RC | MEKKITSGADYFMTQPIYNEKQIIQLYN ETKHDEQPIY |
| UniRef90－F4A | MGKKIAAGVQFFQTQAIFDVEGGGGWMKAVREMGYHAY＇L |
| UniRef90－U5LA | LEKKAECGADYFITQPVFSEEKLMEDYEATKHM EQPI Y |
| UniRef90－R7HP94 | LKDKVDKGARY VTQMFFDNQ |
| UniRet90－Q39YC7 | LAKKVANGARFVQTQPLYDLARLDE |
| UniRefofo F4W818 |  |
| UniRef90－B7AVK8 | LKK |
| UniRef90－UP10001E893D7 | LEKKIDAGADYFDSQPVFSEEKLLEVFQ A TKHDDAPIV |
| UniRef90－UP10003687E4E | MQKKI NAGAKFFQTQAVYDDEHMRKFREDTKDM DCKIM |
| UniRef90－D3E5S5 | LEKKVASGADYVMTQPVYDPELMMVRLREREA |
| UniRef90＿B7RV76 | QKIKNGADYVVGQMFFDNKRFFEFVTKCRVAG1 |
| iRef90－UPIO | KIEAGAQFFQSQLISDFDRLDKFVTQUASAY |
| UniRet90＿KON | MEKKISAGADFFQTQVVYDS |
|  |  |
| UniRef90 E1VBW7 | LAKKVAAGARFIQTQYCFD |
| UniRef90－RONSU9 |  |
| UniRet90－A8FBU4 |  |
| 3 P |  |
| UniRef90－UPIO00380CB16 | L AKMVAGAQFIQTQYCYDDPRLKAFMSQVRDLGLRVYI M |
| UniRef90－X1L2P0 |  |
|  |  |
| UniRef90－A0A024Pl | KKIKYGADYFTSQPVFNEEQITEVYE ATKHIDAPI Y |
| UniRet90－S5M0G2 | EYGADY IT TPIYDVNKALLLKEALQKANI DVPLF |
| UniRet90－R6NP89 | KAEAGCGYFLTQPVYTEEDVERL T Y IJKEH：D TKIM |
| UniRef90－FSR27 |  |
| UniRef90－A0A015LK38 | KIESGADYUMTQPVYDTGLI ARIAELTR HLPVPVF |
| UniRef90－C4Z117 | VKKKMEAGATFFMTQPVFSDEDIDRLRQU KEQTGARIL |
| UniRet90－R6K415 | VKKKMAAGATFFMTQPVFSDEDIERI HTDKKETGARIL |
| UniRef90－W2E203 UniRef90 R5BZS7 | KVAAGADYMTQPV |
| UniRef90－D5E8B7 | KARMGDDFFQTQAVYDIGHFETFMDSISHM EVPVL |
| UniRef90－K6DRA7 |  |
| UniRe | KVRAGADSADTQYFYNSDAYFRFVDEAHKMGVDAPVV |
| UniRef90－C6HTS1 | EEKFDAGARFFQTQVVFDADRMDRFMDFARPF GVVPV |
| UniRef90－UP10002F | $K T S C G A D S F L T Q P I Y S V H Q V E E$ |
| UniRef90－S6GNM7 | LAKK1 AAGAQFVQTNYCFDVPRFTEFMARSRDLGLKVFIL |
| UniRef90－W6sog9 | MKK |
| UniRef90－UPIO003FDB308 | 俍KKI ECGADYFQSQPVFSEERLLEFVDAVKMHDDKPVY |
| UniRef90－C3LKT3 | MERKI DAGAEYFLTQPIYDDALIEEVYE ATKHLEQPIF |
| UniRef90－G2TR32 |  |
| 4 W | AGADYIMTQPVYDAETIVQI YE ATKHIRVPIF |
| UniRef90－U1WZ | KVEAGADYUMTQPVYDREIIEQIYEGTK HLN：P1 F |
| UniRef90－D3HE46 | DYFITQPVFNTEIID |
| UniRef90－XoYl | KLKAGDDFVQAQAVYN |
| UniRef90－J9HCE7 | VEAGADFVMTQPVYDPVLMEQ AEA |
| UniRef90－W4 |  |
|  |  |
| UniRef90－UPIO002E8C257 | EAGADFIMTQPVYDAETIE LIYHATKHTGПPTE |
| UniRef90－F4LVP6 |  |
| UniRef90－ToCY30 |  |
| UniRef90－UP100037AC2EF | LEEKVSSGANFIQTQP F SRKLLEDFLKM |
| ef90－W0 | LERKDEAGADFVMTQPVY |
| UniRef90＿R5DRA5 | KMDAGATFFLTQPVFEDKGLARLRQUGKQETGARIL |
| UniRef90－A7VDU6 | KMAAGATFFMTQPIFSAEQAEIIRQMKKETGAT |
| UniRet90－Q1K3H4 | $L K K K L A A G A Q F F Q T Q P V Y S S T V F Q D M V Q A L Q ~ D V I S A P V F ~$ |
| ef90＿R5V | RKLEAGAEFFLSQPVFSREQAQLLRDM |
| Ref90＿UP10002 | LEKKIAAGADYFI SQPVYTKE |
| UniRef90＿J2Z683 | 1 TRKTAYGADF\｜ITQPIFDUTKVHELRL |
| UniRef90 R7HOP9 | $\checkmark$ |
| UniRee90－D3C | ， |
| UniRef90－D9S2E3 | MEKKISAGAKFFQTQAVYDVEVLKRFREKTA HLEDAKVL |
| UniRef90－R6ELA3 | VKKKMAAGATFFLTQPISTKESADRVRRD KEETGARIL |
| iRef90－H6LBX9 |  |
| UniRet90－U5MQ98 | MMKKIEKGANFFDTQPIYDDDA】EFLKK】 KERTNVK\｜L |
| UniRef90 N1U |  |
|  | KVASGMSYFI TQPVYSKEKT\QVYE ETKHDNTPFF |
| UniRef90－D4K157 | AVEKLENGMSGFLTQPVLSAQAVENLRKARQTLGERAK L |
|  | LKKKAEAGAD |
| UniRef90－R5JIU4 | VKKKMKAGATFFLSQPVFSARQAE ILKGTKEQTGAVIL |
| UniRef90－M1LVE7 | KKIEKGARFFLTQPIYDDEADEFLKKIGKEKTDVKIL |
| UniRef90 ${ }^{\text {K1 } 1 \mathrm{RS}}$ | LKEKIDAGAEYVVTQMF |
|  |  |
| UniRef90＿W8A514 | LEKKПEAGANYFLTQPIFDEGQFEEIYE ATKHLSVPIF |
| Ref90＿J9DT08 | AGADFIISQUIFDGEVFQNFLRDCRE\｜GITVPII |
| UniRef90 G5GZA8 |  |




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UniRef90-A2CD52 UniRef90_UPI00036ED9FF UniRef90_R5XL19 UniRef90-X0RQC1
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VRKYSVDLIVQ\|IT DVIRNGATGFHLFTLNR
WVSE GTKMAGELIKQLKEEDCDGVHDMA DGAEENDPADLD A SLE GLNDAK GLLDAAL EDFNGIYLDTFMRYELTVELAN VQEGI KMAGEFI R QLKEENCDGVHIMADGAEENVPKIDD GRAMGVK GKELLDVATEHFNGIYLMTFMFYEMSVQLME QA QE GTNVC $\square$ D M $\|$ NQVREEGVAGVHIMAYRQEHRVSE!VE


QREEGAR【CRD $\square$ LQEVREEGVSGAH $\square$ MAYRQEATVAR $\square 1 \mathrm{E}$


GRREGTAMAKELLDTAMK YFRGDYLDTFSYYQMTVELTK EKE GLNDAA EFIVKQVREEDCAGVHIMAVGAEANLPVLAD


TKELSSLRLSKELI DTVHEYFNGLYYITFQKVDYSLEL GEALGLEEVSMQMAREAL PYADGFYLMTFNRVALMERLIA
 GEAVGVALAKMIMAATEDFAD GYYFFPFNRVGMLKKIME





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| UniRef90-F7XMS9 | M A G |
| UniRef90-A2CD52 | Q A G $\square \mathrm{K}$ |
| UniRef90_UPI00036ED9FF | K A G |
| UniRef90_R5XL19 | L |
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| UniRef90-F4A1X5 | R A GLLY P |
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| UniRef90-B7AVK8 |  |
| UniRef90-T315A9 | A A G L |
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| UniRef90_UPI0003687E4E | E A GLL |
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| UniRef90_B7RV76 | K T GV |
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| UniRef90-E1VBW7 | E T G/V |
| UniRef90-RONSU9 |  |
| UniRef90-A8FBU4 |  |
| UniRef90-F3P6C4 | $H \square R L$ |
| UniRef90-UPIO00380CB16 | S SGV |
| UniRef90-X1LZP0 | K $\square$ |
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| UniRef90-S5M0G2 |  |
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| UniRef90-F7SR27 | K S GIV |
| UniRef90-F5SG92 |  |
| UniRef90-A0A015LK38 | K T G |
| UniRef90_C4Z117 |  |
| UniRef90-R6K415 | LS G L |
| UniRef90-W2E203 |  |
| UniRef90-R5BZS7 |  |
| UniRef90-D5E8B7 | $\square \mathrm{A}$ G L |
| UniRef90-K6DRA7 |  |
| UniRef90-E3GIA8 | VAGL |
| UniRef90-W7WUD4 | RLELL |
| UniRef90-C6HTS1 | A L G |
| UniRef90_UPI0002F5A791 |  |
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| UniRef90-E3PXX0 | A A G L |
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| UniRef90-A4J5C2 | K L |
| UniRef90-D3HE46 |  |
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| UniRef90-F81657 | E $\square$ |
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| UniRef90-Q1K3H4 |  |
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| UniRef90-D3G024 |  |
| UniRef90-W6TCA6 |  |
| UniRef90-D9S2E3 | M C G |
| UniRef90_R6ELA3 |  |
| UniRef90-H6LBX9 | MAG $\square$ A P |
| UniRef90-U5MQ98 | K 1 |
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| UniRef90-D4K157 |  |
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| UniRef90_U3SVB2 | Y $\square$ QVK |
| UniRef90-R5JIU4 |  |
| UniRef90-M1LVE7 | E 1 |
| UniRef90-K1RSJ1 | T L |
| UniRef90-E1K2N6 | R A |
| UniRef90-W8A514 | Y L |
| UniRef90 J9DT08 |  |
| UniRef90 G5GZA8 | G\K E R |


10

1020
$T V \square A E I D P^{30}$
40 EK S SHALREEKGEA

GTYVIITALDK LI
 $G K F V I \quad T A E V V A P P R G T V F S$
K

K S K L R K LL K D
Q R
$A \boxed{V}$
K NEFTVIAADETLSAPDNT D D


K S K $\underset{L}{L} \begin{array}{llll}R & R & K & L \\ R & N & S \\ L\end{array}$
K NKFVFTAETSPPDSGNKDT
A GKS GK LIAVELSPPPSAND QKLL
EK L G R R F V I S VE LD P P R G P VA T K F L A
MES $\square$ KK S KFEKN LR S GKFAVT CE $\square$ GPPKGAE VEE $\square K$




| $E N \square L D K L$ | VK TKKP ILVEVDPPFDTNWEYMDR KNVFSVTWELVPGRGATQEEAliM |
| :---: | :---: |
|  | RPAVT A E FPA LDGGGLEAAA A |
|  |  |
| M F A K L I D K L | K N T Y $\square$ T LE T T P P N S P Q F A P |

$$
\begin{aligned}
& \text { S Q M REKLENTN EVVFTAE FPSLDGGGMAKVE }
\end{aligned}
$$

EGKF DFTGE LEPKKMVD DS S LLH
 FSL


FELICEVEPPTRPD LTKVR $\begin{array}{lllllllll}K & D & K & D & E & E & S & L \\ R\end{array}$


NKFKESULD KNVLSVTWELVPGRGANQQSAMA MASSFKDVLNSS
 F ILETDPPRGTNPDKYL


[^1]

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UniRef90_R5QNV7
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$\square P V L P H V S A Y R M S R Q R D D \quad Q F L E L N F S S V L A V R G D Q V$ $\square P \vee M P H \square T B R M N A L: D E A L E Q A K V L G D R N I L A L R G D A P$ CRDKLLGI KASLLGVHIEGIRNVLVITGDP FDVLPHMTCRDRNVNASRGLLYGANAMGVVNNVLVMTGBDPT LE PVLQVACRDKNRLAVQADIVGAADHGVTNVCCMTGDPE TEP PVHFTCKDKNRNQMESQLYALDRAGVRNLLVMTGQGR
 GAAALGIKNVLCLTGDHQ
 NEFLAKNFRNVLIVRGDEI $T R T K L V G \| I Q D M M D L G V R D F L A L R G D E A$

 GANVMGVHNVLCVTGDNA
 DEA TWQMTVHRSEVQFYSDLYKSSAVGIKNILCLTGDHQ







 FDVSPHI A ARYRDVDH LDETARRLAEAGVTDIFVPGGDRP Y LPVPHVAAR
 LEVLMHFSRTTRNAIRDEGDLIAAHMLGI KNLLILLSGDDP
 Y TVTP HLAARQFDDNHVREVI DRLQTAGVNSVFIVGGDAP FEPMPHFSARRITSEDDFEGYLKAEQAGVERCFIVAGDPP

$\stackrel{\rightharpoonup}{F}$
7 UniRef90_UPIO00376F2F7
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UniRef90_F0RPU6

KMGDFSLI KQULNQGQSHSGAS LRKPTNFTVAAAFNPN|IKH $P V F D L D S V Q L L R D T Q M K N G Y A L G A V V N P N F E P D D L Q L D K$ $D L D S V Q L I E L A S S L N D H P T D F F V G A V F N P F A G P E R L Q Q L F K$
 DVNSFKLIELIKDLNKGQTHFTIGAAFNPNIKNLSRSGRL



 $P S E D R Q E V K L A G Y L R D L N K T M F S E P F M N D N A V N F E A E L M K$
 PSMARELVQEMNREEFASDPFFVGGADNQNRILRLDVEDR FSHAVDLVKH ITRSEFGFDDCVAGYPKGHPEAASFEEDLQH
 TIGDHDSVQLL WT ILKNLEGKAVVNPGADTEASYELQLIK F EY A R D LV K HI R A HD HF D $\square G \mathrm{~V}$ V GYP
$N \square F D \square D S$
 K NGDHPEAKGVFDVFSSAII EAAGAVVNPGASDLDGEI R R H G ID LVVKLI R K H Y WF SVVGVA GYP E G HVVESENLE E DL K Y GKKSLE PAQL MSMA GEAGFCTGGVLDYRPEVNGLDRELQR

 $K$ VGHMP LTEELAVVFNQTTTNFNDAGATNPNVRKMEAAVVR $\square$ NGDHPDAK VDD LDE IGIGYAVPP IA DENQLS LEVAS K F S D Q P E V K GV L E R D S T L L L S I I Y A V S N A Y A K D M K QL M K R $A Q G Q N S T$
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 $P \square H V L D L I S Q M N R K H Q P S D F F A G A V V S P F K A T E A E Q M V Q Y$



 SFGNHQLI KMFKDMRDEQKFQCGEKMKHPFADPFDFRP $\square R$ N $\square F E A D S T T L L L D D I S A F N S G M S Y F A V V N S Y A K N P K T D Q K K$


 $K$ VGDFE VQLI KKFNDEKARFHVGAAFNPNVLNDEKAVRR RI GP T QML WI L R RMRDE GDY LDD G GAAASSPFASEPDKF QA L R $P \vee G D H D S V Q L L R T \ R Q M E S G F C A G A D V T P E A N P D E P A Q I \quad K$
 SFGNHQLI QUI K NMRDEGDFQFI GAAANP YA DPFELDRVR
 K MY GMDMSGHPFKIEPK QI FPFAVTNSYAKNFSTLEKKMN E GP YA D S L S LI QEYGVRHVGDSGYPEGHP A DDADA LDWSA N MYEANSSLMLLKM MGKFNYGMFPFAVVNAYAKNFGSLEKK EGP Y E D A L S L L Q R H GVVR HVGGDS GYP E GHPADAADHSLLWS A L
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170
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L L L K V D N G A
L R K KI D A GVE F F Q T Q Y A F D E N L L K N Y M F K L N K L E $\square T$ A Y F I

 VP V L AKRKVEQGVEGF LT QPDHSHQALANLRRAANAELDAYLL




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D RFADHDAP GAAVNVTFLPG SDPADTVAVSKRLRAE G NFARAAAEDGRHGLTITENAGGHPALSPAVLGREDE $\square G$ DKVLAHVPREVVVTVTASPRGLEPTLDLATRLAA HG AEADRI PRGTVISIPWLASEDDDARLAAVRTVRALG

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TDVQTVRDVLPQVRTLNVPDLMRFDLRSYDAASLVTKQAP GVVEQVGNL-PEGTTVTVTSSPKKGVEATLDVAARVRGLG A L L Q A A H L P PR PAGTRVYIHDDGTPDEEMVETAKR|TEEGG AELETDRARFPFVDTVNAPDLTRFALRSTDGACAAAQRCV G】AEEVLAQLPAGARVTVTASPAQGLPATLEVTCTLARHG ADDAALAPLVPPGTDVLLSALPRDPHDEQIAAARLVRAAG AAAPSLPPGTP VNVTFLGNEDLSMRVAAAAAVKRAG DELESLSQADCFVC TVSPLARLKPSSLLSSQKLQNALQ SVLEQTATLAPERSVVTVTASPTKDUDATVEVCEKLAAQR
 DALPVVKGTVVSVPFLSTESDADR DTAARMTRWAG A MDRGAHLCGWPMTVAVGDRVGSPGEMSPLDALASFGKP ARVPRTTTL

 $A A A P R \| L T G S T \prod A \prod P Y P R E N D D A D A A A R A V R R \square G$
 E D DLATVIN Q DA P ALLPSGTRVY HVEGTHDDDMVATAKRLRLEEG EA AAALIPAGTRINVTFLANEDLPMRVAAAAAVKRGG CELKGDAEAFPKVNTVNIPDVVRDPTRSWEACGFCAPMLE

 $A A A P R M D P$ A AT $\square S \square P Y \square P R E D D A R \square A A A R A V R R \square G$

 RDAAEVRQHFPLADTLNVPSLMRFPLRGWDAVPLLRPVLP

FAGYPAVMTLADRVGSDHDMAPLEASKRYPDE G D DMTATAAALSGTCDAVLVGEHQNRPDFPPVLCASVRLEWG ASRRAVIEGLPEHTEVFVADLPDQPPEVVLEAAAEIRSAG MASHLPPNTSVNIAFIDAESAKERIVAIDVLRSSG LETLPPVKDVY NTIDA $V T M L P G G D Y K E T S D Q S I E L V K K$

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UniRef90_UPI000381CA2A

 FDAIIYQTTRDKNRDQLQKDLLTAHDAGVENLLVI TGQEM
 A A DP HIRADDVDPDKPDPGTD DDPAIREVLVIRGDPP FE P I P HIS S TAVVTSAEALDDYDAAVQAGVRRCFVI AGDTP

 FEPVPHVAARSADRAALDSFLGRDKDAGVTQALVVAGGGA
 FEPMPHLSARLRDEASLGARFADERAADAGVADVGVPAGDPP

 Y RVVP HVPARLLRDDAHLKEEVVVRLAAESGVEDVFVPAGDPP YPVMPHFPARIRDKAMLEDWI ARYQEAGVDQALLLAGTTP YAVSPHDPARQFDKEHVADVMARGKESQIESVFVVGGDAP YEPVP H DAARYKDREQFEGUVGRMAVAGVENVLAVTGDDP
FEVIPHTRAVD\APGAPLP HHVVPHLAARLLTPAHLAAVLDRIDELGMTEVFAVAGDPP FPVMPHFPARIKDRDTLEDWI KRYDAAGINQALLLGGHGD YRVVPHVPARLRDDRHLKEVVDRLREAGVDDVFVPAGDGP
 FCAIPHLAARMRDPGEVAEVLARLGEAGVREVFVIAGDAP YSVAPHLSAQQRDRAHLADVVARCREAGVTDVFVVGGDPP L E P V L H L S A R F A S E A E L G H L L E T A R D D G L R K K V L V I A G R G P

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## L

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F


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


 Y E P V P H LAA A R R $\quad$ LS R T G F E E Q V R R L A EA G V T D V L V V G G P F A

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


 $F$ K A M P H F P A R I

 $\mathrm{V} D \mathrm{~T} \| \mathrm{T} T \mathrm{~V} T \mathrm{~A} W \mathrm{D} R \mathrm{~S} L \mathrm{LA} A \mathrm{~L}$ Q A D L L G A H A F G L R T V V C E T G T P A

 $Y$ VAVVP H LAA A R NF S ER DY I S H V E A H S R N GI D E VL F L G G NP P





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



 $F$ V P V P H I S A R R A S Q N E L E E F L D G LA EAA P E N V F I V G G D P P

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130
140
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160
FPDTLALLEELLEQQQFLHLGGVAGHPDGHQESLRRALSLKR MFFHVDAGKLDSVLKSMREGHSVEGKPGWGRNVPELDEKE
 R GPYCDSSALIARHG $\mathbb{C}$ RAVGVGGHPDGHP HMTPEECWSV
 Y T G A L DL L T H A LD HP F T H I GI T G Y P E S H P S I D D V T I Q S M W F DNSMQLI ETGLLFDGFTRLLHIAGHPE GNRDI DRNVMAA LRR
 R Y GF M HL L K L T EMMPFF KGCVVVT PF KRFEAE LMPQQYYK A GAYD GALPVVLRRLPFARVGIAGYPESHPLIDHDDTVQAM A GPFADSAS LLEEHS GDKVVGUGGHPE GHMSSDERWQALER
 VGDF K S A I E L L Q QVG $\quad$ DR K I G V A G H P E G S P D I P E A E L K K A A GAYDGALPVLRRLPFTRVGVTGYPESHPLIMEDIVTVQAM



 YPDALSLLRAME E L GRRPSRVGITGYPERHAF DPDAT TIS
 Y D G A L P V L R RLS E L G GPRVVGV TGYPESHPLIDHDDVVVVQAM
 HPAGRFEGAL DLLEEVLSPSGMRAGDGAHPEGHPFLDDEAAA TEFKDALLALLDTADHGFA DDGDGGHPGGHP SVVPEVVLF QA
 MGPF S D SLL S DE A FGVNKVSIA GYPDGHS G $\square E V D V L W V A A$ K NGDCSS L K L GR I IDGLNQGIAANGKVLKDSVETIVNKKM



## F


 Q A A G NY D SAL QY TGGLMLAGVAGYPEGHPADVPLDLLDG
 $F H C S M Q L L E D F D K A G F K R L D H V A G H P E G N R D D D P A V M D A C L R$

 VGPFADSAALFERAGMKVI GVGGHPEGHPVMSKAEQW EV H G DFS DSMQLMDKHGFERLHMAGHPEGNRDDDTDGSRDRR A Y DVVRP D DTQA F D LDDGT RLAAGLAA S LGGTPTAPPRADLPKR PDWPNSSAD I IA RYRREAPHLTVVYAAFDPYRRAPWQELET Q D M P S T S I EVI K K F K R E M P GI K V Y A A V D P Y R K S V R E E L E Y
 EHFDTSTVDFI KFFKTNYPDVKVYGADDP YRADFETEMKY
 K GSFD SSMELFDKYGFTDLNVAGHPEGNNDDDPDNTMALE F D S S M QLLLELFDKA GFKRLHVAGHPEGNKDIDPDGSMALQQ
 A G DLDDSS S A MF DR LGGFDRLHVAGHPEGNKDIDRDGGTAEA


 FDSSMQLLELFDKAGFTNLHVAGHP YHSSMQLLELFDKAGFKRLHVAGHPEGNKDSDKNVMDALR P $\square$ WE VDSSVGL DG L LAA GLNSGRD DGARVNP GAE DLDA E LSSR


 HGDFDSSMQLVDRAGFKRDHVAGHPEGNRDDDPMVDEALR K E H Q N N AVMAAKKAGGFCIGVAFNPFKYAEAERDAQY L K
 $A Y D V R P D V T Q T F D L D G P S L A M T T A D P E T P T A P P D S Q R P Q R$
 PMGKFDSSFQLLETGNMKIGIAAHPEGSPDISDTDDDKA M K VF E E N S L K LA R I I R D L N S GI A LIN GKPNS Y SNNPA S LA T K
 A GPFADSAALFEKAGDGVVGIGGYPEGHPLMTPEQGWLEH HGDFHSSMQLF DK A GFK RLMVVAGHPE GNKDDDPRVMEALH M GPYEDS LALDK Q Y GFKHVSI G GYPE GHPDDNNDQLW QA K EHHHNAVMAAKQHGGFQIGVAFNPFKYAEAERDAQYLK


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| UniRef90_Q9RVQ4 |
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| UniRef90_B9T9X5 |
| UniRef90_U5VD39 |
| UniRef90_J3TEM4 | D Y A R V V T GS R $\stackrel{170}{\mathrm{~L}} \mathrm{WVV} \mathrm{V}$ T QFAFEAE 190

200
 LIDAKCA EMAP LIVVTQF SFDAAAPVLAA WL A ELDRARGIVVAPVR LAAKCAAM

FVVT
A A KRRY

DKRKY | $A$ | $Y$ | $A$ | $T$ |
| :--- | :--- | :--- | :--- |
| $A$ | $T$ | $H$ | $V$ | WK QAFAERSMAI ATQFAFDAAPVIAWADRLAAEGUDDLPI H LWKNRFAADMYIETQFCFDAAAIIAWDRTIRGWGNRLPIH

 K A TYLVSNLCFDPRVLGDWLVRIRRRDITLDVGH
 TAKQPH LK Q K N Q F A WDKREH WKQK L S A ER A DY A V S

 MEKKMTVGARFFQTQ SMAEKE P Y A T Y $\square V T$ Q L C Y DS D A VVEWVE T $\square R G R G V D L P V E$
 AMSEKAAHADY VVSQDCYDPHALASWVKDVRARGVVLPI H



 L K D K A A A M A T H A K K T Q Q I V F D D P K L I L L D A IRDAGAP R ERGLEG | $L$ | $K$ | $K$ | $L$ | $S$ |
| :--- | :--- | :--- | :--- | :--- |
| $L$ | $S$ | $L$ | $V$ | $G$ |
|  | $H$ | $K$ | $K$ | $\square$ |

$\qquad$ UniRef90 F0M4H7 UniRef90_UPI000373FF7C UniRef90_S9QW56 UniRef90_W8RVT4 UniRef90_C8RZ82 UniRef90_UPI00037304C8 UniRef90_I7FNS0 UniRef90-A0A031GNE7 UniRef90_A3T139 UniRef90_W9GL34 UniRef90_V8A421 UniRef90_FOSUR8 UniRef90-I1EN78 UniRef90_N1V426 UniRef90_A6DQ26
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UniRef90-D2S7Q5
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 WTPDGLVHAARHRQDFPDTLLAGMLFPFGGLLRSARWIR
 NDAFADAAI RAVVSDG GSVY LDMPD LGSAGPDKLVDLLRSRLDASHQGLHFYPFGGMEKTDAWI RPDGLVRKLDGRVRDGRCELA GAHDYTENDVAATARWLK SDRFVTRIAALAATPQLA IEGLHIYTFNQVEADEA PFEPDAFI ADLAAHKARNPGIEAKVFFPDG PDRLLVELAAYKASDPECGUEKLHFYPFGGDAKTADWVN


FD DGGKRAVEMDRCDKRNDAHGVY LRADDHPEMDPEVIA HHDPG RFLTALAERTTDGGCAGLHFYTFNRVTATVEWVD $\square A D D A P H V N Q H S P S Q L D Q S H E Y S F G D F S Q T A R$ PGGYSPHKLLTRAESALSAGVAGLHLFTFNRDAETRALLD

 RYTP EE LIFDE LSPH $\square$ ADP G $\square$ A GWHFFTFNEVDRTQD LLA
PGGYSPELLTRTEKALTDPGVAGLHLFTFNQ


GMTAAVD
EAVQLLQVPGVAGVNLSGLASAQAAAEDQA


PTEVLTK K AAAHTAANPDFNDTNVHFFPDG
LGGSAGPDQLITQLE EQQAHGPVSLHFYPMGGNGGRTMDWDQ
$R V Y$ RCALQLLICKY GFAGDHDSACHKPE
$R F F L P H G Y R P D R L V E G L A H N L Q G F H F F T F N E V A R T E A$

| UniRef90_R8B4W4 | Q C |
| :---: | :---: |
| UniRef90-B8FFI9 | A A K L R |
| UniRef90_N1MQ25 |  |
| UniRef90-UPI00047BAAF0 |  |
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| UniRef90-F2NGS7 |  |
| UniRef90-I1D281 | A A R A R |
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| UniRef90-M0M111 |  |
| UniRef90-Q3EQ85 |  |
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| UniRef90- M7MZ83 | A |
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| UniRef90-W9GL34 | $\mathrm{D} \square \mathrm{GHR}$ |
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| UniRef90-UPI00036DCEE1 | N |
| UniRef90_U4UUZ7 |  |
| UniRef90 S5XYS6 |  |
| UniRef90-V9VSS6 |  |
| UniRef90-LONFY1 | R V |
| UniRef90-U3AB05 | A |
| UniRef90-UPIO003123150 |  |
| UniRef90-Q0FQ05 |  |
| UniRef90-J5K9N9 | E 1 |
| UniRef90_UPI00047B3250 | A V |
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| UniRef90-A3JTX0 |  |
| UniRef90-UPI0002626D4E |  |
| UniRef90-UPI0004655BD8 |  |
| UniRef90-B9KSC8 | A N G G R |
| UniRef90-M4MHQ5 |  |
| UniRef90-IICZU9 |  |
| UniRef90-A9HEL4 | $E L G$ |
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| UniRef90-N9DQM9 |  |
| UniRef90-UPI000469A860 |  |
| UniRef90-F3S9N1 | A CGR P |
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| UniRef90-W6QWY1 |  |
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| UniRef90_V8C897 |  |
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| UniRef90-A4EKT0 |  |
| UniRef90-V8A7W9 | $R \square \mathrm{G}$ |
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UniRef90_R1Cl82
${ }^{20} \mathrm{~T} R \square \mathrm{~A} \mid \mathrm{V} E \mathrm{LV} \mathrm{V} \mathrm{P}^{30}$ RSDESLLQ

$$
\begin{aligned}
& R T R \| S V E L V P \text { RSEESVR }
\end{aligned}
$$

$$
\begin{aligned}
& \text { DS LERR } \square Q G L C H G \quad \text { WS } L E V V_{T}^{T} P \text { PKTGTSPERVQ } \\
& T R \square S \square E L \square P \\
& D \vee Q N \square Q \\
& \text { RDKQNLI }
\end{aligned}
$$



TLKQALNE GRFVCVLEVVPQQSATRLAALG
QQLAEARSGVLLFS ITPPRRSTAGERVT



UniRef90_E6W0X3 UniRef90_N9PI97 UniRef90 UPI0002195A99 UniRef90-A1UD70 UniRef90-N9P684 UniRef90 UPI000369BE78 UniRef90-UPI000371AB49 UniRef90_V2UEK8 UniRef90_UPI000255E6BC UniRef90 A3DHS7 UniRef90-UPI0003626FD5 UniRef90-V2PZ93 UniRef90 UPI0003683230 UniRef90 S2KVJ3 UniRef90_UPIOO03B41324 UniRef90_G6F2E8 UniRef90 UPI0003613AF8 UniRef90_UPI00037EE2CC UniRef90-EOMLQ0 UniRef90-M2QKV1 UniRef90 R9B3U9 UniRef90-F0Y5Z9 UniRef90_UPI00027375CB UniRef90 Q4FL70 UniRef90-J7GT49 UniRef90_UPI000380FE22 UniRef90_V9VZ99 UniRef90 M4ZW70 UniRef90-G8S3G2 UniRef90-F2PF73 UniRef90 G0A4S9 UniRef90-D7DBH1 UniRef90_UPI00036052D9 UniRef90-UPI00047DD65s UniRef90 UPI00046A85B UniRef90-10Н076 UniRef90-X7E5AO UniRef90-R1Cl82


 DVAATAR ILGRSCDAVLVGEHQNRPDFPDTLMGRLLLEAG GFVOA A

 E II I RI S GLDIDGLVI YDLQDEKERVSEERPFPFILKDLK
 KTMERLATGDDDALVVYDVQDESARTDPFAFASSYDGPDT KTADHLAKAEPAGSQVY ITHDPGQPFEDVIATAAWLRARG
 ■D D F RHYLGAGTEVY V VSTPSTQPEEVVALAKRLRDED

A GMLPSGTRVY DTDVGVDPVEDLIRAAATVRGLG ETLGRLADLDVDGLALYDIDDESPTMDPAAYHSEYLDGWD LVPSCIAGYPVTMTIADRVRSDDDPEPLADAQNYAAE GARDHLA $\square$ PKTLFVNMVRADAAHFEAVAAACEAL RAAG

PPVKDVYVTMLPGGDYKETANQTAALVKKG
 $K R L D A D P A \quad G A R L S V T C S P S E G V D A B V E M T A R L R A D A G$

D A G
ETLERLGRDDLDGLILYDDDDESDRNPSHDPAQYYETHDGG G IA DR LVDRICDVYDI QDEASRTNKPRTHDPRHYDNKKTD VQKLDDGI NDI NVPD DQRFETRSWELATRI DRSK


Q $\ V Q R G H \square A G W Q V P A F A D R V G \square H S D \square S P L E G A A A D G \quad S P$ ETLDRLNGLDLDGLILYDIDDESDRNETLDPARYYADHLD Q LIERLAGVEADGL IVYDIQDETETHDPRAWSKRLHTQSG





UniRef90_E6W0X3 UniRef90-N9P197 UniRef90-UPI0002195A99 UniRef90-A1UD70 UniRef90 N9P684 UniRef90 UPI000369BE78 UniRef90-UPI000371AB49 UniRef90_V2UEK8 UniRef90_UPI000255E6BC UniRef90 A3DHS7 UniRef90_UPI0003626FD5 UniRef90-V2PZ93 UniRef90_UPIO003683230<br>UniRef90 S2KVJ3<br>UniRef90_UPIOO03B41324<br>UniRef90_G6F2E8<br>UniRef90-UPI0003613AF8<br>UniRef90_UPI00037EE2CC<br>UniRef90-EOMLQ0<br>UniRef90-M2QKV1<br>UniRef90-R9B3U9<br>UniRef90_F0Y5Z9<br>UniRef90_UPIO0027375CB<br>UniRef90-Q4FL70<br>UniRef90-J7GT49<br>UniRef90_UPIO00380FE22<br>UniRef90_V9VZ99<br>UniRef90-M4ZW70<br>UniRef90-G8S3G2<br>UniRef90_F2PF73<br>UniRef90_G0A4S9<br>UniRef90-D7DBH1<br>UniRef90_UPI00036052D9<br>UniRef90_UPI00047DD65s<br>UniRef90 UPI00046A85B7<br>UniRef90-10H076<br>UniRef90-X7E5AO<br>UniRef90_R1Cl82

lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm
 KKHSSNAVIAAKKRKTFHDGVAFNPFKYTEAERDAQYFK VHTTEDLLKADRKGTPDRLSLGA TDDPSQPAAP GYDVRPDVTQTFDLDGPRLVSLAASVGMVPAPPVHARPAR KEHSYNAVMVAKRRGGFHLGVAFNPFKYAEAERDAQYLK EFYNTDVVDLDRAVRQRFPSLHDYAGFDPHRSGVQDECDY VGPFSASIELFDKYGFNRDGVAGHPEGSPDDTPEECEQAD KQHNFGLMWVKAHAPEMYCGVAFNPFKYTESEEQAQYLK
 QSVLLK LSDAYK RRQVNPDLLLGGVADPERHMKNTDEDR YGDFDSSIQLFDKHQFKRDHIAGHPEGNKDDDPNGSNWKN K GHTNNAVMAAKCYGGFHI GVAFNPFKYAEAERDAQYLK F PVKTS Q V LWK QYQDTSVIGAVTDPERHNVLHDEDV R R


 SQMGPYSQSLDDRRGVNFIAAVGGHPEGNPSAYASGVDVEANV
 SAPDVDAVAALARKRGFRCLVAGNPEKGHPKEHDAQYFK


 SARFTTLLAGEVRSRGGRVAVAESPA AEPTRQRAAR KAVRTGLRRAQELRAEVRPELPLGAVVIGERPEEH RR AKNEVSLAAYQTLADNRNNFFTGGDMIAERHAKKGNEHER E Y Y N TD DVVDLI RVVRRRFPT LD






[^2]

lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm

$C \subset C C$


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UniRef90_E6W0X3
UniRef90-N9PI97 UniRef90 UPI0002195A99 UniRef90_A1UD70 UniRef90-N9P684 UniRef90 UPI000369BE78 UniRef90-UPI000371AB49 UniRef90_V2UEK8 UniRef90_UPI000255E6BC UniRef90 A3DHS7 UniRef90-UPI0003626FD5 UniRef90_V2PZ93 UniRef90 UPI0003683230 UniRef90 S2KVJ3
UniRef90-UPI0003B41324
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UniRef90 UPI0003613AF8 UniRef90-UPI00037EE2CC UniRef90-EOMLQ0
UniRef90 M2QKV1
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UniRef90-FOY5Z9
UniRef90_UPI00027375CB
UniRef90 Q4FL70
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UniRef90 M4ZW70 UniRef90-G8S3G2
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UniRef90 G0A4S9
UniRef90_D7DBH1
UniRef90_UPI00036052D9
UniRef90-UPI00047DD65s UniRef90 UPI00046A85B7
UniRef90-10H076
UniRef90-X7E5A0
UniRef90_R1Cl82

250 ( 260
NWNLEFARQADDHATDGFHTYFM
AKKNVYARCALQQLIDCKHLGYKG[VHL

A E QRVYARAA $\square$ Q $\square \mathrm{W} \square \mathrm{Y}$ R H WG $\square \mathrm{AG} \square \mathrm{H} \mathrm{V}$

 SVKDCLD $V$ A SALTT T F CLLERADPGFN! $\square H$ F Y P F G G $\square$ D K T L A WS Q

AVAAPDNLVIAMVKHSMTAHFSGCHDFSDGNFEKSARWAS LSSAGPDVLVDDYADAMVDGVYGLHFYPFGGVRKSVEWDR $V V S P$ E QA WLS GETNDTQ SYEHCVATARDLAAFCRKLGMP VIAEQNVYARCALQILICWGFAGVHLSACHKAE DALLAPAADVGALADYLSEGNVRLHVYPFGGLDAALVFDD TSLLNSAGPDRFLTELLESGPLSLHLYPLGNLEKALQ $\square \mathrm{GK} \mathrm{K}$
$\qquad$ KEFTGNFHIYTFGGLKETNKWLK YFFNLKNYY LKN DKN KNFHFYTFNNIK
RPDDLVAEVLGASVADPTATVDGLHLFSFNNLAPT
GF QPAELI DELSQALVLNDRVPKLHFFPFGGAKKTFDWVA SYKHCLLDGARDMRDFCEHLGVVPGNLYGFN $\square H E S U K M C C N S L N Q \| L D A V V$

SYEQCMATARDLIAFCRK LGMP


[^4]

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UniRef90_E6W0X3
UniRef90-N9P197
UniRef90 UPI0002195A99
UniRef90_A1UD70
UniRef90-N9P684
UniRef90 UPI000369BE78
UniRef90-UPI000371AB49
UniRef90_V2UEK8
UniRef90-UPI000255E6BC
UniRef90 A3DHS7
UniRef90-UPI0003626FD5 E
UniRef90_V2PZ93
UniRef90-UPI0003683230
UniRef90- S2KVJ3
UniRef90_UPIOOO3B41324
UniRef90_G6F2E8
UniRef90 UPI0003613AF8
UniRef90_UPI00037EE2CC
UniRef90-EOMLQ0
UniRef90-M2QKV1
UniRef90 R9B3U9
UniRef90_FOY5Z9
UniRef90_UPIOOO27375CB
UniRef90 Q4FL70
UniRef90-J7GT49
UniRef90_UPIO00380FE22
UniRef90 V9VZ99
UniRef90_M4ZW70
UniRef90-G8S3G2
UniRef90-F2PF73
UniRef90 G0A4S9
UniRef90-D7DBH1
UniRef90_UPIO0036052D9
UniRef90-UPI00047DD659
UniRef90 UPIO0046A85B7
UniRef90-10H076
UniRef90-X7E5AO
UniRef90-R1Cl82
\begin{tabular}{|c|c|}
\hline lupas_21 & \\
\hline lupas_14 & \\
\hline lupas_28 & \\
\hline jnet & - \\
\hline conf & 527999 \\
\hline sol25 & B B \\
\hline sol5 & B \\
\hline sol0 & \\
\hline jhmm & 5 \\
\hline jpssm & \\
\hline
\end{tabular}
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[^0]:    ## F

[^1]:    AFS LEV
    S AKAMPALR
    

[^2]:    lupas_21 lupas_14
    lupas_28
    jnet
    conf
    sol5
    SOlO
    jpssm

[^3]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    jhmm
    jpssm

[^4]:    lupas 21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    sol0
    jhmm
    jpssm

