## query

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${ }^{70} \mathrm{~N}$ T L L P Y Y NE KYETKKVHRKTLNPTFNES | $K$ | $Y$ | $E$ | $T$ | $K$ | H | H R | $K$ | $T$ | $L$ | $N$ | $P$ | $T$ | $F$ | $N$ | $E$ | $S$ |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $K$ | $Y$ | $E$ | $T$ | $K$ | $V$ | $H$ | $R$ | $K$ | $T$ | $L$ | $N$ | $P$ | $A$ | $F$ | $N$ | $E$ | $T$ | K Y E T K $V$ V H R K T L L | $K$ | $F$ | $E$ | $T$ | $K$ | $V$ | $N$ | $R$ | $K$ | $T$ | $L$ | $N$ | $P$ | $V$ | $F$ | $N$ | $E$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $K$ | $S$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $K$ | $E$ | $T$ | $K$ | $V$ | $Q$ | $K$ | $K$ | $T$ | $L$ | $N$ | $P$ | $N$ | $F$ | $N$ | $E$ | $S$ | D $\square G G S S D P Y$ Y V KVVY DMS GTS DP Y V K L Y L L P E K K K K V E T K V H V R K T L N P V F N E R D A NGYSDPFVKLWLKPDMGKKAKNKTQDKKKTLNPEFNE E D A P G G K K A D P Y A A R L

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QUERY
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VD LQ L ELLWRPL
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30
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EAENRGEMK LALQYVPTTGEVVIWVKECDDLPHL $\square S K C G S L E M T F K Y N P A K G K M A I T V H Q A Q D I P S K$ SMCGTDHTERRGRLYLNI K MKEDGVLSVTVTEARNLIPM

 QGDLRIS GCYQPVAGKIVFNVLEARNLPRV

GQLHVLVKEAKHLSP■ DNDAEKENK $\square$ GD DCFS $\square R Y$ VPTAGKLTVVVKEAKNLKKM PGRGALHVLVKEAKNLQPL
 SSEFGYVEVKGTVQFALHYVQKLGEFHIFVVQCKDLAVA S G DF GNV
$V$ SNKGEI IVGLKCVPTKGTFLLLVKDAKNLQA
EAGEKADLGELNFSLCYLPSGGLVEEVLIKNAKNLTAM
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QEYGEILVRIDYDFSQNKLAVTILEAHGLPAM SGKAPQETEKMGRLHFTLDYNFTDNMLVVGILQAAELPAM GD DQ QQ $\square$ NYDRNMGNLIV HVLQARNLAPR
GDYGNVKVSGEVLLHISYCYKTGGLYILVKNCRNLAVA



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SGDFDSVEVSGDVVFSLKYDEHTQSLHVFI KQCNGLAYA LGRLLWFSVEYQQESERLLVGLIKAQQLQVA
 SGAGEGSVVVTGEVEFALQYDYKNLTFEVHVTKCKNLAPV SRGDMAGEDARGAI RDMLSYDPAAGILNVKLVEAQDLQPQ SAGSAG
 ILLSLCSSSRRGGLLVGVLRCAHLA

S QTGLPS HKGD QQVSLTY PRQQEKIKVVVMRARNLRPS
SAGES

K $\square$ GRIQLSLRYSVQRQKL

GSFNTDVTGELLVGLSYNATTGRLSVEMLKGSHFRNL SGPGKLQEAQEGTEQS R S A GGFDKASVAGDDELALRYQQDSGTLEVCI GACRGLAGE
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 GEV K LS FQYH R GAFIVVMIHHARSLPML





 LRFPDPGRLSAVI K GKHLTGG


N G S T P S Q Y P LGE I QLTVRHS S QRNK LIVVVMSCRNLIA F E L H S R 1 $L$ R FP LPC GVI RV HLLE AE KL A QK
SAGEAG LG R L L S L R Y S M Q N Q TL Y I V V H K $\square$ M N I P L K

## $G N F D$

TGGEI E F ALLRYCFETHSLLEVCI KACKNLAYE


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UniRef90-UPIO002C64FDB UniRef90-G5BAM7 UniRef90 M4ANL4

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 DSNGLADPYVKLHLLPGASKSNKLRTKTLRNTRNPVWNET DVKRNSDPYVKCYLGPDKAKYGKKKTCVRKKTHDPTYNET DKKQHSDPYVKTYLLPEKYKLGKRKTSVKKKTLNPVYNED KSNGSSDPFCKSYLLPDKGRSSKQKTNVARKTCNPNWNQT DNNGYSDPFVKVYLLPGRGAENKRRSKPAGKSLNPEWNQT KSGGSSDTFVKGYLLPDNNKSTKHKTPVVKKTVNPEWNHT DEKKQRDPYVKTYLLPDRSRQSKRKTSHKSNTTNPVYNET DRKGRSDPYVKTYLLPDKARMGKRKTSVKKRTVNPVYNEV DANGYSDPYVKTEEAGHSSAGEKTNQTCICETMLPKPSAE DRNGMSDPYVKDCLPERKQ KYETK IRNSLNPVYNET DVGGSSDPYVKLYLLPDKKK KKETKVHRKNLDPNFNET ENNGYTDPFVKVMVVQNASAENKRRTKYIQKTQNPEWNQT DEKKQRYAYVKSYLLPDKSRSNKRKTK RTGTNPEFNEM DVKRNSDPYAKTYLLPDKTKNGKRKTRIKKRTLNPAFDET DDSRNSDPYDKVALLSDGKKDKKRKTGVTRNTINPVYNEA
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 FSFEVVFE Q I Q

 LVYHI T DEDMQRKTLZRISVCDEDKFGHNEFIGETRFSGKK L R F K I P P M E M L K T Q K L N I S L R Y K I D K A L V K T Q R L N L S V W W N N D TF G R N S F L G E V E L D L G T LTYDVVPDELAERSLEVTVWDHDRLGSNEFLGGVRLSLDS
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L KY VI S H S QL E T RTLLQL SVWHNDRFGHNSF LGEVEVPFDS
 L R Y K I I E K M V L L I Q K L




 L K






 FF F A GP REVLA QKTLLV SVVWDYDLGGMT DDVIGGGVQLS GQA

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 $F$ V F S V L K Y $\quad$ Q V FVF SVTTPA QLRQSSLELTVWDQALLGMNDRLGDAAGGGDA

 LTTY Y i T D E D M I R K T L




 L K Y K I E Y S QL G S R QLQ I S V WH A G A L K Y R V F L G E VVI P L A A $L$ R Y K l




F
 $F L F Q V A L F Q L S E V S L V L S V F C R R S S M R R E R L G W V S L G L S S$
 YEALV Y DHSGSSMEI ELLDDEDPD F L F P V A Y A E L S SRKLHFSVY DFDRFSRHDLIGQVVVD
 F V V DI NRNQLSNDGI EVVVVWDHGRVSSSDFLGGCRLNMDA FEFSVS IVELHRRTLDVAVKNGGSILSKHKLGKVLVDLSD
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WDWASE SA WLPPLQSRT
WD WSNRKLN WYPLKPRS
KGER $\square K H W F D C[K N K D K R \square E R W H T L T E L P G A M \square S$
$\frac{\square}{F} \mathrm{~F}_{\mathrm{F}} \mathrm{GT}$
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K $\square$ F
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$\square D E Q \square K \square W T P \square T$
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LSRETS $T$ WRD D
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1 PME
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 $D R N G A S D P F V C V S Y N G \quad K T Q E S T V V K K S C Y P R W N E A$ NTHVMN LMKAKSDRYAT LDRMGSTFKSKTVKENLLPKWNEV DVGGKS DGYVIVVAGHHH YR T R TIWWKNLNPFWGDD DGHGSASPFVEVHF DEQRQRTQTKPRELNPDWNEK K K QRSDPYVKTY L LPD K S SHSKKKTSVKKKTVNPIFDET


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DIS F ISSDPY R RLQT QTEYKTMAP NWQK I
 $S$ VT G S CDP Y V E V K L $G$ N $\qquad$ Y K GRTK
CLGGILPGTYV QRVVTQPGRKSSKGQTRDVRKSPDPEFNDC
 NGRDPPDPYVSSLLLLPDKNRGTKRKTSQKKRTLSPEFNER $D R N R L P E V F V K A Q V G C Q V L T T K D C P T \quad R T T T P F W N E D$
 D A NGLS DPFV VVEL GPPHFFPHSQRTQVKSRTLHPVYDEL GG N D T K P P Y V K L A V D S N G H E M GR S K T G L K R A Q P N P L Y K E T

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$\qquad$
K R R T S SVKLRTLNPRWREV
 QD GNDPDPYVKIYLLPDPRKTTKKKTKVARKTCNPTYNEM QTGQPPDPYVKMYIRPNLQNFPKKKTNNVRDTQHPTENQE $\square R K S G V D P F V V K C F I D P D T S R K S R Q K T K V V K K N P N P K F N H T$ D P NGGSDPYVKFRLGQ G L G G Y K S K I MPKT L NPQWREQ


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 S Q T



 LTFD I N S D IL P K CVLLESSVLRANG NLLGKCEV


 F R F S L NPAGHS $\square$ Q L F L V S NGGKFMKK TLI GEAYI WL D K FEFELE EGAAEALVCVEAWDWDLVSRNDFLGKVVFNV
 FEFDVS LQEVVQTRKLDVVVKNNKMFYSRERDGMVLIDGSE









 I I F N V P A A A L A A C S L



FEFELP
YEF VVGDP P EKLCVEVWDWDLVSKNDFLGKVVVSVQG YE F V V H E A P GQE LE L E L Y DE GA D K K D CL GRYNL D F GE
 L K Y K I K $\quad$ IS E E V K S R T L C E A E V




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






 FAF RVGBD LIKEELLVCLLDDEDKYFS DDFLGQVVVDVSA




 FAFD ATEDPPSTMDVEVFD Y DGPFSDESLGHAEIDNFLK

 F TYEFPADMLNSRVLEVVIWWNS GILEKHKMFSMCIPDLIK




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L D L S
L S ERYREWFD LCPKS
LVP G Q H WVD
LDTSSKKWKD
LD L S
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PEAGLLHWKEMCCRGQVESARWHVIQP
YD TSHLDTP RWYPLKQTES $\square$ D

V LDDEPHWYK LQTH DVRSVDEWFT
YSNE
VGT
HILDDE
AE WYQLQPHQDTSYLL
WD F N N TH $\square$ NECA L K S K
SEEGQKHWRE ${ }^{\text {WCSRGQ }}$ WETTRWHT $\square Q S$
WDFGHTRMNYFPLKSRTP
LE

SS QYLDQWYTLNDVKSGRVRD
L
$N \square S N G V \square G W Y K L$
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1 KDQLLH EKFHPI QPMSEKE
V P $\quad$ LLS DSEA $\square \mathrm{DLQQRYPLEKRGKGD} \mathrm{\square AL}$
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VT TELDTWLTLEQAKHGLVHTWLSLSSKNDLRAAL
LD
V D LT Q S
LDGQQPQ
L E L N R Q
MR NGEKRWYALKDKK LRGRAK
$\square$ QAKGSVDNWFPLEGCKHGDLHL
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$\square P T R V$ V P P D S PLA QWYRLEDRRRGDVMDA
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WRFEDT
LS Q GVA RWYD LIMDDKDK
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$K P Q G L D G W V S L T E D P D E E V Q G E \square H L Q \square A V L G D Q$
LDDGVTQWYDLDA
$\square G G I V R P Q V G G S T R T G Q P T T L \quad H \square R R P R A Q V R S A L$
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KEAGQPHWYKL
VM NDRTVDEWFPLSKTTSGHLHL

V
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TQNGEQKAYVLKNK
LDLSVIGWY KL
QS PE

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

 K S S SLNI RVVEGRALPAK $T Q V Q G A G Q L K L S \square D A Q A R V L L L H V I E G K G L M S K$ $L$ L E I Q L I L S Y D IL L S A C I VE Q M Q Y L Y V R V V K A K D L PA K

 VP G S C LLL $L$


| $G$ | $H$ | $L$ | $T$ | $V$ | $R$ | $V$ | $Y$ | $K$ | $A$ | $Q$ | $G$ | $L$ | $A$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $C$ | $S$ | $A$ |  |  |  |  |  |  |  |  |  |  |  |
| $C$ | $L$ | $T$ | $I$ | $H$ | $V$ | $L$ | $Q$ | $A$ | $R$ | $D$ | $L$ | $P$ | $S$ |

 EVQGEI HLSSLELLKDTMKLRCQVIEARDLAPR

$\vee$ S G T C L L L V R V L Q A H G L L P S K
QSETRIL KVKVI E G $\square$ G L A K K $K \operatorname{V} Y \mathrm{~F}$ S P K L NMGEMTVDVIGATDLPAA LKV SVMRAKNLLAK
LG R LTWFSVTYEPEAERLLVGLIRAQRLRAP
 S L C GVDHTERRGRLQLEIR APTADEI HITVGEARNLIPM L K V S V V M R A K N L L A K NSNGHVQGELKDS IQY TRGEFHVMIQQHGRDLI A N SAGSGSFSPTLGGQIKLSVSY RNGTLFIMVMHDKDLVTE N R F G R L S V R CYY E A A E Q R L A V E V L H A A D L L P L E NR GEIDEIQQDDFD D L V N Q L GRDK DS T TYDEQMN YLYY NVVMARDLPVK
 K V Y F S P K L

DSCHLRIVVLS
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 $L T V R \vee I S A C Q P K P$
$G L L F V V V H E A Q D L$
KRSSLSI RIVE GKNLPAK
G GEPMME G $\square$ GE L C $\square$ G $\operatorname{L}$ C CNHS G S Q
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$S \mathrm{~V}$ Q GE G VF N $\square R S K V Y$ V V

LG T LT $\square \mathrm{KCNNK}$ K Q V E K M Q Y L F V R V V K A R D L P A K P K L WY L R V NV I EA Q DVVE P H VEKMQILFVRVVKARELPHM PRGVVR I HLLEAE DLTA K S Q Q K L DGSD $\square$ A PRGS VQLT $\square$ QESSSNSSSLLVLVHSASNLPAM
 VTERGDI KFSFQYFPATKRLKVII I RAEGLRFP $\mathrm{V} D \mathrm{D}$ S D L E L K P Q G K L I V V T V V
 K V G G E V K L S I S Y S R N S T L F I M V MH I K D L V T


 G D D WC T I R D N S P K T N V V L E V L E A K D L R V G $\square G D \square Q L S L C H \quad Q K G C L E V E V I R A R G L Q K A$
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NKNNTADPQUO KUWLLTM D

60
70
80 NKN RLADEVGVVKAQMTPD

EKATKKKSNJVIRKNTVNPMFNE T GS QVLRTK CDPSRTTTPGWNED GQAETSTIKKTRFPHWN
GRKEVFRSKII HKNLNPVWEEK $D \square S G T S D P F A R V F W G G$
$D R G G T S D P Y V K F K I G$ DPNGLSDPYVK L K L $\quad$ PD DPKNESKQKTKTIRSTLNPHWSES EKKNRSDPYVKTYLLQEKDKDGKKKTSVKKKTLNPVYNE I
 EPGV CDSYVKISLDPEDNR LCCQKTQTVPDCRDPDFHEH
 DVTGSCDPYVEVKLGN RQKFRTKVVKKSLNPSWCEE
YKGTTMHEFKKTNPEWNQVV

 EPGU C CDPYVKI S LTP PEDDQQCCRVTQTIPDCRDPAFHEH $P \vee T G N V D P Y V E V K V G N \quad Y K$ KGKTRHFEKKTNPE WKQV
RLLTRTVKNSRSPITWNQS


 D ISGTSDPFGR\|IFNN HSAETSIIKKTRFPHWGET
 DILGASDPYTKLSYDPATGESNSFHTKTIKKTDDPKWNEE
 DSNGKSDPFVVFELQGEE VNGRTKTHKRTLNPTFNES D PNGFSDPYCMLGILDPGSGNPCIQVTEVKSSTLNPVWKEH



 DKKDQCNPYVKLVALDGNKEVFKKKTPTAKNTRHPHFDNH
 DLLGASDPYVKLKLTED K LDPSKKTTVKHKNDNPEWNEE

 D IVGASDPYVR DLNTDNGD DNDDSTKTKKKTLNPTWTEE

VV HEPFVKLYK IVNDKRAKKRKTSADRDPSNPDWNEA D S NGLSDPFVQLTLEPNHVFPETRST DFGGKSDPFCVLELTNA

SETCSP LVKG H L $\quad$ PD DERGF $\square Q P$ PT DTKGKSDPYGIIRVGNQD

FQS
D LNGLADPYVKGKLGP
YRF Q K V $\square$ KENLNPKWNEV
D WNG ADP VKGKLGPAPDDNNKKKTKYQKKTLTPKWNEE DPNGLADPYVKLKLTCDGERNRKFRTKVVKASLNPEWNEK EGKHHTNPYAK 1 FKGE D I I Q R A S GAlCPKCLPLLEEPRDGRTATVWKTLCPRWGEE DQKRQSSVFVHVVLKHKKKRMGHYDTAPKPELINPYFNER DSGSNFKVAMFSSGD


## DRSQLPQAFVKAQV

DLTGSLDPYVEVHLGN
D D G GKSDPY AVL RVVGTQD
DDNGLSDPYVIVYLQPHHPQTHF
DRTGKSDPYLKLFYGKLI
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 NKIGKSDPYAT Y

 DSNGKSDPFCLLELGND DSNGSSDPFVQLTLLEPRHEFPEVRTTQCKKNELHPLFDEA QDGNDPDPYVKTYLLPDPQKTTKRKTKVARKTCNPTYNEM
STPDTLSFFVKVAMFSSGELIYKKKTRLLKASSGRVWGET D DNGYSDPYVKVGFGN GKGQRGKTKVKWKTLNPTWNET

 EMIGKSDPYAVVYVRP DLLSHSDPYVVLQLPTASR MFKVKTMVIDNNLNPVWNQT
 DLF GTLDPYI TLHIGNPNNAQVGRTKQIEDNKNPKFDET DRNGFSDPYCKFVLN DREVYKTKTQKKTLHPAWN DQNGASDPYCVIK G KEKDNDRDNY IPNTINPVFGRM


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UniRef90-G0R5B9 UniRef90_G3VWJ9 UniRef90-S2JPE1 UniRef90-E3RID5
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UniRef90_G8ZSR8

90
100
110
120
FRWEVVRTGDVENRQ|L|KLVVSYSKLLRRSQFMGSMTFP|L|AE

 FAFKLKPTDKD RRLSVEVWDWDRTTRNDFMGSLSFGVSE LRYKVEKS LLMAQILNLSVWHNDRFGHNSFLGEVEDEMKA LKFHMSLSGLETRTLWLTVWHSDMFGRNDFLGEVRMPLEN YTVHLPLDFHH LALYVLDEDTVGHDDVIGKISLSKEA FFFPVQEEDEQKRLLVTVWNRAGDSRQSGLI GCMSFGVKS LQ FTV CRSEVDQYSLKVSVWHKDVLSQNSPI GETVISLWD FTFKVDDLE EEILVSVLDADKYSYDDFI GQ R RVPV FAF SKERTQASMLEVTVKDKD LVKDDFUGRVLFDMNE
 MI F PVSQAEQGDGFLGI KLYSKSSVRRKHFLGQVWISSDS FFFPVPEQGDQKRLLVAVWNKASETRQRALIGGMSFGVRS


FTFNVKDM TSVLEVTVYDEDRDHKDEFLGKVADPLLR FHFRIHTQLKN $\quad$ VV QFKVFDQDLLTK DDPLLLVLFDVGT FEFFVPMEEVKKRSLDVAVKNRR
LE LILDAEELNEETVIVEVWDWDMVGKNDFDGKVETPFAS
 FRFRIHTQLKN VLLELTVFDQDLWTKDDPVLSVLFDTGT FFFQV DPRKHR FAF SASKERVQS
FEVELPCKQT CN I VSVEDRVGPGKDEIMGRVIIPVRE
 F V F Q V S S RTVTVRIL RFSVYHVDKQKKHHLLGQQVLFPLKD $E V L E L R E E P G P P A P L R V E V W D W D M V G K N D F L G M V E F P \frac{L}{P} Q$ F V L
FFFEDEDVSMDQLHLDTWDHDDDCRKLNEVMGLKGMGRYT
 $L V Y S Y S K E T L R Q R E L Q L S V L S A E S L R E N F F L G G L T L P L K N$ FHFSVPAEACRRRCVLFTVMDHDWLSTNDFAGEAALALS S S S VEDDI NPSDLLNHKVVINVKDYGTFVAKPVLGCDEVARLDS
 FNMVVKDPDSQ VLEI NVYDWEQVGKHDKMGMNVIPLKE FNMVVKA

 FTFDLPASQLQDAGVELFVTSNEGETQEPVGGCAVGLQN
FEFMVSQDQCPGACLVVTVYDHDKLKRDDFQGEAFLALKD FTFQVKD D G H S L EVSVYDEDRNKSAEFLGKVAIPLLR $F \square F Q V S S R S V T Q R V L K V S V Y H V S Q Q R K H Q L L R H V L F P L N E$ YEALVYEHPGQELEI ELGDEDPD K KDDFLGSLMDDLDE FKIIPCSWESPN MLVIEVRDKDHFV DDTLGACSLNIND FNFTVHVPDLAL I RFLVEDHDYTSRNDFLGQFTLPLTS
 YQVHLPPTFHAVA HTFTLKSGTLDDCVLLECKDK ANSGRKKTLGKVCQLTLAS

FA F IF V A A A A E P F E E QLL Y L T V AK D



F EF P PVTYE V V A K G E Y T L K K
TTLIIDSLSEP LVVKVFDY SVVT
$\square M F L I K L N E L H Q T S I V I S V H D S R T T V G D D L I G S A F L G V N A$
FFFDLNLEEMKNLRLRIMAFHKAHHLKPEYLGEVNVPLSN

FIFRVNPSEN

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






F S F R $\quad$ Q R Q V K N



$\mathrm{V} E \mathrm{~L} \mathrm{~T} V \mathrm{P}$ S R D R D

|  | 130140 |
| :---: | :---: |
| UniRef90_F2ULH9 | $L \mathrm{~F}$ E D GHR E G WFRLLD A K K G D |
| UniRef90-I1KTK3 | FEK Q LD H R PVHSRWFNLQ |
| UniRef90-I3M3F9 | LQQ ${ }^{\text {L }}$ KPPS GWFRLLP |
| UniRef90_Q8C8C0 | L E L N R S T DVT LT LK D P H Y P D H D L |
| UniRef90_V8P3S0 | $L$ K K S P A C GWYKLL NQEEGE |
| UniRef90_UPI0004571BC5 | WD WK NKKME WY DLKP R T S S A N S L D N R G NLKVAL |
| UniRef90_UPI0003DED19E | K $\square \mathrm{F}$ ( D DP TPKWYPLQERTE |
| UniRef90_UPI00038BF3BE |  |
| UniRef90_W5P888 | L LT P D K E IN G WYYL L G E |
| UniRef90_W6N9L5 | HD W DSPNPMWYQLEAKS |
| UniRef90_S8CSY1 | LQVFE A K D K C I T N WF NL Q P K N K |
| UniRef90_B9N6X2 | $\square \mathrm{P}$ K R V P P D S PLA Q WY RLE D R K K G E L M L A |
| UniRef90_G7YS30 | TTE T L S D WF P L I P |
| UniRef90_F6GUA2 | VQR R L D H K K P N W W N L E K HVLVD G L |
| UniRef90-E1C1H8 |  |
| UniRef90_UPI0003596B55 | L L T P D K El S G WY Y L L G E D |
| UniRef90_G7ZV87 | $\mathrm{V} P \mathrm{~T}$ V V P P D S P L A Q WY R L E T R T R G EVML A |
| UniRef90_G1T2D6 | $L R$ VGRRES F S L R A Q G E E R L E VEFRLQ S LT E G A E Q L A |
| UniRef90_Q80TT2 |  |
| UniRef90_T111Y3 | 1 K N N E K R WY A L K D K K |
| UniRef90_UPI0002BD1272 | $L R A G E S R R E S F S L N P K E Q L E V E F R L Q N L T D C A E R L$ |
| UniRef90_UPI000333B087 |  |
| UniRef90-M4AL42 | L H P V L E G WF R L |
| UniRef90 E9IAS2 | L ERET T H WRE |
| UniRef90_UPI00034F5F3D | L R A GQRQS F SLS TE GEMRLEVEFR L L Q S L D C A E H L |
| UniRef90-H3CVA4 | 1 P TENPNWNDFVLHPRSHKSR |
| UniRef90_M5XLX5 |  |
| UniRef90_B9S748 | $V P$ PRRE $\quad$ TAKLPDPPRWFNL |
| UniRef90_Q9UT00 | L Q Q Q Q T N Y E $\square$ P LD S K Q GVP K W V L R S K R A G S S L |
| UniRef90_L5KGX9 | V P VA GE $\mathrm{V}^{\text {L }}$ |
| UniRef90_UPI000454B181 | EVLTS DSRPV F WRDLEAEN |
| UniRef90_UPI00044396D4 | LQ Q P P D G WFRLLP F P K |
| UniRef90_L5KZG0 |  |
| UniRef90_UPI0003F0F473 | A G P T E D H T D D F LG S L N $\square$ P $\square$ D R WF K LE P R S |
| UniRef90 E9FU76 | L S R |
| UniRef90_UPI00035933B6 | L S K E T VK WY Q LT A |
| UniRef90_UPI0003F0A705 | $V \mathrm{GAGARAGQPVTLNLRRPKAQ}$ |
| UniRef90_O76835 | L M $\mathrm{NRQLLSQRW} \mathrm{\square P} \mathrm{\square SVERK}$ |
| UniRef90-M3ZYU0 | $V \mathrm{KRE}$, K EMDQWFPLENDPHGEDHL |
| UniRef90_11KW96 |  |
| UniRef90-11LJ17 | $V$ S P E E T K R F S L |
| UniRef90_M5WFC9 | FERRLDH RAVHSRWFNLE |
| UniRef90-A5AXU7 | VPPRR 】E P A K L P D A R WF NL H K P |
| UniRef90_UPI000457298F | I Q N GEERAYVLK N K N |
| UniRef90_B4N6E6 | $\mathrm{L} P \mathrm{TEQEE}$ GRT@GDQSYT\RPRRSV |
| UniRef90-B0WPS1 | GGS GS A H WQ D LM Q N S R K P |
| UniRef90_H3D1S9 | 1 P |
| UniRef90_C3YNP3 | I K N GERK A F L L D K K LRRRTK G S V L |
| UniRef90_UPI000359AE2C | 1 L A G D R H |
| UniRef90_UPI00039599DB | $V E K E \quad R L L D E W F T L D E V S K G K L H L$ |
| UniRef90_A5AVW0 |  |
| UniRef90_UPI00022B2C07 | V R T G Y R H |
| UniRef90_U6HRZ1 | 1 V ( R R P V C WF K L S K E GE |
| UniRef90_W5FJ27 |  |
| UniRef90-F7INX0 | HPK GFS GWA H LME DPDEEVQGEDHLRRLE |
| UniRef90-H2KPI2 | T S T GAK HWEEMIIK GPGK THVF WHILLSVGSE |
| UniRef90-F6VKB5 | CFEAVNQWKDT】ANPEKVVISWHKLNP |
| UniRef90_A0A016RUL7 |  |
| UniRef90_V7B2R9 | $I P K R \square \quad P$ P D S P LA Q WY R TE GEK R G E L M L |
| UniRef90_A0A059CI48 | 1 PTRV ( P P D SPLAAEWYRLE DENK GELMLA |
| UniRef90_UPI00042B5A73 | FERRLDH R PVHSKWCNL E |
| UniRef90_C0M0V2 | $V P \square R V / 2$. |
| UniRef90-H3DC69 | V K K A R D D WF NLK DVPP G S V H E WLS L L S S E |
| UniRef90_UPI0002653F04 |  |
| UniRef90_A0JJX4 | I E E A P P K DVWVP LEK |
| UniRef90-B3SBM2 | $V N \square A$ A T T T A WY ALS P P |
| UniRef90_H2VEK3 | L E Q R T |
| UniRef90-F1L288 | $V$ DK E M E Q WK N T DE H Q G K E Y K G VH H L K P |
| UniRef90_UPI0003595B55 | L LMENRMWNDLHFKPYKK L L G H L Q VELLLDDSRLA |
| UniRef90 Q9LEX1 | L E A GVT |
| UniRef90_UPI00042C2B17 | L K Q G Y R H V H L L K N G D Q |
| UniRef90_Q5BVG7 | I G T E G SNCRLMAKS |
| UniRef90_G1K875 | L NKET $\square$ N WHRLLA A VP |
| UniRef90 X1WBE2 |  |
| UniRef90_UPI00044366BB | I R D GQQ S C Y VLK N K DLEQAS K |
| UniRef90_U3JE60 | $L \quad P G$ LE P E Q D GAEPGRVP Q T R |
| UniRef90_UPI0003503BBA | $L$ DLA QEK M GWFALGSRGHG |
| UniRef90_UPI00046B2F65 | N N I E S NQWK E TVR N P E K V VT K WHKL D P |
| UniRef90-A9TUU2 |  |
| UniRef90_UPI0002ADBCFD | $L \quad N L S N \\| V$ I G WY K L |
| UniRef90_UPI0001A46D6C | L P K E Q E |
| UniRef90_T1G9G4 | I E N D R R K WY ALLK D K K L Q Q |
| UniRef90-B9GPS3 | L EAETWKELEFGLLSSSFD T L K VK DKK R R |
| UniRef90_F7E3S7 |  |
| UniRef90_G0R5B9 | L F EN Q S LWY QLLDD K G N Q TT Q |
| UniRef90_G3VWJ9 | L K VGE S R R E S F TLL P K E E LEVVE F HLQQ |
| UniRef90- S2JPE1 | L A E |
| UniRef90-E3RID5 | L E P F Q Q Q |

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UniRef90-F2USL2 UniRef90-F4Q703 UniRef90 Q755V7 UniRef90-HowXX9 UniRef90_M7YMP8 UniRef90 A7SG63 UniRef90-TOSDT5 UniRef90-I1COA5 UniRef90_17M3G3 UniRef90 R7TZR1 UniRef90-A0A059C3Z5 UniRef90_I1IED6 UniRef90_UPI00021A54B8 UniRef90_H2LGF0
UniRef90_UPI0003C369FC $K L D V T V V S A K G L V K M$ $K L G V E V I S A H G L F N A$
F GE ITHLT IR Y T T L R N KL I I V V D S CR NL F P C GQLKLSIE VRGRTLVLHVMEAKGLMGA
$M G D V H \| A M M D R S G Q L E V E V I E A R G L M P K$
$\square S$ QRYSVVRSSFQNDK D GGFLQQVKIL KA VDL LA A I 1 R S K V V Y H S P R R L W W Y V SNSGEVSKVTVSARYDPTEGTLRVDVHDAAELPAA GSGVDDAVGE $\square H V E \square F T H P N T G K V T V K V V A A N D L R W Q$ SSAKEGSSVCHAEDEDATCFDPDGVLRLKIVEARNLENR

 QSR $\square L R A K V L A G \square G L A K K$


## $N$ R Y H L R C <br> 

A G A G K R $\square$ K K L G G L A VR P Q Y S T K K Q Q il


 $G L L V V 1 V$ HEAQD
QF T PASGE I H I WVVEAKNLLD L
$G \| L N V K V K G G T N L A \square R$
FKELST TLGEAGDGLSNLPNAYLLITMHLKEGRNLVVR LYVRVVKARELPAM NCD GEQWTSAAKDESSPCY L

LTVRRVI R A R NI H Q A
 NESRPTGLGLIHCS LQHFP $\square R K R L R V S L L R A E G L A G K$ LKVVVLKARNLAAK
 $\rightarrow L K L V V E E A R K L K A A$ G IL HVVNVRAVKLLKM $G R L K V R V L C G R H L P V M$ LR T C G T L $N$ I L Q L N V L E A R DLEA S


 |  | $L$ | $Y$ | $V$ | $R$ | $A$ | $V$ | $K$ | $A$ | $K$ | $D$ | $L$ | $R$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | $\operatorname{A} A$


 GTEESVGEDQVDLFTHPGTGKVTVKVVAANDLQWQ

 GQLNITVVKGTQLAVR $E \square Q G E L L A E \square E Y S D E M F R G V I$ TLVEARDLAVR | $H$ | $L$ | $R$ | $V$ | $Y$ | $V$ | $Y$ | $Q$ | $A$ | $R$ | $N$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $Q$ | $L$ | $M$ | $S$ | $M$ |  |  |  |  |  |  |  |
| $R$ | $V$ | $H$ | $L$ | $K$ | $N$ | $G$ | $S$ | $D$ | $L$ | $V$ | $A$ |

UniRef90_B9G074 UniRef90_UPIO0032A6654 UniRef90-A0A016SZ71 UniRef90-A0A044TT55 UniRef90_J3M1Z5 UniRef90-CONB955 UniRef90-E2BSAA UniRef90-UPI0003EA842E UniRef90-UPI00032AF544 UniRef90-Q5BYJO UniRef90-F1NH90 UniRef90 ${ }^{-}$W4GKQ4 UniRef90-U6J6Z4 UniRef90-UPIOOO3316409 UniRef90-E4XVA6 UniRef90-H2Z4G3 UniRef90-U6HZH3 UniRef90-UPIOOO2C35755 UniRef90-UPI0003EBD95C UniRef90-G1PIL6
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UniRef90 E5S281
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UniRef90-E6ZIV8
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DKNGLSDPYVKFKVGG
$\qquad$ VL
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 DLWSQTDCYVKLWLPTA EGKHHTNPYVRIVFRGEE SCREAQTRTVHNCRNPVWNET RKTKHIKKNRDPRWEQE DKTGSSDPYVTVQVGK TKRRTKTIFGNLNPVWDEK KPHGVDAFVKCYILPDDSRKSRQKTRTVKKSMNPVFNHT DMSS SDPYVVLTLGQ DRCGTSDPYVKFKLNG DVTGSLDPFVEVRIGN DVLSQTDCYVSLWLPTASADYRGDTKHFEKQQNPVWNQV DVGSQTDCYVSLWLPTASADKKFQTKTGQNCKDPVWNET DVFDESDPFVKVTFNFCKVNF DKFTPVIDNNPNPLWNFQ
oom


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 FEFVVEDESTQH LVVKVFDDEGIGASELIGCAHVRLSE
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FMFPVTMD
$F L M R \| S P M D$


## $F A F P$ F K E C I Q S S Y I E I I T V K D




| UniRef90 B9G074 | $\text { L Q QP GKEVWLDDLL VK D LETIQR DK } \quad 140$ |
| :---: | :---: |
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| UniRef90＿A0A016SZ71 | SSPD QE H WEQM $\square$ Q GAGI TVSKWHPVHPPE |
| UniRef90＿A0A044TT55 | LLDD $\square$ PM DRKG】K】LDDGWFNL |
| UniRef90＿J3M1Z5 | V L DEE D |
| UniRef90＿C0NB95 | L E P |
| UniRef90－E2BSA1 | R GPERLH WF SVLQ P P R K L V T VWH】LK |
| UniRef90＿UPI0003EA842E | ASED EHWSLMMQCLRQPI A KWHSL |
| UniRef90＿UPI00032AF544 | V P G L S G E EPSEVP Q T R L P T Y P P P N D P L |
| UniRef90＿Q5BYJ0 | R R |
| UniRef90＿F1NH90 | L E L N R T |
| UniRef90＿W4GKQ4 | $L G K P Q T L T L E L L D K K F R Q K N K L G T L$ |
| UniRef90－U6J6Z4 |  |
| UniRef90－UPI0003316409 | $\square A ~ E ~ S ~ Y ~ G ~ A ~ W Y ~ P ~ L ~ L ~ K ~ N ~$ |
| UniRef90＿E4XVA6 |  |
| UniRef90－H2Z4G3 | T DEESNHWSEMMTQHNRP】ARWHRLK |
| UniRef90－U6HZH3 |  |
| UniRef90＿UPI0002C35755 | VLME G E |
| UniRef90＿UPI0003EBD95C |  |
| UniRef90－G1PIL6 | L S Q E M D Y S LD $\square$ A P P S K $\square$ P V V C H |
| UniRef90＿B918H3 | V E K R |
| UniRef90－E5S281 | A L H T LP A S Q WH P L Q |
| UniRef90＿UPI00046C1E54 | PREANDHWALMMQSVQQPVAKWHPL |
| UniRef90－B9IKZ8 | LE P GKVK DVWLK L V K D L E Q R D |
| UniRef90－13K991 | $V A D \quad R \mathrm{~K}$ S C【VCWCPLGPRDHTDET |
| UniRef90－E6ZIV8 | V Q N G Y R H |
| UniRef90－C4JJ82 |  |
| UniRef90＿S4RC05 |  |
| UniRef90＿UPI000440BB62 | $V \mathrm{KPDQT}$ K F Y T C L E HP |
| UniRef90＿C7J9R5 | 1 PKRS |
| UniRef90－M0TEX8 |  |
| UniRef90＿UPI000388BC36 | TAEKGSCWYPLLKN |
| UniRef90－A2FDM6 | LE Y E E T T E K D L ELKK E |
| UniRef90＿M4C9T4 |  |
| UniRef90＿Q4SK45 |  |
| UniRef90＿H0YWK4 | S P Q E $\square$ S G WY Y F L |
| UniRef90＿G3W2K8 | LDLSS NVVT G WY K LF P T S SVDS T L G |
| UniRef90 UPI000203A906 | I R N G Q Q S C Y T L K N K |
| UniRef90＿W9SFG7 | $V \mathrm{R}$ R A D D R M $\square$ H S R WY N LEK P |
| UniRef90－B6HM18 | L E P |
| UniRef90＿D6WUE3 | L D L G R A T EVT M L Q D P D R P |
| UniRef90＿UPI0003AF36C4 |  |
| UniRef90－UPI0001E480EA | Y $\square$ K E K R NLD D WF P L D A C K H G D $\square \mathrm{H} \square$ |
| UniRef90－UPI0003339EAB | NS TEVNNQWKETITTNPEKVVTKWHKLNP |
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| UniRef90－UPI00034FCCBC |  |
| UniRef90－A0A044RZP7 | I Q N CEPKWY A LK D R K LET R A K G Q L L |
| UniRef90＿H3B711 | 1 P T E N P N K D F L L H P R S |
| UniRef90＿R0K7Q5 | IR T E Q E |
| UniRef90＿UPI00032A300B |  |
| UniRef90＿UPI0002C331AE | LQ P G K DVWLK L V K S |
| UniRef90＿UPI000441D99C | DRTPRLS WCPVVK GSR |
| UniRef90－T0QTE0 | $\square 1$ F A S G Q V VD Q WY P VR N Q Q R G E $\square$ N L |
| UniRef90＿C8VK49 | LE P F Q A Q EVS LTLDD G K S |
| UniRef90＿W2T6L0 | L S GEMDVWYNLEKR T D K A VS GA IRLHVEDK GEEK LA |
| UniRef90＿G4LV54 | $V Y E C D R H \quad A M L N$ K W L L C CPED |
| UniRef90－M4D6U9 | L T P E |
| UniRef90－W4ZJ83 | V K C G E R R P Y T LK D K K LK R R A K |
| UniRef90＿UPI0003BDC77F | TRSPRLA WF P |
| UniRef90＿A5C868 | V I L E GE |
| UniRef90＿U3JTP5 | I QP G E K V H L N F E L N P E N Q |
| UniRef90＿A2X4D4 |  |
| UniRef90＿K7FV29 | LS G EMDVWY NLAE K |
| UniRef90－S4RUD9 | REGEVAVVWHNMIT R P GEWTEALLPLR P |
| UniRef90＿UPI00035A2050 | D P D A R A Q W L E MVHNARK QVAC WHKLQ S |
| UniRef90－J3LAL1 | M $\$ NA T A A F G P ELLLGDMQIGR WLK  \hline UniRef90＿UPI0002C37203 & L EL N R T  \hline UniRef90＿M5WE75 & $V \mathrm{P} \mathrm{L} \mathrm{V}$ V P P D S P LA E WY R LE D K K K S E L M L A |
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| UniRef90－UPI0003943D6E | 1 ME |
| UniRef90＿UPI00006D0DBC | MILQ D P K $\square$ WF N |
| UniRef90＿J0XEP3 | L S E |
| UniRef90＿G2YDX0 | I F SNDSHEQE P A WY P LR S K R P G |
| UniRef90－T0RIN9 | V G Q L R L VA S D $\square$ M A E P T M R S T R WY T L |
| UniRef90－DON251 | FRMSPT SPAQSELIDEWFRVEP P |
| UniRef90＿G71517 | LK P Y E N K E F T L D L K D T NV |
| UniRef90＿F6W790 | L L D PQSSHSLCGWFP |
| UniRef90－F2USL2 |  |
| UniRef90－F4Q703 | L D D Q P T WH T L Q R |
| UniRef90－Q755V7 | $V$ D P D S E |
| UniRef90－H0WXX9 | L S T |
| UniRef90＿M7YMP8 |  |
| UniRef90＿A7SG63 | LKESLT T S HCFLLF $\square$ Q D P S A Q WF KL N N T K G EVQLA |
| UniRef90＿T0SDT5 | I Y S H l N |
| UniRef90－11C0A5 | L E S F S A Q NVEVP LTT G G K LR LK WEP LS R K R E G T S L I S |
| UniRef90－17M3G3 | I K P NQEQF Y E |
| UniRef90＿R7TZR1 |  |
| UniRef90－A0A059C3Z5 | L E A E E |
| UniRef90＿I1IED6 | M I T A A M A F G D P S R R D M Q $\square$ G R WF |
| UniRef90－UPI00021A54B8 | LFLGQR Y K T WYRLQQQ DK |
| UniRef90－H2LGF0 UniRef90＿UPI0003C369FC | LSPEMDQSPRLFWHP <br> LELGlAEDVNLVNHPDRP |



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[^0]




[^1]r




[^2]











[^3][^4]




[^5]

[^6]UniRef90 Q9LXU2 UniRef90-AOAO16U1X4
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 FEWELSPEEAARRRLEATV
FEFQINDPELAMDRFVVLDDDY \GDEFTGQYTПPLEC पK LK I P QDYGSIKVQVYDHDMFSADD\|MGEAEIDIQP
 FYFE CHNSSDRIVVRVWDEDNDLKDDFLGQTIIEVRT FKDPDTSWEALNL SLQVRDKDPDFDDTLGDCSUS:NK FNFQLQSQVKN VLELNVCDEDRVTPDDHLLTVLYDLGK FAFDLKPQEFSNLELKVCLQHDGGMFGSSFLGEVR\|PVRD

 FESTVDIDCHGQSVTTSVEVYDKDQGNKDDYLGCTS 1 FDVTV GGPVNVIATIWDYDTFGDHDYVGRTSLKLDP FYFEVTREDIEKLEVRVDLWNNGNLGQDVFLGEDRISVKV FEFD EDGDGEYLMIKCYNEDTFG DDSIGSARVNLEG
 FTFEPEITESKEKDI SQCPEDHGMTSNDEVGQFTMPLSC LKY YVELAQLVTRRLQVSVWHVGMLTRRVFLGEVIVPLAT LNFAVKDVNEDILQLEI WDYDPDETVKEKMLKQUAVASKA IKY S SCDALGRNLLVMDWEKKQFESNQGLGGAEVSLDL VT TE TP FRFQV WVPELALLRFVVE FLFQVSQSDLDSiTILI NVY
 CFRILVPELAMVRFVVK DYNWKSRHDFIGQYTLPWSC LCFRVLVPELAM K L RFVVQDYDWKSRNDFIGQYTLPWTC VIYSISMEQLKKKTLEVTVWDYDRFSSNDFLGEAVMDDKS FNF SV SDELPVKINVTVYDWDVGWKSTVLGSVTVPVES F $\prod_{F} F Q S G K S T T Q R V L W F S V Y H V D R Q R R H Q L L D Q V L F P L S E$ FDLYSPPQKCRQACLLLTVFDYDTLGANDLEGEAFFPLSP FEWESPLDEALRRKLDVAVKSSSSFMSRERLGKVQLDLAE FVFKV WHDMNEEELLVSVFHHDDFNGDDLVGRVRIPVCS YKFELDDIELQDEPLQIRIMDHDTYSANDAIGKVYFNLINP
 CQFHIK DIYQDVLCI AINEKDQFSPDEFLGRTEVPVAT SFDIEACFPMESMLTVAVYDWDLVGTDDLI GETKIDLEN FQLKVYAGDQP VLFKVLDHDLVGKNDDLGDYSLRIDD FVFNISEGVN ELRLKUMDSDSMSADDLVGEVTISLDA LKFTLRAPELALVRFVVK DYDA SSDDFVGQFTLPLCS FYFYLAKSGPQYLELVLEDQDY GIDSNDFLGRCVINLNE
 LVFT FVVE GVNDHDDDTLELWDWR


| UniRef90＿Q9LXU2 | VVRRRLDH $130 \quad$ RPLN S R WF NLE 150 |
| :---: | :---: |
| UniRef90－A0AO16U1X4 | 1 RE |
| UniRef90－B7PGV5 |  |
| UniRet90－H2MJ76 | LEMDKVH |
| UniRef90 UPIO0004629D85 | L |
| UniRef90 A2E8X1 | PVEKQVELKKEGGHRKER |
| UniRef90 H2TFJ5 | VKKSV <br> EWLSLLPST |
| UniRef90－ $\mathrm{S8C1H0}$ | LTEG |
| UniRef90 L1IXQ0 |  |
| UniRef90－F1R4M9 UniRef90 S2JLU5 |  |
| UniRee90－S2ALIOO395CD37 | L पKVDVGGDEFNQWLPLFPPGSGELRVS |
| UniRef90－G3X289 | LQPGYRH |
| UniRet90＿S8BVA5 | MIT SATAFGDAGMFSDMQUGK WLIK |
| UniRef90 K1RGX4 |  |
| UniRef90－UP10003F08BD3 |  |
| UniRet90－C52714 | LRGGKRH |
| UniRef90－G1TFQ6 | L CFRKKTHVKFP ${ }^{\text {CNPE }}$ |
| UniRet90－L7M4U6 | LGLER GCSHQAWYLLQPRSEG |
| UniRef90－F6PPP8 | GDV HQQPKWYT面 |
| UniRef90－W6UYH7 | $V T$ PPAEFKKVML |
| UniRet90－G1NWE2 | WDWDSE A |
| UniRet90－Q5C2C6 |  |
| UniRet90＿E9DTV6 | VHFGR |
| UniRef90－A0JP93 | LRNDSSHRA WYLLQP |
| $\begin{aligned} & \text { UniRef90_M5WE96 } \\ & \text { UniRef90 K7M319 } \end{aligned}$ | IPKRV PPDSPLAQWYRLEDRRKGELMLA |
| UniRef90－UPIOOO45724B4 | VQQGYRH |
| UniRef90－UPIO00258D4D5 | LGEVR $\square$ T LRGLQKQPTNATTAWYFLQPR |
| UniRer90 U4U8X3 |  |
| UniRef90 UPloouch |  |
| UniRef90＿E9GDJ5 <br> UniRe 90 －UPI003 | L LPGAA |
| UniRef90－V4CHK2 | K |
| UniRef90－UPIO000462AB57 | VKPGYRH■HLLSKDGTR |
| UniRer90－H9G3U5 |  |
| UniRe990－1L8X0 | S |
| UniRef90－F6RRZ6 | LKMGYRHILLLSKNGDQ |
| UniRef90－UP100032AFF9C UniRef90－UPI00038E18A | MQQGYRH |
| UniRef90－UPI000265873A | \VEQGSCWDP पGRR】HMDETGWT |
| UniRef90－UP10002BCED77 | TS HLDNM |
| UniRef90 B41x ${ }^{\text {a }}$ | VGOTGAVWYTORS |
| UniRet90－M5XV59 | EGQTGAVWYTLDSSSG |
| UniRef90－H2UKU4 | LSGEMDVN |
| UniRef90－UP100038EC74F | RLAPMLHWRDLEPKSLEPLSESGDLQ |
| UniRef90－UPI00038EFF51 | LSQGSAQWYDTTEDKDK |
| UniRef90－M5WEA8 | VAAET NCTLPP AWYSLESPKTG |
| UniRef90＿UP10003EC03FA |  |
| UniRet90－UP1000468B692 |  |
| UniRef90－K7GXC6 | LQPGYRH【Y LLNNEGDPME |
| UniRef90－UPIO0032A091F | ПKKEFE |
| UniRef90－UPI0003AFB1D8 |  |
| UniRef90－12CP21 | －P |
| UniRef90－G3WAG3 | LkQGYRH |
| UniRef90－K3WXL3 | WRERFDRWपA岛EHEKE |
| UniRef90＿UP100021A519E | LRDE |
| UniRef90－UP10004403CCD | QPPDRPLWRDUVE |
| UniRet90－＜6MRP8 |  |
| UniRef90－UPI0003DF5592 | SQdKEATWHP岛AGTGR |
| UniRef90－U5FVB1 | NPTRF PPDSPLARWYKDEDRNGELMDA |
| UniRet90＿UP10001CBA4FC |  |
| UniRet90＿－39HR67 | T P E |
| UniRet90＿A7MBY8 | KKDQD |
| UniRef90 A0A016VNA3 | IRCGFR GYNTWRDPMKPSQ！ |
| UniRef90－UP10002344B19 UniRef90 F4PW60 | SQTYS |
| UniRef90－K3×523 | AHDRTSQQLADGK【ST\PDPKWYPVMYQEPGDS |
| UniRef90－UP10003298C6F | LYSEAASVISGWFPL |
| UniRet90－H2SVRO | 1 KKDQ |
| UniRef90－G8JMN6 | LVPLEQQVFTLPLVPQGRD |
| UniRef90＿l1HTA1 |  |
| UniRet90－UPIO00223485C |  |
| UniRef90 ASDKA9 | D 닐 |
| UniRef90－M4AXV3 | LGQAGVH |
| UniRef90 UPIo00383625A UniRef90 111 B | LSRGQSQFYEVVNPKKKLKKRRY |
| UniRef90－K3WDA2 |  |
| UniRef90－W5UFN0 | \QPGYRH |
| UniRef90－H2ZAE5 |  |
| UniRet90－V2XZE8 | E |
| UniRef90＿O8K3R3 UniRef90＿UPlooos9927BD | MKQGYRH |
| UniRef90＿UPI00039927BD |  |

$G V L V I$ I FHGARDLPKA

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



$P \quad 1 \quad \mathrm{G} T \mathrm{~L} V \mathrm{AIV} \mathrm{D}$ D AKNLDPR
 H L G T T S D D N L N ELLH T I K C C S NLK K A $Q V Q \downarrow G L R Y D A K R S S F M V L I A Q L R N L H A F$





G S L Q G S G Q Y V P P $\square$ G V V | $K$ |  |
| ---: | :--- |
| $L$ | $V$ |
| $V$ | $L$ |



 S A Y VI K L E L L A A K N L I G A


FT K K I I E A E DLKA G



$E L R G D L Q T N S A Y L$
 TLK K K V DS GF QL P T P

 NHQMRTLIV E

I RV Y I V SASNLHPA
 K ER GEVVQYSLS YYPRSGVV RFT L H Q A K E L D K R SKYGVLSVKAKF ENNNNLVVVTVMNARNGLAM


 A G D S GVFEELA QVQDGLKY LVKEGVLVVSLVRANNLSAL
 V VTI L E A M GL LA C
VVVTVHQARNLRTK


## UniRef90_M3YYM5

 UniRef90 UPI0001D5D83? UniRef90_A0MZ33 UniRef90-R7UMD0 UniRef90 UPI0003C107F6 UniRef90_J3PPS7 UniRef90-R7US78 UniRef90_V4LD63UniRef90_G1LTM8 UniRef90-H3D2W8
UniRef90-G3WSY4
UniRef90-E6RB83
UniRef90-U4U2F4
UniRef90-W5LBR1
UniRef90-M4E815
UniRef90_C4LTE8
UniRef90_L8WSL8
UniRef90_UPIO0046DADDC
UniRef90_W6QD46
UniRef90- J5PVIO
UniRef90-J9EUZ4
UniRef90_G3W237
UniRef90 F6SWG4 UniRef90-A0A017SB54 UniRef90-G7Y4U6 UniRef90-UPIOOO46BE139 UniRef90 B7PCK6 UniRef90_UPI00032AE275 UniRef90-A0A059A5H1 UniRef90-UPI000457264B UniRef90-A8N179 UniRef90_V9KNS3 UniRef90_Q6K295 UniRef90_D2VT46 UniRef90_E5SD09
UniRef90 G8Y9V9 UniRef90-UPIO0046D2DE6 UniRef90_F6HAX4 UniRef90-E2B1D3 UniRef90_H3GYJ2
UniRef90 F9X9G2 UniRef90-UPI0003EE2190 UniRef90_MOT499 UniRef90_A6RGU6 UniRef90-B9RC69 UniRef90-M1AVA0 UniRef90-W9S4A9 UniRef90 K4DEX4 UniRef90-H2UXR1 UniRef90_H2MT99 UniRef90 UPI0002B4BF8B UniRef90-D0R6I8 UniRef90-T2MIP2 UniRef90 UPI0003C4D2DD UniRef90 F6YHR5 UniRef90-H3A2R7 UniRef90_M3ZSG9 UniRef90 UPI0003346073 UniRef90-D8UDC3 UniRef90_V5GRX9 UniRef90_A8Q3V0 UniRef90_D6X3H8 UniRef90-H3CR59 UniRef90_H3CJJ6 UniRef90_C1HC23
UniRef90_UPIO003344C42 UniRef90_V8NJH1 UniRef90-W5K3S9 UniRef90-T1PME8 UniRef90-A9NSH0 UniRef90_FOZRA2 UniRef90_UPIO00443915A UniRef90-UPI0004628AEB UniRef90_V8PFE7
 GKTEDGNRDMYQPNTDDP DFGMM
 DLNGKSDPYLIVKCG RHVTNDKANRDMNMLNPCFG DASGSSDPYIVLAYAKFGKPI YSTEVI GKELNPVFEET NGSGKSDPYCEVSMG $\quad$ AQEHKTKVINNTVNPKWNSS DKSRHPEAFVRI QVGNQMW KYGYRGVSQRSIMPKWDEE D LN GKSDPFCVLELGHD $\quad$ RLLSHTVYKSLNPEWNQV ANSK VVDPLVRVEUYGVPGDTARQETSYVENNFNPYWGQT DTMGSCDPYLKVVGFEKAKVMFSTRTMSGRSRNPVWEEE DPDGKADPYIVLKLG KTVIKDRDNYIPKQLNPVFGR DFKS SDPYVIVKLGTE SAKTKVINNCLNPVWDEE DYFGTSDPYIKLSINGQM HKTNVVYRTCDPKFNQS KNGWDMDPFVVIAFSKKV FRTRVIRHSRTPVWDEK D
KTMGKQNPYAAARLG FSKEIIDPYVMVEILDGDADCNKFQSNGVIDDNNFQPVWKDS KSHMQPNPYVVYKFFP DFADHDTAIIPNSNDPQFDDH LIP HTSKVYFRVALLPSSTDVSCFRTKVHPATESDLFNDM DMNGRSDPYVVLADEYQRRDA ASHLLQPHPYVVYKFF DFADHDTADIPSSNDPQFDDH NGS CNPYALVTLCHGLVKQETRKSKVRRKTVCPRFEDA DYNGLCDPYVILKMGQTKLGN RRDTYRPNTLDPDFGML


 DFTSSSDPYVVVRLA AMNKKTKVINSSLNPVWNEE
DRSSGTDAYVVVKCGSEYQF
D S K GK S DP Y V RI TVGGGQ
DSNGKS DPFAALVSYM G
NLD GMSDPYAII T C GEE
NSS KRFSSMVPGSRNPMWGEE






$D V$ RTSDPYCVVKM GKKQKDKTKVIGKDINPEWNED
DFFGKS DPFVFYRSNEDGTFT ICHKTEVMKNTLNPVWQA

$S G G S A V D P Y V K V Q V Y$ GVVADCAEDGTDVVKNNFHPVWNCD
THAGYCDVFVRFKLGVD K Y K K S R V SKHTNNPVWNEQ
D LFTRMMDPYVVVIQY K K G QEKKS SVAREQGSNP EWNEK


NKNSVVDP LVVRVEVHGVPKDTCKKQTEYINNGFNPSWKQS
D P D GKADPYIFLRLGK N E IKDRDNYIPKQLNPVFGR
DSNGSSDPFVQLTLEPRHEFPEPRETQKHKKDLHPLFDET

SGFSGE
D SNGYSDSFVRI HLLPEHKF DPKPKTQTHYK TLEFPLYDEN
N D K K S S D P L V K V V V L G VP A D CT Q K E T H V V N N GFNPSWN E N
GKNSTNDAYTII QMGKE KYSTSVAEKTLNPVWREE
DMDGLSDPYVSL ADESQR\|FK T RII Y DNLNPRWDDT
D L L S E A D CFVVQLWWLP TASPSPT KTRT GVDNCSDPENNET


WSASTENS QVYLRAALLPNSLTS DRTKAMSDFHKPVVNDT
K K T G VK K R N L N P V WD E E
D WN GKS DP Y FK $\quad$ Y K Q G G S A P A L VY Q S E I I N T L N P V WR P Q
DGTG $\square$ S DPYVRVSCTKNQS QRTKTQQQTLHPSWRQR


lupas_21
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jhmm
jpssm


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[^0]:    $\qquad$
    

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[^7]:    lupas 21
    lupas_14
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    jnet
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    jhmm
    jpssm

[^8]:    lupas_21
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    jpssm

