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 P T K L K K S L I R R L V


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120
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 E T V $\begin{array}{llll}R & N & R \\ R & N\end{array}$ ETVR $T$ L $\operatorname{S} Q L$ RSRRPV

 | $E$ | $T$ | $V$ | $R$ | $N$ | $V$ | $M$ | $L$ | $N$ | $Q$ | $R$ | $S$ | $S$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $R$ | $S$ | $P$ |  |  |  |  |  |  |  |  |  |  |
| $N$ | $N$ | $Q$ | $I$ | $R$ | $S$ | $S$ | $S$ | $P$ |  |  |  |  | ETVRNMLNQIRSSS NTVRNILLGHLRSPRPVILDPTDPTSNVSK DNTCWQLLK NTVRNILLGHLRSPRPVILDPTDPTSNVSK DNTCWQLLK QEVSKYLHRQLRKARPVILDPADPTGNVAGGNPEGWRRLA LVIVQYLIRQLKQPRPVILDPADPTGNVAGG GGWQRLA PIIKQYLRKQLNKSRPVILDPADPTGNLGSGHAQSWPRLA ETVRNVMLGQi RSSRPVILDPTDPT NMVSKDKTCWRLLK ETVRNVMLGQI RSSRPVILDPTDPT NMVSKDKTCWRLLK

 ETVRNVML

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 P K V L GQG RARRPVILDPTDPTNNVSQDNS

CWHLLK
P S I K E K V E C G L
PSI K E K V E C G L R
$P A L R V H L L S Q L Q K A R P L I L D P A D P T W N V G Q G \quad S W E L L A$
 H VI R Q Y L R R Q L E K P R P P V I L D P A A D P T G N V A G G D P Q R W Q L L A HVI R Q Y L R R QLIE K P R P V I L D P A D P T G NV A G G D P Q R W Q L L A






 E TVVRNMLLCRLRAPRPVILDPTPDTYDVTQDTKPHWQRLN ETVRNMLLCRLRAPRPVILDPTDPTYDVTQDTKPHWQRLN
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T R WD L L A

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LKA AREWLSSSLC KEAESCFGRCRASGAPEQPWE KEAESCFKGRCFQAASGAPEQPWE KEAESCFKGRCFQAASGAPEQPWE KEAASYTNSMCCANKSGDFVQPW KEAASYTNSMCCANKSGDFVQPW KEAASYTNSMCCANKSGDFVQPW

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 yatellitifaw YALELLTIFAW PRKLKDLILLVKHWYEKYVKKEGESSLLPGYALEETVYAW PRKLKDLILLVKHWYEKYVKKEGESSLLPLYALELTVYAW PAKLRSLMLLVKHWYRQVAARAGAALPPAYALELLTVFAW PAKLRSLMLLVKHWYRQVAARAGAALPPAYALELLTVFAW PAKLRSLMLLVKHWYRQVAARAGAALPPAYALELLTVFAW PVKLKNLILLVKHWYHQVAAQNKGKLPPAYALELLTIFAW PVKLKNLILLVKHWYHQVAAQNKGKLPPAYALELLTIFAW
 PRKLKNLYLVKCWYQQYQKRLKDSFPLQYALELLTVYAW PVKLKNLILLVKHWYRQVAAQNKGKLPPAYALELLTIFAW PVKLKNLILLVKHWYRQVAAQNKGKLPPAYALELLTIFAW PVKLKNLILLVKHWYRQVAAQNKGKLPPAYALELLTIFAW PAKLKNLILLVKHWYRQVAPKVRGGLPPVYALELLTHYAW PAKLKNLILLVKHWYRQVAPKVRGGLPPVYALELLTHYAW PPKLKNLIMLVKHWYRQVAPKVGGGLPPAYACLELTIFAW PPKLKNLIMLVKHWYRQVERRGCASLPPAYALELLTIFAW PPKLKNLIMLVKHWYRQVERRGCASLPPAYALELLTVFAW P G R L K PRRVKDLILLVKHWYQECQKKWMASLRLLYALELLTVYAW PRRVKDLILLVKHWYQECQKKWMASLRLLYALELLTVYAW PRRVKDLILLVKHWYQECRKRMTSPSLQLLYALELTVYAW PRRVKDLILLVKHWYQECRKRMTSPSLQLLYALELTVYAW PRRVKDLILLVKHWYQECRKRMTSPSLQLLYALELTVYAW PRRVKDLILLVKHWYHQCEEKWMTSLQLLYALELLTVYAW PRRVKDLI LLVKHWYHQCEEKWMTSLQLLYALELLTVYAW PAKLKNLIIRLKHWYQLCKEKLGEPLPPQYALELLTVYAW
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 PTKLKSLI RLVKRWYKQYVLPHKKKLPPQYALELLSVYAW PAKLKNLILLVKHWYHHVQEQPGPSLPPAYALELLTIFAW PAKLKNLILLVKHWYHHVQEQPGPSLPPAYALELLT:FAW PAKLKNLILLVKHWYHHVQEQPGPSLPPAYALELLT: FAW PVKLKNLLRLVKYWYLKHLKPKYQNLPPKYALELLTI YTW PVKLKNLLRLVKYWYLKKHLKPKYQNLPPKYALELLTHYYTW PRKLKDLLLVKYWYQQYVRCPRANLPPRYALELUYM PRKLKDLILLVKYWYQQCQEKRRDPKLPAYALELLTVYAW PVKLKNLLRLMKHWYQQYDKPKYRNLPAKYALELLTVYAW PRKLRDLMLLLKRWCWQCQGKLPASSPPLYALELLTAYAW PRKLRDLMLLLKRWCWQCQGKLPASSPPLYALELLTAYAW PAKLKNLILLVKHWY YQVRIPLETLPPVYALELLTMEAW PAKLKSLILLVKHWYHQVAAQNRGPLPPAYALELLTLFAW P AKLLKSLILLVKHWYHQVAAQNRGPLPPAYALELLTLEAW PAKLKSLILLVKHWYHQVAAQNRGPLPPAYALELLTLFAW

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 EQGCGEQKFSMAEGLRTVLRLVQQHQSL EQGCQAEDFGLAEGVRTVLRLITQQEQLCVYWTVNYNFED EQGSGSPYFNTAEGFRTVLELVLDHEKLCIYWTKYYDFKN EHGSRETSFNTAQGFRTVLYLI QQYQQLLVYWTVYYDFED ESGSRDCEFNTAQGFRTVLELVTKYQWLRIYWTLYYDFRN EQGCRKDCFNMAQGFRTVLGEVQQHQQLCVYWTVNYSTED ENGSNETYFNTAQGFRTVLELVVDYKQLCIVYWTQYYNFEN


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WE L L A
WELLA C GSWKLLA
 RF WQLLA

GSWQM $L^{L}{ }^{T}{ }_{T}^{T}$
$\qquad$
D


| $S W E$ | $L$ | $A$ |  |
| :--- | :--- | :--- | :--- |
| $S$ | $W E$ | $L$ | $A$ |
| $A$ |  |  |  |

R
 ETMKNILLYQLRAPRPVILDPVNPMHNLSGGPDKCWEWLD

 ETVVRNVLLNQLRSPKPVILDPIDPTNNVSKDTVY WQMLK


P D

| WE P | L | A |
| :--- | :--- | :--- |
| WE P | A |  |

WE P | W | A |
| :--- | :--- | :--- |
| WE | A | GHSARWD LL $\left.\right|_{A} ^{A}$

|  |  |
| :---: | :---: |
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| UniRef90_UPI00044397DF | E EA H W L S P C CRNSDGS PVKK A WNV |
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| UniRef90-F1N3B8 | HE A Q W WLR L R Q Q ES PGPSWNVL |
| UniRef90-G1TAA7 | EK A H A L A A P SLL NSELLGSWNVL |
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| UniRef90-F6ZL35 | Q D A G LL T S |
| UniRef90-F6ZL35 | Q D A A GLLT S |
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| UniRef90_UPI0003346CC3 | QEA Q S WLS SLL TLEESHRSSWNVL |
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| UniRef90_UPI0003F09D25 | REATALLGTGACFVS GDGTAVLP WDVM |
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| UniRef90_L5KVP2 | ENAAALETQACLLMSREGTPVEPWDVM |
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| UniRef90-Q5MYU0 | E E A QEWLNSLRRLNK PHKPWD |
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| UniRef90_UPI000454B739 | E A A D WLC SLG Q ${ }^{\text {L }}$ L MPPAPCWNV |
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| UniRef90_UPI00038C4A5A | GEATVWLLQYPC!KNWDTSRVRSWDV |
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| UniRef90-13M3B9 | Q NAAALET Q A C CMS GDRTPVPPWDVL |
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UniRet90 UPIOOO3347ACC UniRef90-Q7TPY2 UniRef90-M3XW28 UniRef90-HOV211 UniRef90-HOV211 UniRef90-HOV21
UniRef90 H3BFZ3 UniRef90-V9KSC0 UniRef90-Q5MYW7 UniRef90_W5PWX2 UniRef90-D4A6NO UniRef90-UPIO0045E4EC1 UniRef90-UPIO00359CCA6 UniRef90-U3K2C2 UniRef90-UPIO0045746DB UniRef90-UP100038335F9 UniRef90_UPIO003C26F2F UniRef90 O5MYX0 UniRef90_U3UBD4
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UniRef90- UPIOOO3EC2996 UniRef90-D2HRV2
UniRef90-G31E57
UniRef90_S9WAG3 UniRef90-UPIO00388E065 UniRef90 UPIOOO3C11D2D UniRef90-UPIO00328EF9D
UniRefo-UP100042CB31C UniRef90-UP10002C664DD UniRet90 UPIOOO3C48660 UniRef90 UPIIOOO457562A UniRef90-G31E63 UniRef90-G31E63
UniRef90-K7G2Z1 UniRef90_UPI00038EE470 UniRef90_V8NFT5 UniRef90-UPIOOO3FOC1B1 UniRef90_V9L2Z3 LGEHWYQQCHK】SRGSLPPKHGLELLTVYAW PTKLKSLRLVKHWYKRYVKREGQELPAKYALELLTHYVW PTKLKSLLRLVKHWYKRYVKREGQELPAKYALELLTI YVW PTKLKNLLRLVKHWY LQYLKHKYRKLPPKYALELLTI YAW PAKCKDLLRLVKHWYKMYKKSSVPLPSKFALELLTI YAW TKVKSLIRLVKHWYKQYVCKGKEFLPPQYALELLSHYAW PPKLKSLLQLVKHWYGQPRKYPRASLPSKYALELLTIYAW PRKLKDLILLVKYWHQQCQKKLKDPLPPSYALELLTVYAW

PCELKNLICLVKHWYQLCKEKLREPLPPQYALELLTVYAW PTKVKSLLRLVKHWY LTYGKPKYRPLPSKYALELLTI YAW PVKLKNLLRLVKFWYMQYRKNRGVTLPPKYSLELLTVYAW PPKLKGLLRLVKHWYKE IKKHSVSLPPKFALELLTIYAW PAKLKNLILLVKHWYCHVAAQNTGKLSPAYALELLTHEAW PAKLKNLILLVKHWYCHVAAQNTGKLSPAYALELLTIFAW PAKLKNLILLVKHWYCHVAAQNTGKLSPAYALELLTIFAW PTKLKSLILLVKHWYRQVAAQNKRQLPPVYALELLIT: FAW

 PAKLKNLLRLVKHWYKKYLLESYTLLPTKYALELLT: YAW
PTKLKSLLRLVKHWYQQHVENPKANLPPDYALELLTI YAW
PAKLKDLLRLVKHWYKHYVKCKNRKLPSKYALELLTI YAW PVKVKNLLRLVKHWYLQHQKHKHAKLPPKYALELLT: YAW
 PKLWNLIRLVKHWYQLCKEKAEEPLPPQYALELLTVYVW PTKLKSLLRLVKYWYRQYVQEKYSGVPPKYAMELLTIYAW


PVKKKNLLQLVKYWYLKKVKSQHQRLPSKYALEELSTVYAW
PVKLKNLLRLVKFWHLKYHKYRRAVLPSKYALELLTI YAW PAKLKSLLRLVKHWYLECVKCLRAELPPLYALELLTIYAW PSELKDLILLVKYWRQKCQEKLKDSSLLPLYALELTVYAW PSELKDLILLVKYWRQKCQEKLKDSSLLPLYALELTVYAW PRKLKDLILLIKHWHLQCQKKNKDPSLSPYALELLTVYAW
PTKLKNLI RLVKYWYKEL KKPEOSLP
PAKLKDLIRLVKHWY QYVKPRKNELP
 PAKLKDLIRLVKHWYI QYVKPRKNELPQKYAVELLTI HAW PTKLK SLLRLVKHWYLQYVKSPRTELPPVYTLELLTVYAW PVKLKNLLRMVKYWHQQKLKPKYRNLPPKYALELLTIYAW
PAKLKSLILLVKHWYRQVTGNWADRRPPVWSKSVSTVFPH
PAKLKSLILLVKHWYRQVTGNWADRRPPVWSKSVSTVFPH
PAKLKSLILLVKHWYRQVTGNWADRRPPVWSKSVSTVFPH PKVKGLLRLVKYWYKTYAKPMRGRLPPKYALELLTI YVW PTKLK SLI RLVKYWYKEYVRRLGEFLPHKYALELLIIYAW
 KMWNLIRLVKYWYQLCKEKLGDLLPPQYALELLTVHAW PNK KKY RBDRVK HWY PAKLKNLLRLVKHWYKESPKYPNAHLPPKYALELLTMYAW PEQLKDLIRLVKYWYKMYVKPRKHRLPKKYAVELLTI HAW PTKLKNLLRLVKYWYKELLKPP PTKVKSLIRLVKHWYKKYVRPYKESLPPQYALELLTIYTW PKLWNIIRLVKHWYQLCKKRLKYPLPPQYALELLTVYAW PVKLK WLVALLRYWF SLCQEKIGDQLPDPAVLDLLAVYAW PTKVKSLIRLVKHWFQKCKKQLGKPLPQQYALELLTVYAW KGKGSLPPQHGLELLTVYAW
 PAKLKSLIRLVKHWYQKCKEKLGQSLPPQYALELLTVYAW PAKLKDLLRLVKHWYKEVLKYPNAKLPPKYALELLTVYAW PTKLKSLIRLVKHWYQNCKKKLG KLPPQYALELLTVYAW FWY品KCDKPKYRLPSKYALELLTIYAW PAKLKSLILVKHWHRQVAERLHASLPPAYALELGTIFAW PAKLKSLI LLVKHWHRQVAERLHASLPPAYALELLTIFAW PTKLKDLIRLVKHWYKQCERKLKQKLPPKYALELLTIYSW PPKLKNLI RLVKHWYQDCKEKLGEPLPLQYALELLTLYAW

 PPKLKSLIRLVKHWYQLC K KHENKLPSQYALELLTVYAW PPKLKSLI RLVKHWYQKCKENCGKPLPPQYALELLTVYAW PAKLKNLLRLVSGWF LSQLSQRVSGLPAKYALELLTI YAW VKDMI RLVKYWFKTSLAKPSRRLPSSYAMELMTIYYW PRRVKDLILLVKHWYQECRKRMTSPSLQLLYALELTVYAW
 PTKVKSLIRLVKHWYQLCKEEDEG PTKLKSLIRLVKHWYNKVQEK PTRVKNLI RLVKYWRKEVMLKKANRYPTSYPMELITI Y TW

| UniRef90_UPI0001D5400D <br> UniRef90_UPI0001D5400D <br> UniRef90-H3BDES <br> UniRef90-H3BDES <br> UniRef90-L5KX <br> UniRef90_G1KIM6 |
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 EDGTDEENFY LINGFDAVMKLLRDYEDICUYWTKYYDFQN EEGTGKEQFNTAEGFYTVMMLLVQYQHLCIYWTEYYSDEV ERGSKNRGFDMAKGFRTVLELIQQYKQLCVYWTVNYNFAD EQGCGAEAFDIVEGIKMVLELITQWKHLCVYWTVNYNFED EQGCGAEAFDVVEGQKMVLELGTQWKHLCVYWTVNYNFED EMGTNSENFNLSRGFVSVMELLDDYKG|CUYWTTYYSFQN EHLLPDKHETQARGFRTVLETKYLUCR YWTLYYDVLH EMGTRKEHFEMDEGFAAVLELLRDHESICIVYTKYYDFQN

| 100038ED5BE |
| :--- |
| 1000388 EDBE |
| 1 | UniRef90-UPI0003F18DD3 UniRef90-UPIooo3F18DD3 UniRef90-F6UW57 UniRef90 Q8V197 UniRef90-UPI000333E8AA UniRef90-UPI00038C2EC8 UniRef90-L5KVV6 UniRef90_UP10004419E03

 UniRef90-UPIOOO38EDSBE
UniRef90-UP10001DECO04 UniRef90-UPIO001DEC004 UniRef90-UPIO001DEC004 UniRef90 G3WNF2 UniRef90-UPIO003DOBE03 UniRef90-HoWZU8 UniRef90-UPIO003F09547 UniRet90_UPIOOO3317570 UniRef90-G3WNF3
UniRef90-G3WNF3 UniRef90_Q8K4B5 UniRef90_UPI0004432D63 UniRef90-UPIOOO3EE00E2 UniRef90_UPIOOO3EE00E2 UniRef90-UPIOOO3EEOOEE2 UniRef90-UPIO003336590 UniRef90 V8P316 UniRef90 ${ }^{-}$O5MYT9 UniRef90-UPI0002C3165E UniRef90-UPIOOO4418C1B UniRef90-UPI0004418C1B UniRef90-H2NIQ9 UniRef90-UPIOO04419F85 UniRef90-UPIOOO4574BDO UniRef90-UPIOOO4574BDO UniRef90_UPIOOO4574BDO UniRef90-UPIIOOO3347ACC UniRef90_Q7TPY2 UniRef90-M3XW28 UniRef90-HOV211
UniRefgo-HOV211 UniRef90-H0V211 UniRef90-H3BFZ3 UniRef90_VgKSC0 UniRef90_Q5MYW7 UniRef90_W5PWX
UniRef90 D4A6NO UniRef90-UPI00045E4EC1 UniRet90_UPIO00359CCA6 UniRef90-U3K2C2 UniRef90-UPIO0045746DB UniRef90_UPIO0038335F9 UniRef90_UPI0003C26F2F UniRef90-Q5MYX0
UniRef90_U3UBD4
UniRef90-C6F104 UniRef90-F7CXR7 UniRef90-UPIOO0359A281 UniRef90-G31E56
UniRef90 S7ME47 UniRef90-S4W2N2 UniRef90-B4DTS8 UniRef90_U3KNX4 UniRef90_UPIO0044484B2 UniRef90-UPIOOO3EC2996
UniRef90-UPIOOO3EC2996 UniRef90-D2HRV2 UniRef90-G31E57 UniRef90-S9WAG3
 UniRee90-UPIIOO3C11D2D
UniRef90-UPIOOO328EF9D UniRef90-UPIO0042CB31C UniRet90_UPI0002C664DD UniRef90 UPIOOO3C48660 UniRef90-UPIOOO457562A UniRef90_G31E63 UniRef90-G31E63
UniRef90 K7G2Z1 UniRef90-UPIO0038EE470 UniRef90-V8NFT5 UniRef90-UPIOOO3FOC1B1
UniRefgo-V91273 UniRef90_V9L2z

UniRef90_UP10001D5400D UniRef90-UPIO001D5400D UniRef90-H3BDE9 UniRef90-H3BDE9 UniRet90_L5KXK8 UniRef90-G1KIM6
UniRef90 K7FCB2
UniRef90-L9KLH8 UniRef90-UPI0003F18DD3 UniRef90-UPI0003F18DD3 UniRef90-F6UW57 UniRef90-O8V197 UniRef90-UPI000333E8AA UniRef90-UPI00038C2EC8 UniRef90-L5KVV6 UniRef90-UPIOO04419E03 UniRef90-UPIO0038ED5BE UniRef90-UPIIOOO38EEDBE UniRef90_UPI00038ED5BE UniRef90-UP10001DEC004 UniRef90-UPIO001DEC004 UniRef90-UPI0001DEC004 UniRef90 G3WNF2 UniRef90-UPIO003DOBE03 UniRef90-HowzU8 UniRef90-UPIO003F09547 UniRef90-UP10003317570 UniRef90-G3WNF3
UniRef90-G3WNF3
UniRef90-Q8K4B5
UniRef90_UPI0004432D63 UniRef90-UPIOOO3EE00E2 UniRef90-UPIOOO3EE00E2 UniRef90-UPIO003EE00E2 UniRef90-UPIO003336590 UniRef90 V8P316
UniRef90 ${ }^{-}$O5MYT9
UniRef90_UPIOOO2C3165E UniRef90-UPIO004418C1B UniRef90_UPI0004418C1B UniRef90-H2NIQ9
UniRef90-UPIOO04419F85 UniRef90-UPIO004574BDO UniRef90_UPIOOO4574BDO UniRef90_UPIOOO4574BDO
UniRef90 UPIO003347ACC UniRef90_Q7TPY2 UniRef90_M3XW28 UniRef90-HOV211
UniRefgo-HOV211
UniRef90 HOV211
UniRef90-H3BFZ3
UniRef90-V9KSC0
UniRet90_Q5MYW7
UniRef90_W5PWX2
UniRef90-D4A6NO
UniRef90-UPI00045E4EC1 UniRef90-UPI000359CCA6 UniRef90-U3K2C2
UniRef90_UPIO0045746DB UniRef90_UPI00038335F9 UniRet90_UPI0003C26F2F UniRef90-Q5MYX0
UniRef90_U3UBD4
UniRef90-C6F104
UniRef90-F7CXR7
UniRef90-UPIOO0359A281
UniRef90-G31E56
UniRet90_S7ME47 UniRef90-S4W2N2
UniRef90-B4DTS8
UniRef90 UPIOOO44484B2 UniRef90_UPIOO03EC2996 UniRef90-UPIO003EC2996 UniRef90-D2HRV2
UniRef90-G31E57
UniRef90-S9WAG3 UniRef90_UPIOOO388E065 UniRef90 UPIOOO3C11D2D UniRef90-UPIOOO328EF9D UniRef90-UPI0002C664DD UniRef90-UP10003C48660 UniRef90-UPIO00457562A UniRef90-G31E63 UniRef90-G31E63
UniRef90 K7G2Z1 UniRef90_UPI00038EE470 UniRef90-V8NFT5 UniRef90-UPIOOO3FOC1B1 UniRef90_V9L2Z3
$K T V \operatorname{DF} \mid K \mathrm{~K}^{90}$
时 LIDPADPTGNL GHSARWDLL|A KTVGDFLKQQLQKPRPI ILDPADPTGNL GHSARWDLLA



 ETVRNIILGQI RSPRPVILDPTDPTNNISK DKACWELLN
 EQVNAYLYSQVKRVSPL EVV R D C I K Q K L K E S R P il
 PVI EDFVRKQLKRERPIILDPADPTHNVAKG YRWDIVA LKI RQCVKEKLRGSRPVIVDPADPTANVAKANGEAWDRLA PALRMHILGQLQKARPLVLGPADPTWNAGQG GWELLA PALRMHILGQLQKARPLVLGPADPTWNAGQG GWELLA PALRMHILGQLQKARPLVLGPADPTWNAGQG GWELLA PDSRTHLLGQLQKKRPLVLDPADPTWNVGQG SWELLA $P D S R T H L L G Q L Q K K R P L V L D P A D P T W N V G Q G$ SWELLA PDSRTHLLGQLQKKRPLVLDPADPTWNVGQG SWELLA AIVRDFVKNKLKKNRPIILDPADPTNNVGEG RRWDVLA $P V V G A H I K Q Q L K N Q R P V I L D P A D P T G L L G Q G \quad K K W E L V A$ PVI E D CVVRKQFIDKKRPIULDPDDPTHNVAEG YRWDVVA EVVTKCI KQKLKEPRPVILDPADPTNNLGKG KRWDLVA EAVRTF KKQLKEERPV QAVGHFLKRQLRYYRPI
Q EVVCA $\begin{array}{llll}\text { C A } & L & L & R \\ C & R & Q & L \\ L & R & Y & Y \\ K & R & P \\ K & P\end{array}$ QEVVCA Y L C R QLIK K A R P LI L DP PA D P T R N V A G S D L Q A W D L A A KVVSHFVKKQLKKKRPVILDPADPTNKV G K K K K K K WDLVA ATVSQFLRQQLERPRPVILDPADPTWDVGDGAAWRWDLLA ATVSQFLRQQLERPRPVILDPADPTWDVGDGAAWRWDLLA ATVSQFLRQQLERPRPVILDPADPTWDVGDGAAWRWDLLA E IV R NF I K Q Q L K KRRPI S KVGLHVK G K L K E S R P V V EVI LDPADPTNNL GRRGKWELVA PII EDFVRKQLKKERPIILDPADPTHNVAKG YRWDIVA
 ETI RNILLHQLQSARPV ETIKRHLQTQLRKNRPV KALTEFVKRKLRGTRPVILDPADPTANIGE

| $P$ | $V$ | $R$ | $M$ | $Y$ | $V$ | $K$ | $Q$ | $R$ | $L$ | $K$ | $E$ | $R$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $R$ | $P$ | $V$ |  |  |  |  |  |  |  |  |  |  |

 PVI GKSLRRQQLERPRPVILDPADPTWDVGSGAAWRWDVLA AVVGNH L RKMLLTAKRPIILDPADPTGNVASGGGRWDLLA
 PITEDFVRNQLREKTPI I LDPADPTYNVATGGYRWAIVA
 Q HRQLS GARPV




 RGQLAKPRPVNLGPADPTGNGGGEDS
 QYVSNYLHNQLRRARRIGLASFCENSNTCPEDPESGD $P$ VI GPYLRRQLQKPRYSVPAPMDPGSALVPG $E$ QI GA Y L K Q QL C R P R P VI LDDPA DP T G ILL G QDKN WDLVA

 P AL R A HLLGGQLRKPRCTPTTSSPPYH P A L R A HLL GQLR K P R CTPTTSSPPYH ETVRNFLLTQI QRTRSAVL
QEVSNYL HRQLT
 $M \mathrm{M}$ FKKVFQKQTRR PFVLDPANPTFNVCENSNAWDEVAA
 $S F \mid R Q Y L K R Q L A K P R Y S I$
$P V I G P H V K Q L L Q P R \square P L Q \square S P F T T F W E A E E E L E R A W S \square S P$ QIVVKKSVQQKQTR ETVRNTLLCQL RTQSHLLDTE
ETVRNTLLCQL RTQSHLLDT F
 P I
E I DK Q Y LQ VQ LG K N R R G


| D | CMSAlLCCVGRNG\\||l| |
| :---: | :---: |
| UniRef90 UP10001D5400D | KEAAACMSALCCVGRNG』PLQPWPV |
| H3BDE |  |
|  |  |
| UniRef90-L5KXI8 UniRef90 G1KIM6 |  |
| UniRef90-K7FC | AEKCCAQQCCVDFYGVP |
| UniRet90 | K |
| UniR | GEAQVWL NYL S SNESPGPSW |
| UniRef90-UP10003F18DD3 | GEAQVWL NYL SSNESPGPSWNVL |
| UniRef90-F6UW57 | QRASQCLKQUCCLDKDDYRIPA A WDV |
| UniRef90 UPI000333E8AA | AEAAFCLQQPCCRDEDE G GWHV |
| UniRef90-UPIO0038C2EC8 | REASYCLRQACCRTED PRRSWD |
| UniRef90-L5KVV6 | QRANQCLKQDCCYDD |
| UniRef90 UPIOO | KEASYCQKQPCCMK DNEP |
| UniRef90-UP100038ED5BE | QQAA |
| UniRef90-UPIOOO38ED5BE |  |
| UniRei | QEAAALGTQACLRSREGVS |
| Ref90_UP1000 |  |
| Unil | QEAAALG |
|  | A AHCLK QDCCYDENDEEI Q |
| UniRef90-UP10003DOBE03 | ASKCRSQLCFQNGT TP A QPWP |
| UniRef90 UPIooo3F | KEAVRCLRQACCQTEDPS QSWEV |
| UniRef90-UPIO00331 | KEADYTLQQACCSTVDPWPVQ |
| UniRef90_G3W | V |
| UniRef90-G3WNF3 | ACSQLKDRMP S S WNV |
| UniRef90-Q8K4B5 | KEAQTWMQSSCFRNCDMSFVPTWDV |
| UniRef90- UPIOOO3EEOO | REAGSCYERSCFLQAAGGAVQPWE |
| UniRef90-UPIOOO3EEO | REAGSCYERSCFLQAAGGAVQPWE |
| UniR | CROAC |
| UniRet90 UPIO003336590 | QEAAYCLRQACCLTVDPSPGERWHV |
| UniR | KEATYCLLQLCCVTADR |
| UniRef90-UP10002C3165E | QRACQCLKQDCCYDNYD |
|  | WL |
| UniRef90-H2NIQ9 | LTSPNLDN ELPAPSWN |
| UniRef90-UPIO0044191 | W |
|  |  |
|  | Q |
| UniRef90_UP1000457 | SEASKCLQMPCMAE EEPVQSWD |
| UniRef90-UPIO0033 | WH SDFCYNG EEPVESW |
| UniRe90-M3XW28 | KEAQRELEQACFRTEDPN QAW |
| UniRef90-H0V211 | REAASCYDNPCFTQATGDPVQPWD |
|  | P WD |
| UniRef90-HOV21 UniRef90 H3BFZ3 | REAASCYDNPCFTQATGDPVAPPWDV |
| UniRef90-V9KSC0 | REARRCLQQTCVQGVVG ${ }^{\text {che }}$ |
| UniRef90-Q5MYW7 | KEAEAWLKYPCFRHIDETFVGSWEV |
| UniRet90-W5PWX2 | QRARHCLKQSCCYDNNETCIPNWK |
| UniRet90_D4A6N0 | R |
|  | QRACQCLKQDCCYDSQENPVPSWN |
| UniRef90-UP1000359CCA6 | REAMPDGDSEPKKWDGSPVGS |
| UniRef90-UPIO00457 | SEASKCLQMPCVSKDQQWQVKP |
| UniRet90-UPIo003833 |  |
| UniRet90_UP10003C26F2F |  |
| niRet | KEAAVWARSSFFRNSDMTFVNGWKV |
| Uni |  |
| UniRef90-F7CXR7 |  |
| UniRef90-UPIO00359A281 | NQCLKQDCCYDNRDTPVPSWTV |
| UniRef90_G31E56 |  |
|  |  |
| UniRet90_S4W2N2 | S R WSLDPCI SAACSWNV |
|  | VDPS QRW |
| UniRef90-UPIO0044484B2 | KEAAHCLRQPCCKTEDPS QSWHV |
|  |  |
| UniRef90 UPIO003 |  |
| UniRet90_D2HRV2 |  |
| UniRef90_G31E57 |  |
| Unil | VARRSLLKPLFSRVRAEP PW |
| UniRef90-UP10003881 | HVARRSLLKPLFNGVQAK EPW |
| UniRef90-UPIOOO328EF9D | EVARCSGAKP LFSGMQAE |
| UniRef90-UPI00042CB31C |  |
| RRef90 |  |
| UniRet90_UP10003C48 | Mo |
| UniRef90 UP1000047562A | HVARQSLLKPLLNGVQAKP PW |
|  |  |
| UniRef90-K7G2Z1 | F |
| UniRef90-UPIO0038EE470 |  |
| Ref90 V8NFT5 |  |
| Ref90_UPI0003F0C1B1 | ELARDTMQKPLLRGVSTN YPWN |
|  |  | PAPLRDLMRLVKHWKQTSFGENSKRLPNSYTLELIVVHVW

 P A E V K K D L I R L V V K M WK S S C V R R E P AK L P P K Y A L E L L T I Y A W PRKLRDLILLVKYWYQQCQEKMKG LDPSYALELLTVYA W PPQVKNLSRLVKYWLNSLCEADKSTMPSEYMLELITIDTW

 P A E V K D L L
 P KL W W L I RL V K H WY Q L C K E K L R E P LDPP Q Y A L E L L T V Y V W
 P C ELL K N L I C L

$\begin{array}{cc}\mathrm{T} & \mathrm{D} \\ \mathrm{T} & \mathrm{D}\end{array}$ V K D Fill R M K H W F K T S F E N K F R R L


 P S E V V K E L L M K P E K C K E LI R V V K A WC E G V Q WR N T G S K P G E Y L L L S L L V I A A Y P E $\square K$ D Y I K V V K H WR N NI N WS R S S Y RP D S Y L I LLLLVI R S A
 PELVK DVVRMVKNWRNCVDWGEKKKRPNSY LLLTLMVHKA Y $P N Q V K E F D R R A K A W R N K \quad K W A G Q A G K P K S Y$ L L P SKVVKELITRAKAWRNWPKSEGGRGRPSSFLISLLVLRAY P D QVVK L I K VVK Y WR NA A D WNEKRWRPSSYLLSLLLI RAY I I RLI K R WLLAT QKWRSK P P S F L I E L MV L


KELI R RAKA WRNWDERPASGGKPKSYFL SLLVGYAY
 PPIVKNFIRQAKKWRDWPEGKGCEGRPSSYLISLLVIKAY VI R LA K F W N R S $\square$ Y DE E Y V S GRS T I I E L I AV HAA
 RVKE YI K RAKYWSLTVNWEIGGRKPTSYMMSLLVI KAA PNEVKEYI KRFKAWRNLHWPKGQDGRPKSYLLGLLIMIRAY $R$ V $K$

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| UniRef90 UPI0003C176A1 UniRef90-H2XUV5 |  |  |
| :---: | :---: | :---: |
|  |  |  |
| UniRef90-C3YU73 |  |  |
|  |  |  |
|  |  | UniRef90-K7FNI¢ |
| UniRef90_UPIO0042BE345 |  |  |
|  |  | UniRef90_D2HRV1 |
| UniRef90-UPIO003F0BC, |  |  |
|  |  | UniRef90-K1PXW |
| $\begin{aligned} & \text { UniRef90_C3YPK4 } \\ & \text { UniRef90_K1PY97 } \end{aligned}$ |  |  |
|  |  |  |
|  |  | UniRef90-C3YU75 |
| UniRef90-UPI0003F06400UniRef90-A7RYP1 |  |  |
|  |  |  |
| UniRef90_UPIO003D6E602UniRef90_C3YU74 |  |  |
|  |  |  |
|  |  | UniRef90-UPI0003 |
| UniRef90-W5ZSV8 |  |  |
|  |  | UniRef90-H3A4H2 |
| UniRef90_V8NR |  |  |
|  |  | UniRef90-C3YU76 |
| UniRef90_C3YU76 |  |  |
|  |  |  |
|  |  | UniRef90-D2HCJ8 |
| UniRef90 ${ }^{\text {W }}$ 5Q91 |  |  |
|  |  | UniRef90-R7VBS6 |
| UniRef90-M4QK19 |  |  |
| UniRef90-A7SF47 |  |  |
|  |  | UniRef90-T1FGW8 |
| UniRef90-UPIO0032B06F8 |  |  |
|  |  |  |
| UniRef90-UPI0003UniRef90 C3YVD0 |  |  |
|  |  |  |
| UniRef90_U5XF |  |  |
|  |  |  |
| UniRef90-H2XZL5 |  |  |
|  |  |  |
|  |  | UniRef90-A9VDN9 |
| UniRef90-T1IMN7 |  |  |
| UniRef90-S1T218 |  |  |
|  |  | UniRef90-B2FUW6 |
| UniRef90-E9NJC6 |  |  |
|  |  |  |
| UniRef90-B8R4R |  |  |
|  |  | UniRef90-T1JEY7 |
| UniRef90-R7QIV2 |  |  |
| UniRef90_11G9X4 |  |  |
|  |  |  |
| UniRef90-A8JAX7 <br> UniRef90-UPI000415E659 |  |  |
|  |  |  |
| UniRef90-C3JHP7UniRef90_C2ZHV5 |  |  |
|  |  |  |
| UniRef90_C2ZHV5UniRef90_A8JDY2 |  |  |
| UniRef90_A8JDY2 <br> UniRef90-UPIO0037DEF21 |  |  |



QEAS
AVID HEEMLSKRPLILDPANPYNNVADR CRDWDAVV EQSSD HRJGAHLKQLLRMPCP\|ILDP
Q ILKKTIQKQ
PFVLDPVNPTFNVCE NSNAWDEVA



GKY HVEFDPPTPLVRDPANPGVNVAES $\square N Y$ WGEFR EQ Q G T H L K QLLRKPRPI I LDP
YPRELT Q L
SEFMNMEFHPPTPLI LDPVNPSVNVAARLKY WGEFK QTVHNY $\square K Q Q \square K E C R W R A R D$
YPI A E E NEMFASQPVIRDPAMPYHNVCHTGDENWQQFR SVI GPHVK QLLRKP
Y RVEHISR
$\square P$ VVQDPAMPAFNVGET MESWNMMR HRIGA HLKKWQLKE
$Y P$ SLFPQYTPRIVDPANPSNNLHET
YP TLLQLRTPRLVDPANPANNVY
YNI EYSSSGNTECPPII QDPANPANNVAER PVSWHPFR
 EVNEYLLEE RPLVLDPTNPYNNLAHDDRKKFELFA AVASSSDS $\square$ Q $\quad V$ WDPVNPDNNVAYTEYDRQRLVA VFYRRSEYPGLNCSRPRMMDPINPHNNLR
RFYKPSEQ $\quad$ ELLPSRPRVVDPANPANNV
RFYTPKQQDKLLPSRPRVIDPANPANNV
VENYVLQQ R R LVLDPSNPYNNFAYDLCRKFEQFA GAVEQSIALGLLKTGSVVVDPAVPFANVATTVAD WGEDR A LLPSPPRVVDPANICNNLYET
RLTREEFKQQRQRNYYSILDVANPFNDVY
GPVWGYTRVQAESCRHVVLHPIDPTCNLAAPQPRRWCRLA
V NAAADP LQVWDPVNPENNVARGYEQDRQRLV
E $\square$ P Q S Y A A V Q
VWDPVNPDNNVAGTDLDRQRLV
VTLES DGCNI FDPVNPENNVGDSDDKKRELI I


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|  |  |
| :---: | :---: |
| UniRef90_UPI0003C176A1 UniRef90-H2XUV5 |  |
| UniRef90-UPI0003C4D877 |  |
| UniRef90-C3YU73 | RAARET $\square$ QKPFFR |
| UniRef90-K7FNI8 |  |
| UniRef90-UPI00042BE345 |  |
| UniRef90-D2HRV1 |  |
| UniRef90-UPIO003F0BCA7 | R L A VG S L S S P C L K K |
| UniRef90-K1PXW6 | AKAKSLLQAQLFK |
| UniRef90_C3YPK4 | QAAREALQS PLLA |
| UniRef90-K1PY97 |  |
| UniRef90-C3YU75 | RAAEETLQKPFF |
| UniRef90_UPI0003F06400 | S $\square$ A Q T T K Q |
| UniRef90-A7RYP1 | E A A M TLLD S P L Q S THVT P |
| UniRef90_UP10003D6E602 |  |
| UniRef90-C3YU74 | E A A E ETLQKPFF |
| UniRef90_UP10003D6FF36 |  |
| UniRef90-W5ZSV8 |  |
| UniRef90-H3A4H2 |  |
| UniRef90-V8NRJ9 | HVARQS L L K P Li |
| UniRef90-C3YU76 | A AAKRTLQKQFFK |
| UniRef90_C3YU76 | A A AKRTLQKQFFK |
| UniRef90-UPI0003C42B09 |  |
| UniRef90-D2HCJ8 |  |
| UniRef90-W5Q9L5 |  |
| UniRef90-R7VBS6 | SEYS $\square$ WMKS $\square \mathrm{G} \square \mathrm{VL} \mathrm{L}$ S G S |
| UniRef90-M4QK19 |  |
| UniRef90_A7SF47 | K EVVVK WL E K |
| UniRef90-T1FGW8 | REFFKWLTEL |
| UniRef90-UPI00032B06F8 |  |
| UniRef90-UPI0002B46042 | A ETEKWL |
| UniRef90_UPIO00388E0C1 | HEA W $\square$ WGQS |
| UniRef90-UPI000350DB9E |  |
| UniRef90-U5XFV4 |  |
| UniRef90-Q8WPV7 |  |
| UniRef90-H2XZL5 | Q |
| UniRef90-A9VDN9 | GFARE |
| UniRef90-T1IMN7 | EVS $\mathrm{V}^{\text {Q }}$ RLGS S |
| UniRef90-S1T218 | L E AVA W |
| UniRef90_B2FUW6 |  |
| UniRef90-E9NJC6 |  |
| UniRef90-V4BSN0 |  |
| UniRef90-B8R4R2 |  |
| UniRef90-T1JEY7 | QVS $\square$ H R L S S |
| UniRef90-R7QIV2 | A V A R SLS H |
| UniRef90_11G9X4 |  |
| UniRef90-11FX62 |  |
| UniRef90_A8JAX7 | HK S R E |
| UniRef90-UPI000415E659 | DHASTTL |
| UniRef90-C3JHP7 |  |
| UniRef90-C2ZHV5 | D E A E A L G Y L |
| UniRef90-A8JDYY | WEARE |
| UniRef90_UPI00037DEF21 | QEAFDA $\square$ S T A Y Y EPAKGQA VELWDVL |




[^0]:    

[^1]:    lupas 21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    sol0
    jhmm
    jpssm

[^2]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    sol5
    jhmm
    jpssm

[^3]:    lupas 21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    sol5
    jhmm
    jpssm

