

QUERY
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UniRef90 W6M484 UniRef90＿－W6M484
UniRef90＿A4TEL5 UniRef90＿H7EKT7 UniRef90－LODNN3
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UniRef90＿F0T9U3

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 TEAGVYTHAGVEI GVASTKAFTAQVTVL MMIALKLAK THAGAYTHAGPEI GVAASTKAFTAQVVTVLTQQETIPCEKVQQQ


 A GPEI AVASTKAYTTQLEGMVLLGLYLAQVKGTLPAKDGE



 C
S
S
 S DAVLLTHAGPEDAVASTKAFTSQQDYMDNLAQVPDKDQW


 A T G G IV L H C G P E V GVAA STK A F T A QV A V L E A V E A I P Q A L G E S DGGGYIIHAGS EIGGVASTKAFTSQMEYISELLEKI PSKVVK




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 SFINPGKSLAMEMA E QSADQUISDKQASQQG

180
190
FKRPTITAAESMRGVAYRVKNEF GLNNTVQENDATEDYAGRRDPVIYGSTPYRSVAYRWKTQF ELAPEDKNPAKALARTHGKLPVVYATP MVDAVALRWKTQI KEMEAEDGIAWRIAKDEGHVPVVYGAPDMEAIAVRMKNQL
 Ki
 ALKSNDNVQA! AAMYKDAPNCHYLGRGYNYPVALEGALKLC KKGTDNKAVYRELAENLANDPNLVGRGFNFPTALEGALKL I VLEQAKDVEDAQSFVDVEDTFF GRSMDNVAAMEALKL VLDGADHVREXARSMAGTRSVLFGGRHVGYPVAMEGALKL RKGTDSNETYKVLVKELAEDPEYLGRGYDFPVALEGALKL LLENADKVKEAAFIFTYARNFMYGGRGLNPVALEGALKL LVDGDQDNFSTRDANRDTGKVPIFYASDLLPIAERFKQEV
 ALVSGLQHLPDQAALAGHDDVFF GRNDDAVALEAQLKL LLGTDSDEEFREIADAMKKLPFYIGRGLDYAVAMEGALKL
L R R DELTSRGASVFTYAHNFHYLGRGYNYPVACEGALKL VLKLNDKLAELSKTFTYAHNFIYLGRGYSYPVALEGALKL
 TLKSNDYIETMSRTFTYAHNFLYLGRGWNYPVALEGALKL VLEQMEPVRELGRSMADADRMLFLGRHVSFPVALEGALKL
 GLSDLAPDDEAAEACKDATSALFVGRGWGATACYEGALKLC LLGTMDRMVVKEGASFMADSVLFLGRHVGYP:AMEGALKLC EIDTVIHELVRELARKDKNTVLFLGRHVGYPVALEGALKL GFLNPAKRVAASLA GDVPMVWGGSEITAAAAYRFCCQL GLVKEDKSLVNKVLNTEKHLFLFLGRGDNFPDALEGALKL MITADNEEEDREMADVYKDKNHYLGRGFNYPVALEGALKL VLYEPVRELARALADAKAVLFLGRHVGYPVALEGALKL SLFKELMSIPSKLKDYRAKNALYLGRHVNYPIALEGALKL KFMEPVRELARSLAG ERCVLFLGRHVGFPVALEGALKL $K F G D E L N A V I A Q L A T M P E D T V L F L G R H V G Y P V A M E G A L K L$
$E V A K A K E E E I K K I A Y D H F K I V V F L G R G L D Y F L S L E G S L K M$ EVAKAKEEEVKKIAYDHFKVVFFLGRGLDYFLSLEGSLKM TLQHDSELLRLSELFVEKQHCLFLGRGVHYPVALEGALKL EVEREYHELVAALAQRFAQSPTFLGRHVGYPVALEGALKL ALHEADERMAESFAEKHHAL FLGRGPQYPIAMEGALKL VLASSEPVVALIAKQFATSQTVLFLGRHVGYPVALEGALKL KVQQ LDEKAQKFASSQFNKSKIFYDGRQFDSALESALKL

 $1 F D T Q Q E A 1 H E A L A C K D A H S A L F V G R G M G A A M S Y E G A K L$ NVVEHLQAIPGKIASMLEESVFFIGRSLDYAVSLEGSLKL DFEVDEDMKAFAKHYGFKSDAFFLGRAVDYAVAMEGALKK VLGAKDQVDHDSETDGAVKTMLFLGRGVGYPIALEGALKL V ERGEYVRATARSMEKSDKVLFLGRHVGFPVALEGALKL VI ETEQEH TEQFAGWMADTVLFLGRHVGYPIALEGALKL ALSDDRLGRVREVAQKYHRDYLFLGRGVNNPTAYEGALKLC
 VLDGV EDQVK LLAQDMKDSVLFLGRHVGFPVALEGALKL LLA NDY RERAMTYYSQRNFLYGGRGYNFPVALEGALKK

## QUERY

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UniRef90-A1ZEV6 UniRef90-H8KMA9 UniRef90 Q96YC2 UniRef90_UPI00029AB0D5 UniRef90-S4W4V1 UniRef90_-Q8TZ14 UniRef90_UPIOOO3629EF6 UniRef90-R5PYX9 UniRef90_UPIO003725B0B UniRef90_H5Y1G3 UniRef90-UPIO0039FBA1A UniRef90-EOXY04 UniRef90-W0E5L8 UniRef90-_10KH90 UniRef90_A0A021 VQ31 UniRef90_G2Z0A3 UniRef90- X5DWQ5 UniRef90-UPIOOO4708634 UniRef90-R7CXE9 UniRef90-Q4JCA7 UniRef90-H1Y030 UniRef90-C5CEP7 UniRef90_Q67T12
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240
 NENAKTLCYTATLPELHHNEVVGLDNPFVLLFDPEDHPRN NENGKHPAFYNVFPELNHNEIMGFEMEIVILRSPEENDRV NENSKTPAYNAYIPEMHHNEVVGYTNPFVIVADKKEHPRVV NEDAKAWAQFEFLPEADHNTLAGLENPSLFIQAPGDNSRN NENAKCFSFAEEIPEMNHNSVVGYELPRVMFKTTYLSKRITI NENGKYPAVWGEIPEVNHNQVVAFDLRLFVLRDVEEHPQV NENSKTPAVVAVPEADHNDIVAVPVKYIIIRTDDVHDYL
 NENSKQLCHAHVFPEMNHNELVGWETAVLMI RSGBDEERV QENAKLEAFVHVLPEANHNATESYGTNFIFLNSRNNHRTN NENAKYPAFYNELLPEANHNEI ELYYSTYYPIVIVSDKLDEE KEDSY 1 HAEGYPAAEMKHGPIAGIDDEEMPVVFIATQNSSY
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| QUERY | $E \backslash R G V N P \backslash A T^{290} P R D D A \backslash K R R / L O$ |
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| UniRef90_F4A194 | LL NGVDPSTVEKI DLLK K K L |
| UniRef90-Q9HIC2 | RII R NVDPQDVSAI EDLKKRI |
| UniRef90-D3DJW9 | QL Y G Y D P $\square$ PV K V I D S K E K L S |
| UniRef90-D9S211 | VLNEKDPTEI DFI NILKERMK |
| UniRef90-M1R179 |  |
| UniRef90-E8N4S9 | MAYGIDPTPIPILDAFKSEM |
| UniRef90-A5FRW1 | FLT GVDPYPI D AV D Y FKRKL |
| UniRef90-D2BEM1 | LGY GVDPTPVSAI TELKARI |
| UniRef90_B3ET58 | QT T GVDPVEVK S I D Q I K S AL |
| UniRef90-A8MBZ9 | ELYGIIDPVRTDPINTLKEKL |
| UniRef90-M9SI90 | ALHGIDPCNVDPIVDIK T R M |
| UniRef90-X1TCN1 | DAEEVDPTPVKMID D L K K ELS |
| UniRef90-A1ZEV6 | EKNGVDPFQVNIIMHLKGE |
| UniRef90-H8KMA9 | DKADAVSNQIPNI NSLKEFL |
| UniRef90-Q96YC2 | MLLGVKPE QLNUIP K I R E K |
| UniRef90-UPI00029AB0D5 | VMRGCN |
| UniRef90-S4W4V1 | $\checkmark$ LR GCD |
| UniRef90-Q8TZ14 | V AR G $\square$ D P |
| UniRef90-UPI0003629EF6 | $\checkmark \mathrm{MRNCN}$ |
| UniRef90-R5PYX9 | V CKGKN |
| UniRef90_UPI0003725B0B | 1 K R G C N |
| UniRef90-H5Y1G3 | VARGCD |
| UniRef90-UPI00039FBA1A | VLLGRD |
| UniRef90-E0XY04 | $\checkmark \mathrm{L}$ R G S D |
| UniRef90-W0E5L8 | VARGCD |
| UniRef90_IOKH90 | $\checkmark \mathrm{MRG}$ |
| UniRef90_A0A021VQ31 |  |
| UniRef90_G2Z0A3 | VMR G C N |
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| UniRef90-R7CXE9 | VCKGKD |
| UniRef90-Q4JCA7 |  |
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| UniRef90-D9RZR1 | V A R G C D |
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| UniRef90-UPI00036DC59A | V Y R GAN |
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| UniRef90-DOWH26 |  |
| UniRef90_UPI000255E6DE |  |
| UniRef90-A8UV15 | $S K \square G L D$ |
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| UniRef90-UPI0002557B53 | $\checkmark$ Y R G CN |
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| UniRef90-H7EKT7 | V LR G N D P |
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| UniRef90-F8L8R1 |  |
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| UniRef90-R5EJA8 | V I NGTD |
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| UniRef90-12F217 | VK K GLD P |
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| UniRef90-D3QA11 |  |
| UniRef90-R7GNM3 | C $\square \mathrm{K}$ G C D |
| UniRef90-F0T9U3 | HFNGEDPGETRH $\square$ G K $\square$ R |
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 FCAAC GTAALHA CMVVTE HLLDE R F R I P V E C D D Y A S E F R Y R T A D T
 IV A C G T S W H V A E Y V I E E L C R l






 I V A M G T A L Y A G QV G E Y M I E E Y G I P V E V E S A A E F R Y DD A T T $L V A M M G T S Y$ H A A MYA E S L L A S R G V P ARAA A MA S E Y A P PA E D T

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UniRef90-V5PWP8
UniRef90_B6AJA5
UniRef90-RGMXN4 UniRef90-K1ZZ13
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UniRef90_Q8RG65
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UniRef90_A4T0D8
UniRef90-D3R4A7
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UniRef90_G5BNZ1
UniRef90_UPI0003B6BFC3
LA $\square$ A $\square$ S QS GETADTDAAFKEAKARGAMSDADCMGSAMTRE $V C V F L S Q S G E T A D T I L A L R Y S M E R G A L C L G V T V G S T I S R E$

 | V |
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| L |
| V |
| A |
| V |
| L |
| G |



L A | $L$ |  |
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| $L$ | $A$ |
| $L$ |  |

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| UniRef90- J9HWT4 | A GPELAVASTKAYTTQLAALTYAAAHEMIEALDNLPQVVEA |
| UniRef90-UPIO003FBED4F | ADDVLITRAGYTTQLVVLYLLAVYFDTLAGLHD |
| UniRef90-001 Q56 | AGPEI GVASTKAFTCQLTALFILAMYLGQA |
| UniRef90-D9PX97 | SRSTI ITRCGRETKTYMTQLLALYMIMLS |
| UniRef90-U3HIY | SDLTLLLTLAGPEMVASTKAFTTQ |
| UniRef90-E8LHF6 | SDYVFLTRAGAE GVASTKAFTTQLI |
| UniRef90-UP1000378CE42 | SDLCLMTNAGPE! GVASTKAFAA |
| UniRef90-17LJU7 | ADSTLLMRAGPELGVAATKSYTAQLA |
| UniRef90 E8PQl4 NiR |  |
| UniRef90 C5KV92 | TDAGIYLHAGP |
| UniRef90-W0FM | TVYTWAGPEGFTTQVAVLYMLAMHFELIKVLQTLPPKTQQ |
| UniRef90-G4SWX2 | SDLVMMTRAGPEDGVASTKAFIA\\|GRRFGLTKELENKISS |
| UniRef90-D1A121 | AGPEIAVASTKAYTTQLVILYLIAIDDYAQKVGKL |
| UniRef90 D1YX72 | APSTIYMHAGPEIGVAATKTFTSQV |
| UniRef90- D3RUX2 | S DLVFLTHAGPEIGVASTKAFTTQLVALALLRAL |
| UniRef90-F2NLR6 |  |
| UniRef90_UPI0002 | AVLYTHAGPEV |
|  | El SVASTKAMCSQMVALLLLADAWGRKKGTLSAEAAQ |
| UniRef90-K2H0 | RAGPE |
| UniRef90-19C09 | TELCMLTRAGKAFTTQLAALYULTMTLAKQRGMLSADDEA |
| UniRet90-E5BGZ88 |  |
| UniRet90-A7H711 |  |
| UniRet90_TolUK7 |  |
| UniRef90 UPI0001E2FE | A |
| UniRe990_GoA | CALAYITRAGVEVGVASTKAFTIQLAALKA |
| Ref90-S3Y |  |
| V1CGK8 |  |
| UniRe90-x0WD |  |
| 隹 |  |
| UniRef90_UPIO00318ADDE | SDMSLMTRAGPEDGVASTKAFTT |
|  | ADHVMTTKAGPEIAVASTKAYTSC |
| UniRef90-UP1000406 | PEIAVASTKAYVTQVGCMMLLAS |
| UniRef90-UP10003727F9B | KLA Y T R A GVEl GVa S Kaf |
| UniRef90 UPIO004682D5A | T DLRFLTRAGPE GVASTKAFTTQREM AELRHLPVALQN |
| UniRef90-R4YSV2 | SDLCLMTNAGPEIGVASTKAFAAETEAVTALHQL |
| UniRef90-W3R | RESHVVLPTLAGPEIGVASTKAFT |
|  | RSGPETGVAATKT |
| UniRef90_UPIO003 | SDFSLFTNAGPEIGVASTKAFTTQGR |
| UniRet90_K1Z079 | TDGGTYIHAGPEAYTNMIAVLVLYALQFGRLNRVSVATGE |
| UniRet90_R5TLT? |  |
| UniRet90_G8M9T5 | TEFAFLTHAGTEIGVASTKAFTTQLVGLFQLIRHLPAALNS |
| UniRef90_UP10003795EBC |  |
|  |  |
| UniRet90_R5 | Q |
| UniRef90_W5X1L6 | SGPEIGVASTKAFTSTMAVLNCLAIAFAKTRGV |
| UniRef90 MoLUY1 | DHVLYIRAGPEIGVIAASKTFASQLVTLN |
| 7vax | O |
| UniRef90-FOTB34 | ADDAVLTRCGRETA L GTKTYMTQL |
| Q07MW1 | RESETVLPAGPETGVASTKAFTCQL |
| UniRef90_-F7YU43 | NAGPEISVAATKS |
| UniRef90_E8RAD2 | S |
| UniRet90-Ploooz3745 |  |
| A6Dix ${ }^{\text {a }}$ | AGRGVYA ${ }^{\text {a }}$, |
| M0MBG6 | CDHV |
| UniRei90 U2ANN | AGPEIAVASTKAFLAQVTANTLLTFAVARELRMVPDLVQR |
| UniRef90 ${ }^{-1} 0 \times Z \mathrm{CK} 5$ | VPAFVFHYESEPRAALGYGIMPLLAIAQKVGDVADKNED |
|  | A D\SVLTNAGPETGVASTKAFTTQLVTLYMLTQIPKMIED |
| UniRef90-14YBJ9 | THCGIHINAGPEIGVASTKAYTSQYIALLMMHDLPEQIKK |
| UniRet90-R6ZQV3 | A |
| ef90-W0J667 | AGPEIGVASTKAFTSQLLIUGMLALYVARMRDMSPDLVRR |
|  |  |
| UniRef90 WoScD5 |  |
| UniRet90-T1NL | AGPEIGVASTKAYTAQLAVLQL |
|  | TDAGVYNHAGPETGVASTKAFVSQCVVLAAEELLALDPEKA |
| UniRef90 UP10003C37BC2 | SHCGVHINAGPEIGVASTKAYTSQFISSVMFALVMSDDRL |
|  | HYLTAGTE |
| UniRef90_B6AJA5 | VLCLIA TWFAQNREITSSSLYNCNELEAIHRVPIIS GT |
| UniRet90_RMXN | VLYYWAGPELAVATTKAYSTQLAVVYLFALYLGLPNQ QE |
| 俍Ref90_UP100036F45B2 |  |
| UniRet90_K1ZZI3 |  |
| UniRef90 R9SJT0 | EADYSIITRGNRETAILVTQLAALLYYILFKASDYENKLIE |
| UniRet90-3TN13 | dill |
| UniRef90-K2CX09 | CDAGA |
| UniRef90 ${ }^{\text {Q8RG65 }}$ | ADNVIYTLAGPAYSSQVLVMY LLSLYMGAKLGKIEEKDYQ |
| UniRef90 A4TOD8 | TDWHFLTKAGAETGVASTKAFTTQLElLRQLRHLPKALNA |
| UniRef90 Q989K4 | ADVVFPILAGPEIGVASTKAFTALLVESLLEMPRLMRQVLD |
| UniRef90- D3R4A7 |  |
| B2A | G |
| UniRef90- ${ }^{\text {A9ALG8 }}$ | - |
|  | dLVLMTRAGPEIGVASTKAFTTQLAALAVLVLLLGDTAR |
| UniRet90-L9X218 | CDHVCYTRAGPEI |
| UniRef90-D3EYT2 | ADGTILTDAGTEVSVAATKTFVTQIAALA GLALRTGV |
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| UniRef90_13R6H2 | H E M G | $290$ $R P \square D K P R N$ |
| :---: | :---: | :---: |
| UniRef90_C9RAX4 UniRef90_-J9HWT4 |  |  |
|  |  |  |
| UniRef90-UPI0003FBED4F |  |  |
| UniRef90-Q01Q56 | VR R G C D |  |
| UniRef90-D9PX97 | HFNGED | T R H $\square \mathrm{GK} \mathrm{V}$ R |
| UniRef90-U3HIY5 | V L K G T D |  |
| UniRef90-E8LHF6 | L I N G T D |  |
| UniRef90-17LJU7 |  |  |
|  |  |  |
| UniRef90-E8PQ14 | V L L G D |  |
| UniRef90-UPI00025560FE | II K G T D |  |
| UniRef90_C5KV92 | DLR G C |  |
| UniRef90-W0FMS8 | KENGCD | ■D K P K N |
| UniRef90_G4SWX2 | V L K G T D |  |
| UniRef90-D1Al21 | $V \mathrm{~A}$ K G N D |  |
| UniRef90-D1YX72 | L Y R G C | P $\square \mathrm{D}$ K P R N |
| UniRef90_D3RUX2 | VLKGTD |  |
| UniRef90-F2NLR6 | V L L G D |  |
| UniRef90_UPIO002003263 |  |  |
|  |  |  |
| UniRef90-K2H054 | V M R G T D |  |
| UniRef90-19C094 | CARGTD |  |
| UniRef90-E5BGZ8 | VAKGLD |  |
| UniRef90-A7H711 | D L K G T D |  |
| UniRef90-TOIUK7 |  |  |
| UniRef90_UPI0001E2FB0BUniRef90 G0AES3 |  |  |
|  |  |  |
| UniRef90-S3Y1T4 |  |  |
| UniRef90-V1CGK8UniRef90 |  |  |
|  |  |  |
|  | V L K G T D |  |
| UniRef90-A6VTC7 UniRef90-UPI000318ADDE |  |  |
| UniRef90-LOHLB0 |  | $\square \mathrm{D}$ R P R N |
| UniRef90-V6MA62UniRef90_UPI000406F551VS L G N D |  |  |
|  |  |  |  |
| UniRef90-UPI0003727F9B UniRef90-UPI0004682D5A UniRef90-14N7P0 | CACGTD |  |
|  | LQKGTD |  |
|  | UniRef90_14N7P0 |  |
| UniRef90-R4YSV2 | VLKGTD |  |
| UniRef90-W3REM6 | V VMGTD |  |
| UniRef90-F7XPW9UniRef90 UPI00035EB60E | $\begin{aligned} & L E R G C \\ & L R R G T D \end{aligned}$ | S $\square$ D K P R N |
|  |  |  |
| UniRef90-K1Z079 | $\checkmark A L G K D$ |  |
| UniRef90-R5TL72 | VAKGLD |  |
| UniRef90-G8M9T5 |  |  |
| UniRef90-UPI0003795EBC | VLKGTD |  |
| UniRef90-U2RIW0 | KLK GND |  |
| UniRef90-R5TJQ5 | KMKNDD |  |
| UniRef90-W5X1L6 | $S N \square G Y D$ |  |
| UniRef90-M0LUY1 | ANKGLD |  |
| UniRef90-L7VQX7 |  |  |  |
| UniRef90-F0TB34 | HYS GEDPGSTRH $\square$ G K VR |  |
| UniRef90-Q07MW1 | VVMGTD |  |
| UniRef90_F7YU43 | DELGGLDP |  |
| UniRef90-E8RAD2 |  |  |  |
| UniRef90-UPI0003745795 |  |  |
| UniRef90-A6DIX0 | D L R G C | S 1 D Q P K N |
| UniRef90-M0MBG6 | A R L G | R S I D K P R |
| UniRef90-R5TDJ1 |  |  |
| UniRef90-U2A1N1 |  |  |
| UniRef90-X0XZK5 | V L N GVEP A P T P P $\square$ A K $\square$ K D R L |  |
| UniRef90_Q08TZ7 | EMRGND |  |
| UniRef90-I4YBJ9 | $\square \mathrm{GRGY}$ |  |
| UniRef90_R6ZQV3 | RERGCD |  |
| UniRef90-W0J667 |  |  |  |
| UniRef90-U9T142 | VLH GVD |  |
| UniRef90-W0SCD5 | LVKGTD |  |
| UniRef90-T1NLW3 | VSRG\DPDQPRNLAK |  |
| UniRef90-K1XRS5 |  |  |  |
| UniRef90_UPI0003C37BC2 | $\vee \mathrm{L}$ R G C D |  |
| UniRef90-V5PWP8 | CARGTD VQQGIDP |  |
| UniRef90-B6AJA5 |  |  |  |
| UniRef90_R6MXN4 | VQQG】D P |  |
| UniRef90-UPIO0036F45B2 | $\begin{aligned} & \mathrm{LE} \mathrm{E} \text { G R D } \\ & \mathrm{V} \mathrm{~L} K G T \end{aligned}$ | $\square \mathrm{D}$ K P R N |
| UniRef90-K1ZZI3 |  |  |
| UniRef90-R9SJT0 | HFNGED | T R H $\square$ G K VR S |
| UniRef90-I3TN13 | $V$ LKGTD |  |
| UniRef90-K2CX09 | DTLGRD |  |
| UniRef90-UPI000361C4CD | KRRG | R S $\square \mathrm{D}$ K P R N |
| UniRef90-Q8RG65 | LIE K G Y D |  |
| UniRef90-A4T0D8 | $\begin{aligned} & \bar{C} A R G T D \\ & L F M G T D \end{aligned}$ |  |
| UniRef90_Q989K4 |  |  |
| UniRef90-D3R4A7 |  |  |
| UniRef90-B2AGH9 | CARGTD |  |
| UniRef90-A9ALG8 | CARGAD |  |
| UniRef90-UPIO003639104 | $\begin{aligned} & V L K G T D \\ & \hline N R \mid L G \end{aligned}$ | R S $\quad \mathrm{D}$ K P R N |
| UniRef90-L9X218 |  |  |
| UniRef90-D3EYT2 |  |  |
| UniRef90-G5BNZ1 | VLR G Y D |  |
| UniRef90-R5Z3Y7 | KLRGCD | ID K P K N |
| UniRef90 UPI0003B6BFC3 |  |  |


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| :---: | :---: | :---: |
| UniRef90-V4XTJ6 |  |  |
| UniRef90 UPIOOO379010F | M E K |  |
| UniRef90-A1SR44 | MQK E | AMEGRISHDSVLVEVGAKDVK NVEHVQ |
| UniRef90-D4J790 |  | (l) |
| UniRef90-F8GAI2 | ${ }^{\text {M }}$ M K |  |
| UniRef90-U1JKM7 | MLK ${ }_{\text {M }}$ | ( |
| UniRei90-B5Y9E7 | M ${ }_{\text {M }}$ | MEQDEAI RSTLLGRVDDELEALQEELKNAERIY |
| UniRef90-N9KV99 | M L K | QPEAIQQTI SQALEDFLAQAEQDFASTQQVQ |
| UniRef90-C4KZK3 |  | QPAVIRNII NENGD ELAEGVRELSEADRVY |
| UniRef90-UPIO000EOEEAE |  | QPTVVRNALALTPDIFGENAETLLRDVKHVQ |
| UniRef90-E1SR44 |  | QPTALQRTLEVALDAFGDNAELLAQ |
| UniRef90 C5CNN6 | M | 1 F EPRAI ADTLEGVAGIVVPELAHRV |
| UniRef90 F2PBX2 | MQK | IFEQPSALINTMEIIDESFGSDAKTDFDKVEHIQ |
| UniRef90-UPI00037709D | M Q K | 1 FEQPRAVGDTLQAVESTATAKAQE |
| UniRef90-UPI000287A5DD | MLK | HEQPVAVANALEGSDRVLVEA |
| UniRef90-R6GFQ1 | M K E | EQPKAVADTLNVIDLSDVGLSEEEIKNTSQIY |
| UniRef90-UP100047 |  | QPDAIQHTLSVLDHNQLKDDFLSLPAIQHVQ |
| UniRef90-C6A118 | M | QAKAVKDA |
| UniRef90_O8TLL3 | $M L$ | HEQVTALHNTLELLEGDLELNLSEDEIRKLIARVQ |
| UniRef90-K5VQH0 | MLKK | TEQPTSTAQTIVERGSVSFDACEPEFADIDRVV |
| UniRef90-G4RAQ1 | MAK E | HEQPETIARAI NQFLDMTTGALRFDFTTLPRIT |
| UniRef90-G4QN09 | MLK E | QPTVVRNLDVEGMFGAGSEDLKK |
| UniRef90-UPI00037 |  |  |
|  |  | A |
| UniRef90-A3WNP7 |  | QPIDVRNALEVLDDAFGEGAAELFKTVEHVQ |
| Ploou36FA |  | RDT |
| UniRef90-UPIO003750E03 |  |  |
| UniRef90-W4HIC4 |  | TVLADALN |
| UniRef90-K2 |  |  |
| UniRef90 -G2 |  | MEQPEAIENTDKGMPDFTADGVPDTLTECEHIC |
| UniRef90-E1E9T3 |  | QPKALTNTMEGADSVVTDAAADVLSKVEHVQ |
| UniRet90-R9T507 |  | - |
| UniRef90-T1DCR3 | MQK | I YEQPKALGDTI EAVNDNNAKDIEPLGKKAKKIML |
| UniRef90-L9VKT5 | M |  |
| UniRef90-U4K |  | YEQPVVLKDTLELLESFGANSAEMFGQVEHVQ |
| UniRef90-Q1GTE2 |  | FEQPTVVAQTLSLEQTVALPQMDFDLSALDRUT |
| UniRef90-Q5WLG7 | ML K E | DEQPNUTQKYQHEDGSTRLDEDIAAMKDSDRIY |
| UniRef90-E4N650 |  |  |
| niRef90-188 |  |  |
| 7BU |  | S |
|  |  | VALKNTLE |
| UniRef90 UPIOOO4408714 |  | PNTMRGRVNFDNHKITLQYLPU RRGRR1V |
|  |  |  |
| UniReif90 C7P5 | MLLK |  |
| UniRef90-B1LYZ2 | MAKE | EVVGRTLA HYVDMANEALPFDFAKLSRVY |
| UniRet90-H2LKB9 | MQK E | NTMRGR |
| UniRef9 |  | QalRNa |
| UniRef90-UP1000478DD56 |  | QPRAI GDTLEFEPELIFGKDARELLAGVEGVVQ |
| UniRefan-RLQ839 | M AK | FEQPQA A R G PRAGEDDLEDVPALAARAKVT |
| UniRef90-V9VVG5 | MAK |  |
| UniRef90-A0A024QH77 |  | QPFVMRKDI NEDSELKDDKNVQAMKDCDRIY |
| UniRef90-D2RZB1 |  | QPNTIEGRVENGNVAFEDLPVGTFADVETVQ |
| UniRef90-J9Y |  |  |
| UniRef90-UP1000466932A UniRef90 U1NEN6 |  | VVVSDSLGRपKDSEDNFDEIDLDGUNEK |
| UniRef90-UPI0003735914 |  |  |
| UniRef90-R6RF62 |  |  |
| iRef90_H9JdC0 |  |  |
| UniRef90_R5LXE7 |  | P |
| UniRef90-Q8 |  | QPISI QNTLNNFSELGDREKKFFLNAEHIQ |
| UniRef90-COASR4 |  |  |
| UniRef90-UPIO0041CD53B | MA | IHEQPEVVARTLAHYLDMSAGRAALPFENLSRLT |
| UniRef90_D2UG59 | MQK ${ }_{\text {M }}$ | QPRALADTAEFEPENFGAAARDVFGKIRSIM |
| UniRef90-16ZJF5 | M $\square^{\text {K E }}$ | NEQKNTMRGR |
| UniRet90-C4Z0X9 |  |  |
| nRef90-051 |  | Y |
| UniRef90-A1RZ63 | ML | ESLMRTLSSVQKKYLQLAARLVTGADNVY |
| UniRef90-A1USU9 | M ${ }^{\text {M }}$ K | YEQP ETM HN |
| UniRef90-M2YQT9 | MQK | EQPNAMRGRLNLADKTVLKQYDSTLRRCRR |
| UniRef90-C4G9M8 | M $\square^{\text {K }}$ | QPQALVRTI DNLPDFSADGIPDSFENCSDIT |
| UniRef90-MOCL59 | M R K E | QPTAI AQAVDGDEVAFES |
| UniRef90-UPIO003146BE |  |  |
|  |  |  |
| UniRef90-H1KXAS |  |  |
| UniRef90-A0A033UG60 | MLK E | Y |
| UniRe990_JTTQ04 |  |  |
| UniRef90-M1ERS66 | M | V |
| $\begin{aligned} & \text { UniRef90-XOSMR7 } \\ & \text { UniRefgo } \\ & \text { G8JWK6 } \end{aligned}$ |  |  |
| S5ZEW3 |  |  |
| UniRef90-Moc6z1 |  |  |






UniRef90 V4XTJ6 UniRef90_UPI000379010F UniRef90_A1SR44 UniRef90_D4J790 UniRef90-F8GAI2 UniRef90_U1JKM7 UniRef90_X1F4Q1 UniRef90_B5Y9E7 UniRef90-N9KV99 UniRef90-UPIO000E0EEAE UniRef90_E1SR44 UniRef90_C5CNN6 UniRef90_F2PBX2 UniRef90_L9VPN4
UniRef90 UPI0003 UniRef90_UPI00037709DE UniRef90_UPI000287A5DD UniRef90_R6GFQ1 UniRef90-UPI000478E8F9 UniRef90_C6A1I8
UniRef90_Q8TLL3 UniRef90_K5VQH0 UniRef90-LOIBP4 UniRef90_G4RAQ1 UniRef90_G4QN09 UniRef90_UPI000379C532 UniRef90_F0LWJ3 UniRef90-A3WNP7 UniRef90_UPI00036FA70C UniRef90_UPI0002001E4C
UniRef90 UPI0003750E03 UniRef90_-UPIOO03
UniRef90_W4HIC4 UniRef90_K2G1N6 UniRef90_G2T0B3 UniRef90_E1E9T3 UniRef90_R9T507 UniRef90-T1DCR3
UniRef90-A0P4Y9 UniRef90_AOP4Y9
UniRef90_L9VKT5 UniRef90_U4K8K0 UniRef90_Q1GTE2 UniRef90_17LG43 UniRef90_Q5WLG7 UniRef90_E4N650
UniRef90 P08633 UniRef90_I7BUS7 UniRef90_R8AS90 UniRef90_UPI0004408714 UniRef90_F4BZD2 UniRef90-X2HAD0 UniRef90_C7P5X3 UniRef90_B1LYZ2
UniRef90 H2LKB9 UniRef90_Q6MBL9 UniRef90_UPIO00478DD56 UniRef90_R5Q839 UniRef90_A6G1J3 UniRef90_V9VVG5 UniRef90_A0A024QH77 UniRef90_D2RZB1 UniRef90_J9YX58 UniRef90_UPI000466932A UniRef90-U1NEN6 UniRef90_UPI0003735914 UniRef90_R6RF62 UniRef90_H9JDC0 UniRef90_Q8KA75 UniRef90_C0ASR4 UniRef90_UPIO0041CD53B UniRef90_D2UG59 UniRef90_L1P2X4
UniRef90_I6ZJF5
UniRef90-C4Z0X9
UniRef90_Q5HM69 UniRef90_A1RZ63 UniRef90_A1USU9 UniRef90_M2YQT9 UniRef90_C4G9M8 UniRef90_M0CI59 UniRef90_UPI0003146BE9 UniRef90-A8PPG4 UniRef90_H1KXA9 UniRef90_A0A033UG60 UniRef90_J7TQ04 UniRef90-M1ERS6
UniRef90- X0SMR7 UniRef90_G8JWK6 UniRef90_S5ZEW3















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

 | $N$ | $L$ | $D$ | $D$ | $H$ | $S$ | $C$ | $C$ | $L$ | $A$ | $H$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $R$ | $L$ | $V$ | $H$ | $A$ | $I$ | $E$ | $H$ | $L$ | $A$ | $R$ |
| $S$ | $F$ | $A$ | $K$ | $T$ |  |  |  |  |  |  | AL DRDEEVADAARAMAEARDVLY VL E LDE NEI K I WA QRFAD K NHAL F

 L R R DE $\square$ H RYTHGLKSMPRTVAFF VLKLD QKVLE DA

 SIVK S I E S LAEDFADKH HS L F F L


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




 | $A R G T$ | $D$ | $A$ |
| :--- | :--- | :--- |
| $G$ | $G$ | $G R R$ |
| $G$ | $L$ | $V$ |
| $M$ | $L$ | $D$ |

 NENEDYKRI I EGI A S LIP QHDENII GR GVYYPDALE GALKL


 TLSFDNK IQ Q I DSKTFNEAKGSMF L GRGFSSFP I A L E GA L K L N I HEKAKRLSKRYLHGHG FFF







 S KLLA AVA EAAR QL GEWLPKVVDYVV H L S E T T E Q L V V R QLL A E $A$ L A F D T E E I E A L L A E D F A E K H H H A L $\square L K M D Q E V K Q L C L K F K D Q K S L L L L$


## L

K
DAPKMEQI AKDFLETTRNAFF

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






UniRef90 UPI0003B52C5B
UniRef90 $\mathrm{V} 4 \mathrm{XTJ6}$ UniRef90_UPIO00379010F UniRef90_A1SR44 UniRef90_D4J790 UniRef90-F8GAI2
UniRef90 U1UKM7 UniRef90 ${ }^{-}$X1F4Q1 UniRef90_B5Y9E7 UniRef90-N9KV99 UniRef90-UPIOOOOEOEEAE UniRet90-E1SR44
UniRef90-C5CNN6 UniRef90-F2PBX2 UniRef90-L9VPN4 UniRef90-UPIO0037709DE UniRef90_UPI000287A5DD UniRef90-R6GFQ1 UniRef90_UPIO00478E8F9 UniRef90-C6A118
UniRef90- Q8TLL3 UniRef90_K5VQH0 UniRef90-LOIBP4 UniRef90-G4RAQ1 UniRef90-G4QN09 UniRef90-UPIO00379C532 UniRef90-FOLW33 UniRef90-A3WNP7 UniRef90-UPIOOO36FA70C UniRet90-UPIOOO20011E4C UniRef90-UPIO003750E03 UniRef90-W4HIC4 UniRef90-K2G1N6 UniRef90-G2TOB3 UniRef90-E1E9T3 UniRef90-R9T507
UniRef90-T1DCR3 UniRet90-10DCR3
UniRef90_AOPYY9 UniRef90 L9VKT5 UniRet90_U4K8K0 UniReffo-O1GTE2 UniRef90-17LG43
UniRef90
O5WLG7 UniRef90-E4N650 UniRef90-po8633 UniRef90-17BUS7 UniRet90-R8AS90 UniRef90-UPIOOO4408714 UniRef90-F4BZD2 UniRef90-X2HADO UniRef90-C7P5X3
UniRef90 B1LYZ2 UniRef90-H2LKB9 UniRef90_Q6MBL9 UniRef90-UP1000478DD56 UniRef90-R5Q839 UniRef90-A6G1J3 UniRef90_V9VVG5 UniRef90-A0A024QH77 UniRef90-D2RZB1 UniRef90- J9YX58 UniRef90_UPIO00466932A UniRef90-UINEN6 UniRef90-UPIO003735914 UniRef90-R6RF62 UniReffo-HyJDC UniRef90-R5LXE7 UniRef90_Q8KA75
UniRef90 COASR4 UniRef90-COASR4 UniRef90-D2UG59 UniRef90-L1P2X4 UniRef90-16ZJF5 UniRef90-C4ZOX9 UniRef90_Q5HM69 UniRet90_A1RZ63 UniRef90-A1USU9 UniRef90-P44708 UniRef90_M2YQT9
UniRef90_C4G9M8 UniRef90- MoCl59 UniRef90-UPI0003146BE9 UniRef90-A8PPG4 UniRef90-H1KXA9 UniRef90_A0A033UG60 UniRet90-J7TQ04 UniRef90-M1ERS66 UniRef90- XOSMR7 UniRef90-S5ZEW3 UniRef90_M0C6z1

250
260
270
280
EKT\| S NMAEVVIKSRGAYLIFG|LITSYGNYSVEDTVDFAVY

 EKLKSNVVEVVRARGGGIV Y
NKVINNI KEVKARDTLVLAITADEGKElINIVD
EKTLSNVSEVKARQGDVFVLRLEDDLPLLAPLQQFAYYNA



EKLK S NLQEVRARGDHVIRMPADSPLLHVVPDQLLAYHTA EVARARGGKI I TMPSDEII API FYTQLLAYHVA EKTLKNAEEAQTRGAPVVAVCPDGLLANVQL QLVSYYAA
 EKTVSNMVVECKSRGAYLMGLT TYGNYNIVI PMLQLMGYYVS DKLKSNMQEVQARGGELFVFADEHPVVYSVPVQLLSYHVA

PKVQSAFAQITARKARPIVLCNEGDLLNIIPL QLLSYHDA




SKLKSNLQEVKTRKII SITSNDGRDTAPIIFDQLLSYHVAA
 DKTVSNMQEVMARGGRVLLITDATPMLYADCPAQLLAYHAA


 EKTIGNDKEVEARGTPVVAVTDGQ
EKVKSNIEEVVARGGDVTMPHVDEVIAPDFYTQLLSYHVA
 LSIRGNVQEVASRGAATAII SMEGLLVSVIPTQLIAYYAA DKNLTALGEI KAREGRVLAV
DKTVSNMQEVAARGGRII LITDETPMDFSDPDQLLAYHTA EKTLKNAEEAQTRGAPVI AVCPDGLLANVQLVQLVSYYAA

 EKVKANMQEVAARGFVFTDLDSEGVLSPII PVQLLAYHTA NSILSNDEEVKARNGKVVAITPVEI ISSPIVYAQLLAYYKA
 EKLLSNLMEIKARHGKDIADEQEKAIEKIAVTQLLAYYIA



 RKTDSNMQEVIARGAKVLLITNKSPFLLTIPLQKLAYYSA DK IKSNVEELSAR
QKTISNIKEVQARDAPVVAVTDEQ
DKNISNVQEVATRGGKVVTIDTLDPLLYAVAVQLIAYYTA

EKTVSNI QECKARGAKVVLMCGEN
EKTKKNIKEICARGGII Y
EKLKSNIEEVRARGGLLYVISDPHVEELIAPDQLLSYHVA DKTVSNMQEVAARGGRLILISAPNFSALVYPI QFIAYHTA EKVKSNMQEVRARGVHVI TPRHAGLLSPVLPVQLLAYHTA
 EKTDSNDKEVKSRGAFVVLI
LSVRGNMKEVVARGAYPCMUSMEGLLVSVVTMQLISYYAA AEALVGMALEAGAKVVAVGFAGDQSLEAL
EKTFSNMQEVVARNGRIILITDE
EKVKSNDEEVRARG
A K SLL N A YQQV DA R K GRPIVIVLQGLLNVI PDQLMSYWDA


 NSVLDSNIVEEVKARNGKVVADSPPDVM





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| :---: | :---: |
| UniRef90_UPI0003B52C5B |  |
| UniRef90-V4XTJ6 | DRLGG R S $\quad$ D K P R N |
| UniRef90-UPI000379010F | LS K G T D |
| UniRef90_A1SR44 | L DKGTD |
| UniRef90_D4J790 | MDRGLD |
| UniRef90-F8GAI2 | 1 I K G T D |
| UniRef90_U1JKM7 |  |
| UniRef90-X1F4Q1 |  |
| UniRef90-B5Y9E7 | VLR G T D |
| UniRef90_N9KV99 | VLRGT D |
| UniRef90_C4KZK3 | $L \widehat{A}$ D C D |
| UniRef90_UPI0000E0EEAE |  |
| UniRef90_E1SR44 |  |
| UniRef90-C5CNN6 | CARGT D |
| UniRef90-F2PBX2 | LI K G T D |
| UniRef90_L9VPN4 | DL LD $\quad$ R P $\square \mathrm{D}$ K P R N |
| UniRef90_UPI00037709DE | VARGT D |
| UniRef90_UPI000287A5DD | V A R G T D |
| UniRef90-R6GFQ1 | $V A K G L D$ |
| UniRef90-UPI000478E8F9 | V L R G T D |
| UniRef90-C6A118 |  |
| UniRef90-Q8TLL3 |  |
| UniRef90-K5VQH0 | VK N G C D |
| UniRef90_LOIBP4 | NLL |
| UniRef90-G4RAQ1 | V ERKLD |
| UniRef90_G4QN09 |  |
| UniRef90_UPI000379C532 | R L R G C |
| UniRef90_F0LWJ3 | LI K G T D |
| UniRef90_A3WNP7 |  |
| UniRef90_UPI00036FA70C | L I K N T D |
| UniRef90_UPI0002001E4C | A HRGLD |
| UniRef90-UPI0003750E03 | V V M G T D |
| UniRef90-W4HIC4 | I A K G T D |
| UniRef90-K2G1N6 | L VK G T D |
| UniRef90_G2T0B3 | SDK G F D |
| UniRef90_E1E9T3 | L I K G T D |
| UniRef90-R9T507 | RKRGC P $\quad$ ¢ D R P K |
| UniRef90 ${ }^{-}$T1DCR3 | V L R G C N |
| UniRef90-A0P4Y9 | L I K K T D |
| UniRef90_L9VKT5 |  |
| UniRef90_U4K8K0 | L I K G T D |
| UniRef90_Q1GTE2 |  |
| UniRef90_17LG43 | K E K G L D |
| UniRef90_Q5WLG7 | L H R G C D |
| UniRef90 E4N650 |  |
| UniRef90-P08633 | VVM G A D |
| UniRef90-I7BUS7 | DL LD R R P D K P R N |
| UniRef90_R8AS90 | V NKGT D |
| UniRef90_UPI0004408714 | 1 K N GFD |
| UniRef90-F4BZD2 | NK L G L P |
| UniRef90-X2HAD0 | LA RGTD |
| UniRef90_C7P5X3 | V E L G R D |
| UniRef90_B1LYZ2 | $V$ FMGKD |
| UniRef90_H2LKB9 | $\checkmark \mathrm{V}$ R G Y D |
| UniRef90_Q6MBL9 | KER G A D |
| UniRef90_UPI000478DD56 | LA R G T D |
| UniRef90-R5Q839 | GLK G C D |
| UniRef90-A6G1J3 | RLE GRD |
| UniRef90_V9VVG5 | VAK GT D |
| UniRef90-A0A024QH77 | LHRDCD |
| UniRef90-D2RZB1 | A L L |
| UniRef90_J9YX58 | LN NGYD $\quad \square \mathrm{D}$ K P R N |
| UniRef90-UPI000466932A |  |
| UniRef90_U1NEN6 |  |
| UniRef90_UPI0003735914 | V A K G T D |
| UniRef90_R6RF62 |  |
| UniRef90_H9JDC0 | V L R D C N |
| UniRef90_R5LXE7 |  |
| UniRef90_Q8KA75 |  |
| UniRef90-C0ASR4 | L I K G T D |
| UniRef90_UPI00041CD53B | $\vee \vee M G K D$ |
| UniRef90-D2UG59 | LARGT D |
| UniRef90_L1P2X4 | L ARGTD |
| UniRef90_I6ZJF5 | $V 1 \mathrm{l}$ G Y N P |
| UniRef90_C4Z0X9 |  |
| UniRef90-Q5HM69 | LQ R D LD |
| UniRef90_A1RZ63 |  |
| UniRef90_A1USU9 |  |
| UniRef90-P44708 |  |
| UniRef90-M2YQT9 | VA E G L N |
| UniRef90_C4G9M8 | V N K G I N P D Q P R NLA K |
| UniRef90_M0CI59 | TLL |
| UniRef90_UPI0003146BE9 | LHRDCD |
| UniRef90-A8PPG4 |  |
| UniRef90-H1KXA9 | V E L K R D |
| UniRef90-A0A033UG60 |  |
| UniRef90_J7TQ04 | LI K G T D |
| UniRef90-M1ERS6 | $V \mathrm{~L}$ R G Y D |
| UniRef90-X0SMR7 | L HRGCD |
| UniRef90_G8JWK6 | V N NG $\square$ D |
| UniRef90_S5ZEW3 | EKLN R P $\square$ D T P |
| UniRef90_M0C6Z1 | $N L K G G \quad R S \square D K P R N$ |



MQKEDYEQPLALKNTLQПNपSELDSSTDTLLAKVQHVQ EVIESLIPRLDDRFISLVEMILACNGRVV MAREMAE QPEV L R R L D E A P A DR KVAA HE I A A R A P R F V L MQEYR DMMTEI ERQGSIPGLKQDEAAVAEKGKNRKI F
 $M E V E A R E A P A R I$ A E QL QNNA G $\square$ MAALGERRL RAQPPRPVVM MLLKEVDE QPNVMRKLLSSEHGE PNDDK QLLAMMEAADRALY


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


 $M L K E \prod D E Q P A V M R K L V D E N D H L S \square D P K \square I D L L A S D R Q V Y$ K QV LDD I E VAA A L ELLD K Y F D E QF E QA EL ILLSNS G K V V

 QVREAI TLAQESGIERLLA SLDRPRSVL LLKEDNEQPQTSRAAI GALFSPVAEGSALDRSAVKRVVC
 E QVLDD ll E K K A I E G L Y Q Y L D D N F D A A C Q T L F N C K R V i

 SS




|  |  |
| :---: | :---: |
| UniRef90-F7PSB5 | NHTLLIHAGPE\AVIASTKAYTAQTAVLSULIAYMVN |
| Ref90 M0DZX9 | VDDTAFIRAGPETGVAATKTFASQVATLAM |
| UniRef90 Q9KG45 | dFtLHTHAGPE\AV |
| UniRef90-R5F3P6 | GPEIAVASTKAYSV |
| UniRef90 UPIO003665FFA | A DVVFPTVAGIEVGVASTKAFTCQLKLVKALIEVPRLMAE |
| UniRet90_K2Js | RESDMALPILAGVEVGVASTKAFSCQLVTVLALLALEAACA |
| UniRet90_W1 Q4F3 |  |
| UniRef90_LONEL3 | SDA IFPl La GPEIGVASTKAFTCQLTVLAEMPRLMNAVLN |
| UniRet90-UPIO0030250B4 | HAGPEIAVASTKAYTAQ |
| UniRef90_UP10004 | A DY'LHTYAGPEIAVASTKAYTAQMA |
| UniRef90-W8S1F7 | S DLA |
| UniRef90 Q7NA97 | V |
| Ref90-B7KHQ4 |  |
| UniRef90 R6RGD2 | AGSEKAVASTKAFLIGQSLLFY CNL |
| Ret90_-25H1C8 |  |
| UniRef90_UP10004780 |  |
| UniRef90 UPIO0040BAEF4 | TLHTHAGPEIAVASTKAYTAQMAVFSILAMDGARAQGINT |
| UniRef90- V4TL | STKAFTCQLS |
| UniRet90-G5C7 |  |
| 7A8 |  |
| UniRet90_Q8DJI6 |  |
| UniRet90_14X908 |  |
| A5UNH8 |  |
|  | GRQAGVSPDREYPLFHVGQYFAILLDMFPRLGLIKDDLAT |
| UniRef90 J1FOW8 | D |
| UniRef90-UPI000378F27B |  |
| UniRef90 U5DEL1 | VDTIIDTRAGIEI GVAATKTFVAQDLA WQRQALSGDR\\|AR |
| UniRef90-16SEE | A S TK |
| UniRet90_W4VK55 |  |
| UniRet90 A4EY | ( GVASTKAFTCQLSVLLMLILLKAASDRGEIVADDLQ |
| UniRef90-12H | CGVHINAGPEIGVASTKAYTSQYIALVMFAVLLGEDRI |
| UniRef90-G5K2R3 | ASYTLLLHAGPEIAVASTKACTAQVATLAKQEALIFEDLVH |
| UniRei90-UP10002491B2B |  |
| UniRee90-W4L8B0 |  |
| UniRet90 W9EH47 | LLDAGPETSIVASTKAYTAQTALLEAILAKAVGEHLNVAQ |
| UniRef90 R71 | AGdCVMYTYAGPETAVASTKAYIT QlVEMMVLLAIIDLGV |
| UniRef90 UPI00026263 | FTLHLHAGPEIIAVASTKAYSAQI AVLAQELAI A ANAME |
| UniRef90-A2FNJ6 | TTCGIHLN |
| UniRet90-D3BT44 | AGREHAVASTKAFTSQVTVLSANAFAQHRGLEGKLIE |
| UniRet90-K9x415 | IDTHGGU |
| A4H4Q8 |  |
| UniRef90_UP10002197052 | ML |
|  | MYTWAGPEISVATTKAYSAQLAALYLLTLK ${ }^{\text {L }}$ |
| UniRef90 W5ENL1 | THCGIHINAGCEIGVASTKAYTSQIVVMAMIALAIGGSDLL |
| UniRef90-AORY03 | SDVVVGMNCGPEDGVATKSFTSQLGM |
| 990-64 6151 | Q |
| UniRef90- G8PC54 | AEFSVTLEAGPEIAVASTKAYTAQIALMAQNLDI |
| UniRet90_MOU7S | THCGVHINAGCEIGVASTKAYTSQIVVMAMMALLPKKVSE |
| UPI00036 | ATYTMLLHAGPEIAVASTKAYTAQIATLAVLJAKAVGEAIG |
|  | AQUNIFLNSGVEVSUYFLTNSIIGRSALEEFDK\\| L NAMED |
| UniRef90-UPI00047DB945 | SILYQL |
| UniRet90 M5PCN7 |  |
| UniRef90-Q9LIP9 | RKTHCGVHKAYTSQLVVMVMLALREALDGLLDLPYKVKE |
| UniRef90_R6JYZo |  |
| niRet90_R41093 |  |
| UniRef90_F7N |  |
| UniRef90_UPIO003630179 | HIDIMAGPEKALPATKTYTALYLFVEGLRGGDGGPAHVLR |
| UniRet90-C5EPH5 | CSHPVFLEPGWTPGTLTYTGTLYALFCLGAMELISHVVTQ |
| UniRef90_E6PYZ7 | ( ${ }^{\text {a }}$ |
| UP10003B5759B |  |
| UniRef90-UP10003651E16 |  |
| UniRef90 M5A | A TYTLLLHAGPE\\|AVASTKAYTAQUALEAQ\|IA |
| UniRe990_E3E |  |
| UniRet90_O3A373 | AVREEACPLGLAPTASTTATLAMGDALLER |
| UniRet90_C8P6X9 | AYTAQIAVLGKPAAKDFD |
| UniRef90 D8U2W1 | THCG |
|  |  |
|  |  |
|  |  |
| UniRe990-OWD17 | TKCGVYLNAG RENAVASTKAFVTQVTVMGLIACWFAQ |
| UniRet90 UPIOOO3690C24 | CEYAFLVRAGKTYTGQLFSMYMLIAYALGAADKLDDLKKLA |
| Unireo |  |
| UniRee90-A0AO1 |  |
| UniRef90_087LE6 |  |
| UniRet90_U2TFK4 |  |
| UniRet90_U3AP40 | $S$ |
| UniRef90_A8DVJ5 | ADAGMYTHAGPELGVASTKAFTTQLTCLYMLAVELAKNNE |
| UP100035FF8FE | O |
| UniRet90_K6WUA5 | CHAVDIGRERINSRLLTVGAAESPLAAVCHRARGDVREDT |
|  |  |
| ef90 A0A024U3D6 | A WF A Q |
| niRef90_Q5R017 | ADIHVCIPLGLAPIASTTATLVMGDAMLNARGFTADDFA |
| UniRef90 A8H8N7 |  |
|  |  |
|  |  |
| f90 |  |
| 00471 |  |
| niRee90 - 111 NS 8 | E |
| ef90_UPIO00373B19C |  |

UniRef90 F7PSB5 UniRef90-Q7V9R2 UniReffo-MODZX9 UniRet90-Q9KG45 UniRef90_UPIo003665FFA UniRef90-K2JSG8 UniRef90-W1 Q4F3 UniRef90 LONEL3 UniRef90_UPIOOO30250B4 UniRef90-UPIO004110ED7 UniRef90-W8S1F7 UniRef90-Q7NA97
UniRef90-B7KHQ4
UniRef90-R6RGD2
UniRef90-R5 ${ }^{-1 C 8}$ UniRef90-UP1000478CFC3 UniRef90-UPIO0040BAEF4 UniRef90-V4TL81 UniRef90-G5C7A5 UniRef90-E7A8U8 UniRef90-Q8DJI6 UniRef90_14X9Q8 UniRef90-A5UNH8 UniRef90-H8W3V9 UniRef90-J1FoW8 UniRef90 UPIOOO378F27B UniRef90-U5DEL1 UniRef90-I6SEE1 UniRet90_W4VK55 UniRef90-A4EYR2
UniRef90-12H8N6
UniRef90-G5K2R3 UniRef90_UPIoo02491B2B UniRef90-W4L8B0 UniRef90_UPIOOO289314B UniRef90 ${ }^{-}$W9EH47 UniRef90-R714M8 UniRef90_UPI00026263FD UniRef90_A2FNJ6 UniRef90_D3BT14 UniRef90-K9X4T5 UniRef90-A4H4Q8 UniRef90_UPI0002197052 UniRef90-R5BR77 UniRet90 W5ENL1 UniRef90-AORYO3 UniRet90-W4Z6R7 UniRef90-G6X151 UniRef90-G8PC54 UniRef90-MOU7S5
UniRef9O_UPIO00368FE52 UniRef90_-B5YA57 UniRef90-UPIO0047DB945 UniRef90-M5PCN7 UniRef90-O9LIP9 UniRef90-R6JYZO UniRef90-R41093 UniRef90_F7NMO3 UniRef90-UPIOOO3630179 UniRef90-C5EPH5 UniRef90-E6PYZ7 UniRef90-UPIO003B5759B UniRef90-UPIOOO3651E16 UniRef90-M5ABX8 UniRef90-E3BG77 UniRef90-Q3A373 UniRef90_C8P6X9 UniRef90 D8U2W1 UniRef90-Q0ZAl2
UniRef90_UPI00020D972C UniRef90-Q47VI6 UniRef90-FoWD17 UniRef90-UPIOOO3690C24 UniRef90-F4XMV8 UniRef90-A0A011 RNX3 UniRef90-Q87LE6 UniRef90-U2TFK4 UniRef90-U3AP40 UniRef90_A8DVJ5 UniRef90_UPI00035FF8FE UniRef90-K6WUA5 UniRef90-W7J8L8 UniRef90-A0AO24U3D6 UniRef90-O5ROIT UniRef90-A8H8N7 UniRef90-UPIO002880DE6 UniRef90-UP10004683E4C UniRef90-K1LN48
UniRef90-UPI0004718D73
UniRef90-I11NS8
UniRef90_UPI000373B19C
170
180
190
200


ELAAARQDEVRADAYRFAERMVISRGYGYPTAKEAALKL CQDTARQAGENFIYNGHQFPVYILGAGQSFATAKYGAAKF ELTDLPARLDHAAADAADRDPLFLGRGAGDPYAAEGALKL ALEKLPDTLEAAVRADDQLRPEVLGRGPGYGDTREDALKL QLMQAIVDEKDKLEEMSSKRAFYIGRGDDHAVSLEAALKL LSHGGALGRKLLLRLTDMHTGDALPLVPANTLIKDAL
 SKRERRDTIIDELGQLPGKVLLFFGRGYNYATVLEAALKV ERSHPGGSLGRRLLLRLEDVMHTGNTGPMVPTTATIGTAL
 NRPEGNHTKMDELDSMHRLLPFVLGRGYGEPITAYEGALK DFAGAALKLESELRYRFMRQAVVVGRGLNYANSFEFALKK SQEKY UEERABEFAETQDFI


GFSTEDFALSH
 HEVLQSQDVIEALAKNYDDVVFFLGRGLDYTTSUEASLKL LLETAVRNPAKALAMTAETVPVVLGDGPLAGVANRAASML DLLAGQDAEDRALAESVHRSMYYLGRGPSWPVAREGAQKVI LSHPGGSLGKRLLLRLHDVMHTGERVPGIPADA】GSDALL GFTQDDFALSH
ELKQLPTALVKAFAKKHKDTPYH\|LSGTGVETYYYAMCIL SHPGGALGRKLLLKVSDVMHKGEELPLVTEDICDTDAL VLSEKESDKDWVENNLRQARSTFYDGRHLYYVAMEAADKL VEQDSFEEKALKLAESVSSWKGFYAAGPLVSLAYKEGVIT VLKLDAEMKELA SSLLDSESLLVFGRGYNYATALEGALKV


METS Y I P A LA Y S GA D L L H G P L A MVD NVS P V DAVVT D GK G G LEVCGVTAIGQESEEFAHQEFWVIDKNCPVFLVAPKGDSF


 KEIS YVQAEGFASGELKHGTI ALIEDRTPV IGGITTQDRTAA

 VEMS
K E LT Y L HA E GYPGGALKHGPFALIENPIILIVLDDEHAQY



KEDSY I H A E GYPAAEMKHGP IAALIDEKMPCLILANTEKGY

 K E LEMSR

E EMQW $\square$ K T RPVHAS DFFHGELVEEDTS I L L K GE G L S R P L YE I S K
 NEFMWGHGAVIES GEFRHGEIVEPGVPFVFLVGTDAS RH $\square$ KEVALMHSEGMLDAGEMKHGPLALVDENLPIIVIATRDACF

## UniRef90 F7PSB5

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 DKR】D】

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$D K T I S N D Q E L Q A R H V V L I P S V S E D L M P L I V H Q L F A Y Y S A$ MPRVLQTAQEAGVRLATITAEPAHPLTLLAQTDFVATYLAA SATLIGQDQARGGAVVVFSQHQDYEF
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A HRGLD
NDKG
LHRGCD
VF

| $V$ | $F$ | $M$ | $G$ | $D$ |
| :--- | :--- | :--- | :--- | :--- |
| $V$ | $A$ | $K$ | $G$ | $T$ |
| $D$ |  |  |  |  |

$V A K G T D$
$V$ V M GT D
पHRGCD
$\begin{array}{ll}L \quad 1 & K G T \\ A R R G\end{array}$
$A R R G L D$
$L H K G Y D$
Y T K GFD
V $H$ R G C D
$V$ L R GY D T R P
QL K G L D
ARRGLD
LHRDCD
$R \square \mathrm{Y}$
L Q R G Y D
$V L K G T D$
ARRG LD
VA K G T D
SNKGID
LQ R GL D
KERGYD
LGRN $\square$ D
LQNECD
L N K G L N

```
CLLK GI DP DRPKNLAK
ARRGLD
\(L L R G N N\)
L NKG L N
\begin{tabular}{llll}
\(L\) & \(G R G\) & \(L\) & \(D\) \\
\(V\) & \(R\) & \(R\) & \(F\) \\
\hline
\end{tabular}
LEKDTDP
V LR G F D
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LQ R GY N
$V L R G Y D$
E $\square \mathrm{K}$ G R D P D N P R N $\square R \mathrm{~K}$

V LR G
$\vee A K G L D$
$\square$ A R GQD P D A P R A LA K
$R K L G L D P D R R S H N D P F R K K V S$
I E HGID

| $L$ |  |
| :--- | :--- |
| $L$ | $L G G C D$ |

$V$ S R GI N P D E
L N K GLD D

LGKGLD
$\vee L R G F N$
$\square A R G \square D$
VKRG1 N P DVP
EVKGLDP
LH R G N D

KQRGCD
पGLGTDPAVSRHDTADR
VK R G $\square \mathrm{NP} \quad \mathrm{D}$ VP

LD R G L D
VARDHNPDD
A $L R$ GFD

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1 ( ${ }^{10}{ }^{20}{ }^{30}{ }^{40}$
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TTMRKE $\square A E Q P A A T Q A T \square D A L D P R T G E T A A E G T H V L$ LQAIEGLFQTLDEQFTQACQMLFHCKGKVI MAKEDDEQPEVAGRLDDELERGTATGAELELAPFERLR TKMRSEIAEQPAALRATLDALLPRVGEVEQLAGQTVRQL
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FEDERQADDAVDRLGEAFQQACQADASRGRVV NT $\square$ R $\| E R D A L E Q E A S \square G P S \square A E A A D L I M A T D R I I$ RDD HVF MENSDDLARVKQUVEVLSHHTVND:A
 SVMRSEDAEQPEALRRTLDALLPLVPEAVELLGRETRQVL SLMLQEACSAAEHVALQLQRDDSYAALGARLRSAQPANVL MRAETNEQPEAIARTLKECSNEVSEAAKLLDNSFIIY EDVLDVEDEGLQAIRASLGESFVEAVEVLAGCRRVV TYEAILEQQQAFAHAARCNERLDDECAARIASCERLF MYEEDMLQPEYALKKLFDSLKFQNHGSLLDLKKSKRIV SELSSKEIVKEI VSNHEDKSVI MLQNKEYYDEHGKANIALKNTQEQVADTDCQEGFSNIF QEDFSQPEAWRGVLSVLEAERQAARAFRNARFDQVA MRTEDEEDPQAVARFLDRSD VLEDVAQDLRRRGFVV EAVAKLI DRTDDHFVHACRDMLACQGRIV EADDTEAQAVAALATRLDARFTAAVQCLVSSGRVV MLKEIHEQPNTIRRRISRDKNDLINLSEKKISKIDRII SKMLEEALSSFEAVQAQLQQLDPQMIELAGRLRRQPPQLM
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EVLDEESRALSALSHSLDEAFSRAVAAI QGSGKVA KVAKETLEDERQALSVLSHDDDRFSQACQ\|ILQCQGRLV mVNDSERMDELGREVVD DALAMREQIERAVDEVSKQGFKNIF VLT NEAEADREMASHLDYPFADVVDLL LSTKGRIT EAMRRTLSLEQDGLAQLSAALDEVSVEAVRVISGLKRLI THMAREVAEDPEAAARFLSLSBDAVLEAAAVRRRDPDLVV MAADIDEQPATYARLLSAERARPIAQVAAADAEHRHVV MAKEリDEQPEVASRLIERLRPNDADGGMWRIPPFERLR NAlRDAVDRLDHHEAAVET LNAKGRLV THMAREVAE $\square$ PEAAARFLERSRDAVLDAAAALRRKDPDLV
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 HETDRRL QFEEREV

MYREAEQASSVVANQDQNNAALVAEAAKK\LAFAPRAV
 KENQVERVC

S पM■KEARSAGTHVADQLAQDGRYAEपGRWDRAAPPAGVV VLRNYTQDRQQTEELTD EEKLLRVVQFTEEANRVY ETR EYLTSAREIUAARQKAELAGADEVYQAGFSMVLF RALEALERAFDDGLAGPFTRAVEMILENTGRVI Q DAKDTGADEQQALTRGQDPENFQQUVELICLHCQGRLV
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DA पEKS $\square$ STDFANTVSRGRGVKRLI

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UniRef90_QOALRO
UniRef90_E8xM67
 VMGMGKSGHDGRKMAASFASTGTPAFFVSHGDLGMISSND $V I G C G T S L N A G H V I G N L V R R L G A T T V V G S E A A E E A D A D A H Q$ FI A R GTS D N A AVYGRY L A L S TLAAAPSIATTYKKRLDDLDGV



$\stackrel{\mathrm{A}}{\mathrm{A}}$
T TCARGSSDHAAAYAKYVFETQSASPSVTSVYAAPQQWQGA
 VA GVGK S GHI G QK I A A S L A S T G T P SF FL S H G DL G MVVP G S






 IL IGGC GT S Y H V A LLMMFK E K N K F R S VP A F E L M S P N Y









 $F$ TA CGGS LVDMYVSYYFLKVTTGWYTANEFDHVTPGKK S LVGAGGS LSGLHAAHYFLDRRATTPVASVRASPGVGPGA
 VTGMGKS GHI GRKMAATFASTGTPSFFMHHGDLGMLVRGD











 TVARGSSDHAAAYCAY LVMARS LDPMS LVTLNQAPLLVRNA VIGMGKS GHDGSKIAA TILASTGSPAFFVSHGDLGMIVD K D


 F IG S G S S WY A MTMAA TYRA WT GK S A S A I P P S S E LIF T PS K K T ATARGSSDHAATYAKYLLLTTSAAPS IAASVYQTAPKLDGV
 S DP TSSVEYASEY LYRPDAA DT TVARGSSDHAAGYCAY LTMARSLPMS LVTLDKAPLI ARDR FTGCGAS MADLYPGYYF $\quad$ SSHESKANEFNYDTPKDVNENT FF GIGSSGLVARDMKDRFMRLGVICEALTDQDGFAWTKNC VA GIGKS GLVGKKMVATFASTGTPSFFLHHGDLGMLKP DD










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|  | DVLYTWAGPE Y IVAASTKAYSTQLAVI |
| UniRef90 D6Y6D4 |  |
| Ref90_L0J6P4 | QADAMI |
| UniRet90-D2BE | AGEEKAVPA |
| UniRef90-W6W | CDYLLPYSKEL |
| UniRef90-N2JAS3 | ADGESV ${ }^{\text {A A G }}$ |
| UniRef90-UPI0002DBF3B2 | CEFHVDIHAG |
| iRef90-W3X | GVHVNAGPE |
| UniRet90 U4 |  |
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| UniRet90 A0AO | E |
| UniRef90-U2VJ62 | FEKNYAAKLEKMGYVMAFAEGYEYYDQMVD |
|  |  |
| UniRef90_UP10003 | SVRQEACPLGLA |
| UniRef90_Q1K305 | SVDKEACPLGLAPTAS |
| C1 |  |
| UniRe90_G0ACL1 | S DVSUITRAGEE |
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| UniRet90-F4XJ39 |  |
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|  | HVEQEACPLNALA |
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| UniRef90- 22 AU79 9 |  |
| UniRef90 W6M449 | A DVMMA ${ }^{\text {a }}$ |
| UniRef90 F3KWT5 | SVEKEACPHN |
| 1F |  |
|  | SSVAATKSFIADSELLEAHNALPEGLRE |
| UniRee90 R R7E0 | THTGSY HVGPEDGVASTKAFTGQVTVLVAPHPEDERDA |
|  |  |
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| iRet90-UPIO0046A61FB | VDHCFTITEKHSFDTFFTHLYMLVFRFMYNQDEFPHMLAA |
|  |  |
| 03 |  |
|  | ADVVLLLPK A A P AGLAPTTSTTMQLALGDSLLALALLEAR |
| P10003 | A |
|  |  |
| ef90-12G | SDHVLHAFA C C A D PMNLAPTTSTTVALAVGDALAVSLLE |
| A1B4W9 |  |
| UniRet90_K2K3J0 | A |
| UP100047 | CQYHLPLCAGPELSVAATKSFLADPALLEAGLALPGQLRE |
| UP100041116E3 |  |
|  | Q |
|  | SAAEFSI DYIWEDHLLLCYSVVLEMITHAEDGKIKNDLKQ |
| UniRef90-UPIOOO36CA0C8 |  |
|  |  |
|  | TAAEWSVPAGVESSVAATKSFI ASLVLLTAHWQDDTALLD |
| Unit | A |
| 00255 |  |
| UniRef90-UP10003777074 | QSVQKVFLTGKTDEAYFGCFMLLQAQLLSSLKALPLALAA |
| ef90-V5B |  |
|  |  |
| UniRet90_A0A022TFU | GVHINAGPEIGVASTKAYTSQFVAMVMFALSLSEDRASKR |
|  |  |
| UniRef90 UP10003B73001 | A DVHLDDVGVAQCPLNLAPTSSTTVTLVMGDALAIIALLEEAR |
| R6 |  |
|  |  |
| 5D7 |  |
| $\begin{aligned} & \text { niRef90_U5ZFE6 } \\ & \text { inRef90_E7GZS } \end{aligned}$ | QFATEIIPVAIQSRISAQFSMLLVADLLYAFFALEDDREKK |
|  |  |
| UniRef90-UPIO0047E, | E |
| UniRef90_A0A023MVC5 | QAATWHI PMRHKNGVEYEYMFASYDRFASQLEILPANLLK |
| UniRef90-J1SN75 |  |
| $\begin{aligned} & \text { B1 } \\ & \text { Y7 } \end{aligned}$ |  |
| iRef90-E5YAY7 |  |
|  | A S K AYTAQUAVLTLLAKAlGDAKGUAA |
| A |  |
|  |  |
| UniRef90-logilu | N |
| Ref90_Q0ALR0 |  |
| UnRef90-E8XM67 | GDDSQVINNPMADQTGGYDGYADFQAGMAQLDGIIFRARQ |

UniRef90 G9Y4G5 UniRef90-R6YPH0 UniRef90-D6Y6D4 UniRef90-C4LCZ1 UniRet90_LOJ6P4 UniRef90_W6WAK7 UniRef90_N2JAS3 UniRef90 GOUQI2 UniRef90_UPI0002DBF3B2 UniRef90-W3XPE1 UniRef90-U4TIZ5 UniRef90-14VUV8 UniRef90-IOKKL4 UniRef90-A0A059FFG4 UniRef90-Q2CF70 UniRef90_U2VJ62 UniRef90-A3WPY1 UniRef90 UPI0003B453A6 UniRef90-Q1K305 UniRef90_UPIO00346998C UniRef90_G0ACL1 UniRef90_B1L6C6 UniRef90-C8WZZ9 UniRef90-F4XJ39 UniRef90 UPI0003B4D463 UniRef90-UPI000417AC4F UniRef90-F4GQI8 UniRef90-E6HZV7 UniRef90 Q31IC4 UniRef90_UPI000467A938 UniRef90-I01513 UniRef90 B2AU79 UniRef90-A0A011TWV6 UniRef90-W6M449 UniRef90-F3KWT5 UniRef90_X1FV84 UniRef90-KOWAS8 UniRef90-R7EOD3 UniRef90 E3CWS0 UniRef90_KOKT50 UniRef90-D5GYM9 UniRef90-A0A024GW94 UniRef90 U4QSP3 UniRef90-A0A031LT54 UniRef90_UPI0002884C67 UniRef90 S6BF22 UniRef90 UPI00046A61FB UniRef90_UPI000225C153 UniRef90_UPI0003B66CE0 UniRef90 D8JTD7 UniRef90_UPIO003633963 UniRef90-A4XB39 UniRef90 K0UX23 UniRef90-I2GSB8 UniRef90-A1B4W9 UniRef90_K2K3J0 UniRef90 UPI000474BA61 UniRef90-UPI00041116E3 UniRef90-D7BHJ4 UniRef90-R9ZIT5 UniRef90 Q8X844 UniRef90_UPI00036CA0C8 UniRef90-W6K3T0 UniRet90_ROFZ81 UniRef90-I1XGW4 UniRef90-H8L4Z8 UniRef90_UPI000255ECCA UniRef90 UPI0003777074 UniRef90_V5BX90 UniRef90-H3SAU8 UniRef90_A0A022TFU1 UniRef90 Q21G81 UniRef90-UPI0003B73001 UniRef90_R6GEA9 UniRef90 G9ZC93 UniRef90-J3D184 UniRef90_U5ZFE6 UniRef90-E7GZS1 UniRef90-I2NQB4 UniRef90_UPI00047EA1E7 UniRef90-A0A023MVC5 UniRef90 J1SN75 UniRef90-F4HAB1 UniRef90-E5YAY7 UniRef90-TOVGI6 UniRef90-18WKM2 UniRef90-UPI000225F09A UniRef90-Q21B96 UniRef90-10G143 UniRef90 Q0ALRO UniRef90_Q0ALRO
UniRef90_E8XM67

## GFTAEDFAlLSH

 GFTANDFAMSH
$R L V D D \square R R L P D Q L A V E G A G G F \prod F \prod G R G S G L P Y A A E G A L K L$ KLI A E PGDL DA VVEGLADKPGVVVSGRGFSTADELALKL




A $\square Q A \square P D A \square R A N W D A D W S H N \square F V V G R G F G \square G \square A L E A A L K F$ GFTADDFARSH

TFAPLFDDYAPRLAR KDVIYTMASGASYGAAYSFACVL GFNTIFDNQSKGLAEQFGK』IYYMSSGSSMQVAYSSSCLM

ALFHPGGALGKRLLLRVEDLMHTGDADPLVAQTTTVKDAL AI QGPDELIAERLAGVQGAV ISGRGMAFSTALEAALKL ILATETDWSTA IDDVLAPAS RDMVVGRGTSFPVALEAALK K IRGKD DEELRRELKIREKEFGFILGKGPNYPTALESALKL
LTALETENETALLAHEYRRRDWLVGGGPNAVTAHEDALK\} GTTHAQLRQLHSLAT VADDMHRGDAVPLVPMAMPMRDVL NSVA $\square$ QKNEMKELADDLKSDFFVVGNENTIGVAHETTLKF

GFSK $\square$ Y RMQAK QFAERFKKVIYVMSSGATHEVAYSTSCLL DFQPQDFARFH
EAAKVFEPTAWKFAKEYKDEPYFVSSGMGYPEAFRFSCSV E LHRLPDALAPLLADLSDDRFYFLGSGLRYGLACELSGKM K RREEDMEGLSKISDQIKKSLLLLGRGSQYSTALEGALKD ALQQLPKSLERALACDWSALIFILGRGPSSAMASEAALKF
$\square R N S \square S R E K A R K M D K E \square K K \square P$
AA QQDWSAA 1 EALRGC ERLMVIGRGAGFAVAQEAALKF
$D L T K L P G V L A R L V A G W E E K W P F L Y A A G P L K P L A Y K G L V T L$
 TAVRGFEPYAAKDAGNMKDVPMTYASGSLQGMGSTFTCFLL
$\square S D K \square D A A L A E P \square P V N A S D F D H F V G T D W S Y G L A Q E A A L K \square$ GFTHEDFALSH
MKAFDTRAEAFAQEHRETKYHMLVGSGNLWGNTYSYAMCL
ARGFTATDFAR
GFTAHDFK $\mathrm{TH}_{\mathrm{F}} \mathrm{H}$
AVAALPEALGQAVADDWSPMAFVLGRGPGFADACEAALKF ALDALPELAARTLAYRFAGQLVTTGRGYAYPTAREAALKLC D L C R I P D RLAAA GAVARKVIPPF $\square A R G S G V P Y A A E G A L K L$ ARGFTRQDFAR
AVGLDWSPLSARDARASS AFVLGRGPSFADACESALKF S RHLLAEALIRELAERPFTRVAFLGAGVLKGIATEAALKM AAEQDWSLAIEQLADC QRLMVIGRGAGFAVAQEAALKF LMESREFLPENFARFHPG GSLGRRLLSKVSDEMVSEF ALSQLPEALHQAAEANWSDNTLVVGRGYAFAVANELALKLC AARLDWSPADEALRDC QRLMVIGRGAGYAIAQEAALKF LLVRTWEEKGRQLGELASQWPMIYAAGPGRPLGYKGIVTM AAVEEADADLASUAEDFKDDPVTYGSGPSYGWAYGMAMCF ALGQLPQALETATRCDWSNRIMVVGRGTGFPLALEAALKC
$S \quad H P A G N L G R R L L V R \square S D V M H S G E A D P R V R \square N A K \square S E A L$ AFVNPAKVLAVQLA ETVPVVLGDGPLGGVAARAASML VI GNDARAAAEARLYKDDRILYHLASGPMFTAAYVLTC\|L LSHPGGTLGKQLLLRVGDIMHVDEAMPLHKSALIVAALL

 GLGVLPQSLAQ
GFTADDFAFSH AFDRLPRELHD ILALDEHRHGCLYLGRGENYPLAAEGALKL ALESLPESLQRAADSDWSKNDMVVGRGDGFPLALEAALKF GLFNLINQEANMVAYKDENTIYVLGSGASADVAYSTASFF EKIFNSYWENKKLNGYYQRH
DFRAEDFARFH AKQFDPQADADASRYHNSDYMMWVGGAEMWGEVYLDSMCLL G F
S L $\quad$ KARHFQAEDFAKFH

G F
AQDFDVFHE LS $\square V A S A M E T \square V F Y \square G R S N D Y Y V S M E A A \square K \square$

VS LGRDEAHRARVADMKRHLAEMRASGDY
GFTS $\square D F S V L H A M L K F A R D L M H S G D A D P L R P D G T K M S D A L$ VIEKSND IQKLVTRYRFAESFIILGRGFNYPNALEFALKLG

UniRef90 G9Y4G5 UniRef90 R6YPHO UniRef90-D6Y6D4 UniRef90-C4LCZ1 UniRef90-D2BEQ6 UniRef90_W6WAK7 UniRef90 N2JAS3 UniRef90 GOUQ12 UniRef90-UPIo002DBF3B2 UniRef90 W3XPE1 UniRef90 U4TIZ5 UniRef90-I4VUV8 UniRef90-10KKL4 UniRef90-A0A059FFG4 UniRef90- Q2CF70 UniRef90-U2VJ62 UniRef90-AзWPY1 UniRef90' UPI0003B453A6 UniRef90-Q1K305 UniRef90-UPIOOO346998C UniRef90 GOACL1 UniRef90_B1L6C6 UniRef90_C8WZZ9 UniRef90-F4XJ39 UniRef90 UPIO003B4D463 UniRef90-UPI000417AC4F UniRef90-F4GQ18 UniRef90-E6HZV7 UniRef90 Q31IC4 UniRef90_UPIOOO467A938 UniRef90-101513 UniRef90 B2AU79 UniRef90-A0A011 TWV6 UniRef90-W6M449 UniRef90-F3KWT5 UniRef90 X1FV84 UniRef90-KOWAS8 UniRef90-R7EOD3 UniRef90 E3CWSO UniRef90 K0KT50 UniRef90-D5GYM9 UniRef90-A0A024GW94 UniRef90 U4QSP3 UniRef90-A0A031LT54 UniRef90_UP10002884C67 UniRef90 S6BF22 UniRef90 UPI00046A61FB UniRef90_UPIo00225C153 UniRef90_UPIO003B66CE0 UniRef90 D8JTD7 UniRef90-UPI0003633963 UniRef90-A4XB39 UniRef90-K0UX23 UniRef90 ${ }^{-12 G S B 8}$ UniRef90-A1B4W9 UniRef90-K2K3Jo UniRef90 UPIO00474BA61 UniRef90-UPIOOO41116E3 UniRef90-D7BHJ4 UniRef90-R9ZIT5 UniRef90 Q8X844 UniRef90-UPIO0036CA0C8 UniRef90-W6K3T0 UniRef90-RoFZ81 UniRef90_11XGW4 UniRef90-H8L4Z8 UniRef90-UP1000255ECCA UniRef90 UPIO003777074 UniRef90-V5BX90 UniRef90-H3SAU8 UniRef90_A0A022TFU1 UniRef90 Q21G81 UniRef90-UPIOOO3B73001 UniRef90-R6GEA9 UniRef90 G9ZC93 UniRef90-J3D184 UniRef90-U5ZFE6 UniRef90-E7GZS1 UniRef90 - 2 NQB4 UniRef90_UPI00047EA1E7 UniRef90-A0A023MVC5 UniRef90 J1SN75 UniRef90-F4HAB1 UniRef90-E5YAY7 UniRef90-ToVG16 UniRef90 ${ }^{-18 W K M 2}$ UniRef90_UPIo00225F09A UniRef90-Q21B96 UniRef90 10G143 UniRef90-Q0ALRO

KEDSYワHSEAYTAGELKHGPTSLLEDGTLVIADATYEKLE


KELTYRWAEHCPAGELKHGPLALIGNGTPVVVVDNADPKL KEACYLHAMGLSYADLLHGPIVVDEDTPAILVAAGEGPTL NEMLWLDASDIHSGEFRHGEVADPEMAYVFLMDNGENRKI KELTYI HAEGISSGELKHGPLALVDEDSVIVAFAPAGPEQ


KETCGLHAEAFSSAEVKHGPMALVGPDFPVLCFAQDDDTL
MEMQWTNSQATHANEFLHGEVLDEDSAFTLFKGLDSTRAL MEMQWINSGSFHSGEFFHGEIVDKDVPFVLMMNEGKTRSL

FEDTKKLGITGVVDAD NGLVGVFTDGDLRRCLEDQHSL KEACYLHAMGLSYADLDHGPIAVVDADTPILVAANSGPTL KETSVLQAEAFSGAE KHGPMALINEGYPLLIFATRGPTQ RETANLHYVGYSAREFLHGP 1 QLLTKGTPVFLILGSE
KETSYLQAEGMSTET\|LHGPAEAEDपFVLIAPAGAAQGRV LEMTK SLGGAGVV
GEVHYTPTTSMDVEQपFHGP LVMCNKDTA IVIASNPNMK

EEVFHDKTQAMNSAEFFHGEDVDEDAVVLVKNEDGARSV KEMTLSHSEPFYFMEFRHGPMITPTALVVGLVSQERRDDD KEISYLHCEAVMSGELKHGVLALVDENLPIIMILTRDDDF KETCGVHAEAYSAAEVMHGPLVGPGFPVLALIAARDAAES

KETSADQAEAFSSAEVRHGPMALIDEHYPLLVFAPRGAEQ DEFTWTHGSCLDAAEFRHGEVAEPGVPFLFLLGTDESRHT KEDSYMHSEGVLAGEDKHGVLALVDDQLPII AFATRDSLF MEMQWLDAAPIHSGEYFHGETTDENHNYVVLKSLGRTRDLG

REAAQAWSESYPLLDYRHGPLVAHEGSLVWMFGAAD
EEMQWDHAKS $\square H A A E F F H G E L V E E G T S V I L K G E D E T R P \square$

KETCGTHAEAYSAAEVLHGP VQANFPVFVLGMPDAADPH METSYLPALAFSGADLLHGPLAMTDPDVPVLAVVGSGPGG KELTYRWAEHCPAGELKHGPLALVGPGTPVIVVDNGDP
KETSGTHAEAYSAAEVLHGPAADVQAGFPVLADGDEDAA LE DSRVDAHAETPDGFRHGPMVDADT LVVLLYDQDLHDED KETSADQAEAFSSAEVRHGPMALIDAHYPLLVLAPRGVEQ KESADFTSVVHADSNGKLGLVVEVEQGLALITDGDVRKAM
 MEFTWTHGCVIESGEFRHGE IVEPGVPFLFLLGNDESRHT EEMSR
QEMQWKHAAGFNSGEFFQGEVIDNDSAVILWLGEDASRPM KETCA $\square Q A E A F S G A E \square K H G P M A L I E E G Y P L L M F A P R G P A Q$

MEMSRT
ARTAR $\backslash P A T F G E \square P D A A S G V A C F D G P Y T P T G G R R P G T Y D$ AESQWMHSHALEAAEFFHGEIVDHTTPLILFLGEDPSRPQ EMTEKKDGMTAAVEDDN
KEMTYTWTEAYGTLEFRHGPIVDANTQ VLLLSEQARSYE KEDSYLHCEAVMSGELKHGVLALVDENLPIIMILTRDNDF KETCGLHAEGYSAAEVKHGPMAIVNKDFPVLVFGQRDETR
MEFLWSHGAVIQAGEFRHGETVESGVPFLFLVPTDSSRVI KELAYTHAEAHPAGELKHGPLALVDEHMPVIALIKHDALA KETSAI QAEAFSGAEIKHGPMALINEGYPLLMFATRGPTQ MEMQWISSPTDHSGEFFHGELALKDTPYLLFMSDGNTRHL

METSYゆSAQAFSGADपMHGPLATIDAHVPVLVVVADGPGG EEMQWKRTRPVSSAEFFHGALELLEKDVILVKGEGKCRAL

KE $\square$ SY $\square$ QAEGFAAGE $\square K H G T \square A \square I E E G T P V G \square \backslash T E E V T G$
 RETCLVNAVGYSTVDFLHGPIASLTPETPV1LLMPHDETF

UniRef90 G9Y4G5 UniRef90 R6YPH0 UniRef90-D6Y6D4 UniRef90 C4LCZ1 UniRef90 LOJ6P4 UniRef90-D2BEQ6 UniRef90_W6WAK7 UniRef90 N2JAS3 UniRef90 GoUQ12 UniRef90-UPIo002DBF3B2 UniRef90-W3XPE1 UniRef90- U4TIZ5 UniRef90-I4VUV8 UniRef90-10KKL4 UniRef90 A0A059FFG4 UniRef90- Q2CF70 UniRef90-U2VJ62 UniRef90-A3WPY1 UniRef90 UPIO003B453AE UniRef90- Q1K305 UniRef90-UPIO00346998C UniRef90_G0ACL1 UniRef90 B1L6C6 UniRef90-C8WZZ9 UniRef90-F4XJ39 UniRef90 UPI0003B4D463 UniRef90-UPIO00417AC4F UniRef90-F4GQ18 UniRef90-E6HZV7 UniRef90 Q31IC4 UniRef90_UPI000467A938 UniRef90-101513 UniRef90 B2AU79 UniRef90-A0A011 TWV6 UniRef90-W6M449 UniRef90-F3KWT5 UniRef90 X1FV84 UniRef90-KOWAS8 UniRef90-R7EOD3 UniRef90 E3CWSO UniRef90 K0KT50 UniRef90-D5GYM9 UniRef90-A0A024GW94 UniRef90 U4QSP3 UniRef90-A0A031LT54 UniRef90-UPIOOO2884C67 UniRet90_S6BF22 UniRef90 UPI00046A61FB UniRef90-UPIO00225C153 UniRef90-UPIO003B66CED UniRef90 D8JTD7 UniRef90-UPI0003633963 UniRef90-A4XB39 UniRef90_K0UX23 UniRef90-12GSB8 UniRef90-A1B4W9 UniRef90-K2K3JO UniRef90 UPIO00474BA61 UniRef90-UPIOOO41116E3 UniRef90-D7BHJ4 UniRef90-R9ZIT5 UniRef90 Q8X844 UniRef90-UPIO0036CA0C8 UniRef90_W6K3T0 UniRef90 ROFZ81 UniRef90-11XGW4 UniRef90-H8L4Z8 UniRef90-UPI000255ECCA UniRef90 UP10003777074
UniRef90-V5BX90
UniRef90-H3SAU8 UniRef90_A0A022TFU
UniRef90 021 G 81 UniRef90-UP10003B73001 UniRet90-R6GEA9 UniRef90 G9ZC93 UniRef90-J3D184 UniRef90-U5ZFEG UniRef90-E7GZS1 UniRef90 - 2 NQB4 UniRef90_UPIO0047EA1E7 UniRef90-A0A023MVC5 UniRef90 J1SN75 UniRef90-F4HAB1 UniRef90-E5YAY7 UniRef90 TOVGI6 UniRef90 ${ }^{18 W K M 2}$ UniRef90_UP1000225F09A UniRef90-Q21B96 UniRef90 10G143 UniRef90-Q0ALRO
UniRef90_Е8хм67


ATNVAEV EARGGRVIT TGPAGSGPTAAAVPपQVLARTMA AGTVALAERVTGAGASAFTVGGGTALSLIVPGQLLTEALA DQRALKFTRRVTDKIITFDARYEDVSPLLSPFYWFAHTLS AGTLAFAQEMRTRGARVLLAATEDPFTLIQSFYVLAETLA ARSKSA QQQVKARGGRVVAITTAPDEELVVPLQLLSHHLA KKSLNAYQQVTARGGKPlVICNPSDEEFVIPLQLIAYWLA


EERAETF TTRFGSDLSGDDPADRGNLVPLDFFDTGAYKDA DSRALDFLNRFGAKVAVVDSKDYGLSSAV

EHपMDQVMSRHPKRVLRFNTAAK ALQLMEEYSTTSDFV PGTVALAERVSAAGAPVFGIGGGQALSLIVPAQLDTETLA DIA AKVRSLGGDVINVDEGGDIELVVPMQLLSLEVS
$\square E L V G L I Q E \square G A A S L V I S D G T A E S L I T C L V \square Q L F T Y Y \square A$ ERVSDLK
DTRADTFDDRПNAKTEVVDADDGLSTH■
DERVERFDKNYGKKYDIVDMK
VAVLEEMAALGGRTLTIVDVAFGSAFSEDAFGQILALGRS KKSLNAYQQVTARGGKPIVICNEG
LEAVDALADKQAAAFATSDRVTKDPLPLI VSFYAA

A QRALDFVRRHTDDVIVFDHRGEGLMTLFVPLEWFCYYLS PKVMSSIEQVTARSGRPIIIHLQGLDNVIDPLQLISYWLA DTRALNFLHKHAKKVEVIDAKELGLFSPILFYTILSEYRA AERADRFLEEYSGETFRVDSR
 AERVEKFAQEDTKNLLVIDTK

VVSTAERLVAQGADVFDTGAEVEGVAPLVA】AGFYAFEGA QAMGEVLPRLGERRADVVVV
$\square P Q \square K A T A E R \square A A Q G A D V F T T$ GPGLHPLVAPLVIAGFYDA ARDGKALIALRSNRWLQGGLDPWRALPSVLLAQLLAFHKS A GLLQLAEDMRQRGATVLLAAPADVLSLDPLLALQSFY LA NANGKQVFDLKARDLTL
PGMLSLLENLRGKGAHLLVASSE
EGLLALAEDMRQRGAQVLLAAPDDTAERDLPLQRASFYLA TERADNFVKQRTDNVIVIDYAA $\square S P F \square M F V P M E W \square C Y Y L S$
GERAQAFLKTYAARARTTDVAA
AGMLALAAEMRVRGARVLLAAPQDVVE
D AR $\nabla_{R}$
MERVVRFCQRYTERTMDYDAK
पKVAEEMKQ YGATVVITTAQAGADTAYLPYVQYNGYYTA AK SLINAYQQVIARAGRPI VICNPDDEEFV $P P L Q L D A Y W L A$ LGTDALVSDFRARGAKVLYAQGDYILPVVQILGVQSFYVS
TQRALKFVEKWKGTA VLDYADFAMFVMFVPLEWFCYYFS EKVISNLEVVQARGGRLI DIRLGQLDDLIIPLQLFAYHVA AGMLQLATEMRQRGAKVLLAAPDDVAERIQAFYVMAAQLA DARAMAFLQRFDTKLTVIDAKDHGLAS
$A A M R P V L P R \square T G A G A D V E T V E \square S P V L E \quad \square L P F Q Q \square A R H \square A$ DERVERFASKITDNLVVIDPKA

SHTRGNDKEVESRGAHTLVIVSQELLVAVIPTQLLAYFAT
DपMTALVDEVMTKNPKTT
E SNLEVLKTL

UniRef90 G9Y4G5

UniRef90 ${ }^{\text {R6YPHO }}$ UniRef90_D6Y6D4 UniRef90 C4LCZ1
UniRef90 L0J6P4 UniRef90_D2BEQ6 UniRef90_W6WAK7 UniRef90 N2JAS3
UniRef90 ${ }^{-}$GOUQI2
UniRef90_UPI0002DBF3B2
UniRef90 W3XPE1
UniRef90- U4TIZ5
UniRef90_-14VUV8
UniRef90_IOKKL4
UniRef90 A0A059FFG4
UniRef90-Q2CF70
UniRef90_U2VJ62
UniRef90-A3WPY1
UniRef90 UPI0003B453A6
UniRef90_Q1K305
UniRef90_UPI000346998C
UniRef90_G0ACL1
UniRef90 B1L6C6
UniRef90_C8WZZ9
UniRef90_F4XJ39
UniRef90 UPI0003B4D463
UniRef90_UPI000417AC4F
UniRef90_F4GQI8
UniRef90_E6HZV7
UniRef90 Q31IC4
UniRef90_UPI000467A938
UniRef90-_I01513
UniRef90 B2AU79
UniRef90-A0A011TWV6
UniRef90_W6M449
UniRef90 F3KWT5
UniRef90 X1FV84
UniRef90_K0WAS8
UniRef90-R7E0D3
UniRef90 E3CWS0
UniRef90_KOKT50
UniRef90_D5GYM9
UniRef90-A0A024GW94
UniRef90 U4QSP3
UniRef90_A0A031LT54
UniRef90_UPI0002884C67
UniRef90 S6BF2
UniRef90 - UPI00046A61FB
UniRef90_UPI000225C153
UniRef90-UPI0003B66CE0
UniRef90 D8JTD7
UniRef90_UPI0003633963
UniRef90_A4XB39
UniRef90 K0UX23
UniRef90-I2GSB8
UniRef90_A1B4W9
UniRef90_K2K3J0
UniRef90 UPI000474BA61
UniRef90_UPI00041116E3
UniRef90_D7BHJ4
UniRef90_R9ZIT5
UniRef90 Q8X84
UniRef90_UPI00036CA0C8
UniRef90_W6K3T0
UniRef90 R0FZ81
UniRef90-I1XGW4
UniRef90-H8L4Z8
UniRef90 UPI000255ECCA
UniRef90 UPI0003777074
UniRef90_V5BX90
UniRef90-H3SAU8
UniRef90_A0A022TFU1
UniRef90- Q21G81
UniRef90_UPI0003B73001
UniRef90_R6GEA9
UniRef90 G9ZC93
UniRef90_J3D184
UniRef90_U5ZFE6
UniRef90_E7GZS
UniRef90-I2NQB
UniRef90_UPI00047EA1E7 VA R GEN P
UniRef90_A0A023MVC5
UniRef90 J1SN75
UniRef90_F4HAB1
UniRef90_E5YAY
UniRef90-T0VGI6
UniRef90-I8WKM2
UniRef90_UPI000225F09A
UniRef90_Q21B96
UniRef90 I0Gl43
UniRef90_Q0ALR0
UniRef90_E8XM67
VGEGLN

1 VRDHNPDD
L LKGTD

LQRGYD

SMKGCD
RRLG】DP
LALGRD
RRLG $\square \mathrm{DP}$
VLR
KARGCNPDQPR YLKK
QCRGLN
IAARGQDPDAPRSLAK
VMEGLN
LLR G F N P DVP P H L N K

D L R G

FEHEEDATPVG 1 DDLLKA
RR L G Y N P D R R H L S K
$1 \frac{A R G G L D P}{L}$
LERGTNP
$\square \mathrm{AK}$ G $L$ NPDRPEHLD
RHRGLD P

VARGMDPDQPRHLSK
LHKDHNP
VNRGDD
K L

EARGLNPDTPRHLTR

RRRGFDPDTPPHLRK

RRRGFDPDTPPHLRK
LAA LG $\square$ NPCPTGEVNR
EARGMDPDQPRHLSK

EARGMDPDQPRHLSK
$\square$ YKDHNPDE

VTRGLNPDDPRNLTQF
LARGYNPDEPPHLNKVTETL

VARGMDPDKPRHLSK

QA $\square$ DVLKNEAKGILEVAANLDHQFEKAVDLI CRSKGRLV

 | R S | $V$ |
| :--- | :--- | :--- |
| E R | V | EVLQCELKGDEALIEALGSNSSAVVAEAFPRADKDGRII NA L L K LI D Y LDD G DFV A C V E HVLNSKGRVV $S G M L P Q V A S S A R Q V R E S A A L A R E V G V D S L A A D G R P A R A V L$


 VR D T K ALL L V T E S L Q Q A V DA L E K A N R L
SVFEMEDEELRGVLSRDDDNFNKAVDLMSQALDRGNKIV MK TMLD YI NE EQEALEN ILH CFDVTKDDVKHVKHCL SAIIKKEFLAHQETVIDETMQE PLEKASKIAVETLKNGNKIL
 AMRSEDAQQPEALLRRTMA ELAPDLRPE\|EALDGRRTK QVL
 $\square K E \square M E$ Q P E AVVLD S L GYG S R L C L EK S E DML L L S DK HL V S R MLLE E AR A C A D V V V E R Q L A L $\square E D Y M K$

T NMRREDDE $\quad$ PP EA A A R LLLERATRRAQAGAALRAKDPAF LV S IM F QEI QEEPVALRECI E QNQVMVKFAEEIRRSKNPSYYV

SFMRKETIEASAVVSRLLTEEAATVAEDKRLYEERKPRVY
$S$ V I R L N I F A A L A L


MAEELURS QPE T WE R T L S S L
T NMRKEDNEDPEAAARLLENSASAITAAGRALRERDPQF MQK E I YE QPNTMRGRIN FDQH
S N M L K E A Lle S A E TVVA A Q L T D T S R R V E A L
ME T M L D Y I N E E Q E T L L
KVLQNEADSVKKLIDYIDEDFENCVREIFVSKGRVV
G I L E E L S R TVQA VD E A S M N A L I A Q I VR A D R IL $A \square A N R G G W L D V P A A M L G E I D E T F T A D Q E D D R G A Q F E R A L$ M Q D Y I Y E E K EVLS T I L K K N D F S T

REVAKTVSALGGKRDAF LRPLLDRRDRRIV
REVAK TVSALGGKRDAF LRP P L LD R R D R R V V V
$M L K D E S E F V R Q \prod A S A V A L R P R \square E E L V D R L V D Q G F D N L E$ $L T E \square C E S P S A L L G T A R T L G E Q T D K F E R V R L L G G R R L V$
 MD Y Y $\square R S E Q S V Y E N \square \square R S R K D L L Q K V I Q M E K \square D Y \square V$ QALQELI PQVDDNFAAAVAMMYACKGKI I
 TQYLGE ILQQELN RTADFIADEEAEKLVNGULQAKKIG EDYMN ETPLRLLEEMLTQTREDAQALTERGVT R I LK QVMS A EA HVIQRKMSEEIDYDVLCRIAEDENSKKV I


## NE L N Q TVHLIRDSEAEKLINQ LIESKK DF

$\square L$ NE $\square$ Q S H L Q T A QKMSS L VD S $\square$ QEA A A $\square$ T T LQ N G GK L L $R R G E R V A$ $M Y L N S E E F F Q K A D N E L D H V T Q Q A E D L K K H E V K Q I F$
 LLY R E I Y G Q G D MV L E Y L D Y E R QVE A V
 SMMVQKLLNSMSVLMETNALLNEDTVEALVDKMISAKRIG

K VFQGADNALDATRALLKDQDLADAIKLIMNAHTLS

MS R QVES LP ELMEQQYDLEPK TRKVLSFQE DYN NQRIV
EKE $\square K A Q P R \square W N E T F S L L V E T K K D \prod A \square L Q L K D \square R \square I$ S WDR SLQQQ

 Q 1 G S A V SL RP QIE S YV D QL LA G G DD N I L

MQK L NL GL T DNF DK IAAS QL DHQALK QAVNLI NSAQA IVY

| UniRef90_K2IVM7 <br> UniRef90-R7LTW9 <br> UniRef90-V4QSP1 <br> UniRef90-UPIO0047E7CDB <br> UniRef90_UPIO0036F9EFA <br> UniRef90-A311D9 UniRef90- F8AYT7 <br> UniRef90-UPIO0037AA903 <br> UniRef90-UPIO002898196 <br> UniRef90-A3PNK0 <br> UniRef90_UPIO0039434D4 <br> UniRef90_Q15N66 <br> UniRef90-R2TDX6 <br> UniRef90-A8EVR5 UniRef90 HOKAH9 <br> UniRef90-A0A023V6L2 <br> UniRef90-UPIO0034L2625 UniRef90-B4SCS <br> UniRef90-UPI000464845F <br> UniRef90-X6N6KO <br> UniRef90-Q115L9 <br> UniRet90_C4F9G9 UniRef90_G2TQW5 <br> UniRef90_E6SI63 <br> UniRef90-F6BU63 <br> UniRef90-R6NAE4 UniRef90 C5ELR3 <br> UniRef90-UPIOOO466BE66 <br> UniRef90-D9QLY5 <br> UniRef90-UPIO0037A502F UniRef90-J8SBS5 <br> UniRef90-J8SBS5 <br>  <br> UniRef90-A0A021WXH9 <br> UniRef90-K5WGJ3 <br> UniRef90_B2SXE2 UniRef90_UPIO00421CA36 <br> UniRef90-R2SXD2 UniRef90_R6ZR15 |  |
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VTGMGKSGHIJARKTAATLASTGTPSHFVSHGDLGMIIGSD ${ }^{60}$ VSGDGKSGDVGQKIVATLNSTGTRADFLHHGDLGIVGPKD LVASGSSYHCARYAAELFSSTSDYSSEFLLEDTVAHSDND VVGCGTSWFMAMAYAALREAAGAGTDAFAASEVPRGRRYD VSGMGKSGH!GAK AATLASTGAPASFVSHGDLGMMSQKD I TGVGKSATI AQKVVATLNSTGTPAMFMIGGGDLGMUQEDD VAGTGTSAAVGDALAAVAGS RCPVPVLGHNGFGLPGWVD VIGSGGTGAMMYPYEYMLKSTSTVEVHAEMNNRHLSKDS FIGGGGSGLSADEAGYKFNRDGFDANSFNEKHTMYTKPDD MIGRGSSDHAGVVFAKYLLETEDGDPVMVGGDYHKNHQSA LLATGSSYNACLSAKYYLEQTAPVYIEVEEPFNFDSKGD FAARGSSGHAALVGKYLVEQLGLPAGAVSLYGADPDLRDVV
FASVGGSIDAMMATNEFAKETGLVYILINKGNKRLNKDS FASVGGSLAPMMATNEFAKETGLPVYTLTHKGNKRLNKDS ISGMGKSGIIAQKIAATMSSTGSTALFLHHGDLGIVGHTD $V V G V G K S G H V G Q K I A A T L A S T G A P S V V L F H G D L G L A C E G D$
$M V G C G T S Y H A A L Y A Q R L M K Y L N A B E T V S V E D A A E V T V D T$ TVARGSSDHAASYFAYI AMQQSAPMSVVTLQQAPLRVRGQ LLGDGGTYDELDMVRKYMKKYSEVEVHLVNAANRLKKDS FVGCGSSHYLALYGAHLAQQLAKRPGAAVTASHLWPWSNP TIARGSSDHAALFEK YADELTTGRPVASLGSLASDYGAD AAAGTSCNAAKFAKYVFETYGDPVMIAAPSVLTKYGSNT
UVAHGSSYNASVVMSDFLSYYTPANFMHNSSCEDKKC
 VTG|GKSGHVGGKVAATLASTGTNAFFMSHGDLGMLRHDT
 UniRef90_L8JRO3 UniRef90_UPIO00477B321 UniRef90-D1C7X8 UniRef90-H8L9F3 UniRef90-D9VADO UniRef90-UPI00037D3387 UniRef90-UP10003ACFEC UniRef90-UPI0003810D55 UniRef90-F8JJ38 UniRef90-DOWLJ7 UniRef90-X1HAT2 UniRef90_C8RWZ3 UniRef90-F8DG95 UniRef90-TOYY82 UniRef90-S5LC42 UniRef90-EONPU5 UniRef90-A0A024J1Z2 UniRef90-E3ID96 UniRef90_UPIO0036C71F0 UniRef90-H7E7E7 UniRef90-UPIOOO4725888 UniRef90-A8F9D9 UniRef90-UPIO0046FD564 UniRef90-UPI0003B537A0 UniRef90-UPIO004670FBO UniRef90 J8TP91 UniRef90-UPIO004108C2C UniRef90-C5ZV83 UniRef90-UPI000466E2B4 UniRef90-D2EJ19 UniRef90-K6XEZ8 UniRef90-G5IIEB9 UniRef90-G5IJJ9 UniRef90-UPIO0041F3D69 UniRef90-R5YEC5 UniRef90 UPIO00474BCFC UniRef90-A3TIB2 UniRef90-R9K199 UniRef90_UPIO00362DB71 UniRef90-F3PYB2 UniRef90-K2OKI3 UniRef90-S3J7A1 UniRef90-AOAO37ZIBO UniRef90-ROENX6 UniRef90-UPIOOO3B40275 UniRef90-G7VEW7 UniRef90-17KKS5 UniRef90_UPIO00369CD81




LLIS F A R S GNS P E S LIEA A S L LD Q H NAYH LIITTCNNFDTKN $L L V S F A R S G N S P E S M A A D D L V N Q Q P R H H L M I T C N G S M Y R N$



UniRef90 K2IVM7 UniRef90_A8ZTY1
UniRet90_R7LTW9 UniRef90-V4QSP1 UniRef90_UP100047E7CDB UniRef90-UP100036F9EFA UniRef90-A311D9
UniRef90-F8AYT7 UniRef90-UPIIOOO37AA903 UniRef90_UPIOOO2898196 UniRef90-A3PNK0
 SDIVINVPLGLAPTTSTTALLMAMGDALA
 GAAAESVVLDFADERSVVQTRCATTTLALLRAHLGHDLGD ADCLLLLPPATEACGATRAPTTSTTMULALGDALAVDEAK LLFLPAPVADGRPTRAEGPEAVEAAAVRLEDLAVRCRPASE AGDNAVYEESVCATKSFTASLAAFLMLANELSNKNDNTSA SDVALLLPPAPEACGNGIVPTSSTTMTGALGQALAVALME QAADYVLPMGAGAATKSYDASLSALLQLCAYWNNNTALLD SDUVEACPGNLAPTSSTTAMLVMGDALAA
DETVGFVTKGYSATVLNDMLLGLSMAYQNKEDGTETDQNE SAAEMVLD DGAGPERAVAATKTYTASLLADSLLVSDRDGE AGNEVSVPATKTYTTQLAALAVLALGLGADLDTSDDDLDE QKADITLDTGLAKEACPYDLTTSTTAMLAMGDALALALMQ ADTVLDVPHNLAPTSSTTAMLALAMVLLEKRGFQKEDFAR


 AKFHLNCCAGLEKSTQLAAQLSGEPQLLDLVKRLPRDAAA ADRCLYLGCGNAKTKGYSSTLLALMMIFGLQYGLSHGKLEQ

 READLLLPTHAPEDGVASTKAFTCQLA
SNDVI ALDFADERSVVQTRFCTSTIALLRSWAGGAEALGT AEVVVAYQAHYTTGAKIDALYMLLSGLLAQRGDVDLVADD CSHSLDDSAGPAATKSYVNSIVAGLAVLAEWTG DTDLDR THCGVHINAGPEDGVASTKLSEDRASMAERRKQIDDLIKR ELD LVAGPELSVAATKSYVAMLSHSAQLVAHWQKDAELGA UETVGFVTKGYLATVLNLMLLGLRDELLALKKADSQUNLV ADFVEACPNNGAPTTSTAALLAGDALA

MCFGSKELDAW
AHTUIQVPAASKENTSTARAT DQPMGALFEQSLLIIFDAD FRHTFLNPPEDGGRYSALSYF GLVPELLERVGPMADRDAD LEAAQVDDDGAGVESVGFVTKGYSATVLQLLLLGDGKISK EQADEVVELSFADEQSVVQTRFATSTLALLRAGLGDDUGQ HMPAAANDQGFAMTSSFTCMVLGVLLVLGDGTADEATAAE ADEESVVQTRFATTALAFLRAGLGPVAGLKPVAEAARDAE AAVSDDLGAGDEPSSKTYVSTMLAMHVLAEVLTGGEPVAS SAHCLALQAGVAATKTFVTSVLAGLS MLAEWBDLPAALEEL GF TEVLPAAPLPRDSAILPLLEVVDLIYAHFLNKSREQK KESTRADDLGMGDEEMPYVTLGYSATTLMELALLQEKMLE STDHRKVPLNDAPTSSTTAALTMGDALA
RGADVVVPLEAGPETKSFDAAAVAGAALTAGWTGDQELVA ADVTVKLPGSPKDQADNGYKTVQPMGSLFEQTLLLEYDAV ADYILTVPCGEETATVLNLMLLALAVAGRQQRLDGEQRRS ADITLKIAVEREPDKWGIISSASTLAFITSAFDAIAFSVME A LCDVHLSTSGSNEAPFRS AAATSRMAQLDYL A VLFMS FWKDFYGEKQDGGRFSVLSNFGLVPAAAAESALRSVKSAS HVLVNWADDETAGESUDIQLLLLATALLNRRGEFDARLAD ADAVIKKPGATKDQSKSEYKTIQPMGSLFEQTMLLFYDAL
PYAREEVVFDFADEVSVVQTRFATTALDWFRHSLGHDIEA
 TLDFADEESVVQTRFATTALLLLRAHLEAEGALPPRPWER CMPEETNDKSFAMTSSFSSMMLSALYVFCKQMASADKATS ADIVLALHAGEEKSVAATKSFDASVAALSGVVANDVRDKD RVNTPDFPEPGPGLRNYYASVLGLFGLAAAMGEAKGTCPE ELPWAFDHSVCQTRTVTNLYAANLLEAAFLAGDEDLIIDE DIVFQSVAEEVNYRSESMSSLI AQLTIMD
A EL H DVRAGHETATLLTLWLLVDAWSDRRQVDGPGLVAA KGLKLNIPALLADRFGEVRHQYTMDQAMDYRMDGRRELLR P $\square Y S \square Q \square P E E T N D K S L A M T S S F T A M R L V E L K N M P L Y U K D$ ALPAETHDRGFAMTSSITTMMASCLAVVFAPDII INSSSFQD GTDVLHVRAGPAATKSYVNSVLAGLWVIGHWAGLPARLQA QKVGKAFIDQPKTWPFDMQMLLLIGC LNQRGEFGDYNAE ADIVVFVPGRTKVASMDDYFARQULGMNQRGEFGDYNLEE
AQADLVLPGGLGEERPVATGTYTTSLAADLDRVPDLMGR

UniRef90 K2IVM7 UniRef90-A8ZTY1
UniRef90_R7LTW9 UniRef90 V4QSP1 UniRef90 UPI00047E7CDB UniRef90_UPIO0036F9EFA UniRef90-A311D9
UniRef90 F8AYT7
UniRef90 UPI00037AA903 UniRef90-UPI0002898196 UniRef90-A3PNK0
UniRef90 UPI00039434D4
UniRef90-Q15N66
UniRef90_B2UNZ1
UniRef90-R2TDX6 UniRef90_A8EVR5 UniRef90-HOKAH9 UniRef90-A0A023V6L2 UniRef90_UPI00034D2625 UniRef90 B4SCS8 UniRef90-UPI000464845F UniRef90-X6N6K0 UniRef90 Q115L9 UniRef90_C4F9G9 UniRef90-G2TQW5 UniRef90 E6SI63 UniRef90-F6BU63 UniRef90_R6NAE4 UniRef90 UPI000466BE66 UniRef90-D9QLY5 UniRef90-M1QH69 UniRef90 UPI00037A502F UniRef90-J8SBS5 UniRef90-K9AQG8 UniRef90_H012M7 UniRef90_A0A021WXH9 UniRef90-K5WGJ3 UniRef90-B2SXE2 UniRef90-UPI000421CA36 UniRef90-R2SXD2 UniRef90-R6ZR15 UniRef90_L8JRO3
UniRef90_UPIO00477B321
UniRef90_D1C7X8
UniRef90-H8L9F3
UniRef90-D9VAD0
UniRef90_UPI00037D3387
UniRef90-UPI0003ACF7EC
UniRef90-UPI0003810D55
UniRef90- F8JJ38
UniRef90-DOWLJ7
UniRef90 X1HAT2
UniRef90-C8RWZ3
UniRef90-F8DG95
UniRef90-TOYY82
UniRef90_S5LC42
UniRef90-EONPU5
UniRef90-A0A024J1Z2
UniRef90-E3ID96
UniRef90_UPI00036C71F0
UniRef90_H7E7E7
UniRef90_UPIOOO4725888
UniRef90 A8F9D9
UniRef90-UPI00046FD564
UniRef90_UPI0003B537A0
UniRef90_UPI0004670FB0
UniRef90- J8TP91
UniRef90_UPI0004108C2C
UniRef90_C5ZV83
UniRef90-UPI000466E2B4
UniRef90_D2EJ19
UniRef90_K6XEZ8
UniRef90_G5IEB9
UniRef90-M3KFC9
UniRef90_G5IJJ9
UniRef90_UPI00041F3D69
UniRef90-R5YEC5
UniRef90 UPI000474BCFC
UniRef90_A3TIB2
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UniRef90_UPI000362DB71
UniRef90-F3PYB2
UniRef90-K2QK13
UniRef90-S3J7A1
UniRef90-AOA037ZIB0
UniRef90-ROENX6
UniRef90_UPI0003B40275
UniRef90_G7VEW7
UniRef90-17KKS5
UniRef90_UPI000369CD81

VLHPGGKRLTKVRALMHEDMPLVTAETPMRDT
SFDSKSFELDKQLARFKYKNVVMTADGQSYALAKEASLK ALKTLPAQLKAAFA LDWANNLFVIGRGYGFAVAQEAALKL VI DDAEKALAEPLDAWTGEQISFVGRGWTVGLAHEAALKL

TFDSPAKVLADELA GS DPLLWGTTALTAAAASRAAQL IIDDEQEEQDASLASHYASNLVVLGTGLSYSAADETAGKLC GMVQAMEKFAEQFATHHKDTHMLVGAGNLDWGNTYSYAMCLL HRQFTPEHF
TLKHCFENVKSSK
$S L T N L P D A L E Q V L A Q P A Q L T P D M L G R G F G Y A \square S R E M A L K L$
$L L I E Q \square K S V \square K K T S D F W G S R F \square A \square G Y G P N V G T A K E F E T K F$
LAQRCDDDNAERVDAAAHRDRF VTTARGYS DASAAETKL QLETLPEHLADQUASRYHDYMMWVGGAEMWGEVYLFSMCL $A P S E P L D E I V E R M A A T Q G A V V G G R G T V L S T A L E T A L K L$ VKNFTQRDFA

AMDKTVEKVAE $\square$ FAEKHHT L F $\quad$ GGRGAQYP VAMEGA $\square K \square$ LLQLMGIGEVDNTAMLGRH
NPGLWLGAALGGLALAGGDKLTEVFEPALERLADWLEQLI KDEQDYMQQLRKI DNHLPADI QT GYGPNWGTAKEAETKL LAAAGAEAGAEPVDDLDAEQVTFDGRGPAVGLAFEAADKT
R

 ILSSAQEADGRRDADESQQADMVLGRGVADATAELNALVL


$A \square R N \square P D A \square A K A \square D A D W S D S L Y V L G R G P A Y A V A Q E A A L K S$ ILRCMEKK
AYEPKAEAFARVLAGAEYHD DT GA GNVWPQAYYGMCIL LLLRMEKTFNHALALDRDSAD $\square R L T G P A T L F G T V Q E G A L K M$ KTGYTKEEFY
L A SRQYEETAQY DDKTRHA
ASTPPAQNTALQLTKFGRDKVT I IASPADYDLGAWLEQLL ELGDLTAALAAAFAERHAETEYHFGAGNLWGFTYYSMCIL ALDGLPDALRAAWAQDWSPLVFVLGRGLGLGVAQEAALKF ILRFMKKK
AAAHCEEALVYA $\square$ PDRWADQ $\square$ T F $\square G M G W T \square G \square A N E A G L K C$
AVEDAERALVLPLGERAAEQFSFLGTGWTYGLALEAALKM ELTNKKEQLVKAGAQ\|VEGDEMWVGSGRDWGEVCCYANYLL SLLNTYNLMLKSVAMKKYSRVVFLGSGGFRGLAQEGALKL GLDETVKRIAKQAVN SSLYVVTGHGVNLATARFAVAKLD GLSRLPEALAAEDLLVEAKSLFTGGRGTAYADS LEAALKA GAMAELMEKVRELAKEYGERLEEDDGGQMFALLAGRWK AYMERVEDSI RRVSDFNWTNVVLLADGELQGMAAEGADAL NNQKTSQS II DKM

A EAAVSDDGVAQVAGHYRFVEKDVLTGRGYPTAREAALKLD TLLPEMKTVCQAVAEEWQGFPCFVGSGFDYAAAWFGQAKI LMAELEQVLADDAATHEFSRTVFLGMGAFGGLALEACLKL

 QMSRPDAALADMLGSTAGRAFVVGRGPVLGIAQEVALKMM D IA A I EEKFAQEFAQQHHDDIHYFVGAGNQWGATYSYAMCW NLPDALVAVAEKAANKDTDYHFLIGGGPLWGFTYLYSMCL $T A M V V L D A V \frac{1}{1} A D L M K R \square G K N E A E L A K R H$

UniRef90 K2IVM7 UniRef90－A8ZTY1 UniRef90－B7LTW9 UniRef90＿V4QSP1 UniRet90＿UPI00047E7CDB UniRef90－UPIO0036F9EFA UniRef90－A311D9 UniRef90 F8AYT7 UniRef90 UPI00037AA903 UniRef90＿UPIOOO2898196 UniRef90 A3PNK0 UniRef90 UPI00039434D4 UniRef90－Q15N66 UniRef90－B2UNZ1 UniRef90－R2TDX6 UniRef90－A8EVR5 UniRef90－HоКАН9 UniRef90－A0A023V6L2 UniRef90 UPIO0034D2625 UniRef $90^{-}$B4SCS8 UniRef90＿UPI000464845F UniRef90 ${ }^{-}$X6N6KO UniRef90 Q115L9 UniRef90－C4F9G9 UniRef90－G2TQW5 UniRef90 E6SI63 UniRef90－F6BU63 UniRefoto 6 RNAE4 UniRef90 C5ELR3 UniRef90－UPIO00466BE66 UniRef90－D9QLY5 UniRef90－M1QH69 UniRef90 UPI00037A502F UniRef90－J8SBS5 UniRef90－K9AQG8 UniRef90＿Hol2M7 UniRef90 A0A021WXH9 UniRef90－K5WG．J3 UniRef90－B2SXE2 UniRef90 UPIOOO421CA36 UniRef90－R2SXD2 UniRef90－R6ZR15 UniRef90－L8JR03 UniRef90 U2ZSG8 UniRef90－UPIOO0477B321 UniRef90－D1C7X8 UniRef90 H8L9F3 UniRef90－DgVADO UniRef90－UPI00037D3387 UniRef90－UPIO003ACF7EC UniRef90 UPIO003810D55 UniRef90－ F 8JJ38 UniRef90－DoWLJ7 UniRef90 X1HAT2 UniRef90＿C8RWZ3 UniRef90－F8DG95 UniRef90－TOYY82 UniRef90 S5LC42 UniRef90－EONPU5 UniRef90－A0A024J1Z2 UniRef90 E31D96 UniRef90 UPI00036C71F0 UniRef90－H7E7E7 UniRef90＿UPI0004725888 UniRef90 A8F9D9 UniRef90 UPIO0046FD564 UniRef90＿UPIOоо3B537A0 UniRef90＿UPI0004670FB0 UniRef90 J8TP91 UniRef90＿UPI0004108C2C UniRef90－C5zV83

AE $\square$ AK GFGVVVGVVDA Q G H
220

KETS Y $\square$ NTSSSA $\square L G E F M H G H V A V L N N N N E V L V Y D N L T Y T A$ K ETCALHAEAFSSAEVKHGPMAIVNDGFPVLAFATSDAAG RESAQFWAEAYPAMDYRHGP $\square S \| A E Q G R L V W S F G P P P S G L$

A ANAGYPALLGTLPDSASLQAADGGPAEDFFRDDDGAEPV KESCYISAWGMS SVDFDHGPDASNMFPDIVLAPNDETDQV EEMQWIKSKSDHAAEFFHGELVEDDTSVI IFFKEDETRPL

KEVLA $\square$ HCEAFSSAEFMHGPSAMLANQLHVIDVQVEDETT TETVR T P S QGFE LEAYMHGPYADRTHSLFF LENDNVLNKR

AETSY LVTRSYSGADLLHGPDAAVGSDTVVLAFCGGGPGG EEMQWKRTRPVTSAEFFHGALELLEKDVPLLLVKGECRASL KEACYLHAMGLSTADLLHGPIVLGSHTPTLLMAAPSGPVL

KEПTYMHAEGYSGGA面HGPFAMTEEGTPVTMIILDDAHA K ETSVVIQAEAFSSAEVRHGPMALIDAHYPLLVFAPR GVEQ

 KETSGMHAEAYSAAEVLHGPVALVGHRFPVLV
 METMCI PTMFNDI E EFSHGMSINETSSVILLDNTDNDYTTG KETCG』HAEAFSLAE凹MHGP $\square R L V H S G F P V L A F L N E D D A F$

KETTG $\square H A E A Y S A A E V L H G P V A \square V G P R F P V L A L A A R D L S E$
RESAQTWTESYSSMEYRHGP IDADAPGRVTWQYGEAPDGL MEMQW $\square$ NS QA $\square H$ A NEFFH GEVVDRSACF A ALGGCDGTRR』 KETSGMHAEAYSSAEVLHGPVALVGPSFPVI




K E $\square$ S Y $\square$ H A E A Y P A GE L K H GP L A L VD A D MP VVT VAPN NE L L
AESTG IPPVAHEPLASAGD YGADRVFVGLDLVPQPHPQ TETIVRVPSQGFELEAYMHGPYLEADASHLLFFIEGESVNK REAAQFWAESYPAMDYRHGP DA $\square$ A QP GRLLVWSLGPAPAGL VEACGLPAFA QDLEE WWHVERFAFP GDSPLLVVLAPP GRS H L E LAA A VVTHAES PLDAFRHGPAVLNDRTLAVVVYVNDAY T R REAA GAWTESYPAMEYRHGPDSI TGPGRVAWVFGEDPP G

 KETCGLHAEAYSAAEVLHGPAAIVQARFPVLAL GVADAA
$K E \square S Y \square H A E A Y P A G E \square K H G P L A L V D S D M P V I A V A P N N V L L$ TET】R T T A F GKELEEYMHGPY LGEQDY I IGLEPQGLLEDR

KEVAA $\square$ HAEAFSSAEVMHGPLRLVQNGFPVLALLPE
 LE T L R CP VS GYEF E E F DHG $\square Y N A F N A Q S A L I M L D P Q P D A R$
 E E MQWLHTTRVVHGAEFFHGSLEVIDKDTVVFVGEDETRPD K E T C GL HA EA YSAA EVRHGPLVGPGFPVLVFAQPDET GAG

REAS QS WTETYSAMEYRHGP $\square$ S $\square$ A QP GR LT WMF GP L P A G L
 MEDQRDKAQAVHSNEFFHGEIIDDEHQSVNVVVNSDSNREH



TE $\square$ AK TQAHAYHLLDVRHGPMVG】EHQRNLLRD $\square$ KERGAT

METSY L A A HAFS GAD LLLHGP LAAMVDSERPVLALVPHGVAG LEAT GKFAMH $\square$ NTEEWFH
KEMTCTWTEAYGTDEFRHGP\IEPGSQVVLMLSESAREFE KEISY I HAEGYPAAEMKHGPIALVDSEMPTVVIAPTDCSGY
 LVVCGVHAS GYSSAEVWHGPVI GPDMPVI ALSPS D


TKNDNKDKESYNPPDCVIGNRTNQVKS
$D G V R E V A Q E F A G R G A S V M L A N V E A V A G T \| A L P A L A S Y R L A$ AADVAAT GAGFVTSDL DPMAHLVVAQRLAVAVA
$R L R L V L L R D Q A A E H P T V L S A Q G A S R D E R L A S L D Y T S V Y L A$ SLNVINRVKQVGAHVLVI SDSEDALFSEVTFAQLFAFHLA AERVERFAKKITNELLILDTK

## D V H S N Q $\square$ H T F A Q Q G GR V V S $\square$

$S Q A \square K N Y \square E E Y \square A A G Y T \square T$ T R A K S P LLLVIP F Q Y $\square A Y Q \square A$
$T T M S D V L D Q V S R R G V P A \square D E D \square A P V L E \quad \square L P \square Q R \square A W R \square A$ DERVERFAA Q!TDNLVVID
GGTVSLAERARLADSPVFGFGGGQALALIVPAQLLTESLA

KTM\TNAHEDESRGGK\IQQPSNGCDTALIPMQLLAYEDS A GLLQLAADMRQRGAQVLLAAPADIAALDPLLAIQSFYLA DNRAEVFCKQYTDKLAVID

ETLINVLSDWTNHIYVIGKNGRETYEY IIPDQLICAYVP

ENTCEMDKRLKNQRCDVCVITNKQEDADLAGGQLFACELS S Y LM N T T RVLGG KVLKLDYYPQSVLVLTMADQVLSVYIP ADVLTIGAERTQHKTUGUTPTGHGLIDDPLVGLGAYYVA

D S V VEVADCLKGKGAVV
$K D Q V E A T G A R F V S D R D P D A E L V R \square H A D A L T K A$ EERARDF LLLRFGDRDNVMVLDARGLFAPLIFFDVLAYRDA

PKVQSSCQLSFSLTFDPSHSDLSSHFSFL
A GLLQLARDMKARGARVL
ESVLKMAAEFRGLGANVLDAGAPGV
SKALKNY LRNDVGNCYTUTTEAKSPLLLVIPFQY $\square A Y Q \square A$ MDRAEKFVHRVSAKVTTFDTK
EK L K S N LQEVRARGGQLIVFADGDVLAP $\quad$ VY $\square Q L L S Y Y V A$
$T D A V L E A \square E T A G Q P V I R L R M R D Q D L G A E F L R W E F A T A V A G$ ERSQKLTKKARNEKTLGLATEYLSVLALVVPFQLFAYKTA ADDVART GARFVHHDLDD PLAALVVAQRFAVALA A RAVD VVVRE LGRRVVAVARHDDGAM
RYDLDLVEELRRS LDAPDGVAL
LAADVAGVGGTLVSSPGDPLADLI RAQRLAVTLA TDRAl AFARRVSDDVTVFDTRLEGUSERFRPL
DARLRGELEAKGASVTVV
EKMVSN DREVKARNGKVI AVATKGP LLAVIPDQLLAYH $\square$ A $\square P Q L 1$ A TAEKLAA AGADVFLTGGQ
$D K L K S N L Q E V R A R G G E \square Y V I A G G E M D A L T V P L Q L L A Y H V A$ AEKLKQFLQGHVKK $\square R T F Y A D A G G P L F M T I P V H L L S F E I S$

DAAADVGRAGLDR $\square$ AAAGGRVFS
A DRVENFAPEYTDRLTVLD


QEKADAA LAAAGEPVVTDDDADKD DAQAFFHWEYATAVAG MERVCRFTERYNENTTVID
$T \square A B A R E F G E R G A R V W \square A G E G$
DTQVEAT GAELVTSQWD PMAHLVLAQRVAVARA
$\square A R V G G \square L A S A S D D T P T \quad G L D P \square A D L I V A Q R \square A V H \square A$ DLRVVDFVKNFAKDPLIIDMNS YD L ELLAE LQKD
 ETSLQALSRL

RAMGPVLER $\square R$ R RGA
LKVAREMKGYGATVVIITAEARSVLYL PWDQYNGYYTA DKI IS NVRQVKARGGTVVADITKGPLVVSVPLQLLAYYDA FRYEKDLAEDDARDARKITITDEPTLELTLVGQLLGLHKS Y D LDDLLAE LRRDRL

D A AEKARA LGATVVE GPHDGSHPMLA GQLVVAYLA SERVAKFGPEDCGNYTIIDTKDYDLFSEKFRGTLSPVFHA TDRAEEFAKRISSNVEVFDTK

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पATQSAEDREWDAAKGDKRIV NMYDMDMDTPVALERVLNEEAEN IKKSDAVLSSRKKVY MRYDNLVIDKRLKESGDMKNKI AEEAYRNGKKVI EARQAL QEAERQLDPAQLVKAAELIAKARQVT S W DRALKNLENQRDGDDAFLAPLLQQSDLQQ V S WMRREAEEAPGVVERLLRENEGEVRGLAAALKRRPPALV MD DA NALHEHUEVAQAYQEHANEDALQRGRK I L
MTTYKNFATT\|LNELGHTLYAVDEKAAEAFAGAKEVF EY $\square M K \square L N E L N R S A S F \square A D D E A D K L A D H \| L S S N Q I F$

 MHQEAGEAGAVVRRQ | VERNPAMKA $\operatorname{L} G E R \square R A D R P T V V A$ |
| :--- | E $\square E Q Q P E M L R Q T Q S L L V A Q Q K E F L A P L L A R K V R I V$ $A$ A K ETVD ILEEETDQKVVECDESAETVVE A L HATRDSLDARFA QVVSLLHQTLARGNKLI

MEEELVSQPVVWQRAVEQARSEDLLPA

LGALEDVLAQAADDWVEALRNGNKVI $K E \square S Q Q P Q M W Q E T A Q L V A S I K L L E L A P F L D D P D Q V I$ $S Q Y \square D K H D A A D E A D L R A D E P A V E A G A R R G S A A L N R G N K I L$ FRDIAE G ILLQTEA AVDE TVFNESAELI KNSTMVV $M K T M L D Y I N E E Q A A L T Q I D N Q F Q L T D T V D V S K V T H C L$ EVRLGWVDAMTTSLPVVPQWLALRDELRAEGVDRDV

$S N \square M D T \square R$

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UniRef90 E0RKZ6 UniRef90-F8FQH6 UniRef90_G519W8 UniRef90_UPI0003B716E8 UniRef90-UPIO003703296 UniRef90-UPI00047925B5 UniRef90_A2RL41 UniRef90_UPI0003B49F32 UniRef90_B6GED2 UniRef90_D7V075 UniRef90-E7G942 UniRef90-R5ABR5 UniRef90-G6F1I1 UniRef90-A0A010YUQ2 UniRef90-G8PPY7 UniRef90_UPIO0046E6DB9 UniRef90-X6D4W8 UniRef90_F5LLC3 UniRef90_UPIO0036AE763 UniRef90-L9KVM5 UniRef90_M3KEL6 UniRef90-FOZNZ9 UniRef90-D3L028 UniRef90-M5EZD7
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VVGVRRSFAVADYLVYNLLQHTNKRDHLDSREQMRSVRAND IVASGSSYHAAQCALAFMEKYMKSITPFAFTYYEELKENN VAGAGRSGFMDRSAAMRLMHMGVQAYVVGETVTPGLGEGD FI GIGKSGLIARKIAASLSSIGVSSFFLHEGDLGMLCKED VVGCGTSWFMAQSYAT LLRERSGHGTDAFAASEAQI DRDYD FIARGSSDNAAVYGGYLLMATLGSPSDATTYGARVDLSGV FMGIGGTY ASSLQVEVYMRGKSKLPIYVENAARRFTDKS
 VVGCGTS WFMAQSYA WLRESGGHGTDAFAASEAFPLRGYD $T Y G V G A S W L V A Q D I A Q K W L R A G K Q V V I V V L A M A F A A R K S G$
$\Pi C A S G A Q V E L A S V F K V K M M K D G K G V V V Y S H A E A C Y C E Q D S$
$I L L G M G G S S L G P E V L A E T F V L D S T D P Q Q V R A Y E K A V D L K K T$ FSGMGSSHYCAETASELLLKRGGDDNEVISAGGELYYDREGV LLGMGGSSDGPEVLAEVFGHQAGFPTLHVLDSTDPQQKT




FSGAGTSAF $\quad$ GQA LDASVADS LDNA $\square$ PTTDIVSNPPEMLSDD LIGGGGTSLHAAQNAHFYLRNUANSFEF SNPPFYLNKDDC LFGNGGSALVGKYLPAVALTTNTSSLTAIGNDYSFDQKGD IV F GLGGGSSSAAQETQYRLFRYGDTVPYLMRMTASTDKPGD LTGAGTSAFIGDIIAPWLSHHTGRNFVSVPTEYLSTDRPT LVARGSSDHAALYAKYLLEARRAPSVLTLYRARLLLDYPA | VAGNGGSALAAELIVVRYAEATTDASVVLTAAANAYGYEQKGD |
| :--- |
| $V V G C G T S W F M A Q V L R E T G G H G E T D A F A A S E F P A G R H Y D R ~$ | VVGCGTSWFMAQVLRETGGHGETDAFAASEFPAGRHYDR CAGCGRSGFQVKGFAMRLMHMGUNSYVVGETCTPNDDENG





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

 LVGVGNTS PVCDYCGFRLERDGDRCTYDALPEYYMNHPTD
 FCGNGGSALVGRFLPADALTVDTS LITAVGNDYGFDCAGD LCGNGGSAI AAEFLAAIALTTDSSILTAHSNDYHFDTDND


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| UniRef90-F8FQH6 |
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| UniRef90-UPI0003B2FD21 |









## S


 VAEFWRI F $Y G D S T R E K G V S$
$M G B G B$ $S V L$
 C D L N L V V P S S DT A RI Q E M HLLLI E H TICC

 A A QNENSLLLLLMM EETNDKGFAMTSSSFIRSWLSEIVN QGK

 ADHCLC C P S D DTPR DQEGH T I GHIIC ACDVRLTPDTDKPTASRFAFLAADDLMA AVKNDLMPPETHDRGFAMTS SDTTMMASCLLSVFAPEVINQ A EVVLPLYAGEATKSVLAMMAATAQLLAHLEEGLALREAL CDLVLHVPSDVTARVQEMHELTGHUWC
RA SVVVQTRATAN LALLRAHLEAEDALPAGVLPDDAAVRD HMADI TVPSPKSTKQGQFTSIQPMGSLFEQSGGLFLDSIV
 LMPPSSCDRGFAMTSSFSCMLLAALAVLGKADDLDAHLAD


 KIADVLVPKE T N R SAATNSLLAQFATI DII FYFYMAKNE



LLLPEPT LDDQSFAMTSSYSSMMVAAGQLFAADDGSVDKLQS DLAA D LAAVVIGVAETAH DQECHIMDGHMWCAH
ASAD YLLL LSALENGENGRMS QYSRMNEMAVMEALIDQAVAG


$M N S D V V F S L K I D N S T F F N S Y V V P M E L C N \square L T M S \square L E R N K E$ ATMMSIV VPPEQVTAARDQEAADLI GHWWC

F M T H Q S V P K R N R L R S R L M L F V A S E I I F
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IRDFSKEDFA
TS SVQYQENDERTRKWMEKNDY LVGKGQSMFVAQEGALKV ARAILGGDLDDELDDAEQYT FLGTGFGVGIAQEAALKM LERAPDAI EQUIAAPTGPLDEIVGRGMVLSTALEAALKL METYLADALA QEFLREHPDLPHFLGSGNQYGATYSYAMCW HFTESYDKLEK
AERALAEDLDPTLVDAEQYT FLGRGFSVGLAHEAALKM IIDDESEA WYERNKASDHSDRDYVIGYGVDYGSMLEGMLKV YVSRHYDQMIEQI
CFNSDYENNLDK
T IT TLMVELGHSAKCFGRDKVTILASKGDASFGAWLEQLI ELQDIFTRMDAYLSMQPMGSVSVIGRGFSMPSVEAGALFF
 A SADAKLEQADQUDEAVKSTPHVYGRGCGFGAAHEVALKLG
K LDASARETVRR!
ELVKASDTSIKEWVSAHNFNKTVY LGGGALGGLALEACKL RTPDRTLEKLRRl




VSFQDVATRCQQUVDQPFKRVVYLGSGGLQGVARESALKI $L A L P E A L A Q A L A A E G G W D Y L V F V L G R G L V Y P A A L E A A L K L$
$A E R A V V E P \square D A A V V G A E F T F \square G T G W T C G L A L E A A L K M$ LMMMEQKQN
L LK $\mathrm{D}_{\mathrm{M}} \mathrm{EKKKGLNSQTMFTKH}$
RALLRDWEPALAALAEVPAERVVYLGSGPDEGLAKESALKL ■EKI DNTANELSSNYTHYNHYI FLGLGAEEGIAARESALKLK GKLEQWQAAVKELARQPFQRLIVLGSGGFAGLAREASLKS A A A A E LVLY K RLPAAWERRFTFLGTGWTVGLADEAALK K ALDEA WTLDWSAALPVLKEAASFYGRGHGFGI AQEAALKI GALNDYTTMMKTAASQGYERIVY LGSHDGQGLARESGLKL GYEQKAVEFARKLGASDYH■ $\square$ TGAGNVWPQAYYGMC』L K
D FAKFHPGGALGRVLAPKVEEDMRSTKRDAALKKDATCKL A QR IDAGVSGFGPALTADQLTFVGRGWTNGVAQEAACKL A $\square A D A R D A V S A P V P Q E D A E Q F T F L G T G W T V G L A H E A G L K M$ ARTALSTSLPEGLVDCTQ FTFLGRGWTVGLANEAGLKM
$M \square A A T E Q Q N \square R A F A Q Q P F E R L V Y \square G S A C L L G F A K E A A L K M$
GKDE $\square$ SEP EMW


$\mathrm{K} \square \mathrm{Y} \square \mathrm{T} \square \mathrm{K}$ E N $\square \mathrm{QN}$ MEMFREK L
lupas_21
lupas_14
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jnet
conf
sol25
sol5
sol0
jhmm
jpssm



METY LIP G LS YDFEEY DHGPSCS $\square G M Y \square L P M A D D G D Y E R M$ RESSQSWTESYPAKEYRHGPIAA IDAPGRVTWAFGPL KEACYLHAMGLSTADLLHGPIA EEQMWIRTKSUSCQEFFHGEUVVSDTPDT LF $\square G E D E Q R P L$
REASQSWTESYPSMEYRHGP $\quad$ S $\quad$ AAPGRDT WQFG GEMFRVPT $\square G Y E L E E Y S H G P T M A L D N Q T L F M \square G S D E A E F$

AESTGKKGTGLVPEELGTPDVYGKDRVFVDLLLEGDTP RETVRFPADDFDGAEFRHGPMEMVDENFYGVVFAPSGAAY
 GETVK VISVAYESEEFLHGPGQMTPGYTVFLIDGGNSSSR

KEMTYTWTEAYGTLEFRHGP\|VDSDTVCFLLSQSARDYE LEDGKTVTAYESS LGFRHGPSIDDDKTVVVMYDSGDSYTR KE TYMHSEGULAAGEDKHGPLALVDKQMPVDMVDMKDPCF LELGQVMTNWDSTLGFRHGPSVVGNTRVVVFIHPDQHTAR QEATYTFYQGYNLEFYLHGPFVATNKDTCTTFVVTERTDK

LELGKVAAFYDSPTGFRHGPLVNAETLVVVFVSSHSYTRQ KETAGLHAEGLSLAEF LDHGPLLEEGFPVLALVQKDEALEA REAAGAWTEAYPAMEYRHGP $\square$ S $\square$ TGPGRV TWAFGR $\square$ P

DE LGGVPAMANTPDGFRHGP
EEMSLSK DEAYSTFEYRHGPKSLLEKGF LVSTYTKGDQA LELSQVMTAYDSSLGFRHGPKFTIDQSALVIQLSSETYTR REVARAWTESYAAMEYRHGPIS ISDRSSLVWCLGPAPSGL KETCGLHAEAFSAAEVRHGPMALVEHGFPVLLLGQKDESL
LENGARVTMFDSPLGFRHGPIVNAKTLVVVFFSNNAYTRC EEMQWDRTRPVHASDFFHGELVEKGVSVILFKGEDSARPL

A EMS
RESAQLWT ESYPMMEYRHGPDSTSAPGRVVWAFGDLVPGF REAVQGWTESYPAMEYRHGPI SIAAPGRVTWLFGTQPEGL REASLS WTEAYPAMEYRHGPI


TETVRDPSQGFEVEAYMHGPY LEADTTHLLFFDENQSPDQ ADEGSGLAGFADWAEQLDAESTGKQETGLLPVVVEDPDYL

[^2]E E $\square$ C G A A RE $\square$ TENSF $\square$ K A D $\square$ REENP $\square Y$ Y $\square$ S AF F QY $\square$ A Y WT A

QKLVA Y HRS $\square C G Q V V Y V G D P A E R D C T L L N S G Q W$
PDGIAADTEATGARFEHRDIDPMADLVRLHRGVALERA
A ERVARFDPKVNANYT I IDTREQEL
AAP EGLAGDVAATGARFETSTLDPMADLVRAQRVSLARA ERMLVFREAYLLRYTPRVHV

DSRDGALREAGAPVVTVRDSDKNEDGQAFFVEFATAVAG EQSIKLAKDDAAKGGHVL
QEKALDALKAAGHPVVTLNDHDKQ VQAFYQTEFATAVAG


LKVARELKEVLELGGAALSDEARSVLYLPA VQYNGYYNA K Y D DDMMKE TKCQNALQQVTARQGRPILLCSKGVLS VVPLQLLSFHLA YDR DIAAVEIAQQTATVTTVGGEGDLALDLTGD TKRDNAVLFVNGKGAVI I I L EPVSVLTNLYILQSMTYWMA
 $E G L A D D V A R V G G T L V A D S A G K P A G L D P L L I R A Q R \square A V A C A$

EEPLIDEDKSYGAEVITTGGKGESLFDKVIWGQ\|LGLNDA

 $Y D S D L D D E D R K D N A R V I A G T A Q D$
A E R VIE KFVPGYTNGMTVLAD

AEDVAVT GADLIHDEV DPLAELVRVHLLCVERA $D Q D M A A T G A L Y L H \quad$ T DKHPLAELARVHKVTLERA

DQDLVAELQRDGTKVPPLEDVWQGLLY MLFAQQLSFYKA

STRASNTDELASDVEEKD SPLLLVIPFQYDAYQVA QVRLVADTGLLTDADVDVDAASGTLGAQMLLDEYATVIAG
lupas 21
lupas_14
lupas_28
jnet
conf
conf
sol25
sol5
sol0
jhmm
jpssm


UniRef90 A0A038GGT2
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UniRef90 EORKZ6
UniRef90 F8FQH6
UniRef90-G5I9W8
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UniRef90_D7V075
UniRef90-E7G942
UniRef90-K7T657
UniRef90 R5ABR5
UniRef90_G6F111
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UniRef90-UPI00046E6DB9
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UniRef90-F5LLC3
UniRef90-K2LWV0
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UniRef90 M3KEL6
UniRef90-FOZNZ9
UniRef90-D3L028
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UniRef90-W1TWT8
UniRef90 M3DHE2
UniRef90 U2TEI5
UniRef90-E3DUJ6
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UniRef90_B8DZ57
UniRef90-Q2C9I6
UniRef90-F2RKA3
UniRef90 UPI000365C3D3
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UniRef90_UPIO00367931B
UniRef90 V6JKA2
UniRef90 UPI000379E78F
UniRef90_U1KCY3
UniRef90_N6Y6S3
UniRef90 R9NCD6
UniRef90-F2MPE9
UniRef90-M7ML63
UniRef90-U7URG8
UniRef90 I9NJD7
UniRef90_H8GFT9
UniRef90-Q9PMN3
UniRef90-UPI0003B2FD21

K N R N
$R R K G \square D P D Q P R N L T R$
$\square \mathrm{AR}$ GLDPDQPRNLTR

A VLG $\square \mathrm{DPF} \mathrm{D}$ Q P DVEFS K
S F $\square \mathrm{G} \square \mathrm{DPF} \mathrm{D}$ Q P DVEASK
LQLGGDP DQPETLSK

MKRGLNPDDPRNLTQF
$\square K \square G \square N P S P V G \square V N R$
$V L R G Y D F Y S V Q V A D$
VLKGTNP DSFKRQD

RARGLDPDRPRHLAK
EARGHDPDRPRNLTR

K S K N $\square \mathrm{N}$
VRRGLNPDRPRNVSR
VARGRDPDRPPHLAKVTETL

RRAGLDPDAPRNLTR
$R$ VRGLNP
LT L G $\square \mathrm{S}$ P

TSKGDD
RLLGUDPFDQPDVEAAK



[^0]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    sol5
    jhmm
    jpssm

[^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 sol0 jhmm jpssm

