## QUERY

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UniRef90-P62426 UniRef90-M4YL87
UniRef90-F7E712 UniRef90_E8R7H3 UniRef90-13TDX7 UniRef90-G2MM27 UniRet90-G6DBA8 UniRef90 A0C033 UniRef90-UPIOOO3652C11 UniRef90-HOWI81 UniRef90 UPI0004411B11 UniRef90-UPIO00333F54B UniRef90-UPIOOO454AE08 UniRef90-E3P7E8 UniRef90-J3EW70 UniRef90-K1R1D2 UniRef90-12JXD8 UniRef90_11GJ28 UniRef90_G3H7V4 UniRef90-A7RID9 UniRef90-X6NNT2 UniRef90-16NCV2 UniRef90 Q80111 UniRef90-L9KUV7 UniRef90-G3SA26 UniRef90_D3E479 UniRef90-AORUB4 UniRef90-F1M1C2 UniRef90-G7WR09 UniRet90_C1BMT4 UniRef90-L8X195 UniRef90-BOW916 UniRet90_R9PCV4 UniRef90_C4M8P0
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UniRef90
B2B4Z0 UniRef90-E1ZDK5 UniRef90-LOHHKO
$P L A E K E L Q N K L D E F V Q Q A Q Q V K K G A N E A T K A L N R G$ A EKK A A GK GDVVPTKRPP P V H R A GVVK T V T T L V V E N K
T I A Q P LAA S R K L T R K L Y K C $\square$ K K A S K V K R G V K E V Q K FI N K G

 A $\square$ A K P MAP K K L T K K $\square$ Y K C $\square \mathrm{K}$ K A S K L R N G L K DV Q K H L R K G PKAPKELQSKLDDFVQQGYQVKKGANEVTKALNRG


 SVI A H P MASKKLTKKDHKLIEKASKLRNGLKDVQVHLRKG SVI A QP LAASKKLTKKVYKVVKRAHKLCRGVKEVVKALRKG $V Y V K F E V P D E \| Q N K V L E I$ SRRDTGKIMKGSNEVTKAVERG
 PFAKPLASKKLNKKVLKTVKKASKVKRGVKEVVKALRKG $\square K$ A A A ES KV A K KVVDAPQKRPTTVRAGTNTVTKLVEQK $K R P P D V R A G V N T V T T M V D N N$


 SKRPFVVRQGVNTVTSLVEQK S P $\square$ A H P LAA G K K L VK K L H K TVVK K A R QV K R GVVK EVVVK S I R K G $P L A S P E L T N Q Q L D V Q R A R Q L R R G A N E A V K S L H K G$


 $P$ LAS A D LTATMMDLVQQSKQLRKGANEATKTLNRG
 K F EPS DELLADETYYAVVEKA GEEVVTGTN EVVTK S I E R N $Y$ VKFEVPKEDAEKADQAVEDAGKIRKGTNETTKAVEAK P L A D A T L S S K I F N IV Q QA S QL K K GANETTKTMLNRG $P$ P I A E P P R L
 PLLA E D RLS S Q TVV L D L V V Q E A G K L A A WPKAEDP ALVVQELLDCVVQQARQLKKGANEATKSINRG



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UniRef90 B2B4Z0 UniRef90-E1ZDK5 UniRef90_LOHHKO

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| QUE |  |
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| UniRef90-B1L5N4 | GKASGLEVSASSVAIVDAGQAKSLLEL |
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| UniRef90-R9TCL4 | GNAVGLEKPTASVAILDAGKAKALESFAEQI |
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| UniRef90-D90 | GEAVKIDVAASVAIVDPGEAGEL |
|  | GEAAGLNVGTASACIVDAGEAEEL |
| UniRef90-H3EE | GRACGVTRPVIACSUTQNEGS QL |
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| UniRef90-A5UJN3 | GGAAGLTVGTASACIVDAGDAEDVAEIVEKIAELK |
| UniRef90-P62426 | GKAAGLEVPTSA AVVAEGSADEL |
| iRef90-M4YL87 | KAlGLEKPTASVAIVDAGNGKA |
| UniRet90-F7E712 | GQLVHRKTCTTVAFIVNSEDKGALAKLVEAI |
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| UniRee90-G2MM | GHAAGLEVGSAAAGLVDAGDAEEVEDIGEKVEELR |
| UniRef90-G6DB | SGRaAFSkV |
| 03 |  |
| Un | VAA ASAA I D GGA |
| $\begin{aligned} & \text { UniRef90_HOWI81 } \\ & \text { UniRefgo UPIOOO } \end{aligned}$ | GRLVARKSCTTAFMQVNSEDRGALAK |
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| UniRe990-16NCV2 |  |
| UniRet90-Q80111 |  |
| UniRef90_L9KUV7 | RLVHRKTCTTAFTQVNSEDKGALAKLVEA |
| UniRef90 G3SA266 | GRLIHRKTCTTVVTQVNLEDKGALAKRVEA IRT |
| UniRef90- 0 A |  |
| Uni | AVFTQVNTEDKGALAKLVEAURT-K |
| UniRef90-G7WR09 | A AVATLEPGKKDLLDEIVQKAQALK |
| UniRef90_C1BMT4 |  |
| $8 \times 1$ | E |
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| UniRet90_R9PCV4 | G K |
| UniRef90_C4M8P0 |  |
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| G1KFL8 | GSKRPTCVILKA EEYEAYDE |
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| UniReefo-K10XY4 |  |
| UniRef90 U4TQU9 | GAALLVVKRGCLVVII RPNSDYEEFNELKEQE |
| UniRef90-M5E5N8 | GSASSTKRPTSCVMIVPGGGKKAVEKGETKV |
| Uni | ACLTTVNREDEQSLGK |
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 IIAKPDASKKMTKKIYKIVKKAAQLRRGVKEVLKAVRKK PFAPADLVVEILDLVQQAKQIKKGLNEVLKSMNRG

YVKFEVPPELAEKAYQALLQVAGKIKKGTNETTKAVERG
SVIAKPMASKKLSKK円YKLIKKSSSIRNGLKUVQKQLRLG PDAPEKLTQTLLDLTQQCKQLKKGANEATKQLNRG PLASPDLEPKLLTLVQSAGQLKKGANEATKALNKG A $\square A Q P$ PLGRKLAKKLYKLIKKASKLRQGLSDVHKALARN T $\square$ SKPLASRKLISKKLYKCMKNAKCLRKGVREVQKFLKRG YVKFETPESVEKKLLDLVERSGKIKKGTNEVITKSIERG PLANAQLANKI I DLVQQAKQLKKGANEATKTLNRG
APDAKPLAGKKLCKRTLKLVRRAKCLKRGVEEVVKSIRRG PLANAHLTKSLDLMQQAKQLRKGANEATKTLNRG $\square A K P M A G K K L A K K C Y K L V K K A M K L R N G L K D V Q T R I R K G$ SPDAHPDADKKDGKRVDRTVKKHRFLSRGKRVSAVEK SPUASPLAGKKLTKKALKCLKKAKTLRRGVKEVVKALKKD PETKAEKSARLLAAAKKPFVLKFGLNHITTLVEQK KKKEDVSKKPYAVKYGLNHVVALIEAK RAEDKIEAKEDTPTKRPNVIRQGINTVVNLVEQK P $\square A N P$ A ASRKLSKKLYKCVKKAAQLRRGVKEVQKFINKG RPEDRAAKKQRLLAEAKRPLVVKYGLNHITQLVERGA KRPPVLPAGVNTVTTLVENK RPETKQGKKQRLLAGAEKTKRLLSGVSTVTTLVENK LRARAEKRAAGKEDVPTKRPPVVRAGCNTVTTLIQQK AVYVDYETPADLAERALGEVARDTGTVKKGTNETTKAVERG KTAQDVSKKPYTVKFGLNHVVALIEAK KSRQEASEKPYVVKYGLNHVVSLIENK
 SLARPLAERKLLKKLHKVIKKARQVKRGVKEVVKGIRKG RPETKQEKKQRLLAQAKKPPVLRAEVNMVTTLVENK YQKFSPNDSGAEKTYNAVEKAGK AVGTNEVTKAVERN ILASPLASKKSTKKAHKLVRKASQLRRGVKELVKGLRKG RPETKQEKKARLDATAKKPLLFVKYGLNHTVALI EAK VKFEVTKDVQEKALDAVEKAGKVKKGSNEATKAVERG FDVATEKKKNPEAASKKAPSVVTGLQEVTRTVEKK


RPETKQEKKTRLETAAKKPYFVKYGLNHAVALVEAK VIDKPMADEKKTKKFYKLCKKAAKCRRGVKEVCKGMRQG PETKQEKKQRLLARTEKPPALQAGVNTVTT EAVAKVDAKKRDPTKKPLLVKYGLNHITGQVEK RPEDKKAKKERLLKLAKKPMTLKCGLNHITTLVEQK RRPCFRSGVREVTAAVMGK RPETKEEKKERLTKEAEKPYVVKYGLNHVVSLVENK PhADDQLTAK LKLIQQAKQLKKGANEATKTLARN PLADQELTSKLVDLLEQSKQLKKGANEATKCLNRG PFANPLADEKVTKKVLKSVKKAAKLKRGVKEVVKALRKS KERLRQAAKDKVEGKAATPKKLDHGI NEVVKAVERK RPEDKAEKKERLLTRAKKP \VVKYGLNHVTYLIEQN PFAKPGADEKGTKK MKSVRKAKHLKRGVKEVVKSLRKS LLGLCMRAGKLKSGEFAVLEA: RKH PLADASLTDK LNVQQAGQLKKGANEATKSLNRG VPFAVPEKGMKKVYKTIRKAAKLKRGVKEVVKTLRKS RPETKQEKKQRLLAPAKRPSVLQAGVNDIITLVENK GALVPFAVPEKAMKKVMKSVRKAAKLKRGVKEVVKTLRKS GALVPFAAPEKVAKKVLKGVKKAAKLKRGVKEVVKALRKS GALVPFAVPEKAAKKVFKNVKKARTLKRGVKEVVKALRKS PAVIKYGLNHVTSLIENK PFANPDADDKDAKKVLKSVKKAKSLKRGVKEVVKALRKS RPESKDEKAARLLKLAKKPLFLKYGLNHCVALIEAK KARLT QAAASKAEGKSEKPLFVKYGLNHVVALVEAK KAEKKERLTKEAAADAEKPLNVKYGLNHVVSLVENK



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UniRef90- $66 J V 1$ UniRef90-K0KTK0 UniRef90-F7DIK6
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EKGVCVIAGDTSPIDVI SHIPTLCERNIPYIFVGKQADL

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TSELVILAADTSPLAALLHLPALAEDKNVPYVYVPSKMAL
ESKVVVIAEDVSPPEVVYYLPMLCEERKVPYGFVKKKSDL

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 SAWLVII ASDAS DNTTKKFSNSCEFYEVQQYIVGTKEEL KASLVLIANDVQPEELVMGELPALCRKMGVPYAFVKNKARL



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 SASYVLI SEDAS DNTKKKFRDKCEYYGVPMSFFGDMESL
 KAKLVVIAHDVDPIELVIWLPTLCRKMDVPYCLVKGKARL KAQLVLIAHDVDPIEIVLFLPALCRKMGVPYAIIKGKARL KANLVLIANDVDPI ELVVFLPALCRKMGVPYAIVKGKARL

 KAQLVVI A HDVVD DELVVWLPALCRKMQUPYCIVKKGAR PASVVILAGDISPPDVISHIPVLCEDVNVPYDFVTSRAEL
 KAQPMVTAHDVDPMEPVFCLAAQCRKMGVPYC VKGKABL



 KANLVLIADDVDPIELVVEFLPALCRKMGVPYAIVKGKARL




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| UniRef90 J910A9 | GRACGVSRN 1 VAACILHHPDSQ <br> LQSQ｜NEMK |
| UniRef90＿M4C1U3 | GASVLSKRPTSCILITKAGFNEAYNELLEDV |
| UniRef90－A0A016U340 | GTVVRRKT TSAVAIVDPEDRSALSKLVETV |
| UniRef90－F1M3Q8 | GCLVHRETCTTAFTQVNSKDKGALAKLVEAIRT |
| UniRef90＿A0A016PNK4 | GRACGVS RAVIA ASITS S NDASELAG |
| UniRef90－C1N2G9 | GTVVHKKTATAALTAITKNEDMEFSKLVEAI |
| UniRef90－G4RM18 | GKAAGTNVAAAAAVVIDPGQ |
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| UniRef90－G9MVK9 |  |
| UniRef90－G3MGK9 | A AAVGMKRALVIVMVKEHADYK |
| UniRef90－T2M3W1 | GLLASQTKRATCVVLVKKDDAYDSFTEDRDR\KEM |
| UniRef90－M1VFX0 | GRACGVSRPVIACAVLRA DMSQLRNQDTAL |
| UniRef90－L117R9 | GRACGVSRPVIAASVTTNEGKGQIQTLKDQIEKL |
| UniRef90－C5LT93 | GTACQTKRAASVVLVIQPKDDS |
| UniRef90－S5ZVH1 |  |
| UniRef90－G6CVM4 | GSAMGTMRGCDMVLVKEHEEYKDLYEEVKS |
| UniRef90－Q4VG17 |  |
| UniRef90－E5L9Q5 | GLLVRRKTCTAADTNVEANDKANFAK】LEA |
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| UniRef90－F1L9L8 | G LAA GHKRPSI LLLVKEHEDYAEDNEV |
| UniRef90－C1G9W8 | GRACGVSRSVI AASI T T NEASD L L A Q i T L K |
| UniRef90－R7V0U0 | GNAYGSMRS TCMVLVKSHED |
| UniRef90－T0M3Y7 | GAKVGI ASAASISVVDVGSKGELKQVISELAEDK |
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| UniRef90－I3SFX3 | ASAGATKRPTCCVLVLTKPAKG |
| UniRef90－E4XVW4 | GRACGVT R PVIA A SVTT QK D G Q L Q Q Di T |
| UniRef90－B3MAV5 | GAAMGVKRGTVALLI RQNDDYKDLYDE |
| UniRef90－E4XGW7 | GRLVGLKTACVALTDVNAEDKNALAKIVESVNT |
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| UniRef90－R1FLF2 | GQASLTKRPTS IVLVTAADFKEAYEELSAEMAAL |
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| UniRef90－N1QDU9 | GTVAHKKTAAAAI TEVRAEDKNELSKLVQAVKE |
| UniRef90－C4WSM9 | GNLVRRKNCTAAI TQVDTGDRA |
| UniRef90－Q6PBV6 | GS SAGSKRPTCVI MlK K HeYke |
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| UniRef90－A0A059LN09 | GAVVHKKTASAAITTVKAEDQRELAKLAETAKTL |
| UniRef90－M3WV80 | GRLVHRKTCTTVFTQVNLEDKGALAELVEA |
| UniRef90－G1M2R4 | GRLVHRKTCTTAAFQVNSEDKGALAKLVEAI R T |
| UniRef90＿Q66V63 | GRVVRRRTCSSAIT HVNEDDRANLNKLVESVKT |
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| UniRef90－U1NJ31 | GMSAGLTVVGSAAGV |
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| UniRef90－F7DIK6 | GCLVHRKTYTVAFTQVNSENKGALAKLVEALRT |
| UniRef90－A8JB67 | GAAALSKRPTSC |
| UniRef90－UPI000440841F | GRASSTKRPTSCVMVCPDA |
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| UniRef90－UPI00036D99DC | GAAAGLNVPCSAIA IIIEAGEAKELIDDIN |
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| UniRef90－D7G227 | GAAAKTKRPTSCVLI TPP R |
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| UniRef90－Q2KJW5 | GALVHLKTATAVAITKNEDKPQFAKLLESIRA |
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| UniRef90－A3F4R2 | GRLVHRKTCTCAFTTVKSEDKPRLAKIVQTVXT |
| UniRef90－Q6C0H3 | GTLVHKKTAAVA |
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| UniRef90－M1XYG2 | GRACGVTRPVIACAITTQHEGSQ |
| UniRef90－N1JI57 | GSAGNTKRPTSVVMV |
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| UniRef90＿UPI00041FF0AA | GHAIGKEVRTS IAITDDGFAKSFQK |
| UniRef90－F4W723 | GRACGVSRPVVACSVLVNEGS Q |
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| UniRef90＿G7PEW0 | GHLVYRKTCTVAFTQVNSEGKGALAKLVEGDRT |
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| UniRef90－UPI0003C176BC | GAGMA $\square \mathrm{ERPV}$ VTPCIVNHTDS |
| UniRef90－I3KN23 | GSSAGSKRPTCVILI KPHEDYEAYDECLEEVSSL |
| UniRef90－R7QG40 | GTLVHQKNATACFTGVRPEDRAEFSKlTES |
| UniRef90＿M1UT37 | GALVVLK T A T CAVT GVVDRDRAELSKI |

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K R A LS M $\square$ G LA QKA GKVASGEAS TEK AVK
KMTKKDVVLIGK T R G V I R G V K E V V K A L R K G
RPETKEAKEQRLKAVAKMPCFVKCGINHIERLVTSK VNDEKAKKVYDLVEKSKNLKKGI SEVVKCINKG MK QDKT LLDMLGLAQRAGKVAS GEFSTEKAVKSK A QPLASGELNNKILEVVKAANADRTGANEVTKVLNKG RPETKQEKKQRLLARAEKAGKKRSPVFQVTTMMEKK DYNLPFEMAQAKKQRLLIRAQRSPVLQAGVNSVTTWAENR

DRLYKTDPAKAKRKRRVVLGFREVTKHLKMK KSKNAKEGINNRLQUVMRSGKYTLGYKTTLKSLRSG PDAVPLANKK LSKKLEKTVKKARQLKRGVKEVVKALRKG SVI AKPMASEKLTKRLGRLMKKAKNLACGVKDSVKQVVKK ASKQRQVKRGVKEVVKGIVRK LVGLAAKAGRI RSGEFSTEKAVKAG GALVPFAFPDKEVKKVLKTVKKSAKLRRGVKEVVKALRKS WASLLGLAQRAGKVVSGEGLVVKEVQRG $\square A D \square T V T K K L C N E L L T L I R Q R S M L F I G L M M V I S S M K Q N$ MVTEKKTKKRDALVMKSGKYTLGYKSVLKSLRGS MATPLANGKKTEK FDILREKKMVKIGVNETTKEINKG



 LQ AEAENKTKDSTTKDSKKPLVFVKYGLNHVVALVEAK
 $A$
$A$


 PFANPLVEDKQAKKVLKSVKKA K QIM R GVVK EVIVK S I R K G $L L G L A V R S R N A V S G S F A T E K A V K S G$
 $P P V F P A G V N T I T N L V E N K$
 K P E T R GE K K A R LI ETSNK K P V E M L K F G L

A $\square$ S K P MA T E K D CKKK YYK L L K K A P AL T C G I K A V QRAF R K G RKKVLN L L GLLATMA GKTAS GEFMTEKADKS G
$R \square K Q S K A L S L I S L A T K A G K T V S G E F S T E K E T K S G$ K T A A G KVVDVPC K R L L P D D
KPETRAEKKQR LLQEAKKPDMIKYGINHVTDLI E DK RPETK QENK QRLL RAEKKAPDFPAGVNTVTTLVENN

 A K T K K S L ELLIN S R L QLVMM S G K Y I L G Y K Q T L K V I R Q G
 M K Q D K AL A MI GL A Q K A G K V V S GEFATEKAVKT G

A $\square$ A HPMASKKFTKK LFK LVKKASKV LNGLKEVQSKMRKG KWQSLL LGLANRAGKCIT GEELVIKA I QR Q
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 EKWFSLL GLAYRAGKDASGEEAVLNEVRRR
 MVA S K K T K K A L QLV DK S GKVVALGY K Q T DK H L R R G
 E EA L K GVL R HAL DH D G LAARGLREASSKAL R R R
P F A N P L A D E K VA K K V F K K


| Ref90 W6LH66 |  |
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|  | ACGLHRPVVACSLINFKLNQQLIMKI |
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| Uniret90-s6EJ21 |  |
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| UniRef90-L1.8H66 | GAVVHKKNATAAFTNIRDEDKGAFSKLVDNVRTL |
| UniRet90-U9TSİ8 | GAVVHKKTATAAFADIKDEDKSAFGNLTNSTK |
|  |  |
|  | S |
| UniRefo-M3 ${ }^{\text {a }}$ | GCPFHRKTCSTVAF TQEDKGAPAKLVEA |
|  |  |
|  | Q |
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| - K 5138 BC |  |
| - |  |
|  |  |
|  | GEASATKRPTSVVMVGDDEFAEAYGELMKVVS |
| Uniret90-w |  |
| UniRef90-O8VZ19 | GTACGKY RVSCCLALVDPGDSALISSMPEQ |
|  | - |
| UniRei90-UP1000333E1E1 |  |
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|  |  |
| Unipereio-J6ETE3 | alat |
| UniRef90-R6EE84 |  |
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|  | GHAIDGKEARVVLALTDKGFAKKLLELLINEYNR |
|  | AEEDKE |
|  |  |
|  |  |
| Unirierso ${ }^{\text {U }}$ |  |
| $\mathrm{H}^{-}$ | GCLVVGKTCTVAFTOVV HEDKGGVAKLIMAVFRT |
| UniR |  |
| Uniref90-D4M×M8 |  |
|  |  |
| IReifo-U3 | GGAMGGLKROCSVVLVHANEDYOAVAKLVEALT |
|  |  |
| UniRefi90-S2YPS66 |  |
| ${ }^{190}$ - 0 Y Y 2 8 |  |
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| Re90-F |  |
| Reifo-UP10000 |  |
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| UniReriolouplooute9422A | TLID |
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| inei90-18A | GNAVGKDYRVAVAVTDEGFTKKLKTLLD |
| UniReefo-C425N6 | , |
| -0 | GRAIGKHERVVI |
| 促 |  |
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| Retio-M2R2S2 |  |
| UniRetio-OTX |  |
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$M K Q D K V L S M L G L S A K A G N V A S G E F S T E K A V K E G$ EMAVKK QKKRLAMVMKSGKYCLGYKQTDKT L R A G
K S K K S TE T $\square$ S S RLLA LVMK S GK T T L L GLL K S T L K S L R Q G LL G A A K A GRVVSGEFATEKAVKA G
F A LPP MA D T K K S S K K K L $\quad$ Q L
 $K$ VSE S L N S R $\quad \mathrm{L}$ A L V M K S G K CVVL GYK S T L K T L R S G E D ALLK E V L
 A P A A K P QVKKNAENSRLSMVMKTGQYVLGYKQTLKSLLNG

MSEALFERELKKAAAKS GKL SLLGAR RALLKL L L K N
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A ALVPFANPEKA QKKVLKSVKKAAKSKRGVKECVKSIRKS M N D N K WMS L L G L A NRAR KIT S GEELLTV KEI R S G

 K E V L K S A A I I T N N L A R Gll R E A C K A Q MVV L K K A L A H D G L | $C$ | $R$ | $G$ | $L$ | $H$ | $E$ | $A$ | $C$ | $R$ | $A$ | $I$ | $E$ | $K$ | $G$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $R$ | $R$ | $G$ | $V$ | $H$ | $E$ | $V$ | $T$ | $K$ | $S$ | $L$ | $R$ | $K$ | $G$ |

RPETSEELK QEDPKAGAKP I IVKKGIVRHVTRLI E T K KKGANEATK TLDRG
 QLL GL AMRAR KVVS GEELVI QE I RS G
EKKTASKLRTKRPPVLRAGVNTVTTVVENK
MNE EK WLQTLGGVT RARKLIT GEELVVIDSSIQKQ MSKRDK VLSSLIGLAMKAGKCVSGETMTESETKSG P F A KP L A GEK L S K K VF K TA K K A A K NK R G V K E VV K A L R K S KADEPVARKAVLRAGIREVTSAI QQK QLLGGAVRARMLDS GEELVVKDI RNN
K K $\square Y \mathrm{~S} M \mathrm{M}$ L C A K A G RLVVSGNF SVVEKAVVNG
K MTKK V YS L V K K T K G TVVK G $\quad$ K DVV TKA I R K G
EAIN A RLALVMKS GRYHLGYKS TLK SLRQG
$K$ S K K S Q E GI NT R L A L V M K S G K F T L


EDALQEVLHRALVHD GLARGLREAVKALDRR K P P CRDKVAK KVLK KVKKGS $\qquad$ NTMC



K K K $\square$ F S LI GLLAT RARKTVVSGEFATTEKAVK S F K GAK L L R R GVHEVTKCLRKG L I GLAT K A G K T VVS G E F S T E K S V K T G

$H L T E K L L D L V Q Q S K Q L E K G A D E A T K T L N R G$ ERLKK S DPKEGPKP IIAAKMG DRHVTRUI ETK

 K S S D TLNQR LALVVKS GKI SLGYK S TLKALRQG


LT QELL DLLA QTARQAKRGANEVTKALNRG
 EERKKKLL L K N K FVVI Q E N $\begin{gathered}\text { N } \\ \text { E K S K } \\ \text { K G K }\end{gathered}$
 $R M L G L A A K A G K V A S G E F M T E N S V K T G$ HK QL Q T G A NEA DK T L NRG $Q M L G \square A T K A G K T R S G S Y L A E D A V R S R$ LALVMK S GKY TLGYRSTIKSLRLG
 LGLA QRAGKIVSGEDTVIRDI REG $L Q L V M K S G K V C L G F K S T R A S L R S G$
MAPSRKDKKRLALVMKSGKVVLGYKSSLKQLRMG
 E K QK QL L GLLMQRA GALKTGE E QCIA SVQKR


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 KA HLVIVAGDAS DN TKKHFRDMCSKYEVVFYAYADKESLL

 KGKGILANNCPP

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GTVYGKYYRVCTLAIIDPGDSDIIRSM
GTSIGKD GRVVLALTDNGFAKLLRK
RGILHRKTCTTAFTHVNSEDKGTLAKLEE
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GRAMGKEYRA CLAVQDENFAKA MKEV



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 AMNE QK $1 \quad 1 \quad$ S L L G L A Q R A K K V V S GE F A V E K A V R S R MLDA A K K T K K K L Q L V M K T G K YV L G Y K Q T L K M i R Q G K K M K K S S L L Q L V M K S R K C A L G Y K Q T L K M I R R H G Q E V L K K S L I A D G L V



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P $\square$ A K P L A D E K M Q Q K L K K K L L K E A K C L K R G I K D T M K T A E K L QA A L K A V LR SAS FA D GLAK GL HEAAK A LD K R

 $M N K E K V L N D L G G A Q R A G R L L S G D F V V E R S M K R Q$ MRAGKLTTGEDGVLKAMRS G
$M$ VA T K K T K K T L E L L M K S GK Y T L G Y K Q M L K M I R Q G QEVLK QALMAD GLARGLHEAVKALDKR
 YEKVVAQAKKVI 1 G TM K TAKA A K N N YEKVVWQAENFIVGTKQTVKALRNG LGLI QK S GNLTS GDDGVE DDIMK G

 QEVLK T AL I H N G L A H G $\square$ REA L K A L


$N M \square G L A Y R A R K C S \square G E E T V V K D D Q Q K$ QKVLMFSLSHGGLVRGLHEVTKSLDSK QEVLK I A SHRRGLAK GLLHEVAKVLGEG $R M$ GLAA KA G K V V S GEEFMTENAAVK S K
 PEKPAEKKQRLVAQAKKA IVLVYGLNHDT TLIENK Y E K V $M$ M Q Q S R V I I G L L M T L K A M K N G $K W \square S$ L L L CA R A R QLVTGEE LVI K DVR S R S P $\square$ A H P L A G K K L A K K V V H K CVVK K T R N L R R G V K EVV K G V K K G
 $M\|G L\| A T R A G K T V A B G E S V E K A V K D N$

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| iRef90-H9KEV7 |  |
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| E01 |  |
| UniRef90C4QZL4 KAKLIISSSNT P VLRKSELEYYAMLSKTNYYFQGGNNEL |  |
| UniRef90-M37849 |  |
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| UniRef90-R6Q907 EAKLVIIPEDAS DNTKKKFTNKCKH |  |
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| UniRef90-H7F6T7 K AKLVIIAEDISERRTAKKIHDKCEYYEVALKQVGTRDEL |  |
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| UniRef90-UP100028A22B0 NAKLVLLSDDAS ANTTKKLTDKSTYYQVQLRTVSDRYTL |  |
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| Ref90 |  |
| Ref90 W4CAA7 EAKMVIVAGDAS ANTQKKFRDKCGTYKVPLLIGGDRDSL |  |
|  |  |
| KAVLVYVAQDAD YRLISRIVQLCRQHGVHIEYVDTMHN |  |
| Ref90-A9CSD6 | TALLVVLANDSVPQSLTESISVLCEQQGIKYVYVESKESL |
|  |  |
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| UPIO0046AC327 KVHLVFISQDAS DNTMKKVKDKSTYYKVALTTVDSREEL |  |
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| KARMAVTAYDVDLTELDL LVALSGKMGISYFIIKGKGR |  |
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| UniRet90 A1HSB3 |  |
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| UP100042BB209 KVKLIL A ANCPGLRKSEI EYCTMLAKSGVHHYSGNKIEL |  |
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| $\begin{array}{ll}\text { UniRef90-D6XU08 } & \text { Q AKL VIV }\end{array}$ |  |
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| HPIO003F7BFOB S SLVLIAGDASPDNTKKKFKDKSSYYOVPCYVTGDRDG |  |
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| UniRef90-C5F552 EAKLVYVANDASANTRKKFSDKSSYYEVPLVTEFSKME |  |
| ef90-L8HOP3 QAHFCALAANCTEPAYПKLVEALCLEHNINLIKVPDSKQL |  |
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| VGT |  |
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| W2E4 | YGI PLMIAGDRSQI |
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| UniRef90-G8BLI9 QALLCLLANNCDEPGYSKLVEALCQEHQI KLLKVDSNKM |  |
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| UniRef90 UPIOOO2FCBOBE NVKEVLVATDADP HVTA |  |
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| OA024Q547 EDSEVF! A D D A D HRLTQKVAGLAEDLGIPCRYVDSMEK |  |
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| UniRef90-A0A023VLB3 KVNLVFLANDAGP NVTKKVTDKSNY YNVKVSTVFSALEL |  |
|  |  |
| UniRei90-A0A024PZW0 KAK VLVASDIGPQ TKKKIT |  |
|  |  |
| C8J4 ${ }^{\text {a }}$ TA AVCFLSKECSEPAYVKLVQSLCKEHSIPLIETDDSKT |  |
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| 90-UP100006D0064 QAKLVVIA HDVDP |  |
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| $\begin{aligned} & \text { UniRef90_UPIOO } \\ & \text { UniRef90_A5ZA } \end{aligned}$ |  |
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GQSTGKKERV ${ }^{90}$ VVIAVVDEGFAKKJL HFLLLDE ${ }^{100}$
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$G E W A G L C V G C S C V V I K D F G D T P A K D V V M E Y V K$
GHF DGKEFRAS LAVVNEGDSHS
GHATGKE ARVAI AI TDDSFAKKMSSLLNE
GTACGKFHRVSTLSIIDEAGDSDIL
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GTGCGKKFRVSVMSITNEGDSDIL
SHADGRSRTT $\square A V M D A G F A K K L K E L L Q S$
G Q A
GHADGKEQRA IVL VNDVGFAKAMDKEDD
GKAUGKEARVLIAVTDAGFARMDATQLTSYSE
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GKIIKKKPTTCCLCDVSSDDK SKFENVIAKCN


GS S GK DTRV VLAVVTDRGFAKMUSKQV
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GKSCGIDDVGAMAALVE
G $\square$ A C GKY R S DC T L S I D P G DS D I R S MPE E

A H LCKLK RS TVCLFI CKPEFENTLSK




SAA A GRSRK VLAVVDTGFAKKMMRTMMD

GSSVGKGERVI MAI TDPGFARLI AK

GEWSGLCSGCSCVVIKDYGEETALDVVKEHLR
GE WL GQCRGASSVAIVKDYGEEEALLNFVLNY $\square$ K
GE WLGQCRGASSVAIKDYGEEEALNF
GKACGIEVGAAVAA
GHCVGKNYR SMLAVLNQGFAES $\square Q K$
GWAFGSRRPASVVMLL

GEWVGLCVGCSCVVVK

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GEMSGSEHLTTCALVFPTKDNSCYKACQKIVKELK
GASDGKEAARVVI GIN NDAGFARMLLGKQLD

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GRALGKEMRA VILVNDAGFAKSLLAEDDK

$S D D C Q S K R P T C A V L V K P$
$G T T C R K Y R V C T L A I M D P G D S D D F R S M S E Q$
GE WA GLCVGCSCVVVTDYGKETQAHDVVNE
SQADGKS GRVAVALDDSGFAAKMTS SLDE
GRA GAEMR SIIA I TEKGFAKKLKELLAD
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GKACGIEVAASTVAITT
GHF GGKSMR SVLSIKDKNDADA $\square K K L R E$
GE WAGLCVGCSCVVVKDYGEESEGLNVVQ
GGA $\square G K P R M$ VI GILDGGFAKK $\square G E L I Q$
GKACGDEVGAAAVAI
GEWVGRKVACSCLVVKDYGKESQAKDVIEA
GAACG $\square E V G A S T V A I K$
G $\square A C G K C Y W V C T L I I T D P G D A G \square I R S M T Q Q T S E$
SAALGKPRKVVAVADDGFSKKMRTLME
GAAI G KFDRVVLGVLDGGFAKK\RSLL
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SHALGKSQRV AVADLDAGFAEKIKSLL
$G Q W S G L C V G A T S V A V K D F G E S E A L L V F L Q K H \square S T L K$
GE WVGLCVGGS CVAVKD Y GEETADADIL

GKFTGKN【R SVVAILDKSFSKRLVELIDS
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UniRef90_Q2FPJ8 UniRef90_D7CM46 UniRef90_UPI00042AB6EF UniRef90_G1L031 UniRef90-UPI000478E04F UniRef90_U6M5N8 UniRef90_A7I9N4
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UniRef90-A8UA10 UniRef90_UPIO00366769F UniRef90_E4WR73
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A A K K M K K S LLLQL 1 MK S GKYV LGYQQS LKMTRQG $K L K Q Q K V L N L L G L A R R A S K L S T G Q D L V L R A I R T N$ $L S$ L A Q K A G K L A S G D Q GVVWD T L K K G MSEQRIVNLLSMAQRAGRMASGAAAVEAAVNK

 | $V L K K S$ | $L$ |
| ---: | :--- |
| $L$ | $A$ |
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$\square R K A R A Y G G V V R G L H E C A K L I E K R$ $N L L G L A Q R A G R I \quad I \quad S G E E L V V K A I Q E G$
VE P Q N $\square$ QEA $\square G \square V V$ RK ALEARKMMVGSKQTMKA NRG
 $K V A M G K D Q V I I G T K Q T V K A M K N G$

Q S $\qquad$
ENTEST IKNILKELKKCKKII R LI



L Q L VM K H D GLV R G L H E A A K A I E K H
L R R A I K T GKV I L G Q NE T K D S I EK G

$\square K R K D P A K D A V P T E R L P V L R A G D H D T I V E N B$

K K K A L L R R A KT G DV LGQNN TGKC KE G
QEVLKTALIHDGLARGLHECAKALDKR Y E K V T Q A K S F I V G TK Q T V $V$ K A
ETAVQEVLKQGNFQNALSRGLNEAVRALERR PKTKQEKKQRLLAQAKRAPVFRGLVNTVTNLVENK
 I R VGTK Q TIIRMVELG LQLVVKS GKFTLGYK QALK QLRSG
QEVLLKTAFIHEDGLARGVHKAAKALDKC K A A R S TES $\square$ N A RLALVVKS GKFQLGVRSTLKSLRQG EANRSKAMNLLGLVAMAGKLVTGEELTVADIRKS
 QFKVGAKQTTKMLEQS
 YEKKVLQDANVIIGGTKQTVRALKS G
MS Q N K QLN MLGLALRAGQLI HGDEQVEAGVKNN
VLRKS LIAHGGLVRGDHEGAKAVEKH $L L G 1 / A Y S A R K L V T G E E L V L K E V R R Q$ $\square G L A M R A G Q L A T G D E \| V L K A V R S S$ YE RLLSARKKTVGTK QTLKA I ER G $V L R K S L A Y G G L S R G L H E G A K V I E K H$
Q NKQKLLN D K L LARRAGKLVTGEDMVLGAI RNG
 PETLEDA $\quad$ RRIVI RKSYESNGLVRGLSEVTRALDKR $M N K Q K A L N M L G L A M R A G K L V T G E E M T \square K D V K S Q$ Q MV L K K A L A E D G L H R G L R E A CK A I E S R $N L L G \square A R R A G K l V S G E G \square V L N A D K K G$ ATVAP DEAPETADQVVLRKSLAHGGLARGLHEGAKVIEKH
 $N L L G L A M R A R K V \frac{T}{1} \operatorname{GT} D T V L K Q V R A R$ MKRGKYMLGYK Q TL K M I R Q G E QRAMN LLSMAARGRR VVSGAFMAEDALKRK
 KAAKSTESDASRLALVVKSGKYSLGYKTALKQMRNG
 NM $\square$ S MAMKA GRLVSGGEFACEQA I KE G YEKVVA QAKKIIVGSKQTVKALKA G
 LL GLAARAGKTVSGAFAVDKYLKKK

 N K R Q K $\quad$ L N L L L L G L A M R A R K L A T GE S AL K A V Q S Q

 $K$ VK K S Q E N IG S K LA LV MK S GK SQLLGY K S T L K T L R A G



| UniRef90_UPI00015615D1 | $\text { S T A R G K Y Y R }{ }^{90} \text { V C T L A } \mid \text { I IDD P G D S D }$ |
| :---: | :---: |
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| UniRef90_R7M043 | GAA I G K A PRAAVVLMDDNFRKMM |
| UniRef90-B5DMD4 | G $\square$ A CGK S F RVS S L A T T A A D S D L L |
| UniRef90_UPI000361BB8C | GACLGKEYRAVA A L L A A GFA K RLLQELLKKE |
| UniRef90_A9P9I0 | GEWA G L C V G C CVVVKD Y G E T S E |
| UniRef90-R5VYL3 | GKYTGNEMRTSVAILDEGFGNQ\\| |
| UniRef90_H0Y215 | GWARP LSS P S D N G L P K LVEA |
| UniRef90_I1P3V2 | A T A GTTKRPTCCVLVMTKPAKGE\\|NEEVKE |
| UniRef90_Q9S9P1 |  |
| UniRef90_UPIO003467EEA | SAA $\square$ GKSRK VLAVTDAGFTKKMRSLVE |
| UniRef90_F6CKJ2 | GK A CHIEVGCASAAV DE D |
| UniRef90_G0U7C8 | A R WA GL QRKCSCVA I R D F GEQK A L H MLLDDQL |
| UniRef90_F6DPB6 | GKAC GIEVGCA I A SVTE D |
| UniRef90-A9US93 | G Q WA GLCVK C S CVAVTNYG\A G Q A VEVIN |
| UniRef90_N4WRM9 | GKTCGIEV G A A AVA C ( K |
| UniRef90_UPI000468CCA4 | S D A $\square$ GSKR S II GI TDRGFSKKMK QLLD |
| UniRef90_14D9F2 | G Y S $\square G L$ S PR S AV LI LD Q GF A K A $\square$ |
| UniRef90_M7P742 | GRAYGIDVGASVI A I T E |
| UniRef90_S7XST4 | RSAS LK N NLTT T C C F VEE SEN D K Y K E I I N F $\square$ K |
| UniRef90_UPI00037D | S Q AVGKS GRVA\SIMHENGFAKKLIDALLDE |
| UniRef90_UPI0002F1ED49 | GESLGKAEQV VL AVTD HGFANMMQNGLKTMSE |
| UniRef90_I3EDX4 | GAFVGRK NAACVAI E D |
| UniRef90_UPI00037C0637 | SA A I GKPRK VI AVVCAGFSKK M R T L M |
| UniRef90_M0S475 | GEWAGVS $\square$ S S CLL L S |
| UniRef90_Q2FPJ8 | GRACGKPFIVS ALA A E E S G D S D |
| UniRef90-D7CM46 |  |
| UniRef90_UPI00042AB6EF | GEWAGLCDGCSCVVVKNYGKD S Q A K DVI E E |
| UniRef90_G1L031 |  |
| UniRef90_UPI000478E04F | $G Q A L G R \quad R T V G V V A V L D A E F A E R F R Q S V G A 〕]$ |
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| UniRef90_A7I9N4 | GKA CGKP F MVS TLA A V V P GES D I L S |
| UniRef90_D0BK31 |  |
| UniRef90_A8UA10 | GEWA G L C |
| UniRef90_UPI000366769F | GK A C GI EVVGA A TVA L |
| UniRef90_E4WR73 | GEWAGLCVGGCSCVVVRS\E D C E A W D F L K G K 1 Q T |
| UniRef90-M3XX69 | GCLVPRKTCATVFTCFNLEDK KL MEALK T |
| UniRef90-M3X2D1 | GHLVVYRKTSSTVFTEANLEDKEALLKL |
| UniRef90_W0EDA5 | GKA G L S Q R STVLVMD DGFAKA L K V |
| UniRef90_UPI00037F9121 | GKACG\\|DVGAAMVAIVND |
| UniRef90_Q5KPM8 | GTAA GKLYRVGVMSI Q A A G S DLLQQQQES A |
| UniRef90_UPI0004542312 | GEWVGLCCFGCS CVVVK N Y G K E S Q A D DV IE Y VK |
| UniRef90_A7WQI7 | GTAMGKFFRVGVMTITDPGDSD\\|VR |
| UniRef90_S4CXY0 | A Q A L G K P R K V V G L D N GFA K K M K E L I E |
| UniRef90_H5Y1B9 | GKACG $\square$ EVGTAV A A L L N E |
| UniRef90_L9KIU6 | D E $\square$ C |
| UniRef90_C6D4P8 | GETCG\DVGAAMAALI I D E E |
| UniRef90_L5N8D3 | GDACGIDVVAATVA I K |
| UniRef90_G5JJA6 |  |
| UniRef90_UPI00035FB15B | GKACG $\square$ D V G A A AVA I $\square$ |
| UniRef90_K1LLP0 | SHAVGK ARSVVAVMNQ M M K K F |
| UniRef90_UPI000273D53C | GRLVHRKTCTTAFTQVNSEDKGTLAKLVEA\RT |
| UniRef90_A0A059CL43 | GEWAGLCVGCSCVVLKDFGEETEARHVVEYVK |
| UniRef90_W7CJ08 |  |
| UniRef90_UPI00037E5C1C |  |
| UniRef90_A5D5I4 | GKACHIDVGCAAAAVTE |
| UniRef90_11KGU0 | GEWA GLCTGCSCVVVK D F GEEEAYNVVLQHVK |
| UniRef90_H1X697 | ADATGLLARTVLAVADRGFAKKMREYLE |
| UniRef90_A8MFA7 | G S IIG K D S R T I $\quad$ V GI I D P GF A EKIL S M |
| UniRef90_A8MB78 | G G AL R R S H K $\square$ AVVAI ID PGES S I M S |
| UniRef90_S9VKN9 | A EWAGLSSRKCSCIAI REFGESRALD Y L M A QL |
| UniRef90_S0NYZ2 |  |
| UniRef90_C1E4C9 | GE WA G L C |
| UniRef90_G2KUB7 |  |
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| UniRef90_J5I340 | GRCLLGKE Y R A VAVLI D R GFAERLLDA Y L HEI P T |
| UniRef90_L9JFP6 | MYHCRLHT G NSEDNGALAKLVEA I R T |
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| UniRef90_G5BFG4 | GTACEKY Y R V CTL VI DD P D D S D M R S MPEQTS E |
| UniRef90_F5RP23 |  |
| UniRef90_K8Z7V9 | SQA $\square$ GQKR SVI GI R D K G F A K K ILK E Y L A E I E |
| UniRef90_UPI0002625831 | G VA C G \DVVGASAVA V K |
| UniRef90_UPI0004412438 | GTA A GKLFHVGVMTI TDPGDSDLL |
| UniRef90_I0Z2F4 | GQMFGCRKKMSAIIAILD Y S GAEAI Y H HMEAL |
| UniRef90-G1TTU0 | GTA CGKY Y R V S MLSI I D P G D S DIIRSMPEQ |
| UniRef90_D4J332 | GHA $\square$ GKEYRAS $\square$ V V CDEN L S S L D K L L |
| UniRef90_W4RU74 | GKA CGTAVVGASAVA I T K |
| UniRef90_B0THR2 | GQA $\square \mathrm{GLS}$ S PRTLVAVLDEGFAKA $\square$ H K A V |
| UniRef90_F4LSS9 | G D A CGIQVGGA A SAA L L S |
| UniRef90_U7UDZ9 | GNALLGKEQSV VVLI T D K GFAKADEDVL |
| UniRef90_H1D1Z0 | GQALGGKGVRTAALDIT DKGF GRA |

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SAAVGKARK VLAAVTDAGFTKKMRS $\square M E$
SNSVG KINRMAIAVLDAGFAKSIKS

GTACRKCYRVCTMPSIDPGDSDUIRSM
GKACG $\square E V D$ AAAVA I I


TTKKMKKSMLQLIMKNGKHVLGYKQTLKMTRQG $V I G K Q V R K A V Q G G$ $Y$ D KVVK Q A A K L S I G NK QATK TVVE Q G
 LRRADKSGAVVNGQKETRNCIEEG



V A K K K $\square$ K M L L E S I L K S $\square \mathrm{K}$ YV L D Y K Q T L K M I G Q G MS EA A FEREL K SV AK S GK L SLL G S R KAV K LLLLR N $M V A A K K T K K R L Q L V M K S G K Y V L G Y E Q T M K M V R R G$ EVLKNALADNGLI RGIHQCTRAIEKR E C L S GVI K S G K Y F V G I K E T L L K A V $V$ R N G
ER $\square$ Y Q K D P V R A KARRRLVMG LREV TKHMK L N $\begin{array}{llllllllll}G F & K & Q & L & K & S & R & N & G \\ G & V & H & A & A & K & V & L & \\ D & K & R\end{array}$
Q EVLIK TAFTHD D L V R G V H E A A K V L D K R
$K$ VSRKVVGIK QVSKAVERG

SEKDVSKDFK VIDSKANVLGRGDRNVNRAAVRLK $N L L G L A R R A S K L V T G Q E L V L S R I M S N$
 RPETKQEKQKKAAGKTKRPPVLQAGVNVVTTWVENK $\checkmark \mathrm{V}$ V G A K Q T l K V V E L G
 SKFCI HG $\quad$ KN K V TNF I R K K LRKADETGK IIK GAKK T $\square$ QLAK M G
 $L L G L A K R A G K I E P G F D A A V A A A R S G$
 $V L Q K S R E V N G L I V R G L S E V A R A L D R R$


E QK IV S Y I GLAMRA GKVV SGD D T T L K E L KK G K ALD MLG L A Q K A G K M V G G Y D A T N DA I L N K

PDSLEDALR\|VLMKARETNGLICGLSEVTRALDRR MYDEDLKTAPK ADIGAKQAAKAVEKG K T K K S LELLIN S R LQQLVME DGKYMMLGYK QT LKKMI RQ G $D K I H S L L G L A M R A G K L V S G E D G T M I D L K K G$ UniRef90-UPI0004657630
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DRAL RSS $\quad$ R T G N V M L G S N R T I E A GLLG G
LQRAL L GLLARKA GRLLAAGDHAARHALLQD G
K SLDKTGKVAAGAKRA DKY I K DS
$D K S L R S V M R T G K V L V G T K Q A$ I K A SKR G

K AKK T R R LVF GL REVKRGLVK G
K D K $\square$ K N L I G F A M K A G K

E K A L K DL V K T G V Y A M G F K Q S L K A V K A G
NKA I RTAVDTGKVILGGSRRTLKYLKHG
YK』GTKQTTKTVEQG

EDALKVVLRNSLVHDGLARGLREASRALSKR R QKAMNLI GLAMRAGKLITGEELTIADIRNE LQ A RAEARAA GKKE EVVTKRPNMVRFGDQNVTRAI ETA E T LLKN S R HK TVVGVK Q TQRA L E K G

 DK SLIKKA 1 RTGSVII GSTRTVEAAEK S K S EKKA G A K Q TRRA $\quad$ KEA G DKA L I K V I R T G K V I I G S N R T IDD A AVS E

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UniRef90_W9DZG1

## 


,


 KVHLVVILAEDTS ANTFKKVTDKCRFYNVECVQKADS LEEL


## K



E

K


$\begin{array}{lllll}K & A & Q & V I V & A \\ N & N & C P G E\end{array}$
EVKALVVABDADS KAKLVI LVVNC PVLVRKSETEYYA

D

## A

## H


$K A Q L V V I D H D M D P P$

## 



$$
\begin{aligned}
& \text { KALEVIVAEDAD } \\
& \text { TAHCCLEACE }
\end{aligned}
$$ $\begin{array}{lllllll}K & V & L & E & V & I & I \\ A & S & D & A & E & S \\ K & A & L & I & C & I & L \\ A & Q & D & C & D & Q & A \\ R & A & D & A & V & F & L \\ A & D & D & A & D & E\end{array}$


 $T A A H L C V L$


## R S K L I L IA E D $\square$ G K Q T R K K

| $V$ | $R M Q L$ |
| :--- | :--- |
| $L$ | $D$ |

 V A K L V I V A S N C QAKFV F L A K DA GKATSKK FTDKCHTYHV PCSQK FTKSQQL SALRVVYVAKDAE GHVVRPDLDQCRNHGIDVQDVQTMVDL



 $\square A K Q V L V A K D A D P$




 LA K E V Y I A K D A E H HVVER I DE L C


| UniRef90_L9KJA8 |  |
| :---: | :---: |
| UniRef90-R6J833 | GWA $\square$ GKAKR T AVV VLD C S F A N M $\square \mathrm{NK}$ |
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| UniRef90-M5JDF0 | GDATGLARSVIAVA DRGFAKKMREY L |
| UniRef90_D4W115 |  |
| UniRef90_UPI0004657630 | GL L M GKS PRAVVG\\|K E G F A D S I K R L M E |
| UniRef90-UPI000248E0DD | GKACG ${ }^{\text {K }}$ D |
| UniRef90_B8I5N4 | GK A CGI D V D A A V A C I |
| UniRef90_B1C1V1 | S SA $\square \mathrm{GKNNRV}$ ALLGIQDAGFAKS LK E |
| UniRef90_B6AIW5 | GEMAGLCVVGAASVAVT D Y G |
| UniRef90-UPI0002490439 | NQATGQ ARTVYGVTQEGFARKFKELLQ |
| UniRef90-UPI0002E34A33 | NQAMGT F NRKVIAVADEGFAKNLH T CLLK |
| UniRef90-A2SQE2 | GKECGRDHMDSVLAIVNAGESD\LS |
| UniRef90-X0RSZ4 | GKACDDEVGAA TV A I KK |
| UniRef90-H3ZMZ6 | GTMLGKPFVIA S L A I VEPGESK L L A |
| UniRef90-UPI00047DD8D1 | GEACGDDVGTATVAI K |
| UniRef90_D7E755 |  |
| UniRef90-UPI0002655F42 | GRLVHRKTCTTAFTQGNSEGKGALAKPVETDR |
| UniRef90-H0XIJ8 | GTACGKYYRVCTLAD D S CAS Gli R S MPEY |
| UniRef90_UPI00035D2D4E | GKA C G I DVGA A A V A L T |
| UniRef90_IOBUE2 | GK A C G |
| UniRef90-X6PH34 | E T G L R S K SVP S C L L L K D N Q A K K F DVLS K K $\square$ R K L |
| UniRef90-H1YX65 | GKTCGKPFMVSALAVEDAGESD\LS |
| UniRef90_R6HEB7 | GKACGDHVGAAAAAVLKD |
| UniRef90-D9TM49 |  |
| UniRef90_UPI000418C04F | GKAC G $\square \mathrm{D}$ VGAA TVAI K |
| UniRef90_G3WB79 | GTACGKYYRVCILAI I D S G D S |
| UniRef90_V4JZL0 | GS LLLGKPFKVSI I AVLDPGDSRILEVMESA |
| UniRef90_M3WVH5 |  |
| UniRef90_U61554 | GEMA GLCVVSVSCVGLTD F G D S N G Wh Y F Vie K |
| UniRef90_B5DL15 | GRACGKSFKVSCMAIT D P T A A AVIC A MVD |
| UniRef90_R6HQC3 | GSAllGKS PRTAVVI T D N N F AVMlQ K |
| UniRef90-F6QQ13 | GRCVNKLVPVSVVGIFNY |
| UniRef90-B7FDN7 | GTVCGRYF QVGTLAI T EA G D S D I R |
| UniRef90_D3ZEB8 | GEWVGLCKR S S CVVVKD Y D K E S Q A K V I K E |
| UniRef90_UPI000370CF53 | GRACGI EVGASAVALLRD |
| UniRef90_UPI00046EB940 | GKACGI EVGAAMAA I V K Q |
| UniRef90-N1ZH07 |  |
| UniRef90_UPI00035D71D6 | G K A CGDEVGA A MVAVLK |
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| UniRef90_Q1WUF5 | S SA $\square$ GQKR SVIA V N D $\quad$ G F A N R M K ELL |
| UniRef90_A4J105 | GRACN】EVGCAI AAI T E H |
| UniRef90_V6LRA1 |  |
| UniRef90_L9KPL8 | GHLVYRKTHTTV |
| UniRef90-W7YZX5 | GKACGDEVVGAAMAAII K Q |
| UniRef90_F7GX22 | A T G C G K Y Y R VC T LA I I D P G D F D $\square$ F R S M |
| UniRef90-A9BKW3 | GKLIKRK K T S CVAVI K H |
| UniRef90-B6YT18 | GT L L GRPH TVSALA VVDPGESK】LA |
| UniRef90_UPI0002FE8878 | SQATGASNRV VLSI TDPGFSKKMLELQEK |
| UniRef90_R5AGU3 | GRACG MRAGVLAVTDKGFSKAVQKLGNAV |
| UniRef90- C5D3R1 | GKACK\QVGAAAVAI I |
| UniRef90-Q4CSL1 | A QWA GKTFKCSCVAVRDFGERRALEFLLSHLR |
| UniRef90-D5MKK1 | GA A L G GGPRVCI AV M D P H L A G AL M S AL N K I |
| UniRef90_R6PMJ6 | GRAVGEEIRA VLVVTEAGFAAKLQQLA Q T |
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| UniRef90_R5X931 | GLA AGGKAPRAVI G I K D K A L S Q K I IELVQS |
| UniRef90-C8PDC7 | SHIMGKNRK I L A V T D S GFAKA IVMKKINE |
| UniRef90-M1Z887 | G R A C G I E VGA AVVAL |
| UniRef90_A4RYJ3 | GEWAGLCVKCS CCVI SD F GEETAALGDIQ |
| UniRef90_J5XM11 | GKACSIEVGAAAAAVLKE |
| UniRef90-A0A022RC96 | GTACGNYFRVSCLSIIDP G D S D I K S L |
| UniRef90_Q03253 | A Q WA G LTRKCSCLAVRDFGERKALD Y L L S Q L Q |
| UniRef90-F7NI98 | GK S C GID V ${ }^{\text {G A A A V A V L }}$ N N |
| UniRef90_UPI0003F0CF9D | GSAYGKYYRVCPLAI I D P G D S D F I I S MPE Q |
| UniRef90_UPI000376823F | G $\square$ S $\square$ GK D SRA VI GI K D $\square$ G F A NKII I Q L M D |
| UniRef90_F4C0G6 | GSACGKPFSVAALAI DEPGDSE!MA LQREDR |
| UniRef90-N4W8F4 | SHAVGKQ GRVA I SI DDEGFRDKLISLLDD |
| UniRef90_E6SJR8 | GVLTGRPQCA VLAVTDK GLAA A L RERLSA |
| UniRef90_Q980R3 | GTLCGKPFM\S TI SII D E G D S K I L D I K E |
| UniRef90_D1YXX0 | GPICGKPF IVSALTVLDAGESDIM |
| UniRef90-E3C6A4 | S Q A T GQSR TVI GVVVQPGFARKFEELL |
| UniRef90_L0F483 | GKACGDEVGAAVAALLTE |
| UniRef90-T0RXS7 |  |
| UniRef90_UPI00047EB0D6 | GHVI G K A P R A VI GI K D K S F A K L IE HI D NVEDS K |
| UniRef90_R5RBQ1 | S S Al GKKNRV AL GI Q D T GFA K L K E K I |
| UniRef90-F6V110 | GRSLNKAVPVSVVGIIFSDGA Q D Q F H K M V E LT K A A R |
| UniRef90_H1WQ09 |  |
| UniRef90-Q9YAU3 | GLVMGRRHGVSVLAVIDEGSSRILEQAEEA |
| UniRef90-N6VUE2 | $G A V C G K P F P V S T L L I I ~ D E G L S N I M D V L$ |
| UniRef90_A0A015ML90 | GD T C G $\square$ DVG A A M A AL I P D E |
| UniRef90_F0ZID2 |  |
| UniRef90_G8BBC0 | GEWAGLCVGASCVVI K N W G D S E E R ILLLES F S |
| UniRef90-P55768 | TQMIGKPRK VFGl V D N G F A K T K ELIE |
| UniRef90-H3ESK9 | G T V V R R K V |
| UniRef90-W0E4V2 | GK A C G I EV GA A VA A LT |
| UniRef90_U6B9N7 | GK A C GI DVA A T AVAI K K |
| UniRef90_UPI0002C54FBE | GTARGKYYRVCTLVTTDPGDSG\IPR\\|LPEQTGEKK |
| UniRef90-A8F978 | GKACGDEVVGAAAVAIDM |
| UniRef90_R6YTT9 |  |
| UniRef90_F7XQ16 | GPVCGKPFTIA AMAIMDPGESD L L A |
| UniRef90-UPI00047D8225 UniRef90-W9DZG1 | GELCG $\square D V G A A S \square A V L E$ <br> GPACGKPFLIAAMAIIDSGESD!LA |

UniRef90 B7GJ61 UniRef90-UPIOOO3EEOD2F UniRef90-A0A024UGU4 UniRef90_K8EI27 UniRef90 UPI0003B5DB02 UniRef90- Q8PUR3 UniRef90_UPI00040FD83E UniRef90 UPI0003F6349E UniRef90 A0A024VWA4 UniRef90_F4B7V4 UniRef90 G7E5Q6 UniRef90 T0CVM5 UniRef90 17LIM2 UniRef90-S0KQ82 UniRef90 A4H746 UniRef90 A0A017RTU3 UniRef90-E4LBM0 UniRef90_D2DSY9 UniRef90 R8W094 UniRef90-T1APY2 UniRef90-H7CX83 UniRef90 UPI0002C34F86 UniRef90-F9N6D4 UniRef90-HOWXL6 UniRef90 G3HSQ1 UniRef90-A0A059F5W6 UniRef90-M3X713 UniRef90 D3LWM1 UniRef90 UPI000424C00D UniRef90-U5UNA4 UniRef90_UPI00036A9EFD UniRef90 A0DIX1 UniRef90 ${ }^{-}$A5KBB 0 UniRef90_UPI0003B6B5B1 UniRef90_Q7QKD5 UniRef90 R7G139 UniRef90_N6TDY0 UniRef90-S7WAY0 UniRef90 R4KCV3 UniRef90_V9KDP1 UniRef90-Q5WLR8 UniRef90_S7QAH6 UniRef90 I7JZD9 UniRef90_Q7RKJ7 UniRef90_D7DU72 UniRef90_E1L695 UniRef90_A5GF85 UniRef90-D2RIB6 UniRef90 S5DWQ1 UniRef90-LOL119 UniRef90-B11150 UniRef90_E7F0K4 UniRef90_E4SJZ4
UniRef90_UPIO003F0BD4F UniRef90-E1RHU8 UniRef90 M3F864 UniRef90-13NFY0 UniRef90-UPI00018B80E0 UniRef90_G3GVL9 UniRef90_M3WSC3 UniRef90_Q8TXJ0 UniRef90_E5SRN6 UniRef90 UPI00046B894C UniRef90-F2HIE4 UniRef90-D6S5Q3 UniRef90_D2HKT6 UniRef90 D4L603 UniRef90-A0A026WG28 UniRef90-R9PJZ7 UniRef90 L1J7J1 UniRef90-UPIO0044410E6 UniRef90_G4Q301 UniRef90_C6PQX UniRef90 D5EA59 UniRef90_F6RRP8
UniRef90-Q67JT7 UniRef90-L2GVE UniRef90 JOKY14 UniRef90-R5EQU6 UniRef90_D8GJ46 UniRef90-UPIO0038BEC99 UniRef90-Q8R7U8 UniRef90_B9Y7V6 UniRef90 F6B630 UniRef90-UPI0003096557 UniRef90_D4YE40 UniRef90 L8HI21 UniRef90-17JBT9
UniRef90-D3QG27

YEKVVAQAKQ\|VVGTKQTVRALKDG $A V Q A$ AMAPKKLVIGGNAVTRFLERH A VQ A LIF SELLRRLQER LYKKAKSKKRFTFGMREVVKNVEDG $N L L G L A R R A N K L V T G Q D L V L A A I R K Q$ D K S L I KAVVK G KVI IGANRTVDAAEN G
 AVNKK TKK N A L A L T I K S G K Y A L G Y K S T L R L M R S G

M N K Q K
 $G L M Q K A G A L L S S G E V$
$K$
$K$

MLSELSQAAKVV GVKQSKKATREG

 RPETKQVKKQRLLARAKRPPVLRAGVNTVTTLVENK
 $P \square A K P L I N E E S L R L V Q A Y \square K S K N \square K R G I K H C S K K V H T S$ S D QRQMGVNTVPTLMENK $M T V R E K \square L N L L G \square A Y R A R K V L C G D F A V S A Y M Q K S$ KVAEAKPNIVIGMKQTLKAMKLG Q YVV G L K E T L K A L N K D


 SKAYAKNP $\quad$ K A $V$ AN KRFVV GFNEVLK LL ELDR PKADRKAFKKLYERDKKREGVIFGVNDDTKVVEQC L P L A L K T G K V NLLG F K E S L K S L V E K K F L GLVKK S GRLKEGYNKCEETIVAG LVRFQ DRLYQKDPIKAKKKRRIVMGLREVLKHLKLK YEKVEQA K D P I G K K Q TQQK A L H A R LA LVVK S GKYSLGYK SALK QMRS G REKALNLLGLATKA GK I I S GTEMVIA GLEK G
 $T I G A K Q T I K S I A K G$ LA EKKATGKRDVIT NKPPVLRAGVNTVTIDWVENK
 $E K V L K K A L K G G V Y F G S K R T I K A L K R G$ QKA $\square \mathrm{N} L \mathrm{~L}$ G L A Q R A G K L ITG T E T VI T E L DKAL A KA DR T G KVVVIG S K S TI IAA A V S G
 $K M K R S R Q K A D L L G B A E R A G K L T T G T E T V I T E T N K G$
 EKVKQTSKI IIGTK QTVKALKS G
 TKRTWKM RQG ERQDRMAVETGDVVLGSNQTDKLLK $\square G$ $K R \square Q D R V Y Q L G L Q K R R V V L G D R E V E A H I R R N$ K S RLLQ LI K S GKYVL RYK Q TLLMMIK Q G REKT ${ }^{2}$ NFLGLIQRAGKLVSGTDMVISSIKAR A AKKMKKS LLQLVMMKSGKYVLGYKQTLKMIRHG $L L G I C K R A G K L I T G A D T T, D S I I R K S$ PKAKK S S Q D N L L Q V V I S G KV A L G L K S AL K N M R S G EALKGNLTDLTKKNHFFQN I RS I NK LLLLQ G $D L V A R \quad R Q L A \square G \| N E V T K A L E R N$ L G L A Q K A G K TA A S G D M A V DKALLKVIIRTGDVVIGANRT■DVATNG QEVL KTALVHHGLACGDCKAAKTLNKR


$G N K V V G L K Q T V K A I K N S$
$N L V G L A H R A G K T V C G A Q A A E Q Q \| K K N$

[^0]UniRef90_B7GJ61 UniRef90-UPIO003EEOD2F UniRef90-A0A024UGU4 UniRef90-K8E127 UniRef90-UPIO003B5DB02 UniRef90-Q8PUR3 UniRef90-UPIO0040FD83E UniRef90_UP10003F6349E UniRef90-A0A024VWA4 UniRef 90 F4B744 UniRef90-G7E5Q6 UniRef90-TOCVM5 UniRef90-17LIM2
UniReftol-SOKO82 UniRef90 A4H746 UniRef90-A0AO17RTU3 UniRef90-E4LBMO UniRef90-D2DSY9 UniRef90-R8W094 UniRet90 T1APY2 UniReffo-H7CX83 UniRef90 ${ }^{-}$H3ESLO UniRef90-UPIOOO2C34F86 UniRef90-F9N6D4 UniRef90-HOWXL6 UniRef90-A0A059F5W6 UniRef90-M3×713 UniRef90-D3LWM1 UniRee90-UPIO00424C00D UniRet90-U5UNA4 UniRef90-UPIO0036A9EFD UniRef90-AODIX1 UniRef90-A5KBB0 UniRef90_UPI0003B6B5B1 UniRef90-Q7QKD5 UniRef90-R7G139 UniRef90-N6TDYO
UniRef90-S7WAYO UniRef90-R4KCV3 UniRef90-V9KDP1 1 UniRef90-Q5WLR8 UniRef90-S7QAH6 UniRef90-17JZD9 UniRef90-Q7RKJ7
UniRef90 D7DU72 UniRef90-E1L695 UniRef90-L5KZT8
UniRef90_A5GF85 UniRef90_D2RIB6 UniRef90_S5DWQ1 UniRef90-LOL119 UniRef9-B11150 UniRef90-E7FOK4 UniRef90-E4SJZ4
UniRef90-UPIO003FOBD4F UniRef90-E1RHU8 UniRef90-M3F864 UniRef90-I3NFY0 UniRef90-UPIO0018B80E0 UniRef90-G3GVL9 UniRef90-M3WSC3 UniRef90-Q8TXJO UniRef90-E5SRN6 UniRef90-UPI00046B894C UniRef90_F2HIE4 UniRef90-D6S5Q3 UniRef90-D4L603 UniRef90-A0AO26WG28 UniRef90-R9PJZ7 UniRef90-L1J7J1 UniRef90-UPIOOO44410E6 UniRef90-G4Q301 UniRef90-C6PQX1 UniRef90-D5EA59 UniRef90-F6RRP8 UniRef90-L2GVE5 UniRet90-JOKY14 UniRef90-R5EQU6 UniRef90-D8GU46 UniRef90-UP100038BEC99 UniRef90-O8R7U8 UniReft90-B9Y7V6 UniRef90-F6B630 UniRef90-UPIOOO3096557 UniRef90-D4YE40 UniRef90-L8H121 UniRef90-17JBT9
UniRef90 D3QG27
 $K A Q L V V I A B D V D P I E$
Q A C CVV V $V$ L A M N A S V Q S A A W H $\square M$ S M A N T F A V P I I V L D T S Q A L



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

 KAKLVLI A GNCPP LDRR SEELEYYAMLDSKTPVHYAGNNVTM


 K S K L V VI I A E D A S E N T K K K K F I D M M A K Y R N I K Y

N A QTVFFVAD DAE QRVIVRPI R DLLC CEELGGVELSEVVPTMMVEL



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

G

## ,

D
T
A
K

















 K A KLLVI FA ND F S K S S K K S V Q T A A D E C N V K T L T M N R S K E E I


 $\begin{array}{llll}\text { K A Y L I I I } \\ \text { D A K M } M V V & D & \text { A } S \\ S & \text { A } & \text { C P }\end{array}$





 K A K L V L L $\begin{array}{lllll}\text { C } & T & D & C & G \\ S\end{array}$






|  | 100110 |
| :---: | :---: |
| UniRef90_B7GJ61 | GKA C G $\square$ DVG A A A VA】 I |
| UniRef90_UPI0003EE0D2F |  |
| UniRef90-A0A024UGU4 | $\mathrm{GT} A \vee \mathrm{~V}$ LK |
| UniRef90-K8EI27 | GKLCGGPRYVSCVAVLND G L E D Q L K D M L R E |
| UniRef90_UPI0003B5DB02 | TNATG MARSVIGVNDQGFAKQMKAYLRK |
| UniRef90-Q8PUR3 | GPVCGKPFT@A AMAILDDAGESD@LA |
| UniRef90_UPI00040FD83E |  |
| UniRef90_UPI0003F6349E |  |
| UniRef90_A0A024VWA4 |  |
| UniRef90-F4B7V4 | $G T L A G K P F M V S T I G V E N E G D S K \\| L Q$ |
| UniRef90-G7E5Q6 | $G T A A G K V F R V G V L T V T R F D D$ |
| UniRef90-T0CVM5 |  |
| UniRef90_I7LIM2 | GKACGMPYVVSALA V I E P GES D L N |
| UniRef90_SOKQ82 | $\square \mathrm{D}$ S $\square \mathrm{GK}$ P R M VV GVVD H GF A R R I K E L L S E |
| UniRef90-A4H746 | A Q WA G LARRCSSVAI R D F GERKALDYLL S Q L |
| UniRef90-A0A017RTU3 | GMCLLGKSER SVLSINDEGFAKSFLS KLEA |
| UniRef90-E4LBM0 |  |
| UniRef90-D2DSY9 |  |
| UniRef90_R8W094 | GDAAG $\square$ DVGAAVVT L L K S |
| UniRef90-T1APY2 | GAVCGKPFSVSAVSVIEAGNSNILK K |
| UniRef90-H7CX83 | GYS S G R C E I N ILGVTIDENMAEKL |
| UniRef90_H3ESL0 |  |
| UniRef90_UPI0002C34F86 | QEASDSHFPLCLVV REDKGALAKLVEADRT |
| UniRef90_F9N6D4 | GQAA H I K VGA A AlGVL |
| UniRef90-H0WXL6 | APVIGLK CVLALGFKK T T D F VidVK I |
| UniRef90_G3HSQ1 |  |
| UniRef90-A0A059F5W6 | K VA S P E S D Y VS CVFF $\square$ D E S N A K E L F K L |
| UniRef90_M3X713 |  |
| UniRef90_D3LWM1 | GRAA GNKHV VIGVT D A G L A R A M R E R Q A M |
| UniRef90_UPI000424C00D | GEACGDDVGAAVVSI K |
| UniRef90-U5UNA4 | GEYVGINVNAT\\|VAILLNEN |
| UniRef90_UPI00036A9EFD | GQACMIEVGAAAAALLK |
| UniRef90-A0DIX1 | G T GVQR E |
| UniRef90_A5KBB0 |  |
| UniRef90_UPI0003B6B5B1 | GELCHLKVGAAAAV |
| UniRef90_Q7QKD5 | GF HLL K K A P $\square$ S CVGVL |
| UniRef90_R7G139 | GHAMGKEFRAS L VI L D E GFAKG!RKH!D |
| UniRef90-N6TDY0 | E K I C G F S S I A I GF T Q P VK Y E DIQ Q T I E K L |
| UniRef90_S7WAY0 | SKNCGKYFRIGVI S $\quad$ I Q D F GEADLMNAMAQA |
| UniRef90_R4KCV3 | G T A L G R P E I NI L CI T D K N M S K KLL L L W Q K |
| UniRef90_V9KDP1 | GQCVNKPVPVSVL GIFS Y D G A E |
| UniRef90-Q5WLR8 |  |
| UniRef90- S7QAH6 | G T A A G K L F R V |
| UniRef90_17JZD9 |  |
| UniRef90_Q7RKJ7 |  |
| UniRef90-D7DU72 | GA 1 CGKPFPVSALVVMEPGNSS L L N |
| UniRef90-E1L695 |  |
| UniRef90_L5KZT8 |  |
| UniRef90_A5GF85 |  |
| UniRef90_D2RIB6 | GAACGKPFSVASLAVDDA |
| UniRef90_S5DWQ1 | SHADSKKRK VLG L T D V G F T K A L I K K $\square$ NE |
| UniRef90-L0L119 | GPVCGKPFVIA ALA A LETGESDILA |
| UniRef90-B1II50 | GSVLGRDF I K I L A V K D E G M A N KL L K L |
| UniRef90_E7F0K4 | GRCVNKAVPVSLV GIV F Y D G A Q |
| UniRef90_E4SJZ4 | SKAl G K K R K V L GLT D A GFAKA LVK R $\square$ N E |
| UniRef90_UPI0003F0BD4F | D T A Y G N T R V C MLA S ID P G D D I I R T M P E Q |
| UniRef90-E1RHU8 | GK T S GNPFMVS ALS I E D A GESDUL |
| UniRef90-M3F864 |  |
| UniRef90_I3NFY0 | APVIGLK C CVLALGGFKKD T T D F VDEVRAT |
| UniRef90_UPI00018B80E0 | APAMGL TCVLAL GFKRNTAAFAEEVRAI |
| UniRef90_G3GVL9 | GTACGKYYRVCLL A I I D P G D S D |
| UniRef90_M3WSC3 |  |
| UniRef90_Q8TXJ0 | G DVVC G P P HVVASMAVLD D GES DLI A TVVR A M E E |
| UniRef90-E5SRN6 | A KLCMKQATV S VVGVLEHQGATQFNELKEM |
| UniRef90_UPI00046B894C | GXKCEKYYRVXRTAIIDDPGDSA@IRSI |
| UniRef90_F2HIE4 | RKLSNKK STS CVTI A SENDQEKKSKIVD Y F N |
| UniRef90-D6S5Q3 |  |
| UniRef90-D2HKT6 | QK NLLRYRVCTLVI I D P G D D II R SMPEQ |
| UniRef90_D4L603 | GFALLGK ICGVMT TEDKGFADKLE QLIE |
| UniRef90_A0A026WG28 | GWA CHLS V G $\square$ S A $\square$ S $\square \mathrm{K}$ |
| UniRef90_R9PJZ7 | GTAAA I M F |
| UniRef90-L1J7J1 | G $\square$ A A G FP S S C S V VM $\square$ R R A E D K K L Y K K V H K Q VK E L |
| UniRef90_UPI00044410E6 | K SLLALGGFRRCS SEDKEMFRDTVDA I K |
| UniRef90-G4Q301 | GQALG K A P R A VVLLD K N F M K M M |
| UniRef90-C6PQX1 | GKALLGME |
| UniRef90-D5EA59 | GTVCGKPY T $\square$ T T M A V V A GESD I |
| UniRef90-F6RRP8 | GEWA GLC |
| UniRef90-Q67JT7 | GKACGIEVVGAAAAAILE |
| UniRef90_L2GVE5 | ARSCDKFYRVGVLSI I D D GEAD |
| UniRef90_J0KY14 | $S \square A \square G A N R \quad T V L A \\| D D L G F S K K \square M M L L$ |
| UniRef90-R5EQU6 | GRACG\I V ${ }^{\text {R }}$ |
| UniRef90_D8GJ46 |  |
| UniRef90-E2ZCQ5 | GLALGRS Q T AVIVVTTDKGFAEAMDKAVQEME |
| UniRef90_UPI00038BEC99 | GEWVGLCVGCSCVVVKD Y G K E S A A K DVIE E |
| UniRef90_Q8R7U8 | GRMCGIDVGGAA T A A DV |
| UniRef90-B9Y7V6 |  |
| UniRef90-F6B630 | GSALGKS PRAAVA L L D N F A Q GVGRLLE |
| UniRef90-UPI0003096557 | GKACCI |
| UniRef90_D4YE40 | $S \square A L G K K R, S \square V A L L D R G F V K S F K K$ |
| UniRef90-L8HI21 | GKA \( |
| ) S K R L K I A ALLA I L D P S GAEEYYK Q |  |
| UniRef90_17JBT9 | GAACGKMFR\\|GCMAVI DPGDSD\IK S |
|  |  |

UniRef90_C8W3X9 UniRef90-M2NDJ9 UniRef90-F7IJ70 UniRef90_D8GS29 UniRef90_A6UV48 UniRef90_R6VT39 UniRef90-A0A059EU51 UniRef90 Q6Y678 UniRef90_UPI00047C3D42 UniRef90-H6LBW0 UniRef90_D3R079 UniRef90_V4TWE3 UniRef90-J6F9V1 UniRef90-H2YJSO UniRef90_R1CGS5 UniRef90_M3WTZ3
UniRef90_J8ZZN5 UniRef90_A2E9B5 UniRef90-GOVNG0 UniRef90-J9F4C6 UniRef90_Q6CLU4 UniRef90 ${ }^{-}$C1E9H2 UniRef90_UPIO003653EDB UniRef90-UPI0003F6C447 UniRef90 R5BN95 UniRef90-Q8XHR8 UniRef90-KONW06 UniRef90-W7TQK6 UniRef90-V4LDG2 UniRef90-X1UC38 UniRef90-H3GNQ5 UniRef90-R6PAF7 UniRef90_UPIO0046A8EF4 UniRef90_A0EFR5 UniRef90 V1DBY0 UniRef90-UPIO0024910D6 UniRef90-H8Z933 UniRef90 Q9VSH1 UniRef90-R7IIF0 UniRef90-FOZRU1 UniRef90 W5Q9F2 UniRef90 F5WT74 UniRef90-R7GWH8 UniRef90-UPI000333AD0B UniRef90 T0IU82 UniRef90-UPI00021A5E57 UniRef90-M1Z7B6 UniRef90_C7ZWL6 UniRef90-J9W565 UniRef90-J4KFU9 UniRef90_UPI000258D8CE UniRef90_UPI00035C25AC UniRef90 A9A464 UniRef90-E9CH32 UniRef90-F7FTK0 UniRef90_G3GVS1 UniRef90_UPIO0027F80A6 UniRef90_A1L1D0 UniRef90_B0PH16 UniRef90 X8K318 UniRef90-B2TJ54 UniRef90-G3SBB4 UniRet9o_DCU2 UniRet90-R6GS19
UniRef90_A8BUG8 UniRef90-U6F1I1 UniRef90 U4KP88 UniRef90-M7BMM9 UniRef90-R5FUU3 UniRef90 G4KZ47 UniRef90_AOBKM1 UniRef90-W7L6E6 UniRef90_Q8SSK9 UniRef90_M8BIW5 UniRef90-A8MLD4 UniRef90-A0A059F4B9 UniRef90_B3L4A2 UniRef90_H2N4M6 UniRef90-R9CDP6 UniRef90-H9KKX1 UniRef90 B3M9E1 UniRef90-R6TCF2 UniRef90-I1LAT7 UniRef90_Q0CPK6 KKILGLIGLSAKARKISFGSDSVEDSIKNR APKMRTDKKYELI

 $K$ VKKRFVSGGREVLKMLEVD KMKKPLESVNSRLQLVMESGKSMLGYKQTVKMIRQD

 VFKSGKKADGAKQTVRAVEKG
$K K \nabla V G T K Q V K R A D M S G$
LGLARRASKIVSGQDMLLSQLRSG
LEKLDRSARRI AGVKQVERAVLSG K IS NSVVLGUNAUTRALEKE $K T E L T V L R R T G K F V L G F R Q S Y$ L $A M L R R$ K ILEKSLKDAHKEGKLTMGTKQVLNSVKNS QEVLKTALIHEGPARGUVEAAKVLDKC
$\square V R F Q \quad D R \square G K E P A K A K S K R R L V M G L R E V L K H L K L Q$ LICRKARRLRMGADVVRDNVLSG AARSKNI QVGYNTALMLI AK R
 $K \square S N R V L E K I W F K Q Q F S I G V N E V T R V L E R M$
 NKTLGLAY $\square A K K V V V G T D F V V E S L R K K$
 MTDELVSLDKSSDKVV GTKQVDKAIMDG L GLCKRAGMLEVGEEPVESAVRAR
 MTLQEALSKVCKVSRTYCKLSRGAKETTKKMLAD
 $M L E K L E T Q N K T V G Q K Q S M K A L N Q D$
$Q V F S A K G H N Q L V V G F R Q V A S U L Q R E$ MVA AKK LGLVAKSGNVVEGYSKCDEQRNRK KARAHPRLVLGFNEALANLRGK


पA LVMKS
 LIGMARKAGQVVSGTRQVLSEVRSG TSTKKTKKKLQLVMSGKYTLGYKTVLRTLRNS

NPERKEEEQRRSALRS QLIAFGVNEVTTRSLEKD
UniRef90_C8W3X9 UniRef90_M2NDJ9
UniRef90_F7IJ70 UniRef90_F7IJ70
UniRef90 D8GS29 UniRef90_A6UV48 UniRef90_R6VT39 UniRef90-A0A059EU51 UniRef90_Q6Y678 UniRef90_UPIO0047C3D42 UniRef90_H6LBW0 UniRef90_D3R079 UniRef90_V4TWE3 UniRef90-J6F9V1
UniRef90 H2YJS0
UniRef90_H2YJS0
UniRef90_R1CGS5 UniRef90-M3WTZ3 UniRef90_J8ZZN5
UniRef90_A2F9B5 UniRef90_A2E9B5
UniRef90_G0VNG0 UniRef90-J9F4C6 UniRef90_Q6CLU4 UniRef90_F3A7P5 UniRef90_C1E9H2
UniRef90_UPI0003653EDB UniRef90_UPI0003F6C447 UniRef90_R5BN95 UniRef90_Q8XHR8 UniRef90_K0NW06 UniRef90-D4A9C8 UniRef90-W7TQK6 UniRef90_V4LDG2
UniRef90 UniRef90_H3GNQ5 UniRef90_R6PAF7 UniRef90_UPIO0046A8EF4 UniRef90_A0EFR5 UniRef90_V1DBY0 UniRef90-UPIO0024910D6 UniRef90_H8Z933 UniRef90_Q9VSH1 UniRef90_R7IIF0 UniRef90-F0ZRU1 UniRef90-F5WT74 UniRef90_R7GWH8 UniRef90_UPI000333AD0B UniRef90-TOIU82 UniRef90_UPI00021A5E57 UniRef90_M1Z7B6 UniRef90_C7ZWL6 UniRef90_J9W565 UniRef90_J4KFU9 UniRef90_UPI000258D8CE UniRef90_UPI00035C25AC UniRef90_A9A464 UniRef90_E9CH32
UniRef90 F7FTK0 UniRef90_G3GVS1 UniRef90_UPI00027F80A6 UniRef90_A1L1D0 UniRef90-B0PH16 UniRef90_X8K3I8 UniRef90_B2TJ54 UniRef90_G3SBB4 UniRef90_D7U2U0 UniRef90_R6GS19 UniRef90_A8BUG8 UniRef90_U6F111 UniRef90_U4KP88
UniRef90_M7BMM9 UniRef90_R5FUU3 UniRef90_G4KZ47 UniRef90-A0BKM1 UniRef90-W7L6E6
UniRef90 Q8SSK9 UniRef90-Q8SSK9
UniRef90-M8BIW5 UniRef90_A8MLD4 UniRef90-A0A059F4B9 UniRef90_B3L4A2 UniRef90-H2N4M6 UniRef90-R9CDP6 UniRef90_B3M9E1 UniRef90_R6TCF2 UniRef90-I1LAT7
UniRef90 Q0CPK6 UniRef90_UPI0003C1A499 UniRef90_Q3A4A8 UniRef90_M7Z0T5 UniRef90_F4X9K9 UniRef90_V9H324







 QA H L C V L A N N CD K S S Y V R L T K A L WN EH Qi Sill K V N D N K K L




 $R A K A V V V A P N D E E T E Q V G Q D D E E A K A N G T P$ LI FALDTRGRL


 QAHVYVLAASDCDEPMCVKLVVYALICAEHQINLIMADDNKKIL


E L R V V V LA N N P E S L A F
 $K$ SKQVLIVYDVDP
 DTMKKLIGKAEKNEVRYGFIYRNKQLL TVKLVI MASDCSERTN KTMHDKANYYQTDIIDDNFNS E E L


 $T A K V V L I S A D L S P K T A B E V A F F C Q R Y Q V P L Q E T D T M D Q Q$
 LA T K V $Y$ L A A D A D R RVV A P L A L L C N Q K E V QV D D Q S T M T E L
 KIFFL FI A EDTGKATQKK FNDKSNYYHIPVNNSYTKAVL
 K K $\square$ RIVLSQ

## 

EAKILVLLITS DIAA E



 MDK KI YLAAKDCDEK ILT QI EEAAAEGRTDENIVVVDTMKE
 T L R CVV I V S D DA D G Y MVVD KVV E K A A K S A A N V K V Y H T A S M V E L $D V R V L L L A S D A A E A R R A A H F S E M G Q C L Q I R V P F \quad T$ K E E E L

 ISEFVVVMAADTEPLEI LLHLD LLAAE

 NPKLVLLAAPNDEPMD QVNKI I CK CREK GI P L V Y A L S K NLL

 KVKL L LAATDCEK D ELLDEGLKFQCQQHNVPYCFSLVRREF
 KAKLI LI A GNCPP LRRKSELEYYAMLAKTPVHHFS GN




UniRef90 C8W3X9 UniRet90＿M2NDJ9 UniRef90－F7IJ70 UniRef90＿D8GS29 UniRef90 A6UV48 UniRef90－R6VT39 UniRef90－A0A059EU51 UniRef90＿Q6Y678 UniRef90 UPI00047C3D42 UniRef90－H6LBW0 UniRef90 D3R079 UniRef90－V4TWE3 UniRef90－J6F9V1 UniRef90－H2YJSO UniRef90－R1CGS5 UniRef90－M3WTZ3 UniRef90－J8ZZN5 UniRef90－A2E9B5 UniRef90 Govngo UniRef90－J9F4C6 UniRef90－Q6CLU4 UniRef90＿F3A7P5 UniRef90 ${ }^{-} \mathbf{C 1 E 9 H} 2$ UniRef90－UPI0003653EDB UniRef90－UPI0003F6C447 UniRef90 R5BN95 UniRef90－Q8XHR8 UniRef90－KONW06 UniRef90－D4A9C8 UniRef90 W7TQK6 UniRef90－V4LDG2 UniRet90－X1UC38 UniRef90－H3GNQ5 UniRef90－ $\mathrm{R} 6 \mathrm{PAF7}$ UniRef90＿UPIOO046A8EF4 UniRef90＿AOEFR5 UniRef90 V1DBY0 UniRef90－UPIOOO24910D6 UniRef90－H8Z933 UniRef90－${ }^{-29 V S H 1}$ UniRef90 R7IIFO UniRef90－FOZRU1 UniRet90－W509F2 UniRet90 F5WT74 UniRef90－R7GWH8 UniRef90－UPI000333ADOB UniRef90 TolU82

GKACGIIEIVACAIVAA
SQATGKSNR MAIGTTEKGFA NKLINSDRGL GECVGKVVGCSCVVVNQKKDYGKESQTKDVIKA GNAIG SSETKVVGVTDKNMGKALMNLLKKNEKL GAICGKPFPVSALIVMDPGNSTILN
GNILG NAACACVAFTDNGFASMYQRATEQ
G

GKASGDDRAAAVIAIIK
GRVTGADMRVAGAVTGADLAAGLRSVLDKM GQWAGLSVGCSCVVITNYGAETALQVLLDYFKT GEWSGLC
GKACGI DVSAASAAVLK
GEWVGLCVGCCSVVLKDYGKQLQAKDVIKK
GSIVG
GKEVGMKS的目S A
GMACHTKVKAAAVGLLK
GE WIALCVGCSCVVVRDYGQDDAARAFLQE
GEWAGL
S $\mathrm{DA}_{\mathrm{A}} \mathrm{G} \mathrm{RDNRV}$ AVGПTDSGFПKKFKQLTEE
GQIVCKRMRLSALAVLDSGAEEQFKKMLDDAKE
GKVCGIDVDCAAAAVL
SKATGAYNRVVLAI TTDHGFARKDKEL
GKAGKIKVKAAAIGVL
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GEWGGLC
GQALGLKC■AA
GELVKLKT A
GNAARINTASSAVAI LGTGNDKALEDIIKKLEVLK GRLFQLKSMVAVGI RAPKTSGNETQNVAEVDTLQ
 GGF UHSKTA ${ }^{2} \mathrm{FI}$ ALIKD
SKMTGTC GKIAFAV TDEHFAD IVKEDDSDKS
KKSПGKDRK VMGI TDLG■AKRLLKEПMQK

GAACGLD

SWSTGM TNRVAVGVSDRGFSKVFKSLVE
RQAIGRKTG VLAICDAGFARGLCSRME
GERVGLCVGCGCVVGKDYGKESQAKDVIDE
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GE WVGLCVKCSCVAVKDDGDTEAWSTVQEYDKT
GKNCKDDVSAASAAL $\square K$
GПALGKGERV NVGITTDPGFAKKLLSMIDE
SEAIIGMKRT\｜IGISDRGMAKKLVELTD
GERARLDVGAAAVAI L
TLSTLGFACAACALKND
GRLLGKPFHASTIAVLDPGTSS
GRLCGLQFR ITSTISFTS DDDAN
ARALNIHVPVSAVGDT FDGDHQEYKSML

GAAAGTKHPTCVIRVKPHKEYQE
GRCLDNKAVPVSVVGVFSYDGAQDFHKLCE
APVAGKHYG VFAVCDRGFADMILGLL
SHMTG NVDKGVFAIVDKGFAESICKEIDLIQ

G $\square$ A CGKY CRVCML
GELVK LK T A AA IG $\square K A R E N G \square N Q L V E E \square$
GRALGR TSCAMAAVTD DGFAEA VKKLAAL
GELLGQVRCLA
GMLCGDDVGATDAVVLHE
S K A G M H NVVKVIGI LDK G F S DLLLVK
SESIAPMLGTSVLALLGFKKNSDTFTEVVEAD
GKVCGDEVAALTAGIKK
GKAVGR ADCALLGVTD $\square G F A A A \square A$
GRAFSGKFGGSVISVVNYQNEEQFTKLIQ
GRIVGVENVSSSGKVRSKG
GKACG $\square D V G A A V A A V L K$
AS LDAGKGGKDGVIALKDFVFA
GK C I KKKSRQSVI CIVDNDSYRECEE IVRLANSLR

 AYALQKRAHIACVAVLDYDFADVLHELEDARKEYK


APLLGLK SVVALGFRRYSAMFAE QVKA
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GFHLGR GSCAMLADTDAGFAAADTEKLAA
GTSUGRE EVK【LALDENMAKKLYTLYEE

UniRef90_Q22W26 UniRef90-UPIO003706399<br>UniRef90-K8EHQ8 UniRef90-R5YHE4 UniRef90-E6W7D2<br>UniRef90-F4W6P4 UniRef90-UPIO0036C4095<br>UniRef90-R5MXM2<br>UniRef90-UPI0003C395D2<br>UniRef90-R5D959<br>UniRef90-U2Q1F7<br>UniRef90-G5H0R9<br>UniRef90_U1GY33

1





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GK L CG L Q F R V S A T S L
GRCLGAKM TAVLTVNDGGFARKDTEDIRE A Y ILYKKAS \(\square\) S CUGVLDDGLDR TFQEITAA LDNDAR GRALGRSSCAMA AVTDVGFADA!VK GKMCSIEVGATSALMLDE GERARLDVSAAAVA
```

```
lupas 21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
```




[^0]:    P PKRVVGAKQTLKAVLNC $L L G \square A A R A R K V A T G B D V M A A I R Q N$ $N L L G L C Q R A G K A V S G D F A V R A N I T K$

    YEKVVK Q A SKTIIGTK QAVKA I KA G
     $K R Y \vee C G L R E V V L D S V E R R$

