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पAEHLLKPL S EDE FADVNTEGGVVNPFLDACNLAL FDKLNGTAFA VVSAGK FP VPDDKQ:|KTEEFLEACSKIPSVFDLLGGKVFY EHQFQPVPEDGKVETGPFLLASLRLLPFFDMLGPTTFS DEADGG1PDEHFLSACRCMVPIFDKLNATAFA LGADGGI PSQPFLAACTEIISFLDIGGPTAFA MNARFEDVPTDGGI ATEPFLDACAALVPIFDALGSTAFA VMSNRFSDLREEEGIPTEEFLESCYAIVPVLDKLGPTVFA ADVPTEGGVETSGFLEATEGLVKLFDLLGNSAFA FADVPTDAGVDTLAFLEAAEGLVRLFDLLGSTAFA LMEHQFRQLPADRQVETRPFLEAVSHLPPLFDCLGSTBFA MKKSFKDVPTEGKISTSEFLEASESLVKLFDLLGSSAFS FADVPTDAGVDTVAFLEAATGLVGLFDLLGSTAFA VAGQSFADVPTDAGVDTLAFLEASEGLVKMFDLLGSAAFS RRSFADVPTEGGVDTAAFLEACEGLVKLFDLLGNTAFK MDHSFVELMPEGAI ETQKFLDCCRSLLPVFNVLGATVFS VMEHSFNDLSPATGIPTEQFLNSCRSILAVFDVLGSTAFV VLVTFKKCLTDNQEVLLDPYLEGWKGLVRFLNTMGS AF S MKRSFKDTPVDEQISTXEFLEASSSLVKLFDKLGSXAFQ MKRSFADVPTDEGVDTDAFLEACEDLVRLFDLFGSKAFT
 TDEGVETSTFLEASEELVKLFDLFGSKAFA PVDADKEIATSEFLDAAESLTTIFDALGGVAFG LNKSFADVPGDNGI STTEFLEAAESLVTLFDLLGSKCFA DERYPK TVEGNLETQQFLIASRLVVLEEKLGK AFT VLDTFKLCLSENKEVYLEQYVAGWRGLVKFLNSLGS VFG VLVSFKQCLTEEGEVLLDHYITSWKGLVRFLNSLG TIFS EDVMSPDGIDVSLFLEACHNLLPLFDKLNSTAFA

LQKHFSDPVDADQGTPTEDFLAAAASTTTLFDLLGSVAFT VKHFEVPGDDGKIDTLALLEAARGVVEMVSAFGK AFS MKKSFKDVPVDGKUATDEFLQASESLIKLFDLLGSSAFA

## MKHVKS

EQGEMLTKPFLEVCKLILPVLDKFG
A A M S DVDTSKGTDTEQFLEATEGLVKLFDLLGSAAFS LEGFKTVKSDGGEDLTKPFLEVCKQ1LPVDDKFGAAMT DHFDQALTENDDIVLKAYLDAYNELYKFFQLMGS VFS ■KRSFTDVPVQADI PTTEFLEAAESLVSDFDVLGSAAFS VLAAFQACVTEQREVLLGPYLQGWRGLVRFLNGLG AIFS FAEVPTDDGVDTVAFLEASEGLVGLFDLLGSTAF LLDTFKQPINADKEIGTSEFLDAAESLTTIFDALGSVAFS HFEDPTTADDGI STTEFLDASEATTTLFDLLGSVAFT FPGPTEDEKISADEFLLASSHLANFFGILGGTVFT VLDSFRTCLTDQGDILLEHYLNGWKGLIMFMNSLGSTAFA $V L A A F R A C L T A E Q T V L M D P Y L R G W N G L I R F \square N S L G T D F S$ DTSFVDVPTEQGVDTVAFGEATEGLIKMFDLLGNPSFT
EHLFPCLODDSGIPTEQFLSACQGLADFVGFMGTAFA

$P$ VK N D M N G NVK K $\operatorname{DR}$ R R Y N A S P S N S G T L Q S L C K NELLA
 VVVQNDMQGNVDKI RKKLLESPDVDAATLQDLVLDEKD PPSPNTSASSLQKI RAVVYDSNPTKFKTMQNGLDVEKEMHGAA LVK S D $\square G G N I T R L E N K Y L S N P E K Y K N L Y S M V G E E V E A K T A$
$V$ V Q N D M N G NI K K I R E R LL S N P T A N A T L Q D L M A T E
 FVVSSDLK Q KI D L L S N L L N K D D E Q Y V T V K S MI E Y E K E N K L L PVK S DMLGNVEKI RQRFLAAPTESETLQDLVNNEQKAKEN



$P V K N D M L G N I N K L R E R Q R A A P E G S A T V Q Q L V K T E L A S K S H$ PVKMD ILGGNI RKLNQKYMTDTEGYAS LQLIVGEEIQQKNRT PVQS DI A G NVK K L R K F $\square E D N P G K V V Y V N D I I L L E$

FI S K D AVGGKI QIMENYRGESSQQQYTLQSMVKYEMENKVV $F V$ S K D A V T K I Q I M E K Y R S S D Q E R Y ETTL Q T MV E Y E L A S GL V


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 I KVNVIKAYEEALKKYHGWVVQKIFSAALCAAPYRSNFLK I RVNITKAYDQALKKYHGWLVQK F K K A A L L A A P Y K S DF I K
 I RVNLSKAYEVALKKYHGWLVQQLEKAALETAPYKSDFLR I RVNATKAYEMALKKYHGWIVQKIFQAALYAAPYKSDFLK $\begin{array}{ll}L & A P C A T K A Y E K T L K K Y H G F L V R G V\end{array}$ LVVCAKKAYESSLKAYHGWMVQSI FNLAMKAVPYRKDF I K I RVVNANKAYEMALKKYHGWLVQQKIV FKAALYAAPYKK DF K K K K K K I QTALNVAYGRTLRQYHGWVVRGVFALALRAAPYYEGFMA LRPCAMKSYDANLKPYHGWMVQNI FSLITRAVPNRKDFDE KLDDNAYGKTLRQYHGWVVRGVFALALRAAPTYEAFVS 1 HLNTTKAYKMVLKKYHGWILQQIFQAALYAGPYKS I RVNATKAYEMALKKYHGWIVQKI FQAALYAAPYKSDFDK I QTALSNAYGKTLRQYHGWVVRGVFALALRAAPTYEGFAT I QGALNNAYGKTLRQYHGWVVRGVFALALLRAAPSYQSFSA I RVNALKAYE DALKKYHGWMLQKLFSGSVYALPYKSDLLK II HTALNNAYGKTLRQYHGWVVRGVFALALRAAPSYEGFAA I QGALNNAYGKTLRQYHGWVVRGVFALALRAAPSYQGFAA LVKVAKAAYEGSLKKYHGWMVQGIF SGAMKAVPYYDDFVR
 I RVNATKAYEMALKKYYHGWLVQKIVGHVA
LSVCASNAYSRTLKNYHGWVVRGVFAVAVKADPYREDF $\square$ T LSVAFTKSYEGTLKKHHNFVVKGIFAVAMKACPYRADFFT LTVSFTNSYNETLTKYHNMLVRGIFKVAMKACPYRKDFYS LKECAKDA YKDSSLQSYHGWIVQGKLVQAATSACPYRSDFYS
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 LAAAFDKS YE GT L K K F H N F VVVMG I F S V A M K A CP YRA D F Y A RVNDTKAYDQALKRYHGWIVQKVFKAALFAAPCRSDFLK
 LT DCA GA A Y GK T L K P H H N WLLVR GIV A V A TKAMPSMKA F QR VMPCASVAYAATVKCHHGWVVRSIFAVALRAMPELEPBDA V L C T DA Y N A S L A N Y H P WI I R K A T T V A FY T L P T R D A F L E MS RACTEAY GKTLKK WH G WL A S S S F S V A M K LAAPDRK K FME MTETFTTAYKGTLDKYHSMFVRPDFKLAMKACPYRKDFFA
 S VQTA YVK TLK E F H G WVVRGVFAVAVK SLPTHEE LLE LSESFVVKGYETSLKPHHSFVVRPVFGLAMKACPYRADLYA L S E S F RNA Y S T T L K P H H S F L V K P I F S A A M S A CP YR K DFYA L S N S F R D A Y G R T L K P P H H S F VV V K P I F S A A M S A T P Y R K D F Y A L G A A A S SVA Y T K S L K Q W H H N W W V R G I F F N L A V K A V P Y Y A D F L K


$L S V S F T K A Y E V T L R Q Y H S F V V R P V F S L A M K A C P Y R K V F Y E$ L S K C A Y G A Y D R T L K P Y H G WV V R GI F AVVAVK A L P Y R D D F L T I R V N A N K A Y E M A L K K K Y H G WL V V Q K I F F K A A L Y A A P Y K S D D F L K
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352

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EKVKQQYEEWLLAFEKVVQRLNNFYTEGG ALSSDNGQTENDVIED I Q Y SKS LGSUI DII NNFYKKFNL

 KLAGGPPVPDDKLNDELNKWLAGLENILTRVEAFYEKGG
TMNVG
K L G A D Q
TAEEAVTMLGDALPY DCEVYK TTEELYAQHKL KLAGGPSVPEAKVSEQLKEWLEALESVVGRGEAFESGN
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$\qquad$ KMG EKVS A D KMG TKERVDTELERWLSALEMIVNRIQSFYEKGN S LKK K E DT DEEVDGHMKDSNEALKCTIDEINKYYAAKGL $V L T S D P S D A D R S V Q Q D M Q S Y V E P L Q T I T T T L H E F Y T L H D L$ KL G
KLGDDQD
KLGDDPAK $\square$ D
 AA L R REVEALEKIVATLNEFLARK
 $V M N V G P P$ TMNVG K SSDQAVEMLGEALPFIEHVYDISQKLYAEHSLL KL GGDAPAAKVQSELQNWLTGLETVVNRLDKFYEE



 VI GGSGDVN K GGSGDVNGDMDKFCTAFAPLLEENHKFLASVGM KI G VI GGNGDI MGDDDKFCTTFTPLLKENHKFLASVGM KLGBDQD NVQRNDUPKMLEITADVYNRTDSUYETYQL
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 L S E A F T K GYE GSSLKKHHNFVVVKGVFSVAMKACPYRKDFYE LAASFRNAYGSTVKPHHSFVVKP』FSAAMSACPYRKDFYA MS QACT D S YTK T L K K WH G WL A S S SF T VA MK LAAPNREK FME LA ES F R N A Y G AT L L K P H H H N WM V V Q K LA D S F R T A Y S E T L K P H H S F V V K P V F S A A M S A VP YR K D F Y A L S K T F T D A Y G K T L T K H H H G M L V R P V F K L A M K A C P Y R K D F F A MS K A A S NA YNSTLSKHHNWIVRGLFSVVVLQSVPEYSTFDK

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 L A D C A S V
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FPA $\quad$ K P D S P I P


## LVD Y L S R C $\square$ NS D GT TS FEYY IKMFWEMNRFFE

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$K$ K K K R VAT
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$Y$
$Y$
$K$

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LTS 1 Rv
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## VQD

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| :--- |
| K |
| K | EAEA

SEAA
VELDS K L $V$ S DI E DF CGRFSPLLEENHKFLASVGM AT KK NEETSAR $\square Q M Q N Y$ SAPV LY DKLFLSREL

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 D R RDDVFEACSLVSVLFNCLGLAFK LSNSLNSCLLDGDDI HLGHYLDAYKELKKFCNLMGS VFG VIKELNECHPEKDTALDHYINTFTEFARFFDAMGK LAF

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 FA E LDD YVAK VNDLVEASKS






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 PLRNDI E GNI GKI R KVVMKDSGKGYD YLQEIVVDEDSRKMH FVVS S DVVKSKI K V M E K H REE NA V Y Y E S FK K M M T Y E K D A NL H PVK S DLNGNIT KLQQKRYDAAKEKSGT LQE LVLAERAE FAEMEYVAKVNDLDEASKTH DTVNKI I DHDLENDTV P I K N D I S G NVA KV R TK Y E S G DD K C K Y I E DLI E D DLAAKNS G

FAEKDYTSKVDDLVQQASERFKTLGSLLEVDVEQGTV F A EMDYVAKV H DL A EASKS F A A NEAFVVKV ALETLQGPDATHYWSLATMASWERSAGLG


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 MS H $\square T$ K T A Y D D T L A H H H P WLL DR K GVV H V A V Y T L P T R K H F L E $M G Q S C T D S Y T R T L K K F H G W L A S S S F T V A M K L A P N R E K F M E$

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 I QTALLN A A GKTLR QHHGWVVRGVFATG
$L$ HVCLFK R A Y D TV L L R H H H T F V I IR S V V S V A D R A V P R R N D F Y S

 LA VA A G DA Y E K T L R K Y H G WVV VR G VF A V S N K T S S S






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 YVLGD NSFKESPEEAHKTLPDLLQDSDTVYDEVEQLYTKHDLC RLLSNDQ S IHGDDPEEH YVREVLSDVVAKIQUVHGRVDMTYTKYDL KMGET NESEDETEQKVKALVKVMREVHGRVQGVYEQNDL KLSQGNEDEASARVDMQKYUNASASULQYVNNLFLSRNL KL NETNQSAEKKMRRY INASGPVIEYDDKLY $\square$ SRK LACPGAWEAESRLRA
LL KEKDENCETLKEKMQLLVSLLVPFLEDVHCILKVYNL SMIDDQQDVLDDKMAHHVMQYIEPMGVVVEQLRYMYTTHNI KVNKN
KVGDEAS $\quad \square K E W L E A D E K N V T D Q K F Y D D$ RL NETDQSVHKEMQRFINACNPDIQYI DNDFDSKKT ALAEGGEGMDDICIDHVAAHLDNFRTNVTNIVNYYIIKKL
 KLNE
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K L K E D
170 AS $A$
$A L G$
$A G Q$
$G L E$

A INGR N $\mathrm{E} T$ E

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$R V C D$ <br>
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 AVKSDLTGNI TKVQERYNKAPAESQTLQDLVQNELGS GQH
 FVT R DVENKLGGLYEHHNREPQTYRSIRNMTAYEASTGDA LI S K EII Q S K T T II R E L A K S P E A E L V P V H S M I R S E L D R G L V $V$ L K K DL K N S S T KL K E A VE RERRAGPVTVVEMMIS Y E I K K N GV

 FAT QEASEKISTLKSYRGPHSNHYQTFSAMAEWEQDPF



 P I NQSLL F LQQKVNQKY ITNKEEFTTGQKVVLHEVEADVA $P$ VKMDLVGNNGKKERDHESSKNQSVVKSQKRRVIVIGGAVLKGA



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 $P \vee K M D L V G N I \quad K C P S V E E R 1$
L V A K D L E S N L H K A E R L F K S D D P K E C R H L K M L L E K E R R S G G S PVRYDMQGNIDKLTTRYSMDKNSNSTLQDMLLLEKS TE

 $G V V G D V Q G N I Q Q Q R H N Y D A R P N E S Y T V Q S L V L Y D V E N E D P$ LI S K E I E S K T T I I R Q L S G E S R E G Y H S VV R S M I


## I



 GMPRKVRTRLDSHPSESATLVKLVANEK

## VVQNDMKNNAQ

S P TENK S L E SLMKNE $\qquad$
$\stackrel{A}{T}$

 | $Y$ | $V$ | $K$ |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $F$ | $\square$ | $N$ | $F$ | $V$ | $R$ | $Q$ | $V$ | $D$ | $E$ | F V T K D D D S KI C LLE THLE K R D T E M D YVA K V E DL A K A S S S

 FAES E YVT KVNDLI IGASK $R \backslash A A T P A G P R R K V H N L V E A S K T$ VLRQD I Q Q NVQRLQDLHARDSSKYSTLTALLDE EVE EGT




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 NRQQAPGSRTLDRLHRALKFLLILIGKLAHNEDEGKVSL K GSGSCTNGLRWLTRAMDFLVELERNLLST EHDDVS YKMVASCSRALLWLTRTMDFSVGLLRLL SKEMSSK NFSYRSGCRTLLRLHRSLLWLKLMLEGLAEGPDENGQYKT KKG PTCSKAFVWL NRSLDFTRALLQLLV RK KDLGKN RVKTASGCRTVLVLNRALKWLELFLEKLGRDKR KDGS VRQAGSHTRNLLRVKRG|DMVKVLFEQLVTE RLRGGATEGLLWLKRGLEFMLEMLTLMVRSTPDKSKTEN K GASRNLRRVRQGLDLIARAFENFLATNDD DNKTTUTADALLWLKRALELIEKFFTNLLH DKGTCNDN HSGKLINGSRTLLRLNRALIFVIELMEALCTATEDE DHQTDSGCRTLLRLHRALLWLRLFLEKLAGTPESGRL RS RKDANNGVKNLLWMKRALDF:VGFLENVGFKMKDKTA KRNPPSGCRTWLRLHRALEFVSMFFAKLATVDFEEK KDKY\|SGSRTLLRLHRGLEFIYEFLSRLASLTE CDK DSTWASGSRTLLLLHRALHWFQLCLHRVATGEGTDAGAQ KYKSGLQTLVLLHRALHWAQLCLDGI ARVHNAD DFHHDSGCRTLLRLHRALDWLKLFLQKLAETPMAGRD RS SDRDRTATASLVRLTRGLAFTCHALQNAQADPAAE KS SSSCTNGLLWLTRAMDFLVALFQNLI EHADWS RTQGSHSRNLLKIKRGLDFLRVLMEQVLDTE GNS RKVDSCARALLWLARSMDFTAALLLQR LEEEDSAQQQQQS
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 KK QGSHSRNLRRVRGGLGLIKALFEQFLATE NDGS SKKTNSCTRA| WWLARSMNFSVHLDERLMM EEEKNPESS KS SNSNSRNLVRVKRSUDMLKVMFEQLA RERGNS KEDDQVATKGLRFLKRSMEFLYQLMKYUESGDE RSG SSCSRAFLWLDRSLDFTAKL LEKML EEPEMN EMKKDSHTRCLLWTKRVLEMVRVLFEEVIDATAEEPEMNS RRGERHGTACLVRLVRGLWFTCEALRNMQQDRNAE
 QRRGTSGLQTLLLPHRALRXSQLCLHRAATDRHAGRPD KKTK SCTRAI I WLSRSI NFSKYLLEKLLKTPES

|  |  |
| :--- | :---: |
| UniRef90_M2RJW8 | L |
| UniRef90_UPI00032A8AC0 | N |
| UniRef90_I3SB29 | N |
| UniRef90_E0VSR8 | L |
| UniRef90_S7Q997 | L |
| UniRef90_UPI00034F437C |  |
| UniRef90_UPI0004407C63 | L |
| UniRef90_A9TDW1 | L |
| UniRef90_UPI0002657ED0 | L |
| UniRef90_W5KLF3 | P |
| UniRef90_M5VHZ9 | N |
| UniRef90_E3CU75 | L |
| UniRef90_J3MPP4 | L |
| UniRef90_E3TD50 | P |

Lh VVICLKRSY ${ }^{130} \mathrm{NLLKHHHSF}{ }^{140}$
150
160 MENVVEECYDVI K PWHGWIVRAVSV|ADRAVPSRRDFYK
 LHVCFQRAYDAVLRHQHNFLVRSVVSVADRAVPRRRDFFA

 LK P L F REAYE LKLKKHHNVIAQKLFQVCVHAAPTRASMIN PAELCREAYQLTLAQHHLWWVRKAAELAAFVAMPDRAFFYR

 MGYNAYHSSMSKYHPWQVQKAVGLAVYMLPDRSTVDK MS QACTDSYTKTLLKKFHGWLAAS S S F T
MEELVEECYDATLKPHHGWIAAAAFKDCLKLVPDNNTFMD PGELSRDAYKVALAPHHPWVLRQAAEFVFLALPERQYFLQ

 LVGVIN KAYESSSLK R H H GFMSSKQLFK LVIHAAPYR RTIL K L R D A A S K A Y A QV F A P H H G W A DR K A V A A GM Y A L P S K S QL L K L K E A A S T A Y A QVVC A P Y H T W A V R T A V A A G M Y A L K E H L L K S A Y V E T L Q P Y H G Y L V X X X X Q I I Y H Y V P T R A T L L

 PSELCRESYQNSLSKHHTVWVRRAAELAFDAMPERSFRFR

\section*{| $\square$ |
| :--- |
|  |
| $M$ |}

T QLA QECERTLAKYHGYLVRKGASFAMYALPTVDAMFT $T$ QLACK LA YEMTLAKHHPWVI RKGALVAMYALPTQGELLK CADAYGLVLAPHHSWLI RQAAGLAF LAFP

## M GVLC G D A Y Q RVL G P F H P WLI R K A A S L A F L A F P R R S K L L A

 PSDLCREAYQNTLSHHHTWFVRRAAELAFIALPERGFFFR LHTCFRRAYDLVLRHHHTVLVRSVVAlADRAVPRRPDFYA MS QACTD SYNKTLKK WH GWLLI R DAVS K A Y T Q IFNSHHGWALRRKAVDVRLHYLPTKMQQMYR LA QLVEAAYEATLKPWHGWISSAACKIAWKLIPERKVFTG
 LQ TVK D N A Y GKT L R Q H H G WVVVR GVVF A L A L R A A P S Y E D F V A


 L H V C F K R S Y D A V L K H H H S F V V R S V V S V A i R A V P R R N D F Y D VGKMAKESYD QTLAKY HPWLVKKGASIAMLTLPKVEDDFA
 N A Y G K T L R Q H H GWV VR GVVAALAL RAAP S Y E D F V A P K D A A L K A Y N A H L S P Y H G WA L R K V F P A S L S Q M P D R S V F L C
 L H A S F K K A Y D V



 LS A A AS EVVYYQTLNNY HTWYTSAAFTVVLKFVVSRETBFA




 AVPA A Q E A Y R H TVLS Q Y H S WM R R Q T V Q V A L R T L D N K D A L L L

 L K E MVIE E A Y K S T L K P F H G WI S S A A Y R V A L G L I P E R E I F I Q
 LHEAANRAYDETLLPYHNWFVQK』FRVGFIALVNRRNFLD


 L K D P A S K A Y A QV F A P H H G WA I R K V V A A G M Y A L P T K A Q L L K



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UniRef90 C3ZLX1
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LACPGG
SQEKDDEELARWLAGLDA VQRMAKFYESGG K NEEEDSAKGHIEEFVKSAGPVVQYVNNDYLNKEL $V L T G K G D R S E Q Q V Y N T M K \sqcap F L V N M G A S V G A L T R N F E S$ LVCV ETQAEATVILNRVVRATQKVYDRTQVALEEHGL SL MEKDENYDNLKVEUETFLSLLVPYLEQDHSILVQY Yl RE
LL MGNCQEDEDFAEDVKVLLT TVQPLLDEANATLVKHNL LMCV RTQAEAAATLNAVVKAIQKVYDRTQVALVKHD KMC NETEQSAEKKMRRY $\square$ SASLPVIEY $\square \mathrm{DKLY} \mathrm{L}$ SRN $\mathbb{L}$
$A \prod G A K D Q S Y E T \square R E D D T L S S L L T P T L K E \square$
LVCV KDQNQQEATPILRIITHALTLVHTETQQLLAERDL I LVCKVDEDNVMMKEEMQNLLVALLVVPVLDQNNELLVSN KLNEDEN SARAQMQSFVRSSGPVILYVEDLFTSKNL AVALGKDGLDD KLNEDEN SAKVQMQNFVRASGPVILYVEDLFTSRNL NL KETHQSAEIKMKQYIRAALPVI HYI DNLYLSRNI KLG ENQAEVNIALEKEVKALENVVDILLKF
RLNENGQSAEKQNVALDVYYINASLPVIAQUANEYMARNL HI CENQNLNTREACRDLQDALPAMRAVYDINTKCLELLN LVCVG NAQQELSVVLTRVVRADDEVYDRTQKALEENGL
 KLHPD पN
$\mathrm{K} \nabla \mathrm{C}$
VVCPGAN EQEAQEAAL
LVCVG QNQEELSVVLTRASVMLEAVYNRTQGLLAERGI
R $\downarrow$ AQGAD
KL NEDESEARVLMQTYTLASPPLLRYTEKDFDDRED MLGMGQDCS ALGDDIGRLALLLRPFLDDIHSMMAKFRL SI NMPEESYVREVLSDVVSKIQLFRAT
ALTVKEGDHQKAAFRDLSLYLPAMEKQLADLDTLYEVHGL ALTVREGDDQKEAFRDLNVYLPAMEKQLELLDTLGAKYNL WL MGENQNSSLLKVEIEKLVQLLQPFLDDDHAMLAKFRL RLRGDMPEDDDNQFHDI FNRDGRDIVRRVNKLVENFEL
 RLAEGGSVEKLDTELARWLQGLEKIVKRMSTFL KALPDE NQQEGKVDLRQLVTAVTKVYNFTQSVYEKNNT LVCVG $\quad$ NGQQELNVVLTKVVRAIDEEVNRTQKALEENGL ALTVREGDDQKEAFRDLNVYLPAMEKQLEDLDAMLEKVHGL K GGLKHECEREACQKLERLVNVWEALLGVWKGDFERLGL
 RISESSPTAHDEHARELTKWLAGLDUIVRHMKDFLERHDL KI AQGAPM EIADDRPDFE LVCA QTLGDAPA ALGTPG
VL LAKD $\llcorner\mathrm{VCV}$ 1 MNVG
 Sil DVTDEESVEKMKEWLNGLSGII DQLNRVFDEH

KLNEDEN A M NVG
M M TKTE
NETE
ML MGD
RLNETDCQDLEDFAGDVMILVSIVHPLLEEINAILVKHQL KLNETDCSVQKE MRRYIDASSPIIEYIDNLFLSRNI LLVMGNCQDHEDFGGDVMILVSIVQPLLEEINAILKRME WL VGTD
K
SLAVNDP Y A PNAQMQ
MI MENDDSYSTFLQDMHTLVPLLMAFLQQAHSVLRLYNL
NLANGCL
RLAQGG SHEKFDDALTRWLASLDALVLRLKKAFLSE
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VLKGGDE
L A C
L MGNCODFEDLAEDAKTLAYAVQP LE EDDA

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GTD W
D L P

D

V L N W


GLD W
GMD W
VLD W

NFN YK V
S L D W
D $\square$ P $\underset{\text { N }}{\mathrm{N}} \mathrm{D}$ PDKA
ED
H

D प P
$\underset{\mathrm{D}}{\mathrm{G}} \square \mathrm{D} \mathrm{W}$
ESDEVV
$\underset{D}{E L P}$
TD
G DD W
NDPSKV

D LP
D
ESDEVV

$\underset{\mathrm{D}}{\mathrm{E}} \mathrm{V} \mathrm{L}_{\mathrm{P}}^{\mathrm{T}} \mathrm{T} \mathrm{V} \mathrm{V}$

E
$\mathrm{E} \square \mathrm{P}$
DTPDV
DFQAKV
D
D L P

GLD W
D
G $\square \mathrm{D}$ W
ES
V L D W
KLD W
D
E
$\mathrm{G} \| \mathrm{D}$ W
D L ${ }_{P}$

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W5JVC3 UniRef90 UPI0003511291
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 E $\square S V C R \square I K A \square R A H \square E \square M R S G G A \square S$
LLA Y LK S SMANADDVMLEPY QQS WDQLLNFMESLGTMV T VARSLNECLATPQEMKI DPYLAAFKELQKFFHDLGTVFG LLLHLNSSLGSASDVLLEPYLLCWEELIKFMEALGSLV G LLENLKLSMEDSNDILLEPYLQSWDQLLNFMDSLGSVV S MVRPFHASMNPEGDVELSQYLAGWRELV
 HAFKDVLKGGDLDVAKLL EADRAHLALMRS GGAALK



LNTES LLQFASNTVKFCELQGKALY
FPKNPTDEVVLIESLTQFASNIVAFCELQGKALY
MEELS $\square F K T E E K K V S T L A L G G A S N L L L H V L D K \square G P T L L$


$\mathrm{N} \square \mathrm{I}$ NK $\square \mathrm{G}$ P TMA
 MTVKDFTKACSELQSLIHLMGDETMS



LVVSADKTG PTMA EQFCKACRF $\square$ NALGALFT EQFCKAAVLYSDFYQALGNFVCN ESGYDPTKPFLSVCYFVLQVLDKDGSPAMA HIPTKPFLSLCHLVLQVLDKIGBTMA
CREGNE 1 VVLK $\square$ CE $\square C N C \square H P \square Y K K \square F G D G F N$
$P$ VA D DNADSTSEFDEAAESLTTDF DLLGSVAFT
CRENDEIVVLKICELCNILYPIFNKIGGNGFD $V$ S SFVEACLEMGAFFNLLGRAAFS LVESLLECTSSDTGVNMAAYLDVCAETAKMLVLFGKATAA RSFGASLKPEGDVELSQYLA GWRELVRFLTPDGS DFA
ARRFQRSLVSRGDVDLRELVEATRELCAVLLKFGA YMG
 QVPCK LVVGCRVGSTFVGYL GLDP FK DA A SADFAS DCEHILGAFDHLGA
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FVSSDVNDKDK DQNDEKEQ NFDT ${ }^{\text {DEKMMDEEKNYEHD }}$ FAGSTVGAYFTSIEHNLEAWPVKEQSVRSVIEHEVVLGVA SLVCRICPTAKVNQKYITNKEEFTTLQKIVLHEVEADVA VLRQDI HQNTRRLETRHEADPSTYSNMVEVLKTEATDGT LVKTDVGGNIKKIRT SSEKYKVSTVEEMLTKEKEAK A LVKNDVGGNIKKITNSCGKYKA STVVEEMLVKEKEAKVN VLRQDLQQNIERVEEMYMLNPNDYS SLEMYGLLGTDV LVAKDLECNVNKAEHVFKQSRGGG TGSSLLRNERDHNGS KLRNRYEEDCASHAHLEEMILREQVEGGM
M H G

PVKFDMQGNDDRDKKNYKFDE




> MYGA

MTYEKEGDGF
$\qquad$
 HYEYNEDTCLLELMDDEY VLRQDTDQNTQRLEVMHELNPSMNSNLVEVLKSEATKGK保
 FAGSTVGAYUTSLDGNLATWPAKDRSLRAVVEREVELKIVAC PLRADDQSNILKIRTEMKNSPПKYEYLEEMVAHQDSTKQH LWFADYGRKVEQLQSRSRGA GHATLKELVEQDMANNTV LLRNDVEGNIKKVT RASTN FTTSKAFTKVTALETRHGPDSTHYTSSLTTMMVVWEKQAGPG


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| UniRef90-H2VIB7 | F GDATEGLLWLKRGLQFMLELLSEMVTSYNDHSKTED |
| UniRef90-J3LY43 | KKVD SCARAVLWLSRSMDFTIALLQRL EEDSDQKC |
| UniRef90-S7MM | EWLKVGAMLVLMWLKRGL |
|  | HNGGSSCTKGLLWLKRAMQFICAILR |
| UniRef90-KOSN | ELEEDSAAMGLLWIRRSMSF |
| UniRef90 R9PDH4 | KRPRAATEGLMWLLRGLDFTAQAMRN |
| UniRef90-G3N544 | DFSRRSGCRTLLRLHRSLDWLKLMLEG |
| UniRef90-V5H6ZO | DQSKPSGSRTLLRLHRALEFVARLFQR |
| UniRet90-W5LBD4 | NFDRRSGSRTLLRLHRSLLWLQLLLEK |
| UniRef90-H2RRN | SHRTNSGCRTLLRLHRSLLWLKLLLEGLAEDEQSKA |
| UniRef90-G3VT73 | PDSGCRTILRLHRALHWLQMFLEGLRTSQEDCK |
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| UniRef90_OYZC6 |  |
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| UniRef90_B8C711 | DSSAAMGLLWIRRSLAF |
| UniRet90_88LE45 | EGSAAMGLL WIRRSLAFQSCFYEGLLLPQESDSIISTT T |
| UniRef90 B6ACG1 | ESNRSSAVVKFL WMIDRALNFLLKFLLENAVTGNSD RGGN |
| UniRef90-M1VJG1 | P SGIGGDGTEHVLWMKRAMQFVYMLLYMFLDG |
| UniRef90-F6GXJ4 | KKPY SGSRSLI RVKRSTVMLTVMFEQMLT |
| UniRef90-F6GXJ4 | KKPY SGSRSLIR |
| UniRet90_W4YX13 | AALLEMHWDVAFFILIMKRMG |
| UniRef90_U6DC | SRHPDSGCRTVLRLHRALR |
| UniRef90-E4YWGs | DEKNPSASRTLVLHEM |
| UniRef90-DONP56 | DKKKN |
| UniRef90-UPI0002C35113 | ARNDTSCSRAFVWLTRSLDFTAELLKHLAVNP |
| UniRef90-A3F4R0 | SKNDNSGSTGLLWLMRAI GLVLEVMVELPAS |
| UniRet90_U6HTK0 | NDNSGSIGLLWLTRAIELLVIEVM |
| UniRef90_-870/ | GAESGTVALLWTKRTMQFVIGLLQQLVDDSK |
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| UniRet90_UPI00019844EC | S |
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| UniRef90-S4PHH2 | SNGKHTAAEGVLWLNRALDFFELVFHEIVICDOGKNYDED |

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LST TVAETYSQT DMQYHGFFTSSAFSDAFKFVPSREQFMS PKQAAQEAYQETLAPYHGWMLRTLFQASDQMPARPTFDA LSVSFTNAYGTTLRPHHGMLIRPVFADAMKACPYRKDFYA PGELSRAAYMVALAPHHPWFLRQAAEFVFLADPDRRFFLR MGGLAQESYEETLARHHPWLI RKGATWALLALPTRKILL LMTLRKDAYRVALAPHHPWFLRQAAEMVFFAMPDRQYFLK
 MS QVCNDAYGKTLKKWHGWLASSSFTVADKLAPDRKKF MEQLVEESYS DTLKPWHGWISTAAYKVSLKLLPDNKTF $\square$ N LSASFRAAYGDTLKPHHNFLVKPDFVAAMGATPYRKDFYR PKDSAVTAYERVLSPYHGWLMRSIF PASLSQMPSRDVFIA LVSVINGAYEGSLKRHHGFISKQVFKV LTMGERSPLAE I KGAVSKSYEQSFAAYHGWASRTAVSASLPALPTRAKLMK QLCAEAYQAALARYHGWWVRQAAELAFLALPSRRELYG LHQAASDAYDATLAPVHTYFVRMAVKTSMYLLPDRATEIGA $V K E C A D D A Y D R V L K P Y H S F L V S N U V S L A F S L A P S K D E F V R$
$C A P V S Q E A Y N K T L A K Y H P W V M Q K A A L L A M K M L P H R G G L F E$


EECLEKVH
$\square R D A T F T A Y N Q V F A P H H G W A T Q Q A V A T G T S L L P K$ PRDAA LDAYEKHLSPFHGWMLQK $\square$ FP $\square S L S Q M P E R E V F T^{\top} A$ PREAANQAYNKHLSPYHGWMLRTAFPASFSQMSDDSVILS LFSAATNAYTTALKPYHGFMKAGUVNLADQLCPSRMKFMG
 I VDAVSKSYEKSFAAYHGWATRTAVLASLPALPTRAKLMK
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 KHQNGMETPRCWCLKY A WI GRCIVRVSVCACPSYEDFVA MKEAVEESYNLTLKPWHRWI SSAASKVALMLVPDNETFI S MREIGRSAYTKTLMKHHNTIMKNLFYAGLALEPDKHTFLL
 LA QVVE ETYTDTLK P WH GWVASTAYKVA K LVVP ERE DF $\quad$ G G K HAACRSYVKHLAPFHGWMLQK VFPASLTQMSSREAMVS MEQAVEESYNDTLKPWHGWISSAAFK
LVPMMQQAYSETLEPYHGWLGTQLMAAASRFAPNRSDLFY 1 RVNAMKAYEDALKKYHGWMLQKLGMGSVYALPYKSDLLK DHCTDSYNASLAAYHPWVVRKAATVAFRTLPPRDAFLQ $\square H L N T T K A Y K M V L K K Y H S W I L Q Q \square F Q E A D Y A R P Y K S$ CCKASYNNTLAKYHPWVVRKAANVAMYADPTQGDLLR MKYVFTKAYEGSVKKYHSWVTQQLFIF CGKMSPTFAQMIK
 MEQAVQESYDATLKKPWHGWIASAAYRVADKGVPDTKTFMD


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LS SKCRTAYGALLEPFHGWLLKNTFSMALAAVPSRDEFVA

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UniRef90 W4X095 UniRefefo－K1RS80
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UniRef90
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UniRef90 $\mathbf{~ S 7 M Z H 0}$ UniRef90＿M4DZU4 UniRef90－B8C7l1 UniRef90－B8LE45 UniRef90＿B6ACG1 UniReffo－F6GXJ3 UniRef90＿M1VJG1 UniRef90－FGKXJ4 UniRef90－W4YX13 UniRef90＿U6DCD6 UniRef90－E4YWG3
UniRef90 DONP56 UniRef90－UPIOOO3444814 UniRef90 UPIO002C35113 UniRef90－A3F4R0 UniRef90－U6HTK0 UniRef90－R7QA30 UniRet90－MOSGR5 UniRef90－KosW22 UniRef90＿UPI00042B506E UniRef90 N6TT44 UniRef90－UPIO00398FEB6 UniRef90＿UPI000392DEA3 UniRef90－S7NLC8 UniRef90 T1H614 UniRef90－Q2F5Q9 UniRef90－B4FUM9 UniRef90－G6CXT0 UniRef90－G7J671 UniRef90－K7KM00 UniRef90－T1GU00 UniRef90－K3ХАК9 UniRef90－A0A059LLE5 UniRef90－H2ZQ12 UniRef90－Q01LK5 UniRef90－C1M142 UniRee90－UPI00038BC120 UniRet90＿G3QAN8 UniRef90－E5T3V6
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ALLADGEDGREEDT LSNMEDSLINDRKNDIALKTFYNDNN｜L TMCK QDYEQSSLLVQRATEAGKPVFDAIDLEFTSRGM LL VGKCQDYAA $\square K E E \square R K \square A K \square L Q P F \square D D \square H A M M A K F R \square$ KVGEGPDVMSE AFGEVDSQTDTKVANKLRALVSTLEPLLQRWTDCFVAMDLL KLGEPQSKVEEE LEKWLAALEKIVAHMKSFYA LVCA RSQREATPLLLAVIHALELVHSRTQRILAEHGL


LL MPKDETYDNपNEHVQTF TSLLVPFLEETHS SLA KLGDDP AKCQAALELSTASLEK\｜VSULKDFLE
TIGSNHN
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KLR ENEVSMTTKMQSFVDSSALLVQYUDSLFHSR
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 VIGSNHS
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RIHAD
KLHEN
KLHEN
K Y L K
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ALT川KEG
SLMAKDHQKAAFRDLSLYLPAMEKQLATLDTLYEVHGL RLAYNKPNSYDNLKVEMETLVSLLVPYLEQ：HSILRFYHL RLAYNKPNMDTQVLDAMKEFVTQYRNVMEPVQQLLVKYGU NLAGGSDDTSR VTPALAEFLGVFQPQLLGVVAMYKAKNL LL MGQEQDYDALKEDLK KYVSAIHPLLDETYALLVSR
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$\square M N V G \quad T A E E A V A M L G E A L P Y D G D V Y D T T Q Q L F A Q H E L$ MLSKGQNVMEKECLEKVHLFLVKYTATID LYYMM
KVCLDVP KAVQELPEMLKYTKIVYDRVENLYTMHDL SFGVDGDDKSFET KLASFNDTLHLNRCKIDDFFKDNNL RLNETEGDEE
SFEVEND保GFEM QLANFNATLHGVRSKTDEFFERN LLRE KDEDCNTLMEKMEILVSLLVPFLEDIHCILKVYNL LL KEKDENCETLKEKMQLLVSLLEVPFLEDVHCELKIYNL VLA GKGEYHEENDAVLRTYLPVMGMHLNYI DKLYEVHK DLNLSNCSPEDAAARLKVSQNYMKADVAE：HNVLKHHEL
 K GLEQNEEEGDIFDEMRKYVDASAAVINYUEELFTSNGL $\frac{K L G L E}{L A} C$

TRERTRGLQRRTAGTLENGHNRTQGLIAGHGL LVCV
HLLGN
QSQEELNVVLNRVVQALGETYDRTQKALEENNL MLGMGPSHGNADNVEALDEFLVHFRANLQHLNEFYTKHDL MLGMGQDCS TLKDEIEKLASLLGPLLDDIHSMMVS SLCA QEETQAKLITALGRTVKTVRVYNTRELYRAGGL KLAADPD

RLSPNKAVRRSACFSDDRVADPMMEQVVAQDRADFAEDDLD RLSQFESNEQAKAHLQGCLSUAKLLISDUSKTIEQSGC $\square M N V G T N E E A E A V L G E A \bigsqcup P Y \amalg S Q V Y S \square T Q E L F E R H Q L$
 KI GIVD
GMANGKPEADE पSR【QKAQEपMKRVIDDVRGVLADHEL ㄴACP

R $\square G \square G S N E R A K M \square$ SMT A ${ }^{\text {L }}$ G
Sl G
s

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| UniRef90-K0RE56 | E D |
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| UniRef90_B8LE45 | E DVR RV |
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| UniRef90-F6GXJ3 |  |
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| UniRef90-F6GXJ4 |  |
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| UniRef90-G5BWA5 |  |
| UniRef90-R1DT57 | E D R R K |
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TP

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$$
G S G E M D V E L L V A A R T N L A V T E V F G S M M T P
$$ LS QSASNKSSISAVEFLACCRSALTFFPNLASVSSN

 VSEKFNACRRADSSVPAAELADAADALISIFDLI KGMG $A C S T N R F L N T L G N V F A$ MERMVE I GALGGAALS
G GFP VQSLLDAMAVQSASSRLL GPFMML LQNCVDARSDNEGRLA TDDHYLAAASSAVAGMFQHLGAAAFS
$H \square P T R P F L S V C N S \| Q Q L D K \square G P T M A$ A QA $\square R G A \square A P S G K \square P S P S M M S A S K S Y L S W V N K F G B A A M A$ LEMFDEI TK KLFHCLG A AMS
NQMTFENWDSFFKEMLELENSGLSYAFG


LDT DESFEKTQDFPVEELCKF LDHEFCGVFRKMGK LLS

 $D V D V G R L L D A C D E F L A L Q R A M G G A M A A$
 FLELCRETTK】FMQMGGG』LK
TDVDTWVAF DYETTNLFKKMGS AMS I P TKS F L EACRC L C PV F DKMGATTFA



 LANVFTDSQSAEAEVVKAPFSHACSLVSPLFGCLGGVAFK
 $\square L E K F R A A S N A E G K \square D C E K D A D A A M Q \square S V V Y E D F G K G F M A$ AERLEKSFTDLDNAPTSALVQASRNVVDLIDKLNGGVLGK

DCFKAAKKEDGT $\square$ N $\square$ EE $L M R G Y E E \square A R L Y D M M G S ~ L F T$ VDNAEHMPLQDFLVMCQETAGLLHLLG PTGA MQGAA LY

## 

EELARGMEADGE $\square R \square A P F G D T C A L V S V L F N S G G G A F K$ $D M P L H D F \square T M A G E L L S F L G T L G G V A D K$
VEAASEMPLHDFDTMAGELLEF DGTLGSVVFA LTAADFRQCREVEESDHLSTYLDAYEELNKKTYVEKNFFYA


[^0]UniRef90_K3YJT7
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UniRef90 - V8N3P8 UniRef90-MOVOE5 UniRef90-W4H2Z4 UniRef90-B7FP15 UniRef90-F7EPX7 UniRet90_A0A024TJZ6 UniRef90-E5ST26 UniRef90-F0x×93 UniRef90_R1BYX0


F $\square$ SKDAVGKVK PAKSDVLGNVNKVRRALEAKRDG LEFASVRRAQEG IDCKCDVESNRTYREAWLAHGSGRALLAAERAAGAQLGEG PLK DLPRAVRALEFWRVSTGAHYRRMSSMLQHERDGGGV MWESDPDMYSNLVEपMRKEANEGS
VLRQDVHQNTQHSQILNKS
IVKSDIGGNITRLENKYSSDPAKYEHLYTMVQEEVEKKTA FAAQNDARNVRKVRAAASAAAAAPDTVDRLLSHEVASGCH FATSDVTQKLAHVRNRLKGDRADVTLQKDVMLAEKKMNWH LLAKADVSKNVRRIRDVVRARGEARASLFEAIARDREAGGR KAFSDLRSKIDTLDKYWTSSGVNLIYIQDDIDYEDSQGLV FARHEFAVETVVVVAABQSDSDNYQTVQAVLVSEGKNGDK FATSEAFAKVTALEARHGPEAAHYSSLAAMVAWERRTGEG FAKVEMGGKVESURKVGQSAQLKTLREVVDADVRAGRA MAFSDVDDKVR LRTHTQNYKDECHGQLFAVVKENNKKLT FAASTVAGYVASIEAAMASSLSSPPSLRHMVTNEVDLGVA FTRRGVVDARKNLKRVEKAAGGRVVSMQVLLRDELRHPNG FVENDLLEKEKLLHELHDADPAHYDTVNSMLSWECRLGAP PARY FEANI QSVREGWRPDKTTGETMRELLEAEARTGGH FAAVEVENKANDMEEAYQNKKYNTVEVMLDYEDNNGL VLRQD KQNVET QYLHARDSLKYASLTAVVIEEVE EGT MAFSDITSKAEF: EQFLRENPGKTCTLQDLIEDDURKGVE PVKMDIQGNGKKIDAKYNTDTAAFEYLQNIVEQEINSNE E ELLADVGQLTKEMAKQRSLIA FVTSDVSHKI SEALRASRDADTVNYVDLEGLVARERQDSG REMENNIHKVEALYHSAPARRKTLEMLLEYEKELGIH FAFSDVIEKAQVIKDRGNEYNEQTKGIFGVIQDEKQKGLM
 F $\square F A D \square E L U S K V N Y V Q K A A R E N E S: Q A L V E R D U A Q G S A$ FVTKDTNAK EEDQEDREKNGEAYQFLENMVEAEVANNTT FAEMDYVAKVDDLAEASKS LAAQNDARNVKKLRALLPTRVGAATVRELLSHE: RAKGA RHKQDDANSSGRMRELSESRGGGPVTADELIKWEIGIPRM AVADLSRKVERI RAAARDHPHAYRSMKTAAVHERAVGSF VPTRWLKDPDGQDTLQKGIASDLKDNGG FVSKDMRYRLKALETHRKSDSDNYQTVQAVLDYETKNGDK PVKSDVSGNMRKVRNSCERF

SAKELVDRDVAAGRV
PVK
SYM
LTRRDLVQNIGKIEELLESQTSHNPTIWQLLDYEVQRGVH
FAESEYVTKVNDLTGASR EYATLNDDDKDVENDSV PWVVD EASLDQLWAKVGNDSTMESIQRLVRDDVVHNAA FATREAFTKVTALEARHDPDAEHYSSLGAMAAWERRAGLL PWKVD EAALVRVWT ETGHDSNVTIQQLVRDD SA QCRCFSLNAVHKMKDLHSENAVHYYSVKTMLDYEKGLGMLD GGVSEDHSNADK乌AKRRGSTKGTAERTRDLLVAEASHGLP

[^1]

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UniRef90 E1FWI7 UniRef90-E1FWIT UniRef90-R1DBA1 UniRef90-UP10003D292ED UniRef90-AоС9Н UniRef90_W5F3A2 UniRef90-- 9 HPYO
UniRef90
T2M5M5 UniRet90 ${ }^{-}$AоBMG4 UniRef90_U6FRT7 UniRef90-FOY1Z6 UniRef90-O5DGS8 UniRef90 B5Y312 UniRef90-AODVR3 UniRef90-UP10003BBB50C UniRef90-K7MB26 UniRef90_W9S656 UniRef90-G7YN59 UniRef90-A9V3V1 UniRef90-V4W7M3 UniRef90-R1CAS7
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UniRef90 V8N3P8 UniRef90-MOVOE5 UniRef90-W4H2Z4 UniRef90-B7FP15 UniRef90-F7EPX7 UniRet90_A0A024TJZ6 UniRef90-E5ST26 UniRef90-F0XX93 UniRef90_R1BYX0
 ERPKASGSRTTLLHRAD
RKG GSHTRNLLRVKRGLDMVVLFEQLVTE
KRT TSPSRNLI RLKRVIEMVGVIFEEILKN KGSDS A DAASFYKALLWLSRSLNFVREFLHDDVTDRRGMVPDDS t DPRRSGSRTLLRLHRALEFFVRFLERVLE RK AGSHTRNLLRVKRGLDMVRVLEEQILAAEYVYHHGKF VLGGSSAATGLTWLLRSLHFAA LMKALGGDGDAKPATA RKDQKSGVRGMLWMQRALDFVFTLICNMFGTMKTATA DNKKL ASGALWLSRTFSFVSTLMCLVVDPSYAHEEPSK MRKENGGTQGLISLHRTMRFTMAFLGFMDGDRRADPSTE ${ }^{K}$ RKSKKSGNRALHEMHFDTEFFIEMFITGEAGNDDSKCSELG AKKDSSGSVGLLWLSRTVDLILESMVELIKDPDGK RRRLRDTMKRFWAELASGLSDARGGS RATGTHSNNLVRKRGIELKRALFQLKLAQLQQQRPGGS K 1
PKVEKSGASGLLWLMRQLSFQVNSFEYISKVPTAFP DES KK QGSHSRNLRRVRLGLGLIKALFEQFLATE
RHDAHSDTRTVLHMVPVLLFVRTLCLEM EKSADAT $R L K E K T A A M G L L W V R R Q L H Y Q T G V F G N L L V V P E S F P T T E R$
$E Q P G T P P G P G P G L G L S H A A P A A P C A A L V P A L P P P G G D R A A$ RHDPRSDTRTVLHMVPVLLFVRSLLCLEMEKDPDMADT



[^2]
## UniRef90_K3YJT7

 UniRet90 D7MRD4 UniRef90_E4XHTO UniRef90-T1FUE5 UniRef90_J3MV77 UniRef90 A0A024TZF5 UniRef90-T1LQG0 UniRef90-R1F9Y9 UniRef90 U6II67 UniRef90-FOY6A4 UniRef90-R1DIJ3 UniRef90_LOPEH4 UniRef90 Q4S6C0 UniRef90-Q01AL9 UniRef90-R1CV89 UniRet90_M1VBW7 UniRef90-R7URW1 UniRef90-M4E537 UniRet90-A5AP40 UniRef90_MOUQH7 UniRef90_R1CDL9 UniRef90-D8M2Y6 UniRet90_A4RWC4 UniRef90-J91QA7 UniRef90-E1ZAP2 UniRef90-W4Y8T4 UniRef90-G1MCA6 UniRef90-A8J374 UniRef90-×1Y2J2 UniRef90_O236X5 UniRet90_W4GAG7 UniRef90-R1DYL4UniRef90 E1FWI7 UniRef90- M8BYC4 UniRef90 R1DBA1 UniRef90-UPI0003D292ED UniRet90_AоС9 UniRet90 W5F3A2 UniRef90_J9HPY0 UniRef90-T2M5M5 UniRef90-U6FRT7 UniRef90-FOY1Z6 UniRet90_O5DGS8 UniRef90 B5Y312 UniRef90-A0DVR3 UniRef90-UP10003BBB50C UniRet90_K7MB26 UniRef90_W9S656 UniRef90-G7YN59 UniRef90-A9V3V1 UniRef90 V4W7M3 UniRef90-R1CAS7 UniRef90-UGGRU4 UniRef90-C6LTR6 UniRef90 H3E917 UniRef90-H3EWX0 UniRef90-UPIO002653359 UniRef90 TOSIN2 UniRef90-U6H848 UniRef90-R1FLS5 UniRef90_A3BVN6 UniRef90-V6LA61 UniRef90-B7FPI6
UniRef90 - V8N3P8 UniRef90- MoVoE5 UniRef90-W4H2Z4 UniRe990-B7FPI5 UniRet90-F7EPX7 UniRef90_A0A024TJZ6 UniRef90-E5ST26 UniRef90-F0XX93 UniRef90_R1BYX0


LK DALWVAYKGSLHPDHTYMVQTAVWAGLGMVPSRAAFMA LKPHLRKAYEECLLPYHGFLAQKGFQVGKHY SRTSLL SKAFQKAYDFAFSKHHSFMVKAGASLAMSAAPSREK VK IGSGTSKAYESTLGTRHPWLIRKGVMTALSSCPLK SAVLA LPDATRSGFERSLARYLDRFSRAAFAAGLRSTPDRHTHLG LDEA
LQEMVEEAYESTLKPFHGWTSSAAYRM
PRNAALHAYAVELEPFHGSLLRRVYRFGLGMLP RAAFLA LVPPLKKAYDEVFGAYHGENLKMAVYVAMEFMMDKTDFLT LQEMVEEAYESTLKPFHGWISSAAYR
LSSCAKFAYSEGLGPHHPWA $\square R$ QVAKVGMDAAPSRDSF $\square T$ LQV FSSICSEAYNESTAPHHSFTПRTAVKAGLYTVGSRDNFYK IVDUATKAYTKSLQEFHDWSVRGTATVILKAMPSAGRLQA IRDSAQRAYDAVYAPQHNFLVRK $\square A R G V L S F \square P H R E R F F V$

TTEAALSAYRTELEPFHGWALQRDHTLALKTTPPSHELLA FSDGCSDAYNEALAPYHTFMVRNAAKAAWLAAPSRTKVFE

LVDP TT TAYDQVFSPYHGSTTKEAFAGVRELTPTRSSVLR LSVAATEAYSRCLRSFHQWSLRGVAMIVIKSLIPTRSQFLR
$\square K G S$
MGDA YRRALQPYHGWLMQSVFQRAAKSAPAYDEVTK KECALDAYDRDLKPYHS

AKLAYEKTLKNYHNAVTSGITFNGFKSLPNRKEFEE SSTMAREAYAASVARHHNWATRKMSSALMGSVPGRREDMG LVSVINGAYEGSLKRHHGF■SKQVFKV पTLGERSPLAE SREAFDKT
LRHCASKAYDTSVAKQHPWLVQKAVLSAMQLNPTRESLIG MCNLVRIAYDRTLKPYHSRVMALLFSVS
PAALGSLAYDREVAPFHGWVLRGTFRAADAADPSREAMDS FDGVVSMAYAAVFARYHDKNVQSTVADSICAIPVKSDFFA SVTDAYTLVLKERHNFFIRSVFTTGFKFIPGLEQLKA FKMAVRSAYDRVYGDYHGFFLKQLFWNSFKSAPEASVILK
PSRMCAEAYWVALAPYHSWWVQQAALAFLALPSRRELYD

LLECVATAYTSTDAKQHAWLVQKAVLSTMQDSPTRDDLL AVASAYKEVYDKYHGWAVQKIFSYSFQSAPKAEEIYQ GRPGRRSAVQRRLPRGPGFLVRQAARLAFLAFPGRRRLLE QCAAAAYAATMAKQNKHSWLVQNAVLSAMQWSPTRTDLIV Y䐜ACNTVYDVVEKLY
AGATMRAAFEASHARYVGWFGRSSFGLATRSMHGWDRLCQ

[^3]

MFNE


 LL MMGNCQDTGDFGEDVMQLVS VQQPLLEE
KLGPEPAERAEVCYREAAEVGEAMRRADERMGALLVADDM

 E E E EAMSA TTEMLPVVKE L N NGLGPFMKE DGA
$N V G$ TREEMLEDADNFEPILGRDDAFDTDENL RLAGGDTSSERQAVRDCKRCIAATERVIETLRAALREQGL
Si GVEASRKDE
KI EQ HCHGNKAALQVLRDLVEAMQQLHKETLKVVTDHG


T L A P TAEEATREALVLMDM
$K V S G N L T Q E Q V N A M W V T C E E N M K K D S D M D W A F Y K S E G M$
VAGSE EEMRACVAKFAPVMDALDGFLTAEGL L 1 S Y E QVNQ $\square K$ AN $\square W K \square K E S L W N F Y R Q R N \square$

T

S $\square$ GEDEDSARQHV
GPSDANADNLKALDEFLVHFRANDHHLNEFFTKHDL
E $\square C \square G K N G T D E Q F Y K \square M T D \| Y T R \prod D K V K S F Q W G F Y E A N N L$
TM TQSSPSEDワMTALADIQRHLHGILATTRSTLAEHDL
CENGQCSDETLAAELKAFVREVEPVLDRMARLQKQVGL

RLSTTAPCEDETLLQGMRDLVAEWRPLLEEWRRLFVELDLD LI HDDG

QNNED $\square Y S T L Q L C C H N F T K \square K D R \square W D L Y K Q E Q L$ ETKATYEQ $\quad$ DEFRTELERFRPA $\square W S Y Y K E K N L$

VVFKENEDKDE K L A LLRDTLMKLKTRDWTLYKDENL VLLDPRNVKP WLGMEAMERFVEALRRCLICL H GLLI ERQL AFGTSGSDRKEALKDELTSFLGALRKCNKRLQDHFATAGUG

TIGGGFRDEN
TF $V$ VPNQTDEVAYAA $\square$ KSFVNA $\square E P \square R \square N F W D Y Y N T N K L$
$L L N E N G$
$L L L Q N D P N S D S Q L E K D A R H Y S D A L G R T L T L I E G L F A Y L D L$
 K TG
SLLKQDGNGVGEA EFGDGYLQRAE ILRERSDS $\square L$ WPTMADPVVEDQ
$\square$ WRPHDG $\square$ DDDEDAEA $\square E E R \square H A C G H M \square D \backslash L R H \square E$
$A \square S \square P P P G E E E A D R A E \square E G W V A V L R R V A D A V E S L L A E L G L$ TI NETDESAAAEMQKYI DAANGI ISYIDELFASRG KTGUD $\square T M E V K E R V S Q M K \square S I D S F N \square L V Q$

MWDVEDVDQDAEFKEQ RDHA DGRMLD L L
$H M N P$
$L A C P A T$
$M$
MWDDPDQDVEEQRLHAIGRMLD VVVVPLAK
$R \square G S A D G V G D E D \square \quad$ MRGWTSMAFEVVRRMRETQAALNL

[^4]

| UniRef90_K3YJT7 UniRef90-D7MRD4 |  |
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| UniRef90-J3MV77 |  |
| UniRef90-A0A024TZF5 |  |
| UniRef90-T1LQG0 |  |
| UniRef90-R1F9Y9 | D D Q R K A |
| UniRef90-U6II67 | D ${ }_{\text {D }}$ |
| UniRef90_F0Y6A4 |  |
| UniRef90-R1DIJ3 |  |
| UniRef90-LOPEH4 |  |
| UniRef90-Q4S6C0 | NDP P K P VR D E T R V |
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| UniRef90-R1CV89 |  |
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| UniRef90-R7URW1 |  |
| UniRef90-M4E537 | ${ }_{\text {K }} \mathrm{S}$ S T |
| UniRef90_A5AP40 |  |
| UniRef90-M0UQH7 |  |
| UniRef90-R1CDL9 |  |
| UniRef90-D8M2Y6 | $\stackrel{E}{N}$ D P T P V |
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|  |  |  |
| UniRef90-W4Y8T4 | K |
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| UniRef90-A8J374 | HRTYKA |
| UniRef90-X1Y2J2 |  |
| UniRef90_Q236X5 |  |
| UniRef90 W4GAG7 |  |
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| UniRef90-B5Y312 |  |
| UniRef90-AODVR3 |  |
| UniRef90-UPI0003BBB50C |  |
| UniRef90-K7MB26 |  |
| UniRef90-W9S656 | E |
| UniRef90-G7YN59 |  |
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| UniRef90_V4W7M3 |  |
| UniRef90-R1CAS7 | T D $\square$ R K V |
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| UniRef90-B7FPI6 | E LP |
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| UniRef90-W4H2Z4 |  |
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| UniRef90-F0XX93 |  |
| UniRef90_R1BYX0 | E D T R K |

lupas 21
lupas_14


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    lupas_14
    lupas_28
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    sol5
    sol5 sol0 jhmm jpssm

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