QUERY
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$G L P W Y R A H T V V S N D P G R S L P V H L M H T A L V S G W A G P M A P Y E$ GLLPWYRVHTVVINDP GRLLAVVHLMHTALLAAGWAGSMALYE $V \vee L N D P G R S I S V H P M H T A P V S G W A G S M A P Y E$

GLP WYRVHTVVTSDPGRLIAVHLMHTA LVAGWAGSMAFFE $G L P W F R V H \square C I L N D P G R L I S V H I M H N A L V A G W S G V M L L Y E$

P WF R VHMVVYNDPGRLISVHLVHTALVTYWAGTMTFYE
$\square P W F R V H D I \quad I \quad L N D P G R L I S V H L M H T A L V A G W S G V L T L Y E$

L P WY R V H S I L F N D P G R L I S V H L M H T A L I A G WA GA M T L Y E $L P W F R V H I V I L N D P G R L I S S H I M H T A L V A G W S A L M L L Y E$

GF A WWA GNAR LIDEANRLLGAHVAHAGLIVFWAGAMTLFE



 GFA WWS GNARII NNS GKLL GABHVAHASSLIIVFWGAMTLAE G L P WY R V H TVVLNDPGRLLSVHIMHTALVSGWAGSMALYE

GYAWYVGNAR LINLSGRLLGAHIAHSGLIVFWAGAMMLFE GYAWWAGNARLI DLSGLLLGAHVAHAGLIVLDWAGGMTLEE GF A WWS GNSRLI NLS GKLL GAHVAAHAGLIVFWAGAMNLEE GFAWWA GNARLI NLS GRLLGAHVAHAGLIVFWAGAMNLFE GYAWWAGNARFI NLSGRRLLGAHVAHAGLMTFWAGAMLLEE
 GFA WWA GNARLIKVS GRLLGGAHMAHAGLMVLWCGTMTLFE F S WWS GNARFI DWS GKFL GAHVAHAGLILLDWS GSMTLEE

 GSAWWA GNARLI NLSGKSLGAHVAHAGSIVARAGAMNSFE

Y A WWA GNARLINLS GK LLGAHVAHAGLIVEWTGAMTLFE GFAWWS GNARLIDDLS GKLLGGAHVAHAGLIVLDWTGAMTLFE

GFAWWAGNARLTNLSGKLLGAH $\quad$ A GLIVFWAGAMTLFE
$L I S V S G R L L G A H V A H A G L M \square L W C G A M T L F E$ GFAWWAGNARLI NLSGKLLGAHVAHAGLIVFWAGAMXXXX GYAWWA GNARFI NLSGKFLGAHVAHAGLIAFWAGAMLLFE GFAWWAGNARLINLSSKLLGAHVAHAGLIVFWAGAMNLFE

GY A WWA GNARF $\square$ N $\square$ S GKF $\square G A H V A H A G \square V A F W A G A M L L F E$
 GF A WWS GNARLI NVSGKLLGAHVAHAGI MVFWTGAMTGFE FI E QS GKFL GA HLLAHAGLI MFWS GSMTELE

TVVLNDP GREI SVVHLMHTALVS GWA GSMASYE GFA WWA GNARLI NLS GRLL GAHVAHAGLIVFWAGAMLLFE Y A WWS GNARFI ELS GKFLGAHLVHTALILVWAGTMSLFE | $F$ | $E$ | $L$ | $S$ | $G$ | $K$ | $F$ | $L$ | $G$ | $A$ | $H$ | $L$ | $A$ | $H$ | $A$ | $A$ | $L$ | 1 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $L$ | $I$ | $M$ | $F$ | $W$ | $S$ | $G$ | $S$ | $M$ | $T$ | $L$ | $F$ | $E$ |  |  |  |  |  |
| $N$ | $V$ | $S$ | $G$ | $L$ | $L$ | $L$ | $G$ | $A$ | $H$ | $V$ | $A$ | $H$ | $A$ | $G$ | $L$ | $M V$ | $F$ | GYAWWA GNARFMNLSGRLLGAHVAHAGLLIAFWAGAMLLEE

 MHTALV SGWA GSMALYE GF A WWA GNARLINDSGKLLGAHVAHAGLI VFWAGAMNLGE

F S WWS GNA R LI Y LS GK L L G A HVFH S G L I L L W WMVF WS G T GFAWWS GNARLI NVSGKLLGAHVAHAGVMVFWTGAMTLFE GYAWWA GNARLIELTGRFLGAHVAHAGLVALDWG GMLLFE


ASVFNPEDPVLDPMWRQGMYVIPFMAR LGVINSWSGWSVF LI I QDP S DPVLNP $\quad$ WWRQGCYVMPFVSRLGVVRSFYDWSLG

LI LVDPTDPVYNPDWRQGCYS\|PFVSRLGVSRSLYDWSLG LI VTTDPSDPVYNPVWRQADYVIPQMAKLGVVSS SYGWSLT
LNIFDPSDPVLNPMWRQGMYVLPFMARLGDTNSSDKWNLF $L I T \square D P T D P V Y N P \square W R Q A A Y T L P F \square S R I G V \square R S L F S W S L G$

|  | M WRQGMFV |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| VSHYTPE K | KPLYEQGALL | P HLA T | L G G V |  |
| VAHFIPE K | KPMYEQGLI L | P HLA T | L W WGV |  |
| $V$ A HFVPN K | K P M Y EQGAl L | P HL A S | L W W GV |  |
| $\checkmark$ A HFVPE K | KPMYEQGLI L | P HLA T | G W GV |  |
| VA HFVPEKPMYK | KPMYEQGL I L | P HLA | G WGV |  |
| VSHF TFDK | KPMWEQGLI L | P HVA M | G Y G |  |
| V SHYDPE K | K PMYEQGCIL | P HL A | G WG |  |
| K | K P LYEQGC! | P HLT | L G W |  |
| A VF | RQGM |  |  | WG G WS |



LGVSDPSDPILDPMWRQACA SWQ
LAVFDPSDPVLDPMWRQGMFA $\operatorname{VPFMTRGG\square TDSWGGWS\square S}$
VAHFVPE
KPMYEQGLILLPHLATLGWGV
$\square G L F E V A H T V Y K P Y F E Q G F \| V I P R \backslash S A \square G Y S$

## VSHFIPE

K P L Y E Q GFI LIP HLA
$V$ SHFNLS KPMYEQGC LLMPHIAT $\square G \square G \nabla$
VLGLGV

V S H Y $\Pi$ P E

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UniRef90 B4WKI1 UniRef90-B0CFM2 UniRef90-Q0P3P8 UniRef90_C7B2H2 UniRef90_A9BDX1 UniRef90_D8KWY4 UniRef90_B9RWZ5
UniRef90_D8KX05 UniRef90-Q7NCI0 UniRef90_Q216P8 UniRef90_S8EC22 UniRef90_G1E7A1 UniRef90-Q5DVM8 UniRef90-Q1HCK7 UniRef90-A8CCR8 UniRef90-D91XH8 UniRef90-U6EFR9 UniReffo-E1CIG2 UniRef90-D91XN0 UniRef90-P48104 UniRef90-UPIO00345AD1D UniRef90_C7B2K3 UniRet90-G8IW47 UniRef90-G3XCS8
UniRef90 UniRef90-G1E7A3 UniRef90-C5XLE9 UniRef90-BOM2AO UniRef90-D91XI8 UniRef90-Lobil8 UniRef90-K4KK52 UniRet90-Q7V6H9 UniRef90-C6G428
UniRef90 Bociv7 UniRef90-K7X7Q6 UniRef90_Q216P7 UniRef90-P51753
UniRef90 U5U468 UniRef90-EOWD21 UniRef90_Q2WGC8 UniRef90-A8CCT6 UniRef90-G7JQC5 UniRef90 Q7NI60 UniRef90-U9VVM8 UniRet90 W5HL75 UniRef90-S8D261 UniRef90-K4EKT7 7 Kin
UniRef90-Q5DWS7 UniRef90-K4K617 UniRef90_K9T530 UniRef90-D7KUZ9 UniRef90-B9S188 UniRef90-K9PCS1 UniRef90-K4F7N3
UniRef90-D4ZT76 UniRef90_U3SYH6 UniRef90_Q5DWU5 UniRef90_O8MC80
UniRef90_O2JS97 UniRef90-U6EFN7 UniRet90-Q5DWU2 UniRef90 Q5DWS3 UniRef90-K8GH91 UniRef90-B9SH38 UniRef90 W5GSL 1 UniRef90-G7LGN8 Unireigo -W8JEM7
UniRet90_Q84UW UniRef90-G8DMG6 UniRef90-B4WKI2 UniRef90-K4ELA9
UniRef90-G8DM2

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 GETGVDPGLWSFEGVAAAHMGFSGLLMLAAI WHWTYWD GXXXTNPG| WSYEGVAGAHIVVSGLCFSAA| WHRVYWD GGTDT GESFSDPGI WSYEGVAVAHU GKDVVNPGFWSYEGVALMH|lVLSGLFFLAAVWHWVYWDLD
 GESTSNPGLWSYEGVAASHII LSGLLFLAAI WHWVFWDLD GETVTNAGIRSYEGVATAHIVPPGLLLLAAI WHWVYWDSE
 EGTUTNPGUWSFEGVAGAHIVFSGLCFLAAIVHWVYWDCE GPNVANVGFWSFEGVAAAHVVLS GLLFLAAACWHWVNWDL E $\square E L E S N Y$ FWTYETVSGAHILLSGLFILAAFWHWSYWDLD
 $\square E \square S S K P$ YWT YETVLLA HLLLS GLLIISS $\square W H W A Y W D L E$ GS SNPAVWTMEVVAATHLFSGLLI LAAFWHWAYWDLE
GGTGVNQGGWTFESVATAHFGLSGML! LASMWHWYYWNGD पDPTSN■ पWTYETMN【AHILLSGLLILASFWHWAYWDLD

WHWVYWDLD
GGTVTNPGTWSYEGVAGTHTVFSGLCFDAATWHWVYWDLE GPGGETVDTYPYFVVGVVHLISSAVLGYGGVFHSLFGPAS GPGGEVIDVYPYFVVGVLHEVSSAVLGFGGLYHACDGPEV




GPGGEVLDTFPYFVVGVLHLVSSAVLGFGGVYHSLVGPDT GPGGEVIDTFPYFVSGVLHLISSAVLGFGGVYHSLIGPET PEGGISGTYAAFVIGVLHLLSASVVGCGGLYHALLGPDT
 GPGGEVIDTFPYFVSRVLHLISSAVLGFGGIVHALLGPKT
 GPGGEVTTMLPYFSVGVVHLSSAVLGFGGLYHSLAGPDT GAGGEViNTFPYFVVGVLHLISSAVLGLGGIYHAVRGPEV GPGGEITDDYWSFVCGVLHLVSSPVLALGGI YHALFGPER GDTATDAGIWSYEGVAAAHI LDSGLELAAIWHWVYWDLD GPGGEVIDTYPYFVIGVLHLVSSAVLGLGGIYHAVRGPET GPGAEVVSVYPYFVSGVLHLI SSGVLALGGMYHADEGPER GAGGEVVD】FPFFAlAVVHLIGSAVLGFGGLYHSLQGPDR SSAVLGGGGIYHS
GGTVTNPGDWSYEGVAGTHVFSGLCFLAA WHWVYWEDE GPGGEVIDTFPYFVSGVLHLISSAVLGFGGIYHALLGPET TTVPYFAVGVIHLISSAVLGFGGI YHSLLGPDT GPSADTFDTYSFFIVSVLHLISSGFI GVGGIYHSVSGADR GPGGEVINTYPYFVVGVLHLISSAVLGFGGLYHSVLGPDT GQSGE TSMFPFFAIGVAHLIGSAVLGUGGMYHAMKGPEK




UniRef90_M1DZ44 UniRef90-M1DZ44 UniRef90-K9PBI9 UniRef90_Q2JPK3 UniRef90-P56307
UniRef90-LTNP49 UniRef90 ${ }^{-}$P48103 UniRef90-A2CBT7 UniRef90-D9IXP1 UniRef90-F6JT10 UniRet90 W5U5C4 UniRef90-X2F6T2 UniRef90-P14813 UniRet90-P2720 UniRef90-J3JR58
UniRef90
B4WKII UniRef90-B0CFM2 UniRef90-Q0Р3P8 UniRef90_C7B2H2 UniRef90-A9BDX1 UniRef90 B9RWZ5 UniRef90-D8KX05 UniRef90-Q7TCIO UniRef90-Q216P8 UniRef90-S8EC22 UniRef90 G1E7A1 UniRef90-Q5DVM8 UniRef90-Q1HCK7 UniRef90-A8CCR8 UniRef90-D91XH8 UniRef90-U6EFR9 UniReffo-E1CIG2 UniRef90-W5FWL7 UniRef90-D91XN0
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UniRef90 UniRef90-G1E7A3 UniRef90-C5XLEA UniRef90-BOM2AO UniRef90-A8G5U
UniRef90- D91X18 UniRef90-Lobil8 UniRef90-K4KK52 UniRef90 ${ }^{27 V 6 H 9}$ UniRef90_C6G428
UniRef90_BOC1V7 UniRef90-K7X7Q6 UniRef90-Q216P7 UniRef90-P51753
UniRef90 - 554468 UniRef90-EOWD21 UniRef90-Q2WGC8 UniRef90-A8CCT6 UniRef90-Q7N160 UniRef90-U9VVM8 UniRet90 W5HL75 UniRef90-S8D261 UniRef90-K4EKT7
UniRef90- O5DWS7 UniRef90 K4K617 UniRef90_K9T530 UniRef90-D7KUZ9 UniRef90-B9S1B8
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UniRet90_Q5DWU5 UniRef90-Q8MC80 UniRef90-Q2JS97 UniRef90-U6EFN7 UniRef90-Q5DWU2 UniRef90 O5DWS3 UniRef90-K8GH91
UniRef90-EOWD42 UniRef90-B9SH38 UniRef90 W5GSL1 UniRef90-G7LGN8 UniRe990-W8JEM7
UniRet90_Q84UW UniRef90_G8DMG6 UniRef90-B4WK12 Uniretgo_K4ELA9
UniRef9_-G8DMH2

170
180
190
200
FGPGMWVSDPYGLTGSVQPVAPEWGPDGFNPYNPGGVVAH FDPSDPVLDPMWRQGGI TNSWGGWSTTGGTVTNPGGVAGA $F D P S D P V L D P M W R Q G G I T N S W G G W S L T G G T V T N P G G V A G A$
$F G P G M W V S D Y G L T G H G G V A P E W G A G F N P F N P G V V A H$ FGPGMWVSDPYATTGHVQPVAPEWGPAGFNPYNAGGVVAH $F G P G D W V S D P Y G X T G T V Q A V A P S W D A T G F D P Y N P G G \| S A H$
$Y G P G U W V S P Y G T G K I Q P V N P A W G A E G F D F V P G G A S H$ $Y G P G I W V S D P Y G L T G K I Q P V N P A W G A E G F D P F V P G G I A S H$
$F G P G M W V S D A Y S I G G V Q P V A P A W G P E G F N P F N G G V V S H$ $Y G P G M W V S D S Y G L T G H M E N V A P E W G A A G F N P F S P G G V V A N$
$F G P G U W V S A Y G L S A B V P V Q P E W G P G F N P F N P G G V A B$
FGPG\| WVSDPYGLTGKVQPVAPARGAEGFDPFVPGGIASH YGPG WVSXXYGLTGKVXXXXXXWGVEGFDPFVPGGIASH FGPGIWVSDPYGLSGKIEAVNDPSWGAEGFDPYNVGADASH
FGPGMWVSDAYGLTGHI EHIIAPEWGPAGFNPFNPGGVVAH
 FGPGMWVSDPLGLTGHVQGVAPEWGAAGFDPHNPGGVVAH
laPGMWVSDPYGLTGHVQGVSPDWRPFAFDPYNPTGLVTH

F G
YDPGI WVSDP
FGPGUWVSDYGLTGKVQPVSPTWGVEGFDPFVPGGI ASH
 FGPGFWTSDSFGTVGSVRFVKPVYSLDGLSPFCYGVISSN
 YGPG $\Pi W V$ SDPYGLTGKVQAVHPAWGAEGFDPFVPGGI ASH FGPGLWTSDSLGIVGSVRFVKPSYSLLGLDPFCYGVISSN
 WGPGVWMNDRFGLNPHLVYVQPEWGGEGFNPFNLSGVPAH LG G GMWTSDSLNLVGSIRFVKASFNLLAYARLAYGVISSH FGPGDWVSDPYGUTGVQPVAPAWGADGFDPYNPGGVASH YGPGI WVSDPYGLTGKVQAVNPAWGAEGFDPFVPGGIASH GGGDVRVIDTPTLDPATYTLKAPFGGDGWIINNMEDLIGG GGGDVRVISNPTLNPTVYVTKSPWGGDGWIVDNMEDIVGG GGGDVRLITNPTLDPTTYLVKSPFGGEGWIVNNLEDVVGG GGGDVRKDTNPTGNPSTYLLKSPFGGEGWIVDNLEDVIGG FGGGLYDTWAPGGGEVRLITPTTDPGIIFGYSVEDIVGG GGGDVRVITNPTLNPGVYLASSPFGGEGWIVNNMEDIIGG GGGDVRIVMSPTINPNVYVLKSPFGGDGWIVDTLEDLIGG YGPGIWLSDPYGLTGKVQAVNPAWGAEGFDPFVPGGIASH FGPGIWVSDPYGLTGSVQPVRPAWGPEGFDPYNPSGUASH GGGEVRLVNPTLDPRVIYLFRSPWGGAGIGVNSDEDIVGG GGGYVRPIDHPSDNFLRYLIRSPFGGEGWIVDNMEDIIGGG YFGGVYDTWAPEGGDVRKITNDTLSPSVIFGYLLKSPFGG GGGDVRLITSPTLDPGVYVESSPWGGTGWIVNSMEDLIGG YGGGLYDTWASGLNPYUYLVRAPFGSEGWIINNMEDLVGG
 GKDTCVTHNPYTLGRYLVVRAPFGSEGWIVNNMEDLIGG FGGGVRVITNPTLSPSVYLFRSPFGGEGWGVNNMEDVVGG GGGDVRLIDEPSLNDVYVFRSPFGGDGWVVDNEDVVGG GGGDVREI TNTAGPGVIFGHSPPFGGEGWIVDNSEDATGG GGGDVRIIDNPTGNPAVYVLKSPWGGDGWIVNNMEDVVGG FDGQVRTVTNPTLDPTVYVLKSPFGGDGWIVDNLED:IGG Y LGGTYDSTNPTLSPFVYاLKSPFGGDGWIVDNMEDVWS GGGDVRDITNPTNAAVYLVKSPFGGDGWIVDNMEDIIGG YFGGIYDTWAAGGGDVVRVTAPPFGGDGWSVNNLQDLVGG GGGDVRKTTNLTLSPSVYLLKSPFGGEGWIVDDLEDIIGG GGGGVRLVTNPTLDPRVYFFKSPLGGSGWIVDNLEDIVGG GGGDVRKLTNLTLSPSVYLLK SPFGGEGWIVVDDLEHIIGG LWG GLYDTWAPGGGDVRLVTHPTLDPRIIFGYLFKGLTGG YFGGVYDTWAPGGGDVRYVSYPTLNPFIIFSYLLRSPFGG GGGDVR\INNPTLNPLVYLLKAPFGGEGWMVDNMEDIIGG GGGDVRFI ANPTINPFVYVFKSPFGGDGWIIDNMEDLVSG GGGDVRLIKDTSLNPYVYLARSPFGGEGWIINNMEDLVGG FGPGIWVSDPYGLTGKVEPVDPAWGAEGFDPFVPGGIASH GGGDVRVITNPTLNPAVYLFKSPFGGDGWVVDNMEDVIGG GGGDMRLIERVGLNPYLYLLRAPFGSSGWIINNMEDLIGG MKDSVLTLNPYVLLRYL ARPPFGGQGWI INNMEDLLGG GGGDVRVVTNPTLNPGAYVLKSPFGGDGWIVNNLEDLVGG GGGDVRLISHPTLNPLTYLVRSPYGEQGWIVNNLEDIVGG GGGDVRFVDNPTLNPFVYALKSPFGGDGWIVDNMEDLVGG YGPEI WVSDPYRLTGKVQPISPAWGVEGFDPIVSRGI ASH YGPGI WVSDPYGLTGKVQVVNPAWGAEGFDPFVPGGIA ASH GGGDVRKDTNLTLSPSIYLLKSPFGGEGWlVDDLEDIDGG Y IGGGIYDTWAPGGGDVRFI MTPTLNP\|VIFGYVFRSPMGG YFDGLYDTWSSGYTLGRYLLKAPFGSDGWIVNNLEDPVGG GGGDVRIIFTPTLNPATYILKSPFGGDGWIVDNMEDLVGG GGGDVRLVTNPTLDPRDYLIKRPTGGEGWIVNNLEDI GG

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UniRef90_W5U5C4 UniRef90-X2F6T2 UniRef90_-P14813 UniRef90_P27200 UniRef90_J3JR58 UniRef90_B4WKI1 UniRef90_B0CFM2 UniRef90_Q0P3P8 UniRef90_C7B2H2
UniRef90_A9BDX1 UniRef90_D8KWY4 UniRef90_B9RWZ5 UniRef90_D8KX05 UniRef90-Q7NCIO UniRef90_Q216P8 UniRef90_S8EC22 UniRef90_G1E7A1 UniRef90_Q5DVM8 UniRef90_Q1HCK7 UniRef90_A8CCR8 UniRef90_D91XH8 UniRef90_U6EFR9 UniRef90-E1CIG2 UniRef90_D9IXN0 UniRef90_P48104 UniRef90_UPIO00345AD1D UniRef90_C7B2K3 UniRef90_G8IW47
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UniRef90_D7KUZ9 UniRef90_B9S1B8 UniRef90_K9PCS1 UniRef90_K4F7N3
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UniRef90_Q2JS97 UniRef90_-U6EFN7 UniRef90-Q5DWU2 UniRef90_Q5DWS3 UniRef90-K8GH91 UniRef90-B9SH38 UniRef90-W5GSL1 UniRef90-G7LGN8 UniRef90_W8JEM7
UniRef90_Q84UW1 UniRef90_G8DMG6 UniRef90_B4WKI2 UniRef90_G8DMH2

HIVFS GLCFLAAI WH
HIVF S GLLC L A A I WH
HI A A G IL GII G GLLFHDT FRPPEVLYRSDRMGNTETVLASA



 HI A A G I P G I L A G L S H P S V R P P Q R S Y K GLL R M G N V






 H I A A G T L G I L A A G L F H L



HI A A
$H I V A G F V G \square C V G L W H V S S R P G P L I Y K L L S M G N D E G V L S S S$


 HI IS G L L GT S I G L WH I T L R P L A Y L Y N L L S M G K V E S I L S S S





 H I A A G T L G I LAA G L F H L S V R P P Q R L Y K G L R M G N I E T VL S S S H $I$ A A $G$ I L HV Y V GVTA I I G GIGFHI FTKPF GWARRA F I WN GE GLLL S Y A
 E GWIVVSVXXXXXXXXXXXXXXXXXXXXALVWSGEAYLLSYS H $\ Y V$ A ALLLFVGGHFHDATKPWGWVRRA F GI WN GEA Y L S Y A H Y WV G I Y T L I G GV WH I Q T R P F G VVV V G F T WS G E A Y L A Y S


 HL W G F L C I I G GVVWHFFSKP L G WVR RA F HI WVV G GL I F G GI F HIV V K P FA WARRA F HL R L G S I RI LGG I S HIL T K P FA WA R R A

 H I WI G LI C I S G Gl WH L L K P F G WVRRRA F WT GEAY A A Y S $V W S$ GE A Y L L S Y S $V$ WS G E A Y L S Y S $V$ WS G E A Y L S Y S $V$ WS GEA Y L S Y S V WS GE A Y L S Y S GVA GVACF GF GAFHVTGGPGDWVSDPY GI WSGEAYLSYS


 HI WM G GI LI A G GI WH I FTKPWKWTDK V F I I WS GEAYL S Q S


 DGWIVSVNSFGGAWHI FSRPFGWVRRAF VWSGEAYLSYS

 H $\operatorname{I} A \mathrm{~A}$ G V L G L L X G L


 HLWV A GL CIF G GIFH II DTKPFSWARRAF VWS GEAYLLS Y S RI A A G T L
H I A A G T L G I L A G L F H L S V VR P P Q R L Y K G LR M G N DE TVVLS S S

 V WS G E A Y L S Y S $P^{\mathrm{V}}$ V WS G E A Y $\quad$ L WT GETY L S Q S WS GEA Y L S Y S
ouear UniRef90_M1DZ44 UniRef90-M1DZ44
UniRef90-K9PBI9 UniRef90-Q2JPK3 UniRef90-P56307 UniRef90-L7NP49 UniRef90 ${ }^{-}$P48103 UniRef90-A2CBT7 UniRef90-D91XP1 UniRef90-F6JT10 UniRet90 W5U5C4 UniRef90-X2F6T2 UniRef90-P14813 UniReefo-P2200 UniRef90-84WKII UniRef90-B0CFM2 UniRef90 ${ }^{-Q 0 P 3 P 8}$ UniRef90-C7B2H2 UniRefofo-AgBDX1 UniRef90-D8KWY4 UniRef90_B9RWZ5
UniRef90_D8KX05 UniRef90_O7NC10 UniRef90-Q216P8 UniRef90-S8EC22 UniRef90 G1E7A1 UniRef90-Q5DVM8 UniRef90-Q1HCK7 UniRef90-A8CCR8 UniRef90-D91XH8 UniRef90-U6EFR9 UniReffo-E1CIG2 UniRef90_W5FWLT
UniRef90_D9IXNO UniRef90-P48104 UniRef90-UPI000345AD1D UniRef90-С7В2К3 UniRef90-G81W47 UniRef90-G3XCS8 UniRef90-G1E7A3 UniRef90-C5XLE9 UniRef90-BOM2AO UniRef90-A8G5U8 UniRef90-D91X18 UniRef90-LOBIL8 UniRef90-K4KK52
UniRef90-Q7V6H9 UniRef90-C6G428 UniRef90-B0C1V7 UniRef90-K7X7Q6 UniRef90-Q216P7 UniRef90-P51753
UniRef90 U5U468 UniRef90-EOWD21 UniRef90_Q2WGC8 UniRef90-A8CCT6 UniRef90-G7JQC5 UniRef90_O7N160
UniRef90_U9VVM8 UniRef90-W5HL75 UniRef90-S8D261 UniRef90-K4EKT7 UniRef90-O5DWS7
UniRef90 UniRef90_K4K617 UniRef90-D7KUZ9 UniRef90-B9S188 UniRef90-K9PCS1 UniRef90 K4F7N3 UniRef90-D4ZT76 UniRef90_-Q5DWU5 UniRef90-Q8MC80 UniR Refoo QuSc97 UniRef90_U6EFN7 UniRef90_Q5DWU2 UniRef90 O5DWS3 UniRef90 K8GH91 UniRet90-B9SH38 UniRef90-W5GSL1 UniRef90-G7LGN8 UniRef90_Q84UW1 UniRef90-G8DMG6 UniRef90-B4WKI2 UniRef90_K4ELA9

DAADFFAAFVVAGTMWYGSATTPDEDFGPTRYQWDSSYFQ
 NEFYGPTGPE
VQPVSPA WGVERFDPFVPGG $\square$ ASHH $\square$ AAGYFQ LGNVAGQALDASMFDWFNNTAYPSEFYGPTAPE LAALSLMGFTASLYSWYNNTAYPSELYGPTGPE AAALSLMGLTASTFVWYNNTAYPSEFFGPTGPE LSALSVCGFVAATYSWYNNSAYPSEFYGPTGPE LAAVSDMSFIATCYDWFNNTVYPSEFYGPTGPE LSALALSGLLAAVYSWYNNTAYPSEFYGPTGPE LGALPLMGIUASIFVWYNNTAYPSEFYGPTGPE LAALSGMGVTASAFVWYNNTAYPSEFFGPTGPEWDQGYFQ TAADFFAAFVVAGTMWYGSATTPDELGPTRYQWDQGY LAALSLFGFIACCFVWFNNTAYPSE
LAA CLMGFTASLYSWYNNTAYPSEFYGPTGPE LVSLSVCGFDAATYSWYNNTAYPSELIRPTGPE LAALAVMGLSAATFVWYNNTAYPSEFFGPTGPE


QUERY UniRef90_M1DZ44 UniRef90-M1DZ44
UniRef90-K9PBI9 UniRef90- Q2JPK3 UniRef90-P56307 UniRef90-L7NP49 UniRef90-P48103 UniRef90 A2CBT7 UniRef90_D9IXP1 UniRef90_F6JT10 UniRef90 W5U5C4 UniRef90-X2F6T2 UniRef90-P14813 UniRef90_P27200 UniRef90-J3JR58 UniRef90_B4WKI1 UniRef90_B0CFM2 UniRef90 Q0P3P8 UniRef90_C7B2H2 UniRef90_A9BDX1 UniRef90-B9RWZ5 UniRef90-D8KX05 UniRef90-Q7NCIO UniRef90 Q2I6P8 UniRef90-S8EC22 UniRef90_G1E7A1 UniRef90_M8CB07 UniRef90_Q5DVM8 UniRef90_Q1HCK7 UniRef90_A8CCR8 UniRef90_D91XH8 UniRef90_U6EFR9 UniRef90-E1CIG2 UniRef90_W5FWL7 UniRef90_D9IXN0 UniRef90-P48104 UniRef90-UPI000345AD1D UniRef90 C7B2K3 UniRef90 G8IW47 UniRef90-G3XCS8 UniRef90-B4WGU0 UniRef90 G1E7A3 UniRef90_C5XLE9 UniRef90-B0M2A0 UniRef90_A8G5U8 UniRef90 D9IXI8 UniRef90_LOBIL8 UniRef90_K4KK52 UniRef90_Q7V6H9 UniRef90_C6G428
UniRef90_B0C1V7 UniRef90_K7X7Q6 UniRef90 Q2I6P7 UniRef90-P51753 UniRef90_U5U468 UniRef90 EOWD21 UniRef90-Q2WGC8 UniRef90_A8CCT6 UniRef90_G7JQC5 UniRef90 Q7NI60 UniRef90_U9VVM8 UniRef90-W5HL75 UniRef90_S8D261 UniRef90 K4EKT7 UniRef90-Q5DWS7 UniRef90_K4K617 UniRef90 K9T530 UniRef90_D7KUZ9 UniRef90-B9S1B8 UniRet90_K9PCS UniRef90 K4F7N3 UniRef90-D4ZT76 UniRef90_U3SYH6 UniRef90 Q5DWU5 UniRef90_Q8MC80
UniRef90_Q2JS97 UniRef90-U6FFN7 UniRef90 Q5DWU2 UniRef90-Q5DWS3 UniRef90_K8GH91 UniRef90_EOWD42 UniRef90_B9SH38
UniRef90_W5GSL1 UniRef90_G7LGN8 UniRef90 W8JEM7 UniRef90-Q84UW1 UniRef90_G8DMG6 UniRef90 B4WKI2 UniRef90-K4ELAS UniRef90_G8DMH2


AS QAQAFTFLVRDQRLGANVSSAQGP AS QA Q GFTFLI RDQRLG $\square R L E T T Q G P$ ASQAQAFTFLVRDQRLGANVASAQGP SSQAQSFVFLMRDQGMGADVASAQGP ASQSQAFTFLVRDQR LGANVASAQGP

## 330

GGLFRAGPMNKGDGIADEWLGYPVFRDREGRELTVQRMPN G GLIFRAGAMNSGDGIAVGWLGHAVFKEKQGNELGVRRMPT
 GGLFRVGAMVNGDGLATGWLGH GGLFRAGPMNKGDGIAQAWLGHPIFRTKDGNELTVRRMPS
 G GLFRAGSMDNGDGI AVVGWLGHPVFRDKEGRELVVRRMPT

 GGLFRTGAMNSGDGIARAWEGHPTFTDSEGRELFVRRMPN GGLFRSGPMDNGDGI A A GWLGHATFTDKNGRELFVRRMPT


 GGLERAGAMDNGDGIAVGWLGHAAFKDKEGHELFVRRMPX G GLFRSGPMDKGDGIVQNWLGHASFEMGT DS L TVVRRMPA
 GGLFRAGSMDNGDGIAVGWLGHPVFRDKEGRELFVRRMPT



 X GLFRAGSMDNGDGIAVGWLGHPVFRDKEGRELFVRRMPT | $T G$ |
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UniRef90-Q2JPK UniRef90-P56307 UniRef90-L7NP49 UniRef90-P48103 UniRef90-A2CBT7 UniRef90-D91XP1 1 UniRef90-6JT10 UniRef90-X2F6T2 UniRef90-P14813 UniRef90_P27200 UniRef90-J3JR58 UniRef90-B4WK11 UniRef90-BOCFM2 UniRef90-Q0P3P8 UniRef90-C7B2H2 UniRefofo-AgBDX1 UniRef90_D8KWY4 UniRef90_B9RWZ5
UniRef90_D8KX05 UniRef90-Q7NC10 UniRef90-Q216P8 UniRef90-S8EC22 UniRef90 G1E7A1 UniRef90-Q5DVM8 UniRef90-Q1HCK7 UniRef90-A8CCR8 UniRef90-D91XH8 UniRef90-U6EFR9 UniReffo-E1CIG2 UniRef90-W5FWLT UniRef90-P48104 UniRef90-UPIO00345AD1D UniRef90-С7В2К3 UniRef90-G81W47 UniRef90-G3XCS8 UniRef90-B4WGUO UniRef90-C5XLE9 UniRef90-BOM2AO UniRef90-A8G5U8 UniRef90-D91X18 UniRef90-LOBIL8 UniRef90-K4KK52
UniRef90_Q7V6H9 UniRef90-C6G428 UniRef90-B0C1V7 UniRef90-K7X7Q6 UniRef90-Q216P7 UniRef90-P51753
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UniRef90_U9VVM8 UniRef90-W5HL75 UniRef90-S8D261 UniRef90-K4EKT7 | UniRef90-O5DWS7 |
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| UniRef90 | UniRef90-K4K617 UniRef90-D7KUZ9 UniRef90-B9S1B8 UniRef90-K9PCS1 UniRet90-K4F7N3 UniRef90-D4ZT76 UniRef90_O5DWU5 UniRef90-Q8MC80 UniRef90-Q2JS97 UniRef90_U6EFN7 UniRef90_Q5DWU2 UniRef90 O5DWS3 UniRef90 K8GH91 UniRef90-B9SH38 UniRef90-W5GSL1 UniRef90-G7LGN8 UniRe990-W8JEM7

UniRef90_Q84UW UniRef90 ${ }^{\circ}$ G8DMG6 UniRef90-B4WKI2 UniRef90 K4ELA9 UniRef90 G8DMH2

FFESFPVILTDKNGVVKADIDPFRRAESKYSFEQQGVTVSF

FFETFPVLLVDSEGIVRADVPFRRAESKYS VSQKGVYVKF FWDFRGPWLEPLRGPNGLSLEKDQNDIQPWQVRRAA F WDMRAPWI EPLRGPNGLDVYKLCKEVQPWQERRAA FWDFRGPWLEPLRGPNGLDLNKLRNDLQPWQERRAA FWDLRAPWLEPLXGQNGLDLSRLKKGIQPWQERRSA

 FWSMQGGWVEPLRNSFGLDIYKIQSDIQTWQERRAA
 F X DL R AP XV EPLXGPNGLDINKIKNDXXPWQERRAA


FWS $\square K T P L D E M L K E G V E I Q N N K L G G T T G Y S V E K \quad \square M T E \square$ FWDFDGPWLAPLRGTNGLDLDKLKNDDQPWQVRRAA FFETFPVVLVDEEGIVRADVPFRRAESKYSVEQVGVTVEF FYDFRGPWLEPLRGPNGLDLNKLRND!QPWQERRAA FWDFRGPWLEPLRGPNGLDLNKLKNDIQPWQERRAA
 FWDLRAP WL EXXXGPNGLDLSRLKKDI QPWQERRSA
 FFETFPVVLVDGDGVVRADVPFRRAESKYSVEQVGVTDEF
 FWDLRAPWVEPLRGPNGLDI NKIKNDIQPWQERRAA FWDFKGPWLEPLRGPNGLDLNKLKNDIQPWQVRRAA F WDLRAPWVEPLRGPNGLD
F WS MQG GWVEPLRSYKGLD $\quad$ Y K $\square$ QS D $\square Q S W Q E R R A A$
FWDVRAP WKEP LLGPNGLDLDKLKNDDQPWQARRAV
FWSMQAHWLGALRTSFGLDLSKIQSDI QTWQERRAA
FWSVVQGGWQEPCATSKGLDI SKI QSDI QTWQERRAA


FWDLRAPWVEPLRGPNGLDTNKTKNDTQPWQERRAA
FWSMQGCWVEPLRTALGLDUYK乌RYDUQSWQERRAA FWD LDRAPWQE
FWDARAPWLEPLRGKNGLDLDKLQHDVQPWQLRRAA FWDFRGPWLEPLRGPNGLDLNKLKNDIQPWQERRAA

YGGE पNGQTFTDPPTVKSYARKA DFGE $\square$ FEFDTET पNSDG

F G GALD GQTLT DPSVVKKFARDAQQGEDFEFDRTTFNSDG Y G GKLDGQVFTDPATVKKYARQAQLGQLFEFDRETPKADG

 YGGSMDGKTFTDTADVKRLARKAQLGEAFTFDRETYASDG LGGKLNGQKFDDPTTVKKFARKAQLGEMFQFDRVTLQSDG YGGEDNGVSYSDPATVKKYARRAQLGEDSESDRATGKSDG YGGELNGVSYSDPATVKKYARRAQLGEIVELDRATLKSDG F GGSFDTLSFNDPATVKRYARHAQLGEIFDFNRSDLQSDG FGGNNDDGLTFNDPASVKEFARRSQLGELLFEFDRTTLGSDG Y G GELD GQTFSDPKDVKKYARRAQLGEPFEFDRSVYDSDG Y GGELDGLTFTDPATVKKYARRAQLGEVFEFDRATLQSDG $C G G E L D G V S F S D P A T V K K H A R R A Q L G E I P E S D R A T S K P D G$
$Y G G E L S G Q T F S D P V V V K R L A R K A Q L G E S F K F D R D R Y K S D G$ HGGELDGTSFSDPATVKKYARRAQSGEI Y G GELNGVSYSDPATVKKYARRAQLGEI FELGRATLKSDG

 FGGELDGLSFNDAPTVKKYARRAQLGEI FEFDRATLESDG YGGKLNGQKFTDSSTVKKYDRRAQLGEAVEFDRKTWKRDG
 NGGAYGGSELDNAPIVKNYARKSQFGSIVSFDRKTLRSDG YGGKLNGQSFKDAPTVKKYARKAQLGEVFEFDRTSLESDG SGGCLNGTEYSTPSLVKAYARKAQFGQIFTFDKKTSRTDG YGGELDGVSFTDPATVKKYARRAQLGEIFEFDRSTLQSDG

EYMTHAPLGALNSVGGVATETNS
EYMTHAPLGSLNSVGGVATE:NS
EYMTHPADGSLNSVGGll IT: NT
EYMTHAPLGSSNSVGGVATEINA
EYMTHAPNASINSVGGU1TEPNA
EYMTHAPLGSLNSVGGVATEINS
F GGS $\square \mathrm{DGETFTDPTVVAKYARRAQLGEPFEFDRAS} \mathrm{\square PSDG}$ EYMTHAPNASINSVGGIITEPNA EYMTHAPLGSINSVGGVATETNS EYMTHAPLGSLNSVGGVATEINA EYMTHAPLGSLNSVGGVATEINA EYMTHAPNASNSVGGIITEPNS EYMTHAPLGAANSVGGVATEINS EYMTHAPLGSSNSVGGVATEDNS EYMTHAPLASUNSVGGVITEPNS


QPWQ $\square R \mathrm{RA}$
YGGE पNGVSYSDPATVK
KAYS
KASLNSVGGVATE!NA保 EYMTHAPNASLNSVGGVITEINS KYARRSQLGEIFELDRATLKSDG EYMTHAPLGSLNSVGGVATEINA

E Y M T H A P L G S $L N S V G G V A T E D N A$ SEYMVHAPLGSINSVAGLATDVNS KYMTHAPLGSLNSVGGVATEINA YGGELNGVSYSDPATMKKYARRAQLGEVEELDRATLKFDG EYMTHAPLGSLNSVGG
EYMTHAPNGSINSVGG\|ITEAQG


E YMTHAPLGSLNSVGGVATEPNS EYMTHAPLGSLNSVGGVATE $\square$ NS
\FRTSPRGWFTFAHAVFALLFFFGHDWHGARTLFRDVFSG

VFRSSTRGWFAFAHACWGLLWFFGHDWHGSRTDFRDVFSG TFHTSPRGWFTFAHAVFALLFFFGHIWHGARTLFRDVFAG VFRASPRGWFTFAHLCFALLFFFGHI WHGARTIFRDVFAG VFRSSPRGWFTFGHATFALLFFSGHI WHGARTLFRDVFAG V R S A A A
 VFRSSPRGWFTSGHATFALPFSFGHIVRHGARTSFRDVFAG VFRSSPRGWFTFGHASFALLFFFGHI WHGARTLFRDVFAG XXXXXXXXXXXXXHXSXXLLXXXXHVWHGARTVREDVFAG VFRSSPRGWFTFGHLSFALIFFFGHI WHGARTLFKYLLAG
 LFRTSNRGFFAFFHVIF GLLWFFGHLWHGLRALFQDVFSG VFRTSTRGWFAFSHSCYALLEFFGHWWHGARTIFKDVFEG VFRSSPRAWFTFAHVSFALLFFFGHDWHGARTIFRDVFAG VPRSSPRGWSTFGHATFALLSSSGHLRHGARTPFRDVLAG
$V$ VRSGPRAWFTYAHACFGLLYLEGHWWHAARTLYRDTFAG

VFRSSPRGWFTFGHASFALLFFFGYПWHGPQ VFRSSPRGWFTFGHATFALIVFFGHI WHGSRTDFRDVFAG VFRTSTRGWFVLAHGDFALLFFFGHIWHGARTLFDDVFTG VFRTSPRCWYSFSHVTLAFI FFFGHLWHAGRALFRDI WTG VFRSSPRGWFTFGHLSFALIFFFGHI WHGARTIFRDVFAG LFRVSNRGWFTFFHLVFSLLFFFGHLWHGGRTLFNDIFWG VFRSSPRGWFTFGHATFALLFFFGHI WHGARTLFRDVFAG VFRTSPRGWYSFSHLALALLF LLGHLWHAGRALFRDI WTG VFRTS $\square R G W Y T F S H V S L A L F F F L G H L W H A A R A F F K E L W T G$ V F R S S PR
VFRASPRTWYAFGHADFAFFFFFGHLWHAGRTLFEELLTG VFRTSARGWYSFSH $\square A L A F S F F F G H L W H A S R A \emptyset F Q D U W T G$ VFRSSPRGWFTS
VNYVSPRSWLTCAHFFLGFFLLVGHWWH
VNYVSPRSWLSTSHFVLGFFLFIGHLWHAGRA
V NYVSPRSWLAA HNFILGFFFFVGHLWH
$V N Y V S P R S W L A T S H F V L G F F F F V G H L W H$


$V N Y V S P R S W L C C A H F F F G F F L W V G H L W H$
VFRTSPR
$V N F V N$ RRQWLAAAQFFLGWFTFDGHLWH
V NYV PRRSWTCSHFFLGFFLLVGHWWHAGRA RSEFVG
VNFVNPRSWLSTSHFVLAFFFFVGHLWH
VNYVSPRSWLATSHFVLGFFLFVGHLWH
VNFVNLRQWLAGHAFFLAWFTIVGHWFH
V NYV P PRSWLTS SHWVFGYF LV GHWWHGGRA
VNYVSPRSWLSTSHFCLAFFFFVGHIWHS
FNYVSPRSWLCTSHFFFGFFMWVGHLWH
VNYVSPRSWLTSSHW LGYF LLVGHWWHGGRS
VNYVNLRQWLAGSHFILGFFFLI GHLWH
V NYVSPRSWLCCSHFFLAFFFLI G
V X XVSPRSWLTTSHFFLGXFLXS
VNYVSPRSRSATSH
VNYVSPRSWLATSHFVLGFFLFVGHLWH I NYTSPR $\square$ WLS GSHFILGFFLLI GHLWH $V N F V N P Q W L S T S H F V L G F F F L V G H L W H$ VFRSSPRGWFTFGHATF
VNFVNPRSWLSTSHFVLAFFFFVAHLWH
V NFVSPRSWLACSHFVLGFFFFVGHLWHAGRA
VNYVSPRSWLATSHFVLGFFLFVGHDWH FNYVSPRTWMTASHLIFARFFLVGHWWH VNYVSPRSWLSTSHFFLGLFLFVGHLWH VFCSSPRGWFTFGHASFALLFFS

F N Y VN PR

VNFTSPRTWLAAHNF $\square F G F \square F F V G H D W H$ VNYVSPRSWLTSSHWFLAFFILVGHWWHGARA

FNFLSPR
VNYVSPRSWLT TSHFFLGFFLLVGHWWHSGRS

VN YVSPRSWLCCSHFFLGFFF LVGHWW $I N Y V S P R S W L T C W H W L S Y F M L I G H W W H G G R S$

| QUERY | $\square D P E L S \text { P E QVVE WG F Y Q K VGG } \stackrel{490}{\mathrm{~V}} \mathrm{~T} \text { T R }$ |
| :---: | :---: |
| UniRef90_M1DZ44 |  |
| UniRef90-M1DZ44 |  |
| UniRef90_K9PBI9 | ID P E LD D D Q VEF GVY Q K VG DVT T R |
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| UniRef90-P56307 | 1 DADLD EQVEFGAFLKLGGTSTR |
| UniRef90-L7NP49 | 1 DP PLDA QVEFGAFLK T G |
| UniRef90-P48103 | I GEEVT E QVEFGAFQKVGDKT T R |
| UniRef90_A2CBT7 | 1 D P D L G D Q VEF G VF Q K L G D A S T R |
| UniRef90_D9IXP1 | I GA DVVVK QVEF GAFQKLGDET T |
| UniRef90-F6JT10 | I DPDLDA QVEF GAFQKL GDP T T K |
| UniRef90-W5U5C4 | I DPDLDA QVEF GAFQKLGDPTTR |
| UniRef90-X2F6T2 | 1 DPDLDA QVEFGAFQKL GDPTTK |
| UniRef90-P14813 | I DPHLEEE I EFGTFEKL GDDTTK |
| UniRef90-P27200 | 1 DADLG EQI EFGAFQKL GDLT T R |
| UniRef90-J3JR58 | 1 DPYME DNI EFGAFQKLGDIS T |
| UniRef90_B4WKI1 | 1 D P S L S A EQVEWGYFFKKVGDPTS Q |
| UniRef90-B0CFM2 | V D P NLPEEQVEWGVF Q K V G D T T R |
| UniRef90_Q0P3P8 | 1 DPDLD EQVEFGAFQKLGDVTTR |
| UniRef90_C7B2H2 | TDPDPDA QAELGTSQKSGDPTTK |
| UniRef90_A9BDX1 | ■D P D L G D Q VEF G LF K K LG D E S R |
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| UniRef90-B9RWZ5 |  |
| UniRef90_D8KX05 | ID P D LD A QVEF GAFQKLGDPSTK |
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| UniRef90-Q216P8 | V $\$ \ IS LY QVE Y G R N E K L G E  \hline UniRef90_S8EC22 & I D P DLE EQVEF GAFQKL G D  \hline UniRef90_G1E7A1 &   \hline UniRef90-M8CB07 & I D P D L D A QVEFGT F Q K V G D P T T R  \hline UniRef90_Q5DVM8 & $V$ A SIT I P Y QVEYGRNEKL G D E T T K |
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| UniRef90_D91XH8 | VDSEVF DFVKFGGMSKVGGK |
| UniRef90_U6EFR9 | $V T F E S Q A K Q$ E Y GRNEKLGDKTS |
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| UniRef90 C5XLE9 |  |
| UniRef90-B0M2A0 |  |
| UniRef90_A8G5U8 |  |
| UniRef90_D91XI8 | T ERG $\square$ D R E F E W |
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| UniRef90_Q5DWT8 |
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## UniRef90 Q5DWT8 UniRef90-W1PVS8

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UniRef90-Q52W69 UniRef90-G8DMH4 UniRef90-L8LU99 UniRef90-X5JIZ8
UniRef90 K
URID3 UniRef90-Q7VC57 UniRef90-K9PTV8 UniRef90-UPIO00349C556 UniRef90-K9RH45 UniRef90_U5DNW7 UniRef90-A2BS86
UniRef90 Q46LSO UniRef90-U9W7C9 UniRef90-E3T828 UniRef90-K9T8Z2
UniRefo
U9V4J7 UniRef90-KgYGV1 UniRef90-K9U1Z7 UniRef90-UPIO0034CFBDF UniRef90-K9YRA6 UniRef90 UPIO002F9C0C1 UniRef90-P95503
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|  | GSFGYDWEDKDK |
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|  | QTFGYDWQDEDK |
|  | DQ QGFGYDWQDGKKGI HLVLLGI GAALLVLKANQWGG\| |
|  |  |
|  | FSTDWRDKNQMTNILGYHLIVLGVGALAYDTWAP |
|  | M |
|  | GYDWQDENKLGLGAYLLVFKAMFWGGLFDPWGD |
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|  | GI HLILLGI GA WLLVAKGF |
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|  | GGYDWKADKMTNILGIHLILLGLGAWLLVAKAA |
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|  |  |
|  | KFDFEWDDLTFTLGHHLIFLGLGAI MFVEWRTHGII |
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|  | HYEWSDPKQGHHLIFLGIAALLFVAKAMFFGGL |
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|  | EVPQARKFKLEWDFI LGHLLLFFGVACDWFVEWRDHGI |
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|  | WD D |
|  | AFGYDWRDKNK\ATILGTHMXXXXYVGGIYDTWAP |
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|  | RKif SAhf ghlavv |
|  | SRKIFSAHFGHLA |
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## UniRef90 Q5DWT8

 UniRet90-W1PVS8 UniRefefo-K4EM19 UniRet90-W5E9U9 UniRef90-Q5DWU1UniRef90- Q52W80 UniRef90-Q1HCK8 UniRef90-O71KR4
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URID3 UniRef90-Q7VC57 UniRef90-K9PTV8 UniRef90-UPIO00349C556 UniRef90-K9RH45 UniRef90_U5DNW7 UniRet90-Q46LSO UniRef90-U9W7C9 UniRef90-E3T828
UniRef90_K9T8Z2 UniRef90-KgV4J7 UniRef90-KgYGV1 UniRef90-K9U1Z7
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$\square$lacreopF9C0C1
 HVWLGSI HVWLGSTCVLGGLWHVLTKPFAWARRALLVWSGEAYLSYS
 HVWLGFICVFGG| WH LTKPFAWARRAF VWSGEAYGSYS

 HVWLGVIC: FGGIWHILTKPFAWARRAFVVWSGEAYLSYS HIWVGILCIGGGFWHIFTQPFAWAKKVLF WSGEAYLSYS HYWVGI GCSVGGDWHVDTTP NRAVLAAFDWSGEAYLAYS HTWVGLGCIAGGFWHIFTQPFDWAKRVLF WSGEAYLSYS HLWVSLLCI SGGDYH FSEPTGWAKRAL WWNGEAYLSYS HYWVAFYLIGGCWH|QTRPFAGVTRAFTWWAEAYLSYT H1 WV SLLC GGGFWHGSTQPFPWAKRALFVWSGEAYLSYS
 HFWVGLLCLGGFWH: ATKPLAWARRVL, DYSGEAYESYS


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| $C$ | $W$ | $A$ |  |  |  |  |HI WV A L C A G GFWHHI A THI WVVSLV CI GGGGI WH I VS QP F E FAK RH I WV GL I C V A G G L W W

HI WV GVACI A GGIWWH FTEPFEWAKR IL I WS GEAYLSYSH L F V A F L F T I G GlV F H $\quad$ L I K P WP Y T D R

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 H WLA GVLCIA G G ا WH I T T QP FA WA K Q L F V WS GEA YL S Y S H L F V G S L Y T L G G i F H L L V K P W P Y T D R I Y
 QI T S G L F QM WR A A GHK SAP KLL E WF RN WE SMMN H HLLA GL L G
 H I W $\square A$ L L L L G G G $\square$ G H DF T R P YA WT Q S S L


$R T W L A T S H F A \square A \| V F \square S G H \square W H A \square R V R$
RTW
 RAALLASVHAALGFLALLGHLWHAYQARAAFFDLVAKNSTQ

A A EASQAQSFTFLIRDWKLGDK TT S S E GP ASQAQSFTFLVRDQRIGANVGSTMGP

AS QAQSFTF LIRDWK LG $\square \mathrm{K} \square$ S S S E GP
ASQAQGF T F L VRDQK LGGKVASSQGP RAALASVHAALGVLALLGHLDWHYHARNAARDL

> AS QAQSFTF LVRDQK GQR RASSQGP AAEASQSQAFTFLVRDQRLGANVASAQGP


RAVLASVHAAFGF LAAMMGHDHAYRARWAFFDFVAKNVNS ASQSQAFTFLVRDQRLGANVASAQGP ASQSQAFTFLVRDQRLGANVASAQGP


DT $\square$ D $\square P Y$ GAHTARAW
$D T V D \quad \square G S G A Y S S R A W$
DTVD
RTWLAAFHFAFGGLLLAGHLWHAVRARAEAQGY
DTLDAS QGHSSRFW $L$ ANFHYYWAFY
RGWLATFH $\square A L A T M F L F G H \prod W H G \square R A R \square G V R G F D F N N$ RGWLLASFHYALGVLFLLGHLWHAIRVRGAF

D
T D


## ASQSQAFTFLVRDQRLGANVSSAQGP

Y W ID
D TVE
LA N G A H T A R A W
DTVEVSESTADA GHTTRAALTNDHYYFGFF N
D T A T D LAA GQH T ARAW
MAD DFPSFAQGLFFTLNWGVYADFLTEKG KSLMADLYPSFAEGLFFTLNWGVYADFLTFKG K QLMADIYPSFAKGVFFTLNWGAYSDFLTFKG

 GLL $\mathrm{N} P \mathrm{~V}$ T RDLLA QLYPSFSKGLFFS LN WSEYSDFLTFRG

GLD $\operatorname{P}$ VT
R D LM A QLY P S F EK GLF F S GN WG E Y S D F LT F K G
 $R D L L A Q L|Y P S F S E G| F F N L E W S K Y S D F \mid L T F R G$

$\square G K Y \square M R S P S G D \square I F G G E T M R$

LGKY LMRSPTGE IF GGETMR LGKYLMRSPTGE IFGGETMR
$\square G K Y \square M R S P R G E \square 1 F G G E S M R$
$\square A K Y \square M R S P S G E \square I F G G E T M R$

K Y $\square$ MRSPTGE $\square \square F$ GGETMR

## LGK Y LM R S P T GE

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UniRef90 U5DNW7
UniRef90-A2BS86
UniRef90_Q46LSO
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UniRef90_Q9MUJ6


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$\square G K Y \square M R S P S G E \square I L G G E T Q R$

GGLWLSDTAHHHLALAVLFIGHSMKEILEGHKLFGGKGH GGLWLTDTAHHHVA』AVLFI
G G $\square \mathrm{W} \square$ S D T A H H H $\square \mathrm{A} \square \mathrm{A} V \mathrm{~V} \mathrm{~F} \square$
 G GLWLTDTAHHHI AI AVLILGHS $\square$ KE ILEAHKPFTGEGHR

UniRef90 Q5DWT8 UniRef90-W1PVS8 UniRef90-K4EM19 UniRef90-G6FMD7 UniRef90 W5E9U9 UniRef90-Q5DWU1 UniRef90-Q52W80 UniRef90-Q1HCK8 UniRef90-Q71KR4 UniRef90-D8G5G8 UniRef90 K9QVH9 UniRef90 Q5DWT7 UniRef90-K9PJX8 UniRef90-T2ITS6 UniRef90_G6FR82 UniRef90- Q5DWS8 UniRef90-UPI00047376A8 UniRef90-D8G5G7 UniRef90 L8MAB8 UniRef90-Q5DWS9 UniRef90_K9T8M2 UniRef90 Q52W60 UniRef90 U5DRH8 UniRef90-Q111Y1 UniRef90-Q5DWT5 UniRef90 G8DMH3 UniRef90-K9T9U3 UniRef90-K9PUF9 UniRef90_Q111Y3 UniRef90 F4XZB UniRef90-UPI00034DC50E UniRef90_T2JUD9 UniRef90 L8LWS5 UniRef90-E5RUX7 UniRef90_Q52W69 UniRef90 G8DMH4 UniRef90_L8LU9s UniRef90-X5JIZ8 UniRef90-K9RID3
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UniRef90_DOFLZ9
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UniRef90 C6KIP4
UniRef90 Q9MUJ6

F WDLRAPWLEPLRGPNGLDLSRLKK

FWDVKAPWLEPLRGPNGLDID KLQHDVQPWQ DRRA
F WDL RAPWLEPLRGPNGLDLSRLKKDI QPWQERRSA
FYSMQAHWLEALRTSFGLDIGKIQSDIQTWQERRAA
FWDLLRAPWLEPLRGPNGLDLNKi
FWSASTGWLQGFRDAKGFDVNKFRYDDQTWQERRAAD

F WA MQGGW $\square E S \square R$ A S Y G $\square D \square$ A K $\square E S D \square Q S$ WQERRAA

F WAMQAHWLEALRTSFGLDLSK\QSDVQTWQERRAA $F W D F R G P W L E P L R G P N G L S L E K I Q N D I Q P W Q V R R A A$ FWSMQAHWLEA LRTSFGLDLLSK $\square$ QS D $\square$ QT WQERRAA F WS $V$ Q G G WVE P $\square R$ T S F G $\square D \square A K \square$

F WS MQGQWVEP LRTSYG $\square D \square Q K \square Q S D \square Q T W Q E R R A A$

F WD MRAPWVEP LDRGPG $\square \mathrm{D} \square \mathrm{L}$ K $\square$

UniRef90 Q5DWT8
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UniRef90_G6FR82
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FRFFKFRGWCSYRDQC SHLWHA
VNYVSPRSWLACSHFVLGFFFF $\square$ GHLWHAGRA
FNFVGPR
VN YVSPRSWLSTSHFVLGFFFFVGHDWHAGRAAAXGFEKG
$\square$ NYVSPRSWLVSSHWF LGFS LFVGHWWHSARA

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UniRef90-W1PVS8 UniRef90-K4EM19
UniRef90-G6FMD7
UniRef90 W5E9U9D R D L E P
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UniRef90 Q1HCK8 UniRef90 Q71KR4 UniRef90-D8G5G8
UniRef90-K9QVH9
UniRef90 Q5DWT7
UniRef90-K9PJX8
UniRef90-T2ITS6
UniRef90_G6FR82
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UniRef90-D8G5G7
UniRef90 L8MAB8
UniRef90-Q5DWS9
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UniRef90_Q52W60
UniRef90 U5DRH8
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UniRef90-Q5DWT5
UniRef90 G8DMH3
UniRef90-K9T9U3
UniRef90-K9PUFs
UniRef90-Q111Y3
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UniRef90 L8LWS5
UniRef90 E5RUX7
UniRef90_Q52W69
UniRef90 G8DMH4
UniRef90 L8LU99
UniRef90-X5JIZ8
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UniRef90-Q9L8M5
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UniRef90-C6KIP4
UniRef90 Q9MUJ6



Y G WWVGNSVVT NRAGRF G S HVGHTGQICFATGASCDWE YDWWAGNSRFANLSGYFISAHVAQAALITFWAGAMTLFE
 Y D WWA GNARFAK $L S G L F \square S A H A G Q A A L I T F W A G A F T L F E$ Y D WWA GNARFAN $\square S G L F \square G A H V A Q A A \square T T \square W A G A F T W F E$ YP WY A GNSRLIEVSGRWLAAH $\square L Q A A \square I M F W V G L N T L S E$ YE WWA GNARFADLSGQF!GAHVAHAALIVFWAGAFTLFE Y D WWA GNARFADRSGLF $\square A A H V A Q A A L M T F W A G A F T L F E$
 Y DWWVGNARFVKLS GLFI GAHVAQAALTTLWAGAFTWFE YDWWVGNARFANLSGLFIGAHVAQAALTTLWAGAFTWFE
 $\square S W L V G N A R \square T D \square S G Q L L G A H V A H A G L I M F W A G \square T T T S E$ YD WWA GNARFAEKSGLFISAHVAQAALTVFWAGAFTLYE

Y G WWS GNSRFTDFSAQF LAAH $\square$ GQ $\square$ ASMTFFAGS $\square T L F E$ YDWWA GNA GVIAKRSGSFIAAHAAHAGLIDMFWAGAFTLFE YPWYSGNSRLEDPA GK WLAAH DA Q $\square A L I V F W V G L N T F S E$
Y G WWA GNSR $\square$ A D $\square S G K W \square A A H \square A H A A L I I F W A G A F C L F E$ FS WLQGNARLINRTELLLGAHLAHAGLIMFWAGSFTLLE FP WLVGNARLTNLS GQLLGAHVAHAGLIMFWAGDTTVSE $\square P$ WL $\square G N A R \square I E \square S$ GQLLGA H $\square$ A HA G LMM F WA GAT T $\backslash$ SE GNSLVTNEAETFISAHAAHAGLDMFWAGSFTIYE
$\square S W L V G N A R L T D L S G Q L L G A H \square A H A G L I M F W A G A T T \square T E$ FS WLQGNARLIDQTELLLGAHLAHAGLIMFWAGSFTLLE YD WWA GNARFANDSQLFIAAHVAQAALIVFWAGAFTLFE
 Y D WWA GNARFADKS GLFIVAHVAQAALIAFWAGAFTLFE

Y G WWA GNSRFADRTG $\square W \square A A H \square A Q A S F \square V L W A G A \square T \square F E$ YDWWAGNARFADKSGLF!VAHVAQAALIAFWAGAFTLFE
 ML WA GAFTWFE YPWWSGNARFTDLSNTFlVAHVAQAALIMLWAGAFTLFE YPWWAGNARFIDLSNTFIVAHTAQAALIMLWAGAFTLFE YDWWAGNARFADKSGLFIVAHAAQAALI MFWAGAFTLFE
 YDWWA GNARLLANLS GTF: AA A YDWWAGNARFANLSGLIIAAHAAQAALLIVFWAGAFTLFE

[^0]VARYTADV
$\square A R Y N P E \square$
P $\square$ GEQNLILIPHMAS $\square \mathrm{G} \square \mathrm{G}$
PMGHQSS $\square$ F $\square$ A H $\square$ AS $\quad \square G \square G F D E A G \nabla W T G$

LS R F D S S V
LS R Y N P NI
LS R Y N P DL IS R Y T P Di
$\square S$ LY S P D $\square$
$\square$ SRYKPE $\square$
LQVF D P D VA
I S Y F D P T L IS WF D P A


PMGHQSS $\square Y$ YSHLAS $L G \square G F D E A G V W T G$ PMGEQGLILLPHLATLGLGVGAGCQ

PMFDQGLILLPHLAAEGWG
PMGEQGLILLPHLATLGWG
$P M G E Q G L I L L P H \square A T \square G L G$
PMGEQGLILLPHLATLGFGV
MYEQGLVLIPHMAAEG $\square$ GVGPGGVVMD
PMGEQNLILLPHLATLGLG
$R P M G E Q G L I L L P H L A T L G L G V T$

PMYDQGLVLIPHLAAE GFGV
PMGEQGLILLPHLATLGFGV
$P L G E Q G L I L L P H L A T L G F G V$

G L P MYDQGLVLIPHD AAEGFGVGA
PMYEQGMTLLPHLAS $\square G W G V$
QPMGEQGLILLPHLATT $\quad \square G L G L$ $P \square Y A Q G F V C L P Q L S R \quad V G F G V$ $P M G E Q G L I L I P H L A G L G F G V$ $P M F D Q G L V L I P H L A A L G G G E V$
PMGEQNLILIPHLAS $\square G \square G V$
$P \square A D Q G L L L L P R L V N \square G W G T N$
N
$P \square Y E Q G F T L L P H L A T \square G W G V$
PMYEQNFTVLPHLATLGWGV
$Q P M G E Q G L I L L P N L A R L G L G V G D G G V I T Q$
PMYEQR LT LLPH HAT $\square$ GWGV
$P \square A E Q G L L L L P R L A N L G W G M E N T D V W \square A$



MAEQGLI LLPHLAT TGFGV

VAR Y T P S $\square$ $P M G E Q G L I L \quad \square P H \square A A \square G \square G V$

MAEQGLILLPHLATLGFGV



[^1]

UniRef90_AOTOL9
UniRef90-Q6Q972 UniRef90 UPI0003498B5D UniRef90-Q46JX0 UniRef90-D1J7A3 UniRef90-P17154 UniRef90 K9ZXE3 UniRef90-B0C474 UniRef90_Q7VBC2 UniRef90-Q937D6 UniRef90 ${ }^{-}$R4IILD UniRef90_UPI000344DC5D UniRef90-B7KCC2 UniRef90 Q8MAG2 UniRef90-Q114Y6 UniRef90-A7M901 UniRef90 Q8YQ35 UniRef90 K9SF66 UniRef90-B0C2V8 UniRef90-E1CID1 UniRef90 P31157 UniRef90_-Q937M0 UniRef90-E3UIU0 UniRef90-K9VEN8 UniRef90- E3T831 UniRef90_UPI00034C55F9 UniRef90-K9PJD1 UniRef90 Q2JRV0 UniRef90-P19430 UniRef90-B4WP20 UniRef90 UPI00046EFE0B UniRef90 A5GW02 UniRef90-B0C012 UniRef90_D91XP5 UniRef90 AOZCG0 UniRef90 K9RUS5 UniRef90-S8D257 UniRef90-B0C3E5 UniRef90 Q3AJ93 UniRef90-B0C576
UniRef90-Q31LJ0 UniRef90 D3EQ25 UniRef90-UPI00034537F4 UniRef90-K9F8L7 UniRef90_Q06J42 UniRef90 K9UWM4 UniRef90 K9PC88 UniRef90-UPI0003173A16 UniRef90_Q70FH6 UniRef90 Q2WGC4 UniRef90-UPI00034937F2 UniRef90-K7X8J2 UniRef90 U9VXX5 UniRef90-B4WTH0 UniRef90-B0C2P7 UniRef90 UPI00034C1961 UniRef90 A8YA22 UniRef90-F4YZC6 UniRef90-A2CC73 UniRef90 A2C4V3 UniRef90-P95504 UniRef90-B7T4F0 UniRef90-S3K8W0 UniRef90 Q7NFT6 UniRef90-A3PF14 UniRef90-Q8DK20 UniRef90 X5JGM5 UniRef90 L8LVQ5 UniRef90-B4WKL2 UniRef90_B1WZI3 UniRef90 Q932Y8 UniRef90_L8M5F2 UniRef90-Q4C2M3 UniRef90_K9T7N3

GTNGNVASTYPYFVIGALHLISSAFLGDGGПYHALLGPDR GEGGDVVDTYPYFVIGALHLISSAVLGAGALFHTFKAESD GKGGAVVDTYPYFVVG\|VHLISSAVLGAGADFHTFKAPAN
 T F P Y FA $\square$ AF VH WVAS LVLLFGGYYH $\square A \square G$ $\square E G N G A \prod N T E P Y F V I G A \prod H L I S S A V L A A G G \square F H$ DGGEVVSTYPYFVVGSIHLIASAVLAAGALFHTFKAPDD Wl WNLHADA GPGGVVTNTFVYTQTGATHMVASFVLFFGAYFHAKMGPAD GTGGQIVNTYPYFVI GALHLI SSAVLGAGALFHTFKAPKN GAGGQIVDTYSYFVIGALHLISSAVLGAGALFHTFKAPQS

WI WNLHALA
WI WNLHADA
WI WNLHADA
WVWNLHSRA
WI WN HSRA (STWWWNLHADA GMGGEVVDTYPYFVIGMLHLVASAVLAAGGLFHVFRSPR\| GDGGQVTDTYPYFVVGVVHLIASAVLGAGALFHLLRAPES GAGGAVVDTYPFFAVGMDHLFAAAVFGSGADFHDLTGPKV GESSVIVDQQPLIAIAAFHLVSSAVLGAAGIWHTLRAPRD GSGGVVTNTFVFTQ】GA $\quad \mathrm{H}$ MVSSFVLFGGAYFHAKDGPSV GKGGQVIDTYPYFLIG $\quad$ HH LISSAVLGAGGDFHSLKGPA
 GNN WNWNLHADV GNNGEVIDTYPYFVIGMLHLVASAVLAAGGDFHVFRSPSV W WNLDANA
 HADV $G \nabla G G E V V D T Y S Y F V I G \square L H L V A S A V L G A G G L F H V F R A P A V$ WLWNLLHAD $\square$ IV VLH LASSAVLAAGGLFHVFTQYAVGNDIIMAKNKG GN G GEVVNSYPYFVIGSIHLISSAVLGAGALFHTVRGNMD GSGGDLNDPQQLVAVGMVHIDAGAVLGAGALFHDLKAPLD GAGGLIEDTYPYLVIGALHLI SSAVLGAGGLEHALKGPQD GEKGQU DD $\square Y P F F V I G G U H L I S S A V L G A G A L F$

NSTTWTWNLHABCA WI WNL HADA GA G GVVVNTFPYTA $\square$ GAVH $\square I S S F V F A F G A \square F H V R F G P E S$


WI WDLHALA
WI WNLHADA
GEGGKVVD LYPYFVIGAVHLISSAVLGAGADFHTFRAPHD GEGGAVTDTYPYFVIGALHVISSAVLGAGALEHTFKGPKN TYSWFAlGVIHIVAAGVL AAGALFHRGRLPSSLGMAA GAGGEIVNTGVWSSIGAIHIVAAIVLAGGAYFHYTQLPAS GQGGEVIDTYSFFVIGVLHLI SSAVLGAGALFHLLQAPND GDGGMIVDTEPYFVVGVVHLISSAVLGAGALFHTVKAPAD
 $G Q G G Q V V D T Y P Y F V V G A I H L I S S A V L G A G A L G H T V K G E Q D$
lupas 21
lupas_14
lupas_28
jnet
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sol25
sol5
sol0
j̣hmm
jpssm

|  |  |
| :---: | :---: |
| UniRef90_AOT | SQTSSLEEEVSRKIVFAHFGQLIVIVLI WI |
| UniRee90-UP10003498B5D |  |
| UniRef90-Q46JX0 | LKDGPTTKKFKLEWDFI LGHHLIF FGVANI WFVEWRWHGI |
| UniRef90-D1J7A3 | HDFDSQTNSLEEVSRKIFSAHFGQLSITFLWl |
| UniRef90-P17154 | HDFDSQTSDLEDISRKIFSAHFGHLAVVFVWL |
| UniRef90-K9ZXE3 | HDFDDQTNSLQEVSRKIFSAHFGQLAV |
| UniRef90-B0C474 | HDFDTQTNDLEEISRK |
| UniRef90-Q7VBC2 |  |
| UniRef90 Q937D6 | IF WI |
| UniRef90-UPI000344DC5D | A |
| UniRef90-B7KCC2 | L |
| UniRef90-Q8MAG2 | S SRKIFSAHFGQLSIIFL WISGMFFHGA |
| UniRef90-Q114 |  |
|  |  |
|  | LGSARKFHFEWNDPKQLGMAALLLVGKAMFWGGLYDATTQ |
| UniRef90-K9SF6 | DS FSDLEDTSRK। |
| UniRefolobocr v | RGNT |
| UniRef90-E1CID1 | H |
| UniRef90-P31157 | LGPARRFHFDWEDPKQLGLILGHHLLLLGLGAF |
| iRef90-Q937M0 | LDRAK |
| UniRef90-E3UIU0 | 1 |
| UniRef90-K9VEN8 | HDFDSHTSDLEDVSRKIFSAHFGHLAVIFVWLS |
| UniRet90-E31831 | LKEAEKFAFEWDD KGLG |
| UniRef90-K9PJD1 | LKDSSKFHFEWN |
| UniRef90-Q2JRVO | HDFDSHTSDLEDV |
| UniRet90-P192 |  |
|  | HTNDLQDISRKIFSAHFGHLAVVFVWL |
| UniRef90 UPIO0046EFEOB | HDFDSHT |
| Ref90_A5G |  |
| Boc |  |
| UniRef90-D91XP5 | LYQVAKFHYEWNDPQQLGLILGHHLIFLGL |
| UniRef90-K9RUS | - |
|  | HDFDSHTTDLEDIISRKI FSAHFGQLAIIEI WLSGMFFHGA |
| UniRef90-BOC3E5 | DSQRFHFEWDDFRULGHHLLF |
| UniRet90_O3AJ93 |  |
| UniRef90 B0C576 | D |
| UniRef90 D3 | K |
| UniRef90-UPIOOO34 | HDFDSHTSDLEDVSRKI |
|  |  |
|  |  |
| UniRee90-K9UWM4 |  |
|  |  |
| 90-UP1000317 |  |
| UniRef90-02WC | HDFDSHTNDLIDDPAKAPSAHFGQPAII SVRASGMYLHGA |
| UPI00034937F2 |  |
| UniRef90-K7) | HDFDAQTSSLETDSRKIFSAHFGHLSI L WlS GMWFHGA |
| UniRet90_U9 |  |
| UniRef90-B | KDADGPAQNFAFDWNNGHHLLFL |
| UniRef90 B0C2P7 | GA HFEWDDTAQ |
| UniRef90_UPIOO034C1961 | ASEFHFDWGDPKK |
| UniRef90-A8Y | M |
|  |  |
| A2C |  |
| ef90 A2C | $\begin{gathered} \text { F } \\ \mathrm{D} \end{gathered}$ |
|  | GEDSHSAFSWDSSRKIFAAHFAHLGIGVGMSSFFFQGA |
| UniRef90 S3K8W0 | LKD |
| 90- Q7 |  |
|  | 仡 |
|  | LSRARRFHFRWDDPKQLGIILGHHLLFLGFGALLLVLKAT |
| UniRef90-X5JGM5 | K F H |
| UniRef90-L8LVQ5 | KFHFE |
| ef90 B4WKL2 |  |
| ef90-B1 |  |
| e990-Q93 | LKQAERFHFEWENPAQLGMILGHHLLFLGAGALLLVAKAT |
|  | WD ${ }^{\text {a }}$ |
| UniF |  |

[^2]
lupas_21
lupas_14
lupas_28
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sol0
jhmm
jpssm

UniRef90_A0T0L9

## UniRef90_Q6Q972

 UniRef90 UPI0003498B5D UniRef90_Q46JX0 UniRef90_D1J7A3 UniRef90-P17154 UniRef90 K9ZXE3 UniRef90_B0C474 UniRef90_Q7VBC2 UniRef90-Q937D6 UniRef90-R4IIL0 UniRef90_UPI000344DC5D UniRef90-B7KCC2UniRef90_Q8MAG2 UniRef90_Q114Y6 UniRef90_A7M901 UniRef90-Q8YQ35 UniRef90_K9SF66 UniRef90_B0C2V8
UniRef90-E1CID1
UniRef90_P31157
UniRef90_Q937M0
UniRef90 E3UIU0
UniRef90_K9VEN8
UniRef90_E3T831
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UniRef90_K9PJD1
UniRef90-Q2JRV0 UniRef90_P19430
UniRef90_B4WP20 UniRef90_UPI00046EFE0B UniRef90_A5GW02 UniRef90_B0C012 UniRef90_D91XP5
UniRef90_A0ZCG0 UniRef90_K9RUS5 UniRef90_S8D257 UniRef90_B0C3E5 UniRef90_Q3AJ93 UniRef90_B0C576
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UniRef90 S3K8W0 UniRef90_Q7NFT6 UniRef90_A3PF14 UniRef90_Q8DK20 UniRef90_X5JGM5 UniRef90_L8LVQ5 UniRef90_B4WKL2 UniRef90_B1WZI3 UniRef90_L8M5F2 UniRef90_Q4C2M3 UniRef90_K9T7N3

2537F4
210
220
230
240
QTTSGWFQMWRAHYHKAAPK|L|EWFQNAESMMNHH|L|AG|LLJG
 QITSGLFHMWAGWFHYHAPKLEWFQNVESAMNHHLAGLFG HAF LAAVVQDS GGAWH $\square A T K Q L Y T E F K G K G L L S A E A V L S W S$ Q $\quad$ T S GF F Q L W WR A H Y H KA AP K K L E WF Q N A E S ML


 QITSGFFQLWRAHYHKAAPKLEWFQNAESMLNHHLTGLLG
 H I YV G L L L I A G G I WH I S V P P L S WA K K L L I Y S G E A L L S Y S

 QI TSGL FHMWRAHYHKAAPKLEWFQNAESMMNHHEAGLIG


## $\stackrel{\text { Q }}{\mathrm{H}}$

 $H V Y V G A L L I A G G G V W H I L V P P F N W A K K V L D F B P G E A I L S Y S$
H
H
H
 R S GLFCLFA GWFHYHKRAPKWFQNVESMLNHHLAGLLG Q Q HF
H
エO

## H H O

 QI T S GL F QL WRA HY HKAAP K L E WF Q NV E S M L N H H L A G L L G

H QIT S GLF QMWR GHYHKRAPKLEWFQNTESMLDNHHLAAGLLG







Q









[^3]

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sol0
jhmm
jpssm



UniRef90_A0TOL9
UniRef90_Q6Q972 UniRef90-UPI0003498B5D UniRef90-Q46JX0 UniRef90-D1J7A3 UniRef90-P17154 UniRef90 K9ZXE3 UniRef90-B0C474 UniRef90_Q7VBC2 UniRef90-Q937D6 UniRef90 ${ }^{-}$R4IILD UniRef90_UPI000344DC5D UniRef90-B7KCC2 UniRef90 Q8MAG2 UniRef90_Q114Y6 UniRef90_A7M901 UniRef90 Q8YQ35 UniRef90-K9SF66 UniRef90-B0C2V8
UniRef90-E1CID1
UniRef90 P31157
UniRef90_Q937M0
UniRef90-E3UIU0
UniRef90_K9VEN8
UniRef90- E3T831
UniRef90-UPI00034C55F9
UniRef90-K9PJD1
UniRef90 Q2JRV0
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UniRef90-B4WP20
UniRef90_UPI00046EFE0B
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UniRef90-B0C012
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UniRef90 AOZCG0
UniRef90_K9RUS5
UniRef90-S8D257
UniRef90- B0С3Е5
UniRef90 Q3AJ93
UniRef90-B0C576
UniRef90-Q31LJ0
UniRef90 D3EQ25
UniRef90-UPI00034537F4
UniRef90-K9F8L7
UniRef90 Q06J42
UniRef90 K9UWM4
UniRef90-K9PC88
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UniRef90 Q2WGC4
UniRef90-UPI00034937F2
UniRef90-K7X8J2
UniRef90 U9VXX5
UniRef90-B4WTH0
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UniRef90-UPI00034C1961
UniRef90_A8YA22
UniRef90_F4YZC6
UniRef90-A2CC73
UniRef90 A2C4V3
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UniRef90-B7T4F0
UniRef90-S3K8W0 UniRef90 Q7NFT6 UniRef90_A3PF14 UniRef90_Q8DK20 UniRef90 X5JGM5 UniRef90_L8LVQ5 UniRef90-B4WKL2 UniRef90_B1WZI3 UniRef90 Q932Y8 UniRef90_L8M5F2 UniRef90-Q4C2M3 UniRef90_K9T7N3

G S $\square$ WM T D Q $\square$ H H H $\square$ A $\square$ A $V$ MF $\square$
G G L W L S D T A H H H L A A DA VL:

GGLWMTD】AHHHLALAV



GS $\square \mathrm{W} \square \mathrm{T}$ D Q A H H H $\square$ A $\square$ A VLI $\square$
S G $\square W \square T D \nabla A H P H X A \square S V L F$
GGLWLTD DAHHHLATAVIFTGHS $\square$ KE $\square$ LLDAHKPFTGEGHR GGLWLTDTAHHHLALAVLFI

G A L W WL T D Q A H H H L A A D A A V L
 GSLWMTDIAHHHVA IA IMFLGHS IKE ILEGQK
GA $\square \mathrm{W} L \mathrm{~T}$ DCAHHH $\square \mathrm{A} \square \mathrm{A} \mathrm{V} \mathrm{L}$ F $\square$


GG $\square \mathrm{W} \square \mathrm{T}$ D T A H H H $\square$ A $\square \mathrm{A} V \mathrm{~V} \mathrm{~F} \square$
GA $\square$ W $\square$ T D Q A H H H $\square$ A $\square$ A $V$ MF $\square$
GS $\square \mathrm{W} L \mathrm{~T} D \square \mathrm{AH}$ H H $\square \mathrm{A} \square \mathrm{A}$ VLF $\square$
G G $\square \mathrm{W} \square \mathrm{T} \mathrm{D}$ VA H H H $\square \mathrm{A} \square \mathrm{A}$ VLF $\square$
G G $\square \mathrm{W} \square \mathrm{T}$ D T A H H H $\square \mathrm{A} \square \mathrm{A} \nabla \mathrm{V}$ F
G G $\square \mathrm{W} L \mathrm{~T} \mathrm{D} \square \mathrm{AH}$ H H $\square \mathrm{A} \square \mathrm{S} \mathrm{VIDF} \mathrm{L}$

G G $\square$ R $\square T$ DTAHHH $\square A \square A V N W \square G H S P K E V P E A H K P F T G E G H R$ GALWSTDVAHHHLAWAV
GSLWMTDISHHHLAF GV
GS $\square$ WMTD $\square$ A H H H $\square$ A $\square$ A VMF $\square$
GA $\square Y \square T D \square A H H H \square A \square A T \square F \square G H S \square K E M \square E A H K$ GSLWMTDVSHHHLAFGV

lupas 21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm UniRef90 Q46JXO UniRef90_Q46JX0 UniRef90 P17154 UniRef90 K9ZXE3 UniRef90-B0C474 UniRef90_-Q7VBC2 UniRef90_Q937D6 UniRef90 ${ }^{-}$R4IILL UniRef90-UPI000344DC5D UniRef90_B7KCC2 UniRef90 Q8MAG2 UniRef90-Q114Y6 UniRef90-A7M901 UniRef90_Q8YQ35 UniRef90 K9SF66 UniRef90-B0C2V8 UniRef90-E1CID1 UniRef90 P31157 UniRef90-Q937M0 UniRef90-E3UIU0
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UniRef90 S3K8W0
UniRef90 Q7NFT6
UniRef90-A3PF14
UniRef90_Q8DK20
UniRef90 $\mathbf{~ X 5 J G M 5 ~}$
UniRef90-L8LVQ5
UniRef90-B4WKL2
UniRef90 ${ }^{-}$B1WZI3
UniRef90 Q932Y8
UniRef90_L8M5F2
UniRef90-Q4C2M3
UniRef90_K9T7N3

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lupas 21
lupas_14
lupas_28
jnet
conf
sol25
sol5
solO
jhmm
jpssm
```





[^0]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf sol25
    sol5
    sol0
    jhmm

[^1]:    lupas_21
    lupas_14
    lupas_28
    jnet conf sol25 sol5
    solo jhmm jpssm

[^2]:    lupas_21
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[^3]:    lupas_21
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    sol5
    jhmm
    jpssm

