QUERY
UniRef90_C3NIT9 UniRef90-A2ERS8
UniRef90 A2DU09 UniRef90 UPI00021A5FOA UniRef90-I1GHI6
UniRef90-J9HSB7
UniRef90 A2ERS5 UniRef90 UPIO00265377A UniRef90-UP10001584B29 UniRef90 UPI00021A59E8 UniRef90 - I1F123 UniRef90 A2EYR? UniRef90-UPIO0021A5E50 UniRef90_UPIO0021A3E3C UniRef90 U1HXR6 UniRef90-A2G715 UniRef90 A2F621 UniRef90 A2EFES UniRef90-UPIO0035989C1 UniRef90-W4YT11 UniRef90-A2EVV9 UniRef90 A2FEP4 UniRef90-A2DQT2 UniRef90-A2FAC4 UniRef90 A2DLO8 UniRef90-A2DIH2 UniRef90-A2G022 UniRef90 F7EP18 UniRef90 UPIOOO2654971 UniRef90-A2G446 UniRef90-A2F3Е3 UniRef90-A2D9U3 UniRef90 A2FG57 UniRef90-I3KPG4 UniRef90_UPI0003C4A8E3 UniRef90 UPIOO046C2B76 UniRef90-A2E9U9 UniRef90-W4XTT0 UniRef90 A2FGV0 UniRef90 W4ZER1 UniRef90-UPIO0027FC4E7 UniRef90_UPIO00440FEEE UniRef90 UPIo003C44DFO UniRef90_B6HW23 UniRef90-D6WI20 UniRef90 HOYUA6 UniRef90_UPIO00359D7AE UniRef90 UPI0003F121C7 UniRef90 A2F524 UniRef90 ${ }^{-}$A2F270 UniRef90-A2DBP4 UniRef90 M9MRX4 UniRef90 UPI00021A4073 UniRef90-W4XKK7 UniRet90_A2FXSS UniRet90 M9WYY2 UniRef90 H2TE2O UniRef90-M4AHD1 1 UniRef90-A2DG39 UniRef90-M9MRS5 UniRef90_W4ZB59 UniRet90_UPI0002652C91 UniRef90 W4Z2P3 UniRef90-W5N689 UniRef90_W4XV76 UniRef90 W4YX90 UniRef90_R7Z5M4
UniRef90 - W4YY35 UniRef90 A2DBT8 UniRef90-11F324 UniRef90-A2FQEO UniRet90-G7MZ70 UniRet90 W4XCZ4 UniRef90-A2DGP6 UniRef90-UPIO001D542F9 UniRei90_A2EXI8 UniRef90 H9GIT7 UniRef90-W4YMG2 UniRef90_V9K845 UniRef90 UPI000440E2DD UniRef90 ${ }^{-}$W4YBT8 UniRef90-W4YFFO UniRef90 W4YJK9 UniRef90-J9NY57 UniRef90-X0H7Q9 UniRef90_W4XUL8 UniRef90-A2EYE2 UniRef90_O8C8R3 UniRef90_S4R249

1
HHHHHHGSDLGKKLLEAARAGQDDEVRDLMANGADVNATD
PNAKDNNGQTPLHMAAHKGDVDVVRVLLERGADPNAKD A E D N D G WT P L I K A S RYG H L E V V Q Y L I S N GA D K E A K N PNAKKDGGWTPLHAAAWNGHTEAVEALVEAGADPNAKD
 $N V D T T D N E G W T P L H Y A S R N G R L E V V K F L I D N G A N V D T T Q Q$ LNKNDDEFNNDLLESCEKGNLAL AKSLI EHGCDKEVKN D GRTAL HVA A QNCHLDI TQYLI SQGAEVNKGK GRTPLSWAA GNGHDAVVKLLLEKGADI ESK D $N \prod S \square Q D N D G S T A L M A A S Y \square G H H Q V V E F L L S K D P D I D N D Q N$ I NVQNNYGWTALILLASRHGHHQVVELLLSKDPDINIQN
 PN $\square$ Q H ND G WTA L MF A S R K GHQQVVE L L L N EKA D P N DQE D Y D D R T P LL WA A A NGHEA IVKLLI ERGADVDPKD NKEAKDKNGDTPLTYASGSDHDEVVKYLI A DGANKAAKD QTND $\square$ NKCFAYS WMFNDPS FCE YFLSLGANDNEND NGNN】LH $\square$ AS S L N GNTRLVKNLI ECGCKLETRN $\square D E K T R D G L T P L H C A A R S G H D P V V D T L L E K G A P H S A C T$

$N \square N E K D N N G Q T A L H Y A A R S N S K E Y \square E F L I S H G A N \square N E K D$ NI NEKDNNGQTALHYAAKNNRKGMAEFLI SHGANI NEKD IDEKDYYGETALI IDAAWRNQKE\|VELLLSHGANANDKD

 $N V N L T$ DKD GNTALMIASKEGHIEIVQDLLDAGTYVNIPD D K D G N T P L Y A A S F NGHLDVVQRFLIGQGVNLNRHG N $\square$ NEKD $\square$ N GK TALLHYSPYKNS KETAELLI S LGGAVVNEKN AK D NNGWTPLIWASREGHLEVVEYLI SIGADKEAKD AK N N D GYTPLI IA SLNGYLEFVKYLI SVGANKEAKN Y VDVK D N N K K T A L HYAALNNSKEIVEULI SHGSDDNEKD
 ANAIT RQGI APVHLAS QEGHVDMVSLLLTRNANVNLSN $N V N I R D K G G I T A L H I A A R Y D Y$ KE I A A ELLI SHGANVNEKD
 NINEINKHGETALHYAAEKNNKEIAELLI SCGANINEKN


 VDARAREEQTPLHIASRLGKTEIVQLLLQHMAHPDAAT Q IDAK T R D GLT PLHCAARSGHDQVVELLLERGAPLLART SDSNASFLRAARAGNLDKVVEYLKGGIDINTCN

 HNVNVQSQNGFTPLYMAAQENHDAVVRLLLSNGANQSLAT $V N T K$ QK D G G T S L M $\square$ A C Q G GCTQQVV QL L L K E KA DP N I C S

$N \square N A Q S Q N G F T P L Y M A A Q E N H L E V V R F L L E N G A S Q S \square A T$ K GKNNWTALHFAAWQ GHLGIVKVLVQA GVNVDSQT ALHIA A K K D DVVAATLLLDNDHNPDVTS AKDNKGLTPLIWAS DNGHLEVVKYLI SVGVDKEAKS

NGRTALHSAAQNGHLDVTQYLI SQGAEVNRGA VN T GDGGGFTSLYYASLNGHLDVVEYLVNTGADVNKAT $\bigvee N K G N N E G R T A L H T A A S N G H L D V T K H L I S Q G A E V N K G N$

VNEGDND GWTALHFADWK GHLDVTKYLVSQGAEVNERD LNKAGSFGWTALQLAASNGHLDMIVYLLSQGADVNPSN NSRTAALEAAKSGDAVLVKRLLNKGAAVDSKE VN K VDNDCLT P L S L LA A H S G H P DVVTKY L I S Q G A E II N K G ■ NINEKVEQGRTALHYAAMKNKKETAEVVI LHGANI NEKD K N N G GCTALMLASTNGHCLVVKFLLSKDVDINLQD



K D A E GS T C L H L A A K K GHYEVVQYLLSNGMDVNCQD NINEKNKNGNTALLHYAAEKNGEEIVELLI SLGAYINEKD ANAESTQGVTPLHLAAQEGHADMVLLLLSKQANGNLGN VN R GKDN GCN ALLHNAAKH GHLLDAAKYLI SQGADVNK G D HPNS GKS GLTTPLHVAAHYDNQKVALLLLDQGASPAAAA
 VNK GDNDGSTPLQLAASNGHLDVTKYLISSGAEVDKYD K N GVVT P L Y E A S F T G H V D I V K Y L I S K G A N P D S V T NDCKTALHEAAFNGHLDDVTDYLI SQGADVNKGD P H A T A K N GY T P L H $\square$ A A K K N Q M Q I A S T L L N Y GAETN V HTEAADEDGETPLGAAAANGYKAVVGLLLDGGAYDESAY
 GRTALLHIAAEHNRKETAELLI SHGANVNEKD


## QUERY

UniRef90_C3NIT9
UniRef90_A2ERS8 UniRef90-A2DU09 UniRef90 UPI00021A5F0A UniRef90-I1GHI6
UniRef90-J9HSB7 UniRef90 A2ERS5 UniRef90_UPIO00265377A UniRef90-UPIOOOO15843299 UniRef90-UP1000
UniRef90-I1F123 UniRef90-A2EYR2 UniRef90_UPIO0021A5E50 UniRef90-UPIO0021A3E3C UniRef90_U1HXR6 UniRef90-A2G715 UniRef90-A2F621 UniRef90-A2EFE9 UniRef90-UPIOOO35989C1 UniRef90-W4YT11 UniRef90 A2EVV9 UniRef90_A2FEP4 UniRef90-A2DQT2 UniRef90-A2FAC4 UniRef90-A2DLQ8 UniRef90_A2DIH2 UniRef90-A2GO22 UniRef90-UPIOOO2654971 UniRef90-A2G446 UniRef90-A2F3E3 UniRef90-A2D9U3 UniRef90_A2FG57 UniRef90-I3KPG4 UniRef90-UPI0003C4A8E3 UniRef90_UPI00046C2B76 UniRef90-A2E9U9 UniRef90_W4XTT0 UniRef90-A2FGVO UniRef90-W4ZER1 UniRef90-UPIOOO27FC4E7 UniRef90-UPIO00440FEEE UniRef90_UPIO003C44DF0 UniRef90- 86 HW 23 UniRef90-D6WI20 UniRef90-G1SZP4 UniRet90-HOYUA6 UniRef90-UP1000359D7AE UniRef90-UPI0003F121C7 UniRef90-A2F524 UniRef90-A2F270 UniRef90-A2DBP4 UniRef90-M9MRX4 UniRef90-UP100021A4073
UniRef90 W4XKK7 UniRef90-W4XKK7
UniRef90 A2FXS5 UniRef90-M9WYY2 UniRef90-H2TE2O UniRef90-M4AHD1 1 UniRet90-A8JNM5 UniRef90_A2DG39
UniRef90_M9MRS5 UniRef90-W4ZB59 UniRef90-UPIO002652C91 UniRef90-W422P3 UniRef90-W4XV76 UniRef90 W4YX90 UniRef90-R7Z5M4
UniRef90
W4Y135 UniRef90-A2DBT8 UniRef90_11F324 UniRef90-A2FQEO UniRef90-W4XCZ4 UniRef90-A2DGP6 UniRef90-UPIO001D542F9 UniRef90-A2EXIB UniRef90_H9GIT7 UniRef90-W4YMG2 UniRef90-UPIO00440E2DD UniRef90-W4YBT8 UniRef90-W4YFFO UniRef90-J9NY57 UniRef90-XOH7Q9 UniRef90 W4XUL8 UniRef90-A2EYE2 UniRef90_O8C8R3
UniRef90_S4R249
44073

AS G
A A 60
70
80 NNGQTPLHMAAQEGDVDVVRVLLERGADPNAKDNNGQTPL
 DDGWTPLHAAAWNGHTEAVGALVEAGADPTAKDDDGWTPL NNGWTALFTASNNGHYQVVELLLKEGVDVNDQNNNGQTAL NEGWTPLHYASRNGHLEVVKLLIDDEANVDTTDNEGWTPL KNNQTPLHLSSFNGHLEVVQYLI SNGADKEAKDNWGMTPL DDGWTALHSAAKNGHLDVTQYLISRGAEVNQGDKDGRTAL RNGQTPLLLAADNGHDAVVKLLLEKDAD:ESKDRYGRTP NDGWTALMFASGNGCHQVVELLLSKDPDINGQSNDGWTAL KDGCDPLHYAASNNRKETAEILISNGADVDAKDKDGCTPL NNGATALMAASANGHQQVIKLLLNEKADPNDQKNNGATAL TKGQTLLSRVAEHGYEAVVKLLVEQGADVDSKDNKGRTP
NDGCTPLIKASQKGHLEVVKYLI SVGADKDAKNNDRYTPL ENREMVLHNAAKNNYKEIVELLLSHGANDNEKDEDGKTALL KNGLTPLHMAAQGDHEDCARLLLYHKASKNEVTVGGGTPL DKGWSALYLAAAAGHDDAMKYQVSQGAELDEAGSFGWTALL

## DDEMNVLLVASEIGNLLKLVKSLI


 NYGRTALYVAAAYNSKETAELLI NDGSTLLETASFKGHLDIVQFLI
QNGETALDDASYNSKETAEVLI
KDGWTPLIEASSNGHZEVVKLI


,

K KSGLTPLHVGCHYGNGKVVNFL L

## - <br> 

 ANSMTALIVAVKGGYTQSVKEIL PDGRTSLHLASWHGSVDVATLLLER
QNGLNALHLAAKGHVGLVQELL


## K D N K

## 

EDGF


 NEDSTALHSAAQEDHLEVIKKYLISS
NDGRTALNRAVQVGHLDVTKYLISQGAFVNRMKSDSNTSF DFGRCALYNASKKGNLDVVEYLI GEGADMNKRDDLGLTA
 DDVWT A L H L A A A F E G H L DVVVAK E L I GQ GA E V N N KV E N D A R T A L S NGMTALMLLASHY GHHQVVELLLDKDPNDNDQNNNRMTAL $M$ S GYT P L I WA S K N GH L EVVVKYL I S L GAD KKAK S K WGD T P L
 D G G WT P M I W A T E Y K HVVDLV K L L L S K G S D I N I TR D E E G R T A L


 KDDQTALHI AS RLGKAEIVQLLLQKRAWASAATTS GYTPD $N N G L T P L H P A H N G H L D V I K Y L I S Q G A E V N K G D N D G L T P$







 ICASSSTDNLEVV QYLI SNGADKDAKNDD GWTPGISASSNG I WASSNGHLEVVVKYLI SVGADKEAKDNDGYTPII FASSSNG HDA A WN GRTEAV EALVEAGADPNAKDDDGWTPVBDAA QNG $M D A S V N G H H Q V V E L L L K E G A D V N D Q D N Y G W T A L M T T S N N G$



 HYAASNNRKETAEILLISNGADINAKNEYGCTPLHYAA SNN MAASANGHQQVVELLLNEKTAPNDQDNDGWTALMLAS LDNG MAA S VNGHHQVVELLLKEGADVNLQNRDGVTALMASS GND SWAAENGHETVVVKLLVERGAVMDSKDNKGRDPL S WAA ENG

 HVA A HCGNVKTAAK LLLLDRKCEPNARADNGFTPALHDACKK N HI A A DN GHLLDMTKYLLT Q GADMNSSNAFGGCALHNASKK G HI A A EYNNKE IVELLLVSHGANDNEKDKFKNSALHYAA QY G IYA S DK GHDEVVVKYLI SVGANKEAKNNDGDTPDLYASSNG HYAAENNSKETVVELLIDSHGANDNEKNKNGTTVLVYAASNN HCAAECRK D TVKFH SDGANNNEKDNNGKTALHYABVAY IIAAWRNQKE VE LLLSHGANAN DK DKKGRTALHHASMEN HIA A L N N S K E T A E V L I S H G A N I N E K D K Y G K T A L H Y A V E N N HQAAQYNSKETAELLI SHDADINEKDKYGYTPQHQAAQYN Y WA VE K GNAAMVRDILQCNPDTEDCSKDGETPLDKATKMR QAASFNGHLDVVQFLIGQKADLKRAGDGGRTPLYAASFNG HFAAKNNSSKETAAELI SHGANDNEKDEFGETAALHDAA Y Y N IY A S Q F G H LEEVVKYLI SVGGADKEAKN KNGSTPALILAS Y H G HYA S A N GHLEVVVKYLI S A GANTEAK D D D GKTSSLI Y A S E E D $\begin{array}{ll}H Y A & A\end{array}$
 HVGCHYGN】KIVNFLLQHFAKVNAKTKNGYTPLHQAAQQG Y FA AK F N R K E L A E I L I SHG A D I N S K N D E G Q T P L E CAA E I C D
 HKA $\square K$ K C Y K A VVF HFL E NGAKLDVRDTS GNLPIQYA
 $H V A A H Y D N Q K V A L L L L D Q G A S P H A A A K S G Y T P L H V A C H Y G$ MIASKE GHTE\|V QDL L DAGTYVNDPDRSGDTVLIGAVRGG HFAVLGNS DEAV TVLLDDKGAVLNSVANGGVVPL HLAASLN D $H$ I A SLA G QEEVV KLLV SHGASVNVQS QN GFTPLYMAA QEN HVAAKYGSLDVAKLLLQRRAAADSAGKNGLTPLHVAABYD HVAAHCGHYRVTKLLLDKRANPNARADNGFTPLHIACKKN IVACHYGNDKMVNFLLMHGANVNAKTKNGYTPLHQAAQQG HIA S LA GQAEVVKVLVKEGANINAQSQNGFTPLYMAAQEN HHAALIDSEETAELLI SHGAII NEKDKNGETPLHFAAKCN $H$ LAARNNSTEAAEVLIMMHGANIYEKNKEGETVLHDAAQRQ MKASEK GHFEDIDKYLI SVGGADKDAKSKYESTPDLMKASMNG H IA S H Y GNQNI ANLLI QKGA DVNYSAKHNDSPLHVAAKWG $M V A C Q S G H T K V V E L L L N A N A N P N \square Q T N D G M T A L I Q A S Y S G$ QLAARNGHLDVTKYLI SQGAEVNKDDNDGSTPDMFAASNG HYAAENNNKETAE LLI S LGGANINEKDEYGKTALHCAAEKN HLAA GNGHLEIVKYLI EKGADVNAVEKDKWTALHLATKNG HI A A HYGNINV ATTLL NRGAAVDFMARNDDTPLHVASKRG HVAAET GHTSTSRLLI KHQA DVNDQNAQGLTPLHLAS QQ G HVAAK WGKTNMVSLLLEKGGNIEAKTRDGLTPLHCAARS G ICAS QKGHLEVVQYLI S $\square$ GADKEAK DEGGSTPL $\quad$ C CAS $\square H G$
 QFSAQD GHLHVVTKYL I S Q GAEVVKRGQDNGWTAA HSAA LNG Y $\square$ A S Q E GHL GV DE CLV D S GADVNKTDQNGMTPLHAAS SNG




 MLAS GNGHHQVVK LLLSKDPGISDQNKNGMTALMSASCYG


 HWAAFS GCVVD DA E ILLAAAKCDLHAVNDH GDS PLLHDAAREN
 $H V A C H Y G N I K L V K F L L Q H Q A D V N S K T K L G Y T P L H Q A A Q Q G$ HSAASNGHLDVVSKYLI SRGAQVNTKDDEGWTDLHTAASNG $H L A A Q E G H V D M V S L L L A R N A N V N L G N K S G L T P L H L A A C E D$ HLAVRE GHQETASLLLEHGASLSAATKKGFTPLHVAAKYG
 HEASFA GHVVDIVVKFLI SKGANPNSVDNVVGYTPLGYSGS QE G HYA AVS DHLDVI KYLIT QEAEVNKGDNDCMTALHEAAFNG $H L A A Q E D K V N V A D I L T K H G A D Q D A H T K L G Y T P L I V A C H Y G$ WRAA QNGHEAVVRLLLDRGAHTEAADPWGRTPLDWAAANG
 HI A A ECNSKETAELLI SHGANVNEKDNF GRTAALHIAAA ECN H $I$ A S R L G K T E V V Q L L L Q H M A H P D A A T T N G Y T P L H I S A R E G

| R |  |  |
| :---: | :---: | :---: |
|  |  | UniRef90 C3NIT9 |
|  |  | UniRef90-A2ERS8 |
|  |  | UniRef90_A2DU09 |
| UniRef90-UPI00021A5F0A |  |  |
|  |  | UniRef90_I1GHI6 |
| UniRef90_J9HSB7 |  |  |
| UniRef90_A2ERS5 |  |  |
|  |  | UniRef90 UPI000265377A |
| UniRef90_UPI0001584B29 |  |  |
| UniRef90_UPI00021A59E8 |  |  |
|  |  | UniRef90-I1F123 |
| UniRef90-A2EYR2 |  |  |
|  |  | UniRef90_UPI00021A5E50 |
| UniRef90_UPI00021A3E3C |  |  |
|  |  | UniRef90 U1HXR6 |
|  |  | UniRef90_A2G715 |
|  |  | UniRef90 A2F621 |
|  |  | UniRef90_A2EFE9 |
| UniRef90_UPI00035989C1 |  |  |
| UniRef90_W4YT11 |  |  |
|  |  | UniRef90 A2EVV9 |
| UniRef90_A2FEP4 |  |  |
| UniRef90_A2DQT2 |  |  |
| UniRef90-A2FAC4 |  |  |
|  |  | UniRef90_A2DLQ8 |
| UniRef90_A2DIH2 |  |  |
| UniRef90_A2G022 |  |  |
|  |  | UniRef90 F7EPI8 |
| UniRef90_UPI0002654971 |  |  |
| UniRef90_A2G446 |  |  |
| UniRef90_A2F3E3 |  |  |
| UniRef90-A2D9U3 |  |  |
| UniRef90_A2FG57 |  |  |
| UniRef90_I3KPG4 |  |  |
|  |  | UniRef90_UPI0003C4A8E3 |
| UniRef90_UPI00046C2B76 |  |  |
| UniRef90_A2E9U9 |  |  |
| UniRef90_W4XTT0 |  |  |
|  |  |  |


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



 $H \square D V V K Y L L E N G A N Q S T A T E D G F T P L A V A L Q Q G H N Q A V A$ KKETAELLI SHGA IIINEKDKKGETALHIAALDNS IMKTAEV N K K IV V K L L L H DA NI N E K N K N GV T A L H IA A Y N N N E E I A A L



 H L K MVKHL I NSNMVKL | $H$ |  |  |  |
| :--- | :--- | :--- | :--- |
| $H$ | $L$ | $T$ | $V$ |
| $H$ | $M$ | $L$ | $L$ |
| $H$ |  |  |  | $H \square D V V K Y L I$ QDEVVAAVLI ENGAAMDAK NKDGKTCYDYGSCN HLDI TKYLI RQGAEVNRGDKDGWTS LI GAANKGHLDI T K Y AVGIVKYFI SKGTNPNSADNDGDSPLVIASRKGHLDVVEC


 Q $\square \mathrm{D}$ IT K Y L L S Q G CK L N K R S VWH S VI F Q F D G Q Y G H Y D GVR HEKMAK LLLLDK GAAVVDSKDKLGRTPDLYRAAYTGHEEVVVMLL
 Y H O A E F L S


 RYDCVVLELSSRDSDVTELKNKEGETPLQQASLDN
MAKMAELLI L H D T N I YY TK D K H G K T A L E I A T E K G N Y E T C RVV

 QI EAAKLLLQKRAAPDTA GKTGLTP L HVAAHYDNQRVALL


 YEAAVRLLLDEGAHTEVADKWGRTPLWRAAERGHEAIVRLL HCDVMEYLI SQGAEETEGDNKDES
SKETAK LL I SHGANVNEKDELGNTALHDAAECNSKETAELL


| QUERY |  |
| :---: | :---: |
| UniRef90_C3NIT9 |  |
| iRef90-A2ERS8 |  |
| UniRef90-A2DU0s | LISV |
| UniRef90-UPI00021A5F0A |  |
| UniRef90-I1GH16 | L L |
| UniRef90-J9HSB |  |
| UniRef90-A2ERS | LIS V |
| UniRef90-UPIO | LI |
| UniRef90 UPIOO |  |
| UniRef90-UPIO0021A59E8 | LM |
| UniRef90-l1F123 |  |
| UniRef90-A2EY | L |
| UniRef90-UPIO0021A5E50 |  |
| UniRef90-UPIO0021A3E3C | L |
| UniRef90-U1HX | L |
| UniRef90-A2G |  |
| UniRef90_A2F62 |  |
| UniRef90-A2EFE9 | LIS V |
| UniRef90-UPIO0035989C1 | L! Q |
| UniRef90-W4YT11 |  |
| UniRef90-A2EVV9 | L V |
| UniRef90-A2FEP4 |  |
| UniRef90-A2DQT2 |  |
| UniRef90-A2FAC4 |  |
| UniRef90 A2DLQ8 |  |
| UniRef90-A2DIH2 |  |
| UniRef90_A2G022 |  |
| UniRef90-F7EPI8 |  |
| UniRef90_UPIO00265497 UniRef90 A2G446 |  |
| UniRef90-A2F3 | LLST |
| UniRef90-A2D9U3 |  |
|  |  |
| UniRef90-13KPG4 |  |
| UniRef90-UPIOOO3C4A8E3 UniRef90- UP100046C2B76 |  |
| UniRef90 UPIO0046C2B76 | L |
| UniRef90-A2E9U9 UniRef90 W4XTT0 |  |
| UniRef90-A2FGV0 | L |
| UniRef90 W4ZER1 |  |
| UniRef90-UPIO0027FC4E7 |  |
| UniRef90-UPIO00440FEEE | L L |
| iRef90-UPI0003C44DF0 |  |
| iRef90_B6 |  |
| UniRef90-D6WI2 | L L |
| UniRet90-G1SZP4 |  |
| UniRef90-HOYUA6 | L L Q |
| UniRef90-UP1000359D7AE |  |
| UniRef90-UPIO003F121C7 | L Le |
| UniRef90-A2F524 |  |
| UniRet90_A2F |  |
| UniRef90-A2DBP4 4 | L S SV |
| UniRef90_M9N |  |
| UniRef90-UPI00021A4073 |  |
| UniRef90-W4XKK7 |  |
| UniRef90-A2FXS5 |  |
| UniRet90-M9WYY2 |  |
| UniRet90_H2TE20 |  |
| UniRef90-M4AHD1 |  |
| UniRet90-A8JNM5 |  |
| Ref90-A2DG |  |
| UniRef90 M9MRS5 |  |
|  |  |
| UniRef90 UPIO002652C91 |  |
| UniRet90_W4Z2P3 | E |
| UniRef90 W4XV76 |  |
| UniRet90-W4YX90 |  |
| UniRet90-R7Z5M4 |  |
| UniRef90-W4Y135 |  |
| UniRef90-A2DBT8 |  |
| iRef90_11 |  |
| UniRef90-A2FQE0 |  |
| UniRef90 G7MZ70 |  |
| UniRef90 W4XCZ |  |
| niRee90_A2DGP |  |
| UniRee90-UPIO001D542F9 |  |
| UniRef90_A2EXI8 UniRef90 - 9 alit |  |
| UniRef90-H9GIT7 |  |
| UniRef90 V9K845 | - |
| UniRef90- UPIO00440E2DD |  |
| UniRef90-W4YBT8 |  |
| UniRef90 W ${ }^{\text {W }}$ YFFO |  |
| UniRet90_W4YJK9 |  |
| UniRef90_- 9 NY57 |  |
| niRet9 |  |
| UniRef90_W4XUL8 |  |
| UniRet90_A2EYE2 |  |
| niRef90_O8C8R3 |  |
| UniRet90 S4R249 | LLE |

## UniRef90 W4XCN8 UniRef90-W4XCN8 UniRef90-G1TZ38

 UniRef90_UPIO003C15C71 UniRef90-UPIOOO4574806 UniRef90-UPIOOO2654EB5 UniRef90_A2FRS9 UniRef90-A2GN94 UniRef90-W4Z2J8 UniRef90-E6ZHZ4 UniRef90_UPI0003DF5694 UniRef90 E9EM23 UniRef90-W4ZHWO UniRef90-A2E1V5 UniRef90-UPI0003BC5BDA UniRef90 ${ }^{-}$W4XLZ4 UniRef90-UPI0003EBE4AB UniRef90-D5MLF8 UniRef90-F6UXX6 UniRef90-Q4RT14 UniRef90-UP100046BFA8C UniRef90-UPIO0042BAA47 UniRef90- Q5BEA0 UniRef90-UPIo UniRef90-W4YCEOUniRef90-D5CRG3 UniRef90_W4YMA5 UniRef90-A2DFF1 UniRef90-UPI0002654DFE UniRet90_W8AY14 UniRef90-G3POU7 UniRef90-W4Y291 UniRef90- W4XE02 UniRef90-UP100022CAB81 UniRef90-UPIO0026532CB UniRef90-F1SE30 UniRef90_UPIO000E48320 UniRef90-A2F107
UniRef90-W4ZO17
UniRef90_COR3E9
UniRef90-H2LQ07
UniRef90-UPIO00440F668 UniRef90_UPI00046D8058 UniRef90-FOXRG4 UniRef90-F7BZU9
UniRef90
W4YO38 UniRef90-W4YO38
UniRef90 $\mathrm{UPIOOO46C2259}$ UniRef90-W4XCV0 UniRef90-A0AO26W749 UniRef90-A2FWE5 UniRef90-W4Z7X2 UniRet90-H3AN78 UniRef90_UPIO002653732 UniRef90-131YV7 UniRef90-UPI00044067DF UniRef90-W4ZBSO UniRef90_UPIOOO26542E6 UniRef90-A2DBJJ UniRef90'W4XSX0 UniRef90-UPIO003 EBCADD UniRef90-G9NA67 UniRef90-UPIO0026532C9 UniRef90-K1PAK1 UniRef90-UPIO002A4A687
UniRef90-A2ETR6
UniRef90_UPIOOO26539A4
UniRef90-A2ET20
UniRef90-EOVLK5
UniRef90-W4XNP1
UniRef90-W4XYC1
UniRef90-W5N080
UniRef90-W4Y8K1
UniRef90-W4XDH5
UniRef90-M9WW94
UniRef90_W4Y8U2
UniRef90-HOUVL5
UniRef90-H3BZBO
UniRef90-W4ZFM7
UniRef90-F5HIS1
UniRet90-UPIOOO265263B
UniRef90-W4YFX6
UniRef90- ${ }^{-}$7FIR6
UniRef90-UPIO002654970
UniRef90-M3ZG44
UniRef90-UPIO003EAEB21
UniRef90-W4ZES8
UniRef90-H2TE12
UniRef90_H2TE12
UniRef90_W4Z2FO

1
10
20
30
40
VNMGDNEGVTALLQAAQEGHLLDVTKFLISQEAEIVINRGN VNMGDNEGVTALQLAAQEGHLDVTKFLISQEAEVNRGN VNAKAKDDQTPLHCAARGGHTNMVKLLLEHNASPNLAT NTNHNDQDGWTALRSAAWGGHTEVVSALLYAGAKVDCAD LNSVDKDGMTPLFTSSFSGHLDVVEFLIDQGVELNGVC TNAKDNDGWSVLHTAALNNSKETAEYLISHGADINAKD VNRVEDDGWNALHLASQNGHDDVIKELIGQGAEVNKVE PHAAAKNGYTPLHIAAKKNQMEITTTLLEYGASTNTET NANAESKAGFTPLHLSAQKGHYDMTNLLIEHGADPNHKS VNVKSSNSQKPL RAVDCGNGTVLLLLAKKGNVDEKD DSNGSTALIDAAFNGHGDITEYLISQGAEVNKGN NTNEKDKFGRTALHYASQNNNIKIVEYLISHGANINEKD NVNAQSQKGFTPLYMAAQENHLEVVKFLLENGANQS IPT
 GETALHMAARAGQVEVVRCLLRNGALVDARA RDKDGWTALMRASWNGHAGVVAMLLKHDADPNVKD NVNAQSQKGFTPLYMAAQENHLEVVKFLLENGANQNVAT GFTPLHVASKYGKVDVAELLLERGANPNAAG NVDAATKKGNTALHIASLAGQTEVVKVLVTNKANVNAQS KDDDFRTPLSYAASYGYESVVKLLLEHGARTDSKD AKTKNGLSPL HMAAQGDHLDCVRLLLEYNAEDDDIT RDDRNWTPLMVSAENGNLLFAKLLIKCGARVSTRD NNNGSTPLHFASLGGHLDVVQYLVSQGAQVERGN N $\square N K T N K N G E T A L Y \square P A W Q N C K E \square A E V L I S H G A N I N K T N$ SQGAEVNEVE
RDENGTTGLMVVAGRGLTVFVREFLARGADVQAED NPNSTTTAGHTPLHIAAREGHAQTVRILLDMEAQQTKMT DGKTPLHLAASGGHLKASKVILSHGANMEKED NPNSVDNDGDTPLYIASHKGHLHVVECLVNTEADVKDAT GFTPLHLAAKYGNMNVARLLLQKNAPVDAGG PNVSNVKVETPLHMAARAGHEVAKYLLQNKAKVNAKA DNDGHTPLHLASNNGHLEVVQYLVGQGAQVEKND NDNEKDHGFTALHNAALNNGNEIAELLITHGANINEDD VNRGDNDGCTALHDAQQEGHDDVTEYLISQGAEVNKGD HIDDKGPEDATLLHLAAKRGHKGIVNALIERGANVDAMT TPLHMASRSGHFEVAEFLLQNAAPVDAKA NVNFAAKHNTTPLHVVASKMGHMNGVKLLGKGASPNASN NHK $\square \mathrm{DGETALLQSAKNGRVEVVKRLLAAG} \mathrm{\square DVNRKS}$

MVETLCKNDAGVNERT NPNAKA LDNGTPLHDACKKNRワKVMELLLKHGASIQAVT HLISQGADGFTALHDASQKGHLDVTKYLISEGADVNKGD HNVNAKDADGRSTLY LLA LENRLAMAKFLLEHNADLESRD KNKYGKTPLNYASENGQLEVVKYLVSVGANKESKA NDGFTALHLADFSGHLDVTKYLISLGADVIKED
NHRDGMGWTPLHMAAFEGHYSVCVALTTQGARVTEVD VNKDDNDGRTPLHSAAQNGHLDVTKYLISQCADFKKTD NVEACDTEGRTALHVSCWQGHIEMVRLLI NYHADVNACD HQNKR SPLHAAAEAGHVDTCHMLIQAGANIDTCS

NTRWNDTRTALQLAAQKGHLDVTMYLINRGVDLNDGN DKDGVTALHKASFKGHLDIVKYLGRKGAQLDKCD NKEAKNNDGSTPLIKASYWGYLEVVKYLISVGANKDAKD NEVNTAL KVVTAFNGQLDDVQYLVGQRAKVEE GD
 VNkGdNEGRNSLHSAAQKGFFDVIKYLISQGAEVNRGD

 D NEGRTP L H CASR D G H L N V V Q Y L V G H GA PV D S V D N P N S V V N N D G Y T P L Y T A S Q E G H L L V V V $\square$ DAKTKDEFTPLHSAARVNSKEI AE ILI SNGADI NAKT EK ND D G G T P L H C A S IN G H L EVVQQYLVGQGA Q D N LDD NIN EKDKNGKTALHYAAKTNSKETAEHLI SHGAN I NEKD V DHQDKDGMTPLLVAAFEGHRDVCELLLEYEADVDHSD NEGDNEGMNALHAASQKNYLDVTKYLISSGAEVNKGD
 N NA GVTALHRAA QEGHLDVTKYLISQGAEVNKGN $N \prod N T C$ GE G GYT A L H S A S Q T G N I D GVVK F L T S Q G A E L D R S T IN A K S N F S Y T P P L L

QHGANTNTP IDWAAGRGHAEVVK LLLQNGAKVNCSD $L N T G D N A G K T A L H S A A F R G Q L D V T K Y L I S Q G A E G N K E D$ QANAESKAGFTPLHLSAQEGHTEMSGLLLESKANPDHQA NPNSVDNDGYTSSLYIASKNGHVHSVECLVNAGADVKKAT NDGRTALHI A A QNGHLDDVTKYLI SQ GA DV DK E V $N V N Y R T E V L N N A L C V Q S H D G Y A E M V A L L L E F G A N V D A A D$ $L$ N R L S R D G S T P L KVA S L N S H L DVV K FLI GQGA DL K R A D H D D NE GWT AL R SAA WA GHCEAV R LL L DA GA DVVNGCD
$\square N T C N Q N G L N A L H L A A K E G H V G L V Q E L L G R G S S V D D S A T$
$D K D G R T P L H A A S S N G H R D V V Q F L I G K G A D L D R L S$ N D Y L T A L HVAA H CGHYK V A K LL L D K K A N P N A K A
UniRef90_W4XCN8 UniRef90_W4XCN8
UniRet90_G1TZ38 UniRef90-UPIO003C15C71 UniRef90-UPIO004574806 UniRef90-UPIO002654EB5 UniRef90_A2FRS9 UniRef90-A2GN94 UniRef90-W4Z2J8 UniReffo-EEZHZ4 UniRef90-UPIOOO3DF5694 UniRef90-E9EM23 UniRef90_W4ZHWO UniRef90-A2E1V5 UniRef90-UPI0003BC5BDA UniRef90_W4XLZ4 UniRef90-UPIO003EBE4AB UniRef90-D5MLF8 UniRef90-F6UXX6 UniRet90_Q4RT14 UniRef90-UP100046BFA8C UniRef90-UPIO0042BAA47 UniRef90-Q5BEA0 UniRef90-UPIO003AC9FDF UniRef90-W4YCEO UniRef90-D5CRG3 UniRef90_W4YMA5 UniRef90-A2DFF1 UniRef90-UPIO002654DFE UniRef90 W8AY14 UniRef90_G3POU7
UniRef90 W4Y291 UniRef90-W4XE02 UniRef90-UP100022CAB81 UniRef90_UPIO0026532CB UniRef90-F1SE30 UniRef90 UPIOOOOE48320 UniRef90-A2F107
UniRef90 W WZOIT UniRef90-COR3E9 UniRef90-H2LQ07 UniRef90-UPIO00440F668 UniRef90_UPIOOO46D8058 UniRef90-FOXRG4 UniRet90-F7BZU9 UniRef90-W4YO38 UniRef9O-UPIOOO46C2259 UniRet90-w4XCV0 UniRef90-AOAO26W749 UniRef90-A2FWE5 UniRef90-W4Z7X2 UniRet90-H3AN78 UniRef90_UPIO002653732 UniRef90-131YV7 UniRef90-UPIO0044067DF UniRef90-W4ZBSO UniRef90-UPIOOO26542E6 UniRef90-A2DBJ6 UniRef90-W4XSX0 UniRef90-UPIO003EBCADD UniRef90-G9NA67 UniRef90-UPIO0026532C9 UniRef90-K1PAK1 UniRef90-UPIO002A4A687 UniRef90 UPIOOOOA99035B UniRet90 W4XEK6 UniRef90-UPIOOO29D897F
UniRef90-W4YPR8 UniRef90_W4YPR8 UniRef90-A2ETR6 UniRef90-UPIO0026539A4 UniReffo-A2ET20 UniRef90-EOVLK5 UniRef90-W4XNP1
UniRef90- W4XYC1 UniRef90-W5N080 UniRef90-W4Y8K1 UniRef90-W4XDH5 UniRef90-M9WW94 UniRef90-W4Y8U2 UniRef90-HOUVL5
UniRef90-H3BZB0 UniRef90-W4ZFM7 UniRef90-F5HIS1 UniRet90-UPIOOO265263B UniR Refo WhYFX6 UniRef90-K7FIR6 UniRef90_UPIO002654970 UniRef90-M3ZG44 UniRef90-UPIOOO3EAEB21 UniRef90-W4ZES8 UniRef90-H2TE12
UniRef90_W4z2Fo

## 

 <br> \section*{} <br> \section*{}
 NEGRTALHSAAFNGHLDVTKYLI NEGAEVNLGDNESVTAL TAGHTPLHVAAREGHVETAVALLEKEASQACMTKKGFTPL ADSRTALLRAAAWGGHEDIVLNLLCHGAEVNKADNEGRTAL
 DYQRTALHSAVEYNSKEAAEFLISHGANINKKDKDRQTAL

 N GGLTAV HLAASKGHDDUTKYYL SQGAEVNKGNNDGMTA

 KNGLTPLHVAARNDDTRTAAMLVQNDPNPDVLSKTGFTP QNGFTPLYMAAQENHLEVVKFLLDNGASQSLATEDGFTP QNGLNALHLASKEGHVKMVAELLHKEIVLETTTKKGNTALC
 NNGSTPLHFASQGGHLDVVQYLVSQGAQEGRGNNDGSTSS KNGETAI HDAARQNCKETAEVLISHGANMNDKNNGGETA


 NDEWAALASAAKNGHDDVTKNLISRGAEVNQGDNDGFTA NGGHTPLHFASSEGHDEVAQYLVGRGAHVERDNKHGRTPL
 KDDQTPLHCAARMGHKELVKLLLEHKANPNSTTTAGHSPRL RDGLTPLHCAARSGHHEVVDVLIEKGAPI GSKTKNGLAP L WKEQTALMRSAEEGHTSVVTLLLTVGDDIACKSRYGMTAL TEGKTPLYAACAGLENVKGLM NDGETALHVAAQHGHLDVTNYL
 TYGRTALHGASQNGHIDVTEYLISQGDDVNKQSNDDFTAL NDGRITPLILAAQEGHYDCVRHLLECKSPIDYKCYDGRTAAL
HDGWTALHSAAAEGHLDVATELI
SGGADVDKASNKGWSAL NEKRSALQSAAWQGHTKVVQFLIENGTHVDHTCNQGATALL EDQRTPLMEAAENNHDAVKYLIKAGALVDPKDAEGSTCL DDGWTALHDAKKGHLDVTNYLISHGAEVTKGRDNDRTAL NEGYTPLTWASKNDELEVVKFLISAGANKDAKGNDGNTAL
 DNGRTPLSWAAAGGHTATVQLLLDKGANSETKDNSGRTPL NKGGTALHSATQKGLLDVTKYLI SQGAEMNRGDDEGKTVL KEGLTALSWACLKGHLDVVRYLVESGAATDHADKNGRTPL KNGYTPLHDAAKKNQMQI ATTLLNYGAETN ILTKQGVTPL <br> \section*{N} <br> \section*{N}

N DGGWTALFSAAQNGHLTVTNYLINQGAEVNKRDDEGWTAL KSNWTALSLASFGGRLDIVKVLVNEGAQLDKFDETDRTPL NDGTTPLFNASQEGHLEVIKYLVNAGADVKKATENSMTTL KYGTTPLHWASRKGHFDCVMHLLEAGADVDQEGANSMTA NDDKTALHSAAFGGQLDVTKYLISQGAEGNKEDNDGKTAL RNGLTPMHLCAQEDRVSVAQVLVKHGANLQAATKAGYTPL EKGWTPMHGASIDGHVDIVKYLISQGANPNLVDNDGNTS KNGQCALVHAALRGHLEVVKFLIQCDAQTNSFDSWGETAL KDGRTPLFAASLNGHLGVVQFLTDQGADLKWEDKDGRTPL SEGRTALRAAAWGGHEEVVLTLLDYRAQINKADSNGRTP


## UniRef90 W4XCN8 UniRef90_W4XCN8 UniRef90-G1TZ38

 UniRef90_UPI0003C15C71 UniRef90_UPI0004574806 UniRef90_UPIO002654EB5 UniRef90-A2FRS9 UniRef90_A2GN94 UniRef90-W4Z2J8UniRef90 E6ZHZ4 UniRef90_UPI0003DF5694 UniRef90_E9EM23 UniRef90_W4ZHW0 UniRef90_A2E1V5 UniRef90_UPI0003BC5BDA UniRef90_W4XLZ4 UniRef90_UPI0003EBE4AB UniRef90_D5MLF8 UniRef90_F6UXX6 UniRef90_Q4RT14 UniRef90_UPI00046BFA8C UniRef90_UPI00042BAA47 UniRef90_Q5BEA0 UniRef90_-UPI0003AC9FDF UniRef90_W4YCE0 UniRef90_D5CRG3 UniRef90-W4YMA5 UniRef90_A2DFF1 UniRef90_UPIO002654DFE UniRef90_W8AYI4 UniRef90_G3P0U7
UniRef90-W4Y291 UniRef90_W4XE02 UniRef90-UPIO0022CAB81 UniRef90_UPI00026532CB UniRef90_F1SE30 UniRef90_UPIO000E48320 UniRef90_A2F107 UniRef90-W4ZOI7 UniRef90_C0R3E9 UniRef90 H2LQ07
UniRef90 UP10004 UniRef90-UPIO00440F668 UniRef90_UPIOO046D8058 UniRef90-FOXRG4 UniRef90-F7BZU9
UniRef90
W4YO38 UniRef90-UPIOOO46C2259 UniRef90 W4XCVO UniRef90-A0AO26W749 UniRef90-A2FWE5 UniRef90-W4Z7X2
UniRef90-H3AN78 UniRef90_UPIO002653732 UniRef90-131YV7 UniRef90-UPIO0044067DF UniRef90-W4ZBSO UniRef90-UPIOOO26542E6 UniRef90-A2DBJ6 UniRef90-W4XSX0 UniRef90-UPIO003EBCADD UniRef90-G9NA67 UniRef90-UPIO0026532C9 UniRef90-K1PAK1 UniRef90-UPIOOO2A4A687 UniRef90-UPIOOO399035B UniRet90_W4XEK6 UniRef90-UPIOOO29D897F
UniRefgo- W4YPR8 UniRef90_W4YPR8 UniRef90-A2ETR6 UniRef90-UPIOOO26539A4 UniRef90-A2ET20
UniRef90 EOVLK5 UniRef90-W4XNP1 UniRef90-W4XYC1 UniRef90_W5N080 UniRef90 W4Y8K1
UniRef90
W4XDH5 UniRee90-W4XDH5
UniRef90-M9WW94 UniRef90_W4Y8U2 UniRef90-HOUVL5
UniRef90
H3BZB0 UniRef90_W4ZFM7 UniRef90-F5HIS1 UniRef90-UPIOOO265263B UniR Refo WhYFX6 UniRef90-K7FIR6 UniRef90-UPIOOO2654970
UniRef90 M3ZG44 UniRef90-M3ZG44 UniRef90-UPIOOO3EAEB21 UniRef90-W4ZES8 UniRef90_H2TE12
UniRef9__W4Z2FO

EVAAQEGHIIDVTKYLIISQGAEMNKGDNRGWTLLQRAATK EVAAQEGHIDVTKYLI SQGAEMNKGDNRGWTLLQRAAIKG HVAAKYGKVRVAELLLERDAHPNAAGKNGLTPLHVAVHHN HIACKKNRVKVMELLVKYGASTQADTESGLTPIHVAAFMG YAAAYMGHREIVEHLVDHGAEI NHEDVDGRTALSVAASKG YAASLKGHLDVVQFL GQGADLKGADKDGRTPLHAASANG HYAAIFNSKETAELLISHGAYI NEKDKCKKTALHSAAEYN HTAALNNSKETAETLISHGADINAKDNDGWSVLHTAALNN YLASKNGHLDVVKYLTKQGADVDKANGQGWSALYLAAAAG HLAAQEDKVNVAEVLVNQGATI DPETKLGYTPLHVACHYG HVAAHFGNLSMIRFLLKHNATIDVKTNQNYTPLHQAAQQG DFAANSGHHVIVKPLIEHGANVNAAGEEGLTALDCAASYG HSAARKGHLDUTEYLI SQGAEVNKGKNNGMTALHSAVSEG HYATLQNYKEFTELLISHGANINEKDRDGKTALHYAAEFN HTAAHYENLNVAQLLLNRGANVNFTPKNGDTPLHMASRRG Hi ASHNGHLDVVKELISQGAEVNKVENDGRTALHIASQNG HISAREGQVDVASVLLEAGAAHSLATKKGFTPLHVAAKYG THASERGRFRIVALLLQYGADMHVKDYKRQTALMYASDHG HTAAHYENGNVAQLLLNRGASVNFTPQNGTTPLHTASRRG HIASKQNQVEVANSLLQYGASANAESLQGVTPLHLASQEG AVALQQGHDQVVSLLLEHNADVESKSRNDITPLHVASKRG H $\triangle A A L A G Q E D V V R E L V N Y G A N V N A Q T E D G F T P L A V A L Q Q G$ SYAASKGHESVVRLLLQYGAQADSETSSGQTPLSYAASHG H ACKKNHMRVMELLLKTGASHDAVTESGLTPLHVASFMG TLASFGGRLDIVKYLVSKGSQLDKCDKTDRTPLYCASQEG MQAATRGHL ACAYLLSHGADVNATSTDGWTSLHKAANNG HFASQGGHLDVVQYLVSQGAQVERGNNDGSTPLHFASKGG HTAARQNCKETAEVLISHGANINKTNKNGETAIHDAARQN HLAAQNGHPDVTECLISQGAEVNKVENDGCTALHQASVNG MWAAYRGHTDLVRFLLEKGADVNVHGNYHLLGPLLWAAGRG HVAVHHNNDDVVNLLVSKGGSPHSAARNGYTALHDASKQN HVAA INGHLKLVKYLISQGAEVNKGENGGWTALHNAAQEG CI ASHKGHLHVVECLVNTEADVNRATEQGRTPLHTASYAG HIAARKNQMDIATTLLEYGAKANAESKAGFTPLHLDAQEG HFAAFNGHLNVTQYLI GQGAEVN QGNDGFTALHFAAFNG H苗AAREGHVETALALLEKGASQACMTKKGFTPLHVAAKYG HCAS DEGHLEVVQYFVGEGAQDDK【DNDSWTPLYCASYHG HYAERNNYEEITQ
HSAAHKGHLDVAEYLISQGAEVNEENNGGWTALLHTAQEG HTAAGHGHVNVVEVLLSNGAKVNVKDNKSRTPLELAVAHG HปAAREGHVQTVRLLLDMEAQQTKMTKKGFTPLHVASKYG HCAARMGHKELVKLLLEHKANPNSTTTAGHTPLHIAAREG HMASQGDHDDAARILLYHRAPVDEVTVDYLTALHVAAHCG DLAAKGGHLDVVEL
HLAASRGHVECLRAMVTHGADVAAQDTAGHSALHLAAKNS HRAAYKGHLNTVEFLVECDADVNUVDTDGSTPLHLAAFLG HMAARAGQAEVVRYLVQNGAQVEAKAKDDQTPLHISARLG HYAVQNGHPKVVKVLLTGGARSDTEDDQGHTPIHLADQHG HSAAWQGHAAIVRLLLEHGATPDHTCNQGATALGIAAQEG MIASRDGRHEVVKYLI SVGANKETKSNNEETALMIASRDG HLAAFSGHLDVTKYLISQGAEVNKEDTYGRTALHGASQNG SVSALEAHKEVVELLLRKGADVNLKDADGRTVLHVSCWQG YLAAAAGHVRVESALLSQGAELNKAGSFGWTALQLAASNG GIAAQEGHIDVVQILLENGADPNHADQFGRTAMRVAAKGG HLAAKKGHYDVVQYLLSNGMDVNCQDDGGWTPMIWATEYK HSAAKYGHDDVTKYLIKQRAEVNKKDTDGMDALHLDAAQEG HRVSFQGHLDVVKYLVMKGAQLDKRDKNDRTPLFCASQEG SVGASN
YFASRNGHLDVVQYLVGQGAQVEKENNNGQTPLHSASDNG HLASQEGRPDMVALLISKQANVNLGNKNGLTPLHLVAQEG SWAAGEGHTATVRLLLDKGADLEPKDNEGRTPLSWAAWKG HSAAQEGHLGVTKYLLALGDSVNVDRNGSPLHNAAMNG YMACQNGYDRTVELLLDNGADINLCDEDGASPLYDSCQNG DLAAFYGDSDVVQFLVDHGAMIEHVDYSGMRPLDRAVGCR YCASYCGQLDVVQYLVSQGAQLGSGDNCNETPLHCASRNG HVAAHCGHHRVAKVLLDKGAKPNSRADNGFTPLHDACKKN HSAAMNNSKEI AEILISNGADINAKTKDGCTPLHSAAMNN HCASMDGHLILVQYLVGQGAQI DRLDNRRWTPLYCASLCG YYAVMANNKKTAELLI SHGANVNEKDKYGKATLHYAVMAN STAAAQGNTDVVRQLLDRGLDEQHRDNSGWTPLHYATFEG QLAASKDHRDVTKYLISQGAEVNKGDNEGRNSLHSAAQKG HLAVRRCQI DVVKCLISHGCYVDVQDRHGNTPLHTACKDG HSAAFVGHLDVTDCLISQGAKVDEKDTVGRDALHLAAQEG YCASQEGHLEVVEYIVNKGAI EIIGDKDGFTALHIASFNG HTAASDGKLRMVEALLENGADINARNHYNFTPLHSAIENG HAASDKGHVDVTYLISQGADPNSGNSNGNTPLFGASREG LIAAQDQQAEICALLLTHGADANLVDEDDWAPLHFAAQNG IVAVRGGYAAVVKELLKRKPNVNMTDKDGNTALMDAAKEG HVASHFGQANMVRYLIEQQVDVNASTGDGYTPLHQASQQG

 HAASSNGHRDVVQFLI GKGADLNRLSRDGSTPLFAASFNG DAAAYMGHPETVEDLLNQNAEVNLLADGDGRTALSVAADKG YMAAQENHTDVVKYLLENGANQSTATEDGFTPLAVALQQG FAASLNGHLGVVQFLTDQGADLKWEDKDGRTPLHAASSNG HVAAFMGHENVVALTHHGASPNTTNVGETALHMAARAG R GAAFHGHDNVITEYLTSQGAEVNEGDNDGWTALQAAAQEG

UniRef90 W4XCN8 UniRef90-W4XCN8
UniRef90-G1TZ38 UniRee90-UPI0003C15C71 UniRef90_UPIO004574806 UniRef90-UPIO002654EB5 UniRef90-A2FRS9 UniRef90-A2GN94 UniRef90- W4Z2J8
UniRef90 E6ZHZ4 UniRef90-E6ZHZ4
UniRef90-UPIOOO3DF5694 UniRef90-E9EM23 UniRef90_W4ZHWO UniRef90-A2E1V5 UniRef90-UPI0003BC5BDA UniRef90_W4XLZ4 UniRef90-UPIO003EBE4AB UniRef90-D5MLF8 UniRef90-F6UXX6 UniRet90_Q4RT14 UniRef90-UP100046BFA8C UniRef90-UPIO0042BAA47 UniRef90_Q5BEA0 UniRef90-UPIO003AC9FDF UniRef90-W4YCEO UniRef90-D5CRG3 UniRef90-W4YMA5 UniRef90-A2DFF1 UniRef90-UPIO002654DFE UniRef90 W8AY14 UniRef90-G3POU7
UniRef90-W4Y291
UniRef90 $\mathrm{W} 4 \mathrm{XEO2}$ UniRef90-UPIO0022CAB81 UniRef90-UP100026532CB UniRef90-F1SE30
UniRef90_UPIOOOOE48320
UniRef90-A2F107
UniRef90_W4Z017
UniRef90_COR3E9
UniRef90-H2LQ07
UniRef90-UPI000440F668
UniRet90-UPIOOO46D8058
UniRet90-FOXRG4
UniRef90-F7BZU9
UniRef90-W4Y038
UniRef90-UPI00046C2259
UniRef90-W4XCV0
UniRef90-A0A026W749
UniRef90-A2FWE5
UniRef90-W4Z7X2
UniRef90-H3AN78
UniRef90-UPlooo2653732
UniRef90-131YV7
UniRef90-UPI00044067DF
UniRef90-W4ZBSO
UniRef90_UPIOOO26542E6
UniRet90-A2DBJ6
UniRef90-W4XsX0
UniRef90-UPIO003EBCADD
UniRef90-G9NA67
UniRef90-UPIo0026532C9
UniRef90-K1PAK1
UniRef90-UPI0002A4A687
UniRef90-UPIO00399035B
UniRef90-W4XEK6
UniRef90-UPIO0029D897F
UniRef90-W4YPR8
UniRef90-A2ETR6
UniRef90-UPIOOO26539A4
UniRef90-A2ET20
UniRef90-EOVLK5
UniRef90-W4XNP1
UniRef90-W4XYC1
UniRef90-W5N080
UniRef90-W4Y8K1
UniRef90 W4XDH5
UniRef90-M9WW94
UniRef90-W4Y8U2
UniRef90-HOUVL5
UniRef90-H3BZBO
UniRef90-W4ZFM7
UniRef90-F5HIS1
UniRet90-UPIOOO265263B
UniR Refo WhYFX6
UniRef90-K7FIR6
UniRef90-UPIOOO2654970
UniRef90-M3ZG44
UniRef90-UPIO003EAEB21
UniRef90-W4ZES8
UniRef90-H2TE12
UniRef 90 W4Z2FO
130
150

 HASVVS
 HLDV

 NVKMVNFLLKNQAKVNAKTKNGYTPLHQAAQQGHTHVINNV HATVAL HKDUTEYLI RKENAELLI
NVIMVRLL
HPDVTKYL

 HSRVAELLQRHAA NVIMVRLLL RPDMVSLLISKQANVNLGNKAGTP NANMVKLLLDRGAKIDAKTRDGLTPLHCGARSGHEQVVKM HENVVAHLINYG TKGKVRLPALHTAARNDDTRTAAV HEFVVKLLLDHGAQTESKDKYGWTPLVYAADWGQESAVRL
 HLDVVQYLVSRGAQVERGNNNGLKPLQDASHEGHLDDVVEY CKETAEVLISHGANINKTNKNGETAAIHDAARQNCKEI AEVV H LDVVK EL I S Q GA EVVNEVVK D GW

 $H V D I V K Y L I S Q G A N P N S V D N D G E T P L V I A S Q K G H L H V V E C$ H T DMS T LL SE HKADTNHKAKNGLT PLHLCAQEDKVNV AS I
 HLLGVVQYLVGH GA QVAKSNND GQTPLRCASAN GHLLEVVQY
$H L D V T K Y L I S Q G A E V N E G N N D G W T A L H S A A L N G H L D D T E Y$ HLQVVKMLLQKKVDMNAKGND DWT ILLHIASQESNLEMVKC $K V D V A E L L L E R G A N P N A A G K N G L T P L H V A V H H N N L D V V N V$
 $H$ VRVAKLLLDRNADPNARALDGFTPLHIACKKNRIVKVVEL

HPECDK K L LQ S K C P IVE S T D N S GK T A L H Y A A A H G C L Q A VQ RKDVAS F LTSK GADVDKEDSSGSTPLNCAS DRGYLATVVS K A DIVVQQL LQQ GASPNAATTSGYTPLHLAAREGHEDVASV RTSII EKLVSEGADLNVQSTDGQTCLHEADKUCYK SV


 $H L D M I K Y L L S Q G A D V N P S N D F G R C A L Y N A S K K G N L D V V E Y$ H SMMI KLLEKY GA



$H L N V V Q Y L V G R G A Q V E N E N N N G P T P L H S A S L N G H L D V V Q Y$
 Y TATVQLLLDKSADLEPKDKSGRTPLSWAAWKGHTTTVQL DFD DVKVLLEE GALVDVKDVNGQNPLHLSSKKGNPD
 $K V N V A E I L T K H G A N Q D A Q T K D G Y T P L I V A C H Y G N D K M V N F$ $Y L L V A Q Y L V G Q G A L V D K D D N D G Q T S L H A A S R N G H L R V V Q Y$
 HRDIVVKYLI SQ GANPNSVNND DVTPMHIDAS QE GHLLDVVAC SKETAEILI SNGAD IN AKDGHGSIDPLD Y
$H$ L E V V Q YL V D Q G A MV E K N D N M G H T S L H CA S V S G H L EVVVQ


 H L D V V H L D I V K Y L V R K GA QF D K C D K N GRTP L S CA S QEGGHL E V V E Y Q 1 DDRTARLLLDHGALVNAQEHEGWTPLHLAAQNNFENVARL
HT

 H L D V T K Y L I S K G A D V N N GVN D G R TAAL H DA A Q N G H L D HWQ V DLL L H GADVNMADKQGRTPLMMAASEGHLGTVEF


 Q A D V V

| UniRef90 W4XCN8 | L I |
| :---: | :---: |
| UniRef90-W4XCN8 | L I |
| UniRef90-G1TZ38 | L L Q |
| UniRef90-UPI0003C15C71 | L L R |
| UniRef90-UPI0004574806 | L L E |
| UniRef90_UPI0002654EB5 | L |
| UniRef90-A2FRS9 | L I |
| UniRef90-A2GN94 | L |
| UniRef90-W4Z2J8 | L L |
| UniRef90-E6ZHZ4 | L L |
| UniRef90-UPI0003DF5694 |  |
| UniRef90-E9EM23 | L |
| UniRef90-W4ZHW0 | L I |
| UniRef90-A2E1V5 | L |
| UniRef90-UPI0003BC5BDA | L L |
| UniRef90-W4XLZ4 | L |
| UniRef90-UPI0003EBE4AB | L L |
| UniRef90-D5MLF8 |  |
| UniRef90-F6UXX6 | LL |
| UniRef90-Q4RT14 | L V |
| UniRef90-UPI00046BFA8C | L L |
| UniRef90_UPI00042BAA47 | L L Q |
| UniRef90-Q5BEA0 | L L |
| UniRef90-UPI0003AC9FDF | L L Q |
| UniRef90-W4YCE0 | L V R |
| UniRef90-D5CRG3 |  |
| UniRef90-W4YMA5 | L V |
| UniRef90-A2DFF1 | L I |
| UniRef90-UPI0002654DFE | L I |
| UniRef90-W8AYI4 | L L |
| UniRef90-G3P0U7 | L 1 |
| UniRef90-W4Y291 |  |
| UniRef90-W4XE02 | L V |
| UniRef90-UPI00022CAB81 | L V |
| UniRef90_UPI00026532CB | \|L |
| UniRef90-F1SE30 | L L |
| UniRef90-UPI0000E48320 | L V |
| UniRef90-A2F107 |  |
| UniRef90-W4Z017 | L I |
| UniRef90-C0R3E9 | L V |
| UniRef90-H2LQ07 | L V |
| UniRef90-UPIO00440F668 | L L |
| UniRef90_UPI00046D8058 | L |
| UniRef90-FOXRG4 |  |
| UniRef90-F7BZU9 | LC |
| UniRef90-W4Y038 | 1 L Q |
| UniRef90-UPI00046C2259 | L L |
| UniRef90-W4XCV0 |  |
| UniRef90-A0A026W749 | LEE |
| UniRef90-A2FWE5 | L 1 |
| UniRef90-W4Z7X2 |  |
| UniRef90-H3AN78 | L I E C |
| UniRef90_UPIOO02653732 | L I |
| UniRef90-I3IYV7 |  |
| UniRef90-UPI00044067DF | L L |
| UniRef90-W4ZBS0 |  |
| UniRef90-UPI00026542E6 | $L \vee R$ |
| UniRef90-A2DBJ6 |  |
| UniRef90_W4XSX0 | L V |
| UniRef90-UPI0003EBCADD | L L Q |
| UniRef90-G9NA67 | L L |
| UniRef90-UPI00026532C9 |  |
| UniRef90-K1PAK1 |  |
| UniRef90-UPI0002A4A687 | L L |
| UniRef90-UPI000399035B | L L K |
| UniRef90-W4XEK6 |  |
| UniRef90-UPI00029D897F | L L Q |
| UniRef90-W4YPR8 | L V |
| UniRef90-A2ETR6 |  |
| UniRef90-UPI00026539A4 | L V |
| UniRef90-A2ET20 | L I |
| UniRef90-E0VLK5 | L L R V |
| UniRef90-W4XNP1 | L |
| UniRef90 ${ }^{-}$W4XYC1 | L 1 |
| UniRef90-W5N080 |  |
| UniRef90-W4Y8K1 | L 1 |
| UniRef90-W4XDH5 | 1 V |
| UniRef90-M9WW94 | L L E |
| UniRef90-W4Y8U2 | L I |
| UniRef90-HOUVL5 | L V |
| UniRef90-H3BZB0 | L L |
| UniRef90-W4ZFM7 | L |
| UniRef90-F5HIS1 | L K S V |
| UniRef90-UPIO00265263B |  |
| UniRef90-W4YFX6 | L |
| UniRef90-K7FIR6 | L L |
| UniRef90_UPIOOO2654970 |  |
| UniRef90-M3ZG44 | L L E |
| UniRef90-UPI0003EAEB21 | L L |
| UniRef90 ${ }^{-}$W4ZES8 | L |
| UniRef90-H2TE12 | L L Q C |
| UniRef90_W4Z2F0 | L I |

## UniRef90 A2E4V2

 UniRef90-UP10002652833 UniRef90-UPIO002654AE6 UniRef90-H3DQ55 UniRef90-W4XHS1 UniRef90-W4ZKM4 UniRef90-A2FH26 UniRef90-U1GU45 UniRef90-UPIOO0454642C UniRef90_W4YZ74 UniRef90-A2DV22 UniRef90 A2FLI3 UniRef90-H1XXV6 UniRef90-UPIo003F06133 UniRef90_W4ZDQ1 UniRef90-Q291V0 UniRef90-H2TE14 UniRef90-UPI00026548F2 UniRef90-TOQFV2 UniRef90-F6TRE1 UniRef90-W4XDDO UniRef90_14CCB9UniRef90_-J9NTH2 UniRef90-P53355 UniRef90-11E8Y1 UniRef90-UPIO004574176 UniRef90_W4Z939 UniRef90-W4XCB3 UniRef90-M7BUKO UniRef90-W4YJSO UniRef90 W4XDC8 UniRef90-UPIO001F2AA25 UniRef90-W4XNW2 UniRef90-W4VRE6 UniRef90-W4YEH8 UniRef90-11F819 UniRef90 W4ZD84 UniRef90-W4YVY5
UniRef90
A2FQB3 UniRef90-H2SXZ1 UniRef90-EOW2S7 UniRef90-UPIooo38711EE UniRef90-W4YY97 UniRef90 A2EE08 UniRef90-W4Y3N4 UniRef90-K1QTQ8 UniRef90-W4ZC84 UniRef90_UPIOO02653F88 UniRef90-UPI0001A64678 UniRef90 W4Y2S7 UniRef90-H2TE19 UniRef90-G1NPO3 UniRef90_11FXG8 UniRef90-11FXG7 UniRef90-11EKN9 UniRef90-UPI0003DE9172 UniRef90-Q9EP71
UniRef90-A2E187 UniRef90-UPIO00440A8E4 UniRef90-D6X1T2 UniRef90-G1K196 UniRef90-H2T7S2 UniRef90-UPIOOO3AFE9F5 UniRef90-W6UNE7 UniRef90-K9RPN0 UniRef90-A2EKT4 UniRef90-W4YG94
UniRef90 B4MF25 UniRef90-W4XZK3 UniRef90-G3THX6 UniRef90-W8B7P3 UniRef90-UPIO003338163 UniRef90-UPIO002C5684F UniRef90-UPI0002654F34 UniRef90-G1LJG88 UniRef90-W4XE96 UniRef90-H3CIC6 UniRef90-A2FP09 UniRef90 W4YP53 UniRef90-W4ZJJ3
UniRef90-W4YLGO UniRef90-Q9HCD6 UniRef90-W4Y197 UniRef90-A2F3Z7 UniRef90_UPIOOO440B500 UniRef90-W9LC02 UniRef90_A2EER1 UniRef90_G4V9T0
$101020 \quad 30$
N|INIIKDKYGHTP|LHCAVAHNYKE\|VE\|LISNGAD|IDAKD NGRTALHCAAVKNHLDVTKCLI DQGAEVNKGD DKDGVTALHAASFKGHLDVVKYLVRKGAQLDICD DNEGRTALHSAAQEGHLDVNKYLIDKEAEVDKGD NDGHTPLYVASQEGHLGVVEYLVNAGADVNKAA NVNEKDEYGKTALHYAAENNDKEIVEVLISHGANINEKD NDEHRDMGGWTALMWASYKGCSEVAELLLEKGANPNITG NKEDYDGKTALHFSAYLGHDDVTKYLISQGAEVNKGD

VNKRDNYGWTTFRLAAGNSHLDVTNYLISQGAEVNRGD AEDLDSWTALLCAARNGHFDVVQLLLDHGAEVEHRD NVNVCNKSGLTPLHLAAQEDKDNVAEVLLNHGADVNPQT NPNSVDNDGFTPMQASQEGHLDVVECLVNAGADVYKSA

NPNSVDNDGYTPGY $\square$ ASQECHLVVVECLVNAGADVKKAT GYTALHWAACRDQSHIVQTLLKYGDSVDPRT GFTPLHVAAKYGSRDVAKLLLQRRAAADSAG YDVNQPNKHGTPPLLIAAGCGNI QLLQLLIKRGSRBDVQD NPNVKKNDGWNAFMLACQNGHUQTVELLLKEKVDPNVQR NHPSVKDDEGRTAFMWAAGKGSDDVMRTMLKSDIDDNISD DDSRGYGGLTPGCVASFNGHDTVVKYVINQGSDKDMGD AQDGTGHTALHLAAKNSHLDCIKRLLQSKCPADSID NPNSVESNGYTPLYFASQKGHLVIVQCLVNAGADVKKAL RDDEGRTPL WWAAEAGHEAIVKMLVEKGDAIIEGRD NPNSVDNNGYTLLYLALKNGHLDVVECLVNTGADVNKAT NVDAKAREDQTPLHVASRIGNVDVVMLLLQHGAKVDSVT
VNKED $\square N G R T A L N S A A S S G H D D V T K Y L S Q G A D A N T R D$ GRDALHLAAQEGHLDVTKYLISQRAEVNDGD HNADTNEGDRSTALHIATMNKNKEIAEVLISHDANINKRN DNDCNQNGLNALHLASKEGHVEVVAELIKDGANVDAAT PDARALNGFTPLHGACKKNRIKVVELLLKHGASIEATT DNHDRTAGLHLAAQMGHDGVIKYLISIGGADVNGGD NTKEKDNNGLTALHSSALNNSKTAEVLISHGANINEKG VNKVDSDGCIIELHRVVQKGHDDTTKYLISQGAEVNKGA NINLCNKNGYGPLYMCQNGHDSSVQLLLSNGANVNSCM VNNRDNTGLTALHSAAQKGHLDVTKYLFSQGAEVNNRD VNEENEEGKDPLHGAAARGHVEVMEYLDQQGSDVNKVD QSRNGFTPLHLDCQDGNEKMTKLLIDSGSKVNALA ANESNNVGWTALHFAAQKGHGGVVDYLLGQGAEVAKRD GFSPLHVAAKYGKMEVASLLLHKRAAPDAAG NVNVQTMDGRTSLHLAAQRGHYRVARLLIDLESDVNVPN NISAKTRSGDNSLHMAAQGDHVDTARLLLQHGAQIDDPT NIEHRTKEGFSPLMFAALGGHTEVARLLLEKKAEVNNPS VNYRNKAGNTPLLEACSQGHVNIACLLLERNADIDAPT YKYQREDGWNAFMFACQNSHIQIVELLLKEQVDPNVQN NVEDHNENGHTPLMEAASAGHVPVAKILLEHGAGTNTHN NTNETDNNGLTALHHASYFNSKETAELLISHGVNINEKD PNKKGALG LHSAAAAGFNDVVKMLIARGTNVDVRT NTKVSRLLMMGGANVNYRT
DQDGHSPLHWAALGGNPDVCQTLIENKINPNVQD ALHTAABKDDTKSAALLLDHNADVNRT PNLMD DNGNTALHLAANDPSVPTAVLLLQHGAQUNSQN VNAVGRNGDTPLHMAAHYNHVPLVQLLLEFDAEADRPA VNEKNTDGDTALLTAVAGGHTSVVETLINKGSDVNFQD NIHEKNKYGKTALHIAAYYNSKDVAELLILHGANINEKN DKCGNTPLHRASHNGHLDVVQFLVGHGAQIDKPA DNTCNANGLDALHLAAKDGFVDICEELKKRGDNVDNAT NNGFTPLHAASTKGHLDLVAYLVGQGAQVERGD पNWQDYEGRTPLHFAVADGNVTVVDVLTSYSCNITSYD L SATKKGFTPLHDAAKYGKEKVVALLLQRGAKIDCHG INMADKYGGTALHAAALSGHVSTVKLLLENNAQVDATD NVKVSRLLI LGGANVNYRT VNTAAEDGRTPLHVASGKGHADIVKYLISQRANANSVT LDVKDKSGETALHVAARYGHADVVQLLCSFGSNPNFQD NINCVDDEGVTPLHHTCFNGNLQLTKRLIELGAKDNMVD VNKEDNAGATALHRAAFNGHLDVTTYLISQGDEVNKGN QVDAKAKDDQTPLHCAARMGHKELVKLLLDHRANPDSAT NINEKDNFGNTAFYYAVKRKSKEIVKLLISNGANDNENY VNKEGDKGRDPLDGAAARGHLKVMEYLIQQGSDVNKKD DDKGKUPLHGAADNGNIEVMEYLIQQGSDVNKAD NTNYRTEVLNNALCVGSHLGYTEMVALLLEFGANVDASD VNVGNNDVWTALHFAAQKGHDDVTKYLISKGAEVNKGN NIDEKDNDGETALHDAALNNSKETAELLELDHGANVNEKD INTHSNEFESALTLACYKGHLDMVRFLLEAGADQEHKT NDNEKDNEGETALHVLHNNRKEMVEVLGDYGANINEKD

## UniRef90 A2E4V2 UniRef90-UPIOOO2652833 UniRef90-UPIO002654AE6 UniRef90-H3DQ55

 UniRet90-W4XHS1 UniRef90 W4ZKM4 UniRef90-A2FH26 UniRef90-U1GU45 UniRef90-UPI000454642C UniRef90_W4YZ74 UniRef90-A2DV22 UniRef90-A2FLI3UniRef90 H1XXV6 UniRef90-UPIOOO3F06133 UniRef90-W4ZDQ1 UniRef90-Q291V0 UniRef90-H2TE14 UniRef90-UPI00026548F2 UniRef90_TOQFV2 UniRef90-6TRE
UniRef90_W4XDDO UniRef90-14CCB9 UniRef90-J9NTH2 UniRef90-P53355
UniRef90-l1E8Y1 UniRef90-UPIO004574176 UniRet90_W4Z939 UniRef90-W4XCB3 UniRef90-M7BUK0 UniRef90-W4YJSO UniRef90-W4XDC8
UniRef90 UPIO001 UniRef90-W4XNW2 UniRef90_WUVRE6
UniRef9O-W4YEH8 UniRef90-I1F819 UniRef90 W4ZD84 UniRef90-W4YVY5
UniRef90-A2FQB3 UniRef90-H2SXZ1 UniRef90-EOW2S7 UniRef90-UPIooo38711EE UniRet90_W4YY97 UniRet90-A2EE08 UniRef90-W4Y3N4 UniRef90-K1QTQ8 UniRef90-W4ZC84 UniRef90_UPIOOO2653F88 UniRef90-UPIO001A64678 UniRet90_W4Y2S7 UniRef90-H2TE19 UniRef90-G4VKA UniRef90-11FXG8
UniRef90 11FXG7 UniRef90-11EKN9

70 NDGWTALHFAAEKGHDDVTKYL!SQGAEVNKRDNYGWTAF MGGWTSLMWAAYRGHTELVRLLLEKGADGNAHGNYHLGAL

 MYCVLADRGDCAQVLLKAGADVNKADHSQRTAL EKGLTPTHGASYDGHVDVVKYLISQGADKDMGDNYGYTP SEKETPLMLACSSGHVSVAQVLIENEAESEASDKKKSTP KGGSNAVYWAARHGHVDTLKFLSENKCPGDVKDKSGEMAL KSGLNAFMLACQNGHTQVVELLKEQDNPNVQKNDGWNAF KYGGTARHAAALSGHVSTVKLLLEYGAQVDALDVMKHTPL


2AA25 5


## A



$$
\frac{\mathrm{E}}{\mathrm{~S}}
$$ NSGHSALHVAAKNGHPECITKLLQYKSPAENIDNSGKTAL NDGNTALHLSAFKNNKEVTELLLHBGANHDEKNNDGQTALC ENNAPVLCVHAHLGYMDMLNLLLEFGASVDSLSESGMTPL ENGTTALMLAATKGRSAFVRELLAYGADANAEDCDSWTAL

YAGRTPLQCAAYGGYINCMMVLLDNNADPNDQDKQGRTAL


## 


UniRef90 A2E4V2 UniRef90-UPIOOO2652833 UniRef90-UPIO002654AE6 UniRef90-H3DQ55 UniRef90 W4XHS1 UniRef90-W4ZKM4 UniRef90-A2FH26 UniRef90-U1GU45 UniRef90_UPIOOO454642C UniRef90-W4YZ74 UniRef90-A2DV22 UniRef90-A2FLI3 UniRef90-H1XXV6 UniRef90-UPIOOO3F06133 UniRef90-W4ZDQ1 UniRef90-Q291V0 UniRef90-H2TE14 UniRef90-UPIO0026548F2 UniRef90-TOQFV2 UniRef90-F6TRE1

UniRef90-W4XDDO UniRef90 14 CCB9 UniRef90-J9NTH2 | UniRef90-P53355 |
| :--- |
| UniRefoll | UniRef90-UPIO004574176 UniRef90-W4Z939 UniRef90-W4XCB3 UniRef90-M7BUKO UniRef90-W4YJSO UniRef90 W4XDC8 UniRet90-UPIOOCO1F2AA25 UniRef90-W4VRE6 UniRef90-W4YEH8 UniRef90-I1F819 UniRef90 W4ZD84 UniRef90 W WYVY5 UniRet90-A2FQB3 UniRef90-H2SXZ1 UniRef90-EOW2S7

UniRef90 UPIooo38 UniRef90-UPIooo38711EE UniRef90_W4YY97 UniRet90_A2EE08 UniRef90_W4Y3N4
UniRef90_K1QTQ8 UniRef90-W4YDE6 UniRef90-W4ZC84 UniRef90-UPIOOO2653F88
UniRef90- UPIOOO1A64678 UniRef90 W4Y2S7 UniRef90-H2TE19 UniRef90-G1NP03
UniRef90 G4VKA7 UniRet90-l11FKG8 UniRef90-11FXG7
UniRef90 - 11 KKN9 UniRef90-UPIO003DE9172 UniRef90_Q9EP71 UniRefofo-A2E187 UniRef90_UPIO00440A8E4 UniRef90-D6X1T2 UniRef90-G1K196 UniRef90-UPIooo3AFE9F5 UniRef90-W6UNE7 UniRef90-K9RPN0 UniRet90-A2EKT4 UniRef90-W4YG94
UniRef90_B4MF25 UniRef90_W4XZK3 UniRef90-G3THX6
UniRef90-W8B7P3 UniRef90_UPIO003338163 UniRef90-UPIOOO2C5684F UniRef90-UPIO002654F34
UniRef90 G1LJG8 UniRef90-G1LJG8
UniRet90 O54KA7 UniRef90-W4XE96 UniRef90-H3CIC6 UniRef90 A2FP09 UniRef90-W4ZJJ3 UniRef90-W4YLGO UniRef90-Q9HCD6 UniRef90 W4Y197 UniR Refo-A2F3Z7 UniRef90_UPIOOO440B500 UniRef90-W9LC02


HWATAVNRKELVETLISNDADIINAKDKDGQTPLHSVVQLN HHAVQNVHTNIVKVLLEGGARSDTGDDDGHTPLQLAIQDG HDASLKGHFDVVKYLVSKGADLWRHANDYWTPSRLAFNGG HMATQGDHLNCVQLLLRYDVPVDDVTNDYLTALHVAAHCG QTAAFIDGHLDVTKYLNGKGAEVDKGDNEGRTALHSAAQEG HVASFSGHLAVVKYLLSQIJAEKDMGDNNGFTPLYDASKKG CIAARHNSGETAEVLISHGANDNEKYEYGNTTLHFAAENN WWAAGDGHEAVVKLLLEKGVDLNPTDRYGRTALWWAAGDG VWAARKGHLDCVKHLLHMGADVNDTDKDGNTALMDASKEG HFAAQEGHLDTTKYLISQGAKVNKTNSRGATALHVAAYTG YVAADYNSKETAELLISHGTDINEKYKDGDTALHIAIJHD ILAAKQGLLETVKYLI SVKVNKKAKSNEGKTALFYAS HFAAQEGYNDICELLIAAGANDHAKNDDGATPLHVAADNG HYAVEKGDHESVDALVSEGANVNVVDKYNKTPLHYAVEKG NLAAEKGHLDVIKYLISQKAEVNKGGNNGSTALNLAAQEG LWAAGRGFKDIVELLVQRGAKVNVGDKYGTTALVWACRRG HQAAQQGHTHIVNLLLQHSASANELTVNGNTALSIDACRLG SHASQEGHGDIVTYLISQGANPNSVNNDGFTPLQMASQEG HEASREGHATAVQLLLSAGAKVNWLYNDGNTALHTASSRG HLAAQKGNYRFMKLLLTRRANWMKKDLESMTPLHLSTRHK HIASQNGHDQVVECLVDAGANVKKSSNDGHAPLYTALIKG HIAAKKNQMQIASTLLNYGAETNVTKQGVTPLHDASQEG HVAARYGHADVAQLLCSFGSNPNIQDKEEETPLHCAAWHG $M L A C Q N G H T Q I V E L L K E Q V D P N V Q N K K G H T P L M D A S S K G$ FRACEMGHREVI QTLIKGGARVDLVDQDGHSPLHWAALGG YDASYNGHDDVVECLVNAGAECNKPTSDGDTPLMVAARGG SCASQKGHLEVVEYLMNEGAGODDGNKDGLTALHIASFKD LIAVQNGHAEVCRHLLDHGADINSRDKNGRTALMLACEAG YCASRKGHLKVVEYLVDKGACDDLGDKDGLTALHRASLEG ILAA WTGYENI ARVLLEKGAVVEKQDQAGRTPLFLADWAG Yi ASKNGHFHVVECLVNAGADVKKATEQGWTPLRTASYNG HLASKYGNLKCAELLLERGAKIDVQGKNGVTPLHVASHYD HGAARNGHLDTTQYLISQGAEVNEGNNDGGTALHGAARNG ILAANAGHAMTVAILLEHDADIEAQDRTKDTGLSLACSSG HSAAFSGHDDVTKYLI RQGADVNNRENHNWTVLYLADTEG HSAAFVGHHDVTKCLIAEGAEVNKEDTVGR】ALHLAAQEG YFARLFGYEEI AELLISHGANISRK YMAAQENHLEVVQFLLDNSSSQSTATEMGSNPLHVAAHYG HLAARANQTDIIRDLLRNGAQVDARAREQQTPLHIASRGG SWACLKGHREVVHYLVEKGATTDQTDKNGRTPLDLAAFYG LCAAQEGHLDVVKYLISQGAEVNKGDKNDRTALHLVAQAG HIAAFNSSKETAEVLISHGANINVKDYDRQTALHI AAFHN Y AAFSGHDDVTKYLI DQGAEVNKGDKDGNTALHLAALGG Fi ACENGHNSTVQLLLSNGADINSCMEGGAGPLYIACENG HIAASNGHVEIVHHLISKGAHLDKCDKTERTPLFYASQKG HLAAQEGHLDTTRYLI SQGAEVNKGDNTGRTALYSAAFYQ HGAAGRGHVEVMEYLIQQGSDVNKVDDKGWTPFNAAVQYG HTACHFGQVNMVRFLLGKGADVNAITCMGSNALHLAAQQG HVGVQNGHLDIAKGLLNHGAEIDATDNDGWTPLHIAAQNG HIAAKKNQMDIGTTLLEYGADINAVTRQGDSPIHLAAQDG HLASRSGHLATTKLLMDEGADVFARGPLDRTALHLAAENG HI ACQKNRIKIVELLLKYNCLIQATTESGLTPLHVACFMG MLAAREGHLSVAQLLLNHNAKVNVPSSENNDPLTLACWKG MFAALAGHENVARLLLDHGAKLNVEDSNKDSPLTFACWKG MMACQNGHTQIVELLLKKKVDPNVQRNNGGNAFMLACQNG MEASMDGHVEVARLLLDSGAQVNMPTDSFESPLTLAACGG HYAAAQGCLQAVQLLCEHKSPINDKDLDGNDPLLVAVQNG HRAAEKNSKETAELLISHGANINEKDIIKGNTALPLSAFKN H $\ A A S L N S R D C A M M L L K S G G Q P D V A Q M D G E T C L H I A A R S G$ AYAAAAGHLSVTMLCKKRAKDDHLDRNGQCALVHAADRG LCASKEGHADIVLQLLEHNANDEHRDMGNWTSLMWATYKG HWLCNNGYGDAI KLLLGFGAFPNHMNEERYTPLDYALLGG HVASKRGNTNMVGLLLDRGSQDDAKTRDGLTPLHCAARSG MIAAGNGEVCMVKLLLQFDADTTLKDTKGCSADNYAGING HLAAQEGNSDMVGLELLNGADAEHKAKNGVTPMHLAALED QKAESKNNTEVVEFLLSHVANANQQNKKYEPAL HRASRKGHLDVVQYLIRQGGQVDKADKSGNTPLYLASHNG YMAAQENHDGCCRLLLSKGANPSLLATEDGFTPLHIAAKKN QVASRDGQLDVVQYLVGQGAQVERGNNDGLTALLAASSNG HYAAQSNFAETVNVFLKHDDDINMADKYGGTALHAAALSG HWAAKKNEMEGGQQLLQFGADPAVRSKSGFSPLHAAAQEGG HWAALGGNADVCQLLIENKIDNPNVDDAGRTPLQCAAYGG HVASGKGHSSIVIYLICQRANPNSVTNNGQTPLHLASEEG LTASARGYHDIVECLSEHGADLNASDKDGHDALHLAVRRC HKASFNGHSSCAKLLVDKGAPICIVDSQGATPLHKAAFNG HKAVQEGHLDVDTYLISQVADVNKEDNAGVTALHSAAFNG HVASKYGQVGVAELLLDRGANANAAGKNGLTPLHVAVHHN YYAAKQKSKEIVKLLISNGANDNENYYNGKSVLHIA KGN YAAAYFGHLDII KFFMSSGADMNEVDDEG\|IPFHGAASGG YASTEYGNLDIVKFFISKGVEVSKEDDKGKDPLHGAADNG HLSAANGHTDVTRYLLEHGTSPDTRCKEGYTAVHDATHNG IAAASMGYTEIVSYLLDERAQTNSFDSWGETALTAAAGRG HLAAQKGHLDFTKYLINQGADVNKGTNVGTTACQFAAFDG Hi AA WNNSKETAELLISHGANINEKNEDGETALYYUAALNN TLAACGGHVELAALLI ERGANLEEVNDEGYTPLMEAAREG SWAAEKGHMMVIQLKLETDVNVNMKDKDGRTPLHWAMEDG

## UniRef90 A2E4V2 UniRef90_UPIOOO2652833 UniRef90-UPI0002654AE6 UniRef90-H3DQ55 UniRef90_W4XHS1 UniRef90-W4ZKM4 UniRef90-A2FH26 UniRef90-U1GU45 UniRef90-UPI000454642C UniRef90-W4YZ74 UniRef90-A2DV22

 UniRef90_A2FLI3 UniRef90-H1XXV6 UniRef90-UPI0003F06133 UniRef90-W4ZDQ1 UniRef90_Q291V0 UniRef90-H2TE14 UniRef90-UPI00026548F2 UniRef90_T0QFV2 UniRef90-F6TRE1UniRef90-W4XDD0 UniRef90_14CCB9 UniRef90-J9NTH2 UniRef90-P53355
UniRef90-11E8Y1 UniRef90-UPI0004574176 UniRef90_W4Z939 UniRef90-W4XCB3 UniRef90_M7BUKO
UniRef90_W4YJSO UniRef90-W4XDC8 UniRef90_UPIO001F2AA25 UniRef90-W4XNW2 UniRef90-W4VRE6 UniRef90-W4YEH8 UniRef90-I1F819 UniRef90 W4ZD84 UniRef90-W4YVY5
UniRef90-A2FQB3 UniRef90-H2SXZ1 UniRef90_EOW2S7 UniRef90_UPI00038711EE UniRef90_W4YY97 UniRef90_A2EE08 UniRef90-W4Y3N4 UniRef90-K1QTQ8
UniRef90 W4YDF6 UniRef90-W4ZC84 UniRef90_UPI0002653F88 UniRef90-UPI0001A64678 UniRef90-W4Y2S7 UniRef90-H2TE19 UniRef90-G1NP03
UniRef90 G4VKA7 UniRef90-11FXG8 UniRef90-I1FXG7
UniRef90-I1EKN9 UniRef90_UPI0003DE9172 UniRef90-Q9EP71 UniRef90_A2E187
 HTSTIEKLVSEGADINAQSTDGQTCLHRAIK HLDIHDFLLNEA
HYKVAKLLLDKKANPNAKA LINGFTPDHDACKKNRVKVMEL HLDVNKYLI DKGAEVDKRDNEGRTALQIAAFVGHLDVTKY
 HEAVVKLLLEKGVDLNSTDSDGRTALSWAAGNGHEAVVKLL
 NKETAELLISHGANDNEKNKNGKTALLTADSHDNKETAELL

$N \square N V A T L L L N R G A S V D F K A R N D \square T P D H V A S K R G N S N M V R L$ NVDIVMLLLQHGAQI DATTKDLYTALHIAAAKEGQEEVATV DADVVQY V EKGAMVEBVDHSGMRPLDRA DGCRNTAVVVM
 HDDVTTYI SRGAEVNKGDKGGRTVLHSAAFGGHDRVTKY HDSTVQLLLSNGADINLCKKNGAGPL FDACQNGHDKIVQL
 HLEAVKCLMTEGAKQNR YDGMTPLYAAAQFGHLDIVKF HSTVIY ILLESGANPNMRNKYGWTPAHVARHQHYLNI FEA HIDVMKFLLQQHADVSKVTKRGSSALHLSAANGHADVTRY SVDLVSLLLAKNANVNVCNKSGLTPLHLAAQEDK DNVAEV HSEVVEELVSSGNNVVSDDEGLTALHLAARGGHTKTVEV H L N N I V VLLLQ HGANANAPTVRCETSLHLATRAGQTDVARL
 HTQLVELLLKKRVDPNVQRKDGLNAGMLASANGHTQIVEGB
 NKEMTEELI SHGANUDEKNNDGQTALHRAAEKNSKETAEEL NKDIMRLLLDENADSK $\square$ SSK $\square G E T P L Q V A A K S C N F E A A S M$ HMEVVKFLLDWGA
$R \square D V V H L L L E K G A E V N A H G N Y H \square S S L L W A A G R G Y T E \square T E A$ HHEVI QFMLEHNA
HDTSVELLLERGAPLLARTKNGLSPDHMAAQGDHVECVKH
 NVETVKVLLEHGADVNCKDENSATALMWAASLGYIKVVEV
$H L D V V Q F L V G H G A Q \square D K P A \square N G W T P L L C A S H D G H \square D V V Q Y$ $D V S A A T L L L Q H D P N V D \| V S K S G F T P L H D A A H Y G N V D I A S L$ HI DVVKYLVGQGAQVERGANNGLTPLLAADSNGHLDVAQY HVSTVKLLLENSAQVDATDVMKHTPLFRACEMGHKEVIQT

 H LDDVVECLVKAGADVNKATADGLTAGMRAASSLGGVVDIVKY
 HPDVMKYLISQGADVNKGDNAGRTALHKAAQVGHDDVITY NDDVVK LVSKGGSAHSTARNGYTPLHDAAKQNQMEVASC NKEVEILISNGANDNEKDNFGNTDLYYAFKQNNKEIVEGL
 Y AS IIE TLVSRGADLNDQS IDGQTCDHEAUR
KLEVCRLLLEHGADVNMADKQGRTPLMMAASEGHLGTVDF HLEVTKNLI SQGAEVNKSDNKGETTLHSAAFNGHIDDVTKY

 CTAI VELLLESGAKI NDK

| UniRef90_A2E4V2 | L I |
| :---: | :---: |
| UniRef90_UPIO002652833 |  |
| UniRef90-UPI0002654AE6 |  |
| UniRef90-H3DQ55 | LLK |
| UniRef90-W4XHS1 | \|L |
| UniRef90_W4ZKM4 |  |
| UniRef90-A2FH26 | L I |
| UniRef90-U1GU45 | L L E |
| UniRef90-UPI000454642C | L L Q |
| UniRef90-W4YZ74 | L |
| UniRef90-A2DV22 | L I |
| UniRef90-A2FLI3 |  |
| UniRef90-H1XXV6 | L I |
| UniRef90-UPI0003F06133 | L । |
| UniRef90-W4ZDQ1 | L I S V |
| UniRef90-Q291V0 | 1 L E |
| UniRef90-H2TE14 |  |
| UniRef90-UPIO0026548F2 | L I |
| UniRef90-TOQFV2 | L L |
| UniRef90-F6TRE1 | L । |
| UniRef90-W4XDD0 | \|L |
| UniRef90_14CCB9 | L L |
| UniRef90-J9NTH2 | L T K |
| UniRef90-P53355 | L A E |
| UniRef90-I1E8Y1 |  |
| UniRef90-UPI0004574176 | LME |
| UniRef90-W4Z939 |  |
| UniRef90-W4XCB3 |  |
| UniRef90-M7BUK0 | L L |
| UniRef90-W4YJS0 |  |
| UniRef90-W4XDC8 | L V |
| UniRef90-UPI0001F2AA25 | L L E |
| UniRef90-W4XNW2 | \| V V |
| UniRef90-W4VRE6 | L L E |
| UniRef90-W4YEH8 | \|L V |
| UniRef90-11F819 | L L K |
| UniRef90-W4ZD84 | L I |
| UniRef90-W4YVY5 | L I |
| UniRef90-A2FQB3 |  |
| UniRef90-H2SXZ1 | LLE |
| UniRef90-E0W2S7 |  |
| UniRef90-UPI00038711EE | L L R |
| UniRef90-W4YY97 | L I |
| UniRef90-A2EE08 |  |
| UniRef90-W4Y3N4 | L V S C |
| UniRef90-K1QTQ8 | L L |
| UniRef90-W4YDE6 | L V |
| UniRef90-W4ZC84 |  |
| UniRef90-UPI0002653F88 |  |
| UniRef90-UPI0001A64678 | LRQV |
| UniRef90-W4Y2S7 | L L E |
| UniRef90-H2TE19 | L L |
| UniRef90-G1NP03 | L L K |
| UniRef90-G4VKA7 | L L R |
| UniRef90-I1FXG8 | L L D C |
| UniRef90-11FXG7 | L L E |
| UniRef90-11EKN9 | L L |
| UniRef90-UPI0003DE9172 | L L |
| UniRef90-Q9EP71 | \|L I K |
| UniRef90-A2E187 | L |
| UniRef90-Q9GRV5 | 1 L K |
| UniRef90-UPI000440A8E4 |  |
| UniRef90-D6X1T2 | LI |
| UniRef90-G1K196 |  |
| UniRef90-H2T7S2 | $\square L Q$ |
| UniRef90-UPI0003AFE9F5 |  |
| UniRef90-W6UNE7 | L VA L |
| UniRef90-K9RPN0 | L L K |
| UniRef90-A2EKT4 |  |
| UniRef90-W4YG94 | L V |
| UniRef90-B4MF25 | L L E |
| UniRef90-W4XZK3 |  |
| UniRef90-G3THX6 | L 1 K |
| UniRef90-W8B7P3 | L L |
| UniRef90-UPI0003338163 | L L D F |
| UniRef90-UPI0002C5684F | L L E |
| UniRef90-UPI0002654F34 | L |
| UniRef90-G1LJG8 | L C E |
| UniRef90-Q54KA7 | L L K |
| UniRef90-W4XE96 | L ${ }^{\text {I }}$ |
| UniRef90-H3CIC6 | L L Q |
| UniRef90-A2FP09 |  |
| UniRef90-W4YP53 | L L |
| UniRef90-W4ZJJ3 | L |
| UniRef90-W4YLG0 |  |
| UniRef90-Q9HCD6 | L L |
| UniRef90-W4Y197 | L I |
| UniRef90-A2F3Z7 | L |
| UniRef90-UPI000440B500 | L L Q |
| UniRef90 ${ }^{\text {W }}$ W 9 LC02 | $\underline{L} \mathrm{~L}$ |
| UniRef90-A2EER1 |  |
| UniRef90_G4V9T0 | LL |

UniRef90 UPI000359C475
UniRef90-F7CGA7 UniRef90_UPIO0044382CF UniRef90_L5M768 UniRet90-A2DXB6
UniRef90-R5LY18
UniRef90 F7FPQ2
UniRef90-F7FPQ2
UniRef90-11FB17
UniRef90_UPIO00161D07D
UniRef90-H3AFV5
UniRef90-13K7A2
UniRef90-A0A023F410 UniRef90-K1R1K0 UniRef90_D6W9Q4 UniRef90-E3VYD3 UniRef90-UPIOOO3C8FE38 UniRef90-F6PPF2 UniRef90-A2DS82 UniRef90-U3JBWO UniRef90_UPIO002654899 UniRef90-UP10001CBA2F7 UniRef90-UPIO002A4980A UniRet90_W4Y130 UniRef90 ${ }^{-}$W4YKZ5
UniRef9- F6WA UniRef90-F6WA26 UniRef90_W4ZBY3 UniRef90 UPIO001757EA8 UniRef90-W2TSE1 UniRef90-BoW609 UniRef90- J9JJQ2 UniRef90_UPIo0046C125A UniRef90-UP10002654BE4 UniRe990-UPIO003D0DEC8 UniRef90_W4ZGM6 UniRef90-B4N8P4 UniRef90-G3T2PO

```
UniRet90-UPIO003DF5B40
```

UniRef90-P57078
UniRef90-L8HLZ3
UniRef90 A2F1T4
UniRef90-UPIO00298F99E
UniRef90-UPIOOO3C8C65C
UniRet90-A2FMT6
UniRef90-EOVW24
UniRef90-I1FYJ5
UniRefoto-T1DC98
UniRef90-UPIO00395D7E9
UniRef90-A2EAC9
UniRef90_W4Y6J1
UniRef90-A0A016SE45
UniRef90-W4ZIU1
UniRef90-G9MXH1
UniRef90 ${ }^{-}$W4Y8.J9
UniRef90-A0A016S1V5
UniRef90-11E7V8
UniRef90-UPI00005875D3
UniRef90-R4GJV2
UniRef90-B4JZS6
UniRef90-UPIOOO2653246
UniRef90_UPIO002651977
UniRef90_UPIOOO477C433
UniRef90-UP10002654DCD
UniRef90_G3PNS7
UniRef90-A0A026WUA7
UniRef90-W4Z615
UniRef90_E9QKG6
UniRef90-W4XEY2
UniRef90 W4YHM4
UniRef90-F6YPY1
UniRef90-A0A024M9B3
UniRef90_UPI00026534F8
UniRef90-UPIOOO29990808
UniRef90-W4XRT7
UniRef90-D7FIW5
UniRef90_UPIO0027F520E
UniRef90-G3W1Y9
UniRef90-UPIO002B49E06
UniRef90-UPIO0020358A9
UniRef90-L9JE94
Uniinefoc - B8LUTO
UniRef90-BOW563
UniRef90 G3H2S2 2
UniRef90_A2G4VO
UniRef90_D7FLD3
UniRef90-F7HUT8
UniRet90-W4Y954
UniRef90-U6HP39
UniRef90-W4XGA1
UniRef90-K3VSB6
UniRef90-L8IPS2
UniRef90-F1MQL2

ПNTSDKGETALTAAAGRGKLAVCELLLEHGAAVAQTN SDKQGRTLLMVAACEGHLSTVEFLLSKGASLTSMD AKNKDGNTPLSTATKEGHDEVVKYLI SVGANKEVKD NDELKNKLGGNALILASYKNNYDIVKSLISSGNDNARD
 TALHMAAAGGHSRIVKILLEHGANAEDEN VNRTTESGFTPLHDAAHYGNDNVATLLLSRGAAVDFTA QVDAQDKDLRTPLLEA IINNHVEVARYLVQNGACVYHDE PHAVAKNGHTPLH1AAKKNQMDIATTLLEYGAKANAES ITNAKDKD GDT
$G W T$
$G W$ GRTPLMYACJAN GETALTAAAGRGKLDVCRLLLEQGAAVSQPN
NDNEKD TYERTALRYAPENNGKEIAEVVISHGANVNEKN ANAADEDGWSPLHFAAQHGDDRTVRLLLDHQARVNAQE LINTADNHARTPLHVASSNGHRDVVQFLIGKGADKNREN ANEVDNDGRTALVLAAQEGHDEAVKVLLDFGAKDDHVS VNKESSAGGNALQLAAENGHREVTYLIGQGAEVNMGG NLINMAGYDGRSPLQAASCNGHLDVVQFLIGQGADLKRVD

## VNKAANSGNSGHTASRRGHDDVKYLITRGADWNRG

 DVDSKD GETPDHVAAKSCNFEAAQMTVNHMAQVNQRT VNHTDDDGRNALCVAASSGYSKVISTLLEYGANTDQTD IN $\square$ QSHSGFTPLYMAAQENHCSIVELLLRNGANQLLVT T PLMEHDDLVKFLLENDANVHAQT
NTDNCNRDGSTALHITASFKGHLEVVEHIVNKGAGIIGGH LNKRNCGGWTPLMYASY円GHDTIVHLLLEAGVNVNIPT VNNIEDNGMTALHASAQEGHLDVTKYLIGQGDEVNKGG VNSVDRQGRTSLDAASYMHYDIVETLLENGANVNHLDD TNASNANGLNALHLAAKDGHLEIVRELLKRGAVVDAAT SDGYTALHLAARNGHLATVKLLVEEKADVLARG QD SGMTLLHYACLLH NDEHRDKKGFTPLILAATAGHVGVVEVLLDKGGDПEAQS VAD
NDDEKDNDGKTSLHYAAQYNKKETAEVLISHGANVDEKD HKTDEMHTALMEASMDGHVEVARLLLDSGAQVNMPT PNVQRKDSWNAFMLACENGHTQUVEVLLKEPVDPNVQR ARNLTGNTALHLAASGGHAEVVKVLLEAGSSATEEN KDINNCFVLSPSFHFPELCKYLISHGANVNAIG HR $\square N G Y N P D K Q P L H L A C D N G H A D V V Q F L V E K K C K L N P C D$
 HVDSATKKGNTALHDASLAGQSLIVTILVENGANVNVQS DVNEAI HDAVVRGNLEAVESLLKLGGNINQTN HHAVHFGFDKADNLLLSIINNHKAVAEDLLDNGANIEAKD
 NPNTQKNDGWTALMLASMNSHHKVVELLLKAGADPNDKE UDATDNDGWTPLHIAAQNGHDDVVKClI QQLADVSKVT

NRNTALTLACFQGRAEVVSLLLDRKANVEHRA EGQTPLHVAARLGNDDIIMLMLQHGAQVDAAT


RDDDGTTATRHALLHGY DVVKYISKVDDDRCD HVDAKNREGESALGTASARGFVDIVECLVEHGADVEATD NPNDKDMDGRTSLHYAVNNRRUGVLNFLLNAGADVTQVT
 SNYWTPLHFALDGGHIDI AEYLLTEGSNINTCG NVNDGGTDGRNALDHAAENGHLELTKYLISQGAKVNLGH I HDFVEQGNVGAIRVLLKHHDFVDQKN ELQTPLHDASRLGNTDTVILLLQAGASPNAAT NDNDGRTSLHYASSNGHDNVVQYLVGQEAQTDKFD NATQKDVEGFTCLHDAAKSGHYAIVEHLLDTGDNI NCQD VNKGDNLGYNAFHFAAQGGHLDVTKYLISEGAEVNKGD VNARSKDGKSPLHMTAVHGRFTRSQTL QNGGEDDCVD

DGSTCLHHAAK】GNDEMVSLLSTGVDVNAQD DAQVVELLLARGANKEHRN QVNaVDHAGKTALMMAAQNGHVSAVDFLVNAKADLSLRD QVNAADNSGKTALMMAAENGQAGAVDILVSAQADLTHKD
 LEAVQRGDVGRVAALASRKARPTKLD INAKDDNGWTALHVASKSNNKEVVELLISYGVNTKTKD NPNYQDTSGCTPLHDAARNGQKKCMSKLLEYSADVNICN NVNEENGSGRDPLHGAADHGNTEDMKYLIQQGSNVNKSS LNAHDVRGCTPLMAAARAGAARAFSYLI EVHLNVDDTD NKATDDGRTALHDAASNGHDEDMKYLI SRGAVVDRAE NVESKDEDGDTPLAKAASEGHAKTTARLLKEGARIETQN




## UniRef90_F7CGA7

 UniRef90_UPI00044382CF UniRef90_L5M768 UniRef90_A2DXB6 UniRef90_R5LYI8 UniRef90-F7FPQ2 UniRef90_11FB17 UniRef90_UPI000161D07D UniRef90_H3AFV5 UniRef90_I3K7A2 UniRef90 A0A023F410 UniRef90_K1R1K0 UniRef90-D6W9Q4 UniRef90_E3VYD3 UniRef90_UPI0003C8FE38 UniRef90_F6PPF2 UniRef90_A2DS82 UniRef90_UPI0002654899 UniRef90_UPI0001CBA2F7 UniRef90_UPI0002A4980A UniRef90_W4YI30 UniRef90-W4YKZ5 UniRef90_F6WA26 UniRef90_UPI0001757EA8 UniRef90_W2TSE1 UniRef90_B0W609 UniRef90_J9JJQ2 UniRef90-UPIO0046C125A UniRef90_UPI0002654BE4 UniRef90_UPI0003D0DEC8 UniRef90_W4ZGM6UniRef90_B4N8P4
UniRef90_G3T2P0
UniRef90_UPI0003DF5B40 UniRef90_P57078
UniRef90-L8HLZ3
UniRef90_UPI000298F99E UniRef90_UPI0003C8C65C UniRef90_A2FMT6
UniRef90_E0VW24
UniRef90_I1FYJ5
UniRef90-T1DC98 UniRef90_UPI000395D7E9 UniRef90_A2EAC9 UniRef90_W4Y6J1 UniRef90_A0A016SE45 UniRef90_W4ZIU1 UniRef90_G9MXH1 UniRef90_W4Y8J9 UniRef90_A0A016S1V5 UniRef90-I1E7V8 UniRef90_UPI00005875D3 UniRef90_R4GJV2 UniRef90_B4JZS6 UniRef90_UPIO002653246 UniRef90_UPI0002651977 UniRef90_UPI000477C433 UniRef90_UPIO002654DCD UniRef90_G3PNS7 UniRef90_A0A026WUA7 UniRef90_W4Z6I5 UniRef90_E9QKG6 UniRef90-W4XEY2 UniRef90_W4YHM4 UniRef90_F6YPY1 UniRef90_A0A024M9B3 UniRef90_UPI00026534F8 UniRef90-UPI0002990808 UniRef90_W4XRT7 UniRef90_D7FIW5 UniRef90_UPI00027F520E UniRef90_G3W1Y9 UniRef90_UPI0002B49E06 UniRef90_UPI00020358A9 UniRef90_L9JE94 UniRef90_B8LU70 UniRef90_B0W563 UniRef90_G3H2S2 UniRef90_A2G4V0
UniRef90_D7FLD3 UniRef90_F7HUT8 UniRef90_W4Y954 UniRef90-U6HP39
UniRef90- W4XGA1 UniRef90_K3VSB6 UniRef90_L8IPS2
UniRef90_L8IPS2
UniRef90 F1MQL2

QCAAYGGY|INCMVVLLENNADPNDQDKEGRTA|L|HWLCNNG LVASCE GHLDDTVEFLLLKGAADS SLDKE GLSALLSWACLKG
 HWA A L L G H A Q V H L L L E RNK S GT

 GI ACH Q GHTEIVVELLLKHGADVEHANKKKHTPLAMACIGG H I A A F Y G N S DV MEML KRVPANLEFAT EYGFTPLHLAA QS G HCGARS G HE QVVVEML LD R GA P L L S K T K N G L S P L M M A T Q G D HLCA QE D RVVKVAQILGKNNATIDAVTKAGYTMLAMAACHEG YVACQNGHDSIVGLLLKNGADKNSCLKNGDSPLSTACQNG
 MCACYNSNIGAVKLLLDRGADVNCMRKDGMTALSTVCKNS HLT T R HK S P K C L A L L L K F MAEVVDTQDKNKQTALHWSAYYN
 HYAA LQ N S KE I A EVLISSHGANI NEKD DYERTALRYAPENN
 HKASFNGHLDVVVGLDGQGADLNKGNDHGRTPLNTASSNG

 $R S A A F Q G H L D V T K Y L V S Q G A E V N Q G D T G G R P A L R S A V F N G$ FAASSNGHLDVVQFLTVVQGADDNRAGYDGRSPLQAASSNG A A A A HAGNLEAVKLMLSMGADLETTDEDGQTPLGLAAHQG YDAS QE GHYDVVVQYLV NE GAEVVNKAANYGDLSLHFAA RLGG LLAATAGHEKVVEVLLNHNADIEAQSERKDTPLSLACSGG HMA ARS GNQAVL LAMMVNKGA GTNKQSKNGLSPLLEAACSRG WA A CTS GHANVVKLLLFWGCGIDCMDSEGRTVLSVAAAQG H $\square$ A A H Y GNNNV AS MLVQRGADVNFTAKHNDTPLHVAAKWG MKACRA GHLLCTVVQFLI SKGANVRRQTNNDTTPLSSLACAGG FRASQE GHLEVVVEYFVDK GA GIGDA DKY GF TALLHVAS F K G $F H C \square S T G H Q Q M V K F L L D N G A N T N C R E P Y G Y T P L M E A A A S G$


 $H D A A Q G R H A Q T V E T L L D H G A H \square N L Q$
DYARREGHHA LV DLL
DFAS QYGQLEVVKYLISVGADKDAKSKYGKTP\|IFAS QYG SLLA A S G GYVNMIK LLLNAGAEDNSRTKDGDS PLMLAAMNG
 H A A A QYNKKETA EVLI SHGANDNEKDNNGQTAFHYAARNN MEAAREGHEEMVALLLSQGANDNAQTEEQETALTLACCGG $M L A C H N G H T Q Q V Q L L K E Q V D P N V Q M K D G A T A L M L A C Q N G$
 HF A V M M V S S K S L V E L L L E H G G D I N A K N K F G Y T P C T T L A A T E N HYAVK HNNKETAE L L I S H GANI NEKDRDGGTAM HYAARYV $H V A S F K G H L D V V K Y L V K R G A D L G R L A N D Y G T P L H L A L D E S$ AVALLQQGHDRVVAVLLENDANADVTSKSGFTPLHIAABYG HLAASLGRLKAAKFVLSHEAYMDKEDKDGYSALYSAVRNG HI A ARRFYGE LVRLLLQQKGADDEARNGNGDKPLHDAVQNS HVAAFMGRTEI TDLLI TRGADLNRGT@DGSTALHFGTQNG MWAVYKCHPEVVDLLLNCGAHVNLIDEDGLTPLIVASGRG
 TI A A DKGHYKFCELLI NRGAHI DVRNKKGNTPLWLAANGG HLAASKYGKVKVANLLLQKGATIDCQGKNEVTPLHVATHYD HAACYNGNMDIVVLLVVHHKANVNEQDRDGWTPLEAAVQEG YAASQEGHYDVVQYLVNEGAKVNKAANDGNLSLHAAARGG FEAS QVGDIA KVRERI EAGVDVNARDNFGRTPLMQAARDG YAAS Q GGYLEVVVEY LVD K GADVNASAYEGGTPLYAAS Q G G H I A CK D GNLPVVVMA CSAKANLDLPNKYGRTPLHAAANNG $H \bigvee A A S N G Y F D I V K S L L K H G A M Y N I K N K E G E T P L K L S A K K G$ HTAAQEGHTDIVVFLI LQGADVSVECELGQTPLHAAAAKG $T L A C F Q G R T E V V S L L L D R K A N V E H R A K T G L T P L M E A A S G G$ SLAS F R GHLDDIVVKLVNEGVEVDKALRSRMTPLCLATEGG NSAAQNGHIDVTTKYLISQGAKVNFGSTDGRNALRHAAENG TYACRGGHLACVVMVLMQFRPNI EQA DVNGWTCLMWAVYKG H L A A K Y G NL P VA KL LL LERGTLVVDEGKNQVTP LHVAA H YN HYASSNGHLNVVQYLVGQGAQLDTLDNLSLTPLLQASRNG HWAAFS GCVDI AVLLLDANCDMHAVNDHGDS PLHIAAAREN $H D A A L G G H L D L T K Y L I D E G A E V N K E D N V G G T A L H V A A K K G$ $H L A C L L G H G A V V L L L L E N G A E P S A L D E D G K L P$
QKAACRGHPDCVVEHVLSAGFEDDTPDKFGRTCLHAAAAGG HWASFTGSAADAEVLLNARCDLHAVNYHGDTPLHDAARES MLA A MNGHTAAVVKLLDMGSDINAQETNRNTALSLACFQ G HI A A R N G L K MVVE EL L A K G A CVLLAVDEN $H V A A R N G L K V V V E E L L A K G A C V L A V D E N G H T P L A C A P N K D$ WAATNGGRFGI AR LLLEKGADVNAQGGYYGNALQAATKGG MWGSYKGHADVVSLLLQRGADVQAHGNYHLNPLLWASGRG H LAT $\square S$ CQPQCVVKVLLQ HGANE DAVDAENRSPL HWAASSG HRATENNNKEVVELLI SHAAYANAETNNGWSVLHESTENA HLACHQ GHLKVARLVLEAWAPVDDRDET GATPLHLSAAQQ G $H V A C Q N G H K T T V Q C L L D S G A D I N R P N V S G A T P L Y F A C S H G$
 HLLATRADFKNVVTELLKRGANAFRTDSSGNLPDBAVAKTD HFAASNGHLEI TKYLI S S GAKVNRAESTGFTALHLAVLDG $M L A A A M G Y A S I V R L L L E R G A D V E A R D W Q M T T P M Q H A A S S G$ HVAVE K RVR GIVELLLARR $\quad$ V S V N A A D E D Q WT A L H F A A Q N G
 UniRef90_D7FIW5 UniRef90_UPI00027F520E UniRef90_G3W1Y9 UniRef90_UPI0002B49E06 UniRef90_UPIO0020358A9 UniRef90_L9JE94 UniRef90_B8LU70 UniRef90_B0W563 UniRef90_G3H2S2 UniRef90-A2G4V0 UniRef90-D7FLD3 UniRef90_F7HUT8 UniRef90_W4Y954 UniRef90_U6HP39
UniRef90_W4XGA1 UniRef90_K3VSB6 UniRef90_L8IPS2
UniRef90_F1MQL2

| UniRef90_UPI000359C475 | $\mathrm{M} \mid \mathrm{L}$ E |
| :---: | :---: |
| UniRef90-F7CGA7 | L V E |
| UniRef90_UPI00044382CF | L L Q |
| UniRef90_L5M768 | $\underline{L} \mathrm{E}$ |
| UniRef90-A2DXB6 |  |
| UniRef90-R5LYI8 | L R K |
| UniRef90 F7FPQ2 |  |
| UniRef90_I1FB17 |  |
| UniRef90_UPI000161D07D |  |
| UniRef90_H3AFV5 | L L |
| UniRef90-I3K7A2 | $\overline{\mathrm{F}} \mathrm{L}$ |
| UniRef90-A0A023F410 | L L Q |
| UniRef90_K1R1K0 | $\underline{\mathrm{L}}$ |
| UniRef90-D6W9Q4 |  |
| UniRef90-E3VYD3 |  |
| UniRef90_UPI0003C8FE38 |  |
| UniRef90-F6PPF2 | L V |
| UniRef90_A2DS82 | L 1 |
| UniRef90-U3JBW0 |  |
| UniRef90-UPI0002654899 | \| 1 |
| UniRef90_UPI0001CBA2F7 | L L E |
| UniRef90_UPI0002A4980A | L L D M |
| UniRef90-W4YI30 | L I |
| UniRef90-W4YKZ5 |  |
| UniRef90-F6WA26 | L L |
| UniRef90-W4ZBY3 | L V |
| UniRef90_UPI0001757EA8 | L L |
| UniRef90-W2TSE1 | L L Q |
| UniRef90_B0W609 | L L E |
| UniRef90-J9JJQ2 | L Q |
| UniRef90_UPI00046C125A | L L |
| UniRef90-UPI0002654BE4 | L V |
| UniRef90_UPI0003D0DEC8 |  |
| UniRef90_W4ZGM6 | L I |
| UniRef90_B4N8P4 | L L |
| UniRef90_G3T2P0 | L V |
| UniRef90_UPI0003DF5B40 | L |
| UniRef90-P57078 |  |
| UniRef90-L8HLZ3 |  |
| UniRef90-A2F1T4 |  |
| UniRef90-UPI000298F99E | L L |
| UniRef90_UPI0003C8C65C |  |
| UniRef90-A2FMT6 | L I |
| UniRef90-E0VW24 | L L E |
| UniRef90-I1FYJ5 | L L K |
| UniRef90-T1DC98 | L V |
| UniRef90-A2FYR2 | L 1 |
| UniRef90_UPI000395D7E9 |  |
| UniRef90-A2EAC9 | L |
| UniRef90-W4Y6J1 |  |
| UniRef90-A0A016SE45 | L L K |
| UniRef90-W4ZIU1 | L I |
| UniRef90-G9MXH1 | L L N M |
| UniRef90_W4Y8J9 | L L Q |
| UniRef90_A0A016S1V5 | L L |
| UniRef90-11E7V8 | L I K |
| UniRef90_UPI00005875D3 |  |
| UniRef90-R4GJV2 | L V K |
| UniRef90_B4JZS6 | L L Q |
| UniRef90-UPI0002653246 |  |
| UniRef90-UPI0002651977 | L I |
| UniRef90_UPI000477C433 | L I E |
| UniRef90_UPI0002654DCD |  |
| UniRef90-G3PNS7 | L G K L |
| UniRef90_A0A026WUA7 | L L E M |
| UniRef90-W4Z615 |  |
| UniRef90-E9QKG6 | L V Q |
| UniRef90- W4XEY2 | L V |
| UniRef90 ${ }^{\text {W }} 4 \mathrm{YHM} 4$ | L I |
| UniRef90_F6YPY1 | L L |
| UniRef90_A0A024M9B3 | L L |
| UniRef90_UPI00026534F8 | L V |
| UniRef90-UPI0002990808 |  |
| UniRef90_W4XRT7 | 1 |
| UniRef90_D7FIW5 |  |
| UniRef90_UPI00027F520E | L V |
| UniRef90-G3W1Y9 |  |
| UniRef90-UPI0002B49E06 | L L |
| UniRef90-UPI00020358A9 |  |
| UniRef90-L9JE94 |  |
| UniRef90-B8LU70 | L L Q |
| UniRef90_B0W563 | L L K |
| UniRef90-G3H2S2 | L L Q |
| UniRef90-A2G4V0 | L I |
| UniRef90-D7FLD3 | L L Q |
| UniRef90_F7HUT8 | L I Q |
| UniRef90_W4Y954 | L |
| UniRef90_U6HP39 |  |
| UniRef90_W4XGA1 | L I |
| UniRef90_K3VSB6 |  |
| UniRef90_L8IPS2 | $\bar{L} \mathrm{~L} R$ |
| UniRef90_F1MQL2 | L L E |

UniRef90 W2PKS9 UniRef90-W4XRQ1 UniRefe90-F7FEE1 UniRef90-W5PL50 UniRef90-AZEPB2 UniRef90-B8MPN5 UniRef90-V6DKK2 UniRef90-B4PVY1 UniRef90-A2G0X6 UniRef90-UPI0004447CBD UniRef90-K7FP52 UniRef90-W4XKA7 UniRef90_UPI000383B872 UniRef90-A2DGEO UniRef90-M9WU99 UniRef90_UPIO00454A834 UniRef90-UPIO0021A562C UniRef90-A2DLP7 UniRef90-K7IPE9
UniRef90-G3TEIO
UniRef90-AODRQ5
UniRef90- EOW098
UniRef90-UPIo003C47E73 UniRef90-W2KA49 UniRef90-UP1000443BCBE UniRef90 W4Y840 UniRef90_UPIOO0443D318 UniRef90-UPI000386FD25 UniRef90-UPIO003943965 UniRef90-UPIo0034FD9B1 UniRef90-F2UKS0 UniRef90-UPI00026537B2 UniRef90-H7BXV4 UniRef90-A2FTS9 UniRef90-Q54HW1 UniRef90_Q59H18 UniRef90-UPIOOO4573726 UniRefe90-U6IDK3 UniRef90-A2FG88 UniRef90-A0CT98 UniRef90-UPIO000220EA5 UniRef90-F1RBU2

```
UniRef90 UPI00042CFBDO
```

UniRef90-A2FFF3
UniRef90-A2FCDO
UniRef90-Q5TT64
UniRef90-F6VQ54
UniRef90-W4Y794
UniRef90 ${ }^{-}$W2SXL4
UniRef90-UPI00005892FO
UniRef90-G9P7M4
UniRef90-A0A015LPN4
UniRef90-UPIO003338E5E
UniRef90-W4YBT5
UniRef90-A2EG27
UniRef90-A0A016UXW1
UniRef90-UPI0002651DD4
UniRef90_I1GJM8
UniRef90-A2DFG8
UniRef90-B2WQ30
UniRef90_O75832
UniRef90-B6QCF1
UniRef90-W4XX52
UniRef90-O15084
UniRef90-U6IPR3
UniRef90-O96NW4
UniRef90_11ER15
UniRef90_W9N739
UniRef90-J3NZD7
UniRef90-V8NHM9
UniRef90-W5KAT9
UniRef90-UPIIOOO3F076AF
UniRef90-D5U630
UniRef90-X0B7Y4
UniRef90_UPI0004625D70
UniRef90-K7GDE2
UniRef90-K91N17
UniRef90-UPI0002B4B83E
UniRef90-F7IBQ6
UniRef90-UPIO003FOD95D
UniRef90-W5UHG5
UniRet90-K1P6J8
UniRef90-E4UU94
UniRef90-F1 QMT8 8
UniRef90-V9DPV5
UniRef90-T2MHQ8
UniRef90-W4YY02
UniRef90-UPIO0038BE1B1
UniRef90-X0H9C1
UniRef90_XOH9C1
UniRef9O_UPIOOO350BFE2

1 VNKQSSS ${ }^{10}$ T ALLHFSC 20 . 40
VNKQSSSGStallhfscQnghlvivvikTlLEHDAPVDSVD GNNGVTPLYVASQKGHLEVVKYLAGQGAQUEESS
$\square N S K N E D G S T A L H L A T \square S C Q P Q C V K V L L Q H G A N E D A D D$ NKEAKTNGTPLHVAVEKRVRGIVELLLARKISVNAAD
 NPDSKDRDGWTPLFCAASEGHETVVKLLLNDGVDPNSRT NGHVKQNDATDSFRRAARSGDIKKVIHFLDSGSDDNNCN NIEVENNNGYTPLICAAWNSHFDTVKYLISDGANKNVKD YINCQDNGGWTAI TWA DEHKHKELVHLFLRKGADVNIRD
 DDEGTSPLHLAAENRKNDLTKYLI SKGAEVNRED NDNAFDKKDRRADHWAAYMGHDEVVKLLVAHGAEVTCKD N NEKTKFGETALHAAVERGYKEFAESLLSHGTNVNEKN QVNMPADSFESPLTLAACGGHVELAALLLERGANLEEVN HHANVLNHNGENAFILACKNGNTHVELLKEQVDLNVHN HHADIEDDSGLTALHYASKNNFTDGVEILLSNGANINAKN GNSALDDAAKKGNLARVQRLVTQDVN|NCRD YNQNNQND FHDFADKGRILIAEELSRRGVDRIAND VNHADKTGRTSLDLAAFQGNQNLVKLLLEKGAMDEHDD ND: NAVNSSNETLLHLAAANGHATIVEYLINKGAELDVKD INQSNAYGWTALHLACENGHLHVVELLLNRGAVMATVN DGMTPVYAATRFGHLDDVKFFISNGANVDEVN ANDKSGANAVYYAARHGHVDTLRFLHEKKCPLDVQD NVNFQDTDGFSALHHAALDGNTELISLLLEAQAAVDIKD $V N E H T E E G E S L L C L A C S A G Y Y E L A Q V L L A M H A N V E D R G$ DGAPSLVEACSDGDVGTVRKLLTEGRSVHETT NVNEQNDDGHTALHMAAHEGHTDMCSRGIKAGARVDVRD
 PNTNDDGGWTPLTSATSAGHTHMVKLLLEFGADPNTVN GLTALHDATIAGHLEAADVLLQHGANVNIQD VNDKSKDGKTPLHMTAIHGRFSRSQTIIQNGAEIDCED NVKDIK WYTPLHRACASDAPSVVRILLDNGADRNMRD HGANVKA DGQSVIHYAARKNSKEVIALLILNGLDVNTKN DRSKNTPLILAAQFGRTHNVQLLASNGVDGKN DNSGKTPLDLASHKGQADHVVQLINRGAKV A ITT AKNDNEETPI IIASKRGQIEVVQSLI SVGANKEAKD HGADVNTALHCAAKANSKETAEDLI SHGSD ISAKD $N V E H R A K T G L T P L M E A A S G G Y D D V G R V L L D K G A D V N A V P$ NRSLAEACSEGDVNAVRKLLDEGRSVNEHT
DGVTPLYAAARFGHLDVVKFFISKEDDVNEEN NQALS SAAENGHFDVLDVLFSNGADLNFD VIN NSTNDGWSALYRASHCGHLYVVKELISQGANVNSST AMAGDVEAMQLLLDQGADISAED NPS $\square$ RDKEGYNSIHYAAAYGHRQCLELLLER TNVESES VNNTTDDGATVLHLASQNGRLDVVKELISQCALVNNST HNVNAKDRNKDTALHFAAEKNFKEI ADVLISSHGDVNATN

SSGFASLRRAHSEGDLDDTRATASQRANVDATE VNKAAKKGQTPLSAASHDGHVDIVKYLISQGANPSLVD I NHQDKSGETATHVAARYGHPDVLESLI SFNANDDI QD I NARDDQGKA I HYAA QLGYDDVVECLI SQGADVNUVD HVTRGKFRRTALHIVASAHGRKGVVEQLLKKRADIHATD QVNAVNQNGCTPLHYAASKNRHEI AVMLLEGGANPDAKD INQQDKRGRTMFLEAVQAGS LAALIKY LI QEGTDDNQQD

RG凹HGMFPLHEALSGFSDCCRKLLS SGFDLDTPD
RDDRGHTPLHVAAVCGQASLDDLLVSKGAMVNATD LDAQGNDGVNAFILACKNGHMQIMELLLNEQDDPNVQK VNAQGGDYGTAIQAASSMGHQEVVRLLLDEGADVNAQR VDSKNQYGSTPLSRAAGNGHEGVVKLLLDAGADVESKN PL H LTTTQHKSPKCLALLLKYMAEVDTQD DHHQDMYQKTALMYAASKNSCDVI TLLLKHGADIHHQD NGKSALISADEDENKEIIDLLIKYGADVNKAD VNSKDAHGQTPLSLAAASGHEATVKLLLEKKVEVDSKD ANKKDKYGRTPLHYAAANCHFQCMETLVTMGANI NETD NPSIQDKEGYNTVHYAAAYGHKQCLELLLEKTSNIDEPD VNAVDYHGSTPLHDACQKGYQSVTLLLLHYKASADAQD YKNQMDED VD DK DSNGMRPL HYAAWQGRLEPVRLLLRASAAVNAAS $N \mathrm{~V} N \mathrm{~V}$, GEHRATPLDMACSSGKLDTVEVLLHGGALVNATT
IS DRAGRTALLHAA FSGHLEMVKLLLSRGANINAFD GKSLLHVVSQYQMKGLLQAILERRADINVRD TALHRAAVVGNRDAVSALI HGGCALDLQD $N$ NVVRDNEGCTPLHLAVIVGDANCVKKLIKAGANLNVRD QI NAVNVDGRTPLHLAVMAEHFAVVELLLRKNAALEAQC

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


## UniRef90_W2PKS9 UniRef90-W4XRQ1 UniRef90-F7F6E1 UniRef90 M3XNS UniRef90-W5PL50 UniRef90-A2EPB2 UniRef90 B8MP UniRef90-V6DKK2 UniRef90-B4PVY1 UniRef90-A2GOX6 UniRef90-UP10004447CBD UniRet90_K7FP52

 UniRef90_W4XKA7 UniRef90_UP1000383B872 UniRef90-A2DGEO UniRef90-M9WU99 UniRef90-UPIOOO454A834 UniRef90_UPIOOO21A562C UniRef90-A2DLP7 UniRef90-K7IPE9 Uniinefol_G3TEIO UniRef90-AODRQ5 UniRef90_EOW098 UniRef90-UP10003C47E73 UniRef90-W2KA49 UniRef90-UPIO00443BCBE UniRef90 W4Y840 UniRef90_UPIO00443D318 UniRef90_UPIO00386FD25 UniRef90-UPIOOO3943965 UniRet90-UPIoo034FD9B1 UniRef90-F2UKso UniRef90-UPIOOO26537B2 UniRef90-H7BXV4 UniRef90-A2FTS9 UniRef90-Q54HW1 UniRef90_-259H18 UniReffo-UPIOOO4573726 UniRef90_U6IDK3 UniRef90-A2FG88 UniRet90-A0CT98 UniRef90-UPIO000220EA5 UniRef90-F1RBU2 UniRef90_UPI00042CFBDO UniRef90_A2FFF3UniRef90 A2FCDO UniRef90-Q5TT64 UniRef90-F6VQ54 UniRef90-W4Y794 UniRef90_UPIOOOO5892F0 UniRef90-G9P7M4 UniRef90-A0AO15LPN4 UniRef90_UPIOOO3338E5E UniRef90 W4YBT5 UniRef90-A2EG27 UniRef90-AOA016UXW1 UniRef90-UPIO002651DD4 UniRef90_l1GJM8 UniRef90 A2DFG8 UniRef90_B2WQ30 UniRef90_O75832 UniRef90 - ${ }^{\text {B6OCF }} 1$
UniRef90
W4XX52 UniRef90-O15084 UniRef90-U6IPR3 UniReffo-O96NW4 UniRef90-I1ER15 UniRef90-W9N739 UniRef90-V8NHM9 UniRee90-W5KAT9
UniRef90-UPS0003F076AF UniRef90-D5U630 UniRef90-X0B7Y4 UniRef90_UP10004625D70 UniRef90_KGGDE2
UniRef90 K9INI7 UniRef90-UP10002B4B83E UniRef90-F7IBQ6 UniRef90-UPIo003FOD95D UniRef90-W5UHG5 UniRef90 K1P6J8 UniRef90-E4UU94
UniRef90-F1QMT8 UniRef90-M1 H 9 HO UniRef90-V9DPV5 UniRef90-T2MHQ8
UniRef90 W4YY02 UniRef90-UPI00038BE1B1 UniRef90-ХоН9С1
UniRef90_UPI000350BFE2
EDGDTPLTLAAVNGHTDCVNRLLDNGASTEFTNNNEWNPL ${ }^{80}$ NAGFTPLHVASQNGHNKVEYLAGQGAQAEESSNDGFTPL AENRSPLHWAASSGCASSVLLLCDHEAFLDVLDNDGRTP EDQWTALHFAAQNGDEGSTRLLEXKNASVHEADCEGRTPM QNGYTPLMFASAKGHLEVVKYLGSVGANKEAKTNEGHTS

## A

 QNGCTPLHYA NYGITPLHVAAYYAD LVTQNLSEGADIDKQSKAGFTPL YKGQTALHDATRNNRFDIAELLISHGANTYEKDDKGHTAL KDNWTPLHYAAESNRVDVVRYLVEKKANI NAKDKDKWTPL DEGYTPLMEAAREGHEEMVALLLGQGANLNAQTEEQETAL
 YQMNTPLHYACTYSFNKMIKYFLDRKGNPNAFNSEQNTPF KKGRTPLHRAPEKGQDDAVDVLLQAGTYYYSLDKEAKTPA CGGDSPLTTAAENGYTYLVDFLLKHGAFVDLVNFTGWTAL KTGFTPLHDAAHYENLNVAQLLLNRGANVNFTPKNGDTPL DKGMVPLHGAAARGHIEVMKYLIQQGSDVNKGDAKDWTPF NKGMRPLHYAAWQGKKEPMKMVLKAGSSVNIPSDEGQDPL


## SVNATPDHFAAYYNSDDAAELLIANGADUEVRDVDGKTPL

 DSKRTPLHYASSKGRSDVVDLLTHGAK NRKDDTGSAP KNGNTPLHAAARYGHELLINTLLITSGADTAKRGEHGMFPL K SWLTPLYYGYDAL RDGNAALHVACKGGHLETVKVLLKNGSKIV苗TGQNKMTP KNGRTPLHLAAYKGHDAVVRLLLAAGCDLDDEDDGDQTAL PNGTSPLHLAAKNGHIDILRLLLQAGDDNNRQKSG TAL




 HYEATAMHRAAAKGNLKMIHILLYYKA STMNDQDTBGNTAR K D G R T P L L E A A R A G S L L D LI

 ND GLLNGFMLACRKGHTEIVVKLLLKKQDDLDAQGNDGANAN GLYGGNA L Y A A S Y E G H K E I I R L L L L D E GA D V N A Q G G I Y D N A L

 M G Q M T A L M Y A A E N N S C D V I T L L L

 SATKSPLHLAYNGHHQALEVLLQSPVDRDIKDEKGRTAL
 LIAGQUPLHLAAQYGHYEVSEMLLQHQSNPCLVNKFGRTPL KKDRRAVHWAAYMGHMEVVRLLVSHGAEVVCKDKKGYTPL VCGCTPLHLAARNGQKRCIDKLLEYNADVNIRNNEGLTT GCGHTPLHLASKHGHVATVQLLLHNKVDVNAKDNNGMTPL KEGNTALHEVSWHGFSACVKLLVKAGADVNGKNKVGNSPL KDSFRPLHYACGFDNTDIALLLLRSGADVEASASAQNRPL ND

T P L

## UniRef90_W2PKS9 UniRef90-W4XRQ1 UniRef90 F7FGE1 UniRef90-M3XNQ5 UniRef90 WFPLL50 UniRef90-A2EPB2 UniRef90 B8MP UniRef90-V6DKK2 UniRef90-B4PVY1 UniRef90-A2GOX6 UniRef90-UP10004447CBD UniRet90_K7FP52

 UniRef90-W4XKA7UniRef90 UPIOOO38 UniRef90-A2DGE0 UniRef90-M9WU99 UniRef90-UPIOO0454A834 UniRef90_UP100021A562C UniRef90-A2DLP7 UniRef90-K7IPE9 Uniinefol_G3TEIO UniRef90-AODRQ5 UniRef90-EOW098 UniRef90-UPIo003C47E73 UniRef90-W2KA49 UniRef90-UPIO00443BCBE UniRef90-W4Y840 UniRef90_UPIO00443D318 UniRef90-UPIO00386FD25 UniRef90-UPIOOO3943965 UniRef90-UPIoo034FD9B1 UniRef90-F2UKSO UniRef90-UPIO0026537B2 UniRe990-H7BXV4 UniRef90-A2FTS9 UniRef90-Q59H18 UniRef90 UPIOOO4573726 UniRef90_U6IDK3 UniRef90-A2FG88 UniRef90-A0CT98 UniRet90-UPIOO00220EA5 UniRef90-F1RBU2 UniRef90_UP100042CFBDO UniRef90_A2FFF3
UniRef90 A2FCDO UniRef90-Q5TT64 UniRef90-F6VQ54 UniRef90- W4Y794
UniRef90 W2SXL4 UniRef90-UPIO0005892FO UniRet90_G9P7M4 UniRef90-A0AO15LPN4 UniRef90-UPIO003338E5E UniRef90 W4YBT5 UniRef90-A2EG27 UniRef90-AOA016UXW1 UniRef90_IIGJM8 UniRef90 A2DFG8 UniRef90-B2WQ30 UniRef90_O75832 UniRef90 - ${ }^{\text {B6OCF }} 1$
UniRef90
W4XX52 UniRef90-O15084 UniRef90-U6IPR3 UniReffo-O96NW4 UniRef90-I1ER15 UniRef90-W9N739 UniRef90-V8NHM9 UniRef90-W5KAT9 UniRef90 UPIOOO3F076AF UniRef90-D5U630
UniRef90 - $0 B 7 Y 4$ UniRef90-UPIOOO4625D70 UniRef90 K7GDE2 UniRef90-K91N17 UniRef90-UPIIO002B4B83E UniRe990-F7IBQ6 UniRef90-UP10003FOD95D UniRef90-W5UHG5 UniRef90 K1P6J8 UniRef90-E4UU94
UniRef90-F1QMT8 UniRef90-M1 H9H0 UniRef90-V9DPV5
UniRef90_T2MHQ8 UniRef90-W4YYO2 UniRef90-UPIIOOO38BE1B1 UniRef90_хон9C1
UniRef90_UPIO00350BFE2 HSAAGEGHVISVVALLVVKGANIINAQCPHGSYALLVVASEYG HVASQEGHLDVVEYLVSQGAHVDSCNDVDATPLHVASNKG MLCVQSGYTEMVALLLEFGANVDATSESAVSQRISPCSTG HVACQHGQEGVVRILLRRGVDAGLPGKDAWVPLHYAAWQG ICSSUEGQLEVVKYLVSVGANKEAKNNYGYTSLSAATNNG SRAASRGHKAIVKLLLNTDVDPDSKDNNGWTPLFYAASKG NFASRNGHKVIVKMLI QAYANANATDKHGYTALDHASKSG H WA SLAGQEEVINQLI LYNASVNVQSGNGFTPLYMAAQEN MWSSSGGHLHVVKYLI SIGANINAKSYFGHTALMLASMNG HDAARENHLQCVMLFLCHGADVSQKNKEGDTALALSVS HRAAAKGNLKIIQLLRYKASVNDQDSEGNTPLHLACDEE HFAVYAGCLDVTQYLIEKGAKVDHCSQNGTTPLHFAVQNG HVACYNGQDVVVNELI DSGANVNQKNEKGFTPLHFAAAST HYASANNSMETVKLLISQGMDVNETDKCGMTALHHTTYGN HYAASLGYKASAEVLIAEDLDVNAKDHERNTPLHDAADQG TLACCGGFLEVADFLIKAGADIELGCS TPLMEAAQEG FLACYHGQTRIVELLLKQK $\square \mathrm{DLHVTNNDGVNAFMVACQNG}$ QVAFNHKNGEIILLLI LAGADLNAKYCNGKTLLHDAVKNN HNASSYGHLDI AALLI KYSTVVNATDKWGFTPLHEAAQKG MLASSCGNESAAYFLLQQGAELEMKD DQGWTALFHCTSAG S 1 RLQNNYADPLELGLSNNANFNVKNKKNYTPLDYLIQEY TWAMASGKPETMLILLNK HLAAANDHDHILKRLLKEEVGRCYKNRQNFDHMAALKD QSAAEKNHKDVVELLLKNDSNDDKQARGRNTALSVACEHG NAAVRHGHLEAVKYLMSKGAKQNRC YGMTPVEAAADFG HCAAWHGYSAVARALCQAGCHVDAKNREGETPLLTASARG HLDAQHGHYDVSEMLLQHQSNPCIMDNSGKTPLDLACEFG TYACENGHLEMVRFLLEAGADQEHKTDEMHTALMEACMDG MEAASAGHVDVRLLLAHGADVNAVSGSGNTPLMYACAGG HWAATTGSVAITTLLHSHHADFNVHDKFGRTPLQYAAFHG YTAAVLGYLDIVKYLTSNAADVNEENDKGEDPLHAAASGG HVAAFLGDAEII ELLI LSGARVNAKDNMWLTPLHRAVASR HVAAENNSAETLLLLI DHGANI NVKDVLEQTALLYAAQNY HRASSNGSVATVERLLKGEANINSTNNEGDTPLHDAAEYN HLASAKGFLNTAKLLMEEGADVNAQDNEDHVPLHFCSRFG HLAALSGFSDCCRKLLSSGFDIDTPDEFGRTCLHAAAAGG HHAVYGGHDDMVRLLLMNGASVNAFDKNDRRAVHWASACN HCGACNNSKATIELLISNGADINAKNNKKETALHFAAFTN NTACAYGHFDLAKYLIDKGAKVLAKDKYGRSSLVLAARNG IIAATYGHAPLVEVLLKNHAALEAQDRTKDTALSLACTAG HEAALCGKTEVVRLLLDNGTNAHVRNTYSQTALQFTTSQA IIAA ANGQLEVVKYLISKRVDKKAAKNNEYTSLDLASGNG HCAAKANSKETAETLISHGSDTSAKDFEEYTALHVAAMNN WLAANGGHLGVVELLCSAGGDIDSQDNRKVSCLMAAFRKG MAAANGGHVELVKLLLAHDADVNSQSSTGNTALTYACAGG NAAVQYGHLEAVKYLMSEGARQNK YYGMTPLYAAARFG HLASQNGHLDVVKELISQGANVNSSTNDGSTALHLASHNG ARAAQYGDIEVVRLLLEHEADITL GEPPLFCADDYG LKASYNGHSSVVALLI QKDANVSLRDNDGWTALHNASAQG YLASQNGRLNVVKELISQGAVVNNSTNEGVTALHLASQNG HLAVDNNNKKAVEDIASHGADVNALDRDKETPLHKAARKN
 HVSSVRGNYTIVRYLCEKGSDLNAVNKEGQTPLYLATKRN HFAVGKFYYDTEKLLIFQGADINEKDFHGDTP
HAVSANGHDRVVTILLDRGAKI ETKNSYGHTALQLAMLYG HLACDEERVEEAKLLVSQGASI YDENKEEKTPLQVA LEAARAGSLELVKFFVQEGADIRLADMNGQTALLNAAHTG IAASEKGHIDVVKYLFGQGAKVKKGNNNGITPLHAASTQG HYAAANCNYQCLLEALVGSGASVNDLDERGCTPLHYAATSD HFAAGYNRLGVVEVLLKFGADVHAKDKGGLVPLHNACSYG HLACTYGHEDCVKALVYYDVELDDGNEKGDTPLH1AARWG YAASEGGQKDVVRLLLDEGADVHAQGGLCGSALGAASVEG SWAAEQGHEAVVKLLLETGADVNPKNKYGFTPLSRASADG HWAANHKDVNTJKCILDAESLLNWQDYEGRTPLHFAVADG SWACLKGQKSVVEFLVERGAQIDHADKNGRTPLDLAAFYG LIACEANRLNI MKLLLETHDDI NNVDERMQTPL
VHAIIAGNIDIVELLLMHGMSLNSAEGS DTPLMWAVIYD SWAAENGHEATVVLLLAEKVDVDSKDNYGQAPLLVAAANG HYAAAYGHRQCLELLLEKTNNVFEESDSSATPLHLAAYNG DLAAFKGHAECVEALLNQGASILVKDDTKRTPLHASVING HIAARWGYQGIIETLLQNGASTEIUQRDKETPLKCA Hi A S LGGHQDIVKILIKGGVKINPQAKDDETPLYMAAQEN HLAAKNGHREVIRQLLRAGLEINRQTKTGTALHEAADYG HHASDQGHSSVAQLLLEEGANVDAMNQYNRTPLHYSAEKG HAAASSGMDGVVKYLLDLGVEINEPNAYGNTPLHVACYNG HWLAVNGRTEVLHDLFAFVPDVDVEDAQGQTALHVACQNG ISASRYGHEALVK LLNKKVDDNAKNKNSMTPLDSAACYG HLACQNGHSQTAQVLLLGGCMPDSKNNAGETCLHFAARYN TIASRLGHTYYVSKLFYAGADFNTRDNDGSTPLHFDARWG HLAITHGNISNVTMLLEHGANTDARNAHGDRALLLASSHG WLAANGGHIDVVTLLARDYADVNATDNRGVSCLMAAFRKG HAASQTGN】DGVKYLTSQGAEQDKDTEDGWTALSLASFRG YSAAKNGHTDCVRLLLNAEAQVDAADKNGFTPLCAAAAQG FWAAMRGREFVVQMLLRTGVDVDTRDGHSRTPLSWAATYG

| UniRef90_W2PKS9 |
| :---: |
| UniRef90 W4XRQ1 |
| UniRe990-F7F6E1 |
| UniRet90-M3XNQ5 |
| UniRet90-W5PL50 |
| UniRef90-A2EPB2 |
| UniRef90_B8MPN5 |
| UniRef90_V6DKK2 |
| UniRe990_B4P |
| UniRef90-A2GOX6 |
| UniRef90-UP10004447CBD |
| UniRef90 K7FP52 |
| UniRef90_W4XKA7 |
| UniRef90 UPI000383B872 |
| UniRef90_A2DC |
| UniRef90 M9WU99 |
| UniRef90 UPI000454A834 |
| UniRef90-UPI00021A562C |
| UniRet90_A2DLP7 |
| UniRef90 K7IPE9 |
| UniRef90_G3T |
| UniRef90 A0DRQ5 |

niRet90 E0W098 UniRef90-UPIO003C47E73 UniRef90-W2KA49

RVDEAKLVVSGASTY DENKEEKTPLKVAKSGLGAVLKR HSETTKCLISHGSEVSGVCNDGASVLHFAARNGHFGITRY HGACLELLVGNGADVNMKDKNGNTPLHTAARYGHEGLTNT CKEAEFLISQGIT:NKKDDTGETALHSAVRNNSKEIJELC




ESNLAQMLLKNGATVDAKDEKGQTALGYADSQGSEKTVKV STDVVRLLVERGADVDLTNSGEASPLLIAAECGHEEVVRF HVRIIEILLDGAPIQAKTKNGLSPIHMAAQGDHMDCVKQ HLHVVYFISKGADVNEENKKGMDPLHGAATRGNDKVMEY FVDIVECLVEHKADLEATDKDGHTALHLAVRRCQVDVVRC RVGVVQLLLNSNMCADATDPNGTSPLHLAAKNGHIDIIRL HVEVARLLLDSGAQVNMPADSFESPLTLAACGGHVELAAL HEDCVRALLDNGANVEDHNENGHTPLMEAASAGHVGVAK HVDVI RALLDSGADIHAHDTEGVTALHWACSAGHGPVIEL HLEVIEYLI QHGSDVNKTDCTGGTPFNAAVRNGHGEVVKF SEEAVQVLIKHSADVNARDKNWQTPRHVAAANKAVKCAEV SDDSAKULLEHKADUNTQDSNGSAAI HYASYSDSTEMLSLC HHDIVKYLLQSDVQPHVVNDYGDTPLHDACYNGKFEVAKE NLECLNLLNSGADFNKKDFGRTPLHYAAANCNYQC LTGUDDLLCEGAEDNCRDRLQYTPLHVAAADGNMEVETQ NVK LSLLLCHGAEYDSPDSSKNTPLHYAAAYGFPECITE RKDVVEMLLAHGANKEHRNVSDYTPLSLASSSGFLDIVNL

SQEVAETLI LHGADVNAKSQNEDTADHNAAQNDSKDTAE【 HTKVVK
YVDVVKVLLESGASDEDHNENGHTP DMEAGSAGHVEVARV HLDIVEFFISNGADVNGEDDEGMDPLHGAACGGHLKVMEY FVNI VEMMLDH
HLNVVKELISQGAVVNNSSNDGWTALYRASHCGHLNVVKE DVEIVQLLLENGADVSATHQRWGTTLDAAMHQDSELII DL HLKLVKYFIEYKADIDVKSSKGYTPLMNAASKGNDETVEY HEECVQMLLEQEVSVLCRDFRGRTPLHYAAARGHATWLSE HRGVVKELSRGAAVNNSTNDDVTALHVVSQNGHDNVVKE NDEVSELFLLHNADINAKNVNNFTALHAHASYSSKETSDV
 HLDIVQFFCEQGCNDNDQDKNGNTPLHEACKDGKLSLVHT

## LDhlivent Rrea

SLEVEF LVEEGADDKQQDKNRTALDHAYAGFDELVK HLDVVRYLVGQGAQIDTCD ${ }^{\text {LHGQTPLHCSSCNGHLDVVKY }}$ DGKCLEYLLRNDANPGDRDQGYNAVHYSAAYGHRLCLQL HAKVAELLQ Q GANVNVTDLWRFTPLHEAAAKGKFDICRL YQGVDETLLQNGASTEIQNRLKETPLKCALNSKILSVME HTEI AKMLLNKKVSHNVQNKEGWNAFMLACQNGHTQIVEL HKEVVRLLLDEGANVNAQGGEYDTVLGVASYGGHKDVI QL HDAVVQLLIEDKDDVDLKGPDGGTPLSWAAEMGHETIVEL NDAVVELETSYSCNVSSYDNDFRTPLHWAA

HCDTVSALLKNGADPHTPAKGGFEPVDTAVQQGHTSTLIT KTEVVRLLLEGGVDVNIRNTYNQTALDITTSQASREI KQL HSMVAEVLCKHDAMVNASNTYLATPLHLAADKGHLDVARQ QDVVVNELIESGANVNQVNEKGFAPLHFAASRQGALCLEL HKSTVICLLDHGADVNRANHNGWTPLHFACSHGQHDSGD HEALIKMLGGSFCSVTEKNQTGDTALHVAAALNHKKAVSL HTEIVKVLLDRGAPLRSKFAVGDSPLCIGAKKNGSDVVDL HVKVVKWLVKH
HLDVKFLVNEGVEVDKA $\square$ RNGMTPLCLATEKGHLGIVEV HFECVELLI AYDAHINHAAAGGQTPLYLACKNGNKECVKL HKATVELLLSDGAEPDAQDSTGQTPLRW

| UniRef90 W2 | L I E |
| :---: | :---: |
| UniRef90_W4X |  |
| UniRef90-F7F6E1 | $\underline{\square} \mathrm{Q}$ C |
| UniRef90-M3XNQ5 | LRQ |
| UniRef90-W5PL50 |  |
| UniRef90-A2EI |  |
| UniRef90-B8M |  |
| UniRef90-V6DKK2 |  |
| UniRef90-B4PVY1 |  |
| UniRef90-A2GOX |  |
| UniRef90-UPIO004447CBD |  |
| UniRef90-K7FP! | LV |
| UniRef90-W4XK |  |
| UniRef90_UPI000383B872 |  |
| UniRef90-A2DGE0 |  |
| UniRet90-M9WU99 |  |
| UniRef90-UP1000454A8 | L L |
| UniRef90-UP100021A56 | L L |
| UniRef90-A2DLP7 |  |
| UniRef90-K71P | L L Q |
| UniRef90-G3TEIO |  |
| UniRef90 AODRO5 | 1 L |
| UniRef90-EOW098 |  |
| UniRef90-UP10003C47E73 | L L E |
| UniRef90 W2KA49 <br> UniRef90 UPI000443BCBE | $\stackrel{\text { L }}{ } \mathrm{A}$ |
| UniRef90 W4Y840 | L |
| UniRef90-UP1000443D | L |
| UniRef90_UPI000386 |  |
| UniRef90-UP10003 |  |
| UniRef90-UPIO00: |  |
| UniRef90-F2UKS0 |  |
| UniRet90_UP1000265371 |  |
| UniRef90_H7BXV4 |  |
| UniRef90-A2FTSS |  |
| UniRef90-054HW1 |  |
| UniRef90-O59H18 | 1 Q Q |
| UniRet90_UPIO0045 |  |
| UniRef90-U6IDK3 | L |
| UniRet90_A2FG88 |  |
| niRef90 A0C |  |
| RiRef90 UPIO000220EA5 |  |
| UniRef90-F1RBU2 |  |
| UniRef90 UPI00042CFBDO | E |
| UniRef9 |  |
| UniRef90_A2FCDO |  |
| UnRef90-Q5TT64 |  |
| UniRef90-F6VQ54 |  |
| UniRef90 W4Y794 | LI Q |
| UniRef90_W2SXL4 |  |
| iRef90 UPIO00058 |  |
| UniRef90-G9P7M4 UniRef90 OOA015LPN4 | L |
| UniRef90 A0A015LPN4 | L |
| UniRef90-W4YBT5 |  |
|  |  |
| UniRef90-A0A016UXW1 |  |
| UniRef90-UPIO002651DD4 |  |
| UniRef90-I1GJM8 |  |
|  |  |
| 俍ef90_B2WQ30 |  |
| niRef90 075 |  |
| UniRet90-B6QCF1 | I |
| UniRet90-W4XX52 |  |
| UniRetgo-015083 |  |
| niRet90-U61PR3 |  |
| 俍ef90_O96N |  |
| UniRef90-11ER15 |  |
| UniRef90 W9N739 |  |
| UniRef90-J3NZD7 | LL |
| UnRee9- W |  |
| UniRef90-W5KAT9 |  |
| UniRef99-UP10003F076AF |  |
| UniRet90-X0B7Y4 | 1 F |
| UniRef90-UPI0004625D70 |  |
| UniRef90-K7GD |  |
| UniRef90_K91N |  |
| UniRef90-UPIO002B4B83 |  |
| UniRef90-F7IBQ6 |  |
| niRet90-UPI0003F0D95D |  |
| niRef90_W5UHG5 |  |
| niRef90 K1P6J | L LR |
| UniRef90-E4UU94 |  |
| UniRef90-F1QMT8 | LLE |
| UniRefgo-M1H9H |  |
| UniRet90--V9DPV5 |  |
| UniRef90-2MHQ8 |  |
| UniRef90-W4YY02 ${ }^{\text {Uni }}$ |  |
|  |  |
| f90 UPI000350 |  |

## UniRef90 UPI0003C4CFAA

UniRef90-W3WVZ7
UniRef90-11FICO
UniRef90-W4YFR5
UniRef90 M4DLK4
UniRef90-A2DES4
UniRef90-A1DJG4
UniRef90 V5FE46
UniRef90-UPI0002C34CB6
UniRef90-UPI000298BE80
UniRet90_L7MMR9
UniRef90 D6X104
UniRef90-UPIO0038BB308
UniRef90-G9NKY6
UniRef90 ${ }^{-}$W5L4P0
UniRef90-F7NE53
UniRef90-A8NYT4
UniRef90_A2FS53
UniRef90_UPI0003EBF6B9
UniRef90-J9NR49
UniRef90_14CAX0
UniRef90-BOWO65
UniRef90-UP10003871F3F
UniRef90-F1P1R3
UniRef90 V9K711
UniRef90-UP100046C3CAC
UniRef90-W4XFW2
UniRef90_UP1000441AAAD
UniRef90 UPI00042AC7FC
UniRef90-C0QVJ2
UniRef90-A2FD15
UniRef90 W5DTE1
UniRef90-UPI00033175C6
UniRef90-L5MOD4
UniRef90_UPIO0042C7952
UniRef90 A2D8N4
UniRef90-11FBU8
UniRet90-E4XY49
UniRef90 A2DQZ6
UniRef90 A2ANT9 UniRef90-UPIO0034C1C3A UniRef90-UPI000454268E
UniRef90 W4Z6E9
UniRef90-T1H944
UniRef90-UPIO00393EF14
UniRef90_G6CIX5
UniRef90- TOR1T5
UniRef90_UPI000359E9B0 UniRef90_G5A9EO
UniRet90_K1PKG5
UniRef90-Q07DZ5
UniRef90-UPI0003FOBAD8 UniRef90_R7QPD2
UniRef90_N6TPE1
UniRef90-O80VM7
UniRef90-E9PUD3
UniRef90 UPI0002654DBE UniRef90-UP100032931CC
UniRef90-K1PZX7
UniRef90 S4RWR3
UniRef90_W3WKP0
UniRef90-A0A024NOZ:
UniRef90-A2FHB9
niret90-O7KTN8
UniRef90_Q5ZM55
UniRef90-W55613
UniRef90 ${ }^{-}$M1 UWV5
UniRef90-G9MEW4
UniRef90-W4XPG2
Uinef90_B4KKC1
UniRef90-K1QNR3
UniRef90-HOX533
UniRef90 W4Y4N6
UniRef90-TOPMM6
UniRef90 O5GIG6
UniRef90_l4CC26
UniRef90 K7JXQ2
UniRef90-D6WBK7 UniRef90-UP10003AEECOC UniRef90-UP10002653E4A UniRef90-W5L5C6

पNATDKDGCTP $\square$ HYACKAGNEGIVKRLIEKGADWSK DS REGHRDIVEYLVRQGAQTDTCD TNGKDDEGWAPLHSAASTGKAELVETLLTRGADVNVKN NVIEKNKSGLTALHIDASEGYSEI AVYLIFHGANINILS $V N A Q G G Y Y G N P L Q A A S Y H G D E K V Q V L L D K G A D V N A Q G$ DQRGYSPLHपATARGKHLVGKMLLRYGASLELPT

■NSKSRNGRTALHLAAMNGY@HLVKFLIDHNAVIDILT NPNVHNNKGETPLHCADFYRSTSVATKLLSFNADIEARN GFTTLMMASYFGNDAVSSLLTDPDTELDQD VNAKDQGWLTPLHRAAASRNERAVGLLLRQGAEVSARD I NAVTENGLTPLHCACHEQHNDVVQMLISQGADIRAKT N DHQAENGRTALMKAAKNGNYSVIGFLLMRGAKVNEVS PNSEDKHGQTPLSRAAFYGCEEVVRVLLANNVNLNSKD HRSVSELLLNSKFDVNAFG GRTPLWWAAGEGHKAMVELLLMKGANVEAMN DKNGWTALHWAVFEAHTDMVHLLV RETKIDSRD NESGLTPLHLAAYSGNENVVRLLLSAGVQVDATT
DQDSRTALHWACSAGHAAVADLLLGLGVPVGDKD NINAFDKKDRRALHWAAYMGHVELLSLLVSHGAEVTCKD


VNTTDRKKRTALHYACAHGQSEMVSLLLWYDCNDEARD 1 NYTNYYGMTALMYAARFNQFEAAKILLENNADISDTD LNSKSKDGRTA\|HLAV!NNNSEFTNFIISNGGDINAYD GETPMVYAALAGKVQVMRYLLDRGADPAVRD ERGANDNTPLHWAAHSGSLECLHWLLWHGADITKVT VNGKDLDGNDPLLLAVQNGHSEVCCFLLDHGADVNSRD ПNAQNNEGEAPIHHSSNYNEKEFVDLLL LNGANTNARN QKEDGWNTFTFACQNGYTQTVELLLKEKDDPNVQM VNAKDAFSNTALHFCARNGYQMVI EQLIHSNSNDDLQN NINAKDQNYMNAI QYAVENYNKEIVELLLSHNADANSKN VNSRNHYGWSALMQAARCGHVSVAHLLLDHGADVNAQN QQGADGEFPLTLAATQGHTETVKVLLGHGANANDKA

MEYLIQHGSDVNKAD
GVTALHVAAYFGQADTVRELLANGASLELGN NASAKDKKERQAVHWAASLGHDEVVKLLLSRSGDVMCKD EHDADGFTPLHMAAQEGHEDCVEMLIERGADINVPA NSKCTPAYVASTYGFVEILRLVQEKANVNTPQ N $\square$ EAHDHKGNTALSTCSANGHQKAVRLLLEYKADVNTVN

NANAQDKNGFTPLCSAAAQGHVKCAELLIAYHADDNHAA LLQAVDSDDAPRVAALI AKGLVPTKDD DYLTPLHLSASKGHHEVVDLLLTRGAFVNVTS NSKGNDDFTLLHIASQEGNLEVASYLVDKGCSI DARN AQGADGYNALHLAAKYGHPECLKQLLEASCVVDADED DEAGNSALQLAAAGGHEPAVRFLLERGABSVNSRN

GAPPLYVAS LNGHSD VT LLLNSGADDNDCM DSQGATPLHYAAQSNHAETVEVFLSHPSVHDEPD VNVPSSDHLTPLHRSIQRGYSH SDRLLEETVLQDLPD DGETALHCAVARGHVECVQSLLDAGAPVDAVD
 YVSQHGGQRSTPLIIAARNGHTKVVRLLLEHTVRFDGFD NYLNFTNEDGATALHYACQNGDRDIVKMLLENGADVNRQS HMLAERGADGTTPLLIAA LQGNAPVVGLLLDDGAGIEVKT DEDGYTPLHLAVSQKELNGLRQLLKAGANI DAVS DSYGHTPLFTASCRGHLQVVQYLVGQGAQVERGN $\square N \square K D T D C N L A L L C C A L Y G S V E N I D Y L L T H D A D P N T S D$ VNVSGEVGRTPLMMAVANGHVDTVLYLIANGADVNAKD $N I N R T G A N G F T A F Q F A A K S G N L E V C Q F L L D A G A H L D D E D$

TAFHSACTYGNDDLVKFLLDQNANDNHRG LMQAVKNSDTAAI QLCVNAGADVDCKD HNANVHAKDGKSCLHFAAENRSASVAKGLLNKGANDNDTTM

VNTKDSRWLTPLHRAVASKSQTTVRVLLKHNADDNARD EDWTALHEAAYCGQADCVKALLKAKTSVDKRT VNA QDSGGWTP 1 WAA EHKHD EVI RMLLTRGADVTLTD PLFLAVSQRKVKMVEFLLKKKANINAVD VNCTTARGYTPLFIAVLHRFQDII ILLLEHGASTTQVD DVNGNTALHCAIVIESDSMVAKLLSHGADDEVKN YRDSQGRTPLHLAASLGHTALLRTLLKAKSDPSILD NGLNDRDKKNRTALHLACANGHSEVVALLLERKCQLNLGD GLT PL HVA A YYGQADTVRELLSVPATVELGT

UniRef90 UPI0003C4CFAA UniRef90_W3WVZ7 UniRef90_I1FIC0 UniRef90_M4DLK4 UniRef90_A2DES4 UniRef90-A1DJG4 UniRef90 V5FE46 UniRef90_UPI0002C34CB6 UniRef90_UPI000298BE80 UniRef90_L7MMR9 UniRef90 D6X104 UniRef90_UPI00038BB308 UniRef90_G9NKY6 UniRef90 ${ }^{-}$W5L4P0 UniRef90_F7NE53 UniRef90_A8NYT4 UniRef90_A2FS53 UniRef90 K2RXD2 UniRef90_UPI0003EBF6B9 UniRef90_J9NR49
UniRef90_I4CAX0 UniRef90_B0W065 UniRef90_UPI0003871F3F UniRef90_F1P1R3 UniRef90_V9K7l1 UniRef90_UPIO0046C3CAC UniRef90_W4XFW2 UniRef90_UPI000441AAAD
UniRef90_A2FDI5
UniRef90_W5DTE1
UniRef90_UPI00033175C6
UniRef90_L5M0D4
UniRef90_UPI00042C7952
UniRef90_A2D8N4
UniRef90_l1FBU8
UniRef90-E4XY49
UniRef90_A2DQZ6
UniRef90_A2ANT9
UniRef90_UPI00034C1C3A
UniRef90_UPI000454268E
UniRef90_W4Z6E9
UniRef90_T1H944
UniRef90_UPI000393EF14
UniRef90_G6CIX5
UniRef90-TOR1T5
UniRef90_UPI000359E9B0
UniRef90_G5A9E0
UniRef90_K1PKG5
UniRef90_Q07DZ5
UniRef90_UPI0003F0BAD8
UniRef90_R7QPD2
UniRef90_N6TPE1
UniRef90-Q80VM7
UniRef90_E9PUD3
UniRef90-UPI0002654DBE
UniRef90_UPI00032931C0
UniRef90_K1PZX7
UniRef90_S4RWR3
UniRef90_W3WKP0
UniRef90-A0A024N0Z2
UniRef90_A2FHB9
UniRef90_Q7KTN8
UniRef90_Q5ZM55
UniRef90_W5J613
UniRef90_L2FRT1
UniRef90_M1UWV5
UniRef90-G9MEW4
UniRef90-W4XPG2
UniRef90_B4KKC1
UniRef90-13J6W9
UniRef90_K1QNR3
UniRef90-H0X533
UniRef90_W4Y4N6
UniRef90_T0PMM6
UniRef90_Q5GIG6
UniRef90_-14CC26
UniRef90_K7JXQ2
UniRef90_D6WBK7
UniRef90_UPI0003AEECOC
UniRef90_UPI0002653E4A
UniRef90_W5L5C6
UniRef90_UPI0003EC64CA
UniRef90_UPI0003EAFFD1
UniRef90_G3P3B9
UniRef90_F7H127
UniRef90_H2U7Z0
UniRef90_UPI000383AAD7
UniRef90_UPI0003C3AB81
UniRef90_UPI0003DF5DAA
 KEGMTALSCAAEAGSMELVNSLLERGANVTAGRGDGEGPV
 N G GRTAALHYA A S K G WL E I A QLL L T H GA K I N I T D K V G C T P L





CEDSTALIKAT QRQHEECVK ILLDNGADSNAVDAYQNSAL E D GDTA L MHAANNGNTNNINVLLENGADDNYTNDYGMTAL


 K K G F T P L HV A AK Y G S L D V A K LL L QRRAAAD SA GK NGLTP L
 NYGGNAFMLACRNGHEQQVKLLLKEQVDPNVQRHDGVNAP

 D D GK T AL I K A A E R D RIGGVIVEQLID K G A D V
A E G WT P SH GAVQ G GHLLEAVKYLVAEGAKQNSYD GLTTL




E G G Q T P LY LA CKNGNNE C $\square K L L L E A G T D R S D T$ T S D G WT P V P E GKS A FHLAAAMRGAAS CLLEVMLA Q GANVMSTDGA GYNALL K S GWSALDFAVLNGHAECAVTLLNHGATVNCKGRNNWTLV

 $P$ D GQTP L H I A A A L G R L Q A T KVVIL SHGAAEV NKGKDD GWTAL E D G D S P L L I A A Y K G Q A E N V V V Q $\quad$ L I LER R T A F M WA A GKG S D A V V S M L R L N LDDV NLA D K Y G G T A L


 $R N G Q T S L G I A A L K G H R D V V R L L I D R G A N I E S K N A D G W R P L$ T R GETPLHYACALAQQDTVLALLRAGSNPWARDRRRRTP L



 NEHFS P Y V L A A A N G H L D: MK Y L I S R G A E V D D K A E S $\quad$ S G F DA L


 KNWQTPLHVAAANNAVD IAGMLIMLLSTVNVTDRAGRTS L

 E D QWTVL HFAAQS GDDRAARLLLANGAVPDAREKKGWTP L
 S ENKT ALMKA DE CQE E E CAA L L L E H GADP NVT DVN GN T A L

 UniRef90-W3WVZ7 UniRef90-I1FIC0 UniRef90_W4YFR5 UniRef90_M4DLK4 UniRef90_A2DES4 UniRef90_A1DJG4 UniRef90 V5FE46 UniRef90_UPI0002C34CB6 UniRef90_UPI000298BE80 UniRef90_L7MMR9 UniRef90 D6X104 UniRef90_UPI00038BB308 UniRef90_G9NKY6 UniRef90_W5L4P0 UniRef90_F7NE53 UniRef90-A8NYT4 UniRef90_A2FS53 UniRef90 K2RXD2 UniRef90_UPI0003EBF6B9 UniRef90_J9NR49 UniRef90_I4CAX0 UniRef90_B0W065 UniRef90-UPI0003871F3F UniRef90_F1P1R3 UniRef90 V9K7l1 UniRef90_UPI00046C3CAC UniRef90_W4XFW2 UniRef90_UPI000441AAAD UniRef90_UPI00042AC7FC UniRef90_C0QVJ2 UniRef90_A2FDI5 UniRef90_W5DTE1 UniRef90_UPI00033175C6 UniRef90_L5M0D4 UniRef90_UPI00042C7952 UniRef90 A2D8N4 UniRef90-I1FBU8 UniRef90_E4XY49 UniRef90_A2DQZ6 UniRef90_A2ANT9 UniRef90_UPI00034C1C3A UniRef90_UPI000454268E UniRef90 W4Z6E9 UniRef90_T1H944 UniRef90_UPI000393EF14 UniRef90_G6CIX5 UniRef90_T0R1T5 UniRef90_UPI000359E9B0 UniRef90_G5A9E0 UniRef90_K1PKG5 UniRef90_UPI0003F0BAD8 UniRef90_R7QPD2 UniRef90_N6TPE1 UniRef90_Q80VM7 UniRef90_E9PUD3 UniRef90_UPI0002654DBE UniRef90_K1PZX7 UniRef90 S4RWR3 UniRef90_W3WKP0 UniRef90_A0A024N0Z2 UniRef90_A2FHB9 UniRef90_Q7KTN8 UniRef90_Q5ZM55 UniRef90-W5J613 UniRef90 M1 UWV5 UniRef90_G9MEW4 UniRef90-W4XPG2 UniRef90_B4KKC1 UniRef90_I3J6W9
UniRef90_K1QNR3 UniRef90- H0X533 UniRef90_W4Y4N6 UniRef90_T0PMM6 UniRef90_Q5GIG6 UniRef90_I4CC26 UniRef90_K7JXQ2
UniRef90_D6WBK7 UniRef90_UPI0003AEECOC UniRef90_UPI0002653E4A UniRef90_W5L5C6 UniRef90_UPI0003EC64CA UniRef90_G3P3B9 UniRef90_F7H127 UniRef90-H2U7Z0 UniRef90_UPI000383AAD7 UniRef90-UPI0003C3AB81
UniRef90 UPI0003DF5DAA
$D L A A L Y G R D E V V K M L L|N A H P N L D S C N T K K H T P| L|L| A A R N G$ VKAAKNGHIDVVELLLSRGVNADLANSRGFKLLAEASAKG


 QAASNRGHEKVVQMLLEKGADVNAQGGYRGNAGQAASWGG YHACRFGHSDIVVKLLERMKNPNSVTY LGETPLSDAESSG
 HWAVSGKHNDIVNYLLQQGSPVDCVDEANWTPVMIASSVG HAACQNNFSEVAKLFLQQHPSVMATTKDGNTPLQUAAEGG MF AVEHKSTQUAELLLQCGDNVSASDKCGRDALSYADAS G TYAlUWNEDVPLIRLLI KA GAQANLDRDELDGTPLSYAAEKG H HA AYSGHTEMVTLLLNKGANLSASDKKDRQAI HWAAY LGG HGACEQGH 1 H VVRLLVDKGMDVNAAAKDGTTALMTAYLNG ■EASRNGHTRVAE TLL NHDAPIVTR F $\square A C R N N Q Q D V V R V L L Q Q N L N$ LDARQNQGATSLYVACQLG SCAAEWGHEAVVELLLANGIDDNTKS\|IGRTPLSTAALNG HLAARNGQKKCMGKLLAENADVNDCNNEGLTAIHWLAVNG LWA A REGGHKAVVEVLLDEKGVNVEAKDRF GRTPDLWAVQNG IVSCCHGFPKI AELLLSSGADPNAQDKKGRTPLMLACDKG HI A A M H G H Y Q MVEVL L G Q G S E I N A S D K N G WT P L H CTACA G

 HV A A A N G A Y K C I E QLL HFASDAGHRDVVVEFLVVGQGAKVEKCARKDVTPDLHAAS QKG H T A A S DGQQEVVVKDSI ERGKDLNQQNRGGWTPLMYAS Y IG HYAVYNNNLTIASSKLAFNADTEDKAKNGYTPLILAVLEN
 YYA HLAATHGHSFTLLQVILRSGADPSVTDKRDWKPVHYAAAHG HYSKLSENA GIQSLLLSK $H V A A H Y D N Q K V A L L L L E K G A S P H A T A K N G Y T P D H \square A A K K N$ HI A A LS NELKIVVKFLLTKGANDKDLDNEGRSVLHFTAMRG $M L A C K N G H T K V V E E L L K E Q V D P N V R R Y D G G N A L M L A C K N G$
 MA AVQHGHEAVVVRLLMEWGADPN HTARTTGWS P L L M M L A A L L L G
 H H A A L N GHRDVVEVLL RNDALTNVADSK GCYP L H L A A WK G FAA A HLGHSDIVEYFISKGADINETDDKGRDPLHAAAS GG $H L A C F G G H D A V V G L L L S R A A D L Q S Q D R Y G K T G L H D A A T H G$ HMACHTGQDTVATVEVNSGASVNQPNYNGNTPDLHAAAASS HAAAHHGHHAAARAL, EGGADVTARAAHGFTPLHQAAQQG
 HLVCKE GHVDVVVKFLVENGASVDLTDDEDGESPLMFAA DYG $H L A C S K D S A E V A Q L L I E V G A N V N A V D V D K N S P L H I A A A N C$ HAAVDSGNVDSLTTL MYYGADI NQADKE GWTAABIAAASKG HLAAKYGHPQCLKQLLQASCVVDATDSSGWTALHHAAAGG QYAAHHQAKDVVRLLI QR
HYAAMTGQLNVVKFLIMQGANDNAKDLNCCTPLHLAAENG II A A QMCHTD L CRRLLLQQQGAATNDQDLDQ GRTALLMLACCEGG TVASRGGGHLGVVKLLLEAGADVDHHTPSGETALMAAVQHG HSAAYNGHYDVTKFLI SQGAEVNEVNKDDWTALHSAAHNG HLAA A K GHLLSVVQQLL K A GCDD DVQD D GDQTALLHRAA VVGG FIASRKGHDSUVEILVNNGANVNYLDEFEVTPLYLACQNG
 HEATAAGGHAKAI R RLLESSGFDVNSSRDPD GKTPDGVALSKN
 HLAARRRDVDMVRILVDYGTNVDTQNGEGQTPLHDAAAEG RAACFDGRLDDVKYLVENNANI S DANKYDNTCLMI A A YK G HLAAE H GFLLQV CDALI TNKAFIN SKS RVGRTAALHLAAMNG $H V A \square A K G H T D L T N L L L S R G A E I X P C T R R G D T P L A M A A M K G$ HVAAAAGQESVLRALVELGAPVYARDSRGATPLDDARETG QHALY I GN LLELVVRDFVEHKATTKAKGKDGNTPMHTLLCQWT HFA SL N GHLLEVVKYLVGQNA QIDKDNVNVCTPDYWASSK G HCAASSKSVECLLLLLRRRANIN G G I NRRSALHYA DDGD HYAKVSGSSE
$H D A C Y N G Q D N C V E I L L E A F G D V N L T D G K G R T P L H A A A F S D$ HLACYSGNDDLVKFLLDQNVNINHQGRDGHTGLHSACYHG LHA A L N GHLDPI KYLITKGADVNKTTGDGRTALHFAASNG ALLAA ERGHCDVI RALVSVGADVADPLPNGSLLLDAAVANV MWAYEKGHDAIVTLL
MWASLFGHEDIVVKILLLKHADVNQKTRDGDTALMAAAAKG YYAVKKRHCQI AEYLLYHGADVNVPVKVYQTRLRLAVYDM HLAA GYNRSRVVVQLLLQQHGADVDHKDK GGLVPPL HNACS Y G HLAA QHGHYDV SEMLLQHQSNPCMVDNSGKTPLDLACEFG H HAAFNGHVDMVKLLVAKGGTINAQDKKERRPLHWASYMG Y KA CE QES IDDVRRVLLA F GAAVNQRCHRGWTALHEAVRRG $H \square A A R E S Y H D C V L L F L S R G A N P E L R N K E G D T A$ D YA S E A K N R VI FELI YE Y
 HCAALVNGHDGPA GLLLMA GPDVVNVCDSKGRTPDHAAA Y S G HYAVFCQNVS LAAAKLLSYNANLEARNE DGLTPLLLGDSER $H \operatorname{L} A C F G G G H M S V V$
$H$
$H$

UniRef90 UPI0003C4CFAA UniRef90_W3WVZ7 UniRef90_I1FIC0 UniRef90_W4YFR5 UniRef90_M4DLK4 UniRef90_A2DES4 UniRef90_A1DJG4 UniRef90 V5FE46 UniRef90_UPI0002C34CB6 UniRef90_UPI000298BE80 UniRef90_L7MMR9 UniRef90 D6X104 UniRef90_UPI00038BB308 UniRef90-G9NKY6 UniRef90 ${ }^{-}$W5L4P0 UniRef90_F7NE53 UniRef90_A8NYT4 UniRef90_A2FS53 UniRef90 K2RXD2 UniRef90_UPI0003EBF6B9 UniRef90_J9NR49 UniRef90_14CAX0 UniRef90 B0W065 UniRef90_UPI0003871F3F UniRef90_F1P1R3 UniRef90_V9K7I1 UniRef90_UPI00046C3CAC UniRef90_W4XFW2 UniRef90_UPI000441AAAD UniRef90_UPI00042AC7FC UniRef90_C0QVJ2
UniRef90-A2FDI5
UniRef90_W5DTE1 UniRef90_UPI00033175C6 UniRef90_L5M0D4 UniRef90_UPI00042C7952 UniRef90 A2D8N4 UniRef90-I1FBU8 UniRef90-E4XY49 UniRef90 A2DQZ6 UniRef90-A2ANT9 UniRef90_UPI00034C1C3A UniRef90_UPI000454268E UniRef90 W4Z6E9 UniRef90_T1H944 UniRef90_UPI000393EF14 UniRef90_G6CIX5 UniRef90-T0R1T5 UniRef90_UPIO00359E9B0 UniRef90_G5A9E0 UniRef90_K1PKG5 UniRef90_Q07DZ5 UniRef90_UPI0003F0BAD8 UniRef90_R7QPD2 UniRef90_Q80VM7 UniRef90-E9PUD3 UniRef90_UPI0002654DBE UniRef90_UPI00032931C0 UniRef90_K1PZX7 UniRef90-S4RWR3 UniRef90_W3WKP0 UniRef90_A0A024N0Z2 UniRef90_A2FHB9 UniRef90_Q7KTN8 UniRef90_Q5ZM55 UniRef90_W5J613 UniRef90_L2FRT1 UniRef90_M1UWV5
UniRef90_G9MEW4 UniRef90_G9MEW4
UniRef90-W4XPG2 UniRef90_B4KKC1 UniRef90 I3J6W9 UniRef90_K1QNR3 UniRef90_H0X533 UniRef90_W4Y4N6 UniRef90-TOPMM6
UniRef90 Q5GIG6 UniRef90-14CC26 UniRef90_K7JXQ2 UniRef90_D6WBK7 UniRef90_UPI0003AEEC0C UniRef90_UPI0002653E4A UniRef90_W5L5C6 UniRef90_UPI0003EC64CA UniRef90_UPI0003EAFFD1 UniRef90_G3P3B9 UniRef90_F7H127
UniRef90 H2U7Z0 UniRef90-UPI000383AAD7 UniRef90_UPI0003C3AB81 UniRef90_UPI0003DF5DAA

HKA|VV|HVLLDAGMDSNYQTEKG SALLHEAADFGKTDVVQI. $H L D I V K L M V E K G A N V E R D N E F A F T P L S S A A K F G H L D I V K F$ KKNAAM A IVNSKNHW $H L D V V E Y L V G Q G A Q I E T L N K Y D E T P L H C S S R N G H L D V V K Y$ DRQVAFLLVRHGADVDVEDKEGYTVLGRAS R Y E I ME ELL S N GA IVVNEK DND GK TAALYYA ELNHDKNAVD【 H GKIV VQMLLEK GADVNA QGGYF GNALQAASEQGDER V QM H GHIVEL AF LSSV INLLEHHADVHARNKVGWTPAHLAALKGNMADLRV

 ST
HEEVVMS LLLLKNRANDEARDVH GQKP LIIIAANGHQWA VVRIL $H$ LE IVKVVLVSHNADVA CRDKRGYTPL HVAA DNGHDDVVK Y HRNIAAEFLIREGADSHLADKEGRT』LHAAACSGVPGLVE
Y HE LVQLLLSYNADPN $\square P$ FNDGTSPDYDACQHGHTNVVKI HKTVVELLLAKGVDPDSKDNDGWTPLLLAMTGQHNDIIAL RTELLHDLVQHVSNVDVEDAMGQTALVVACQNGHKTTVLC HKA IV E LLLEEKGANVVEVKDRTNR HSELVVELLL SHGAMPATETQDGYTALLGACAFGQTH\|VKLL HLDVVKLLVEAGGSPKSETNYGCAPIWWFAAAEGHNDVLRY
 $N \mathrm{~L}$ K M L Q L L R H N A S V N WQ D S E G N T P L H L A C DE E R V D E A K L


 N K D
 SLKCMKLLI EAGADLNARGNFGPTPLTQAVDDGSTDFVKL $R L G C L Q L L V K W G C G I E D V D H N G N L P V H L A A M E G H L H C F K F$
QMQDAST LLNYGAETNVVTKQGVTPLHLAS QEGHTDMVTL NDCVCKYFISLNFDKNI KDYNGRTPIHYATKS GSTDLLEY

 $K L N V A Q Q L V E K G A N P D H L S V L E K T A F E V A L D R K Y R D L A E Y$ CHSVVR L KA VGA
DAQIVRLLIHQGPSTNAKNNDNETALHCAAQYGHTEVVKA
 H YQMVEVL L GQ GA EI NATDKNGWTPDHYAARA GCFDVVVKL SVLCLE L LVNNGADVNVQNKKGMSPLHMAAMHGRFTGSQQ HTLI I QLLLKNNADPNALSAS GHTACADADRDGY DSAVEA NAALVQLLLLPGVDAKKKNKANETPLLLA $\quad \mathrm{L}$ K RMHRR I A
 R S EVI RTLLKNGSHLDMCNGDRKTAMQL


 HEAVVRLLMEWGA DPNHTARTGWSP LMLAAALLGK L NV AQQ
 H T S TVV QVL L N R G A T $V$ V $N$ N G K R N K E S P L HVVDAV S E L L R W D T F V $\operatorname{H}$ ESS D K D Y S S S S H L K K E A A L R Y G N L A A T K W
 DEALLKYFYGVRASAS DADNQDRTPMHLAAENGHAHVIE
 N E GLLAH S L I Q K GA TI D T R D A D G W T P L F HA T S R G C G P I M D L Q T Q A
YYEMLQ MLIS PE $\square D$ D N A Q N D D N LTT P LDDLA VS R $H V D V V E Y G I G Q G A Q V E R G N N S G B T P V L V A S R N G H L G V V E Y$

QCESMQMLLNHGALVNHCDTTGKSPDMLAAANGHAAAVEL H I R L VQ FL L D NGADMNLVEKDEQTCLMWAYEKEH HLEI MK YL I S R GVEVD K A E S T G Y T A L H F A V L K G NLD S I K Y


HASIIRTVIRYGADVNAKDKNNNSALLHATLKGFPEVAKM NKEMVELLLNWNANI NAEDSDDETPLLDATBSPRYE




HS S H T K L L L S WGMDPNATVNS LSTALHVAAEKGHNRVVRQ F D E LI L Q L L D Y
$N D A G L Q L V I D Q E A E D N S V D Q R G C S P L M V A A E R G Q T S A V E F$ $K$ Q Q MV EFFLVKKEA DI HAVDKMKRTALILADVNECTDVVGLL $H F Q M V E D L L G Q G A E I N A T D K N G W T P L H C A S K A G H L E V V K L$

| UniRef90_UPI0003C4CFAA | L L |
| :---: | :---: |
| UniRef90-W3WVZ7 | L V E |
| UniRef90-11FIC0 |  |
| UniRef90-W4YFR5 | L I R |
| UniRef90-M4DLK4 |  |
| UniRef90-A2DES4 | L |
| UniRef90-A1DJG4 | L L E |
| UniRef90-V5FE46 |  |
| UniRef90-UPI0002C34CB6 | LVK |
| UniRef90_UPI000298BE80 | \|L L R |
| UniRef90-L7MMR9 | L L |
| UniRef90-D6X104 |  |
| UniRef90_UPI00038BB308 |  |
| UniRef90-G9NKY6 | L |
| UniRef90-W5L4P0 | L L R L |
| UniRef90-F7NE53 |  |
| UniRef90-A8NYT4 |  |
| UniRef90-A2FS53 | L L E |
| UniRef90-K2RXD2 |  |
| UniRef90_UPI0003EBF6B9 | L L E |
| UniRef90-J9NR49 |  |
| UniRef90-I4CAX0 | L |
| UniRef90-B0W065 |  |
| UniRef90-UPI0003871F3F | L I Q |
| UniRef90-F1P1R3 | L V |
| UniRef90-V9K711 | \| I Q |
| UniRef90_UPI00046C3CAC | L L K |
| UniRef90-W4XFW2 | L V |
| UniRef90-UPI000441AAAD | L L K |
| UniRef90-UPI00042AC7FC | $\underline{L}$ Q |
| UniRef90-C0QVJ2 |  |
| UniRef90-A2FDI5 | L |
| UniRef90-W5DTE1 | L L E |
| UniRef90-UPI00033175C6 | L L |
| UniRef90-L5M0D4 |  |
| UniRef90_UPI00042C7952 | LL |
| UniRef90-A2D8N4 | \|L L S $\square$ |
| UniRef90-11FBU8 | L |
| UniRef90-E4XY49 |  |
| UniRef90-A2DQZ6 | L |
| UniRef90_A2ANT9 |  |
| UniRef90_UPI00034C1C3A |  |
| UniRef90_UPI000454268E | L L E |
| UniRef90-W4Z6E9 |  |
| UniRef90-T1H944 | L VE |
| UniRef90-UPI000393EF14 | L । Q |
| UniRef90-G6CIX5 | $L / \mathrm{P}$ PL |
| UniRef90-T0R1T5 |  |
| UniRef90-UPI000359E9B0 | L L |
| UniRef90-G5A9E0 | L L E |
| UniRef90-K1PKG5 |  |
| UniRef90-_Q07DZ5 | L L E |
| UniRef90-UPI0003F0BAD8 | $\underline{L} \mathrm{Q}$ |
| UniRef90_R7QPD2 |  |
| UniRef90-N6TPE1 |  |
| UniRef90_Q80VM7 | L HE |
| UniRef90-E9PUD3 | L VE |
| UniRef90-UPI0002654DBE | L |
| UniRef90-UPI00032931C0 | L V K |
| UniRef90-K1PZX7 | L L K |
| UniRef90-S4RWR3 | L 1 R |
| UniRef90-W3WKP0 | L M |
| UniRef90-A0A024N0Z2 | L A K M |
| UniRef90_A2FHB9 |  |
| UniRef90-Q7KTN8 |  |
| UniRef90-Q5ZM55 | \|L V K |
| UniRef90-W5J613 | L L E L |
| UniRef90-L2FRT1 | L L |
| UniRef90-M1UWV5 |  |
| UniRef90-G9MEW4 |  |
| UniRef90_W4XPG2 | L V |
| UniRef90-B4KKC1 | $\underline{L}$ |
| UniRef90_13J6W9 |  |
| UniRef90-K1QNR3 | L L E |
| UniRef90-H0X533 |  |
| UniRef90-W4Y4N6 | L V |
| UniRef90_T0PMM6 | L L |
| UniRef90-Q5GIG6 |  |
| UniRef90-I4CC26 | L L |
| UniRef90-K7JXQ2 |  |
| UniRef90-D6WBK7 | LL |
| UniRef90_UPI0003AEEC0C | L L Q |
| UniRef90_UPI0002653E4A | L L E |
| UniRef90-W5L5C6 | L I Q |
| UniRef90-UPI0003EC64CA |  |
| UniRef90-UPI0003EAFFD1 |  |
| UniRef90-G3P3B9 | L V K |
| UniRef90-F7H127 |  |
| UniRef90-H2U7Z0 | L L |
| UniRef90-UPI000383AAD7 | L L |
| UniRef90-UPI0003C3AB81 | L C E |
| UniRef90 UPI0003DF5DAA |  |

UniRef90 J9FOG2
UniRef90-H2YS47 UniRef90-A0A034W3LO UniRef90-H3C7N2 UniRef90-AOAO23EYY8 UniRef90-K7JHK3 UniRef90-UPI000258D89E UniRef90-Q08DV6 UniRef90-Q4WAX2 UniRef90_UPIO0026589D4 UniRef90-M3ZN84 UniRef90-Q5ASG3
UniRef90-M7AG15
UniRef90-W2QD38
UniRef90- $\mathrm{S8AlH} 5$
UniRef90-UP10003EA991C UniRef90-H2TPG9 UniRef90 F4X5F2 UniRef90-UPIO0021A4A69 UniRef90-W3WVV4 UniRef90-B3ER16 UniRef90 UPIO002653CF1 UniRef90-UPIO0021A3D14 UniRef90-UPI0003F1B7F5 UniRef90-K7J9S0 UniRef90-B3ETD7 UniRef90-F4WY25 UniRef90-MOR4E6 UniRet90-Q4RG97 UniRef90-F2UEH4
UniRef90-G1PTX8
UniRef90-UPI000265418C UniRef90-A0A044U730 UniRef90-W4ZIY2 UniRef90- F1KPG7 UniRef90-UP10003C138CA UniRef90-W5NHG9 UniRef90-A2G880 UniRef90-V2WM45 UniRef90-B4N003 UniRef90 B2VUXO UniRef90-UPI00042C5784 UniRef90-M7ZSE7 UniRef90-G1XK45 UniRef90-UPI0003288412 UniRet90_E1C571 UniRef90-W4HB59
UniRef90- W8BAK3 UniRef90-UPIOO00586048 UniRet90-T1K5Q8 UniRef90-N4VAY6 UniRef90 UPI0001584BA8 UniRef90_UPIO0035A0141 UniRef90-UPIo001D53BAF UniRef90-W9MYY9 UniRef90-UPI0003C911B9 UniRef90-L7MG38
UniRef90-B9SI89
UniRef90- U4L8Z9
UniRef90-UPIO003290AED UniRef90-TOMDM5 UniRef90-A2CG77 UniRef90-H2UMEO UniRef90-LODA78 UniRef90 UPIO0029DA2A4 UniRef90-A2DWE5 UniRef90-W9NIC3 UniRef90-E7FFW3 UniRef90-UPIIOOO38COA24 UniRef90-K3VDL7 UniRef90-B2ACS9
UniRet90_UPIO002658E61
UniRef90-UPIOOO34FC1AD
UniRef90_W9JD24
UniRef90-U4L3E3
UniRef90-V5HJW5
UniRef90-V6DHLO
UniRef90-V5GQ39
UniRef90-W3WLT1
UniRef90-D6WRB1
UniRef90-H2LLO1
UniRef90-A2DYX5
UniRef90-11MWP6
UniRef90-UPIOOO3DODCDC
UniRef90-H2U8A0
UniRef90 A2ERN6
UniRef90-D3J162
UniRef90_D3J162
UniRefon_UPIOOO
UniRef90_UP10003АВС8А2
 VNVQNKEGITALHITAAAMGDIPIIETLYTYKADPGLLD
VNAKDSMW■TDHRAVASRSEEAVRVLIHHSADVNARD

VNAPDAEGHTPLHLAVIAGDTQLVAVLLANGADVNAKD PNATTDEETPLFLAVENGQDDVLRLLLRYGANVNSHS HARSHTGWTPLHWAANEGHVGITTALLDAGARDQIQN DEEGRTPLHMACGNGFVDSARCLILNGAKDNQLD VNAADKSGQTPLDDATKQNDLEMNVLMEHGAEDDSVT
 NDEATDKTGWTPLTFAVFEGKPEHAELLINKGANIFHKD YTNAKNNANETPFLQAAQYGHTGVVRILLEEGTDPTMRN VNARDRSWQTPLHVAAANNAVQCI ELLMPHLLNDNVSD PNVQRNDGCNAFILACQQGHTQIVELLLKEQVDPNVPM HDDEGSSEMTKLHFAVHDGNDPLVESLVREGAS SNRD TPLHTAAKSGHTELLLKLIEKGAELNAKD NPNARDSTGWTALMLAALNNHVGVVRLLLNGGAVREMRD VNAKASQGQTALMLAVSHGRIDMVKGLLACGADVNDQD DKLTPLSUACKSNKKDMVEMLINRGADVNA LHSHGADVRSVLYQALIIKNLPGVHALISNGQDINVAD VRARAVADGDLEMVRYLLENGLSVNVTN NVHARDDGGLIPLHNACSFGHAEVVSLLLCHGADPNARD
$\square N V F D S E N K S P G K A V Q C K N E T C A A M L L D Q G A D P N I M D$
$D G M T P G A A B Y G N F D V V K Y I V K G A D V N K D$
NVHSRDDGGLIPLHNACSFGHAEVVVILLRSGGDANARD RRGADLNTPLMEAAQEGHLETVQFILANGLPVDATT DKKERQSLHWAAF回GHLDVVLLVSRGADAMCKD GGDLNTPLHWATRQGHLSMVVQLLKYGADPSLID NPNVQGGDYGTALHFACKSQDSDICKLLLDSHSYUNVID PNSRRLTGTTPMFFAAQGGHLEVVRLLIKAGAGVDTPS LMRAAERGHVAI AEYFLNSGAKPDGTP VNLKNCQGETALQDASQYGNKNVVKLLLEKGDDVDVKN WRGPNVNCTD
HGSDGDTPDHNAAEHGHCEDVRLLLSKGVDVDVIN
 TPLLIAARHGHLEVVEYLLDHGARVEEVN DDRKTAEGRAALYAAKGHVEVKSLEHGGDUTNR HINTGGEKRSALHFADDRNAVECVETLLKYGADPNTPQ MEYLIQQGSDVNRED
GWT P LM ACSAGNDEVVKELIGSGADINRPN DNEGRTALLLSA NSNEG1MGELLSKAFHVCKMS VNVASASNQTPLHLAVKAGHLECCQLLLRHGANVLAKG YHVRGEDLDK HRAAWWGKVDLIVML RDTDVNKTD NVLARNKAQTPLHFSVDSEDTEITELLLAHAANPMAAD RNKAGNTALHLACQNSHSQSTRLLLGGSRADLKN RDNMGKTPLHLAAAVGNSAVLSMLEHGPDGEGAD WRGPNVNGVD QADYKDKDGRTPLSVAAEYGHET VKLLLDRKVQADSRD DPEGKSAFHLAAMRGAAGCLEVMLAQGADVMSRD NTNAVDKQQRTPRMEACEFGRLKVAGLLENSHLCVDPCD
 NVADNKGYFPI HLAAWKGDVEIVKILI HHGPSVNEQN VNKSDNNNMTPLLIAAAFRAYSFI CKLI ELDTNVNVQD NVNAQGGLYSTALQAASYRGHQEIIRLLLNEGADVNAQG PNARDNWNYTPLHEAADKGKDDVCIVLLQHGADVNCHA YDVNDKDYDGWTPLHAAAHWGKEEACRILVDNLCDMEMVN LDAKTTKLHTPLWRAARKGHTEVATVLLDHGATLTMAD VNVRDNDCSTPLHASSEGFVRVVRLLLQNQADVNVRD HGANVNGSHGWNSLHQASFQENVEIIKLLLKKGADKECQD NANSEDTDGRTPLFYAAKNGHRTVAMALLSHGVDPEHKD NTEEVNDEGYTPLSAAEKGEHVRLLDRDND NVNEENNQNSNALMLAASEGHEEMVKLLLSTNGADDINGKD VNRSVENQETIIFGAALGGQLDTI EYLVDRDVDINARD KEFGTALQVACLKGYTTIIDRLLNQGARTNVCG QVNSSNQEGATPLMIAAVSGQLEVVQLMVEKNADVDKQD INSKTNTNANCIYLASLHGHLDTVKYLISCGVDPNERN

 QPHAVNDYGDTPLHLAAYNGKFEVAKEIIQSGTSLTKEN

## UniRef90 J9F0G2 UniRef90－H2YS47 UniRef90－A0A034W3L0 UniRef90＿H3C7N2 UniRef90＿F6WW31 UniRef90＿A0A023EYY8 UniRef90＿K7JHK3 UniRef90＿UPI000258D89E

UniRef90＿Q08DV6 UniRef90＿Q4WAX2 UniRef90＿UPI00026589D4 UniRef90＿M3ZN84 UniRef90＿Q5ASG3 UniRef90－M7AG15 UniRef90＿W2QD38 UniRef90＿S8AIH5 UniRef90＿UPI0003EA991C UniRef90＿H2TPG9 UniRef90＿F4X5F2 UniRef90－UPI00021A4A69 UniRef90＿W3WVV4 UniRef90＿B3ER16 UniRef90＿UPI0002653CF1 UniRef90＿UPI00021A3D14
UniRef90－UPI0003F1B7F5 UniRef90＿UPIO003
UniRef90＿K7J9S0 UniRef90＿B3ETD7 UniRef90＿F4WY25 UniRef90＿M0R4E6 UniRef90＿Q4RG97 UniRef90＿F2UEH4
UniRef90 G1PTX8 UniRef90＿G1PTX8 UniRef90＿UPI000265418C UniRef90＿A0A044U730 UniRef90＿W4ZIY2 UniRef90－F1KPG7 UniRef90＿UPI0003C138CA UniRef90＿W5NHG9
UniRef90－A2G880 UniRef90＿V2WM45 UniRef90＿B4N003 UniRef90－B2VUX0 UniRef90＿U1HRP4
UniRef90＿UPI00042C5784 UniRef90＿M7ZSE7 UniRef90＿G1XK45 UniRef90＿UPI0003288412 UniRef90＿E1C571 UniRef90－W4HB59 UniRef90＿UPI0000586048 UniRef90－T1K5Q8 UniRef90＿N4VAY6 UniRef90＿UPI0001584BA8 UniRef90＿UPI00035A0141 UniRef90＿UPI0001D53BAF UniRef90＿W9MYY9

K N WQTP LHVAAANNALRCAEVIIPLLSSVNVSDRGGRTALL DGATALWCAAGAGHFEVVKLLVSHGANVNTTTVTNSTPL V D G G T P P L

## L <br> A



 S NGMRP L L H Y A A WQ G R V
 E F R R T A L L H R A S L E GHY D I V Q K L L



 KDGTTPLILAAANDHLECVRELIGGEGADPNERRAT GT TAL VN N C R A D E G S T A
D G G F P
L M C A S E H G H V V

 NWNYTPLHEAA KGKDDVCIVLLQHGADPNDRNSDGRTPL
 LLIENGADLTMRNTDSENVL NWNYTP LHEAA $\square K$ GK $\square D V C \square V L L Q H G A D P N \square R N T D G K T P L$ ATNDTALTYAAENGHMDVCAALI ESGANVDHEAEGGRTAL





 K HERSALSWAS GNG】AVVIRALL KHG
SENRTALIKADVQCQDEECAT ILLEHGADPNLADVSGNTAL F D GETPLWAASAA GHLGGVRSLLDHGASVNQTTLTNSTP L
V
|
KDGLTALCAARNGHEAVVKLLLASQVEVDWKDRYNRTP


 | Q H G WT A |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

DHGRTPLSYAA GQETIVKLLLDRK
GAGYNALHLAAKYGHPQCLKQLLQASCVVDTVDSSGWTAL
PNYTTPLHLAAKNGHREVIRQLLRAGVEVNRQTKTG TALL

1
ーヌ
R G G R T A L H H A A L N G H T Q M V N L L L A K GA N I NA F D K K D S R A L




 D F Gll T P L F Li A A Q Y G K L E S L S S LI S S G A K V N C Q A L D K A T P L
 $E$
E T T Q T P
L
H G D T
 GQYGSALQAACWKGNEEIVQILLGHGSD\｜NIRGGMYGAPL $\square \mathrm{G}$ G A S A L WCAACA G H L N V V V K T L V K A GA DV N HP T K S N S T P L GHGWTA L MQATYHGNKEVVKY L L S Q GADVNDRAKN GYTAF NNGFDAILAVSQEGHLEIVKYLQS IGCDVNSKTNNNTNCM K D GK T A L HI A A S K GK D H CVVA L L L E H GANPN DK DLD GNVP L
 UniRef90＿UPI0003ABC8A2

## UniRef90 J9FoG2 UniRef90-H2YS47 UniRef90-A0AO34W3LO UniRef90-H3C7N2 UniRef90-A0AO23EYY8 UniRef90-K7JHK3 UniRef90-UPIO00258D89E UniRef90_-008DV6 UniRef90_Q4WAX2 UniRef90-UPIO0026589D4 UniRet90_M3ZN84 UniRef90-Q5ASG3 UniRef90 M7AG15 <br> UniRef90-W2QD38 <br> UniRef90- $\mathrm{S8AlH} 5$ <br> UniRef90-UPIO003EA991C <br> UniRef90-H2TPG9

UniRef90-F4X5F2
UniRef90-UPIO0021A4A69
UniRef90-W3WVV4
UniRef90-B3ER16 UniRef90-UPIO002653CF1 UniRef90-UPIOOO21A3D14
UniRef90-UPIOOO3F1B7F5 UniRef90-K7J9S0 UniRef90-B3ETD7 UniRef90-F4WY25 UniRef90-MOR4E6 UniRet90-Q4RG97 UniRef90-F2UEH4
UniRef90 G1PTX8 UniRef90-UPI000265418C UniRet90-A0A044U730 UniRef90-W4ZIY2 UniRef90-F1KPG7 UniRef90 UP10003C138CA UniRef90-W5NHG9
UniRef90
A2G880 UniRef90_V2WM45 UniRef90-B4NOO3 UniRef90 B2VUXO UniRef90_U1HRP4
UniRef90_UP100002C5784 UniRef90-M7ZSE7 UniRef90-G1XK45 UniRef90-UPIO003288412 UniRef90-W4HB59 UniRef90-W8ВАКЗ UniRef90-UPIO000586048 UniRef90 T1K508 UniRef90-N4VAY6 UniRef90-UPI0001584BA8 UniRef90 UPIOOO35AO141 UniRef90-UPIO001D53BAF
UniRef90-W9MYY9
UniRef90-UPI0003C911B9
UniRef90-L7MG38
UniRefofo-b9S189
UniRef90_L5M5X3
UniRef90-U4L8Z9
UniRef90-UP10003290AED
UniRef90-TOMDM5
UniRef90-A2CG77
UniRef90-H2UMEO
UniRef90-LODA78
UniRef90-UP100029DA2A4
UniRef90-A2DWE5
UniRef90-W9NIC3
UniRef90-E7FFW3
UniRef90-UPIIOOO38COA24
UniRef90-K3VDL7
UniRef90-B2ACS9
UniRef90 UPIOOO2658E61
UniRef90-UP100034FC1AD
UniRef90-W9JD24
UniRef90-W9JD24
UniRef90-U4L3E3
UniRef90-V5HJW5
UniRef90-V6DHLO
UniRef90-V5GQ39
UniRe90_-D3WLT1
UniRef90-H2LLO1
UniRef90-A2DYX5
UniRef90-11MWP6
UniRef90-UPIOOO3DODCDC
UniRe990_-HP10003D
UniRef90-H2UABO
UniRef90-A2ERN6
UniRef90-D3J162
UniRef90_UPI0003ABC8A2
 HIASESGHPETALAFLKKGVPLHMPNKSGAVCLHSAAKNN TLASESGGHEETALAFFLKKGVPLHMPNKSGAVCLHSAAKNN HHAALNGHTEMVNLLLSKGANI NAFDKKDGRPLHWAAFMG RAACFDGRDDVKYLVENNANISTANKYDNTCLMMAAYKG FAAAQNGHCSVVSLLLQHGAKVSLARLDSATPLWLAAQMN SUAMLRRHFDUAELLIEQGANVNYRGRSGKTPLHFAVKSK FVAAQYGKLESLSVGSSGADVNCQABDKATPLFDAAQEG
 HEAAWRGFSRTVEVKARAHANLYVKNKAGFTALHLDA ANGG HFAAASGRRKMAELLLDKGVDIDITNYTGDTPLHKAASNG HLSAQYGHYEVSEMLLQHQSNPCLTNKAKKTPLDLACEFG AAAAQLGHRELAELLVKCHDDVDGKLLDGRSPLHLAAEGG SSAALMGKYEMAGLLMWKGANLESRDTQGLTPLMYAVISG HWACRGGRLEVVKILQSRGADLNVKDKLSTPLHVATRTG HLASRNGHLPVVEVLLDAGMDINYETEKG SALHEAADFG HFAAYKSHNEIVKALIAKGVEVDVKDRDLYTPLHAAAASG ILACLNGHTQUIKLLLNKKVDPNVLKKNSWDGFMLACKNG HLADMKAHTEDALSLIEQGANLDDS SDEGDTALNLAARKG FFAAQGGFDEIVKELLEEGAQNDLPSQDGGTPLFVACQCN SDALEAGHKDIAVLLYAH
HMAVDNDYNLAVDLLSKGANDHCQTDEGLTPLHDAAYNG HLA LEDCDDAKS TSHRVNINAVNNAGFTALQLATGRN WFAASEGHNDVLKYLMEKEHD
HLACQQGHFQVAKCLLDSNAKPNKRDपSGNTPDICACSAG HLAAGYNRVRIVQLLLQHGADVHAKDKGGLVPLHNACSYG HFACARNKTTAALLLLETGASVNLTDRQGNTPLHDCADRG LLAVTENNAEIVKFLLKRGADANASDQNQRTALMIALSDE NAAVEYGHLDAVKLLMTQGAK IVAARTGQUDVVQDFV NDFDDEDTDAEGWTALLDATYMG DLAARSGNEDLMSLLTPLDVNSHACDGRRSTPLHEAAGYN HTACYMGQDAVANELVNYGANVNQPNDRGFTPLHFAAVST MWAAYRTHVDPTRLLLTFNVSVNLGDKYKNTALHWAVLAG HYAAKNNNKEVVELLISHGADVNAVDEDIRKPLHYATKDD QAASYRDNLDI AKLLLENGANPNVEGGEYGTALQAASYTE F $\square A A Q N G H R T V L S L L I Q A E A E T D I K R \square D G A T P L W D A A Q M G$ MTAAWKNHFHIMHELLRCGASVNKKDNTGRTPLHWAASTG HLACGRPRRSLVHLLLERKAEVDVQDKSGTTALHYASYYG HLAA WKGDVEIVKILIHHGPSVNEQNNENETALHCAAQYG $M M A C C G N S L E C M K L L I E A G A D V N G N S S S G P T P L T G A V D D G$
$L R A D Q D G H E A V V Q L L E D G A E T E M K D K S G Y T P L W R A A D C G$ DRADQDGHEAVVQLLLDKGAETEMKDKSGYTPLWRAADCG RAACFDGHLEIVRYLVERGADLEARNRHGHTCLMIACYKG YYAAKKGHVEVAQFLIDSTAALEASSDDGTTPLMIAAQKG YAAAHFGHLDIVKFI SKGADKNEEDDKGILPLHGAALNG HRAASKGNTKIVNLLLSSHIDVNIDQNFGNTPLHCACEEE QKTASAGHESVARMLLSCGAPVDEGDAWERTPLSHAAANG HMAAHLQKQDCLTLLAENPLDFDAKDKLGR
DKAVQCQEDECALMLLEHGTDPNDPDEYGNTALHYATYNE SEACSNGHVLLAKFLLEKGADINQTATNGYSSLFLAVWYG HIAAADNHKKVVKTLLEAGADVTIVNNAGQTPLETABYHN HCAAFHGSEFCI ELLLNHFGKVQLRDKKQRTALHAAACDD HCTVESGHVDVIELLVKKGADIEARTNKGVTALQDAESLH HLAAWKGDAQIVRLLIHQGPSINAKNNDNETALHCAAQYG SYAA GQETIVKLLLDRQ DVQARDDFGRTPLSYAAKRW HHAAAGGCDSCSELLCSKAHLNPRDRXXATPLIIAAQMC HEAALYGKTEVVRLLLETABDI
IWAAEHKHTDVIRMLLTRGADVTLTDNEENTCLHWASFTG HLACSKGHETCALLILEKDGDINCTNAALQTPLHVAARRG SLACTNGAVAMVALLLDAGADPNTADRGNETALMTAARTG HWAAYTGHLDVVCLLVEQGAEVSCKDKRGYTPLHAAASKG DLAALYGRLRVVKMIISAHPNLMSCNTRKHTPLHLAARNG HIAASNGNEAAVMALISAGUDKEAKDDDGETPKMIAKSFG QAASYGGHKEVVRLLLGKEANVNAVGGEYGNALQGASVNG HESTAN
WVAANYGHVDVKLLLEHGAEMAVVDVNGETPLYAASRRG AIACQDGHAEI ANFLLTSGAMV KGATPMCLAASGG HLAASRGSAKIAQLLLRAGDDVNARTADGSTPLHLASDRG FIAAQEGHTKCVKLLLSNGADPNLCNEDSWQPIHAAAQMG WWARRRGNTDI
LYAASGGYKSI DRSLLDRGVDVNHSDNDGKKAFLCAATGG TYACENGHTDVADLLLQANADLEHESEGGRTPLMKAARAG MLASQNGHKNIVTLLLLNKVDVNAKSNCGATALMSA INN HLADRN LDMVKLLVENGAKVNEKNNRGQTALHDAAETG QAAAAGGHTNLVRLMLGAGAKLKAHGKFGSALQAAASLG RAACFDGRDDIVKYLTYHRADUNDANKYNNTCLMDAAYKG DLVMLLNDTELVRLL
YLASFKGHLDTVKYLTSCGVDPNEKDNDGFNAILAASQEG WEAIKGGHDSVMKLLIDNGADISSGDSNGSTALHAAVCEG HKAVQCQEEECAAILLDHGADTNVTDSSGNTALHYAVYCE
HLAARNGH STVQTLLEAGMDVNCVTDNGGSALHEAALFG DTASKYDKDEVVKYE STGANVNAKDTSGHTAGHYAKYY
HCAAESGHADVTGELEVKKGADVEATNKGVSALQUVESSN
UniRef90 J9F0G2 UniRef90 H2YS47 UniRef90-А0Ао 34 W ЗLO UniRef90 H3C7N2 UniRef90-A0Aо23EYY8 UniRef90-K7JHK3 UniRef90-UPI000258D89E UniRef90-Q08DV6 UniRef90_Q4WAX2 UniRef90-UPIO0026589D4 UniRef90_M3ZN84 UniRet90_-Q5ASG3
UniRef90-M7AG15
UniRet90-W2QD38
UniRef90- $\mathrm{S8} \mathrm{AlH5}$
UniRef90-UPIO003EA991C
UniRet90-H2TPG9
UniRef90 F4X5F2
UniRef90-UPIO0021A4A69
UniRef90_W3WVV4
UniRef90 B3ER16
UniRef90_UPIO002653CF1
UniRef90-UPIO0021A3D14
UniRef90-UPIooo3F1B7F5
UniRef90-K7J9S0 UniRef90-B3ETD7
UniRef90-F4WY25 UniRef90-MOR4E6 UniRet90-Q4RG97 UniRef90-F2UEH4
UniRef90 G1PTX8 UniRef90_UPI000265418C UniRef90-A0A044U730 UniRef90-W4ZIY2 UniRef90- F1KPG7 UniRef90-UPI0003C138CA UniRef90-W5NHG9
UniRef90
A2G880 UniRef90-V2WM45 UniRef90_B4NOOX UniRef90 B2VUXO UniRef90-U1HRP4
UniRef90 UPIOOO42C5784 UniRef90-M7ZSE7

## UniRef90-G1XK45

UniRef90-UPI0003288412 UniRef90_E1C571 UniRef90-W4HB59 UniRef90-W8BAK3
UniRef90 UPIOOOO586048 UniRef90-T1K508 UniRef90-N4VAY6 UniRef90-UPI0001584BA8 UniRef90_UPIO0035A0141 UniRef90-UPIo001D53BAF UniRef90-W9MYY9
UniRef90 UPI0003C911B9
UniRef90-L7MG38
UniRef90-895189
UniRef90- U4L8Z9
UniRef90-UPI0003290AED
UniRef90-TOMDM5
UniRef90-A2CG77
UniRef90-H2UMEO
UniRef90-LODA78
UniRef90-UPIO0029DA2A4 UniRef90-A2DWE5 UniRef90-W9NIC3
UniRef90-UPIO0038COA24 UniRef90-K3VDL7 UniRef90-B2ACS9 UniRef90-UPI0002658E61 UniRef90-UPIOOO34FC1AD UniRef90_W9JD24 UniRef90-U4L3E3 UniRef90-V5HJW5 UniRef90-V6DHLO UniRef90-V5GQ39 UniRet90 W3WLT1 UniRef90-D6WRB1 UniRef90-H2LLO1 UniRef90-A2DYX5 UniRef90-11MWP6
UniRef90-UPIOOO3DODCDC UniRef90-H2U8А0 UniRef90-A2ERN6 UniRef90-D3J162

HTKIV VIKYMVRH
HVEVVRTLLMKGAHVDARTKNKLTALHVAVQHCRPLVVQM HEKVVEVLLKHGAELEAQSERKDTPLSLACSGGRYEVVEL HLNVVRLLVTQGAEVSCKDKRGYTPLHTAASSGQDAVIKH HTDVVRYLLEQRADPNAKAHCGATALHFAAEAGHIDIVKE HSDVCKMLLQAGHPVDALRKNGATPLFKASHKGYIDVVHE Q HTECVELLLSSGADPDLCNEDNWLPPI HAAAQMGHTK LDD HVVIAKLKLEHGADLSFKDTSGSTALHRAVLGGQDEVVEL SSEAQTALLAA
HRKMVEFLLSRGATDEDRNDYRQTPDHKAVGAKH HDLRL RLKVAQLLLNSGQSKDTSDPNYTTPLHLAAKNGHKEIIRQ HVDLLRII I GKG
CEILVRHILEFGVDADAKDMNGRTALLHAHQQMKTRIVRM HYHVVEHLISSGI KDNSKDREGDTALHDAVRLDRYRIVKM KTDVVQKLLRAGIDVNMVDQKGLSALDVVKEQKSREVAAL NVECVHVLIKAGGDIEAKNVYGNTPLHI ACLNGCPLVIKE RTQ VVELLKEKVDPNVQIKDGVNAFILACLNGHTQIVEL QVGVTEKLLILGANVNSFSADGKSALAWAAGLGYDGMTLL HLDVVKELVTRGANIHRTMTDGATPLFAAQNGHYNMLKY QHKVAKLLAENGANVTLRAKNGSSAFDIA
YSDVVETLLNRNFNTNKKNKHRDALELAVANNHLEDVKL NLQMAELLLEKSADVNMQNVNGRTALHEAFDWYS甘PMVD
hHEVAALLLQHGAATNACNNKGNTALHEAVMGRHVLVVEL HFEVTELLLKHGACVNAMDLWQFTPLHEAASKNRVEVCSL HVQTAKALVSSNPRLNARNSVGDTPLHMAAHWGYEELAAL $P T N L V S L L L Q K E V D L S C Q D I Y G F T A E E Y A S F N G$ H LD DVKFFISKGADVNEEDDKEMITPLHSAA HEEEVQVLLNAGAAVDYADVLGWSPLMWAVYKNHYACAEL
 NGACLELLVNNGADVNVQSKEGKSPMHMAABHGRFTVSQI NTTVISLLEEAGAVDAQNDKGETPLDLAKQRKNVWMDNH STEVVKLEDHGTYINYVDRKNKTPLQYAVKNNSKEVVEL HDGIVKVLLQNGANDDAVRCDGATPLEKAAHKGHAAVITV KRELCEMLLRRRANVNAIEVRGKTALHAAVAHGRDDIIVE NTHLVYLLLEMGAEVNLKNTRGLTALQLASRRGHQEVVKL
 KQQMVEFLVKKEANTHAVDK HREl|ARYLLEKGADVNRRSVKGNTALHDCAESGSLETLQL RPVMVEVLI DRGANVEACRKDGCTALYYAAKMGQLRUVKL SIETVDLLIKYGANVNAVYRDGRTALHAADQSRSLDCCNA NAEVMEYLI QQGSDVNKADVKGWTPFNAAVKYGHLGAVEY RLAECKALI ESGGDLELNKEKOTPLDLCKRY

DKLMAKALLLYGADDESKNKHGLTPLLLGVRGQKQLVVKF YSEVVELLIGEGAE IQFQDHRGSLLAVAAGRGYLNTAKA NPEVALLLTKA
SVLCLQTLVKEGAD $\square$ NAADCRGQTP पMMAAAHGSCKS $\square E A$ YVGISRVLIRSGAAKDV
HTEVVKVLLEELTDPTMRNNKFETPDDLAADYGRDEVVKM YNEIVKLLLDRKVQPDSRDDHGRTPLSYAAERGQET IVKL HTDLCRLLLQQGAAVNERDLQGRTALMLACEGANPETVEV
SAATAEVLLNAQCDLHAVNYHGDTPLHTAARESYHDCV LTVVVQELLGKEASVLAVDENGYTP KLGPVKALLARGADVNAKERRGQTALMWAAADGHVAVVEA R\AVVKHLLSDSVEIDEANAFGNTALHVACVNGQDAVVSE HKAVVQVLLEAGMDVSCQTEKG SALHEAALFGKVDVVRV FTNIYELL
HEEVVRLLKKRADVNAQGGYYGTALEAASRRGHQTIVRL RVEVCSLLLSHGADPTLVNCHGKSAVDMA
H LEVK LLLSHGAETESTDVHHETAYAAADTGQVEVRE HVQVIQALLQHGGAVREVDAQGWDPLRRAAFAGHSQAVAS HVEVVKFLLEHNDQVNARDADGSTPLYLASSHGHTEVVRA HTKCLELLLQNGYSPDAQ
HES\|VRLLMERRVDFNHSDNEDKTSLLKAAQSGHELIVQL HLCTVQFLLTRGADPNRPTSNDHVPLSLACAGGHLSVVEL HIEDVVLLLANNADVNDKSNGGYTALSLAKSGGNEDIIGQL DLEVRCLDHGADVGGKDEHGQTSLHAAAHGGHEAVVKL HLDVVSFLLEHGANANEKALCGATALHFAAECGHDPVVKE
HLEDVKY LQS $\quad$ VGCDVNSKTNNNTNCMY LASFKGHLDTVKY NAEIVKFLLEHGADIDKQDDSGLTPRILADQQCHEEIIN N STSUAAKLLARGANUEAKNKDDLTPMLLAVKENKQHUVEF KMDVVRLLLDSGDKTNLRNSQGRTALEL
YVG TKILIEGA
UniRef90_UP10003АВС8А2

UniRef90 J9F0G2

| UniRef90-H2YS47 | L L |
| :---: | :---: |
| UniRef90-A0A034W3L0 | L L |
| UniRef90-H3C7N2 | L L N L |
| UniRef90-F6WW31 | L I K |
| UniRef90-A0A023EYY8 | L L K |
| UniRef90-K7JHK3 |  |
| UniRef90-UPI000258D89E | 1 L K $\mathrm{L}^{\text {L }}$ |
| UniRef90-Q08DV6 | L I PL |
| UniRef90-Q4WAX2 |  |
| UniRef90-UPI00026589D4 | L V |
| UniRef90-M3ZN84 |  |
| UniRef90_Q5ASG3 | LV |
| UniRef90-M7AG15 | L L K |
| UniRef90-W2QD38 |  |
| UniRef90-S8AIH5 | LE E |
| UniRef90-UPI0003EA991C |  |
| UniRef90-H2TPG9 |  |
| UniRef90-F4X5F2 | \| ${ }^{\text {I }}$ |
| UniRef90-UPI00021A4A69 | L L |
| UniRef90-W3WVV4 | L L |
| UniRef90_B3ER16 | L |
| UniRef90-UPI0002653CF1 | L I |
| UniRef90_UPI00021A3D14 |  |
| UniRef90-UPI0003F1B7F5 |  |
| UniRef90-K7J9S0 | LLS |
| UniRef90-B3ETD7 | L L |
| UniRef90-F4WY25 |  |
| UniRef90-M0R4E6 |  |
| UniRef90-Q4RG97 | L L |
| UniRef90-F2UEH4 | $\underline{L}$ Q F |

UniRef90-G1PTX8
UniRef90 UPI000265418C
UniRef90-A0A044U730
UniRef90_W4ZIY2
UniRef90-F1KPG7
UniRef90-WINO3C138CA
UniRef90-W5NH9
LIE F
LI K
|L L
$L L E Q$
$L 1$
$L Q E$


| L | E |
| :---: | :---: |
| K |  |
| K |  |

$L L$
$L \square$
$L \square$
$L D E$
$\bar{L} \mathrm{~L} R$
L L
LL K
L
LIE
L L

| $L$ | $K$ |  |
| :--- | :--- | :--- |
| $L$ | 1 | $R$ | LLE L

$L L$
$L$
$L$ $\underline{L}$ Q UniRef90-UPI0003290AE
UniRef90-TOMDM5
UniRef90 A2CG77
UniRef90 ${ }^{-}$H2UME0
UniRef90_LODA78
UniRef90 UPIO0029DA2A4
UniRef90-A2DWE5
UniRef90-W9NIC3
UniRef90_E7FFW3
UniRef90_UPIO0038C0A24
UniRef90-K3VDL7
UniRef90-B2ACS9
UniRef90 UPI0002658E61
UniRef90_UPI00034FC1AD
UniRef90-W9JD24
UniRef90-U4L3E3
UniRef90 ${ }^{-}$V5HJW5
UniRef90-V6DHLO
UniRef90-V5GQ39
UniRef90 W3WLT1
UniRef90-D6WRB1

| $L$ | $E$ |
| :---: | :---: |
| $L$ | $E$ |
| $L$ | $L$ |


| $L \quad L$ |  |
| :--- | :--- |
| $L$ | $L$ |
| $L$ |  |

UniRef90-H2LL01
UniRef90_A2DYX5
UniRef90-I1MWP6 F K K V
UniRef90-UPI0003DODCDC L V K
UniRef90-H2U8AO
UniRef90 A2ERN6
UniRef90-D3J162
UniRef90_UPI0003ABC8A2

UniRef90＿K9WDQ9
UniRef90＿O6UNX5 UniRef90－G3P9S5 UniRef90－UPIooo350DD3A UniRef90－Q9J4Z4 UniRef90－UPIO0046CDA04 UniRef90－TOSFB5
UniRef90－W9NN42
UniRef90 O9H2K2 UniRef90－UPIOOO4710F11 UniRef90－D4DCD3 UniRef90－UPIO0046C3C18 UniRef90－T1PIB4
UniRef90－Q7PQL3 UniRef90 SoEXS4 UniRef90－UPI000443C8D9 UniRef90－UPIO003C16507 UniRef90－I1FIV8
UniRef90-K9VJ13
UniRef90-UPI000180BF17
UniRef90_Q84QJ2
UniRef90-H2TSA6
UniRef90-Q96JP0
UniRef90-K8M4L2
UniRef90-C3XTX0
UniRef90-B6Q426
UniRef90-A2EZL4
UniRef90 W3WTPT
UniRef90 W4KEVO
UniRef90-D4MAD5
UniRef90-Q8KOLO
UniRef90-UP1000045DDD74
UniRef90-UPI0003C37807
UniRef90-E4UMZ9
UniRef90 UPI0002A4CA2E
UniRef90-I1G164
UniRef90-F2UK79
UniRef90-T1KYK2
UniRef90-G2YHJ8
UniRef90-E9EXX3
UniRef90-O7T386
UniRef90_TORUW4
UniRef90-F2UD16
UniRef90-TTKXU1
UniRef90-B3LX02
UniRef90-11EMW1
UniRef90-A0A024TAR8
UniRef90-UPI000443AB87
UniRef90-K3WBN8
UniRef90_UPIO00469F164
UniRef90-A2FTR1
UniRef90-HoZHH5
UniRet90-A1DJR9
UniRef90-B8HXS3
UniRef90-UPIO0021A6B1C
UniRef90-U3JUE1
UniRef90-U1M389
UniRef90_UP100027F7551
UniRef90-UPI0003F08C35
UniRef90-UP10003C4AC10
UniRef90-UPI0003F0682E
UniRef90-T2M914
UniRef90-B7QNY1
UniRef90-B4KYG5
UniRef90-G7XV11
UniRef90_Q29D96
UniRef90_A2FP41
UniRef90-XOHO79
UniRef90_M3XGW2
UniRef90-J8TYW1
UniRef90-W9KAAG
UniRef90-E2AV80
UniRef90-A8ZX47
UniRef90-A8BPN1
UniRef90-UP1000333DE5D
UniRef90-V7CV11
UniRef90-E2M028
UniRef90-U619M6
UniRef90_OOIFA4
UniRet90-G3NZF3
UniRef90_W4FQJ4
UniRet90_UPIOOO45423C2
UniRef90-11EH67
UniRef90-T2M8Z2
UniRef90-UPIOOO42BD5DA
UniRef90-G3HL17
UniRef90-A2FJC7
UniRef90-G3JJD9
UniRef90-H3CNP6

D N S GVTT TLMKAAASRSPDCVQT｜LIALGVD｜VNAND ADVKDANKRGALIFAAREGQTAFCEFLVEEKLDVNTKD RRGDSGMFPLHLAVLYGFSDCCRKLLSAGFDINTPD

ATQYGDYERCRELVEAGYDVRQPD
$\square N G Y D \square N F Q T T H H V A A K G C N L E V E F L L D Q G L K M N G K D$ $L V E A A Q G G D A A Q V A L L L Q R G A N P N A V V$ $N D N A Q Q G Y W G N A L Q L A S E S G R L D I I D L L I$ K E GADVNAHS PNARDNWNYTPLHEAADKGKIDV C IVLLQHGANVNCHA N】E A K DE H G D T P L H N S A Y WN S V T V T R L L L N A G A DVV K A DT
 EKKDDGYTALHLAADNNHVEIAELLVHSGANMDRQN
 VN NVDQQGRTALMTAASEGHITSA QULEDHGAS LN QDD $V N M M D$

 $V N A Q G G R Y G N A L Q A A S D T G N L E V M Q L L L D E G A D V N A Q G$ NARNGKDRTMLHNAAK $⿴ 囗 ⿰ 丿 ㇄$




 VD A Q D R D GRTP LLDA $\square$ A $\square$ N P N I ETASSLLADHGANL EA K D 1 NA Q G GYY GNA L QAACYRGHES IVVRLLLLDRGAE I NA Q G

 H P S L Q D S E G D T P L DEGGMNPLHAAAAHGHDVEVVQLLLEKKVSISSTN $H \square A N M A D G S G N T A L H Y S L S H S N F E V V K K L L D A G C N V N L Q N$ NVDDA D R T G K T S L H H A CY N G H A E MV S L L L V V G A S

GETCLHLAARFARADAAKRLLASGANCNARD


 Q $\square$ N E Q D A E GRT AL H L A A S A GHGS CVVLKL L E GRAA A LR D

RAED GQTNL HLLAVLS GHKESI EIILLLKHNF DTFAIDD NPNAQTIENETPLHSGAQHGHNAVVAILLSYGADPTIRN VNAKD R $\square G Y T P L H Y A C E K G H F E T V K \amalg L T N H Q C N D E A E D$ I N TRRTS DGQTAMHKAA Q Y G H A P VV A AL MR C G IN YE L V S $V N Q R C S Q G W T A L H E A V S R E N T E I C E V L I R A G A T D N P A N$ L D E Q K P NGTSSALMMACSVGNVEAARALLMFGAALDDED





NPRSQCKRFMTP LHLAAQHNATKSAE LLLTYAPDVDKTD $\square N V Q D S E N K S P L I V A V Q C Q K E D C A N D L L N Y G A D P N L M D$ HKEPRDELYRTPLVLAAENGCESTVGGLLKTGVEKDPGD RTAFHLAAEHGRLEVVEFLI GSGCSHSVKD GEDGGTPLMFAAMRGQLEIVELLVNYGADVNRQD
$H \nabla D V K T N D G H T A L H V A V S A G Q G L V V E T L L G H G A Q V Q F K A$
TTLMRASWLGLRRTVQTLLDKD DDDNHRS $\square$ NARNKRRQTSLHDAVNKGHLNVVKTLLTLGCHPSLQD

$\square$ N N R D


## VNARDASGNTVLMSACGSGDANVVAYLLTRKLEVNVTD

K D S N G WT A LMY T A R T G HA D CLLK LLLEKES GMK S GKGGCTALMDAAEKGHSDVLRILLEMGAEVHARD E G D T CL HVAA A GVG DEEMVKLLLKKGAN KEVRN EKGADPNQALQEASYRENLD IMKVLLEKGADLNAQG $N L D Q V D N V G M T P L M L C A E A G Q F R M V Y A L V S A G C D D S A T B D$

T A LLLAVS S E HLS CVQCLLDAGADPDIS S
DDSGQTALLHYAAFYGHLEVVLDAVEHGDPDNLKD P I HKAA SMGD I DTVVKSFVERGASMEQDD
$N \nabla Q K K N G V I$ FMVACQNGHTQTV ELLVKKEVDPNVQT F HI A A VQ G NLSLVQ SYLK DKINVDCT D CPNAQTRNGATPGYLACQE GHLDEVVQYLVDCGAEPHVRT $\square D \square R D E K G R T A L Y L A A F K G H T E C V E A L V H Q G A S D F V K D$ NDNCETPLHYAAKYNSKEAADFLI KHGLDINAKD UniRef90＿H3CNP6 $P$ L H DA VRNRNE A IVE K L I S A G A EVVNRK G

## UniRef90_K9WDQ9 UniRef90-Q6UNX5 UniRet90 G3P9S5 UniRef90-UP1000350DD3A UniRef90_Q9J4Z4 UniRef90-UPIOOO46CDA04 UniRef90-TOSFB5 UniRef90 W9NN42 UniRef90 Q9H2K2 UniRef90_O9H2K2 UniRef9O-UP100007710F11 UniRef90-D4DCD3 UniRef90-UPI00046C3C18 UniRef90-T1PIB4 <br> UniRef90-Q7PQL3 UniRef90-SoEXS4 UniRef90OUPIOOO443C8D9 UniRef90-UPIOOO3C16507 UniRef90-I1FIV8



## UniRef90 K9WDQ9 UniRef90-Q6UNX5 UniRef90-G3P9S5 UniRef90_UPI000350DD3A UniRef90-Q9J4Z4 UniRef90_UPI00046CDA04 UniRef90-T0SFB5 UniRef90-W9NN42 UniRef90-Q9H2K2 UniRef90_UPIO004710F11 UniRef90_D4DCD3 UniRef90_UPI00046C3C18 UniRef90_T1PIB4 <br> UniRef90-Q7PQL3 UniRef90_UPI000443C8D9 UniRef90_UPI0003C16507 UniRef90_I1FIV8


 $\begin{array}{ll}\text { H Y A A A N G R Y Q C T } V & T \\ H & V \\ H & \text { SA A G A E V V }\end{array}$ CRVASKGYINVI HFLLD V VGFNVNSFDSFGETPLHAATRSG HYAA LK GHHEAVSVLLKHKANNDAK DQNGFAPLHYA IT N N HVAA QNGFAKVVSLLLTA DVDPNQATRAGWTPLBAAAHFG QAASSSGHLLNVVVFLL GKGADワDARTRRSHNALLQCAS QYG HNACSYGHYEVVTELLVVKHGACVNAMDLDWQTPLUEAASKN $H$ I A ARYNFAETTRMLLDAGADI EAKNKDDETPLHVAARYN

 HEALR H H T L S QL K QL
 HL A A L H R QFA I AK AL LMAGASPDSPDDHGDTPLH IAAAVD DLAAFCGDPEVVQYLVDHGALVEHMDCSGMRPLDRAVGCR $M L A A L A A D R N V V R K L E S L G G N V N A K A S S Q Q T A L L M A B V S H G$ HFASQNGHYESVEFLVSQCDNVDDEDNTGDTPAKLAAAGGG $T L A V A Q G H T D V V K Y L I E A G A D V N F Q D A A G A T P D M W A A S R N$


HWAATKGHTAVIE LLARKGSPADTPNKKGWTPLHRAAYNG DLATA DDI RALLIDA
HLAVDKNSLQVTALLI ECGADVNVRDSDDNSPLHIAALN N


 HKATWNNNKDVVELLLSHGSNDNEKDSYGKTTLLHLAAEHN HLAPKRPREEMLQLLLQHGADANAASDGGWRPLHNAAQKG QVACYGGHES IV RLLLLDRGADDNAHGGAYRSALRRAAAPRG MLA A L N S RKDVVKALLDAGLDVNARDEEGHTALMLAARWN YLATCREHLDCLLSLLQAGAEPD DSNKSRETPLYKACERK FLAAQGGYLDVIVRLLLASGAKVNQPRQDGTAPLWDASQMG HLAA ALNNHVEI A ELLLVHSGANMDRQNVNLQTALHLAVVR Q
 $M L A V S H G R R D M V E T L L A Q G A D V N D R D D E G S T A L M C A S E H G$

 SWA A E NGYKAVVMKLLATGGVEVNSKDNENQTPDLSAA GNG WLA A AK GHEA IV RLLMKERADIHDKDKHGRTPLMLAARRD S WA A MKGNLE SVVRVLLEYGALVHVTNLKGQTPI VVAAKKGHLEVVQYLAGREANLEACRRDLRTPLYMAAKKG HIA A QHNQPDIARVLAE GEADVNARDNASNTPLHVAAATG HLA $\operatorname{V}$ A GNHSDAVALLVSSKGAFINADNNRHQTGLHLAA EMG $H L A S R N G H K K V V E T L L T A G V D V N I L T N A G G S L H E A A L C G$ HYACEKGHFEIVKFLTNHQCNTKAEDVCDDRPLHKACKSR YVAAGRNHDAMAVYLLAKNANVT LPTNDGWSPMBVACS LG HEASRNGHQEVVALLLSKNADANISDNSGLLPLHVAA QS G H I A A R G GLLE EVVSILLEAGAALDVQSPNSTTALMEAARAG LI ASENGHQRVVVQELLAAAGANVNAGMDNGTTPLIMASQNG




 HWASMGAHMNVLRVL HENGAEVNSRSSQSNTVLHYAA DSG
 HLAA AKN GCDSTVVEDLLLKS GVE KDP GD DLLYRTPDLBYAVNN G HMAVE EGHYDCVKLLLEEAGCDVNT QTQKAMTCLHYAALHG
 HFAAREGHLRTTKLLLADDSDTDLLDKDGESPLHVAVKNC H HA A F GDEAAVIEELAKAGADLDARNKRRQTSLHDAVNKG AHAAYH GNES IVSLLLSKGDSPDMRTSTVDKTPFGYAAGC G HHAADLKGNPSAMK LLLTTKTNRDEEKKDDGYTALLHLAAALNN LC A V T N G H F E V V K FL Y F S G A D K Y T K D N F G N T P F I N A A I R G HAA A YK GNREVVQLLLDKGAAGNAQGGEYGNALQAADDSG

 H LAA A CTMSTK V V E ELLLKHGADPCEWDKKKYTPGLHCAAAA G SEAADRGQLDMVRFLINKGADVNFANNDGDYPIGLAARTN MCAAAYGHVHCVVLLLEKEGGGMQCDDGWTALMSAAKHG MAAAGNGHRDCV ELLLEREGGD QDNSKWTAGMDAA EQG I L A V E K K R V G L V Q M L L K H T A E I D A R D N E GR T A L WA A V E L N

 ILLASAK GHCDVVVRQLV A A G S A L G QT DT S QRACALVHAA DT G HEAVSRNNTDI CEVLIDRAGAAINPPNTYSVTPLIVAA QRG
 MDA S F K G H Y EVVVK L L L E WK A N P NVVK S S E G H T A S S L A
FFAAQGGY LIVVVE ELLNNGAEDDLPSNEGGTPDFVAS QCN HFAASRGHAKVL SWLLLDGGEI DTTDQWGGTPLHDAAENG



## UniRef90_K9WDQ9 UniRef90-Q6UNX5 UniRet90 G3P9S5 UniRef90-UPIO00350DD3A UniRef90_Q9J4Z4 UniRef90-UPIOOO46CDA04 UniRef90-TOSFB5 UniRef90-W9NN42 UniRef90 Q9H2K2 UniRef90_O9H2K2 UniRef9O-UP100007710F11 UniRef90-D4DCD3 UniRef90-UPI00046C3C18 UniRef90-T1PIB4 <br> UniRef90-Q7PQL3 UniRef90-S0EXS4 UniRef90-UPIOOO443C8D9 UniRef90_UPIO003C16507 UniRef90-I1FIV8



RKDAAVA $\square V K \square G A N V N G T S D G N T P \square H \square A C F M N Q \square S T \square E K$

| PD DMNLLIKSGAHFDATN【HKQTASDLDAGKDEKE TPMAERLVAKKAKVN <br> ED AKLLAEKG <br> YKDVVELLLSHGANVNEKDDYGRTALRDATYMNFKEDAEL NPHVVDILWDAGA <br> SRIVDTLVDAGADDDTRDTDGRRAADYAQENKNLK <br> NAEAVRVLVRYNADANHRCNRGWTALHESVSRNDLEVMEIE <br>  <br> YADVVKLLLAQECDATLTDSDESTALSHALDEGHSDIAVL <br> QDVVVDVLKQHKATDNQLNIDGGQTPLHYAAWSHHGACMEL <br> NDEVVRMLLRNNANRDAQDNEECTPLFLAAREGAYQAVKV <br> HEAVVKLLLATGVEVDSKDSYNQTPLSWAAKNGHKPVVKL |
| :---: |
|  |  |
|  |  |

HVEVAQFLIDSQANMEAAS $\square \mathrm{DGTTPL} \mathrm{DAAAAKGHVAMVHV}$ DAGIADVLVQQGAQLDAANSARDTPLMVAAQRGHDAVVSLL FTEIAEILI ENGADFTLVEKSGRTALYIAARGSFDAIVDM KKSVVVTLLKAGDFVNATDGNGRTALDI
NVDVVRYLIDKHRDVNAKGRDGYTPLHYACEKGHFEIVK■ HFRVA
 NLGCVKLLVYAGASLTSRDREGHTAESLARTSGHTETEDF HQMVVQTLLAARAEVNARTQDGLTALLMASEMNQPDVVQM


 HVDVVKYLFSFGASTEFKNKDGGTAGLAACQYGHAKVVET DVDLVHF LQNATTVDCASVDGCTALDYAVNNGRSRVVET ATCVQRSLLQKGVELSCEDVYGGTAEEYAFLNG YEDMARILIDAGVYDDAVNHQKASAVHUAVLQNFPATVKL SSE
HFETVK LLVDNGANTNS DDMLKMTPGHWAVEANNYETCLL HFPVVEALLEHNADPNQKNLEGENSLHYAAKQKHRDIMRF HLNVVKTLLTDGCHPSGQDSEGDTPPLHDADSKEHDEMLSLD
 YLN VEFLSSFSDNDNGRDKNGNTMLHHASANGHLEIIKY NLETAQLLLDKGTDANAEDGYYGSALRAASYEGNLEVVQL HQKITDWLLRAGSNVNSQTKNGATPLYLACQEGHLEIVQY HVEVARLLLKRGATI RPNSEGLYPMHFAAKAGHADICRL HTDTIALL KEGANVNAQQEYWGNALQLASESGRLDI CVATVTCLIKSGANVNAR R RSPLYYAVLNNAVDCVEA YTDCLRLLLEKESGV QDNEGWTALMSAAKHGHDDCLNL YTDCAKLLLERESCVQSRD GWTALMWAAKNGHAGCVRL QKEVVKLLCEKGASTDARTNKGVTAVQMAEALGYVGITRV YLDVKALLEKGADPNVQGGEYGTALQAVSYKGYLDIVKA HLNVVNALLRNGAQVDQADSHQKTPLFVATYHGRSDIVSL



HDDVVKELVKRSANTHAQMKDGATP【FVACQNGHDNVVKH ELECCQLLVVNGVNLGLRDQDGYTAADLADYNGHSHCAKY HEECVQMLLEQEASLCKDSRGRTPLHYAAARGHATWLSE Q EIMKYLISNNADFKVKDNENKTVLHYAAERGDINVVKL


| UniRef90_K9WDQ9 | L C |
| :---: | :---: |
| UniRef90-Q6UNX5 | L VK |
| UniRef90-G3P9S5 | L L E M |
| UniRef90-UPI000350DD3A | L L T F |
| UniRef90-Q9J4Z4 | L I E |
| UniRef90-UPIO0046CDA04 | L L N |
| UniRef90-TOSFB5 | L |
| UniRef90-W9NN42 | L |
| UniRef90-Q9H2K2 |  |
| UniRef90-UPI0004710F11 | L |
| UniRef90-D4DCD3 | L L |
| UniRef90-UPI00046C3C18 | $\underline{L}$ |
| UniRef90-T1PIB4 |  |
| UniRef90-Q7PQL3 | L L |
| UniRef90-S0EXS4 | L L Q |
| UniRef90-UPI000443C8D9 | L L |
| UniRef90-UPI0003C16507 |  |
| UniRef90-11FIV8 | \|L |
| UniRef90_UPI000315902A | L SE |
| UniRef90-J9NHV0 |  |
| UniRef90-K9VJ13 |  |
| UniRef90_UPI000180BF17 |  |
| UniRef90-Q84QJ2 | LCELL |
| UniRef90-H2TSA6 |  |
| UniRef90_Q96JP0 | L I Q |
| UniRef90-K8M4L2 | $\underline{L} \mathrm{E}$ |
| UniRef90-C3XTX0 |  |
| UniRef90 B6Q426 |  |
| UniRef90-A2EZL4 |  |
| UniRef90-W3WTP7 |  |
| UniRef90_W4KEV0 |  |
| UniRef90-D4MAD5 |  |
| UniRef90_Q8K0L0 |  |
| UniRef90-UPI00045DDD74 | L L K F |
| UniRef90-UPI0003C37807 |  |
| UniRef90-E4UMZ9 | L |
| UniRef90_UPI0002A4CA2E |  |
| UniRef90-11G164 | L VK |
| UniRef90-F2UK79 | L V K |
| UniRef90-T1KYK2 | L L E |
| UniRef90-G2YHJ8 | L L |
| UniRef90-E9EXX3 | L L E |
| UniRef90-Q7T386 |  |
| UniRef90-TORUW4 | L L E |
| UniRef90-F2UD16 | L L R |
| UniRef90-T1KXU1 | L I K |
| UniRef90-B3LX02 |  |
| UniRef90-IIEMW1 | L |
| UniRef90-A0A024TAR8 |  |
| UniRef90_UPI000443AB87 | L L K |
| UniRef90-K3WBN8 | L R E |
| UniRef90_UPI000469F164 | L L |
| UniRef90_A2FTR1 |  |
| UniRef90-H0ZHH5 | L L R |
| UniRef90-A1DJR9 | L L |
| UniRef90-B8HXS3 | L L Q |
| UniRef90-UPI00021A6B1C | L |
| UniRef90-U3JUE1 | L L K |
| UniRef90-U1M389 | L L |
| UniRef90-UPI00027F7551 |  |
| UniRef90-UPI0003F08C35 | L L R |
| UniRef90_UPI0003C4AC10 | L I |
| UniRef90-UPI0003F0682E |  |
| UniRef90-T2M914 | L L K M |
| UniRef90-B7QNY1 | L L K |
| UniRef90-B4KYG5 | L L F |
| UniRef90-G7XV11 | \|L L |
| UniRef90-Q29D96 | $\underline{L}$ Q |
| UniRef90-A2FP41 |  |
| UniRef90-X0H079 | L L |
| UniRef90-M3XGW2 | \|L V K |
| UniRef90-J8TYW1 | L V E |
| UniRef90-W9KAA6 | L I K |
| UniRef90-E2AV80 | L L Q |
| UniRef90-A8ZX47 | L L K |
| UniRef90-E1F7Y0 | L L E |
| UniRef90-A8BPN1 | L V E |
| UniRef90_UPIO00333DE5D |  |
| UniRef90-V7CV11 | LES M |
| UniRef90-E2M028 | LL L |
| UniRef90-U619M6 | L L |
| UniRef90-Q0IFA4 | L L |
| UniRef90-G3NZF3 | L |
| UniRef90-W4FQJ4 | L A E |
| UniRef90-UPI00045423C2 | L 1 |
| UniRef90-I1EH67 |  |
| UniRef90-T2M8Z2 | LQ |
| UniRef90-UPI00042BD5DA |  |
| UniRef90 G3HL17 | L L Q |
| UniRef90-A2FJC7 | L L |
| UniRef90-G3JJD9 | L L R |
| UniRef90-H3CNP6 | L L R V |

## UniRef90 A2HES9 <br> UniRef90 K7F824 UniRef90-B2WH71 UniRefo-A20

 UniRef90-UPIO0046D85B1 UniRef90-UPIO001757E08 UniRef90-UPIO00441B463 UniRef90 G3U9U UniRef90-H9JAX0 UniRef90-UPIO0034F668B UniRef90 V8NPV6 UniRef90-UPIO001E47BB1 UniRef90_UPIO0028A26EE UniRef90 HoWIX6 UniRef90- G7X7W0 UniRef90-UPIO002A4C7E6 UniRef90-A2EHL6UniRef90 G3VE85 UniRef90 ${ }^{-}$W5KBY9 UniRef90-UPIO002C597B3 UniRef90 F2UGP4 UniRef90 F1MX12 UniRef90-UPIoo0258DD61 UniRef90-M7U2P0 UniRef90 M4FG96 UniRef90 W9JEW8
UniRef90-J9JT47
UniRef90_G3UOP7
UniRef90 E1C3V2 UniRef90-UPIO002A4BE75 UniRef90_BOWRI4 4 UniRef90- UPIO0039446F2 UniRef90-UPIOOO1584BAO UniRef90_A2DIM7 UniRef90 L8LR99 UniRef90-B4JTE5 UniRef90_UPIOO03EC64E9 UniRet90 W2RIG UniRef90-W9RB08 UniRef90-J3NMS5 UniRef90 UPIO0045715F0 UniRef90 D8FW24 UniRef90-W9YBI6 UniRef90-E9DTZ3 UniRergo-Kops UniRef90-UPIO00240C4B9 UniRef90_A2DD01 UniRef90 W5K5D1 UniRef90 ${ }^{-}$A2FIP7
UniRef90-HOV3K5 UniRef90 UPI0004546A80 UniRef90 UPI0003ADDF42 UniRef90-B2J3F4 UniRe990-B6H085 UniRet90 UP10002A49A4O UniRef90- ${ }^{-13 E R S O}$ UniRef90-UPIOO04441977 UniRef90 S3D0P2 UniRef90 K7ED39 UniRef90-UPI0003D704C2 UniRef90-TORZ0
UniRef90 TORG45 UniRef90- O8WS24 UniRef90 K1 QAF1 UniRet90_BoXCH5 UniRef90 W4WAE8 UniRef90-UPIO00351208D UniRef90-GOP2N7 UniRef90 W5UEF4 UniRef90 V8P8D1 UniRef90-Q495B1 UniRef90-H2YPY9 UniRef90 D7E5H9 UniRef90 ${ }^{-}$E3Q140 UniRef90-H9JKK8 UniRef90 UPloo045E0C1E UniRef90 B3ES31 UniRef90-UPI00032A32A1 UniRef90_A2F5E3 UniRef90 B7P747 UniRef90-F7C052 UniRef90-D2A501 UniRef90 G3NG27 UniRef90-UPIO004431D81 UniRef90_R7UEZ1 UniRef90 W8BK06 UniRef90- HoZHC2 UniRef90_UPIo00386F662
$1-1020 \quad 40$ ПHAKTSRSFNALHFAARENSKETEELLIACGTDVNAED D N N Q WT AL H WATVNS QLH M MDLLI S Q GLSPDP G S VNA Q GRGYGNAL QAASAQGHEQVVK TLLDKGAEVNAQG


TNTANVDGLTADHQACDDDNSEMVDFLVSHGVDVNYNK DEAGNTGLQFAAAGGHEELVGFLLRRGASVQSRN
 $\checkmark N L N Y R T$
ANSNTATTYAAENGHLDVCAVLIEFGANTDHQA VNTRGTEGVTPLDFASGПGSLVIVKLLVEKGARLNDTD GALD L HYAAAKGDFPSLRVLI RHYPEVNA QT NGQTPLSLAVENGHEDIVQMLLERGAEIIETKD $G L S L L L Q A A A S Q G N V T L L S M L L L N Q G M D D N K P D$ NITNEVDNSGRNAL HYAVNNDNYESIKFLCDKKAKDTEDD NVNAKDTLWLT PLHRAAASRNEKVLGLLLAHSADVNARD DS Q GQAPLQRVAQCGHLKNCRLLIGAGCDQPDTS

QDSAQQTPLF $\square$ ACENGFAD LVSYLLDNKADMNSVD R T ALHRASLEGHMEILEKLLESGATVDFQD V N M T D $\square$ DEENNSKCTVLERAAANGHREVVKMLLAKGANVSKGT K D
ARNHEGNSCLQES $\square$ WRSSLDFTQALLENGADVNNRN $N V N F L T E T K S S P L R A A C Y L G H L N V V E Y L V E H G A N V N L T N$ GYGPLHTAATRGKYLI CK\|LLRYGASTELPT H LD F R A K D GMTALHKAARAKNQVTLKTLLELGASPN YKD

GMNS $\square H \square A A D \square G Y$ VE C L K V L L D C P A D P N $\quad$ R R G G NVVNELS
EGRRELFEACRSGDLERVRKLVTAENVNSRD D D D GN R AL H Y A SRWGHVQQVATLLDAGALI DEEN
 QVNTTSNDGRNLLHUAAANDYTDMCKMVLDYGGDVNARN
$\mathrm{HH} \quad$
GNTSLLYAAEGNYTHLIRALCPDGPLVGESV
 NPAAERENGWTAL HVAAARGQRGV AQVLLSRQADAKAKS HNANVQDCKGRTSLHLAASCGHVGVLGALLQAASSMDDTD TEL INAAKTGDISTVEALI EQRTDVNAKD A N Y Q D E E G $\square T P$ L HWA A $\square$ N N Q FA VCK Y L L E Q G A D V N A K G HPKTGKTSLAVAAHCSHEGVVELLLAEGCNLRTKD
 VNA R DLGK QL LEA A RRGEDDEVRTLMAS GA PFTTD VNART $\square$ N QWTPLDYAANVKSFPLVELLVKNGADDHALT NLHATDASGKTALHLSSGGGHSACVQRLLQCKSPVDSTD NDGSS VVHLAAESGFDQVMP LQANGAPFNMAN
$\qquad$ $L I L A V K N G D D T G V Q K L V A K R L D V N Y Q Q$ VHS Q A S D CS S LL LEAVVRGGNPDSVT LLLE YGADAN DPK V N QADNE GWT PL HVAASCGYLDIARYLLSHGANDAAVN
 PNMQA GRYGTA LAAACRQANLGL AE LLL QS DAA AVNVQG DEEGNTALLQFAAASGHENLVRFLLRRKGASVVSRN


VNAQTNNGATPLYZACQEGHDEVTKYLVECSADPHLRA VNAKDAYGCSVLVWAARNGYYDVFEYLLGHGAEDESVS LNCYNDEGASPLLVAAQSGQTAVVQRLLFAQADCNQTD ALI GAAAQAHCKILEDLLDLNDDVNMEP GFSPLVMACENGHEETVRTLLKHGAKVNGCT EGRTPLLEASHNNA $\square \mathrm{DAVK■LLEMGANVHLGT}$ N $\square$ N ARMHDGTTPLI LAARLDTEGMVEDLINADADINAAD

N $\square$ E H R D K K G F S P L I I A S T A G H A P VVDLLLK N HAA I EAQ D EQDNPGR LVIEAAHGSAAKVRELVQKHPDVDDKN VNLAD GNGNTALHYSVSHSNFWDVKLLLETGCDVDHQN $G R V A L H W A A G A G H E Q A V R L L L E H E A A V D E E D$
$N \prod N T L A D D G K T A L V K A \prod A S N H P E V F K L L L E K G A D V N F Q D$ $V N A Q G G K H G N A L Q A A L I L D H D D V V K L L L S N G A D V N A Q G$


 H H A NEK D $\square E G K T S L D H A V I Y G R L E D I Q L L V D N K A Q I D S S S$ NFFDKRDRRAI HWAAYMGHTEVIALLVSHGAEVNVRD
 VNMTDTSGNTAMHYAVSHGNFDVVS LLLDSKCDINKAN L L E A A R T G NLA AVEKLLSHGASVNKGM FHAAAKRNNLD M E QLVEK K VNI NAMN ERDEDGASP LHRAAERGEI RIVRMLLDSGANPNSED


## UniRef90 A2HES9 UniRef90_K7F824 UniRef90-B2WH71 UniRef90-A2QZV5 UniRef90_G1U856

 UniRef90-UPIO0046D85B1 UniRef90-UPIO001757E08 UniRef90_UPI000441B463 UniRef90-G3U9U1 UniRef90-H9JAX0 UniRef90 UPIO0034F668B UniRef90-V8NPV6 UniRef90-UPI0001E47BB1 UniRef90_UPIO0028A26EE UniRef90-HOWIX6 UniRef90-G7X7W0 UniRef90_UPI0002A4C7E6 UniRef90-A2EHL6 UniRef90-G3VE85 UniRef90-W5KBY9 UniRef90_UPI0002C597B3 UniRef90_F2UGP4 UniRef90-F1MX12 UniRef90_UPI000258DD61 UniRef90-M7U2P0 UniRef90-M4FG96 UniRef90_W9JEW8UniRef90-J9JT47
UniRef90-G3U0P7 UniRef90-E1C3V2 UniRef90_UPIO002A4BE75 UniRef90-BOWRI4 UniRef90 G0TTZ2 UniRef90_UPIO0039446F2 UniRef90_UPI0001584BA0 UniRef90-A2DIM7 UniRef90_L8LR99 UniRef90-B4JTE5 UniRef90_UPI0003EC64E9 UniRef90-W2RIG1 UniRef90_W9RB08
UniRef90-J3NMS5 UniRef90-UPIO0045715F0 UniRef90_D8FW24 UniRef90-W9YBI6 UniRef90-E9DTZ3 UniRef90-K0P5T6
UniRef90-Q4RI49 UniRef90_UPI000240C4B9 UniRef90-A2DD01 UniRef90-W5K5D1 UniRef90_A2FIP7
UniRef90 HOV3K5 UniRef90_UPI0004546A80 UniRef90_UPI0003ADDF42 UniRef90-B2J3F4 UniRef90_B6H085 UniRef90_B3ERS0 UniRef90_UPIO004441977 UniRef90-S3D0P2 UniRef90-K7ED39 UniRef90_UPIO003D704C2 UniRef90-T0RZ01 UniRef90-T0RG45 UniRef90-Q8WS24 UniRef90-K1QAF1 UniRef90-B0XCH5 UniRef90-W4WAE8 UniRef90_UPIO00351208D UniRef90-GOP2N7 UniRef90-W5UEF4 UniRef90_V8P8D1 UniRef90-Q495B1 UniRef90-H2YPY9 UniRef90-D7E5H9 UniRef90_E3QI40 UniRef90_H9JKK8 UniRef90-UPI00045E0C1E UniRef90_B3ES31 UniRef90_UPI00032A32A1 UniRef90-A2F5E3 UniRef90-B7P747 UniRef90-F7C052 UniRef90_D2A501 UniRef90-E2AAZ7 UniRef90-G3NG27 UniRef90-UPI0004431D81 UniRef90-R7UEZ1 UniRef90-W8BK06 UniRef90-HOZHC2 UniRef90_UPI000386F662

NYKKSALLHYAAENGCEE\|VKFLIISNGAD\|INDRDKDDTA|L


 NEGWTPLHATASCGFLYIAKYLIEKGANVAAVNNDGELAVV HCGWSPLMQAARFGHLNVARILLENGADLNAQNKLGANVL PNKATPLHFLVAQGNVEQVRLLLVHQVDVDCQTASGYTPLC S DGGTPLAVACQCGHLPVVDDELISRGANVNSCMKDKATP
 ENGRTALMKAAKNGNYSVI QFLLMRGAKVNVSTDNDASALC TQGNTALIQAAKKGHFDTLQYLLLQGANPNAETNQKWKALL


 ERGETPVHYAAYFGQFDCVQELLSSGAEPNCFDLEGVT RLDCTAMHWACRGGHLEVVRLLQSRGADTNVRDKLLSTPL S SGNTAMHYAVSHGNFDVVSILLDSKCDINKANVAGYTAV GDTGNALYGAALKGSRVVVQMLLDHKADVNAGGGYYGNAL AKGKGALMHAAREGQTEDCRYLLEEKGDANTKDEAGDTP IYNSTCCMMASHNNHKEVVEYLLRKGADINADTNCGSTAM
 EKESTALHRAARDGDVEADRDLASSGLSPPDSDSQGAGPV A D G Y T P L
 GST A L H DTA QYNFTEVAEFLLLHGANI NEEDYS GKTPL


GHWEHS LCTA LQ KHHQDAVQAALLEK GALLATSSNQY LDHP YDHRTPLHDAASEGLYVIAELLLDAGASVYAKDRWGHTP

 ESNATAVMWAS QRCHFYIVNLLLQN GADPLLLTDGQGYNDL

 SD Q N T A L H FA A KN G S L L Q I C R FL I E N G ALLV S A L N A GN D T P L


 $G V Y G S A L H A A C R S G N H L L V Q R L L E A G A D V N L I G G B Y C T A L$ NYGWTPLMQAARFGHLPVAHILLENGAEINGRNRLGASVL K Q G H T P L L WA VDK GHNETVGILI QAGADVNT@DSKGDTPL
 $L L R A A E N D N V E K L R D L L A S$ A R L K L L Q E H H L R I A L MAARAGQAEVVRYLVQNGAQVEAKAKDDQTPL
Q D GMTP LHA AAQMGHNPVLVWLVVF A DV SEQDHD GATAM



D D A FTP L H CA S QKNCPEIIDRLLVENGANIDDCTTSD GQTPL
NSGKTALHWAAAVNNVDAVNILLVHGANRDAQDDKDETPL A CA G G DLD E ALL ML RA A DP DSTNA D G $\square$ S A L
RTKDTAASLAACS GGRKEVVVELLLAAHNANKEHRNVSDYTP L
Q GK TA L QVAAH Q GHMEVVKVLLQANSSDEAKDEDGDAAL
K A GYT A VMI A E T E E E MEVVVK KL L Q E G NV N DR A S Q G Q T A L









KN GR S P $\quad$ L


UniRef90_A2HES9
UniRef90_K7F824
UniRef90_B2WH71
UniRef90_A2QZV5
UniRef90_G1U856
UniRef90_UPI00046D85B1
UniRef90_UPI0001757E08
UniRef90_UPI000441B463
UniRef90_G3U9U1
UniRef90_H9JAX0
UniRef90_UPI00034F668B
UniRef90_V8NPV6
UniRef90_UPI0001E47BB1
UniRef90_UPI00028A26EE
UniRef90_HOWIX6
UniRef90_G7X7W0
UniRe90_UP000

UniRef90_UPI0002A4C7E6
UniRef90_A2EHL6
UniRef90_G3VE85
UniRef90-W5KBY9
UniRef90_UPI0002C597B3
UniRef90_F2UGP4
UniRef90_F1MX12
UniRef90_UPI000258DD61
UniRef90-M7U2P0
UniRef90-M4FG96 UniRef90_W9JEW8
UniRef90_J9JT47
UniRef90_G3U0P7
UniRef90_E1C3V2
UniRef90_UPIO002A4BE75
UniRef90-BOWRI4
UniRef90_UPI00039446F2
UniRef90_UPIO001584BA0
UniRef90_A2DIM7
UniRef90_L8LR99
UniRef90_B4JTE5
UniRef90 UPI0003
UniRef90_W2RIG1 UniRef90_W9RB08
UniRef90-J3NMS5
UniRef90_UPI00045715F0
UniRef90_D8FW24
UniRef90_W9YBI6
UniRef90 E9DTZ3
UniRef90_K0P5T6
UniRef90- Q4RI49
UniRef90_UPIO00240C4B9 UniRef90_A2DD01 UniRef90_W5K5D1 UniRef90_A2FIP7
UniRef90_H0V3K5 UniRef90-UPI0004546A80 UniRef90_UPI0003ADDF42 UniRef90_B2J3F4 UniRef90-B6H085
UniRef90_UPI0002A49A49 UniRef90_B3ERS0 UniRef90_UPI0004441977 UniRef90_S3D0P2 UniRef90-K7ED39 UniRef90_UPI0003D704C2 UniRef90-TORZ01 UniRef90-TORG45 UniRef90_Q8WS24 UniRef90_K1QAF1 UniRef90_B0XCH5 UniRef90_W4WAE8 UniRef90_UPI000351208D UniRef90-GOP2N7 UniRef90_V8P8D1 UniRef90_Q495B1 UniRef90-H2YPY9 UniRef90_D7E5H9 UniRef90_E3QI40 UniRef90_H9JKK8 UniRef90_UPIO0045E0C1E UniRef90_B3ES31 UniRef90_UPI00032A32A1 UniRef90_A2F5E3 UniRef90_B7P747 UniRef90_F7C052 UniRef90_D2A501 UniRef90_G3NG27 UniRef90_UPI0004431D81 UniRef90_R7UEZ1 UniRef90_W8BK06 UniRef90_H0ZHC2 UniRef90_UPI000386F662

H H A A CNGNKETIE TLL LSHGAD\|NAKGFHDMTP|LCADTHN AVASENGNQEI AEELLNSKADVNLRDHAGCTABHKAAAAC QAASYGGHEQVVKTLLDA GAEVVVQQGGEYGNALQAASYGG
 HLAARFAHPTLVEWLLHEGHSATLETREGALPLHHAAVSG

 VI P A QD Q QP D L CA L L L E H DA DAN L VD E D GWTP L H LAA A Q N N $\bar{F}$ I A A Q N G H D NVVCA ALV R G GAD LTAAR CDRAS P L WI A A Q C G $H L A D Y K D S A E L I T S F L H S G G D V Q Q V G F G G L T A L H I D A V I A G$ HFA CAN GY T D I V T F VLV DN K C QL D S CD K E K R S P L M K A V E C Q F LLA CA H GH WE V V RLLLDDHGADPSHVFK DGMTCMMEASANG MFA A HRGQFEVLMKTLLLKHGARADFQDDDGMSSSIMYAA QNG HA A A QMGHSSVIA WLVSCDVS LSEQDKDGATAMHFAASRG LEAT Q N GHEDI AK MLSDAKVKI
HF A A A NGHAC CVVE E L LA A GAAVDSVAAD GQTS LFVACEA G HYTADDNKEE IV F LLI KYHPNLNIKDNKKTNALLYALENN H H A V H S GHELEMVNLLLNKGASLNVCDKKERQPLHWAAF LG HFASSGNRVMVVDVLLQHGADVHAKDKGGGVPLHNACSYG HF LVVVQSLVEPV RLLLAAHEVNVDCQTAFGYTPLLDAAQD Q HWACSQGFPDVVRELLNYNAYPNFTDRDQLTPLDYALSGG $H V A V R T G Q V E I V E H F L S L G L D I N A K D R E G D S A L H D A V R L N$ $M L A A L A E H A S V A N R L F Q L A A D V N D R A K H G Q T A L M L A V S H G$ QAAAFEGHQSIVQLLLNHKADVNAEGGYYGNALQAAAFKG V HA AR Q GQ $\square$ D TAK YLLD HGADPN $\square$ A S E LGATALHHAA GTG HCMMRH HEDAVFWLAKNGTD LDRRNNEGKTPDHVAA E LN HFA A QA DNLE I AK LLLIEFNAQQQLKNRQSLTPILVAAERT H LAACHGEEVVVSTLLRCGADPNVAKQTGWTPLVLAVQRG HQACRYGHVQHLEHLLFYGADMCAQNASGNTALHICALYN HHAARC GRLLLCL QFLV D LGMPADPRASNGATPAHDAAATG HLAARTSSFECVELLLRVGADPNAEDFDQRTPDHAADSES Y I A CFNGREDVAMLLLENGAERNVKNGRSEAALHVAARTG H NACSFGHAEVVSLLLHHGADANARDNWNYTPLHEAADKG Y GA A L K G S R A V A QML L D Y K A DVN A QV G P Y G N A L Q A A A HE G
 $R$ LA ARRGN
FWAARRGNLA LLRRLLLTSGVDVDCRDSCGTS LLLMVAS YA G
 DEVRIGGNKKLIKLL
HRAAANGHEGVARLLDDRNASTGARDRCSQTPDHLAAAN G HAAAFTDHVECLQLLLSHNAQVNAVDSAGKTPLMMAAENG MGAAAAGHTIIVKALLDAGADVNAKTNFGLTALMSAAGSG HLAT T DD GNALLLTTLLLLHQSDPVDTPDPQGHTSSMMWAGYKG $R V A C D H G Q M N A, R T L V R R Q A V V D A R D R T K R T S S L H V V S D S G$ HMAAYK GHVEVVKVFIANHYSLS IVNKDMWTLLHAAAQEG HATSLSGGHVSTVKLLLERGAMVDSLDVMKHTPLBRACEMG
 L LAA AMSHPRACQQLLLCGASTNLRDKQNKTALILACEHP HYAVMYNHIQQVDFLVENSVDVNAPGHDQKRPIHYAVEND

 $H L A V V E G Y I D I V Q V L L N R G G D V Q I R N R D G D T P L L V A A L Q G$ QAASRDGYDVIVVHILLQUGANVNVQGGSFGSALRAAAVGG TMAARGGHVHVVKLLLESGAFVD DYDHLDDTALMVAS QHG $H V A V A R D N I A A V Q M L I A A G A K L D M Q N K D A Y G P L H L A D G W E$
 $H \square S A R D G K A E D V Q Q L L Q Q G A S P D A A T S S G Y T P L B L S A R E G$



 Y QA CVS GFIDAVK LLLEMGANDHLGSS DNY TPLHCAA QQN F L A A REGSFEACKALLDTRANREITDHMDRLPRDVAS ERLL HQACDDENLEVVRFLV E Q GATVNQADNE GWTP LDVVAA S C G A L A S S G GY L EIV N MLVAA G A EI N S R S K L G DS P L M L A A M N G

 HCAA QK GHVVPVLAF MMEDLEDVVHVVDKDGRTAFHRAAEH G HYAARYK QKKVIAALAE H GAHVNFVD DEGQTSLHSAS DKG M $\square$ A E F N N Y R T I AQ I L R Q A G A
S SAAERGYYEMVQVLLNTGVDVDSRDNGGRSALSWAAEKG HAADTRSECDII ELLVNWGAQVNKKDEYGYSALHLAAMDG
 HLAA Q $\square$ G NLD IVVKFLV DYGAA I NLK NVEGDTPDHMADWS N
 LYSCEVNALQSVVKWLI K QGANMEQRNNDEQTPLIVATMNK HVA CLLNGKED IAADELLVVAGAHSSALNCRGQTPLHYAADS T D I A A S E Y $\square \mathrm{E}$ E MLL K A
HAAVENNCEK VDDLLKRRAFVDVMDRYRNTPLHLAASKG $M L A V S H G R K D M T Q L L L D A G A A V N I Q D E D G S T A L M C A A E H G$ HLPAWK GEEQFVKLFFPQGPLP P P P L N E Q S SVD $H$ LA A WF GS LLE MLMMLVKAGADQKAKNQDGMTILHFAAQNN HYASENTNVEVVRILLKAGADHRRRDTSGTTALHCAA YHT Y L A A WA GRDEIV K QLLLHAANPNTQT DDNETPLHCAAQHG HFAALHNHGALVGQLVGAGARVNAVTKDFATPLHMASHRG

## UniRef90 A2HES9

UniRef90 K7F824 UniRef90-B2WH71 UniRef90_A2QZV5 UniRef90_G1U856 UniRef90_UPI00046D85B1 UniRef90-UPIO001757E08 UniRef90_UPI000441B463 UniRef90_G3U9U1 UniRef90_H9JAX0 UniRef90-UPI00034F668B UniRef90-V8NPV6 UniRef90_UPI0001E47BB1 UniRef90_UPI00028A26EE UniRef90-HOWIX6 UniRef90 G7X7W0 UniRef90_UPI0002A4C7E6 UniRef90_A2EHL6 UniRef90-G3VE85 UniRef90-W5KBY9 UniRef90_UPI0002C597B3 UniRef90-F2UGP4 UniRef90-F1MX12 UniRef90-UPI000258DD61 UniRef90-M7U2P0 UniRef90_M4FG96 UniRef90-W9JEW8
UniRef90-J9JT47
UniRef90-G3U0P7
UniRef90-E1C3V2 UniRef90_UPIO002A4BE75 UniRef90-BOWRI4 UniRef90 G0TTZ2 UniRef90_UPIO0039446F2 UniRef90_UPIO001584BA0 UniRef90-A2DIM7 UniRef90_L8LR99 UniRef90-B4JTE5
UniRef90_UPI0003EC64E9 UniRef90-W2RIG1 UniRef90_W9RB08 UniRef90-J3NMS5 UniRef90_UPI00045715F0 UniRef90_D8FW24 UniRef90-W9YBI6 UniRef90-E9DTZ3 UniRef90_Q4RI49 UniRef90_UPIO00240C4B9 UniRef90-A2DD01 UniRef90-W5K5D1 UniRef90-A2FIP7 UniRef90-H0V3K5 UniRef90-UPI0004546A80 UniRef90-UPI0003ADDF42 UniRef90-B2J3F4 UniRef90_B6H085 UniRef90-B3ERSO UniRef90_UPI0004441977 UniRef90-S3D0P2 UniRef90-K7ED39 UniRef90_UPI0003D704C2 UniRef90-TORZ01 UniRef90-T0RG45 UniRef90-Q8WS24 UniRef90-K1QAF1 UniRef90-BOXCH5
UniRef90_W4WAE8
UniRef90_UPIO00351208D
UniRef90_GOP2N7
UniRef90- W5UEF4
UniRef90_V8P8D1
UniRef90-Q495B1
UniRef90-H2YPY9
UniRef90-D7E5H9
UniRef90-E3QI40
UniRef90-H9JKK8
UniRef90_UPI00045E0C1E
UniRef90-B3ES31
UniRef90_UPIO0032A32A1
UniRef90-A2F5E3
UniRef90-B7P747
UniRef90-F7C052
UniRef90-D2A501
UniRef90-E2AAZ7
UniRef90-G3NG27
UniRef90_UPI0004431D81
UniRef90-R7UEZ1
UniRef90-W8BK06
UniRef90-HOZHC2
UniRef90_UPI000386F662


WLDCARALLDAGADRSDTTTDGCTPDHAAVRSGHVEVLRL NER DANMLI $\square$ NGADVNESDNNGCKAI HYAVKKNFKK H L EV VKLLVARGADPSCKDRKGYGLLHTAAANGQDDVVKH HYEVAELLVDHGAVINVADDWKFMPLHEAAAKGKYEICKLL HPDLCALLLGHGADANLADKDGWALLHFTAQNGDDRTAHL FQECVDLLVEAGA
RYK II I KLLLHGADMMSKNDAGKTPTDD
RKDMTQLLLDAGAAVNDQDEDGSTADMCAAEHGHTDUVRLD

 HHDFVYCLI D
F L R I I N L EHHADVHAYSRVGWTSAHLAAFKGNMA LIKV QESCARVLLFRGANKEDKNYNSQSPFQVA DIAGNFELAEY

 K IDDVCIVLLQHGAEPTIRNTDGRTALDLAA



RETTVRLLLERGADAAARGNDNQTPLDLAVGGGCEATQRL QTNAVEVLVSAKADLTLQDVNKNTALHLGCSK HAEVVQFLLEKGADIKAKDNNTWTALVWASSEGHKQVVEV WPACVDLLLRWGADVNAADDNGFTPLHWALVKGSKPCLDR
 HRDVILTLI KGGAQVDLVDVEGHTALHWAAGGGNAEVCQU

 N $\square D M V K H L I D L V C D L N A K D K E G L T P G H Y A V Q R V N D P I I N A$ H YEVSEMLL QHQSNPCLVNKAKKTPLDLDACEFGRLKVAQL NYELI S LLLRRGANVN
VEDACRLLAEHGGGMDSLTHAGQRPCDLA
HSKAVEALDCSGGDVNEKN LGGEVPCDTLADVSQGHTQTVKV
 HEATVHLLLEFGSDVNSQKATGWGPLMLATLSGKVAVAQQ K L E I AKI LI KAGADLN $H P Q V V A L L V A H G A D V N A Q D E N G Y T A L T W A A R Q G H K H V V Q K$
$H D A V A A L L E G A N P E T S D K K G R N A L M T A A W K N H Y H I L N S ~$ HEDVASVLLEHGASLADTTKKGFTPLHVAAKYGKDEVANLD ELDECQLLAVNGAGLDVRDHDGYTAADLAAKFNGHTHCANRY HGPCVEKLLEARAEPNIANAEGNTABVHLAARGGFDALVLL HDAVVTWLLQSNADVNQPKDDGDHPLY I A A QNGHDLVVAQ
 YPEIVGLLVAKGANIDCTTSDGRTPLYEAFLDGADDAGKN HHDIVRLLDEH
Y LDITTRYLLSHGANDAAVNSDGDLPDDLAES DAVEG HRDATRVLLEKGSDINAQETNRNTALTLASFQGRSDVVKL FTDVVRVLTENSADVNLQDSYGDTPLHDADSKDFRSIVE E




## STLIVQLLITKGAYVEAQAPKYGSPLHDAVQEGARNMVII  

LQNCAKTLLNFGADVNFSDNFGRTPLQLAASSGHHHLVELL HTD IVRLLLAHDCDPS IVDVDGSSALGIALEAGNRDIGVL
 NPSVVCLLCHGADPWAHSRRSRPA
HNTVLADLLAYGADPTVRNNSFQTADDLAAQFGRDQAVQT
HADV ARQLLHHKAPVNAQDKQAKSPLHLAAEQGHQT LAEM

| UniRef90_A2HES9 |  |
| :---: | :---: |
| UniRef90-K7F824 |  |
| UniRef90-B2WH71 | L |
| UniRef90-A2QZV5 |  |
| UniRef90_G1U856 | L V K |
| UniRef90-UPI00046D85B1 |  |
| UniRef90-UPI0001757E08 | $L$ A E |
| UniRef90-UPI000441B463 |  |
| UniRef90-G3U9U1 |  |
| UniRef90-H9JAX0 | \|L L |
| UniRef90_UPI00034F668B | L L K F |
| UniRef90-V8NPV6 | L L E |
| UniRef90-UPI0001E47BB1 |  |
| UniRef90-UPI00028A26EE | LL |
| UniRef90-H0WIX6 | L V |
| UniRef90-G7X7W0 |  |
| UniRef90_UPI0002A4C7E6 | L L |
| UniRef90-A2EHL6 |  |
| UniRef90-G3VE85 | L L R L |
| UniRef90-W5KBY9 | L L Q |
| UniRef90-UPI0002C597B3 | $\underline{L}$ |
| UniRef90-F2UGP4 |  |
| UniRef90-F1MX12 |  |
| UniRef90-UPI000258DD61 | L L |
| UniRef90-M7U2P0 | L L C |
| UniRef90-M4FG96 |  |
| UniRef90_W9JEW8 | L M |
| UniRef90-J9JT47 |  |
| UniRef90_G3U0P7 | V K |
| UniRef90-E1C3V2 |  |
| UniRef90-UPI0002A4BE75 | L |
| UniRef90_B0WRI4 | L I |
| UniRef90_G0TTZ2 | L L K V |
| UniRef90_UPI00039446F2 |  |
| UniRef90-UPI0001584BA0 | L L D C |
| UniRef90_A2DIM7 | L L |
| UniRef90_L8LR99 | LQE |
| UniRef90-B4JTE5 |  |
| UniRef90_UPI0003EC64E9 | LFEF |
| UniRef90-W2RIG1 | $\underline{L}$ |
| UniRef90-W9RB08 |  |
| UniRef90_J3NMS5 | LE R |
| UniRef90-UPI00045715F0 |  |
| UniRef90-D8FW24 |  |
| UniRef90_W9YBI6 | L |
| UniRef90-E9DTZ3 | L V EV |
| UniRef90-K0P5T6 | L |
| UniRef90-Q4RI49 | L M |
| UniRef90_UPI000240C4B9 | LQE |
| UniRef90-A2DD01 |  |
| UniRef90-W5K5D1 | VQQ |
| UniRef90-A2FIP7 |  |
| UniRef90-H0V3K5 | $\underline{L}$ |
| UniRef90-UPI0004546A80 |  |
| UniRef90_UPI0003ADDF42 |  |
| UniRef90-B2J3F4 |  |
| UniRef90-B6H085 | L L |
| UniRef90-UPI0002A49A49 | L V E |
| UniRef90-B3ERS0 | L L |
| UniRef90-UPI0004441977 | L L E L |
| UniRef90-S3D0P2 | L I K |
| UniRef90-K7ED39 | L L Q |
| UniRef90-UPI0003D704C2 |  |
| UniRef90-TORZ01 | L LE |
| UniRef90-TORG45 | L |
| UniRef90-Q8WS24 | L I |
| UniRef90-K1QAF1 | L L |
| UniRef90-B0XCH5 | LLEEL |
| UniRef90-W4WAE8 |  |
| UniRef90-UPI000351208D | L L K |
| UniRef90-G0P2N7 | L L |
| UniRef90-W5UEF4 |  |
| UniRef90-V8P8D1 |  |
| UniRef90-Q495B1 | L V |
| UniRef90-H2YPY9 | L L |
| UniRef90-D7E5H9 |  |
| UniRef90_E3Q140 | L L E |
| UniRef90-H9JKK8 |  |
| UniRef90-UPI00045E0C1E |  |
| UniRef90-B3ES31 | L VE |
| UniRef90-UPI00032A32A1 | L V S V |
| UniRef90-A2F5E3 |  |
| UniRef90_B7P747 | L L E |
| UniRef90-F7C052 |  |
| UniRef90_D2A501 | FL |
| UniRef90_E2AAZ7 |  |
| UniRef90-G3NG27 | L L |
| UniRef90_-UPI0004431D81 | L I ELL |
| UniRef90-R7UEZ1 |  |
| UniRef90-W8BK06 | L I R |
| UniRef90-HOZHC2 | L L K |
| UniRef90_UPI000386F662 | L \| M S F |

UniRef90_N1S623
UniRef90 V6DEY6 UniRef90 G1KSV5 UniRef90-W5UGC6 UniRef90-C7XRJ0 UniRef90 UPI00038BBD79 UniRef90_UPI0003C8423C UniRef90-F6UXM9
UniRef90 H3CPW4
UniRef90 UPI00045720E8 UniRef90-UPI000469F9A5 UniRef90-F1M153
UniRef90- 11 HY 12
UniRef90-S4T9U3
UniRef90-F2TVM9
UniRef90 B8NQZ3
UniRef90 V4UMY7
UniRef90-D7G1U9
UniRef90-F1RAL5
UniRef90-I1S5U6
UniRef90-W4YX33
UniRef90-H2RVK2
UniRef90-UPI0003958804
UniRef90 UPI0002B8EC52
UniRef90-H2UT37
UniRef90-H3D114
UniRef90_F6YHZO

1
VNLHDGRFAAA DQLASANGHEK TTQLLADRDADVDAQG TPLMKAVEKGNEE V VKLLLTYQANVNEQN $H$ VDQQNKAGYTAIMLAASRSDMDTVVQLLKMGNNVAKA $\square$ NTTDKEGRTPL $\square Y$ T $\square M E N R T E A A K L L L E K G A D T Q \Pi K D$ GRTALHEACTAGHTACVRVLLVAGADPNIPD HYDDHRKSALYFAVSNGDTSSVKLLLSAGADPN GMNALLLSAWFGHGR【LQLVNSGAK $\square H C E N$

NMLNAPNDAGETPLI IACMKGNLI IADLLIDAGAEVNKAL VNADDHTGQTALHWSAVRGHDQVAELLLKEGAKVDAAD NTNAEDHNGETPLHAAVRADADEVFRLLISRSTQUDAKT TPLHWAI RQGHMRVVVLLVKGGANTAFKD VDVRGDAETTVL LDAAVYYRQAEVI QLLLEAGADVNLVE LSAAVRGDGLLLHQLLRRGSDPNELD


NRGNDGQRADHQAA DRGFVDCARVLINHGCDVNVQD MEAAKRGFLELVQALDKGGDPNMVD VNSRDAKGRTPDHAAAFADNVRGLQLLLRHQAQVDSAD $V N A R D K L G C Q P L H Y A A S H G H L D C L Q Y L A K Q G A K L Q S V D$ $N V N C T D S S G Y T P L H H A S L N G H R D V V L K L L Q Y E A S T N V E D$
$D A H G Q T P L M A V M N G H V D C A H L L L E K G A T V D A G D$


lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm


[^0]

UniRef90_N1S623 UniRef90_V6DEY6 UniRef90 G1KSV5 UniRef90-W5UGC6 UniRef90-C7XRJ0 UniRef90 UPI00038BBD79 UniRef90-UPI0003C8423C UniRef90-F6UXM9
UniRef90 H3CPW4
UniRef90 UPI00045720E8
UniRef90-UPI000469F9A5
UniRef90-F1M153
UniRef90- 11 HY 12
UniRef90-S4T9U3
UniRef90-F2TVM9
UniRef90 B8NQZ3 UniRef90 V4UMY7
UniRef90-D7G1U9
UniRef90_F1RAL5
UniRef90-I1S5U6
UniRef90 ${ }^{-}$W4YX33
UniRef90-H2RVK2
UniRef90-UPIOO03958804
UniRef90 UPI0002B8EC52
UniRef90-H2UT37
UniRef90-H3D114
UniRef90 ${ }^{-}$F6YHZO

130
140
150
 YPNILAMLLEHKANVNLINRFGKTAKDIALSNKHNKIVQL QND\|AIML
W DEGCVCLLRNGAKQNDPDKNGR DPDHAATAEVDDRLMAV $N Q Y$ GKALLEAGAEDDGQNEMGETALLDAAMEGYNDFVKL HSAVVELLLSCGVSANAMDYGGHTPLHCALQ
$H \square A V L Q R L V D \square R \square D L E E Q N T K G L T A D H A A A E G V H A D C V Q L$ DMKVVEQLFRKGDVNAKASQGQTALMLAVSHGRVGMVRA $N$ LLGLQWLTSVGCNIQERDDSGASVLHLAARFGRSEMVQW Y NEIV EMLLTAGAE
QTECLNTLLKHGADPNTMDCSDNTADHYAVYNGDDETATK $N$ L ESCTVLVQVGKDLMVQDNTGLTPAQLAADKNHRQVAFF HMEAVKMLLDHGANREITDHLDMSPRELANRMCLLNVVRL NMFAVIALVVHAGASKDVKNE
RTA LTRLLLEMGADVSVSPEDGRTADHYAASVGQADLLQL N IE VKFLIDQGSDIDKPD DHGWTPRALADHQGQEDIQQU YVDAVRELLQK $H T A V V K A L L Q K G A H V D A A A R D G Q T A D H \square A V E N C R P Q V V Q M$ $R L D V A Q W L L D Y G A D P S M T A R D G S T P L H Y A A M R G D E K K T R M$ HSQSMEFLMSQGAD $\square$ NLQGEDDHTALHL YKDVAK
$\square A S V V Q A L L S R G A T V L A V D E E G H T P \square A C A P N K D V A D C L A L$ HPNLI
SEEAVQVLLKHSADVNARDKNWQTPDHDAAANKAVRCAEA RLDVVCMLI NTHPNLMTCHCRRHTPLHLAARNGHHSTVQT


| UniRef90_N1S623 | $\llcorner\square$ |
| :---: | :---: |
| UniRef90-V6DEY6 |  |
| UniRef90-G1KSV5 |  |
| UniRef90-W5UGC6 | L L Q |
| UniRef90-C7XRJ0 | $\underline{L} \mathrm{~V} \mathrm{E}$ |
| UniRef90_UP100038BBD79 |  |
| UniRef90-UPI0003C8423C |  |
| UniRef90-F6UXM9 | L L E |
| UniRef90-H3CPW4 | L L E L |
| UniRef90_UPI00045720E8 | L V K |
| UniRef90-UPI000469F9A5 |  |
| UniRef90-F1M153 | L L E |
| UniRef90-I1HY12 |  |
| UniRef90-S4T9U3 | L |
| UniRef90-F2TVM9 |  |
| UniRef90-B8NQZ3 | L V |
| UniRef90-V4UMY7 | L L Q M |
| UniRef90-D7G1U9 | L I Q |
| UniRef90_F1RAL5 | L L |
| UniRef90-11S5U6 | L I |
| UniRef90-W4YX33 |  |
| UniRef90-H2RVK2 |  |
| UniRef90-UPI0003958804 | L L |
| UniRef90-UPI0002B8EC52 |  |
| UniRef90-H2UT37 | L V |
| UniRef90-H3D114 | L L Q |
| UniRef90_F6YHZ0 | $\underline{L} \mathrm{~V}$ E |
| lupas_21 |  |
| lupas_14 |  |
| lupas_28 |  |
| jnet |  |
| conf | 861 |
| sol25 | B B B |
| sol5 | B |
| sol0 |  |
| jhmm | - |
| jpssm |  |


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

