10
GVR $\quad$ SHTDFRLLGVPYSAQGEQLFSLLDTLW DEGNTQ S ITTVIDITNUILDLFVP IVGPVLSGINRLWPSNGTAD


GAFYTF LLNTLWPASNTQQ $S \prod D\|L A E\| \quad Y Y L G F P \prod A P L T R A D S A$ I AGQLIFSSG AV TVALI TGEVLS LVMPGATMGSTLLNTLWPTNTNTV SIIRTALS ILQMLLSVSFPALGRAAGLINDIFGFLWQSV GVT $\square L N K \square L G T L L K K F \quad A G K \square L V N \square F K L L W P T A E T D V$

NVSKT L L K K LG S T L L
FNTLGWLWPSNNNA， GK I L G S V L

S D T RIV
YTP $\square \mathrm{D} \square \mathrm{S} \square \mathrm{S} \square \mathrm{T}$ QF L LSEFVPGAGFVLGLVD\｜DWGDFGPS Q


## QUERY

 UniRef90_Q45738 UniRef90-Q45733 UniRef90-Q45715 UniRef90_Q45704 UniRef90_V9HZX3 UniRef90_U5KRN9 UniRef90-Q03745UniRef90 Q03749 UniRef90- C 3 IBA6 UniRef90_U5KRR0 UniRef90_U5KRR4 UniRef90_Q3B9W6 UniRef90_U5KS07 UniRef90_A9VV88 UniRef90_U5KRG2 UniRef90_Q6Q7C6 UniRef90_Q9X597 UniRef90_Q56B08
UniRef90-E6Y2M1 UniRef90_E6Y2M1
UniRef90_B7NZY0 UniRef90_Q9ZAZ6 UniRef90_G8XRZ1 UniRef90_U5KS12 UniRef90_P0A376 UniRef90_B1GRL6
UniRef90 H6V633 UniRef90_H6V6J3
UniRef90-Q45746 UniRef90_U5KRH8 UniRef90_O87404 UniRef90-O66377 UniRef90_Q45747 UniRef90_U5KRS3 UniRef90_L0GEB4 UniRef90_Q5EF82 UniRef90_Q45744 UniRef90_C3CBJ9
UniRef90_J8N7T9 UniRef90_C4PFI0 UniRef90_Q6BE03 UniRef90_U5KRX8 UniRef90_A8QJM0 UniRef90_P17969 UniRef90-Q45706
UniRef90-U5KRX2 UniRef90_U5KRX2
UniRef90_K9JGF8 UniRef90_Q765X7 UniRef90_U5KRH5 UniRef90_Q57458 UniRef90_J8JK75 UniRef90_Q765X3 UniRef90_Q765X5 UniRef90_U5KRX4
UniRef90 U5KRN5 UniRef90_U5KRW5 UniRef90_J7H1B3 UniRef90_M1E9Q8
UniRef90 G0WRD3 UniRef90 R8G619 UniRef90_R4V3T3 UniRef90_U5KRN3 UniRef90_U5KRI2 UniRef90_C3HSF8 UniRef90_B1GX18
UniRef90_M1E9M6 UniRef90_J8N2R5 UniRef90_M4ZRJ6 UniRef90_U5KRI4
UniRef90_U5KRQ4 UniRef90_U5KRP1 UniRef90_Q5XLA8 UniRef90_Q8RQU6
UniRef90-Q8VUK9 UniRef90_U5KS08 UniRef90_Q6BE06 UniRef90-J8N566 UniRef90_A0ELQ3 UniRef90_AOELQ3
UniRef90_U5KRP2 UniRef90_C3CBU1 UniRef90_I6R138 UniRef90_U5KRG6
UniRef90_C3HA12 UniRef90_Q8VUL0 UniRef90_K9JHX5
UniRef90_U5KRN4 UniRef90_C3CCG2 UniRef90_M4ZS19 UniRef90_U5KRJ3
UniRef90-O32307

50
60 S RLLE G L $\quad{ }^{70} \mathrm{~S} N L Y \mathrm{Q}$ TY A
WD AF LVQ
Q Q

Q Q L $N$ Q R $\begin{array}{lllll}D & Q & R & 1 \\ N & Q & Q & 1 \\ D & Q & K & 1\end{array}$ | E |
| :--- |
| E |
| T |
| T |



 E WE A F M R Q V WE Q $\$ M T L V w | W E | I | M | E | $R$ | $V$ | $E$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| W E | I | F | M | $Q$ | $V$ | $E$ |
| W | I | I | V |  |  |  | WDIF LEE QV w $\stackrel{w}{w}$ WEQTMEQVE WNAFMEH WE AFMAQ WEEFMKQV WDAF MKR WD DLMTAV WA EMLILVE WDAF WA EQ WKAYMEQVE WEEFMRHVE WE F MEHVE WS L F LLQ WE EFIAALAE WQAFMTQVE WKAFMQQVE WKQFMDAVE WEAFMKVVE WEQMMSAVE WKAFMAQVE WQDF MNRVE WEAFMAQIE WEELMRHAE WDLFLEQI



AKI NENPS
WEKFMRA俭
WERLMSAVEKLSNQKI QQDSKRSDAIVRWKGVQQALGREYAR
WE QIIEQVE
WELFMERVE
WEALIRSI E
WLLE:
WD
SII
DEVV
SV V
WN QLMTAAEDLIKK
WEAFMELI
WDAFLVQ
WDQLMGAVE
WVQLMNAVEAMI DEK
WE EMMKGEEVNQK
WEEMMEKGEELIKQA DQSVKNDALLQLEVARIMVDEYST

WQKFMNAVE
WEAFTEQME
WEDLLMNHDE
WTDMMTAVE
WEAFMNTVEALIN
WDOLMAGAEF NQKLD
WENMM VVEALTDQR
WEEMMKEVEYLIDKK
WQQLMNAVEELIDQR
WE YMNESEELVNQK
WEHYMNHVQALIKRE
WK NFMDSAEALMDQK
DNA MEQVELLDDEK
WNAI MEQVELLIDDQKIV
WEEFMEAVEQLVDEK
FDELMEAVEELVEEKI
AYAKSRALTEVGSIGNAVERYQT
GTFAKDTAASSNGGSR1/AVERYRN
QQVIIDAETAALESVKLNVDLYMN
LESKRGEATARWQGI QDNMKDYKS
QESTRKDA ARWQGGQLLGRDYYS
EEFARNQA:SRLEGLSNLYQIYAE
ALVRSNAA ARWEGLQLLAVDYYQ
T
DQVVRTALDNNLGUQNYYNQYLL
TEKRTTALDDLRGLALLGLFRD
EAVRNKALTELKGVYRTLGLYRD
QEQVENDAETEELEKUGEAVEAYQUC
DEYARSKA SEELNGLKNVEEYQD
GESKSDAIARWQGMQTLGRDYFQ
LYADENATSKLEGLRSVVSDYNT
EYARNKALAVLEGLGNAVESYYS
DTVITNAETALRGMHRVLQSYRS
QAFAREQALRQLEGLGGNLGLYKE
YQKRQSAVLQQQVVQSRLKDYQQ
SEQVRNDALAQT Q SSGGULQQYYQS
EQARNAALGRLSGLKRALSSYQE
SEQVRNDALATLESSGIDALAYYLN

 UniRef90_Q45738 UniRef90_Q45733 UniRef90_M1E9P1 UniRef90_Q45715 UniRef90_Q45704 UniRef90_V9HZX3 UniRef90_U5KRN9 UniRef90_Q03745 UniRef90_Q03749 UniRef90-U5KRR0 UniRef90_U5KRR4 UniRef90_Q3B9W6 UniRef90_U5KS07 UniRef90_A9VV88
UniRef90_U5KRG2 UniRef90_Q6Q7C6 UniRef90_Q9X597 UniRef90_Q56B08 UniRef90-E6Y2M1 UniRef90 Q9ZAZ6 UniRef90_G8XRZ1 UniRef90_U5KS12 UniRef90_P0A376 UniRef90_B1GRL6 UniRef90-H6V6J3 UniRef90_Q45746
UniRef90_U5KRH8 UniRef90_O87404 UniRef90-O66377 UniRef90_Q45747 UniRef90_U5KRS3 UniRef90_LOGEB4 UniRef90_Q5EF82 UniRef90_Q45744
UniRef90_C3CBJ9 UniRef90_J8N7T9 UniRef90 ${ }^{-}$C4PFIO UniRef90_Q6BE03 UniRef90_U5KRX8 UniRef90_A8QJM0 UniRef90_P17969 UniRef90-Q45706
UniRef90-U5KRX2 UniRef90_K9JGF8 UniRef90_Q765X7 UniRef90_U5KRH5
UniRef90 Q57458 UniRef90-R8G5P2 UniRef90_J8JK75 UniRef90-Q765X3 UniRef90_Q765X5 UniRef90_U5KRX4
UniRef90 U5KRN5 UniRef90-U5KRW5 UniRef90_J7H1B3 UniRef90_M1E9Q8 UniRef90_G0WRD3 UniRef90_R8G619 UniRef90_R4V3T3 UniRef90_U5KRI2 UniRef90_C3HSF8 UniRef90_B1GX18
UniRef90_M1E9M6 UniRef90_J8N2R5 UniRef90_M4ZRJ6 UniRef90-U5KRI4
UniRef90 U5KRQ4 UniRef90_U5KRP1 UniRef90_Q5XLA8 UniRef90-Q8RQU6 UniRef90_Q8VUK9 UniRef90_U5KS08
UniRef90_Q6BE06 UniRef90_J8N566 UniRef90_K0GOL7 UniRef90_A0ELQ3
UniRef90_U5KRP2 UniRef90_C3CBU1 UniRef90_I6R138 UniRef90-U5KRG6
UniRef90- C3HA12 UniRef90-Q8VUL0 UniRef90_K9JHX5 UniRef90-U5KRN4 UniRef90_C3CCG2 UniRef90_M4ZS19 UniRef90-O32307

SFREWEADP ${ }^{90}$
90
100
110
R AFKE WES DPDNEAAKSRVIDRFRILDGLIEANI PSFRI IG

 ALE TWLDNRNDARSRSI I RERYIALELDDTTAI PLDSI R N
 A L E E WQ K N P S S T R V L R DV Q N R F E I L D S SLE D WLENRNDAR RRSNLMRDQ A L A D W L G K Q Q D DP E A I L ALEEWRENPNDSRTTRGVRTRFEILDDGLFTQYMPSFKVSG AL A D WKQNPTSPSSQERVRTRFRDTDDSLTVFMPSFAVKG S L E A WLE N R N DT R A R S VV S K Q F I A L E LDDVVGA IP S FAVV N
 LRNEWEND【ENSKA QGKVANYYESLEQAVERSMPQFAVEN ALLESWQNNSRNS QTRLLVQQRLVVADSQFKQAMPSFAIKD

 A L D E WL L R PNGARA S LVVSQRFNI LDDSLGTQQFMPSFGSQN A L R R WD L N P T N L D R Q S EVVVS Q F E V H A F F RVVQMP V F A I R D ALEEWQKNPNNARSAALVRERFSDAEHTLRTQMSLITVRG ALKEWENDPDNPASKERVRTRFRTTDDALLTGVPLMAIPG
 L L V A WL E N R N NA R T R S L I K Q Q Y VA L E Q I FTT G L P E F S V Q N

 ALLREWENDPNNPAS QERVRTRFRLTDDA VVTGLPTLAA RN AFEDWRRNPTSQEAKTRVDDRFRILDGLFEAYMPSFAVQG S L E S WVGNRNNTRRARSVV KNQY DAL E LDMFVQK LPS FA V S G ALREWEENPNNAQLREDVRDRFANTDDALI TAAINNFTITTS T F R A WEK DPSNP AL REEMRTQFNVMNSALIAAIPLLRVRN AFADWEKNQTDP QKQEAVRNEFRNANDIIVAAMPEFAI KN
 ALDSWDKTPRDGRSQGRIRELLFSQAESHFRRSMPSFAVSG ALEAWQNNRSDK LQQLLVYERFVATETMLKYADPSFRVSG AANAWNMNPDDAAVKERI RRQYTATNTVIEYAMPSFRVGG A L N E WK DTPDNPFVQERVRTTFRDVNSII NYAMPSFRVQG DAKNFND YP T S E P I QRQLLS QFTATNTTIVGSMSLFRVGR ALCNLQTDPDNERFKEDVRREFNDAE DQAKAAVI QF GNPN SLR EWE GSPNNE GLQQDVRNRFSNTDNALITGYLFLDREGG ALDSWKKAPVNRRSQDRIRELFSQAESHFRNSMPSFAVSK AL E D WRKNPHSTRSAA LVKERFGNAEA ILRTNMGSTSQTN A L E E WLDERPNGARA SLVVFQRFNVLD GLVTQRFMPSF GTRN

 AFREWEA DPTNPA LKEEMRTQFNDMNS ILVTAADPGFSSVQN AFNNWNANRNNPALQREVISRFNIADGALGSAIPEFRIEG

 AF GNWFKS QDNSKLKE EVVRRQFDITHNRFVTSMPFFKVSD A A D DWNENPTDVVSNE RVRRQFTSTNTTIEYAMPSTRVPT A LLDDLKE EPDNAA LKTTVVRNKFESVEDQLKDSMPYFSAEG SLQTVWQENRTDSRVRGVI DQQF DALDLDFVNKMPSFAVSG AL E D WEK QPENLK SLLGLVIQRRYNEAESHARNSMPDFAVGG
 AFNNWNTNRNNPALQREVDSRFNDADGFFGNSMPSFRKEN ALLE WET R P TNE Y S TEELVYKRFTVAYNYARTSMPFFSVRT
 ALLCDWI NDQDNAVVKERDRDAFDDLDDDQLKLAMPFFSVQQG SLE S WL E NQ NDA RAMSVVRQQQ VAA E LDDFVTAMPFFERS G
 A I C NLKQDPNNEAYKA DVRREFNDADDLAKAAIIQFRNEK ALNDWIESSPGVRDSAATMRS IV IDNTVQQLAVQMAYFRREP ALCALSSKDPDNE EKKFAVRDSFDDVEDQLKLSDPYFRAQG


 AFDSWEKNQNDPDAKNRVGGYFEDVHTHFVKDMSDFSATN A AERWNQNKNDPQAQESIRTQFRATNTIIEFAMPSFRVAG A LD D WE PVPEDMFSLSEVVIKRYDFAQQL ARASMPEFKKKG A ADDWNENPGDLRNKNRVLTEFRNVNGHFENSMPSFAVRN A Q C D W L Q D Q N NTVVKQ NR L Q D A F D D L D D Y l K V S M P F FR A E G ALEAWELESSSERSLELVLERYQFAVQFARSSMPSFADID
 AL A E WE QDRDNPTTKERMRDRFRILDDGFFTQY\|PVFRIQG AVCNLKRDPNNENYKSLVRDAFDDADDSDKEVMINFGAES ALED WKDHPNNARSAQLVRERFTTAEARVRSNIAYVSRAR SFETWUDDENDPELQEDVRMRFTSTLGELVTTIETFKYSG
 ELLELWDERPNDPSVDQSVRTRFDDLDSEFDSSMPQFAMNG ARSRWEADPDNENIVKSELRDEFKAVEDVLEEHMPQFRVAG
 UniRef90_Q45738 UniRef90-Q45733 UniRef90_M1E9P1 UniRef90_Q45715 UniRef90-Q45704
UniRef90-V9HZX3 UniRef90_V9HZX3
UniRef90 U5KRN9 UniRef90_Q03745 UniRef90-Q03749 UniRef90_C3IBA6
UniRef90_U5KRR0 UniRef90_U5KRR4 UniRef90_Q3B9W6 UniRef90_U5KS07 UniRef90-A9VV88 UniRef90-U5KRG2 UniRef90_Q6Q7C6 UniRef90_Q9X597
UniRef90_Q56B08 UniRef90-E6Y2M1 UniRef90_B7NZY0 UniRef90_Q9ZAZ6 UniRef90_G8XRZ1
UniRef90_U5KS12 UniRef90-POA376 UniRef90-B1GRL6 UniRef90_H6V6J3 UniRef90-Q45746 UniRef90_U5KRH8 UniRef90_O87404 UniRef90-O66377 UniRef90_Q45747 UniRef90_U5KRS3 UniRef90-LOGEB4 UniRef90_Q5EF82 UniRef90_Q45744 UniRef90_C3CBJ9
UniRef90 J8N7T9 UniRef90_C4PFI0 UniRef90_Q6BE03 UniRef90-U5KRX8 UniRef90-A8QJM0 UniRef90-P17969 UniRef90_Q45706
UniRef90 U5KRX2 UniRef90-U5KRX2
UniRef90_K9JGF8 UniRef90-Q765X7 UniRef90_U5KRH5
UniRef90 Q57458 UniRef90-R8G5P2 UniRef90-J8JK75 UniRef90-Q765X3 UniRef90_Q765X5 UniRef90_U5KRX4
UniRef90 U5KRRN5 UniRef90-U5KRW5 UniRef90-J7H1B3 UniRef90-M1E9Q8
UniRef90 GOWRD3 UniRef90_GOWRD3
UniRef90_R8G619 UniRef90_R4V3T3 UniRef90_U5KRN3 UniRef90_U5KRI2 UniRef90-C3HSF8 UniRef90_B1GX18
UniRef90_M1E9M6 UniRef90-J8N2R5 UniRef90-M4ZRJ6 UniRef90-U5KRI4
UniRef90 U5KRQ4 UniRef90_U5KRP1 UniRef90_Q5XLA8 UniRef90-Q8RQU6 UniRef90-Q8VUK9 UniRef90_Q6BE06 UniRef90-Q8N566 UniRef90-K0G0L7 UniRef90_A0ELQ3
UniRef90_U5KRP2 UniRef90_C3CBU1 UniRef90_16R138 UniRef90_U5KRG6
UniRef90_C3HA12 UniRef90-Q8VULO UniRef90_K9JHX5 UniRef90-U5KRN4
UniRef90 C3CCG2 UniRef90-C3CCG2 UniRef90_U5KRJ3 UniRef90_O32307

Y QVP LLS VYVVAA NLHLSVLRDVSVFGQR WGFDAATTNSR

160 FEVVPLLSVYVQAAN LHLALLRDDVI FGERWGLTTKNVNDV
 EEVPLLMVYAQAANLHLLLLRDASLFGSEWGMSSADVNQY HEVLLLAVYAQAVNLHLLLLRDASIFGEEWGFTPGEISRF

 H E V P PL L TVV Y A Q A A S L


## Y

$\stackrel{\mathrm{F}}{\mathrm{F}}$
Y
F
Y


L E V V NL

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




## Y





 Y E V PL L SVV A NVVNIMLLVLRDSSIVGGDWGLSSTSVDNN F E I L L L Y Q V PF S SVYVQAANLHLSVLRDVSVFGQAWGFD DATI N S R

 YEI RLLTNYA QAANLHLTFLRRDASI YGLDWGFSDEHSNDL





 F E L P M L S M M A Q A A NMH L LLL L R DVV QN GVVSWGFAP Y E V D R Y
 Y E V Q ML A MY A QA A NMH L L FGL R DVVL NGQA WGFQQYEVDR Y Y A L P LL L A D Y A Q A A N LLHL L LL R DVV QY GESWGF SLLLEV Q Q Y
 Y E T K L L T I Y A Q A A N L H L L L L R D A S R F G E G W G Li T Q E I I D S N F E A

 Y E I P L L A TYAN A A N V H L LLLMR D MQ I Y G E R WGGIP K E D I E L Y F EVVNLLPVVYAEAANLHLLLLRDAVVKGEGWGMSTDERDDM
$F$ QVQQMLSMYA QAANMHLLLLRRDVVQNGLDSWGFQQYEVDR Y
$F Q Q Q L L L V Y A Q A A N M H L L V L R D A V I H G E A W G Y K S V T V D G F$
 HNI LLL A DYA QAANVMHLLLLRDVVQFGESWGFSPLEDQQY HELPLLTMYSQAANI YLYVAKDITIFGKEWGFTEGDI EFY YEVQLLSIVAKVVNLHLLLLRDASMFGADWGMSQTNINDN DEVLLL NSYA QAANLMLLLLRRDVVKFGRDWGMKELQVEQY Y E I L L L P I Y A QVA N I H L L L L R QVVELLYGKD L G Y S Q S D I D L

 FEI QFLPVYAHAANLHLLLLRDLSYYGKNWGLQEPEI ENF YEVQLLLPAYAHAGNIIHLNILRDLVLNGADWGYTSGFI SDR $N N I L L L A D Y T Q A T N V H L I L L R D V I D K G G E S W G S S L E V Q Q Y$

## QUERY

 UniRef90_Q45738 UniRef90_Q45733 UniRef90_M1E9P1 UniRef90_Q45715 UniRef90-Q45704UniRef90 V9HZX3 UniRef90-U5KRN9 UniRef90_Q03745 UniRef90_Q03749 UniRef90-U5KRR0 UniRef90_U5KRR4 UniRef90_Q3B9W6 UniRef90_U5KS07 UniRef90_A9VV88 UniRef90_U5KRG2 UniRef90_Q6Q7C6 UniRef90-Q9X597 UniRef90_Q56B08 UniRef90-E6Y2M1 UniRef90 Q9ZAZ6 UniRef90-G8XRZ1 UniRef90_U5KS12 UniRef90_P0A376 UniRef90_B1GRL6 UniRef90_H6V6J3 UniRef90_Q45746 UniRef90_OKRH8 UniRef90-O66377 UniRef90_Q45747 UniRef90_U5KRS3 UniRef90_LOGEB4 UniRef90_Q5EF82 UniRef90_Q45744 UniRef90_C3CBJ9 UniRef90-J8N7T9 UniRef90_C4PFI0 UniRef90_Q6BE03 UniRef90_U5KRX8 UniRef90_A8QJM0 UniRef90_P17969 UniRef90-Q45706
UniRef90-U5KRX2 UniRef90_K9JGF8 UniRef90_Q765X7 UniRef90_U5KRH5
UniRef90_Q57458 UniRef90_Q57458
UniRef90 R8G5P2 UniRef90_J8JK75 UniRef90_Q765X3 UniRef90_Q765X5 UniRef90_U5KRX4 UniRef90_U5KRN5
UniRef90_U5KRW5 UniRef90_J7H1B3 UniRef90_M1E9Q8 UniRef90_G0WRD3 UniRef90_R8G619 UniRef90_R4V3T3
UniRef90_U5KRN3 UniRef90_U5KRI2 UniRef90_C3HSF8 UniRef90_B1GX18 UniRef90_M1E9M6 UniRef90_J8N2R5 UniRef90_MUZRJ6
UniRef90_U5KRI4 UniRef90_U5KRQ4 UniRef90_U5KRP1 UniRef90_Q5XLA8
UniRef90_Q8RQU6 UniRef90_Q8VUK9 UniRef90_U5KS08 UniRef90_Q6BE06 UniRef90-J8N566 UniRef90_A0ELQ3 UniRef90_U5KRP2 UniRef90_C3CBU1 UniRef90_I6R138 UniRef90_C3HA12 UniRef90_Q8VULO UniRef90_K9JHX5 UniRef90_U5KRN4 UniRef90_C3CCG2 UniRef90_M4ZS19 UniRef90-O32307

170
180
190
200
Y N DLLTRLI GNYT DYAVRWYNT GLERVWGPDSRDWVRYNQF


 Y Q E QI RYTEEYSNHCVQWYNTGLNRLRGTTAETWVRYNQF

 Y NRLTR IGEYT DYAVRWYNTGLNRLRNEGVRGWARFNRF

 Y N R HV R LT GEYTNHCVSWYTTGLEKLRGSNAQSWIKFNRY Y N R QVVR LTTS Q Y S D Y CVVK WY NT G L D K L K G T N S A S WL K Y H Q F Y K R Q K A L S A E Y S D H C V K K WY K N G L N K L S K S T A K D WV K F N Q F Y K E HLLE C $\square E K Y$ S D HCCV E WY H T G L N K L K S S T A K D W I D Y N R F
 HTRLLLRHSAEYTDHCVNWYNTGLKQLENSDAKSWFQYNRF H S R QQ S LT R TY T N H CVVT TY Y D GLA E L R G T S V VE S WLK Y H Q Y


 Y N RQMRYTAEYANYCVEWYNKGGDRLKGTDR@SWMKYHQF
 Y N DLTTE GI STY T D Y A V V W WY N T G L E R V W G P D S R D WV R Y N Q F
 Y NR QIR HTATYANHCTTWYQTGLQRLQGTNATSWGAYNRF Y NRQVVETRDYSYHCVKWNNTGL NNLRATNGQSWVRYNQF Y N R LI N L I H R Y T E H C L D T Y N Q G L E N L R GTNTRRQWSREN Q F


 Y N EQ K G Y I E E Y T D HCVVT WY N S G L N QL K NV S GKV WEN Y NR F YT RLQAARTAEYTNHCTNTYDKGGLKQAYYTTPDVDWNDFNDF QNDFNNRIADYTDYSVS IVNQGGLQKAKYGDMENWNLYNNY YFNMK QLLATYT DHCVVRWYNNGLTNRY ETGGWNTFNDF Y S DLTTSLIHVYTNHCVDTYNQGLRRLEGRFLTDWIVYNRF Y Q R QL KL T Q Q Y T D HCVVNWYNVGLNSLRGSTYDAWVKFNRF Y K E QVVSYTARYS DHCVVQWYNAGLNKGRGTGAKQWVDYNRF H T RQQ N LTRDYTNHCVVTTYNS GLLDRLRGTNATS WANYHQY Y S Y LK S D $\quad \mathrm{E}$ ■Y T N Y C I D WY N K G L S I ES E P T WN G WN T F N N F Y NRQQRNSATYANHCTTWYQTGLQRLQGSDASSWVNYNRF
 YKLQVCLIDAYTEHCMSFYRQGLQDLRNR GNWNAFNNY D I RLTRRLTS QYTNYCVHWYNEGVNKLKGTTTADWNKVNDF Y N RQ Q R KTAEYANHCTT WY QTGLLQRLQGTTASSWLS YHRF
 Y E QQKNRTGEYTDHCVKWYNAGLEKLKGNTGENWYTYNRF

 QREQEKYTDEYTNYCVVKWYE E GLLNS S LQQSFAYQWEFYNRY YRE QADFTA QYS D YCVVKWYNA GLLDK L RGTSAQQWWVNYDRF YERMVCLS GAYADHCTFFYRQGLVELR SRGNWNEFNNY D GERKLERAE Y $\square D H C T K Y Y K D G L D R L K G S S Y E S W V N Y N R Y$
 Y NR QKERTATYSNHCMEWYKKGLDE LTWSAGGYGWQDYNDF Y N D LT S LIG NYT D Y AVR WY NTGLERVWGP DSRDWVRYNQF Y S NL R RELLA E Y T D Y C I R WY NT GLLQS QY VT GY W W K Y N D F YSNMLQLLATYTDHCARWYNAGLQQQYNT GDWNKFNDY Y K E F L H HL E E Y T D Y V S K WY K E GL N R L P K S S S T D WVA Y N R Y Y D S QL QLL S VY T NHCVN WY NVGLS QEYGT GNWNRFNDF
 F DELLQNNTRDYTNHCVNAYNNGLGQQRGTNAASWLKYHQF

 YRRLR SRTE TIYT DHCVVNTYNQGLQQAKYRGTENWNLYNAF Y F NL L Q L L G I Y T D Y CVVQWY NTGGLQEQYNT G DWN KF ND F Y D R QV CLID AYTEHCMTFYRQGLQDLRNR GNWNAFNNY LKE QEIVYTSEYSEHCVKWYNEGLNQLKGAS GLVWENYNS F Y S N M L QL LA NYTNHCVV WY NAGLAT FNS Y L Q WQ E L N T F Y NEFLLKYTAE HSEYCI D WY NQGLNQLSQSNSRDWVKYNKY Y N R QMKLTS LYT NHCVDFYNQGLNEARALSNSSWDIFNDY Y DNMVQLLLA $\square Y T$ DHCTRWY QE GAQVQYNT LDDWNKFND Y Y NEQQKFLA QYTNYCTNWYNTGGNTDWNNSAQYWDQFNDF Y Q NLLKNLLP KYS D Y CTYWYD QGL NRAKNLKAEDWNLLYND Y YEEQKKFTAQYTNHCTNWYNDGLNNDWESSGSRWDEFNDF YSNMK QLLAT YT DHCVRYYKEGLEKRYAT GNWNAFNDY YK R QMDNI QKYT D HCVVEWYERGLQEVVYNSFTSTWTHYNRY YERQTKKI KEYT DHCAKYYE VGL NALQRLTYEDWVIVNRF


|  | R ${ }^{210}$ ( ${ }^{220}$ |
| :---: | :---: |
| QUERY | D VAARESNDSRRY |
| UniRef90-Q45733 | RREMTLVVLDVVALFPYYDVRLY |
| UniRef90-M1E9P1 | MTFMVLDLVALFPNYNTHMY |
| UniRef90-Q45715 | dut LGVLDLVALFPSYDTRTY |
| UniRef90 Q45704 | RREMTLLVLDLVALFPNYDTHMY |
| UniRef90-V9Hzx3 | RREMTLTVLDVVALFSSYDTRTY |
| UniRef90'U5KRN9 | RRDLTLGVLDLVALFPSYDTRTY |
| UniRef90-Q03745 | RRELTISULDIISFFQNYDSRLY |
| UniRef90-Q03749 | RREMLLMALDLVAVFPFHDPRRY |
| UniRef90-C3IBAG | MTLMVLDLVALYPSFDARTY |
| UniRef90 U5KRR0 | RREMTVMVLDIVALFPNYDARRY |
| UniRef90-U5KRR4 | RREMTLMVLDVVALFPNYNTQTY |
| UniRef90-Q3B9W6 | RREMTLTVLDVVALFPNYDAKTY |
| UniRef90'U5KS07 | RREMTLTVLDIVALFPHYDVQTY |
| UniRef90-A9VV88 | RREMTVAVLDIVALLPKYDVHMY |
| UniRef90_U5KRG2 | RREMTLMAMDLVALFPYYNVRQY |
| UniRef90-Q6Q7C6 | QREVTISVLDIVALEPNYDIRTY |
| UniRef90-Q9x597 | MTLSVLDVI ALFPAYDVKMY |
| UniRef90-Q56B08 | RREMTVTAMDLVALEPYYNVRQY |
| UniRef90-E6Y2M1 | RREMTISVLDI I SLESNYDARRY |
| UniRet90-B7NZYO | MALDIVALFPNYD RMY |
| UniRef90-Q9ZAZZ | SVLDLVALFPNYDI RTY |
| UniRef90-G8XRZ1 | MTLTVLDVVALFPNYDVRMY |
| UniRef90-U5KS12 | RREMTLLVLDIVALFPNYDARRY |
| UniRef90 P0A376 | RRDLTLTVLDIAAFFPNYDNRRY |
| UniRef90-B1GRL6 | RRELTLTVLDIVALFPNYDSRRY |
| UniRef90-H6V6J3 | RREMTLTVLDLIALFPLYDVRLY |
| UniRef90-Q45746 |  |
| UniRef90-U5K | VLDI SSLFSNYDYRSY |
| UniRef90-087404 | KDELMVLDLVRVFPSYDTLVY |
| UniRef90_O66377 | RELTLTVLDIVALFPNYDARAY |
| UniRef90-Q45747 | SVLDI I AFFPNYDIEAY |
| UniRef90-U5KRS3 | MTLQVLDLVAYWPTYDVKKY |
| UniRef90-LoGEB4 |  |
| UniRef90-Q5EF82 | MTLMVLDIVAIFPNYDTRTY |
| UniRef90-Q45744 | MTLTVLDLITLFPLYDVRTY |
| UniRef90-C3CBJ9 | RREMTIMVLDILPLFPIYDTRTY |
| UniRef90-J8N7T9 | MTLMVLDIVAVWPTYNPRLY |
| UniRet90 C4PF | MTLMVLDLIALFPSHDARRY |
| UniRef90-06BE03 | RRDMTLMVLDLVALWPTYNPQQY |
| UniRef90-U5KRX8 | RRNMTLMVMDVVSFWPTYDPMLY |
| UniRef90-A8QJM0 | RQFTISVLDIVAFFPNYDI |
| UniRef90-P17969 | REMTLTVLDLI VLFPFYDVRLY |
| UniRef90-Q45706 | RREMNVMVLDLVALEPNYDARIY |
| UniRef90-U5KRX2 | RREMTLMVLDLVTLFPYYNVRQY |
| UniRee90 K9JGF8 | RDMTLMVLDLVSWPTYDPRRY |
| UniRet90_Q765x7 | CALFSNYDVR |
| UniRet90_U5KRH5 | REMTLSVLDIVS |
| UniRef90-057458 | RELLI SVLDI I SFFRN |
| UniRef90_R8G5P2 | RTMT TLLDI 1 SLFSNYDARVY |
| UniRef90-J8JK75 | MTI MVLDI VSLWP TYNPTLY |
| UniRet90-076553 | MT LTVLDI CALESNYDARSY |
| UniRef90-Q765X5 | MTLTVLDICALFSSYDDPSY |
| UniRef90-U5KRX4 | RREMTLMVLDVVALFPNYDTRMY |
| UniRef90-U5KRN5 | RDMTLMVLDI VAVWPTYNPRDY |
| UniRet90-U5KRW5 | RNMTI MVLDIVSLWPTYDPKRY |
| UniRef90-J7H1B3 | RREMTLMVLDVLALEPGYD RTY |
| UniRef90 M1E998 | RREMTLMVLDL S |
| UniRef90_GOWRD3 | RRENMTINVLDIVALLESNYDVRMY |
| UniRef90-R4V3T3 | RREMTLMILDTIAAFPYYDTEEY |
| UniRet90 U5KRN3 | RREMTLMVLDIIAQFPYYDVKKY |
| UniRef90-U5KR12 | RNMTIMVLDTVATWPTFDPRRY |
| UniRet90-C3HSF8 | EMTLSVLDFVALEPPNYDTHLYY |
| UniRef90-B1GX18 |  |
| UniRet90-M1E9M6 | RRDMTLMIMDIVALWPTYNPRFY |
| UniRef90_J8N2R5 | RREMTILALD |
| UniRef90-U5KR14 | RRNMTIMVLDivaAWPTYNPRLY |
| UniRef90-U5KRQ4 | REMTLMVLDVVALFPNYDTRMY |
| UniRef90-U5KRP1 | RDMTLMVLDVVAL WPMYNPKLY |
| UniRef90 Q5XLA8 | RRETTLTAMDLVALEPYYNLRQY |
| UniRet90-Q8RQU6 | RRDM |
| UniRei90-U5KS08 | RTEMTILVLDVGAVFPRYNVIEY |
| UniRef90-Q6BE06 | RRDMTILVLDIIA ${ }^{\text {a }}$ (PTYDPGLY |
| UniRef90'J8N566 | RTMTI SVLDTVSTWPTFDPRRY |
| UniRef90-K0G0L7 | RRNMTIALLDTISLESNYDGRVY |
| UniRef90-A0ELQ3 | RTEMTI MVLDLVAI FPAYNMSKY |
| UniRet90_U5KRP2 | MT MVLD ASLWP T Y D K S |
| UniRef90 C3CBU1 | RREMTIMVLDI I SLESSYDGFLY |
| UniRef90_16R138 | RREMTLTVLDVALFPAYDYRRY |
| UniRet90_U5KRG6 | RRDMT MVLDIVSUWPTYDPFYY |
| UniRef90 C3HA12 |  |
| UniRer90-O8VULO |  |
| UniRer90-K9JK | RRTMT MVMDIVSTWPTYDSRVY |
| UniRef90-C3CCG2 | RREMTVYVLDLIALFPTNDWKKY |
| UniRef90-M4ZS19 | RREQTLTVLDIVALYPYYDVKKF |
| UniRef90_U5KRJ3 | Y |
| Ref90_O32307 |  |

UniRef90 U5KS17 UniRef90－U5KS18 UniRef90－V9HXE4 UniRef90＿16QMAO UniRef90 J8N797 UniRef90－Q9X682 UniRef90－J8HQM8 UniRef90 U5KRW8 UniRef90 Q75QQ5 UniRef90＿Q6BCH5 UniRef90 V9P857 UniRef90 U5KRW3 UniRef90－UPIO0041149F1
UniRef90－FOPZB5
UniRef90 U5KS15 UniRef90－E9K6H8 UniRef90－N1LT74 UniRef90－Q25BT2 UniRef90 D3G9V2 UniRef90－M1E9Q1 UniRef90－U5KRQ8 UniRef90－P05519 UniRef90 Q45358 UniRef90＿U5KRR9 UniRef90－R8DLK4 UniRef90 D5FIH1 UniRef90－V8QAK7 UniRef90＿K0G027 UniRef90－H6WA86 UniRef90 R8S3D4 UniRef90＿O87905 UniRef90＿A4GZY2 UniRef90＿D3B0W1 UniRef90－K0G510 UniRef90－Q9S597 UniRef90－M9LC08 UniRef90 F4PY21 UniRef90－C6VZR1 UniRef90－V9P8S1 UniRef90－Q7X3F7 UniRef90 J8F6M8 UniRef90－V9P860 UniRef90－Q8VUL1 UniRef90 ${ }^{-}$N1LPH2 UniRef90＿Q45754 UniRef90－J8BW69 UniRef90－I2GDA3 UniRef90 C3GBS6 UniRef90－F4Q3V3 UniRef90＿HOUGV1 UniRef90 C4NZQ8 UniRef90＿U5KRR6 UniRef90－N1LIK5 UniRef90＿G0WLG5 UniRef90 Q8VNX1 UniRef90－F6JS41 UniRef90＿O87906 UniRef90 Q8VW62 UniRef90－D3BNW8 UniRef90＿Q2AAU0 UniRef90－K0FZK4 UniRef90 Q75VA2 UniRef90－D3BNI7 UniRef90＿UPI0001D2DFB0 UniRef90 D5FGK2 UniRef90＿C3GCL9 UniRef90－J8BW85 UniRef90＿DOYZT6 UniRef90 W5XJ45 UniRef90－U5KRR7 UniRef90－R8S483 UniRef90 Q45882 UniRef90－A7WK64 UniRef90＿UPI00036D6AAF UniRef90＿Q45712 UniRef90 C1IJT3 UniRef90－D3BNW6 UniRef90－O32321 UniRef90－R8R4U7 UniRef90 B4F6G0 UniRef90－N1LR39 UniRef90＿C3CBI6 UniRef90 R8EX84 UniRef90－D3BNW7 UniRef90＿KOFS66 UniRef90＿R8G6W9 UniRef90＿P09662 UniRef90－COLUWO UniRef90－W4EWRO UniRef90－Q8VNX2 UniRef90＿N1LSG2 UniRef90＿Q5W7N9

$T \square L N \square G N T A T S \quad \square R S P G M \square A G Q \square L L L V I R F \square W K \square S G Q R K$ SFGTLAPVLWPDPEEDI D SKK
TKNNT
TKN $\mathrm{K} N \mathrm{~N}$
K N V
V

## 

 $A \square S V T G T \| L G F L G B F A G Q I T K V L G L L W P N Q Q T K Q$
 $\square V G T V I S K L L G F V P V V G D \| L S F L A D T Y W P K \square A T R Q Q$ K G $\square$ M G T G $\square S L L P P P A S L L G S V W N V F M P T N G T D M$ WPDDTNTM TPERV FTPA VGVVSFLLQSLKKQATSFLTLTDLLFPNNSSLTT

$\square V G T V A S F L L K K S L V G K R I I S E L R N L I F P S S S T N L$ GGTGLSLLPPPASLLGSIWNIFMPSTNTDM $G \square S V V G D L L G V V G F P F G G A V S F Y T N F L N T \square W P S$ PKSEDNT
 $A \square N M \square K S V V L T G V S C \square P Y \square G G L L S S \square M D \square I W S S S K V D V$ PNNPQKT
$\square V G V V T S T L L N A L K Q V G R L L T L L T D L L F P N N S T S N$ $T A \square V \mathrm{G} \square \mathrm{S} \quad \mathrm{M} \square \mathrm{PV} \mathrm{VGE} \mathrm{\| LG} \mathrm{\square TE} \mathrm{\square FWPASKKDV}$ FTG G G $\quad \mathrm{DLDTFLGEPSTTG} \mathrm{\square NLLFSVIGKLLPS} \mathrm{GQNV}$ VAGAVGSFLLKKII IATKLINGLYGILFPTPAPDT VIALTG VLGKTPEIIVNVQEMVSLIRGNTGND

PLNVVIKGVLSTLIPEVGTVASAASTVVSFDWPKNAKND
A G TI I GLI AK ELGKQT FK LLLAKKI YS SLFPVESIDI YDGND【AKTCVVTALGM】PEVGE\｜LAALVEIFWPETKEDP

DIIWSSAAEKM NLIFPNCNTLT LDIIADS LIAADDV
 DTSQGI TP円DTADKVIGADFKSMPPGAKSFST\｜IP\｜LWPNDKTPI A I GVIASUIGLIGEADGLILGTFSSIIPFLWPENKTII

 VLGTFSTILPILWPNDNTK TA $\square$ A T G $\square$ NE $\square P V V G G \square L A G L L D \square F W P S N T N A L L$ GEDPKTV

VLTK LYDELFPNNNELT VP Y TGDI LSLV V LLWPSSQKDI
 $T \ L S L F L D Y K S L L G S P S \prod S G G G F L Q S I I G L I T G A N L A T V$ FKVIDTUHNDSKNNNFNNILTQDFIITGLSULWEDNENEI NNPKTT
$P$ EPTRDV



 NVLLPGDWSED Q $G L G L I \quad L G L V E T L F P K N E K D$ I


WPTDSS ${ }^{\text {NT }}$ $S A D G A \square A T M L L Q K \| V I V G R V L T N \square F N R \square F P G N Q P \square T$

UniRef90_U5KS17 UniRef90_U5KS18
UniRef90_V9HXE4 UniRef90_I6QMAO UniRef90_J8N797 UniRef90_Q9X682
UniRef90_J8HQM8 UniRef90_U5KRW8 UniRef90_Q75QQ5 UniRef90_Q6BCH5 UniRef90_V9P857
UniRef90_U5KRW3 UniRef90_UPI00041149F1 UniRef90-F0PZB5 UniRef90_U5KS15 UniRef90_E9K6H8 UniRef90_N1LT74
UniRef90- Q25BT2 UniRef90_D3G9V2 UniRef90_M1E9Q1 UniRef90_U5KRQ8 UniRef90_P05519 UniRef90_Q45358
UniRef90_U5KRR9 UniRef90_R8DLK4 UniRef90_D5FIH1 UniRef90_V8QAK7 UniRef90-K0G027 UniRef90_H6WA86 UniRef90_R8S3D4
UniRef90_O87905 UniRef90_A4GZY2 UniRef90-D3B0W1 UniRef90_K0G510
UniRef90_Q9S597 UniRef90 ${ }^{-}$M9LC08 UniRef90_F4PY21 UniRef90_C6VZR1 UniRef90_V9P8S1 UniRef90_Q7X3F7 UniRef90-J8F6M8 UniRef90_V9P860 UniRef90_N1LPH2 UniRef90_Q45754 UniRef90_J8BW69 UniRef90_I2GDA3 UniRef90_C3GBS6
UniRef90 F4Q3V3 UniRef90-H0UGV1 UniRef90_C4NZQ8 UniRef90_U5KRR6 UniRef90-N1LIK5 UniRef90_Q8VNX1 UniRef90_F6JS41 UniRef90-O87906 UniRef90_Q8VW62 UniRef90_D3BNW8
UniRef90_Q2AAU0 UniRef90-K0FZK4 UniRef90_Q75VA2 UniRef90_D3BNI7 UniRef90_UPI0001D2DFB0 UniRef90_D5FGK2 UniRef90_C3GCL9 UniRef90-J8BW85
UniRef90 D0YZT6 UniRef90-W5XJ45 UniRef90-U5KRR7
UniRef90-R8S483 UniRef90-R8S483
UniRef90-Q45882 UniRef90_A7WK64 UniRef90_UPI00036D6AAF UniRef90_Q45712 UniRef90_C1IJT3 UniRef90_D3BNW6 UniRef90_O32321
UniRef90-R8R4U7 UniRef90_B4F6G0 UniRef90_N1LR39 UniRef90_C3CBI6 UniRef90_D3BNW7 UniRef90_K0FS66 UniRef90_R8G6W9 UniRef90_P09662
UniRef90_C0LUW0 UniRef90_W4EWR0 UniRef90_Q8VNX2 UniRef90_N1LSG2
UniRef90_Q5W7N9
 WK QLMA GAEDITNKKI QESAKSYATA QWQRVQTYQAD FTQQ WTEMDKTVELLLIKKALDQQMYDEAVSRGE GLEDVVDRYLK WQDMMKYVADLI RQELTTYT DNQATRNLTGLYESLNDYNR

EFMDAVE YLVE QKIDNADKGTADARLE GUEDDLA SYQK






 WA GLI R HTANSLIDNRDVVDRVIDGQATANVMMSLYAALLGVYN R

 WK QLET Y DE EKI DGK KEYHKYLMGAEFNGAMTADMEYQR





 WK AFME QVEALMD QKIA DYAKNSVNAGFQRYYTENKRFRT

 A E QF K K F I D QEVVRQK I E EYDLDD S L K S R Y Q GUVNVMSSLHNQ
 MEE DRAT QEYV QQQL

 A S L S I C D L L S I I R K EVV D E SVLDS DAYG DFN GVVN N Y Q Y Y L T
 QK LMCEMGALVDKKLTDFVLEQATKQLE GLIGII SRYRA
 WD E V






 S A L S I C D L L S K S Y R S ML I A I V D K NI T QYD DA A LKA S $\square$ Y GCA L S LLKDF Q S
 WT DFAERGLQLERPELGQDAIEILKSGYNALKNRMENFEQ TAMYMNMVKEVVD QQI S V Y D N A DL DA E Y A GIID S Y I N N F K T WA E $\square K D R V D A E I N N A I S Q A V F T N V Q A V L G S L A S N L N T G L G$ WK A FVVK GYRPF GLPVVEAIVN LLYNKVDALKTQFEDYQR WK S MI K NVVE N L ID E K I A Q L H Y



 W IE FI R M GE QL VD K T I S Q T V F N I L E S Y L K D L K V N L V D Y E K WG E I R R QVEA LI D E K I D S A V F N L L Q A K L N GL G D A L K L Y L Q
 K S IIR Y Q T N DL I Q N S L M Q Y D D N Q T K A DF KA CSSLA F K D Y R Q

 T N Q Q I S T V A K L I D T K V D S Y A I E R A D K E L E GLLK K V M E E Y R D WQLCIA H L E S L I Q F D MP K S L K H N I F K R L Q NI E NEMK VY E K WEELEPRI QGLLDERFTKERLEVLKGKLQGFDNNLRSLQQ


 WGEEMI G F A Q E L V G T A L



ALIEAWQNNRSDKLK QLLVYDRFVSTENLFKFAMPSFRVGG ARCDWIQDQNNEIKKSRLQDAFDDFNDELQGSMPFFRVQG
 TADQWNNNPDDEAAKNRI LDS FRDTERFIDREMPSFSIKG AFNDWKRNPSANTAR LVSQRFENAHFNFVSNMPQLQLPT AVSNLQKDPQNERLKENVRDQFVATNTFVVGSLPLFRVRG KLNVWKNGDKSPVEQNEIQRVFADTNNSFLLLDSQFQQLG ALEAWDKDKSNDTLQENVDEEFKYVESFFENLKGDYRTSS ALAAWKQNKNNFASGELVRAY 1 NDLH LLFRDIQSDFS LGG ALCNLQTNPDVERYKEVVRREFNDANDKAKSTIINDESDG ELKN GTPSDIRSQWMETRSHFVNALPHFQSAG ALEEWLENKESPETRDRVDQRWRNADSLFEQFMPSFQSNG ALCNLKTDPNNETYKTTVRREFDNAADQARKTILAMSPKK FLEQWK SPVKPYLADEI RAQMSTLHLLFTTKIISFTIQG TIKDWRESQGNTKAAEDVREMFREVHSHF VVAMPMFKIYG FLADWKKSGMNGTLADELRKQMSTLHDMFTQT IIDFSQPG AFDYWRLHPTDGNAIATVAARFHTVNGAFVTAMRLFRPAG VLQUYNDSKNSLARVEEVIAAVRAADRKLKEFDAIIQTPE ALKEWKNDPQNPASQERVRTRFRNVDDDFTHDMPSFARAG KFNTWKREPNNQSYRTAVIT QFNLTSAKLRETAVYFSNLG QVEDFLQNRV GISPGAIIDSDNTMQQLFVNRLPQFQVSG
 AFASWEAGGN ATPDLVKGYMESLHRTFVQDIISFTIPG QVDNF $\operatorname{L}$ NPNRNAVPLSI TSSSVNTMQQLFLNRLPQFQMQG VLQ QYNDSKNS LK RVEAV DTAARNADTALKAFIS I IQTPE ALDNWKKNPNDSAADNTVSTRFQQVNAFFVEAMPADSMPG ALEAWNNNKSNDNYQTNVAEAFKTVERFFTKLKGDYRTSS LFED WYEDQNNEQKRNRLVGTFQTLGDAFDNALGYRNTNG NVQSWLQAHGDKSTTETLRSSFESIDENFSVYI EEASKDG ALNVWLTAPNQANARTVADLYKDTDFLIFFTTLPHLKGRD ALLENWKKNPNDSARNTVSTREQUVAFFVEAMPALSMPG QVNDFLQNRVGDSPAAIDDSTNTMQQVF VNRLPOFQVRG VFQLWOKNPTNNST ПQSVRTAHEDAHTSFIQTIPHAQKPG A AAAGD LLEDYWLADRQNPNATNSVSARFTADHNNFLGAMALLEKDPG TVEAYEQKDYNENHADEIRNAMNTFHTLCVNRMPQFRLPG FFRQWERNRT PONGQQVESAFTTVNTLCINAQASGSRRG
 A V K $\square F$ Q D N R P R D VA A E SVVRA H F R S V D L A I T A A I P L F R LT G A I D

N N D Y V T A

 EVKAYNETKTNPNAPEGVIDRQWVSTRAAFVNA LPHFQADN


 ASCN L LQRHPNNE VYK E LI R DA F D DAD DA LAK D T I K I F S R E G S M I H Y IlK N P N S T N Y T
 EFAITWAGAKNQATTGDLLR RISAIEGALIGLKNGLTVSE
 YLEA WLK DKTNNSDIGGQLVKYFELSERDFNE\|GGSUARNN






 $A \operatorname{I}$ E N L N Q N P S S S G L K E A V R T K Y R S L D S L F T Y S M P Q F A V N T
 T I Q A GASDDEIK DHFLAANLFFINQRPWFQQKN KIVDTLLF NSNNSHSLHDVYQSYSGF\|GNVNTVIDQFRLKS


 AK Q D WIE S P P ST K LIRNAADDIA HQRLDSLHNK FAELFKVEP A VA A

## A I Q VA I C N P N Q P

 $S L Q E W L S A K P N D S R L S N V V E Y F K K S E E G F N E U L A S L S R Q N$ HWKE LQQA DP K N E A L K E V M R V S F Q N L E N E I T K Y I Y Q CR K G G

 $K F T$ TVD LIY R T R A NA $\quad$ I A V T D A F N A V K N Q I I R L K D K F L I A E
 AINVVAQENPGDK QHQEEVRTVKLNVVLELIHNTNEMFKMDE


 S LE D WLLNA P L S G P L L N Q V T

 UniRef90_Q8VNX2


## UniRef90_U5KS17

 UniRef90_U5KS18 UniRef90-V9HXE4 UniRef90_J8N797 UniRef90_Q9X682UniRef90_J8HQM8 UniRef90_U5KRW8 UniRef90_Q75QQ5 UniRef90_Q6BCH5
UniRef90_V9P8557 UniRef90_V9P857
UniRef90 U5KRW3 UniRef90_UPI00041149F1 UniRef90-F0PZB5 UniRef90_U5KS15 UniRef90_E9K6H8 UniRef90_N1LT74 UniRef90_D3G9V2 UniRef90-M1E9Q1 UniRef90_U5KRQ8 UniRef90_P05519 UniRef90_Q45358
UniRef90_U5KRR9 UniRef90_R8DLK4 UniRef90-D5FIH1 UniRef90_V8QAK7 UniRef90-K0G027 UniRef90_H6WA86
UniRef90 R8S3D4 UniRef90_O87905 UniRef90-A4GZY2 UniRef90_D3B0W1 UniRef90_K0G510
UniRef90_Q9S597 UniRef90-M9LC08 UniRef90_F4PY21 UniRef90_C6VZR1
UniRef90-V9P8S1 UniRef90_V9P8S1 UniRef90_J8F6M8 UniRef90_V9P860 UniRef90_Q8VUL1 UniRef90_N1LPH2 UniRef90_Q45754
UniRef90 J8BW69 UniRef90_I2GDA3 UniRef90_C3GBS6 UniRef90_F4Q3V3 UniRef90-H0UGV1 UniRef90_C4NZQ8 UniRef90_N1LIK5 UniRef90_G0WLG5 UniRef90_Q8VNX1 UniRef90-F6JS41
UniRef90 O87906 UniRef90_Q8VW62 UniRef90_D3BNW8
UniRef90_Q2AAU0 UniRef90 K0FZK4 UniRef90_Q75VA2 UniRef90_D3BNI7 UniRef90_UPI0001D2DFB0 UniRef90-D5FGK2 UniRef90_C3GCL9
UniRef90_J8BW85 UniRef90_DOYZT6 UniRef90_W5XJ45 UniRef90_U5KRR7
UniRef90_R8S483 UniRef90_Q45882 UniRef90_A7WK64 UniRef90_UPIO0036D6AAF UniRef90_Q45712 UniRef90_C1IJT3 UniRef90_D3BNW6 UniRef90_O32321
UniRef90-R8R4U7 UniRef90-B4F6G0 UniRef90-N1LR39 UniRef90_C3CBI6 UniRef90_D3BNW7 UniRef90-K0FS66 UniRef90_R8G6W9 UniRef90_P09662
UniRef90_C0LUW0 UniRef90_W4EWR0 UniRef90-Q8VNX2 UniRef90_Q5W7N9

130
140
150
160
 FEVQMLSMYAQAANMHLLLLRDVVQNGLSWGFLQSEVVRY P Q V L L L

 Y E V V

 N E V P L L P L F EVVLL L TVVYA QA A NLLHLLLL R DCSIVYGAE WGLTP
NAILLLADYAQAANLHLLLLRDVIQYGESWGFSPDEVQQY









 FETLLLLSSYTQAANMHLILLKQASKYADQWNAQRKTANDY




 F E TLL L L P N Y A LAA A NFHLLLLLLRDAVVLYRTQWLLANSSTTNNVN Y E QL L L F DYVQQA A N L H L L L L K DVVRF GVGWGFPPGRVEQY Y E V T L L P L Y C K L A N THLLLLL R DMAAF GSVVYGF TS K IL E F Y Y E T G G L P Y Y A MVVANA H
 Y E V V P M L

 YKI PLLPTYAQAANLHLKILRDI LI HGEDLQUSTADREFY Y ELLLLLNYVQQVALHELLLKDVVRFGVGWGFPQQRVEQY Y E V L L L P L F T QAA N L Y L L FiL R D A IA FF KK Y R S T L S NMQKN


 Y LI I E E L P M Y T Y F A T A H L L SLL R E A A I Y G G K D W GF D D A T I K Y Y




 HE YVLYPL F S DF S S L H L T L L R D GL DN GK HL YEKMSLP YYCLA VTLVLNVYRDFI RYGKK WIY TENY $\quad$ KNTA F ETTL L L P N Y A LAA A NF HL L L L R D A V L Y R T Q WL P N F S T T N A N
 Y E T I L L






 Y A A A S L P Y Y V Q L G N I H I CLL R D L V D H GK D WG Y T D A Q V K D Y
 REVVLLLPN FTQQI A MLLHLLTLLKDAVMFSENSDLLNRPPSSS Y
 WKV ELL P L L A Q A A N L H L L Fil R DVI D NA Q K WH L TAAS QVNTY


UniRef90_U5KS17 UniRef90_U5KS18
UniRef90_V9HXE4 UniRef90-I6QMAO UniRef90-J8N797 UniRef90_O9X682
UniRef90_J8HQM8 UniRef90_U5KRW8 UniRef90-Q75QQ5 UniRef90-Q6BCH5 UniRef90-V9P857 UniRef90-U5KRW3 UniRef90-UPIOO041149F1 UniRef90-FFPZB5 UniRef90-U5KS15 UniRef90-E9K6H8 UniRef90 N1LT744 UniRef90-D3G9V2 UniRef90-M1E9Q1 UniRef90-U5KRQ8 UniRef90-P05519 UniRef90 Q45358 UniRef90-U5KRR9 UniRef90-R8DLK4 UniRef90-D5FIH1 UniRef90-V8QAK7
UniRef90_KOG027 UniRef90-H6WA86 UniRef90_R8S3D4 UniRef90_O87905 UniRef90-A4GZY2 UniRef90-D3B0W1 UniRef90-KOG510 UniRef90-M9LC08 UniRef90_F4PY21 UniRef90-C6VZR1 1 UniRef90-V9P8S1 1 UniRef90-J8F6M8 UniRef90_-V9P860 UniRef90-Q8VUL1 UniRef90 N1LPH2 UniRef90_Q45754
UniRef90_J8BW69 UniRef90-I2GDA3 UniRef90-C3GBS6 UniRef90-F4Q3V3 UniRef90-HOUGV1 UniRef90-C4NZQ8 UniRef90-NKRR6 UniRef90-GowLG5 UniRef90-Q8VNX1 UniRef90-F6JS41 UniRef90-Q8VW62 UniRef90_D3BNW8 UniRef90-Q2AAUO UniRef90-KOFZK4 UniRef90-Q75VA2 UniRef90 D3BNIT UniRef90-UP10001D2DFB0 UniRef90 D5FGK2 UniRef90-J8BW85 UniRef90-DOYZT6 UniRef90 W5XJ45 UniRef90-U5KRR7
UniRef90-R8S483 UniRef90_Q45882 UniRef90-A7WK64 UniRef90-UP100036D6AAF UniRef90-Q45712 UniRef90-C1IJT3 UniRef90-D3BNW6
UniRef90 O32321 UniRef90-O32321
UniRef90 R8R4U7 UniRef90-B4FGGO UniRef90-N1LR39 UniRef90-C3CBI6 UniRef90-D3ENW7 UniRef90 KOFS66 UniRef90-R8G6W9 UniRef90-P09662
UniRet90-C0LUWO UniRef90-W4EWRO UniRef90 Q8VNX2


Y

170
180
190
200 YNEQKDYVVEYTDHCIVKWYTEGLINRDKNASGKVWEEYNRF YLNLNQLLGTYTNYCIIDWYNKGLQEQYATGY WSKFNNF
 YQKFLTKTVDYTDYCVNTYHAGLQKTKNLIGKDWNVMNDY YDELLVYIEKYDNYCTKTYHKGLNHLKESEKDTWDAYNTY
 H S D Q L D M T Q D Y T N Y A VV D T Y N K G Liver




Y D N MK QR LEEEYTNYCVNWYNVALSD DRASGVNKWRQFNAF HNEQVKFTTDYTAHCIKTYNLNLNAQK SKGWVAFNQY
 DQEFNAKAAEYADYCELTTYNTELNRDKTTSGKTWFDYNQY QANQKK LIQEYTNYAMQVYNDGLEKRKYRNTDRWNHDNKY
 Y N TMMVQYTKEY DAHSDTWYNKGLDVLRNKSNGQWDT FNDY TRYFKEYDAEYSNYALSTYDDGF RTRFYPRNTLEDMLQF

 $K D N Q K K L I Q E Y T N Y A M K V Y N D G L E K K K N R N T D D W N H I N A Y$ HKRQLKLLTQEYT DHCDVKWNVGLDKDRGSSYESWVNFNRY Y Q EFL N YRN QY $\square$ NHCSAWF NEGL

 Y T DL V KL IGE Y T D Y C I A T Y R S GLDNTIK SRATSWNDYN MY

K RY L K E Y VAE Y SNYALLSTYDKEFRARFYPRATLLENML QF EKVYS DAVTKY TK Y CLLDA Y N $\square G G K A V Q Y K D V Y Q W N R V N Q Y$
 E GHFKKE QLLA EH DN H C DT WY Q A GLL NQQ K GT STEENWLK F N K F
 YSNMVQLLAKYTNYSTSSLCWKGIGERKWSEYRSNNEYYA Y YEE EVVKNI A DYTNHCVKTY DYGLEELAKKQKAENWNLYNA Y
 $K N R M K E Y T K K Y S N Y C I E T Y Q G G F T E R \quad L D S T R F K K I L K F$

 K G Y LK R YVVKK S N Y CL T TY DTEFKA RFYPRA TLDNMVE F $R D K L F G G L K N Y T N Y C V D Q Y N A G L N Q \square K G T S A A N W L R F H R F$ Y S NMVQQLLA EYTNHSTSFFWQGVEKEEQTR DYYWNKYD GY




 Y D S LiK E K I E NY TN D DA A T Y R N G L N I I K N DP K I S WD V F N L Y Y D S
 K N D FK A H I VE Y T Q H C K VT Y A N G W S K I A A D S T K T F N H I L R Y


 I K N M N Q LT S K A T K YVL NTTFK TY LTP T Y N Y N S K S QL N T Y N S Y
 REALLTTSIRDYTNYCTREYHNGLNQMRNNS GRDWL N FNA Y








| UniRef90 U5KS17 |  |
| :---: | :---: |
| UniRef90 U5KS18 | RTTMTITVLDTVSVWPTFDPKHY |
| UniRet90-V9HXE4 |  |
| UniRef90-16QMA0 | RRDMTLLVLDLVAL |
| UniRef90-J8N797 | RRDMTLMVLDIVSI |
| UniRef90-Q9X682 | RREMTLIVLDLVA |
| UniRef90-J8HQM8 | QRDMTLMALDLVS |
| UniRef90-U5K | Rremt LVLDLVA |
| UniRef90-Q75Q | RRDMTLTVLDV |
| UniRet90_Q6BCH5 | RRDMTLMVLDLVAIFPNYDPVQY |
| UniRef90-V9P857 | RREMTLSALDIVALFPLYD |
| UniRef90-U5KRW3 | RRTMTVVLDVAL |
| UniRef90-UPIO0041149F1 | DRQMTLTVLDFMQTWPYFDVTQY |
| UniRef90 FOPZ |  |
| UniRet90-E9K648 | RRDMTLTVLDL |
| UniRef90-N1LT74 | RRDMTLLVLDLVA |
| UniRef90 Q25BT2 | RRNMTLTVLDV |
| UniRef90-D3G9V2 | RRDMTFAVLDVVAKF |
| UniRef90-M1E9Q1 | VREYTLSVLDFVELFP |
| UniRef90-U5KRQ8 | RREMTLMVLDVVALFPNYDTRMY |
| UniRef90-P055 | KREMTIQVLDILALFASYDPRRY |
| UniRef90-Q453 | KTFMTLNALDLVSUW |
| UniRet90-U5KR | RREMTLMVLDIVASFS |
| 88 | Rem |
| UniRef90_D5FIH1 | RREMTLAV |
| UniRef90-V8QAK7 | RTYMFL ${ }^{\text {P }}$ |
| UniRet90_Kogo27 | VREYTLSVLDFVDLFPATNPETY |
| UniRef90-H6WA866 |  |
| UniRef90-R8S3D4 | RRDMTLMVLDLVA |
| UniRef90-A4GZY2 | RRDMTLMVLD |
| UniRef90-D3B0W1 | ESFMKNNVFDFVNMWWS |
| UniRef90-KoG510 | RREMTILVLDLVAL |
| UniRet90-Q9S597 | QRTMTLFVLDLIAMFSTYDPRLY |
| UniRef90-M9L | KTFMTINV |
| UniRee90-F4 | KSDMIINVFDLVNFWWQYDPRV |
| UniRef90-C6VZR1 | DRTLKLSVLDFRDTWPYFD |
| UniRef90-V9P8S1 | KMLL ${ }^{\text {S }}$ |
| UniRef90_Q7X3F7 | MTL S |
| UniRef90_J8F6M8 | F MI |
| UniRet90_V9P8 | DMTLSVLDFV |
| UniRef90 O8VUL1 | RSNMTMMVLDMVAL |
| UniRef90 O45754 |  |
| UniRef90 J8BW69 | TYMVLNVLDYVGIW |
| UniRef90-12GDA3 | ASTMTLLAQDYAAT |
| UniRet90_C3GBS6 | M |
| UniRef90_F4Q3V3 | RNNM |
| UniRet90-HoUGV1 | M TL NVLD |
| UniRef90-C4NZQ8 |  |
| UniRef90-SKRR6 | RSDMTMMVEMA WPTYDPRRY |
| UniRef90 GowLG5 | RREMTIKVLDİALFSNY |
| UniRef90-Q8VNX1 | RREATLGALDLVALFPN |
| UniRef90-F6JS41 | RREMTLSALDLVALF |
| UniRe990-087906 | RREMTLTVLDL |
| UniRef90-08VW62 | RREMTLTVLDİA |
| UniRef90-D3BNW8 | RNFMITTVFDFVN |
| UniRef90 O2AAUO | S ALDLVA |
| UniRef90 KoFZK4 | eat gald val |
| UniRef90 O75VA2 | EATLGALDLVALFPNYDMHLY |
| UniRef90_D3BNI7 | RSTMISSVFDYVSMWYTFDQDVF |
| UniRef90 UP10001D2DFB0 | ARFLQUNVGNYLALWP |
| UniRef90-D5F | RREMTFTVLDHUALFPNYDPEKY |
| UniRef90 J8BW | FMVEVDDYVS |
| UniRef90 DOYZT6 | VTIK Y CDD YIEMF |
| UniRef90-W5XJ45 | ITRSMTISCLDYVATWPTLNPIDY |
| UniRet90_U5KRR7 | RRDM |
| UniR | RELLTLSVLD |
|  | RFMTFYLLDMIS |
| UniRef90-A7WK64 | RTKMTTTALDLMAL |
| UniRef90_UP100036D6AAF | EQRL |
| UniRef90_Q45712 |  |
| UniRef90_C1JJT3 | RREMTLAVLDIALFPIYDFEKY |
| UniRef90_D3BNW6 | YNIICV |
| UniRef90-O32321 | RRDMTLSVLDFATV |
| UniRet90-R8R4U7 | RKEYTISVLNVIS |
| UniRef90-B4F6G0 | RRNATLGALDLVA |
| UniRef90 N1LR39 | KRMMTLLVLDYVALWP SYDPREY |
| UniRef90 C3CB16 | QKDMTLMVLDIISUWPTYDYSRY |
| UniRef90 R8EX84 | RTMT |
| UniRef90-D3BNW7 | KRNMN |
| UniRef90 KOF | RREMTLNV |
|  | RREMTLTVLDFVAL |
| UniRef90-P096 | RLEMTLTVLDL |
| UniRet90_CoLUW0 | RLINMT NVLDISLFSLYDSKKY |
| UniRef90_W4EWR0 | RTFMTLNVLDFJVI WS M |
| UniRef90_Q8VNX2 | RTFLTASVLDVISLFSSYDPRLY |
| iRef90-N1LSG2 | RTMTLLVLDWIALWPTFDHKLY |
| 90 |  |

UniRef90 D3VLZ6 UniRef90-B5TY31 UniRef90-C319T3 UniRef90-F9G9Z4 UniRef90-V2X457
UniRef90-V2EJF7 UniRef90-P16480 UniRef90_F6GPL2 UniRef90-K0FZJ7 UniRef90-J8MY88 UniRef90-FOPZ69 UniRef90 P56955 UniRef90-P56956
UniRef90 L2ENU3 UniRef90 W7MEW8 UniRef90 ${ }^{-}$C3EDQ2 UniRef90-V2WU38 UniRef90_O05102 UniRef90 C3CBJ3 UniRef90-Q8KZM2 UniRef90-Q54BL0 UniRef90 E9EHW3 UniRef90-D3B8C5 UniRef90-P21256 UniRef90 SOEA16 UniRef90_V2X531
UniRef90 F4QBS2 UniRef90-F4Q7V1 UniRef90-D3BDG7 UniRef90_D3BIB4 UniRef90-Q476C5 UniRef90_J5JFN2 UniRef90-W5XJP6 UniRef90-FOZWB2 UniRef90_N1S758 UniRef90-UPI00037B2166 UniRef90-J5JTU7 UniRef90 Q1ZU91 UniRef90-J4W3J4 UniRef90-J4KNZ4 UniRef90_O44707 UniRef90_D3BIC7
UniRef90-Q45730 UniRef90_M1E9P7 UniRef90-Q9AM80 UniRef90-M1E9Q9 UniRef90-C7BC47 UniRef90-C3EDW0 UniRef90-17H5J8 UniRef90_COZKJ5 UniRef90-J4KLK9 UniRef90 Q54HS7 UniRef90-D3BRQ8 UniRef90-C0LUV9 UniRef90-D3AX71 UniRef90-D3AWG4 UniRef90-J4VVY9 UniRef90_C4SXE1 UniRef90_X0H775 UniRef90-J4KPC8 UniRef90-FOZA04 UniRef90 D3BCN6 UniRef90-X7RH70 UniRef90_FOZHS9 UniRef90_Q54WP0 UniRef90 C9K1M3 UniRef90_D3B8C4 UniRef90-B7TYN5 UniRef90 Q45710 UniRef90_D3BBF5 UniRef90_C3EC48 UniRef90_F0ZZF8 UniRef90 D4ZHH7 UniRef90-F4PX06 UniRef90-H9E8W1 UniRef90_U5KRW1 UniRef90 R4QPN0 UniRef90-F0Z8Z1 UniRef90_X7GF77 UniRef90 M1E9N3 UniRef90_Q45755 UniRef90-F4QAB3 UniRef90 F4Q8C0 UniRef90 FOZHS1 UniRef90-D3BMD9 UniRef90_D3BJC3 UniRef90 Q7MZ62 UniRef90-UPI000469AD33 UniRef90_C7G000

10

$\stackrel{P}{P}$
PNSNESA

P IADVKALISWGLTEUPVIGRLLSMLLGLLWPRTDEDVI
GVGVLRG■IGVL RSREV
LIKKGLS IILPSSANAV
PPNAK D I
A TTKASTS DGLTPGAPFTNMFVDFTFPKNAQAQ
PLEDLKAVLQVLLGEIPIVGSSASALLGLLWP WNRDV
PNATE

D NL
 ELIVKTVVVGGLSMUPTIGNPLS LLVSAVWNETTYEV NMNDI


FSKVLSLIFPGSQPAT PNE $\square$ GKF $\square$ F G $\square L A S E L I P G Y G D A \square A A V L N L F P K S A A D D$ DTPEEDV
P L Q I IR S VTVTGLS LIPEVGGVLSFGADLIFSSQDNST LLPGFPP PLAGAIVNSLFPNDPQAV ASVIVETGLPGFPP PLAGA\|VNSLFPNQNQAV FTSLLGVLFPSDPNAL
$L L K N L L Q V G V S Y D P Y V S S L V S F V I D A N S D N V$ ALGCELI PVI GSLT TLLGSLFPNATEKV $\square 1 \mathrm{KGAVM} \mathrm{\square ADN} \mathrm{\square APPPMS} \mathrm{\square MGSLIDMFFSNTKDDA}$
$\square E \square$ F K N S $\square$ GF A $\square$ NF $\square$ PE VGGVVS F LVR LLL WP S P N N A DV
L LGAVLFPTKEDSKNAV EVAKTLVEFGVGK $\quad$ PVVVGELLALLIGFFWPESEPSV

FAKLKNSLRPNNPQAV
Y T P $\square \mathrm{D} \square \mathrm{S} \square \mathrm{S} \square \mathrm{T}$ QF LLSEFVPGAGFVLGLGGOSKSSNSQTEF GASSVNGVL GLI FPSHEKSQ
VA G S LLP F P L S S LGALDASFY
VT D S Q T GA M
TASVLANTGGCCFVPFL TLLNVVMLALSNR
1 I K S SVMF GLGQIPVVGKALSTIVGLFWPKNEKDV
E IVK T LVLGAIGGIIPTYGAFiSNAlSCVFNDTKNEF
DD NPDP
YQALVKSADTLNLALTPLAPVSPFDNMVIGFLFGSSKESM
 SF $\square$ P Y VGY $\square$ S S $\square$ IGFF WK D QERD $\square$

D P

TDNTDP


$P \square A N A L F G L I P G M K P L T P Q E I$


 DTENL
FSKVLSLIFPGSQPAT
 NNQENL GN $\square \square G L V L S \quad F T P Y V G S F \square K V F G \square V W G K \square F Q D Q$ APII F GAVNFLFEKNQERF $\square E P L A P \square G L I \quad L S T \| T S L A W P S G P S S V$ $S Y$ VPHVGKY $\square$ S $\square V G F F W K D K E K D \square$


UniRef90 D3VLZ6 UniRef90 B5TY31 UniRef90-CЗ19T3 UniRef90_F9G9Z4 UniRef90_V2X457 UniRef90-V2EJF7
UniRef90-P16480 UniRef90-F6GPL2 UniRef90-K0FZJ7 UniRef90-J8MY888 UniRef90-FOPZ69 UniRef90-P56956 UniRet90-L2ENU3 UniRef90-W7MEW8 UniRef90-C3EDQ2 UniRef90-V2WU38 UniRef90 C3CBJ3 UniRef90-Q8KZM2 UniReftoo-a54BLO UniRef90-W5XJY1
UniRef90-E9EHW3 UniRef90-D3B8C5 UniRef90-P21256 UniRef90-S0EA16 UniRef90_V2X531 UniRef90-F4QBS2 UniRef90-D3BDG7 UniRef90-D3BIB4 UniRef90-Q476C5 UniRe990_W5XJP6 UniRef90-FoZWB2 UniRef90 N1S758 UniRef90-UPIOOO37B2166 UniRef90-J5JTU7 UniRef90-Q1ZU91 UniRef90_J4W3J4 UniRefofo-J4KNZ4 UniRef90-O44707 UniRef90-Q45730 UniRef90-M1E9P7 UniRef90-Q9AM80 UniRef90-M1E9Q9
UniRef90-C7BC47 UniRef90_C3EDW0 UniRef90-17H5J8 UniRef90-COZKJ5 UniR Refo-J4KLLK9 UniRef90-JoUPB3 UniRef90-O54HS7 UniRef90-D3BRQ8
UniRef90 CoLUV9 UniRef90-D3AX71 UniRef90_D3AWG4 UniRef90-J4VVY9 UniRef90-C4SXE1 UniRef90-X0H775 UniRef90-J4KPC8 UniRef90-FOZA04 UniRef90-D3BCN6 UniRef90-X7RH70
UniRef90_FOZHS9 UniRef90-Q54WP0 UniRef90-C9K1M3 UniRef90-D3B8C4 UniRef90-B7TYN5 UniRef90-Q45710 UniRef90-D3BBF5
UniRef90 C3EC48 UniRef90-FOZZZ8 UniRef90-D4ZHH7 UniRef90-F4PX06 UniRef90-H9E8W1 UniRef90-R4QPNO UniRef90-FOZ8Z1 UniRef90-X7GF77 UniRef90-Q45755 UniRef90-F4QAB3 UniRef90-F4Q8C0 UniRef90-FOZHS1 UniRef90-D3BMD9 UniRef90-D3BJC3 UniRef90-Q7MZ62

UniRef90_C7G000
 MQDLLRRLKDLIQTLLPVYMRN LLNKLREDLERKFDERLNQDTLNRLQGDYDGLLNLSSEFVA WSKVRQEVEALIDQKIDDAAYNLIAAKLPGLGDSSKLYMK WNEIVKGVEKLINEELDAAVYSEIKSHLPGLQEVITIFLKK WSDFITQTKNIKKE:ASTYISNANKILNRSFNVISTYHN
WKEFKQGLQLFRPELGRDAINDVQAEYNALKTMMQDFET WNLDTMADVQRLVDQALENQLRIEANQKFDSMQYNYNQYLS WELFMQQAELLINQK EASARNKALAELQGITNLDDLYQK FELIDEKVKELVDEDFRNFTLNNLLNY LDGMQTALSHFQN
 FKACQPAVQQMI DKSLTEDNVKDMDTQATVLQTQLDKAYQT FDAVMKDTEMIMDEKUSEYVVNDAMTRLESLYNILDYYRL
SQQUIEKVKE VVQEFRNFTDNTLLNDLDGMQTTLEHFQN YNSYREMIKATI DNSTDMYDASTIKAVLTKLNALVIDYTK FEALKPKIGEMI DSKLTQEQEDFLNKTVEGLQDNLSNYRN WKALRERIEQLI DTK EKEYGSTLEKTVQGLDDNLDLYGQ TRAYIQMVKEIVDQKIEVYDQSII WAEYTIINASIVSFKD MEKVRTEVETLINQKLSQDRVNILNAEYRGIDEVSDVF WEKLFRRIEQMI DSKI EEYHLETLKEKLAGLDTADGDFST MDALNEPIKAMINTGYTYNFIALKSKFEGLSDAVKDFRD AELINKEVQKAINEKLGNYNYVDLNDQEVVSSSIATFRR WNSSVVYAQAADDKS DTATYSLVQSELLGFSQLMDEYY WEEDRQKVEALIEQK NDAVYSLLKSKLDGDGNTLKKLYUN WNHLRKQUETLIGAKIQESQVKILQKKVVGFAANMKAFTS
 WEKLRERUEALVDTKITETQMDVLRKKIRGLQDNMENYTR WERFTVDYGDKTI DSKKSQFYKYUMASELAALSKSLEEYKR
 WNALHERVEHLVDSKLAQYHLKTLEGRISGLESNMEAFTS WDQVKDQVEEM DTKTNDVITGILGGNLRHLKERIHVLKM WDSVLVYAQVALDRSDDNATYALVQSELLGFSQLMDEYY $M D K V R I E V Q T L L D Q R L Q D D R V K L L E G E Y K G I I D V S K V F T D$
$F D A L I K E V Q K M I D K E L Q D F T T S L L Q A N G Q G F A E A A K L F Q N ~$ WDAFLVQLEQLINQRLENSLGTKPFLDWKAKKSLSNLRR
 FQAMQPAVQAM DKSLETEEDDTVNYQSYGNFALSLIT DA FDLLRQQUQDLI NQALTTDTLNKLQALLQGWNNELDEYAR WDDMRPKIEAMINGKVQQYHLDTI HSQLRGLDENLGAVRL WKDFSVKI EELI DYRVSDF RGASEVFGIDTHLKKFLY AEQQKKLIADMI GQAMQKDAMEEAMNVYKGMVAHIQDKAD FDQDMDAVKKEMEHSFEQFTLNNLNDTINGLKTDLYDFTR VVSGTNYVDSSVSRSYMCQSYSQSLNLFENMNCGAQTYSY WTKVSERVETLIGKKLEEHQVKALQSRMEGFKLINANEYAK WQEILGRVQQLIEENVLKA DKGLLGDDAELKGKDASVVA WEKLHERVETLIGAKLQAHQVKQLQSKGDGLGHNHREYAS WNSIQSKVSSMVEDGI VKDSNYDLIGSFNVI KSRFQTFTE MESTRKLIHEMVNTGI GDFSRNLSIGFLKGILALKKD WEQLRDRIQDLVDESU DDABNGILDSKIKETRDKIUDDNE

 FLSMMRDLIDETTTLYDTTNTRAKFDLLI YQYTYEFRT


UniRef90_D3VLZ6 UniRef90-B5TY31 UniRef90-C319T3 UniRef90_F9G9Z4 UniRe990_V2X457 UniRef90-V2EJF7
UniRef90-P16480 UniRef90-F6GPL2 UniRef90-K0FZJ7 UniRef90-J8MY888 UniRef90-P56955 UniRef90-P56956 UniRet90-L2ENU3 UniRef90-W7MEW8 UniRef90-C3EDQ2
UniRef9O-V2WU38 UniRef90-005102 UniRef90-C3CBJ3 UniRef90- $\mathrm{OBKZM2}$
UniRet90
Q54BLO UniRef90 W5XJY1 UniRef90-E9EHW3 UniRef90-D3B8C5
UniRet90 P21256 UniRef90-SOEA16 UniRef90-V2X531 UniRefofo-F4QBS2 UniRef90-D3BDG7 UniRef90-D3BIB4 UniRef90-Q476C5 UniRef90-J5JFN2 UniRef90-W5XJP6
UniRef90_FOZWB2 UniRef90-N1S758 UniRef90-D2CGE2 UniRef90-UPIO0037B2166 UniRef90_J5JTU7 UniRef90-Q1ZU91 UniRef90_J4W3J4 UniinefoldukNZ4 UniRef90-O44707 UniRef90_O45730 UniRefto M1E9P7 UniRef90-Q9AM80 UniRef90-M1E9Q9
UniRef90-C7BC47 UniRef90-C3EDW0 UniRef90-17H5J8 UniRef90-COZKJ5 UniR Ref90-J4KLLK9 UniRet90-JOUPB33 UniRef90_O54HS7 UniRef90-COLUV9 UniRef90-D3AX71 UniRef90-D3AWG44
UniRef90 J4VVY9 UniRef90 ${ }^{-}$C4SXE1 UniRef90-X0H775 UniRef90-J4KPC8 UniRef90-FoZA04 UniRef90-D3BCN6 UniRet90-X7RH70 UniRef90-FOZHSS UniRef90-C9k1M3 UniRef90-D3B8C4 UniRef90-B7TYN5 UniRef90-Q45710 UniRef90-D3BBF5
UniRef90 C 3 EC 48 UniRef90-FOZZZ8 UniRef90-D4ZHH7 UniRef90-F4PX06 UniRef90-H9E8W1 UniRef90-R4QPNO UniRef90-FOZ8Z1 UniRef90-X7GF77 UnirefgoM11593
UniRef9O-Q45755 UniRef90-F4QAB3 UniRef90_F4Q8C0 UniRef90 F0ZHS1 UniRef90-D3BMD9 UniRef90-D3BJC3 UniRef90-Q7MZ62 UniRef90_UPIO00469AD33
UniRef90_C7G000
 QVDNSLENPNRNAVPLSITSSVNTLQHLELNRLPQFQLQG
 1 A SGHGSGDAI RTQWVATNTVYTAAASEFMNSK TVKAGD VSVISAQFIACNTVFTATSSMFQNPD HLKTWENNP NPQNTQDVRTQUQLVHYHFQNVIDELCPPN NKNNYINNPSNPNRNLFVNSLILNERDLRUALDVTFSLAN A IDRLKRDPNNPLEQEAVRTAYRGMDQLFRFSIENFKVSP QLANWLESRGNPDSVEAVRKTHSDLISAFELQMPSFKVSE DVQDADCTPTTDHLISS VRESFKDARTT METALDPHFKNPD A VWEDYRDSTGEERARDTLKTTHIGFLIVVRTAIPEFRVEQ QLKAYDTNPGTTD DSDLHRVLDNTIEQLNSNLAFFQKEG LV TGNASGETVTQWUATNTVYTAAASEFMNSN MP FKRAN DVQПAEKHPPCTPTKNSVKESFKNARTSTETVLPHFKNPM AKKNYK AVRTFKQSKNTDKIKAALQRTDDIIDQIFTNQAHLLSSV QSEVFKKASGNQKAARALGTQHSAFRTSLLLVIPLFQAKS SVVVFNEDP SEVNSEAVRTDFTTLEKDLRGRNGGLRKKG MVKKHDEGKDVTTL ALGSFASLHQTMIDSMSEFTSPK LVA AVANYKDAPT PDNKVHVHEQF\ATRTLFHGALPDFRNQE TVSNFKANPTDDN KSFMIDAQYDSTYNSLKNDIR FLLHDT FAAMSDPDST PEYLSSVYISCVTQVIRQEQLFKTEQ
A
AAA
SMSDPDST
PEYLSSVYY: SCVTQVIRQEQLFKTQQ
VYNDYEKATGHEKAQQTLREHHIAFLAVIRAGDPEFQVED MIDQAEETPGDDKSSTNVWTQFQIARTQIEASLPYFKNPN QRKNLAKTPNDEKLKNDCKVAFVNFETKILVKNSSTRKDE EFAKWALEK SPANTRDVVLRFSAIDAAI DNLKNQLIVDR VLKDYENNPHNEDPAAGVIQLFRIVNSKLKQAPPESTGLE VLIDYEELTGNDKAKETLRLLFNAFLTVLRADDPAFQVHE LV NGASPEEITSLIIT INDDFDREGPEFQQKG VVNSYNKASASEKDRQRLRQHHIAFLAVVRSAVPDFQLDD VFHDFEKATGDNKAREILRTHHTAFLAVLQATIPEFQGED DLDRHKNVSGHFMNDAEDMIGFEGHKFMFRNEDNARAGE $Y$ VNQSKFETGTAN RLFFDTSNQLISRLPQFEDAG QIQSAMGAPPTKEDLLTVEMQFTASNTTMASQVPGFSDTN SIQLALGKPTFPTSDSNVYQEFTNTRD\|EAALPGLSMAD TLHS

GKQTLIIQHCEKRCVLNSMI
VMDTDQGDKVDQATKDLFWGKLIDVDTFFRVKVPVFDQPN VVKIFENDMNRIDEPPSVITQFRILHDNFIKYIAQFSTNQ EVKN LTDPKTSTDGSTV NTI HLQFVHDIPQFTLKD VYKQFNEAPNRERQGELLRLHHNALLMFLRASLPHYQMER AKLAFKTDPDGEAA YCDQEYNDVEDRDRDYLNKLMNNN A EAVILKGDQPDWD TMRMKDENVFSHFLFSSSIILKEN LIDAGENSPCAPCYNDMLASKFQALTSSFNNALPHFKDPE CFNSYLKGPLESTCPSRL EVYSRMDTMLSTNANSFGGPG VWKDYNDAAPDKKKAELLRTHHVGFLTMMRVSTPEFQVDT VWEDYKDSSGEERARDTLKTTHIAFLSVVRAAVPKFRVQR LWRQYQEAESKEKLAEMLRYVHVSFLFVLRAAVPEFQVDD TRMVLQLKKGTPTN VVPDYYQLERKISETLIELGKGDE 1 ANAEGIGLAKADPKTMREKFENLYNSFLETESWFLTSG THENFGYAAAKDDYDGLVTHYLIGLEENFKRELDGDEWLG AKNAFEKNKNKNKYRDDYLKQYDDLEDEL LRKLAVLLNSP QLNFALNSKNDNMNRIDFETFLVTLENDIYGSIIKLMNFG A LDNFKLNP DRALGAVRESFEQLEELFTTQLTDFRKPA QVDDFLNPDRYAVPGSVTSSVNAMQLLFLNRLPGFQMQG DIEAATLKTTTPDTAKLIKMRIDNVHAHTIGLQSQFLKAN AMSNAIGTPPNNQCLQKVVDEYTKAIANDDLIDPQFHDPD MLKNVEDLK TI ENYGFAAAKDDYTNLISNYIIGLEEQFK FESEG LLTLFTDRQQTDNLLQMURSQFMDYRDSLEGAIDNMSDPS IFNEIQWNHAGFFAl YNHIDVMITKFID FIETN A/VDAQWNTTNRTLRNNVVTNFIAADGDIANNENHIIMNGN DAY K KPG LAEEYIKSMPNETLSSSLQVQLILYRDKITDGLIYFEEES AMRTA DGTGDNEQSCSTMFDGLDKVRTDFETA DA IIQLNA VIDDATFENHKPVLQVSVDSAYFSTGGDLTLGMSDFLTDT LLTDFMDRQDDDTLLQMLRTQFMSYRDFLEGALINFSQPL C GAYLKNVTPPTSCDTANNEYYLKLNEVEQYRDUFGGPK VI RSLEKNLGTQEARDDYMHLARSMVGKEASLTEHENKTN


UniRef90 D3VLZ6 UniRef90_BETY31
UniRef90-C31993 UniRef90-F9G9Z4 UniRef90-V2X457 UniRef90-V2EJF7
UniRef90-P16480 UniRef90-F6GPL2 UniRef90_K0FZJ7 UniRef90-J8MY888 UniRef90-FOPZ69
UniRef90 ${ }^{-}$P56955 UniRef90-P56956 UniRet90-L2ENU3 UniRef90-W7MEW8 UniRef90_C3EDQ2
UniRef90_V2WU38 UniRef90-005102 UniRef90-C3CBJ3 UniRef90- ${ }^{2}$ KZZM2
UniRef90 ${ }^{\text {O54BLO }}$ UniRef90 ${ }^{-}$W5XJY1 UniRef90-E9EHW3 UniRef90-D3B8C5
UniRet90 P21256 UniRef90-SOEA16 UniRef90-V2X531 UniRef90-F4QBS2 UniRef90-F4Q7V1
UniRef90 ${ }^{-}$D3BDG7 UniRef90-D3BIB4 UniRef90-Q476C5 UniRef90-J5JFN2 UniRef90-W5XJP6
UniRef90_FOZWB2 UniRef90-N1S758 UniRef90-D2CGE2 UniRef90-UPIOOO37B2166 UniRet90-J5JTU7 UniRef90_Q1ZU91 UniRef90-J4W3J4 UniRef90-J4KNZ4
UniRef90 O 44707 UniRef90-D3BIC7 UniRef90_Q45730 UniRef90-M1E9P7 UniRef90-Q9AM80 Uniref90_M1E9Q9
UniRef9_-C7BC47 UniRef90-C3EDW0 UniRef90-17H5J8 UniRef90_COZKJ5 UniR Ref9-_4KKLK9 UniRef90-JoUPB3 UniRef90-Q54HS7 UniRef90-D3BRQ8 UniRef90-COLUV9 UniRef90-D3AX71 UniRef90_D3AWG4
UniRef90 J4VYY9 UniRef90-C4SXE1 UniRef90-X0H775 UniRef90-J4KPC8 UniRef90-FOZA04 UniRef90-D3BCN6 UniRef90-X7RH70
UniRef90_FOZHS9 UniRef90_-Q54WPO UniRef90_C9K1M3 UniRef90-D3B8C4
UniRef90 B7TYN5 UniRef90-Q45710 UniRef90-D3BBF5 UniRef90-C3EC48 UniRef90-FOZZF8 UniRef90-F4P 06 UniRef90-H9E8W1 UniRef90-U5KRW1 UniRef90 R4QPNO
 UniRef90-M1E9N3 UniRet90-Q45755 UniRef90-F4QAB3 UniRef90-FOZHS1 UniRef90 D3BMD9 UniRef90-D3BJC3 UniRef90-O7MZ622 UniRef90-UPI000469AD33 UniRef90_C7G000


UniRef90 D3VLZ6 UniRef90- ${ }^{-15 T Y 31}$ UniRef90-C319T3 UniRef90-F9G9Z4 UniRef90-V2X457 UniRef90-V2EJF7
UniRef90-P16480 UniRef90 ${ }^{-}$F6GPL2 UniRef90-K0FZJ7 UniRef90-J8MY88 UniRef90-FOPZ69 UniRef90-P56955 UniRef90-P56956 UniRet90-L2ENU3 UniRef90-W7MEW8 UniRef90-C3EDQ2 UniRef90_V2WU38 UniRef90-O05102 UniRef90-C3CBJ3 UniRef90-08KZM2 UniRef90-Q54BLO UniRef90-W5XJY1 UniRef90-E9EHW3 UniRef90-D3B8C5
UniRet90 P21256 UniRef90-P21256
UniRef90-SOEA16 UniRef90-V2X531 UniRef90-F4QBS2 UniRef90 F4Q7V1 UniRef90-D3BDG7 UniRef90-D3BIB4
UniRef90 O476C5 UniRef90-Q476C5
UniRet90 J5JFN2 UniRef90-W5XJP6 UniRef90-FoZWB2 UniRef90-N1S758 UniRef90_UPIOOO37B2166 UniRef90-J5JTU7 UniRef90-Q1ZU91 UniRef90_J4W3J4 UniRef90-J4KNZ4 UniRef90-O44707 UniRef90-D3BIC7 UniRef90_Q45730 UniRef90-M1E9P7 UniRef90-Q9AM80 UniRef90-M1E9Q9
UniRef90-C7BC47 UniRef90-C3EDW0 UniRef90-17H5J8 UniRef90-COZKJ5 UniR Refo-J4KLLK9 UniRef90-JoUPB3 UniRef90-O54HS7
UniRef90 D3BRQ8 UniRef90-D3BRQ8
UniRef90
C0LUVV UniRef90-D3AX71 UniRef90_D3AWG4 UniRef90-J4VVY9 UniRef90-C4SXE1 UniRef90_X0H775 UniRef90-J4KPC8 UniRef90-FoZA04 UniRef90-D3BCN6 UniRef90-×7RH70 UniRef90-FOZHS9 UniRef90-Q54WP0 UniRef90-C9K1M3 UniRef90-D3B8C4 UniRef90-B7TYN5 UniRef90-Q45710 UniRef90-D3BBF5 UniRef90-C3EC48 UniRef90-FOZZF8 UniRef90-F4PX06 UniRef90-H9E8W1 UniRef90_U5KRW1 UniRef90-R4QPNO UniRef90-FOZ8Z1 UniRef90- ${ }^{-17 G F 77}$
UniRef90 $\mathrm{M1} 1$ E9N3 UniRef90-Q45755 UniRef90-F4QAB3 UniRef90-F4Q8C0 UniRef90-FOZHS1 UniRef90-D3BMD9 UniRef90-D3BJC3 UniRef90-Q7MZ62 UniRef90_UPIOO0469AD33 UniRef90_C7G000


KANHRKNDKSYTATVRSTVINFQPTGDRSNKDKANLFNQY KTDFTSKTNEY $\square A H T V T S Y S K G \square E K \square K S S S V E K F N R \square N Q F$ RAEFRKKTS
QLENFESEFAKWADEKSPANTGDNTIKNDPKTSWDVFNDY KVKQKKLIIEYTKHISATYKKGLENAKNPEVMKWNRVTTY QQQFDRLTVSSSKR
KSEMKEYKKQYSDYLTQTVKNQRETLEKNRTDTYNYFFAS $\square R E F K K \square T A$
KDYSKRLTQGA $\square K H T T S V L N E R T N N Q L N T C D P D Y D A L V T V$ DTDMKSKIDSYTDYSNSVINRRUQSDPFQDGYTPSQWNQU ICQFNRFVNEYNTRLMVLYSKEFGRLLINGAKNLNEALNF

VRNTRDR\|\EYSNNVYT TFTKYपPPLTDNSKSGLNAYDRY
 KAELDRLKVYTNDVNTTYNQGLEKAKPLNYSDWNKVAKY
 RDDLNAKT
KNHIDDLADSSRNYDNRDYETEDDRTYENSRPDEVANNMF TKCYNDSIPRYDEHCTTSYKEGVARDKDDSAEKFKAYNDY CNTFKKYKKLYLDNDFRDYNKGQEEVKYNYHSTFNKYQEY KANLRQRDQEHSNDUYTTFWKYLPKVNNATKGEDNDY DRY QNELQAHATQYANQDAMTQLNGFPKUSGSKCVTVDVYNQY PDEFRRMTS
 SAEFKKKTADYSTYAYKVYRKGRGQVKPYRAKLNDADNRY RDEFTRLTS
 K 1 TYKEYQRDYIDKCYKYYLVGGEKIKAKYPERFNALQKY TRNDDK KSKIHSKSTEF
ALIYYSK LPDYFAHTRSAYNAGVKVIQSLPNDDYKRYLNY TDTFERRTIEYSDKIINEYTLLFNEIKLL KENAKTTLDF QSKGDRKLREYLEYVSDTYDVGASALFDMNADDYEVFIQF RDYLTTHTRDYSNYCDNTYQSAFNMRGLNTRDHDMLEEF LNFYKRFKKDYFSNIFKVYSNGQNKVLAKFPETFNKYQEY UKKLRQDUTTYTKDIYMQFEAHAPYPTYNSKKQLNDYGRY SRNDDEDYKDVKKYUEKYYKWSDSDSY NANSENIYNEV GNDQIQLEHKNMAYCVFQYNFAVNKTEYSYPADDLPDNGY KTNGKKLTQRYSSGGDTGFEKDLNMDLNNESPLTSNKVDT
RSRTHSYTTDFYK
QHNUDTLVEHADRYTKNGHETEVENRTNNS
LIDQQKEIKEFTRRILTTFNNQFFNKINPNYNSPDKY TNY KQHMRQDUAFYTSQALNMFTGNLPSLSSNKYADNDYNVY RSELLAEYASGAADFANDVYNRYVATIDNSDVLLADDYNQF NGDVKSLVQTYLARCNDYYE LALLIKPATWISPSDNNAY KSRLHSKSIEF QKVI
QYKMSEDSNEALQYVYKTSYQQLNGFPKTSCKTYNAYNQF DLEQNMSLNQGLAHVRAVYAKAEARCTANDGRNFNKLMQL RSY DKKLVSDAEHHVNRVYK LELDSVVSDSDVNRVADNMY CNAAKHFYEENDKYMLSTMDKWRQRAVDAAPPRFNSDNAA

| UniRef90_D3VLZ6 |  |
| :---: | :---: |
| UniRef90-B5TY31 | $R \mathrm{~T}$ YLL L NVFEYVS I W S LF |
| UniRef90-C319T3 | $R$ T A M Ni Y L F DVVY QWS FL |
| UniRef90_F9G9Z4 | D S GMVMNMLN Y A E Y WP Y L |
| UniRef90-V2X457 | NQQLVVAFDDYHVLVRYLD |
| UniRef90_V2EJF7 | ET L K TL Y I K DVQEI L K H M P PVIY |
| UniRef90-P16480 | R TKMTTAVLDLVALTFPNYDVGKY |
| UniRef90-F6GPL2 |  |
| UniRef90_K0FZJ7 | R R EMTLIVLDFVALLFSLFDTTKY |
| UniRef90-J8MY88 |  |
| UniRef90 F0PZ69 |  |
| UniRef90-P56955 |  |
| UniRef90-P56956 | $V R$ S M T $~$ Q S L D $\square$ A A T WP T LD NVNY |
| UniRef90_L2ENU3 |  |
| UniRef90-W7MEW8 |  |
| UniRef90_C3EDQ2 | $\square \mathrm{RGMT}$ T S C LD Y V S L WP T F S P R D Y |
| UniRef90-V2WU38 | N NQSVI GF DD Y RVLVRY L D P |
| UniRef90_O05102 | D A Y M NL SVLDI I SL FLLS Y P Y Q Y |
| UniRef90_C3CBJ3 | RTEMTIMVLDLVAIFPAYNTSKY |
| UniRef90_Q8KZM2 | VR S M T L N CLDI A A TWP T LD NVNY |
| UniRef90_Q54BL0 | RSFCARYVFDYVNLWSGFNETIY |
| UniRef90_W5XJY1 | $\square \mathrm{T}$ G A TVNCLD I I R L W P T F D P LD Y |
| UniRef90_E9EHW3 |  |
| UniRef90_D3B8C5 | $R \mathrm{RTM} \square \mathrm{PQQM}$ V Y A A $\square \mathrm{WWWTFNSTLF}$ |
| UniRef90-P21256 | R NMCNLYVFPFAEAWSLM |
| UniRef90_S0EA16 | DADMTI HVLNYA DFWPYL |
| UniRef90-V2X531 | N Q QLVVAFDD YRVLVR Y L D P I Q |
| UniRef90-F4QBS2 | Y N A MVTNDF DVS NFWFAMDPILFF |
| UniRef90-F4Q7V1 |  |
| UniRef90-D3BDG7 | $\square$ NHFYMSVT L F S Y NWK Y F DVKL Y |
| UniRef90_D3BIB4 |  |
| UniRef90_Q476C5 |  |
| UniRef90 J5JFN2 |  |
| UniRef90-W5XJP6 | M R V M T VQCLD F VA $\square$ WP T LD P F D Y |
| UniRef90-F0ZWB2 | R K F C S Y VF D V |
| UniRef90-N1S758 |  |
| UniRef90-D2CGE2 | R REM T L S A L D L VALLF L N Y D $\square \mathrm{Y}$ R Y |
| UniRef90_UPI00037B2166 | ER Q M S Q M L D L A A L F P L Y D P D Y Y |
| UniRef90_J5JTU7 |  |
| UniRef90_Q1ZU91 |  |
| UniRef90_J4W3J4 |  |
| UniRef90_J4KNZ4 |  |
| UniRef90_O44707 | R T Y C G L N G T E Y $\square$ A Y WP Y N D A $\$ T Y  \hline UniRef90_D3BIC7 & T T DLL H HFYLS F S Y NWKYFDVKLY  \hline UniRef90_Q45730 & R NMCSLYVFPFSEA WS L L  \hline UniRef90-M1E9P7 & N R VM IT QVF D M V S M W P S F P Q D Y  \hline UniRef90-Q9AM80 &  \hline UniRef90-M1E9Q9 & T R N $\square$ T L N A LD TVA G WP M M N T N D Y |
| UniRef90_C7BC47 |  |
| UniRef90_C3EDW0 |  |
| UniRef90_17H5J8 | KRGMAMSALS LAALIFPTFGPN |
| UniRef90_C0ZKJ5 | $\square \mathrm{Y}$ T S T L Y GF D I A A L WP T F D |
| UniRef90_J4KLK9 |  |
| UniRef90_J0UPB3 |  |
| UniRef90_Q54HS7 |  |
| UniRef90-D3BRQ8 | $R N T \ M L D V Y Q Y M H \square F A l L N D D R$ |
| UniRef90-COLUV9 | HRVI TL Q CLD F V A T WP FLD S R Y Y |
| UniRef90_D3AX71 |  |
| UniRef90_D3AWG4 | T LS V V T GVLK Y S D M WP Y F D P $\square \mathrm{K}$ Y |
| UniRef90_J4VVY9 |  |
| UniRef90_C4SXE1 |  |
| UniRef90_X0H775 | D S G MVM N M L N Y A E Y WP Y L |
| UniRef90_J4KPC8 |  |
| UniRef90-F0ZA04 | R NHCSQFVFD Y VESWQTFDDT $\mathrm{V}^{\text {P }}$ |
| UniRef90-D3BCN6 | $R N Y M L D N V F T Y V H V I A K L D \square D$ |
| UniRef90_X7RH70 | R S WCTVH GF E H MLI W |
| UniRef90_F0ZHS9 |  |
| UniRef90-Q54WP0 | R N Y C A Q F VFD Y VET WS CLD |
| UniRef90-C9K1M3 | RTFMSLQVLDQVDLWSVF |
| UniRef90-D3B8C4 | K NVY I Q TV S D F A M N WWMMDSKL |
| UniRef90_B7TYN5 |  |
| UniRef90_Q45710 | VK G M T L NVLD MVAI WS SLY P N D Y |
| UniRef90_D3BBF5 | R N NTMLNVYQYVHIFANL |
| UniRef90-C3EC48 |  |
| UniRef90_F0ZZF8 | Y N F M K I Y V Y D I SKY WA Y M D P F $\square \mathrm{F}$ |
| UniRef90-D4ZHH7 |  |
| UniRef90_F4PX06 | KVY GMI NELDDFIE Y |
| UniRef90-H9E8W1 | RIH H I L HWFDVYRLWP S LD P C $\square \mathrm{Y}$ |
| UniRef90_U5KRW1 | $\square \mathrm{K}$ G M TLLNVLD I VA I WP SLY P D D Y |
| UniRef90-R4QPN0 |  |
| UniRef90 F0Z8Z1 |  |
| UniRef90 ${ }^{-}$X7GF77 |  |
| UniRef90-M1E9N3 | $M R \square M Q L E C L D L V A L T W P F F N P L L Y$ |
| UniRef90_Q45755 |  |
| UniRef90-F4QAB3 | VNMMSLGVHDQVYY WA Y L D P $\mathrm{V}^{\text {V }}$ Y |
| UniRef90_F4Q8C0 | KLLF S Q I N NLDLME Y |
| UniRef90_F0ZHS1 |  |
| UniRef90-D3BMD9 | T LTVAAQGCLQFADLWP Y F D Q $\square$ K Y |
| UniRef90_D3BJC3 | $R$ NHMVKYVFQFANLWEYYNTF |
| UniRef90_Q7MZ62 | V H Y CQI H GLE Y M D I |
| UniRef90-UPI000469AD33 UniRef90 C7G000 | ET N】T TL V D D F R VL ${ }^{\text {L }}$ K Y S N P F V/F |

UniRef90 F4Q2V7 UniRef90-W1LLR8 UniRef90-E2LS20 UniRef90-W0HZ61 UniRef90 D8SWW5 UniRef90-F4Q5E3 UniRef90-D3BV72 UniRef90 G3JR33 UniRef90 D3BDS3 UniRef90-D3BME8 UniRef90-D8RRW2 UniRef90 P18154 UniRef90- Q7N012 UniRef90-D3BME7 UniRef90-UPI00016A4747 UniRef90 FOZ6L8 UniRef90-B4FOT5 UniRef90-S5WCJ1 UniRef90_F0Z6H6 UniRef90-D3BMF2 UniRef90_UPIOOO36E85E0 UniRef90-B2AN09 UniRef90 FOZDAO UniRef90-S5NP17
UniRef90-F4PLQ9 UniRef90 UPI00034603FC UniRef90-F9X114 UniRef90_UPIo0037A4EBF UniRef90-Q54H34 UniRef90- UPI0003795FB9 UniRef90-J9J6C5 UniRef90_C0B3D6 UniRef90 G8LV29 UniRef90 F4PTTO UniRef90-D3B6U8 UniRef90-UPI000426ABF UniRef90 TOPA42 UniRef90-Q54HS8 UniRef90-C3EDB0 UniRef90-J9MNS2 UniRef90- FoZRX4 UniRef90-FoZUK2
UniRef90- Wo
UniRef90-C6VUR9
UniRef90-UPI000347A24B
UniRef90-FOZUKO
UniRef90_S5VRK7
UniRef90 S8AAG1 UniRef90-R7QDF3
UniRef90-F4QA23 UniRef90 UPI000468A885
UniRef90- J91583 UniRef90-M1SW08
UniRef90-FOZ9E3
UniRef90 D3B8P2 UniRef90-D3BT81 UniRef90-O55BT7 UniRef90-F0ZPLO

ALGTPDPEVGG\|LS S VVGTDWPDDPPRT LA GFIPEVGALLSMLEVCWPSKKENV GN! IGLVLSSFTPYVGSFQKMVFGQI WGKIVQASE
 $\square$ TMAMVVLNFFLVVQPHDAGVYATLFRIISK\|ISDFE

F T P Y VGP L LKAFN $\square W G K \square F K D Q$ EQNKA A
QT ILNNLPGVGPVFQMDFGDMGG】D\EKF $1!G A V I G Y T P Y V G P L I K A G F N I I W G K L F N K E$ $G L I A F G E V T V K A L A S F \square P V A G P L V G V L N L L F S R L N T P D$ G G V LS K $\square$ TSA LIFG LIMNKNM
$\square F A \square I L N D N P E D E$
$G Q T A D D D$
$S\|V D\| L K T A V S S G L K A V P A V G S L L G S V V S A L W P E K S Q P Q$
 $F$ VPYGMF TSP VGY WPEQGKEQ A $\square \mathrm{D} \square \mathrm{NDLLKGAVG} \mathrm{\square SMVPTAGA} \mathrm{\square LSALG} \mathrm{\square LWPDTANPT}$ VIRFDTPEEFESR
T A $\square$ D TVLGKVESA
F S P G D $\square \mathrm{K} \square \mathrm{K} \square \mathrm{L} \mathrm{S} \square \mathrm{A} \square \mathrm{S} \nabla \mathrm{V}$ G A


DAVAGAEGADFNLLDPGSGKIVGVSKFDWDTYKPPS EVTKVIICCSVLSEVPVIGSLLSGLLDAFWPGGPTDI
 FQDM
KSQEDA
$L \square G L I P D G G G A L K F L V G \square F W T E H N K D \backslash L$
NSENL

N【FKATVVGALGLIDEVGSLISKLVAAIWPDSETNA $L G I G V P H V G V V S G V I D L L W P E E E M E V$
ARTVVIS $\square$ ATKAPY $\square G G A \square S Y V \square K S F W Q E A K A D \square$ SLLNLIFPPSGDEI ASFAVPAASPQ GDTTTVLSMVLKLVYKKM



[^0]UniRef90 F4Q2V7 UniRef90－W1LLR8 UniRef90－E2LS20
UniRef90
W0HZ61 UniRef90－D8SWW5 UniRef90－F4Q5E3 UniRef90－D3BV72 UniRef90－G3JR33 UniRef90－D3BDS3 UniRef90－D3BME8 UniRef90－D8RRW2 UniRef90－P18154 UniRef90－Q7N012 UniRef90－D3BME7 UniRef90－UPI00016A4747 UniRef90 FoZ6L8 UniRef90－B4FOT5 UniRef90－S55WCJ1 UniRef90＿FoZ6H6 UniRef90 ${ }^{-}$D3BMF2 UniRef90－UPIOOO36E85EO UniRef90＿B2ANO9 UniRef90 FOZDAO UniRef90－S5NP17 UniRef90－F4PLQ9 UniRef90 UPI00034603FO UniRef90－F9X114 UniRef90＿UPI00037A4EBF UniRef90－O54H34 UniRef90 UPI0003795FB9 UniRef $90-\mathrm{Jg}, \mathrm{J6C5} 5$ UniRef90－COB3D6 UniRef90 G8LV2 UniRef90－F4PTTO UniRef90－D3B6U8 UniRef90－UPI000426ABF UniRef90 TOPA42 UniRef90＿－ 254 HS 8 UniRef90＿C3EDB0 UniRef90－J9MNS2 UniRef90 FOZRX4 UniRef90－FoZUK2 UniRef90－W0 WTD2 UniRef90－C6VUR9 UniRef90－UPI000347A24B UniRef90－FOZUKO UniRef90＿S5VRK7 UniRef90 S8AAG1 UniRef90－R7QDF3 UniRef90－F4QA23 UniRet90 UPI000468A885 UniRef90 J91583 UniRef90－M1SW08 UniRef90－F0Z9E3 UniRef90 D3B8P2 UniRef90－D3BT81 UniRef90－Q55BT7 UniRef90－F0ZPLO


FNQEMTEVENMVNEKLDQNETNRCSAMFADCQNRGNNFND MDSLFEAVGKMI EQALAENDADQARAANATMSQLGQDYYV YKEI TAQVEKMI KKSLEDYFKNQCNIIFNNLGKACDQHKE WEGVKQLERMLEESALKTIKGILAGDIGYIQERMATVAD

 AEQ IIAHVSR【IDAK【TDNN【K【IKLTTEGUSDVYQLFSD

## 

GNKNVNDS KSELRTLYENMMDAKI DAYDTRTLERSYASLKGQTQY WKLIKDKVQALIDQSI SDLYOSLAKNEDASLKDGYQMHVR WDRIEKDVRRVVEGLLDRDKANTLRQKIDSLHDLIDGYNK KEAFEKRISKLI GIALDAQAADWCNTKFKTLLKGGELFKE KEDYEKLIKSLVNKSGDENNYRLMKAAFEGVTQVYGNFSD
 WTEDLKDGVK EDAOKQ1 WTDLEAGVKSLAQGLIEEHDAKDLKLRTEGLMNLLQTY LISFRRQMEDFVNQKLDQTYVSIANSHHRALQKILNRYHE WSLVKQQVADLVGAE LTYYEGQLTNLVAGFNTNFSYYRL


MAS $\square Y Q K \square E T L L N E Q L D A S E D N R C T A M F N D C Q N R G N N F N D$ WE QALSQVQHMI EVSALKVITG LLSGDDAYMQTRMQSVAY TEPKEVDVIGGI QDTLI KYTSEWLEAEYQAVRKDAESLQD
LS QEDTRREGMDATDQQQMYNVISATFSNVVSAVNDYHH WESIKGKVEALVDEKI QQHEATMMRQKDHGIYLV
MKDLVK QINNLIEEQI NDKFFEYTTKNFESI QEIDQEDEK LLNEFREEMEVLMNEKLDDMYVDLANKAFATLQQACNEYNT WT Q DK EK VKALVNEEI DNE EWNVLKDLVDDEFEDKVSEFS Q WDQMKSYVDVRVRELLKEAQLKQLREMLAG DEKMKNELVKMMDEKG Q

FDQLMDY DNSMMSDLIDQQRAHEDRVAVNGLQEMMKSYVT WDEIKERAEALMKNLITTKERVHDIEKRLGGLKQT DDD
WA QVSENVSRMVELATLEFETTRDGSELMATKSDMVSYVV WKNIKNRVETLCQGLI DKERVISLEKRLQGLKNALYLYE TEPKEVDVIGUIQETLMKNTSEWLESEYQAVRKDAESLQD KDDKKEAVEDKI KKALVEFFNGLTSGKVDDVKTAGGQLEV



[^1]|  |  |
| :---: | :---: |
| UniRef90_F4Q2V7 |  |
| UniRef90-W1ILR8 | MLKNS SPGSQESHDAYMFLDAYLVSIDEKFKSFDNRTN |
| UniRef90_E2LS20 | TLCQQ A SGET $\quad$ CRTQWDATNTVYVTAASEFMNSK |
| UniRef90-W0HZ61 | HVQFMLE THPGSREA HDAYMSLARYLI GMEEHFCSFD |
| UniRef90_D8SWW5 | SVAAFQAN NSVGTR N V V VRFEQCRAQLLQMLNLFSHPS |
| UniRef90_F4Q5E3 | LL T L F V D N K NVD Y RVEMI R T Q F LA Y R D FL E G ALI N F S Q P L |
| UniRef90_D3BV72 | L I TIS I E R N S D D NLLEMI R S E F L GLR D SLE GAII D F S NKL |
| UniRef90_G3JR33 | A WQSYSNATGEAKKI QVLLSS Y N S M I TVLR S NIJHHCKID D |
| UniRef90_D3BDS3 | PPNE A EIT K M S L T DLI L S FFS T H SEGMLLLP G |
| UniRef90_D3BME8 | LLA A HLLANLA D D NLKEMIR SEFLS Y R D F LEGGAII NF S QP M |
| UniRef90_D8RRW2 |  |
| UniRef90_P18154 |  |
| UniRef90_Q7N012 | LLD K K H G SEEARSAFNNLA ENIM GYHKK N N N F S D DVN |
| UniRef90_D3BME7 |  |
| UniRef90_UPI00016A4747 | AFMRSATPPYSTSMDDNITAKFEAFAS DCTA QI PMF L I K G |
| UniRef90_F0Z6L8 | LAE E Y I K S M S NE T L S S S L QF QLI L Y R D Kil T D GL L Y F GEE S |
| UniRef90_B4F0T5 | SLA R Y L D P NVHRDLR E QVLNRFD DV I S T I A Q Q P L V L N |
| UniRef90_S5WCJ1 | M K T S L K Vil T E H M Q S |
| UniRef90_F0Z6H6 |  |
| UniRef90_D3BMF2 |  |
| UniRef90_UPI00036E85E0 | NLTTRYLA QPNDE A E Q R Dl Q R R A N DVQK FMETNLLRTF G G L N |
| UniRef90_B2AN09 | A Y G GRQ K GEK LT F L L G WF TVT R R E F T E N G |
| UniRef90_F0ZDA0 |  |
| UniRef90_S5NPI7 |  |
| UniRef90_F4PLQ9 | CMYASTESTVQFECTNGNRTFSFTNFRQHLYAQRPFFKSLS |
| UniRef90_UPI00034603FC |  |
| UniRef90_F9X114 | R D T S Y G Ti Q $\square$ NAFL C S L L S WF D T NKA WY CKNE |
| UniRef90_UPI00037 | SLNE Y Y S A P A DVDSLNN R G RIT TAI Q K GFNDLIS A A S K P K |
| UniRef90_Q54H34 |  |
| UniRef90_UPI0003795FB9 |  |
| UniRef90_J9J6C5 | D Q T S Y GSP QKGQFMSLLS Y I A ESEPYFFDNR |
| UniRef90_C0B3D6 |  |
| UniRef90_G8LV29 |  |
| UniRef90_F4PTT0 | Q NLDD DNLLQMI RSEFMDYRDSLEGAIIINMSDTN |
| UniRef90_D3B6U8 | $L L T L F V D R H Q S D T L L Q M I R S Q F L D Y R N F L E G A L I N F S Q P L$ |
| UniRef90_UPI000426ABF1 | MMENF PNSPETKDSFNNLADDLDGFHNKFKSFDDTTN |
| UniRef90_T0PA42 |  |
| UniRef90_Q54HS8 | SRTLLWK N N P ND S $\square$ T K K NLLD S Y D NLED I L R K Y S SVFR T K K |
| UniRef90_C3EDB0 |  |
| UniRef90_J9MNS2 | LK N LT D QPPLSQARN FHS TLT F LCLEAPSFDENE |
| UniRef90_F0ZRX4 | TI DS Y E N S E Q N $\square$ T D S N A I DS K $\square$ D S I H T A FVR T K F L F D E K N |
| UniRef90_F0ZUK2 |  |
| UniRef90_W0HTD2 |  |
| UniRef90_C6VUR9 |  |
| UniRef90_UPI000347A24B | LIN G K K E S F Y T G S IEETHRAMNSDFDKLLNRSRKEN |
| UniRef90_F0ZUK0 | RVA A Y E K N D ENA LKEM |
| UniRef90_S5VRK7 | ( TTA QKNQLK S D |
| UniRef90_S8AAG1 | A T S QQERMS SMQALLLNQSTY L L S S FFGES |
| UniRef90_R7QDF3 | Y Q N T S $\square$ G S PEK G W WMVNVIS S L N A V |
| UniRef90_F4QA23 | Y 1 KS LN |
| UniRef90_UPI000468A885 | A K N K SEQAMQLNTLISSKCTEMYKKLITKSK |
| UniRef90_J9IS83 | ELKK G Y L P A I L LDLLAEAEP D FLLD D R |
| UniRef90_M1SW08 |  |
| UniRef90_F0Z9E3 |  |
| UniRef90_D3B8P2 |  |
| UniRef90_D3BT81 | R I E I Y E N K K I S S E T K S LVQ T QLDI CIIN SVENLLIALLCAND S |
| UniRef90_Q55BT7 |  |
| UniRef90_F0ZPL0 |  |

lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm


|  | $\qquad$ |
| :---: | :---: |
| UniRef90_F4Q2V7 | ETKSLLPDFVQYTNLYLGLLRDQDADVYKDGYTY |
| UniRef90_W1ILR8 | Y Q $\quad \square \mathrm{L}$ MYTNTDMLQUPYWKMGIEKKKD\\|GGT DDEVNEL |
| UniRef90-E2LS20 | Y E WVLGP LIFADFSVLHMTLLRDCMLHGQGWGWSQDDFKVY |
| UniRef90-W0HZ61 | D RTNLMPMYTASLMLQVMYWS $\square$ GVVHKSQEMGLLTAREVEEM |
| UniRef90-D8SWW5 | NMKHTLLSYGSALALYTTLLREMLQSAKDCGYTTDEVADF |
| UniRef90-F4Q5E3 | Y A H L G SLYGMTMLIY SNFMRDACFQASAWGFPSDYI Y |
| UniRef90-D3BV72 | YSHIMGNLLSVTMMMY |
| UniRef90-G3JR33 | Y AVAGLFEFAATANIHVILLGVGIAHGKSWGFPQEYID N |
| UniRef90-D3BDS3 |  |
| UniRef90-D3BME8 |  |
| UniRef90-D8RRW2 | YMKHTLLSYGSALALYSTLLREMI QSAKDCGYSASEVADF |
| UniRef90-P18154 | YRGHVAPLLTY T SVMYFAFLRDILKYGKEMKFDNSII D |
| UniRef90-Q7N012 | Y Q 1 LPMFSTTVMMQ\TYWVA GLEERRNEDGLS D I Dide KV |
| UniRef90-D3BME7 |  |
| UniRef90_UPIO0016A4747 | SEYQGLTMHALAASAQLSMYSAYLSMRRELALAPDTITAL |
| UniRef90-F0Z6L8 |  |
| UniRef90-B4F0T5 |  |
| UniRef90-S5WCJ1 |  |
| UniRef90_F0Z6H6 | ELINTI GLY 1 |
| UniRef90-D3BMF2 |  |
| UniRef90-UPI00036E85E0 | STVPMLPFYVQATNLYFGVLHDVLLHGDQYGFAATDLNTF |
| UniRef90-B2AN09 |  |
| UniRef90_FOZDA0 |  |
| UniRef90-S5NPI7 | AAYQGIPLFCSDANVELSAHADMLKNKVAFDLDDSFYKNN |
| UniRef90-F4F | VKAATLPVFAQYANIYMASVRDQVLNVNSLTWSPEDKQLL |
| UniRef90-UPI000346 | HK\DDLPLYTQV |
| UniRef90-F9X114 | EPWLTMQCFVQMATMHLSVLREQAFYWD |
| UniRef90-UPI00037A4EBF |  |
| UniRef90-Q54H34 |  |
| UniRef90-UPI0003795FB9 |  |
| UniRef90-J9J6C5 | GTITMAVHREVVNYRK】YGQDD\DE |
| UniRef90-C0B3D6 |  |
| UniRef90_G8LV29 |  |
| UniRef90-F4PTT0 | YIKILGNVLSMTFLLYSVLMRDACLQGKAWGLPDKYVDQI |
| UniRef90-D3B6U8 | YARILGSLYGMTMLLYSNLMRDACFQGSAWGFPP |
| UniRef90-UPI000426ABF1 |  |
| UniRef90-T0PA42 | NSIPLLS ICALS CLLYFFTLRDTLVNGSEWGYSLNDLQKY |
| UniRef90-Q54HS8 | KIElVERDGITTNGLSWGMSTGENREY |
| UniRef90-C3EDB0 | NA QYTFAYNVNAATFSLILMRDKYLNYTQWGYAAGAQNFY |
| UniRef90-J9MNS2 | S P WYCL |
| UniRef90-F0ZRX4 |  |
| UniRef90-FOZUK2 | NELLVGNLFT GSLFYILIQRDVYYKGQEWGFSNDYIQRA |
| UniRef90-W0HTD2 | QTYTFAPLYCTTVSLILAFRLEVIQHASQLKDDQELI D TE |
| UniRef90-C6VUR9 | KEV LPYMVGLGTIVMITLRHMMVANYKDLDPDQETLDSN |
| UniRef90-UPI000347A24B | RLI AELP |
| UniRef90-FOZUK0 | QNKLLI GNLVTGTLFYVLIQRDVFYKGAEWGFPNDYINRS |
| UniRef90-S5VRK7 |  |
| UniRef90-S8AAG1 | SPQATMTYLVAFGTI RLGLLREYLFYETIYGQPDGNPA |
| UniRef90-R7QDF3 | NPEVMLPYLVALATLTLAVRREQIVSYKEDGRDDRNADYK |
| UniRef90-F4QA23 | ARAAALPMFVQFTNMYLGFILDQI ADFHNFNYT LVQKNKL |
| UniRef90_UPI000468A885 |  |
| UniRef90-J91S83 |  |
| UniRef90-M1SW08 | GVCALS CLLYFFTLRDTLVFGKSWGYAS DMLEKY |
| UniRef90-F0Z9E3 | NSLVFTMAHYVSSQLECI A NGVT WGFPESFI E GN |
| UniRef90-D3B8P2 | A ETNTLSMFKEAVLIFMSRVMSLIGLRTRLGLTPEFVKDT |
| UniRef90-D3BT81 | Y DNYVLQNYVQALLTLLTMFRRLQDAFWYQFGYHSYQV |
| UniRef90_Q55BT7 | R $\square$ SLLAKLYI D TAVLYSALLRDANYNGIS M GLLHPGUVNGT |
| UniRef90_FOZPL0 | HS HLLF GNLLS LLMLIYSTAMRDS\\|HYGLSWGLS KDLLEY |

[^2]

UniRef90_F4Q2V7 UniRef90 W1ILR8 UniRef90-E2LS20 UniRef90-W0HZ61 UniRef90 D8SWW5 UniRef90-F4Q5E3 UniRef90-D3BV72 UniRef90 G3JR33 UniRef90 D3BDS3 UniRef90-D3BME8 UniRef90-D8RRW2 UniRef90 P18154 UniRef90 Q7N012 UniRef90-D3BME7 UniRef90_UPI00016A4747 UniRef90 F0Z6L8 UniRef90-B4F0T5 UniRef90-S5WCJ1 UniRef90 FOZ6H6 UniRef90 D3BMF2 UniRef90_UPI00036E85E0 UniRef90_B2AN09 UniRef90 FOZDAO UniRef90-S5NPI7 UniRef90-F4PLQ9 UniRef90 UPI00034603FC UniRef90- F9X114 UniRef90-UPI00037A4EBF UniRef90_Q54H34 UniRef90 UPl0003795FB9 UniRef90- J9J6C5 UniRef90_C0B3D6 UniRef90 G8LV2d UniRef90 F4PTT0 UniRef90-D3B6U8 UniRef90-UPI000426ABF1 UniRet90 TOPA42 UniRef90-Q54HS8 UniRef90_C3EDB0 UniRef90-J9MNS2 UniRef90 FOZRX4 UniRef90-FOZUK2 UniRef90-W0HTD2 UniRef90 C6VUR9 UniRef90 UPIO00347A24B UniRef90_FOZUKO UniRef90_S5VRK7 UniRef90 S8AAG1 UniRef90-R7QDF3 UniRef90-F4QA23 UniRef90 UPI000468A885 UniRef90 ${ }^{-} \mathrm{JgIS} 83$ UniRef90-M1SW08 UniRef90-F0Z9E3 UniRef90- D3B8P? UniRef90-D3BT81 UniRef90-Q55BTT UniRef90_FOZPLO
 KELIDKLVDKAKNYI HTMYTNEHNNAVNTSTAETNNLLSV
 QDIIDRLVDRSSAYCHALYDTEYDEI DNTS QRDINDR\|RSSLLNQMMF


MEQYSN L H Q K Y LDR R $\square$ REVYNMG $\square$ NE $\square$ F QK YPEKFNH $\square$ QNY KAILHDKI QQY
QRDINDRIKSALNQVMF
ANTIKKISNDFVN
RGLIKK TVEQANSY $\square$ NN $\square$ Y DRE $\operatorname{LINDADNNSTADTVANNVM~}$ YVNGSGKVKGLKA
LREMHAK DFQYQNDMQAVLAKHLDTLSDPAKK NDY
RSR【HSYSIDFIKKVI
KNNLKTGRNS DDKNANDHKA DYQQTSQVFKDDYNKCNTF MHELNAD DSSYTDY IYYGLFVEYLPPDSKDTNTQYNAYDKY RSRLHSYSDDFMKKVI
K $\square A$ YMKRKTNDE $\square S V K F \square Y D C G L K S \square K N D D E T G D V A F N A Y$ QAALKQDTKDCYAYASTTFEQDYQARRSTSFAEWNVQNDK RGELQDADTDYT
FKSIQQKVHEATADVFKTYK YAAMEKK
LAADLNTAFASES DAYAQD $\frac{\square}{Y}$ YTRY $\square$ AT TDPS $\square T$ A D QFNDAAKT YAHUQKTDAEYEKY $\square A E T Y K \quad Q A N S E N M E K \square E K L N V F$

LQ NMKKNHKEYAAY $\square E K T Y K E G$
KDS $\square$ SVK $\square$ DECYKH

KS LLQKDVQSSKSYLSPDNNTY $\square N N \square$
KEEFVLDITKKYDQHAEDTWNK SNTRRNK ITTYKEKY
 E ETGHDKTQDYLARCNDYYEDELDKPAVSDYPADVNDPDDY SKAIVE
K NFFSTC TT DY VKH LLKYAHDEYCTE $\square R S K S E F G K S K F D N Y$ EGTFLYRLKDYTTNILTQYNA ILKK

F F EMKQYYKEDSDSLFRSYEELRYNDDSNKVEGKTELNHY KSMVTDRDDKTFTHVLKDMGSVLSLSQVSKEKAEDLFNDY NTRIRNLADDY IEKI TTETHEKYVDSADNKNMKS DNNDFQF KAKLRSSIKEYSDAVN
\SPRPDRRTEY LDNHVKKTYEE G
KVMI SERDDK SMGHI TKLLGKGLSMTEVSKENSPDDYNDY $M H N L R L T I S R R T T F L F N N F L P F L P S \square T S N T K G D L N S Y Q Q Y$

 QRQi E N Y
$\square K \square L D K \square Y N F T Q A A Q N M \square D K$
SKT T
KTKLHEK $\square$ NKYHMDCGKAYQKA LKKGMQPSNND
LGLHVD $\quad$ T QLY $\square K H L H A E Y Q N K L N$
NKD
NEELDQ

[^3]

| UniRef90_F4Q2V7 | $\mathrm{V} \mathrm{DMMA} \mathrm{~L} G \square H \stackrel{210}{\mathrm{D}} \mathrm{Q} \text { A Y Y WN Y LD P } \quad \square \mathrm{K} \mathrm{Y}$ |
| :---: | :---: |
| UniRef90-W1ILR8 | $R G Y C L L H G L E C \square E$ |
| UniRef90_E2LS20 | NQQSVVAF D D Y RLL VT Y L D P |
| UniRef90_W0HZ61 |  |
| UniRef90_D8SWW5 |  |
| UniRef90_F4Q5E3 | K LF G Q $\square$ N N L D LF E Y Y W S |
| UniRef90_D3BV72 |  |
| UniRef90_G3JR33 |  |
| UniRef90_D3BDS3 | R N F M $\square$ I H VF D M $\square \mathrm{NM}$ |
| UniRef90_D3BME8 |  |
| UniRef90_D8RRW2 |  |
| UniRef90_P18154 |  |
| UniRef90_Q7N012 | S V H C R L H G VE Y $\square$ S $\square \mathrm{W}$ |
| UniRef90_D3BME7 | HMDLT R C NL R Y M |
| UniRef90-UPI00016A4747 | R N F Y T L |
| UniRef90-F0Z6L8 |  |
| UniRef90_B4F0T5 | L V G $\quad$ Y T S GLS F Y Q T W |
| UniRef90_S5WCJ1 | T R N $\dagger \square$ T $\dagger$ S L D MVA S WS F M D P F N Y |
| UniRef90_F0Z6H6 |  |
| UniRef90_D3BMF2 | $R$ N DMVIRALD MYNTLMLS D P |
| UniRef90_UPI00036E85E0 | N S QLTIT VA D F LH $\mathrm{L}^{\text {L W A K Y }}$ |
| UniRef90_B2AN09 |  |
| UniRef90-FOZDA0 |  |
| UniRef90_S5NPI7 |  |
| UniRef90_F4PLQ9 | $\square \mathrm{N}$ M LQ T G VM D H V Y Y WK Y M D P F V Y |
| UniRef90_UPI00034603FC | DSEVITHNFY YDPNT |
| UniRef90_F9X114 |  |
| UniRef90_UPI00037A4EBF |  |
| UniRef90_Q54H34 |  |
| UniRef90_UPI0003795FB9 |  |
| UniRef90_J9J6C5 |  |
| UniRef90_C0B3D6 |  |
| UniRef90 G8LV29 |  |
| UniRef90_F4PTT0 | K L Y G M M N E L D F $\square \mathrm{E}$ Y |
| UniRef90_D3B6U8 |  |
| UniRef90_UPI000426ABF1 | Q G H C R L H G $\square$ E Y $\square \mathrm{S} \square \mathrm{W}$ |
| UniRef90_T0PA42 |  |
| UniRef90_Q54HS8 | $R \mathrm{NVMAESV}$ V D L A D S WY S LD |
| UniRef90_C3EDB0 |  |
| UniRef90_J9MNS2 |  |
| UniRef90-F0ZRX4 | $\square \mathrm{I}$ F A N S Y V L K L I N T W W A VD P |
| UniRef90_FOZUK2 | K Q F |
| UniRef90_W0HTD2 | N Q Y Y LT N V V I F S Q |
| UniRef90-C6VUR9 |  |
| UniRef90_UPI000347A24B |  |
| UniRef90_F0ZUK0 | K Q F A Y LDV |
| UniRef90_S5VRK7 | T R R $\square$ T I N A LD T A VF WT L L D P F D Y |
| UniRef90_S8AAG1 |  |
| UniRef90-R7QDF3 |  |
| UniRef90_F4QA23 | $\square S$ M T G L A V H D Q A Y F We Y LD P $\square$ A Y |
| UniRef90_UPI000468A885 |  |
| UniRef90_J9IS83 |  |
| UniRef90-M1SW08 |  |
| UniRef90-F0Z9E3 |  |
| UniRef90_D3B8P2 |  |
| UniRef90_D3BT81 |  |
| UniRef90_Q55BT7 |  |
| UniRef90 F0ZPL0 |  |

[^4]
[^0]:    lupas 21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    sol0
    jhmm
    jpssm

[^1]:    lupas＿21
    lupas＿14
    lupas＿28
    jnet
    conf
    sol25
    sol0
    jhmm
    jpssm

[^2]:    lupas 21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    jhmm

[^3]:    lupas 21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    sol0
    jhmm
    ssm

[^4]:    lupas 21
    lupas_14
    lupas_28
    jnet conf conf
    sol25 sol5 sol0 j̣hmm jpssm

