query
UniRef90_K2DDY2 UniRef90_D9S021 UniRef90́A4J829 UniRef90_F4LSG4 UniRef90_E8WI32 UniRef90 A0A037Z8D0 UniRef90_D9QVP0 UniRef90-C6PWV8 UniRef90-UPIO00474E04F UniRef90_B5YL85 UniRef90-F6DJV2 UniRef90-G7W8G1 UniRet90_UPI0002E3F2D1 UniRef90-B3EC73 UniRef90_I4CF30
UniRef90
R7RPH4
UniRef90-C6J4L4 UniRef90-14AAS9
UniRef90-R5XLK8
UniRef90 U2E3S6
UniRef90-UPIO002881469 UniRef90_UPIOOO287CC10 UniRef90-Q0YQJ8 UniRef90_UPI00046EF860 UniRef90-R6JAR6 UniRef90-O891S7 UniRef90-UPI00037703A2 UniRef90-UPI00029A43D4 UniRef90-A1HPW3 UniRef90-_131MV4
UniRef90 UPI0002EBDCDB UniRef90-B817A3
UniRef90-RTJF33 UniRef90 ${ }^{-}$K6U9E1 UniRef90-B7IHF7 UniRef90-R4KAY7 UniRef90_R5VE24 UniRef90-F8ABZ8 Uninefifo-M8DAB3
UniRef90-J9GC99
UniRef90_UPIO0047E7E73
UniRef90-D5XBA5
UniRef90 F5J402
UniRef90-UPIO00475D571 UniRef90-F4A345
UniRef90-SOFYLL
UniRef90-M2KW6 UniRef90_UPIOOO3A45984 UniRef90_C00IZ9 UniRef90 L1QCYO UniRef90-UPI00047A7808 UniRet90-R7CVC4
UniRef90-W6S1X3 UniRef90-10XUC1
Uniinefol-F9ZCE3
UniRef90-R5TQQ5
UniRef90-R6ML06
UniRef90_QOTRK5 UniRef90_UPIO00479F036 UniRef99-UP10004200437 UniRef90_C5CE68
UniRef90_C61042
UniRef90-S6A260
UniRef90-E4T2K5
UniRet90 F2F15 UniRef90-AOAO15L434 UniRef90-TOCPTO UniRef90-A5N1C3 UniRe99_S2L735 UniRef90-FLLOF5 UniRef90-UPIO003617830 UniRef90_R9CFN1 UniRef90-UPIOOO248C407 UniRef90-F3ZUVO UniRef90_BoSNZ4 UniRef90-UPIOOO47A6116 UniRef90-M1PT56 UniRef90-UPI00037BCF2E UniRef90_S7TSP1 1 UniRef90-G8LVD1
UniRef90 A7NH25 UniRef90-V9G8F7 UniRef90-F5LAZ4
Unireigo_-GLALA

1
10
MRPロT 20
20 MKLLEEALKNI GDLDEDSMKKAKERLDNLTKPRGSLGLLE MSLLEETLKCI EGKDEEAVKEAWERLDSLTKPDGSLGKLE MTLLAETLSK MTKLEQTLQQ MKLLESTLAK MNLLQETLNN MELLEKTVAE


MQLLNKTLAN LQELIGN
MTLLEOLLDG MNLVEQTIAGGRVDRSLVPVIQAHLDDLTKPQGSLGRLE

$\qquad$ MSLIESICKN

MKVLENTLR $\begin{array}{r}\text { C } \\ \text { S } \\ \text { S } \\ \hline\end{array}$ MEKLLLQQVIN H ERLNMVSMHQMRRSVNNL MKLLEETDRR MNSLKN MELLQQTUHN MKLLKHTTEH

FEERAGI Q
K
K
K APDQTCVEQAKQR $\mathrm{Q} P \mathrm{P}$
$\mathrm{K} P \mathrm{~V}$
D
D
A

MTKLQDFLP
 LIEKLLEIIRAIGSRNPEAAAQARLHDDL

MDLLTETLE
 VPLLIDKINNL LIAQVQPRNEEAAQQASRHVNQL

MSKFE
LE K VVQ ETRRPDHAMMADVQTK

MTLLQNTLS I NSRNTQUKEQVQYII NHKT
 MQLLQQTIQNIQHVDNKMMWTARERI DALSKPPGSLGKLE GLNLKAMKEAKLRLDRLIKPVGSLGTLE MKTLERAMAAT QPPDTEI YEQALARLAQQARPAGSLGVLE FEK GVNGUTGADKEVMKEAKLRVVDSLAKPLGGSLGKL PEKSTEMGKQVSNY:INSLTKPLGSALGRL E पNRTNEVIEG LRNKIDTKTKPLGALGKLE MENFKKVISGIKGLDAKAMKEASERMDNLTKPGGSGGRLE TLEELKKEIRPLDETSMEQAREHWIKIAKPLFSLGKL
 MLINEVGUEGLHVDVMQKAKNRLDDLTKPLGSLGVLE



MQLLQQTTDQ
LLQVCGR\|EPLD
EQ1 MTNDTDARTIGSDRETGRRKERLDNLAKPIGSLGELE MNELQGVIGAI RPLRQEAKDAASVHLDNLTKPPGSLGK EK K K EWTEGI PSVDAGAERKARAHMDQLE AKKRVDF SRLQQVLSD RPDDAETMEGAARRLDQLKPPGSLGRLE MSMSPFSDPK EKVNVROMQD MSMSPFS MGLLKRTLQNI YDQDSDSRDRAKERLDQLALPHWALGDLM
QFIREVSER
M MSLLTADTITR
QUERY
UniRef90_K2DDY2
UniRef90_D9S021
UniRef90_D8GQT6
UniRef90_A4J829
UniRef90_F4LSG4
UniRef90_E8WI32
UniRef90_A0A037Z8D0
UniRef90_D9QVP0
UniRef90_C6PWV8
UniRef90_UPI000474E04F
UniRef90_B5YL85
UniRef90_F6DJV2
UniRef90_G7W8G1
UniRef90_-UPI0002E3F2D1
UniRef90_B3EC73
UniRef90_I4CF30
UniRef90_R7RPH4
UniRef90_C6J4L4
UniRef90_I4AAS9
UniRef90_R5XLK8
UniRef90_-U2E3S6
UniRef90_UPI0002881469
UniRef90_UPI000287CC10
UniRef90_Q0YQJ8
UniRef90_-UPI00046EF860
UniRef90_R6JAR6
UniRef90_Q891S7
UniRef90_UPI00037703A2
UniRef90_UPI00029A43D4
UniRef90_A1HPW3
UniRef90_I3IMV4
 E A A Q QGCI QNTLTPEFKKPTMLVFAGDHGIATEGVSLYP DLAVKMA G DI A WRLA GI QRVPLPQLPREKVLVLAGDHGVVAEGVSAFP

 E A A K L A GMS GELYPKVDKKVHIVMAADHGVVSEGVSAVS
 E I ASRVVA IVEDAMPEI KKKAVLVFASDHGVTEENVSAYP EI A YRMAGMQGNSLPQLPQKLVAVFAGDHGVVAEGVSAFP
 EIAMSYALATGSPVPVLDKKKI CCFAADHGVAAEGVSAFP DLAMDLAGMTGSMNPKFDNRVIVTMAGDHGVTAEGVSKYP KIAAKISGIT GNLVNDF RKNIVIMCADNGVVEEGVSACP GLAVKLAGI T G I IRPEFPKRSVIVMAADHGVCEEGVSAFP TIAKQL GGI QGQPWPEVEKKAI LVMAGDHGVVAEGVSAFP
 I AVRLAGAT KI ALQI GLI QQSLSPRLTHPQNII FAADH
 ELADQDGLIQQTTKPELESPVMLTVASDHGI TEEGVSAFPP

 EIVVKQL A GI T GELLFPCVVNKKIVIMCADNGVVEEGVSSCP
 E I S I K L S GI T GK IK N NI D K R MI I I M C S D N GVVEE GV A S A P DIA L K M A L I Q N K EIDP EL N D K RVVYV F A S D H GVVVEN GV S A Y P
 ELAVVQVGRI Q Q T L S P A L H K P Q NI I F A A D H GIV V K E GVV F S A E L A K Q Y V Y I T G E L F P S L P K K H V Y V SLAVVELAAMTGEPFPAVTPPGVLVFAADHGVAAEGVSAYP ELAL QVGLI QQTLTPKLNHP』NVI FASDHGIADENIISKSP DI A ARLCLI QQSLTPKLDNPCHLLFGGDHGIEREGVS ISP
 D L A M Q I G W V Q Q S L
 DI S A R L A A

 S IAA I K F S GIT G K I K NEIN K K CI I I M S S D N GVVVE GVVA SA P E L A A E L A L Q V G L I Q Q T L R P T L H H H P C Ni L F G G D H GI A D E GVV V S P D AVGLS GI TGKI K NKVEKKAII I MCADNGVVEEGVAS GP DLA YRI GTI QNTVDP LLSNPHLLVFAGDHGLADS GVSAFP E L A V R I G T I $\quad$ Q Q S L S P P V L R T P Q N IV V F A A D H GVVVVE GVV F S A A QLS GIT GKIHNSVIKGCNVIMSADNGIWDEGISTCP D AVI QMAGI K ETPDYELKKKALVIMCADNGIVEE GVTQTG $N L L L R Y V G I T G Q D H P E I P K K K F T I I T C G D H G V A E M N V S A Y B$ DI AI RLS GIT GNMFNNIDKKCVIIMSSDNGVEEEGVASAP DVIVHLAAMTGQVIPSFNKPVALMFAADHGVSEQGVSAYG QLVI RLAGITGKARPCFDRRAVIVMAADHGVVEEGI SAFP
 DI AL K M GKI Q GKVLPNLPKKAVFVFAGDHGVTEEGVSAYP DVAFWYARLHGSDRPPAPRGACVVFAGDHGVTAEGVSAYP EVAATLAGGMTGELFPRVTPPGVLVFAADHGVTAEGVSAYP


 EIAVVKMA G DTG K V H N KI H K K N I I V I M C S D N GIIWE E GII S N C P LAVQLLASMTGDDFPRVTPPAVVVFAADHGVAAEGVSAFP DMARQLAGITGEVMPDMSRKAIVVMAADHGVCEEGVSAFP T I W I R L A Gll T D S A K A G G M K N R D KK CIMIV S S D N GVVFE GVA S S P D I
 SVA QQI A EI QNTTSPSLRNPKLILFAADHGITEEPVSSLYP DI LIQQLCGI TGKLYPKVDNKAVIVMAADHGVFEESVASTP
 $N L A V Q L A C I T G D V K S V I$ QHKTVIVMAADHGVCEEGVSAFP EVGARLA GI F GTIDVRLDRKIVIICAGDHGICAEGVSRFP




## QUERY

UniRef90_K2DDY2 UniRef90_D9S021 UniRef90-A4J829 UniRef90_F4LSG4 UniRef90_E8WI32 UniRef90 A0A037Z8D0 UniRef90_D9QVP0 UniRef90_C6PWV8 UniRef90_UPI000474E04F UniRef90-B5YL85 UniRef90_F6DJV2 UniRef90_G7W8G1 UniRef90_UPI0002E3F2D1 UniRef90_B3EC73 UniRef90-14CF30
UniRef90 R7RPH4
UniRef90_C6J4L4 UniRef90_I4AAS9
UniRef90_R5XLK8
UniRef90_U2E3S6 UniRef90_UPI0002881469 UniRef90_UPI000287CC10 UniRef90_Q0YQJ8 UniRef90-UPI00046EF860 UniRef90_R6JAR6 UniRef90_Q891S7 UniRef90_UPI00037703A2 UniRef90_UPI00029A43D4 UniRef90_A1HPW3
UniRef90_I3IMV4
UniRef90_UPI0002EBDCDB UniRef90_B8I7A3
UniRef90_R7JF33
UniRef90_V6M8F9
UniRef90_K6U9E1
UniRef90_B7IHF7
UniRef90_R4KAY7
UniRef90_R5VE24
UniRef90_F8ABZ8
UniRef90_M8DAB3
UniRef90-J9GC99
UniRef90 R5CRQ2
UniRef90-UPIOOO47E7E73
UniRef90_D5XBA5
UniRef90_F5J402
UniRef90-UPI000475D571
UniRef90_F4A345
UniRef90_S0FYL6
UniRef90_R7ZFW6
UniRef90_U2NKA4
UniRef90_U2NKA4
UniRef90_UPI0003A45984
UniRef90_C0QIZ9
UniRef90-L1QCY0
UniRef90_UPI00047A7808
UniRef90_R7CVC4
UniRef90-W6S1X3
UniRef90_IOXUC1
UniRef90_F9ZCE3
UniRef90-R5TQQ5
UniRef90_R6ML06
UniRef90_Q0TRK5
UniRef90_UPI000479F036 UniRef90-UPI000420D437 UniRef90_UPI00037DAC0C UniRef90_C5CE68
UniRef90_C6I042
UniRef90_S6A260
UniRef90_E4T2K5
UniRef90- F2F1I5
UniRef90_A0A015L434
UniRef90_T0CPT0
UniRef90_A5N1C3
UniRef90_S2L735
UniRef90_F5LQF5
UniRef90-F5SJN8 UniRef90_UPI0003617830 UniRef90_R9CFN1 UniRef90_UPI000248C407 UniRef90_F3ZUV0 UniRef90_B0SNZ4 UniRef90_UPI00047A6116 UniRef90_M1PT56 UniRef90_UPI00037BCF2E UniRef90_S7TSP1 UniRef90_G8LVD1
UniRef90 A7NH25 UniRef90_V9G8F7 UniRef90_F5LAZ4
UniRetgo_-E6W0R4
UniRef90_E

 =




 17830

90
$\square E T$ T $\square$ H MTAN Y
 SQGASANAFANFCGADMVVVDMGVAGD NEGAGINVFTKQHGIDIKVIDAGVKCD SGGAGINVLARHAGAKIVCVDVGTAAD A NGGAGNVLARAGAKVVDIGVGP NGGAAMSVLARHENAKLYVVD: GVAASD RGITGIGVLSDYAKADICVVDIGVKAD
 TKGITAVNVLSKCANADI AVVDIGVDDD FLRGGAGINVLARHAGADVLVVDVGDYD
 TGGGAAI NVFSRQIGALLQVVDVGVASD MVQGGAAI NVLSKHAGADLDVVDVGVNHD LRGGAGINALARTVKADVVVVDMGVAGE
$\qquad$ G GAAVNVLARQASADVVCVDiGVNAE SGGAGINVLARHANADVICTDVGMAFP PKKGNGVGTVKFVGSDVQLIDVGMNCD KGITGVCALSKFTNTELTIADDGIKCD NGGAAI NVYCRQHNLSLHVVDAGVNGD SGGAAINVLSRHAGADLAVVDMGVNHD RRSAAVNVLAQQAGAEVQVIDVGTLL HG GAGINFLCRQHGFTLKVVDAGVDYD EG GAAVNALARHAGAEVRVVDMGVNHD NGGGGIGLFCKQYGFDLYVVDAGVDHD SGGAGANVLARHAGADMFIVDVGVRVD GAAVNVLAREAGADVICVDVGVNAD MH KGFTGVNVLSRHSRADIVVVDVGVDDD NGGSGVCYLARQHGFDMKIVDGGVDYD TKGLTGVAVLAKANNSELMVVDVGI NCD F
 (LGMGAGNVLARHAGAEVVCVDIGVNAD AEVTGQMMENFSRGKAAVHVLARRFGARVTVVDVGSRAE


$\qquad$ NGGAAl NVESRHVGAKVYVVDAGVDYD KGGAGINMFCRQHGFLLKIVDCGVNYD AG GAG| NVIARQAGAEVFVVDVGVAGE AHGGAAI NVFSRQDGALLHDVVDVGVAV
$\qquad$ A WA L
 PKGLTGVCAIAKDTNAKIVTVDVGVKED F ا R
 NDGASINVLARHAGAA:KVADIGVDFD NGGAAI NVEARRQNGADLNNVIDIGGASD VGRRRAGINFFCRQHGFTLKVVDAGVDYD NGGAAI NVFCKOHGIKLLVVDAGVSGN KGGGGI NMFARQHHFILKVVDCGVNAD TRGICGI NALCSTSNMDIRVVDIGINGE TKSSTSVCAMSKVAGVDLFPVDIGMAVD VVSKGAVANCMSNFCGSDMIVVDMGDKAP KGTTGVATLAKSNGTDLMVFDVGINSD AGGAAVNVARHAGADVVCVDGVNAD
 NGGAAI NVFSRHVGSEVYVIDAGVDYD ANGGAAIIVVSRQ $M E G G A G I N F A R Q H N D K M K V D A G I N Y D$ PKGTTGMCTIAKDSNAQVIPVD GGVKED GG GAAVNVLARQAGADVFCADLGVNAD RG GAAVNVFSKQDGADFSVVDVGVATD G GAAVNVLGDFFKCDRTVVDIGTDYD
 KGGAGVNFLARQHHFKLMVVDGGVNRD HG GACANVFAKHSGDEVEVVDAGVDHD RGVTGVCALAKQNNTKVPVD NGGAGINALARQAGAEVIVVDMGVAAD SGGAAINVLSRQAGADVLCVDlGVKGN
$\qquad$ b RGITGGINVFTRLTGARTVI VDI GVDAD NGGAAlNVLARHIGARVIVVDUGVAAN NGGAAVNVLSRAGADVHCVDVGVASE



| QUERYUniRef90_K2DDY2UniRef90_D9S021UniRef90_D8GQT6UniRef90_A4J829UniRef90_F4LSG4UniRef90_E8WI32UniRef90-A0A037Z8D0UniRef90_D9QVP0UniRef90_C6PWV8UniRef90_UPI000474E04FUniRef90-B5YL85UniRef90-F6DJV2UniRef90_G7W8G1 |  |  |
| :---: | :---: | :---: |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

210
220
230
240
$T$ GRGT GRDLKTKMEVVGRADAVNKPNPQDGLDVLAKDGGFE T GRGTGGDDKK RE LLQQSLANNNLVNNDPFTVLQTFGGFE V G R G T G R L K L K


 $V$ GF GT GQLE K K K E I V A Q A L E V N Q P DV


 $V$ G R G T G L L L $R$ R K K Q T GKGTGRLLEHKKKIVRKAIVVNASRCSTPFGTLAALGGYE
 V GRGTGRLR HK I SVVERALEVNRPNANDPLDVLAKVGGLE
 $T G M G A G G L Q H K A Q V I D R A A D E N Q P N P T D G Q D I L Q K V G G F E$ VGA GS GLDER G $\square$ S RKY E IL R KN Y P S P H S T E E I L CRFGGYE

 TGRGTGALAAKTKVIERAIEVVQPDPGDAVDVLAKVGGLE VGAGS GLI NHKYEVLKRSLEQY PGEHSAEEILCRFGGY $V$ GK G S GL T D N K K R A V K Q A I E D N K P N K E D VI D V I A K I G G F D

 TGRGT GLL Q R K I R II K K A I D I N Q P D P H D P I D V L A K V G G Y E VGRGT GQWEHKCSVVRRALEVNQPNAEDALDVLAKVGGLE
 V GA G S GL NA E GVVRHKYKAAQDNYK G D G S T L D I MRYFGGDE $V$ GRGT GLWARKKQVVREADALHRPDAAEPIVVLAKVGGLD VGRGAGAFENKKKVIKQAIVINNPVKNDPIVVVSKIGGFD

 $V G R G T G A L Q H K R E V V A K A L S R Y Q \quad F K D P I D V L A K V G G A B$ $V$ G R G T G V WQ K K K A V V K E A L S F H QP D A G D P L D A L S K V G G L E V GA G S GLVKHKYEVLN QALNNYKGDG SPLDVARYFGGYE V GA GAGLI K H KYEI LISEAI KNYKDNTTDEDDIIRYFGGFE A GRGTGGLLEKK IAILLKQAIDNN PAYTPEEILQTFGGFE $T$ GRGTGGVLKNKVVRVI QKALVDNKPDPKDPVDVLAKVVGGE


1
,

| $\mid \mathrm{V}$ |
| :--- |
| V |
| V |

UniRef90-F9ZCE3
UniRef90-T0MSY7
UniRef90_R5TQQ5
UniRef90_R6ML06
UniRef90 Q0TRK5
UniRef90_UPI000479F036 UniRef90_UPI000420D437 UniRef90_UPI00037DAC0C UniRef90_C5CE68
UniRef90_C6I042
UniRef90_S6A260
UniRef90-E4T2K5
UniRef90 F2F1I5
UniRef90_A0A015L434
UniRef90_T0CPT0
UniRef90-A5N1C3
UniRef90_S2L735
UniRef90_F5LQF5
UniRef90_F5SJN8 UniRef90_UPI0003617830 UniRef90_R9CFN1 UniRef90_UPI000248C407 UniRef90_F3ZUV0 UniRef90_B0SNZ4 UniRef90_UPI00047A6116 UniRef90_M1PT56 UniRef90_UPI00037BCF2E UniRef90_G8LVD1 UniRef90-A7NH25 UniRef90_V9G8F7 UniRef90_F5LAZ4
UniRef90_E6W0R4


## QUERY

 UniRef90＿K2DDY2 UniRef90＿D9S021 UniRef90－A4J829 UniRef90－F4LSG4 UniRef90＿E8WI32 UniRef90 A0A037Z8D0 UniRef90＿D9QVP0 UniRef90＿C6PWV8 UniRef90＿UPI000474E04F UniRef90－B5YL85 UniRef90＿F6DJV2 UniRef90＿G7W8G1 UniRef90＿UPI0002E3F2D1 UniRef90＿B3EC73 UniRef90＿I4CF30 UniRef90＿R7RPH4 UniRef90＿C6J4L4 UniRef90＿I4AAS9 UniRef90＿R5XLK8UniRef90＿U2E3S6 UniRef90＿UPI0002881469 UniRef90＿UPI000287CC10 UniRef90＿Q0YQJ8 UniRef90＿UPI00046EF860 UniRef90＿R6JAR6 UniRef90＿Q891S7 UniRef90＿UPI00037703A2 UniRef90＿UPI00029A43D4 UniRef90＿A1HPW3 UniRef90＿I3IMV4 UniRef90＿UPI0002EBDCDB UniRef90＿B8I7A3 UniRef90＿R7JF33 UniRef90＿V6M8F9 UniRef90＿K6U9E1 UniRef90＿B7IHF7
UniRef90＿R4KAY7 UniRef90＿R5VE24 UniRef90＿F8ABZ8 UniRef90＿M8DAB3 UniRef90＿J9GC99
UniRef90＿R5CRQ2 UniRef90＿UPI00047E7E73 UniRef90＿D5XBA5 UniRef90＿F5J402 UniRef90＿UPI000475D571 UniRef90＿F4A345 UniRef90＿S0FYL6 UniRef90＿R7ZFW6
UniRef90＿U2NKA4 UniRef90＿U2NKA4
UniRef90＿UPI0003A45984 UniRef90＿C0QIZ9 UniRef90－L1QCY0 UniRef90＿UPI00047A7808 UniRef90＿R7CVC4 UniRef90－W6S1X3 UniRef90＿IOXUC1 UniRef90＿F9ZCE3 UniRef90＿R5TQQ5 UniRef90＿R6ML06 UniRef90＿Q0TRK5 UniRef90＿UPI000479F036 UniRef90＿UPI000420D437 UniRef90＿UPI00037DAC0C UniRef90＿C5CE68
UniRef90＿C6I042
UniRef90＿S6A260
UniRef90－E4T2K5
UniRef90＿F2F1I5
UniRef90＿A0A015L434
UniRef90＿T0CPT0
UniRef90－A5N1C3
UniRef90＿S2L735
UniRef90＿F5LQF5
UniRef90－F5SJN8 UniRef90＿UPI0003617830 UniRef90＿R9CFN1 UniRef90－UPIO00248C407 UniRef90＿F3ZUV0 UniRef90＿B0SNZ4 UniRef90－UPI00047A6116 UniRef90＿M1PT56 UniRef90＿UPI00037BCF2E UniRef90＿S7TSP1 UniRef90＿G8LVD1
UniRef90－A7NH25 UniRef90＿A7NH25 UniRef90＿F5LAZ4

## B

B
D


2


290
300
E Y MFASHLLS
GEPAS $\square A L R Q L Q L E A C L E L G V R L G E G \square G A S$ EYCIF AHKSGERGHKIMLEHLGAEPLLDIGLRLGEGTGAS

 E YMFASHGSVEPGHR I MLEKLGLKPMLQMEMRLGEGTGAA


 NYMFPSHGSAEPGSRKVLEALGMEPFLNLDMRVGEGTGAA



## D

## D

DYI I A




|  | $F$ |
| :--- | :--- | :--- |
| $A$ | $A$ |

DYAVF SHCC


## A

N

## 

N
N
E
D

## 

## 

## 

## N E E <br> E <br> － <br> 

AGHCS
D YMI A SHMS
E G HRS

## 《ロエロ



## s

## 

## P <br> D

$D V L L$
KYAFFSHVS
D Y I C A H R S
GY
L
G SHM
YLFAGHNSAEKGHRLA LKKVLGMRPLLQQLDMRLGEGTGGV
DYMLA GHNS AEVGHRYMLEHLGLQPLMELERGRGEGTGAA
 E YL I A G SHRS

| QUERY | MVVD MLY VAl／KLLN N |
| :---: | :---: |
| UniRef90＿K2DDY2 | AYSILESAVKFLNE |
| UniRef90－D9S021 | LAFNLVEAALK口ISE |
| UniRef90＿D8GQT6 | LEFSVI EAALYTMDN |
| UniRef90－A4J829 | LA Y P I I E S AVRII ${ }^{\text {a }}$ E |
| UniRef90－F4LSG4 | L A M NVI DASLKI L K E |
| UniRef90－E8W132 | L A M GLI EA GVKKILKE |
| UniRef90－A0A037Z8D0 | I EFCI I EAALSLMNN |
| UniRef90－D9QVP0 | L GMNLVESATRIIS Q |
| UniRef90＿C6PWV8 | L A F NVI EAALEAMNN |
| UniRef90－UPI000474E04F | 1 AFQLI DCAFAAYTQ |
| UniRef90－B5YL85 | L A MTVI EASLK\YRE |
| UniRef90＿F6DJV2 | LAFPI I ESAl HILHE |
| UniRef90－G7W8G1 | L T F HLVEAALHIL C E |
| UniRef90－UPI0002E3F2D1 | LAFPLVEAATRMLRE |
| UniRef90－B3EC73 | L A MQVI A GAVKLYNE |
| UniRef90－I4CF30 | LA M T L V A AVR L L T E |
| UniRef90－R7RPH4 | FAFFI I EASQKMMRD |
| UniRef90＿C6J4L4 | LA LLHLVDAACRIVAE |
| UniRef90－14AAS9 | ｜G F HLLDAS ${ }^{\text {L }}$ R｜L LE |
| UniRef90－R5XLK8 | LAFNMI EAANYVYKN |
| UniRef90－U2E3S6 | CSYPTVESAVKMINE |
| UniRef90－UPI0002881469 | LAFNI MEAALYTMEN |
| UniRef90－UPI000287CC10 | VAFPLLQSAVAFLNQ |
| UniRef90＿Q0YQJ8 | L A MQMI EA SVKI Y K E |
| UniRef90＿UPI00046EF860 | LALDPVIESAVQL |
| UniRef90－R6JAR6 | CAYPIVDSAVKMLNE |
| UniRef90＿Q891S7 | LQFFMI ESALCLMNN |
| UniRef90＿UPI00037703A2 | L A MTLI EASLQVLRE |
| UniRef90－UPI00029A43D4 | I A Y P I I Q G V V A M NE |
| UniRef90－A1HPW3 | L A M T L D A G K L R D |
| UniRef90－I3IMV4 | L G $\square \mathrm{NLI}$ E A SI KLLNE |
| UniRef90－UPI0002EBDCDB | LMFQLI DASLRI MRE |
| UniRef90－B817A3 | LAFHII DAAVAAYNE |
| UniRef90＿R7JF33 | CAYPIVDSAVRMINE |
| UniRef90－V6M8F9 | LA Y PVLEAACRMVHE |
| UniRef90－K6U9E1 | LAFSII S S A CAVMNN |
| UniRef90－B7IHF7 | LSMPLI EAAIKMIRE |
| UniRef90－R4KAY7 | LAFNI I DASLA IMNN |
| UniRef90－R5VE24 | CAYPI I DSAIRMINE |
| UniRef90＿F8ABZ8 | LA SIIVETALRI |
| UniRef90－M8DAB3 | VAFPIVEAATRM |
| UniRef90－J9GC99 | CAYPILDSAlR MI |
| UniRef90－R5CRQ2 | CAFPII DSAVRMI |
| UniRef90＿UPI00047E7E73 | LA LPI I QASVNF |
| UniRef90－D5XBA5 | LAMNIVESAAQV |
| UniRef90－F5J402 | CAYPIVASA |
| UniRef90－UPI000475D571 | LAFPLLRSATGF |
| UniRef90－F4A345 | LAFHII DAV |
| UniRef90－S0FYL6 | VCMELLDLSTRILAAD |
| UniRef90－R7ZFW6 | LALDPILDAACSMMKN |
| UniRef90－U2NKA4 | FAMHI I ENSLA\IDNE |
| UniRef90－UPI0003A45984 | CAYPII QSAVNM |
| UniRef90＿C0QIZ9 | LAFNLLSASTR\｜LAE |
| UniRef90－L1QCY0 | I AFSIVEFSLAMMNN |
| UniRef90－UPI00047A7808 | V T Y PI I QSATLML |
| UniRef90－R7CVC4 | CAYPLIDSAVRMLNE |
| UniRef90－W6S1X3 | AFSIVEYSCA】MNN |
| UniRef90－10XUC1 | LA Y PILESALAFLRE |
| UniRef90－F9ZCE3 | CAYPII ESAIRMINE |
| UniRef90－TOMSY7 | LA HNIVDAATRVMNN |
| UniRef90－R5TQQ5 | AVIPILEMGLSVYRE |
| UniRef90＿R6ML06 | AVNI L D CAlE A |
| UniRef90－Q0TRK5 | AFSVIDFATAMMNN |
| UniRef90－UPI000479 | FVLPVIQNACKVMAE |
| UniRef90＿UPI000420D437 | LSLLHLI DASCRI |
| UniRef90－UPI00037DAC0C | A YPI I K S AVLMMTE |
| UniRef90－C5CE68 | LS F Sil I EAAI KMDNE |
| UniRef90＿C61042 | V A Y PLVVS AVELL |
| UniRef90－S6A260 | $\checkmark$ AFPLLLSATAMVNE |
| UniRef90－E4T2K5 | CAYPLI DSAVRMINE |
| UniRef90－F2F115 | LA FPILDAACSMITN |
| UniRef90－A0A015L434 | LGFHFVEAALRLMQE |
| UniRef90－T0CPT0 | VAFPIVNMALAM |
| UniRef90－A5N1C3 | MAFAILESALYVMDN |
| UniRef90－S2L735 | LAFPLLEAATRMLAE |
| UniRef90－F5LQF5 | LCFTLMDAAGK】MRE |
| UniRef90－F5SJN8 | LAFPLFDAAETAARE |
| UniRef90－UPI0003617830 | LALDHLDDGACRIDMKE |
| UniRef90－R9CFN1 | I AFSVI NYACAMMNN |
| UniRef90－UPI000248C407 | LAFPMI EAAVR पMKE |
| UniRef90－F3ZUV0 | CAYPILESAIRM |
| UniRef90－B0SNZ4 | A A Y PLIELLSVK |
| UniRef90－UPI00047A6116 | LA F N |
| UniRef90－M1PT56 | LAMNLVEAA |
| UniRef90－UPI00037BCF2E | I VLHMl DavShLMNE |
| UniRef90－S7TSP1 | L A M T M A A TRI |
| UniRef90－G8LVD1 | LGFQL $\mathrm{L}^{\text {d A A } \square \text { A A Y T Q }}$ |
| UniRef90－A7NH25 | LGMSLCQAACK\｜LDE |
| UniRef90－V9G8F7 | L C L H L Vea CRIMNE |
| UniRef90－F5LAZ4 | VAFPLVEAACRMIGE |
|  |  |



UniRef90_A0A023BND6 UniRef90_R5GJA5
UniRef90_D6SSY7 UniRef90_UPIO00402CE54 UniRef90_UPI0004636BDD UniRef90-H1HJW1 UniRef90-W4V6U2 UniRef90_C5DAP5 UniRef90-Q180T6
UniRef90-Q6LSY3 UniRef90_UPI00037C6032 UniRef90_C6D297 UniRef90_UPI0003679AF6 UniRef90_UPI00028A3FE8 UniRef90_UPI0001E8A02B UniRef90_A5FNU1 UniRef90_R5G7X6 UniRef90_L7U286 UniRef90_UPI000375FBC1 UniRef90_V8C463 UniRef90_V6S856 UniRef90_C7QJL5 UniRef90_R5KVY4 UniRef90_R5BSF0
UniRef90 F7YVV6 UniRef90_UPI0004664835 UniRef90_D1AFK8 UniRef90-F8GI89 UniRef90_U2LPF5 UniRef90_R9PUC9
UniRef90_C0VP18 UniRef90_A1AST5 UniRef90_U3H292 UniRef90_E3GQB0
UniRef90_D4M1R1 UniRef90_G3IVI4 UniRef90_D9SNY5 UniRef90_LOEDF0
UniRef90_UPI0003 UniRef90_UPI000305F8B7 UniRef90_I1XKY1 UniRef90_D8PGI3
UniRef90-R5XHC8 UniRef90-R5XHC8 UniRef90_C0QAC6
UniRef90_UPI00046906A5 UniRef90_R5M6K9 UniRef90_Q1LJL8 UniRef90_R6K4Z3 UniRef90_UPIO00287B8ED UniRef90-K6VHW4 UniRef90-A6L518 UniRef90_B4S893 UniRef90_Q1Q112
UniRef90_A0LCS6 UniRef90_F3KGE4 UniRef90_R5B6N9 UniRef90-D5MHA5
UniRef90- W4QXP8 UniRef90_K4LDE4 UniRef90-UPIO0046E71C4 UniRef90-M4WZ86
UniRef90-R6WQ02 UniRef90_UPI000403D737 UniRef90_E0NT70 UniRef90_C9R904 UniRef90-S9UJV5 UniRef90_Q47JS4 UniRef90_A0A009ZBJ9 UniRef90_F0P1D1 UniRef90_Q47MR5
UniRef90_W0JIG9 UniRef90-H8XUA9 UniRef90_B2RIR0 UniRef90_BONJB2 UniRef90-I5CA96 UniRef90_UPI000478E5B9 UniRef90_F8I3W5
UniRef90-H0J8V1 UniRef90_C4KCG0 UniRef90_E3H612 UniRef90_N2JU61 UniRef90_E1IGG4
UniRef90_E6MHU7 UniRef90_R5V1B5 UniRef90_Q2BKL4 UniRef90_R4KPQ6 UniRef90_X1AAI4
UniRef90 UPI000 UniRef90_UPI000372722E UniRef90_UPI0003B31099 UniRef90 H0J3L2 UniRef90-N6YQJ4

50 EMVTRGAGI YR DKK P H L G K K A V I V M A A D N GVV A E GVVTQTG
 TLAMQL GLI QQTEQPVLQQPTMLVFAGDHGIVEEGVSPYP


 EI A I QL GLI QQRRLQPRLQSPHLLVFA GDHGIAKEGVNPYP E I A F R L A GI S G S L WP DLLSRKAVVVMAGDHGVCEEGVISA YP $K L A F Q I A S V Q N T L S P Q L L N P H V I V F A A S H G I A A Q G V S A Y P$

 TLAF QMASVFETLNPKIDNPNVVVFAADHGIANHGVSDYP

 EAVI R MA GI REDADFDMKKK GLVI F CADN GVVVAE GVVTQTAG






 SLACQI GQI QQTLEPEDRQPKMIVFAADHGI ALEGVSAFP
 EFARRMVAIS GTGSPDTSKKVIYTFAGDHGVTDEGVALYP $G L A D T$ LAAMQGSDRPEVARPWFAVFAGDHGVVAEGVSAYP

 E Y V S R L A GI Y R T L T P K V $\operatorname{L}$ E K K A V L I M A A D N GVVV S E GVV T Q T G




 S L A L Q I C L I Q Q T LS S P K L T G Q C HI L F G S D H G I E R E G V S V S P
 $G L A L K G G L I Q Q S L T P Q L T H P T I L V F A A D H G I A K D N V N A Y P$
 DLALQUGGLIQQQTLSPTLSHPHNVLFAADHGIVEEGVSKSP EI AMKYVLATGSLRPELRKKKVFCFAADHGVAVEGVSAFP ELLA T I Y Y S I K G S L S C G I R H K K I F T L A G D H GVV A E GVVSA F P



 $T$ LA F R I C R I Q N T L S P T L SHP CHL L L A A DH GI ER E GVV V S P
 D
 QV A I Q V A G I T G E VK P QF E K K A V I V M A G D H G V CEE G GV A F P DVA E DLAAITRTMTPSVKRKAIAVMAGDHG\|VAAGVSKFP
 $I L A K R I G L V Q K T T S P E L Q S P H I V L F A A D H G L A K A G V S A Y P$

 KLALQMGLVFQSEAPNIDNPTIVVFAADHGIANHDVSAYP

 $K L A L Q Q G T V F Q T L T P E I V Q P H L V V F A A D H G I A P H G V S A P P$

 $A L A H Q D A L L Q Q Q T L E P E L R Q P H V V V F A G D H G A A R A G V S A C P$
 QVAA D LAA A M Q G R ERRPVI E HV A I S V F A G D H G VVVE E GVV S A Y P
 EGVRLCGMQRTLSPDVSKKLVITCGADEGVADEGVSAFP


 VI SA Q L C GL S R R CPPP L P EPA AVVV FA GD H GVVA A Q GVVTP WP DI SVQL A GI T GKVCNHMERKLLLVAAADNGVAAE GV S SAP
 P L A CRR L A G M Q G S A T P R V D K V Q

UniRef90_A0AO23BND6 UniRef90_R5GJA5
UniRet90_D6SSY7 UniRef90-UPI000402CE54 UniRef90-UPIO004636BDD UniRef90-H1HJW1 UniRef90-W4V6U2 UniRef90-C5DAP5 UniRef90-Q180T6
UniRef90 Q6LSY UniRef90-Q6LSY3
UniRef90_UP100037C6032 UniRef90-C6D297 UniRef90_UPIO003679AF6 UniRet90-UPIOOO28A3FE8 UniRef90-UPI0001E8A02B UniRef90-A5FNU1 UniRef90-R5G7X6 UniRef90-L7U286 UniRef90-UPI000375FBC1 UniRef90-V8C463 UniRef90-V6S8856 UniRef90-C7QJL5 UniRef90-R5KVY4
UniRef90 R5BSFO UniRef90-F7YVV6 UniRef90-UPIO004664835 UniRef90-D1AFK8 UniRef90-D8GI89 UniRef90-U2LPF5 UniRet90-R9PUC9 UniRef90-COVP18 UniRef90-A1AST5
UniRef90_U3H292 UniRef90 E3GQBO UniRef90-D4M1R1 UniRef90-G3IV14 UniRef90-D9SNY5 UniRef90-LOEDFO UniRef90_UPI000305F8B7 UniRef90-I1XKY1 UniRef90-D8PGI3
UniRef90-R5XHC8
UniRef90-COQAC6
UniRef90_UPIOOO46906A5 UniRef90-R5M6K9 UniRef90-Q1LJL8 UniRef90-R6K4Z3 UniRef90-UPIO00287B8ED UniRef90-K6VHW4 UniRef90-A6L518 UniRef90-B4S893 UniRef90_Q1Q112
UniRef90_AOLCS6
UniRef90-F3KGE4 UniRef90-R5B6N9 UniRef90 ${ }^{-D 5 M H A 5}$

UniRef90- W4OXP8 | UniRef90-W4QXP8 |
| :--- |
| UniRef90 | UniRef90-UPIOOO46E71C4 UniRef90-M4WZ866 UniRef90_R6WQ02 UniRef90-UPIOOOO403D737 UniRef90-EONT70 UniRef90-C9R904 UniRef90_Q1JZW2 UniRef90-Q47JS4 UniRef90-A0A009ZBJ9 UniRef90_FOP1D1 UniRef90-Q47MR5

UniRef90-W0JIG9 UniRef90-H8XUA9 UniRef90-B2RIR0 UniRefofo-BONJB2 UniRef90-15CA96 UniRef90-UPI000478E5B9 UniRet90-F813W5
UniRef90
UOJ8V UniRef90-C4KCG0 UniRef90-E3H612 UniRef90-N2JU61 UniRef90-E1GG4
UniRef90-E6MHU7 UniRef90-R5V1B5 UniRef90-Q2BKL4 UniRef90_R4KPQ6 Uniref90-1PAA1
UniRef90-UPIOOO372722E UniRef90_UP10003B31099 UniRef90-HOJ3L2 UniRef90_W8KIP3
UniRef90_N6YQJ4 "

90
QEVVITAQMVYNFM NEGAAII
100
110
120
VVFKQHQ\|ALKIVDAGVNHD

  QAVTAQMVLNF KDVTWQQMINFTKGGGGVNMLCRQHGFKLHIIDMGIVAHE PEVTSKVTRNFFRG ITGI NAFAKHTGSDIVVVDIGVDDD ONITDRPNFVGGAAINVFSRQIGADFAVI DVGVASP SEVTKLQFPNFSKGLC GVGVISKFVGADVVAVDVGI NCD QEVTLQMVHNFLQG GAAVNVFARQHNDQMKVVDAGVNGN QEVTPQMVLNFL SGGAAVNVLARQAGADVYCVDDGVNAE QEVTAQMVANFLQG GAAVNVLARHVGADVILVDMGVAGE QEVTVQMVHNFLDGGAAINVLGKQIKAKVEIVDDGVAGD

 QDVTRQMVANFREGGAAINVFCRQHNLQLSVVDSGVNYD REITWQOMLNFAKGAGVNAAHQTGAEVYVGVAE QEVTALVAENFLEGNSVACVMCRQCHADVVPIDVGMAVD REVTKQMVFNFLSNGGAAIVVFAKHVGAKVFVVDAGVDAD RVIT QYVVEAMLSGNSSVNSLAVSEGADVKVVDGGTD QSVTGEMIRNF ANGGGAINDLARTLKASLELINLGTVQD QAVTAAVTRNFTMG DASVNALSRVCGADVFPVDIGVAEE QEVTAQMVQNFV NGGAAVNVFCRQHGLDFEIVDVGVGQ QAVTRQMLQNFASGGAAISVTAQYHQAHLQVIDCGTVGD KAVTTQMVYNFLAG GAGVNVLARHVGAEVRVVDVGVDND QAVTGEMLRNFVRG GAAISVLAHSLGATLELVDLGTAVP QEVTMQMVAN IVAGGAGVNVLGKASGAEVRLVDMGVKED
 SEVTAQVVRN MAKGKSTINILSKVASAEVIPID DGILED

## 

 QAVTVEMLRNFVRo

## a

 QAVVTVQMMVYNFTVTR T
$R G$
$T$
$T$
$T$ GAAVNLFCKQHGFELTLVDMGVDHD KGGGGVNMFCRQHNFKLRII DMGVDYD $R G G G G V N$ MFCRONGFD LV V VGVN
 G GAAVNVLSREAGADVVCVDIGVNAD NGNASINALARQVDASLTVVDAGVAGD
A A
 KGGAAI NVFCKQNNDQLKLVDAGVDYD $N G G A V V N A F A T Q L G A E V T V V D V G V D E D$
EGVATINALARLNNCFTIVADVGSLCD $K G G A A D S V F C K Q N N L D L K I V D A G V N Y D$ GGGAGINFLCRQHGFELVLVDGGIDFD
 SGGAADNVFCRQHGLELKDVDAGVQQD EGGGAAINVFCKQNKIALSVDSGVNYD A MGTAVSSVLARNQGIPI EVVDVGI ARA FVRG GAADSVLARQLDAALEVINLGTVTP LA G GAA I NVFTRQLGLDLTVVDAGVNHD
 HG GAGI NVLARHVGARVVIVDVGVASE A A GGA S NVLA GAAGADVRLVDLGVKGD TKG A QGGAAVAVLAKQMGANFEVI NLGTVKP VA G GAAI NVLAETAGAGVTVVDMGVAVD

 QSVVGMQTVN LTRAKTGASVLAKHFGCEIVVCDVGVNAD Q S V V A EMVVRF ARGGAAI SVLARSLDAQLEVI NLGTVT D

UniRef90＿A0A023BND6 UniRef90－R5GJA5
UniRet90－D6SSY UniRef90－UPI000402CE54 UniRef90－UPIO004636BDD UniRef90－H1HJW1
UniRef90－W4V6U2 UniRef90－C5DAP5 UniRef90－Q180T6
UniRef90－Q6LSY UniRef90＿UPI00037C6032 UniRef90－C6D297 UniRef90＿UPIo003679AF6 UniRef90－UPIIOOO28A3FE8 UniRef90－UPI0001E8A02B UniRef90－A5FNU1 UniRef90－B5G7X6 UniRef90－L7U286 UniRef90－UPIO00375FBC1 UniRef90＿V8C463
UniRef90＿V6S856 UniRef90－C7QJL5 UniRef90－R5KVY4 UniRef90－R5BSFO
UniRef90 F7YVV6 UniRef90－UPIOOO4664835 UniRef90－D1AFK8 UniRef90－D8GI89 UniRef90－U2LPF5 UniRef90－C0VP18 UniRef90－A1AST5 UniRef90－U3H292 UniRef90－E3GQB0
UniRef90 D4M1R1 UniRef90－G3IV14 UniRef90－D9SNY5 UniRef90－LOEDFO UniRef90－UPI000305F8B7 UniRef90－11XKY1 UniRef90－D8PG13 UniRef90 R5XHC8 UniRef90－COQAC6
UniRef90＿UP100006906A5 UniRef90 R5M6K9
UniRef90 Q1LJL8 UniRef90＿Q1LJL8
UniRef90＿－＿6K $4 Z 3$ UniRef90－UP1000287B8ED UniRef90－K6VHW4 UniRef90－A6L518 UniRef90＿Q1Q112 UniRef90－AOLCS6 UniRet90＿F3KGE4 UniRef90－R5B6N9
UniRef90－D5MHA5 UniRef90＿W4QXP8 UniRef90－K4LDE4 UniRef90－UPIOOO46E71C4 UniRef90－M4WZ866 UniRef90－UPIOO0403D737 UniRef90－EONT70 UniRef90 C9R904 UniRef90－S9UJV5 UniRef90－Q47JS4 UniRef90－A0A009ZBJ9 UniRef90＿FOP1D1 UniRef90－Q47MR5
UniRef90－W0JIG9 UniRef90－H8XUA9 UniRef90－B2RIR0 UniRefofo－BONJB2 UniRef90－15CA96 UniRef90－UPIIOOO478E5B9 UniRef90－F813W5
UniRef90
UOJ8V UniRef90－C4KCG0 UniRef90－E3H612 UniRef90－N2JU61 UniRef90－E1GG4
UniRef90－E6MHU7 UniRef90－R5V1B5 UniRef90－Q2BKL4
UniRef90 R4KPQ6 UniRef90－X1AA14 UniRef90－UPIOOO372722E UniRef90＿UPIO003B31099 UniRef90－HOJ3L2 UniRef90＿W8KIP3
UniRef90＿N6YQJ4

150
F E N T S GII I HA K

 | $F$ |
| :--- |
|  |
| 1 |
| 1 |

 $\stackrel{P}{\mathrm{P}}$




## 入

$\rightarrow$ T＜
MPELGAAI DA

\section*{LS S H P K L I D A} | $V$ | $E$ |  | $E$ | $D$ | $N$ | $V$ | $I$ | $K$ | $Y$ | $K$ | $I$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $V$ |  | $R$ | $H$ | $P$ | $D$ | $L$ | $I$ | $E$ | $R$ | $K$ | $V$ |


|  |
| :---: |
|  |  |

LS E Y K E I I N R K I A C G T A N F R Y A D A M T E E Q F E K A I N I G C E M


 F V E H P S L R I C K V R H G S S N M A E GP A M T M D E T L Q A I M T G V S L I P P S P P G L K I I K K WK H G T N N M A L G P A M S R E D A V K S I I E M G I E L


## L

L H H H L I S E K V

$$
<\Gamma-
$$




## \section*{ルー}

 SYCYEGVEDA

## $\stackrel{F}{F}$

\section*{ <br> | F $P$ |
| :--- |
| F |
| V |}




## $\Sigma \square$ レ

MT DLIELVDHKIAYG

## 

LS LKK L Y KV GY GTQNMAK GPA




## UniRef90_A0A023BND6

 UniRef90_R5GJA5UniRef90_D6SSY7 UniRef90_UPIO00402CE54 UniRef90_UPI0004636BDD UniRef90-H1HJW1
UniRef90-W4V6U2 UniRef90-C5DAP5 UniRef90_Q180T6
UniRef90_Q6LSY3 UniRef90_UPI00037C6032 UniRef90_C6D297 UniRef90_UPI0003679AF6 UniRef90_UPI00028A3FE8 UniRef90_UPI0001E8A02B UniRef90_A5FNU1 UniRef90_R5G7X6 UniRef90_UPIO00375FBC1 UniRef90_V8C463 UniRef90-V6S856 UniRef90_C7QJL5 UniRef90_R5KVY4
UniRef90_R5BSF0 UniRef90_F7YVV6 UniRef90_UPI0004664835 UniRef90_D1AFK8 UniRef90-F8GI89 UniRef90_U2LPF5
UniRef90 R9PUC9 UniRef90_C0VP18 UniRef90_A1AST5 UniRef90_U3H292 UniRef90_E3GQB0
UniRef90_D4M1R1 UniRef90_G3IVI4 UniRef90_D9SNY5 UniRef90_LOEDF0 UniRef90_UPI000305F8B7 UniRef90_I1XKY1 UniRef90_R5XHC8 UniRef90_C0QAC6 UniRef90_UPI00046906A5 UniRef90_R5M6K9
UniRef90_Q1LJL8 UniRef90_R6K4Z3 UniRef90_UPIO00287B8ED UniRef90_K6VHW4 UniRef90-A6L518 UniRef90_Q1Q112 UniRef90_A0LCS6 UniRef90_F3KGE4 UniRef90_R5B6N9
UniRef90_D5MHA5 UniRef90_W4QXP8 UniRef90_K4LDE4 UniRef90-UPIO0046E71C4 UniRef90-M4WZ86
UniRef90-R6WQ02 UniRef90_UPI000403D737 UniRef90_EONT70 UniRef90_C9R904 UniRef90-S9UJV5 UniRef90-Q1JZW2
UniRef90-Q47JS4 UniRef90_A0A009ZBJ9 UniRef90_F0P1D1 UniRef90_Q47MR5
UniRef90_W0JIG9 UniRef90_H8XUA9 UniRef90_B2RIR0 UniRef90_B0NJB2 UniRef90_I5CA96 UniRef90_UPI000478E5B9 UniRef90_F8I3W5
UniRef90-H0J8V1 UniRef90_C4KCG0 UniRef90_E3H612 UniRef90_N2JU61 UniRef90_E6MHU7 UniRef90_R5V1B5 UniRef90_Q2BKL4
UniRef90-R4KPQ6 UniRef90-X1AAI4 UniRef90_UPI000372722E UniRef90_UPI0003B31099 UniRef90-H0J3L2 UniRef90_W8KIP3
UniRef90_N6YQJ4

VITETFNKGCNT 170
GF GEMG VA E L K E K G Y N V FA T G E M G
 ARDA $\square$ A Q GCKVLALGEMG



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



V
V
A A GERKAE GY D L L A T G G E M G


 | $A G E L A D D Q G Y G L I$ |
| :--- |
| $A R S A G G E M G$ |
| $V$ |


 V A QA ARE GSNLLAF GE M G



V F R QY E S GCNCI GF GEMG

$A S Q Q V S E$ G HRLLIA GEMM

| $A V$ | $C$ | $C$ | $L$ | $Q$ | $K$ | $G$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $A$ | $T$ | $Q$ | $I$ | $Y$ | $I$ | $A$ |




 | $V$ | $E$ | $N$ | $E$ | $F$ | $K$ | $K$ | $G$ | $C$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $N$ | $S$ | $G$ | $F$ | $G$ | $E$ | $M$ | $G$ |  |
| $V$ | $E$ | $E$ | $A$ | $V$ | $E$ | $Q$ | $S$ | $L$ |

| $A$ | $E$ | $A$ | $R$ |
| :---: | :---: | :---: | :---: |
| $I$ | $E$ | $E$ | $L$ |
| $L$ | $Q$ | $G$ | $G$ |
| $L$ | $D$ | $L$ | $A$ |
| $I$ | $G$ | $G$ | $E$ |

180
190
200
GNTSAASLLMSYFTK $\quad 19 \mathrm{P} \square \mathrm{AEC}$







 V E M V H S K GC N V I SF G E M G








 AR D L L V A A G N N C L L | $A$ | $N$ | $K$ | $Y$ | $H$ |
| :--- | :--- | :--- | :--- | :--- |
| $V$ | $E$ | $K$ | $L$ | $N$ |
| $V$ | $L$ | $A$ | $T$ | $G$ |
| $D$ | $M$ | $G$ |  |  |






 V QK AK A S G A Q L F $\quad$ I G G E M G ASQAI A E GVRLLATGDLGI
 $A G L L V K S G D E L L G T G D M G G$
 $\begin{array}{lll}A R D L V A \\ A & F & A\end{array}$


UniRef90_A0A023BND6 UniRef90-R5GJA5
UniRef90-D6SSY UniRef90-UPIOO0402CE54 UniRef90-UPIO004636BDD UniRef90-H1HJW1 UniRef90-W4V6U2 UniRef90-C5DAP5 UniRef90-Q180T6
UniRef90-Q6LSY3 UniRef90_UPI00037C6032 UniRef90- C6D297 UniRef90_UPIO003679AF6 UniRef90-UPIOOO28A3FE8 UniRef90-UPI0001E8A02B UniRef90-A5FNU1 UniRef90-R5G7X6 UniRef90-L7U286 UniRef90-UPIO00375FBC1 UniRef90-V8C463
UniRef90 $\mathrm{V} 6 S 856$ UniRef90-C7QJL5 UniRef90-R5KVY4 UniRef90-R5BSFO
UniRef90 F7YVV6 UniRef90-UPIOOO4664835 UniRet90-D1AFK8 UniRef9-DEGII89 UniRef90-U2LPF5 UniRef90-C0VP18 UniRef90-A1AST5 UniRef90-U3H292 UniRef90-E3GQB0
UniRef90 ${ }^{-}$D4M1R1 UniRef90-G3IV14 UniRef90-D9SNY5 UniRef90-LOEDFO UniRef90_UPI000305F8B7 UniRef90--11XKY1 UniRef90-D8PG13 UniRef90 R5XHC8
UniRef90 COOAC6 UniRef90-UPIOOO46906A5 UniRef90_R5M6K9
UniRef90 Q1LJL8 UniRef90-R6K4Z3 UniRef90-UP1000287B8ED UniRef90-K6VHW4 UniRef90-A6L518 UniRef90-Q1Q112 UniRef90-AOLCS6 UniRef90-R5B6N9 UniRef90-D5MHA5 UniRef90-W4QXP8 UniRef90-UPIO0046E71C4 UniRef90-M4WZ86 UniRef90-R6WQ02
UniRef90-UP1000403D737 UniRef90-EONT70 UniRef90 C9R904 UniRef90-SgUJV5 UniRet90_Q47JS4 UniRef90-A0A009ZBJ9 UniRef90-FOP1D1 UniRef90-Q47MR5
UniRef90-W0JIG9 UniRef90-H8XUA9 UniRef90-B2RIR0 UniRefofo-BONJB2 UniRef90-15CA96 UniRef90 UPIOOO478E5B9 UniRef90-F813W5
UniRef90
UOJ8V UniRef90_C4KCG0 UniRet90-E3H612 UniRef90-N2JU61 UniRef90-E1GG4
UniRef90 E6MHU7 UniRef90-R5V1B5 UniRef90 Q2BKL4
UniRef90 R4KPQ6 UniRef90-X1AA14 UniRef90-UPIO00372722E UniRef90-UPIOO03B31099 UniRef90-HOJ3L2 UniRef90_N6YQJ4

VGSGTGDDTSA KKIKQKTLSFQKHNPSSPLEALTTEFGGFE TGKGAGLLEHKIEVIKQSIALNQVDANDPIDDVSKVGGLD VGPGTGLLDLKARVIKRALDLNRPDPADPMGVLARVGGLE VGKGAGAFNKKKLVVKTAVESKDTNRMDPMDIISKVGGYD VGRGTGLLQHKLSVLTSALQMHHVSADEPLQALAAFGGFE IGAGSGLIRHKENVLKNALDRFNARSCQTIDAI RYFGGFE VGRGAGLLWKKDSIVKKAIEVNRPDASDPIDVLSKVGGFD VGRGTGI AHKADVIRRALSLHOPDPSKPIDDLSKIGGLE
 IGKGTSQYKTKVNHLKKVLNLNGDDLKDYYLLLSKIGGFE VGRGTG WRHKUEVVKRALAVNKPDASDPLDVLAKVGGAE VGKGTGLLLQKIEILTRALELHAHAGNDPESVLATFGGFE I GTGTGQLKRKQQVI RQSLQERNPDPTDPIDTLSKVGGLE VGKGTGINDQKLNULKKALENYSGQ TELKQHLAYFGGFE




 V D $\dagger$ G T P I L E R R K K Q V V R Q A L E V V TG R G A GLL T R K K A V I R E G L D K W WR P D P S DVV DV L S K V G G L D
 $T$ G R G A G L L R H K V E V I A K A I A L H Q P D R N DVL DV L S K V G G L D $V G R G T G L L Q H K T A V L Q Q A M Q Y H Q G E$ Y SAQQWLAKVVGGE



 VGRGTGGLQQHKLVVLQRALNKHKD A TEEPLDVLATVGGFE TGRGAGLLKRKIQVIIKTALEVNKPLKEDPIVVLAKVGGFD





 TG G R G A G L L L K K T E V I R K A K E M Y G I Y K N D P L E L L L R C D G G L D

 G GRGTGVLQHKI SVIKRALDVNSASLSTPLEQLAALLGGFE TGRGTGLVQKKIAVI EKAIAINRPDPNDPIVDVAKVGGYE
 1 GAGA GLCNK GVEHKYEVLVHNYTGPCSTEDRLRWFGGYE
 IG R G T G I L D D R K V V R V I




 $T$ GVG T G I L K H K K Q VI D Q A I A L H K S H D
 T G Q G T E M L K N K V L I I K K A I N L H K P D P D D A I DV L S K K I G G F E
 V G A G S G L V R H K Y N I L K Q A K E N Y K G N G S T E D V I T Y F G G L E T G R G A GL L R R K V E A I K K A DA V N R P D K A D A L DV L S K V G G F D V G K G T G L L A H K Q A R L E E A C Q F H G P
 A GPGT GLVAR KVVAVIVQRALLRHGDALEDPYELLRRRLLGGFE $T G R G T G L D D P G L F R K R S M L A Q R G G R P H D P L E V L V Q Y G G L E$ VGRGGGLLLKKKRVIKEACELHKVMEDDPVDVVAKVGGLD
 T G R G T G $V$ V L A H K V A V I $T$ G K G A GL L Q R K I Q V I Q A A I Q K Y Q P DP E D V I DV L S K V G G L D
 T GRGTGALDNKVQVI EKAIALNKPDPKDALDVLSKVGGFE TGYGTGILENKINVIKKAISVNKPDAADGIDVLSKVGGFE T GR GTG GVD D R K I D V V R R A L Q R H Q P D A A D P I GV L A A V G G L E




UniRef90＿A0A023BND6 UniRef90＿R5GJA5
UniRef90＿D6SSY7 UniRef90＿UPI000402CE54 UniRef90＿UPI0004636BDD UniRef90－H1HJW1 UniRef90－W4V6U2 UniRef90－C5DAP5 UniRef90＿Q180T6
UniRef90＿Q6LSY3 UniRef90＿UPI00037C6032 UniRef90＿C6D297 UniRef90＿UPI0003679AF6 UniRef90－UPI00028A3FE8 UniRef90＿UPI0001E8A02B UniRef90＿A5FNU1 UniRef90＿R5G7X6 UniRef90＿L7U286 UniRef90＿UPI000375FBC1 UniRef90＿V8C463 UniRef90＿V6S856 UniRef90＿C7QJL5 UniRef90＿R5KVY4 UniRef90＿R5BSF0
UniRef90 F7YVV6 UniRef90＿UPIO004664835 UniRef90＿D1AFK8 UniRef90＿F8GI89 UniRef90＿U2LPF5 UniRef90＿R9PUC9 UniRef90＿C0VP18
UniRef90 A1AST5 UniRef90＿U3H292 UniRef90－E3GQB0 UniRef90＿D4M1R1 UniRef90＿G3IVI4 UniRef90＿D9SNY5 UniRef90＿LOEDF0
UniRef90＿UPI0003 UniRef90＿UPI000305F8B7 UniRef90＿I1XKY1 UniRef90＿D8PGI3 UniRef90－R5XHC8 UniRef90＿COQAC6
UniRef90＿UPI00046906A5 UniRef90＿R5M6K9 UniRef90＿Q1LJL8 UniRef90＿R6K4Z3 UniRef90＿UPIO00287B8ED UniRef90－K6VHW4 UniRef90＿A6L518 UniRef90－B4S893 UniRef90＿A0LCS6 UniRef90＿F3KGE4 UniRef90＿R5B6N9 UniRef90－D5MHA5
UniRef90－W4QXP8 UniRef90－K4LDE4 UniRef90＿UPI00046E71C4 UniRef90＿M4WZ86
UniRef90－R6WQ02 UniRef90＿UPI000403D737 UniRef90＿E0NT70 UniRef90＿C9R904 UniRef90－S9UJV5 UniRef90＿Q47JS4 UniRef90＿A0A009ZBJ9 UniRef90＿F0P1D1 UniRef90＿Q47MR5
UniRef90＿W0JIG9 UniRef90＿H8XUA9 UniRef90＿B2RIR0 UniRef90＿B0NJB2 UniRef90－I5CA96 UniRef90＿UPI000478E5B9 UniRef90＿F8I3W5
UniRef90－H0J8V1 UniRef90＿C4KCG0 UniRef90＿E3H612 UniRef90＿N2JU61
UniRef90－E1IGG4 UniRef90＿E6MHU7 UniRef90＿R5V1B5 UniRef90＿Q2BKL4
UniRef90－R4KPQ6 UniRef90－X1AAI4 UniRef90＿UPI000372722E
UniRef90 UPI0003B31099 UniRef90－H0J3L2 UniRef90＿W8KIP3

## 

BJ9．
－

290
300
310
320
DYCIIFAHTSEEQGHQKMYEF｜LDKKP｜LINLUGMR｜GEGTGVA P Y LIFPSHCSNEPA GHLL LDDAI GKEPYI LANMCLGEGT GAV Q Y 1 F A GHRSSRETGGEYML R H L G L L T P L L L D L E M R L G E G T G A A
I

##  <br> $\stackrel{+}{\mathrm{N}}$ <br> ， <br> \section*{K} <br> <br> 

 <br> <br> }足触
，

D

Q
D
ェの

## ，

## 

## A

．

## \section*{}

－ K N A V F S H Q S A E DVLLASHRSAE SCCVFAHRSQE EWLLFAHSGAE DYMIAAHKSQE PFLYASHCSA KWLLAGHCSA
DYMAB AS NYMIASHCSAEKGHRYVLERLGGKKPLDNLDMRLGEGTGAA SVCVAGHRSAEPGHMAALTALGLRPLVDLDLRLGEGTGAL AYMIPSHASFEDGYKLAMDELGLRPIFDLGMRLGEGSGCV


UniRef90 A0A023BND6
UniRef90_R5GJA5 UniRef90_D6SSY7 UniRef90_UPI000402CE54 UniRef90-UPI0004636BDD UniRef90-H1HJW1
UniRef90-W4V6U2 UniRef90-C5DAP5 UniRef90_Q180T6
UniRef90_Q6LSY3 UniRef90_UPI00037C6032 UniRef90_C6D297 UniRef90_UPI0003679AF6 UniRef90-UPI00028A3FE8 UniRef90_A5FNU1 UniRef90_R5G7X6 UniRef90_L7U286 UniRef90 UPI000375FBC1 UniRef90_V8C463 UniRef90_V6S856 UniRef90_R5KVY4 UniRef90_R5BSF0 UniRef90_F7YVV6 UniRef90 UPI0004664835
UniRef90_D1AFK8
UniRef90_F8GI89 UniRef90-R9PUC9 UniRef90_C0VP18 UniRef90-A1AST5 UniRef90_U3H292 UniRef90_E3GQB0
UniRef90_D4M1R1 UniRef90_G3IVI4 UniRef90_D9SNY5 UniRef90_LOEDF0 UniRef90_UPI000305F8B7 UniRef90_I1XKY1 UniRef90_D8PGI3
UniRef90_R5XHC8 UniRef90_C0QAC6 UniRef90 UPI00046906A5 UniRef90_R5M6K9
UniRef90 Q1LJL8 UniRef90_R6K4Z3 UniRef90-UPI000287B8ED UniRef90-K6VHW4 UniRef90_A6L518 UniRef90 B4S893 UniRef90_Q1Q112
UniRef90_A0LCS6 UniRef90_F3KGE4 UniRef90_R5B6N9 UniRef90_D5MHA5
UniRef90 W4QXP8 UniRef90-K4LDE4 UniRef90_UPI00046E71C4 UniRef90 M4WZ86 UniRef90-UPI000403D737 UniRef90-E0NT70 UniRef90_C9R904 UniRef90_S9UJV5 UniRef90_Q47JS4 UniRef90_A0A009ZBJ9 UniRef90_F0P1D1 UniRef90_Q47MR5 UniRef90_W0JIG9 UniRef90_B2RIR0 UniRef90-B0NJB2 UniRef90-UPI000478E5B9 UniRef90-F8I3W5 UniRef90_H0J8V1 UniRef90-E3H612 UniRef90_N2JU61 UniRef90_E1IGG4 UniRef90_E6MHU7 UniRef90_R5V1B5 UniRef90_Q2BKL4
UniRef90- X1AAI4 UniRef90_UPI000372722E UniRef90_UPI0003B31099 UniRef90_H0J3L2 UniRef90-W8KIP3
UniRef90_N6YQJ4

V|A Y P|I I E S A $V$ V $\mid$ F $\mid$ L $\mid$ N
 $\begin{array}{llllllllll}L & A & M & H & L & D & A & C & R & I L \\ I & A & L & S \\ L & V & F & A & L & S & M M N & N\end{array}$ $L A Y P L L Q S A V A F L N E$ CA Y P I I E S S V R M M N E LA F HVV D C A L S V Y K N V
LAFDlIEASNYTYKN L A LP L L R S A C C FYNE V C Y P I I D S A CRRFLNE L C F HFVDAALKLMQE L A Y P L L Q S A V A F L N E

 | L | $A$ | $F$ | $P$ | $L$ | $E$ | $A$ | $A$ | $N$ | $K$ | $E$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

 L A A M G L L L D S S

 CAYPIVESAVRMINE

 ALFPL D MAMAVYEE LLM F P FVV EAA C K I T K D I A F S LI LMACKLLHNE I G A K L F D F A L A A Y G E | $A A$ | $L$ | $S$ | $M$ |
| :--- | :--- | :--- | :--- |
| $L$ | $Q$ | $L$ | $A$ |

 $V A M M L V E C A A R C M N D$

 I A S NLEDYALKAYYE L | $G$ | $F$ | $H$ | $L$ | $V$ | $E$ | $A$ | $A$ | $A$ | $R$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $A$ | $L$ | $I$ | $G$ | $E$ |  |  |  |  |  |
| $A$ | $Y$ | $L$ | $V$ | $A$ | $A$ | $A$ | $S$ | $R$ | $M V$ |
| $S$ | $E$ |  |  |  |  |  |  |  |  | $V A \square P$ L L M A CA L H N Q

 LA DDL A E T A C R I MT E LAFPLVQSAVAFLNE
 MLIFPLLDMAMQVYKE

 CA YPIVVSSVNMMNE | $L$ | $A$ | $M$ | $Q$ | $V$ | $V$ | $E$ | $A$ | $S$ | $V$ | $K$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $L$ | $G$ | $N$ | $N$ | $E$ |  |  |  |  |  |  |  |

 $\triangle A L P L L K D A C E L H N$

 | 1 | $A$ | $F$ | $P$ | $M$ | $R$ | $S$ | $A$ | $T$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $L$ | $M$ | $S$ | $S$ |  |  |  |  |  |

 LA VP L L R Q A C R L H S


 $\left.\begin{array}{lllll|llllllll}\hline L & A & M & P & L & V & E & A & A & C & K & L & L\end{array}\right]$ LA M NLV D D A A V A V LT E | $L$ | $A$ | $Y$ | $L$ | $V$ | $Q S A$ | $V$ | $S$ | $F$ | $L$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $A$ | $N E$ |  |  |  |  |  |  |  |  |
| $A$ | $A$ | $G$ | $V$ | $Q$ | $L$ | $A$ | $C$ | $A$ | $L$ | VA YP I I E S A V LAF L N E


 C S YPi I V S A V S MI N E A Y L P I L E M A A E V Y R

LA Y P I I A S A V A F L N D | $L$ | $V$ | $P$ | $I$ | $V$ | $Q$ | $S$ | $A$ | $V$ | $A$ | $F$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

 L A F P L V Q A A V N F I N | $L$ | $A$ | $Y$ | $P$ | $V$ | $I$ | $T$ | $G$ | $A$ | $L$ | $E$ | $I$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $A$ | $V$ | $I$ | $L$ |  |  |  |  |  |  |  |  | LA I SV CQAACK LIDE V A MHLVECAARSMTD I GA K L FD F A L A A Y T E MAVS LRAACELHS

LAMHIVETASRVI
 $\begin{array}{llllllllllllll}L & L & P & V & V & S & A & A & R & A & M & R & E \\ A & F & N & V & I & E & A & A & C & A & V & M & N & D\end{array}$


UniRef90 Q6ALU4 UniRef90-UP10003B6ACA8 UniRef90-UPIO0034BCEB0 UniRef90-B0TT63
UniRef90_E4TGZ3 UniRef90-R4UUW5
UniRef90-TOCBF4 UniRef90-R9NA25 UniRef90-R6EIQ4 UniRef90-D4CS43 UniRef90-A0A010ZJ97 UniRef90_R7LLI6 UniRef90-B2HZL3 UniRef90_UPIOOO3B350DO UniRef90-W6EHE1 UniRef90-K4LTU6 UniRef90-G7GPS4
UniRef90 G8TMN7 UniRef90-D8DZD9 UniRef90-W2C8W9 UniRef90-EOE2DO UniRef90-T2LC43 UniRef90-B7VPD7 UniRef90-R6HY17 UniRef90-G9Z9Q7 UniRet90-S6HQV5 UniRef90-E1TAY9 UniRef90-A6TKH4 UniRef90_A0A011MZ15 UniRef90-AзҮвН2 UniRef90- V6HAF2 UniRef90-UPIOOO35E3234 UniRef90-UPIO003A330B0 UniRef90-LOE1K2 UniRef90_UPI000300E2B5 UniRef90-C1DPN9 UniRef90-UPIOOO425F398 UniRef90_B0PB92 UniRef90-K9D8.88 UniRefe90-V5HPK4 UniRef90-SOESA5 UniRef90-K5YMX2 UniRef90-RGEGO1 UniRef90_UPI00031838B3 UniRef90_S3MVW4 UniRef90-UPI000477B2D9 UniRef90_EORRF8 UniRet90_G4T3U8 UniRef90-R5QEP8 UniRet90_F4CJH8 UniRet90_A4SEC8 UniRef90 B3QSI7
UniRef90
W4T2G6 UniRef90-U4WT89 UniRef90-UPIOOO3796DF2 UniRef90-UPIO00347AB32 UniRef90 R9IZE4 UniRef90_UPIOO0472E52C UniRef90_S7UJ43
UniRef90 G8PEK3 UniRef90-V2Q140 UniRef90-COEAM1 UniRef90-C3WD88 UniRef90_UP10003725EF2 UniRef90 K5CEG6 UniRef90-J2W4C9
UniRef90 E9T6L9 UniRef90-A6VV59 UniRef90 UPIOOO4725C63 UniRef90-AOLF21 UniRef90-H2G5K8 UniRef90_UPIOOO3688E37 UniRef90-B71HEO UniRef90-H1CXB9 UniRef90-LOK9F3 UniRef90-W4LCV4 UniRef90-E8LD31 UniRef90_Q086T6 UniRef90-Q3B3T7 UniRef90-6CK07 UniRef90-UPI0004786799 UniRef90_DOGL84 UniRef90_K4KR62
 PI DENFRIKAVERNDNLLMPLRAMGR A NEKVKTQAEERQGMLTKPPGSLGRLE MQLLEYTVGKTNPLSELHMDAAKERLDRLTKPVGSLGKLE




HILEPDK

DIRKPDD
MHAIVDHIVS





WLT Q A

- QAPAP DhamDVARARQSQLTKPPGSLGQL STNRSYSPQIQYRQDRKTKPRGALGEL
DWWLSAARPLDQTACALAAERQRRLTKPRGSLGRL
$T \square E Q E L E A$

MAERARARQAVLT

KWDFDAAKPPDEAVRKLVKKHWDTLAKPLDGMGSFE
MQWYQQSCAK VSPHDADLAARLDARINDKTKPLGSALGALE SLLEETTTAVGALDTRAMEEARDRQDRMTKPPGSLGFLE

LLEEVIARI RSPEGHWFRTARARLDNLTKPPGSLGRLE
LNEYLEQI CPPDQKAAAQAKKRWKQ\AKPLFSGGKL
NETVDAUVPASAQARAAARDHLDRMTKPRGSLGRVE
 MNLLTQTIKNIKPLDEKADHDVQKKLSDTMTNVEGLGYLK

## ETLEKI




TLPAUAPVNPVLQQQLQHKTNSKTKPPGSL
MSLLQETLEKTEKPDAAAYETVKKSLAQSVYPAGMLGYLL MGLLDETLNQUQPGDEEAMEKAAFRWKNLYTGMGDLGKME RLDSLTKPPGSLGKLE TLDWTQHPCRSTDHQAAAAAQARQDQLTKPRGSLGRLE NDLERLDIHTPPIDEAARQAVEVRHGQLTKPPGSLGQLE I PALDEERMQEVRAGYAKLDKPAANLGKLE
 LLEKTUAEVGTLYPEPMAEAQKRLDSLTKPPGSGGRLE
 ELNETLEKIVPLNKERMENKQKELNSLLKTPDGLGKLE


## UniRef90 Q6ALU4 UniRef90-UP10003B6ACA8 UniRef90-UPIO0034BCEB0

 UniRef90-B0TT63 UniRef90_E4TGZ3 UniRef90-R4UUW5UniRef90-TOCBF4 UniRef90-R9NA25 UniRef90-R6EIQ4 UniReffo-D4CS43 UniRef90-A0A010ZJ97 UniRef90_R71LI6 UniRef90-B2HZL3 UniRef90-UPI0003B350D0 UniRet90-W6EHE1 UniRef90-K4LTU6 UniRef90-G7GPS4 UniRef90-G8TMN7 UniRet90_D8DZD9 UniRef90-W2C8W9 UniRefefo- $20 E 2 D 0$ UniRef90-T2LC43 UniRef90-B7VPD7 UniRef90-R6HY17 UniRef90-G9Z9Q7 UniRef90-S6HQV5
UniRef90-E1TAY9 UniRef90-LORAG6 UniRet90_A6TKH4 UniRef90-A0A011MZI5 UniRef90-AзҮвН2 UniRef90-V6HAF2 UniRef90-UPIOOO35E3234 UniRef90-UPIO003Аз30B0 UniRef90-LOE1K2 UniRef90_UPIO00300E2B5 UniRef90-C1DPN9 UniRef90_UPI000425F398 UniRef90_B0PB92 UniRef90-K9D8J8 UniRefe90-V5HPK4 UniRef90-SOESA5 UniRef90-K5YMX2 UniRef90-R6EG01 UniRef90-F3LHP8 UniRef90-UPI00031838B3 UniRef90-S3MVW4 UniRef90-UPIO00477B2D9 UniRet90_EORRF8 UniRet90-G4T3U8 UniRef90-R5QEP8 UniRef90-F4CJH8 UniRef90_ASEC8 UniRef90_W4T2G6 UniRef90 U4WT89 UniRef90 UPIO003796DF2 UniRef90_UPIO00347AB32 UniRef90-R9IZE4 UniRef90_UPI000472E52C UniRef90_S7UJ43 UniRef90-G8PEK3 UniRef90-V2Q140 UniRef90_COEAM1
UniRef90_C3WD88 UniRef90-UPIO003725EF2 UniRef90 K5CEG6 UniRef90-J2W4C9 UniRef90-E9T6L9
UniRef90-A6VV59 UniRef90 UPIIOOO4725C63 UniRef90-A0LF21 UniRef90-H2G5K8 UniRef90_F6CWA2 UniRef90-UPIOOO3688E37 UniRef90-B7IHEO UniRef90-UPIO00372FEBD UniRef90-H1CXB9 UniRef90-LOK9F3 UniRef90-D3RQJ2
UniRef90-W4LCV4 UniRef90-E8LD31 UniRef90-Q086T6 UniRef90-O3B3T7 Uniref90-6CKO7
UniRet90_H1GU23 UniRef90-UPIOOO4786799 UniRef90-DOGL84 UniRef90_K4KR62
UniRef90 D4LULU

DLIA\|DLAGMQRT\|KPโVVKRA\|VITMAGDHGVAAEG|VISKFP DISERLCAMQETLKPSTDKRCVFVMAGDHGVVEEGVSAYP EVSVRLAGLAGECPPPTPEPAAVIFAGDHGVAAQGVTSWP EISEQLSAIYRTLKPRIEKGAVFVMAGDHGVVEEGVSPFP DVATTLASLYGDEKPEIKQPLITIFAGDHGVVAQGVSAFP DICI QLSGI CEKKYFEIDKKALIAFAGDHGVYEEGVAPDP DAIVRUAGIKGTPDFHLTKKGLVIMCADNGVVEEGVTQTG DAVIRMAGIKRSADYTLEKKALVILCADNGIVAEGVTQTG
 TLTARAGAITGTDEADMRKKAVLICADNGIVEEGMSQTG QIATLASLQSNAHPQVNHPWI TI FAGDHGVVEENISAYP KIA SLA GI TGKVKNTLKKKRITVLCADNGVTCEGVSSAP KMNI QLSGI EKEYRVKKKAVVVMAADNGVEEEGVSASK DVAIKIAGITGETMPWLEKKAVITMAGDHGIAREGVSAAS
 Ni ALKLCLIQQTLSPSLHYPCHLLLGADHGIEREGVSASP ELALQAGLVQQTLSPSLSHPHNLIFAADHGITAEGVSFSP
 ELADQLSAI TGELKPSVTPPAVVVFAADHGVADEGVSAFP KVAHQLALI QSQEHDELNKPRIIIFAGDHGIVADGVSDAP DMS RLAGITGQVRNQLESCRILVFAADNGVIAEGVSSSP SLAVQLAGMPGGGKPQVDNKAI LVMCADHGVWDEGVADSP RVAVQLAGLQGRVKPHADALWI AIFAGDHGVVAEGVSAYP ALACQMGGIQHSTRPVVQRPTLIVFAGDHGIVAEGVSPYP ELAVKMFVASGGKPPESDPARIYTIAGDHGVNAEDVSFFP DLAVQLAGITMITVANKAIVMAADHGVYEEGIAGFP RLALQI GMI QQSLTPRLEQPQMLVFAGDHGAALAGVSAYP TLAKQLGRIQQSLEEEEQKPHMIVFAADHGVVAQNVSPFP ETGIWMASCQGVCPPPTTEPTVVIFAGDHGVAQAGVSAFP SI AVRFAGFQGREKPVLNKVLVRIFAADHGIVAQGVSAFP QIA ARLAGlQGRECPEIHRPWI TVFAGDHGVVAEGVSAFP DVAHQLALIQSQTEDQIHKPSILVFAGDHGVADEGVSDAP RLADHLAALQGRERPVVERPWI AIFAGDHGVAEEGVSPYP QIGVWMTACQGVCPPPITDPRIIVFAGDHGVAARGVSAYP DAVVETAGTRGNTQVRLDRRCVVVFCADNGIVEEGVTQTG SLAAQLGLI QRSTKVSI DQPAILVFAADHGVVAEGISAFP TLAAQI A RVQAVARLTVTKPAMLVAADHGIVAEYGVSDAP RLADTLSAQQQREQPDVDAVRTVIFAGDHGVCAENISAFP ELAVQLCATQHKVPPDTARKRILVFAADHGITEEKVSAYP ELAVQLAALQGCERPQVERVHVSVFAGDHGVVEEGVSAFP TITAQIGAILGTEVIDIRKKGVLLFCADNGIVEEGVTQSG RLARQGGIQGSEHPSLRQPAIVVCAGDHGVTAEGVSAYP QVADSLAALQDTPRPQLDRPWICIYAADHGVMAENISAYP EVSVQLAGI SGQCPPPI PDPAAVVFAGDHGVHAQGVTHWP ECAARVVAI RGEEMPDI GRKAVFVFAGDHGVAEEGVSGYP ALALRIGLIQNTLSPTLTNPAIVIFAGDHGIAANGVSAYP DAVTKIAGMKGSPAYSLDKKGLVIMCADNGVVEEGVTQTG EI ALLRFVQATASLSPVINRKKICCFAGDHGVAREGVSAFP TLAAQLAAMQGSLEPNIDKKRMLIFAASHGIAAEGVSAYP HLAHKIGMVQKTTSPQLDAPHMVVFAADHGIATAGVSAYP DIVVQLAGI TGQAKPRIGRKDVVVMCGDHGIVDEGVSAFP SILLNYAGI SGEKDPSEPKKCTIISCADHGVAEMKVSAYP TITAQLGAATGQTQPGVGPPAVIVFAADHGVAAEGVSAFG SIAFKVGLLQQTDEPVFIEPSVIIMAADHGVAEGGVSQSG EAALSLWLVGQGEPPRADPCRVYTVAGDHGVVAQGVSLIRP RMVTKIAS QETDDDQVDRRTCLVFAADHG\|EREQVSATP K S K A G T GKINNMADKRILFLFGADNGIVEEGVAATP KVVKMAGUYGYPDKQVDKKCHVVASADNGVUEEGIVSCP ELGEWVSACQDRCPPPIVRPRVVVFAGDHGVAAHGVSAYP TLATQLAETQNTLSPELKNPKLILFAADHGITEEPVSLYP RLARQIGLVQGSDRPSVRQAAIVVCAGDHGVTAEGVSAYP ELSVWAAACQGVCPPHIFRPRVVVFAGDHG|ARGGVSAYP EI AVQLAGITKELTPSVDRKATIVMAADHGVYDEGIS SNP VIAARLAAIKRSLTPAVGRKIIFTMAGDHGVAAEGVSAYP DLGVWLSSCQGQVPPHICRPRMVIFAGDHGIALNSVSPYP HI AFQLGRTQGKTTPDVSSAKMIVFAADHGVVDQGIS SIFP SLATQLGLI QQTTSPAITQPQVLVFAADHGLTAEGISAFP ELASKLFKKKQPLPMFKDKRVYVFAADHGVVQNGVSAYP EMAATYAAAIGNAKPQELKACMVIACADHGVARRSVSAYP TMVTQFAGVTGEAMPADPKCCTVIACSDHGVYAEGVSAYP E AVKLAGITGELFPKVDHKAHVVMAADHGVVAEGVSAFP RLAVELAGIQGRDRPSVQRKAVIVAAADHGVATEGTSAYP DMVVGLAGMIGKDLPDKLKTAMVLMCGDHGIAKYGVSAYP SLALQUARVQYRTPLQUTKPTMLVFAADHGLAAYGVSDAP ELAVQLAGITGNPRPVVGDRVIIIMAGDHGVVAEGVSVAP KIAYKIGKVQQTLTPSLVSPTIIVFAADHGLAKEGVSAYP ALSVQLAGI MATPRPRLRQPTLVVAAASHGVAAEGVSAYP KLAVQLEGI KENYSP EKKVVTVMAADNGVERENVSKSK

 UniRef90-B0TT63 UniRef90_E4TGZ3 UniRef90-R4YUW5 UniRef90-TOCBF4 UniRef90-R9NA25
UniRef90_R6EIQ4 UniRef90_D4CS43 UniRef90_A0A010ZJ97 UniRef90-R7ILI6 UniRef90-B2HZL3 UniRef90_UPIO003B350D0 UniRef90-W6EHE1 UniRef90-K4LTU6 UniRef90-G7GPS4 UniRef90-G8TMN7 UniRef90-D8DZD9 UniRef90-W2C8W9 UniRef90-EOE2DO UniRef90-E5BEC8 UniRef90-T2LC43 UniRef90-B7VPD7 UniRef90-R6HYI7
UniRef90_G9Z9Q7 UniRef90-S6HQV5 UniRef90-E1TAYY UniRef90_LORAG6 UniRef90-A6TKH UniRef90_A0A011MZI5 UniRef90-A3YBH2 UniRef90-V6HAF2 UniRef90-UPIO0035E3234 UniRef90_UPI0003A330B0 UniRef90-LOE1K2 UniRef90_UPI000300E2B5 UniRef90-C1DPN9 UniRef90_UPI000425F398 UniRef90_B0PB92 UniRef90-K9D8J8 UniRef90-V5HPK4 UniRef90-K2H1A6 UniRef90_K5YMX2 UniRef90-R6EG01 UniRef90-F3LHP8 UniRef90_UPI00031838B3 UniRef90-S3MVW4 UniRef90_UPI000477B2D9 UniRef90_EORRF8 UniRef90-G4T3U8 UniRef90-R5QEP8 UniRef90-F4CJH8
UniRef90 A4SEC8 UniRef90-B3QSI7 UniRef90-W4T2G6 UniRef90-U4WT89 UniRef90_UPI0003796DF2 UniRef90_UPIO00347AB32 UniRef90_R9IZE4 UniRef90_UPI000472E52C UniRef90_S7UJ43 UniRef90-G8PEK3 UniRef90-V2Q140 UniRef90-COEAM1 UniRef90-C3WD88 UniRef90_UPIO003725EF2 UniRef90_K5CEG6 UniRef90-J2W4C9
UniRef90-E9T6L9 UniRef90_A6VV59 UniRef90_UPIO004725C63 UniRef90-A0LF21
UniRef90-H2G5K8
UniRef90-F6CWA2
UniRef90-UPIO003688E37
UniRef90-B7IHE0
UniRef90_UPI000372FEBD
UniRef90_H1CXB9
UniRef90-LOK9F3
UniRef90-D3RQJ2
UniRef90_W4LCV4
UniRef90_E8LD31
UniRef90_Q086T6
UniRef90-Q3B3T7
UniRef90-F6CK07
UniRef90-H1GU23
UniRef90-UPIOO04786799
UniRef90-D0GL84
UniRef90_K4KR62
UniRef90_D4LU48




A EVVITQMV 90
100
110
120
AEVTVMVA\| IGGSAGVNALARSAGADVFVVDMGVNAD
QVVTCEMVKAFIAG DATITVLARQNNAKVVVCDDGTKCE

 NDLLATVSVLGKKEGLEI ILADIGSKYD KGGAAI SVLA QVNDAELKVVNCGTAFE
 TKGAASTNIMAEVAGVDIFPVDIGMATD

 QAVTMRMLQNFTTGGGAAISVLAKYHQAHLQVI DCGTVGE

 PEVTAQMVAN IGGGGAAINVLARRAGATVHVADDSVDAD QEVTAQMVLNFANGGAAINVFCRQNQLTLKVVDAGVNYD REVTWQQMINF TRGGGFVDVMCRQHNFELKIVDMGVDYD REVTWQQCIHFATSTGGGVNYLCRQHGFTLRIIDVGVDYD QDITRLQFENFVNGKCGVAN LAECNGVDMFGVDIGMKG LE YTA


 QAVTAQMVANFLAG GAAVNALARVLAGMELVVVNAGIVAP QEVTRQMVVENFLAGGAAGVNVASTAGVELIVVVDAGCMGE


## Q

 TA QMMYMYIAG GAAINSITRKNQIDLVLFDMGINHD QAVTGQMI VNFAAQGGAAISVLAEQTGSRDEVVDVGSLLP QAVTGQML RNFATG GAAI SGLARQLGAELELIDDGGTAEP AEVSGQMAAN ANHGGAADNVLGRAAGASVRVADVSDDHD QDV T WQMVEN


## ,

 REVTAQMLANF GDGAAINVFARQNGCALHVVDAGVNHD AAGGAAINVLARLMGGELFVVDVGVAAE QAVTGQMLRNFVGGGAALAVLARRLGSVLEVIDLGTVEP
 Q
-
$\stackrel{R}{\mathrm{Q}}$

| $R$ |
| :--- |
| $Q$ |
| $Q$ |

 QEVTARMVKNYLISKGAVANALANFSKSHMVVVDMGIAAP QEVTLA VAKEMADCVSSVGKMAAAUGADTFPVDIGGNGQ QVVTEQMVLNF QGGGAINCLSKQHGDHLKVVNAGVKAS
 QHFTKTLILSYADNAGTG||NTITKSCNTDLKLI胃MGIVGG ,

## 。

                    LE
                        GAAI NVFAR
    LA G GAVVNAFAAQVGAEVTVVDVGVAAD GGGAAINVIAKHNRLDLWIVDAGVNAD
 SGGAAI NVFARHVGADLAVVDMGVNAD NGGAA NVESRHGKMNLHVIDVGVDVD GGGAA I N V F C R Q N G $\square A B I M I V D A G V N F Y$ NA SGG GAAVNVFARHNGGQLQVVDAGVAHD GGGAAVNVFCQQHKVPLRIVDVGVKSV

| UniRef90_Q6ALU4 <br> UniRef90-UPIO003B6ACA <br> UniRef90_B0TT63 <br> UniRef90 E4TGZ3 <br> UniRef90-R4YUW5 <br> UniRef90-TOCBF4 <br> UniRef90-R9NA25 <br> UniRef90_R6EIQ4 <br> UniRef90_D4CS43 <br> UniRef90-A0A010ZJ97 <br> UniRef90-R7ILI6 <br> UniRef90-B2HZL3 |
| :---: |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

130
140
150
160
 D EENEFISRKVKNGTNNMTKTAAMSREAAIDAAIMVGFEI UniRef90 B2HZL3 UniRef90_UPI0003B350D0 UniRef90_W6EHE1 UniRef90 K4LTU6 UniRef90-G7GPS4 UniRef90-G8TMN7 UniRef90_D8DZD9 UniRef90-W2C8W9 UniRef90-E0E2DO UniRef90-T2LC43 UniRef90-B7VPD7 UniRef90-R6HYI7 UniRef90-G9Z9Q7 UniRef90-S6HQV5 UniRef90-E1TAY9 UniRef90_LORAG6 UniRef90-A0A011MZI5 UniRef90-A3 YBH2 UniRef90-V6HAF2 UniRef90-UPIO0035E3234 UniRef90_UPIO003A330B0 UniRef90-LOE1K2 UniRef90_UPIO00300E2B5 UniRef90-C1DPN9 UniRef90_UPI000425F398 UniRef90_B0PB92 UniRef90-K9D8J8 UniRef90-V5HPK4 UniRef90-S0ESA5 UniRef90-K5YMX2 UniRef90-R6EG01 UniRef90-F3LHP8 UniRef90_UPIO0031838B3 UniRef90-S3MVW4 UniRef90-UPIO00477B2D9 UniRef90_E0RRF8 UniRef90-G4T3U8 UniRef90-R5QEP8 UniRef90_F4CJH8 UniRef90_A4SEC8
UniRef90 B3QSI7 UniRef90-W4T2G6 UniRef90_U4WT89 UniRef90_UPIO003796DF2 UniRef90_UPIO00347AB32 UniRef90-R9IZE4 UniRef90_UPIO00472E52C UniRef90_S7UJ43
UniRef90 G8PEK3 UniRef90_V2Q140 UniRef90-COEAM1 UniRef90-C3WD88 UniRef90_UPIO003725EF2 UniRef90_K5CEG6 UniRef90-J2W4C9
UniRef90-E9T6L9 UniRef90_A6VV59 UniRef90_UPIO004725C63 UniRef90-A0LF21
UniRef90_H2G5K8
UniRef90_F6CWA2
UniRef90_UPIO003688E37
UniRef90-B7IHE0
UniRef90_UPIO00372FEBD
UniRef90_H1CXB9
UniRef90_LOK9F3
UniRef90-D3RQJ2
UniRef90-W4LCV4
UniRef90_E8LD31
UniRef90_Q086T6
UniRef90_Q3B3T7
UniRef90-F6CK07
UniRef90_H1GU23
UniRef90_UPIO004786799
UniRef90-D0GL84
UniRef90-K4KR62
UniRef90_D4LU48

 ADEKIKEGLNLVATGDMG $A R D L S S A G N R C L I T G D M G$
$V E D H H Q N G C N L I A L G E M G$


## $\rightarrow \mid>\lll-1<1$



$\begin{array}{lllllll}A & T & E & E & R & G & G T \\ A & L & L & A & T & G & D \\ M & G \\ V & D & A & G & D & L & L\end{array}$

voactaraity ina mall

V5
Y9
H4 4
11 MZI 5 1MZI5

F2 PI0003A330B0 K2300E2B5 PN9

0425F398

-B0PB92 UniRef90_K9D8J8 UniRef90-V5HPK4
UniRef90-K2H1A6 UniRef90_S0ESA5 UniRef90-K5YMX2 UniRef90_R6EG01 UniRef90_UPIO0031838B3 UniRef90_S3MVW4 UniRef90_UPI000477B2D9 UniRef90_E0RRF8 UniRef90_G4T3U8
UniRef90_R5QEP8 UniRef90_F4CJH8 UniRef90_A4SEC8 UniRef90-B3QSI7
UniRef90-W4T2G6 UniRef90_U4WT89 UniRef90_UPI0003796DF2 UniRef90_UPI000347AB32 UniRef90_R9IZE4 UniRef90_UPIO00472E52C UniRef90_S7UJ43 UniRef90_G8PEK3 UniRef90_V2Q140 UniRef90-C0EAM1
UniRef90-C3WD88 UniRef90_UPIO003725EF2 UniRef90_K5CEG6
UniRef90_J2W4C9 UniRef90_E9T6L9 UniRef90_A6VV59 UniRef90_UPI0004725C63
UniRef90-A01F21 UniRef90_A0LF21
UniRef90_H2G5K8 UniRef90_F6CWA2
UniRef90_UPIO003688E37 UniRef90_B7IHE0 UniRef90_UPIO00372FEBD UniRef90_H1CXB9 UniRef90_LOK9F3 UniRef90-W4LCV4 UniRef90_E8LD31 UniRef90_Q3B3T7 UniRef90-F6CK07 UniRef90-H1GU23 UniRef90_UPI0004786799 UniRef90_D0GL84 UniRetyo_K4KRb2
UniRef9__D4LU48

## UniRef90 Q6ALU4 UniRef90_UPIO003B6ACA8

 UniRef90 ${ }^{\text {BoTT63 }}$ UniRef90-E4TGz3 UniRef90-B4YUW5 UniRet90-TOCBF4 UniRef90_R9NA25 UniRef90-R6EIQ4 UniRef90-D4CS43 UniRef90-A0A010ZJ97 UniRef90 R7LLI6 UniRef90-B2HZL3 UniRef90-UPI0003B350D0 UniRef90_W6EHE1 UniRef90 K4LTU6 UniRef90-G7GPS4 UniRef90-G8TMN7 UniRef90_D8DZD9 UniRet90 W2C8W9 UniRef90-EOE2DO UniRef90-T2LC43 UniRef90-B7VPD7 UniRef90-R6HY17 UniRef90-G9Z9Q7 UniRef90-E1TAY9 UniRef90-LORAG6 UniRef90-A6TKH4 UniRef90-A0A011MZ15 UniRef90-AзҮвН2 UniRef90-V6HAF2 UniRef90-UPIOOO35E3234 UniRef90-UPIO003A330B0 UniRef90-LOE1K2 UniRef90_UPIO00300E2B5 UniRef90-C1DPN9 UniRef90-UPI000425F398 UniRef90_B0PB92 UniRef90-K9D8.J8 UniRef90-V5HPK4 UniRef90-K2H1A6UniRet90-SOESA5 UniRef90_K5YMX2 UniRef90-R6EG01 UniRef90_F3LHP8 UniRef90-UPIO0031838B3 UniRef90-S3MVW4 UniRef90-UPIO00477B2D9 UniRef90_EORRF8 UniRet90-G4T3U8 UniRef90-R5QEP8 UniRef90 F4CJH8 UniRe90_AASEC8 UniRef90_W4T2G6 UniRef90-U4WT89 UniRef90-UPIOOO3796DF2 UniRef90-UPIO00347AB32 UniRef90 R9IZE4


210
T GRGS GLL L AGRGTDAYSRKI DAIKKSAIEELNKPNSKDG|LDVLAKVGGFE VGRGTGMHEHKLEVVRRALAVNAVESHDPVGVLAAVGGLE TGKGAGLVKRKTDVIKRGLEMHKPEPEDPDDTLSKVGGAE TGRGTGGLTHKIMVIEKALARLQLTELSAEQLLKELGGFE TGIGAGLRKHKANTI RRAI ELNSPNRLDGVDILSKVGGFE TGKGAGLLRRKDRVIREAI RKHEPRPDDVIDVLSKVGGLD TGKGAGLLKRKIRVIREAIRTHAPYAQDVPDVLSKVGGLD TGRGAGLLKRKLEVIKEAVEQYSPACQDVVDVLACVGGFD TGVGTGQLRHKDEVIGKAVEHHKHVIGDVEKTLCAVGGLE

 IGAGSGLIQHKLKVLQKSVQKFLTKFPDIADLLSYFGGFE VGAGSGLVRRKLSVLSRALDHYTGDRTDPRSVMRHFGGYE VANPGQELKKKADVIRKA EVNNPNPTDGDEVLAKVGGLE VGHGGGLLFKKKQII QDACQKYQLFGKSPFDILRSVGGYD VGAGTGQQAYKVAVIERAMAARSADPQVPLEVLAKLGGLE VGLGTGQLARKVAVVKQGIA ACDNPDAKEVLSQVGGYE TGRGGGLFATKKRVVESALADHRPDPEDPLDVLKVGGLD VGIGANLPQNKVAVVRRAI AHNQPNAADGLDVLAKVGGFD VGPGTGLIAHKTQVIEAALVLHAEHAGDPVQSLFSLGGFE VGRGTGLLANKRNVLAAALAHHEESRGEPLDVLATFGGFE
TGPGGGIDARKAAVVKSALAANADVSGDAVSILTAGGGYE TGRGAGLDQRKAAVIKRALEVNQPDATDGIDVVAKVGGLE VGRGTGLDDAGDERKQRLLAQAAPPTAGALDVLAEFGGFE VGPGTGASEEGUARKAKVIEQTKKRLKEPQLIAQECGGLE VGRGTGGWIRKTAAVRDGMRRGRSHTRIDPELLRAVSGAE TGRGTGVLANKTALVAKALARHQSQLSTPLGLGCVGGFE VGLGTGQLRDKDNSVSQGVQRRCLHSDPQHVLSEVGGFE VGPGTGLLARKVAVVERALALHGAHAGEPLELLRRLGGFE VGRGTGGWKRKVAAVRDAMFRVRNDHHDPIGVLQAISSPD TGRGAGLLMRKIDAIKKAlJSVNRPDVDPVDVIAKVGGFD VGAGTGLIRHKADVVAASVARHTHAVQPLEVLATFGGFE VGRGTGLLQLKTKLLNEALTLHRQQLTSPMQVLAHVGGFE VGRGTGLLEHKRAVVARAVARHREWVKTPFEALCAVGGLE VGPGTGLVRRKLAAVQTALRDHAGHCVEPDETLRRLGGFE TGRGAGLLARKQQVVRTALETYDLWHADAFTVLQTVGGLD VGPGTGLDQRKQSVINAALKLHVDLADPYQTLRCVGGFE VGAGAGLDAQGMARKADALTRAHAQAHTPLERLAALGGLE TGRGTGVDAHKVDVVRRALAAHPVDPADPIGTLAALGGLE VGPGTGRLAKKVRVVEEGVRRHGLEGRGAMEVLAAVGGAE VGRGTGLLSHKLSLNQALARHPGQRDPLAALSVFGGFE
 TGRGTGRLQHKKEVIKRAVGVNAGLCTTPLGTLAALGGYE VGPGTGLVRHKALVI QKALDLHREKGADPVAWLQHVGGLE II GRGTGLLHNKVNILSTAIEKYPDDATPDEVARDFGGLE VGRGSGLLIIKREAIQRGUEVNKPQADDALDVLAKVGGLE TGRGTNRLKVKDDVVRQTLAVNQPNPADG|DDVMKLGGFE VGNGTGALAHKVGIVERAVAARRGDAHDPLGVLADLGGFE AGKGTGIDQKKAQVI DDAI AKYQLTEAEPLTVLQTVGGFE
 VGAGSNRFKHKDQVINEALEKRSFNQDDPVDLLAKVGGFE I GRGAGLFARKKQVILHGLHLHKPNPDDAFDLSKVGGLD VGRGGGLLIKKKRVIKESCERYNTFEMEPVDLGAHVGGLD VGRGTGLNNSGKANKRKAMRRARPVVKDPVALLRVAGGAD VGAGTGLDAHKRQVIERALQLHRGHASDPVDRLAEVGGFE $V G R G T G V W M R K T A A I R D A L R R A R P H V R D A V G L L R T V S G A D$
AGRGTGLDQHKAQVI EQSLKRAEQETGQPMANAVQVGGFE TGVGPGGDEHKAAVI有KAITKNKPNPNDGMDVLAKVGGFE T
 TGRGTGLDDQHKTRVLQALVLEHSDANTPQQALAALGGLE TGRGTGLVDKKRNVKKALKENRPNPNDPIVALAKKVGGYC TGRGTGRLADKRQYVRQALTVNQPWGTNGLDVLRKVGGFE TGRGTNRLRHKDDVVQRAMDVNHPDPNDGLDVLSKVGGFE
 TGRGTGVLQRKDEVIAEALAVNQPDPQQPLEVLTKVGGLE VGRGSGRMKIKRQVVADGLAKNMPKQGDAMDILCKVGGYD VGRGTGDDDUTKLINQALDLHQHELVSPEALLAHVGGFE AGRGTGRLEHKKTVIRRAIEINQLHCGTPLGTLAALGGFE TGRGTQVLRQKDNVVARALEVNRPDPADALDVLAKVGGLE VGRGTGLDDEGLKRKKDILTNTHPKPANAKDALEQYGGYE


 UniRef90-B0TT63 UniRef90_E4TGZ3 UniRef90-R4YUW5
UniRef90-T0CBF4 UniRef90_R9NA25 UniRef90_R6EIQ4 UniRef90_D4CS43 UniRef90_A0A010ZJ97 UniRef90 R7ILI6 UniRef90-B2HZL3 UniRef90_UPI0003B350D0 UniRef90_W6EHE1 UniRef90-K4LTU6 UniRef90_G7GPS4 UniRef90_G8TMN7 UniRef90-D8DZD9 UniRef90_W2C8W9 UniRef90-E0E2D0 UniRef90_E5BEC8 UniRef90_T2LC43 UniRef90_B7VPD7
UniRef90_R6HYI7 UniRef90_G9Z9Q7 UniRef90-S6HQV5 UniRef90_E1TAY9 UniRef90_LORAG6 UniRef90_A6TKH4
UniRef90_A0A011MZI5 UniRef90-A3YBH2 UniRef90-V6HAF2 UniRef90_UPI00035E3234 UniRef90_UPI0003A330B0 UniRef90_L0E1K2 UniRef90_UPI000300E2B5 UniRef90_C1DPN9 UniRef90_UPI000425F398 UniRef90_B0PB92 UniRef90_K9D8J8 UniRef90_V5HPK4
UniRef90-K2H1A6 UniRef90-S0ESA5 UniRef90_K5YMX2 UniRef90_R6EG01 UniRef90_F3LHP8 UniRef90_UPI00031838B3 UniRef90_S3MVW4 UniRef90_UPI000477B2D9 UniRef90_E0RRF8 UniRef90_G4T3U8
UniRef90_R5QEP8 UniRef90_F4CJH8 UniRef90_A4SEC8 UniRef90-B3QSI7
UniRef90-W4T2G6 UniRef90_W4T2G6
UniRef90_U4WT89 UniRef90_UPI0003796DF2 UniRef90_UPI000347AB32 UniRef90-R9IZE4 UniRef90_UPI000472E52C UniRef90_S7UJ43
UniRef90 G8PEK3 UniRef90-V2QL40 UniRef90_C0EAM1 UniRef90_C3WD88 UniRef90_UPI0003725EF2 UniRef90_K5CEG6
UniRef90_J2W4C9 UniRef90_E9T6L9 UniRef90_A6VV59 UniRef90_UPI0004725C63 UniRef90_A0LF21 UniRef90_H2G5K8 UniRef90_F6CWA2 UniRef90_UPI0003688E37 UniRef90-B7IHE0 UniRef90_UPIO00372FEBD UniRef90_H1CXB9 UniRef90_LOK9F3
UniRef90 D3RQJ2 UniRef90-W4LCV4 UniRef90_E8LD31
UniRef90_Q086T6 UniRef90_Q3B3T7 UniRef90_F6CK07 UniRef90_H1GU23 UniRef90_UPI0004786799 UniRef90_D0GL84 UniRef90_K4KR62

250

260 \begin{tabular}{lllllll}
$G$ \& $G$ \& $I$ \& $A$ \& $L$ \& $I$ <br>
$A$ \& $G$ \& $T$ \& $G$ \& <br>
\hline

 

$G$ \& $C$ \& $A$ \& $A$ \& $K$ \& $K$ \& $l$ \& $P$ \& $V$ \& $V$ \& $V$ \& $D$ <br>
$A$ \& $A$ \& $A$ \& $Y$ \& $N$ \& $R$ \& $I$ \& $P$ \& $V$ \& $I$ \& $D$ \& $G$ <br>
$G$ \& $A$ \& $A$ \& $A$ \&
\end{tabular} -

- 








LA A T GA F L G C A L H R I P GVV D G F
$L G M T G V M L G A A S C G L P V V L D G F$

I A MMA GAYL A A A QARMTVVVVDGF
I A GMA GVMLAAAANR@PVVVDGY

I A A MVVGA I E E A Y S L L Gl P V V L L D G M


UniRef90＿Q6ALU4 UniRef90－UPIO003B6ACA8 UniRef90－UP100034BCEB0 UniRef90－B0TT63 UniRef90－E4TGZ3 | UniRef90－R4YUW5 |
| :--- |
| UniRef90 | UniRef90－R9NA25 UniRef90－R6EIQ4 UniReffo－D4CS43 UniRef90－A0A010ZJ97 UniRe990－R71LI6 UniRef90－B2HZL3 UniRef90－UPIO003B350D0 UniRet90－W6EHE1 UniRef90－K4LTU6 UniRef90＿G7GPS4 UniRef90－G8TMN7 UniRef90－D8DZD9 UniRef90－w2C8W9 UniRefefo－ $20 E 2 D 0$ UniRef90－E5BEC8 UniRef90－T2LC43 UniRef90＿B7VPD7

UniRef90 R6HYI7 UniRef90－G9Z9Q7 UniRef90－S6HQV5 UniReffo－E1TAY 9 UniRef90－LORAG6 UniRee90－A6TKH4 UniRef90－A3YBH2 UniRef90－V6HAF2 UniRef90－UPIOOO35E3234 UniRef90－UPIO003A 330 BO UniRef90－LOE1K2 UniRef90＿UPIO00300E2B5 UniRef90－C1DPN9 UniRef90－UPIO00425F398 UniRef90＿BopB92 UniRet90－K9D838 UniRef90－V5HPK4 UniRef90－K2H1A6 UniRe90
UniRef90＿K5YMX2 UniRef90－R6EG01 UniRef90－F3LHP8 UniRef90－UPIO0031838B3 UniRef90－S3MVW4 UniRef90－UPIO00477B2D9 UniRet90＿EORRF8 UniRet90－G4T3U8 UniRef90－R5QEP8 UniRef90－F4CJH8 UniRef90－A4SEC8
UniRef90 B3QSI7 UniRef90－W4T2G6 UniRef90－U4WT89 UniRef90－UPIIOOO3796DF2 UniRef90－UPIO00347AB32 UniRef90－R9IZE4 UniRef90－UPIOOO472E52C UniRef90－S7UJ43 UniRef90－G8PEK3 UniRef90－V2Q140 UniRef90＿COEAM1
UniRet90－C3WD88 UniRef90－UPIO003725EF2 UniRef90 K5CEG6 UniRef90－J2W4C9 UniRef90－E9T6L9
UniRef90－A6VV59 UniRef90＿UPIO004725C63 UniRef90－AOLF21
UniRef90－H2G5K8 UniRef90－F6CWA2 UniRef90－UPIOOO3688E37 UniRef90－B7IHEO



N
$\qquad$

## 

290
300
310
320
D Y LIJFAHRSVVEPGHVHMQEFLGCRPLLD｜L｜NFR｜LIGETGAA
DYMFA GHLDEEKGHKLMLEYLGLEPILRLNMRLGEGTGAT
 GYMI A GHCSEEPGHIDRMLNYLNDKPILNLNMRLGEGTGAV D WLL FSHQSDEPGHQFMLEALEAKPLLHLGLDRGEGSGAA


 DWMLFGHQSAEYGHRRILQELNADPLLKMNMRGGEGSGAV

## \section*{} <br> D <br> Q

## H A D D

P

## 


DALIFAHRSEE
E

## 

## 

## 

## D <br> 

 C
## いのロ <br> の

## 

## 

NYAVFGHGS
DYAFFGHGSAEPGHRQLL RLLKKAEPLLQQLNMRLGEGSGAA

## エーロ

P

## \section*{D}

| UniRef90_Q6ALU4 | $\text { MA M N\|L V\|D GA K A } \begin{aligned} & 330 \\ & \text { L } \mid T ~ D ~ \end{aligned}$ |
| :---: | :---: |
| UniRef90_UPI0003B6ACA8 | LA M H I I D A A A III K E |
| UniRef90-UPI00034BCEB0 | LA L P L Q G A ARALR |
| UniRef90-B0TT63 | L A L PL I Q A A V N F Y N E |
| UniRef90_E4TGZ3 | L A L P I V K Q A A N M I S N |
| UniRef90-R4YUW5 | TALLPLL R Q A CALLHN |
| UniRef90_T0CBF4 | LAA F NI I EAGNYAYN N |
| UniRef90_R9NA25 | A L M PL L D M A L R V Y R E |
| UniRef90-R6EIQ4 | AVMPLLEMGLQV |
| UniRef90_D4CS43 | LAAPPI I ACAIEEMIN |
| UniRef90-A0A010ZJ97 | A A $\square \mathrm{P}$ L L L M A A DV |
| UniRef90-R7ILI6 | MMFALLDMAMSVYRE |
| UniRef90-B2HZL3 | A A L A L V K M A C A L HNQ |
| UniRef90-UPI0003B350D0 | VAFQI MEAACAFVCN |
| UniRef90-W6EHE1 | LVFPLVEAASNLTRD |
| UniRef90-K4LTU6 | L A F T I D A A L KIVRE |
| UniRef90-G7GPS4 | L A L P V V Q S A I DVLT |
| UniRef90_G8TMN7 | LA MPMI H A AV N FL N |
| UniRef90-D8DZD9 | CAFPIVDSACRMIN |
| UniRef90-W2C8W9 | CAYPIVDSAVRMI |
| UniRef90-E0E2D0 | LA M P I I D S A I Y A Y N N |
| UniRef90-E5BEC8 | MVYP I L D CAL A |
| UniRef90_T2LC43 | LA Y PLLQAATAMVAE |
| UniRef90-B7VPD7 | LAMPI I R A A A EFYNN |
| UniRef90_R6HYI7 | L A F Q L K G A C DVM |
| UniRef90_G9Z9Q7 | L A M H I VEAACNMHNN |
| UniRef90_S6HQV5 | L A VPLVRLIAC QLLH N |
| UniRef90-E1TAY9 | LA V P L L R A C A F I N E |
| UniRef90_LORAG6 | LSMFML R A A A NIMND |
| UniRef90_A6TKH4 | LVFPlVEAACHMIN |
| UniRef90_A0A011MZIS | LAWPLVRAAAAFLNE |
| UniRef90_A3YBH2 | L S L P L I E S A A LFFLK N |
| UniRef90-V6HAF2 | L A M G I L D T GCALLFRE |
| UniRef90-UPI00035E3234 | TALDPIVQAAVN |
| UniRef90_UPI0003A330B0 | LAA S I I R E A L A L H N Q |
| UniRef90_L0E1K2 | AA $\mathrm{I}_{\text {P }} \mathrm{L}$ I QMACAL HRD |
| UniRef90_UPI000300E2B5 | LA L PL I K A A A D F Y T H |
| UniRef90_C1DPN9 | LA V P L L Q S A CRLLHGE |
| UniRef90_UPI000425F398 | M A L P I V Q A AVDI M |
| UniRef90-B0PB92 | A A L GL L D A AVAVYT D |
| UniRef90-K9D8J8 | LA L P L H A S A N F L N E |
| UniRef90-V5HPK4 | LALPLI Q A A T NFYND |
| UniRef90-K2H1A6 |  |
| UniRef90 ${ }^{-}$S0ESA5 | LASFLVEAAGRILRE |
| UniRef90_K5YMX2 | LA VP L L Q Q A C A L HNE |
| UniRef90_R6EG01 | M M F TL L D M A M S |
| UniRef90-F3LHP8 | LAVPLLQ S A L A L H N N |
| UniRef90-UPI00031838B3 | L A L P L L R S A V N |
| UniRef90_S3MVW4 | A A L GL I R L A CRLHNE |
| UniRef90_UPI000477B2D9 | LA L P L L Q S A A RVL L ( D |
| UniRef90-E0RRF8 | L G M GVVEA GVRVYQ Q |
| UniRef90-G4T3U8 |  |
| UniRef90-R5QEP8 | A VMP L L E M G L SVYK |
| UniRef90_F4CJH8 | LALLPVAQSAVRALHD |
| UniRef90-A4SEC8 | L A M Q M I E A SVKM Y N E |
| UniRef90-B3QSI7 | L A M H L L A A AK IMCE |
| UniRef90_W4T2G6 | L A Y P L I R S AVGFLN |
| UniRef90-U4WT89 | LFMP MMD S A CRVLQE |
| UniRef90_UPI0003796DF2 | NLLD G M L L A Y T |
| UniRef90_UPI000347AB32 | LAYPLLDA A CA |
| UniRef90-R9IZE4 | M M M S L D M A L Y |
| UniRef90_UPI000472E52C | VA Y P L V V A L T F L N E |
| UniRef90_S7UJ43 | L A L H L M C A C A M WNE |
| UniRef90_G8PEK3 | LLLSS MID A M Q A I L |
| UniRef90_V2Q140 | I A MQI I Q N A C DI M N N |
| UniRef90-C0EAM1 | L A MLL L V E A L V I M N E |
| UniRef90_C3WD88 | LTYPMIDCALDMIN |
| UniRef90-UPI0003725EF2 | VALLVVHAAVATLGE |
| UniRef90-K5CEG6 | A A YPLI E L S V K F L N |
| UniRef90-J2W4C9 | $\square \mathrm{A}$ L P L L R S T A F L A |
| UniRef90_E9T6L9 | A ALPPILQ G A V A T L A H |
| UniRef90_A6VV59 | LA Y P L I N S A CLLFL N |
| UniRef90_UPI0004725C63 | LA F P I I ESAASMIKH |
| UniRef90_A0LF21 | LA M N I VEAAAKVVVE |
| UniRef90-H2G5K8 | A A P P V Q $\square$ A A HIDMT D |
| UniRef90-F6CWA2 | LS Y PLI Q S A CVVFMA Q |
| UniRef90-UPI0003688E37 | L A Y P L L Q S A C A Y L N D |
| UniRef90_B7IHE0 | L S V Y Y L E A A I K Y F N |
| UniRef90_UPI000372FEBD | LVVD ML Q M V L A M L Q D |
| UniRef90_H1CXB9 | I Q T R M L P AL S V Y R E |
| UniRef90_L0K9F3 | LS MNLVEAATKI DS D |
| UniRef90_D3RQJ2 | AL VPL L R M A CVV HR |
| UniRef90-W4LCV4 | LAFHLLEAAVRILDE |
| UniRef90_E8LD31 | LA I VVL Q A A M DVY N H |
| UniRef90_Q086T6 | L A L PPL I Q A A VNFYNQ |
| UniRef90_Q3B3T7 | LA M HVI E G A I R I Y N E |
| UniRef90_F6CK07 | L A M HLVEAACRVINQ |
| UniRef90-H1GU23 | LA YPLI Q S A VAFLNE |
| UniRef90_UPI0004786799 | LA L P L V DGA ARTLDE |
| UniRef90-D0GL84 | MMFPVI EAACNI |
| UniRef90-K4KR62 | LMF P MVEA A LKV A |
| UniRef90-D4LU48 |  |

UniRef90 D6TZ54 UniRef90-G2DBW4 UniRef90-UP1000474EACE
UniRefo - 5 Y4P5 UniRef90-E5Y4P5 UniRef90_B3QEI2 UniRef90_UPIOOO364E37F UniRef90_UPIOOO3998E98 UniRef90 LODLN3 UniRef90_M3VDS3 UniRef90-J2LGM7 UniRef90_W9VR86 UniRef90-U7VAC2 UniRef90-M2WD45 UniRef90-C9NZL8 UniRef90-W5W2C0 UniRef90-R5LHP1
UniRef90
U9ZZ57 UniRef90-U4KF40 UniRef90-F7YQG5 UniRef90-UPIO003698A60 UniRef90-L8D562 UniRef90-UPIO002557080 UniRef90 Q30US7 UniRef90-D4ZG28 UniRef90-K6XLL7
UniRef90-12JHS2 UniRef90-A8ZTT6
UniRef90-QOFF44 UniRef90-UPI0002DF889A UniRef90_UPI00036C73FA UniRef90-Q2RJH4 UniRef90-J4K7G7 UniRef90-UPI00035E8BD8 UniRef90-СЗКоҮ8 UniRef90-UPI000362D433 UniRef90_A3CLA4 UniRef90-FOJFH9
UniRef90 FOYXC5 UniRef90-K7QWT8 UniRef90_UPI00029A1F1A UniRef90-A0A031GUT2 UniRet90_C6TVK3 UniRef90-Q0G5NO UniRef90-R6PCY2 UniRef90-C6W9E7 UniRet90-W8R660 UniRet90-R6MJJ7 UniRef90-UPI0003B474F1 UniRef90-UPIO003FC7C6C UniRef90-15AQY7 UniRef90-C7C5E9 UniRefefo-C4XMZ1 UniRef90-V9ZHY0 UniRef90_A6CZ09 UniRef90-Q11DJ7 UniRef90-UPIOOO36F4527 UniRef90-UPI00046F5268 UniRef90-v5B4J5
UniRef9-LBY224 UniRef90-UPIO0041BD5DF UniRef90-H6MSS9 UniRef90_UPIOO045EB359 UniRef90-E8M626 UniRef90-R6NDS8 UniRef90_UPIO00465E1E8 UniRef90-G2JAM0 UniRef90_UPI00035DF9AE UniRet90-R6HRS3 UniRef90_UPI0003B3D895 UniRef90_G4MG30 UniRef90-H5VOS7 UniReffo WgGU45 UniRef90-DOJ6B1 UniRef90-W7W494 UniRef90_G9RQE6 UniRef90-UPI000479E479 UniRef90-K2MPU4 UniRef90-U5P8AO UniRef90-M2C1B7
UniRef90 W7QU21 UniRef90-UPIOOO41E5743 UniRef90_UPIO003B535EE UniRef90 R6D169 UniRef90-UPIO0046606F6 UniRef90-AOA031MCQ6 UniRef90-UPIO00463F480 UniRef90 U1LP78 UniRef90_UPIO0036849C0 UniRef90_U2Q5T3

T DCRATTDAVASVDTTLDADAGRKDDNKTKPAGSLGRL DNEFKEILLSLPDASSNLKDRALERNNQLTKPPGAGGRLE MARGEETLKQUQPLNKDIMDRAQQKDDLLSKPGGSLGYL

 MSDPRAQFPDLTKPDADVRAAALARQNTLTKPPGSLGRL ■KDLEKTIPMTPINRTRQAEFQQLIDQKTKPAGALGQL LKDLEKDIEQLPIDKDKLQEGRRYCDQLGKPPGSLGKL TGEMVRAQUEPADEASTEAARKRWMSVA
 MTTSTFSMPSVDPANTLASALEHADNSKTKPLGSLGML DDGRDLIANLDPSADAALRATLIARIDHKTKPPGSLGRLE FPPVEAPDDNKKLAKKKWDS:AKPIDSLGEFE
WWQAPCHGLDEAARQAAVQRDAQLTKPGGALGRL KTRKLDEQAVENAEKKWNSIAKPGHSLGVFE H| PPQNQALAAADQYKDDTKTKPLGAGGQLE MVDLHEILREIKPLDKHADEKGKK CDQLGKPLGALGKME MQTKSMI RMVTPPDFTFAEKAQKRWNSIAHPLHSLGKLE MQTLDSLINAVPAPDHEAALRARRHVDGLLKPTGSLGRLD METLSALLAA】PQPDVAAMARAQQHIDGLLKPPGSLGRL

WWRDACQPRDAAMDQARARQQQLTKPTGSLGQLE MTPLELTVRATRPLDSGAVADARARQESLVKPPGALGVVE $M Q T L E Q I I A Q I K P L N Q D A M R K A Q \square K L D G L L K P T G S L G R L E$

 D K KPDDSVYRTVKKEWDRI
 LQEALDEK LEKIQPLNEEAMKSSQAHWDST
DTFAPIHPLDSTLHRALIHRMDGKT MDWFLQQAKTPSDIHRAAATQRQQQ\} MTDTHWWLDATDPLSDSAR LDRALDTEAQA DATHLDGLLKPPGS GRL
 T D LQAA LAA I RPLDRSLTGRGQAHIDNLTKPKGSLGRLE
 DELNQLLKNIVPI DATADEEGKNYCDRLAKPLGAGGKME MNILENTLNSIKSVSEEEGKKAK LIFWDSLAHPPGSLGALE DERVEEAVS K LQQY QT GRADRAVMDAARERQAELAKPDGSLGAALE
 FA WLTEPCPSDDATAAAAARERQDQLTKPRGALGRLE


## UniRef90 D6TZ54 UniRef90_G2DBW4 UniRef90_UPIO00474EACE UniRef90_E5Y4P5 UniRef90_B3QEI2

 UniRef90_UPI000364E37F UniRef90_UPI0003998E98 UniRef90_LODLN3 UniRef90_M3VDS3 UniRef90_J2LGM7 UniRef90_W9VR86 UniRef90_U7VAC2 UniRef90_M2WD45 UniRef90-C9NZL8 UniRef90_W5W2C0 UniRef90_R5LHP1 UniRef90-K9ZZ57 UniRef90_F7YQG5 UniRef90_UPIO003698A60 UniRef90_L8D562 UniRef90_UPI0002557080 UniRef90_Q30US7 UniRef90_D4ZG28 UniRef90_K6XLL7UniRef90_I2JHS2 UniRef90_A8ZTT6
UniRef90-Q0FF44 UniRef90_F2JRS5 UniRef90_UPI0002DF889A UniRef90_UPI00036C73FA UniRef90_Q2RJH4 UniRef90-J4K7G7 UniRef90_UPI00035E8BD8 UniRef90_C3K0Y8 UniRef90_UPI000362D433 UniRef90_A3CLA4 UniRef90_F0JFH9
UniRef90 FOYXC5 UniRef90_K7QWT8 UniRef90_UPI00029A1F1A UniRef90_A0A031GUT2 UniRef90_C6TVK3 UniRef90_Q0G5N0 UniRef90_R6PCY2 UniRef90_C6W9E7 UniRef90_W8R660 UniRef90_R6MJJ7 UniRef90_UPI0003B474F1 UniRef90_UPI0003FC7C6C UniRef90_I5AQY7 UniRef90_C7C5E9 UniRef90_C4XMZ1 UniRef90_V9ZHY0 UniRef90_A6CZ09
UniRef90 Q1IDJ7 UniRef90_UPI00036F4527 UniRef90_UPI00046F5268 UniRef90_V5B4J5
UniRef90_L8Y224
UniRef90_N8TI62
UniRef90_UPI00041BD5DF UniRef90_H6MSS9 UniRef90_UPIO0045EB359 UniRef90_E8M626 UniRef90_R6NDS8
UniRef90_UPIO00465E1E8 UniRef90_G2JAM0 UniRef90_UPI00035DF9AE UniRef90_R6HRS3 UniRef90_UPI0003B3D895 UniRef90_G4MG30 UniRef90_H5VOS7 UniRef90-W9GU45 UniRef90_D0J6B1 UniRef90_E6VY19 UniRef90_W7W494
UniRef90_G9RQE6 UniRef90_UPIO00479E479 UniRef90_K2MPU4 UniRef90_U5P8A0 UniRef90-M2C1B7 UniRef90_W7QU21
UniRef90_UPI00041E5743 UniRef90_UPI0003B535EE UniRef90-R6D169 UniRef90-UPI00046606F6 UniRef90-A0A031MCQ6 UniRef90_UPI000463F480 UniRef90_U1LP78 UniRef90_UPI00036849C0 UniRef90_U2Q5T3

## UniRef90 D6TZ54 UniRef90-G2DBW4 UniRef90-UPDOOO474EACE UniRef90-E5Y4P5 UniRef90-B3QEI2

 UniRef90-UPIOOO364E37F UniRef90-UPIO003998E98 UniRef90-LODLN3 UniRef90-M3VDS3 UniRef90-J2LGM7 UniRef90_W9VR86 UniRef90-U7VAC2 UniRef90-M2WD45 UniRef90-C9NZL8 UniRef90-W5W2C0 UniRef90-R5LHP1UniRef90 K9ZZ57 UniRef90_K9ZZ57
UniRef90
U4KF40 UniRef90-F7YQG5 UniRef90-UPIooo3698A60 UniRef90-L8D562 UniRef90_UPI0002557080 UniRef90_Q30US7 UniRef90-D4ZG28 UniRef90-K6XLL7 UniRef90-12JHS2
UniRef90_A8ZTT6 UniRef90-Q0FF44 UniRef90-F2JRS5 UniRef90-UPIO002DF889A UniRef90-UPI00036C73FA UniRef90_Q2RJH4 UniRef90- J4K7G7 UniRef90-UPIOOO35E8BD8 UniRef90-C3KOY8 UniRef90-UPIO00362D433 UniRef90-A3CLA4 UniRef90-FOJFH9
UniRet90 FOYXC5 UniRef90 ${ }^{-}$FOYXC5
UniRef90
K7OWT8 UniRef90-UPIO0029A1F1A UniRef90-A0A031GUT2 UniRef90-C6TVK3 UniRef90-Q0G5N0 UniRef90-R6PCY2 UniRef90-C6W9E7 UniRef90-W8R660 UniRef90-R6MJJ7 UniRef90_UP10003B474F1 UniRef90-UP10003FC7C6C UniRef90-15AQY7 UniRet90-C7C5E9 UniRef90-C4XMZ1 UniRef90_V9ZHYO UniRef90-A6CZ09 UniRef90-Q1IDJ7 UniRef90-UPIO0036F4527 UniRef90_UPI00046F5268 UniRef90_V5B4J5
UniRef90-L8Y24
UniRef90-N8TI62 UniRef90-UPI00041BD5DF UniRef90-H6MSS9 UniRef90-UP100045EB359 UniRef90-E8M626 UniRef90_R6NDS8 UniRef90-UP1000465E1E8 UniRef90-G2JAMO UniRef90-UPIo0035DF9AE UniRet90-R6HRS3 UniRef90-UP10003B3D895 UniRef90_G4MG30 UniRef90-H5VOS7 UniRef90-W9GU45 UniRef90-DoJ6B1 UniRef90 - E6YY 19 UniRef90_W7W494
UniRef90-G9ROE6 UniRef90-UPIO00479E479 UniRef90-K2MPU4 UniRef90_U5P8A0 UniRef90-M2C1B7 UniRef90-W7QU21
UniRef90_UPIOOO41E5743 UniRef90-UPIO003B535EE UniRef90-R6D169 UniRef90-UPIOOO46606F6

 UniRef90_UPIOO0463F480 UniRef90_U1LP78 | UniRef90 UPIOOO36849C0 |
| :--- | UniRef9OU2Q5T3

$\stackrel{Q}{\mathrm{Q}}$

## S

##  <br> oo




A

## 

Q
Q
K
S

## 


 QAVTTEMVKNFARGGAAISVLARELGAELEVINLGTVND
 QEVTEIQVRNFLKGGGT INAFCRNAGASLTVVDVGIKGD ASVTRSMVEAYLADC AGVNVLAKAAATEVRIVDGGIIDAD QETTAIVARNILEGGTGLCAISQHVGSDTCVVDIGCKED QSVTGEMLRNFAEGGAAVCVLARHLGATLRVMELGAADP SEVTGQMVANYLHGGAAVNVLARRAGAAIRVVNLGVASD
 DEYTR UVSEAMLSSFAAI GILCKSLGUPLNLIDAGVKGD AEVTAQMVAN TAGGAAVNVLAATCGAGVRVVDDSVDAD SAVTQQMVLNFLAG GAAINCFCRTNQDELKVVDTGILDP SEVTGQMVANFLTGGAAVNVLAGVAGATVRVVDLAVDAD SRVTAQUVAKEIAAGRSSVNMLANQFSTEILTVDIGIDSD ASVTPAMVANFLMDTGAAVNALSRSIGARVYVLDVGVNAA
 QDVTWQMVENFLAGGAAVSVMARQHGLDLTVVDCGVAHD QEVTGQMLRNFVGGGGAAI SVLSRQLGAQLEVIDDGUATA

## S

 SEVTVEMVRNF

 ANGGAAISVLARGLGAMLEVVNLGTVNDLT ${ }^{-1}{ }^{\top}$ LA | FLA |
| :---: |
| F ${ }^{\top}$ R | KSGLCAISKHVGSDICLVDIGCKKD KKAASVAVLAKTVGAGLFVVDAGCCGP G GAAI NRFAQAADCRVYVDVGVKGE HGGAAI NQLARNAGADLSVVCL

 VA ASGGAI NQाCAAYDLGLKVFDLALD QAVTAQMVANABAGGGAVNVLARRCGATVRVADIAVDAD SAAVTAQQMVLNF LA G GGAA CAVVLARQHGARLEVVVDTGVAGD




$A E$
$\square$
$\square$

NGGAA I NQIICKLVMQDLIVVDAGVNAE
 RNGKA GVA NI A E Y A G S D: CVVDDI GCK S P
 GNGDS SACSLGRASHVSVFPVDIGI DSD

 A EVVAAMVANF ASGGAAVNVLAEVAGASVRVADVAVDSD SEVTGQMVANFATG GAAINVLCAQLGWQLSVIDCGILTA QSVV
RVI
TV

| UniRef90_D6TZ54UniRef90_G2DBW4UniRef90_UPI000474EACEUniRef90_E5Y4P5UniRef90_B3QEI2UniRef90_UPI000364E37FUniRef90_UPI0003998E98UniRef90_L0DLN3UniRef90_M3VDS3UniRef90_J2LGM7UniRef90_W9VR86UniRef90_U7VAC2UniRef90_M2WD45UniRef90_C9NZL8UniRef90_W5W2C0UniRef90_R5LHP1UniRef90_K9ZZ57UniRef90_U4KF40UniRef90_F7YQG5UniRef90_UPI0003698A60UniRef90_L8D562UniRef90_UPI0002557080UniRef90_Q30US7UniRef90_D4ZG28UniRef90_K6XLL7UniRef90_I2JHS2UniRef90_A8ZTT6 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  | $\square A \quad H P Q L I S R K|V| A L G S A N M A E R P A L T R E Q L F E A \| Q V G F E \mid V$ PGPLEGVLNLPLAP GTANLCREPAMDEQQLARAMHGGRQA $V$ G GA E GLV R R K V V H A A R D F S E GP A M T R E E A LAA C V MPP HPKLIDRRKI RRGTRNARHEPAMTHQEAARAI TAAADL



 LP E H P D L V S C P V A S GTR N FA QEAAMSA GE LAQQCLQT GA E M


5 2DF889A A $P$
$F$
L
F

## 035E8BD8


 $\begin{array}{ll}\square F E E N K D & K \\ \square & \text { K } \mathrm{CH} \text { G } \\ \square\end{array}$
 FGPRDGLLDRKNLQA
LPASQLVAKGARG LYA Y T GDVISVVE PAMSDR K


 A Ftis GL


FE E A P R LWRRRKVAYGTA DGSSQGPAMSEA Q CAAMA LARNGGEV $Y$ D E H P R L I Q A K I A P P T A A N L A K G P A M T E A Q C L R A L M L G V S L

 QHPKK Y E S R A A GTN DFS QTSAM T IAE HA QA C I N Q GAE L
 $V$ D C G R L I K R K V V Y G T R N I T Q G S A M T D E E T E A A I V T G M D M




UniRef90 D6TZ54 UniRef90-G2DBW4 UniRef90-UPIO00474EACE UniRef90-E5Y4P5 UniRef90-B3QEI2 UniRef90 UPIOOO364E37F UniRef90-UPIOOO3998E98 UniRef90_LODLN3 UniRef90-M3VDS3 UniRef90-J2LGM7 UniRef90_W9VR86 UniRef90-U7VAC2 UniRef90-M2WD45 UniRef90-C9NZL8 UniRef90-W5W2C0 UniRet90_R5LHP1 UniRef90-K9ZZ57 UniRef90-U4KF40
UniRef90 F7YQG5 UniRef90-UPIOOO3698A60 UniRef90-L8D562 UniRef90_UPIO002557080 UniRef90_Q30US7 UniRef90-D4ZG28 UniRef90-K6XLL7 UniRef90-12JHS2 UniRef90-A8ZTT6 UniRef90-Q0FF44 UniRef90-F2JRS5 UniRef90-UPIO002DF889A UniRef90 UPIOOO36C73FA UniRef90-Q2RJH4 UniRef90-J4K7G7 UniRef90-UPIO0035E8BD8 UniRef90-C3KOY8 UniRef90_UPIOO0362D433 UniRef90 A3CLA UniRef90-FOJFH9
UniRet90 FOYXC5 UniRef90-FOYXC5
UniRef90
K7QWT8 UniRef90-UPIO0029A1F1A UniRef90-A0A031GUT2 UniRef90-C6TVK3 UniRef90-Q0G5NO UniRef90-R6PCY2 UniRef90-C6W9E7 UniRef90-W8R660 UniRef90-R6MJJ7 UniRef90-UPIOOO3B474F1 UniRef90-UPIO003FC7C6C UniRef90-I5AQY7 UniRet90-C7C5E9 UniRefefo-C4XMZ1 UniRef90-V9ZHY0 UniRef90-A6CZO9 UniRef90-Q1IDJ7 UniRef90-UPIo0036F4527 UniRef90_UPI00046F5268 UniRef90-V5B4J5 UniRef90-L8Y224 UniRef90-N8TI62 UniRef90-UPI00041BD5DF UniRef90-H6MSS9 UniRef90-UP100045EB359 UniRef90-E8M626 UniRef90_R6NDS8 UniRef90-UP1000465E1E8 UniRef90-G2JAMO UniRef90-UP100035DF9AE UniRef90-R6HRS3 UniRef90-UP10003B3D895 UniRef90-G4MG30 UniRef90-H5VOS7
UniRef90-W9GU45 UniRef90-DoJ6B1 UniRef90-E6VY19 UniRef90_W7W494
UniRef90_G9RQE6 UniRef90-UPIo00479E479 UniRef90-K2MPU4 UniRef90_U5P8A0 UniRef90-M2C1B7 UniRef90_W7QU21
UniRef90_UPIOOO41E5743 UniRef90-UPIO003B535EE UniRef90-R6D169 UniRef90-UPIOOO46606F6 UniRef90-AOA031MCQ6 UniRef90_UPIOO0463F480 UniRef90-U1LP78 UniRef90-UPIOOO36849C0
UniRefgo-U205T3 UniRef9OU2Q5T3

210
220
230
240
TGHGTGQRQHKIVIRVLERALLELLNQPDPNDALIDIVLAKIVGGLE AGPGTGLVAHKSAVI HQALERHSQHLGTPLEALRRLGGFE TGVGANLLSHKALVIKEALQRHKPNKTDGVDVLAKGGGFE TGIGSGRVRHKAELI RQGIERNRPNPADAVDVLAKVGGPE VGRGAGMVAHKRAIVEQAAARAQPTA PLDVLAEFGGFD TGYGAGLTQHKTKIVQACLEKHAPYGEVLDVVAKVGGLD VGPGTGLDEHKRQVVERGLALHAGKLNSPLSALAHLGGLE VGRGTGI WDRKTAAI RDGMRYGRRFRNEPLALLAAVGGPD IVGAGTGLIRHKQQVIEQAVAYHAGVDAPLDVLQTFGGFE $\checkmark$ GAG GASPHKAQV VGRGTGVWSRKTAAI VGLGTGQLAKKVALV $V$ GRGTGAWMRKAAAI TGRGAGLMSRKDAGI
VGVGTGQLKKKI DLV VGYGTGQYQKKIQLV
TGPGTGLVQRKLE TGPGTGLVQRKLEVLQQVLDAHRDAVQPLDVLAEFGGFE VGRGTGVVMKKKKLIRQALTLHGSYLASPIEILRRLGGFE AGPGTGLVQHKAQVI TGPGAGLVKHKTDII VGRGTGILERKQQL VGVGTGVLAKKAAVV TGRGTGVLKRKTAVI
 EQALHLHEAELTTPMNLACCGGF

$$
T G R G A G L V G H K A N I \text { I }
$$

 VGRGTGVWARKTAAI
TGPGTGLNAHKAVI

## TGPGTGLNAHKVAVI

## 

 TGPGAGLLPAKTAVIRRGLDANRDDSGDPVEVLAALGGLE AGRGTGLLKLKAAVIDEAI TLHRGTLSDPLEVARHLGGYE VGAGTGLSKEGLHKQQVIEVHHAAVTEPLGVLATFGGFE VGRGTGLLAHKRAVLGRALERHAHAREPLDVLAAFGGFE VGPGTGLLKHKAEVVARAMETHKGHDKDPLEILRRVGGRE TGKGAGLLERKINVIKKAIEVNKPNSKDPLDVLMKLGGYD VGRGTGVWMRKTAAIRALLRARPHTGDPVRLLAVASGAD AGPGGVAHKAV TGYGAGLTEHKTQVI VGRGAGLLRRKDVRSSIALHRPDPQDPVDVLSKVGGFD VGIDGARLHHKVEVVRRAIAVNQPDARDGVEVLAKVGGFD
 $\operatorname{VGLGTGQLALKLALVQQGVD\quad RVQSKSVMEILSELGGFE}$ SGPGTGLVRHKAEVIERALVLHGLRADEPLRALGHVGGFE TGRGAGIWAHKVDVVRRAMDLHRPDRGDPLGVLAAVGGLE VGIGADQLQHKVSVVRRA ${ }^{\text {GACNQPNADDGI DVLAKVGGFD }}$ VGLGASGWNHKVQVVSRALAVNQPDAADGLDVLAKVGGYD TGVGTGQLDHKKNIIQHSLELLHNYENDAFKALCAVGGLE TGRGAGLDDRKKQVIKEACEKYSFDDWKPSDVLQTLGGLD VGRGTGGWMRKTAAIRDGMRRGRRHRSDPLSLIAAVGGAD VGRGTGVLALKRRVVEDALARLAGRELSPLETLAELGGLE VGLGTGQLAKKVTLISQGVA RCKGRDVHTVLAEVGGFE TGRGAGLLNRKITAIKKALALDAPDKTDAIDVLSKVGGFD IVGRGTGLLARKKRVLNQALKKHTGGFDPLYVLMTFGGFE VGPGTGIDQHKAAVINAALVFHSADTASPLENLQHLGGLE VGRGTGRMKVKRQVVADGLAVNKPELGNAMDVLCKVGGYD TGPGTGALTRKKEVLTASVARAKLLVKNPLDALAQVGGLE $V G A G A D K M A H K D A V V Q Q A D A V N Q P D A R D G V D V L A K V G G Y D$ VGAGTGVMADKVETVAAGLAANPTASTDPLEALRCLGGYE TGVGTGLLARKDAVGRVLDFADVGEPLAVAAMGGLE VGRGTGLLARKVRVLRDGLABHAQATAPLLAALAALGGGLE TGRGAGLLRRKVAAIERAVALSRPAADDPLDVLAKVGGFD VGVGTGQYKTKLATLEKVAALHQHMANAPLKLLAAVGGFE TGRGTGILKKKTRVVGDAIILHKNQFHDAFDVLRCVGGRE VGRGASMYELKDKTVKKAIEDNAPKKGDSIDCISKVGGFD VGHGTGQYRLKLKLIKQSI ERYQHKQPNPIECLAEVGGFE VGGGAGLDDRKKEVIRRGLEKYKEKNEKYLEILRTLGGYD
 TGRGAGLLERKDNAVKRALEVNKPDKHKPLELLQKLGGAE VGPGTGLLRHKTAVIETAVGLHGPQCHTALDVLERLGGLE VGRGTGGWSRKTAAVRDALYRARRDTADPAALADCGGD VGGRGGVVEKKQQLIDQALLLHGDALDDPREVLRRLGGFE



## UniRef90 D6TZ54

 UniRef90-G2DBW4 UniRef90-UPIO00474EACE UniRef90-E5Y4P5 UniRef90-B3QEI2 UniRef90 UPIIOOO364E37F UniRef90-UPIOOO3998E98 UniRef90-LODLN3 UniRef90_M3VDS3 UniRef90-J2LGM7 UniRef90-W9VR86 UniRef90-U7VAC2 UniRef90-M2WD45 UniRef90-C9NZL8 UniRef90-W5W2C0 UniRef90-R5LHP1UniRef90-K9ZZ57 UniRef90-U4KF40 UniRef90-F7YQG5 UniRef90-UPIOOO3698A60 UniRef90-L8D562 UniRef90-UPIO002557080 UniRef90_Q30US7 UniRef90-D4ZG28 UniRef90-K6XLLL7 UniRef90-12JHS2 UniRef90-A8ZTT6 UniRef90_-Q0FF44 UniRef90-F2JRS5 UniRef90-UPIO002DF889A UniRef90 UPI00036C73FA UniRef90_Q2RJH4 UniRef90-J4K7G7 UniRef90-UPIIOOO35E8BD8 UniRef90-C3KOY8 UniRef90-UPIO00362D433 UniRef90-A3CLA4 UniRef90-FOJFH9
UniRet90 FOYXC5 UniRef90-FOYXC5
UniRef90
K7QWT8 UniRef90-UPIO0029A1F1A UniRef90-A0A031GUT2 UniRef90-C6TVK3 UniRef90-Q0G5NO UniRef90-R6PCY2 UniRef90-C6W9E7 UniRet90-W8R660 UniRef90-R6MJJ7 UniRef90_UP10003B474F1 UniRef90-UPIOOO3FC7C6C UniRef90--15AQY7 UniRef90-C7C5E9 UniRef90-C4XMZ1 UniRef90-V9ZHY0 UniRef90-A6CZO9 UniRef90-Q1IDJ7 UniRef90_UPIOOO36F4527 UniRef90-UPI00046F5268 UniRef90-V5B4J5 UniRef90-L8Y224 UniRef90-N8TI62 UniRef90_UPI00041BD5DF UniRef90-H6MSS9 UniRef90-UPIOOO45EB359 UniRef90-E8M626 UniRet90_R6NDS8 UniRef90-UPIOOO465E1E8 UniRef90-G2JAMO UniRef90-UPIOOO35DF9AE UniRet90-R6HRS3 UniRef90-UP10003B3D895 UniRef90-G4MG30 UniRef90-H5VOS7 UniRef90-W9GU45 UniRef90-DOJ6B1 UniRef90-W7W494 UniRef90-G9RQE6 UniRef90-UPIOOO479E479 UniRef90-K2MPU4 UniRef90_U5P8A0 UniRet90-M2C1B7 UniRef90-W7QU21
UniRef90_UPIOOO41E5743 UniRef90-UPIO003B535EE UniRef90-R6D169 UniRef90-UPIO0046606F6 UniRef90-AOA031MCQ6 UniRef90_UPIO00463F480 UniRef90-U1LP78 UniRef90_UPIOOO36849C0 UniRef90_U2Q5T3



## 479

290
300
310
320
NYLFAGHTSVEPGHR|LILEEHLQLQPLLINLNMR|LGEGTGA|V D WFLFSHASAEPGHRTVLDALDARPLLDLGMRLGEGSGAA
 DYCVFSHRSAERGHRVLLEAMQATPYLDLGLRLGEGTGALJ DFCFASHSSTEPGYQLVCRELQLSPMLTLEMRLGEGSGCP
 A WWRAGHRSTEPAHAFALSSLGGLDPRVVDMSMRLGEGTGAL
DYCVFSHCSDEHGHRRMLQYLDGRPLMQLDLRLGEGTGS
 NYLI GTHMSEEPGMKVVMTALGLKTELHMEMRLGEGTGAV D WWVA GHRSTEPAHAV ALRQLQLDPILDLGMRLGEGSGAL EFMI FAHKSEEDAHQLLLEELGAKPLLDLSMRLGEGTGAA EWWVA GHRSAEPAHGFVLSHLGLVPVVEFGMRLGEGSGAL D M MLP
ELIFAHOSESGHQRVLELQAKPMDDGGRGEGTGAA QRCVYAHRSGEPGHQLILDALHARPLLDWGMRLGEGSGAV DYLVFAHTSDEAAHKTMLADLGVEALLNLSLRLGEGTGAA HWLFFAHQGAEPGHGKLLQALDGQPLLDLGLRLGEGSGAA
 QFMIFAHCSAENAHQLLLKELQANPLLDLGLRLGEGTGAA GFLIAGHRSVEPARKALNK EAEPVVQLDRLGEGTGAA
 EYCIFCHSSAEKGHQKLLEFFKAKPLLNNLEMKLGEGTGAA

A


## D

## D

 DYILPA HVSA
## 

P

## H

D

D

D
-
SRCVVFHCS DE K A V L A S HVVS A
S N CLL A H N S Q DHCLLDGHVSAEPGHTKML E Y L K A K P L L Q L L G L R L GE GT GA S
E Y M I F F A H K S E DV V P S AR GREAGNMAAL KALGLEPYI NGNMALGEGTGAL
 E Y M L A SHC C S E P A GE GLLA F C GL L A P P N A G L R L G E GT G GV $\begin{array}{ll}D W M L F G H R S A E P A H A A V L & A A \\ L & L \\ L\end{array}$ DYMVFAHCSGEQGHRRMLNELNAEPLLDLNMRLGEGSGAAA A WLL F S H GS A E P GHR R L L A A L D A T P L L D L G M R L G E GS G A A

|  |  |
| :---: | :---: |
| $\begin{aligned} & \text { UniRef90_DGTZ54 } \\ & \text { UniRefoo } \\ & \hline \end{aligned}$ |  |
| UniRef90-UPIO00474EACE | LSFNIIEAAT FMNE |
| UniRef90-E5Y4P5 | LLYPLI DASVRILTE |
| UniRef9 | PLLRAAAGL D |
| UniRef90-UPIO00364E37F | LAFFLMT |
| UniRef90 UPIOOO3998E98 | VAVPLLRTACALHNQ |
| UniRef90-LODLN3 |  |
| UniRef90-J2LGM7 |  |
| UniRef90-W9VR |  |
| U7V |  |
| UniRef90-M2 | VAFPVLQGAVATLTN |
| UniRef90-C9NZL8 | \|LAVPLVRAAAEFYN |
| UniRef90-W5W2C | VALPVLTMATKVLSE |
| UniRef90-R5LH | MLLPLLDGALAVYN |
| UniRef90-K9ZZ57 | $V \mathrm{PLFRaAAASLRE}$ |
| UniRef90-U4KF40 | \|LAYPLVLAAAAFYND |
| UniRef90-F7YC | VP |
| UniRef90-UPIO | 1 A WP |
| UniRef90-L8D562 | AplocanafyND |
|  |  |
| UniRet90_O30US |  |
| UniRet90-D4ZG28 | PMI Q |
| UniRet90_K6XLL7 | PLLK |
| UniRet90_12JHS |  |
| UniRef90_A8ZT | D AVA |
| UniRee90 Q0FF4 |  |
|  |  |
| Ret90-UP |  |
|  |  |
| $\begin{aligned} & \text { UniRef90_Q2RJH } \\ & \text { UniRef90_J4K7G } \end{aligned}$ |  |
| UniRef90-UPI00035E8BD8 | L |
| UniRef90_C3K0Y8 | LAVPL |
| UniRet90 UPIOOO362D433 | LAYPLKSAAAMLSD |
| UniRet90_A3CLA4 | CAMFLVRAAANVFNQ |
| UniRef90-FOYXC5 |  |
| UniF |  |
| UniRet90_UP100029AAF |  |
| UniRet90-A0A031GUT2 | HatvNFMRE |
| UniRet90-6t |  |
| UniRet90-COG5N0 |  |
| UniRet90_R6PCY2 |  |
| UniRet90_C6W9E7 |  |
| UniRef90-W8 | L |
| UniRef90-R6 | T ALD D ALCVYNE |
| UniRef90-UPI0003B474F1 | A |
| UniRef90-UPIOOO3FC7C6C | FFLMSNAV |
| UniRef90_15AQY7 |  |
| UniRet90_C7C5E9 |  |
| iRef90_C4XMZ1 | LALIFLMRSACNIYND |
| UniRef90 - V92 |  |
| UniRef90-A6CZ09 | PL! |
| UniRet90-Q11DJ7 | V P |
| UniRef90 OPIOOO36F4527 |  |
| Ref90-UP100046F5268 |  |
|  |  |
| Ref90_L8Y2 |  |
|  |  |
| UniRef90_UPI000413D5DF | MLFPVLD |
| UniRet90-H6 | SALP TVLS AVDIM |
|  |  |
| Ref90-E8M6 | P |
| iRet90_R6NDS8 |  |
| UniRef90_UPI000465E1E8 | V |
| Uni | LAIPLLRAATSFLSQ |
| UniRef90-UPIO0035DF9AE | A |
| Ret90_R6 | A |
| Re90-UP1003383D |  |
|  |  |
| UniRet90_L5V037 |  |
| UniRef90_W9GU45 |  |
| UniRef90_DOJ6B |  |
| UniRef90_E6V | Y |
| UniRet90_W7W494 | WplLDSACRLLGE |
| UniRef90-G9RQE6 | A |
| UniRet90_UPIO004791 |  |
| UniRet90_K2MPU4 |  |
| UniRet90_U5P8A0 |  |
| UniRef90-M2C1 | LLFKMLEGAVFTMQN |
| UniRef90-W7C | LSVPLIRSAAQFYN |
|  |  |
| Ref90-UP10003B535EE |  |
| Ref90_R6D169 |  |
| UniReego- ${ }^{\text {a }}$ (100046606 |  |
| UniRef90-A0AO31MCQ6 | ASVPLL |
| 3F480 | M A |
| Rer90 UPiooo36849C0 | mavp Virlacolb |
| niRef90_U2Q5T3 | MMFPVIEGACNI |


UniRef90_A0A022LKX8
UniRef90-V4L5L9
UniRef90-X0RS78
UniRef90_F7V369
UniRef90_-UPIO004701848
UniRef90_UPIO0037D7415
UniRef90 A3QAT8
UniRef90 E8X1C8
UniRef90_UPI00046EB2F2
UniRef90_M0QM62
UniRef90_LONEA5
UniRef90-W2C1Q9
UniRef90-A4XT55
UniRef90_UPI000467AF7A
UniRef90_B1HRH7
UniRef90_G8QSJ9
UniRef90 K7RLE7
UniRef90_UPIO003826AEB
UniRef90-UPIO004682BD0
UniRef90-R5DS80
UniRef90_J7TR53
UniRef90_V5SD79
UniRef90 F9NWB4
UniRef90 S0IUS6
UniRef90_UPIOO0412C63C
UniRef90_Q9KSL9
UniRef90_F3KV44
UniRef90_X2K2U9
UniRef90_UPIO00372B2EA
UniRef90_F4AQY7
UniRef90-UPI00047A6509
UniRef90_V5XG03
UniRef90_Q6G3G3
UniRef90_R6PZT5
UniRef90_UPIO0025584A7
UniRef90_D4MAX5
UniRef90_UPI00036F5245
UniRef90_B8K5W7
UniRef90-UPIO00377AAF0
UniRef90_R5TMR3
UniRef90_V9X9Z9
UniRef90-Q8XWS3
UniRef90_F5Y652
UniRef90_K4KJW6
Unife90-UpionosbecFa
UniRef90_B7QYV1

 K|I|AP|L|NN QFDHLIDNK|I N NKT K P L G A|L|G Q|L|E

 $T$
A D A R A $\qquad$ HQNGK
 Q P El K P
 RI P PV S TALDAALQHKIDTKTKPLGALGRLDE A R P


SSDSVVA R R R A ELT
$W \square F G P P V_{V} K A L_{B} L L$ $\mathrm{MS} \mathrm{L} \quad \mathrm{L} D \mathrm{~L} \mathrm{~L}$ S S I K E L

LREVVEKDGPEDQGAREEAHRR
 $A D D D A L A T R L L Q Q A \square D F K T K P M C G S L G M L L$
$\mathrm{M} \square \mathrm{Q}$ S T $\square \mathrm{A} \mathrm{Q} \square \mathrm{R}$ $\boxed{L}$

## LIE Q T A A A APA

 $A D N V E A G Q A A A E R Q A H L T K P P G S L$$\square S L P P S$ WTAQQPP K P D T L LDQSYAA
F A D V VP PDAGAA
$\square$ I A LVA Q $\quad$ DAP DQQQATQGEAA A K
 MGLFE W T C C K E P D
 G\|APLDSNAESAIRAR\|DGKAKPLGSLGQI


 $M G Q \square E E T \square R A \square R P A D R A A A R E C Q S R W D G \square A K P L H S L G K M E$ P T A N A E L S A A LE R A VN N K T K P L G S L G V L E



EVFATPTPPDPSVARAARERHADLTKPPGSLGRLE D DFRTLLQNLPGPDSRALVAARERDAQLTKPPGSLGRL
 M N T HL P L I A
 LIERTTIAAI GGPDHESSAAVARAFDGKVKPVHSLGRLE SLLARTVAAI RPADAQALAAAHQRQQ\|LTKPEGSLGQL E




PDLLEARVAAEERQRDLTKPAGS LGRDE $D \square S S F D \frac{L}{P} A L A A R$ L R A A V D S K T K P L G A L G R L DAALAARLQHKLDRKTKPAGSLGRI E NWYLD GVVAPSEKHRNKALAAWQNQLTKPAGSLLGRLE D R I T R A I TP P S E P WR QKARVVRLD TL T K P L G S L G R L E $L D Q F R A Q L A E T P G V D A Q A E T A A A E R N G Q L T K P P G S|L| G R \mid E$
UniRef90 Q3IK32 UniRef90-UPI00036F50E8 UniRef90_D5UXQ8 UniRef90_R0D637 UniRef90-U3GVX6 UniRef90_UPI0003B30CBC UniRef90_R7JRT4 UniRef90_D3PLB9 UniRef90_Q5P2R4 UniRef90_UPIO00479BBA7 UniRef90_F9UGV6 UniRef90-X8K2A6 UniRef90_UPI000347916D UniRef90_UPI000422DA75 UniRef90_UPI0003762144 UniRef90_UPIO004666B84 UniRef90_U3AB70 UniRef90_S6GPK6 UniRef90_D5P723 UniRef90_R6FVX1 UniRef90-A4G3Q0 UniRef90_U2SDZ5
UniRef90_R8W562 UniRef90_I9BT34 UniRef90-D3SAA3 UniRef90_C7LWF8 UniRef90_R8B156 UniRef90_F8EZB2
UniRef90 E8LP81 UniRef90_A1UIA3 UniRef90_H0C1F1 UniRef90-I2B7U3 UniRef90-A1WY56 UniRef90_R5HZ67
UniRef90_L1LSR6 UniRef90_R5BN69 UniRef90_Q210A3 UniRef90-F2NMY3
UniRef90- F9ZZM0
UniRef90-F9ZZM0
UniRef90-A5D3Q8 UniRef90_UPI0002E8CDFE UniRef90_UPIO00363B27C UniRef90_R5RKB4 UniRef90_A1JTP8 UniRef90-A0A022LKX8 UniRef90_V4L5L9 UniRef90_X0RS78 UniRef90_F7V369 UniRef90_UPI0004701848 UniRef90_UPI00037D7415 UniRef90_A3QAT8 UniRef90_E8X1C8 UniRef90_UPI00046EB2F2 UniRef90_M0QM62 UniRef90_LONEA5 UniRef90-W2C1Q9 UniRef90_A4XT55 UniRef90_UPI000467AF7A UniRef90_B1HRH7 UniRef90_G8QSJ9 UniRef90_UPI000255E29C UniRef90-K7RLE7 UniRef90_UPIO003826AEB UniRef90_UPI0004682BD0 UniRef90_UPI00035F3835 UniRef90_R5DS80 UniRef90-J7TR53 UniRef90_V5SD79 UniRef90_SOIUS6 UniRef90_UPIO00412C63C UniRef90_Q9KSL9 UniRef90_F3KV44
UniRef90_X2K2U9 UniRef90_UPI000372B2EA UniRef90_F4AQY7 UniRef90_UPIO0047A6509 UniRef90-V5XG03 UniRef90_Q6G3G3 UniRef90_R6PZT5 UniRef90_UPI00025584A7 UniRef90_D4MAX5 UniRef90-UPI00036F5245 UniRef90_B8K5W7 UniRef90_UPI000377AAF0 UniRef90_R5TMR3 UniRef90-V9X9Z9 UniRef90_Q8XWS3 UniRef90_F5Y652 UniRef90_UPI0003B6FCFA UniRef90_B7QYV1



 E L A L K MY MA S G GAAAP QADPA RI Y TVVA G D H G VVCA E GVV A F P

 AL AL QL GLI QQTAAPRI RQPHVLVFAGDHGAARAGI SAFP
 E M S I R L A Gl T G K VV N MVV N Q AVV L M C A D N G V V E E GVVA S A P A LA L Q G R V Q Q S L T P C L S Q P QVVVVFA G D H GI ALDE GV S A Y P EL I CKKI A A I QRTVEPRAAKRVVSVI FCACNGIVVEE GI S Q S D $P L S V R L A G L F G A C P P P D P E P A A V V F A G D H G V H A Q R V S P W P$ EIVVEWLAAWQGSAEPRI ERPLVAVFAGNHGVTAKGVSAFP
 DLSAWIASSCQGHCPPQFERARVVVFAGDHGVARSGVSAYP
 $T$ L A R Q I GLI QQTVQPNIVAPALIVCAGDHGVVEENI SAPP $T V V E N V A A L T G S A A V D F S H R A L L V L C A D N G V V A Q G V T Q S P$ DAIVQIA GI QHQAHPKISQRSVAVFCADNGVVAQGVTQCG A LA R Q I GLI R N T L T P D L V R P A MLVV FA A D H GIVA D T GV S R F P A I A E R L A A M Q GVVS Q P M L E R A H I TVV F A G D H GVV A E GI S R F P

 QLAHQLALIQQSNAKVEINQPTAIVVAGDHGI ADEGVSIAP ELSVWVSACQGVCPPRFSRPRVVVFAGDHGVAGAGVSAYP A L A L RL G Q L LGTDTPA LS QP QMVV FAGDH GLAARGVSAFP S L A I QL A GMWR G QV S K P A H K A I L V M C A A D H GVVYEE GV A V S P EI AI QL A GLQQTAHPVVDPVQI TILFAGDHGIAKDGVSAFD GLLARIGAI LGSPEDDIAKKAVIVMCADNGVVAEGISSQS
 DLAVQLGQDRHPGEPRGDNAVLLVFAGDHGLTEEGVSQFP



 QLAI QLA GMRGLYGHQVDRKQI I VMAADHGVYDEGVA I S P E I GVWWISACQETCPPPLDRARVVVFAGDHGVATNGVSAFP
 D L L V Q il A Gl Q R D P R I S I R K K G L V I M C A D N G V V E E G V T Q T G

 DLAA QL A T L G L T DLLRKAA WV FAA D H GI A A E GVVA Y P $P$ L A A QL A A VLGGQU

 $Q L A L R\|G Q\| L G T E S P R L E Q P Q M V V F A G D H G L A A R G V S A F P$

 GLAARIA AIQ GTTTPRVDSPVVLVCAADHGIARAGVSVYP ALS S RLAGMSGQVPVPVPSRPVVLFAGDHGVWAQGVSPDP
 A L A L Q L G R I Q A T D E L V I R R P V M L V F A A D H G I A A A G V S I A P ALA YQLACI Q T A H QKTFERAAVLVFAGDHGIAEHGIISIVP DI IVKIIA G IVQNTEHVDDSKKALVIMCADNGIVEENVSQS G

 $S N L I$ Q I A G I Q R T G Q I H L G K K A L VVV M C A D N G VVVA E G V T Q T G $D L G V W L S A C Q G Q V P P P L E D \square R L V V B A G D H G V A S G G V S A Y P$ $R V A H H L A L I Q S Q N Q D Q I H Q P T V L V F A A D H G I A A Q G V S \square A P$ $T L A L Q L G L I L G G E A P E L R A P Q M L V C A G D H G L A A R G V S A F P$

 DLA L QA GLLVQQQSLEPRLSSRPHLLVFAGDH GAARA GVSAYP A L S V WV S A CQ GLLCPPQRFRARVVVFA GDHGVAQA GV S A FP EIAVWYAGWRGAEKPVVTQPLVAI FSGNHGVIEENVTPFP

 DVGVRLAGLAGHCPPPLPEPAAVVFAADHGVHAQGVSPWP ALA HQLALNQSQSKPDIKTPTAVVFAGDHGIAEEGVS $\square$ A P $T L A L Q V G R I Q N T L T P E L R N P T I L V F A G D H G I T E E G V S P Y P$ $M$ M I A GI Q R T G DVVHID R K A L V I M C A D N GVVVE E GVVTMC G S L GCWV AACQ GEVPPHFRRPRVVVFAGDHGVARNGVSAYP
 AL A L QL GL V L G CETPR L REP QVLVVAGDHGLAARGV SAYP


UniRef90 Q31K32 UniRef90-UPIOOO36F50E8 UniRet90-D5UXO8 UniRef90-ROD637 UniRef90_U3GVX6 UniRef90-UP10003B30CBC UniRefefo-R7JRT4 UniRef90-D3PLB9
UniRef90-Q5P2R4 UniRef90-UPIOR0479BBA7 UniRef90-FgUGV6 UniRef90-Х8К2А6 UniRef90_UPIO00347916D UniRet90-UPIOOO422DA75 UniRef90-UPIOOO3762144 UniRef90-UPIOOO4666B84 UniRef90_U3AB70 UniRef90_S6GPK6 UniRef90-D5P723 UniRef90-R6FVX1 UniRef90-A4G3Q0 UniRef90-U2SDZ5 UniRef90-R8W562 UniRef90-19BT34 UniRef90-D3SAA3 UniRef90-C7LWF8 UniRef90_R8B156 UniRef90- F8EZB2
UniRef90 E8LP81 UniRef90-A1UIA3 UniRef90-HOC1F1 UniRef90-12B7U3 UniRef90-A1WY56 UniRef90_R5HZ67 UniRef90-R5BN69 UniRef90-Q210A3 UniRef90-F2NMY3
UniRef90- F9ZZM0 UniRef90-F9ZZMO
UniRef90
A5D308 UniRef90-UPI0002E8CDFE UniRef90-UP1000363B27C UniRef90-R5RKB4 UniRef90-A1JTP8 UniRef90-A0A022LKX8 UniRef90-V4L5L9 UniRef90-X0RS78 UniRef90-F7V369 UniRef90_UPIO004701848 UniRef90-UP100037D7415 UniRef90-A3QAT8 UniRef90-E8X1C8 UniRef90-UP100046EB2F2 UniRef90-M0QM62 UniRef90-LONEA5 UniRef90-W2C109 UniRef90-A4XT55
UniRef90-UPIO00467AF7A UniRef90-B1HRH7 UniRef90-G8QSJ9 UniRef90-UPIO00255E29C UniRef90-K7RLE7 UniRef90-UPIO003826AEB UniRef90-UPIO004682BDO UniRef90_UPIo0035F3835 UniRe990_R5DS80 UniReffo-JTTR53 Uniinefol-V5SD7 UniRef90-SOIUS6 UniRef90-UPIo00412C63C UniRef90-O9KSL9 UniRef90--3KV44

UniRef90-X2K2U9 UniRef90-UP1000372B2EA UniRef90-F4AQY7 | UniRef90-UPIOOO47A6509 |
| :--- |

 UniRef90-R6PZT5 UniRef90-UPIO0025584A7 UniRef90_D4MAX5 UniRef90-UPIOOO36F5245
UniRef90 B8K5W7 UniRef90_B8K5W7 UniRef90-UP1000377AAFO UniRef90-R5TMR3 UniRef90-V9x9z9 UniRef90-Q8XWS3
UniRef9- 5 Y652 UniRef90-F5Y652 UniRef90-UPIOOO3B6FCFA UniRef9O_B7QYV1


F7A




90
100
100 110
120
SEVVIT A QMVANF
A G GAAI NIFCQQLGWQL E|VV|DCG\|L E QEVTRQMVANFL NGGAGINVLARTVGAELVVVDAGSCGE
 TEVSLDQMAAN I R A G GAGDNADGSASGATVVVVDVSLDH D

 S EVVT A QMLLDNFRAG GAADNQIA RAA DA QVVVLDVGINS P Q DVVTWQMVVMNF L G G GA A V N VLLA R D Q G L A V R V V V D A GVVN K S I T K A
 S E V $\operatorname{T}$
 QEVTAIVAEN MVKGDTSVVDNMAKCANVDVIPVDI GIAR

A EVTA VTEN
 QEVTRQMVANFVMNGAA NVLTRTAGVDLKVVDAGCVGK QEVTAQMI ANFAAGGGAAI SVLAKQLDASLEVVNDGTVGE

AEVTAQMVAN I SAGGAAI NALAEVAGAGVRVVDVAVDCD
SDVTWQMVENFLA G GAAVSVLARQHGLALTVVDCGVARD
KAVTADQALN MTRHNTGVCVLAAAAGAQVHVVDTGU D
QEITAAVTEN LGKRNTSVCKMAKAVGAEIVFVDI GVNTD
 AAVTVGMVMTYLAGRACANAAFAATNVEIRVVDAGVAAE PEVTRQMVRNFLAG GAADNQDARAAGAEVYVLDVGVRGE


 $R V V T M V Q A D N$ MVRGVTGVCVLAANAGAEVKDVDVGIDSD QEVTLQMADN IVGGGAAVSVLARAARATVRVADMSMAAE A QVTTQMVYNF DG GAAI NAI GTSAVGAAVRVVDMGVNAR QEVTA VAENFLDAN SCAAI MCRESGTDI FPID DGMAVD

## の $\downarrow$ の



## $$
0
$$ <br> 



## 











$\qquad$ ASGRAAVSILAHQADAQLVVADLGVVEP


UniRef90 Q31K32 UniRef90_UPI00036F50E8 UniRef90_D5UXQ8 UniRef90_R0D637 UniRef90_U3GVX6
UniRef90_UPI0003B30CBC UniRef90_R7JRT4 UniRef90_D3PLB9 UniRef90_Q5P2R4 UniRef90_UPIO00479BBA7 UniRef90_F9UGV6 UniRef90-X8K2A6 UniRef90_UPI000347916D UniRef90_UPI000422DA75 UniRef90_UPI0003762144 UniRef90_UPI0004666B84 UniRef90_U3AB70 UniRef90_S6GPK6 UniRef90_D5P723 UniRef90_R6FVX1 UniRef90-A4G3Q0 UniRef90_U2SDZ5 UniRef90_R8W562 UniRef90-19BT34 UniRef90-D3SAA3 UniRef90_R8B156 UniRef90_F8EZB2 UniRef90_E8LP81 UniRef90_A1UIA3
UniRef90_H0C1F1 UniRef90-I2B7U3 UniRef90_A1WY56 UniRef90_R5HZ67 UniRef90_R5BN69 UniRef90_Q210A3 UniRef90-F2NMY3
UniRef90-F9ZZM0 UniRef90-F9ZZM0
UniRef90-A5D3Q8 UniRef90_UPI0002E8CDFE UniRef90_UPIO00363B27C UniRef90_R5RKB4 UniRef90_A1JTP8 UniRef90-A0A022LKX8 UniRef90_V4L5L9 UniRef90_X0RS78 UniRef90_F7V369 UniRef90_UPI0004701848 UniRef90_UPI00037D7415 UniRef90_A3QAT8 UniRef90_E8X1C8 UniRef90_UPIO0046EB2F2 UniRef90_M0QM62 UniRef90_LONEA5 UniRef90-W2C1Q9
UniRef90-A4XT55 UniRef90_UPI000467AF7A UniRef90_B1HRH7 UniRef90_G8QSJ9 UniRef90_UPIO00255E29C UniRef90_K7RLE7 UniRef90_UPIO003826AEB UniRef90_UPI0004682BD0 UniRef90_UPI00035F3835 UniRef90_R5DS80 UniRef90-J7TR53 UniRef90_V5SD79 UniRef90_SOIUS6 UniRef90_UPIO00412C63C UniRef90_Q9KSL9 UniRef90_F3KV44
UniRef90_X2K2U9 UniRef90_UPI000372B2EA UniRef90_F4AQY7 UniRef90_UPI00047A6509 UniRef90-V5XG03 UniRef90_Q6G3G3 UniRef90_R6PZT5 UniRef90_UPIO0025584A7 UniRef90_D4MAX5 UniRef90_UPI00036F5245 UniRef90_B8K5W7 UniRef90_UPI000377AAF0 UniRef90_R5TMR3 UniRef90_V9X9Z9 UniRef90_Q8XWS3
UniRef90_F5Y652 UniRef90_F5Y652
UniRef90_K4KJW6 UniRef90_UPI0003B6FCFA UniRef90_UPIO003B6FCFA
UniRef90_B7QYV1

$$
\underset{y}{\mid}
$$

210
220
230
240

 IVGRGA GHLAHKLAVLERAAA RSDASPPLDVLAQFGGLE VGRGTGAWQRKVAAVRDAMFRAREKTSDPIAFARTTASPD $T G P G A G L V R R K I A V I E R A L A A N A E V G G D P F A V L A A D G G Y E$
 $T G R G T G L D D A G L A R K H R L L A Q R G G R P S D P L G A L A E Y G G F E$
 $V G R G G G L L S K K C K I V A E A V S K Y D \quad M P D P I R R A A A F G G Y D$ TGRGTGVLQRKQAVLARAAARTGVLREQPLQALAEYGGFE
 $T$ GRGT GMYDHKVEVVAADLEKHEPDPADP LVGLATVGGLVE TGRGTGVLARKNAVIDEALAFHAGHLSDPLEILRRLGGRE
 VGFGTGAWARKTAAVRDALFRARQVLPDPVALLRRGGGAA
 VGA GT GLVLHK QRVI E A A V T R H A A E S M E P L E V L A T FGGG E G G G A GL L R R KI EVI R R AI A V N R P D P E D P L DV L S K L G G F D T GRGAGLLHRKIAAIVKAIALNQPDPSDVVDVISKVGGFD

 VGPGTGLISRKSQVVDRALKRHGDN TDPLTVLASLLGGFE $V$ D R G T G I L A H K Q Q V I A Q A I K R H TPP F S S S P L D I L C K V G G Y D
 V GRGTGGWARKTAAVVDAMYRARTAAADPAALLADCGGAB
 $V G P G T G H D A S G V R R K A Q A V D D T L A L H R D P W E A G R R V G G L E$
 S GP GT GLLDA H K A Q V I
 $T G R G T G V D A A T Y R R K V L A V R R A V A R A E D P L E V L A G L G G L D$
 A

## T

 $V G R G T G G W M R K T A A B R D A M F R A S G D L D R D V G M L R R V V A G A D$

 V G A GT GL SAH K QR VI E A A V E K H A G A T A P L DV L A T F G GF E
 VGRGTGILARKQLLVE QALF LIHREQLGDPYGVLACLGGFE

 IV GPGTGQMERKDQAVKTAVEFHKDHLKDPLEVLRRLGGRE
 $T G A G T G L V A R K R A V L A Q A L A A N E G A V N P L D A L A A L G G F E$ $T G F G A G V I A H K A A V I D E K A I M L N Q P N P N D I I D V L A K V G G L E$ $T$ GKGS GI L L H K Q EVI EK A I A R Y P P T D D A L E L L A C L G GFE VGGGT GVLAA KVVMV DAVLAAHGDV EDPWDVLAAMGGLE TGRGAGADAHKISVI QRALDVNRPDASDPVAALAKVGGFE
 V GRGT GI L K R K CLL I E Q AL L L H H CE LT E P L SIL A CLLG GFE $V G R G T G Q L A V K L A L V K K G V V R A Q V N N D D P V A W L A Q L G G F E$ TGYGA GLL K N K T E TVV R K A C E M Y S G Y K D D A L K L L S C I G G L D
 TGKGAGRHQHKIGVVVRALQVNQPKAEHPVEALAKVGGFE $T G R G A G L L H R K I Q V I V R N A V A L H K P D P Q D P L D V L A K V G G L D$ VGRGS GGWKR KTAA R DAMF RVRGVRNDPMTVLRRRISSPD $V$ GRGT GITDE QYQRKRALVTQGRCLGAAPQDVLQQVGGFE TGAGTGGVVARKTEVVLREVLLKKHAPQA QAPDLDVLAVVGGFE
 $T G K G T G Q L A S K V Q L I D T A L E R H G T K A F T P Q T A L A E V G G F E$ VGRGT GLDDA GLLEKKRRLLAAAAARAGDPLAALAEFGGFE
 TGNSTGGDQRKDAAVETAMVSLHKHRFSDPFEIMRCLGGRE $T G R G A G L L A R K I H A I Q R G I A V N Q P D P D D A L D V L A K L G G F D$


 $V G K G T G L L A R K R E L L Q K A L N L H V G I Q D Q H A V L A T V G G F E$ TGRGAGLLQRKDHAIK QAIAVNQPDPEDPLDVLAKVGGLD VGRGTGVWMRKVTAI RDAMWRARPHVRNPVALLRTAGGAD
 $V G A G T G L D A D G G A R K R A L L G Q R H A D A K E P L Q A L A A F G G F E$ A GPGTGLVSHKARVIEQALNLH A QARDPVEVLRCDGGFE





| UniRef90 Q3IK32 | LS LP L L Q A A L G F Y N |
| :---: | :---: |
| UniRef90-UPI00036F50E8 | C A LFLLRSACDワF NE |
| UniRef90-D5UXQ8 | L A L P I V R S AVAVL |
| UniRef90-R0D637 | LA L P I V R A A SRLL GE |
| UniRef90_U3GVX6 | T A L P L V K L S A NI L C D |
| UniRef90-UPI0003B30CBC | CALLFLL R S A A DI F N |
| UniRef90-R7JRT4 | MLLFPILDQANAVYR |
| UniRef90_D3PLB9 | LS F P I L R A A A SVM |
| UniRef90_Q5P2R4 | L A F P L V Q A A N FLL D |
| UniRef90_UPI000479BBA7 | L VWPLL V S A C A IL L E |
| UniRef90-F9UGV6 | $V \mathrm{AVP} \mathrm{L}$ L R L A C A L H Q Q |
| UniRef90-X8K2A6 | I A FKI MEAACAVMNE |
| UniRef90_UPI000347916D | LA Y GLVRAAVAFL L , |
| UniRef90_UPI000422DA75 | MLFPPLIDVVLDYY |
| UniRef90-UPI0003762144 | LA L P V V A A A V R V L H E |
| UniRef90_UPI0004666B84 | $L A \backslash G V V K A A L A$ |
| UniRef90_U3AB70 |  |
| UniRef90_S6GPK6 | 1 CVP L L Q M A CKLLHA Q |
| UniRef90_D5P723 | L A L P V L R A A |
| UniRef90-R6FVX1 | AIIPLLDMALSVYGN |
| UniRef90_A4G3Q0 | LA L PLL H A SVNFLHE |
| UniRef90_U2SDZ5 | A A I PL L D M L A |
| UniRef90_R8W562 | A A I A L L L A F AVY |
| UniRef90_19BT34 | LA WP L V Q SAACMLNE |
| UniRef90-D3SAA3 | T A VPL L R L A C E L H |
| UniRef90-C7LWF8 | MAI FI L R S A A NLY |
| UniRef90_R8B156 | VAVPLL R A A CALLHNN |
| UniRef90_F8EZB2 | L A GY I I E L A VK |
| UniRef90_E8LP81 | LS MPLVRAA A E F Y N N |
| UniRef90-A1UIA3 |  |
| UniRef90-H0C1F1 | LA WP L L S A C A |
| UniRef90-I2B7U3 | LA MQLVDA A CAMYS Q |
| UniRef90-A1WY56 | T A V P L MRMACAIIH N |
| UniRef90-R5HZ67 | MMFSLLD I A M T |
| UniRef90_L1LSR6 | L A VPrLL R L A CD |
| UniRef90_R5BN69 | I QMGML DLA V V R MYQE |
| UniRef90_Q210A3 | L A V/P L L A A A R L LT D |
| UniRef90-F2NMY3 | LAFPLLRAAAEV |
| UniRef90-F9ZZM0 | M A VPVLQ M A CRLHN |
| UniRef90-A5D3Q8 | LT M HLVEAATRIIR |
| UniRef90_UPI0002E8 | LAFPPLLEAATAML |
| UniRef90_UPI000363B | LA LIFLMRCACNTYNQ |
| UniRef90_R5RKB4 | AI Y PLLD MAMA |
| UniRef90_A1JTP8 | LAMMHLVDAACAMYNN |
| UniRef90-A0A022LKX8 | A A L P TV H A A $\square$ A V L T E |
| UniRef90_V4L5L9 | WAFPLID |
| UniRef90_X0RS78 |  |
| UniRef90-F7V369 | A L F P L L D L A A V V H |
| UniRef90_UPI0004701848 |  |
| UniRef90_UPI00037D7415 | LA L P L L H A A V NFE L N |
| UniRef90-A3QAT8 | LAVPLVQAAATEYN |
| UniRef90-E8X1C8 | L A MPILEESALLALYT Q |
| UniRef90_UPI00046EB2F2 | LA YPLI EAAANFYNQ |
| UniRef90-M0QM62 | L A L P AV G A A VD $\square$ LS |
| UniRef90_LONEA5 | LAAG 1 VKSAAACHS |
| UniRef90-W2C1Q9 | I AFKTMEAACAAMD |
| UniRef90-A4XT55 | L A VP L L R L A C S L |
| UniRef90_UPI000467AF7A | L A WPLLQ S A C A |
| UniRef90-B1HRH7 | L A F PLLDAA CSMMKN |
| UniRef90_G8QSJ9 | V A WPI V A L A S |
| UniRef90_UPI000255E29C | \|LA I P L I R S T L A L L Q |
| UniRef90_K7RLE7 | LA LIP I I Q A S A HIL L E |
| UniRef90_UPI0003826AEB | LA YP L L Q S A CAI M K E |
| UniRef90_UPI0004682BD0 | L A LP L V Q A A A NFY N Q |
| UniRef90_UPI00035F3835 | $L A \vee P \mathrm{~F}$ I Q S A A A F Y N |
| UniRef90-R5DS80 | MVFP L L D M A M S VY N E |
| UniRef90-J7TR53 | LAMSVINAACSMY |
| UniRef90-V5SD79 | V A L S V V R L A C A L H GE |
| UniRef90- F9NWB4 |  |
| UniRef90-S0IUS6 | A LFP L L D M G L D |
| UniRef90_UPI000412C63C | TAVPMLH H A V A I M R D |
| UniRef90-Q9KSL9 | LALLGLVRAAVEFYNH |
| UniRef90_F3KV44 | L A WPLLVSACTVLR |
| UniRef90-X2K2U9 | L A M P V I Q A A A A FLR |
| UniRef90_UPI000372B2EA | LA WPLLDSACRVLA |
| UniRef90-F4AQY7 | L A L P L L Q A A A S F Y D |
| UniRef90_UPI00047A6509 | LA YPLLQSALLAFLLNE |
| UniRef90_V5XG03 | $\vee A L P V L R A A V A T L$ |
| UniRef90-Q6G3G3 | M A A GIVKA AVLTHA Q |
| UniRef90-R6PZT5 | A A $\quad$ Pl L WD M A L AVYR N |
| UniRef90_UPI0002558 | TALLPLLRMACAL HAE |
| UniRef90_D4MAX5 | \AAMQIVD D ALLTVMNE |
| UniRef90_UPI00036F5245 | L A L P L V Q A A RV |
| UniRef90-B8K5W7 | $L A \cup P \mathrm{~L}$ I R A A A E F Y N N |
| UniRef90_UPI000377AAF0 |  |
| UniRef90_R5TMR3 | ALFP 1 |
| UniRef90_V9X9Z9 | T A L P V L Q G A |
| UniRef90_Q8XWS3 | LA Y P L V V S A V A F L R |
| UniRef90_F5Y652 | LA WPLL Q S A CAIL E Q |
| UniRef90-K4KJW6 | V A VPPL V R L A C D L H N |
| UniRef90-UPI0003B6FCFA | LA MPI I E SAVAL Y T Q |
| UniRef90-B7QYV1 |  |

UniRef90_UPIO002F727EF UniRef90-A4QFR5
UniRef90-V5BRN2 UniRef90-U5E3X2 UniRef90-UPI00047AC2C5 UniRef90-R7MZ11
UniRet90-F5RGG9
UniRef90-D3NRW5
UniRef90-B2UM55
UniRef90-U2MWK5
UniRef90-FOJ703
UniRef90-R5HA89
UniRef90-D7A652
UniRef90 R9J9P1
UniRef90-K6XDM0
UniRef90- S9NUB5
UniRef90-UPIO004767E6C UniRef90-V21E11 UniRef90_UPIO0047C3337 UniRef90-Q2J8A5 UniRef90-A0A058ZKG3 UniRef90_U1JG03 UniRef90-R51019 UniRef90-Q1NTL9 UniRef90-H8G9P6 UniRef90_Q89Q54 UniRef90-A0A059KH97 UniRef90-H6LGZO UniRef90-F4F690 UniRef90-D6Y4T8 UniRef90-UPIO0040A87E0 UniRef90_UPIOO0476D0E2 UniRef90-H6SJL4 UniRef90 V5AG25 UniRef90-W6MDF4 UniRef90-UPI00042623DA UniRef90-UP100046EC5CD UniRef90-UP10002F70DB7
UniRef90-UPIOOO237EDFO UniRef90-UP1000237EDF0 UniRef90_B7RGH9 UniRef90-10IPE7 UniRef90-W7WMN7 UniRet90_WOB129 UniRef90-H8FT68 UniRef90-UPI0003B51098 UniRef90-UPIO003B449B8 UniRef90-B6IPQ5 UniRef90-K4QZR3 UniRef90-Q9RYR8 UniRef90-UPIOOO35E1527 UniRef90-D7BJ60 UniRef90-D9VGE5 UniRef90-UPIOOO3B56893 UniRef90-E1R819
UniRef90-D5ST98
UniRef90-Q1GJ55 UniRef90-F5YL98
UniRef90-ETGLN5
UniRef90
R7NC28 UniRef90-R5GYV3
UniRef90-M1F6E9
UniRef90_UPIOOO40B2219
UniRef90_J4UWNO UniRef90-A0AO31K065 UniRefifo-U2S2FO UniRef90-R7AKS1
UniRef90 UPIOOO3B562BF UniRef90_UPIO00477B35E UniRef90-TOHV44
UniRef90-E31382
UniRef90-Q07JW2
UniRef90_UPI00037218EB UniRef90-A0A0241HE6 UniRef90 W8F750 UniRef90_UPIo004676505 UniRef90-14YN98 UniRef90-UP100039A44CC UniRef90 UPIOOO35D8A16 UniRef90-A3PIN5 UniRef90-KOBOU8 UniRef90-Q60BK3 UniRef90-A0AO14P065 UniRef90-B7ISD2 UniRef90_U3BLST UniRef90- W2BTGO
UniRef90 UniRef90-G5GLK4 UniRergo_USGLK4
UniRef90_UPIOOO3099B87
$\square R A L V R$
 NI QRPDESAAKAALEHQKILAKPPLALGKLE
D $\square R A R$ A MPAADPSIAAARVRQDNLTKPPGALGRLE
 QMPGPDEEARAAAAARQGQLVKPPGALGRLE
$N L Q E P D C K I V K V L K N W D S I K K P L D G M G R F E$ MLLVDETDAAVAPVDEAARAACDEHQDRLTKPAGSLGELE


D पTT T $\|$ SA A 1 PPWSDAAAE APLEKNFAMQ【KHK DDLKTKPLGALGKLE MTTTRSLVQPVAPLSAEARQQAAARQGQLAKPAGSLGRLC

## N

M MTMLETTIAAGQPRDEAMMSTARQLQTRLTKPAGSLGLLE


KVKK OKEMKDAKKRWDRLS
DTEALEAATRONSLT

ALDQAMDNKT
SLDQKTLAA
evedavt

## MNTLD

 D

पSDFRNALAQAPGADADARAA ENDRDKMEAHDDDL LLEEQCGR VPADKEAERAAAFRFSKJA LERLSNQLSKKASSKDSVQKAHSHWNGIAKPLHGLGLME MSLLNRTLTATEPASSHFLELDADQRQNTLTKPAGSLGQLE
 ELEGTLGRPEPDEASRTAALNRQARLKPTGALGRLE ELLEGTDGR VPVDEDARERALAWQDDLTKKVPGASLGDL E


WIVPDVAPPRSETFRRALQRQAELTKPAGSLGRLE MSTVIPDVASIE EDAFAAHVQGLLDVKTKPVGSLGVL E
 ELIFHTTK QTVPVDRSYSAFVQHRIDQKTKPPGALGALE DWUNSECPAPSGAHRESALARQAQLTKPDGALGRLE



UniRef90 UPIoo02F727EF UniRef90-A4QFR5 UniRef90-V5BRN2
UniRef90 U5E3X2 UniRef90-UPI00047AC2C5 UniRef90-R7MZ11 UniRef90-F5RGG9 UniRef90-D3NRW5 UniRef90-B2UM55
UniRef90 U2MWK UniRef90-FOJ703 UniRef90-R5HA89 UniRef90-D7A652
UniRef90-R9,9P1 UniRef90-R9.9P1
UniRef90 K6XDM0 UniRet90-S9NUB5 UniRef90_UPIO004767E6C UniRef90-V21E11 UniRet90_UPIOOO47C3337 UniRef90-Q2J8A5 UniRef90-A0A058ZKG3 UniRef90_U1JG03 UniRef90-R51019 UniRef90-Q1NTL9 UniRef90-H8G9P6 UniRef90-Q89Q54 UniRef90-A0A059KH97 UniRef90-HELGZO UniRef90- F 4 F 690 UniRef90-D6Y4T8 UniRef90_UPIO0040A87E0 UniRef90-UPIO00476DOE2 UniRef90-H6SJL4 UniRef90-V5AG25 UniRef90-W6MDF4 UniRef90-UPIO0042623DA UniRef90-UP100046EC5CD UniRef90-UPIOOO2F70DB7 UniRef90-UPIo00237EDF0 UniRef90-W1J2R5 UniRef90-B7RGH9 UniRef90-10IPE7 UniRef90-W7WMN7 UniRef90_WOB129 UniRef90-H8FT68 UniRef90_UPI0003B51098 UniRef90_UPIO003B449B8 UniRef90-B6IPQ5 UniRef90-K4QZR3 UniRef90-C1D6G7 UniRef90-UPlooo35E1527 UniRef90-D7BJ60 UniRef90-D9VGE5 UniRef90-UPI0003B56893 UniRef90-E1R819
UniRef90-D5ST98 UniRef90-Q1GJ55 UniRef90-F5YL98 UniRef90-ETGLN5
UniRef90
R7NC28 UniRef90-R5GYV3 UniRef90-M1F6E9 UniRef90_UPIO0040B2219
UniRef90_J4UWNO UniRef90-A0A031K065 UniRef90_U2S2FO UniRef90-R7AKS1 UniRe990 UPIO003B562BF UniRef90 UPIO00477B35E UniRef90-TOHV44
UniRef90-E31382 UniRef90_Q07JW2 UniRef90-UPIOOO37218EB UniRef90-A0A0241HE6 UniRef90 W8F750 UniRef90-UPIO004676505 UniRef90-14YN98 UniRef90-UPIOOO39A44CC UniRef90 UPIO0035D8A16 UniRef90-A3PIN5 UniRef90-KOBOU8 UniRef90-A0A014P065 UniRef90-B7ISD2 UniRet90_U3BLSS UniRef90- W2BTG0
UniRef90 A4YXK4 UniRef90-G5GLK4 UniRet90-UPIooo3099B87 UniRe90_U1H810
 Q| GCFISACQGQDPPPLNNKIVVFAGDHGVATKGVSAYP QLADQLAGMRGFDKMLATRKQVMVMVADHGVYAEGVAVSP DIAVKLAGTTGHVKNRMGCKKILVFCADNGVTAEGVVASAP ALTAQ GAILGTEVLDLSKKAVLIFCADNGIVEEGUSQSG ALALQUGQVLGSTAPEPGTPHLLVCAGDHGTLRRGLSAYP EIAQWMATWQGQHPAEVRRPRVAVFAGNHGVAARGVSAYP PVA RRAGMTGNPAPRLKDKA VLFAADHHIADHGLS LTS ELAMQICLVQHTLSPALHRPHHLLLAGDHGITDEGVSVSL ELAIFMAGWQGRARPVLDRAQVVVFAGNHGICRQGVNPFP EAIVRTAALTGTAEVCLKNRALVVLCADNGVVSQGVSQSD EAFIAGWQGREDPQNRPTVAVFAATHGVAARGVSPYP
 EVAVKLAALQGTPGPRSRPAAALLFASDHAVTRHGVSPYP PLASRLAGLAGTCPPPLLEPAALIFAGDHGIHAQGVTPWP SLALQI GLIQRTAQPVLRRPAMIVFAADHGI ADAGVSAYP DAAVKLAGMQDSVSIQADPAEVLLFAGDHGVAAAGVSPYP DLSWLAGAQATCPPRPFRDRAVVDAGDHGVAQAGVSAFP ELAAFMATWQGVDCPKDDTAQAVVFAGNHGICAQGVNPYP HVAYQVVSTFAEARFEITAPQLIVFAGDHGVAAQGVSDAP DLITQIVGITGEVKDDIGKKALVAMCADNGVVEEGVTQTG ELALVLAAMQGSAQPRLQKAGIAVFAGDHGVMDEQISAFP ELAAWLCGAHGTVPPPLDDVRVAVFAGDHGVSAAGVSAYP QLA TELAGLQATEQPRAARVPIIIFAGDHGIVAQGVSAYP SLALTLARI QGRERPQLQHPQMVVFAADHGLAARGVSAFP ELAVQLAGITGEMYPDVSKKAMLVFAADHGVFEEGVAAAP DVAVRLAGMAGACPPPLPAPAALIFAGDHGVHARGVTPWP ELDCRIAADQHNVDAKVSKRVAVIFCADNGVVEEKVSQSD DVACWFAARQGKEVPDSLRPHVSVFAGDHGVVEEGVSAFP DLALWLAGWQGRHPPTMKTPRAHVFAGNHGVALWGVSAYP QLGVQLGQLLGTTKPELHAPQMVVFAADHGLTARGVSAFP ELGTWAAMQATQHPRIDKVWISVFAGDHGVTAEGVSAFP QLATQLSGMSGDADDANLNKEIIVMCADHGVFDEGVAVTP QCAMQLVTVFSQNTPSDSKPTLLVFAGDHGVAAQGVSIAP ELARWAGRWQHTDRPRAERVDI IVFAGNHGVTAQGVTPWP TLATQLAGMSGDNSLQDLQKEIIVMCADHGVYDEGVADSP DLAVFMAGWQGRAVPEDGKAQAIVFAGNHGICAQNVNPFP
 SLALQI SGMWGUKQLNNLQKEIIVMCADHGVFDEGVAVSP DLSGWLSTWQGRHPPRLDAPCARIFAGNHGVAALGVSAFP TMA RLAADQRREQPRAERDADTVFAADHGIAARGVSAFP S AI WYAGWRGTPRPQDAPQVIIFAGNHGVAARGVSAFP DIVRLAALSGTCPPPLPEPAAVVFAADHGVHAQGVSAWP TLACRFAAWQGLA DPRRLQPAITVFAADHGVCCEGVSAYP ELSVRLAGVFGTERPEPRGAAVLVAAGDHGVAAEGVSAYP TLAIALAALQATERPRATNAPIILFAGDHGVTAQNISAFP ELSVRLAALQRSGRPELGQGAVIVCAADHGVAAEGVSAYP ELGVWIASCQGQAPPPFTRPRVVVFAGDHGIAKKGVSAYP DLAVFMAGWQGRGRPRIDRAQALVFAGNHGVVAQGITPFP DLAFELCR】QQTLRPVSSPRKLIVFGGDHGVISEGVTAWP EIA WYGSWRGTARPEVRAPQVIVFAGNHGVTARGVSAFP SYCIKMAEDQGKVPPRVEKKGVYVFASDHGIVATGVSGYP EDIIKIAGMTGSAAVKLDKKALIIFCADNGVVEEGVTQTGG DALDRIAALTGSADIDLSVRRLYLMCADNGVVAQNVTQTG A ATQLASMQGSELPTADKGH, I FAGDHGVCAEAISAYP DLLLKYLADTGEMHPAAPDKCTVICCASHGVASEAVSAYP DDAVFMAGWQGSERPEADPVQAVVFAGNHGVTAQGVSAYP
 DLAQRLYAMSGGQAP\|VSPAIMLTVAGDHGVADQGVSPFP ALAVRLAALQGRERPQLDTVWISVFAADHGVAAEGVSAFP
 ELALQLGQISAPVPPRSGPAVLMVFAGDHGLTQEGVSQYP EI AAWVAAWQRRAEPEDQAPMVAVFAANHGITEQGVSAYP ALAQRLGATQGTATPRLHQPQMLVCAADHGLAARGVSAYP GLARQI CLIQQTLTPTLHQPHLLVFAADHGIAREGVSKYP TLALQI ALIQRSDTPRILCPTLVVFAGDHGVTAQGVSPFP RIAEWLAAWQAKPTPTVDRPLVCVFAASHGVTAKGVSAFP ELAVRMAGFQGSERPSADRVGIVVFAADHGVAARGVSVFP DVSVQLA GLAGECPPPLPEPAAVVFAADHGVHAQGVTPWP LA
DLAARLAAMQGSGRPSLERVWISVFAADHGVAEGVSAYP QLAHRLACILGSDAPVLEAPQMVVFAADHGLAARGVSAYP K AYQi A GVRGDTQDDDFKKSIVIFAGDHGIASKHVSDFK ELDCRIAAI QETETPVISKRAAVIYCADNGIVEEGISQSS RLAHQLALI QSQTEDQVHNPIVLVFAGDHGVADEGVSDAP VVGEQLSA SGQCPPPLPLPRTClVFAGDHGVQAQKVSPWP EVAVELAALQAAEKPAAERVPVVLFAGDHGIAAQGVSAYP DVLFRYISITGERHPAPPQTSVVISCADHGVAAESVSAYP EIAAWVAGWQGKGRPSVARPLVCVFAGNHGVVRHGVSPYP
EVADWLARWQRELPRLDHVTIAVFAGNHGIVERGVSAFP

UniRef90_UPIO002F727EF UniRef90-A4QFR5 UniRefofo-V5BRN2 UniRef90-UPI00047AC2C5 UniRef90-R7MZ11 UniRef90-F5RGG9 UniRef90-D3NRW5 UniRef90-B2UM55
UniRef90 U2MWK UniRef90-U2MWK
UniRef90 FOJ703 UniRef90-R5HA89 UniRef90-D7A652 Uninefono-R9J9P1 UniRef90-K6XDMO
UniRef90-S9NUB5 UniRef90_UPIOO04767E6C UniRef90-V21E11 UniRef90-UPI00047C3337 UniRef90-Q2J8A5 UniRef90-A0A058ZKG3 UniRef90_U1JG03 UniRef90-R51019 UniRef90-Q1NTL9 UniRef90-H8G9P6 UniRef90_Q89Q54 UniRef90-A0A059KH97 UniRef90-H6LGZO UniRef90-F4F6900 UniRef90-D6Y4T8 UniRef90-UPIO0040A87E0 UniRef90_UPIO00476DOE2 UniRef90-H6SJL4 UniRef90-V5AG25 UniRef90_W6MDF4 UniRef90-UPIO0042623DA UniRef90_UP100046EC5CD UniRef90-UPIO002F70DB7 UniRef90-UP1000237EDF0 UniRef90-W1J2R5 UniRef90-B7RGH9 UniRef90-10IPE7 UniRef90-W7WMN7 UniRet90_WOB129 UniRef90-H8FT68 UniRef90-UPI0003B51098 UniRef90_UPIOOO3B449B8 UniRef90-B6IPQ5 UniRef90-K4QZR3 UniRef90-C1D6G7 UniRef90_UPIOOO35E1527 UniRef90-D7BJ60 UniRef90-D9VGE5 UniRef90_UPIO003B56893 UniRef90-E1R819
UniRef90-D5ST98 UniRef90-Q1GJ55 UniRef90-F5YL98 UniRefoto ETGLN5 UniRef90-R5GYV3 UniRef90-M1F6E9 UniRef90_UPIOOO40B2219

UniRet90_J4UWNO UniRef90-A0A031K065 UniRefifo-U2S2FO UniRef90-R7AKS1 UniRef90 UPIIO003B562BF | UniRef90-UPIOOO477B35E |
| :--- |
| UniRef90 | UniRef90-TOHV44 UniRef90-Q07JW2 UniRef90-UPIO0037218EB UniRef90-A0A0241HE6 UniRef90-W8F750 UniRef90-UPIO004676505 UniRef90-14YN98 UniRef90 UPIOOO39A44CC UniRe990 UPIooo35D8A16 UniRef90-A3PIN5 UniRef90-KOBOU8 UniRef90-Q60BK3 UniRef90-A0AO14P065 UniRef90-B7ISD2

S A VVIT QQMIV ${ }^{90}$

## SAVSQMEN

|  |
| :---: |
|  |  |
|  |  |
|  |  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
| A F T ${ }^{\text {d }}$ |
|  |  |
|  |
|  |
|  | SGGAAIINCFCRIV/NNVAMKIV VDTGIIMNP NGGAAINVIARTTGTSVRLIDTSLDHE KGNTGVCVLAANAGAEVKVIDVGI B D


| REVTVQQALNM |
| :--- |
| $S E V T G Q M V A N F$ | AGGAAVNALAAVAGATVRVADISVAGD VSVTASQAVNATSGITGMSALAKNFGAEVVVVDVGVATE QEVTTAVVQ AMGRNASSVGKMSAKAGAVTIHIDDIGMSHK ADVTWQMVVNFLDGGAAIVVLAREGGMTLHVADCGVAHD TDVTYDQTRNFDQGGGTVINAFTRNAGARLSVVDVGVNYD RAVTWQQMVNF TRDGGGVNMFCRQHGFELMLIDMGVDHD ASVTRA VDAADGNQSSTVNYMAQKVNCQVVPVDLGVLD SEVTKQMVATFTDGKAAVNQ $C$ CGVFGAGLRVFDLALD QEVTAAMVAAQMGKGASSVGKMAAKIGADTIPVDIGVNGK PAVTGAMVENFLRG GAASSVLCRHLGVPLRVVDVGVMRP QEVTAQMLANFGAGGGAVNAFARQAGASVTVVDVGVAS QQVTTMMLENFAAGSAAVNVLAGTSGVPVTAVDVGSSGE SDVTAQMVSNFAAGGAAVNVLARQVGAAVRVVDVSVDTA QEVTAQMVANFEAGGGAAVNQLCAVNGAQLSVVALDLDRP

## 

$\nabla^{A}$
 QAGTGAVTVLAREVGARVRVLDIVIVAE ASGGAAISVLARELGSHLEVVDAGTLSQ
$\qquad$ AG GAAVSVLARQHGLALSVVDAGVKHE IA GKSGVAALSKQAGADVFVCDVGMVSD AAGGAVANAFANQVGASVTVVDVGVAAD GKGITSACILARSAKTTVIPVDIGIIDS
 SVVTGEMLKNFVAGGAAMNVLKQNGASLSVVDVGVQVD SDVTWQMVENFGAGGAAMVSVARQHGLALTVVDCGVRHD QAVTAEMVRNFSAG GAAISVLAGEWNARLEVVNVGTVAE KNVTAQQARNMQKGLTGVCALAKNSNTRVLPVDUGIDAD SDVTSQMVANFVSGGAAINVFCQQLGWQLEVVDCGTLHP
QAVTAQMVQNFKAGGAAI NQI CKVNGADLSVVDLELERP QVVTVEMVKNFANGGAAVNVLARQAGLELMVLDMGVNAD
$\qquad$ KGDTGVCVLARTNQTSVLPVDIGI D AEVTVQMVANF QHGGAAI NQLCRTFGVALDVVSI DLDRP

## 

$\qquad$
AGGGAAI SVLARALGASLEVVDVGSDND
 TRGGA AINVLACETGARLEVVDVGVAGV
$\qquad$ ADTGAAVSALARTLGAEVYVMDAGVNAD

A

 A G GA AVVVLARELGVPLVVIDA GTLAA | $G$ | $A$ | $A$ | $I$ | $N$ | $Q$ | $A$ | $Q$ | $V$ | $A$ | $G$ | $A$ | $E$ | $V$ | $Y$ | $V$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $G$ | $D$ | $V$ | $G$ | $V$ | $R$ | $A$ | $D$ |  |  |  |  |  |  |  |  |  |
| G A | $A$ | $N$ | $V$ | $A$ | $A$ | $A$ | $A$ | $A$ | $G$ | $A$ | $G$ | $V$ | $R$ | $V$ | $V$ | $D$ |
| $M$ | $A$ | $V$ | $D$ | $T$ | $E$ |  |  |  |  |  |  |  |  |  |  |  | EAG TQNG AKGKAASSALARMA

$\qquad$ G GAAIN QLA QLA DARMDVVHALELDR R P T K GE S C A C L M A E K A GA D V Y P V D A G G V A C E MA D G $\square$ S S V C R M A A Y A N A DV $\square P \vee N V G I A T D$ Q A V A A QMM DA N F A A G G G A A A C S R M A K K V E ETT LQMTKSY LIGQGAAANAFANFADSEIGIADFGIKAD PETTVNMMCNYLVAHGGAANAVANYANANDLVADLGVNAD

 | $K$ | $A$ | $V$ | $R$ | $Q$ | $M$ | $Q$ | $N$ | $F$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Q A | $V$ | $T$ | $A$ | $Q$ | $M$ | $D$ | $D$ | $N$ |

 S EVVTVAMVMTYAC A S V T R Q MVVENF S D \begin{tabular}{llllllllllll}
$P$ \& $E$ \& $V$ \& $T$ \& $Y$ \& $Q$ \& $M$ \& $V$ \& $E$ \& $N$ \& $F$ \& $L$ <br>
$Q$ \& $L$ \& $A$ \& $V$ <br>
$Q$ \& $S$ \& $V$ \& $T$ \& $A$ \& $Q$ \& $M$ \& $V$ \& $A$ \& $N$ \& $F$ \& $V$ <br>
\hline

 S E V N R Q ML L E N F 

$A$ \& $E$ \& $V$ \& $T$ \& $Q$ \& $M$ \& $A$ \& $N$ \& $F$ <br>
$Q$ \& $E$ \& $V$ \& $T$ \& $A$ \& $Q$ \& $M$ \& $V$ \& $A$ \& $N$ \& $F$ <br>
$P$ \& $E$ \& $L$ \& $A$ <br>
\& $V$ \& $T$ \& $V$ \& $Q$ \& $M$ \& $V$ \& $A$ \& $N$ \& $Y$ \& $R$
\end{tabular}

 CDGKA G GN DAAK G T DVVEVMVI DA G L K T P
 A G G A A V S V L A R Q H G L A L TVV D C GVVR D $V$ Q N G A A I NVFCR QH GUT L K I L D A G V A G S A G G A A I N AF C S A S D M H C A IV D V V I A N P A A GGAAINQDCAAYGLGFKVVDLAID A A G GAAVSVLANRLGASLRVVDVGSATD $A G \quad G A V V N A F A A Q V G A E V V V V D V G V A A D$
 $A G A A I V V A R Q \| G A V L E V V A G I A B P$
  S AVT S Q MVANF QTVTTEQMGTN P EVVTVQMLLHNF PEETTLNMMCNY
G S G
A G
A G GAA INCFCRVNQVAMKVIDDCILIP
A R G G A A I NVLSRHA GADVVVVNVGGLTK
A G G G A A I A V L A H S L G C P L EVVVDV G T LA D
$\square A R G G A A N A A A N Y A N A N L I V A D L G V N T E$


UniRef90_UPIOOO2F727EF UniRef90-A4QFR5 UniRef90-V5BRN2
UniRef90 U5E3X2 UniRef90-UPI00047AC2C5 UniRef90-R7MZ11 UniRef90-F5RGG9 UniRef90-D3NRW5 UniRef90-B2UM55 UniRef90-U2MWKS UniRef90-FOJ703
UniRef90-R5HA89 UniRef90-D7A652 UniRef90_R9J9P1 UniRef90-K6XDMO UniRef90-S9NUB5 UniRef90-UPIOO04767E6C UniRef90-V21E11 UniRef90-UPI00047C3337 UniRef90-Q2J8A5 UniRef90-A0A058ZKG3 UniRef90_U1JG03 UniRef90-R51019 UniRef90-Q1NTL9 UniRef90-H8G9P66 UniRef90-Q89Q54 UniRef90-A0A059KH97 UniRef90-HELGZO UniRef90-F4F6900 UniRef90-D6Y4T8 UniRef90-UPIO0040A87E0 UniRef90_UPIO00476DOE2 UniRef90-H6SJL4 UniRef90 V5AG25 UniRef90-W6MDF4 UniRef90-UPI00042623DA UniRef90_UP100046EC5CD UniRef90-UP10002F70DB7
UniRef90-UPIO00237EDFO UniRef90-W1J2R5 UniRef90-B7RGH9 UniRef90-10IPE7 UniRef90-W7WMN7 UniRef90_WOB129 UniRef90-H8FT68 UniRef90-UPI0003B51098 UniRef90_UPIO003B449B8 UniRef90-B6IPQ5 UniRef90-K4QZR3 UniRef90 Q9RYR8 UniRef90-UPIOOO35E1527 UniRef90-D7BJ60 UniRef90-D9VGE5 UniRef90-UPIo003B56893 UniRef90-E1R819
UniRef90-D5ST98 UniRef90- Q1GJ55 UniRef90-F5YL98 UniRef90-ETGLN5
UniRef90
R7NC28 UniRef90-R5GYV3 UniRef90-M1F6E9 UniRef90_UPIOOO40B2219
UniRet90_J4UWNO UniRet90-A0A031K065 UniRef90_U2S2FO UniRef90-R7AKS1 UniRet90_UPIOOO3B562BF UniRef90-UPIOOO477B35E UniRef90-TOHV44
UniRef90-E31382 UniRef90-Q07JW2 UniRef90-UPIOOO37218EB UniRef90-A0A0241HE6 UniRef90 W8F750 UniRef90-UPIo004676505 UniRef90-14YN98 UniRef90-UPIO0039A44CC UniRef90_UPIO0035D8A16 UniRef90-A3PIN5 UniRef90-KOBOU8 UniRef90-A0A014P065 UniRef90-B7ISD2 UniRef90-UPI0003B60ECF UniRef90_U3BLS1 UniRef90-W2BTG0 UniRef90-A4YXK4 UniRef90-G5GLK4 UniRef90_UPIOO03099B87 UniRef90_U1H810
 AWG DERVSRSCGSTDVEDAMTQEQVERALEIGKR
 FPLTAPI DDKKIRKGTGNIVCEPAMSMDECLCAILTGDEI
 FGDLPGLVKRKVMHGANDFSRGPAMTREQADKCLQVGDDM LTVYPTILNRKIARGTRNFDYGPAMTPAQFKQAIDTGASL FLGAPGVKNCRVRNGTGDFTEGPAMTEAEVLDAMVRGAAA MP EQDAGVLNKKVRCGTRNFSKEPAMTREETVRADFTGGGA LPQTPGLMHRKVAAGTADMTLGPAMTQEQCRQALEVGIDVV GESEHKVRPGTRDFSQEPALTRAEVDAALETGAABD PGAAPGLVDCRI DAGTRNFLDEPAMGRAQAEAALAAGAAR L VPGVRDRRIRRGTRNLAEEAAMTDGECRQAQEAGASE RPLTPGGVDYRVRRS
 PADLLG VVSRRGNGTR TT ARTD PGPLPGVVAVNLGCGTANFVQQPAMDQAQLAGALGAGYDS LDDVADVVARKVRRGSGADDVEDALTPGEAEQAFSVGRAV DEMLGGVTDRPRHGTRDFSVEAALTLAELAFAFEAGERA FAPRPGLISRKDGWGTADALQEPAMSLAECVAAMETGAGV
 VSALLGIIKHAKVRAG
a
RPFHQDAAMDEDEVIAAFNAGF
FANRAGLQVRKAAWGTADASVEAAMTPQQCQTALAHGQAL TV VTAIADLRSLKLAHGCGNIARGPAMSYQQAQQLLISSANL VTAASVH NCRLGSITKPLNTEMAMSTSQVQQGFNNAKQLL CEPDENLLS पk LUAR
$\underset{F}{\square}$ CEPMDNMLRNLKLAKG TADFT cVVPAGVVDARVAAG TADFTQGPADSEAEFAA AFQAGBDA TADFSRGPAMSAAQLEQALIAGHGA TADFTVEPAMTEADL1AALQTGWNA PDADAAPKRHRVRNGTADMTRGPAMSREEADRAVEAGDRV FDPALP VHAKVRAGSGNLLHEPAMSAEECAAALEAGRRA DP DPGVVTDKTRRGTRDFSVEPAMTAEECDAALGAGRRA DPAHERLIAARVRPGSGNLRLEPAMTRAQAEQALEAGMEA VD LSQVIGCKAGYGTRNFHEGPAMTAPEVSDAMARGVDA GALRHQRRDYWMLPG SR
LEVKPGCVRARVGNG LGTVHPLIDRKIRKG VGTYKGLVNKRVMSGT
 TAHUPGLLHRSUARG
DPEGER VNCRVAAG IA GVRVRKTQRG
 ASRAPGVRRAR
 fapragllvrkvapg FADYPTVIDQKIAPG MP YSVPEGVTLARAGRG


VT DLIQQGTNIVVIMF GEMG|I GNTSSASA\|IMAALLSQREVSEC ADQEVDAGADILTPGDLGIGNTTTAAALVGTFTLAEPVVV TLDEAAQGVKLFGVGELGMANTTSAAALVSVFTGSDPQDV AD
 VEM GVQLLADGEMG

UniRef90_UPIO002F727EF UniRef90-A4QFR5
UniRef90 V5BRN UniRef90-V5BRN2

UniRef90_U5E3X2 UniRef90-UP100047AC2C5 | UniRef90-R7MZ111 |
| :--- |
| UniRef90 | UniRef90-F5RGG9

UniRef90 D3NRW5 UniRef90_B2UM55 UniRef90-U2MWK5 UniRef90-FOJ703
UniRef90- $55 \mathrm{HAB9}$ UniRef90-D7A652 UniRef90-R9J9P1 UniRef90-K6XDMO UniRef90-S9NUB5 UniRef90-V21E11 UniRef90_UPI00047C3337 UniRef90-Q2J8A5 UniRef90-A0A058ZKG3 UniRef90_U1JG03 UniRef90-R51019 UniRef90-Q1NTL9 UniRef90-H8G9P6 UniRef90-Q89Q54 UniRef90-AOAO59KH97 UniRef90-H6LGZO UniRef90-F4F690 UniRef90-D6Y4T8 UniRef90-UPIIOOO40A87E0 UniRef90-UPIO00476D0E2 UniRef90-H6SJL4 UniRef90-VAG25
UniRef90-W6MDF4 UniRef90-UPI00042623DA UniRef90-UP100046EC5CD UniRef90-UPIO002F70DB7
UniRef90- UPIOOO237EDFO UniRef90-W1J2R5 UniRef90-B7RGH9 UniRef90-10IPE7 UniRef90-W7WMN7 UniRef90_W0B129 UniRet90-UPIO003B51098 UniRef90-UPI0003B449B8 UniRef90-B6IPQ5 UniRef90-K4QZR3 UniRef90-Q9RYR8 UniRef90-UPI00035E1527 UniRef90-D7BJ60 UniRef90-D9VGE5 UniRef90_UPIO003B56893 UniRef90-E1R819
UniRef90-D5ST98 UniRef90_O1GJ55 UniRef90-F5YL98 UniRef90-ETGLN5
UniRef90
R7NC28 UniRef90-R5GYV3 UniRef90-M1F6E9 UniRef90_UPIOOO40B2219 niRet90 J4UWNO UniRef90 A0AO31K065 UniRef90-U2S2F0 UniRef90 UPIIO003B562BF UniRef90-UPIO00477B35E UniRef90-TOHV44 UniRef90_Q07JW2 UniRef90-UPIO0037218EB UniRef90-A0A0241HE6 UniRef90-W8F750 UniRef90-UPIOO04676505 UniRef90-I4YN98 UniRef90 UPIOOOO39A44CC UniRef90-A3PIN5 UniRef90-KовоU8 UniRef90-Q60BK3 UniRef90-A0AO14P065 UniRef90-B7ISD2 UniRef90_W2BTG0 UniRef90-A4YXK4 UniRef90-G5GLK4 UniRet90-UPIooo3099B87

UnRego_UtHzio AREEKNKGLDIVAAGEMG VDDCRNKGCNILCDGEMGV $\stackrel{V}{\mathrm{~V}}$ AQEAKETGAS LLTGEMG KRGEPDLLCLGEMG VEECKRKGYQLATGEG1 ARD VVAQGNRLLATGDLGA| AA ALADGGARVLLTGDMG VMHHAGQGTNVIGFGEMG ADEEIDAGADLLVPGEMG1 | T |
| :--- |
| A |
| A |
| A |
| V |
| V |
| V |
| A |
| A |
| A |
| A |
| A | TQYHQDGTNLIAFGEMGI AEELKAQGYRLLATGEMG| ADEEVDAGADLLI PGDMGA

$V A A A A A S P D L L I F G E M G 1$ VRSLP

GYNALLDGEMG|l
AGELIDGGAALLVTGDMGA ARDLVAAGHRCJLTGDMG| AEQAIGNGANILDAGDMG,
ARCADNGAQLFI GGEMGG
ADREDVAGADMLAGDMG|

##  $V Q R R \square A A G \square S V F G V G E L G$

VASDADV
$\begin{array}{ll}S V K \\ V & A G L V Q G K G F L V L G E M G \\ V & G N V L L L G E M G\end{array}$ VKKRAKEGISVFGVGELGA
V V ERAGD VDTK
V
AGELVDDGSRCLLTGDMGI
ARRAVEAGATLLIAGDMG
 ARRA 1 REGATLLAAGDMGI ADAEVDGGADLLDAGDLGG


 AGELLKNKGYQI I ATGEMGI $V K C A K E D R V K L L V T G E M G I$
$A Q R A A R A G C H L F I ~ G G E M G I I$
 AGMLGADTRLLVGEMG|
 A HQLADNGYRCLGVGEMGI
 A AVAEXSAGAEMLALGGEMG VRGLPATGNALLLGEMGG
$V R E V A A T G N V L G C G E M G$ $V$ E K QVA R GCN TI GFGE $\square$ G $\stackrel{1}{1}$ ADEAVDAGAQVFVGGEMG

 LETEKNQNSND AVGEDG| VKELLSEKGYGLISTGEMGA AKDAVDAGKKClLIAGELG| VARQADHAPDLVI FGEMGI


GNTTPSSAIVAVLTGTPVATV GNTSPSSIWTSIFGDIPLAEC GNTTTS CAVASVLLGRDPGQL GNTTVAAAIFHGLYGGEAAEW | $G$ | $N$ | $T$ | $T$ | $T$ | $S$ | $S$ | $A$ | $V$ | $A$ | $A$ | $A$ | $L$ | $L$ | $R$ | $C$ | $E$ | $A$ | $D$ | $E$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

 GNTSAAACLVSRDAGLPDAGC GNTTSTAALLSALTGQPAAACL


$G$
$G$
$G$
$G$
S
A
A
G

UniRef90 UPIO002F727EF
VG L G T G QLL H K K H QLL V|S Q G|V|K
230
240 UniRef90-A4QFR5 UniRef90_V5BRN2 UniRef90_UPI00047AC2C5 UniRef90_R7MZ11 UniRef90_F5RGG9 UniRef90_D3NRW5 UniRef90_B2UM55
UniRef90_U2MWK5 UniRef90_U2MWK
UniRef90-F0J703 UniRef90-R5HA89 UniRef90_D7A652 UniRef90_R9J9P1 UniRef90_K6XDM0 UniRef90_S9NUB5 UniRef90_UPI0004767E6C UniRef90_V2IE11 UniRef90_UPI00047C3337 UniRef90_Q2J8A5 UniRef90_A0A058ZKG3 UniRef90_U1JG03 UniRef90_R5I019 UniRef90_Q1NTL9 UniRef90_H8G9P6 UniRef90_Q89Q54
UniRef90_A0A059KH97 UniRef90_H6LGZ0 UniRef90_F4F690 UniRef90-D6Y4T8 UniRef90_UPI00040A87E0 UniRef90_UPI000476D0E2 UniRef90_H6SJL4 UniRef90_V5AG25 UniRef90_W6MDF4 UniRef90_UPI00042623DA UniRef90_UPI00046EC5CD UniRef90_UPI0002F70DB7
UniRef90_UPI000237EDF0 UniRef90_W1J2R5 UniRef90_B7RGH9 UniRef90_IOIPE7 UniRef90_W7WMN7 UniRef90_W0B129 UniRef90_H8FT68 UniRef90_UPI0003B51098 UniRef90_UPI0003B449B8 UniRef90_B6IPQ5 UniRef90-K4QZR3 UniRef90_C1D6G7
UniRef90 Q9RYR8 UniRef90_UPI00035E1527 UniRef90_D7BJ60 UniRef90_D9VGE5 UniRef90_UPI0003B56893 UniRef90_E1R8I9
UniRef90 D5ST98 UniRef90_Q1GJ55 UniRef90_F5YL98 UniRef90_E7GLN5
UniRef90 UniRef90_R5GYV3 UniRef90_M1F6E9 UniRef90_UPIO0040B2219 UniRef90_J4UWN0 UniRef90_A0A031K065 UniRef90-U2S2F0 UniRef90_UPI0003B562BF UniRef90_UPI000477B35E UniRef90_T0HV44
UniRef90_E3I382 UniRef90_Q07JW2 UniRef90_UPIO0037218EB UniRef90_A0A024IHE6 UniRef90_W8F750 UniRef90_UPI0004676505 UniRef90_-I4YN98 UniRef90_UPI00039A44CC UniRef90_UPI00035D8A16 UniRef90_A3PIN5 UniRef90_K0B0U8 UniRef90_Q60BK3
UniRef90_A0A014P065 UniRef90_B7ISD2 UniRef90_W2BTG0 UniRef90_A4YXK4 UniRef90_G5GLK4 UniRef90_UPIO003099B87

 $V$ G R G T G V W W R K V A A I R D GMRRAR PVA S DP V D L L R VAA A A D


 TGRGGSGVI RKK I K LI E Q GIAALNKPDPSDADDVLAKVVGGPE 1





 VGRGTGRWMLDKTAADRDAMRRGRPFT GDA HSVLLRIVVGGAB


 A G S G T G V D A H K A R V I D A A I V R H G V A A A S P E K IL L A A V G G L E





A
V V G R G T G I $\begin{aligned} & \text { WIDR } \\ & \text { W } \\ & \text { W }\end{aligned}$ $V G K G T G V V K R K D T V V E Q A L A L H K S H L A D P M T L L A A L G G G E E$















 LR R K M Y G S CQDNPLTLLQNIGGLD



 T GRGAGGLANKDNVIMEAINLNKPDRNDVLDVLAKVGGFD TGPGAGMVRHKTEIVRRALAVNAYMDDDPINILAALGGFE A GP GTGGVAHKAAVI ERALALLHGAA LAAAPREALRRLLGGFE
 I G $\square$ GA GQTDAGMAKKRDAIAAAARSDATAPLDVLREFGGME



 T GRGT GMHA HKVEVVVRAALERHRPDPADPDAVLSAVGGDE T G R G S G A A L E A K T R V V

 VG K G T G V GR G A GL L S R K R Q V I K T A $V$ N K
 VG S G T G L D A R K A K V I E D A L T R H G L T A A T P V A E V LAA AVGGG
 UniRef90_U1H8I0



330
LAMPLVRAAAEFYNN


 LAAF GVI E G A CA MMND ML L A L L D MA L Q L Y L A WP L V R A A A A L L D LA $\square$ N V R A A T A CH | $L$ | $F$ | $F$ | $P$ | $L$ | $L$ | $D$ | $A$ | $A$ | $T$ | $R$ | $V L L$ | $S$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $C$ | $A$ | $Y$ | $P$ | $I$ | $I$ | $D$ | $S$ | $A$ | $V$ | $R$ | $M M$ | $N$ | VA LGVLRAALAVHD

$\square S \square G V I M S$ A L A C H
M M L S L L E M A M CVVYR
LA I P L V Q GAARVVRE TA L P L V D A A C A L H
 LA Y P L V A S A V A FLLRE AA YPLLQMAASL L A V P F L R A A Q A T L L A E
 $A L C P F L D M G A T L Y N$


$\begin{array}{lllllllllll}L & A & W & L & L & E & S & A & C & R & L \\ I & A & E \\ A & F & N & V & E & A & A & L & F & M N R & E\end{array}$

LAHPLVCAAARVMHE

 | $L$ | $T$ | $L$ | $P$ | $L$ | $L$ | $Q$ | $S$ | $A$ | $\square$ | $A$ | $L$ | $H$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $L$ | $A$ | $V$ | $P$ | $I$ | $L$ | $R$ | $A$ | $A$ | $C$ | $Q$ | $C$ | $H$ | L A WP L L E S A S LLLLRE $\stackrel{V}{V}$ A MP: $\quad \square$

A A LP LVASSVD V VR D MAMSVI SAACAMYCD
 L A D P L V R S A la A C L
I A MS L I D A A CAMY
L A LGV L R S A LAC H
L A S Q L L K S A l C L F H Q
L A WP L L E S A C RVVLA E
LAMPI I D A A CAMY
L A V G L L R GALACH N
$V A \operatorname{A} P L L R G A C A L L H N Q$
L A I GVLQ GAVACHS
L A I P P V L R A A L A CHT

LVV PLL Q A A $\square$ A L H

| $L$ | $A$ |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $T$ | $A$ | $L$ | $L$ | $L$ | $R$ |

 | $T$ | $A$ | $L$ | $P$ | $L$ | $L$ | $M$ | $M$ | $A$ | $A$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $L$ | $R$ | $V$ | $L$ | $A$ | $E$ |  |  |  |  |
| $L$ | $A$ | $L$ | $L$ | $R$ | $A$ | $A$ | $L$ | $A$ | $C$ |


 1 G GHil I L L GVRAARE ALLFPL L DMTLAVY
$M M F P L L D M A L Q V Y R E$ CA IP ML D M A C S V Y
VA $V$ P I LAA R EL E A M L N N L W D

| I | A | L | D | H | L | R | Q | M | L | C | V | W |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| L | A | D |  |  |  |  |  |  |  |  |  |  |
| L | P | P | I | V | R | G | A | L | A | T | H | N |

 SIMMPI I DMALAMYY D V A Y H L L R C A A A V Y Y N D $L A V P L L R D A C A L H$ $\vee \operatorname{A} T N$ V R SALAAAHAE LVVPMLRMAQAMLD | $L$ | $A$ | $V$ | $P$ | $L$ | $V$ | $R$ | $A$ | $A$ | $A$ | $R$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $L$ | $I$ | $T$ | $D$ |  |  |  |  |  |  |  |  |
| $A$ | $A$ | $G$ | $I$ | $V$ | $R$ | $S$ | $A$ | $\square$ | $Q$ | $V$ | $H$ | $L A W P L L Q S A C A L L G E$

## $A A V P L L R \square A C E V H$

LALPLVQSAARALAE $\checkmark$ A LA F N I I E A A L F TM N N | $V$ | $A$ | $V$ | $P$ | $L$ | $L$ | $R$ | $A$ | $C$ | $A$ | $L$ | $H$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $A$ | $E$ | $E$ |  |  |  |  |  |  |  |  |  |
| $A$ | $A$ | $W$ | $P$ | $L$ | $L$ | $A$ | $A$ | $A$ | $C$ | $A$ | $L$ |
| $L$ | $L$ | $R$ | $E$ |  |  |  |  |  |  |  |  |

 | $M L$ | $P$ | $L$ | D |
| :--- | :--- | :--- | :--- |
| $L A V$ | $F$ | $D$ | $F$ |

 TALP L RLACALHN $1 \vee L R T L G M L K V W$
LAAGVVKA AVACHND
$\checkmark A \triangle Q L \quad L \quad R A A L L A C H$

UniRef90 J2CRZ1 UniRef90-X0QV70 UniRef90-LOEWB0 UniRef90_I8SL27 UniRef90_U1L1W7 UniRef90_G2SX09
UniRef90-A6DF37 UniRef90-Q28M40 UniRef90_UPI00037258FD UniRef90-C8XJ11 UniRef90_C4ZBD7 UniRef90 A3W9C5 UniRef90_C9LWY2 UniRef90-R7H982 UniRef90-UPI0003689F27 UniRef90-W7E3M2 UniRef90-R5NY22 UniRef90-E6SAH4 UniRef90-A0A059E4P5 UniRef90-A9MAPO UniRef90-D3ARW4 UniRef90 C8S489 UniRef90-U2ELI8 UniRef90-F8JIM2 UniRef90_R6NSU4 UniRef90_C1A5M0 UniRef90-E2CLQ7
UniRef90-D8JT56 UniRef90_A3VL35 UniRef90_X6L4E5 UniRef90-FORYD9 UniRef90-K2HTB8 UniRef90_G6EIV3
UniRef90_D9VCE7 UniRef90-UPI0003A3C12B UniRef90-A0A021W9X7 UniRef90_S9R3D8 UniRef90-A0A023X1C4 UniRef90 UPI0003956F96 UniRef90-C5ABK9 UniRef90-X1MCX2 UniRef90-U1QKW1 UniRef90 A9E6N0 UniRef90-W7USR0 UniRef90-L7W1P3 UniRef90-A3K463 UniRef90-E4NA04 UniRef90_UPI00036289AE UniRef90-R7FF83 UniRef90_Q169A0 UniRef90-B8ERB9 UniRef90-K5XNI9 UniRef90_U3AH22 UniRef90_B5GC56
UniRef90_11AW79 UniRef90-J9HR97 UniRef90_V6F5K1 UniRef90_V7EFZ2 UniRef90- X1LSZ2 UniRef90_E8QWS9 UniRef90-C7D8U0 UniRef90-W5TCV4 UniRef90-A3JVK1 UniRef90_UPIO00225F1FB UniRef90-UPI0003B66D6B UniRef90 E1L650 UniRef90-A0A059G6W1 UniRef90_B6B222 UniRef90_A0A010YYM9 UniRef90-X7EEY3 UniRef90-S9QEM1 UniRef90-C9KQS9 UniRef90 A0A037Z108 UniRef90_UPIO0037A443C UniRef90-K4RUU7 UniRef90-K9H659 UniRef90_UPI0004688702 UniRef90-W9C0U5 UniRef90-E6PGR4 UniRef90-UPI0004658FAA UniRef90_UPI0003C7E7B0 UniRef90-F3H345 UniRef90-H0HRQ6 UniRef90_S5YB45
UniRef90 C7MXA4 UniRef90_UPI00035F2B14 UniRef90_UPI0003A8806B UniRef90-A1VJY3 UniRef90_S5TK39




K I EPPDQAVY VPRIDRVDQSFATKAKNKLDSLADPQGALGDLG FQTALAAATGPDDAARAGAAERNGQLTKPPGALGLLE S

 KIVPPDAKMYKK $\square R S N W D S V A K P L D G M G D F E$ LS DFAA LLGEMPGPDPATMDDAQARDAQLTKPPGALGRDE
 PHEERKREANKYWDKIAKPLYGLGYLE $\square D Q \square R Q A C T E L P A K D D A S E Q A T Y K R Q A T G L K P P G S G G E L E$ QKIYTQAKGKWDAI AKPDDSLGVFE



## DFRKRLEALPVADAAAVLAATERNGQLTKPPGALGRLE



SDDRNLVKAMPGPDEEALAQVRARDAQLTKPAGSLGKLE NVIDKDTAARSALEAELRARDRGKAKPVGSLGR LDAFRAILADLPQPDAKAVAGAQARNGQLTKPPGALGR


$A D P V P D A A A A R A A A A L E R D D G L V V P V$ G S L G R L E
WWL R S CKRPDAERQAQARARRQAQLL TMP PGS

$\left.\begin{array}{rl|ll|lllllllllllllll}\hline L & A & E & D & V & A & P & L & D & A & E & A & M & A & A & A & R & E & R\end{array}\right]$
S $\square P P$ PDDTAREAAAERQQQL
LTEFRSLLRSMPDCDGAAMEEARAHD G L

DVAALAATLP
LILPEADPAAREAADARQMSLTKPPRALGRLE

MLETYLQNIKPLDQTAMQQAQAQWNRIAKPLHSLGRLE




LLRETLAA LPGEDGGAVAAWAAREP



 $P$ VA A P D A RVRGEAERR QLELTKP G GALGRLLE
F Q TVLS GFS GA D Q T A L A A A A E R N GQ L T K P P P G A
PDERVAVAVRDRADQLVKPAGSLLGALE M GLLQE TCDADHSRSKEIEQHIIDNWND ASDSK QYGRLV DADFTAALQHADDSKTKPVGSLGRME FRALLATMPDADANADAGAQERNGQLTKPPGALGRDE $M S L L S S T V A A \square G P A D A A A A A Q A R D R Q A R M T K P A G S L G V L D$ WFDAMPAFDKAAADAARDRQAQLTKPPGSLGRLE SEF K T L L A NAP E A D D D A T A G A R R R N A Q L T K P P G A L L G R L $L S T L A B L D A A T L P G V D Q T A R S A A T D R Q N Q L T K P P G A L G R L E$ $R L T K P P G S L G R L E$

FRALLSDLPGPDAEAAAAAAAREPQLTKPPGSLGRLE LDAFRAALADMPDVDAAARDGAADRNSQLTKPPGALGRLE R D DVQ A R LDD A L A K P L G S L G QL E SVIA P VD A R A A QL A R E R I D Q L PD GKIYNSIIKKRWDGISKPIDGLGDFE $P \vee V A P D P A L V A A A R D R L E G L A T P A G A L G R L G$
 NETAAREARARQMQLTKPPGSLGRFE


EWDHGPCAAPDLRAQQAALDARQAELTKPHGALGRLLE

UniRef90_J2CRZ1 UniRef90_X0QV70
UniRef90_LOEWB0 UniRef90 ${ }^{-18 S L 27}$ UniRef90_U1L1W7 UniRef90_G2SX09
UniRef90-A6DF37 UniRef90-A6DF37 UniRef90 UPIO0037258FD UniRef90_C8XJ11 UniRef90-C4ZBD7 UniRef90-A3W9C5 UniRef90-C9LWY2 UniRef90-R7H982 UniRef90-UPI0003689F27 UniRef90-W7E3M2 UniRef90-R5NY22 UniRef90 E6SAH4 UniRef90-A0A059E4P5 UniRef90-A9MAP0 UniRef90_D3ARW4 UniRef90 C8S489 UniRef90-U2ELI8 UniRef90-F8JIM2 UniRef90-R6NSU4 UniRef90_C1A5M0 UniRef90-E2CLQ7 UniRef90_D8JT56 UniRef90-A3VL35 UniRef90-X6L4E5 UniRef90-FORYD9 UniRef90-K2HTB8 UniRef90-G6EIV3
UniRef90-D9VCE7 UniRef90_UPI0003A3C12B UniRef90-A0A021W9X7 UniRef90_S9R3D8 UniRef90-A0A023X1C4 UniRef90_UPI0003956F96 UniRef90-C5ABK9 UniRef90- X1MCX2 UniRef90-U1QKW1
UniRef90_A9E6N0 UniRef90-W7USR0 UniRef90-L7W1P3 UniRef90-W1RPJ6 UniRef90-A3K463
UniRef90-E4NA04 UniRef90_UPI00036289AE UniRef90-R7FF83 UniRef90_Q169A0 UniRef90-B8ERB9 UniRef90_K5XN19 UniRef90_U3AH22 UniRef90-B5GC56
UniRef90 I1AW79 UniRef90_J9HR97 UniRef90_V6F5K1 UniRef90_V7EFZ2 UniRef90-M1P3V7 UniRef90-X1LSZ2
UniRef90-E8QWS9 UniRef90-C7D8U0 UniRef90-W5TCV4 UniRef90-A3JVK1 UniRef90_UPI000225F1FB UniRef90_UPI0003B66D6B UniRef90-E1L650 UniRef90-A0A059G6W1 UniRef90_B6B222 UniRef90-A0A010YYM9 UniRef90-X7EEY3 UniRef90-S9QEM1 UniRef90-C9KQS9 UniRef90_A0A037Z108 UniRef90_UP100037A443C UniRef90-K4RUU7 UniRef90-K9H659 UniRef90-UPI0004688702 UniRef90-W9C0U5 UniRef90-E6PGR4 UniRef90_UPIO004658FAA UniRef90_UPI0003C7E7B0 UniRef90-F3H345 UniRef90-H0HRQ6 UniRef90_S5YB45 UniRef90-C7MXA4 UniRef90_UPIO0035F2B14 UniRef90_UPIO003A8806B UniRef90_A1VJY3

D|I A|V|FMASWQGRCMPR|LERGRAA|IFAGNHGFT $\square$ HGIVISAY ${ }^{80}$ ALAVQLGM QQGT TTPHIEQAQDRVFAADHGLTKHGTSAFP T A MWLAAWT GRP PAVNRPGVAIFAGNHGISRHGDTPDP HLARQLSGDTYNPRPRSLKKSIIIMAADHGVAAEEPCAFS QLAAQI ATLHDTPSSEILNPTLLVFAGDHGI AKHNDS $\square$ AP ELFARI GAIRRDPALDISRKAVVVMCADNGIVEEKISQSG ALAETLMTFQKSDTPSFKKRELFLCAADHGIVVKGVSQYP DLA NLVEWLAAWQGKGQPSLDRPLVCVFAASHGVTKRGVSAFP DVGIWLAACQGCCPPEPDRDRVVVFAGDHGVAAHGVSAYP $G L A D W Y C G W R G E A R A R V T A P Q V I V F A G N H G V V A Q G V$ SAR P AL L DRYMCATKSTWEHLEKPCTLI CCADHGVAEMQVSAYP QLITTQDAGDQNTPNVAIDKRAVIVMCADNGIVEEGVTQTG D AVATMVSI NPKITLKKRCCMVFCADNGIVAQGI S Q TG DLAMWLADRLGRATPPRLKPA I AVFAADHGVALEGVSAYP NLVGWLAAWQKKSDPTLDRDCIIIFAGNHGVTAENVTPYH D MVARLCA DAGTVNPDYKRRALLTLCADHGVVAEGVTQTD EVGAWLAACQGVCPPPVERVRAVVLAGDHGVTRAGVSASP TLAAQIANDQQTLTPQADTCRLTIFAADHGMADAGVSAFP



 HLI A QI GAI E KTTR TVSI QKKAVLVMCADNGVVEEQVSQS G
 DLALQVGMVSGSLRPDLGHAKILVFAADHGLTAEGVTA YP DLAI WYAGWRGDARPGLNAPQVIVFAGNHGVTEQGVSAFP DI AAFMAGWRGMAQPRIDKAQALVFAGNHGI CARGVNPFP
 TLAI WY A G WR G D A R P QVTRPQIAVFAANHGVAARSVSAYP DIAIFMASWQDRERPRLDRDRAAIFAGNHGIAARGLSTYP ELAA WLS A A H GVVVPPP L D DVVRVVVFAGDHGVSAQ S A YP DI A LIFMA GWQARERPKVERIRAAIFAGNHGVAARGVSAY P DLAVTLSGLQHSPTPKVDRVWISVFAADHGVAAEGVSAFP E L A V WL A GWQ GTARPRI ERP QVALVA GNH GVVARRGVVAYP


 D LAA I WYR GWR G GARAEI SAPQQIIFA GNHGVAARGVSAFP DMLCRIAAVQRTDSPDISKRAVVVMCADNGVVDEGVTQTD
 DLAVFMAGWQKTDRPSITQAQALVFAGNHGICARGVNPFP
 DIACFLASWQGCSRPHIDDHGRLVFAGNHGVTSLGVSAYP D MVI QLA GIIT GSAALVPRKKAVLIFCADNGIIAENVTQSN ALAIWWYA GWRGDATPRIETPQI IVVAGNHGI AA Q GVVAFP EI A AF LA S WQ GKPSPTVDRPLVAVFAANHGVVAKGVSAYP EVADFLAGWRGSARPRIGKAQAVVFAGNHGVCAQGVNPYP DLAI WYA GWRGDARPRLIRPQVTVFAGNHGVVTRGVSAFP TLGEWLSAARSSPAAP L RQPRVVLFAGDHGIVAGAVVRRP DLAEFLAGWQGHAMPALDKVQALVFAGNHGVCAQGINPFP PI LCDLAA DQQ GRADPSVRRPRFLLFAADHGVASRSISRYG DL GRWLSAWQGQHPPRLNKVVARVFAGNHGVAALGVSAFP D L AVWFAGWRGTDRPRCDRPQVIVFAGNHGVVAQGVSAFP DV A I WY A G WR GE ERPDIMRRPLVAI FS GSHGI TADENI T S F S
 DLAV RLCVVVQQTECPRATPRRCVLFAADHGVVTEGVSAWS DLAIWWYAGWRNDPRPQ DAAPQVIVFAGNHGVCAQGVSAFP TLGNWVAACQGDVPPRFERARVVVFAGDHGVARHGVSAYP DLALWAASWQGTEKPTVNAPQVIVFAGNHGITAQGVSAFP E L A V F M A GWQ GT DRPVVI DRA QALVFA GNHGVTNQGVVPFP AIVVERWAAWSGDVPPSPLRPGMLI LAADHGHVARGTSLYG NMVA QYGAATNQKNVTIPKPCMII ASADHGVADMGVSAYP
 D L A l WWY G G WR G T D R P S I G K R Q V I V F A G N H G V T A Q GVV A A F P ELAVVMAGWHGDPRPRVMSAQSLVFAGNHGICCHGVNPFP ELAI WYAGWRGSDSPAIDAPQVVVFAGNHGVCAQGVSAFP P ML F H WLDD DCNE LDDPRAPRKAVVIDCCADHGVAAEGVSAYP
 $D L A V F M A G W R G A E R P Q I R K A Q A L V F A G N H G I C A Q G V N P F P$ QPQVAKKA LLVMCADHGVWDEGVADS P DLAA WL A A WQGRHPARLDSVRACVFAGNHGVAALGVSAFP DI A QWYAGWRGNSQPRISAPQIIVFAGNHGVAAQGVSAFP DLAVDDLAVASRS DTPVTTRPRRLVLFAADHGVVAQGVVTPWP ELAEQLAAIIAGNPMLNYEKRVVLI GAGDHGVTAEGVSAYP EVICRI GAI Q GRELPS LDNRYVVI MCADNGIVDE GVVQTG ELADWVAATQGAVPPPDEHVRAVVFAGDHGVADHGVSAYP $R L A V Q L A G L Q G R E R P A A D Q L W D A I F A A D H G V V A E G V S A Y P$ TI VA WLARWQGRDTPRLDKVKVIVFAGSHGVTAQGVSAFP SLAEFMA GWQGRPDPRIERAQAVVFAGNHGICMRGVNPFP ELAA WLCAAHGTVPPPPVDDVRVVFAGDHGITRPDVSAYP EVALRLAGDQGRLKPELGPGAVVVAAADHGVVAEGVSAYP QLAVQLAALQGQVRPTLERDWIAVYAADHGVAAEGVSAFP ALALQLGLIQRSESPALHSPQMVVFAADHGIAAEGVSAYP
 UniRef90_X0QV70
UniRef90_LOEWBB0 UniRef90 ${ }^{-18 S L 27}$ UniRef90_U1L1W7 UniRef90_G2SX09
UniRef90_A6DF37 UniRef90-A6DF37 UniRef90 UPIO0037258FD UniRef90_C8XJ11 UniRef90-C4ZBD7 UniRef90-A3W9C5 UniRef90-C9LWY2 UniRef90-R7H982 UniRef90-UPI0003689F27 UniRef90-W7E3M2 UniRef90-R5NY22 UniRef90-E6SAH4 UniRef90-A0A059E4P5 UniRef90-A9MAPO UniRef90-D3ARW4 UniRef90 C8S489 UniRef90-U2ELI8 UniRef90-F8JIM2 UniRef90-R6NSU4 UniRef90_C1A5M0 UniRef90-E2CLQ7 UniRef90_D8JT56 UniRef90-A3VL35 UniRef90-X6L4E5
UniRef90 F0RYD9 UniRef90-K2HTB8 UniRef90-G6EIV3 UniRef90-D9VCE7 UniRef90_UPI0003A3C12B UniRef90-A0A021W9X7 UniRef90_S9R3D8 UniRef90-A0A023X1C4 UniRef90_UPI0003956F96 UniRef90-C5ABK9 UniRef90-X1MCX2 UniRef90_U1QKW1 UniRef90-A9E6N0 UniRef90_W7USR0 UniRef90-L7W1P3
UniRef90 W1RPJ6 UniRef90-A3K463 UniRef90-E4NA04 UniRef90_UPIO0036289AE UniRef90_R7FF83 UniRef90_Q169A0 UniRef90-B8ERB9 UniRef90-K5XN19
UniRef90 UЗАН22 UniRef90-B5GC56 UniRef90_l1AW79 UniRef90-J9HR97 UniRef90-V6F5K1 UniRef90-V7EFZ2
UniRef90 M1P3V7 UniRef90-X1LSZ2 UniRef90_E8QWS9 UniRef90-C7D8U0 UniRef90-W5TCV4 UniRef90-A3JVK1 UniRef90_UPI000225F1FB UniRef90_UPI0003B66D6B UniRef90 E1L650 UniRef90-A0A059G6W1 UniRef90_B6B222 UniRef90-A0A010YYM9 UniRef90-X7EEY3 UniRef90-S9QEM1 UniRef90_C9KQS9 UniRef90-A0A037Z108 UniRef90_UPIO0037A443C UniRef90-KKRUUZ7 UniRef90_K9H659 UniRef90_UPIO004688702 UniRef90-W9C0U5 UniRef90-E6PGR4 UniRef90_UPI0004658FAA UniRef90_UPI0003C7E7B0 UniRef90-F3H345 UniRef90_H0HRQ6 UniRef90-S5YB45 UniRef90-C7MXA4 UniRef90_UPIO0035F2B14 UniRef90_UPIO003A8806B UniRef90_A1VJY3
 SAVTAQMVHNFLQGGAAINVLARQHNIELKVVDAGVDAD T IATQKMVKNF SSGGAAINQICMAYDLGLKVFDLALD QEVILQRI HN DSRGGAAVNVFADHVAADLLLVDMGIAAN

 PEVTVQMVANF AHGGAAINQLSDLAGATMSVHPDDLETP AEVNRQMLDNFAAGGGA I NQLCAAYGLGFKVFDLA D
 AEVTAQMVANFRAG GAAVNQMAAQVGARMDVHALDLDRP PETTAQMTANYLLAKGAVANADANFARSNLHVADLGIKAP Q E V T A V V S C N MAVTGQMVANFVAG GAAI SVLAAEHGASLRVI DVGVAYP SNI T EMMDAQI NQGGAAI NQLAKNANVELRVI PV A S V T K VVA EN I A H S C S GVVNYMA QMA GV DV Y AV DI GMRGE SEVTAAMVH AFVAGVAGVSVLARQHGATVRVLDIGVDAD

 VEVTVQMVANFQAG GAAI NQLSKAFGATMTVQALDLDHP
 K EVVTLA VAKAMGVNNSSVGKMAAVAGVDVIPVDIGIDTD RAVTAEMMRNF ARGGAAI NVLARTNDTDVEVIDVGVDAD SAVNRQMVDNFAAAGGAAINQICRVHDDGLKVFDLAVD SAVTREDAKMVLAG SAGINVFARASGIDVVLVDAGMIEP ADVTVQMVANFEAG GAAINQLAKTFGAKMDVHALSLDTP
 AEVTVQMVANFQAGGGAADNRLAETYGARIDVVALDLKBR AEVTAQMVANFAAGGAAINAMADACGAELVIVPI ELERP REVTAAMVRVFLAG RSGVTVLAA QVGASVRVADI AVDWD
 QAVTGEMLRNF A GGGAAI AVLARALDASLDVVNLGTVND A E V T A A M V S E V $V$ T A A M V A A N F L A V T WQ MV GNFLAG GAAVSVLSRQHGVALNVVDCGVARD
 A SVTTAAMVNAVESGDAAINALAAAND DD THVVDMGVDGB AEVTAQMVANF QHGGAAINQI ARVNGASLDVVPLSL S SVTTAVCAK ADAEGSSNINALADIVGAEVTAVDIIGIASD


 A DVT R Q MVVANFEAG GAAI NALARAAGLHLKVI ALDD DR P


 A AVTAQMVGNF DAGGAAVNQLAEAFGATMTVBPI ELDDRP

 Q HVT E E MVVN $\square$ PEVVTVQMVANF A EVTVQMVANF AMGTSVSSVMARNMGVALDVYDVGVLRK QSTMRHMVNNFARHGGAAINQLARAFGAEMAVHALELER P QEVT A QMVANF LRG GAG $\square$ VVI ARQVGARVVVVDMGVATG
 SEVTA A MVAN FLLA G GAAVNALARLAGATVRVVDIAVDA E
 $G N V S G Q \| A A$ A A ARGGTALGVLARHHAGLLAVADLEGLR GP KETTVGMTQNY LIPKGAGANSLANYCGAHMEVIDMGIDAD


 QETTLEMVVRNYTDRQGAAANAFAACAGARLLVDDMGMAAD

 A SVVTA QMVANFKA G GAAVN QL CRAVGAELTVVTALDLDR P P EVVTA QMVMNF E H G GAA I NQLARAAGAQLDVHALELDRP
 K EVTY Q V A RML GE GTSTANTDAKAKAAAKVMAAN MG A A E

 QEVTALMVRNFEAG R Q Q E V TR QMV L N F L R G QAVT GEMVRNFATG

GAAINQICRDAGAELSVVALDLDOP




UniRef90 J2CRZ1
UniRef90-XoQV70 UniRef90-LOEWB UniRef90-U1L1W7 UniRef90-G2SX09 UniRef90-A6DF37 UniRef90 Q28M40 UniRef90-UPI00037258FD UniRef90-C8XJ11 UniRef90_C4ZBD7 7 UniRef90_A3W9C5 UniRef90_C9LWY2 UniRef90-R7H982 UniRef90 UPloo03689F27 UniRef90-W7ЕЗМ2 UniRef90-R5NY22 UniRef90 E6SAH4 UniRef90-A0A059E4P5 UniRef90-A9MAPO UniRef90 D3ARW4 UniRef90 C8S489 UniRef90-U2ELI8 UniRef90-F8JIM2 UniRef90-R6NSU4 UniRef90_C1A5M0 UniRef90-E2CLQ7
UniRef90_D8JT56
UniRef90-A3VL35
UniRef90-X6L4E5
UniRef90 FORYD
UniRef90 ${ }^{-}$K2HTB8
UniRef90-G6EIV3
UniRef90-D9VCE7 UniRef90-UPI0003A3C12B UniRef90 A0A021 W9X7 UniRef90-S9R3D8 UniRef90-A0A023X1C4 UniRef90 UP10003956F96 UniRef90-C5ABK9 UniRef90-×1MCX2 UniRet90_U1QKW1 UniRef90 A9E6N0 UniRef90_W7USRO UniRef90-L7W1P3 UniRef90-A3K463 UniRef90-E4NA04 UniRef90-UPIO0036289AE UniRef90-R7FF83 UniRef90-Q169A0 UniRef90-B8ERB9 UniRef90 UЗАН22 UniRef90-B5GC56 UniRef90-11AW79 UniRef90 J9HR97 UniRef90-V6F5K1 UniRef90-V7EFZ2 UniRef90 X1LSZ2 UniRef90-E8QWS9 UniRef90-C7D8U0 UniRef90-W5TCV4 UniRef90 A3JVK1 UniRef90_UPIO00225F1FB UniRef90-UPI0003B66D6B UniRef90 E1L650 UniRef90-A0A059G6W1 UniRef90-B6B222 UniRet90 A0A010YYM9 UniRef90-X7EEY3 UniRef90-S9QEM1 UniRef90-C9KQS9 UniRef90 A0A037Z108 UniRef90_UPIO0037A443C UniRef90-K4RUU7 UniRef90-K9H659 UniRef90_UPIO004688702 UniRef90-W9COU5 UniRef90 E6PGR4 UniRef90-UPI0004658FAA UniRef90-UPI0003C7E7B0 UniRef90-F3H345 UniRef90- ${ }^{-}$ UniRef90_S5YB45
UniRef90 C7MXA4 UniRef90-UPIO0035F2B14 UniRef90-UPI0003A8806B UniRef90-A1VJY3
UniRef90_S5тк39
 VKQSSSUISQVLDNGTKDFSVEAAMSSTQCEKALNNGDYL

Dpros Tork CLPYPGLLNRRIMAG Mrclokrrgit AYPDAHMTNRKNLD
 PIIDERLLQKRIGNG

## पGTRNPLIRKKपAYG

 PANYAGVIDARTAAGT $\square S A L S S L R H A K V R H G$ पPAHDHLIERRTAAG

T A
FSPSDGVLDEKVAWG
SR
TA
AADVPDEVAHK】RRG


PGAVAGVHRAVIDAS


TADCEGPAMSDAQLRAALGAGAAS

 LPASPA VSVPVAPG $\square P$ ESVIDHHVADG


SAADHLEDALTAEETQAALDAGAAVI
PEFPEDVVRHRVRRGS
T
पYC SGLDVRKVAYG
QP ■PT

S
T
PAELPAEVRHRVRRS
PRHPRVHVEKVG回
VV
EYPTMDFGAAMD A EVVAALRRGWEA
LKPNPQLLSRKVGLGTQNMALGPAMTAGQAVKAIENGDED LPDGPVHRNRKVRAGSRNDALEPSMTVQEFHEAVAVGELE

TD PSVSAHKПRRS

SGS IDDEDA
TPPGVRPARVRDG TADFTQGMAMETEDLITAIQTGKNA GTADLGAGPAMTPDELERAITTGAAL MDTVPGLRSHKLGMTKNFVEEPAMTREQADEGIETGIKL A 1 THPNLVSRRЏATG PAAGAGLLERNVRG T

TSDVPD $\square$ F Q TR $\square$ ANG


SEPLPGVVNMRVARGC
TADFTEDPAMSEAEADDAMARGAAA PPWPDHFAAQPVAPGTADLSDGPAMSVEQFDTAWADGAGE LPTHERLFDRRIGSGTRNFFREPAMSDAQAQAALEAGAAF MA DVDGAVKAKVAEGTGDFLKENAMTKKQGLMALGSGGDR MD LPGVRHLRUGAGTANFAYGPAMSVEQGLAALQAGRDS DDHDPEEVRAKVRHGSGSDDVEDAMAPDEVERAEARGGRAD LPEHPRLLRRKVREGTGNLAAEPAMSREEAERALEAGREA PGDGPQVRRAWIAASTANFCEQPAMTPAQDREALAAGAAS


UniRef90_J2CRZ1 UniRef90_X0QV70
UniRef90_LOEWB0 UniRef90 I8SL27 UniRef90_U1L1W7 UniRef90_G2SX09
UniRef90_A6DF37 UniRef90_A6DF37 UniRef90-UPI00037258FD UniRef90_C8XJ11 UniRef90_C4ZBD7 UniRef90-A3W9C5 UniRef90_C9LWY2 UniRef90_R7H982 UniRef90_UPI0003689F27 UniRef90_W7E3M2 UniRef90_R5NY22 UniRef90 E6SAH4 UniRef90-A0A059E4P5 UniRef90_A9MAP0 UniRef90_D3ARW4 UniRef90 C8S489 UniRef90_U2ELI8 UniRef90-F8JIM2 UniRef90_R6NSU4 UniRef90_C1A5M0 UniRef90_E2CLQ7 UniRef90_D8JT56 UniRef90_A3VL35 UniRef90_X6L4E5 UniRef90_F0RYD9 UniRef90-K2HTB8 UniRef90_G6EIV3 UniRef90-D9VCE7 UniRef90_UPI0003A3C12B UniRef90_A0A021W9X7 UniRef90_S9R3D8 UniRef90_A0A023X1C4 UniRef90_UPI0003956F96 UniRef90_C5ABK9 UniRef90-X1MCX2 UniRef90_U1QKW1 UniRef90 A9E6N0 UniRef90-W7USR0 UniRef90-L7W1P3 UniRef90-A3K463 UniRef90_E4NA04 UniRef90_UPI00036289AE UniRef90_R7FF83 UniRef90_Q169A0 UniRef90_B8ERB9 UniRef90-K5XNI9 UniRef90_U3AH22 UniRef90_B5GC56
UniRef90_IAW79 UniRef90-J9HR97 UniRef90_V6F5K1 UniRef90-V7EFZ2
UniRef90-M1P3V7 UniRef90- X1LSZ2 UniRef90_E8QWS9 UniRef90-C7D8U0 UniRef90-W5TCV4 UniRef90-A3JVK1 UniRef90_UPI000225F1FB UniRef90_UPI0003B66D6B UniRef90_E1L650 UniRef90_A0A059G6W1 UniRef90-B6B222 UniRef90_A0A010YYM9 UniRef90_X7EEY3 UniRef90_S9QEM1 UniRef90_C9KQS9 UniRef90_A0A037ZI08 UniRef90_UPI00037A443C UniRef90_K4RUU7 UniRef90_K9H659 UniRef90_UPI0004688702 UniRef90_W9C0U5 UniRef90_E6PGR4 UniRef90_UPI0004658FAA UniRef90_UPI0003C7E7B0 UniRef90_F3H345 UniRef90_H0HRQ6 UniRef90 S5YB45 UniRef90_C7MXA4 UniRef90_UPI00035F2B14 UniRef90_UPI0003A8806B UniRef90_A1VJY3

210
220
230
240
 I GRGTGLLEHKTDVLTQVLERHQ QAQAPFDVLAALGGLE
 $V$ GHGT GI DQQQFNNKR LLIAVKRVDSDQPLEILRQQLGSFE T G K G A GL L L R K $\square$ A V V E E GI Q M H E L Y Q A D A F D V L C A V G G L D


 T GRG G G GLL E R K DRVI E S A I E KY D L Y Y N K D T F E I L M T V G G LDD $T G R G T G L L V H K A Q I V A Q A V A D N A A S G A G G L E V L R R L G G R E$

 TGKGAGLITHKAKI I E EADIA FH HLDNPE EP WEILLK KV G GF D VGRGTGIDDTRHAHKTEVVRQALARARAACDWLAEVVGGLE
 DGRGTGAHDRKLDVLARALARACDDDRDPVQQRLAALGGSAD

 A GRGTGLDDAKARVVAE GVADLAAS LGDPLQQLRCLGGRE V GR GTG G L A R K Q A V V A A G L D R H R P S W D K A L A V L R CVVGGFE $V$ GP G A G A L D H K Y Q V L K E T 1 D R A A D A P P S T T F F

 $V G P G A G A P A L G L D V V S R A N D R E D D P R Q R A R E A L R Q F G G F E$ V GRGTGVLANKARVVREGLKANPGASADGLEALRCLGGRE

 V GAGTGGEMRKRIVVSLALACHGPACNDAFETLRRLLGGRE
 $V$ GRGTGVVARKDEAVVEAIQQCHSAHCHNAFETLRRRLGGRE TGAGTGLI A HKIAVI ERALALDHPADSD WERLRRLLGGFE





 A GRGT GALE EGKAQVI DAALARVGARASDPFETLQALSSSA D $T G P G T G G V Q R K \square A V I D R A L A A H G D A P R T P F E T L R H V G G R E$ VGRGTGSDAA GKALKA QVI E DGRKLLADALALLMAYGGRE
 TGRGAGLLAHKTEVIQNAIASRKPDRHDILDVLSKVGGLD VGRGT GVDDAGLAM KQRVVAERHATVHDGLEKLRCLGGRE
 $T G R G T G V L A R K V D A V T R G V A R D E G E A \quad D P I V V L V R Q L G G R E$ $T G R G G G E T W M R K C A A D R D A L R R A R P V A L G D Q L A L L A A A V G G A D$ VGRGTGARAHKAEVVARGVALHA ARTPMGKLAAALGGRE $V G P G T G A V A S K R D A V E R A C A L W Q S A S Q A W L A G M A Q L G G F E$ TGRGTGGGLDRKT QVVAA GVARHGGQQ G
 TGRGT GLLA H KVVEVI NKALAVVHPDPTRPLDVLAKVGGFE VGPGA GALARKRRUVAADVVARGRPRADDPETVIASSMCGLE $T G R G T G V L A D K T R V V A E G L A D H A P N D S P D E V L R C D G G R E$ $V G R G T G V$ WMRK A S A I R D A MWR A R P H R L D P P F A L L R V V A G G A D
 A GADAA GLLERKRTVVRDALE RAGRPTEPLPALRELGGLDE






 VG GGAN LVGNKMEVVRRADAVNQPDPNDGLVVLSKVGGFD
 $T G R G T G V L A H K T R V V D E G L A L H K G K G G D G L E T L R R L G G R E$ TGHGAGADPAMRDVKRDAAAVGRLGGRTDKPALAAAMAGFE VGCGTG IDDDAGYQRKVTVVRAARCDRNDWRSCAREVVGGFE VGRGAGLLMRKKEVILEAVKKYGDGKPSAFKYLCEVGGFD $T G R G T G A L A H K D A L V Q Q A L D R A G D R D D D P V Q T L Q A L G S A D$

 $V G P G T G G L A R K A G V V D E G L A R H R G V R T T$ T D TVLAAAGGRE $V G T G T G V V A R K V A V L D A A L A A R A G H V E D P D S L L A A B L G S A C$ $V G R G T G G L R R K R E A V A R A L A R L Q P G L L D P L G V A A E V G G L E$ $V$ G A GT G L D A HKA T V VA R A L A V H A N A A T P L E R L R C L G G F E TGGRGT GLLD D H K Q A V L T R A L A R R H P A T P F D A V G E L A A A L G G F E


UniRef90-J2CRZ1 UniRef90_X0QV70
UniRef90_LOEWB0 UniRef90_I8SL27 UniRef90_U1L1W7 UniRef90_G2SX09
UniRef90_A6DF37 UniRef90_Q28M40 UniRef90-UPI00037258FD UniRef90_C8XJ11 UniRef90_C4ZBD7 UniRef90_A3W9C5 UniRef90-C9LWY2 UniRef90-R7H982 UniRef90-UPI0003689F27 UniRef90-W7E3M2 UniRef90-R5NY22 UniRef90-E6SAH4 UniRef90-A0A059E4P5 UniRef90-A9MAPO UniRef90-D3ARW4 UniRef90 C8S489 UniRef90-U2ELI8 UniRef90-F8JIM2 UniRef90-R6NSU4 UniRef90_C1A5M0 UniRef90-E2CLQ7 UniRef90_D8JT566 UniRef90_A3VL35 UniRef90-X6L4E5
UniRef90-F0RYD9 UniRef90-K2HTB8 UniRef90-G6EIV3 UniRef90-D9VCE7 UniRef90_UPI0003A3C12B UniRef90_A0A021W9X7 UniRef90_S9R3D8 UniRef90_A0AO23X1C4 UniRef90_UPI0003956F96 UniRef90-C5ABK9 UniRef90- X1MCX2 UniRef90-U1QKW1
UniRef90 A9E6N0 UniRef90-W7USR0 UniRef90-L7W1P3 UniRef90-W1RPJ6 UniRef90-A3K463
UniRef90-E4NA04 UniRef90_UPIO0036289AE UniRef90_R7FF83 UniRef90_Q169A0
UniRef90_B8ERB9 UniRef90_K5XN19 UniRef90_U3AH22 UniRef90-B5GC56 UniRef90-I1AW79 UniRef90_V6F5K1 UniRef90_V7EFZ2 UniRef90 $0^{-}$X1LSZ2 UniRef90_E8QWS9 UniRef90-C7D8U0 UniRef90-W5TCV4 UniRef90-A3JVK1 UniRef90_UPIO00225F1FB UniRef90_UPI0003B66D6B UniRef90 E1L650 UniRef90-A0A059G6W1 UniRef90_B6B222 UniRef90-A0A010YYM9 UniRef90-X7EEY3 UniRef90-S9QEM1 UniRef90-C9KQS9 UniRef90_A0A037Z108 UniRef90_UPIO0037A443C UniRef90-K4RUU7 UniRef90-K9H659 UniRef90_UPIO004688702 UniRef90-W9C0U5 UniRef90-E6PGR4 UniRef90_UPI0004658FAA UniRef90_UPIOOO3C7E7B0 UniRef90-F3H345 UniRef90-H0HRQ6 UniRef90-S5YB45 UniRef90-C7MXA4 UniRef90_UPIO0035F2B14 UniRef90_UPI0003A8806B UniRef90-A1VJY3
UniRef90_S5TK39
 1 A WRVRF
 $\stackrel{A}{A}$
 LA TL L V G I CL GA A Q Q G K LI L L D G FIL S A V VA L I A K E F N P A V L
LA A MA GAIIAHARILDHIPVILDDGICTAAAAVLECAVS GAL

|  |
| :---: |
|  |








I A MMTGAML GAAAA GKIVIV DGFIASAAALAASSRIAA ES R
I A A M A G A $\quad$ L L A A R M E K

I A A M A G A I A R A H D L R I P V L L D G F I C C A A A A T L L E M A V P

L A A MA GATLEASRHPVVLLVDDGF

VA A MA GA I A R A RVLG IPVILD GF
Q A A C G A V LA A RMAR I P V ML D G F


1
1
1
1
1
1
1
1
$L$
1
$L$
1
1






1 G

LAAMAGADAAARSYNIPVILDGFIDCSAAAAVLEKTAAAGAL
FAATAGYLAQAAARRTPVILDGVVVTAAALVAEMLAPGAK

FTCIVVGVI L GAAAHHGMVIIDDGFNTSACALVAK TVVPA SM
$\square A M M A G A M M G A A Q A G T I V I V D G F D A S V A A L D A R D L M P E A A$














 D Y ML A G HVVSA E P A GRMML L E R L E L R A V I D GN L R L G E GT G GII E WF A A G H R S T E P A Q S I A A L A A L G L E P L V D L G M R L G E G S G A V

 D H C L A G H L S A E GA H GEVVLRRRLGK DP L L D L GM R L GE G S GAA

 D WWL A G H T S GE P A QA KA L D R M A L E P L L D Q G V R L G E G V G A L D H C L I G H A S A E P G H N G L CAA A M G K R P L L D L G M A L G E G T GA A A YLI A GHRSPEPAHGRILSALGKTPLLDMGLRMVGEGTGAM




|  | 33 |
| :---: | :---: |
| UniRef90_J2C | A A N |
| UniRef90-X0QV70 | LA Y PLLQSACA $\square$ I NE |
| UniRef90-LOEWB0 |  |
| UniRef90-18SL27 | L GMSLLNAS L HVLND |
| UniRef90-U1L1W7 | LCLGLI EAAVNFYNE |
| UniRef90-G2SX09 |  |
| UniRef90_A6DF37 | LALPLI D SVCA |
| UniRef90_Q28M40 | LAI QIL R GAl A CH |
| UniRef90-UPI00037258FD | LAI GLLKGALACHRD |
| UniRef90_C8XJ11 | A AVPLVRSAVLILRE |
| UniRef90-C4ZBD7 | MMFALLDMALSV |
| UniRef90-A3W9C5 | LAMSVVQAALACHS |
| UniRef90-C9LWY2 | $\underline{1}$ VA D FL D A A |
| UniRef90_R7H982 | ML F P LL DMA MRVYRE |
| UniRef90-A9KMN8 | AVMPLLEMALS E |
| UniRef90_UPI0003689F27 |  |
| UniRef90-W7E3M2 | T 1 DP 1 L K GA L A C |
| UniRef90-R5NY22 |  |
| UniRef90-E6SAH4 | TAVPLVQSAALLVRE |
| UniRef90-A0A059E4P5 | LAFPLVRAAADMLRD |
| UniRef90-A9MAP0 | LLAANIVKAAALCHS |
| UniRef90-D3ARW4 | AS 1 PLL D MA L EVY T |
| UniRef90-C8S489 | LAI GVLK GAI A CHS |
| UniRef90-U2ELI8 | LALGVI GDALA L |
| UniRef90-F8JIM2 | LAVPI I RGAELMLRE |
| UniRef90-R6NSU4 | MMMSLLDVALGGV |
| UniRef90-C1A5M0 | LTVPLLRAAAALMSD |
| UniRef90-E2CLQ7 | LAAGIVKAADETHS |
| UniRef90_D8JT56 | LA A PL V R A A ELM L R D |
| UniRef90-A3VL35 | LAI GVLK G A |
| UniRef90-X6L4E5 | LALLSVVRGALACHN |
| UniRef90-FORYD9 | A A WPLVRLLASHILFE |
| UniRef90-K2HTB8 | LA L G V L Q G A |
| UniRef90-G6EIV3 | VATQLVRSAl A A H |
| UniRef90-D9VCE7 | Q AVPTL R A A R A V I A E |
| UniRef90_UPI0003A3C12B | VAAQTVRSALAA |
| UniRef90_A0A021W9X7 | MAVPLLRLLACALLHN |
| UniRef90_S9R3D8 |  |
| UniRef90-A0A023X1C4 | LA VP V VGGA A R V L S E |
| UniRef90_UPI0003956F96 | LA WPLLESACAMLRD |
| UniRef90- 5 ABK9 |  |
| UniRef90-X1MCX2 |  |
| UniRef90-U1QKW1 | VAl G T Y R A A CRSHTE |
| UniRef90_A9E6N0 | LAI GILLKTALDACH |
| UniRef90_W7USR0 | LLLPLLDGAA |
| UniRef90-L7W1P3 | A ALPTVRSAVAVLRD |
| UniRef90-W1RPJ6 | VAVGVI RAALAAHDQ |
| UniRef90-A3K463 | L ALGVLRAALECH |
| UniRef90-E4NA04 | LALPLLQAAGDTLAE |
| UniRef90-UPI00036289AE | V AVNLI RAALDA HND |



LVMP LLD
L A I LVLKGAVACHS
LA TGVLQGAVACHS
VALMILRAALECHN LALPLLEQAGRLHRD V QMGMLD LA VHMYK L A WPLVKAAAAMLRE LLADNVLVAAVECHS LA L P LVQAGVRALRD
 I AASNILESLLASSWH LA L SVLR RAALECHN $\begin{array}{lllllllllll}L & A L L G & V & K & A & A & L & A & C & H & D \\ L & A & M & \text { I } & V & E & A & A & C & A & M\end{array}$ L A

M
A A V P L VR S A GLLLS D
LAVNTVRSALACHT
VALMLLRAALECHN
QAVSVLKAARAVLAE
VA $\square P L L R \square A C A \square H$
$L A W P L V Q S A A N F L N E$


UniRef90 UPIO00467B5D4 UniRef90-UPI00046F6629 UniRef90-X1A2V4 UniRef90-D2BE05 UniRet90_M4SOR7 UniRef90-W8RTJ4 UniRef90_UPI000468C84F UniRef90 ${ }^{-}$C7QD51 UniRef90-A0A013WHGO UniRef90-Q5LTJ1 UniRee90-UPI0003B2FD58 UniRef90- UPIO0026CCB17 UniRef90-I2MX41 UniRef90-UPIOOO4020057 UniRef90'UPIO00248A3E9 UniRef90-G2TAU8 UniRef90-G1WJS9 UniRef90-UPI00035C4DC6 UniRef90 10GQ98 UniRef90-A0A024K8W1 UniRef90-A9FKD3 UniRef90-S9QAP8 UniRef90 F4CZN9 UniRef90-UP1000373EADO UniRef90-S7HF57 UniRef90-UP1000380D2CC UniRef90-E1L4A6
UniRef90-TOKDE2 UniRef90-DoZ8B5 UniRef90-UPI000380EDBC UniRef90-I0RB37
UniRef90-B7GCW5
UniRef90-UPI000382951E UniRef90-R5BNO4 UniRef90-X1G9Z2 UniRef90-14ERR2 UniRef90-UPI0002E32AE3 UniRef90-L8EUV4 UniRef90-W7TXW4
UniRef90-F3FTS1
UniRef90-D6KBT7 UniRef90-K8AG07 UniRef90-UPIO0036DC665 UniRef90- I1CZF6 UniRef90-S7J525 UniRef90-UPIo0036FCF3C UniRef90_E1IGF0 UniRef90- NODYN6 UniRef90-UPIO0036A8471 UniRef90_UPI0001D2F066 UniRef90-H8GC05 UniRef90-H5X0K6 UniRef90-X1TUW5 UniRef90-UPI00036EC7D1 UniRet90-F9MNJ6 UniRef90-D5RL23 UniRet90-B1FXB5 UniRef90 V6UHN2 UniRef90-D7WEI8 UniRef90-A0A059DY54 UniRef90_ToILK9 UniRef90- X11699 UniRef90-H5P5P5 UniRef90-X1VWW5 UniRef90-UPI0002880D91 UniRef90-W4UJ83 UniRef90-A6GCW0 UniRef90-B9TPZ0 UniRef90-A0A0311150 UniRef90-S3XNL9 UniRef90-C7MYZ2 UniRef90-M9VE62 UniRef90-X1KAN2 UniRef90-W1 WU98 UniRet90-R6BB47 UniRef90 L1LL39 UniRef90_V4UZZ3 UniRef90-F8AZ53 UniRef90-A0A059KN74 UniRef90-UP100037DE6BF UniRef90-X1RC76 UniRef90-14T410 UniRef90_C3WL99 UniRet90-R4Z5H5 UniRef90-M31181 UniRef90-A0A059FUW5 UniRef90 W7VL59 UniRef90-HOHV62 UniRee90_UPI00037FA186 UniRef90-H5WHEO UniRef90-S4MR39
UniRef90_Q0AX42
$M T \square L E Q T V A A \square R P A D P A A L A A A R A H Q D S L T K P R G A L G V L E$ LPLPDSGARSAAAARQAQLTKPPGSLGRLE
 LD K L A D QA E R P DEAAARDEMM T R L A G L A VP A A G L G R L

 F E R A L A A L P GP D RVVA QA D A T A R Q A T L T K P P G S L G R L
 LD DLLRVLLGTDP DA DAVSGAQAQERQQHLTKPPGSSGRL



पptVpeps Vearreavarhdat
 LD D FIINDIDDRPD S S VRRRAAEDWRAA H G P R P G A
D DFRNLFA H L P E G DVVA QA GK V W S L F A K A D K P R G S
 LA E IV A Al R P LDD A A QA QA R QRQDS L LKP P GS L GR L


FPAVNPKAREYVLA
KPPDQA Y QVVASIN




## पERPDGGVRRDAEARRERQVVPPGALGRपD

D $\square D$ DFSDLIERPHGGLRQEAEERRALTGLPPRALGRLE
 $D L D S L A A Q V E R P D D D A R A R V R E H L D A V T G A P S A Y G R L E$

LDEFSDL!ERPGGGLRREAEERRARTGLPPEALGRLD

$\square A A L I S A V Q P A D A G A M A A A R \square R Q A H L T K P L G A L G D L E$ ERRDRAWLDSLAKPRGSLG DWE

FDPVPAPDASAEAAVQSALTQ NPRGSFGRLA



EQT LWDHLDALAKPRRSLGQLE $S L L A R T V R G \square R G A D A K A D E A A R A R Q Q L L T K P E G S L G L L E$


SALLRETL HSPDRHRVVAAHDDADQLLTPPGS LGLLLD
 SEELP K L L N Q E $\square$ M E A C Q L

 FSPVESPSASAAQRVRSTLQASAR GRSFGRLA
 $D L A E L A R S V P P P D S D A G R S A S A R V D A L A T P P G A L G R L A$
 MLESTVAA DRPDDEAAMAAARE LQGRLTKPAGSDGAL



UniRef90_UPIO00467B5D4 UniRef90_UPI00046F6629 UniRef90-X1A2V4 UniRef90_D2BE05 UniRef90_M4S0R7 UniRef90-W8RTJ4 UniRef90_UPI000468C84F UniRef90_C7QD51 UniRef90_A0A013WHG0 UniRef90_Q5LTJ1 UniRef90_UPI0003B2FD58 UniRef90_UPI00026CCB17 UniRef90_I2MX41 UniRef90_UPI0004020057 UniRef90_UPI000248A3E9 UniRef90_G2TAU8 UniRef90_G1WJS9 UniRef90_UPI00035C4DC6 UniRef90 IOGQ98 UniRef90_A0A024K8W1 UniRef90_A9FKD3 UniRef90_S9QAP8 UniRef90_F4CZN9 UniRef90_UPIO00373EAD0 UniRef90_S7HF57 UniRef90_UPI000380D2CC UniRef90_E1L4A6
UniRef90-TOKDE2 UniRef90_D0Z8B5 UniRef90_UPI000380EDBC UniRef90_IORB37
UniRef90_B7GCW5
UniRef90_UPI000382951E UniRef90-R5BN04 UniRef90_X1G9Z2 UniRef90_-14ERR2 UniRef90_UPI0002E32AE3 UniRef90-L8EUV4 UniRef90-W7TXW4
UniRef90_F3FTS1
UniRef90_D6KBT7
UniRef90_K8AG07 UniRef90_UPI00036DC665 UniRef90_I1CZF6
UniRef90_S7J525
UniRef90_UPI00036FCF3C UniRef90_E1IGF0 UniRef90_N0DYN6 UniRef90_UPI00036A8471 UniRef90_UPI0001D2F066 UniRef90_H8GC05 UniRef90_H5X0K6 UniRef90_X1TUW5 UniRef90_UPI00036EC7D1 UniRef90_F9MNJ6 UniRef90_D5RL23
UniRef90-B1FXB5 UniRef90-B1FXB5
UniRef90-V6UHN2 UniRef90_D7WEI8 UniRef90_A0A059DY54 UniRef90_TOILK9
UniRef90_X1I699
UniRef90_H5P5P5
UniRef90 X1VWW5
UniRef90_UPIO002880D91
UniRef90_W4UJ83
UniRef90_A6GCW0
UniRef90_B9TPZ0
UniRef90_A0A0311150
UniRef90_S3XNL9
UniRef90-C7MYZ2
UniRef90_M9VE62
UniRef90-X1KAN2
UniRef90-W1WU98
UniRef90_R6BB47
UniRef90_L1IL39
UniRef90_V4UZZ3
UniRef90_F8AZ53
UniRef90-A0A059KN74
UniRef90_UPI00037DE6BF
UniRef90-X1RC76
UniRef90_14T410
UniRef90_C3WL99
UniRef90_R4Z5H5
UniRef90-M3II81
UniRef90_A0A059FUW5
UniRef90_W7VL59
UniRef90-HOHV62
UniRef90_UPIO0037FA186
UniRef90_H5WHE0
UniRef90_S4MR39
 $N I M R Q W A C C R G E S G P R V T S P R L M I F A A D H G V A A E G V S E V G$
 DLA ILIIAGWQGRERPEDARARVAVFAGNHGVAARGVSAFP DLAAQUATVQQKTETPRMETCQLTIFAADHGIACEGVSAFP H L A LLWYR SWR G GENVVESAP QVIVVA GNH GVVAAR GVVSAFP ELAI WLLA GARGSSARPVERARVVVFAGDHGVAAHSVSATA QLAL F FA GWQ GRA A P A L D Q GRVVI FA GNHGVVVHGVSAFP
 $D L A V F V A G W Q G V A A P R D E H V R V A V F A G N H G V V A H G V D A B P$ E L G E WL VA A Q GVVSPPK I ARPRVVVLFA G DH GVVAGLDVVSGRR DLA E WL A A WQRVVERPAV RHPMV SIIFAASHGVAA K GV SA F P TLATFMA GWQQRDRPVIGHARIAVFAGNHGIAARGVSABP QLAAF LSAWQGRHPPAMQAPVAHVFAGNHGVAADGVSAFP $E D V Q R L A A A L G T R D V D D S A R C L V V F L A D N G V V A Q G V S Q S G$ QLAE WLSAA QAAVPVRVENPRVVLFAGDHRIAELGVVVRE QQVQKL FMAWPEFYPEI RPHHFI FAADNGIVTAGVVRQE
 QL A A WWA G V R G E LDP LP L P A P GLLAVVFCACDHGVVA E GVVABP
 ELGCWLASVQQGTCPPHAPRPRVVVVAADHGIAAAAAVSAYP
 $D \square A A W L A R W T G R A P P S V V K P T V A I F A G N H G V A V H G V S P R P$ TYFRKI CTAWGRDDSEI RPQHII FSADNGCNME GYVGYN E I A L F L A G WQ G R E R P R L D MVVRA AV FA GN H GVAA R GVVSA F P









$D L G E W L A A A Q G A V P V P V E R P R V V L F A G D H G V A G L G V S K R P$ $V$ K E K A I I V M C A D H G V H D E G I T I S P $D V G E W L G S A Q A R V P V P V A R P R L M V M A G D H G V A E L G V V S R Q$ TLGDWLAACQGRTSPTPPRRRIVVFAADHGIAAKGVSARS Y L A GRIA GVQ GT LIHPEKLQKAVVVFAADHAVDGGENKTKG ELLA $\square W$ YAS $V Q Q G K T N A P \square A A P R V V L F A A D H G I A A H D V V Q R R$

 $D L A L Q L A L I Q G T E K P R I E R V T A F V F A G D H G L T A E G V S A Y P$ AFGDWLAARQGRSEPHAPRPRVVVFAADHGVASRGVSARS $E \square A G W L S A C Q G Q A P P R T P R R R V V V F A A D H G I A A R G V S A Q P$
$G V S V R \ A G V F G S D R P H P R G D A V L V A A A D H G V A A H S V S A Y P$ $R Q V E K V L L V W R D K S H E L S P K H V I V F A A D N G V V H A G V V S Q L$ A LAGWL GRWQGRAMPRLERVRVLVFAGNHGVAARGVSPYP

$$
V E Q P R L V L F A G D H G V A Q L G V S G R P
$$

 EAA A WL A K WQ GRFPPRI EKP F L A V FASSH GLASSEGVS LS S H $\ A C K L A B G D S G N P R P R A L E K S I I I M A A D N G V A M A$

$R L A V A L A L T Q D R R D P R T R P R R V V L F A G D H G C V A D G V S A W P$ DLSIRLA GMY GQVPVTVPHPVVGLFAGDHGVWAQGVSPDP A I A A QL A A I Q GRVVAVEVVHAPRLCLEFAA DHGVTRRGVVSPY




 LI A ERFAGILLADPQPNHLRYGVLVVASDHLVDGPQNSQHG D MAVRMAAGI LGEVVKTYLNKAVVIVGGDTAVDGENKTK G DWGKRLCVLQDSLNPQVRRGCLIVFAADHGCAGEACSAFP









UniRef90 UPIO00467B5D UniRef90_UPI00046F6629 UniRef90-X1A2V4 UniRef90_D2BE05 UniRef90_M4S0R7 UniRef90-W8RTJ4 UniRef90_UPI000468C84F UniRef90 C7QD51 UniRef90_A0A013WHG0 UniRef90_Q5LTJ1 UniRef90_UPI0003B2FD58 UniRef90 UPI00026CCB17 UniRef90_I2MX41 UniRef90_UPI0004020057 UniRef90_UPI000248A3E9 UniRef90_G2TAU8 UniRef90_G1WJS9 UniRef90_UPI00035C4DC6 UniRef90 I0GQ98 UniRef90_A0A024K8W1 UniRef90_A9FKD3 UniRef90_S9QAP8 UniRef90 F4CZN9 UniRef90_UPI000373EAD0 UniRef90_S7HF57 UniRef90_UPI000380D2CC UniRef90_E1L4A6 UniRef90_TOKDE2 UniRef90_D0Z8B5 UniRef90_UPI000380EDBC UniRef90_I0RB37
UniRef90_B7GCW5 UniRef90_UPI000382951E UniRef90_R5BN04 UniRef90_X1G9Z2 UniRef90_I4ERR2 UniRef90_UPI0002E32AE3 UniRef90_L8EUV4 UniRef90-W7TXW4 UniRef90_F3FTS1 UniRef90_D6KBT7
UniRef90 K8AG07 UniRef90_UPI00036DC665 UniRef90_I1CZF6 UniRef90_S7J525 UniRef90_UPIO0036FCF3C UniRef90_E1IGF0 UniRef90_N0DYN6 UniRef90_UPI00036A8471 UniRef90_UPI0001D2F066 UniRef90_H8GC05 UniRef90_H5XOK6 UniRef90-X1TUW5
UniRef90_UPI00036EC7D1
UniRef90_F9MNJ6
UniRef90_D5RL23
UniRef90-B1FXB5
UniRef90_V6UHN2
UniRef90_D7WEI8
UniRef90_A0A059DY54
UniRef90_T0ILK9
UniRef90_X11699
UniRef90-H5P5P5
UniRef90- X1VWW5
UniRef90_UPIO002880D91
UniRef90_W4UJ83
UniRef90-A6GCW0
UniRef90_B9TPZ0
UniRef90_A0A0311150
UniRef90_S3XNL9
UniRef90_C7MYZ2
UniRef90-M9VE62
UniRef90-X1KAN2
UniRef90-W1WU98
UniRef90-R6BB47
UniRef90_L1IL39
UniRef90_V4UZZ3
UniRef90_F8AZ53
UniRef90_A0A059KN74
UniRef90-UPIO0037DE6BF
UniRef90-X1RC76
UniRef90_-14T410
UniRef90_C3WL99
UniRef90-R4Z5H5
UniRef90-M3II81
UniRef90_A0A059FUW5
UniRef90_W7VL59
UniRef90-HOHV62
UniRef90_UPIO0037FA186
UniRef90_H5WHE0
UniRef90_S4MR39
UniRef90_Q0AX42
 SEFTPVMVTHFVAGDAAVGVVARQANVALEVVDCGVVQP






 $A G E A Y H L V R E V L E G T \quad S P V A V L A R G A G V P V R V V D A G L D C D$ VEVNF QMVA N F T A G G A A I N QL C K S Y N Y G L K V F E L A L


 QE IT Y L L Q A S N MVVA G G A A I S C F C K C Q H V
 SAA AT T A R L A DVVMA G GA A V S A L A A R H GVVR L V A V D V G L A G D Q E VT A Q M V A N F E A G G A A I $N$ N Q L C C R E A Q A D






 A D A S V Q Q AL E QESLAAAVTAR L GSGHSATGAAAKKLEA DVIVVVDVGLE Q D

 $A G S T K D V V R D V L D G S S P A A I L A R R A G V P V R V V D V A D V D C D P$
 A GSAERLVRAVLEG GRPVSVLARRLGVPVRVVDMALDCA QV VT A L H A Q N ML $P$ GSAAELVVRALLD GT SPAGILARQFEDVVRVVDMALDCD PEATRKLVVALRDGGTPLGILAGETGSGVR VVDV K N S K A D AL E $\quad$ A TGRRGPINKVAHRDGAGVMLLDMGLDED $P$ GWTAR QVVRACL D GTSAAATFAAAVGAPVRIVDIAVDAEP QAVTA QMVRNVLRG GAASSVLARHAHAELVVVDVGVDAA PALTGAMVRTFLAGRAGVSALATAHGVAVRVLDLGVDED
 SAVTTTAMTATFLAG RASVNALAAACGVEVVVVDAGVDAD
 AGSTARAAA ELAAGTASLALLAGAGDARLRVVDLAVDAE
 A EVVYVVQSRHMLA GT A AVACFCRCNNDSYEVVDVGIAHP

$M V A N F D A G \quad G A A V N A L S R D A D V E L D V V N A G D A T P$ A GGAYELVRNVLDGGSSPVAVLARRFSVPTRIVDVVLDCD





 QEITT QQMIN MA A G GAA ISVL SRQMGAQLWI TDVGARHQ $R T V T G Q M V A N D L A G$ GAAVVALSRAVQVELELDDAGVDAD
 SAVTGMMVATILAGRATSSALDAATHGCDLRLVDVGVASP

 GEVT GQMVYNELDG GAALNVLARHVGAEVLVVDDGVAAB
 QLSHAEM
 Q A V T G E M L R N FVVR G GA A V S V L A R E L G A G L EVV D



$\square E Y T P \quad \square V S E A M L N N \square A C \square G \square F T K T Q G V D L N V V D \square G M K N D$ Q S V T A A A A A AV R G DA A SAVLAA A A GAELVVLDVGIIDE

 QEVTA AMIA NFVAG GAVVNAFARQAGASVVTVVDVGVATP




UniRef90 UPIO00467B5D UniRef90－UPI00046F6629 UniRef90－X1A2V4 UniRef90＿D2BE05 UniRet90＿M4SOR7 UniRef90－W8RTJ4 UniRef90－UPI000468C84F UniRef90＿C7QD51 UniRef90－AOAO13WHGO UniRef90＿－Q5LTJ1 UniRef90－UPIOOO3B2FD58 UniRef90－UPI00026CCB17 UniRef90－12MX41 UniRef90－UPIOOO4020057 UniRef90－UPIO00248A3E9 UniRef90－G2TAU8 UniRef90－G1WJS9 UniRef90－UPIooo35C4DC6 UniRef90＿10GQ98 UniRef90－A0A024K8W1 UniRef90－A9FKD3 UniRef90－S9QAP8 UniRef90－F4CZN9 UniRef90－UPIO00373EADO UniRef90－S7HF57 UniRef90－UPIO00380D2CC UniRef90－E1L4A6 UniReffo－TOKDE2 UniRef90－DoZ8B5 UniRef90－UPI000380EDBC UniRef90－I0RB37
UniRef90－B7GCW5
UniRef90＿UPI000382951E UniRef90－R5BNO4 UniRef90－X1G9Z2 UniRef90－14ERR2 UniRef90－UPIO002E32AE3 UniRef90－L8EUV4 UniRef90＿W7TXW4 UniRef90＿F3FTS1 UniRef90－D6KBT7 UniRef90－K8AG07 UniRef90－UPIO0036DC665 UniRef90＿11CZF6 UniRef90－S7J525 UniRef90－UP100036FCF3C UniRef90 ETIGFO UniRef90＿UPIOOO36A8471 UniRef90－UPIO001D2F066 UniRef90－H8GC05 UniRet90－H5XOKK UniRef90－X1TUW5 UniRef90＿UPIO0036EC7D1 UniRef90－F9MNJ6
 UniRef90－V6UHN2 UniRef90－D7WEI8 UniRef90－A0A059DY54 UniRef90－T0ILK9 UniRef90 X11699 UniRef90－H5P5P5
UniRef90
x1VWW5 UniRef90－UPIO002880D91 UniRef90－W4UJ83 UniRef90－A6GCWO UniRef90－B9TPZO UniRef90 AOAO311150 UniRef90－S3XNL9
UniRef90 C7MYZ2 UniRef90－M9VE62 UniRef90－X1KAN2 UniRef90 W1 WU98 UniRet90－R6BB47 UniRef90＿L1LL39 UniRef90－V4UZZ3 UniRef90－F8AZ53 UniRef90－A0A059KN74 UniRef90－UP100037DE6BF UniRef90－X1RC76 UniRef90－14T410 UniRef90－C3WL99 UniRef90－R4Z5H5 UniRef90－A0A059FUW5 UniRef90 W7VL59 UniRef90－HOHV62 UniRef90＿UPI00037FA186 UniRef90－H5WHEO UniRef90＿S4MR39 501 L

QPMR GVVADKPRRGTRDFSLLEAALAPTELLAFAFDCGKRA MPADPRVTACRMGAGTVADHQAPAMTDETAAAGAANGWELD
 PFEAEGLIDRRपAAGTA

GS P

| T |
| :--- |
| S |
| S |

TADFTQGAAMSDADCLEAGRLGMAA
TQDFTQAPAMTGDELLAAALCGWAA
TD P\｜ISEYKПRQSS
T
PELLPEEVRHRVRRGS
EMP
T A

| VRDGRVRGRAAVRG |
| :--- |
| $P E L L P D V V R H R V R R G$ |

DAV
$G L D R K V A R G$
$L V P R V V R P R$
पS A LTP PLVPRVVRRG
GAPDAAEPRYRVRRGSGRDDVEDALTEDETDAALRDGRA PESDPKEVRHRVRRGSGRIDVEDSLTEDETEDAFRAGMAV
$D G \square G \square D R K V A K G$
$P \quad \square P Q A \square N M R M G R G$ A WG DERVSRSCPPI DRADAMTAE
DTELPYGVLUNHKLMHGSNNFLKEKAMPGD A WG TADVKGLVNKKVANGAHFFGKDPAMTAEEMEAALEVGFQM VGPAAGLLDRNVRRGTADLDGPAMTLEARRAVEVGIVE AEDPEEVTRHRVRRGSGRDDGENALTAGEAEQAFRAGMAV KDERYPYENAKVSRGSRDMTQGPALTPEERAAAQNVGAEA MD LPGVRHLRIGAGTANFAHGPAMSVEQGLAALQAGRDS PETLPAEVRHRVRRGSGRMDIEDALTLEEAEAAFRAGTAV P AVDNDDTGEFKIRRGSGSIDSEDALTSD APDNQVGEVKVRRGSGSVDSEDALTSDETERAVRVGMRI
D

| $\stackrel{L}{\mathrm{~L}}$ |
| :--- |
| P |

 ETPPAVDGGFKVRRGT $\stackrel{\square}{Q}$
 K $P$
LPHSPAVCRKK
 シープーブ SGPDVEDAMTGEEAEQADRLGMA贝 PTQ D पRTG HD
ADF
RNF
GR QSIAE $\begin{array}{llll} \\ R & S & T & E \\ Q & P & A & M\end{array}$
L $\square Q S H P A L V I E K \square G Y G T$ RKUGBAMS
TKRYPNLIHRKVKRGTNNFYKEKAMSMEECLQADFTGIDD TVAHPRLLRAQVAPGTADLTTGPAMTSDQALAAVGAGADA


HLPTADDTEEAALDERGCAATMAFGMEA
EKPTADFTEGPAMSEKETAATMAFGMEAA



UniRef90_UPIO00467B5D4 UniRef90-UPIOO046F6629 UniRef90-X1A2V4 UniRef90-D2BE05 UniRef90-M4SOR7 UniRet90-W8RTJ4 UniRef90-UPI000468C84F UniRef90 ${ }^{-}$C7QD51 UniRef90-A0A013WHG0 UniRef90-Q5LTJ1 UniRef90-UPIO003B2FD58 UniRef90-UPIO0026CCB17 UniRef90-l2MX41 UniRef90_UPI0004020057 UniRef90-UPI000248A3E9 UniRef90-G2TAU8 UniRef90-G1WJS9 UniRef90-UPIooo35C4DC6 UniRef90-10GQ98 UniRef90-A0AO24K8W1 UniRef90-A9FKD3 UniRef90-S9QAP8 UniRef90-F4CZN9 UniRef90-UPIO00373EADO UniRef90-S7HF57 UniRef90-UP1000380D2CC UniRef90 E1L4A6 UniRef90-TOKDE2 UniRef90-DoZ8B5 UniRef90-UPI000380EDBC UniRef90-10RB37 UniRef90_B7GCW5 UniRef90-UPI000382951E UniRef90_R5BNO4 UniRef90-X1G9Z2 UniRef90-14ERR2 UniRef90-UPI0002E32AE3 UniRef90-L8EUV4 UniRef90_W7TXW4 UniRef90-F3FTS1 UniRef90-D6KBT7 UniRef90-K8AG07 UniRef90-UP100036DC665 UniRef90-I1CZF6 UniRef90-S7J525 UniRef90-UPIO0036FCF3C UniRef90-E1IGFO UniRef90-NODYN6 UniRef90_UPIO0036A8471 UniRef90-UPIO001D2F066 UniRef90-H8GC05 UniRet90-H5XOKK UniRef90-X1TUW5
UniRef90-UPIOOO36EC7D1
UniRef90-F9MNJ6
UniRef90-D5RL23
UniRef90-B1FXB5
UniRef90-V6UHN2
UniRef90-D7WEI8
UniRef90-A0A059DY54
UniRef90-TolLK9
UniRef90-x11699
UniRef90-H5P5P5
UniRef90-X1VWW5
UniRef90-UPIo002880D91
UniRef90_W4UJ83
UniRef90-A6GCW0
UniRef90-B9TPZ0
UniRef90-A0A0311150
UniRef90-S3XNL9
UniRef90-C7MYZ2
UniRef90-M9VE62
UniRef90-X1KAN2
UniRef90-W1WU98
UniRef90-R6BB47
UniRef90-L11L39
UniRef90-V4UZZ3
UniRef90-F8AZ53
UniRef90-A0A059KN74
UniRef90-UP100037DE6BF
UniRef90-X1RC76
UniRef90-14T410
UniRef90 C3WL99
UniRef90-24Z5
UniRef90-M31181
UniRef90-A0A059FUW5
UniRef90 W7VL59
UniRef90-HOHV62
UniRef90-UP100037FA186
UniRef90-H5WHEO
UniRef90-S4MR39
UniRef90_Q0AX42
 $T G V G T G I L A H K R A L I D D A L A L H L P L A E D P L A L A A R L G G F E$

TGRGTGVLARKVEVVRQALRVNGGRAVPALEVLAAVGGLE A GPGTGVLARKAAVIDAALAFHRGAPASPFETLRRLGGRE VGRGTGGLDES GLSHKRAVVLEQAAARTGDPAKAVLAEVGGFE


 VGRGSGIWARKCAAVRDARRRGWPHRYE WTELLSVAGGAD $V G P G T G V V A R K G A V V E T A L A C H A G A P H T A F E T L R R V G G R E$ TGRGGAA A WMRKCAAI RDAL RRARPVLGDQTDLLAAVGGA D





 VGRGS G $\quad$ GWMRKAAAVRDALRRTRPVRRDPVGLLRTAGGAD T GR G GA A WMRKCAA I R D A L R R T R P V L G D QL Q L L L A T V G G A D TGFGGSA L LFHKR HVI A A A V KA Y E K E I Q M P A D A L R CVVGGFD V GPGS GADARKAA IVDRALALHGEHLRDPFEALRRVGGRE




 $L N E C T$ L S DQEKA D RLSATLQHYGLSASEPLKVLQTVGSLD
TGRGTGLDD
TGRGTGVVLARKVDVVTRAVARVPAPPTTPLAALAEVGGLE A GRGTGVLARKRAAVDAALARHPEARRDPLQAARALGGRE TGRGGAA WMRKCAA I R DALLRRARPVLGD QLELLAA TGGAD




 $D G R G S G \square W \square R K C A G G R E A L R R A R P V L D G D P M R L L G V S G G A D$

 VGAGAGHDSEGLARKYAALAAARTSATEPLAAVLGEFGGLE $V G R G S G I W M R K A A A V R D A L R R A K P V V T E P L E L V G T A G G A D$ $V$ GRGGAVWMRKAAAVRDALRRAKTVLSDPLDLLRTSGGAD
 VGYGA GLVLLKK K K II I V Q A L Q R Y Q S E M H G I E D I L R C V G G F D


 $V$ R P S A ELVERRRVVDVVA RA L A L H H R G H L L S D P L Q A L R HV G GRE A GR R EAELVNNTAIAVVNRPNAACDPLDVLTMVGGGA TGRGTGQLAHKVEVINRALVVNRPDPRQPLDVLAKVGGFE

 VGRGAGADDTTLAI KARVVADAVARATAATAAIASVVGYE
 $V G R G T G L$
$V$ GAGAGADATKACVVTAAVARATPLLHDDRAADASVAGYE $V$ G L G A G M V D Q K V GVV N R A L G R A E $I$ N R N D P I G L L S QL G GPE


TECGPTVEQRAAH $\quad$ VHSFVDRFNSERRDA $L H L L H \square A G G \square D$ SARSGF SIQQ LD DVGDFAKDPVGTLAMVGSAA CGKGT GLVAARKVT V VR RALLEANQELLKRQALHVLAALGGLE VGPGTRARDYWLER
 $V$ RS GARMDEDELNHVLAVLHSRHPGSEDPVQALASFGGFE $\|$ GRGS GA WKVKVAVI RDAMFRARALRSDDPGLLAAVTSPD
 V G R G G GLL S K K KK I I VEACERYG
TGRRGAGADDPT LERKRNAVARRVGSETDPFVLLCQLGGLE
NFTPPALSKRRDELVDRALKLHRGHLSDPLEALCCLGGRE $T$ GRGTGVDDRKVAVVRAALARHEPDPAD
A GA GS GMI A R K A K I V D A A L A R H A G QL A D P L E V LR R I G GRE
 $V$ VS GPTMNPDQLAVIDQGAQGRHKEVSDPVVVLAAFGGFE TGARGGLLAWMRK CA A

UniRef90 UPIO00467B5D4 UniRef90_UP100046F6629 UniRef90-X1A2V4 UniRef90-D2BE05 UniRef90 M M SOR 7 UniRef90-W8RTJ4
UniRef90-UPIO00468C84F UniRef90 ${ }^{-}$C7QD51 UniRef90-A0A013WHG0 UniRef90-Q5LTJ1 UniRef90-UPIO003B2FD58 UniRef90-UPIO0026CCB17 UniRef90-I2MX41 UniRef90-UPIOOO4020057 UniRef90-UPIO00248A3E9 UniRef90-G2TAU8 UniRef90-G1WJS9 UniRef90-UPIooo35C4DC6 UniRef90-10GQ98 UniRef90-A0A024K8W1 UniRef90-A9FKD3 UniRef90-S9QAP8 UniRef90-F4CZN9 UniRef90-UPIO00373EADO UniRef90-S7HF57 UniRef90-UP1000380D2CC UniRef90 E1L4A6 UniRef90-TOKDE2 UniRef90-DoZ8B5 UniRef90-UPI000380EDBC UniRef90_10RB37
UniRef90-B7GCW5 UniRef90-UPI000382951E UniRef90-R5BNO4 UniReffo-X1G9Z2 UniRef90-14ERR2 UniRef90-UPI0002E32AE3 UniRef90-L8EUV4 UniRef90_W7TXW4 UniRef90-F3FTS1 UniRef90-D6KBT7 UniRef90-K8AG07 UniRef90-UP100036DC665 UniRef90-I1CZF6 UniRef90-S7J525 UniRef90-UPIo0036FCF3C UniRef90-E1IGFO UniRef90-NODYN6 UniRef90_UPIOOO36A8471 UniRef90-UPIO001D2F066 UniRef90-H8GC05 UniRet90-H5XOK6 UniRef90-X1TUW5 UniRef90-UP100036EC7D1 UniRef90-F9MNJ6 UniRef90-D5RL23 UniRef90-B1FXB5 UniRef90-D7WEI8 UniRef90-A0A059DY54 UniRef90_TOILK9 UniRef90-X11699 UniRef90-H5P5P5 UniRef90- X1VWW5
UniRef90 UPIO002880D91 UniRef90-W4UJ83 UniRef90-A6GCWO UniRef90-B9TPZ0 UniRef90-AOAO311150 UniRef90-S3XNL9 UniRef90-CTMYZ2 UniRef90-M9VE62 UniRef90- X1KAN2
UniRef90-W1WU98 UniRef90-R6BB47 UniRef90-L11L39 UniRef90-V4UZZ3 UniRef90-F8AZ53 UniRef90-A0A059KN74 UniRef90-UP100037DE6BF UniRef90-X1RC76 UniRef90-14T410 UniRef90-C3WL99 UniRef90-R4Z5H5 UniRef90-M31181 UniRef90-A0A059FUW5 UniRef90 W7VL59 UniRef90-HOHV62 UniRef90_UPI00037FA186 UniRef90-H5WHEO UniRef90-S4MR39 UniRef90_Q0AX42


$\square G G \square A G \square I L G C A A G R T P V V I D G F \prod S G A G A L I A S A D S P D S T$ IA A MA GFYAR GAALGCTLLLDGYVATAAALMAERLAPGTK $\square A A L V G \square c \square G A A R R G L A V V V D G F \square T A A A A A D A A T \square E P A L$
$\square A A M A G F F A E G A A R G A T L L L D G V A T A A A L V A A H \square A P G S E$ FAVLTGVVLGAAGRRAPIILDGYATSDCALLAQTAEPGVH


VF TiGFDLGAASHRMAVVFDNAVTGAAVLAAVTVEPLVK LAALFGLTVEAARRGDVVVDNAVTGAAVLAAQAVYPEVK
$\square A A L A G L L V Q A A V R R T P V V L D G V V V C A A A L A A E A Y A P G S K$ MAVMVGAMLSAAERRMLILVDGMSACAALLVASQTAPAVV FVTLVGVIAQSAVRRTPVVLDGPYSVMAAHCAELLAPGTK GGLVGCI LAA $L V G M A G V M L G A A S C G L P V L L D G F L S Y A A A L A A C Q M S P A \square K$ HAALVGAVLSAAAKRVPVVLDGA $\square T \square S A A \square V A V A \square A P S \square S$ $\square A A C V G A \square \square A A R H Q G V P V V L D G F A T T \square A A G V V H A \square D P A A \square$
FAA AAGALATRMERDPVILDGHAATAAAAALQAANPAAL 1 AALVGAI AARMQGIPVILDVFSTCVAAALVHAMKPGAA


UniRef90 UPIo00467B5D4 UniRef90-UPIoo046F6629 UniRef90-X1A2V4 UniRef90-D2BE05 UniRef90_M4SOR7 UniRet90-W8RTJ4 UniRef90_UP1000468C84F UniRef90 C7QD51 UniRef90-A0A013WHG0 UniRef90-Q5LTJ1 UniRef90-UPI0003B2FD58 UniRef90-UPI00026CCB17 UniRef90-I2MX41
UniRef90-UPIOOO4020057 UniRef90-UPI000248A3E9 UniRet90-G2TAU8 UniRef90-G1WJS9 UniRef90-UPI00035C4DC6 UniRef90 10GQ98 UniRef90-A0A024K8W1 UniRef90-A9FKD3 UniRef90-S9QAP8 UniRef90-F4CZN9 UniRef90-UP1000373EADO UniRef90-S7HF57 UniRef90_UP1000380D2CC UniRef90-E1L4A6
UniRef90-TOKDE2 UniRef90-DoZ8B5 UniRef90-UPI000380EDBC UniRef90-10RB37
UniRef90-B7GCW5
UniRef90-UPI000382951E UniRef90-R5BNO4 UniRef90-X1G9Z2 UniRef90-14ERR2 UniRef90-UPI0002E32AE3 UniRef90-L8EUV4 UniRef90-W7TXW4 UniRef90-F3FTS1 UniRef90-D6KBT7 UniRef90-K8AG07 UniRef90-UP100036DC665 UniRef90-I1CZF6 UniRef90-S7J525
UniRef90-UPIo0036FCF3C UniRef90-E1IGFO UniRet90-NoDYN6 UniRef90_UPIooo36A8471 UniRef90-UPIO001D2F066 UniRef90-H8GC05 UniRef90-H5X0K6 UniRef90-X1TUW5
UniRef90-F9MNJ6
UniRef90-D5RL23
UniRef90-B1FXB5
UniRef90-V6UHN2
UniRef90-D7WEI8
UniRef90-A0A059DY54
UniRef90_TOILK9
UniRef90-X11699
UniRef90-H5P5P5
UniRef90-X1VWW5
UniRef90-UPIO002880D91
UniRef90-W4UJ83
UniRef90-A6GCW0
UniRef90-B9TPZ0
UniRef90-AOAO311150
UniRet90-S3XNLT
UniRef90 C7MYZ2
UniRef90-M9VE62
UniRef90-X1KAN2
UniRef90-W1WU98
UniRef90-R6BB47
UniRef90-L11L39
UniRef90-V4UZZ3
UniRef90-F8AZ53
UniRef90-A0A059KN74
UniRef90-UP100037DE6BF
UniRef90-X1RC76
UniRef90-14T410
UniRef90-C3WL99
UniRef90_R4Z5H5
UniRef90 M31181
UniRef90-A0A059FUW5
UniRef90 W7VL59
UniRef90-HOHV62
UniRef90_UPI00037FA186
UniRef90-H5WHEO
UniRef90-S4MR39
UniRef90_Q0AX42

290
300
 DYLIFAHCGSEQGHSALLEYLDVKALMELQLRIGEGVGGV
 DHCVAGHRSAEPGHAAALDHLGLRPLVELELRLGEGTGGL AAMVFSHRSAEQGHAALLGALAAEPLLSLDMRLGEGTGAL


R WL R A A G QL L S
D HCIA GHCS A E
DHVAGQLTGEPGQAKALDRMALNPILEQGVTVGGGTGAL
DHVQIAHASVEGAHRDVIARLGKKPIVDLGFRLGEGTGAA
DHLIAGHVSAEPGHARLLQRLGLAPLLALDMRLGEASGAA


EHALAGHSSAEPGAGLALRALGLRPLLGLDLRLGEGTGAL DHARAAHRSAEAGCATLLAALGMEPLLDLDLRLGEASGAA DWWLA GQDSGEPAQAKALDRIADNPLLDHGVTAGEGTGA
 DWWLA GQASGEPGQAKALDRMALEPLLDQGLTVGEGAGA DYLIASHFSAEKGAQDALQALGLEPFLHMEMRLGEGSGAA

 P Y LIATHRSVERGHAAVFERLGSTPLEDLQMRLGEASGAA

ERLIFAHVSAERGHAGMMAAI GARPLLDLSMRLGEGSGG S WWTAAHRSTEPAHVLALEHLDLEPLLDLGVAEGSGTGAV SWWAAAHRGSEPAHAMALEHLDLEPIVDLGVRRGGGLAAT DYLFAGHCSEEPGHKLMLSYLGLHPVLDLGMRLGEGTGAA



 PYLI GSHFAAEPAHETALALLDVPAYLQLKMNLGEGTGAA

NYMTASHCSAEKGHR VVLDRTGTKP LFYFDMRLGEGTGAA RQMIAGHRSAEPGHAAALAALGLEPVLAWEMRLGEASG

GY $\quad \square$ F A A HRSAEPGHRALLER $\square G \square R P L L E \square D M R L G E G T G A L$
RAMDA GHLSVEPGHGAALAQLGLTPMLDWGMRLGEGSGAL GFLIAGQRSREVAHAEILRVLGLEPLLADRMRAGEGVGGA A WWMATHRTTEPAHALALLEHLDLSPLVDF
GWLVASHASREHAHQAVLAELGVEPLMELRMRAGEGVGAC


A WW $W$ A GTRSTEPAQK $L T$ DYALFCRSTDHRGLDDVLAGFESAALLALGLESIDGTGTT K WLLA GQLGTEPCQPA LSAGEVTPIMALDIATGQGTGAL PY L I P S H LS AEKGAR DA LSH HGLEPF LNMDMRLGEGSGAA EHLIASHAPAEPAGP $\square$ A $\square$ A H $\square G L V P \square \square D L Q \square R \square G E G S G A L$ SHCLASHTTRRPAHEAALERLGLKPDMELEFQTGGGLGSA

DHCVVAHLPVEPGHRKAlERLGLEPLLDL
DHCLAGHLSSEPAHQALLDRIGQKPLLDLGDRCSEGAGAS D Y CVVFCRSHSHRGLDQALNLFRASALLELGMESTDGTGAA


UniRef90 UPI000467B5D UniRef90-UPI00046F6629
UniRef90-X1A2V4
UniRef90_D2BE05 UniRef90_M4S0R7 UniRef90-W8RTJ4
UniRef90_UPIO00468C84F UniRef90 C7QD5
UniRef90 A0A013WHG0
UniRef90-Q5LTJ1
UniRef90_UPI0003B2FD58
UniRef90 UPI00026CCB17
UniRef90-ı2MX41
UniRef90_UPI0004020057
UniRef90_UPI000248A3E9
UniRef90- G2TAU8
UniRef90_G1WJS9
UniRef90_UPI00035C4DC6
UniRef90 IOGQ98
UniRef90-A0A024K8W1
UniRef90_A9FKD3
UniRef90_S9QAP8
UniRef90 F4CZN9
UniRef90-UPIO00373EADO
UniRef90-S7HF57
UniRef90 UPI000380D2CC
UniRef90-E1L4A6
UniRef90-TOKDE2
UniRef90-UPI000380EDBC
UniRef90-IORB37
UniRef90-B7GCW5
UniRef90_UPIO00382951E
UniRef90-R5BN04
UniRef90-X1G9Z2
UniRef90-14ERR2
UniRef90 UPI0002E32AE3
UniRef90-L8EUV4
UniRef90-W7TXW4
UniRef90_F3FTS1
UniRef90-D6KBT7
UniRef90_K8AG07
UniRef90_UPI00036DC665
UniRef90_I1CZF6
UniRef90-S7J525
UniRef90_UPIO0036FCF3C
UniRef90_E1IGFO
UniRef90_NODYN6
UniRef90-UPI00036A8471
UniRef90-UPI0001D2F066
UniRef90 H8GC05
UniRef90-H5X0K6
UniRef90-X1TUW5
UniRef90_UPI00036EC7D1
UniRef90_F9MNJ6
UniRef90-D5RL23
UniRef90_B1FXB5
UniRef90 V6UHN2
UniRef90_D7WEI8
UniRef90-A0A059DY54
UniRefgo-
UniRef90_X11699
UniRef90-X1VWW5
UniRef90_UPI0002880D91
UniRef90 ${ }^{-}$W4UJ83
UniRef90-A6GCW0
UniRef90 A0A0311150
UniRef90_S3XNL9
UniRef90_C7MYZ2
UniRef90 ${ }^{-}$M9VE62
UniRef90-X1KAN2
UniRef90-W1WU98
UniRef90 L1IL39
UniRef90-V4UZZ3
UniRef90-F8AZ53
UniRef90_A0A059KN74
UniRef90-UPI00037DE6BF
UniRef90-X1RC76
UniRef90 14T410
UniRef90 C3WL99
UniRef90-R4Z5H5
UniRef90-M31181
UniRef90_A0A059FUW5
UniRef90-W7VL59
UniRef90-HOHV62
UniRef90-UPI00037FA186
UniRef90 H5WHE0
UniRef90_S4MR39
UniRef90_Q0AX42
 L LVPTLRTALACYNE MAMQI ENSLSGYNE LA HPLVCAAVRVMHE IVA $\mathrm{I}_{\mathrm{N}} \mathrm{I}$ I I R S ALAA H L A WPLLKAAAAMDND L A VGVVK A A MACHS LALPMLKAAAALATE VAANDVRSAAAVHAQ LA $\mathrm{A}^{\mathrm{N}} \mathrm{I} \mathrm{L}$ K SAVACHS
LA L PAYRAAVRTDGE IV A A GVIR A A L A A HR E LA $\square P \mathrm{P} V \mathrm{QAASALLAE}$ I A GSII RAAADVVA
VAllill R SADAAHGE TAVPLLKAACQCH $A V L P L L D A A V E V Y R$ LALPLVR L GLSMLRTMV
MGAVLVKTALHDHNN LGLHLVGGACVS
LA A MILRGALACHD
AVVPMLQMAARLLAD LALPFLQAAAELWSD LGVVLMKTMM
LA A GL V K T S A Q $\square$.
LMVQMLKTTQHMF
VAVQLVRAALAAHD LMMPI VEAACAVH
TALPLI
MFFSLLDM $\square$ FE $\square Y T$ $\square A \vee P V V Q A T A M L R E$ AALPLLNAGAQLVGE MGLSVVDASLHMLND
LAFP LVASAARALRD $L A \operatorname{V} P L R A A L A C H$
$\square A \square P L L R S A C A \square M R E$ $L A \operatorname{V}]_{\mathrm{P}}^{\mathrm{L} V}$

| LAMPVID GACA】YQQ <br> ALLPLLSMAARL <br> $M \operatorname{GLT} M L D A S V Q M M N E$ <br> LAL PVLRAAVDL <br> LA PLEQVACTL <br> A AVPVVRSASALLRD |
| :---: |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

MVLP LVAMAATVHH AVLPLLTAAT
$\square A M G \square M E G S V R \square F Q D$
LAVILLRTVL
L A P PLL R A AL A C H
LA $V \mathrm{PLL}$ R A A CAF $\square \mathrm{NE}$
ATLPLVKAAVDLVRD TAIGLLKTACA
$\square G M S V I N A T L H M L N D$
$\square \mathrm{G} \square \mathrm{N} \square \mathrm{V} \mathrm{E}$
VA $\square \mathrm{P} \quad \mathrm{LI} \mathrm{R}$
V
MAASLLLQGLR $\square$
LG A QM ILT GLQV
$M G L S D D A S M Y M L N D$

LAVHLLVAAQATLAE LL S WP LVVRAACALLTE $L A \square P \vee I N A A A E M V G D$ $\square A M P \square 1$ E A A C A $\square \mathrm{Y} N \mathrm{~N}$
$\square \mathrm{A} \nabla \mathrm{P} \square \square \mathrm{RAAAAD}$
TA $\square$ GLLK T A C A

AT $\square G V L K$
LAAWPLVKK A A A LLTE


$$
\text { GR } \square \mathrm{E}
$$

## UniRef90 COFSZ6

UniRef90 ${ }^{-}$C2CNE8
UniRef90-R7B2B4
UniRef90-K6W404
UniRef90 B7AB19
UniRef90_W5XSL1
UniRef90-Q4JWD4
UniRef90 ${ }^{-}$W1 JHT3

$F L A L K L A G V T G Q H R P A L S Q K Q \square L V V A A D H G D A K$ ALAVQLAGLPGQGQLALAEKA VVVCADHGVWHEGVTPSP
R $\square G E W M A A C Q R R E K P K \square E K S T \square A \square F A G T H G \square A K H G V S V S D$
$P$ LAVRDGLIQNALRPRDRQPQLLVFAGDHGLAVDVSSPSG $P L A V R L G L I Q N T L K P R F R T P Q I T I F A S D H G L A V D G M T P T S$ $D V A S W \square A A C Q G V P A A P \square Q R T R V I V F A G A H G \square A T R G \square S A F A$ RALDRLVAAGAGRAEGGTLVLVGADHPVADLGVSAYA E VALRLAA $\square Q G R V K P E L G R G A V V V A A A D H G V V A E G V S A F P$ A PAMWWAGCQAEPARPLQRARVIVEASDNAI AQHGLSAYA EVATWDAACQGSAPAELNAARLVVVTGDHGVAEAHUSALP

A $\square$ A S WF SMRQNQA PPEPLKPEVILFAADHGVATP ANH A AKLLS LSKEEVLQPLKKAILIFAADHAVDGVENKT EWAAVLCTVQQTLAPVAEPQSVLVFCGDHGVADQSLSPFP D IA A WLAAWSGRAPPAVTRPLMAVFAGNHGVVRHGLSPRT ALAAQLGG LLKDRSRTSLKKAVLIFAADHAVDGKENKTHG
$R A V D$ GVVAAGGGATSGGTVLLAAADHPVASRGVSAYS EMADRDAGITCRKKPARDQKAIVIAAADTAIDSPDNQDHG A $\square A \backslash Q L A G M P G N G \square P H V G K K A V L V M C A D H G V W E E G V A D S P$
DWATTLCVAQRTLAPTAEPATVVVFAGDHGLADESLSPYP DPAI WLA GCQAEVPA Ql R RARVIVFASTNAI A QHGLSAFA EAAIRLARWQGREKPALDEVHVLIFAGSHGVTARGVSAFP
DAAAFMAACQGKPAEP LRQPRVVIF YA

QVVSFAAGTQGTSTPQPRSVRVLLLHGDHGGAAAGTLPGE
$T L A R F L A G W Q G R T A P Q L N H P R L T L F A A S$ HGAAAALGLDP EVASWI A GAQSAAPPHLDDVHAIAIPGVHGCADRDVAARA EVSVWIAAAQGVSPPPITRARALLLAADHGVATAGLYPWP QLVEFAAATQGAPRPAPDSTRVLLVHGDHTGGAAAGTAPG $T V L D R \square T A D A A V D G \quad R G T L V V A A A D H A V T A Y A \square S A F D$
$E D S A W D T A W T G K T P P A V L R P V V A D Y A G \quad A R Q G V G P R G$ $R V V G F A A A T Q G T S T P V A G S V R V L L L N G D H \quad A G G A S A G T$
$R V V S R V E A L G R G R M P \quad \square G G T L V L A G A S H P V A A L G V S A Y P$ VA RVA GWLA A RGSSASDCRLVI F A GDNGVVT DGVTLLP GLATWLAGTQDRDVPPLERVRLVVLAGDHGVAARGLS RLE
$D \square A \square W \square A A T R G R V P P M V G K A G \square A \square Y A S T H G F Y \square P G \quad A D P$ RKAVVIFCGDTAVDGVNQTQGK

DVAAWLSAVYGVCPPPPPARAKDMDFTDD DAGV
A HWA GSVRSVDTPFRRVRLI AFAADHGVT DGAAEAT EAVEFAAATQGTTDPRPESVRVLLMSGRHGGAAAGEDPDD

A VAE Q LCRAQGT LRPDTSPRRLVLFAADHGPDA
A WGGWLAACQGRELPAA $\square E R V T L A V V A G G S S T T P S V S V L P$ EA I EFAAATQGTATPQPGPVRVLLLDGRHAGGAAAGS D ELGIDWARTRGAVPPLIGKSGVALYAATHGFAEDADAD ELAVWLAATRGRVPPLIGQAGVALYAATHGFAEEDVLAAQ EAVEFAAATQDTTTPRPWTSVRLLVISGAHEGGAAAGADP D GA WLA S WQAKAAPQLKDVH:CLLASSYGGNAEGVLA Y $G \vee L D R I G A L R V V D G P G$

[^0]

UniRef90_X1MAL5 UniRef90 UPI00036B4EA1 UniRef90 ${ }^{-}$V2ZPR8 UniRef90_W1HD80 UniRef90_UPI0003B3E785 UniRef90_X1NYT4 UniRef90_B1Y319 UniRef90_UPI000472BD6C UniRef90_C0FSZ6 UniRef90_C2CNE8 UniRef90_R7B2B4 UniRef90_K6W404 UniRef90 B7AB19 UniRef90_W5XSL1 UniRef90_Q4JWD4 UniRef90_W1JHT3 UniRef90-UPI00016AC9E8 UniRef90_Q0F172 UniRef90_F9MR04 UniRef90_R1E9M6 UniRef90_UPI00047A5839 UniRef90_D3LTL8 UniRef90_C5TBL7 UniRef90_D2S7Z3 UniRef90_W1WBL7 UniRef90_D7XQ19 UniRef90 F3CE46 UniRef90_F0XYM3 UniRef90_D5NTV7 UniRef90_UPI000469EDC5 UniRef90 UPI00035E9D93
UniRef90_UPIO00375EDAD UniRef90_W4UEK5 UniRef90 F4F2T4 UniRef90 W7W4Q8
UniRef90_K2K213
UniRef90_UPI0003B67F3A UniRef90 E3JBF6 UniRef90_UPI00035F7801 UniRef90_UPI000478B14C UniRef90_W7VPC4
UniRef90_J2H7S5
UniRef90_IOL964
UniRef90_K0R6X9
UniRef90 A3TRV2 UniRef90_UPI0002192FE7 UniRef90-A6WD49 UniRef90-UPI0003797C43 UniRef90_K2P0X9 UniRef90_R7PPL0 UniRef90_U7KNT7 UniRef90_UPI0003746000 UniRef90 A0A010ZUH4 UniRef90_UPI000382AC68 UniRef90 K0SKR5 UniRef90 UPI00016C5510 UniRef90_U7L249 UniRef90_B1VHG2 UniRef90 R4LI31 UniRef90_I5C0C0 UniRef90_K2MKZ1 UniRef90_G8S844 UniRef90_UPI0003791B94 UniRef90_W9GLP7 UniRef90-Q8DGL0

EEKTTAQRVADACRLNSPDRSFAAKNSAEVIVVNAGLREK Q GVTADHAGN MVRGNTGVCVLAAQAGARVQVVDVGIDAD
SGATEARVK ALQEGKLAANGLAAMSNSALRVFELAL



PESDAEQLTE LAAE GAGPAHTMARRTGAS UHVVECA
A ETDVFPI DMGDACE PSVTRDVMSAAVAGESMGV VAAAGAGGEVVVVDAGVRGG Q E V T R Q M V L N F L R G G A A I N Q


MEVVD A GTLAS
GERTTD LVRES A A EGSA R H L L CQQAGANLHVVDLGVAD G HGKWSRNMAEEDAKGKGAINSAAHRDGAGVLLLELGMMEQP $P S V S Q A V F R S L C A G \square S A T A V L A R T A G A H L A V V D V G D D G D$ VA A T A N AVE LCAA G GA A I N QI C DA N D L G L K V F D L A L RQSKA A A EK $\square A A G C G P \square N Q V A H R V G A G V L L L E M G L E D P$
$P D V T R D V V R A A V A G S S L G A T A$ A RTAGLHLRVVDAGVSGA

 ASAT QAVVRALAAGVSCTATLARAANAQLVVVDVGVAGB P A AT GE QVA E VA G NVGPDHRLADA GDASVVELV E A E VT A Q M V A N F S A G G A A IVN QLA K Q A GA S L T V T P L E DE R P

HDDASANSAKD IA A GSAPVATDARTHGAGVRVEEDPAG
THDVMAASVAGTGLGVSTATAAAGLSHLVVDAGVAQP SGRRADQAR AGQGVLARLAAEGAAGLQVIEAPTAAP

VA A S E A S VK R F LD GE T P L N R L A E S L D S D L R DYE L S V TETTAT DVVENWLRSHSGPIAGAVRAAGAHLQLIDEWTTTP A GATARRAAAVATGGSPLAVLARRADVGLRVVDVADAEP DSARRAREARDGQGVWARLAAE AGAELQVVDAPAADP $P S \square T A D V A R A T R E G T S M G A V A A R A A G L D V E L I D D A G \square$

Y A RERLEAVAS GGANVCRTAGAQGAGLEAFDLAVDRP VA GESARRAAQARAGRGALARLAAESGASLQVVDTPV SAP $E A L D R G L A G A C A L A R R G G A R L R A V D V G V S P G$ $E R V T R D V L E A A V S G M A A G A V S A R S A G L D D V V V D A G A A A$ EGFSSDAADAVGDGSAPVVALAHRVDAALRLVDTGAAAA
 STLERVQHAADKH SVIT DLCQQANCRLHIVDVGVAGS


## $P D V V D R V A S H S$

A ERRVAQVE
$A L L A G E G A L A L L A H R A D V S D R V V D A G L A G D$ Q G E G VL S RLLA G Q A G A D V A V L R VA RA G A ESRVGDA $\quad$ VH D LTS GASATAVLAKATGTELIVVDVGTWCD
$E D S L S Q G G E Y$ A S GRSPVAAAAVAQAVRVEFDDANTAAA $P E D A A R R V A Q V Q A G E G A \quad L A R L A A T A G A D V T L V H V$ QQRVRVDAVAAGAAAVSHLVVGAGDLSLNVFDLALD
 P S VT A D L V R A A T R E G T S M M G A V


[^1]


|  | 200 |
| :---: | :---: |
| UniRef90_X1MAL5 | DNEEVAKGDDVVGVGDMGIJGNTTASSAl CAVI |
| UniRef90 VZZPR8 | TRQLIAADGVKAFGVGELGMANTTPAAATISVLTGGSDPDAVV |
| UniRef90-W1HD80 |  |
| UniRef90 UPI0003B3E785 |  |
| UniRef90-X1NYT4 | VAAEVARGLDIVGTGDMGTGNTTASSAICAAMMGRPVAEV |
| UniRef90-B1Y319 | ADALP GNVLGCAGLGVGSDEAAALVISR |
| UniRet90-UPIOO0472BD6C | ADSLA GNAVACAGLGVGSHQSAALVLSRLSGARLSDL |
| UniRef90-C0 | VKECKEAGYTLLGTGEMGI GNTTTSAAMAAALLSVPPETVI |
| UniRef90-C2CNE8 | ADAETDAGADLLTPAELGVGGTSVAAVLMGNFTATEPVVI |
| UniRef90-R7B2B4 | VRVLKEQGYRLSAVGEMGIGNTTTSSAV |
| UniRef90 B7AB19 | ARARLEEGATLLAAGDMGIGNTTAAAALLAAALLGLIP |
| UniRef90-W5XSL1 | ADREIDAGTDLLTPADLSVANTTMAAAVMGVLTRTEP |
| UniRet90-Q4JWD4 | ADQEADKGTQVLLDGDLGRGLTTVAAAVDGSVCS |
| UniRef90 W1JHT3 | VARAAANQPDLLIFGEMGIGNTTASAALAASLLGUSAEED |
| UniRef90-Q0F172 | AHRATADGANLLVASSTSCGDNTADAATVAELAGLPPKED |
| UniRef90-F9MR04 | AFALYQEGYHAUGLGNLGERAMITALVLTTAYCKSRF |
| UniRei90 UPI00047A5839 | GtdLLcLGdLGVGNStVaAVLFAALFGGRGADW |
| UniRef90-D3LTL8 | EGYDVLG! |
| UniRef90_C5TB |  |
| UniRet90_D2S7Z3 |  |
| UniRet90-W1WBL7 | EAMSGVALALGE |
| UniRef90 F3CE46 |  |
| UniRef90-F0XYM3 | RGAVCVAVGEVGIG |
| UniRef90-D5NTV7 |  |
| UniRef90-UP1000469 | DLVSLGEMGI GN |
| UniRet90_UP100035E9D93 | VRRAQESAAQLFIGGEMG\GNTTAASALACA |
| UniRef90-UP1000375 | ADSEIDAGADLLIPGELGEGFSTEAAALFGALTKTEPVAL |
| W4UEK5 |  |
| 4F2T4 | A GV |
| W7w |  |
|  | W |
| UniRef90 UP10003B67F3A | ADTALDSGAQALIPLTFGSASAVTAAAL |
| UniRet90 | ADQAADAGVRLLVLGSCGA |
| UniRef90-UPI000478B14C | GRVLARTGP JVALGEVGVGNTTVAAALAAALDDVAADEV |
|  |  |
| 2H |  |
| UniRef90-10L | ADAGVQLLVLGACGAGTEAAAAAVLAATAGAEPPAV, |
| UniRef90_Kor6X9 | GESPSVVCFGEGGGNTSSSALAAALSGVPAEELI |
| UniRef90-UPI0002192FE7 | ADREIDGGADLLPTGEIGAGLTTVAATVVCAVCRAEPVRA |
| UniRef90-A6WD49 | ADAEIDAGVDLLLLGDLGAGATTVAATLVAVCLRKGAVDV |
| UniRet90-UP100033 | ANRCIDDGANLLIASS SCGDHIATAALIAELLGLSPEEV |
| UniRef90 K2 |  |
|  | - |
| UniRef90-U7KNT | (IDAGADLLPG GVESARVPAVVMATMTQTEPVVI |
| UniRef90_UPIOOO3 | ADTEADIGTDLLLLAAPSEAARVPAATLIAFLNEADAQTV |
| UniRef90-UPI000382AC68 | AEAAADAGRDLLVLASIGVGTDAVAAALSAAITGAEAVEV |
| UniRef90-K0SKR5 | TEKMVGESPSVVCFGEVGIGNTTSSSALTAALSGVPAEELJ |
| UniR | 兂 |
|  | DGGADLLIPG GIDDT T QVAAAAMGVMAQEEPVVV |
|  | DKGTELLLLGDFGPGTTTAAAT |
| UniRef90-R4L131 | AEEGREALVIAACGSGTDAAATAVLAATTGAEPVAV |
| UniRef90_15COCO | V |
| UniRef90-K2MKZ1 | A AEAGOGDLLCLGALGAQAEIAAGAVLAALYEG |
|  |  |
| UniRet90_UP10003 |  |
|  |  |
| niRef90_Q31C96 | GKSSKQP ILISESVPGGTTTAQAVMEA FGLRVSNL |

lupas_21
lupas_14
lupas_28
jneet
conf
sol25
sol5
solo
hmm
jpssm

| UniRef90_X1MAL5 |  |
| :---: | :---: |
| UniRef90_UPI00036B4EA1 |  |
| UniRef90_V2ZPR8 |  |
| UniRef90_W1HD80 |  |
| UniRef90_UPI0003B3E785 |  |
| UniRef90_X1NYT4 |  |
| UniRef90_B1Y319 |  |
| UniRef90_UPI000472BD6C |  |
| UniRef90_C0FSZ6 |  |
| UniRef90_C2CNE8 |  |
| UniRef90_R7B2B4 |  |
| UniRef90-K6W404 |  |
| UniRef90_B7AB19 |  |
| UniRef90_W5XSL1 |  |
| UniRef90_Q4JWD4 |  |
| UniRef90_W1JHT3 |  |
| UniRef90_UPI00016AC9E8 |  |
| UniRef90_Q0F172 |  |
| UniRef90 F9MR04 |  |
| UniRef90_R1E9M6 |  |
| UniRef90_UPI00047A5839 |  |
| UniRef90_D3LTL8 |  |
| UniRef90_C5TBL7 |  |
| UniRef90_D2S7Z3 |  |
| UniRef90_W1WBL7 |  |
| UniRef90_D7XQ19 |  |
| UniRef90_F3CE46 |  |
| UniRef90_F0XYM3 |  |
| UniRef90_D5NTV7 |  |
| UniRef90_UPI000469EDC5 |  |
| UniRef90_UPI00035E9D93 |  |
| UniRef90_UPI000375EDAD |  |
| UniRef90_W4UEK5 |  |
| UniRef90-F4F2T4 |  |
| UniRef90_W7W4Q8 |  |
| UniRef90_K2K213 |  |
| UniRef90_UPI0003B67F3A |  |
| UniRef90 E3JBF6 |  |
| UniRef90_UPI00035F7801 |  |
| UniRef90_UPI000478B14C |  |
| UniRef90_W7VPC4 |  |
| UniRef90_J2H7S5 |  |
| UniRef90_IOL964 |  |
| UniRef90_K0R6X9 |  |
| UniRef90_A3TRV2 |  |
| UniRef90_UPI0002192FE7 |  |
| UniRef90_A6WD49 |  |
| UniRef90_UPI0003797C43 |  |
| UniRef90 K2P0X9 |  |
| UniRef90_R7PPL0 |  |
| UniRef90_U7KNT7 |  |
| UniRef90_UPI0003746000 |  |
| UniRef90_A0A010ZUH4 |  |
| UniRef90_UPI000382AC68 |  |
| UniRef90_K0SKR5 |  |
| UniRef90_UPI00016C5510 |  |
| UniRef90_U7L249 |  |
| UniRef90_B1VHG2 |  |
| UniRef90 R4LI31 |  |
| UniRef90_I5C0C0 |  |
| UniRef90_K2MKZ1 |  |
| UniRef90_G8S844 |  |
| UniRef90_UPI0003791B94 |  |
| UniRef90_W9GLP7 |  |
| UniRef90_Q8DGL0 |  |
|  | Q31C96 |



VGPGTGLIEHKTRVIERALALHAEQAGDPLHSLFCLGGFE CGRGTGLLAHKVDTVRRALAFHGAGLAAPREALRRLGGFE VGPGSGMWKTKVTVIRDAMFRARHVATDAQELLQVIGNAD V GRGTG
TGPGTGLNAHKVAVIERALALHAGQHGDVLQTLFNLGGFE TS LTTQQWQCDVTAI RDLMFRCRTAHAAPLELLTKSGSPA VGLGA GMVERKAEVIKAALTRTHTDPNDPERLLAALGGGPE

 VGTGPTAAAWKATVTIIDRDAMFRPTHSTPADLLRRVGSPE VDRGDGRWMLRTAAIRDALRRARPFASDPRSVLRVAGGAD LARDDAAWMVRCAAVRDGLHRSRHSSREPKEILAEVGGGD
 SDAPEPVAAAVARAAGEADDANAS AMSPLQALRELGGRE
 CDGGASLVARKVSALERAMAFHGDKDFDPKLALRAVGGAE VGVGAGADTDVVERKRAAVEQCHAWREDPADLLAALGGAE

 GSDAA GKQNGYQLQLK
$K \|$ QAAL
 TGLRGDQEWMWKREVSADRDAMFRARNLEGMELVASCQSAVV LGYDAHMPDALWIERCAAI RDGMRRVSQAAATLATGGGAD GYDA M M CDGGASLVARKVSILERAMAFHGDKDFDPKDALRAVGGAE A AVAERVLALHEP ADDPMGVFGAVGGSD VAKQPSVEDWKAEVAADRDSMFRMRGDTGRELMKACGSPV I GWGSGGWRRKVAQIRDGMFAVRDVRTEPREDLSRAAAPH LPRDDEAWMRRCAAVRDAMHRLRQEPRGAKDVARQAAAPA AAD GEGAFGGNIVSEALSFHADHLSDPLEVLRRLGGRD
 $L P R D D H A W M V R C A A L R D A L H R D R Q E P R G A V D L L R Q L G G L D$
$D G E G V I$
VGRGASADARKDDIVERALARWR
IVGSSHRQHTQKWSLVQKGLA HMPPQADPFTCVAADGDPM VGSSAPRELRRKVVQKGLLNANLKTDFDSFDVVASVGDPF
lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm


UniRef90 X1MAL5
UniRef90 UPIOOO36B4EA1
UniRe UniRet90_V2ZPR8 UniRef90-W1HD80 UniRef90-UPIO003B3E785 UniRef90 X1NYT4 UniRef90-B1Y319 UniRef90-UP1000472BD6C UniRet90_C0FSZ6 UniRef90-C2CNE8 UniRef90-R7B2B4 UniRef90-K6W404 UniRef90-B7AB19 UniRef90-W5XSL1 UniRef90-Q4JWD4 UniRef90-UPI00016AC9E8 UniRef90-Q0F172 UniRef90-F9MR04 UniRef90-R1E9M6 UniRef90-UPIO0047A5839 UniRef90-D3LTL8 UniRef90_C5TBL7 UniRef90-W1WBL7 UniRef90-D7XQ19 UniRef90-F3CE46 UniRef90-FOXYM3 UniRef90-D5NTV7 UniRef90-UPI000469EDC5 UniRef90 UPI00035E9D93 UniRef90_UPIO00375EDAD UniRef90-W4UEK5 UniRef90 F4F2T4 UniRef90_W7W4Q8 UniRef90-K2K213 UniRef90-UPI0003B67F3A UniRef90 E3JBF6 UniRef90-UPIO0035F7801 UniRef90-UPIO00478B14C UniRef90_W7VPC4 UniRef90-J2H7S5 UniRef90-10L964 UniRef90-KOR6X9 UniRef90_UPI0002192FE7 UniRef90-A6WD49 UniRef90-UPI0003797C43 UniRef90_K2POX9 UniRef90-R7PPLO UniRef90-U7KNT7 UniRef90_UPI0003746000 UniRef90-A0A010ZUH4 UniRet90-UPIO00382AC68 UniRef90-KoSKR5 UniRef90 UPI00016C5510 UniRef90-U7L249 UniRef90-B1VHG2 UniRef90_R4L131 UniRef90-15COC0 UniRef90-K2MKZ1 UniRef90-G8S844 UniRef90-UPI0003791B94 UniRef90-W9GLP7 UniRef90-O8DGL0
UniRef9O-Q31C96
 TAVLCGALLGGAARGMLLVLDGLETAAAALAAAQMQPLVK

LVGMTGVILGAASCGLPVVLDGF $\square$ S YASA $\square A A C R M A P S A H$ LAACVGAIIAARHQGIPVILDGFATAVAAGVVHADEPRAD IGGLVGVMLGAAAHRIPVVIDGFDSGAAALI AAALSPKLK TAMMVGAMLKAAEKRHLIMID GIAACAALLVASHIAGPVA

 $F A V L T G V V L G A A G A G T G V V L D G L A T C V P A L L A R Q M E P A V H$
ПAAEAALIAQAASRRTPDLISGMFTADAAADAERLAPGTQ LVVMAGILAQAAVRRTPVIFDGVGAAAAALCAQMLAPGAA I AAISGAl TAAAQAR\|PVLIDGFIVSVAALAAVRLNPSCR HAMUAGAFLEAAHARMALLVDGFVATSALLVADALAPAVR FAAMAGFYRAAAAKGGFYRAAAAKGVPVLLDGYASVAAAL TAAMDGVILGAAYNRMCVTFDNAVTGAAVLMAQCDCSACK LAAMTGAFLEAEERGVAAVVDGFISGVAALCAVRMRPSCR FAAMAGA VATVTGAVLQAAAERRVIVVDGFITTAAVLVASRLQPAVLD IAMLTGLVLGAAARHMAIVFDNSVTGAAAVAAAAUAPRVK
TAAATGAYDACAQEG
I A A MVGAYAAARAA GVVTLVDGS $\square$ SAVAA LCARKMFPESR
LAAEAALIAQAATRRTPVLVSGMFTAVAAVLAERDAPGTH
$\square A A L V G A Y \square T C A Q E G \| V L V D G F D T V A A V A A R \square N P A C R$ AQALVGFVLQAAARRTPVLVDGCLATVCGLVAEKIAPGTR FAVLAGVCLGAAEAGSPLILDGLATSVAALIATKFSPGLH

VALMALTARAAARRTPVIVDGMVTTTAAVFADRLHRGCA
LAALAGLLVQAASRRTPVII DGAPGCAAALAAERIAPGAB
I AVATGVLLGAAAQRLPVLLDGPVGVAAGLVARRDAGPAR
LAVLTGVVLGVTEAGGVIVLDGLATSVCALAAVRLEPAVAA TAALVGAVLAARVQKVPVLLDGYAACAAAAVLHADDPALL
I AALVGGMLECSERRIPVLVDGFIVTAAALVASLMDATAT VAAEAGFI AGAAGRRTPVVLDGVAGAAPAVVADALDCPGAR
 MAAMAGFYRAAANKGVPVLLDGLASATAALAAIAWDVGAA
 LAAAVGLI TRAAERRTPLLDDAPLTATAAL DAERDNPGVK AHLTGVI LGAAARKDPVIFEGLAPTAAALMAHRDNEAAG
 IVALVGGMLECSERRRIPVLVDGFIVTAAALVASLDATAT LATVVGFMSQAABRRTPLLVDGACTATAAVCAAADTGDY VAVLTGMMAQAADRRTPVIVDGAGCAAAALCAQMDAPTAR I AAATGAILAARVQNMPVVLDGLPALAAALVAYRLAACAR LAALTGALLAARAQN:PVILDGLPALAAAALLQRLAPGAA UAGS DGALIAARSRRLPVLAEGYAALAAMVVLDAVMPGAC
$Q V V V A A M A L R A S Q T C G V L L A G G S Q M \square A V Y A F G R A \square A Q W$ QAFSMGLLIGARLDANQPVILSG

| lupas_21 lupas_14 |
| :---: |
| lupas_28 |
| jnet |
| cont sol2 |
| sol5 |
| solo |
| hmn |
| jpssm |




UniRef90 UPI00036B4EA1 UniRef90-V2ZPR8 UniRef90-W1HD80 UniRef90_UPI0003B3E785 UniRef90-X1NYT4 UniRef90-B1Y319 UniRef90_UPIO00472BD6C UniRef90-C0FSZ6 UniRef90_C2CNE8 UniRef90-R7B2B4 UniRef90-K6W404 UniRef90-B7AB19 UniRef90-W5XSL1 UniRef90-Q4JWD4 UniRef90-W1JHT3 UniRef90-UPI00016AC9E8 UniRef90_Q0F172 UniRef90-F9MR04 UniRef90-R1E9M6 UniRef90_UPI00047A5839 UniRef90-D3LTL8 UniRef90_C5TBL7 UniRef90_D2S7Z3 UniRef90-W1WBL7
UniRef90 D7XQ19 UniRef90- F3CE46 UniRef90-F0XYM3 UniRef90-D5NTV7 UniRef90_UPI000469EDC5 UniRef90 UPI00035E9D93 UniRef90_UPI000375EDAD UniRef90-W4UEK5 UniRef90 F4F2T4 UniRef90-W7W4Q8 UniRef90-K2K213 UniRef90_UPI0003B67F3A UniRef90 E3JBF6 UniRef90_UPI00035F7801 UniRef90_UPI000478B14C UniRef90_W7VPC4 UniRef90_J2H7S5 UniRef90_10L964 UniRef90-K0R6X9 UniRef90-A3TRV2 UniRef90_UPI0002192FE7 UniRef90-A6WD49 UniRef90-UPI0003797C43 UniRef90_K2P0X9 UniRef90-R7PPLO UniRef90-U7KNT7 UniRef90_UPI0003746000 UniRef90-A0A010ZUH4 UniRef90_UPI000382AC68 UniRef90-K0SKR5 UniRef90 UPI00016C5510 UniRef90_U7L249 UniRef90-B1VHG2 UniRef90_R4LI31 UniRef90-15C0C0 UniRef90-K2MKZ1
UniRef90 G8S84 UniRef90-G8S844 UniRef90_UPI0003791B94 UniRef90-W9GLP7 UniRef90_Q8DGLO
 $N Y L I A P H V A A E P G F Q E M L F L L G L P S Y L Q L Q L Q Q S E G \square G A V$

PY LIPSH LS AEKGAQ DADDA LGLRPY GDMDMRLGEGSGAA THVI AGQATNRPAHQAILDRLEMEPLLDLKMQAGEGMGGM DFLI A GHVVDETG
DYCVFCRSTDHAGLDAVLAGFHATALLALGMDSLDGTGDT




A WCFA ADVTAEPAHDLALQDLSLTPLLNMDMSTGQGLGALL A WWLAASAGTEPAALPALNALGLEPLLDLQLGTGQGLGAVV PFLLPSHQSAEQGHRLVLRALNVQPLISLDLRLGEGSGAA E Y CVVSHVSNEAGHRRMLEHLGGEPLLALDLRLGEGTGAA A AVAWSHVSDDNGHREALESLGDEPMMELQSSUGKGKVAA EYLFTVVQYDEPVHQMQMNVLGYSPFLKTDFYDGMGMGSV SHLLFATASAVRGGEVLAEALGATPALGMGDRDGEGSGAA DHCLLASLSPEPAHAKAAELLALRPLLDLGUSHGEGAGAA QYVFPSEHYDEPVHHMQMQKLGQTPFLETG QRCVFSHRSGEPGHAHMLAQLQAEPLLDMGDRLGEGSGAA PVLLAGQRSRERGHELVLRDL GREPLLDLRMRAGEG $D Y V F A S A A Y P D P L H Q L Q L Q K L G L Q A A L H Y D F T L A Q G L G S T$

DRMLFAAALAEAGGADLARELAAKPADDMADRDGEASGAV A WCYAAD ITAEPAHVLALQDLDLEPLLNLDMSVGQGLGALL

E WLVF GHRGAEPGHRHVLQSLDAQPLLELGLRLGEGSGAA $A W L Y S S Q L S P E P A H D Q A V Q K L E L Q T P L L A F D L T T G Q G T G G V$
$G W L V A S Q A S R E Q V H Q Q V L A E L G L E A L M E L R M R A G E G V G A C$
 DACVIFAHCSDEAGHARADAHLGARPLLALDLRLGEGS QHCLLAHASADPLAAALGRALGFEPLLDDGGSTGDGVASA DWVLATGSSHDPAHR\AIRELGVSPLLELDVRADDDIGAL A WWLVGAESGDPAAKHVVGTLGLRPLVDLSTRADDGTG HWCLLADHGGHPGVQLAADVLGLTPLLDLRLDLGEG AHLVAGQRSREKAHALVLRELGLEPLLDLRI RAGEGVGAA ARCVFAHRSQETGHARWLQHLGAQALLDLDLRLGEGSGAA A HCLAAHVGPAKGHARLLDALGKRPLI DLDI AEEEGVGGA HWCLDADHGGHPAVRLAADVLGLTPLLDLRLDLGEGA QVML FATRSTERGQATALELIRCEPALNMGLRMGEGTGAL A HLI AGQQSRERAHGEVLRLLGLEPDLLAMRGLRSGEGVGAT

 THCMLAGAGS SAEAQAASRLGLASVIDLGDAEGEGCASA ECDFPSGNYEEPDHKMQMKALHMEPC
E WLFATTLSTAPAHEDALRKLGLQPLHQLAMEPEPTLGALL A WFMPAHNDPDPASTSGLRYLGRSALLDVGLFPGDGIAVL RWWCAPHASGRAGEKQAFSSLGLEPAVDLGVRLGDGSGAL HWCLLPDAGKLALVTKGADVLGLNP
QVMLFATRSTERGQATALELIRCEPALNMGLRMGEGTGAL ARVI EGRGSP
D WLLATNDSPQPAHRDALKKLRLDPLLDLQMEPVPALGALL D WWQPASPGTEPAIVPALGALGLSPILPTGIGLGQGAGTL HWCLLADAGKHQLVRQGADVLGLTPVLDLGLDLGEGA SHCVLA SSNSPLEDWAAEQLALKPLLELEFSGEAGCAGA


lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm


| UniRef90 X1MAL5 |  |
| :---: | :---: |
| UniRef90- UPI00036B4EA1 |  |
| UniRef90-V2ZPR8 |  |
| UniRef90-W1HD80 | LA M HLLDA A SVMYNQ |
| UniRef90-UPI0003B3E785 | LAMPLLQAASIVAN |
| UniRef90_X1NYT4 |  |
| UniRef90-B1Y319 | V S WP LV |
| UniRef90-UPI000472BD6C | LA WPLVRSAAALLTE |
| UniRef90_C0FSZ6 | M MFSLLDIA MS L |
| UniRef90-C2CNE8 | SAVPLI DAAVELAGD |
| UniRef90-R7B2B4 | A L F PLLDMALSI Y R D |
| UniRef90_K6W404 | MAASLLAQGLRL |
| UniRef90 B7AB19 |  |
| UniRef90-W5XSL1 | A A LP LIR S S TEL VA D |
| UniRef90-Q4JWD4 | LA L P MVR P AVA |
| UniRef90-W1JHT3 | 1 A L P LVRLI C S L |
| UniRef90_UPI00016AC9E8 | LALPLVRAAAAFVNE |
| UniRef90-Q0F172 | L LLPVLQSAVT |
| UniRef90-F9MR04 | L GL SVLDAA QKL |
| UniRef90-R1E9M6 | L A L P MV R A A A S I VAE |
| UniRef90_UPIO0047A5839 | LGA GL |
| UniRef90_D3LTL8 |  |
| UniRef90-C5TBL7 | $\square$ A WP LLA S A CA $\square$ LR D |
| UniRef90_D2S7Z3 |  |
| UniRef90-W1WBL7 | $\square G L S L F D A S L D M L N$ |
| UniRef90_D7XQ19 |  |
| UniRef90_F3CE46 |  |
| UniRef90-F0XYM3 | LALLPLARSAAALL |
| UniRef90-D5NTV7 | TVLPM ${ }^{\text {V }}$ R S S L L V S D |
| UniRef90_UPI000469EDC5 |  |
| UniRef90_UPI00035E9D93 | [LA VP M L R L A CALL |
| UniRef90-UPI000375EDAD | LALS AL NAATELVS D |
| UniRef90-W4UEK5 | FGAQMI LT GLQV |
| UniRef90-F4F2T4 | TVLPVLRSAL |
| UniRef90-W7W4Q8 |  |
| UniRef90-K2K213 | TALSVLRAACAC |
| UniRef90_UPI0003B67F3A | LALP M $\downarrow$ N T A $\square \mathrm{E}$ |
| UniRef90_E3JBF6 |  |
| UniRef90-UPI00035F7801 |  |
| UniRef90_UPI000478B14C | LA T GLVK D A L A L |
| UniRef90-W7VPC4 | LA WPLLESACRVLAE |
| UniRef90-J2H7S5 | T A L A L VRLLACEV |
| UniRef90-10L964 |  |
| UniRef90-K0R6X9 | A A L P L VRSACS |
| UniRef90-A3TRV2 | LAASLI LQ G L R I R R E |
| UniRef90_UPI0002192FE7 | QVLP V L R T A |
| UniRef90 A6WD49 |  |
| UniRef90_UPI0003797C43 | LMLP V L Q S A $\square$ S $\square$ |
| UniRef90_K2P0X9 | MAAGVLKSAA |
| UniRef90_R7PPL0 |  |
| UniRef90_U7KNT7 | A A L P MLLTGVE\\|A T D |
| UniRef90_UPI0003746000 | LAAEML DVAAASLS D |
| UniRef90_A0A010ZUH4 | LALDPVLT A A MELVR |
| UniRef90_UPI000382AC68 |  |
| UniRef90-K0SKR5 | A A L P L VR S A C S $\square$ |
| UniRef90-UPIO0016C5510 |  |
| UniRef90-U7L249 | A S LP L V L G VE $\square$ T A D |
| UniRef90_B1VHG2 | LALP HLLRLA T Q F |
| UniRef90_R4LI31 |  |
| UniRef90-15C0C0 | VA A GLLK S A A A L |
| UniRef90-K2MKZ1 |  |
| UniRef90_G8S844 |  |
| UniRef90 UPI0003791B94 | VALT L F E A S C |
| UniRef90-W9GLP7 |  |
| UniRef90-Q8DGL0 |  |
| f90-Q31C96 |  |


| lupas_21 <br> lupas_14 |  |
| :---: | :---: |
| lupas_28 |  |
| jnet |  |
| conf | 9 9 9 9 9 9 9 9 9 9 8 7 4 4 9 |
| sol25 | B B B B B B B B B B |
| sol5 | B B B B B B B |
| sol0 | B B B |
| jhmm |  |
| jpssm |  |


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

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

