## QUERY

 Unirea90-UpioooscrczecBs UniRef90-E1BWG7
UniRef90_G3VZ17
UniRef90-F7E669
UniRef90-Q4RWXO
UniRef90 V9LOP2
UniRef90-B2HN12
UniRef90-TiVXC0
UniRef90- $55 \mathrm{~K} 5 \times 4$
UniRet90 UPI0003AB5571
UniRef90-I0QUN1
UniRef90-UPIO00359C614
UniRef90_C3Y2T3
UniRef90 G7CDC2
UniRef90-UPIOO0050F841
UniRef90-H5U537
UniRef90-UPI000382352D
UniRef90-D1ACV0
UniRef90-O54BV6
UniRef90-N6UXX3
UniRef90-A9CEM1
UniRef90-G9QJY5
UniRef90-A3PQA2
UniRef90_C3YBJ5
UniRef90-HOR240
UniRef90-T1J091
UniRef90
UlGCB3
UniRef90-E6S198
UniRef90-B3TC33
UniRef90-UPIO0036C0EB3 UniRef90-FOL9R0 UniRef90-UPIO0038312DA UniRef90_UPIO004787D95 UniRef90_UPIO00465B426 UniRef90 Q1ATLO UniRef90-UPIO00371F290 UniRef90-UPIOOO41DEO8B UniRef90-UPIO0040BE5DA UniRef90-B2T8R7 UniRef90-F5SK62 UniRef90-B1G3Y5 UniRet90_UPIO002FBC2B3 UniRef90_UPIO00476667E UniRef90-K1KRQ2 UniRef90_UPI0003AFODDF UniRef90-W4MA68 UniRef90-H8E9N4 UniRef90 Q9RVU2 UniRef90-E6MIZ3
UniRef90_UPIOO035A08B6 UniRef90 UPI00031077FC UniRef90- G4HC26 UniRef90-A0A024Q7N4 UniRef90_UPIOO042C0196 UniRef90 COLZ68 UniRef90-R3WBE2 UniRef90-A0A024IEK7 UniRef90_DAALJ8 UniRef90_M1Z9J3 UniRef90-UPIIO003651BFB UniRef90-UPI00039D6FEA UniRef90-H3N3U8 UniRef90-K2Q433 UniRef90-UPIO002DEF138 UniRef90_U1XZC3 UniRet90_A0A023X192 UniRef90-UPIOOO3B738C4 UniRef90-19KR71
UniRef90-Q29BL3
UniRef90-F4LQZo
UniRef90 E5WGH4
UniRef90_TOQL48
UniRef90_C8NIC0
UniRef90_UPIO004632293 UniRef90 K6DE88
UniRef90-A0A026X1Z9 UniRef90-N1V7S4 UniRef90-D9R154 UniRef90_UPIOOO34624EB UniRef90-UP10003497779 UniRef90-UPI0003AD577E UniRef90_R5TPI4 UniRef90-S4RE744 UniRef90-X5LB11
UniRef90_F4WX19
UniRef90_UPIO0029894AA
Uniref90_G8Z414

1
10 10 20
${ }^{20}$
EHCGSSA
30
40
俍 KVQTVLGLVEPSRLGRTLTHEHLTMTFSYWI QKNPYSHK KVQTVLGLVEPTQLGCTMTHEHETMSYKCWIKQNPYSHK KVQTVLGLVEPGQLGRTLTHEHLTMTFDCWI QKNPYSHK KVQTVSGPVEPSQLGRTLTHEHLTMTFDCWUQKNPYSHK KVQTVLGPVDPEQLGKTLTHEHLTMSFECWLRQNPYSCH LNTARGPIDTADLGVTLMHEHVFIMTTEVAQNYPEAWG KIRTVRGGDISKE
HVT TVLGPMPVSSGGVTDMHE KIMTVQGVIEPSQAGVTLPHEHLYMKNLGWIRQNPYSHW K QTVCGWI DPASLGKTLTHEHLVADFSCYWKOYPYNF QVQTVTGPIIDSSLGRTLVHEHIFI VNEEMRQNYDMGWD TVNTVTGPVDSGDLGPTLIHEHIFVLGEEYRENYQDDWD QVQTVRGAVPVEELGTVLMHEHVFVLDEELRRNYPHLWD TVETVRGAVDVAALGRTYMHEHVEVLSTEHVHNYGLGWW MTV VGPI PVADMGVTGMHEHIFLDGASSWKCPCHRDN KПMTVRGPIATDQLGVTLMHEHILNDCRCWWRQDPFVNK RIGTVTGELAPEQLGKTLMHEHFFFDYAGFQGDRTLAGR KVQTVLGPI GPTQLGRTLTHEHLMDDASPFDRQFPWSYK TVETVKGQVDVEDLGTVLMHEHVFTDSTEDRENYPNYPD KVRTVTGPIEPSKVGVTLTHEHMCMENLGWIRQNPYSHK KVLTVLGPVSPDELGVVLPHEHLLLDFGKAWRQYPYSNN TVNTVTGPVRPEDLGKTLVHEHFVFGYPGFHGDLTMAPY KVNTVKGQIQSDDLGTTLSHEHTLFSYNFFFYESPLNDN HVMTVDGPIAVTDMGVTLMHEHIFLDGAKSWRCPCHPPD VATAGGPVPVSRLGTTLMHEHLENDCRCWWHAPKNKHN RVMTVGGPIPVDDMGVTLMHEHILLDTSGWWRRPCCRDN KVMTVNGPVNASALGVTLMHEHVLNDCTCWWNPPKNRHN TVNTVTGPISSEDLGKTLVHEHFMFGYPGYQGDTTLGPF I ETVRGPVDTASLGVTLMHEHVFVLTADDQANYPEQWG k V

VQTVQGEI NADELGVTLMHEHLFVDRSRLWAPFSNFDN VSTLRGPVSPESLGQVLMHEHVFVVGEELRRNSLTPWD KVNSVLGELHDDDLGYTLVHEHMRTRSEAVAVQFPHDYD KVQTVLGPVEPSQLGRTLTHEHLTMTFDCWIQKNPYSHK QUNSVLGPDSPDDLGFTLMHEHVMVSASGLYDSYPDLIGG ITTVKGKVAKRLGKTYIHEHVKLDLSGHKKDPBGBD QDNTVLGPVKAKDLGKTLMHEHLIYGFCGFQGDSTLDGF KVQTVLGLVEPSKLGRTLTHEHLTMTFDNFYYPPPPCHE YIQTVLGP: QPEKLGVCACHEHLYVDLSRWKKN ED KVRTFHGDIAPSKLGFTYSHEHEVCRPPYWVEQNENDD
 $K V Q T V L G L D P A E G G P T G M H E H V F I D F G D A Y G Q K P F M R N$ DVVTVLGDVKPESLQATMIDHEH VVETVVGPVPPVAELGTTLMHEHAGVGTPDSQANWCRDWD

TNTVKGRTDAGAVGVTMCHE HLAALDLSAVRKDTDSVFD I QTVKGKI EKEAFGVCAAHEHLSIDLSRVKGDPDTI LD


GYTMMHE
RTFFGDTPTSQLGFTYSHEHIVCLPGHWVERGE TD TVPTVNGPLDSSALGTVYMHEHVFVLTTDVQDNHPGEWG $V M T V T G P V D A S E L G T T L S H E L L I D L T G Y R N P Y A N L D N$ RTVLGDIKGEDMGFTYPHEHLHAVPPPCQKDR
VQTVLGPVAVKALGVTLPHEHLSMAFDCWIDQQHPYSHR


## QUERY

UniRef90＿UPI00014F7A18 UniRef90－UPIO003C28CB5 UniRef90－E1BWG7
UniRef90＿G3VZ17
UniRef90－F7E669
UniRef90－Q4RWX9
UniRef90＿V9LOP2 UniRef90－B2HN12 UniRef90－T1VXC0 UniRef90－S5K5X4 UniRef90 UPI0003AB5571 UniRef90－I0QUN1 UniRef90－UPI000359C614 UniRef90 C3Y2T3 UniRef90 ${ }^{-}$G7CDC2 UniRef90＿UPIOO0050F841 UniRef90－H5U537 UniRef90－UPI000382352D UniRef90－D1ACV0 UniRef90＿Q54BV6 UniRef90－N6UXX3 UniRef90＿A9CEM1 UniRef90＿G9QJY5 UniRef90－A3PQA2 UniRef90＿C3YBJ5 UniRef90－H0R240 UniRef90－T1J091 UniRef90－E6SI98 UniRef90－B3TC33 UniRef90＿UPIO0036C0EB3 UniRef90－FOL9R0 UniRef90＿UPIO0038312DA UniRef90－UPI0004787D95 UniRef90＿UPIO00465B426 UniRef90 Q1ATL0 UniRef90－UPI000371F290 UniRef90＿UPI00041DE08B UniRef90＿UPI00040BE5DA UniRef90＿B2T8R7 UniRef90－F5SK62 UniRef90－B1G3Y5 UniRef90＿UPI0002FBC2B3 UniRef90－UPI000476667E UniRef90－K1KRQ2 UniRef90－UPI0003AF0DDF UniRef90－W4MA68 UniRef90－H8E9N4 UniRef90－M1Z797
UniRef90 ${ }^{\text {Q9RVU2 }}$ UniRef90－E6MIZ3 UniRef90＿UPI00035A08B6 UniRef90＿UPI00031077FC UniRef90－G4HC26 UniRef90－A0A024Q7N4 UniRef90＿UPIO0042C0196 UniRef90＿C0LZ68 UniRef90－R3WBE2 UniRef90－A0A024IEK7 UniRef90－D1ALJ8 UniRef90＿M1Z9J3 UniRef90＿UPI0003651BFB UniRef90＿UPI00039D6FEA UniRef90－H3N3U8 UniRef90－K2Q433
UniRef90＿UPIO002DEF138 UniRef90－U1XZC3 UniRef90＿A0A023X192 UniRef90＿UPIO003B738C4 UniRef90－IIKR71
UniRef90 T1PIE4 UniRef90＿Q29BL3 UniRef90－F4LQZo UniRef90－E5WGH4 UniRef90＿T0QL48 UniRef90＿C8NIC0 UniRef90＿UPI0004632293 UniRef90 UPI0004185FAE UniRef90＿K6DE88 UniRef90－A0A026X1Z9 UniRef90－N1V7S4 UniRef90－D9R154 UniRef90＿UPI00034624EB UniRef90－UPIO003497779 UniRef90＿R5TPI4 UniRef90＿S4RE74 UniRef90－X5LBI1 UniRef90－F4WX19 UniRef90＿UPIO0029894AA
C4

UniRef90＿G8Z4I4

SRKALAEKAVRGLRRARAAGVRTVVDVSTFDDGRDVSLLA ENLQEMEAVREELLNFKSKGGGSVVENTTTGI SRDVQTLK
 ENLQEIUAI KEELLYYKANGGGALVENTTSGLLSRDVKTLK ENLQEADALREELLYYKAMGGGALLVENTTAGUGRDVKRLK



 CQLEDVDLAI E ELMNFKAQGGQSVVDPTNDGUGRDPKALQ
 D GARREADAVARLDELKSRGVDTIVDLTVIGLGRDLPRIV

 DEEE RVVA D A V A K L R D L A A Q GVVS T I A D P TVVWG L G R Y I P R I Q




 $D N D D F N D D A I E D V D K F K N F G G G T V V E N T T H G L Q R D L E F M K$ DRQRALDVGLDVAR RVMAHGVRTVVDATPNDCGRDPEDLW

 DEETQQIEAALKKLADAKANGDDTIVDDTVIDGGRYDPRVVK
 DREEAVRVGVAVAERAKSHGVKTII DATPNECGRDVEVLR



## カーメールルー <br> A G E E E P

RETTE DE L R C I K D N M K W A R A P L L R Q Y G F K T QL NQE T E A DK E E L L Y F K K A K G G G A M V


## ，

## QUERY

UniRef90_UPI00014F7A18 UniRef90-UPIO003C28CB5 UniRef90-E1BWG7
UniRef90_G3VZ17
UniRef90-F7E669
UniRef90-Q4RWX9
UniRef90 V9LOP2
UniRef90-B2HN12
UniRef90-T1VXC0 UniRef90_S5K5X4 UniRef90 UPI0003AB5571 UniRef90-I0QUN1 UniRef90-UPIO00359C614 UniRef90_C3Y2T3 UniRef90 ${ }^{-}$G7CDC2 UniRef90_UPI000050F841 UniRef90-H5U537 UniRef90_UPI000382352D UniRef90-D1ACV0 UniRef90_Q54BV6 UniRef90_N6UXX3 UniRef90_A9CEM1
UniRef90_G9QJY5 UniRef90-A3PQA2 UniRef90_C3YBJ5 UniRef90-H0R240 UniRef90-T1J091 UniRef90-E6SI98 UniRef90_B3TC33 UniRef90_UPIO0036C0EB3 UniRef90-FOL9R0 UniRef90_UPI00038312DA UniRef90_UPI0004787D95 UniRef90_UPI000465B426 UniRef90-Q1ATL0 UniRef90-UPI000371F290 UniRef90_UP100041DE08B UniRef90_UPI00040BE5DA UniRef90_B2T8R7 UniRef90-F5SK62 UniRef90-B1G3Y5 UniRef90_UPI0002FBC2B3 UniRef90-UPI000476667E UniRef90-K1KRQ2 UniRef90-UPI0003AF0DDF UniRef90-W4MA68 UniRef90-H8E9N4 UniRef90-Q9RVU2 UniRef90-E6MIZ3 UniRef90_UPIO0035A08B6 UniRef90_UPI00031077FC UniRef90-G4HC26 UniRef90-A0A024Q7N4 UniRef90_UPIO0042C0196 UniRef90_C0LZ68 UniRef90_R3WBE2 UniRef90-A0A024IEK7 UniRef90_D1ALJ8 UniRef90_M1Z9J3 UniRef90_UPIO003651BFB UniRef90_UPIO0039D6FEA UniRef90-H3N3U8 UniRef90-K2Q433 UniRef90_UPIO002DEF138 UniRef90_U1XZC3 UniRef90-A0A023X192 UniRef90-UPI0003B738C4 UniRef90-IIKR71
UniRef90 T1PIE4 UniRef90-Q29BL3 UniRef90-F4LQZ0 UniRef90-E5WGH4 UniRef90_T0QL48 UniRef90_C8NIC0
UniRef90_UPIOOO4632293 UniRef90_UPI0004185FAE UniRef90_K6DE88 UniRef90-A0A026X1Z9 UniRef90_N1V7S4 UniRef90_D9R154 UniRef90_UPIO0034624EB UniRef90-UPI0003497779 UniRef90_UPIO003AD577E UniRef90_R5TPI4 UniRef90-S4RE74 UniRef90-X5LB11
UniRef90-F4WX19 UniRef90_UPIO0029894AA UniRef90_G8Z414



## QUERY

UniRef90_UPI00014F7A18 UniRef90-UPIO003C28CB5 UniRef90-E1BWG7
UniRef90_G3VZ17
UniRef90-F7E669
UniRef90
UniRef90 V9LOP2
UniRef90-B2HN12
UniRef90-T1VXC0 UniRef90-S5K5X4 UniRef90 UPI0003AB5571 UniRef90-I0QUN1 UniRef90-UPI000359C614 UniRef90_C3Y2T3 UniRef90 ${ }^{-}$G7CDC2 UniRef90_UPIO00050F841 UniRef90_H5U537 UniRef90-UPIO00382352D UniRef90-D1ACV0 UniRef90-Q54BV6 UniRef90-N6UXX3 UniRef90_A9CEM1 UniRef90_G9QJY5 UniRef90_A3PQA2 UniRef90-H0R240 UniRef90-T1 J091
UniRef90-I1GCB3 UniRef90-E6S198
UniRef90-B3TC33 UniRef90_UPI00036C0EB3 UniRef90-FOL9R0 UniRef90_UPI00038312DA UniRef90-UPIO004787D95 UniRef90_UPI0004
UniRef90 Q1ATL0 UniRef90_UPI000371F290 UniRef90_UPI00041DE08B UniRef90_UPI00040BE5DA UniRef90-B2T8R7 UniRef90-F5SK62
UniRef90-B1G3Y5 UniRef90-B1G3Y5 UniRef90_UPIO002FBC2B3 UniRef90_UPIO0047
UniRef90-K1KRQ2 UniRef90-UPI0003AFODDF UniRef90-W4MA68 UniRef90-H8E9N4 UniRef90_M1Z797 UniRef90-E6MIZ3 UniRef90_UPI00035A08B6 UniRef90_UPI00031077FC UniRef90-G4HC26 UniRef90-A0A024Q7N4 UniRef90_UPIO0042C0196 UniRef90_C0LZ68 UniRef90-R3WBE2 UniRef90-A0A024IEK7 UniRef90_D1ALJ8 UniRef90-M1Z9J3 UniRef90_UPI0003651BFB UniRef90_UPIO0039D6FEA UniRef90-H3N3U8 UniRef90-K2Q433
UniRef90_UPI0002DEF138 UniRef90_U1XZC3 UniRef90_A0A023X192 UniRef90_UPIO003B738C4 UniRef90-IIKR71
UniRef90 T1PIE4 UniRef90_Q29BL3 UniRef90-F4LQZo UniRef90-E5WGH4 UniRef90_T0QL48 UniRef90-C8NIC0 UniRef90_UPI0004632293 UniRef90-UPI0004185FAE UniRef90_K6DE88 UniRef90-A0A026X1Z9 UniRef90-N1V7S4 UniRef90-D9R154 UniRef90_UPIO0034624EB UniRef90-UPI0003497779 UniRef90_UPI0003AD577E UniRef90_R5TPI4 UniRef90-S4RE74 UniRef90-X5LBI1
UniRef90-F4WX19
UniRef90_UPIO0029894AA
UniRef90_G8Z4I4

170
180
190
200

## G $G$ $G$ $G$ $G$ $G$ $G$ $G$ $G$ $G$ $G$ $G$ $G$ $G$ $G$ $G$ $G$ $G$ $G$

CPVTTHTAASQRDGEQQAADFESEGLSPSRVCDGHSDD




## QUERY

UniRef90_UPI00014F7A18 UniRef90_UPIO003C28CB5 UniRef90-E1BWG7
UniRef90_G3VZ17
UniRef90-F7E669
UniRef90 O4RWX
UniRef90 V9LOP2
UniRef90-B2HN12
UniRef90-T1VXC0 UniRef90_S5K5X4 UniRef90 UPI0003AB5571 UniRef90 ${ }^{-10 Q U N}$
UniRef90-UPIO00359C614 UniRef90_C3Y2T3 UniRef90-G7CDC2 UniRef90-UPIOO0050F841 UniRef90-H5U537 UniRef90-UPIO00382352D UniRef90-D1ACVO UniReffo-O54BV66 UniRet90_N6UXX3 UniRef90_A9CEM1
UniRef90_G9QJY UniRef90-A3PQA2 UniRef90_C3YBJ5 UniRef90-HOR240 UniRef90-T1 Jo91 UniRef90-E6S198 UniRef90-B3TC33 UniRef90-UPI00036COEB3 UniRef90-FOL9R0 UniRef90-UPIo0038312DA UniRef90_UPIO004787D95 UniRef90-UPIO00465B426 UniRef90 Q1ATLO UniRef90_UPI000371F290 UniRef90-UPIOOO41DE08B UniRef90-UPIO0040BE5DA UniRef90_B2T8R7 UniRef90-F5SK62
UniRefon
U1G3Y5 UniRef90-B1G3Y5 UniRet90-UPIO0002FBC2B3 UniRef90-K1KRQ2 UniRef90-UPI0003AFODDF UniRef90 W4MA68 UniRef90-H8E9N4
UniRef90 M1Z797 UniRef90-Q9RVU2 UniRef90-E6MIZ3
UniRef90-UPI00035A08B6 UniRef90_UPIo0031077FC UniRef90-G4HC26 UniRef9-AOAO24Q7N4 UniRef90_UPIOO042C0196 UniRef90_CoLz68 UniRef90_R3WBE2 UniRef90-A0A024IEK7
UniRef90_DAALJ8 UniRef90-M1Z9J3 UniRef90-UPIOOO3651BFB UniRef90-UPIO0039D6FEA UniRef90-H3N3U8 UniRef90-K2Q433
UniRef90-UPIO002DEF138 UniRef90_U1XZC3 UniRef90 A0A023X192 UniRef90 UPIIOO33B738C4 UniRef90-19KR71 UniRef90-Q29BL3 UniRef90-F4LQZO UniRef90-E5WGH4 UniRef90_TOQL48 UniRef90_C8NIC0 UniRef90 UPIOOO4632293 UniRef90-K6DE88 UniRef90-A0A026X1Z9 UniRef90 N1V7S4 UniRef90-D9R154 UniRef90-UPIO0034624EB UniRef90-UP10003497779 UniRef90-R5TPI4 UniRef90-S4RE74 UniRef90-X5LB11
UniRef90-F4WX19

| UniRef90-UP100029894AA |
| :--- |
| UniRefo Gizull |

UniRefo_G8Z414

290
300
310
320
$D \bigvee M D R V N P D G M A F T P L R V I P F L R E K G D P Q E T L A G D T V T N P$ HRLMKYGGHGYSHILTNIVPKMLLRGLTQNAVDKILI ENP N R L M K Y G G H G Y S H I L L K N I V P P K M L I R G I N R L M K Y G G H G Y S H I L K K T I V P K M L I R GI S Q D K I D K I L I G N P HRLMKYGGHGYSHILITNIVPKMLI RGISENVIEKILVENP H R L M K Y G G H GY S H I L A A NVV P K M M R I R G V T E N T L E K I L V E N P
 NRLMKY PNWHY LH I HNDVIPALKERGVTDEQVHTMLVDNP
A A A VP N WN FTH I S D QVI P A L L E E R G V T E D Q I N TMMLV D N P A Y G G GPGFRFI K T K FI P RLLEE GVTE QQI Q TIIFYDNP TRLMKYGGHGYSHILTNVVPKMLLRGITENVLDKILIENP TMLTRF G GHGYGYILKHFVPRLRRHGVSGEQLEQLLI NNP H R L M K Y G G H GY S H V L I N VV P K ML L R GI T Q A Q I D K F L I A N P HRLMHYGGHGYSHILLNVVPMMLNRGISQEDINKILVENP VA A GLPNWHYLHI HDDVIPALKQRGVTEEQLTTMLVDNP
 EQLA AVP NWNY R H I $\operatorname{S}$ E DVVL SLRSMAPNWHYGHI GRDVLPA LRAAGVVA


 MMLTRYGGNGYAFVTKHFLPRLRRHGLDEAALETLMVTNP HRLMHYGGHGYSHI LLDVVPMMLARGISQDQLGRTLTH
 HRLVKYGGHGYSHIINNVAPMMVNRGDPRDVVDQIMIMNP PALVRLLAAWHPTHLEEDVVPALVQAGVRPEVLDGIFTRNP DHMR S Y G G Y G Y G H I L E H I I P Q L R Q R G V


 $M M L T H Y G G N G Y A F I L$ K H F L P P R L A R H G L D H DVL T R L MKDN P


 QA L E A VP N WN Y Q HI PR DVLPALRDAGVSEQQITTMMVDNP

 M F L K K Y G G Y G Y SHI DE NFVPRRLKKGVSESEI QQLLVKNP ERERAAPNWHY L HI SREVLPALRARGVTEEQI HTMLVDNP K K HVVHPD WS M T Y L L E T V I P M L K K E H G V T T D K Q L E T I M M N N V HRLLTKY G GHGYSHILLTNIVPKMLLRRGITQDALLDKILI ENP T M P K D H N P D K Y L Y M H K HVVI P E L E K M G V S Q D Ti
SHLKK YK G DGYS Y $\quad$ V V D K F
EALP
D A DPNMAHAN IL L N

SHLRAFGGQGYDVVL/RSFVP
L G L
NRLMKYGGHGYSHlLK N


 S Y FR Q N N GPGYVYL FD T F L P D L R N A GVPDRVIEKMLIKNP LA A MP D WH Y L H V L R DVV P A L R E R GVVE E R DL T A ML A G N P





 HRLTS S G GHGYHHIHTNILPRMFARGVTLEQVEQMTVTNP Y GL L G L E FI I K K WTPRFEDA GLDEK LI EDFFI NNP




 H Y L A E F G GWGYSHVLTEFPAMLQTAGLDAAAHDQi TRKN P SHLKKWGGPGYAYLFETYDPMLREYGLSEEQIDMLLIDNP HYDNGPGLSFI K E K WI PRFDEAGFDEA LVVKFFVANP
 HYLTKYGGWGYGHI LRTTMTK IMAACEITQQEMTAMMVDNP A Y G G GPGFRFI RTKF\|ARLLDEGISSQQDIDTMFIENP HR LTTEGGHGFEHILTK I APKMLRRGMSQHVLDCILRTNP A NLKNYGGYGY DHLHRRI LP LLREHGVSDDTITQMMVENP
HRLDHF G GHGYSHI ANNVVPIMINKGFTTEEI ELITTVENP


| QU | ARFL |
| :---: | :---: |
| UniRef90_UPI00014F7A18 | Q R WL |
| UniRef90-UPI0003C28CB5 | K Q WL T F R |
| UniRef90-E1BWG7 | K R WL |
| UniRef90_G3VZ17 | K R WL |
| UniRef90-F7E669 | K R W L |
| UniRef90-Q4RWX9 | K E WL |
| UniRef90-V9L0P2 | K R W |
| UniRef90-B2HN12 | R R I FERQG |
| UniRef90-T1VXC0 | R R |
| UniRef90-S5K5X4 | A N W |
| UniRef90_UPI0003AB5571 | K QWLT F K |
| UniRef90-I0QUN1 | QR V |
| UniRef90-UPIO00359C614 | R R WLQ |
| UniRef90-C3Y2T3 | KQWL |
| UniRef90-G7CDC2 | RRIIFETQG |
| UniRef90-UPI000050F841 | R R |
| UniRef90-H5U537 | R R Y |
| UniRef90-UPI000382352D | R R Y |
| UniRef90-D1ACV0 | R R Y F |
| UniRef90-Q54BV6 | K R L |
| UniRef90-N6UXX3 | Q S VFSA |
| UniRef90-A9CEM1 | R SVF Q A K |
| UniRef90-G9QJY5 | QRVFS |
| UniRef90-A3PQA2 | R R V F D A S $\square$ |
| UniRef90-C3YBJ5 |  |
| UniRef90-H0R240 | R A Y F |
| UniRef90-T1J091 | T T W L S |
| UniRef90-I1GCB3 | K K WL |
| UniRef90-E6SI98 | A R L |
| UniRef90-B3TC33 | K R L F S |
| UniRef90-UPI00036C0EB3 | R A V F S A |
| UniRef90-F0L9R0 | R SVF Q A K |
| UniRef90-UPI00038312DA | R R I |
| UniRef90-UPI0004787D95 | R RVFSA |
| UniRef90_UPI000465B426 | R A V F A |
| UniRef90_Q1ATL0 | K R L |
| UniRef90_UPI000371F290 | R S FF |
| UniRef90-UPI00041DE08B | A R C |
| UniRef90-UPI00040BE5DA | R R Y F S G VGR |
| UniRef90-B2T8R7 | R R L L |
| UniRef90_F5SK62 | R R FIL S F A V |
| UniRef90-B1G3Y5 | R R L |
| UniRef90-UPI0002FBC2B3 | QTAL |
| UniRef90-UPI000476667E | RKYFA |
| UniRef90-K1KRQ2 | K R WF |
| UniRef90_UPI0003AF0DDF | K Q WLLT F K |
| UniRef90-W4MA68 | R R F |
| UniRef90-H8E9N4 | A A WL |
| UniRef90-M1Z797 | NRLLLN】S |
| UniRef90-Q9RVU2 | A R L |
| UniRef90-E6MIZ3 | A TV |
| UniRef90-UPI00035A08B6 | R Q WL T F K |
| UniRef90_UPI00031077FC | AKCFTFK |
| UniRef90_G4HC26 | QRAFS $\square_{\text {R }}$ |
| UniRef90-A0A024Q7N4 | A RCFAFK |
| UniRef90-UPI00042C0196 | K Q WL |
| UniRef90-C0LZ68 | QKAFS |
| UniRef90-R3WBE2 | M T FFTQGVK |
| UniRef90-AOAO24IEK7 | R R L L S |
| UniRef90-D1ALJ8 | K N CFTFKV |
| UniRef90-M1Z9J3 | R R F L T F |
| UniRef90_UPI0003651BFB | R R WFARS |
| UniRef90-UPI00039D6FEA | A D F LT $\mathrm{I}^{\text {K }}$ |
| UniRef90-H3N3U8 | T QF |
| UniRef90-K2Q433 | A |
| UniRef90-UPI0002DEF138 | A CF T |
| UniRef90-U1XZC3 | MRCFAFK |
| UniRef90-A0A023X192 | R R LFD |
| UniRef90-UPI0003B738C4 | RRILT ${ }^{\text {R }}$ Q |
| UniRef90_19KR71 | C R FL S F R |
| UniRef90-T1PIE4 | AKWLEFND |
| UniRef90-Q29BL3 | A NWLLS |
| UniRef90-F4LQZ0 | MRCFAF |
| UniRef90-E5WGH4 | SRAFS $\square$ R E |
| UniRef90_T0QL48 | $\mathrm{A} V \mathrm{~F} \mathrm{~F}$ |
| UniRef90-C8NIC0 | K RFVVRSKR |
| UniRef90-UPI0004632293 | A R |
| UniRef90-UPI0004185FAE | A A F S VKE |
| UniRef90-K6DE88 | AK ILTMQ |
| UniRef90-A0A026X1Z9 | R K WL T R |
| UniRef90-N1V7S4 | A R M L T |
| UniRef90-D9R154 | D R L L |
| UniRef90-UPI00034624EB | A C C A |
| UniRef90-UPI0003497779 | RRVFEGAV |
| UniRef90-UPI0003AD577E | A R MLT A |
| UniRef90-R5TPI4 | K R WL A V |
| UniRef90-S4RE74 | Q T WL A |
| UniRef90-X5LBI1 | R R L L D |
| UniRef90-F4WX19 | K K W L T R Q |
| UniRef90-UPI00029894AA | K Q WL A F K |
| UniRef90_G8Z4I4 | A R WLLS |



UniRef90_UPIOOO3EAC27E UniRef90_G5HJH6 UniRef90-H7F824 UniRef90-X1KWQ1
UniRef90 Q03C34 UniRef90-IODQV9 UniRef90-T5HV46 UniRef90-X6CBW7
UniRef90-N1NMS8 UniRef90_UPI000237A89B UniRef90-UPI00037356F2 UniRef90-C3WF26
UniRef90_UPI00036C43DF UniRef90-UPIO003028733 UniRef90_Q9KF95 UniRef90-E2AD64 UniRef90_UPI000477EE75 UniRef90-J8VQG6 UniRef90-G5IKI8
UniRef90-X7T130 UniRef90_UPI0002DEE634 UniRef90_S5ELZ9
UniRef90-Q6LNG8
UniRef90_UPIO002D78525
UniRef90_K8XDR7
UniRef90-A0A011MCC6
UniRef90-E5VHL4
UniRef90_UPI0003FEF39A
UniRef90-E0V9F9
UniRef90_R6F477
UniRef90_UPIOOO255E02A
UniRef90-W4M7J4
UniRef90 ${ }^{-} 101888$
UniRef90-H5V2C0
UniRef90_UPI0003ADF231
UniRef90 V2JUV2
UniRef90-UPIOOO4694985
UniRef90_A0A014M342
UniRef90-D4LRH0
UniRef90-A0A010NDJ3
UniRef90-X5VWS7
UniRef90-R7ZZF4
UniRef90-F4CL03
UniRef90_UPI0003719B22
UniRef90_A6D1D5
UniRef90 F4BSC2
UniRef90-A0A021VLH8
UniRef90-K6WJM2
UniRef90-H6RV53
UniRef90-Z5XJG9
UniRef90-G0GAK2
UniRef90-D3F5J2
UniRef90_UPI0004793AA0
UniRef90_UPI0003717A20
UniRef90-R4L572
UniRef90_UPI00034D3946
UniRef90-S5THY9
UniRef90_UPIO00466D2D8
UniRef90-K7JHM7
UniRef90-V6KDL3
UniRef90-X1U352
UniRef90-D3FBY2
UniRef90-G0Q3U3
UniRef90_D9W488
UniRef90_Q4A724
UniRef90_S7VCl7
UniRef90_UPI00036B524F
UniRef90-Q83MR7
UniRef90_UPI0003AD5D57
UniRef90-G8WEV1
UniRef90_UPIO0035121F8
UniRef90_UPI00030B49A2
UniRef90_L8EX47
UniRef90_U2QTZ9
UniRef90-E8MZC3
UniRef90-G9Y5P2
UniRef90_A0A021VTTO
UniRef90_UPIO00372D1CB
UniRef90 A2AUR5
UniRef90-A2AUR5
UniRef90-A0A022LEI1
UniRef90-B8HC54
UniRef90-M1 MWE5
UniRef90-V6JKA1
UniRef90-UPIO003011CCA
UniRef90-T5L1IO
UniRef90-UPI00045E6C7A
UniRef90-I8S9F2
UniRef90-XORGT8
UniRef90-WOHYE8
UniRef90_UPI000363ABE8
 Y $\square \mathrm{Q} T \mathrm{~V}$ T GPVKKEDM GKVYA HE HIDPIDDSEVKQN GaGG G GMTYMHEHTTIDDLSKVKNN S P QNLD D D


 P Q K D D DD
D S
D YIETVRGKI KPE EFGVCACHEHLLHIDLSRIKNDS

 VRLLTGDIAPESMGFTYSHEHVVCRAYWVERGQE

MECAADGRVLMHEHVFVLGAEMRQNYTEYPD GYTMMHEHMHI DLS GVKKDQ

 TVTGKI PASTAGDTL AHEH


TVLGA DDESEMGKALVHEH DMVDFSPADEQHVLDDS $R V R T V L G D V P A D T L G H T Q P H E H V L S D Y D W Q R R N V L N Q D N$ DRVNTVLGPDAPEELGFVADHEHIGYGMPGS EDDTQWWK TV VTVLGDVAACDDLGDVATHEEHLGVWNPEFHRNYPATWD



 $T L R T V T G E L R S A S V G P A L A H E H L V L D L D R V G B D G A A V L G$ $K V Q T V L G L V E P S$ QLGRTLTHEHLTMTYDSFYCPPPPCHE





$\prod R T V R G K \prod D G K N L G N T L D H E H \square Y V K P N E L F \quad D Y Y D$ LRTVTGPLSVTAAVGPVLAHEHLALDDSRPTDRTASLTA L H T TLGA L SAPPEGII LDPHEHI FVDLRPLDAPN HGQA







 NTVV TVVLGPV SA G DLLGVVSVHEAALLSVVVPGAEHAF DIAM

I R T L L H G D I D S R A L G V T Y S H D HVVYCIVPP Y WQQR Q D D D
UniRef90_B0K1N8
UniRef90_UPI0003EAC27E
UniRef90_G5HJH6
UniRef90_H7F824
UniRef90_X1KWQ1
UniRef90_Q03C34
UniRef90_IODQV9
UniRef90_T5HV46
UniRef90_X6CBW7
UniRef90_N1NMS8
UniRef90_UPI000237A89B
UniRef90_UPI00037356F2
UniRef90_C3WF26
UniRef90_UPI00036C43DF
UniRef90_UPI0003028733
UniRef90_Q9KF95
UniRef90_E2AD64
UniRef90_UPI000477EE75

DVDSLIED
50
60 70

80

 D NL NDI K TAEE ELLYYKKA GGRTVVDATSDGDGRDPEAL R



 CKKLN D F E K T K K E L L R L K E L G V T R I V DV T N M GM GRNVVE F I T



 G82D78525 1 MCC6 11MCC6
4 2FEF39A



## R

$\qquad$ 03ADF231 24694985 KN MDK $\begin{array}{lll}D & L & D \\ L & \text { PA E MHA E L }\end{array}$

NDJ3
555E02A

##  <br> L

3719822

## ,

## 

$\rightarrow 100$

CRLDDVNDD D MAVD

MREEVVRDMSPYLQEMKDFGFRTLFECTPRFLGRDIETLI $M R L D E E D A V A E L A D Y R A A G G G A V V D S T P V G M G R D P L G L A$ $C T L D D D A A M L A D L R S F A A A G G G T V V D V T P G G L G R D P L V L R$
$T P E Q R Y E E T V$ PGPGRVERAAAELTQAYHQGVRTVIDMTVFGQGRDPELTR DPVVRYEETVPKLQKFAEYGGRTFVDATGICNGRDIDYYK FMIDDTEASLKDVELFVAEGGQAVYDATAIDYGRKPAEDK
EDTDSAAVLLDKKYKKSGGGTIVENTSHGIKRDDPLMQ EDTDSAAAVLEDVKFYKKSGGGTIVENTSHGDKRDDPLMQ

YTLDNPDKMTEELDFFKKSNGRSIVDLTP TNYGRNPTALF RHALAVADELAGLR RQFGLSLVVELTCRGMGRDPAALA DDVDKAAQEARYFVEARWSPDATVIDMCPASSGRGVLKTL KTEDVVALMAPELKRARAAGDAALVECTPEGVGRHVEHVL MVQKDIDDVIFELNNFQSLGGRTVVDATGKAIGRNAENLR B

AREERTSEAAKQLEHAKSAGTDTTSDVVTPGAGRDVRLLK DRADIFEALAGKLADFRRHGGQTIVDSTGMFHGRDLKLYE DRAEIFDGLKRKLTDFKEHGGGTVVDSTGMFHGRDLKLYE
 DELDDEKASGEEAALLQASGFETMVDATPFGLARDPAPLA MRDDDKQMMTAEVGEFKDRGGNSIVEVSAPGDRNDLLADR DRAEDFEDLAAKVTDFRDHGGRTVVDSTGMFHGRDVRLYE


130
140
150
160
 UniRef90_BOK1N8
UniRef90_UPI0003EAC27E UniRef90_G5HJH6 UniRef90_H7F824 UniRef90_X1KWQ1 UniRef90_Q03C34
UniRef90-I0DQV9 UniRef90- T5HV46 UniRef90_X6CBW7 UniRef90_N1NMS8 UniRef90_UPI000237A89B UniRef90 UPI00037356F2 UniRef90 ${ }^{-}$C3WF26 UniRef90_UPI00036C43DF UniRef90_UPI0003028733 UniRef90_Q9KF95 UniRef90-E2AD64 UniRef90_UPI000477EE75 UniRef90 J8VQG6 UniRef90 G5IKI8 UniRef90-X7T130 UniRef90_UPI0002DEE634 UniRef90_S5ELZ9 UniRef90_Q6LNG8 UniRef90_UPI0002D78525 UniRef90 K8XDR7 UniRef90_A0A011MCC6 UniRef90_E5VHL4 UniRef90_UPI0003FEF39A UniRef90_E0V9F9 UniRef90_R6F477 UniRef90_UPI000255E02A UniRef90_W4M7J4 UniRef90-I01888
UniRef90-H5V2C0 UniRef90_UPI0003ADF231 UniRef90 V2JUV2 UniRef90_UPI0004694985 UniRef90_A0A014M342 UniRef90 D4LRH0 UniRef90_A0A010NDJ3 UniRef90-X5VWS7 UniRef90_R7ZZF4
UniRef90_F4CL03 UniRef90_UPI0003719B22 UniRef90_A6D1D5
UniRef90 F4BSC2 UniRef90-A0A021VLH8 UniRef90_K6WJM2 UniRef90_H6RV53 UniRef90_Z5XJG9 UniRef90_G0GAK2 UniRef90_D3F5J2 UniRef90_UPI0004793AA0 UniRef90_UPI0003717A20 UniRef90_R4L572 UniRef90_UPI00034D3946
UniRef90_S5THY9
UniRef90-UPI000466D2D8
UniRef90_K7JHM7

## - -

UniRef90_D3FBY2
UniRef90-G0Q3U3
UniRef90_Q60866-2 UniRef90_D9W488 UniRef90-Q4A724 UniRef90_S7VCI7 UniRef90_UPI00036B524F UniRef90_Q83MR7 UniRef90_UPI0003AD5D57 UniRef90_G8WEV1 UniRef90_UPI00035121F8 UniRef90-UPI00030B49A2 UniRef90_L8EX47 UniRef90_U2QTZ9 UniRef90_E8MZC3 UniRef90_G9Y5P2 UniRef90_A0A021VTT0 UniRef90_UPI000372D1CB UniRef90_A2AUR5 UniRef90_A0A022LEI1 UniRef90 B8HC54 UniRef90-M1MWE5 UniRef90_V6JKA1 UniRei90-UP10003011CCA UniRef90_T5L1I0 UniRef90_UPI00045E6C7A UniRef90_I8S9F2 UniRef90-X0RGT8
UniRef90_WOHYE8
UniRef90_UPI000363ABE8
$\qquad$
$\square \mathrm{NG} \square \mathrm{D}$ G T N Y K A S V I



 K K GI S GTDVRAGVI | $Q$ | $V$ | $G$ | $K$ | $G$ | $T$ | $D$ | $K$ | $A$ | $G V$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $N$ |  | $G$ | $D$ | $G$ | $T$ | $D$ | $R$ | $A$ | $G$ |
| $M$ |  |  |  |  |  |  |  |  |  |




 EVGI DNSNLKASVI GEI GSNGFSETEQNVFRGAADAHLET

 THGIIMDTGIHAAELKCAIDAAGTPGVERVMRAVGQANLRT





## 







## $R H$ D

TEG I A

## T

## 






## Uniratio boking

 UniRef90_UPI0003EAC27EUniRef90-G5HJH6 UniRef90_G5HJH6
UniRef90-H7F824 UniRef90_X1KWQ1 UniRef90-Q03C34 UniRef90-IODQV9 UniRef90-X6CBW7 UniRef90_N1NMS8 UniRef90_UPI000237A89B UniRef90_UPI00037356F2 UniRef90_C3WF26 UniRef90-UPIO0036C43DF UniRef90_UPI0003028733 UniRef90_Q9KF95 UniRef90_E2AD64 UniRef90_UPIO00477EE75 UniRef90_J8VQG6 UniRef90-G5IKI8
UniRef90-X7T130 UniRef90_UPIO002DEE634 UniRef90_S5ELZ9 UniRef90-Q6LNG8 UniRef90_UPIO002D78525 UniRef90_K8XDR7 UniRef90-A0A011MCC6 UniRef90_E5VHL4 UniRef90_UPI0003FEF39A UniRef90_E0V9F9 UniRef90-R6F477
UniRef90-UPIO00255E02A
UniRef90_IOI888
UniRef90-H5V2CO
UniRef90-UPIO003ADF231
UniRef90 ${ }^{-}$V2JUV2
UniReffo-UPIOOO4694985
UniRef90-A0A014M342
UniRef90_D4LRH0 UniRef90-A0AO1ONDJ3 UniRef90-X5VWS7 UniRef90_R7ZZF4 UniRef90-F4CL03 UniRef90-UPIOOO3719B22 UniRef90-A6D1D5 UniRef90 F4BSC2 UniRef90-A0AO21VLH8 UniRef90-K6WJM2 2 UniRef90-Z5XJG9 UniRef90-GOGAK2 UniRef90-D3F5J2 UniRef90_UPIO004793AAO UniRef90-UP10003717A20 UniRef90-R4L572 UniRef90_UPI00034D3946
UniRef90-S5THY9 UniRef90-UP1000466D2D8 UniRef90-K7JHM7 UniRef90_V6KDL3 UniRef90-X1U352 UniRef90-D3FBY2 UniRef90-GOQ3U3 UniRef90_D9W488 UniRef90-Q4A724 UniRef90-S7VCl7 UniRet90_UPI00036B524F UniRef90 Q83MR7 UniRef90-UPIO003AD5D57 UniRef90-G8WEV1 UniRef90-UPIOOO35121F8 UniRef90-UPIOOO30B49A2 UniRet90-L8EX47 UniRef90-U2QTZ9 UniRef90-E8MZC3
UniRef90-G9Y5P2 UniRef90-A0A021VTTO UniRef90-UP1000372D1CB UniRef90-A2AUR5 UniRef90-A0A022LEI1 UniRef90-B8HC54 UniRef90-M1MWE5 UniRef90-V6JKA1 UniRef90_UPIO003011CCA UniRef90-TSL110 UniRef90-UP100005E6C7A UniRef90-18S9F2
UniRef90-XORGT8
UniRef90_WOHYE8
UniRef90_UPI000363ABE8



 UniRef90-X1KWQ1 UniRef90_Q03C34 UniRef90-IODQVV9 UniRef90-X6CBW7 UniRef90-N1NMS8 UniRef90-UPIO00237A89B UniRef90-UPI00037356F2 UniRef90-C3WF26 UniRef90_UPI00036C43DF UniRef90_Q9KF95 UniRef90-E2AD64
UniRef90_UPI000477EE75
UniRef90-J8VQG6
UniRef90-G5IK18
UniRef90-X7T130
UniRef90_UPI0002DEE634
UniRef90 S5ELZ9
UniRef90_Q6LNG8
UniRef90_UPI0002D78525
UniRef90-K8XDR7
UniRef90-A0A011MCC6
UniRef90-E5VHL4
UniRef90_UPI0003FEF39A
UniRef90_E0V9F9
UniRef90_R6F477
UniRef90_UPIOOO255E02A
UniRef90-W4M7J4
UniRef90-101888
UniRef90-H5V2C0
UniRef90_UPI0003ADF231
UniRef90 V2JUV2
UniRef90_UPIOOO4694985
UniRef90_A0A014M342
UniRef90-D4LRH0
UniRef90-A0A010NDJ3
UniRef90-X5VWS7
UniRef90-R7ZZF4
UniRef90-F4CL03
UniRef90_UPI0003719B22
UniRef90-A6D1D5
UniRef90-A0A021VLH8
UniRef90-K6WJM2
UniRef90-H6RV53
UniRef90-Z5XJG9
UniRef90_G0GAK2
UniRef90-D3F5J2
UniRef90_UPI0004793AAO
UniRef90_UPI0003717A20
UniRef90-R4L572
UniRef90_UPI00034D3946
UniRef90-S5THY9
UniRef90-UPIO00466D2D8
UniRef90-K7JHM7
UniRef90-V6KDL3
UniRef90-X1U352
UniRef90-D3FBY2
UniRef90-G0Q3U3
UniRef90_D9W488
UniRef90_Q4A724
UniRef90_S7VCI7
UniRef90_UPIO0036B524F
UniRef90-Q83MR7
UniRef90_UPI0003AD5D57
UniRef90-G8WEV1
UniRef90_UPIO0035121F8
UniRef90_UPIO0030B49A2
UniRef90-L8EX47
UniRef90_U2QTZ9
UniRef90-E8MZC3
UniRef90_G9Y5P2
UniRef90_A0A021VTTO
UniRef90_UPIO00372D1CB
UniRef90-A2AUR5
UniRef90-A0A022LEI1
UniRef90 B8HC54
UniRef90_M1MWE5
UniRef90_V6JKA1
UniRef90_UPIO003011CCA
UniRef90-T5L110
UniRef90-UPI00045E6C7A
UniRef90-I8S9F2
UniRef90 XORGT8
UniRef90-WOHYE8
UniRef90_UPI000363ABE8
 NRLTKFGGHGYSHILTNTVPKMLSRGIVQSVVDKILDENP
 S HL K K N G GL L GYA Y L L

 MRLKKFGGSGYDH1 L SVVCVPMMRRKGLGDAEMRKMLI KNP MRLKKFGGSGYD RAKHVPNWHHHRI SDHILPEI RKRGATEQQI TQMMVDNP A Y G G GPGDDFVLTSFRARLLQEGFTEAELTMLFIDNP SHLKENGGDGYSYLLEEFVPKLLENGVEDEKIEKFLVENP


 AALA PDWHFTFI HDAVLPALRAAGVTDGQLTTMLVDVP ARFHEHQYSGVDDHVIPALRQAGLPTGAI ETMLVDNP
$\square G \square P$
AA A LPKWNFTHI S DDVLLPALRKLGVGEDDAGR









QL


QMWAKNGGNGWGFVPNVFLAY $\operatorname{LIAERGDDGATLRKDCTDNP~}$ QLRSAGGHGYGYI LEHFVPTLAEFGVSERAMERIMVDTP MLKGKMSHGFAYLFDRFI P LLRQVGVSQEAA DDILI NNP Y RESVGRANGDEYLLTRFVPLLRKMSVSEEKVHKMLVENP RAAHAPHWRMDHLHRRILPRLRTQGLDPALEHRLMVENP
 AMWTRNGGNGYGYVPRFFLPRLERHGVPGEVTASLLTANP QLRRYGGHGYGYVVDHFLPVLAEFGVTPEALDRMMVENP SHLKANGGLGFSYLMEEFVPRLFASGVSENDVEDMLKHNP SNLKYKNGUGYSYLLDTFVPMILKGGISELDVEKMLDKNP


 DSNRP YTAVARSLIPALKARGYGDEVEEQLLVTNP
 RQLM VKGHTVNYLFDTLFPALRDNGVDDATVNRIEVELP ANLRRNGGRGYDHLFARIGPAIAK GAGDPAVADQLIHTP $G L G L G Y I L G S W A P \quad R F M E Q A G D A G F D K A L F D K F F V K N P$ RFLSEKGRFQYDF IDDD

YLRSEGGQGYGYLFRSFLPRVRAAGVGEDLIDLMTRRNP $\square R L T K W G G F G Y S H I L E N D C P R L K K E G L S N E E I N T I L I E N P$



| UniRef90 B0K1N8 | $\square \mathrm{NL}$ |
| :---: | :---: |
| UniRef90-UPI0003EAC27E | K H WLT F |
| UniRef90-G5HJH6 | R R |
| UniRef90-H7F824 |  |
| UniRef90-X1KWQ1 |  |
| UniRef90-Q03C34 | Q R |
| UniRef90-IODQV9 | A NL |
| UniRef90-T5HV46 | R A F |
| UniRef90-X6CBW7 | $\checkmark \mathrm{V}$ |
| UniRef90-N1NMS8 | A R F |
| UniRef90-UPI000237A89B | VR V L |
| UniRef90-UPI00037356F2 | R |
| UniRef90-C3WF26 | K K |
| UniRef90-UPI00036C43DF | R R L |
| UniRef90-UPIO003028733 | T R L |
| UniRef90-Q9KF95 | K K HL ${ }^{\text {A S }}$ |
| UniRef90_E2AD64 | K R WL S |
| UniRef90-UPI000477EE75 | R R |
| UniRef90_J8VQG6 | R R |
| UniRef90-G5IK18 | R R C F F K |
| UniRef90-X7T130 |  |
| UniRef90-UPI0002DEE634 | Q R |
| UniRef90-S5ELZ9 | NT FF |
| UniRef90-Q6LNG8 | S QL |
| UniRef90-UPI0002D78525 | KHIFEASG |
| UniRef90-K8XDR7 | R R |
| UniRef90-A0A011MCC6 | A K AFSVQVK |
| UniRef90-E5VHL4 | Q Q |
| UniRef90_UPI0003FEF39A | K EAFVFS |
| UniRef90-E0V9F9 | K N WL |
| UniRef90-R6F477 | K R F F |
| UniRef90_UPI000255E02A | A DFLSMQ |
| UniRef90-W4M7J4 | KRLL |
| UniRef90_101888 | WR |
| UniRef90-H5V2C0 | A R |
| UniRef90_UPI0003ADF231 |  |
| UniRef90-V2JUV2 | A R L L |
| UniRef90-UPIOO04694985 | ARLLAFR |
| UniRef90-A0A014M342 | A E |
| UniRef90-D4LRH0 | SNVFSDEV |
| UniRef90-A0A010NDJ3 | R R M L |
| UniRef90-X5VWS7 | S RLL |
| UniRef90-R7ZZF4 | A Y A F |
| UniRef90-F4CL03 | R R L F T A |
| UniRef90_UPI0003719B22 | A R V L A F R |
| UniRef90-A6D1D5 | NR F |
| UniRef90-F4BSC2 | Q Q F |
| UniRef90-A0A021VLH8 | A A LIF T A A W |
| UniRef90-K6WJM2 | A A L F |
| UniRef90-H6RV53 | R R L F E A |
| UniRef90-Z5XJG9 | R |
| UniRef90-G0GAK2 | REAFR $\square$ R $\mathrm{V}^{\text {R }}$ |
| UniRef90-D3F5J2 | A A |
| UniRef90_UPI0004793AA0 | A R |
| UniRef90_UPI0003717A20 | A D F L $\quad$ Q P Q |
| UniRef90-R4L572 | $R \mathrm{RLLTGQ}$ |
| UniRef90_UPI00034D3946 | R |
| UniRef90-S5THY9 | A A |
| UniRef90_UPI000466D2D8 | Q R A F VF K |
| UniRef90-K7JHM7 |  |
| UniRef90-V6KDL3 | LR F L |
| UniRef90_X1U352 | R K |
| UniRef90-D3FBY2 | R |
| UniRef90-G0Q3U3 | VR F LT |
| UniRef90-Q60866-2 |  |
| UniRef90-D9W488 | A R A F A V D |
| UniRef90_Q4A724 | K R VLA FDEK |
| UniRef90-S7VCI7 |  |
| UniRef90-UPI00036B524F | RR1 |
| UniRef90-Q83MR7 | QT FFQVR |
| UniRef90-UPI0003AD5D57 | L R WLT G S |
| UniRef90-G8WEV1 | A P Y L |
| UniRef90_UPI00035121F8 | K R WL T F K |
| UniRef90_UPI00030B49A2 | K R F L |
| UniRef90_L8EX47 | R |
| UniRef90_U2QTZ9 | RAFFAF |
| UniRef90-E8MZC3 | F R A F A R |
| UniRef90_G9Y5P2 | A NLL |
| UniRef90-A0A021VTT0 |  |
| UniRef90_UPI000372D1CB | QRLY A F |
| UniRef90_A2AUR5 |  |
| UniRef90_A0A022LEI1 | R RLIFETRDR |
| UniRef90-B8HC54 | R T L L A |
| UniRef90-M1MWE5 | R DLLTVR |
| UniRef90_V6JKA1 | GRAFA AD W |
| UniRef90-UPI0003011CCA | A R M L T GQ |
| UniRef90-T5L110 | A R |
| UniRef90-UPI00045E6C7A | KRYFS |
| UniRef90-I8S9F2 | A R I L A |
| UniRef90-X0RGT8 | R E |
| UniRef90_W0HYE8 | ARYFSF |
| UniRef90_UPI000363ABE8 | Q E A F G\\| $\\|$ U R |

UniRef90 X0RTQ0 UniRef90 UPI00036A48AF UniRef90_HOE317 UniRef90 C0C325 UniRef90 E4X4V3 UniRef90-W5W3U3 UniRef90-F3PDB7 UniRef90 K6VMY7 UniRef90-S3Z7T7 UniRef90-D9XLM4 UniRef90 C6B3Y2 UniRef90 F4L8C5 UniRef90-L1JOJ6 UniRef90-HOK312 UniRef90 XoXMU2 UniRef90-R9N524
UniRef90-D7C5M7 UniRef90 ${ }^{-}$W1GGX7 UniRef90-UPIO0037A3C81 UniRef90_UPI00045E84F7 UniRef90 Q82N62 UniRef90 S3AXL2 UniRef90-C3ZIV3 UniRef90_UPI00037283F6 UniRef90 S4ZJB2 UniRef90_UPIOOO36443E9 UniRef90-A5V7GO UniRet90_- X0XPK1 UniRef90 E8NGK5 UniRef90-H1QCR9 UniRef90-UPIO00479C401 UniRef90- UPI0003F07221
UniRef90-X0Z7S8
UniRef90-H1C8C4 UniRef90-UPI00034B9629 UniRef90 X0RV51 UniRef90-HOEAE2 UniRef90-N2DMW9 UniRef90 Q47934 UniRef90 L8EKR3 UniRef90-DЗАКА4 UniRef90-X1CUE0 UniRef90 X1R680 UniRef90-V9EQB3 UniRef90- 1 RH23 UniRet90 X1TXT8 UniRef90-UPIOOO367873A UniRef90-G5A2E7 UniRef90 UPIO0035CD2A2 UniRef90 W2GTKO UniRef90- A6EAC3
UniRef90-UPIO0035EBD1B UniRef90 M2TDF8 UniRef90 A4CK1 UniRef90-F8EAU2
UniRef90-E2XS55 UniRef90 D6V6H7 UniRef90-F6FQJ8 UniRef90-K2LXF4 UniRef90 C5BSU9 UniRef90-H3GKN3 UniRef90-UPIO0034D1A46 UniRef90 c9zGE8 UniRef90-UPIO0036B371F UniRef90-U1YF25 UniRef90_UPI00037CE2B3 UniRef90 UPI000377AF68 UniRef90-UP10003744900 UniRef90-D7AVR1 UniRef90 UPI00031256A6 UniRef90-11ATV5 UniRef90-U7GIII UniRef90-UPI0004094676 UniRef90 A4YUL9 UniRef90-UPIO004647C54 UniRef90-G7DCD5 UniRef90-X7YSJ4 UniRef90 UPI0003646D4A UniRef90-AOYKR6 UniRef90-D5SW97 UniRef90 A31S05 UniRef90_S1T7X4
UniRef90-Q136P2
UniRef90 F9YB62 UniRef90-UPIO0030BE978 UniRef90_UPIO00302AD47 UniRef90-A3ZT69 UniRef90_UPI0004026696 UniRef90-S6DCN3
UniRef90_UPIO0036AFD08

RVVINTV $\square \mathrm{GPIIDTSDLGFTLIMHEHLTVSSAGDPKNPMLLG}$

 T Y F V R Q Y P Y H F K

 QTVRTVLGDVAPGDLGVCDAHDHLFLTS
 $Y$ L RTTLGPKSKSELGMILPHEHVFVDLRTP DQPGYAEA $\square R T \square L G D L P S E K M G \square T$ F S HE HVVIDEENYVTLDHPGFL

TVNTVLGPVPASELG VTA $\quad$ VHES LLLSVVPGAEYAF

##  $V R T V L G D V P G D A L G V C D A H D H L F F R S A$ <br> $\square R T V G G D \square T P A E L G F C H S H E H L F L A D G A P R R L N P D L W F$  $T V R T V L G D V L P E H L G V C D A H D H L F F G S \quad P Q L P G$ $T V R T V L G D I$ PGDRLGVCDSHDHLFLRT$\quad P R L P G$  ( $\square R T V L G D \square A P E E L G V C N A H D H L F L R S \quad P L S P B$ QVMMTV T G P V S P D R L G P T L M H E H L F V D W D E L R R R D WR L R T N EIMTILGGPI T A DQLGPTYMHEHLIVDCSFSGNNPLKKVD $V R S A T G D L A P E A L G T V D Y H E H L F Q V S P L L P D$

$\square Y$ TVRGP $\square$ HKS Q $\square G V T \square G H E H M K W E D D E S H A N T M Y F D K$
$H V Q T V S G P \prod A P D A \square G H S Q \square H E H \square F V H R T P M A E K N P A \square$ 1 E TVLGPVPAEGWGPTSTNEHLLTDSRGLARPDPDPDN $\square E T V L G P \square A A D Q \square G P T S M H E H L L A D S L G F \square R F N Q \square G L A$ MS DD P T G Y T L A H E HLLH $\square \mathrm{D}$ D S G F K N N
 PERAGAVYYHEHVIARSPVSREKEPDL

K A Q S VLG P IDVEELG IT LP HEHFLIDMGVWYNEYKNLD N

KVQTVLGPVSPEDLGDTLMHEHCVVNDADWFHMNSNLDN TVNTVLGPVSGA ELGIVAVRETVLSVLPGAQYGY DIDD


E K V Q T T L H L E E $\square$ S GMKFFDPHVHMTSRTT
D D

D N L R F $\square$ D P H V H M T S R T T
DSHCH L
F F D
YF
VDSHCHLDDFPDFAD
VDSHCHLDYPQFSE
Y $\square$ D P H V H M S A R T T D D
F D

Y $\square$ D P H A H M $\square$ S R T T $\quad \begin{aligned} & \text { F D } \\ & \\ & \text { D D }\end{aligned}$

VDSHCHLD D PD F

MAF $\square \mathrm{DPH} \square \mathrm{H}$ MVSRTTADYEA MAAA


D THCH $L$ L
D
D
EKMMIIDP HVHMTARTT
DFPDFAB DFPDFDE DFPDFE G

DFPDF
FFD
F $\square$ D
MA A

F D S HAHMLSRTT
D D

GLI D S HCHL
$M T V S G P V D P A T L D L V L A A E T L L C A P P R L L M G A P N R D D$

UniRef90 X0RTQ0 UniRef90_UPIO0036A48AF UniRef90-HOE317 UniRef90-C0C325 UniRef90_E4X4V3 UniRef90-W5W3U3 UniRef90-F3PDB7 UniRef90-K6VMY7 UniRef90-S3Z7T7
UniReffo-DgXLM4
UniRef90-C6B3Y2
UniRef90 F4L8C5 UniRef90-L1 JoJ6
UniRef90-HOK312
UniRef90 R4LR17
UniRef90-X0XMU2
UniRef90 R9N524
UniRef90 D7C5M7
UniRef90 W1GGX7 UniRef90-UPIO0037A3C81 UniRef90_UPIO0045E84F7 UniRef90 Q82N62
UniRef90_-s3AXL2
UniRef90-C3ZIV3
UniRef90-UPIooo37283F6
UniRef90 S4ZJB2 UniRef90_UPIO0036443E9
UniRef90-A5V7G0
UniRet90_- X0XPK1
UniRef90-E8NGK5
UniRef90-H1QCR9
UniRef90-UPIOO0479C401
UniRef90-UPI0003F07221
UniRef90-X0Z7S8
UniRef90-H1C8C4 UniRef90-UPIOOO34B9629 UniRef90_X0RV51 UniRef90-HOEAE2
UniRef90
N2DMW9 UniRef90 047934 UniRef90-L8EKR3 UniRef90-DЗАКА4 UniRef90-X1CUE0 UniRef90 - X1R680 UniRef90-V9EQB3
UniRef90 $\times 1 \mathrm{RH} 23$ UniRef90- X1TXT8 UniRef90-UPI000367873A UniRef90-G5A2E7 UniRef90-UPIO0035CD2A2 UniRef90 W2GTKO UniRef90-A6EAC3 UniRef90-UP100035EBD1B UniRet90_M2TDF8 UniRef90-A4CK11 UniRef90-F8EAU2 UniRef90-E2XS55 UniRef90 D6V6 UniRef90-F6FQU8
UniRef90
K2LKF4 UniRef90-R7ZLY6 UniRef90 C5BSU9 UniRef90-H3GKN3 UniRef90_UPI00034D1A46 UniRet90 C9ZGE8 UniRef90-UPIO0036B371F UniRet90_UUYF25 UniRee90-UPI00037CE2B3 UniRef90_UPI000377AF68 UniRef90-UPIO003744900 UniRef90-D7AVR1 UniRef90-UPI00031256A6 UniRef90-I1ATV5 UniRef90-U7GIII UniRef90_UPIO004094676 UniRef90 A4YUL9 UniRef90_UPI0004647C54 UniRef90-G7DCD5 UniRef90- ${ }^{-} 7$ YYSJ4 UniRef90_UPIo003646D4A UniRef90-A0YKR6 UniRef90-D5SW97 UniRef90-A31505 UniRef90_SIT7X4 UniRef90-Q136P2 UniRef90-F9YB62 UniRef90 UPIOOO30BE978 UniRef90-UPIOOO302AD47 UniRef90-A3ZT69 UniRef90_UPI0004026696 UniRef90-S6DCN3 UniRef90-UPlooos6AFDo8
 NPQLHAPAVTGELTALLREFGLALVVELTCRGMGRDARALA
 DN YEKTLTELVQFRTGGGTTVVDAQPGGCGRDADALY QELDDVAAAEAELRAFGAAGGQALVQWTPAGGLGRRRDALA DEDKAVQEATFFVEASKYAPSATVVDMCPASSGRGVLMLR QELDSVDSAAAELAASRAAGGRSVVQWTPHGMGRRAAELP DRAE FETLAAKLRDFRAHGGGTVVDSTGMFHGRDVRLYE D DDVVRLMAPEI ERGKGGVTALVECSTGGVGRRADIDE VVLNKAAMAEQEMRSFKAAGGTLVVDTTVPALGRNPKMLR DRAETFETLAAKLTDFRAHGGGTIVDATGMFHGRDVRLYE

D【GRD【HFVA DQMT KSDEELERYRSAGGNSTIEAQPCGCNRMARELQ QELADVAAADAELRAFHGLGGRTVVQWTPYGLGRTAGELV
DE YGKSDQEDSDYKADGGSADVDAQPDGCGRMERELV DELDDEDSSRREAAELRAADITTMVEATPTGLGRDPAGVA QELRDASAARAELAAFREQGGGSVVQWTPYGLGRRAADLP EELADSAAAERQLREFAAHGGGGLVQWTPYGMGRHMGALA MVLDNEQMMVNEVEVYKKFGGGTIVEQSVCGMYGDPTALA QELADADAAAAELRSFRDAGGASVI QWTPYGMGRQANELP
 QELDDPAAALAELNAFTALGGRSVAQWTPWGMGPRVADLP D DEALTWEMKDVLRAGGQTVVDCTCVGLAPQPTALK DDLDDEEASTEETRQFAASGFRTLVDATPLGLGRRPAAAR $\square Y R E E E K Y \square P \| L L E \square K A R G G M S V A E A S P P \square G G Q N A R D L A_{R}^{P}$

TDEQLATKEALLYKWAGGNTVVELSRGMARDPDGLA RLDDPARSLEELRAYRAAGGGFLADAQPVAAGRDAERLG LTLDAPDTAAGELAAARAAGLHAVVEATSWGMGPRHADLP ECS DNLDDPDLAMAELAHAAAAGQRAVVDLTVWGFGGPAPELP CSEVAQSSAKGCERUARQSGWRANDCRCVYMGRNAQFMLD QELADTGAAAAELRAFREAGGDTVIQWT PYGMGRRAAELP VQLLDEELADKEAMLFKKEGGKTIVDVTNGDLSRDPAALV GRMQKEDEAFRELEKLQQLKGKNVVDVTLPDQGRDVKERL

LCLLDEQMIIEELELFKRAGGNTLVDCTDDDIGRDPSALA DRARVFRALAEKLNAFRAAGGGTVVDAGGMFAGRDVPLYE


AGIVALIEAF WLIGQPR YQAMADAGLVALIEPAFWLGQPTGV GIS ESARAK NYKGMTARTTDDYQAMAKAG VADIEPTSADTYRDVGWER YEAMAAEDQAAVIARARQAGVT MLGDSTRESEWDVGVV PHIHMVSRTTDDYEAMRDAGIVALIEPTGLSTFKDVGWER

DLPGTVERA RNAGVGMMVSDGVKDST FENVR MVSRTTNDYEAMKKAGIVAVIEPTTVGSFQDVGWER YQAMAEAGVVAVIEPAFWLGQPTSVDTYKDYLLASVGWER DLVQVLRRAKQSGDDTVVGTSVVESRRAVQLAS PHVHMTSRTTDDYRRMYEAGVRALVEPTNPGSFHDVGWER WE P
PHDHMTSRTTDDYEADYAAGVRALVEPTNVGSFLDLGWER YEAMAAAG\|VALIEPAFWVGQPTFVGTYVDYLSSIVGWER PHDHMTSRTTDDYEAMYAAGVRALVEPTNVGSFTDIUGER

PHDHMTSRTIDDYEAMYAAGVRAVVEPTGVSSFRDVGWER ERADTVARALA AGVERMVTMSTRV KQFPTMR DRPAVIARAL DAGVHRMVTICTRL RNEPQVR ERADLIARA YEAMQKAGIVATIEPAFWLGQPR DFPDFATEVGS
 PHAHMDARTTADYEAMARAGVVAVIEPTNLGSYVDIGFEK AEDLDGUVRARAAGIGRMVTDSTRVRKNQLL
 PHIVMTARTTYDYEVMREYGVVAVIEPTNPGSFKDVGWER
PHDHMTSRTTDDYEAMYAAGVRALVEPTSPDSFRDLGWER DLDGDVARAAA SGVGRMVTDSTRVRRLPELL


DFPDFAPEQAE $\square V A R A K A R G V G R M \square T \square S T H \square S R F D R R K$ PHDHCSSRTTDDYERMAEAGIVAVIEPSNAGSYHDVGFER YEAMAEAGVVAVIEPSFWLGQPR EP TQVGSFQDVGWEP DHFSAEEMPELLEAAKEAGLSGMVTDGTR QARAPEQQK

UniRef90 X0RTQ0 UniRef90_UPIO0036A48AF UniRef90-H0E317 UniRef90_COC325 UniRef90_E4X4V3 UniRef90-W5W3U3 UniRefefo-F3PDB7 UniRef90- $\$ 3 Z 7 T 7$
UniRef90-D9XLM4
UniRef90_C6B3Y2
UniRef90-L1 JoJ6
UniRef90-HOK312
UniRef90-R4LR17
UniRef90-XOXMU2
UniRef90
R9N524
UniRef90-D7C5M7
UniRef90 W1GGX7 UniRef90 UPIOOO37A3C81 UniRef90_UPI00045E84F7 UniRef90-Q82N62
UniRef90_-s3AXL2
UniRef90-C3ZIV3
UniRef90-UPIooo37283F6
UniRef90 S4ZJB2
UniRef90-UPIOOO36443E9
UniRef90-A5V7G0
UniRef90-X0XPK1
UniRef90-E8NGK5
UniRef90
H1QCR9
UniRef90_-_1QCR9
UniRef90_UPIOOO479C401
UniRef90-UPI0003F07221
UniRef90-X0Z7S8
UniRef90-H1C8C4
UniRef90_UPI00034B9629
UniRef90-X0RV51
UniRef90-HOEAE2
UniRef90
N2DMW9
UniRef90- Q47934
UniRef90-L8EKR3
UniRef90-D3AKA4
UniRef90- $\times 1$ CUE
UniRef90
X1R680 UniRef90-V9EQB3
UniRet90- - 1 RH23
UniRef90-X1TXT8 UniRef90_UPIo00367873A UniRef90-G5A2E7 UniRef90-UP100035CD2A2 UniRef90_W2GTKO UniRef90-A6EAC3 UniRef90-UP100035EBD1B UniRet90_M2TDF8 UniRet90_A4CK11 UniRef90-F8EAU2 UniRef90-E2XS555 UniRef90-F6FQ,J8 UniRef90-K2LXF4 UniRef90-R7ZLY UniRef90_C5BSU9 UniRef90-UPI00034D1A46 UniRef90-C9ZGE8 UniRef90_UPIo0036B371F UniRef90-U1YF25 UniRef90-UPIO0037CE2B3 UniRe990 UP1000377AF68 UniRef90-UPIOOO3744900
UniRef90-D7AVR1 UniRef90-UPI00031256A6 UniRef90_-11ATV5 UniRef90-U7GII7 UniRef90_UPIOOO4094676 UniRef90 A4YUL9 UniRef90_UPI0004647C54 UniRef90-G7DCD5 UniRef90-X7YSJ4 UniRef90-UPIIOOO3646D4A UniRef90-AOYKR6 UniRef90_D5SW97 UniRef90 A31IS05 UniRef90_S1T7X4
UniRef90_Q136P2 UniRef90-F9YB62 UniRef90 UPIOOO30BE978 UniRef90-UPIO00302AD47
UniRef90- A3ZT69 UniRee90_UPI0004026696 UniRef90_S6DCN3
UniRef90_UPIO0036AFD08


RTARATGWNVMGAGYYПEASHPPEDATMEEDTEE\|VRDW ALSRESGVAVAASTGYHLDGFYWVHSLDEEGLYDLYCGEL DÍSRRSGVQIVAAYGSYIDKPAWWRDLDESEMFELFRTAAL AVSEATRFPLVVPTGПYREPPDWAHQADEAQLRDWMVGEL
 R RLAAESGVRVVATGMHQAVHYAPEVLAPGDLAELFVTEL ELSEKSG|DVVGTVGFGQKEHHSVRNSTTEQLYERVMDAA R SQVTGLNLIMGSGYYVAQGEDFDRKSEEEXAEEVVRDV

RTSRAVGTNTIMGSGYYKGVFYRSEQGSEQELADK\| IRDT AVSRATGVHLVASSGFLTPQTNPPTPWPTAKFAALYAAEV FRSSQFGIKHYCTIGLE TGLSSRANNEKLAEQVMEIL HHAASSGVADFTTVGVHPHDAKSFDEHST FRSSQFGI KHYCTIGL NSREANNEALAEQVMELL
 GLAEREEADDWATVGGHPHADSHEEVPTRKMVDRASHER

 REV
AVAAKAD H $\square Y$ CTVGVHPHEAGEEGDSSPDRLIEMASDPK FRAKQFGПKHYCTIGL FRASQFGVKHYCTVGLGPHANSKEANNEPGAEAVMEIL HQTSASGVADFATVGVHPHDAKSFDERST UAE MRAV
 YRAAQFGURHHCTIGLNPKEANDPRCLPV
FRAAQFG R HHAT $\square$ ALPKEANDAR FRAGQFGIRHYTVGLN SKEANNEARCREGV
FRAAQFGLRHHCTIALNPKEANDPRCV YGITHHCTIALNPKEA
FRAERFGDRHHCTTALNPKEANDPRLSGVLDLDPRCREV
ETAETYDPVYCSVGTHPHNAGEEGDVTADQLVKLAEHPK
A! AEAHD PVFYAAGTHPMSAAEEPLATVDQLVALADHPK



F RAGQFGDRHYCCVALDNP
GПAERYDDVYCSVGTHPHNADEEDG円SPEELIGLTGHPK
YRASQFGTAHNCTI A

SKEANNERLADEV
F R A S Q F G I
FRAAQYGUAHHCTDALNPKEANDPRCLPVDELPRYLVKD
A
AVAEAYP DVFCTVGTHPHHSHEEAEPTVEQVTLSQHPK
$F$ RAA QF GDKHYCTI GLL NAKEANNERLAEEVVLDML
FRASQFGLKHYCTVGLDPDENSKEANEALAEQVMELV

UniRef90 XoRTQ0 UniRef90-UPIO0036A48AF UniRef90-H0E317 UniRef90-C0C325 UniRef90 E4X4V3 UniRef90-W5W3U3 UniRet90-F3PDB7 UniRef90-K6VMY7 UniRef90-S3Z7T7 UniRef90-D9XLM4 UniRef90-C6B3Y2 UniRef90-F4L8C5 UniRef90-L1JOJ6
UniRefo-HOK312 UniRef90-X0XMU2 UniRef90-R9N524
UniRef90-D7C5M7
UniRe990_WIGGX7
UniRef90_UPIO0037A3C81 UniRef90_UPIO0045E84F7 UniRef90 Q82N62 UniRef90-s3AXL2 UniRef90-C3ZIV3 UniRef90_UPI00037283F6 UniRef90-S4ZJB2 UniRef90-UPIOOO36443E9 UniRef90_A5V7G0 UniRef90-X0XPK1 UniRef90-E8NGK5 UniRef90-H1QCR9 UniRef90-UPIOO0479C401 UniRef90-UPIO003F07221 UniRef90-X0Z7S8 UniRef90-H1C8C4 UniRef90-UPI00034B9629 UniRef90-X0RV51 UniRef90-HOEAE2 UniRef90-N2DMW9 UniRef90-Q47934 UniRef90_L8EKR3 UniRef90-D3AKA4 UniRef90- $\times 1$ CUE
UniRef90
X1R680 UniRef90-V9EQB3 UniRef90 - X1RH23 UniRef90_X1TXT8 UniRef90_UPI000367873A UniRef90-G5A2E7 UniRef90-UPIIOOO35CD2A2 UniRef90-W2GTKO UniRef90-A6EAC3 UniRef90-UP100035EBD1B UniRet90_M2TDF8 UniRef90_A4CK11 UniRef90-F8EAU2 UniRef90-E2XS55 UniRef90-D6V6H7 UniRef90-F6FQJ8 UniRef90-K2LXF4 UniRef90-C5BSU9 UniRef90-H3GKN3 UniRef90-UPI00034D1A46 UniRet90_C9ZGE8 UniRef90-UPIO0036B371F UniRef90-U1YF25 UniRef90-UPIO0037CE2B3 UniRef90 UPIOOO377AF68 UniRef90-UPIOOO3744900 UniRef90-D7AVR1 UniRef90_UPIO0031256A6 UniRef90_11ATV5 UniRef90-UGGII7 UniRef90_UPIOOO4094676 UniRef90_A4YUL9 UniRef90_UPI0004647C54 UniRef90-G7DCD5 UniRef90-X7YSJ4 UniRef90-UPIO003646D4A UniRef90-AOYKR6 UniRef90-D5SW97 UniRef90_A31S05 UniRef90-S1T7X4 UniRef90-Q136P2 UniRef90-UPIO0030BE978 UniRet90-UPIOOO302AD47 UniRef90-A3ZT69 UniRef90_UPI0004026696 UniRef90-S6DCN3
UniRef90_UPIO0036AFD08

RKG\||ADSDVIKAGTLKGASDSGVKPDEENII 1500 GVARAHLLQT RHGI GTTGIIRPGVLGEVGSDRPTGAERRTLRAAARAALAT DDELEDAGFRAGILGIGTSEPGTASERRVLQATGAAAGRT
TEGMYTDCAKAGII KCAYDACGLVLQYKLFDAAVDAATRT LHGFEGKYYPGIVGEMGVTDPIADWEVNHLRAAGGLAEVE TS G RAGMIKVAGQHHLDAHAERVMTAAAQAHHET VEGVDRTDTRAGCl KWATYGRITDWEVKTGQAVATASKET CEGVDEYDYMAGVLKWATYGKITDWEKKTGEAVVIAHKET TRGUGDSGVRAGLIKVAGGFHGLDAHRWTMTAAAGAHRAT TEGMERRGAAGLVATTATRTGMTATDESDFRGAARTALAT
 VGGCEEGATRAGVIGVGSSNFHDEERRVLVAAARVQART TEGMVVPRVEAGLVATAADGGRTATEESLERGAARTALNT
EHGIADTGIKAGILKCATDEPGTPGVERVRAVAQAHKRT EHGAADTGQKAGGLKCATDEPGTPGVERVRAVAQAHKRT TOGMRQSNVRAGAI K EQG\|DGTDLKAGII AEIGSGKITSLEEKVFDAAALAHNQT TAGMGQDSARAGQI KTAVDDRMADPNKRWFAAAARASLIT RDGLPGEPVRAGLLKAGGYWRDDPFERRVLAAVAAAAGET TTGGGPSGVRAGLIKVAGGFHALDAHRWTMTAAAEAHHAT SHGVRGAVCRAGLIKVAGDFHDGPHARRTMTAAAEAHHAT $\stackrel{\square}{\square} \mathrm{A}$
T GGFDKDKPAAMKLGTSYNVTESEKRIMDDEGNVQRDT ERGGADGDRAG\|GGEDVDSRSPSDEDVRARSGAARKRL RDGFDDTDIRPGMLGEHDDGPPDENVEKVFRAAALAHCAT VRGAADPSVRAGVLKAGGYWRMDAVARRSLEADGRAHAAT TRGGGTSGVRAGLIKVAGGFHADDAHRWTMSAAAEAHHAT
$K E G \| D G V V I R P G H K L L D G D L S N A D K G M L V A A V K A S K E T$ KEGUDGVVIRPGHUKLLLDGDLSNADKGMLVAAVKASKET
MVGVDDTGVRAG\| IE DGCSDPDGDNERKVLRASAAAQQRT LEGMQPTAFRAGLVKAADPAEGAEGYAVLLRAAARAAVRC TDAVPGTSFRAGLLGGLTSAEITVAEGRALRAAGRAAAAA
 EQGIDGTDLKAGI: AEDGSGKDTPLEEKVFIAAALAHNQT TETADGAAVRAGMIKVAGGFHGDDAHRHTMAAAAEAAT

 KDSVRDTGVKAVIINTAG TEGMVVPRVEAGLISTATTDGMTATDESQLRGCARAALDT $V \mathrm{FG}$ VEGAGVVAQQIHVKSGGLLTAKEEVLVQGLALAQART PLFIMKEGVVVGQGEIGFDDQTPAEEKYYRGQLELAKET
 MEMLPDYACKEGVDGEDGYDDMTPAEDKYFRLQLELAKEL PLGLTKENVVA VGEYGYDDQTPAEDRFFRAQLELAKEM PLYAYKEGVVVGVGEGGFDDQTAAEEKYYRAQLELAKKA

## ,

AVA F GE $D G V V A V G G$
$A G L D Y F$
$D G V$
$V$
P1 GGESG
PIGAKEGVVA GEIGYDDQTEAEDRFFRAQLELAKEM PAGKDGGLVVA VGEEGGFDEQTALEEKYFRAQLELAKQF LRTLPRYLAKDGVVAVGGFDALDAEEEKAFRHQLAAAAEH PRYLAKDRVVA VVGELGYDSMTPEEDEALALLQLRLAVEH




| $\checkmark \mathrm{A}$ L A | G N D P M A ELLAVAVEE E Q L A A P V A V S |  |
| :---: | :---: | :---: |
| H AP L Y |  |  |
| $A L P \vee Q$ | H T P HR D R G T R R SMD $\quad$ M A E H G L S P D V I V |  |
| $L \mathrm{~F} V$ | HEREA HEA L V E V L Q P F V S G GVLP P T V |  |
| $V$ Q V | H T P HR DKKK Q R S M D I A I E H GL S P Y SVI I D |  |
| G L P V M | H T P H R D K G T SR S M DVCLLE H GL Q P S QV IV D |  |
| $Q L P$ I V | H TR DA E D T LA DL R EEMD E GAFP GV |  |
| G M S V Q V | H T P HR D K G T I R S M V C LE H G LD P S DVII D |  |
| $L P \vee Q$ | H T P HRDKKK ERSMA I A L E H G L D P S WV I V D |  |
| N L P V L | H T P H R D K $\square$ GK R T L A V I R E VGI A E HLV I I D H |  |
| G L P L V |  |  |
| $E L P$ V L V | H T P HRDK LAR R TL D V VRESGLPAGMVLVD H |  |
| G L P L I V | HT R D A D D D TM $\$ M E EEYEK G P F T GV  \hline N L P V M & H T P HR D K R K L S SMA VCE E H G D P T MVVVD H  \hline D L P V M V & H T P H R D K LKGT I L D C E E H G L P S QVVID H N E N  \hline L F V & HE R E A E ALLVEV L Q P F VA N GI LP Q TVVV H C T  \hline V & H T P HR D K A A R R T L E LVAA E S GLPPP ERVLVD H L E T  \hline $L P A$ | H T P HR D K A A R R T L D V V R E S GI A P E LVVLD D L L N E L |
| $G L P A L V$ | H T P H R D K A GR R S L DVVR D S Gl D P GFVVVLD H L N EV |  |
| A L P V V | H T P H R D K LT R R T L DVV R E S GI A P E HVVLV D H L N |  |
| Q L P V M V | H T P HRDRGT S R M DVVEE M GI D P S WVVI D |  |
| $L \mathrm{P} V \mathrm{M} V$ | H T P H R D K L A R R T L DVVR E S GL D P E MVVVD H L N E V |  |
| D L P A L V | H T P HR DK SA Q R S L DVVVK E S GIVEP GRVVLD H L N E V |  |
| G L P V L V | H T P HRDKA AR R T L Q L VAE S GLAP ERVLV D H L N E A |  |
| $G L P L V$ |  |  |
| L | HA R A A D DMARLLS D A W A RKY T CVMHC F S |  |
| $\mathrm{L} \mathrm{~V}$ | HS R D A D D D MAA I LAREEMGKGAFPALL HCFS |  |




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



GLPVMVHTPHRDKKKLRSMDVCREGBAPD
 D L P V MI H T P H R K R GTYR SMD I I E E H GVAP P MV V I D H



UniRef90 X0RTQ0 UniRef90 UPI00036A48AF UniRef90_H0E317 UniRef90_C0C325 UniRef90 E4X4V3 UniRef90-W5W3U3
UniRef90 F3PDB7 UniRef90 ${ }^{-} 66 \mathrm{VMY7}$
UniRef90 S3Z7T7
UniRef90-D9XLM4
UniRef90-C6B3Y2
UniRef90-F4L8C
UniRef90-L1JOJ6
UniRef90
HOK312
UniRef90 ${ }^{-}$R4LR17
UniRef90-X0XMU2
UniRef90-R9N524
UniRef90 D7C5M7
UniRef90 UPIO0037A3C81
UniRef90_-UPIOOO37A3C81
UniRef90_UP100045E84F7
UniRef90 Q82N62
UniRef90_S3AXL2
UniRef90-C3ZIV3
UniRef90_UPI00037283F6
UniRef90 S4ZJB2
UniRef90_UPIOOO36443E9
UniRef90-A5V7GO
UniRet90 XoXPK1
UniRef90 E8NGK5
UniRef90-H1QCR9
UniRef90-UPIO00479C401
UniRef90-UPI0003F07221
UniRef90-X0Z7S8
UniRef90-H1C8C4
UniRef90_UPIO0034B9629
UniRef90 XoRV51
UniRef90-HOEAE2
UniRef90-N2DMW9
UniRef90 Q47934
UniRef90 L8EKR3
UniRef90-D3AKA4
UniRef90-X1CUE0
UniRef90 X1R680
UniRef90-V9EQB3
UniRef90 $\times 1 \mathrm{RH} 23$
UniRef90- ${ }^{-1 T 1 T X T 8}$
UniRef90 UPI000367873A
UniRef90-G5A2E7
UniRef90-UPIO0035CD2A2
UniRef90 W2GTKO
UniRef90-A6EAC3
UniRef90-UPIOOO35EBD1B UniRef90 M2TDF8
UniRef90 A4CK11
UniRef90-F8EAU2
UniRef90-E2XS55
UniRef90 D6V6H7 UniRef90-F6FQJ8
UniRef90-R7ZLY6
UniRet90_C5BSU9
UniRef90 UPIO0034D1A46 UniRef90 c9ZGE8 UniRef90-UPIO0036B371F UniRef90-U1YF25 UniRef90-UPI00037CE2B3 UniRef90 UPI000377AF68 UniRef90-UP10003744900 UniRef90-D7AVR1 UniRef90_UPI00031256A6 UniRef90 I1ATV5 UniRef90-U7GIII UniRef90-UPIO004094676 UniRef90 A4YUL9 UniRef90-UPIOO04647C54 UniRef90-G7DCD5 UniRef90 UPIo003646D4A UniRef90-A0YKR6 UniRet90_D5SW97
UniRef90_A31505
UniRef90_SIT7X4
UniRef90-Q136P2
UniRef90 F9YB62
UniRef90_UPIO0030BE978 UniRef90_UPIOOO302AD47 UniRef90-A3ZT69 UniRef90_UPI0004026696 UniRef90-S6DCN3

QSDGVRDRLLLGDDAGHADRALLSCDTSRHA
PTDAERLDAIVEGLAGDLDDRCVLGC HSDEREAE IFAEMFAAGYEDHILFS盲DTTRERLKSYTP PSDGERDNRLKHLMDNGFEDKLLIGHD(I HTK ATDWRLFDVLTALVESGHGGQVLLGGD SGKASYTTAA VPDNARVDLIKTLGQKGYGKQILLGTD SGKASYQKAYG
 $\square T D A E R A A L V A E L V R A G F G D R L L L S A G A T G V A K G H T G N D A L$ DNEVAELVIKALEAGCGDRLLLSHDRGWFDPAQP
P
HYPGQI TVGMDAAKNSYWRAYGGK PGDDRTALCTAEMVSQGYGEQVVLSH TDRERVDLVLDLIEAGHGDRILLSSNADGKAVGQSAADV QDRVNIVARMCERGHADKMVLSHDACCYFDALPEEELV HSDEHEITLLARLVEAGYVRQLVYADDTTR
AMDWRLPDALAALVDAGYADQLLLGGDTT
YPDEKRDAMLHALRDRGLLNRVMLSMDDTRR
HSDEAEATWI AAMLAEGAASRLLLGLDTTRARLR
APDSAILDCLERVLATGDPGRVLLGGDVARRHRYH
ATDWRMPDALRALAEAGFGHRLLLGGDTTTAAARSVNGGP ATDWRLLDSLAELAEHGYADRLLLGGDTVT
PSDFVRCQMVRELRDAGFDKQVVLSHDVAF
 AGLA WAVAHGHRDQILLSGD GCN K

HPDSVVLSCLIATAAAGGADILLGGDVARRTRY ATDWRMPDVVRDLAEAGFGDRLLLGGDTT PSDAQRIAYIKTLIDEGYEDKVVIAHDVL TK RSEVDRINAIKCLIDDGYLINHILISHD HSDEEEVALLRHMCERGYTQRLLLSLDTT AQ HTDRERLDFLGALVAARPDAAITLSC SVGWTK DDDFYVQLGQRVLDANGGDHLLLSHDRGWYDPAQPGGGT
ATDAERUDALCQLLEGGARQVLACGAW

VDFTKYPQA 1 RK $\square$ QEEKLLSQLLFGQDSGSYW
PSDSR DTDDYYMNSIRKMVNAGFENQLLISHDRGWYDPAQPGG

```
E
E
```



UniRef90 XORTQ0 UniRef90-UPI00036A48AF UniRef90-H0E317 UniRef90-C0C325 UniRef90 E4X4V3 UniRef90-W5W3U3 UniRef90-F3PDB7 UniRef90 ${ }^{-K 6 V M Y 7}$ UniRef90_S3Z7T7 UniRef90-D9XLM4 UniRef90-C6B3Y2 UniRef90-F4L8C UniRef90-L1JOJ6
UniRef90
HOK UniRef90 ${ }^{-}$R4LR17 UniRef90- ${ }^{-\quad \text { Х0XMU2 }}$ UniRef90-R9N524 UniRef90-D7C5M7 UniRef90 W1GGXT UniRef90-UPIOO037A3C81 UniRef90-UPIO0045E84F7 UniRef90 Q82N62 UniRef90-S3AXL2 UniRef90-C3ZIV3 UniRef90_UPI00037283F6 UniRef90 S4ZJB2 UniRef90-UPIOOO36443E9 UniRef90-A5V7GO UniRef90_X0XPK1 UniRet90 E8NGK5 UniRef90-H1QCR9 UniRef90-UPIOO0479C401 UniRef90-UPI0003F07221 UniRef90-X0Z7S8 UniRef90-H1C8C4 UniRef90-UPI00034B9629 UniRef90 X0RV51 UniRef90-HOEAE2 UniRef90-N2DMW9 UniRef90 Q47934 UniRef90-L8EKR3 UniRef90-DЗАКА4 UniRet90-X1CUEO UniRef90 X1R680 UniRef90-V9EQB3 UniRef90- 1 RH23 UniRet90 M2 MDF UniRef90 A4CK11 UniRef90-F8EAU2 UniRef90-E2XS55 UniRet90 D6V6H7 UniRef90-F6FQJ8 UniRef90-K2LXF4 UniRef90 ${ }^{-}$C5BSU9 UniRef90-H3GKN3 UniRef90_UPI00034D1A46 UniRet90 c9zGE8 UniRef90-UPIO0036B371F UniRef90-U1YF25 UniRef90_UP100037CE2B UniRef90 UPI000377AF68 UniRef90-UPIOO03744900 UniRef90-D7AVR1 UniRef90_UPIO0031256A6 UniRef90-11ATV5 UniRef90-U7GIII7 UniRef90-UPIOOO4094676 UniRef90 A4YUL9 UniRef90_UPI0004647C54 UniRef90-G7DCD5 UniRef90- UPIo003646D4A UniRef90-AOYKR6 UniRef90-D5SW97 UniRef90_A31S05 UniRef90_SIT7X4
UniRef90-Q136P2 UniRef90 F9YB62 UniRef90_UPIO0030BE978 UniRef90_UPI000302AD47 UniRef90-A3ZT69 UniRef90 UPIOOO4026696 UniRef90-S6DCN

Y $\square$ RTEGGQGYGh TQLRAYGGMGYDHLGRRDVPELGRRGVPQPSVRMLVANP HRDEKYGGHGYAHILRVVKDALKTVGMSEEQWNKLGVINP ARASTGGGPGDPYLLTTLRPRLSRELGEEAVTSMFVANP SVGSGUDYDPAVCPRLKDEGVDPAYVQDLLVGNA A ARSVNGGPGMPHLLRRVRPRGVRAVGEELVDRMVTANA


MGGDPKPYTHLSTVLLPELKRRGADDDTLVRLTHDNP $M Q L V G G G G F G L Q H I P R N F V P R M M G M R L G A E Q M D R I C R G N L$
$A$ PVAM PNWHYLLHIHNDVIPALKQHGVTDEQLLHTMLVDNP EMTA PDWHYNFIPDTVIPALLESGVTEDE
ERLRAYHTHGLDYI LRTFNPALLASGFTEKTDRMLSAENP AARSVNGGPGMPYLLRRLRPRLELA VGADVVHRILTANP SHLKANGGYGYDFLLTTFIPQLRQSGFSQADVDVMLRENP

AYGGEDGLCHLRERFLPLLAAAGATADQLLRLMELNP
SYGGMPGLTYLPLRFVPRLRRRGVGGHLAEQLLVDNP
ATARDETGVPHVTRALRPRTVREALGKELVARIFIVNP SRLTQYGGEGYSYLLKNIVPYMLQRGLTEQDDDTMM GLPYLLRRLRPR YYLAYGGKPGLKYILTDLKNDLLPHIGNEAYEKMVNSNP SARSTADGPGMPFLLSALRPRDEHELGPEDATADEDDNP GGLRHYGGGGYATLHNHILPKLRAAGVGEEDITRHILVDNP

TAYGGMPGLRYLGDRFVPRLRAEGGDDLADAVLRRNP AARSVDGGPGMPYLDRRVVPRLAAA VGEELVRRVLTENP HPCTTVFDEFIPYCGEHGLDKQEDGMMTDNP
HR四MKYGGGYSHILLNVIPKMLKRGISQDAIIDK\|TIHNP
RMAAYGGE $\square S L C Y$ LLERELDPRLEAAGFPPE
GQLTRYGGMGYGHVLMRDAPLLAGLGVDDARDHDMLVARP $P Q \quad P Y T Y I N E Q F L P K L Q A A G V D Q P T I Q R L T H V N P$ TALRRFGGPGYDHLLLRVVPALRDRGVPEDQLDALLVGEP

DVMDRVNPDGMAFTH
AARSVNGGPGMPYLLRRLRPR LELDLDEALVQRDFTTNP

RRYGGGGYTYLFEYFKHRLLRQGQSEAQWDQDVRTNV GTPKPYTY INETFVPKLRKAGFNEEAVKKLTNTNP

RRYGGGGYTYLFEKFKHRLLRQGVAEDQWDEVVRANV TAV LMKARGISVKDDEMVTYRNA KRARCEPKD $\quad \square A A V V R T L A S C Y G I S E D E V A K A T T E N A$ TAA L MKRSGI SMEDIELVSYRNA T
P V PMRGKTCEPAY V M H T A A QLMAQRGI PEE H K KAVCYQNA TAS TA A TGA

RGKRNEPSFVTETAKA L M L R R N GVIVAVE ELVDRQTTVNF LMKMRGUADDETI RRVTYY N A

## TAR

 AMLAA GFSEAQVVEQVLFHNPPVPKRGKPNEPSYVAHTAAKAMLVAGFTEDDVDRVLWRNP T A
N
KKARCEPKD
E Q
$\square \mathrm{A} A \mathrm{~V} \mathrm{~V}$ Q T MRDRGISEEHIRMTCYRNA

T T
$\mathrm{T} A$
T
T
T
F
F

| $T A$ |
| :--- |
| $T A$ |
| T $A$ |
| T |

T F RGKRNEPAYVAHTAKVLA
PHRGRRNEPAYSALTARIGA PQPRRGKRNEPAYTAMTAAVLDEAFGLDYDAFAAATEANF
TA RGKRNEPAYVVETAKDLMRKMGIPEEHVQMVVYRNA
TAA
TAK
TAA
T A
TAR
TA
RGKRNEPAFVVEVAKVLMARGGPAATRKVTYNA

QLMQQEGIPEDHIKAVCYQNA
TRKVGDLMLAEGFTEDDVDRVLWRNP RGKRNEPAYVVETAKVLAEDRGVTGDEVTRQTTENF TAA $\square$ A

HVADAMLAAGFEDDDVDRVLWRNP HRGKRNEPAYVVDTARLLAEDKGVSEAELARVTTGNA TAS
S
KRGKRNQPAFVAHTAAR $\square$ A

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

UniRef90 X0RTQ0

| UniRef90-UPI00036A48AF |
| :---: |
| UniRef90-H0E317 |
| UniRef90-C0C325 |
| UniRef90 E4X4V3 |
| UniRef90-W5W3U3 |
| UniRef90-F3PDB7 |
| UniRef90-K6VMY7 |
| UniRef90_S3Z7T7 |
| UniRef90-D9XLM4 |
| UniRef90-C6B3Y2 |
| UniRef90-F4L8C5 |
| UniRef90-L1J0J6 |
| UniRef90-H0K312 |
| UniRef90-R4LRI7 |
| UniRef90-X0XMU2 |
| UniRef90_R9N524 |
| UniRef90-D7C5M7 |
| UniRef90-W1GGX7 |
| UniRef90-UPI00037A3C81 |
| UniRef90-UPI00045E84F7 |
| iRef90-Q82N62 |

UniR
UniRef90-C3ZIV3
UniRef90_UPI00037283F6
UniRef90 S4ZJB2
UniRef90_UPIO0036443E9
UniRef90_A5V7G0
UniRef90_X0XPK1
UniRef90_E8NGK5
UniRef90_H1QCR9
UniRef90_UPI000479C401
UniRef90 UPI0003F07221
UniRef90-X0Z7S8
UniRef90-H1C8C4
UniRef90-UPI00034B9629
UniRef90_X0RV51
UniRef90-H0EAE2
UniRef90-N2DMWS
UniRef90_Q47934
UniRef90-L8EKR3
UniRef90-D3AKA4
UniRef90-X1CUE0
UniRef90 X1R680
UniRef90-V9EQB3
UniRef90-X1RH23
UniRef90 X1TXT8
UniRef90_UPI000367873A
UniRef90_G5A2E7
UniRef90_UPI00035CD2A2
UniRef90_W2GTK0
UniRef90-A6EAC3
UniRef90_UPI00035EBD1B
UniRef90_M2TDF8
UniRef90_A4CK11
UniRef90-F8EAU2
UniRef90-E2XS55
UniRef90_D6V6H7
UniRef90-F6FQJ8
UniRef90-K2LXF4
UniRef90_R7ZLY6
UniRef90_C5BSU9
UniRef90-H3GKN3
UniRef90_UPI00034D1A46
UniRef90_C9ZGE8
UniRef90-UPIO0036B371F
UniRef90_U1YF25
UniRef90 UPI00037CE2B3
UniRef90_UPI000377AF68
UniRef90_UPI0003744900
UniRef90_D7AVR1
UniRef90-UPI00031256A6
UniRef90-I1ATV5
UniRef90-U7GIII
UniRef90_UPI0004094676
UniRef90 A4YUL9
UniRef90_UPI0004647C54
UniRef90-G7DCD5
UniRef90- X7YSJ4
UniRef90_UPIO003646D4A
UniRef90-AOYKR6
UniRef90_D5SW97
UniRef90 A3IS05
UniRef90-S1T7X4
UniRef90-Q136P2
UniRef90 UPIO0030BE978
UniRef90_UPIO00302AD47
UniRef90-A3ZT69
UniRef90 UPI0004026696
UniRef90-S6DCN3
UniRef90 UPI00036AFD08

|  |
| :---: |

ARLLS
A R A L A T V WR
SQFFQ
AQAFAWR
A R L L T L R
GRAFGVEWR
ARAFAAHWK
SRAFSAEW
QKVL
SHAFTANWR
R R LLT
A A WLT
ARAFADDWR
ANFYDVN
R NWLLVF
VALLD RT
FRAFAR
$R R L L D R Q$

ARAFAVAW

$\overline{V N L} A$
1 T A F
RRFFRDREQ
ITAFAQSGQ
LTAYSQSGQ
YRLIF TKAER
LAAF
1 DAFAKSGQ
$V D F F A Q S G Q$
FRFF
VEFYGQSG
${ }^{F}$ T $b$
LA AYQQS GQ
MK FFQQLGDR
VEFFARSGR
VEFFARSGR
VAFYGQSGR
VTFYGQSGR
$V E F Y G Q S G$

| $L$ | $E V Y S Q Q Q R$ |
| :--- | :--- | :--- |
| $V A F Y G Q S G R$ |  | VAFYGQSGR VEFYGRSGR FR $L$

ERLFA
FRLFS
$\square T A F S D S G Q$
FKLFA
FRDFS
VEFYGQSGQ

LA A YSPSGQ

 | $\mathrm{V} A F Y$ |
| :--- |
| $\mathrm{~F} R \mathrm{~F}$ |

LEVYGRSGQ
V A F GQSGR L R L F S
I D A Y NQSGQ LD F GMNGK Y R L F

|  | D A HAHY |
| :---: | :---: |
| F V $\quad \begin{array}{llllll}\text { d } & S & H & C & H\end{array}$ | NFPELAE |


I D S HCHLD C $\square$ D VS AREGG
DSHCHL
1 D THTHLLDSPKFDN
FID SHCHLDR $\square$ D LK PYHNDFDAFD
I DTHCHL
VDSHCHL DFPDFAAELPD
F F D

VD S HCHL GLI DSHCHL GLI DS HCCHL

|  | DFPDFEGE $\square$ P D |
| :---: | :---: |
| DAHTHL | VRKMGFEDAS |
| $\sqrt{V} \text { D S HCH }$ |  |



UniRef90 UPI0003601F61
UniRef90-E3T6H9
UniRef90-V5SEF6
UniRef90_UPI00036AB324
UniRef90_UPI00046AB8B4 UniRef90-UPI00035F2767
UniRef90-F2IZY2
UniRef90 A0A058ZM26
UniRef90-UPI0003766A04
UniRef90_D3P368
UniRef90_S5UBZ8
UniRef90-V7IOO
UniRef90-B9NNK9
UniRef90-A0A024G7M1
UniRef90 B0UB34
UniRef90_Q11HZ6
UniRef90-R6GB73
UniRef90-B1VU93
UniRef90-A3IVH1
UniRef90-F5M5G2
UniRef90-UPI0002E2FCBC
UniRef90 ${ }^{-}$UPI000367DDF0
UniRef90_UPIO00361A0E3
UniRef90_UPI00035C9146
UniRef90-X6GF52
UniRef90_V4RAR6
UniRef90-A6DT94
UniRef90_UPI00036548F6
UniRef90_A6FPR2
UniRef90-X6KYM6
UniRef90-K2N8A1
UniRef90_UPI00022603AC
UniRef90-R5SFM5
UniRef90_UPI0003F531B7
UniRef90-B2IB82
UniRef90_W7QE46
UniRef90_S6AHO3
UniRef90 Q47DZ8
UniRef90_UPIOOO262C9F0
UniRef90-J2VD43
UniRef90-UPIOOO3771982
UniRef90-G2GAS4
UniRef90 A0A015KWTO
UniRef90-G0A7K8
UniRef90-UPlooou6E9215
UniRef90_A7INF7
UniRef90-F7VB48
UniRef90-1316V7
UniRef90_UPI000399B3F4
UniRef90 A9HIA6
UniRef90-A0A023D6D7
UniRef90-R5QMF9
UniRef90-S90FC8
UniRef90-UPIO0036EE690
UniRef90-D3A7U1
UniRef90-FEOOLO
UniRef90-B2V6K5
UniRet90_G4R9P0
UniRet90-U6B4R6
UniRef90-UPIO0037EBFOF UniRef90_D3SNY1
UniRef90-W7EOY8
UniRef90_UPI0003665D58
UniRef90-UPI0003B4376D
UniRef90_UPI0003B607F9
UniRef90-JoPTLO
UniRef90-G8QPA1
UniRef90 UPI0003B49107
UniRef90-F7ZEB4
UniRef90-UPIooo3654DEA
UniRef90_YOKGZ6
UniRef90-AOP6X9
UniRef90-C8WFU1
UniRef90-Q2Y987
UniRef90-M9RGU0
UniRef9O_R6NFA5
UniRef90-Q8EU43
UniRef90-J3DHH2
UniRef90_UPIO003790B72 UniRef90-F5R9J7 UniRef90_UPIOOO3610538 UniRef90-UPI00037EA6A5 UniRet90-Q1H172 UniRefoto-R5DOC8 UniRef90-Q0BT76 UniRef90-V2UXK0 UniRef90 X1RVFO
UniRef90 C600T1 UniRef90-JoJN85 UniRef90_UPIO00424E5F8 UniRe90_UPIOOO3C100D2

YEAMAKAGVVA VEEPAWDGQPR DFPDFAPDLDGVVVRAKAAGVRTMVTD
ERDAVIARA
Y LPEVVARAV
ELDDVVARA
ERDALVARAHE
E R DELVARA
Q A RAAGVRDMVTI RAAGVGRLVTVGTKV

TVGS F
TTVG


DFPDFAAELPQVIARARAAGVTRMVTDCTRL KNEPAVR Q LDEDVARATE AGVTRMVT $\square C T K L \quad R N E P T V R$



TSRTTYDYLV MKEYGVVA IIEPTHVGTFQD DGWER EHEALIARA RRAAGVTRMVT $\square C T R L$ RHEPRVR DDSQFNEDRDLVLKE $\square K E K G V T G V L N C G S D L \quad R G L N M S!$ PHAHMDSRTTNDYEAMASAGVVAVIEPTNVGSYKDLGFER DFEDFAPERDA $\square V A R A H A A G V G \square M V T \ S T R V \quad R R F E Q V L$
 DFPDFAAELDDVVQRARDAGVTRLVTISTRLKRFD EWER
QFAPERDAVVRRAHEAGVGGMVTDSTR

D R DQVVQR A $\qquad$ D A
ER A E V I D R A L A
REA

 $S R$ DDEAF DA DRETLL ASMPE
D DEAF DA DRETLLASMPEHGVGLILDP

伿
NMENN
HMQDN
$Q V G L A V C D G V V G \underset{N}{G} A L C V S V N L S$
$\begin{array}{llll}\text { D F H A V I } \\ \text { E } & \text { F } & \text { P K }\end{array}$





$V E P$ Y P



 DHWRAEE $\square$ A G VVVSRAAEAGVRTLITMGTRISQABATVK
A Y R VGVEH $\$ ME RAK QA GVQGVCT $\square G D G \quad \square E E T E$ D ML S S K E D V L E S V G R L D Y L D R H DV
$R N L T L Q D D S L E Y L I$
$T$ VGYDRNDQRA
 VVNKA QEK G I NYL L
D D RQFENDRYSLLDSMKEAGDGT』VNNAADLE

$R$ L P E I L A K M A A QV Q A A V C $\square \mathrm{G} V \mathrm{~V}$ L
RMDDVRAAMQQ Q GVV H ALLISVN
R I D EVVA NAAE



D K NI E A VRTAMVE S
 LASR L DE LLAARMRENDVSHALCVSVNL ERADVIGRAV
D D K A F DK D R GR MLE HVVHANGVNEVI NVGA S FK G NARQFKDDREETLQRAYDAGVENMV

V I A R A E G A G V S TMMLT $\square$ C T H $\quad$ LS R
REDEVIA NMAA Q QVSHA LCVSVNI EQWPRVTGG
QLD QHLAAMAKN $N V$ SHALIVAVDRAGI PGUL
$R Q N Q V T H A L L A S V T M P S W P G L M E I V D A T P$
$N L Q T L R E A M Q R E R V$
GHALCISVTL_PDFPEVL


 $N L D A \quad Q D K M R Q N C A L V V S V$


UniRef90_UPIOOO3601F61 UniRef90_E3T6H9
UniRef90_V5SEF6 UniRef90_UPI00036AB324 UniRef90-UPIo0046AB8B4 UniRef90-UPIO0035F2767 UniRef90-F2IZY2 UniRef90 A0A058ZM26 UniRef90_UPIO003766A04 UniRef90-D3P368 UniRef90-S5UBZ8 UniRef90-V7EE73 UniRef90-UPIOOO3781917 UniRef90-B9NNK9 UniRef90_A0A024G7M1 UniRet90-BOUB34 UniRef90-Q11HZ6 UniRef90-R6GB73 UniRef90-B1VU93 UniRef90-A3IVH1
UniRet90
UM UniRef90-UPI0002E2FCBC UniRef90-UPIO00367DDF0 UniRef90-UPIOOO361AOE3
UniRef9-UPIOOO35C9146 UniRef90-UPIOOO35C9146 UniRef90-X6GF52 UniRet90-V4RAR6 UniRef90-A6DT94 UniRee90-UPI00036548F6 UniRet90-A6FPR2 UniRef90-X6KYM6 UniRef90-K2N8A1 UniRef90-UPIO0022603AC UniRet90_R5SFM5 UniRef90_UPIOOO3F531B7 UniRef90-B21B82 UniRef90 W7 QE46 UniRef90-S6AHO3
UniRef90 Q47DZ8
UniRef90_O47DZ8
UniRef90_UPIOOO262C9F0 UniRef90-J2VD43 UniRef90-UPIOOO3771982 UniRef90-G2GAS4 UniRef90-A0A015KWTO UniRef90-G0A7K8 UniRef90_UPI00046E9215 UniRef90-A7INF7 UniRef90-F7VB48 UniRef90--1316V7 UniRef90_UPI000399B3F4 UniRef90_A9HIA6 UniRef90-A0A023D6D7 UniRef90-R5QMF9 UniRef90-S9QFC8 UniRef90-UPI00036EE690 UniRef90-D3A7U1 UniRef90- F8EOLO UniRef90-B2V6K5 UniRef90-G4R9PO UniRet90-U6B4R6 UniRef90-UPIO0037EBFOF UniRef90 D3SNY1 UniRef90 W7EOY8 UniRef90 UPLOOO3665D58 UniRef90-UPIOOO3B34376D UniRef90_UP10003 UniRef90-G8QPA1 UniRef90-UPI0003B49107 UniRef90-F7ZEB4 UniRef90-UPIO003654DEA UniRef90_YOKGZ6 UniRef90 A0P6X9 UniRef90 C8WFU1 UniRef90-O2Y987
UniRef90-M9RGU0 UniRef90-R6NFA5 UniRef90-O8EU43 UniRef90-J3DHH2 UniRef90_UPI0003790B72 UniRef90-F5R9J7 UniRef90_UPIOOO3610538 UniRef90-UPIO0037EA6A5 UniRef90-Q1H172 UniRef90-R5DOC8 UniRef90-Q0BT76 UniRef90-V2UXK0 UniRef90-X1RVFO
UniRef90 C6QOT1 UniRef90-JOJN85 UniRef90_UPIOOO424E5F8 Uiref90_UPIO003C100D2
 AVAERFD DVWCSVGTHPHNAHEEDDTPTAEVVRLAQHPK AVAETYPEVYCSVGTHPHNAGEETDITTADLVELARHPK AIIAEAH APVFFAAGTHPMSVASEPMVTVDELVAVTNHPK AI AERFD DVFCSVGTHPHNAGEEADVTLDELLAAADHPK AVAEAHD SVYCSVGTHPHNADEELDVTVEDLVRLSAHPK A A AEATYAPVFFAAGTHPMSAAEEPMATLDELIAL
 ADAEAHD GVFYAAGTHPMSAAEEPLATVDALVALSRHPK FRAAQYGDAHHCTVALNPKEANDPRCDPVDALPRFLVKD A TAE THAPVFYAAGTHPMSAADEPMATIDELVTLARHPK DIAEKKRDHIVNVTSLNDEQ VEFESKEESSKLFSRKR ALAEAHPEIFFTVGTHPHQAAEEPDIPLEEIVALSRHPR A A AGQYD NVYCTVGTHPHNAAEEEDVTAEDLVALSEHPK GLCEQ GMSAYCYTGSYO

G $\square$ AH HCT
FRAEQFG $\square$ RHYCT $\square$ S $\square$ NP ATAEAHEGVFYAAGTHPMSAAEEPMATNEELAEQVMELLK ELAEKYDF VYAAVGTHPEYAQVVDENLIEQIRNYAKNPK ERAGQFGVRHYCCIGGLNP NSKEANNEALANGVMEPK
ALVERYPGVFGTVGTHPHNAHEELDVTHEELDRLADHPK EI AESFD EVYCSVGTHPHNAAEELDVTVEALARLSAHRK
 RILELVGASVYGTVGTHPQNAHEELDVTAEELVRLAEHPK AI AEAH APVFYAAGTHPMSAADEPMASVDELVTLSRHPK A A AEAA APVFYAAGTHPMSVAEEPMATVDQLVALSQHPK A $\ddagger$ AETYD NVFCSVGTHPHNADEEDDVTTADLVRLAEHPK RAVERTYPHVYAAVGWHPENCAPYTEDSLDALLRAWAREPK RAIAETYAPVFYAAGTHPMSAADEPMASVDELVALAQHPK A $\square$ AE TYHDVYCTVGTHPMHAHEEEEVELARLIQLSSHEK SLAE THPQLYATAGCHPDPHDAKDFTADDLA FFFIDHD ALAEHEP RLFATVGVHPEYTD VEEPDENRLVELASHPK QLAKAHD RVWATVGLHPCHAHEEPGVTVEQLLEVVKAD AI TEAYE SVYASVGTHPNNAHEEDDITVENVELSNHPK ALAEAHP EVYCSVGTHPNSAHEE

ALAERYDF $\square$ YAAVGWH
PVDS DEMREDDLA
 D S S SVGVHPNVTDG
 TQFSTPDVRVWCSVGTHPDHVEEEPVPSVQVIAAGCADV ALAESYDP VYCSVGTHPNNAHEEDDVTADELERLAQHPK DLTRRPD RVWCTVGTHPDHVDECTVADAAGVALADDPR TRFDRPELRVWCAVGTHPDHAHEAESHSSDEIVAGLAEPSC A A AEAHPSVYYAAGTHPMSAADEPLVTVGALVKLAEHPK RIAETFP DVWCTVGDHPHQAAEAPIPAVEELVALADHPK D A A AND HIYCTIGI HPDS QEAEEFTIAEMVEAAKHPK RAVEAAGFHVWAAVA EFTKKFD NVYASI GYHPYDTGDDSEKDIENLAKLYKN A TAEKHD NVFCSVGTHPHNAHEELDTSIDEITALSQHPK SLCQDYPSSIFCSIGSHPCYVHEEDEISUDGLVCLASHPS QLAQEQR HVFASAGGHPHEADKVKDEDDEWLKDLAKK TSFARPDGKLWCTVGTHPEYVKDEVFATADEJAASTDHPQ AMAELTASQECSAGMHPLHQDEV VDEALLLEYANHEK ELAHRYDF VYAAVGVHPENAYELDDSKLLWLRDKSHDPK ELDKEHD ELFSSCGVH PDYYDEKNKD EVVLDEAL A VVQMYD QVFCSVGTHPNYAHEEQNDTAEELTHLSKNPK RALAAESYDNFWATVGVHPDVKDAPDF SFEELCHEAQAAK A AAEAH APDFYAAGTHPMSAASEPLATVDGLDALAQHPK EMAEQYD HLYAAVGWH PVDADDMTDKELA WLDEL ADAEAYD NFYASVGVHPDY NQKK HTFASVGVHPDY EDIEEPTVEVLVKDAEHAK NQKK REKHFASVGVHPDY ENITEPTVEQLVELSRHEK ALAAEREKDVWAAIGGHPNEAAAHENMTSQRLIEAADHPR A A A QDF APVFYAAGTHPMSAADEPMATVNELIDALTAHPK ELAKKYPF VYA Y VGD
YA
YA
Y A WH
AVAERFD
AVAERFD KLAEQHP NVASVGVHPDY NVWCTVGIHPHEAEDTPEPTVEQLVELADHPR NVCTVGI HPHEAGSETLHDADTLVALADHPK NLWGSVGVHPDE QDTPEPDVAELVRLAQHPK AVAEAYE NFYASVGVHPDYEDEPAF SEDQLVSLAAHPK ALAAEFP HVYAAVGLHPENCHDFQPEQTERLRQLARREK A $\square$ ARRHD DVGYSVGVHPEDPSVMARASVEYLVQLATND WRGKQELDDVYVGVALNPVNDPPDYEKVLEVIPKYVTKER ELIANKHDF FYAAVGIHPEH GLMERPHTHDFASVGVHPDYEKVTEPTVQELVAEVADELK LVERFPAD YGAAGVHPHEAKDFTD TVEGILELVAHPK


UniRef90_UPIOOO3601F61 UniRef90-E3T6H9
UniRef90-V5SEF6 UniRef90-V5SEF6
UniRef90_UPIO0036AB324 UniRef90_UPIO0046AB8B4 UniRef90-UPI00035F2767 UniRef90-F2IZY2 UniRef90_A0A058ZM26 UniRef90_UPIO003766A04 UniRef90_D3P368 UniRef90-S5UBZ8 UniRef90-V7EE73 UniRef90_UPI0003781917 UniRef90_B9NNK9 UniRef90_A0A024G7M1 UniRef90-B0UB34 UniRef90-Q11HZ6 UniRef90-R6GB73 UniRef90-B1VU93 UniRef90-A3IVH1
UniRef90-F5M5G2 UniRef90-UPI0002E2FCBC UniRef90_UP1000367DDF0 UniRef90_UPIO00361A0E3 UniRef90_UPI00035C9146 UniRef90-X6GF52 UniRef90_V4RAR6 UniRef90-A6DT94 UniRef90_UPIO0036548F6 UniRef90_A6FPR2 UniRef90- X6KYM6
UniRef90_K2N8A1
UniRef90 UPI00022603AC UniRef90 R5SFM5
UniRef90_UPI0003F531B7 UniRef90-B2IB82 UniRef90-W7QE46
UniRef90-S6AH03
UniRef90 Q47DZ8
UniRef90_UPIOOO262C9F0 UniRef90-J2VD43
UniRef90_UPIOO03771982
UniRef90-G2GAS4
UniRef90-A0A015KWT0 UniRef90_G0A7K8
UniRef90_UPIO0046E9215 UniRef90_A7INF7 UniRef90-F7VB48 UniRef90-I316V7 UniRef90_UPIO00399B3F4 UniRef90-A9HIA6 UniRef90_A0A023D6D7 UniRef90-R5QMF9 UniRef90-S9QFC8 UniRef90_UPI00036EE690 UniRef90-D3A7U1 UniRef90_F8EOLO UniRef90-B2V6K5 UniRef90_G4R9P0 UniRef90_U6B4R6 UniRef90_UPIO0037EBFOF UniRef90_D3SNY1 UniRef90-W7EOY8 UniRef90_UPIO003665D58 UniRef90_UPI0003B4376D UniRet90_UPIO003 UniRef90_G8QPA1 UniRef90-UPI0003B49107 UniRef90-F7ZEB4 UniRef90_UPIO003654DEA UniRef90_YOKGZ6 UniRef90-A0P6X9 UniRef90-C8WFU1 UniRef90-Q2Y987 UniRef90_M9RGU0
UniRef9O_R6NFA5 UniRef90-Q8EU43 UniRef90-J3DHH2 UniRef90_UPI0003790B72 UniRef90-F5R9J7 UniRef90_UPIO003610538 UniRef90_UPI00037EA6A5 UniRef90-Q1H172 UniRef90-R5DOC8 UniRef90-Q0BT76 UniRef90-V2UXK0 UniRef90-X1RVF0
UniRef90 C6Q0T1 UniRef90_JOJN85 UniRef90_UPI000424E5F8

## 




$$
7
$$ 6A5

[^0] DLPVLIHTPHRDKKTDHTIETIRKAGFPEERVLIDHNNEE
 GLPLII GLPLVI HA ARDADDDMARILTEEYRNGAY

C VM H

## GLPLVI HA

 H A
GL PLV

G

 | G | P | L | I |
| :--- | :--- | :--- | :--- |
| N | H | $\mathrm{H} A$ |  |
| P | V | F | H | GLPLVI HARCNSN GLPLVI HARDADADMEAlLREEMGRGA GVVNVHLGDSPRCMDLI LRVVAETEIPASQILPTHICNRS QLPALVHTPHRDKDAHRT DDVVRESNLPPEFVLLDHLNET DKLVLVHTPHRKEGTSRSMDI CLDEGLDPLQVII DHANEE

 DLPVMIHTPHRDRGASRSMDVILEHKVDPSRVVIVDHVNE



## G

 RG
D
G
G GLPLI I H
$\qquad$

GKP L I H QRDA H Q R P V V V H TR SADD | $L$ | $P$ | $L$ | 1 | 1 | $H$ | $A$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $L$ | $P$ | $L$ | 1 | $A$ | $H$ | $A$ |
| $L$ | $P$ | $L$ | $V$ | 1 | $H$ | $A$ | ARDADDDMAR RDA DEDMA TI LTTEA YRARPY T C C ARNADDDMDA IL K E ETGKGAFP $\checkmark$ H C F S ADSLLA ARDAD

DADAD
$D A H Q D$ FLNI LTAHISDF $P A V R G V F$ $\begin{array}{llllllllllll}Q & L & P & L & V & H & A & R & S & A \\ L & H & A & R & D & A \\ L & A & L & V & H & T & P & H & R\end{array}$


 NVPI I HARQADEDIAQULREETEVGAFP B

## 


 KLPLI I HARAAD DD MARIL T E E HKKGAY S CVVMHC M S




## 

$$
1
$$



## ,

G
D
G


UniRef90 UPI0003601F61
UniRefefo-E3TGH9
UniRef90 V5SE6
UniRef90-V5SEF6
UniRef90_UPIOOO36AB324 UniRef90-UPIO0046AB8B4 UniRef90-UPIOOO35F2767 UniRef90-F2IZY2 UniRef90_A0A058ZM26
UniRef90_UPIO003766A04 UniRef90-D3P368 UniRef90-S5UBZ8 UniRef90-V7EE73
UniRef90-UPIOOO3781917
UniRef9O-B9NNK9 UniRef90-A0A024G7M1 UniRet90-BOUB34 UniRef90-Q11HZ6 UniRef90-R6GB73 UniRef90-B1VU93 UniRef90-A3IVH1
UniRef90 UniRef90-UP10002E2FCBC UniRef90-UPIO00367DDF0 UniRef90-UPIO00361 AOE3 UniRef90-UPIOOO35C9146 UniRef90-X6GF52 UniRef90_V4RAR6 UniRef90-A6DT94 UniRef90-UPI00036548F6 UniRet90_A6FPR2 UniRef90 - X6KYM6
UniRef90
K2N8A
UniRef90-UPI00022603AC UniRef90- R 5 SFM5
UniRef90_UPIO003F531B7 UniRef90- B21B82
UniRef90-W7 QE46
UniRef90-S6AHO3
UniRef90 Q47DZ8
UniRef90_UPIOO0262C9F0 UniRef90- J2VD43 UniRef90_UPIOOO3771982 UniRef90_G2GAS4 UniRef90 A0A015KWTO UniRet90_GOA7K8 UniRef90_UPlo0046E9215 UniRef90-A7INF7 UniRef90-F7VB48 UniRef90-1316V7 UniRef90_UPIo00399B3F4 UniRef90 A9HIA6 UniRef90-A0A023D6D7 UniRef90-R5QMF9 UniRef90-UPI00036EE690 UniRef90-D3A7U1 UniRef90-F8EOLO UniRef90-B2V6K5 UniRef90-G4R9PO UniRef90-U6B4R6 UniRef90-UPI00037EBFOF UniRet90_D3SNY1 UniRef90-W7EOY8 UniRef90_UPIOOO3665D58 UniRef90-UPIOOо3B4376D UniRef90-UPIo003B607F9 UniRef90-JOPTLO UniRef90-G8QPA1 UniRef90-UPI0003B49107 UniRef90-F7ZEB4
UniRef90-UPIO003654DEA UniRef90_YOKGZ6 UniRef90-AoP6X9 UniRef90-C8WFU1 UniRef90-M9RGU0 UniRef90-R6NFA5
UniRef90 $\mathrm{Q} 8 \mathrm{EU43}$ UniRef90-J3DHH2 UniRef90_UPIO003790B72 UniRef90-F5R9J7 UniRef90-UPIO003610538 UniRef90-UPIOOO37EA6A5 UniRef90_Q1H172 UniRef90-R5DOC8 UniRef90-Q0BT76 UniRef90-V2UXK0 UniRef90 X1RVFO
UniRef90 C600T1 UniRef90-JOJN85 UniRef90_UPIO00424E5F8 UniRef90_UPiooo3C100D2

DEQRM AVLVKKYGPDRIIVNSAADWGISDPLKVPK TEALAEARADPDRLLVEDAPYLAPVPY

LRDUARDVPADRLLVETDAPYLAPVPY
LRELAASLPADRVLVETDA
RNSEDI RAVARELPADRLLVETDA NSQQIRD AADAPDRLETDAPYLAPTP DEPRM VGLVQAFGPERIMVNSSADWGIDDPLKVPK DVDRM VALLREYGTDRMIVNSATDWGKSDPLATY DEDRMVAVLKSHG TEKMLVNSAADWGKSDPDK
 RRSQELRA|AAAVPRERLLVETDAPFLAPEP DCDEVRCNGIRRMMEAGVDKHI TISSDGQGSLPMYTAKGE DEDRMVALLQNHGTEKMIVNSADWGRSDPLK MVELVKKYGSDRI L NAKVIKEVVKAVPIDKLLVETACPYMAP DPGSVP MVALLKEYGLEKMIVNSAADWGISDPLKVPK RSEELRAI AAEVPADRLLVEDAPYLAPEPF
RSEELRA AADUPADRLLVETDA DADRM VDLDQQYGSDRILVNSSADWGTSNP■AVPV RSEELRAIAAEVPADRLLVETDAPYLAPEPFRG


LRR1AETVPRDRLLVETDA NARKTVEVAL E CPLDRMLLETDSPYMAPVPVRGT

LRQi FAAAPRDRTLVETDAPYLAPPPYRG
LRAI ARETPMDRLLVETDAPYLAPVPY
VCDERRGHHLDPLLQHi PADRLLIETDAPYL\PRHDQ K


I REIAKNIPRDRLLVETDAPYLAPMP
RSAQALRDUAGDVPDDRLLVETDA DEPRMVAILR A YGPERVLVNSAADWGRSDPLK

NAQADKDVAQKVPADRFLIETDSPYLAPVPY CDEIRAVAQSVPDEREVVETDAP

FREVARTLPADRILVETD PFLAPTPYPYDA
MVEVVREYGPERUVDSSADWGVSDP品SVPK
IREAAKIVPHDRLLVETDA WGOBCLA
CET RAVARD
SPY乌APVP
KSDA

RSDDLRALARDLPADRLLVETDAPFLAPEPFRG
QEAAKYVPTDRILVEDAPFLAPVPKRG


PN ASSLREVVKKTPTSRILLETDSPFLAPQPVRGRP

LQATVKE1PRDDRLLVETDSPYDAPV
QAVIKEDPGERLLVEDAPYLAPV
1 REIAK TVPHEYLLVETDAPFLAPV
NAKVVKEVAAKVPGERILVETDAP SPY LAPTP
NAKVVQDVAKRVPLDRLLVETDAP
 KEVAKYVPADRLLI ETDCPFLAPHP


 D APY S SP P P
 DAPYLAPVPY DAPYLAPVPFRGKM



LRAIVAALPDDRLLETD
NAQDLRDVAKHUPGRRLLIETDSPYLAPVPFRGK
NAKKVLDVVKEVPLDKILVETDCPYMAPVPFRG NATQLQDVAQRVPLDRLLIETDSPF पAPVPYRG



| UniRef90_UPI0003601F61 | VAFYAQSGR |
| :---: | :---: |
| UniRef90-E3T6H9 | IGFFAQS GR |
| UniRef90-V5SEF6 | FR |
| UniRef90-UPI00036AB324 | FRL |
| UniRef90_UPI00046AB8B4 | D R L |
| UniRef90-UPI00035F2767 | FRLF |
| UniRef90-F2IZY2 | FRL |
| UniRef90-A0A058ZM26 | D R L |
| UniRef90-UPIO003766A04 | FR ${ }^{\text {c }}$ |
| UniRef90-D3P368 | 1 AFY Y |
| UniRef90-S5UBZ8 | VEFYGRSGR |
| UniRef90-V7EE73 | DR |
| UniRef90-UPI0003781917 | VA FYGRS GR |
| UniRef90-B9NNK9 | DRL |
| UniRef90-A0A024G7M1 | LR L L |
| UniRef90-B0UB34 | YR L |
| UniRef90-Q11HZ6 | FRL |
| UniRef90-R6GB73 | ARILQLK D K |
| UniRef90-B1VU93 | $\checkmark \mathrm{A}$ |
| UniRef90-A3IVH1 | LKAYGQS G |
| UniRef90-F5M5G2 | D R |
| UniRef90-UPI0002E2FCB | K |
| UniRef90_UPI000367DDF0 |  |
| UniRef90-UPI000361A0E3 | $\square$ NFFA Q S G |
| UniRef90-UPI00035C9146 | F R |
| UniRef90-X6GF52 | F R L |
| UniRef90-V4RAR6 | FRL |
| UniRef90-A6DT94 | $\square$ |
| UniRef90_UPI00036548F6 | FRLENKTP |
| UniRef90-A6FPR2 | N R L |
| UniRef90-X6KYM6 | ERLF |
| UniRef90_K2N8A1 | F R L F |
| UniRef90-UPI00022603AC | HRLFTR |
| UniRef90-R5SFM5 | KRLFGI |
| UniRef90_UPI0003F531B7 | DRL |
| UniRef90-B2IB82 | LR |
| UniRef90-W7QE46 | LR FF |
| UniRef90-S6AH03 | M R L F K V K |
| UniRef90-Q47DZ8 | F R |
| UniRef90-UPIO00262C9F0 | Y R L F E A |
| UniRef90-J2VD43 | FRL |
| UniRef90-UPI0003771982 |  |
| UniRef90-G2GAS4 | $\checkmark$ A F Y GLS GR |
| UniRef90-A0A015KWT0 | KNCFGLR |
| UniRef90_G0A7K8 | Y R L F A L Q |
| UniRef90-UPI00046E9215 | FRL |
| UniRef90-A7INF7 | F T L F |
| UniRef90_F7VB48 | YR |
| UniRef90-1316V7 | 1 SA A A Q S G |
| UniRef90_UPI000399B3F4 | L R $\mathrm{L}^{\text {l }}$ |
| UniRef90-A9HIA6 | HRLFSR |
| UniRef90-A0A023D6D7 | HRL |
| UniRef90_R5QMF9 | C NLF |
| UniRef90_S9QFC8 | E R |
| UniRef90-UPI00036EE690 | A R L F A R |
| UniRef90-D3A7U1 | Y R |
| UniRef90-F8E0L0 | QRI YG $\square$ T W |
| UniRef90-B2V6K5 | K R L L K F |
| UniRef90-G4R9P0 | A R L F S K T G |
| UniRef90_U6B4R6 | L R L F |
| UniRef90-UPI00037EBF0F | K G L |
| UniRef90-D3SNY1 | K L |
| UniRef90-W7E0Y8 | H HL |
| UniRef90_UPI0003665D58 | F NLFSQAK |
| UniRef90-UPIO003B4376D | RRFYG】R |
| UniRef90_UPI0003B607F9 | F NLIF TQA |
| UniRef90_JOPTL0 | F R LF S |
| UniRef90_G8QPA1 | F R C |
| UniRef90_UPIO003B49107 | F R L |
| UniRef90-F7ZEB4 |  |
| UniRef90_UPI0003654DEA | K R F |
| UniRef90_Y0KGZ6 | F R L F A |
| UniRef90-A0P6X9 | SQLF |
| UniRef90-C8WFU1 | LK |
| UniRef90-Q2Y987 | F N |
| UniRef90-M9RGU0 | D R L F A |
| UniRef90-R6NFA5 | K R |
| UniRef90_Q8EU43 | R R F F N $\square$ N |
| UniRef90-J3DHH2 | F T L ${ }^{\text {F }}$ |
| UniRef90-UPIO003790B72 | HRLE |
| UniRef90-F5R9J7 | F R L |
| UniRef90_UPI0003610538 | F R L A A |
| UniRef90-UPI00037EA6A5 | F K L F |
| UniRef90-Q1H172 | FR |
| UniRef90-R5D0C8 | VRFF G $\square$ P Q K |
| UniRef90-Q0BT76 | R R |
| UniRef90-V2UXK0 | ENL |
| UniRef90-X1RVF0 | M R I F |
| UniRef90-C6Q0T1 | K R L L $\square$ |
| UniRef90-J0JN85 | F R |
| UniRef90_UPI000424E5F8 | F S L F |
| UniRef90_UPI0003C100D2 | F R L $\mid$ F |



UniRef90_L1QmA5
UniRef90 I9LIE8 UniRef90_K2JQR3 UniRef90_UPI00047A9D7F UniRef90_C1DCQ7 UniRef90-W6N1U8 UniRef90_UPI0003B72573 UniRef90-U5MNY4 UniRef90_Q7CZ45 UniRef90_Q39ST5 UniRef90-B2JGP9 UniRef90 H3SJI5 UniRef90_UPI0003726B93 UniRef90_C6J5G3 UniRef90-H0PU63 UniRef90-UPI00036DAFC9 UniRef90_UPI0003F4FDA0 UniRef90_Q3JAL7
UniRef90_UPI00035E4EC9
UniRef90-D3QZ65
UniRef90_UPI00045EAF1C
UniRef90_UPI0001D2D3D3
UniRef90-B3CM45
UniRef90_Q1JXH3
UniRef90-K5Z0R2
UniRef90-UPI00037616D8
UniRef90-W6M9D0
UniRef90-R7G0F8
UniRef90_UPI00040BFF46
UniRef90-UPI0004636A63
UniRef90-M1YRT9
UniRef90-H1HWF6
UniRef90_UPI000478FB30
UniRef90-Q31HQ7
UniRef90-D4DR49
UniRef90_UPI0002882CED
UniRef90_E1L868
UniRef90-F2BCS9
UniRef90-E9C3G6
UniRef90-F6CLL8
UniRef90-M5E3G7
UniRef90_UPI00040FB225
UniRef90-UPI0004796434
UniRef90-UPI00035EECE3
UniRef90-B1XHW5
UniRef90_UPI00035FB358
UniRef90_W8U3H2
UniRef90-E8WWH1
UniRef90-19CAA4
UniRef90-TODUN7
UniRef90_UPIO00248B54F
UniRef90-S3N2K8
UniRef90-I3TL81
UniRef90-D01370
UniRef90-UPI00030179C0
UniRef90-K2BIL9
UniRef90_UPIO003627AC6
UniRef90-UPI000225EA1B
UniRef90-C8S0G6
UniRef90-C3X2Q6
UniRef90 E0E2M6
UniRef90-D0MDR9
UniRef90-A5P7L0
UniRef90-A0A059FVF7
UniRef90_F6IPN4
UniRef90-R7N1M9
UniRef90_UPIO002492346
UniRef90-V2YBG7
UniRef90_N9XL27
UniRef90-X6PIQ0
UniRef90-A0A011P2N3
UniRef90_UPI0003B31076
UniRef90_UPI00046EE476
UniRef90_D3E741
UniRef90_UPI000473EBE7
UniRef90-D7GV83
UniRef90-C3X9N6
UniRef90-V6IV56
UniRef90-17LAZ3
UniRef90-R2SHX8
UniRef90-A6VXF4
UniRef90-B8DDKK2
UniRef90_Q0APP3
UniRef90-W1RN87
UniRef90-E7RVH4
UniRef90-C7DCE0
UniRef90-F2JN33
UniRef90-R6QJ40
UniRef90-A3WC64
UniRef90-K2D517
UniRef90-B8GSK3

DREAVI ARA ${ }^{50}$
60
70
80
DFPAFAADLPGVIARAREAGVRLMVEISDKLSTBDATHALL
 DFPD F A E E L P AVI A RAMDAGVVRMVVICTKL R DDEVKASMRE KGVERAVVISVNV PDYPAVR



 DNEAFDADREE DTRAFEQGVTVMVDNGVGNREDPTTM
DREEVIARAVEQ
 PDLAAREDAVLAAMAAKRVGHALCVAVKLEDFPR ENDDADRQSMTDAQV GHALCVSVTLD
 LDLTPFDGSVHVMEESRKAG $\qquad$
V $\quad$ VD DMEA D KFPEVL NDEAFADDASTACARAKLA $\square G Y D P S S L R$

 DGNRFAEDLEQVI QRADD QPGEQAEVI ARAVA Q $\square$ PA $\square R$ A A MSA A GVSEMVSDGVTLAQ

DDEQFNEDRVELLNSMEEQGVGTIINVSTYNSCRKV
DSPKFDDDREEMI QRAREAGVETIV NIGFNREIPTTM $\square$ N A ALDAARERGIRQFLCDGVSLENRETVVDDARQYP DDEAFDADRDVLLEDLKEYGI RKVIN A NAEQFKQDRDEVIKRAFETGVNYMV EE $\square$ GTTEEVIQQAHE LGVDKMM

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

GA SVVES ClA $\square$ GPEQWHEV
NAEAFDEDRDEATQRAWEQGVTR V NDNRFDNDRADMLQACFDAGVEY IVM
 DDRKFEADREEMLDRAQKAGVVQIINA GYDL PSSAR DFDDYNKDRKEVLNRARK QLPRQLLEAMQQNVAGALCIGGVNM DREEVIARAQA
 NF DVFGEDIEADASRWRAAGVAHLVHSCVTEUQALVDRVB

 EYEGLYEDPRAVLVRAEAAGVAQML
 NYAGLVEDQAGTLRRAREAGVSTMLNISTRE DF EGS G A DEALLD REAGVSTMLNDATRE QREWGQVV
$A$ VAARA
$E V V A R K E A$
$R$ LD S ILQSMEAAQVTRABCICTMME DLTDYQNQSMEAAQVTRALCI CTTME VEVI QHAFQKGVKAGI N (ARAREAGKGFLNISTKQAEWD E LTPDVIARA RAAGVTRMVTVCTRL MAANQVSHAD NDERFDEDRDQLIAY Y L RENDVDLVVNP Y LEAFDEDRDEVVARAREAGVVAMVADDVPSGADMETSK

 DDPAFDEDRESLLLDKLQEEGUTRVVNVISARQCEWD R METSK

DS GAFNADRMEVLASMPEAGVELILNPGCDL PNSQTAV DSEDYNEDRKELLNEMSKNGVIGILLNC ASSYESVK EVVY


 LAA RMPEDLARMAENRVTHALCVSVDL DDEAFDADREEVLA GLKEQGVGTVV
NDESFDEDFHDVLTRAEEAGVGRMD
NDEPFRGKELAYLERAVSLGVDQVICA
$N \nabla G A S \square A S T K$ T
NAEQFKDEIPETVERAKELGVMAVVGGQPEFNQ


 ATMAAEGVEHALC

K N E P A V $V \mathrm{~V}_{\mathrm{R}}^{\mathrm{R}}$



| $\text { D! } 90$ |  |
| :---: | :---: |
|  |  |
|  |  |
| Ref90-UPIO0047A9 | 俍 |
| ALALA A E EWA VG |  |
| UniRef90 ${ }^{\text {W }}$ 6N1U8 | ELSKKHDDFYAAVGIHPEYAD |
|  |  |
|  |  |
| UniRef90-Q7CZ45 K A D K Y S SVF CS VGTHPNNADE |  |
|  |  |
| UniRef90 B2JGP9 EAARTYD NVYASV |  |
|  | I YAAVG |
| 90-UP10003726B93 A A A M P N Y A V GV P P Y EDDQEPTVEELVRLANHPR |  |
|  |  |
|  |  |
| UniRef9-UP100036DAFC9 |  |
| f90_UP10003F |  |
|  |  |
|  |  |
| A ELLAENLRQAAVGIHPHDASTWNDSAREQMRAWLKNAV |  |
|  |  |
| UniRe990 UP10001D2D3D3 AVAERFE DVFCTVGTHPDHAHEEPEASVAECVELSR ${ }^{\text {a }}$ |  |
|  |  |
| UniRef90 K5ZOR2 AIMEAHENVWACVGVHPNHAADVPVVEPEVLAKLAEHPK |  |
|  |  |
| UP1000 |  |
|  |  |
|  |  |
| UnRef90_UPI00040BFF46 ALAEKYPF Y Y A AVGWHPTDADD M RLEE EDLA WI ERLCCA |  |
|  |  |
| UniRef90-H1HWF6 KLAERYHW VYAALGAHPNYVEEDSDRVLGDFAEDTKHP |  |
|  |  |
| 000478 |  |
| HQ7 LILADTYEEVYAAI GV P PCETKEVVVTD |  |
| UniRef90 UPIO002882CED ALAEKYDF VYSTVGWHPQDAKSMRDEDLQ W |  |
|  |  |
|  |  |
|  |  |
| RRef90-F6CLL8 SISLIAKYPIFAAVG\\|HPHDAGGVPEDYLGQLQEMCRR |  |
|  |  |
|  |  |
|  |  |
| ( |  |
|  |  |
|  |  |
|  | K |
| A D P K |  |
| 90-19CAA | G1 HPHEADQ |
|  |  |
|  |  |
|  |  |
|  | AVAEAHD DVWCSVGIHPHEAGPEGPVAAETLIGLAAPDA |
| LAATMPGF AYSTAGVHPHDAKTVDDLSLPVRALAREPQ |  |
|  |  |
|  |  |
|  |  |
| UniRef90-UP1000225EA1B T |  |
|  |  |
|  |  |
|  |  |
| Y PGVYAMAA LHPSETRTATEADFEEIVRLCDDP |  |
|  | VGTANAKPVWASVGIHPHNADDHPDLTREELFDATRDP |
| UniRef90-A0A059FVF7 SLIA A H ${ }^{\text {S }}$ |  |
| TAAREDDV WASVG |  |
|  |  |
|  |  |
| DLTNEYDF IYGALGUHPEN |  |
|  |  |
| 隹 |  |
| er90 UP10003B31076 DVSLITVGVHPCHTGA |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
| f90-V61 |  |
|  |  |
|  |  |
| ef90-A6VXF4 DLAESKQDQI WNTIGCHPHQAKTWNNESKSQFSALINYAK |  |
| ef90_B8DOK2 $\quad$ RLSQEYD HI FATVGITHPHDADQVDGRALKVLKDLAKADK |  |
| Ref90-W1RN87 ${ }^{\text {a }}$ QVQGLSQUNVWNTLGCHPHQAKSWTSDSQSQLSALLDHGER |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
| UniRef90-A3WC64 GTANR EADVYASVGIHPHEADGHEDLGREVLLKATDNAK |  |
|  |  |
|  |  |
|  |  |



## UniRef90 L1QMA5 <br> UniRef90-19LIE8 UniRef90-K2JQR3 UniRef90-UPIO0047A9D7F UniRef90_C1DCQ7

 UniRef90 W6N1U8UniRef90
UPIOOOSE UniRef90-U5MNY4 UniRef90-Q7CZ45 UniReffo- Q39ST5 UniRef90-B2JGP9 UniRef90-UPIO003726B93 UniRet90-C6J5G3 UniRef90-H0PU63 UniRef90-UP100036DAFC9 UniRef90-UP10003F4FDA0 UniRef90-Q3JAL7
UniRef90-UP100035E4EC9 UniRef90-D3QZ65
UniRef90-UPIO0045EAF1C UniRef90-UP10001D2D3D3 UniRef90-B3CM45 UniRef90-Q1JXH3
UniRef90-UPI00037616D8 UniRef90-W6M9D0 UniRef90-R7GOF8 UniRef90-UPI00040BFF46 UniRef90_UPIOO04636A63 UniRef90-M1YRT9
UniRef90 H1HWF6 UniRef90-UPIO00478FB30 UniRef90_O31HQ7
UniRef9O-D4DR49 UniRef90-UPIO002882CED UniRef90-E1L868 UniRef90-F2BCS9
UniRef90 E9C3G6
UniRef90-F6CLL8 UniRef90-M5E3G7 UniRef90-UPIO0040FB225 UniRet90-UPIOOO4796434 UniRef90 UPIOOO35EECE3 UniRer90_B1XHW5
UniRet90 UPIOOO35 UniRef90-W8U3H2 UniRet90_E8WWH1 UniRef90-19CAA4 UniRef90-UPI000248B54F UniRef90-S3N2K8 UniRef90-I3TL81 UniRef90-UPIOOO30179C0 UniRef90-K2BIL9 UniRef90-UPIO003627AC6 UniRef90-UPI000225EA1B UniRef90-C8S0G6
UniRef90-C3X2066
UniRef90-DOMDR9
UniRef90-A5P7L0 UniRef90-A0A059FVF7 UniRef90-F6IPN4 UniRef90-R7N1M9 UniRef90-UPIIOOO2492346 UniRet90_V2YBG7
UniRef90 N9XL27
UniRef90- 6 P1Q0
UniRef90-A0AO11P2N
UniRef90_UPI0003B31076 UniRef90-UPIOO0046EE476 UniRef90-D3E741 UniRef90-UPIO00473EBE7 UniRef90 D7GV83 UniRef90_C3X9N6
UniRef90 V6IV56 UniRef90-17LAZ3 UniRef90_R2SHX8 UniRef90 A6VXF4 UniRef90-Q0APP3 UniRef90-W1RN87 UniRef90-E7RVH44
UniRef90 C7DCEO UniRet90-F2JN33 UniRet90-R6QJ40 UniRef90-A3WC64 UniRef90_K2D517
UniRef90_B8GSK3
UniRef90_A0A016XIS9





HRGKRNDSSYLKYVVEKIAEM KGVTPEEVASTSCQNA NRGKRNSSLNLPYVAEQLAAL KGI STKEVAEVTEQNA RG| ETEQLAEQTTANF



| UniRef90_L1QMA5 | F NLL F D R $\square$ PR |
| :---: | :---: |
| UniRef90-19LIE8 | F A L |
| UniRef90-K2JQR3 | ERLIF |
| UniRef90-UPI00047A9D7F | F R V |
| UniRef90-C1DCQ7 | F R |
| UniRef90-W6N1U8 | K K L G ( K |
| UniRef90-UPI0003B72573 | H R |
| UniRef90-U5MNY4 | F R LT QKEK |
| UniRef90-Q7CZ45 | F R C |
| UniRef90-Q39ST5 | RR\FG $\square$ G G K |
| UniRef90_B2JGP9 | F |
| UniRef90-H3SJI5 | $\square \mathrm{T}$ C F D $\square$ R |
| UniRef90-UPI0003726B93 | F |
| UniRef90-C6J5G3 | LERFG $\square$ |
| UniRef90-H0PU63 | FRL |
| UniRef90-UPI00036DAFC9 | F T |
| UniRef90-UPI0003F4FDA0 | F NLFK $\mathrm{I}^{\text {L }}$ |
| UniRef90-Q3JAL7 | F S L F |
| UniRef90-UPI00035E4EC9 | Y R L F A G S |
| UniRef90_D3QZ65 | K K L F N |
| UniRef90-UPI00045EAF1C | Y T L F |
| UniRef90-UPI0001D2D3D3 | $\square \mathrm{L}$ L F A |
| UniRef90-B3CM45 | FRLF |
| UniRef90-Q1JXH3 | F EL F |
| UniRef90-K5Z0R2 | R T L |
| UniRef90-UPI00037616D8 | ERLFG】 |
| UniRef90_W6M9D0 | GRLF |
| UniRef90-R7G0F8 | R D M Y |
| UniRef90-UPI00040BFF46 |  |
| UniRef90-UPI0004636A63 | HRL |
| UniRef90-M1YRT9 | K K L |
| UniRef90-H1HWF6 | RR CF |
| UniRef90_UPI000478FB30 | LR F |
| UniRef90-Q31HQ7 | K R L |
| UniRef90-D4DR49 | FKLF |
| UniRef90-UPI0002882CED | $\square \mathrm{R}$ L |
| UniRef90-E1L868 | KRVFG ${ }^{\text {K }}$ K |
| UniRef90-F2BCS9 | LRLIFA |
| UniRef90-E9C3G6 | R R F F Q |
| UniRef90_F6CLL8 | R R |
| UniRef90-M5E3G7 | ERIYNF |
| UniRef90-UPI00040FB225 | F |
| UniRef90-UPI0004796434 | R D CL |
| UniRef90-UPI00035EECE3 | NRL |
| UniRef90-B1XHW5 | R Q |
| UniRef90_UPI00035FB358 | QQLF KVK |
| UniRef90-W8U3H2 | LR FFNIK |
| UniRef90-E8WWH1 | H T |
| UniRef90_19CAA4 | F ALE Q K K R |
| UniRef90-TODUN7 | R A L |
| UniRef90-UPI000248B54F | F D L |
| UniRef90-S3N2K8 | N NLLD |
| UniRef90-13TL81 | Y RLIFSKA |
| UniRef90-D01370 | RR F |
| UniRef90_UPI00030179C0 | L N L F A |
| UniRef90-K2BIL9 | F K L |
| UniRef90-UPI0003627AC6 | E N FFS L H K K |
| UniRef90_UPI000225EA1B | HALFS |
| UniRef90-C8S0G6 |  |
| UniRef90_C3X2Q6 | F R L F Gl |
| UniRef90-E0E2M6 | K R F F G I R |
| UniRef90_D0MDR9 | R R L F |
| UniRef90_A5P7L0 | Y R L |
| UniRef90-A0A059FVF7 | VA L F A |
| UniRef90-F6IPN4 | F ELF |
| UniRef90-R7N1M9 | E QV Y G F Q K K |
| UniRef90-UPI0002492346 | HR |
| UniRef90_V2YBG7 | KRFFE $\square$ |
| UniRef90-N9XL27 | F K |
| UniRef90-X6PIQ0 | CRLF QVSVR |
| UniRef90-A0A011P2N3 | F N |
| UniRef90-UPI0003B31076 | H T |
| UniRef90_UPI00046EE476 | FKL |
| UniRef90_D3E741 | LERFGI |
| UniRef90-UPI000473EBE7 | F N |
| UniRef90-D7GV83 | R E M Y R |
| UniRef90_C3X9N6 | FRLLF Gl |
| UniRef90-V6IV56 | LS CFRIQ |
| UniRef90-I7LAZ3 | K R 1 Y |
| UniRef90_R2SHX8 | HRL |
| UniRef90-A6VXF4 | A TVFFG $\square$ R $\square$ |
| UniRef90-B8D0K2 | $\square \mathrm{NA}$ |
| UniRef90-Q0APP3 | F R L F D R |
| UniRef90-W1RN87 | E T V F G $\square$ R |
| UniRef90-E7RVH4 | D R L |
| UniRef90 C7DCE0 |  |
| UniRef90-F2JN33 | K T L F |
| UniRef90-R6QJ40 | R N M Y |
| UniRef90-A3WC64 | TK L F S |
| UniRef90-K2D517 | $\square \mathrm{R}$ F |
| UniRef90-B8GSK3 | QQ $\mathrm{L}_{\text {F }}$ |
| UniRef90_A0A016XIS9 | E R L \| FS |

T HAHY
DTHA HY D R L D L S THAHY DTHAHY
D THA HLL

UniRef90 D4M4E3 UniRef90_UPI000365A8D1 UniRef90-MODHI5 UniRef90-UPI00036C77C1 UniRef90_UPI00047D5750 UniRef90-UPI0002F393EE UniRef90_U1H1N9 UniRef90-A5IJC0 UniRef90_F9V6Y7 UniRef90-TOASU4 UniRef90_S1QX13 UniRef90-N8YC27 UniRef90_F0EZ64 UniRef90-SOJQE1 UniRef90_N0CAA2 UniRet90_D2APJ4 UniRef90-U2PPL7 UniRef90 UPI000474882E UniRef90 ${ }^{-}$R5BMD5 UniRef90-UPI00036984FE UniRef90 UPI0004773D1F UniRef90 UPI00046FDA73 UniRef90-UPI0003B40C3F UniRef90-Q12AK9 UniRef90 M1SV96 UniRef90-C4YWV5
UniRef90-D5T4T1
UniRef90 M1NYK9 UniRef90-D3DHU9 UniRef90_M1Z294 UniRef90-R5SDA4 UniRef90 R2PQT9 UniRef90_UPI0003FD3946 UniRef90-A0A024F6B7 UniRef90_N9W9J6 UniRef90 E3E3A7 UniRef90-A2SGX6 UniRef90-H8ID65 UniRef90 Q1YTP3 UniRef90-I6Z2K9 UniRef90-E7RWF3 UniRef90_DOJ4V1 UniRef90 M5S4N6 UniRef90 R713J1 UniRef90-Q2GG42 UniRef90_Q8DJN5 UniRef90 R5DT49 UniRef90-B4RAW3 UniRef90_F2LDR3 UniRef90-C4L8D8 UniRef90_UPIO00365CC22 UniRef90-UPI00036ED6E7 UniRef90 UPI00035D17A6 UniRef90-U2CXNO UniRef90-H1X9U1 UniRef90 G0AH34 UniRef90_UPI000374881D UniRef90_G9Y168 UniRef90-B2UXN3 UniRef90_I1XKA3 UniRef90_G5K4W9 UniRef90-G2DWK0 UniRef90_I3DFJO UniRef90 C6LJL6 UniRef90_UPI0004188E1E UniRef90-UPI00047EA311 UniRef90 A0A022H2LO UniRef90-B4WNA9 UniRef90-C5RDA4 UniRef90_UPI0002E84C8F UniRef90 D4ZS23 UniRef90-C5CMW3 UniRef90-E4KMU7 UniRef90 UPI0002FBC458 UniRef90-U2LYG6 UniRef90-F7KKY5 UniRef90-D3T004 UniRef90-D4J508 UniRef90_R6JND3 UniRef90_A5W707 UniRef90_R6SA73 UniRef90-R7B095 UniRef90_UPI000472C6EF UniRef90_UPI000423BFBC UniRef90-R7RUY6 UniRef90-D7VWG1 UniRef90-Q68W55 UniRef90_R5C3Y6 UniRef90_S6EQL6
 DAPEFEEDRDAAIARAVEAGVGRMV N $\ G F N R E \square P T T L$
 $T \square H K N V D D V L E K A K Q R D V K H C L A \square G V G \square S R F H Q L Q Q$ NSDEF DGKEKE IIT QAHELGVHRMN IVGVDRK VNDLA AAREDEVLATMAHNDVGAADCDSVKLDEDFPRVL NAEQFKDD $\square$ PETI ARAHELGLMAVVGFDTPT $\quad$ RA AKSIL $\square N \square A$ LDAARQAGVSRFMGDS VDMADHAKLAK A H NQVA QALVISVSRESFAQVLA

NVEEFAGREVEELQLAAELGVSNMN VVGFDRPDERAL


NDNRFDNDREAMLADCRAQGVRY M MCPAVDRGTAESA $\quad$ A $M D A F D D D R S E V I Q R A K D N G I D Y V G M V G G C D D E R S M$ DAEQFDEDREEVIARRALEQGVTQMI NUGFNREUPTTM
 $N Y A S L G E D V P G V L A R A R G A G V G G F L A D S C R E S E W D \quad G V I$ $M R D A Q V D R A L C L L E E F E$ NMAACK
 $V$ PA YIGGRANEFRVVMEMNIVGYDAIII DFEDFSQDLDGVI QRALAANVQRMIT ISTRVVNQRDL K E D L E D S L K D S S L E Y F I TVGGYD S K T I E N A




$D \square P S \square R A A M A R E R V D R A L C \square C T T L E E F D T V H M G H D$ VV N K A MEREVKH LLA

## V G T

LT R F E Q $\square Y \mathrm{Y}$
 $\begin{array}{llll}R Q A G & L & G A & V \\ R A L L C & S & T & T M E\end{array}$ EFPEVV
 NFPEYAP D L EAVVAERWRSAGVVGRLVHSCDVEAPREFPVI Q


M E V V Y H NVV G F D R P I E K A L
 $N L H A G V D D V L A K A$ A A QDVKFCLAVATTLPGYR KMRE NSEEFIVKVVPRYLK QAADLGVVKMVN $\quad$ VGSNT QLNA DDESFNED RE QVLLRE $\square K E S G V I V G L N C G A S M E G$
AREYRVVEM NVVVGYDTVGNQ
LS A RMPEVLAKMAQNQVTHALCVSVDL

D DESFENDRKEVLEE $\square$ QKNGV $\square G V L N C A A S Y D S$

|  | $A$ | $R$ | $Y$ | $S$ |
| :--- | :--- | :--- | :--- | :--- |

NHAGDFDTMM MRACREAG $\quad$ GGRMLCV G $\square D L E S Y S A M R R$

D DEAFDADREQLLEGLPGHGIGGVVNVGA SMRGAEESW $K Y D G Q D S G A \square A A M K E A N V T R A M A I M C$ M DDEQFDADREALLSQMKENGDERIAD $\quad$ IGASMA S S K DFPELAERLPELLENMRAS QVTHALDDSVTLEDGPRVL
 K A K DRGVDYLLSVGVTL

 MAEAQVDRALLCICTK LIEEF


D D K M F DED RESTLLESMQEAG\|GR\|VN $\|$ GADLIASTA $D D P Q F D P D R E Q L L R R L P D L G V V G V V S C$
A HQGSLDAA LLAARERGVGHFLC IGVVA D DEAFNGDRDELLCSMKENGIETVVNVGASF
 $\begin{array}{lllllll}A & D & L & A & S & A \\ C & D & L & A \\ P & Q & N & Q \\ E & N & A & G & A & V & K\end{array}$
$K T R T P E \square V L S D \square \square R G G \square T T V I G T T D G \square T R S L E N D Y$ NKQFYHEHEEDINRALDHGVHMDLVGTSVVRGSKESA

D DEAFDEDREELLDNSRENG $\square E Y$ VVNVCAAAD G

## UniRef90 D4M4E3

 UniRef90-UPI000365A8D1 UniRef90-MODHI5 UniRef90_UPI00036C77C1 UniRef90-UP1000047D5750 UniRef90 UPIOOO2F393EE UniRef90_U1H1N9 UniRef90-A5IJC0 UniRef90-F9V6Y7 UniReffo-TOASU4 UniRef90-S1QX13UniRef90 $\mathrm{NBYC27}$ UniRef90_FOEZ64
UniRet90-SOJQE1
UniRef90-NoCAA2 UniRef90-D2APJ4 UniRef90_R4U537
UniRef90 U2PPL7 UniRef90 UPIOO0474882E UniRef90-R5BMD5 UniRef90_UPIO0036984FE UniRef90-UPI0004773D1F UniRef90-UPI00046FDA73 UniRef90_UP10003B40C3F UniRef90-Q12AK9
UniRef90-M1SV96 UniRef90-C4YWV5
UniRef90-D5T4T1
UniRef90-M1NYK9
UniRet90-D3DHU9
UniRef90-M1Z294
UniRef90
R5SDA4
UniRef90-R2PQT9
UniRef90-UPI0003FD3946
UniRef90-A0A024F6B7
UniRef90-N9W9J6
UniRet90-E3E3A7
UniRef90-A2SGX6
UniRef90 -H8ID65
UniRef90-Q1YTP3
UniRef90-16Z2K9
UniRef90 ETRWF3
UniRef9o $\mathrm{DO}, \mathrm{J} 4 \mathrm{~V} 1$
UniRef90-DOJ4V1
UniRef90_M5S4N6
UniRef90-R713J1
UniRef90-O2GG42 UniRef90-R5DT49 UniRef90_B4RAW3 UniRef90-F2LDR3 UniRef90_UPI00037EE4F6 UniRef90_UPIO00365CC22 UniRef90-UPIO0036ED6E7 UniRef90-UPI00035D17A6 UniRef90-U2CXNO
UniRef90-H1 X9U1
UniRef90-GOAH34
UniRef90_UPIO00374881D
UniRef90-G9Y168
UniRet90-B2UXN3
UniRef90_I1XKA3
UniRef9O_G5K4W9
UniRef90_G2DWK0
UniRef90-li3DFJO
UniRef90-C6LJL6
UniRef90-UPIO004188E1E UniRef90-UPIO0047EA311 UniRef90-A0A022H2LO UniRef90-B4WNA9 UniRef90-C5RDA4 UniRef90-UPIO002E84C8F UniRef90-D4ZS23 UniRef90 C5CMW3 UniRef90-E4KMU7 UniRef90 UPIOOO2FBC458 UniRef90_-2LYG6
UniRef90 F7KKY5 UniRef90-D3T004 UniRef90_D4J508 UniRef90 R6JND3
UniRef90 A5W707 UniRef90-R6SA73 UniRef90_R7B095 UniRef90-UP1000472C6EF
UniRefo-UPIOOO423BFBC UniRef90-R7RUY6 UniRef90_D7VWG1 UniRef90-Q68W55 UniRef90-R5C3Y6 UniRef90_S6EQL6
UniRef90_G9PY

ELAEKYSF ALAEKYPF
 VYAAIGWHPVDADDMQDGDLEWIDESLCSHEK $\square A G M D H Y D T V S I N P K E A V D R E M S E A V I D R L$
A DADAYD DVYCSVGTHPHNADEELDVMTSDLVAHAAHPK A! TERSGVS LLSHRNDUS R

C ${ }^{-}$ MKIATEYE GLAERHP HLWASVGWHPDECGSFDQAAEQYLDENLQKD ELSQVYP EIYSIIGWHPTEAGSYTPADEENLQELLTR DASENSDVGY SVGVHPEDPDVMAQATVEYLVEKGRAEK【AEQND HVATVGLHPDSETAAEF SLDEELLQHARHPK ELA DSYEQIYATIGWHPTEAGTYDEAVEAYLLGKLAHP KIAEDY SDVYFSVGVHPSELDTHQPSVDEVVVRSQHQK ELANKYEF

A AAEKYD
ELAERYDF
KLAESYDF KLAESYDFI YAAVGWHPQDAITMQPGDLEWIEKLCAHEK Q
 KLAEDH A EIAEKYE EIAQAHD NVFASVGVHPCEVNSFDSHDTEACIMMLTQHPK EIA QTYDO KLSQEQE RVYCAI GFHPHEADKVKDGDL
 QLAKQYD RCWSTAGVHPHDSSQWDEASAQRLLELLASLPE DIARKYYPEVYCTLGVHPH LAAAEANADVWASVGLHPHDADHHPDVDTAKLVERAAHPR MYASIGWH PVDADDMTDEDLG WWDKEL NFWCSAGVHPDN EGVREPSVADLGALAAQPR TLAKFKNVSLYACGVHPGDDDDEPFSDARELEKLADDPK KADAERYADVDCSVGVHPLDLEP
 ALAKQYDF TYAAAGGVHPEETAELNEENFAWLCEQMKQEK KVAE SYKQVYLSVGVHPTNSANGESVSVDELVDLAQHSK RLSAQFP ELFMAVGLHPLDTQQWQPQLKEKI ASLATSEK ELVEKYE NVYGLLGVHPSEVKDWDDSLDDKIKEYSDSPK DAVRAVAMHIWCTVGTHPHEAKENPDLDARTLVELAQDPR A】AERHE HVYASVGVHPDHGEVREPTGAELVELAAHPK ELAERFP ELVEKYDF LI GERE Q| YATCGWHPTEAASYTDEVEAYLRQHLVH DLA REP KLASDYDF FYAAVGIHPEN EF EGVHAD VGWQPGESGDFKPEDMAETLNEDQLAKELA ELAE TYPHIYASVGVHPDY EDTPEPSVDDLVRLSDHPK ALAEARD NVWFSAGVHPNHEVEVE PDVDVLCKLADHPR RFAREYPGYCWATAGVHPHNASSWNSQTAAQUALASMPE ELTKDYDF IYGALGIHPENANEFTDNTLDEIKDYIKS QLAEQYP QLTASVGLHPNVDQAGTDSTEQLDKLANHPK LI DPYPEVDVSVGVHPNHEDGDEATFERLVELIAEDAR LVAHRDDVSL SCGLHPLDDERFDRORLEOYA RLMQKYDF VYGAGGMHDDAGELDEEGMQALRRMDRHP ELSEKYDF Y YAVVGVH PSEVEELNDDKLEELRT ALAEQFP HLYASVGVHPDY EEGEEPTLERLLALSAHPR
 QLAREFGMHADASGWQPEDDSEDNDDTLADYREQDQDDQ A ADQVE ELSFAVGLHP ALAARYD NFWASVGVHPDN EDDAEPTVDDVVRRAADPR
 DVAFSCGVHPLNLEGGY YAAVGIHPEHAHTLDDAGLEWLDSRFSDP HYVTHGLEPKEANYRDMAEKVVERI ALAEKYPF UYATAGVHPSDAAQLNEHTFQWLSEQTAHE ALSRQYPW FYFAAGFHPENLEGADLEDTERLRPQL ALSEQY ADVDCSVGVHPDDLAPGETPALEWLDRELAHPH KLMEQYSF VYGAVGIHPDE TTMALTEKFIYGAAGVH PSSTAEDDEGKFAEERMV
 AKAEEEGVTTFAYTGWYRVPPITFTGSDMKDLEEASHRK G DAEEYPEILFSTAGMHPHDAKSFNGESIAELRKLLRHDY KIAEQYK NVFASVGVHPCE ELTEKYPFVYGAVGVHPD ELTEKYPF VYGAVGVHPD

UniRef90 D4M4E3 UniRef90-UPIOOO365A8D1 UniRef90-MODHI5 UniRef90-UPI00036C77C1 UniRef90-UP100047D5750 UniRef90-UPIooo2F393EE UniRef90-U1H1N9 UniRef90-A5IJC0 UniRef90-F9V6Y7 UniReffo-TOASU4 UniRef90-S1QX13
UniRef90
N8YC27 UniRef90_FOEZ64
UniRef90-SOJOE1
UniRef90-NoCAA2 UniRef90-D2APJ4 UniRef90-R4U537 UniRef90-U2PPL7
UniRef90 $\cup P 1000474882 E$ UniRef90-R5BMD5 UniRef90_UPIOOO36984FE UniRef90_UPI0004773D1F UniRef90-UPIO0046FDA73 UniRef9O-UP10003B40C3F UniRef90-Q12AK9 UniRef90-M1SV96 UniRef90-C4YWV5
UniRef90-D5T4T1
UniRef90-M1NYK9 UniRef90-D3DHU9 UniRef90-M1Z294
UniRef90-R5SDA4 UniRef90-R2PQT9 UniRef90-UPIO003FD3946 UniRef90-A0A024F6B7 UniRef90-N9W9J6 UniRef90-E3E3A7 UniRef90-A2SGX6
UniRef90 UniRef90 Q1YTP3 UniRef90-16Z2K9 UniRef90 ETRWF3 UniRef90-DOJ4V1
UniRef90
M5S4N6 UniRef90-R7l3J1 UniRef90-Q2GG42 UniRef90-Q8DJN5 UniRef90-R5DT49
UniRef90-B4RAW3 UniRef90-F2LDR3 UniRef90-C4L8D8 UniRef90-UPIO0037EE4F6 UniRet90 UPIOOO365CC22 UniRef90-UPI00035D17A6 UniRef90-U2CXNO UniRef90-H1X9U1 UniRef90-GOAH34 UniRef90_UPIO00374881D UniRef90-G9Y168 UniRet90-B2UXN3 UniRef90_I1XKA3
UniRef9O_G5K4W9 UniRef90-G2DWKO
UniRef90-I3DFJO
UniRef90-C6LJL6
UniRef90-UPIO004188E1E UniRef90-UPIO0047EA311 UniRef90-A0A022H2LO UniRef90-B4WNA9 UniRef90-C5RDA4 UniRef90-UPIO002E84C8F UniRet90-D4ZS23 UniRef90-C5CMW3 UniRef90-E4KMU7 UniRef90_UPIOOO2FBC458 UniRef90_-2LYG6
UniRef90 F7KKY5 UniRef90-D3T004 UniRef90_D4J508 UniRef90-R6JND3
UniRef90 A5W707 UniRef90-R6SA73 UniRef90_R7B095 UniRef90-UP1000472C6EF UniRef90-UP1000423BFBC UniRef90-R7RUY6 UniRef90-D7VWG1 UniRef90-Q68W55 UniRef90-R5C3Y6 UniRet90_G9PY91

130
140
150
160
VVKVIVGETGLDYYWDGHDLQKHWFTRQLDLAREM

| $V$ |
| :---: |
|  |

$\stackrel{\rightharpoonup}{P}$



$\qquad$
$K \vee V A V G E$ G Y Y

## $T$ <br> VVA $\square G E \frac{K}{T} \mathrm{~V}$ <br> VVA【GETGGA

IGLDFFRNISPEEK LDYHWHKDAPEWQRERFRTHI RAARAT
$\qquad$


Q R
EDGDDYYWMEDPVQEKVFRRQ


## V VAT



| $\checkmark$ A | G |
| :---: | :---: |
| V V G | GET G LD ${ }^{\text {P }}$ |
| $\checkmark$ A | GETGLDYY |

I I GI GET
$R$
$\qquad$ GLD YHWCS GDLT WQHNRFIT HI QAANQS
$V \vee G V G E T$
VVAFGETG
AQKHPKVKAL VIA VGE $\vee \vee A l G$

GE $\frac{\square}{K} G$



## $L D$






 V VA V G
$V$ I GLG G T G L D F

$\vee \vee A$ GETGLLD IVG| | V | V | G | G |
| :--- | :--- | :--- | :--- |
| V | V | G |  |
| V | A | A |  | $\qquad$

$\qquad$
GEIGIDD LDFHYYWDFNDLQKE

V VAI
KKVVI ALGE L

G E
GY
GLD
V VA

## $V \vee A M G E T$

LADDRVVALGEIGLDYHWDSSPQQRKVFARQVAIAKEV



## 

$\qquad$ DRNFST

SEDQEARFRRHIRASRAT

## V <br> V

$\stackrel{N}{\mathrm{~N}} \mathrm{~V}$
E K V I A $\square$
GE
DKRVIA 1 G
$K A V A \vee G E$
VWA $\square$ GETG
MSRKPKCVA LDYY
VVGTGETGLDYYRLNGLDYWRELQQHWFSRQLSLAREE
$V V G T G E T G L D Y Y R L N G R S I A D M E W Q R E R F R T H I R A A R Q T$

 $\vee \vee A \mid G E T G$ | $R T L A E S$ |  |
| :--- | :--- | :--- |
| $V V A$ | $G$ |

$M V A$
$E T G L$ $T G$
$D P R V A D G E Y H Y$
$T G L D D Y Y Q M E E G R$
QVK M L G E M G G G G Y FYQKDN

KAVAVGEIGLDYYWPARDLQQ
PEY LDR DPVVGVGEIGFD QVTDDEEWAFREQMAEIAAEDR KVVAVGEIGLDYYWEKDPNQRYWFRRQLNLAREK ADPKCVAVGEI GLDYHWMASDTQMAFFRRQI QLAKEVV VVA $\square$ GET G
CRYCHDPKVAVGEI GLDYYWDNHDTQKKWFVRQMDLAKET

 | $V$ | $V$ | $A$ |
| :--- | :--- | :--- |
| $V$ | $V$ | $A$ |

VVSVGECG


UniRef90 D4M4E3
UniRef90_UPIO00365A8D1 UniRet90-MODHI5 UniRef90-UPI00036C77C1 UniRef90-UPIO0047D5750 UniRef90-UPIOOO2F393EE

## UniRet90_U1H1N9

UniRef90-A5IJCO
UniRef90-F9V6Y7
UniReffo-TOASU4
UniRef90-S1QX13
UniRef90_N8YC27
UniRef90-FOEZ64
UniRet90-SOJOE1
UniRet90-NOCAA2
UniRef90-D2APJ4
UniRef90 R4U537
UniRef90-U2PPL7
UniRef90-UPI000474882E UniRef90-R5BMD5 UniRef90_UPIO0036984FE UniRef90_UPIO004773D1F UniRef90 UPIOOO46FDA73 UniRef90-UP10003B40C3F UniRef90-Q12AK9
UniRef90-M1SV96 UniRef90-C4YWV5
UniRefofo-D5T4T1
UniRef90-M1 NYK9
UniRef90-D3DHU9
UniRef90 M1Z294
UniRef90-R5SDA4
UniRef90-R2PQT9 UniRef90-UP10003FD3946 UniRef90-A0A024F6B7
UniRef90-N9W9J6
UniRef90-E3E3A7
UniRef90-A2SGX6
UniRef90 -H8ID65
UniRef90- Q1YTP3
UniRef90-16Z2K9
UniRef90 ETRWF3
UniRef9o $\mathrm{DO}, \mathrm{J} 4 \mathrm{~V} 1$
UniRef90-DOJ4V1
UniRef90_M5S4N6
UniRef90-R713J1
UniRef90-O2GG42 UniRet90-R5DT49
UniRef90- B4RAW3
UniRef90 F2LDR3
UniRef90-C4L8D8
UniRef90-UPIOOO37EE4F6
UniRef90 UPIOOO365CC22 UniRef90_UPIooo35D17A6
UniRef90-U2CXNO
UniRef90-H1X9U1
Unirei90_-GOAH34
UniRet90_UPIOOOO374881D
UniRef90-G9Y168
UniRef90-B2UXN3
UniRef90-I1KKA3
UniRef9O_G5K4W9
UniRef90-G2DWKK
UniRef90-l3DFJO
UniRef90-C6LJL6
UniRef90O-UPIILOO4188E1E
UniRef9-UPOOO47EA311
UniRef90-A0A022H2LO
UniRef90-B4WNA9
UniRef90-C5RDA4
UniRef90-UPIO002E84C8F
UniRet90-D4ZS23
UniRef90 C5CMW3
UniRef90 E4KMU7
UniRef90-UPIOOO2FBC458
UniRef90_-2LYG6
UniRef90 F7KKY5
UniRef90-D3T004
UniRef90_D4,508
UniRef90-R6JND3
UniRef90 A5W707
UniRet90 R6SA73
UniRef90_R7B095 UniRef90-UP1000472C6EF
UniRef90-UPIOOO423BFBC UniRef90-R7RUY6 UniRef90-D7VWG1 UniRef90-Q68W55 UniRef90-R5C3Y6 UniRef90_S6EQL6
UniRef90_G9PY



UniRef90_D4M4E3 UniRef90_UPIO00365A8D1 UniRef90-MODH15 UniRef90_UPIO0036C77C1 UniRef90_UPIOOO47D5750 UniRef90-UPIO002F393EE UniRef90-U1H1N9
UniRef90-A5IJC0
UniRef90-F9V6Y7
UniReffo-TOASU4
UniRef90 S1QX13
UniRef90
N8YC27
UniRef90-FOEZ64
UniRefto-SOJOE1
UniRef90-NoCAA2
UniRef90-D2APJ4
UniRef90_R4U537
UniRef90 U2PPL7
UniRef90-UPIO00474882E UniRef90-R5BMD5 UniRef90_UPIO0036984FE UniRef90-UPI0004773D1F UniRef90_UPI00046FDA73 UniRef90-UP10003B40C3F UniRef90-Q12AK9
UniRef90-M1SV96
UniRef90-C4YWV5
UniRef90-D5T4T1
UniRef90 M1NYK9
UniRef90-D3DHU9
UniRef90-M1Z294
UniRef90-R5SDA4
UniRef90-UPIOO03FD3946 UniRef90-AOAO24F6B7 UniRef90-N9W9J6 UniRef90_EЗЕЗАА UniRef90-A2SGX6
UniRef90 -H8ID65 UniRef90- Q1YTP3
UniRef90-16Z2K9
UniRef90-E7RWF3
UniRef90-DOJ4V1
UniRef90 $\mathrm{R} 73 \mathrm{JJ1}$
UniRef90-Q2GG42
UniRef90 O8DJN5
UniRef90 B4RAW3
UniRef90-F2LDR3
UniRef90-C4L8D8
UniRef90 UPIOOO37EE4F6
UniRef90-UPIO00365CC22 UniRef90-UPI00036ED6E7 UniRef90_UPIO0035D17A6 UniRef90-U2CXNO
UniRef90-H1X9U1
UniRef90_UPIOOO374881D
UniRef90-G9Y168
UniRet90-B2UXN3
UniRef90-G5KA3
UniRef9_-G54W
UniRef90-G2DWKO
UniRef90-I3DFJO
UniRef90-C6LJL6
UniRef90_UPIO004188E1E
UniRef90_UPI00047EA311
UniRet90_A0A022H2LO
UniRef90-B4WNA9
UniRef90-C5RDA4
UniRef90-UPI0002E84C8F
UniRef90-D4ZS23
UniRef90-C5CMW3
UniRef90-E4KMU7
UniRef90_UPIO002FBC458 UniRef90_U2LYG6
UniRef90 F7KKY5 UniRef90- D3T004 UniRef90 D4J508 UniRef90-RGJND3 UniRef90 A5W707 UniRet90 R6SA73 UniRef90-R7B095
UniRef90-UP1000472C6EF UniRef90-UP1000423BFBC UniRef90-R7RUY6 UniRef90-D7VWG1
UniRef90 O68W55 UniRef90-068W55 UniRef90_S6EQL6
UniRef90_G9PY91

250
260 270

280
NSKK|LKE\|VEE\|PLLESTVLETDCPYDAPTPF
 RNAEALREVARQPADRLLVETD

IRDIAKDIPDDRMLVTDAPYDAPPP
LRDAARVPRERLLVETDAPYLAPVPN
PKNEA
NAED
LREVVR
LKEVAKRVPLERLLIETDAPYLAPMP
VQAAAKMVPLDRFLVETDAPYLAPVPYRG NAQDLRDVAKQVPLDRVLIETDSPYLAPVPYRGKT NAKDLQAAAQYCPLDRLLVETDAPFLAPVP

TQEAAQNDPDDKILVVTDAPYLAPVPB
NAKDIQETAKKLPLDRILIETDAPYLTPVPGRG NANQLREVAKMVPLDKLLVETDAPYLTPDPYRGQK NAKKI DEVAKDVPLDRMLVETDCPYMAP VCDERRGLELRELDPMIPAQRLMLETDAPWLLPRDLK PK K S

##  <br> 

HEGNDGMRAIAASLPADRTLIETDAPSLAPEPYAD
 NAGDLREVAEFVPLDRLLI ETDSPYLAPVPYRG LQETCKQVPLDRMLI ETD NATDLQE IVKYIPHDRLLIETDTP

Y $\mathrm{L} A \mathrm{P}$ TP AENVREAAKVVPDDRILVETDAP YLAPTP NADAL REVVKKTPTTRILLETDSPFLAPEPVRGKP


VCDERRGLALRELLPVIPADKLLLETDAPYLDPRDDLTPK
 KEVVKEI PNDRLLLI ETDCPFLTPHPFRG

NAKDLRDVAVKVPLDRILVETDSPWLAPV
RNADALREVARRVPADRLLVETD AMTFDRARNI RRLAASLPAESLVLETDAPDDSPAWVHPGR NA Q HL R DVAAFVPLDRLLIETDSPYLAPVPY NAKKLK EMIAK Y HA GEERLLANSAGDWGUSKPTAVP

$A \square K \square K E V A K E V P D K K I L L E T D A P Y L T P V P Y$

RNADALREVTRQI PADRLLI ETD
LHEVAQEVPADRKLLVETDAPY $\square$ A P PVP
$S P Y \square A$
KEVLEKVPLDRLLI ETDA
RNAEQLREAARYVPD
NAKKIIEVAKEVPLDRMLVETDCPYMAPTPFRGKR NAKDVHETLKSVPLDRLLVETDAPP Y LAPTP
RNDELRQVAAKVPEDLLML ETDSPY LDSPMPYRG
VCDERRGDELRAMLPEIPTERLLLETDAPYLLPR DLETK NAKKVVEVAKEI PLDRMLVETDCPYMAPEP


I REV $\ R Y V P V D R L L V E T D S P Y L A P V P Y R G$
NARVLKEVVAAVPLERIVTETDCPYLAPVPY

LQETARKI PLERMLI ETD S S P Y



LKDVRLPLRLLI ETDCPFLAPVP
A QD LRDVAAFVPLDRMLI ETDSPYLAPVPY VREAAKLVPLDKLLIETDA PY D A
RNAEPLREVARYVPLDRMLVETD CPYDAPSYLDA NARKVKETVEYVPMDRLLLEETD CPY DAPEPHRG EADAA NARVLKEVVDYAPMDRTVLETD
RNADA LEVETIPLELVLETDCPYLAPEPCRG
RNADALREVARQVPVDRLLVETD SPYGAPDP




 NAKKLKEVAEYAPLEQILLETDCP

## UniRef90 D4M4E3

 UniRef90－MODHI5 UniRef90－UPI00036C77C1 UniRef90－UPIOOOO47D5750 UniRef90－UPIOOO2F393EE UniRef90－U1H1N9UniRef90－A5IJC0
UniRef90－F9V6Y7
UniRef90－TOASU4
UniRef90－S1QX13
UniRef90－FOEZ64
UniRef90－SOJOE1
UniRef90－NOCAA2
UniRef90－D2APJ4
UniRef90＿R4U537
UniRef90 Y
U2PPL
UniRef90＿UPIOO0474882E UniRef90－R5BMD5 UniRef90＿UPIO0036984FE UniRef90＿UPIO004773D1F UniRef90－UPIO0046FDA73 UniRef90＿UP10003B40C3F UniRef90－Q12AK9
UniRef90－M1SV96 UniRef90－C4YWV5
UniRef90－D5T4T1
UniRef90－M1NYK9
UniRef90－D3DHU9
UniRef90 M1Z294
UniRef90
R5SDA4
UniRef90－R2PQT9
UniRef90－UPIOOO3FD3946
UniRef90－A0A024F6B7
UniRef90－N9W9J6
UniRef90－E3E3A7
UniRef90－A2SGX6
UniRef90－H8ID65
UniRef90－Q1YTP3
UniRef90－16Z2K9
UniRef90 E7RWF3
UniRef90＿DOJ4V16
UniRef90＿M5S4N6
UniRef90－R713J1
UniRef90－O2GG42 UniRet90－R5DT49
UniRef90－B4RAW3
UniRef90 F2LDR3
UniRef90－C4L8D8
UniRef90－UPIO0037EE4F6
UniRet90 UPIOOO365CC22 UniRef90－UPIIOOO36EDEE7 UniRef90－UPIO0035D17A6 UniRef90－U2CXNO
UniRef90－H1 X9U1
Unirei90＿－GOAH34
UniRet90＿UPIOOOO374881D
UniRef90－G9Y168
UniRef90－B2UXN3
UniRef90＿I1XKA3
UniRef9O＿G5K4W9
UniRef90＿G2DWK0
UniRef90－I3DFJO
UniRef90－C6LJL6
UniRef90＿UPIO004188E1E UniRef90－UPIO0047EA311 UniRef90＿A0A022H2LO UniRef90－B4WNA9
UniRef90 C5RDA4 UniRee90－UPIO002E84C8F UniRef90－D4ZS23 UniRef90－C5CMW3
UniRef90 E4KMU UniRef90－UPIIOOO2FBC458 UniRef90＿－2LYG6
UniRef90 F7KKY5 UniRef90－D3T004 UniRef90－D4J508 UniRef90－R6JND3
UniRef90 A5W707 UniRef90－R6SA73 UniRee90－R7BO95
UniRef90－UPIO00472C6EF UniRef90－UP1000423BFBC UniRef90－R7RUY6 UniRef90－D7VWG1
UniRef90 Q68W55 UniRef90－R5C3Y6 UniRef90＿S6EQL6

RGKRNSS｜LIYLLPYVVIEAl｜AELKGIISAEQ｜VTEQTEKNA PHPYRGKRNETAYVRLVAEAAAQLKGVSLEEITECTTKNA AR P可PHRGKPNDPEYREVAE DAMDDAGWDRGEVRKLLFENP HRGQRNEPAFVVNTAKFLASTLDVSFEALAAQTTANF RGKRNEPAFVVHTVKVLAEVHGVTASEMAADTTDNF
QNQPAYVREVCEYVAT
KRNEPKYLRYVVET TSQVL
KENQPGYTHYTAEKIAEL RGIUSLEEVAEQTYANA
HRGK
LKGl｜STAEELARITTNNF

NEPKYVP
HRGKTNEPAYVRHTAEFLAQL RGDTDENTARASSENF KRNEPGYTRYVVEKIAELRE VTFEEVARQTTDNA KRGRENKTAYTRYVVEKIAERGLTVEEIAKATYDNA

NYPK
YRGKRNKSDY円EYI TEKLAEI PASRRNEPALLAHILSQVA

RRNDPSKTQFVAQEDAAL
RNEPSYVMHTAQLI ADV
 MRGKTCEPAFVAH TARFLANL RGVSEAELARSTENF YRGKTNEPAWVSKVVAQQUAELKQQSVGQAI AEATSHNF解 MRGKQNEPAFVRYVAEKVAEL KNITSKEVANVITHNF FRGKDNEPAFVKYVDDSLAETL DLTAKELADITRKNA N KPGNVWYTAKVMAGLIP NSSLEDIDRMTSENA

KRNEPAFVNH TANFLAEL HRGKRNDSGYLTHVVDETAALDRE KSCDRQELHR KRNEPGYTRYVVEKIAELRE

 KRNEPSYVKYVAEQIAEL RGEDARWLEQVTTDENV
 PAPHRGKTNNPSYVPLVAAQLAQMKGCSDEAVAEATSRNF QNQPAYVREVCEYVATOMMADGKGVEEEFAQLTTQNF PHRGAQNEPQYVREVAQFMADL PMPHRGKPNLPQYVREVAEFLAELRGGGFDELAEQTTANF NQPAE RGKTNNPSYVPFVAKQUAEVRGISUEEVAAATSANF HRGKRNSS TY乌PYVAETLAT NEPAKTK FVVEYLANLWNESL R NEPSYVRFVAEAVIARLRQCDDGEEVNLITKNF RGKTNQPAYVKYVAEEDAKLRGMSFDEDNEDTENA YRGRRNEPAF DPHV RGKPNEPAYISYVGRFIAAQRGISDEALAAATTQNF PVPHRGHQNEPAYVADVAKFVAELRGVSTESLAEQTSENF KRGRENKTAYTRYVVEKDAERGI SAEEVAEMTTQNA PHPFRGKRNESAYVKYVAEAAADTKGI SLEELAEDTTKN PVPHRGKENQPAYVRDVAQYMAVLKGVSVEALADITTQNF

HRGEQNEPAFTRYTVEA $\square$ AKERDTTPEELAAATYHNA

## N

MRGKQNEPMFVRYTDQNTADQL GMTYNELADDTTANA HRGKMNEPGWVMHVGE FLANLK GVPAAEVAQQTTDNF
 PKSRRNEPCYLPHIVSQV
NRGKRNKSDY｜EYITKKL
HRGKTNQPAYVKHVAA FLAEL RGESDEEVAAVTTENF KRGDENKTAYTRYVVDKIAERGLTSEQIAEVTTANA HRGRPNEPRYVQHVADCI AE I RGMDRDEVAALTAENY KQNQPAYTREVCEYVAALK GLSSEQFALITTQNF
PVPKRGRPNEPAYVPASFIADMM KGLPQETERATWENA
YGRGKRNSSLFLPYVVEATADT
RKGKTNQPAWVRHVGEFVANL MRGKPNEPMYVHYTIAYYAELL GMSKEVMDVTYNNA

RRGKRNEPAFVKYVAEKVSEL REDPLATFAQQTTRNA
LLKGVSAEEVAATTTENF PVPKRGKTNNPSYVPFVAKQAELRKLPLEAVAEATSSNF PHPKRGKQNEPAYVRYVAEMLAQVRDLSLEEI GHITTENA PVPHRGKENQPAYVRDVAEYLAVVKGLDADVLSEAMLANY TRNSSLNLPLVAAQDATL KGGUSEEEVTETTFRNA A
PVPNRGKRNSSTNDPYVVMDMLDRGWDREEVRKVVFENP
PVPNRGKRNSSLNTPYVVMATAE DK QRNNSALIPH1，AABI GQVL
HRGKPN
 HRGERNCSAYLRYVAQTIAEI KGVSYEEVVDITTKNA
 REFKRNEPSYVKYVAE ALAELKEMPVEQLIEK TSENA REFIIGLQVGRVTSLYNEVRDAILD GVPIEKAIKFITVNP
 HRGKRNTSLNLPYVAEELA
QNQPAYTREVCDYVAT

| UniRef90_D4N | R D ${ }^{\text {L }}$ |
| :---: | :---: |
| UniRet90 UPIOOO365A8D1 | NK |
| UniRei90-MPIO0036C77C1 | RRLFAQ |
| UniRef90-UPI00047D5750 | YNLF |
| UniRef90-UPIo002F393EE | RRLFT |
| UniRef90-U1H1N9 | SNLFGVNL |
| UniRef90-A5IJCO | RR1 |
| UniRef90-F9V6Y7 | LKK |
| UniRef90-TOASU4 4 | Y R L |
| UniRefofo-s10x13 | Y R L |
| UniRef90 N8YC27 |  |
| UniRef90-FOEZ64 | R |
| UniRef90 SOJOE1 |  |
| UniRef90-NOCAA2 | K S L |
| UniRef90-D2APJ4 | C ${ }^{\text {K }}$ |
| UniRef90-R4U537 UniRef90 U2PPLT | VKV |
| UniRei90-UPI000474882E | $\frac{\mathrm{R}}{\mathrm{R}} \mathrm{R}$ V/FGV |
| UniRef90-R5BMD5 | KR1F |
| UniRef90-UP100036684F | F E L |
| UniRef90-UP100004773D1F |  |
| UniRet90 UPI00046FDA73 |  |
| UniRet90-UP10003B40C3F |  |
| UniRef90-212AK9 |  |
| UniRef90 M1SV96 |  |
| UniRef90 C4YWV5 | K |
| UniRef90_D5T4T1 | H |
| UniRef90-M1NYK9 |  |
| UniRef90-D3DHU9 | KLLFN $\square$ |
| UniRef90-M12294 |  |
| UniRet90 R5SDA4 | HKLY |
| UniRef90-R2PQT9 | LT ${ }^{\text {L }}$ |
| UniRet90 UPIOOO3FD3946 | A |
| UniReef90 A0A024F6B7 | LK MF |
| UniRef90 Now9je6 | Y A |
| UniRef90_E3E3A7 |  |
| UniRef90-A2SGX6 | ERL |
| UniRef90-H8ID65 | N R A M |
| UniRef90-। 1672 KM | KRL |
| UniRef90-E7R |  |
| UniRef90-DOJ |  |
| UniRef90 M5S4N6 | VEF |
| UniRef90-R713J1 UniRef90 O2GG42 |  |
| UniRet90_Q2GG42 | F |
| UniRef90-Q8DJN5 UniRef90-R5DT49 |  |
| UniRef90-R5DT49 UniRef90 B4RAW3 | K |
| UniRef90-B4RAW3 UniRef90 F2LDR3 | F |
| UniRef90-C4L888 |  |
| UniRee90-C4L8D8 | FR ${ }_{\text {R }}$ |
| UniRef90-UPIOOO37EE4F6 |  |
| UniRef90-UPI00036ED6E7 | A |
| UniRef90-UPIO0035D17A6 | EEFY Q |
| UniRet90 U2CXNO |  |
| UniRef90-H1X9U1 | HRL |
| UniRet90-GOAH34 | F NLF |
| UniRef90-UPI000374881D | RRRFN |
| UniRet90-G9Y168 | R Q L F |
| UniRef90-B2UXN3 |  |
| UniRef90_11XKA3 | Y R L ${ }^{\text {F }}$ |
| UniRef90_G5K4W9 | KR1F |
| UniRef90-G2DWK0 |  |
| UniRef90-\3DF | ERLFKVNV |
| UniRef90_C6LJL6 | YRL |
| UniRef90 UPIIO004188E1E | EN |
| UniRef90-UPI00047EA311 |  |
| UniRef90-A0AO | F |
| UniRef90-B4WNA9 | QQL |
| UniRef90-C5RDA4 | HRL |
| UniRef90-UP10002E84C8F |  |
| UniRef90-D4ZS23 | CELFGLSV |
| UniRet90-C5CMW3 | ETLF |
| UniRet90_E4KMU7 | F |
| UniRef90_UPI0002FBC458 | R R |
| UniRet90_U2LYC |  |
| UniRef90-F7KKY5 | KRFYGD |
| UniRef90_D3T004 | YEFF |
| UniRef90_D4,508 |  |
| UniRet90_R6JND3 | RAL |
| UniRef90 A5W707 | K R L |
| UniRef90 R6SA73 | K NL |
| UniRet90-R7B095 |  |
|  | K |
| UniRei90-R7RUY6 | ARILKLKGK |
| UniRef90-D7VWG1 | GNF |
| UniRef90_Q68W55 |  |
| UniRef90 R5C3Y6 | K |
| UniRef90_S6EQL6 | VQ |
| UniRef90_G9PY91 | ERLIF |

UniRef90_UPI00040E5014


$$
\square \mathrm{E} \text { Y VD T H A H } \square
$$



DTHAHY

UniRef90_UPIOOO40E5014 UniRef90_UPIO00366BFF1
UniRef90_UPI0003B79CA8 UniRef90-A0A024IDJ6 UniRef90 F8GI24 UniRef90_UPI000426AAA9 UniRef90-D0LK75 UniRef90 ${ }^{-}$F9ZPX6 UniRef90-I8UBM9 UniRef90_UPIO00360BF66 UniRef90-H1XUV6 UniRef90 I2BE36 UniRef90_UPI0002EFB77A UniRef90_UPI00047CAE40 UniRef90-K6EA80 UniRef90 C0E9F1 UniRef90_U7P3Z1 UniRef90-A6TJI5
UniRet90-R5IA57 UniRef90_NOAUV1
UniRef90_UPIO0036E0583 UniRef90-UPI00047D63D4 UniRef90_N1MGJ8 UniRef90-X5G855 UniRef90_UPI00035C7650 UniRef90 W0P4M9 UniRef90-UPI0003B323AC UniRef90-K2G6Z9 UniRef90-UPI000348BE7F UniRef90- R7LI43 UniRef90-R5XMD4 UniRef90_UPIO004676DA2 UniRef90_N9FC55 UniRef90-K0C4G3 UniRef90-C1DWT4 UniRef90_N9BKR0 UniRef90_D0KYD4 UniRef90_A5D698 UniRef90-H5TNY1 UniRef90-C8XVR UniRef90-UPIOOO2488066 UniRef90-TOWHY4 UniRef90 Q03HF8 UniRef90_-F0Q765 UniRef90-Q0G737 UniRef90-N2J016 UniRef90-E8T214 UniRef90_I4MW31 UniRef90_R7C7Q0 UniRef90 T4VV66 UniRef90-H1G1J4 UniRef90_UPI00046617AD UniRef90 UPI00030D7374 UniRef90 W1IPK1 UniRef90_UPI00036DC01A UniRef90-R7KL52 UniRef90-W0LER8 UniRef90-B6BTX7 UniRef90-F2N4W7 UniRef90-A8FWM9 UniRef90 F9S6F7 UniRef90_Q48VC8 UniRef90-D2RL44 UniRef90_A1WGM8 UniRef90 F3B0Z5 UniRef90-W9EHG8 UniRef90-E3BRT2 UniRef90 X1FFN6 UniRef90-F6AH60 UniRef90-U5DEX6 UniRef90_C8KYW3 UniRef90-E8UZZ5 UniRef90-Q2G6Z5 UniRef90-B7JWV0 UniRef90_U2AYZ0 UniRef90_A5FQYO UniRef90-F3BIT7 UniRef90_C4UK66 UniRef90-H8L9G8 UniRef90_T2SOY9 UniRef90 F3LEC0 UniRef90-P44718 UniRef90-W9DG65 UniRef90-W5XU84 UniRef90_A5FAN5 UniRef90-F7V2C7
UniRef90 UniRef90 DODZS UniRef90-U7PBF9 UniRef90_U7PBF9
UniRef90_UPI000255BCF4
 $\square D L T E A E G S D E T L D Q A R A R G V S G F L C V D \square D D D N F K$ EEFEKDRYQUI ENSFQQGIVSSVLCPSEISDPKNGLENTG A ANLDEELARLQAMADAQVDRLCIC

P H F P R VR
 NAEQFQEDVEAVIQRAQDEGVTHMV VVGFDRPTDTGA पF DEDRE $\|V I Q H A D E N G V A G\| \square T \square$ GVDDE S SK QFAKDTDAVVARAREAGVSGMLDTGTSDEESMAAC LD L S RYEDLNRAL QAAREAGVSQFLAV NAEQYNEDLEEVILRRAQNEGVTNMV A NV.
$A$
$V$
$V$
$G$
 DGGRFDQDRHQMI ENAKTNGVSYILNP GADLSTSVKAV DDEAFDEDRDQLLSSMKDGGVGCIVNVCASAGGFD GTL
 FYTTHPTDRDEVLRRAWDAGVRTIL A A G G I GENPFQMH NYKGLVEDQENVLERARASGIDLMLNDATRESEWDAVLDT $T \square H K D V D D V L A K A S A \quad R D V K F C L A V A T T D P G Y R G$
LLHTNDEDVLKKSFNNDVKKF口TVSTSDNNFYKDNQEEAV
EGLVDRQAEALTAARARGVRGFLNDSTR QREWEEVV NADQFEEDRDETIRRAREAGVEYM TVVGFDRKDPKAL

DDKQFDEDRDQLLSSMQEQGVGTVVDATVDSWERVLELTR NDERFDEDRDELIKSLRENNVDLVVNP GADIETSK LDD QA L A Q A R L A GVSK F

MG $\square$ SVDLDDHK
$\square P \square Q D V E E S V K R \square D Y$ V $\square T \square G C D$ LDQA LNEARAAGVSKFMS IS VDLDDHIALSA LDLTPFDDSFQFMMAAFEAGVRRMLCVA I HPDRWS DDRSFEADREEVVRRAREAGVSCVVNVGGDDESSAQSVIV

MAETVRAVDHAESGGVGV DDERFDEDRELLI EK LLKEENV S LVVVNP NFEGLKERDPEVLSNMEANGVGQVLADSV NEQKY $\square E H A Q K G V \square A T A Q V G S N T V L N$ $N E Q K$ $\square R Q A M D E A R V$ TVALDCTTMEEFGDVH DRDALIERA

 NDERFDEDREELINSLVKKGVDLVLNP
 H 1 PA $\square$ RQAMAEARVE RALVISTTLEEFPDVH
$A \square H Q N V D D V L A K A K A \quad R D V G Y V L A V A T T L P G Y Q \quad A M T Q$ $M Q E N Q V T H A L C V S V E M D K F \quad P E \square N$

QTLQH ILKEAKSRGVDYF $\square$ CVNVRQNG FESMR G $\square \mathrm{GDVVAKAKA}$ ANVTELLSVGVT LDAFPNM
HAHVDVEDFDADREELLRA TGETMAGT \DPGCD\PSSK QLHAIRQAMAQ A QVDRALCICTTIEGFDGVHAL DDEAFDEDRDELLRSFEDAGIKRVVN GGASMSSK NDPAFSDQVPAAIEHARQLGVVNMAIVSNPVMNR NDEPFRGKEEYYLKRAKQLNV VVGVVAGQDADFNR RARDAGVQTVICAAADLHSSKTAL
NFETFLDADLAAVRERWQSSGVVR VVHSCCDGDQADADRFP PE EN N V
 $N Y K G L V E D Q R Q V L D R A R E N G V R G F L N \square S T R R S E W D A G V G$

A A QAEALLERAYAAGVCQMLGTS LAESEAS $\square A C C R$ DMAEFDADRSEMLKRAYDNGVKT IIT TG GDD DPSQKA DD QF AKDRHQVVERAKNAGVTLLITGTNAEESHAAAD
CGASTAEDVRA VVDRAQAAGVGRVV TVAD DDGSAR NQLAIDDAALARGVQQLLCVGISV NNREAVV $N D S D V V E K A A R D V K H L L A I G V T$
 TVADDMVDARWAV CTVGDGLEEAA LA
NDRQFDSDREELLASMKDHNVGTVLNVGASVGQDCRDTV $E L P Q\|I A R A \quad G D A G V E R\| I S I G V K L S T A D A P$

NAEQYDEDLQEVIDRARDAGVDRMVGFDTPTIER







UniRef90_UPIOOO40E5014 UniRef90_UPIO00366BFF1
UniRef90_UPI0003B79CA8 UniRef90-A0A024IDJ6 UniRef90-F8GI24 UniRef90_UPI000426AAA9 UniRef90-D0LK75
UniRef90-F9ZPX6
UniRef90-I8UBMs
UniRef90-UPIO00360BF66
UniRef90_H1XUV6
UniRef90 I2BE36
UniRef90_UPI0002EFB77A
UniRef90_UPI00047CAE40
UniRef90_K6EA80
UniRef90-C0E9F1
UniRef90-U7P3Z1
UniRef90_A6TJI5
UniRef90_R5IA57
UniRef90_NOAUV1 UniRef90-UPI00036E0583 UniRef90_UPI00047D63D4 UniRef90-N1MGJ8 UniRef90-X5G855 UniRef90_UPI00035C7650 UniRef90-W0P4M9 UniRef90-UPI0003B323AC UniRef90-K2G6Z9 UniRef90-UPI000348BE7F UniRef90-R7LI43 UniRef90-R5XMD4 UniRef90_UPIO004676DA2 UniRef90_N9FC55 UniRef90-K0C4G3 UniRef90-C1DWT4 UniRef90-DOKYD4 UniRef90-A5D698
UniRef90-H5TNY1 UniRef90-H5TNY1
UniRef90_C8X0R6 UniRef90-E3PVM8 UniRef90-UPIO002488066 UniRef90-TOWHY4 UniRef90_Q03HF8 UniRef90_F0Q765
UniRef90 Q0G737 UniRef90-N2J016 UniRef90-E8T214 UniRef90-14MW31
UniRef90 R7C7Q0 UniRef90_R7C7Q0 UniRef90-H1G1J4 UniRef90_UPI00046617AD UniRef90-UPI00030D7374 UniRef90_W1IPK1 UniRef90_UPI00036DC01A UniRef90-R7KL52 UniRef90-WOLER8 UniRef90-B6BTX7
UniRef90-F2N4W7 UniRef90-A8FWM9 UniRef90_F9S6F7 UniRef90_Q48VC8 UniRef90-D2RL44 UniRef90_A1WGM\& UniRet90_- 3 B0Z5
UniRef90_W9EHG8 UniRef90-E3BRT2 UniRef90- X1FFN6 UniRef90-F6AH60 UniRef90-U5DEX6 UniRef90_C8KYW3 UniRef90-E8UZZ5 UniRef90_Q2G6Z5 UniRef90_B7JWV0 UniRef90_U2AYZ0
UniRef90_A5FQY0 UniRef90-F3BIT7 UniRef90_C4UK66 UniRef90-H8L9G8 UniRef90-F3LEC0 UniRef90-P44718 UniRef90-W9DG65 UniRef90_W5XU84 UniRef90-F7V2C7 UniRef90-D5BQA4 UniRef90_LODZS0 UniRef90_U7PBF9 UniRef90_UPI000255BCF4
 YRGKSNQPKWVVEVA QCVADL HRGKVNTPALVPHVAAQVAEL FRGKLNQPAYVRHVAEE I A QLRS NSSLNLP L L K GVVSE ELSRVTTNNF

 ERGKRNEPAFLVHTAEVVA REA REAGMS LIAE ELVADITEANA
 KRNEPAYVKYVAETVAE LREMPLDELIEHTTANA $Y R G K R N \square P N M V Q V V \frac{A}{L} A R \vee A$ KRNEPAFIVHTAKKI AE PKSRRNEPAFLGHILQQVAAW NKSRRNQPSYLVDI CEFIAQQL Q E KQ DS DEEELAQATNTNA GDSFAQASOTRANV PMPYRSKPNEPLYLPFVAQALADVYGIISQQELGRDTSHNF RGKRNEPGYVKLVAEEIAEI K $K R C E S P M D V Y T A E K L A Q L$
$H R G Q P N E P A F V V E V A E C L A$ $P V P H R G Q P N E P A F V V E V A E C$
$Y R G K R N E P A Y V K H V A D K I A A$ HRGKRNSSLNLPYVAAALAEAKGI SFEEVARQTTKNA PHPNRGKRNEPGYVKLVAEQIAEIGGKTLEEVGALTTENA RGKRNEPAFVRLVAEQMAALKGLSLEEVAETTTKNA
 HRGKENQPAMVRDVAEY MAV PKSRRNLPRYLPHILEK
 NRGKRNEPAWVKLVAEQ IAELKE RGRPNAPYLVPHTLRALAEAKGTGYEDVAETTTENA FRGKENQPAYVKYI AEEI ASL NRGKRNASSNLDYVAQTI AEL HRGKRNDPSLVAFVADKIA TNEPKYVPYVAKALSDVYDK PVPMRGKPNYPNYVKYVAEKMAELR NKPSNI SNEPKYVPYVAKALSDVYDKSL PAPHRGKPNTP IYVTHTAQTLADVRGETGEEALITRQNF HRGRRNEPAYVVFTAEEIA RLRGMKTEEVARMC RGQPNQSYCDPY A ARSLASTRGGVDAEESLARGCAENG FRGRRNDPAKVKYVAEE LSNLRA I S VDK TNEPKYVPYVAKALSDVYGKSLEEMAF

K Q NEPAFSLYVLE
A LDARHRDMAPDQLAEDTFDNT $R G K T N N P S Y V P F V A Q Q U A A D R G L E A E A V G E A T S R N F$ KRNEPGYTRHTAEVLDADVK RGKPNLPQYVREVAEFLAS
$R R N K P T Y V A Y T A K V I A D V L$
$H R G K P N D P Q Y V R E V A Q F L A$
$P \square P H R G K P N L P Q Y V R E V A Q F L A$
$N R G K R N D S S Q L I V Y A Q K L A E E A$
NRGKRNDSSQLIYVAQKLAEI HRGKRNDPSLVQFVADKIA FRGKMNHPALVRHVAECVA NRGKRNSSLNLTYVVKEISEI KGITSEE EV VKITNQNA PVPHRGKQNQPAYVRDVAEYMAQQRGITIDEVAMQTTANF PVPHRGKQNQPAYVRDVAEYMAVLKGVSIEKLAEVTTRNF RGKTNSPAYVPHVARLLAEVRKMAVESVAEITTRNF
KRNEPSFVPHVAQFLAQL RGKSI EDIAALTMQNA $P$ VPHRGKENQPAYVRDVAEY LAVLKGVSLETLAETTTANF FRGKTNDPSKVIHVAEE DS RLKN I PVVEDVAKMTTSNF $K A N D P Q Y V R E V A E F L A Q L R G V S F E Q L A E Q T T A N F$ HRGKENQPAFVRDVAEYIAQL RGESFEELAQYTTDNF PVPHRGKQNQPAYVVEVAAYI AQLRGVSLSEI GQKTSDNF
 PHRGKRNNPDYTAIVAERAAEL RGKTNSPAYLPHVARQVADTKGDTDQAVAEATSGNF NRGKRNSSLNLTY I IDRVAQI KGVSREFI DEKSLENA



 PNQPAYVRETCEYVAT
NEPAN
TCEPAFVADTCAFVAG
KRGKRNEPAYVRHVAFDSQLLRTSTQALADVTGRNF KPKNGRNEPAFLGEVLREVAL KPKNGRNEPAFLGEVLREVALHRGQSQAQLAAETTACA

PASRRNEPCFLPH\|VRQVATWREEE
KRNEPGYTRYTVEKIAELDRN
RPNEPYCANYTLRALAEL
HRGKSNEPQYVRDVAEY IAEL R G ${ }^{\text {L }}$
 ENQPAYTREVCEYVAT $\quad$ KKGVSAEAFAQITTQNF NE P G GQPNQSYCLPYTARA DAEVRGVPEEEMARLLGDNA YHERRCEPAFLPYVAGT $A$ AQF-KG!TLAKVAEETTRNS

TNEPAYTAHTLARLAAD


| UniRef90_UPIO0040E5014 |  |
| :---: | :---: |
| UniRef90-UPI000366BFF1 | RTL |
| UniRef90-UPI0003B79CA8 | ESLIFAFE! |
| UniRef90-A0A024IDJ6 | ERLFDR |
| UniRef90-F8GI24 | F NLF |
| UniRef90-UPI000426AAA9 | R K |
| UniRef90-D0LK75 | R R |
| UniRef90_F9ZPX6 | F R C F |
| UniRef90-I8UBM9 | K R |
| UniRef90-UPI000360BF66 | S D F A |
| UniRef90-H1XUV6 | K HL |
| UniRef90-I2BE36 | QRIF K V R |
| UniRef90-UPI0002EFB77A | LRFFQIN |
| UniRef90_UPI00047CAE40 | EQ |
| UniRef90-K6EA80 | K K CFA ${ }^{\text {a }}$ |
| UniRef90-C0E9F1 | CRLLFGIS ${ }^{\text {L }}$ |
| UniRef90-U7P3Z1 | Y R L |
| UniRef90-A6TJI5 | K R L F G $\square \mathrm{K}$ |
| UniRef90-R5IA57 | K K L |
| UniRef90-N0AUV1 | K K L F Gll N |
| UniRef90-UPI00036E0583 | K K L F D $\downarrow$ S |
| UniRef90-UPI00047D63D4 | H HL |
| UniRef90-N1MGJ8 | R T L F Q |
| UniRef90-X5G855 | A T L |
| UniRef90-UPI00035C7650 | ERLFRFN |
| UniRef90-W0P4M9 | HRLF |
| UniRef90_UPI0003B323AC | F RLF SKAER |
| UniRef90-K2G6Z9 | KKFFG $\mathrm{K}^{\text {F }} \mathrm{Q}$ |
| UniRef90-UPI000348BE7F | R R A |
| UniRef90-R7LI43 | K T V F N $\square \mathrm{K}$ |
| UniRef90-R5XMD4 | R K F |
| UniRef90-UPI0004676DA2 | $\mathrm{K} \square^{\text {F }}$ |
| UniRef90-N9FC55 | E NLL NL L |
| UniRef90-K0C4G3 | S TLFD |
| UniRef90_C1DWT4 | K R |
| UniRef90-N9BKR0 | E N |
| UniRef90-DOKYD4 | R R WL |
| UniRef90_A5D698 | R K |
| UniRef90-H5TNY1 | R R A Y Q L P L |
| UniRef90-C8X0R6 | VR F |
| UniRef90-E3PVM8 | IKFFN】SL |
| UniRef90-UPIOOO2488066 | ENLLLK Q Q |
| UniRef90_TOWHY4 |  |
| UniRef90-Q03HF8 | CK\Y G $\square \mathrm{K}$ |
| UniRef90_F0Q765 | D T L |
| UniRef90-Q0G737 | F R L F |
| UniRef90-N2J016 | Y R L F |
| UniRef90-E8T214 | KRL |
| UniRef90_14MW31 | K R L |
| UniRef90-R7C7Q0 | H R |
| UniRef90-T4VV66 | K 1 F F N $\square \mathrm{K}$ |
| UniRef90-H1G1J4 | R R L F |
| UniRef90-UPI00046617AD | $R \mathrm{~T}$ M Y R $\square \mathrm{R}$ |
| UniRef90-UPI00030D7374 | Y H L F |
| UniRef90-W1IPK1 | CDLFH $\square$ N $\square$ |
| UniRef90-UPI00036DC01A | D A |
| UniRef90-R7KL52 | NR |
| UniRef90 W0LER8 | LR L F |
| UniRef90-B6BTX7 | FDLFS |
| UniRef90-F2N4W7 | R S L F |
| UniRef90-A8FWM9 | F NLIFT |
| UniRef90-F9S6F7 | R N L |
| UniRef90-Q48VC8 | K R V |
| UniRef90-D2RL44 | K K L F F |
| UniRef90-A1WGM8 | D R L |
| UniRef90-F3B0Z5 | Q R L Y |
| UniRef90-W9EHG8 | R R V F |
| UniRef90-E3BRT2 | MRIYGI |
| UniRef90-X1FFN6 | $\square \mathrm{RFFS}$ |
| UniRef90-F6AH60 | RR |
| UniRef90-U5DEX6 | $\square \mathrm{L}$ L F Q |
| UniRef90-R6XYY7 | AQA |
| UniRef90_C8KYW3 | QNLIFK】NL |
| UniRef90-E8UZZ5 | Q R L F |
| UniRef90-Q2G6Z5 | FRL |
| UniRef90-B7JWV0 | CQLF QLS $\square$ |
| UniRef90_U2AYZ0 | R A F F A |
| UniRef90_A5FQY0 | R R L F |
| UniRef90-F3BIT7 | HRVF GLLE D |
| UniRef90_C4UK66 | R R V F |
| UniRef90-H8L9G8 | HRLF |
| UniRef90-T2S0Y9 | ERTF |
| UniRef90-F3LEC0 | Y R L |
| UniRef90-P44718 | ERLLFK\R\} |
| UniRef90-W9DG65 | R R A Y N |
| UniRef90-W5XU84 | D R L L T PKV |
| UniRef90-A5FAN5 | KCFFG■ |
| UniRef90-F7V2C7 | R R V ${ }^{\text {F }}$ |
| UniRef90-D5BQA4 | LQLF |
| UniRef90-LODZS0 |  |
| UniRef90-U7PBF9 | ERLF |
| UniRef90_UPI000255BCF4 | $\square R C F$ |

GAVDAHCHVFGPSPEFPFAPERKY
$\begin{array}{llll}\text { D TH } \\ \text { D T } & \text { VAH } \\ \text { A }\end{array}$

| Y VD S H C H L | D F P D L I A |
| :---: | :---: |
| VD S HCHL | $\begin{array}{r} \mathrm{D} T \mathrm{H} \mathrm{~V} H / \mathrm{L} \\ \mathrm{D} R \mathrm{~L} D \\ Y \mathrm{D} \mathrm{D} E \end{array}$ |
|  | WVDS HVNL |

$\square$ D S HCH V VFRN
D T HAHLL
DTHAHY


WVD S HVNL

DSHCHL


IVDSHCHLD GLDYEKQHRDLDD
DAHAHY
DTHSHL
DSHTHLL
DSHAGAL
GLVDTHVHI
IVDSHCHL
IID SHCHLL

D LDDYKK $\square H N N \square D N$
UniRef90_A6C6M7

NDAKFQDDVKETVERARAAGVTRMVNMGDTDASSEVAVN VVDKAKQRDVKHLLA

NFERFDRDLEAVRERWHEAGVVHLVCVTPEEFG NFNTFESDLEEVLERAFETGVQKIL



 DDEAFDEDREVLLATLQQQGDERVINVCAEVGEBWNRTV
NFDVFAADLDQLQHRWRQAGVVQLVHSCVKPQEFD SRLPE DRAAMAEAEVTRADCI CTTME
DNHKFDNDRDEA IARAREAGVELMI NDGFDREDEAVH SLHKDVSDVLEKAKR RDVGFLLAVATTLPGYRAMVEDDG RVSHIVVVGF D R P P I A RAA
EELPA $\square$ LDNMKRNQVSHALCVSV
NDKQFDADRAVVLESLKDAGVTQVVNVS TLHSGVDDMLEKARA RDVKFMLAVACTLPGYREMAEDRP

## 

DDEAFDEDREVLIGRFEEDGTGAVTD PGSTKESDAKI I DFEDFDADRSELARARAAGVGEMLIAAVVEA HWPRVQ
 $L A D A L A A A R A R D V G Q F L A D A V T L D D M P T L A A D A R$
$Y D E R Y D D D R A D M D A R A E E A G V M Q U I S M$ HAPQFDEDRAEVIERARASGVGLMVNDCDSKVNFDAVY
 $N D R$ EEVFAELVENGVIGULN CSSTYD SVGGTC

FDETLISQ Q DDVVARAKAAGVSQMDAVGTTABEDSMKA DDEQFDTDRDALLRGMAEQNVGTDVGAS LEGCWRSV NLDAILDNMAR ANVDQAVCDCTRVEEAD EVL QQAEVVHLVHSCVEPSEFSGIQA
 AVIDEADMAKEMGVTCHNVVGFDRPTDDKA

TPCNAGKDKLYEDRDFLGFSRNVIVQATCH GKDNAAMA NFDTEQEDLESVARRWREVGVVRLVHSCVEPSE FVQQQ DDEAFDEDREELFASLFAHGUEAVVTNVGASKTSRSTL
 NADHFEDDLEEVLARAKEAGVDEMVDKTDRDAMDLIERYS
 AFNKDRDEVDEELKENEIIGGVLN CGASLEGARD G S IV



DEVVAHAQQAGVSG MUFTGTNVE ESQAAA

NEYFDDVPQVVARARQAGLNGMINITGTNLT
ESAQAl NEYFDDFNE I SAKNSNVDTMLNAATSL LDDTAFED DAPLLET TKAENVTEMLC NFDVF G HGEPFSGDLSEEVLERARAAGVTKLVGASCVQGI LDDAA LDAA RARGVSQFLCDGGVDA SLAADKFP
$D N F E E S V L$
$G N A P T V$ UniRef90-A6C6M7

A VLERAYRAGVCQLVTGTSLAVSAES LALC

VI A K A A ARDVK K L ER DDDEFNEDRDKVINELKSNGVIGVLNCGSSMEG NAEQFEEDLQEVI ARMKEAGVTYVVEVT NDEAFWGAEQSYIKHAKKLGVTTMVGSNTILNQRA Q EFQ QD DDEVFARMKEA EVGGALVAGTSLQDYERGLNFAN DGEKFADDRAAVVERADAAGVVKI ITMSGESSSARSVADTE NYENFAADLDAVAHNWRAAGVVQLVHACVK PEDFPGMQ



UniRef90＿UPIOOO3461E34
UniRef90－E4U8K3
UniRef90－X4Z216
UniRef90
C9KND UniRef90－BoURW1 UniRef90－R4K956 UniRet90－F4MYS2
UniRef90＿K9TT94
UniRef90－M4X197
UniRef90 EE8N4Y5
UniRef90－Doz9F 1
UniRef90－K9VPD4
UniRef90－G2HOK7
UniRet90 FOVTR4
UniRef90－D4L661
UniRef90－L8D9F9
UniRef90－Q482J2
UniRef90－R5RNEO
UniRef90 UPIOOO3A00277
UniRef90－P73335
UniRef90－UPIOOO4019518
UniRef90 EO1962
UniRef90－C6DKS6
UniRef90－C5D360
UniRef90－10BTE3
UniRef90＿13UC09
UniRef90－F5U231
UniRef90－R6G7B9
UniRef90－100QS8
UniRef90－F5YBS6
UniRef90＿UPIO00370EE6F
UniRet90＿S6AXX6
UniRet90＿R5CHF6
UniRef90－B5EQA3
UniRef90－UPIO002889CE6

| UniRef90－U2LLB3 |
| :--- |
| UniRet90 SOAB |

UniRef90－V4Q312
UniRef90－G5JQZ7
UniRef90－ 44 U910
UniRef90－UPIOOO4012681
UniRef90＿BoJGK5
UniRef90－H1LIQ2
UniRef90＿W5INU5
UniRef90－A3ZKZ5 UniRet90－＿－ 5 TJWW UniRef90－V5ADW5
UniRef90 B1WZT8 UniRef90－U5T3N1 UniRef90－UPIO00465016C UniRef90－R4V7F7 UniRef90－A0A023WRV8 UniRet90＿A3VMX3 UniRef90－K8GIX2
UniRef90－D9R1R1 UniRef90＿UPI000464EF37 UniRef90－UP100037BBE7A UniRef90－L8GTU2 UniRef90－E3CUU6 UniRef90－D6XV37 UniRef90－UPIO0036AAB99 UniRef90 L7EPM3 UniRef90－UPIOOO37BA61E UniRef90＿Q3AZA5 UniRef90＿14CTH8 UniRef90 UPIOO0395C8DF UniRef90－A1HPTO
UniRef90 AOAO23V UniRef90－K2DW68 UniRef90－16Z5J3 UniRef90－DOZ930 UniRef90－R6GRV2
UniRef90 UPIO0047AA4C7 UniRef90＿L8LUY6 UniRef90－A0A059FB12 UniRef90＿HOJD01 UniRet90＿B9DVT8 UniRef90－A0A011 Q819 UniRef90－UPIO00370FBF5 UniRet90＿E6W842 UniRef90－FOK663
UniRef90＿C2YKJ3 UniRef90－G8PEP0 UniRef90－R5ECL4 UniRef90＿C9LXE7 UniRef90－Q7N117 UniRef90＿C5WD 12 UniRef90－AOAO31MKN9

ELLS FAVGLLH ${ }^{\text {P }}$
100


VAEA Y D GLYAGVGlHPEE

AFEMT
VTAAVGVHPHDAEDVAPD
NVAFSCGVHPLNLEGGY
GLANRFG EISFAVGLHPLEAHQWSSQLGDRAEELASEA ELCRRLDENLYCTAGVHPHEASHWNDDSARTLRGLLKEDR ElAQQYSPQVFAAVGIHPNSAGDCWSQTASEIVELSKAPW DVAFSCGVHPLNLDGGY DADSEALRSLAAQPGVVALG LiGERE NVVFACGGH ELAEKYP EIYAT GGWHPTEAGSYTQEDEDMLVANLSHPK DVSASCGVHPL EMAAKTAHNVYDTCGAHPDNQKDAIIDPEQLLALSQDDR ELMMEKYPFMVYGAVGVHPDDVGSLNEKKDEEMKKICRHEK SLADRFP ELFFAVGLHPDDAEDWQDNTAGQLDAYAKADD GLADAHD NFWATVGVHPDTEHMMMTEPEVADLVQRAV ERDKYONVASCGVHPLN ELLAEQYDF YASVGWHLNQEAPYDYA RLAARYPGQLYATAGTHPHDAKDADDMTDEDLN MIIEEL RIVSLIPA HLWGSVGVHPDYAKGCDDTTIPRLRELAALPQ ALSRQYDELYSTIGWHPTEAGSY
DLMDTLEDFMYGAAGDHPDH
NVSASCGVHPL HQDEACT EVAFSCGVHPLN【DGGY DFDELRKLAADSR AASMPGKLYATAGVHPHEARDCNDRTDANLKELADK NLIKNYNSVYISCGQHPENVNSANDVFTKEIVSLCTNNK SLAEREDVH CSVGVHPGDLQPGESLALDWLLGELEHPR
 HAIAQNHPNIYATVGIHPDDPEAEEFSLEELLERAARPKV DVA\SAGVHPLH LLEREPETEATKEAAERFGAVATGEC VVADAERYPLYAAVGVHPESAYVLADEERAQILAWAKHPK ELAQSHAAYCWSTSGVHPHQASSWNDRVAEQLHALASRPE QFSE LYSTIGWHPTEAGSY TQEVEDMIVSHL NLAKEYPF VYAVVGMHPSCAEEVSDKNDSLLEEMSFDEK AIADQFE EISFAVGLHPLDAQKWRDNSADQ

MYS $\$ I GWHPEDSIYYHQAQEDLLDEQLQSP
ESGQRLFCTAGVHPHDASQWNSASAATLRGLAEDR ELAERFGEIHAAVGI QPNNCAEAQPGDWDRIVELLDHPK ELAHQYPF VYAAVGIHPDEVGDLNEESFARLRE QLAEQH ANLWATVGVHPDN EGVAEPSFEWLVARAANSR LADRFG NLSFAVGLHPDDAQKWTNATEMELLDYAKDH AFSERYD NVFTSVGVHPCG EGEDPDADTLAAMADHPR II LIADQHPEIYLTLGWHPTEAGSYDEKVESFLLQALLQHP dacriago magaspa


HD TREEपAEL LDVDKWHPHVVKEI NVMLSCGVHPGNNETGEMTEEDMPQWLKE NIFSSVGIHPNEVENYQH苗AELLDDLAKKPK KVTQGREGFLYSTAGVHPHDAKHCNDRTMANLRELLRH GVAERHPGLWASVGVHPDNADC EEPDVARLTALAAHPR ELARQPGVPILAAVGLHPHDARTADEGFYEDLRALL FLYAADGWHPVDAIDDTGEKLRWDEEDS ALARRHDDVCFGVGTHPLHTPATEPSDDTRSATARFE KLSDKYDF FYAAVGDHPEFADVVNDEIIEELRNLSKNPK VLAAQSHKDDYCSVGTHPHEAKDNPDUMAADLDAHDHHPE ALADRFP EMRYSVGVHPDDTQHWCPDTVDVLRQAALDD RQLDESRGHDFSTAGVHPHDASHWTTDSASQLRGLLAEPE
 SDAERYE HVFASVGVHPH SAGEAEKDDPKAALEKALL HDAQAYPDFCWATAGVHPHDAHRWNENSAADLEPLL
KTSEEYE NTYACTGIHPE H AMAKTPYPNIY乌SVGVHPGYПPEVKAPSETHFAPMLANPK ELS
A A R SHKD $\square W C$ SAGVHPHHAKDFPDLTVEALKHAASNPE ALAERADVHCAVGIHPLDAAQGSALDLDWLLARLAHPR AQASGVSRMALVGFHPTDDKAFELAHAHEYTDKMEAEL RRLDDSGRRLFCTAGVHPHEASGWTSASAAELRDLLGEPE ALVGERD NUALACGVHPLIQETPY DVEEFRRLAAEDR ELAAKYDF FYAAVGGHPEYADKFDENTLKEMEALTKSSK ALAEKYP NTYAVIGWHPEDSKDFHDNEREQLQNDUKNEK A A K ALADRYP SVVFLAVGLHPEEVEDVERRWDAAAAGRARD NiALDS GVHPLSKELTY



UniRef90 UPIOOO3461E34 UniRef90_E4U8K3
UniRef90_X4Z216 UniRef90_C9KND0 UniRef90_BOURW1 UniRef90_R4K956
UniRef90_F4MYS2
UniRef90_K9TT94
UniRef90-M4XI97
UniRef90-E8N4Y5
UniRef90-DOZ9F1
UniRef90 K9VPD4 UniRef90-G2HOK7
UniRef90-FOVTR4
UniRef90_D4L661
UniRef90_L8D9F9
UniRef90_Q482J2
UniRef90-R5RNE0
UniRef90_UPI0003A00277
UniRef90-P73335
UniRef90-UPIOO04019518
UniRef90-E01962
UniRef90-C6DKS6
UniRef90_C5D360
UniRef90_IOBTE3
UniRef90-I3UC09
UniRef90-F5U231
UniRef90-R6G7B9
UniRef90-10QQS8
UniRef90-F5YBS6
UniRef90-UPIO00370EE6F
UniRef90 S6AXX6
UniRet90-R5CHF6
UniRef90-B5EQA3
UniRef90_V7IGL4
UniRef90_UPIO002889CE6
UniRef90_U2LLB3
UniRef90-SOABQ7
UniRef90-V4Q312
UniRef90_G5JQZ7
UniRef90-J4U910
UniRef90-UPI0004012681
UniRef90_B0JGK5
UniRef90_H1LIQ2
UniRef90_W5INU5
UniRef90-A3ZKZ5 UniRef90-R5TJWW0 UniRef90-V5ADW5
UniRef90 B1WZT8 UniRef90-U5T3N1 UniRef90_UPIO00465016C UniRef90_R4V7F7 UniRef90_A0A023WRV8 UniRef90_A3VMX3 UniRef90-K8GIX2
UniRef90 D9R1R1 UniRef90-UPI000464EF37 UniRef90_UPI00037BBE7A UniRef90-L8GTU2 UniRef90-E3CUU6 UniRef90-D6XV37
UniRef90_UPI00036AAB99 UniRef90_L7EPM3 UniRef90_UPIO0037BA61E UniRef90_Q3AZA5 UniRef90_14CTH8 UniRef90-UPIO00395C8DF UniRef90_A1HPT0
UniRef90 A0A023V UniRef90_K2DW68 UniRef90-I6Z5J3 UniRef90-DOZ9R0 UniRef90-R6GRV2 UniRef90_UPI00047AA4C7 UniRef90_L8LUY6 UniRef90-A0A059FB12 UniRef90_HOJD01 UniRef90_B9DVT8 UniRef90_A0A011Q819 UniRef90_UPI000370FBF5 UniRef90_E6W842 UniRef90_F0K663
UniRef90_C2YKJ3 UniRef90-G8PEP0 UniRef90-R5ECL4 UniRef90-C9LXE7 UniRef90_Q7N117 UniRef90-C5WD12 UniRef90_A0A031MKN9
70EE6F
39CE6

UniRef90_A6C6M7
 DLVMVFHVRSGSDAAERDLEAWDREGAVP $\qquad$
HMPVCIHDRDAHGD TLAILKKEG
SKPVIVHTRSARDD
GMPVIIHVRDAFGD
NKPVIVHTRDAR TLIAILHEEQA

## NKAVII HCR

## G




## G



D

##  <br> \section*{}

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

UniRefi90 UPIOOO3461 E34
UniRef90-E4U8K3
UniRef90-X4Z216 UniRef90 BOURW1 UniRef90-R4K956
UniRef90-F4MYS2 UniRef90-K9TT94 UniRef90- M4XI97 UniRef90-E8N4Y5 UniRef90-D0Z9F1 UniRef90-G2HOK7
UniRef90-FOVTR4 UniRef90-L8D9F9 UniRef90_Q482J2 UniRef90-R5RNE0 UniRef90-UPI0003A00277 UniRef90-P73335 UniRef90-UPI0004019518 UniRef90 E01962 UniRef90_C6DKS6 UniRef90-C5D360 UniRef90-13UC09 UniRef90-F5U231 UniRef90-R6G7B9
UniRef90 F4AQW1 UniRef90-I0QQS8 UniRef90-F5YBS6 UniRef90-UPIO00370EE6F UniRef90-S6AXX6 UniRef90-R5CHF6 UniRef90-B5EQA3 UniRef90_V7IGL4 UniRef90 UPI0002889CE6 UniRef90-U2LLB3
UniRef90 S0ABQ7 UniRef90-V4Q312 UniRef90_G5JQZ7 UniRef90-J4U910 UniRef90-UPIOOO4012681 UniRef90_B0JGK5 UniRef90-H1LIQ2
UniRef90
W5INU5 UniRef90-A3ZKZ5 UniRef90-R5TJW0 UniRef90-V5ADW5 UniRef90 U5T3N1 UniRef90-UPIO00465016C UniRef90-R4V7F7 UniRef90-A0A023WRV8 UniRef90 A3VMX3 UniRef90-K8GIX2 UniRef90-D9R1R1 UniRef90_UPI000464EF37 UniRef90_UPI00037BBE7A UniRef90 L8GTU2 UniRef90 E3CUU6 UniRef90-D6XV37 UniRef90-UPI00036AAB99 UniRef90 L7EPM3 UniRef90_UPI00037BA61E UniRef90_Q3AZA5 UniRef90_I4CTH8 UniRef90_UPI000395C8DF UniRef90_A1HPT0 UniRef90-A0A023VR12 UniRef90_K2DW68 UniRef90 ${ }^{-16 Z 5 J 3}$ UniRef90_DOZ9R0 UniRef90-R6GRV2 UniRef90 UPI00047AA4C7 UniRef90_L8LUY6 UniRef90-A0A059FB12 UniRef90_H0JD01 UniRef90 B9DVT8 UniRef90-A0A011Q819 UniRef90_UPI000370FBF5 UniRef90 E6W842 UniRef90-F0K663 UniRef90_C2YKJ3 UniRef90-R5ECL4 UniRef90_C9LXE7 UniRef90_Q7NI17 UniRef90_C5WD12 UniRef90_A0A031MKN9 UniRef90_A6C6M7

NAK KVVTAAKMVIPSDR|LLIETDCPFLIAPVP


L RDVVRQVPLESLLVETDSPYLAPVPYRGKK


■CDERRGTHLQELVREIPAGRLMLESDA
RSADALREVARYVPLDRRLLVETD

RNSDKLRDVVRYVPLDRLLIETDSPYLAPVPNRG
VQEAAQKLPLDKILVETDAPYLAPVPKRGRE LIEVASEI PLDRLLLETDAPYMAPVPFRG NAKALQDVVKYLPLDRLLIETDSPYLAPV
 LKEVVE YAPDEQLLLETDSPYDAPV PNRGK RNAEALREVARRVPADRLLVETDSPYLAPVPY


LR DVARYVPLDRMLIETDSPWLAPVPF KEVA A Q P P E HLL L ETDCPYLTPHPFRG
$\square$ CDERRGKHLRELVKRIPL ERLMLETDAPFLTPR DLSPK QEVARLM PRLERLLI ETD SPYLAPVP
 A QALQDVVRKI PLENLLI ETDSPWLAPVPYRG RNAEQLREAARYVPMDRLLI ETD PRPGA



NATAI QEAARYVPLDRLLVETDA PYLA
RNAESLREVARRVPLDRLLIETDSPYLAPVPY $P \mathrm{DTFKNAGKLPA} \mathrm{C}$ VREAPQDKLLI ETD
 $V Q E A A Q K L P L D K I L V E T D A P Y \square A P V P K R G R E$

NAKK L DEVVKEDP LDDRLVEETDCPYMSPEP NSKTVQAAAQUVPSDRLLIETDCPFLSPNP


## $\mathrm{A} S$ $\mathrm{~V} P \mathrm{D}$

$\square R D V V A Y \vee P$
DRLLIETDCPFLAPVP
RRAEALRETVRGLPMDRLLVETD
L Q DA A Q ALP LDEKI LVETDAPY LAP VPKRG $\square$ CDERRGSTLRESVPD PD DHRLMI ETDAPFLLPRDMPE K RNADALRDVARRVPADRLLVETD SPY LDADP P P A Y D DVVPFAREVVKRFPDRVLWGTDWPH PNMK

AI QVQKSAQMVPSDRLLIETDCPFLAPVPMRG $N A R K L K E V V E Y M P M E Q L V L E T D C$ NAHDLREVVRYDPLDRLLI ETDSPYDAPVPY

LRKTI YDI PVVFWLLLETDA
 VKEVAKAVPADRLLVETDAPFDAPHPYRG VRELARLVPLDRLLIETDSPWLAPVPY AEVAREI PLDRILLETDCPYMAPEP
 LCDER

VPDEL

TCDERRGTHLHPLVKDIPTGRLMLESDA
A AKLKEVAASVPDERLLI ET D

1 CDERRGTHLQPLVREI PQGQLMLETDA P
 NSKI DQVIKNUPLDRILEETDSPYLTPEPFRKY
NAHQLKESAKIVPDNRLLI ETDCPFLAPVP
RNAAD

RNAADLRDVARQVPADRLLVETD SPYLAPVP
 I CDERRGTHLHPDMRD\PKGRLML RNAEQI RDAARYVPLDRMLVETD
$\begin{aligned} & \text { R N A E Q I R D A A R Y } \\ & \text { K E V } \text { V }\end{aligned}$ K EVAA E I P L E KLLI ET DC C Y L




RNADALRDVARRIPADRDLVETD
$P Y L_{L}^{L} P R T D$


UniRef90_UPIOOO3461E34
UniRef90-E4U8K3
UniRef90- X4Z216
UniRef90-C9KND0
UniRef90-BOURW1
UniRef90-R4K956
UniRef90 F4MYS2
UniRef90-K9TT94
UniRef90-M4X197
UniRef90-EEN4Y5
UniRef90-K9VPD4
UniRef90-G2HOK7
UniRef90-FOVTR4
UniRef90-D4L661
UniRef90-L8D9F9
UniRef90 Q482J2
UniRef90-R5RNEO
UniRef90_UPI0003A00277
UniRef90-P73335 UniRef90-UPIO004019518 UniRef90 E01962
UniRef90-C6DKS6
UniRef90_C5D360
UniRef90-10BTE3
UniRef90-13UC09
UniRef90-F5U231
UniRef90-R6G7B99
UniRef90-100QS8
UniRef90-F5YBS6
UniRef90-UPIO00370EE6F
UniRet90_S6AXX6
UniRef90-B5CHF6
UniRef90-V7IGL4
UniRet90_UPIO002889CE6
UniRef90_U2LLB3
UniRef90 SOABQ
UniRef90_V4Q312
UniR Ref90-G5JQZ77
UniRef90- 44 U910
UniRef90-UPIOOO4012681
UniRef90_BoJGK5
UniRef90-H1LIQ2
UniRef90_W5INU5
UniRef90-A3ZkZ5
UniRef90-R5TJW0
UniRef90-V5ADW5
UniRef90 B1WZT8
UniRef90-U5T3N1
UniRef90-UPIOO0465016C
UniRef90-R4V7F7 UniRef90-AзVMХЗ UniRef90-K8GIX2 UniRef90-D9R1R1 UniRef90-UPI000464EF37 UniRef90-UPIOOO37BBE7A UniRef90-L8GTU2 UniRet90-A1K5W0 UniRef90-E3CUU6 UniRef90-UPI00036AAB99 UniRef90 L7EPM3 UniRef90-UPIOOO37BA61E UniRef90_Q3AZA5 UniRef90-I4CTH8 UniRef90_UPIO00395C8DF UniRef90 A1HPTO UniRef90-A0AO23VR12 UniRef90_K2DW68 UniRef90-16Z5J3 UniRef90-DOZ930 UniRef90-UP100047AA4C7 UniRef90-L8LUY UniRef90-A0A059FB12 UniRet90_HOJDO1 UniRet90_B9DVT8 UniRef90-A0A011 Q819 UniRef90-UPIO00370FBF5 UniRet90_E6W842 UniRef90-FOK663
UniRef90_C2YKJ3 UniRef90-G8PEP0 UniRef90-R5ECL4 UniRet90-C9LXE7 UniRef90-Q7N117 UniRet90_C5WD12 UniRef90-AOAO31MKN9

RRGKTNEPSYVDHVAEHVA 300
ROVSLES PVPKRGKKNEPAYVRYTLEALALARGVAFEEMERDTDENA YRGKLNDPSKVIHVAEKVAEL QGRTVAEVAHASTENF
QNQPAYTREVCEYVAT $\qquad$ KGMTLE
RRNEPAYVRYVAEH DAMLRDN VPHRGKENDAVRDVEYMVLKPLDE LAWITDNA KRGKRNEPAYVRYVAEQVATL RGMSESLAQATTDNF RPKPKHGRNEPAYLPEVLACVAQHRGESPEQVAAHTTDCA HRGKRNEPMFVSLVAEELANQF PVPHRGKENQPAYVRDVAEYLA QRGKRNEPAYVYYVAEQVA

KLKGVDPQQLAAQTSANF NRTAYT
PHRGKTNQPAYVEDVAYFDADLK PVPHRGKENQPAYVVEVAKHLAS RNSSLNLP WVIDAI GEI

RGKPNEPQFVCDVAAFLADGGGSTEKVEEVTRENA HRGKANLPQFVVEVAQCLAD KLVRGVTLETLKEQTVANF NRTAYT RYVVDKIAEL RGISVEEVAAATTENA NRGKRNEPAYVKYVAEE IAARLKDQGSYEAVAKQTTANA TLRPRPRHNEPAFLTEVLAEDARHRGETLEQLAAHTTACA PVPHRGKENQPAFTRDVADYMAVLKGVDVETLAAATTENF $N$ R
PHPFRGKRNEPSYVKLVAEETAN【KGПSYEEVAEDTTKNA RGQQNEPAYALYVLEALARHRDMNPVDLADATYQNA FRGKRNEPSYVRYVARKVAFL RGETLEKVAEDSTQNF RGKRNEPAHVLYVAKKAAEDRGESLEAFARATRENT KRGKRNEPAYVAHVAEKVAE KENQPAYARNILEYIAKLKD
 K L $R G L T S E K M A$
 RN S DS E LLQQ DT CDNA


# loll QRGKRNK <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>      <br> Q R G K 

320
$\qquad$ A

[^1]




 

[^2] F
$P$
$P$






[^3]



| UniRef90_UPI0003461 E34 |  |
| :---: | :---: |
| UniRef90-E4U8K3 | RRLEFSTVR |
| UniRef90-X4Z216 | FKLFSK\\|VR |
| UniRef90-C9KND |  |
| UniRef90- ${ }^{\text {UniRef9 }}$ - 4 K956 | ER KLEFKTVVQ |
| UniRef90-F4MYS2 | C 2 |
| UniRef90-K9T7 | CRLF QLT LK |
| UniRef90-M4X197 |  |
| UniRef90_E8N4Y5 | T ${ }^{\text {S }}$ |
| UniRef90-Doz9F1 | SRL |
| UniRef90-K9VPD4 | C Q |
| UniRet90_G2H0K7 |  |
| UniRef90_-_0VTR4 |  |
| UniRet90_D4L661 | K R |
| UniRef90-L8D9F9 |  |
| UniRet90_Q482J2 | NR |
| UniRef90-R5RNEC | YRV |
| UniRef90-UP10003A00277 |  |
| UniRef90-P73335 |  |
| UniRef90-UP100002019518 | DQLF |
| UniRef90-EO19 |  |
| UniRef90-C6DKS6 | S |
| UniRef90-C5D360 UniRef90 IOBTE3 | KRLF Gl |
| UniRet90-10BTE3 |  |
| UniRef90- ${ }^{\text {UiRef9 }}$ F5U23 | ARLF |
| UniRef90-R6G7B9 |  |
| UniRef90- F4AQW1 | Y R L |
| UniRef90-100Q |  |
| UniRef90-F5YBS6 | K R |
| UniRef90-UPIO00370EE6F | YSDFKKADR |
| UniRet90-S6AX $\times 6$ |  |
| UniRet90_R5CHF6 | C R |
| UniRet90_B5EQA3 | HA |
| UniRef90_V7IGL4 |  |
| UniRet90-UPIO002889CE6 | Y R |
| UniRef90-U2LLB33 | R R L |
| UniReigo SoAB ${ }^{\text {a }}$ |  |
| UniRef90-V4Q312 |  |
| UniRef90-G5JQZ7 |  |
|  |  |
| UniRef90 UPIO004012681 | F |
| UniRef90 BoJGK | RN |
| UniRef90-HILQ2 |  |
| UniRef90-A3ZK75 |  |
| UniRei90 - R5TJWW | - |
| UniRef90 V5ADW5 | Y C |
| UniRef90-B1WZT8 | CQL |
|  |  |
| UniRef90-UPIOOO465016C |  |
| UniRef90_R4V7F7 | EAFFS |
| UniRef90_A0A023WRV8 | K A |
| UniRet90_A3VMX3 | M |
| iRef90_K8G1X2 |  |
| UniRef90 D9R1R1 |  |
| UniRef90-UPIO00464EF37 | CQLFKQQLQ |
| UniRet90 UPI00037BBE7A | Q |
|  |  |
| UniRet90_A1k5w | F |
| UniRet90_E3CUU6 | E |
| 俍et90_D6XV37 |  |
| UniRef90-UPIIO0036AAB99 | YRLFSRAV |
| UniRef90 L7EPM3 | FRDESKAQR |
| UniRef90 O3AZA5 | RREFSKAQR |
| UniRef90 14CTH8 | R |
| UniRef90-UPI000395C8DF | QRCFSTQ |
| niRef90-A1HPT0 |  |
| UniRef90-A0AO23VR12 |  |
| UniR |  |
| UniRet90-16Z5J3 | R R |
| UniRet90_Doz9R0 |  |
| UniRet90_R6GRV2 |  |
| UniRet90_UPI00047AA4C7 | H |
| UniRef90-L8LUY6 | C |
| UniRef90_A0AO59FB12 |  |
| UniRet90-HOJD |  |
| UniRef90-B9DVT8 | K R F F |
| UniRef90-A0A0110819 | LK L F GLK |
| UniRef90-UPIo00370FBF5 UniRet90 E6W842 |  |
| UniRef90-E6W842 UniRet90 FOK663 | SRL |
| UniRef90-C2YKJ3 | K A |
| UniRef90-G8PEP0 | CRL |
| UniRet90_R5ECL4 | FRL |
|  | R D |
| UniRef90-Q7117 | R R |
| UniRet90_C5WD12 | S QL |
| niRet90_A0A031MKN9 |  |
| UniRef90-A6C6M | $A R F L G Q N P$ |



## ID THVHLNFDNF QP D LAAAVRSRW F I D T H C HLL D M D ID T H C H I T C D

P T P P TEKP $\quad$ VD T H TH $\square$ A S T F Q F Y Q T K Y N K


D T HAHY
D T HA HY D SHAHL D T HV H L
Y F D S HA HL
$\begin{array}{r}\square V D S H C H L \\ M L I D D T D V Y E K N H H D D D D \\ \hline\end{array}$ DTHTHY

V ID A HCHL
D F K H F NK $\begin{array}{llll}\text { P S Y } \\ \text { T } & \text { V } & \text { D }\end{array}$ D THVHL D R L D L T

Y $\square$ D S HCHL
D F $\square$ Y K K Y S Y G G L

VD S HCHL
DRLDLAQHGGS
$\square$ ID T H C H L

E H N F $\square$ D A GVNLT S P Q Y D D
THGHY

UniRef90 UPI00034D2FF3 UniRef90_X1FTL2 UniRef90-G2JAN4 UniRef90_R6VVW3 UniRef90-K9Z3B3 UniRef90_K9Z3B3 UniRef90 C2ERG3 UniRef90-W9TCA2 UniRef90-Q7VR25 UniRef90-Q8D3A5 UniRef90 UPI00039B0816 UniRef90-UPI000288FDB9 UniRef90-UPI00035D8342 UniRef90 K2GYJ8 UniRef90-E1Y960 UniRef90-D5NVY9 UniRef90_C5CIW4 UniRef90 W7X5T4 UniRef90-F4CQS1 UniRef90-W7PQJ2 UniRef90-B9M4V4 UniRef90 C1A8P4 UniRef90-X2H5U1 UniRef90_Q2SJE9 UniRef90 UPIO002EB4725 UniRef90-UPI00037E46B7 UniRef90_UPI0003706BC7 UniRef90 V4NR50
UniRef90 UPI00037A881D UniRef90-Y1GI67
UniRef90-F4AMI3
UniRef90 UPI0003EB3B28 UniRef90-17JF16 UniRef90-R7LOX9 UniRef90_R6NIV9 UniRef90 C8PV68 UniRef90_Q12MJ6 UniRef90_D3LSR5 UniRef90 A0A033UE55 UniRef90 R9NJ68 UniRef90-W0SF03 UniRef90-F2QGR6 UniRef90 L8MM08 UniRef90-E8R119
UniRef90-K9QG43
UniRef90_K1Y842 UniRef90-E2SHY3 UniRef90_UPI0002491A94 UniRef90_A8P1H0 UniRef90 S6GS62 UniRef90-M1LRX6 UniRef90-A6EM04 UniRef90_K9WNT6 UniRef90 UPI00047E15C8 UniRef90_UPI000441FFB7 UniRef90-R5L265 UniRef90 UPI000465821E UniRef90-E6QJW3 UniRef90-M7P3E7 UniRef90-R5IWG6 UniRef90 G9AUB7 UniRef90_K9AU70 UniRef90-15ATT5 UniRef90 LOWHF1 UniRef90-A0B8Q3 UniRef90_LOD9P9 UniRef90-Q8YWL2 UniRef90 R6EDA9 UniRef90-W0HBM9 UniRef90-X7E5Z8 UniRef90 R6YNL3 UniRef90 FOZYQ6 UniRef90-A0A016SNN9 UniRef90_UPI0003B7A722 UniRef90 S6C4D5 UniRef90-M4K5U9 UniRef90-Q9KGK7 UniRef90-E6L9K2 UniRef90 D4LBJ2 UniRef90_UPI000312F977 UniRef90-F5SHU4 UniRef90-UPIO00403815C UniRef90-U1JUW3 UniRef90_UPI00037C7CA0 UniRef90_R5JGS3 UniRef90 UPI000349C15E UniRef90-Q0SZ31 UniRef90_R9G976 UniRef90-R9KCQ4 UniRef90-R9C3R3 UniRef90_UPI0003759A86

QEAGVV 50
70

$$
\text { A HQF } \stackrel{8}{P}
$$

A $\square$ Y ER $\square$ DEVLENARQAG $\square E K M L I \quad$ CTYFTE YERAQ

QALVEAREAGVSKFMSTIS V

NDDAFYDDVPAFEARAAHYGVMNVVGSNTVLNARAIK HPTFAADPRAVVERARAAGVQLLLTGTSLGESEAALQLC K D $\square S D V L R K A Y Q K N V K L D L S V S T S V M V R N D G C R P$
HGDAYDEDREAVFERAREAGTEG\|LADCCRD DEFDDV E ILDRAQAAGVCQLVTGTSLEGSEQALELC
MMRAAAEAGVSHML CDGVDLESFP DDRAYDKDLGSVVNRAKKAGVVKDMDVGDDMKSSVKAVK
 CGCVTTDDVAAALDRAEAVGVTRVV CT TVADDLDAARWA ■AATLDAARARDVRQFLADAVTLEA VPEDARDSREHP YGPEFKDDFADMLKRAEEAGVSEII VVGTDVATSR

LS QADGDLTVA $\quad \square N Q A R A R G V S G F \square \quad C V D \square D \square D N F D V$ MADLDALQQAMRDAAV TRALVICTTMEKFGEVHDLAA

HAPQFDEDRPEVIGRARAAGVDLMDNDCDRVS NFDAVY

$$
\text { E } \square \text { S P M } \square \mathrm{T} \text { R A A E A G VA Q } \square \quad \mathrm{M} \square \mathrm{~T} \text { G T D } V \mathrm{~A} \square \mathrm{~S} \mathrm{H}
$$

D LIEKYQGD $\square$ RQA $L$ QAAK DANVQR $\square$ MA $\square$ MCE $\square D E Y D A \square Y E \square$ HDEAYDSDREAVIRRAFAAGVQYM MFPGTDLPTSS LQEVIDRALEEGIDRMFVVGFDT QFAQDRDWVVKRAKQAGVTGLLITGTNALE SQQAQ

DARALLERAEAAGVRQMV LTGTNLE DSEKAL QEAGVVRLVHSCVEPSEFSSDQT AFAEDLDEVVERADKAGVDRUV T I DGDDRSSAKA $\square$ A LYER IDEVLDHAKREGLERMLIVCTTEYERAQYLKD

$K \square E S \square L E K M \square S K V Y S A L D A G V N \quad K K D F S D L L$


VKNDFGEALHPLLSSMSEAGVEK $\square \mathrm{M}$ A AVGYDLDSSMEE SDEQFDKDRDELLLWGMEDEGVGTVVE

 V $\square$ A K A A A R DVRFMLADATTLPGFST
 GPSSHHAVV

DRMDVIERA
RAS GVVEMD NS GVD DQ T NRET DK PHDHMVSRTTDDYKRMALAGCVMVSEPAFWGFDRSPEGFR NFDTFQPDLAEVRSRWQEAGVVHLVHSCVPSDQADAHQFP


$M \square N D Q S R V I Q R A K S A G V E G M V I D T N D F E K S E T S \square$ DCWLESEPGDSHRKFLGC IDNFIEPSVKNGEKSPQYFD

LD A A LIEAARQRGVGHF LCDGVSA
E N A A S V K
DDERYFDDLDELLKHSFNNG DEK\|I IP GAD $\quad$ KD DPRAC
NFD DF QS D $\square E A V R S R W Q E A G V V R \square V H S C V S S \square Q A D A Q R F P$


KRSDIVDRATAAGDSNMLLIGSNMIDS QA DDRKFAADLPAVLERARQAGVVKIINA AYDL PSCRR DDEKFDEDREELFARFREEGVELV

EADF $\square$ QQAAD $\square G V T E M A \square V G S D T V L$
DDRRFNPDREELLSSMQEHGTETVI
NANEFQEDVEEVI QRALDDAGLEKMV

WQAAGVVHLIHSCV
NDGALRESQQAQ NVGSLLDVKKTL $\stackrel{N}{V} \vee G F D \frac{1}{R}$

UniRef90 UPIo0034D2FF3 UniRef90-X1FTL2 UniRef90_G2JAN4 UniRef90_R6VVW3 UniRef90_K4KG40 UniRef90_K9Z3B3
UniRef90-Q6F9X5 UniRef90-C2ERG3 UniRef90_W9TCA2 UniRef90_Q7VR25 UniRef90_Q8D3A5
UniRef90_UPI00039B0816 UniRef90_UPI000288FDB9 UniRef90_UPI00035D8342 UniRef90_K2GYJ8 UniRef90_E1Y960 UniRef90-D5NVY9 UniRef90_C5CIW4 UniRef90_W7X5T4 UniRef90_F4CQS1 UniRef90-W7PQJ2 UniRef90_B9M4V4 UniRef90_C1A8P4 UniRef90-X2H5U1
UniRef90 Q2SJE9 UniRef90_UPI0002EB4725 UniRef90_UPI00037E46B7 UniRef90_UPI0003706BC7 UniRef90-V4NR50 UniRef90_UPI00037A881D UniRef90-Y1GI67
UniRef90_F4AMI3
UniRef90_UPI0003EB3B28 UniRef90-17JF16 UniRef90_R7LOX9 UniRef90_R6NIV9 UniRef90_C8PV68 UniRef90_Q12MJ6
UniRef90-D3LSR5 UniRef90-A0A033UE55 UniRef90_R9NJ68 UniRef90_WOSF03 UniRef90-F2QGR6 UniRef90_L8MM08 UniRef90_E8R119
UniRef90_K9QG43 UniRef90_K1Y842 UniRef90-E2SHY3 UniRef90_UPI0002491A94 UniRef90_A8P1H0 UniRef90_S6GS62 UniRef90_M1LRX6 UniRef90-A6EM04 UniRef90-K9WNT6 UniRef90_UPI00047E15C8 UniRef90_UPI000441FFB7 UniRef90_R5L265 UniRef90-UPI000465821E UniRef90_E6QJW3 UniRef90-M7P3E7 UniRef90_G9AUB7 UniRef90_K9AU70 UniRef90_I5ATT5 UniRef90_LOWHF1 UniRef90_A0B8Q3 UniRef90-L0D9P9 UniRef90-R6EDA9 UniRef90-W0HBM9 UniRef90- X7E5Z8 UniRef90_R6YNL3 UniRef90_F0ZYQ6
UniRef90_A0A016SNN9 UniRef90_UPI0003B7A722 UniRef90_S6C4D5 UniRef90-M4K5U9 UniRef90-Q9KGK7 UniRef90_E6L9K2 UniRef90_D4LBJ2 UniRef90_UPI000312F977 UniRef90_F5SHU4 UniRef90_UPI000403815C UniRef90-U1JUW3
UniRef90_UPI00037C7CA0 UniRef90-R5JGS3 UniRef90_UPIO00349C15E UniRef90_Q0SZ31 UniRef90-R9G976 UniRef90_R9KCQ4 UniRef90_R9C3R3 UniRef90_UPI0003759A86
$\square$ S F V G $\quad 90$ T AKWHQE 100
100
110
120

QLK EREPER

$N V F A S V G V H P A$


 E
 $\square A L A E P R E N V W A S V G V H P H H A K E W P D D T A E E L D R D A D H P K$ RTLDE S GLLQLFATAGIHPHSASDWNADSAARLKDLLT

I Y A T A G V H P H D A K DLDD E A G K K G L A S L I E A P QVVAETWPQVYATVGVVPLYRKS RAATTEELVRHAQHPK 1 A E TYP G FY A SVVGV H
 ELARDH ANLWATVGVHPDN EGVQEPSLDDLLRRA DLPR


$V$ F H T C GVVHPHDAVSWD DQRDANAVRDA
$Y R \square A Q V Y D D V W C S A G V H P \square A K M N A A D L S P D H L T Q L A M S$ LANE NMWATVGVHPDN EGVREPSLQDLLDGAALPK
 G $\square$ A D D NAD $\square$ WATVGTHPHESRENPDLTA QTLIDLARRPK H CWWST A G VVV H P H D S S S Q W T A E S S A E T

$N \vee V F S C G V H P$
 $\begin{array}{llllllllll}I & F & A & A & V & G & L & H & P & D \\ I & Y & A & V & C & G \\ H & P & H & E\end{array}$

EA GA

$\qquad$ A Q EAA E D WLD E L

 $A A V A L T H R Y V Y A A V G L H P E D A A S A T P Q G F A Q L R K W L L R E E$ KLIDDEYD F IVYGII GWH $\quad$ G S A A R S P G Y C WS TA G V V

 E L S F A VGGLHPDD A D K WQ S D TA E T I K S L A S S E P K V V A A G E M ALANRYPQLSAT IGVVHPHDVEGLQDNDYASVERLYVDHC





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

 $N \mathrm{I}$ A L S C GVVH PLNQEAPY
 LA R S HE F $\square H A T L G \square S P N S D D Q M R P K D V D$
 ELS FAVGLHPLDADKWQSDTGEQILSLAARSDK ELTRRYPF VYGMI GVVH PDEVGGLDEEKLMEQLLKE ALA ERY D DVVDCSVGUHPLDLKPGEA PALDDWLLDSELNHP R

 WI LE QLK SNYVATYGCHPHFADTFK








 ALS A AIGWHPESAKDYTKAQE E LA G Q Y E F VY G A $\quad$ G $\square H P S E \square S$ GLD ELDE Q Y D F V Y Y A S I GWH P

UniRef90-UP100034D2FF3
UniRefon- 2 IFTL2 UniRef90-x1FTL2 UniRef90-R6VVW3 UniRef90_K4KG40 UniRef90-K9Z3B3
UniRef90 Q6F9X5 UniRef90-C2ERG3 UniRef90-W9TCA2 UniRef90-Q7VR25 UniRef90-Q8D3A5
UniRef90 UPIO0039B0816 UniRef90_UPIOOO288FDB9 UniRef90_UPIOOO35D8342 UniRef90-K2GYJ8 UniRet90-E1Y960 UniRef90-D5NVY9 UniRef90-C5CIW4 UniRef90-W7X5T4 UniRet90-F4COS1 UniRef90-W7PQJ2 UniRef90-B9M4V4 UniRef90_C1A8P4 UniRef90-X2H5U1
UniRef90 O2SJE9 UniRef90-UPI0002EB4725 UniRef90_UPIOOO37E46B7 UniRef90-UPIO003706BC7 UniRef90- V4NR50 UniRef90 UPI00037A881D UniRef90-Y1G167 UniRef90-F4AM13
UniRef90-UPI0003EB3B28 UniRef90-17JF16 UniRef90-R7LOX9 UniRef90_R6NIV9 UniRef90_C8PV68 UniRef90_Q12MJ66
UniRef90 D3LSR5 UniRef90-A0A033UE55 UniRef90-R9NJ68 UniRef90 WoSFO3 UniRef90-L8MM08 UniRet90_E8R119 UniRef90-K9QG43 UniRef90-K1Y842 UniRet90-E2SHY3 UniRef90-UPIO002491A94 UniRet90-A8P1HO UniRet90_S6GS62 UniRet90_M1LRX6 UniRef90-A6EM04 UniRef90-K9WNT6 UniRef90-UPIIOO047E15C8 UniRef90-UPIOO0441FFB7 UniRef90-R5L265 UniRef90-UPI000465821E UniRef90-E6QJW3 UniRef90-M7P3E7 UniRef90-R5IWG6 UniRef90-G9AUB7
UniRef90 K9AU70 UniRef90-15ATT5 UniRef90-LOWHF1 UniRef90-AOB8Q3 UniRef90-LOD9P9
UniRef90 O8YWL2 UniRef90-R6EDA9 UniRef90-W0 -UniReffo-X7E5Z8 UniRef90-R6YNL3 UniRef90-FOZYQ6 UniRef90_UPI0003B7A722 UniRef90 S6C4D5 UniRef90-M4K5U9
UniRef90 O9KGK7 UniRef90-Q9KGK7 UniRef90-D4LBJ2 UniRef90_UPI000312F977 UniRef90-F5SHU4 UniRef90-UPIo00403815C UniRef90-U1JUW3
UniRef90-UPIO0037C7CA0 UniRef90-R5JGS3 UniRef90-UP1000349C15E UniRet90-QOSZ31 UniRef90-R9G976 UniRef90-R9KCQ4 UniRef90-R9С3R3 UniRef90_UPlooo3759A86





7
, ,
2
 VQLDD

 LLADTRRPHVVAVGETGLDYYYTEDTKADQREHLDVAGQA LEFAQSSPKVVAI GEMGLDDNQPELQKEVFWKQLEIAYQL VWALGET GLDYYH SDEYVDEQKACFARHI AASKIV $V V G$ GE $\quad \square G L D Y F N D Q N S P D R Q Q E T F A R Q L E D A Q L$ VRAVGECGLDFN区



RYY
N $Y$ Y

## $\stackrel{T}{\mathrm{~V}} \mathrm{GV} \mathrm{G}$

[^4]
## 

A P
KVTALIGETGID
$R D F S P R D T Q L A A V F E A Q L V L A C E \frac{L}{T}$
 $K L L C R D K C V A D G E I G L D Y H Y D F S P R E K E F F G R Q L A L A A K E A L$ VWAI GETGGLDYYWSTENSTEQKASFARHIHASQQL










## V



EKIIAAVG V VA $\square$ GE T G


V
$\mathrm{I} V$
V
Q
P
P
L
$\mathrm{V} V$
$\mathrm{G} E$
E

V | A |
| :---: |
| A |
| A |
| L |
| L |
| C |
| L | E S

D


 VVAMGEMG

GR R G $S$ A VGE

| $V$ | $V$ | $A$ | $G$ |
| :--- | :--- | :--- | :--- |
| $L$ | $E$ | $T$ | $G$ |
| $A$ | $G$ | $H$ | $P$ |
| $C$ | $V V A$ | $L$ |  |






UniRef90_UPIO0034D2FF3
UniRef90-X1FTL2
UniRef90-G2JAN4 UniRef90-R6VVW3 UniRef90_K4KG40 UniRef90-K9Z3B3
UniRef90 -Q6F9X5 UniRef90 C2ERG3 UniRef90_W9TCA2
UniRef90_Q7VR25 UniRef90 Q8D3A5 UniRet90_UP100039B0816 UniRef90-UPIO00288FDB9 UniRef90-UPIO0035D8342 UniRef90-K2GYJ8 UniRef90-E1Y960 UniRef90-D5NVY9 UniRef90-C5CIW4 UniRef90-W7X5T4 UniRef90-F4COS1 UniRef90-W7PQJ2 UniRef90-B9M4V4 UniRef90_C1A8P4
UniRef90 $\times 2 H 5 U 1$ UniRef90-Q2SJE9 UniRef90_UPIO002EB4725 UniRef90_UPIO0037E46B7 UniRef90-UPIo003706BC7 UniRef90- V4NR50 UniRef90 UPI00037A881D UniRef90-Y1G167
UniRef90-F4AM13
UniRef90-UPI0003EB3B28 UniRef90-17JF16 UniRef90-R7LOX9 UniRef90_R6NIV9 UniRe990_C8PV68 UniRef90_Q12MJ66
UniRef90 D3LSR5 UniRef90-A0Аоз3UE55 UniRef90-R9NJ68 UniRef90 WoSFO3 UniRef90-F2QGR6
UniRef90 L8MM08 UniRef90-E8R119 UniRef90-K9QG43 UniRef90-K1Y842 UniRet90-E2SHY3 UniRef90_UPI0002491A94 UniRet90-A8P1HO UniRet90_S6GS62 UniRef90-M1LRX6 UniRef90-A6EM04 UniRef90-K9WNT6 UniRef90 UPIO0047E15C8 UniRef90-UPIO00441FFB7 UniRef90-R5L265 UniRef90-UPI000465821E UniRef90-E6QJW3 UniRef90-M7P3E7 UniRef90-R5IWG6 UniRef90-G9AUB7
UniRef90 K9AU70 UniRef90ㄴ5ATT5 UniRef90-LOWHF1 UniRef90_AOB8Q3 UniRef90-LOD9P9
UniRef90 O8YWL? UniRef90-R6EDA9 UniRef90-W0HBM9 UniRef90-X7E5Z8 UniRef90-R6YNL3 UniRef90-FOZYQ6 UniRef90-A0A016SNN9 UniRef90-UPI0003B7A722 UniRet90_S6C4D5 UniRef90_M4K5U9
UniRef90
Q9KGK UniRef90-E6L9K2 UniRef90_D4LBJ2 UniRef90_UPIoo0312F977 UniRef90-F5SHU4 UniRef90-UPIO00403815C UniRet90_U1JUW3 UniRef90-UP100037C7CA0 UniRef90-R5JGS3 UniRef90 UPIOOO349C15E UniRef90-OOSZ331 UniRef90-R9G976 UniRef90-R9KCQ4 UniRef90-R9C3R3 UniRef90_UPIooo3759A86
 D PVI H DRDAHKQTLEVVKKYDDQKNFRAVVHCFS RLPLIIHTRAADEDTLLLMR EEGA EEVGGVMHCFT NKPILIHMREATKD TLDILKDMG PLKGIMHCYS GLPVVIIHCRDAATALRDLLVRFNQEHGAKIGGVMCWA KKPVVVHTRSAKRDTIDIIRAEASTHGIL KLPVSI HVRDALEDAYAILR REN NSHIDEFGGVM

 RLEAAVV H HS GLPLVIHC QLPVFLHERDANSRMDELLRDYRDRRQDPA ghplvihtrdaradtlamlar GEVRGVLHCFT NKTVMIH NREADADLMRVLDDSAQAPDTMLGVIHCFS DMPVTVHVRDAYYDAYEILREFE GKLTGDHAFS DLPLVIHTRSASED TLALLREEGGDDPRSRGVFHCFT GKPLMIHDRDAHAD VLRVLREEGA PETVVF HCF

 GKPVIVHTREAREDTGHLKKYSAKGLGGGQGVLHCFT
 Q
 D KLIVHTRNAROD
 GRPVIVHRDARAD DLPFVVHTRDAMTDTY LALKSE DLPVVIHTRDAWEDTMALLR KKPIIVHTR EAKHDTLDVLKAEKAEH NKPLVHT RDAREDTDAMLKAG NA GIIHCFT


 GKPVFLHERDADERLLADVRDYRDQRDLSAAVVDHCFT GELVLVHTPHGTRMILDMIRLLDQGRTPPERVCLDHVEEH
 NRPVLIHMREATRDMYTLDILKEA DHDDSVKGIMHCYS GKPLTIHT REAEEDTERLLKEIVPKEHKIHMHS KVPLVHTRDARADADETLEARHGDAAGVLGVCFT KLPVVIHCRDAFDEVFEVLESEKGEGL EVGFGIFHCFT D I HTRESFKEAYECVIPYKEFERGKVRGVMHCWG GKPVIVHTRAARADDTLALLREANLPQAGVLGHCT DVPVIIHSRDACEDTMELLRKYKPAGV NLPVNIHSR DAAEDTMEПMKTYG KGTRG川 IHCFS RRPILIHCRPADGDDQCWVDTLREAHWKPTAGGGULHCFS
 NKPIIVHTRDARED TLAILKEEQV QLPiVIHNREATQDC VDILMEEHA KLPIIHSRDAAADTMEDARCE NLPVELH

ERDAHERFLPIL
$\qquad$
ERCGGVLHCFT ERDAHERFILPELKAHRDPGAVGGVHCY EKPLVI ARETEDIAFDLVKDMEKVVF HCFS
 GKPVNIHSR DAAADTMEDMREYG

KRLRGII GKPVIVHTRGARAD TVNLLREAADPQAGVL NLPLYLHERDAHKAMLERLRRHPELAKK KLPIVIHSR DASVDT! DITRNHRVKKAGTF GLPVVLODFGSGDGLLEVLKDCRK HCCQ QVPLVIHCRSGPRGPGDAEKVCLSADVGDSRFNGHRHCFT NLPVTHNRDATADCY KVLKEERV GETGGIMHSF GLPIALHMREAHDDGF KLPIVIHTRGRDADRDIVDVLREEADCA
 DLPVIMHCRAGLCGGVLHCF NLPVI THCRNAAAEVRQVLEKWK N DQGESTRGVMMCWG DMPIIIH NREADDDVVRDREEKAEEVGGVMHCFS K LPVVIHSR EAAQDTLDIMKDEHA EDIGGVVHCFS KMPVYLH ERDAFSVMKAQLEN TDVKGVLHCFT DLPVVIHDRDAHGDAADLSLKSDGVPGRRGGIMHCFS KLPVIIHCRDAVGELKDVLQKWK NTKGDSVRGVMHCW NMPVFMHC HMPISVHTRDALEDTYKILKET GDVRDCGGITHSFN GLPVIIHSRDAAEDTपKLVQ GDHGEETPGVVHCFS




UniRef90_UPIO0034D2FF3 UniRef90-X1FTL2
UniRef90-G2JAN4 UniRef90-R6VVW3 UniRef90_K4KG40 UniRef90-K9Z3B3
UniRef90 -Q6F9X5 UniRef90-C2ERG3 UniRef90-W9TCA2 UniRef90-Q7VR25 UniRef90-Q8D3A5
UniRef90 UP100039B0816 UniRef90_UPIooo288FDB9 UniRef90-UPIO0035D8342 UniRef90_K2GYJ8 UniRef90-E1Y960 UniRef90-D5NVY9 UniRet90-C5CIW4 UniRef90-W7X5T4 UniRef90-F4COS1 UniRef90-W7PQJ2 UniRef90-B9M4V4 UniRef90_C1A8P4 UniRef90-X2H5U1
UniRef90 O2SJE9 UniRef90-UPIOOO2EB4725 UniRef90-UPIO0037E46B7 UniRef90_UPIO003706BC7 UniRef90- V4NR50
UniRef90-Y1G167
UniRef90-F4AM13
UniRef90-UPIO003EB3B28
UniRef90-17JF16
UniRef90_R7LOX9
UniRef90_R6NIV9
UniRef90_C8PV68
UniRef90-Q12MJ6
UniRef90_D3LSR5

UniRef90-R9NJ68
UniRef90 WoSFO3
UniRef90 F2QGR
UniRef90- 2 2QGR6 6
UniRef90-E8R119
UniRef90-K9QG43
UniRef90-K1Y842
UniRef90-E2SHY3
UniRef90_UPIO002491A94
UniRef90 A8P1H0
UniRet90_S6GS62
UniRef90-M1LRX6
UniRef9O-A6EM04
UniRef90-K9WNT6
UniRef90 UPIIO0047E15C8
UniRef90-UPIO00441FFB7
UniRef90-R5L265
UniRef90-UPIO00465821E
UniRef90-E6QJW3
UniRef90-M7P3E7
UniRef90-R5IWG6
UniRef90-G9AUB7
UniRef90-K9AU70
UniReffol-15ATT5
UniRet90_LOWHF1
UniRef90-AOB8Q3
UniRef90-LOD9P9
UniRef90 O8YWL2
UniRef90-R6EDA9
UniRef90-W0HBM9
UniRef90-X7E5Z8
UniRef90_FOZYQ6
UniRef90-AOAO16SNN9
UniRef90_UPI0003B7A722
UniRef90-S6C4D5
UniRef90_M4K5U9
UniRef90_O9KGK7
UniRef90-E6L9K2
UniRef90-D4LBJ2
UniRef90_UPIOOO312F977
UniRef90-F5SHU4
UniRef90-UPIo00403815C
UniRef90-U1JUW3
UniRef90-UPIO0037C7CA0
UniRet90_R5JGS3
UniRef90 UPIOOO3349C15E
UniRef90-OOSZ31
UniRef90_R9G976
UniRef90-R9KCQ4
UniRef90_R9C3R3
UniRef90_UPIO003759A86

290
 PQAKRGKENYPGYVRYVAEKIAEDKNLSVEEVADDTSKNA PHRGAVNEPAFVHYVGRFVAQL RGETETSUATATTENF

KPNEPQYVREVAEFDADLKR
HRGKRNEPSYVLHVAEKLAQI
LISFEAFAQKTTENF
RGKSNEPKYVPYVAQALSDGYGQSVEAMASQTTKNA
KENEPGFTKFVVDADAKLKN VDAELVAYKTFHNA

 HRGKRNEPSFLPFVAEKLADI RGWTDEAVEK RPKPKSGRNEPAFLTEVLREVALHRGESEADLAAHSTACA RPKPKNGRNQPWYVKEVIQKIAEDKQMDVLEVENDTSRNA HRGKQNEPRFVADVARCVAGL RR
NE PSLIGGTYRCVAE HRGKRNEPYYVRFVVEKTSETARNQSVEELVEQVRANF HRGKTNNPAFVPFVAQOIA EVKGLSVECADILCANA SNEPYCLDWTVRGLAAV RGGVDERLADTAGRNA HRGRPNEPAWVVEVAECIA RER HRGKRNEPAYVSITAARVAET PVPKRGKRNESSWVPLTVQRIAEARGLSVEDVSRITTLNV RGKENQPAYVRKVASYLSVLKGVTHEVIAKQTTDNF

## Y R G K

SNQPQWVVEVAQCVADL
PKTRRNRNYOP YRGKRNQPLYVRHVAGKIAEL EAKGMEAEICKDTSDNA MRGRRNEPAFVPHVYDKL
PYRGKQNQPAYVHEVAQYVADLK G $\square$ S $\square A E L S R \square T T A N F$ PASRRNEPALLGHTVERVAHW RGEDPHWLSAQTDDNV VPGVKQNEPCYLPVIAKALSDLMQTPDESLSLHS KRNT NQPAMVRDVALSIVAYHDVAMAVLKGVAVEELAQDTTDNF RGRENTPAYTKFVVEKDAELLRGI PTAAVAQATYDNA NRGKRNDSGNVYTLGTFAELM Gi TREEAAETTAQNA
RGKRCDSSYIPYTAEVLAGVRGVSAQD\LDLTRRNA PVPKRGKSNEPAFVPYVADFLAKHYAMPVDEFARLTHQNF PHRGQENQPAYVYDVAKFVAELRGEQF EDLAQYTTDNF YRGKRNEPAYVRYVAAEIA ARLRNMRAEEVERDTMENG KRNEPARVKLVAEQIAED RGDSYEEVCKATTENA PSRRNEPG FLPHI VEQVAELRKE DAAVLGRQSDENA HRGKLNHPALVRHVAEEVAARRKGDDGEALAQATTYNF RPKPRHGHNEPAFLTEVLREVALHRGESPEVLAAHTTACA RGEKRNEPAYVRYVAEKLAELMRGGETLEAli AHQTTQNA

KRNEPSYVVYTAQKLAEL RGDDLPVIADHTTANA
 PADKGKRDPGC HTAMIPWVAEAGVAGEGWDRDMRENA RGKQNQPKYVVEVAQHIADLLKGISVAQLAEITTDNY

 PNDPQYKRNEPAYTYYVVEEUAK RKNISSDEVAKDTSNNA PNDPQYVREVAEYVAS YTAAKMALRCVSYEQLAEQTTTNF NRGRRNDSRNDHYVAEQTAQL KGISKETVIKQTENNA

$K E N Q P A Y T R D V A D Y D A V L K$
KRNEPSRVTLVAEQ AEL NRGRRNNSAYLKYVAEAIAGI PKKRRNEPALLPWI GQRVAQ LRQQGITPEETEAVTWENA RRGRNEPSFILDSLNLIARMRGMDPEDARLTVA
RGEKRNEPAYVRHVAEQVAAL NRGKRNSSLNLKYVAAAIAEL KPNLPQYVREVAEFLAAML NDRPRPKKNHPKYLPWVAMEVARLK NRGKRNDCRNVKYVAQKIADI DKEORNEPSNLVYVDEV AAK KEUSLEEVAKKTYENA TNCDRFADPPMAVNVAFVIAAKKAKNMVNQVIRETTQNA RGKQNEPAYTHYVAKQLAETRDDSYDQVGKETTANA CGPAHTDYTADVLCEVRGADTPEARAVLYENA PNLPEYVRDVADY KRNEPAYVKLVAEQDAELKE DPYEEVAKVTTANA RRNEPLLTHFVADKMSELLN LSKDELLRLCLKKN RGERRNEPAYVRYVAEQVAAMAEEKGCTLEEMLRQTGENA HRGKRNESGHVRLVAEKIAEL RGKRNCSLYLPYVVDKMAE
PKSRRNEPMFIHEVANTVAQL PQEHRGQRNEPAYVALVAQEI ARGRGQTVEHVAKLSVENF MRGKRNSALYMSYIAEEIAAABLRGMEVDALGRAVVANA RGERRNEPAYVRYVAEQVA K KR PSSRRNEPAHLPHILLRRIAHW $K Q N Q P G Y T R Y V V E A D A K \square R E$ ERGKRNSSLNLVYVAEETA
FRGKRNEPSYVKLVAEEVAAT
GVDDETLAAATKNF
 RGMDPADLATATVRNT RGHDEALI RKVVYENP
RGETLUVI SAOTAQNA KGITPEFVIOQTAQNA KGIPPEERFAEQTTENF RGEPYERFAEQTTENF K KGGRHEALCDSDEALAAATTATA

| UniRef90_UPI00034D2FF3 | CQLF |
| :---: | :---: |
| UniRef90- X1FTL2 | ERFFSDN |
| UniRef90-G2JAN4 | F T L |
| UniRef90-R6VVW3 |  |
| UniRef90 ${ }^{\text {K }} 4 \mathrm{KG40}$ | Y R Lif NRAER |
| UniRef90-K9Z3B3 | CKLF |
| UniRef90-Q6F9X5 | D NLLAAK |
| UniRef90_C2ERG3 | ERL |
| UniRef90-W9TCA2 | R A FF |
| UniRef90-Q7VR25 | Y K LiF Q |
| UniRef90-Q8D3A5 | K NLFS |
| UniRef90-UPI00039B0816 |  |
| UniRef90_UPI000288FDB9 | R A F |
| UniRef90-UPI00035D8342 | R E LFTV |
| UniRef90-K2GYJ8 | F RLLF |
| UniRef90-E1Y960 |  |
| UniRef90-D5NVY9 | D R V L T P K |
| UniRef90-C5CIW4 |  |
| UniRef90-W7X5T4 | EQL |
| UniRef90-F4CQS1 | E R V |
| UniRef90-W7PQJ2 | Y R L F |
| UniRef90-B9M4V4 | R NLFN】 |
| UniRef90-C1A8P4 | R K F |
| UniRef90-X2H5U1 | CQLF |
| UniRef90-Q2SJE9 | HRL |
| UniRef90-UPI0002EB4725 | LT |
| UniRef90_UPI00037E46B7 | V R $\mathrm{F} F$ |
| UniRef90-UPI0003706BC7 | ER\FR VR |
| UniRef90-V4NR50 |  |
| UniRef90-UPI00037A881D | Y Q Li |
| UniRef90-Y1G167 | RRLEGINV |
| UniRef90-F4AMI3 | QRLLALS |
| UniRef90-UPI0003EB3B28 | A R L F |
| UniRef90-I7JF16 | M R I |
| UniRef90-R7L0X9 | ERLF G $\square$ |
| UniRef90_R6NIV9 | D T L F |
| UniRef90-C8PV68 | D A L |
| UniRef90-Q12MJ6 | F NLF |
| UniRef90-D3LSR5 | K R I F F ■ |
| UniRef90-A0A033UE55 | ERLIF |
| UniRef90-R9NJ68 | R L L F |
| UniRef90-W0SF03 | F R L F |
| UniRef90-F2QGR6 | K S L |
| UniRef90-L8MM08 | RAFF |
| UniRef90-E8R119 | LS FF |
| UniRef90-K9QG43 | CK ${ }^{\text {L }}$ |
| UniRef90-K1Y842 | QKI F Q $\square$ QR R |
| UniRef90-E2SHY3 | E D L |
| UniRef90_UPI0002491A94 | K K V Y N L K |
| UniRef90-A8P1H0 | K A MY |
| UniRef90-S6GS62 | HR\L |
| UniRef90-M1LRX6 | Y S L F |
| UniRef90-A6EM04 | RKI FS |
| UniRef90-K9WNT6 | 】ELEFGLTL |
| UniRef90-UPI00047E15C8 | K T L F |
| UniRef90-UPI000441FFB7 | K R L F |
| UniRef90-R5L265 | ERL |
| UniRef90_UPI000465821E |  |
| UniRef90-E6QJW3 | S T L |
| UniRef90-M7P3E7 | MKI F E $\square$ R |
| UniRef90-R5IWG6 |  |
| UniRef90-G9AUB7 | S T L F |
| UniRef90-K9AU70 | ERLF |
| UniRef90-15ATT5 | C R MY |
| UniRef90-LOWHF1 | T T L F S |
| UniRef90-A0B8Q3 | RR ${ }^{\text {R }}$ |
| UniRef90_L0D9P9 | LT F F S Q C P R |
| UniRef90-Q8YWL2 | CELF |
| UniRef90-R6EDA9 | ERI Y |
| UniRef90-W0HBM9 | A R L F |
| UniRef90-X7E5Z8 | E S V F G I E LK |
| UniRef90-R6YNL3 | MRIFEI |
| UniRef90-FOZYQ6 | 1 Q FY S |
| UniRef90-A0A016SNN9 | LQMYCDR |
| UniRef90-UPI0003B7A722 | MRLIF |
| UniRef90-S6C4D5 | QRLLNRK |
| UniRef90-M4K5U9 | K R L F |
| UniRef90-Q9KGK7 | RKL F |
| UniRef90-E6L9K2 | KALF FKGK |
| UniRef90_D4LBJ2 | K R L F S VK |
| UniRef90-UPI000312F977 | CKLF |
| UniRef90-F5SHU4 | NRLIF |
| UniRef90_UPI000403815C | R R M Y |
| UniRef90-U1JUW3 | NRLIF |
| UniRef90_UPI00037C7CA0 | T A L F |
| UniRef90-R5JGS3 | K A L Y R 1 K |
| UniRef90-UPI000349C15E | CELF GLTL |
| UniRef90-Q0SZ31 | K T L F Gl |
| UniRef90-R9G976 | HRI F |
| UniRef90-R9KCQ4 | R R L F |
| UniRef90-R9C3R3 | KKLF G $\square \mathrm{N}$ |
| UniRef90_UPI0003759A86 | QR F F A |

UniRef90 UPIO0047921EO niRef90 ${ }^{-F O J Z J 8}$ UniRef90-UPIOo046343D1 UniRef90_F8DKX9 UniRef90-F9DV89 UniRef90-G7FLR3 UniRef90-G9NXF2
UniRef90-LOA314 UniRef90_V6V5M1 UniRef90-H2XQ29 UniRef90-E6RHA8 UniRef90- U4TM07 UniRef90_C4KZV9 UniRef90-U5QSN6 UniRef90-A0A017PMF3 UniRef90- X2GNB4 UniRef90_V7HXF9 UniRef90-LOF605 UniRef90 W7UWD9 UniRef90-A0A023V5F5 UniRef90-L1LSZ1 UniRef90-B2J197 UniRef90-B4UG78 UniRef90-G8LVT1 UniRef90-AOYLVO UniRef90_R61Z74 UniRef90-V6T549
UniRef90 UPIOOO2E79E04 UniRef90-A0A023X1M2 UniRef90 R5EVH1 UniRef90-R7MNG3 UniRef90_UPI0004786780 UniRef90 B5ZAJo UniRef90-W7KXV6 UniRef90-U7G4N3 UniRef90_KODBK3 UniRef90 G4E781 UniRef90-UPIO004754E8A UniRef90-E6WTU1 UniRef90-D5DC73 UniRef90-G4ZF18 UniRef90-UPI000050FD4F UniRef90 W8UQN4 UniRef90-W7ZD17 UniRef90-R7F991 UniRef90-AOYGP6 UniRee90 UPI00038BD4FD UniRef90-J1QNY1 UniRef90-M1NKH5 UniRef90 UPI00047067F8 UniRef90-K9SQ27 UniRef90_K7ZZR8 UniRef90-UPIOOO4195622 UniRef90 E4PZ04 UniRef90-G7WPF9 UniRef90-DgUTJO UniRef90-D1B5Y6 UniRef90-C7REB9 UniRef90-B8HTW1 UniRef90- SOIR77 UniRef90-H3HC42 UniRef90-N1ZZQ9 UniRef90 A8F3P9 UniRef90-H2JG87 UniRef90-E8RSP1 UniRef90-J8TNY5 UniRef90 C9XTA5 UniRef90_UPI000375F222 UniRef90-F814D8 UniRef90 ${ }^{-}$V6T6Y4 UniRef90_UPI0002E382D1 UniRef90-R6WAZ3 UniRef90_G8X545 UniRef90-B5FA95 UniRef90-K1 XIL1 UniRef90-E6VVP9 UniRef90_-F2P540 UniRef90-R5LHI8 UniRef90_H1PMX4 UniRef90-UPI000368AE3D UniRef90-B7R7J1 UniRef90_UPIO00378F014 UniRef90 A4CF44 UniRef90-Q21W73 UniRef90-R6PEZ1
UniRef90 D4YTHO UniRef90 UPI00037C180B UniRef90-A0A024E7K4 UniRef90_U7UXS6

DSSAFDADRHELLSSLPEQGVSLVLCP $\quad 70$ GSDVESSK ${ }^{80}$
LSLVVDRALESGLRRMLVVGG CVGQDPEMNL VPAFI NRAAHYGVTEMNIVGSNQLLNTRADK पGHQYDNLH VEEVI QRALDANVEKMVVVGFDT
RHLTPPPASVKQYTEWKDLGLSHSVLTHG
 CHLDY $\square$ DDPEAALGEFGLSGV



NAEQFSEDVEETDERAREAGVSLVVGFDTPTDDRADED NYENFRADLDAVAANWRAAGVVQLVHACVPGMQADADRYP SDAAFCEDVDDVMARARDSGVSLVVNVTTTKNELDTSFAY NAEQYQEDLQEVIDRALEAKVETMV VVGFDRK $\square E K T M$
PSSRTPEVQLSQLTRAAGTTTVVGCGTDSLSRSMEGLL ADSAFDEDREQ LLSELPDKGVRLIMMLASDLE DSAVNS

N A A QVK
TFQPD L ATVRSRWQEAGVVRTVHSCVH PGEFSTUQ DYRGDLDAVIARARE AGLARVVCVGLWRGPGDFGNAL

QRWKASGVVRLVHSCVH PHEFTEDQ

## FQNRTPEV

 VVREAREVGVEAVVNIGTNVS DSREGV DDEAFDGDRPELLGRLKEAGVGAVMNVAASLESC RSTL

$T R T P E \square Q T$ DAT $\square S G \square T T L V D G T R N M A S L I A K A R$ KQFRDDRDNVLKRARAADVSWQLI TGTSLEESRQAVA

CKDPVPDLLARAQKAGVRRMV TVGDGDAEAAAA
RDET $\square$ TRARHARVKGFALVGFNY NTTNRAQ KTRTPELMMLTDATTAGVTTUVDGTTRRMESLLAKAR

 $\square A A A \square A A A K D A G V H K L L C \square G \square D M Q N A A A V I D \square A R \quad Q F E$ RK $\square Y$ NCTFSKEF HGC $\square$ TDFCDPRTLRDGLWKQ

TPEEVAA VVDRAVSAGVEK CTVGDGLAEAELA HESFSDDI EAVLERAYAAGVETLVDAASIDASIALRERF NFKDFNDDLPLVRSRWQEAGVTRLVHSCVKPDQA IANQFP

$$
\mathrm{HAQHAV}
$$

 MQAGTVEEA LLAKAASVGVTRLVQ
TDETFDDDRLF LRDDSNFNVKAVINPGGCNKDSK DDEQFDTDREALALEFQRQDIVRYVHSCVMNAGAN AATSK


SDLVK A G T T TVVGCGTDGVTRNDKDLY DDDKFDEDRDS LLQELHSNGIAYILNASAD NSLDAS NADQYDEDRDAVVIDRAREAGVGLMVNDCDRVS NFETCY SDDFLRALAREMHARARAAGVDSMLAFGTSDEESDRACA
 NAEQFNEDLQEVIDRA $\square A E G V T N M V E \square T \quad$ TVKA
DDEQFD LDREELLSSMPEQGVGT VNVSTYESCRRVVDLV QFADDRSESI QRADADGVNRFFI PADDSSYLQKMY CGAENATDVAVLLDRAESAGVDRVIDTVAD DLASAH EVSYLQMAKDKGVTTLVVPSVN QS NWN QVS
$\square G C D \square E T S R$

VNLTNNRFDKDRAEVI KKSKELIEVLQRANKSGDLYFVDIGVHPSDDDGEMF VAD ${ }^{\text {G }}$ GDLK S SK




FADKHQAVLDRAYAAGVCQLVGTSVEGSEQALELCR

UniRef90 UPI00047921EO UniRef90-FOJZJ8 UniRef90-UPIOOO46343D1 UniRef90_F8DKX9
UniRef90_F9DV89 UniRef90-G7FLR3
UniRef90 G9NXF2
UniRef90-LOA314 UniRef90-V6V5M1 UniRef90-H2XQ29 UniRef90-E6RHA8 UniRef90 C4KZV9 UniRef90-U5QSN6 UniRef90-A0A017PMF3 UniRef90-X2GNB4 UniRef90-V7HXF9 UniRef90-LOF6Q5 UniRef90_W7UWD9 UniRef90-A0A023V5F5 UniRef90-LLLSZ UniRef90_B2J197 UniRef90-B4UG78 UniRef90-G8LVT1 UniRef90-AOYLVO UniRef90 - V6T549 UniRef90-UPI0002E79E04 UniRef90-A0A023X1M2 UniRef90 R5EVH1 UniRef90-R7MNG3 UniRef90-UPI0004786780 UniRef90-B5ZAJo UniRef90-W7KXV6 UniRef90-U7G4N3 UniRef90-KODBK3
UniRef90 G4E781 UniRef90 UPI0004754E8A UniRef90-E6WTU1 UniRef90-D5DC73 UniRef90-G4ZFI8 UniRef90-UPI000050FD4F UniRef90-W8UQN4 UniRef90-W7ZD17 UniRef90-R7F991 UniRef90-A0YGP6 UniRef90-UPIOOO38BD4FD UniRef90 J1QNY1
UniRef90 M1NKH5 UniRef90 UPI00047067F8 UniRef90-K9SQ27 UniRef90-K7ZZR8 UniRef90_UPIO004195622 UniRef90_E4PZ04 UniRef90-G7WPF9 UniRef90-D1B5Y6 UniRef90-C7REB9 UniRef90-B8HTW1 1 UniRef90 SolR77 UniRef90-H3HC42 UniRef90_N1ZZQ9 UniRef90-A8F3P9 UniRef90-H2JG87 UniRefofo-EERSP1 1 UniRef90 C9XTA5 UniRef90-UPIOOO375F222 UniRef90-F814D8 UniRef90-V6T6Y4 UniRef90 UPIOOO2E382D1 UniRef90-R6WAZ3 UniRet90-G8X545 UniRef90-B5FA95 UniRef90-K1XIL1 UniRef90-E6VVP9 UniRef90_-F2P540 UniRef90-R5LHI8 UniRef90-UPI000368AE3D UniRef90-B7R7J1 UniRef90_UPIO00378F014 UniRet90_A4CF44 UniRef90-Q21W73 UniRef90-R6PEZ1
UniRef90 D4YTH0 UniRef90-UPI00037C180B UniRef90-A0A024E7K4 UniRef90_UTUXS6
 ELAKRF ANVKA II GYCPDVAKDYDQAAEDLLVEQVK ELAEKYSAQLFAA GVHPHDASTDSWGDPEELKSLACHPR PI ELTERYPF TYGVIGWHPVDA!DCTDRDLQWI KELAAHPK SLALAKSYHLFSTAGVHPHDAKTATDSLEDQLTLLATQPQ KLAERFH QVWATTGLHPTEASRDSAEVRAEMEALSRHPR LSAAQSHERVFAACAIHPTRANELDEAARERLTQMAQDPR QLCSDYRGFLFPSLGUHPNKTDSNHRRSSDLTPRLAQHLV DVSASCGVHP AETHED EDALAVGLHP ELVEQYDF DYGVIGWHPVDADDCTEEDLQWПEELAAHPK VKAEEEGDTCYVYSGGYQADRMDFDNDSKDETPYVLDDK ALAERYAHCWSTAGVHPHDSSQWQSSTEAELIALANHSQ SIAHQFP E SSAVGLHPLDAEKWNSETAEKDKTLASSD ALADRDPRYFAATIGIHPHEAARIVPEEDWARHEALARDPR A $\square A N Q V E N L F F S G G L P D D T E K W T T V T P$ MYAAVGWHPEDMDKLTDEGFDEMIKLMHHP ALEEEGDTTYVQTGSYQ VPVKTLTGKDEDDILDDK DVALLSKAHALEDEGDSTYVYIGNYRLPDETVTDSILKDI
 ALAEAEP DVWATVGUQPHYAATTGEDDLAALAAWLAHP
 PHGARFYSPE MAFDSAAAEKLEMQLQQEK HPSEREGPEARVAALCRD पADAD GTSDWAACAVHPTKAQEYQEAAQQQLREMAHNPL EMVEENG DMVGDYGWHPTEAVDYNGEAEKYLLSTLEDDR GLAEEEGVSCFIHTGSY QDPVKTLTTSDEEDLILIDKDI EQSEQGRSWMLGGAALHPNEAPRLAERGMLDDALTETESL DVAMAYPEYCWSTAGVHPHHASSWQDEVEQQDRALVTNDA DK $\square$ AESDED YAAVGWH I YATIGDSPNDVPDNNEKLGG $\mathrm{G} T \mathrm{~s}$ a s VG V H PMDVG VWGAFGCHP
HCWSTAGVHPHDSSGWTAETAQA RALASLPE LSAAQHHERVYAACAIIHPTRAHELDDAAKARLTEMARDPR DDSEATLPALRSTAGAHPHH

ASEWT
ELSFAVGLHPLDAHTWQPEWQEEDFNDASSD CFATAGVHPHEASTWNEASEARLRARVVATG NLCEQYPESLVCTAGVHPHYADGFTAQSAEQURQLVASPH ELARRYDF VFATLGLNPETTDEEVEATLDQПRAHAKELV WAARTAGAYILATVALHPNEAPR\|VHGDPDGWSEAALDEA GVSVVASVGLHP Lave La GSNFYAQVGi HPEEVSRMNENDLEDI ENLAQNPK ALAKRFREELFAVGLHPLDADRGQSDLGDQLMALAQSDK ELAHQYDF YAAI GTHPDDAPELSDAADEMYRQMAADEK ALTEEYPF VYGAVGDH PSELGDLN EEVYEWMRERC HLAERSGDHLDTVTTFEDERGGSPREQS ERIAKVLEAEL AKAEEEGDNTYDYSGSYR
ELSGKYDF VYAALGDHPHY
GLT THQDI WATVGTHPHEAKENPGDSAEEMN TINRALKLLQLYAAVGWH PVDATDMTEDHL AARRYAG CWSTAGVHPHDASTWNDESAARLBAWLEEL
 ELAESYDF LYASVGWHPVD NVWAAVALHPNE QKYPFMYAAVG H DLEKEYPENVFLMMGLH WAADASEWRVFAAVAVHPTRTKDFSDADKAALEALAVRPR RLAHQFD EIYYALGIHPLF DTSSYEKELENLVELL ELAKRYE SYYATVGYH

PTEGQTLSREEIPEMVREL TRAQEAGVKHLIITGHYCYSTAGVHPHDAKSVTDLSLPDT LLSEAEGV FFSIGYYPDYAKENDEHTDKAFEDKIKTLN LAAKHAAENPYYTAGLHPHHAAEWSDALGARLRALAAAP KITK AKMTK RYD CYSTAGCHPEKFLLAFAHHSPEEAA
ALATQYD NFWATVGVHPDS EDVQEPSLQDLLSRGQLPR ELCEKYD NVYGAVGVHPEEVGAFDEGAQNLMREYLKKP RLADRFD EVYAMVGYCPDVAKDFDQKAEDELIEQLQMP TDF QL DETAQ

HFYGAVGDHPDSADKYDDRMEKWLLDLLKHEK

20

[^5][^6],R
G


 LV




UniRef90_UPIOOO47921EC UniRef90-F0JZJ8 UniRef90-UPIO0046343D1 UniRef90-F8DKX9 UniRef90_F9DV89 UniRef90_G7FLR3
UniRef90-G9NXF2 UniRef90-LOA314 UniRef90-V6V5M1 UniRef90-H2XQ29 UniRef90-E6RHA8
UniRef90 U4TM07 UniRef90_C4KZV9 UniRef90_U5QSN6 UniRef90-A0A017PMF3 UniRef90-X2GNB4 UniRef90_V7HXF9 UniRef90-L0F6Q5
UniRef90- W7UWD9 UniRef90_A0A023V5F5 UniRef90-L1LSZ1 UniRef90-B2J197 UniRef90-B4UG78 UniRef90-G8LVT1 UniRef90_AOYLVO UniRef90-R6IZ74
UniRef90-V6T549 UniRef90_V6T549
UniRef90_UPIO002E79E04 UniRef90-A0A023X1M2 UniRef90-R5EVH1 UniRef90-R7MNG3 UniRef90_UPIOOO4786780 UniRef90-B5ZAJO UniRef90-W7KXV6 UniRef90-U7G4N3 UniRef90_KODBK3 UniRef90-G4E781 UniRef90_UPI0004754E8A UniRef90-E6WTU1 UniRef90-D4YHK7 UniRef90-D5DC73 UniRef90-G4ZF18 UniRef90_UPI000050FD4F UniRef90_W8UQN4 UniRef90-W7ZD17 UniRef90-R7F991 UniRef90-A0YGP6 UniRef90_UPI00038BD4FD UniRef90-J1QNY1
UniRef90 M1NKH5 UniRef90_UPI00047067F8 UniRef90-K9SQ27 UniRef90-K7ZZR8 UniRef90_UPI0004195622 UniRef90_E4PZ04 UniRef90-G7WPF9 UniRef90-D1B5Y6 UniRef90_C7REB9 UniRef90-B8HTW1 UniRef90-S0IR77 UniRef90-H3HC42 UniRef90-N1ZZQ9 UniRef90-A8F3P9 UniRef90-H2JG87 UniRef90-E8RSP1 UniRef90-J8TNY5
UniRef90 C9XTA5
UniRef90_UPIO00375F222
UniRef90_F814D8
UniRef90_V6T6Y4
UniRef90-UPIO002E382D1
UniRef90-R6WAZ3
UniRef90-G8X545
UniRef90_W7IQ36
UniRef90-B5FA95
UniRef90-K1XIL1
UniRef90-E6VVP9
UniRef90_F2P540
UniRef90-R5LHI8
UniRef90 H1PMX4
UniRef90_UPI000368AE3D
UniRef90-B7R7J1
UniRef90_UPI000378F014
UniRef90-A4CF44
UniRef90_Q21W73
UniRef90-R6PEZ1
UniRef90-D4YTH0
UniRef90_UPI00037C180B
UniRef90_A0A024E7K4
UniRef90_U7UXS6

VK A\| IG E
130
TG GLD Y Y Y D ${ }^{140}$
140
150
160
$R \vee \vee A \square G$
 V KVL $V$ VGAGE $\square \mathrm{A} \square \mathrm{SD}$ KSIIANPKIKAGEDGRSAQPQUSEDERLAARVGGMLGHKA VVAI GECGLDFN GLD NHPNVVA GETG $\square \mathrm{D}$ Y $\qquad$ H RNFSTPQEERAFVAQLRIAAEL VA AVGETG RSLCENKKVVAGEI GLDYDHSPRDVQESAFRRSLRTARAA
 $K \mathrm{C} V \mathrm{~A} V$

## TVI

 LLAGSEIVALGEVGLDYYRNEWPPEMQRAVVSIANEV QCGRRKIKAGEIGLDYYWPAHDTQKKWFEAQMDLARQV
 KENVDY ISCICGLDYYHEQEYDHDFQKYWFKKHUELAKKY
 GAHPEVLATGETGDDYHYNQGDLERERFRVHIRAAREL CVA GETGIDTYWLKHNSQTAPLELQEEALRWHIDAAVET
 GVGEDADS RGPGGGCGRGEYGLDFNRD VVVIGECGLDFN ASHPKVVALGEMGDDYHWDKSPVQKAVFRKQIAALAKKV YKMSKKIVAVGEDGLDYHWNNKELQKYAFDEQUKLANEL RTLIASAPEVVA IGETGLD VVAVGECGLDFNWTTEPDR $C V A V G E T G L D T Y W \Pi T E P D R T$
$R D A V A Q P G V I D A G E C G L D F$ ETGLDFYKA VVA GECGLDFN VVAI ESQLTKDVVATGET GVGEAGLDY
$\qquad$ ECGDD LAEDDR RLAALPA VVAI
 $Q V V$
$G E I$
$G E I$ YRCPD
$\qquad$ GLDYFH $S Q P$
$M F G T E G A V V A Y$
$M G G A M Y Q Q Y Y Q$
 VIG

$$
A G E T A V S D H B
$$

 VVATGECGLDFN RRGVDVVKIMAGMLTPOWNFSTPA
 VVAL

 VVADGETG EGLLQEYRVAVGE: GFDYYHEGNEGEQKETQRILELALKY RALAAKPEVVA $\square G E C G L D F N R P Q Q E A V F E A Q L A L A A E L$ KNKLKKKSVYAGEIGGDYYDDNKKEQRDFFRELCEVAKRV LVSMGE CGLDYFRNFAT
 TOSLHSQDRVVA GECGDDFNRND VVGVGETGLDYYRLGGRSVYNRDADQREVFAKQLTLANTL K A AVGEVGLDYYWDKSERQKETFERQI LIAKDA $\square K R D P K K V V A L G E V G G L D$ $\checkmark \vee \vee A V G E C G L D F N$ NFSTEA

UniRef90_UPIO0047921EC
UniRef90 ${ }^{\text {FOJJZJ8 }}$
UniRef90-UPIOOO46343D1
UniRef90-F8DKX9
UniRef90_F9DV89
UniRef90_G7FLR3
UniRef90_G9NXF2
UniRef90-LOA314
UniRef90_V6V5M1
UniReffo- H2XO29
UniRef90-U4TM07
UniRef90-C4KZV9
UniRef90_U5QSN6 UniRef90-A0A017PMF3 UniRet90-X2GNB4 UniRef90_V7HXF9 UniRef90_W7UWD9 UniRef90-A0A023V5F5 UniRef90-L1LSZZ1 UniRef90-B2J197 UniRef90_B4UG78 UniRef90-G8LVT1
UniRef90-AOYLVO
UniRef90
R6IZ74
UniRef90_V6T549
UniRef90-UPIOOO2E79E04
UniRef90-A0A023X1M2
UniRef90-R5EVH1
UniRef90-R7MNG3 UniRef90-UPIOOO4786780 UniRef90-B5ZAJo UniRef90-W7KXV6 UniReffo-U7G4N3 UniRef90_KODBK3
UniRef90 G4E781 UniRef90_UPIo004754E8A UniRef90-E6WTU1 UniRef90-D4YHK7 UniRef90-D5DC73 UniRef90-G4ZFI8 UniRef90_UPIO00050FD4F UniRef90_W8UQN4 UniRet90_W7ZD17 UniReffo-R7F991 UniRef90-UPI00038BD4FD UniRef90 J1QNY1
UniRef90 M1NKH5 UniRef90 UPI00047067F8 UniRef90-K9SQ27 UniRef90-K7ZZR8 UniRef90_UPIOOO4195622 UniRef90_E4PZ04 UniRef90-G7WPF9
UniRef90- D9UTJ0 UniRef90-D1B5Y6 UniRef90-C7REB9 UniRef90- 88 HTW1 1
UniRef90
R5K6D3 UniRef90- SolR77
UniRef90-H3HC42 UniRef90_N1ZZQ9 UniRef90-A8F3P9 UniRef90-H2JG87 UniRefofo-EERSP1 1 UniRef90-C9XTA5 UniRef90_UPI000375F222 UniRef90-Y814D8 UniRef90_UPIo002E382D1 UniRef90-R6WAZ3 UniRet90_G8X545 UniRef90_W71Q36 UniRef90-B51XIL1 UniRef90-E6VVP9 UniRef90-F2P540 UniRef90_R5LH18
UniRef90 H1PMX4 UniRef90-UPI000368AE3D UniRef90_B7R7J1 UniRef90_UPIO00378F014 UniRef90_A4CF44 UniRef90-O21W73 UniRef90-R6PEZ1
UniRef90 ${ }^{-} 4 \mathrm{YTHO}$ UniRef90-UPI00037C180B UniRef90-A0A024E7K4 UniRef90_U7UXS6


170 180

190
T VRG GVF

HCYS QLPVNI HTRDAFADCWQ VREMK LK $K E A D$
$R S G$
 FFKG
EFGG
EVG
NLR R NA NLPIIHNRDATGD MIVLEFNVR NLPVYLHER GWSASDDMINLLTEFNVRESEGGVLHCFT DLPPVHKQGQDTASREVAETLTHAGWP RGLLHCFN GKALMIHNREGDEAGELLRLLADAPTPHETVLVCHCFS
 DMPVVIHTREAFQDTWDILR QSNVRHFGGIMHSFN NMPIVIHNRDATAD VLDLEEEHA EEVGGVFHSYS
 NLP IV:HNRDATAD

 NGPVIUHCRDAAVATREVLQKWREEGKGERVRGVMHCWG KLPIVVHIRDANEDALNVKAE KIVAREVGGIIHSFS
 GVVNVHVGDSPDHRKVIEQVVEQTDDP DRQFYPTHMNRN RLPLVIHSREAFSDTMDVLQALKETDIPATIFYPTHIGRS
 HKPLMLHDRNAHDDA AILKEㄴㄴVN A QGDT MIMAF M GLDVNVHVGDSYDHLKLLEDIAENTDLPGKQFYPTHINRN DLPVIIH NRADAFSDVDMLKASGVH VKGVMHSFS GKALMIHNREGDAETLRILDDEAAE APRPSGGVMHCFT GLPVIVHARRAVDAVIAALRRTGAASGQPSRLRGVVHSFS



## $\stackrel{\mathrm{D}}{\mathrm{D}}$

 KKPVVVHTREARADTLEIIKQYMPGGDPAVAGVLHCFT NMPVFLHCRDAHERFLALLDPWL NKLDGAVL HCFT GKALMLH NREADADLMRVLADAPTPRHTULABCFS H NIPVITHCRDAADATREVLAEFDNHKYPEPDTGVMHCWA KLPVVVHMRDSYEDDYETLKQY SGVSSDVQFMIHTFS
 DLPVVVHTRDVGEDAYEILKDFRDLKVQ GVVRVMCFS
 $E$ GLPVIIHSR EAAEDTLKLVQ G $\square H G E Q D P G V I H C F S$ G
 $\qquad$ AD $\mathrm{A}_{\mathrm{AK}} \mathrm{KGG}$ GMHSFN GI VNI HVGDGKSMLDLLYEVVETTEDPVTQFLPTHDNRN

 GLPVTAHAH GLPPIVHSREAEADTLETVRDKSGUTP REVGGVLH

 NDPVIIHTRDAHED THRYKESGVKKADVWHC


## K

## 

偮

## A

## ,

,
Q




UniRef90 UPIO0047921EC UniRef90 F0JZJ8 UniRef90_UPIO0046343D1 UniRef90_F8DKX9 UniRef90_F9DV89 UniRef90-G9NXF2 UniRef90-LOA314 UniRef90-V6V5M1
UniRef90 H2XQ29 UniRef90-E6RHA8 UniRef90-U4TM07 UniRef90-C4KZV9
UniRef90 U5QSN6 UniRef90-A0A017PMF3 UniRef90_X2GNB4 UniRef90_V7HXF9
UniRef90 LOF6Q5 UniRef90-W7UWD9 UniRef90-A0A023V5F5 UniRef90-L1LSZ1 UniRef90-B2J197 UniRef90_B4UG78
UniRef90 G8LVT1 UniRef90-A0YLVO UniRef90-R6IZ74 UniRef90 V6T549 UniRef90_UPI0002E79E04 UniRef90 A0A023X1M2 UniRef90-R5EVH1 UniRef90-R7MNG3 UniRef90_UPI0004786780 UniRef90 B5ZAJO UniRef90-W7KXV6 UniRef90-U7G4N3 UniRef90_KODBK3 UniRef90 G4E781 UniRef90_UPI0004754E8A UniRef90-E6WTU1 UniRef90-D5DC73 UniRef90_G4ZFI8 UniRef90_UPI000050FD4F UniRef90 W8UQN4 UniRef90-W7ZD17 UniRef90_R7F991 UniRef90-A0YGP6 UniRef90-UPI00038BD4FD UniRef90-J1QNY1 UniRef90-M1NKH5 UniRef90 UPI00047067F8 UniRef90-K9SQ27 UniRef90_K7ZZR8 UniRef90-UPI0004195622 UniRef90 E4PZ04 UniRef90-G7WPF9 UniRef90-D9UTJO UniRef90_D1B5Y6 UniRef90-C7REB9 UniRef90-B8HTW1 UniRef90-S0IR77 UniRef90-H3HC42 UniRef90-N1ZZQ9 UniRef90_A8F3P9 UniRef90-H2JG87 UniRef90-E8RSP1 UniRef90 C9XTA5 UniRef90-UPIO00375F222 UniRef90-F814D8 UniRef90 ${ }^{-}$V6T6Y4 UniRef90-UPI0002E382D1 UniRef90-R6WAZ3 UniRef90_G8X545 UniRef90_W7IQ36 UniRef90-B5FA95
UniRef90-K1XIL1 UniRef90-E6VVP9 UniRef90_F2P540 UniRef90_R5LHI8
UniRef90_H1PMX4 UniRef90 UPI000368AE3D UniRef90-B7R7J1 UniRef90_UPI000378F014 UniRef90_A4CF44 UniRef90_Q21W73 UniRef90_R6PEZ1
UniRef90 D4YTH0 UniRef90-UPI00037C180B UniRef90-A0A024E7K4 UniRef90_U7UXS6

UniRef90 UPIO0047921EC UniRef90 FoJZJ8 UniRef90-UPIOOO46343D1 UniRef90-F8DKX9 UniRef90-F9DV89 UniRef90-G7FLR3
UniRef90 G9NXF2
UniRef90-LOA314 UniRef90-V6V5M1 UniReffo- H2XO29 UniRef90-E6RHA8
UniRef90 - U4TM07 UniRef90-C4KZV9 UniRef90-U5QSN6 UniRef90-A0A017PMF3 UniRet90-X2GNB4 UniRef90-V7HXF9
UniRef90 LOF6Q5 UniRef90 W7UWD9 UniRef90-A0A023V5F5 UniRef90-L1LSZZ1 UniRef90_B2J197 UniRef90B4UG78 UniRef90-AOYLVO UniRef90-R61Z74 UniRef90-V6T549 UniRef90-UPIOO02E79E04 UniRef90-A0A023×1M2 UniRef90-R5EVH1 UniRef90-R7MNG3 UniRef90-UPloo04786780 UniRef90-B5ZAJo UniRef90-W7KXV6 UniRef90-U7G4N3 UniRef90_KODBK3 UniRef90 G4E781 UniRef90-UPI0004754E8A UniRef90-E6WTU1 UniRef90-D5DC73 UniRef90-G4ZFI8 UniRef90-UPI000050FD4F UniRef90-W8UQN4 UniRef90-W7ZD17 UniRef90-R7F991 UniRef90-A0YGP6 UniRef90-UPIO0038BD4FD UniRef90 J1QNY1
UniRef90 M1 NKH5 UniRef90-M1 NKH5 UniRet90_UPI00047067F8 UniRef90_K9SQ27 UniRef90-K7ZZR8 UniRef90-UPIO004195622 UniRef90_E4PZ04 UniRef90-G7WPF9 UniRef90-DgUTJO UniRef90-D1B5Y6 UniRef90-C7REB9 UniRef90-B8HTW1 1 UniRef90 SOIR77
UniRef90-H3HC42
UniRef90_N1ZZQ9
UniRef90-A8F3P9 UniRef90-H2JG87 UniRefolo EERSP1 1 UniRef90-C9XTA5 UniRef90_UPI000375F222 UniRef90-F814D8 UniRef90-V6T6Y4 UniRef90-UPIo002E382D1 UniRef90-R6WAZ3 UniRef90-G8X545 UniRef90-B5FA95 UniRef90-K1XIL1 UniRef90-E6VVP9 UniRef90-F2P540 UniRef90 R5LH18
UniRet90 H1PM UniRef90-UPI000368AE3D UniRef90-B7R7J1 UniRef90-UPIO00378F014 UniRef90_A4CF44 UniRef90-O21W73 UniRef90-R6PEZ1
UniRef90 D4YTH0 UniRef90-UPI00037C180B UniRef90-A0A024E7K4 Unirergo_-AUAOZ4E
UniRef9O_U7UXS
 RQNEPGYVRYVAQAVADLK GLDLAEVAEATYANT HRGK RNESSLVTEVYDVVA DLEARGUSVEELKRVVWRNA KQNEPGFTKFTVDA1ADLKQVDAGKVAYKTFTNNA KRNEPAYVPLVAEEIARLKE TSVEQVARQTTENA

NEPAFTGH
ERNEPCNDHVSCEYVAKD
NQPAYVEDVAY YI SE
PHRGERNEPAFTADTAAFLAEL
KGПSTEDVMKATNKNA RGVDTDTLAQQTFANT FRGKRNEPAYVKYVAEEATL RDMPYDELAAATTVNA KRGKRNEPAYVAHVAEKVAELRSRSV EEVVELABNA NEPALVP FRGRLNEPAMTRYTLEFLAQKLGGLSAQELAQKTTENT ALVGMGTGSVHVLWRDVREAIVQYKIPLETVLPTDTTNP KRCESSMIAYTAAK AAEDKGMDVQELIDITCRNG PASRRNEPAHLPHILLERTAHW RGEDPQWLSATIDDANVV
 RGKRNEPAHVVETARKVAE【WGAQLEEVAARTAENT FRGKRNDSSLVRLVAEKDAEI KGKSFEEI ANDTTNNA RRGKRNEPAYVRYVAEKVAQL NRGKRNDSSNLKYVDDKIA EVKK ELIGLQTGQVSSLYEAVKEAVLVKGVSASEVERATFENG NFLRLGVASARSLLIGQQEAVQRETIPLEIALLQTVTSNP NRGKRNSSLNLPYVVEAVSQLKE GVDPETVVKVTWENG NEPARCDSSMIPYMAEKVAEAEDKGSSAQEILDITCRNG


HRGQRNEPAHLVEVLET DARDRDE DPAVIAAATTANA KRGKRNESAFVAYVAETLA TTRESSTADFEAQTFQNA YKGLQVGK VSSLFQEVRDAVLEESVPLETALQVITSNP KRARCGPKD LITAVVQTLASYGUTEGEVARATTKNA

PASRRNEPCFLPHIVQQVAAWRQE DPQWLGQKTDENA HRGKNEPAYVKRVAEDIADL REMTYEDVCTHTRENA HRGTRNDPRNVQFIDKKIA EEKGKTFEEVQNMAYENA FRGKKNEPKYVVEVAKCIADL SLCQYAHPGLGLYUVEEMARIRNEPLSVGULATLRENT PASRRNEPALL
VKARRHEPALLPWTCR EAARLRGVSEKTLAESTTATA NRGKRNEPAFVLYVAQKLAEDAR RGEPLEQLAEETTQNA PASRRNEPCLLPHILTQVAHW RGEDPAWLEATTDANA PRKRNNHPANIPHI AEQL
LNYPNYVKHTANYIAGV KGMSDEKFTDKVLKNA RKGRNEPAYVLDGLHLIDARTKGLPPEEVAEATTKNA RGRPNAPYLI PVTLRAMAQVRNIAEDELAEADSRNT PQSVRGKKNEPAFVVEVYRTAAQVRGVPGEALAADVWENG NDPRK
 ERGKRNSSLNLPYVAQVIAEL RGUTSEEVDAAARENA

K T NEPAMTRYTLDETAA
K ERQDAPEKDAQDT T A N A
 YRGKRNNSGYLVHIVEKDAED KGVGMDEVAETTLINA MRGRRNEPAYVTHVYDKLAEI

KRNEPAYVELVAKEADA ELRE

## MS LEETALDQTRENA

PASRRNEPCWLPHILTQVAQW RGEDPAWLEAATDANA YGVISFAHFGFS
NEPAR
PHPYRGKRNEPAYVK LVAEQDAELKGLTLEKVAEETAKNA RGRPNAPYLI PVTLRAMARTKGLDEEQLARHVAANT RGKRNNSSYIKYVAEEMAE $\square K G U S Y E A V V E Q T E K N A$
HRGKRNESGY $\square$ TLVAQKLAA I YNCTLEEIAS ITT TNS N

NE PANVRYTLEADKNDRSESGGSEDERVDYENS KRNHPALMAFTAKRVAEI RGRSLEDIWQITGDNA PKSSRNEPKFLPHIATVIAEC RGETAEQVIAQSYVNS PQKVRGRANEPSFIPYTVEVLAEARKENKEDI MRCALENA RPNKPWYVEHTAAKI AEI KGDSFEEVAQKTFENA TRDLHRRNEPAFLPWVLEAVARARGQTPAEVAQHSTANA
 $P K D H R N E P A Y L P Y I C Q M D A S L K Q T \quad D A Q T I A L H T R Q N T$ RGKTNNPSLVPFVAAQLAETRHRPVEHIAEDTSRNF RGKENQPAYVKFVAQE I AALRNDSFEEVANATTANA PYRGHQNETGYVRYVAET $\square A K L K$
LM L E
RPKPKNGRNEPAYDTEVLREVMRRRGHSEELIRKLVFENP
RPKPKNGRNEPAY LTEVLREVALHRGEAEEDLAAHTTACA

| UniRef90_UPI00047921EC | K R F |
| :---: | :---: |
| UniRef90_F0JZJ8 | M R 1 |
| UniRef90_UPI00046343D1 | Y SLE Q |
| UniRef90-F8DKX9 | R R L |
| UniRef90-F9DV89 | $\square \mathrm{BLLFGT}$ |
| UniRef90-G7FLR3 | YAVF GLEAR |
| UniRef90-G9NXF2 | QRLYGGQ |
| UniRef90-LOA314 | $R \mathrm{R} \backslash \mathrm{Y}$ |
| UniRef90 ${ }^{-} 66 \mathrm{~V} 5 \mathrm{M} 1$ |  |
| UniRef90-H2XQ29 | R K Lif S R |
| UniRef90-E6RHA8 | Y S L F |
| UniRef90-U4TM07 | M R AF |
| UniRef90-C4KZV9 | K K L F |
| UniRef90-U5QSN6 | R T L F |
| UniRef90-A0A017PMF3 | LR F L |
| UniRef90-X2GNB4 | K K F F R T D V |
| UniRef90-V7HXF9 | ER\\|LGI |
| UniRef90-LOF6Q5 | A R I L H L K G K |
| UniRef90-W7UWD9 | MELFGI K |
| UniRef90-A0A023V5F5 | RTLIFEVT |
| UniRef90-L1LSZ1 | R R L F |
| UniRef90-B2J197 | C ELF GLS $\square$ |
| UniRef90-B4UG78 | R R L F |
| UniRef90_G8LVT1 | K M L F G $\square$ R |
| UniRef90_AOYLV0 | CRLF |
| UniRef90-R6IZ74 | K K L Y |
| UniRef90-V6T549 | A AVLKLK QK |
| UniRef90_UPI0002E79E04 | A R ML |
| UniRef90-A0A023X1M2 | R R F Y |
| UniRef90-R5EVH1 | K R L |
| UniRef90-R7MNG3 | LKLLFED |
| UniRef90-UPI0004786780 | CRAF |
| UniRef90-B5ZAJ0 | LRILNFK |
| UniRef90-W7KXV6 | A S I L |
| UniRef90-U7G4N3 | CELFA |
| UniRef90-K0DBK3 | HRLF |
| UniRef90-G4E781 | HR C |
| UniRef90_UPI0004754E8A |  |
| UniRef90-E6WTU1 | ERL |
| UniRef90-D4YHK7 | LD L FA |
| UniRef90-D5DC73 | AKVL |
| UniRef90-G4ZF18 | R L F F R L G D |
| UniRef90_UPI000050FD4F |  |
| UniRef90-W8UQN4 | R R ${ }^{\text {l }} \mathrm{F}$ |
| UniRef90-W7ZD17 | K R L F K $\square$ N K Q |
| UniRef90_R7F991 | K R I |
| UniRef90-A0YGP6 |  |
| UniRef90-UPI00038BD4FD | F RLY S 1 |
| UniRef90-J1QNY1 | QRLF GI |
| UniRef90-M1NKH5 |  |
| UniRef90-UPI00047067F8 | S DFFA |
| UniRef90-K9SQ27 | LR L ${ }^{\text {a }}$ |
| UniRef90_K7ZZR8 | T R L F |
| UniRef90-UPIO004195622 |  |
| UniRef90-E4PZ04 | K R L F K $\square$ NV |
| UniRef90-G7WPF9 | RKIF |
| UniRef90-D9UTJ0 | A A A |
| UniRef90-D1B5Y6 | R R $\square_{\text {b }} \mathrm{F}$ |
| UniRef90-C7REB9 | E EFF |
| UniRef90-B8HTW1 | C T L F |
| UniRef90-R5K6D3 |  |
| UniRef90-S0IR77 | R R L F S |
| UniRef90-H3HC42 |  |
| UniRef90-N1ZZQ9 | K K V L K $\mathrm{I}^{\text {K }}$ |
| UniRef90-A8F3P9 | AKIL |
| UniRef90-H2JG87 | K K V F |
| UniRef90-E8RSP1 |  |
| UniRef90_J8TNY5 | K K L F K $\mathrm{I}^{\text {K }}$ |
| UniRef90-C9XTA5 | A R L F |
| UniRef90-UPI000375F222 |  |
| UniRef90-F814D8 |  |
| UniRef90-V6T6Y4 | K K L F G $\square \mathrm{K}$ |
| UniRef90_UPI0002E382D1 | A $R$ AF |
| UniRef90-R6WAZ3 | R D L Y |
| UniRef90-G8X545 | K E IF G $\square$ |
| UniRef90-W7IQ36 |  |
| UniRef90-B5FA95 |  |
| UniRef90-K1XIL1 | \R V Y G R E 1 |
| UniRef90-E6VVP9 | RRFF |
| UniRef90-F2P540 | QAFFS $\square$ |
| UniRef90-R5LHI8 | VRVL |
| UniRef90-H1PMX4 | VR F Y G L K |
| UniRef90-UPI000368AE3D | RRFF |
| UniRef90-B7R7J1 | LNLL |
| UniRef90_UPI000378F014 | Q T F F |
| UniRef90-A4CF44 | E R LiF R LT T R |
| UniRef90-Q21W73 | ETLF |
| UniRef90-R6PEZ1 | K R L L G |
| UniRef90-D4YTH0 | VRVYDLK |
| UniRef90-UPI00037C180B | LKFLMQS GK |
| UniRef90-A0A024E7K4 | RAF Y |
| UniRef90_U7UXS6 | K E F Y G II |

UniRef90 R7IUT3 UniRef90 ${ }^{-}$K6X7W0 UniRef90-UPIOOO299EECO UniRef90_F8EWU6 UniRef90 J9DEZ1 UniRef90-Q2LST3 UniRef90-B7CCN3 UniRef90 E6WHK1 UniRef90- UPIO0047A7E90 UniRef90-G4D1M8 UniRef90- UPI0002FB2280 UniRef90 R7KC58 UniRef90-F8AAB2 UniRef90-B3DH59 UniRef90-C1DAV8 UniRef90_UPIO0047DA570 UniRef90-UPI0003B32B28 UniRef90 G2JQ18 UniRef90-R7PRK UniRef90-UPIOOO34C6951 UniRet90_UPI00036F9ABB UniRef90 UPIO002B8EDE7 UniRef90-K6UY59 UniRef90-UPI00029A13D6 UniRef90 H8GE17 UniRef90-R7RMD3 UniRef90-AOAO21 WOU7 UniRef90_A5Z3P3 UniRef90 U2D80 UniRef90-B0К132 UniRef90-R5XLP1 UniRef90 I3E666 UniRef90-R5E8C0 UniRef90-Q9RY08 UniRef90-Q2RMF1 UniRef90 W40ll7 UniRef90-R7FP51 UniRef90-R6ARB4 UniRef90 ${ }^{-}$K1LVS3 UniRef90 UPIO003810BCO UniRef90-R71680 UniRet90_Q3BYW0 UniRef90 N1ZM34 UniRef90-R4PM68 UniRef90-W4Q2A4 UniRef90 LoF1A1 UniRef90- $22 Z 404$ UniRef90-K2GNX6 UniRef90 D9THZO UniRef90 S9PQC2 UniRef90 A1SAK5 UniRef90-E3YLF3 UniRef90_K7SMC0 UniRef90 C6WJH4 UniRef90-C4Z5A3 UniRef90-UPIO002C331EA UniRef90 A5UQ45 UniRef90 A3QDA1 UniRef90-UPIO004638AE2 UniRef90 UPIOO00EOFA2D UniRef90 D1AXM0 UniRef90_UPIO003ADB398 UniRef90_G2S096
UniRef90 A2BT62 UniRef90-C0QJ12 UniRef90-Q1QUW2 UniRef90-H2PVD6 UniRef90 c9RA62 UniRef90-UPIO0047D6AE1 UniRef90-R5NQ27 UniRef90 W4Q7A3 UniRef90'UPI000365CC46 UniRef90_UPIOOO3C7EF59 UniRef90-UPIOOO3F0E159 UniRef90 Q8TXW3 UniRef90-R6BXP4 UniRef90-UPI0004734911 UniRet90_F3ZZB8 UniRef90 ${ }^{-}$A0A023RIQ4 UniRef90_UPIOOO46A0C20 UniRef90_UPIO0047BB86A UniRef90 F6BAV4 UniRef90 ${ }^{-} \times 1$ AL 71 UniRef90_UPI0002558F84 UniRef90 R7IPF4 UniRef90 F9YR24 UniRef90-UPI00035F3B20 UniRef90_B8GWH1 UniRef90 G8LSY2 UniRef90-UPIo003B72900 UniRef90_F5xxH3


CGATtPEGVRAADDRAEAAGTAAVVTVAD DLASAR DDDAFDNDREEVIEKLKKANVGRVLNCGASTEGC FKTV DDEAFDDDREKLLERMQNRGVEYVVCKSTIGGVRRFPY DREEVIEECKKDLTFLVNVGSNTLTSKQSDKLAHNYDF RTPELM LTDATLAGITTLIDGTTRTMASLIAKAR

NDPAFAGDLDQVMARLEQAGVVGLVNA NADQFEEDLDEVTKRAEAAGVKNMV
AFEKDVEKVDEKAKEKGVIKVINSADT
HARNAV GYDVPSSR LIAS F E NSKEFDEDREEVIARMKESGLTGAVVIGCEDGPELLKPGR HDAFDHDRDAVLQRARDAGVAQLV TTGASRHSPLAL VICAGQDPDFNE DSEFYPENREDVYRQSRDAGVVMCTGTTVRSSREAVAF DDPRFEGDFQOUSQATAGTMVGIGTDGTSR CGARDPRAVAEFVQRAHAAGVEKMVT
AFDADLEDVMAK【KEED 【TADSSSSSVESSKENT AHLHPESLSDQDLESMRYFGVARAIEPTPKALRKHVLKQL

D DERYREDFEEMMARAHEAGVEGFI!PHPTTLPRADELCE CGAKTAEDVRAMDDRAEAAGVSRVVTV ADDLAAARWAAE
APQLIASA $\square \mathrm{D}$ SGVVRFAVNGVS
EQDWPLVK
DSLKTLLTQAKERGVEYFLCVNVRQQG FASMQ NSEEFDTDVPKFVQRAAELGVTRMANVSNTQLNADA KLDKSPSELAEAVNFAQQRGVEHMLCVAVSVSEFD

TEMYN CSFPKEFQ GCपSDFCNPHTपRDGDWEE
ENFEKDLEEVILRLRSRGVKKLVHACCEDSE DPKLK

 NDPRLEADLPEVLARARQAGVKVMD VVGYDLASSAKAVA
DDEKFNEDRDEVIRKVHESGVTKFपSAGSपEGSRDGNDVD


EDEAFDPDREEVLQHTQQNGTKRVV NVGSSVDTSRTV SEAFDEDRNEM $I$ HRA SSGVSRFLDST

Y/VQRMF
QFAEDKDAVIARAREAG $\square$ AMMV T $\square$ CDKVSSFEAVH
ELVGNARAAGVRRLLVGMDESCRTA


UniRef90-K6X7W0 UniRef90_UPIO00299EECO UniRef90-F8EWU6 UniRef90-J9DEZ1
UniRef90_Q2LST3 UniRef90_Q2LST3
UniRef90_B7CCN3 UniRef90-E6WHK1 UniRef90_UPI00047A7E90 UniRef90-G4D1M8 UniRef90_UPIO002FB2280 UniRef90_R7KC58 UniRef90-F8AAB2 UniRef90-B3DH559 UniRef90_Q1DAV8
UniRef90-S3A803 UniRef90_S3A803
UniRef90_UPIO0047DA570 UniRef90_UPI0003B32B28 UniRef90-G2JQI8 UniRef90-R7PRK1 UniRef90-UPI00034C6951 UniRef90_UPI00036F9ABB UniRef90_UPI0002B8EDE7 UniRef90-K6UY59
UniRef90_UPI00029A13D6 UniRef90-H8GEI7 UniRef90-R7RMD3 UniRef90-A0A021WOU7 UniRef90_A5Z3P3 UniRef90_U2D8Q1 UniRef90-B0K132
UniRef90 R5XLP1 UniRef90-I3E666 UniRef90-R5E8C0 UniRef90_Q9RY08 UniRef90_Q2RMF1 UniRef90_W4Qll7 UniRef90-R7FP51
UniRef90-R6ARB4 UniRef90-K1LVS3 UniRef90_UPIO003810BC0 UniRef90_R71680 UniRef90_Q3BYW0 UniRef90-R4PM68 UniRef90-W4Q2A4 UniRef90-LOF1A1 UniRef90_S2Z404
UniRef90_K2GNX6 UniRef90-D9THZO UniRef90-S9PQC2 UniRef90_A1SAK5 UniRef90-E3YLF3 UniRef90_C6WJH4 UniRef90_C4Z5A3 UniRef90_UPI0002C331EA UniRef90-A5UQ45 UniRef90-A3QDA1 UniRef90_UPI0004638AE2 UniRef90-UPI0000E0FA2D UniRef90- D1AXM0 UniRef90_UPIO003ADB398 UniRef90-G2S096 UniRef90-A2BT62 UniRef90_C0QJ12 UniRef90-Q1QUW2 UniRef90-C9RA62 UniRef90_UPI00047D6AE1 UniRef90-R5NQ27 UniRef90-W4Q7A3 UniRef90_UPIO00365CC46 UniRef90-UPI0003C7EF59 UniRef90-Q8TXW3 UniRef90-R6BXP4
UniRef90_UPIOO04734911
UniRef90-F3ZZB8
UniRef90 ${ }^{-}$A0A023RIQ4
UniRef90_UPI00046A0C20
UniRef90_UPI00047BB86A
UniRef90-F6BAV4
UniRef90- X1AL71
UniRef90_UPIO002558F84
UniRef90_R7IPF4
UniRef90-F9YR24
UniRef90_UPI00035F3B20
UniRef90-B8GWH1
UniRef90-G8LSY2
UniRef90_UPI0003B7290C
UniRef90_UPIO003B
UniRef90_F5XXH3




 RLAEWHPGYCWSTAGVHPHHASAWSAETANTLRRLAESEQ

LAKAHGLE EI ANRF

SE $\square$

 Y A T I G Y
LLGEE GVVWGAFGCHPHFAKEYNQNHEQSIMSAMRHP EMSRQ DARLQVGLGGHPQLLDPDMPPAEDDAVLEHLDALL E NVHLIA GAHPYSAGEFDDVARNRLEQLLASKR VAAAYQDPRVWAAAADHPTAAGEEDDDAAKARLTEMAAMDR
 $N V Y G T A G D H P H V A S Q A T T A D U L R$
$V H G D G A T G V E V D D T D W A G K A R P G G G Y E G D A E E L$
$V$
$V$ TRAAEADERVYAAVA

DSRAFAAVADHPMHAGDLDDAAKAELERMTADPR Q 1 YGAAGCHPEDAKRYDDDEEQRLKQADQASR WVAEASGWRLHGAVALHPTRTKDFSDEEKAELERLVRAER ELVQKYDF FFGAVGLHPHEAEKKNDLND VGDLLLKDK ELARQHPGELFATAGVHPHHADEYTAECDAEMRELLAHEQ
 1 Y A SVGI HPHDAQKEFDK YASK $\square T$ SEFI YTT CGUSPD $\square P E$
$\qquad$ GL EEEGDSCFVHTGSYQ
 VYAAVGVHPEDVGNDTMHDIQWLKKQALN ALAEEFG DVWATVGLHPGDVEEDSPDTRAA EALLDHPR LAVEQAHSRIYAAVAVHPHDALNF


A LS E R Y D EVVISVIGWHPTEAYCYNG ELAKSYPGTFYTTAGIHPHHAKEVNGDTFTVLQELYTLPE ALLSQHPGY LWGAWALHPEYQDVGHEPTVEELCS
QLAQQHPGFLYATAGVHPHHAMEFTAECEAEMRTDQAHPQ RLAQRFDNVYAMVGLNPDDAKNYDQKAEDKLDEQLQMPK AETHEGCYAAVGIH PHDGKDEDVAGIRQLLE DA KAKGL T E EGIVTCYVHDGSYQVPIQPLTDSLQS DL RLAHQHESTYAADGVHPHDAQGATDATWERLSQLAQED A VVEQADPAVYAACAVHPTRAGDLDSATRTREAELVAHPR ELARQHD TLFCTAGLHPHQASAFTPALLSELDALTRAEQ E I AKKYD NIY ITVGI H P HEAKDAPKDFEQELF PRLERLGDRAWAVLGVVPRRC

AYED VYFAVGVHPYDMEHMESVDFETYAAHLVA $\square G$ AATW DDRVYAAVALHPTRTSDFSDADRAELAELAARPR
 $P \| Y A V V G V Q P N H$ AKMAAFD QVFLSAGVHPLDVQ EGLDTAQLQSYLQDPK $R$ RAHQYP QMVAVVGWH $\mathcal{P}$ PEDSKNYTPD TVSEFDNVS


MYA SCGVHPCY VWGAFGCHPCDISKFNEKDFEEMLNLADNH DVYAAVADHPNNVSSYDDLVE EQLDQLAKHKK NIYYAVGLHPLEAKKWEESSKSLGRKSAQEDK EDAKQYD VFHTSGVHPHDAAQWD DQRNPAVIREA


 ELSEKYE GFIVFPSLGLMPDVGDKVEAMPVEKYAHRLDGDG KLSHEYPGYAYPMVGLHPEEVKADWKEQLKKI E A LIDDEH

 ARYHGL FSTAGVHPHDASQWNRSVESGQRELLSQPE A QENGLKLFVCVGUHPRAGPKDYENAIEKIKDFVKNDV

ELTEKYDF
$P \square H V E E S P Y D R \square R Q L A D N P R$
 A $\square$ AMAEP D 1 WCTVGTHPHEAKENPGLTAATLVELAQRPR
 $\square A$ A A D T F AEVWAA $\square G R H P N$

UniRef90_R7IUT3 UniRef90-K6X7W0 UniRef90_UPIO00299EEC0 UniRef90-F8EWU6 UniRef90_J9DEZ1 UniRef90-Q2LST3
UniRef90-B7CCN3 UniRef90-E6WHK1 UniRef90_UPI00047A7E90 UniRef90-G4D1M8 UniRef90_UPIO002FB2280 UniRef90-R7KC58 UniRef90-F8AAB2 UniRef90-B3DH59 UniRef90-Q1DAV8 UniRef90-S3A803 UniRef90_UPI00047DA570 UniRef90_UPI0003B32B28 UniRef90-G2JQI8 UniRef90-R7PRK1 UniRef90_UPI00034C6951 UniRef90_UPI00036F9ABB UniRef90-UPI0002B8EDE7 UniRef90-K6UY59 UniRef90_UPI00029A13D6 UniRef90-H8GEI7 UniRef90-R7RMD3 UniRef90_AOA021WOU7 UniRef90_A5Z3P3 UniRef90_U2D8Q1 UniRef90-B0K132 UniRef90-R5XLP1 UniRef90-I3E666 UniRef90-R5E8C0 UniRef90-Q9RY08 UniRef90_W4QII7 UniRef90-R7FP51 UniRef90-R6ARB4 UniRef90-K1LVS3 UniRef90_UPIO003810BC0 UniRef90-R71680 UniRef90-Q3BYW0 UniRef90-R4PM68 UniRef90-W4Q2A4 UniRef90-LOF1A1 UniRef90_S2Z404 UniRef90-K2GNX6 UniRef90-D9THZO UniRef90-A1SAK5
UniRef90-E3YLF3
UniRef90-K7SMC0
UniRef90_C6WJH4
UniRef90_C4Z5A3
UniRef90_UPI0002C331EA
UniRef90_A5UQ45
UniRef90-A3QDA1
UniRef90_UPI0004638AE2 UniRef90-UPI0000E0FA2D UniRef90- D1AXM0 UniRef90_UPIO003ADB398 UniRef90_G2S096 UniRef90-A2BT62 UniRef90_C0QJ12 UniRef90-Q1QUW2 UniRef90-H2PVD6 UniRef90_C9RA62 UniRef90-UPI00047D6AE1 UniRef90-R5NQ27
UniRef90-W4Q7A3 UniRef90_UPI000365CC46 UniRef90-UPI0003C7EF59 UniRef90_UPIO003F0E159 UniRef90_Q8TXW3 UniRef90-R6BXP4 UniRef90_UPIOO04734911 UniRef90_F3ZZB8 UniRef90-A0A023RIQ4 UniRef90-UPIO0046A0C20 UniRef90_UPI00047BB86A UniRef90-F6BAV4 UniRef90-X1AL71 UniRef90_UPIO002558F84 UniRef90_R7IPF4 UniRef90-F9YR24 UniRef90_UPIO0035F3B20 UniRef90-B8GWH1 UniRef90_G8LSY2 UniRef90_UPIO003B7290C


140
150
 VVA
 VIGIGGTGGLDHWDKSPKDVQQALFRKQI ALAKRV
 VVA GECGLDFN

 ADSKMVAVGEI GLDYKEYSPLQQEHFDRQLALAKEL KAIA F GEIGGLDYSHKNSTDSRKVRERQLQLGVAL AKGGAAAVGECGLDGPSLPGAPLERQVMVLKRHLALARKH $A V G V G E \| G L D F G \quad P Y C E V P E D V Q V H A F R E Q L R I A H T H$
 CVVAVGETGI DTYWIHHEPEKT ATEQQEESLRWHSELLAKKV EE EVKNNPKIVAVGECGLDYNRMEDQQSVFKSLI KLAEKL
 E V G L V V A $A V G E T$ GLD Y Y WP GK S D S C MKAL GE $\ \mathrm{GLDYHC}$
V VA A GE T G

$\vee \vee A \vee G E T G$


 $\mathrm{V}, \mathrm{V}$ A L A R S


V V NEKVVADGE $\frac{V}{\mathrm{~A}} \mathrm{~V}$ G


 VVAVGE CGLDYFRD $\quad$ VSPRS TQEKVFDAHLEMATGN
 $\vee \vee A L$ GEVGLDYYWDESPR
$\qquad$ KVI A WGEI GLD YYRDLSPRQQEVFIHQDELADQA

 D Y F R G GRVVAL GETGLLHSGG $\square$ SAIVAVGECGLDYNRDP K $V A$ A


## VIS $\square$ GE T

## $C \vee R$

VA I G E I G S VA V $\operatorname{V}$ G E C D HWDTSPKET
AEKTRQDE
VYA P R A Q Q FF K N A K T Q Q

 ELI










Unef90_F5XXH3

UniRef90 R7IUT3
UniRef90-K6X7W0 UniRef90_UPIO00299EECO UniRef90-F8EWU6 UniRef90_J9DEZ1 UniRef90_Q2LST3
UniRef90-B7CCN3 UniRef90-E6WHK1 UniRef90_UPI00047A7E90 UniRef90-G4D1M8 UniRef90_UPI0002FB2280 UniRef90-R7KC58 UniRef90-F8AAB2 UniRef90-B3DH59 UniRef90-Q1DAV8 UniRef90-S3A803 UniRef90_UPI00047DA570 UniRef90_UPI0003B32B28 UniRef90-G2JQI8 UniRef90-R7PRK1 UniRef90-UPIO0034C6951 UniRef90_UPI00036F9ABB UniRef90 ${ }^{-}$UPI0002B8EDE7 UniRef90_K6UY59
UniRef90_UPIO0029A13D6
UniRef90-H8GEI7 UniRef90-R7RMD3 UniRef90-A0A021WOU7 UniRef90_A5Z3P3 UniRef90_U2D8Q1 UniRef90_B0K132
UniRef90_R5XLP1 UniRef90-13E666 UniRef90-R5E8C0 UniRef90-Q9RY08 UniRef90_Q2RMF1
UniRef90_W4QII7 UniRef90-R7FP51 UniRef90-R6ARB4 UniRef90-K1LVS3 UniRef90_UPI0003810BC0 UniRef90-R71680 UniRef90-Q3BYW0
UniRef90-N1ZM34 UniRef90-R4PM68
UniRef90-W4Q2A4
UniRef90_LOF1A1
UniRef90_S2Z404
UniRef90_K2GNX6
UniRef90-D9THZO
UniRef90-S9PQC2
UniRef90_A1SAK5
UniRef90-E3YLF3
UniRef90 K7SMC0
UniRef90_C6WJH4
UniRef90_C4Z5A3
UniRef90_UPI0002C331EA
UniRef90_A5UQ45
UniRef90 A3QDA1
UniRef90_UPI0004638AE2
UniRef90 UPI0000E0FA2D
UniRef90-D1AXM0
UniRef90_UPI0003ADB398
UniRef90_G2S096
UniRef90-A2BT62
UniRef90_C0QJ12
UniRef90-Q1QUW2
UniRef90-H2PVD6
UniRef90_UPIO0047D6AE1
UniRef90-R5NQ27
UniRef90-W4Q7A3
UniRef90_UPIO00365CC46
UniRef90_UPI0003C7EF59 UniRef90_UPIO003F0E159
UniRef90_Q8TXW3
UniRef90_R6BXP4
UniRef90-UPIOO04734911
UniRef90-F3ZZB8
UniRef90-A0A023RIQ4
UniRef90_UPIO0046A0C20 UniRef90_UPI00047BB86A UniRef90-F6BAV4 UniRef90-X1AL71 UniRef90_UPIO002558F84 UniRef90_R7IPF4 UniRef90_F9YR24 UniRef90-UPI00035F3B20 UniRef90-B8GWH1 UniRef90-G8LSY2 UniRef90_UPIO003B7290C UniRef90_F5XXH3


 ELPVVI HCR A DAANEMIEDCDDLSKKGKCPKGVLHCWT GGGV SVVFMMGDSKKGLKMVDVLENSDVPMSKLLDTHVNRN GLPVIVHARRAVDALIASIRRIGSSQVAGNALRGVVHSWS DLPAVVHTPRRNKEEITTKIIIEEDNSLDLEKIVIDHCNKN DIPVII HD R RDAHKQTLEVVKKYIDQKNFRAVVHCFS DLPVIVHTRDARED NKPVII HSRDAAADTFDIMKEMQAEN KLPIVIHCRDAF DEVFEVLESEKSD DLGGGIVHCFS
 GIVVI HVGDGKNGLKPLIELVNSDYPVDMFVPTHLNRN $S K P L V$
$G L P V L L H$
$V$

UniRef90 R7IUT3
UniRef90 ${ }^{-} 6 \times \mathrm{X} 7 \mathrm{~W} 0$ UniRef90-UPIO00299EEC0 UniRef90-F8EWU6
UniRef90_J9DEZ1
UniRef90-O2LST3
UniRef90-B7CCN3
UniRef90 E6WHK1 UniRef90 UPI00047A7E90 UniRef90-G4D1M8 UniRef90-UPI0002FB2280 UniRef90- R7KC58 UniRef90-F8AAB2 UniRef90-B3DH59 UniRef90- Q1DAV8 UniRef90- $\mathrm{S3A803}$ UniRef90_UPI00047DA570 UniRef90_UPI0003B32B28 UniRef90 G2JQ18 UniRef90-R7PRK1 UniRef90-UPIOOO34C6951 UniRef90 UPI00036F9ABB UniRef90 UPI0002B8EDE7 UniRef90-K6UY59 UniRef90-UPI00029A13D6 UniRef90 H8GE17 UniRef90-R7RMD3 UniRef90-AOAO21 WOU7 UniRef90_A5Z3P3 UniRef90 U2D8Q1 UniRef90-B0К132 UniRef90-R5XLP1 UniRef90 I3E666 UniRef90-R5E8C0 UniRef90-Q9RY08 UniRef90_Q2RMF1 UniRef90 W40ll7 UniRef90-R7FP51 UniRef90-R6ARB4 UniRef90 K1LVS3 UniRef90 UPIO003810BC0 UniRef90-R71680 UniRef90_O3BYW0 UniRef90 N1ZM34 UniRef90-R4PM68 UniRef90-W4Q2A4 UniRef90 LoF1A1 UniRef90- S2Z404 UniRef90-K2GNX6 UniRef90 D9THZO UniRef90 S9PQC2 UniRef90 A1SAK5 UniRef90-E3YLF3 UniRet90_K7SMC0 UniRef90 C6WJH4 UniRef90-C425A3 UniRef90_UPI0002C331EA UniRef90 A5UQ45 UniRef90 A3QDA1 UniRef90-UPIO004638AE2 UniRef90 UPIOO00EOFA2D UniRet90 D1AXMO UniRee90-UPI0003ADB398 UniRef90_G2S096
UniRef90 A2BT62 UniRef90 C0QJ12 UniRef90-Q1QUW2 UniRef90 C9RA62 UniRef90-UPIO0047D6AE1 UniRef90-R5NQ27 UniRef90 W4Q7A3 UniRef90 UPIO00365CC46 UniRef90-UPIOOO3C7EF59 UniRef90_UPIO003F0E159 UniRef90 Q8TXW3 UniRef90-R6BXP4 UniRef90-UPI0004734911 UniRe90 F3ZZB8 UniRef90 ${ }^{-}$A0A023RIQ4 UniRef90_UPIOOO46AOC20 UniRef90_UPI00047BB86A UniRef90 F6BAV4 UniRef90 ${ }^{-}$-1AL 71 UniRef90_UPI0002558F84 UniRef90_R7IPF4 UniRef90 F9YR24 UniRef90-UPIO0035F3B20 UniRef90_B8GWH1 UniRef90 G8LSY2 UniRef90_UPI0003B7290C UniRef90_F5xXH3

ASP ElAD
220 GSKETMMECLKMNSMIS SI PGTVTFTKADT
GTREELEACLAMGLSUGUTG W
PDLDEKKEA
PHFEEGIUYAKRGGYDDF TASENPKDWEDM
GTVDEMQEFLELGFY SFSGIVTFPKANETHDCA
GSYETACQYINMGFLLGMGVITFKNC
GDVAEARKILDLGGFISVTGIITFPKG
GGVELARFYLQKGCHFSF
DDFTVMEPFVSLGCYVAFGG
SP DDVAREALERGYVLSFTGNVTFK
SPLAAAKKALERGYILSFAGNVTFK
ETVEVMEACLAMNFYISFGGTVTFKNAKLP
GNREMALKLIDMGFYIGDTG
GDADMAKVCAERGYFMSFAGNVTFAS
GDADTARRATDAGYFLSFSG
GRSSVAMEGVKLGYYFSIGG TVSFSNATEDRAAAHL


GSVEFAKEVVKLGYYY GFTGVVTFKNAKKA
YTKEMAEKFLDMGFYLGIGGVVTFK
GNVEGLRRVLDWGMYVSF NGD■TW
GSVEMAFQA:EMNFY:SGGQPTFKNAKKPNAQ
HHDFEA\AYAKKGGYVDLTTSSFLNF LDEGE $\square \mathrm{KCSRG}$
YTKEAAKEFLDMGFFIGVGGVVTFK
GHAGLLACGLERGAYFGFAGNVTYKNAVE
GSWEMARQCLDDGFYTSFAGPVTFKNAVKP
GSVETAEQCMNMNFYISLGGPVTFKN
GSYELAMRYIANG $\| D I$ HFGПGGVVTF

EGVDDAKRFLDLGMHLSFSGVLTFKKTEEVRQAAADVPDH

STTEVAKKALDAGGMIGING
GSAEWLNKFLDDNVYFSYSGVVSFTKAKEVHGSA
DTQHNLEQGLKKGLLVGGNGISTFTKEESQ
AYFDAGIQYAKKGGY DFTTSTDPKFGGDGEVKCSQADK
GSWEMAK
SPLAVAAEEALERGY LSFAGNVTFK
PDAVVH
GSVEMSR TLRKHGDY TSVGGVITF
GTAAQMEAYLDCGHWAGLIL
GSVAVMEAYLAMGFYUSFGGTVTFKNAKDP
ESVEVMEACLAMNFYUSFGGTVTF
GDLDFARACVERGFVLSF
YSKEAARDFLNMGFSLGGGGVLTFK

ENWEMAKAAI DLGFYISVSGIVTFKNAGE
GDPEWLKKFLDLGMHVSYSGVASFKNAHEVHDS
ESMEMAQQALDLGLYI SLSGIVTFKSAKE
GSYEDMEHLLDR FYVGUGGTSTFKNNKTTH
GTYPVIRPLLE
ANEEYAKKFLDGCYNDGGAVTF
GTREEMQQFLDLGFYISFSGH

GSYSVIEPLLADGFYSF NHFPNDYVGFTADLYY
GSVALAEAGLAAGWYVSFSGIVTF
FNRELVKEALKMGFYISTAGPVTFKNSKNAE
GSVEIANECLAMNFHSLGGPVTFKN
GDAEMARПCADAGYFMSFAGNVTFK

GPAELARR LADAGHYVS LSTSNVLGTGGVSTFKSSHLREDL
GNQQEAKELLETGMGYTSDNFVLG
GSVEMAEECLKLGFLISFTGNITFK
EAFEEALAFALKGGT DDT SGLPDPVAPAEAVA
GERDTLYGYLDLDDH:GLTG
$\begin{array}{ll}\text { GSPQQAARLWDMGFMLGG } & V G G \\ \text { TVKV }\end{array}$
GDVNFAMQCLDLGLYISFTGVITFP
ESLEMAKSALELGYMI SFSGII TFRNAEE
YGKEMAGKYLDKGFYI GTGGVLTFK
GNEAQAQRASYGDKLGUGGVVTFKNGKDDTFDKNDN


TAGENSENGYSVPDADE

UniRef90 R7IUT3 UniRef90 ${ }^{-16 \times 7}{ }^{-10} 0$ UniRef90＿UPIO00299EEC0 UniRef90－F8EWU6 UniRef90 J9DEZ1 UniRef90－Q2LST3
UniRef90 ${ }^{-17 C C N 3}$ UniRef90－E6WHK1 UniRef90 UPI00047A7E90 UniRef90－G4D1M8 UniRef90 UPI0002FB2280 UniRef90 R7KC58 UniRef90－F8AAB2 UniRef $90-$－ 3 3DH59 UniRef90＿Q1DAV8 UniRef90－ 3 A 803 UniRef90＿UP100047DA570 UniRef90－UPI0003B32B28 UniRef90 G2JQ18 UniRef90 R7PRK1 UniRef90－UPIOOO34C6951 UniRef90＿UPI00036F9ABB UniRef90 UPI0002B8EDE7 UniRef90－K6UY59 UniRef90－UPIO0029A13D6 UniRef90 H8GEI7 UniRef90－R7RMD3 UniRef90－A0A021 WOU7 UniRef90＿A5Z3P3 UniRef90 U2D8Q1 UniRef90－B0К132 UniRef90－B5XLP1 UniRef90－13E666 UniRef90－R5E8C0 UniRef90－Q9RY08 UniRef90＿Q2RMF1 UniRef90 W40ll7 UniRef90－R7FP51 UniRef90 ${ }^{-} 1$ LVS3 UniRef90 UPI0003810BC0 UniRef90－R71680 UniRef90－Q3BYW0 UniRef90 R4PM68 UniRef90－W4Q2A4 UniRef90 LoF1A1 UniRef90－S2Z404 UniRef90－K2GNX6 UniRef90 D9THZO UniRet90 SgPQC2 UniRef90－A1SAK5 UniRef90－E3YLF3 UniRef90 66 WJH 4 UniRef90－C4Z5A3 UniRef90－UPI0002C331EA UniRef90 A5UQ45 UniRef90 A3QDA 1 UniRef90＿UPI0004638AE2 UniRef90－UPIOO00EOFA2D UniRef90 D1AXM0 UniRef90－UPI0003ADB398 UniRef90＿G2S096
UniRef90＿A2BT62 UniRef90－C0QJ12 UniRef90－O1QUW2 UniRef90 C9RA62 UniRef90＿UPI00047D6AE1 UniRef90－R5NQ27 UniRef90 W4Q7A3 UniRef90－UPI000365CC46 UniRef90－UPIO003C7EF59 UniRef90－UPIOOO3FOE159 UniRef90 Q8TXW3 UniRef90－R6BXP4 UniRef90－UPI0004734911 UniRef90＿F3ZZB8 UniRef90 ${ }^{-}$A0A023RIQ4 UniRef90－UPIOO046A0C20 UniRef90－UPI00047BB86A UniRef90 F6BAV4 UniRef90 ${ }^{-}$－1AL 71 UniRef90＿UPI0002558F84 UniRef90 R7IPF4 UniRef90 F9YR24 UniRef90－UPI00035F3B20 UniRef90＿B8GWH1 UniRef90 G8LSY2 UniRef90－UP10003B7290C VP D
 VPDA VPDE

## VCDPKRGASLRDAVQHLPADRMLLETDSPYLRPKTLKSGT LDHLVLETDSPYLAPVPF <br> RNARNDHETVQVLPLDRILIESESPFMVPAEYRGKR KEVAKHVPFDRLLVETDAPFLSPHPYRG <br> LRDVVRRVPAESLLVETDAPFLTPEP

VCDERRGMELRELLPLTPAERLLLETDAPWLLPR DMHPR H $\frac{1}{}$ KKPSRAI RQLLDSGVPELITMSSDSNGSSP $\square F D A Q G K$ YGEIKFSKGLKRLLDEGVEENYTLTSDGQGS信MFDEKGK

HLKETVKKLSLKNIVLETDSPYLAPVPYRGK■
ENGREVVRYVPLDHLMAETDCPFLTPVPFRGG


RNVDLRDAVEAPAGQLLVETDAPYMTAEPFRGAR RNTEMREAAGLAPEGQLLIETDAPYMTPEPYRGTR K ПAAQA\｜PПDRLLIETDAPYLAPTPNRG


RKAF $\square$ AT
N V E D P回ERVLVEDAPYLAPEPYRG VEVVQNTPDDYYVETDCPYMAPEPY पCDERRG配LREVKHLPAARLMIETDAPYLLPRTVKPAP PEYNETAKKLREVVEYMPMDRMVIETDCPMYMPYKLTPEP

 NARKLVETVEEVPVTRIVLETDCPYMAPEP

IQAAAQQVPLDRLLVETDAPFDAPVPKRGKP
AKRPKQVAKAI PLERLLIGTDCPYDAPHPNRG

ПCDERRGKHLKELVPSTPTNRLMIGTDAPYLMPRDGDPK RSVAI QDACAAI PMDRILAETDC LCDERRGAHLRELVRNIPANRLMIETDAPYLLPRTLKYMA KNAPLDRILVETDAPYLI

$$
\begin{aligned}
& \text { QRLYTEVPALEKLVLE } \\
& \text { RNEVAKQVP }
\end{aligned}
$$

| ■CDERRGGTLQALVHNDPADRLLVETDGPYLLPRDGPEKP QNAKKLVEVVKEYPLELLMLETD MGDGAGDILG <br>  QNAKKLVNAAQA！PI <br> Y Y A P T P |
| :---: |
|  |  |
|  |  |
|  |  |
|  |  |

NAKKVEAAAYDPMDR VLETD SPYMAPEP


UniRef90＿R7IUT3 UniRef90－K6X7W0 UniRef90＿K6X7W0＿UPIO00299EEC0
UniRef90＿ UniRef90－F8EWU6 UniRef90＿J9DEZ1 UniRef90＿Q2LST3
UniRef90－B7CCN3 UniRef90－E6WHK1 UniRef90＿UPI00047A7E90 UniRef90－G4D1M8 UniRef90＿UPI0002FB2280 UniRef90－R7KC58 UniRef90－F8AAB2 UniRef90－B3DH59
UniRef90－Q1DAV8
UniRef90－S3A803
UniRef90＿UPI00047DA570
UniRef90＿UPI0003B32B28
UniRef90－G2JQI8
UniRef90－R7PRK1
UniRef90＿UPI00034C6951
UniRef90＿UPI00036F9ABB UniRef90－UPI0002B8EDE7 UniRef90－K6UY59
UniRef90＿UPI00029A13D6 UniRef90－H8GEI7 UniRef90－R7RMD3 UniRef90－A0A021WOU7 UniRef90＿A5Z3P3 UniRef90＿U2D8Q1 UniRef90－B0K132
UniRef90 R5XLP1 UniRef90－13E666 UniRef90－R5E8C0 UniRef90＿Q9RY08 UniRef90＿Q2RMF1 UniRef90＿W4Qll7 UniRef90－R7FP51 UniRef90－R6ARB4 UniRef90－K1LVS3 UniRef90＿UPI0003810BC0 UniRef90－R71680 UniRef90－Q3BYW0 UniRef90－R4PM68 UniRef90＿W4Q2A4 UniRef90－LOF1A1 UniRef90－S2Z404 UniRef90－K2GNX6 UniRef90－S9PQC2 UniRef90＿A1SAK5 UniRef90－E3YLF3 UniRef90－K7SMC0 UniRef90＿C6WJH4 UniRef90＿UPI0002C331EA UniRef90－A5UQ45 UniRef90－A3QDA1 UniRef90＿UPI0004638AE2 UniRef90－UPI0000E0FA2D UniRef90－D1AXM0 UniRef90＿UPI0003ADB398 UniRef90＿G2S096
UniRef90-A2BT62
UniRef90_C0QJ12
UniRef90_Q1QUW2
UniRef90_H2PVD6
UniRef90_C9RA62
UniRef90_UPIO0047D6AE1
UniRef90-R5NQ27
UniRef90-W4Q7A3
UniRef90_UPI000365CC46
UniRef90_UP10003C7EF59
UniRef90_UPI0003F0E159
UniRef90-Q8TXW3
UniRef90-R6BXP4
UniRef90-UPIO004734911
UniRef90-F3ZZB8
UniRef90-A0A023RIQ4
UniRef90_UPIO0046A0C20
UniRef90_UPI00047BB86A
UniRef90-F6BAV4
UniRef90-X1AL71
UniRef90_UPIO002558F84
UniRef90_R7IPF4
UniRef90-F9YR24
UniRef90-UPIO0035F3B20
UniRef90-B8GWH1
UniRef90-G8LSY2
UniRef90_UPIO003B7290C
Uniret90_UPIOOO3B
UniRef9_-F5XXH3


PTSRRNEPCFLPHTVQQVA LTWRNEAAETLGAQVDHNA

 KRNEPAFVRYVVEK】
CRFAHPGMGDHT
SE
PGY L P R \LE GMAR\RGEPVEE\ARQTTENA
NESTFDG WQTRVMAD
ARGVQPQEMADLLTANA
NEPAF $\square$ GH
KRNEPGYVK LVAEKDAEDKEMKYSE DATHSTENA $N \square P R T N D P Q N \square T Y V A K S L A Y M$ N $D P E E S L D M H A R E N T$ RGRPNAPYLIPHTLRSLAQTKGMDEDELAAAVADNA

ERNEPCNDHVSCEYVAK $\square$ KGワSTEDVMKATNKNA $R G Q P N Q S Y C L P Y T A R A L A A V R G V E D A E M A R I L G E N A$ RQNEPGFTRLTLEYLANLRQ GI SARELLAALTYQNT RPNEPYCAAYTVVGLAELRKQPV EAVADAARRNA RGKRNDSSY LVYVIDK A A DKELDYKYVEEVTYNNG SHRRNEPK

YLAHLVEELARDRG
NRGKRNDSFNLPYVVNKIAEI KNDSPAEVIDワTSNNA QLCDSAMLPHIVEVIAQVAKGLDPQEVCDISAKNA

 $H R G T R N D S$ $\mathrm{H} R$
$\mathrm{~N} R$
PEPHRGQRNEPAYVGLDAAAGASAR KRNEPAYVRLVAEQITAQLKE GQVEEI AATIANA RGQRNEPSYLEEVIKKFSQIKNMDLEEEXIMKVTTANA FRGKRNDPSNVRFVAEEVA


 | $P V P K R G R R N E P S F V A Y T V A K I A A L H Q$ |  |
| :--- | :--- |
| $P K D R R N E P M F L S H I$ |  |
| $V$ | $A$ | $P Y R G K Q N E P A Y V R Y V A Q A D A D L K E R D P L E E V A D A T Y A N T$ PFRGKMNLPAYVGLVARHQAALK GVRVEDVEQATTDNA $N$ NIGMQUGQVSSLFQEVRDAVLTEGVELETALKVITKNP NE PARV

 $P V K G R N E P S$
$P H P Y R G K R N D S T Y L L P W I V K R L A E R G E D V Q Q V A D A T Y R N S$
$L K Y Q Q K A Q D K D V S E D E V D E K T T Q N A$ RPKPKSGKNLP RPKPKSGKNLPQYLPY ANEIARLRGEEPDDFSRQVYHNS NRGKRNEPAYVK LVAEK DAELKKMKYSEEM DATHSTENA

NRGKRNDSRNDKYVAEKLAQD KGDDTQEVDDVTNQNA PPLQPVEGNHPANIHNVLVYVASLLEMDKEGVAEASYQNA KRNEPANVRLI AER LAAVLREMPD DALVDAV WRNA HRGEENQPAFVRDVAEFVAEL RGEKYEELAEYSGDNF PEPHRGEQNEPGFTRYTVEAI AKERETTPKEIASATYHNA $R G K P N Q P G Y V V E V F I A N L$ RGDSVEALAKHTTENF
 PHPFRGQUNFPKF $\square Y$ Y $\quad$ A $L K V A E L K G \square S V E Q V I K Q T T L N A$

NKVRRNEPAFVKFVMERD PAKLKGRRHEPALLPWDVREDAHWRGESEASLAASSTATA
 HRGKRNEPAYLVHIARKV RGKRNESAWVPHTI QR $\square$ AAARGTDPEA LAADT $\square R N T$ RNDSRNVRYIAQKUADF R R NMKDDDIAKYTYNNA KRNEPAYVKLVAEQDAELRE DDFEQVARQTTANA RGRPNAPYLI PVTVRAMAAVRGIDEDAMSEADASNT

RGKRNESAFVVQVMKTLATAYGVSEEEVAKVTNQNV HRGKRNEPSFVENV ANFMAQLR
 LLTGDGVAGFESLLETVQSLVNDYGFTDTDALRPDTTSVV
 NEPARLRNVCDTVAEL RGMAPEQLAKATTANA PQAKRGKENYPGYVRYVAEKMAEVKNLSVEEVADITSKNA NRGKRGKQNQPAYVADVAACVAELKGLPVEQVAEQTTENF NRGKRNDSSNDKYVLGTLAQLIKGLSTDEVMDAVWKN
 MRGRRNEPAFLPHIYDKLAEI RGWSRAETEQRTEDAF VGK
VGK V V Q L F E D $\square R \square C V L E R K D D L T T V L K T V T E N A$


| UniRef90_R7IUT3 | MK\PE El |
| :---: | :---: |
| UniRef90-K6X7W0 | M NLFAI |
| UniRef90-UPI000299EEC0 | K K V F Gl |
| UniRef90-F8EWU6 | NRFF |
| UniRef90_J9DEZ1 | E QLIF KLK G |
| UniRef90_Q2LST3 | SEIFSIKKL |
| UniRef90-B7CCN3 |  |
| UniRef90-E6WHK1 | R Q L F |
| UniRef90_UPI00047A7E90 | A RVL |
| UniRef90-G4D1M8 | A E I L |
| UniRef90-UPI0002FB2280 |  |
| UniRef90-R7KC58 | K S LIF T R |
| UniRef90-F8AAB2 |  |
| UniRef90-B3DH59 |  |
| UniRef90-Q1DAV8 | R R F F |
| UniRef90-S3A803 |  |
| UniRef90-UPI00047DA570 | $\mathrm{R} \mathrm{R} \square \mathrm{Y}$ |
| UniRef90_UPI0003B32B28 |  |
| UniRef90-G2JQ18 | K R L F R $\mathrm{l}^{\text {K }}$ |
| UniRef90-R7PRK1 | K F F S I |
| UniRef90_UPI00034C6951 | RRAFGI |
| UniRef90-UPI00036F9ABB |  |
| UniRef90-UPI0002B8EDE7 | R K L F S R |
| UniRef90-K6UY59 | R R A Y |
| UniRef90-UPI00029A13D6 | $\square \mathrm{K}$ F L R $\square \mathrm{K}$ |
| UniRef90_H8GEI7 | ERVF |
| UniRef90-R7RMD3 | $\square \mathrm{RAF}$ |
| UniRef90-A0A021W0U7 |  |
| UniRef90-A5Z3P3 | K D L Y Gl |
| UniRef90-U2D8Q1 | REIYGIN |
| UniRef90-B0K132 | 1 K L F D I |
| UniRef90-R5XLP1 | VEFFRIK |
| UniRef90-13E666 | A N L K L K Q K |
| UniRef90-R5E8C0 | K KLFF |
| UniRef90-Q9RY08 | R R V Y Gl |
| UniRef90-Q2RMF1 | R K L F GI |
| UniRef90-W4Qll7 | K EIFNIK |
| UniRef90_R7FP51 | K R V |
| UniRef90-R6ARB4 | MEVYG【 |
| UniRef90_K1LVS3 | F ELF R WK |
| UniRef90_UPI0003810BC0 | NS F |
| UniRef90-R71680 | R R F F |
| UniRef90-Q3BYW0 |  |
| UniRef90_N1ZM34 | VR V Y |
| UniRef90-R4PM68 | ERVF |
| UniRef90_W4Q2A4 | A S I L $\$ DP GK  \hline UniRef90-LOF1A1 & N RLLF  \hline UniRef90-S2Z404 &  \hline UniRef90-K2GNX6 & CRMF  \hline UniRef90-D9THZ0 & K N F F G $\square \mathrm{K}$ |
| UniRef90-S9PQC2 | ARFYQPR |
| UniRef90-A1SAK5 | LT F F |
| UniRef90-E3YLF3 | K R L F K $\square \mathrm{K}$ |
| UniRef90-K7SMC0 | K NLF |
| UniRef90 C6WJH4 |  |
| UniRef90-C4Z5A3 | R R L |
| UniRef90-UPI0002C331EA | VRLI S |
| UniRef90-A5UQ45 | KAIF |
| UniRef90-A3QDA1 | F R L |
| UniRef90-UPI0004638AE2 | E EFY |
| UniRef90-UPI0000E0FA2D | YR $\mathrm{L}^{\text {F }}$ |
| UniRef90-D1AXM0 | $\square \mathrm{K} V \mathrm{Y} \mathrm{N} \square$ |
| UniRef90_UPI0003ADB398 |  |
| UniRef90_G2S096 | K K $\quad$ - $F$ |
| UniRef90-A2BT62 |  |
| UniRef90-C0QJ12 |  |
| UniRef90-Q1QUW2 | R R F F |
| UniRef90-H2PVD6 | R R L Y |
| UniRef90-C9RA62 |  |
| UniRef90-UPI00047D6AE1 | R Q F F T |
| UniRef90-R5NQ27 | CK\YNT |
| UniRef90-W4Q7A3 | K K L F G $~=~ S ~$ |
| UniRef90-UPI000365CC46 | $A R A F$ |
| UniRef90-UPI0003C7EF59 | NRL |
| UniRef90-UPI0003F0E159 | L K L F |
| UniRef90-Q8TXW3 |  |
| UniRef90-R6BXP4 | E R VF GVK |
| UniRef90-UPIO004734911 |  |
| UniRef90-F3ZZB8 | \K L F |
| UniRef90-A0A023RIQ4 | A G F L |
| UniRef90_UPI00046A0C20 | T S FF |
| UniRef90-UPI00047BB86A | E R L F |
| UniRef90-F6BAV4 | K KLLF NLTII |
| UniRef90-X1AL71 | ERFFSIN |
| UniRef90-UPI0002558F84 | Y T L F K R T |
| UniRef90-R7IPF4 |  |
| UniRef90_F9YR24 | K S VFF G $\square$ |
| UniRef90-UPI00035F3B20 | RGCFAF |
| UniRef90-B8GWH1 | F A LIF D R $\square$ P R |
| UniRef90-G8LSY2 | A K |
| UniRef90-UPI0003B7290C | A R VF |
| UniRef90_F5XXH3 | GE A\|L |

UniRef90_A0A024PLN7 UniRef90-W1PSK2 UniRef90_G2G215 UniRef90_D4ZCN9 UniRef90 UPIO0046B2A3B UniRef90-R5GX62 UniRef90-UPIOO041E4A8F UniRef90 I4WGF0 UniRef90 ${ }^{-}$C7MZJO UniRef90_UPI00035CFE43 UniRef90_M3IHS9 UniRef90 F5YTU1 UniRef90-UPIOO034B4864 UniRef90-DOZZP6 UniRef90 C3XL87 UniRef90-R8AS25
UniRef90-B8IYW UniRef90-K0AAW1 UniRef90 UPI000262C9FE UniRef90-G7LU24 UniRef90-A6FJC4 UniRef90 WODEQE UniRef90 UPI000410D606 UniRef90-L1QIZ9 UniRef90-UPI0003B7794F UniRef90 B1KQG2 UniRef90-A4BDC0 UniRef90_C5EFF4 UniRef90 W8L9G0 UniRef90-K8E6Y7 UniRef90_UPI00038BBBFD UniRef90 N6X874 UniRef90 UPI00036B5A9F UniRef90_UPI00034920BF
UniRef90_R6R8T4 UniRef90 B3QQ43 UniRef90-M7NCJO UniRef90_K6ZF71 UniRef90 R7FOZ3 UniRef90-10SH83 UniRef90-E1V873 UniRef90 B1JP6s UniRef90 UPI00046F42ED UniRef90-K2CJ16 UniRef90_UPI00020D9C9A UniRef90 C6E8P6 UniRef90 ${ }^{-}$V5WGB3 UniRef90-E3HRB9 UniRef90-H8N123 UniRef90 D5WZ72 UniRef90-Q6LUH6 UniRef90-R7PQS6 UniRef90_D3QA03 UniRef90 Q1GT50 UniRef90-V8QQE3 UniRef90-UPI00047EE809 UniRef90 UPI0003FF2DAB UniRef90-H6RAC3
UniRef90-M2Q5V3
UniRef90 V8GA62
UniRef90_U2SYJ3
UniRef90-G9WER1
UniRef90-S7N4N3
UniRef90 C4UB97
UniRef90-B1C9F4
UniRef90-R6XY37
UniRef90_A3QIE8
UniRef90 E3C9P9 UniRef90-A5GNH4
UniRef90_UPI00042BACD8
UniRef90_R5KYY6
UniRef90-J5K8V1
UniRef90-A0A024K3R
UniRef90_UPI0004679DCE
UniRef90 UPI0002491D7A
UniRef90-B4FLE1
UniRef90-E6W0X4
UniRef90_D1CG70
UniRef90 ${ }^{-}$W9G9T6
UniRef90_UPI0002F1F936
UniRef90_E7GKE4
UniRef90 UPIO0036CE95E UniRef90_UPI00046ADEEA UniRef90_UPI0003B4D793 UniRef90_G0VRF6 UniRef90-D9SCA3 UniRef90-H0F2B4 UniRef90_C2KUK7 UniRef90 Q017L5 UniRef90_R6G1N6
UniRef90_F7Q1N4


GF $\square$ D THCH L D M L Y S K L S F K G T F T K F
$\square$ T D T H S H $\square \mathrm{Y}$
H T HLD A
$\square$ D THCHL

|  | CDTHCHL | $\begin{aligned} & \text { DA HV VHCL } \\ & \text { D DERFD } \end{aligned}$ |
| :---: | :---: | :---: |
|  | VDSHAHL | DGEEFDL |
|  | GAVDAHCHVFGPTDRF | P Y H P K |
|  |  | D T HV H L |
|  | Y T D S HA H $\square$ T CD | D T HAHY |
|  | T D THAHL | $\begin{aligned} & \text { DTHAHY } \\ & \text { DSHSHE } \end{aligned}$ |

GF ID THCH LDMLYSKFKGTFTKFRK
GLIDTHCH FDFPPFSGN
$\mathrm{D} \square \mathrm{HCHL} \quad$ S P T H A H Y Y

D
H
D T H T H L N VD N
$\square$ DAHCH $\square \quad$ GF $\stackrel{H}{S}$
D S HCHIL
 GLIDDAHRHTWMDY $\square$ AA VRVAKAEFDA

WIDTHAHL DSHCHF

D THCHL
GFTDSHVHIIGGGGEYRTRTPED
GLI DAHVHLAVGGAPHPPAA DPA NSPEQYPDRHL DTHTHL
$\square 1$ DTHCHL
$\square$ GFVDTHCHLDMLYSKLSFK ${ }^{\text {G T }}$ $\square$ D T H A H $\quad$ D

VY D S H T HL N D D P F Y D D


## GF $\square$ DA HVHLFCGESAYEECPGRSAA VIDSHLHVWATPQQAKEEYPYFPG VDSHAHI NSTAFDE  <br> G $\|$ IDSHAH $\square$ C G D $\|$ LYPRW

 DSHAHL

DAPEFDA DTHCHY $\square$ D S HCH $\square$ VF

UniRef90 A0A024PLN7 UniRef90 W1PSK2 UniRef90－G2G215 UniRef90－D4ZCN9 UniRef90 UPI00046B2A3B UniRef90－R5GX62 UniRef90＿UPI00041E4A8F UniRef90－14WGF0 UniRef90＿C7MZJ0 UniRef90＿UPIO0035CFE43 UniRef90－M3IHS9 UniRef90 F5YTU1 UniRef90－UPIO0034B4864 UniRef90＿DOZZP6 UniRef90 ${ }^{-}$C3XL87 UniRef90 R8AS25
UniRef90－B8IYW1
UniRef90－K0AAW1
UniRef90 UPI000262C9FE UniRef90－G7LU24
UniRef90－A6FJC4 UniRef90－W0DEQ6 UniRef90 UPI000410D606 UniRef90－L1QIZ9
UniRef90－UPI0003B7794F UniRef90 B1KQG2 UniRef90－A4BDC0 UniRef90＿C5EFF4 UniRef90－W8L9G0 UniRef90－K8E6Y7 UniRef90＿UPI00038BBBFD UniRef90 N6X874 UniRef90－UPI00036B5A9F UniRef90－UPI00034920BF UniRef90－R6R8T4 UniRef90＿B3QQ43 UniRef90－M7NCJO UniRef90－K6ZF71 UniRef90－R7FOZ3 UniRef90＿IOSH83
UniRef90－E1V873 UniRef90－B1JP69 UniRef90 UPI00046F42ED UniRef90－K2CJ16 UniRef90＿UPI00020D9C9A UniRef90 C6E8P6 UniRef90－V5WGB3 UniRef90－E3HRB9 UniRef90＿H8N123 UniRef90 D5WZ72 UniRef90＿Q6LUH6 UniRef90－R7PQS6 UniRef90－Q1GT50
UniRef90－V8QQE3 UniRef90－UPI00047EE809 UniRef90－UPI0003FF2DAB UniRef90－H6RAC3 UniRef90－M2Q5V3 UniRef90－U2SYJ3 UniRef90－G9WER1 UniRef90－S7N4N3 UniRef90－C4UB97 UniRef90＿B1C9F4 UniRef90＿R6XY37 UniRef90－A3QIE8 UniRef90 E3C9P9 UniRef90－A5GNH4 UniRef90＿UPI00042BACD8 UniRef90＿R5KYY6 UniRef90＿J5K8V1 UniRef90＿A0A024K3R1 UniRef90－UPIO004679DCE UniRef90－B4FLE1 UniRef90－E6W0X4 UniRef90－D1CG70 UniRef90 W9G9T6 UniRef90＿UPI0002F1F936 UniRef90－E7GKE4 UniRef90 UPI00036CE95E UniRef90－UPI00046ADEEA UniRef90＿UPI0003B4D793 UniRef90－G0VRF6 UniRef90－D9SCA3 UniRef90－HOF2B4 UniRef90＿C2KUK7 UniRef90 Q017L5 UniRef90－R6G1N6
UniRef90－F7Q1N4


SEEFAHDRKDMMQRAFDNGVTR $\square F V P S \prod D S S Y T D K M Y Q M$ HESFQHDLGAVLQRARVQGVTRIV VTGASRESEHALD CGATTPDLVRAALDRAVSAGLAAVI TVAD DMDSAR
DDESFDNDLAKVIANARENGVGGVLIP GAD $\square$ ND $\square P$ VDDVPAILDRASAVGVQAVV TVADDDDSARWV
 TDFDV MLERAQNAGISHFII PAADPKDLEKAQ
DREAVLERAAAC GVSHVGNVF DNPGHAARRHYFADHP TDFLA GGVTTVVGWTRTGMDLLAHVRG RKYTPCDAPKEKLFE LRDHGFSRNVIVQASCHGSDNTALI QFAKDREQVVVRAKQAGVSGML IIGTGVA ESRQAL
DVEAFDADRDAT LARARAAGVTAQV $\square P A \square A R G H W P G D A$ DDEAFSEDREEVLAQ REEGVVGDLNCAC SKASLETTN


DDEAFEEDREALLGSLKAGGDGAVMCRTTLLLAGHYDWM LAPEELEEVRAHLGELRA VLTLGVDPARWG DVEAFEPDREACWERARAAGVRAQV VPAIGRNWERVR

## $\square Y$ SNSFPKEFQ

GCDSDFCNPRALRDGLWEE
EVQS LQMAAEAGVNQLI VPAVESAHFARDE
SAHAFDTDRYALLDSLPDQGVVGVCEQATH SGDAPKVL DREQVIE RLREAGVGLLDDPTCAESSR RSI


 CHLTAFADTSAVLAESRAAGVSAFVSAATDRASWKPLVTLD
 D DPRLFPHDEKLLREAEAAGVTGFL VPGVAPRGWDR\｜R DPSTVVPDAF DS GLRGGMDIVDLEQIDRRRN
 QPEDLHAANDAGADEADDAGI T T L V DYSCVESPAHADAAD


AAVIAELDAASAVGDDRVVQ $\quad \nabla G \square D V A T S R$
DASEFNDDR $\square S V I$ RAKAAGVER VV $\quad$ V A $\square G R \quad C$
 THLDVAVT $\quad$ RA GLAB LLGGAGVTTVVDGGAPCYTTRHHDRP Y QQHCLQRG】EKL RDCQVSGVGAVI I CVVGY

PAVWRENFVTVKK DRLDVI
DVMKNI EEQMEGI

EGL
DD D DKEDKEKHFDGVVNT EVENAEE VIGKCKKNNIVMLLN

G Y DYES S $\square$ K A V G ID K K S N EVL

VPAFENRAAHYGVTQMN VVGNANLNQRALADGQ FDDDLDAVAERWRDAGVTSLLHACVEPSE $\square P A D R$

DVQR【I
 DREDVIERA KALGVVAMLELSTIGLGKLLENYQ
 KDYAYGASVDERIKRARSNGVGRIITVGGTD

EEVIAGAKE $\mathrm{A} G \square \mathrm{EK} \square \mathrm{M} \| \mathrm{V} \mathrm{C} T$ $V G C D D L A G V R$ G L G E A HARNAV

DGQEFDADRDAVLERAHAAG
$\square \mathrm{A} Q \mathrm{~V}$ G NVF $\square \mathrm{GP}$ P E Y H A R
DRE
DAAEFAGHQAELLLAAQSTGワSHIVVPSVSR
ANFA



## UniRef90 A0A024PLN7

 UniRef90－W1PSK2 UniRef90－G2G215 UniRef90－D4ZCN9 UniRet90＿UPIO0046B2A3B UniRef90－R5GX62 UniRef90－UPGO0041E4A8F UniRef90＿14WGFO UniRef90＿C7MZJO UniRef90－UPIO0035CFE43 UniRef90－M31HS9 UniRef90－F5YTU1 UniRef90－UPIOOO34B4864UniRef90－DoZZP6
UniRef90－C3XL87
UniRef90－R8AS25
UniRef90 BBIYW1
UniRef90 KOAAW1
UniRef90－UPIOOO262C9FE UniRef90－G7LU24
UniRef90－A6FJC4
UniRef90－WODEQ6
UniRef90＇UPIOO0410D606
UniRef90－L1QIZ9
UniRef90－UPIO003B7794F
UniRef90＿B1KQG2 UniRet90－A4BDCO
UniRefofo－C5EFF4
UniRef90－W8L9G0
UniRef90－K8E6Y7
UniRef90－UPIO0038BBBFD UniRef90－N6X874 UniRef90－UPI00036B5A9F UniRet90＿UPIO0034920BF UniRef90－R6R8T4 UniRef90－B3QQ43 UniRef90－M7NCJO UniRet90－K6ZF71 UniRef90－R7FOZ3 UniRef90－10SH83
UniRef90 E1V873 UniRef90－B1JP69 UniRef90－UPI00046F42ED UniRef90－K2CJ16 UniRef90－UP100020D9C9A UniRef90－C6E8P6 UniRef90－V5WGB3 UniRef90 E3HRB9 UniRef90－D5WZ72 UniRef90－Q6LUH6 UniRef90－R7PQS6 UniRef90－D3QA03 UniRef90－Q1GT50
UniRef90 V8QQE3 UniRef90－V8QQE3
UniRef90－UPIO0047EE809 UniRef90－UPI0003FF2DAB UniRef90－H6RAC3 UniRef90－M2Q5V3 UniRef90－V8GA62 UniRet90＿U2SY33 UniRef90－G9WER1 UniRef90－S7N4N3
UniRef90 C4UB97 UniRef90－B1C9F4 UniRef90－R6XY37 UniRef90－A3QIE8 UniRef90－A3C9P9 UniRef90－UPI00042BACD8 UniRef90－R5KYY6 UniRef90－J5K8V1 UniRef90－A0А024K3R1 UniRef90－UP10004679DCE UniRef90－UPI0002491D7A UniRef90－B4FLE1 UniRef90 E6WOX4 UniRef90－D1CG70 UniRef90－W9G9T6 UniRef90＿UPIO002F1F936 UniRef90－E7GKE4 UniRef90－UPIO0036CE95E UniRef90－UP100046ADEEA UniRef90－UPIO003B4D793 UniRef90－GoVRF6 UniRef90－D9SCA3 UniRef90－HOF2B4 UniRef90＿C2KUK7 UniRef90－Q017L5 UniRef90－R6G1N6
 ${ }^{90} \mathrm{~T}$ YTYSGNY
KLARDYDF 1 HA HAGUH
HVP TPTTTS ${ }^{100} 11$
110
120

## LLKEDL <br> V WGA F GCH

PWYVTERTPDWL K K K K
PHFAHYYNEYGERNI LQALRFHP
 ALARAHPGTLFATVGVHPHHADDYDDATDARGRELAQDPA WVAEAADARLYGAVALHPTRTEGFGDAERAELERLASTDG AVGIHPCDVKDSKDGDDERMMAYLEHP
KAAKITRENVFFAVGVHPYDKDGF TRAADADDRVYAAVALHPTRTDSDTDGARAEDEALAABER A LARAHPGVLYATAGVHPHHAVDYDEATDALLRELATHPE RFPK ARFCHVGGTPPQDVDQDDEEDYRNFHAAAHSKK NLAN THTNVYFASGVHPDLAYNYNSKFVESF RVWCTAGVHPHDAKTWDAQSAQRDRALYQHEA
 DA號 V A

## A LLAQQYPA

YCWSTA
 RDAAAH ADLYPAYGLHPVFVATHADHDVEALDRWADEHP EVADSCGVHPLYVGKHPLQQ KLTLDYDF DYGALGWHPSDANDYDESVKNRISELLVKE

KEKDSRFKVAFGWFPGDAKEDDASKLEQLKNIA
YSTAGTHPHQASQWDDTSADKRRVAQAAE
$R \square W G T Q G D H P H E A E G F T D E T E T E D R A$
YAALGVHPSETAGLDEAGLKWMEFQCSHEK KTLELAQGNVYAAVGLHPTSAH DVAHRPGUH PAYGLHPVYLDRHRPGHLDELADWLGREP LLK EDL VWGAFGCHPHFARYYNEHQERNLLHALRHP QAAHHVPLDEAIAKVERLL ALAEKHP QVVAALGGMPDCDASHSEACLEKLDQRLQNEK ELAHRYPW VYAADGI HPESLLAAEDCGEEDWAAEMKALA
 E ITKAHDMQI Y LDALGFHPETASEVTKKDLEMLKDE ALSRQYD ELYSTIGWHPTEAGSY TQEVENMIVSHL ELARERAGGYATAGLHPHGASEWSSSMEAAMRELHRRPE
 TVLA QEHSFI FCTL GVHPNEANLWNGEDEKQFREWIDKDR $R A L Q D A E A H V Y A V L G F Q P E D T N D F S D A A A Q T L G E Q I K N P N$ RLAAAYP QVYPAYGVHPMHAELLTPAAVSDLCQLATGAS
 TALEDSGDRALFAYGYAAGPQESTADASRRQDARRLRS $\begin{array}{ll}E L A Q T C G W A Y A L G Q \\ Q L S R Q F D & E \\ L & Y \\ \text { L }\end{array}$


NFAAVRD DAHSFAGGYYA $\square G \square H P F D A R S D D E D \square D \square L A Q E V$ ELAARRHPGELYATAGVHPHHAVDYDEATDALLRELHTQPE ALGEEEGIS CYVQTGSYQ
 AI AHEYPGQVYAAVGISPNDCENTTEEDMKGI DKLANDDK TLAHQFQGGYY ALGGHPMYVRYAKDEDGQQDQTDEEA
 DFADEGVRAIVGGFQPEDTGGFDAAAQEPDRQQLSDPA CWSTAGVHPHQASSWQTSVEQQVRALAANNS
 YTTAGVHPHHASEWDATSRDRLIQL

 LLKEDL VWGAFGCHPHFARYYDETQERNVLQADRHP ETKDLYPDSIYFTLGVHPHNSNETNEFSLQDLHDFTKK WVTRAAGWRVYAAVALHPTRAEALDDAARAEIERLVADPR EKGE\｜NGPKI 】CATGGHGYQ DSYECDGADEVRRQVRRVI HVYGAVGCHPEDSKKYCLTGEKKMTDFLKKDV SVVKKYPSKFVGCCLANPADD XAKGGIKQLLEHLIVQEK
 FTMDADERHTEVVGAGADHPNEVPRLAAAGRLDDEAYEV ELAKQY QLLATAGUHPHDAKSADEQLEGTQLRALAAAPQ ALAEQFG DVWATVGLLHPTDTEEDSSDVRTDLEALALHPR RAYFDAHPEVFF पMGVH PCDGQNCTQERLAAMRAA FGTAGIHPHVADEATDADLEEIRR】VMT SVSALCDEHPACSAA YGIHPMLIEAATPDDLR DLAGK DEHPGGAYALGHPLYVQRADDA DLAGK RLAREPGLQKY SLADRFPL DMKDITFGGMHPSYTNY

UniRef90_A0AO24PLN7 UniRef90-W1PSK2
UniRef90-G2G215 UniRef90-D4ZCN9 UniRef90-UPI00046B2A3B UniRef90-R5GX62 UniRef90_UPI00041E4A8F UniRef90-14WGF0 UniRef90_C7MZJO UniRef90-UPIo0035CFE43 UniRef90-M31HS9 UniRef90- F5YTU1 UniRef90-UPIOOO34B4864
UniRef90-DOZZP6
UniRef90-C3XL87 UniRef90-R8AS25 UniRef90 BBIYW1
UniRef90 KOAAW1 UniRef90-UPIO00262C9FE UniRef90-G7LU24 UniRef90-A6FJC4 UniRef90-WODEQ6 UniRef90-UPIO00410D606 UniRef90-L1QIZ9 UniRef90_UPI0003B7794F UniRef90_B1KQG2 UniRef90-A4BDC0 UniRefofo-C5EFF4 UniRef90-W8L9G0 UniRef90-K8E6Y7 UniRef90-UPI00038BBBFD UniRef90-N6X874 UniRef90-UPIIO0036B5A9F UniRef90-UPI00034920BF UniRef90-R6R8T4 UniRef90-B3QQ43 UniRef90-M7NCJO
UniRef90 K6ZF71 UniRef90-R7FOZ3 UniRef90-10SH83
UniRef90-E1V873 UniRef90-E1V873
UniRef90- 1 B1J69 UniRef90-UPIO0046F42ED UniRef90-K2CJ16 UniRef90-UP100020D9C9A UniRet90 C6E8P6 UniRef90-V5WGB3 UniRef90 E3HRB9 UniRef90-D5WZ72 UniRef90-Q6LUH6 UniRef90-R7PQS6 UniRef90-Q1GT50 UniRef90-V8QQE3 UniRef90-UPIO0047EE809 UniRef90-UPI0003FF2DAB UniRef90-H6RAC3 UniRef90-M2Q5V3 UniRef90-U2SYJ3 UniRef90-G9WER1 UniRef90-STN4N3 UniRef90-C4UB97 UniRef90_B1C9F4 UniRefolor6XY37 UniRef90-A3QIE8
UniRef90 E3C9P9 UniRef90-A5GNH4 UniRef90-UPI00042BACD8 UniRef90_R5KYY6 UniRef90_J5K8V1 UniRef90-A0A024K3R1 UniRef90-UP10004679DCE UniRef90-UPIOOO2491D7A UniRet90_B4FLE1 UniRef90-E6WOX4 UniRef90-D1CG70 UniRef90-W9G9T6 UniRef90-UPI0002F1F936 UniRef90-E7GKE4 UniRef90-UPIO0036CE95E UniRef90-UP100046ADEEA UniRef90-UPIO003B4D793 UniRef90-GoVRF6 UniRet90-D9SCA3 UniRef90-HOF2B4 UniRef90-C2KUK7 UniRef90-O017L5 UniRef90-R6G1N6
UniRef90_F7Q1N4
10 D 606
7947

130
140
150
160 G AGEIIA\|ISDSRSAQPSVHELAKDCAEARKKA FS TAKSTPSAAVGEIGGSHGKTQLQVQCFRQQLELAKEL $F \backslash A K$
$V V A \square G$ STPSAAVGEGGGSHGKTQLQVQCFRQQLELEAKELV KAVAFGEMGGDYSYCTTPVQKKVFERQLQLAVSL ESLLAREEVTAGEDGLDHYDGYDLQAEVFERQLILAQKL SK KKFYAVGEIGI DLFFWKTHLKEQAFRRQI QLAKQY VRAVGE V VAVGE
 G

 VAA GCGLN | $V A A$ |  |
| :--- | :--- |
| $V$ | $G E C G L D$ |
| $A V A$ | $G$ | SHOTD VVAGGEC RNFST

DESPR
GLA W YDPDSKARQRDLFHAQLDVALNH

## VRAV

EEALGHYARHPAVGETGLDYHWTPETRAAFRAQAALAOAL AVAVGECGLDCFVEGLDFDVQWT $\square \vee A M$
$K A V A F$ GEMGLDYHWDTS KDPLVVAVGESGL VVALGETG AEGGGETG LDLYMETPMFDKQQRFLRAQFKLAKQY PYYDDPKVAVGGMDTFRTGPEGARAQEDSFRRHDA AKRH ETLARSEKVVGLGE GLDYHWPDAQQEAFREMLRMATRL AKRDFYAUGEIGUDLYWDTSTLEKKAFKHQUQLAKKY HWMEDPVQDEVFKRQLQLSKDH
RNFSTPAEERAFEAQLGLAAES $\vee \vee A$

| CGLDF |
| :--- |
| S PMVA | RNFSTPAQQEVFTAQLALAAELL SQAEGNRVVGDGEIGDDNGASKDVQHDAFRGQUSGAQKY VVGVGETG LDYYWDTASHDVQKAAFEKHLALAKAA HSRNDP LWAGE KEALGDPRFVA IFVVEBASGEPRERQERFYAAQLALAAEF GEAVDPRFVGLGEIGMDFFVPGLDLEKRFYQAQLRIARDF QDSDTYRKKCVAIGECGLDFTIVNADKEQQIEQVALANQF



TQALSDPR FVGDGEDGLDFFVKDRQEHFYYEQLKLARKH MRAVGET L LDKTIGAGE TAGSDHRSSQPTVEELAKDASAARLKA ARGADWDK M GSGGFTTGGASSPYELQFTRAAVDAAHDH
 LQAEDERLVAVGETGETSSGLEKERQEFFYQQQVKMAKKY LALSEKKVVALGELGLDYHWMEDPEEKEGFRRQIELAERV
 LHGGRHPKAVAGEMGLD VVA GECGLDFN RNFSTPAEQEIFTAQLALAASL KEN EKVVAYGETGLDYYYDNSPRQKEVFIRQLKVASEL K N EQVHARQPGVVAIGECGLDYNRDPKQREAFEAQLALAVEL EQVHDPRVVAI GEIGLDYYNDQHDRQQEVFAEQLDWARQL

$\qquad$ पD T S
 VVAVGETGMDLYWPGRLDGCAAPEVQREAFA WH| DLLAKRC KEGADKMMVSGGVNSPGPEPGPCEFTEEETRAGIETAHAL AVGETGLDYHCGVD HDLQK YRAVRNPNLWPSGQKMTN TVAIGET GWGDYYWTRDFTKDQQESFGHSLESKAGELH VVAlGETGLD YYRMGSSVKK DGQKELFSTHLQLAKKF ERSAAHERIRAGLDYFRTGPEGVAVQQDGFRWHIDLAKR
 VKAVGE DGMDYFPYEKTVPADQRDAFDRQIEMANNV VVGIGESGLDD YWDDTKREAQLSAFEWQLDLARRV ERYGAVA GETGLDYHYESVSREVQYERFTR HLIAAREL FAEDSRLKAVGEDGDDFYWPDCPREDQYQRDQLALAHAV $\square Q D Y$ LITRNPVAVGEGGLDFFDRARQEYFFVEQLKLDARF
 GEQEAEAFAK GE DTEMQAFNPDPEVQKDCFDAMMEDARK R


UniRef90_A0AO24PLN7 UniRef90_W1PSK2 UniRef90-G2G215 UniRef90-D4ZCN9 UniRef90_UPIO0046B2A3B UniRef90_R5GX62
UniRef90 UPI00041 UniRef90-UPGO0041E4A8F UniRef90_C7MZJ0
UniRef90_UPI00035CFE43 UniRef90-M31HS9 UniRef90-F5YTU1 UniRef90_UPIO0034B4864
UniRef90-D0ZZP6
UniRef90-C3XL87 UniRef90-R8AS25
UniRef90-B8IYW1
UniRef90 K0AAW1
UniRef90_UPIOOO262C9FE UniRef90_G7LU24
UniRef90_A6FJC4
UniRef90-W0DEQ6
UniRef90_UPI000410D606
UniRef90-L1QIZ9
UniRef90_UPIO003B7794F
UniRef90_B1KQG2 UniRef90-A4BDC0 UniRef90-C5EFF4
UniRef90 G8N9D1 UniRef90-W8L9G0 UniRef90-K8E6Y7
UniRef90_UPIO0038BBBFD UniRef90-N6X874 UniRef90_UPIO0036B5A9F UniRef90_UPIO0034920BF UniRef90-R6R8T4 UniRef90-B3QQ43 UniRef90-M7NCJ0
UniRef90 K6ZF71
UniRef90-R7FOZ3
UniRef90-IOSH83
UniRef90-E1V873
UniRef90-E1V873
UniRef90_B1JP69
UniRef90_UPI00046F42ED UniRef90_K2CJ16
UniRef90_UPI00020D9C9A UniRef90-C6E8P6 UniRef90-V5WGB3 UniRef90-E3HRB9 UniRef90-H8N123
UniRef90 D5WZ72 UniRef90_Q6LUH6 UniRef90-R7PQS6 UniRef90-D3QA03 UniRef90-Q1GT50
UniRef90 V8QQE3 UniRef90_V8QQE3
UniRef90_UPI00047EE809 UniRef90_UPI0003FF2DAB UniRef90-H6RAC3 UniRef9-M2Q5V3 UniRef90-V8GA62 UniRef90_U2SYJ3
UniRef90_G9WER1 UniRef90-S7N4N3 UniRef90-C4UB97 UniRef90_B1C9F4 UniRef90_R6XY37 UniRef90_A3QIE8 UniRef90 A5GNH4 UniRef90_UPI00042BACD8 UniRef90_R5KYY6 UniRef90_J5K8V1
UniRef90_A0A024K3R1
UniRef90_UPI0004679DCE UniRef90-B4FLE1
UniRef90-E6W0X4 UniRef90-D1CG70 UniRef90-W9G9T6 UniRef90_UPI0002F1F936 UniRef90-E7GKE4 UniRef90_UPIO0036CE95E UniRef90-UPI00046ADEEA UniRef90_UPI0003B4D793 UniRef90_G0VRF6 UniRef90-D9SCA3 UniRef90-HOF2B4
UniRef90 C2KUK7 UniRef90_QOI7L5 UniRef90-R6G1N6
UniRef90_F7Q1N4

## 

G|VIT HF HIVI ${ }^{170}$ 180

190
200
 QMPVLMHERDAHED KKPLVIHCRKADDDLLDIMKRFVPYDYKlHR
 K LDPI Ni HCRDAF QMP L L HQRDAHADFVSLLRRYRDQ GKPLMIH NREAHDDVLAILASEG PPETVMF KKPAM HVRNREAHDDVLA LASEGBPETVMF HCFT
 GKPLMIHNRDADAA

VLDVLRAEGA
$\begin{array}{lllll}\text { A S R } & L & V & G & A \\ P & V & L & L \\ & V & H\end{array}$ $\mathrm{H} C \mathrm{Y}$
L
$\mathrm{H} C \mathrm{C}$
H







 DKP V V H T R E A D D D CR A IL Q HL K K K G V
$K L P V I I H S R \quad D A A K D T L D D M K A E \quad K A G D M G G V I H$
GLPLVLHVRSRDGKAEEDLAGWLLAHRPPRVVL HAFS
GLPVII HARRAVDKVTRAVRERPEL TVVVSFS




K
QLPPVVI HTRDATELTYQLLKEYD DLPFVVHTRDALEDTYEVIKEVGEQGG $\quad$ G $\operatorname{CAV}$



 DLPVILHVRKSQDA LLAGLRRAGFGAGRPAGIAHAFN

GKALMI HDREAHED VLRVLDEEGAPE TVVMHCFS
LGI VI DASHSSDAAFDQMLELSKYPIILSHSSLRDHPRN DLPVLLHVRRSQDMLLKYLNRVPEVGGIAHAFNGSDQQ GKPLFLHQRDAHEDFLALLRRYRD RVPAAVV GTAADRQAVAAGVDIEHCTWMTTDFE
 KLPI VIHTR EALQDTLDILKEY PNVGGILHCYN
 SLPVFLHCREAHERFDTLLSPWLDK IPAAVV HCF
 KLPVSIHCREALADTYELLK DGHVDEFGGVMHSFN

 NKPLFLHQRDSH DEFMKIIKKYSSDIPKAVV HCF
 EMPISVHNRNAFTDCYEILKE ADVGHYGGIMHSFN GVPLGIMTMKGVGPYDQEI EEDCR DYPATTVILDHMAFC DLPVMVHSRDAFEDTAADLRQYSCRGV SKPVII HCR DAWEDVLDVLASEGKDA GKALQUHDRDAHED VLDRILEEEGAPEHTVLGHCFS $N L P V Y L H E R D A S E D M L A L L Q Q Y S$ NKPVLI HMRLATKD TCRYMKEHL RVPGIMHCYS
 DKPLFLHER ADAADDFLACFKGHEADCPKSVV HCY DLPVLLHTRRATD\|VLKHLRQTVRGGIAHAFSGSR RLPVLLHVRKS $N L P V V L H S R D A A M D T Y H L L R D \quad H K G Y V N G G I H C F S$ DLPVIVHCR DAAEPMLAELRERQLRGNCPRGVMHCWG GLITLVHAGHNYSSVAHLLKLLKE VAPEKLVLAHMGNW

|  |  |
| :---: | :---: |
| UniRef90- D4ZCN9 | GSLLEMANALL |
|  | $\bigcirc$ |
|  |  |
|  |  |
|  |  |
|  |  |
|  | Ado |
| Ko |  |
|  | GGADELLADCLAAGLMMVIT |
|  |  |
| - |  |
|  | GNBESMA |
|  |  |
| Unifigokebir |  |
|  |  |
|  |  |
|  |  |
|  |  |
| BJ | w |
| - 22 |  |
| c6e8 |  |
| - | SSOHTMKKFIELGMM |
|  |  |
|  | GSvecak |
|  |  |
|  |  |
|  |  |
|  | GSEOOKAYMEGFLGEGTATFKNKKT |
|  |  |
|  | P |
|  | M |
|  |  |
|  |  |
| Cuploid |  |
| Eflex | $\xrightarrow{\text { M }}$ |
| $\begin{aligned} & \text { D1CG70 } \\ & \text { W9G9T6 } \end{aligned}$ | GYy Sts |
|  | sandir |
|  | GHDGLLAEGVVERGAEGEAGNTYKNARE |
|  |  |
|  |  |
|  |  |
|  |  |



UniRef90_A0A024PLN7 UniRef90_W1PSK2 UniRef90_G2G215 UniRef90_D4ZCN9 UniRef90_UPI00046B2A3B UniRef90_R5GX62 UniRef90_UPI00041E4A8F UniRef90_14WGF0 UniRef90_C7MZJ0 UniRef90_UPIO0035CFE43 UniRef90_M3IHS9 UniRef90-F5YTU1 UniRef90_UPI00034B4864
UniRef90_D0ZZP6
UniRef90-C3XL87
UniRef90_R8AS25
UniRef90_B8IYW1
UniRef90 K0AAW1
UniRef90-UPI000262C9FE UniRef90_G7LU24
UniRef90_A6FJC4
UniRef90-W0DEQ6
UniRef90_UPI000410D606
UniRef90_L1QIZ9
UniRef90_UPI0003B7794F
UniRef90_B1KQG2 UniRef90-A4BDC0
UniRef90_C5EFF4
UniRef90_G8N9D1
UniRef90_K8E6Y7
UniRef90_UPI00038BBBFD
UniRef90_N6X874
UniRef90_UPI00036B5A9F
UniRef90_UPI00034920BF
UniRef90_R6R8T4
UniRef90_B3QQ43
UniRef90_M7NCJ0
UniRef90_K6ZF71
UniRef90-R7F0Z3
UniRef90-IOSH83
UniRef90-E1V873
UniRef90_B1JP69
UniRef90_UPI00046F42ED
UniRef90_K2CJ16
UniRef90_UPI00020D9C9A
UniRef90_C6E8P6 UniRef90_V5WGB3 UniRef90_E3HRB9
UniRef90 H8N123 UniRef90-D5WZ72 UniRef90_Q6LUH6 UniRef90-R7PQS6 UniRef90_Q1GT50
UniRef90_V8QQE3 UniRef90_UPI00047EE809 UniRef90-UPI0003FF2DAB UniRef90_H6RAC3 UniRef90-M2Q5V3 UniRef90_V8GA62 UniRef90_G9WER1 UniRef90-S7N4N3 UniRef90_C4UB97 UniRef90_B1C9F4 UniRef90_R6XY37 UniRef90_A3QIE8 UniRef90_E3C9P9 UniRef90_A5GNH4
UniRef90_UPI00042BACD8 UniRef90_R5KYY6 UniRef90_J5K8V1 UniRef90_A0A024K3R1 UniRef90_UPIO004679DCE UniRef90_B4FLE1 UniRef90_E6W0X4 UniRef90_D1CG70 UniRef90_W9G9T6 UniRef90_UPI0002F1F936 UniRef90_E7GKE4 UniRef90_UPI00036CE95E UniRef90_UPI00046ADEEA UniRef90_UPI0003B4D793 UniRef90_GOVRF6 UniRef90-D9SCA3 UniRef90-H0F2B4 UniRef90_C2KUK7 UniRef90_Q0I7L5 UniRef90_R6G1N6
UniRef90_F7Q1N4



S GMDKY TAA A M A EK GVSA E EMT G DC R E N G
RGKRNESSYIVNVITKLAE\|YKVTPNKIAEIT TENS A H RRNEPMY LIKHI CEEVA R DRGESAEV RGRPNEPYCAAYTVVGLAELRGQPVEAVAEVTRRNA KRGKRNEPAFVCYTGEKI GEL RGRRNEPAFTRLVVAVKMAE\|LDNLKEEEVMEDTTKN A RGAPNEPYCLPYTVRALAELLGESAAELAQVTSHNA SH RRNEPMY LKHI AEEI A R R DRGESFEAL
 PHPHRGKRNEPSYI PLLVLEKMQELDEDKEQLDTQUNANT PKSRRNEPGILPHIVSTVAALARECPHALARQTTRNA KRNEPAFTVFTARAVA E

ARGQDAEELWRQCGANA
E T GK P N S I L E A VRD AVR
$P \mathrm{~V}$ S R R NEPCF L P Y I VN QV
PKSRRNEPCHLPHVAATIAS
S A GWRDEDAA WL TTDENA ARG ERNEPAFLSEIAAC IAALRDAPVDE I ARLSSANA

 RGKPNAPKY LPF IVVEKIAEVVGGLDCAAVLTQTYENA NRGKRNSSLNLPYVVDAVSAL
 HRGKRNRPHYVRHTLAKLAEVLGLDYGEAERLTD GNA


 $S S L I R Y$ VGE Y $\square A A \vee$
$K G V E P E T V F R V T A E N A$
 NEPANVVDVAY
 NRTAYT RYVVDKIAELLRGGTTEEVAEATYQNA

 RGRA E Y NVVPANLDRMVAKEVAAALRQ




EARDDAPPNSPEQLPR $\square$ A QT LAMLLRGWSPEQTARQTTANA


ECGYKGGREADSHVASK $\square P \quad$ VS QS D LDEW L L G K T V ENESA LVLHVYYAVA
 N A LVP LT $\square R$ A MAGV GNVDVPSLCRA
PKSHRNE PS Y LTP HI CE TIIATLL KGLEFTTVAEQTTLNF


N V
 $\square R$ GSPNKPEYL LRR IAE I L A NVR $R R N R P G E L A R \square A Q V L A Q Q L D$
$N H$
RRGKRNEPAFVASVAERVAE

RGIP LE ALALDAT TENA $R G Q T$ V L E $V$ A D A STAANA


| UniRef90_A0A024PLN7 | A A AlL |
| :---: | :---: |
| UniRef90-W1PSK2 | M R V |
| UniRef90-G2G215 |  |
| UniRef90-D4ZCN9 | V ${ }^{\text {F F }}$ |
| UniRef90-UPI00046B2A3B |  |
| UniRef90-R5GX62 | ERL |
| UniRef90_UPIO0041E4A8F | K A I F |
| UniRef90_14WGF0 |  |
| UniRef90_C7MZJ0 | ERVF |
| UniRef90_UPI00035CFE43 | Q T L F Q |
| UniRef90-M31HS9 | K K I F |
| UniRef90-F5YTU1 | $R \mathrm{R} V \mathrm{Y} G \square \mathrm{R}$ |
| UniRef90_UPIO0034B4864 |  |
| UniRef90-D0ZZP6 | LRFL |
| UniRef90-C3XL87 | TRLFAFS |
| UniRef90-R8AS25 | A T L F |
| UniRef90-B8IYW1 | R R F |
| UniRef90-K0AAW1 | A R A Y G $\square$ S G |
| UniRef90-UPI000262C9FE | M R L ${ }^{\text {Y }}$ |
| UniRef90-G7LU24 | $\mathrm{R} \mathrm{R} V \mathrm{~F}$ |
| UniRef90_A6FJC4 |  |
| UniRef90_W0DEQ6 | R R 1 |
| UniRef90-UPI000410D606 | F R L F R R |
| UniRef90_L1QIZ9 | FRL |
| UniRef90_UPI0003B7794F | L SLF |
| UniRef90-B1KQG2 | V K F F |
| UniRef90-A4BDC0 | QRDF WR |
| UniRef90_C5EFF4 | LRLY GLGTR |
| UniRef90-G8N9D1 | E GLFR |
| UniRef90-W8L9G0 | R R L F Q |
| UniRef90-K8E6Y7 | EKLF |
| UniRef90_UPI00038BBBFD | S R L Y S |
| UniRef90-N6X874 | R R V Y |
| UniRef90_UPI00036B5A9F | R RLLF NLLNV |
| UniRef90_UPI00034920BF | R R A |
| UniRef90-R6R8T4 | K R V $\mathrm{Y}^{\text {Q }}$ |
| UniRef90-B3QQ43 |  |
| UniRef90-M7NCJ0 | K D I F |
| UniRef90-K6ZF71 | Y K L F S |
| UniRef90_R7FOZ3 | RRI F D R |
| UniRef90_10SH83 | LRIF D L K E K |
| UniRef90-E1V873 |  |
| UniRef90-B1JP69 | R R V F |
| UniRef90_UPI00046F42ED | R R V F |
| UniRef90-K2CJ16 | EVFFDLR N R |
| UniRef90-UPI00020D9C9A | H R L |
| UniRef90-C6E8P6 | A R L |
| UniRef90-V5WGB3 | T R A |
| UniRef90-E3HRB9 | M R V L |
| UniRef90_H8N123 |  |
| UniRef90-D5WZ72 | LR A L |
| UniRef90-Q6LUH6 |  |
| UniRef90-R7PQS6 | Q |
| UniRef90-D3QA03 |  |
| UniRef90-Q1GT50 | LR\LAA Q G K |
| UniRef90_V8QQE3 | LR1 L |
| UniRef90_UPI00047EE809 |  |
| UniRef90-UPI0003FF2DAB | A R \LKLQ ${ }^{\text {L }}$ |
| UniRef90-H6RAC3 | A E AL |
| UniRef90-M2Q5V3 | CKIFQLK G |
| UniRef90-V8GA62 | Q R V |
| UniRef90_U2SYJ3 | K K I Y |
| UniRef90_G9WER1 | HRL |
| UniRef90-S7N4N3 |  |
| UniRef90-C4UB97 |  |
| UniRef90-B1C9F4 | R E I F K $\square \mathrm{K}$ |
| UniRef90-R6XY37 | R N L |
| UniRef90-A3QIE8 | CAFF |
| UniRef90-E3C9P9 | S R L F |
| UniRef90-A5GNH4 | R A L |
| UniRef90_UPI00042BACD8 |  |
| UniRef90_R5KYY6 | A R V F |
| UniRef90-J5K8V1 | VNFFDA |
| UniRef90-A0A024K3R1 | G R V Y |
| UniRef90-UPI0004679DCE |  |
| UniRef90-UPI0002491D7A |  |
| UniRef90-B4FLE1 | S QLF Q G A W |
| UniRef90-E6W0X4 | EGLFRFEKR |
| UniRef90-D1CG70 | VKLL L G IT G |
| UniRef90-W9G9T6 |  |
| UniRef90_UPI0002F1F936 | QQLF |
| UniRef90-E7GKE4 | R R L |
| UniRef90-UPI00036CE95E | R R V Y |
| UniRef90-UPI00046ADEEA | YRLF |
| UniRef90_UPI0003B4D793 | R R F F |
| UniRef90-G0VRF6 |  |
| UniRef90-D9SCA3 | R S V L A |
| UniRef90-H0F2B4 | MRVL |
| UniRef90-C2KUK7 | LQ V Y R $\square \mathrm{K}$ |
| UniRef90-Q017L5 | R R L F A |
| UniRef90-R6G1N6 | K K L F T $\square$ |
| UniRef90_F7Q1N4 | A R A L E E |

$$
\mathrm{K} Y \mathrm{Y} \mathrm{D} \square \mathrm{G} \square \mathrm{~N}
$$

TDTHTH $\square$ YYH $\square$ GTP $\square$
GF DDTHCHLDMLYRNFKGTFARFRN GPTKPSPVGAVDAHCHYVGGPGDEFPYAPERKY

[^7]

## UniRef90 N0GNY4

UniRef90 UPI00037DFB14 UniRef90-M1QAT2 UniRef90-A6Q9M5 UniRef90_A9BJU3 UniRef90 R7HFE8 UniRef90_UPI00046E65DD UniRef90-UPI0003B437F9 UniRef90 C6Y0K4 UniRef90-L1NHU8 UniRef90_UPI00036DCBED UniRef90 A0A023VGB9 UniRef90-D1PUE5 UniRef90-R6CCK0 UniRef90 D0J0R3 UniRef90 UPI00041E22EE UniRef90-D5VS36 UniRef90-E8WJC3 UniRef90 M4VAK9 UniRef90-N4UQI6 UniRef90-C5A651 UniRef90-X0MYN6 UniRef90-R8B306 UniRef90-F7TA21
UniRef90-T5KJC2
UniRef90 B6UG16
UniRef90-D1PVI4
UniRef90-G2PJB7
UniRef90_UPI00041A796A UniRef90 UPI00036D4BB2
UniRef90-U2JTS9
UniRef90_UPI00046D3E8D
UniRef90_J2W118
UniRef90 E6MNF9 UniRef90-F4PU60
UniRef90-UPI0001746B7B UniRef90 R9N4F8
UniRef90-D5VT36
UniRef90_C2FWG3
UniRef90-UPI0002897C0E
UniRef90 W5MZ53
UniRef90-UPI00037E4C4B UniRef90_UPI000375B985 UniRef90-H0TZ97

 PHTRTPEVRLSRLVEAGGVSVVGLGTDGDTRHPESLL

## A R WAV


$\square K D R P \square D D \square L E Q A Q Q V N D E K V \square T \square A \quad V S P D N D A R$

 DGEEFKDDLPEVI ERAKTAGVGADMI PAVDRGS VVSVM


 DMEEFNKDRDELIKQSKAGGVDA $M A \square N P G A N Y E S S K K A L$
$L$
$V$ RPYNTADAPLETFRSVHQKGVCVIVNATVAHGTDNRVVTDA NYPPQFEACVQ
$\forall C C D P V S M E T$
$\qquad$ FCRQFPEPEK $\square$ KDAADSGVCC $\quad$ TGTDSKENSK
MEEQMQRCFDRG ${ }^{\text {E }}$ R $\square$
 LDRALAAGVRQMDGGSVEGSQRALAMAK DYENLDQGPEEVLKRARESGVTHLLCPGVDFESFPRMYD TPCDASKDQLFALRDHLGFARNVIVQATCHGKDNRALVDA RSFTPPEAPETALRQLHDLGFDRAVQVHSQGHGRDHRPLL

UniRef90_Q6F270
UniRef90_N0GNY4
UniRef90_UPI00037DFB14
UniRef90_M1QAT2
UniRef90_A6Q9M5
UniRef90_A9BJU3
UniRef90_R7HFE8
UniRef90_UPI00046E65DD
UniRef90_UPI0003B437F9
UniRef90_C6Y0K4
UniRef90_L1NHU8
UniRef90_UPI00036DCBED
UniRef90_A0A023VGB9
UniRef90_D1PUE5
UniRef90_R6CCK0
UniRef90_D0J0R3
UniRef90_UPI00041E22EE
UniRef90_D5VS36
UniRef90_E8WNC3
UniRef90_M4VAK9
UniRef90_N4UQI6
UniRef90_C5A651
UniRef90_X0MYN6
UniRef90_R8B306
UniRef90_F7TA21
UniRef90_T5KJC2
UniRef90_B6UG16
UniRef90_D1PVI4
UniRef90_G2PJB7
UniRef90_UPI00041A796A
UniRef90_UPI00036D4BB2
UniRef90_U2JTS9
UniRef90_UPI00046D3E8D
UniRef90_J2W118
UniRef90_E6MNF9
UniRef90_F4PU60
UniRef90_UPI0001746B7B
UniRef90_R9N4F8
UniRef90_D5VT36
UniRef90_C2FWG3
UniRef90_UPI0002897C0E
UniRef90_W5MZ53
UniRef90_UPI00037E4C4B
UniRef90_UPI000375B985
UniRef90_H0TZ97


[^8]
UniRef90_Q6F270
UniRef90 N0GNY4 ..... UniRef90_UPI00037DFB14
UniRef90-M1QAT2
UniRef90 A6Q9M5 UniRef90-A9BJU3 UniRef90 R7HFE8 UniRef90_UPI00046E65DD UniRef90_UPIO003B437F9 UniRef90_C6Y0K4 UniRef90-L1NHU8 UniRef90_UPI00036DCBED UniRef90_A0A023VGB9 UniRef90-D1PUE5 UniRef90-R6CCK0 UniRef90_DOJOR3 UniRef90 UPI00041E22EE UniRef90-D5VS36 UniRef90-E8WJC3 UniRef90-N4UQI6 UniRef90_C5A651 UniRef90-X0MYN6 UniRef90-R8B306 UniRef90-F7TA21 UniRef90-T5KJC2 UniRef90_B6UG16 UniRef90-D1PVI4 UniRef90_G2PJB7 UniRef90_UPI00041A796A UniRef90 UPI00036D4BB2 UniRef90-U2JTS9 UniRef90_UPIO0046D3E8D UniRef90_J2W118 UniRef90-E6MNF9 UniRef90-F4PU60 UniRef90_UPI0001746B7B UniRef90_R9N4F8 UniRef90_D5VT36 UniRef90-C2FWG3 UniRef90_UPI0002897C0E UniRef90 W5MZ53 UniRef90_UPI00037E4C4B UniRef90_UPI000375B985 UniRef90_H0TZ97

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

[^9]

|  | UniRef90_Q6F270 |
| :---: | :---: |
|  | UniRef90_N0GNY4 |
|  | UniRef90-UPI00037DFB14 |
|  | UniRef90-M1QAT2 |
|  | UniRef90-A6Q9M5 |
|  | UniRef90-A9BJU3 |
|  | UniRef90-R7HFE8 |
|  | UniRef90-UPI00046E65DD |
|  | UniRef90-UPI0003B437F9 |
|  | UniRef90-C6Y0K4 |
|  | UniRef90-L1NHU8 |
|  | UniRef90-UPI00036DCBED |
|  | UniRef90-A0A023V |
|  | UniRef90-D1PUE5 |
|  | UniRef90-R6CCK0 |
|  | UniRef90-D0J0R3 |
|  | UniRef90-UPI00041E22EE |
|  | UniRef90-D5VS36 |
|  | UniRef90-E8WJC3 |
|  | UniRef90-M4VAK9 |
|  | UniRef90-N4UQ16 |
|  | UniRef90-C5A651 |
|  | UniRef90-X0MYN6 |
|  | UniRef90-R8B306 |
|  | UniRef90-F7TA21 |
|  | UniRef90 ${ }^{\text {T }}$ KKJC2 |
|  | UniRef90-B6UG16 |
|  | UniRef90-D1PVI4 |
|  | UniRef90-G2PJB7 |
|  | UniRef90-UPI00041A796A |
|  | UniRef90-UPI00036D4BB2 |
|  | UniRef90-U2JTS9 |
|  | UniRef90-UPI00046D3E8D |
|  | UniRef90-J2W118 |
|  | UniRef90-E6MNF9 |
|  | UniRef90-F4PU60 |
|  | UniRef90-UPI0001746B7B |
|  | UniRef90-R9N4F8 |
|  | UniRef90-D5VT36 |
|  | UniRef90-C2FWG3 |
|  | UniRef90-UPI0002897C0E |
|  | UniRef90-W5MZ53 |
|  | UniRef90-UPI00037E4C4B |
|  | UniRef90-UPI000375B985 |
|  | UniRef90_H0TZ97 |

 NKPVIVHTREARDDTDAI L REEQAESC SGVLHCFT
 Q LPRVVHSRDSMGDVLDLLEGEKEE KKPLIVHITRDASADSLDELLEGYKGEEGG$\quad$ VLI HCFA G VVNUVGRGEKF DQ LLDVVENSELP DTQF DPTHMNKG

ELPPVIVLHLR
Q P V HCR EAFD


DLPVIMHVRDATEDHLAIMRE
ELPVILHVRKSSDRLLKTLRQQ HKPKGVVHCFS GLALVIH $H$ DRDAHADILTVLDAAGVPDRV GVMHCFS GYPIVVHTPRRNKETKKILELLQTFNLKVDVVIDHC

GLPVEIHTRDAEEDTVQQSEFSEQGVRDDHVKGIRCFT


 ERPVSVHCVRAFGD LLEVLKQTGPFPAGVLL HSYM QLPLMI HCRKAQNEMLDHLMKPYAKE
QLPIVVI HCRESF
 NLPVIIHNRDSDGDMVEILSEYQ GR\RGVTHSFT
 QLPLMI HCRKAQNELVH ILKRYEK QLVGGVFHCFT

 EKPI VI HTPEKKEALLRTLDILNEVRIDESGVLIDHDNRE
 DLP P F H E R A A HEA AFIDVMKAHPSGIERSVV HCFT RRPLVVHCRGADEDLFDIMKKMVPRDYKIHR HCFT
 DWHVAIHVTGADLIRYADLI AA AEARVVIDH MARPDLG
> lupas 21
> lupas_14
lupas_28
> jnet conf sol25 sol5
> jhmm
> jpssm


|  | 90_Q6 |
| :---: | :---: |
|  | UniRef90-N0GNY4 |
|  | UniRef90-UPI00037DFB14 |
|  | UniRef90-M1QAT2 |
|  | UniRef90-A6Q9M5 |
|  | UniRef90-A9BJU3 |
|  | UniRef90-R7HFE8 |
|  | UniRef90-UPI00046E65DD |
|  | UniRef90 UPI0003B437F9 |
|  | UniRef90-C6Y0K4 |
|  | UniRef90-L1NHU8 |
|  | UniRef90-UPI00036DCBED |
|  | UniRef90-A0A023V |
|  | UniRef90-D1PUE5 |
|  | UniRef90-R6CCK0 |
|  | UniRef90_D0J0R3 |
|  | UniRef90-UPI00041E22EE |
|  | UniRef90-D5VS36 |
|  | UniRef90_E8WJC3 |
|  | UniRef90-M4VAK9 |
|  | UniRef90-N4UQ16 |
|  | UniRef90 C5A651 |
|  | UniRef90-X0MYN6 |
|  | UniRef90-R8B306 |
|  | UniRef90-F7TA21 |
|  | UniRef90-T5KJC2 |
|  | UniRef90-B6UG16 |
|  | UniRef90-D1PVI4 |
|  | UniRef90-G2PJB7 |
|  | UniRef90-UPI00041A796A |
|  | UniRef90-UPI00036D4BB2 |
|  | UniRef90-U2JTS9 |
|  | UniRef90-UPI00046D3E8D |
|  | UniRef90-J2W118 |
|  | UniRef90-E6MNF9 |
|  | UniRef90-F4PU60 |
|  | UniRef90-UPI0001746B7B |
|  | UniRef90-R9N4F8 |
|  | UniRef90-D5VT36 |
|  | UniRef90-C2FWG3 |
|  | UniRef90-UPI0002897C0E |
|  | UniRef90-W5MZ53 |
|  | UniRef90-UPI00037E4C4B |
|  | UniRef90_UPI000375B985 |
|  | UniRef90_H0TZ97 |

## UniRef90 N0GNY

UniRef90 UPI00037DFB14 UniRef90-M1QAT2
UniRef90-A6Q9M5 UniRef90_A9BJU3 UniRef90 R7HFE8 UniRef90_UPI00046E65DD UniRef90 C6YOK4 UniRef90-L1NHU8 UniRef90_A0A023VGB9 UniRef90 D1PUE5 UniRef90-R6CCK0 UniRef90-UPIOO041E22EE UniRef90_D5VS36 UniRef90-M4VAK9 UniRef90_N4UQI6 UniRef90-C5A651 UniRef90-X0MY UniRef90-F7TA21 UniRef90-T5KJC2 UniRe_B6UG UniRef90-G2PJB7 UniRef90-UPI00041A796A UniRef90 U2JTS9 UniRef90_UPIO0046D3E8D UniR90 E6MNF UniRef90-F4PU60 UniRef90-UPI0001746B7B Ref90 R9N4F8 UniRef90 D5VT36 UniRef90_C2FWG3 UniRef90 W5MZ53 UniRef90_UPIO0037E4C4E
UniRef90_UPI000375B985 UniRef90_H0TZ97

## 

A N S $\square Y$ Y QKF 210 D $\square$ GCY $\square N \square G G A V T F$
EDRQTAEKLLDMGFYI SFSGIATF
GDAD I ARRCVAAGYVLSF
GNEEHLEEALDRDYYLSFGGMDFRAPNKY
AD ES SLK LADRNFYYG $\square G G V L T F K N A R K L D N V Y P K D P Q$
EADQTCKNFIDQGGRVDFTTSSSKKKDKEDPSKPSKA
 GTIDDAKRAI GYNMKLGIGGVVTFKNG
SGTK DAKR】LD IGGYISI PGVVTF
GNLEQANQALALGFYGGUGGVVTYK
GNEK
PLFQAALEYARKGGFID T S SDDEPVDPATADAT
$H D L F L Q \| E F A K L G G M V D i S T G G T K Y T D P H D T V M E G L$
GSAETAEQLLDMGLYI GFTGVLTFKNAKKAKRAFAAV
GSAQQAQAFIDMGFKLGFGGAITY
GDAEFARQCLDRNA WMSFAGPDTYKAN DEALNLIK DNLD
GSAETAQSCLKLGLHDSLS GTVTYAN


GDAAMAETCAAAGYFMSFAGNVTFK
SGPGLARYADDQGWCLGFNGITTFNK
GSAQQAQAFVEQGFAL GLGGAMTY
GDDAMARICADAGYHLSFAGNVTFK
GSAEMVSALANLGCYFS LSGFLTGMKSTKA
LP GGVFHCFT GNRKEAEDF LQMERFCLG $\square G G$ GTLEQAHQAMSYNMKLGIGGVATFKNG
GTHEQA DQADSYNMKLGUGGVVTFKNGKDDQFLNQDD VDDTVVADLASTGTAGCPTLGAVPGATPPPAVLEMMRRTG GSVEMAKRYTNLGFYL GFGGVVTFK


DPGFTALLDLQKKEKCWVKDTGLERASAAG
GNQKEAEQLLQ
FDKFALGIGGVLTFKSSHLREDL
SNQPY ILQQLLEHFSNLDCDGFTGCITFKSSD

T K I DLI DRDVYVGL S I QPAFKLSVKEACE GTLDQAKRA DLGFALGUGGVVTYK
GDKDQLKAYi DLGFHUGVTG W W W
DSYEVI EPFLKE FPNMSVGFTAVLTY
DTVDVARKSLDMGDF $\square \mathrm{S} \square \mathrm{SG} \| \mathrm{VTFNKG}$


[^10]|  |  |  |  |
| :---: | :---: | :---: | :---: |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |



[^11]

## UniRef90_Q6F270 UniRef90_N0GNY4

 UniRef90-UPI00037DFB14 UniRef90-M1QAT2 UniRef90-A6Q9M5 UniRef90_A9BJU3 UniRef90 R7HFE8 UniRef90_UPIO0046E65DD UniRef90-UPI0003B437F9 UniRef90 C6YOK4 UniRef90-L1NHU8 UniRef90_UPI00036DCBED UniRef90_A0A023VGB9 UniRef90-D1PUE5 UniRef90-R6CCK0 UniRef90_DOJOR3 UniRef90 UPI00041E22EE UniRef90-D5VS36 UniRef90-E8WJC3 UniRef90 M4VAK9 UniRef90 N4UQI6 UniRef90-C5A651 UniRef90-X0MYN6 UniRef90 R8B306 UniRef90-F7TA21 UniRef90-T5KJC2 UniRef90 B6UG16 UniRef90 D1PVI4 UniRef90-G2PJB7 UniRef90-UPI00041A796A UniRef90 UPI00036D4BB2 UniRef90 U2JTS9 UniRef90_UPI00046D3E8D UniRef90_J2W118 UniRef90 E6MNF9 UniRef90-F4PU60 UniRef90-UPI0001746B7B UniRef90_R9N4F8 UniRef90-D5VT36 UniRef90-C2FWG3 UniRef90_UPI0002897C0E UniRef90 W5MZ53 UniRef90-UPIO0037E4C4E UniRef90_UPI000375B985 UniRef90-H0TZ97|  |  |  |
| :---: | :---: | :---: |
|  |  |  |
|  |  |  |

 HRGERNEPSYCTFVAEKMSEL SGGLPREKMETKATENA
 FRGKINFPGNI NEMPFRGKRNEP RGKPNESSYLVHTAQ

LAEIYETSIEE AAVTTANS MRGKRNESSFLVYVVTKMAESYG\SEQEVMTQTTDNA
$\qquad$ GlGGVAGFES
$\qquad$ KKAPLHKN Le TVVRGA

 TVLK

$$
\begin{aligned}
& \text { PEPHRGEVSVPAY VVETARRVAA I } \\
& \text { MRGKSNT }
\end{aligned}
$$

N A

s W
 RPNAPYLVPITVRFMAAELDLDVDE




KRGKPNEPAFVSYTAKTV
$D H M P D D G L L V E Y \square A Q L A P \quad T E T E R Q Q L L V D N P$ VAL $\quad$ VDLLAE $\square A P S D A L R R R L L V D N P$


| UniRef90_Q6F270 | K LI I FND |
| :---: | :---: |
| UniRef90-NOGNY4 |  |
| UniRef90_UPI00037DFB14 |  |
| UniRef90-M1QAT2 | K E T K K K |
| UniRef90_A6Q9M5 | ARLFGL |
| UniRef90_A9BJU3 | A NFL |
| UniRef90-R7HFE8 | K K L F ${ }^{\text {d }}$ - 1 |
| UniRef90-UPI00046E65DD | $\mathrm{K} D \mathrm{~V} \mathrm{~F}$ |
| UniRef90_UPI0003B437F9 | 1 R FFS |
| UniRef90-C6Y0K4 | IS 1 |
| UniRef90-L1NHU8 | HRLF |
| UniRef90_UPI00036DCBED | Y R L F |
| UniRef90-A0A023VGB9 | A EFL |
| UniRef90-D1PUE5 | A K |
| UniRef90-R6CCK0 | RRLFD $\square$ |
| UniRef90-DOJ0R3 | RKAL |
| UniRef90_UPIO0041E22EE | HAAFGGAW |
| UniRef90-D5VS36 | ESFFKF |
| UniRef90-E8WJC3 | $\square \mathrm{R}$ L F |
| UniRef90-M4VAK9 | EKL |
| UniRef90_N4UQ16 | A VLF A |
| UniRef90-C5A651 | LRFFE |
| UniRef90-X0MYN6 | A R A F |
| UniRef90-R8B306 |  |
| UniRef90-F7TA21 | $\square \mathrm{R}$ VL |
| UniRef90-T5KJC2 |  |
| UniRef90-B6UG16 |  |
| UniRef90-D1PVI4 | C R L F G T K |
| UniRef90_G2PJB7 | K EI F Gl |
| UniRef90_UPI00041A796A | K DVF GI |
| UniRef90_UPIO0036D4BB2 |  |
| UniRef90-U2JTS9 | MDLF GLR |
| UniRef90_UPI00046D3E8D | L S V F |
| UniRef90_J2W118 | A R L F K F S |
| UniRef90-E6MNF9 | KRIFT |
| UniRef90_F4PU60 |  |
| UniRef90_UPI0001746B7B | VT F M ${ }^{\text {O S GK }}$ |
| UniRef90-R9N4F8 | RK |
| UniRef90_D5VT36 | K K F |
| UniRef90-C2FWG3 | K R $\square$ F G $\square$ |
| UniRef90_UPI0002897C0E | KAFF |
| UniRef90-W5MZ53 |  |
| UniRef90 UPI000375B985 M R L $Y$ |  |
|  |  |
| UniRef90_H0TZ97 | A ELF G F |
| lupas_21 |  |
| lupas_14 |  |
|  |  |
| jnet |  |
| conf | 776604599 |
| sol25 | B B B B |
| sol5 | B |
| sol0 |  |
| jhmm |  |
|  |  |


[^0]:    

[^1]:    

[^2]:    

[^3]:    

[^4]:    | $V$ |
    | :---: |
    | $V$ |
    | $V$ |
    | $V$ |

[^5]:    

[^6]:    

[^7]:    lupas 21
    lupas_14
    lupas_28
    jnet
    conf
    $\qquad$
    sol25
    sol5
    sol5
    jhmm
    jpssm
     $\begin{array}{cc}B & B \\ B & B \\ B & B\end{array}$

[^8]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    jhmm
    jpssm

[^9]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    jhmm
    jpssm

[^10]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    sol0
    jhmm
    jpssm

[^11]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    jhmm
    jpssm

