

$$
\mathrm{K}
$$

$$
\text { K } \underset{E}{P} \frac{1}{F}
$$

$\square$AIIDY:1RELDA PL
 T $\quad R$
$K ~$
$R$ EFVD LI UniRef90_W6K6Y4 UniRef90_U4K6F9
UniRef90_Q2W7N9 UniRef90_Q1ZSX8 UniRef90-J3HV75 UniRef90_K2HJW9
UniRef90-M3KIH6 UniRef90-W8ZXJ0 UniRef90-UPIO003664C5D UniRef90-I8T6T9
UniRef90 U3QKI8 UniRef90_A0A011VKX3 UniRef90-F9S3A7 UniRef90-UPIO0037FCFB7 UniRef90_G8QP89 UniRef90 S5EI53 UniRef90_UPIOO038033A7 UniRef90-Q11HF7 UniRef90-JOM680 UniRef90-R8APQ3 UniRef90-B0CFX0 UniRef90-B5FF01 UniRef90_UPIO00300588E UniRef90-WOPE20 UniRef90_F3KU66
UniRef90_DOYY64 UniRef90-UPI0002EDCF4F UniRef90_UPIO00361CD53 UniRef90_A5EIP8 UniRef90-K2PFQ0 UniRef90_UPIO00463CB91 UniRef90_C4S5V8 UniRet90_K9FNA3
UniRef90_WOHUT7 UniRef90_UPIO003797254 UniRef90_LONFC9 UniRef90_V3V427
UniRef90_UPI00046340CA
UniRef90_A0A021 X5T9 UniRef90_UPI000368D90C
UniRef90_UPI0002D441C7 UniRef90-Q6N6Y8 UniRef90_Q1H056 UniRef90-B4W9C4 UniRef90-X1WPX2 UniRef90-FOLSHO UniRef90_D4E836
UniRef90_B4D0P5 UniRef90-B6INX8 UniRef90-H1RZD7 UniRef90_M6D3Z8
UniRef90_J7KY11 UniRef90_A0A016XF58 UniRef90_E9CPX9 UniRef90-D5VE73 UniRef90-C6X8H0 UniRef90_UPI00037D1F1F UniRef90_UPIO0035FFC0F
UniRef90_UPI000462E89

## QUERY <br> UniRef90_UPI0003B49142 UniRef90-B7VMG3 UniRef90-UPIOOO255924A UniRef90_G0AG27 UniRef90-R8B4V1 UniRef90_UPI00028A273F UniRef90 I3BU16

 UniRef90-H8MYE9 UniRef90_UPIO0031176BD UniRef90_19W9P1 UniRef90-W1N816 UniRef90-X5MEG7 UniRef90-Q98NQ9 UniRef90-UPIOO03716010 UniRef90-W6VXB2 UniRef90-A9D671 UniRef90_UPI00036F6322 UniRef90-A0A021W4C2 UniRef90_UPIO0037DD8E6 UniRef90-F6BWF3 UniRef90-A6D7J7 UniRef90_UPI000395B907 UniRef90-G6YPG2 UniRef90-B9JWV2 UniRef90_L7U2N3 UniRef90-UPIOOO4644339 UniRef90_UPIO0036088A5 UniRef90-UPIO0030140E6 UniRef90_J7Q3F7 UniRef90-A6X160 UniRef90_UPI00037D203E UniRef90-W6K6Y4 UniRef90_U4K6F9 UniRef90-Q2W7N9UniRef90-Q1ZSX8 UniRef90_Q1ZSX8 UniRef90-K2HJWM9 UniRef90-M3KIH6 UniRef90-W8ZXJ0 UniRef90_UPIO003664C5D UniRef90-I8T6T9 UniRef90-U3QKI8 UniRef90-A0A011VKX3 UniRef90-F9S3A7
UniRef90_UPI00037FCFB7 UniRef90-G8QP89 UniRef90-S5EI53 UniRef90_UPI00038033A7 UniRef90_Q11HF7 UniRef90-E3BQH8 UniRef90-JOM680 UniRef90-R8APQ3 UniRef90_B0CFX0
UniRef90_B5FF01 UniRef90_B5FF01 UniRef90-WOPE20 UniRef90-F3KU66 UniRef90-DOYY64 UniRef90-UPI0002EDCF4F UniRef90_UPI000361CD53 UniRef90-A5EIP8
UniRef90-K2PFQ0
UniRef90_UPI000463CB91 UniRef90-C4S5V8 UniRef90_K9FNA3 UniRef90-WOHUT7 UniRef90_UPI0003797254 UniRef90_LONFC9 UniRef90-V3V427
UniRef90_UPI00046340CA
UniRef90-A0A021 X5T9 UniRef90_UPIO00368D90C UniRef90_UPIO002D441C7 UniRef90_-Q6N6Y8 UniRef90_Q1H056 UniRef90-B4W9C4 UniRef90 X1WPX2 UniRef90_FOLSHO UniRef90-D4E836
UniRef90-B4D0P5 UniRef90_B6INX8 UniRef90-H1RZD7 UniRef90_M6D3Z8
UniRef90_J7KY11 UniRef90_A0A016XF58 UniRef90_E9CPX9 UniRef90-D5VE73 UniRef90_C6X8H0 UniRef90_UPI00037D1F1F UniRef90_UPI00035FFCOF
UniRef90_UPI000462E891

NQLHTRADQ ${ }^{50}$
50
60
70
QTS S DFETQGLLK P YVYK KRGFPVVTKYYA $\square$ S NRLLH K RAD KCTRAQFDAAGCAPFVYEGKDKPVEMSYWSAP

 GILYLKTDEETRARFAAAGCTPCIIFESKGKTI EMSYWSAP EALYGKTDRVNVGDFEREGLGPFEYDKGGKVVKMSYYLAP ETLYLKVDAHNLDDFEREGLEPFEYDKGGRVVQMSYYQAP ETLYFKVTADNQADYEQAGSQPFSYSKKGKVAVMSYWTVP | $G Q L$ | $Y L K T D D V T R P A F E A E G C R P F Q Y Q S R G K E Q P M S Y W T P P$ |
| :--- | :--- |
| $Q Q L E F K A D A Q N R P E F E A L G G L T P F T F S M K G K D V A L S Y W S A P$ |  | GQLYFKCDAATRADFEAAGAQPFRYAKAQREVVMSYWSAP GRLYVKADADNVARFAEHDCPPFTYVTRGRQVALSYYEPP $E D L Y L K V D E Q N Q P A F E A E G M D P F T Y T K A G K R G V M S Y W Q A P$

$G E L L K A D E Q S A P D F E A E G C K Q W A Y T G K G K L V A M P Y W S D P B$ DELYLKADSQSTSHFTAKGLDPFEYNKNGKSVKMSYYQAP GEIMLKADAVSAPEFESAGARQWFYEKKGKPVLMPYWSVP GDILLKADQVSAPDFAQAGSSQWTYDGKSKPVAMPYWSIP GDI LLKADAESAPDFQAAGCSQWAYDGKGKPVKMPYWSIP EVLYLKVDDQSRERFRAADSGPFLYTRRGETVPTSYWSVP DA YLKVDDTTRPAFEAEGCDPFVYAKNGRETSLGYYRLP
 NTLHLRAGDENEALLKQQGLTPYVYKKRGFPVVTKYFAIP DMLYGKVDSESVSCFEERGLSQFMYPKGQRMVGMSYYLAP DEMMLKADAQTAPEFAAAGARQWVYQRPGKPVAMPYWSVP GQLFLKVDDDTKPEFEAAGCKPFI YEGKERHVQMAYWTPP DEVWLKADAETAPRFAAAGSRQWVYEGKGKPA $\square$ MPYWS $\square P$ DVLYLKVDEHNRADFEREGDEPFSYETGGKDSTMSYYRAP D T L Y L K T D A L S A P QF SEA GCVVP FEYT K NGTTMMM S Y S SAP GEI YLK A DRHSAARFQEAGSRPRVYQGKDRPVT DS YWS LP DELLFKADEDT DPDF DDAGATQWTYEGRGDP I AMPYWSVVP DRLHLRAGQQNEREFKRFSMQPY IYKKRGFPVVTKYYSVP DVLYFKVDDKNRSEYEQAGMSAFVPFAD KPFPMSYWEVP NTLHMRADSKSAQKFEQQGLKPYVYKKRGFPVVTKYFALDP
 GHI LLKADEVSDPVFEAAGCEQWTYNGKEKLVKMPYWSVP DVLYLKADDENRPDFEAAGLPAFGYEKRGKRVQLSYFQAP DELLLKVDQESAPAFDAAGSTQWTYRKNGKTIAMPYWSVP NKLHLRANSKTEEEFKQAGLEPY $\square Y K K R G F P V T T K H Y A I L$
 GTCYLKADDATLAKFEAEGSEPFRYQSAKRVVTMRHYSLP GE LMLKADAESAPDFAAAGSRQWTYSGKGREVAMPYWSVP DKLHi RADNADTEQFKQQGLEPYVYHKRGFPVVTKYFALS DEELLKKADATSAPLFAEAGARQWTYEGQGRPVLMPYWSIPB GELYLRATEGLDSVFRSRGMVNMVYSKRGVPIALMRYYWAP GEGYVRATEGLESVFRSRGMVNMVYSKRGVPMTMRYYWVD GELMLKGDELSAPDLETARARQWTYVRHGKTVSMPYWSVP

 ERIYLKADGENQPFFVEAGSRPFIYDRKEKPMVMSYYLLP DKLHLRASDDT【NLFKEQGFEPYVYKKRGFPVVTKYFAIS GELMLKADAESAPDFAAAGCTQWTYVRHGKEVAMPYWTVP ERFYVKRDDQTQEQFELAGCLPLTYARKTKTI ELSFYAPP NTLHLRANCNNEGEFKKLGLKPYVYYGKERKVVVKYVPPP DQLHLRAGQTNEAEFKHLAMSPYVYKKRGFPVVTKYYAVP ETLYLKADAENAKFFEEQGLDAQFAYQREGKMAKMSYYKAP S GLYL RADEASFAKFEAAGSQPFSYETRARTMTVSYWQVP
 GELYLRANDQVEGLDRRARGMTNLVYAKRGDPVMALRYYRVD
G GALYIKADNENRPDFEERGDHQFSYMKKGKECFMSYYTAP G

 DEMLLKADAI SAPEFEAAGARRWFYEKKGKPI NMPYWSIP
 DTLYLKADAESRKEFDSLGDPAFRYAKQGKEVTMSYFQAP GVVWLKGDEALGEAFVEAGCRQFRYTKDGRTMSMGYWTLP DALYLRASEALQTYHTQRALEPLVYRKRGDPVQLNYFKVD DRLHI RADDASTAKFKQQGYEPYVYKKRGFPVVTKYFAKP GEMYLRATSSLESVFRARGMANMVYSKRGTPIVMRYYYVD DGFYVKVDDVSRGEFEAFDLKPFRYEVRDTKATLDYYEPP DVLYLKADAQNRPAFEAAGCRPFAPFEDRPQQTMSYYPPP GRCYLKVDDQTRAGFEAEGGEPFRYSRNGREDSMHYLSAP DRLYFRVGESNQAEYESSGMTPFTYTKDGKMVRVSYWEVP GELLYLRASKKDEKYFQQRDMPNLDYTKRGMPVPLNYF LVVD GELYLRATASLEPAFRARGMVNMDYFKRGVPITMRYYLVD DVLYLKTDESLRPEFEAAGCQAFAPFGADKP MSYWTAP ETLYLKADAENAGDFQALADPRFGYEKQGRWDDDPYYQAP GVMLLKADDVSSPAFAEAGASQWTYEKSGKPVKMPYWSDP GELMLKGDA QLASEFEAAGCRQWSYVKHGKQVSMPYWTVP

QUERY
UniRef90_UPI0003B49142
UniRef90_B7VMG3
UniRef90-B7VMG3
UniRef90_UPI000255924A
UniRef90 G0AG27
UniRef90-R8B4V1
UniRef90_UPI00028A273F
UniRef90-I3BU16
UniRef90-H8MYE9
UniRef90_UPIO0031176BD
UniRef90_19W9P1
UniRef90_W1N816
UniRef90-X5MEG7
UniRef90 Q98NQ9
UniRef90-UPI0003716010
UniRef90 ${ }^{-}$W6VXB2
UniRef90-A9D671
UniRef90_UPI00036F6322
UniRef90 A0A021W4C2 UniRef90_UPIO0037DD8E6
UniRef90-F6BWF3
UniRef90 UPIOOO395B907
UniRef90-G6YPG2
UniRef90-B9JWV2
UniRef90-L7U2N3 UniRef90-UPI0004644339 UniRef90_UPIO0036088A5 UniRef90-J7Q3F7
UniRef90-A6X160
UniRef90_UPI00037D203E
UniRef90_W6K6Y4
UniRef90_U4K6F9
UniRef90-Q2W7N9
UniRef90-J3HV75
UniRef90-K2HJW9
UniRef90-M3KIH6
UniRef90-UPI0003664C5D
UniRef90-18T6T9
UniRef90-U3QKI8
UniRef90 A0A011VKX3
UniRef90-F9S3A7
UniRef90_UPI00037FCFB7
UniRef90_G8QP89
UniRef90- S5EI53
UniRef90_UPI00038033A7
UniRef90_Q11HF7
UniRef90 E3BQH8
UniRef90-J0M680
UniRef90-R8APQ3
UniRef90 B5FF01
UniRef90_UPI000300588E
UniRef90-WOPE20
UniRef90_F3KU66
UniRef90-D0YY64
UniRef90-UPI0002EDCF4F
UniRef90_UPI000361CD53
UniRef90 A5EIP8
UniRef90_K2PFQ0
UniRef90-UPIO00463CB91
UniRef90 C4S5V8
UniRef90-K9FNA3
UniRef90-WOHUT7
UniRef90_UPIOO03797254
UniRef90_LONFC9
UniRef90-V3V427
UniRef90_UPI00046340CA
UniRef90 A0A021X5T9
UniRef90_UPI000368D90C
UniRef90_UPI0002D441C7
UniRef90_Q6N6Y8
UniRef90 Q1H056 UniRef90-B4W9C4 UniRef90-X1WPX2 UniRef90_FOLSH
UniRef90_B4D0P5 UniRef90_B6INX8
UniRef90_H1RZD7
UniRef90_M6D3Z8
UniRef90_J7KY11
UniRef90_A0A016XF58
UniRef90_E9CPX9
UniRef90-D5VE73 UniRef90_C6X8H0 UniRef90_UPI00037D1F1F UniRef90_UPI00035FFC0F
UniRef90_UPI000462E891

SELWESSDRLIDVAKKSLENAKL
EAAMDSEEEMRPWAKDAI AAA EGLWQDQEKILQLATTSLGFAK
DEIFEDAEVAREWASLAFAAA EDAMDSAAAMTPWARLAYAAA DDVLEDPEQAA DWARRSYEAA EELFEDRELAAVWARRSFEAA A DLLEDQDQLLEWARKAYNDA TDAEDDGRRLLPWARRAVEAS EAVFDDASEAVRWARSAWDAA ESCLEDAAQMAA WAQRAVEAA ERLFDEPDELVVAWARDAVSVA
DSAFDDPDEMTVWARRAYEAG DSAFDDPDEMTVWARRAYEAGR
E E IIY D DSEVARQWAII AF DAA EDAFDDPDEMRKWVRLAFEAA DTADDDPEEMAQWVRLAWEAA DEAFDDPDEMARWVRGAYEAA EAAMESPQEMRPWLVLAYE

E PAWDDPDEMARWVRLA YEAA
$E D C W Q D Q D V I L T H A R S A L E F A K$ SA WWDDPERLLAEAKNALDVA E EADEDPSEMRHWATMAYGAA EDAFDDPDEMARWASDAYEA SDASDDAYEMLP WARRA DDASR DAALDDPAELAD WARLADAAS
DEAMDSPAEMLPW
DELGDDPEMAKDWASLAYAAA $\square E L F D D P E M A K D W A S L A Y A A A$
$D Q A L E D A D E L V R W A K F A L E A A R$ SEAFDDPEVMTHWARLAYDAA DDWWEQTDTMMDFAKQA LA $\square$ AR
$P D L L E E P V E L G Q W A H R A W E A S R$ E DSWENTDDI IDEKASQALKKVAR A D DME EGAELCAWGRAAFDAA DQWWDEPTKIVAQGRYSLDAAE E EALDDPEI MTE WARRAYEAA D DMLDDPEVAVHW
DEAYDDPEIMTEWARDAFAAS DEWWEHPEKIVEQAKYSLKAAQ AVCLESAEEMTT WARWSVEA E ELLFDEAE DADE WARSAFEAA
EAAFDDPDDMTMWARQAYEA
EEWYQNSAKTLQDGTDA LS
 EAMWRDREELIGLAWQAMREAR ARLFDDSEDLAAWARSALGAA D DWYSCPTQTLDDAKDALKSANL E ELLWENPDKLVQQLSSLALERSAQ QATWDNVEQLIAMATHALENGA PECWNE PD S I LI QAVVA L DVA K ESADDDPDEMTI WARKAYEA ES S D D DRQQLK WAQLGVEAA
DNWWDDTQCLDKQGELSLQAAE ENWWVKSDELMAYATTSLLT $\square A R$ AEFMEEREQAADWARRSYDAA A HLFDDADEFTLWAREAFVAAQ D EALDDPDMMAKWAR DA LDAA DSAADDPDELLPWARKAYEAS ETVLEEPVELLNWIEKAQAAAR EALWDAPATLIVLGRQTQEEAR EEALDD $\operatorname{CEEELYYWAAQGYEAA}$ DEALDDPD LLQKWLRLDAYEAA E EV DDD DDTLCYWAGLGYEAA EDAFDDPDIMARWVRDAYEAA D DWMSDSATTLAEAKNS LE $\square A K$ ERLLDDPDELAEW
ADMLEAPEQAVYW
ETALDDPDEAVDWARRALEVA AKLWQDPEQLLRLSASALHAAQ EDCWSDTGRILDDAKSALTVAK EALDWQQRQELFADAWQAMREAR A A AMDDREMLCEWARKGIAAAE ETAFDDTDELLA WARPAV PACLESAEAMTAWARLSVE EEVLEDDEDLIFWFRKSLAEA EALWQESEQLLYFAHLALGGGAQ AEALESPALMLPWARLAMEAA ES LWCTRNELI S LA WQAVREAR TEALDDQDVLLDWARKSLIVA
 ESALDEPDEFRSWAELLAVE


UniRef90_H8DQ25 UniRef90_G2G1L2 UniRef90_UPI000380BED6 UniRef90-Q7MJ56 UniRef90_UPI000368E89B UniRef90-K2M323
UniRef90-J2KIM8
UniRef90-D9QJC0 UniRef90-UPIO00344A924 UniRef90-V6HN20 UniRef90-C4K7V8 UniRef90-NOB8W9 UniRef90_UPIO0047A50D9 UniRef90-J2U7G4
UniRef90_Q2IVS1
UniRef90-A8IAK2
UniRef90-13X8X9
UniRef90-I2JKR1
UniRef90-A1K7V3
UniRef90-J7IWT3
UniRef90-V5CBV5
UniRef90-D2BTK1
UniRef90-G8AKE1
UniRef90_UPIO004711F6C UniRef90-H8KFH9
UniRef90-A8ZSR2

## UniRef90-A2SL06

UniRef90_UPIO00380B6E3 UniRef90_UPI00017468B2 UniRef90_UPI0004717C1C UniRef90-Q2IM15
UniRef90_UPIO0034948B9
UniRef90-A7H6Y4 UniRef90-D4F3V5 UniRef90-C4SZN0 UniRef90-K8AZD8 UniRef90_F9ZWK4 UniRef90-F8JGM4 UniRef90_UPIO0047A3CFE UniRef90-N6US71 UniRef90-UPIO00363BFDD UniRef90-A4W8X1 UniRef90-G2GX19 UniRef90_Q8D057 UniRef90-14YZU7 UniRef90_UPI0003752A63 UniRef90-G7LVC4 UniRef90-D3NVZ2 UniRef90-E6WCD3 UniRef90-10HLF2 UniRef90-UPI00046AC1DB UniRef90-I3TL61 UniRef90_UPI00036E8D4C UniRef90_A0A059FC95 UniRef90_UPIO0046A2126 UniRef90_L8BJE1
UniRef90-HOTQ16
UniRef90-H3RBF2 UniRef90_UPIO00378A877 UniRef90-AOA024IBS3 UniRef90-U2ZY85 UniRef90_A1VWB7 UniRef90_C6CAH5 UniRef90-B1Y642 UniRef90_UPI0003B65AB0 UniRef90_C4U5S9 UniRef90_Q476T5 UniRef90-F8C9V6 UniRef90_UPI00034B1A97 UniRef90_C4UQL9
UniRef90 UPI0003F UniRef90_UPIOOO3FC474C UniRef90_HOHS56 UniRet90_15C1E6
UniRef90_A5EK31 UniRef90-B3T1X2 UniRef90_M1YNK3 UniRef90-J7KJGO
UniRef90 H5UWZ3 UniRef90_UPIOOO3730860 UniRef90-J3APT3 UniRef90_UPI0003775DB1 UniRef90_Q28PB9 UniRef90-B1EPI5 UniRef90_UPIOO02489375 UniRef90-C7BPQ0 UniRef90_A0A014LVU9 UniRef90-K8DQ26 UniRef90-S3JORO UniRef90_UPI0003664FAB UniRef90-K2LQG7 UniRef90_Q0BYF8
 DVLYFKVDDSNRSDYERVGMEPFQPFAD KPMVMPYYEVP GEELLKADAVSAPDFEAAGATRWS DAGGRPVNMPYWTI P D QL H I R A D QKS T L L F E K Q GLLK P Y V Y T K R G F PVVVT K Y Y A I S DVFRLKVVDETN QADYEARGMKPFYSETKKKKGMPYWEVM
 DTLY L K S DAESAPYFDA LDDLDPPFTYVVRGQSMPMSYRQAP $G V V W L K A D E T N A P L L V E A G A R Q F T F T K D G Q T M S M A Y W S M P$ D SLLYFR A DEEVDWVK F EA E GS Q P F Q Y S T R QRTTVVVK S Y WR L P




 NTLYLKA DTATRGDFDA LGGLPPFSYQRNGRDIALSYF QAP $D V L Y L K A D A Q T L P R F A E L G L P C F E Y A R N G R T V Q V S Y H R A P$ DTLYFKVVDDSNRSDYERAGMEPFKPFSDDRPMLMP YYEVP


 $D V V Y$ L K V D D S N R E A F V VR A G S S A F K P F A D D QL Y L K TDA QT LP QWRDA G GRAFVVYERDGRTATMS YWTPP DVLYLK S DATTVPDFEREGCEAFSYAAKGRRVVMS YRRAP NRFY L RTDDETK DRFDD Q GCEP F V F DKA GNPVVVKYYEPP

 DELFLKTDAVTRARFVDAGCRPWFYARRGTTERTSYRRPP GEL Y L R GREALGRDYAARGMCPFDYTKRGFPVRLNYYRVD GE L L Y L R A N N K I E N L F R S R G M S N L L V Y A K R G L P DSLY L KA DAENA GYFEQMNLARFEYIRSGKVARLGYYQAP

 N L L $Y$ Y L

 G E V Y L K A D D E TA GFF R D R G S R P F A Y E T R GRRRSI M G Y W L MP ERLCI RANESQKKVFEKRGFQPFSYTKRTGRVVTSYYYLP GELLYL RASKNDEKHFRDRNMPHLVYTKRGMPFPLNYYLVD E ILLYI KA D DVNRAAFTELGGLEPFRPM PDKPTTLSYYPPP

 GTLYL RVDDQS R P E Y E A MGLEP F R Y DRPGRTVTVSYYEAP


 D QL $Y$ Y L R A S E A L R E Y VA K R P L E P L I F R K R GM P V S L

 AT LWLKAGPDTRAVFEAAGCQRFTYQAKGKTRRSLGYYSAP
 GRLYLKVDAQSRAVFESAGCEPFAYQRAGGRAVMSYESAP $R V L Y L K A D A L S K D D F V S E G L A A F E Y H K Q G K P Y T L S Y Y E A P$

 GELYL RACEQIQPYDGAGRMPRLVFHKRGMPVSLNYFQVD

 GE 1


 G E L F L C A G E Q S A E Y F S S Q R N S T K L T F T R R G R P V G E L Y L R A S E Q S V D Y F R K E K A P L L T WF K R GR QV S L N Y Y K V D
 GQLYLK GAGDFHDVLKDAGCTRWTYQREGKPTAMPYWTMP GELY Y L R A CE Q S VQYCVVKHPPVWLTYKKCGRPVTLNYYRVD DEELWFKA DATS DAIVWDEAGCDRFTY QMGEKTGTMNYRRAP GEL Y L R G N GHAEVLFKARGMKNYDYSKRGVPVTMRYYRVG G E L Y L R A C E Q VIR P Y ITTE R K M K S L T L





|  | ETTWRDPEHMDADSAASLETA QL VDLLENRELLADWAMKSLFVSR ESAVDDPDELAVWTRKAYEAA |
| :---: | :---: |
| UniRef90-G2G1L2 |  |
| RRef90-UPI000380BED6 |  |
| Ref90-Q7M | ESAVDDPDELAVWTRKAYEAA DALWQDQ |
| Ref90-UP |  |
|  | GEWLDNEEQLLEFATLALGAAR ADDFEDRHEAALWGRRAYEAA EPAMDDPDESVAWARQSDEVA |
| UniRef90-J2KIM8 |  |
|  |  |
|  | EESLEDDEDLRYWFR |
| UniRe990-V6H |  |
| Ref90- NO | ERLLDDPDELRDWAKGAITAAAR ERLYDEQDEFLEWCRAAVGVAR AELLDDPAQLLVWARQAISAAR |
| UniRef90-UPIO0047A50D9 |  |
| J2 |  |
|  | EAALDDPEAREVLFRRAQGVAR EAAYDEPEEMARWVKL |
|  |  |
|  |  |
|  | ALDDRDLLIDW |
| A11 |  |
|  |  |
| Un | DGLWADCRELLILASQALHESR SLWQDEPALLELARLSLQGAR |
|  |  |
|  | WA |
|  |  |
|  | P EMMEDQELLGKWFKLVLNAA |
|  |  |
|  |  |
| UniRef90_UPIO00380B6E3 | EMAFANAQRMRPWATMGWECA |
|  |  |
|  | D ${ }^{\text {D P M }}$ |
|  |  |
| UniRet90_UP100 |  |
|  |  |
|  |  |
| C4SZN0 | STLWEDECTLSHFVTRAYQGAK |
|  |  |
|  | A A |
|  | NTLWNNEPELDQLASDSLEGAR |
| UniRet90-UPIOOO47, |  |
| UniRef90-UPIo0036 | AAADNQEEYLVWIERATSAAK |
|  | EGLWQDREKLLQLSSEALEAARL |
| Ref90_G2G |  |
| UniRef90-Q8D0 |  |
|  | NDVLKDRNQVLQLAKCALNDSQ |
|  |  |
|  | ESLWENHAQLLHFAGMSLAGAQ |
|  |  |
| , | THLWQKPEQLMQLSASALRAAR |
|  |  |
|  |  |
|  | DEVFDDDEALCSRARAAWQAA AEILEDCTLLAVWAKKSFAAAQ |
|  |  |
|  | DAMDEADLASEWGRKAF |
|  |  |
| 8B | DSALWQEPEQLVALSSRLCLLAGAR |
|  |  |
|  | ENLWYDPEHLVALSAASLQTAR |
|  |  |
|  | EEAMESPALMQPW |
|  | DEAMESARDMAP WAR DA DEVA ELWQSEQTLLELDARFSLQGA D DMESPALMQPW |
|  |  |
|  |  |
| Ref90-UP | V |
|  | PA Cll |
|  |  |
|  | ALWAQPETLLALSRSALKHAQ <br> AL WDDDLVLRNFARQAHQGAK |
|  |  |
|  |  |
| iRef90_UP | ARLF D D SEELAVWAK |
|  | DGAADSADEMTPWARKAFEAGK |
| UniRet90_15C1E |  |
|  | A ${ }^{\text {d }}$ |
| B37 |  |
| UniRef90 M1YNK3 | TEEVENADRLIVEWARKAVA |
|  |  |
| UniRef90-UP1000373 | NDLWNNPPLLVKLATDSSLTSA |
| Ref90 JЗАРТЗ | A EALDEPDLLV WARRSI |
| UPI | ALDDPEEAVA WARAAL EH |
|  |  |
|  | ESLWRNQQKLVRLSKYSLDA |
|  | GDVHDDPDAMRHWAKI A 1 A A |
| Ref90 | ESLWQDQALLSQYAHLAYHYS |
| UniRef90 AOAO |  |
|  | EELVEDNQAFVRWA HEGLAAA |
|  | EELWSNHDKLIQLSFQSLSSAR |
|  | EQLWQETATLEALSEAALMAAR |
|  |  |
|  |  |
| PI00047E8E7 | APDSMRNWVEKALGAS |



## UniRef90_K2K2U3 UniRef90-J1QR98 UniRef90_UPI00040752AA UniRef90-E8XVC1 UniRef90 W8RUN5 UniRef90-F7QNK3 UniRef90-D8MQG7 UniRef90-C9YE14 UniRef90_M4Z7G7 UniRef90-A3J557 UniRef90-UPIOOO3B79DDC UniRef90-10QTZ1

 UniRef90_Q12FR8UniRef90_12BAK5 UniRef90-W8V8F7 UniRet90-G7WIH2 UniRef90-M9RFXO UniRef90_UPI00046504FB UniRef90-A0A0591JW9 UniRef90_M9W5N8 UniRef90-B2U777 UniRef90-UPI000471B519 UniRef90-UP10003FFD18C UniRef90-G1XWAO
UniRet90 J2LHL3 UniRef90-J2LHL3 UniRef90_Q1YNM3 UniRef90-A0A031GXA5 UniRef90_UPI000410F847 UniRef90-UPIO0026304F7 UniRef90-A9ANX8 UniRef90-UP100037DB67B UniRef90 UPIIOOO42AEAEA5 UniRef90 UPIO003701FFF UniReffo-10G8Q0 UniRef90-V5BDQ8 UniRef90-V4QUJ5 UniRef90-W0ED16 UniRef90-A0A011 NAG9 UniRef90_UPIO002EE4972 UniRef90-AзК1м9 UniRef90-UPIO0046CA3EB UniRet90_BOUFD5 UniRef90-H5WKQ4 UniRef90-M4UAE9 UniRef90-UPIOOO2558238 UniRef90 UPIOOO408BCF9
UniRef90 E8VL 14 UniRef90-E8VL14 UniRef90-H4F6D9 UniRef90 UPI00047CDA9C UniRef90_S9QJH1 UniRef90-Q46MJ2 UniRef90-W1JBT8 UniRef90-UP1000462FO2B UniRef90-UPIO0047DOBCB UniRef90-A7IPN3 UniRef90-UP1000288E35F UniRef90- F2P9C9 UniRef90-UPIO0035E9CB8 UniRef90-UP1000428DF73 UniRef90-B8KB72 UniRef90-W3RE62
UniRee90_C7D7V2
UniRef90-UPIO0036E3A16 UniRef90-U5NMM6 UniRef90-D7A819
UniRef90-UPIOO04631103
UniRef90-F9RXG5
UniRef90-H8K6S3
UniRef90_U1TX96
UniRef90_UPIO003780BF4 UniRef90-X6L207 UniRef90-AOKD59 UniRef90_D31H76
UniRef90 D8P7L4 UniRef90-W9B6A9 UniRef90-G1WDY7
UniRef90-K8WCX3 UniRef90-UPIO0046B0038 UniRef90-DOYXG5 UniRet90-V6MNO9 UniRef90-UPIOOO40D1640 UniRef90--131E05 UniRef90-GOGZO22 UniRef90-D1NZX4 UniRef90-UPIOOO46A1595 UniRef90-K2JMUO UniRef90_Q3Z742
 GELYLRACEQSAQYADTHHAPLLVFNKRGREVSLNYYFVD GELYLRACEQSAQYAITHHAPLLVFNKRGREVSLNYYFVD GELYLRATGETETHFRRKKMERLTYRKRGMDVQLRYFKVS GSLWLKGAGAMVDSDTAEGCTRWTYQRAGRPTVMPYWSMP AGLIFRVDELTIPRYDAEGAKPFQYDTRNKTVVVNYRHLP GDLYLRACEEVRPYIIERKMKPLMFNKRGDPVALEYYRVD
 GSVRIKGAGDFIDELEAAGCVQWTYVKNGKSGNMPYWSLP GELYLRATHENEAMMKQLAMRQFAYPKRGDEMSLRYFQVD EKLWLKADADTRGRFEALGCERFTYTRNGERLALNYYSAP GELYLRACEQAATYVSRREPGMLSTHKRGRAVALQYYHVD GELYLRANDLDEDFFRNRGMANLIYAKRGLPVLLRYYRVD DVLYFKVDDSNRSDYEKAGTEAFRPFAHKPMVMSYYEVP DGTMIKGAGAFQDEDDAMGGTRWTYQRDPKPTAMPYWKLP GGFYLRMSVLCAEQSWMRNAEQLTFTRRGRSDALNYYLVG


[^0]\section*{| N |
| :---: |
| D |}


 DGLYKADAESDARWDAAGCARFTYEAKGKVNTFNYRAAP GELYLKSDTETDAIYEAEGLRNWHYARTGRPVRMPYYRMP DQLFIKPTDAGRAWISAQGMLQ BKAPPYPQAKPYFLID DMVYKVDDTNKAK WDEGSVPLKPFKSNATVAKSFYSIIP DELWFKADAESDAAWDAAGADRFTYEAKGRQMVMNYRRAP GSLFRRVDDVNRPAFVAAGMGPFSYAGRTRTVALGYYETP SGFYLRMNELCPAQSWMEQAEQLMFARRGRSGAMNYYLVE SSLYFRVNKKTREKYLIEYGSTPFSYKTKSKRVVRSYFEVP
 DTM

## 

\section*{G

## 

## 

| UniRef90_K2K2U3 | $\text { D S ALLD DPEEAMHWARDSY } 100$ |
| :---: | :---: |
| UniRef90_J1QR98 | QALWNDRPMLLELLSAYS LDAAR |
| UniRef90-UPI00040752AA | ERLFDEPDE |
| UniRef90-E8XVC1 | ARQWSDHQALCELGRपSLQG |
| UniRef90_W8RUN5 | ESGLDDPEIACDWARRALS |
| UniRef90-F7QNK3 | ERLYDDPEELAEWAR |
| UniRef90-D8MQG7 |  |
| UniRef90_C9YE14 | ADAMESPALMRD |
| UniRef90-M4Z7G7 | D R L F D D |
| UniRef90-A3JS57 | EA AMDDPELACDWARRAL |
| UniRef90-UPI0003B79DDC | GEW\ENPEPLIE\AHMAL |
| UniRef90-10QTZ1 | EALWQQPQRLIELANDSIEQA |
| UniRef90-Q12FR8 | E EAMES A QLMLQWARVSLD CA |
| UniRef90-I2BAK5 | DELLWEDKHQLLTLSRESLRCAQ |
| UniRef90-W8V8F7 | AFLWDDDLALRHFVTLAPQGAK |
| UniRef90-G7WIH2 | VDIMEDREQLADWVWKA |
| UniRef90-M9RFX0 | ESALDDPNEACDLARRA |
| UniRef90_UPI00046504FB |  |
| UniRef90-A0A059IJW9 | ESAMEDPDEALRWA |
| UniRef90-M9W5N8 | ETLWGDSKTLFNLSASSLQSAR |
| UniRef90_B2U777 | A EALD GGQPL R W WARLIA |
| UniRef90_UPI000471B519 | PVLWQQS D ALLELSHCSLNEAR |
| UniRef90_UPI0003FFD18C | ERLLDEPD |
| UniRef90-G1XWA0 | EGAMDDPDELLRWARLAVDAA |
| UniRef90-J2LHL3 | EEAMESAGLMLP WARLALECA |
| UniRef90-W0AHJO | DAVHDDADTMREWALL |
| UniRef90-Q1YNM3 | DAAFDDPDEAERWIALA DGASR |
| UniRef90-A0A031GXA5 | GGLLWDERDWLSQLARR |
| UniRef90_UPI000410F847 | A A L EDSEAFIRWAKE |
| UniRef90_UPI00026304F7 | A DAHDDAEALRDWAMLLAIDAGR |
| UniRef90-A9ANX8 | A DVLEDAGALFDWCRSAYR |
| UniRef90-UPI00037DB67B | DAAYDDPEICEHWARKSL |
| UniRef90-UPI00042A5EA5 | ETLLWN P VVELRKQAWLSSLA GAQ |
| UniRef90-UPI0003701FFF | ADILDDSEQLAS WAERAITEAE |
| UniRef90-10G8Q0 | A RLFDDSEDLV |
| UniRef90_V5BDQ8 | E EVLTDSEQLRHWANEAMIVA |
| UniRef90-S3VNZ7 | EEVLEDDEDLRFWFQK |
| UniRef90-V4QUJ5 | E DLLEDPEALLPFARRSLEFA |
| UniRef90-W0ED16 | A DVLESRKKLIQ WVKKSYLA S E |
| UniRef90-A0A011NAG9 | EYAVEDSDELKKWIRLGLQ |
| UniRef90-UPI0002EE4972 | DAAYDEPDMLADLSARALS $\square$ A |
| UniRef90_A3K1M9 | GEALDDPDEAVDLAREA |
| UniRef90_UPI00046CA3EB | VTCLDDRQALLHWSARA |
| UniRef90-B0UFD5 | A DAYDDPDAMARWVRLAHEAA |
| UniRef90-H5WKQ4 | D EAMDSPALMQP W |
| UniRef90_M4UAE9 | ADALDGGQPLRDWV |
| UniRef90-UPIO002558238 | ESALDDPEEALHWAR |
| UniRef90-UPI000408BCF9 | A EAMEDDQ |
| UniRef90_E8VL14 | N LLDNRDQLDRLVKQS $\mathrm{L}^{\text {L }}$ C S |
| UniRef90-H4F6D9 | EEAYDDPDEMAKWVRLAFEAA |
| UniRef90-UPI00047CDA9C | EQAMESAEDM |
| UniRef90-K8A699 | DELWGSPALLRDHARVALA CAR |
| UniRef90_S9QJH1 | DRFLDDPSEASALAARA |
| UniRef90-Q46MJ2 | VDVIEDRKQLIVWAQRA WEAAK |
| UniRef90-W1JBT8 |  |
| UniRef90-UPI000462F02B | EPLWQEPATLLHLSSTEALLRAAQ |
| UniRef90-UPI00047D0BCB | A DVLEDDETLVQWAEKAYRAA |
| UniRef90-A7IPN3 | EAALDDGDDLA |
| UniRef90_UPI000288E35F | DDVYDDADALRDWALIGVA |
| UniRef90-F2P9C9 | ELFEKDPQTCSELVAKSIEFS |
| UniRef90-B6XC20 | EDVWCDSSILSHII ELLAYRSA |
| UniRef90-UPI00035E9CB8 | EFLLDDPEQMLVWARKA |
| UniRef90-UPI000428DF73 | VDVLEDPDQLGI WMGKAI A VA |
| UniRef90_B8KB72 | ELFESDSDRLD DLVKQSID Y S |
| UniRef90-W3RE62 | ERLYDDPDELAEW |
| UniRef90-C7D7V2 | DAALDDPTTAGDLARTAL |
| UniRef90_UPI00036E3A16 | A HVVDDPALLHGYAERALHA |
| UniRef90_U5NMM6 | P EALESRAGMKHWASK |
| UniRef90-D7A819 | E S |
| UniRef90-UPI0004631103 | EA $\square$ WENESLLNRLIQLATIT NA |
| UniRef90-F9RXG5 | EHFNTKSAELDKVVKQSID HS |
| UniRef90-H8K6S3 | PEDMEDQELLGKWFKLALLNAA |
| UniRef90_U1TX96 | NQLWQDADQ |
| UniRef90-UPI0003780BF4 | P D HWDEREWLVDLV |
| UniRef90-X6L207 | D TARDDPEEAVALAKEALRHLK |
| UniRef90-A0KD59 | GDRWDDREWLATLIR LTAAQ |
| UniRef90-D3IH76 | D LEDHEVLAEIVRETYKE |
| UniRef90-D8P7L4 | T DILEDPDHLIVWARSAV |
| UniRef90-W9B6A9 | DTLWRDEQQLFRLSLLS WQSAQ |
| UniRef90-G1WDY7 | D VDDRRYLSSLVRAT |
| UniRef90-K8WCX3 | EQUWENESLLFHCVDLAYRSAR |
| UniRef90-UPI00046B0038 | D TALEDSELALEELGRRALAA |
| UniRef90-DOYXG5 | TIYYDNEPKCRDLVNKSIQYA |
| UniRef90-V6MN09 | D SLWKNQQKLDQYI DMSYHYS |
| UniRef90-UPI00040D1640 | GDRWEDREWLTELI DL |
| UniRef90-I3IE05 | DHLLDEPNELRHWVRIAVDAS |
| UniRef90_G0GZ02 |  |
| UniRef90-D1NZX4 | ENA WS NVE\\|LSH\|DELAAYRSA |
| UniRef90-UPI00046A1595 | D A ALDDDPASATTLAREAL |
| UniRef90-K2JMU0 | EAALDDPELAGGWARRALDA |
| UniRef90-G0L3F5 | GSVFENASDFVSWAKESYQ |
| UniRef90_Q3Z742 | P EVFEDEVLFVKWAERSVIQAR |

## UniRef90 B2JSG2

UniRef90-S5RT72 UniRef90_UPI000365C886 UniRef90_UPI0003699410 UniRef90_B2VDF5 UniRef90_H1HMP9 UniRef90 T1X6R9 UniRef90_UPIO0046AE94C UniRef90_F0RBP3 UniRef90_A5F287 UniRef90_UPI00036F4D87 UniRef90_E3G183
UniRef90 Q5E6F5
UniRef90_Q5E6F5
UniRef90_D2R0U5 UniRef90_H2IA89
UniRef90_UPIO00475ED2B UniRef90_C4GN11
UniRef90_Q6D6U0 UniRef90_D5CPH4 UniRef90_UPIO0036E61D9 UniRef90_E8LSG1 UniRef90_K8WBC0 UniRef90_F5QW76
UniRef90 W8ZX02
UniRef90_L8J9R3 UniRef90_UPI00046AB1E1 UniRef90_A2RW17 UniRef90_IODY56 UniRef90_UPI00016A2A70 UniRef90_UPI000315BD9A UniRef90_R0EE41
UniRef90_UPI00045E8F76 UniRef90_UPI0003B692AC UniRef90_D5EVV6 UniRef90_UPI00046AC5D4 UniRef90_G9Z6L0 UniRef90_B7VPR3
UniRef90_B0NE47 UniRef90-A0A011PNH4 UniRef90_UPI00037B7D2A UniRef90_K9UC39 UniRef90_C6WTH8 UniRef90_UPI00023752AA UniRef90-E3I3C3
UniRef90-L0M4I8
UniRef90_U3ADI5 UniRef90_C9LGQ2
UniRef90_A4EK84 UniRef90-Q6LSV8 UniRef90_A6D6Y2 UniRef90_U2P3K7 UniRef90-B4EVD8 UniRef90_R1GNA6 UniRef90_Q21SS3
UniRef90_UPIO002E4BBB1 UniRef90_C0C636 UniRef90_F9TLQ9 UniRef90_A0A013VIB1 UniRef90_R9N9H0 UniRef90_UPI00036D90F0 UniRef90 C5CMJ9 UniRef90_UPI0004636351 UniRef90-B0PGI5
UniRef90_K6T5Z4 UniRef90_A3VDW8 UniRef90_UPI000307ED0A UniRef90_UPI00046F9103 UniRef90-UPI000423F177 UniRef90_U0F599 UniRef90_H9UG48 UniRef90-V5FJC3 UniRef90_U2MV99 UniRef90-V5ASU1 UniRef90_S7JLZ1 UniRef90_F7YKX5 UniRef90-E3BKW7 UniRef90_A8T1V3 UniRef90_B0T8C1
UniRef90_C4UHR8 UniRef90_UPI0003097830 UniRef90_UPI000470B131 UniRef90_UPI0003F4BBFD UniRef90-C9NUS6 UniRef90_L8JFT3 UniRef90_W9VD16 UniRef90_UPI00047BF7D0 UniRef90_H6LG02 UniRef90_E9SP37 UniRef90_W6TQI8
E DLLA Q Y|I IJE Q|L|ALI D P|I S T R S L F GACA|L|CRNEHVF GM|VM
$T L K N S L R Q I A P P G A I D V R R F F G G S A L V R N G A L F G F L M K$

ADFARELFAGVGPLTTRRMMGGLCLYADGTIFAIVVD
A A E A R K Q R L L A R R L G E

QFVDF V V D RLS AIPRIA RTRFFGGTGLSADATQFAMIMG
KEFV

ESFRRLALQQLSR
LGRFNKRSMF
AFFKYVRN
Y A P VT DRSMF G GVVGIVYSR GKMFALL A G




FRDFVLEHLA GLGDL R CKRMCGGHGLYA GEKFFGIP F D


$M F$ GS Y S L TVV D D TVVFAMMVS
$R S I K D D Y$ L
RS LKADFFNYLUREGSYDKRSMFGGTGIFINNAMYAILTD
K R L R A D Y LiA D Q CS GA G E I T T R K M F G D Y A I Y CR G K I F GL I C D


N H L E E R F K K L G K F N K R S M F G G V $\operatorname{G}$ GL F T E D A M F S
$M F G G V G V Y A N G L F F A L I A D$
$D A D A D L F A A F G P V A \square R R M F G G A G L Y A D G L M F A L W A G$









FFVQYVADQCA DAGEYQKRSMFGGMYGDY

A F K E D Y LT YLS H F GC Y E K R S M F G G T G V F I H GAMM A I L T D
$D F V Q Y V A D Q C A G A G D I V A R K M F G D Y G I Y C H G K D F G L I C D$



DFVDQFGSYQKRSMFGGDGLFNEGAMYALLTN
RKTVEFLVEQMAGGGTVSAKAMFGEFGIYCDGKMVALVCD





DTMEF LLDQLNTFGEMEQRSMF GGTGFFYQDAMFAL LTD



EGLMF GLI A D
FFDYVI KFGTYQKRSMFGGDGLFQQDAMYALL T E





MFA L $V \underset{V}{V} \underset{N}{C}$
$F$ VQ Y VCD QMQSAGDVSFRKMFGEYALYHADKVVALV CD




UniRef90_B2JSG2 UniRef90_UPI000365C886 UniRef90_UPIO003699410 UniRef90-UPI00036D8845 UniRef90-B2VDF5 UniRef90-H1HMP9 UniRef90 ${ }^{-}$T1X6R9 UniRef90_UPIO0046AE94C UniRef90-FORBP3 UniRef90-A5F287 UniRef90_UPI00036F4D87 UniRef90-E3G183
UniRef90_Q5E6F5
UniRef90-D2R0U5 UniRef90-H2IA89
UniRef90_UPIO00475ED2B UniRef90_C4GN11 UniRef90-Q6D6U0 UniRef90_D5CPH4
UniRef90- UPIOOO36 UniRef90_UPIO0036E61D9 UniRef90_K8WBC0 UniRef90-F5QW76 UniRef90-W8ZX02
UniRef90-L8J9R3
UniRef90_UPI00046AB1E1
UniRef90-A2RW17
UniRef90-IODY56
UniRef90_UPIO0016A2A70
UniRef90_UPIO00315BD9A
UniRef90_ROEE41
UniRef90_UPI00045E8F76
UniRef90_UPI0003B692AC
UniRef90-D5EVV6
UniRef90_UPIO0046AC5D4
UniRef90_G9Z6L0
UniRef90-B7VPR3
UniRef90 B0NE47
UniRef90-BONE47
UniRef90-A0A011PNH4
UniRef90_UPI00037B7D2A
UniRef90-K9UC39
UniRef90_C6WTH8
UniRef90_UPI00023752AA
UniRef90-E3I3C3
UniRef90_LOM418
UniRef90_U3ADI5
UniRef90-C9LGQ2
UniRef90_A4EK84
UniRef90_Q6LSV8
UniRef90_U2P3K7
UniRef90-B4EVD8
UniRef90-R1GNA6
UniRef90_Q21SS3
UniRef90_UPIO002E4BBB1
UniRef90_C0C636
UniRef90-F9TLQ9
UniRef90-AOAO13VIB1
UniRef90-R9N9H0
UniRef90_UPI00036D90F0
UniRef90- C5CMJ9
UniRef90-UPIOOO4636351
UniRef90-B0PGI5
UniRef90_K6T5Z4
UniRef90-A3VDW8
UniRef90_UPIO00307EDOA
UniRef90_UPIO0046F9103
UniRef90-UPI000423F177
UniRef90_U0F599
UniRef90-H9UG48
UniRef90-V5FJC3
UniRef90-U2MV99
UniRef90-V5ASU1
UniRef90-X1DCC5
UniRef90_S7JLZ1
UniRef90_F7YKX5
UniRef90-E3BKW7
UniRef90-A8T1V3
UniRef90-BOT8C1
UniRef90_C4UHR8
UniRef90_UPIOOO3097830
UniRef90-UPIO00470B131
UniRef90-UPIO003F4BBFD
UniRef90-C9NUS6
UniRef90 L8JJT3
UniRef90_W9VD16
UniRef90-UPIO0047BF7D0
UniRef90-H6LGO2
UniRef90-E9SP37
UniRef90-W6TQ18
UniRef90_UPI0003B681D9
 GTLYYRVDAAMRAEFEADGAEPFSYRAAGREVVRRYYAVP DVLYY KATSQTKDYFDSMEFKPYNHQQGKTPNDTLYFAMP EAVYLRADPEFAMDLEAEGSARFEMEKDGKSSHLPYWRLP GAILLKGAGAMATRMEADGWEKWDYVRNGARGAMPYWLLP GEMYL RACERGQPYDTERKMEALSGNKRGVSGAEDDYYRVVD
 STVVFVVDKNTRPKYEELGSKCFAYDTKARRVVRKYFEVVP




 NELYLKYPAPHADLGEPLDSRRTDKTTGGREDPLPYYRLP GS LYFKVDNASQADYVAAGSHADGY G GNDHALKSYWEVP




 GLLYLRGCDFARSYFES

 GSLWFKGDAESDATWDAAGCARFTYERDGRVASMNYRRAP
 GELYLRVCEQSATYQVENPSPLLTLVKRGRPILLNYFHVG

 $N Q L F V K P T A A G R A A M L Q Q S C D A D I V E A P P Y S G A K P Y F L I G G$ DQLYLKPTNAGRS MVQHAIEGMPYPGAKPYLLI T DCCYLRGGKELDQDFVDLECEKYKHVKKQTTATVNYYDVT DQLYVKPTAAGRA FLGEPQDGFPY K


## N

 TTIFI RGGGELDDKLLQLGCLKFKHDKKSTTATVNYYDITT D RVFI RGGCALDETLQNLNCEKFRHVKKQSTATVNYYDIT DKLYI KPTEAGRKMLPVVDLQP
 N



 $D ~ Q L A F V K$








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

## D



 NQ Y L K P TA A GRT I LI TARAP P Y P K




| UniRef90_B2JSG2 |  |
| :---: | :---: |
| UniRef90-S5RT72 | A HVIDDPSLLRRC |
| UniRef90-UPI000365C886 | E ILWEDTRE\\|LT $\square$ GAVAL |
| UniRef90_UPI0003699410 | E EALDD |
| UniRef90-UPI00036D8845 | D DVYDDPDRASALARDAL |
| UniRef90-B2VDF5 | RALWSDDNLLLTFSH口CLMEAQ |
| UniRef90-H1HMP9 | E VDDRDY |
| UniRef90-T1X6R9 | $\square \mathrm{D}$ \IEDHEALAALARESVLVAQ |
| UniRef90-UPI00046AE94C | DAYLDDPEEACALAREALDALR |
| UniRef90-F0RBP3 | T SVLENKNVFTVWA |
| UniRef90-A5F287 |  |
| UniRef90_UPI00036F4D87 | D Y AMDS SEEMVRLAEEVLQQS |
| UniRef90-E3G183 | D D |
| UniRef90_Q5E6F5 | ELFEKKPASLLS IVQEAMENSRL |
| UniRef90-D2R0U5 | LDWLES GNALEPW |
| UniRef90-H21A | ELFESGFSGLDELLKKS |
| UniRef90-UPI000475ED2B | EEKWDEREWLARLV A I T T A Q L |
| UniRef90-C4GN11 | ETAJDNGDELRDWVRQAL ARL |
| UniRef90_Q6D6U0 | VDVI EDSERVLEWAQRAWSAA |
| UniRef90-D5CPH4 | ADILEDSEFFPLWAR |
| UniRef90-UPI00036E61D9 | GDRWDDHAWLSRLI A T T A A Q L |
| UniRef90_E8LSG1 | A LFVDNFHRVGELVEQS $\mathrm{I}^{\text {T Y S }}$ |
| UniRef90-K8WBC0 | E QVWHDEVLFLQYI ELDAYRSA |
| UniRef90-F5QW76 | ESLWRNQLKKLVRLSKYSLDAA |
| UniRef90-W8ZX02 | NLFLT DQSKCDRF |
| UniRef90-L8J9R3 | KLFLD D K L C S ELVKQS IE VS Q |
| UniRef90_UPI00046AB1E1 | D D D DEFLS RL |
| UniRef90_A2RW17 | A DVLEDVGMLRDWCRD |
| UniRef90-IODY56 | QQI WENEALLLHCDDDAY |
| UniRef90-UPI00016A2A70 | VDVIEDRGKLREWAQRAW |
| UniRef90-UPI000315BD9A | ELFENQPALLLS ${ }^{\text {LIEEETMETS }}$ |
| UniRef90-ROEE41 |  |
| UniRef90_UPI00045E8F76 |  |
| UniRef90-UPI0003B692AC | E DCYD DVETL |
| UniRef90-D5EVV6 | D VDD HGYLSALVKETCKH |
| UniRef90-UPI00046AC5D4 | DATLDDPAMAGQLATEALA |
| UniRef90-G9Z6L0 | EALWRN |
| UniRef90-B7VPR3 | DLFTSEHPELDSIIRTSIDNS |
| UniRef90-B0NE47 | D $\square$ D D RGFMTRLAQAVYEE |
| UniRef90_A0A011PN |  |
| UniRef90_UPI00037B7D2A | E DDDRELLETAAKATYDE |
| UniRef90-K9UC39 | EQL DNREWLSNL |
| UniRef90-C6WTH8 | ADLWEERDWLCQLI QAT |
| UniRef90_UPI00023752AA | ELIFEARAPELDKLVVKSIACS |
| UniRef90-E313C3 | GDRWDDAEWLSTLVE L |
| UniRef90_L0M418 | DALWQNQ |
| UniRef90-U3ADI5 | GLFLTHFEGLDTLLEKS ${ }^{\text {L }}$ S CA |
| UniRef90-C9LGQ2 | E L D D E Y I A A L VRSTC |
| UniRef90-A4EK84 | DAALDDPMEACTLARRTI |
| UniRef90_Q6LSV8 | KLFLRDKNKCHSLINESIS F S Q |
| UniRef90-A6D6Y2 | ALF NERAPMLS DLVQRSITNS |
| UniRef90-U2P3K7 | D VDDHAWLSELVKATCKE |
| UniRef90-B4EVD8 | QAIWWNSAKL NQYI DFAYHYS |
| UniRef90-R1GNA6 | D LYETEDQGLDVMVKKSVENS |
| UniRef90-Q21SS3 | A DQWDDRHNLCQLVRVTADA |
| UniRef90_UPI0002E4BBB1 | HLLFTADHRELHSI VEES |
| UniRef90-C0C636 | E LDERERLCTLVKETYR |
| UniRef90-F9TLQ9 | D LF DSQHEELESIVRAS $\square$ NFSK |
| UniRef90_A0A013VIB1 | A EKWDDREWLAEIVR |
| UniRef90_R9N9H0 | D V V D Q ALL TSLVTATYQE |
| UniRef90-UPI00036D90F0 |  |
| UniRef90-C5CMJ9 | DEIIE D |
| UniRef90-UPI0004636351 | DAVLEDSSELLFWMRAAVEASQ |
| UniRef90-B0PGI5 | E DV E D REWMTELVR\T C GALLK |
| UniRef90-K6T5Z4 | S LEERDLLSEFIRQTYE E |
| UniRef90-A3VDW8 | DAALDDPDLAADWGRRALAA |
| UniRef90-UPI000307ED0A | KLYTEGDALLDDIIKDS I EFSK |
| UniRef90-UPI00046F9103 | TLYY T D D ELTTTLVKASRDHA |
| UniRef90-UPI000423F177 | P DRWEDRQWL A Q V VR |
| UniRef90_U0F599 |  |
| UniRef90-H9UG48 | EDQVEDREWLSELVRQ |
| UniRef90-V5FJC3 |  |
| UniRef90-U2MV99 | D VDNREYLSLL |
| UniRef90-V5ASU1 | DSVWGDRGLLLKLSTLAADDAAK |
| UniRef90-X1DCC5 | EEALEDHEEMKS WA |
| UniRef90-S7JLZ1 | QLFEQNHSELDS I I ERSI |
| UniRef90-F7YKX5 | ELFVSNHESLD TI IERSILRYS |
| UniRef90-E3BKW7 | ELLVKNSSELDDL |
| UniRef90-A8T1V3 | DLFDS GFAGLGELLQKSIHCS |
| UniRef90-B0T8C1 | A EALDEPDLMVEWARRS |
| UniRef90-C4UHR8 | PELWEDDETLTQFAYLAYQGAE |
| UniRef90-UPI0003097830 | DQLEDRAFVTELIRQT |
| UniRef90-UPI000470B131 | EDKLEEREWLSELVR口TVKE |
| UniRef90-UPI0003F4BBFD | S LDDREWLAELLRASYQ |
| UniRef90-C9NUS6 | ESFKSNTALVLEHAQNALDRAE |
| UniRef90-L8JFT3 | E EWWNEPQRIVSKAERALEAAK |
| UniRef90 ${ }^{\text {W W9VD16 }}$ | E LIDDADALAELVA |
| UniRef90-UPI00047BF7D0 | AEVIEEQDAL R L WADDAVAVGR |
| UniRef90-H6LG02 | D L D DRDFLT TFDAKSYQE |
| UniRef90-E9SP37 | D I D DRELLAELTAET |
| UniRef90_W6TQ18 | E |
|  |  |

UniRef90 UPI00037929A8 UniRef90-R6ONV2 UniRef90_UPIO0029AF3BE UniRef90 B1KY88
UniRef90_K2D4Y9 UniRef90-G8PTU3
UniRef90-GOLQ99
UniRef90_FOKC31
UniRef90 J7SL03
UniRef90_UPL00037EA09B UniRef90 T5HP98 UniRef90 UPIO00380A9EA UniRef90-UPI00029B54A4 UniRef90-B9Y4D8 UniRef90-E1 W331 UniRef90-R6THC8 UniRef90-D1PN28
UniRef90 A6VL14
UniRef90-D2TZJO
UniRef90-U3B1Y7
UniRef90-X2H166
UniRef90 G2FQG1
UniRef90-E1SIY1
UniRef90-F4C482
UniRef90-B2UPV3
UniRef90- C8S2C6 UniRef90-UPIo003693C50 UniRef90-R9JPQ9 UniRef90-UP100034CA4FC UniRef90-D5ANY4
UniRef90-U1QN58
UniRef90 ${ }^{-}$c9R710
UniRef90-U3B758
UniRef90-c9PSP8
UniRef90-D3HUS5
UniRef90-Q65052
UniRef90_UPIo00380BB46 UniRef90_H1LLEO UniRef90-F4GK11 UniRef90-R6P8G7 UniRef90-F9TMC9 UniRef90-QNH59
UniRef90 $10 \times 673$ UniRef9-OOX673 UniRef90-A0A023WU65 UniRef90 K1TV72 UniRef90-UPI00036A998E UniRef90-E5Y8U9
UniRef90_R5F541
UniRef90-16WXUO
UniRef90_UPIO00378FFE0 UniRef90-KofZ56 UniRef90_UPI00036294FD UniRef90-Q015V4 UniRef90-UPIO0026C7D68
UniRet90_K1YGV5 UniRet90-M9R828 UniRef90-C6ALQ9 UniRef90'UPI00030577A4 UniRef90-G4RE85 UniRef90-F8L397
UniRef90-A6CYN5
UniRef90-DOLJU3
UniRef90_A3N356

UniRef90-M5Z9D8 UniRef90_E7GE60 UniRet90-F4HER7 UniRef90-UPIO003486ADF UniRef90-E6LOF5 UniRef90-G2TDA9 UniRef90-19WE46 UniRef90-COD5B0 UniRef90 UPIO003944A1B UniRef90-UPIOOO4649528 UniRef90-B8F752 UniRef90-UPI00037F33B5 UniRef90-T5S2K3 UniRef90-D2YG75 UniRef90-UPIO00471CBAD UniRef90 B1CBH6 UniRef90-UP10002DC795E UniRef90-F4LLD1 UniRef90-H1YEZ6 | UniRe90 |
| :--- |
| UniRet90_C1ADW | UniRef90-H7EPC8 UniRef90-UPIO00255E37D UniRef90-H8K2P6 UniRef90_G5HJ97

TIIDFLLDQLLAEDHSASAKKMFGEYCLIYKDGKPVIGLVCD ${ }^{30}$ EFAEYVCGQAEGAGEVSYRKMFGEYGIYLDGKFIGVVCD EFVEALMEKDDSDEGLTYKKMFGGFGLFHESRMFGIVSK
E EEFIGKFLVEQMEGAGE RYKKMFGEYAVYCNEKVVGLVCD MFGGHGYYANGKMFALVRE EEFMEYVSEQ $\square$ SGAGKYOYRKMFGDYGVYCNGKMYAGVCD DRLQHSTQPFGRIRLKSQFGCMGLSDDRVTFALIAN KETVARILEQLEPLGDVRARAMFGEYGLYCDEKIVGLAVG TIERLLEQTAGAGGVTARAMFGEYGVYCDEKMVGLICGG EFVDFVVEQDQNVGKITAKKMFGEYGIYADEVLFALVCE TVDYILEQTAMAGMVSARKMFGEYAVYCDGKVVALVCD ISKVCDLLNQLGDVTSKNLDTGYGLFHKEKMFAVWAN
 ILELLRRLLNS NVRSKPLF DGHG FYDGTMFAIYQK LMENYGHIKQKPHFGGYRULVNHVIIGQVLD FANKULKDGSSFDDTS SKTFFGGFSDNCKGVMFGWI GE EFVTYUYDQLSDSGEITYRKMFGEYGFYCDGKYFACVCD
EKLLNRLREALMD DPT TKEKTMFGG DCFLVNDKMC\CLRE DVVEYI CFQLRHAGDI SFRKMFGDYGLYCGRTFFGLVCD DTARYILEQMQGAGNVADRPMFGEYAVYCDGKVVGLICD TVEFIVGNGSVSDTVSAKKMFGEYGUYCGEKLVALVCD EFVQYVADQLSDAGTVSYRKMFGEYGLYCDGKFFGCLCE

 QRLKNEKKLGEISIKNLFTGHGUFHSGIMFALHQN KDTLADRATLRELIGEVTAKSLFASYGLFREGTMFGLYQH RELAEFVVDQLAPPGGVSLHRYFGGWALRRDGRQFAMVM EFVDFVAEQASAAGEIFCRKMFGGYGMYCNSVFVGVICD QWIRT LINSFNETAKHLFVGYGLFYRKVMFGIVID EHTNSVQSFDFMDNVNVKSMFGGKRLFANGVPFCQFYD | $E F V A Y L C D L L S P L G N V S A R K M F G D Y G D Y V D G D F C A L C C D$ |
| :--- |
| $E F V Q F V C Q L G E G Q V C R R M F G E Y G L F A H G K Y F A C V C G$ | ESFVTYVCDQMAGAGHISSSRKMFGEYGAVCGDVVFAVARD KEYHDYVMECDNKAGEVTSRKMMGEYCLYYNGKLFGDICD K

 KEFVQYIADQLAPAGQVTYHKMFGDYGVYLDGKMFALVCD $E F M Q S V A A R L E D A G T I T Y R K M F G E Y C V Y C D G K L F G C V C D$
$E Y V Q H V A Q L S G A G A S Y K K L F G E Y G W C G G T F G T V E N$ EYAFMFAMMAE EEYASFDADQCSGAGEDRDRKMFGAYCDYCNDKVVAFLVH ESLAKRMRQALASLPDVAEKKMFGGLAFMVNGKMCLTVGP ELTELIGTITVKNLFSGYGLFKKGLMFGLYQQ KDF TDF VTDQUSDRNWVHAKKMFGDYAVYYHDKVVALVCD FMMRDLRYSDETIFAIVHD CEFSELIEDVKVKNLFNGHGMFHQDTMFALHQN DFVSYICEQLEGLGAVRSRKMFGEYMVYLNDRPVIICG VKAVISDI ESFEGLYTRPMFGGTGYFVNDAMFLLVDD EALSDRVRERLAPVOVTEQKMFGGHAFMLDGNMICGMN FVDSIQAYTE LKETS TRSVFGGKGVLSNGVMFALIKG KEFLDS $\square K E L P P E P A D E R K A M F G N T A A F L N G H M F A G T F G$ $D F V S Y A T E Q M G Q A G V V S F K K M F G E Y A I Y C S Q T L V A L V C D$ DFVHYDCQQDDGAGMISYRKMFGEYAIYCDGKVIGLICD DFVAYVCEQAGLGGALSYRKMFGEYALYYDERVVALVCD KERGRYDRFTELIGEVRVKNLFTGYGIFQEDAMFALSQN KERGRYVRALLAALGQVESRDMTDATGLYMDGVLFALVSG RE Y MEFVA GQLS GA GA I T YR K LF GE YGGYC DGKFF GTV E G
 GVGAWRERRLFGGVCLDGPQGLFALYKD FVDYVAEQLREAGADRSRKMFGEYGLYCDDVFFAVICD QQFFDYVDKFGAYQKRSMFGGTGLFQHDAMYVLVSD EROREALQAVPLLEERHMFGGVCYMVDGKMCIIGVVK ETGAQRVRDLLEPRGGVTEKRMFGGLGELVDGSMAGCVSD KELAAYVLDQLAEDENVRCDPMMGGYDFYYNGRIFGGIVG DYVDFVTERTALGAEVTARHLFMGYGLFYQDLMFGI YSK EYHDYVMECLNKAGTVTSKKMMGEYCLYLDGKVGVLICD


UniRef90 UPIo0037929A8
UniRef90- R6QNV2 UniRef90_UPIO0029AF3BE UniRef90-B1KY88
UniRet90_K2D4Y9
UniRef90-G8PTU3
UniRef90 FOLQ99
UniRef90 FOKC31
UniRef90- J7SL03
UniRef90_UPI00037EA09B
UniRef90 T5HP98
UniRef90 UPIO00380A9EA UniRef90-UPI00029B54A4
UniRef90-B9Y4D8
UniRef90_UPIO00365182C
UniRef90-E1W331
UniRef90-R6THC8
UniRef90-D1PN28
UniRef90_A6VL14
UniRef90-D2TZJO
UniRef90-U3B1Y7
UniRef90_X2H166
UniRef90_G2FQG1
UniRef90-E1SIY1
UniRef90-F4C482
UniRef90-B2UPV3
UniRef90 C8S2C6
UniRef90-UPIOOO3693C50
UniRef90 R9JPQ9
UniRef90-UPI00034CA4FC
UniRef90-D5ANY4
UniRef90-U1QN58
UniRef90 C9R710
UniRef90_U3B758
UniRef90-c9PSP8
UniRef90-D3HUS5
UniRef90-Q65Q52
UniRef90_UPIooo380BB46
UniRef90-H1LLEO
UniRef90-F4GK11
UniRef90 R6P8G7
UniRef90-F9TMC9
UniRef90-Q7NH59
UniRef90_10X673
UniRef90-K6EFS5
UniRef90-A0A023WU65
UniRef90_K1TV72 UniRef90-UPIOOO36A998E UniRef90-E5Y8U9 UniRef90 R5F541 UniRef90-16WXU0 UniRef90-UPI000378FFE0 UniRef90-K0FZ56 UniRef90_UPI00036294FD UniRef90-Q015V4 UniRef90-UPIOOO26C7D68 UniRef90-K1YGV5 UniRef90-M9R828 UniRef90-C6ALQ9 UniRef90-UPIO0030577A4 UniRef90-G4RE85 UniRef90-F8L397
UniRef90-A6CYN5 UniRef90_DoLJU3 UniRef90_M5Z9D8 UniRef90_E7GE60 UniRef90-F4HER7
UniRef90 UPIOOO3 UniRef90-UPIOOO3486ADF UniRef90-G2TDA9 UniRef90-19WE46 UniRef90-COD5B0 UniRef90_UPIO003944A1B UniRef90-UPIO004649528 UniRef90-B8F752

DLLIFLKPTKGGRALLSD
GDSYFKVNEQTKQSYLKANSEP

NKLYVKPTDAGKEYI GNDEAPPYQGAKLL Y F F I K S L Y L K A G S G NVVA D F L LTG Q LP Y DHQCFGE Y F P T N F Y S V P


 DVLFVKPTEVSTEFGSEADLAP P P Y P P GAKDYYRVP D QLFI KP T L S GRAHADVSDAPPYPGAKP QMLIAA

D QLVK P TA A GKAF IETGCPBFTTNEDNYPGAKPYLLG N K V Y L R A K DELLS $\square K L$ K GLGCKPFTTNEDNKRFVLS
D QFFVKVTP QGEAAFPNLPAPPYQGAK D
S HE GASDSFVI E
QEL Y L KA DGDLLANELLAAYGSYPWAYPRSNMKTGPKYYHI S
 $\begin{array}{llllllllllllllllllllllll}G & K & A & Y & L & R & G & G & P & S & L & T & K & E & L & L & A & L & G & C & K & Q & L & K \\ \text { Q } & F & K & K & R & I & G & C & A & K & V & Q & Y & Y & D & I & M \\ L & R & G & H & S & H & Y & R & S & V & F & I & E & L & G & M & T & T & L & T & L & P & S & G \\ I & S & T & K & S & L & D & Y & Y & K & V & G\end{array}$

 N

 $D$ QL F I
GKFY L Q AK D E L S S QL VN S GCCVA FT K N E DA K F V L S D Y Y C L T D RLIFVKIT EPGKA FMPDGKLELPYEGGGKMLR




NKVFI KPTKAGRAFIEQFTSAP
DGTMLKK GA GAFKDALDAMGMTRWTYQRDPKPTAMPYWKLP









 NMLILK KPTGAARELATLEAPPYPGARP



 N QLIFIKDTES GRKIL GKLFASPYGGAKE H I V
 N GFGV KI T E T S K K F MS D E P EPP Y E G A K P MLDPVT
 GQFYLK GEHKLA EVFENMGAVSWTTTAKSSDLA DNYYELP
 NRLLVKRTENSGKLLGDC


EERLQDLDHLHAFIQRT


D LDDRDYVSALVAATFRA
RALVDNEEEFKTLVILSTKQQQ

DDPESDDAL
Q LEDRELLSRLLEATCRE
SELDENS FVKAVDGS DEAA
DRLDDKDWLARLVAAT
E FENPDLMKELLE
DRLKDKKWMSHLVKKDTAQE
DELLDDADELRHLV DETARL
ND ULSDRVLLRKLLMDS $\square K Q \square Q$ VERLEDRAFLKKLVRMTCEA
E
EELWRDSKMLFHLSALSLQSAR
D ID NHRYMSDIVRATYEA
SSILNNLQTYSHWITSATHE
EAGLQNKAALGYWI RLALE
KEILTQNKEHFRQILYLS I A QTR
GDLLEDSEWFTDLI R LTASEL EEKLEDRDFLAKLLQASYKE

NS IRRNKEKFKEILILAAGKAK
$P$ DDRETLREAARLA
HALERSRVQL LFYRS $\quad$ E $\square A$
GDVLDTEMGLAQWVDRCMAFA
AEILGDETQLKAWIKRSDAF
EAV
RAWREHPERARPWLVTSLE
SS IIHNLHLYTHWILSALEE
ENQIDDAPWLSELIRIT
DDSIDNKELMTTLI RVTCDE
KEITEDKQKYRSLI LLS $\square E$
DDVLDDGERLGRL
P F GKNKTLKQVNLSTQQUK
PFVLDDGDTLAQWGRAAWEAAK
EAMQSTPDTLASWVARC【
E VEDREFLAKLVRAT
E LIF QS D YPYL GELI SRS
DEALDDPELLRRLLR
PD LL ND LQQVSHWVVESVK
bla

DAAMRSKQELQYWTDLDCDAF
DENDEDKNTLDDLI DNTYDE
KPVVADDDELRRWVDEGVRTAE ILEDREQLTQMI RQMY
DEFLSSPQELNYWVKLALEF
DSVTKDENVYKRLVIASVKQ
DELLEDRDRLQEILQVTADA
E FEDAEFMKKLLDI A VEKSQ
EAAADDEDLLAELVRLGVERAR
$P E \square M E D Q E$
$D \quad L D D A G F L T E L V!V T C E A$

## UniRef90 UPIO002375A6E

 UniRef90-H6RBJ5 UniRef90_UPIO002628CC7 UniRef90-G8SCJ5 UniRet90-G7STP8 UniRef90-D3FDF2 UniRef90-L7GED2 UniRef90-C7R6U9 UniRef90-K8BEJ7 UniRef90-E6WRS2 UniRef90-х6ното UniRef90-UPIO003B4B6A1 UniRef90-UPIOOO4680B1A UniRef90-H6SPKO UniRef90- ${ }^{-16 Q O K 1}$ UniRef90-UP100047BB7CD UniRef90-S5J9S8 UniRef90_UPIoo0470A875 UniRef90-K2BDC8 UniRef90-14VK48 UniRef90-L1MEA6 UniRef90-UPI0002DC0334 UniRef90_UPIo00365168E UniRef90-A1R3Z3 UniRef90-E6TL83UniRef90_UPI000369324C UniRef90-W6U0G6 UniRef90-Q7VKD0 UniRef90-UPIo0036EB622 UniRef90-W9AHX5 UniRef90-Q2KD12 UniRef90_WOFHM4 UniRef90-E6KRQ2 UniRef90-G4L148 UniRee90-UPI0002F7784C UniRef90-UPI00036B7CB9 UniRef90-UPIO00360F105 UniRef90-UPIo003B78F40 UniRef90-D4LER6 UniRef90-U5Q717 UniRef90-A0AO24K9Y2 UniRef90-H6PBP7 UniRef90-F4H7X7 UniRef90-L8JLM8 UniRef90-A0AO17HV17 UniRef90-U1MST6 UniRef90-UPIO0034588A4 UniRef90-LOFWW4 UniRef90-UPIO00362D475 UniRef90-UPIO0046AC93A UniRef90 G416U2 UniRef90-UPIOO0469C349 UniRef90-R6XD40 UniRef90- H 81 IM 32 UniRef90_UPI0003B75359 UniRef90-H5XWU7 UniRef90-SOFAE4 UniRef90-A0A011UXI7 UniRef90 N1W4H9 UniRef90-R6EAS8 UniRef90-ToF6W2 UniRef90-V8AGK1 UniRef90-WOEX15 UniRef90-R6A211

 $K D Y$ Y F F I L E QLS GLLNEI THRSMMGEYIL YYRGKVFGGI YD
 $G R V D L C E M T D A C G F Y$ L D G G V L F GILV $F \boxtimes A Y V C D Q \quad A G L G P L T S K R M F G E Y A L Y V D G K V V A F A C D$


 RAR ERFRSVLPD HPDVVVKPMF GNLGAFVNGNMFA GL F G RARVDE $\square$ MS NL T LVVEARTRAMFGEYGLYCSDKFVAMICD

 L A D R V R E L L E D R D DV T E K A M F S G DC F MV D E K M C I CVV T LE NL R T I F R S DGGI K FK P Y F S Y M G L F K D D TM F GL YK E $E D L A N R V R E \| L A G T G D V D E K R M F G G L A F L V R G N M V A V S G Q$
 E YLA A VL D LL GRVVEGVTHRAMMGEYLLYARGTLFGGVYD
$R \square R D \square F A S Y P N V R E \square R M F G G V S F M V N D R M V A A D R S$ $E D L A D R 1 R E C L S G Q R G I T E K K M F G G L A F L V N G N M I A A S G R$ RDLANRIRELLAG ESVVEKAMFGGLAFLLNGNMVAASGQ $R D$ A
 D Y V E Y V C D Q L R E T G N V R Y R K M F G E Y M V Y Y in D K P I V L V C D $K E Y$ Y A F $\quad$ L D Q L E LVGRVRELVGARVPVEERRMFGGVAFLVGGHMAVGVSG
$\qquad$ KELADRI REALAEVAPVREV
 E FIVE Y V V T QME D L G N V R Y R K M F G D C M I Y RIVRAALA HLLQNLEEKKMFRGGDCFMLNDKMCIDCVSN


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




E E L A D R IR D L L G P LP EMVEK KMFGGLAFLAGGNMAVVAH

 QF L Q Y V LE QA GLGAALAARRMFGEYGFY LDGRFVAVMA D
K E Y L E H V LDDLLSKVA GVTHRTMMGEYYLLYYSEGVLFGGGVY D

K
E
K

|  |  |
| :---: | :---: |
| UniRef90-H6RBJJ |  |
| UniRef90-UPI0002628CC7 | GGLLVRVEPDEGERLLGEGVQPMVMRGREM RGWLRVD |
| UniRef90-G8SCJ5 | DDLIVRLGPAVAPALAEPGTRVFDFTGRPM RNWIVVD |
| UniRef90-G7STP8 | NVFYLKAEGDLALFLESQGAA SYLAKQAPSKLNYYRLP |
|  | GRLLLRGT |
| UniRef90-L7C | NQVFVKPTAAGRALLGEV VVEQAPYPGGKPHYLI |
| UniRef90-C7F | NQLFIKPTVAGKEFIGDY VEAPAYPGAKPSLL |
| UniRet90-K8BEJ7 |  |
| E6 |  |
| UniRet90-X6 6 HOT0 | GELLLKADEQSAPRFRSRRLLQAM |
|  | RFLLVKPTKSAKA |
| UniRef90-H6S | GQLHFRVDAGNRADYERETASQDFFAAPQTTGGLKFRGVP |
| UniRef90 H6Q | C |
| 0047B |  |
| - |  |
| O-UP1000470 | FYVKMTQAGHEMLPDAEPAA PHGGTPGM YLVE |
| UniRet90_K2 |  |
| UniRef90-L1MEA6 |  |
| UniRef90-UPIO002DC | PTIGIRLSETDKAALEAEETQPFGPAERPM GGY |
| UniRef9-UP1000365 |  |
|  | GVKLSVADQQELEAHQTQPFGPEERPM GGYVGLP |
|  |  |
| UniRef90-W6U0G6 | D |
| UniRef90-Q7VK | P |
|  | GNGGVKVPAAGAELLRAVGSGPGMAGBGPMGRGYL |
| UniRef90-Q2KD12 | $V_{P}$ |
| iRef90-WOF |  |
|  |  |
|  |  |
| UniRef90 UPIOOO2F7784C UniRef90 UPIOOO36B7CB9 | GDLLVRANPAEYDNLLRRGAVP ALMGKEKPMGRGWLTV |
| UniRef90 UPIOOO36 | GGLLVRSDPDDQSVLDEPGVSPMEM RGREMAKGWLRVT |
| UniRef90-UP10003 | NTVYVK LPCVETLLAAAE |
| niRe990 D4L | YVKKLP QVS |
|  |  |
| A0A24K |  |
| UniR |  |
| UniRef90-F4H7X7 | MVRVPEETPSLLAEPGTRPFEMRGRGY LAGWLLVE |
|  | MMCRDDPALIEEALQREGCTTVVMKGREY R GYVYDH |
| Reef90 U1MST6 | RGEAYPGSKPYGIVE |
| UniRet90-UPIO0034 |  |
|  | NRIMARVTDQYEEALQQAGSMEMNFTGKSM KGYVFVD |
| UniRef90 UPIOOO362D475 | NSLFMKPSRAVATLAPDLPGPPYPGAKD |
| Ret90_UPI00046AC93A | g |
| UniRef90 - UPIO00469C349 | DRFLLKDVPATRKSFVTEQ |
| UniRef90-R6XD40 | DRFLVKPTPSTDKMMPNAQMEPYEGAKKM |
| 13 | , |
| UP10003B75 | DRLLVKPVSAAVKLMPDASMEPYEGAKEMLLV |
|  | DIVAYKKLDGI |
| UniRef90-A0A011UXI7 |  |
| Uni | G |
|  |  |
|  |  |
|  |  |
|  | D |
| UniRet90-R6A211 | NEVLVKTNAEMRTLYPEMP QKLLFDGAVNPM WLID |
|  |  |
|  | ELLGYSACRQAEMGKGRTMGPGWLTVA |
|  | GGL |
| E3 | RGLMLRVGPDAYPAIIQDGVSPFEMP |
|  | ADLMVRVGEATPDAL |
| UniRef90 UPIOOO47A0803 | G GL M |
| UniRet90 BgCWT0 | - |
|  | D ${ }^{\text {d }}$ |
| UniRef90 UPI0003731F18 | D |
|  | G ${ }^{\text {a }}$ |
|  |  |
| N1W | NRLFVKPTEGGRKWIGN VQEAPAYPGAKPSFLIP |
| P1 | GGLMVRVDPADADRLVD GEAVTRMVMGGREMRNWLR |
| UniRet90_N1ZMR6 |  |
| UniRef90 C9LSS12 |  |
| UniRef90-E9UULO UniRef90 F9PV62 | M |
| UniRei90'UPIOOO309B7D3 | NQLLLKPTAEARAL |
| UniRef90-R7DTU6 | QE QGSPYPGARPHFLMT |
| UniRee90-N6 |  |
| UniRef90_C4F7S7 | DRLLIKETPASASALGAT AVPYEGARPMRLVDS |
| eef90_UP100046 | DFTGRPM KGYVYVD |
| 37B3A51 | - |
|  |  |
|  |  |

UniRef90 UPI0002375A6E UniRef90-H6RBJ5 UniRef90_UPIO002628CC7 UniRef90_G8SCJ5 UniRef90 G7STP8 UniRef90-D3FDF2 UniRef90-LLGED2 UniRef90 C7R6U9 UniRef90_K8BEJ7 UniRef90-E6WRS2 UniRef90_X6H0T0 UniRef90 UPI0003B4B6A UniRef90_UPI0004680B1A UniRef90_H6SPKO UniRef90 UPI00047BB7CD UniRef90-S5J9S8 UniRef90_UPI000470A875 UniRef90 K2BDC8 UniRef90-14VK48 UniRef90-L1MEA6 UniRef90 UPI0002DC0334 UniRef90 UPI000365168E
UniRef90-A1R3Z3
UniRef90_E6TL83 UniRef90 UPIO00369324C UniRef90-W6U0G6 UniRef90_Q7VKD0 UniRef90_UPI00036EB622 UniRef90_W9AHX5 UniRef90-Q2KD12 UniRef90-WOFHM4 UniRef90-E6KRQ2 UniRef90-G4L148 UniRef90_UPIO002F7784C UniRef90_UPI00036B7CB9 UniRef90 UPI000360F105 UniRef90_UPI0003B78F40 UniRef90_D4LER6 UniRef90-U5Q717 UniRef90-A0A024K9Y2 UniRef90-H6PBP7
UniRef90 F4H7 7 UniRef90-F4H7X UniRef90_A0A017HV17 UniRef90_U1MST6 UniRef90_UPIO0034588A4 UniRef90-LOFWW4 UniRef90_UPIO00362D475 UniRef90_UPI00046AC93A UniRef90 G4I6U2 UniRef90_UPI000469C349 UniRef90_R6XD40 UniRef90_H8IM32 UniRef90 UPI0003B75359 UniRef90-H5XWU7

```
UniRef90-SOFAE4
```

UniRef90-A0A011UXI7
UniRef90-N1W4H9
UniRef90-R6EAS8
UniRef90-TOF6W2
UniRef90_V8A6K1
UniRef90-W0EX15
UniRef90-R6A211
UniRef90-UPI00047A8EFC
UniRef90_K0FBP8
UniRef90_W5X5L3
UniRef90 E3J2X7
UniRef90_R4LNF0
UniRef90-UPI00047A0803
UniRef90 B9CWT0
UniRef90-UPI0004667762
UniRef90_UPIO003731F18
UniRef90_UPI000477DC86
UniRef90- H0E1I6
UniRef90-P22043
UniRef90-N1WJQ8
UniRef90_UPI00046394B6
UniRef90-N1ZMR6
UniRef90_C9LS12
UniRef90_E9UULO
UniRef90 F9PV62
UniRef90_UPI000309B7D3
UniRef90_R7DTU6
UniRef90_N6X1S2
UniRef90-C4F7S7
UniRef90_UPI00046F391D
UniRef90_R5SGS0
UniRef90 UPI00037B3A51
UniRef90-H8KQ19
UniRef90_UPI00036D1C10

DALLINDRER|LGVWLIAHATR
ATHVEDDTRLREWVDRGVGFAR AAVVRTAARLREWVTRGVSYA GARLDDED LARWLRAGVDFA RKDTSDKSLYKQDLEQSLRQDK



```
DEALDDEPGLLRRRLIFR
```

D DVDDREFLRELVEA $\square$ YEE PDGFESDAQLESWVNQGYAF PFVLDDEAVLVTWGRKAFEAAK

DELED
QALWEPSK LF LDDEVKKS LEEA D LLEDTRFLKELVSRTCEE


EAWNDDPAQAEPWVARAFAHAEL DER\ADTEWDCALLQRTADA QS WQD DAEQTAEWVAKALEVAKL
$\square D G L D T R R Q L A P W V A R G A E Y A K$

D TDVEKQQE $\square$ RYWLS LCLLEF
QHIIENDS SYSHWIT SS I
HDLDDDALTAWVERA
A DGVRTRRQLRPWVVRGLDYA AHVIDDPWLLRRCSERALHATPL

EDRDALADLVER
D VDNRDALAALV
RDQLDDEAELAYWVT $\square$ GVESGK $\square$
DGVI RTRRQLAEWVGRGADYSR
A D AVESDAAMARWVRHAVSYAK $V D Q P G L A A A V V R$
$I D E N E L L D Q L$

PDATEDDDE【REWTALLSQRHA DQLDDKALLSRLLQAMYEE PGAVADDDELDRWVDAGVAHAR A D SLKTPADFDYWVSLAVDF DALDDPEP AT IALRAA VDRLLGDVDWLHETV QTIAATQV PEGTDSEEDFTAWMREALE GKVVDTEPQLAYWVDKCLHF DELLDDPDALRRLL DVETAEL EAWRDDPDRLRAWI ARA DDGLRTKRQLASWVARGVTYAK P ILLVDSEDPARIA QAIEA
A A GVQTKRQLHSWVKRGVDHAR DDVDNREFLCELVEAMYEE

DVIDDRERLKELI
E E DIK TKKELIEYWUQLS LE
A
EKDDKSKKEFQYWTDLSLDF
ES LHTRPDELK $\square W V A R S V A A$
A GGYQKQKGFDFWLK LVLDFARL
NP DDREAVERYFGlUAVK
AEAVADDEVLDEWVRRGVDYAK
PESLADHEQL SFWLEQGMQ
AEAADDDAVLREWVDRGVGYAR
KS ILDDDRDFILWVERSAGYAR
PAAVAGTDALIDDLDQGVRFA
GAVLDD ETLRRWVDRA
ADVVDDEDELRRWVATGRDVAR
$\square$ SYi LS STQFPA WV
GGRVADPDELDA WVVTAVEHA

$P E A V R S K R Q L Q P W V R R A V A F V R$
DDVVEEAPRFQDLLR VTAAAL
DQ FENKEWISALI K DTAEE
TEALDDDGVLSGWI ERGLAYAR
E LDDKNFLKNLVEATWKE
DRLDDKAFLSELVVAMYEE
A DLLR GDALADWVRRGVATAE
DRFEDMDLITELLK


DDTDLARQVV
QDA K DQEEFDYWINLCLDF
K TVLK TKA D L D Y WI N L S SL E

UniRef90 Q1B8A1 UniRef90_UPIO0029AAE93 UniRef90-D7W7ZO UniRef90_UPI00037E47CB UniRef90_UPI00029A277F UniRef90_UPI0003761C0B UniRef90_A6CBN6 UniRef90-M2CDH7 UniRef90_U5EHK4 UniRef90_R7DVV8 UniRef90_UPI000375B505 UniRef90-UPI0003AD158C UniRef90_D0GM58

## UniRef90_Q0S969

 UniRef90_UPI0004679931 UniRef90-E1KUT4 UniRef90_UPI00031CB864 UniRef90-UPI00036445E5 UniRef90 G2FH84UniRef90_UPI000248AF42 UniRef90_R6LMM1
UniRef90_C7N501
UniRef90-U4IVH1
UniRef90_UPI00046920D6 UniRef90_UPI0004705588 UniRef90_D4TWE7 UniRef90_R6QW64 UniRef90-K7RS16 UniRef90_W7UHU7 UniRef90_G0J2J6 UniRef90_V8CYC8 UniRef90_F0SUJ6 UniRef90_UPI00037127A2 UniRef90_A0A037ZJV3 UniRef90_Q65R00 UniRef90_UPI0004693314 UniRef90_C0ZZG0 UniRef90-MOQEE8 UniRef90-X2MEN4 UniRef90_V2Q949 UniRef90_G8RTG7
UniRef90_H5U4D7 UniRef90_Q5LQY5 UniRef90 X5LKI6 UniRef90_UPI000255BBFA UniRef90_LOIWA1 UniRef90_G9XBP
UniRef90-A3TIX6 UniRef90_A9C2H5 UniRef90_IORL74
UniRef90_UPI00047B9E85
UniRef90_A1T9L7
UniRef90-R6HYY0
UniRef90-G7GKV5
UniRef90_UPI0003B46E37
UniRef90_UPI0003610C7B
UniRef90_T0N6E7
UniRef90-D0L996
UniRef90_M4RGE9
UniRef90_UPI0003793B42
UniRef90_B4X273
UniRef90_U4SRW2
UniRef90-C8XKI8
UniRef90_UPI000362B5AE
UniRef90_U5WM02
UniRef90_A6GDU7
UniRef90_D5UMI1
UniRef90_V5XBW0
UniRef90_Q21LZ5
UniRef90_U5MY95
UniRef90_UPI00031C2357
UniRef90- X8H7S8
UniRef90 S9MZ84
UniRef90_U5WAD1
UniRef90_UPI00037D3C57
UniRef90_F7V399
UniRef90_E2ZGQ5
UniRef90_UPI0001C37EC9
UniRef90 UPI0003737435
UniRef90_R7D1W2
UniRef90_D9T3N6
UniRef90_F7NJ10
UniRef90_UPI0003B5D3CF
UniRef90_R6MML0
UniRef90_K4R6D9
UniRef90_UPI00047CF028
UniRef90_J3CBD2
UniRef90_Q12WV8
UniRef90_Q73ZM0
UniRef90_E6S6R5
UniRef90_K4L198
UniRef90_C7N2U0
E







 MF GDAGAYCDGLFCAILEE

 EEYREYVLELL S GLEEVSYRKMMGEYVLYYRSKVVGGIY K E Y L Q F L L D QL S DLLK E I T Y RMMMGE Y I L Y YR GK I A A Y V CD


 D F IDE Y V C E Q I T GVVGA V R Y Q K M F G E Y M V Y V LA E $\triangle L R D A L S D T P G I S E K R M F G G L C F L L N G N M V C G V H K$

DFDEF VICK Q IE P VG N I R Y R K M F G E Y M DY A N E K P V I I A C D KALAERIRDALSGES DVEEVKMFGGLSFMVNGKLAASASH




 E DL A H R I R E LI A A E R GVVE E K R M F G G L A F L I N G N MVA A S GR



 E E L A D R I R R $V$ VL S G E T GVVT R A MM
$K A M F$
$K A M M$








 ALVNRLRTHFDGRDDIIEKRMFGGMAFMLGGHMCVGVLN E Y L D F I E Q L N I L D DV S Y R K M M G E Y I L Y YR GKIIF G GI YD
 K E Y L D F I L E QL S DL E EI T YRAMMGEYMI YYR GKI V G GI Y D E A L A A E R V EFNE YVREVFSAAGDIVIKSMMGGYLVYFNSKLI GDI CD K E Y L H F I L E QLS DLDD DI SYRSMMGEY I L Y YR GKIVVGGVYD
 E YVVFVVCSRLSDLGTVRYRKMFGDYLVYLNEKPIILVVCD E DLAAN R V R E A L G H E P G I T E R R M F G G L A M M L R G N MAVVVV R G DFA E Y V C D QI K D C G Y V R CK K M F G E Y M V Y I N D K P I L L V C D EALAQRIRDLLA GEPGVTEKAMFGGLAFLVDGRMVAATGD
 $K \mathrm{D}$ Y QLIAA D R E DLAA N R



## UniRef90 Q1B8A1

 UniRef90_UPIO0029AAE93 UniRef90-D7W7ZO UniRef90-UPI00037E47CB UniRef90 UPI00029A277F UniRef90_UPIO003761C0B UniRef90-A6CBN6 UniRef90 ${ }^{-} \mathrm{M} 2 \mathrm{CDH} 7$ UniRef90-U5EHK4 UniRef90-R7DVV8 UniRef90-UPIO00375B505 UniRef90 UPI0003AD158C UniRef90-DoGM58
## UniRef90- Q0S969

UniRef90-UPIOOO4679931
UniRef90-E1KUT4
UniRef90-UPI00031CB864 UniRef90 UPIOOO36445E5
UniRef90 G2FH84
UniRef90-UPIO00248AF42
UniRef90-R6LMM1
UniRef90_C7N501
UniRef90-U4IVH1
UniRef90-UPIOO046920D6
UniRef90-UPIOOO4705588
UniRef90-D4TWE7
UniRef90-R6QW64
UniRef90-K7RS16
UniRef90 ${ }^{-}$W7UHU7
UniRef90-GoJ2J6
UniRef90-V8CYC8
UniRef90-FOSUJ6
UniRef90-UPI00037127A2 UniRef90-A0A037ZJV3
UniRef90-Q65R00
UniRef90_UPI0004693314
UniRef90_C0ZZGO
UniRef90-MOQEE8
UniRef90-×2MEN4
UniRet90-V2Q949
UniRef90-G8RTG7
UniRef90-H5U4D7
UniRef90-Q5LQY5
UniRef90-x5LKI6
UniRef90-UPIO00255BBFA
UniRef90-LolWA1
UniRef90-G9XBP1
UniRef90-A3TIX6
UniRef90-A9C2H5
UniRef90_IORL74
UniRef90_UP100047B9E85 UniRef90-A1T9L7
UniRef90-R6HYYO UniRef90_UPI0003B46E37 UniRef90-UPIooo3610C7B UniRef90-TON6E7
UniRef90-DoL996
UniRef90-M4RGE9
UniRef90-UPI0003793B42 UniRef90 B4X273 UniRef90_U4SRW2 UniRef90-C8XK18
UniRef90-UPIO00362B5AE
UniRef90_U5WMO2
UniRef90_A6GDU7
UniReffo-D5UM11 1
UniRef90-Q21LZ5
UniRef90-U5MY95
UniRef90-UP100031C2357
UniRef90_X8H788
UniRet90_S9MZ84
UniRef90-U5WAD1 UniRef90-UPIO0037D3C57 UniRef90_F7V399 UniRef90-E2ZGQ5 UniRef90-UP10001C37EC9 UniRef90-UPIOOO3737435 UniRef90-R7D1W2 UniRef90-D9T3N6
UniRef90 F7NJ10 UniRef90-F7NJ10 UniRef90_UPIo003B5D3CF UniRef90-R6MMLO UniRef90-K4R6D9 UniRef90_UPIO0047CF028 UniRef90 J3CBD2 UniRef90-Q12WV8 UniRef90 E6S6R5 UniRef90-K4L198

R
50
MVR
80
NRLMARDDRYDEALRKGCDPMEDTGRPM KGVD DNLMCRYDPELEDEVEKMGFLPMEMKGKQM GKGFVFVTG GSYLFRDGKENADAAKKLGSEPMVH GKG G
 ERLML RLGEKNRKALEEPDTHEMDFTGKPGK SMDYKRVE DRFLVKPTKSVMKKI PDASYEPYDGAKEMILV
 NTVYVKKHEKDQSLMAQAELGPYKGSK GDLMVRVPEDHDAMLAEPGAATMVMARGRPDLRGWDTVA D RFLI KVTNASKNLLSDAKLE LDPYERGSKMDLRGLI D
 $N$ NAFVKQHKA IDET L MVGAEKGFPGAKEHYI LDD YSLVVVRVG AEAYEDALLESFVFDDTGRPM KGWVVVVE DELIVVRIDPESVAD RPGVRPFEVGGR RMNGWLVA DSLYLKADDASSEHFRQVGQSSFSYQKDGKQDSMKFYS
 NTVYVKMYPKLAQLLDSAPCAA LD PYEGAKPHY ILD
 ESMMVRLDPDELEKLSDKGWQQMVM G G GRPM RGY DSVS KRFYLRGGGUVTEALVEKGCKKL
DRF LL KVTPAASER LL PD A PA DP YE GAKEMLLVEV
D R L L V K PVVPAARELLPHAPMEA P YPGAKQMLLVE
GGLLV RVDAAVMEELLGRPGATQAQMGEGRDMGPGWIVVA
D RLLVKNTASARRLMPDVPLEPYEGAK
S R L MCRFDP E LIE EV A E L N GFQ S MV M K G R $\quad$ VY K G Y CYVG $G G L M V R \square D P A S E T L L D G R A H V S P M V M \quad R G K E L A A G W \square R V A$ NTVFVKMLDCDREKMRDAE
 G G GMFR VGE QEAAALA DPGAAP LS FTGRKMGGMV
 $N \square A F V K Q H K A$ I EALMEAEKGFPYEGAK
GNIMVRCDPDRVDELLTHKGASWPPEMRGKPMSKGWVVVD G G L M V R V PDETAAEYLSSAAHTTAMVM G GRETRGWIVVVD








 D D
,

, ,

## ,

$$
1
$$

G

## 

## 


ERVLLRCAPERAAELIDHEGADWAMM RGKEMTKGWDEVD N $\triangle$ AYAKRHPS DAEMMKAETG $\square P Y E G A K$
$G G L M V R V D P A E A E R A D A E G A E A T V M R G R E M \quad R G W V T V S$ NTVFVKI $\square$ PC C D A L M MVNAE
Q GVMI H I E E A MAR E L CAREG C AA PMEMRGRP MREWVRS D R L LI K P V K K S A $\square$ D Y V S D $\square R Y$ E P Y E G A K K M L L I
$D D L M V R V G D A S D A A L A R P G A R V F D M T G R P M$
$R G W V V V D$ DRFLVKPVKSAMAMMPDAKMEPYEGAREMLLV


| $R E$ | $Y$ | $A$ |
| :--- | :--- | :--- |
| $R$ | $I$ | $L$ |
| $W$ | $R$ | $R$ |



UniRef90 Q1B8A1 UniRef90-UPIO0029AAE93 UniRef90-D7W7Z0 UniRef90-UPI00037E47CB UniRef90 UPI00029A277F UniRef90_UPIO003761C0B UniRef90-A6CBN6 UniRef90 ${ }^{-}$M2CDH7 UniRef90 U5EHK4 UniRef90-R7DVV8 UniRef90_UPIO00375B505 UniRef90 UPI0003AD158C UniRef90-D0GM58 UniRef90_Q0S969 UniRef90 UPI0004679931 UniRef90-E1KUT4 UniRef90_UPI00031CB864 UniRef90_UPI00036445E5 UniRef90 G2FH84 UniRef90_UPIO00248AF42 UniRef90-R6LMM1 UniRef90_C7N501 UniRef90 U4IVH1 UniRef90_UPI00046920D6 UniRef90-UPI0004705588 UniRef90-D4TWE7 UniRef90-R6QW64 UniRef90-K7RS16 UniRef90_W7UHU7 UniRef90-G0J2J6 UniRef90-V8CYC8 UniRef90_F0SUJ6 UniRef90 UPI00037127A2 UniRef90-A0A037ZJV3 UniRef90_Q65R00 UniRef90-UPI0004693314 UniRef90 C0ZZG0 UniRef90-M0QEE8 UniRef90-X2MEN4 UniRef90_V2Q949 UniRef90_G8RTG7 UniRef90-H5U4D7 UniRef90_Q5LQY5 UniRef90 X5LKI6 UniRef90_UPI000255BBFA UniRef90_LOIWA1 UniRef90 G9XBP1 UniRef90-A3TIX6 UniRef90_A9C2H5 UniRef90_IORL74 UniRef90 UPI00047B9E85 UniRef90-A1T9L7 UniRef90-R6HYYO UniRef90_G7GKV5 UniRef90_UPI0003B46E37 UniRef90-UPI0003610C7B UniRef90_T0N6E7 UniRet90 DOL996 UniRef90-M4RGE9 UniRef90-UPI0003793B42 UniRef90_B4X273 UniRef90 U4SRW2 UniRef90-C8XKI8 UniRef90_UPI000362B5AE UniRef90 U5WM02 UniRef90-A6GDU7 UniRef90-D5UMI1 UniRef90_V5XBW0
UniRef90_Q21LZ5 UniRef90-U5MY95 UniRef90-UPI00031C2357 UniRet90 X8H7S8 UniRef90_S9MZ84 UniRef90_U5WAD1 UniRef90-UPI00037D3C57
UniRef90 F7V399
UniRef90-E2ZGQ5
UniRef90_UPI0001C37EC9 UniRef90-UPI0003737435
UniRef90 R7D1W2
UniRef90-D9T3N6 UniRef90_F7NJ10 UniRef90 UPI0003B5D3CF UniRef90 R6MMLO UniRef90_K4R6D9 UniRef90_UPI00047CF028 UniRef90 J3CBD2 UniRef90-Q12WV8 UniRef90_Q73ZM0 UniRef90 E6S6R5 UniRef90-K4L198

D D GVRTMRQLRSWVRRGVVYAR
PEGLLRSKRNLESWVDLALEF
PSGFQKPDDFEYWI KI CLD
ADDVSD AHFEEWI SVAVENA
QDVLNRNEDLDFWI KLALEF PDGLKTKRQLQAWVDRGVDYA QAGYESAEDLKYWI HQAVKFAQ


PDACATPSALT T WVERGLAYA D P ENKEQYRELFEKMYEE DRWRDTPDRATPWVERAl解 DDCPD PVFDEWVS $\square$ ALENA V S K A D N A
PEALDTDEQLEAWIERAWAF
PETLDDP VLDEWVALARAHA
SEFWESTN FAQWVKN\| I H Q $\square$ Q LENRPLLERLI
DGVENREFLEELLKAMY
R DI
EDVLSRNDELNFWVN LAALA
EDREALRDVVDAMWE E
E VDDRSFLQHL
$A D V V Q D D E Q L S D W V G \square A M A Y N R$
AEA $\operatorname{lQ}$ TRRDLAYWIDLCLDF GDGVKTRKQLQTWVDRGVARARL

EKIRQNKKW
DDGMGNDDTRGALLTLALGFAK DEDVEEREKLQQWFDLGUKA

RTGTSSNVEFNAWIKEALDF A A G $\square$ S TKAA $L$ RRWVDVGAARAR

LED S EY LA
VE GVKTKRQLQGWVKRGVDYAK TEGIRTRRQLEKWVGVGVAYAR A GAFEDAALRSRLTEMSLAHA PAGVKSKRQLQSWVDRGVTYAK DA LLED LD GWVNRGVEFA NDGVKTKRQLQGWVSRGVAYAK

STATADDASLGEWVQRGVAFVR PAAYATRQQWQHWI AQALAF
ADGVKTKRQLQGWVRRSVQRVR PDGFDTENDLDFWVEKALEFNRL PAGDTTKRQLKPWVTRGVEYAR VENIEDREFLKELFEAMYDE
KA GlVAADDQLRDWVR LGWD
SDGFDTEEDLTHW\RDCDAF
D VDNKDFLYRLI TEMYEE
DEGI AGERALSRWVS口GADYAR
QS LLLNPEVYSHLVKTTLKE
A E GVVKTRRQLQTWVTRGUA QAR
DAVLSDDEVLQRWLSACFEFVRL
TEILYDDKPI SHWI TNGIQE
$P P A V D T E D R L T Y W V G L G V D Y V R$
ESTLDD DVLD S WL K WA WE
A E GVKTKRQLHSWVTRSV
VEGLKTKRQLESWLKPARAFAE
EEGASDLD LAA WV R RTVAYSR
TAGVSDTRRLQSWVGRGIAHAR
EGISTDND LADWVSKC
D V DNKEFLYELI T N MYEE
DDVDNKEFLTDLVNAMYDE DGAELDDEVLDGWLDRA A D RLLADDEQLRFWLDLALE

D NVDDREF $\operatorname{LM}$ R LIT AMYDE LSRFGSAEDTAFWI TAALDHNR PDACERDPDLTRWVGRGVRFAR

EDVGADDHLLEEMVWMGVGWAR
EEVDNKEYLTELFKAIYD
GAAVAEDGTLGAWLDEGRAFA
D DVENRDFLSELLETMYEE
PAGFRKPEDFEYWI NTCLD
PSVYDDEMEDRKWLDDSY
A A GVRTKRQLAGWVARGVGYA
GDLVDEDAQLRRWVDEGLGYAR
A A GVDSEEQLSTWVELSETFA
UniRef90 I4BJX1 UniRef90_R7B450 UniRef90_E0QKC6 UniRef90_J5XAG3 UniRef90_W5XP02 UniRef90_B1MK30
UniRef90_R7EW93 UniRef90 G1VCN4 UniRef90_H1RPK8 UniRef90_UPI00035C34A2 UniRef90_UPI00036A02DA UniRef90 C0CMT7
UniRef90_UPIO004666BED UniRef90_C6PNV5 UniRef90_A0A024K8U3 UniRef90 E2CB98 UniRef90_A0A014QF17 UniRef90_UPI000377C5C6 UniRef90_Q5YQY5 UniRef90_UPI00035E01F0 UniRef90_R7FNM3 UniRef90-UPI00037B80DA UniRef90_F9Q8C0 UniRef90_A8AWH8 UniRef90_H6N309 UniRef90 - D8I7P4 UniRef90_UPI0002D2C58C UniRef90_R5QJ11 UniRef90_R9JEE3 UniRef90_E8JUB6 UniRef90_A0A058ZQU7 UniRef90_A4CK91 UniRef90_U1KCY6 UniRef90_UPI00031CE153 UniRef90_UPI0003B5F4E7 UniRef90_UPI000361AD87 UniRef90-R6GSB8 UniRef90_A0K0X5 UniRef90_UPIO0037262CD UniRef90_F9PHA0 UniRef90_UPIO004702603 UniRef90_A0A024DF59 UniRef90_F0M464 UniRef90_F8F2Z1 UniRef90_C9RQl1 UniRef90_B2IPA4 UniRef90_UPI0002F42EDF UniRef90_UPI000346D8F5 UniRef90_UPI0003726D3F UniRef90_D5P3X3 UniRef90-D1Y2P8 UniRef90_UPIO0042A61BD UniRef90_A3YIF1 UniRef90_A0A023NVD8 UniRef90_UPI00037A432E UniRef90_D4FRZ8 UniRef90-Q28VI6 UniRef90_R9LAI2 UniRef90_N9YWF0
UniRef90_R6DU97 UniRef90-J2ZNE9 UniRef90-L8DG17 UniRef90_R6F1C1 UniRef90-R9PFU1 UniRef90_UPIO0037995FD UniRef90_A4ASY1 UniRef90_F3P9E4 UniRef90_UPIO003468CD0 UniRef90_R7KXM8 UniRef90_UPIO0036A2772 UniRef90 K6VUN4 UniRef90_K6WCQ4 UniRef90_R6CQR0 UniRef90_J0SXE5 UniRef90_R7Y1N5 UniRef90_F5TCK5 UniRef90_UPI0003741F8F UniRef90_Q89D41 UniRef90_C8NH85 UniRef90_H1BQ65 UniRef90_UPI00047022BA UniRef90_M5TT91 UniRef90_D8ICC1 UniRef90_UPI00037B4BA0 UniRef90_E7RY36 UniRef90_UPIO00363A645 UniRef90_UPIO002375EF2 UniRef90-X5M1U0 UniRef90-W2URK2
 L A N R V R E Y L A A E I LVERVRTVIAD EPVVREVSMFGGRSVMVNEKMIVALKD
 DF I E F V S S Q I S A A G T V R C R K M F G G Y IV Y V D E K PV I I V C D
 $K E A D E R G B A L A D E D G L S E K R M F G G L S F L V G G N L A V A V R G$ KELALYVAEQLAPLGEI RYIPMMGGWLFYYREKLI GGIYG
 E
 K



K E Y LT F I LE QLS D LD GVS YRAMMGEY I LYYKEKMFAM WLN ELAAFRI R ALLS GESNVDEKPMFGGLAFLIDNGNMLAASSR E E L A D RVVRALLEDEP GWAEKKMFGRLVFLLD GNMAVGVS G



 ERLYELFNARHDLVVKKMFGGLCFIISDYMCCVII G
 IA D R L R A A L A G V D G V $\operatorname{S}$ S E K R M F G G V G F M V N G T M V A A S S T K DY Y HFR A D P D H E

$N F V L E Q L S G L S E$
$\qquad$

 $D$ FI E FVVSS QIA S A GMVRYRKMF GEYMIVVDEKPVIIVCD K E YL L F I L E QL D F E K RVERVRD RLA SLE GVTEKKLFGCACFLLRGNVVAGVWR
 E K L A D E I K K F L S F I ME QL S E LP EI AFRPMMGEYVLYYRDKVI GGVYD
 LLEDAATHL GRPHDLRFKPMFGGGLMAYFAEKPCAWLSA


 \begin{tabular}{c|l|ll|llll|lllll}
$D$ \& $Y$ \& $E$ \& $F$ \& $V$ \& $K$ \& $E$ \& $K$ \& $V$ \& $D$ \& $K$ \& $F$ \& $G$ <br>
$L$ \& $V$ \& $Q$ \& $R$ \& $I$ \& $V$ \& $R$ \& $A$ \& $L$ \& $V$ \& $D$ \& $D$ \& $E$ <br>
\hline

 

\& $L$ \& $A$ \& $D$ \& $R$ \& $V$ \& $R$ \& $G$ \& $A$ \& $L$ \& $T$ \& $D$ \& $E$ <br>
\hline
\end{tabular} RE

| $L$ | $A$ | $E$ | $R$ | $V$ | $R$ | $G$ | $C$ | $L$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $Y$ | $L$ | $A$ | $A$ | $D$ | $D$ |  |  |  |
|  |  |  |  |  |  |  |  |  |


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

 LVR R V L E H V V D E P D V R E V K E
 DLA Y RI R GLLAAEEC GVVDERSMFGGGLAFMINGNMVAAS G A

 K E Y L E Y I L E QLS E L E D I K Y R A M M G E Y I I Y Y K E K V I G G I Y D NRVRE YLS TVQDI K IVK KMFGGLAFLVNDKMCDNVKG ENTAARVRKGLAGQRYVAEKKMMGGLCFMVNNTMCCTVSR


 A LAAD RI RRATA DDADLSERRMFGGVAFLHRGHMFVGVTG


 UniRef90_A3VKD5

UniRef90 I4BJX1
UniRef90-R7B450
UniRef90-E0QKC6
UniRef90_J5XAG3
UniRef90_W5XP02 UniRef90-B1MK30
UniRef90_R7EW993 UniRef90-G1VCN4 UniRef90-H1RPK8 UniRef90_UPI00035C34A2 UniRef90-UPI00036A02DA UniRef90-C0CMT7 UniRef90_UPIO004666BED UniRef90_C6PNV5 UniRef90-A0A024K8U3 UniRef90-E2CB98 UniRef90_A0A014QF17 UniRef90_UPI000377C5C6 UniRef90-Q5YQY5 UniRef90_UPIO0035E01F0 UniRef90-R7FNM3 UniRef90_UPI00037B80DA UniRef90-F9Q8C0 UniRef90-A8AWH8
UniRef90-H6N309
UniRef90-D817P4
UniRef90_UPI0002D2C58C
UniRef90-R5QJ11
UniRef90-R9JEE3
UniRef90-E8JUB6
UniRef90-A0A058ZQU7
UniRef90-A4CK91
UniRef90-U1KCY6
UniRef90_UPI00031CE153
UniRef90_UPI0003B5F4E7
UniRef90_UPI000361AD87
UniRef90-R6GSB8
UniRef90-AOKOX5
UniRef90_UPI00037262CD UniRef90-F9PHA0 UniRef90-UPI0004702603 UniRef90-A0A024DF59

## UniRef90-F0M464

UniRef90-F8F2Z1
UniRef90-C9RQI1
UniRef90_B2IPA4
UniRef90_UPI0002F42EDF UniRef90_UPI000346D8F5 UniRef90_UPI0003726D3F UniRef90-D5P3X3 UniRef90-D1Y2P8 UniRef90_UPIO0042A61BD UniRef90-A3YIF1 UniRef90-A0A023NVD8 UniRef90-UPI00037A432E UniRef90-D4FRZ8 UniRef90_Q28VIG UniRef90_R9LAI2 UniRef90-N9YWFO UniRef90-R6DU97 UniRef90-J2ZNE9 UniRef90_L8DG17 UniRef90-R6F1C1 UniRef90-R9PFU1 UniRef90-XON3E6 UniRef90_UPIOO037995FD UniRef90-A4ASY1 UniRef90-F3P9E4 UniRef90-UPIO003468CD0 UniRef90-R7KXM8 UniRef90_UPI00036A2772 UniRef90-UPIO0042A2DAA UniRef90-K6VUN4 UniRef90-K6WCQ4 UniRef90_R6CQR0 UniRef90-JOSXE5 UniRef90-R7Y1N5
UniRef90 F5TCK5 UniRef90_UPIO003741F8F UniRef90-Q89D41 UniRef90-C8NH85 UniRef90_H1BQ65
UniRef90_UPI00047022BA UniRef90-M5TT91 UniRef90-D8ICC1 UniRef90_UPIO0037B4BA0 UniRef90-E7RY36 UniRef90_UPIO00363A645 UniRef90_UPI0002375EF2 UniRef90-X5M1U0 UniRef90_W2URK2
UniRef90_A3VKD5


 GELYL RGTPAQKGYFDNKGYPKVNASVLEVSQNADYYKLP NRMLI KPVKS AFAMMHGAPLEAPYEGAKEMLL
NCLFLKPTESVLRLMPDAERDPYEGSKTQMVVV
$N R L L L K P$ V $\mathcal{V} P A L T L L E N P V Y E L D P Y G A K P M L H D E$ GGGMFRVGKDNEAAALALGPMQFTGRKMGGMD HSLMARVPNAMEQALLRRGARPMDFTGR $V$ VMKEFVFVD
 GGVVMLRSDPADSGEVIDDGVADTGMEMKGRPMVKGWLAVL PTIGVK PFRSAKALMPQTV STLGLK LADADREEDTSREVLPF DSAERPM QT GGYAGLPD $D E L I V R V G P D G A A A A L S R G A R V F D F T G R P M$
$D L L V R V A A D R H E T L L G E P G A E Q A H M G A G R E M G A G W D T V A$ NIPYVKEHEADESMMQSAE RGFPYEG
$N R L L L K P V K V V L D Q L G Q$ L $P$ T GVKLSPEDRAELGE GAERTLPFGPAERSMGGYTGLIP NTVFVKELDC $\quad$ RNYF SEDSKGFPYKG DRLLVKPVAAAKAMLPNAKDQ DPYDG

AK PMLR $V$ T
DRFLVKPVQAVLDKIDQSSFEPYKGAK
HWLVVRVGREEYEYL RERYVNPFDDTGKP


 VRGWVRV研 DRFLVKPAAAAASLMPGAAFE LPYE DERPMLM D $\mathrm{DPP}^{\mathrm{C}} \mathrm{Y} V \mathrm{KMHEADGELMSAAEGYPYEGAK}$ NSLLTRIGPDHYSKSLAQNVKQFDYA GRPMA D GLALKVAAADQEELLADGTRRFRHTPSARP D RYMLRVGKENEAKWLQYGVTPVEGPRKSMP NRLLLKPVKLVMDQLGQTRLEPYEGAKEMULI DALVVRVGDGYDAALTEEHVGPMEMTGGRRP RGFVLVD NQFYI KRLPVSEPFFPNATPVAPTGGKDTR HFLVE D R LLVVK PTK SAllAYMT D APCGPYDGAK
$N T V F V K K L D P E L S E I M M A A P C G P Y D G A K$
$G D L L V R A D A E R H E A L L D E P G A T Q A Q M G A G R D M G P G W D T V A$ GNLLVRVDGNREPEYVRDDGASHAVMGRGRSMGDGWITVD NRLLVKPVPSADAL
$K Q L M A R V G P N Q Y Q D C L H L E A S E M T F T \quad G K P M K G M \square Y V S P$ DELLVRVGPENMEVALARGVRPMEFRGR TAKGWAYVS NRFLVKPVPAAAAMMPDAVTEPYEGAK GKDGVT
 GDLLVRVAADRHETLLSEPGAEQAQMGAGRDMGLGWITVA EGLMVRVGPEGDEALAKTGARPYVF RGKEQ KSWVVIDD NKFLVK DFSSAQRLMPDAPRELPYEG AKPMLL
DQLLVRVSIEDAATLTEAGAAPAVMGPNRREMGPGWLLVA GGLLVRVGVARAEHLRTTAAQPMEM GGRTMRGWV HVD GGLMVRIPEETESLLEFDHTAPMVMSGRE ARGWLRVS GDVMVRVDPADAAEHHASGDEPMIM RGKEMA GWMEAP NRLLI KPVKSALSSLLKDP VYETBPYPGAKMLLI D R FLLK I M P A SEQLLPA LRTVTPYEGAREMLLVEL SAVGVKASAEDLAELGAEGAGPFGPAER DRFLVKATKKAID Y
D L LMCRFNPELTEQLSERGF LPT T DMKGREY
KGYCYVE GGMLIRVGEAHARMLQEPHTSPMEMRGR MMTGFVRVA DRFLI KNVK SARERMLDASLEPYDGAKEMLLV
DRLLVKPIKSAVKYLPTATYEPYAGAK
DKLLARVGAVN YTSCLAKPYVTEMSGKPDKTMVYVMP GSLIVRLAKEDHEKTQSLPAKPMD $\square$ TGR VKMKGWARDE NHLFIKATDKAKTLIKDYILKP
STLMARVGKQNDEALGHAHVREMDFT GKPM RGYVYVD GDMMVRCPPEDEERLLAEAGPARDGNRKQQQKTTGWITVR GGLLSRVDPKDSDRLID GELVAPMVMGGRERSKTGWLHVAB EELLVRLPPDRHAELQEMQNTRELSPGGGMQ GYFWVE
 D NLMARIDPDYDKALQKKGCREMDFTGRPM KGFVFVE

UniRef90 I4BJX1 UniRef90－R7B450 UniRef90－EOQKC6 UniRef90＿J5XAG3 UniRef90＿W5XP02 UniRef90－R7EW93 UniRef90＿G1VCN4 UniRef90－H1RPK8 UniRef90＿UPI00035C34A2 UniRef90－UPI00036A02DA UniRef90 CoCMT7 UniRef90－UPIOOO4666BED UniRef90－C6PNV5 UniRef90 A0A024K8U3 UniRef90－E2CB98 UniRef90－A0A014QF17 UniRef90－UPI000377C5C6 UniRet90 Q5YQY5 UniRef90－UPIOO035E01F0 UniRef90－R7FNM3 UniRef90 UPI00037B80DA UniRef90－F9Q8C0 UniRef90－A8AWH8 UniRef90－H6N309 UniRef90 D817P4 UniRef90－UPI0002D2C58C UniRef90－R5QJ11 UniRef90＿R9JEE3 UniRef90－E8JUB6 UniRef90－A0A058ZQU7 UniRef90－A4CK91 UniRef90 U1KCY6 UniRef90－UPIO0031CE153 UniRef90＿UPIOOO3B5F4E7 UniRef90＿UPI000361AD87 UniRef90 R6GSB8 UniRef90－A0K0X5 UniRef90＿UPIO0037262CD UniRef90 F9PHAO UniRef90－UPIO004702603 UniRef90－A0A024DF59 UniRef90－FOM464 UniRef90＿－8F2Z UniRef90－C9RQ11
UniRef90 B2IPA4 UniRef90－UPIO002F42ED UniRef90 UPIO00346D8F5 UniRef90－UPIO003726D3F UniRef90＿D5P3X3 UniRef90 D1Y2P8 UniRef90－UPIo0042A61BD UniRef90－A3YIF1 UniRef90 A0A023NVD8 UniRef90 UPI00037A432E UniRef90－D4FRZ8 UniRef90－O28VI6 UniRef90 R9LAl2 UniRef90 NoYWFO UniRef90－R6DU97 UniRef90－J2ZNE UniRef90 L8DG17 UniRef90－R6F1C1 UniRef90－R9PFU1 UniRef90 X0N3E6 UniRef90 UPI00037995FD UniRef90－A4ASY UniRef90＿F3P9E4 UniRef90－UPIO003468CDO UniRef90－R7KXM8 UniRef90－UPIO0036A2772 UniRef90 UPI00042A2DAA UniRef90 K6VUN4 UniRef90－K6WCQ4 UniRet90＿R6CQRO UniRef90 JoSXE5 UniRef90－R7Y1N5 UniRef90－F5TCK5 UniRet90 UPI0003741F8F UniRef90＿Q89D41
UniRef90－C8NH85
UniRef90 H1BQ65
UniRef90 UPI00047022BA
UniRef90－M5TT91
UniRef90－D81CC1
UniRet90 UPI00037B4BAO
UniRef90－E7RY36
UniRef90－UPI000363A645
UniRef90＿UPI0002375EF2
UniRef90 ${ }^{-}$X5M1U0
UniRef90－W2URK2
UniRef90－AзVKD5

SDGVRTKRQLDS AWDRCVEFTK

PSGYKQKEDFDFWLQLCLEF ADATSDDEHTASWI GIIAMDYNR AEGVRTRRQLEPWVKRALAYA

PTAYARREQWQHWTSEADAF
GDDLRTEHQLDQWI AVGTATAR ADAVGSEQELAVWVRRGVAWAR CTILEDSGKLCQMVREMY
EDIENKEFLRELEE EMYE DENVDNKEELYQLLTEMM
A EDHDTLVEWVRLAVAHA PAAYATRAQWQHWIAAALLAF DAMDNDYLTGLFDAMVEE PAAVDTDAALRAWVDRGVFYAR ESACRKAADLKRWVTRGUAFAR N DDEKDELKNTV EEGFKTEEQLQQWI ELLGEHA
GEGVRTERQLSRWVTLGSDYAR PPGLEKAEDLRRWVGRGAAFAR ANPWSKYSLTLDCEAEDALEQDK AENDDDRDFMTALFRADYDE

E VEDPAFLCSLTEAVY
DAALADDASRAKCLELLLDF
PEGFRDDSEMEQWIEWGLEHAR EGFESDSD LAYWV
AEHVSSRHQLAEWI DVGDDSA PEAVATDEDLQR\｜VDHGVTAAR PEVWNDEARAKAWVEKAFEH VDSLNDKEFLARLFE

VQGPPEEIEPWLARALAH
PEA पADDDR【TFWVAAMQHNR
EMWNEDKAFDARALIKEMYE
AE Q $\square$ A DNGLLVR
PEGVERDEQLDDWMGRAVRF
PGSIDMGEDLEFWIDECLAF ETGYKSAKDFAFWLNLCLDF VAGMRTKRQLQGWVTRGVGYAR
D VENRDFLKKLEATYD
AELDETNEEDESWDEKGLSFVK
ASLSHDTPRFSAWLARSALAA
ESAYATGPALETWVNRALAFVQL



PEATADDEKLAFWVDVARDHNR AAALTSEAALEFWVAAAMEH

EGLLE PKQREQWLQYCL
GEVLDD EELDAWLRAAWD
ATEDRNFLRELVMAMYEE
SDGFKTEEELQNWI E LGGDEHAQ
PEVIADDGRLAFWVDMAMRHNR
EETLDD DVLDFWLRFAME
PDALADDERLLFWDDAAREFNR
GEHLSSRHQLAEWVD\GDAAA
DDGIRTERQLQRWVTIGAAYAR
A D AVATDEALA QVV
QQLEDKDFLTSLIK
EDRDTLHDVI DAVWEE
ASGYKTQKE $\square A F W \square N \square C \square D$
PDGYQGDAELKKWVKRGLDF ENVEDKEFLTDLFKA DYDE
NGFDSDQD LANWLNDC【
PAG【SDDDDLKTWIDRAAKHAR
PPGTASDAQLMFWLRRC
ADAGTEP VFDRWLDRALD
TELVATDEVLEQWI QRSLRFVR
PNGYATRAQWNYWVEEALA
GPGMKIKRQLQSWVERGIAYAK
PEG：DDDODLNYWI QLCCLK

UniRef90 A4BKC0 UniRef90-A3ZRQ6 UniRef90-AONVK7 UniRef90-10H5N6 UniRet90-R6XUQ0 UniRef90-X1AZB8 UniRef90-E5V2B4 UniRef90-D8GQX3 UniRef90-A0A023BPGO UniRef90-l3DGC3 UniRef90-UPI0003FBFF8E UniRef90-UPI00047E673D UniRef90_UPIooo36EFE37 UniRef90-E9SH35 UniRef90-s3WXT4 UniRef90_UPIO004227237 UniRef90-W9GB83 UniRef90-M4YPC9 UniRef90-UPIO0047C95A6 UniRef90_UPIO00362C897 UniRef90_R91XA4 UniRef90-R6BLP8 UniRef90-R4ZOS6 UniRef90-G7H3B3 UniRef90-E6MFL4 UniRef90_C3X980 UniRef90-R5YG95 UniRef90-R5CW97 UniRef90-C7NAJ8 UniRef90-A0A011 NC33 UniRef90-AЗЈSH3 UniRef90_E7MMR9 UniRef90-R6X311 UniRef90-UPIO002EB42F6 UniRef90-R4PZ17 UniRef90_F5XTU2 UniRet90-R5SLH3 UniRef90-HoQTL6 UniRef90-UPIO00395E185 UniRef90-K9AXM7 UniRef90-UPIO0037BC4E5 UniRef90-M2LVX4 UniRef90-UPIO0040A2A78 UniRef90_W5TB76 UniRef90-H2JC06 UniRef90-UPI0003B3375A UniRef90_L7V771 UniRef90-UPIO00423AE71 UniRef90-R9KA08 UniRef90-DoWNX3 UniRet90 RGJNC5 UniRef90-B8HE86 UniRef90-UPI00030FE6FC UniRef90-FORSE5 UniRef90-A3HUEO UniRef90_UPIOOO4718412 UniRef90-UPIO00466CE32 UniRef90-UPIO00237B2A2 UniRef90-V1CQE1 UniRef90-UP10001FFE2DD UniRef90-D4J5U2 UniRef90-UPIO003FBB26A UniRef90-E9SEJ1 UniRef90-G6Y816 UniRef90-G8R4Z0 UniRef90_14WFG2 UniRef90-W0QIMO UniRef90-F4CNC4 UniRef90-HOHS50 UniRef90-U7FXC3 UniRef90-A5G6T5 UniRef90-H5WPP3 UniRef90-W9DI80 UniRef90-G8TCD7 UniRef90-E8TRS7 UniRef90-A0AO17HB40 UniRef90-U2JW78 UniRef90-A1SN66 UniRef90-UP100016C507E UniRef90-K1YAX0 UniRef90-A8TN06 UniRef90-UPIO0040BBEA4 UniRef90-V6KS71 UniRef90-UPIO0047EB5AA UniRef90-UP10002FB329E UniRef90-UPIOOO3B66256 UniRef90-F5YRO4 UniRef90-G4KT60 UniRef90_UPIO002629E51 UniRef90_OPIOOO4658EA4
UniRef90_ UPIOOO373F155
 EQLASRVRGLLQRKRGVTEKKMFGGLAFLLNGNMCVGVSR RELAERTRALISPDNVERKRMFGSTCFMIDGNMLVCASR EIKEEIYPIFEPTGTIRLKTYFSYYAVFKDGLMIVALYQN
 KEYLNFILEQLDDLENIKYRAMMGEYILYYNDKI VGGIYD REYLDFI GKLDTLDNVSSRKMMGEYILYFRGKIFRGI YD ØADRURQERERADFYEKKMMGGLCFMVDNKMCCGIHM PFTFKKMMGGAAFFLDEKMLLGLDE
DEDAATHGGDAHERRFQPMFGGLMAYLSERPCAWIGA EEEKERFRRLVPDHPGVVVKPMFGNLGAFVNGNMFAGLFG K QYLEFVLEMLSDTEEISYRPMMGEYIIYCRGKVVGGIYD LVQRVRALVVDEPGVREVSMFGGRAVMVNDKMIVSVKD KEYLDFILEQLSELHELGSRAMMGEYIIYYRGKVVGGUYD DLASRIRARLSGEDDLVERQMFGGLAFLVNGNMVAASGG

ERDRDLFVSHQNVREVRMFGGVSFMVDDHM AVAAD EEDNRHFRDALEGLVGISEKNMMGGTCFLLNGNMDGGADE KEYHQFILEQLSALDGVSSRAMMGEYILYFQEKPIGNGCD KEYLQR LEQLSALDGVSSRAMMGEYGLYYRGKIVGGMYD KELVERLREMLAEEPVTREDSMFGGRALMVNEKMVCACKD KEYYNFILDQLSGLDD:AYKPMMGEFGLYYRGKTVGGIYYD RDFLDFVLEQLSEDDGISYRAMMGEFDIYYGRDPGGIYD KEYLNF LEALSEVENVRYRAMMGEYYLYYREKVIGGIYD KE YLEDFILREQLAETSDVIEKKMFGGVSMILNNGHMLCGVHK KDYRDFAVEQMGLLEGICTKPMMGEFLLYRQGKYFGGIYD LEDAATHDGRPHDLRFKAMFGGLMAWFGEKPCAWLGS DLLERTRAELAAEPSTMEKAMFGVRCFMVNDKLVVGAKN KEYLNFILAQLSNLEDVSCRVMMGEYILYYKGKGVGGDYD EHFRAVVPDHPGVVIKPMFGNLGAFVNGNMFAGLFG VEEKTMFGCHVFMVDGKMCLGVEN ALVDRLRALLADEPAVREVAMFGGRSFMVSEK\|VSALKS LVERVRERLAVHQDVTEKKMFGGDAFLYRGNMAGSGSG QYL AFIVLEQLSNLEDVTYRAMMGEYILYYRGKVVGGVYD LADRI RDLLGPVTETVEKRMFGGLAFLVGGNMVAASGK KEYLTFL LEQLSHLDGUTHRYMMGEYIIYYREKMAAYDCD LADRもRELLARQPGVDEMRMFGGLAFLIGGHMVAVSGQ KEYLNY LGGLSEDEETTHYAMMGEFIIYYHGKIVGGDYN LVARLRDLLADEPAVREVSMFGGRAFMVNEKM AVHAD YLLEFILEQLADLDGVRARAMTGEYILYYRDRVIGGIVYD पAARVRENGGRSRNDVEKMFGGLAFLLNGNLLVGVRR DFDEFVVNQUDDVWQPLYKKMFGEYMVYVHRKPLLLVCD PFQHKKMMGGMLFMVDDKMFMGI NR TADR RQMEEKKANFYEKRMMGGLCFMVDDKMCCGLHF
 KAYLEFRLGQLSQLEGVRYRAMMGEYIIYYREKGVGGDYD KEYLHFILEQLSDLEEINYRAMMGEYILYYRSRIAGGIYD HLIDAVRSALAQCSDVDERRLFGSHAFFVDGKLCGAVKG PMLERLR AALGAFTEQKMFGGTCFLVNGNMLVGTSK PFEEKKMMGGLCFMVDDKMCLGVMK
 LLDRLRALFAGRTDVVEKPMVGGRSFVVDGRMCCGATT QLADRMRSQTNNYANSEETRMFGGVCFTINGNMCCAMRD EEEAERMRTALRSRTGVVEKKMFGGYCWMLHGNMLCGVEV EELAFRMRALLAAEVGVDEVPMFGGLAFLINGNMAVTVSK DALAERLDARARVEERQLFGSHAFMVDGKLCLAVKG KDYDEF LGQLCEDNDLSYRAMMGEFILYYKGKGVGGUYD QLVERVRVVLNGTRSVVEKKLFGG|AWLLNGNVCVGVWQ KALDKR\|IELISHWDNVIPKEMFGGVCYLLNGNMVCGVYK

DAERDKERDEPSATTQKRMFGGIVFLYKGKMAIGVIK
 EETLNQFLDHLKD DHTTTRKMMGEHIIYYDKAVVGGLYD ALI ERLRDLVTDEP\|MREVSMFGGRSFMVNEKMISALKD YVVYVIGQIKTSGAIMYKKMFGEYLVYLNNKPVVMVCD KEYLNFVLEQCSNLDDLACRAMMGEYILYLRGKII GGIYD LLTRIRAHLERRGPVREKAMFGVRALMLGEEMLVSAHD


UniRef90_A4BKC0 UniRef90_A3ZRQ6
UniRef90_AONVK7 UniRef90-10H5N6 UniRef90-M9X288 UniRef90-R6XUQ0
UniRef90 X1AZB8 UniRef90-E5V2B4 UniRef90-D8GQX3 UniRef90_A0A023BPG0 UniRef90_I3DGC3 UniRef90 UPI0003FBFF8E UniRef90_UPI00047E673D UniRef90_UPIO0036EFE37 UniRef90-E9SH35 UniRef90-S3WXT4 UniRef90_UPIOO04227237 UniRef90-W9GB83 UniRef90-M4YPC9 UniRef90_UPI00047C95A6 UniRef90_UPI000362C897 UniRef90-R9IXA4 UniRef90-R6BLP8 UniRef90-R4Z0S6 UniRef90-G7H3B3 UniRef90_E6MFL4 UniRef90_C3X980 UniRef90-R5YG95 UniRef90-C7NAJ8 UniRef90_A0A011NC33 UniRef90-A3JSH3 UniRef90 E7MMR9 UniRef90 R6X311 UniRef90_UPIO002EB42F6 UniRef90_R4PZ17 UniRef90_F5XTU2 UniRef90-R5SLH3 UniRef90-H0QTL6 UniRef90_UPIO00395E185 UniRef90-K9AXM7 UniRef90_UPIO0037BC4E5 UniRef90-M2LVX4 UniRef90_UPI00040A2A78 UniRef90-W5TB76 UniRef90-H2JC06 UniRef90_UPIO003B3375A UniRef90-L7V771 UniRef90_UPIO00423AE71 UniRef90-R9KA08 UniRef90-DOWNX3 UniRef90-R6JNC5 UniRef90-B8HE86 UniRef90_UPI00030FE6FC UniRef90_FORSE5 UniRef9O-A3HUE0 UniRef90_UPIOOO4718412 UniRef90_UPI000466CE32 UniRef90-UPIO00237B2A2 UniRef90-V1CQE1 UniRef90-UPI0001FFE2DD UniRef90-D4J5U2 UniRef90_UPI0003FBB26A UniRef90-E9SEJ1 UniRef90_G6Y816 UniRef90-G8R4Z0 UniRef90_14WFG2 UniRef90-W0QIM0 UniRef90 F4CNC4 UniRef90-HOHS50
UniRef90 U7FXC3 UniRef90-A5G6T5 UniRef90-H5WPP3 UniRef90-W9DI80 UniRef90_G8TCD7 UniRef90-E8TRS7 UniRef90_A0A017HB40 UniRef90_U2JW78 UniRef90-A1SN66 UniRef90_UPIO0016C507E UniRef90-K1YAX0 UniRef90-A8TN06 UniRef90_UPIO0040BBEA4 UniRef90_-V6KS71 UniRef90_UPI00047EB5AA UniRef90_UPI0002FB329E UniRef90_UPIO003B66256 UniRef90-F5YR04 UniRef90_G4KT60 UniRef90_UPI0002629E51 UniRef90_UPI0004658EA4 UniRef90_UPI000373F155
 DALIVRIGDAYEEALTEEHVREFDFTGRPM RGWVVVE
 GDLMVRCDPDRVDDLLDRDGAQW PSMRGRRMSKGWIVVE GATYLRDAKKDIEYI RQYPKTCULCDEKDGDQSRKFHYI P
 AGFGLKLPEEVRDLVEEGEGKELRYF
D R LLVKPVKSALDY
NRLLVKITKASRQLMLEA $\square E E \square P Y D G G K P M L L$
$D L L M A R I G D A T E E A M K K E G C Q P M D F T G R P M \quad K G F V F V T$
NTIFIRASRQSKTEDQQLEE TYVLQDPEVTKNFFAIP NRLMAR $\square G E A S Q Q A L L K P G C R P M D F T G R P M \quad K G Y V Y V Y$
 STIGLK LISREDKELLESERTVPFGPAER
DRFLVKKTRSAALMMPDAPLEPYDGAK
GSLLVRVDAHDHESLLTQPGAKQAKMGAERSMGSGWDTVT DRFLVKPTKSAVTMMPDADLEPYDGAKEMDLV
GGLLVRVDPAEADSWDD GERVTPMVMRGREM RGWLRVV DRLLLKITKVSATLLHDCESAFPYEGGG
GDLLVRTNPDEYDDLLRRSGVTADMGKEKPMGRGWLVVP
 YRLLVKPVQAARSYL
GAMMVRAGAERADDLLDQPGASUVVMQDRPMTGWTEDK GDLLVRVDAGEHDDLLRRPGAEQAEMGAGREMGPGWIAVA DRFLVKPVKSADEYMPNAKYEPYDGSK
DRFLVKPTKSAVDFMPAARYE SPYEGAKPMLLVD
NTVFVKKFPE LSE
DRLLVKPVKAA DEYMPEASFE LPP DGGSKM LLVT
D R FLLVKAVK S AKELMMPALHEVVPYEGAK
$N G G M Y R V G K D N Y A A D A V N G A R P A T F T G R P M G G M V$ TV
DRFLVKPTKSATAMMPNAVMEPYEGAK
NRVLVKKTKTNERFGMPEADPYEGAKAMYQVN
H GLAL RDAEADQPALLAEGAARFRHARPDEPPSRDY ILVP
GDLLVRVPAERHDELDDQPGASQSEMGAGRSMGPGWDSVA
DRLLVKPVKSAVRYMPDAEYA LDPYEGAGKMLLV

GSLLVVRDADRHDELVGRPGARQAEMGAGRTMGPGWIDVA GDLMVRVGPEHTDAALARPGTRQVFDMTGRPM RGWULVD NRESVAALDRIKEPCYEPYEGAKEMULV
GGLLVRVDPAEAA GLIDVAVAPMVMPRGGMPEMRGWVHVTV
DRFLVKPVKAAKALMLDAVYEP
GGLLLRVDPQSETLLEQPHAQRFVMRGRQ GGLLVRVPPEDADKLLERDVSPMVMAGRE DVI MLRVPEFYDALLEENDVRPMDF $\square G R$
NQLLVKPVSAAKELMPNA
GDLLVRIDVDDAKFSEVPGASPAEDSPGRPFTLPYEGAK DRLLVKSTPGAAAYMPSA TEELPYYSMGAKPMLLVD
STI GVKLSDADRNVLESERTVPFGPAER
NALLVRVGEAYEEALDESFAGEFGVADKPK RGWVLVE
$N T V Y V K M L E S L S A V L E A E K G F P Y Q G A K E \quad H Y I V D$

 GRFMFRVGKVNEPA LQDPKARAVIH GTRK $\square G G F V R V D$ $D R L L V K P T Q S A M N Y L S D A Q L Q$
GGLLMVRVDPASAELLTRRGASRMVMSGR
DRLLVKPTKSAVSYMVTATYEPYEGAK

$R G L L V R V G K A A H E A A V A R P A R P M E M G G R S M E \quad G Y V H V A$ NELMARIDPE VVPELKRKEAHPMDFTGK RMKSFATVK
 $G G L M V R V G R A G R D A A L A E \quad P H V Q P D R M G R R T V A A F V V V A$ GNGLFRVGPHQEVQALALGASGMVH G GGRAMKGFVVV/S
 GRFMFRVGKEQEQQALDSGARPMD TG
 DELLVRPPPQHAA IAETPGLRELD DPRGGMSGYFWVT GAMYRVGKDREAEAMRVPGTGPMEFTGKPMGGMV A AD DRLLVKPVKAA DSYMPNAEYEPYDGAK
GGLLLRVAPETEELLGEPHTSSFVMRDREM VGWLRVP RWLI ARLGGDDVAALRDPNVRPFDIT GKPM RGWVKVE
 QDLYMVRVSAKMDETMKKEAVRPMDFTKKP E GLLMVRVGPDGDEALSRPGTKQLVFRGK
GDLLVRVDAERHGEL $\square R Q P G A T Q A E M G A G R D M G P G W \square A V S$ NRLLVKATNSSLSTLPNYEDEPYPNAKK MRMGYFT GGLLVRVAADQHEELVSHHGAVQAEMGAGREMGPGWDEVA NTAFVKMLDCIK P LMEDAETGPYDGAKEHYIV
DRLLVEPVDSAKKRMPDSVHEPYSGTK
GSLLARVRPADHEELVGRPGAAQAEMGAGRSMGAGWDSVQ


UniRef90 A4BKCO UniRef90_A3ZRQ6 UniRef90-AONVK7 UniRef90- M9×288 UniRef90-R6XUQ0 UniRef90- $x 1$ AZB8 UniRef90_E5V2B4 UniRef90-D8GOX3 UniRef90-A0A023BPG0 UniRef90_13DGC3 niRef90 UPI0003FBFF8 UniRef90-UPI00047E673 UniRef90_UPI00036EFE37 UniRef90_E9SH35
UniRef90- ${ }^{-} 3$ WXT4
UniRef90_UPIOOO4227237
UniRef90-W9GB83
UniRef90 M4YPC9 UniRef90-UPIO0047C95A6 UniRef90-UPIO00362C897
UniRef90 R9IXA4
UniRef90 R6BLP8
UniRef90-R4ZOS
UniRef90-G7H3B
UniRef90 E6MFLA
UniRef90-C3X980
UniRef90-RYYG95
UniRef90-C7NAJ8
UniRef90 ${ }^{-A 0 A 011}{ }^{-}$NC3
UniRef90-A3JSH3
niref90_ETMMR
UniRef90 ${ }^{-}$R6X311
UniRef90_UPIooo2EB42F6
UniRef90_R4PZ17
UniRef90 F5XTU2
UniRef90-R5SLH3
UniRef90-HOQTL6
UniRef90 UPI000395E185
UniRef90 ${ }^{-}$K9AXM7
UniRef90_UPIooo37BC4E5
UniRef90-M2LVX4
UniRef90 UPI00040A2A78
UniRef90-W5TB76
UniRef90-H2JC06
UniRef90-UPI0003B3375A
UniRef90-L7V771
UniRef90-UPIO00423AE71
UniRef90_R9KA08
UniRef90 DownX3
UniRef90-R6JNC5
UniRef90-B8HE86
UniRef90 UPIO0030FE6FC
UniRef90- FORSE5
UniRef90-A3HUEO
UniRef90_UPIOOO4718412
UniRef90 UPIO00466CE32
UniRef90-UPI000237B2A2
UniRef90-V1CQE1
UniRef90-UPIO001FFE2DD
UniRef90 D4J5U2
UniRef90-UPI0003FBB26A
UniRef90_E9SEJ1
UniRef90 G6Y816
UniRef90-G8R4ZO
UniRef90-14WFG2
UniRet90_WOQIMO
UniRef90 F4CNC4
UniRef90-HOHS50
UniRef90-U7FXC3
Unireigo_ababls
UniRef90- H5WPP3
UniRef90-W9DI80
UniRef90-G8TCD
UniRef90 E8TRS
UniRef90-A0A017HB40
UniRef90_U2JW78
UniRef90 UPIO0016C507E
UniRef90-K1YAX0
UniRef90 A8TN06
UniRef90 UPIO0040BBEA4
UniRef90 ${ }^{-}$V6KS71
UniRef90_UPIO0047EB5AA
UniRef90 UP10002FB329E
UniRef90- UPIO003B66256
UniRef90-F5YR04
UniRef90_G4KT6
UniRef90 UPIO002629E51
UniRef90_UPIO004658EA
UniRef90_UPIoo0373F155

QDAlIAEDDQLTNYWLSHCLIDFCR EAGLVQFAAVKDWTDRAVAFVK EAGGVQFAAVKDWIDRA
SGRVQSDEDLRSWIEEAL
QVLI DDTPKFSSL
DNSDLARQ
QSVVDDPERLNSLLKLSD
PDGFDMDEDLEYWVQLCLDF
YHTALNESRFSHWVR
PEGLDADEQLDYWIGLCLAF SALTHDTPAFAQWLERSLHAPQ PEVWNDDTRARAWAGKALLD

PDAGAGDDKपT F WVETA

RQQLDDDAELAYWVGVGПD
AECV DKNELDDWUKLAL
EDV ENVELMRE
TEHLATDDRLRFWVEVGVGFAR GESIGRDEELVFWLEKALEYNR
E VDNREFGAGLE

E LDDKDFLAGLNAMYDE
ADILANNSTFTDLV
AVAMGDDATRHRLLALACNFVQ
PALDDNREEVAEVIKATCEGLK
EPERRTARFAEWLERS
AQALDTDEALAYWVETALDHNR DHADDQDYLTGLFK
EMWNEDEARARAWTEKAFA
PAAYATREAWQHWDDAALAF
ATATGDDAGLSAWVDAALEHNR
SSVLTEDEALGRWVDEGHAFA
EELLEDKDFLMDLLSAMYDQ PAAYATRAQWRHWITAALAAAR AAHLEADEVLGGWLERGMDYAR

GSG【MTDDDVGRWVSTGVKYAR
SQGVKTKRQLQSWVDRAVAYVR
AEGFKAERQLKRWVAHGLDFA
EMLLDDKQFLAQLFEKMY
AASVADDEQLRFWLDAALAYNR
N VDDRAYLC
PEVWNDDTRARAWAEKALE
PEGVEHDEQLNEWTQKAWRF
VEDRELLYQVIE
PEGFDLDDDWEFWVEKALEF
EDGFDLDDDLLYWIELCLAF
ADELDD AALKGWLAMA
ASDCDDAALLR WLQLCLEHA

PNGYATRAQWHFWLREALA
IIDDRELLQKMV
PEGTATKADLGGWVDLALAF
PEGVDLETDFEYWI QLCLLDF
AALSRDTARLAGWLAKSVR
SSILSDTRKFSSLIRSTI
PEAVADDDDLAAWVRRA
ADRLGEEQALNDWVALA
SDAVADEDALLQEW
$E G G W K R E E D S C W L L$
A
A SGTAGNVLEAWVTAGADYAR PEGFKSKKDFEYWVGLCVAF PAAYATRAQWRHWIDAALA
EEVMADDDRRASLMRGALDHAE
A GVVADED LERWAEVGAGYAR PAGCATDDELRDWVQQCVAFVR EEQACEGKRLEEWLNQA
ADAVVGSDALDVWLDRATVAA
AKGLETEEELQFYIELGLEHA
AASTASDEGLSFWDDAGDHAR E
AESTSDDEN【AFWFEVAMEYNR
AEA LEDEAELAHWLDAAL
PNGYATRAQWNDWFAEALA
$A G \square P D \quad A E R R A W D T R A L H V A R$


[^1]

|  | 90_G7 |
| :---: | :---: |
|  | iRef90-W1Q344 |
|  | UniRef90-B7C8U4 |
|  | UniRef90_UPIO00425F287 |
|  | UniRef90-UPI00047291C1 |
|  | UniRef90-UPI00030C7100 |
|  | UniRef90- W9U0S7 |
|  | UniRef90-K2N0U2 |
|  | UniRef90-M3VJ51 |
|  | UniRef90-G8PGP7 |
|  | UniRef90-E6J8G1 |
|  | UniRef90-W0RIA5 |
|  | UniRef90-B5EW93 |
|  | UniRef90-U4V284 |
|  | UniRef90-A0A011UZ97 |
|  | UniRef90-L7KNW8 |
|  | UniRef90-UPI0003730F26 |
|  | UniRef90-D3QIV1 |
|  | UniRef90-R5FLZ7 |
|  | UniRef90-V9HRV5 |
|  | UniRef90-L1MJA6 |
|  | UniRef90-R7IHE5 |
|  | UniRef90-C5T9M0 |
|  | UniRef90-UPI0003B471F2 |
|  | UniRef90-M7T5A0 |
|  | UniRef90-A0A011AHW1 |
|  | UniRef90-UPI0003FCA05D |
|  | UniRef90-UPI0003627E5D |
|  | UniRef90-UPI00016A67E3 |
|  | UniRef90-UPI000424D234 |
|  | UniRef90-UPI00036ECC4D |
|  | UniRef90-R5LCK5 |
|  | UniRef90-16XVJ0 |
|  | UniRef90-UPI0000510444 |
|  | UniRef90-UPI00035CB7AD |
|  | UniRef90-D5BPU6 |
|  | UniRef90-UPI00037FEE03 |
|  |  |

## 50

NRLLLVIKATKSARHQ|LQDNTLLSPYPGAK NRLLVKPVPAA LTSYKKANVLPYPGAKPMDEV DRLLVKPVETAIRY
D LLLVKPVKTALEYVREVDM
GDLLVRVDAARHDELLKRPDAAQAEMGTGRNMGPGW\NVS $G G V Y I K$ RSSADRLLAR LTRPASPYPGAKEHWLLP ARFGMRGGNGLDEEFTLLNCEKYKHVKKQTTATVNYYDVT $A R F D F R V G K D H Q D E A L A R P G A K L M E M G G R T M S G F D F V D A$ GGVMVRVPPEQTSTLLEYPHTAPMYMSS RETQGWLRVF PRFMFRVGKDNEA EA LGREGAE IVELGGRRMGGLVFVA



 GALLARVGDEQEPAALAMGAKRMDFTGR MEMKGFIMV NQLLVKMTTQSRK $\square$ ATNYPSRPYPGAKPM $\operatorname{TKVDVN}$
 DRLLIKQTDKAKEMDRDVVYE LLYTKRK IK KK DRY LVD GDLLVRVDAD A WRAMPSEPGAAQAEMGAERRMGPGW』TVS TGFMVKNVPAAWRFMPGTSAEP
EELLVR LPPQHDTVAETPGARPL DPRGGMAGYFWLE HSLLCRIGQKQANELEKGNCTQMMNNGR
GVVLTKASEQDKTKLSKEFLQPF KAATRTMKNWPQ円P EDAVFRGTPAHADALALDGAEDFDPSGRGRPM KDWVRVP GDLLVRVAPERDGDLIESTGASRAEMGAGRSMGQGWISVG EDLLVRLPPQDHAATAEQPAVRELDSRGGMP GYFWVE




 DMLVI RVGVEAANALMNEPVRPFDLTGRPM RGMLARLGKGEDGWALAHDVQTMVMRDRAMP

K G WMMVT


[^2]

UniRef90_G7ZLT5

## UniRef90_W1 Q344

UniRef90 B7C8U4 UniRef90_UPI000425F287 UniRef90_UPI00047291C1 UniRef90 UPI00030C7100 UniRef90-W9U0S7 UniRef90-K2NOU2 UniRef90-M3VJ51 UniRef90 G8PGP7 UniRef90-E6J8G1 UniRef90-WORIA5 UniRef90 B5EW93 UniRef90 U4V284 UniRef90-A0A011UZ97
UniRef90-L7KNW8 UniRef90-UPI0003730F26
UniRef90-D3QIV1
UniRef90-R5FLZ7
UniRef90 V9HRV5
UniRef90-L1MJA6
UniRef90-R7IHE5
UniRef90_C5T9M0
UniRef90_UPI0003B471F2
UniRef90-M7T5A0
UniRef90-A0A011AHW1
UniRef90-UPI0003FCA05D UniRef90 UPIO003627E5D UniRef90-UPI00016A67E3 UniRef90-UPI000424D234 UniRef90_UPI00036ECC4D UniRef90_R5LCK5
UniRef90-I6XVJ0
UniRef90-UPI0000510444
UniRef90 UPI00035CB7AD UniRef90-D5BPU6
UniRef90_UPI00037FEE03 UniRef90_D0D1F2


DEAFVDDNRRALCMGMALLHAQ MPAMPSDEAFA GWVQRGID
QAA LQGPG LESWLEPALHAAQ DAVELDDTALGQWIAMA
N $\quad \square D D A D F \square K E \square S A D T V E$
SEA $\square$ A E DEC $\square$ S F WVD T A
PAAYATRAQWQHW $\square D A A L A$
 A ADSIT SEEQLSYWVGVTLE
PAGYATRAQWEHWVDAALA
PEAYGNDALRRRLVDAALEFVR PEGFDMDDQLEFWI DAALAF D IIE DKKFLKKEWL DLCLK F
 A D HLLVDEASLALWLSFALDYNR

HDG\SEDKDLQRYVDLDAV

lupas_21
lupas_14
lupas_14
lupas_28
jnet
conf
conf
sol25
sol5
sol0
jhmm
jpssm


[^0]:    N

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

[^2]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    sol0
    jhmm
    jpssm

