


| QUERY | K G K T |
| :---: | :---: |
| UniRef90_G0HPA6 | K G R |
| UniRef90-R5DH48 | T EK |
| UniRef90-A1HPE2 | T G |
| UniRef90-F7QMX0 | A G |
| UniRef90_UPI000465CE46 | N G K T |
| UniRef90-B5Y6A7 |  |
| UniRef90-A8TZC5 |  |
| UniRef90-R5YW51 |  |
| UniRef90_UPI00035F1ED2 | P G R |
| UniRef90-R9AXD5 | P S R T |
| UniRef90-UPI00029A7040 | G G R |
| UniRef90-M7NZS6 | P S R T |
| UniRef90-Q5JG31 | K G R |
| UniRef90_K0CCZ8 |  |
| UniRef90-Q13MV9 |  |
| UniRef90-A8TV23 | E G R |
| UniRef90-F6CTW9 | P S R T |
| UniRef90-A8RQ24 |  |
| UniRef90-G4KUC8 |  |
| UniRef90-D2Z6X8 |  |
| UniRef90-LOWFS8 | P S R |
| UniRef90-Q1QLQ9 |  |
| UniRef90-U4T6F3 |  |
| UniRef90-E3H7Y2 |  |
| UniRef90_UPI00040F6F58 |  |
| UniRef90-UPI0003495EED |  |
| UniRef90-R5N305 | E G R |
| UniRef90-U5QLG7 |  |
| UniRef90-C6CFV5 | P S R T |
| UniRef90_F5YAA7 | E S |
| UniRef90-I3ZVV5 | E G |
| UniRef90-DOKYX4 |  |
| UniRef90-C0GH21 |  |
| UniRef90-K9PMA1 |  |
| UniRef90-Q7M986 | P S R T |
| UniRef90-B8HW84 |  |
| UniRef90-K5UPS4 |  |
| UniRef90-UPI00037A4DA5 | Q |
| UniRef90_UPI0004409043 | E D |
| UniRef90-D7DLB2 |  |
| UniRef90-UPI00037415AC | P S R T |
| UniRef90-A0A011A7T4 | E G K T |
| UniRef90_J3A5D5 | QDQ |
| UniRef90-U2UQV3 | K VK T |
| UniRef90-D7N8K8 |  |
| UniRef90_Q7NM11 | EV]P T |
| UniRef90-UPI00037EF203 | P A R |
| UniRef90-R9AXQ3 |  |
| UniRef90-UPI000466BF28 | N D |
| UniRef90-D8G929 |  |
| UniRef90-B6JF90 |  |
| UniRef90-Q1N576 | P S R |
| UniRef90-UPI00034CE162 |  |
| UniRef90-V5ZBG6 |  |
| UniRef90-M5E5R4 |  |
| UniRef90-UPI000462202C |  |
| UniRef90-U1HDA9 | P S R T |
| UniRef90-D4M7F0 |  |
| UniRef90-J4QED3 | E S K |
| UniRef90-B0K187 |  |
| UniRef90-UPI00040FCDF5 |  |
| UniRef90-W6EUQ8 |  |
| UniRef90-U6ZL55 | R M K V |
| UniRef90_UPI0003B3EED8 |  |
| UniRef90_A3YCJ5 |  |
| UniRef90-Q46RK3 | P S R T |
| UniRef90_UPI00038168A9 |  |
| UniRef90-B8PHI2 |  |
| UniRef90-R6WS84 |  |
| UniRef90-N9HDR4 |  |
| UniRef90-R5G905 |  |
| UniRef90-A7HUC4 |  |
| UniRef90 UPI000174636C |  |
| UniRef90-J6LHG2 | R |
| UniRef90-UPI0002FDEE9C |  |
| UniRef90-R1IIC1 |  |
| UniRef90-D4GJK3 |  |
| UniRef90-K8PLA4 |  |
| UniRef90-UPI000465CEB3 |  |
| UniRef90-R5N475 | T K K V |
| UniRef90-B8ESL5 | A P R |
| UniRef90-Q136X4 |  |
| UniRef90-UPI0003783768 | P S R T |
| UniRef90-X1KH31 |  |
| UniRef90-T0JY59 | ESKT |
| UniRef90-F5SIQ6 |  |
| UniRef90-H3ZPX2 | K K R |
| UniRef90-E6WHA3 |  |
| UniRef90-V2TVA1 | K |
| UniRef90-D1VTZ6 | N |
| UniRef90_V6T0N8 | T D R |




| UniRef90_D7A108 |  |
| :---: | :---: |
| UniRef90_G2T771 | Q G R |
| UniRef90_B4X442 |  |
| UniRef90-E6QCS6 |  |
| UniRef90 ${ }^{-}$X5LSS4 | P S R T |
| UniRef90-F8AHK8 |  |
| UniRef90-D1C8S9 |  |
| UniRef90-UPI000362FB5C |  |
| UniRef90-UPI0004774671 | K |
| UniRef90-F6AJT6 |  |
| UniRef90-DOKZR8 |  |
| UniRef90-100S880 | K |
| UniRef90_UPI000477AED3 |  |
| UniRef90-M7NTU7 | Q M QV |
| UniRef90_C6XCC6 |  |
| UniRef90_UPI00047DDB12 | P S R T |
| UniRef90-U7FJC4 |  |
| UniRef90-B7RGK2 |  |
| UniRef90_13RE93 | K G K |
| UniRef90-J314R6 |  |
| UniRef90-K9XCS9 |  |
| UniRef90-UPI000380235C |  |
| UniRef90-H1HTK6 |  |
| UniRef90-M1ZL14 |  |
| UniRef90-UPI000368C743 |  |
| UniRef90-1314Q8 |  |
| UniRef90-K8D2U4 |  |
| UniRef90-K0F700 | P S R T |
| UniRef90-D9RZ17 |  |
| UniRef90-E6U595 | P S R V |
| UniRef90-R5CCY5 | K E K |
| UniRef90-L8MYF1 |  |
| UniRef90-D5UYA8 | P S R T |
| UniRef90_UPI0003622FE5 | P S R T |
| UniRef90-B3PCC7 | D $\square$ K V |
| UniRef90-D5CTL6 |  |
| UniRef90-W9H3H0 | D D |
| UniRef90-R7SJP5 | E S LT |
| UniRef90-UPI00036DD307 |  |
| UniRef90-W1J919 | A MKV |
| UniRef90_UPI0002485942 | Q $\square \mathrm{K}$ V |
| UniRef90-U5DXD5 | P S R T |
| UniRef90-D4XIY5 |  |
| UniRef90-A7IEM8 |  |
| UniRef90-W6RLH5 |  |
| UniRef90-H1S167 | A G |
| UniRef90-W1IV99 | K M K V |
| UniRef90-UPI000463AC61 |  |
| UniRef90-U2UUS2 | R K R |
| UniRef90-UPI000382712E | K G R |
| UniRef90-M7NBP3 | P P |
| UniRef90-K4RIQ6 | Q |
| UniRef90-R61823 |  |
| UniRef90-UPI0003613846 |  |
| UniRef90-A0K174 | P S R T |
| UniRef90-H6R9R9 | P S R T |
| UniRef90-R9M5G4 |  |
| UniRef90_UPI000379E403 |  |
| UniRef90-M0QHU8 |  |
| UniRef90-17DXE1 |  |
| UniRef90-14BYP4 |  |
| UniRef90-C2KVA9 | EKKV |
| UniRef90-K0B0Y3 |  |
| UniRef90-UPI00047A88CE |  |
| UniRef90-D5WUZ3 |  |
| UniRef90-L7ZHM4 |  |
| UniRef90-TOBPX2 | D S K T |
| UniRef90-M5DID0 |  |
| UniRef90-C6AYF6 |  |
| UniRef90-W4BEX1 | Q Y K |
| UniRef90_UPI0001E8A012 |  |
| UniRef90-A1WPE7 |  |
| UniRef90_A0A059MR85 |  |
| UniRef90-G8SKX0 | P S R T |
| UniRef90-U2EGY7 |  |
| UniRef90-C4FSV2 |  |
| UniRef90-H3SE57 |  |
| UniRef90-K5VX97 | A S |
| UniRef90-A0A052JFY5 |  |
| UniRef90-UPI00036E7281 | E P |
| UniRef90-UPI00036D590C |  |
| UniRef90-D3L4U1 |  |
| UniRef90-K9UMN7 |  |
| UniRef90-LOM5Z0 |  |
| UniRef90-X4ZAM3 | P S K T |
| UniRef90-D9V103 |  |
| UniRef90-S5UMN4 | P S R T |
| UniRef90-B7RMR7 | A G R |
| UniRef90-B7IC02 | P S R T |
| UniRef90-M8BKX6 | P S R T |



UniRef90-G9QKN4 UniRef90_UPI0003FC1477 UniRef90_A5G236 UniRef90_UPI0003740FCD UniRef90-D4M7W4 UniRef90_UPI00047EC1EB UniRef90_UPI000405D00D UniRef90_U2YNE9 UniRef90-LOIYN7 UniRef90-G9WMZ7 UniRef90_A1UE29 UniRef90-E0Q151 UniRef90-E2LSA1
UniRef90 B2A118 UniRef90-T4VQ01 UniRef90_UPI00037E3903 UniRef90-E5WMK9 UniRef90-19WM70 UniRef90-UPIO00466EOEO UniRef90-H0E890 UniRef90-M5JIC2 UniRef90_E8MYL2
UniRe90_UPIOOO2490CE9 UniRef90-B6A888 UniRef90_D3F026 UniRef90-K7SH06 UniRef90-N6ZP09 UniRef90-M3CUE3 UniRef90-UPIO00248CODC UniRef90-K4ZMM8 UniRef90-F9ZIP8 UniRef90_UPI0003B3933D UniRef90_UPI000455F529 UniRef90-UPI0004755276 UniRef90-UPI0004713470 UniRef90-R5KNH3 UniRef90-A0A009ZVR9 UniRef90_UPI00035D3F38 UniRef90_C0C5C8 UniRef90_A0A016XJUO UniRef90-FOT196 UniRef90-G7MBG0 UniRef90_S9UJ68 UniRef90_UPI000345551A UniRef90_UPI0004757945 UniRef90-X4ZJX0 UniRef90-F2F1B2 UniRef90-K4QPI4 UniRef90-F9UBC7 UniRef90-UPIO0037D6191 UniRef90-R6RMVO UniRef90_C6IWK6 UniRef90_UPI000225B41E UniRef90-H0Q291 UniRef90_UPI0003754F78 UniRef90-UPI000479E89E UniRef90-Z5X8Y3 UniRef90-V8RBG6 UniRef90_UPI000466AF08 UniRef90_Q82SC7 UniRef90-X1RVR1
UniRef90-N6XR64 UniRef90_UPIO00380C2D1 UniRef90_D5DCK1
UniRef90_Q8FRP6 UniRef90-E8YVE1 UniRef90-F9DVQ1 UniRef90_V7YZ11 UniRef90-H5WYM1 UniRef90-F8P164 UniRef90-UPI000471E697 UniRef90-J5JUJ8 UniRef90_UPI000466847C UniRef90_KOKPJ2 UniRef90_F7NG26
UniRef90-E2CJZ4 UniRef90_G41352 UniRef90-C2W9E0 UniRef90-W4Q8T6 UniRef90_K2AWM7
UniRef90_UPI00047D0A93 UniRef90-M8DC61 UniRef90_UPI000289FA5B UniRef90-M2QXE5 UniRef90-D6EAE0 UniRef90_C2YTD6 UniRef90_UPI0003B74C36 UniRef90-UPI0002897690 UniRef90-D1B9J3 VFRGGESCLVAELGDAIIDI ALNRQVRALDQALEQARVEG VFTPLGDSAVTDDFGEGISLEKNRKILNLANAINEKPFHG YRRSGDDNLLI EYGPTLDLGLRMRVHALAERIEAEGLKG VVRRQGDANLLVEFGATLDFALRLRAHALQAALRDAGLKG $F L P G G D K Y M L I$ EFGNVMDLELNFTAQNLAQAMEDHKVTG $\square K Q A G D S A V L V E F E N E D G L E T N A K V R S L M F S L E R R P F A G$ CGDTALCVVEFGDRIDPAANAAI LALDRHVRDAQDPG YRQAGDGYLLLEYGDELDDGARLLH HLLLMELLRRQPLAG YRRQGDRHLLVEYGPVLDLELRLRIHALMLELQRLGLPG LRRAGDGGVLI EYGPVLDLVMRARVHVLYEHLLAQGIPG A GDSAILI LFKQEI SEEVNRAISATVQLI KMQQI EG YRRSGDDNVLIVYGPVLDLALRARVHALHTRLAEARVGG Y LHCGESGIVMEFGNEI SKDINAKI RSVVDLI DRDNHPY



 LLSPLGETGVII RCGDAI SEAVHRRVMSVCALLEKSLIPG FRRAGDENLVVEYGDS: DLGLRGRVHALQQAlRERAGAG LFHPLGDNAVI I ELGEDI NLETHQKVNMVTTLFDEQPFEW IFPAGDSAVNVTFDNRVDPQUNQFI RTLQRKLESQKTDG IYRQAGDNYI LI EYGDNLDLAMRLRI YLLMQAI TQSEITG VYRQAGDRHLLLEYGAELDLQLNFRVLGLDAALRGAA DG
 FFPLGDSGIVIKLGDAIDQATQQKVKALADYFEEHPLPG

$\square \mathrm{Y}$
 YRRAGNDGVLVEYGDTLDLELRARVQALHELLDRDAEPG FHPLNDAALLAEVTPADDDAANRLVLALAARLDQATPGG

 VARDSGDTHMLLEEVGRTELDPKV N DQVVHAALAAKLRKENMTG
 IVQISETAALVEFGKVI NEEINKRVRTFCNYLDNHPFKG
 GDEFIFVELSEEMSLEVNFQAMAITKQLKEEQDPG FYPLGDSAVLI EFGSGVDEKLHQEMRVAVRRI EGRPFPG
 YRASGDKDLLVEYGPQLDDRLRFRVHALMLSLRDEPDPG YRPAGDKYLLVEYGPELDLNLRFRVQALLEWLTEQSITG


 LHPDGDNAVLI ELGHEISQESHQRVQTLTAALENDPPDW VRRDGDGGVLVEYGPVLDLAMRARVHVLYESLSASAVPG
 VYRQGGDRNLLVEYGPMMDFNLRFRVHVLMEWLQQADLPG
 1 L
 RLSGDTHLLLEVGPELDLELRFRAHALMQSLESLRLDG LI I PLGDSALIVQLGEGI DPTIHKLVGELTRLLEIHPFNG PLGDQALVI TMGDSi DPVVNRRLQTLIKEIRQANDPG VYRRAGDDAVLVEYGPTLDLGSRMRIHALATALHARDERG V $\quad$ RRAAGDSAVLVEYGDRLDFHMRARVHALETEVGKRGVKG

 YRQAGDRYI LLEYGELMDLNISYRINRLIEMVDLHHTVG

AGEQGLVADFGNIISENVNNVVQQLAARLNRSQTAG GDEHVYVEDDDEMSDDAFFKSLSMSNAVRAANDDG VRRDGDGGVLVEFGAVLDLAMRARVLVLYESLLASAVPG
 FRPVAEHGVLVEFADA NDAAYAQVRHLDAMLATHGFPG
 1 DQDNETSVLVEFGKTVNENDHRKVKAFCEYLDKYPFMG ITIIAGDSALNLEFAHSI SPETSAMI RLLAAENLTADPIEG FS ALGGDQAIILVTFGEELGMETYEKVQRLFQALRRHPFVGG GDEHI FVEMDEEMSLDAFFKSLSMTNAVREAKDDG UniRef90_W0ZBI6


UniRef90 D5MN09
UniRef90 G9:
UniRef90_UPIO003FC1477
UniRef90 A5G236
UniRef90 UPI0003740FCD
UniRef90-D4M7W4
UniRef90_UPI00047EC1EE UniRef90 UPI000405D00D
UniRef90-U2YNE9
UniRef90_LOIYN7
UniRef90 G9WMZ7
UniRef90 A1UE29
UniRef90-E0Q151
UniRef90_E2LSA1
UniRef90 B2A1I8
UniRef90 ${ }^{-}$T4VQ01
UniRef90-UPI00037E3903
UniRef90_E5WMK9
UniRef90 19WM70
UniRef90 UPIO00466E0EO
UniRef90-H0E890
UniRef90 M5JIC2
UniRef90 E8MYL?
UniRef90_UPIO002490CE9
UniRef90-B6A888
UniRef90 D3F026
UniRef90_K7SH06
UniRef90_N6ZP09

UniRef90-15MM85
UniRef90-M3CUE3
UniRef90_UPIO00248C0DC
UniRef90_K4ZMM8
UniRef90 F9ZIP8
UniRef90-UPI0003B3933D
UniRef90_UPI000455F529
UniRef90_UPI0004755276
UniRef90 UPI0004713470
UniRef90-R5KNH3
UniRef90-A0A009ZVR9
UniRef90 UPI00035D3F38
UniRef90 C0C5C8
UniRef90-A0A016XJU0
UniRef90-FOT196
UniRef90 G7MBGO
UniRef90_S9UJ68
UniRef90_UPI000345551A
UniRef90 UPI0004757945
UniRef90 ${ }^{-}$X4ZJX0
UniRef90-F2F1B2
UniRef90-K4QPI4
UniRef90 F9UBC7
UniRef90-UPI00037D6191
UniRef90-R6RMV0
UniRef90_C6IWK6
UniRef90-UPI000225B41E
UniRef90-H0Q291
UniRef90-UPI0003754F78
UniRef90 UPI000479E89E
UniRef90-Z Z X8Y3
UniRef90_V8RBG6
UniRef90-UPI000466AF08
UniRef90_Q82SC7
UniRef90-X1RVR1
UniRef90-N6XR64
UniRef90_UPI000380C2D1
UniRef90-D5DCK1
UniRef90_Q8FRP6
UniRef90_E8YVE1
UniRef90 F9DVQ1
UniRef90-V7YZ11
UniRef90-H5WYM1
UniRef90 F8P164
UniRef90_UPI000471E697
UniRef90-J5JUJ8
UniRef90-UPI000466847C K S R V
UniRef90 KOKPJ2
UniRef90-F7NG26
UniRef90-E2CJZ4
UniRef90 G4I352
UniRef90 C2W9E0
UniRef90-W4Q8T6
UniRef90_K2AWM7
UniRef90 UPI00047D0A93
UniRef90-M8DC61
UniRef90_UPI000289FA5B
UniRef90_M2QXE5
UniRef90-D6EAE0
UniRef90_C2YTD6
UniRef90_UPI0003B74C36
UniRef90 UPI0002897690
UniRef90-D1B9J3
UniRef90 ${ }^{\text {WOZBIG }}$

P S R T

P N R

P S R T

EEEV
A D M T
E P K T

S D
EDHT

D D R S

D $\square R \mathrm{~V}$
D GR
QSRT


K K R
K

P S R T
$\underset{E G}{E}$ G $_{\text {Q }}$

P S R T

P S R T

K S KV
K
Q
N
PA

NQEV
K
PSR
R G Q
E

## UniRef90_COBZN8 UniRef90-K9D3J3 UniRef90-N0AZ79 UniRef90_UPI0003781B75 UniRef90-Q28NJ2 UniRef90_UPIO004217067 UniRef90_UPI0004449A25 UniRef90-V9G5H5 UniRef90-UPIO0041137D7 UniRef90_V6MCA6 UniRef90_UPI00040FC85B UniRef90 C4R723

UniRef90_UPI0001C37F7D
UniRef90_-R6NGE0
UniRef90_UPIO0040C0399
UniRef90-G4R9N1
UniRef90_G2TR09
UniRef90_UPI000414C1A3
UniRef90_Q21LP0
UniRef90-F1ZCG1
UniRef90_H1LEB1
UniRef90-H1LEB1
UniRef90-D8J6G1
UniRef90_F8F4P4
UniRef90_M5R891
UniRef90_UPIO002DC7590
UniRef90-B1ZHD6
UniRef90_UPI0002F3E7D1
UniRef90_UP100034D1810
UniRef90_UPIO0037DD7C0
UniRef90-K6VFN6
UniRef90-W9B9X2
UniRef90_UPI00047CC76B
UniRef90_K2H9Y7
UniRef90-I4X9X8
UniRef90-R6RET1
UniRef90-UPI00046375D8
UniRef90_UPI00035C29E2
UniRef90-F8IEI8
UniRef90_UPIO002554CC9
UniRef90-Q8EN12
UniRef90_UPIO003703678
UniRef90-Q1N2K1
UniRef90-X4ZNS3
UniRef90-B4EQ38
UniRef90_UPIO0047397DC
UniRef90_UPI0002626C49
UniRef90_UPI0002626C49
UniRef90_UPI00039D52C6
UniRef90-M8DIL9
UniRef90_WOKOAO
UniRef90_UPI0002DDBFEA
UniRef90- UP10004657DB7
UniRef90_H2K164
UniRef90_UPI00034AD3EA
UniRef90-M9R1L7
UniRef90_UPI00035EB95D
UniRef90-L7ZWP2
UniRef90-A3JU72
UniRef90-W4FON2
UniRef9O-K8ADT1
UniRef90-M1MNK6
UniRef90-F815J7
UniRef90_B4E9K9
UniRef90_B1BA52
UniRef90_UPIO003B79158
UniRef90-X0PC95
UniRef90_UPIO0047868C1
UniRef90-A910Z5
UniRef90_UPIO0031288FE
UniRef90_UPIO004761835
UniRef90-J7QZW5
UniRef90-B9JHGO
UniRef90-D3EM33
UniRef90-A4YUJO
UniRef90_C2TIF3
UniRef90-TOJY56
UniRef90-A0A03115V9
UniRef90_Q3A9D9
UniRef90_A0A058ZKP9
UniRef90-UPI000473B8F2
UniRef90-I3E6U3
UniRef90-J9YU82
UniRef90-Q2KUF4
UniRef90-B8KFP7
UniRef90_UPIO00475A5D5
UniRef90-C5D2P0
UniRef90-W1QDG1
UniRef90-F4KT38
UniRef90_B8GBN5
UniRef90_UPI000479D854
Uniret90_UPIOOO47
UniRef90_QORG41

1
10
20
30
40
LIS GDSAVSVQMGSEI S|LEVVNLVRMLFLDLTNDPVEG
FAPVGDKAVTAVFGDTILDPAINRRMVRHTVQALQSEVGQT LVLPDGDRAIVVDWGGSIHPDTHGKI RALCSQMERNPVPG FKPAGDTGLLVTVAETASDAANDRVDALDHAVTAAQIDG YRRAGDDAVLVEYGPRLDVGLRMRIGALMDALAEAAPAG
V
 $\square R R A G D S G V L$
$L E$
$G$
 VRLQGEENILI EYGEELNLELRFRVHDLMNEI SKTDLP LFLQSGDMALTVRFENEI REDI NRCVTSLAGLI GGAEING
 $\square$
$\qquad$ GDII FVV GDSALIVQL

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



 GDEFLFVEVSEAMSLDANFKVMSDAGRLSDAALPG
 VYRRSGDRNVLVEYGPVLDLNLRFRVHALMGWLDAHRLPG P LGBDAVVVTFGSEMSGSTHKQIMALMNMLEDTPFEG
PVGDAAI RIKFNEDVTPTLNRKIRSFCRRLSHQAVEA


R C C
VYRLA YRROGDHFLLVVEGPELDDARRFKVHAGLMLWMQDNPFDG

 FIPLSENALIVKFGEQQNHDVHRRVRQFTNYFTDHHIEG

 E E MS K L E AH Y R GLAA I T K E L K K D K KL L E G

 GDEFVFVQLSEEMSLEANFKGMAITRELKQRELPG VYRAQGDDHVFVELSEEMSFDANFEAQAI TQEI RERDLPG V RAQGDRNILVEYGPVLD DELR DR DEALATELARMNVPG YRRDGDDNVLVEYGPVLDLGLRMRVHALDRALAAHAPAG VGDDYI YAEMSPEMSEDSNFKALALITNELRKRDLPG GDEHIYVEI DEEMSLDAFFKSLSMSTAVRDANIPG
PLCEYGVTVRLGEGRIDEDVNRIVVALAAARLQAERKEG FKPVADHALMVGFADKI SDAAHAKVDALDKALATEMPAG FKPLGDSAVMVQDGNTI DPSNCTVLQNLASLLEEQPFEG VWRQAGDSYI LI E YGDVLDDA L RLLRVMLLMKA RASDVDG

$\qquad$ GDENLLVEYG


K K P M GDCA L L P PG DAAVLVEC DSLDE
 $\square Q P Q G D R C L L V Y F G D G I D \square N T G R L C L A A A R M L R Q A Q L P G$ FRQDSEQSFMIYFKAEI SETVYQHVNAVMAHI ERDNHPH $\square M R S V G D T C L L V E F G Q G V D P D I H R R A V A F A Q R L R A A A D P G$ FRQAGDRYI L L EYGDNI NF NLSYRVHCLIEELVKKYKTVG
 LLPSGDSAVTVEFSRTIDETANRRVDADDHALAAAGDAG
 YRQQGDRNLLVEYGPVLDLELRLRVHALMLEVEAMALPG

 YPLGDSGIVVSFGEVI HPTUHTNI QQFDAQLEANRFEG LQPL GDNAVIIEDGEDI NDETQQDI KMDASLLDNNPPEW I L NLGDSAVYCDFGPDVNKETNRKVDNYFKFLKEKNDDG

 PLSEYAVTI RFSTKVDEAVNDYVHRVAAFLEQQNKDG YRQAGDRYVLVEYGEVMNLDLSYRVHKLIEMVNTHETVG 1 HPLGDQGLLI DWGNRLDPAITQQLQACWQRLQADHLQG $I V P M G E A A L L V Q W S$ VDEATAGAPDA LMTALEHHPPVG




## UniRef90_W6W5Yo

 UniRef90-A5N105UniRef90 A6D51 UniRef90_UPIOOO26270BD UniRef90_C5DIF3 UniRef90-W9BWLO UniRef90-10JJ61 UniRet90_D3T1W2 UniRef90-M8J7P4
UniRef90 V9RPH9 UniRef90-A1 WRM1 UniRef90-UPI0004640302 UniRef90-X5ED42 UniRef90_UPIO00476EC46 UniRef90-Q2W2X6 UniRef90-W4BH87 UniRef90-G4Q7Y3 UniRef90-A3GG31 UniRef90-UPI0003F8BB2D UniRef90-14N6M6 UniRef90_UPI00046765BD UniRef90-UPI0003692790 UniRef90-I2JVA0 UniRef90_UPIo0047D84BF UniRef90-F5LMF9
UniRef90-UPIO00380BDF7 UniRef90-UPIO0040BEC52 UniRef90-M8DIL2
UniRef90-F9TJ77
UniRef90-A0A024PTF6 UniRef90-UP10002895FB9 UniRef90-UPIO002D95CBB UniRef90-W9DVA9 UniRef90_UPI00016A662E UniRef90-G2LEC1
UniRef90-UPIO0026275BF UniRef90-UPI00036B980C UniRet90_S3IWT4 UniRet90-ATTSW0 UniRef90-HOJA58 UniRef90-UPIIO0036EF6C6 UniRef90-UPIO003780104 UniRef90-UPIO002FE35CF UniRef90-K6TNH1 UniRef90-H8G6P3 UniRef90-F7Z6L9 UniRef90-19M4C4 UniRef90-UP100047ED7CA UniRef90-D1KD74 UniRef90-HOF2Q2 UniRef90-W403Z6 UniRef90-QORVUO
UniRef90 J1T1F2
UniRef90-G8C031
UniRet90_B8EQ39
UniRef90-UPI00037DF5DA UniRef90-G3AFR5 UniRef90-A4CAP5 UniRef90-F9THC7 UniRef90-D1B423 UniRef90_UPI0002F657B1 UniRef90-B1ZAH1 UniRef90_UPI00046D0607 UniRef90-UP10003C7FFF7 UniRef90_A5EEL1 UniRef90-UPIO00255C1B9 UniRef90_UPIO00307006A UniRef90_UPIOOO4794775 UniRef90_G8ZPB4
UniRef90-UPIIOO2287FEDF UniRef90-GOVBI6 UniRef90-B9NTW2 UniRef90_UPIO0047B7220 UniRef90-G4LH13 UniRef90-QOFT60 UniRef90-XORA27
UniRef90 C6CZD7 UniRef90-UPIOOO3606016 UniRef90-G9E707 UniRef90_UPIOOO37AF30E UniRef90-S5ZCD7 UniRef90-UPIO0047765BC UniRef90 M8BA82 UniRef90-R9BZH1 UniRef90-A6VBM5 UniRef90-NoW3S66 UniRef90-UPIO003763A19 UniRef90-B9KTU8 UniRef90_F2IVP7
UniRef90_UPI000462EAF2


20
30
40
VR S G D Q A V SII E F S D S V S E S A N R QVLTLLD A S|I S A H P $\square$ A G I FPM GESAI LI E F GRKI DK DIH K TVVRMFGEYY HK H P F E G

 Y R Q A GDRYI LVVE GEEMDLNI SYRVNRLIDSLVEENKTVG



## 1 V Q S

 GDE HL F VEE S QEMSSLPAFFKGMALTTAALSQRRIA G
 G D E F L F V E V S E E M S L A A N F T V TVIIA R EL Q E H H L N G
 $\square T$ D L G D T A FAV E F G D GVDPAANARVTALRHGVRQGGLAG FFPLGDSAVLI QFESWVSENDHREVTAAARCI EENPPPG
 VYRQAGDRY LLV E Y GENMDLNTSYRDQRLI EMVEEMKTRG VLIS GDSAI SVVQMGSEISLEVVNLVRMLFLDLTKNPIEG VARLA GDTHVLLEVGDELDLVLRFRAHALMQALAA QELTG
 YR QAGDRYI LVVEYGDTMDLN K S YRVVHKLDEMVHTHKTLG

 $\square$
G D E Y L Y C E A P P P A T L L D C M R R R MWA L A D S $\square Q P V A E C S L I V Y F G S R D D P K L A P F D G E A A K C I A G R F S D Q Q$

 $\square Y P L G B A A L V C E V P P P A T D D C R R R V W A V A E A \quad A R A W P H$


 VCKP F GVAA L L L E LA E HPDAELLP P RIA R L GERI R QRFGPA

GDE HL FVVEI SEAMS LPAFFKGMAI CTELQRRQLPG I R R D G E E N I L V E I I G K E L D D I K P M G D C A I TTL K F S E DI NI DTMULKI K S L S E Y L D K N P F K W I RCA GDENLLVEYGEELDLMLRFQVHDLMEALEKQD\|IP
 $M L P$ LGESAVLVEFGGGI HPDTHRKVKAFTEYLDCHCDPG LR S I G D H A L L I D F G Q C I D E H I H Q WV M A DY D Y FQ Q E P L A G

 G E F V L L V E F F D E E M S
 CCRRAGDSYLLI EFGPALDLGLRLRAHLLAEALLAAAID G



 FFDVSENCI SCVVFDEKI A P DIVNK SVIDALSRAI E QA QI E G


 VI E P FG D Q A V R V DF G D R I A P E D Q M K I N N F T E R F D R S P F K G IIE AVSEQSLIVVFGDTIDEA I A A NVNRADFQVRRELDDV GDEFLFVE $\quad$ A E GMSLAANFKANAMAAAL GSRTVQG
 Y R Q A G D R Y I L V E Y GEN I DLLN ILCYRI HS L DGLLVDDYN TA G DEHI FVVEVSEDMSLEAFFTSLSMTNAVRDANDPG
 $\square I R T A G D D G M L V S F G D R D D E A A N R A A D A F R A E V E R A G W E G$ I E P L G E R A I RI GF G E E V S L S T Q Q K I Q VA S K M L E E A N F D F


 GDEFLFVEDSEAMSLAANFKSNSMATRLGGRADAG

 IE P A GAEALLLVLAEEPGADLPLRLVELARRLREEFGAG

 G D E H I I F A E V V LEPAGA DCLLLRFGGRDDPA LVP QIRAATDCLASRLTGR


| UniRef90_W6W5Y0 | A G R |
| :---: | :---: |
| UniRef90-A5N105 |  |
| UniRef90-A6D5V1 |  |
| UniRef90_UPI00026270BD |  |
| UniRef90-C5DIF3 |  |
| UniRef90-W9BWL9 |  |
| UniRef90-10JJ61 |  |
| UniRef90-D3T1W2 |  |
| UniRef90-M8J7P4 |  |
| UniRef90-V9RPH9 |  |
| UniRef90-A1WRM1 |  |
| UniRef90-UPI0004640302 |  |
| UniRef90-X5ED42 | N S |
| UniRef90_UPI000476EC46 |  |
| UniRef90-Q2W2X6 |  |
| UniRef90-W4BH87 |  |
| UniRef90-G4Q7Y3 |  |
| UniRef90-A3GG31 |  |
| UniRef90-UPI0003F8BB2D |  |
| UniRef90-14N6M6 |  |
| UniRef90-UPI00046765BD |  |
| UniRef90-UPI0003692790 |  |
| UniRef90-I2JVA0 |  |
| UniRef90-UPI00047D84BF |  |
| UniRef90-F5LMF9 | E A |
| UniRef90-UPI000380BDF7 | N S R |
| UniRef90_UPI00040BEC52 |  |
| UniRef90-M8DIL2 |  |
| UniRef90-F9TJ77 |  |
| UniRef90-A0A024PTF6 | S G |
| UniRef90-UPI0002895FB9 | E A |
| UniRef90-UPI0002D95CBB |  |
| UniRef90-W9DVA9 | N S |
| UniRef90-UPI00016A662E | P G |
| UniRef90-G2LEC1 |  |
| UniRef90-UPI00026275BF | R |
| UniRef90-UPI00036B980C | P R R |
| UniRef90-S3IWT4 |  |
| UniRef90-A7TSW0 |  |
| UniRef90-H0JA58 |  |
| UniRef90_UPI00036EF6C6 |  |
| UniRef90-UPI0003780104 |  |
| UniRef90-UPI0002FE35CF |  |
| UniRef90-K6TNH1 |  |
| UniRef90-H8G6P3 | R A H |
| UniRef90-F7Z6L9 | E PR |
| UniRef90-I9M4C4 |  |
| UniRef90-UPI00047ED7CA |  |
| UniRef90-D1KD74 | E S K |
| UniRef90-H0F2Q2 |  |
| UniRef90-W4Q3Z6 | R T V T |
| UniRef90-Q0RVU0 |  |
| UniRef90-J1T1F2 |  |
| UniRef90-G8C031 |  |
| UniRef90-B8EQ39 |  |
| UniRef90-UPI00037DF5DA |  |
| UniRef90-G3AFR5 |  |
| UniRef90-A4CAP5 | Q |
| UniRef90-F9THC7 | A |
| UniRef90-D1B423 |  |
| UniRef90-B9E7N1 | K K R |
| UniRef90-UPI0002F657B1 | K G |
| UniRef90-B1ZAH1 | P S R |
| UniRef90_UPI00046D0607 |  |
| UniRef90-UPI0003C7FFF7 | N |
| UniRef90-A5EEL1 |  |
| UniRef90-UPI000255C1B9 | N N |
| UniRef90-UPI000307006A |  |
| UniRef90-UPI0004794775 |  |
| UniRef90-G8ZPB4 |  |
| UniRef90-UPI000287FEDF |  |
| UniRef90-G0VBI6 |  |
| UniRef90-B9NTW2 |  |
| UniRef90-UPI00047B7220 | N G |
| UniRef90-G4LH13 |  |
| UniRef90-Q0FT60 |  |
| UniRef90-X0RA27 | P |
| UniRef90-C6CZD7 |  |
| UniRef90-UPI0003606016 |  |
| UniRef90-G9E7Q7 |  |
| UniRef90-UPI00037AF30E |  |
| UniRef90-S5ZCD7 |  |
| UniRef90-UPI00047765BC |  |
| UniRef90-M8BA82 | P A R |
| UniRef90-R9BZH1 | K K K |
| UniRef90-W6NB11 |  |
| UniRef90-A6VBM5 |  |
| UniRef90-N9W3S6 | A G K |
| UniRef90-UPI0003763A19 | G G R |
| UniRef90-B9KTU8 |  |
| UniRef90-F2IVP7 | A S K T |
| UniRef90_UPI000462EAF2 | A G R |

Unirefor
Un


| UniRef90_S3BXP2 | S |
| :---: | :---: |
| UniRef90-A3WKD2 | Q G Q T |
| UniRef90-H1V729 | P S |
| UniRef90-UPI0002D46E9C |  |
| UniRef90-K6U847 |  |
| UniRef90-H1YGF2 |  |
| UniRef90-T0KTW7 | P V R |
| UniRef90-A0A011PPU6 |  |
| UniRef90-T1WBI1 | D R T |
| UniRef90_UPI000367EABA | QPRT |
| UniRef90-UPI0002E33415 | $\mathrm{R} \square \mathrm{Q}$ T |
| UniRef90-I3D7G9 |  |
| UniRef90-Q5WBF5 | P G K T |
| UniRef90-H5XIQ2 |  |
| UniRef90-B2T6V7 |  |
| UniRef90-G9PXT8 |  |
| UniRef90_A0A038GPU7 |  |
| UniRef90-U2ZQ25 | G G |
| UniRef90_UPI00035E1482 | P V K T |
| UniRef90-H0JG95 |  |
| UniRef90-E4TP82 |  |
| UniRef90-M2UYZ8 | S T K V |
| UniRef90-A1V7S2 |  |
| UniRef90-V5UFP5 | V G R |
| UniRef90_H5V9Q9 |  |
| UniRef90_UPI000361DE07 |  |
| UniRef90-I1XMA5 |  |
| UniRef90-M4WW12 | P G R |
| UniRef90-C7QC11 | P S R T |
| UniRef90-R7YML7 | T QKV |
| UniRef90-UPI0002558A64 |  |
| UniRef90_UPI00046956E1 |  |
| UniRef90-A0A024PMH3 |  |
| UniRef90-Q03XI0 | V D K |
| UniRef90-UPI00034591A9 | TTRV |
| UniRef90-G9MQN3 |  |
| UniRef90-D019M0 | N D S |
| UniRef90-C1BAE3 |  |
| UniRef90-A0A014MLW1 |  |
| UniRef90-D8HJ04 |  |
| UniRef90-UPI00034689F8 |  |
| UniRef90-I2BUM4 | T $\square$ R T |
| UniRef90-UPI0003707B57 |  |
| UniRef90-M2XKK5 |  |
| UniRef90-N1PW44 | K T K V |
| UniRef90-S2XHV1 |  |
| UniRef90-B9NQX7 |  |
| UniRef90-W8R0F2 |  |
| UniRef90-Q6C3G2 | P S R |
| UniRef90_D4YJ90 |  |
| UniRef90-W6EHS7 |  |
| UniRef90-A4VN61 | S A R |
| UniRef90_I8ZUG8 |  |
| UniRef90-14CVM0 |  |
| UniRef90-S2XB83 | K |
| UniRef90-UPI0003757879 |  |
| UniRef90-K0VR95 | E G |
| UniRef90-A0A059N7T1 | K R R |
| UniRef90_UPI000364D8D9 |  |
| UniRef90_U7PEN0 |  |
| UniRef90-U7FTK6 | N P G T |
| UniRef90-E4N0Q8 |  |
| UniRef90-N4V5G8 | P S R T |
| UniRef90-A1D1L6 | Q A K |
| UniRef90_V9W0R2 |  |
| UniRef90-W7ZXT2 |  |
| UniRef90_UPI000375C949 | E H D T |
| UniRef90-R7X328 |  |
| UniRef90-17E416 | Q G R |
| UniRef90-X5LRJ0 |  |
| UniRef90_A6CHM6 | Q P |
| UniRef90_R7TUP9 |  |
| UniRef90_G9WFM2 |  |
| UniRef90_UPI000395980D |  |
| UniRef90-H1V5P7 |  |
| UniRef90_UPI0002492D7D | T G R S |
| UniRef90-UPI00047C8845 |  |
| UniRef90-A0A010RJIO | P S R T |
| UniRef90_14EVX3 | S G D T |
| UniRef90-E0SL47 |  |
| UniRef90-A0A010RFJ7 | V G |
| UniRef90-UPI000237941D |  |
| UniRef90-Q1V267 |  |
| UniRef90-A0A023CV82 |  |
| UniRef90_A2QB42 | Q A K |
| UniRef90-A3V537 |  |
| UniRef90_D3PTP4 | T G K |
| UniRef90-UPI00030DB2DD |  |
| UniRef90_UPI000369BD45 | K |
| UniRef90-E6RUT7 |  |
| UniRef90-C0ZPS9 | E S |
| UniRef90_C7Z0P8 |  |

UniRef90_UPIO004699072 UniRef90-F9G4R8 UniRef9-EE3150 UniRef90-D3QCE8 UniRef90-12EPG3 UniRef90-UPIooo3727B1B UniRef90-UPIO003B6A7E5 UniRef90-UPIo003B6108C UniRef90-L7HV32 UniRef90-H8FN74 UniRet90-H1S188 UniRef90-S6AMH7 UniRef90_UPIO0047606CE UniRef90- $\mathrm{F6AlH} 3$ UniRef90-A0A024E8V4 UniRef90-M3CQP4 UniRef90-D2PYH9 UniRef90_UPI0003B66AC6 UniRef90_K9AJLO UniRef90-FOMAK4 UniRef90- МЗЈХР3 UniRef90 J1F061 UniRef90-UPIO003748C81 UniRef90-M2NAT9 UniRef90-V3TZS9 UniRef90-UPIO0047DEC1B UniRef90-A0A021 WZ34 UniRef90-UPIO002559E16 UniRef90_UP100037958E0 UniRef90_D5BMH5 UniRef90_UPIO0035F820D UniRef90-J5TNJ3 UniRef90-E5AMR6 UniRef90-M9MHJ9 UniRef90_HOQGM5 UniRet90 HoDEV2 UniRef90-UPIOOO3719914 UniRef90-UP100036DAEB1 UniRef90-UPIooo36F6ADC UniRef90-K1E7T3 UniRef90-G2HXN1 UniRef90-UP10003AD3C38 UniRef90-E4QZU0 UniRef90-P38095
UniRef90 $\mathrm{S} 2 Z 2 \mathrm{C} 1$ UniRef90-UPIOOO3754192 UniRef90-W8WZT7
UniRef90_UPIO00462F77A UniRef90-10C4X0 UniRef90-M5R097 UniRef90-UPI000317C8F2 UniRef90_UPIO00472C1E3 UniRef90-UPI0003B58CF4 UniRef90_UPIO0036A3E79 UniRef90-F6EDM4 UniRef90-C5CZ17
UniRef90_UPI0003775F3D
UniRef90-B9JIS9
UniRef90-U3AOZ6
UniRef90-UPIO0036AD308
UniRef90-B2JIM9
UniRef90_E8PQW0
UniRef90-I0YL58
UniRet90-B8K9V1
UniRef90 O8FQQ4
UniRet90-E6RFP6
UniRef90-G0L6X0
UniRef90-E8TUYO
UniRef90-D2Q745
UniRef90 C3LW41
UniRef90-F2JVE2
UniRef90_UPIo0037E9024
UniRef90-Q2J8R1
UniRef90_UPIOOO36A45B5
UniRef90_F9S683
UniRef90-FOEE94
UniRef90-E6X9V1
UniRef90-S6K691
UniRef90_A9BXS9
UniRef90_UPIOOO3717985
UniRef90-UPI00047EE1D5
UniRef90-UP100030ACOAD
UniRef90-V6J563
UniRef90-J2KEI8
UniRef90_D8EB65
UniRef90-J3EN74
UniRef90_UPIO003765026
UniRef90-UP100035EAB9B
UniRef90-UPI00046FF5E6
UniRef90_K9ECC8
UniRef90-AOAOO1 QDY2

 $\square Y R Q G G D T S I V Q Y G N Q T D L R N T V C V Q L L T Q Q L A A A K L P S$ VYDSGESAVLVEFGVGYSKTVSLAVLQLSERLHGSHLEG保 TFPLSDSSUTVDFGNVIDEKLNDVVMNLFDFCNKQPFIDG $1 R P L A D T A F T L D L A P A G E D A A R R V H T A T A V L N A A R L P G$ LPCGEAGLLVELDD LJEQVLAMHAALQEVPPPG IDVAGENSLILYFGDTTAPETSANVQLASRKLAAALGDK VCRQFGDQAFLLEFGDGFNLLQTFQLASLVRQHKASPIPH
 LEPAGAEALLLVLADEPDAGLPVRDAMLADTLRQQLGHLL FLPANLDTLLVELQDQLDETLCARVAAFEALQAEPIAG VEVVALDCLMVRLFDEIAEANMPWMDAASENLRAAFAGH YRQAGDDYVLVEYGNEFDLUNYCRVTALEKALTATAPEW ILPAADDVLLVEYAN DDGVVSHFPALAKANTWG FRTASRQHLLVECA DDTATMRLH HSLEDAALPG SGDAALRVVASSPDREANWATVHALAGWLDAAGPDG YRQAGDRYI LVEYGDNLDLNLAYRIHKLDEMVKEYKPKG PVGEQTVLI HFEERIDITENLIIHKLTKII SNKTPY YLPLADAGLLVELDD LLESVALYAALSRSHLPG YRQGGDDFILVEYGNEFDLNHRCRVTALEKALRSPDAPS GDEHLFAEVDESMSLPAFFRGMAITRAMERQAAPG DEPQGDRCLLIRFGDS DDVEVGRLCDAAQAMRDAQLPG VEVAGESALIIYFGEHGQPGVAAAVASAAEQLREELGYR YRRGADDNILVEYGPTLDLGLRMRVHALAEHIRALAPRG DEHVFVEDSEDMSLDSFFKSLFITNTVRESNTDG
 GDEYIFVEDAEAMSLEAALLVQAIVARIAELGMLG ILPMGQSAMLVEL DGLDAA YRQAGDDYLLI DYGGAFDLNHRYRVTALKKVLSEAAGDG RPCGDAAVLIDFDEAEAETVQDAVLSHYQRLKQAQLKG
 TYESGDSALRVVADSEVSEHNWLTVHGLADWLEDCGAEG IEVVADDCLMLRLFDELAETNMPWMLAASERLRDCFAEY I LPVNQRALLVELDDAPGAGLDATLGLHERLQQAPMAG IVPAGVDAVLISFDAAPGAQLSSRTVGCANRIEAALGDV ПEPLGDSALRIVLGDTLDPVVNRRVCALADALAAGRLPG FLIPAGRDAFLVELDD D DLATMLTLLDGLLAAWPAG LHPLGDAALLCELAPPATLAQQQQDWALGAEVQQ WAG FEPCGDRCIVVVFASVFSAQANRRAVAFSASLHQQLLAG E P A ECSILIVFEHEPNAETSQLVRCVSDALQAELAEW IFPLGDTALVVEAPDPATLDCQRRVWSTAQALRAREWPH FRLAGDRYVFVEYGPELDLLNRVRVHELERYLADQAVPG PVAECSVLVKFEAEPSPELSWVIGEI SLYLRNQLGAW
 L
 FRTCGDSGVLVELADADDETLARVFAALRSSKAAGIPG VSDHACLLTFSDVIDEFTADY SRVNQALKT IDDG TEVVADDCLMVRGFELIAEEENMPWMLAASERLRVAFAGY IYESGDSALRVVADSQANEDNWLTVHRLADWLESCGAEG FSPVSECALLLQFNQSDSKQLSTTUGAVTERIYQQLHHC BEVVAVDSLMVRGFERDDEANMPWMLA ASQCLRAAFGQH I RPFGI HAVLIEWPQEVNDK LLNDILFFSAHLKKECLEG VEVVAIDCLMVRLIFDVIAEPNMPWMLAASQRLRASFAGH FLPVNRQALMVELAD LDET DEEFSENALTIYMGEDVDEKMNRRVVSLKNELEGMEVSG YKRFSERA LMVWPSEISEABVKDVLSFKNRLEDHGVKQ VESFGDQAVRVIPGDRIAPSVQFQiNQFLLLFDRSPFHG GDAALLCELPAPATLVQQQRIWALARKQAQQWP PASDQALNVTFANKTDPQTNLIISRLTTKLKECTPE FSPFGEAA HCDAGEKLDHAVQERIWSLAALLAAGWPH DDSVIVMFEGDFSRETVRKMYHAARKMNERMLPG FHTASRRHLLVECAD LPATMALHHSLEAADLPG
PAAEDAVLVEYPS ILNAGDTALTIEFGEHDETAVAADDADARAIDRGELHG


UniRef90 UPI0004699072
UniRef90-F9G4R8
UniRef90-E315SO
UniRef90_A4F9Z8
UniRef90-D3QCE8
UniRef90-I2EPG3
UniRef90_UPIO003727B1B
UniRef90 UPI0003B6A7E5 UniRef90_UPI0003B6108C
UniRef90_L7HV32
UniRef90-H8FN74
UniRef90 H1S188
UniRef90-S6AMH7
UniRef90_UPIO0047606CE
UniRef90 F6AlH3
UniRef90 ${ }^{-}$A0A024E8V4
UniRef90-M3CQP4
UniRef90_D2PYH9
UniRef90 UPIO003B66AC6
UniRef90-K9AJLO
UniRef90-FOMAK4
UniRef90_M3JXP3
UniRef90 J1F061
UniRef90-UPI0003748C81
UniRef90-M2NAT9
UniRef90 V3TZS9
UniRef90-UPI00047DEC1B
UniRef90-A0A021WZ34
UniRef90_UPI0002559E16
UniRef90 UPI00037958E0
UniRef90-D5BMH5
UniRef90_UPI00035F820D
UniRef90 J5TNJ3
UniRef90-E5AMR6
UniRef90-M9MHJ9
UniRef90 H0QGM5
UniRef90 HODEV2
UniRef90-UPIOOO3719914
UniRef90-UPIO0036DAEB1
UniRef90 UPI00036F6ADC
UniRef90 K1E7T3
UniRef90-G2HXN1
UniRef90_UPI0003AD3C38
UniRef90 E4QZU0
UniRef90-P38095
UniRef90- S2Z2C1
UniRef90 UPI0003754192
UniRef90- W8WZT7
UniRef90-UPI000462F77A
UniRef90_I0C4X0
UniRef90 M5R097
UniRef90-UPI000317C8F2
UniRef90_UPI000472C1E3
UniRef90_UPI0003B58CF4
UniRef90-UPI00036A3E79
UniRef90-F6EDM4
UniRef90_C5CZ17
UniRef90_UPI0003775F3D
UniRef90-B9JIS9
UniRef90-U3A0Z6
UniRef90-UPI00036AD308
UniRef90-B2JIM9
UniRef90_E8PQW0
UniRef90_IOYL58
UniRef90 B8K9V1
UniRef90-Q8FQQ4
UniRef90_E6RFP6
UniRef90-G0L6X0
UniRef90 E8TUY0
UniRef90_D2Q745
UniRef90_C3LW4
UniRef90 F2JVE2
UniRef90-UPI00037E9024
UniRef90-Q2J8R1
UniRef90 UPI00036A45B5
UniRef90 F9S683
UniRef90-F0EE94
UniRef90-E6X9V1
UniRef90_S6K691
UniRef90-A9BXS9
UniRef90_UPI0003717985
UniRef90_UPI00047EE1D5
UniRef90 UPI00030ACOAD
UniRef90-V6J563
UniRef90-J2KEI8
UniRef90_D8EB65
UniRef90 J3EN74
UniRef90-UPI0003765026
UniRef90-UPI00035EAB9E
UniRef90 UPI00046FF5E6
UniRef90_K9ECC8
UniRef90_AOA011QDY2

R G

A
$\stackrel{A}{\mathrm{P}} \mathrm{D}$ R
A G
A GR
R G K
KTKD
G G
NAKT

| D A | $R$ |
| :--- | :--- |
| $A$ | P |

K T R

E G R

A CRV
E V K
PART
ETKT
SAAT

Q G
E G R
T P
NAHS
Q G
E
P E K
G G VT
K

F G Q
$\stackrel{P}{P}$
E G K

A ERS
K ER
Q S K
E G R
GQT
GRIV
Q G
D S
R G R V

UniRef90 UPIO0047BC096
UniRef90 C5QSZ5
UniRef90＿UPIoo037F6E45 UniRef90＿UPI000479DA99 UniRef90－C2GIR5 UniRef90－A0A031G2R7 UniRef90－A0A010YN88
UniRef90－12FZV6
UniRef90－T1BQ46
UniRef90－UPIo0025566A6
UniRef90－UPIo0029B44F8
UniRef90－D9WMK5
UniRef90－B1JCT1
Uninefono－A4B8Y4
UniRef90－C6CDW1
UniRef90－WOH9IG
UniRef90－UPI0002D7D632 UniRef90－A5D326 UniRef90－UPI000313E5CC UniRef90－B8NWP4
UniRef90＿UPIO00370FE6E
UniRef90－R1GN57
UniRef90＿F7YS88
UniRef90－U3QXT8
UniRef90－Q11XD8
UniRef90－U1LE46
UniRef90－UOENC6
UniRef90－Q7MZ12
UniRef90－B6EKU9
UniRef90－UP10004145288 UniRef90＿UPIoo0463B7BB UniRef90－N9A749
UniRef90－DOIYS8 UniRef90－M5JON3 UniRef90－G5JM93
UniRef90－S9TV36
UniRef90－UPI00034DA7EF UniRef90－UPIO00468C6B1 UniRef90＿UPIOO0476B46F UniRef90＿UPIo002F51AB7 UniRef90＿W9XJS8 UniRef90－D1P5I1 UniRef90－A0A059KKS6 UniRef90＿Q220D6 UniRef90－14NO25 UniRet90－K2AVX8 UniRef90－G8AQ86 UniRef90－X8M212 UniRef90－E3BHIO
UniRef90 L8DFR6 UniRef90 UPI0002F20FDD UniRef90－UPIO002EA1200 UniRef90－X7RI40
UniRef90－T1AWK6
UniRef90 UPIIOOO3F82ECE UniRef90－E3NV78
UniRef90＿S3ADV9
UniRef90－A2U3P9
UniRef90－UPIOOO374889B UniRef90－UPIO003B73B98 UniRef90－UPIO00365E174 UniRef90 DOSJA6
UniRef90－UPIO002D5F792 UniRef90－UPIO0047BD17E UniRef90－X0PH75 UniRef90－A0AO22L2S1 UniRef90－U5VL95 UniRef90－UPIO00371F060 UniRef90 D81TF4 UniRef90－W1RUX9 UniRef90－UP1000469DB9D UniRef90－UPIO0035F9156 UniRef90－UP100046AED9D UniRef90－Q116L9 UniRef90－E1VFF1 UniRef90－UPI000375602D UniRef90＿UPIO004096705 UniRef90－A4AKQ6 UniRef90－A4BZY7 UniRef90 UPIOOO395855A UniRef90－A0A023NXM9 UniRef90－J9HG18 UniRef90 UPIOOO36C45B5 UniRef90＿UPIOOO477E141 UniRef90－Q46YH1 UniRef90＿UPIO00346B9E5 UniRef90 UPIOOO469C833 UniRef90－UPIo00379232A UniRef90＿W9xzW5 UniRef90－B5FEBO UniRef90－UP100036BC5FC UniRe90＿UPIOOO3A1D5

SGDAALIRIVVASSPDREANWTTVHSLLAAWLEAAGADG EQTVMIYFNNEDSEQTYEQVRATVEY：KEQSHPE $\square \square P A G D R A V L V E$ IRRYGDSAILI DYDPGYSDRVHTRLNHLAKTLRAQTI RPCGDAAVLI DTDDEAGDTVQDGVLSIHQRLKQRGLEG FRRAGSNGLLIELPDDDATV LDAGALFETVAGAAFDG FRRCGREAVLVEVADTADULDAALALYESVRAAGLPG LGESGLLLCWDDPPHPRRSREIGALGERLAVSPPPG DEVVADDSLMLRLFDQDDEDNMPWLLAATERLRETFAGA I KPMGDRAILIDFEPEINEKSLEKLLNLKR\｜IENDSVEV SPCGDAALRVTVDGDDTDVVWAAVHRLAGWLNRGDIHP F AGEQAVILYLDDVPTEQSDGQLKVLVEVLQEALDDD FYPVSLDALLVELAN LDETAGAGDSLQQEPIVG LINPVAECS LVVTFDADPSSHLSLFMGA：THSLAKSYSDW YSPLGDDAIVIVEVGSDGTKETTNLVRSI TKQLEEATNDE FLPVNDTTLLVELPG VYNUSDQGIICDFGKEDNKEDNAKVISLFNYINNSKQKG TEPVAECNLLLRFAHPPSADLSLDIGQIAQQIMVQFSTY VHAAGTCALLLDCAGAFDPATQERVWALSALLSAGKLDG ITPGGDAALEVR

AADALLESAD LIDESMR
GPPVNLDAIIVELHDENETLS LDAIEAAALPG SAVNESTVLVVFSDTVSPETAD！AALFDSLNAHPIPG IQNAGEQSVIVYADCSDLDKANAAI SQLVAMLNQESDLF YTPLGDEAIVIEVGNEDSKEATNLVRSSTKRIEETLMDT FLSVNRDAFLVELGD GQHTMQLYRHLRDAAHPH GDRCLLVQFSGPRSLDTGLRCTRAARLLRDHAPAC $\square G D T A F N D Y G D A P D A R \square A A L N T A A R A A H Q R G E L A G$ VLNCADSGVLVEVED LGGVLALQAALAEDPIPG IRTVGLSGILVSFADKMSEPANRAALAFRAAVDAADWPE ASENAVMVYFEQKMAADANGLVQQAGALIRAAMGPH TNPVAECSVMLRFELPDTAQSLALVGYTANLIRYQFQTS FLPVNLKAFMVELPS SDR LDEQMALTDSLTNMPDNG LLPLGDAAWTLEFGRHDDPALAEQVARLAARVRAACLPG FLPINLNALLVEDFDDDNEQTLALLASLKNEPUAG VEVAGUDCLTLRLFDVIDEANVPWLLAAAQRLRATFGAA RALADSA】TFDFARAVGAEASALVHALKQAMAEGNLPG F LP VNDSAFMVEDPS MEPVNETSCLIVFGESTNDENADTDRCADPLIKESLADV VARLSGDTHLLLEDGPELDLADRFRGHGLMQALAALADPG IRQISETHFMIYEQNE NPEVRDKISNVVSHIESYKHPA DDGVSECSVLIRFDETVSENSNAGGQLARAMNQHLSHC
 ALIFASLSADPIDG VRPFGERALLAEVED DEAVLALHARLVATRRPG YKQFGLDAILIEWPA】INDE』FEDILVFKTKLLKRHSSK
 I YESGDAALRVVAQSGDAETNWATVHSLAGWLASVGVDG FLSVNENAFLI E VRRMGERILILTYPQETSNERRFHKYHDLFHTTSLAG IRQFGLHAILVEWPKIVEEDILLDI LKFSRYLKEHLLEP YVPMGESALDLVLPNKI DVGQNQLISTVGQQLLAQKIAG I RTASDHALLVEADDLD
 AGDEHLFAEVSESMSLDEAFRAMATTRAVEKLALPG TDMVSNQACLLTFGQVISDATSNYTAQVTQGLKS LAG FHPLGDQASQLVFGEQUDEDMHKQILHYMALLQEQTELP I RRVGLAGLLVQFGEGMSEPANRAAIAFRAAVEAQHWPE LEVVADDSLMVRLFDRDDEANMPWILAASQRLRAAFGER

PLGDSAFLLYFNAQCASTAESMVLGYQKALKVAAPAW QDDQSAGDAGVQSRARAL FLNVGTSALLVE YKPFGDAAILIAWDAEПSTSISNDILEFQQKПKALKDDN FLPVSDQSMLVELQD LEHTLDLLAALQAELPAG IEVLSEEAWLLRFGDTDDAAVNARVHAAARR LQAALPG $M G D T A L L R D P Q S S W R A A A V L D T B Q Q L R K H Q V P G$ LLQSTSENA1MMTLP YTPDSSAYLTAVKQQLENQSF FLPVSDNAVLVELSD DD DDQ RSVGVSGVLVTFAGAMSEPANRAALAFRAAVEAQDWPE VEPFGDSAVMVTVAPHDDQAVRRAIVAFRNRFLAHRPHG YRQGGDDFLLIDYGHSFNLNYRCRAVALYRKLKESTGDG



| UniRef90_UPIO0047BC096 |  |
| :---: | :---: |
|  |  |
| UniRef90-UPI00037F6E45 |  |
| UniRef90-C2GIR5 |  |
|  |  |
| UniRef90_A0A031G2R7 | S G Q |
| UniRef90-A0A010YN88 |  |
| UniRef90-12FZV6 |  |
| UniRet90 T1BQ46 |  |
| UniRef90-UPI00025566A6 | A G R |
| UniRef90-UPIO0029B44F8 |  |
| UniRef90-D9WMK5 S G R |  |
|  |  |
| UniRef90-A4B8Y4 |  |
| UniRef90-C6CDW1 |  |
| UniRef90-W0H916UniRef90-UPI0002D7D632 A G K |  |
|  |  |
| UniRef90-A5D326 |  |
| UniRef90_UPI000313E5CC |  |
| UniRef90-B8NWP4 | N P R S |
| UniRef90-UPI000370FE6E | T NK T |
| UniRef90_R1GN57 |  |
| UniRef90-F7YS88 |  |
| UniRef90-U3QXT8 | Q |
| UniRef90-Q11XD8 | E G |
| UniRef90_U1LE46 |  |
| UniRef90-U0ENC6 | P D D |
| UniRef90-Q7MZ12 T |  |
| UniRef90-B6EKU9 |  |
| UniRef90-UPI000414528 |  |
| UniRef90_UPI000463B7BB |  |
| UniRef90-N9A749 | N H R |
| UniRef90_DolYS8 |  |
| UniRef90-M5J0N3 | P G |
| UniRef90_G5JM93 |  |
| UniRef90-S9TV36 |  |
| UniRef90-UPI00034DA7EF | A G |
| UniRef90_UPI000468C6B1 A C |  |
| UniRef90-UPI000476B46F |  |
| UniRef90-UPI0002F51AB7 P S K |  |
| UniRef90-W9XJS8 |  |
| UniRef90-D1P5I1 | A G K |
| UniRef90_A0A059KKS6 |  |
| UniRef90_Q220D6 | A Q R |
| UniRef90_14NO25 |  |
|  |  |
|  |  |
| UniRef90-X8M212 | E A K T |
| UniRef90-E3BHIO |  |
| UniRef90_L8DFR6 | S D R S |
| UniRef90-UPI0002F20FDD |  |
| UniRef90-UPI0002EA1200 | S G K |
| UniRef90-X7RI40 |  |
| UniRef90-T1AWK6 |  |
| UniRef90-UP10003F82ECE |  |
| UniRef90-E3NV78 |  |
| UniRef90-S3ADV9 | P A R T |
| UniRef90-A2U3P9 |  |
| UniRef90_UPIO00374889B | T A R T |
| UniRef90_UPIO003B73B98UniRef90_UPI000365E174 |  |
| UniRef90-UPIO00365E174 |  |
|  |  |
| UniRef90_UPI0002D5F792 |  |
| UniRef90_UPI00047BD17E |  |
| UniRef90-X0PH75 |  |
| UniRef90_A0A022L2S1 |  |
| UniRef90 U5VL95 | Q P D T |
| UniRef90-UPI000371F060 K K |  |
| UniRef90_D8ITF4 |  |
| UniRef90-W1RUX9 |  |
| UniRef90_UPI000469DB9D |  |
| UniRef90-UPI00035F9156 |  |
| UniRef90-UPI00046AED9D | A G R T |
| UniRef90-Q116L9 |  |
| UniRef90-E1VFF1 |  |
| UniRef90_UPI000375602D |  |
| UniRef90-UPI0004096705 E S R T |  |
| UniRef90_A4AKQ6 <br> UniRef90-A4BZY7 |  |
|  |  |
| UniRef90-UPI000395855A A G Q |  |
| UniRef90_A0A023NXM9 |  |
| UniRef90_J9HG18 |  |
| UniRef90-UPI00036C45B5 |  |
|  |  |
| UniRef90-Q46YH1 |  |
| UniRef90-UPI000346B9E5 |  |
| UniRef90-UPI000469C833 | P G R T |
| UniRef90-UPI000379232A | R P R |
| UniRef90-W9XZW5 | EAK |
| UniRef90-B5FEB0 | Q |
| UniRef90_UPI00036BC5FC |  |

UniRef90_C4LFV0 UniRef90_W9VPG3 UniRef90-D3QEQ3 UniRef90_H2BRL4 UniRef90_A9DX07 UniRef90-A0A033V2X1 UniRef90_S3CTTO UniRef90-U3C908 UniRef90-L1M046 UniRef90-W1J7Z5 UniRef90-B2U8X8
UniRef90 UPI0004188BF9 UniRef90_UPI00035E333A UniRef90-D9XAE3 UniRef90 ${ }^{-}$F2P964 UniRef90-UPIOO037568E0 UniRef90-A5L3J6 UniRef90-K6UND4 UniRef90-V3CVQ5 UniRef90-UPIO002F8677D UniRef90-UPI0003603EA3 UniRef90-Q0SB10 UniRef90-UPI0003692F79 UniRef90-B7QZE7 UniRef90_UPI0004192E08 UniRef90_C1CZR6 UniRef90_J7LJN8 UniRef90-A3TNL4 UniRef90-UPIO0046788EF UniRef90-UPI0003605BD1 UniRef90-B8IGM1
UniRef90_UPI00038F2AEB UniRef90-W3XLY0 UniRef90-UPIO0040511EB UniRef90-Q8CSB4 UniRef90-UPI00030ACCBC UniRef90_UPI0002F95DB1 UniRef90-A0A010QU68 UniRef90-J0B1P4 UniRef90-Q1GEX7 UniRef90_UPI0003B48FBF UniRef90_UPIO003768055 UniRef90-A4ASE1
UniRef90_W4N625
UniRef90-D1MBM3
UniRef90_UPIO00476D2E5
UniRef90_W2U0E9
UniRef90-C3KLX2
UniRef90_UPI00041CA368
UniRef90-Q6ANH4
UniRef90_UPI000373398E
UniRef90-UPI0003774A51
UniRef90_UPI00037EFC6D
UniRef90_A0A022LBS0
UniRef90-V4QGD4
UniRef90-L7HB11
UniRef90_UPI000309ED92
UniRef90-K0CR36
UniRef90_V2V2K4
UniRef90-F4GR27
UniRef90_UPI00047AB93F
UniRef90-K6X1S3
UniRef90-E3BDZ3
UniRef90-W1QC34
UniRef90_D0M8D4
UniRef90_UPI000362C3E1
UniRef90-K8WEI9
UniRef90-A1U917
UniRef90_UPI0002F10EAE
UniRef90-A0A024JT57
UniRef90-R8BGF6
UniRef90-X6FKZ7
UniRef90-G2NVC6
UniRef90_UPI000409370F
UniRef90_UPI00034C73EE
UniRef90_D5UJL6
UniRef90-14BCTO
UniRef90-F5J8U4
UniRef90_Q477G4
UniRef90-Q16DH3
UniRef90_UPI000408E925
UniRef90-V2JE90
UniRef90-UPIO00371795B
UniRef90_W5Y0K9
UniRef90-A4CKX8
UniRef90-N8PUP2
UniRef90-U1ER91
UniRef90_UPI00047C17FB
UniRef90_UPIO0036EF3E4
UniRef90-w9YIC9
UniRef90_UPI0003612A3C
 IE HAGVDAWTVRLFDDI ALENMPWI LVSLVKGCEALFSEA




 IHRLGELALLCEVPPPATVNCQQRDWAMAS RASNWAG
 L

 1 APVAECSVLVVGLVLSPSNNQYMAHFSDADRQNLASV VEPFGDSAAMVTIPHPHQSARRAGIIAFRDRFLAHRPHG I $\square P A G N R A L L V E L E S E P$ L V RDAGDRAVLVEYADLADAMANYR LIRTVGDDGMLI SFGERLNEPANRAADADRAELGRLTWDG FEPCGDRCVILVFGSVFSLDLNRQAASVGSRLRDLADPG FELLGDAALVVH GRARAQALRASLLASPLPG
 TERLGDAALVVR
 VAKQAGDRAMMISLGHQADPDLQDRLASAARWLEEARWSW
 IEPVAECSVLVTLSKPHSSADDAQYMAFSHAI RQDLASVV I LPSGDNCLVIVAQDGNPDTYSAWAAAAANQLRTAK DPG IVTAGADALMVYFDGANLEQANEACHQMLAAI DMRQWHW $G D R C L R V Q F S G E L S L D T G L R C T R A A R L L D R Q A P A C$
$A G F D G V V V R F A D R L S E P A N R A A L A F R A A V D V A G W A A$

 FLTCGDGGVLVELAD LDETLRVFA ALRSATTADKPRG


VSRDGDRGDLIEFSQD DSENTLKT LDNFRNRLLESEFEQ I SPVSENSLLIKYGETASTTLSLYI ASCARVI EAELGES IRPAGDRALLLEPPD RDALAALTGRLRERTVDG EGAVLLELA SLDVT LLALFDALEADPVAG
 VARLSGDTHLLLEDGPEDDLVLRFRGHALMQAMERAFGSG


 YKRFGEKAILI EWQA II DDE ILNDDILLFVEKIKQRKEDY
 CFRQAGERMIVI DFGNEFDDFKNGRQHVMETEIRKQ LPG


GDRALLLQFDDT
$F Q P L G D R A L L A S L P D E$
$V V L D Y G D Q A L L V Q C G S T$
A QVLAA WT D A VVRAA ALLPG
AVTVAFAEAVRDAGFPW
 VEPFGDSAVMV PHPDDDLATTLTLLDGLLAHRPDG FRQFGDLHTI LVEWPKKVEEDVRRADVAKFVRHFLAHRPHG VVYSQGDQAIVVS VILDYGSDAVLVELPG
 ILAYGDRSLLIEAGTTED AI GWTVAINKASLPG V HRLAEQALLCSAPPPASGEVQRR\|WAMAA RAEDWRG
 $F L P V S T N A L L V E L D D$ L LPAGRDAVLLDCADEPDPAVLRTYRALRNALAAGTLDG

 $I \quad Y$ S Q G D Q A I V V S I SLLA GS GALLLLDGAQAFNDT TQELLVWAVANA A LTT LE G




| UniRef90_C4LFV0 | A GRV |
| :---: | :---: |
| UniRef90-W9VPG3 |  |
| UniRef90-D3QEQ3 | A A |
| UniRef90-H2BRL4 |  |
| UniRef90-A9DX07 | Q P R |
| UniRef90-A0A033V2X1 |  |
| UniRef90-S3CTT0 |  |
| UniRef90-U3C908 | D A K T |
| UniRef90-L1M046 | S G R |
| UniRef90-W1J7Z5 | S G |
| UniRef90-B2U8X8 |  |
| UniRef90-UPI0004188BF9 | S G R |
| UniRef90_UPI00035E333A |  |
| UniRef90-D9XAE3 | P G P T |
| UniRef90-F2P964 |  |
| UniRef90-UPI00037568E0 |  |
| UniRef90-A5L3J6 |  |
| UniRef90-K6UND4 | T D |
| UniRef90-V3CVQ5 | T G K V |
| UniRef90_UPI0002F8677D |  |
| UniRef90-UPI0003603EA3 | P G |
| UniRef90_Q0SB10 |  |
| UniRef90_UPIO003692F79 |  |
| UniRef90-B7QZE7 |  |
| UniRef90-UPI0004192E08 | D G Q N |
| UniRef90_C1CZR6 |  |
| UniRef90_J7LJN8 | S G E T |
| UniRef90-A3TNL4 |  |
| UniRef90-UPI00046788EF |  |
| UniRef90_UPI0003605BD1 | E E K T |
| UniRef90-B8IGM1 |  |
| UniRef90_UPI00038F2AEB |  |
| UniRef90-W3XLY0 |  |
| UniRef90-UPI00040511EB |  |
| UniRef90-Q8CSB4 |  |
| UniRef90_UPI00030ACCBC |  |
| UniRef90-UPI0002F95DB1 |  |
| UniRef90_A0A010QU68 | D G K T |
| UniRef90-J0B1P4 |  |
| UniRef90-Q1GEX7 |  |
| UniRef90_UPI0003B48FBF | D G R |
| UniRef90-UPI0003768055 | P P Q |
| UniRef90-A4ASE1 |  |
| UniRef90-W4N625 | R S R T |
| UniRef90_D1MBM3 | P S R V |
| UniRef90-UPI000476D2E5 | K PQT |
| UniRef90-W2U0E9 |  |
| UniRef90-C3KLX2 | Q GE T |
| UniRef90_UPI00041CA368 |  |
| UniRef90-Q6ANH4 | S G R |
| UniRef90-UPI000373398E |  |
| UniRef90-UPI0003774A51 |  |
| UniRef90-UPI00037EFC6D |  |
| UniRef90-A0A022LBS0 |  |
| UniRef90-V4QGD4 |  |
| UniRef90-L7HB11 |  |
| UniRef90-UPI000309ED92 | Q N K |
| UniRef90-K0CR36 |  |
| UniRef90-V2V2K4 | K G K |
| UniRef90-F4GR27 | R A K T |
| UniRef90-UPI00047AB93F |  |
| UniRef90-K6X1S3 |  |
| UniRef90-E3BDZ3 | P G R V |
| UniRef90_W1QC34 | P S R T |
| UniRef90-D0M8D4 |  |
| UniRef90-UPI000362C3E1 | R G K T |
| UniRef90_K8WEI9 | V G K |
| UniRef90-A1U917 |  |
| UniRef90_UPI0002F10EAE |  |
| UniRef90-A0A024JT57 | A D |
| UniRef90-R8BGF6 |  |
| UniRef90-X6FKZ7 | H G E T |
| UniRef90_G2NVC6 |  |
| UniRef90_UPI000409370F |  |
| UniRef90-UPI00034C73EE |  |
| UniRef90-D5UJL6 |  |
| UniRef90-14BCT0 |  |
| UniRef90-F5J8U4 | Q G Q V |
| UniRef90-V8CT57 | R D G T |
| UniRef90_Q477G4 | T G R |
| UniRef90-Q16DH3 |  |
| UniRef90-UPI000408E925 |  |
| UniRef90-V2JE90 |  |
| UniRef90-UPI000371795B |  |
| UniRef90-W5Y0K9 |  |
| UniRef90- A4CKX8 |  |
| UniRef90-N8PUP2 |  |
| UniRef90-U1ER91 | E N VT |
| UniRef90-UPI00047C17FB |  |
| UniRef90-UPI00036EF3E4 |  |
| UniRef90-W9YIC9 | N S |
| UniRef90_UPIO003612A3C |  |

UniRef90_UPIOOO40620E3 UniRef90_AOLSF6
UniRef90_DOCPB2 UniRef90-B0RI76 UniRef90-UPI0003B38EF1 UniRef90-W4VFS6 UniRef90_UPI000360BCC7 UniRef90-D8MPR1 UniRef90-Q49Y46
UniRef90_UPIO00363C450 UniRef90-UPI0003117091 UniRef90-L7ZCB9 UniRef90_UPIOOO382635F UniRef90-B6BFW3
UniRef90-C3JZ18
UniRef90-H8JL21
UniRef90-F6FZY4
UniRef90_D8MWS2
UniRef90-A0M392 UniRef90-UPIO0035CCCAB UniRef90_UPI00046579C0 UniRef90_Q9RYM6 UniRef90_W5WM68 UniRef90-B9DK32
UniRef90-W5ITY1 UniRef90-W5ITY1
UniRef90_UPI000467B7B5 UniRef90_A0A023US28 UniRef90_G2J1V2 UniRef90_UPI0003AD2ED4 UniRef90_C6CCD0 UniRef90-K0D1H4 UniRef90_UPIO004657969 UniRef90-L7WYT2 UniRef90-H6RAT5
UniRef90 A6ET74 UniRef90_UPIOO03AD0162 UniRef90-U5WUN8 UniRef90_UPIO0036F8CBB UniRef90-E8XUT8 UniRef90_G4HYR3 UniRef90-KOPSW9 UniRef90-KOMIY6 UniRef90-N0E036
UniRef90_G4F8A7 UniRef90_Q89P46
UniRef90_C6CPU2 UniRef90_UPI000377DF4E UniRef90-N4V921
UniRef90-UPIO004797028 UniRef90-I2BB51 UniRef90-KOYH23 UniRef90-A8T0W2
UniRef90_C7JDIO
UniRef90-J3D700
UniRef90-C6DCC4 UniRef90-L7KWQ9 UniRef90_UPIO00475E25D UniRef90-E3GTZ7 UniRef90_UPI00030CE6FE UniRef90-G8RGV8 UniRef90_UPI00036906A2 UniRef90-A9H2G1
UniRef90_UPIO002379246 UniRef90-I3CA00 UniRef90-K8WTM4 UniRef90-B2HXI2 UniRef90-K7SZN7 UniRef90_UPI00047536CE UniRef90_UPIO0047DF5E1 UniRef90_E8U5L4 UniRef90_UPI00037DDB24
UniRef90_UPI00047A14A8
UniRef90_UPI0003B6E32A
UniRef90-F5XTC8
UniRef90-B9K5U3
UniRef90_H0QQP9
UniRef90-K8A2S2
UniRef90-UPI00034CBC8F
UniRef90_UPI0004695757
UniRef90_UPIO0041BB6A7
UniRef90_UPI000313E3A9
UniRef90-E8U1G5
UniRef90-H3RAR3
UniRef90-A8UPJ4
UniRef90-F3LJD5
UniRef90-Q6CYL9
UniRef90-A3YVD93
UniRef90-G6XFF3
UniRef90_M9VKC3
UniRef90-S2X6Y0
UniRef90_A9W9Q66
UniRef90_C9XZ92
 I RPF GEFAFLVEFGQDVSPSSRYVVVQLKEKFAELDHEG

 | $L L P C G D A A V M$ |  |
| :--- | :--- |
| $E P L G E A A V V L H$ | $L D D S D D E V L R L Q P V L D A T R P R G$ |
| $W$ |  | YQS A A N A I ILTEPD DRDRS LEELALUHQLTNQKLP



SGERTVIVEVRSSDRVAANRVTREIAARIAAGNHPF $\square Y P K G D S A L T V M S D R E P S R Q L T H E I N E F R M D I L N K N M P F$ YYLLGERAVVLELSPPVTLPSQQRI WALAEKLNHH PD VRTVGVDGMLVSFGSRMSEAANRAALAFRAALABAESPAG VI SLLGSSALLFEAPGELDLAPQQRIWRLRAALQAGGWPE GDRALMVQCGSA DHR GELAALLCEVPPPATLTCQQRIWAMAA RASTWAG I STIGSRAWLVEAPGAFDLPAQRRIWSLAASLSDRPPD


## $V \vee \frac{1}{L} D Y G D S A L L L Q F D S T T D$


LLrCGQDSLLVE पDSLEQVGALHAALVAARLPD IYSQGDQAIVVSVEKEVTQDTTEDLLALRSYLIEQDYPF VEPFGAEALLLTLAERPDAHLPDRIAALAERLRAALGEV I LDYGDRALLLEF YYLLGERAVVLELSPPMTLPSQQRI WALAEDFNHH PD
 VLRAGDRALLVETGD GS LDATAHRLNAALRDTPDPG AGADAIIMVYFDGANLDEANDACHQLLSAI DSNSWHW IVTAGADAIVMVYDGANLDEANDACHQLLSA:DSNSWHW TYSQGDQALVI STEKKVSKDLTEDLLALRSYLNEKNYSF RPAGDRAFLLTPPPDNNGDAVAEVAATLRDRRLDG $1 \mathrm{LPSGDAA} L \mathrm{LVELPD}$ LPAMLGLYAALSAAPPQG GDQALMVQCDST AEVLAWTDALRAAALPG 1 RPAGDRAILVELSS RDAVLSQAQLMAHPRPG ISTDGSRAWLIEAPGDFDDPAQRRIWSGAVALRARADD FLPAGSGCVLVE DRDDDGGTTLTLLDTLLADPPEG LLPQGDRCLIVWFGDRDDAGVGRACLAAAGLLRAGGAGG I RRLSDDAI IEVGTEPNMEMQKLVWGLDHIIHE WTG ISLLGTSALLFEAPGAFDLPHQRRIWSLAA TASKWPG

LGERAVVLDEPPLRLESQQRI WGLAQRLAEH DE YKPFGNSAILIEWPAKIAEEDIGDIVAFEKKIVKNSTSN
 TRPVGERGLLIELEDVGLESGKKVAGWRARLSGSPLDG I SLLVECSILIRFDNIITVES I GRLALHIADKLELI $\square S M|G T R A M L E E A P G A F T L A C Q R R| W A L M A C A D R A D D$ GERAVVLELEPPVSLTSQQR1 WGLCQRLQQN EQ LIPAGPDAVVLDFSESPSAAVLDATIALRDAVDRGELPG VPGERAVVLELEPPVSMASQQRDWGLSQRLAQDA
 MIRLAGEHGLLVETG SDEDS HRLDAALRRERPDR VRRVGDRGLLVELPPRSDPATQRDWAAARALAGQBPAS YRQYGNKALLIEWPRMVNEADLNDDLKFKNAILQE DDT FhpVNLSAFMVE FLSVNADCFLI $\quad$ SMALASLETLALYNKLQNTQLNG DSMAGAGALLLDAANPFSDTTQQKVWTAAQTLMAHQLNG

LGERAAVLELAPPAALQSQQRIWALAERLRGES G Vrdygdealllemisi
VRPAGGEALLVTVADLPSAT
SLAAHLRAEPLG FLPDGPRMVLVELPD $\quad$ DDATLALFDALAADPVPG VSDCGDAAVRVTFQTDDRNHAWRSAHRLSTWLDTHRDRQ

PFGDSGLMLRVAGSTALESRQAGSRLI RELLVQDDQPPD
 MVGGGVDGLLISGDRLSEPANRAALAFRAALEAEGWDG VYCVGDRGATJSTSGEMSLENQQKIWWISQEIAREKNPM VSAGGTDALLEESLAPLSHEAQERIDMVAD QASQWRG LGERAVVLELSPPVSLASQQRIWHLCQRLQSH DA
 LRPAGRAAVLVELD DAGQRRRLH RALSDHPAEG




| UniRef90_UPI00040620E3 |  |
| :---: | :---: |
| UniRef90-A0LSF6 |  |
| UniRef90-D0СРВ2 |  |
| UniRef90-B0RI76 |  |
| UniRef90-UPI0003B38EF1 |  |
| UniRef90-W4VFS6 | K G |
| UniRef90-UPI000360BCC7 |  |
| UniRef90-D8MPR1 |  |
| UniRef90-Q49Y46 |  |
| UniRef90_UPI000363C450 | S G R V |
| UniRef90-UPI0003117091 | K D R |
| UniRef90_L7ZCB9 | E S R |
| UniRef90_UPI000382635F |  |
| UniRef90-B6BFW3 |  |
| UniRef90-C3JZ18 | E G R |
| UniRef90-H8JL21 |  |
| UniRef90-F6FZY4 |  |
| UniRef90-D8MWS2 |  |
| UniRef90_A0M392 | K |
| UniRef90-UPI00035CCCAB | E S |
| UniRef90_UPI00046579C0 |  |
| UniRef90-Q9RYM6 |  |
| UniRef90-W5WM68 | S P R T |
| UniRef90_B9DK32 |  |
| UniRef90-W5ITY1 |  |
| UniRef90_UPI000467B7B5 |  |
| UniRef90-A0A023US28 |  |
| UniRef90-G2J1V2 |  |
| UniRef90-UPI0003AD2ED4 |  |
| UniRef90-C6CCD0 |  |
| UniRef90-K0D1H4 |  |
| UniRef90-UPI0004657969 |  |
| UniRef90-L7WYT2 |  |
| UniRef90-H6RAT5 | D S |
| UniRef90-A6ET74 |  |
| UniRef90-UPI0003AD0162 |  |
| UniRef90-U5WUN8 |  |
| UniRef90-UPI00036F8CBB |  |
| UniRef90-E8XUT8 | Q G K |
| UniRef90-G4HYR3 | Q H |
| UniRef90-K0PSW9 | Q GE S |
| UniRef90-K0MIY6 |  |
| UniRef90-N0E036 |  |
| UniRef90-G4F8A7 |  |
| UniRef90-Q89P46 | S G R |
| UniRef90-C6CPU2 |  |
| UniRef90_UPI000377DF4E | K |
| UniRef90-N4V921 |  |
| UniRef90-UPI0004797028 |  |
| UniRef90-I2BB51 |  |
| UniRef90-K0YH23 | E A R V |
| UniRef90-A8T0W2 |  |
| UniRef90_C7JDI0 | K G R |
| UniRef90-J3D700 | E S R |
| UniRef90_C6DCC4 |  |
| UniRef90-L7KWQ9 |  |
| UniRef90_UPI000475E25D |  |
| UniRef90-E3GTZ7 | Q G R |
| UniRef90-UPI00030CE6FE | T G R T |
| UniRef90 G8RGV8 |  |
| UniRef90_UPIO0036906A2 |  |
| UniRef90-A9H2G1 |  |
| UniRef90-UPI0002379246 | G G K T |
| UniRef90-I3CA00 | QK K |
| UniRef90-K8WTM4 |  |
| UniRef90-B2HXI2 |  |
| UniRef90-K7SZN7 |  |
| UniRef90-UPI00047536CE | P A |
| UniRef90_UPI00047DF5E1 |  |
| UniRef90-E8U5L4 | A A R T |
| UniRef90-UPI00037DDB24 |  |
| UniRef90_UPI00047A14A8 | P G K V |
| UniRef90_UPI0003B6E32A |  |
| UniRef90-F5XTC8 | S G |
| UniRef90-B9K5U3 | T G K T |
| UniRef90-H0QQP9 |  |
| UniRef90-K8A2S2 |  |
| UniRef90-UPI00034CBC8F |  |
| UniRef90-UPI0004695757 |  |
| UniRef90-UPI00041BB6A7 |  |
| UniRef90-UPI000313E3A9 | S D R T |
| UniRef90-E8U1G5 |  |
| UniRef90-H3RAR3 |  |
| UniRef90_A8UPJ4 | K V K T |
| UniRef90-F3LJD5 |  |
| UniRef90-Q6CYL9 | E G K |
| UniRef90-A3YD93 | E D |
| UniRef90-G6XFF3 | E G R V |
| UniRef90_M9VKC3 UniRef90 S2X6Y0 | E |

UniRef90_UPI00047883CB UniRef90-J2L2J2 UniRef90_UPI000255AAA6 UniRef90 N1UVC3 UniRef90-B5SCT6 UniRef90_UPIO0047BB855 UniRef90_D2B934 UniRef90-W5Y842 UniRef90-UPI00046F6593 UniRef90-LOEC08 UniRef90_A6FH36 UniRef90-E8SK89 UniRef90-Q5FUE8 UniRef90-L1MNC0 UniRef90_F3JAN7 UniRef90-N8ZNB7 UniRef90 ${ }^{\text {D4GMJ4 }}$ UniRef90-UPI000464445E UniRef90- $\mathrm{S3HFF5}$ UniRef90_UPI00030E8F13 UniRef90_U0ZK12 UniRef90 B2HNU6 UniRef90-UPIO0037ABDFD UniRef90_N1WZM5 UniRef90_K2PU67 UniRef90_A3XNN1 UniRef90 G7LQ81 UniRef90-G9YD19 UniRef90 UPI00042A32C6 UniRef90-N8P1Z8 UniRef90-A3UBZ3 UniRef90_B5HGL4 UniRef90 UPIO002893A1E UniRef90_UPI0004701101 UniRef90_UPI000420FE81 UniRef90 UPI00046787FC UniRef90-UPI0003808990 UniRef90_UPI000474D25B UniRef90_UPI000287E2CO UniRef90_UPIO003030B77 UniRef90-K6WFF0 UniRef90_UPI000467D4CB UniRef90_UPI00035DAEB6 UniRef90 L8TNH7 UniRef90-C2CQM1 UniRef90_W9GHS5 UniRef90_M7A3E4 UniRef90-A0A021VS57 UniRef90-E6WIE0 UniRef90_R4TDQ5

1


10
20
30
40


LP E V L S L
QLT S ERSPG L GTTALLFEAPGDMS LPSQQRIWALAR LEAETWPE IQ P FGQQKAI EVVA WK E DVS E Q ILLS A NLQL T K A L K K K I N D
 I SLLGTTALLIFDVPGEMNLITQQRLWSL ALEVVEWPE VSTLGGRAYLVDAPGEFDLPAQRRIWALAALLRQRADD I RRAGEDSLLVETGGSLEDS HRLDALLRADRPAG I SM MGTRAMLFEAPGDFTMAHQRRDWSLMDAAQAR PD LSTMGCRAWLAEAPGTFDLHSQRRVWALAARLGSD DR

PAGDRADVAMWEGS EAEAEFRPAACAARI EAARDPW VYS GYDAILIRFTDADNAQLLPVI YTLNRQLAADLDAV IHMAGASGLLLDAQ GDHALI
 FLSVNADSFLIELA SLLDETLI ALYSRLQNDALQG LGERAVVL ELAPP PVSLTSQQRDWQLSERLQSHGGA A
 VLRVGERALLVELGGGAETEAFHA ELLRRRAAGSLPA 1 HWLGAQALVLELPPPATLDRQRRDWRLAEQLRADS D FD GDQALM CDSTEALAWTQTLRAAALPG
 YKPYGQNALLI EWPRMINESVLQDILRFKQLI AVDYPE $\square N R L G E Q A I L L Q W D F E I S P E N L K F L L S V K K Y I A Q N V V K Q$ L GESTVVLELEPPMT LQSQQRIWGLAQRLNHH EA
 F L S V N A DCFLI E L S S


LGEQALVMELSPPVSLASQHKI RGMARQLEK GDSALMLSVRDD DPAVRRGV A V VRS ILLPRLPYG $\square R P A G L D G L L I S F A D S L S E P A N R A A L A L R A A I D A A G W S G$

 LRAVGDRALLLEVDG LPAAMAWHRALIREPDPG
 $L R V G D R A L L V E L A G G A E A E$ A F HAELLRRRLPA LGE S AVVLELLEPPVSLQSQKRDWGLVHRLADQQPB IR WAGPRALLLE LDSLETVLAVHARLQETPLPG

 $V L P V G D R A L L V E C A G B E A L A L W R R L L A A R P R G$

RAYGEHAAL

[^0]UniRef90 UPI00047883CB UniRef90-J2L2J2 UniRef90_UPI000255AAA6 UniRef90_N1UVC3 UniRef90_B5SCT6
UniRef90_UPIO0047BB855 UniRef90_D2B934 UniRef90-W5Y842 UniRef90-UPIO0046F6593 UniRef90-LOEC08 UniRef90-A6FH36 UniRef90_E8SK89 UniRef90-Q5FUE8
UniRef90 L1MNC0 UniRef90-F3JAN7 UniRef90-N8ZNB7
UniRef90 D4GMJ4 UniRef90-UPIO00464445E UniRef90- S3HFF5 UniRef90_UPIO0030E8F13 UniRef90_U0ZK12 UniRef90 B2HNU6 UniRef90-UPI00037ABDFD UniRef90-N1WZM5 UniRef90-K2PU67 UniRef90-A3XNN1 UniRef90-G7LQ81 UniRef90_G9YD19 UniRef90 UPI00042A32C6 UniRef90-N8P1Z8 UniRef90-A3UBZ3 UniRef90_B5HGL4 UniRef90 UPI0002893A1E UniRef90-UPI0004701101 UniRef90-UPIO00420FE81 UniRef90_UPI00046787FC UniRef90-UPI0003808990 UniRef90_UPI000474D25B UniRef90_UPI000287E2CO UniRef90_UPI0003030B77 UniRef90-K6WFF0 UniRef90_UPI000467D4CB UniRef90_UPI00035DAEB6 UniRef90 L8TNH7 UniRef90-C2CQM1 UniRef90-W9GHS5 UniRef90 M7A3E4 UniRef90-A0A021VS57 UniRef90_E6WIE0 UniRef90-R4TDQ5
 DWEFI SSYNTLTLDYNGVELSYKELVELI RK
QLDVLAAASTVLVECD TRAHAVAAQTAI EQLELDHTSAG V REAVPGMNNLMLVFERAPGALTQVETRLRE
1 ES LI PGVTNNLLVLFKHDPPEPSAGVHLLQQDWERARAATS $V$ VEIVPGPETVLVL
 $V E T V I P P G V T N L L V V L K E \square P A D A E Q V T D W L Q A L D A S Q A V A L$
 II TEIVPTETDMLI SYD
VQTIPGVNNLLVMFDAVKTDPAAMETLLRDMWTQA VRELVPAARTITVVLDNPRIASQADTAATLETLVVGAASTS VREAVPGMNNLMLTEAAAPPRDLAGLKARGLLE I SDDIPAAKTILVFFNEDETNMATLIRQUSTDEDSSL I RDVIPGMNNLTL I AEVI PGMNNITVVLEPENKADDADERLQRWWEESEALEP V VEAI PAARTVMI K F DPFGADRPTLTNSISRMDGSKRSVR

VVDIVGASRTVLV
I EELI PAARTLLVHFCPYTTSASELARADRELTAAALQSG


LEQ】PAYNSLLVARTP IDDNKLTRGI MAI YAE




I QDCTNGYNSLLIVYKREVSNQQ
$V R Q V 1 P G M N N L T V I L Q D D P S D T R A A L A G L R Q W E N S S A A \square P$
ARDAVA GMESLLVEFDPLVVAPRQLAQVLELIIN

VTDLVPAARTVLVRVDPRLLP
I EALI PGVTNLLVLFRHTPADPQSTEASLR
$V R E L V P A A R T V L L D D G D T D P S R L A A E L T G A E \square P P V A T R$ QIEAVAAARTVLLRFESD TAAEAARTSLRA
QVDVVAAARTVLVRAASAGATQ RLAQHVRADITQTVER $V R E I V P A A R T V L L D$ GVADPARLAAELDGWEVGGLPAR VVEAI A GMNNLTVVLRDPKSNALDADERLQRWWEE
QVDVLAAARTVLAVD
QVDAI AAATTLLLTFN
VDDLVPAARTLLVARPD
LTDVVPAETVLVQFEGSGVDRLGLRRVLRS
VVEPVVAARTVLVRVE EGGLDR VRRLLEAMVA


[^1]

| UniRef90_UPI00047883CB |  |
| :---: | :---: |
| UniRef90-J2L2J2 | E G R V |
| UniRef90-UPI000255AAA6 |  |
| UniRef90-N1UVC3 | T G K T |
| UniRef90-B5SCT6 |  |
| UniRef90-UPI00047BB855 | Q G K |
| UniRef90-D2B934 |  |
| UniRef90-W5Y842 | E G R |
| UniRef90-UPI00046F6593 | N G R |
| UniRef90-LOEC08 |  |
| UniRef90-A6FH36 |  |
| UniRef90-E8SK89 |  |
| UniRef90-Q5FUE8 |  |
| UniRef90-L1MNC0 | T $\square \mathrm{R}$ T |
| UniRef90-F3JAN7 |  |
| UniRef90-N8ZNB7 |  |
| UniRef90-D4GMJ4 |  |
| UniRef90-UPI000464445E | E S R |
| UniRef90-S3HFF5 | Q G |
| UniRef90_UPI00030E8F13 | A G G T |
| UniRef90_U0ZK12 |  |
| UniRef90-B2HNU6 |  |
| UniRef90-UPI00037ABDFD | P |
| UniRef90-N1WZM5 | P T R |
| UniRef90-K2PU67 |  |
| UniRef90-A3XNN1 | A S R |
| UniRef90-G7LQ81 | D P R |
| UniRef90-G9YD19 | QPEV |
| UniRef90-UPI00042A32C6 |  |
| UniRef90-N8P1Z8 |  |
| UniRef90-A3UBZ3 |  |
| UniRef90-B5HGL4 |  |
| UniRef90-UPI0002893A1E |  |
| UniRef90-UPI0004701101 | E S R T |
| UniRef90-UPI000420FE81 |  |
| UniRef90-UPI00046787FC |  |
| UniRef90-UPI0003808990 |  |
| UniRef90-UPI000474D25B |  |
| UniRef90-UPI000287E2CC |  |
| UniRef90-UPI0003030B77 |  |
| UniRef90-K6WFF0 |  |
| UniRef90-UPI000467D4CB | VGE T |
| UniRef90-UPI00035DAEB6 |  |
| UniRef90-L8TNH7 |  |
| UniRef90-C2CQM1 |  |
| UniRef90-W9GHS5 |  |
| UniRef90-M7A3E4 |  |
| UniRef90-A0A021VS57 |  |
| UniRef90-E6WIE0 | Q G K |
| UniRef90_R4TDQ5 |  |
| lupas_21 |  |
| lupas_14 |  |
| lupas_28 |  |
| jnet |  |
| conf | 8899 |
| sol25 |  |
| sol5 |  |
| sol0 |  |
| jhmm |  |
| jpssm |  |


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

[^1]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    sol0
    jhmm
    jpssm

