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

 HKNYKKGDMLCSQGE KSDTLFII NEGQVKISKLTKEG GEMVFRAGE G P S D H L YNRGQII FMEGDEGK GLFVLDSGKVKVYKFSPEG LTFKRGDMIFHDG DKGDGIYIVETGKIKVFKDSDDG
 KKKSYEKGKILFTKGDLAK HLYIVRFGRVKVYEMSEDG $E R G Q M V F C E G A A P A E G F Y V V A E G R I K V F R S G P D G$
 RKKE I FSDGEVG EGFFAV DRGRVVVVYMSEEG $R R V D K G Q M I F F E$ SSPAEGFYVVAEGRVKIFKTAPDG QVKSYGKGDVVFKEG DKPKGFFIVRSGRVKIYKIAPGG KHRKFTKGQPLILEG APSDTLYI I QQGHVKLSKITPEG SRSFPKNTVVIVENN - RSLSAGQTLFFKGDAG

KHKQFKKGQPL DHEGE VKRYEKGEVLFEA D SEHYERGKTIFFPG DPA | $D T R T Y P A G E V I$ | $F D E G$ |
| ---: | :--- |
| $K T F E P G Q V L$ | $F K E G E H G$ | RLERRGQVLEKEGEDSG KYPAKSTLIHAGEE KEGEYI I RQGDDG RRFKRGEVIVEQGE TKSYKKGEQI FKEGE HKHYSKGETIYRPGE YPKSTMI FSESQNGP KSNTFYV


$\qquad$ S D GV EVQYVKNEMLFREGDKD (VNVDSLVIVSGRVKVFCSDENG SRKFNKGEVIVHPSQ KADAFF GLKSGRVKIFKTSKDG TRQHPAHQVILLE NDWGNSVYFi LS GWVKI RTYNLDG KTRKYRKGQVLFIEGEDGS EVYFILEGQVKLSKTLPNG

 KFDDLPMGEVLFYE KDESSDMYLVDEGKVRASLFDEHG TKTLQKGEILFREGE KAEGFFVVQTGQISMFRLTPDG PKKYIVVQE GEDG DSMYII LLGSVKIVYYTPDG

 THNVGKNNVIVQAGDDG NSMFVLLHGSVKI SYYAPDG TAQYRKGELIFREG DRSESLYVVNQGDIKLTKDEDNG IVFGARQAVFTEGE RSFAPKHTLDHAG TQHLANGEVLFQKGDAG PGDRLYIVKSGKVKIGRRFPRG
 VRTDADGECLYSQGDEG KTYGAGEILHSPDQ $R T L P E G E T L F V K G$ MSVTPGATLFAG
RHFAPRSTI DHAG VRRLPPGHGLFKRG

 | P |
| :--- |
| D K |
| D P |
| D V |
| D |

STH VGIRKGVSAFDNND
S DGLL GVIVQGRVRMSNTSKEG
a

$\qquad$
SEVL K G AL Y GI RRGQURI E TGTPS G
 PAALYAIVSGAVEFSTLSAAG
 K $\square R R Y R P G H R I V E A N E V$
 KFREVKTGEIVFSEGE
 KECFYKKGD:LLEG VVSKEKKEI FFLEDEE
$\qquad$ STDLY I L KA VVSKEKKE FFGEDEE KAEGFYIVAEGVVK円YKLSAAG VRR PAGQRLAAG KOPAGQRARG
$K Q Y S D G E Q: I R Q G$
$Q Y P K G T I V L A G$
$Y \square K N E H L Y A B G E$
D
$\qquad$ S S G S

S EEPVRAFYYVLSGQMKKYRSSAEG


Y $\square K G E V L / C!E G E!$ KGEDVVRQGHN
EKTVQPGEFI I RQGDDG ERKYYSNGDCIIKEG $K T R K F K D G E V I V A E G$
$D H R U L R K N A L V Y R P D E$ DA DNFYVI ERGKFDVYVKDPTA KTRKFKDGEIVAGAADSFYIVENGNVEITREDTSG
 $Q V Q Q L S P G Q R L F R R G \quad D Q P S G L Y A V V A G A M R G G A V N Q S G$ $\begin{array}{llll}T K K V K K G E A L F E E G & D K D D G V F C V R D G V S K G S K L S A N G \\ T Q I F E D G E V I I R Q G & D S A D C M Y F V E D G V V R I A M K N K D D\end{array}$





UniRef90_M5QHMO

## UniRef90_U2FGZ4 UniRef90-A0A021 W725

UniRef90_J4J6C6
UniRef90_Q07J90 UniRef90-B9M2U2 2 UniRefefo-K2BMT3 UniRef90-Q04UT0 UniRef90-D3SE20 UniRef90-B7RVS6 UniRef90_W9V8F1 UniRef90-E1R383
UniRef90_R8ZSI5
UniRef90-UPI0002FDAEDD UniRef90-E6SDO9 UniRef90-UPI0002EFA092 UniRef90-UPI00037EFDE1 UniRef90-W9ARS1 UniRef90-COQEL8 UniRef90-UPI0003B6B53F UniRef90 UPI0003FA507F UniRef90_UPIOOO3FF2672 UniRef90-Q483F5
UniRef90-CoVYM4 UniRef90-K0HW29 UniRef90-F6DV27 UniRef90 D5A5C5 UniRef90-G8Q151 UniRef90_S7TKF1 UniRef90-Q8DKN0 UniRef90_-_OLHX1
UniRef90_LOWDE9 UniRef90 IORDM0 UniRef90 GoRCS6 UniRef90-UPIO00348E9D5 UniReffo-D9T566 UniRef90-H1DXYO
UniRef90-F2LX39
UniRef90-A8UP68
UniRef90- M4UK52
UniRef90 UPI00037A58A2
UniRef90-UP100046A4DDC
UniRef90-UPIO00381091A
UniRef90 U2TU84
UniRef90-R4KKU1
UniRef90-Bоड3H2
UniRef90-Q3SPX0
UniRef90 UPI0003AA83E7 UniRef90- A9B4E4 UniRef90_UPIOO034A02E0 UniRef90_H8MXC8 UniRef90-D8PG57 UniRef90-A0A010ZKV5 UniRef90_U1ATE4 UniRef90 H8KS76 UniRef90-D4ZKD5 UniRef90-UPIO00412754B UniRef90_FOGJO6 UniRef90_W7ITQ7 UniRef90-K9VN55 UniRef90-K9SK41 UniRef90-J2KYJ1 UniRef90-W7JF52 UniRet90_U9YRH1 UniRef90_B8ILT4 UniRef90-Q67K68
UniRef90 E3HZB9 UniRef90-H8ML97 UniRef90 - 2 CBW4 UniRef90-UP10002EOBFBB UniRef90_UPIO0036F7DF4
UniRef90 UPI00037333EC
UniRef90-M4AQ13
UniRef90-UPIO0036E5F93
UniRef90 V6MAN6
UniRef90 F9SLF5
UniRef90_W9HCB7
UniRef90 H3NLJ4
UniRef90-U1WMS8
UniRef90-ІІТМА2
UniRef90_UPI00031B969F
UniRef90 UPIO00477F366
UniRef90-F7CZT8
UniRef90-UPI00036EA6CA
UniRef90_AOLNCO
UniRef90-UPI0004771312
UniRef90-IYYEQ3
UniRef90_V6T2A9

YTKFPEILYA TSGQTAQRILIRNTTRKVGDLIA K SDLPSI SLKIMEEFCKRIERLENTIESM RDEHPELYRGFTRLLCRKLRTVLDYVEDM AAAHPQLAATAGHMGHRLQEAHQRIQELS RESFEKFLLQLISMLCHRLRESWLMLKVMS GPDFPSTSLKLLATFSQRLRDTTRMV
QNAFPTVSINVTKLIINRLRTSQEQ
YDQFGTLAMKI DRYFSMKLRQFDQT TTRDT
YTQFPELMLLTSQMATRLRQTSRKVMDLA
YDKFPDVLYAI ARQLGKRLRQTTRKLTDLA
ESTLPDISARI IQTMARRMSMTNRQME
FERLPELRRQLLTMSREDSNDQQMMTLLS
KANFPQLITRLTQLLSERIWFDYKQLAN
SKQNPKFAAKMVSIMADRLAKTNELL
LLK SFEQLMAKVMRAMSEKLIEGQVKLQGFTGQ

KEENPKFSMSVLKKMAGNLKQADNLIVDMA
REALHAWVM
KKDFQALLLFLSRFYARRMSDAHE
RDDFPTAAMNIIILLSKKLHDANERNMLLST REQFPSDAMKLIDVLSARLSDVYKDGETLADQ QADVRELLLQVLAELSRRLGASEKQTAALAT SSDFPQLMSLNKFLCNRLQMAFEMMED HADLVTTLYNNP SMSKHM
RAEFARCLTEVMRGLVKRLRHADRKDESDAD
RDTFNKMLSQVLNLMGNRLREAQNTI HD
RERFPQLHHRMLQLMVRRLRQINLRLQ
AQDFVQLIIRLAQLMGRRLRQVNRRLR
KDQDPLLCRKMISSLSRRLHHRVVDVEAYSLQ
KKMLEESHRFVVNRLAERLGEANAKI RDLV
RAAVQRLLQQLAEE ARELAVRQQVLQEL


RVTFRRILME STFARR RMYESFLEE

$R P A F M E L V H S N P R 1 L D A V M R S L G Q L: R R L T E Q$
$F E T L D D L S G M P N L R Q Q M R L M S G E I K$
THHLPEFAMKLLGLFAQRVKYLVEKIKELSGE
KDUHPTLARRMLTGLSSRLHTLMCDLETVNLQ
NTDVPELAVDMUHLAGQRMRWMGRQV
NTSLPGFAYEMMQIACEELGDANHYIRDロA
A QDLRDFVVNIARSLSARLREANVRL
KTRFEELLIKVAELLAVRMREAEAII HEMV
 FQQLPSWMRSFFQLLVERVRESNKKQDPLT
 $H D D D P R D A T R U A E Q L G A R L T Q L E Q R L V D M A$
$R E D F D S L I S S H P Q V L M E R L R R T Q H V L D S Q A$
$M$ KEANPDAAMEVIRYLGNRLNEAQEKAKVLAD QQS
FTRMESLSRDTPSLQHHFYRपMSREIVR
LAFFETTLKDLMRFFANELQESEKRMRNLV

QAALLEILDATPQ
MDAFEGLLEDFVRHMATRLAEQQQVISDLVT
AQRFPQLHHRMLQLMVRRLRQTNLR
KQDFPQLARFIVRLMSDRLAQT
RПTYKRILMD
VEQNPRLAMTAMQT\GQRLEEAHTRDREMSTE
GGRFSALLVDLLRTVTSRLRYANQR
PHDYPILHRFLALLLCKVVRNAFTMLHDCTD
ARAYAMVMQNINRELCRRLRRADSRIAELA
VDDLVQLLRTLAALVGRRLRLARDTAHELAVH
VSSNSRLFHTVMAQWYRALSDADRWIDTELST
REDFPAVALEMSRILGQRLSRLGGQAQQ
KANFPNVAVKLITLLSER! WTAYRQLANLT
RSDFQALLAKAQQLALGILNEFGKRISQL
KHDFDTLTDNHPALL
REKNPSLA RAMTELLCTRDR
RDRFTELYKMIVRVLTNRINEHDQTTKE

REVFQQHCREHPSAFLLQSLIDRERLAAELVAQ
KDEFPQMAVEDMRVLAQQRLETTRQLREAVAH
ENDVMHILRNNNQFLITVLEQSYERIR
RFDFPDI FIKILETALDRLRRANELITDLT
$K E D F F Q L A Q Q P Q M A V E I M R E A R R V D R E D$
TDDFPDLAVQMDRYMGEALRDLTSVMRDDAD FSSLEQL LGEMPTLLRHFHRMMSQEITTR RVTFRR! LK
KQQFEDFLMQFPQTSVK LFRVLGDMIVDD
RESFRKLMIQFPE $I$ AFKV LDMM DRRIVNM
GAVFKQQL


UniRef90_C7YRC1
UniRef90_C5GF89
UniRef90_K4LFB4
UniRef90_A0BRC9
UniRef90_U9TAQ7
UniRef90_J1KMY2
UniRef90_X1UBB3
UniRef90_K2JAH7
UniRef90_S4XVZ4
UniRef90_F4GNN0
UniRef90_C5L0D5
UniRef90_E0RR11
UniRef90_A8MIF1
UniRef90_B1ZX96
UniRef90_UPI00047970A9
UniRef90_W0MQB4
UniRef90_D4H2F3
UniRef90_E1TG82
UniRef90_UPI0003825E63
UniRef90_S4PP81
UniRef90_B8FPV6
UniRef90_A4EUU4
UniRef90_F5YKD9
UniRef90_G7E1U0
UniRef90_A0A017T4V0
UniRef90_Q2SLA9
UniRef90_H1LKP5
UniRef90_E1VIC7
UniRef90_G3WNJJ4
UniRef90_H2CKT5
UniRef90_H5XY46
UniRef90_C4KZ85
UniRef90_A0A034V9R4
UniRef90_F8J8M8
UniRef90_B2B4N9
UniRef90_C3BI23
UniRef90_D8P711
UniRe90_A0A024G845
 GATPVKRYKRGDYFGELAALLDEPRAASVVAMTDVKVAQLG




 KEQVDRIVGPGEFDGELSLFSSPGTDHAQALETSTVCVLD

## R

D

| UniRef90_C7YRC1 | 100 |
| :---: | :---: |
| UniRet90- C5GF89 | RDGFKRLLGPVEDIMR |
| UniRef90-K4LFB4 | QKDFNSLLIKVISYLSEKLNNYTQQAAVMAF |
| RRef90 ${ }^{-}$A0BRC9 | STF |
|  | AFVRLLGPV |
| iRef90-J1KMY2 | ENPE |
| UniRef90-X1UBB3 | KEKFDDLIAYRFMSCVCLPMFRHILRMSTL |
| Unirer | RQKFPAMEQRLEGMASNEL |
| UniRet90_S4XVZ4 4 |  |
|  | KDRHPGFARKMLAGLS QRLHNLMSDVEAYSL |
| Ref90-EORR11 | ETAAQTQELAVRRKEEL |
| UniRef90-A8MIF1 | GARLKELMTKYASI |
| UniRef90-B1ZX96 | RAPFPELALQMLAS |
| UniRef90-WOMQB4 |  |
|  | YDTFPD LYALGSQMAERLRNTTRKV |
| UniRef90_D4H2F3 | REKLRELMDEVLS ${ }_{\text {RA }}$ |
| UniRef90-UPIO003825E63 | KQDFPQL |
| UniRef90-S4PP81 | MRENPELMVNAVK M M |
| UniRef90-A4EUU4 | MEKFPDL |
| UniRef90-F5YKD9 | KDQYSELAMKIILLFSKRMRYLDEAL |
| UniRef90-G7E1U0UniRef9- 0 - |  |
|  | , |
| UniRef90-O2SLA9 | KF EDLASDUPSLQHHFESLMSK |
| UniRef90-ELVIC7 |  |
| UniRet90-H2CKT5 |  |
|  |  |
| UniRefe90-H5XY46UniRef90 C4KZ85 |  |
|  | RILDLHERRVQE! |
| UniRef90-A0AO34V9R4 UniRef90 F8J8M8 | DPQFALRVMGLLA T RLR |
| UniRef90-B2B4N9 |  |
| UniRef90_C3BI23 | LQENPELYADIAMQLQTK\RMMQQRTDQLTT |
|  |  |
| UniRef90 A0A024 |  |
| UniRef90-UPI |  |
| UniRef90 N6Z261 | Q |
|  |  |
|  |  |
| $\begin{aligned} & \text { UniRef90_Q0KOZZ } \\ & \text { UniRefoloxa52 } \end{aligned}$ | NFPQL |
| UniRef90-M2BHJ1 |  |
| UniRef90-13T |  |
|  | N |
| UniRef90-UP10002D4 | IEDLEKILIKLFRLMGER\\|IELQDRLEEQ1 LIH |
| UniRef90-H2LHM5 |  |
| UniRef90-UP10033C4AF1D |  |
|  |  |
| UniRef90 K9Q398 | ERVLG |
| UniRef90-VGAL5 |  |
| UniRef90-B1I644 UniRef90 GOHFDO | HPEVSRFFSRV |
|  |  |
| UniRef90-15AQNO | A |
| UniRef90_UPI000255CD6D |  |
| UniRef90 - W7QTA6UniRet90-B4GB88 | MDKLSATM |
|  | GF |
| UniRef90-UPPO0047016D7 | D |
|  |  |
| UniRef90-O9C196 | R |
| UniRef90-UPI0003709129 |  |
| UniRef90-K9GY37 UniRef90 A0A023F3T3 |  |
|  |  |
|  | VATFERLMGPFQEIVARQI GYORKYETM |
| UniRef90-G2G1D0UniRef90-HEGSZ6 | KLQFEAL KQDPTFAMRDGYLQKRYETM |
|  |  |
| $\begin{aligned} & \text { UniRef90_HBGSZZ6 } \\ & \text { UniRef90 F5L836 } \end{aligned}$ |  |
|  | PSILWGFYKMLALD |
| UniRef90 -14D7R8 UniRef90 K41KT1 |  |
| UniRef90-W4BZA1 | E |
| UniRef9-UPIo | D |
| UniRef90-UP7000380FC20 |  |
| niRef90-C5KD96 UniRef90-E6VP02 | RRSFRRLLGPLQDLLVK |
| UniRef90-UPIO00472620F | ( ${ }^{\text {a }}$ |
| UnRef90-G1KJX1 |  |
|  |  |
| UniRefoto UPIOOO35E0330 UniRef90 G1N6A5 | REVFQNIMRVTAQTRQEQYRNFLRSVSLL |
|  |  |
| UniRef90-Q03QC4 |  |
| UniRef90-UPI0003493BCF UniRef90-UPI0003729D06 |  |
|  | FADFERLCDRHPEVNRLLVRLLAARVSRLT |
| UniRef90-T | Q |
|  |  |
|  |  |

## UniRef90 B8HPP2

UniRef90_V4P2X0
UniRef90_UPIO0047E3528 UniRef90_UPIO002888AA2 UniRef90-GOQYN4 UniRef90-M5T958
UniRef90
K6C2K
UniRef90-K6C2K7
UniRef90-HOFEI7
UniRef90-B1WYW9
UniRef90-W7KDD6
UniReif90-E5S111
UniRef90-S9NWZ2
UniRef90-K9VKR97
UniRef90-O3AMY7
UniRef90-T1CF35
UniRef90-G8RWI9
UniRef90-W5NEY1
UniRef90-R9PKE6
UniRef90_S8A766
UniRef90-BoSGT4
UniRef90_UPI000465C31B UniRef90OUPIOOO3B4560D
UniRef9-UPI003659E8C UniRef90-UPIOOO3659E8C UniRef90-B8C5K4 UniRef90-C4JI49
UniRef90-D8LHU5
UniRef90-W8B2YO
UniRef90-UPIO003EAAE5D
UniRef90-UPIO004575843
UniRef90 W0F3F7
UniRef90-G9KII9
UniReffo-T1DG53
UniRef90_D3PM41
UniRef90_UPloo02195BB2
UniRef90_O5BAE9
UniRef90 $19 \mathrm{LFE3}$
UniRef90_UPIo003B6263D
UniRef90_U4WM74
UniRef90 - 6 MMUO
UniRef90-B9MJ28
UniRef90 W01855
UniRef90-14×283
UniRef90-G7W6R4 UniRef90-COKT99 UniRef90-D9UZB9 UniRef90-K9EQ75 UniRet90_A1ZG79 UniRef90-E1R1W2 UniRef90-A0A024U323
UniRef90_C6XJC0 UniRef90-UPIOOO25568F8 UniRef90_UPIO004664F61 UniRef90_L7UM44 UniRef90-K2J1G5 UniRef90 UPIIOOO3B57D13 UniRef90-UPIO004773B62 UniRet90_DOZ333
UniRef90-A2SIN7
UniRef90_UPIO0047C937F
UniRef90_H2KNM6 UniRef90-H8WXNO UniRef90-131FR5
UniRef90-V9QYB8
UniRef90-UPIO003662830
UniRef90-UP10003B4CD13
UniRef90-G2TCN7 UniRef90-S3HEK7 UniRef90-A0AO23NWNO UniRef90-H3RRY8 UniRef90-E4TEG6 UniRet90-V5AYN9 UniRet90_HOE3T8 UniRef90-13TJ69 UniRef90-E9CA61 UniRef90_W4GKK0 UniRef90-W6TCF3 UniReffo -loz3U2 UniRef90-B8HWS4 UniRef90-UPIO003FA2F43 UniRef90 FOVPR8 UniRef90-D8SOD3 UniRet90 D3RN63
UniRef90_UPIO0041EF30C
 EETHYENDEYDTRQGAHG DTFFTISKGKVTVTRQDPGN ADPIVKGVFFI LIAGKVKI HQRWGAG SKEVPAGSRVIGQGE PADSFYVIESGEVSVTKANKDG KKVRRKEVIYRAG DRADALYSAEGELEVQK MEYAPGETI FDVGDD RADALYHERGLVRIEILPDG VQVNAGQVIYHQGDE SDALYVTLNGRLRSVAEGKGG QKNSYLFHEG AH
 EEKHVAKGEEI TKQGDEG DYFYUVEDGTVEFYVNN KKGTQLLDP EQPDDVLFFLKQGQVRLYRMTPQG TEYYPKDRVVITEG DPGDKFYVVVRGKLEVTRKTGPD VEYGKDSCI DKEGDVGSHAVYVVMSGELKKVLIDEYG
 HYQREAIVLHEGDILP QKLHILISGILQVQKSATTG KRDEFTKGEVVIRTGDEG DSMFVVLEGLLEVFVVFGDG EVVKFSAGEVVFWEGNDEADRFYVIMSGEVEVWKGYGSD KVISFAAGERIFDTGATAP NTYQVQSGYVKLFAELEDG

TTNF HKGDALFEAGQALSA
 SNKPLKALFALRS

SVRFAPPETLFNEGP VRYEPQDVLFRE DGNARYFYCVLSGYVRLYRGSE SLPGGRTLFHR DDPADALYLVVRGSLGVF GDG HHRFSRGDQULTPAQAGK NMLIVESGAVKIYQLSPSG
 KTVHYQPGDREVRQGARGN

EERSTPAGASLY GLDDPAEAVFTV KPRLYKASDVI SFGGDSGRAEAMFFIYKGVVVEVSADDG EERKVRAGDTI KGQDEG DYFYVIDSGEFDVFTRQNDP ETRGFANEEAIFREG DPGDAMFVVLSGTVRLFKAD PKKGVLYAP TTMLNRMMIIDQGRVKVYQLDNEG EEQVFPAGTCIVRQG DPGDQFYVGEGEAVVYQQTPQG VRCPAGRTIDQEGEVG HWLYLLLSGRVQVHDGD
 DAEYYEPNTDIVEGQEG

DAEYHRGDDLFREGQERFRKFYFVEEVRLATASEARTG


|  | 90100110 |
| :---: | :---: |
| UniRef90_B8HPP2 | A G DFPQAG ${ }^{\text {P }}$ R L A A K L M |
| UniRef90_V4P2X0 | R D DFPELLTLALS K K M I |
| UniRef90-UPI00047E3528 | P A A L E QMLQ D M A Q L S T Q K $\square$ R F T F A S L E E N A L |
| UniRef90-UPI0002888AA2 | K D ELERLAFEFMKWMSDHFRKTQTKFRDLVL |
| UniRef90- G0QYN | R D T F N I V K D |
| UniRef90_M5T958 |  |
| UniRef90-K6C2K7 |  |
| UniRef90_D9QIR6 |  |
| UniRef90-H0FEI7 | R D T CERLW W NLLMTHLA Q RVN WL M |
| UniRef90_B1WYW9 | E ENFPHLALLALSRTLARRLRHS |
| UniRef90_W7KDD6 | RESFTYI I K D MVR K M Y E Di L S HVNTLK D |
| UniRef90-C9RDB7 |  |
| UniRef90_E5S111 | RESFQKLI G D L |
| UniRef90-S9NWZ2 | HADFQKLLM GV L L F S C K VR N Q G A M K S L V |
| UniRef90-K9VKR9 | K E GFPDLSEQI I KElVKHLRERRQQLLR E MEL |
| UniRef90_Q3AMY7 | A E A D S $V$ G L R L L Q GLS SRILLQ T E TMI E T LT |
| UniRef90_T1CF35 | Y S RFRQI A FELAA T Q L A T RL DRTNRKLG L L A |
| UniRef90_G8RWI9 | R A VLE ALIR S EPQ VA H F LELH T R R |
| UniRef90 ${ }^{-}$W5NEY1 | RESFRQL |
| UniRef90-R9PKE6 | Y E HVP ELS L R I L GFMGNR\GELMNT\D\LT |
| UniRef90-S8A766 |  |
| UniRef90_B0SGT4 |  |
| UniRef90_UPI000465C31B | QKRFPYFA IE $\square$ M K T L A ERLT T T T Q K L E |
| UniRef90-UPI0003B4560D | HADHPS IGLLRMLQGVSRRLDETETRL |
| UniRef90-UPI0003659E8C | AETFERIHRFIVALLAERLQHRENELSHL |
| UniRef90_B8C5K4 | REDFVRMLGNL |
| UniRef90_C4JI49 | R Q E HPG T T Q I S K L I A Q R M R H I I D |
| UniRef90-D8LHU5 | $R T$ TFRHTILEAGQQRRQKYEVFLANVE\\|L |
| UniRef90-Q0RDJ8 | $R A A V W E L V R E R P A V A E Q L I R A L V V A H V R R L T$ |
| UniRef90-W8B2Y0 | RRVFQQQI MMRTGMQRIENSVNFLK S |
| UniRef90 UPI0003EAAE5D | R Q CFQ T M |
| UniRef90-UPI0004575843 |  |
| UniRef90-W0F3F7 | LS F FPTLTY ALM D F Y A NELEETEKRMRNMV |
| UniRef90_G9KII9 | V Q A F ERLLGPCMD $\quad$ M K R N I S HYEEQLVK M |
| UniRef90_T1DG53 | R R AFQTIMM MVT GLQRLEENI S |
| UniRef90_D3PM41 | $P$ Q T L S S DLR ALLAA SLLAS QMA QVQA YETH |
| UniRef90_UPI0002195BB2 | R S DFP TII GLLSLA I SIA EKMQKLQTQQANLLT |
| UniRef90-Q5BAE9 | R S LIF N S L Q EVS KLI A Q R M R DLVE |
| UniRef90_19LFE3 | RAAFADLLLYFARILAA QLRTA H |
| UniRef90_UPI0003B6263D |  |
| UniRef90_U4WM74 |  |
| UniRef90_E6MMU0 | MKENFNI NLFFLLKNLSKELGHFANRIVNLT |
| UniRef90_B9MJ28 | K A AVPRFAMRMLA GIS R R L H GLVHDVQTY T L H |
| UniRef90 W0T855 | R LT F R R I L L |
| UniRef90_14X283 | K EKFP DV SLK L I Q L L T R L K E T Y D L S K $\square$ A L |
| UniRef90_G7W6R4 | R NLFP Q L L EKAPNLKDKLLARDET R |
| UniRef90_F1VWW7 | FKKHLEFFEHADYSVMSRELVREQAMDS ML |
| UniRef90-C0KT99 | R Q C F Q T M M R |
| UniRef90_D9UZB9 | A ARFVALCRRLVRVLADRMRDVGRQ |
| UniRef90-UPI0002D99B0D | S HTFLA A A T AVMRELARRVRQLNLVIES |
| UniRef90-K9EQ75 | K Q Q S PEVALRRILMVFNQRLQRLHTMVHGLVSE |
| UniRef90_A1ZG79 | R D D L LPV L HEVLE T $\square$ S L I I A E R E L R |
| UniRef90_E1R1W2 | Q E F Q K L Q E |
| UniRef90_A0A024U323 |  |
| UniRef90-C6XJC0 | KVDFESCFNEVSRILCKKLA |
| UniRef90_UPI00025568F8 | K DQFPR】AHSLI E NMARRID L L N K EV |
| UniRef90-UPI0004664F61 | SKAHPGFGMNTYKTVGTRLQ DVQ T Q V Vemate |
| UniRef90_L7UM44 | R D DFRSVVMAVALLEMS R L L GERLS R V Q |
| UniRef90_K2J1G5 | F D T L P R L RQQ IMRLLMS S ElK G D Q M I L L L S |
| UniRef90_UPI0003B57D13 | R Q HL Q TVLEK CPAL |
| UniRef90_UPI0004773B62 | $A P R F R R L L L W L L E V I V Q R L R E A D R Q$ |
| UniRef90_D0Z333 | H NDVKQLVSETPEL AVRVMEYMTNK |
| UniRef90-A2SIN7 | Y S QLEKLSREFHK I M SREIVR |
| UniRef90_UPI00047C937F | K GALA RLIEQVIK FLCNRV READHQLEGTAL |
| UniRef90_H2KNM6 | REVVFRGIVLKKARRMYE ELLLNQVPILESLS |
| UniRef90-H8WXN0 | K S GF Q R L L GPVVDVLK ${ }^{\text {V }}$ |
| UniRef90_I3IFR5 | K E EFP QI CLLGL I E EMA A K |
| UniRef90-Q4S851 | A Q TFERLLGS CKE IMK SNVTQYEEQLVA L |
| UniRef90_V9QYB8 | F HQLERLAS Q IP SLLN K IMS RE@VRDHS MLLQ |
| UniRef90_UPI0003662830 | Y D QL P K L R Q Q L M RLMS Q DI Q A D Q Q M L |
| UniRef90_UPI0003B4CD13 | R NRFP A L A M N MLA DLS K R L R A F TVQIENLS L |
| UniRef90-G2TCN7 | LVK LE QLA R SVLAR T L A K L A N F HEQM |
| UniRef90_S3HEK7 | LDEQPRVGRAIJARSLSQHLLSTMDCLAR |
| UniRef90_A0A023NWN0 | REAFEALVREHPHAMLGVARMADARLQE |
| UniRef90-H3RRY8 |  |
| UniRef90-E4TEG6 | R D AF GKFAF ILLAK TLDA D RLGYKVEERDKNI |
| UniRef90-B4G9E3 | RET F NQLIS NL |
| UniRef90_V5AYN9 |  |
| UniRef90-H0E3T8 | PD DFPDAALVYVMRNLNDRLRDADRK |
| UniRef90-13TJ69 | QTETPRLH QRLMEKWYEALS VA D D F LT EL A T |
| UniRef90_E9CA61 | HDKVSEVF Q E F E M R A Q DEMEAQSR |
| UniRef90_W4GHK0 | R D T FRQI |
| UniRef90_D0LZ68 | R Q SFPALAVK L L Q VLG R R L R T T A DLS D A L H |
| UniRef90-W6TCF3 | SHDFQGLLQQMPTLLL |
| UniRef90-IOZ3U2 | R NRFVEILGPLYS L MARE |
| UniRef90-S6CG74 | FEKLEHLATAIPGLQHQMLRLLSREV |
| UniRef90-B8HWS4 |  |
| UniRef90_UPI0003FA2F43 |  |
| UniRef90-F0VPR8 | REDFEKHFKH ER $\square$ K RTRDVAANMA L |
| UniRef90-D8S0D3 | R D S F R L L G K VED I L E R R KEEYEK |
| UniRef90-D3RN63 | F GRLLE ELTHQMYRLLS KEDGQD T D ML |
| UniRef90-UPI00041EF30C |  |



## UniRef90 W4RGJ2 <br> UniRef90--J9IQB6 UniRef90_UPIOOO36BF331 UniRef90_A0A037ZML9

 UniRet90 A4TWS5 UniRef90_UPI0003F7C596 UniRef90_UPIOOO4193208 UniRef90 A4IT53 UniRef90-D8FDX1 UniRef90-W5LXD7 UniRef90-GOVZ86 UniRef90-U6HCT1 UniRef90-D4H1E8 UniRef90-A3Z3G1 UniRef90-M5A0K7 UniRef90-A3Z3A2 UniRef90-17M3K6UniRef90-14YOZ3
UniRef90-UPIO002376F6A UniRef90-C6XD76 UniRef90-UPI00034F3EA9 UniRef90-D7EJR5 UniRef90-QOKA58
UniRef90 E4YKPO UniRef90-Q03043 UniRef90-G5B714 UniRef90-T1KA67 UniRef90-13KH85
UniRef90 UPIOOO3B61E1D UniRef90_UPIOOO47C2716 UniRef90-UPIO0035FC633 UniRef90-A0A016QM49 UniRef90-D8PMP5 UniReffo-GOV8T8 UniRef90-U6GQF6 UniRef90_A6D1H0 UniRef90-FOXSYO UniRef90_K0TF55 UniRef90-A9AWPO UniRef90-A0A023X5Z1 UniRef90-U6MF62 UniRef90_UPIO0036071AF UniRef90_LTUBV6
UniRef90 B8FK57 UniRef90-A3FPL6 UniRef90-Q023C9 UniRef90-UPIOOO3449095 UniRef90-M3HVR8 UniRef90-O5BWE1 UniRef90_UPI00035DCF83 UniRef90_A6FY92 UniRef90_V9KD27 UniRef90_DOMVI2 UniRef90-UPIOOO36F0863 UniRef90-UPIOOO367E477 UniRef90-UPIO00442118E UniRef90-G1TDX8 UniRef90-UPIOOO3623218 UniRef90-A1CZ15 UniRef90_UPIO003BD36FA UniRef90_UPIOOO39E0105
UniRef90 UPIOOO2377A1E UniRef90-101010 UniRef90-I6Z7K4
UniRef90-A2F9K9 UniRef90-UPIOOO478D4B3 UniRet90-H2QF65 UniRef90-UPIOOO4283C0F UniRef90-R7HL91 UniRef90-UPIO0037FD6E9 UniRef90-W0SCJ8 UniRef90_UPIO0047A027D UniRef90-UPIo0037C85EA UniRef90 E1WXM2 UniRef90-B5JTU9 UniRef90-D1BQU5 UniRef90-T1GOY2
UniRef90-W4P094 UniRef90-K2BXB5 UniRet90-14VYU1 Uniref90-M3A6Z8 UniRef90-D3Р3С1 UniRef90-E2QZV5 UniRef90-M4C5A1
UniRef90 UniRef90-Q7WX80 UniRef90-Q3STL2
UniRef90_A7SEQ9

## UniRef90 W4RGJ2

UniRef90 J91QB6 UniRef90－UPIOOO36BF331 UniRef90＿A0A037ZML9
UniRef90 A4TWS5 UniRee90－UPIO003F7C596 UniRef90＿UPIOOO4193208
UniRef90 A41T53
UniRef90－D8FDX1
UniRef90－W5LXD7
UniRef90＿GoVZ86
UniRef90－11FL35
UniRef90－U6HCT1
UniRef90－D4H1E8
UniRef90－A3Z3G1 UniRef90＿M5A0K7 UniRef90－A3Z3A2
UniRef90－17M3K6
UniRe990 UPIOOO2376F6A
UniRef90－C6XD76 UniRef90－UPI00034F3EA9
UniRef90＿D7EJR5
UniRef90－Q0KA58
UniRef90－E4YKP0
UniRef90 Q03043
UniRef90－G5B714
UniRef90－T1KA67 UniRef90 UPIOOO3B61E1D UniRef90－UPIO0047C2716 UniRef90－UPIO0035FC633
UniRef90－A0A016QM49
UniRef90－D8PMP5
UniRef90－GOV8T8 UniRef90＿U6GQF6 UniRef90 A6D1H0 UniRef90－Q2W9J2 UniRet90－FOXSYO UniRef90＿K0TF55 UniRef90－A9AWPO UniRef90－A0A023X5Z1 UniRef90－U6MF62 UniRef90 UPI00036071AF UniRef90－L7UBV6 UniRef90－B8FX57 UniRef90＿A3FPL6 UniRef90 Q023C9 UniRef90＿UPIo003449095 UniRef90＿M3HVR8 UniRe99－O5BWE UniRef90－A6FY92 UniRef90 V9KD27 UniRef90 Domvil UniRef90－UPIO0036F0863 UniRef90－UPI000367E477 UniRef90＿UPI000442118E UniRef90－G1TDX8 UniRef90－UPIOOO3623218 UniRef90 A1CZ15 UniRef90 UPI0003BD36FA UniRef90－UPIO0039E0105 UniRef90－UPI0002377A1E UniRef90－101010 UniRef90－16Z7K4 UniRef90－A2F9K9 UniRef90＿UPI000478D4B3 UniRef90 H2QF65 UniRef90－UPIO004283C0F UniRef90－R7HL91 UniRef90－HOUBT5 UniRef90 UPI00037FD6E9 UniRef90 WOSCJ8 UniRef90＿UPI00047A027D UniRef90 UPIO0037C85EA UniRef90－E1WXM2 UniRef90－B5JTU9 UniRef90＿D1BQU5 UniRef90＿T1GOY2 UniRef90－W4P094 UniRef90＿K2BXB5 UniRef90 $14 \mathrm{VYU1}$ UniRef90－M3A6Z8
UniRef90 J 3 HWS 7 UniRef90 D3P3C1 UniRef90－E2QZV5 UniRef90－M4C5A1 UniRef90－Q7W×80 UniRef90 D6WUM2 UniRef90＿O3STL2
UniRef90－A7SEQ9

TSKFEEl LVAYPELISTKLDRY母ARK
RNTF
QSQFSGFLRDVMQVLSCRMRTLSEVIVNLV
KQDVLLRLREFSEGITKRDADQVQDYRQLLT
KASIIDHMMEAPAGLA
LAANPEKYRDVALILQTKLRMMQQRDDQLTT
KADFETLLKNHSDI MIKCL
REQFAKLLMEYPDILTLMI QT $\square N Q K M Q \square$
MHRLSNEYEKMPQ！LSRA】RMDKH】IQ
KEVFEE
VKDLES LLSEMALQFDQWMAMKQRПMQS
RARFERVLGPCQDILKRNTAQYNSFVQ
RSTFQYIMMK TGLEKMEARVKFLSS
AKKLEEIIMRLTAALSRRIKYFVNLIESLT
SAPFPAFALALARLEAGRLRDLNQR
K SAAMSALRDVSHILARTI RVEADLIDQL
QDAMALVLRNLALVLSERLSSTTERLLQLS
RDTFNNIVKDAAAKKREKYEEFLKKIELL
KSQFPRI AHSLIESMARRIDLLNKEVSRL
KEDFPELYEALLR RQARR1RQLYSLVEDLNT
KSKVNSLVNHVPKVAERMLKDMCHRMRMVVGH
RESFKQLDGDLSEDDR
FHQLEALCREVKPLQRHLHKMF
RQCFQTIMMR
KRRYPQVVTRLIHLLSQKILGNDQQLQ
RARFERLLGPCSDILKRNM EHYNSLDSLS
EGTLNNI KRRYPQVVTRLIHLLGQKI
VRQLPALQQHLDFQVMSSAMSADYQRMHLLTQH
 QHLGQAELWEITRSLISTQLQRMM
QTLFNALSMRDPRTTQQ【LRK
RSGFQRLL
AGDFEELLGDLHDAFDEKपMYSQKTVKSMTGE
YQDVPETSIKVMNYMTNRI HQLMDTVNLLT
KEALRTMMDQAPPGLNTLIQSLLATLRELAT
REVFEKVLGPLSEVIAR
EAEFPTTAMALLRGGTTRLRQANAQM
REDVERLILELVNLLEERLACHEQRLEDL

REDFDALDSSHPQDVLVSELDERLRR
MADFPELARHLVRLLGKILRLTNDLIVDLA
RETFNHVVKKGSASKR｜STYETFLKEMT
OADDPRVATRUVEQLGQRLADCEQRLTD
KADDPRVATR
RKRFERVMGPCSD\｜LKRNTAKYNSYT
REDFLAALDDDVMKAFFEHLRQANEVVVML
TEVFRELLMEFMSEVGRRRKQLDEKLEHLV
VQAFERLL GPCMDIMKRNDMNYEEQLVSL

VKDFPDRDHELIEHRADHLAD
ANAFQDVFQKYPETLVRVVQIIMVRLQRLADH
$A V A F Q G I F E K Y P E T L V R V V Q 11 M V R L Q R V T L$
LSRFRELLNTNAPLVYAVLVRTVSR1RE
GDVLAEFWDKLPQNVRQQVENTAERLQS
NERLWDIYR
FDRIEELSREDTADQHHVHK DMSRE！VR
HEDLRAIVLNQPAL
RARLLELCRAMDEGMAVR $\square S Q S \square N R \square D L \square T$
ADDFRKVADK
RGDFMKIADADARHDGGRDRE
KSDFYEIMR
KRDLQELLENNKETSLQLVELLTGNTSETKSQ
MDGNRQLAWFFDHELSHNL GRSDTKIVNLT
AAPFPAIALALQQVLSARLREAD L
SERDPLFARRMLAGLSMRLHSLVHDVETYSL
A DNMEDLFKNMPSLTRELFRHTEKMLED
KNADVGLARKMLGGLSLRLHELVRDVESYSUN
Y NAF
FDQLSGLAQQMFRLMSKELCSNKNTMSELT
YDKDHSLATAMMKI YTLHMRRQQAKYRDL
RSRFERVLGPCSDILKRNDAQ
FATHETLCRDSLAMQRHVYRDMSMET
YQYLLELLKNIARTFMTLMVDRSRPLQN
FPAMSALASRVPAVQQHLFRMLSKELGTASD
ADEDPAIGLALLRLSSAEDRENEDAIFRL
FARDEQLFGQMPMLLRHFHRMMSHEGTS
RPRFERVLGPCSD LKRNIQQ
QEDFRHI GQVHLSLMLQQV
KERDPLVSTQLLRNLSGRLHTLMRDTEAVSDQ
REKALSRLK
RAQHPE EMSMMRAV


|  | UniRet90_F3M9F9 |
| :---: | :---: |
|  | UniRef90_E6QN79 |
|  | UniRef90_S9NYG2 |
|  | UniRef90_B8BYF9 |
|  | UniRef90_W5KR23 |
|  | UniRef90_M3ZNI9 |
|  | UniRef90_R4KP49 |
|  | UniRef90_K2GQ90 |
|  | UniRef90 U6I465 |
|  | UniRef90_C7C965 |
|  | UniRef90_X6MQM3 |
|  | UniRef90_K2LTQ5 |
|  | UniRef90_J9JPT9 |
|  | UniRef90_T1WCI3 |
|  | UniRef90_H3CZ06 |
|  | UniRef90_W8APK1 |
|  | UniRef90_J4C3U4 |
|  | UniRef90_C8PQM5 |
|  | UniRef90 A0A023CGP2 |
|  | UniRef90_UPI00037DCD91 |
|  | UniRef90_J2KTQ9 |
|  | UniRef90_E6VVL9 |
|  | UniRef90_B4D0Q0 |
|  | UniRef90-14KMM2 |
|  | UniRef90_UPI000370962A |
|  | UniRef90_IOHYG7 |
|  | UniRef90_G2IJD2 |
|  | UniRef90_A0A024PUH2 |
|  | UniRef90 T0RSE7 |
|  | UniRef90-J3F0S1 |
|  | UniRef90 B4SLE5 |
|  | UniRef90_A0A059FKF0 |

$N M V \square F N T$ V 50
PGETVIPHHS $\frac{60}{1}$
80 REQTIHVEQAGGTLADVAVFGKETHTADALIQSEVDVIS
 DESLVKTCEAGDAFGELAI MNAPRAASCIAKGDVRLWALD

LRTLTSGDVFGELALYNCKRTASVTAATAVKLWCIE
 RKVA E HV TL LHFGPGQLFGFAALGRTTYPATAVAASESLALHWP
 TEDKVGEAGSKDAVGEYALLHTPRTATLKAFEPSTVWGLE

 STLSLKTVKKGESVTSLVLSGNPRTVTAKAMEKSVVIRLP GA QVTEYGKTGEFFGVKSALGNPREESAMVLTDSLVYTFS REQVTGFQMAGEMLGLDAISADKHACHADALEDSEVCPVH $H \square Q I$ T NFS LDP GELVGGLDGIATQVHSSSAVALEDSEVCVIR
 TETVVATLQTGDYCGEMSLLGDPRSATVVAATDCEMWEI G


R UniRef90-K9YKE9 UniRef90_UPIO0039EA7D9 UniRef90-H3FMG4 UniRef90_S3YX21 UniRef90-G6DJG8 UniRef90-TOQT45 UniRef90-H2M448 UniRef90_G3AN67 UniRef90_UPI0003F06CC6 UniRef90_UPI00047E4F1A UniRef90 A0A059KK71 UniRef90-UPI0003671A73 UniRef90-B7KJA1 UniRef90_M5UFF1 UniRef90-A4FJE9 UniRef90_UPIO004169ADB UniRef90_UPIO0034C1E89 UniRef90-S6HEN9 UniRef90-R1CPF8 UniRef90-10HZN7 UniRef90-H3GU80 UniRef90_UPIO003B723C0 UniRef90-UPIO003737464 UniRef90-IOBEK9 UniRef90-H3H125 UniRef90_E7G8J8 UniRef90-K1K001 UniRef90_UPI0003F0BB94 UniRef90-13XC80 UniRef90_UPIO0037296BA UniRef90-W5JW82 UniRef90-МЗХНРО UniRef90-H1XVA8 UniRef90-E0RE21 UniRef90-UPI000466415F UniRef90_UPI0002B8D2C5 UniRef90_G8QK76 UniRef90-D7CTB8 UniRef90-B6K8K4 UniRef90_UPI000361FFC6 UniRef90-Q6TU32 UniRef90-K3WU53 UniRef90_W9BYC3
UniRef90-A8ZUH1 UniRef90-L8H1U8 UniRef90-C1EHV2 UniRef90-T2MFU4
UniRef90 B2TD56 UniRef90-Q2IP15 UniRef90-UPIOOO36C2127 UniRef90-K2AV04 UniRef90_UPI000361DBED UniRef90_A0A024UU32 UniRef90-F0VN05 UniRef90-G4L4U2 UniRef90-A1VNJ5 UniRef90_W9C248
UniRef90_UPI0004691CDF

|  |  |
| :---: | :---: |
|  |  |
| UniRef90－S9NY | $A P V L G D L A R ~ L N P Q V A R A L R R F C R ~ Q R L L S Q ~$ |
| UniRet90－B8BYF9 | RVSFKV |
| UniRef90－W5KR | QT YRS |
| UniRef90－M3ZN19 | RQTYR |
| UniRef90 K2GQ90 | MERHDGFATETYATIGRRMGEMNDNTVAMATQ |
| UniRef90－U61 | RKDFLELMGNDADL |
| UniRef90－C70 |  |
| UniRef90－ 6 CMQM ${ }^{\text {a }}$ | A ADFHDIRQKMAQWNVERFEQRKNLLQSUSL |
| UniRef90－K2LTQ5 | REPFVHFLGDL |
| UniRef90－T1WCl3 | A DRLNDWFIQFPRLLLETTRLILKR |
|  | － |
| UniRet90－W8A | AFEEVFNENPDIM MIIRVI QVIMVRLQR |
| UniRet90－C8PQ | EFERIILQMLKVFSRQLR |
| UniRef90－A0 | OLERLAHNLNKIMSREIVRDHSML |
| UniRef90 | LLEDLDKLSKSI PALLIRHLMMNEDNRSHRMALD |
| UniRef90＿J2KTQ9 |  |
| R | KL |
| UniRef90－14KMM2 | KVCLALLASMSIHL HRRLKDIDNLTL |
| Priooo3709 |  |
|  |  |
| UniRef90－A0A024PUH2 |  |
| RRef90－T0R | DAFKNAYDKLNPWFQT |
|  | GDQFPKIAHSLIESMARRID |
| UniRef90－B4SLE5 UniRef90 A A | ERLPRLLYALGQQ SKRLLDTSRKASRLA |
|  |  |
| UniRef90－K9YKE9 | AQRFITQLIFRDAQUQNRLLK |
| UniRef90－UPIO0039EA7D9 | KEQFPRIAHSLDESMARRIDLMNKEL |
|  |  |
| UniRef90＿S3YX |  |
| UniRet90＿G6 | MGP |
| UniRef90 H2M448 |  |
| UniRef90 G3AN67 | SEFLIKLS |
| UniRef90－UP10003F06 | A EALQGVFQKYPETLVRVVQIIMVRLQRMALH |
| UniF | K NSVLAFAE |
| A0A059KK71 | REPEGWRHLGRMLAGKMRSVFVSFEQM |
| UniRef90－ploooz671 | 俍 |
| 矿－M 5 UFF1 |  |
| UniRef90 A4FJE9 | ELAAQVLRSHLEHL |
| UniRef90－UPIO004169， | KRKSQDI SLELMNLLSDNLSETKपQLVKMA |
| UniRee900－UPIOOO34C1E |  |
| UniRef90－S6HEEP | RDSLPKI AAKIIRALATSLSKRLRMVD |
| UniRef90－IOH | RSEYPILGWGMLQTYGMRLMQVENSLEDVA |
| UniRef90－H3GU80 |  |
| Uni |  |
| UniRet90＿UP10003 | D Q M |
| UniR |  |
| UniRef90－E7G8J8 | DD ${ }^{\text {cke }}$ |
| UniRef90－K1K001 | RVEQMGKHFQKLLSREI |
| UniRef99－UP10003F0 | R |
| UniRef90－13XC80 |  |
| UniRef90－W5JW82 | MSAFKQVFDEYPDLLVRVVQVIMVRLQRVT |
| UniRef90－M3XH | R |
| UniRet90＿－H1XVA8 | QPD |
| EORE21 | D |
| 7V | KAEFAKIADAV |
| UniRef90－UP1000466415F UniRef90－UP10002B8D2C5 | VHRYPD |
| UniRef90－G800768 | TFQWLLRFLLNQLNERLGQFTGRV |
| UniRef90－D7CTB8 | DAPKLHGELHKATGAQLLQLKDALED |
| UniRet90＿B6K8k | RHTFRETLKQ |
| UniRef90－UP1000361 | ADANPALWRLVSGTVVGRLDAADRRVR |
| UniRef90 K3WU53 | RQTFKY |
| UniRef90－W9BYC3 | RNAALKLQSQVPT |
| UniRef90－A8 | SRNFR |
| UniRet90－L8H | RKKFFRVMQDVLKHNMLRL |
| UniRef90 ${ }^{\text {T2M MFU4 }}$ | VTYRR |
| UniRef90－B2TD56 |  |
| UniRef90－Q21P15 | RQEFQALLGHFASGLAERLRNSLERSQVASFQ |
| UniRee90 UP | R |
| UniRee90－K2AVO4 | TKEFEKI TRGVMATLSERपRDTQKR |
| UniRef90－A0AO24UU32 |  |
| UniRef90－FOVN05 |  |
| UniRef90－G4L4U2 | KLLSNNAKQLVK YL |
| UniRef90＿A1VNJ5 UniRef90 W9C248 | dLek L EALL |
| Ref90－W9C248 | RANFPDAALSLIKTHAREVQAQRGR川E\｜L |

UniRef90 UPIoo035E3BOF UniRef90-E9BYT6
UniRef90-T1KDI6
UniRef90-W5JGC1
UniRef90-H2A509
UniRef90-D5QIA6
UniRef90-UPI000476F551 UniRef90-UPI000258D9C5
UniRef90-T1D9L0
UniRef90-F4LV33
UniRef90-A7BVI5
UniRef90-A0A024J580
UniRef90-UPI00037F37E1
UniRef90-A0A024U9D1
UniRef90-B8GBU8
UniRef90-T0N392
UniRef90-A5DNT5
UniRef90- J2RLY9
UniRef90-T0J812
UniRef90-A0E297
UniRef90_V4BBP9
UniRef90_UPIO002C68929
UniRef90-G0ERUO
UniRef90 G2SNV0
UniRef90-A7SKJ9 UniRef90_S9PFS8
UniRef90_S3C8M8
UniRef90_UPI0003F06BE7 UniRef90-UPI0002DFEFEE UniRef90-B2HKIO
UniRef90-H6RJII
UniRef90-K8GRG5
UniRef90_UPI00046D2115 UniRef90-H3GG60 UniRef90_A9RTB2 UniRef90-A9VY10 UniRef90_UPI0003FF74EA UniRef90-UPI0003F0EFE8 UniRef90_UPI00047B8ED6 UniRef90_U2JEC7 UniRef90-M1N9V7 UniRef90-UPI00034C5DD1 UniRef90_W7YRJ9
UniRef90_F9WYR4
UniRef90-L1NID5 UniRef90_UPIO00476CEFE UniRef90-A7TNN2 UniRef90-FOY845 UniRef90-Q22YR4 UniRef90_UPIO00363841F UniRef90-B6IT06 UniRef90_A0A024TJE9 UniRef90_K0CW34 UniRef90-F4XUI5 UniRef90-FOVN01 UniRef90-Q03042
UniRef90-W6DES4
UniRef90 ${ }^{-}$T5A9Z0 UniRef90-W4Z1P7 UniRef90-Q1I6L1 UniRef90_UPI00047A35CD UniRef90_UPI00021A4C73 UniRef90_UPIO0006CFF42
UniRef90-B5IQ23
UniRef90-K7QU37
UniRef90-UPI000443CF2C UniRef90-A5PBR5 UniRef90_UPI000359B89F UniRef90-B4IL64 UniRef90-UPIO0037BADB3 UniRef90-I4Z314
UniRef90-F7V8Z4
UniRef90-UPI0003672ECD UniRef90-W6MHU2
UniRef90-F8F2F2
UniRef90-D5VLV2 UniRef90-12Q9Q7
UniRef90-M2BDF8 UniRef90-K2GMC9 UniRef90_A0A011PJD5 UniRet90_L8JGB0
UniRef90 A7C147 UniRef90-M2ZQS4 UniRef90_SOSMU9 UniRef90-B0SVW6
UniRef90- V9FZA7 UniRef90-M7WRV8 UniRef90-K9LK17
UniRef90_K7ABY3

PGE $\frac{10}{V}$ I Y S E GYAGEP ${ }^{20}$ VIVY|VI|ADGK
30
40
LHVNAGQSLYRQG DPSDALLIVLNGRVRVVRRENSD
 GTYLVKEGEKDS
Y L E G DVI I A A GSYG
HKTFKKGEI IFSP
D SMYF
RFHPKS I DEE D D P E Q L S I S A GAMRI YK L S K $\square G$
 QIREVPAGTYLMKE ESHKDVAVVVVSGAVKSNVTRAG FEKRATVVQQGTSPNGGVVFLLVGGQLQLVRLTEDGG YKKDEFITMAG DAFESVGILLKGKAAVIKETFAG
 SLRDARNRAVEEQ EGDAHSFFLLLDGHIVVVKSTSEG
 TE $\square Y H K G D K I V T Q G D V G$ ENFYFI ERGECDVDKEGEG AGQMLFREG SP TRTMQPGESLIWEGE TFEPNSCIFKQGDEG ELKCFPAHSDI ERQGSQDAC

ENLEKG $\square$ TLFRQGD ${ }^{\text {F G T }}$

FKPGDYIVYAGDMGRANEIYLIVKGRVQVYLGTSSG RRGQVILCEDN DAGEPI FKKGDAG ETFFVVVSGQVNL $\quad$ LGEG
 $V V K$ Q K GEVLFGE EVVVELK K G GLSFYFl V


YA GGHHI RRQGEK
NFAAGEEVISEG DPNTFFINNGQVKVTQQIEGE

EPVSFADGEYVIKEGDHGTA
EEEKHKAQDlII QQSQLG
 $V R V S A G K Y L T R E G D Q D \quad C S L Y F V V T G C L G M H R V G D K G$
 VRRWDRREIVFHEG SAPDFVLVVLTGRVKVSSHTEDG
 K I KKCKKNDVI YK GSGSPREMMCLIVVGKVKIVKDGVSG

E

EVLISPNEII FEEGDND TLPAGQAI FK E G N K SPAQSVYYLIESGNIV: Y

RTYAATSTIHDRGSKNK GLSVVVSGEVKIGNYGDDG
 TEMFTDGAYIVRQGE LGG D DFY VVEGSAIATKSFGPG
SKS DAAGEFVIREGEVGA HLYVSAAGEFAVMQ QG

VKHDANQVVIQQGDEG DNFYVIDSGEVDIYVDNER

LEAGKALYRQGEESTVVAYIIDNGRLRSVVKNEDG
 ERATYPEGAEI LVQGEE PARHLYLVAQGRVAL KDG


 QVPAHGTLFREGE PAEYVMNI TRGAVKLYKLLADG PGEVIVRKGDE A H SMY LIASGDVEVVLPGE HV QVQTYQK G E M F GQLERADRLGIVLEGRVQAQKAFPNG


TYKGTE


TVKKGTVI YTPDT
FACGDVI FHQGT DAVEVWLYFLKQGQVRLYRVNEEG
LLA A GAEVWMDFADH
 KYARNDII FRQG D $\square P N A L R V V D D G Q V G L T G T \square A D G$ KHR\|VDKGEQVF TPDGEEQLVIVARGNIVVYQLSSNG
 $K E V T V Q A G T E V I V Q G A V G$ VI DVRRRRFVYRAGEEG DFFYVVE
UniRef90_UPIo0035E3BOF UniRef90-E9BYT6 UniRef90-T1KDI6
UniRef90 ${ }^{\text {T2MAW3 }}$ UniRef90-W5JGC1 UniRef90-H2A509
UniRef90-D5QIA6 UniRef90-D5QIA6 Re90-UPIO0476F551 UniRef90_UPIO00258D9C5 UniRef90-T1D9L0 UniRef90-F4LV33 UniRef90-A7BVI5 UniRef90_A0A024J580 UniRef90_UPI00037F37E1 UniRef90-A0A024U9D1 UniRef90-B8GBU8 UniRef90-TON392 UniRef90-A5DNT5
UniRef90-J2RLY9 UniRef90-T0J812 UniRef90-A0E297 UniRef90_V4BBP9 UniRef90-UPIO002C68929 UniRef90-G0ERUO
UniRef90 G2SNV0 UniRef90-G2SNV0
UniRef90_A7SKJ9 UniRef90-S9PFS8 UniRef90-S3C8M8 UniRef90_UPI0003F06BE7 UniRef90-UPIO002DFEFEE UniRef90-B2HKIO
UniRef90_H6RJII
UniRef90-H3FYT0
UniRef90_K8GRG5
UniRef90_UPI00046D2115 UniRef90-H3GG60 UniRef90-A9RTB2 UniRef90_A9VY10 UniRef90_UPI0003FF74EA UniRef90-UPI0003F0EFE8 UniRef90-UPI00047B8ED6 UniRef90-U2JEC7 UniRef90-M1N9V7 UniRef90-UPI00034C5DD1 UniRef90_W7YRJ9
UniRef90-F9WYR4 UniRef90-L1NID5 UniRef90_UPIO00476CEFE UniRef90-A7TNN2 UniRef90-FOY845 UniRef90-Q22YR4 UniRef90_UPIO00363841F UniRef90-B6IT06 UniRef90-A0A024TJE9 UniRef90_K0CW34 UniRef90-F4XUI5 UniRef90_G7Q9R3
UniRef90-F0VN01 UniRef90-Q03042
UniRef9-W6DES4 UniRef90-W4Z1P7 UniRef90-Q1I6L1 UniRef90_UPI00047A35CD UniRef90-UPI00021A4C73 UniRef90_UPIO0006CFF42
UniRef90-B5IQ23

## UniRef90-K7QU37

UniRef90-UPIO00443CF2C UniRef90-A5PBR5 UniRef90_UPI000359B89F UniRef90-B4IL64 UniRef90-UPIO0037BADB3 UniRef90-14Z314

## UniRef90-F7V8Z4

.
 R JD5
$K K E F L A D F G R G E D V G E G V L T$
 RE LGHLSDGAYFGEISLINQQRTANVVALEPCEIYRLP


## R

 REVYMFSAH RAISDDDRPEGGFFGESSLL SGTVMARLTRGSYFGEMAFLAERRTASVRTDTECDCLVVT GEVTVVRYUGPGEDMGDATALGRTYPASAIAAVDCVVLAWP

 QP

KEALLF TAVK

## N

R
H
Q

## G <br> R

 EKELVAB NPVCVASYSAGDSFGELAALLNAPRAATVKATTDCILWAMD KEVILGEMRVGAFFGELALDGDGRSANVTALTRGEVCVVP
NLVRGPGALLGELGVVDEPRSATVQTLEDMTGLVLG
 RNQII RAIKPFDFFGYRAYFGEDYRTSAMAIDTCTVAFFP QERVVVRMAEAGDSDGEQELLTGPSPYAARAVAPTRECTFS GHETVAELGPGSCFGERGLYGEDRKATVTAATDVTLLALD


 SYQLTVVQRGDTFGEFTLYASARTHHAEALTECKVLQUP
 Q




 RER R I C L L V $V$
T E H L L V
S T L S K Q V A T G N S I H S LV V T T
R R QI L G F R F A G D F


 $R R H V C D F H V P G D V L G L E P$
R R Q G A F HL V G D IV GLLE N
DVK
$K Q F$
SKRLLIDRVLVDGNLFGES SLL $\square_{K} \mathrm{~K}$ TRVT A G GTF GEK GVLTGERRASVIDARTVVVCYRA K P T R V





|  | 110 |
| :---: | :---: |
| UniRef90_UPI00035E3B0F |  |
| UniRef90_E9BYT6 | QRQHPQVVAHFSRLL GKRL |
| UniRef90_T1KDI6 | R D S L L C C SVMTALS |
| UniRef90_T2MAW3 |  |
| UniRef90-W5JGC1 | HEDFQSVI QPHTY L L NR |
| UniRef90-H2A509 | K S DFP QLSCKLLQLLNAYKS LE |
| UniRef90-D5QIA6 | RTMFEDILVNAPDILSR L L E E T T A QL |
| UniRef90_UPI000476F551 |  |
| UniRef90_UPI000258D9C5 | KPTFFAI MREQPTVV L HVA HSVVRRLS |
| UniRef90_T1D9L0 | F A HSPSVANY LLR HMARQLQR |
| UniRef90-F4LV33 | G NKHKTLILLNMLK V V E R A L V L N K K Ve Y LT |
| UniRef90_A7BVI5 |  |
| UniRef90-A0A024J580 | EATLDSLCEDFPEVHSH\EETAKTRLDT |
| UniRef90-UPI00037F37E1 | S S LWS EFAS A Y P TVVGNRLQ DAHTRVVEMSTE |
| UniRef90_A0A024U9D1 | RVT F K K V L M D T T I KQRKLYEAF |
| UniRef90-B8GBU8 | MQQFPQLQR A M QLLS EYREDLQDQLLEMATN |
| UniRef90-T0N392 |  |
| UniRef90-A5DNT5 | K S GF T R L L G P A VQVL |
| UniRef90-J2RLY9 | R S LF HRL I E E Y PRLI E S R |
| UniRef90_T0J812 | RRDFDAFAREHPALEHKLLERTLAELDR |
| UniRef90-A0E297 |  |
| UniRef90_V4BBP9 |  |
| UniRef90_UPI0002C68929 | QKDFQALWEQVLTHRAGKLRHLS Q |
| UniRef90-G0ERU0 | EKTVQLI L E R N P R L L E ERIVRVLDREL |
| UniRef90_G2SNV0 | $\square$ Q E NS ELALL M M R HLLT S T C N YLT N T I N R L V |
| UniRef90_A7SKJ9 | K H D L D EVLEEFP |
| UniRef90_S9PFS8 | RED FPVI ALE M S R I L G Q R L S R M |
| UniRef90-S3C8M8 |  |
| UniRef90 UPI0003F06BE7 | K Q F D MVLK |
| UniRef90-UPI0002DFEFEE |  |
| UniRef90 B2HKI0 | A Q A FRERL |
| UniRef90-H6RJI5 | EHDVRS M L LR I I C G L G R R VAEVEQRL |
| UniRef90-H3FYT0 | RESFLK L I G D |
| UniRef90-K8GRG5 | DERKPSLAREI GQ M M A R |
| UniRef90-UPI00046D2115 | E GLFP IVVTRLI NLLGHRLLGT WK Q |
| UniRef90-H3GG60 |  |
| UniRef90-A9RTB2 | R G TFQQ L M |
| UniRef90_A9VY10 | APVFRQI A D R L R L L A K RVRELNTRLLMEHAL |
| UniRef90_UPI0003FF74EA | ASRFPDVWRLVTGTFVDRIDDHDRR |
| UniRef90_UPI0003F0EFE8 | K T NFPRVVLNVAHS IVRRLSPFVRQ |
| UniRef90_UPI00047B8ED6 | P A AFRALL QQVLLQL A A LARDLVDRVLDLS T |
| UniRef90-U2JEC7 | RDSFFELI Y RKPGIAS K F I R M L S G D I K E |
| UniRef90-M1N9V7 | R T L R L A L L N L K P LT SQLILLRFKEAEQQA T |
| UniRef90-UPI00034C5DD1 | LE Q F PR T ALI L L R MVVGRLRDADRK |
| UniRef90-W7YRJ9 |  |
| UniRef90_F9WYR4 | AEVLDDLWRRCSSDLRQQVSEAKRRMK |
| UniRef90-L1NID5 |  |
| UniRef90-UPI000476CEFE | HDEHPGI A R RVMRTLA VRLAEAERRLERLS |
| UniRef90-A7TNN2 | K S A F Q R L G PVVEVL |
| UniRef90_F0Y845 | K V E F ESLLQR |
| UniRef90-Q22YR4 | R NQFIELI KENSEDF ERFKMMEEQVK |
| UniRef90-UPI000363841F | K P A F I Q L H Q I D Q L N A RVR D F LR |
| UniRef90_B6IT06 | A T Q H P AVALLVMMR L A R IVRSATGRIMDLS T |
| UniRef90-A0A024TJE9 | RESFVKAQNFVLD GDAESIAELMMRVETL |
| UniRef90_K0CW34 |  |
| UniRef90-F4XUI5 |  |
| UniRef90-G7Q9R3 | REAFRMVLSRNPEIVDR |
| UniRef90-F0VN01 | RKSFKRLMGSVQDLLS K K |
| UniRef90-Q03042 | R R VF Q Q I M M |
| UniRef90-W6DES4 | GDKFRQL LAK Y P Q L L S R L LWS A $\square$ S VIE D |
| UniRef90_T5A9Z0 | KEDLQLVMPGFPEMEQA IMEEA QERLNLL |
| UniRef90-W4Z1P7 | R D S YR RILM |
| UniRef90_Q1I6L1 | $R \mathrm{D}$ S LP R I A A R I I R A L A VALLS K R L R M Q Q R L A Q Q |
| UniRef90_UPI00047A35CD | YERNPEAGRQFHRLI A HDI NHCQRLLLLTL |
| UniRef90_UPI00021A4C73 | K M K K P Q V V R L I QLL GEKIMM G S Y RVL S M |
| UniRef90_UPI00006CFF42 | RQEFLEVVI Q S EQKDHERQKLI E L L L |
| UniRef90-B5IQ23 | A S SVRKAdE Q D A SVLS SR\\|LQ T E T M I E T L T |
| UniRef90-K7QU37 | RETFPEAARFFLEGLSER |
| UniRef90_UPI000443CF2C | K S DFYE IM K EVA I RMSAFVR Q M F A I D WMAVE |
| UniRef90_A5PBR5 | GPAFAEA】ERYPSLGLALLRRTQEDL |
| UniRef90_UPI000359B89F | A HAFKSMFEKFNESTVKVVQ\IMMDRLQRVT |
| UniRef90_B4IL64 | MQAFEEVFPD NP DVMIRVI QVI MILRLQR |
| UniRef90_UPI00037BADB3 | $R R K L D M L R E R M G R I D K R L L E L S S I L D E L A T Q$ |
| UniRef90_14Z314 | A D DLHELLEANPSIAAH |
| UniRef90-F7V8Z4 | RKDFLLL MQKDLRI L |
| UniRef90-UPI0003672ECD | Y D T L K TLT A T Y PKVMHE |
| UniRef90-W6MHU2 | G D TLEDLCR R |
| UniRef90-F8F2F2 | $K Q D F V D L D K R L A R L L A Q R L T R D N A R T V K L$ |
| UniRef90-D5VLV2 | VATLRRLS QRLLSIASH GLQRSQNHATMLA |
| UniRef90-I2Q9Q7 | RESLQLVAHNLLS MDT R NLE H A E N H M |
| UniRef90- M2BDF8 | K E Q |
| UniRef90_K2GMC9 | QEDNPATALLRLIS L LTE R L K E LQ NFSEKMAL |
| UniRef90-A0A011PJD5 | Q A TVPElAEAVAEILARRREAEMDAFDRQFS |
| UniRef90_L8JGB0 | REAFPELRK QLS T HIS K K |
| UniRef90_A7C147 | Q S F $\square \mathrm{EL}$ L $\mathrm{S}_{\text {K }}$ |
| UniRef90-M2ZQS4 | GERFRRLAYVMDTS LS R HFRSLVREVKDL |
| UniRef90-S0SMU9 | K Q F P QLS LKLLEISNA A M MVK TEQQTQFL |
| UniRef90-B0SVW6 | RS ALLERLERLI WR A T GQELGGRAQDHMMLLA |
| UniRef90_V9FZA7 | RVVFS ELLKE |
| UniRef90_M7WRV8 | R V T F R S I L VE |
| UniRef90-K9LK17 | AEDFPKL HEYT F R L I G H R LEHAEQRLA D F A L N |
|  |  |


|  | ${ }^{1}$ SMSFPPNSY ${ }^{10}$ TKEGDTGA ${ }^{20}$ HFYVVSEEGTYEVVVIDNK ${ }^{30}{ }^{40}$ |
| :---: | :---: |
| UniRef90-V5WII5 | KAMNYNANSVVYF |
| UniRef90-L7UlW0 | FAPGKSVVEEGEPG |
| P10003 | FkRREILCHEG D |
|  | LQTDQLLYLQGQ TCESLYAIKSGSFRSFIATADG |
| UniRef90-UPI0002A4A18E | G |
| UniRet90_M3F0B7 | RARSVIMHQDE PSTHVVLLLHGWTKVTAIAANG |
| UniRef90-U4V9X7 | LDANEQLVEEGE PKRRVFSLTSGMLRIYTSLPDG |
| UniRef90-F4RMT7 |  |
| UniRet90-D5BNB5 | KKGDVVYNVGDAG DELYLIHSGNVSI TSKNG |
| UniRef90-L8MOC1 | YDKDDVILQEGC ACQSIYILKQGLLKVERAT SG |
| UniRef90-W9V099 | PSHRLIYREGDEADKFYLIVKGSVKLFRPTQEG |
| IRet90 N1LYN6 | EVLIRAGT RSSDFFVVLSGKVAL DDEGEDG |
| 㖪90-14B4Z1 | GD FNEG KQDİAFVEGQ ERV F |
| UniRet90-E2B9V8 | FQEGDIIIQEGAFG DKMFFIEKGQVLVQTGQYQK |
| UniRef90-TOCZ19 | QKDVLFNE KDVIDKVYTLIDGKVSIFKDSENG |
| iRef90-A8TNM5 |  |
| UniRef90-D4W2D1 | G |
| UniRef90-X0т2 |  |
| UniRet90 AOBU | G |
| UniRet90-R5D6N7 | YQKNEYIFRQG DRPEKLYFLLNGDVEVGSITNLNG |
| UniRef90-T1G9D8 | EHGEYI IRQNQ PGDTFYIISNGSVKVTKDCPNA |
| UniRef90-A0 | HAGQTVMWEGD DSMVVVIEGTLKLATSTGDG |
|  | YFEKGEYI IREGEEG NTFFII AKGQVTVTQSSEGT |
| UniRef90-G417R7 | DSVCFITAGSVEMVVYA EDG |
| UniRef90-A7734 |  |
|  | VEFNANEM L M OG |
| UniRet90_A3XG44 | SKEVIMMEGSHSASHMYTVKAGLCAFRYKVEENG |
| P10004 | ( ${ }^{\text {a }}$ |
| - |  |
| UniRef90-V8G2V0 |  |
| UniRef90-E1YLK1 | VRKGKIVSEGKID D |
| UniRef90-H2ZOF3 | N |
| iRet90_K9, |  |
| 6 |  |
| UniRef90 D4XG | G |
| Reego Kis |  |
| Kos | TKGIVVREGDHAADDGFYVLSKGSVS |
| UniRef90-F6RNR5 |  |
| UniRef90-A0A034V | KKDAYITHENDEGS ETYVSETGYFDVIKK GG |
|  | YQRSEAIYRQGE PAKRIFLAETGFVRLYQATPRG |
| UniRef90 A3WIU0 | EPHVYSKRDMVYSPDQ PLLNSLFAVKSGSVKCYTVDSEG |
| UniRef90-K3WX61 | RQFAPR |
| iRef90-G9N21 |  |
| UniRef90-UP100026C7 | AADEAVFRAGEEARA |
|  |  |
|  |  |
| UniRef90-UPIOO02E28686 | HKVFKKGEVVINPMSRDP KLVIIAKGEVKMYQLSSTG |
| UniRef90-A4BNL4 |  |
| UniRef90- UPMLIOOO3B | EETRLKAGDVLGRQGEAGAHNFWVVLEGSISLTQALPDG |
| UniRef90-UPIO003B74655 | VLRTGRELEHEGQ SADCAYIVVSGSITLFHEGKQG |
| UniRef90_A0A023 2 973 |  |
|  | GTVYKQGETAK EFYYVNNGLIGLYHTLIDNG |
| UniRet90-D5WJSO | GETVCSAGEV ADGLYVIRSGTVRIF TEEHG |
| UniRef90-OP10004 |  |
| UniRef90-D3PGM7 |  |
| UniRef90 Liv | G |
|  | ESGEDLFRQ |
| UniRef90-W3 | RRDETLFRSGDDTADAGYVVQHGSIRVSTQDTGG |
| UniRef90 UPIO002659548 | KKGET:MKEG GPADGMYFVEEGEVELKRKDK |
| UniRee90-UP10002002E9E | G |
| UniRef90-T11 | LQSGTYLVKQESLIDASLVY I DTGSLLMSQRLDDK |
| Ref90-B8PEC1 |  |
| UniRef90 UPIO00265166C | EAGKAVYRQGDQSQCT YIVLNGRLRSVVQLIPSG |
|  |  |
| UniRef90-A6G9E4 | GAGEAVFTAGTV SDDLFVVVRGEVELLS SEVEL |
| UniRet90-D6XYN2 | EGETVIYEGDLG DQFYLIARGKVSV RPGGTA |
|  |  |
| UniRef90 E74 | PPGGLIYMQGE PSGTIYLIKKGRVR YY ADDG |
| UniRef90 G4M0M0 UniRef90-UPI000407EE17 |  |
| UniRef90-N6z8F2 |  |
| iRet90-UPI0004719 | G |
|  |  |
| $\begin{aligned} & \text { Refogo } \\ & \text { nofon } \end{aligned}$ |  |
| niRef90-UP10003680 |  |
| UniRe | G |
| ef90-D1C | AGEFVFLAGT PAAHVSLLAEGRDKIIRETEDG |
| UniRet90_B2A | SYSPFTDIVRQG SPGNEIFFIVRGEAEVIHEKRDT |
| UniRef90-A5EL59 | TVFFNQG DAHDGIVF |

UniRef90 W5JFH4 UniRef90-V5WI15
UniRef90_L7UIW0 UniRef90-UPI00038231E8 UniRef90-F9ZYG8 UniRef90-UPIO002A4A18E UniRef90-M3F0B7 UniRef90-U4V9X7 UniRef90-F4RMT7 UniRef90-D5BNB5
UniRef90 L8M0C1 UniRef90-W9V099 UniRef90-N1LYN66 UniRef90_14B4Z1 UniRef90-E2B9V8 UniRef90-UPI0003C106EB UniRef90-TOCZI9
UniRef90-A8TNM5 UniRef90-D4W2D1 UniRef90-XOT2Q7 UniRef90-AOBUN5 UniRef90-KOSW29 UniRef90-R5D6N7 UniRef90-T1G9D8
UniRef90-A0A013WQM5 UniRef90-H2L657 UniRef90_G4I7R7 UniRef90-A7IH34 UniRef90_C4JJFO UniRef90_A3XG44 UniRef90-U4PVK3 UniRef90_UPIOO04574168 UniRef90-S3CXL6 UniRef90-V8G2V0 UniRef90-UPIO0037EC662 UniRef90_E1YLK1 UniRef90_H2ZOF3 UniRef90_K9JOH9
UniRef90_C6WUC0 UniRef90-D4XGX7 UniRef90-J1EMD6 UniRef90 KOSRL4
UniRef9- W1 KK61 UniRef90-W1QK61
UniRef90-F6RNR5 UniRef90_A0A034VX36 UniRef90_LOA3X9 UniRef90-A3WIU0 UniRef90_E8X494 UniRef90-K3WX61 UniRef90_UPI00026C73C7 UniRef90-F4NXA8 UniRef90-W2UNJ7 UniRef90_UPI0002E28686 UniRef90-A4BNL4 UniRef90-B3MLR5 UniRef90_UPI0003B66174 UniRef90-UPI0003B74655 UniRef90_A0A023X9Z3 UniRef90 U4SSS7 UniRef90-D5WJS0 UniRef90_UPIO00467ECF2 UniRef90_Q9HEP7
UniRef90-D3PGM UniRef90-L7VBP6 UniRef90_E9H575 UniRef90-G4L7Q0
UniRef90 W3RNL7 UniRef90-UPIO002659548 UniRef90-UPI0002002E9E
UniRef90 UPI00036CFA3E UniRef90_T1IXP6 UniRef90-B8PEC1 UniRef90_UPIO00265166C UniRef90_UPIO0037C5D11 UniRef90_E9FYN5 UniRef90_A6G9E4 UniRef90-D6XYN2 UniRef90 V4NRK2 UniRef90_E7GGX6
UniRef9O-G4MOM0 UniRef90_UPI000407EE17 UniRef90-N6Z8F2 UniRef90-UPIO004719F46 UniRef90_UPI0003B481C0 UniRef90-K5CEJ0 UniRef90-UPI0003680D3A UniRef90_F7NL11
UniRef90 UniRef90-D1C1E8 UniRef90_B2A998

50
60
70
80 GEEVTKSFGRGVVFGELALYKAKRFASIRVTSGAKVVLLE GEEVVDLVAT GEFF GVK VALGHPREEDALVLTDSQCLMFT



 GEHIIDIVRSGHLLAESEIFDQTHHYFAEALQTTQMIGFS ERRULRLHGPGRFLGELGLLGQVAFFTAEAGUEDGEVLVVP
 Q RKVVVAVLGKGEI FGEMALDDHPHARYVRSVESTQCLLIS EKRI I FILDQGHI LNDDLVQNDPSAVNCECFEECCMLAYE EKDLLAVHEHGHLFGEMALIDEPRSATVLVKEPTRLFY G
 KVT R GQVTEGEDFGEDELFLHHSAYSAKAKNEVKVLEVS DEIFVCMLSKGQFFGELALETEERSANVVAWTGVTCLVLE QPQEMTLGVGDYFGERALISEDRSANLICNEDTQCLVVD



 D ERVFNNFGKGQLIAHAAMFMQHYPMNARARNDAYLYCLN
 NEVKLSEEITAGESVHS LVLTE QESTVFARAVKKSIVIRRLP
 $\square$

## D

## K


 $R A L T V R H V L P G D Y F G E S T F V D G V Y S H S A E A L T G A L V A S B D$






 REVVEI S SLLPA GTAFGE LDPLLANPNAVTLKA QVDGBVVQL N

 KAMTFA GAAD GGWF GE GSVLDEPRKYDLVA $\square R G T R L A M M Q$


 Y R DLLV R $\quad$ V GP


|  | 90100 |
| :---: | :---: |
| UniRef90＿W5JFH4 | RKVFFQK\｜M M K S GR |
| UniRef90＿V5WI15 | VPEFERIDMKMLKVFSNQLRR】HGKVRNL |
| UniRef90＿L7UIW0 | R A GLESVK A R Q P R VGGVLEDFYR |
| UniRef90－UPI00038231E8 | RA QLAVLREAHPTDDRMLTAT L VEEVRRLS |
| UniRef90－F9ZYG8 | LT QLP SLQ K Q LMR TLLGKEIA S D HD KI QRMAT |
| UniRef90＿UPI0002A4A18E | KRRYP QVVTRLIHVLGEK\｜LGNLQQVRSLALH |
| UniRef90－M3F0B7 | R S R F P QV S L Q L L G L T T D R Q S T D R R |
| UniRef90＿U4V9X7 | T REMDDLMERFPR LKERLH Q M T R |
| UniRef90－F4RMT7 | M T R HP A I T D Q VSRLI A SRVR |
| UniRef90－D5BNB5 | S E Q VR Q KLK E I I R SL S LR L K D T N L T E |
| UniRef90－L8M0C1 | KKSSTELSNRFYQSLA Y NLSNRLRATSSLVS |
| UniRef90－W9V099 | T V I F R El I R K L L A Y F S D S K K K N Y DL L VM |
| UniRef90＿N1LYN6 | A ERVRELLVAHDL VLS DLI L R A Y |
| UniRef90－14B4Z1 | Q Q Q V E ERLA D |
| UniRef90－E2B9V8 | RET F NQLI S S LD E L L VER R R L N E EFRDLR LQ |
| UniRef90＿UPI0003C106EB | VRNFEEVLQMFPEVQED L L ETAS D R Q A L |
| UniRef90＿T0CZI9 | LE T F LELLTK N I I S Y MER R NR R L Y R Q V K N |
| UniRef90－A8TNM5 |  |
| UniRef90－D4W2D1 | K A MF $\square \mathrm{K}$ LMM A VLGQYS SKLRRTYRQLK N |
| UniRef90－X0T2Q7 |  |
| UniRef90－A0BUN5 | KDSFDR】MS T K Q R R F L H L E T S |
| UniRef90－K0SW29 | V D D $\square$ P |
| UniRef90－R5D6N7 | K N H H S KVVF N M L QVFAEKADKNNHQ】EVLTT S |
| UniRef90－T1G9D8 | R V A Y K Q L |
| UniRef90－A0A013WQM5 | RGGFDGFARDHGDLQHRLLQRTLD D L D R |
| UniRef90 H2L657 | R D NFNQM |
| UniRef90＿G4I7R7 | R D A M N S V VQ H N A R L A R Q $\square$ GEV VEM |
| UniRef90－A7IH34 | GK T L R R L A Q M P |
| UniRef90＿C4JJF0 | K E DLQ GIL PRFPEV |
| UniRef90－A3XG44 |  |
| UniRef90＿U4PVK3 | RS D HP TLA P DLT WIA A S E ERMLDSHLLS |
| UniRef90－UPI0004574168 |  |
| UniRef90＿S3CXL6 | GE\｜LEELWRR |
| UniRef90＿V8G2V0 | $R \mathrm{Q}$ D YPELAD R L L S G L V V V VY Q Q L N Q VH WLT S |
| UniRef90＿UPI00037EC662 | RESFERLTLD Y P Q LK A A LEK S LEERM |
| UniRef90－E1YLK1 |  |
| UniRef90－H2Z0F3 |  |
| UniRef90－K9J0H9 | K A HFYEDMRKVAHTVVKRVSSFVRQ】D |
| UniRef90＿C6WUC0 |  |
| UniRef90 ${ }^{-}$D4XGX7 | YAELLLTHCHHFAAQLFNRLMA |
| UniRef90－J1EMD6 |  |
| UniRef90－K0SRL4 | RRAFRVILDRHKKK GLNMKLMQLEK |
| UniRef90－W1QK61 | REVFEAI AK N L L R I L D K R L L A D Y A M E |
| UniRef90＿F6RNR5 | R R Q H P GVVTRLLISLMS D K I |
| UniRef90＿A0A034VX36 | RETFRQLMVV L S ESKERDENLT |
| UniRef90＿L0A3X9 | LN DLS E ALLLSVSCSLSA QL R R A M N |
| UniRef90－A3WIU0 | AQNFTGVDKNLLRLLSHRIGQRN |
| UniRef90＿E8X494 | RND $\square$ S VLLLDDMMTVLA R Q F H A S Q E $\square$ I |
| UniRef90－K3WX61 | R D Q Y P PL K K Y |
| UniRef90＿G9N214 | KEDFPEMEKADRQEAQERLSLKKKRLERGAT |
| UniRef90＿UPI00026C73C7 | Q A AFREVMLRVVDDLAERLSRAQTDL |
| UniRef90－F4NXA8 | K T LIF P E I T I S I A R I I A A R |
| UniRef90－W2UNJ7 | KEQSESFRRHNNKLLHNH\｜RHLQKR\NML |
| UniRef90＿UPI0002E28686 | KSEFT T LLLLQLSSLSLLQ |
| UniRef90－A4BNL4 | RAAFSAILAD |
| UniRef90－B3MLR5 | RDSFKRLIGDLCE |
| UniRef90＿UPI0003B66174 | E E GFPEVRKAILGNMAKRLQSTTVQQEKMAS |
| UniRef90＿UPI0003B74655 |  |
| UniRef90＿A0A023X9Z3 | GP ALEKLLTGMP |
| UniRef90＿U4SSS7 | P K DİDTFFVENPK MSKFLLQS |
| UniRef90－D5WJS0 | R S A I E P VM |
| UniRef90＿UPI000467ECF2 |  |
| UniRef90＿Q9HEP7 | $R \square T$ F R R I L M D S F K CRRLY ES F E EVTLLS T |
| UniRef90＿D3PGM7 | R D S Y R I I L M |
| UniRef90－L7VBP6 | REYLERIVMALLQELGRLIDERQMKVRQVT |
| UniRef90＿E9H575 | K GLLD F I HLK F P M V V SRHL |
| UniRef90－G4L7Q0 | QS DFQKLLKDYPQLS |
| UniRef90－W3RNL7 | RSMFLRRVLE GHPDA AR RLLR |
| UniRef90－UPI0002659548 | A EALDRLLGKLNDLLKR |
| UniRef90－UPI0002002E9E | Q AFL N RLL R NLS MVLAERLA Q T T D R L WQLS |
| UniRef90＿UPI00036CFA3E | ADQLPEMFMNMARDLSRRLRDTDDQL |
| UniRef90－T1IXP6 | $K$ K N P Q V L H VA TS IVQRLS SFVRQID |
| UniRef90－B8PEC1 | RIT F $\quad$ R TI I LKAAHRRRTMYEQ |
| UniRef90－UPI000265166C | K R K P H TVT RLI EI L G Q R L |
| UniRef90＿UPI00037C5D11 | ATDFEWLVRQFP HFRKDLEVRVHQQREDA |
| UniRef90－E9FYN5 | R R VF Q Q V M K K |
| UniRef90＿A6G9E4 | $A V L F R R A L G R S G R D L Q Q R L L R R Q A T A N L L A$ |
| UniRef90－D6XYN2 | K D D F A L L A HPQV |
| UniRef90－V4NRK2 | P NTLS DLSHELLKL A L Q S L R A H D HL |
| UniRef90－E7GGX6 | T K SLE ELCLI L F QLL T D T CNY LCS QVRRLT L |
| UniRef90－G4M0M0 | RESFLSVLENYPL MRRTMESVERL |
| UniRef90＿UPI000407EE17 | R N NFIEELTK K V I N S L S K ViR R L Y R Q M K N |
| UniRef90－N6Z8F2 | MAAVPAFAEAMTTRLAAASYEMMMHMQ |
| UniRef90－UPI0004719F46 | Y S D Y P P L L N F L L E V I T R |
| UniRef90＿UPI0003B481C0 |  |
| UniRef90＿K5CEJ0 | RTTFPEFLF LLLLKKVIERLLYETDGKIRAI |
| UniRef90－UPI0003680D3A | R R R L W S V E RMP |
| UniRef90－F7NLI1 | REKHPELLENLIQS MA Y K $\square$ L L L G L N R G G D L S |
| UniRef90－T1P847 | RDKFRQI M |
| UniRef90－D1C1E8 | VGDFSALDGE |
| UniRef90＿B2A998 | GD A LEELWR R C P P EVRS QVEET A K Q |
| UniRef90－A5EL59 |  |


UniRef90_UPI00042BC7D5
UniRef90_V6M5G6
UniRef90_R5NJ53
UniRef90_R6SDJ2
UniRef90_A5EUK6
UniRef90_F5HSX3
UniRef90_I3TIC0
UniRef90_UPI000465C15A
UniRef90_X1KU89
UniRef90_T0QLE4
UniRef90_F0WBZ6
UniRef90_UPI0003F56CBA
UniRef90_UPI00046D9CAF
UniRef90_W4H8U0
UniRef90_R1FAM6
UniRef90_Q89QD5
UniRef90_UPI00047C6325
UniRef90_E4WSS2
UniRef90_B3S3K3
UniRef90_UPI00036A7F23
UniRef90_UPI000477CBC6
UniRef90_G9KHK2
UniRef90_UPI00006CA696
UniRef90_W4GPD1
UniRef90_L7M0Z1
UniRef90_C6AUH8



 | $R R$ | $C$ | A F |
| :--- | :--- | :--- |
| D P V | QI | V |

 R
R
R




 R D T L I D E R G P G D H I G E T A V LT R R R T A MVVRA K T D V S L L R L
 SEVVVFKYDNSGS FGELALMNTPRRSATVRASTMDGVLDTVLS
 K K R L A G E Y G R G D LI GVV T L TH Q A R A T T V H A VR D S E L A K L P







 K S LI L S IL L Q A G DLL I G E L G GH G VA H G Y S A E V V D N A E L GI I A NE DI D RL GAG DFFGEVAVVS ELDRTA DVISSLGPTELLQFM

 R NRVI I S VVVK K RTVTTAI A GP
GKTVMASSLKA GSVF GHMALLGGLRMGGTVEAVAEGQLCVMS
 QFSYMD Y I K K GS LTFPY GGMFQQERYYTASAVTDDLRCFVIIP VNVVGEVGQGDTVGELDDVTSSRRTTMLAMIRDTELARMP




## 46B03C9

## 4K9N0

## B76D49

R
R
N
N
N
K G
REQUGGKAVA

RTLLLGRLGP

K
R

## YTMO

 S35 0476A04D UniRef90-KOTMD6UniRef90_A0E0G1 UniRef90-J9G6L8 UniRef90_Q5C089 UniRef90_K2HRM9 UniRef90-A7HFP8 UniRef90_A5UQW4 UniRef90_D8FFE2
UniRef90 B0RM05 UniRef90_UPI0002630D8C UniRef90_G7DKP9 UniRef90_W6WAH9 UniRef90_E6WU17 UniRef90_UPI00036706D4 UniRef90_UPI000394549A UniRef90_LOLGS8 UniRef90_I3ZIQ0 UniRef90-W1KLW5 UniRef90_UPIO0032AE0BF UniRef90_A5E708

|  | $90 \quad 100$ 110 |
| :---: | :---: |
| UniRef90_UPI00042BC7D5 | VD NFNEVLIEEYP MMRRAFET\D |
| UniRef90-V6M5G6 | TGRFRELLKQNFHLVEQLLHFESRKYRMLCAQ |
| UniRef90-R5NJ53 |  |
| UniRef90_R6SDJ2 |  |
| UniRef90_A5EUK6 | RELVAR RADRRRDVAK Q L LVI RGKEIQ |
| UniRef90-F5HSX3 | K Q A T QLLA D S P S L R E HVERFR |
| UniRef90-I3TIC0 | ADDFRRLMRRDPDLL |
| UniRef90-UPI000465C15A | K K D LD QVF S N A P Q |
| UniRef90-X1KU89 | R D KLP LLFRTFPSLLASREEQMDD |
| UniRef90-T0QIE4 | RAKFVELLGPLQDILNK EADDRKAELTT |
| UniRef90-F0WBZ6 | REDFIRLLDDDYPEAETVLMAFHEER |
| UniRef90_UPI0003F56CBA | RDAFRDVLDTLPRLLLMLFLRAASQRLQ |
| UniRef90_UPI00046D9CAF | KQSFTSILRK\\|LNNLLERIKQLES D I |
| UniRef90_W4H8U0 | RS ILLLSTTRS GSTALLDDIF N K T A T L |
| UniRef90-R1FAM6 | REDFVRLL G S L Q AMNRNLNR |
| UniRef90_Q89QD5 | GKELRSLAAE!PNL |
| UniRef90_UPI00047C6325 | S A DFYEALI D |
| UniRef90_E4WSS2 | ASS $\triangle L Q E F E S F P A S L V R \square V Q M \square M L R L Q R L A L H$ |
| UniRef90_B3S3K3 | GEMFRQIVLKAAREEFRKLLQSVTILKKELS T |
| UniRef90_UPI00036A7F23 | QADHPRVALHLLGLATDRQRSTDRR |
| UniRef90-UPI000477CBC6 | SKDFMKIMKNVLNHLQNDNRRLYRQLK N |
| UniRef90-G9KHK2 | A GALLTSI K R R Y P QVVA S RVT RLDHLL |
| UniRef90_UPI00006CA696 | K D DFLGIL LNQFPQI K F LIMVA Q Q R M T I |
| UniRef90_W4GPD1 |  |
| UniRef90-L7M0Z1 |  |
| UniRef90-C6AUH8 | KEERPRIGGA IMRS L S L HLI STMECL |
| UniRef90_U9UN11 | RTLFNALALLEI T L Q I S RII ALLRTRMQEE |
| UniRef90_A4KJI5 | REHLEQVVMNLLQELGRVI DERQRKAQQ |
| UniRef90-A0A011QTR0 | ES DLPT FTLIVMNLARELSRRLRCDD D L A |
| UniRef90_UPI0003D097B2 | KAHFYE I CWNAS GLL |
| UniRef90_F1LA32 |  |
| UniRef90-UPI0003B60E2B |  |
| UniRef90_G0QPI3 | K D T L Q V L G D M N NMMRWAFENN T L K N M T L |
| UniRef90-UPI0003805036 | QEPFYE I M N I L K L L R R L R I I N K K S T T M A |
| UniRef90_UPI00042BCB71 | VEAL |
| UniRef90_UPI00047B2F25 | WK D H S DLALP F M N WMALLNHRVTESKLR DL |
| UniRef90_L1JFS2 | R S DFEQI LA K FPVLQ T RMLEVS Q K R V R R |
| UniRef90-C4K4Q5 |  |
| UniRef90_R0CZW0 | R G A L S DLA R AVFHLTA E GLQRSQDHVLML |
| UniRef90_S0KB19 | V S F Y E K I A K K M $\square$ H K L S K V V E M H E L R |
| UniRef90_G1XAM6 | REQWA QLQ EQYPRELYRALKLTTTERMESTT T |
| UniRef90_A5N6Q4 | NS DHTAMLQNFMNVI S D K ALLLLNKKVEYL S |
| UniRef90_UPI00034D4240 | A D D D P RVAVRLIE QL GARIT DLEERLT D |
| UniRef90-A0NBL7 |  |
| UniRef90-14CAF0 |  |
| UniRef90-I1ZKZ3 | A QESKEQLL F I T R KL S S L E F Q E L R L R NVVT |
| UniRef90-M5BQ75 |  |
| UniRef90-R7Q7H8 | R P T F E |
| UniRef90-K9X2X4 | ESAFPT F A L K VMK S Y S ERLS RVEEHQLS S L |
| UniRef90-UPI00046B03C9 | RK DF L N A LRDLIE I HAREVQA QRARIE\\|L |
| UniRef90_C2U5T7 | LK DCQHLLLQQFLQKLCKKFIGETDARTESYAKN |
| UniRef90-A0A024K9N0 | R S RLLP QLFRDVTWLASREERMLDENLLSL |
| UniRef90_F9YT02 | FEDFQQLYY S I A GVMTEK LIF T T Q RLEM |
| UniRef90_UPI0003B76D49 | HQ GLLKIL |
| UniRef90-S9UCV4 | R R HFEMCMGPVIDVLQR |
| UniRef90 G0R544 | R E HLKKI L |
| UniRef90-M1AKV1 | R K T F L N L R D $\square$ M R NLI Q K L Q |
| UniRef90-B9QTS0 | KDDFLKLL NEFPD I SLLEVMRTLAMRDER |
| UniRef90-N9U0A3 | QAMFQSLLQPLYQALTTRRQQEQADLLAREANQ |
| UniRef90-T2GQ00 |  |
| UniRef90-UPI0004756678 | $\square R Q D P L F L L K L G Q Q L A H S L Y R Q N L K A E Q L A T H$ |
| UniRef90_T1VP03 | P ERYAELTA QAPELLLE RLAAAYEQLDLM |
| UniRef90_G7YRZ9 | K DSLLQVLNAFANSFARNLVLTYDLKTRLL |
| UniRef90_V5I4T8 |  |
| UniRef90-B9KT00 | $R$ PLF LRLVMDEVFTAFARRMQMMMHVLEKVAFQ |
| UniRef90_K9TD63 |  |
| UniRef90-B4R889 | R G SVR A F A GD_A ELD R A I L E A T R R |
| UniRef90-X1FPH6 | EKDFFQ L L L L I R V V C RLV TANKNVLKLT T |
| UniRef90-R6L212 | K N AF LDFLH Q Y PVAMHNFLRLVSDRTLILLS |
| UniRef90-A0A010YTM0 | LDRLLRQICKEFASSMSNKLMVRSYRLSE |
| UniRef90-M3ZS35 | KA HFYEI MREEPRVVLDVAHTVVKRMSSFVRQ |
| UniRef90_UPI000476A04D | P ER L R A L V V D A Q L GEHIMRALI L R |
| UniRef90-K0TMD6 | K K F F A K Y I V K |
| UniRef90-A0E0G1 |  |
| UniRef90_J9G6L8 | QKDFNLI CYHYPE F Q $\square$ R M KETGER |
| UniRef90_Q5C089 | LE S Y S L L DA D LAA L |
| UniRef90_K2HRM9 | A A RFPALHAFFSRQRGRRPALAE TRVETLMT |
| UniRef90-A7HFP8 | SRRLR DVLVAEAEVGERIMRALILRRVNL |
| UniRef90_A5UQW4 | A R DL HRLI DL Y PMLQSNSLRLLSSEYRDHLQQQ |
| UniRef90-D8FFE2 |  |
| UniRef90_B0RM05 | HDDFQRLVD H DPSMVAHFLRRS\VRVVN |
| UniRef90_UPI0002630D8C | R A ALSS DIMQAHPRLSAMIL VYS QI ERVAL |
| UniRef90-G7DKP9 | A ASFPEVALLLARTLA Q RL |
| UniRef90_W6WAH9 | R D R L P T L F Q N HPSL |
| UniRef90-E6WU17 | TDAMQRLGT QYP QLRDKLLERA |
| UniRef90_UPI00036706D4 | RTALLRELTRQLDWDAMALELLRRFQEHMMLL |
| UniRef90_UPI000394549A |  |
| UniRef90_LOLGS8 | RNSHASLAY DLT W $\square$ A S REER L D D HLL S I |
| UniRef90_I3ZIQ0 | R R E M L T L L R Q |
| UniRef90-W1KLW5 |  |
| UniRef90-UPI00032AE0BF | K K D L N E L V H Y PKLLRKKARRMDR K |
| UniRef90-A5E708 |  |


|  | $\qquad$ |
| :---: | :---: |
|  |  |
| UniRef90-V4S677 | $F$ LIPGEVIMEQGNV VDQLYFVCHGVLEEVGVGEDG |
| UniRef90-M4AK19 |  |
| UniRef90_UPI0003510DDB | F LP GEVILEQG SAVDQLYYFVCHGALEGVGDGQDG |
| UniRef90-A0D9C4 | FAPGQAIVNEG DQADSFYVIKSGEVSVLK |
| UniRef90_Q4SDJ0 |  |
| UniRef90-U6IIW4 | EEVHYEPGEYVIRQGARG DTFYIIASGQVQVTVVYGEE |
| UniRef90-K0VZY8 | ELRT FAPDERI IAEGQEASF VYCVIGGFVRLSKSESAG |
| UniRef90-H1SHC9 | NEYLFRTG DPAHGMAVVLQGRVRVMQRDARD |
| UniRef90-K0PZI2 | KDIIAEQG SKLLMSLMLIRSGVVAI S R K E G D |
| UniRef90-A4TWU2 | SHPENSLLFSQGDD ADHFFVVLEGRVNI FALLTET G |
| UniRef90-U7FYB4 | EPGDI I 1 RQGE PADYVFSLFEGDADVVVDN |
| UniRef90-UPI000060 | QEMHCTPEQ\\|IFSQNQVDHHD I YFi EKGK\ELFKRNNSG |
| UniRef90-UPI000390 | THEAHDTLFRQ DDPTDDVIVVLS GLVRLFRLGKDG |
| UniRef90-L8WM38 | EPRTYNEGDSVVEEGDTG NEFFII ESGEATAFKRGEDG |
| UniRef90-G0QJY6 | Q I Y T Q GQKDDCE $\square$ Y FI Y S GTVEVYVETPQK |
| UniRef90-TONKH5 |  |
| UniRef90-K9HG99 | RYEPGQWILDYDEDGT DVFFVTVGRVRVLIRTVGG |
| UniRef90-M3ZFR8 | GCFVIFQEGTS G DQAFVLEEGR |
| UniRef90-UPI000368 | T FDKGDSLISEGR A $\square$ GS 1 YLLIDGLLEVF $\square$ LQRNG |
| UniRef90-L7ID75 |  |
| UniRef90-D0ND57 | DSVI FRE DEGDST QMFVTLA G SVEVTS S R |
| UniRef90-G2NLK5 | GQRLVAETDVDCWTG VI AEGTCRVTG |
| UniRef90-W8B8S0 |  |
| UniRef90_Q0EYN2 |  |
| UniRef90-X0V9Q3 | A GDRVLEKG GVARNMFVVLEGNLEVH D D G |
| UniRef90-H2CCA9 | RGDVI I RKDTAG DKFFILLS GNVRVEGMEQES |
| UniRef90-S6AHLO | PAGSRVMAEGEEG DCCYFLQSGRAEVIR GAGS |
| UniRef90-W7XEL5 |  |
| UniRef90-UPI000313D254 |  |
| UniRef90-UPI0004734630 | EVREYKRDEWI I REGR R P D F LFYVTEGKAKI YVTHQNG |
| UniRef90_UPI0003D | QSEDY ${ }^{\text {da GDEIVKAGTRG EALYFISSGTVAVY }}$ |
| UniRef90-H91X |  |
| UniRef90-J7ITP9 | KNKRIFEPDSKD NFПMIVLEGKV |
| UniRef90_A0BG52 | RFSPEDQI I QQGTPDDC SLYLITKGKVSLFQNDPQG |
| UniRef90-W4H015 | Y LPHDNI I LEGGTGAA LYIMHQGRAEKYVRKHN |
| UniRef90-R9XJ33 | YHTHDCIVKMGE PAEALYWILYGAADV TSPD |
| UniRef90-K7SHP9 |  |
| UniRef90-F5TDP4 | MYIIVSGKIKVFTISSSG |
| UniRef90-F8GWA7 | WLGVI E GII K V D TAS A C G |
| UniRef90-UPI0002C | GEVIMEPGNV VDQLYFVCHGILEEVGLGEDG |
| UniRef90-UPI000360F34B | RAGDYI YKDGDF SNSFFTI DEGVVE |
| UniRef90-UPI00035C29DE | L NRHQRLVARG APFDTLYSVQHGQLKAERAMPDG |
| UniRef90-AOPON4 |  |
| UniRef90-K9QU66 | RVAPQTLI Y Q G Q T P T GLYL L K G K VEIFR R E L I G |
| UniRef90-A0A024GA | RFEAGQVILHEGMDE NGFYLITS GKVECFRDN |
| UniRef90-F0XW72 | YGKGTTI LKQGDRG DDFFVMEMGTVEFY |
| UniRef90-D6WKV5 | KSVIYLPGDII CKKGDVGK EMYI I Q C GKVQVIGRHEND |
| UniRef90-R6D0V2 | KKYEKGETI FQEGE K |
| UniRef90-M2ZIE8 | RSVPRAAEICRQGR PSSTVHLLCTGSAEVFRQDADG |
| UniRef90_UPI000477D6ED | RYSSGQALMRQG DPGSTVHLVAEGQARVVRVRADG |
| UniRef90-N6U6 | SVIYLPGD\\|ICKKGD\GT EMYI I Q S GKVQV I GGKNG |
| UniRef90-C3U522 | VIFLPGDMICLKGDVGK EMYIINQGILQV VGGGDH |
| UniRef90_UPI000409C4C8 | KLRKRQYLLQEGDVWRYNAF I SKGLVRTFRVDEKG |
| UniRef90-R8W5H5 | YPKDAVI WHEGE RVVSVGLVLS GRAVILRDDFWG |
| UniRef90-UPI0002A4B7A3 | SVVY LP GDYVCKKGEVGR E M Y I I K A GEV QVV G GP D G |
| UniRef90-L8G8R2 | AAGTTLFRR EQPADGFYLLEDGDLRADYDLPQG |
| UniRef90-B1X317 | YHHRKDGHVFFQPEED SDRLLII HQGEIE I VYPHHDQ |
| UniRef90-F8HZJ8 | VVVQKGEVVYAPND SQQLII LES GRLKVENLMENG |
| UniRef90-H2SON1 |  |
| UniRef90-UPI0003C4AA69 | K EMYIVKQGEVRVL G GADG |
| UniRef90-K9RYR8 |  |
| UniRef90_A0A024U528 | A AMHMYVI ASGSVQLHQ |
| UniRef90-UPI0003F08F | T NWY AVLT GTVDV NVSET G |
| UniRef90-E5S1B7 | QADALYVVLS GRLRSVLTREPG |
| UniRef90-G8LP50 |  |
| UniRef90_UPI000301C575 |  |
| UniRef90-UPI000462516E | ERQLAAGTTIVAEG GTTGHLYVLMQGRLEVLK G |
| UniRef90-UPI000465BB35 | KLEQFEDGQTIFRQG DHALHVAIVLDGFVKLMRTASCG |
| UniRef90-F7A8H3 | EEDTFHQGEYI DREGESG ETFYI I LEGEVDVTTQSKEY |
| UniRef90-UPI000423FA74 | EHAEVEPGHTLFRQGERG EFFYIVRSGSVDVLQDD |
| UniRef90-D8TYJ7 | A GAVVLQQGALPKDDCMYYLQS GEAEVV口S G G H G |
| UniRef90-G2FDI2 | YAAGEQVFKPG DKSHAMYLVMQGAVEVSMPGREN |
| UniRef90-N1WCX0 | QGDFIFAEGEEG DAAYIVRSGKIQIRTENP |
| UniRef90-UPI00036FD59B | EALLRQGEVG GGVHLMLKGRAKVVS\\|RADG |
| UniRef90 K1R802 | MFi I AD G LVEI - I SES G |
| UniRef90-UPI00042B2CA6 | QRVEVQPGDIVVKQGGEG DCFYVVGSGEFEVLATQEDK |
| UniRef90-A0A024UEL2 | MFI I LAA GSLEVTVQS K VP |
| UniRef90-UPI00035E8ABF | WDRGTAVMNEGDRG DWVLVLLDGRVKVSSHTSGG |
| UniRef90-B3LAJ2 |  |
|  | QEESFLPGEVILEQG NTVDQLYFVLHGVLDGIKLVENG |

[^0]|  | UniRef90_K8R7P2 |
| :---: | :---: |
|  | UniRef90 K2Q6G5 |
|  | UniRet90-V4S677 |
|  | UniRef90-M4AK19 |
|  | UniRef90-UPIO003510DDB |
|  | UniRef90-A0D9C4 |
|  | UniRef90-Q4SDJo |
|  | UniRef90-U6IIW4 |
|  | UniRef90 KoVZY8 |
|  | UniRef90-H1SHC9 |
|  | UniRef90-K0PZ12 |
|  | UniRef90 A4TWU2 |
|  | UniRef90-U7FYB4 |
|  | UniRef90-UPI00006CFCE4 |
|  | UniRef90 UPI00039CA8A5 |
|  | UniRef90 L8WM |
|  | UniRef90 GoQJY |
|  | UniRef90-ToNKH5 |
|  | UniRet90-K9HG99 |
|  | UniRef90- M3ZFR8 |
|  | UniRef90- UPI0003687742 |
|  | UniRef90-L7ID75 |
|  | UniRef90 DOND57 |
|  | UniRef90-G2NLK5 |
|  | UniRef9-W8B850 |
|  | UniRef90-Q0EYN2 |
|  | UniRef90-XOV9Q3 UniRef90 H2CCA9 |
|  | UniRef90-H2CCA9 |
|  | UniRef90 SGAHL0 |
|  | UniRef90-W7XEL5 |
|  | UniRef90-UPIO00313D254 |
|  | UniRef90-UPI0004734630 |
|  | UniRef90-UPIo003DF7CF9 |
|  | UniRef90-H91X99 |
|  | UniRef90-J7ITP9 |
|  | UniRef90 ${ }^{-}$A0BG52 |
|  | UniRef90_W4H015 |
|  | UniRet90_R9XJ33 |
|  | UniRef90-K7SHP9 |
|  | UniRef90-F5TDP4 |
|  | UniRef90-F8GWA7 |
|  | UniRef90- UPI0002C319BC |
|  | UniRef90-UPI000360F34B |
|  | UniRef90- UPI00035C29DE |
|  | UniRef90 A0PO |
|  | UniRef90_K9QU6 |
|  | Ref90-A0A024GAX5 |

LGAGTVLGEIGGLIFSPERTSTVIJC
80
CEMRTVU

 I RKMG
KESVVKEVYP PGSVHSLNLLTHAHTVSARAAEFSSVLCLP KETFVRLMGRGEWFGEKALKNEDRTANUIASYPVDCLVLN READI YVCEPGDTFGEYLLSGGSYAYSAI ALLEELVDLRAL RASVVGEHGP RE I ELMMRL VVVGVV L READLK V RDDVVMKYG

 $\qquad$ QKVRIIGDGEFFGELAAIDG KRSFLSKLHAGEFLGEESGLLDSTB RASYVRRLHQ

PLAKLEA SRSYLAARGPGDVIGEMAAVGARRTAEVTADVGVVVHVLPB
 K RLLRVLSPGDVFGEIVALLSEQPRTATVVAAEDSIVYTMD

 KVGLLNF NAHDYIGEMELLNDVYYTGQQAATKTVCLVLP
K
R
VACHLED
S Y


RTRVLSAGLEG
LVVAAVHEGTMFGELAFFGPRASAKSVGFSAYK K

47D6ED
 09C4C8 UniRef90 UPIOOO409C4C8
UniRef90-R8W5H
UniRef90_UPIOOO2A4B7A3 UniRet90_F0XW72 UniRef90-D6WKV5 UniRef90-R6DOV2 UniRef90_M2ZIE8 UniRet90_UPIO00477D6ED UniRef90-N6U6X7 UniRef90 C3U522 UniRef90_UPIOOO2
UniRef90 L8G8R2 UniRef90 - B1 X317 UniRef90-F8HZJ8 UniRef90-H2SON1 UniRef90-UPI0003C4AA69 UniRef90-K9RYR8 UniRef90-A0A024U528 UniRet90 UP10003F08F01 UniRef90-E5S1B7 UniRef90-G8LP50 UniRef90-UPIO00301C575 UniRef90_UPIO00462516E UniRef90-UPIO00465BB35 UniRef90-F7A8H3
UniRef90_UPI000423FA74 UniRef90-D8TYJ7 UniRef90-G2FD12 UniRef90-NiWCX0 UniRef90_UPI00036FD59B UniRef90-K1R802 UniRef90-UPIO0042B2CA6 UniRef90-A0A024UEL2 UniRef90_UPI00035E8ABF UniRef90-B3LAJ2 UniRef90_MOUOP1
lupas_21
lupas_14 14
lupas_28
jnet
sol25


UniRef90_K8R7P2 UniRef90-K2Q6G5
UniRef90-V4S677 UniRef90-M4AKI9 UniRef90 UPI0003510DDB UniRef90-A0D9C4 UniRef90-Q4SDJO UniRef90 U6IIW4 UniRef90-K0VZY8 UniRef90-H1SHC9 UniRef90_KOPZI2 UniRef90_A4TWU2 UniRef90-U7FYB4 UniRef90_UPIO0006CFCE4 UniRef90-UPI00039CA8A5 UniRef90-L8WM38 UniRef90-G0QJY6 UniRef90-TONKH5 UniRef90-K9HG99 UniRef90-M3ZFR8 UniRef90_UPIO003687742 UniRef90_L7ID75 UniRef90-D0ND57 UniRef90-G2NLK5 UniRef90-W8B8S0 UniRef90 Q0EYN2 UniRef90-X0V9Q3 UniRef90-H2CCA9 UniRef90-S6AHLO UniRef90_UPIOOO313D254 UniRef90_UPIO004734630 UniRef90_UPI0003DF7CF9 UniRef90-H9IX99 UniRef90-J7ITP9 UniRef90_AOBG52 UniRef90 W4H015 UniRef90_R9XJ33 UniRef90-K7SHP9 UniRef90- F5TDP4 UniRef90 ${ }^{-}$F8GWA7 UniRef90-UPI0002C319BC UniRef90_UPIO00360F34B UniRef90-UPI00035C29DE UniRef90-AOPON4 UniRef90_K9QU66 UniRef90 A0A024GAX5 UniRef90 ${ }^{-}$FOXW72 UniRef90-D6WKV5 UniRef90-R6DOV2 UniRef90-M2ZIE8 UniRef90-UPI000477D6ED UniRef90_N6U6X7 UniRef90_C3U522
UniRef90-UPI000409C4C8
UniRef90-R8W5H5
UniRef90_UPI0002A4B7A3
UniRef90 L8G8R2
UniRef90-B1 X317
UniRef90-F8HZJ8
UniRef90-H2SON1
UniRef90 UPI0003C4AA69
UniRef90-K9RYR8
UniRef90-A0A024U528
UniRef90 UPI0003F08F01
UniRef90 E5S1B7
UniRef90_G8LP50
UniRef90-UPI000301C575
UniRef90-UPIO00462516E
UniRef90_UPI000465BB35
UniRef90_F7A8H3
UniRef90 UPI000423FA74
UniRef90-D8TYJ7
UniRef90-G2FDI2
UniRef90-N1WCX0
UniRef90 UPI00036FD59B
UniRef90-K1R802
UniRef90_UPI00042B2CA6
UniRef90-A0A024UEL2
UniRef90-UPI00035E8ABF
UniRef90_B3LAJ2
UniRef90_M0U0P1
lupas_21
lupas_14
lupas_28
jnet
conf
conf
sol25
sol5

A A DEPEFA|LYY|LDQ| I AASR|LIO
RSRHPGLSFDLTWLAARE

VDDFNEVLEEHP L MRRAFEAVERLDRVS

RESY
AERNPVMHRNVMRDMARHLLGAMDCD
PDRLRALMVAEAELGERDMRALILR
QERLPALADELGLILSRRVAERLQTMEPLS
A A DNPRLGFHLLSGLSRWQMHMIHEDTEL
KHQFKDLIRTNPGM』HSLLSDMARQ』KTLNGQ
$R Q D F D D L K E F P Q$
GGKLRQLASDVAQALLELVCHHGKMTED AQAFTRLLGNLKSLLDRH
RDDF DDLIKDFP
VDNFNEVLEEYP
A GVFRETLHRWPDACDQVLALLAGQVRRLS
RKSYHSVLTQCGL SRLSHSVDLLRS I
KEDLRRFYRADGTFLADRLRSTNLLL
GQALLE ELWRRCPPELKLQVEETARM
KKAFHSLLDQCP
ASKFQRLL RHLLTVADDRDQEADRRRSEVA
KSDLDNEVIAYYPQAMLKKRARADMR
RAGFARLMQTVFALFTYMLLYQSRMDRGD
EASDPEVAAQLLLNVSK KL
K A RF L S Fl R
RADFLELK
RQQFLSVIKE

 VDHFNAVLDQYPLL MRRTMESVERL AQAFPTILIDSMVKALGDSGGNTLRIIDENA
RQKLLNVLQ
KADWVSLW
ADDFNQVLRQLRDEAQQRLAMQEKRSQQLASQ
HARFPNLEHRLRQEASRELSLLQARMTLL
KENFDKI I NKYPKVT DK ILE ESF LR DEDLVT
RETFDWLL

YTGLTRLMKQYAA LT RRFHQL ADLFRGGGSDCAKLMS
KAAFQRLIVEHPTQLSQDDHEYA $\square R \square$
K D GLEQAVVGKLTILEKDRARRNRK
RERFRLVLANHAKARSEQYKA LDMEDE
KADDQELLNKKAKMDMKKNAALERK
VNRHNRLIRNLLEDCAKKNYQMNVKVDULS
AARFVELCHAVLRTAVARDRDSDDQRQQ
VERFRRIVRE
KASLNQALSHYPE
K E DLLNDVIRYYPQAQA $\square L K R K A A A M \square K N$
KGDFEGLYRSDPN FSDFMHLLMERT
$\square A Q H V R L V N N L M H \| L A G K N L M L S R K \square D H L S$
KKDLNEILVHYPES
RGQWEELQKDVAQELLR $\square L K L T$ TERMSA $\square$ TS KRDFEEMLQQ
A EQFRSLLDDLPQLSYELTKHMVRQDNEVNRQ KEDFNRILRDVEAN TVRLKEHEQ RKSLRETLVHYPKLLVEKARKT
KVQLETLLKYFAE UVTQEMRELQQKLEEL QTSFKAI ARGVLDALASALKWTYRRLKRLVSQ QKDFRSLWERNKQFM
KNKHPQVLSNIIRLLGHC\|IEQQQQT
KTHFYEISHFII RULSRSAREKQQFINVLV
MTDHPAMERALLSRTLAELGAVRSRLSRLA
 KKPF LQL $\quad$ IGNLADKDCTLLDLPQKRLR
RRTFDKFVMKHAQG ARALR
RDSLRSV
GAVFRKVINKLEE VVQSRLLR
ADRFRRVVDELGEVRLR
REDVLEALKDHPE AERVIRDYRRDKEDKEH REDFRGLLMEFSNLSSLKLLRSVDLLSRLT
RKAF L D FLA AMTSLLQDRLM
VRDFPAFLEALMKLVTGRLRDSDRK
KLSF $\square E$ HFG IIIFNELLQEAD $\square R$
$K$ QLIFTNGLE
sol0
B $\quad B^{30} \quad B$



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

