## QUERY

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 FSEFRQRMNQRDAEDNQVVRRFFAGLTQTYRAGALDVK EEFNTYRGQMNEKMAADNKVIKRFFNLDTNTYAAGAVNVK EEFNAYRSKMNEKI AADNKVLKR $\square$ FNLDTNAFAEGTLDVK QQFTEFRQRMNTRIEHDNQVVRRFFALDTQCYKDGALEVK
 KELTQQTAQLAQLRAEDPESLRGFSSLAQAATKPGALDAK EFREYRAKMNERISADNLVIKRLFNLDTNTYAEGALSTR $N L K T L R K N D P D V T Q A F S G L A G A A L R D G A L D K K$ REVSRNLAPLRTHNPDVMHGFGALSKAALAPGALDEK KDISGNLKTLRKDDPDVMQGFSAMARAAGADGALDKK EDFNNYRTKMNTRISEANTNDKRFLADLDTSYAAGALNVK QKLQDLSAKL I SEDPETMAGFGELHVNAVAKGALDNK RELGPLHQELRRAI PDVYKGWGGLSKAAFADGALDRK KMFREYREKMNEKI SEKNLNI NRFFNLDTRVYKDGYLSSK KSYPD KYTELTAEISSNIKQSPDLLKSFNALSQVAMKDGVIDAK LDDTVKRMGA LQKQAPEMFAGFNAMGKSAKKNGALDEK DWNEYRKELAGRLGESPGTMEGYKALSGAGRKTGHLDAK $K D Y K Q \square T R D G G E R K L A P E A M Q G F Y A L A K G A S A D G A L D K K$ EEFNQFREKMDKIILEEGDLTRRFFNLDNSVYQTGELSSK KTLENFNQGVGKDAKELPRVMKGFRDLHEAVISDGALSAK QEFRKKRENMGKLRKEVMSGLKSFSDMAAASLVDGALSKK KDVSA QMRRLRETQPDLMAAFSQLDAAGTKEGALSKK DI SKALGGPLHKEAGGTMTGFGAMAKAAMAPGVLSEL
 HDVSKALGTFRQDMPETLQGFNALAKAADAPGVLSAL QK DDDIRDELRALYKAAPEQTRGFGALSKAVKESGVLGHK K DWPA LAANLDPAIKQAPEVMKGFRDMGAAAHGAGALDAK QFQNERRELNELLQFAGKHIKRFYALDNQVYQPGALPAL DWNDYQKQLLTRIGESPDTLRGYQTLSNAGAKDGKLDAK NWNEYRTSLGKFARLQPEFMKGLQQMDKGASENQHLDPK QDWKKARQDI NARVMQSPETDKGVMALGGAGAKTNHLDAK DWNAYRAHLGQLAKLSPNTLEGLQKLETVAPEHKHLDDK DWNTYRAGI GQFGAISPDTVRGYQALSGAARKNGRLDAK
 MAETEANIRGVFSKEVPEVVRGFNALSKAAFAPGALDTR K Q IT S NLAPLRASVPQVMKSFTEMGKAADADGALDAK
 QDWNAYRDSLLERVKQSPDVMRGDMTVIGAAGPQTGKLDGGK
 MGEDSK OP TLNQFSAMSKAALADGALDTK MGELSKQQPETLRRHFKAFMGSTLLEEGVLD TK RSHTKRLVEFTKLSHDSFKSFIEFDHQVLSEGHLSKK MVETEANIATHFSKEDP QTAK GFASMGAAAKSNGALDEK
 QALHEYKQGLGNFTQKMPEIARKYNAFTEACFAEGKLSQK D WKNYRAEVKERVGEMPEVMKGYGTDAVSGEKSVHLDAK ERLPELSKLAPEAFKGFGQFDKAALADGVIPQK D WDNYRKELKTRIGESPETLSGYQALSAAGKKTAHLDAK DWSNYRGALMGRIGESPDSVGGYMMASGAGAKTNHLDEK K IDDDMRAELRVMNKA IPDAMKGFGALSKAVHDSGALEVK DWNDYRAQLMDLGALSPATVGGYMQASGAGRETGHLDAK QDWNAYRNDLKARVGENPEVMAGLAKLNEFVAKPGHLQPK RD DNNALRPFRQSQSGTMQAFAQLAQASMAEGAI SAK E QLA ECQANNKNLFASVGEAGKGFGALHAASVADGVLDTK NWIDYRQEDF RGGESPDTVRGYQADSGAGQKKDLLGAR
 E E MK E Y R L Q Y N KV MVVEA DSFFA EF GKLDD K V Y A D GA I S K K






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G $\square$ AVYMGGGPSLMYAANAVAAFKEF
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GVAILMGGSPSMVYGCEAMEALNEFEKEQNP
GVAVALNAGAAMVYSARALDALDE
A MSVYMGGGPALMYASDALLRAYDQFA
$N V G L I V G G S I V I P H D R R A A E I L E K F D$
$N V A I L M G G G P A V I Y G T Q A L A A V D E F$

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


GTAVYMGGGPSMMYATHALAAFDEF
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$G V A I A V N A G A A L V Y S A R V M D A F$
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GVAISVNAGAALVYSARVMDAADA $\square$ AK
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GVA A L NA GAALTYSARVVEAYQQL
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GMTVYMGGGPSLMYAGDAWTAWEADKDA
TVA V LMGGGPALTYVVEVKKALDEF
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 QS I LIE FKE GTSRFEAK LDPKVTKGYFEFTEACFDKGAI AKK

L HD FK E GMGAFT DHMP EVVAHKFSEFTEECCFKGGEEI SKK


 K LTA A LGALGSTVPAT DAGFEALDGAPARKGVLDAK KRHDLAPEPDEAFREFSKRVFAEGALPAK ATVKELRAGAPDVMKGFGADA QAAAKA DALDTK K S Y TARLLKEMGDLAPDAVNAFHTFSAKAMAPGRIS GK AKFPEAGKDAPEDTQKFFEYYQAVFAEGELTER YFNRLKKEAAALNGATFDAF LDFDKQADQTNYLTEK PDHLRRIPDLMKASPETAASYLHFEKQVYQTNALPQK AKFAKMGEEAPELWKKFMAYYSAVFQDGALTAR
D M DERAK A MA E E $\square P G V M M K A L M G L H S E V V K D G A L S A C$
K K F

$K S Y L N R L G E L K E R S P K D A A K F M Q F E H E V F N T G T I P P K$
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KK F F
N P K M K KRRRELAPETEAAFQAFSQKVIFADGA LDVK
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K K AFGALGKQHPKMLVAYGAL EEASAEGALDAK AYFERLREFAD DNGESVQAFMAFDKQDMDEGRLTVK $K N L G Q L G K F A P D G F K G Y Q A F S T A A T K A G K L S T K$ $R K F G K L S E W N Q E L G D K F H D Y Y G B V F K D G A L S A R$
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## H P DLAVT $\square$ K E M D K VLME D GA L D R K

LIK YKEGLGLLT TKMPEFARQYNAFTEECFK RLKA QYPSE $\square$ N A F L A F M GK TEGNP A L S LAA $R G L F N K Q A A L T P E T S D A W R T F S Q T V F K P G A L D V R$ YKETMQLMEELGQA DPQTMATYNR囚HRVATEDGALSFK QMENTKAAVTPFAQNNPKMLSAFQALNAAQGANGALLDAK D $\square$ T E F Q K K L G S K

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GKFGEDAPELWKNFMTYYGTTMQDGELTSR

 K VF A S HPPTLLKRLWYGLKEVMAPGTLDPK

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 MK E LIE S G V K E $\square$ GRERP E V E A F $\square$ E F T G K L M A P R S L D L KFFDYYGKVFEEGA L S AR
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LHE YKK GLGTF T QQMTKVGQTF QAFTEACFE E GTGLSKK KAVNELRGLSEEAFESFDRFAEQALASGAVDAR EFTENRGYWNKTLLELLDPEYLEAYTEFSSASWKYGPLEPK LS E YRR G l E QF SESY QE IIA KNYNRFTSSSAF ES GEVVSTA EKAASTLAKMQQQAGNVFPNYDAFTKEDSQFGPINHK K LAA A LIVKRVGAFSKANAPVASAFHKDEKATRESDVLDAK DF V N N F WRA LAA H DPATLKRTWES DKAVMGPGVLDDPK D S D S L K K Y NRCNKKLLS DGALPAK $P \mathrm{D} V \mathrm{~V}$ Q A Y H A F T G A CFA D G A L D A K

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EIIV
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WIA A EM
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WEGVLRपDPEFLAAY DE पSAVPWRKALSVH
RLRESVK
A LLR LDDPGFLRAWHQLACVPLRKNHLEDK LIANDPVSLKRVWEQLKAVMADSAIDPL TT NFMKDMPE I I ISRMDYENSVMREKRMDPK $K D M \square Q H L S K L K D L A P E Q A A A F D R L N A E V F K D G A V S A R ~$ $K \square F Q V L S K N P P V L K A Y F D K M E V M M V D D V L P P L$ EKYETTRKGFWDYL GEVGETNEDFQEHYTKSYAPGUISAK LWRALLATAPDELELVWRMHEAVGRESNLDAK $\square E E \square R$ Q A L G A Q A D A D P A WW L E L L N WK R E K A I M A P GA L D R K


NLFR VVANSAA DEGY $\square$ GMSGAVWGRETLSHK
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$N M M R T M A Q A P A V L E G Y$
$M$
FGDQHDR LLERLARLDPDLATYFAYDTUYDRPGALDLK EKYKD IPNGMGNKLADFLTELACFGDF TDF D KDLKEARGESHRIMGNDPNAVNAFLQQYLNCNKNDVI PAK $N W T E L L K N L R A L A K A N P K L I T A F Q G L D A A Q N G A G A L D A K$
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G $\square E S A L Q E D P A F F A S Y L S M A E V A M G A T H L \mid E P K$ NTWTQGWEDLLR LDPVLFERYMRMHNVPQSRQHLSLK DWNP【WDKLAEL DAEFLEAYLAFRSVPHREGPLPQK

 DNMRK $\square$ KKFNS $\square$ ATKSWKMF $\square$ AFNAEAMSDGAI SKK TE $\square R D A L N S L P Q G M G E D V S R F$ DTEVCFGDNTLQHM RLPHLEANASEGMKAFWAFDHVAFAEGEVSAL KHLAHMKD LDDGAPQAMQAFRAFDQAVFADGALSAV GNTWSRPGLDRK
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| UniRef90_X0Q8C0 | MHS LP Y C GAPA TQEARAA DD L L E LE |
| UniRef90_J9N6V4 |  |
| UniRef90_K2GS83 | $L H C A V Y A G A P A D A D D A F$ |
| UniRef90_V9DAW1 | E I A T Q L |
| UniRef90-I2IUW4 | E I V S V T G |
| UniRef90_F9XB11 | $E L V S V L G V H A M T V G V P L L L E V M D E G M Q M$ |
| UniRef90-L0K225 |  |
| UniRef90_R5EUA0 |  |

$\bar{L} L T T T V S G S G V L K V L P H \square V E M Y D$
AAAALVRKWSTMLNGSQ
QTAAYCGAPAALESFRLAERVINEV
$L Q T A V Y A G V P A A N R A F A V A Q A A L E F D R N E E D G D$
$A L T A T L G I V A C N I G V P L L E V L E E A G Q R S G P E P$

UniRef90 HOHUA4 UniRef90- V8QWI1 UniRef90-UPIO00364693E UniRef90-R1G745
UniRef90 F7UZB5 UniRef90-UPIOOO3FA54FO UniRef90_UPIOOO36DOF02 UniRef90-R5CCK3 UniRef90-H5WQN2 UniRef90-Q6ALJ3 UniRef90-UPI00029A13F8 UniRef90-UPI00041BA495 UniRef90-R5KQA0 UniRef90-UPIO0036E3017 UniRef90-D4Z2H6 UniRef90-U1IDJ5 UniRef90-A3CRU8 UniRef90 F4CJQ4 UniRef90 X5L268 UniRef90-UPIO003F54EBA UniRef90-A4FX17 UniRef90_UPI0003B74717 UniRef90 E4PMZ1 UniRef90_UPIO0040079EB UniRef90-UPI0003F8C550 UniRef90 M5T4BO UniRef90-UPI00034915DC UniRef90-G6YAV6 UniRef90-C6LEA0 UniRef90-A0A023SB95 UniRef90-B601J5 UniRef90-A0A024K0G5 UniRef90-F5YXM8 UniRef90-K9ZWA0 UniRef90-K8P3C0 UniRef90-UPI000360CA18 UniRef90 UPIO003810107 UniRef90-MOQFJ2 UniRef90-UPI0003B37BFA UniRef90_R7WUP6 UniRef90_B4D476 UniRef90-LOM5T7 UniRef90-A0A017HQE9 UniRef90 Q89UN1 UniRef90-UPIO0028A21CB UniRet90-J9NCQ9
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UniRef90 ${ }^{-}$5SXL7
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UniRef90-UPIO0047C56E8
UniRet90 E5XPM7 UniRef90-UPIO00479C8CE UniRef90-G7CF38 UniRef90 A5FTS9 UniRef90_B1VRK9 UniRef90-V8QRD9 UniRef90-10IN57 UniRef90-UPIO0047BA59E UniRef90-UP10003B30BCB UniRef90-UPIO0047EFC63 UniRef90_MOLMN4
UniRef90-LOKJ22
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UniRef90-C8RZX9
UniRef90-B2VZ59 UniRef90_UPIO00369D252 UniRef90-L1MGGO UniRef90-R7AVB5 UniRet90-R9SDZ7 UniRef90-H5WPD3 UniRet90_N4VDF8 UniRet90-A9R1Z7 UniRet90-D8NFO1 UniRef90-FOL8M4 UniRef90-Q07WZ1 UniRef90-10QUK7 UniRef90_M3VJ16


NLFRLI ANSPAALEGYVGLS AA|LNKGALPAP AMKNADDFFMPFQEFVGEVWGRPGLERK $N \square H G E M A H A P V V L A A Y Q G Q Q A A D A E H G T R D A R$ $G W Q S L L Q L S P E L F E A S V K L S A V P R K K R H L S L K$ F MKEAPEVAKAYGTMVAALDATSALERK
 GT DPEMMDILQKFIGEVFQTGDLTMK L N Y L VKARPEAMGHYFAFLKDAGK H L D P K YQAHYNKTYES GVL DTK
NMFRLISNSPQTLEGYLGLNGA LGKGSLDAP
KFNQLFGEVTAAHATDPDFQNQLSHFDGEVFYQGNLDDK

$N L F R L V A L S P A A L Q G F L G F N G A L S K \quad A L D V K$
 GALWGGVWTREGLDRR
LARHPHTTKAFLRFSNLLFRSTLDAR
DDTFRTEVPEVAQAFDSLIDSLINTDGLDAR


EK Y S Q $\square$ P A R $\square R M Q \square M M K P D T G K E F F$
$N L M R V M A N S P A V L D A Y L K F S G A \quad L S E G E L S A P$ A QKTE FTEPFQDF DGEVWTNGVLDRR
 E WK GRYE WLTE EYA E AVPRFLDTEFCF GDFAT RT G L D A K $N L Y$ AT L A H S P A L F NGF L A F A D A L S K GR L T A R QRDPQFAGSYQGMRER ILKDGAI PAK A A GDDFAAPF QD LVGAVWGRDGLSRR
WGDQAERDERRLQDLDPDLARYFAYGD YYERPG LDLK

 NMFKAVANSPAALHSMWGSFGA LGGDGSLGAK A Y VE QAMADA DDFSRPMQALSGETVSRPGLTRR RALARTEGTAS QVMQEFVTEHDAVWNRPGLDRR

$K L A R A H P E \square W A A Y A A L G R A V A E A G P G D R R$ A Y V N N A LK NVD DFNRPF QEMLNEVWGREELPRK

NALANGSTEFAKAMQEFTGAVVWDRPGLLDRK
 FGDVIEKMALYGALSEEAALDP K F G D V $\quad$ E K M R E S A P A N QK H $\square$ Q D Y L S S F CF G D G GLL D
RAVASTTPFTEDFQDFDGDLWQRPGLARR $G \square D N V F G R L W T R D G L S R R$
IDHGGLARADEFMMAFQRAT TAAWGDDTLDRK
KL L E G N T D F Q D FI S RYA M WGEVVWSRP GLLSRH PDSI GADERFRE EMDH DN PLDDRK NMMRAMAESPAVLDAYLSFSGA LGRGSLSGA
 E EIVE YAREHFK IGEANFPEAFEHFFYMQQALWEDGPDLSME $N L F R M V A N S P A A L E G Y L G M M G A D A R G R L P A P$ K K F N E DD G E L G Q S T K E N P A L S K M VI EKKTGFLPNVFKVLAHRPGEFRAFFAYYNAD DETGHLSKA

RQYARHLRRAAPEAFAALMAFDEAALRRPGGLPRK RAFANANDFHAELQQLVTAVWSRPGLDPK


RAVARTTEFSKPFQEY $\square$ G S VVWTRDGGDRR

GDLAEEYPDVWKAYAALGKATADCGPLTER
$N \square H G E M A H S P A V L Q S Y V A I Q R V I A D Y G S S D G C$ D F V N N F WR A LIA N Q P A L L L Q S T WT S L K A

M GL R M N V D S N P GVVEK S

 $N L F R L V A N S P A A L E G Y L G M S G A D E A K G S S L P A P$
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UniRef90_U1IDJ5
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UniRef90_F4CJQ4

TRERU|All|A 50
60
70
80
TRERIALAVAEI NGCDYCLSAHTY $\square G K N \square A K L D D$
TRSLL NLAMIDALLNRPSELSKLHDKGALNNGVTKEEMVEIL

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UniRef90 G6YAV6 UniRef90_G6YAV6 UniRef90_C6LEAO
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UniRef90-A1SIF7 UniRef90_A1SIF7
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UniRef90_B1VRK9 UniRef90-V8QRD9 UniRef90_IOIN57
UniRef90 UPI00047BA59E UniRef90-UPI0003B30BCB UniRef90_UPI00047EFC63 UniRef90_MOLMN4
UniRef90 LOKJ22 UniRef90_UPI0002F5B93E UniRef90-W4E7K1 UniRef90 UPI0002739EB0 UniRef90-L0LPF7
UniRef90_F4AJL1 UniRef90_A1CQ9 UniRef90 UPI0003B5BBB94 UniRef90_UPI00035EAAF3 UniRef90-N8ZPL9 UniRef90 UPIO002890E0D UniRef90-D9VE51 UniRef90-E6JB59 UniRef90_UPI0003463126 UniRef90 I1AV29 UniRef90-A1SIF7 UniRef90_C8RZX9 UniRef90-A1WM51 UniRef90 B2VZ59 UniRef90_UPI000369D252 UniRef90_L1MGG0 UniRef90 R7AVB5 UniRef90-R9SDZ7 UniRef90-H5WPD3 UniRef90-N4VDF8 UniRef90-A9R1Z7 UniRef90-D8NF01 UniRef90_F0L8M4 UniRef90_Q07WZ1 UniRef90_I0QUK7 UniRef90_M3VJ16

E\|AANRAGSSTDPRADAAVVRFADKVVRQ QVAVYAGVPAGDECFRLARDVFSQ
$E L T S T \square G \square H A C N D G V P L L V E V M K E$
LVGLPLVGMRAVEALAPVLEAYDQ
AMAAIVRHWSTMLDNGQV
ALNRKGTSADAKASAAVSFAAR $\square$ AEA
YLTAPFIGFPKMLNATVAVNAVVFEEHGDELPL
LMAFPALGLAR\|VWATD\ILAMN
SVMLSLGGTI
NRRGLSGDSKAAVAVEFA
YQCAPY I GFPKTLLNAINEVNEDFKMK
TQCLPY $\quad$ IGFPRTLNALRYLEE
LHCAVYAGVPAAGEARAAQEVLDSYR
EIALNRRGASSDPKANAAVAFARKITENHGRAAEADL
MVSIYAG $V$ PAGVDSFR
$R V A F L L A G M P A Y V H G K T A L E E Y$
LQTVAYCGAPA
I QLGKAAATLD QLVLDAVDELDEESRISDA
VLTLSVCGLVGVATCLQAL EAYD
RVVLLTSGMPAFTKAMKMVSKL
LQAALF LGFPRALAAMRLLQKVLQGRGAPHAGE
ARRGHSDDEKAAVALEFAAK ITK

$R \square A S L I T S T$
$\square Q A A V Y C G V P A A N K A R R V L A E D E E$
AMAALTRHWSTVFNGMQVD FDTFKKE LHAMPYMG FPRLLDALNAVGEILEGE

LHATTYCGVPAGVEAMK $\square$ AEKV $\square$ NEMAEKGEHV $\bar{E} V A Y L Y G G T A A L V M G V N A F$
MVAIYAGVPAAVDSFRIAREAFAEY
 ANRNGGSTDVKADAAVRFAA QLANA $R$ V $\square \mathrm{S} \square \mathrm{AA}$ ATNQLATALQV YLCAPF $\quad$ GGFPKTLNALTVVNEVFKE
$Q \mathrm{~V} A \mathrm{~V} Y \mathrm{C} G \mathrm{~V} P \mathrm{~A} G \prod \mathrm{DATR}$ RAREADAEYDAE VQATAYCGAPALSAMTVVQEVFDE

MHSALYCGLPAANATMHAQQVFDELDAQA HVALLADPTLGLPQATKGMSWIEDITGEAA MVAIYGGMPAAVDSFRIAREVFAEID
QVAVYCGAPAALESFRLAREVFAEMEAEA QVCIYMG $V$ VAGMEAFKAAEKLIDMKKEGVEV LQVA $\square Y G G A P A$ SNNAMK $\quad$ SAKQ EYAKMAEVAA
$A \square A A N V R M W S T M \square N G M$
THCLPYMG FPRTLNALACMNEV
$K V A \| A G V G Q A D T T A$
QHAA YY GVPAANHAFKVAADLEELR
YHAT GYAGFPNASTAMKVAKEVLDEEH
$\square H A T A Y C G \quad \square P A G L D A F K A A H E V L V A E$
$\square H C S \square Y A G D P A S N A A M H A E E D L A E D N D N S S N N E$
ETGAGVGGMPV YSLAVDLVHDVLREQ
$\frac{H}{L} L A D T T T G$
FPNAMAAMSWVDEVLAKK
TVCLIH $\square G F P R T L N A L N C I N E$
MMANRHGGS
$\square Q D \square N Y C G \square A R V L N A A K V \square Q$
$\bar{M} N C L P V A G \| E A V S S G A A A L S A V E A$
Q $V A \square Y C G V P A A \square D S F R V A Q E V F E D M$
ПHATVYCGAPAGMEAMRTAERV LNEMAEKGE
FVAVALRAGGGSAHGLLQVMKHLTRVAE
LHSALYCGFPAADEGFRA
$M V A D Y C G V P A A V D S F K D A K Q A F D E F E E Q$
LQCVPYCGFPAADDGLRAREVIAAYREEQ
LHTGVYAGVPAANTAG!AQRVLAELGE
1 HASYCGAPAALAATRTVQTVFDDLD
VALNRAGQSATAKTAAAVRFAADLVEA
VAMLA $\square G P \square G \square P R A V A A K T W \square E D \square K D$
RGAAEF
A 1 IGLAA QTNHLVTALQV
QVAVYCGMPAGLGSFKIARQVFKEM

YLTAPF $\square$ GFPKMLDAMSTVNEV FQERGDS $\square P \square$
E $\square$ AA NRHGSS $\square D P K A D A A V R F A$

LQTVVYCGAPA LAAFRIASAADKAYDDE IADS
TH LAFYSGWPALPDAQRVFEAADA
LT GLDPAAGNGVLGALGPALEAFDK
LHSTVYCGMPAIEAFRAAKEADEE
$H L A F Y A G W G N A T A A A Q S V Q Q V F E E$
$H T T G Y C G A P A A L S A M K V V Q Q V F D$

UniRef90 W7WNE1 UniRef90-W9WW04 UniRef90-D1AAH2 2 UniRef90-LoF6R5 UniRef90-G9AAZ3 UniRef90-TOHA15 UniRef90 ${ }^{-}$V6JXH7 UniRef90 W6LUT3 UniRef90_RoITG9 UniRef90 R7PDX9 UniRef90 A5N069 UniRef90-W9H516 UniRef90-E8TLL97 UniRef90- X5EBL1 UniRef90_W9WZ92 UniRef90_J5WCC6 UniRef90 UPIO003610E10 UniRef90-UPIOOO3495D77 UniRef90-B1XYK3 UniRef90 Q2B199 UniRef90 B1G605 UniRef90-N8Z679 UniRef90-F6ADEO UniRef90 A0R10 UniRef90- UPIOOO30A5B81 UniRef90-V9XDR0 UniRef90-UPI00031CAA15 UniRef90 F5Z3R2 UniRef90_UPIO00349E76D UniRef90_D9PVN0 UniRef90 A0A028V2F5 UniRef90-17Z8J4 UniRef90-U3GYFO UniRef90_UPIO00409E6EE UniRef90 F2RDD8 UniRef90-A0A038GDB1 UniRef90_UPI0003A6FA6C UniRef90 L1KYX8 UniRef90- D7WD69 UniRef90_UPIooo372A2CE UniRef90_LOGJM1 UniRef90 U4LPB3 UniRef90-K1A445 UniRef90-G8RP59 UniRef90-UPI00046576B3 UniRef90-A4JKB9 UniRef90 U7GL10 UniRef90 B1JAL5 UniRef90_UPI0002260AD6 UniRef90_Q12018 UniRef90 R7LS30 UniRef90 UPI0004675D3E UniRef90-UPIO0029A595D UniRet90_D9X796 UniRe990 UPI0003B720AB UniRef90 UPI00034DBC4C UniRef90-I3R301 UniRef90 B1 G6E9 UniRef90 G2G.J64 UniRef90-W3A943 UniRef90-UPI00041F7771 UniRef90 UPIoo03F5BF4 UniRef90-12JM74 UniRef90_UPIO0040DDC02 UniRef90 UPIO00374CC33 UniRef90 A1UNK7 UniRef90-G8Q9S8 UniRef90-K2N2J8
UniRet90 AgCLJa UniRef90 $75 \times 872$ UniRef90_UPIO0031DF978 UniRef90-UP10003ACFDBB UniRef90 B1JF42 UniRef90-H8KW05 UniRef90-W8H5Y5 UniRef90 W6TPD4 UniRet90 D1APM9 UniRef90_S9RE44 UniRef90_V9D9C8 UniRef90 D7BD56 UniRef90-X0xWG3 UniRef90_Q3SL11 UniRef90_Q3MNP4 UniRef90 ${ }^{-}$AOAO23UWN1 UniRef90-DOD2V7 UniRef90_C3BU80 UniRef90 Q6TFM0 UniRef90- V2URE7 UniRei90_UPIO00382B65D

$\begin{array}{llll}T & R & P & V \\ G & L & D \\ S & \text { E } & \text { G } & \text { A } \\ \text { L } & \text { D } & \text { P } \\ \text { S }\end{array}$

$M G L R M N V I S K$ GI E KV
 RAVERTTPFTEPF QDLI GEDWTRPGLDRR A HVNRAEQRKTAFTEPFQDLI GEIWWTRPGLDRR RALA QADPFSRPLQAF GATWQRGGGELK
HQYLES LPEEMQALIDAYGTALSESALTVR

LA R H P R L T K A F L R F S NHLL F R S T L D P R
LEADDFTEDFQNFVGEVWTRTGVDRR
I ESATEFTRPF QDFI G D I WARP G L D H R RAVGTS DAFSRPFQDLLNEVWTDEGLDLK
$G L R M N I D G N P G V D K A$
 A YVNKSLQNADDFNRPLQELVTEVWGRDGLSLK

GTAWTREGLPRH
 QALADDPE GGFQELVGEVWSREGL DRR


RAMAAADEFTADFQE LIGEVVWTREGGLDRR
FRTLAHAPAALGGYLALSQALGKN
MDE $\square K E F N P E V V K A F F A L T E E X I N E D D F S Q R$ MAHHPSLARAFFTFNGHLLGASTLSER
E Y H K V M A K
H D F PVLQAANHVVS
LE N R TEVTE E F QN L $\square G E$ G I WT R D G L P R H EAFDEAKRQLFKVTGNAPNVLKGFDALNAGVNDGDELTGK

F K TLANSPAALNGYLGLAQA LGKSSLSAA
$N L F R V V A N S P A A L Q G Y D D F N S A A S K \quad G K L S A Q$
 ALAHRPDEFRAFFAYHDALMKPGNLSKA ARQTPFTARFQDF $\square G E I W W T D P T L S R R$

 RALAQADEFSGDFQEF AGE DWDRPGGR SPEVLDKYTG $\quad$ VR GE I MQD GS L S R K
 NMFR LI A T S P E S L Q GY L G L N G A $N L I A T L A N S P A V L Q G Y L Q L S E \quad T L G A G Q L T S R$ ATLARHPDLTARFLPFSTYLTEQSTLPAR ENFK QRRGYWNDLMHSNPDYVAAYLELSAYTAERGSLSPK AP D F V D A F LA Y S A $\square P \square R R S$ G P R A LE K A D DF SRPFQD LLNEAWT D DALDDK

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                                    A P A LA E H M\VA F Y
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                                    G G E
    LF GQVWERAMVISAK
NMMRTMGNSPAALNAYLGFNAALNSASI GGR YREKMKQLFGDDPEFAE I LNKFVGEVYNHGKLTDK
 WGE QLEA $\quad$ E Q NLSEVD P DLY GYFAYEEVLAREGGLDLD K THQAF $\square$ N A VEDLGTALRRQGPMDEK A HKTPFTTDFQELIGSVWTRPGLDRR DRLSPLNEEFQHFISRYGEI WTRPGLARH

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UniRef90-N1MP27 UniRef90-X5EBL1 UniRef90-W9WZ92 UniRef90-J5WCC6
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UniRef90 F6ADEO UniRef90-F6ADEO UniRef90_UPIOOO30A5B81 UniRef90-V9XDR0 UniRef90-UP100031CAA15 UniRef90-F5Z3R2 UniRef90-UPIO00349E76D UniRef90-D9PVNo UniRef90-A0A028V2F5 UniRef90-17Z8J4 UniRef90-U3GYFO UniRef90-UP1000409E6EE UniRet90_F2RDD8 UniRef90-A0AO38GDB1 UniRef90-UP10003A6FA6C UniRef90-L1KYX8 UniRef90-D7WD69 UniRef90-UPIOOO372A2CE UniRef90-LOGJM1 UniRef90_U4LPB3 UniRef90_K1A445 UniRef90-G8RP59 UniRef90-HoQK14 UniRef90-UPIIO0046576B3 UniRef90-A4JKB9 UniRef90_U7GL10 UniRef90-B1JAL5 UniRef90-UP10002260AD6 UniRef90-Q12018
UniRef90- 771530 UniRef90-UPIO004675D3E UniRef90-UPIO0029A595D UniRef90-D9X796 UniRef90-UPIO003B720AB UniRef90 UPIO0034DBC4C UniRef90-13R301 UniRef90-B1G6E9 UniRef90_G2GJ64 UniRef90-W3A943 UniRef90-UPIIO0041F7771 UniRef90-UPIO003F5BF47 UniRef90_L2JM74 UniRef90-UP100040DDCO2 UniRef90-UP1000374CC33 UniRef90 A1UNK7 UniRef90-G8Q9S8
UniRef90
K2N2J8 UniRef90-A9CLJ3 UniRef90-Z5X872 UniRef90-UP100031DF978 UniRef90-UP10003ACFDBB UniRef90 B1J.42 UniRef90-W8H5Y5 UniRef90-W6TPD4 UniRef90-D1APM9 UniRef90_S9RE44
UniRef90 V9D9C8 UniRef90-D7BD56 UniRet90-X0XWG3 UniRef90-Q3SL11
UniRef90 ${ }^{\text {Q3MN4 }}$ UniRef90-AOAO23UWN1 UniRef90-DOD2V7 UniRef90-C3BU80 UniRef90-Q6TFMO UniRef90-V2URE7 UniRef90_UPI000382B65D


T R S L V $|\mathrm{T}| \mathrm{V}|\mathrm{A} M| \mathrm{L}$

 TRHTI ALAVSQSNGCGYCQELHTYVSSELG
TRSMLNLAMLTAMSQHHEDSVHVRGADRNGVTKEETRAVL EKALI GVGVAAAMKCPYCTHFHKEDARMNGDVTEEEETHAVL


LRELVI L RVAHHHGCAYQWVHHSAIGRAAGLTDAD



UniRef90-W9WW04 UniRef90-D1AAH2 UniRef90_Q8TNJ6 UniRef90 L0F6R5 UniRef90-G9AAZ3 UniRef90-T0HA15 UniRef90 V6JXH7 UniRef90 W6LUT3 UniRef90_ROITG9 UniRef90_R7PDX9 UniRef90 A5N069 UniRef90-W9H516 UniRef90-E8TL97 UniRef90 ${ }^{-}$X5EBL1 UniRef90-W9WZ92 UniRef90_J5WCC6 UniRef90-UPI0003610E10 UniRef90-UPI0003495D77 UniRef90-B1XYK3 UniRef90- Q2B199 UniRef90 B1G605 UniRef90-N8Z679 UniRef90_F6ADE0 UniRef90 A0R1Q UniRef90-UPI00030A5B81 UniRef90-V9XDR0 UniRef90 UPIO0031CAA15 UniRef90 F5Z3R2 UniRef90-UPIO00349E76D UniRef90_D9PVN0 UniRef90 A0A028V2F! UniRef90-17Z8J4 UniRef90_U3GYFO UniRef90_UPI000409E6EE UniRef90 F2RDD8 UniRef90-A0A038GDB1 UniRef90_UPI0003A6FA6C UniRef90 L1KYX8 UniRef90-D7WD69 UniRef90_UPI000372A2CE UniRef90_L0GJM1
UniRef90 U4LPB3 UniRef90-K1A445 UniRef90_G8RP59 UniRef90- UPIO0046576B3 UniRef90_A4JKB9 UniRef90_U7GL10 UniRef90-BlJILS UniRef90-Q12018 UniRef90_R7LS30 UniRef90 UPI0004675D3E UniRef90_UPI00029A595D UniRef90_D9X796 UniRef90 UPI0003B720AB UniRef90-UPI00034DBC4C UniRef90-I3R301 UniRef90_B1G6E9 UniRef90 G2GJ64 UniRef90-W3A943 UniRef90-UPI00041F7771 UniRef90 UPI0003F5BF47 UniRef90-12JM74 UniRef90_UPI00040DDC02 UniRef90-UPI000374CC33 UniRef90 A1UNK7 UniRef90-G8Q9S8 UniRef90-K2N2J8 UniRef90_A9CLJ UniRef90 Z5X872 UniRef90_UPI00031DF978 UniRef90_UPI0003ACFDBB UniRef90 B1JF42 UniRef90-H8KW05 UniRef90-W8H5Y5 UniRef90- W6TPD4 UniRef90_D1APM9 UniRef90_S9RE44 UniRef90_V9D9C8 UniRef90 D7BD56 UniRef90-X0XWG3 UniRef90_Q3SL11 UniRef90_Q3MNP4 UniRef90 A0A023UWN1 UniRef90-D0D2V7 UniRef90_C3BU80 UniRef90 Q6TFM0 UniRef90 V2URE7 UniRef90-UPI000382B65D

LHAA TYYG ${ }^{9} \mathrm{P}$ TSVEARTAAEVVE
ELS SLMGVHTVMV GSDVLAAL
LQTA YCGVPA ANSAFAVADRVLREE
RI A QY $\square F G V G S \nabla Y T A A K A L$
A V
QMTVY $\operatorname{LGWPKALMAVGPALAVFAEVEK}$ Q $\square$ AVY V G $\ P A G V D S F R D A R E V F A E I D A Q$ LQSAVYCGVPA ANKAFALADDV
C $\square T S T \square G \square H A S T V G V P L L F E V L E E R G E A \square Q T G P S$
IQCLPYIGFPSAIKA

R I A SVI HAVAAV DD GENALA
AIAALSRHWSTIFNGMQV
QTA I YVGLPAALESFR\|AASVLDE
K I A AVVQGVA
$M Q S M V Y C G V P A \quad G V Q A \square K V C E A \square N D M \square E S G E$
MHSALYCGLPAANATMHAQQVFDEMDA
LQAAIYCGVPA ANKAFAI AREVLAEEA
LQAAVYCGVPAANKAAVAQEVFDE
HVGPYAGAPAAVEAFRAAREWMAE
LHS IVYCGAPAAQEARAAKEVLEEYE
QLT GY $\square G W P L V L P L T R \square A \square D V F A Q P T E D D S S C E S$
LHAS $\mathrm{L} Y A G L P A A N A A M H M A E$
QVGIYCGVPAAVDSFRTMAEAFAEADAEQQQPEA
G RGVVSDPFDQVVIDAVDELDELSTIS DPT
LQTAVYCGVPA
LLTAVYAGVPAFALGKQALA
VQDAVYCGIPAGVEVFRVARSVRD EMAQQGE
KVASIVAGVAQAIFAGQALPA
IQA DPYCGFPAVAEADEAVAVLREDGEQVKTAK
QMAVYAGFPAALNGVAAAAEVFRDMEK
LQVGIYCGVPAAV
LQAGVYCG LPAANHAYHLAEEVFAEQDRSQA
K $\ A A T M Q G V A Q A V Q \square E E A$
I QLA YY G GWPVANN GLRRAQEVFAEDDK
LHAGVYCGFPAAETALRVV
MQSAIYCGDPAANATFHLAEAWDEM
$R \prod A G I V V D G T A A D E F E Q L V L N A V D E L D E K S E L S D E T$
IHSSGYCGAPA ALSAMKVAQEVLENE
1 HA GVYCGVPAANAAFRV
QVAVYCGMPA GLE GTKVADRVLGE VRKENGQKET LLGLPVVG

EDALDPEAGVVAFQAG FDAWREVVGADGDEPTVEV
LQCAlYCGVPAANSAFHAEK $\square W Q E Q D Q Q A N D$
LQTA $I Y C G V P A A N S A F H L A D K \square$ FKEQDAAA
S GTLNAVAALAH
$S V A \square A L N A G A A L V Y S T R \square M D A F D A A K K A$
IVANRKGASS
1 QTMPYVG FPNS $\square$ A A $\square K T \square K E \nabla Q K$
AV
IHASGYCGAPAALAAMK VVQAFDEDDD
$L Q T A V Y C G V P A$ ANSAFATAQRVLAEEDDA
MQA A $\square Y C G V P A D A A F R V A S D A D K A Y E A E$
$N \square A S N T Q Y F S T I L H G N E V T E M V E Y \square K E Q E A T A D$
HSA IYYAGAPAAVEAFRNAAEVLREFDA
$L Q A A V Y C G V P A A N S A F R A Q Q V I A R E$
$L T A Y L Y K G D A A L K R A F E A D P Y A L D E$
LHTADYAGVPNSNHGFALLKAVEEL
MHAAAYCGPAADSAMRVAREVID
E DAANRDGRSNDPKADAAVRFA
LAARSGTASTPQEAAIASFARQL
VEAARTGAPADAFDRLVLTAVDELH
$Q L T S A D S C T A A \square P A D M E A \square E$
TQDAVYCGIPAGVEAFRAAQEVRAEMQKEAQA
MQTAI YCGVPANSAFR $\mathrm{CA}_{\mathrm{A}} \mathrm{A} E \mathrm{~V} \mathrm{~L}$ PEFNEHQ

LHCAVYAGVPASAEGFRVARAV
RLSAI IKGFAA $\square$
THLAFYAGWP KAMAAMAVAQEVLGSEED
A IIEARSGTSADPK】NAALVFVKAI
YQCAPYTG FPKALKA $\square$ HKADKV FRKAG $\square$ S $\square P \mathrm{~V}$
QVAVYAGVPAAMNAMSSAKKAFAE
$M Q V A V Y C G L P A G L E G V R V A E V L K T L R E Q K E T$
I QSALFVGFPKALGAMKMFHA
TVAKQVKAGAAKKTEAVAKELDFGEAGE VLLTSTVGFPTVSAALS WAGDVT
DQA Gi YCGVPAANHAAVAQETLDSLE


$H \square A \nabla R \square R$

UniRef90 UPIO003675BA1 UniRef90-D5XB49 UniRef90-L8MS69 UniRef90-UPI00035C316C UniRef90 Q5WGG2 UniRef90-EOTHM1
UniRef90-B70SIO
UniRef90 F7PG91 UniRef90-UPI000347BE9F UniRef90-UPIo0046614F4 UniRef90 N4UIA1 UniRef90 UPI0003ACEF86 UniRef90-UPIO0037BFD3F UniRef90-UPIOO046A5C40 UniRef90-H5SBT3
UniRef90 ${ }^{-}$E1JSA7
UniRef90-S5VG26
UniRef90 E9EIN4
UniRet90 U5VWJ8
UniRef90-Q11E43
UniRef90-M1WRM6
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UniRef90-M3A4V3
UniRef90-17LMG2
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UniRef90-UPIOOO36752D6
UniRef90_U2L9Z2
UniRef90-F8DDP0
UniRef90 K2GHZ
UniRef90-MOLYL1
UniRef90-G8RNQ1
UniRef90 L7U2Y3
UniRef90-U7NF34
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UniRef90 D3A5G6
UniRef90 UPIO00402EB20
UniRef90-HOJAP6
UniRef90-H5YL22
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UniRef90-A4BB33
UniRef90-KONC10
UniRef90-K8DZY4
UniRet90_UPIOOO379AC96
UniRef90-O21H01
UniRef90- FOLGQ4
UniRef90-A0A037ZGH5
UniRef90-Q13HH1
UniRef90_UPIO0040A8D80
UniRef90 S2Y315
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UniRef90_S6B9J6
UniRef90-GBAK00
UniRef90-C3KMF3
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UniRef90 J2KVE4

10 L E A A D DFTRPF QEAMTAWWGDEVIIPPK MEAVEAFSPRLAK LALDEFGDVYAGDALDLK
 EAPEF LIEQLIEADPEFGEP $\square$ GEAFEQALTNGELPP K $R \square F D M L A H A G A T H R D F H Y G A A L F E A S A T E P R$ GNIWSRPGLDRK
LN AVMAESPELLAGYNALAE LIFGKS SLPVR


PAFMSALDNLAKAARQCGPLDEK
NMTRAMANSPALLDGY LALSGTVWQRPGLDRK
NMTRAMANSPALLDGYLALSGALSK GAFSAA
A A L K A ST DLTTAPF QELVGTIWSREGLDER



LRDATEYTAPFQALATEVWGRDELDRR





 IA A T TEFTAAEFQDLI GE DWT R P GLLER R

$E K L H E \square D G E A G K M V I E A P D \square A K Y T \square E F F G D I Y Q R P G L D Q Q$
LF GDVWERPGLSPR

 EAYDKARGYWSRPRKKAAPPA Q A FAVLFG DVWERPGGSPR

NFFKLL GISS PNVLGGFT QLQAALGQT L TA K
HKLMARADDVLKAANGLVSAAYRQRRLDKA
REEMERELGLSP ARSHFTAA

 $\begin{array}{lllllllll}G & R & V & W & D & E & T & L & A \\ G & R & L & K \\ W & R & R & G & L \\ S & R & R\end{array}$

$R \square R M N V I G N P G V E K V$
$N L F K A V A H S P K M G R D F L R L G T A M L T K G D L D P D$ $K \square N E \square D G E Q G D K V R Q A P D L G K Y \| I G F A G E I \quad Y Q R P Q L D V R$ A T T T D F TRDFQEFDTE I WT R P GLDRR F A T LA H SPA A LLK GY LAA LA Q A L L K S A L S A Q E Y R D MLLK R LHKLL VNS PEMARAFNGIGGYIRFKSKLDPR NVF QTL SHRPAELRAFVAYYEAVMNDGNI SKA
$N L F R L I G V S S K A L T A$ Y T N F N S S I S L
$D L T K D L Q R L Q E E K P A V A A A D G D L R Q A V L M N S S L D D K$ ERLNATVKQMEKF SPDMARLIVEFYGSLVSRPGLDLK FATHPLLLEHMMAMSETLFSDGALTRR
 $N \backsim F R L V S N S P A A L S G L A S L Q G A$ L G G K G K L A P A
 A N S P E V L S Q A L Q HNAA L R K GA L N A R $F R M L S H A P P L T G P A L D L G L A V L R E S T L D V R$


F A T LAHSPAAL G GY LAA LA Q A L S K N S L T P A



LS S A PELLAAPAWALLRESLIDA GSGS RA HDLPS GAGKVADDYPEVWQAFASLGKACAEAGPLDAR RATAA $\square$ T DHTREF QELIGGS 1 WT R P G L

UniRef90 UPIooo3675BA1 UniRef90_D5XB49
UniRef90_L8MS69 UniRef90-UPIo0035C316C UniRef90_O5WGG2 UniRef90- EOTHM1
UniRef90
B7QSIO UniRef90- F7PG91 UniRef90-UPIOOO347BE9F UniRef90-UPIO0046614F4 UniRef90-N4UIA1 UniRet90-UPIO003ACEF86 UniRef90-UPI00037BFD3F UniRef90-UPIOOO46A5C40 UniRef90-H5SBT3 UniRef90-E1JSA7 UniRef90-S5VG26 UniRef90-E9EIN4 UniRef90-U5VWJ8 UniRef90_O11E43
UniRef90-M1WRME UniRef90-M1WRME
UniRef90 W8H825 UniRef90-D1BPU9 UniRef90-M3A4V3 UniR Refo-l7LMG2 2 UniRef90_UPIOOO36752D6 UniRef90-U2L9Z2 UniRef90-F8DDP0 UniRef90-K2GHZ1 UniRef90 MOLYL1
UniRef90
G8RNQ1 UniRef90-L7U2Y3 UniRef90-U7NF34 UniRef90-D5WJ95 UniRef90-UPIooo38201F7 UniRef90- D9V6D4 UniRef90 UPIIOOO372B488 UniRef90-F3P6P5 UniRef90-KoERA3 UniRef90-UPIIO00377E21E UniRef90-D2RT14 UniRef90_W8H9S0 UniRef90-Q3BT35 UniRef90_UPIOOO36C0197 UniRef90-UPIOOO255551D UniRef90_UPIOO04652534 UniRef90-UPIOOO35D1171
UniRef90-UPIOOO3608ECF UniRef90_UPIO0029AB054 UniRef90-17FJM1 UniRef90-T0Z6D8 UniRef90-FOSJC5 UniRef90-A5EH62 UniRef90_LOHDR4
UniRef90_UP1000329C733 UniRef90-l7GFG8 UniRef90_UPIO00379615F UniRef90_B6IOZ3
UniRef90-B8FJW4 UniRef90-D3A5G6 UniRef90-UPIOOO402EB20 UniRef90 HOJAP6 UniRef90-H5YL22 UniRef90-UPIOOO35927D0 UniRet90 A4BB33 UniRef90-KONC10 UniRef90-K8DZY4
UniRef90-G4HPZ6 UniRef90-UPIO00379AC96 UniRef90-O21H01 UniRef90-FOLGQ4 UniRef90-AOAO37ZGH5 UniRef90-Q13HH1 UniRef90-UP100040A8D80 UniRef90-S2Y315 UniRef90-UPIOOO3632E7D UniRef90-D5E1P8 UniRef90-M5RQ76 UniRef90-UP1000379F798 UniRef90-D1AMD1 UniRef90-S6B9J6 UniRef90-UPI000441DFCB UniRef90-СЗКММ3 UniRef90_UPI00037739F5 UniRef90-W7PSTO UniRef90-M7ALD4 UniRef90-×5DSH9 UniRef90-L2T9Y0 UniRef90-H8G455

QRSHTMS ${ }^{50}$
 TKLMISLAVDAAMGADEGVKSDSNDLRQMGVTDEQUAEVL V

L

UniRef90 UPI0003675BA1 UniRef90-D5XB49 UniRef90-L8MS69 UniRef90-UPI00035C316C UniRef90 Q5WGG2 UniRef90-E0THM1 UniRef90-B7QSIO UniRef90 F7PG91 UniRef90-UPI000347BE9F UniRef90_UPI00046614F4 UniRef90-N4UIA1 UniRef90 UPI0003ACEF86 UniRef90-UPI00037BFD3F UniRef90_UPI00046A5C40 UniRef90 H5SBT3 UniRef90 E1JSA7 UniRef90_S5VG26 UniRef90-E9EIN4 UniRef90 U5VWJ8 UniRef90-Q11E43 UniRef90-M1WRM6 UniRef90-W8H825 UniRef90-D1BPU9 UniRef90-M3A4V3 UniRef90-17LMG2 UniRef90 K4TKJ8 UniRef90-UPIO0036752D6 UniRef90-U2L9Z UniRef90_F8DDP0 UniRef90 K2GHZ1 UniRef90-M0LYL1 UniRef90-G8RNQ1 UniRef90 L7U2Y3 UniRef90_U7NF34 UniRef90_D5WJ95 UniRef90_UPI00038201F7 UniRef90 D9V6D4 UniRef90-UPI000372B488 UniRef90-F3P6P5 UniRef90 KOERA3
UniRef90 UPI000377E21E UniRef90-D2RT14 UniRef90-W8H9S0 UniRef90 Q3BT35 UniRef90-UPI00036C0197 UniRef90_UPI000255A51D UniRef90-UPI0004652534 UniRef90- UPI00035D1171 UniRef90_UPI0003608ECF UniRef90-UPI00029AB054 UniRef90 I7FJM1 UniRef90-T0Z6D8 UniRef90-FOSJC5 UniRef90 A5EH62 UniRef90 LOHDR4 UniRef90-UPI000329C733 UniRef90-I7GFG8 UniRef90 UPIO00379615F UniRef90- B6IQZ3 UniRef90-B8FJW4 UniRef90 D3A5G6 UniRef90 UPI000402EB20 UniRef90-HOJAP6 UniRef90-H5YL22 UniRef90 UPI00035927D0 UniRef90 A4BB33 UniRef90-KONC10 UniRef90_K8DZY4 UniRef90 G4HPZ6 UniRef90-UPI000379AC96 UniRef90_Q21H01 UniRef90 FOLGQ4 UniRef90-A0A037ZGH5 UniRef90_Q13HH1 UniRef90-UPI00040A8D80 UniRef90 S2Y315 UniRef90-UPI0003632E7D UniRef90-D5E1P8 UniRef90-M5RQ76 UniRef90-UPI000379F798 UniRef90-D1AMD1 UniRef90_S6B9J6 UniRef90-G8AK00 UniRef90_UPIO004
UniRef90_C3KMF3 UniRef90-UPI00037739F5 UniRef90 ${ }^{-}$W7PST0 UniRef90-M7ALD4 UniRef90-X5DSH9 UniRef90 L2T9Y0 UniRef90-H8G455 UniRef90-J2KVE4
$R \square T Y F T K A N S T L V T S M A A F E$
$H V I G \square Y C G V P A L E C F R A A K K V D D G L E$
NHCSAYAGFPKAIHALFVFKVWDEYT
$R$ RASVVHAAAATLDGEAAL
HVA $\triangle$ YAG $\quad V P R A N R A L K L A K E T L A D M A T G D S$ EVVTMTS GFQGLATGSAALK
LQAAVYCGVPA ANKAFAVARGVLAEETD
$\square H A T \square Y V G V P A \quad G V E A F K V A Q K \square N D M \square E K G E$ RAGKSLN DPALEAARR
NHC SGYVGFPKADAS LILIFQQYSEFENESEEVSL

LV $\square$ AT T $\square$ GFPATAAA $\square$ K WAEKY $L$ DE
HLAFYTGWPRAMSAMAVAKDLF
LHATVYCGTPSGDEAMIVTQQKT DNDMDEKGE KATSEDPKTAALLTFAVAVNAFR
LQTAVYCGVPA
HLAAFYAGWPNSVTADKVAKEVFNE
KLSTVVG
THC\|PYAGFPRVLNALFTVKAVFE
ELAAVLGVHSVTVGVPLLQEVLAE
$Q 1$ A AMIGKTKVLASSLRTY
LQSAVYCG $\square P A A G E A R Q M Q S V F D E ~$
THADAVIA GWPAAVSA
NLASVTSYFSTILHGNEV
LHCSLYAGLPAANAAMHMAE
MQTA $\square Y C G V P A N T A F R \square A A D V L P D F D D$
AVAAWRDVPYFTDAERAALDATE
QVAVYAGIPAAMNADTAAKLAFKE
QTA 1 YVGVPAANSAFHLADKLFRE
HLAFYAGFPAA $\square$ SASAHAQAALGEAGE AVGAWRESPYFTDAERAALDLAE
LQSAlYCGVPAANTAFR
LHASVYAGFPADNATFVAREVFAE
LHTAAYAGVPAANAA
1 QMAVYAGFPAALNAMFTVKAV
GVASSVRYFSTVLHGAE IVEIVDHVRDQQAAAPS
THLAFYAGWP NAVTAIATLETVLEQENDA
TGQAANALDDA ПAGFARAL
LQSAVYAGVPVGIDTMKTLKEVADAVEAEETTE

MHLAFYSGWP
TQLAFYAGWP
RLATAQG
NSVAA N QVAKEVFNEQK
$E \prod A D P E A G V V A F Q H G$
RLAKKVRTTA
QCAATVYAGAQFTNAA
LIASLIGKTRVLAPALR
QTAVYCGAPAALAAFRDTSAADDEWEKE
YHS SGYAGFPNANTAMKVAKGVLE
LHASVYCGVP
R】AAV $\square H A V A T V L D A E A A L$
$\prod Q C \prod P Y \square G F P K V L N A V F V A K$
$L Q S A \square Y C G V P A N T A F R \square A Q A A L E D$
A

FQTS $\square \mathrm{YGGVPA} \quad$ ANTALTVLKEVLEE
$M H C V S Y A G F P A D D A M F V V M K V F N E$
AVALLACQSG\|FTKAEHAL LEFVAAVNRGGESVT
A
YQMAMLGG $\square$ PAMNHA LDRAQEVFNETNEEDDA
LLG I IVYGMPAWGKGRKAVTFAVEFEKE
A $\square$ A E QRAD GPELTESAADTATFEQVT Q
LHCTPYTGFPRVLNATFAKEVFKE
L L QMVIYAGFPVALNLTVANEVFYERNEKEKQND
A GTLNGVAA LARAV
A $\square T$ T HLAF Y $\square G W P Q A V Q L L N Q \square D D F K$
THAAYMGWPKAWSAFNRAKEIWK
TQ $\square$ AAYAGFPA A $\square$ NA $\square$ A VARR $\square$ FEADPPAE
$\square H \nabla A \square Y A G V P A A N H A \square K A K Q V F C E \square D A A$
GEAVARATTPGDERAARLLEW
LQSA $\square Y \mathrm{C}$ GVPANSAFRVASRVFAE $\square \mathrm{DA}$
LHSAVYCGFPALNATTVAKNVFAE
DQSAVYCGVPA ANHGADAQRVLDE
AHVAFYAGWPRAMSAVP|VL|KKVLDVRASAQKTPDAP

UniRef90 V6KJ37
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UniRef90 Q8PSC4 UniRef90 ${ }^{-}$A0A013IYW4 UniRef90_J1HPX8 UniRef90 UPIo0035EE5E UniRef90 ${ }^{-}$A0A059FM27 UniRef90-F9EF92 UniRef90 Q2BQ74 UniRef90 UPI000372999D UniRef90-A8LEL8 UniRef90-D5WF07 UniRef90 UPI0003FCFC2C UniRef90-R5WBT4 UniRef90-T2GX91 UniRef90-UPI0003F5830F UniRet90 UPI000301EE2D UniRef90-B9CES3 UniRef90-G8AVV1 UniRef90 UPIOOO380AE74 UniRef90-UPI00036963C8 UniRef90_AOPNI6 UniRef90 M7RX72 UniRef90-UPIO0046E6856 UniRef90-D9V1D8 UniRef90 D6ZZ16 UniRef90 K6V816 UniRef90-F9EC94 UniRef90_K2KGV1 UniRef90 Q13GE4 UniRef90 C7LVV8 Ref90_UPIO0046E58E6 LFATLGRARRLFPAWLAYSGMMMPFGLICR EDMEKYFQVCDEKI GFVPNVLRAFSKLYNEVMAESGLSKL
 F G QVWSREQELAPR ENAKKYHERMFPA $\square$ KKDPEF $\square E R F F A Y D E V V N Q P G E L P D K$ FRHFANKDAYTNA QA G I RMSSIMMMTPVLGK E KMFPKYHS AFLETDPEFDERFFAFDEVVNSDD LDDK

 ALF G DAWQRPQLSAR
 EKLGLLAKANPALMHTVTA LGVWSRED QL S L K K N D P D F A K All E G V

## 

 LF G DVWAR P G L L Q P RKEFYQNHPAGDK
 RAVARTTDFTADFQDY IGE WTRPGLDRR $N$ VF T TLARHPSLFQSWIGFGSALLMNGLLSGR MMK T F L N Y P E FAR S IGRDG T R V T L T G DL P P R $D \| L G V L A R H P A M A R E F L G Y N A F L L Q R G E L P L R$ AFAHRPDKLRAFSQ

K N A Q N Y HERMFKLLKT DPEF IELGFAAFDEVVNQND LD DK QAYAFDVDKLNAFSAMYNDLMGDSALSKL


QSTGNNPEVLAGLRSFLGSVARDTLPLR KRLEFHAAVDPEGLEEIEADRKSFLESKHLDAK QVMAHKP QLMRAVMNLYGALHTDNPLPEE G A L LF GDV NERSELSPR E Y VNRALANASEFMMPMQQLATELWSTRPGLTKA F AFGDVY R R MSEMPKFY FAKGGDVYCREG L DLLQ LQK D YK DVMQAVDQLGK AVQNA GPLDAK $\square F G F M K$ D K P ELLLT K L L H N N A II R S S K A L D L E ALARRPAEWRAFFAYHDALMEEGSLTKG
$G L L R V L A L R P D V T S A F L T F R S A L A A T S T$ $N L F S T L A B Q P D V L G G V T Q L$
 FGEVWQK ELPEK LF G DVWERP QLLA K R ERASENATTGDAFQNMDGELWGNDDLSRT A Y A ER $\square$ NE DFGEGLAG $M N \square I$ $R$ LFAHHDRLTEPWDAFSEVVGSAGGVEKV NMYR VANSPAALDGLLSLSGAASKDSVLDPR Y GEFMYKRVVA N SAPA P EF QKYFSVCE EKLGMVPNVLKAYSQYNELMFGE
$\mathrm{N} \square \mathrm{F}$ A T MVQS S KVLE GF LAA F T
NS F ND $\square$ AP D $\square G R A \square V E H S$ NMTS


 KAVSEA DEFSWAMQELTTATWNRPGLDRR $N D F R A L G R R P A E L R A F L D Y H D A L M R T D G G L S K A$ $N L T R A M A N S P A L L H G Y L G L A G S D L D G G T L P R S$ D F A PAFVNYTENVWRRSELSDR


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UniRef90 G8PHU2
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UniRef90_UPI00036963C8
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UniRef90 Q13GE4
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VIVTIVKGINVLKA GVEAINAAEKRFEE
H T A VYTGAPAANAAFAVAQRVLAELGEPAAQRE
A ANRAGGSNDATADAAVRFA
$L Q T A V Y C G Q P$
$E S T T$

H DPGSAGWPRLEAVLAA VDELVRTKD■ADHT
AM
$\square H C D P Y$ YG F P K V L N A VF VA K
HLAFYVGWPKAWSAFNLAKQDYTDKEEQ Y QA A Y L GFGRVLPF LDATNKVFEE
QLA F Y TG GWPNAMSAVTETKKVFEE
$R L G A V I G G$

QLAFYV GWPNAWSAFNQAKEI WNE
HLAFYTGWPNADTASLVAKEVFKK
LQAA VYA GVPAVN GAFRAK DVVDE LE
HLAFYA GWPKAFSAMAVAEQVFR
KVASVI Q AVA QAVQ I E A A
$\square H C D P Y L G F P A D N A V F A A K E V F A E$
HLAAF A GWPNAWAAFNMAKEVYAEETAQEEHG
L HLAA HYSGWP T AVT A NTVLDEVWDEMD
RI AYFAFGNS I LAASYSAAF
R 1 A A V L
T TARFLSGNRAFVNG $\square K \square L D D L R \quad N Q R T G E N V P F$ H LAFYAGWPSAVTAAG $\square$ A RETFNK
Y HAA GYAGFP
K L G A VLK G
LHSAVYCGVPAFATA QRVLA
VA A GVVS G G G L S GMDRHVVEA DDE LH
$L A R G N G G F D G V D R L V L E A T D E M$
$H \square A F Y A G W P K A M S A L G V A K N \square F T A P N E$
 VMNYRTAPLTPRQRAMLDFA
A
LVPVWH DAGAVFSARERALAWAEVVTRDADTG
$L \widehat{H V A} \square Y$ A GVPRANHAA $\quad$ RAKKT F A E MREAE
K VA F L F R G L S A $\square$ N H A GEVLEK $\square$
A Q A
MHVAVYAGVPAANHADKD AKKTYAEMEDAA
HLAFYT GWPNAVTA I GVAREVFK
HLAFYA GWPKAMSAllTVAREIF
A V
QVATYVGMPAGLEAFRAADKAVQE
$R V M L P Y L G F P$ R T L
LQClP Y TGFPRVLNAVAVAK

A V
HLAF F V VG WP K A WSAFN $\square$ AKE $\square$ Y

SVA A WREAP FYTDAERAA LAALTEALTRDADREEPVP HLS FYA GWPKA WSAFNRAKEI WKE
$\begin{array}{lll}H M A F Y & \text { M G WP N A M S A V T R A R E L } \\ M H V & F \\ M & \square\end{array}$
$M \mid A A W T G G I Q N F T D F S A A D \quad L K E M E K \square G$
HI A FYA GLPT A $\square$ SA LE H M
$R \ A S T M V G G A Q A D G V V E A L D$
A $\square P$ Q GAA A DLWARAMLAAVDQMDDQ
VQVLP Y $\square \mathrm{GGP}$ YAMSG■ALVAGYDE

LHA GVYSGLPAWENAA
$L N V L P Y R G Y P A V V E E S M R V V G \quad E E F R K R S D H A Q K A A$ $V$ H S L Y C G $\square P A$ A V E GLLRALGE E L LDE Y Q A V P Y VGMAK VA

EQCAPYDGYPTILNAAATANEVV
H LAAFYVGWPNAWSAFNDAKEIYTEKK Q
$T Q L L P F \quad \square G Y P R S L N A L R A \square D E V$
G $\square$ T R GEAT D GLD R A VLNAVDELQ
Q $\square$ GTYCGVPAAMDCFRVAKEVFKEMN
A
AAARKGDADDPKVAATLAFAMAVNEQ
HLAFYSGWPNAMSAAAVAKQIFNE
QLAFYVG WPRAASA $\square \mathrm{Q} \|$ AKDVFRGEKEG
THLLAFYTGWP
MMALYAGFPAALDALFDARKVFAE
HLAF YAGWPSAVSAAVI LQEVI
$R 1$ A ATDQGVA
Y L VTVTS GFPRA $\square$ AASQA L
R V
$\square L L T S T \square G F P T V A A A D D W \square E K V$

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UniRef90＿N9W7K6
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UniRef90－UPIO0014D0D5E
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UniRef90 K9XKU1
UniRef90－D4E925
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UniRef90－G0ABVO
UniRef90＿UPIOO046E9AOC UniRef90＿J1R4E6
UniRef90 $\times 5 \mathrm{M} 042$ UniRef90－UPIo003A3ACA8 UniRef90＿Q0KE86 UniRef90＿13YR46 UniRef90－SONS51 UniRef90＿w whows

20
30
YGD\｜IYSGDTLISPA LSELDPEWTEDYMKTAMQPWNSGVLSPQ ALAQRPDEFRAFFAYHDALMRPSNLSKA QVIAALAP ${ }^{2} A P D F G R L L I E F G G D I Y S R P Q L N G R$ SNSPVVLESVLALDASLKKTTLSAR FGEVWSREDALSDR RATANTTDFTREFQELIGTVWTRPGLDPR KKQTAGRDQARLAKIAPDFADHLVDYAGDVYARPGLDRR
KKQTAGRDQLGE APKFAELNDD

A RFGOVWA
KEDPKHYKSTRSRYE
GNMVATMAHSP
FYRFRHYMGK EYGRALLSELGKTLKESGALSPV FYRFRGMVATMAHSPALLQGYLDFSRAMKRTKLPRP

PALERYTETTNEVWQRPDLSAR
AA TAPKLAELTETL LFGDUWARSELSPR

$\square R D H \square D \square M K A \square P G \square Y D A Y A G P N R L D P K$
EDLPQVSNSFMTFMKEAPEHQKAWMETVHKLEAASRLDPK ATLARHPDLAKAFVGFNLYVTFRSTLPPR

AKVDDFTSDFQDLIGEIWTRPGLERR APSFADLLIEFTGDVFTRPGLSVK


PEAMQALMSLGAAAKGDETIDKK
EKKTGF पPNVFKVLSHRP配FRAFFAYYNVIKKTGQLSRA NMFKAVANSPAGLQAMWGAFGA LGKGS GAK
$A L A H A P D Q L D R F L S Y A N A$
 DPEFDETFDNFNDVWQRDALTPR APDAMK』MMEMEKYTKKNSIDRK LY S DVWKDADLAPR GRLWAREGL KEYHERMFKLLETDPEFTELFFAFDEVVNQDN LDR A HLDF STLGRTGGLFRGWLHYSGSLMPGGKI SRH IGRHRKLFRAWLHFGRLLAGGRLRRR AFGSVVGRPG L N Lik RDLLGEDAPEFAALNDFGQVWSRESQLSDK AGVRHILTLNPRAGRALVEFHTAALREGPLEPR ERIDAMRAAAPENQKHMQDLSANCFGDGGLDAK ARTTEFTADFQRLIGS円WTRPGLDRR

PEATEAMDKDEGFIKSSGGLDK MDAHRPAEFRAFFDYHDALMKPSSL GELWGREGLPWK QS DGNNPAVLAGDRSFLGSLWTDSGLSDR NAMTPRMNY YKAAPKAMKAMIQLYNELMGESGLSKLL MFQVLLNHPPAARANNDLLATMLWHGALDAR AHLFSTLGRTGGLFRGWLHFSGRLMPGGKLPRY

 DLAKFVIEFFGDAYSREDLDLIK RDRGGDFAPDFAHYNDLFGENWNNQDDDK

APDFARLLIEFFGDVYTRPQLDLK KMDDDFSEAVAGLYSSVWKEGGLSKK KRVIESDKD TAPD DGKYFAFGD MESLKEDSPDFARYLIEFFGD！YARPGLDLR $N \nabla F T T \square A Q A P V A F D T Y$ WAMGGSALARGTSLSAQ GDI YSRPGLDLK SNAPAIVLAQALQ TGAVLKKGNLSAR LIANAGFNAEFQNLITEIWGRPGLEQK EDfTADKRAMGKFGDMAPDLARYTDLFDEVWERPGLTPR QLHNAMLTKSSLSAK MQRKPGLAEAFVNMNKAAMA GP：PSD ETRAQपFEपAATDPELIEDFDNFTAEVLGYGDLDVK KHESFISNDDRRETSSAAADAFRALRVAQDAGGPLEG


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UniRef90-L1IP71
UniRef90-N9W7K6 UniRef90_UPI0003693C0D UniRef90_UPI00035CA0A9 UniRef90-Q0BXT2 UniRef90_UPI000471929F UniRef90 F8JNM2 UniRef90-UPI0003786B24 UniRef90-A6TUD9 UniRef90_A0A010NSW5 UniRef90_UPI00014D0D5E UniRef90_UPI00047D77A3 UniRef90_UPIO003C02B7D UniRef90 UPI0003806F2E UniRef90-LOK454 UniRef90_A0A024JS41 UniRef90 A0A024JXM2 UniRef90 U1TX55 UniRef90-19KY58 UniRef90-W7RZG4 UniRef90 E6WEY0 UniRef90-X5L9Z7 UniRef90-S0J1J7 UniRef90 ${ }^{-}$UPI000479F216 UniRef90- COZULO UniRef90_W7IX76 UniRef90_C0VPF7 UniRef90_A0QGI9 UniRef90-Q8EWL7 UniRef90-W7WMK4 UniRef90 R5V7W6 UniRef90 UPI0002EACEA6 UniRef90-UPIO004641631 UniRef90-E0ID39 UniRef90 UPI0003B59CF8 UniRef90_UPI00041EEA6A UniRef90-MOPEX9 UniRef90_G8AN63 UniRef90-D0DDIO UniRef90-I2AFE6 UniRef90-UPIO00465C9F1 UniRef90 K9XKU1 UniRef90-D4E925 UniRef90-B5GTS9 UniRef90_Q5YPE7 UniRef90_R9PPM0 UniRef90-LOTON2 UniRef90-E31342 UniRef90_UPI000367A12E UniRef90-10HLU4 UniRef90-W9DPI6 UniRef90-UPI00035FA3C5 UniRef90_H1WWC9 UniRef90-B1SY39 UniRef90_D5DK29 UniRef90-W0AC55 UniRef90-IOQSY1 UniRef90-V8R6T9 UniRef90-UPIOOO4668B49 UniRef90 UPI0002F6134A UniRef90-G0ABV0 UniRef90_UPIO0046E9AOC UniRef90_J1R4E6 UniRef90 ${ }^{-}$X5M042 UniRef90-UPI0003A3ACA8 UniRef90_Q0KE86 UniRef90_I3YR46 UniRef90-SONS51 UniRef90_W8H0W6

TQSAVYCGFP
K LT TVVG
R 1 A ATTAG RA $L^{100}$ N $A$ V E

A
$\mathrm{V} H S \square \mathrm{LY} \square \mathrm{G} \square \mathrm{PGAVEG} \mathrm{\square RAFE}$
MMALYAGFPAALNALFAAREDFE
AAVRQGQATGNARE DALAEFA
THAAYMGWPKAWAVFRMAKEIWVDENDEENDKE
LQA $\ Y$ LSVPSANNAFKHAKQVLDALDAEDSAAPPAP
$L Q V A V Y G G V P A A N T G F H \square$ AAEELS Q
MQMAIYGGFPAAVRADTAAEVFDEV
THAAFYAGWP NAWAVFNMAKEVYANDEPAKE HLAFYAGWPKAMSAMMVAKDVF
$\square \mathrm{H}^{-1} \mathrm{~T}$ WYGGAPAG】NALI LDKVFDE
$R L S A V I A S G S R \square I Y$
HLAFYSGWGNAMAATNVANDVFEE
MIA AYAGVPAANTAFTEAAEI $\square$ AA $\square E$
THLAFYAGWPAAASALTCLNA
D 1 AAAA
LHVA $\square \mathrm{Y}$ A G VP K A NHA $\square$ KAKSTYAEMEEM
THAAFYAGWPAWAAFRMAKEVW
VT A A Q G G $\square$ A A D QF E QS VLD A VVE LT K N T Q $\square$ S EVT RIGAVVN

$\square$ QCA $\quad$ YCSVPAFS $\square G R R V L E$
HVI A I Y CGVP

TH L AAFYAGWPA A VSALSCLEE
Y QAAYVGLGKVFDHATNAV
HMAFYAGFPAA $\square$ T ASAYA
YHSSGYAGFPAANTACKV ARESDREGDASTE
THAAFYAGWPAWAAFRMAKEVWAE ECSESDAKSA $Y Q A A Y L G \square G R V F P F \square$
E GPGASEPRHRA $\square$ LTADEL
$\square Q M A \prod Y A G V P A C M N G \square A A Y R A A M E$ KAAAIISGVA
$T Q L A F Y S G W P \quad K A W S A F S L I K E V Y A D D K E$
$A V V T Q L D P Y T G Y P R T \square N A \square A C \square N E$
IQMSLYAGFPAA $\square$ NAMFTAKAV FQEHDQNRSQTTV
A
$\frac{L}{L} Q V T V Y A G \quad \prod P A G A E A F K \square A N K V F E E E$
GIGALDGDETALDEYAHAV
AFNYRAAKLEPRQRAMLDFAWKLTKE
DVLA A WRESPAFDDCRAALA WAEALTRDEQTG
DWRNYAGFGPAE RAVLAATDDV
RTGPDAPGWSA KERALLTAVDQL
THLAFYAGWPAAASAVAR $\square$ R E MEE
Kla A VVQA
VLAA WRRGGPFSAFDRAADGLAE
QMAVYAGFPAA $\square$ NGMLVAKQVFEE
A HLAFYAGWPCAASALPLLRAA
VATHLGFYAGWPRAMSAVPVLERFAGREAAAKPAS
THTAFYAGWP
MMAVYAGFPAADNGLFAAKEVFAERDREEAGA
$M \square A$ A WTS G $\square$ QNFTNLSP EVLKEMERLE
$\square H C L S Y$ VGFPVLNADATAKETFNQYGD
QLT GY G G WPLVLPVSR A LDVAGGAAEQANGSATQAT
THCDPYTGFP
$\frac{\mathrm{L}}{\mathrm{H}} \mathrm{Q}$ LLFYAGGAAV
H
QMALYAGFPAALNAMFTAKAVFNEVADA
MQGA $\square Y$ AG VPAANTATHAQK $\square$ R D $\square G A Q$
THLAFYSGWPTAASSALA ARQVFADEKES
$R \square A S \square V S G$
HSADYCGFPAALDASRKLTEVLDA
YQAVPYVGMARTVDFVHIVN
H $L A A F Y G W P K A W S A F N L A K E \square F D E$


UniRef90_B1KDB2 UniRef90_M4NDIO UniRef90-A1V4M9 UniRef90_UPI0004711F45 UniRef90 R7ZI73 UniRef90-UPI000360F658 UniRef90-R7L8P0 UniRef90-M4YNY6 UniRef90_A3VZD8 UniRef90-HOFDE6 UniRef90_UPI000287AD6E UniRef90 A0A021XET6 UniRef90-D5EA79 UniRef90-N1UUR3 UniRef90-C8WJT2 UniRef90-B8H800 UniRef90_UPI000475E3C9 UniRef90-R0EBF9 UniRef90-K9D7L1 UniRef90-X2HE54 UniRef90-W8H8U5 UniRef90_Q70JD4 UniRef90-A3J2C2 UniRef90-B2J885 UniRef90_UPI00037FA49D UniRef90_F4CZ75 UniRef90-X0UP70 UniRef90-J2ZXB9 UniRef90-UPIO00373EB24 UniRef90_F7UY28 UniRef90-Q12WY1 UniRef90-M0B7N6 UniRef90_UPIO00375E2C3 UniRef90_B6VL85 UniRef90_ROE9P0 UniRef90_UPIO0030CC68C UniRef90 UPI0002D75C7E UniRef90-E4NE56 UniRef90-R4SN42 UniRef90 D9XCX6 UniRef90-X1J3V8 UniRef90-R4KCG7 UniRef90_C2TXW6 UniRef90 A6CP75 UniRef90-E3H2L2 UniRef90_UPI00036492F6 UniRef90_UPIO00465457E UniRef90_UPIO00472487D UniRef90_UPIOOO2003389 UniRef90_Q46S22 UniRef90 UPI000348FACE UniRef90-J4PER7 UniRef90-M5TUI7 UniRef90_U1YR89 UniRef90_MOLNM9 UniRef90-A8KCJ9 UniRef90_UPI0003FD7D55 UniRef90_Q11BU7 UniRef90-B6AVR4 UniRef90_C5C604
UniRef90 AOYAL3 UniRef90 UPI0002E12D6D UniRef90_B2HQ51 UniRef90-R5B314 UniRef90-Q07H26 UniRef90_E4N8J5 UniRef90_D9VAV7 UniRef90_F7K3N1
UniRef90 X8LSK6 UniRef90_UPI0003A21757 UniRef90_UPIO00262896D UniRef90 F5TC60 UniRef90-UPIO003601313 UniRef90_UPI00036D78FD UniRef90-F9F7Y5 UniRef90 J2LD88 UniRef90_K2JSF1 UniRef90-IOKZR5 UniRef90-A0A031GDQ8 UniRef90_X7F9C2 UniRef90-H0F9E5 UniRef90_N8YTU6 UniRef90 UPI000248E817 UniRef90-A1TCQ8 UniRef90_UPIO0036E7D21 UniRef90_UPI0003656F42 UniRef90_A5FP06 UniRef90_V9VZK5 UniRef90_UPI000348A5FC UniRef90 D1A2B8 UniRef90_UPI0002D95DFB UniRef90_I4A9L3

20
N P D ${ }^{20}$ A M S S WN MVR


 N QVLS CRPD DVVPS F D F G K S $V$ V F E K S S F D P K NMFRAVANSPAALKSMWASFGA LGGGVLPAQ GLRMN I GNP GVEKV GTVWSRPGWTMR Y A QD DNE $A$ DFSEA LAS FYGAVWEDDGLSMK $F N A L L H A P A \square G N A V Q Q L G A A L R F R G T L Q D R$ MADFYQSGPEETRHINRLAENCFGDTGLDDA ANKDEFTDDFQDM@GG1WTRPGLTRQ
$\square M S A P D Y Q D L P S R L R M N R L A H P G V D P A$

MQHRPA TSKAF $\square Q \square \mathrm{~L}$ MAVMENGNVTSA DPELDEVFDNFADEVIAESKLDTK LAHHPELAHAFFTYNGHILRGTTLTLR
PDYVELLGDRVGAG
E WVR VMA H S P K LLL K E F T E L EKAHAYRNRDFPDALTDPEFDERFDRFAGDVWERPGLSPR ESVKQVKGTMPKAIKMDDDFGQGVASFYKAIWKDDGLSMK RDLLGEFAPTMGQDSALLEQFRAYGSAVWRESGFSPR LAE LDDADLP F LI T D Y AFGA IVGRE G L D L K
 MAKSPELAA G $\square$ GGFSTAVYTRGRLPMR EALRERYRET LGAVPPAVEAFTALRHVVLADSPDGGR $M V S A M A N S P A L L Q G Y L D F S R A$ MKRAKLRRA
$N \square Y K A V A N S P K V L L N F D R L G N S I V G R M G L S P R$ $N$ N N R M V A H A E K S A R H F MRRLGNS L L T Q A M L D A R MT QRIS A A P DAMKDMMDM EKYTK Q S TI N R T SPSFYHMMLEFGGDVYTRPNLDFQ
 $D K L G L V P N V L R A F S A L G Y N D M A E S G L S K L$
Y G NEVK EVVFS ADP KP F DEFHLLDTS SAF GD G GDLDVA E L DP $\square$ WAEKFMAMGMHPVLPGVL E PK GNTPDVLA HVLS TGATLGRSTL SRLL QDYGPY ANMLSAFAPRPPALKHFFSYLVQSREDGLI

L P P K R
LA HHPETFK $\square$ WWAEEGQVFAD GELSRG AMRQEFPFLAEATAGYAGDVWGRKVLDAR


 FKSMAHRPA L L R GFMALAGSILGPDSLADK G K K A N G F L P N L LG VLA NAPTALATYQT,VGAINARTS L S GE | $L$ |  |
| ---: | :--- |
| $I$ | $Q A L L N H P R L A R T$ | A YVEAALNNADDFNRPFQELVGAVWGREDL A A RLA HAP QLLD G F L K L T A L F D S T E L D PV RSDWNQFFK DAPEVVAAMAFGDIYARPG L TLQQ NLMATMAESPVMVESYLT GKAVSNSGREEKP

 A P D LGE Y $\square$ I E F A G D $\begin{aligned} & \text { I } \\ & \text { I } \\ & \text { Y S R Q G } \\ & \text { W R A L }\end{aligned}$

FWGNAFNKDGLDAK

ARKDATTEDFQNLIGTIWTRPGLDRR

EK L K E DD GEA GE KL K DVS P DL GTYYDA F GDVYS R T G L D DK A A MA HSENGLGNYLQYSGGGKTSLSNK R H P A L T R A Y L H F N A H LL L L A S T

P EAMK GVGS | F |
| :--- |

 $A G E A W G L P L I$
$R M$
$D$

| $K$ | $L$ | $R$ | $M$ | $I$ | $I$ | $G$ | K | G V | E | $K$ | $V$ |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $E$ | $L$ | $F$ | $E$ | $E$ | $V$ | $W Q$ | $N$ | $S$ | $L$ | $T$ | $S$ | $K$ |




MMA $\square Y$ A GFPAA $\square$ NA $\square F A A R D V F G Q$
HLSFYAGWPKAWSSFNDAKELYKE
ALC【YAVGDQA I

A I A S DA KG
EI AAYMCMTRSQSYSFR EFAEQYGKE
QHVA $\square$ Y A GVPAANHA $\square$ K $\square$ AKDTYAEMEED
$K \ A S V I Q A V G V T L E A E E I L$
HVA $\square$ YA GVPAANRA $\square K$ AK $\$ VFEDMDAEKAA
M I A A WT G G $\square$ QNFTFSR QVLK QMDK L
$S$ GAV
SQCVPY $\square G Y P R S \square N A \square R C \square D E V E A \square E A D A E$
LQTA AYCG VVPANTAFKTAQQFHEMDNAG
QLTPYVGFPLVVSAAAK DADLVERATPAESPGGT
RI A AVVNaVA
HI AFYAGWPKVWGAFP円AKEVWGE
HLAFYVGWPKAWSAFNLAKEIY

Y Q S VP Y VGG MAKAFDF VHATNEMSSRGDQLPL

A VGAWRDTPYFTPAERAA $\square A \square T E A$
TH HAFYAGWPNAMGAAGQLKAL
YQSA YVGMGRMLPYLGYA $\square$ NELLE MMAA WTGG

H LS F Y T G WPKA WS A FNDAKE $\square \mathrm{FK}$
VQMAVYAGDPACMNGLTAF
HVIAFYSGWSSAYTALAVVKDVFE

ETALDTS GTPAYA
GTSTDRREAA L I A Y AVVRVLA
H LAF YA GWPNAMTA 1 TRRLKR $\square A D E$

## A VQTDASPVFNDLEKALRYTDEVTQNVKSTDET

$\square H S \square P Y$ A GFPS $\square$ S A LMM A K K FFED
Q $\square A V Y$ AGG FPAALNA $\square$ AS $\square R K V L A E N K A$

HVA $\square Y$ A GVPA ANSA $\square K V I K D V F Q T \square D A E S R N S$
VQVMPYIGGPYALSGLVLVARYDESASAE
QAVSVLGIHS $\backslash S L G A P I L L E E M A A D E Q E K R V A D$ AGGFAGGARIDALVK

HLAFYAGWPNAMSALPVAKTTFEK
RVADEFGVKSVQSPADVTEEEFDELKRL
$V V Y L I T V P A G F P R A D E A S Q A L Q E L F R E$
THAAFYSGWPAWAAFRMAKEVYE
$\overline{L V T} \square C S T S T L F Q V A R A \square Q W L D D \square D A E \square K A A K G A$
FIA $\square$ AV RGFPA INTTSKIRNALKD
HLAFYAGWPRAMSAVGVAREVF

H $\square$ AF YAGWPKAWAAFNLAKKVWSE DEFEANGK

AVWAESGLDTAAERAAFAL
LQC IPYTGFPKVLNA
KLDLLRDAGDYTPREQAALS WAESLT LIMAAQ
LVAAWREATVFTEAERAALEVTEEGTRLADAAGGVS
1 QCDP Y VGFPKVLNATFVAKK】
MMAADYCGVPVANHA
LQA WREGGTLFDERERAALA WAESVTRDAETG
THVGFYAGWPRAMSAVPVLK
YQMSMLGGVPAMSKALELAQAV FSETQEGSE A
$\square Q T A V Y \quad A S D P A A N \square A F K \square A Q E$
AQMSMFAG $\square$ PAMTRAMEAREVMNDAESKGKDEET
$\square$ QMSGYSGFPSS $\square$ NAMN LLKDLSERKKQG
RQQAGYSPADEDDRLVVGAVDELDAANTVSDAT
AVAAWRHAPFFSEAELAALKLTETLTRLADRSDEA
GMKYETSEH FTDAERAL LDFCRQLAQDSSAVSV
LF MCVYAGFNKAAGCFGMLNEFFANAEK
$R \square A \mathrm{AVIN}$
THMAFYSGWPKAAGADNVL




$M H L L P Y$ VGFPRVLNALQLVKVYKE

QLA F Y A G WP NA WA VF PMVKK VY QDEKE
A VS A WRETPYFSPAERAALALTEA

THAAFYVGWP NAWAVFPMVREAYAEEKDGCSDSL H L A F Y A GWPKAWSAFNLAKE $\square Y A E$ A L A

HVA $\square$ WREST LFSPRERAA $\square A$ WTE $\square L T K \square P E G G$ $M Q M A V Y A G F P A$
$T V 1] T Q L P Y \square G Y P R T \square N A \square A C L N E \square V P E D K$
$R \overline{F A} \square V Q S V A V A \square E A A$
LVQA WREA GPLFTHREKAALAWAE
KLAAVI
T Q M S VF A G $\square$ P A MNRA $\square E \square$ A Q QVLD DKRDDET


