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UniRef90-H9CJM5 UniRef90-E1FLE5 UniRef90-B2J558 UniRef90-ROISP9 UniRef90 X8.J9M9 UniRef90_E3QWQ8
tVrknQat Litadkrrfva avtelkrsgrydefvrthnef VRKNQATLTAEEKRAFTNALLELKRTGRYDRFVTTHNGF TVRKSVAALTPDEKAFVNAVLELKRTGVYDRYVNAHNYY rkNQSTLTAAEKAAFVGAVKALKANSYDVFVAQHRTA TVRKNQANLTAPEKKAFVDAVLEVKRDGVYDEFVLAHRTR LRKNQQNLTATERSNFVNALLTLKQNGRYDLEVRLHDDR RKNQRNLTRTEKKRLVGAILELKRSGRYDEFVSLHRQY VRKNASSLNPDERENFKAVLTLKNTNRYDEFVADHEGV RKDVSTLTRTEKRRFVNALLEIKRRGEYDEFVRTHTEY RKNQRDLTGAERRKFVAAVLELKRTGAYDRFVRTHIDH DRKDANTLTAAERAEFVAAI RVLKAEGIYORFVLRHANA VRKNVTKLTREEKRRFVNALLELKWRGEYEEFVRLH【AY VRKSVNSLTASEKNDFVNAVLTLKAEGKYNKYIAWHASA KNQRDLTAAKKRFVDAVLELKRRGAYDEFVRMHGEF RKDAATLTAAEKRRFVNALLEVKRRGEYDEFVRTHLDAY RQNQKNLTSAQKKRFTAALLELKRSGVYDEFVRTHGTY RKNQRDLTRTEKRRLVDAILKLKSGRYDDFVVMHREY RKDVSTLTRTERRRFVNALLKLKQRGEYDEFVRMHTDH RKDVSTLTAGEKRRFVKAMLEVKRRGEYDEFVRTHIEY RKNQKDLDAGERARFVTALLEVKRRGVYDEFVRDHGQY RKDVSMLTRSERRRFVNALLMLKRGGQYDELVRTHDEY VRKNQARLTAAERAAFVRALKVLKAEGDYDMHVSHHRTA RKNVTTLTASERRRFVNALLEVKRRGEYDAFVRTHVDY RKNITRLTATERRRFVGALLDIKRSGEYDEFVRMHI DY VRKNHLTMTAEEKRRFVHAVLEIKRRGDYDRFVKMHI QU RQNQSTLSKAQKRRFVDAVLALKRSGRYDEFVRMHIDF
 RSNQRSLTKAQKRRFVDAVLTLKRKGRYDEFVRTHTEF VRKNARNLTSTEKAAFVSAVKRLKAQTNYDWYVTTHLNY VRPAAHMVDEEYTAKYSKAI ALMKALPADDQQANVHCAY 1 RPAAHLASKEYI AKYKKAIIELMKALPDDDQQADVHCAY VRPAVHLVDKEYLAKFSRALELMKALPEDDQQANVHCAY IRKNHLAMTAQERRRFVHAVAETKRRGLYDAMVAVHVMV RKNAKDFLPDERQRYCNALLTLKQTSKYDEFVAIHYGV VRPAAHLADAEYDAKFSKALALMKADPEDDQQANVHCAY I RREWRTLSKAQRKSY而KAVQCVQAKPSFDDFVYVHMNA VRPA AHAVDKAYDEKYSKAIEGMKALPDDDQQANIHCAY VRQE WRKLTQAQHSAFLSAI DKLKNRPASSPMAQWNYDQ VRPAAHLVDPEYLAKYKKAIELMKALPADDQQADVHCAY I RREWRTLSKAQRKSYПKAVQCLQKSPSFDDFVYVH
VRPAAHLADDAYMAKYSKAI ELMKALPADDPQANVHCAY VRPAAHLADKDYDAKYAKAIELMKALPADDQQANVHCAY SVRREWSTFTVRQRKAYTDAVLCLQKKSRYDDFVATHVQQ RKNYRDLTPVERDRLVNALHHVKATGIVDQYAAEHETH VRREWGTLSKQEKKAYISAVQCLMSKPRFDDFVASHDNQ RKEYRMLTEDERLRYHNALNILKRSGEYDRLGRQHQAV VRPAAQSVDADYLAKYKKAVELMKALPADDQQANVHCAY RPAAHSVDSAYIEKFNRAIQLMKQLPDDDQQANIHCAY VRPATHTVDEAYIAKYNRAVQLMKDLPDSDQQSDIHCAY VRRDWKALSKKGRKAYDNAVLCLRKKPRYDDFVAVHINQ I RREWNDLSKTERKAYTDAVLCLQAKSRFDDFVANHIDQ TVRKEFRELSENERQAYTSAVVCLHNTSRFDDVARTHLMV VRKNVTDLTPAEKAAFVKAIKTLKTTSDYDQFVADHLGA 1 RPPAHAVDQAYDDKYSKAI ELMKADPDDDQQANVHCAY VRREWGALSRPERKAY DDAVLCLQSKPRFDDFDGTH TNQ VRPAAHLVNKDYIAKYNKVVQLMKALPEDDQQASVHCAY VRKEDRQMTDDERNRYFGALQALKRSGEYDTFAAIHRDV VRPAAHLVVNDEYLAKYKKALDLMKKLIPSDDQQANVHCAY RKEWSTLSSREKKEYURAVLCLQSKPRFDDFVATHUNQ $\square R K E \square R A L T A T E Q \square E F D N T L L A M K R S G V Y D K Y V H W H H A V$ AKYKKAI ELMRADPHDDQQAEVHCSY IRRPAHLVDDNYDAKYNRAI ALMKQLPEDDQQANVHCAY RPNWNTLSQAQKSSYFDAVKCLKTKPAYDDFPALHVEQ
 VRREWRTLPAEERKAYVAAVKCLQSSPTYDDFVLTHLNQ I RPADHRMDKEYDAKFEKAIRLMKELPADDPRAYCNGGY VRPPAHAVDATYLAKFNKALAAMKALPSTDQQARVHCAY
 VRREWSALSKTERKAYTDAVLCLQSKPRFDDFVGNHIDS VRREWSTFTARQRKSYDDAVLCLQSLPRYDDFVAVHUQQ IVPAAHLVSKEYDAKYKKAIEELMKALPDDDQQANVHCAY VRKNVVNLTTEEKTAFVNALKTLKNTSLYDQFVLQHVLIT I RKE WGALSKQEREDDYKAVKCFTSKPRFDDFVATHINQ VRQEWRLLPKETQQSYVDAVKCLKTKPSYDDFPY HHAH VRQAAHLVNDEYLQKYKKAIELMKALPSNDQQANIHCAY RKEYRMMTDAERNRWHNALNTLKRNGEYDRLSRQHLEV RPAAHSVTADYVAKFNAGI AAMKALPADDPQATVHCAY RPAAHLVDANYLEKFTKAI ELMKALPDDDQQANVHCAY VRKEYRQLSTEERERFHSALDQLKQSGDYDQTAQWHSNP I RKNVLDLTPREKADFVNAIKTLKQTSLYDQIVAVHVGA VRPAAHLVNDVYDAKYREALKRMKADSPNDQQANVHCAY VRRNWDHMSAKERKEYDRAVKCLQSLPRYDDFVGQHDNQ


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UniRef90 Q82V60 UniRef90-S2YDP3 UniRef90-I8UCZ7

## UniRef90-I2N567

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$\square M S D T D S G E R T G H R S S F{ }^{60}$
70
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 F L A G VNDPAHGGPA F S IDMNTGVYVGHFGPS
$A N G D S D W G L R I G H R S P S$
 TSRANLP $\square$ GDGAHGNSGFLP WHREFLCRFEHALKSVDPTV YVSDGENGLRTAHMAPSFLPWHRRFLLDLEEALRRVDPSV YTADGEGKLRVAHMTPS NMSA IHRCSA
YTADGETGLRAAHMGPS GGFQTPQGADAAHMCPAFLPWHRRFLLDLEQALQRVDPSV
 Y SSDGERGLRTAHMAPS FVPDRERKLRVGHMSPS YVMDTERRPRPAHMTSS
YVSDGDGGLRTAHMAP
$Y N S D G E D G L R T A H M A P S$
$F V S D G E G G Q R V G H M S P S$ VLS YTSDGEKGLRAAHMCP
$N T P D G E S G L R T A H M A P S$
$N S T D Y L D G K R L G H V N P G$

 YQGDGDSGLRVAHMAPS C
C
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 TRRNG $1 P 1$ GDGAHFVPG TDGAYHQVGF QVHNSWL TLI DHYTGN
$C D G A Y D Q A G F Q D H G S W L$
$C D G A Y E Q V G Y Q V H N S W L$
FVKTHWDSQA GGHGDVF
CDGAY CDGAYDQVTGFQIHFTGNFLIWHRNYIHEYEEEGSMPVVTR CDGAHHQVGFQVHNSWLFFPFHRYYLYFYEKILGSGDPTF T L G I H H TGT F NHG\HVS S H
T M
E $\|_{A} H Y T A N F$

CDGSYDQVGFQVVESWL
TRTIHATGN
TLFIHYTGT
LATFADPWHRAGIHAYTVVMKDCGYTG
F FT WH WHRYYTWAYEKARDECGYKG CDGAYDQVGFQDHNCWDFFPFHRYFLYFYER\|LGKLDNDF TLIIHYTGT F LA WHRYFVWHYE QARNECGYRG CDGTYDQLGF QVHASWLFYPFHRYYLYFFEKDCGKDDPNF
 TFVIHATGN MKATVYPNEPQAHRGPAFLD WHREMLMQFEADGQADNVGV F LS WHRYYTWVYEKAREECGYTG CNNGYPQVGYQVHSCWLFFPFHRWYLYFYEKDMGELDPTF NHHLHSVAAF
 TGSIHVT VQTDYPDKEDQVHNSWNFLLWHRYFTYVHEEKRNTCGYTG CDGGYNQVGFQVHGSWLFLPFHRYYLYFFERGLGSLDNDF FPALHATLQQEI HFVAQFLPWHRYFVHVYEKTRDECNYTG FSHVHFNDSNFIHGNAPFLLDWHRYFTKVHENALRQCGYKG TLNI HYTGN FLAWHRYFTWQYEQARNECGYKG TLTIHYTGT FLAAWHRYFTWQYEQARNECSYTG CDGAYDQVGFQVHFSWDFFPFHRFYCYFHERQLAK DNDF
 TFS LHLTGT LDTS S HFVASFLPWHRYFVHVYEKALQDCGY DG
CDGAYS QVGF QVHNSWLFFPFHRWYLYFYERILGSLINDP GVGS G CDGGFPDVELQVHNSWLFFPFHRCYLYFFERILGSLDPSF CNGAYDQVGFQVHFSWLFFPFHRLYLYFYERILGKLDPNF ALSGG AHSGPAFLPWHREYIKRLE\ALRLIDPDD

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

## QUERY

UniRef90_D9VTY8 UniRef90_D9W5S1 UniRef90_G0PQZ3 UniRef90_K0K5F6 UniRef90_G2NB52 UniRef90_I3D139 UniRef90_Q9KYH2 UniRef90_F2RLH9
UniRef90 Q82V60 UniRef90- S2YDP3 UniRef90_I8UCZ7 UniRef90_I2N567 UniRef90_D9Y0A5 UniRef90_D9VTX1 UniRef90_G0PYN0 UniRef90_C9Z5W2 UniRef90_UPI00037AE95C UniRef90_D9VN41
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## A

TLP YWDWSADRTVRAS LWAPDFLGGTGRSTDGRVMDGPFA SLPYWDWTADRTSRSSLWAADFLGGTGRARDGQVMDGPFA
 SI P Y WD WTADNTVGSSLWAPDFLGGTGRPLDDQVMDGPFA

 TVV Y WD WTKDRSAKSAPWTADLLGGTGRRSDHRVTT GPFA SVPYWDWTRDNSPASS LWWGEDFMGGNGRRADLQVMTMPFA $N L G \square P Y W N W P S ~ G S A N A S M W N D D L L G G N G D A G G V V R T M P F R$ MLP Y WD WARDDPS QAP ITWQPDFMGGNGNPRNDNLVED GPF TVV Y WD WTLLDT SATSSLWAD DFLGGGTGRT GDRQVITTGPFA TLI Y W WD WT RDRKTTSAPWTADLLGGNGRRSDDRVTTMGPA SLP YWDWTTDSSPVSSLWAEDFLGGTGREGDRQVTTGPFA





 TV P Y WD WTVDRTPAVSLLWADDF LGGGNGSRARREVVTMGPFA TLP Y WD WTMDQSKDSPLWQD DFMGGDGRPDDGMVMTGPFA GI P Y WP WEAD A A LDP D P WT A DYFGGN GLQ S NG WYVQD GPF SV P Y WD WTVDRTPAASLWAEDF LGGGDGRGSDRRVTT GPFA TLP Y WD WTVDRSTTGAPFTADFLGGNGSGGNGPVTTGPFA AL P Y WN WD APA GMKMPTMYANPNSP LYDKLRDAKHQPPTM

 SLP Y WN WS S GDDT DTTEDFT DDFMGPP GDPNNGNK DT S GY AIIPFWNWDSPNGMQMPAMYADPNSPLYDVLRDAKHQPPTL


ALP F WN WDSPP GMQMPPMFAKPNSPDYDKLRNANHQPP TLL
 T $\square P Y$ WNSVADTSPS DP LDWDNTFGGQF
 TFPFWNWDAPGGMQDPADYADASSPLYDKLRNAKHQPP T L AMPFWNWDHPDGMRMPGLYTNPTSSLYDRLRDRRHQPPTM A LPFWN WDSPP GMQFPALYANAKSPLYDKLREANHQPP VT T QP Y WNWFET GDFATNP LFD GSETSMMSGDGEFFKHNGSVS


 YQP Y WN WAKDGS PT SMS GNGEF CDVKSGPFKNMTVNLGPVA
 ALPFWNWDAPK GMQLPS DYADPKSPLYDTLRNANHQPPTL Y QP Y $\square$ NWGK Y A E D L E H A P L F D G S D T S $\square S G N G A Y I S Q P Q Y P$ $T$ L P W WD WT QDAA APEQS PV WRQGF L GGDGDQFRVQD GVFA

 PYTYWDWTK DAEGLRLLSPVMASKNGFGGNGDAE KTEK

 A FP Y WD WT LDD D $\square$ TKSPVFSADNATGFGGNGNQTKPNTMCV Y QPYWNWDRYAKDPENSPLFNGNGGNSPRPGACVETBPFA
 AFPYWDWPFD GS DT SMSGNGEP DPNKGD DF LHCVTSGPFK A LP Y WS WD PPP GMQMP GIVYA DSTST LY DAKRNANBLLPPTV TIP Y WD WT D P Q A LTM I L D E N F E IPPGF GP F T G GP V T S S G F L A

 F I P Y WD SVM D S Y L P D P R D S IM F S D MF A G G T A 1 P F WNWDAPD GMRMPAMYADPSSQLLFDPRRNSRHAPPKL
 T I P P Y WD WT D T R A I $\begin{aligned} & \text { D } \\ & \text { P }\end{aligned}$
 Y QP Y WN WL L Y Q D DVTKS P VF D GSATSMGGDGSYVKHNGSV
 VI P F WD WT LDD WD DITN S S I F D SKILGFGGDGDPKAPKY H DA

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UniRef9O_E3QWQ

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 HSGGKWT NVSVDSRPFLARNDAYRVPTLPPRSDVDAALA QSTGQWTLTVRSDSANYLRRNGGGGLQLPSASDVNSVLG YAEGNWRIRAGVTDDRFLRRDFGRPSAPLPTKAEVDRALG NSNRPWDVHPSLDQTSPGQPPLGSTLIRNSNLLSASTLNY HAGGNWT KVNVTDTEYYTRDLGRAADPLPTKSDLEWALD SGQWTVINSSGLPAGPLMRAFGQNGLPTLPTQAAINQVMA YAQGYWP RVGVTDGVYLTRDLGRARAPMPTKKELESALA DGNRWDTVDEEGRPAGGLRRDEGQDGDRMPTETQVRNALT YKEGNWTI RVGVTEGEFLTRDLGRRADPLPAKKDLEWALK YERGNWTITVGVSEARFLTRNLGRPANPLPTAAELQWALD
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 RRHGTWIVKETVTDGDYLMRELGRNPDDLPSKAELADALA GATNWRITVSSTTATSLRRAMGS NSLPTAAQVSSVLG TDLLNYVQDTTMTPEQLLKNNLATMYRQVVSNGSTAQLFL LDLDYNLTDSNDTNEQQLSSNLSTMYRQLVSSAKTTSLFM
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 DPCVDSGPFAKLRPEYLALDPKTMVGGGHC\WREDPEVFE NFKVNLGPNPLDYNPRCLKRDLTDAIVRKFANATAVVDLI DDLDYDFTEPTIPVSELVANNLSDMYRQVVSGATTAKLFF DWTLNENIIHFDPINMTSLGSKLIRFVGLDPSKTEVEQLMS DLSVNLGPVAFAYNPRCLKRDLTTEINRRFCNASAVDHNL TLIDNYDGDDENDENERISTNLTDMYRQLVSNGKTSTLF VISGPFAYWRTDEGRSTILRNLGNEGQLINENQVNNDVAQ L NLDYNGREPRFTDKQQVDHNLRVMYRQMVSLSPTPSLFF NIINGFITSHWTTPEGRHITRHLGQEGRPLNEDDDQAVMRH NKNLHIDQVTNETLGTPLIRFLKVPPANNYPLPQTELNNL RDDDDPSASESVDPNEQIASNLSIMYRNVISNGKDPRLFL AGGGNDTPSPLAYNPRCAKRDUTSYSAQTTWDTAQNMYN EDGPYAGLHVNFPEPHCLTRQFNDSEQVMTNWTKSVVDED

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$\square \mathrm{T} \| \mathrm{L}$ T PPSRNATLDDPLD
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UniRef90-T5AMH3 UniRef90-K3Y373 UniRef90-G3FPE7 UniRef90-G3FPE7 7 UniRef90-G3FPE76
UniRet90-W5KN36 UniRef90-K1QPB3 UniRef90_V2X5U0 UniRef90-O61363
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$V$ R V
V R P A A H L L A D R A Y L A K Y E R A V S L M K K L P A D D P R S R V
R K E WS DLDSVK E R K E Y T D A V L C L Q S K P R F D D Y V VI H D L Q
IR K D I F RMT TA EK D K L I A Y L NLAA K H T S A Y D L F V W W H Y Y A
$V R R N L D T L E E R D L Q S L K A A L R D L Q H D N S N D G L A S H H$ G S P

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

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V R R P V V A


R R S $\square$ T E L A A E Q WDLLY LQ A L

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UniRef90-O810U4 UniRef90-A8P1K6 UniRef90-JOWRI2
UniRef90 V2YHW2 UniRef90-K2R561 UniRef90_K9U0G3 UniRef90_Q876X8 UniRef90-N1QEA3 UniRef90-W9RKP2 UniRef90-N1Q9G7 UniRef90-H6CONO UniRef90-R8BCN1 UniRef90-Q3SU11
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UniRef90 R1DV14 UniRef90-R1DV14
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信 CNGGYDQVNF QVHNSWLFFPFHRWYLYFYERILGKLDPSF MMDQTSTKPGSAHGGPAFDPWHRYFYNQLERDLQQUDSTV CNGAYEQVGFPVHSCWFFFPWHRYYLYFYERLLGKLTNXG CTGAYNQSPLNI HRSWLFFPWHRMLI YFHERILGSLIGDD SAAGG CNGAYDQVNYQVHNGWHFFPFHRWYLYFYEKDLGKLDPTF MKPNDPNYRNGAHRGPSFRPWHRAFLLKFENDLQALNPS MHEATVFPWNSAHRGPAFLPWHRYYCREFELALQEKDPSV AKCALNRVACCIHGMAT
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AGRADQQAHGGPGF
 FLPWHRAYLDDLEREDQADDPAV AGCHDSQGNCC|HGMPTF
AGCHDSQGNCCVHGMPTF
TRE
T
$A P D V H V V G Q$
TVHNDGI
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 SLTDHGTGN AT T THYTGH TAHGNPTFA
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TLYUHGTGN
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CAGAYNQAGFQ $\square$ HRSWF TQMIHYTGN
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## AHSGPAF

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$\qquad$ H S CWLF SRDAFDEDGDFAHEAPGF AKCSTPANECCIHGMPT

VGYS
HGMPTF
NTKDH
NTKD CQTHPETALFLDPWHRYVHTFHETLKQCGYOG PQSTKKELDMQDHFSWFFFPFHRAYLYFFERDAAKLEPDF PLSTKKYPEYCAHRRTCFAPWHRPYVLEFERMLRRADLAGG


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UniRef9o_V5KRT

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 $P L P Y W D W A A D S A A G A A A P L W N T D P D R G R I Y D G G N G T P F A G$
$G V P Y W D W T K P F T A L P N L L A E E T Y V N P Y T Q E S K P N P F Y R A S ~$ GVPYWDWTKPFTALLPNLLAEETYVNPYTQESKPNPFYRAS GVPYWDWTKPFTALPNLLAEETYVNPYTQESKPNPFYRAS GVPYWDWTKPFTALLPNLLAEETYVNPYTQESKPNPFYRAS GVPYWDWTLDAAGPDNSPIFDNKHGFGGNGAWDPGNFSNP ALPFWNYDAPNGMQFPSIYTDRTSPLYDELRNANHQPPTL Y $A L P F W N Y D A P D G M K M P G M V A E E K S S Q Y D E L R N E N H D P P R L D$
$D Q P Y W D W S D D S T K P T K S P V F D P V T G G G N G D R V V P T P E Q N$ T TPYWRFDRPAPNDFTTDFDGVPDALGTVGFSP
A QPYWDYSRDASHTSTPDPYNFTGELSRTGGGCVLDGPFT PMPWFDETRYSGRFAQSS DFSSKWLGGDAVGGRCVTDGQF A TPYWDWTKP TSELPSLFTSPEYYDPWHDAV VNN $\checkmark N N$ VNN A APYWDWTKPDSELPSLFTSPEYYDPWHDAV AQPYWDWVKHAAAKQPPCRVGNFSCPTGAGGGCVTDGPFK SQPYWDWTLDGALNNMSSAPDWDPGSVGPGGGCVQDGPFA TLPYWDWTNPQALAADFSDDTSDPDAGDFSGGAVPGTFSA VQPYWDWSDDADKNDMKNSPLFDPKTGFGGDGQRTNTNGT PMTWWNEPLDAGHFSTSPVFGADTFGSAPLKTSDNQGTCD ALPP WNWDHPDGMQDPDMYTDKLSALYDLNRSTVHQPPTT YQPYWNWEYAPHNCTNATTNLNCDPPGSGGGCVKTGPFK A LIP WWDETKDAGNFAKAPLFTDDYFGP
DFAMPYWDWTASPTMPEVFLDEKTPDGKTNWLCVNEDGRK G|PYWDWTKPMSHLPELVQHPLEDDPNGQKA
 G| PYWDWTKPMSHLPELVQHPLFIDPNGQKA MEGKKNV TFPYYNWAHYANDPKNGPFSTGAPPACLDMVRCVTSGPFK DFPYWDWT TDSSSPETSPVWNLIGGNGQGGNNCVQDG AQPYWDWTLDTPAGQWADPANPMEVPGRTGGGCVQDGPFA FHPYWDWAKYAAAPQDSPIFNEWIIGPHGGVNLSASTADNP YQPYWAWNKYAANP INSPVFDYTTIPPGVGGGCVRNGPFA TFALPFWNYDSPGGMTIPSMFIDTNSSLYDSLRDSNHQPP TQPYWDWNEPD\|ILGASSGLPPVYLPAGSGGGCVKSGPFK GVPYWDWTKPLDSIPHLLADENYVDPYTK ETKPNPFY GVPYWDWTKPLDS: PHLLADENYVDPYTK $\quad$ ETKPNPFY GVPYWDWTKPLDSIPHLLADENYVDPYTK ETKPNPFY DFAMPFWDWTDNPYLPEVFTMQKTPDGKDNP YVSSRTWP RSPYWDWSADSNVPPCTVPERVSVNDPNGQNLRRIEDRNP STPYWDSVLDSGLPNPQDSIVLWTNELMGTT PGVQFGSLTIPPADGGGCLLDGPFKDFKANLGPVAPVLND PLPYWDWSVDSQAPELSPI WNSNAFGGNGNIGPATRCD SMPYWDWSLDWMNLARSSUWDNSAGFGGDGDPDGAETVGD AVPFWS WDVPEGMRVPQEFADEVSPDHDPSRNPRHAPPRV
 GLPYWDFTRPDTHVPLLASEETYFNP SGPYWDSSKD FVMDNPALTSFFSSALVGNGDG\| SQPYWDWTFDPTYGFGGNGAD\|PGYNGFFNNVSETPDWEY GVPYWDWTTPSSSLPHLVAVETYEDPYTK EVKPNPFY GVPYWDWTTPSSSLPHLVAVETYEDPYTK EVVKPNPFY $T Q P Y W D W A L T A A T S M E T S P V F D G S A T S F S G N G A P D P H Q G Q$
$T Q P Y W N W F E T G D F A T N P V F D G S E T S M S G D G K Y F E H D G A W S$ TQPYWNWFETGDFATNPVFDGSETSMSGDGKYFEHDGAWS A $1 P Y$ YD SALDSHLPSPRDSVLWSDELGGAKSGEVKD PRWDWTKDTEGLRLSPVMASKNGFGGNGDKCVTDGPFA PFPWWDETKDAGNFTNSGLFTSEYFGTQEGHGSCVTDGAF PTPYWDWTQDVIDMSQSEIFDPVKGFGGNGGGIITKNYCVQQ P $\square P G A P S P Y N V I P P G D G G G C V T T G P F K N T \square N V G P D A P T \square$ NFTGPFWDWRDAQQCEGCTDEFFGGTHPTSNNLLSPASFF AI PYWDWTLPITDLPEIFTSQNYYYVWRDV VVNNPFA
 GLVYWDWTLDYGALEKSPVFDAKTGFGGDGEVGGHITVGR VMPYWNWSLDVANITASPLFDSDPEAGLGTFGTPLTDGAF ALTPFWSWDVPDGMRMPPEFANSSSPAYDPVRNPRHRPPAF AQPYWDWGGDGNLGMPYWDWTRYEVNGEVFPRDIRDELTV RAPYWDWADEPWLP SVVLPETVEVKAT
SMPY WDWT

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UniRef90 ${ }^{\text {T2FP8L5 }}$ UniRef90-F9XBE5 UniRef90-ROIDE3 UniRef90-F2UT45 UniRefoo 2 Q HF 52 UniRef90-M4FWI3 UniRef90-G7YOH6
UniRef90_K9XLC7 UniRef90-Q9FRX6 UniRef90-F9FMU5 UniRef90-W6CNR9 UniRef90-W6CNR9 UniRef90-W6CNR9 UniRef90 W6CNR9 UniRef90-Q8KILO
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VDLDFGGVDNTMDDAQIKSNLSTMYRQMVSGSRTPSLFF RFNLTGGMVNYPGPPSCLKRRLVLPILNTWTDPKLIANLL ANPLQFWATDGVQGILRRQLG
$\square P H F S V N V N R T D G P G A C L K R D F S P R D F N Y F T$ ATPERDEAI ANDA PFSKGFVKFANTYTVRDPQEMLFQLCEHGESLLYEQTLLA
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 RAA EFLKADVFTSRKIDERLFKKXXVGDHGYLFDGMLLA $1 T$ QPMPDNIVGPQVLNTD LSTYKYPREALDGEFGEFSKTPQMARCPDPNQELQDYRGK VTGGDFANFVTFEKHPNIRRQLGKQGSPFKQSDLNWGLQQ STGLIARTRAQFPTPHCIYRQWRLGPQEFEGQQGGDMLGA GRCVIDGPFADLRPDIYNHTLAEHCLSRGFRDGNATGRLS HNPFHDVQUAFLGNDVHTERDLSPSLAQTPAWGEHTEELF HNPFHDVQAFLGNDVHTERDDSPSLAQTPAWGEHTELF SNWKVICSRCDGREEGPLLRNPGKHDRNLPTSAEVDFTLG GGPGGGCIDDGPFASYNLSLGPGTITNHCISRWFTPVYLK HAQDEFLHNDVFTARNVDSRLFEKPTKGHHGYLHDGMLLA HAQUEFLHNDVFTARNVDSRLFEKPTKGHHGYLHDGMLLA VILGASTGLPPIYQFAWNPRCLKRDLTDAVNRAYANASSV
 K पRPEYEPRKLTDGGHCLHRNLPE VEDEDAFATMA AGKMLHDGPGEDNKEHCLSRGEDKDQTKNVSKAYVDTCNS PYSPQSNFTLTWPENQCLQRNFNMETKRSRGWRPASGPST QVPRNPRSDGLGYNPRCLRRDINKHAA AVTTANYTYDL SSWNS LRDICNGTNEGPLLRSPGRHTPRADTSADVEACLS RGYMPTEDVYTVRDMMPEVRNKNQAGDHSAMEADAALSAME
 RGYLPTEDVYTVRDLMPEVRNKNQAGDHSALFDLALSAME KDAYRSYPTPHVISRTYDPYPFKQDAAVFPFSFTHRDLSA VDLGFVGVESNRTDEQQDQHNLRTMYKQMDGNAALPSLFH DFPSSFFPIKPSPAFAPLATLPSDASLKAAFEASGLDELA $N M T V N L G P L S D S G N P R C L A R D F S P Y F A G R Y$ VLGMNQTQLT
$Y R F S K E V M Q G K Y G E F D T Y D R M Y R C Q N P Q D A N Q K L Y S R N Y ~$


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E E LTY DEPNY TS WDT QK GDP Q V T T P G S QLLHN R|V|H|L|W|I G GN M GKAYRAGDAP GKSYRAGEDT LRAYNTQVMNADYAFDNFADMATIEEDPHSMIHRVISGMM AGAKKMELFMGCPYKGSCNGPGTIELAPHNTVHKWVEDMG TQDDQVLSFTAPQQGCPYRTDFNCLEYTHGNVHIFVGDMF GEPYRQGTDKE PGAGTVERTPHTAIHI WGGSEK ESDYDTPPYDSWDTRRGDPQVTTAGSQLHNRVHLWVGGNM DYDTDPWHPGSADSFRNQLEGWPNGPAMHNRVHVWVGGDM FEQDDFCDFEVQFEVTHNABHAWTGGSEPYSM US
 PLSFRDMSQQGDFGHFDRLTQSTTHSGGHWGVGGLYGTMT GNPYRAGDAP DPGAGSVEIVPHNTVHLWSGDDT TKYTTDKTFQDFMQGTFDSGGRDVGVHTAGHFWVGGDPGG GSAYVAGDEP PNLLTEAQTLALGSAYRNFRGMQGNPHGSAHVSYFSGSDS DAQPDYTSFDRADEGLPDPRYPNDHTGGHFAVGGLLGQAG LEQTDYCDFEVQFEVLHNVIHYLVGGRQ
LEQTDYCDFEVQFEVLHNVIHYLVGGRQ QTTFETFRTTLEN GGRAVNGFGMHGGGHAAVGGEMV AGVANASTDAEFQAHLDNASGEGLPGLHPFGHWTLGPTGA DDLLTGPKNTYDFEFTMQGWPGTAEQGVHGGGHFSLDPGR ANDYDTFRQADEGFDQLNPGQPKNGVFMHNYFHSFVGGAN VTAYNSKVMNTDYFETYKDMSNMLEGLPHAQDHSVIFGDM AYAPAVMANDTAKTTFVDF WQALENGPHGAVHQGI SGDM NNKYSDMESC SEFGPHGYGHNGIIGMS GSPYREGSKDSPGSDEKHPHNCVHNWTGHEDTPQTPCGED K $\ T \square E K C T F G D F T Y D A E \square G P P Q \downarrow H S G D H G G G H S G V G G V M R$ ANYHD 1 LSFENRMQG NFTAGFYGVHTAGHFTTGGDPGG QSNSDFVSNCNSHSNYSEMESCAEMGPHAYTHNGПGAVMA SRPAGQNSDDPSWITGGGGVQGTLEATPHNQVHNNDGGWM CREEDYCHFEVQLEVAHNPIHYLVGGR LEHEDYCHFEVQLEVAHNPIHYLVGGR FTHSMS
 NLIKNYWDIASFQAEYQGAFAEGRMGVHTGGHYT GGDAG RDYTTMSA LAAPDFGAFDKVVEGGPSFEASGVHGGGHYGVGGTYGQDG WANYTRAPDDTAFRFVSEGYKDTLK円GTHGAGHYVISGDP EECDNISCFEWTMQGFFEEG FLGVHTAGHFTUGGDPGG IUNYYVFNALDEGALVLNNKNEYFEGWTLHACAHSUDTMD LKPKTVLDFQMQMQGVPGTGDIGGHGGGHYSL GGDPGR

 TRPEGQNSGDPSWVTTSSGTQGALEYTPHNQVHNNDGGWM QATYDDFTTASNFHQFAVRGRVHHLEEDHNDVHYSAACKG KSSYR DFWEATGFTTHGAGHSGIGGVM NRMENVLAFTAPRQGCQYRANYNADEYTHGNVHDFVGGDM QNQ NVYWFQTVMQGEMQKGNPGVHGGGHFAI AGDP FYSPDADQFILQDSQSYAAFRLALEDHPHNLIHSAIGGDM GEKFSPENMDILRQDDYSGFLRRVERDLHNTLHNSVNGDF GQPYRAGDRGM NAFLLALEQEYFCKFATQFEVAHNLIHGLVGGNTPHGLS NAFLLALEQEYFCKFAUQFEVAHNLIHGLVGGNTPHGLS D DPTVN GPMTRQLVLGTNEMLANTLEGQHNNVHNWVGDMS TDTEKNVSQLFTFDTFEEFRPVTRHAKPHDGAHFAVGGEM
 VGLVLGSEHVSEFQLTMQGVPGSGSПGVHGGGHYADDPGR LGKASNTIDAMQDEFQGRFSDKFLGMHAAGHFVMGGGSA KVFGPEGVEEVQASGNWSHYARSLEGGPHGSUHACLGGEM RTEYVDMRSCM AN SHSQSQDDQVNRNSQF TKFWPALEEGPHDSVHNEDNDDM GQPYRAGDQPE N PGGGTVESVPHNPVHRWTGDPR TSNSDVYWFQTVMEGQFAQGKWGVHAGGHYTL SGDPAG DTDYETGAMDRSANFSFRNTLEGSQSSMHNSLHVFLNSMS

QTDY
QTDY
QTDY
QTDY
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UniRef90

O61363 UniRef90-O61363 UniRef90 K2QYV7 UniRef90-A0A016P7U4 UniRef90-A0A016T1G5 UniRef90 XoKHVO | UniRef90-M7TN32 |
| :--- |
| UniRef90 $\times 8 J T \times 8$ | UniRef90-A5X3Q1 UniRef90-G2R639 UniRef90-Q04604 UniRef90-0564J1 UniRe90_-Q564JJ UniR Refo- 5564 JJ 1 UniRef90-M2YMY9 UniRef90 - 8 J2P3 UniRef90-W5EL37

UniRef90
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 S YYNSPGEPLFYLHHTNLDSLLWLWQKQDPEKRLHEVGGP DTYAAPADPDFWLHHGFVDRNFRIWQNSNPSVRTTTVNGN SLHYASYDPFFFIHHSFVDKMWVVWQALQKRRKLPYKRAD SLHYASYDPFFFI HHSFVDKMWVVWQALQKRRKLPYKRAD SLHYASYDPFFFHHHSFVDKMWVVWQALQKRRKLPYKRAD D DF SSPADPAFWLHHGMVDKVWTE WQAVDPWARVY GENA
 FDPSVIYDPVFWLIHANVDRLWAEWQQSHAGSQYYPAQGG GPATSPNEPLFFLHHANVDRAWAKWQGRNETRDSDYSGGR GPSTSPNDPMFFVHHAQIDRLWEQWRQADLKARAVMFGGN MGVFSPGPVFMHHGFVDSVWQNADLTNRLQVNT MGVFAGRDPGFFAHHANVDRMWSUWKTLDGPKRLTDTDFLD D LFASPAEPTFFLHHAQIDRTWWIWQNQDLKNRGNAFAGG DVASSPGDPIFFMHHAFVDHNWRIWQNPDPDNRDYQTNGY PTAASPRDPLFFMHHGNLDRDWALWNLKHQNSTDPLWTDM SLEYTSYDPLFFLHHSNVERQFALWQALQKHRGLSTRPNR SLEYTSYDPLFFLHHSNVERQFALWQALQKHRGLSTRPNR SLEYTSYDPLFFLHHSNVERQFALWQALLQKHRGLSTRPNR SDFYNPADPAFYPHHAMIDRVWWUWQNGDLEKRETALAGT STMSAPYDPVFFLHHAYVDKQWYDWQ DDYTSPADPIFYLHHANLDRVWWSWQKDNDETRLTDDSG DLYASPGDPAFYVHHAMIDRVFWUWQNLDPANRTYVVKGP SIPSSPYDPDFWLNHANVDRLWAKWQDQHTGESFYPKSGV TPYGENMDPIFFAHHSNVDRMWSTWKTLGGPRRTDLTD DVFTSPGDPAFYLHHSMIDRVWWI WQMLNPKERVNGKNA TLHYTSFDPMFWLHHSQVDRLWAI WQALQTQRGL PYKAH TLHYTSFDPMFWLHHSQVDRLWAL WQALQLQRGL PYKAH TLHYTSFDPMFWLHHSQVDRLWAIWQALQUQRGL PYKAH PEMSSPRDPIFFMHHCNIDDRI WATWNLRNANSTDRLWADM QFFDAEFEPLFMLHHTQVDRLWAYWQFDDPSQASFFSTPQ EDDASPGDPLFYLHHGVVDRLWWKWQSEDFGNRLYQLGGP YDPYTSNDPLFYLHHSFVDYIWEMYRQQKQTRYQRENDYS GGDFYNSDPAFWLHHGMLDRTWWUWQMQDLINKRLTEVSG KAMTAANDPLFFLHHGNLDRLWWRWQRENPRSRLLQYLGN
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AGSAH NQATFLPWHRYFTKCYFDAL
SRDTLLGGTDFAHEAPGFLPWHRLFLLLWEKEIQRLDEHF CNFHHASRAPHAHFGPAFLSWHRVSLY/FEQALRSKVPGV ASYDHGVG AFLPFHRYYMTVHESMRTECGYTG TPSDHWVGHFAHWHRCNYEGAQPYWDWLLDVESGKNMTEW T FTWTHMVVNEEAHQTATFLPFHRWFLHEYENARSECNYTG YQWDHLNRTFEVHFSADFLPWHRYLLHTYEQQLAACGYKG AQCHEPSGRCCHGMATFPHWHRLYTLQLQALRRHGSSV AQCHEPSGRCC AQCHEPSGRCCDHGMATFPHWHRLYTLQLEQALRRHGSSV F DP WNGVGGYCPHGNVQFPMWHRPY LALFEQEYKTAADNW CKHGSKDVACCVHGEPTFPQWHRLYAVQMEQALKEKGLN

## UniRef90 V5KRT6

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UniRef90 H1VAP3 UniRef90-E9FAB7 UniRef90-M2UJ14 Uniref90-D8N9A2 UniRet90_D3BV93 UniRef90-11N312 UniRef90-A0AO1OR9A2 UniRef90-W3WHQ6 UniRef90_I1RUV1 UniRef90-L8WSR9 UniRef90-J3NUE8 UniRef90-J3NPY8 UniRef90-R4JDV1 UniRef90-M4GCL1
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## sII PYWDWT 



120

 SI P Y WD WT M DWM DLH GSSIWNNVVGFGGD GDPAGP IVVGE AL P Y WD WA KP V S SLLPA LIA SDETFTMD GSGESKHNPWL SA K AL P Y WD WAK PV S S L PALASSETFTDPGSGESKHNPWLSAK HIP Y WD WS LD WMNLANSS IWWS SED GF G G D G DSNGPVIVGE H HP Y WN WA EY A E DPVVSNPMF D GCVI S GPFAS MSVNL GPIT TFPFWNWDAPAGMTLPADYANRSSPLYDEMRDPAHQPPVL


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 TIP Y WD WR D A QECSDCT DE YL G GRHRGDP SLLLSPASF FSS
 S PAS VE GLPYWDSTEDESLLPDPTMSVLWS DELMMGKPPNMLS DS D GH AL P Y WRF D QPAPNLLFTRDFGLGESDANGTVKFRNGNPDEFW

 TQPYWD WAKTDNSPDFD GSETSMSGNGEFDPDQGDDILTN SLPYWDWS LDAADLAQSPDWS TSGFRGVGNGHCVTDGPFA P M $\square$ WF D E T R Y A GRFA Q S S L F S S K W L G S L G I N G R CV T D G Q F A MPY WN WTEDRLLPEAFTAKQYNGKTNPYVHNRNELDGVY NNDEPNPNYT LDPYWDWENDHRLAKEYYRNLVWHYKFMGGN ALP F WN WDSVE GMQ MP S YFNNPNSSLYHQLVNQNHLPPHV



 GLP Y WN WDHPK GMRDP PMFDREGSSLYDARRNQSHRNGTQ PMP F WD WT LDVA DVPRSPDFDPVKGF GGNGRVVNCVVDGP T QP Y WNWGLYAS DPAS S P I F DTVVY LPAGMGGGCVQS GP FK GGSKCD DC TD DLMGARSNFDMNSISSNS SFAQWRVICESV Y H P Y WN WGKYAHNP LNSPVFDGSSTSMGGNGEYVPHNCTD


 NFAVP Y WD WR DAESCD\|CTDE YMGGPHPADP NLLSPASFF ALP YWNWDHPKGMRFPAMYDREGTSLFDVTRDQSHRNGAV


 | $G$ | $V$ | $P$ | $Y$ | $W$ | $D$ | $W T$ | $Q$ | $E$ | $L$ | $H$ | $D$ | $L$ | $P$ | $E$ | $L$ | $V$ | $R$ | $E$ | $G$ | $V$ | $L$ | $P$ | $D$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $G$ | $P$ | $S$ | $G$ | $G$ | $K$ | $N$ | $L$ | $I$ | $N$ | $P$ | $W$ | $Y$ |  |  |  |  |  |  |  |  |  |  |  |
| $L$ | $H$ | $W$ | $D$ | $W T$ | $Q$ | $E$ | $L$ | $P$ | $E$ | $L$ | $V$ | $R$ | $E$ | $G$ | $V$ | $L$ | $P$ | $D$ | $P$ | $S$ | $G$ | $G$ | $K$ |
| $N$ | $L$ | $I$ | $N$ | $P$ | $W$ | $Y$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |



 GIPYWNWTKRMS SI PAFFGDDSNNNPFYKYHIRAVNQYTT
 A I P Y WDETRDA GKFSASTVFDPVTGFGAGGNPCVPNGPFA PATYWDWTRDADGPASSPVFDNVEGFGGNGVPGTYTPPPN A L P Y WN WDHPK GMRFP PMFD DP GTAALYDERRGEQ DHNGT
 Y L P Y WD WP R Y A S A P E K S P I F N G D P Y S L G G N GE Y Y V P H E G P V
$P$
 $A \square P$ A $\quad$ PS F WN WDAP K GMHMPHMF DDPNSPDY DAKRNPABFPD T


 A QP Y WD Y GRWA QDPLDS P IF DGSDTSMSGNGEKIP HRSDP PMAYWDWT $\square D A D A G S K S P V F D A S T G F G G N G K R T G N S T E G Y$ $P \square P Y W E W G F D Y N M T L W P D Q Y P A V T Y P P G N G S G C V T K T D W G$

 AVPYWD WT KPIT ELLPHULTDGEYY DVWQNAVLANP RAP YWD WA A DGGAQLPPVVTTQTTTVTVYRWQRFPLNTASEY G IP Y WE WT H QLD HLPELVSQRVFIENDGGKAR

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UniRef90 C0SPI3 UniRef90_COSPI3
UniRef90_A6R3X8 UniRef90_W3XCJ7 UniRef90_J3L4U1 UniRef90_A0A010QAA5 UniRef90_A0A022R1L7 UniRef90_W7EVG9 UniRef90_UPI0002C336F3 UniRef90_F4PBL1 UniRef90_K2RLK6 UniRef90_B8NIJ9 UniRef90-H3FM18 UniRef90_UPI000328AF17 UniRef90_Q870S6 UniRef90_UPI000023D9E3 UniRef90_W5MJX9 UniRef90_A0A016SJ50 UniRef90_UPIO004685AC0 UniRef90_G4NA86 UniRef90-W7TM70 UniRef90_N4UQQ4
UniRef90 H1VAP3 UniRef90_E9FAB7 UniRef90_M2UJ14 UniRef90-D8N9A2 UniRef90_D3BV93 UniRef90_I1N3I2 UniRef90-A0A010R9A2 UniRef90_W3WHQ6 UniRef90_I1RUV1 UniRef90_L8WSR9 UniRef90_J3NUE8 UniRef90_J3NPY8 UniRef90_R4JDV1 UniRef90_M4GCL1
UniRef90_W3XN18 UniRef90_W5LQG8 UniRef90_B2B1L7 UniRef90_F7NZ53 UniRef90-V5KPU0 UniRef90_V5KPU0 UniRef90-V5KPU0
UniRef90_V5KPU0 UniRef90_UPI0003333970 UniRef90_M1BMR6 UniRef90_M4FXM5 UniRef90_G3FPE5 UniRef90_G3FPE5 UniRef90_G3FPE5
UniRef90 G3FPE5 UniRef90_W5K8U5 UniRef90_F7W1H1 UniRef90_A8N4B1
UniRef90 C7FEG7 UniRef90_C7FEG7 UniRef90_C7FEG7 UniRef90_C7FEG7 UniRef90_Q2HCB5 UniRef90_A8NBL1 UniRef90-M1BMR7
UniRef90-G2Q526 UniRef90-G2Q526
UniRef90-C9SBK6 UniRef90_Q9NDV3 UniRef90_Q9NDV3 UniRef90_Q9NDV3 UniRef90_Q6UIL3 UniRef90_M2UBM4
UniRef90_UPI000333F335 UniRef90 K1PS50 UniRef90_M7T064 UniRef90-U4L8S4 UniRef90-G5EHG8 UniRef90_V2XA83
UniRef90_F7W1C8 UniRef90_F7W1C8
UniRef90_Q9GP18 UniRef90_Q9GP18 UniRef90_Q9GP18 UniRef90_Q9GP18
UniRef90-N4V8F9 UniRef90_G3FPE6 UniRef90_G3FPE6
UniRef90_G3FPE6

130
140
150
160
F|L|KAY|INESHQYT|V|RTPQSAlLWK|V|SSDGQHS|VL|FDE|VLVA FLKAYIN NESHQYTVRTPQSALWKVSSDGQHSVLFDEVLYA

 GRCDVTDGP FSNDRPDRYN QT DLLKHCLAR GFRNVDADGRPD


 D GV F A GlT C N I GP G L S N RP H C L S R A V N E E Q TA Q CN N D FVI

 PAVVDLGFTGSTMDDQVVSNNLTDMYTEMVRGNSDVYDFM



 R G W WQYNSRHALCNGTFEGPLLRNPGNHTPRLPSSADVEFCLN

 VRRGAFRNWT LLDGSRYFRRNDGARGQLMTRREDDTVVTA V T D GTPG $\square H R T P D F P T$ D FPANDGPVPLGPNPRCLTRDLSNVVSR TYFTHANLHN C M K E G P F A E WTN S K G G C L K R DGS D S Y R F F S P A E V L D L I M G

 NSTRNWQAEE $\square$ GSQFKI SRNPHCLSRGFQTGDAKKKLQA
 GDPNDDNKDKTGPFAGYWPPNHDKREMSDVGQEPELPSPT VDLN Y N K L D P N D D T P S H Q Q V S Y NLA FMYK QMVLA







 $W P$ LPDA WVAP DV


 $\frac{\mathrm{S}}{\mathrm{D}}$






 | $R$ | $D$ | $V$ | $D$ | $V$ |
| :--- | :--- | :--- | :--- | :--- |
| $R$ | $D$ | $V$ | $D$ |  |

| $R$ | $D$ | $V$ | $D$ |
| :--- | :--- | :--- | :--- |
| $R$ | $D$ | $V$ | $D$ |
| $R$ |  |  |  |


| $R$ |  |  |  |
| :--- | :--- | :--- | :--- | :--- |
| $R$ | $D$ | $D$ | $V$ |
| $R$ | $V$ | $D$ | $V$ | EL F N Q T K F G EL F N Q T K F G

 I P E F P GP D WP T L VMD R CLVRGI FEDVK DNLNSTVIAATLA


 $V D L D F S S G E A P S H N P R Q \square G N N L S \square M Y K Q V V R A K K A R L F H G$ TDQTLSCDVNSGPPNSPTVMTE GGHCFFRSVA EANEP EA WN E E Y N SLLQMLCN GSSEGP LLRRNPGNHTPRLPSSADVVELCLD NWSHPF $N L T L H Y N E D L T V T$ D Y CVVSRNIVNERSFS GADQANVDSCLAA
 KYCGAPPNFDQGN $\square$ RHCLSRAFNDGTQNDFGTPNVGDMMA

 F A R G Y V K





## UniRef90 V5KRT6

 UniRef90-V5KRT6 UniRefe90-V5KRT6 UniRef90-V5KRT6UniRef90 V5KRT6 UniRef90-E3R0G6 UniRef90-FOVWW2 UniRef90-FOV3W2 UniRef90-J4KM75
UniRef90_C1GPY5 UniRef90_COSPI3 UniRet90-A6R3X8 UniReffo-W3XCJ7 UniRef90-J3L4U1 UniRef90_A0A010QAA5 UniRef90-A0A022R1L7 UniRef90-W7EVG9 UniRef90_UPIo002C336F3 UniRef90-F4PBL1 UniRef90-K2RLK6 UniRef90-B8NIJ9 UniRef90-H3FM18 UniRef90_UPIO00328AF17 UniRef90-Q870S6 UniRef90_UPIO00023D9E3 UniRef90-W5MJX9 UniRef90-A0A016SJ50 UniRef90-UPIO004685AC0 UniRef90-G4NA86 UniRef90-W7TM70 UniRef90-N4UQQ4 UniRef90-H1VAP3 UniRef90-E9FAB7 UniRef90_M2UJ14
UniRef90_D8N9A2 UniRef90-D3BBV93 UniRef90-11N312 UniRef90-A0AO10R9A2 UniRef90-W3WHQ6 UniRef90-l1RUV1 UniRef90-L8WSR9 UniRef90-J3NUE8 UniRef90-J3NPY8 UniRef90-R4JDV1 UniRef90-M4GCL1
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UniRef90_F7W1H1 UniRef90-A8N4B1 UniRef90-C7FEG7 UniRef90-C7FEG7 UniRet90-C7FEG7 UniRef90-C7FEG7 UniRef90-A8NBL1 UniRef90-M1BMR7 UniRef90-G2Q526 UniRef90-C9SBK6 UniRef90-Q9NDV3
UniRef90-Q9NDV3 UniRef90 Q9NDV3 UniRef90_-Q6ULL3 UniRef90_M2UBM4
UniRef90_UPIO00333F335 UniRef90-K1PS50 UniRef90_M7T064 UniRef90-U4L8S4 UniRef90-G5EHG8 UniRef90-V2XA83 UniRef90-F7W1C8
UniRef90- Q9GP18 UniRef90-Q9GP18 UniRef90-Q9GP18 UniRef90-Q9GP18
UniRef90 $\operatorname{N4V8F9}$ UniRef90-G3FPE6 UniRef90_G3FPE6
UniRef90_G3FPE6

220
230
240
SLIHYSSYDPAFFLLHHSFVIDKIIWAVVQELLQRRRGKPYNTAD SLHYSSYDPAFFLHHSFVDKI WAVWQELQRRRGKPYNTAD SLHYSSYDPAFFLHHSFVDKI WAVWQELQRRRGKPYNTAD SLHYSSYDPAFFLHHSFVDKI WAVWQELQRRRGKPYNTAD LSLTAANDPVFYLHHAQUDHLWWRWQQEDKATRLYEYEG SLRYTTFDPIFFLHHSSVDRYWADWQELQRFRGKAYNKAN KAMIAANDPLFYLHHAQLDRMWWQWQQARPASRLLEYRGN DFYDSPGDPVFYLHHSQIDRDWWDWQNDDPANRLHAVAGG QPNGEDMDPIFFAHHGDIDRLWHVWRGLRPSNDFTDPDWL DFFNSPNDPMFWLHHSQIDRTWWIWQNQLPLNRTLQUSGT DNYSAGRDPDFYVHHANVDRLWEAWRHRRNNSDFTDPDWL NQPAGEDMPLFYSHHSNVDRMWTLWQNKIPDKKDTDPDFL GDMGPPNEPLFFLHHAQVDRLWWLWQQGNPSVRNTEYAG NVRREDMDPSFYAHHSNLDRLWEVWTQQHKDLQTFDSDWL GVSMSANDP FMMLHHANVDRMWTVWQSLIPKLANTYGGFN DVYVSPGDTAFWLHHGMIDRVWWDWQNLDLRKRQNADSGT NGTMSQNDPIFLLHHAFIDSDYEQWLRRHPPKEVFPEANA DFYTSPNDPAFFNHHAG|DRTWADWQWLDDENRTEQDAGG DPNTSPNDP FFLHHTQIDRDWSLWQQENPKVRLADFAGD SVQGSANDPIFLHHAFVDSI FEQWLRRHPPKSAYPTANA AVPTATHDPIFFLHHSMMDLIWEEWQSRSERETAYPQACS SDFSSGTDPSFYMHHSMVDFVYWDWQAQNGAASFDERPTS NSFASPDDP自FWLHHAFVDKI WAMWQDCHRPANILDTDFK DVYTSPGDPAFYLHHGMIDRVWWMWQMLSPQERQYPSANT
DFFVSPSDPAFYLHHANI DRVWWMWQMLSPNDRESEDA LLQTAPNDPVFYLHHAQVDRLWWLWQRRNNGSRMWQYHGP DVQASPCEPFFYFHHHFIDRNARIYTNSNPQNGVDAFGNA PTAASPRDPVFMMHHGNIDRVWATWNALGRKNSTDPLWGM SRFHTSNDPVFWLHHCNVDRIWAQWQTQHSAELTDANSTY KPHHEDMDPIFYAHHPNSDRLWGLWKTLEGGRK DYSDD DVFTSPGDPAFYLHHSMIDRVWWMWQMLSPQERQYALGGT SDFSSPVDPVFWLHHAMLDRLWWLWQALHLDQAQDTVAGT RRQFSPNEPLFFVHHAQVDRMWTLWQGRNKTRLSDYGGNT GGDFYPNDPAFWVHHAMVDRDWTVWQQNLEGRLAVIQGG NFYSAGLDPLFYSHHANVDRMWSEWKALGGKRRDLTHKDN SPSSSPNDPLFFMHHAQI DRLWY LWQQADVVARTRDYSGT DVYDSPGDPIFFLHHGMIDLMWWLWQYLDIENRQYVISGT GTTHSPNDPIFVLLHTFTDALFEEWLRRHPEAAVYPLENA DLAASPGEPAFYMHHAQMDRVWWUWQNLHPETRTNADGGT ThEWSAFDPFFMVHHSS|DR|WRUWQELQRDRKKPFNVAR

 HFYSAGLDPVFFCHHSNVDRMWSEWKATGGKRTDITHKDN DKWS SPVDPVFWLHHANVDRLWWSWQYRNLPGRLMDISGP SLEYTVYDPIFFLHHSNVERLFQWYTEVQKRESKGEGGQ SLLEYTHYDPI FFELHHSNVERLFQUYTEVQKYRESKGEGGQ SLEYTUYDPAFFLHHSNVERLFQUYTEVQKYRESKGEGGQ DAFDSCGDPAFWLHHSQIDRMWWDWQNDDFANRQGVFGTH SQVFSTNEPDFYLHHANVDHVWWEWQNKNPK FQYDFSGP TLEYSAYDPVFMI HHSSLDRI WLLWQQLQKRRMKLYYAAD TLEYSAYDPVFMI HHSSLDRI WILWQQLQKRRMKLYYAAD TLEYSAYDPVFMLHHSSLDR1WILWQQLQKRRMKLYYAAD TLEYSAYDPVFMLHHSSLDRLWILWQQLQKRRMKLYYAAD G APGDPLFYLUH GNLDRIWAKWQALDPNRLTEVSGTT GGDFYPNDPAFWVHHGMIDRTWTIWQSQDLDNRLQVIAGG DLFTSPGDPAFYAHHAMMDRMWTLWQALDPKSRHCQLNGG SLRYTAYDPDFFhHHSNTDR WA WQSLQKYRGKPYNTAN SLRYTAYDPIEFLHHSNTDR\|WAIMQSLQKYRGKPYNTAN NFYSAGRDPLFYAHHANVDRMWY WKNSLGRKDYKKKDWD NPTTSPNEPLFFLHHPQIDRLWWNWQQRDPEKRVADYSGS
 DNPLSPGDPIFFLHHTYLDKLWWEWQSQDLSQRLTETGGN DAFNSPGDPLFYLHHGNLDRLYYLWQKKDLANRLRDVSGP DFYDSPNDPVFWLHHSMIDRVWTIWQSQDLANRLMVIAGG LTSAAPNDALFYLHHGNVDRIWAKWQAANPDRLSDYQG DVFLSNGDPAFYLHHGQIDRVWWIWQNLDPANRLFNVSGT SLEYSSYDPMFFIHHSFVDKIWAVWQELQSRRHLQFRTAD SLEYSSYDPIFFIHHSFVDKIWAVWQELQSRRHEQFRTAD YI EYAAFDPLFMLHHANVDRLDAMWQA HYNNKIQTRTST


|  | 250 260 |
| :---: | :---: |
| UniRef90_V5KRT6 | CA G K Y L N EP\|L|HPFDDPDPSD|V|F D Y R GE|LGYYYDNFN |
| UniRef90_V5KRT6 | CAGKYLNEPLHPFDDPDPSDVFDYRGELGYYYDNFN |
| UniRef90-V5KRT6 | CAGKYL NEPLHPFDDPDPSDVFDYRGELGYYYDNFN |
| UniRef90-V5KRT6 | CAGKYL NEPLHPFDDPDPSDVFDYRGELGYYYDNFN |
| UniRef90-V5KRT6 | CAGKYLNEPLHPFDDPDPSDVFDYRGELGYYYDNFN |
| UniRef90_E3R0G6 |  |
| UniRef90-F0V3W2 | CALLQVMREPLMP F NDVNPDEVYENAFGYRYDNLEFN |
| UniRef90-F0V3W2 | CALQVMREPLMPFNDVNPDEVYENAFGYRYDNLEFN |
| UniRef90-J4KM75 | STGNATLDNVLMYGDIPVAKVMDTEGCYK |
| UniRef90_C1GPY5 | TEMYNASSRNGTADDLRLGDLLSATGCYDYQ |
| UniRef90-C0SPI3 | DAAFLFYDEEARPVRVRVRDCLDPAADYTYQDVG |
| UniRef90-A6R3X8 |  |
| UniRef90-W3XCJ7 | NTVFNT PPSANTTLEDTI N |
| UniRef90-J3L4U1 |  |
| UniRef90-A0A010QAA5 | N NPPSANATLDDLI DITPRDLMSTPFCYVYE |
| UniRef90_A0A022R1L7 | NTAFLFY |
| UniRef90_W7EVG9 |  |
| UniRef90-F4PBL1 | SDG SPARPTDPI KVSDMFSTTSCYKYSN |
| UniRef90-K2RLK6 | VVPQDWSNKSGGNVTLRIR DLM DIT LGYVYESL |
| UniRef90-B8NIJ9 | GTFMNDDLGYANGGPI A MRDLMSTTACYV |
| UniRef90-H3FM18 | PTAHFSTSPMSPFAPLQNDDGCSTDNDYSYDT |
| UniRef90_UPI000328AF17 |  |
| UniRef90-Q870S6 | TAMFDPNSPRQTLDDIR\RDLVSTQFCYTYE |
| UniRef90_UPI000023D9E3 | KTQDQFDGTKPPADDLKVKDMMTTESC |
| UniRef90-W5MJX9 | P $\square$ GHNDGYYMVP F MPL R N G D Y F $\square$ S S K E $\square$ G Y D Y |
| UniRef90-A0A016SJ50 | SAAHFANTTMTPFWPMVNMDGLSNK YT DNLYEYA |
| UniRef90_UPI0004685AC0 | RPGHKLNDTMWP WNGITPAD |
| UniRef90-G4NA86 | P S REARKDDLLPMGVTT $\square$ G D L L D T P G |
| UniRef90-W7TM70 | P D QVDV ELAPAPGIT TR S MWS T REDYTYET |
| UniRef90_N4UQQ4 | T F D P V VEY G WVGGEP |
| UniRef90-H1VAP3 | VMGTNTFL ${ }^{\text {V }}$ ( PPPSANTTLDDI |
| UniRef90_E9FAB7 |  |
| UniRef90-M2UJ14 | LT LD T KVNTM M M M D L T I R DLLD T Q S C Y R Y Y |
| UniRef90_D8N9A2 | K F S D Y I D P Q R Y Y T Q V S DL S TEALIMRYDAM |
| UniRef90-D3BV93 | P DLDDVVIEPWNEKVRDVI D Y R Q HYRYQLY |
| UniRef90_I1N312 |  |
| UniRef90-A0A010R9A2 | NTFLDD QPPSANTTMDDV |
| UniRef90-W3WHQ6 | \TLFN NPPSRNTTLDDT |
| UniRef90-I1RUV1 | GGNATADDNMMPFEDLTVSDVMDTTNCYTY |
| UniRef90-L8WSR9 | VQNTTLDDTMKFLGLAEDRDTLSNGLCYKYD |
| UniRef90_J3NUE8 |  |
| UniRef90-J3NPY8 |  |
| UniRef90-R4JDV1 | SEFFFYDENRNPF RVVKRDCLDSKKM |
| UniRef90-M4GCL1 | PPPAALDDVMPFMPDLKVSEVMSTKACYEY |
| UniRef90-W3XN18 | RTFQNTLDD\VELGPI TIRELTNTPLCYTYEA |
| UniRef90-W5LQG8 | P 1 GHNRDYNMVPWPPITNAEMFVTNLGYSYEA |
| UniRef90-B2B1L7 | ITLNNF PPSRNGTLDDL |
| UniRef90-F7NZ53 | NLWLL M F K N Y L S P T Y PRDLQD T K A LY TYPGL |
| UniRef90-V5KPU0 | CAMRYLRKPLEPFTNSRP\DIFDTAKFYDFDNLDLGGH |
| UniRef90-V5KPU0 | CAMRYLRKPLEPFTNSRPIDI F D T A K F Y D F D NLDLGGH |
| UniRef90-V5KPU0 | CAMRYLRKPLEPFTNSRPIDIFDTAKFYDFDNLDLGG |
| UniRef90-V5KPU0 | CAMRYLRKPLEPFTNSRPIDIFDTAKFYDFDNLDLGGH |
| UniRef90_UPI0003333970 | P $\square$ G H N R E A Y MVP F $\square$ P L R NGDFFTS S K DLGY |
| UniRef90-M1BMR6 | SEFFFYDENENPY RVKVRDCLDTKKM GYD |
| UniRef90-M4FXM5 | LVSQDWTNQRGGNITTLSDTMD\RGCYDYDG\\| |
| UniRef90-G3FPE5 | KVICDIK GYFAPLEP |
| UniRef90-G3FPE5 | KVICDI K GYFAPLE |
| UniRef90-G3FPE5 | KVICDIK GYFAPLE |
| UniRef90-G3FPE5 | KVICDIK G Y F A PLEP |
| UniRef90-W5K8U5 |  |
| UniRef90-F7W1H1 | TILDQ PPSDNVTVEEFLD\ |
| UniRef90_A8N4B1 | $P$ GSTDGVCD M L P L |
| UniRef90-C7FEG7 | CAGDLMKFPMHPFVNSVPNDVFDHYKFYDYDNMR\RG |
| UniRef90-C7FEG7 | CAGDLMKFPMHPFVNSVPNVVFDHYKFYDYDNMRIRG |
| UniRef90_C7FEG7 | CAGDLMKFPMHPFVNSVPNIVFDHYKFYDYDNMRIRG |
| UniRef90_C7FEG7 | CAGDLMKFPMHPFVNSVPNIVFDHYKFYDYDNMRIRG |
| UniRef90_Q2HCB5 | EV |
| UniRef90-A8NBL1 |  |
| UniRef90-M1BMR7 | SEFFFYDESGNPFKVKVRDCLDTKKMYDYEPM |
| UniRef90-G2Q526 | S S G GPPQTLDDPVDLGVVADVVDGPFCYVYE |
| UniRef90_C9SBK6 | NYGHRTWANQPPSEKTKLSDI I D |
| UniRef90-Q9NDV3 | CATESMRRPLQPFDRTTPFDVFNYRLHYVYDTLEFN |
| UniRef90-Q9NDV3 | CAI ESMRRPLQPFDRI T P F DVEFNYRLHYVYDTLEFN |
| UniRef90_Q9NDV3 | CALESMRRPLQPFDRI TPFDVFNYRLHYVYDTLEFN |
| UniRef90-Q6UIL3 | NAGFLLFDENAQPVRVYVRDALDERKLYAYQEVD |
| UniRef90-M2UBM4 | F 1 P A SMNDTLNMLDDVLVKDVMSTTGCYRY |
| UniRef90-UPI000333F335 |  |
| UniRef90-K1PS50 | P IGHRPYDTMKPFD LKNRDLIDWSKVYQYE |
| UniRef90-M7T064 | NT |
| UniRef90_U4L8S4 |  |
| UniRef90-G5EHG8 | S MF G \( |
| ) GS R LQSLD DLK |  |
| UniRef90_V2XA83 |  |
| UniRef90_F7W1C8 |  |
| UniRef90-Q9GP18 | CAVGLMGQAMRPFNKDFNHNSFTPNTVFDYEDLGYNY |
| UniRef90-Q9GP18 | CAVGLMGQAMRPFNKDFNHNSFTPNTVFDYEDLGYNY |
| UniRef90-Q9GP18 | CAVGLMGQAMRPFNKDFNHNSFTPNTVFDYEDLGYNY |
| UniRef90-Q9GP18 | CAVGLMGQAMRPFNKDFNHNSFTPNTVFDYEDLGYNY |
| UniRef90-N4V8F9 | STPITADSPLKPFNFHTGRTASD\KNFYSYPEISDW |
| UniRef90-G3FPE6 | CDIVGFRTPLEPLNRDSNPFALTTLICGYKYDNL |
| UniRef90-G3FPE6 | CDIVGFRTPLEPLNRDSNPFALTTLFGYKYDNL |
| UniRef90_G3FPE6 |  |

## UniRef90 G3FPE6 UniRef90-S8AXM2 UniRef90 W9HYE1 UniRef90-G3WXQ9 UniRef90_J3JRX6 UniRef90_J3JRX6 UniRef90_J3JRX6 UniRef90_J3JRX6

 UniRef90_U1MD38 UniRef90_UPI000359867E UniRef90-UPI000359867E UniRef90-W7N1T7 UniRef90-A8MZV5 UniRef90-19KK36 UniRef90_L7UVM0 UniRef90_L2GD54 UniRef90_G1PU26 UniRef90-F7EEJ9 UniRef90_I7CCR9 UniRef90-I1KLG6 UniRef90-C7Z1V0 UniRef90-D5UDJ1UniRef90_W2RPP6 UniRef90-P12659 UniRef90-B0XX11 UniRef90-R8BG35 UniRef90-17H916 UniRef90-17H916 UniRef90_17H916 UniRef90_S0EGX6 UniRef90_F0XF66
UniRef90 G2Q551 UniRef90-P55024 UniRef90- Q98TS7 UniRef90_UPI00027F613F UniRef90-M7ST71 UniRef90_L7IHZ8 UniRef90-W9C2S2
UniRef90_I4DD57 UniRef90-B5RHQ6 UniRef90_A0A016W1G3 UniRef90_F9G095 UniRef90-A0A022QE60 UniRef90_TOKJY4 UniRef90-E3REK7 UniRef90-E1FSZZ1 UniRef90-B0DNR7
UniRef90- J3FB94 UniRef90_A0A022QC39 UniRef90-B7X728 UniRef90-S7RR67 UniRef90-M5CF11 UniRef90-A8NQE7 UniRef90_G4N0R4 UniRef90_H1V1E6 UniRef90-A0A022R0C6 UniRef90-U4KW98 UniRef90_L7IBS8 UniRef90-A1C4G0 UniRef90_S8AP51 UniRef90_W7I5U6 UniRef90_X8JFG5
UniRef90_TOL638 UniRef90-E3Q5S1 UniRef90-F2UK53 UniRef90_Q53IP9 UniRef90-Q53IP9 UniRef90_-Q53IP9 UniRef90_Q531P9
UniRef90_K2RZA2 UniRef90-GOP8V1 UniRef90-B2ARY3 UniRef90_W3WT18 UniRef90-E5A169 UniRef90-J3P4K8 UniRef90_M4FN66 UniRet90_L2FMV4
UniRef90_K1 UniRef90-Q84YH9 UniRef90_UPIO00440EEFC UniRef90-HOZLV3 UniRef90_UPIO00158409D UniRef90_UPI00037D3673 UniRef90_S8AEK3 UniRef90_P56826 UniRef90_L2G955 UniRef90_I1HSD3 UniRef90_M7BKU8 UniRef90_N4V612 UniRef90_17HJH1
UniRef90_17HJH1
 $V \vee R K N D H S L T P G E R E Q F L D A L D L A A K N T F H S D Y F V W L H Y Y S$ RKDVDS LTTAEVLA L QEALKEVQEDTGYQAIAA YHGYP

 I R K E Y R M L T E D E RQRRFHS A L VQQL K R S GE F DK L A L I H A Q F $V$ R K N I A S L S P Q E E L S L L K A M A A L Q A D S S A D G Y Q S I A S C P
 V R K E WR T L S DH QRR D Y I R A V K C L A K KP S N AG G GRMAMD Q $V R R D V L R B D E A R A A Y I R G V K L L K H E P T Y D L G V I W H V L A$ I R P A A HLLVDK T Y DEKYNKALSLMKADPDS DQQAKVHCAY V R R N WD DL DAD QRKEYISAVKCLLSSPRYDDFAAQHDNQ $V$ V R R N $\quad$ I F $V V R K N D H S L T A Q E R T Q F L D A L D Q A K N T D H P D Y F V W L H Y Y S$ RPAAHLVTDEYLAKFKKAQALMRALPEDDQQAKVHCAY IR P A A HLVVTD DY YAKYEEAVR RMQDLPPDD QQANVVHRAY VRREWNTLSKNDKKA Y DNAVKCLQSSKPRFD DWVATMVD Q $R$ K NVR K L T TTAALYR F REAVVALLK QANRYD D YVY DHQQS $S \square R R E W S T L S K K D R K A Y T D A C R C L A A K P R W D D F T A T H D S Q$

 RKEWS DLT $\quad$ DDERKEYTKAVLDCLQSKPRFDDYVAVVHQM RRNDNSLTQESLYELRQALTSSFMADTENTGFQRYEWCP
R R N I N S L T Q E S L Y E L R QA LTTSFMA DT ENTGERQRYE WCP RRNI NS LTQESLYELRQALTSFMADTENTGFQRYEWCP V R K E W R T L S T K E K H D Y I G A V K C L A T K P S Q T G N $\square Y$ A G A K S

 VR R N L LT L S T A E Q Q K F I S Y L N L A K S T N T Y D L F V WM H Y Y V VI R Q N IVH S L S P Q E R E Q F L G A L D D L A K K S S S V Y D D F F V W W L H Y Y S $V$ R K E WY A L S R D E K L A A Y I D A V K C L R R E WS DL S G A D R IA Y T N A V L CLLQ S K S R F D D F V A T H I N Q

 VVRKEWRELTS A EKTE YLRRAAVCLRNNDPKKADDVT TRMDD RPAAHLAGKEYYAKFEKAVALMKALPADDQQANVHCAY VRKDWNALSGSERKAYTSAVNCLLRRKRYDDFVGVHDNQ R Q D WNVMS A E E RK A Y I S AVQ CMY S S P RYD D FVAA H I N Q
 IR R N HRDL S REEKAAFINAVLDRLKNNSRYD DFVQQIM N S $R P S A H R V S A Q Y M F K Y N L A V D R M K R L P D D D Q Q A M D H C A Y$ SVRRS IF QLSVSERQRF I SYLNLAKTTSVYDLFVWMHYYV SVRREWRKLSRKERADYIRAVNCLDNLPHSPDLSASLYDD

 H Q Q
 RRAWHTFSPAEKRAYLTAEQCLMKLDGTVPTAQTRFDD TQRKAWTTLTDAEKADYLQAEVCLMETPRWDELQAMHVAQ V R REWGSLS R DE RLDDYI SAVVHCMRQNPRMDDFAATMIN Y
 V R REWRTLSNGDKKAWI DALLKCAGNDPHSDSLTSSSHYDD
 I R R E W G S L S R Q D K L

 $V R K S V E H L T Q E E T L D L Q A A L R E L Q M D S S S I G G F A A A B G A P$ V Y R K E WS D L S P E E R I S Y T N A V L C L Q S K P P K TP G A K T Y F D D S $\square R K E \square R M M S P T E L R D G G D A M N G L K$

R T L T

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I R F E WR NYS D T D R H A F V N A V S C L M N A P R WE DIVVRVHQAM



$V$ R K E WR A L K R N E K D R Y I A A V K K C L $V R P A A Q L V D D D Y F A K Y N K A L E L M R A L P D D D Q Q A K I H C A Y$ $\checkmark$ V PVE LQE F LDD A L D Q S K N TIIH P D Y VI A TEE H WL


 $V$ R R E WR N MP GE DRIA Y T DA V T CLLQS K S MF D DF VA L H Q N M I R P P P A H A A V D E E Y I A A K Y Q Q L A T S S Q M R E VRRPA HAVGAEYMAKYERVIA LMMAALPHSDQVANIHCAY R R S $\square$ F QL S S K E K N K F L A Y L NLA K Q T P S Q D Y F V WM H Y Y V


UniRef90_G3FPE6 UniRef90_S8AXM2
UniRef90_W9HYE1 UniRef90_G3WXQ9 UniRef90-J3JRX6 UniRef90_J3JRX6
UniRef90_J3JRX6 UniRef90-J3JRX6 UniRef90_U1MD38 UniRef90_UPI000359867E UniRef90-UPI000359867E UniRef90-W7N1T7 UniRef90-A8MZV5
UniRef90_I9KK36
UniRef90-L7UVM0 UniRef90-L2GD54 UniRef90_G1PU26 UniRef90-F7EEJ9 UniRef90-17CCR9 UniRef90-I1KLG6 UniRef90-C7Z1V0 UniRef90-D5UDJ1 UniRef90-W2RPP6 UniRef90-B0XX11 UniRef90_R8BG35 UniRef90-17H916
UniRef90-17H916
UniRef90-17H916 UniRef90-S0EGX6 UniRef90_F0XF66 UniRef90-G2Q551 UniRef90-P55024 UniRef90_Q98TS7
UniRef90_UPI0002 UniRef90_UPI00027F613F UniRef90-M7ST71 UniRef90-L7IHZ8 UniRef90-W9C2S2 UniRef90-I4DD57 UniRef90-B5RHQ6 UniRef90-A0A016W1G3 UniRef90_F9G095 UniRef90-A0A022QE60 UniRef90-TOKJY4 UniRef90-E3REK7 UniRef90_E1FSZ1 UniRef90-BODNR7 UniRef90-J3FB94 UniRef90_A0A022QC39 UniRef90_B7X728 UniRef90-S7RR67 UniRef90-M5CF11 UniRef90-A8NQE7 UniRef90_G4N0R4 UniRef90_H1V1E6 UniRef90-A0A022R0C6 UniRef90-U4KW98 UniRef90-L7IBS8 UniRef90_A1C4G0 UniRef90-S8AP51 UniRef90-W7I5U6 UniRef90-X8JFG5 UniRef90-T0L638 UniRef90-E3Q5S1 UniRef90-F2UK53 UniRef90_Q53IP9 UniRef90-Q531P9 UniRef90_Q53IP9 UniRef90_Q53IP9 UniRef90-K2RZA2 UniRef90_GOP8V1
UniRef90 B2ARY3 UniRef90_W3WT18 UniRef90-E5A169 UniRef90-J3P4K8 UniRef90_M4FN66 UniRet90_L2FMV4 UniRef90-Q84YH9 UniRef90_UPIO00440EEFC UniRef90-HOZLV3 UniRef90_UPIO00158409D UniRef90-UPI00037D3673 UniRef90-S8AEK3 UniRef90-P56826 UniRef90-L2G955 UniRef90-F1DBB7 UniRef90-I1HSD3 UniRef90-M7BKU8 UniRef90-N4V612 UniRef90-17HJH1
UniRef90_-17HJH1



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A HD GHKM A C C SH Q GPA






 CNGGYHQAGFQVHGSWLFFPFHRAYLYFYER\|LGSLINDF TMSVHVTGN F LTWHRHYVWSYEQARNECGYS G | $S M D T$ |
| :---: |
| S L G G S D F A HEAP G F L |
| $V$ |


 MA GHNDPGPHPGHRGPTFFPWHREF LRRFEQQLRTVVDPS T


## T WV I H G T G N

GQVMG




SRDTLLGGSDFAHEAPGFLDPWHRAFLLLDWREEIQKMITGDE

T P Y V HNSAWF

TMTIHYTGN
F LLSWHRYYYTHLFYE K T R R E TVGYY Q
TLSIH GTGN
F
$F$
$L$ S WH R Y Y Y T H H T Y Y E K A A R K E C C G Y Y K G
CGHDKD QLLRFQVHFSWLF
AMCTAKNGDPCEHGMPTF
ASSGG
L P F H R A Y L Y F F E
FT AHSGPAFLPWHREYMKRDE DALRQVDPEL

TLSSHGGTGN
TRSIH GTGN EASESGAHSGPS F
 MGRGNPLVPN PHRSPLFYPWHRVLI RQFELALQAADPR
 SRDALL GGPDFAHESAAFLP WHRVY L LF WE HEIGRKLLTGD F FVY $\square H M D L N R K \square H Y T A L L L P W H R C D S G E Y S D A P D F Q N S D F$ NI K DH
MAWDHADGQ
T L N I HYTGNFQ
F T A I F L P WHR WY L H T F H E A L K Q C G Y K G
NFQ PWHRWFVYTYEKAREECGYKG TMS TANF L L S WHR Y Y V WA Y E K A L C GYK G Y Q
 V Q F DH A V G S
 F L P WHRY F M S V H E C GY K G V L P Y W YKA WNPQSGYCTHSDILELSWHRPYLAVYEQLI WEAARNI WTY A H $\square D S$ Y T K S Q V T AL F FP WH R WY L D A F E R ML K R C D F N G
 A PQAHGNPRFLDWHREFLSQVEMALREVSGNC A S CVVHKDTSCCDHGMPTRPHWHRAYVVHMERALQTKRRTS
 A S C V




 $\begin{array}{ll}L T \\ T & T \\ T & H\end{array}$ CVGGYKQLLGYSVHNSWLFFLDWHRYFIAAYETARDECGWTG GLLGGPNGTNP QVTNDS IVFVWWQHYYTGNENFAVPYWNFAT VR DTPFK G $\quad$ D F SHQ GPAF VTWHRYHLLDWLERELQRLMGNE LKPWDGTS GYCTHGSNLFGPWHRPYLALHEQQVHTWGVK $\square$ MMLMTPPGQNAAHSGPAF LPWHRYFLIDALERFLQQAVDDA YKA WDKTEGYCAHGDMLFLDPWHRPY I AVVE QQVWN HAYD I LS CHYPNGTCCQHGMVTFPHWHRDYMKQMEDAMKAK GAK CNGAYKAGGKQVHFSWLFFPFHRWYLYFYERDLGSLIDNF Y R QANP K L G G VQ I HF S WL F F T F H RA H L Y F F E R I A A K L EPE F SHDTLLGGGSDFAHEAPGF LDWHRLDFLLLDWEHEIQKIIT GDE TGl I H N TANF
AKCPQPR RYACCTHGMPTFP HWHRLYMVQMEQALLARGS HI

UniRef90_G3FPE6 UniRef90-S8AXM2 UniRef90-W9HYE1
UniRef90 G3WXQ9 UniRef90_J3JRX6 UniRef90-J3JRX6 UniRef90_J3JRX6 UniRef90_J3JRX6 UniRef90_U1MD38 UniRef90_UPI000359867E UniRef90-UPI000359867E UniRef90-W7N1T7 UniRef90-A8MZV5 UniRef90_I9KK36 UniRef90-L7UVM0 UniRef90-L2GD54 UniRef90_G1PU26 UniRef90-F7EEJ9 UniRef90-17CCR9 UniRef90-I1KLG6 UniRef90-C7Z1V0 UniRef90-D5UDJ1 UniRef90-P12659 UniRef90-B0XX11 UniRef90-R8BG35 UniRef90-17H916 UniRef90-17H916 UniRef90-17H916 UniRef90-S0EGX6 UniRef90_F0XF66 UniRef90-G2Q551 UniRef90-P55024 UniRef90_Q98TS7 UniRef90-UPI00027F613F UniRef90-M7ST71 UniRef90_L7IHZ8 UniRef90-W9C2S2 UniRef90-I4DD57 UniRef90-B5RHQ6 UniRef90-A0A016W1G3 UniRef90_F9G095 UniRef90-A0A022QE60 UniRef90-TOKJY4 UniRef90-E3REK7 UniRef90-E1FSZ1 UniRef90_B0DNR7 UniRef90_J3FB94 UniRef90_A0A022QC39 UniRef90_B7X728 UniRef90-S7RR67 UniRef90-M5CF11 UniRef90-A8NQE7 UniRef90-G4N0R4 UniRef90_H1V1E6 UniRef90_A0A022R0C6 UniRef90_U4KW98 UniRef90-L7IBS8 UniRef90-A1C4G0 UniRef90-S8AP51 UniRef90-W7I5U6 UniRef90-X8JFG5 UniRef90-E3Q5S1 UniRef90-F2UK53 UniRef90-Q53IP9 UniRef90-Q53IP9 UniRef90_Q53IP9 UniRef90_Q53IP9
UniRef90_K2RZA2 UniRef90-G0P8V1 UniRef90-B2ARY3 UniRef90-W3WT18 UniRef90_E5A169 UniRef90-J3P4K8 UniRef90_M4FN66 UniRef90-L2FMV4 UniRef90-K1 X411 UniRef90-Q84YH9 UniRef90_UPIO00440EEFC UniRef90-HOZLV3 UniRef90-UPI000158409D UniRef90-UPI00037D3673 UniRef90-S8AEK3 UniRef90-P56826 UniRef90_L2G955 UniRef90 F1DBB7 UniRef90-l1HSD3 UniRef90-M7BKU8 UniRef90-N4V612 UniRef90-17HJH1

90
100
110
120
GII P Y WE WT HQ VNQYWDWASDSSVPAEVGSMKTIEVANPQVAGARQSIANP





 S MP Y WD WT IDD SK D M S K S P V F S N DK T R GF G G N G L N G G F M C V
 AI P Y WN WD HP D GMVMPTFFNDQNSPFFDVNRDQNHUPPTV



 CLP Y W D WS V D R T S A D P G WP F F T D F L G G G D G T GA G I V V V P P D G P PMP Y WDWAFDGSEYSMSGDGAKVEQSGDNGGGClGSGPFK A T P Y W D WT Q P G T K L P R L L A D S D Y Y D A $\quad$ W
 $G$ GP Y WD WTEA IT H LPE S LTA A K T DP

 G IP F W W D WT Q D S D A LA H S P L L N DL P G F G G H G A Y C V T D G N H M F QP Y WN W D R D P A N SP LIF S GN S S S L L S G N S V N G G C V T T G P F A
 T F P Y W W E W G L D A G N G E K V $N$ NK T G G V P P G F P G G T G G G C A HP Y WD WALLTAGMETSPDWDGSETSLGGNGEF IMAKGPVV
 G L P Y WD WT QP DE H LDP F LV A E DP GVVRNS


 Y Q P Y WN WLS Y R D DPSKAPMFDGVY IPSGDGGGCVTKGPFA Y QP Y WN WF TY Q D D L R A S P DF D GSD T SM G G D GT F V Q H N S P T
 AI P Y W D W T L D A D S I S E S P I I F D P
 $D F T D P Y$ WD WR D A Q D C Q VCT D E LMGAR S P L N P N H L S P S S V F
 $V L P Y W N W S L D V A N M T A A P V F D S D P E V G L G T F G T P I T A G A F$ P A P Y WD W S R D A E P LA Q S P V F D A VT GF GGNGVPGTY T P P P N
 PYE HWPYYASDP LSSPPLFNGNETSMSGDNGGGCIMSGPFK
 $T$
TP P WD E E R D A G K F S S S E V F Y P Y WN WA LSAN N LSASPLFDNVTIPNGSGGGCVNTGP FA $R \quad P$ Y W D WA A D A S I P V V Q V R E M K N I E V A N P R G G R Q N I A N P L $R I P Y W D W A A D A R V P P Q V G E M Q Q I Q V D A P A G R Q T \| A N P L Y S$
 $T$ QP Y WD WPK TA I IT GMEK S P I IP P I Y LP V G T G G G C V T S GP F K


 A HP Y W D WT F D GS P T S M G GNGENDVDEVGGTGGGCVVSGP FA



 VQP Y WD WT ID A DA RAMP T SP LIFDA DRGSMGMPDV



 GIIP Y WD W T T T F S H LIP F L V T E P K N N P F
$T$ L P Y WE WS LD G D DPAS SP IF DGSATSMGSDGAY VAMPNLG





UniRef90_G3FPE6 UniRef90_S8AXM2
UniRef90_W9HYE1 UniRef90_G3WXQ9 UniRef90_J3JRX6 UniRef90_J3JRX6
UniRef90_J3JRX6 UniRef90-J3JRX6 UniRef90_U1MD38 UniRef90_UPI000359867E UniRef90-UPI000359867E UniRef90-W7N1T7 UniRef90-A8MZV5
UniRef90_I9KK36 UniRef90-L7UVM0 UniRef90-L2GD54 UniRef90-G1PU26 UniRef90-F7EEJ9 UniRef90-17CCR9 UniRef90-I1KLG6 UniRef90-C7Z1V0 UniRef90-D5UDJ1 UniRef90-W2RPP6
UniRef90-P12659 UniRef90-B0XX11 UniRef90-R8BG35 UniRef90_17H916
UniRef90-17H916
UniRef90-17H916 UniRef90-S0EGX6 UniRef90_F0XF66 UniRef90-G2Q551 UniRef90-P55024 UniRef90_Q98TS7 UniRef90_UPI00027F613F UniRef90-M7ST71 UniRef90-L71HZ8 UniRef90-W9C2S2 UniRef90-I4DD57 UniRef90-B5RHQ6 UniRef90_A0A016W1G3 UniRef90-F9G095 UniRef90-A0A022QE60 UniRef90-TOKJY4 UniRef90-E3REK7 UniRef90_E1FSZ1 UniRef90_BODNR7 UniRef90-J3FB94 UniRef90_A0A022QC39 UniRef90-B7X728 UniRef90-S7RR67 UniRef90-M5CF11 UniRef90-A8NQE7 UniRef90_G4N0R4 UniRef90_H1V1E6 UniRef90-A0A022ROC6 UniRef90_U4KW98 UniRef90-L7IBS8 UniRef90-A1C4G0 UniRef90_S8AP51 UniRef90-W7I5U6 UniRef90_X8JFG5 UniRef90-T0L638
UniRef90 E3Q5S 1 UniRef90-E3Q5S1 UniRef90_Q531P9 UniRef90_Q53IP9 UniRef90_Q53IP9 UniRef90_Q53IP9 UniRef90-K2RZA2 UniRef90_GOP8V1
UniRef90 B2ARY3 UniRef90_W3WT18 UniRef90-E5A169 UniRef90-J3P4K8 UniRef90_M4FN66 UniRet90_L2FMV4
UniRef90_K1 411 UniRef90-Q84YH9 UniRef90_UPI000440EEFC UniRef90_HOZLV3 UniRef90_UPI000158409D UniRef90-UPI00037D3673 UniRef90-S8AEK3 UniRef90-P56826 UniRef90_L2G955 UniRef90-F1DBB7 UniRef90-11HSD3 UniRef90-M7BKU8 UniRef90-N4V612 UniRef90-17HJH1
UniRef90_17HJH1

130
140

160 LY S YKFTDLSELPGAPFNRMPETYRYARQVSRNRVYQMLT
 Y WHK GVIKDAGTTDRAI DDRLFEQPETGHYTNAMEKVLLA YWHKGVIKDAGTTDRAI DDRLFEQPETGHYTNAMEKVLLAA YWHKGVI KDAGTTDRAADDRLFEQPETGHYTNAMEKVLKA YWHKGVIKDAGTTDRA I DDRLFEQPETGHYTNAMEKVLLAA

 LDGAFNNFTVQYYDNTLRPHCLNRGFNDGLGQAGKFQGNS MDTPFPPDPGFPTGPKCIVRGUFEGVRNNVNSTSLAATLA DRADPTSFRVRDATNRGLARRFGQNAPFGSSRYDTRVDPS MDHTYDGPEHHMPYDEQLKQNLT DMYKAMVANAKTPEMFS
 NDYNRLVTLCNGTNEGFLQRNLGGAEGRLPSMEDVQKCLS VDLSYGGTDDDVDEQTRIDDENLADMYRQMVSGAKTPDLFF

 DWKVNMGPQPLDYNPRCLKRDLTDYDNRRFANAT SVIKT
 ATIPNLKSNPRSDGLGYNPRCLRRDVNKN SAAVTTANYT
 I DSVNADTMRNINEKLFEQPEFGHFT V
 DMKVNLGPGASLYNPRCLKRNDSKSYAAMTT S S WQVICTQCNATSEGPILRNPGNNTPRLPSSSEVEFCLT EDYNNREVLCNTTGEGPLLRNPGNHVRRLPTTADVESVIN
 N
I DM M
 WHCAHVEFMHGKTTRAPRKKLFSDPEFGEHSFFYRQVLYA VSGGPFREWRTDEGRPNDRRDVGAKGKCFSEDEDQFMMGQ
 NMTVHLGPVPLAYNPRCLSRDI SAWTSQH WMTPENVLN MDGQNKSVSELGYNPRCAKRDLTTYAS
 VINGPFAGFTTLEGHST DTRHLGQEGHLLTDQNINMVYDK TQSSFIVSVWDEGFGNAGVRRNLGAAGALPSPETVVSALVN KA IVDLGMTGNKDPLQVVSNNLTVMYSEMIRG

SSWKVI CSQPEDYNQRPLLRNPGNHVPRDPTSADVESVLS VLRRNFTLQPHDSLPRPYAPDPELYANETFTAAEVEKMVT KDSHREYPTPHVINRTYTPYPFRTDAFPFNFTQRELAAPD | $V P E F P G P D W P N L N D P R C D T R A F Y D D L L N N L D K T S V D W A L A$ |
| :--- | :--- |
| $M D G V P Q A G A P T L N G L G E N P R P W K R D V G P G V N M R F A N Y T T V$ | $D F K T N L P P N P R Q D G L G Y N P R C L R R D I N P N S S K F T S E A H$ T A ADDNFASKPTTDPSKUVTNNLTTMYGEMVRNVSKLEDFY

 GMTNNFPENAFAYTPRCLTRNLNSFQDAQSFTSQTVDIDRSLL
SYKFTDFPDRTFSRMQETTRWPQLINGRYESQPQYQLLVA YRFRPFNAMPETYRFPLLRRYTSQPAALNNALVQVAGNLR TDGAFSET DRAYSVPHTIRRQWTPQYSNKKAWANETATHV
 WYRGNPFAHFSPCIERDEKVKPGQHTHWDAGWA
 WYRGNI DFLDKKTNRAVDDRLFEKVKPGQHTHLMESVLDA WYRGNI DFLDKKTNRAVDDRLFEKVKPGQHTHLMESVLDA NYTVNLGPDDFNWNPRCLRRDLNDAVNKRHANATGVLHLL WDTNVLMPLSQLPVKKLYRSTGGREQDRLMTPKDANWIITV DGAFANHDCHGGPGTGNTDHCLSRAVDESLTAQSNADFVN


 PFAYPHFTVNYPKGPKCLTRDFDPSDMNTFAMAQANVDLV

 LSNPNAFITYPNGSTA

LLAMNPVTGNLQVVNGQQLQRNLGASGRLPTRTQVRTF VRN SYWFTSTNEFKNYLWGDLKETLAAMKARETTWKDKVYKIL | $S V V G N N S D T P T A D N P R C L K R D L N G A V L R T W A S F R N V T D L I ~$ |
| :--- | :--- |
| $I V L G F F G Q E T E T T E L Q T M T N N L T M M Y R Q M V T N A P C P L L E F$ |

 SSWNSRQALCNATNEGPILRNPGNHTPRLPSSADVEFCLT QTYANATLRPLDDHPRCLKRDLNGHVARRYTSFRNTTSLI


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| :---: | :---: |
| UniRef90－S8AXM2 | QAYKDFNLAGTKVTNHPGQFDDSFE |
| W9HYE1 | GGDASHSUKAMODEFQGRFADEFGGDHA |
| UniRef90＿G3WXQ9 | LETFDNAPFFRNSFDKPDGTFDSTATNFHNLVHAF |
| UniRef90＿J3JRX6 | LQEDYCKFEDQFEVAHNDTHYLVGGR YGKSMS |
| UniRef90－J3JRX6 | LEQEDYCKFEI QFEVAHNDIHYLVGGR YGKSM |
| UniRef90－＿J3JRX6 | LEQEDYCKFEI QFEVAHNDIHYLVGGR YGKSN |
| UniRet90－J3JR | LEQEDYCKF |
| UniRef90－U1MD38 |  |
| UniRef90 UPI000359867E | DSFCDFETQYEILHNETHGLIGGHGTYSMS |
| UniRef90 UP1000359867E |  |
| UniRef90－W7N1T7 | M |
| UniRef90－A8MZV5 | SSRGFRNRLEGFTGPGLHNQVGLWVGGDM |
| UniRef90－19KK36 |  |
| UniRef90－L2G | ATVRDTASDTASFQ |
| UniRef90－G1 | YESGPMDRTANFSFRNTLEATGFTMHNALHDYMNGTM |
| UniRef90－F7EE | F－DPPFFRNSFDPDGT |
| UniRef90＿17CCR9 |  |
| UniRe990－11KLG6 | NSSPDYFLGPAFEAGSAPQQHFGSLESLLHNTVHSWTGERE |
| UniRet90＿C7Z1Vo |  |
| UniRef90＿D5UDJ1 | RVE GWV |
| UniRef90 W2 | KTIGNFQARMQGNLDMVNGDIGIHGGPHYTLGGDPGR |
| UniRef90－P126599 | QEDYCDFEVQFEVVHNSIUYLVGGHQKY |
| UniRe90－B0xX11 |  |
| UniRer90－R8BG35 |  |
| UniRef90－7 7 H916 | A |
| UniRet90＿17H916 | ANQVILALEQENFCDFSVQ |
| UniRef90＿17H916 | ANQVILALEQENFCDFSVQFEISHNEIHAL |
| UniRet90－SoEGX6 | GTKDFFEFDQRVQGGVS |
| UniRef90＿FOXF6 | DIIALPDYASF SEAMQKESVGPVVAVPNWIQGDM |
| UniRer90－G20551 | － |
| 90－P55024 | TQYESGSMDKMANYSF |
| UniRet90＿Q98TS7 | PEYETDSMDRFFADPE |
| UniRet90＿UP100027F6 | NPPFFQNSTFSF |
| UniRef90＿M7ST71 | NV |
| UniR | G VGLGM GSGHMSMGGDPGM |
| UniRet90＿W9C2S2 | NPSNADIUYWFETDMQGLLSKGEWGVHTGGHYTVGADPGG |
| UniRef90－14DD57 | G |
| UniRet90 B5RHQ6 | LEEQVDYCDFEDQYEMSHNALHSWVGGHE |
| UniRet90＿A0A016W1 | M |
| UniRet90＿F9G095 |  |
| A0A022 | G |
|  | LTVGAAAANVRIFQDELQGRFG |
| UniRef90－E3REK7 | GAASLNVGTFQNELQGRFPDGFLGLHAAGHFSINGDA |
| E1FSZ |  |
| UniRet90－BODNR7 | RGLNDTYKGFLTSEALVAQMEQPTFEAQHGSGHLIVGGDM |
| UniRet90＿33FB94 | WM |
| UniRet90＿A0A022QC | PGPGSSER |
| UniRef90＿B7X728 | ETDLLDRRANMSFRNALEGFASPMHNSLHVFM |
|  | GFKGDMI |
| UniRef90＿M5Cl | VLTPGKIESPGNFTNFAYE |
| UniRet90＿A8NQE7 |  |
| 俍e990－G4N0R4 |  |
| 迷90＿H1V1E6 | YDLLTQNPDIYWFQTVMQGEMEKGQPGVHGGGHFTISGDP |
| UniRef90＿A0A022R0C | Y VVG |
|  |  |
| UniRef90 L7IIBS8 |  |
| UniRet90－A1C4G0 | PNDKSLQHTMDVSVWPELSEAEIMGPHAAAHMQLGRAM |
| UniRef9 | DFNLIGTTGTPHTNNNLDSLESVHDTHHGTVGHMG |
| UniRef90－W715U6 | $V Y E L L T V Y K E F N A V G T P G R F D S L E G V H D T I H G T T G H M G$ |
| UniRef90－X8JFG5 |  |
| Ref90－ToL638 | Q NVED |
| E305S | QNVYDFQMQMQGVPGSGSIGIHGGGHYA |
| UniRet90 | DVAAVLASTSFID MAANLEALHGDLHMFVGGTM |
| UniRef90＿O531P9 | LEQDEFCKFEI QFELAHNAIHYLVGGKHDYSM A |
| UniRet90＿0531P9 | LEQDEFCKFEI QFELAHNAIHYLVGGKHDYSM |
| UniRe990＿Q531P9 | EFCKFE：QFELAHNA：HYLVGGKHDYSM |
| UniRef90－0531P9 | KFELQFELA HNAIHYLVGG |
| UniRef90 GoP8V1 | M |
| UniRef90－${ }^{\text {－}}$ A |  |
| iRef90 W3WT18 |  |
| UniRef90－E5A16 | ALIKNNPNTADFQRVYQGEFALGRMGVHTGGHYTIGGDAG |
| UniRef90 J3P4K8 | DDITLHGGGHILVGGNT |
| UniRef90－M4FN66 | VTVGAASHSVGAFQDELQGRFGDGFLGMHATGHMAIGGES |
| UniRet90＿L2FMV4 | MVT M |
| UniRef90－K1＞ | NI HGSGH |
|  | PHN |
| UniRef90－UPIO00440EEFC | NSTFSFNGEMDSSMTNHNLVHIFLNTSG |
| UniRef90－H0ZLV3 | EFDRPPFFRNSFDKPDGALDSPMLSLHNLVHSFLN |
| 发90－UP100015848 |  |
| niRef90 UP100037D3673 | QVAYDQMPFNSSSASGTRNYGWIGAASTHNSVHVWVGGDM |
| UniRef90＿S8AEK3 | MSSKTFVSMAKDSEDGDETEYTDSLEDVHGDVHVSUGNSW |
|  | LEQRDFCDFEIQFEMGHNAITHSWVGGSSPYGM |
|  | d |
|  |  |
| UniRef90－11HSD3 | GQNDMPGAGTVELAPHNTVHTWT GD |
| UniRet90 M M ${ }^{\text {diKU8 }}$ | A |
| UniRef90＿N4V612 | A |
| iRef90 17HJH1 | EQEDFCDFEVQFEVTHNEIHALVGGNLDYSMA A |
| iRef90＿17HJH |  |

UniRef90_G3FPE6
UniRef90_S8AXM2
UniRef90_W9HYE1
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UniRef90_UPI000359867E
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UniRef90_W7N1T7

HLE Y T S Y D P 210
220
230
240
( F L H H S NVDKI Y TII Y ETI QRSRGYTPGPG|L QVPYAAFDPI FWLHHTNVDRLFAIWQGINPNSAFNGFSGS
 SLEYTSYDPI FFLHHSNVDRI FA ITWQALQKKRGLPWDHSN S.L SLEYTSYDPIFFLHHSNVDRI FAAWQALQQKKRGLPWDHSN TDPYTSNDPAFYLLHSFVDYI WEMYQSRYDRESMYPADNS
 IPSTSPNDPLFMLHHTQI DRLWWMWQQKSPKQRNSDYSG NGYGAPADPI FYLHHANLDRI WTKWQNADRQNRLYEDSGP TPASSPNDPVFFVHHCNVDRLWEGWMRRNGRQYQPDMTAP PNTPFWRDPIFYAHHANVDRTWSIWKTLSPKNKDFKDKDN DLYS GVVDPAFYLHHTMVDRMYWLWQALHYSSGTDT FGNS SVPSSANDPDFRLHHAFVDSMFEQWLRRYPQQEVYPATNA QTNKEDMDPLFYAHHCNVDRMWNDWKTLGGKRKDTDTDWL NNHHDMKDPIFFAHHSNVDRMWNI WKTELLDGRRFDHDWL DVFTSPGDPAFYLHHSMIDRVWWIWQMLSPKERQYPASNA DVGVSPSDPMFFL HHGGVDRAWWI WQMLDPKNRVYA IN GT

 SLTYTAFDPLFMLHHSNVDRI WAI WQSLQQYRGHPHKSAN SLTYTAFDPLFMLHHSNVDRI WAI WQSLQQYRGHPHKSAN SLTYTAFDPLFMLHHSNVDRI WAI WQSLQQYRGHPHKSAN AOYSSPGDPI FWLHHTNVDRLWD WQRLDWPARKSDISGP $A Q Y T A P N D V L Y F L H L A Q L D R I W W I W Q H Q V T A A R L N D Y S G$
$D V Y S S P G D P A F W L H H A M I D R V W W I ~ W Q T H G L P G R L S E V A G S$ NGSMSQNDPIFILHHAFVDSIFERWLRRHPMLEVYPAANA SVQGSANDPI FLLHHAFIDSI YERWLRTHPPRSSYPRANA ALPHSANDPIFVVLHSFTDALFDEWMKRNPPADAWPQEDA GGDFYFSEPAFYLHHGQDDRMYFVWQNLDWETRQN VAGT DVYASPGDPVFYLHHGMI DKAWWI WQKLGGEERVTAI F GT DFFTSSGDPAFYLHHGMIDRVWWI WQMQDLAKRQNAISGT
$N F F S A A R D P I F Y A H H G N V D R L W S I ~ W N T L D N D K G K P R A N Y ~$ NFFSAARDPDIFYAHHGNVDRLWSIWNTGRONKGKPRANY YDQATGNDPVFYMHHSFVDYI WEMWRQSKQSRSARERAWP


 GNFSSPGDPLE HLH HANLDRLWWQWQEKD LPTRRF LDD S GR

 GPTFSANDPLFWLHHAMVDKIWYDWQRNDPVNFWTFQGGA NPFWSPNDPLFFLHHANLDCIWAKWQNTNAKNKRAFGGGT T DA WS P G D P V F Y L H H H A NLD R V W A K WQ S A D K K N R L Y Q I A G Y DF S P N NFYSAGRESLFYSHHANGIDRTWWIWQMQDLNTRLKAVSGT , DV둥

 WV DVS A F D P I F WL H H T N I D R L F A I WQ GliN P GA Y Q ADPPNPADPLFWLHHAMLDRVFAMWQTKYPENAESYTGGS DVFTS PGDPAFYLHHSMIDRVWWMWQMLSPQERQYPSANT DVFTSPGBPVFYLHHSMIDRVWWMWQMLSPQERQYALAGT ITYMS P Y D PVV I M H H A F V D KL WD DWQTELGNGLQYPQS NLE Y T A Y DPIF FLH HSNVDRIFADWQRLQELRNKDPKAMD $N$ L
 NLEYTAYDPIFFLHHSNVDRIFAIWQRLQELRNKDPKAMD GGDFSPAEPAFYLHHANVDRLWWQWQQLDRGERLYALS GT
 DVSSSPSDPVFFMHHLFVDRNFWLWQNGDASRRKTSDTSG
 TDFSS DNDPSFYLHHAMLDRVYWLWQADHPDKAADDDG
GPATSPNEPLRFLHHANVDRVWAKWQGRNATRLADYTGFQ D A S N S P G D P L F Y L H H C N L D R I LTT R WQ A V DPAR RLDEVVGGP QP Y R E D M D P L F Y AL HANV D R L WS DWK T L G GKRK D T D D D WL MSHSAANDPIFLVLHAFTDAIFEEWLRRFDGNGSYPDEMA
 QLS S S PNDPVFFLHHCNVDRIWAAWQERHPASSYVPDMDA PPNFS GFDPI FWLH HANVDRLFAMWQNLHPKGYTFPTYVR TLHYTSYDPLFYLHHSNTDRIWADWQALQKYRGLPYNSAN $D V Y \square S P G D P V F Y L H H T Q L D R V Y W L W Q N L D W E N R Q T \rrbracket F G$
RQPNGEDMPVFY CHHANVDRMWNEWKAI GGKRRLADKDWL DYYSA GRDP I FYPHHNNI DR L WQA WRDA GVAR GYT D P D WL NGSMSQNDPI F LLHHAFVDSIGEQWQRRHPLRDVYPAANA D P Y I S P GEPVF YL H H A QV DRVYWIWQMLDFANR


UniRef90 G3FPE6 UniRef90_S8AXM2
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UniRef90 J3JRX6 UniRef90_J3JRX6 UniRef90 U1MD38 UniRef90-UPIo00359867E UniRef90-UPI000359867E UniRet90 W7N1T7 UniRef90-A8MZV5 UniRef90-19KK36 UniRef90-L7UVM0 UniRef90 L2GD54 UniRef90-G1PU26 UniRef90-F7EEJ9 UniRef90 17CCR9 UniRef90-11KLG6 UniRef90-C7Z1VO UniRef90 W2RPP6 UniRef90-P12659 UniRef90-B0XX11 UniRef90 R8BG35 UniRef90-17H916 UniRef90-17H966 UniRef90 - 17H916 UniRef90-S0EGX6 UniRef90-FOXF66 UniRef90-G20551 UniRef90-P55024 UniRef90 O98TS7 UniRef90-UPIO0027F613F UniRef90_M7ST71 UniRef90 L7IHZ8 UniRef90-W9C2S2 UniRefefo -14DD57 UniRef90-A0A016W1G3 UniRef90-F9G095 UniRef90-A0A022QE60 UniRef90 TOKJY4 UniRef90-E3REK7 UniRef90-E1FSZ1 1 UniRef90 J3FB94 UniRef90-A0A022QC39 UniRef90-B7X728 UniRef90 S7RR67 UniRef90-M5CF11 UniReffo-A8NOE7 UniRet90_G4NOR4 UniRef90 H1V1E6 UniRef90-A0A022ROC6 UniRef90-U4KW98 UniRef90 L7IBS8 UniRef90-A1C4G0 UniRef90_S8AP51 UniRef90- ${ }^{-} 8$ JFG5 UniRef90-ToL638 UniRef90-E3Q5S1 UniRef90-F2UK53 UniRef90-Q531P9
UniRef90- $\mathrm{O53\mid P9}$ UniRef90_Q531P9 UniRef90_Q531P9 UniRef90-K2RZA2
UniRef90
GOP81 UniRef90 B2ARY3 UniRef90-W3WT18 UniRef90-E5A169 UniRef90_J3P4K8 UniRef90 M4FN66 UniRef90-L2FMV4
UniRef90 K1 K
Un UniRef90- Q84YH9 UniRef90 UPIO00440EEFC UniRef90-HOZLV3 UniRef90-UPI000158409D UniRef90 UPI00037D3673 UniRef90-S8AEK3 UniRef90-P56826 UniRef90_L2G955 UniRef90 F1DBB7 UniRef90-11 HSD3 UniRef90-M7BKU8 UniRef90-N4V612 UniRe990-17HJH1

CDIIVGFRTPLIEPLLNRDSNPFALLTTLIFGYKYDNL GTFENLDTPLPPFR
GTIENMSDPLNMGVNDTDGHALDTPFCYTY PIGHNRMYNMVPFPPVTNEELFDTADQLGYDY CGLEMFRTPLEPFGRDSNADAFDYQNLYQYHDL CGLEMFRTPLEPFGRDSNADAFDYQNLYQYHDL
 SALHFGSAPMRPFEPKRNVDGLSNK YTMNLLEYA CGGA MEEPLQPFSNSQPSKVFDYALGYEFDNLELNGH


VAGSSRPGSGKDLVNLGVNGGLDGKMCY IV PI GHNRENYMVPFIPLRNGEFFISSRGYDYEYLQ PI GHNDRYYMVPFMPLRNGDYFLSDKALLGYEY PIGGHRMYNMVPFPPVTNEELFLTQLGYSY ITMMDR PPSRNGTLEDVLD
KTMDNMDFVEYGFPPRQIKELMSTTFCYVYE TTLEDLQDVGYNAGPVPLKDLMSTELCYIY DDADFLNTYFVFFDK IVYRDVLDHKKL GYNYMD CHDHELRRHLEPFTNSRANDVFDYTKLYQYDSLQFN VDNHFSNAFMRPFPPMRNADGLSTDNLYSY
AEDNDRMPVMRLADEPVVKDYMDTRACYTYSSM
NADYLGYDENARLVRVKNSDTLENEKMYVYQEVD PSRDARLDDLVPNAPNRPSDLLNTPFCYLY QDVISMNY LNVVDDVT DEDLMDT
S SLHFANAKMRPFNLV NRQGLSTDYLYTY LT QVTLNYRLDFAPPMSVRDTMDDQKCYAY $L V F H P E N E P A P W P Q S F T V Q Q T L V T E D L Y R Y E Y L$ NASFLFYDENKQLVRVSVKDSLDNLKMYEYERVD P IGHNDGYYMVPFIPLRNGDYFLSTKRLGYEY PPLMNLNDTMPMFPEMTVYDVMNTTGCYVYE QDLVNFDTYPVGAPP
TT NVTLDFEMYLDEPDKVKEVMDDEACYRYND LYA HQTWWNEPPSNLTSPDEI IDD
PMGVGVNGTLVNAPKVKLGDLLDTMNCY ITY DATYLFYDENKNLVQVNVKDALDNEKMYTYQKVDN

STMGNLPDTQVTWGP LT $\square G E V M S T E A C Y E Y D D$ GTTENMSTPDTPFRQTGNAMVRTSQFGYAYETVEY

 NTFLDANATMDDFEPGK IARDTMSTPFCYVY
 CAQELLHQKMEPFSWEDN DIPLTNDYDTLNLN GTLLNS PPSPNVTFEDTMD
NDNHGFDVQMKPF TVQNRDGLSTDEWYEYQPVRH S $\square$ MMNPASPNVTLVDTTVGDVMK $\square D A C Y T Y D S L$ IDDSNSPCTPLPDVTVRDIIDTENCYLYTY GENTLINDTITGAPNUTI GDAMSTMACYIYQ RKE WAKPFNLVPGMPEVISEPATLEDLLTYSELS

DTDAA TTDSMPVLTDLLVRDYMDTPLCYTYSSM VLPFDYGGVNVTLDFITLRQALNAEGCYRYE ESEFDFYDENKNLVKVKVKDGLDGKKLYDYQKVD

GSIQDQDSPLTPFHRDTSGNFFSSADVRNVENLGYSY PDSLQFHRYNVFDETVTPRQMLDYKTHYEYDTLD $P$ VGVDLDTPLKPFRQTTSASVGDTKKFY $\square Y P E$
CEINKLKKPMMPF
NSEFFFYDENRNPFKVKVRDCLDSKKM DSSFLDFYEDARLVRITVRDVLDTEK
UniRef90_17HJH1 UniRef90-17HJH1 UniRef90-R4Z4Y5
UniRef90 - 2 FXF4 UniRef90-I1KLG8 UniRef90-K7GGT4 UniR Refo-H1VBZ UniRef90_ROIPL7 UniRef90-N1S8Q1 UniRef90_UPI0003C28C85 UniRef90-Q8QGN1 UniRef90-G2QLD3 UniRet90-M8B7N6 UniRef90-L2G525 UniRef90-R9GPF3
UniRef90-U1MIG7 UniRet90-A8N3K9 UniRef90-S8AFU7 UniRef90-H3CX59 UniReffo-S7QB03 UniRef90-P56823 UniRef90-SOEJDO
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Un4RH1
UniRef90
C1FZ29 UniRef90-C1FZ29
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UniRef9O_B2VWUO

1 $R K D V 1020 \quad 30$ RKDVDLTPEEVYELRKAMERLQSDHSYDMIAEYHGLP RKDVDRLTPEEVYELRKAMERLQSDHSYDMIAEYHGLP E 너T M WD Lb T Livh Via
 RRPAQWVDDDYLNKYKEAVRLMRALPGDDPRAYCHNGY VRKNAHALTAAERAQFLDALDRAKNTTHPDYFVWLHYYS $V R R D W N S L S G S E K K A Y T S A V N C L L T R P R Y D D F V A A H M N Q$
$V V R K E W A T F T G E K S S Y V K A V Q C M T K L P R Y D D F V A T H K G$
$V$ VRHEWENLSQAEKGDYTRAVQCLLHNSKPKTNNTLVHTRH VVRKNWHSMTAEERDQFLDALDRAKNT円HPDYFVWLHYYS $V V R R V M Q L S A E E K R A F V S A L D Q A K R T V H P D Y F V W S H Y F S$
$R R E Y G S L S K D R L A Y V N A K C L Q S K P R F D D F V V V H D Q Q ~$
SVRKPWTSLTEDERASYINSTLCAMDPSQAPAQVRSWGAK VRKNANGLTDTERNKFLSAIVILNQQGKYTDFQNMH
VRREYRTLSNEERQRLHTAFRAMKESGEYDKLATVYSQH VRKEWRDLSNRHKDRYINAVKCLQSTTRYDEFVWSHVQV SRKEWRRLTLVERAAFLFSVNVLLAKPRYDDLVATHINQ SLRRNVLULSRTERRRLVSYLNLAKQTSVYDVFVWMHYYV VRKDVTRLTVSETENLREALRRIKADNGSDGFQSDHGSP TRKEWSTMRSEEKRSLLKAVECLMQRPRFDDMNAMHQVQ VRPAAHTAGEGYFRKYERGI ALMKSLPSDDQQAKVHCAY SVRREWRSLSLPERKAYLDAVVCLQNRSRYDDFQATHMSA LRRNHRDMTPQQKSAFIDAILRLKNNSRYDDFVQDHKNS RLEWRQMSNSEKRSYLNAVLCLQKDPSDTSFQYAKNRY TVRKEWRHLTTHEQNSFLDSVQCLMNKPRFSDLQALHRGM
 I RKSAADLTPDEDAAFLEAIARLKATSVYDQFVALHGAV TIRRDWEYMSKPDRKAYI EAVQCLRRDPRFDDFVAIHVDQ VVRKNHAALTPQEREQFLGALDLAKKTTHYDYFVWLHYYS VRKEYRSDTDEERERYHKAVRTIKQNGEYDKLSMIHTRS VRRNVLT NDADRDAYDRGVNLLKQENTYDLFVIWHHRA
 RMEWRELNKTQKKDYISAVVCLAEKESHFEPGSSRYDD VRKEWRNLSNPQKEKYПKAVQCLMEKPSTAGMAAVRNRY IRPAAHRATPEYVAKYKAAIQAMRDLPDDHPQAKIHCAY RKSWTALTDAEKKAYDDAELCLMSKPPWDDLMYAHDYQ VRKEWRELSTDEKAEYI RAAKCLRETTRMDDLVWTH
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 VVRKEWGNLSHQSRREYIHAVKCLHELPSKDDGARSRYDD VRPPAQFVTDEYLEKYKLALKRMRELPSDDQQADDHCAY
IRREWRSLSDSERARYIKAQKCLMNKPSQSPGARNRWDD
VRRDDTEMSQEDAKVFLDADDQAKTTPHPDYFVWLHYYS
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IRKEYRTMTEQERANFHRATLLLKQDNRYDALGLVHFRM RREWSNLSGRERTAYTDAVKCLQRKSRFDDFVVTHTEQ VVRRNVMQLSADEKRAFDSALDQAKRTVHPDYFVWTHYFS LRKEWRELTQEERQQFTDAVRCAQSTTLADDEVQTRYDE TRPSAHRASAEYMYKYNLATDRMKRLIPADDQQANWHCAY VRREWGSLTKQRKEYDDAVICLTKSPYDDFVAVHGNQ RKEWRELSSNEQASF:CAVKCLPSSSRYDDFVYAHMDT 1 RIDNHRYMTREKALFIQAILLLKNDMRYDDYVQVHSNA TIRKETRDLSPEEWQTYKRAFLNLKKHGILDDLSEMH TVRRNLLDLSAEERNNFVNALHQAKTTDHPDYFVWSHYYS SIRREWETLCRDEKKAYIKAVKCLLEKPRYDDFLATHTNQ VRRSWDDLTDPQRHDYI RAVKCLAASPRLDGFTYDHINQ
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VRKEWGNVSVADRKAYIKAVLCLMSAPRYDDFVVTHMQQ RREDEDLAGDVKQLYVQAVNAMMKTDEREQUGGUHGLP
VRKSAFELTSSEVDKLRQAFAALRKDSVNDQQANVHCWN VVRKEWRELTSAEKAEYLRAAVCVRNTSRMDDLVYTH
SVRKEWRAMTTTERADWISAVKCLATFPHTDALTSLIPPDV VRKSVVDMTSQEKAAFVNALKKVKNTSVFDKLVLQHVMV GRKDFPSMSLEERRRFLSALLRVSTDKTYDKLTHLHPKF SVRREWRDLSRQNRLGYLRAVKCLETTGAFNGTSTHTLP VRREWGDISAEEKKAYDAAVKCLDQKPRYDDFVVVHMNQ R K A WS AL T D D E K S A Y I D A E L CLLMA LP P T DGIE GALDNRW


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UniRef90-G3XX77
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UniRef90-W3XE83
UniRef90-SODQZ0
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UniRef90 W3XGP6
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UniRef90-J3P204
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UniRef90_Q21Y37
UniRef90_W7I6B5
UniRef90-K3YGS6
UniRef90 W7HXW7
UniRef90-M1VXW5
UniRef90-I1KLH1
UniRef90_A0A016PCJ6
UniRef90_Q868D1
UniRef90-R8BHX9
UniRef90-F4RJH1
UniRef90 C1FZ29
UniRef90-M4ATE9
UniRef90-F7VR94
UniRef90-K1QXR1
UniRef90_G3Q7D5
UniRef90-Q2U7F6
UniRef90-M5WPZ4
UniRef90-A0A022R3H9
UniRef90-Q5BDR2
UniRef90-M5CAY8
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UniRef90_M7SWL2
UniRef90_TOM5N6
UniRef90-A1L1Y0
UniRef90_UPIO00444957E
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UniRef90_X8JHD7
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 VRDTLLGPGDFSHQGPAFVTWHRYHLLLLERDLQQLTGNE VSKTFFGGVDFSHEGPGFVTWHRFHLLQLERDMQDMLQDP TLDDHYSGI FQA WHRWFVYQYEKARDECGYTG SRWAH $\square A Q V R Y$ V SRWGADPEI HKRSSFLVWHRAYLLDFERKLQEDDPSV
A
A S G G
S

$\qquad$ 1 H G $\mathrm{V}_{\mathrm{G}} \mathrm{Q}$

SRNAL GGPDFGHWAPAF PRHRYY WTFEKMRDETFYDG F VY PGCEHENHSCCIHGMAN AKT■HLVAQ PQ


H G T GNF LP FHR Y V KWEDALTAQGAK WN GPFPA MGRGNPLTPN PHRSPLFYPWHR D RQFE DA DQSAGQG FQA IDHNDQGDY IH WVGFFLPWHRYFVWAYEQTRNECGYKG TNTAYAD I IHHVPGQGQFLPWHRYYMHDYEADRNECGYDG FYTHYSAGGLAHLGAVFLPWHRVFMQNFEDMRGACGYSG TAVLTPTSGDF GHGTGNFLTWHRYFTWAYEQARDECGYAGG SLYIHGNG VRDTLLGPGDFSHQGPAFVTWHRYHLLLLERDLQRLTGNE
 MDTPVPPTGNWAHRGPVFLPWHRVMLAYDEANDQRVLNDF
 FAYMHVFEGTVTHYAASFLPWHRYFI HTYEKATEECDFHG
CTGAYDQMNSSAHRSWLFFPWHRAFI YFHERGLGKFMGDD

 FKDNDD DHFDANFLPWHRWYVQLHQDLRNECGYKG $\begin{array}{ll}V R D T L L G P G D F S H Q G P A F V & T\end{array}$
 CPYBWVGHFDVHFSWV CDGHYRYGPFDVHFSWVF
FEAAHIDRAAKIHGTGFF
$\begin{array}{ll}C D G G Y K Q L G F P V H F S W D F \\ F L G T H D I & N A D D V H F V G V\end{array}$ F LGTH II NADDVHFDGGVYPYHRLLMHAYEQELQTCGWKG TE K I H FVVGQQ LQ D S V HFVA HF

## SKNLFDSFAAF

SRNALLGGPDFGHWAPAFDA WHRYFVHAYEKALDQCGYRG T T A A HGTGS GFWAPGPAWHRYYLLHWEHEI RKLTGDM VDNIHHGGGAFAAWHRDF ATDFENALRQKVPDV A GQASFGGVDFSHEGPNF TVHRYYVYTYEKARDECGYEG FLATHDNGTSVIHQTADFLAWHRYFI HTFEQDLKKCQYTG VHCAYCEGSYHYHSSWLFYPFHRWY YFYERDLADLDQDF CNGAYDQPGQQDHKCWLFFPFHRWYLYFYERILGKLDPTF
 $N \vee R D H F T G$ A GMLHSPNNLFAAHRYFIYA WHRYFTWAYEQARNECGYTG F GMDHSPNNLFAAHRYFIYAYYDRYVDDPDNSPMFDGSDT TQLDKYAHNTPLFFPWHRVFLRQFERDLQSAVNDT

 TNTIHNSGS FLPWHRLFI WRMEQARDECGYEG


 $T L Q Q H G T G S$
$Y G P W P P Q Q G Y C P H N E A L F$
$F$ Y $\square$ S WD GNTGYCTHGNTLF


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F S\\NTE\HF\/ANF
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NTSGTYYDDFVYDHMGFFFPWHRWF VQLHEDRK
 AGFEKPFYNPAHPGHPAFLPWHRQLLDDLENALQK DDPSVV AKFNRYDEFVISHVRGQFLPWHRHFSYLYERARDECGYRG




UniRef90_I7HJH1
UniRef90_I7HJH1
UniRef90_R4Z4Y5
UniRef90_L2FXF4
UniRef90_I1KLG8
UniRef90_K7GGT4
UniRef90_H1VBZ6
UniRef90_R0IPL7
UniRef90_N1S8Q1
UniRef90_N4VNF7
UniRef90_UPI0003C28C85 LLDHDNFILQGNIIAFKGAVITDRAVIDNKLLFNSNHLLFDQMMLIA LDHDNPFLQGNIGAFKGAVTDRAVDNKLFNSNHLFDQMMLA NLTLHDNSTSNYANDCLTRSFNSNGFQTGQQQYIDECFA VDLANEANT ILDPSKQIVNNEDTMFRHVVIGGDSPSLFL FSRWE VCNCNGTNEGMLRRNPGKSSEQLPTMEDIQNCLS NMTVHLGPVSFAYNPRCLSRDTSAWTSQKWMNPSDVLNNT CLDDVPFKDLVPAYGTTNYDPHCLARGWNDGSEQVGDMLS FSRWEVVCNCNGTNEGLLRRNPGRLNEQLPTMEDGRNCLS MTVNLGPVGGLADTAPGPQGGLGYNPRGLKRDLGGAMNTR
VDL UniRef90-G2QLD3 UniRef90-M8B7N6 UniRef90_L2G525 UniRet90-R9GPF3 UniRef90 U1MIG7 UniRef90_S8AFU7 UniRef90-H3CX59 UniReffo-S7QB03 UniRef90 P56823 UniRet90_SOEJDO UniRef90 N1PSV7
UniRef90 S8BTP5 UniRef90-M4FYJ1 UniRef90-UPIIOOO2FD7477 UniRef90_M2TK72 UniRef90_G3XX77 UniRet90_F4P661 UniRef90-Q0CYP3
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UniRef90
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UniRef90 W7HXW7 UniRef90 ${ }^{-}$M1VXW5 UniRef90-11KLH1 UniRef90-A0A016PCJ6 UniRef90_Q868D1 UniRef90-R8BHX9 UniRef90-F4RJH1
UniRef90 C1FZ29 UniRef90-M4ATE9 UniRef90-F7VR94 UniRef90-K1QXR1 UniRef90-G3Q7D5 UniRef90-Q2U7F6 UniRef90-M5WPZ4 UniRef90-A0AO22R3H9 UniRef90-Q5BDR2 UniRef90-M5CAY8 UniRef90_Q2H717 UniRef90-A0A031IS28 UniRef90-J9DAB6
UniRef90 M7COT4 UniRef90-M3ADD2 UniRef90-M7SWL2 UniRef90-TOM5N6 UniRef90-A1L1Y0 UniRef90_UPIO00444957E UniRef90-P29812 UniRef90 S3E4E9 UniRet90_G2XIS8 UniRef90-HOEI16
UniRef90_S4XVFO UniRef90-H1UWRO UniRef90-Q8J2V6 UniRef9O-UPIIO00444A4D6 UniRef90-K9RJC4 UniRef90-A7SSF6 UniRef90 A8N3SO UniRef90 - W6XVD7
UniRef90
GORYD5 UniRef90 W W $3 \times 134$ UniRef90-X8JHD7 UniRef90_B2VWU0

## UniRef90 17HJH1 UniRef90-I7HJH1 UniRef90_R4Z4Y5 UniRef90_L2FXF4 UniRef90_I1KLG8 UniRef90_K7GGT4 UniRef90_H1VBZ6 UniRef90_R0IPL7 UniRef90_N1S8Q1 UniRef90_N4VNF7 UniRef90_Q8QGN1

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UniRef90 S8BTP5 UniRef90 ${ }^{-} 4 F Y J 1$ UniRef90_UPI0002FD7477 UniRef90_M2TK72 UniRef90_G3XX77 UniRef90_F4P661 UniRef90_Q0CYP3 UniRef90_U3BPS2 UniRef90_UPI00045D758A UniRef90-M4A9U2 UniRef90_A0A016W3W4 UniRef90_UPI00036BAD95 UniRef90_W3XE83 UniRef90_S0DQZ0 UniRef90 M0RJX9 UniRef90_G4MWY0 UniRef90-U3UB86 UniRef90_W3XGP6 UniRef90 J3P204 UniRef90_UPI0003F188E6 UniRef90-Q762J0 UniRef90-Q2IY37 UniRef90_W7I6B5 UniRef90_K3YGS6
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UniRef90
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UniRef90 S3E4E9 UniRef90_G2XIS8 UniRef90_H0EI16
UniRef90_S4XVF0 UniRef90_H1UWR0 UniRef90_Q8J2V6 UniRef90_UPI000444A4D6 UniRef90_K9RJC4 UniRef90_A7SSF6 UniRef90_A8N3S0 UniRef90_W6XVD7 UniRef90-G0RYD5 UniRef90_W3XI34 UniRef90-X8JHD7
UniRef90_B2VWU0

Fel 170
170 FEQEDFCDFEVQFEVTTHNEIIHALVGGN|LDYSM
FEQEDFCDFEVQFEVTHNEIHALVGGNLDYSM
E GVY DTAN WDTASVGFRNHLE GWRRWPV HNRVHDVWGGDAM SENYTAAFECYQVNPHTAGHSAVGGTMLDVVGSPG GK P Y

YA GCEPNNPGAGSLEKGPHNNVHRWTGDPT LRNFDNSPFFRNSNFSFRNCDEGFEKADGTFVSHTVCDGP IGAAAKNVLSFQDELQQRFGDGFLGTHTAGBHMVVNGEA NSPDMKTFWSQMQQGGPAFDNNFMGVHTAGHFTVGGDPGS


 YANYTT QPDVVDAFRTVVSGVVPTVVEDPH GGDHYTUGGDP GQPYRA GDQPDPGASVENVPHGTMHTWTGDPAQPNNEDMG AETLALLGTAFATEVVGTKRTGFCTMETXPH GSAHVFTGGQDS
 LA A QNFYAF DRVV E G GPSFEAS GDHGGGHYG\|GGTMGGTMG

 KTTY LD FWE T T G Y T TH GAGHS GVG G VM
 GAKYVVVGTKPDPGPGTVVRGSHTADHAWVGENTSTAEDMG

 Y N TYA P WWN C I S N $\square P H$ K G V H T Y $\quad$ I G G $V \mathrm{M}$ FYTPEVVSKIVRTS QTYLEFRHEIVTXPH GSIHS GVGGNF $D L I V N K T T D T T F Q G D D Q G D F P K G L F G V H A G G H F T I G G D P G$ VNQS $\square N G R H P L W V F W L D L E Q G V A Q L P Q T H N A G H R F D G G H M$ $I V S G S R T H S V F W T E L L G R Y P D G F L G L H T S G H Y T M G G G D A T$ L NKFDSPPFFQNSTFSFRNAVEGFGMSLHNDVHSFLDNGTN L E Y E T G NMDRF A NMSFRNVLVGFASPMHNSSLHVFMNSMS NTPSYQFAYTAAS QQCYNPGFWTALE YVGGLPBMFVVGGM LATYDFPPWDASSRGFRNRLEGF\|GTGLHNQVHRWVGGDM Y ENYTDAWSCYNSNGPHGAGHGATGGLMKDP I



 AA A Y NTRVMRTVDGLP TYAMHDMLE GLPHAQVHS II F GDM LNKFDNPPFFQNSNFSFRNALEGFEVNLHNLVHFFLNGTN L R D Y D T GAMDRSANFSFRNTLVEFGNPQTGLVNSRVLGMH



 GKAFFAGKQPELGGGTVELGPHTALHRWTGDPRQPNKEDM $\begin{array}{cll}P & \text { S R D M S G P D M R Q K D F GFF D R V }\end{array}$

 T N S T D L L T F Q D R MQAV N T R P WD L E NGMP L F GIV H A G G H H T I
T R YALITESETLARFQRVMQGEFSLGKWGVHTGGHYTVGGDP VNTEDTPPYYSTSSESFRNNYDPVVRSLHNLAHLFLINTGG
 GARYSEGSDP NYRD $\square$ S SFQDRLQGDFVNG
 $M D N P D \square D K F Y N$ RYLGMPQLKGDTHPWGIHSAGHYIIIGGDP K T P Y A P GPDSWGNFC

DEFREYME LVPHAVVMHNVGGGKE
PEPQDVALCLEVGYSDPS SGKYDPTVVRSLHNLAHLFLNT G G

## T





 $M G G P A G S R R P G A L E F G T H N R V H Q W D T D P R G R A N C G V Q D M G$ LQQTTDKNFS S LL Q GD DRFFPNTIGGVHGGGHMIIGGDPGA



 $T N S Q N D G T F Q D V M Q G G F G G G P G F G G M G V H G A G H F T I A G D P$ WANSTYLDECMATDNYEDAWNCFVSSPHTAGHGS GGTML


## UniRef90 I7HJH1

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UniRef90 UPI0003 UniRef90_UPI0003F188E6 UniRef90-Q762J0 UniRef90_Q2IY37 UniRef90_W7I6B5 UniRef90-K3YGS6
UniRef90 UniRef90-M1VXW5 UniRef90-11KLH1 UniRef90_A0A016PCJ6 UniRef90_Q868D1 UniRef90_R8BHX9 UniRef90_F4RJH1 UniRef90_C1FZ29 UniRef90_F7VR94 UniRef90_K1QXR1 UniRef90_S3D6U4 UniRef90_G3Q7D5 UniRef90_Q2U7F6 UniRef90-M5WPZ4 UniRef90-A0A022R3H9 UniRef90_Q5BDR2 UniRef90_M5CAY8 UniRef90_Q2H717 UniRef90_A0A031IS28 UniRef90_J9DAB6 UniRef90-M7C0T4 UniRef90_M7SWL2 UniRef90-T0M5N6 UniRef90_A1L1Y0 UniRef90_UPI000444957E UniRef90_P29812 UniRef90_S3E4E9 UniRef90_G2XIS8 UniRef90_H0EI16
UniRef90_S4XVF0 UniRef90-H1UWR0 UniRef90_Q8J2V6 UniRef90_UPI000444A4D6 UniRef90_K9RJC4 UniRef90_A7SSF6 UniRef90_A8N3S0 UniRef90_W6XVD7 UniRef90-G0RYD5 UniRef90_W3XI34 UniRef90_X8JHD7

TLHY 210
(I F YLHHSNVDRLWAIIWQALQUI HREKPFKA H TLHYTAFDPIFYLHHSNVDRLWAIWQALQ\|HREKPFKA H
 QP HWAARDPIFFAHHSNVDRIWNDWKT $\square$ GFRRDFNDDDWL
 S D

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 DHARSPADPIFWLHHTNFDRLWWNWQAANLKSRLYAMGGP D $\square$ GKAPADPLFFMLHSNVDRLWAKWQWDMTGQRFDP $\quad$ GGEF
 DLYVSPGDPSFWLHHANLDRVWWSWQKLNYPARLTDMGGP NGSMSSNDPDRLLHHAFVDSI YEQWLRRHPSPSQYPDSDA
 EDDASP GDP L F Y I H HA FI DRRLWWKWQSEDP DSRLLYQLGGT D LFTSP GDPYFFLHHAFMDFLWYVWQYQDPPNRCEVIIAGT

 DVK N S P G E P L F WL H H A S I D R L W WW L WQ Q G D L A T R N L E V G G N A D IK SP G DP I FFMHHMY DDRVWWKWQQQDP IN RLY DI S G P ATAT $\square$ T NDPLFFLHHTNMDRLWW $\square$ WQSQSQRNMNSYGGNR GDFFSPGDPVVFFLHHAA DDRLYWTWQNQAPASRKYVVDGP

 $N V Q G S A N D P I F L L H H A F I D S I F E R W L R T H P L R S S Y P R A N A$ R!TASTNDPLFWMHHAFVDLI WENWRQEHQKR
GPASSPNDPIFYLHHCNVDRIWEGWMQRNGRSYLPPMTAS D S CNDPMFFLHHA Y L D K L WWE WQ LA DYP K RLY DMGGN
Y G LT A P N DPVFYLH HAQVDRLWWLWQQQD DESRTKTYQGP

 DVVSSS GDPVFFLHHTNLDRLWWQWQMADNEHRLYDDGGP GPATSPNEPLFMLHHANVDRAWARWQGRNATRLADYSGF A LP H S A N D P V F VV LH S F TD A DF D E WMK R F P DVDA WP QE LA A SLLHIDFMNPI FLLHHAYVDS I Y E Q WLRRRHPEQTHYPEFNA Y P A L A A V Y D P L F F L L H C N V D R L WT K WQ R T D S S D R L A Y S D G T
 GGPTGHMDPI F WLH H T NI DRMFALWQGINP TGYNDSGTS



 PTNMDHQYSLFFLHHANI DWLWWKWQQADRSNRLFEYGGN DFYSSPQQEAFFLHHGQQDRLWS DWQWLD DKERRDAMWGT

 QTHLSSPNDPDFVLLHTYTDAIFDEWLRRHPDSTMSYQENA

 D FYASPG DPAFF LTH HA A I DRVVFWTWQNVDPARRTFVVYGP
 S MP S S PNDPVFF LDH CY L DLL WERWKRQHPTS LPPYYPVS D GDMSFMHDPI FWHHHSYCDYLWFKKQKLDLKNNFVEDKSK
 DDF TS P NDPAF Y L L H A QV DRLW A I WQ GQDLEAREYAVYGN
 $N L L T S P S D P L F Y L$ H H G M L D R I W A Q WQ G L N E S NDV D DA G F V ALPHSANDPVFVVLHSFTDAIFDEWLKRNPSTDAWPQELA
 $P P D Y A A F D P L F Y L H H G N V D R Q I A M W Q A I Y P N S Y L T P A N T T$
 GPATSPNEPLFFLHHANVDRVWAK
GPTWSANEPLLFWLHHGMID KI WYDWQHASPSNFWSFSGGS S L L S S P Y DPTFWLTHSNVDRLWAEWQDNHT GEKFYPKNRM MLACSSNAPEFWFHHGFLDKLWSDWQNRGAKFKFQYY S SFYSPNDPDLFYPHHTGLDRLWWKWQRADLPSRLYQMGGH GDMGPPNEPLFFLHHAQVDRLWWLWQQGNPSVRNTEYAG GGDFYPNDPAFWVHHAMIDRTWTUWQSLDLNARTQVVAGP DVVAS P GDPLF FLLH H TY L D RVWWWQWQSMNLSSSRLT DMS GT D PS P T P S D P L F WF H H G Q L D R T WA R WQ A R R PA NARS F Y G G S

|  |  |
| :---: | :---: |
| UniRef90＿17HJH1 UniRef90－17HJH1 | CAASATFEPLKPFAFGSPLINYQNELHYDYDTLDF |
| UniRef90－R4Z4 | SPGHNLNDNMVALATMTPADVLDPSPWYSFDNLS |
| UniRef90 L2FXF4 |  |
| UniRef90＿11KLG8 | ESSFLFYDENKNLVRVKIK CLLDSRKLYDYEYVDDT |
| UniRef90＿K7GGT4 | T GNNPPSRDARTDDVANS |
| UniRef90－H1VBZ6 |  |
| UniRef90－N1S8Q1 | KTQDQFDGTKPPADDLKVKDLM |
| UniRef90－N4VN | LTWSNYPPTMGPLGKRRIGDVMSPTLCYK |
| UniRee900 UP10003C28C85 | P GHNRLYNMV |
| UniRef90－G2QLD | DYAHRTWQNSPPSPFAELSDV |
| UniRet90－M8B7N6 | DTAFLFYDEEARPVR⿴囗才\RDCLDPAMYAYQDVG |
|  |  |
| UniRet90－R9GP |  |
| UniRef90＿U1MIG7 | DMHFGSAFMRPFEPLRNIDGLLSTD |
| UniRef90－A8N3K9 |  |
| UniRef90－H3CX59 | PIGHNGGYHMVPFLPLKNRDHFVSSRDLLGYEY |
| UniRet90－S7QB03 | VSVLDDYPQFQKYPTGAP |
| UniRet90－P56823 | MRPFTNSR |
| UniRef90＿SoEJDO |  |
| UniRef90 N1PSV7 | ITVNNRNATLEDFPGUKIRDAVSTPFCYDYE |
| 隹 |  |
| UniRef90－UP10002FD7477 | $\square$ |
| UniRef90－M2TK72 | DDETEVTPAGSVKLAKL |
| UnRe990＿G3XX77 | LNHTLHYELSSFPNTA A M M |
|  | TDLSSRNTTLDDVVDKQUGDTLSGPFCYVY |
| UniRef90－U3BPS2 | PEGHKVGDA |
| UniRet90－ROKBT6 | RNATIDEPLDNGK |
| UniRef90－M499U2 | PIGHNDEYYMIPLLPLRNGDYFLSNKVLGYEY |
| UniRef90－A0A016V |  |
| UniRef90－UPIO0036 | SDGHR】DDP |
| UniRet90－w3XE | NON |
| UniRef90－M0RJX9 |  |
| UniRet90－G4MWYo |  |
| UniRet90－U3UB86 | P DWLNFYDENEQLVRVYNKDCVNLENLYDYE |
| UniRef90－J3P204 |  |
| UniRef90＿J3P204 | NDRNKVNSPVVELADVQPQDYMDID |
| UniRef90 UPI0003F188E6 | PIGHNRMYNMVPFPPVTNELTLTA |
| UniRet90－Q762J0 | P GHNRQYHMV |
| UniRet90－Q21Y37 | RGDTMWP WNTPRVSD |
| UniRet90－W76B5 | V MNLQ |
| UniRee90－K3YGS6 | F |
| UniRef90 W7HXW7 | FGNLDTALPPTRNVTLADV |
| UniRef90－11KLH1 | ENKNLVSVKVKDSLDSKKMYVYQDV |
| UniRef90－A0A016PCJ6 | FDYANQAANVTLKVKDVMHDRKCYDYED |
| UniRet90＿O868D1 | PDSHNLDYNMVPFPPIKNRDMFVPQLGYTYEA |
| UniRet90 R8BHX9 | DTMWA |
| UniRe990－F4RJH1 | RTLISDRDEFLGLLSRNPT S S |
| UniRet90－M4ATE9 | PIGHNGDYHMPPFTPLRNKEYFISSKDL |
| UniRef90－F7VR | MFDPNSPRQTLDDV |
| UniRef90－K1QXR1 | NFGPQSH APFTPTGFGNLMFTTQVYTYQ |
| UniRe90－S3D674 |  |
| UniRef90＿G3Q7D5 | PIGHNRGYNMVP WP PVTNAEMFVTNLGYSYEA |
| UniRef90＿Q2U7F6 |  |
| UniRef90＿M5WPZ4 | DSSFLFYDEKQRLVRVTVRDSLDTTLLYDYEY |
| UniRef90 A0AO22R3H9 | NASFLFYDENAQLVKVYVRDTFDNRRMFDYERID |
| UniRef90－OSB |  |
| UniRef90 O2H717 | GAMDMNMT ${ }^{\text {a }}$ MDVDMGOPANVRKKR |
| UniRet90－A0A0311S28 | MPGLDRQATLVPNNPAPWPETWTVDSVITTESLDYTY |
| UniRet90－J9DAB6 |  |
| UniRet90＿M7COT4 | P G G HRQYNMVPWPP |
| UniRef90－M3ADD2 | GVANS SLT LDD DVk |
| UniRef90＿M7SWL2 | FEGITAPTAPPSNVLDDV |
| UniRef90－TOM5N6 | DTDAA T D SMPVLT DLLVRDYMDTPLCYTYSSM |
| UniRet90－A1L1Y0 | DTMTDNTMMPFPSTV |
| UniRef90－P29812 | PTGHNRMYNMVPFPPVTNEE |
| UniRef90－S3E4E9 | T SMMGGGAAQKLTDNIQ ${ }^{\text {d }}$ K |
| UniRet90－G2XIS8 | TDGVTAKSPLRPFGPLTSEDMTNIGDWYTYE |
| UniRef90－HOEI16 UniRef90 S4XVF0 |  |
| UniRee90－S4XVFO | QRTQDNPYDENKRWVSVGMDQLMDNAGSLRYEY |
| UniRef90－Q8J |  |
| UniRee90－UP1000444A4D6 | VQALDDTDYEANPFT |
| UniRef90＿K9RJC4 UniRef90 A7SSF6 | DYGYN【KDP■WPWDG』TAADLLDFRKLYTYD |
| UniRef9 | TSAFPPHGEATFAPSLTVRDAMDPRMCYTY |
|  |  |
| UniRef90－GORYD5 | RSGFGPQSTLDDLDDLRDRDVVDGPFCYVYE |
| UniRef90＿W3x134 | N |
| UniRet90－X8JHD7 |  |


UniRef90_H1VCJ3
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UniRet90 UniRef90-H2LIX1 UniRef90-D8R109 UniRef90-W3VU69 UniRef90-A0AO10SFQ0 UniRef90-A9SIY4 UniRef90-P81732 UniRef90_G2X461 UniRef90-U3 UB68 UniRef90-Q2GNG2 UniRef90-S8BJJo UniRef90-L2FD19 UniRef90-H2ZY76 UniRef90-D8RTL3 UniRef90_R9PI15 UniRef90-HOUHZO UniRef90-M3AWF4 UniRef90-L2GOJ5 UniRef90_UPIOOO4572A9D UniRef90-W4H0X6 UniRef90-R8BLV2 UniRef90-O2YBN6 UniRef90-H2YVJ9 UniRef90-N4UY89 UniRef90-U5UOPO UniRef90-O9AU62
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UniRef90-W3XEQ4 UniRef90_UPIooo2B40F10 UniRef90-UPIO00359BEA9 UniRef90-T1L2J4
UniRe90 G2RFH3

RREDRDMTPQETAAFVDAVNALLYESGMWSTLAEMH VRRDWNSLNGDEKANFLGAIKCMMQKPTISDQVSRFEDY VLRKNWKNCTVEERRRFVDALDQAKRTVHPDYFVWMHYYA RQNDNDLSGAQWDLYI DGLAAMQNDAPENDTSGUHGRP TTRKEWRELDESERIEYI NAIYCLRERPSYDDFVATHDNY RKAWHTLGNDEKSEYLQAVKCLMDSPAKSGITGAKTRY TRRNHRDMTQQQKDAFI GAILMLKNNNRYDDFVQDHKNS VRDEWRNFPHEYRLLWVKAARCVYDDPPHPGYPASMAES IRHNHRDLSPAQKTAFVNAVLALKNSKRYDDFVEVHKN SQRREWSDLSVPEREEYLRAVLCLQSLPRFDDFVATHETQ
 VRKDANLLSGPQWDLYY Li TIRKEDRDMTKDEWKKYKDAFDLFKAKGYLADDSKIHQDV RRRQGRLSSAEKLDFTRADQCFAEKSRYDDFVATHTNQ VVRKEWGNLSLQSRQEYYHAVKCLHELPRYDDFEATHIRL

RKNIKDL ST RKEFRTLSNVQKLNFLASVKCLMNRPPA RKEWNALTNPEKKSFIASIHCLNALPRYDDFIVTHPAS RLIVNDLYSPQWDVYIRALRSLQDKDESDPLSYIHGLP TRKDWRALSASEKKAYIAAVQCLGNKRKAKSISGIPGLQ VTRKNILSLTPKELQQFLDALDQAKTTVHPDYFVWLHYYS VTRKNI HSLTPQEREQFLEALDQAKNTPHPDYFVWUHYYS VRRSLNDLQATQWDLLYULALLASLQLDSDEEQLGYUHGVP RKEYRMMSDNERQRWHNALIQLLKRSGEYDRLSVMHRQV RVEWRTMTEVQRDSYHKAVKCMQTKRVPSSGGMSQYDY VVRRNTMQMTAAEKQAFVDALNQAKSTVHPDLVIWSHYYS RQPVHLLSSDYDAKYIRAYELMKALPPFDQQANDHCAY RKEYSTMTVEEKTQFANAFKCVRSKPSRSDPGWNAADD RKEWRTLTQDEKSGWVGAVKCLQRLSFTPEQNVLEGMR TRRPVHKLNDDEDAKLEKGYQLLRSLSESDPQAKLHCLY RKNI NLYKAPWDLYLRSLQDLYAQDANNRLSYGHGRP DRQPI HRASPEYDEKFKVAMQKMKALPDDDPQAKVHCAY RRAWHTLSNDEKLEY NAELCLMETPRFDELQALHQLD SVRKEITRLNTAEKTSYISALLCLMD SVRKSWSALTDGEKTSYISSTLCILMDAAQAPAKTGYAGST
 LRKEYSSLTRSEKLSFDNAKCVRSKPSRFHTTTPGWNA

FVEALLSLKKNGRYDEYVHWHHAV
TRKEYRMLTSAERDNYHNAINALKQDTTMTP NMYDAV VVRQEWRALTTLEREDFVRSVNCLAETPSQWTRNGSVNDD RKSWNALTNDEKTSYI EAELCLMSRPPRAGVAGARNDW VRRDVVLSLSTSQRARLVRAELHLAKTTPHPDGFVWTHYYS VFRREYGSLSKAERETFVSA EVAMDRGLYQKFVLTQEQ $V T R Q N Q A D L S P E K R E A F R N A V V R L V E E G K Y$ LIELVQFHRD $\begin{array}{rl}V \square R Q N D L N M T E E E R E K F \\ V & L \\ R\end{array}$


VRKEWRELEYAERKDY DDALWCLRDRPRWDDFVAYWNWA VRKECSS EQAAYi DAVQCLKNAPRYDDFVAGHDNA VRKEWRELTSTEQANFI TALKCLGTKPRYDDFVYAHMDT SVRREWGMLSESERFDYIDALHCMQSKPRMDDFSATHDNY VIRKEYGQLT DAEKLSFVAAVQCVMAKPSFDDFAAVHVNN TIRKE WRTLSAHEQAAFLSAVNCLATSNRYDDFVFTHMDG SQRKAWNNMTDTEKKAYIDAELCLQSTNRWDE LDWAHDTQ VRENDATFSPTK KAALRRGDQVMQSRSSSNPTSWDHGDP RKEYRMLSANERARYHNAVRRLKQSTGGEPGSSRYDTI
 I RREWRNMLGEDRDAYTDAVTCLQSKSMFDDFVALHQNM VRQE IRDLEKDAWELYY I GGVSMMQT DNQSDQISGIHGRP VTRCEARKMPPALQERYAAAVLKMRETSEYFRLAVMHGMP VVRKEWSSLTKVQRKQYDDALKCDMDKPYYSDFAFLH DNY I RKDWDALT TAEKDTYKGALAAAMDSGAY DKF DE H VQRQNFDSLSDDDKTAYDDAVSCLTTHGLYDGATTLWDEQ VRKEWRNMTPSEKTAYLKAEQCLFNTSRFSDLQSLHRDK VRREWRTFSKKEKAAYI SAVNCLAKRPHSKFLKASYYDD PWSSLTSDEQQSYIDATLCLMSTPASSDIASTRWDE TVRRNDLDLSIEEKNHFVRALDMAKRTS DYNYFVWTHYYS VVRRNVLTLSAEQKRVFVSALDQAKRTTHPDLFVWTHYYS RLLEDTLAADQWNLFLLAMDAYQEDSSFYQ\|AG\|HGYP VRRNWNNLNGDEKSSFLGA QQMMQKPRYEDFVY VRPAAQLVDAEYVAKYEKAIRDMKDDPADDPRSFEQQWR RKSWNALTRVEKSEYDQAERCLMNKNLWDELHDLHDSQ IRRRNIASVDPAERALLRDALLELNHRTRGDPLPGGVTWW VRQNIMNMTAEERNVFLDULDLSKTTPHPDYFVWVHYYS I RKEWGALTNAERKSYTDAVRCLQAKPRFDDWVSVHDNQ VI RKEWRTLSQDQRDQFHKAVKCLQDKPSYDDFTYVHY RRMSANQQDSYDAALKCMLDKPAEEPAASNRYED RPAAHDMNQTQDEELESGIKKLKQLDEGDPHSFLHQAK $S V R R E \backslash R D M T R E E L D R F Q N A V A R L R Q S E D R T$ WEQ
VRANIKSLNENELKQY DDALKILYADGTDDRYADFHQTN
50
पNAGPQAYGNPRF $\square^{60}$ WHREFLSQVEMAMRDATGNC ${ }^{80}$
70
80 TYDHQYPG YADHWVARFLPWHRWFVYAYHQELQECGYEG VRDTLLGPGDFAHEGPAYNTWHRMHLLWLERELQKMDETF Y $\square P W N G V Q A V S G G S G G G Y C P H G Q N Y S G S R A E E Y K T A A D N W ~$ TTRVHQNG
 MGLGNPLIPSPHRSPLFYPWHRLLIRQFELALQGAANDT AMTGPAMFEPMPHGSSLFYPWHRLLLRQFELTALQAAANDS AFDLHSPFAAHRYFIWAYEKALREECGYTGYQPYMNYERY LHWVHDHQSNDIHGVGAFLPWHRYYMRVYEQVQTECNYTG Y $\perp$ A WNGVGGYCPHNDIQFPAWHRPY GGNAAAYQAAAATW CNGGYTQVETQVHNSWLFRPFHRWYYF LEK MGKVLEDE DIYAHKNGR FLPWHRMLLLHVESILQMLDPTLL TANFLGWHRYYVWFEKALKECGYLG TPDПHFDGH TSRWTDFNTPFVHWVGQF T WREVGGSGFLPFHRHLVHLFETDRARCGYAG
 ARYDDGGGSNCHRSAFLPWHRTLHIFENILKDKCGFG TRYDDFQGTPNDHWVGHFMLWHRYYIALYEKTLREVCYRGG VRDTLLGPGDFSHQGPAFVTWHRYHLLWLERDLQRLTGNE
 TFLIHNTGN AHSGPGFLAWHRYFTWAYEQTRKECGYKG FA WMYMAKYKEVHQTAAFLPWQRYFSFAYDQLTKECGYSG VSKTYFGGVDFSHEGPGFVTWHRFHLLQLERDMQYWNFAD CDGAF RETETGWRNWFFFPWHRWFLYFHERDLASLIEDD SLYDHAAVEHSAHRNVYFLPWHRWFLYLFDASRQNCGYSG CDNGDYYPGMDWHNHWLFLPWHRMFLYFHERDLAELLDDD
KWCPRPEAECCVHGMAVFPHWHRLLTVQGENALRKHGFTG Y IE WNNWQGYCPHGEALF LP WHRPYVAAHRATYVKAAQTL CNGNYTQMASQVHYSWLFFPFHRWFLYFFERDLGDLIEDK AYATHFVGECNYTGYQPYGRCLPMFPKSPFNKPASKPTHT FGAWNGDVGYCTHKDVLF RTWHRPYDALFEQMVWEVLPTL TSKAYLGQAQF VHSGGAF VT WHRYHMLLQETLDNECGYTG CNYGYPKQTLQQHFNWLFLPWHRWYLYFHEKDLGSLDPSF ADDWHDRMVKYVHFTAYFTLFHRGFTADVERDLNCGEPGL AMFHVGDASVRAHGGPGFLGWHRMYLVMYERALQSKVPGV FAYLHATDGSWCHRSASFLPWHRWTLNQWKTMRHHCGYAG LHYTHDYQGNYDHYVGHFLPWHRYFVRAHEMLQTECNYTG $\frac{V}{M}$ SRTYFGGVDFSHEGPAFLTWHRFHLLQLERDMQVMLQDP M TVGGREAHGTCVFLFWHRKYLLGFENMLRSLGDQY FMPWHRWFVYSYETARDECNYTG MSHDMHGMMGETGLYRFLGWHRRYLVEFERERQRVDAVL VRDTLLAPGDFSHEGPAFLTWHRMHLFGLETDLQVLSGDP ASLHSGQAARMMHNGPAFLPRHMVYLLVMETACRVPMPYW

UniRef90 F2UGX9
UniRef90-IAYCE2
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UniRet90-E3QZR8 UniRef90-UP10001F2B301 UniRet90-H1VCJ3 UniRef90_J2YFX2
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UniRef90 G1 KA94 UniRef90-G1XA94
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UniRef90 O2GNG2 UniRef90-O2GNG2 UniRef90-L2FD19 UniRef90-H2ZY76 UniRef90-D8RTL3 UniRef90_R9P115 UniRef90-HOUHZO
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UniRef90 W3WVAT UniRef90_UPIOO0441830D UniRef90-A0A010QL93 UniRef90-K9XBG9 UniRef90-K1RLT5 UniRef90-I3JP33 UniRef90-G3VZQ9 UniRef90-TOL9H3 UniRef90-W9C785 UniReffo-FOY382 UniRef90-M4C418 UniRef90-W3XPSO UniRef90-G2Y9M3 UniRef90-X8JR74 UniRef90-W3XQD5 UniRef90-G1SLB6 UniRef90-G2Y4X7 UniRef90-R9AFJ4 UniRef90-11J203 UniRef90-Q5AZ38 UniRef90-UPIO00382B82C UniReffo-F6XL13 UniRef90-E3QXK9 UniRef90-L8WW92
UniRef90-W3XEQ4 UniRef90_UPIooo2B40F10 UniRef90-UPI000359BEA9 UniRef90-T1L2J4

पDTENLAESPLFDGSSTSLSGNGAYV
TRGGQDAPSYGVHGVGVFLPWHRYAI WTFESVRTECNYTG NTKDHFTG LFLPWHRWYLTAFEKELRNCNYGG

ThGПHDNG VIRNHTG VF S WH RWFLHHTEESELKHCNFQG SNIIHNTGS VFLSWHRWFLHTFESELKHCNFQG SNRRLTAWGTCNHGSFFFFPWHRMYLYYFERIGRQASGDS SSFHTGDDEQTAHFGCHFAGFHREYLKVYEMALQEEDPTV VKKTFLGEGDFSHEGPAFLTWHRYHLLQLEKDIQEMLQDP TGY YTPGDENNGYCTHVS\|LFPTWHRPYLALYEVVSPDRDDER ELPRASFPEYCVHGQEAFPTWHRPYLLDFERALRRADLDLD A RFTHFNGNFSWHRHHVWLFEQALHGCGFPKGLGVPYMHW TDMQSDMHAHRQCMFIYWHRLLLVVFENMCVTVPYYN QYDHLTMSNY MTYDHMDLTNQ HYTGFFLPWHRWYTHQHVTQRKQCGYKG QQYNHYQTGWIHDVGQFLPWHRYFTAVHANMLRDCDYNG VKKTFLGPGDFSHEGPAFLTWHRYHLLQLERDMQEMLQEP VSKTFLGDGDFSHEGPGFLTWHRYHLLQLERDMQFWDFST LKPWDGTSGYCTHGSNLLFGPWHRPYLALHEQQVHTWGVKIG VHCAYCDGAYDQAGFPDLEDQDHNC

GNYVHYVGHFLPWHRYLVRAHEVLLQTCGYKG FKQDETHQSTHVHDGLEFVPWHREIVNRLETLLREDNPQLD VRTILLGPGDFSHEGPAFLTWHRMHLLGLENDLQDLSGOP
FVAAHDFSVWNAHYVGAFYPWHRWFLTHNETTMADCGYSD DHCAYCDYVYNVHSNALFFPFHRAYLYFFERDLRHYNPNF FRDMYMYHVMHASGGTFFLPWHRMFLRQVEQRLQETDCNV YLSSH

[^0]UniRef90_F2UGX9 UniRef90_14YCE2
UniRef90_J9XWA3 UniRef90 ${ }^{\text {C }} 5 \mathrm{JJXX} 1$ UniRef90-E3QZR8 UniRef90_UPI0001F2B301 UniRef90-H1VCJ3 UniRef90-J2YFX2 UniRef90-J3NPV7 UniRef90_UPI0004689B28 UniRef90-G0SFX8 UniRef90-W3WUX2 UniRef90-M4FWU0 UniRef90_U3UB71 UniRef90-R0M3P9 UniRef90-K2S416 UniRef90-M1WFB8 UniRef90_UPIO004417F43 UniRef90-F7VJX0 UniRef90-B2ALA7 UniRef90-G2QVY2 UniRef90 Q7S4R1 UniRef90_G1XA94 UniRef90_UPIOOO457579B UniRef90_UPI00033466F5 UniRef90-T5A6R2 UniRef90-B2WG41 UniRef90-P34269 UniRef90-X8JBW1 UniRef90-H2LIX1 UniRef90-D8RIO9 UniRef90-W3VU69 UniRef90-A0A010SFQ0 UniRef90-A9SIY4 UniRef90-P81732 UniRef90_G2X461 UniRef90_U3UB68 UniRef90-Q2GNG2 UniRef90-S8BJJ0 UniRef90-L2FD19 UniRef90-H2ZY76 UniRef90-D8RTL3 UniRef90_R9PI15 UniRef90-HOUHZO UniRef90-V3ZAB2 UniRef90-M3AWF4 UniRef90-L2G0J5 UniRef90_UPI0004572A9D UniRef90-W4H0X6 UniRef90-R8BLV2 UniRef90-Q2YBN6 UniRef90-H2YVJ9 UniRef90-N4UY89 UniRef90_U5UOP0 UniRef90_Q9AU62
UniRef90_I8TSM6 UniRef90_C7Z456 UniRef90-X8J3V1 UniRef90_C8V037 UniRef90-W9S216 UniRef90-W3WVA7 UniRef90_UPIO00441830D UniRef90-A0A010QL93 UniRef90_K9XBG9 UniRef90-K1RLT5 UniRef90-I3JP33 UniRef90-G3VZQ9 UniRef90_TOL9H3 UniRef90-W9C785 UniRef90-FOY382 UniRef90-B6Q7X0 UniRef90-M4C418 UniRef90-W3XPS0 UniRef90-G2Y9M3 UniRef90-X8JR74 UniRef90-W3XQD5 UniRef90-G1SLB6 UniRef90_F1QEC9 UniRef90-G2Y4X7 UniRef90-R9AFJ4 UniRef90-I1J203 UniRef90-Q5AZ38 UniRef90_UPIO00382B82C UniRef90-F6XL13 UniRef90-E3QXK9 UniRef90-L8WW92 UniRef90-W3XEQ4 UniRef90_UPIO002B40F10 UniRef90_UPI000359BEA9 UniRef90_T1L2J4

D I P Y Y WD WT $\square^{90}$
100
110
120 AMPY WA WEQDYQD LSASNI WNADPEYGNFDYNNVYNATVV A LH H WD WCT DDMM GARHPLNPTALSPGSPFSRWQSVCMSL A SPYWEWGYDVHDPEKSAVFDGSCVMYGPFSDLTTNLGPV RHP Y WD WAAD GGAQLPS INMANPLLGYKWQRFPLNTASSY $R D P Y W N W V L D A Y T L F D S P T L N G N P T S L S G N G A F E A D E V L S$
$A L P Y W D E Q H D L E V Y G T L D K A S V W G A D E F S F G T N G V N T S G$
 PLPWWDETKDSGKFSQAS DFGPDYYGGKEYATCVVTGADA SIMMPYWDWNYSSTSNPFTPDFDGGDGDEGRVTIGPFAFT SMS GNGLPEPYPGVPQGFPRPYNMDPPGDGGGCVTTGPFK GQPYWDEQRDPSLAAASVWGADDLSFGTASNGCVTDGAFA RTPYWDWAANPNGPSGQVTVPNPLWSYKWQQYPLNSNWFP SFPYWNWDNPAGMMDPAMYEGNDKDPKNA DYDHLPPA DFD GIPYWDWTIDADDPSKS IIFDMDH
QLPYWSWGKYASDPAHSPIFDGCDTSGPFKNWTVNDGPVS YQPYWDWSKYAYQPDHANYCPPGTGGGYVERGPFASWTLH RAPYWDWAQDADPPAEVIRLQKDQVTTAQGKAEVENPLYS AQPYWDWF IDDDSSLEMDQWNPFNLTGRTGGGCVQTGAFT GDP Y WN PALD FAN LTA SPVLSGPLSFGGNGVGPVVVVPPGG

 AQPYWNWT IDD INSGKDMSQWPDFNNNTGFGGNGVYDDWPK SFALDYWNFATGRNECDVCTDSLLGSMRPDDPTLI NDNSR SFALDPYWNFATGRNECDVCTDQLLGAARQDDPTLISVNSR $R Q P Y W D W A S D P R V P P S V V H P S G G Q R V D D E N P L F T Y K I P A A$
$Y Q P Y Y N W P R W S D D P S K S P F K D W S V N L G P V F T D S N C V P P N P$ SMP Y WD SVLEESY LPD P R D S DMF GPQFMGMT DAS GQ H T P Y WD WTK K A MNMTRSP IFDPVVGFGGNGKGQGNCVQDG

 PTP YWDWS R DHA D LVGSSVVEDSPEFGGGCDSSPEADCMV
 RAPFWDWGYDARVPPVTVPNTLPVRVPNGSGLRTDQDSNP TFPYWNWDNPAGME DPAVFEEGGKSNPGYNSYRNVNHPA I
 P I P YWDEQAEQAEGP LESAS ILNGSATAGF GSTTLDENGC
 $G L P W V D W T K T S D D P S D P N D G L G T D G K G D N N D C P W K T G G A V$

HVPYWD WTLD WMNVANSS IWSSPTTGFGGNGNASGE\|TVGN A HPYWDELTDP LNQS S $\quad$ F DLVVYGGGGGQGDDGCDADGPF

 RPGATEK LAVPYYWRWEDPFPAWLNGFLXANDPDTGTPPPS

DMTTDSEMMDPTTSIVWSDLFFGPGNGPVLTGP
PFWNWDAPGGMQIPADYADASSPDYD KL RNAKHQPPTLL $P N E P M P C T P G G D C F P R G T G G G C V E S G P F K D L Q V H L G P F N$ TQP YWDWTLDNPNGSLFKSPVLKSFGGDGSATNNCVED GP Y LIP Y WD WS L D S GNVTGGPVFFSSSTTTTGGFGSFGAAPGYGQ

 $T L P Y W D W S L D V A N D T A A P L F K S D P H T G F G T F N P D P S V N F S$ GQPYWN EVLDDMDSLNSSVVVDPDTGFGGDSDGGCVITDGPG

 NFALLP YWNFATGKN T CDDCT D DLLMGPNSVVFSQWRVLCESV T LP Y WE WS LD G D D P A S S P $\square$ F D GCVVT S GP F T N M TV HLLGPEA

 WMAANNRVLAGTCSSLGDCSDDMRDLGGSGQRQRVSDNGV G IP Y WDE QADAANDTES EDWNWLGGD GNS SDS QIVTDDPH PMSWWDEAKDADA GDFFQSDMWTAEYFGST NDDEN


 RMPYWDWAANPANNGP LLPNVLSNPNAFITYPNGSTATVP

A HP WD E VT DP LQRRSPVF DPVVGF G GNGFGRN R CDQNGP F
 Y QPYWD WDFD GSEFSMSNGVDKII APAGTGGGCVTSGP FK PMP Y WD WTR D S T P N SE DF DNEK GF GD D GT GK TN WT D G L CV A P F WN WDSPPGMYMP EFYNRPSSSSLYDHLR DPRHDP HK L VLP YFDFT T D $\square G F F E E A D I W Q P N Y F G S N G D G G C V E D H P$


UniRef90_F2UGX9 UniRef90-14YCE2
UniRef90_J9XWA3 UniRef90 ${ }^{-}$C5JJX 1 UniRef90-E3QZR8 UniRef90-UPIOOO1F2B301 UniRef90-H1VCJ3 UniRef90_J2YFX2 UniRef90-J3NPV7 UniRef90_UPIO004689B28 UniRef90-G0SFX8 UniRef90-W3WUX2 UniRef90-M4FWUO UniRef90-U3UB71 UniRef90-R0M3P9 UniRet90-K2S416 UniRef90-M1WFB8 UniRef90-UPlooou417F43 UniRef90_F7VJX0 UniRef90-B2ALA7 UniRef90-G2QVY2 UniRef90-M1W9S5 UniRef90-O7S4R1 1
UniRef90 G1 KA94 UniRef90-UPIOOO457579B UniRef90-UPIO0033466F5 UniRef90-T5A6R2 UniRef90-B2WG41 UniRef90-P34269 UniRef90 ${ }^{-}$X8JBW1 UniRef90-H2LIX1 UniRef90-D8R109 UniRef90-AOAO10SFQ0 UniRef90-A9SIY4 UniRef90-P81732 UniRef90_G2X461 UniRef90-U3 UB68 UniRef90-Q2GNG2 UniRef90-s8BJJo UniRef90_L2FD19 UniRef90-H2ZY76 UniRef90-D8RTL3 UniRef90_R9P115 UniRef90-HOUHZO Uninef90-V3ZAB2 UniRef90-L2GOJ5 UniRef90-UPIO004572A9D UniRef90-W4 ${ }^{-}$Нох6 UniRef90-R8BLV2 UniRef90-Q2YBN6 UniRef90-H2YVJ9 UniRef90-N4UY89 UniRet90-U5UOPO UniRef90-Q9AU62 UniRef90_18TSM6 UniRef90-C7Z456 UniRef90-X8J3V1 UniRef90-C8VO37 UniRef90-W9S216 UniRef90-UPIOOO441830D UniRef90-A0A0100L93 UniRef90-K9XBG9 UniRef90-K1RLT5 UniRef90-l13JP33 UniRef90-G3VZQ9 UniRef90_TOLSH3 UniRef90-W9C785 UniRef 90 -FOY382 UniRef90-B607X0 UniRef90-M4C418 UniRef90 W3XPSO UniRef90-G2Y9M3 UniRef90-X8JR74 UniRef90-W3XQD5 UniRef90-G1SLL6 UniRef90-F1QEC9 UniRef90-G2Y4X7 UniRef90-R9AFJ4 UniRef90-11J203 UniRee90-Q5AZ38
UniRef90-UPIO00382B82C UniRef90-F6XL13 UniRef90-E3QXK9 UniRef90-L8WW92 UniRef90_W3XEQ4 UniRef90-UPIo002B40F10 UniRef90-UPIo00359BEA9 UniRef90-T1L2J4
UniRef90-T1L2J4
UniRef90-G2RFH3

130
140
150
160
 TDGAFANHDVNFPFPHKLSRNLLGPYAQRGYNPEAMKNLTN DDYNRLVVTLCNGTDEGPLFRNPGPAVRVLPRGRDVGRCLD FPTSGDRNCWGFPVTTRWPDSNGNNRPTLANRELSQDDLK CNSQNTECLPRGTGNGCVKSGPPHCLTRSLNPFIMAVFNN TNCVVDGPFANTTGRMDQIJWGVNYYDEYCLSREWNQTAFT N LTTSIGPVHNETTPHCLSRAVNETQTAQTAKAFVDLGNS TGKFPVRVWDDPSGDPGLRREFGDSTAWLPTSSDISACVA DMVVNLGPRGGVYNPRCLRRDVNNSVAGARANYTYSLIMD NTTLHLNQLWGV TSQDRNLWGWPQTTRQPDSRGNSRTNVVNNNLADDARSLK FNYANKETSPVLPDDEQKNVNLALMYRQMDSSGSSTLTFM WG\|EECYLVDFPTKHCLERTKEDIEPVYNKRNMDKLMNA STMPGINPNPQSDGLGYNPRCLRRDINQHISSSWTKDNDT LGPVIPDNVRNGWPVRPNPRPLGYNPRRM| RDFNNTLLQE QENGFKVNLNKTDPQRCLTRDFMEGIARGLLAKHEVVDELM QSSDGNCPPGQVADRCLLRYIRQDFASYWMNPSHV/ATVLA LGPDGYEPKGPDGGLGYNPRCLTRDLSPEFSKGTRPSAVT LQTYTYPRKARSGLFGPFTRSPTTSRCPAPNSYPYTANLK WSVNLGPGSSDDYNPRCLARDFSRPMMRWATQELVNWVLD FSNWEIVCDSLDDYNQHVTLGNGTYEGLLRRNQVGRNNEK VLNGKYGRFDAQMRQQTVRCPAPSSFPASADALMTQRPYR
ISNQTDPNVGLGYNPCLKRDITSSTSSQWTNDEQVVNLL ISNQTDPNVGLGYNPRCLKRDTSSWTSSQWTNDEQVVNLL PYGDQSGFKLRWPWEQCLQRKFAGMVSSPKGFLRPATGPE HFPPRLADLNFVPGDGAPISD SKQREENNALMYKQLVNA WKTGRADHWFNVPFKHKLCRQFNNMDVKLPNFGSNCTTFI
 LRYYRFPQSADDQRFGSFSRDAQQNYPNSANAAMARRSYR VDLDYQMEERNMSPDDQRRDNMCNMNRRMMRNASDAKSFF PFANYTNSLGPGYDQHCINRAVNDRMSSGSAQANVDACLA YKFGFKDDVGPLANATETVRYPQLVDGKYVSQYDPDNRVM VTDGPY FSQWRVLCICNSTEGGPIRRNPAPMVQRLPEPQDVAQCFE TDGA SEGFFNAPD RQREDNLSSMYNNVAVKQPDAFFG AYKNGNWP AYKNGNWP GTCVEDGPFAHLLRPIMYNHTYITHCLSRGFSDNGEIDGHW ANLTLHMKTASSNNTYCLQRKLNQDDLDTANSDNLVECFN EDYNTLGTDCNGTEGGPVQRNPGGNVARLPSPEDVAQCLD
STQGSTSSASFFGYTYPSNRCNRPVNHCTTPGSASCPK ITPPDGVDPGPDGGLGYNPRPLKRDLGGAMNTRYANWTTV RKNASPPQKANATDVDIVVNQFSTQNTGLNNENDY
WFDDNLKLCNGTFEGP RRKPGGNIVQTLPRPQDVTDCLQ NMTVNLGPVNPGYNPRCLSRDLS AAAMSTWMTNENMLN VDLDYNGGRFRTPTGTPIIRNIGSGGASLARKAGURALLS SSLA QSYGSLPVNAWNYNPRCLYRSLNQALLVA LNNQAR FTGDTFLNIGPLESLIKNPRCLTRALTEDLFNTSSGWEDD TDGAFSSVQRAYPSPHVTTRNFKPKPFEEQVFPFEFTQPD EYDKANLCKPPKPYKQLVEDNLATMYRQMVSCATKPCRLF NHTVNFQKMPFELVFSGLPANWTVPDPHLMTRDQTYCNQS VTDGAFGHTDRAYPTPHLFRPQPFETELLDFPFTEPDKDA VNLTLH TNSTSNYAEDCLTRSFNSNGFQTGQQQYDDECFA APGINQGTTALASAEVSYEGAFQRTNFFHTSSGQQSFGGR NWQWGVVCNCNGTETGFLRRNVGVEGELYLYEEEDQNUTGR QDYDTLGTDCNSTEGGPI RRNPAPMVQRLPAPQDVAQCLE MPNSNNSDTPTADNPRCLKRDLNGAVLRTWASFRNVTDLI YWDWAVVPAAGQSVLPASVTTPTIAVLLSMALPPTFSNKA FPPAYHEGKKTMNPRWAFDPALDVAEDWRDKMKLDGGSVA NFQSFYDRYALSGLPTNWSQPVQRCLDRDFNQWIDRNQUN ATSGRCVSEAPLDHFCQSGAVSGSQCVGCVPRGDWDAAPV LAGGWSFNTVIPKDATYHLNRTISESIFQGANQTNVDACFA ACVIDGAFANTTEHDGPLLENTDYCFYRAFDLLTQVQYCTS ANGTLTMQSDGNTGSYCISRDLQVSSLSGSTQASVDSCED FSQWRVVCECNSTENGPIRRNPAPMVQRMPEPQDVTQCBE EDYDTLGTICNSTESSPIRRNPAPMVQRLPEAQDVAACLE NPGYSYHFHPLNPSDFRNSAPFNDWENTLRWPTSKNANFR HYSGTDDDASGTSRDNQIDENLRDMYRQMVSNAKKPQLFL KDTTLRTRSNERNGEYCLSRAFNQTAFTWANRRNDEECFA GPTPAPI GEPWLSAGFYVPSAAQHRDATGNAADPPQTVNR WFNDNVKLC NGTNEGPIRRNPGPAVQSGPVPEDVAECLK DMVVNLGPEANGDGLSYNPRCMKRDFTSAINKRYANATTV EDGPYAGLLHVNVPEPHCLTRQFNGSEQLMTNWTKSLVDELV APMMLLASRPNRTGGGCLRDNLKKMGRHCVTRDLGYAYMW
$\square Y G Y N E D H S D V V D C N L R W M D R M Q V Q S P R S F L G R V L ~$ FGPKNSWSPCFVRNFNTSDR IPNKVELLIALAS


QSNYED MAAALEALHADPRMC|VGGTM

 ANTYNVFTTATEYETMASTGSSNSFEDVHNSVHSADYAVM DTVGDRLLQANNDTEF LVRVMEPSGFDDMGAHGGGHHS MMQ FANQSYVDVCFEKTNYNEANFCYVDSPHSCGHLATGGTME RTPY WMEQS GWENYSEVELDNSVHAWIGGNM Y P S F
K TPYWPGP WDMAVSQE EGPHAFGHTGVGSVM S GFESVSEGVLN N HRWVGGNN

 $G G Q A R A G L D S K D E R V R S L S L G G S L E N G V H T G A H R W V G N S R$ NVNYDKF
A WLI REHDD IGAF QRWMQGVLSSKFFGVHAGGHMTIGGDP NNS YK V VNDLLTNMT D DHTFHPY LTTQKPH LGGGHFFI S D Y D
 VK T DFEGFARRMEGEPSFD YPNVHGGGHYGVGGVL GTGG QPDYATEAPLIEGDMDPPDVFPTMGDHTGGHAT\|GGDMSD $A L V D G C K D D L G C V N E E M D M A G G V P G G D H A S G H W Q V G L H A D$ AT GTGGEDPGDHYKPGYEEFGKQVEEKLHNGLHQSVGGDF


 NSA DI KTFWYNMQGGDPAFTMFM GVHTA GHFTDGGDPGS NDLVSVMAFTAPQGGCPFRPYFGALEYTHASIHLWMGGDM ARHSVKQVNALHRKKDFMNFAPGLE YLHHSVVSEIGLIM
 SESFLKGLALTHNDGSFFDFSSAVEDSDHLAMHTAGGNLA HHTGDFYSFQHSMEQMHNHVHNFVGGDLAGDCPKKLPVDD
 SWTYDAMTRSASFEEFASTGSSGSLEQDHNAVHWDGSCGF
 LD T F DEA WPCDE GR
ENA $\square D L N A \square S T G Q Y N R W T H K P A D S G E G V H D D \square H N A \square G T M T$
 YP L R K GS S S IN GP G GVERAPHNAMHDFCGSPNQPNNEDMG FINKDFVANLGRTHDDGKFFDFSSEISTHLSMHTCVGGNA E I YY D TPP F NP SPFMRADNRVK TS GTQQLHNRVHLWVGGRW
 KTSYDEA WQCYNGSPHGAGHGAVGGLMS VSPYDTPPPFFSNSSDSFRNTYDPAVRSLHNLAHLFBLNTGG CTPRGNWAKTAMDS DMG $\quad$ TTVSRNIENSPHNILHNTLNGPM NLLSTPDIS A YRHLSEGIPYTVEIGPHGGIHYTIGGPP TK K T Y GLE GWGRRPDGTSLPGHNHGHAWVG $\square \mathrm{MN}$

 GAAYRA GDAP D D P GA GTMEVGVPHNTMHLWTMDPN $\square D Q M Q T S T N D R D W L A \square M S P S N P D L T S S S H G G G H G A V G G A M A$
$Y P P T M S T R S F V Q L Q A F$
$M$ MYAADTFTPAKIDE\|VNGYVGDFVGFAAHMDGVRAQGMHN NSHS DTE LQQ NID F S DWP ELLRKAGIMGPHAVAHMQQGRTM GGEYK GGEAVNQMGTDESTPHNNDHVWS GSEKNPNGEDMG
 SENYTAAFECYQVNPHTAGHSAVGGTMLDVVGSPG
RAT SAMHRGSGGGLLEGRPHNQVHVVVGWMR TRFVV $\square$ C GMTRDMENH GLEFHHGDIHLWVGGNM IR D FD S P P Y F T N S S F S F R N A LE G TVV D N L H N LVVHSLLLNGTS


RTADRCDSSTFHGAHSWSDHANPSVESCHNS DHMYVGGDM $\square H V G G H A A V G M T M$ PASTSYAS S R Q QLFNGRNDGQMS IE Q GCHNQ LDNYDEA WYCYAKKPHSSAHAGTGGTMM EKVA ECT QYNDYYNFFNCMVIYPTSPHVAGHAAVGGMMAD VVGME QSFVDAA $V$ V GYEGDFIGFQNQAFHANVHM@MTCQG LDTYD DA WDCY YNSTPPRRRPRCRRRPHAE
 ID AF D TPPFYSTSSDSFRNPYDPVVRSLHNLAHLELENGTG
 GQPYRAGDDADPGAGSIENVPHG\|VHFWTGDPREANQEDM $L Q K Y T D A W Q C Y N Q \quad Y P H A A G H \square A V G G V M$ SVSGSPATAAQDDAVVDYTSMS LLLEALHNQMHGFVNMGG VAEYDTFPYFS DS DKSFDGEF EVGVVRTLHNGAHLFLLNGTG $V D T L I Q P N \square A T F Q E \| L Q G P D S R E L G A H G G G H F A F G G D P A R$ M E Y P DY L LS F WN N

 Q S VLN L I RVSNDSEAF R $\square$ G L E D S $\square H L D V H G L G S D E P R G D M$

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UniRef90_J9XWA3 UniRef90-C5JJX1 UniRef90-E3QZR8 UniRef90-UPIO001F2B301 UniRef90-H1VCJ3 UniRef90_J2YFX2 UniRef90_J3NPV7 UniRef90-UPIO004689B28 UniRef90-G0SFX8 UniRef90-W3WUX2 UniRef90-M4FWU0 UniRef90-U3UB71 UniRef90-R0M3P9 UniRef90-K2S416 UniRef90-M1WFB8 UniRef90_UPIO004417F43 UniRef90-F7VJX0 UniRef90-B2ALA7 UniRef90-G2QQVY2 UniRef90 Q7S4R1 UniRef90_G1XA94 UniRef90_UPIO00457579B UniRef90-UPI00033466F5 UniRef90-T5A6R2 UniRef90-B2WG41 UniRef90-P34269 UniRef90- X8JBW1 UniRef90-H2LIX1 UniRef90-D8RIO9 UniRef90_AOAO10SFQ0 UniRef90-A9SIY4 UniRef90-P81732 UniRef90_G2X461 UniRef90-U3UB68 UniRef90_Q2GNG2 UniRef90-S8BJJ0 UniRef90_L2FD19 UniRef90-H2ZY76 UniRef90-D8RTL3 UniRef90_R9PI15 UniRef90-HOUHZO UniRef90-V3ZAB2 UniRef90-M3AWF4 UniRef90_L2GOJ5
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UniRef90_I8TSM6 UniRef90-C7Z456 UniRef90-X8J3V1 UniRef90_C8V037 UniRef90-W9S216 UniRef90-W3WVA7 UniRef90_UPIO00441830D UniRef90-A0A010QL93 UniRef90-K9XBG9 UniRef90-K1RLT5 UniRef90-13JP33 UniRef90-G3VZQ9 UniRef90-TOL9H3 UniRef90-W9C785 UniRef90-FOY382 UniRef90-B6Q7X0 UniRef90-M4C418 UniRef9-W3XPSO UniRef90-X8JR74 UniRef90-W3XQD5 UniRef90-G1SLB6 UniRef90_F1QEC9 UniRef90_G2Y4X7 UniRef90-R9AFJ4 UniRef90-I1J203 UniRef90_Q5AZ38 UniRef90_UPIO00382B82C UniRef90-F6XL13 UniRef90-E3QXK9 UniRef90_L8WW92
UniRef90-W3XEQ4 UniRef90_UPI0002B40F10 UniRef90_UPI000359BEA9 UniRef90-T1L2J4

VSHMAPYDP ${ }^{210}$ VMHHAYII ${ }^{220}$ WILWEDWMT 230 T DDNGH ${ }^{240}$ GNNSSPNDPLFYMHHSNLDRI WS SWQALDEKHLYDYEGNT
 DFYSSPQEPAFFLHHGQ Y EYSAFDPLFMLHHTNVDRLTAMWQAIHYNDKTQTQTAA
 AEASSSNDPI FFLHHCYLDLLWERWKHQHPNVGFSPRDNA GDMWSPADAI FYMHHTFTDRNYWAWQQANPSNRTYQDGGP ADASSPNDPVFFDHHAFLDMLWERWKQQHPTDPPYTPASG DFYCSPGDPLFYFHHGMLDRVWWDWQMQDPENRVNAVPGE DQAGSPGDPLFFLHHANLDRLWWKWQSQDDETRLVEMNGQ Y LDYSAFDPI FMLHHCNVDRYVAMWQA MPNGEDMDPLFYGHHANVDRMWNVWKAMGKQLRLDGHIDP AEMFSTNDPVFWHHHSFIDYDWHQKQDKSDKDSY GGT
 DPSYAAFDPI FWLHHSNVDRLLAL WQALNPTAGVFAKDG DAYNSPGDPLFYLHHANVDRLWTLWQLQNPEYVMFDYEGA M FTSNSDPI FYPFHANIDRLWAKWQAANPTARQYDISNA DVYASPSDPVFWDHHTQVDRVWT $\square W Q G Q N \square E G R T R Q V W G T$ D SNVAAFDGLFMLHHSHVDRLWAYYNF DNPSEAVFGYSYY RAMTAANDPLFYVHHASLDRMWWRWQWENPEVRLREYSG DVYASPGDPL FFLHHTTMDRMLWTWQKRKLPARLYDVGGP
 MTA LTAFDPGFMLVHAFVDRLWSFWQA LRPDARFSTAAGT DFFTSPGDPWFFFHHAQLDRVWWTWQNMDPADRTNADYGT ASSVPS LDPLFLVHDNNIDRLWNLWQRKD
QTHLSPNDPI FVLLHTFTDAVFDEWLRRHPGEVVYPEENA KPHFEDMDPI FYPHHANLDRLWTVWKTLRPRRDYKDLDWL WLSTSVNDPVFHPHHGHI DNLFSSWQDMNPKNKRAFHG
 APNKFDDMPI FYPHHANUDRIWT\WKTMPGKQRMEPNHTL QFDYSAFDPLFMLHHANVDRLWAYRQFMRPDARFSTPGGT
 D LSMASYDPI FWLHHTNVDRLFADWQGINPS TYDLSGT
 NFYSAGKDPLFYCHHGNVDRMWDVWRSLGNMDFTDPDYLAN WLSSSPNDMVFHTHHGGVDNTFDAWQKKSVKNKDSFHG IHMTSPNDPI FF LDHHCFVDKVWADWQNRQMQNNYAPEKEG SIDTASFDPVFFMHHAYI DYVWEQFRQRYPESNDDPDHTG LALTTAANDPLFFLHHAQLDHIWWRWQQQKPRVRLRAYEGR DP I ESNGDPLEYLHHAYLDRVWWQWQEANDTARLTDDSGQ QTHLSPNDPI FVLLHTFTDAI FDEWDKRQADASVFPFENA ANAQ IPVDPIFFMHHNT $\square \mathrm{DLL} \mathrm{L}$ HT $\square \mathrm{Y}$ YHC
D LFTS TPGDPAFWVHHGQMDRMWTYWQALSPSTRKCDLNAG
 MTHASANDPDFVLDHTFTDAIFEEWMKRNVTVADFPEEGA SDYSSPVDPTFFLDHAQVDRVYWLWQADHLWNAF EVAGT SGNTASWDPVFWFIHSFSQLLWVAFRNGQRANGDNPERDY DFFASPQDPSFMLHHAFI DKLWAEWQDQDPETRRYAVNGT MDYSSPNDPIFWVHHAQLDYLWS LWQKADKSRGFGPSGDK NPSYSPNDPLFFLHHANLDRIWDKWQRKSSQNAAAYGGGS
 DFFGSPQDPAFYLHHSMIDKIWTDWQAVDPVNRRYVYFGT SNAHSPNDPVVFFLHHANLDRIWRTWQLNDPANKFALGGGL QVEMAARDPI FWLHHSNIDRLWERWLLLGRANPTNDSDWM
 QTHLSPNDPIFVLLHTFTDAVFDEWLRRNPDDSDFPDENA DVYISPGDPVFYLHHTQLDRVYWLWQNLDWENRQTIFGTG YVDYSAFDPLFFLHHSMIDRCFAIWQTLNPESYATAKEAA $G G F Q S A F H P V F W L H H C N V D R G Y E S Y D A V E P D S A$
$N D F G G T D D P S F W L H H S G M D R L W E R W Q E Q D P A R R D T Y H G$ QTLASPADPTFWSHHSMVDALHT\FHKCRVGNQRMTFA NPVLSPGDPVFFLHHTNLDRLWWLWQSANLTARLTDMGGS GSTWTPSDPMFFLHHANI DRDWWLWQRKSPKNFYAFKGGS RFPEPPETPIFFLHHTFLDALWWKWQSANDSSRDTEMGG
 VVPVAAFDPI FWFHHANDDRLIADWQAVYPDTYVEPTQQM VNNSSPNDPLFFMHHSNVDRI WKSWQELDESHLYDFAGNT EDPTESNDPLFYLHHAYLDRLWWRWQQADLPGRDSDMGGP Q H $\quad$ SFRDPFVFL LHSNVDRLFAAWQRAGQSPRLDPYGTA MTHASANDP FVVLLHTFTDA WFEEWMLRSNATVTYPTQDA $D L Y$ LLSPGDPLFYLHHAMVDRTWWMFQSMDLEKRTGAEGDA KRQYSSNDPLFFLHHAQVDR LWTLWQGRNETRLHDYAGNT




|  | 250260270 |
| :---: | :---: |
| UniRef90_F2UGX9 UniRef90_l4YCE2 | FPQHMMHTTLDPFPR TPA ${ }^{\text {P }}$ |
| UniRef90-J9XWA3 | PIGHNLNSTMVPFFPVRNSDVFQFSQGYAFDAL |
| UniRef90-C5JJX1 | DPDVGPLAPPVSVREVMSTPFCYF |
| Ret90_E3QZR8 |  |
| UniRef90-UPI0001F2B301 |  |
| UniRet90-HJVCJ3 | PNGHPDNEPAPWEQTYTVEQTFFTSNDYRYDYL |
| UniRef90-J3NPV7 |  |
| UniRef90-UPI0004689B28 | TPGRDLNSTLV |
| UniRef90 GOSFX8 | PDTWGPGD |
| UniRe | TNGVNGDSPLRPFYRDTVRSVAS俍FGYTYPEDDEW |
| UniRef90-U3UB71 | VDWL NASYVFYDENRVRVRSVHTPTMGYKYESSE |
| UniRef90-R0M3P9 | NGLSPEERLYPFNR QVKDVMSLNKC |
| UniRef90-M1WFB8 | LDGTDTLGNVPPSRNVTLEDIIMS |
| UniRef90-UPIo004417F43 | PEGEIANDDLTPFWNSTEADVSTWTDDYTYPE |
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| UniRef90_B2ALA 7 | GVI Q M W |
| UniRef90-G2QVY2 UniRef90 M1W9S5 | STAANPNSPLPPTPNVTLDTMMD |
| UniRef90-Q7S4R1 |  |
| UniRef90-G1XA94 | I |
| UniRef90-UPIO00457579B | P GHNRQFNMVPFPPVTNELEFSANELL |
| UniRef90-UPIO0033466F5 UniRef90-T5A6R2 | PVGTFDSPLQPFFN |
| UniRef90-B2WG41 | T\ITAPAAPETKLGNTSVADAMSTMGCY |
| UniRef90-P34269 | PDiHFSYAQMRPWDK\\| NRDGLSTDNL |
| UniRef90-H2LIX1 | P $\square$ GHNRRFNMVP |
| UniRef90-D8R109 | NATFLIMDEKRRLVRVRVRDALKTEQLYRYQD■ |
| UniRet90_W3VU69 | KKQQKDGA HPPWNSVAVEDL |
| UniRef90-A0A010s | SFNMSDPQYPFDP |
| UniRef90_A9SIY4 | DASFTYYDENADRVTVKVSQIVNTTLLYEYEETNA |
| UniRef90-G2X461 | SAGPN SPLQPFRFHTPNSVRSIRGFYTYEGLEYW |
| UniRef90-U3UB68 | WEYVFYDENRKP VRVYNKHCVNLEDLYEYED |
| UniRef90-Q2GNG2 | NTGPDYSPGFPPSPNKT |
| UniRet90_S88JJo | SSFEDLITQ |
| UniRef90-L2FD19 | PSSLGANAFLPYFND |
| UniRef90-H2ZY766 | PIGGNREYNMVPWPPVTNIEMEPENL |
| UniRef90-R9PI15 | PKEQQKDGKKPAWTNVTVEELLDHES |
| UniRef90-HOUHZO | HNTDDKLKPWT |
| UniRet90_V3ZAB2 |  |
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| UniRef90 L2GOJ5 UniRef90-UPIO004572A9D |  |
| UniRet90- W4H0X6 |  |
| UniRef90-R8BLV2 |  |
| UniRet90-Q2YBN6 | NLSGSDRTMDPWGESY DDLVDTEDLYVYDS |
| UniRet90-H2YVJ9 | PIGHNLDYNLVPFPPVSSRDLFSQQFGYSY |
| UniRet90_N4UY89 |  |
| UniRet90_U5UOPO | GVQRMNFMPFMRRITNLEGL |
| UniRef90_Q9AU62 UniRef90-I8TSM6 | NASFLIFYDENAQLVRVKKVKD |
| UniRef90-C7Z456 |  |
| UniRef90-X8J3V11 | VQDMDNYDTYPVGAPLTVSDVMSTNAG |
| UniRet90_C8V037 | HNAPDTELPFGWLTLREVMSTELCYK |
| UniRet90-W9S216 | STFLFYDENAQLVRVKVRDCLITRLGYVYEHVD |
| UniRef90 W3WVA7 UniR 9 WPIOO441830D |  |
| UniRef90-A0A0100L |  |
| UniRet90-K9XBG9 | R |
| UniRef90-K1RLT5 | PTGNEFHAPDAEFPDLTVRDMM |
| UniRef90 13 JP33 | P GHNRDYNMVPFFPVTNEEVYSEQ |
| UniRef90_G3VZQ9 UniRef90 TOL9H3 | PIGENRQYNMVPWPPVTNTEMMVTA |
| UniRef90-W9C785 | GS $\square$ QDVSTPLKPFNFYSSSEVVSTTFGYAYPED |
| UniRef90-FOY382 |  |
| UniRefa - ${ }^{\text {ceq }}$ |  |
| UniRef90-M4C418 |  |
| UniRef90-W3XPS0 |  |
| UniRef90-G2Y9M3 UniRef90_X8JR74 |  |
|  |  |
| UniRef90-G1SLB6 | P TGHNRQYNMVPWPPTTNDEMFVTA PDNTGYTYE |
| UniRef90-F1QEC9 |  |
| UniRef90-G2Y4X7 UniRef90 R9AFJ4 | GSIDQDQDSPLTPFHRDTSGNFFSSADVRNVENLGYSY |
| UniRef90_R9AFJ4 UniRef90 11 I203 | DY Wht |
| UniRef90- Q5AZ3 | DPAFLMRMMGMPPLVRVRVRDCLDMSLGYAYQEV |
| UniRet90-UPIo00382B82C | DDPTLNSDVQP |
| UniRef90-F6XL13 |  |
| UniRef90_E3QXK9 | GTGTWLHDP |
| UniRef90-L8WW92 | VQNMTANT |
| UniRet90_W3XEQ4 | FTQDYHKEGGNVEVRTGDTMHITQQCYTYDQL |
| UniRee900 UP10002B40F10 | NSSFVFYDENKNAVN |
|  | NDAPDTNDYMDPFN |
| Rei90-G2RFH3 | GQIQDANSPLTPFTFWTSAEVRDHTKFYTYPELE |



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T LT $\square \mathrm{H}$ VT G N
50
$F L^{6} \mathrm{~S}$

 YVGWNGDS GYCVHNTVLFLPWHRPYMSDIEQUYLEAAARUL F I R I H Q WP GA DI H WVA SF LPWHR GF T LI YE Q QL QE C GL E G
 $T L N \square H F S G N F Q$

T T K I H G T G N
TRTUHGTGN
$L Q Y S H V R Q S$
$L Q Y S H V R$
$C D G A Y Y Q A$

GAYMTHFVGA

TE QVHFNGPF LDPWHRWMLFDF LDDNTLETFMDAPVF DDVYG VEHSAHRNAYFLDPWRWF TY LIF D TSRHT C G Y S G CD G GYPQVEY QVHFCWLFYPFHRWY LYFFEK DMGELDPTG
 AKYNTPDGQCCLHGMANFPHWHRLYTKQMEDALVL KGARLL
 GTSSG A HSGPGFLP A GPPQPSWNTCQHGTQFFFSWHRMYLYYFER\|LRAKSGNP YMAWS G GGPYCPHNQA LFGTWHRGYL SLHRQRYMDAAERL TRGGQEAPSYGVHGVGVFLPWHRYAI WTFESVREECNYTA T LY $\square H$ GNG $L$ L L T WHRYFVVWAYEQARDEC GYK G

 YMAWS G G GPYCPHNQGLFGTWHRGYLSSYEQVLVRYATRQ MHG $\square P S G E T R C Q H G T F Y$ Y A A WD PKYGYCTHRS LIFATWHRPYMLALE FQPWNGQS GYCTHSSVLF
$G S L H S G Q S A Q L M H N G P G F$ GSLHS GQSA QLMMHNGPG P WH R WY V YQ YEK A REECGYNG $F$ F $\quad$ P GWHRVF $Q$ VLENA LDRRKVPGV FL T WH RYF V W W Y E E A RNECGYYK G F L T WHRYFTWAYENA LXKTCGYK G
 HRW $L M$
$A Y$
$N T$
$W F$

T P D $\square \mathrm{H} F \mathrm{~T}$ G S
$F$ L
YTPWTQWGGYCTHGSVLFPTWHRLGTASFEHAQTECGYTG YTP WT QWG GYCTHGSVLFPTWHRPYVLLYEQ LLHKHVQD T L H $\square H N D G$

L L P WHRHF L HL YE KAQDECNYQ G MQYAH IGQ $\qquad$ EMMSEREAHRQCMFI YWHRYMLVAFENMLRGQGSQY HGTPGNYCHRDTDLFLPWHRAYI YNFEQYLRDQVLTA


 S WA T H FVG AF LP FHRLMMFAHE TARTECGYTG T H H A H WPVGQ $R G D D V H H G A G F$
A MQLHDNDHLFG G L HEGPGFFF
SRDAF LGGPDFAHESAAFL
 T LT $\square \mathrm{H} L \mathrm{~N}$

ANF L

A DLHAGSVTASAHGGPGFLP
$T L T I H Y S G N F M A W H R W F V Y$ S Y Y R D E C GY Q GY QP Y W D WP L Y A A M QL H D NL LHLF GYY VWLFEEA LDRNECGYTGYQPYMN YDRY A WAHNEAKWN $\square H E T D N F L P W H R Y Y \square Y M L E T L S K H C S Y R G$ LP QAC GRSTFLP LP Q A C

VRDTLLGPGDFSHEGPA ANVI HS S G F

WHRMHLMDPTFALPYWDFA THTH HNNFSFLHWHRYFTHFVYHRQFVWAYEKSRE ECHYR G
 $M Q L G T S P M R N R A H G G P V F L P W H R M Y L L R L E Q Q L Q R H D P D A$ MMTP

 A TERMSEMEAHRGCMFAY
MYMAHGMHANGGPYF LP FRDMYMAHGMHA
T D Y V V F V G HF QA TDYVHFVGHFQA WHRYYVSAYE CNGAYKFGDD QVHFNWLFFP ATADHHSG FADAWHRYFTHDYE GARGKLDPTF

 CNYAYHQQNTQVHFSWDFLPWHRYYLHFYERILGKDIDDD
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UniRef90-N1PJJ1 UniRef90-N1PJJ1
UniRef90-W9STI3 UniRef90 ${ }^{-}$FOULW7 UniRef90-M8CBW6 UniRef90-N4VGY6 UniRef90-W6Q1V5 UniRef90-M5WGZ1 UniRef90-W3WNI1 UniRef90_UPI0003679B09 UniRef90-B5RHRO UniRef90-W9RL68 UniRef90-K3X1K4 UniRef90_H3DU64 UniRef90-F4L4G6 UniRef90-E3QRP6
UniRef90 XOBDY2 UniRef90-M2TEH8 UniRef90-R1GGH2 UniRef90_L2FXP5 UniRef90-W3XD13 UniRef90-A0A010RBA2 UniRef90-K9TXE0 UniRef90-S8BZR0 UniRef90_G3JS58 UniRef90-K1RFL7 UniRef90-W3XNJ1 UniRef90-E3S9R1 UniRef90-A7BHQ9 UniRef90-G7XXG3 UniRef90-W3WRXC UniRef90-V9ES59 UniRef90_S3D743 UniRef90-W5VG55 UniRef90-N1QC15 UniRef90-W3XP12 UniRef90-MOTEE6 UniRef90-M4G810 UniRef90-A8NL26 UniRef90_S5QBT9 UniRef90-U7PL38 UniRef90_W6NGQ1 UniRef90-FOXSV5 UniRef90-Q4SYI3 UniRef90-R8UTE7 UniRef90-F9F1K9 UniRef90-G0RC29 UniRef90_Q76DT9 UniRef90-H6U5Z7 UniRef90-FOXSM6 UniRef90-M7TJF3 UniRef90-G2QH67 UniRef90-UPIO004571A84 UniRef90-M4FY19 UniRef90-F6SPL0 UniRef90_T5A618 UniRef90_G1KB12 UniRef90_UPIO00361952F UniRef90_UPI000374E4E2 UniRef90_G3JB66 UniRef90-H3FOC0 UniRef90_UPIO003714383 UniRef90 W7HVJ8
UniRef90 F0WX74 UniRef90-G2RG43 UniRef90-K3W7U2 UniRef90-K1QBB8 UniRef90-R1GTU2 UniRef90-K4CMI3 UniRef90_A0A014QX88 UniRef90_U7PSB9 UniRef90-V8NN86 UniRef90-MOUBI2 UniRef90-M1CW46 UniRef90-P43310 UniRef90-CONAP3 UniRef90-E7CLR5 UniRef90_UPI0004407AAE

Y QPY WNWFTYQDNDRASPDGDGSDTSMGGDGSFVKHNGSVV
 NFAVPYWNFATGGSECDVCTDTRISPGSRFTSWGVVCESL RFPYWDWAASPALPD IVNQPDNPLYEYKFQSPLDRNLFPS

 SQPYWDWPKYSSAPQDSPDFNGDPYS TFPYWDWHRDVGQGNTKFFSSPDWDPGRTGGGCVTTGAFK VLCYWDSTDDYLIPGPGQAQSSSFSHNMFGNSR SQPYWN WLKYQDDLRKSPVFDGSDTPSGDGGGCVTS GPFK AQPYWNWFANTDDPRKSPVYDNDEVPSGYGGGCVMSGPLV GVPYWLEAASANNTTASPVWDGVGGDGAGLGGCVTTGRFA
 A LPF WS WDVPEGMRMPPEFANSSLPDYDPAQNPRHAPPRV
$F$ GGNGPYVEDLSNEQEFPSKTPTEIPGRTGGGCVRSGPFA PTPYWDWSRDHAFNSPVFEDSPEYGLGGTGDCDSSPEADC ALPF WNWDAPAGMY DPEDFTDTTSSLYDQYRNAAHQPPKL $P L A Y W N E Q E D A S T L T D D E D S T I F Q S D A F G G N G V G D D E C D A$
$S M H Y W D W T Q D P$
$R$ GMPYWDWTQDP GLPYWDYDSPPGMQLPALFANVDSPGQSLPHDKLRTDTDNNP $T V P Y W D W V S D Y N R F V S G Q C S N M L D C S Y S G T S E R Y D P \square N G Q$ SLPYWDSVLDSY $D P D P R D S \square M F S A A F M G D T \quad D A S G Q$ NLT L P Y Y WDYQTN PADHPD
$R \| A$ YWD WAADYHVPPATARPTVVINKSAGGMVQAT VVRNP A QPYWDWT LDS PFKSPVLQAFGGDGSATDNCVKDGPFTGD Y QPYWDWFAHADN\YESPVFDG\P\PSGQGGGCVKSGPFK RFPYWDWAKKTTGGDMPTTATQAQQSVTFPQNGTTASTPN GMPYWDDQVDADNVTQSDVWDLVYGVGGDGNSSESNVVTD A NTYWDWATDSRGPPVTALDPTVVINKPVGGAMQPVAARNP N LALPYWNYSDSVEQRVLPSPFRIPANSTNPL
RWPYWDWADKDSQSSVPACAMTPMKPGDDGDNPFYAYRFK R I P Y WD WS LIP PDCFWSPVIVQYGPNGAQH IRNPLFSYMFH PIPYWDFMMDGALNNPTSSAIWSNTFFGNGNGAVRT
TGRMPYWDEDADINSVIANLDMFKDEYFGSNGAGADRCDG THPYWNWGRWADNVEASPLFDGSNSSLGGQGEYVQHPPNR RQPYWDWAANAVPPDQVIVSKKVT ITGSNGHKVEVDNPLY SVPY WN WP LT T NLTATPLVDGSPTSLSGNGSPQNNTSTLC PLAYWDESADAQLTDDTDAE LIFQADFGGDGVGS SKCDEDG ALPWWD WS SDTS RQTGIPTAFSSPNTAIDGTPNPLDKSRIN

 GMPYWDEQVDADNUTLSSVWDSVYGDGGDGNSSDNQUVTD NFPFWNWDSLGGMMLPS VYADPSSPLYDNQRDAKHQPPFL
 SMGGNGEPDPSYKGVPQYGRTPN IKKSGGGGGCVKSGPFA SQLGLPYW DSSLESELPDPRES FFTPLFVGAVNQTGQU NFT $\square P Y W D W R D A Q S C E V C T D A D M G G R S S F N P N F D S P A S V F$
PFPYWDWYPNMEVVFPHGTGGGCVTNGPFANDTVNLGPVG RAPYWDWAADSSVPAVTVPQTLKINVPSGSSTKTVDYTNP VVPYWDVTRDSAMDDPRRS VVWSPQFQGNGHGLVTVGPFA TLCYLDTTMEYNVGDRDEDSADFGPDTLGNADGKVVTGPF SEDGNGEPEPDYKGVAQPGRTPNUIASGGGGGCVTEGPFS P $\square P W W R E T D D T G N G A N L F S P N Y F G S L P P R T E D G K T T C D T D$ SIPYLLE WPDEAGALHSASAWQGSMFGG YRGVMMGFRAPYNLDKPGGGGGCVKSGPFADMVVSDGEAGS GGSECDVCTDD LGGQNPNDPTFLGPNSTFADWEVVCLSL HQPYWDFSRWSDNQLASPVFDGSSTSFGGDGEAI GDQFSH GYDVYTWVLWPPPPFEPSREYNSEFPAGTGGGCVHTGPFS
SFALLPYWNFATGRNECDVCTDQLEGASRTDNPSLITSQNS GLPYWDWARDGGQRTQRLWSDTLLGARSRGTVTTGPLAAHLD RAPYWDWALLEPDLCSVILPETITAKVATETGVVAKDIVNP PHT LG $\square P Y W D T S L D S Y M P E P K D S \square M F T S T F L G T T N E K G H$ $\square A P Y W D W S D Q A S T D A D F G N G D P N D E Y A D N D G P F R K D N W Q \square$
$R M P Y W D W A R Y N A S V P A L I G R E S Q V R V P N P K G G D D V I D P N ~$ RMPY WDWARYNASVPALIGRESQVRVPNPKGGDDVTIUPNP
 $T \square P Y W D E M Q H N A R S C A P M L R D W G G S S S G N Q S Q S \square K \square N G A W$ TMPYFDFTTDVGNFAEAIIWQPNYFGGDGSG GQPYWDWTLDAEDFLSSPIFDPVTGFGGNGYYCVSTGPFA A LP P WNWDHPDGMRLPPMFDRRNTSLYDPRRNHVRNGTII AQPYWDWTQWQDWRKSTVFDGSPYSMGSNGKADPHGPVND SFADPYWNFATGRNSCDICTDDDMGPNS IDFSQWRILCEAD TFPFWNWDTKDGMTFPAIFQDAASPLYDPKRDQRHVKDGK ALPYWNWDNPKGMRLPPMFDREGTSLYDRRNPQVRNRTVM



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UniRef90 W3WNI1 UniRef90-W3WNI1
UniRef90-UPI0003679B09 UniRef90-B5RHRO UniRef90-W9RL68 UniRef90-K3X1K4 UniRef90_H3DU64 UniRef90-F4L4G6 UniRef90-E3QRP6
UniRef9- XOBDY? UniRef90-M2TEH8 UniRef90-R1GGH2 UniRef90_L2FXP5 UniRef90-W3XD13 UniRef90-A0A010RBA2 UniRef90-K9TXE0 UniRef90-S8BZR0 UniRef90_G3JS58 UniRef90-K1RFL7 UniRef90-W3XNJ1 UniRef90-E3S9R1 UniRef90-A7BHQ9 UniRef9-G7XXG3 UniRef90-W3WRX0 UniRef90-V9ES59 UniRef90_UPI0002D88B92 UniRef90_S3D743 UniRef90-W5VG55 UniRef90-N1QC15 UniRef90-W3XP12 UniRef90-M4G810 UniRef90-A8NL26 UniRef90-S5QBT9 UniRef90_U7PL38 UniRef90_W6NGQ1 UniRef90-FOXSV5 UniRef90-Q4SYI3 UniRef90-R8UTE7 UniRef90-F9F1K9 UniRef90-G0RC29 UniRef90_Q76DT9 UniRef90-H6U5Z7 UniRef90-FOXSM6 UniRef90-M7TJF3 UniRef90-G2QH67 UniRef90-UPIO004571A84 UniRef90-M4FY19 UniRef90-F6SPL0 UniRef90_T5A618 UniRef90-19NSY3
UniRef90 G1KB12 UniRef90_UPI000361952F UniRef90_UPIO00374E4E2 UniRef90-G3JB66 UniRef90-H3F0C0 UniRef90_UPIO003714383 UniRef90_W7HVJ8
UniRef90-FOWX74 UniRef90-G2RG43 UniRef90-K3W7U2 UniRef90-K1QBB8 UniRef90-R1GTU2 UniRef90-K4CMI3 UniRef90-A0A014QX88 UniRef90_U7PSB9 UniRef90-V8NN86 UniRef90-M0UBI2 UniRef90-M1CW46 UniRef90-P43310 UniRef90_CONAP3
UniRef90-E7CLR5

140
150
160
GGHPDVHNTTFAYNPRCLKRDLLTNASTK
DS ET WVNGVVNNN QVALLKK PQWMGEGKYGAA GT DSGTPVNPQADGFGYNPRCLRRDVNHSAAVTK TNYTYD DEYNRLVTLCNGTREGPLRRGVGDSSSPGPTVNDVRSCLN TDGA IADYE 1 TYPWPHKIGRRDRSNFAPNTPN DAGEYFER
 PAPGGKCSYMLLLKWPLFEVTVQRNGCSVPDPQDVADCLQQ NMVVNGVGGGNDFNGARCLSRDMSPVIGSAMNGQRYANTT GLVRTGPFANFPTPWGPLRRNFGGEGGSLMRPHVVDMIAS NMTVHNPNGPMEYNPRCLLRRDLSAYYSASTWMTTDNLVNVTV $N L T L V N A D S V V G E P Y C L R R A D N V N D F Q N A A Q S F D D E C F A$ $V N L S Y$ G G G GEYRERQVEENLCVMHKNMVSGAKLPQLF F GPFANY TSPFGPGYELTTQCI DRKFDDDVS


 GASLLNLIGAPWQTAGYYVPGANPHRDGVGGTAADPPVAVN FYQGDVAFMNTKTSRDPVPNLFQDPQYGEKSFFYRQVLFA

 YRNSAPGNTGYDGTRNASINAGGS LYRFKYPQFGAFNGANHTNRCVKDGESYPATANKMGFSGK
 PLY S Y RQKVVLPN RDF DSNYAN QQQTTRDLADAEARRNAAYT GPFA Y TE F HVG A Y S F N TVVP K A A T Y Y L N R S DS E S I F QLDA S

 EGEGTF LKKAPFTGGLKQTNRRPRGAQGTSSDAAANTAMQSG




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UniRef90 $\mathrm{N} 1 \mathrm{PJJ1}$ UniRef90-N1PJJ1 1 UniRef90 FOULW7 UniRef90-M8CBW6 UniRet90-N4VGY6 UniRef90-W6Q1V5 UniRet90 M5WGZ1 UniRef90-W3WNII UniRef90-UPI0003679B09 UniRef90-B5RHRO UniRef90 W9RL68
UniRet90 K3X1K4 UniRef90-H3DU64 UniRef90-F4L4G6 UniRef90-E3QRP6 UniReffo- - 0 BDY 2 UniRef90-M21EH8 UniRef90_R1GGH2 UniRef90-W3XD13 UniRef90-A0AO10RBA2 UniRef90-K9TXE0 UniRef90-S8BZR0 UniRef90-G3JS58 UniRef90-K1RFL7 UniRet90-WXXNJ1 UniRef90-E3S9R1 UniRef90-A7BHQ9 UniRef90-G7XXG3 UniRef90-W3WRX0 UniRef90_V9ES59 UniRef90_UPI0002D88B92 UniRef90 S3D743 UniRef90-W5VG55 UniRef90-N1QC15 UniRef90-W3XP12 2 UniRef90- M4G810 UniRet90-A8NL26 UniR Refo-S5QBT9 UniRef90_U7PL38 UniRef90-W6NGQ1
UniRef90
FOXSV5 UniRef90-O4SYI3 UniRef90-R8UTE7 UniRef90-F9F1K9 UniRef90-GORC29 UniRef90-Q76DT9 UniRef90-H6U5Z7 UniRef90-FOXSM66 UniRef90-M7TJF3 UniRef90-UPIO004571A84 UniRef90-M4FY19 UniRef90-F6SPL0 UniRef90_T5A618 UniRef90_G1KB12 UniRef90-UPI000361952F UniRef90-UPIIOOO374E4E2 UniRef90-G3JB66 UniRef90-H3FOC0 UniRef90_UPI0003714383 UniRef90 W7HVJ8
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## UniRef90 Qou440

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UniRet90 K3X1K4 UniRef90-H3DU64 UniRef90-F4L4G6 UniRef90-E3QRP6 UniRef90-M2TEH8 UniRef90-R1GGH2 UniRef90-L2FXP5 UniRef90-W3XD13 UniRef90-A0AO10RBA2 UniRef90-K9TXE0 UniRef90-S8BZR0 UniRef90-G3JS58 UniRef90-K1RFL7 UniRef90-W3XNJ1 UniRef90-E3S9R1 UniRef90-A7BHQ9 UniRef90-G7XXG3
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UniRef90
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210
220
230
240
GDFFSPNDPAFFLLHHAMI DRRLWWI WQALLHRNQASTTAGTL TGHMSTFDPGFWLHHCNIDRMFAL WQALNPEKWFDTADGL MSHSAANDPTFLVLHAFTDAIFEEWLRRFDGNGSYPDEMA YLSYAAYDPLFWLHHANTDRLFALWQVLHPESFVQPEEDP VNNTSPADVLFFLHHANVDRHWMAWQLQDPENRLYQYEGN SLGSSPNDAFFWVLHGTMDWVWRSLQEYCGGNYYDYSGWN QTHLSPNDPDFVLLHTYTDALFDEWLRRHPDSTLYPQENA DLFTSPGDPAFWVHHGQMDRMWAVWQALGSPTRYTDLGSG AVPNAAWDPLFYFHHCYIDYVWQLLFRRKDPARDYLGHGGP SDYSSVVDPSFFLHHAMVDRVYWLWQALHLWDAFNLAGTI D Y YSPTDPTFFLHHAMVDRVYWLWQAMHLWEAF EIAGT GIFYAGRDPIFFAHHANVDRMWSIWKTLDGRKRQD RGGSSPGDPLFYLHHAWIDKLWWDWQSKDLSARLSETGGT TYYSAGRDPLFYLHHNNIDRLWQAWRDDGTARGYRGHVDF DMYSSPGDPLFYFIHGSLDKI WNDWQRRDWPARKTADGGP QTNGEDNDPLFWLHHTQLDRLWSEWQRHHPSNFAAFSGMP NVANSPGDPVFWHHHAFIVDLQWWKWQSQDGGDTRLEKKDGGT T DHYTSYDPLFYLHHSNTDRLWATWQA QPNFENMDPIFYSHHSNDDRLWSL
ETFASPADPVFWSHHAMVDLLHTIFHKCKVGTNKMTПGWT KPPTTSNDPIFFLHHCFVDLI WENWRLMRQSRAQRETAYP SVSRAGQDPCFWLHHTNVDRLWSKWDKMCRENPTSDNAWM FLSTSAFEPLFWLHHANVDRLVAFWQADHFENATMHFSYA DVYSSPNDPIFWLHHTQLDYMWSLWQKADKSNGFGPSGNE TDYSSVNDPAFFLHHTMLDRDYWU WQVLHPGTLTLQNKPP QDAYSAFDPMFAMHHCNVDRVVADWQKLYPNSWVESAAAP DMYSSPGDPLFWLHHGKLDQEWNKWQRLDWPNRLTDDGGP HLSTSAFEPLFWLHHANVDRLIAFWQALHFENATMHFSYA SVPTAARDPI FWLHHANIDRLWERWDRLGRANATTNSDWM YI SYAAFDPIFWLHHNNIDRMLA TWQAANPGVYLEADAAV YVPLSSFDPLFFLHHTMVDRLVSIWQVLNPNAWIQPMASG SLDTSTFDPVFWFLHSMFHYMWYMFKNNQRARGVDPQRDY DPTYSPGDPGFFLHHTYLDKLFWEWQKADYPARLTDMGGP DPAVAAFDPIFFLHHCNVDRLLSLWAADNPGVWVSP GDS DTFASAQDPVFFLHHAMVDRVWTLWQWGDWEERKGAVNGT NVANSPGDPLFFLHHSFIDLLWWRWQSADLDTRLTELSG GTFASPADPIFWSHHAMVDLLHVIFHKCRVGTTRLTFE SVPFAAYDPIFYSHHCMVDRIWYLWQQRHGVNN SVAYSAYDPIFWLHHTNVDRLTSMWQADNPSSFLVPTGTF QTHLSPNDPIFVLLHTFTDAVFDEWLIRRYDDSTYPLENA ANALAPADPVFFLHHTNLDRLWWSWQQADLGTRLTEMGRP
DPVLSPGDPVFFLHHTNLDRLWWQWQSANLTARLTBMGG
QNPDSP SSP DPFTSPGDPLF DTFSSTSDPIFYFHHTMIDHI WEMWRHLQQTREQRESDCY TASFTPNDPLFWLHHAQLDRLWNEWQHHHPSNFAAFSGMP GMSVLGQSTMHNALHVFMNRI YERWLRTHPPRTSYPRANA DDSYSPTDPMFWLHHAEVDRLWHDWQNNNPEVRAAVGUN APDYSGFDPLFFMHHAQVDRMWAFWEALMPSSPLFTASYS SVQWASFDPAFMLIHGYVDYIWYRFQEMQLE EI ACAPFDP DLFASPGDPVFWLHHCQMDRMWALWQTDDPAVRHSDLKAG DPFTSPGDPLFYFHHTALDRLWWLWQMQDAENRDYPSGGM ATPFSPYDPLFLSHYAFVDKLWSVWQERHGQ G DFFSSPGDPIFYLLHAQIDRIWTMWQGQDWASRTYALDGP GMYASPQDPLFFPHHAQVDRI WADWQWLDDETRKDTLYGT ALPHSVNDPVFVVLHSFTDA: FDEWMKRFPAESAWPQEGA APATSPNDPVFFLHHCNVDRI WEGWMNRYGRGYAPDMTA DSEYSAFDPLFMLHHANVDRLWAYWQSDHPEKSTFFNSAE
GASWSSNDVIFYYHHSMVDHHFELWRQRAQNRTARERQYT EVPVSPNDPAFFIHHANVDRI WAQWQDMPGNANYVPVSGQ YVDYAAMDALFWLHHTNIDRLEADWQEMRTNSSASFLNAT STFQAPADPLFFAHHAFVDLLFTTYLKCN
NGVSSPGDPIFYLHHAWLDKVFWDWQARDREERTTTISGP ATFQSPSDPIFWSHHAYVDLLLT $\square$ HLK C
ATTGGPYDPVFFADHSFVDMLYWRWQQRGNNKFKYPAAFG DLYNSPSDPLFFLHHAAMDRIWWKWVNVDFEARVNDTSGP DPVFYSHHANVDRMWNTWKGLGGKKRDDKEEDN DFHFSADEPGFYPHHANLDRLHFDWQNDDWAARQTDAG DFSTAARDSVFFCHHCNVDRMWDIGYNLRGNREFEDNDWL DFYSAGLDPVFYCHHGNVDRMWNEWKALGGRRTTQPDWLN AFWSAGRDPLFYCHHSNVDRMWSLWTDNFPKTPEYDDYRN


UniRef90 Q0U440 UniRef90-C1G32C UniRef90-G2Y2L8 UniRef90 N1J7Q9 UniRef90-14YFA0 UniRef90-UPIO004561B84 UniRef90 G3Q7E9 UniRef90- ${ }^{-12 А С В ~}$ UniRef90-G1XM84 UniRef90 Q287T6 UniRef90- A0A010RPY0 UniRef90-L2FJH5 UniRef90-N1PJJ1 UniRef90-W9STI3 UniRef90 FoULW7 UniRef90-M8CBW6 UniRef90 N4VGY6 UniRef90 W6Q1V5 UniRef90-M5WGZ1 UniRef90-W3WNII UniRef90-UPI0003679B09 UniRef90_B5RHRO UniRef90-W9RL68 UniRef90-K3X1K4 UniRef90-H3DU64 UniRef90-F4L4G6 UniRef90-E3QRP6 UniRef90-M2TEH8 UniRef90-R1GGH2 UniRef90-L2FXP5 UniRef90-A0A010RBA2 UniRef90-K9TXEO UniRef90_S8BZR0 UniRef90 G3JJ58 UniRef90-K1RFL7 UniRef90-W3XNJ1 UniRef90 E3S9R1 UniRef90-A7BHQ9 UniRef90-G7XXG3 UniRef90-W3WRX0 UniRef90 V9ES59 UniRef90-UPI0002D88B92 UniRef90 S3D743 UniRet90 W5VG55 UniRef90 N1QC15
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UniRef90 $\mathrm{Q4SY} 3$ UniRef90- R8UTE7 UniRef90-F9F1K9 UniRef90-GORC29 UniRef90-Q76DT9 UniRef90 H6U5Z7 UniRef90-F0XSM6 UniRef90 M7TJF3
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UniRef90-W7HVJ8
UniRef90-FoWX74
UniRef90-G2RG43
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UniRef90-K1QBB8
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PYAHQSWANEPPSPLTPLTEVLD
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TDPDWLDSSFLFYDRTTVQDVLDTKK DYRFDGVG
DAMFAFPFDFVPYENITVSEVMD TRGCYEYQ
DTPHNMTDPRYDLDPVAPRKVFDTEGCYRYTD DAEFGFYDEKKNL DH $\square \mathrm{QNVNHNDE} \mathrm{P}$ W

VRVYVCDSLDTKKLYVYQEVE
SCERRNGGEFNPYDKVTMRTGLN
PDVGTCNSQHFSYAAMRPWDLLNREG $\square$ ANYYTDNLFTY
NQTYTFFDENGNAVNMTSSQVINTAANYVYD
SDTVTPQYP IWPFGPLTSESVTHVRDWYTYAPMRFW
VELTTLDTPLWMNDDIPVKAVMDTINCYEYDE
TRNATIDEPLEMGATLKIRDMFNTPLCYIY
SS $\square$ QGPDSPLTPFHSNTGGSFWTNTLGYTYPDLQN
NTPSDSFNLQNNWPNVTVGDVMDDGG
DAMWAYPYNFIPYVNITVGEVMDPEACYTYE
STTVTPQYPLWPFGPLTSESLTHVRDWYTYAPMRFW NDVFTFFDENGTQVQLRGRDVLDTQLNYGYDD GT TQDSSSPLVPF
PRGPNVPQGHEYFQRV
NDPSGTRPNSPNYPPANVTDYFN
A
EDGVDVSTPGTPFSNTASGGITDTTKロYTYPEFN
TVVHDPGAPLVTLDTVRVEEVMDVFGCYRYD
 $T H P A N L D E P L P F T T P S G S P Y T S T S S G Y A Y P ~$
$P T M H N R Q Y N M V P W P P V T N E E M F T N G Y S Y E ~$ NTPGDDFNRQNGWQTPGPE
KTSFDFYDENADLVRVTVKDCFKTRWLYKYQDVE
N $\$ GPE EGFNDRPSPNKTIADVLD DQGNYCYEYVE
PFVNTTLDYEMPFTP $\quad$ KKI RDVMNTGSY
PSAHAPKEQMRLLNEHGLSDMF TSRLYTY
NATMQMN
PETHFANASLQEDDPYTNQDVLSTDNMYEYE
TRPHNMTDEDVQSVPVTPSMVFDTKSCYQY
P $\square G H N D G Y Y M V P F M P L R N G E Y F D S N K A L G Y E Y$ PPLTGVNK MMDPWQEDSDQLASITVLGYKYES VNGPITMYDLY EPHKNATIFDLQNL GSTITPDSPLQPFKFHTSNTVKSUQGMYSYQGDEYW
RPGHGRDDPMSPFQP LTNDAGLSTTEEYTYQ NFGHITWNNKPASRYTTLDDVID P
CVEDT LDTVLKGYPDMKVRDVLD\ENCYTYDE PTFPQRYLKMKPFDVAPDGVL
PD PNRMSPAPGAPRLAPG
P DGHNLDFNMVPFPPVTSRNMFSEQLGYSY
STFQN LPPSANVTVRDAMDGPFCYRYE

 PAGERIDDPDVPLGGATPRGVLDDSADYAYDVL GTMDTLDSPLQPFRQVTSSTVNDVKLGYAYQGLEYW PA WHNGDSFMPFMAPLRNDDGLSNA YTDNMYEF AGGYNGNDNMYPYDDPTPASMLDYRADYKYE DRYQNSQTPLSPFHFYTSDDVKSTRAFYVYPE
N VAP D Y M P G F P P R P D S $\square$ PR

DTQFAYPFDFYGEVPVRVGDVMD DQKG
SEFFFYDEDEKPY RVRVGDCLDTRKM GYDY
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P $\square$ GHNRQYNMVPWPPVTNDEMFVTNLGYSYE


GTWENDKTALAPFRDPSNKFYNAETSGYTYPEDKDW
CADEKDHKPMSPFSLGSPFDVFDYKKHYEYDTLELN


RQE TRTDSNAQRRRFDTAVQRLKSTNRYDA TAAAHDGP RRNILDLQKDAWSLY IQGLSAFQNQDSFSQVAGDHGRP
TRKNVKSLTHAEMDNLRDALAAVQADNGYQK】AAYHGMP VI RQNI HSLSPQEREQFLGALDLAKKSSVYDFFVWLHYYS V RQA ANLV NDEY LQQKYKKA I ELLTKALP SNDQQANIHCAY IRKEWRSLSDA ARKEFTDAIVCLQSLPTNFQGVQTRYDE MSAEDRDSYTNAVQCLQSKPARTPGAKSHFDD

 RREVRTLDDTVRNQFENALNWMKRSGLYNRGARVHKYS


 VRKEFTSMTTKERKRYLKAYKTL TSQQPYKSIYERF VVRQNDHSLTPQEREQFLGSLDLAKNTPHPDYFVWLHYYS RQE DRQLEQDKWTLY, DGLSLMQTPPDDAPGARNRHDD RREWGNISVE ERLAY INSVKCLMKAPHYDDFVATHINR
VRKDWDAMTTAEKDTYKGALAAAMDSGAYDKFIEMH RLELLRSLAANQWNLFLLAMDSYQEADQSQQIAGDHGYP SVRKNIHSLTTSEDESLRDADRRVQQDTSYQAIASYHGDP RQELRELQKDRWNMFLQAFSRFQEKTSYYQVAGDHGAP RRDAENMSKEEVERLALAFRTDMERSPDHPQSYFADA RMDAWGLTRTELDAYERAVGLMRADDPWQFQAADHGRD RRAAQLVDAAY AKYYHRAYGLMRALPNSDPQARMHCAY
 MSKS LYDDFVAVHFMN
$R \square E \square R D V K A D K W D \square F\|L A L S M F Q S V S Q D D P D S Y\| H G V P$ $\square R H E W R Q L S L N Q R L D Y I R S V K C L M A K S R F D D F Q G M H D Y M$ VRKE $\square$ RDLIKDQFSLFI MALYRLQKQPQDMEDAGDHGAP

$V R K S W D A L D A D E K A T F K S A V A L A M D K G L Y E R F V S M H R E D$
$R L D E D D F V K N Q Q S G Y \square Q S L D A L S K S S Q E E Q V G G \square H G L D$ UniRef90_T0S9R0 UniRef90_Q65Z70 UniRef90_A0A058ZVU6

UniRef90 K3X1K6 UniRef90_K0V9S5 UniRef90_B6H6P3 UniRef90_G4V1F2 UniRef90_J4UKG1 UniRef90_E4ZW06
UniRef90_U5GSX0 UniRef90 UPI000161CD28 UniRef90 ${ }^{-}$M5BUU7 UniRef90_A0A024CHU9 UniRef90_W3WJ04 UniRef90_G7NG01 UniRef90_G2YS45 UniRef90_M3C4F8 UniRef90_F2UDJ6 UniRef90_L7I8A3 UniRef90_G2XQD0 UniRef90_J3NK27 UniRef90_R0J445 UniRef90-N4W3C6
UniRef90 S3DLT6 UniRef90-T0MBK9 UniRef90 ${ }^{-}$W3WIK4 UniRef90-N4X0Z4 UniRef90-M3CDC7 UniRef90_L2GRS8 UniRef90_C5YIC5
UniRef90_G2XK79 UniRef90_L2G624 UniRef90 K1WVB6 UniRef90_W4XC54 UniRef90-T5AFN0 UniRef90_N1PJH7 UniRef90_W4JV62 UniRef90-M4B927 UniRef90-A9U312 UniRef90_O49960 UniRef90_UPI0004414A45 niRef90 M2SQZ2 UniRef90A9SIY7 UniRef90_G3JUG5 UniRef90_B2WLF0 UniRef90_M2LQ03 UniRef90-M2TGF0
UniRef90-H1VTK3 UniRef90_J3PC00 UniRef90 Q7YT36 UniRef90_S8AIZ1 UniRef90_M1BMS5 UniRef90 U5Y3T5 UniRef90_K1WIM
UniRef90 K7l465 UniRef90_E7CLR7 UniRef90_H2Q7P7 UniRef90_G7JSE1 UniRef90_G7XMK9 UniRef90_W3WRM3 UniRef90 R1FZK3 UniRef90_B2ARH2 UniRef90_L8WI82 UniRef90_W9BZD3 UniRef90_A0A016VS08 UniRef90_E3L5F5 UniRef90_U1HKV1 UniRef90_F7VSJ1 UniRef90_H2A0L1 UniRef90 UPI0002B4CCAF UniRef90_UPI0002BCEDEF UniRef90_M3D714 UniRef90 Q7SFK3 UniRef90_G2Y7G1 UniRef90_DON9N0 UniRef90_W9C6R2 UniRef90_B5RHQ8 UniRef90-B2VW57
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UniRef90 Q65Z70 UniRef90 A0A058ZVU6 AVQPDKFRNQCQHFSWYFLPWHRMYL RWFER I IRAA DADL TLNVHLSG HEVWNPDTGYCPHGETGIGAPWHRPYVVALGEQTYTDAARTG FMNTS GWAGYCPHMEALELPWHRPYVEEHRSKYDEAADTL YQVWQGAASYCPHSNELFLGWHRPYLALFEQVLHAHMQEF VHCAYCDGAYHQAGFPDL G GRGG AHS GPGFLP WH R LI Y A HMNLNPLI H WT A FP NAHQG



 $T$ L N I H D T T
V
A
 S R H D H V N Q T A Y I H WT S I F LA WHR Y Y T WA Y E TAARD E CGYN G

 $T L F I H F T G T$ $T Q R V H F N G P$ | T |
| :--- |
| V |
| V |

 $F$ L A WHR Y F WQ WY E Q A R N E C GYK G F LPWHRYHVTVHAELQDECGYTG YK T WG DK A GYCPH D NE LIF L G WHR P Y L A L F E Q V V S N H V H D F $L$ Q WT H IIK S K N W I H G V A A F L P W H R Y Y L R A H E M M S Q H C N Y T L CDA A K D D P TF D V V F S W DF A P WH R MY I Y F Y E R A L G D L I G D D

T T T $\square$ H WT S VF Y A
$V M E A A-I G \square$ WHRRQYTWLYEKAREECGYTG
 FKP WN NQ S GYC A HNSA LFPMWHRPYMA L F E Q Q MF KMA N D F $R$ VS WD GVIEP YC TH D S V L F P A WH R T Y VA L F E Q Q L VA $\triangle A Q S Q$
 MTTA

 C D N Y Y D DP A F D V C H Y Y S W TR MHAMYQVQAKE

 $T G D I H F T G S F L S A H R L Y T T A F E H A L Q T E C G Y N G T Q P Y W N W$ TFNIIHDTANFFAWHRAFDHFWYDGFLPYWDWSLDAAAPQN


 ALENAHFG PNFLGWHREYLLLFETALRQDDSRV Y I K WGP LT GYCTHGSVLFLPWHRPYL AENYATYKVAADNF

 CD GA Y S Q V G F Q V H N S W LiF FP F H R WY L Y F H E R I L G S L I N D P
 WIV A H I N Q T F F V H Y TA T F L S WH R WY I W W Y E QAARNE C G Y T G

 Y Y S WG NVS WYC T H D GVLG P T WHR P Y L A L Y E H T LA $G V$ H SGP A F T L W W R E Y L K R F E L VI R R H L P D P $R N K \square H W \square A A F L P W H R Q F M F Y Y E Q A R N E A Y Y G B$

 $A N L H R G A V Q P H A H D G S N F L G W H R V Y L M Y Y E R A B L R R D R G D V$ IF M H F K Y F C WGVVHK K D LF L P WHRWF I TTME D L L A Q I D CR V


 TEMMQSEMEA HR QCMF IV WH R L L L L V V F E N M L R G Q GP Q Y $L I P$ WD G N I G Y C T H G S N LIF GP WHR P Y L A V H E Q Q I H D W G V K I
 DIVH WF P T P V N C L H H E E R Y N P W H R $\quad$ I F I D R F E A G L Q S V P K C E CGGAFYFYPLEIHDGWFFFPWHRMFLYFHERLLASLDPTY F Q T WG D M T GYC PH GNE LFMGWHRP Y LAALFE QVVVS D Y V H D N CQDEDDCTLDFAHDGSGF LTTWHRAYVLEVERALAEVNPDW
F R N A HLTAS F FAFHRYYLATFBDKRTECGFKG F VT WN GVGP Y CP H S S VLFP T WHR P Y L A L Y E Q E Y M Q A A S D F
$\qquad$
FKSWNP EWGYCPHSDVLF
F A VA H LINTETVHRS P W L L L L P W
Y VA WD GA G G Y C T H G S VLLF P T WH R R P Y V V A L Y E

UniRef90 K3X1K6 UniRef90_K0V9S5 UniRef90-B6H6P3 UniRef90-J4UKG1 UniRef90_E4ZW06 UniRef90_U5GSX0 UniRef90_UPI000161CD28 UniRef90_M5BUU7 UniRef90_A0A024CHU9 UniRef90-W3WJ04 UniRef90_G7NG01 UniRef90-G2YS45
UniRef90 M3C4F8 UniRef90_M3C4F8
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UniRef90-W3WRM3 UniRef90_R1FZK3 UniRef90-B2ARH2 UniRef90_L8WI82 UniRef90_W9BZD3 UniRef90_A0A016VS08 UniRef90_E3L5F5 UniRef90_K5UXV0 UniRef90_U1HKV1 UniRef90_F7VSJ1 UniRef90-H2A0L1 UniRef90_UPI0002B4CCAF UniRef90_UPI0002BCEDEF UniRef90_M3D714 UniRef90_Q7SFK3 UniRef90_G2Y7G1 UniRef90-DON9N0 UniRef90-W9C6R2 UniRef90_B5RHQ8 UniRef90_B2VW57
UniRef90-X5V985 UniRef90_X5V985
UniRef90_X0Q963 UniRef90_A9U439 UniRef90-B2WDF2 UniRef90_C3ZNJ1 UniRef90_G9N886 UniRef90_A0A010QYY8 UniRef90_G1XS72 UniRef90_M3CVQ9 UniRef90-T0S9R0
UniRef90-Q65Z70 UniRef90_-Q65Z70 UniRef90_A0A058ZVU6 UniRef90_G3JTH4
UniRef90_N1PDT1

90
100
110
120
T $\square$ P Y WD W $\square$ T A H N R MT N N Q CR S $\square$ A D CS A TI GR S RQLT $\square \mathrm{NG} \square$
$\begin{array}{ll}D & D V D A Q T R S S T W A L D \\ P & Y \\ P & W\end{array}$
 R SPFWDWATDRAVPQATVPQTLTINVSEDGRLEARIVENP RMPYWD WG LGGAKAVVP EFFMQK S I RIVVELDGVETMMRNP



 TLP Y WD WS LD WED F S RAPIWGHDNF GSDGNEDSVGNGHCV
 TIP Y WD WT $\square D A L S P E T S P V W N V V G G N G N G V D Q C V T D G$ RIP Y WD WA ATPP E GEPNGVQNISNPLYAYEFRPLDASAFY
 $R \square P Y$
$Y Q P Y W D W$ T LP Y WDVVSLDNTAE GFVNSPVVFDNVYGVGGNGPYIDEDVS D
 SIP Y WDETVDAESTA DVFQADAFGGDGDGDNNCITT GPFA RI P Y WD WA QP D DF LT PTMTDT DTM GMPDVVM DN P L F S Y K F H


 ALPYWD $\quad$ GGLDNTAETFVNSPIFDDVYGFGGNCVQQGPFAN Y QP Y WD WS STSTHAAHPLFDGSETS $\square$ S GNGKAVAHSSYVL A LP Y Y D F T T DVGNLSHAMVWQPN YFGGBD
$R$ V P Y WD WS R S AP HLLPDVVFWKPVVVQR GPNGVQTIK NP LY S R M P Y WD WVTGPNGQQTLDNPLYSYTFEDPSNLVYSPTTTW SSP Y WN WSMDSNFFSSAFFEDTDPKSGGGGWGDPTNDYQV TVP Y WN Y VE D N E RYMMGA CRSME E C S P R R GTB GS DT DN G S
 TFPP WS WDAPA GMVVPA LTFKEAFANP LY DPNRNTAN LANALL ALP Y WD WVK H HENQPCWQVGNVVCPK GPGGGCVTD GPFKN $P$ TPWWDETRDAGNFMGSPPLDPDTGFGGNGTDPP DGCVM TFALP Y WNWDNPEATEP LPNADPSFYWNPNSSLYDPNRNI
 S NRSDTWLA A QNVTYPPGTGGGCVRSGPFVNYTVNDGPDD PMAWFDEARYA GRFA QS S LIFNSQWLGGLA I N NQCVRDGQF
 VVP Y WDVT R D S A LIE DPRRSDIDWSPEF QGNGHGLVTS GPFA ASE WT R WP Y WD WA S S LT Q SHLP A C A T S P K IDVVIVKPD STK A VLP Y WD T RLLEY NLRNELESNIWDLSFMGDSQGVV RI P Y WD WAS S DPTMPDVVVNQPTVQUETPSGPQNVTNPTFRY

 AFAALPFWNNFDAPNGMQFPS DENVMHNTDHTWSGDNRQPNH T LP Y WE WG LD QNMS DPA GTGGGGVY GGPFSNYTVHMGP DD
 Y QP Y WD WTKTA GDVVISVGDNPVY LAPGTGGGCVKS GP S S R QPYWD WAMNP A L PVAA T R L N MTVVQAPEGRREVIPNP LYY Y

 S L P R R WD WT LD SAD MSKSPDWSSDPDVGFGGDGRDFSNNNP
 Y A G R W W A A A A TLCFWDTTMDFNLGMDNWEYTAVFSSDFFGNRRGQQVIT TLSSYWDWSYPWNRTT T WWRSTDDGLGGNGNRRKGYCVQSGM

 AL P Y IDE WS R WA T D LAA GSPDFDNNTLAN GNGGGGVVVTGPFT
 GMPYWDWTEKFAALPSLVTETENNPFYQGDDTFKHTHTSR A HEYP DEARNRALADDAARSEFRFKDWGHTDRYPLHPYAVN $D \square K$ L Y WNVVRQPPAWMFQPPFDSYT LQRDAA
QWSLLPYWYSIDPDDPKTAVLPPAFRDTTRPTNNLFTELRS

 A LP Y WE WG LD T QNPAA SPVFD GCDQR GPFSNMTVHMGQYG RLP Y WD WA SPAP HFPDVFWNSTMTQYGPNGVQIIRNPDYS


UniRef90_K3X1K6 UniRef90_KOV9S5 UniRef90_B6H6P3 UniRef90_G4V1F2 UniRef90_J4UKG1 UniRef90_E4ZW06
UniRef90_U5GSX0 UniRef90_UPI000161CD28 UniRef90_M5BUU7 UniRef90_A0A024CHU9 UniRef90-W3WJ04 UniRef90_G7NG01 UniRef90_G2YS45 UniRef90_M3C4F8 UniRef90_F2UDJ6 UniRef90_L7I8A3 UniRef90_G2XQD0 UniRef90_J3NK27 UniRef90_R0J445 UniRef90-N4W3C6 UniRef90-S3DLT6 UniRef90-TOMBK9 UniRef90_W3WIK4
UniRef90_N4X0Z4 UniRef90_M3CDC7 UniRef90_L2GRS8 UniRef90_C5YIC5 UniRef90_G2XK79 UniRef90_L2G624 UniRef90_K1WVB6 UniRef90_W4XC54
UniRef90 T5AFN0 UniRef90_N1PJH7 UniRef90_W4JV62 UniRef90_M4B927 UniRef90_A9SLB4 UniRef90_A9U312 UniRef90_O49960 UniRef90_UPI0004414A45 UniRef90_M2SQZ2 UniRef90_A9SIY7 UniRef90_G3JUG5 UniRef90_B2WLF0 UniRef90-M2LQ03 UniRef90-M2TGF0 UniRef90_H1VTK3 UniRef90-J3PC00 UniRef90_-Q7YT36 UniRef90_S8AIZ1 UniRef90_M1BMS5 UniRef90_U5Y3T5 UniRef90_K1WIM9 UniRef90-K71465 UniRef90_E7CLR7 UniRef90_H2Q7P7 UniRef90_G7JSE1
UniRef90-G7XMK9 UniRef90_W3WRM3 UniRef90_R1FZK3 UniRef90-B2ARH2 UniRef90_L8WI82 UniRef90_W9BZD3 UniRef90-A0A016VS08 UniRef90-E3L5F5 UniRef90_K5UXV0 UniRef90_U1HKV1 UniRef90_F7VSJ1 UniRef90_H2A0L1 UniRef90_UPI0002B4CCAF UniRef90_UPI0002BCEDEF UniRef90-M3D714 UniRef90_Q7SFK3 UniRef90_G2Y7G1 UniRef90_DON9N0 UniRef90_W9C6R2 UniRef90_B5RHQ8 UniRef90-B2VW57 UniRef90-X5V985 UniRef90_X0Q963 UniRef90_A9U439
UniRef90_B2WDF2 UniRef90 C3ZNJ1 UniRef90_N4VT93 UniRef90_G9N886
UniRef90_A0A010QYY8 UniRef90_G1XS72 UniRef90_M3CVQ9 UniRef90-T0S9R0
UniRef90-Q65Z70 UniRef90_Q65Z70 UniRef90_A0A058ZVU6 UniRef90_G3JTH4 UniRef90_N1PDT1

130
140
150
160
QTAGACVNAYPLDHFCESGSVRGNSCSRCLTRGPWGSTQQL
DGATPNPLWVPGRNLNDGSSLPVSDVDLASALAPVDFAGI V S F A K L P A P G F D Y N PR C L N R S L N N N F V S S N Y D N E T I V D R L L LY T F K F P QA VLE GHF GYRCNQLFMSYPETANANDRSKNYK L YAYRFHPDVPGDFTHKWMRWPDSDNFTAPSRQE DETAFR LDLNYAKGDANPDPE ELYASNLNVMYRQMVSGATKPTLFF V I N GPFAYWNTLD GRRC

 PFANYTNSLGPGYA $\operatorname{CH}$ H DHC $\square D L D A C Y E H$ NF AT GKNVCD DCT D DLDMGSRSNFDSTLISPNS QWRVVCDS ID GPFAGLTAMFYDNDYYPHCLSRGFKSGAEMKDLGNLVR
 M A P WD HWDRTLRSPSSQGSEATSNNTKVGLALDQNHGVLQ DGPFVVNLS SHLGPH GAP $\quad$ SS DGFAYNPRCLLTRNFR DY LLQR MAPWDFWGATLGRSPSSNTPQALSNNTKVAMALDQNHATVQ



 P L P T GF H GK WRKMNSTVVRWPASSDDPFSPSRPWLFAEA FKN $N L T G T F N D D G M P A T P E C L R R K F N S T Q F A R A A Q S E D D \square C L R$ H CVKRSTA ID A FY GTA QLKRMLKLP F SK F CT A NLDDAL DDLDD Y L N DK DNEPDP FSGPYKK LVNKNLCTVYTQQ N W LTVPMGVGNSTKYNPHCLRRDFSPTVATAMSDEIIRRTLS

 Y E F HP LDD
DR N P L




 Y Y M P R D AL L N GRYGPRFDRERRRPQTRRCPGQYPGRANYNMRRR
 ANLI CNVGPGSSNQPHCLSRNGDGA LTKNCNQEYVDDCNN $N M T V N$ L GPVVP GYNPR CLLSRDDLSSYTASSKWFTNENMVNDT Q L P GF IGGGPPF D $\square P$ DRSGGGCLDSGPFSGLSSHLGPWNNT

 SYGPFARWRQPNGAFLERSAGADGSY IPPVGIQRVLSR
 VNSGPFVNWQTLSGRA QLQRAVGAQGAPLSQNDDDFVMRQ





 YK F Q Q F P L K E T WF P T T G TS S R A D E D L VS GP Y A N WT T M E GRAS I LRR Q F GVVNPA GE L L S N A R V V W W V V N

 GPFR D WP L P P GLLTESDYLYRNMTRGRGMPFDSRAAS S IVF Y F RES K WE TP Y WED P ME I I MS S A D Q $\square Y$ GED E GQY A H L A Y C L


 N NS G R CVVA Q S P L D H F C Q S G TVVS GS A CA R CVVPR GNWGSA S V NP LYY S YK F H P LVVPEDFQQGFSPFTDWNNTLRWPTSNTANFR A T S R DVVENVVRVGK QQPS LDRDMLYKLLT DYQPFSQVSNKA P Q Y PA GTATKRHSAKK DHAEMV
MSANGGDPDTNTP LLDALRADVFSTPDGDATFGGGERSTP $A L P P F L D D L N S G V G C V R M S S A R S Q L T E N N R L M Y T Q M V S G A$ NPLYS Y Q F NPDS DRFDEKWRNDNATIRWPNTDDATAASQN CNVTNASGK LKRNPGHA DARRLGEALTHDPLATEVDFA LS TDKPFNVSQPLLDLPRCLKRDLNAYVASTYNSFRNTTTLI






 UniRef90-W3WJ04 UniRef90_G7NG01 UniRef90-G2YS45 UniRef90-M3C4F8 UniRef90-F2UDJ6 UniRef90-L7I8A3 UniRef90_G2XQD0 UniRef90_J3NK27 UniRef90-ROJ445 UniRef90-N4W3C6 UniRef90-S3DLT6 UniRef90-W3WIK4 UniRef90-N4X0Z4 UniRef90-M3CDC7 UniRef90-L2GRS8 UniRef90-C5YIC5 UniRef90_G2XK79 UniRef90_L2G624 UniRef90-W4XC54 UniRef90-T5AFN0 UniRef90-N1PJH7 UniRef90-W4JV62 UniRef90-M4B927 UniRef90_A9SLB4 UniRef90_A9U312
UniRef90_O49960 UniRef90_UPI0004414A45 UniRef90 M2SQZ2 UniRef90_A9SIY7 UniRef90_G3JUG5 UniRef90-B2WLF0 UniRef90-M2LQ03 UniRef90-M2TGF0 UniRef90-H1VTK3 UniRef90-J3PC00 UniRef90_Q7YT36
UniRef90_S8AIZ1 UniRef90-M1BMS5 UniRef90_U5Y3T5 UniRef90-K1WIM9 UniRef90_K71465 UniRef90-E7CLR7 UniRef90 H2Q7P7 UniRef90_G7JSE1
UniRef90-G7XMK9 UniRef90-W3WRM3 UniRef90-R1FZK3 UniRef90-B2ARH2 UniRef90_L8WI82 UniRef90_W9BZD3 UniRef90_A0AO16VS08 UniRef90-E3L5F5 UniRef90-K5UXV0 UniRef90_U1HKV1 UniRef90-F7VSJ1 UniRef90-H2A0L1 UniRef90_UPIO002B4CCAF UniRef90-UPIO002BCEDEF UniRef90-M3D714 UniRef90-Q7SFK3 UniRef90-G2Y7G1 UniRef90-DON9NO UniRef90-W9C6R2 UniRef90-B5RHQ8 UniRef90-B2VW57 UniRef90-X5V985 UniRef90-X0Q963 UniRef90-A9U439 UniRef90-B2WDF2 UniRef90-C3ZNJ1 UniRef90-N4VT93
UniRef90-G9N886 UniRef90_A0A010QYY8 UniRef90_G1XS72 UniRef90-M3CVQ9 UniRef90-TOS9R0 UniRef90_Q65Z70 UniRef90-A0A058ZVU6 UniRef90-G3JTH4 UniRef90_N1PDT1
 GGFAGGRTGFSHAGEDPGAAMGPLEGTPHGAVHVGVGGLM A AP NMSDFQT $D M D Y W P A R P K G V L G V H G G G H F S L G A T L Q$
$D S V Y D L V R P D P R G W G A G G F E D P H N T V H N N A G C G N T M A$ QSLYDSFTRSTDFRQFTMDSTGNSLEAIHGSDHWDAACQG ASNFSGWAKQLEDPHGWMHGDIGGGWDETQNKTKYRGHMW GKPYRAGDDS SPGMGTDETTPHTQIHYWTGDPNQTNGENM PYPVNYGALEYSHSNVHDWDGGHM PEEVKKLLAQPEGNYTKFQSYDESLDGMHSSIHLMMGGDM NSHSQUVVGGQGFPDPDTGRPGHSLESEHDNTHVWVGVMQ LEDYDTLGTLCNGYSDPTGKYDPAVRSLHNGAHLFLNTGG PGVVEDIMREGNFEAFAQRDEHNAHRFVSGSDRGEFSKFT LDYIY I EDFQCQSQGMCGDNKFG EAVHGGGHWQTGGSM QRVYTILISYNNYTTFSNEAWFPKGHDSDESVHDAIHHMT DLSYQNVT TNMMLTEDGQSFSNYMGASTGLHSNGHTVTGGLD
 SAASFSEDNRHDQGYSMQVSGMTLHAGMHLGDGGAVGDCA IRRDFRPGTTNTSGTYPNHTFQAVIEGMHPKGHAGUGGMN
GEQGSPKGKNLTERVNFILLSYTDIEDVHNAVHNYTGHMA IDNYTSAWECW W WSSPHNAGHGGTGGVMVDVV QSNNLIA QASDAFRSSTFSRFSSADEDAHGWVHPYWGHMW NRNWAGASGCY

> ENWDHDAGHEGVGQVM
 YKSHDP ATTFDKFNYHMQGYSFEDSGMTIHAGMHDGDGGQVGENA SLSYDNVT LALSQDDDQSFTNQDAGTALHNNGHTTTGGVQ A HLPSKIDVA QAMSSPDFATFEACDQADIGHVYSY IGGGHD QTCDDYLIAFSNDASSSAEASCALSKGEAVHNTVMHGTLGHMT $\begin{array}{ll}P G K Y A N T S F T F V G D F K S F Q A Y F E A F E G A H G S V & H E I M N C T P \\ P P T T T V S S G A R Q L F A T P T G V V G N L E L G D H N T I M N A L S G A M\end{array}$ PSDFYGLPYRK GDFGGAGSGVFEDQPHGTI HAWVDDMG PTPLTFHGAPYRFGDYGGVGMGTLEARPHGPVHDWVDKMS $K G P E S F D G E K F C T A D D G T S G M G S L E R M A H T A M H V W V N D M G$
$D N L L G T S T I D A D G N V L D N V D A A A G L P G L H G A G H Y A T G P V G$ GVMED
DTPALFYGMPYRDGDFGGGGPGTFEDQPHGTTHAWVDDMG NLKANLYAAFDYAKNFNDFAATANNGVGLEQI HNWIHYDA QQ $\quad$ AD F ITKHKD KKSFQDDFQAFNGMHSVGHLTISGDPGS LDNDY ISDFQATVQGYGSESNRFGDHGGGHW MGGGSMS YPDWAGMSRCVFQGYHAFGHNGDGGPMMD
VGPASRSVELFQNELQGRFADGFLG MHAAGHFTVNGEA AKREGVPPHCVRRDMLEPDYGHFSVFSERDSFHPGGHWMT RTVFTQKSLAQDSQLTANEQRYDFELYHNNDHDWDGGTVS $\square S V S D L N M Q S N Y A T R R R Q T Y N A L M S V K G Y N S F S N S L E T I H$ GARYVLGNNNMNDRGTDENSPHTPVHDWTGTVKGTVLGDG QSNDQI SEPW AADRFSLENYHNAVHMRVGGSM MTWYALVKPVTFNEFGTEATGGDSIESPHNQVHGSVGHMS

HSF L N GTNALPHSAANDP $\square Y V V I S N R L L Y N A T T N T L E H V R$
YDT $\square$ D WFQGVMQADQRFTDPTAPFSYGVHGGGHDTVGSVL QANTTNDAECMAYSNYTTAWECWNGYPHGAGHGAVGGLMS $\square N V L R K P Q N V Y D F Q M T \square Q A Y P G S G E \square G V H G G G H Y S I D P G R$ GSVVDVFTRVNTYDGMSSSSFENAHNLIMHDRAGCNNGTMA
RYTETMMNNIVNNGQDFESFRGPFEGIPHAADHDTIGGDM GTSQPENANDNLGSEGLMNMIVSSLENPHAAVVHDAVGGSH NPDQNMCTMP LTTCCSII DREDARMLEYSHMDYVHFFIDDDMG SSTYRLLTRVHTWPAFSNHSTDDGGSASNEAIHDGDHQMA
 NPNTIIHSTVTWE GFGFDTITNSQGEGEHNNVHNWVGGME RRGFKGKSPSRKPPHRFEDFDIQURHNYHDRMHNIIGGTM
 TSATDYTSMEAAYNSGGANGDYDGGGQVGGGHYSIGPQL $P S S T S F A S V R Q Q V F N A Q N D G Q M S P E Q G C H N N D H A N L G G A M$
$T Q L M T L F S N W Q P Y N Q F S N K G N R G P G F G N D E S U H D T V H H M S$ LE QTDYCDFEVHFEMSHNT IHNW GGGAAPYSM DTVAMS SG GT $\square G N V E T L H D G L H N V F G L G H M G V$ DRDVEGTDKGADDSPTFESFTQQUEQAHDDGHVSCGPAMQ
$D T Q G D E M G L L E G A P H G G V H V L V G N D F N P N T G D P I S F G W M G$ TTPSDFHGSTYRFRWMGGMGGGTDEGAPHGTVHUFTGNPY GMFSDTFSRFSTTDEDPHGWDHG』IGGGYTADAPYKGHMW FPVYDTPPYSSASNCSFRNGNADTTITLHDEVHDYLNTMS QRLGYULFSSYHEFDSFSNKNYA I SQNLSYEA HDGVGHMT SAATFSDFNLA DQGYSMQVSGMTLHAGLHDGIGGAVGDCA TGYKTFTSMASTGYDRANGFRFESFEAVHGSVHDAVGHMN
 $T K T Y N L L T R V H T W P A F S N H T P D D G G E A D H D G D H V A V G H M S$
$N A K T A E L F F G H A Y W A G D Q P G A G S T E S V P H N T I H N W C D Y R ~$ FASTKY DP EEGEKAVGATDSEY LNLDEQDHNS HVYVGGMM

|  |  |
| :---: | :---: |
| UniRef90＿K3X1K6 | WSHAAM A HVI |
| UniRef90 Kov9s5 | WLHHANIDR1 WEIUWRT |
| UniRef90 G4V1F2 | NIA WSAFDPLFMLHHANTDRLIALWQA |
| UniRef90－J4UKG1 | QVEFTGFDPLFMMHHTNVDRLWAYWQVM |
| UniRef90－E42 | PLEYSAFEPLFMLHHTNVDRLWALFQA |
|  | GNFYSGRDPIFYCHHSNVDRMWDM |
| UniRef90－UPIO00161CD | KPPEQSNDPIFFSHHAFVDFDW |
| UniRef90－M5BUU7 | G |
| UniRef90－A0A024C | NVVLSPQDP |
| iRe990＿W3WJ04 | F |
| UniRef90－G7NG01 | HL |
| UniRef90－M3C | MDFYSPADPLFYVHHAQVDKMWVIWQNDDTYRRQNITKGT |
| UniRef90－F2UDJ6 | ATYSSPYDPLFFLHHAFVDKLWYDWQVTLGNGN |
| UniRef90－L77843 | YIPPSSFDPIFWLH T NLDRLFT WQVVHPDV W |
| $\begin{aligned} & \text { UniRef90_G2XQD0 } \\ & \text { UniRef90 J3NK27 } \end{aligned}$ | Y |
| RRef90－ROJ |  |
| N4 | DMYSSPGDPVFYFVHGALDKПWNDWQRRDWPARKTDVGGP |
| UniRef90－S3DL－ | WLHHANIDRDFAL |
| UniRef90 W W3WIK4 | SLI S T WL ${ }^{\text {d }}$ AWWR |
| UniRef90－N4X0Z4 | F |
| UniRet90＿M3CDC7 |  |
| UniRef90＿L2GF |  |
| C5YIC | PTPATATCPLFYSHHANVDRMWHLWTRLGGGQGFTDTDWL |
| UniRef90＿G2XK79 | SPGDPIFYVVGA |
| UniRef90－L2G624 | A MVDRVW |
| UniRef90－W4XC54 | PIFFALQS YLD ML |
| UniRef90－T5AFN0 | SSFDPLFFLHHTMTDRLVATWQILNPSA |
|  | YLPPL GFDPVF WLH HVNVDRLFALWQTLHPDSGATQTAPH |
| UniRet90＿W4JV62 | G |
| UniRef90 A9SLB4 | NFGRSAFDPVFYAHHTNTDRLWELWLKTPGGQRTHPTDP |
| UniRef90－A9U312 | W |
|  |  |
| P1 | W |
| M2s |  |
|  | PVFYAHHANVDRLWCLLWTHLRGGKRTYPMDSD |
|  | A MVDRL WA |
| UniRef90－M2LQ03 | SPSDPVFFLHHGQIDR1WT |
| UniRet90－M2TGFO | （ ${ }^{\text {P }}$ CEFFFLHHAYVDRNARLYTNKNPQGVDASDRP |
| UniRet90＿－h1VTK3 |  |
| UniRef90 J3P | DPVFYFHHSNVD |
| UniRef90－Q7 | VQA WASFDPAFMLIHGYVDYM WYRFQEMQLEANINDSEDY |
| UniRef90 M1BMS5 | E |
| UniRef90－U5Y375 | APADPIFFLHHAFIDCVW |
| UniRef90－K1WIM9 | AFDPLFWLHHANVD |
| $\begin{aligned} & \text { niRef90-K7146 } \\ & \text { ineton-c7 } \end{aligned}$ | DTATSSNDPSFFLHHSF】DFVWEQWRLIAKQSRADRE【AYP |
|  |  |
| iRef90－H207P7 | KELP SLHVLHSFTDA】FDEWMKRNPPADAWPQELA |

ADDTSPAEPMFWLHHAQ DDRVWT $\square W Q G \square D P A K R R N A \square W G T$ DPDESNGDPTFFLHHAWLDKMWAEWQTA WGNNYSDI GGP DFFVSPGDPAFYLHHGMVDRTWWMWQMQNPAERTPPSANV D $\square$ NWSAFEPLFMLHHCNVDRLVAMWQTDYYNNSMFTSSGT GPSSSP SHHTNVDRWWWKWQQLNGSARALQYTGN GHMYAGFDPVFWLHHANVDRLFAMWQAVHPDAWMLPESDQ KSTSSSNDVVFLYHHSMVDFIYEAWQSRTQRERDYPPNDP PTAYAANEPLVVLVGAHTQSHWWRWQNAQRSTRDNAYGGP DPSVAGFDPI FFLHHANVDRMLSLWSALNPGVWTTPAEGG
 F LDPAPQDPVFFFHHCYIDYVWERFREKMRRYFRDPTTDY STHYAANAPEFFLHHAFLDKI WYTWQSKSSKHKF $P V F V V V S N L L F Y V L H S F T D A V F D E W M K R N P P V D A W P Q E D A$ DVPASPSDPWFFFHHSALDRAS LDWLYDDFDARVTTLPNA YIPYSSFDPIFFLHHAMVDRDFAIWQSLYPSSYVTPMQAY WDF WSPSDPVFWLHHSFVDKNYAVWQDGDYATRVT GETA GTFASPSEPI F WSHHAMVDAGHTIVGKCRVGTQRLTFA

VEVSAFDAVFWFHHCNDDRILALIYQARYPDTWTEDAKQA TPDIIAAFDPI FWLFHCNWERMWWAWQQRHQAVSLEDFRKT DPATAGLDPI FWLHHANTDRIWQMWLDLDTSHTNPPDGDA AKNPYDDMPLFYAHHANI DRLWEVWKGMGGRRRLTDPDYL P LEYSAFEPLFMLHHANVDRLLALYQAAHPDRWMESSNIG NVPTAPNDPMFFLHHCNVDRLLETWDRRHGPESADPEIGA DETIAPGDPAFWLHQAQIDRLYWVWQNLDFEKRQGVSGT YVPLSSFDPLFFLHHAMTDRLDSMWQLLNPTAWDTPQALKK
 EVPFSSQDPWFFFHHGMVEFVFAVWQSVDYDTRTTTLPDP N PWVGPSDPLFFALHATI DALHTMYYNC
DPSVAAFDPI FFLHHCQVDRLLALWSALNPGNRSVEEDGT QPSEDMGNPLFFAHHSNVDRMWTLWKALGGSKRTDFTD


UniRef90 K3X1K6 UniRef90 K0V9S5 UniRef90-B6H6P3 UniRef90_G4V1F UniRef90 E4ZW06 UniRef90-U5GSX0 UniRef90 UPI000161CD28 UniRef90- M5BUU7 UniRef90-A0AO24CHU9 UniRef90 W3WJJ04 UniRef90 G7NG01 UniRef90-G2YS45 UniRef90-M3C4F8 UniRef90 F2UDJ6 UniRef90-L7I8A3 UniRef90_G2XQDO UniRef90_J3NK27 UniRef90 RoJ445 UniRef90-N4W3C6 UniRef90-S3DLT6 UniRef90 ${ }^{-}$W3WIK4 UniRef90-N4X0Z4 UniRef90-M3CDC7 UniRef90 L2GRS8 UniRef90-C5YIC5 UniRef90-G2XK79 UniRef90-L2G624 UniRet90 K1WVB6 UniRet90 W4XC54 UniRef90-T5AFNO UniRef90 N1PJH UniRef90-W4JV62 UniRef90-M4B927 UniRef90-A9SLB4 UniRef90 A9U312 UniRef90-O49960 UniRef90-UPIo004414A45 UniRef90 M2SQZ2 UniRef90 A9SIY7 UniRef90-G3JUG5 UniRef90-B2WLFO UniRef90 M2LQ03 UniRet90_M2TGFO UniRef90-H1VTK3 UniRef90-J3PC00 UniRef90 Q7YT36 UniRef90-s8AIZ1 UniRef90-M1BMS5 UniRef90 U5Y3T5 UniRef90-K1WIM9 UniRef90-K71465 UniRef90_E7CLR7 UniRef90 H2Q7P7 UniRef90-G7JSE1 UniRef90-G7XMK9 UniRe990 W3WRM3 UniRef90 R1FZK3 UniRef90-B2ARH2 UniRef90_L8WI82 UniRef90 W9BzD3 UniRef90-A0A016VS08 UniRef90-E3L5F5 UniRef90 K5UXV UniRef90 U1HKV UniRef90-F7VSJ UniRef90_H2AOL1 UniRef90 UP10002B4CCAF UniRe990-UPI0002BCEDEF UniRef90-M3D714 UniRef90 Q7SFK3 UniRef90 G2Y7G1 UniRef90-DON9NO UniRef90-W9C6R2 UniRet90 B5RHQ8 UniRef90_B2VW57
UniRef90
X5V985 UniRef90-x00963 UniRef90 A9U439 UniRef90-B2WDF2 UniRef90_C3ZNJ1 UniRef90 N4VT93 UniRef90_G9N886 UniRef90-A0A010QYY8 UniRef90 G1XS72 UniRet90_M3CVQ9 UniRef90-TOS9R0 UniRef90_Q65z70 UniRef90 A0A058ZVU6 UniRef90-G3JTH UniRef90_N1PDT1

GVTFHFHDENRATVTETVQDVLDPQLSYRYEDI
STLVTVDMEMEFGVLDRPREVMDPTRCYSY
GTILTADSPLKPFH
PTTTTKSPLQPFRRTTSETVQSHDLGYSYPGLEF
PNGVNDTTSLLPFRR ANGAFWQTRDTYDTRVLGYAY
NSEFLFWDENKELVRVKVKDTLDTKKLYGFQDVGM
VQNVSSLDEYP
SGQHAPDAPMVGFDMVLNRDGYSHSKMY NRQDPNVGFPETPGSD
PDGHNRQYNMVPWPPVTNTEMFVTA PDNGGYTYE LRRASLDDTLDMGGNLAVADVMETTSCYQY GTLMTLNDRLPFGLVADDQTFSTPFCYRYD MLHLTLDPAKTAPG
GDTMTSKTLLAPFFADVNGTFWTSDTVRDPEVFQYNY LTMKN EPPSANGTLDTTMN
GQMVDSNTALTPFYATDNGLFWDSNMVRDPTपFNYNY
DTM YGYPFNFFGDVAVADVMDDPFCYEY

NQLIDQDTPLLPFRRTPTAFWTTAECHDTAVLGYAY DDGPETTLLNHVLWPNVTIGDVMD
WY HGDFDEMLFPF EMRVRDVWKSAVEYKPYADDY DASFVFYDDVESPRKVRVRDVLDTRDLYTYDA SQG RYEYMIPFSKLRN
DAMFAYPFDFVPYEN TTVSDMD $\square R G C Y E Y Q$
MTIKDCRLHCPP
VQAREVPMVPFG MRPMDVISSEACVTYADQGFGH
ETTFTADSPLTPF
TTWQGVDSPLEPFHKDTAGDFWTTTFHYTYPE
PPY运NQSMPAFPQAT\HDVFNTTLCYVYE
DSEFTFYDEDANLVKMKVSQVLDSRKLYKYAEM
NTEFTFYDEDGEQVSVCVKQALDLDLLYKY
ASFVFYDDVKSPRVRIKFRDVVDTRDLYTYD

TSQFSFYDHKGNLVKMNVSQTLDTDLLYKFED
GATDTPESQLQPFFRTTSNTVASDNGMYSYEGLHYW
PAHRDGPGPQQTLNDTIDFDVVNIGRPYK
PSAEMTLDDMLPFDDVRFGDVMDTPFCYRY
$\square T L D T T V N T Y G M M P D L T \square R D L V D T P L C Y R Y D Y$
LVAFDYGNE
PMTSN
STFQGLDTPLYPFKHTTPRDSTDVTSMWSYGY
NSEFFFYDEHERPYRVRVGDCLDTKMGYDY PWN NQARRSQRPSERMI N
$V G T F T L T T P Q T P F G T S A D G P Y F N S T F G Y T Y P E D Q D W$
$P D N H F G A S P M Q P F S P M R N D D G L S N K$
P $\square$ G H N R M Y N M VP F P P VT N E E LIF S D Q $L$ G Y S Y
STRGD NPPSANMTLDDVLD

PTVITADSPLKPFFR
TIQQSSEQDMMPFSD\PVSDVLLTNSD
IGTFTPGATDTSTSPLTPFYQADGETPWTSDAARYT
PFWHALDS $\square$ MPMLHPMTNREALSN GYTDEMYEFA
ATRGSTRNDAKPGPDVRVQDTMDTTACYRYE
TYTITSNATVGPTTQLTP
PTFADLNTPLYPFRHPTSNDVSTAES DFTYGY

P $\square$ GHNRMYNMVPFPPVTNEELF $\quad$ TT Q $\square G Y S Y$
DAYNDMRTLFP DFEGVRVGDVLDPTNCYRYD
GEFQTAATPLTPFYFNANGTVRDHTRFYTYPEL
VS GTDAFFDDPSGNKVTVREILDVSGCYGYE
GSTQDQNSPLTPFHRDTDGNFYSAADVRNVE\|LGYSY
TSVLGTASPLAPFHMNALGDMWTTSFGYTYPEVANN LSIIPDMDWDVAPFNELKP FTETAAQADDASQYAYE WFDTTFTFPKVGGGTI KVGEVMDTDKDYQYESV RSQFIFYDENKRLVSVSVRQVLSLRNLYGYQRV PHGVNGDTS LLPFRK TPGEFWTPNACRNTTVLGYAY PPGHNRHEHIVPFFPPYSHTHMS $\square E \square G Y D Y Q E L$ $\square T$ F QNVPKTLTPDKPVK DKDLMNTSGCY
GTMQNSSTPLTPFMSSADGTFWDSDMSRTTEVFGYAY DVIFGGYPFNYTTNPAYENDTLQY RMGVDERTPLYPFKKSANADVENPQFGYSYPE E $\square$ F ND $\square R A N G W S F E N \square T V R D A M W T N R C Y R Y E$
FTIVDKDTPLTPFWNTESVGVVPTQLGYSYPEFN
PDWLNFYDENTQAMRVKVKDCLETTNLYKYQDVD
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 RLETRDLASDEWS【YПRTMAKWQQVARSDGFVAVHMNQ R【E $\square R D \square A S D E W S \square Y \square R T M A K W Q Q V A Q S D G \square S S \| H G V P$
VRKS WNRYSVQEKATYKKAVAKAMDTPGYERF $\square S M H S D Q$
VARQE RRNALTLNAEEKAHLVRVFDLAKHTPSYDYLVHVHYFS SLPEDDPRNFYQQANVHSHPPPPPPCACCNGAY
1 RKSWDS FTDAEKALYTEAVGVAMDQGFHQKFVQIDH
I RRNDLKMTVEEVEQFKLYLIKAKNTSVYDDYTWYHYYV I RRSWDSYNASEKT LYKEAVGVAMDRGFHQKFTQVHVDY IRRNFTSMDKTDDQKFVTDLDESKRVTSKNYFVWMHAYV VRREWRTLSNGDKKAWLDALKCAGNLPHSDALTSSHYDD
$V R R P M H A V G E H M A R E R A L T M R A L S H D Q L A N V H C A Y$

R DEYRMMTDDQRNRYHSADNRDKYDEKDEGESK VRPEWQSFKTTPRDALDKAVKSMKANTNVND

Y D V L
PK W W RQECRTLSDPDRNALFGAIVTLKKQPSRYNTLAAMHNDQ
VRQEVRQVEKDQWTLYILGSSMLQYTDQASPLAGDHGMP RQNVYEL QDETLSWYSRAVEEMKSRDDNDPTSWWYQGA
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VRKPWDALPASEQALELRALTLSMDRGYYARFVALH
VRRAWSQHSPNEKETY $\quad$ SAVSLAMQKGLHHRFMEVHMEP RQSWS S DSVEDKDLFREAVAMSMDRGYFSMFTRAHVSP $R D D F N S M A A A D R K A Y T D A V K C L M A Q P S Q D D S V Q Y R Y M D$
$R K E Y R S L T E K E R K V F H D A V L A L K A K S T S N D$

VRRNDRDLSAEEK KKFQRYFNRAKNTTSYDFFVATHYYA RRELRDLQPDHFNLLVLA LK DFQALNSYYQ\｜AGDHGLP \RRDITTYSQPE IDQLKKAFQGワMDLPDDDPNSYFQVAG VRRNANELSDQARNDFLFALAKLNTDPTPGPGRGDYVTD IRRNDFDLSWWERRQFLRALDESKTTTTYNVLA WMHYYV RVDFNSMAPADRKAYTDADKCLMGKPSQLDYPAADNRY $R R E V R \quad S P G A Y Q P F A D C I V R L Q N Q F V E D P S T G R N T Y Q$
 RLE $\square$ REFMKDGKQLYUDAGQRMMAELD FANDRSGGHGMP VRQE $\square R$ QMNPFKWN $\square F L L A S S M \square Q Y T D Q D E E \square S W \square H G V P$

RKNVSTLDAGDQTLYARAVHDMQQRPSSDATSWQYQAF VRREWGDMTIEQRSDF $\square$ NATLCDMKRTRYDDFMAYHLTTN VI RKE DRDMNI E E WNKYKSAFDLFKEKGYDAD DSK DHVEV I RKPWESMTKEEQDTYVEAAGLADKNGUVSDLAAMHIES
 RKA WSASTAAEKALLF $\square$ SAVEESMKRGLFKRF LSVVN
RKE $\square$ T T $\square$ S S TE $\square D$ T $\square K K$ AFS G $\square$ MAKNPSDSNSYF VQA
RMNVNQMQNDGWDLF ULGLAEFQAAKESDEQSYDHGRP 1 RRAAHDADDAYDAKYRLAYKRMAADPNTDPQANLHCAY VRKDFESMSDPERRDY DQTLKKASSKSEYDRDTKYHSDD VRKSWDALSTPEKTLYKSAAQTAMDAGAYERFLSMHRE I RRNDLNMTVEEVEQFKDYLIKAKNTSVYDFFTWFHYYS VRKPWSLLSTAEKTGYVVAVGEGMKQGFHHRFAEDHTDP


R LIE $\square$ RELVKDRKQLY LQALKAMMK LIKSSNSLAGUHGMP
RLDERDLVKDKKSLYVQALDVIFKEPFDNDFSWDHGMP RKNDDQLTPQEVADYGYAISULRKRSEYDYQAALHNAD VRYSWDALSVDDKKDYRDAI ATAMSTGYHAGFVEVHS $D L Y V Q A L Q R F Q D M \square G F F E \| A G U H G L P$
ALTPQERKSYTDAVNCLMHSPSVLDNSPSHFDD VRKEWSSLS $\square S E Q N L Y \square D A L T K A K T V G H L D T F V R V H N D$
VRPAAHLVDDAY $\square$ AKYQRAMELMRADPETDGRSR LHCAY $\square R K A W D R Y T S A E K A T Y \square H A L Q L S M D R G \square Y W Q F M S V H Q$

RKNVYHLQDDTLAWYSRAVEEMKTRD $\quad$ TNDPTSWWYQSP



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#### Abstract

50 60 70  T NQVH QVGGH F F L A A WHRHF LTYANAMRDECGYQ G  FTEWAYKA GYCTHGQVLFPTWHRTYLTSNQTDWVQAA QDL $T R L I H F N G \quad G A W H R G F I R L F E S A Q T E C G Y V G$  THS T RTSWDGVEGYCTHHNSVLDFPAWHRAAYMAGLYEQRMQAAAAQVL M   TKNAEVDGEDFAHNGPGFDTWHRDYLMMMEREMGRVDPFF E QVGF P K LIK DDVHS GWLFFPWHSYHLYFYER\|LGKLINDF T E K V T GL E A H Q T C V F DY WH R ML L L G Y E N M L R S L D P S Y SRDNHDVTAADFAHGGPGFPTWHRYFMMLDWERALQQKVVNNE LSEKEAHQNCMFIYWHRMMLLGYENMLRSLDPKY  CTGSYR QTGD Q $\square H F$ S WF F F P F HRA Y L YF F E R $\square A A R L E P$ G F


ASFHSGATQYTAHGGCNF LGFHRQYTLMYEEALTQVDPEV S Y WT N $\square H$ LLK QCPHSVPYFFAWHRGY LYYFKRQLRTVSGDP AFGN A HNGPNF LGWHRDV L NMYE EAL Q E I R P G V HQS WNENTGYCTHSSVLFPTWHRPYMALYEMIATFWPEDE $\square$ GGNS GFWNRCQHGTWYF LPWHRMY LFYFEE』VAKA DRDM

 M L N P WP D P SEKEAHSNCMFI Y WHRMMLLGYENMMRS LDDSK Y
 TQ D DPPEWGQCSHGDRYF LDPWHRWYVYYFER VVRNVIVTV S Y SHAL VGEHSAHRNAYFLPWHRWFI Y LFDTSRQTCGYS G SNAAIPAGGDWAHRGPVFLDWHRMMLLYLEGQCQRVDRTF
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 MDYAV IHVNRTQYVHAFFLTWHRYFLWLYETDQQSC GYTG YK T WGNQA GFCPHGNTMFVTWHRPYLAL FEQAWYQCVLEV TLAAFHSGQRTAHGGPGFAPWHRDYLLLLETACGAPI PYW
 YVQWGNFGGYCTHGSVLFPTWHRPYVALFEQELYKHANE $T L S D H$ GTANF LSSWHRYFTWTYEQARNECGYQG FVPWNGVP GYCTHMSVLFPSWHRPYLALYELIDYQAADDF TNGTYGDQCQHGSWYFLSWHRGYLATFEAIVAAKVKEL T P DQRQAWAQCQHATWFFLPWHRAYLG $\square F E D \| V A N T P D W$

M HWFP GEAQAHHSCAFFTWHRRMLLAYKYACVTIPYYD TQDQKVANTMCMHHVPGYNPWHRAYLVSFENALRSVPGCA
 DLKANKEAHGTCVFLFWHRKFILAFEDMLRSLGPAY

Y $\square$ P WN GVGAFCPHGE $\quad$ GQFAT WHRPYVAVFEMDYQTAAENW C GGAFKFNGSSWHGGWFFFAWHRAFLYFHERGLAS LIGDD F
 VWDHS GASPDFAHSGPGFPTWHRSFI QLWEMALQKVSNNE
 F VT WNNFAGFCPHGMT LFGSWHRPY LAAYE QA WYQQA ST L Y VQ WGDFGGYCTHGSVLLFPTWHRPYVALDE QEWQDAGRNLL CWGTCTHASPYFATWHRWYMYYFERVCRVMCKDP YVRWGDFGGYCTHGSVLFPTWHRPYVALFEQDWVKAAENF RTHPDGTVGSCEHGSEEF LPWHR $\square H L L L F E D L L R A$

D RNSFK E A HNTC GMMFWHRRF L L A Y E DML R S LF A C I YK A WD GMQ $\square$ SKY ALLE $\square$ A QQYPASTRSQYIAAAENL


CNNHLYYESPEQHQNWLF LPWHRLYMYFHER】LAK LIGDD D R V S N R QA H G T CVVF LiF WHRQ F L VGF E N MCL T L L P Y Y D

QTVDSGFWNRCQHGTWYFLPWHRMYLFYFEQQVMGGPSDW YAVDHVSRS QYVHNS GYFLTWHRYFVWLFE QDLRSVCY TG $Y K A W D P N R G Y C A H N D A M F L P W H R P Y M A L F E Q L M W N H A R D D$
$N G E F Q A H R S C A F E S W H R R L L Q D S K F A C V T L P Y ~ Y D$


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 $R$ QP Y WD WA AT P P S GE S VLPPK S IGGSP F DE V N GP N G V Q R DA

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 $A N Q F P A S N R A R Y V A A A K N L R F P Y W D W A D A T A R G T G P A D V B$









EFP Y WN WD N Q S P VA P YP GA VP R VY DLE WS LS P DA IN K T S S

 TLP Y WN Y C E A F NTSAS A S S EQ D Q A L Q LP P E F G
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 MSPPNPRTDGLGYNPRCIRTVLSVELARGASDANTTKATQL $G Y T \square N D Y T P V F T D V K H L N P R C Q R R D L T T A A S T S T F T A A N L$
$Y S P F T V W D T T L R Y P T S N A R G A T S Q E Q Q A T T A F N Q L R E N T Q$ DYNRQVTLCNGTNEGLLRRNQLGRTRVQLPTDEDVQACLS RSTTIKIQKFNVQGNCVATEPVNHFCESTASCTKCVPRGP T WKYGVVNNYKVQEAMKKPQWVADSPYGQPAEMVYRLLTV YQYNFYKHTVRAPVRNRNGQAESSPSSDEREMASNRASLR SRWESYPCDLRVPRGPVIRDPEASVSPFLPPMEDVIFTLS LDLDYGAGDHNPTNANQLYSTKPTLFFGKPYRAGEDSSPG
 ISSKWE IGCQCTGASEGPLLRSPGNYVIVMSTAYDTDADYDV
 C CNGTNEGPI LDRNPGNHTPRLPTSADVEFCLS FANWNTTVGQLFRNVGISGRPMDDEEDKNVTSRTRMSEI PVLPAEFTNPNGGNPLYIQR VNTNVRQALTMAPFSSACI NPDFSYNFKPSSGPWNVWTRTLSNNSLVAMNGDQNRPSUA SS QGPNTDFAALWDKNRRNYVLNKNNVNPWPAMNEVEFTN VSTAGVCHTAYPLNFFCHASNITDKCSGCDTRGPWDTKFL VQDGPFASYTLRLGPGTLSRDHCLQRAFTSQHLSK SHDA $N M T G R Q P D P P R A R R P P D G N D V V V Q R M N F D R D M L R D R L Y N V$
$S L I I Y N V S I P T S S S T T C M S R F P N T G C A K C I T R K T R S A M S S$ SDNPLYSYKFKAKESETMSFRPGSDGCAKCUTGRKTRSAMSS
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EYTANUGPNGTGYNPRCMRRDDSVDAADGATADRAYNLLIT GEGTTGYEVKGAPFANSCDDKNKKCGVITRNY $\square$ NK K $\square$ SVPS TTRFDYDTUGQKLLTYGVTDDVNRAMSK
ERDQGNDGKPF LDNKAVSLNCLKRANFAGHDAPGGDSGFG RDAQPADAGHTSLCVSSPPLNASEAGCVRRGDWHATTMPD
 TQRNSYPE Q KNDKDFGVTED $\square N R A D T K$ WQYNSRQALCNGTSEGPL $\square R N P G N H T P R L P S S A D V E F C D S$ WQQFPLNTANNYFPTNTDRNCWGWPETTRQPNSQGQNQFN ARPPNVVDLGY DSQTPGGPCPDSLGLDTYNND DMRQQMAA PLDRKDSWELPAWHEQPWLSREFNDCYKERLPNSHEVRDLAD VKUGDYDDYGRCDATPPLDHYCQHPATTPTAKKACAKCVP NWPA C H C WDRINGATMAGVGCVQRSPLNNFCQSTMAFNANRCMGCIP
$Y$ SFGNSLPSEMGGGPWNSFPATLRRPVANPTRSNNNELNA

 $T P Q G D G A Q N V A M N A G G Y M P F S G I N Y D P A L S T K E M F P S D T N$
$F T F T S K Y P Y T T F D A P F N G W Q T F N S V Y G Q N N S Q V R T Q T F Q M$ ASP LF HAGRWGVDAGPAQWDPAD DAVA DNEDDWNLFAGDA

 SCSSVVSCSPAVRAMYSGPPAFSNVVRGDWTEHGFGPAFT $\square Y$ DADRNNCSKPPRLDEFHNFTACEPQNLTLAREQNAQLM GFTYPQFTCVHAAPASHFCADSQAACTGCIPRGPWRSTYF



UniRef90_M4BES0 UniRef90-A8NDI8 UniRef90-K1PAV4 UniRef90 O42713 UniRef90-UPIOOO4411624 UniRef90-UPIOOO4412573 UniRef90- F9XPY9 UniRef90-Q2H5H1 UniRef90-МзА9А8 UniRef90 UPI0004435F9E UniRef90 TORZX0 UniRef90-B6HML8 UniRef90-G4TM95 UniRet90-_R7VC10 UniRef90- U5FWS7 UniRef90 W2HJL6 UniRef90-UPI0001CBB43C UniRef90_G5A886 UniRef90-F6UGD7 UniRef90-L8X5P8 UniRef90_W5DON9 UniRef90-UPIO00441B8E9 UniRef90-K1R2H1 UniRef90-T1WBT9 UniRef90_A11HF1
UniRef90_Q2HEC0 UniRef90-Q2SGT2 UniRef90-K3X1J8 UniRet90-V2XLW4 UniRef90-R7YPG2
UniRef90 V9FSW0 UniRef90-S8BUN8 UniRef90-S8AG.J7 UniRef90-UPIO0034A6C11 UniRef90_Q0U6S4 UniRef90-UPIO0036DB6E8 UniRef90-F9X8L4 UniRef90-TOQFO4 UniRef90-FOWYB1 UniRef90-W9VMR6 UniRef90-K1PY25 UniRef90_C4JN5 UniRef90_C3ZW77
UniRef90 Q92396 UniRef90-A3JWQ9 UniRef90_M5F536
UniRef90_C3YYK2 UniRef90-W9XSH8 UniRef90-E5A3G2 UniRef90-K1P166 UniRef90_G2XO11 UniRef90-M2RC83 UniRef90-H0ЕJM3 UniRef90-E3QED9 UniRef90_Q7NT03 UniRef90-B2B209 UniRef90-TOMGC7 UniRef90_K3X3G4
UniRef90_J2Y1W2 UniRef90_UoZ467 UniRet90_A0A024TEL4 UniRef90-UPIOOO2034A13 UniRef90-K9FAW5 UniRef90-J7GMM8 UniRef90-G4MP53 UniRef90-A9T5A8
UniRef90 A7RQY2 UniRef90-TOPRD1 UniRef90-UP10001CBB43D UniRef90-W4GBE5 UniRef90 M2TJP1 UniRef90-FoW3J2 UniRef90_M2P7Y1
UniRef90 BoUQY1 UniRef90-S8DUL4 UniRet90-X5P1L8 UniRef90-V9ES37 UniRef90-M2Z613 UniRef90-TOPNV2 UniRef90_QOUJV22 UniRef90-A0A024URD5 UniRef90_C9SQM7 UniRef90-UP10003624C9E UniRet90 W2SF58 UniRef90_S8BPP4
UniRef90_G4ZQT5

RTRYSETVEPKRGREYVYSLEGHHNGPHNWVGGH
 EKTYNMLKFNDAWERFSNHGHANSLESVHDDIHVMVGHMD FQTPENLDNLLSTTSSMEFQDALDNVSGFPGLHAAGHFAV YQTRENVRRLMSTETVEDFQAVFDSRVGVVGMHPAGHVAVG GNDNDGDFQDEMQGF IKEGQQPFYGVHTSGHLMVGSDPDA DQVYGLLTNCDNYLHFATDDSSSSTGKCANSTHNTMHHMT WS TFA S $\square K K Q \square F K G T T \square A Q A S A A D E L A P H G S I H G T L S S T M$ PMEYSTFATTAQLSDNQDVTNDDNIEYLHNNI HGWVGHMS ARVYNLLVNAKNYWSFSHDEWMDSLESLHGNLHNFIGHMS QATFDLYPFTPATSRYSFRNCDEGFGGASGVFHETGNATM AGTIIETTPHNNDHRWTGDPTQENTEDMGNF
RSKFLTATTYPTEASFGSVYQQVFERGVHNADHNAMGGVM
 AANQSFRNLVEGFANTTTGVADPSKSYLHNAVHLFMNTMS
 GQPFRAGSDRPGPGTVELTPHNTMHTWTGDLTFHNVEDMG CGDDASTWHDLEFVHGPFHLFVDVMG
NFPRNTA NEGSRFNQSPRFGF DDPDSGMRHSWEREHDNTHVWVGDMV
 PASAGYASVRNQDFASTNEFSYADENGAHNAIHSVLDGAV VSDVMSLT TFEEFRTKLEGKPSSPERGLHDSLHDTVGGEM
 FKTYEDRVDKRIQSDFFNEFSNADEMGIHGRLHNYLS IMK ATTVVRGSNAEAYDALVSVSGYNNANRLIENVHNTIHMMLL AMREPLFWPPEGGEVGSAGFSQVLERFPHGLVHNVTGGMG
$K T T G D F Y K F Q Y A M T Q M H N H V H D F V G G D A G D C P D T L C Q G M$ YGPS GPGPKPGDRYWTPNPDPGQARP WLHNQVHSWVGGDM DQVYSDFTQCDDY LUH WSNDRCSTSDEAVHNNVHNSGGHMT
$P D N F N R V Q S V A G S S M T A V T A A I E A S P H D S M H A T L G G A M$
 TASFTS DYSQVLGQPDIDDMLESIETRLHNDIHADLSGAM A ATHASNAADFELLLNGVIGSASLGIHSGAHFS GQMD $\square T$ SARSFADQ FSVYDTPPYNRRSNCSFNGURVPGSHTVHNQVHDYKNTMS GQSQDYTNFDAFSFNRWDPNMTPGEFGSLEDVHNEIHHMS DDALAAHWWEDFNGWSNGQGTHTGUIRAHDGGHDSIGPTM GVAPDDPEEAKLGSDTMPKSFARMEGTPHGAAHMFNGRDN LTAA AHADNATHLEFLLNGVIGSSSLGIHSGAHFSVGQMN FASKQKFGDVATSAIGVRTSTSGSGVDSFESVHDTIHHMY
 SNYRDYGPFNKRWGEWTDSSQYDSLESDHDEDHVEVGHGG GTA SGSGDPEGTPHGAVHVDVGGDM T Q $\square Y Y C L V T \square K T W D D F S N H G R A S S L E S V H D S V H V L I G G H$ TGYTT IDDFQTTMQGDFANGEY GVHTAGHFIAAGDPGG $L S N Y K D Y G P F S N K Y W G T N Q S Q Y D S \| E S D H D A M H V L V G N R G$
$D G S \square G F G G G \square T G D F V Q F G G W T G D I E N N P H N T V H R L I G G Y M$ GGDSGFGGPMRGPNHMGDSDQGQLEMVPHDMIHSDIGGDM KSDDNTFYNTLLTPPRNVSDPYNFGIHTAGHYISGGDPGG LVP HALVHSNVGGVDGDM
 TD WEDFHGYWSGAAHNTIIAAHDSGHNSIGPTM GP WS $\square$ SNARSSLFDMGAS IDAAVSADLVGGDHGSVHMELGGAM LHEFDSPPFFRNSFNTPEGALNSPMLNLHNLAHSFLNGTS TDWEDFHGFWSDASHNTIIAAHDSGHNSGGPTM LTQYESGSMDKAANFSFRNTLEGSQSSMHNALHDYMNTMS IVNQDMSTVTDYNTMATYGTSGLSFEAPHNDVHTSMYDMT ETARDF HGAPVRYNTRGGRSPGNVERTPHGNVHDFTDDMG $C M P R E K F V K F E D T V R D$
$R G D Y T R L Q Y P T E L G F T G V K D D D F S G P V M H N D F H N A D G G V M$
$V$ VTDYDVI T TNYA PVYNNWTHSPCSFRNGLPRVHQLHNQVH RNNYKRASVPAEANIGQVFA Q LLGGNGVHNQMHNALSSTM RFASARLSI RDR DF ALLFSSKPNWGGVDSIESVHDLI HHMA VPRGPWSEI PFPPTPT TTGVAENLEQGLHNTIHNALSGAM
 AIPMGPSQPGYAALGMTGR LENAPHDMVHLGVGGWM LTRDNTWNYFSNHTTKQNPPVANSLETDHDNMHLLI GHMS
 QSTYALFTSQPDYTGLDSTRVASSRNESIMDGIMVAVGHMM DQALAAPN!TAFRKAMDPSAVDAPG GGHAAGHRSVGAQM $\begin{array}{lll}L D M D K L S L L & P S D M N T P M D A D S T N D E T G V H N S D H S E L G G D M \\ A L L K G Y P D I A R F Q R V F Q G E F S D G R M G V H T G G H Y T M G G D A G\end{array}$ $A L L K G Y P D I A R F Q R V F Q G E F S D G R M G V H T G G H Y T M G G D A G$
$W T P L I M S G A P Y R F G D Y G G M G I G G I E G R P H G P V H L W V N E K D$ TPDVNFNRVKRATDTSIAAVTSALELSVHNSVHSMLSGAM
 HAS DAASFENLLNGVIGGASLGUHSGAHFQVGGAAGQMS


UniRef90_M4BES0 UniRef90-A8NDI8
UniRef90 K1PAV4 UniRef90- DONGK5 UniRef90 O42713 UniRef90-UPIOOO4411624 UniRef90-UPIOOO4412573 UniRef90- F9XPY9 UniRef90-Q2H5H1 UniRef90-МзААА8 UniRef90-UPIO004435F9E UniRef90-TORZXO UniRef90-B6HML8 UniRef90-G4TM95 UniRef90-R7VC10 UniRef90-U5FWS7 UniRef90_W2HJL6 UniRef90-UP10001CBB43C UniRef90-G5A886 UniRef90-F6UGD7
UniRef90-L8X5P8 UniRef90-L8X5P8
UniRef90 W5DON9 UniRef90-UPIO00441B8E9 UniRef90-K1R2H1 UniRef90-T1WBT9 UniRef90-A1IHF1 UniRef90-Q2HECO UniRef90-Q2SGT2 UniRef90-K3X1J8
UniRef90-V2XLW4 UniRef90-R7YPG2 UniRef90-V9FSW0 UniRef90-S8BUN8 UniRef90-S8AG.J7 UniRee90-UPIO0034A6C11 UniRef90_Q0U6S4 UniRef90 UPI00036DB6E8 UniRef90-F9X8L4 UniRefefo-TOQFO4 UniRef90-FOWYB1 UniRef90-W9VMR6 UniRef90-K1PY25 UniRef90_C4JN15 UniRef90-C3ZW77 UniRef90-O92396
UniRef90 A3JWQ9 UniRef90-M5F536

UniRef90-C3YYK2 UniRef90-W9XSH8 UniRef90-E5A3G2 UniRef90-K1P166 UniRef90-G2X0111 UniRef90-M2RC83 UniRef90-HOEJM3 UniRef90-E3QED9 UniRef90-HORPX7 UniRef90-Q7NT03 | UniRef90- ${ }^{-12 B 2 Q 9}$ |
| :--- |
| UniRef90 |
| $0 M G C 7$ | UniRef90-K3X3G4 UniRef90-J2Y1W2 UniRef90_UoZ467 UniRef90-A0A024TEL4 UniRef90-UPIOOO2034A13 UniRef90-K9FAW5 UniRef90_J7GMM8 UniRef90-G4MP53 UniRef90-A9T5A8

UniRef90-A7RQY2 UniRef90-TOPRD1 UniRef90-UP10001CBB43D UniRef90-W4GBE5 UniRef90-M2TJP1 UniRef90-FOW3J2 UniRef90-M2P7Y1 UniRef90-BOUQY1 UniRerso S8DUL4 UniRef90-5F1L8 UniRef90-C4JZU9 UniRef90-M2Z613 UniRef90-TOPNV2
UniRef90-QOUJV2 UniRef90-A9SJQ8 UniRef90-AOAO24URD5 UniRef90_C9SQM7 UniRef90-UPI0003624C9E UniRef90-W2SF58 UniRef90_S8BPP4 UniRef90_G4ZQT5

P पPWVAFDPVFFMHHAYVDAVWEVFRAQQ RNG DDPGRDY ATYPTSADPIFYSHHATVDLIHQLYFDCQIGRRLTDSE HPFFAAFDPIFWLHHTNVDRLLSLWKADNPDVWVTTMGDA D DF S SPTEPAFYLHHAMIDKVWSQWQSVHTSRVFGD NA NFFSSPQEPTFFLHHASVDRAWSRWQMKDLKERVYGGNAA
DFFASPAHPWFFSHHAMIGM DVFTSDNDPAFYLHHAMVDRDYWU WQVLHPANGTVTFRNN YLPGASFDPGFWIHHANVDRLFALWQTLHPNSQTAPHATW ALPHSANDPIFVVLHSFTDAIFDEWMKRNPPVNAWPPELA NNYTSPTEPVFYSHHAMTDALQT YYLKC
 STDFAAFDPDFWFHHCNVDRLFAVWQALYPKEWFQ GGA YSAARDPIFFCHHSNVDRMWTI WKTIPGGTRRDDRDWL VYFQAPVDPVFYSHHTLIDLLQTUYLKCQNG
DVPDAPNDPIF LHHSNVDRIFEKWLRRHNTADQFPDTST AYFQSPADPVFYMHHGLIDLLQATYLKCQVGAENVTLSAT EVATSANDPVFVLHHAYVDSLYELWRRRGUQGRFDVTEGV
TNPAADPLFWLHHAMLDRVFAMWQAKYPENAESYSGGS NGSMSQNDPVFIPGHAFVDSLYEQWLR RHPLREVYPEANA IIDEDASEEPVFWMHHAFIDYVWELQRENAKNKGVDVTADY ANMQSPTDPIF WLHHANVDRLWVAWVNAGGG RAMPALNK YIQWSAFDPVFFLHHCMVDRILALLWQTDHPDTWVSYTTR R GNPDTAADPIFWLHHANIDRLWQVWLAQAGRTNPAVNAWK GTFASPADPIFWSHHAMVDLLHTIFHKC
GNMYSPGEVLFYAHHSNLDRLWDQWQRMDTENRDYQDSGT Y DP WSAFDPVFWLHHTMVDRTLAMWQADYPDSYVEPMKQT
AYFQSPADPIFYLHHALVDLLQVIYFKCQ
SLGYAAFDPIFWLHHNNIDRMMAMWQAANPKVDTYQNPGA VIDYSAFDPLFWLHHTNVDRVFAMWQAANPNVRMTFMRNA SVP SAAADPVFWLHHANVDRFWAA WLTRHQVPTDWRWPKV SPASSPNDPVFFLHHCNVDRIWESWLTRY NRVYAPDMTA Y DPLGAMDPTFFLHHANVDRYFAMWQRTHPNQWLGNQAAP ANFVSAADPDFFAHAMLDVLDSMYHEC
RTRASPADVTFYGHHAHTDLLDDIGVRCRDRQRDDPYN
STHVSAQDPVWYPLHTMDDKVYWSWQTNYPETGTALINTPP NSLRYTYDPVFFMHHCWIDYLWWRYQRCRDDRFVYPGTNR DDFWTPQEPTFMLHHAMVDRI WALWQAQDPENRRWALDGT SVPSAANDPTFFLHHCNVDRLDETWDRRHWNNSTLPETGA SLDVSSFDPLFWFHHTNVDRLWADWQDLDPDNFLTPRPAP ADQDVAFDPIFWFFHSNWDRLWWRWQQE NVPVAPEDPLFFL DHCNDDRLWALWQGMQNDपRTYPYGDA HRFMNGNDPVFDIHHAYVDSIYEVWLRKFR HLELAAYEPIFFLLHAGVDRLTAMYQLIVPDSYVSPQWNT RPNSAPYDPVFYMHHSYVDAVYEAFRQRQRQNGINPETNT $H L D F Y L Q Y D P V F F L D H T M V D R I F A M W Q V L N P R S W V T E Q N T T$
$G F F D S G K D P V F Y A H H A N V D K M W S D W N K A S T N P T V T K F L N$ DPLGFDPIFWLHHTNVDRMLALWSALNPSVWVTE GDQ D
 GDPDTAADPI FWLHHANIDRLWEDWRKMGNANPSDPKWLN
 CTFASPRDIFFFSWHAA!D
 GNFDSPMDPIFYLHHAMVDVL ETVFYHC VLPHAANDPI FVVLHSFTDALFDEWDKRHPPDNAWPEKDA ANQSVAFDP: F QVPGSANDPI FLLHHAFVDSIFEQWLRKHP四QDVPEANA YLDYSGFDPIFWLHHTNVDRLIALLWQAVNYNNRGLYATPA NLNRAAVDPLFYSHHANLDRLWAFWIDAQGGHSDYNDPDYL SLDASANAPEFWFHHGYIDKVWSDWQKRGKDFKYQYY NPFVSPSDPDFYSHHTTIDALNTDFYKC SYFNGTIDP:FILHHVNVDRILEKWLRRYNTADQFPDTSA STMAAPADPLFYAHHAQI DLLMHRПY
YLDVAAFDPLFWLHHCNI DRLLAMLQUISPNTRPMAQWNQ AFLEAPSDP:FWSHHASLDLLHSVFYHCNPDVWVDQPHGT
 GDPGTAEDP IFWSFHSFIDLTWARWQRLNSQTAQN ATYPTSADPIFYSHHATVDLTHQLYYDCQDGRPLTDTE AVPWSAFDPVFWLHHANVDRVLAALWQATYPDSWVTYVTPR ENFASPADPVFFLLHAQI DRLWTLWQDRDRENRVFGKDAV AGHWSNNDPLFYLHHATVD
ADFYNPADPAFFPHHGMIDRVWWTWQNपDGKQRQNALAGG ANYISPVEPLFYSHHTTMDLLHTYYRC $G G D F Y P G D P S F Y L H H A M I D R V W W I$ WQLRNDDARLDAVAGL
GNPDTAADPDFWLHHANI DRLWQVW SDHVSAQDP WFPMHTFVDLVYDSWQRNNAASGTMTAGNV


PGPFD $\square$ D F R P YFPP $\square R \mathrm{~N} \square \mathrm{DAMS}$
PNA INSETPLEPFYQSTSASLADTARLYSYPDFD
I FGTLTSQNIPPSANATFHTVIN
1 YGTVTTMNIPPSANATFDTLLN
ITYRN MPPSRNATLDDII D
PTVDDLLDVGKDGPAVPIRDVLDTPDCY $\quad$ VY
T T TQDANSPLMPFNFWTTNDVKDWSNTFKYTYPEFA
PIGHNRMYNMVPFPPVTNEEFFDTADQLGYDY
PDGDTPNTGLRPFHKMKPKDVWTYK GGYTYPELDTWNF
DRDQLTPFWRKQGVYWTSNDARDTRTLYTYPEL
AAGHNLHDVIVPFI PLRHVDFFSYDLGYDYD
NSEFIFYNENAELVRCKVRDCLDNRRLYTYQNVE
P LGHNRYSYMVPFFPRTHSDFFKNADHFGYDY
DKGSDPRW
Q LGHRADDFMVPFFPVRNRAGFSTRDGYVYDYM
PPMVNTES LLPEAHDVAVEQVMSDTSNYK
TDSDWLXXXGPPGANHRPR
PDGHNREYYMVPFIPDRNGEFFDSSKGYDYEY L PAQFGFHGPEEPLGDMTVMDGLS DRDIYKY PYWSGSHTYTSSLTMPRSSTYSTRTALYSYPNESF NEQHRAFQTMAGFPAYRNDD
GQY DDANTALTPFTFWTSDGVRDHTKFYTYAEL
DFRFKFHDGNGQPVEMAVKDVETTELLYVY
LD FELDP H GLWYGETVRDGDVMDTRNCYTY
GTVLDASSPLTPFHSDSSGAFWTSTFGYTYPELG
TGNDDLNTPLYPFSYWTSDDVSDVQSTWKYGY
GMTDTATTPLYPFAYWTSNDVASVRTMWNYGY
RPKQTPDDPDLPFV
LN P H N M S D P
PDGER $\square$ NDTLDNPGF LTTISSMDDRREYYTYDVL
STNVNGGTPLTPFNFWKSDQVRDWTVLYTYPE

S P V VT DD S
DGDHAPTEPM
 SPGQNRHEHIVPFPPFSHARMFK VSTEGGYDYQQDH YSTFNSDTPLTPFWDWTSEEDKDTTFGYAYPETQEWKY

DPWEIIDARQWPWDGGTPGSML
P $\square$ GHNRGSYMVPFDPDTPEDTLTTDFGYEYDYL
SDVVTLDTIEPDWGPIQVRELISTTACYQYDNV
GEPKNSYTPLKPFTKDNAGNYFNSMDVRETRSLGYHY
PPGHGFDDDFRPYNQDTNRYAMSVANLVTYE
VPTYTM
LT W NFYDENKVWRS $\square K$ AS QVLD T QLR Y TY
PDGVNVQTDLTPFWDGA SSYWNSNAVRDSESLRYTY $\square T$ N N
GYVQD $\square F T E \square K P F Y A D T N G T F W N S$
EGPADRPFLMPALGGADPGDTLKGGKFHTYDDL
ATRFFFHDAAGKAVSFAPQDVLDTANHYQYDNL


ATRFFFHDASGKPATFTPQDVVDTVNHYQYDNL
$P \square G H N R \square Y N M D P F P P V T N D Q L F Q T Q \square G Y T Y$
P $\square$ GHNRESYMVPF $\square P$ DRNGDFF $\square$ S SKD $\quad$ GGYDY
NSVITADSDLKPFNFHTGRTASSTKNFYTYPEL

P $\square G H N R Y S Y \square V P T P D T H S D F F S H N \square G Y D Y D D \square D$
GEPKNAYTPLKPFTKDAAGNYYTSQDVYETRTLGYFY
WT VVDMTTDLAPFWNG PSSYWDSKFVRTTEALRYTY DQPAWFVDGSGDLVRVRDGDADDTAKLYGYDTL
$\mathrm{P}_{\mathrm{P}} \mathrm{G}$ TYTDKDDGPVNVKS

GT $\square E T G S T P L K P F H S Q G S A F W D S N T S G Y T Y P E \square Q D W$ SGGQTMLHSLPTPNVTLED
T I IAATLNDTLTMGSYVTIQDAMSTPFCYTY NTALTTFFDEDGDQVSVTVAQALN

DDPVDLNVNGKEYRLGDLLDTMNGPFCYDY WRNFRFKFHNAEGNPVVVKETETTQQLYVY $P Q S V T L D S V L P D W G N I T V R D L L N \square T A C Y Q Y D$


## UniRef90 D7F7P6

 UniRef90 М3АН24 UniRef90-H0EV23 UniRef90-H6C7R7 UniRet90-H8ZAQ6 UniRef90-M5BMV6 UniRef90-W9VNH1 UniRef90 H2ZM86 UniRef90 C5PBC3 UniRef90-N1J7U8 UniRef90 M1 W198 UniRef90 G5AB99 UniRef90-W4FJK0 UniRef90-E3QW88 UniRef90_N1RTX1 UniRet90-S8FTY5 UniRef90-F7VQW2 UniRef90-A0A024CHU4 UniRef90 UPI0001744FE7 UniRef90-D7F7Q1 UniRef90-R7THS2 UniRef90 F9G554 UniRef90 ${ }^{-}$A0A016WCE7 UniRef90-N4V714 UniRef90-NOATH2 UniRef90 L2GEI1 UniRef90-C4JUP3 UniRef90-E6X453 UniRef90 A7RKE4 UniRef90 A0A024TN69 UniRef90-Q868D0 UniRef90-W2URWC UniRef90-P33180 UniRef90 Q2TL94 UniRef90-W7F1D8 UniRef90_M1BMS6 UniRef90 A0A010S1R5 UniRef90-S8ARX9 UniRef90-A0A010QXZO UniRef90-G5ABA7 UniRef90 V4AN59 UniRef90-A0A024FZ14 UniRef90-R8BXV7 UniRef90-C9SDX6 UniRef90-W4K9G6 UniRef90-RoD4R7 UniRef90 M2MGH4 UniRef90 M5BP05 UniRef90-Q2WG53 UniRef90-A0A024TMR4 UniRef90 B7GA89 UniRef90 ${ }^{-}$K718A4 UniRef90-O7S218 UniRef90 Q92LD3 UniRef90 G9Y7Z2 UniRef90-U7PUG4 UniRef90-Q0UEG5 UniRef90 - 13 EIYO UniRef90-Q33CJ6 UniRef90-TOPYC1 UniRet90_M2VOQ1 UniRef90-J2PE35 UniRef90-K1QAP4 UniRef90-W6NUQ7 UniRef90 B2AP12 UniRef90-W3WR60 UniRef90-N4UUQ4 UniRef90_F4XLY 1 UniRef90 N4U9Y6 UniRef90-M5BK46UniRef90 F9F1M7 UniRef90 A0A024T961 UniRef90 W3XGL4 UniRef90-F4NWE 6 UniRee90_UPI0000EE4185 UniRef90 UPIO0034D8EB4 UniRef90-A0A016PP15 UniRef90_B2WH32 UniRef90-UPI00023B368D UniRef90-G4TYT1 UniRef90_R9PG88 UniRef90-A9RDM8 UniRef90-W3XNJ3 UniRet90_W2DLV9 UniReffo-Q4PFI3
 UniRef90-C7FF04 UniRef90-Q0FSM9 UniRef90-K1RLR4 UniRef90-V2UWG1 niref90_S4R8Z7
${ }^{1} \| R K N V D T L S A A E T K N L R D A D R A V Q A D S S D H G F A A Y H G K P$ RDEVRQLKDTQWTLLVLAMNQFMTSSSYFADSGIHGVP S $\square R R E W G S M S R G D R L D Y U K A V Q C F T K K N R L D D F A A A H D Q E$
$\square R K E F R D M T K T E W E Y K E A \square N L L R A H G Y \square E P \square A R V H Y$
RYE $\square H D F P G P A F D \square Y \square L A \square R D F Q L L N Q T D P \square S Y \square H G F P$
RQNLETFSGPAFDLYTLALLKFQDEDQYYDVSSTHGYP
RLEVQELNTDMWTLYGLGLDRMQNLDQDELMSWI HGRP RMEVRSMNKYKWDLFTLALSMFQFTSQDDPLSWI HGVP MSAADKATYKGALAAAMDSGAY自KFVEIH
VRRAYSK乌SMAERDTLKLAFEDAMQLGHHHRFVAVHQHP VRMEVRDMHPDQWNLFLLGMERFQNSGSWFEDAGI HGLP VRRDIMSLSPEELVAYLDDVLKVREDGSWQELGVLHAYW RLEFRDFVKDIKSLFI QALDVLYQRPLEDKFSWI HGAP RHEGRDLQPDQFNLYLLGLSHFQQLASYYQVAGLHGMP ESYKKAITVMLQDPPSDARNW
TRKNVDELSSSEMENLRDAVRQVQADFSYQSLASYHGLP
 RYRQAFLAVQGTMYR QLGTIH

## RALDDRNSWRFYAA $\square$ HGFQQDRRVGY LNAHDKMP

 MAKS LYDDFVAVHYTS MSKKDRRSYIDAVYCLQKKPSLIDGAKTLFDT S $\square$ RKNYTEMTDYEKSELVDSFYAI RANNWFDDDATFHMNF VRKDF IWMPDGDRRRFI AAFKKLTKDKRYDTIVRVHREH VRKP WSLLTTPEKELFVEALGEGMRRGFHHRFAEIHSEPMTQAERDALVNAFYQLRNADLINDGATFHSDF DLQSYMDAVTAMLKLPPSDRRNW

VRMEVRDMHPDQWNLYYLGLERFQNSVKEDKFFSDHGDP VRKDISTLTETEDDAYRAAIDDALDKSKWQELCYIHTNW SI RKP WTALTEDEKAGYVNSTLCLMDPTAAPAKVRSWGAT VRYSWDALTSTDKQLYRDA ISTAMSTGYHA LDVEVHSDL SYRRDCRLLLDEDELSDLFGAVQDAKDDTTARPNV LDDAFS $\square R K S W D R L T S G E E T Y L E A I A K S M D D G L Y S Q F V E V H$

S Y Y D D F VYMHMDL
ESYKKA TRKMLADPATDPNNW
$R \square E \square R Q L N A D L W N V Y L L G L A R F Q A T D Q A D Q \square A G \square H G R P$
$R \square E \square N N F V K D Q F S \square Y V Q A L D R M Y A T S Q G D Q V A G V H G Y P$ RKPWSMLTATERARHI AAVGDAMSAGYHHRFVEMHTEP IRRDWDLI SRDDQDLYYIEAIEEADDREDYQAFLGYH SIRKEDRMMSASEQSDLAAAMNGLK NRQDDNITAWDLH
IRRNUNDLYAPQWDLYULALSEMQAMNESEELSYDHGLP KYREAVSLLKSRQRHDPAS WHFQA ESYQKGIRAMLA $\square$ P PSDP L N W
$R \square R \square Q D L S G P Q W D L Y \square Q A M A A W K S M P E D N E L S Y \square H G R P$ AKNRYDDFVATHDNS VRKEFRDLSPEEWAEYKQTVELLRQHGYDEPLARVHYTV I RRE $\square R E L S P K E R L K V F S Y L S L A K M K S V F D V G A W V R Y Y A$
 E S YKKA $\ V A M L A L P P D D P R N W$

NTYQTM
S $\square R R E \square R M V S A E E R Q K \square W K A M N A L K E T T \square D N D T V W D \square H$ RREWRTI SKPDRRKFIAAVKCIMAKPSYDDIVWAHARR


VRKAWTALTVNEKTLFQNALGQAMLRGFHHKFDEDHMDT SQRVPWTNLTSEEKTSY DNADLCLINAPRWDDLQWPHGSF TVRKELYDMNERDWTDYTETDRKATMMPDPNGSGYSDWEA VRRNLLDLSKEEKNHFYRALDMAKRTTHYNYFVWTHYYS

YARAVGWMKQRDGTPDQWYTHGKP
IRRPAHLASKEY $\square$ AKYKKA $\square E \square M K A D P D D D Q Q A D V H C A Y$ RVE WRTLTYDQKKDYMRAI KCLQNKPDYSPQYPTLYDA RVSFYTLTVTERESWDSSFAQLHTLRNKS DFVRTF DD D VRSAAQFVDGKY DAKYRKAYAAMRALPRSDPQAQLHCAY RPELRELQDEQWNLY LLALS WMQWLNQSDPASWIHGAP VRQD I R SLSADELNLYRAKLDDVMRISDPDSGSPWQ VARVSFYALTSSERAAWVHSFTQLHTLRNKS DFVRTFMDD
 VRKDITALSEAELTAF RAALQDUMHVGSSDQGG

## UniRef90 D7F7P6

 UniRef90-M3AH24 UniRef90-HOEV23 UniRef90-H6C7R7 UniRef90-H8ZAQ6 UniRef90-M5BMV6 UniRef90-W9VNH1 UniRef90-H2ZM86 UniRef90-C5PBC3 UniRef90-N1J7U8 UniRef90-M1W198 UniRef90_G5AB99 UniRef90-W4FJK0 UniRef90-E3QW88 UniRef90-N1RTX1 UniRef90-S8FTY5 UniRef90_F7VQW2 UniRef90-A0A024CHU4 UniRef90_UPI0001744FE7 UniRef90-D7F7Q1 UniRef90-R7THS2 UniRef90-F9G554 UniRef90-A0A016WCE7 UniRef90-N4V714 UniRef90-NOATH2 UniRef90_L2GEI1 UniRef90-C4JUP3 UniRef90-E6X453 UniRef90-A7RKE4 UniRef90-A0A024TN69 UniRef90-Q868D0 UniRef90_W2URW0 UniRef90-P33180 UniRef90_Q2TL94 UniRef90_W7F1D8 UniRef90-M1BMS6 UniRef90_A0A010S1R5 UniRef90_S8ARX9 UniRef90_A0A010QXZO UniRef90_G5ABA7 UniRef90_V4AN59 UniRef90_A0A024FZ14 UniRef90-R8BXV7 UniRef90_C9SDX6 UniRef90-W4K9G6 UniRef90-R0D4R7 UniRef90_M2MGH4 UniRef90-M5BP05 UniRef90-Q2WG53 UniRef90-A0A024TMR4 UniRef90-B7GA89 UniRef90-K718A4 UniRef90_-Q7S218 UniRef90_Q92LD3 UniRef90_G9Y7Z2 UniRef90-U7PUG4 UniRef90-QOUEG5 UniRef90_I3EIY0 UniRef90_Q33CJ6 UniRef90-TOPYC1 UniRef90-M2V0Q1 UniRef90-J2PE35 UniRef90-K1QAP4 UniRef90-W6NUQ7 UniRef90-B2API2 UniRef90-W3WR60 UniRef90-N4UUQ4 UniRef90-F4XLY1 UniRef90_N4U9Y6 UniRef90-M5BK46UniRef90 F9F1M7 UniRef90-A0A024T961 UniRef90-W3XGL4 UniRef90-F4NWE6 UniRef90_UPI0000EE4185 UniRef90-UPI00034D8EB4 UniRef90_A0A016PP15 UniRef90_B2WH32 UniRef90_UPI00023B368D UniRef90_G4TYT1 UniRef90-R9PG88 UniRef90-A9RDM8 UniRef90-W3XNJ3 UniRef90-W2DLV9 UniRef90_Q4PFI3
UniRef90 F0XYV7 UniRef90-F9TEW9 UniRef90-C7FF04 UniRef90_ODFSM9 UniRef90-K1RLR4 UniRef90-V2UWG1 UniRet90-V2URG1
UniRef90_S4R8Z7
 RVNYNNVGGYCAHDSVHFPAWHRAYLADFEQELLKVAMNI TNN $\square A A T F P S S Q R T E Y Q N A A L S D R V P Y W D W A \square N P A D P D V V T Q P$ TVKDYAHNSLEFLPWHRLFLLYFEYLLQTLNPDM $\begin{array}{ll}M F P K D L & \text { SECGYSD } \\ \text { LYE QLI } \\ \text { WQHA QN D }\end{array}$ RVSWGGYPGFCMHASTPFPTWHRPY LALYEQLI WQHAQND FEAWDGVEGYCAHASTDFPTWHRPYLALFEEMI WNHAQVI HKPGNENNGYCTHVSQLFPTWHRAYLSLYEQALYGMDQNF FTAWNGVGPYCTHNSVLFPMWHRPYLALFEQQLHKDANDF

TEMKSEMEAHKQCMFDYWHRLFLVAFENMLRGQGSKY PNEYEAHSCMLVYWHRRFLWGYENMLRSLGDDFQCDTDPF YRVDNEFGGFCTHSS LLFLTWHRPYLALFEAEDYKHVNDF
 FKPWGGFGGYCTHSSULF!TWHRPYLALYEQALYASVQAV A VID N
YRNAF $\quad$ HT TDDCPHGNWWFVVWHRGYTGWFERTVRELDPNF ARCMTADGSDCDHGMPNFPHWHRGYTKQMEDALALKGARLD


ANFNQSPGAHSGPNF LGWHREFGKRLEQAMRTTPVTV
STAD DQAYWQCQHGSWYFLDWHRGYLAVVRDEVLKLRGPK FRNTHLT

 ESEQEAHGCMF $\square$ YWHRKFLDGYENMLRSLKPEYAC TLPY DYAHEGPSFL $L$ PWHRYF L LKWEEE $\quad$ TRNVVLNS

## FNFDNTADP

YRNGF $\square H \quad H M D C P H G D W W F T S W H R G Y L G Y F E E T C R E L N P D F$ YVA WS DA GGYCTHGSVLFPTWHRPYVALYEQRWQKAAADLL DDMHAMHQVQTKEDHIVFLPFHRDYVFVYEQDREECGYKG
YRVDNDFGGFCTHSS LLF LTWHRPY LALDFEAELYKHVNDF C HYQEAFLPWHRAHLMYMEFLI GCAIPYW
 T


TEELTASEAHQTCMFLYWHRLLLLGFENMYGGVFSCI
 YRRALIHT TDCPHGNWWFVVWHRGFLFEQTVRLDSEDPDF YTVWDGDSGHCTHVSNGFLPWHRPYLALYEQVLFQH\|VEW FSPQNQWTGYCTHGSTDFPTWHRPYVLMVEQDWKQAATQF QSEREAHG CMF IYYWHRFLLGYENMLRSLKPEY ADSVA LVQSHETCGFALWHRTFLLAFENMLRSLAPRF TLVHYPDSAPGAHWGPAFLPWHREFLRQFEDALQTEVPSV HKVWNPDTGYCPHGETDFASWHRPYVAGFEQTYTDAARTL YRHTLIHTGDCPHGNWWF LDPWHRGYVGWFEKMIDKDDANF YVAWNPLTGYCTHNEVLFADWHRPMVAVFEQTYRHAADTW TL L ( H GTGNFLTWHRYFTWAYERALKDCGYKG KEYAHNSLE YKP $\$ FNYSTTFATRGPAFLTWHRWHLAFDEREIQVITGDD ASNSEAHDSFFFYWHRAYLLAYENMLRSLGPQFACITPYW FGQWDEKMGYCPHSSNDFGSWHRPYLGQARNKAMKI AARV YRHADTHTDDCPHGNWWFVVWHRGYVGWFEQVCRDLDPDF AVFHTGETLRYAHGGPAFAPWHRDYLLLLETACRAPDPYW TLVHYPDSAPGAHWGPAFLPWHREFLRQFEVALQNEDPSV SG GWVHAKDNS LVHNSGTFLLFHRYYLHTYETELSACGWTA


HMN L N P $\square$ I H WT G LIF LP WHRAY LHEWTNDRKECSYNG A QFLPFHRDYLYVYEQLREECGYKG DSGHEAHDCDFFLWHRRYL $\square$ AYENMLRSLGDEYRC $\square T \square P Y$ YACMTTNSRSYVHSVGAFLPFHRYYMTVHERDRQECGYTG GA QLHNRVASMIHGNCQFLFWHRMFMSWTERRLQADNPEF TPGDP PE WRQCPHGDRYFL PWHRWYLYYFER VVRRVIVED
 FVWVHT TNWT DYHLNAWFMPWHRWFVWDHSEAMEKVCDYS LAMVHDGLQEEMHYNACFLVCHTAFLRAFYSLMRVVGYRG CGGAFKYKGSAWHGGWFFFAWHRAFLYFHERGLASLDHTF F LPGNKANGYCTHVS LLFPPWHRAYLDEQRETFQRAADTF RYAY LTMVHUGLQEEMHFNACFLVCHTAFLRAFYSGMRVVGYRG LQGAASKTCDHWHDDAGILTHHMGFTLQLEQSLQAIDNTV ARAHGYDQDDCHDDDWAFLTWHRSYVYSFKWKREDPDLEL YQLHGYKANYCTH GTVLFPTWHRAYESTWEQTWDQAAKDL QQWAYLHTNWCLHYQEAFGFWHRAFDMYDEDRIGMADPYW MMVIRSGHGGPNFDGFHRVYLLFFEFALQRDDSSV AE LWEGFGQQCQHGTWFFVPWHRGYLVA DES LL

UniRef90_D7F7P6 UniRef90-M3AH24 UniRef90-HOEV23 UniRef90_H6C7R7 UniRef90-H8ZAQ6 UniRef90-M5BMV6 UniRef90-W9VNH1 UniRef90-H2ZM86 UniRef90-C5PBC3 UniRef90-N1J7U8 UniRef90-M1W198 UniRef90_G5AB99 UniRef90-W4FJK0 UniRef90-E3QW88 UniRef90-N1RTX1 UniRef90_S8FTY5 UniRef90-F7VQW2 UniRef90-A0A024CHU4 UniRef90_UPI0001744FE7 UniRef90-D7F7Q1 UniRef90-R7THS2 UniRef90-F9G554 UniRef90-A0A016WCE7 UniRef90-N4V714 UniRef90-NOATH2 UniRef90_L2GEI1 UniRef90_C4JUP3 UniRef90_E6X453 UniRef90-A7RKE4 UniRef90-A0A024TN69 UniRef90-Q868D0 UniRef90_W2URW0 UniRef90-P33180 UniRef90_Q2TL94 UniRef90-W7F1D8 UniRef90-M1BMS6 UniRef90_A0A010S1R5 UniRef90-S8ARX9 UniRef90_A0A010QXZO UniRef90-G5ABA7 UniRef90_V4AN59 UniRef90_A0A024FZ14 UniRef90-R8BXV7 UniRef90_C9SDX6 UniRef90-W4K9G6 UniRef90-R0D4R7 UniRef90_M2MGH4 UniRef90-M5BP05 UniRef90-Q2WG53 UniRef90-A0A024TMR4 UniRef90-B7GA89 UniRef90-K718A4 UniRef90_Q7S218 UniRef90_Q92LD3 UniRef90_G9Y7Z2 UniRef90-U7PUG4 UniRef90-QOUEG5 UniRef90-I3EIY0 UniRef90_Q33CJ6 UniRef90-TOPYC1 UniRef90-M2V0Q1 UniRef90-J2PE35 UniRef90-K1QAP4 UniRef90-W6NUQ7 UniRef90-B2API2 UniRef90-W3WR60 UniRef90-N4UUQ4 UniRef90-F4XLY1 UniRef90-N4U9Y6 UniRef90-M5BK46
UniRef90-F9F1M7 UniRef90-A0A024T961 UniRef90-W3XGL4 UniRef90-F4NWE6 UniRef90_UPIO000EE4185 UniRef90_UPI00034D8EB4 UniRef90_A0A016PP15 UniRef90_B2WH32 UniRef90_UPI00023B368D UniRef90_G4TYT1 UniRef90-R9PG88 UniRef90-A9RDM8 UniRef90-W3XNJ3 UniRef90_W2DLV9
UniRef90-Q4PFI3 UniRef90-F0XYV7 UniRef90-F9TEW9 UniRef90-C7FF04 UniRef90-Q0FSM9 UniRef90-K1RLR4 UniRef90-V2UWG1
UniRef90- S4R8Z7


VRKE WREDSGAEKAEYDRAAVCLRNDPKAKYEFVDAVTTB SSPYWDWSLDPDFFNSDFWKDNDTESGLGGWGDPENDYQV AFPYWDWTADPKVPAAMFDDVLNPNNSAYDQSDDAFNSQF RAPYWDWAVMPSDGQSTFPDSLTNETVIVTAPNGTMTISN
 ACYWDYATLSSSFVSGSCQSMYSCATNLIDSLGGLADSNA ACPYWNVMEHSSDQARGLCTSYRTCSRIVGDLGGSPVAAA $T L P Y W D S T L D Q G L P N E A D S V L W T D E L L G N G N G Y V K T G P F A$
$R L P F W D W A S D P S L D Y A V M N D S I K V S N T P N S N S N G T G G G S G$ QNVEGVWRTCDHSSSSINYDFLPWHRAY LLCDEDGEPFAM AMPFWDWTAEPRIPSYAKFREALFNPVETLWGQFTSKQMH RHPYWDWALDKALPDAVVTPNVTDRAPPDGRTTATPANPL TQPYYQWAYWAADPAKSPALDGSQTSLGGDGAY $\square$
TVPYWDWT IDDAEDPSNSPM
LK EF NFT TPYYDWSRDGKHCEDCTDEFMGSSYFANWKS DC SGYY DYASLGANF DSGGCTDMLSCGPLLKDFGGSLPPTAKGPYT AFPYWDWTANPQVPAVMFDGVLNPNDPAYIPSLAAFNAQY DSGLDHDMTDPTMS LLWSNQFFGNGDGEVMNGPFRDM S LP YWDSTLDQGLPEPSDSVMWSDELLGNGNGYVKTPFKN



VVP Y WA WEK DS D DLLGS PLWD S D T E S GLGGFSDDASDD Y T PTPWWDETRDAGNFMGSPLLDPHTGFGGNGTDCVIDGPFA WDVGTLSTKFATGACQYFPDCNPLLSDMGGLETGTDLGDG R I PY WDEVNEDLAGSD LWWKDEYFGGNGVGTSRCVQDGPFA SFFYWDSASEWSAPTNSIIWKYLGRSGRPVR
 NNAWVANNHLSNMTWYPITEDQKA CVASGPFKNWKMNDGPVT A LPF WNWDAPAGMQMPAMFADPNSPLYDKLRDAKHQPPKL PVPYWNYTADYQNFSP $\quad$ FSSDPNDGFGSHGNTAVNDSGLI REAYWD DE SDWKGGMSNAHDWRYLGGDGVGGAIPSGPFKS A LIPFWNWDNQLPDEPLGNDIPCYFDEVDNNPLYSPNRAQC R\|PYWDWAMKPSFPSILWGSSK $\square E V D G P N G K Q N \square S N P L F S$ DWLDETYVHPQTGEVRRNPDRYAAAKDGCSKVCATAPVGD REAYWD IEHDWKHGMSRSPMWTY LGDDAHGKADASGPFRG
 T LP P WD WT QFKTSTHASNGLNELTYTNADGEETDNPLARA RQPFWDWGYWPNDPDF GGLPDQTDYNGTKIEVENPILHYK DWMA WDAADPQAF DDETYVHPDGSTRPNPLRFAAAKDGRS S LCYWDSTMDNDMAEPQETAMFTSQLVGNGNGPV

RTE IINQGGPQDWSLPFWDYSDTTNPNAAYMPPAFER

UniRef90 D7F7P6 UniRef90-МзАН24 UniRef90-HOEV23 UniRef90_H6C7R7 UniRef90_H8ZAQ6 UniRef90-M5BMV6 UniRef90-W9VNH1 UniRef90_H2ZM86 UniRef90_C5PBC3 UniRef90_N1J7U8 UniRef90-M1W198 UniRef90_G5AB99 UniRef90_W4FJK0 UniRef90-E3QW88 UniRef90_N1RTX1 UniRef90-S8FTY5
UniRef90 F7VQW2 UniRef90_A0A024CHU4 UniRef90_UPI0001744FE7 UniRef90_D7F7Q1 UniRef90_R7THS2 UniRef90 F9G554 UniRef90_A0A016WCE7 UniRef90-N4V714 UniRef90-NOATH2 UniRef90_L2GEI1 UniRef90_C4JUP3 UniRef90_E6X453 UniRef90_A7RKE4
UniRef90_A0A024TN69 UniRef90_Q868D0 UniRef90_W2URW0 UniRef90_P33180 UniRef90_Q2TL94 UniRef90-W7F1D8 UniRef90_M1BMS6
UniRef90_A0A010S1R5 UniRef90_S8ARX9 UniRef90_A0A010QXZ0 UniRef90_G5ABA7 UniRef90_V4AN59 UniRef90_A0A024FZ14 UniRef90_R8BXV7 UniRef90_C9SDX6 UniRef90-W4K9G6 UniRef90-R0D4R7 UniRef90_M2MGH4 UniRef90-M5BP05 UniRef90_Q2WG53 UniRef90_A0A024TMR4 UniRef90_B7GA89 UniRef90_K718A4 UniRef90_Q7S218 UniRef90_Q92LD3 UniRef90_G9Y7Z2 UniRef90_U7PUG4
UniRef90-Q0UEG5 UniRef90-I3EIY0 UniRef90_Q33CJ6 UniRef90_-T0PYC1 UniRef90-M2V0Q1 UniRef90_J2PE35 UniRef90_K1QAP4
UniRef90- W6NUQ7 UniRef90_B2API2 UniRef90-W3WR60 UniRef90_N4UUQ4 UniRef90_F4XLY1 UniRef90_N4U9Y6 UniRef90_M5BK46
UniRef90_F9F1M7 UniRef90_A0A024T961 UniRef90_W3XGL4 UniRef90_F4NWE6 UniRef90_UPI0000EE4185 UniRef90_UPI00034D8EB4 UniRef90-A0A016PP15 UniRef90_B2WH32 UniRef90_UPI00023B368D UniRef90_G4TYT1 UniRef90_R9PG88 UniRef90_A9RDM8 UniRef90_W3XNJ3 UniRef90_W2DLV9
UniRef90_Q4PFI3 UniRef90_F0XYV7 UniRef90_F9TEW9 UniRef90_C7FF04
UniRef90_Q0FSM9 UniRef90_K1RLR4 UniRef90_V2UWG1
UniRef90_S4R8Z7 YAPFTTWTRSYRYPTSNSASATSNTQAAVNAMTQNRQSLQ
 Y WGll T R C F LIV H E P T T H C L A Q R T Q S T K ENGPYAGLQVNFPEPHCLLRRSFNLTSQMPGNWSSSVVMK QS NAA GNGFPLSDPMANFSRTVRWWDQTTKSSNQYQMFTA

 NSQKTVTDNVPVTGNCVATNPDNHFCQGNWGSAKVPASVS FDYCVRDPDQPAT RSFCQSEDAFRTNTCLGC DPRGDWTAA GATVRYPGQPNNNELMEQLTSFFVGTAPNLTERVVFILQS AK GWKEK $\square E L F K \square Y H D Q Q A H A L E Q K T Y T T S E S A Q H F G V P W$ FSGPSSKFPYTSFPSPYDSWRATCRMEVFNRTYAQNRNQLR K S I N N P LINRFNFHPVNPSPGDFSAA WSRYQTTRVYPNRVT GQVTTGPFANFPTPWGPLRRNFGGEGGSLVRPHIVDMDER RDSPMFFPRGRARTDTRQNPGFDATTRRAVS $\square G T I R N A L A$ DPVPNLFRDPEYGEKSFFYR
 LYSYRFHPKNATAMDWSPLRDWDETKRAPNASESETDPTS
 Y GP Y N N GEVVYVPTKWDNMNALGDPDFE GVAS G GS T GF GGGV

 DGPFREGSWTVGKGGKVLTRNFSGVLPNKVTVQRALQLPB WD LINR D $\square M G G Q G C V R G K P F N N F C Q S T S A F E S N Q C M G C M P$
 MQEPDKAYWDSSLSPA QLQQQ NL RGYPDFDADWSDAMASFA

 $N Q F P R V G G T \| R Y P D Q P N N D R M I Q R L T Q F F S G T D P Q Q A S Q S$
$F A L A K D G K S A D G D D K S C A T R A P Q D Y L G S A G Y P W A N D P T F$


 MDDLVFTHFSLNTDDHFVANFLDWHRWDENGE』I IGDMQA PKGGFSDLH LSYY DPHTLRRNFT LQQPF LHSTPTSFNTSTT GPVPM MFAPPNSRGSTPAKPGFDKPTSNAVSSWMLNEA LS

 RRTWYR $\square N G D R \square H G G G C V Q R P P D D N F C Q S T S A F Q S K Q C M R$ NWDTNVFMPLS Q I PVVKKLYRS T G
APS GAVGVVVRNPLYSYRFQEGSVMYQFDSTLGLYPQTRR P Y WDY TVAAPL LP TEFRRQPSNNTNALY HE QRLLNDDPA LP E LQ L R N YP YPRDLLWRG DEGDGKPEDAMFFPRGQTRALTEN

Y WG $\square$ S R CF LVYEPTAHCLLRTQNKKDDPFYNWTELQSVI N $F E Y K Y C P V A E D G C K M E P L Q R S P G P G \| P R L P T V K D V E D T I Q$
 $G P V P M F F P Q G S A R G S T Q A K P G F D D \square T N N A V S P W M L D N A L D A$



 PKAPMFYPDDYARALTEDCSDFDYHTSSIAVSKDTDKAALA


 $S L V L R W Q L N G Q V G D H C L T R N F N Q N S F N A A A Q S N I D R C N A$

 QAKKNNRD F Y L K K WNPGT LAAD SVVNRLRSSPKYNRTWGQFAS T
 IDLD Y T X T D S ND T NEQQ I S S NLS $\square M Y R Q$ GF KVDDNNMKVNDPVTHYLTRNTFSAWKTQDPTGQYGDAFGE
 Y VFNPLNPYPFMYWNETKRRPNPLQSPNATSDNEWVSQFA $V$ C L Y V Q R N P LIF YTQGEAFRFERTQLYGMSRDFQQQVWA N
 K S LY R V I S Q G L S G DEEEFTRR Y P D Q FR Q N I P L K N E V D R Y L T
 $K K C D V A P D R C T G D E C R Y V Q R L F D S F S T P Q G A W G A T G V P W A$


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 UniRef90-M3АН24 UniRefefo-HOEV23 UniRef90-H8ZAQ6 UniRef90-M5BMV6 UniRef90-W9VNH1 UniRef90-H2ZM86 UniRef90-C5PBC3 UniRef90-N1J7U8 UniRef90-M1 W198 UniRet90-G5AB99 UniRef90 W4FJKO UniRef90-E3QW88 UniRef90-N1RTX1 UniRef90-S8FTY5UniRef90-F7VQW2 UniRef90 ${ }^{-}$A0AO24CHU4 UniRef90-UPI0001744FE7 UniRef90-D7F7Q1 UniRef90-R7THS2 UniRef90 ${ }^{-}$F9G554 UniRef90-A0A016WCE7 UniRef90-N4V714 UniRef90-NOATH2 UniRef90-L2GEI1 UniRef90-C4JUP3 UniRef90-E6X453 UniRef90-A0A024TN69 UniRef90-Q868D0 UniRef90-W2URW0 UniRef90-P33180 UniRef90-Q2TL94 UniRef90-W7F1D8 UniRef90-M1BMS6 UniRef90-A0A010S1R5 UniRef90-S8ARX9 UniRef90-A0A010QXZO UniRef90_G5ABA7 UniRef90-V4AN59 UniRef90-A0AO24FZ14 UniRef90-R8BXV7 UniRef90-C9SDX6 UniRef90_W4K9G6 UniRef90-ROD4R7 UniRef90-M2MGH4 UniRef90-M5BPO5
UniRef90-Q2WG53 UniRef90-Q2WG53
UniRef90_A0A024TMR4 UniRef90-B7GA89 UniRef90-K718A4 UniR Refo-Q7S218 UniRef90-Q92LD3 UniRef90-G9Y7Z2
UniRef90-UTPUG4 UniRef90-QOUEG5 UniRef90-I3EIY0 UniRef90-Q33CJ6 UniRef90-TOPYC1 UniRef90-M2VOQ1 Uniref90-J2PEAP4
UniRef9-K1QAP4 UniRef90-W6NUQ7 UniRef90-B2API2 UniRef90-W3WR60 UniRef90-N4UUQ4 UniRef90-F4XLY1 UniRef90-N4U9Y6 UniRef90-M5BK46
UniRef90 F9F1M7 UniRef90-A0A024T961 UniRef90 W3XGL4 UniRef90-F4NWE UniRef90-UPIOOOOEE4185 UniRef90-UPI00034D8EB4 UniRef90-A0A016PP15 UniRef90-B2WH32 UniRef90-UPIO0023B368D UniRef90 G4TYT1 1 UniRef90-R9PG88 UniRef90-A9RDM8 UniRef90-W3XNJ3 UniRef90-W2DLV9 UniRef90-FOXYV7 UniRef90-F9TEW9 UniRef90-C7FFO4
UniRef90 Q0FSM9 UniRef90-K1RLR4 UniRef90-V2UWG1 UniRef90_S4R8Z7

VTNYTYFSCTWPGGQGGVANNTEATHNSDHNSVGGYGHMQ KKN

SFYDFTIE
MDYPDYПSFWN
LTDYTAFSCTWPGGQQNTGNNTETERUPHDNIHRAVGGDLD PDSYDTDSFDVAFADQTTGDADPSMSY NNAIGGYGHMQ位 DSSKDNITNYHDYLGFSNDGYQDSLEALHELVHVAVGHMT QRLYUIFSNYHEFNAFSNKAWGSSQLDSVEAAHDI H HIDYT QVTTDMTLVSUSNQVFAPTMSVFTQNDMHPKVHANLNGAM YRDFGAASHNRFNPPREPGQPNFSEWGSTEDIHNADHHMS ANTTDFTDDQPDKDYPFRFDFDGLLFEQVHDNFHGWVGPDM DKTYNT DT RLASWEYFSNHPDANSLEAIHDNVHDLVGHMS GESRDDAFSYNRWDPNMSPGDFGSLEDVHNEVHDRTGGNG DPNDRSHGQLVDGDGATGFTDPGSGERTHNNAHVAVGAMA LEQTDFCDFEDQFEVSHNADHSWVGGSSPYSM DNETSYKDFNSFGTKAWGATQNLSTADSIGSVHDIIHHMT NQGVNDLLGATAGGNGCPRVLSTNTELVHGDVHVWVGDMQ PHAGDYFSFQHAMELMHNHVHNFVGGDLLGDCPKALPEED TQQQTHETFAPLLQGDDRFFPNTGGVGGGGHFIIGGDPGA VESTDMMGFQARLTGDRRQGHFGAHGAGHYFGGGPTGAFS LSDFFLIFTNELERR

P國HRGSHVWGGAM
KRFTDFETQLRIFFHF RANYDQARVPAEANDGQVFAQLLGGGDSHNTVHAALGGAM FSTYDTFPYDNSSNQSFRNDENGTAPNHDSTLHNALHLYM NQPNARFSPVSSSHQVAPVGFSILEGQPHNRVHMSVGGQS TKTYNLLTRVHTWPAFSNHTPGDGGEADHDHIHDSVGQMG LSTY GARYVLGNNDSKGQGTDENDPHTPVHDWAGTVRNTGEDMG YRDFGSASHNRFNPPRQPGQPNFAEWGSDEDIHNADHHMG PPQPGHDYDYDFKEDPDDEHFDNMLEQPHDNFHGWLGPDM QANVVEPCMALERGDDYGEMLGCLGNTPHSGGHLGVGGMM KKRLGETS PTASUSSLDRQLYEPTDTAVAENLEQGLHNTVHNALSGAM AAYNSKVMNTDYGFDTYAAMSNMLEGLPHAQDHSIIFGDM KSEVSKLVNGFVGDYKGFQAYFESFEGAHSSVHEIMNCTA PRDFDDFASPKSNYHSSTTGFGVMEGQPHNKVHNCVGGDW FTNYDNFTEFSNEAWFQNITNADSLESDHDAVHSTVGHMT MDYPDYD RVTTWAHFSSFWNNSERIPHDHIHRAIGGDI QATYDMFNRVTTWAHFSSHTESSGGEATHDN|HVLVGHMS

CKFEDFAEDNKTVIKRWSEPWVAEEGMPHNTVHNNAGCGN GAADASSSLSQEQFGFFDVTALGFSDDDESNLHGTTHVMA QPNFDCTTKNPNHSNSHQHGFGILEAFPHNKVHNDIGGFM TRVADFGSMSSTACDSTSFEQEHNEVHVAVGGIHPMGHFA QSNPDFDSFSTRMQGDFPNG FLGVHTGGHFTVGGDPGG K K N SFYEFTDELELDPHALVHLNTGGKY WGSYDTPPYDTRANKSFRNVLEGFKSPSDGVTGKLSMDMS NDWSKAPVPPDVNPPNDDGVTSGVQWGTHNMVHAVLDSTM GKQQDSTQPYNQVSNRANGGSTGNFESVHDGVHFGLLGHG

RKNYSQLTFCHD
FNMTETFPVEPEDGRGDNERCLIRDDNKGGПERWASFRNS SPA TVANITDNSTTYETFWQALLENTPHGAIHNVIGGDM NDTERVQFDLQSYKEFDDFRAWGSDEDDHNAVHNYVGHMS LEAKDFFEFDQRVQGGASAESQGYHGGGHLAIGGSLGEMG LAEVEKLLGQPTGNGTLFQGYLEGLVGMHGAVVGMMGGDM NK WAKA DP P PDVY DENVYNQDFSSAPYYHNA $\square H G A L S S T M$ DDSFTEARSCW QMYTDSIANGGFAFYAPRLELYHGQVHVLIGGGPMEDGQM AMAQTCFWPPEDTPGASSGFSRVFEHRPHDIVHGTVGGMG KWTYEGHEDSMNGFLSLEYTHNNVHNIVGGSFSTGVGHMS KWTYEGHEDSMNGFLSLEYITHNNVANGVGGSFSTGVGHMS
TFSPAAVARALSSNKFSDGFDNTLHपGTHNSPHFFSSGDW HYNSSFLPHTILSSPNYTADRKLLETSLHAWTHQSITAGEM ETARLFHGNPYRYNTRGGRSPGNMERTPHGNVHVFYDDMG TSGNYSEWSNEAWDPDSSNSSFDSDESDHDTVHLTCGGNF DTSFDPPQPNDGYPNRALNFDGLYEQPHDNYHGWIGGDMA YSSHYNTSLYHHMLTSPNYTRRLLETSLHAWTHQSIGGGEM NPSFVRFGADDDRGAHGADHVFVGGQNSSSP PAANSGDMS EWTFNMLTKNYTWELISNHGHANSLEMVHNTVHFLIGHMG N $\mathbb{C D V F T P P Q P D D L Y P F R Q D N F D G L Y E Q P H D N Y H G W I G Y D M}$ GNS ATTHRDVVVGFGVNLANTDEGQHNNVHNWVGGTM


## UniRef90 D7F7P6

 UniRef90-М3АН24 UniRef90-H0EV23 UniRef90-H6C7R7 UniRet90 H8ZAQ6 UniRef90-M5BMV6 UniRef90-W9VNH1 UniRef90-H2ZM86 UniRef90_C5PBC3 UniRef90-N1JTU8 UniRef90- G5AB99 UniRef90-W4FJK0 UniRef90-E3QW88 UniRef90-N1RTX1 UniRef90-S8FTY5UniRef9O_F7VQW2 UniRef90-A0A024CHU4 UniRef90-UPI0001744FE7 UniRef90-D7F7Q1 UniRef90-R7THS2 UniRef90 ${ }^{-}$F9G554 UniRef90-A0A016WCE7 UniRef90-N4V714 UniRef90-NOATH2 UniRef90-L2GEI1 UniRef90-C4JUP3 UniRef90-E6X453 UniRef90-A0A024TN69 UniRef90-Q868D0 UniRef90-W2URW0 UniRef90-P33180 UniRef90-Q2TL94 UniRef90-W7F1D8 UniRef90-M1BMS6 UniRef90-A0A010S1R5 UniRef90-S8ARX9 UniRef90-A0A010QXZO UniRef90_G5ABA7 UniRef90_V4AN59 UniRef90-A0AO24FZ14 UniRef90-R8BXV7 UniRef90-C9SDX6 UniRef90-W4K9G6 UniRef90-ROD4R7 UniRef90-M2MGH4 UniRef90-M5BP05 UniRef90_Q2WG53 UniRef90-A0A024TMR4 UniRef90-B7GA89 UniRef90-K718A4 UniR Refo-Q7S218 UniRef90-Q92LD3 UniRef90-G9Y7Z2 UniRef90_UTPUG4 UniRef90-QOUEG5 UniRef90-I3EIY0 UniRef90-Q33CJ6 UniRef90-TOPYC1 UniRef90-M2V0Q1 UniRef90-J2PE35 UniRef90 K1QAP4
UniRef90
WGNUQ7 UniRef90-B2AP12 UniRef90-W3WR60 UniRef90-N4UUQ4 UniRef90-F4XLY1 UniRet90-N4U9Y6 UniRef90-M5BK46
UniRet90 F9F1M7 UniRef90 A0A024T961 UniRef90 W3XGL4 UniRef90-F4NWE UniRef90-UPIO000EE4185 UniRef90-UPI00034D8EB4 UniRef90-A0A016PP15 UniRef90-B2WH32 UniRef90-UPIO0023B368D UniRef90-G4TYT1 UniRef90-R9PG88 UniRef90-A9RDM8 UniRef90-W3XNJ3 UniRef90-W2DLV9 UniRef90-F0XYV7 UniRef90-F9TEW9 UniRef90-C7FF04
UniRef90 UniRef90-K1RLR4 UniRef90_V2UWG1 UniRef90 S4R8Z7

TLHYTAYDPLFY 210 H SNTDRL
230
YLPSASFDPIF WLHHCNVDRIFAMWQALNPNSQVAPHSTW
FPEVAGFDPVFWLHHANVDRLFAMWQALYPDSFLVPYEGV GDMAYMQDPI F WHHHAYVEYIWERRNSLYKGTKYARARLY RRQYSPNEPLFFVHHAQVDRMWTLWQGRNKTRLSDYGGNT FPEVAGFDPVFYLHHANVDRLFAMWQAGYPDSYMEPTVNA


 STMASPA DPVFFFHHAMMDALWSI Y YKCQ
 DTSMAAFDPVFLLLHANVDRLASGWQAMNPEVWVT
HMSVVS S F D P L F WL H H $\square$ N V D R L W W S W WQ D L N P T S FMTP R PAP
 QDLLLS P T D P V F F F A H H S N I D R L WDV WT R K Q T L H Y T S Y D P L F F LIHHSNTDRLL
 Y V P L S S F D P L F LLL H HA MTD RVVA I WQA L N P Y S WVTPMT LK


 CS L D S A R SPEFELLIDTAY I DKLWGDWQARKA DH W GTLK S PADVLFYAHHAQI DLMHRDY
 APYGLMMSDPI FFLHHCNI DRLWDVWTRKQQAMGLPPVGPT
 NFYSAA LDP P I F Y CHH A NVDRMWKVWK GL G GKRRRDDP D WLD NPA $\square$ AAFP PI FWLHHTNVDRLFAlWWQACHPSTYVTDRRAG A D NSYT F DPVVWSF HANMDRVFEMWDRDHPNAKYTY RDHRSPADPI FY LHH TNFDRLWWEWQTSSSGR
HTYPTSADPVFYSHHATVDLI QQLYFDCQDGRTLSDSEGA Q IET A A Y D PI F WF Y HVVYVDCL FEEFREKQRNNTTPPVIDP AFLEAPS DP P FWSHHASLDLLHS DFYHC
DVAVSP GDPAFY LHHGQQDRVYWMWQMLDFENRQDPPSAN GPATSPNEPLFFLHHANVDRAWAKWQGRNATRLADYTGNR





## PTYSSPTDPLFMPWHSF I DLALFMWEACYLD

GTMWSAFDP LTMMLHHANTDR LIAALWQVIYYQNATFPS GGQ DPSYAARDPI FYLHHSATDRLWESWR RNDTDPDPSDSAWL GNFLSPVDPVFFMHHANLDRLWEVWRTKQ
H L GYS GFDPLFMMHHAAMDRHVALWQAVHANASMFFATAP DLGASPGDPFFF LHHAMI DRTYTNWQHLDLAKRQYALGGT GDMSYMQDPDFWHHHSYVEYDWEKRNSLYRGTRSAKDR LY

 TDPN G Q T D P L F F L LH H S N I D R L WDVVWTRK QQ GY GYPT LD N N S LNS AP WDPVFYMHHAYVDAVWERFREQQVTNGDNPET D Y
TELI LGS GD $\square$ F E F HVNA VSAS D W $\square$ E R K G $\square$ R D G W $\square G F \square G G D$

 EEFLS PVDPI FFMHHCNIDRLWDVWTRKQ
DMYSSPGDPIFWLHHTNVDRLWDKWQRLDWPARKSD■SGP



LWWE WQK LD P E NRMYDMAGT
Q S M L S P LDPFFFAHH GH DD WM WA GWANYRP DSAY Q $\square G G L D$ QTHLSPNDPIFVLLHTFTDAVFDEWLRRYNAGR
AVPTAAGDPVFWL HHCNDDRLWYAWMAADPSH
$D V P V A A F D P I F W L H H T Q D D R L D A D W Q S L D Y P K D W W D P D K D N$ D F Y NSPS DPYFWNHHAQIDRVWWTWQNQDLEKRRYT IA GT
 WLYS SPCEPAFWL LHAEVVDRCWRSWQSVVNNKWYDYGGHR NL N RAAYDPLFYAHHTNLDRLWDFWDKQGGATAFSDPDY L GHMYSSFDPCFFLHHAN I DRLLAAMWQVVYNESWLEPT QAT DNAYTAFDPVFCSSYHANDIDRMLEVWDVANPAAQYTP FA GH WLY S S PCEPAFWLLHAEVVDRCWRSWQATHHSWFDYQGHRR GGQWDFDASRFNL TMLD
$R V I S A S Y D P \square F W L H H C M V D K \square W A D W Q T L H P$
SVIPHAAFDPI FWMHHCNVDRLLLALWQTMNYDNREATMGLI
A DNYTAFDPI F ITSYAN I DRML E $\square W \square R A H P G A Q Y T T C Q$
ADAVTTYDPVFILLHTFMDYVWERFRQKDRQQGQDPTDYP


UniRef90 D7F7P6 UniRef90 M3АН24 UniRef90-HOEV23 UniRef90-H6C7R7 UniRet90 H8ZAQ6 UniRef90-M5BMV6 UniRef90-W9VNH1 UniRef90 H2ZM86 UniRef90 C5PBC3 UniRef90_N1J7U8 UniRef90-M1W198 UniRef90 G5AB99 UniRet90-W4FJK0 UniRef90-E3QW88 UniRef90 N1RTX1 UniRef90-S8FTY5 UniRef90-F7VQW2 UniRe990-A0A024CHU4 UniRef90 UPI0001744FE7 UniRef90-D7F7Q1 UniRef90-R7THS2 UniRef90_F9G554 UniRef90 A0A016WCE7 UniRef90-N4V714 UniRef90-NOATH2 UniRef90 L2GEI1 UniRef90-C4JUP3 UniRef90-E6X453 UniRef90-A7RKE4 UniRef90 A0A024TN69 UniRef90-Q868D0 UniRef90-W2URWC UniRef90 P33180 UniRef90 ${ }^{\text {Q2TL94 }}$ UniRef90-W7F1D8 UniRef90-M1BMS6 UniRef90 A0A010S1R5 UniRef90-S8ARX9 UniRef90-A0A010QXZO UniRef90 G5ABA7 UniRef90 ${ }^{-}$V4AN59 UniRef90-A0A024FZ14 UniRef90-R8BXV7 UniRef90 C9SDX6 UniRef90-W4K9G6 UniRef90-RoD4R7 UniRef90 M2MGH4 UniRef90-M5BP05 UniRef90-Q2WG53 UniRef90-A0A024TMR4 UniRef90 B7GA89 UniRef90-K718A4 UniRef90-O7S218 UniRef90_Q92LD3 UniRef90 G9Y7Z2 UniRef90-U7PUG4 UniRef90-Q0UEG5 UniRef90 I3EIYO UniRef90-Q33CJ6 UniRef90-TOPYC1 UniRef90-M2V0Q1 UniRef90 J2PE35 UniRef90-K1QAP4 UniRef90-W6NUQ7 UniRef90 B2AP12 UniRef90-W3WR60 UniRef90-N4UUQ4 UniRef90- N 4 U YY 6 UniRef90-M5BK46 UniRef90-F9F1M7 UniRef90 A0A024T961 UniRef90-W3XGL4 UniRef90-F4NWE UniRef90_UPIOOOOEE4185 UniRef90 UPI00034D8EB4 UniRef90-A0A016PP15 UniRef90_B2WH32 UniRef90-UPI00023B368D UniRef90 G4TYT1 UniRef90-R9PG88 UniRef90-A9RDM8 UniRef90 W3XNJ3 UniRef90-W2DLV9 UniRef90-Q4PFI3 UniRet90_FoXYV7 UniRef90-F9TEW9 UniRef90-C7FFO4 UniRef90-QOFSM9 UniRef90 K1RLR4 UniRef90_V2UWG1 UniRef90'S4R827

T $\square$ T Q N A Q S P LT P F S F WN T N D VR S T T S A F K Y T Y P E F A
GFVDSGTSALAPFHSDDGSTMFTSTFGYSYPEL $P A$ EKLDTVLYPFN MTVQQADDLGDY VVY VQNVTLDDTMKYMGLAEDRDTLSNGLCYKYE GFVDTAATALAPFHSFTSHDVRSTYFGYSYPEL
 GDI T DVNTP LTMPFFFWTSADVRDTKSLGYDYAE GTIQSSDSPLTPFYATENGTFWTSNTARSTXAFGYAY

GDPETDKTPGAPFAESATGGSNQEFWTSEGVRYT GT D $\square$ D YDDP R RWRYT T $\square G D M A D T R A L Y M Y$

Y S T F S K N T P LEPFNFWTSEQVKDTTFGYAYPETQKWKY GPAHARNAPMRGLIP

GEMQDS QSPLTPFFASVDGTFWNSDTARTTEAFGYTY
SS A H Q F N A A MVP F T G L T N RVGGLS T D Y L Y T Y
LHPHKMNESSY D F D PVAAPRRVFDTE A W
AA DGERP F RMPMN RTYTPGEEMSDLLSKDYA YDDVS
SLQDNPKSPLTPLTPVKIKDLMNTPLCYMYE
LT T Y Y E NLP P SRKGTLDDLVD

$K$ VG HRDH DFMVP F F P V R Q VD GFS E E L G Y R Y D Y $\square$
LPLVN PNN I DDPFGVFYAEDGLDYTVGNTYNALENFYY
A D Q Q T Q Y D P EP Y L F Y V
S S S E D GTY T $\square P P D S T V$
CQETTMD Y VMT TYY NV TVVGDVMD DQ GC Y K Y D Y SEFFFYDENKNPY RVVVGGDCLDTKKM GYDY

YAY QTCSTANYPGVPPTAQSTM
ELDWP Y D Y A E P P F GPMRLGALRN $\square D G$
VT VE D Y VE L L P L N G P $\quad$ Q $\quad$ I K D L M N T P L C Y VY E $V$ I S A S L D D RMPVMRE PIVRRDFMDTQACYTY
 $P$ S Y VD PLG DLKRWRR
EQTF F F T S P L K P F H S D Q S G GF WT SES GY T Y L DDLG N VQ N V S T N D P M R F L G L A E D R D T L S N G L C Y K Y D D A D Y D GTFTLA YELT P WRKTKSNEVTTTXSSYYYPE

GT L LTADSP LK P F H
ARTHRF $\square G \square D G A P M T W S T Q Q \square L D \square Q S \square Y E Y D T Y E$
GTNDT A D S P LK P F T F H TP NS A R D $\square$ T F GYS YPEL


TTTRNFGKTIVPSDLITMK
GSVLGPASPLPPFHMNALGDMWTSTFGYTYPEL
$P S A L D P K G D L G R W$
PRTP
VF G T G T W $\square$ N $\square$ PPSPNVTVEDS $\square$ D
GDWET $\square$ NTP $\square A P F A R T K E R Q E F W T S A G \square R Y D A F G Y A Y$
D T VMD F GNLLP GRRYVTVEEAMDTQGCYTYE


H M N M T L N S P LS GF Q GV $\quad L A D V L D L R S L$
VADDTEDDY $\square$ YPFHDTDDDDMYNGRKCRDWTK DNYHY LTFQNV PPTRNATLDDVMTFGDYLGFPNM

PWDDPTDN
R DRHGEQTE $\square K \square F E K V K V G D V M H P R K C F R Y D K \square$ NSKF $\quad$ FYDEKQNLVSIIQVSQVLDDDKLYKYDDM GDNQTSLSDDTPFYRNESDDVRDHKFGYSYADV


PQVLTEDSPLEPF YTKNQDPWQSDDLEDWETLGFSY
WPMQNTNWPMDLYENFTNADGYSTQDFYQYEDM

UniRef90_N4U8F3
UniRef90-Q1QPI UniRef90_UPI00044497A1 UniRef90_B9XQZ3 UniRef90_W4GC36 UniRef90_K7H1Z6 UniRef90-E2LJ57 UniRef90_A0A017S513 UniRef90 U4L3E2 UniRef90_W9NKV8 UniRef90-X8JW24 UniRef90 A0A023XX65 UniRef90-W7HSW3 UniRef90-UPI000348E845 UniRef90_I1RLQ5 UniRef90- Q0U7P7 UniRef90_UPI0003A4CB16 UniRef90_G2XZS1 UniRef90 X8JFZ0 UniRef90-U4LMI8 UniRef90_B9VU65 UniRef90-M3AR17 UniRef90-A0A024J126 UniRef90-GOPFR2 UniRef90-H0EV51 UniRef90_U0Z169 UniRef90-V5EZJ3 UniRef90_C7YL06 UniRef90_M4GEE3 UniRef90-F0YDW4 UniRef90-D8LAY9 UniRef90-X5RDX3 UniRef90-L716B1 UniRef90 ${ }^{-K} 3 V 6 C 2$ UniRef90_A0A024TPQ1 UniRef90_K3X1M1 UniRef90- FOYCE4 UniRef90-R1DG64 UniRef90-F4S770 UniRef90_F7GZ17
 QKYARAVMLMRKLPQSDTHSW QWW VRKSWLSLTADEQSLYLEAVQLSMTLGYHYYFVQLLEEP VRHELRSMKDADRRQUENAWNAMKTSGLYNRIGRVHKYS

## $\square R K D \square R N T P Q E \square Q T Y R A Q L D D V L G T G R \quad \square H K W$

EWRSLPQAQRNSFHTAVKCLRTKKGVNGRTAFDSYP VRQNVWELGADPGLWYARAVGALRPKPLNDRTSWMHGYH RMEITDLQDNHPDTFLAEMHAAKATDPWSYFSGDHGAP

S WRK NADQWNLYLLGMERFMSKDKGDQVAGVHGRP VRRSAHELSERDQQSLRRGVQAMRADDAGMPQGLPHGGW
Y D D FATVYMTM
PDVFNMF ILALEALQKMPSYYQLAG\|HGAP
GA Y
D LSVAARKEYLSADRCLKNRPGKTSTSAYPGAR
RED DETFSKDPQKS LRLAFQKLYDRPKDQKYAA $\square H G \square P$

Y A G A VK K M M D P P E G N P L N WIIF Q WY $\square R K E Y S T \square T N A E K K A F A D A \square K C V R S K P S R D D W T L L H \square R M$
VRKEWRELSSGEKAEYLRAAKCLKKKYAEVDVVKTRMDE VRRETRDLTDADRTRYLDALAIVYRTPQADGAAWLVREH

 VRKD I M S M S RE E LVVEY QS KL D DI L H DQEDH FEGKK TK W $V$ R K P WN Q L D E S A K A L F L S A L E L S M D R G L Y QR F LAA I H N E M $V$ R R A W G TLLS T T E K QL Y L D A V M A A M S S G N H A L F L VTRKS A HELTTAAEEDRILDAAWLRMMRTSRYFRLALI HGGS

 VI RKNIHSSLTAQEREQFLDALDLAKNTTHPDYFVWLHYYS


SARREWGALSSKKERRDY DDAVLCLSARSRYDDFVAVH VNQ $R K N D D D L T P Q E L A A Y E H A I D M M R K K S L A N K Q A W V H N C N$ Y AR GV Q K LIKERPLA DRTS WUH G $\square F$

TRKNDRSDTEEETFDVLQAMAQFKQDNSTNGIVSWHGWP I RKNVNELSTSEDENLRDAMRQVQGDYSYQALASYHGLP VVRKEWRNHSDEEKKEFIRSDKCMGNKPHRPNLSSTHYDD VADPDEQKKKYLAAAQKF RLPYWDYFPRAYTKT


VRREDRS DSDDDREAFFTAAGVLYATPDAEYFDATHNED
RLEVRDMNSDQFNLFLLGMERLQAKDKNDPLSYVHGR RENI FELGADPILWYARGVKAMKARKLEDPYAAIIHGMW VRRNIFDLSAPEKDKFFAYLTLAKHTNIYDLFVWI HYYV $V R K P W N V L D S G A K R L F L S A L E V S M D R G L F Q R F L A I H N D M$

VRPPAHAVDEEY $\square$ AKYSRAVE $\square$ MKA $\square P D S D Q Q A D \square H C A Y$
 VRREDRSDDDEDREAFFGALRVVYTVPTRDDVAFFSRMH VRPAAH DADPDQFNMLLLAWQKVQATPDSDPFAGVHGAPM

## $\square R K D \square L L L S E E E \square Q A Y R E K L D \square L K V R S \square N S P W Q E L$

SVRTSWSNLSTSEKRAYQASITCLLRAPRYDDVVYVHQRQ


VRDSWQAMSNEARDVYVNADAAAMDAGHYASFVYCDGAY
 RKEWRTDSRKDRKAFIDAVK PYSKSSYFDDLVYAHMDS RPAAHSAGADYVAKFNRA\|AAMKADPADDPQASVHCAY

## IR QS WDQTPSQNQQLFVDAVALAMDRGFHQLFVD\H

I RRNDFD LSVSEKNKFFSYLTLAKHTNDYDLFVWMHYYV
IRRDFTSMPWKERMRF $\square$ NAL IKVSTKRSYDQLI ATHTNN PYFDPFLPRQKLV

UniRef90 N4U8F3
UniRef90-Q1QPI1 UniRef90_UPI00044497A1 UniRef90-B9XQZ3 UniRef90-W4GC36 UniRef90-K7H1Z6 UniRef90_E2LJ57 UniRef90_A0A017S513 UniRef90 U4L3E2 UniRef90_W9NKV8 UniRef90-X8JW24 UniRef90-A0A023XX65 UniRef90-W7HSW3 UniRef90_UPIO00348E845 UniRef90_I1RLQ5 UniRef90- Q0U7P7 UniRef90_UPI0003A4CB16 UniRef90-G2XZS1 UniRef90- X8.JFZ0 UniRef90-U4LMI8 UniRef90-B9VU65 UniRef90-M3AR17 UniRef90-A0A024J126 UniRef90-GOPFR2 UniRef90-HOEV51 UniRef90-U0Z169 UniRef90-V5EZJ3 UniRef90_C7YL06 UniRef90-M4GEE3 UniRef90-FOYDW4 UniRef90-D8LAY9 UniRef90-X5RDX3 UniRef90-L716B1 UniRef90 ${ }^{-K} 3 V 6 C 2$ UniRef90_A0A024TPQ1 UniRef90-K3X1M1 UniRef90 FOYCE4 UniRef90-R1DG64 UniRef90-F4S770 UniRef90 ${ }^{-}$F7GZI7 UniRef90-UPI0003EE0930 UniRef90-F9X2G9 UniRef90-UPI00042B5860 UniRef90 U6PLY6 UniRef90-Q2UCH2 UniRef90_UPIO00376133E UniRef90-D0D5S8 UniRef90 V4A5X3 UniRef90-F6WL94 UniRef90-D7F7P7 UniRef90-M5BXB8 UniRef90-S0EMH8 UniRef90-S8EQQ2 UniRef90 F1L1R9 UniRef90 ${ }^{-}$N1S4I7 UniRef90-FOY929 UniRef90-E3RX72 UniRef90 UPI0002EB8031 UniRef90-F6WZK9 UniRef90-W4GL89 UniRef90-U6PX46 UniRef90- W9RNN0 UniRef90-G1XTB4 UniRef90_H3G194 UniRef90-FOY494 UniRef90_S8C046 UniRef90-W5B8V1 UniRef90-N1S2R4 UniRef90_B6HTY5 UniRef90-J3PWM3 UniRef90-D8LC42 UniRef90-G8Z9L6 UniRef90-B0FIU2 UniRef9-TOPU14 UniRef90_L8WMT8 UniRef90_A2ZYK9 UniRef90-L8WQ66 UniRef90-W4H5H4 UniRef90_UPI000154A145 UniRef90_A7RWK6 UniRef90-E3QP00 UniRef90-H1V647 UniRef90-D8UD00 UniRef90-S7ZZM5 UniRef90_UPIO004686A04

A EVET LVGQLWANYDAVSAACGADYVEGENRKRLIDALLE Y DRWGGFKGYCTHGSVLFPTWHRPYVSLFEQRWLAEATQF WNTHWMKGYPVVMWEESMKVKTDAMASLPSSVQSLAEATW QTY

Y E Y Y L T S G WA YWNRKLLLAYETMLR GLLSPRF GV HSGPAFTLWHREFLKRLE $\square$ ALRDHMNNP

QE $\square G \square L H A E W C \square H Y Q E A T F P W H R A Y \square R Y V E E L I D C P \square P Y W$ SVHDNVFGS VHYVANFLPWHRWFLYDRRLDLADCGYTG QGLWEFYGQQCQHGSWYFLPWHRGYLI GFEKLVRSTPPDW YTPWP LKS GYCVHRSVIFGHWHRPYMLALEQAVYANGKK $\square$

FTTWNNQAGFCPHNSNLFGSWHRPYDADFEQAWYDAVTED RQGA $\square Y H A Q \square C G H G G W W F L P W H R A Y L A A M E Q R D R E A S G D P$ $Y$ STLY PAYQA A A DN L FQA WQYPWGYCTHK SVVIFVNWHRPYLLLVEQKYREAAKKV DQAGFPELELQVHNSWLFFPFHRYYLYFFEKQLGKLINDF SNDPDAYWSQCHNDESLFFIWHRAYLAALERNLQKLVPTLG

T HFVRGDRTK KQE $\square$ NVYPSPSANRTWAEKMWNTCQAHS VKY VHFTAYFLPFHRGFLA VERDLNNCGFHL


## TMF $\square$ HSTGN

F $\square$ T WHRYFTWAYEQARNECGYTG GVPKNGWFSDSDAFCPPMKSPPAGFHTEHPGMCEHGFGPW RALDW F YGDQCQHQSFFFLPWHRGYLMA IETLIRSEIEAL
YRCGHKDGHCSWHSD DRFCAWHR LDMVQ DEMGLSKY DPYW AKCKTPDGSDCDHGMANFPHWHRLYTKQMEDALALKGAK WVY LDVDSNQATHVVSQFFPWHRWYLHAFETDMKNCGFNG


S GDRTCDHFHDGLGFDPQHAAFTDRFERADQSVDPKV FKAYNNQAGFCPHAATDFAPWHRPFVSNQQQRLKDAASTL ASDTSTY LDQCQHQSWYFDP WHRGYLLADENMLRHEDELL


CNGSYDQVGF Q $\square$ HS S WLFFPFHRWY LYFYER $\square L G K \square D P T F$ F $\square P$ WDYSQGYCTHGSALFTTWHRPYLLALEQSLFHAAHAD
 LLGAADRSCOMWHDAGLMTHHRSYLLALERASLGHAAMSUG


> GLLHAEWCDHYQEAFVFWHRAY乌KYVEEDYDFPDPYW S DYPNGRDEWHVTGQFLAVHRMYCFIFEMGRDECNYRG YKAASQSSCDHFHDGLGFGTSHSMDSNTFEFSLQKVNPKG DQAGFPNLEDQVHNSWLFFPFHRYYLYFHERDLGSLDPTF HKAAF GSSTS LLWRRHLLLAFETMLRSLKPAF SRDTF $\square$ GGPDFAHESAAFLPWHRVYLLHWEQE RKGTGDF NNKDHFTAPLEV FFLPWHRWYLHTFHDALQRCGYKG CPDGFPGLDLQVHNSWLFMPFHRCYLYFFER\|LGSDDPTF

ADTLITNEAHNNVLFFFWHRKFIDGYENMLRSLGRRF
 TED ITYTYG】PVIFLLDPHQVRRPESPSSWVSMANPLYQFK ARYHGWDLSYCDHGRETFPGWHRAYLVDFERTLQAADRALD FRHAF $\square$ HF $\square$ DCPHGNWWFP VWHRVY $\square Y$ WFEK $\square$ I RE LDPTF

UniRef90 N4U8F3
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UniRef90_L7I6B1 UniRef90-K3V6C2 UniRef90_A0A024TPQ1 UniRef90_K3X1M1 UniRef90-FOYCE4 UniRef90-R1DG64 UniRef90_F4S770 UniRef90_F7GZI7 UniRef90-UPI0003EE0930 UniRef90_F9X2G9 UniRef90_UPI00042B5860 UniRef90 U6PLY6 UniRef90_Q2UCH2 UniRef90_UPIO00376133E UniRef90_D0D5S8 UniRef90 ${ }^{-}$V4A5X3 UniRef90_F6WL94 UniRef90_D7F7P7 UniRef90-M5BXB8 UniRef90_S0EMH8 UniRef90_S8EQQ2 UniRef90-F1L1R9 UniRef90 N1S4I7 UniRef90-F0Y929 UniRef90_E3RX72 UniRef90_UPI0002EB8031 UniRef90_F6WZK9 UniRef90_W4GL89 UniRef90_U6PX46 UniRef90_W9RNN0 UniRef90_G1XTB4 UniRef90-H3GI94 UniRef90_F0Y494 UniRef90_S8C046 UniRef90-W5B8V1 UniRef90_N1S2R4 UniRef90_B6HTY5 UniRef90_J3PWM3 UniRef90_G8Z9L6 UniRef90_B0FIU2 UniRef90_TOPU14 UniRef90_Q9PVN0 UniRef90_L8WMT8 UniRef90_A2ZYK9 UniRef90-L8WQ66 UniRef90-W4H5H4 UniRef90_UPI000154A145 UniRef90_A7RWK6 UniRef90_E3QP00 UniRef90_H1V647 UniRef90-D8UD00 UniRef90_S7ZZM5 UniRef90_UPI0004686A04
 $R$ VPY WD WA S QAVVPPDEVIDRQQQVADITPDSNGKKVNFPNS DGCQAHPMNPDNPEQY QEWF IWPWHRLMLYQFEQTIREVS T L P Y WDAFADFALVQT TNCTLLDCGFGGSSGT\|GNLTIDR $\begin{array}{rl}D F G L P F W & D \\ \text { W S T L }\end{array}$

Y A N P LT NGFAVDTSDPESPYATY N NFNEANNDISSQF DENWYN P Y DK D P VP Y WD WT $\square$ D S GK LIATSN $\square$ WDPTTGFGGNGNTRT SAHCV TLP Y WN Y F KP GQD GLPPAFGSPDWPDGTGNNP LFIDERWG RWP Y WD WANKETQ SHLLPKCAKEPTDKVMQPNAKGVAVSRE D A HN A QYP HPSEN DK L L N Q N DVD WLE GP K P E IN DFPQDQRDRWNRAAATLRMPYWDWAPQGQVRINNPLYS

 NAIY WD WT RDA GHAVDSPIFDPVTGFGGSGTNNSMPNFTV R LIP Y WD WS A D S P Q I SVI R P S GPQT IR NP LY S YVF QD NVMK

 $\square R Y R W T N E F M G D P T G S$

S GQRED F F L P WHRMF $\square$ T YFE D $\square$ I R Q V S GR H DF T L P Y WD Y T GLP WVD WTKTSVDPSTNALFS SDPAFGLGTNGRGPNSECP MS DTTNWYNPYRSDDP
TQPYWDWS IDADALNTVNSPDHS IIFGDMGPATSPNEPLF ASHYWDYTVDAVLGKNYSRSVFFDEAWFGDSSPAPE QDHV TYY DWNDFRTSSVVFSDDWFGDAAPGNTARTPTQQRFA YVP A LT LP YWDYTNAQRTFPREFARFVVPGSGGNEVNPLYHRN
 NGYAKEASVSSSKFAGIPPMF LEKTYQHPTRNEVLTEGSS NASTPFSSDDLMDFGAAYPSLVCADSRP
ACPYWDYYTD YAKKTTS LCSTFENCSGSAGPVSTKS $\square G G T$ HLCDDYEVVGMAHFGVGGGWPRYAHQPPATGNDSGNAAPD
 PMAYWDERVDAGKFRDAGII KDFGGTGNENGYVV SFALDP WWNFATGRNECDVCTDQLFGAARPDDPTLISQNSR



S QP Y WA WNK Y A DD P VN S P $\square F D$ GSEYSMSGDGAFVP HNATE HRAEFFYYEQADRAADPE GTS GPSTKDDVTVPYWNFDQDPS GGPHESWALPYWNYFGDGQNALPPEFRSPDWPDGTGDNPG $\square Y \mathrm{~F} \square \mathrm{~N} N \mathrm{G}$ D WTESDWDD $\square$ P F Y F R N $\square$ T $\square$ H D P Y $\square$ NQTYPNPFNPS VMPGH

TMPYWD WT LD A H DVYNSP IFES DPEYGLGTWGKEED DWVV P NPFFQFQFSPEQLNKDSVDNAPGTTLDPHFKSILKTVRY RF P Y WD WD S D QP VP EVLTTNKTVVIDWVPDS GNGTVEKAVNN

D D K PR
SVP Y WD Y D MAAWRRSPVFRDDWFGDAQPEGHVVNA GRWAY $R L P F W D W A T K L G N P V I P T M L T D Q T V T K P Q G P V R D P N P D Y K$ NGPSASWALPYWNYFGTDQDVLPPAFRTANWPDGT GDNP L NFT $\square$ P YWDWRDAEKCD $\square$ CTDEYMGGQHPANPNDLSPA SFF ACTYFDWVEDYANFKAKKCSNFGTCFDHSYPDLVCADASP
 $A N Q F Y L N A A G R V R L D Y W D W S D P V T Q S Y M P D D T M Q Q T V T V T$ Y DVQQTAYVRQAAGECDNFYDCSDILLQELGGNKARNVPVSLL SVVPY WDYSRDAYEYGPNWRESVVFNESWFGGTKSQNAS L N
 SRDQWEFSDLDDTTLDHAKDFTFRHGGSDPANAASMNTVLVN




 VLDP YWNWS LDDVANMTSAPVVFDADPETGGLGTGTPPLTD GAF




## UniRef90 N4U8F3

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UniRef90 D8LAY9 UniRef90 D8LAY9
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FVPSNFANYAEFATTAHGGNEPNG TFRDFGGGSLYVDSFGFLDQNPHNTMHUWTGGMNPAFTTD FLQYTFHPHPKPVNSPNAKSDVDELITFLKADHENDKERV QDDDFTLPYWNPVTGNSLPFALRDPASELFNSTRYPWVNG NDTRGIKVTAPQVKSFCESDTNSSCAGYIIRSSWRRSFPS
$K$ NGPYHNWETMEGRAQUFRNFDEDDSGEMLIDARVDWLI TVGGAPPNFDQGNIQHCLSRAFNDGTRNDFGTPNVGDMMA MDSDELTSGSLASNVHRLLSDNYFKSYKPFSSTCCPPGED AGGEFTTRYKVLEDGPSSPDWVGKDNDFKKYHEQVKAAME RKDRDDDFKPPGTDADAVNRLFSKKYTDSWETFASTKWWK ENGPYANFQLTYPSRHCLARRFNSGNPRSTS四GTMQ PGDPSQPGKVFVPDAMDVHEFTGVASGGDRGFGGDDTGFE DDNPFYTYVFKGKENEFLTAPFNTQKGDLSQTADNAMHSG EPKPRSQNGVYWEFQNCLHAPNYTVFSNTTSAGQWNDDRS AQAKTNKDFYLKWNPGTLADSVNRMFSPKYNTTWGQFAST YSWGNIGGGPWNSFPQTLRRPVANPTRSNNNEMNGRFDSM VGVFSREPLPFAGSSRQTERQAARSASF
FPPGDSDGYMAQYNWTVRNPDYSGDGQSDFNAANMNLENA VVYGDYSGSKDYGRPHYLERQFLSEDNVNNTAIFVPSMLS IVRDFDGFPQVNMTETLRTPLNLTQQSRHDVVNAQTFQLFQ CVMSGPMASWTIDSWGCKRNPRSDGLGYNPSCIDETFNLR VQAGDDVWFSSSSGALDDTSFFGFQTGLDGSEH
VNNGPFRSWRTDENKATDTRAVGAQGKGYSEDEDNTMMSQ NDLPPNPRADNFGSNPRCLRRDVNKYSAAVTFDNYYS DPNQQVLP DEFRRPGDPVWGSLYRATRWPGTNAGKNVTDG WQTGLANHYFNAPFRHRLCRQFNNVNAPNPHFGNNCTTFID DKVAKFKSKPPGTLADSINRLFSDEYNDTWGSFSSTKWWA MLHHANVDRAWARWEGRNATRLADYAGFN
VNTGRWAYTPITNPYGLLRSPWNTNPDPYLMRSKYTMGVE VMTDAREYSAQYNSYGLLRSAWNNDRNPYLTRHDHQLGMM RQLSFVAGTHALTAEAVADDDLMLEPNFFGRTDEDGFGGG YKFRRSFSDLGMPNDRIAARFTETKRGPQDNGSENDDTGR NPGWKAKVELFEDYHTQIEHADEQATYTTSESAQHFG\|PW VNHFCPVVEPGARCDRCLPRDATAWKDGVLSEEWDVDILK CASFYGMVGSRGEDRQLYVYPDNAGCDDCPDCAAEGDDEA FHATFLPPDQQGNQLAPREEDGTLFYKTNPWNSRVDAELR DGRFGYTIANLGPSMDNTRRYLSRKTNDTASAFASERH FSSWETVCDSLDDYNHRVTLCNGTYEGLLRRNQMGRNSVK DYNRRVTLCNGTYEGLLRRNPVGLNSEKLPTDKDTQDCLS MPGNRNVASMFQYNPRCLERDINPWFSKKFTTYTNLTTLM

GAFRGWLLENRTRVIDRNVGGRSSPMNESEVQGVMNA AAPGDF DQPSNGGGC
GVRFPKAFENKTSPLFYPGRTEGPPTAEDKQRTSPYLLAY FVVQRWGPMGGTQPFDTASR TNGDPGGDPVFTGPG RYPGKGYNSVYSQFKDCLDTDDYNNFSNTTSVDHGDSCLE KP TNGMPYPVHAQRSMSISGLLASNYMDRGTURSLLANNY

VF KNQWTSRDPVPNLFRDPEYGEK
TDGAFANTLIRAYPVPHYVRRRFTPQPFVNNLIFPFEYTN GGSSAEAMEKMNEQLNLKREDRDRMCLALMEDEVYRNFGA SLFCGLLTEKHPRDAFPSPFNEWRATIRYPTFARYNPSDR WSTMDQHSKDYTWNPGSLSDAVNRMFSKGYNPNWGQFAST TAVARASPSDTANAYGLIRAPWNVNKVPYDTRANTTFGFS YAMGDYPAELGPGPWNSFPESLRRPLGNPTRSNNNEMVAR FVEQRWGVLSSSTPF DVSSQTNLNAMQDPEFAGPG S SWQLICSRCNGMPEGPLRRNPGNHTPRLPSSADVEFCLS NNHFCPVVEPGARCDHCLPRNATSWTEGLLSEEWDVDILK DNGPFAGFRTLEGLPHVKRAVGKEGAPFKQSDDDFVMRQ DD DDYSTADTGVPPSSQVSTNLCDMYRQMISCGKNPRLFY RPDGSGNPVSASISNPDFAYNFLSSSSISVFGAPWNSRLS VIDAGAWAWTGVNPYGILR SPWNANPHPYVTRADNVFGYQ RPDSFGNPVSAVDNNPLFAYNFLSASSDAPFGSPFNAHMS KIREDEMRCSLSMDESGVYSNFQAFSTDGVNLGQKFKYLR AFSLNGTNKSGTSPHRQIANALSQKEFSLQQGHGYPWGNI Lle FDPEDNMVKDGRWAFTELPRVFENNPGLMDTDVYGKLRAP
DDYSSLGTVCNNTETSPLRRNPAPMVQRLPEPRDVLDCLLE
 SSWKVICTQQEEYNNQ
KNSYRAYPTPHVINRTYTPYPFRTDTFPFN
DDLDYNGREPRFTDNQQVDHNDRVMYRQVYVCAMRASMQR YPGAPATGWHDDQSKVASLFF LYPPKNEMPEGSEVYAWDRF FAFPHFKCVGSAPVSHACEAPGTPRCMHCMPRGPWMRTHF SSWQUICSRSEEYNSHQVLCDGTPEGPLLRNPGNHD WQRERYF LIWQQVRYF LIWQQVRYFLIWLIWQQERYF LIA MRAFDNAYNPVSGLSSQTPQSIWHVMFGKQTWVQMSNHYD



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$H$ GGTKHGD $\square E S Q P H D Q V H G L V G G E K M F P E A S P R P L P G \square M S$ YSTRRKQTYNALISEKGFNAFGNDLENDHNDVHVQVGGNG GTADTPDESPHND LHDAVGGFDVPGQGEAGKFAGANGDMG K WTYEGYGNSMNGFLSLEYIHNNVHNIVGGSFATGVGHMS FASKQSWGYASTSQI GVRTDLS GSGTDSFESVHDAVHHMY AEFAGGRPLRGVFAPGQLEMEAHNSAHAYVGGDM GLGDQVWTADMKSSNFNSFATMAVVGAS DESPHGAVHHMS ERYNE SEMKGVMDGENYDSFLQRLVGGGGSADHEAIGGDM DNTFSHFSTARFPSPGLSPDEWNSVESDHDDVHATVGHMS $G N P Y R A G D E P D P G G G S G E G T P H G P H L W T G D N T Q P N F E D M G$
$S V Q Y D Q V L R L D L T M S P D V N R F A Q L I E L E S P S V H N A P H L F M$ SDDAQVLAFSAPQRGCPYQPNFNVPEYTHGNPGGAVGGDM LITENNNDEDFQANMLGNASRNDWGVHMGGHYTIGGDPGG RSALTMKSNDYSGSAGDAGFCANTDMNPHGADHVDVQGMA

DA $\square Y Q M P A C A D F H E R F$
NNKKPSGCRRYRDAYVAEDWMK LTEAFNHGNDHGLLGGTW LSDADAGTKGLIERRPHDQLHFADGGGQGDVGGAMA SQVYNVFSQTTTFEQMTDSFRGSSFESPHNTVHNIAGAGG ANV VDFTDHQPDTAYPFRCDFDGWFEQVHDNFHGWVGYDM
GYL $\begin{array}{ll}G Y L & H L S D E S P S D K L V S Y D\end{array}$
 $Y R V L M G Q D S F I D F M Q S L R N F Q H L S G H V G V G R D M$
$L P T F K N I R D C L S L R K F D N P D F F Q N S T F S F R N A L D G F D K A D$ LTTFDSPPFFQNSTFSFSDF
LENDY LEDFQDLAQGYGSATNKFG VHGGGHWQDGGSM GSPYRTGDE
A D $\square$ NVVLS YTATQPGCPVARTWRALEFVHGKPHNYVGGDM
LIRDDRWPQFGGYRVGGPGNYGAFESMDHNYMHDAYDGGK GGVSTGFGGPATGFNWQGGSSGGLEMNPHNIVHGLVGGGS QPHND $\quad H \mathrm{~L}$ S $\square$ GGFTNPENPGEYFGLIQGSNG


FATNAVFPKPNEKPKATLERPSGSDESFHGAYHVTDGHMG TQVYFSLVLVHTWHLFSNHGQPSSLEGDHDTMHGAIGGVV DKI EKVLAFTAPRQGCQFKAEYDALEYTHGNVHDFVGGDM K WIA L S AEKGCPKTGYY SLEYYHNNDHNLTGGGSDYTGMGHMS FQTARTSLTNRVFDLFASKASWGSFESLHDIVHNLI GTMF GGGSAGF GGVETGFSWS GEESGGDESDPHNIIHVLVGGGH LTQYESGSMDKAANFSFRNTLEEI GFDH $\square$ GR
GY LQ QAEPTPS DKQVSAD NQVDQVLAFSAPRQGCPYRTDYNCLEYTHGNGHLFVGDMY GEPYREGDD PNPGAGT I ETVPHNSVHLW
TRRYPDGSWYNAFLSTTYNVFSNRVEGVHDSIHGAVGHMS PSGAGFASFLR\|VSADYATFLMGIQSGIHNEVHNAVGGTM AAGYTTFPGCNEMHACFSDMNECLNGYTHGPVHDMLGGQW TRRYPDGSWNDRSYLASSNMQGGFSSRVTSTYTAFLSGSY GQPYRAGDQ
DKKE $\ L R T N T G S \square E G \square H N D Y H V F D G G F T R G N \square K S T S G H M S$ PDFSENQPDSLYPTSARQYFDGLFEQVHDNYHGWDGPDMA QTTFASFLNEIRHYNHDAGHHGVGGESPSLH
WNVNDRQYLTRGMGELCGADMEKAFPWPTCTSHYDLATGY LNAFDTPPYYSTSESFRNTDEGYSAPQGHNDAHLFLNGTG GTPYRAGGQANPGATRENVPHGTVVLWTGDRTQPNVENMG

V S T
SNTRAMSQPTRDQWENPGSGKYWEDAK DLNP LVNFASSKM NSTALSYTS $\square K R V L F Q P D D D \square Y S V T M R V E R S P H D T M H F V A$
 PRTRDPASVVYNANSLE GFHDNDHNQLATGPQGSSGHMG PRTRDPASAVYNANSLE GFHDDIHTQIATGPRGSSGHMG Q Y Y W WEHPRAASTH DN THSVETPHNS LHVVLCGWPMS


## UniRef90 N4U8F3

UniRef90 Q1QPI1 UniRef90_UPI00044497A1 UniRef90-B9XQZ3 UniRef90 W4GC36 UniRef90-K7H1Z6 UniRef90-E2LJ57 UniRef90 A0A017S513 UniRef90- U4L3E2 UniRef90-W9NKV8 UniRef90-X8JW24 UniRef90 A0A023XX65 UniRef90-W7HSW3 UniRef90_UPI000348E845 UniRef90_I1RLQ5 UniRef90- Q0U7P7 UniRef90_UPI0003A4CB16 UniRef90-G2XZS1 UniRef90 X8JFZ0 UniRef90-U4LMI8 UniRef90_B9VU65 UniRef90-M3AR17 UniRef90-A0A024J126 UniRef90-GOPFR2 UniRef90-H0EV51 UniRef90 U0Z169 UniRef90-V5EZJ3
UniRef90_C7YL06 UniRef90-M4GEE3 UniRef90 FOYDW4 UniRef90-D8LAY9 UniRef90-X5RDX3 UniRef90 L716B1 UniRef90 ${ }^{\text {K3V6C2 }}$ UniRef90-A0A024TPQ1 UniRef90_K3X1M1 UniRef90 FOYCE4 UniRef90-R1DG64 UniRef90-F4S770 UniRef90-F7GZI7 UniRef90 UPIO003EE0930 UniRef90_F9X2G9 UniRef90-UPI00042B5860 UniRef90 U6PLY6 UniRef90-Q2UCH2 UniRef90_UPI000376133E UniRef90_D0D5S8 UniRef90 V4A5X3 UniRef90-F6WL94 UniRef90_D7F7P7 UniRef90 M5BXB8 UniRef90-S0EMH8 UniRef90-S8EQQ2 UniRef90-F1L1R9 UniRef90-N1S4I7 UniRef90-FOY929 UniRef90-E3RX72 UniRef90 UPI0002EB8031 UniRef90-F6WZK9 UniRef90-W4GL89 UniRef90-U6PX46 UniRef90 W9RNN0 UniRef90_G1XTB4 UniRef90-H3G194 UniRef90-FOY494 UniRef90-S8C046 UniRef90-W5B8V1 UniRef90-N1S2R4 UniRef90-B6HTY5 UniRef90-J3PWM3 UniRef90-D8LC42 UniRef90 G8Z9L6 UniRef90-B0FIU2 UniRef90-TOPU14 UniRef90-Q9PVN0 UniRef90 L8WMT8 UniRef90_A2ZYK9 UniRef90-L8WQ66 UniRef90- W4H5H4 UniRef90 UPI000154A145 UniRef90-A7RWK6 UniRef90_E3QP00 UniRef90 H1V647 UniRef90-D8UD00 UniRef90-S7ZZM5 UniRef90_UPIO004686A04

SNLTASYDPI F WPVHANI DRLWWRWQQDHPD DTAVAGFDPI F WLHHANVDRLLQLWSSRHPGVWVTE ADF STVGDPIFYLHHANLDRI WESWNRLGNSNPADPRFDN ANNRTIADTLFMPLHASFDMVLQDY $\operatorname{CNCY}$ VGEFPSEAA NGDMSSNDDCFVYHHGMDDWI FETWRQNDQSRPKSDERCF LTSAAPNDALFYLHHGNVDRI WAKWQADNSTRLNDYQG NVPVSSFDPVFWMHHNNI DRIFADWQFIDNPEAWLTP ADNYTGFDPVF LSMHANLDRLEEVY DVPVSAFDPVFWLHHCNIDRLLAMWQALNWGAWFDEPEGK

SPVTAGLDP\FWLHHANTDRDWQSWRQSDSRNTDPEEASW ■LSY $\square$ SYEPLEWLHHNNI DRMLAMWQAANPGEENY
ENNTAAMDPI FFFHHCNVDRMFWLWQKQNGTSSSDSQGPT DVPVAAFDPI FWLHHTQIDRLLSUWQCLYPKLWWDQKEPT YLDMSAFDPLEWLHHCNI DRLLNMYQY IVPDTWVMAQWNQ FDFTSGFDPLFYALHANIDRLWEVWRSQGGAGRVSPT FLSYSGFDPIFWLHHANVDRVLSMYQADNPSTFITLLADP YL LAAPNDPLYFLHYANVDRWWWKWQHLNNSANALQYMGT TVPVAAFDPI FWIHHTNVDRLGAMYQAINPGSNVEPFPNP NFYSAGRDPVFYAHHSNVDRMWS LLETLGGKRTDLTDSDW DVTFSSQDPWFNFHHGMLDFVFSVWQSLDWNARTTPYADL




## VD

DVPDAAFDP $\square$ FW W H HCN $\square$ DR LLS MWQA $\square$ N WNK WWDTEEPA

SPAVTPY VIDPFVHHAYTSQLWRENADECPESCTFDQGW DVPRAAFDPI FWVHHSNIDRIWADWSGDPGRKWYFDTDA H LMWLDWSAFDLLVALWQAIDNHDKTVFQFATA ADNTYTFDPI FLSYHANMDRLAGIFMDSNPENQFTPFMDQ NPFSSPADPI FYVHHTAVDMLHTIYHHC
ATLWASADPI FYNH
DPISSPNDPLFFFHHVNMDRFFMAWQRTHRDAA
QVPTAGFHPLFWDHHCNVDRAYESFLQTPAGRGAEAAFYA $G V Q T A P V D P L F W F H H G Y V D$ NDRQGNDPNNAGYETQGP GTLDSQVMSLHNLVHSFLN
 VTSSSANEPVFFDHHSFVDLIWETFRQRRQSRRTYPPDNT
RPSTAGDDPLFFSYHAF TDYYLEEWDDSHAAAEDTSPGQY PTDTFSDDPIFYDHHCNI DRLWQSW NVFPAGK PSAAP ANEVAAFDPIFFSHHSNIDRVFWIWQRKNTGTSTKGQGPT $M P I A T Y W D P A F L L H H S Q V E R I$ YA $L$ Y R
TLHYTSYDPLFFLRHSNTDRLWALWQARLYWDWTMPFTSL
S $\square$ ASAAFDP $\square$ FWMHHCQ $\square$ DR LIFA $\square W Q A A N G D E H W F N E L P K$ E GVGDGHMPVFFLHHANVDRLLALWQT $\square$ NPDQWV
FDPYTSNDPAFYLLHSFVDYI WEMYQSRYDRESMYPADNS DVPVAAFDP $\square F W L H H V Q \square D R L L A V W Q C L N P K \square W F D T A G M T$
Y LDRSAFDP $\square$ FWLHHCNTDRMVDMYHY $\square S P N T W M S P Q W N Q$ $P$ TLVFPLDPLFYLHHCNIDRLWESWNKQNPTDSKWLDGPA
NPYSSPADS $\square$ FYAHHTA VDM $\mathrm{CHA} \square Y \mathrm{HHC}$
DTATSANDPLFYPHHSFVDFIWEQWRQQRQTRADRETLYP
$Y$ VA YSAFDP $\square F W \square H$ H CNVDR $\square M A M F Q A T S P G D F V T P A S A V$ A TFASPRDTFFY SWHTAIDMYLHVYHLCNFGVPLTE
NV
NLFYSSFDPLFWLHHCNVDR LTAMFQATQPS $\square$ FIVTPASAD
 DNSYTAFDP IFLSYHANMDR\|AE $\downarrow$ YLRTGHGRRF
SDFYSW
QTHDSPNDPTFVLLHTFTDAVFDEWLRRHPGEVVYPEENA NFYSAARDPIFYAHHS VVRM
ANQTTVVDPLVWSHFATIDALFTVHYKLDGNSAY LIAYAV
 NFY $\square$ TTTDPVFYGHHAT $I D L H A \emptyset Y H H C$
CSTSSANAPEFLLHHGFTDKLWADWQK
SPAFAGFDPSFWLHHCNVDRLLADWQGDH
SPAFAGFDPSFWLHHCNVDRLLAIWQGI H
SVSFAAFHPDFFLHHCNVDRLYDTYLRKDMTNA GDGEN
ENETAAMDPI FFFHHCFIDHVFWLWQVKN
ANF L SPVDPIFFDHHANLDRLWDVWARKQTKLRLEPTGAN

UniRef90 N4U8F3 UniRef90-Q1QPI1 UniRef90_UPI00044497A1 UniRef90-B9XQZ3 UniRef90 W4GC36 UniRef90-K7H1Z6 UniRef90-E2LJ57 UniRef90_A0A017S513 UniRef90 U4L3E2 UniRef90-W9NKV8 UniRef90_X8JW24 UniRef90 A0A023XX65 UniRef90-W7HSW3 UniRef90_UPIO00348E845 UniRef90-I1RLQ5 UniRef90 Q0U7P7
UniRef90_UPI0003A4CB16 UniRef90-G2XZS1 UniRef90 X8JFZ0 UniRef90-U4LMI8 UniRef90-B9VU65 UniRef90_M3AR17 UniRef90-A0A024J126 UniRef90-GOPFR2 UniRef90-H0EV51 UniRef90 U0Z169 UniRef90-V5EZJ3
UniRef90_C7YL06
UniRef90 M4GEE3 UniRef90 FOYDW4 UniRef90-D8LAY9 UniRef90-X5RDX3 UniRef90 L7I6B1 UniRef90 ${ }^{\text {K3V6C2 }}$ UniRef90-A0A024TPQ1 UniRef90-K3X1M UniRef90 FOYCE4 UniRef90-R1DG64 UniRef90-F4S770 UniRef90 F7GZ17 UniRef90 UPI0003EE0930 UniRef90-F9X2G9 UniRef90-UPI00042B5860 UniRef90 U6PLY6 UniRef90-Q2UCH2 UniRef90-UPI000376133E UniRef90 D0D5S8 UniRef90 ${ }^{-}$V4A5X3 UniRef90_F6WL94 UniRef90-D7F7P7 UniRef90 M5BXB8 UniRef90-S0EMH8 UniRef90-S8EQQ2 UniRef90-F1L1R9 UniRef90-N1S417 UniRef90-F0Y929 UniRef90-E3RX72 UniRef90 UPI0002EB8031 UniRef90-F6WZK9 UniRef90-W4GL89 UniRef90-U6PX46 UniRef90 W9RNN0 UniRef90_G1XTB4 UniRef90-H3GI94 UniRef90 F0Y494 UniRef90 S8C046 UniRef90_W5B8V1 UniRef90-N1S2R4 UniRef90 B6HTY5 UniRef90-J3PWM3 UniRef90_D8LC42 UniRef90 G8Z9L6 UniRef90-B0FIU2 UniRef90_TOPU14 UniRef90-Q9PVN0 UniRef90 L8WMT8 UniRef90-A2ZYK9 UniRef90_L8WQ66 UniRef90-W4H5H4 UniRef90 ${ }^{-}$UPI000154A145 UniRef90-A7RWK6 UniRef90_E3QP00 UniRef90 H1V647 UniRef90-D8UD00 UniRef90_S7ZZM5 UniRef90_UPI0004686A04


RKFTYADRNGKRVDMP DGAGNRTAQLGYEYDNY KRNTTSAWPFVP
P Y WHNAENSMPLLHPLKNKDA LSTDFMYEY
DDNCKPTEELQPFHMDEKGTVFTANDVRRWEKFGYTY RPFTTLGSTIREFMYAT RGDMTKSTQGYMY VEDKTQDDDLLPFHADTSRHDRDWTKLYQYDD $\square$ R

PAS LGQHKFVVP LPDYTPEQMSDFAGGYTYSD
PTPLDLDTPLNPFLKFTSRDCDNDEKGYTY
RPGETEDDYLYPFHDKDNGDVWIARKCYQYDDL
GESKNGGTPLKPFTKGTYGEYFTSNDVRETRNFGYYY
GT $\square$ D TASSP $\square$ KPFA $\square$ TSSTFFTSNTCRSMSQFGYSY
GG $\square$ E DMNTKFYPFR
 P IDQDAD Y
A DNHFRAAFMRPFTPMRNADGLSN MYTDNLYSFA PSKGDTVDLKWTAPKSKTWDMMNPDFCY $\square$ Y

PDMKDRMGPMKNLPDPTPCDPL

W $\square \mathrm{FFDGDGTQK} \mathrm{\quad TVQRR} \mathrm{\square YFNHRDLYVY}$ PGSFTADSPLKPFTTRTVADV TRLGYTYPEL GTKVSYDDPRRWMYTTISDMADTRALYMY

NRFDD
PFR S VT WQTALPFDDVPLYAGSDTQGCYTY

PDCPQMTDDK LPFGFVAPRS LMDTMACYRYE
DSSFLDYDENANLVRVKVRHCIDSTLGYDYQDVD
LTAHFSNAPMRPF GDMVNTDGLST DLIFYTYSD
$\square R G Q Q S L A F A N P P G F T P G S G L Q T M G$
TDWQNPNNLDWLQGPARSGE
$P N Q L N M D T I L Y P F V P R T S N D C V D \square E G G Y T Y$
PYLVTETENN PFNRV
DEQGFAT $\square$ D $\square$ T PFRKSTNKKTYWTSNLYTYPD
SALHFGSAPMRPFEPKRNVDGLSNK YTDNGYEYA ASSVT DDDPLEPFHKKDNKEVWTAQACYQYDDL
GEPKNQYSPLKPFTKDRRGTYFTAMDLKDTRVLNYYY S $\square$ GPNPDKTKWVYTPTKMQD LAS LGYEYDDL

PDNHFAAANMNPFTPMRN $\square$ DG $\square$ SNK YTDN $L$ YEYA
GTFA RPVPPNT $\square D D$
GTFA RPVPPNT $\square$ DD
E EKAKAGLPLYPFR
SSNFPLRPFVDNASALAYDESREYRYTTDG

P $\square$ GHNRRFNMV
$D \square Q R P T D A N A T T W F G S V P A E L V D T T R \square Y T Y D$

SGF $\square \mathrm{DMNGKQKPF}$

A P WVEFDSELRPFRHPAPKHTFKTEAGYVYDQL


 B B
В В В В В



[^0]:    HQTWGGDTGYCTHSSVLFPTWHRPYMADYRQRYQDAARRF

