QUERY
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RALARFPAVHGERTVFVAHGNLWSVGRQGGLARRLTSDP GYYRYPTIAQHHVVFVSEDDLWTVDQDGGVARRLTAGW LLRFPDIHGDKVVFTHGGDLWSAPAAGGTAMRETAHP LSPT GQRAVFEFRGEIITVPKEKGDARNITNTS LLQQPDTSANHLAFVYGGDI WLTDRNGQNPRQLTSHP GYYMQPALHGETVVFVSEGDLWKVPGSGGKATRTTHHH YLRNPNVSGERALFEYRGELFTVPKKNGTWRNLTNSS LRSPDGGTKLAFASSRDVYVMDAQGSEPVRLTTNS

L<br>L PTWNGTLYRSE

HPMFANGRVYFLSDR AYP LQPN GWGTSPT
QPGUSPD
ALSPP GKRAVVEAR ALLSPPDN GKEIAFVENND

SPD
NGKEV1
$H K E H V$
AFVEHG
AFVYSG
AF VASE
N
$\qquad$ RLDP HLS GS LI ALR

SPNLGTDRIAFTYGSDVWTAEMDGKDVRRITSTA
 PSP GDElAF

PMWWNGRПYFGTDRDLWSMAPDGTDGKQV PHLLQRPALTQTQIVFNYAGDLWTVDRKGGKATRLKNE WHPD GERLLFASGR

SPD
$\qquad$ GKQLAYDTKSDILIYDVASNKVEN LLRTPSVSAQHI AFAYANNVWVVERAGGNARRLTSFQ LSDDPSGTKLEYGYEDDLWLCDDSGERTKKLTTFR SPD GKEI AFVKDRRIADYNVESGKVRRH
$\qquad$ LLRYPTLSRTQI A EGYYRNPTVGKKSIVFTADDDLWRVPGKGGKAERLTAGT PSWLRYPSISGKTVVFTYKGDLWKVSPEGGKAERLAGT
 PSPDGKTLAFSARGEI WLLHTDAKKAERLTEGG
ALSPD GKLLAYGMASEIWRYDLKKKTATRLSEGG REFAVSPD Y LRQPS LS NGKElAYVVRG
YADSPD LPGYYRAPALS GRyVA RDL $V$
L
W
W PKWLRYPSYSGKTVVFTYRGDLWKVPAAGGSAVPLT

R N TA T S P D
MRYPAUSPD

GKVIAFTYKGED WRYKVGSKEAQQLTSHE GSLIJAFTFKGDLETVVSSTGGOAKQQTSNP GKETAFCYKGDLYKVPVQGGAAVQLTTHP GKEDAFCYKGDIYKVPVQGGAAVQLTMD

## QUERY

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UniRef90_UPI0003B7BB2C UniRef90_A0A031GYH4 UniRef90-E6XDE8 UniRef90-A0A023D134 UniRef90_UPI0002F9D53E UniRef90_UPIO003FD4292 UniRef90-M7XAX6
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UniRef90-UPI00036F6D01 UniRef90-T1B8B6 UniRef90-K2EWE9 UniRef90-F4KQ85 UniRef90-R7EJD3 UniRef90_Q020G3 UniRef90-H8KKX3 UniRef90-R5N9B3 UniRef90_UPI0004074F62 UniRef90_UPI00047AE792 UniRef90_UPIO0047719EE UniRef90-UPI00035F0578 UniRef90-DOMEG1 UniRef90-B1KPQ1 UniRef90_F8EBB8 UniRef90-A3XLD5
UniRef90 E6SRX6 UniRef90_UPI0003811676 UniRef90-R6VTR7 UniRef90_UPI00047DA7D0 UniRef90_UPIO0037977A8 UniRef90-15CA04 UniRef90_UPI0004785FA8 UniRef90_Q085Y2 UniRef90_UPI000475FEF4 UniRef9O_A3HSE8 UniRef90-A1ZR41 UniRef90-J9GRY4 UniRef90-F2IH76 UniRef90-R6U3V0

D FDVMWPSGRNGKLVYENGGYDHVLD LIAS GSS
D Y D $\square F P S H H$
GQTIVF
AADRFPAWSPDGQKI AW
$\begin{array}{lll}D & Y & R R D K W S P D S K K M L Y T \\ G F E D F P R Y S Y D G K Y U A F T G E\end{array}$




 ASEFAPKFSPDGNWLAFS A SYDNNTDVYVMPATGGPA GEEFSPKDSPDGK FVAYAASYEGPTEVYIDPDDGGDP GVDRSPDWSPNGDK VAWFSDASGEYQMVI ADQNGANQ TKVGHPRFSPDGRHDAYTSWRT LVPEIHLADVDGGPG T DEMPMVWRGNEHVLFSASWMPSAPGENQVYEVSIKGGRP
 AYDAYPVWSPDGQNIAFSSSREGSL
 VAVSAPRDSPDGATVAAWTSTR DGAPEVHVAPVDGGPA
 VFDVESASLSDGHIVYASGADLWN GRNSHPVISPDGSTIAF KGSDEGPTEIYTMDDNGGPA
 ENDQYFQWSPDSKWLLFDYAVVGS AVGEVGLASVDGKK I

Y YRDLR TKVGHPRFSPDGRHIVAYTSWRS

A VESDPHFSPDGKWLAFSSNQ GLNYCPMWTPDSGLI YFVSDRDGC MPVDHPRFSPDGARI A WTSTR EQERDVDFSPDGRSLVVYASER
$A K E L D P M W S Q D G K A I V Y V S D R N K$ GNDMHPQWA GNTLFFISERD
AHDFMPVWSHDGKSLAFASDR TRVSHPRFSPDGTRI AYTTWRTFD F D $\quad \underset{P}{ }$ I H L A APVAGGPA GIS SDSGNDNIWSMTLAGKDF GEDREPVWAPDGKSFYY LSE ENGTFNVYQRTPGATSA
 SPDGKQLAYDTKDTEGYPFKRYRGGLTS DI LIYNTDSQEVV

 GEDRNPVWAADGQNFYYDSEQSGSFN IVKSGLNVSTP ADERSPHISPDGTMVAFT A A D
DMLTMFTWSPDSK WI ALLELEVDN
AHDF M P VVWSRD GK T I AF A A S D R
SYECTPI WSPDGKQI AFASDR

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A
G E L W PM WS A
SNDS QPMWH


 AHDFMPVWSHDSKTIAFASDR1FGNFDIFSIPVNGGEA

 $T H P V R F L S V G D N G T L A Y A Y$
 GWDQVRRDTPDGKSVLTISRRSTYNRHAQLYTVSDEGGQP AHDFMPVWSPDGREIAFASDRIFGNFDVFIMSAAGGPA GHDRWPLWS P D GRFVTWFADLTGEDGKGPVWSVP LDDGRGF GSVK QP MLWNQRVYFVS DQSGN DNI WSMTLD GK D $\square$ AYDTAPVWSPDGQSDAFSSDR EFGTFHVYLASRQGGQA AHDYKPVWSKDGEQLAFASDR YGNFDVFIMSAQGGPA
 SYETHPVWSPDGKQLAFASDRHGSL AEN $\square$ KWNKAGTKMLFWRKHHQS
A YDSNPKWTADGKNIVFTSYR
DGGTSVY/V V D AM G GM M
EN LWVVPRDGGVA D GAPEVHVAPVEGGPA D GLDWQ Y Y Q A S L V K E D E ESYNL HHEN N T D DIV Y V L M P D A K G G Q P TYDGNTDVVVMMPAKS GKL TNEGHGEVYLMPSEGGEA FGNFDLABIPAEGGEA YGNFDVFVMPADGGTA $Y D G N V D V F T V P V A G G V P$
$S W D V Y K T S D Q R K D E A Y F$ GQNL D D PKN UniRef90_UPI00030ADDA5

QUERY
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UniRef90-W5X207
UniRet90_UPIOOO37E601B UniRef90-WORTB4 UniRef90-M7XH94 UniRef90-UPIO0047888F1 UniRef90-F5IXX5 UniRef90-A3UJ31 UniRee90-UPIO0036F6D01 UniRef90-T1B8B6 UniRef90-K2EWE9 UniRef90-F4KO85 UniRef90-R7EJD3 UniRef90_OO20G3 UniRef90-H8KKХ3 UniRet90_D2QS96 UniRet90_R5N9B3 UniRef90-UPI0004074F62 UniRef90 UPIOOOOMAEF92 UniRet90_UPIOOOO47719EE UniRef90 UPIOOO35F0578 UniRef90-DOMEG1 UniRef90-B1KPQ1 UniRef90-A3XLD5 UniRef90-E6SRX6 UniRef90-UPI0003811676 UniRet90_R6VTR7 UniRef90-UP IOOO47DA7DO UniRef90-UPI00037977A8 UniRef90-15CA04 UniRef90_UPIOO04785FA8 UniRef90-Q085Y2 UniRet90-UPIOOO475FEF4 UniRe990 A3HSE8 UniRef90_A1ZR41
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90
KRTTYFSGK ${ }^{90}$ TGRRMFTDV ${ }^{100}$ GFDPDGN ${ }^{110}$ TISDAMQPFS ${ }^{120}$
KRTTYFSGK ${ }^{90}$ TGRRMFTDV ${ }^{100}$ GFDPDGN ${ }^{110}$ TISDAMQPFS ${ }^{120}$
120 LRVTYTATNSRDMGPNNIVMTWTPDGSRIVYRNRDSDGFS KQVPVTDNNDMDASGDNNAASLSPNGERLLFSARGESETV VKVTNFTEYDVKFPSVHGNTIVFENGGYIYKMDARKAEKV YNLTNSSDAN DFAGTWSPDGQKIAYDSDKNGEFN RKTTVSTHYDNPNDQPYFRNVKEFIGSYSLSPSGKRAFEA RQVPVTINNDMDFREEDKDVSDNDTGASLSPGGER』LFSA PRAIAIEKPTFFFRPA WSPDGKYIAYTD RTLLQNPEGEFYEVEYSPDGKWITYTK KRLTYDDVSDRMGPNNIVMGWKHDNSS\|VFRSRMRGWNSF HKLTDGVASDLGQTRPRWVKNAKYDRDASIPSGARVAFEY KQ1TFHKKFDVKSLDANHNSVVYEQGGYLHLVNPETGATN
RRLTFHPHMSDRAGPDNLVVTWTPDSRAVVFLSROGWNP RRLTFHPHMSDRAGPDNLVVTWTPDSRALVFLSRRQGWNP RQLTFDPAAGPLPPRGGYDHQWTPDGSSVLFRSDADGVLS RSKPKAAKLPNNSFYFRPEWAPDGKHLLFTDTDYN KRMTYEPSASVPTA ET TKL RRLTYWGSAD TQVCGWSAQGTDLAVASHGEPFSY RMFSTLPMEDTSFAKDGRIYHDYKGYEDPFRKHHQSPDCR KQLTYYNDVGVMPGFDYRVLDWAPDGKNDLVKANRVPYKR NVKADLNWGRPRWNNLTTAGLTNPQLS SNPEGKRAVFES KRLTTNSGSETPMAFKDNNHILFTTEVMPTAKSDYFASGI VKVTNHSEFDWPSAGPDAVVYENGGYLYRFDDASGQTQKL RRLTHW GSDRTQVRGWTPDGQVLAITTYGQSSGR
AQITFHKKYD
RQLTYWGHDSTKVKGFAS GNEVLVTSSFEREESR DPLTLQSDFDQLREHWVKKPTDYLTGVHIAPDGSKAVFTA ERLTYQGTNDHSLAWNPSNGTDCFGTSIRYSSDHHNLKAG KRLTTDGAC FRYSPVWSPNSKFDAFSDKTGA MNITESGFNDYRPKWVMGGKAMLWQSNRDGDRGAAMSGGA
 KQRTYYNDVGPMPGFDYRVLDWTPDGKHDVFRANRTPWKR RQLTHWGSPD TQVCGWTPDGVILAVASHGEPFSH THKIVNDSAAGDFPWMMPQWKDVTARATTGKRAAVEA TRLTWH PSGGAVRGWTPDGKSVLFASSRNSAPVG ERVTSFTWPSTSADGKKLAFERDFGПWIFDLTSGDMAPIP TRLTHWGGYQTSVRG KQFTYATETKEERLTKSSKTSFQPQYSPDGKEVAFQEDRT MLTNFTGGRVLWPSDGYDGRTVVFERDFQLWTATKQATPD FRLTFEEGKPKGEPEQLTQFKDDGVRHFGLDANGKKAVIQ QRITHHSANEFPYEFADNKKVYFGSNR DDAASNRQFPTGS
RRLYWGSTDARVCGWSPDPG DASQULAVSSHRQPFSY KQHTQ $F T D W Q V R G A R D D N G R L V F Q Q G A D D K$
$A D G R L L C Y G Y G E D Y T L T P G G E P R K V$ TQVTRHTKQPVRFDAADGRQCYGYDGEDYTLTPGGEPRKV KKLDVTLESDFEGTRDRWQKDPGSYMNGLDVSADGSALTA KRVYHPSIDVPVA INVTNNTANDGQPAWAGD SQLTNFKDFDVSFSEKDLVFEMGGDLYLMDLAS RNYKKID KRLTWHPSSDVVQG WAPDGKSVVFASPRATWSG VKLTNLEKHPVRFLSSSKQGCFSYDGE YTMNEGQQPQKV QRLTWHPGNDQVTG RRLTYYPGPDVAVG WTPDGKRVLFRSHRYSYSD QRLTY KRLTFHSANEYPYDFSTDDKNDFGSARMDLASNRQYPTGS QRLTTHSTGEDPSTFTPDGKYILFSASDQDPSSALFPTSA KRVTYHPDGD WTLPLGGKPTMDTSFSNGRVLWPSDS DQPVTSFKTNPVRFGADGTLCYTYDGEПYTQSVGGKPEKV RQUTFFKDYD IUHRLVSDAPDAYMPAYGPSDVVLEAGGRLH
 QLTNFDTHPVRFLSMGGGLLSFSYDGELYTMREGEKPKK VRLTDTPEDEREPVVAPDGRHWSPDSRWI AYSGPDLDDF KRVSFE NSRVRVQGWTADGKVLYATDNAFGPAN KRLTFHSANEYPYDFPDDQRपIFGGVRMDIASNRQYPTGS TRLTFHPYPDTARD FTPDGKSVVFASQRTDFNR RRLTTHSGSEMPLAFNDTGHDLFSADVMPSAEADTFPSNG KRVSFE NSRVRDQQWLADGRILYATDSEVGPAN KVVIDTRDDAGQETDFHFTSGASDPAVSPDGKQDAFTV SRLLPLEDDADLPEVRPQUKGGDEVEHVRDSATRAAVEA KRLTHHSTNDFPWTFDPDSDAYFGSGRNDNAKNYRGGTQS YRESSWSPDGTKLAYSDDSWNGYGSGRNDLASSARFPNKG $K Q T D W Q V R D A Q L N N G R D T F Q Q G A D D K L L N L A D A A E S T V A$ RKLTYDNGKTQTPVAFDNETVLYECGYRPTKESGAFPGGS TRLTFHSNDEQPFDFSDNQNVIFGATRMDIAEHRQYPTGS RRLTYHSASETPSAFTPDGKHILFSASUQDPSSADFPSGA TKLTDF
KRLTFHPGHETLQTVLPDGKVLFTANDQQDVTYDGYP

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UniRef90 F4KO85 UniRef90-R7EJD3 UniRef90_OO20G3 UniRef90-H8KKX3 UniRef90-R5N9B3 UniRef90-UPIOOO4074F62 UniRef90-UPIOOO47AE792 UniRef90-UPIOOO47719EE UniRet90 UPIO0035F0578 UniRef90-DOMEG1 UniRef90-B1KPQ1 UniRef90_F8EBB8 UniRef90-A3XLD5 UniRef90-E6SRX6 UniRef90-UPIOOO3811676 UniRet90_R6VTR7 UniRef90-UP IOOO47DA7DO UniRef90-UPIIO0037977A8 UniRef90-15CA04 UniRef90-UP10004785FA8 UniRef90-0085Y2 UniRef90_UPIIOO0475FEF4 UniRef90-A3HSE8 8 UniRef90_A1ZR41
UniRef90 J9GRY4 UniRef90-F21H76 NiRe

130
140
150
160
MTCLYRVENDGTNFVPTNGGPATHTLFADGRRVTGRNTFE GKLFTVEKEGGLSEVIPLPEGGFCSYSPDGKQLAYNMRE STTLTSDNTYARKEMKRVADNLTAASLSPDGHRLVVTARG NITLASDNIYARTDLKEGANYVTAASLSPDGARMVVTSRG DWIRDVFTGKEQDLTQNLKTYIFNDLWSPDSKKIAWND GEDDWSVPADGGGATRLSUHDXQERFPPDGTKIAFTGEYD RGELFSVPAEDGVRITYNHTRTPGVHDRDAEYSPDGKW HLRLWYIDVASGVSKKVDNEPYAHVVRTMNPTW SPDSKW MSVVYVYDIASGKEYPVWYDSSSPAFSRDGKYLIFSSERD $N G Q L Y T V K G D Y P V Q D P L P R G G F C S F S P D D K K L A Y N R D F R E$ RGEUVTIPADKGDVRNLTQTAGAHERTPVTADWSPDGRS RDRAYTVPLAGGLPQPLPVDGTGFLTYGPDGHSIAMTYRD LLFMLYRLPLSGGEPQPMHLGPANNIAFGPNGVVLGRNTAD RTALYTVSFKGGGPQKMPMPTAGPGTFSPDGKRLAYMFRD SNQLYKVSVDGGYPSKLMEAVAFEGELSDDGKKLAYRPNN RLQTVTVHI ETGERQVLPLEMAAEGSFSEDGTQYFFPTFH NFVIWILNLKTKKDTKVAADGYAHPNRTMNPKWSPDSDW FTWAYKVPTDGSPGRKLPWGPVSD $\mathbb{Q}$ VADRKTLLDTGTHE D ПWMMQFKGEDRTPRWADANSYYYTSEEDGTFNVYRRNDD MGQPYLVPVDGGMEKPLPVFKTGGGMLSPDGNKYDYTDRD VGIATDLLEMRP
RGEIFTVPKENGDWKNTTGTADRAPTWSPDGQKIAWFSDE FPQTYEVTTDGSRPRLVSPTTMCDVSINSKGEMLYHDSYE T $\mathrm{D}^{2} V Q G N R E Y T M P Y S K N V A G F T D S M D I S H D G K R V D F S A R G$ REWAHAVPLDGGPSEKLPYGWVGGVAYGPDRQVLTSSGRD RTWAHAVPLDAGPSTQLPYGPVGGVAYGPATVLLSPMGRE GGY甾HLNPTKESTQUDQTFARPRWEDVSARDWDNPQDS HTWAYAVPDDAPPRVLPYGPVDSVSFGPDERPVVLSSRE RGEVFTIPVQNGRTVRVAADRFREARFAPDGKSIVALSTQ DYHLWEVPADGGRPERLPWGRGLKMAEAEDGTVVIHPSRG RVNVSVVADRSDDELQVDKDPRRNWTYGASEIVKVPTGG QSDAYLMFFTQAAMDRFKLTKEELMLV KEMEEQKAKA RAALCVVDVKTKAVRTVMDGKYLYSYSDGDIWFEWSPDS

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 FTWAYKVRPAGDPGRKLPWGPCSDDQQWLDGERKFFRSDR FNRLWTIPATGGPAVQLTHQWGFDGSYSPDGKSIKMSRWD RTWAHAVPLDGGPARRLPHGPVGDVAYGPGGATLATMGRE A ${ }^{2}$ RVMLK SKKVRTVMDKKYQYSYSDGDQWFQWSPDS PVRLRGVAASPAVDRLKLTNQFRELALSPDGKKVAFDAHG $G T K L L L D L E T K K I E P L Q V A L T Q D Y R F D P V E A K T Y S R G M Q$$Q P E L Y Q V A V A G G R V T Q L T T A E E V R L S R D G S K M L Y Q D G G E$ GSWAYSVPTDGSPGGKLPWGPVSDIADDDGERRTLLLTGT NIS VSDRSDKDLIRQIKSSGATEMALSPNGKEVAFVLRG $R G Q V F V A P V E P G R F V E V S R K P G V R Y R \quad G A G G M F S A D G K W$
$F A Q L F E V A P T G G V A K L L P L P L A Y Q G O S A D G K M I A Y S P L A$ FAQLFEVAPTGGVAKLLPDP DAYQGQSADGKMDAYSPGA NTWVYDTKTKTSRQVTKFNDFDTSRLAAGPKDLVFEMGGT EVQVRVVSPTGKRALFQAHGDVFTVPAENGTPQWSPDGKS
$V R V V S D L S V E G P Q L K D V S K S V A N M T V S P D G K V V L D A R G E ~$ APRFWTVPVEGGVENPMPMPRAYQGKLSADGNKVRMPSSW NDQ ATDNQENKLKYDNFSTGAREMAVSPSGKEVAFVIRG SDQLWS APGEGYPRKEMDARFVIGDMSADGRLAYHPTRG DVM VFL NREAYDKYRLNEEEYELMTEEGKKAKEAEKSEE $P D Q L Y T V P V T G G F P Q E L P L P M A E E G S Y S A D G T H L A Y V P Q W$
$R T$
YKLDRKRKAQKIPCGPANFVSYNPQGKVIQRHGHG
 YTQLYTVAAEGGLPDVLPLPLACMGAYSPDGKRMVYAPDD $T V L R V M N L A S K S D R T L L T D D D N Y S Y S D G D Q Y Y T W S P D S$
$D F Q L W K Y D V A S K Q T A P L S V K D R G V A A S P A V D R L K T T N Q F R$ ATSLVRDDEELPVSYTFTRGASEAVVSPDGKQVAFIVRGE RI ELPSEKLVEVKVEVVTRRATLRPREENASKLLRHPTLS SLKVYQLASKKSQTLLSPDELFYMGDGDQYFTWSPDSRWI


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 FRTWKYYKGGMADDI WYNPDRKTVENITTDNPAQDIIDPMWI MA WLSDQSGEYEDWIKAANGEGEADQLTSGGDTYKFNLGW EVFDIPAEKGVTRDI EVFNLPVEKGVTKNI

KQNNDNI TDVATGKTETVETSGDGTFYSYNWS GNADVYVMNQHAGN TRVTYHPGYDEVVGWHPGKNKULFR IMAYCSDATGEYEGYILENKEGATPRQITTHGSAAWKHTAEW MA Y S R L
DN
D NPTYS SVEWNYAYNRMGGVYMALLAKDTPSPFDEKDDKVN VAYFSDESGEYEDHVRAQDGKGAVRKFKLNGSGFYDNAVW PTGKRAVFEHRGDIFTVPKENGTWKNDTKTSGDDRAPVWS FRTWKRYNGGMAQNVFRYDDSHALKQLTDWSGTSTQPMWA $P A R W K R Y R G G T R G Q L W Q D Q D S G H F E R Y E G V N G N F A S P M W C$
$F R H W K R Y Q G G W A Q D L Y V F D A T K Q Q K K V A A S P R T E R D P M W U$
 MAYWRLHRGGSTPPVWDIDEKQQLEKIPMPNANEFNPEWL
NNVTKRYEGGTARQVWAYTSAEAQKLTQNYTGEDHHPTFY $\square A Y A K Q N K N N F K S \| Y A Y Q \square S T K K T \square Q!T D D D A D A D T P V W D$ PAAWKRYRGGATGRLWLHGER LLEGLGGHLHSPMFV GTGKKQLSHHTMNPVRYLSVSNEGTLCYSQNGEIYTSEPQ
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 DAYAKNGDRSRTSADWYNVDTEEKVQVTSGMFNDTSPVED K WLLTTEYWNSQDVALVNASGSGELHNLT QSGYNDGNARWG FRTWKRSRGGRAQDVWVYDEKNTSKQLTTHRATDQQPTWV YTDFPA $\square$ DPKMHKGLII YEHAGT LH I YDTNTGKDTK LS I T PPHEPAAWKRYRGGATGRLWLHGERLLADDGGHDHSPMFV
 $\square F A D F A D K E N E R D P$ RQG $\square$ A YRVSQTAFRDSDVSWSPD AAYWKRYRGGTAGKDWDDRDGEFVRLHQDDDGNDECALWVV KWILS DF WNNKDGVLLKADGKGEMHNLTQSGYNDGRAKWV
EVFA

ASAKDGGDATRI QPNGKYYAFTIRGEIFLSEAHKQTVRLTQHAFYEREPTWN NTWRKHHVSSVARDIWYDTKSGKHTKLTTYEGEDRTPVFN
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VYALSDQSGETEWWKMPANGVGFAEQ TTGSKVLNMGGKD LYYRMDDAT EKYEAVPVNVISDDLSVEMPRAEDVSRNIDSNMT VA YWSDRTGEYQLTIRDADGTGAERTVTHLGPGFRYTPWW LFN NRNYRGGQNKPIVPAKEGFTMNMTQSSGADDHSPAWS
 GSGWRIHRGGSTGTIRILSADRESSTMLESDRNEFYPDWV KDKKSDDKKDDAKGVLVELDNDRWVRLTPASSNLGDAYUT
 NTWRKHHTSSDTRDLWVYDKTQKHTKLTTFNGEDRNPIFN DEWRKHHTSSITRDIWLYDAKGDHTNLTDRAGEDRNPVLS
 ELALSPFVAHGEVFAASTKDGGDATRISTSAANESQPVWT VFVTSVEYGTTKQITHTPEAERGVSFGADNRSLVYSSERG AQGKRALFEARGEVFSVPAEKGYVIDDLTRTPGAAERYSPD $\square A E Y R P V M H N G E V V L L A A D G S Q K M R N L T Q S G Y A D F S P K W V$
$P W W R R G Q H P S G H S D I V W V V S E A D D H R R L T Q Y L G K N L G P M W N$ VFVTSTDGKFTKRITNTPYQERFVTFTADGKSVVYSSERD

 FNQWKHYRGGTQTRIY YYDTATQEVVEDPKPANDAQPEF $\square$ DYWRKHQVSPDARDVWMYTKNPAYRQLTTFGGEDREPVWA DGKWDLYRATVVRDEEKGFPNREERLLPESKGERTCPQFS SGKLYALYVATQTGNAVAGTAPAKKFELAKEPTYYFDPMWS
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DPLRKHHKSPVARDI WMWTNTGKFAKI TAFEGEDRNADWD NEWRKHHESGIARDI WYDAEEGSHSMLTDYYGEDRNPVFS E $\square \mathrm{FAASD} \mathrm{A}$ GGTTKRITNTPEQERNDSFSPDG
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## 




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GDR IA FLDSDHE GVGNL YSCAQDGSDLRRHTDHDAFYARHA

 P D N K Y $\quad$ I A F F V

 E GR A T T $N Y$ N GK S L VYAS ERRG HK G DYLYF V V S R GKAMIFQSDR ND S YYFVSDRDYTLNWYKYR EGKKPVKMTDHKEFDVLWP $\square T$ T DLLEELRED FR GEVVVT LPPAEKGDTVNMTQTPGVVHFPA W

 S R S L V Y V S D R H G DE EVVYRYDFP GR S ETRRLTYGPK R S APC F GDR IVAFLSDHE GVGALYSSLPDGSDLRRHSPVDGFYARHA LGGKAMMWSSD
PNSRVYVSTRDGAANLYQYNFATRDEVRLTNDGDDGSP円F


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 GK WS DYKA EKVRE E E PFFYA AT LIDEE QA L E N NEDNYMPT Y




 S G DN Y I R S A G D Y R GEVVITVVPA E K G DV E N I S Q T P G V H E P Q W
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UniRef90_UPI0003B39622 UniRef90-K1S1F1 UniRef90-A4SFB7 UniRef90-A0Aо23BUP1 UniRef90-AOLY49 UniRef90-X0RN53 UniRef90-B4SDA5
UniRef90-Q39PS9 UniRef90-A2U1R6 UniRef90-WORNZ5 UniRef90-U1KUY1 UniRef90-UPIO004175F00 UniRef90-UPIO0037BAF4D UniRef90 UPIOOO3732341 UniRef90-A1BET3 UniRef90-x1DGP8 UniRef90-Q02D26 UniRef90-B8FBT3 UniRef90-TOISX3 UniRef90_UPIO004749F66 UniRef90—UPIO00360B3FB

SYESTPTWSNDGKKIIAFASDR AHDYKAVWSKDGKQLAFASDR VYSETP ${ }^{\circ} \mathrm{WSPDSQS} \mathrm{\| AFTADR}$ GNDHNPVW DGKDNYVYLSERGT AAATDPVWSDKGDTLFYLSERSDDFN
 AASATPRRHE SQLQSFSRGAVSGD

 GEETGPRWSPDGKW:AFSATQ SQESNTNWSPDGVYYAYA AYDREPDWSQDGLCLAFTSNR


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QKGYPSWSPDKKRVESSO
AWEVQPRFSPDGTKKIAFTSD
A WQMQPRFSPDGKY
FRLNSPAWSPDGQRKHFTASR

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 QSE CAVWSPSGSKIVYKHSDNSDLPEDVIIMNPDGSNK AYETHPRYSPDGTKILFTSDRAGSDNLWYIDMDKKDTVQ\| FRLLNPSWSPDGRKKHFTTGR SLGTGEVWVYHVSGGGG
 KELGEPDFAPDGKSVYYTRFEYAQDSNRDLFHIERYS品ED VRELYPQWSRDGKKIVFT TWDDDQQGSVRVINARGGRS SRELLPAWSRDGSRIVFATWDDEDLGA IRTVSASGRGE FRLLNPTWSPDGRKKHFTTGR SGGTGEVWLYHVSGGGG FRLNSPAWSPDSQYLVARKHFTGSLGAGEVWMFHVAGGEG GGAVRPTPSPDGSAI AFVRR DKDNSQLWIKEFASGEE A WQMQPTYSPDGQYI AFTSDENGGDN IVVMAADGSNP ETQAQPVWSPDGEWLAFVTWTPETGKVYKVRPNGRRGQQM DFEFEPDFSPDGKHIIYVTWNDSELGS IKRVSLSGGSP LDEYMPAFSPDGQSIAFVTERTSDPSRAAIYLMDVTGRNQ
 KELGEPDFAPDGKHVYYTRNVTPGP IFEYAQDSNTDGFHT NYEYQPSFSADGGKLLYT TVWSDEALSADYVTGAGGGGS STSAYDNWTPDGGSVLFLSHRNGARDAYDWSFRNLGGDRW QDVGEPWASPDGKYVYYSFFQYNKDPNSQTYRYNLENGKD DADTSPCIISPDGSRMAFVSDR GGNPQIYVMGIDGGDA GQEYTPTWHPDGRSLAYVGDEVAADGTTRTLVPAPDGPDG YYEDDPAWSRDGRLLAYASDKGGSE AD YVRDRASGKE GNDGYVAWSPDGKH, ASYGYYDGGNTWS: HTMN: DGTNR


LGDIDPRFARDGRSVFV RGVNEVTKDTYRVPLEGGEP GDVNEPSVSPDGRYLYYSEFQYNKDPNKQIYVIKRYDFQT KVEQRVAFSHDUGNEQFTAKMURDDGQTQVFHAVGRLWRK SYECSPIWSPDSKQTAFASDRN SLALTPVLSPDGQHLAYTDY
$K H N F F S A W T T D G E Y V V G G K G R$

 NQDYMPAWSADGKKLAYTSYRNNRAGLY ILNDFEGEDT SDDSPAFSPDGSKMAFVSSRN GLPQ FLQDDQSGQV SINLNPDFSPSGKEVIFTSYRQ GGNPDLFRRELFTGAE DQDRFPDPSPDGSRI AFASQVSGTH WELWVMDADGRGA
a
AFEFEPAFSPDGKSLVYVEW DDE YYKTDPAWSHDGRRLAYAS
GVETNPVFSPDGSSIAFTGE
TALGSPRWSPDGQTVVFDRY
KDALSPAWSGDGTHMAYVSYR NDARQPVWAPDGSHLLYFAYR GRYF SPRWSADGRRLAYVAT GEGGAPQLYVRWMASGET


UniRef90 UPIO004686257 UniRef90-UPIOOO45E7DO4 UniRef90_UPIOOO319EAEF UniRef90-C3NYG6
UniRef90 ${ }^{-}$R7IZK1
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UniRef90 R5RVX5
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UniRef90 S8FFQ6
UniRef90-A8UGR6
UniRef90-S0EZM8
UniRef90_Z9JSJo UniRef90-UPIO003B51F01 UniRef90-UPIO00415A969 UniRef90-UPIo0047BCDFA UniRet90-A3WIQ8 UniRef90 U4KGQ8 UniRef90-F3NZ20 UniRef90-UPI000348689A UniRef90_B4R7X0 UniRef90-UPIO003B673B9 UniRef90-UPIo003718DBC UniRef90-A3WGV2 UniRef90-UPIO00361EC48 UniRef90-UPI00035C27D3 UniRef90-X0XMS2 UniRef90-I1DU95 UniRef90_UPIO003686EE7 UniRef90-UЗВЗА9 UniRef90-K2AGZ2 UniRef90_UPIO0036B9FC9 UniRef90_UPI00035F1B20 UniRef90-D7EBW7 UniRef90-A3HV30 UniRef90-D5VDT9
UniRef90 LTUOP6 UniRef90-E3FKF4 UniRef90_Q1GU57 UniRef90-A3Q8T8 UniRef90-W2UK28 UniRef90_UPIO003ABOF91 UniRef90 UPIO003B6C183 UniReffo-_08A43 UniRef90-Q2N7K8 UniRef90-UPIOOO4726A14 UniRef90_UPIo00371645B UniRef90-Q8KEQ0 UniRef90-UPI00047CB869 UniRef90-UPIOOO3B57986 UniRef90_UPIO003771743 UniRef90-U2ZAL7 UniRef90_N9W173 UniRef90-A0A021 W9Fo UniRef90-UPIO00369D84C UniRef90-UPI00047C3C2C UniRef90-UPIOOO47C0D04 UniRef90-UPIo00380A243 UniRef90-A0KR45 UniRef90-11D210
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UniRef90_UPI0003B39622 UniRef90-K1S1F1 UniRef90-A4SFB7 UniRef90-A0Aо23BUP1 UniRef90-AOLY49 UniRef90-XORN53 UniRef90 - B4SDA5
UniRef90 Q39PS9 UniRef90-A2U1R6 UniRet90-WorNZ5 UniRef90-U1KUY1 UniRef90-UPIO004175F00 UniRef90-UPIO0037BAF4D UniRef90-UPIO003732341
UniRef90 A1BET3 UniRef90-A1BET3 UniRef90-Q02D26 UniRef90-B8FBT3 UniRef90-ToISX3 UniRef90-W0A486 UniRef90_UPIO004749F66

90
100
110
120
KKILIS QNSANELDPSTFSKDDNYTYFTASLLQDPASALFPTSS

 V QVTAFTRRHPVRSLSRATDGTLAFS W

 K R LT F H P G HE T L R A VLP D GK I F S A N DQQDVVT F DGF P G

 TNIT NNPNDDLEPA WSPDGQKIAFSSFRD K QLTFHDTADDVDSWS WDSKQ THFTSSRYNRYTG ERMVAA GNGDNLLYGTGDNSFAWSPDSKWLAFSRMDREYG VR LTVTG T N R N K QLT Y H S GEDVAATSFTQDGQWVVFRSNRDSMCS
 HYQGHPVRGLSASRSGD $\begin{array}{r}L V W S W \\ A\end{array}$
T Q TT F DT HPVRHLTVDDSDNLAFSYNGEDYTLKNGESDTR R R L T WL G A A RNLVVVG WQDDEHVVFTSPHQSNDDG D T LT S QP GKYVEPAFSPDGETVV VFRKSS GSSLLDAPQWS $R$ QV T K E E F R L L NQPA WSP D GRFIAAAKKHF TTGRS LGT G

 KA V T T E T F RLLLNSPAWSPDGNY LVGGRKHY TGSRSGGAG
 EVVLDGAGGADRPTPSPDGKY LAYDRRVDFQSTYDLQNGE
 Y SVVNA Q G GREHLE LGNSVSSFDSAHNAQGFLVYTNPS DEQ KQLTFSTQSNC SSTYPKWSPDGSKIVYESNKSGNFE
 E T I LT GQK

 $R P V T Q E S F R L L N S P T W S P D S Q Y L V A R K H F$ GSISTVAS GNGGAVRPTPS PDGKRLAFVRREGA
 RLVTDNPGHYRRPAFSPDGNTIVFEKGEGGYLTAPEWSEG

 RMLYA D LID RDVVQETWAVTGVVY PNMDWTS D SRSVVVFWS
 R R LT Y S G ITN TQPS S WSPNGDK L Y S SMQKS E ELTTRKGIYRNPSYSNNGKMIVFSKESGNSDQGQTFTK




 RRIUSY R Q G GNSYDPAWSPD GKMIAYVVEQRGE

 KRLTY AKNKWDSAPAWSPDGKKVVFARADKEGVW TII T TEKK GYY TP HFSNKS DK VVYTKGVGNTMLGYTGGT

$V R L T A D N R K L N G L A$
WS P D GSRLLFTSTRS

A LP P GTPPQPLTSSPDRFAYDPAFSPD GQQUVVYT TWDDDA A R G $R$ RLT T H S A S E DP S T F T T DGNY DLFSAS I QDPASALFP T S A RSV A ARSGNS IDP GWRSNAEVATTMS F G G G
 $E V V$ S KGTNFAPTHSPDGKKLAFCSTLEEGGG



 ETLLKNSGVIVRRPVFAPNGKMLAB QDQEDSKCMGGFGN

 RRVTSEEFRDIVRPSYSHDGAW IVYFASNRSSMS
 RKVT Q GAYDDREPVYSDRMPTWSPDGQRDAYAGADGAS



UniRef90 UPI00045E7D0 UniRef90_UPI00045E7D04
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UniRef90 A3Q8T8 UniRef90_W2UK28 UniRef90_UPI0003AB0F91 UniRef90-UPI0003B6C183 UniRef90_Q08A43 UniRef90_Q2N7K8 UniRef90-UPI0004726A14 UniRef90_UPI000371645B UniRef90_Q8KEQ0 UniRef90_UPI00047CB869 UniRef90_UPI0003B57986 UniRef90_UPIO003771743 UniRef90-U2ZAL7 UniRef90_N9W173 UniRef90_A0A021W9F0 UniRef90_UPI000369D84C UniRef90_UPI00047C3C2C UniRef90-UPI00047C0D04 UniRef90_UPIO00380A243 UniRef90_A0KR45 UniRef90_I1D2l0 UniRef90_UPI000381F1AC UniRef90_A0A023C047 UniRef90_R9GSZ5 UniRef90_A1S1l4 UniRef90-H2BWD9 UniRef90_UPIO004656C14 UniRef90_UPIO004678F42 UniRef90_A9E6G3 UniRef90_UPI0003B39622 UniRef90_K1S1F1 UniRef90_A4SFB7 UniRef90_A0A023BUP1 UniRef90_A0LY49 UniRef90_X0RN53 UniRef90_B4SDA5
UniRef90 Q39PS9 UniRef90_A2U1R6 UniRef90-W0RNZ5 UniRef90-U1KUY1 UniRef90_UPIO004175F00 UniRef90_UPI00037BAF4D UniRef90_A1BET3 UniRef90_X1DGP8 UniRef90_Q02D26 UniRef90_B8FBT3 UniRef90-TOISX3 UniRef90_W0A486 UniRef90_UPI0004749F66 UniRef90-UPI000360B3FB

140
150
150
160
LTELYKVPVNGGRTVQLIATPAEMANLSSDGNSLIYQDGFE QPELYQVPVTGGRVDQUWTPAEYVQNNADGSKMIYHDGGE RA WAYRVPVDGPDGPPAGRPDSSCPGEQRGERRTLLLTGT
MA QLY SVVAA NGEIYTMAVGAPTPTKMEI SIAADDYAGAPNKSTRSNGAT LGELYRLDAGSSEPRKLTLTPQVASAPDEASEALTLADVS $L T V V R A V G L D G T V E T P R Y G A A W G E H Q G P D G G R T V S A G Y R T$
$E A Q L Y Y T D T E G S R P V R I T S L D I S E I D I D N K K G D L Y W K G Y E ~$

 NSE IYVMNVDGTNQTRLTNNPDSKPTWSPDGQKDAFSSNR YTVA I DGATPKRLFEHYFNNVHN DMEHPKTDWESKN
 WEVLSVMSDGKRTESRFMDGFDAAVSPDGSKVAFVRGTN QGDI WTMSTSGTHPNRLHEGYESSPKWSKDGKTIAFSSDR $K D N I H H F T P E P S Q F \| Y T N K T T R F A P S E Y D P G E F L L N S Y G D$
$L T W$ LAGI YAVDSDGDEQPELITEHGYQPQFGKANDRIVVMSPW EVWLYHVSGGGGPNEQHQKE LGEPDFAPDGKSIYFTRNDT EI WLYHVSGGGGPSEQWQKELGEPVYAPDGDAIYYTKNVT SLEIYVMDVDGGNPRRLTKNHHPPSWSPDGKRIAFSSSRD E WMYHVSGGGGADEALLQKELGEPVFSPDGEA YYTRNTT EVWMYHKSGGNGVMLTKRPNEQKPAFSHDGKYVYFSQDAT IKRFERKSGKDEELI SGAGGADRPTPSPDGKYLAY DRRVD NGQLYLASVEGGTPEQLPLPRGGFCSFSANDKMMAYNRRE $H \square K L Y D L D R D M Q E T W A I H G V Y P T L A W T P D N K A L L F W S G G E$
 EWRKHQTSASARDI WLYKGGKHLQQTYYKGEDRDAHWS
WVANFTGTASRILTFNNASSRTPCWSPDGLRRDAFTSN LYRVYLDP EPETYTARERTTYYRDARRAAGAREPVPAK $L V W L Y H K A G G K G V Q D T K R A D D Q K P M F S P D G R Y V Y F S H D A T$
$N Q G I R I I N A D G S G L T E T S Q G Y F R P Q T Q P W Q S Q I W S P D G S K$ DTK L WMYHKDGGGGIQQNENPTRDPFVSPDGKKVYFSQRS
 TPRAV
 RSKLYVKDLASGAETKLYDADDQDVQETWAVTGVYPNMAW
 S G GVYRVPAGGGEIVRVVKSGGEPHFGARGDRIVVMTVGE YAQNSRTDLFDDERYDIDTGEVTTAVSGVGGSVRPTPSRD
 EVWLYHVAGGKGERPNEQKDLGEPAYSPDGRYDYFSQDAT
 E PGVYIMTSEGKDEKRLVNSGLFPDFNADDTR
T L E Y Y V I NTDGTNKTQLTT HNNVDDGHPTWSPNGK ENEIYA H YDGRNKKQLT HNDVDDGHPTWAPNGKQ EMWLYHRSGSGSERRTQQKDSGEPVFSPDGRYLYFSDDAT L Y KVYDVLDQDVQETWAVTGVYPNMAWTPDSGEILDF WAGG DRGIYVMNADGSRPVRVATSGESPQFSADGSR
$\square L M A R N L E T G D E K W L A Y P V Q R D E Q E S D A P L G D L P A M S F$ $L N\|W S D D L D S R A V R Q I T H F M D Y D\| D M P P G G \| A F Q E G G R V$ WP I YD QL SKD HQEAWAI F GPYTGFNFTPDEKHIVIDWAQGK GF F $\square Y$ V M D A D GAN P R R LTY G N N E S P T W S P D S R H V M F C S T R DGALLRTRDLEAGTTRDVPFEATBELPRVDYRRKEHDFDDR


 FKELYY IMD DD GANVQRLTADRS TSAMPRWSRDGALLDA Y S S MYALWSSDADGGDLRRLMLG K SVLY L H DLLQT GEEWPLY DALD K D QQEA WA DF GVYPN F S W $G \square H L M N A D G S N A R E L S Q R P G Y Y Y N P Q F S P D G S K V V Y R R A T$ $M T E L Y K V P V T G G R T E Q V L G T P A E M V C F D K S G K T F L Y Q D R E$ DQEIVYLVRPDGSLARRVTNSRGDPSFSPDGNKMAFVSSRT
 NPEDYVATSEGKKIKRLTFNKAD DTAPSWS PT SR

 VYVVRADGSGAERLTRSPGDDRDPSWSPDGSRIVLSSTR
 $A G E D W M Y H K S$ G GK G $I Q Q Q Q D V G E P W A S P D$ G K Y V Y Y Y S E DV Y

 R LLE WKV P P G G GKP QQQ THNFGTEPPESPD GRLL Y




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UniRef90_UPI000361EC48 UniRef90-UPI00035C27D3 UniRef90- X0XMS2 UniRef90-I1DU95 UniRef90_UPI0003686EE7 UniRef90_ ЧЗВЗА9 UniRef90-K2AGZ2 UniRef90_UPI00036B9FC9 UniRef90_UPI00035F1B20 UniRef90-D7EBW7 UniRef90_A3HV30 UniRef90-D5VDT9 UniRef90_L7U0P6 UniRef90-E3FKF4 UniRef90-Q1GU57 UniRef90-A3Q8T8 UniRef90-W2UK28 UniRef90_UPI0003AB0F91 UniRef90-UPIO003B6CC183 UniRef90_Q08A43 UniRef90-Q2N7K8 UniRef90_UPIO004726A14 UniRef90_UPIO00371645B UniRef90-Q8KEQ0 UniRef90_UPI00047CB869 UniRef90-UPIO003B57986 UniRef90_UPI0003771743 UniRef90-U2ZAL7 UniRef90-N9W173 UniRef90_A0A021W9F0 UniRef90_UPI000369D84C UniRef90_UPI00047C3C2C UniRef90_UPIO0047C0D04 UniRef90-UPIO00380A243 UniRef90-A0KR45 UniRef90-11D210 UniRef90_UPI000381F1AC UniRef90-A0A023C047 UniRef90-R9GSZ5 UniRef90-A1S114 UniRef90_H2BWD9 UniRef90_UPI0004656C14 UniRef90-UPI0004678F42 UniRef90_A9E6G3
UniRef90_UPI0003B39622 UniRef90_K1S1F1 UniRef90_A4SFB7 UniRef90_A0A023BUP1 UniRef90-A0LY49 UniRef90-XORN53 UniRef90-B4SDA5 UniRef90_Q39PS9 UniRef90-A2U1RR6 UniRef90_WORNZ5
UniRef90_U1KUY1 UniRef90_UPI0004175F00 UniRef90-UPIO0037BAF4D UniRef90_UPI0003732341 UniRef90-A1BET3 UniRef90-X1DGP8 UniRef90-Q02D26 UniRef90-B8FBT3 UniRef90-TOISX3 UniRef90-W0A486 UniRef90_UPI0004749F66 UniRef90_UPI000360B3FB
 NEWRKHHESGIARDDWMYDANDTHQMLTTFYGEDRNPVFS
 N NGSEVAFVMRGDI YVTSVKYATTRRITTDPGQERCLSFS


 DIWRKHADSPVTKDIWHCSKEGKYTKLTTFGGEDRNAVWD NGP $\square E \square Y$ VMNANGSNQTNITNNPDGDFEPAWS FTHRKRYKGDYNPDISYNPKNK $\quad$ YKKEYTDYNGKDMWVTDD GTEPKQPPNAPVQVKDDFDGDTDRAQLDQTPTPVDDYAIT
$P A A W K H Y Q G G T A P K L W Q H A A R R W E P L L D E I L D A G T R V A W Y ~$ NWWRRGYQGSNSAKI WIKFSDKKALCIVEDSSNCFWPDWN
 E EGKEDVVVVMEGNLGAVDPERERVRRLTRDPGEQSSPLYA $V Y A Y N A E T S E V K A L T K T I E E E K H V N F T P D G Y G A V Y S A L R D$
$C S R W K R Y R G G T A A Q I W L R P A G A D N F L R L L R D G N D D Y V G W I I$
 PGPI FEYAQDSNTDLFNTERYELATGETPGGSVRPTPSPD SGPIFEYAQDSNTDLFDULRYDLESGETTGGSVRPQPSPD GNAE
PGNQF $\square$ YAQDSQTGIFA PGKTFHYSKDSEKGIYKIKETGEITGEVTGGAVRPTPSPD

 GGIREIYVMDKDGKNQKRLTNSQKGKFFPAWS D S VMYYSFNVWRKEINDPTAKPEQQTFFDTAPGRSDSVSN $\square$ I GYHELYIMNSDGTNMKQ ITNNKA GCLLNPSWS APEERTEAAADERELDLDGAWRRVKRVTAHPGHQFEMTPG
 GS WN YNALLPQYQ GTYDFDKGELNTITSRYGSAFTPTLS RTKSKLYVDQDVQETWAVTGVYPNMAWTPDGATVVFWAGG
 TPDSRDVLFWAGGKLRRVGAGGGEARVIPHPAVEVAPDSF
 DDKRQLDSTDLNGEARRVHASGVLNYRVSPAGDYVIFREN $K R \square A F V R R D N N D S K D W V K E D A S G V E R D V Y G P G D R D V Q E T W$ FQSTLYTLDLKSGEETKLYDKLDRDMQETWACMHGVYQEMS PGKTFHYSKDSVKG $\square Y K \square K R Y D T Q S G E D D G G A \square R P T P S P D$ DR $\square Y \square S S W G G L V S I R W D G T D E K E H D E V T R S G G G R W \square R M A P$ GR RRLYVMNADGSNQRPLLNMQGEQQQPSW ${ }^{1} \mathrm{DFF}$ Q $\square A F T S M V E N D Y Q \square F S V N P T G G T A K Q \square T F S D A S H Y H P T F T$ $\square A F T G M V D D U Y H Q F S V N A D G G T V Q R Q T Y E N T G S H Y H P T F S$
$P G G T E E Y S K D P N G Q I V V I Q E T G E V E P Y V T G P G G A I R P T P S$ KLRRVAAGGGDAR\I P FQUDDDRVIIDDATHPGEVAPDSF

TPDSKHLVASYGGK IY K L P $\square A G G D A L N D P F R D E E D L V V G P$ HLIDDPPSETVHDVQITTSEPT IDRPRVVSGQD\ASTPDFA IKKIDVNSLEVKDIPFSATAEHKLVNALRFKNDPSPETFN NGRWELW
DFQSSLYKSGETTKLYGDLERDMQETWADHGVYPTMAWTQ SRHRRQVAFVALNDLWLMPIDGKPRRLTHDQFAESNPVFS

 GFQSTLYSLDLASKLYGELDRDMQETWA $D H G V Y P T M A W D K$ KT LVTFHA IGYL WKK NYGPNGKPDRQETKGADHGEYEPAMSSNG A $\square$ AF E QWNHRSRDRQIDDLARPEAAPSPAQSTRWDSQPAWS $M P N N N E D V F W A D G K I Q K I N D T S L Q V T N D P F K V N F N T P V S P$ GNNMLGFVYGVAPGLYWMDVATGTRHFIREAGRTPQFSAD DEWRKHHTSS TRDVWYDSENGKHTNLTAHAGEDRNPVFA
 F QYNKDPNKQDYVIKRYNFETGETDTVAGGPGGAARPSPD E $\square$ AFTSDRGGTPQIY DMDAEGSN DRRISFGGSYHDAPAWS SGKQKDYTMDSKG
 LSSIRWDGTDEKKIVSIHKDNVDFGHVDDDVSEERNNASR GNAE I YVMNADGSGGTRLTTNAAQDAEPTWS WQYNKNADDTVFEVRSWDLATGEEEVVDRGAGGADRPTPS PGGFFQYNKDPNSQIYYNLENGK DERVTGGPGGAIRPVIS TQLISVNLQGYEPRVHALMQSADHSDLTLSPNAKWLGFKE
 FYAWKRYRGGMATPI W

Y M NDQGLWSMPVEGGEPTLVLPEAVMYRYALA
G S $P Q U Y I M E L D T G Q T S R V T F D G K Y N S A P A F S$ DASGSHLVID DKIVSGTENVFPFRISWGSGGRYHYVSD



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$S P N G K Q L A F V V D G Q I H L L D L A S N K Q R E L V P A S F N P A R$ SPDGKKI AFVRGTNIWI YDTETGEYEQLTDFDGNDFMPQW

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TPDSRS IVFWAGGKIVRIDADGGNAAVIPVNDSRS


S P DNKWILFSNLHKAYVAPFATGQPVDL


S S D GK QIV V VR WGEIVHTIAA G G GASR KV T SVP GHYAEPR
S P D GK WV A F T E L F N A Y VAP L M T
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S P D G K A L
L SK D GK HL VYENMGA $\square$ QR LDD LT SNKP QK LT
S P DGSKVAFEALGKDWLKTLPDGKMTRLTENDDEEDYPQW SPDGRKLAFQQDGATYVLDLRTGKVRQVVSSLFGPGRPSW S G D S R T L L Y L H N G T L R TVVCLD G G GAR DUK N DLLT F T Q D E S P D G S QI L Y S S Q D Ql Y K M N KD G S S VE K S RDSKKLNWTLGS QYFSRELKN

 SPD GKEIVVYTSDERLVVISAQGGSARRLLTGTAYSSEPDW



S P G G D M V VF T S QK K LF VM NA A G G G QR R L LQ LE GEQM QP S W SPD GS KLAFTALLNRLYVMSDPNGTPRRLTTNNGDEAQPTW


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STESEKLYWMLGETLHGLTVQG
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 GYDAEATVCPKDGSIVFTSVR FNYSSPRWSPDGRQLTF $\square$ SK

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A ID T S PSFSPDGRRIVFESDR K SVT SVAFSPDGKTI A

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90

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100
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KK 100
K K G LN T TPA WVPGQ
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SEI PF QANAT $\square K \square A K A V E F D T P V A P D T F D A K V I R H A T F N A$ RVL DDQPGMTFAPRFSPDGRNVVMSLTDR

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D S HQ
S G
Y
A
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TR
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$P E M V Y P G L G S \square S P D D A V V A A T W S P D G S K I A F Q N Q H R T E V E$
$A$
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| H |

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UniRef90-UPIOOO3817484 UniRef90_Q8PTT2 UniRef90_W0SJ57 UniRef90_G2LFA9 UniRef90-B8JD21 UniRef90_UPI000373C2CA UniRef90_R8B2M8 UniRef90_UPIO0039D7107 UniRef90-S9QJU7 UniRef90_I1DUF4 UniRef90-Q01P42
UniRef90 G2EEF1 UniRef90- W7SDD0 UniRef90-D5VJB2 UniRef90_UPIO00262868E UniRef90-EOMQN6 UniRef90_L8MZP2 UniRef90-UPIO0034BC5CC
UniRef90_B6IW65

130
140
150
160
D Q D\|Y L LT GDGKDI KQLITENWTSPTFSPDGRRMAFVSNRS A GEMWMYS $\square$ YGGEGVQLQQDAGEPNVSPDGKYLYFSEDMS TPGMYWMATAGGTEVLVTKEGDFPMFNQKGDRVFVQTGFG RFRICVDAAQGGPVYPLTDGPHENPAWAPDGRHVAYVSNE QLYVMPATGGEPKRI SFGKGRYSTPV WSPRG
 NLFLYHRDGGTGNAQPFPSNYVGAAFGPDPRYVYSAVRTA NSDLYSVDTSGGGLTRLTNAPSIPDYSPDGSQIVFESDRS VY ITTQUQENGSQGLVNVTPDQYPMWSPDGKKLLFHSQR $\square Y M Y D L S T S K N T K I T T N E S Q H M N P V I Y G$ VI VSTS LSKPKGAKWAESPRVT TRLNYEQDGRGYDETGY S
 QCYVMDADGSNQRRISFGGSRCATPEWSPRGDQIAFTN NTDLYRMD IASGQSTRLTNTPADPSFSPDGSQUVFESDRS NSEVYMDAAGGN QQNLTNN NLDFDDNPVWSPDGK
WQDEAPTWAPNGRI
 $P D G W E G D L T P A F S P D G Q R$
TN SWGDEGPSWAPNGRV

 QR | QAF $A P D A G A V V G A P T W V T G G S D D D N A P D$ |
| :---: |
| $Q$ | DVGVMAPDGSGEKILTHG $\stackrel{L}{\mathrm{~L}} \mathrm{G} \mathrm{Y}$

 $N V S V W R L R D D G$ HDGASEAEPFDASNFFDASAVYSPDGE $\square Y V M N L R N S S R A R L T S A P S I D E A P S F S P D G S K I V F E S D R S$ RFHIGVMRVDGSEERLLTASFDDESPTWAPNGRVIMFARE $\square N L W Y V D L A A P D P R P V K V A S N D Y A T L Q H F H P A W S P D S R W$
 NYDI WIMD I S SRKSVQV TDDKGDEASPSWS IIVINAQGNMLKVLTNGRGND 1 SPAWSPDGAAMAYVSD


 | $P \square G A P D K K P D R G E T F H D R E G E G E K K A T A P K V I H V E R M K Y K$ |
| :--- | NTDLWKMDLAGAGQSVRLTNTPADPSYAPDGQRIVFESDRS

 R Y A I H VLLDL D S GA TK
 RSENEDELSSDGQEADRPLFLPGRPTWSADGNTVAVAAV VI WRA DLDSNAGGPVLRTRKKLDYSQFLDEDSAQPSPDGTM LA WRVAAFRNEDAR LVEN $\square G E S T$ TS LIAFSPQSNRLVYSKGAS P Q I Y R M P V E G E Q
 ATEDYVMDLKTRAERRVHRSIDTEPSWHPNGQEIVFTSER $P L A K L P D K P E G A Q W A D A V K L I D R M N Y R A D G A G Y L D K P G Y E$


 S

I F L L D H T F Q K E K V L E E S P A $I$ N V V S P S P A D A K G T K

 KYTLMVWNKATNQSMPVTDGIFEGSQPTWSTVDPFSTRFR SLL NIPAKPEGATWNDAPDY DEMMNYRGDGAGYYKS GNQQ





ELLWT S SAT GE NPTQQLT
$R L D R Y S G T P R W S P D G K$
$C D D$
K A DI HMYNLSTSTEDQQTESGQAFCPD DYGDRDVWKD DRN
S QL YVVNAD GS GATMLATG GDDTEPRWSPDGQVI YFTSDR



P QI YHK S S ETAEPRRIT FGSRYNARPRPDSQ




## $\square \mathrm{Y} \mathrm{V}$ L

F A S GRQRAVTEADEVHASPVWSPDGTKLAYVVGDG
 NF LI G V MR P D GK G E R I L T E G I KL WNLE GK E LLQ T LTT GHSNWVESVAF SPD GK IIA S G S S D


UniRef90 S7TSK3
UniRef90-C6XW30 UniRef90_UPI0003FC22AE UniRef90_Q2YZW0 UniRef90-A0A058ZN70 UniRef90-A5GDC0
UniRef90 O3B584 UniRef90-Q3B584
UniRef90 W0RRZ7 UniRef90_UPI0003B2FC74 UniRef90_UPIO0038281CD UniRef90-Q468E8 UniRef90_UPI00047D0FC4 UniRef90-A0A031HIZO UniRef90_UPIO0046D4ACC UniRef90-A5PAL7 UniRef90-K2JX47
UniRef90_UPI000369095C UniRef90_A3WHI1
UniRef90-Q020S4
UniRef90-I3ZCW7
UniRef90_UPI0002FF02B5 UniRef90_D0LVZ4 UniRef90-Q74H67 UniRef90_UPIO004756C6D UniRef90_S7X0T1 UniRef90-Q0FAG1 UniRef90_UPI0003B5EFC8 UniRef90_UPIO003796872 UniRef90-W4HGN6 UniRef90-TOZDD18 UniRef90-A3XCW4 UniRef90-M5SW82 UniRef90-K4MGY1 UniRef90-14BZU2 UniRef90-Q12M66 UniRef90-H5SFQ8 UniRef90_UPI000225E6D5 UniRef90-L5MWE4 UniRef90-B4RGK9 UniRef90-D0CXE8 UniRef90_Q8TNK1 UniRef90_UPIO00469F34E UniRef90-D7C2U8 UniRef90-A0A031GFJ6 UniRef90-D8JBS8 UniRef90_UPIO003722710 UniRef90_UPIO00382E893 UniRef90_19W6V0 UniRef90-J2ZSX7 UniRef90_UPI00039AEE93 UniRef90 A4CFH9 UniRef90-A0A021VWS8 UniRef90-I3ZM89 UniRef90-UPI00031EC6F7 UniRef90_UPI000362162C UniRef90_UPI00036AD5A8 UniRef90-A4FGU1 UniRef90-M7YDV3 UniRef90-UPIO00470EC62 UniRef90-Q46EI8 UniRef90_Q1MQ11 UniRef90-W0J5B9 UniRef90-A3TZ14 UniRef90_W6M9H9 UniRef90_UPI000470153D UniRef90-A3HV59 UniRef90-A4S1J8 UniRef90_K9W457 UniRef90-S7J330 UniRef90_UPI0003812AD9 UniRef90-Q11DI2 UniRef90-A3IB74 UniRef90_L7U1J4 UniRef90_UPIOO03817484 UniRef90-Q8PTT2 UniRef90_WOSJ57 UniRef90-G2LFA9 UniRef90-B8JD21 UniRef90-UPI000373C2CA UniRef90_R8B2M8 UniRef90_UPI00039D7107 UniRef90-S9QJU7 UniRef90_I1DUF4 UniRef90-Q01P42 UniRef90-G2EEF1
UniRef90 W7SDD UniRef90-W7SDD0 UniRef90-D5VJB2 UniRef90_UPIO00262868E UniRef90_EOMQN6 UniRef90-L8MZP2 UniRef90_UPIOO034BC5CC UniRef90_B6IW65

GT PQ $\quad$ Y $\square$ K D $\square$ GS GKVERILITYEGRYNTQPNWS PGPNFEYSKDPNGMIYA RQSGKITSLDAQPGGAARPQPD STTKTLKSMD LS GNDERVLVSSNYGNRGVPSPDENWDAFD GGMSAVY
DMDAFTKQNQGRFHDGVMRTDGSEERLLTASFDDEGPSWA LGKPQVFIMNADGSNVSRLTTSGTYNVSPRWS

## QGQKKLY

 A GGGYNQTSLDWQTAVYDRRTGKTFVRTQAPGSGMRPVLS GT QQUYVMGAGGGEPRRDSNGPGRYSTPVWS$R \|$ WWEDY $\square$ NEKRS $\square H \square Y N \square S T S T E T Q \square A T S Q S G Y H W P A \square Y$ HLVVIPAEGGTARQITSGDFHHRGTPAWSKDGGADYFAAN QGSGGRAADLWMVDLTGQVERKDPTPLDGSDPAWG EGEKAVY ASSFNISVMSPSGGNVRTLTRGWQDEAPTWAPNGR\|IQFF GT QQLYYIMPAGGGEARRISNGKGRYGTPIWS LIAFDSFGGGSRDVYVMDADGNNQRNLTNHPDRDWNPAW IQFFRTTRDAGRSSLWQVDLTGRNERRLPTPVDASDPAWG

TWK LALLDLLATGKQKELMERRNGLAFPSFS ! AFTRASETA DRDLFWVASTGGEVHPLTHDRTYIDSLAWD I FFRSAQGSGRPDLWTVDVTGRATRKVPTPMDGSDPNWG
I $A M T V T D E A N R E D L L V M R V D G S E R R R L T D D V Y N D R T P R W A ~$ DGGEAIT DMFFRTGQGSGKADLWSVDDTGGNERRIPTPGDASSDPAWS GTYVTWNDQELGADYSVPSSGGASTKMTSEKGDYRNPSYS
 GT
T
IVYTR VMPNY $\square H A \square F \square Y S \square A N G S T H Q V T D A S S D C R D P V F D$ DL DAFTKQSKGRFHI GVMRLDGSEERLLTASFLDEGPSWS VKTGLHLFDLESGRILRLYYDDLERDMQEAWAIHGVYSGFD PDGTRLLYSLEGDIYTQEPDAVKATRLTDDEFNNIEPAYS QA GTPQIYVMSSQGGQPKRLTFNSNYNTDPDWS DGNQE $\square \mathrm{Y}$ DGFFRTAADVTGKNIRRLSNHPAPDTHPCWS SDDHGY LYEKTRQLALQVDLTGENLRRLPTPVDASDPAW
 GT WRNGNRHDFLNGDI YMYD DSTSTETRITTSNESSQSRPADY GT IAFTSGKGDAPQSVVQVDADGKRTTLAATVTEGRVAGPSFS
 KQYSDRFRSGTSQQLTVDUETGEETFYPPGERGNDGPVWS LQSNR SGTGQUWLNSTDGDHPMQLTNGGAHAGTPRWS DLD $\square$ WRMS LINSTSSGVTPNHGVTATRLDASTR DEEQPQFS PA QVEVKVVARNMGQYVGVPTPVQDLRDSPDGHQVLARAA $H \square Y V V P A D G G S P R Q L T K G D N G F G S P E W L$ GGNAQDYSVNLATGKTRRLTFDGDMNLAGSDTPDGKDLIM HVFVMPADGGTARQITQGDFGYEGTPVWSRDGRSLYVVSN HIVKMD DSSGSESAISFTAADPYQPHGFPHK $L V F V R A T N E V T R D L Y R T G L D G G A A T R D T F D N R K D N G V A W S$ EDTPGEAYRIMVADANGRNPVPLTGVPADYERNERDPSWS GS $Q Q D V V M G A D G S N P T R I S F G E G S A S Q P A W S$ SP DGTRVAFQA乌GDIWVVRDGEEPEAVVSDGGYNTGPAWS
$\square F T \square G L A G G T A R Q L T F D E N D Y G T P \square W S R D G K S G F F S A N L H$ DYRNGYTDVYMYD DSTKKETQ DT NN NESEKMCPA DY SNPQ $\square F M K D F S S G Q V S R V S R Q G C Y N T E P T$ G T
G S A G G L K LIF
$E G L N K V S V Y N D^{P}$ TFT $\backslash G L A G G T A R Q$

$D G V P R \square Y \square M Q V P Q$ DGVPRLGTVMQVYRQPA DPEPRGTVDGVYRVQAAFPTQADPVVLLTEDRRVDSPTWL GRA GFHKPYKR GNT GNT DVYLMRADGSGQTRLTTAKEPDWLPRWV
 GGSPQ $\square Y R \square A T S G A \quad G A G N P A E R V T F E G S Y N R P S P D$ YPECPD EDCNRRKYAAAEASKVKAK IADR GTMPQ

NEGPTWAP
VASFAPSWHPTRERTL
QVFVLPATGGSARQLTQGDFNYGSDLTFTPDSRALVFAAN FASLVIVTMGFRGALFTVDVKSGDVKPVPAGGDWANPVFD EAE KEYKNLLAEGLVQP V I E ELDD $\square P S G Q R K Q L L S D P A L A Y S P V Y T P D G R \square S Y V S A G A$ KPYSARFREGLSEILTVDVESGKGTYQPILPRGDDGPVWS $E D L V T V M K G G N A D I V R Y D L K S G E M F P Q V R W P S G E T S P A W S$
$M F F R E T P G A G G G P K L Y S D D L T G R N E Q Q V P T K T F A S D P A W$ $M F F R E T P G A G G G P K L Y S D D L T G R N E Q Q V P T K T F A S D P A W$
$L T$
$L$


UniRef90 S7TSK3
UniRef90 C6XW30 UniRef90_UPIO003FC22AE UniRef90-Q2YZW0 UniRef90_A0A058ZN70 UniRef90-A5GDC0 UniRef90-Q3B584 UniRef90-W0RRZ7 UniRef90-UPIO003B2FC74 UniRef90_UPIO0038281CD UniRef90_Q468E8 UniRef90_UPI00047D0FC4 UniRef90-A0A031HIZO UniRef90_UPI00046D4ACC UniRef90-A5PAL7 UniRef90-K2JX47
UniRef90-UPIO00369095C UniRef90-A3WHI1
UniRef90_Q020S4
UniRef90-I3ZCW7
UniRef90_UPI0002FF02B5 UniRef90_DOLVZ4 UniRef90-Q74H67 UniRef90_UPI0004756C6D UniRef90-S7XOT1 UniRef90-Q0FAG1 UniRef90_UPI0003B5EFC8 UniRef90-UPIO003796872 UniRef90-W4HGN6 UniRef90-TOZD18 UniRef90-A3XCW4 UniRef90-M5SW82 UniRef90 K4MGY1 UniRef90-14BZU2 UniRef90-Q12M66 UniRef90-H5SFQ8 UniRef90_UPI000225E6D5 UniRef90-L5MWE4 UniRef90-B4RGK9 UniRef90-D0CXE8 UniRef90-Q8TNK1 UniRef90_UPI000469F34E UniRef90-D7C2U8 UniRef90-A0A031GFJ6 UniRef90-D8JBS8 UniRef90_UPIO003722710 UniRef90-UPIO00382E893 UniRef90_19W6V0 UniRef90-J2ZSX7 UniRef90_UPIO0039AEE93 UniRef90 A4CFH9 UniRef90-A0A021VWS8 UniRef90-I3ZM89 UniRef90-UPI00031EC6F7 UniRef90_UPIO00362162C UniRef90_UPI00036AD5A8 UniRef90-A4FGU1
UniRef90 ${ }^{-}$M7YDV3 UniRef90_UPIO00470EC62 UniRef90-Q46EI8 UniRef90_Q1MQ11 UniRef90-W0J5B9 UniRef90-A3TZ14 UniRef90_W6M9H9 UniRef90-UPI000470153D UniRef90-A3HV59 UniRef90_A4S1J8 UniRef90-K9W457 UniRef90_S7J330 UniRef90_UPI0003812AD9 UniRef90-Q11DI2 UniRef90-A3IB74 UniRef90_L7U1J4 UniRef90_UPIOOO3817484 UniRef90-Q8PTT2 UniRef90_W0SJ57 UniRef90-G2LFA9 UniRef90-B8JD21 UniRef90_UPI000373C2CA UniRef90-R8B2M8 UniRef90_UPI00039D7107 UniRef90-S9QJU7 UniRef90_I1DUF4 UniRef90-Q01P42 UniRef90-G2EEF1 UniRef90-W7SDD0 UniRef90_D5VJB2 UniRef90_UPI000262868E UniRef90-EOMQN6 UniRef90_L8MZP2 UniRef90-UPI00034BC5CC UniRef90_B6IW65

 PNGRVIMFMRGGTSALYSVDVSGRNLRKVPVPTAASDPAW PDR】AYCRQHGGGFQ】YVINADGSSDVQLTSEGSNEHPRW F 1
PDWLVYATRNDS LTALRTRDLATGDERWLAPDDLMPPFAF PRGDLFTKQHQGRFHLGVMRVDGSEERLLTASFLDEGPTW

 $P \quad L R P$

RTE
R N S GK TS L WQVDLT GENERS LP T P VDAS DPAW PRGDLFTKQNEGRFHLGVMRTDGSEERLLTASFLDE GPSW
$\mathrm{P} \square \mathrm{R} P$
$P D R \square A F M Q \boxtimes A A G D P Q \square F T \square R R D G T E M R Q M T L G K G N G L P R W$ ARSSUVSSNRGGKSALLWRMSLKGREPERVSSTQQDSAPS L A VR P
$P D R \square A F Y S D R S G K Y E L W A D D P H G N R L E Q L T F T T G D S \square P V W$ PRW

HNGKH V VYRKE GGNNWYMMNSDGTNTQFVTKEGDYPM F PRMDAFTK DSQGRFHI GVMRTDGSNERLLTASFDDEGPTW


A N Y LY FTSSSTDTTSGLWEMSGMERPVTRHVYAATLEPATV $P N G R V I M F T R E T Q G A L Y S V D I L G R N L K P V R T P D G A S D P A D$ WTP D GK S IVVWAK GKI RRIDDIDSGKPFRIRDHRDVADRHP PQMIVFSSDRDGSYDLWWMRTDGTGMKKLTMEKSNESPAW PRGDLFTARVEGRFQICTMKPDGTDLRVLTSAGSNQDPAW


PD GQWLNPDMQHS LDVY LIP IDA G GEWK K LT S SNGFFYPTW
 G D R IVVWA DYRNMDS DI YMY DL F S S T E T QI S T S GSAA Y S S P
 P D R F A Y V H L A S A A T A L V V D G V TVVS D A E E P D GRWMAFVVESTGRVMPVDEA GGPATQQTEAATADAPTW



 VNRTA GRYHLAKKELKTGDFQVLTATRGDESPS M RGPEAEYHP

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

 $P D G T M 1 A Y T D G G N S G L P S V V A D K K V L G E V L R Y D G D F S P A W$
 ENK

## 


 ENHDL EPGNSDLUYLDDLASG D DEHVAFTEAGGRSTAFKAKI DTN $P D G Q T \square A S N N D N T V K L W$ $P D K \square A F C S V I K G V R Q I C C Y N L A R E L Q T L T G H G T A V S V A F$

 A R R
R D W IY F A S N R A G S S Q $\square$ WK H S LE S GAEVQLTTKDGGLNPSE GDKVVWQDSRNNPADI YMYDLSTSREIDQITHDDSDQYSP
 PRGDLIDARDERKVFDVFVVS PDSGA $\square$ N R I T Q D Q GNE EP S W

G D Y V Y Y VH QRNGGFH ITARTDLSNGEETVLTRTASDESPSLL




A ATLMVGATAVVTGE

$P D G K T \| V S S D D K T \square K L W \quad D L A G K E L R T L T G H N E V W S V A F$
P D S L V Y S S D REGSPAL WRHDL E S GTDERITR LD GA QVPRW

UniRef90 S7TSK3
UniRef90_C6XW30
UniRef90_UPIO003FC22AE UniRef90-Q2YZW0 UniRef90 A0A058ZN70 UniRef90-A5GDC0 UniRef90-Q3B584 UniRef90_W0RRZ7 UniRef90_UPI0003B2FC74 UniRef90_UPI00038281CD UniRef90-Q468E8 UniRef90 UPI00047D0FC4 UniRef90-A0A031HIZO UniRef90_UPI00046D4ACC UniRef90-A5PAL7 UniRef90 ${ }^{-}$K2JX47 UniRef90_UPI000369095C UniRef90_A3WHI1
UniRef90 Q020S4 UniRef90-I3ZCW7 UniRef90-UPI0002FF02B5 UniRef90_DOLVZ4 UniRef90 Q74H67 UniRef90-UPI0004756C6D UniRef90_S7XOT1 UniRef90 UPIO003B5EFC8 UniRef90-UPIO0003796872 UniRef90 W4HGN6 UniRef90-TOZD18 UniRef90-A3XCW4 UniRef90-M5SW82 UniRef90 K4MGY1 UniRef90-14BZU2 UniRef90_Q12M66 UniRef90 H5SFQ8 UniRef90 UPI000225E6D5 UniRef90-L5MWE4 UniRef90-B4RGK9 UniRef90-Q8TNK1 UniRef90_UPI000469F34E UniRef90_D7C2U8 UniRef90 A0A031GFJ6 UniRef90-D8JBS8 UniRef90_UPIOOO3722710 UniRef90 UPI000382E893 UniRef90_19W6V0 UniRef90-J2ZSX7 UniRef90_UPIO0039AEE93 UniRef90 A4CFH9 UniRef90-A0A021VWS8 UniRef90-13ZM89 UniRef90_UPI00031EC6F7 UniRef90 UPI000362162C UniRef90_UPI00036AD5A8 UniRef90_A4FGU1
UniRef90 M7YDV3 UniRef90-UPI000470EC62 UniRef90-Q46EI8 UniRef90 Q1MQ11 UniRef90 W0J5B9 UniRef90_A3TZ14 UniRef90-W6M9H9 UniRef90 UPI000470153D UniRef90 A3HV59 UniRef90-A4S1J8 UniRef90_K9W457 UniRef90 S7J330 UniRef90-UPI0003812AD9 UniRef90-Q11DI2
UniRef90 A3IB74
UniRef90-L7U1J4
UniRef90_UPIOO03817484 UniRef90_Q8PTT2 UniRef90 W0SJ57 UniRef90-G2LFA9 UniRef90-B8JJD21 UniRef90_UPI000373C2CA UniRef90 R8B2M8 UniRef90-UPI00039D7107 UniRef90_S9QJU7 UniRef90 I1DUF4 UniRef90- Q01P42 UniRef90_G2EEF1 UniRef90 W7SDD0 UniRef90-D5VJB2 UniRef90_UPI000262868E UniRef90_E0MQN6 UniRef90 L8MZP2 UniRef90-UPI00034BC5CC UniRef90_B6IW65

S P D GT LIV|F 250 S S R|I Y VMT A Y G T D QRRLL ${ }^{260}{ }^{270}$ M G G E QF T P S W TPDGKSIIFYARGKIKK DDLDS
SADSKNIHWTLGEEYFT
S P
SPDGRF $\square$ TFSSGGK $\square Y$ YMRSDGS GQTR $V$ SRGKGADSHPAW

SPNGRVIMFTRQSSLYSVDITGRNLKPVGSNGAAS DPSW
A $\square \mathrm{YGDKVVWT}$
S P D G K Q $\sqrt{A} Y$ G Y D D R $\square Y \square M D R D G G N K R E D S T G \square D R S \square Q E$

G P
APNGRVIMFTRES QLYSVD $\square$ SGRNDKRVP TNAGASDPAW
SADGAFVYYYRAYSFRKVPAAGGADTEV
APDGRRFAFQSQRE $\square W T A N V D G T N \square Q Q L T$
SPDGSRVLVQQRSDSYVIDAE QPWEAQTPERLADVEDTW

NADDTRILYQNGGELKSVDLNGFDERTLVKSLVPSPDRNW SPNGRVIMFESAGEI FSVDVTGRNDKRVK TIQNGSDPSW SHDGNAVYFSSNWQI WKHALASGSETQITVKGGFDAME
SPNGRVIMFTRETQLYSVDISGRNLKKVITRDGGSDPSW
S P
S P
S P
S P
S P
S P
A P

SPDGRRIAFHEDSKLYVMDADGGNVRQLAANLDRS
SPNGRVI MF TRRSSLYSVDIDGGNLRQVRTPDGGS DPSW A $\square Y G D R I V W M T N Y D I Y M Y D L S T H K E T Q I S T S$
APNGRVIMFARSSTLYSVDVSGRNDRPVS TPSGGSDPSW SAD EVVFYTADGKIRRRKLSGDKAR
SPNGKYI MYGRRKSLAVVSVDGRVKQRLTTQAGNDKEPTW

 AANGKY LYAAGGRLAAVSVDGRNRQULSDQSGDVREPAW AANGKYLLWSVGGRLARMI
SPDGRRI AYTQQTDLWVMDANGAEPRNLTADDHSVSSPEW

 TAAGEA V VFEHRQLRLVDLESRSP
SPDGTRI AFIRRTY
APNGQYVLFFRDGK LYMVDDTGKVEQPVPTPSYAS DPTW SPDGSAVAFLSGRSVHTVDVASGAVRKVVGPDNAP
SPDGKMI AFTGSDDLYVMNLDGSGVKNLSADDRDASNPQW APNGTMI IYTYQGKLAAVSMDGRFKARLPVGQGEVKSPAW A $\square Y G D R I V W N N N W D V Y V Y D L A T G Q E$
APDSYFI AFTSKKQIYLITRHGGDAKQDPTGHGDASFPRW
 APNGRMIIYSDGQRLNAISVDGG
SADSRYIVVLDSTDVLKRVEVE TGGLKEDPL
 SPDGQTIASSWDKTVKLWNLAGRELQTLIT
AADSSHLVFSSGGDLYLLSLITQKTRKIADGSGEKRFPSW
 SPNGRVI MFAAGPKLYSIDDTGRNEQLI P
SYDGQT TYFSRFDRПWS DPASGGRES LV
A $\square Y G D S I V W A R G W D I Y M Y N \square S T S R E T H I T \prod D$
A PNGRMILYATRGVLAAVSSDGRVKQKLSVQAADVREPAW SPDGRELAFARNNDIFIVPDDGGEPKRISISPGSDTHPR APNGRLMDFRRNGGUQLVDARGDRQTPVTSGKTDLAAPAW
 $S$
SPDGKQLAFSSNRE TAPGRQDTNVF $\square A E W N D D A P$
SPDGKQLAFYSNSKLKVLNDSNKQDRDVAADDRSDDNPNW SRDGKS LAFTRASQLWLTDTSGKESKALL



## UniRef90 S7TSK3

UniRef90 C6XW30
UniRef90_UPI0003FC22AE
UniRef90-Q2YZW0
UniRef90 A0A058ZN70 UniRef90_A5GDC0 UniRef90-Q3B584
UniRef90 WORRZ7
UniRef90-UPI0003B2FC74
UniRef90_UPI00038281CD
UniRef90 Q468E8
UniRef90 UPI00047D0FC4
UniRef90 ${ }^{-}$A0A031HIZO
UniRef90_UPI00046D4ACC
UniRef90 A5PAL7
UniRef90-K2JX47
UniRef90-UPI000369095C
UniRef90 A3WHI1
UniRef90 Q020S
UniRef90-I3ZCW7
UniRef90-UPI0002FF02B5
UniRef90 DOLVZ4
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 TKIAFVKSKNIY QVDFDGYNPTPITNFK NTRKLTFEG


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 DPQDSPD GGRTAFVRRANI WLI DNASGELTPRAAGP PEPLLSPSWSGRKL AYVSNSSUY ZQDITTGSRELIASFR
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TRIVFVDEKRLALMDQDGANVRFLTNGR $S P T W D G R G V V F S S S R N L W R A R L D G A P A E Q L T$
 AP LMSPSWS
ALSPPD
 S PDSSKVVLS Y ASNGD
FVSDRD
PEP $\square$ M
SPAWSGKRDAYVSSAAIVIDQTLANGQRERVAEFP
$\square$


1 MS | $P$ | $D$ |
| :--- | :--- |
| $P S W S$ |  |

PG $\square$ S
REP I ISPSWS GQRDAYVSFERV
GMTFAPSPS
GPFF
S P D
$S P P D$
$S$ S D GRVVMSMNDI $G E K I V F A P N G E$
$G Q K V D M S D N S N: ~$ GNKV V TS GNS
$\mathrm{D} \mid \mathrm{Y}$
K QP $\square$ MS PAWS GQK LAAYVSQAE $\square F \Pi M N \square Y T G E R E$
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PDRSMGYVWALYDSDVFKANADGSGVTRMTETP


RR A HIDADDIY
ПFASRIAYITKKGLQVADADGFNPQTVVSSN LMSPSWSGDKUSYVSRSSIYTQTLRTGQREKLRSFK RSVADSP NEKE\|VYGYYSNLWMVNTESKQNRQFTFGK SPSRQETTYAALSGDQVYLLNTENGQREKIGNFS DPVMSPAWSGKQDAYVSRSAIYIQDDATGNRRLISQFR SPD GKRAAYVYYSNIFVLDPETKQSFQWTHGK PGAFSARDAFVRDDDLQVADSDGANPRTLYRSS PAYSRSERYRWD FDPAMDI RANLDGSNLVRLTDTP
WSPD GKQTTFARGSQIFVMPLDGGEAFQLTDLK TRIVYVAESRLALMDQDGANPSFLTSRN SPDGGNKVMSMAKDIYEMDDRTRKATRLT SPD GSDIAFTRSGQABRPLAGGPTRRLTDDP
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RMLTSGNNIVLTPRFSPNRQE
NRTGGEAEKITSFKGGVVDYVWSPDSRKLALIVEDPDPQV TGRRRLVASFRGSNSAPAWSPDSRYLAVTLSRDGG
RLVTESNNPTFAPR
KQ VT D LGYDGGA $\quad$ TVED FSPDGSKIIFRSSRPKSEE
TPV VT DKSEQGGSF $\begin{aligned} & \text { PYEDRUVYQDSRN } \\ & R \text { R } \\ & \text { R }\end{aligned}$

KLI ARTGNPTMAPR KL A RTGNPTMAPR $T$ G RRVSS PGFGKTTCAWDHPDGERVLFASTHEDAES ERLTDDWSLDTEPN WAPDGNSLIFTSNRGGGPQ
 KRISFGG DGGYGTPVWSPRGDYIAFTRKVGGKF
ELVS $\quad$ SFRGDNSGPAFSPDGTRLADTVSRS YFSFDNSMAVFQSNYSEWGVECDQMFYFNDEDNNMM


TQITNQFG IDTEPT
$R R L T E Q P K V D D E P A W S P D G Q K D T F V S Y R D L K Q D P K R G V \square R$
RRISFG RGRYATPVWSPRGDLIAFTRFGGGSFA
EQLTEFY GE $\square$ SDFSWSPDSRKI A

 GRATANPSPVLGTTRVESRGTWSRDGRQLAFNSDRAGEMN $T P D L M Y K H W D E W K P F G G A E E L S W S P D G K T L A Y S S R K K T G M E ~$


 HRISFG I NATHNPASDTSPA WSPERPQIAFVSGRDA

RNLS PKGQEEKQPAWSSDGKWI YFDSNRAGSN
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 RRLAQSSGIDTEP RGNYGTPFWGADGHVYFTSDRG

$T$
QRI TFGQGRYASPV
S ILTDGLNFD


WSPRGDLI AFTK DNNG

S

QRITA




R R LT
TNTPGYDGGAFFNAD

| $R$ | $R$ | $L$ | $T$ | $N$ |
| :--- | :--- | :--- | :--- | :--- |
| $K$ | $P$ | $P$ | $G$ | $D$ |
| $K$ | G G A |  |  |  |

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## AKL DETEGSFKQLS


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 $\square G G A H A A W N T Q S P A W K P D G V N L L F D S K D Q V C T C T A D P T V$



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$E E E T V E I Q T N$ EEETVEIQTN PTAGDSKKNVQLKKTKTPKPGVIDRFQFK SQLYTLDLNNDAAEPV
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 ПYRVY $\square F V Q D \square Y T T R R E K M T E F P G \square N S S P V W S P D G K R L A M V L S K D$ QRQEGCVRDDGAKAR APDPDSPKLCWRLPYK HDGVMRTDGSGEKMLTES FDDDEGPTWSPNGRVV
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 1 GVMQPDGRGERNLTEGWGMEGPTFAPNGRVARYYRE
 VWM
$\square$ EPNVYLLDVASGRTERLPGMTFAPRFGPDGNKLDMSLAED $R P Q L Y R V D L S S K A V K R L T F$
TRQFRVLTAGGLDESPSFAPNSKMIIYSNGQR
$R T L V A P L G A G G L L P G R P S W S P D G R Y L A L C D R N R L N Q R F R E G$
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$\square A E E K K K L K Y K A R V Y T S F P \square R S W D Q W V D E K Q T H \square F V Q S T$ $P Q \square Y R Q A L G G G E P E R L T Y$
 $S P Q Y R D P A S G G S A Q R V S F E G N Y N V T P R$

GVMRTDGSQERILTEGFHNEGPSWAPNGRVLVFFRQ TSQI YLADFDDQKAREL
$R F S G V M K D G S G T W A P N G R V$ QVYLYDI ETTEMEALGSWRGMTFAPRFSTDGRGVLLSTEE $K$ PQUYQVNDGSGS DDRDT WSQN LGGQDTPDGRFLVMVNRS $P \square A K L P P A P K G A E W A E P A K L I D R L T Y R \square D G G G Y V \quad D P G Y A$ K PQ Q YRVNLAGGDTSRT TWQGSQNL
RAQUVMGADGSGQTRISFGDGVYSTPV WSPRG NAKI YLLNLQDGSSRLLCGGMNDSPAWRPGRPELAVTLTR $\square R\|A D P T S G A G H E D W R A E A G D G S A F H E\| V A D K Q V M W A A R N$ NKDIYMYNLSTSEK QQ STS GLAFDPSUYGNR IVWRDSRN RAQI YRVDLDSKRIRRVTF NPEIYVMTLATREMQRVHRADDTEPSWTPDGKS VVFTSER KTKVMMVNRDGSNPQDLTDG DVNSGFPSWSPDG
 PQIFTMP TDGGRAEQUTVDKDDPVWTPDGKS IIYWTKVD GKELEDYQGLLARGLVRPSKLELYVANAD $R P Q \prod Y Q V E L T S G K T K R L T$
RS QIYVMAA GGGAAQR S FSKDDTNATYSTPVWSPKGDY $\square$ VF V Y NIDTGRQELLGEFPGMTFAPRFSPDGNKVILSMAR NS QVYT I N VGGGGLLKQ
 DIWRMNSDGSNRVNLTPG

$Q Y Y M S A E G G Q A Q R V S F G E G R Y A T P V$
$P Q U Q K N G Y G A V S R U T Y E G N Y N A$
$V L K K G K K E E K E E K K R P E P L E V E K M K Y K S D A R \quad G L F D$

LL

DVADKKAKVFSRLNFQGEASTDPEDRFNLLFVIEAKEG
 NTQ YLVGADGGTPRRLTQSQGIDTFTPDGSRILTTSDR $L K V Y C I D A T T S P T W R V L G G V Q Q L L V S R T S A P T F N T A T Q Q$



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YLERSPVHLYVFDLATKKDDTLTTGAYDETSPVWS DVNAKAKDLGFAGKELIVNKGFNFGGGUAWTPEGNSIVFVAA
 $\square$ PG K GKNAQDKVR LTWS $\square \mathrm{D}$ LT GYNEREVLTPRDGSDPAW $\square$ MFFKEAAGSGGPR $\square$ HS $\square$ D $\square$ T GRNEQP $\square$ PTANFASDPAW PT WAPNGRVLMFF A GNT D $\square$ ARMDLDTRRDERLTRNPADDTSPSMS HVFVVSADGGAAREVTTGKHDFAGP $\square$ A WARDGKSVYVSAN GGQITPDGR DLIAF TKQTGGEFQDGVMKTDGSGER\|LSSGFQQEGPTWA DGNPDПF LVSASSGQILQKLVQGRS $\quad$ VNVSPDWS R IVFP WEKTGWECLYSVSADGGSATLLTPGNAMVEHVADT GKE Y $\quad$ ENSN $\square Y$ MYDLSTKKETQ $\square$ TTSGPASSPAIY GGRPQLYRVDLLSGDVRRMTFDGEQNLGGTVAPDGESVIM QRUVYRVWGEKDSGLR\|LNDNDKLVQVLTTEYDN LDFWS GNGFQDVLTDVRGGSRRFMSKGSLDESPGFAPNGS DY $\square A F T K Q G G G Q F A \square G \square M K P D G S G E R I L T S G Y H N E G P T F A$ GVRSLWK $\square \mathrm{SV}$ V GVSDNRA $\square$ TNPDLGDAMDPA $\square$ SPD GSEAKQUTWLNAASFAPFFHPNGQRULDDGS

> AFTRQGGGQFS DGNSE $\square \mathrm{Y}$ EMD $\square$ RT
$\square G V M K P D G S G E R L L T S G Y H N E G P T F S$

$R \square V F S S N R N G N Y D L Y \square A S V N G G E \square E Q \square T S D E A D D \square M P A W S$ $\square W V C D \square K S G Q A K Q I T R G K Y E E H W P R F S P D G K A \square \square A B D$ DA IAFTKQGGGRFA $\square G V M A P D G S A E R \square I T E G F H N E G P T W A$ GRYQH $\square A V L D L E T E D V R L I T E G E N S F S P Q G W S P D G R Y F A F$ LTRSSADETEPAWS YFFKDSRH LVYSTS LSHGQ AKPVQ $\operatorname{ITRGFWSYNAANWSADGKKIYAVSGKDSTLHP~}$ GSS QLYVMSADGGEAQRITFGEGRYTTPVWS GS S


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## UniRef90 C1D6B5



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GMRMAY TSRTDAEYRLAVMDLSTGQDMLVTNTNRDESPSF PRGDLFTRQSGSGFAIGVMKPDGSGERILTEGFHNEGPTW PRRDAFVSDRSGRFEVWVMGSDGSDQRQVASVGCWHFVAW SQSLEFLSTKHAEAQLWEIALKGRKIRQUTTGMGHYTSW PDGSEIVFSANRRADLWVLTLATGQLRRLTPEEEAQMPSW DGKYLIMVNRTQNYRLARQDLETGALQVLTKTELDESPSL

P P
GRSLAMVHGNGGSYRTAVMDMATRGTSVLTSGPSDESPSF YYVNGRGDRSKVIVYDLQTHSNRPALTGPGYPSLSY PDGQYLDPDRNENTDUYVIAAKGAQMKQLTTWSGSDNPTW
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## R

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UniRef90 C1D6B5
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PGW SPD GTQTSYVSRPATYRQNLSTGAREQLTNFK $\square M S P T W S G R K I A Y V S F E D I Y D Q N L A T T E R H K V S S F D$ $P D$ GKNL 1 YNSEGSIYTFDLANRTPQVLNTGD
SWAPDGHQLEARGSRUWEYVLDSPARRLTDRK
VF LLNDETGQREIVGNFP
SRVVFПDEKRLALMDQDGANVRYLTRGS
SRIIFVSEKRLAIMDQDGYGVKYLTLGN
P D
DGKSLEFLSSSQVWRLPVDGGEPLQVTQLPR
FNNRPRVYDFNVDTGRQEVLGDFP

S LDGKMLLFAGSRETYKTSARGGKEYR $\square$ TNTR YNAHLFHIDLESGEDTQWTYGN $S V D G R L L A Y \square G E N Q \| F V L P L D G R S P A R A V P C S$ NVAVSPDE KGUAYUAKGQEVFVMNADGSNNKQUTRDN $T R \prod A Y V L K Q E L Q V A D A D G Q N P Q V A L R S R$ SGDGRF:AFLSDRQVWTMPADGGEARQVTHDP

KQPDMSPAWSGKKLAYVSFQNIYVMN RYTGKREKISSFP YNWSKD GKALLFPLNGDLYYYDLVSQKARKLTNTE $D P Q \square S P D \quad G E V V A F V R R S R I W M A P A A G G E P V P F T Q G P$

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UniRef90_UPI00047DFC9F UniRef90_Q0AGA4 UniRef90_Q1IKW5 UniRef90_UPI000478485B UniRef90_A6GDD5
 GIVISPSVSPDGQQULYYSIDETKKKSRNINLMLLDLR
 NEVVSVAFSPD GK $\quad 1 \quad L A S G G N D K T V R L W D V A T G S E E L$ G I NGAPAWSPDGRK $\quad$ LAMS LASKD GQPEIMVMDIAASRS F
 HSYANPTWSPDGKRRLATTSNRS RYDGGPFFSPDGKRIVWRRFSEN
 Q GNFEPA LSPDGERVAFVSSR TQENNPQWIADGKKIVFFL SNEDGDAELYTMTADGGAP I

 A MALT T P R F S P NLQKVVTYMSY A GSMPKVVI LDDIE T GRQ

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





 EP I I S PAWSPD GNRLA YVVF EARKPVVVVHDDG



ENAASPRWSPDGKQLAFV SSSTGSSQTHLRWMDNGDV
 AKGSSPLWSPDGKKVAFLAAGEPSGSQIFIKHRDLEGQ

 SAEDRAVWSPDGSALVYGSEYRSEDK CYLLTKLNLDS N
 LA MTLS EPIISPAWSPDGARLAYVSF ENKKPVVYVQTLA
 A GA ANAVISPDGKKMMFSAEVYPECETFECLKQKDDSVKN

 FRDSSPAFSPDGLVLAFL RTDQDGKPQLFVVEAAGGEP

DPQDSPDGEHVVFSVQRKNEKKFSNLWVVPTRGGSA $S V V N A V A L S P D G Q R V V$ S G S E DNTLKVWNLAT GAEE RDYTSARWSPDGTKLAFVVASENGKTVLRVLWLANDQV


 GYNAFPVFSHDGKKVVWSSNR GSTKEGDLNLF DAD WVDP
$G L N G A P A W S P D G N T M A M V \quad L S K D G S P D \square Y L M N L M T K K L$


$S W T$ D P Q Y A P D GK RVA Y VK S QAN K E K T S N $\square W V Y$ D A D S G T S GMTFAPRFSPDGQR VDMSLQQGGNANIFVMDLRSRAT
 ELVLTPRFSPAS QHVTYMSYFKN $L$ L P RVVYLLNI E



GMDDCPEYSPDGKY ITFSSNRTGSMMWRMKPDGSDQ ERVSSPQWSTD GKQVAFLVKRN EKQQLYILSRRGGEA


 WQES QPA W DKDGKK I AF L A CNESGSSSQVWEMNPD GTER ERFEAPNWMPGGKKLLLY NGGGAI YTDP VTGGTP EPVIDPTWSPDGSKLAYVSFHS GKPVVYVQTLA

$T L V L T P R F S P T\|Q E\| I Y L S Y \quad Y S G V P R V Y \| F N \prod D T G R E$ RHNGAPVFS PDGK S L A I V L S K S G S L AFET DA QI S PK GRYV SFI
TPSYWH GVVSPGKDIVYCAERN


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VOAT ${ }^{90}$
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WS PDGRR $\prod_{\text {A M }}^{110}$ EVLGNFQSMTFAPRFSRDGQ AFSPDGK AVLLTQASGGNS RQLSGH

SPDGK LASGSWDKTVRL
RR WAPDGQSLVYTSDRSGG
 KQLTRLNKMSWAP FYHPSNQYIIFAANVEGHR




 QKLTNGPGMN 1 GGGSYS FSPDSSKVLLS

##  <br> , <br> \section*{}

 TQLTKDKQGVKGYE WAPNGQK L TRLTRHRSGDTEPSWAA QYPGDGI
 A LI RUG RQ TDEL GYDGGAFFSPDGTQIIFRASRPETEA RQLTDHPGYDGGP WR FFSPDNQWIVFRSDRQKEHM
 KQLGRRRGDLE
PR QUTQKGVGHSY LDGYSPDDKTLVFTGHRKDKY




FQFTVGDHTDVHPV WSPDGNK $\square$


 M RDTDDESDATDCPNGASAPLWSPDGKQULFSS GRDTDDESDAKEELRTNR $\square S K K A T Q K N A M R W Q D T V T Y P Y D$


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 NAELYKMNLATRKLERLTKSGAPDVDPSDTADGSLLTTGLS

$P Q L Y R Y N L A N G Q A E R I$ T F
NPEIVYMMLQTRNDTRITTRNRDTEPSWTPDGKSLIFTSER DFAKSVKSVKKPEQAKWGAAPVIVVRTLYQRDGQGVTASA NFELYYVVDVDSKKRVTE E E GFDGLPVVFTPD GQYDTWTSDR E EK DYRDLLGKGLIRP GNLE LDWVMNADGSNKHQVTRNG $N Q Q D Y V M G A G G G G A Q R D S F G A G R Y S T P V W S P R G D L I A F T K$ M DVFV IPAAGGEAKALLPARDAPVLVRD
A A EKYPPDASGR IVDDL MYKHWDKWVESVPHPFVADLSGN



R P Qli
$Y$ VM GAD G S N Q R R I S F
$T F D G R Y N A R A R V A Q$ DKKAKP IVVDRLQFKRDYVGYLNNERTHDYTYVPGDSTAV

S P DLYVCNDDGSGMKQLTHTREDEPCFSPDGQWDCFASKG $P Q I Y R L S L A T G E V A R V T F E G N Y N A$ $K$ LLSPP SRPPEGANWAKAPVVIDDRARYRTNGAGFVEVAYD H $N W D \square Y G F D D A T K T E F P \square C \square A G K D Q Q Y P A D S G N T V V V W Q N R$

 | $L$ | $Q$ | $L$ | $A$ | $~$ | $S$ | $S$ | $D$ | $G$ | $K$ | $T$ | $E$ | $V$ | $Q$ | $L$ | $T$ | $D$ | $N$ | $L$ | $E$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $I$ | $A$ | $Y$ | $V$ | $A$ | $E$ | $T$ | $G$ | $L$ | $P$ | $G$ |  |  |  |  |  |  |  |  |  |

$\square A Y V A E T G L P G S R R \| A I M D Q D G A N N D Y \square T$ GRGEFVSTPRF


 $R$ PQVYK T N $\square N G G T P Q R L S W E$
LS l K L P A R PKGAK WL

## EGPRVIDKLTYR

$K P Q I Y K T N I N G G G A E R V S F$


 $R L G I Y R C P A A G G D A I A L S R D P G V N P Q E S F D G K T V Y F A N T$
PQI YRMAASGGAAERI EGDYNARASYAPDGKSITM
GSQI F LVNADGS GLQRLSQGDDTEPSFSPDGQSIDFTSDR
 VIAKMPEKPK GAKWSDSA IVIDDKAYY QADGRGLI KPGYR Q LWSYEFATAASQSSQDTNNLKGH


P P A LIF I DPFGGGEARPLEGE $\square G E \square L W S P D G R K L L L T V R K T$ L K V WN L A T GEEERTTLI GHRNAVADSPD GQRVVSGSWD Q $\square D L G L P A K P Q G A E W A E T A L V D E S V Y Y E F D G A G E I T P G T P$
 S S RI Y VLD IG G GHPRLVNAPSY LIH GWSPD GK E FA Y CAFRE NAEIYVVVADGSNEQRLTDNPAHPSWSPDGSRIAFDSYRD WMKA GDRYREEAAE QEDYVHKQNAEKA IRVTKMKY K

 $R P Q I Y R Y D L R T G T T E R V T F$ G $\quad$ R G GYNARARVAQDGRN










 K V V Q L N S GARKVVQGHNGAPAFSPDGSRLAFASSRD


 TK E E E K E D TK F P KA Y VVD K M K Y K A D S V G L L K Q UniRef90_W0RTN9

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ARPGKPMGGPQ QYSLGSGETNRITFTGNYNARARFSPD ARPGKPMDYTMNPSATENQVKRDSYVGKFNATPRESP


LWDVAT GS QLRQLS GYENS
GGKPQ TYQVNLATNRKSR DTFEGEMND
LA WS GD
GGAVTPD
$Y Q Q V F V V P S D G G S A R Q L T S G A Y K H Q G P L A W S G D G K Q L D F S$ TPDKKGHLLFHGKWNH
A A NFAPYWLPD GKRIIFASNQADPKN
QSAGK
FAI GVMKPDGTGERILTE GFHNEGPTWA LSVSPDGTKGAFTELSQGAGAAVVVVSF K $\square S N \square K D L L E G E P Y E A P M A P F G G \square E Q L A W S P D G K T I A Y T S$ T GTMQ WWRMKTDGSEQEQ TT T DKYNDWFAHPSPDGKWDAY DPRGEPAVAPVGRAAKGETPTPVPRQLSSGPFDHDCPAWD GKPQ $\square Y K Q S V S G G G A E R V T F V G N Y N A N P K D S A D E K T L V M I$ G N NQLYYVMNADGSDVHRDSFGTGRYATPVWS GDQ $\square$ AF TH $\square$ A GNLRVAVMSPSGGGMRHLTDNWQDEAPTWS
Q \T F GDYDDVNPA WHPDSKT\|VFESNRTENP
TPD
GERRALSKVSVDGGSVKR $\square P$
EGSYNVSPTDS
$\square F V I P A E G G T Q R Q L T S G D F N H G G P L S F T P D G E Q Q A S Y T P D$ NGNWD $\quad$ Y GY NANWSPFFHPDGDK!L

WCPYFHPSGKYLIWSGADYSKGPQN SPDARNYAKSGGSVVLHDLETGYSTALGGVRGVNSSPRFS GYLAEKRPTHDFLLDI ATKKLDTLTKGNYDETSIAWSP GGAPQlYRTTLTGRNVERVTFVGNYNVSPS


S $\quad$ THGSNQDGDPD $\quad$ YVMDVRTNVERQLT FHQSRDDWPAWS $\square F I V P S E G G S A R Q L T S G N F N H G G S L S W S P D S A Q D F F S A Y R$ GS QNQNADVSPD RDRVGF LEDGYTQ QF $\|$ VP T DGGRPRQMTTGPYNHGSLSWT VGNYNANPKLSADEKTLVMD EGDSQFFFFDVLRVPVMPEGRAEPQRLTAPGFTYWNPRPS GGPQDFLKDLGSGSVTRVSKNGTYNSEANLSPDGTLVVYS GAVARRFGNUSEDIFLLHTETGEEQRLTFGLEDDRGLSWH


G G S P Q $\square \mathrm{Y}$
RMADTGRAS GTAERDT FEGSYNVSPHYS
DS IVAASTN NDLF DYD VVSGETVRDTKNKGNDNNPTYS $\square \mathrm{DVLPSEGGTPRQ} \quad L T S G N Y H H S G K L A W R T D A K A I V F S$ QHIYFNHLSWPKRQIIALDGSNNSPEIINEDSDAGQLSFD ARRPGHAQUFRMSQLTSDERVNWFPHISSDGKNIVYLLSP PAVAPRGRAAHEQPTRHVAGIPTARQVTFGDSDHESPCFS LWRVPSAGGEARRLTTRGTSDRAPAWS
 NTLK


S DEFGF $\square Y E K N R Q \square A \square V Q V E T G E \square R P \square T T G A G D H T A G S W S$ TTCDQUYELDLNVDPRKQIMKRMSTGLGGTTCSFFFNEPD $V V L V H Q Q N G Q F Y$ GKRELITSHQG $\square N G A P Q F S$ VVLVHQQNGQFH 1 ALLDLVTNRLQVLTSTQLDESPS IAPN
 $M Q V W R M K A D G S E Q E Q V T K D S D D N W F P H V S P D G K W D V F I S F$ WE GLDELAAVRP G GESVYDQEKNPEDYVLDFMERKLTRLTVRHFSIDTEPTWH DGESVYDQEKTEPDSFEPVEVHGLAYKRDGKGLT K GGFQQTY KPQUYVMPASGGQAQRISFGDGSYSTPVWS SGFQQDY RYRVILRAWMKSDGTNVKRUSFGEGLYGTPVWS E $\square G W G T G D T F A M D V D Q P A Q R H R V L G E E T S W S A R P E L A P D G$ GGRFS $\square G V I R P D G S G E R E D S T G Y L V E G P T W A P N G R V L M Y F$ R IVFHSFRQGNRD $\quad$ Y CMTKNGESVQALTNYPSHERSPDWS T Q Y
DRYSQ $\square A A D D L A T K E V N T F T E G N Y S H \square L Q G \square S H D G K T L V I$ HANY SEGRDVIRMYLLSTETLETKQAPDGPKCDEQGMPAFSHNG GV SMERDGYEADKI RLFVVMDLTTGEKKEYTDFDQNAEHLAWD
 RDGAKIYNI YKADVTTRKEVALTKNTSGHVDGPEYSP DD
 R GNQQLYVMNSDGSDQHRDSLDKESSYFDCVWS $R$ LVF QS YRDGNFHLWTDQPDGRS LRQLTTGRHDHREPHFT KVVFNSDRGGTQQLYVMDGDGSNVRRISFGKGRYATPVWS 1 MV NKN
 NQEDKHPFGRAVKLRLIDLETKKGKDLTDGQGT INVPSWS $P$ E R WQQ DWVVPVVP RHGEPMPKPVQVTWGNYDHGGATWS

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UniRef90
UPIOOOB UniRef90-Q4QNGO UniRef90_R5P9Z1 UniRef90-R6L790 UniRef90-UPIO0047A7531 UniRe99_Q2KV91 UniRef90-U6B638 UniRef90_D2Q0B1 UniRef90-Q1EI32 UniRef90-UPIOOO3942213 UniRef90-F7NW69 UniRef90_COBGL4 UniRef90-Q67QV2
UniRef90- Worta


GEETFFTHRSSRGYQVAKQDLGGGRLVVLSESTRDESPSV GKEIVFASWLDNRFDLFKTNSDGSGLGRLTDFGSNEDPDY PDGKI LASSEDNTVRLWDVAT GSELRQI FGHGNSVSVAF GKTLFLVHRDDQGFHVAKKDLGTDRLTILTDSQWDESPSV ANRDKDWEYQSRESDLWQVTLADHKLQQLTDWPGEYAATV

PNGRMFFRDTGRDFDGY PEGAVLARSRERG EGAGATPLIDEQ PDW RKKTGKEYTLSTNSDITYFYDVESGQTQNMTEGMGYDVPQF VTFNTDVPAGDHPPNLRLMNDETREVTVLAKIFGGNVPSW HRQQGF PRGDYFTKMANGQFYI GVMYPDGSGERLLASGYLVEGPTW GRNVALVHQQNGAYH| AVFDLVTERLTVLTTTVLASESP


 PDSSLIVSSYREENSEI Y AVVKVEDQSVVQLTKRNGDDSPSV HRQDGF PDGRLDACLRAPE RMTEYGH RIF VQDMLT GTERQI SFGPGSDQPSF
 $\square S T G \square Y F V P A E G P R S L R Y F D F A T R Q T R P D F E V D K F F G S S V$ PDSFVFIGRNGDRFNVATQDLMTRQVQLLTNSQFDESPSF
PDGRYLAYFEADRRRПMLFDRKKRTTRELTAGFPYSVSSF ANRIADWEYKRLEGDLEEVDFN RNTTQLTSAPGRYAPSF DHPNTYNRADNDDLNLDTADLKKMELYSNLTPGHFYVPSW PDTTGHPADCDVILRLMQUGGGKRDLARFNGGNVNSW ADSAHLFHDDDLVTSLYRVDAGGGQPTAVGPSTRKPAVRT PDKLAFLRAQDGPPQLWLLPADGGEPEQLTTLPGAGTPSW SPDGQRVVSGSWDNTLKVWNLATGEEERTLIGYGFWVSAT MESQNFDFRETGSDLHRVDLNG VETQLTDFPGAESPSL


PDGKWVA TSANRSSNTYZVPDDGGEWRKTTQSNGFGMPRF NNHRLYTWDDYPDFDIFMVNKYGNIVKQLTDEAGYNAEAL PDGKVLSKDRNGATEVYMLDLATRKETRLTNHRSTDTPSW GSMVLYGTKHAGRGILAAVSVDGGVKFRLPSRDGDVREP GHYLVYVHRRNGKFNVGVQDLQRGTFNTVTKTDMDESPSV LPTEVRPDDHPFYKHVYLMPITGGEPKVIAGQGTDNTPSW PDWLAFVSNRDGQFEVYLAGADGSAPRNFSQHPHRDTPTW PNRILFTSDRGGTPQLYELELDSRKRRRLTYAGNYNARSL PNGRVLTFFRDTPGQVWTVDLTGYNEQRITTPAFGSDPAW PRGDYFTKQGGGQFAI GIMKPDGSGERILTSGFHNEGPTF PRGDLFTKLYRNKFY GVMRSDGSGERLLTENYYQEAPSW SKTVYAAANHLGQQP FALDVAGG VRQLTKDGTADAPQP KEKPTGEGGRQRQVRLYSIDLTGRNERQMLTPTDASDPAW SDKVIFFSDKTGLNEVYAISSDEGEPQQLTFEGGTFPK W

AVNREENTDNVFRTPYLVDVDSKETVLTEEDGYFGAEF PGRLAYVSNESGYYEI WLQDADGERRQLTRESQLRHPAW EYLAYWCIDHNDEAGLYSLPDPDGEPRMDATFREFPSLTW PNSALFTSDRSGSPGVYRMDASGGSAMVAVGGRGSAQI NNTUWFISDYHATDE:YSUNTATGEIKKHTDGIHNY TS SV RMKTGLAYADSTDSDIYEYDVQKGGFVNLTEMAGYDTPQY GKY YYNANPTGTMQLWRMKPDGTGKEQLTFDENHWFPHL PDTLLYVARRDGAFR ASLNRTGTETLLTDGRDDQSPSF GRSVYALIEQAEVTHLARIDVASGKVTELTHGDRFDVDLS PREDLETKFSN
PRSVGSSDRGG PRGDLFTKDH
RQHFVWASERD
PDGLEFAYVR
PDGRYDAFGANRTRDTFTTPVPGEDPRNTGGGAFRAARF


WRNNKELFFTCGYS $\square Y R V D \square K K G R \square R P V$
SENGKKLAYYRNSKLNTMDWQDKTSHMIAKDDRSDQDPTW SHNGKAIYFTEDWQLK IVPDDGGSPKNLDVKKWDWKKDR SPDSRSIAF
SADGRWLFYARNSVLYAMPDAGGEATALT
SPDGERIAFSSSDGHLHVVDVASKKCRQVTEGDWHAGDPSW

SPDGRTLAYNDDANLYVMPVEGGTPREV
SVKGNLVAWQRAGQVYLYNVDTGEEAEVSPG
SPDGEKVVYLSY GELKLMNADGSDDHRL
SRDGSK LLYGTMKK DWVTD DATGT TTDVTDGDVRSP
SPDGKTI AFTSDLELWTMNTDGTNLRQVT
HPNGQDiVFTSNAQUYKLNLQTGRSQRMT
A
APNGSMVDYGTQDRDEAVS $\square$ DGSVKVE $\square$ PS S K E GEVREPAW SPDSKRI AFITSNDI
TPDGRGI TFVSGFDI YTQTL
APDGRTLVMVHRAHIAT LDLKTNRMLELTETRDDES
SPDGKSLVFSAN
S P
APNGRVLMFFRDPSLFTVDVSGRNELRVPTPGYAS DPAW APNGRVLVFYRGAKLWSIDLTGYNERLI Q TPTDASDPSW AA GGRIVYVYDADLFVMNADGSGAKQVT
SPDGKRIAYNRDGNLRVMDALGGATRDV
S P
$S P$ VGNS $\square$ A Y $\square$ SEDS $\square N \square I S Y D D G K T R T \square$


UniRef90_WORTN9

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UniRef90-E5WED5
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UniRef90 D9QMK7 UniRef90-C1AA90 UniRef90-A0B7E9 UniRef90-M5TG82 UniRef90_UPI000370EC45 UniRef90-A0A023X0D2 UniRef90_LONF34 UniRef90_B2ICN6 UniRef90_UPI00047C0277 UniRef90-GOK1Z1 UniRef90_XOSNR5 UniRef90_UPI000470D5FD UniRef90-ILEHEO UniRef90-K9PFT4 UniRef90-Q12MY2 UniRef90_A8GXK7 UniRef90_UPI00035E66A7 UniRef90_UPI000314C70B UniRef90_K7AJX5 UniRef90-S5VHX0 UniRef90_UPI00047C9AAD UniRef90_UPI0003818665 UniRef90_X5E1Q8 UniRef90-B5ZRK5 UniRef90_A0A017SFV1 UniRef90-R6DDF4 UniRef90-G8NPN8 UniRef90-D5SKM7


NVVWS P S GNRTh Y T S S NQ TF VR WMDS GVS T S TT S LT $\square A P A \square D G D R\|V W V D G R D I Y L Y D\| V G A T E T R I T N G T$ $\square A P D \quad G R R L V F T S D F D L D E L P D D G T A P R T L L A N S$ DPALSPD GRWLVYTPQSDLWRVGFDGRARTQLTHGP K

```
K N P T L
\(\begin{array}{lll}S P \\ S & P D \\ S\end{array}\)
WS PD
R SVVYSPD
QPA LS SPD AWS
``` GKYVAFTRDNDLFTVDLTTGKELRYTSDG GSELAVSSGHDI HLFDLQTRNLQRLTQHP


 \(G K T L L Y N G D G L M Y T F N L A K R K P T V L N T G D\)
\(D K R I V G G L P G L V V N A D G G G R R Q U L S G E\) \(\square S P D \quad G R T V V F D S Q R D L W S V G V D G S N L R R D T D T A\) VYLQQQI ERGQRELI GTFD SPD GQTLASASDDKLWK LDGTLITTLTGHS PGPFASRIAYVRQTELLVAESDGWNPHPIVRGI \(\square S P D G S K A L F T Y T A H L Y H L D D A S G G V T Q W T Y G K\) Q QLAFTGKKEVYTADDFFGGAKQITRDN PHW SPD GSKIAFVGGDHFYLVAATGGGPKVVTRDN S VAPS DDQLAFT LMSPTWSGKKI VYVTNGNVWSVDYKTKQMQP
 \(A \square S P D\)

S P D GRTVVA TRIAYTA QNLQLADADGARARTI LE SR
\(\square T \square S P D\) GQMIAFISDDNLWVMKADGTAARQVSEDD
GKTYM
FASESDI ISIDVVDRNVKKLT IDG \(R Y \square S L S Q S V K G N\) N LSPD GRFRAYTSYRDI Y REMETGKEQRITSSGP DKNTNRVAFTMENNLYVAQPNGGKILQVTNSK
 PDNS VGMSSEYGLY VVNDGTGLTLI PTEA SPD GTK GMSSE SPD S GK K WV \(\mathrm{V} F \mathrm{~T}\) TSE

A WS PD GRWDAVAMQS H:
\(S P D P G G R R V A F V V A S R \prod W L V D V A G G E P R Q V S Q G P\)
 APALSPD GKQLYTRESSVWIMNADGTKNRFLVK

 I ETFDLATGRQSRVVWQTE PGMTFSPSPDGQKIVMSASSNLITMDLRSRNTTRLSDSS

WS P D
and
\(S P D \quad G N T L A F V S Q G Q \prod Y L L P M N G G E A Q R L T E V P\) \begin{tabular}{llll}
\(P D A P G\) & \(T\) & \(V W S S G N T\) & \(Q A M E P A T G K R T T\) \\
\hline
\end{tabular} VAFSPD GKTIASASDKTVKLWNLDGQVLQQTLQGHS KSLVLTPRFSGDK TFYVSYATVYEKDLKTGKES VVGDFA LSPD GAHVVYVLDRDLWTVPTDSGPARRLTSGP

 VDGKKLI \(\operatorname{VaNSKGRFYNYELETNSDTPGNTGF}\)

\footnotetext{
DMSPEWS GSRLAYVTKAQVVVHD
}

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UniRef90-D8EYV8 UniRef90 B4W8E2 UniRef90_UPIO0029B2DE5 UniRef90-M1P9F1 UniRef90-K9W0M9 UniRef90-UPI00026253D3 UniRef90-W3AB26 UniRef90_UPIO0047BD09E UniRef90-B1ZQW0 UniRef90_UPIO003687704 UniRef90_UPI0003B6D67A UniRef90-U1L4R5 UniRef90_UPI000463A87D UniRef90-E8WXM2 UniRef90_W5WHQ9 UniRef90_UPI00039A9B99 UniRef90_V4PDG4
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UniRef90-M5TG82
UniRef90_UPI000370EC45
UniRef90_A0A023X0D2
UniRef90_LONF34
UniRef90_B2ICN6
UniRef90-U1LZS7
UniRef90_UPI00047C0277
UniRef90_GOK1Z1
UniRef90-XOSNR5
UniRef90_UPIO00470D5FD
UniRef90-14EHEO
UniRef90 R5V6G0
UniRef90-K9PFT4
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RHNGAPAFS \({ }^{50}\)
50
R
70
L Y Y V \(\mid\) M D D \(\square\) A S G Q \({ }^{80}\) AHEWSPVWSPDGKRLAFI SDASGSPQIAIYWTDTGKH
 KGAGGISWSPDSRRIAFTSSTKNEDIAEKQKKNEDDKPKK
 F RLDWDFNEAYMTGWTLSASPQDW ESPGNLSWSPDGSLILFSKFVPGSSSAVKDNIPSPPSGAK

 KYYGNVTWSPQGDKFAFT SNQDGSNQLYVYWMASGTT ADESQAQWSGDGRF \(\square A F \square S D R K P A D G K T Q V W T M P A D G G E A\) TDVIYNGWSS WVYYEE ILLGRSTNYKAFWWAPDSKHF A D DVVESSAPDGERVVFSSAR GGGSQLYVMNRDGSDV
 NGASKPVWSPDGKKIVFNLSVKPGEDAETKENQEKQTDRP PDIRGLAWQPDAEKIVFSADMHGNRHGFELDLNSKHKTNL NFKLNPAFSPDGSRIAYSVAGAPDWDTWVVPV TGVTAFKWSPTGKQLDFSATVPDRDDYKMVHLYLLDSLDK NNNNDHVLSFDGKMLGLSSGVKELGGSII YTVPVTGGTP AFPTAWDWKRKGVIYTSIGPTFASERTEVVVIAVSLGDDD
\(G L D N G A C W A P N G K E L A L T M\) GLDIGACWAPNGKELALTM SHYKGNPDIFTIDLQGKUL DNEESPTWSPDGTRIAYACDGDTALG WQ YVRDVAGGPQ NMTDAPRFSSDGQKV 1 MS LL \(Q\) SLVYSVIFSPDGQTI A
\(M \mathrm{P} V F S \mathrm{PV}\) WS PNNHRLAYVTY
 ALALMPRWAPDGNRLLYTSFFKS GFPDIFQIDLS GRAGACAYLPNGSG LICHSYDTGASVVSILPLDGGAP
 QHNGAPAFSPDGSKLAFV DSKDGS LN MVVMDLKTRKMI
 EPDMSPSWSKDGSKLAYVSFESSRPG TVLLSPEWSHDGQ SLLYLERYRPSYNAYELWQYGLDGKET VKDSHPAYSPAGDTIAFLSNRS GKNQI WDLPVHGGEP EPIISPAWSPNGRELAYVSF EARKAVVYVQDV KNNAFPSPSPDGKWIVFRSGRSGHKNLYVMDAVEGEKKGL GLDVSPSFAPDSQRLVFSSDRTGS PQLY TTDTGTPP GLALPGGWSPNGQSLLLS QQGDGNSDUFLYHTRRRSM DKNI VIGQADHRSEYGDKKGDFFSPNGNLLAFYQKNE AQVSAP YAGALLAFHSTSSLEPGDFDLGASLSPTERT YNESDAGWTPDGKFI TY L A KGQLWEMNPDGSNP APEYKPADSPDGKKLVFVSEQYDSSGDLILLKMNPGLWDF A QF GHLA WSPDDRQI AY IKYSGEGFRKHDLI LYNM
KWNSIINGVSDWVYEEEFSFAKAFQWSPDSRKIAFY DFDE GVDGEPRWSPDGEYLAFVSTAGADDDRPQLWVLPADGGEA GVSDAAVYDPDVIAFVSSRRDNDTWGTTNUWTLNLKTGALD LAETRPVWSPDGREMAFTRRRVDMSHFEVVRFNDAAKTAB ENVRSPVFRVDGSFPSFSPDRIAYVDFPGVYVVNRDGSNL GTDDLPRWSPDGETRAFRSDRKKRGTGQLYLLRSWAEPELC
 S N A K WS P E GS R I I A F A ANWNMRWSHDGKRIVF KGTNRSTGDADIAVFDDDQPKQ DF LTKVVFSPDGKTVA ERVAGAEYSPVRDEVLYS \(\square D V G G\) A LFEAPNWSPCGRYLL L SIDTSPSYS PDGTQUVFESDR
 \(\qquad\)
\(\begin{array}{ll}N S E G L I Y T D A D D G S M R \\ G G T Q Q & Y M M S A A G G G T\end{array}\)
\begin{tabular}{l}
S \\
S \\
G \\
\hline
\end{tabular}
T GVY G \(\square\) K WVGK H \(\quad\) Y F \(\square\) S N \(\square\) F P
EYFASPALSPDGRTIAATFQVKPPEAGSDLYVVSRDGQDW GSSTIVNGTFDWVYEEEFSCRDG FAGS RWSPDGG SSVWGVAFSPDGKTi A SAS LD KT GTESDVTFAPDGKSIYFMASRSGS SQI YKLALNG
 PR A I DTEPSWTPDSQSLIFSSER
 RGDSEFAFSPKGDKILYDSTVKSIEKPVDKYLDKATGRDI ANNNDHVLTFDGKLLGISHHNQDDNGDSALYYLPTNGDSN
 KLVEAPNFSPDGCYLLL
 TDVGLFHWSADSKHIAFTQRDHAVNGRAERFGSFEVVGKD


\section*{UniRef90 L5YWZ4 UniRef90-A3WQP3 UniRef90-Q094E1 UniRef90_Q7NJX8 UniRef90_AOP5D9 UniRef90_UPI000363BA7C UniRef90-Q2W2B0} UniRef90_UPI000370392C UniRef90-I7KCG4 UniRef90_A0Z8Q7 UniRef90_UPIO00374A2A1 UniRef90_-14WJ82 UniRef90-A6EAP5 UniRef90-Q0ALY5 UniRef90-B8KPN3 UniRef90-E5WED5 UniRef90 A8YMC6 UniRef90_U1KQK5 UniRef90-Q020K1 UniRef90_UPI00036378BB UniRef90_D2QBS8 UniRef90-K4A6T6
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UniRef90-D9QMK7 UniRef90_C1AA90 UniRef90-A0B7E9 UniRef90-M5TG82 UniRef90-UPI000370EC45 UniRef90-A0A023X0D2 UniRef90-LONF34 UniRef90-B2ICN6 UniRef90_U1LZS7 UniRef90_UPI00047C0277 UniRef90-GOK1Z1 UniRef90- XOSNR5 UniRef90_UPI000470D5FD UniRef90-I4EHEO
UniRef90-R5V6G0 UniRef90-K9PFT4 UniRef90-Q12MY2 UniRef90-A8GXK7 UniRef90_UPI00035E66A7 UniRef90_UPI000314C70B UniRef90_K7AJX5 UniRef90-S5VHX0 UniRef90_U5Q711 UniRef90_UPI00047C9AAD UniRef90_UPI0003818665 UniRef90-X5E1Q8 UniRef90-B5ZRK5 UniRef90_A0A017SFV1 UniRef90-R6DDF4 UniRef90-G8NPN8 UniRef90-D5SKM7

100
\[
110
\]

WF PDSQTLAFTSDQA
PSSLLSWSPNGDYI AFSQFTPIKSA \(N Q P V W A P D G K S L F F D S T R G G S\)
 Y L H GWSADGQTMLFTGNRNGQ

 \(\begin{array}{cc}\mathrm{T} & \mathrm{L} \\ \mathrm{L} & \mathrm{L} \\ \mathrm{V} & \mathrm{L}\end{array}\)
 \(R \mathrm{RLSHKVADADYKRVTGEDGYF} \mathrm{\quad DTQUYUAESGPKNDR}\) WEQSAQVIDKAVYRRD \(T R \square T A D P G G Q V V P A \square D G D T V V W \square D N R A G P A G G\)
\(A K L T T L A E A P S D I S W A P N G K W \square A F T R K V P G P A P\) RPMVTARDFPPGTTTADTHPVFSPDGSRFAFVRYATDQPA A ALT NFTESPSNLSWSPDGTQ■LFSK \(R Q V T H L P A G V E E F A D S\) MRFDDTKVPMFP \(\square\) NGSTGQHGYTEKTRYP KAGDPNP QRITFG SGRYTTPVWSPRGDLIAFTKQVGGQFS MQV \(\underset{L}{T} P\) L RTLAVH TDVVSSVVYSPDGRYLASGSWDNT
NVEGFSYPAFDRAGNLYYHDWKDDTSDMRLELDDSDVAASP
 K Q \({ }^{\text {L }}\) T
 RQLVEHWGIDVSPA FSPDGTKLAFVSNRSGS WRRIAHKDSDVIYQRMTGETGFFDS RVVFVSEEGTQLNR TRISDAGAGDATEPSWNPGTDPAARNTVAYTTNPDPNVDD


 \(T Y Q R T T F V S F K G T N S G A R F S P N G Q Q V A M V L S G E G T\)

 NKVTSGRSNDTEPS
 \(R R I T R L D Y R L D N T G F L L D R P Q\)

QSFAGLNGAPAWAPDGQRLALTLSKD

 Q QL T H L K H GA GA P K







 \(R L V T\) D A L P G L V R V A W S P


 \(Q \mathrm{Q} V A \mathrm{NF}\) K GNNSAPA \(R P\) S R G GGSYTAPAWSPRGDLI A F T K K S G G G G Q F G

 NT L G H
\begin{tabular}{|c|c|}
\hline \multicolumn{2}{|l|}{\multirow[t]{3}{*}{}} \\
\hline & \\
\hline & \\
\hline
\end{tabular} \(G G F S R D G E\)
\(R Q C N N D H G \|\)
\(D G R Y S T P V W\) A R V T D R K
R R A \(L\) A \(Y\) G V D Q \(D\)
TRITTHDDVVSVVPE

 A Y WQS DTE GTGWFD I I N N V D S L Y P K I L R FP Y P KA GT T N S A








 VK V D T G F A V N C N N D H G \(\quad\) I
 Q K L S D Y K


\begin{tabular}{|c|c|}
\hline & \\
\hline UniRef90_L5Y & \\
\hline & PVSLPGKPEGADWT \\
\hline & SQVWRLPDDGGEPTQV \\
\hline & D \(\backslash\) Y VDVASGKETQL \\
\hline UniRef90_Q7NJX8 & PAAKQUTKGEFEEDAPAWSPDGTRYFTS \\
\hline UniRef90_A0P5D9 & NSQIYTIDADGKNIKQLMRSINTEPAWS \\
\hline UniRef90-UPIO00363BA7C & SQIYTINADGSGLTRIS \\
\hline UniRet90_Q2W2B0 & G \\
\hline UniRef90_UPIO00370392C & FTHIFVISAEGGAPRQLTSGDYDHSSASWAPDGNIIFTAD \\
\hline & \\
\hline UniRef90_AOZ8 & QLGAMP \\
\hline UniRef90 Q02019 & \(\checkmark\) E \\
\hline Ref90 Uploou374A2A1 & OTVIAFA EARPAGAPKPKNOPPIVTDRFQFKDDDSGWLG \\
\hline  & \\
\hline UniRef90-AGEAP5
UniRet90 OOALY & KVGFVPVTGGDVVWA AFNEKPYWSYDGSSLM \\
\hline UniRef90- B8KPN3 & LTEVRADGSGERLLTEGYFVDEDDDKPRPHV \\
\hline UniRef90-E5W &  \\
\hline UniRef90-A8YM & GHSDRVESVVYSPDGRYLASGS \\
\hline UniRet90-U1KQK5 & A ADKLAFISSESGF \\
\hline Q220K &  \\
\hline UniRef90_OP10003637 & YVVPL \\
\hline UniRet90 D2QB & YSVPSAGGPEVRLTE \\
\hline UniRef90-K4A & QI Y LLEIISSGRVD \\
\hline UniRef90-B4W8E2 & RLTIADQDGF \\
\hline UniRef90-UPI00029B2DE5 & GTELRATEGLGT \\
\hline UniRet90_M1P9 & \\
\hline UniRet90-K9V & \\
\hline UniRet90_UP10002625 & \\
\hline UniRef90_W3AB26 & FTD GKEDEKEKKNPEPVFVSKLKYKMDGMGLVPMDF HR \\
\hline UniRef90_UP100047BD09E & NPETYVMDVASRQETRLTKTINTEPVWSPDG \\
\hline UniRef90 B1ZOQ & GRQVS \\
\hline UniRet90_UPIO003687704 & WVQRLDEPNRGR \\
\hline UniRef90-U1L4R5 & PPVNLPGKPKGATWAEPAKFDDEVYYRADGG GYSQKGF \\
\hline UniRef90-UPIO00463A87D & RPQLYTVNTNSGDTQRL \\
\hline UniRef90-E8WXM2 & GQD \\
\hline & QLFVAELDGRQLTEVDCDLADPAWTEDGERLVVVAPRA \\
\hline UniRef90_UPIO0039A9B99 & NPE \\
\hline UniRef90-V4PDG4 & \\
\hline UniRef90 UPI00036F0A70 & NSTTHVD EQK \\
\hline UniRef90- UP100332A560F & \\
\hline UniRef90 W4M3A4 & A LDL Y TikPDGTERKRLTRGQRFHTWLPDGHTLMGMS LRG \\
\hline UniRef90 W4L919 & QLYISDRRGGKPLRLT \\
\hline UniRet90_14AON2 & KVGIYDFRTNKTTYLDNTDDFHYAWSPDEKYIVLAEIUNR \\
\hline UniRet90_101560 & RPR YVRSLSTGEED DLGFKDP \\
\hline UniRef90-9Z658 & IQNLVVLDTEGKEPMKLQKGGASPFWSKDGKS \\
\hline UniRef90 N10426 & UR YKMD S \\
\hline \begin{tabular}{l}
UniRef90 G8ULT2 \\

\end{tabular} & DNKTHKVDLGKVQDVYIPRIVRWTQSANMLSIN \\
\hline UniRef90 \({ }^{\text {W }}\) WJJ & EGRD \\
\hline UniRef90-B9B7U6 & ETA MYEIRPDGTGFRQDGYADGSPSWSNDGKQTVFYETPV \\
\hline UniRef90-UPIO0036283FD & QFEVRAVDGGDPARDTSDDADKDDPTWSRQGRLAFWSKTG \\
\hline UniRef90 G8NQ32 & RIVLISVATGERTSVTSPPITGSSGDIDDK \\
\hline P100042B &  \\
\hline D1C8R1 & ASGEARCLT TGPVAVWE \\
\hline UniRet90_W7G7G4 & A \\
\hline UniRe990 B6BW78 & Q YVMNADGKNUKRLMRSRDTEPVWAPDGKS YFV \\
\hline UniRe90 & WR G \\
\hline C1AA90 & \\
\hline A0B7E9 & \\
\hline  & 㑆 \\
\hline OEC & WD TTTNKVIKTLTGHDDVVLSVIFSPNGKTLASGSTD \\
\hline UniRee90-AOAO23XOD2 & G W \\
\hline UniRef90-B2ICN6 & QSA GVMPADGSGERILTEG WHWSHNEGPTWAPNGLY \\
\hline UniRee90-U1LZS & GAG \\
\hline UniRef90_UPIO0047C0277 & G \\
\hline UniRef90 GOK1Z1 & \\
\hline UniRet90-X0SNR5 & KIVSI DLK GKREVVFPG \\
\hline UniRef90-UPI000470D5FD & A HVFRIPAKGGEIEAITQTLGHELPRSSQSA \\
\hline UniRef90_14EH & W \\
\hline Uniref90-R5V & KLWNADGQVLQTWQGHSNSVYSVAFSPDSKTIATASDD \\
\hline  & \\
\hline Unieeso - & Q \\
\hline UniRer90-A8GXK7
UniRet90 UPIO0035E66A7 & VVVDRLM \\
\hline UniRef90 UPI000314C70B & EGKELAVLTGHSEGVMSAQFSPDGQ \\
\hline UniRe & PNGSMIIYSTLHQGK \\
\hline UniRet90_S5VHx0 & VPRLRI TDGTSDEALFAGDYAGWWLPDGDQLVFLSPET \\
\hline 50711 & \\
\hline UniRef90-UP100047 & \\
\hline niRef90-UPIO00381 & FVMNLATHRET RLTNNIDTEPVWSPDGKSIYFTSDR \\
\hline UniRef90-X5E1 & \\
\hline & C Q \\
\hline UniRef90 A0A017SFV1 & S \\
\hline & ODL \\
\hline 俍e90- D5SKM7 & \[
\mathrm{RT}
\] \\
\hline iRef90-M9X4A4 & AKVSSDGK \\
\hline
\end{tabular}

UniRef90 L5YWZ4 UniRef90-A3WQP3 UniRef90-Q094E1 1 UniRef90_A4CJZ5
UniRef90 Q7NJX8 UniRef90-A0P5D9 UniRef90_UPI000363BA7C UniRef90-Q2W2B0 UniRef90-UPI000370392C UniRef90-17KCG4 UniRef90-A0Z8Q7 UniRef90 Q02019 UniRef90-UPIo00374A2A1 UniRef90-14WJ82 UniRef90-A6EAP5 UniRef90-Q0ALY5 UniRef90-B8KPN3 UniRef90-E5WED5 UniRef90-A8YMC6 UniRet90_U1KQK5 UniRef90-Q020K1 UniRef90-UPI00036378BB UniRet90_D2QBS8 UniRef90_K4A6T6
UniRef90 D8EYV8 UniRef90 B4W8E2 UniRef90-UPIOOO29B2DE5 UniRef90-M1P9F1 UniRef90-K9W0M9 UniRef90-UPIO0026253D3 UniRef90-W3AB26 UniRef90-UPI00047BD09E UniRef90-B1ZQW0 UniRef90_UPIO003687704 UniRef90-UPIo003B6D67A UniRef90-U1L4R5 UniRef90-UPI000463A87D UniRef90-E8WXM2 UniRef90_W5WHQ9 UniRef90-UPI00039A9B99 UniRef90-V4PDG4 UniRef90_UPIOOO36FOA70 UniRef90-B1YOV3 UniRef90_UPI00032A560F UniRef90-W4M3A4 UniRef90-W4L919 UniRef90-14A0N2 UniRef90_101560 UniRef90-F9Z658 UniRef90-N1U426 UniRef90 G8ULT2 UniRef90-UPIO00479E9A2 UniRef90-WOJUGO UniRef90-B9B7U6 UniRef90_UPI00036283FD UniRef90-G8NO32 UniRef90-UPIOO042B6488 UniRef90-D1C8R1 UniRef90_W7G7G4 UniRef90- B6BW78
UniRef90 D90MK7 UniRef90-C1AA90 UniRef90-AOB7E9 UniRef90-M5TG82 UniRef90-UPI000370EC45 UniRef90-A0A023X0D2 UniRef90-LONF34 UniRef90-B2ICN6 UniRef90-U1LZS7 UniRef90_UPIo0047C0277 UniRet90-GOK1Z1 UniRef90-XoSNR5 UniRef90-UPIOOO470D5FD UniRef90-14EHEO UniRef90-R5V6G0 UniRet90-K9PFT4 UniRef90-Q12MY2
UniRef90 A8GXK7 UniRef90 - UPIOOO35E66A7 UniRef90-UPI000314C70B UniRef90-K7AJX5 UniRef90-S5VHX0 UniRef90-U5Q711 UniRef90-UPI00047C9AAD UniRef90-UPIOOO3818665 UniRef90-X5E1Q8 UniRef90-B5ZRK5 UniRef90-A0A017SFV1 UniRef90-R6DDF4 UniRef90-G8NPN8 UniRef90-D5SKM7

Q YVISAEGGTARQTTDDEYNSGGDLEWSADGKQIYFSAN RLAVALEVFPDCATLECTPERVEARKKAKTRGRVYDTLED TGTMQ1 WRMRPDGSEQTQLTHDRFNDWFPHVSPDGKQVVM TDDYTVSAGGGEDSRVVNDDGPDGTFALSPDGNRRDAFV AGSAQUYKVDV EDTY LSYFKGVPRVY TFNLDTGRRESLGNFPGMTFAPRFS RSGNADGDPNNEQUYEMNIETGAMTKUTDKRGPHSSPK LIFAIIPAQGGTPRQLTTADYPMRKGIAWTRDSRDIGFFS
 RDGGGYVQDGYRHDFIISAEGGTARQLTSGSHQYGSPSWT
\(A R H K H L Y V V D A S G A A T E L T G T H D E Q L P A W S P D S R Q T M Y ~\)
 QRANG TRYEDWSVDLAGFNLRRLATGGMASDPAW
 NTi GTQRK was VR

CRDGPDDGSSPGO QLTMKFHARNTS ENEFYFYSNRDIATPATGGTPKTQTDGPPSGACMFAAWT TGTMQTYRMKADGSEQEADTNGEFHDNFFDENASLLEWT保 RTAFVGKTDGHFDTFTMAPDGSGMKRLTADSGNNEDPCWS EDTYVADGKDYSRUYDRNDTTGRTESLGEFDGQVLAPRFS TCGCDDFDHVY RVTAFDGTKAPDQLVDENREVGPPTWF DYIAFTKQSEGQFSIGVMRPDGQGERILTTGFHNEGPTWA DTVK LWKLDGTLITTLTGHSGSVYSVIFS AGGPQTYAMNANG GNIHRLTYSGGYNAGPEYS QIGVVDLHTKEVQQUTEGNYDYNLEAVSNKGDQLVYGVVR SGRPQIYQMPASGGGANRDSFQGQNNL EPGPQLYVMSVAGGVPSRITSGGSRYCAEPDWSRANPNKD RGVGIWVLDRRTNAVVQVVGPNEQPR TEGPDDEMHVGMKTLNNKVYEEHIDEFANDPGGLYNPTAS QLFTDDANGGNAKQLTSDEFDNAGDVSFSKDGSLDYYSAN PDGKFVTMDT TLPNGQF
\(\square G E R \quad P T L H F D \square Y L V P S A G T P E \square A V R T E G E S Y R P V V H\) GGQPQTYRVYLADRRIERVTFEGNYNSSGKLTQDGRFLAM NQTGLRLRDLSTGVDRWLAFAVTHDQIQANSWLDLLPRYA QLVLCEVENGSCRKLTNADA DHTPGSFSPDGRMVTFTAN
GRTNHPYFSPDGKSTVFTSDYSGTSAEPTSNPHAYQPY AA WERH IAFVGRSETDSDDUTIGANGQGLRRLTDADGSYEAPSWS ATTHNRYDVATGKKVNTIFSYSNNIWVEPENAAVFVPNST ERGE TPGLYLI NVDGSNRQRLTDNGNDLRPAWS P 1 GVFGDVY EGEAQLFDGRNQKQLTFTVSPRRWPGWPPHGNQNPQWTPD MELLHADALTGKTEVVLIEESRTYVDVENFGDDMTYLAD GKRAHVYVLDVERALESADDASAVERLTDGDADHVGPTWG ESTWGAHRPEADQUVQVDVATGVRKQLTDTPGFKVFPQYV DGVPRVYTMDPDSP TGHKNLYİMD SDLP YAWSWYRARLVAI EGEAGGLRRLTEGPWTDTMCNWS HGEAVVYEDAPRDEQLHRLPVPAEQPLQALYGADAEQLLV GGGPQUYK DL LIFTVPADGGTPRQDTTGDWASNGTTWMPDGKALLFTSLRT
 \(H\) LlPPRRDYRMDANGKNLRRITWNFLDLGDHLSPDVSPNGK
QTIK LIVSHHTSNDDNDLYRLDLATGEARHGTPHNGDARFVAPD DLF MMFFRDASGQGGPRLFMVDLYGRGEFPVPTPSFASDPAW VYVVPA IGGSPRQ\|TSGADFAGALAWTKDSKQIIVSANT GQYLVAGSSYDEHNLLETVDFKTQQWSTLPQNGVVASPVWS DSEARLYYLDVERHTLRDDDGGKTRGAGDDDAQWPAVSR YGSDNRVDPKDDПF GKGGADKAENLTPDNEAPDSRPSFS
 NTVK
NKITTATNVTQGRDTETPPKPFSGMEEVTFTPDGQHIVYS GSEGKTFNIGVMKPY PQDDENSERVIASGYLVESPCWS WHAGAPAWSPDGRSLAFCAARGPAAALTSHPGEAAQPRLV NTAR LWNQEGKELAVLTGHSEGVMSAQFSP GRF
TCTCEG DYDHVFKSTAHADTEPGLVLNENREVLSPTWP DIYLYNLASKKAQNLTEGMMGYDTDPLYSPDGKSUAWISM GTMQLYSMKANGKKQTQLTFDDYNDWFPHVSPDQKWIAFD SGQPQ \(\square Y S V P A T G G A P T R V T F Q G Q S N\)
DQGSAHPGMKDVS
DLF \(\quad\) DTYT\|SVDGGAETRLTHGEGRNDGPDYD LGSPKWSHDGSRIIYYEMTRDTAWDAHRPESVGSANSTYV KVAAETDVLEGEPYEAPDKPFGG\|EQLAWSNDSKQWAYTC QRDFFYSNVHIVTVDVEDAWQRPVDVTARFDENPSLLGWS APRAGCVLVLDGAPVPVTGDLAAVPPRWTARGELLLTVDG

UniRef90 L5YWZ4
UniRef90-A3WQP3
UniRef90-Q094E1 UniRef90_A4CJZ5
UniRef90_Q7NJX8 UniRef90-A0P5D9 UniRef90_UPI000363BA7C UniRef90-Q2W2B0 UniRef90-UPI000370392C UniRef90-I7KCG4 UniRef90-A0Z8Q7
UniRef90-Q02019 UniRef90-UPI000374A2A1 UniRef90-I4WJ82 UniRef90-A6EAP5 UniRef90_Q0ALY5 UniRef90-B8KPN3 UniRef90-E5WED5 UniRef90_A8YMC6 UniRef90_U1KQK5 UniRef90_Q020K1 UniRef90_UPI00036378BB UniRef90-D2QBS8 UniRef90-K4A6T6
UniRef90-D8EYV8 UniRef90-B4W8E2 UniRef90_UPIO0029B2DE5 UniRef90-M1P9F1 UniRef90-UPIO0026253D3 UniRef90-W3AB26 UniRef90_UPIO0047BD09E UniRef90-B1ZQW0 UniRef90-UPI0003687704 UniRef90_UPI0003B6D67A UniRef90-U1L4R5
UniRef90_UPIO00463A87D
UniRef90-E8WXM2
UniRef90-W5WHQ9
UniRef90-UPIO0039A9B99
UniRef90-V4PDG4
UniRef90_UPIOOO36FOA70
UniRef90-B1Y0V3
UniRef90_UPI00032A560F
UniRef90-W4M3A4
UniRef90-W4L919
UniRef90_14A0N2
UniRef90-101560
UniRef90-F9Z658
UniRef90-N1U426
UniRef90_UPIOO0479E9A2
UniRef90-W0JUG0
UniRef90-B9B7U6
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UniRef90-G8NQ32
UniRef90_UPIO0042B6488
UniRef90-D1C8R1
UniRef90-W7G7G4
UniRef90-B6BW78
UniRef90-D9QMK7
UniRef90_C1AA90
UniRef90-AOB7E9
UniRef90-M5TG82
UniRef90_UPI000370EC45
UniRef90-AOA023X0D2
UniRef90-LONF34
UniRef90-B2ICN6
UniRef90_U1LZS7
UniRef90_UPI00047C0277
UniRef90-GOK1Z1
UniRef90-XOSNR5
UniRef90_UPIO00470D5FD
UniRef90-14EHE0
UniRef90-R5VGG0
UniRef90-KQ12MY2
UniRef90-A8GXK7
UniRef90_UPI00035E66A7
UniRef90-UPI000314C70B
UniRef90-K7AJX5
UniRef90-S5VHX0
UniRef90-U5Q711
UniRef90-UPIO0047C9AAD
UniRef90_UPI0003818665
UniRef90-X5E1Q8
UniRef90-B5ZRK5
UniRef90-A0A017SFV1
UniRef90-R6DDF4
UniRef90-G8NPN8
UniRef90-D5SKM7
UniRef90_M9X4A4

210
220
\(N G Q Q H \square A K O D \square V T G G V Q V\) RQPMNSEYAVOVDTGQT T
RRSDAF
RHWDAW \(\square\) SFPTSVP GFVNAKPFSGDHPFYLRMMPYEGGQPVAI A GQGTDNVPSW PDGKLFLNQDNGSYRVALQNLUGNAMLKLITNGPDDESPIF
 PNGELDYTGYDDQFDLYVMNRDGSNLRKVSQQVANDDSSW SDREVWSEGIN GGASLVVHNLTTGEEERVWGRPANMAVYP GNHSDDHEYQPRQSDLIFK FSLISGEDEPVTHQKGAFSPAV
 DKKHY DKSDKTGWAHFYLYQLDGTLVNPLTSGKWQVTDLV

P D SVVAFVSDRSENSNDWVVAVDDENLQKVTADSGKESPTW PDGKYFGHEREYHTKVWVYNLEFGNLQCLTAESD
PDGRYLASSDDKTIKI WEVET GKELRTLTGHSGVYSVAY PDKDAFTANNGQESRLYVLDAQTSQLQQIKTEDNYYGKAW

 PD WIAFSSDRHNPFAMYMMHPNGTGLRRVVHSADGNHPWF PDGRYFSSDRTGAYHI YMMNANGRTQRRI TFEKG


 \(P T G N A F I H R T D G V Y A L A V M D P N G S G L R V L D A Q G N C D H P S F\)




\(G R Q V Y Y L G V R P S N H G L W V A D L A G G T P R R L T D E E T V D C E\) FA P D S Q S \(\square F \| T V G G K I V R I A L D G K V T R Q V D T E D T G P V R A V\) RERDA \(P\) D S V Y F V D E R L C
D G G \(\begin{array}{llllllllll}P & Q & Y & R & V & A & A & G & G & G \\ A & A & E \\ G & E & F & T & V & L & L & D & G & S \\ R & L & T\end{array}\)
A Y R
\(P N G R F Y V G Q R G D T W L R Y L M R Q D G Q G K Q L L T S D A\)
\(K N\) LLWWS QK DGFRNIIYLLSTDGKTNKQLTKHKWVDILGF PDGRAFMSTRNGNMDVYRLSLQDGSLVQLTNDPAQDLDA R K K DG GD Y A E S T N T DL Y A Y N T E N G E T V V N L T E G M M G Y D K N P
 GKSFI MSSEKDGFKHLLYQYDMS GREDRRQITSSGKWEVAD F Y D S N TVVY Y A D D S VT F D L L E C D L E S G A V E A FA E T T G WV D S L W PDS LLAYTRGKSPHGQQWVTTASGGNPHRVTAGSVNESPWW

 VER


ED SEYA WRES D \(\quad \square Y K V D \square A S G D \square T A L T K R K G P D N P V P\) GRYVVWMDNRTGSDQUYVYDVLQGSERQLTTQQQAQLLSP E \(\square\) AFESFTGDPHESHIVVHLNIVDTAVQ DLGLGCIPS F



HDDAQFDV FNSDLMAIDVLTSKVTELTAMSGEGSPKM R DSQFDYFRRPLDDRVFRIAVSGGAAEKIADGKDWDA GWW RGGMLAFVHRRAQFGVFKVPMQGNDPERLFASSGRDQPMA P D K DA F V S N A H GTA QI Y VMDRD GKNKK HL SK GY S Y TA V D W \(P\) D GK T L A F T R Q D T S RLLML L D D H S R K L K T L T A NWD R S V S S W

 AKAPSTDQAWTTNYDLWQVSVKGGETTNLTPSNAAWDAQF PNGRVIMFAKGWPSNI YAI DLTGHNEREI KTPGDASDPEW GVSTGNA QAVTWTA ELLRVPGDGGPTVDLTHGLDRNDPRA DGQRIVTASWDGTARLLWNQEGEELAVLTGYSGGYAAQF

VNGGGVVVERDSAADPHVVTLDGSDPRNLTLLNEDPAANY ERNGY EADKKRDFVMDLAS GTKTELT TEYMYNVESW SFPKE IKSNDHPFYKLRMMP IVGGKPKDVIAHDYGGNVPSW D K Q \(\square A M V Q G N D N V Y R \mid A D L D R S G D Q V R F V S P G P Y E E S P S F\) LRLMNLANGSVKTLCSFTGGNVPSW GQW Y F NS S R T GLMQQ WR LHPD G S GLE QV T DNQ GN WF A H P




UniRef90 L5YWZ4 UniRet90_A3WQP3 UniRef90-OO94E1 1 UniRef90 Q7NJX8 UniRef90-A0P5D9 UniRef90_UPIo00363BA7C UniRef90 Q2W2B0 UniRef90-UPI000370392C UniRef90-17KCG4 UniRef90-A0Z807 UniRef90 Q02019 UniRef90-UPI000374A2A1 UniRef90-14WJ82 UniRef90-A6EAP5 UniRef90 Q0ALY5 UniRef90-B8KPN3 UniRef90-E5WED5 UniRet90 A8YMC6 UniRef90_U1KQK5 UniRef90-Q020K1 UniRef90 UPIO0036378BB UniRef90- D2QBS8 UniRef90- K4A6T6 UniRef90-D8EYV8 UniRe90- UPIOOO29B2DE5 UniRef90_M1P9F1 UniRef90 K9W0M9 UniRef90 UPI00026253D3 UniRef90 \({ }^{-}\)W3AB26 UniRef90-UPI00047BD09E UniRef90 B1ZQW0 UniRef90-UPIO003687704 UniRef90_UPIooo3B6D67A UniRef90 U1L4R5 UniRef90-E8WXM2 UniRef90-W5WHO9 UniRef90 UPI00039A9B99 UniRef90- V4PDG4 UniRef90-UPIOOO36FOA70 UniRef90 B1YoV3 UniRef90 UPI00032A560F UniRef90 \({ }^{-}\)W4M3A4 UniRef90-W4L919 UniRef90 14AON2 UniRef90-101560 UniRef90-F9Z658 UniRef90_N1U426 UniReigo-G8ULIO UniRef90-WOJUGO UniRef90 B9B7U6 UniRef90 UPI00036283FD UniRef90-G8NQ32 UniRef90-UPIO0042B6488 UniRef90 D1C8R1 UniRef90-W7G7G4 UniRef90-B6BW78 UniRef90 C1AA90 UniRef90-A0B7E9 UniRef90-M5TG82 UniRef90 UPIO00370EC45 UniRef90- A0A023X0D2 UniRef90-LONF34 UniRef90_B2ICN6 UniRef90-U1LZS7 UniRef90-G0K1Z1 UniRef90 XoSNR5 UniRef90'UPI000470D5FD UniRef90-I4EHEO UniRet90_R5V6G0 UniRet90 K9PFT4 UniRef90-Q12MY2 UniRef90-A8GXK7 UniRef90-UPI00035E66A7 UniRef90 UPI000314C70B UniRef90-K7AJX5 UniRef90_S5VHX0 UniRef90 U50711 UniRef90-UPI00047C9AAD UniRef90-UPIOOO3818665 UniRef90 X5E1Q8 UniRef90-B5ZRK5 UniRet90-A0A017SFV1 UniRef90_R6DDF4 UniRef90 G8NPN8 UniRef90-D5SKM7
UniRef90-M9X4A4

APNGTMVTYSSGSVLINLVSTDGRFKARLLPATDGQVKSPAW
APNGTMVTYR
SPNGDWLAFSQlSRLYVMSVDGTQSRVLTSELDRS
TPDGQGVVFTARDDLFLAPVDGKTPRKLTTA
SPDSRYI AFVTNSD
SGDGRSIVIATAANLKRFDAADGRASDVTTGD
SPNGHMVLFTYKDYIGTVSDNGLKMTP DVGSEADLESTW
APNSRMLLYASRGVLSAVSADGRVKQKLSGQAGGDVRE
SPDGQQIVFESDRQUYMSADGSNPQRISGDGRYGPV AENSQSIFFRY
D \(\square A G D L V V W Q N A D D T Y L L D L A A E K T \square Q V T D D D A \square Q L L P R V\) SPNGLFLAYLASSDLMIMNLETGESRSLTSDFDRSIIDD
SRDGGTLYAAGRDLKADDLATGADRDI
SPDGNYIAYTGFDDLYLMNRKGEQKRVLS
SPDGKRIAY LQSGELAVTDVASGKA
LVDEKKVVYSTRSDLYRVDYDGKNLKRLTFGDYS
\(S P D G Q S \square A Y \square S\)
SPDGRYLAS GSDKTIK IWRV

SKDGRQMAF
SPDSKRVAFISN
SPDSKTLVFTSDGE \(\square\) FTVN \(\square \mathrm{DGGG} \square \mathrm{R}\) R \(\square\) THNSFEDGTPSW
SPDGSQIVFNSDARLYVMRADGSGQRPDSRGGGTYTAPAW TPDGRR 1 VVTRFED \(\downarrow\) WMADADGRNAAALPLA
S P
SPDGQTVASASDNTVKLW
AGNGQMI LYHRGGRLAEVSLDGKTMATLHSDVGQDSQPAW SHDDSKI AFASHTDIYVYDAVQQSIVCLTEGLD
APNASMLLYGRRGVLYAVSADGQVRQRLVLADGDVREPSW A DGRHLVYTARDRICILDTETGKSVRVSPTSF
APDGRTVAYRLRWEIATYDLVTGTST
FHQSDAI AYMAEYELRIVNSDSGVDEVVPVN
SPDGRYLAYTENTQLYIRDDKTGNTKSLTPNDRSVGQDKW
SPNSTMITYSSGSTLNLVSADGRFKAKLPATDGQVKFPAW

> PDAGAPVVTAEG

APNGSVVLYGNNGVLAAVS LDGRVRFRMPSSSGDVREPAW SPDGSRLAFSA DGKI YVMPMSGGKPCALD ADGWQPSW SPDGSKIAYEFDGQIWI DDPVTKK
SPDGRYMAYGSAFRLTLMELA
\(S P\)

SNDGKSVIYTRNTQTFKTDLKSGKTTNLT
SPDSRLVVFASDWRLYVTPIDGGPTVPL
SPNGRYMAWESK DRLYVMDLTTGE
AFNGGS ILFTAAYYIYFIPASGSVSKEKD
TPDGQSVLFSSDFGIVMMSLDGSNQKVLS
G \(\square D S K T L Y F T S E R H L F S \square S L D G K T K R K L S V D R\)
ATEDGRVAY
SADGKKVVYEK
SPD GRWLVYVRGPFVHA \(\quad\) R P D GTGDRVLTPAGTVIAHPNW SPTGTLVFEHR
SPDGTYVVFTSDGEDFT\KDDGSDLKRDTHNSYEDGTPTW VADGRLFAAANRAABCLLDPTGGRTQTL
DRSTGRVLFTRAGGLWSVDAA DTPASVQQVSEDRPRW SPNGHMVLYTHKDSLSTVSLDNGFKTQVINTDSVRNYEATW

SPDGKY \(\square\) AYTKDAAMY \(\square\) MDANGGNVRVLTEKDDRSP
VISGDRIVWSGKWD \(\square Y M Y N D T T G K E T P I C T N P A N Q V Q P \quad W\)
TADGKRLAYSSFTGMK\SEPRPGLAQQVS \(\square G\)
\(\begin{array}{llll}S P D G K T I A S S S D K T D K L W D V R D G K V & \\ S P D G R Y L V A S R N V D G Y K L V L F G G S G R R M P \quad D D R V P E ~\end{array}\)


APDGRQLVFTSD

SPDGK W \(\quad\) GMN GE L
GMDVKKIVYFDASYLYSAELDGGEVKRLSPMD
SPDGKTI ASSSDNTVKLWNLQGQVLQTL
SADGRYLAYLARYKIMLRDNATGDEREV
S
TDDGTILFCVRDRVYTVDTAGGAPRPL
SPDGQR\|VTASDARLWTLDGQS
TPDGRRTVFETDAD \(\quad\) WWADADGTNAQAMPDA
APDCSAI YFTSCVKVYKVN \(\square\) S DKA \(\square\) T QLLTKGQYD

SPSNDKVLILSDVRLR DMDMDGGNLKTL
SPDGKKMVYEKTDKLYSWD
SPDGKSIAWERDGRLCVMNLNTGKKT
SHNFTAVALVAEDELYVSDLAP LIALRRQT
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UniRef90 U1P0C7 UniRef90_F8EIM7 UniRef90-J3A470 UniRef90_-s4XTS6 UniRef90_UPI00036519B6 UniRef90-A0A024YQ54 UniRef90-10KX21 UniRef90-LOB4J2 UniRef90-F8WZ49 UniRef90_Q2IDL3 UniRef90-B5W1Y0 UniRef90-G8NSH9 UniRef90-A0A017TJ16 UniRef90-G4TWI8 UniRef90 G5EG67 UniRef90_UP10003B41783 UniRef90_D7WURO UniRef90-C2M814 UniRef90-UPI00034C5989 UniRef90-B8NEC8 UniRefolo - 1EP85 UniRef90-K2DSJ3 UniRef90-M1D828
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UniRef90 K6ZG99 UniRef90-U9VLM4 UniRef90-W9VIY1 UniReffo-B8LN50 UniRef90-AoZAZ6 UniRef90_H5SSI6 UniRef90-UPIIO003B6AA38 UniRef90-Q67MK6 UniRef90-UP10001CBF219 UniRef90-U7D9N4 UniRef90-D2RTH4 UniRef90-UP100045E6DAF UniRef90_K9W7L0 UniRef90-UP10003FA32E5 UniRef90 W2C7Y6 UniRef90-IOAIAO UniRef90-X6PA04 UniRef90-UPIO0031458AE UniRef90-UPI0001F2A43F UniRef90 A8H472 UniRef90 M2R882 UniRef90-O468D0 UniRef90-DOLUT1 UniRef90-D7JFB2 UniRef90-G4TSQ0
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UniRef90_GGFNK1


SADGAPALSPDGRRVYFQRLLPGEADPQLSVMEDDSQD NWVKSVVFS GYDGGSFFTPDGKRLIFRASRPKTDEAMELFIVDDDGKNM APVYAVAFSPDGKRYDHTARVWSADGSGEPVVFSPDGQQL DRVYGAAFSPDGRRVA SASLDRTVRVWNADG GDTGYPSFSPDGRWI VFTEREGGSGGDGSLWKVRRDGTGR WTDTMASWSHDGEWI AFSSDRHNGGGSFQLYFVRPDGSQL
GGVSSIAWGPDGERVAFVMERYFDGRSHVYLADLETGDV GGVSSDAWGPDGERVAFVMERYFDGRRSHVYUADLETGDV G ASSPTWSPDGDRLAFLAAREEDPARR AEVNMATFSPDGRRIV WRTHTPRWSPDGSKVAFVSNHSGE SQIYVLYKTGGEA AGACDVLPQWSPDRRSFAFTRSTSEGTA VWTANADGSNA STVRRVAWHPGGEWLLFLADHHGNENTQLYRDAADGGDP KPITSIRWSPDGSKILYVSFETG YLIEAPNWTYDGQWLIYY NSGGKLWKLSPTTPAEP GVEQAAATSGDGRFVAFLSDRA GRVDVWLTQVGSGQF FPVTAVAIAPDGKRAVSA DRASEDKTLKLWDLETGTELL GNNSAPAFSPDGKTMAVA LSMGGGTHIYLMSTNGTNV DDVWHATWSPDGKHUA

SASSDKTVRLWSADGVGE
KPVMSPSWSYDGSQTAYVSF ERGTPA YTQNT
KSVADPQLSPDGTEVVYIETRMDEKKNDYUFYINLKDKTP EKNKIINGTSDWVYEEFAIVRTFD

WNADGTQL SWVASVAl SPDGKTLVSSSGDNRTSGDNTTKTWNLDGTLQ AVEDSVVLSTSGTHAAYA STEGMDAN\|WVLDLVTGNR
GYNFDFAWSPDSHQPSFSYWEQKEPPKSTTDTIDDATGQS WIDTMPSWSPDGKLIAFSSNRHNPDNVTCIYVIHPNGTGL ASESSPVWMKDGSTLAFLAKREGSGGQUWKMNPDGTDR GGEGAVNWSPDSRQLVFTAKREGDDAGQIYRDDUAGGGEA GYDAEAVLSPDGTKIAFTSTRSGDL ELWTMNVDGTNL NYVWSVAFSPDGQRYDNTLRLWDAQGNP GQPWTGHTNYV NGVSNPVWSPDGKEDAFQSNFKTGETVADKESKKED KE DNYYSQASHDDADSFLESAGAWSPDSRQFAYVVFDNGKNQ SSVLSLGDNPQGTQLI SASDDNTIRUWQLQSRDI EPVMSPAWSPDGRRIAYVSF AD ENRRAAIYVQELSSGRR DTVWS DNFSPDGQLI A FFAPAPQ TSPDGTSVLYTRHETFDNRYADLYLWDLEKKEE MGNTKTSDVYZCDNGENT
 LNIMMPAFGVEGDLFWIGYER GKADLYAGNDRDGTR GVDSQPRWSPDGDRLAFASTR GEGDREQVWLVPTDGGEA EWNKIVNGAAD WVYEE

SASADTTTKLWK LNQTLP S REWWPVMSPRRNEIAYSSNTGVD PQUYLMGRDGTNK QSDEGFLYAPAGDKMYRHWDTWKDGSYNHLYGGDVKGDKV ASGFAMQWSPDSKFILSRPYYDGPIRYNAVKIYNAETAEA DVVTYVQFSPDGSKIVSSSW SRDDTIRVWDASTGK DPVNSMVFSPDGRLLA SGSDDNTVRLWDPVTGTLQ GTEHSVAFAPNDKSIYFDAARNGS SQVYEDALDGGEA SVRTVVFSPDGAYIA SGSDDKTURIWNSTTGEDK GWVYDVVFSPDGKYIATA GFDNTARLWNAATGEQL GRVYAAGFSPDGAYVVSASSDKSAR GGI NDFTYSPDNKKILFVADVKYGERTSDTYLPQATGMII NWVTAVAFSPDGSRGI SABSSGETIRLWEADTGQP VKNKIINGVTDWVYEE AEQCNNDHGDSPDGKTDADSDKCEFGKSADYTLPASGGAP DSVAVAFSPDGQKDA SKMDAADDKTVRLWDAATGSA
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UniRef90_F8EIM7
UniRef90_J3A470
UniRef90_S4XTS6
UniRef90-UPIO0036519B6
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UniRef90-10KX21
UniRef90-LOB4J2
UniRef90_F8WZ49
UniRef90_Q2IDL3
UniRef90-B5W1Y0
UniRef90-G8NSH9
UniRef90-R7KLU5
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UniRef90 A9DK52 UniRef90_UPIO004640EC4 UniRef90-A1DJ78

\(R A V V I D T A N Q G N P V V H G N Y D A W D D V R Q\)
\(R V L E T\) PGPGVSDRLPAWSPDGRQDAFSRQAPDGSC SRTPHPILKGWSNPAADCCGTWTSDGKFFVFQSSRDGNDD TQDNTEDCTSCNNDHVLSFDG KMIA DSSGHKESY
HTLTGHSAPVISVTFSRDGMTDASASR
\begin{tabular}{lll}
\(S E L Q T L Q\) & \(G H S G S V V S V M A S P D G Q T\) & \(L A S G S D D E T V\) \\
\(R E M R G H Q\) & \(G G V N A V A F S P N G E T\) & \(V\) \\
\hline
\end{tabular}
TVLVDSDRLELDP
KQLS
KRGIPSVVFSPDGSTLAGGSRDKT

K QV T
KANNDHGYSLDGKTLFIDSSGKNEIQTH
 QTLEGH GHWVRAVAFSPDGNTLASASDDTT

\(R Q D T\) PEVKVLREGAFPAVSPGGDRDAFVSFAEDPGG AF WQS DEREVPIFQMTDYQGTHKE WVKLPYPQVGDTNPTV KTLTGH TNWVNSIVFSPDGQWLATGSNDAT
 VTASSDKTARVWKANGTGEPLVLRGHEAPVYSAAFSPDGR
TGEPVVLRGHDDEVNSVAFSPDGQHIVVGSADKTV TRLVDGP GTHTDNRQPNWSPAGDRLVFQRRRQGS HRV DNSSTGGRVNHPFFSPDSRSLVFQTAYAGSQP ERLTDGDSDFAAPDWGDTDTLY YTRSVGDPDPDDSLDY WQLTDYKHGASGPQFSPDGRR \(\quad\) NPTKAGPTWSDEKAGFAK QEDAEDDESDENDEDGASDGDEEGDDTDAANGGGGDDPKS
\(K Q \prod^{T} \mathrm{~F}\)

 EEDYTGFATNCNNDHVNSSPD
LDLTRGSAPELVNPSI RTLGFSPDGSLVTFWARGRTGDDG ATLTGH
PVLAGFSNPS
RRFTNSQGDDTEPV \(S G G V N A V A D A P D G K R A V S A S G D E T\) FRTNSQGIDTEPV FGQYVYFTSDRGGS


F T GEKRMVS S RRG \(\square\) NGAPSWSPNGQQ LA LS LSSVDGNPE QQWTFG A Y EDRTSSPVWSPDGSQUAFLLSTRT
 KTLTGH TDWVFSVAISPDGKTLVSSSRDNTSVV WNLTTSPDSQWDAFSSDRNTKWAGHGWETFMGLSGWEHTQ NMHPVFSPSEDK \(\square A F T S D R G Y D Y G\) QQ \(D\) ASFDAS \(\square R N \square S W V P N G R Y M K E R V G F Y Y M E E H D R E W \square Q\) RRI HVAGPSDEVDKERLNHVCFSKDCEWLLFTGNDGGYQP KQLS QRLTTLTLGAR ESVLINDLPDNYPN DWSDGKGLYFLVSDVFPDAASEEDNKR NQVTYE GGYDGA
 \(\frac{L}{R Q V T T} N\) NLD SYWHGWSPDGKRFSYCGDRNNVF DNLTALEVTNMKYKSDGKGFW IVVTDVASSK IVKKFAVNNDTWSPKGDKLAFTGLVNGQSD \(\overline{A K L} S S L Q\) PSL \(\quad\) WGHHGUPANLITWSPDGKSIAFTM

 KTLLI PRQSSVVNSAVFSPDGKRIATA GWDK
 RQLLT \(\square D S S\) SH D L GVD DA QAPDVVAH GHL VF VQRRKPQFG
\begin{tabular}{ll|l}
K & P & L \\
R & R & L \\
A & T
\end{tabular}
AF I R F DE T NVP K T L E G H KTLEGH

 \(\square Q L T D Y R T K M P S L P R W S N Y N E N V F D V T N N Q I E S F B D T G L T A\) KTLTR QTLEGH
 K PLTGH FVLRHSDK SGLHWTLRGHDDGVLSASFSADGEHIVTSSYDSSVRV DDLMYKHWDEWKPFGGAEQLAWSPDSKYIVAYTCRKKTGUE AFDRFDETEVPEFSMDVYGTKDYPQQQHVFKYPKAGEKNA \(\mathrm{K} \mathrm{L} V \mathrm{~T}\) \(R Q\) T \(T\) T Q Q GHT GWVTA VAFSPEGQTDASASYDRT

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UniRef90 A9DK52 UniRef90_UPIO004640EC4 UniRef90_A1DJ78

130
140
150
160
TVR|LWDLATGRADTTLTGHTSPVMSVAFSPDGTELAAGNE

 LWMLRGNQTLRPDRVTNGPLRYQAPDAARTGHRIFFDGDD ESRIWTLPLEGGKPTLVNAPSYDHGWSPDGRTMAYCAERN


D \(\square H V L D L K T G K A K A V T T G P A Q D L Y P A W S R D G K S V Y F S R \square D\) KI GVI NVAEKSKEWMQVPY DPRIVWTAEKEKLAVMHLNRA I RLWQVSTGQCHKTTEHTRWVDSVVFSPDGQWLATGGDD LYMVNVDGTGLERDTYGENQFMQSYDGKKLVWGSSRN
 EWRLYVMDADGGGLRELP
YGE IFMAR MDGSELVRLTHNAYEDGTPSWG
E I R A H H LDDETVETVHTTTGGGNRLAATADGRVAHTVVEP NEFLKKNPNPDGTIEEDRAYLDKDVEDKKAKVINRLNFQG QVWLFDLS LGGGRQVTDREHGVSEFDWAPDGERLVLAARDP ARVWSADGTGEPIVRGHEARVYSAAFSPDGKRVATASDD】QNRADHKKKDEKKEAKPVEVEKMKYKANGKDLLDSGQFK QLFVVDVADGTARQLTSGMGQ VEDPAWSPDGRSDA \(D V L V L D L S S G E V R R V Y A S G G R T Y P G H W S P D G T R L T V A E W R\)
 \(D \square G / W A V P L L G G P P R P Y L E G A A E Y A W T R D G T R L V H H T P G P\) LW
 VRVWSAGGKASEP VIDRGHADEVISAEFDATGQTILS \(\square R L W N V D T G Q G E P G Q G H E G W P V G E P I R G H R K P V T S I R F S\) \(\square Y\) VLT LANGAFKRLTNSRADDTEPNWTQDGRSDIFTSDRG \(K S Q Y V L S K A G G E A K Q V T\) SLY Y Y DV K A GKP TAQ QPLLDAYY I KI WNLETGTLQKTTGHTDWVNSVADSPDGKTLVSGSND ELSI FAI RPDGTGFRKVIGKEGYPSWSADGKRIVYYEMTR IFNLY LVDLGTKEVKRLDKKVNSCDSFSPDGSEIVYSKTQ YGDLKY KVKAYTLAEFEGLQQ
TVDKYPDKASGMVIDDLMYKHWDEWVETVPHPFVASFDGN IAKERKDRKYNVRAYETFPPRFFDKWLDDKKVRLFVMDRD LWYLTFSDMTKKEFLNAGTSALKTGHFSPDGKWIAYASNE EIAKYKKLLEYDLVEPV AMELFVVDVDGANLKQDTNDG \(Y \vee R S V A F S P D G Q R I V S G S Y D N T L R L W D A Q G N P I G Q P W T G H\) Y D D H Y T


\section*{WQ} NPEDYSDSSDGQNHLLLLHADHS \(\square\) HGHDSS \(\square Y\) SVDWSPD NPEDYSLNLLSRELVRLHYA DDTEPSWSPDGRYIIFTSDR
 MLAVYELGTER RIVPFYEFPDGTLIDSFAISPDGTK K PAI FLYNDFNGNLKKLVSASNLSDGAVRYQNYFADPFNR \(\begin{array}{lll}N Q D L L L V D V A T G E & R N L T A H E G R E V K F F P G P W D K D G S G F Y \\ M Y Q V I H D S M N G G Y I R R L F P S S G R D D Q P M I A P D G H Q L I F A\end{array}\)
 RTVDPDYERETPDPRVIDRTIYRAGTEYDDGRRRHVYVLE S HVY D Li M DAGSETDIV LPRIYWTQDPNQLAFDRLNRLQ 1 KLWSIIDGTLLRTFTGHQGWVKSVSFSPDSQQIASGSHD

 W WD \(P\) VT GTLLQTLKGHTDPVNSMVFSPDGRLLASGSDD \(F\) TAEAERDTTGREYKQLMVRHWDTWSDHSRSHLDVAQLNG \(\square R V W D T R K D E G V L M P L L G H T D Q V N S D A F S S D G L Y D A L A S\) ARLWDADTGKQIFVLNHGSWVNNVVFSPDGKYIATASND WR YSDIFLY



UniRef90_G6FNK1

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UniRef90-G6FNK1
 APLDPSGEAGEPVQVTRGDFEHRSVSWR
 TQSELLRYSAEKHEFSAENNFLSPASRVTFSRDRQWVAWT GNF
 KTVK KLWNLQGKELHTLTGHNSAPVNSVVFS NT LRLWNRMGEALGNPLRGHQNQVWAVAFS KKGFSYDATMLHDLLSENTSSHLVQENFASQAAFSLSPP N KVGSP \(\square D V L E G E P Y E S P M K P F G G L E Q L A W N T T S D K L A Y T S\)
 NTMSNYMMKNER KLWNVATGKVISTLTGHESVVNSVVYS GMISNNYUMKNERFDSPLNPFGGILEQ NWSIDSKKIDAYSC ATGRCVDLLAGTGVALQPWDPTAEHYDDAPDGREDALTID MVFTSGRAGNPHIFLLDVPTGQVTRVTYEGKYNTSPSISP KT TR
DNTAR L WDTATSAHRQTLEGHGHWVRAVAFS VWDVNTGDEVATLTGHQGSVGAAEFS SSDGKNKYENENRVAYQDTDGKNFHDHEFDTSNDGKKVPF LWHADVPAGRARRLTHGRADTAPAWS ADTNKDGADDFGDKAVICR RINGWAYPLTSEAFSAYOPMTT
QTNMKLYMADATSMILEESSDAWIDVFDFFAGIMHYAFFP QTNMKLYMADATSMLLEESSDAWDDVFDFFAGDMHYAFFP GTQYEDNDF DADWDDYPNATSSTPTVPTASPTTPQGP KRDATASYDTTVRVWSADGTGEPLVLGRDHEPDASVAFSH RTVR
\(R G H T D R V Y A A A F S\)
\(V Q G D G E H T D P S W S\)
DQATLNQTELAVLDVDTDTVSRPTADLDRTDGYESEPEWG EASAGQELSFNHLLVIEVKEGAKPTPLTKGFYSYTGAAWS TEEEQEYLDER VWNADGAGEPIVLRGDGGPIVTERLQQ \(R T V R\)
\(Q I G I V T D E S G E M E Q I\)
\(V\)
 VTLQAPENWQUHVDPADPNRAPQQVTRLPHPALDPVWS TTNSDHLVYVASLDGAEPRSLTPRDGVATYRLGPWLRDGS GSYQ \(\square Y S T D L Y G Q N \square T R \square T F D G D Y N G S P\) K DNYDVYS DPAKG GVEKRDTNSDGDDDGPEYS GD PMYVSEAGRPHEGRRLFSAPAGLHAHFQTWAPD WDKT KK LWDDETGTELATLTGHSSSVTAVADA ARS E L ERVTPNGELVPEKGFLSSAVRVDYTRDGKWVAWT LLAFDSRFNGAFRVTLLDLLTGTQLVLTDTMRDESPTFAPN ASLDHTARVWRMSRIVQPIPFRGHQRADTGA PDGSRVVSGSEDHTLVLWNAHTGQSLGKPLQGHEEWVQAV WD IIFADYD IF KVDRY V GNFVQRLTDSPGYDAEGVPD GR PQLYEMPATGGSPKRVTYDGTYNSAADVV KKDAFSVVLGKDETILDKAEDEKKKDKEGKP LEDEKMKHK RHQNDFNII FVDASTKKFKSVYHEVDKAYVSITDDLTFLD NTDK
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QVGEATDVLAGEPYESPMKPFGGDEQLAWSTDSKQVAYTC \(V L A G T R L A Q M P G F G G G Q G D E G Q S L D A V W S Q D G K T I V F S A S\) SGKWEIY VTSFPDAKGKWEISSGGGEQPHWRGD GASWA PYYLNDNKRIVFSSNYDDADNGFG
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 NDGCESDKNRLVII DLTNNQRADYTDGWDQSVESFVWDRD GDRTDRDWEADTGRLLGEPLQGHEGAV G



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 s GKRVLFGSN PA \(\square \mathrm{Y}\) GSKIVSAS


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\(\square\) SPDA TRVVYTGNTQLWMUDLRAPNARQLTRGD


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 GHNGAPAFSPDGSRLAFA NNQDGLLNIYVMNSNGGHP DRVRSVVYSPDGRYLA GKDMAPAWSPDGSQLAFLRMH EGSRQVWVLSMNDGEC KNNAFPWPSPDGKRIVFRSGRTGHKNDY DMDAEKGESGGL NMALSPQYNPARQQLAFVSYRGGA NPRVYMFNDQTGAT ETVWSVSFRPDGSQUVSASHDKT ERTVRVRADGTGN
 YTETAGSWSPDNRYYAFVAYR
GENAEAYWSPDGRKLVFQSTRDGN GENAEAYWSPDGRKLVFQSTRDGN
KWNHIUNGSADWVYEE KWNHIINGSADWVYEEYVETSTSE GPVVDPRPSPDGSLVAYVSHTVRAEKDEYVYDNDEEKKAP GPVVDPRPSPDGSLVAYVSHTVRADGTGGRTLTGPDGEH G DTCPSWSPDGSLISFIRTVRQEGQPPQFSLMVL
QSENSAVWDDNGTRUAFVYAEKG EKVNSDSFSPDGK VVSMGAT QKNRVINGITDWVYEEEFAYVRAF A SSVNSVAFSHDGK \(\quad 1\) LASGS GFATDARLSPRGGFASFVRER GFGTVWDPRRHGIVYTSSGPAASNDKTARLW DTENG GFGTVWDPIRHGIVYTSSGPALAPGKSQUDLADNVDAP DVVWEVRFSPDGQTFA NSUSSVTFSPDGEWLSFDNTDK DWDKHTGECLPTFTGHEN GGFGGFKVSPAADKGLGWGDRKPGAPSLEPAMVKKDGRVF SIVYGQSVHRDEFGLDGGLIMWSPKGNRLAFYRMDQSGVAD DRVRSAAFSPDGERIVTASFDKTAR VWNADG GNIRSLAFSPDGRTLA GGSSDGPVRLWDAATGRTR GQEFYPRIVSPDGKSLLYSLIEKTTYFTVSETGSLTTKTDKK ASASDPQWSPNGDAI YFLSGRSGS SQVWQLPDNGGEA RNPSWSPDGTRVVYEEY \(\square W G Q R Q A E K P L F S W D N E W E Y\) \(D S V S A V A F S P D G K T L A\)
\(G L V G S S F R Q D G Q\) NRVWSVAFSLDGQRDGFAAREASGSDDQTVKTWDANTG


FRDSAPTFSPDGRLLAFV RSAPKTAPQपFVVDAAGGEP GSVYSASFSPDGKRIVTASADKTAR GSASDPAFGPDGALYYLSDRKVGESERTQVWKVDPATDVT GGVSGARWAPDGQSMYFLSPR NNTKERSLSDRGVYYPFSWSQWSPDGDPDNTLI KTAGKCN GLAYQPAWSPDGSNTAFLGTNDSTAEDTHDALISANGENF AFETDARFSPKGHFVSFI SYAYSVAFSPDG
DEVRSASFSPDGAHVSASWDKTASGGEKVRMWDVQTGKM
V KWNHDINGAADWVYEE EFSMSKAFEWSPDGKK VNNGTFDWVYEEEFGCRDGFRWSPNGQS \(\square\) AYWQLDARKTK EGA SVAIKNGMAEFVAQEEMGRLTG YWWSPDSKK
 AEEKNPKFSPDGKKVAYTKER GGTNNLYYYDVENEDE

NWDRAVAFSDDGQY A A SGSEDKTVKDWSVASGQCL WNDTIATWSPDNNWIVFASNRYDGTLLMDLYVVHPDGTGL ADVSAVAFSPNGQQIV SGSGDTTVRLWNAQTGEP NVEWTYYSYED TLYFDSDRGSCKRCYFLYKSNFKGENP NDGMINTFDWVYEEEFGAKDGFRWSPDGSKl EKNK】】NGTTDWVYEE EFGFVRAFEWNAASDK】 ERDTAPALSPDGRWVAFL RATGTDAPQLYVMPSSGGES ASVWGVRFSPDGSFINTVRGWQTDNTFQKRIVAHSAGGWS SFEYHASFSPDGQWVVFTTERNGDGNSDLYRCRVSAAAN WDDTMPCWSPKGDLIGFSSNRHNPENTAVFYVVRPDGTGL
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 AFLRFDETNVPEFSMDVYGMEKYPSQQHVFKYPKAGEDNA TRVVTEGAWHASDPAWSPDGT K \(K R \quad K \square A S F G F Y P H W S P D S T Q \| L F Q T T Q F G W\) HR LDDGSHNMSPVLS PDGNYLAYTSYRGGAPN \(R R V E V G K G V D G E R E R L N H V C F S G D G E W L L F T A S M P N Q F Q P\) KI AFMQFDESPVTKYPIVHDVNPKPEIEMQSYPKAGANN RTLTRDGWKAAG YVWSPDGRNLLFASNRGGGLG \(\square R\) V \(\square \mathrm{EEQ}\)
 T GVRKLVANYEGUNSSPSFSPSGNTLAMASQGYSENT R P LT
 QLVGGFGEMTIGPR FSPDGNSLLMSVSRNGGAA


 RRVSNGQGKTTCGYFLFPAPATSAQARVLFASTHAAGEAC AFISFDETDVPEFNMQTWGKLYPEDYKFKYPKAGEKNAEVG \(V\) T Y G L S D Y V S Q E S \(\square\) G R S R G Y WWS P R G D A L L V A R V D T A G VR
 K TLLTGH TERVTR I SWS S DSKNI ASSVSEDK TM
 SYITTQDVGNYSFPAIVGNR\|VWSANYNRSSYSYNVYMRD』

 S P ATAVVKKLT TTGENNAFPWPSPDGKRDVFRSAR S G AVLEGH S LLSVAFSPD GE WLA S GSYDKWNSHHENSVCSVAFSPDGE \(D\) QL F V R H WD S WA N GDRS QLF VLP P DGKT GNGVAIGGK LVG



 RFMDVVFPQFNNAT K RLLATTTEK QLGNSSSSSSIVLTTDAD YSNLL

 L H T P TAQDGRVEGVVFSPDGRRGAVAGRR DREE \(V Q \mathrm{~V}\) T D R K L G V S A F VWA P D GRS L A F VSREPE Q GR AELTTGHTDTVWSAS A QVTAFATDVAGFELSPDGKRIADWGDIARTCPTMECESD A QVTTLPVSLSGFRFTPDGKALVVGVSVYTDCETEDCT
 YTTVDNI RENDLDDLEWQTNFDWNPEDTKALI DMDKDPDND RY L T T \(\begin{array}{ll}\square Q L \\ R I V & S \\ R\end{array}\) PLI L L RGHDDGVTSTSFSPDGAHIVSASWDKTV AFI RFDETEVPEFNMQTWGKLYPEDYRFKYPKAGEKNAEV



 (
DTFTGH
N N WVWS LA Y S P D G Q Y L A S G S A D R T \(R K V A Q N L T G G V S M H P M F S P D S K R I V F T T T Y A A N V A\)


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G VGT F Y M \(\square\) N N LD S \(\square\) Y S K P \(\square P M P Y P K V G T Q L S A\)
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 K K \(\square\) C D G M Y D N LT A
Q VI VT D A L A WS D D GKHAVVMVARAA DNK D
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QR GGH
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\(R A A T T L R\)


\section*{UniRef90 K9QSN3 UniRef90-UPI00047914F3 UniRef90OUP100035D5597 UniRef90 W4L8H5} UniRef90_UPI00032AC8F6 UniRef90_UPIooo3722DOF UniRef90-B4RAV5 UniRef90_X6NSV4 UniRefofo-AGVQ96 UniRef90-S3J436 UniRef90_UPIO0037252DE UniRef90_UPIO0035C1FD8 UniRef90-O9X110
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\section*{I \\ T}
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 VYEVATGKEPTFTGHSSVVLSVVYSPDGRYLASGSSD RESLMNLKNDKLYKKLSINGINTAPSFSPSGDEVAFVSNR RESLATLEEDRKRESQIGKLYTRTVPKAEGSGLWNGLHT IVKTSLSGGGATELTDSSSTNVTPCYSPDGSQUVFNSDRD RIVWPADGAGEPLIL ETVLVTVNPDGTDERHYFGGQYRFFQRERHSGVSLDTPRE LCFFSFADNSFEFLTQSSYAAMQPAWSPDGRWLWFDTDEP EFDIYTANADGSELRPLTQGKGYDTVAFDGSRLVFTSTED SDHVYTVKVDAGSEDDIYLPRGYWTGDANTDAFLRVNRLQ RRYISDPSGPERPPRAVPYPAAGTPNAKVSGKLAFVSGT RWKDYSPSGPERPP SEDFLMPAGGGTPRLVSAPSWWHGWSPDGRTLAFVAARG AADLYPDKATGRVIDDLMYKHWDTWVTEDPHPFIGSFDGQ WSL KTGNEHHTLHTSSVTGVSTSPDGQTVVSASRD NNAVQNDDLSGYNDFYIVRLKWTNEAAFVSVQVLNRHQNN STSTQVWIAQGENPEIYETKITYGYDDDDGRNIAVYDVNT TDK WWSVSTGKKDYTLTGHSSWVYSVAFSGDGQULASGSD TKNLYMMDAEKGE MVRLWNLDGEELAEVLQGHTDEVIEVRFSPDGQTLASASVD WLVSGSFDNNDKLWDRHTGECLRTFTGHEYSLLSVAFSPD DSPSKPFGGGEEMSWSADGKTVYFADREAGRIEATSTNL KVTVGVYDLTSGKTVYLQAGDPTDRYFTNDAWSPDEKTVY TTVVYEDDLESGQKTVLPHHFMPAQLRWDSKGGTIVGDFY TARLWDVAKGTTRRT, HEPYALGGTWPFGVVWAGALSPD KPMRPVIARSNGAGVGDNYISQGEMGEDDAEPVINRDMSQ RLDEKAKNKASG MVYDQMFVRHWDTWADGRRNALYSAPD VRAFDVYDTNSTAAEQAMYGAFQPTWAPDGSQLAV G GYG LLG GVR WDIRNGKUANTLRGHTSRIWSVAYSPDGHLLJAGGSD GIVEFDWGPDGERAVPTDEEEEQVEQRREGGPUETERLQH DRWIVTVDLQNKQLVEQHHQHDPAWINTYHFNEFGWHAKK YGTVEGUDAGAERPRRLNYRANGLGYVTDRRAHLFLVPVP GNTALPGPGTGRHYKDGAGFVRHWDAWETPGNYSRVFAFD


STH WRADGQGQPEKTYMPRTYWTNDSNAAVAFIRSNSPD PTKWMAVPGDAVQHYDPRMEWANNNNQLIAQQLNRBQNI S LIK GVVLNLETGKTQWMDTGNETDTYTPRVKWLADSSKVS HIRLWDNKKQEDCTLYGNNSKVNSIFSSEGQNQDLLTSG
 RFMGGVMRPDGKGERILTEGYHNEGPAWSPNGRVLVFFRD SSE KI WHRATSQCQQTLAGHQNWVQYSPDGQYLASGSTD WDVOT TVNLDGSDFMRLTHN
GKIQNEPDGQPLRGHGAPVTAVMFSPNGERIVSSSVD GKSINRLDTGLDFAADPLFVNDGKQIVFRGGKTVGKHING GCSHWFYDLASKSSKKADISGDEKQHYUPRMEWVQDSKSV YGTAVDSGGEVLSAERERPRRITRFDYRLDDEGFVR FVVLGGEDDTVRVWQPTNSSLVATYKNPNGKLFATTLSPN \(K T N W V V D D A T G E R R N L G S G T N T A E D A G D P L L P D G Y F R\)
\(R I V S A S C D R T V R V W N A D G S G P L V Y G H S R V W S A V F S P D\) YGDLYVVKLDGTGLRRLTWN
RNDLYLFDRERGSYEQVTDGEAPRSARWHVQWSRDGSGVY VKVGVVPAKGGSTK WFDDPGDPRNNYLARMDFDPNSNEV SFELFLIHPNGTGLRKLIQSGSGGRTNHP KDDVLATVGGNKAENLTADNQAPDLNPSFSPNGKTDAFT

 TVRI WDPATGTGRTLTGHTGWVTAVAVSPDGSWIATTSSD DFQYVHDLETGETRPLGETMDTGFPSWPDGKGGVLVTRE
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UniRef90-UPIO0031E4937 UniRef90-L2GBB3 UniRet90_DoLR22 UniRet90_Q8RWX8 UniRef90-LO1915 UniRef90-GOL8M5 UniRet90_V4KADO UniRef90-A3CZ30 UniRef90_UPIO00375222D UniRef90-A3DDFO UniRef90-JoLHI4 UniRef90_UPI0003B55077 UniRef90-UPI000370377D UniRef90-A3ZZDO


YQRLNRWQNRVEDFAADPETGKTRVLLKDKDDRYDEPLSD RSGLVRLGPSGAPEARIVTASNDWDPVTGPDGAVAH T \(\square R M W D L S S D Q P \square H \square F E G H S E G \square N G \nabla H \square S S D G S\) N KTD K \({ }^{\square}\) WWEVATGKELPTDTGHSREVMSVVYS GGNPQTYTTPVDAKYPSAERATFGUHQAFDP I YTPNGQ HLFVLDLRGGEVVQLTSGAFDVAQPRWSPDGRSVAYLAKQ G

 AHEQSFFFPGNFNLAKLSTKTGQVEVVSTFPGNLNPDPTN GD ELYTAKLDGSDVKRITSTPGYDGGAFFSPDATKLVWR NQUDLUYANGETGETKLILEDKSETYVDGDYNDDLRFLEG ADGTLEDGEKKEEKKLVPLEVDKMKYKSDSAGFWN RTDVRLPTAAGPDHPEGAWTDRAFEYVVSAGWDSRGPLVS LYYVDARGGEPRRLTSHGLDVGDFSWSPDGKRLAYVKQLD GSTDDKDGMVIDDVYMPVEGGEETRLTFGEGHSDGPDFS KTV NT GKVWNLKTGKKLCT LIGHTEYVTGVSTS LDLLFVDVNSGKSKIVLNEKDAAYVDVTDN GTFLK KET NVHHSSQVFNPHMYGNKVIWSNFYTRSGF RQMYDLV DKTIK KTAR

NT RLWNLQGE GKE GQCLISASHDNRTK WNSTGLUGHDSEVYGVRFSP DTF SAPADGSAAPVNLTANDECFRTLTGYENAVISVVFS MFELLNRDQNDCRLVSYDAATGAKLKELYRETDEPCHPVWN HRGFKRYDVIEVDVMSGKTRDHTEKQDTHDDYQHFFRKDG TVRVWNADGTGKPVVLRGHEHLVNAAVFSPDG GRTLATSDGRQTVRLWDTSTGRVRTTLTGHTDYVLSTAFS DQDAFTARRPLTNEEWKDYSKREVLLVERLDGGMADFFN DSTGKVSAAPVSLSGTLDGDAPSKPFGDNGEYHFSPVAFS TWFFNRVLYPGRLYDFDANSDGTYKNDTDGSDNAGFPSFS QT \(\square A Q S G S G M Q R Q A R T S R R S R G D A T R S A P S P S R R T A R R W H\) DHTDR \({ }^{2}\) WD KSEATGWTDPVTSYLFVVDAAGGDARRDDDAYGQGQPSWS TA EVLYYLSEESGYGHLYTKGDQSRAKQWTEGEYEVSRVTMT EVWAEPPVADYDGSTAPAPAVAEPLQLTDGPWDDGSPAFS KTA IGPDGKVTGEGKAADGPVGTLTGDSPVKPFGGGEDVAWSA NGSGFAEGQPRDDTAGLDGDVSVGEGGLT \(\mathbb{C}\) ARDGRAF \(\square Y A\)
 NHPAELFSAKNHGAVSDQITHENTDWLETKTLQQAEAFW \(N V K \Pi K L G V V S T N N Q Q T D W V D D G E D E D I Y\) YARANWDKDNK KSIK GAHIVSAALDNTVRVWNADGSGEPLILRGHDDWVSWAEFS NQLDLFYANAKDGSSRLILQEKAETYVDLNYNDDLRFLEG
 COKNILKFRDFNQSYVYNTQDFYYQCITDFNSHDSAAMSP
 GHHAA \(\quad \square Y\) YOLATGGRSLVSRYPGMNNAPSFS
KTVRLWEAQTGQP THQLLPGHRAAVNAVAFSPATATTVNG FEEELYDMDEDGQQLTHYPEKDTTAGKFGYRAGAPKLHPT ILQQLNRKQNQSKDVADAGSGTDYTETDPAWDDDKSMWN LSAHYLNRHQNELDLWFDDAKNQTATLVLEERDVAYVFLK DRPRRLFVVDVETAGTAPSATEEPAPLTGAAVSVKDPAWT DQADAMANTDKT पR DWWQNFQLSPNDLKGHQAEIWQपRFS PQWSPDGE WDAF
GRRIASGS WDRTVRVWNADGSGTALILSGHED WVRNTA WR

FHQDDAGDEQNDLVRVTADGTVEPIVSVDGQADFMDTTMD MDQQLNRPQNTNKVYVANVETLEFKNILTEKDEHDDTRWD RQKDPGFYADTSRDMLLDDDSRKLTTLTDWDRSVSQFSWT NAVVELYVQDVTAARRVKVDLGDNTDUYDARVNWSQDG R DTYTKE
DNFK PYKMKLDATDDQKLSDYSASYПNV
QVWFQSEESGYSHLYTVNLNNGSKKVLTSGKFEVSGPQTS VITGMEAEDGTMKLFSIPLDGGEPIQLTYGSGSHNYPDIS MKIWDPVSGTLLRTLSGHTGAVNAVAVS

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UniRef90-K1ZKRO UniRef90-UPI000345CF8C UniRef90-M4DN52 UniRef90_UPI0003116C17 UniRef90-G2PNJ1 UniRef90-W4T8R8 UniRef90-M7NAP7
UniRef90 H5XR27 UniRef90_UPIOOO31E4937 UniRef90-L2GBB3 UniRef90-DoLR22 UniRef90_O8RWX8 UniRef90-LOI915
UniRefo- G0L8M: UniRef90-GOLBM5 UniRef90-A3CZ30 UniRef90-D9QKV3 UniRef90-UPIOOO375222D UniRef90_A3DDFO UniRef90-UPIOO03B55077 UniRef90-UPIO00370377D UniRef90_A3ZZDD
UniRef90_UPIO0034A6E6A

210
220
230
240 PDGKTLASGSDQTIIKLWDTST GQCLINTLQGHTHWFSLSW DDSFDWTSEKDGWNHYYRHNSDGKLMNQITKGTWEVTKYY GRAGYFERTFRGARNVWRMTVDPQTLRRVTTGPGHDTESLL

NपHLLWTSERSGWKETYLYDLKGNLVRQTTKSQ पPVRS \(\square\)

PDGRYLASSQDKT TKTWEVAT GKELRTLTGHSDTVLSVV YIVFMYQKTRNSGTQIAKLDTKTNKITVLTHGKADASPSI VEDEQADPDLDAFNDIFVAALEDKQSRRVTDFTLADSQFY PH Y PRGDLYTFWGSGGFSIGVMAPDGTGERII SQGFLVESPTF PDGTRLVSSADKTVRVW GTDGSNEPLI LRGHDSVVASF GATMRSVMYTRDVAGQTFIVQLIGGTTHRVLSPGGTRSTAYP DREVLFLISNVNGRRDLYVLDGPTGALKRATDYATG ASRPTGPALDDYRAEIFVAGADGQNPRPVTNGRANFAPYF NKGF \(\square R T S E K D G Y K H I Y H H D N Q G K L I R Q I T G G D W E V T N L ~\)
VQTRDQRS GKYSQVAVVDAGGKVELVTEGKDYQLQGW EVQAQYD HRHIYWNCDRDGHAQ WVMGADGSNQRKLADDHVNWFPHP RKKTGMEYADSTNSDLYAYNDTTETTTNLTEGMMGYNPAF DGKMLASGSDDYTARVWSLESGGVGATLLNQFKGHGSVNF DNSFIWTSEKDGFNH, YLYDKTGKLLKNQITK GNWEVTNF AKKAI DVTSDNTGNTLYGSDT SDGQLLASSSDKTDKLWSMTTGGKETYTLNHDDQVLSVAF DGKTIATASSDNTARLWDTENGFELATLNHQDRVWAVAF PNWIVFASNREFPMNIYVVHPDGTGLRKLAQNDTGLVPMF
 MKRPTYEADRQV LMLRNDATGEVRALTEAWDRSVASW DNEFVMQSQKDGYNHLYLFDKEGREI RQLTSGKDLDVLGF QDRFLLGSEKSGWRHLYLYDWSGRQLQQUTSGEVTDVVHV PDRALATGGDDRTVRLW DVDARGQTRLTFGDGVWAASLD GEGFTF
NTKIIYNGRVGKVVQVFTLDLKTGQKAQLTQGDNNKDGAF VRVAGRTESWSTNFDVYTIPAAGGQPRNLTADNPAWDAKA PDGYRLWDWNNGPGGLYMDLATGNTTRLTDGWD NTPGW RLSD D DLDAR W DAATGAHQQTLKGHSDPVRAF
 PDRUAFVSNRSGVMDVYTVHPSGGEAEQLTNGDTASSLEW PDGTRLATASSGTARIWDLST GENLHTLTAHTDWWGVAF QHGDAFFKEHPGHHDVYRMNFDSGELKRVTHLGGRNTYHL PDTLAFVSARDLRENVFLLPVAGEPVDATGAHGDFSVAEL NEKWLVTASNDGTARVW DTESKLFTELQGHNDVNSASF ARKQADRAAFTNDSDLYRSLDGGAPVNLTEGHSGPAPAL SSGFYFSTNEGREFSITRYDVESGEMTTV
DSR \(\square Y Y\) YVENFSLYSDKVDGTDRFQLSTSRNEDVFSF FESFDGTATQGWLMPPVDFEHTQH
TLSYQWQDRSQQTLELRFYNSETKKQKALTEKSDTWILQF
 NKGF:RTSEQDGFKH:YHHDNQGKLIRQITSGNWEVSRLV GKEYY WVSEKDGWRHLYSIDDLDGKERKLITKG
DGKNLASSSHDNTDKLWNISTGKELRSIDTKYSDYADAF


PHRMALVLT LNGNPNTYVMDLATRK TQ TTNDYS DDTPTW PDGQYLVSGEDKTVKUWLVENGQCLKNFVGHSNWQSVAY
पDQRTVSASDDGVIQПWNAQT GQP TGQPTQGHDAP TRAF ENFVSYQSKQNGKYSLYAVSLDGSKTWKLTENSENEGWHW NNEFLWLSEKDGWRHIYKIDMNGKE TLITAFDVIKPEFF DNSFIWTSEKDGYNHYYHYSKEGDLINQVTKGNWEVTSYY PDSQLLASSSDETVKLW T LDDGKLHRTLKGHTAVWRLA I GHGNGTGWEHTQELSVYADRPDGTGFREVATKSGYGSPKW DGAYIVSSKDRTVRVWRADGSGGAVVLGGHSLWVNGAHF

GQTVLYGSDEGEQMNLYRYDTARDERQQLTAY EHPVMYF DNERYFTSERDGWLKLYKVSRDGSDRQPLTK GDFDVVS PDNKGFYATVEDTNR YSIDAKNGKVKAI TEATDFSQPAL TDYVQRQSRDQKRLDLLSVDPTTGASRVIASQTSRDDFKP DNQWVYFQNDANGGRIYKVKHDGSQITEVSDHGNMY TY KDKWYFTANKVHPGHFYKMPGNGGEMTQLTSGTGAHEVTL PDGTWVLYTDTNDFTLHAVSRETGQTKPVFPETAQWMGRF PNSDWI TASSDRSVRIW DAEGAAVRTLTGHTDWSSLAV


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保 UniRef90-A9FDM9 UniRef90-U5C0Q0 UniRef90 UPIO0030191BB UniRef90 UPIO004192BB2 UniRef90-V4JIU9 UniRef90_V7EG75 UniRef90 R7J3D6 UniRef90 D8FZP7 UniRef90-A8ZQA5 UniRef90_G2Z577 UniRef90 \({ }^{-}\)Q8TPR8 UniRef90-A0ZFT6 UniRef90-E6WWV3 UniRef90 Q10XW6 UniRef90 \({ }^{\text {OXXI1 }}\) UniRef90-K9PYJ2 UniRef90 K9VG83 UniRef90 UPI00041CF406 UniRef90-FOFAU3 UniRef90-R7ZRH6 UniRef90 A9F932 UniRef90- D7C6S9 UniRef90-V4JSQ1 UniRef90_10K6H6 UniRef90 A0A031GHP9 UniRef90-R8BNR2 UniRef90-Q2HFK4 UniRef90 K9WPW4 UniRef90-G6FXB9 UniRef90-U1QSY2 UniRef90_UPIO0035C36FA UniRef90 UPI000366359E UniRef90 UPI00046AAC97 UniRef90-K9WKU3 UniRef90 Q2GBZO UniRef90 F4QY18 UniRef90-UPIO003819252 UniRef90-Q8TQL0 UniRef90- UPIOOO479B803 UniRef \(90^{-} 75 \times W 40\) UniRef90_UPI0002D681BF UniRef90 DoLTV3
UniRef90 K1KTM4 UniRef90-UPIO00479BB2D UniRef90-UPI000367C825 UniRef90 K9RFK2 UniRef90-U5L9R2 UniRef90-I6ZXE3 UniRet90_AONND2 UniRef90-K1ZKRO UniRef90-UPIOOO33
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UniRef9O_UPIOOO34A6E6A

S P D GQMLLASTSGDQTR|LWDAHTG
GYD Q N KI Y Y Q S N R GVVYSVE S N G K K R K D L A VA
SVSRSSSIVLTS Y GE I A VIDD PAD GTERVL T
S P D GKRLT F T
S PRDETIAFNQALDLYT IK P DGTDRQRLTQGQRFHTPPAW
D E E G G W IY F S NR GHAYR MK LD G T GF TK LT
SGDGRSLAFGRQAD IFTVGRDGSRLLRLT DDGRDKR

SPDGRY LAASGSGDK \(\square W R\) V
SPDGNMVLY
SPDGSEFAYGSGNRLYTVPSSGGKPEP
HPNN
CPNGRVIMFCR
SPDGAHLVTASADKTVRVWRADGAGEPLTL


LP D S R R L L A S D F D LYY VD S D
DEKGKKI YFMSERNLVVI NDDGKGKKMLT

\(M P D G N R L A L S S H Y R L Y F Y D L K T G E L T K A D G G L D R\)
SPDGNHLLY
SPDGRYMAWERDGRLF \(\square R D N A T G Q K T D L T\)
SPDGKNDATASADKI WRLDGD
SPDSQTVVSASGDTLKVWDLAATRQEQR
DEKTKTVFYQSNRDVYKISLDGKNKQRLSLQTGTSS
D \(\square\) S GDEI VYSKSGDVYVYD IPSAKSTPVY
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AVDAGAGYAWFTGHVYRVP DAGGEVEKLS
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SPDGQLLASGSDDTVRVWDVQTG
SPDGRRLAAAGRRVVVIWDVSTGET
SPDEQSLLMTRPPELYRQSIKTGKVEQLT
A YGLDGVLFGRNASLYADDRAGAAPRRLTDAETQDFTESD \(\begin{array}{ll}S D D G Q M V V & T S S G T T R R W D L S G K R D V E L \\ S & T \\ S\end{array}\)
SPDGRRLA WLAGGDVMVADANGANARALTNWD
S P DRKSLIFSTGVTMF LT DSTGKNVQVLE
LN DKKHFVWERDGHLYLYRTNGEM \(\square R Q \square T\) Q GD
SPDGKTLASASNDKIKLWDVATGKER
SPDGQRVVSASDDTVRVWS NLEPVTLDD
G DDNKKVYY \(\square\) SERNLYV \(\quad\) NMDGKGKKVLT

SPDGLT \(\square\) AS GSKNN \(\square\) Y \(\square \mathrm{WD} \square \mathrm{NS}\) GEK \(\square \mathrm{R} \square\)

SPDGNTLYFTSGPQПYKYD
SPDGQY IASSSDRT IE \(\square\) WE \(\square K\) SGKS QE \(\square\) LETNGNWSRT
SPDGQRIVSGSDDK\RTWDAQTGEA
SPDGKWL A IEQQFHI GLMNWETKEME ILTDTTFQYQQ
DVPNQLI YFASPGYLYKVNMKGGKAERLTPQAYSGSNE

SPDGKMVASGSGDTVKLWTLDGQLLRTL
STDGKRVVY
SPNGEWVVSPSDDRVRVW RDLSVPRDDDPR
\(S P D D D R \square A Y E S D A D A Y V M A A D G S E K R R \square D \square G E D G S\)
\(D P K S G Y V Y Y \square A S P D L Y R S R \square D G G T A Q R V T\)
SPN
GKDGELIAF LYPARLVSDNPRNGKDERLE
LK K GGFi WS ESTGHLYLYNAAGQKVRAGTEGDWP
SPDGKHVLFASNGTI GVW
N \(\square \mathrm{DGEWIVFSGHYFLYKMKVDGTEDTPD}\)
SPDEKTMAYSYSWELYVQDNKKGKPRQVTSSDTD
SPEGDRLC YLLDVDG \(\quad\) VNEVFVADFT
SPNGSWLATTSDGTVRIWDPASGSLERTLVGHTGSPDGSW
SPDGNQV \(\operatorname{CMMKFGRPYLVEDSSGQATP\square PAGPGLWAYPAW}\)

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UniRef90 UPI00035CD5EE
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UniRef90 Q8RWX8
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UniRef90_G0L8M5
UniRef90 V4KADO
UniRef90 \({ }^{-}\)A3CZ30
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UniRef90_UPI00034A6E6A
\begin{tabular}{|c|c|}
\hline UniRef90_X6M0V3 &  \\
\hline UniRef90_UPI00036FDFE2 & \(P \mathrm{GEVASPD}\) P GAWVAFRRGGDVWVRSRDGRQEFALTEDA \\
\hline UniRef90_D5VFN4 & \(K G \ A L S P D . G K R V T Y L K G K D L W A A D V K G G E P Y R L I D S A\) \\
\hline UniRef90_D3F907 & G GEPARPCEAP \\
\hline UniRef90_UPI00037745B9 & PDS \(\quad\) RWIVFERRRRLYRVRPDGSNLEPLALLEE \\
\hline UniRef90_UPI000479C725 & ALSPD GGLMAFLGDQQIWLQPAGGGVAWRAAETP \\
\hline UniRef90_W9AIV3 &  \\
\hline UniRef90_G4TJB8 & R AVAFSPD G L L I A S G K D NIRLWDAK T GQPLP FEGHR \\
\hline UniRef90_B1WPV3 & F S H D GQL LA T GDS G G K R L L P L M \\
\hline UniRef90_K9X8J6 & D GHLLASAS GDNIW D D L H T GKL K TL Q G H T \\
\hline UniRef90_UPI00037C0A3A & \(P R L S W S P D \quad G K Q I A L A A R D A L V I T N V E T Q K R Q R Y E F P Q\) \\
\hline UniRef90_W0RDB8 & \(L S P D \quad G A L L G E E R G G D L Y V V D L A S H K E T R L T S D A\) \\
\hline UniRef90_F4Y01 & SPD GQMLASSSSEDQVILWDSDTGQLQTLS GHT \\
\hline UniRef90_K9REV3 & \(\square\) IP D K K I VF GSD D GIL L I S E D N R LI H T L P A H R \\
\hline UniRef90-B4W8R2 & SWDQQGRYILAP LEGDI FLASRADGKVRRLTETA \\
\hline UniRef90_A0A021WF & S P D GRQLVFASSTSLWUEDLD A A P P K R L T P D G \\
\hline UniRef90_D0LXR3 & \(R A V S F S P D \quad G E R V V T A S A D R V W S A D \quad G S G E P V V L R G H Q\) \\
\hline UniRef90_UPI00039F5DC9 & PDYRFTPDGHG I AYALHDGVHIWDLRTRRPRQALATQ \\
\hline UniRef90_A2Q7M0 &  \\
\hline UniRef90_Q1IJ32 & A \(\square\) S Y T T I A MLP A S G G A P H ELLSKLE \\
\hline UniRef90_K9TJ67 & SPD G G L L A T S GPNDVWIWNTANGQQK AILLEGK \\
\hline UniRef90_B4KFJ1 & NGSLLLATS Y D G Y ARIWNTE G G L A S T L G Q H K \\
\hline UniRef90_B2J962 &  \\
\hline UniRef90_R5C617 &  \\
\hline UniRef90_U4T635 & P D R Q G H I A Y VE E S TLY S I R P G S VRQLI D Q L N \\
\hline UniRef90_F1TCE5 & K EIV VF A Y T D HIF K V NVD G T N L T QL T D G \\
\hline UniRef90_I3ZEB1 & WSPD GKRVAYGRERQLLVADAAGVTRALVE H L A \\
\hline UniRef90_UPI00047904CA & PAEVRSPD G W WSVGARDHNLTVRDTATDEERWLTTD G \\
\hline UniRef90_A0E4X7 & SPD G T T L A S S S D S S RLWNVK T GEQKKLEGHS \\
\hline UniRef90_U1KZA4 &  \\
\hline UniRef90_A7IQV9 & S A D G Q R A S G S D D R W WDA A T G A CVQTLE G H G \\
\hline UniRef90_X6LRM0 &  \\
\hline UniRef90_UPI00037BE153 &  \\
\hline UniRef90_UPI00026C7A21 & Y R D A I A T K Ni El L TP G P \\
\hline UniRef90_UPI000288ECFD &  \\
\hline UniRef90_A1SA10 & \\
\hline UniRef90_H1Q311 & S P D NKH】AFVR G N N T I T T D G T E K Q T T T D G \\
\hline UniRef90_LOSUN6 & LS P D K K T EAFVVRDWNLWL R DLA S GKETQLTTTDG \\
\hline UniRef90_UPI00031831EE & D GKYVVS GS GDEI K I WDL S T GEV H T L N G H N \\
\hline UniRef90_V4HV16 & SPD G Q WKL T VEQ Y NLVLTS L K T G S K T QLT T D \\
\hline UniRef90-UPI0003660F82 & WSPD GQNIVIASSKDALVYITNIETEKTSKLTEDL \\
\hline UniRef90_UPI00029AFB8A & SED GSKNRVA VIDLI A S N Q T S I D E P \\
\hline UniRef90-A7EJN8 & SPD GTKVAS GSDDR\RLWDTATGESLQLE G H S \\
\hline UniRef90_UPI000345C348 & SPD GQUIASGSEDNLWNLEV GEEVRTLEEHQ \\
\hline UniRef90_L0J7W8 &  \\
\hline UniRef90_D2UGG6 & YQWAPDA RALLFPLGGELYLYDLSSAAVRKLTHGE \\
\hline UniRef90-A0A059AWW9 &  \\
\hline UniRef90_E4NRA7 & PD GERLSFLMDT QVWTLI GPA A WPEQRTEYD \\
\hline UniRef90_J3JH01 & S F S P NGETLS FLMDSQVWS I D GP GQWPDQHTFYD \\
\hline UniRef90-B2JAS7 & SPD DKLIVTAGADVW D F S GKQLVELIGH Q \\
\hline UniRef90_X6LSF4 & \\
\hline UniRef90-K9RHD5 & D G N Y F VF S K NQNYRYD LD T GE T T L LT D GE \\
\hline UniRef90_G9NQ96 & SPD GRILLASASQDRLWQVPM GS S K WTL K G HS \\
\hline UniRef90_UPI00035C2F9D & DSAGDLAAFTLS GRLFAVSLAD GEAPRELAVP \\
\hline UniRef90-X6NBH1 & D GSKIVSYS D D R I WDV A S GRQLHLLE GHS \\
\hline UniRef90-G7W8T4 & QGEIWLVPAKG K P Y Q V H G T E \\
\hline UniRef90-E4U5Q8 & A P D G R S V A F \(\square\) A VK NLWV Q D L A T G A R R R V T A D R \\
\hline UniRef90_X6MF73 &  \\
\hline UniRef90_L1IQI8 & D GKVVGFVWDRELYIVSTDKSKPVQLTSGA \\
\hline UniRef90-D1RIZ1 & I A F ER S GFi WT S NLD G S K A R KIIT A G Y \\
\hline UniRef90_A9L374 & LS P K G H FVVFVRDQNLYVLDLA TKKLQVMT T D G \\
\hline UniRef90_Q3ICM3 &  \\
\hline UniRef90-M0MV27 & SPNGERVAFVARRSVFVAPTDGTEPYRLTR A \\
\hline UniRef90_UPI00029A40E3 & DRAARLAVFALLGGVLWAVRTDGGDPWPLTAGP \\
\hline UniRef90_W9C1G8 & SPD GQYII F T TES DIY RVKT DGTKLESLVETP \\
\hline UniRef90-M5BXV5 &  \\
\hline UniRef90_UPI000441339F &  \\
\hline UniRef90_UPI000349C105 & R NLA WSPD GTRIA T A SRDRLW D T R G G L VRELRGHM \\
\hline UniRef90-X6LWX9 & LSPDNT K IL SFSTESTIRRLWDFSGKQIHVLEGHS \\
\hline UniRef90_R5VWY2 & LF SPDSH QIA FVRNNNIVLIKLLGNSES QVTKD G \\
\hline UniRef90_S7Q2C1 &  \\
\hline UniRef90_B0T1P0 & WSPD GKALYFLSSGDQVYRTDAAGEAAVQATKA P \\
\hline UniRef90_UPI0001F2B11E & VAFSPD GQTIA S S S T TIMKLWDAK T GELQQTFKGHS \\
\hline UniRef90_K0NE30 & ERAI WAVSVKGGLPWKLAK G N \\
\hline UniRef90_UPI000379FD72 & WSPD GATLAFTAKPQLYLLPLSGGEAQRITEFE \\
\hline UniRef90_C9LFR9 &  \\
\hline UniRef90_UPI00047ED7B2 & LS P D G S K V A Y V Q Q N N I YVEDI A T N T I P L T T D G \\
\hline UniRef90_UPI00034856B2 & LVVSSS GKVLVSGSDDKTVWSVSNGQ \\
\hline UniRef90-Q1IUF5 &  \\
\hline UniRef90_Q1NDY8 & Y D WSPD GKTILVPVDGPLY L A A L D G K VKRLT \\
\hline UniRef90_B1Y101 & SHSALWLL S TLLGGAPRALTHC G \\
\hline UniRef90_F4XSE2 &  \\
\hline UniRef90_UPI00037CA5D0 & D G THVA Y V T S P DLWRA HRDGA GLVQLLTKP P \\
\hline UniRef90-C3QY84 & SPDH K Y KAY \\
\hline UniRef90_X6NTE8 & SPD GANIVSSSDDRIWDVK S GREDKRLKGHS \\
\hline UniRef90-B2J650 & SPD GQWIVSASNDSIRLWDSNGGQPWQ GHE \\
\hline UniRef90_J9QSK5 &  \\
\hline
\end{tabular}
UniRef90 \(\times 6 \mathrm{mova}\) UniRef90-UPIO0036FDFE2 UniRef90-D5VFN4 UniRef90-D3F907 UniRef90 UPIo0037745B9 UniRef90-UP1000479C725 UniRef90-W9AIV3 UniRef90-G4TJB8 UniRef90-B1WPV3 UniRef90-K9X8J6 UniRef90-UPIO0037COA3A UniRef90-WORDB8 UniRet90-F4YOH5 UniRef90-K9REV3 UniRef90-B4W8R2 UniRef90-A0A021 WFH2 UniRef90-DoLXR3 UniRef90-UP100039F5DC9 UniRef90-A2Q7M0 UniRef90-Q11J32 UniRef90-K9TJ67 UniRef90-B4KFJ1 UniRef90-B2J962 UniRef90-R5C617
UniRef90-U4T635
UniRef90-F1TCE5
UniRef90 - I3ZEB1
UniRef90-UPIO0047904CA UniRef90-A0E4X7 UniRef90_U1KZA4 UniRef90-A7IQV9 UniRef90-X6LRM0 UniRef90_UPI00037BE153 UniRef90-UPIO0026C7A21 UniRef90-UPIO00288ECFD UniRet90_A1SA10 UniRef90_H1Q311 UniRef90-LOSUN6 UniRef90_UPIO0031831EE UniRef90_V4HV16 UniRef90_UPIO003660F82 UniRef90-UP100029AFB8A UniRef90-A7EJN8 UniRef90-UPIOOO345C348 UniRef90-LOJ7W8 UniRef90_D2UGG6 UniRef90-A0A059AWW9 UniRef90-E4NRA7 UniRef90-J3JH01 UniRef90-B2JAS7 UniRef90-X6LSF4 UniRef90-K9RHD5 UniRef90-G9NQ96 UniRee90-UPIO0035C2F9D UniRet90-X6NBH1 UniRef90-G7W8T4 UniRef90-E4U5Q8 UniRef90-X6MF73 UniRef90-L1IQ18 UniRef90-D1RIIT1 UniRef90-A9L374 UniRef90_O3CM3 UniRef90-UPIOOO29A40E3 UniRef90-W9C1G8 UniRef90-M5BXV5 UniRef90-UPIO00441339F UniRef90-UPIO00349C105 UniRet90 \(\times 6 \mathrm{LWX9}\) UniRef90-R5VWY2 UniRef \(90-\) STO2C1 UniRef90-BOT1P0 UniRef90-UPIO001F2B11E UniRef90-KONE30 UniRef90_UPI000379FD72 UniRef90-C9LFR9 UniRef90-UPIO0047ED7B2 UniRef90-UPIO0034856B2 UniRef90-Q11UF5 UniRef90-Q1NDY8 UniRef90-B1Y101 UniRef90-F4XSE2 UniRef90-UPIOOO37CA5D0 UniRef90-C3QY84 UniRef90- - 6 NTE8 UniRef90_B2J650 UniRef90_J9QSK5

Y DINYARFS 50
50
YDi NYAQFSPDGSMVVFCT
D N N 70
70
80 EPDWDYGGLPDGLDAPLVAEWSPDSTRLLTHRLDRGGR ALSSGTKELSEAEKARRERARVAATRGVEYSWDKQGRFI QFDT PAWSPDGTRDAF DAGTRIGLLDGDGGGT PDDSDSTGRPAFFTPDDLVFVSDRLGGTALFRQFQ GQV EPVGALAFSPKSRDLIFTMDRGGDERH QL WLIPGGEAAP GRLHNPVFSFTSDELLFLAEEGEEGTNVLYSKPLAGEAPD TLNGHNSYDWDLSFSQDNCYLMSSSEDTTMKWEISTGQE NWVISVAF SPDGQTLV, TGSWDHT KKLWSVSDGACL LEELFAAWAPNNKYVAFVGLKADSL ESVYNGHFDWVYEEEFGLAQAWNWSPDSRRIAFWQLDESK NLVSSVTFAPKDDQ\|L VFASASSSDDTTMKLWDANTGEC ADEIDAKVSPKGNYVSWV RDQNLVIYDLATGQE WNVNSPAFSADGKTVYFL SSKGGSSQLYSLPLSGGTP GWVVDVCFSPDGERFDNSARVWLADGSGEPVVLAGHTQSV FNDEQPQWSPAGTLIAFKSDRHRPGKSSADYVLPVDGGEA GSNRWPTWLPDGKHYLYVAVNHSAPTSQDTGVFYADGKEN GGVNRLTFSPNGK LLATGGKEGTARDW DTSGNQW GPIFALKWNKCGNYILSA GVDKTTIIWDASTGQCT NWVNSVAFSPDGKFLV SGSADCT TKLWQVNTGIEI YYSSYIQWSPNSKALAACRDRPAEKR

YVYYVESSPS GY TYAPA WSADGQMLAYSKQAPREHPKDYTY
VNDFDPRWLPDGR\VFDSERRGGYGRTFNLHTMNADGSND GVALWLA WSPNGKYLRYTMQENG DKRSLHQVDVATGKVTT VESYSYGSTNDAVASLVMQENLGFTLPPQVVWSPDSTFVT PDLFGPAMPKDGKWLAYLIFEKN KRVQVFLHSFETLES
 S VVTAAQFSLDCSKVISSSC SGGDDNTIRIWDVSSGNQU


ATNGTPDWVNEEEFGFNNALAWDADGKTLSWTRYDESDVK \(V Q D F G Y A T D N A G W K H S D T A 甘 L E W S P D A R K I A T F Q Q D Q R K S\) YSDNAVVVSSDGKYVV SGSRGNTVKDWELVTGNED GTEGFP YGLMHPNPAHDLRDNKPYQPKQVYANWSEDSQY DGGFTASWSPDANYGCFVGNRGNADKSDIFGYDGHSETF GVTGDVAWQPNSQQVAFLGNYVNDDKRRRNYQLKLWSPTS SFVSSLDFTPDGKTLA SGGNDNTIALWNVEFGEK GSVTSVAFSPDGRRLA VRGRSADKTVRLWNADTGQP GFATDPRDSPKGGYVSFVRGRN WIDTMPSWSPNGDLARSSNRHNPDNAFSLYLINKDDGGGQ SNVYSANFSPDGKLIVTGMFDGGNE

SKNSRGVWSNRGDRMDYTSTRRTGNDADFY\| ASVGSVAFSPDGK GPVDDPRPSPTGTHTAYAARVVAADGSGDTALAEPDGDEV DWVKKVQFSPDGSKNIILLWDISSGRKDQEFEGHSDGVNG TFSGLSSWSPDGCCSEPALSQEDKDSEERRMDFNSYNLDT GR GIVAYGWLPSGLLVYMQDEGGDENWRLYAQDPEGGAP AEVAEAQFLPGGSKLVSASWDKT RGTEYTNGLADYIAQEEMDRYEGYWDSTKVAFQQVDSHTP VPEDSP GGVNAMAEFVAQEEMDRMTGYWWAPDESAIAFI RUDESAV GSATTVNGNFDWVYEEEFSGRDGFSWSPDNKSIUYWQLDT SDAGSPQWSPDGSKLADTAAREQDDGEDAVEPSDDADE SFEDAGVLSPDGLTLAYVSTQGNFTAND DWVKDLATGVA SGVLCI AFSCDGSRVAC GLTNGDMYCGLEASSV GHVYSVVFSMDG R GATASRSHVSGSDDSTVR
GMVMAAWSPDSRRLATASRDHT VRVWDADSGE
 EYNGDPDWVYEEEFSYNRAFDFSADSKMIAYVRFDESQVP QAVKSVA FDVGAFK DAPDGKTVVISQAVFPDCATDDCTKDRLAAKGA SSVLSVAFSPDGQTI NTMNSGGASGSSDKTVKMWDAKTD HGVQDVQWSPDGQSLTFLSLGNDEDRRDERGEARVITRPR KFNGDPDWVNEEEFSTNCSFDFSADSKMLAWVRYDESKVP TINGTFDWAYEEEFFCRDGFRWSPDGKSIAYWQDANTIKD CLKTFP GHONMVRGVVLSPDNKVLVSGSVDKTLKD RDSSPRWSPDGKWIAFIPPKEGKPPATQLALLPVKGGEA GGELNGVVSPKGGFVSFV RRDRRGNLFVQP GGGA
 ARVSGDADSPDGEMIA ATMNSASADNTIKLWHRNGSLL YYSAYIRWSPDSKKVASCKDRPVEKR YVYYVESSPA HWISNAQFSRNGDMVVSC KEVNSVAFSPDGQWIV KKNEILNGLADWVYEE

S A
SASNDSTIRLWDSNGNP
EFGHAKQYVWNSGGDA

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UniRef90-A0A021WFH2 UniRef90-DOLXR3 UniRef90-UPIO0039F5DC9 UniRef90 A2Q7M0 UniRef90-Q11J32
UniRef90-K9TJ67
UniRef90-B4KFJ1
UniRef90-B2J962
UniRef90-R5C617
UniRef90-F1TCE5
UniRef90-I3ZEB1
UniRef90-UPIO0047904CA UniRef90-A0E4X7
UniRef90_U1KZA4
UniRef90-A7IQV9
UniRef90-X6LRM0
UniRef90-UPI00037BE153
UniRef90-UPI00026C7A21
UniRef90-UPIo00288ECFD UniRef90_A1SA10
UniRef90_H1Q311
UniRef90-LOSUN6
UniRef90_UPI00031831EE UniRef90_V4HV16 UniRef90-UPI0003660F82 UniRef90-UP100029AFB8A UniRef90-A7EJN8

100 QVLVESSPPGGGRPVAHR\|RYPMPDDEAQATVSWCVLDVG VPLDGDLYLDSVADGKVTRLTETPGDEVDAKVSPKGGYVS \(\frac{V R L}{M L L H V H A P S P A R G G N S G R P V F S P S G T Q L A F D A G G O S A G}\) AALTDDPTVVHAWGAWSP QQ TGETLHIRDAVFGPDKSDYDIAMKASEFNKEPGETTE DRVS LHPHQSDFASGGMDNQIK DWHGKTGICCEQTDKGHEN IQLTHDGFADFEPA WSPDSKYLIFASQR EPVVQLTDYSGRHETWDRПRПPQPGDTNPIAKDGVVDVKS ᄂ
KVLNDH TLWGHDSWVHAVSFSPEGELASASRDQTVKL TPINTDGAGLTA WA GAVTKVKFSPDGKIIASAGADNTV KQVSAFDGDVGGFQLSPDGKRVAFNAEAYVDCAADLA CS ASVRFSPEGERVVTASYDKTARAWPADGLGTSVLFQGHGG TVVSTATFGSDARRSAYDRARWSPDGRTLVTVENGRVRDR YPVT PVVDCEKPIKTEEQVSKEKVKMIQLFGGKDLEYS
 QQFAFHSAPA \(\square D V D W Q S Q S F A S C S T D Q R I H V C R \square G M N E P\) QTLTGHSDSVSSIAYSPRTATTTNSQDRQLVASGSNDY DQLQPRLHKQEYAKPGDELRFKVPC DRKSNARHLIVNAEGSNESASFSPDGQKLLYSSTVGGNAD RCISYHETNEWSPCVDNNGMI VYTRWDYVDRGATHPH

 KRLYQNKSATYSFALD W WVDTKTLRFI
 NKLEGH SNHVNTIKFSPDYSKVVSCSEDKS VRLTQSSGTEMNPEWESSPSWNPESTKIVYTASDKSHLYG TRLTNHYADDTESS QDWGWSQSADQWSDDGKLLVMLEAVDNKDR TYS \(\square Q L F R G M N P E L S D F D V Y P G E Y S Y K Y P K P G E K N S\) GDMY LVRSKLGHPELLQWKYPMPGDKEVTMMERVIVDVPT H L TGHNYSLNAVAISSDGRGKRPETNKYVVSGSSDETLK YQLDRRNTGKYALVRASHQRGKRPETTEFYYPSAAE NKTTDDHNPSGWFSGKTAS KWSEDGSRLFFENRPQLEEK QTLEGHSH WVSSVAFSPDGTKVASGSDDRT

\(K L L T\) QNEGGGWYGLDWSPNDDKYLALQYVSVN QQLEEHNN R RVRSVTFSPDGQLASASDYEPIRL VWGLAEFDAAEEMSRY RGYWWAPDGSALIVARVDDAPVD VQFSSDGSKVVSCSYDRTVRLWDVLSGRQLQU FEGHTN RLLT PGEGVQARILKAHPDFPDELLVLLNDRDPALH \QLLEGHE RGLNGVQTSADGSKLLSYSTDRT KYRiMHQGSDKVGEAAQEDHHYPFAGASNPRVRFGVVNSD AQL QHIPSKNNFNPVWSPDSKKLIFNTFINNNWY EQVTRNETYADGIKLTEQRYPAAGKNNVDIALGVVTLKDK SGVKYFTMDNNTKALYPSLTEF PYPKAGETNSAVRVGVV EDAADGNGDDGEGGDGNGGGDDGPESQVWVFDLVRGG FNGTNTPTGDNSFPDGHFRPSWSPDGEWLAFSSDRNTGWT VRLTGHTDWVRSVVFSPDCDHLASGSSDNTVRVWDEGHTH TWDLASDESLPPMNGHRRWVKCLAYSLDGKRDVSGAN TLLRFAD ATDVVRGVSWSPDGRYVAAASRDR Q LEEESYGVRFFPKESKILSFSPDGT\|RDWDVVVERKVH M YSFPWYKGMAPEKTEYTTYPGSYDYKYPKANSKVSVHS CLSVF KKATGVVFDKDFDRHWDA WNDGDQNHDYALKLDDQGLATG \(T E L Q Q T F K \quad G H S D G V R S V A F S P D G Q T M A S G S Y D R T M K L\)
\(P M F T\) YRFNGRDWEWHAPAVEDSGYAWWPDSHGVVFASSTDASQW VYSTQEYKGAYPTLKQFDEYPGYYNYKYPVAGAKNADVCV FYMINNTDSEYSKIVPVEYPKVGQTPSACRIGVVALATQQ WDVSTGKCLKTLPEHNEGDWSVADSSDRCVASGSGDGAVK R GV QRAAVLPTGVEAFKWFPDGKRIAFDA WVWPDARGAKAQAL KThTNHTSAVLAVVFSSDGEMIASASADNTDKLWKQDGTL KRLDPEESGPHAD \(\quad\) TTWSPDGKKVVYSTVPWQGVG DQLQPKLLHKQEYAKPGDELPFRVPCIQYEVTGRS
RKFEGHWAAAKG GQ VF \(\square\) KSDETSVPEMNMP \(\backslash\) YGNNDYPQFKFKYPKAGEKNSEV

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UniRef90_UPI00037BE153 UniRef90-UPIOOO26C7A21 UniRef90-UPIo00288ECFD UniRef90-A1SA10 UniRef90- H1 Q311 UniRef90-LOSUN6 UniRef90-UPIO0031831EE UniRef90 V4HV16 UniRef90_UPIO003660F82 UniRef90-UPIO0029AFB8A UniRef90-A7EJN8 UniRef90_UPIO00345C348 UniRef90-LOJ7W8 UniRef90-D2UGG6 UniRef90-A0A059AWW9 UniRet90-E4NRA7 UniRef90-J3JH01 UniRef90-B2JAS7 UniRef90-X6LSF4 UniRef90-K9RHD5 UniRef90-G9NQ96 UniRef90-UPI00035C2F9D UniRef90 X6NBH1 UniRef90-G7W8T4 UniRef90-E4U5Q8 UniRef90- X6MF73 UniRef90-L1IQ18
UniRef90-D1RIZ1 UniRef90-Q3іСм3 UniRef90-M0MV27 UniRef90_UPIOOO29A40E3 UniRef90_W9C1G8 UniRef90-M5BXV5 UniRef90-UPIOO0441339F UniRef90-UPIo00349C105 UniRef90-×6LWX9 UniRef90_R5VWY2 UniRef90-S7Q2C1 UniRef90-BOT1PO UniRef90-UPIO001F2B11E UniRef90-KONE30 UniRef90-UPI000379FD72 UniRef90-C9LFR9 UniRef90-UPIO0047ED7B2 UniRef90-UP100034856B2 UniRef90-Q11UF5 UniRef90-Q1NDY8 UniRef90-B1Y101 UniRef90-F4XSE2 UniRef90-UPIO0037CA5D0 UniRef90-C3QY84 UniRef90-X6NTE8 UniRef90_B2J650 UniRef90_J9QSK5

ПRTWNTNTGKONRTDGHFDWVYDAQFSSDGNYMASASDD TRQVVGEQGDPEVLSVHNDTRRWWTGQRGSADHVLHQSRD YVRLYIKPATGGAETALTDGKDADSFGTA EFIAQEELD GQQL WI SDLFGGGARRLTGR EVHIYALGQDGQATQLTHHPQDQPWPCSDGQTFVYHAQED DIHVMEVATRKATCVYQGELYREAMAFFPDGKALLVRDCT GFDLYHIKEGSDTPKKLTEENHFSMDNSENGEATYYSDFK
 GRATQAL
GKRTWLVPDLRGEY YVPRVYWTSRPDTLAVVTLNRR WDW HTGECLHTDEGHDHHVKTTSFSPCGKILASGSHD KDWSRDGKLLHNLTAHTNSVWDINFSPDSNMLASASAD
 KKRTAAAESGDGERWKARGVMPQPQVVDAHQGAVENRMMFSAD SAADGSRRRTDPGRACADCGDSPMLGFGPGGRTLMAYG \(R L R D A H V A T G Q I G T I V A G H R H V H D F T W S P D S T Q I C F V A H K\)
\(G M M M A S G A A G G Q S L A W Y D R S G K V L E S L A G L G S F Q E V Q L\) GMM YASGAAAGGQSLA WYDRSGK VLESLLAGLGSF QEVQL IKTFRGHTNEVNALKWCPQGQLLASCSDDMTLKIWSMTRD TUKGWQVYTGRNDYTLTGHSFFUNCIAFSHDAEMIASGSG
STELFSHQYD STELFSHQYD SAWL TTPDGLDARALTNYPNSGDEWWKNVPMMQNSLR IWWVRREGWVGSLGNPSTCGYGFTWNLADGPVDFWRSPVIT HLSVVTSVNFSPDGTTLASGSRD YDQUVTIDINSSSVIERLSLPDFVFPYY ISHRSKTDLYYT
 TVKLWRQDGNDRNTLEGHNAKVYTVTFSPDGQTIJATASDD PTQLACIGLEQQEQLPGDLWFTQPKWSEDGKKIYALVETS PQLYEIKL
WI A SVNLDSGKLTTEHRLHDDAWVNYDYNQFGWLEDGR VVSVWSYSLSSGK SLK YDLPLTNDMYVPRTKTTAQANRII RTVVRLQMPPDQHRSTLCGGWDDVKWAPDSKTLAFVSTSR DWELSSGNV QHTLTGHRDSNNVAVSRDGKYVVSGSRD位 TKVLKYTDESSLFDYDTRRQQKGLKVWHNADPEIWNESRR RLWDTATGESLQTLEGHVYSVAFSPDGTKVASGSGD \(\square K L\) WDVEASEEIITLEGHDDRLTSLDFHYNKKMLASGSD RLWDADTGQPIGQPLHSAQVMSVAFSPDGRRLASASGD RQEVYRYPQAGQPNVKIHAGAQPQWIDLGKNPDIYLARVD YGELYVVRLDGSGLQRLTWN DVYVQDVYVQGRDETGDAAEMVHEGDGWLTVGGWSPDDSM
 WI HDFNIITSKYILLRYFQFVKETNCKGDRHMVQFSPD ESYLWLVDTSTGEKQRLLPSYGEEKISYDGGYFSKDGKGL WDMANGKHRRTLEAHGGQVSCLHVAFSPDGSVLAASLDNS RWWDSDPANPASAPTRVAYPAAGTPNAEVTAWLTGLDGSR MVEGAQFS \(\square D G S K T I S C S W D R T \Pi R M W N V A S G K Q L V Q F S P D\) PAYSASLAADGLELQSLRWGESQPQVLPCGLAYRHWLSFF DVWRVNARTGERVRVLENPGYVGFLADERLRVRAAFRP GSSLQWYDLTARFGEDUYLARVKWLPDNTALIQUQNRDQT LALI NKDSSGYLLLNNTQNKYTPVWAQDGNSFFTHDDET A I NWVSLREENSKEKSKDTYKPRVDWLPDSKHLSFQWQSR SLSDKQTRWAKLEGDNRDRYIPRLSWAGDGESLLIQDLNR DARQDTDRSEGVTGFDWGPDGDRIVVAAPDP RWY LADPADPARPPRVLRYPAAGTANAGVTVHVVHLDGRR GHNVYKDRPDGSDFAQVVTKDGYPKWSPDGERIIFYEMTR W \(\square R S V S Y S D D G S R L A S G S Y D N T \square R V W D P Q T G Q T V L G P L T G\)
 LIEEFLDMDTGDQCSP WDASMTGEQGSRDWRNAHKGRINFTAVSPDDMHVATSSVD APVALMNGFNGDAPTKPFGGDEDFNDTPDGKSVVFPADRE
 RQELFTLTLAGEVSQPHKGGQRVAVVGRPEGKGSPEDDHL TTWLKVPGEINNNYIPKMEWIPNSNDVILEQLSRKQNEAK LWD KTGECLIMTLQGHSDWVMSLL AFSRD AKKQKKDAGAEPEHESDVRVINRAVYRFNGQGYLDPKHHA
 INTGHSDRTDGVAFSKRCSAVLGVSPMSDCIKKDGTLIAS NFSPAK WD DR SWDDESGENDKTVEGHTKVVNDV



 KTAC MWDLSGKLLVQLKGHTDTVWSANFSP GQKF VTASRSK I R IDWDVNS GKlVKQLKGHSNHTD QVLFS Y VIT D R D S EF S RL A Y V E L D T L Q H T Y L SKK F R WDV T D F DL S




 IVYWMKLL K K WP L D T LI P H G S M S S A S R I QV SP DGKTMDV DM D Q H QLDL QLVALDALTK P K T LVKERS DA WVNLDNDLHFLK P QNHNNLWLFNWQKQQLTK\|LAAEKDDAFIEWFYSANWSKS TDEEE GYQEQ TAVVPPARADAEGHPAGTWTDRRFEY LTAA GWDAHGPYVE
 HS Y A F \(\square\) AS G S WD RTI R V Y D A R T G H TVVLG P L H A H T D A V N WV

 HQNRFDLYMANPRSADCKVAIRDEAEQYDKEQAYSDIAFY CTDG EAWSTNYDVWRAPLDGSAAPANETSVNKAMDSQPGVSPD G
 \(F V L H E D G T S T R A D T G W D F P V G Q L V G G D C H V G S F P V R P V W Q\) HQDRMDDYMVNPRSTVAK LVLDRETDKKY LVVEAAYNDLTAF LF VICAAQTGEAKVVIFSETVEAWVEFNNRGGEADGWDWLNN GQI LA S GS WD H TVVKLWNVSS GECRKTMLLGHNSMDRAMMFS L F V M K
LS GMVVRDL
 ASWDK TVKLWKPD GTLIDTTLKGHHDRVYSVAISP

 T \(\square R L W D S N G N P \square G Q P W Q G H E K E V N S V A F S P D G\)
\(H Q N K L D \square L K L K T S S G K \square E K \square F T E T D K A W \square E T D N L T L E F L S\)

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UniRef90 K9REV3 UniRef90-B4W8R2 UniRef90-A0A021WFH2 UniRef90-DOLXR3 UniRef90_UPI00039F5DC9 UniRef90 A2Q7M0 UniRef90-Q1IJ32 UniRef90-K9TJ67 UniRef90-B4KFJ1 UniRef90_B2J962 UniRef90-R5C617 UniRef90-U4T635} UniRef90-F1TCE5 UniRef90 UniRef90_UPI00047904CA UniRef90-A0E4X7 UniRef90-U1KZA4 UniRef90-A7IQV9 UniRef90-X6LRM0 UniRef90_UPIO0037BE153 UniRef90-UPI00026C7A21 UniRef90-UPIO00288ECFD UniRef90-A1SA10 UniRef90-H1Q311 UniRef90-LOSUN6 UniRef90_UPIO0031831EE UniRef90 V4HV16 UniRef90_UPI0003660F82 UniRef90_UPI00029AFB8A UniRef90-A7EJN8
UniRef90_UPI000345C348
UniRef90-LOJ7W8
UniRef90-D2UGG6
UniRef90_A0A059AWW9
UniRef90-E4NRA7
UniRef90-J3JH01
UniRef90_B2JAS7
UniRef90-X6LSF4
UniRef90-K9RHD5
UniRef90-G9NQ96
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UniRef90-X6NBH1
UniRef90-G7W8T4
UniRef90-E4U5Q8
UniRef90-X6MF73
UniRef90-L1IQ18
UniRef90-D1RIZ1
UniRef90_Q3ICM3
UniRef90-MOMV27
UniRef90_UPIO0029A40E3
UniRef90-W9C1G8
UniRef90 \({ }^{-}\)M5BXV5
UniRef90_UPIO00441339F
UniRef90_UPI000349C105
UniRef90-X6LWX9
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UniRef90-S7Q2C1
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UniRef90-KONE30
UniRef90_UPI000379FD72
UniRef90-C9LFR9
UniRef90_UPI00047ED7B2
UniRef90_UPIO0034856B2
UniRef90-Q1IUF5
UniRef90-Q1NDY8
UniRef90-B1Y101
UniRef90-F4XSE2
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UniRef90-C3QY84
UniRef90-X6NTE8
UniRef90_B2J650
UniRef90_J9QSK5

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240 SGEILWWSQRDGWGHLYLYSADGGRVERVTEGPVHRVLWV NQRYPRAGRPNAVVELVVRDATSGGEVRKLDEGANKDVVDW PHGTKLAFVRRRADLLYVMNADGSGLRQVRGPRGVESVRW GQWDAFTSARSSQEQVWVMRPDGSERQQVTSGAPHSFPAW FRKDY L
 GHQHGVWSDVNGQ R L WNVE KGETEKTLHQHNNWWSLA W PDGQTLASAEDHTVKLW D DKTGQLRTLRGHDRWWSUTF EHSFYWVSDRDGFQH Y Y Y DYA GKEVKQVTS GQWSVTRGV PGGNLLASASDQTDKLWDVET GQCLQTLSGHTSRVTDAF DGKAIASSSDDDTVKLWS SKNGQLINTIKGHNG NVRSF T L Y V QRQSRDQKTLDL LSVDPATGASRVI LSQKANNDFHVV SQSLVFSARWSTNFDLYLVGADGGAAKNLTASNPAWDTGF GQPAGIGDNDHPRVEAWRLKAGGTGERLLRKSTGGEADAL NCGVF FI \(A\) G HVPTHCLTSLS L
PDGSRIAFTMNQGASMAIKPSAGGAPEQLTDHSDSGVTTW SDGHLMATGEDGTAQDW DTSGKEVATLEGHEGSVQIVF TNLILASASFDSTVRLWDVERGSCIHTLTKHTEVYSVAF



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 DADTGQPAPLTGHTGSQAVAF
SEDGRTLHPLTQGEWVVDALL

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 \(G K Q \| A F V A A Q N A T R R L W L E N S D G S G A H P L A A G G G I Y Q P\)
\(R G R T L Y M S S S R E T A A L L A V D L D T G E E R V L A E D P G Y D L D\)
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SSDGTLI
SPNGNVI 1 Y
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\(A\) VDAGKVYFSTQANVYAVPLAGGADERDSQPD
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jhmm
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[^1]:    

[^2]:    A

