 VIDCSEHHDLLNELRATLPSVPRRDLKAYFAAALEASKR SQAEKELIENLIKDINFNPNADNNSDLNRLQFVSHN $\square \square D C R D F D E K T \square N L F L A P G P D P Y R E T E E F L D D C E M R A D E$ AAEQAARRVMSAGAALVDSADWVDAARTGWSE AERDELIALASGVLAAGPADEPAWLDTVRDASAM $\square E \square A P D E R E M A E L V A R S A G D G W V N S H S W V E A A A A G Y H D$ EPERNEDRTLAERLCQTRPADDPLWLAAAREYSCD TLVLSAEEREVVSGVVEELPPFDDFNPPEILTWAQQAASR VLTEAEYRQTSEI ADRLARAGRTDDQQWLAAVRDASVE

 EEAAQVHDLVDTLAAHGTADSSAFLRDVAVAGGQ LLSASUHHGG SASAEADHTAAERDTAHPNENPDDFGRQALAAAFS A A IDAVADELSRYDSVESTEFQAES RLYADE

AAEGAALDELTSVLRDHGASSSPSLLDDLSLVAHR EAAELRAVVARFADTPAPDQPEFYDGDHAAEEL
 $T L T \square T P A E Q T E E D A L A A E A V D R F G S P A E P V L R R L T V L A D V V$ $D A D W T M T R L H Q V F A G$
$D P F D H L L A S A / I R S G G$ LDDSSAHVPT LFELPARLTADPVTEPDAFGRQARLLARE ELISSTQMFSESDUDNFEDFYWKCFQYSFN TPAESQAAATLAESLLA RFAGDPVSSEF LETAPFLGGE EKND 1 A EMADALAGRPAWAPMDYVDEARAEAER DSARK LSSAFSH LR LGDDKSWLRTSHWFGTT

ERKA TKALIDH LLFDEK LDNYRFLEKSS DFAQE
 K L K S A F S N L R F RED H EWL N A RE WLK H S
 VLTESESESVEELIAAQNITTADSLEDPHAFARQSRLATALL $\square V L T E S E S S E L R$ RAFSMLDYDP TGSPAYLSAVRKCAMN STAEDNQARALLAEFGTS ATSPRLLERVAGTAAA THRFTAEE $\square$ ASE ATTPALLKRAASLLTS


DELLSKLIS R RVMETVSPMCADSVGAVGGDWLGTV E $\square$ AD D $\operatorname{SAAADAF\prod ASGTP\quad ~LTG\Pi SQATFP~}$
 FTEEERDEIRSLFEK $\square W Q S$ PYRQYEAHVHAVRQCVSS

EELASLSAAADDFMAQDLP LTAAHADANFR
THPFSDEETKEISDAADAFDSSGTP
FTEEQ】KELSDTADAF IANGTP


SELTAE TSTA TDAF $\square$ ASNVP $\quad \square A T \Pi T$ KASFP HHFSNDEKQALLFDALSQI KSHPYDSYNAFTDELDGПSGK RDSLKESLEFLGASPYEDYEKFSDAGAALIDAR


## EE $\square K E \square G E A A D K F M A S G M P$ <br> LT GMK QELDF P <br> 

HFSDEENNQLTHFLSQNAVNPYTHYQEFK LT $\square$ NE $\square$ S R K

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100
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120
STPAPEDRS LLTMEAMLGLVGRRLGLHTGYRELRSGTVYH STPAPVDRPLLASEAWLALVGRVLGLPTGYHELRFGTVYH GA GS VQ R A GS V


E VMPGSVE VMDSVQ RSPSGP $V P N G B S P S B A G V L A M V M L Q I G E L I A Y R A E K F G A L V Q Q$

 AHEAH ILDGHPTN GTLMLVADLLGS LTGYQDEKAGALEH WSHQPD R RTTLT E EM WL VLVCATALGGDVVGWAT QQE GAA V M D $\square$ H K P D D C S E R


 WR E A DGG R A A R A Q E L W

 CRER I A R SYEQ T NS P E TVA S
 H WN HPR NP P S L L E E A MQC L MT S LLL G DMF G WRTQEN GRF L R R WQVAEKEGAA IREELVLLLI A SVLGGDPFAWSNQQNGGRLVVH WQAAATGASSLDLDI AMLLLARCAGEPFGWAGQQNGRLVN



 RWKDADPHRTAD WDILMLLLA HVVFGKPFGWS GQQD GRRVN
 NAVGANTARTLMARQSALLLLS SVV GVLVGYRPECRGELVQQ

 DANSLDNKNNGY LSENVLVAL GSLIDAEPYSDKHE GPK LVVN QE WGNHKSA VAYMGGLGYG GYFVS QNSRGHV L G VT P R T T T R TVEAAALLLLALT LPDLGEPFTFRSLHD GRLVQ WATAGDSGAAH DI TLLLLLATVMGNP $\quad$ TA W E E WGTHKSA A A Y M GLL G T Y IGGY P V S
 WRDRPRPN REFPE E I PLLILVGGHLLGTPPFAWPTGQQNGNLVN NGF LDPNAECVLDFDLLHFGMLRLLDRPHAVEYENFGKLVR
 AAAFMGLGAYLGYFVS QNGRGHVLG ETGRSFK A GVL SENVVLVALSTVAAGEPYSDAHEGR ELVVN WGPHKNAVAYMGLGTYLGYFVS QNGRGHVLGB
 $\square G Q K Y V Q K R T W V A E C M L T A L A E L C G T P D G Y R N V N D G D V H Q$ NGFTDETAMAVTNALHFGLLQQLDSTPPAVDYENNGRY!R N DWGVHKS GVVAF GL G SHLGLPDVS


## E E WGVDKAADAYMGIGTYIGHFI S





DWRDARTPGSRPDSF LLT LYAGLLGDVFGWATQQDGRVVT NDNPPEHKTWKMPAATLMGLISLTGHKVAYKGEMNGRLAB G GFCDESLLRTPNLVHFGILRLLGLTPIAYPWENDGRLDR G GFTPEAALAPDVALHLGLVRLLEATPFAVPYENRGRMMR WK
 $V$ A R RLA E R $\square G Y \square K R T T Y G D V F$
REWGNHKSAVAYMGLGTYFGYF TS Q N GK GHIL G QN S R G H HVL $\square K R T$ T Y G DVV


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DVYPSPGAHHLSSETSETWLEFHTEMAYHRLQPNYVMLAC DI YPSPGAHYLSSETSETLLEFHTEMAYHQHQPQYVMLAC
 DVVPVPGKEEFQGNAGSVLLTFHNENAFHPHRPDFVMLLC



 $N V V P V P G Q E T L Q S N A G S V L L E M H N E N A F H P N R P D Y V G L L C B$





 DMVPNPKAVTQQSQGSKVEL EAHTEQCFSDFKPDYV DVVPV

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 H I V P I R K D H A E Q G G G S S V T L V WH NE E A F H E HR A D F L S I L C
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$\mathrm{H} V \mathrm{~V}$
HVV

 TLVPVRRHRRQT DIIMPSAFKDRQTSGSSAVLLEMHTELSFVESPPEYVMLYC NIVPSPGHEEQTGASSSVLLSPHTE DAFHPGRAHLLMLGC DLVPHPEAGEYTGNGSDLELDLHTENAFQDTSPLALLLLG
 $N \mathrm{~N} V \mathrm{P}$ SPGHETQTGASSTVLLSPHTEDAFHPGRAHLLMLGC HVKDLGEDSTQRDYRTNARQFFHADDS DVVGLLC HVSPKHKRETES SYGSRAD LDMHVDNPHLPLTPEYLSLTG DVFPDKGYEKERGNGSELPLTHHTEDAFHPRRADYLVLAS $N V V P V P E A A G T T S S G A D V E F F W H T D N P N W P F V P N F L A F T A$ DVYADKKYSNTQTQKTDGELYYHNDRTAHPVRADFG S LLG DI AP DS GNKTSVSSNGVISFDFHTDGAYLERRPHTLSLLC HVKDVGDDDSVRIYRTAARQFFHADD CDVVGLLG NLTPHKTARDYTGLGSEVELDFHDENAAQAHMPE GDLLL G

 NVAPNPAAAGTTSSSGADSEFFWHTDNPHLP YVVPRYLSFYA $H V K D D A G A E E T R T Y R T T A R Q F F H A D \quad E C D$ HVKDLGEDSTQRI YRTNARQFFHADDS

 HVK D LGDDASVR $\square$ YR TSARQFFHCDD GDIVGLLC DV DAVNKYSGYDSQFGDTELAYHNDRSAHEVRADFVVTLGG
 HV DPARTSSSSQK SSHGRLRFSYHDDNPDLPLSPEYLSFFG
 EVKSKD NARNYAYMMT P L P P L H T D MPYYEYKAGI NILEC
 $N V A P T A S A R T L T S W G Y A Q P L D W H T D D S V L D H R P D Y L S F I G$ NVVPNPAAGTTSSWGS DAEFFWHTDNPHRPYVPRHLAFLA HVKDTGADESVRDYRTTARQFFHADD E I F P $\square F K D R N K$ QL GS GS V H L E L H T E D P A L A Y R A D V L G F L C



 $H$ I K DVGLDTSVRGYQ EVMSKPDPNNLAY

T NV H L P Y H T D L A E V $⿴ 囗 十 ⺝ 刂 N A B K K P N$ N S A Y

SHALP DHTDLPNQELAP
 DVRNIPNPKNVAY EVVNKPDPNNLAY
 D N L A Y T SVAL P L H T DLPNQEVPPGYQFLHC



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 D LSFGNF LGKSNKLKNCPILEGDLSDPYMTYDSDLITPLN

PPSFTGG $\qquad$ E P
STSFGTAWSRT
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GTPTP
P P SF GS LA SVRSA
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PGSYVRDVAKGADVLSVPVL
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DDSHRRVREMNERPFPVAVLIGDPSSPYGS SDPFYMREDD DYGPTEKNQR $\square D \square N K H Q T V L Y G D P D A P F F R F D P Q F M V A Y S$ PSTFSRERAGGAQVWSVPIISGPDAFPEVSTAANGVKGET DESFQPY IPNPDDVGPFPILTGPEDDPYIRVDQELMHG円T
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 DDEHVRQLQRRHPDHPVAVLFGDRLNPYLRIDRPFMRCAD DSEHRKWMGEETAAQPVPVLFGHPRSPYLRLDPPFMRPRD PGNYCRDYAGGEPVWPMPVISGPAAYPE SAVSANGVKA LDT
DYGPREKNQRIDDGRHQSVLYGDPDAPFFRFDPQFMLAPS $D Y G P R E K N Q R Q D V G R H Q S V L Y G D P D A P F F R F D P Q F M L A P S$
$D E S F A D F L D T R E R G P F S V L S G D V D D P T M L V D Q D G M H G D T$ DPTFMSDTDGCR RTAVLSQHKE PEIVFDPAYMRCLTT D K S H L P E Q


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 DTSYEANPAAGALPAGVPTLWVGEDGLCLRYDPAYTPLAN DDSYGDGSAEPAEPVGMATLWDRPDGLCVRYDPSYTRYANT
 PYRWRGATETQRDNTDLSPILSGPHRVTVAFYPDMVLPAN DENVTDGYSENLPYMLEPVIDRQTSRLLARFDDDTVRPAND PYRWRNSTAGAKETHVYPILSGPDTHPRVAFYPDMVIAAD FDRKGETSKGQEEY DRTSVMYGENPRVYTKWDPYYVRPDS DDAHVDA D $\square$ SEQTPVPILTGPAEDPEDCFGEGDVCPAD DDAYAEAQGYAEEPPPVPALFASEDGDTLRFDPAYTPQAD FDRKGEVSQGEEPYDRTSVFYSKEQRLYSKWDPYFVRPDS PASFGKQGN $V$ VLENVPLLYRSADGLYCRYNKASVEATS

 PETFHVQVSKRRS SVLDKVDGMYEVKAADHHSHG ${ }^{\top}$ FDRKGEVSDGQEEWDRQPVVYGGRGRVYCKWDPYYVRPLS PYRWRGAAPTPRDNTDLSVLSGP $\square D A P T V A F Y P D M V L A V N$
 DDLSVVGDKELGEASLHPILDRLQN R LDRFFEGRTTGID
PAS NDETAPLPDAALLEQSYEGTRARYDRGTVTGTT
FDRKGEVSKGQAEWIRAPVYYGKEQRVYSKWDPYYVRPDS

 D DHSLTTMNVSESIA HPI IEGDS GLIRYRDSYTKDAP DELSRDSNKGQRLSEAHAVLENEHS FRYYDTRTEPAD PDSFTG NRRCTAELPVLRGHSGEWLCRFDSENTHGLN YDLKGEGRPGAGELSDHDPVFSDYEGYLCRYVRNA EEPAT WYD DGKDGDSFHNIWRAPTI C DDVDGRYHR DS HFTVP DE DDSFDEDAQAVDRPEPVAVLTGHRAAPHLSVDFSAPAEGD PESYT DDD GRPLSRSGVPMLWTLPDGPALRYGPGRLTGLT PAS FDRKGEVSAGQEPYTRQPVFYGADGRDYTKWDPYYVPAMS TIEYKPKALETAVLQESP AEGYSFIYDPVYVDKMS $I$ GHDGDQARPFHSLWRAPVVCLDVDGQVVRUNQNTTKRDS
FDRKGEVSEGEEPYFRSSVFYPNPDDPYARYDPNNTTPDS DANDETGENEEETLD SVLYGNTNDPFMRFDFNSSIRQS PVAFHY DNDGH HLHHNHPT ESELEDSHVNYSPPFQAPLS
 HDLRGGEEAPSSSPVVSSPIFSYYDGKLSCRWIRNYDESDT RFQDGDYD DRKHHTVIQLDHTGTVSELRFNAHIASVFD WKDNDWTQETIR DAHSTPILTKDKDYNDIRFSVANMDALD GYDNDNQMYTATRKMINVSGKSKDRDINYSPPFQAPFW PFRFHDDSAD DRVHRPVITLGSKGEVIEIVRYNAHDAGDFD
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 DRAQQSLDNLRNDAWEVVEPVRLGPGDLLII DNRRTAHAR PEAEKALEQLHAACHDEKVHVALRPGMTMLI NNRKGLHAR ADAQRLLRKVVDTYDEHRDAHVLQPGDLLMLDNLRAMHGR GEEQRALETI GAAVDDAMSGVVLSPGDGVFI DNYRVVHGR DRAATALARLREALDEVCVDLQLQPGEMAVLDNRLVVHGR
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$T E A A A A L V M W E A Q L K E L N N A D T Y Q P G D F L I I M N Q R L M H S R ~$ DEAEQTLQALHAVCHEIQHATHLQPGQALLI NNRKGVHAR PEEDNAVNKLDELLGKNKKEVVLNSSDCI FVVNFRCVHAR AEFRGAYAQLSAELERVAHAAVLEPGQLLLVDNDVVVHGR ESAAAALVMLEAQLQNLKQHVVYQPGDLLII KNQRLLHSR DRYRRAYGSLSTELARNARTVSLRAGEVLVIDNDVIVHGR DDFVSAHERLGAAFEEQGFVVPGSPGDLLVIDNDTLVHGR AEHRNALAAVRDVWMAHRSEVVLHPGELFILDNSRAIHGR ARAKAALDNLYKAIREVSFGARVSPGRLLAI NNHFALHSR GDAKEAARALE DALLAKR $\square$ S I RLLRFGDLLIVDNKRMVHSR EDWRAAYGRLEDELARVATAVSLDPGEVLVVDNDLVVHGR HEAQNTLLRFYNALKSVARPLDVQPGKLVYI NNRFMLHSR A A QVEALEVLEATCNRLSLHMDLEVGDIQFLSNSHVLHAR PADQRAAAALHALLDRGAI GHELRPGDVLIADNRRTVHGR DAYRSAYGRLGEELARVSVAVSLAPGEVLVVDNDLVVHGR PQQVHAMETLEAVCNRVRLHMVLEVGDIQFVSNEHLLHAR ANARFALQLFAAVANDVVHHDLLQPGDMLIFKNQQTLHAR DESARAFRAAHDSMDRNQVAFPLEPGDHVI LNNHRVAHKR RDSEKALALLRQCLRDAQIEVVLQPGDFFIVKNARVLHRR DAPAEAVKALDDLTKAAKGRVALNKGDDFSFANQDSLHNR $P$ DASNALNSLRSALQCVSVVKRWKPADVIFSNLRCMHGR AEQDRAMEILEATCQREALHMVLEVGDI QFVSNAHLLHAR
 PEQKEAAEVLEATCNRVKLHMILEVGDIQFVANSHVLHAR PEAEAAVAEVSNMLHDLKLPIFLPVGDMLI TFNNHCI HAK PAAAAALDRWVQALEQAREEFVLSPGDFLIFDNYRVLHRR A A Q LDEADDVLEVTCQRVAGHMVLEVGDDQFVANSHVEHAR LE QSRAAQILEDTCLKLALHMILDIGDIQFLSNNHVLHAR
 EK QLEA LLKVLEETALDREALHMVLEVGDI QFVNNNFMFHAR EKAKEALIAFRYAMTRAKTHHRMQDGDLESFGNQRGLHSR A AHYEALLREFRDALAKCRQYHRDQDGDLLVIANQDGLHSR $L R A E Q A L A T L R G L L R R F D E P H L L L P G D F M I F K N Q R V L H A R$
$D L Q E E A L N L F D K L A P E L C F E M Q F E P G D M Q L L N N H V I V H S R ~$ QPWYEAYDKFVELAYAEAVDFKIAPGDVFVFNNLRMLHGR
 DEAHEALANLEHHAAALGTPVLIEEGGFHIFDNRRVMHRR ARAAAALDELAEALSADAEQFVLRPGDFLFFDNYRVLHRR P A QVVKA A QV L E D T C L R L A A L H M I L D D G D D Q F Liv N A HV L H S R RAWYEAYDRFLRLAHDEIVEFKTRPGDVFVFNNLRMLHGR PEQQEALKVLEETANRLCLHMVLQPGDVQLVSNTHVVHDR REFY LALLQRFSKLLNDNTYEYTLREGDAVLVDNRRVLHAR A R WRDAAEKFQRLLE ENMYEVVKMKPGECVI FDNSRVLHGR
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        F T A E E \squareE E LG S VA D K F \squareA D G \squareP L LT G DS K S N F V
            S D A Q|DELE ALGGSKF VNDDP D\RRF|T A E E Y Y P
T HL NEEE पF ELLENAASEF\square D NS DNNDGALST E N F P
```



```
            S E D\KE\D\A\\A A F H A G G\S
                                    MAD|SPET F P
            Q\squareRELE T A A A H Y LS QGRDVGE DT A GT F P
```




```
                                D ANLLETLPQASFA
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AHFSAA $\square$ RAAVTAWRGQ $\quad$ T $\operatorname{FVDALQQ\square SDPVILGRK}$

TRQDEWAHHSE $\square$ NELLQAVNAFTVSG $\square$ P $\quad L \square$ N $\square$ NKHNFH

A DHVAELDAAVEAVLTSGKR $\square$ QDVDLS DFA LGEDERSTFP $D Q \square G E \square D Q A L Q H F K G L G L S \quad \square G H \square T T E T F P$

THVLTSDE $\square$ AE $\square D D A \square R R$ ARAGGVD VDD DTPETFP SPGWLRAHAYDDAS

F Y WDKASLAGN
D VT AETFP

VA QTGVESFR
D Q T NE $\square$ D QA $\square$ K HF QA $\square$ D $\square$ P LGQ\SPETFP

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\squareP K LGMMLLS G\KHDLEEGKGF|LFKG\P\VQVWDN
LK QC_ADA\NA WGHDVDGRGFVLVRGL
|PD LS DE|AYFVDELNGRGFLLLRGLPM
                                    L NRYGLLFLLRGVPPEDTE SV
            E A LQH WLK A LDA VY GVVLLN G A P LDD E
            MRRFPT DRDQVGHK\VR\squareWGGD\NGD\squareP T T D F
```



```
LP T LHARLEAFAAELDGRGFGR\squareG
                            T \D\D R LGGP D D A S
LPGGLTRK\AR|LAAE\IDGGRGFVLLRGLPVERYGKG
\squarePTFATH\squareKNDSROL
LQSFSENL VKYGVVI I DGG_DEGTAE
LP T LH P P LL R DLLSREM HGRGFVVVVRGGLR|DH
    LP K\HS TLRK\SDEVNGRGFKVLRGLPVT
    S A LE D D DVLLAAMLE DLHRYGGFVKVS GVPCEEEGMQP
                                    WA WLLS A LDRS
```

                    \(R \square E A F S K F \square T \quad Y G V V V I Q N V P T E A E S V L D\)
    AAMADDQALLAMGADVNRYGDSFVSNDP DPDPAS
    
LLP EVVQLLA DLIA HA WEAPCMLLIG VFDPDDDPDTPD


QVLSEFKELENGYGFFLLKGLDV
$\square P N V T R T L Q A V R H D L N G R G F I L F R G L P V N E W G R$
KYGFVI $\quad$ KNIPTDNNFIVKFANS
GFVVVKNCP

$\square P T \square S G P L F E A G R E A Q F G R G W A L L R G V P V$
$\square P S D L V A T L T Q \square R R L T G H G F Y \square F K G L P$
LP N L H SELDRK L S DELDGHGFFVIRGVNVD

RAERLAAHGRHVGDDATALGVFAWRDVMEDDRALLAA A

पSSSFQNKLLAMRDELQGRGFAVQRGLTVG
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| UniRef90 UPI00035C4F8C | LVNDSRGGESTYADGFR I IEE |
|  | RPAKDGGKSCLVSGAETYNETKRRPD\AP |
| UniRef90-U1XA92 | LRKAKSGGFSSIVSSMAVYNEIL EKYPEYLGILFRPFD |
| UniRet90-E4UVH4 | 1 KNELPGGESLFADSFYAA NVLRKTSKPHFD F |
| UniRet90-S6GPY5 | LK TAKLGGKSLLVS |
| UniRef90-B4JJM9 | $V$ VQTKSHGGSNLLVDAFHIADRLRRDHP酎FERL |
| UniRef90-84M2P5 | $V V Q T Q S R G G S N L L V D A Y H I A D R L R Q E Q P E H F E R L R T P V D W ~$ |
| UniRef90-D8Q5E6 | SHEGEGGATLLVDGFYSILKELHPEAYELLST |
|  | LQNGASGGES ${ }^{\text {L }}$ (FADGARVVEALRQESPE |
| UniRef90-K7F808 | 1 QQAATGGESEVVDGFYNKLKEKNPQAFQ |
| UniRet90-W3XKZZ | $L E N S C E G G E S D F S D S L R A A M E G P S H C F D A L Q ~$ |
| UniRef90-UP1000395610F | 1 KQTSAGGESEVVDGFH VSNKLKKQNP |
| H3B1E9 | 1 KQADVGGESELVDGFYVANKLKEQNPEAFSLLSST |
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| UniRef90-W7TAX2 | LAADAAGGESTFVDGFWVALRRESAEDYRTLCEVPDPFLV |
| UniReef90-UP1000478482F | LESSTEGGESILVDGFKAASILNREESEESFLSLANTWI |
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|  | LANEAEGGGSVFCD |
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| UniRef90 B6BE47 | ENSAAGGOGESSLVDGFGAAVQLRENDRDAYALTAGYPAR |
| UniRef90-W7IBN2 | LHADRCGGGSLSIVRTKDVVMELSEEADYRLSLPEFAFRV |
| UniRef90- A5E3E6 | LYHDGEGGTTSLVDAFKEILKAKHPESFETFTRIRVPAHS |
| UniRet90-Q70465 | LQSSNPTGGENLIADGFYVAEQLRQHHPDDFRLLETLVDW |
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|  | $L$ SDAEEGGDSGWSSSIISVNEILRR VPHLARVLAGP WF |
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| UniRet90-R9P9K4 | LHKAVEGGESD |
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| UniRef90_J9MHXO |  |
| UniRef90-B8N6S88 UniRef90 C1MZ10 | QNSCDGGESLIA ASFAVARQ |
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|  | KNSTDGGESVFCDSYLAAVKELDPEAYKALCST TED |
| UniRet90-UPIO0026528E1 | GTGGENTLIDGFHAALKETHPDHYDT |
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| UniF | LETALEGGASRLASTVYNEIAKTRPDLIHTLSQNWDVEDF |
| iRet90_B3MGX5 | LEQSASPGGVNLLTDVADILRERYPEQFRVLSQTPVDWA |
| UnRef90_D6RN57 | LRNRVIGGTSVFVDAlL QASHADFHANREHFDLL TR |


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| :---: | :---: |
|  |  |
| Ref90-L8GAUG | DRKGETTSGEDEYVRQPLFYSDNPRVFAKA |
| UniRef90-UPI00035C4F8C | M RFHD |
| UniRef90-C6X | WRRQDPKAPANSYSSPVIVFSMYAGSLY |
| UniRef90-U1XA92 | FDRRGEEGPGESPVFTSPI FSYYDGKL |
| UniRef90-E4UVH4 |  |
| UniRef90 S6GPY5 | TDRRGEDPEGAKAYFEDPVLTGMYQRQYDAQRFPDAQ |
| Uni | NDIGSEDGREFHNIWRAPVICCDADGNYTRIDSHFNV |
| UniRef90-D8Q5E6 | AGEAGALYRPSPPGGYPVLNHDRVS |
|  | DFRFQDETHDDSMRAPVITLDSAGN |
| UniRef90-K7F8Q8 | TDYCDFAMQSKQRIIDVDYRG |
| UniRef90-W3XKZ88 | R |
| UP10003956 | YVDVGVDYCDFAVHCKQRI DIDSRGQVIRINYNNATRDT |
| UniRef90_H3B1E9 | YT IGG |
| UniRef90-W3) | QGHQDLAQPEFYRCPIFGNDPEHFCAR |
| UniRef90-W7TA | DGEGFHYHKTPTTCLDDAGRLVETHFNERT |
| UniRef90-UPloou478482F | NYRFSDSKTELRSRVPM ELNDKKEVIKV |
|  | TQ |
| UniRef90 H3NXN7 | RGPGIDHRWSAPIIDYLPGSDTPTIRAFP |
| UniRef90- UPIO001CBAF39 | FFD ${ }^{\text {a }}$ GTDY |
|  | AVEFRNKDRRSDYRCLAPVIALDATGN |
|  | FRGEQAEGARPYYSVPTFTRHGDR |
| P10003 | DTGVDYCDFSVQSKH |
| UniRef90-J9YZK8 | RYQFQDKD |
| UniRef90 B0XU78 | YEYNHKEHLYNNSWPVVETEDGDPRULHVNYSPPFQAPLL |
| UniRef90 UPIooo37F5BDF | PFRFQDSDSEFNARHPIIECNEDNEPTYINWSNSTIAPLID |
| UniRef90- ${ }^{\text {b9WJJZ }}$ | HY ${ }^{\text {d }}$ |
|  | T DRRGEVPEGMKPWFEVPVFNWHAGH |
| UniRef90-E9CAY0 | TYNYVHPHQHRUMRHPILSFDPHNAET |
| UniRer9o-E9BLZ | GFGMES |
| UniRet90-M9RFK3 | TDRRGEIPDGA |
| UniRef90 - 2 2ROO 7 | SNPTQPYSTRPTSNTPERVLIQYARRYFTGFRSTN |
| UniRef90 ${ }^{\text {a }}$ | NNPEKPYTNRPTESAPERVLIQYARRYFTGFRSP |
|  | EFRNKDRHSDYRCTAPVIALDSSGEVRE |
| UniRef90-M2Z2C2 | TGKGKKCSVRPTATSPERM DQYARR |
| UniRef90_A0A024P | TDATTDLASEGPLIELDSRGQLARVRYSAA |
| UniRef90-V511C4 | RDRWFRES WPVISVDHMGKLKD |
| UniRef90-W0IUE7 | PYRFHDRQYDDRVHRPMVSVDERDRVFDVR |
| 3RY | DGKDFVDFHQAQHTIIQLHSNGSIAR |
| UniRef90-F9F |  |
| UniRef90-S7ZM53 | GYEYNHEE |
| UniRef90 N1Q668 | YHQSRRVIEEYPALENLQTLTPMDFLE |
|  |  |
| 1NAS3 |  |
| 000 | V |
|  | GHHLRFSHPTIELWPHPVGD |
| UniRe | FGKRLK QLY RVEDSQVLF WVAGVPWI RYSHS SIL |
| UniRef90 A0AO17SLG9 | EHQRHIVGN L A ADGTGRPSMLR |
|  | Y |
| UniRef90 ${ }^{-}$A0A031LU56 | YCDHLGD SEPTLTPIFSFYDNKLSCRYLRAY |
|  | KGEDTAGQEPWIKVPVFYGGQERIYVKWDPYF |
| P1000 | DKDVVLEDWSELIKLDDDKTFKQVRFSPD |
|  | DVGVDYCDFSMQSKQKII QDNDRGEMDR |
| UniRef90-UPIOOO2379664 | EYKGSDGVC LQSRRPMIELSPDGELIGMRFNNRSSAPFM |
|  | 硡 |
|  | IHWERENPVHI EWEQPHIVLDTNKNISRVNWAPAFNSSMT |
| UniRef90_UPIO0034C8906 | DFRFQDEHHDVVWAPILTCLGAGELVEVRFNNHLP |
| UniRef90-I3J090 | DENTDRHQNHITGDGPVLNVYPNNEMYLIRYNNYD |
| UniRef90 B6BE47 | FEFKGAAGVHLRARRPMLELSPDGEMIUAVRFNNSS |
| UniRef90-N1QA63 | AHASGNEG S |
| UniRet90- A5E3E6 | AGEEKVCITQ PDIPQPVFKLDQQGQLIQVRWNQSDR |
| UniRef90-07Q465 | SDLGADEAGTFHSIYRAPVICTGRDGRLERTDS |
|  | , |
|  |  |
|  | DVGVDE |
| UniRef90_R9P9K4 | KGEVST |
| UniRef90-G8Q2GO | K |
| UniRef90-J9MHX0 | A NPNKFTTRPL |
| UniRef90_B8N6S8 |  |
| UniRef90-C1MZ10 | H |
|  | KSANSDYRCSAPVIGLDARGNVTEVRVANFLRGPLD |
| UniF | P 1 |
| UP10002 |  |
| JP1000 |  |
| 8 |  |
| UniRef90 A0A017 |  |
|  |  |
|  | RSRKGDVNPGEPAWFKQPIFTFHEG |
| Un | TNADKKFATRPTATTPERVALQYARRYFVGFRSHDUPPIT |
| Ref90_B3MGX5 | GDLQFHNWRAPVINLDAEGRCVRIDSHFSVP |
| iRef90_D6RN57 |  |

UniRef90_B6GWY4
UniRef90_Q0CEP0
UniRef90_L8GAU6
UniRef90_UPI00035C4F8C
UniRef90_C6XP42
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UniRef90_E4UVH4
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UniRef90_B4M2P5
UniRef90_D8Q5E6
UniRef90_L9U977
UniRef90_K7F8Q8
UniRef90_W3XKZ8
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UniRef90_H3NXN7
UniRef90_UPI0001CBAF39
 E P QLK AL REFS DLLDRNTFELLKLNPGDCVI FENRRVLHAR


 A A H $\square E A L D Y F D Q L A N D P K F G M Q L Q Q G D M Q F V Y N H S M L H D R$ Q P WYE S YARFVVLA HMDAHSFKTQP GDVLTFNNLRLL H GR
 D A WYSA YA LL LWKL FHAHQLEFTLRPGQMVAFDNRRVLHGR
 STWVVEAAKMFRQFLEDEKYE HKLEPGQCVDFDNLRRVMHGR RSFYAALKEFNDLLNEHKFTYKLKXGDDVTFDNWRVLHGR QPFYAALKELICLMNEYKYTYKMEPGDLVTFDNWRLLHGR

 V P Q Y K A Y R H WS EVID E L K I QF K LIS E G D L ML F D N TR V M H A R
 GRCYDAL RLFHKMADQPEFEFRLTAGD\MCFDNRRVLHGR
UniRef90_UPI0001CBAF39
UniRef90_H6WJJ9
UniRef90 ${ }^{-}$M5A6W4
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UniRef90 W8BEY3
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UniRef90_B3MGX5
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500760





VPF Y E A Y R E F T K L V D D P Q Y R FR L Q A G D LV
12195A

## 







 MPFYDAMGTFLKYVYDPKYNVTLDSGDDAVFDNYRVMHGR TRAEQALEELRAVLVRHLRSSDLPKGSILLMDNRRWMHAR A VFHRARRRMGELEVDPAFEFKLEKGELQMFNNTRVLHGR
 $K L F L R G Y S L F E S L A N Q N Q L S L K V P A G V C V I F D N R R I L H S R$ SEQYAARQSFY RLIDE LTTLKLKLNPGQMLIMDNYRLLHGR



 EKFKK GLLAMF EN Y ITNDNQFQQMLP ENSCVVIFHNRRRVLHAR
 KEYYKARKKLSEMYNSAKYEFKLS PKDLIMMDNYRLLHGR
 EAYYAA YR QLGEEI D DPAMSFKMLEPGGESFIVDNTRVLBAR Q R WY VA H R QL T T ELP E N E LDWVK L K P G K V L F FI D N WRVVLH G R P A Y L K A Y R R FMRRQV D E S K T K T K L E S G E C IV V N N R RMM H GR
 Q R WY A A H R E L T T E LIP EN E LDWV K L T P GK VVVFIDN WRVLLH GR E A Y Y A A Y R RL G E II D D P A M S F K L A P G E S FIVVDNTRVV H A R E K WY EAAAKFNK L L NENVYWF K L R P G Q T L L F D N WRVL H GR
 EPWYRAMQRFVTILHREAVSFKTAPGDDLTFSNVRMVHGR

 E K QK E A M Q V L E D T A K L L S L H MV L DVG DI Q F V S DV HV L H A R
 MSEMRALDKFAKMLEDEKYE LKKLNPGECVIFENRRVLHAR
 VEEAKQYHNFDDFLPENHFEIGMKEGSCVIFENRRALHSR


 A E Q QEA IA L Y RE I A E E L L L D DP FQP G D I Q F L N NYVALH T R




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UniRef90- E9CAY0
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UniRef90-M9RFK3
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UniRef90-A2R0Q7
UniRef90_Q0CTG9
UniRef90_P80193
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UniRef90 UPI0003C261BE
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UniRef90 C7Z870
UniRef90-B3MGX5
UniRef90 D6RN57

PR

D R G
V R G

FNEAE $\square$ AE $V E S A \square K H F \quad$ TG $\square$ NQS $\square$ SAVGRSTFP $\square$ AT

F P


ASEVAEDDAAFRGAKARGLD FKAVAKADFP $A Q L Q E V D E A L R S F K A L N L P \quad L G R L S P D T F P$

E VQE LIAELEAMLQNFPDVVEPE
Q $\square G$ Q D F Q

DYAEF $\square$ KGGDAFWHT
D LRHFADDFDHEPWTSD DDFAS $\quad$ T RDWQA ADEVASFDAALAHAKATG KSFDDLAQE DFP

LT Q VS T A T F P
$E \square K E \square D D A \square K H F Q G F G K P \quad \square G Y \square S Q G T F P$

DD VGE $\square$ FAA $\square$ QHCRRTGKD $\square G D \square$ TREDFP D DA QVAE LEALGRTFLEEDPD $\quad \square R F V K A E D Y P$ S

E Q $\square$ AE $\square$ DDA $V$ RHFKS $\square \mathrm{N} \square \mathrm{P} \quad \square \mathrm{GH} \square \mathrm{DAATFP}$

LQTHAYAMGRSPAPAPPSDVSALAVDPKR LQE $\square$ DDGLRHFKSLNKP LGHINRETYP

KEVDEALQHFKSLKKP LGETNQETFP DS QLKEIDDALQHFKALGQP LELLSPATFP

E Q $\square$ DE $\square E$ A A $\square$ AHFRA $\square N \square P \quad \square G H \square$ NQENFP

UniRef90 K2JL76 UniRef90-HOJBB7 UniRef90-UPI000456082A UniRef90-UPI00037F6F7B UniRef90-G1XUA6 UniRef90-G7XSS6 UniRef90_V5IKT0 UniRef90-R8BNQ6 UniRef90 ${ }^{-}$V3ZKV6 UniRef90_UPIO00380BC8D UniRef90_J7JAW4 UniRef90_B6HPB UniRef90-U4L1W5
UniRef90 Q6CCC7 UniRef90- M9M0U8 UniRef90 ${ }^{-}$C8V493 UniRef90-W7EAG8 UniRef90-B2WEF8 UniRef90-G2R6B1 UniRef90-K3VCF9 UniRef90_V4Q3K4 UniRef90 U1XA86 UniRef90-A0A024SF64 UniRef90-Q5F4B3 UniRef90 A2R240 UniRef90-U4LD28 UniRef90-W9YMH5 UniRef90-Q7K4A8 UniRef90-UPI0001CBAEA8 UniRef90-M2R5R7 UniRef90-JOWUT2 UniRef90-A8TRC8 UniRef90_C9SAZ7 UniRef90_G9P890 UniRef90_-J9VGR5 UniRef90 G3JUC6 UniRef90-TOKS30 UniRef90-C4QW69 UniRef90 V8QKA1 UniRef90 ${ }^{-}$V9F406 UniRef90-G2XDY6 UniRef90-F0WA26 UniRef90 UPI00044129B3 UniRef90-H3CW32 UniRef90-T2M535 UniRef90_C7YUK5 UniRef90-A6DBS5 UniRef90_Q19000 UniRef90_UPI0003132700 UniRef90 A0A022GBK5 UniRef90-C6HRR9 UniRef90-V2X3X8 UniRef90-UPI0003596DFs UniRef90 W3X471 UniRef90-W7MXA6 UniRef90_A1CR27 UniRef90 B4GY47 UniRef90-W4KHQ4 UniRef90-F6V8NO UniRef90 UPI0003622A6O UniRef90 E1Z315 UniRef90-F2LIS8 UniRef90-K2ABX2 UniRef90 S8AB13 UniRef90_K0EXZ5 UniRef90_C3ZMX7 UniRef90_19L95 UniRef90 E0W3Z1 UniRef90-B7S301 UniRef90-W4XNI2 UniRef90 W9XEU3 UniRef90-J4URY7 UniRef90-A4JJC4 UniRef90-L1IZ65 UniRef90-17DHG8 UniRef90-G4N618 UniRef90_Q2JC07 UniRef90-W4Y0Y5 UniRef90-L8H1C7 UniRef90-C4QYB5 UniRef90_U2RVC8 UniRef90 K5X5G9 UniRef90-G0SZZ4 UniRef90_S8AD18 UniRef90 L2GD64 UniRef90-I7ZSX5 UniRef90-UPI000359C515 UniRef90-G9NQ93 UniRef90 A0A010RNH6 UniRef90-Q0UJ11 UniRef90_Q0UJ11
UniRef90-L7F6E6

L DRLTAR $L^{50}$ GA $\square R$ A Q $\square$ S G $\square^{60} G$ G Y $\square K G L P V^{70}$


A $\square$ R D W $\square E G \square$ Y D WGFAF $V Q G V P T N P B E$ K E A $V \mathrm{Y}$ N W $\square \mathrm{Y}$ Q $\square \mathrm{NE}$ Y G $\square \mathrm{C} \square \mathrm{M}$ K D VP T E E K A F $\square \mathrm{S}$
$\square G P R \square M L L A N K \square Y G E S R G \square G F F \square L R G L N$ LA E WS KK IVYA DGFCFVSGVP
EALYALTEAVLRDGFAFVTRLPTDRTATEEG

VS GELAGLLRNLR E YGFCYVDGTPFEDPQH

A 1 RDWCFK TWKYGFSF\DNVP VDPEE
$\square P D \quad \square S D E \square A Y F V D E L N G R G F L L L R G L P M$

LPPRI IALSGK LY GDNNGRGFFILRGL
$L P \quad R L H G P L R E I S K D L H G H G F K V V R G V P V D$ SALQQWLQHLAVYGVAMVKEAPLDMD AELYK WLDSLNAS GLALIKNVPQETGQD

LPAPKLSALLD QLESGRGVALLSGLPV $L P T \quad L H A E L R R L S S E L H E H G F F V V R G L R V D$ $\square S E S L L K V L E Q L Q V Y G \| V V I E G V P T D P T D D$

P E


LSD HDAFREALETYLRHGVI ILRNVPTDGARLVE $L S P A A R A A L R A \square A A T Q G R W G M C L L K G F P V D$
$P A G L L K A \square D Q L C R \quad Y G L L F L R G V P$
$L Y K W L R E \square S D H G \| C V V K N V P T E K G T \square V K$
$\square P \square D L S R R \square R H \square S D N \square N G T G F Q \square L S G L$
GFCFVKGVPVDPES
$\square P T A A L Q Q W \square Q A L A V Y G V A L L R G A P L D E$
$\square P T \quad \square S T L L H N F S K E L Y G R G F F V L R T L P V D$

> FDAA $\square$ NQYGF LIVKGFP $\square P N D$
> DRRGFAVI RGLDAD
> $\square D G \square A R K \square A A V S D T L V S G R G F A V L S G F P \square T A D \square$
> LDVCAPAVASWRQDVDGRGFVLVRGL

LE Q D G $\square$ LK $\square \mathrm{T}$

LP KTRPELRRLSRELDGHGFFVIRGVDVD
GHGFAVLRGLPVEDLDD

LDGPLGRAVLQRLQD TGAAVVRGFGNDTEALIEAFGR $L P T \quad L G A V L F D L A K E L S G R G F F V L R T D P V$

LP NLHKTLRADSDEVNGHGFKVVRGVPVT
$L P \quad S L H S V L R G V S D N I H G T G F S L V R G I P V D$
$\square P \quad$ K LIP PELRK LSYELNGHGFFVIRGLRVDEH
ARIREYGFCYVTNVPHES SDGRGFAVLRGLPVDRLDE

|  |  |
| :---: | :---: |
| Re90 K2 76 | WRYDRE TLLR■YWG■GRHUGDP |
| UniRef90－UP1000456082A | LMGE IRHTFYGELW |
| Ref90－UP100037F6F7B |  |
| ef90－G1XUA | H $\quad$ R H |
|  | TEALLKR】AF凹RNTHYGG $\quad$ ANR |
| UniRef90－V5IKT0 | R |
| iRet90－V3ZKV | LANKIGP\QETNYGKTF |
| UniRef90－UP10003 | RVAERUGWPRETNFG |
| UniRef90－J7JAW4 | G |
| UniRef90 U4L11 |  |
| UniRef90－06 |  |
| M9 | MGE DRNTYGLLW |
| UniRef90－C8V |  |
| UniRef90－W7EAG8 UniRef90 B2WEF8 |  |
| UniRef90－G2R6B1 |  |
| UniRef90－K3VCF |  |
| Ref90－V4Q3K4 |  |
|  |  |
| U1X | GLGLHMGlP V TQNAKGDLLG |
|  | QLES GP RNTHYGGFY |
| UniRef90－A2R2 |  |
| UniRef90－U4LD28 |  |
| iRef90－W9Y | PRKYNAEDNVIUYAGVSSYVAERRGKQDEKNNCLIA |
| iRef90－Q7K | （1） |
|  |  |
| UniRef90－Jowu |  |
| UniRet90－A8TRC8 | QNYDDEDLRMLWAGWGAHVGP L |
| UniRet90－C9SAZ7 |  |
|  |  |
| UniRef90－J9V Rergo G3J | KECMDRKVTAM GK |
| UniRef90－TOK |  |
| UniRee90－C4QW |  |
| UniRef90－V8Q | RYTLAQNRLIFWA仿LLLGEPQA QDKDGNRMH |
| niRee90－V9F |  |
|  |  |
| UniRef90－UP10004412 |  |
|  |  |
|  |  |
| UniRer90－C7Y |  |
| UniRef90－Q19000 UniRef90 UPIO003 |  |
| UniRef90－A0A022GB |  |
|  |  |
| V2×3×8 | NSRTEHESCEL RHLATLESDIVRHTFYGTFW |
| iRef90－W3 4471 | SQKLLEKIJAFIRQTHYGGFY |
| W7M | TQKLDERDAFIRHTHYGGFW |
|  |  |
|  | GVVRRLAERVGFIRRTTYGEEF <br> KYSREETADMYAG\｜ASHVGSARG KQDGDGSVLA |
| UniRet90－W4KHQ4 |  |
| UniRef90－UP1000362： |  |
| niRef90－E1Z315 | AQRWSEWQNLAAYLGLAAHEGYRTPW NKQGNLI S |
| niRef90－F2LIS8 |  |
|  | KYTPLERVVIFLGLSSYVGSKLGMQTLSKSALAH |
| iRef90－K0EX |  |
|  |  |
| UniRef90－19L951 |  |
| UniRef90－B7S301 |  |
|  | DGपGLLDGLPANREVIPAVV ELIGPIRASNFGDVF |
| iRef90＿W9XE |  |
| UniRei90－A4JJd |  |
| UniRef90－L112 | RHer |
| UniRet90－I7D |  |
| UniRef90－G4N | RHTREECLVLIRGUAARLGR\｜AGTQSRDGQLVR |
| UniRet90－Q23 |  |
| UniRef90 ${ }^{-L 8 H 1 C 7}$ |  |
| UniRef90－C4QYB5 |  |
| iRet90－U2R | EG EKYNREL LSVETHFGRLEDLRTDNTTNL |
| UniRef90－K5 | EKYNREE $\square$ A IIYTGlUSAYVGSARGKQDVTGGAV |
| UniRet90－GOS |  |
| UniRer90－L2GD6 | KYNREENVITYAGTSSHVAPDRGRQDTQFNGEPA |
| UniRef90－17ZSX5 | RYSAEENMIIYVGVSSHIGRMRGRQGYQYNVVVT |
| iRef90－G9NQ93 | DDNKSQYLEQLLLS LHRRHGHQLPTACSATKGWFW |
| A0A010RNH6 | TREDNII I AGLSSH $\square$ APQRGRQDRQDGKPAD <br>  |
| Refo |  |
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## UniRef90＿K2JL76 UniRef90－H0JBB7 UniRef90－UPIBO0456082A UniRef90－G1XUA6

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UniRef90 JoWUT2 UniRef90－A8TRC8 UniRef90＿C9SAZ7 UniRef90＿G9P890
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UniRef90 F0WA26 UniRef90＿UPIOO044129B3 UniRef90－H3CW32 UniRef90－T2M535 UniRef90－C7YUK5 UniRet90＿A6DBS5
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UniRef90＿S8AD18 UniRef90－L2GD64 UniRef90－I7ZSX5 UniRef90＿UPIO00359C515 UniRef90－G9NQ93 UniRef90＿A0A010RNH6 UniRef90＿Q0UJ11
UniRef90＿L7F6E6
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 LENSVEDGQAVMMDGFAVAEALRDRHPEAWATLTRVRW LEFDGKGGESLLVDGFRAA RTLRDEKPEAFRTLSAVRDP



VR Q A GA G GESKVAS SVRNEILKRRPDLHDLLCQPYWRT

L S H T P P A G G Q S L L V D G F H A A E T

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 $L$ Q P D R Y G G G T L S V M S VA R L S E R L D A A A T L A T L M M R P E F R I A


 LYHD GTGGGENTILI DGFHAALLKETHPDH Y DTGLLRAPDVVGHY



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MDRRGEVIPDGK पP WFGMPLFTWHRGQPПRQYRFPDAPR\|JS RGRSSDYRYQAP IIALDENQEVTEIRMANFDRGPFS PVGFHYVH CYANTARTTDYVWFE
 Y YHSSGNEDVCVQPAEQAPVLKVHPELYQIRWNNYDRAAEQ
QFHYHRNGNYHMGRNTRTGEGKGFLSRI HWAPPFQAPFS QFHYHRNGNDYHMGRNTRTGEGKGFLSRIUWAPPFQAPFS
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 FDTFGRKSGRVQFSFSRRPLTGSPVSPRTKGDPDDRSVTV PVGFHYVNDGRHYRYTHPTFELAHDGPPLRYSPPFQSPLP FHASGNEDSTYQPVEQQVVLRAHHRLYQVRWNNYDRAEEQ GHASGNDGSSQPYRGFPVLEHDGNLGRVRWNSSDRAPDD AHASGNEGISUQPYRSFPVLEHDPDLVRVRWNSSDRAWID NHPNDNVYRTTKPVIDLRPLSGWSDAVLINWGPPFLAPFS VVRFRWSNRDHDHRAEAP LTCDADGVTIRYNPACLGPVG AGEDNVCDQPDDPQPDFKLNNEGELIQVRWNQSDRSTMS HDRRGEEAPGESPVFTSPIFSYYDGKLSCRYMRYYVESLS SGNGQGVADAPDMAYPVIEVSGDKGHRMRWNNDDVVPLD
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 FTDTGKDYCDFMLQSKKCIIDVNSGGQVTGINYNNATPDS YEKDRCSKALGPIIKDNPYS KEIYQVRINDGDRDVDN PYHYEKHGYFYRQKRSLFDVGVDGNMAAVYWSPPFQDRFQ PDSF DKKHETKNIPILYSYGTEYFTRFDYHNTYSCK Y ${ }^{2} E G G Y D$ VDYDMCARHKVIRLNDDGKVMRSWFYDCEPSK PVRFRFDDDGVELIERRPMI HLDAMGPRLDYLPDMDEHST YFSYQGAQDAQPPYYGLSILGNHPDHFAFRADFDTVPRLT GHASGNEHVCIQQPACPFPVFNHHPELYQVRWNNEDRRPMS VFNNRHYHQVHATDQLEPAPSGERAIQYVNYAPPFQAPLP MHYSRSQPAHLQMSRPITNLNHRQEVVGMTCAAAKLAPLD WHASGNEGMTISPDKLYPVLEVDEELQRVRWNNDDVVPFH YHASGNDDVCDQPAEQAPVFKDHPDLYQ RWNNYDRAAEQ DIGSEDGREFHNDWRAPAIWASTRVSTTVCRDSHFSVTVT FGTHDYQRKNPYLYTRKPVIVTDYDDQUVGFNFNDHAKYV RDRTKYQDVRPGPVWEMPVFHYHEGRLSVHFHPGHTRPMT EFRNKDRRSDYRCLAPVIALDADGEDAEVRCANFLRGAFD GDRRGQEPDGKDPYDDNPIFKKYNDKLLCQYKFQDDPRMT GNRFSTHDFDSEEYYQRPLGYHHAGRPLLFVRRPFTRPMS YDRRDEEVDGERPYYRNSVYAWHEGRLSCRYHERFDLDLS WDWRRQDAEAPADTYTSPVVSVQDGVFSMYADYPGVPKLT EAEYLEPGYHYGPLDKLHPVTKQPEQ TRYNDHDRAPVT KDR EFDHRYCAPVLEHNAVGELSSVRHTYWLRSPMS A DSVNKKDTQHHARHPLIRLDALGQLKQTFNENFRVPVD PKEFDKDPTARTWIRGSLVVADAQGRPLIRFREDIVTPGG KSAH SDYRCSAPVI GlLDARGNVSEVRVANFLRGPLV DHYARASPVHLKYQRPHIVLNHDEEVVGVFWAPAFEGPLQ RFEYAGEAGVLTSRRPMIELAPDGELIGVRFNNRSLAAVQ DKSTSERYFSRPLVYHQPASEKQPERILLQYRSADVPPI T HMAGGNDPGGP PTFLSPRECAYRGLFSVRFVRHTLVPLS QRS GHHLVQRRPLIELDQETGDFRYAPTFEGPLD HYE NDEQY GGKPGYTFKPLVYWEDGHML A APGGFRTGYRYPHAPEM PVRFEYKNGPHHTKFVRPTFELRQGSSQVNYSPPFQGALP NFHYRNNSEHYRFSRPVVVMKGDNETYHLNWAPPFQAPFT LLHFQPSEGD KPERLIIQYARRSFTGYRSSDTPPDT PRSKKEDPFLYRPLIHYQNCSGTPERLLINFSRRWLAGLS ANTVDYNRDFPAHVRIQRPLIHKDEVVSVLWQPMLIAPGQ



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| UniRef90_M2R5R7 |
| UniRef90_J0WUT2 |

 PLLYRAYRRF $\square A L T R R F R Y R H R L E A G Q L W C F D N R R A L H A R$
 E P A Y E A L M L L Q R L L R DPAFA DRFRP G D L V I F D NRRRL H A R EKFYQAIF EWNEVLKRVDGEFRLVPGKLLI FDNWRVLHGR VK WY T A A R H WDE I I R R KE DWW QLVEPGTALI F DNWRML H GR
 K VWHAAAKVFKDEAPENVFQYKMKPGDCVLFDNRRVFHGR EKYYK A YK DLLA QA DH DNLLTY LMK P GDLMTFNNHRMLHGR APFYRAYRRFWNALRDPRFA DRLRPGQMVAFDNLRVLHGR TAFHRARMRLGEMFSDPRYEFRLQAGELMMFDNNRVLHGR SDA S K ALD E L K E $\square$ L Y S GAQEQQSLPQ GS DMMDNRRWL H S R
 QTFYRALKRFS DL AE EFRYEKQMEEGECVI FDNRRVLLHR EAWYKAAKHFNDI IHREE DWTQLQP GTALI FDNWRMLHGR
 DRQUVNLRRWKQSAKRFRFEVKLKPGECVI FNNWEVLHGR EK WHQAASKFNA LLQQRSEY LFKMK S GDCVVLFDNTRRILHS R

 D A WYEAARKWNAILKRHEYWFQLEPGRVLI FDNWRVLHGR

 EA Q A E A L L D A L H F L L G E K F N V V G L R R F R K G D QPWYEAMATFVGLAHEHSCRFKTTPGDVLTFDNLRLVHGR ESVYEALKAFSDIMYENDIKFKMESGDMVAFNNIRVLHGR
 PEMDAALDLLAEVAEEKCHVFRLLQPGEMVFYNNHLVYHGR EA QAEALD ALHFLGEKYSVATDFEKGDMQYVNNLAVFHAR D A WY QA AR K WD E I LK E S EFWF QLE P GRVVLI F DN WRVLLH GR FPQHQA $\square$ A DFE E RL P RYRYEF TMQE GDLVLV DNRRVLHAR R P WLLA GARVFESLI NAAMYQKKMRPGECVLFDNLRVMHGR REWHS GARMF QKILEDHMFQRKLQPGECVLVDNQRVLHGR
 MP Y Y D A Y C I F HE L VEKHRYEFRDKQ GDTVI FNQRRVLLHGR E E WY A A A R K WD A L L P E VE Y WVQLLK P GHLLLI F DN WRVVMH GR APFYAAYKVFHDI I ENPSYEYRLQEGDTVVVNQRRMLHGR PETYDALKAFADILEEDGRVLKLREGDAVVFDNRRVLHAR
 EK F Y N H Y IA F L D I DY S K E Q E F R LIK P GNL L IVN NWRVLHGR LAS SVDARE WLEPARPDAMFEMKMAPGECVLVDNLRVMHGR EE G $\|$ K A L S N F K D A $\square$ M S K K I E $\square$ C ID K G T MI I F K N Q KI L H A R
 GPQQDALDLLDELLPQLCFSMSLEPGDMQLLNNYVTVHSR P EWY A A ARKWNEII TRKEHWFQLDPGSPMI FDNWRMLHGR P E FYR A LIK WFD EVLNA YA YE Y T L Q E G DAVI F DNRRDVLHAR
 E E WY D A A R K WE A I LIK R V E Y WF Q L T P G N L L V VF D N WR V L H G R N R WY NAARHYNNI DQRVEDWTQLEP GTALI F DNWRMLH GR E P WYESYSRFVRL ARDDAHAFKTRPGDVLTFNNDRLL HGR E A Q A E A LDD A V HY L A E K F S L G L N FQ K G DI QF DN S L GLL H A R
 A EMEEA LDMFIELIASDPRFEF QLQPGDCCFMNNATLLHRR
 QS QLD A L N M F A K I
 ED Q L EVLR L F DE DTYEPA DEMDFRPGDDQWWLSNYAAALHAR GDFY A A Y R H Y N DL R P DLEWK F KL N P GTVLI F D N F RIL L H G R
 T A WY DAAREWSRILDSPQFTTALAPGEPVIFDNWRTLHGR P A A A A A LER RLKTAL R R LAAAAKDLPARSDILDDNRRWLHAR A AVYRA YRRFLVLAREPRFRVRLRAGDMWAFDNRRVLHAR PEAQEAYKKFAHLVEDLK $\square$ S FRRLKEGETVVFNNRRMLHGR DVY Y A A YRRFGEI IDD TAMEFRLNPGEAFVVDNTRVLHAR EAQAE ALDALHFL GERFHVAT DFRKGDMQYVNNLAVFHAR $P T A L A A F D L L D E V A D Q L A C D M E L R P G D L Q Q V H N H C V L H S R$ EKFYAA Y R TF GRII I P E SKF L T KLLQP GRMVVVDNWRLL H GR E EYYAAYRELVRI I NDLHLWRRPEEGDLVSFDNRRIL HAR
 EA WYRAYNRFAK LVRDHQYRFRLGEGDLLVYDNWRMLHAR EAQAEALDTLQFVAEKLSVALNFQKGDVQYINSIGILLHAR

 VR QAEALDALHFLAERFHISSMKLQKGDMQFFNNWSILHAR EPFYKA YK Q F Y T M I H D A MY T N RLLR PGDMDS LN NRRVI H GR E Y L I R T P P EFEEKSPR QHLTPKAALPARSDI LIDDNRRWLHAR



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UniRef90 O6CCC7 UniRef90-M9M0U8 UniRef90 ${ }^{-}$C8V493 UniRef90-W7EAG8 UniRet90_B2WEF8 UniRef90-G2R6B1 UniRef90-K3VCF9 UniRef90-V4Q3K4 UniRef90-U1XA86 UniRef90-A0A024SF64 UniRef90_Q5F4B3 UniRef90-A2R240 UniRef90-U4LD28 UniRef90 ${ }^{-}$W9YMH5 UniRet90_Q7K4A8 UniRef90-UPI0001CBAEA8 UniRef90-M2R5R7 UniRef90-JoWUT2 UniRef90 C9SAZ7 UniRef90_G9P890 UniRef90_- 9 gVGR5 UniRef90 G3JUC6 UniRef90-T0KS30 UniRef90-C4QW69 UniRef90 V8QKA1 UniRef90-V9F406 UniRef90-G2XDY6 UniRef90-FOWA26 UniRef90 UPIO0044129B3 UniRef90-H3CW32 UniRef90-T2M535 URRerso COMUK5 UniRef90-Q19000 UniRef90-UPI0003132700 UniRef90 A0A022GBK5 UniRef90-C6HRR9 UniRef90-V2X3X8 UniRet90_UPI0003596DF9 UniRef90 W3X471 UniRef90_W7MXA6 UniRef90 A1CR27 UniRef90 B4GY47 UniRef90 W4KHQ4
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300
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T GF T DWDEEKKRHLDTRLWLISLPDGRLL|PRGTRRGGVPTMT
DEFDPA SGARHFQGCYVDRDELHSRIR
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DAFEDSTGH RWL Q GCYMERDEVRSRYR
G F T GH R RLLCGAY ISRDDFHSRLRTTNYGR
SEFT GKRRMCGGY NNDDF DSRYRLLKFGR




K Y E D A Q DEARRHLLRA WLTLPNGRALP
QF TPCSDG VRHLQGTYVNID
AFEGR RRMCGAYINRDDF $\quad$ R R R WR
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GFRNAPE KARTLTGCYFDWD V VK SRVR
SYD QNEGFRHLQGCY IDRDGPT
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APFS GKRRICGGYVNHDDFMSRYWLLRYGR
T A
TSYEGQTGH RFDQGTYVE ISEFQS R
SAFT G $\quad$ RRRI CGGYI NRDDY $\square S R W R$
EFKD GDK GMKRHLLLKMY L R DPE QGPQSLLRETF GAR
EFT GKRRMCGGYVNNDDF DSRYRLLLKYGR
GYDD T EQNSRYIVRAYLDW
DAFVDDPEHT RHLIRLWLRNDE
A Y M S N G GRRRLQGCY I SMEELRS
TSFVDHDNKDGRKKLLRLWLQMPN AREHGDDFPGRNGF




TLFHDYPE QRKRHLLRLLWLSKTSRPVVDNFGKNAVVQH
SYTG H E G GRTMC GCY Y G R G D F L L S K A R
D A F D P E S GRRLLR GCYGEREEVESRLR
SAF STD $\square G S V E R H L Q T C F V E W D$
$G F E \quad G K R R V G G A Y V$ MDDRAAR
NEVTD PDRHLRRVRWDAAPFPGRLERGLGVGDV
NEVTD $\quad$ PDRHLRRVVRWDA A PFP GLLE E G D
TEFDPATGGRRHLQGCYVDRDEVLSRWR
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$A G F T \quad G K R V M C G C Y F N Y D D F Q N L K R$
TAFS NGNRHLQGAYVDWDAFLDRYR
NEFVLK EGENRRFLVGACYVNWDAFLDRYR
NEFVVLK E GEERFLKGCYLNKD

TAFEGKE GEGGRWLLKGAYMDGDEVLSRWRVLKAKQREDVA
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R GYKD GP
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NH $\square$ T D PGRHLLRR VRWD
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TA YRDRPPAEPRHLLRSWVTFPHYRGRRAAEA


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UniRef90_Q6CX63
UniRef90 Q10ZR8 UniRef90 T1K0Q8 UniRef90-M2N2L5 UniRef90_K2RNW8 UniRef90- S4M5B0 UniRef90-A0A024G8P6 UniRef90_T5AA45 UniRef90-M4FUH6 UniRef90 G4N166 UniRef90_F5Y3C6 UniRef90_G3JJK8 UniRef90 W9VRV5 UniRef90-L8GZU6 UniRef90_G2RG86 UniRef90_A8H4N7 UniRef90 G4U6N1 UniRef90-H9J8A9 UniRef90_S8A5Y9
UniRef90_R9AS21
UniRef90 G2WYS1 UniRef90_UPI00046ED62D UniRef90_A0A024TQ87 UniRef90 S0EJG8 UniRef90_GOSGT3 UniRef90_M2RJM2 UniRef90-E8RUR3 UniRef90 UPI000373B462 UniRef90_K2CAB6 UniRef90-W0LBQ6 UniRef90 E7A064 UniRef90_Q1YSL8 UniRef90_L2G0M9 UniRef90 Q05XB9 UniRef90 E1ZEN0 UniRef90_UPI0003F49E2F UniRef90_B2AD86 UniRef90 K2NZW5 UniRef90-UPI00037B4C1E UniRef90_H3GGD2 UniRef90-B7GDP6 UniRef90 D0DBP6 UniRef90_N1RCA8 UniRef90_J3NVW0 UniRef90 UPI0003808418 UniRef90_UPI0002FA7E82 UniRef90_W4H0A4 UniRef90- G9MWA6 UniRef90 T1P8F3 UniRef90_F4XJW3 UniRef90_G9NMH3 UniRef90_I9WGL0
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UniRef90_UPI00047B43E3
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UniRef90-D0LLC5
UniRef90_UPI00021A5AEF UniRef90_G3PYH6 UniRef90 B7V2A4 UniRef90_V9DP48 UniRef90_D5G511 UniRef90_UPI00046F92C3 UniRef90_R8BM58 UniRef90-F21284 UniRef90-W9Y2I7 UniRef90_T5AIH6 UniRef90_-UPI0003764CD7 UniRef90_S2JZY6
$V L S$ D A E R A E L E A L G R R F A E N P D LR T VT A A D Y P F D A C R A


TAMTPADFP EDLAELQNALLQFKSLELDGDGADRTNFP RAE $\square$ D G A LE Y F H A Q G LDDGS EVS R A N F P $D \square A E V K$ Q A $\square A E Y K S$ LD Q D GY L VEPNTFQ
THVLT DEEKEE $\square$ N S A LT FFKS L E LD G D QVS Q D A F P S A A D $\square K E \square E N A L E T F K N S G Q D G G N \quad V T R D T F K$ GD DID E IEERALAVAK GTGKP LHALGKEDFP

A VT EN $\square$ A P
$D \square H E L M A A L K H F K A G G L D G D L D N P D N F P$


FSETEKRGLEALAQKF VSHDFYRDPACGHDCAEFAAV

T F P
LWS MP LS DEE RS LLWRRDARAER
RHDYSEHARAARRHSPRLWDASLGGSLPAFDHASVVGDTE A E Q LA E $\square$ D A A V R HF K S L N L P LGH DDAT T F P

F T
 $\square E H A R G L A A S \square R D G E R G \square P D \square G R A D V D L A A E$

$$
\mathrm{A} \mathrm{H} \square \mathrm{~N} \mathrm{P} \square \mathrm{Q}
$$

 $R D P R V T S H D P R V T S H D P R Q P$

HDED $\square E E \square$ NA A $L$ Q S F K A $\square S$ L $L$ G G DEVDQDNFS TPTEQDRARLWSAAGSAGR

T R

TVT LS E DE $\square L E \square E R G \square R D F K E S K \square P$

$\square$ NEECAAQMDAGR GFVLVRGL

VPG LDASLLARTAETLHEGGFSVIRGワ
$L P A D L R A R L D G \square S A T C D G \square G F V V L R G L$
LP QASRAALQA $\square \mathrm{GLT}$ QGRWGMCLMKGLPTD
$L P T$ LSKKLKAMQHEVNGRGFALLRGLDVNQ
$\square P \quad N \square S R K \square E A V C A D V E G R G F A \| V R G \square$
$\square P T \quad \square G L K \square R A L G Q D V H G K G F G V I R G L$

LP V L G D T LR QVS QDVN GRGFAVVRGL

EGKGFGLVRGLN
LP K LDTE TRNDSDEVNRCGFKVLRGDPFDKHD LTACADAVSEWGRDVDSGRGFVLVRGL

H GYG $\square \mathrm{F} \square \mathrm{RG}$ G $\square \mathrm{P} \square$ QYGFAFVSGVP

LP T LGAA LDDR $\square$ AHD $\square \mathrm{HGKGFAVVRG} \mathrm{\square}$
LSTEALQAWFAPARDLHGYGVVLI RGL
$L P T$ LGPHLERFREACWGRGFVVLRGFPVD


## LLLTNQPADMDD!LDAVVH

LP T L G P R LDRRTRRDVHGKGFGVIRGL
$L P A E L R A R L D G U S A T C N G \square G F T V L R G L$
VAE L R N LVWEHRF I L R G F S Q LE L EE E LS N Y C Q

$\square P \quad K \square K A R \square A Q C A E A \square H D Q G F F V L R G L$
EPDPVWEA LR R RTGLDAFGFA VVRQL R RA MPPAARSANAGEVRMLAWEYRGIVLRGFQKDDRQNDTEYCA

EQLTEVKDAMAKYGVCVFRDTGLTDDSHVEFSRK
LKRFLQHDHTYGLCFVPGTPAN

UniRef90 F1L4V1 UniRef90-Q2UFS3 UniRef90-Q6CX63 UniRef90-Q10ZR8 UniRef90 T1K0Q8 UniRef90-M2N2L5 UniRef90-K2RNW8 UniRef90- S4M5B0 UniRef90-A0A024G8P6 UniRef90-T5AA45 UniRet90-M4FUH6 UniRef90 G4N166 UniRef90-F5Y3C6 Uniinefoo GajJK8 UniRef90-L8GZU6 UniRef90-G2RG86 UniRef90-A8H4N7 UniRef90 G4U6N1 UniRef90-H9J8A9 UniRef90-S8A5Y9 UniRef90-R9AS21 UniRef90-G2WYS1 UniRef90-UPIO0046ED62D UniRef90-A0A024TQ87 UniRef90 S0EJG8 UniRet90-GOSGT3 UniRef90-M2RJM2 UniRef90 ${ }^{-}$E8RUR3 UniRef90 UPI000373B462 UniRef90-K2CAB6 UniRef90-WOLBQ6 UniRef90 E7A064 UniRef90-Q1YSL8 UniRef90_L2GOM9 UniRet90_O05XB9 UniRe990-E1ZENO
UniRef90_UPIOOO3F49E2F UniRef90-B2AD86 UniRef90 K2NZW5 UniRef90 UPI00037B4C1E UniRef90_H3GGD2 UniRef90-B7GDP6 UniRet90_DODBP6 UniRet90_N1RCA8 UniRef90-J3NVWO UniRef90_UPIO003808418 UniRef90_UPI0002FA7E82 UniRef90-W4HOA4 UniRef90-G9MWA6 UniRef90 T1P8F3 UniRet90-F4XJW3 UniReffo-G9NMH3 UniRef90 19WGLO UniRef90_UPIO003483819 UniRef90-UPIO00348EF1B UniRef90-M4GAJ2 UniRef90_UPI000360E4A9 UniRef90-W4GQ45 UniRef90-O9VDM7 UniRef90-UPIO0042AB0C1 UniRef90-UPIO00023D066 UniRef90-M5A824 UniRef90-H4EZJ3 UniRef90-W3V302 UniRef90-C3K215
UniRef90- AOAO23UPS6 UniRef90 N6XR89 UniRef90-A0A017T3D7 UniRet90-O96UB1 UniRef90 UPI000456154D UniRef90-W714W5 UniRef90-GORVU0 UniRef90_X6P4C6 UniRef90-H0 UniRef90_UPI00047B43E3 UniRef90_A5EJU6 UniRef90 DOLLC5 UniRef90-UPIO0021A5AEF UniRef90-G3PYH6 UniRef90_B7V2A4 UniRef90_V9DP48 UniRef90-D5G511 UniRef90-UPI00046F92C3 UniRet90-R8BM58 UniRef90-F21284 UniRef90-W9Y217 UniRef90-T5AlH6 UniRef90-UPIIOOO3764CD7 UniRet90_S2JZY6
$P \| H \stackrel{110}{N}$ T F Y G D F WVVF ${ }^{120}$

 $G$
$\mathrm{E} R$

$\square \mathrm{I}$ $Q F$ F | V |
| :--- |
| T |
| T | G Y G $\begin{array}{llll}1 & A & R & R \\ L & L & E & Q\end{array}$ $\mathrm{H}_{\mathrm{H}}$

R T E E Y G D A MA A A $\square$ F F VMG $\square \mathrm{H}$ D AS RYSVVQDSTVVY LGGLASHVA DKRGGLQDRK GYGTMW DPEKYSEDDNALIVMGISSAHVATVRAFQDRKRTQVL C $V L A E H D G A P \square R N$ T H Y G G F Y
R WTEDEARLACWGMGLHMGT ARTQNRASAFMA

H GYS DVTGTPATAEATQQVMAQ
$Q$ Q FGPAKNGLFGLLW
$D P D A Y T V E D L T V V Y L G \square S S Y \square G E R R G K Q D Q R G S M L M H$ AAFSVENLTLA YMGLQSYDAEQVGYRDRDTVFGSLV SETAVD K DPKDYS DEDNVLI LLGG $\square$ SSY YAETRAKQDE DGSMLV D P R K Y CVEDLT L LYY LG $\square Q V Y \square A N E Q G R Q D K K G N M L V H$

TEAFARR $\mathbb{G} F \mathrm{~F} V \mathrm{ME}$ T $\square Y$
$G G M W T$
$N M L V$
$P$ L S Y S T E DLLTMMY LG $\square Q S Y \square A N R R G R Q D K K G N M L V H$


 D TEA LI R R $\square$ A F $\square R E T \stackrel{H}{H}$ Y G G

L T T R L G P $\square R E V L F E R$ R D P Q K H S VE D LTVVLY L G DQ GY i A NQR GRQDK K GN MLVV H SPQPESTF RRLGYALGRCLGTPDGTYGE



$D G A V I V A Q T P D T L D Q H E T T V G \quad Y V G H S L S G G G L S H G Q L Y G$ AEMIGRVR PTFFGDYF D P Q K Y S VE D LT V L Y L G TQ S Y IA N R H G R Q D R K G N M L V H DPEKYSEDDNALIFMGGASNVATVRAFQDRKRSQVLCC S W

DEKSRYLEQLLLSLHRDHGHQLLPDSHSATRGWFW
DSKKYSVEDLTTMY TGVQAY DANRCGRQDKQYGQPDF
 $A L S F V L R D F G E I P$ I P Q A A E G D L F R
YSREDNDADYA GVS S R HVA GVVRGRVQDEVADVARVA
 ATEAFARR】GF VLETIY

QRLLER $\square$ AF $\square R$ VTHYGGFY
 MGHVRPAFR GVEF
D HEKYEDYARDWGE $\square$ MMWPF GAVL
LIWT F G SLL G VPM VQ NH LG H KV V
 $V L P S P T E D K T H P S V L M L G L L N I L D H R S F S Y D D D N D G E Q L R$


D TEALVRR $\square$ AF $\square$ RETHYGG $\quad$ G W
$G \square P \square N H S R \square R \quad G W L W$
 EAF EK Y GVVVQVRNCFGNFGACLAAKR DGMDRTT GPVADVGQEADVTERVSRLV
S W
G D L L H W
 THSVLLVRGQH LS DQDLIAFSRRFGDLDWAPVQENGRRFV
$H L T G A A T E R G A V A R L A E R \square G Y \square R L T F Y G H T W$
 P KKYS SEENVLIDYVG $\square$ S C WVA EKR GRQDEHNNMLDRD E GDNEGVV
 AT QT LVER $\square A H \square R A T H Y G G$
 Q Y S GKV TH

UniRef90 F1L4V1 UniRef90_Q2UFS3 UniRef90_Q6CX63 UniRef90_Q10ZR8 UniRef90_T1KOQ8 UniRef90_M2N2L5
UniRef90_K2RNW8 UniRef90-S4M5B0 UniRef90-A0A024G8P6 UniRef90-T5AA45 UniRef90-M4FUH6 UniRef90-G4N166 UniRef90_F5Y3C6
UniRef90 G3JJK8 UniRef90-W9VRV5 UniRef90-L8GZU6 UniRef90-G2RG86 UniRef90-A8H4N7
UniRef90-G4U6N1 UniRef90-H9J8A9 UniRef90-S8ASY9 UniRef90 R9AS21 UniRef90_G2WYS1
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UniRef90-UPI000360E4A9
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UniRef90-M5A824
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UniRef90-W3V302
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UniRef90-UP10003764CD7
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UniRef90_S2JZY6

NQQQKDENSHEDTAYGNEAl 140 GVHTDGTYFEQTPGDQVFHC ${ }^{160}$ DFTSDLSKKDTAY TSQEFPWHTDCSYEHAPPRFFALQQV E TKAEAKNSSQENKQSNDAFKFHTDD RCDLNSLLC DVVVNPSPDAHFSYSSNPLELHTDLCYRERVPGIQMLHC
 HVDATSNK TLSDEGADPSRVRDRLPFHSDSSDVVALMC TTRPTKEQEYNDTASTNKALLHHTDGSYMRDPPGLQIFNC H TTNSKPMEQRHGDHSSHALDFHTDMG HVVNAAVKEKVTSGFTDGAMSFHND DFIPDLALADTAY TNLALDAHTDTTYFTE DVRDEGGNYKTRGYNTNASLDFHCD DVADNSSPDNANHHRHSTAPIAVADKTFHNESCDVVALLC DVRSVPNAKNVAY TAKYLGFHMDLLYMREPP DFTVHAEAEHSDTAYTPVALQPHSDGCYCVE VIKRDDSAED
$D$ DF SNNGAHSDSAYTSVGMGLHTDSTYTLDPP

| \|i |  | Q |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  | IVQHVANTSNVAYLSSN LQMHTDLPYYEYCPGVNLLHC

 DIADNSTAQHAEHHHSTSSITFHNEEA GDVVSWLT NVR RNPDEGASSGAKKVRFYQTSDDAYHCDAADVVGLLC

 SVYATKTMADPTAKSSKVR
 DI RSTEANKNTRPYETNAAFSFHTD RFVVKNVDNSDSYLQPHRADELUNDDGTYVDEVTDYVMMMK DFTSDLAHGDTAY TDLALQAHTDTTYFSDPAGLQMFHLL $N V S \square D T H V Y N \square A$ HTSLEVVPPHNDFASYSWP PSVQALHM IVAADTKAKADHHRHSTSSITFHNE ATSESGDISWLT DVTDSGQSYLTKASQTRAATSMHTDSSRLETHPRWVGLAC
 $D V K N V A D A R N V A Y$ TNFNGGLHMDLLYFSSPPRFQLLHC


 DVKTH $\square$ NPTNTAYTASAALEHTDTPAEEHAPGVQFLHC
 HVVNMEREKVTSPGFTDGAMSFHND H KQSKGNEALARSHKLSEFVLHTDCSYEKQVPDFFALHC DVVQENPQNYT FTNGNMPFHWDGAFAKVVPSLDF FQC
SVKSEPKPMNL SMTSHTLHPHTDFGWSEAPPGLQFLHC DVLPS QSANCQARSETMEDFPWHTDCSYENPPPRYFALQQV ADHADTAYSKEY GSHTDNTYFCDAAGVQALHC

 VLRDQDGDGN TELGFHCDTCDLLVLLC DVRHDPAGYNVA HTPFEDKPHTDLPSYSWP P S VVQLLEF
 TRPVNPENAYKDTASTNLALGPHTDCTY DYEPPGLQUFNC


D
HVRDQGKSFDVRAYETNADLDYHTDSS NVRTHDNPTNTAY TAKALEDHTDTPAEEHAP DVREHQDATDHVFDNSYMPL HWDGMYKPTDPEFQFLHC EVYDKSDEEGARYHQTRQGAYVHNDGVSDPDPDDYLDLAC DVKEHPDAKDHDFDSSYVP HWDGMYKPTIPEFQLFHC $L V A N F K G G G V A Q S S H S G L S L G P H T E A P Y H S P A P S A L I L S A$
$N$ DFTPDLAMADTAY PDHADTAY TN N A A L P P A H T D T T DFTSDLSHGDTAY T DLALQAHTDTTYFTDAAGQALHC DVKPVHDDGRRARSETMDFFPWHTDCSFETRPPRHFALHIJ HM
VITNN PEVTALESRYTNANDPPQTDLPYYEDSPEVIVFHS EIVPQNGAGDVTQVLRRREGDP DEUAFHCDTCDLLVLLC DLVVHENATN YLLTSGRVPFHWDGAFIETVPSFEIFQC EVSNVKVNGEA $\square G \mathrm{~S}$ L GAGEAVWHTDMSYLETPPDASALYA QVKAVPGYDAMRFSKSRNEIGPHTEGP\|YPAPPKYLALYC
 IVP VSNARYVSGYLGSTPLELHTDGAFLDTPEQLCSLQC $D T N T V L Q P D S P R A Q Y N K G N A L F H V D S S F N P R R A S Y S I L K A$
$N P F P F Q C R K P K R A R L$ YVTNVVDKSAPVGILPDGEMQFHSDQCHQEMPSKGTMLYA ADSNLIDPDSPRAHSNKGNGLFHVDSSFNPRRASYSLLRG RFEVKHTDNSDSYLKAYKKLDLHTDGTFVKEKTDWLLMMK


UniRef90 F1L4V1 UniRef90_Q2UFS3 UniRef90_Q6CX63 UniRef90_Q10ZR8 UniRef90-T1KOQ8 UniRef90_M2N2L5
UniRef90_K2RNW8 UniRef90-S4M5B0 UniRef90-A0A024G8P6 UniRef90-T5AA45 UniRef90-M4FUH6 UniRef90_G4N166 UniRef90_F5Y3C6 UniRef90-G3JJK8
UniRef90 W9VRV5 UniRef90-L8GZU6 UniRef90_G2RG86 UniRef90-A8H4N7 UniRef90_G4U6N1 UniRef90_H9J8A9
UniRef90-S8A5Y9 UniRef90_R9AS21 UniRef90-G2WYS1 UniRef90_UPIO0046ED62D UniRef90_A0A024TQ87 UniRef90_S0EJG8 UniRef90_G0SGT3 UniRef90-M2RJM2 UniRef90-E8RUR3 UniRef90_UPI000373B462 UniRef90-K2CAB6 UniRef90-W0LBQ6 UniRef90-E7A064 UniRef90_Q1YSL8 UniRef90_L2G0M9 UniRef90_Q05XB9 UniRef90-E1ZEN0 UniRef90_UPI0003F49E2F UniRef90-B2AD86 UniRef90-K2NZW5 UniRef90_UPIO0037B4C1E UniRef90-H3GGD2 UniRef90-B7GDP6
UniRef90-D0DBP6 UniRef90_N1RCA8 UniRef90_J3NVW0 UniRef90-UPIO003808418 UniRef90_UPIO002FA7E82 UniRef90-W4HOA4 UniRef90-G9MWA6 UniRef90-T1P8F3 UniRef90-F4XJW3 UniRef90-G9NMH3 UniRef90_I9WGLO UniRef90-UPIO003483819 UniRef90-UPIO00348EF1B UniRef90-M4GAJ2
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UniRef90-C3K215
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UniRef90-GORVUO
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UniRef90-DOLLC5
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UniRef90-V9DP48
UniRef90-D5G511
UniRef90_D5G511
UniRef90_UPI00046F92C3
UniRef90-R8BM58
UniRef90-F21284
UniRef90-W9Y217
UniRef90-T5AIH6
UniRef90_UPIO003764CD7
UniRef90_S2JZY6
 PPEF $\square$ KHPDQRHIVGSLFAIDTEDHCLMMRYRDE IVTPDS
 WFRQKWPVIVTEPGDQNSVIIKEVNLSYFSMRAPLLPHDQ AHASGNKGVSIQPAQAFPTLVHSEELIQVRWNNADRANVA YAKWRPTIELAHPLADLSPISANPDDPCUNYSPPFQAPLA HWDWRRQDPDSPELTYTSPI DGYVDGVFSTYAGNSMPQLT LDS S A WHQEAVKPDIEVDFAGKIEAFRFNDYDRAPQT Q IS NRKTRHY DAPVFSIHSLDPSRLGPHPASPDEGVPALT LD SFQDYSEHPAWAAPMHVKDGKVMFTFSRYRNKALPPVS WHASGNKG $\square$ A $\square R P S Q N F P V L E T A P W R V R W N N D D R G V V P F G$ SYQGAQGPGKPPYYMLPLLGDDPVHFAARDFSEVPRLT
PKFHCRPVLQHHENFGRAALLGSASHP RPATLPALS
EYDNDGHFNRPTYNAQDPLLMSNVGR VHWSPPFVGDLQ
HYW DVDNFLEARQRDITLDPNGEVTRFVYNNDDRSPVY FDTFRRNPS YYTRPILFNHDGKUIMSFSRRLLPGLT PAHY $\square E P G \square Q L R G Q H E V V R E D I N G Q F E Q D C F N N F D R S P F Q$
 IGEEDGNEFYKLNRSPVISLDKHGEDTK DNFSSNLPAPYE ARPKLDGPPHKRALGEHLILDLNRDGPKGPDRPAEHPPDK PRFHCRHQGKVIINFGRAPLLGSAAHPR RPEHLPADS
 FANQEG
WHCSGNDGVT DRPYK LFPVIEEDKF LRII RWNTADV DPYT GGRGDKYALRPTKSTPERLI IQYARRTFTGYRSSDVPP PT
 PQPNKPFGYHQDPGFS LYQGHFKSHIRAAQTYVPRLN PPSKNTRKDVFHPVFDV DDRGRPVMRYDDQFVQPKD DGGYPILQHDDATGELVLVRYNNDDRSVLRVDADDVEP
 DVVTPGADDALIAHNRFPVFSTDTDGPTDRYMRYWDEPLD F DRKNEEDPGDVPYWLLPVFSFYKGHFACFYNPRMMKEAQ
 GDGFQA
IDESKRPDFRVNREDKVVQVLDNNHDGAPFRLDEDRMH
TETVDNDA HQATMEPLQVVVDYANNVVQFRHNDYDRAPDT
$M V Y R R T H V E Q D S T G S V V A V H W S P P F Q G P L C I R P D L V D P R D$ PFFCEHDTYDMRSRQTII ELDDHGEVSGLTISQHMLD ITS

 QKLAHYGGQ\|STNLVSQHPVTG VP ILRFAEPLIPGLS HVFSSQDLFFQHKAPLLSVDPTTKAVRDVRFNQANRSPMLH PPEFIKHPGHQHIVGSILLANDEGRLNLMRFREDLLTPLS PAEYIEEGQHHDHSAPMURLDPTQEIIQLRDNVYDRAVFN FGATRGVHANRTKGADHPLLSFEGKKPVFRFDPENLKPFT
 TFDRTGRAGQQVIVSPILFTQEDGTVGCYYQTRTPPLT PYQDFSETEDTQARAPMVQLDTEGRVRTFRYSNQLADPLD DKFHKDRFGSADGAVPERVLLQYARRTLVGFRGADVPA I S

 WHASGNQG $\square$ TLSPDRRYPVI WNNDDRGIVPFGGPDADGDD FTD DGVDYCDFSVQSKHKII ELDDKGQVI RDNFNNATRDT $V$ V $V D G S V T H T P A L A T G G S L F T R Y G R K Y T E L A P I E S P D V A P L T$ DTYDMRSRQRVIEEDKHGEVSGLT ISQHMADIFDLPQTVLD
 SDSFNAGQGEGGGGI SILEDDQNH GFSIDRNSYRFSVDD PMRFHRKQKSFERVVDAPLLTAGPDGFQTRYSYFTLAPFH WHASGNEG $\square T \square A P D K L Y P V L E L D E D G G E L R W N N D D V V P F G$
 PGEFTKGTSE SLLVGSLLDMSSGESKLRYREADV VKHYLAPALADHDGRLMASMDPNRFGPHPSSGPTDVPPDT NFLEKGFDMNPDTSAVERTHFDEGNRQSLNWDLPVENKKD FDRTGRAGSQLVHTPILTTGPDSTVTCYYRDGRPPDD
 TDDPRSSPGAVHPLVCTHPDSGRQMLYLGRRRNAYLVGLE TYNDATGYEATDVKFPLETRRDNGQFIRFSHNLFSPSEM
 GDALTIVRKHQSSTQPVFRLNGEALGIKFRQNDGAAEVVH SDYSSRKKAAPEFFKDLNVNDSGRMNLYDAAHMDHVVGVS
 DYAREGVPSHTHPVVRTHPVTGRKALFVNRGMTARIEGMG CMAHSRKQGSPEYFADLDPSTSGRMNLYVGAHLHHIEGVS F IWWGSPKSKNDDYKLEHPVFSKDMNGPTISYIDDQFPEPSS A APAGAFLNTNAALQGYPVLNHPATLVQIRWNNDRLAPAT SDCFPGPPDLPGLKAPMLEYDDQGRPRLRFSCNGLTPLG

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 GE WYAAARKWNEIDKRKEYWVQLTPGNVLIGNNWRVLHGR A EQDEALDLLDELMPKDCYSMWLERGDLQLLNSYATLHSR A LQVEALDALEAVARATQLEMTTAAGDVHFVNNFAVLHRR LDPEQAYAA 1 RA LLRENQHTFRLSPGRMLVTNNWRVMHGR EAQAEADDAVHFVARKHEFKPAMVRGDLRFDNNMAVLHRR


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 SSWRRAAKKFDELLK DNEYKFQLKPGTVLIFNNWRVLHGR
EAQAEALDALHFLAEKHAVSLGFRKGDVQYINNLSVVFAR
 P LFYEAYHELCKRINSEKYKFRLEGGH LLVVAHRVLHGR
 F IUGNWL SELS DALENSQRKLYL P $\square E$ DTLDLFYMAYHELCNRFRLESGHILLVHGHRVLHGR PRQDEALDAVETDAKATQMEDQTRPGDI HFI NNDAL LHRR ANDLRAFDALDAALNRFCHSFQLQEGDILLI DNHKLVHDR ARRGRALQAVSDIAPDLHLEWQLEPGDVQLLYNWR LHMR EDFYSALSTWEQVLPELKYSFLLSEGDLVLFDNRRVLHAR
 QFYEAYKVFHNFANDCQFEFMLEPGKVLTFDNWRMLHAR
 DLDQELLDRWYPAFCRYMMTFLMKAGECMVFDNHRIVHGR PRQMEALDSDENDAKATQLEDSTHAGDMHFDNNLTI LHRR

 LP Y Y A A L ERASAALEELRQALQGHLTAKALPERSGILDDNRRWLHAR PEPGEDADRFLAYYEENHMADRMNQYSLLLWDNKCIAHSR



 NMARAALNAVHDTLPDMCLELELLPGDLQFLNNHLVCHAR HDQVAAYYKHHKTLWDVEVVYKMDEGDMIVVDNHRVMHGR PQAEEFYDSDRQLLKQQQWALKLCPGSVVLFDNWRVLHGR PRWYDAARTWQAA LKRVEYWTQLQPGTPLIFDNWRVMHGR
 $E V Q L N A L K A V S D A A S E V E D Q L K D E T G D L L V F N N L A$

 SASQRAYMEFCSAVSRSAYKYVLSQQSALVDNNLRALHCR

 EAFYDALRKWDADLREGEFWQQLKPGTALIFDNHRVLHGR K RAEAALAELDDSVKSCSSSSDLXDGMVIVVDNAKWLHAR ATQLSALERISKAAYRSELRLHLKTGDLLFFNNWALLHRR
 MEHEAFLKEMQRLIYQNCIVVQWQDGDLVI GDNHALLHAR MEHEAF LKEMQRLIMQNCIVGQWQDGDLVI GDNHALLHAR QA ASREQKEFSDUVARCKLRILDPDGALLI WDNHRMLHAR LDDLDLLDDYYKAFSKYHLEHCLLPGQUIAFNNRRFLHSR $P V A V E A F A E L V A A L E D C Q L R D K L E P G E I L V L D N T A V L H G R$ PESKELMDKLMAHATQDKYTLSUEPTDLVILWDNTVVMHAR DAQADALDAVHFTADKHADTLDDQLGDLLFWNNMSIVVHAR AEKSAALEALNNHTRQQKYIIWWHNGDMII WDNRAVLHRA





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PRG

VRG
$R R G$ER

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LLE K H

PGFGSETRDLASA $\square H D \square D Q R \square V D G V A G D D P G A R A E L G B L V A$ R P E $\square$ R A L P F A A A E GP WVF P L E R G G T H A Q QVAR

HPTFGAE $\square$ S G $\square$ D F S

E E F DRLQTVPLFEQSRY

REDFVAEIDAGVDCAPP HPHFAAEVTTLTTN $S P V F G A T V T G V D F S$

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LP S L A PR R DA A WRRE\S GRGFVAVRG\PVLDWGD
$L P T$ LSTVLQDLARELSGRGFFVLRTIPI

LP RLGPRLDACRSVYFGLGLVFVRGVP

VL GVSQDSDDYVKFG

$R P \square P D D V F R E L A A S A K Y G V I V F R K T G D D D T G H V E F S R R$
VDRNQLKHTEAF LRD DEASHLI NGPAAA■
FPEGR $\square$ DA $\square$ EVD $\square$ DAVPLFAA EVDASRHVIDDTA VWEDQDLEKTYQ
$\square N S E Q K D E \square Q N F \square H Q \quad K T C V V \square F N G \square D K N \square D D S \square 1 S T P S$ $\square S S \square K E D \square A R D G Y A F V R G Y C S S A D A$
DDAGLASVVAEF HRTGAVVLRGQHLKPEQFVARQHH
REERHLVTGPGYFLLSGDGHLDES YG GVVIRKTK LDDAAH $\square$ S $L$ ARR
$\square R E P L Q H A L T R$ $D G F A V \vee R$

D T P S
$\square S E E Q F S E \square 1 D$ AMAKYGVCVFRDTGLDDDAHVEFSKR DAKSQLRSNGW

EAFAELLT LDAKYGFLVLRDTGDDDTTHVEFSRR $K P V D \quad D D V F Q E L \frac{R V H C Q T D P A L K Q R R K P Q L W D V S D P H F D Y}{V}$ $\square P T V S K \square \square R G V A H N \square K K H V L V I R D H S V T E D E L V E F A Q S$

$\square$ N A D $\square$ T R R $\square$ S S $\square \mathrm{KA}$ A $\square \mathrm{HEGRG} \mathrm{\nabla AVLRG} \mathrm{\square}$
$\square$ QA $\square$ R D GMDKYGVLVFHGQPMTNEEQ $\square$ AFSER F $\square$ VA QAMEGFPAPS

E $\square R G E \square A E A A P G \square S A \square A T A \square R D R \square E T S H S G V L I R R A H$ VTADPVPWLRDLAR RH VKDRHHGGFTAG V P T A PG
$\square P A D D D E K K R \square Q D N Y G V L I F R K T G D D N K H D D F A K G$


EAMRSLVLKYGVVTLRGFKQDDDFET ATER $T P$ E $\quad$ DARE $\square R A A D D Q Y A V L V I P S Q P D N E A Q Q L K V A E V$


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SHKYTADQNVLILLGПSSYFGETRGRQRDDGARLIH TPEMYEPEEEMVVFMGVQSYMARGKG RQDGRGNMIV ASYFGAI FKPPAD 1 PVLATQTDTGLPP ERYTREENMDIYVGUSSHDGAMRGRQDHQFKGMLA LLVLRGFKTFDGAEAFEEYCG GWGEDSVWPFGKT\ELVE FGELDD D D GVA EAK DT EA $\square$ A ATYRLLAHGDASRVAWP F GELLDD $\square R$ PYMTNGR KPRYEYYELFDAGNDDPET A A Q $L$ M HRDA YLRQSSLGDIV $A E V V G S L G D L V P Q Y N G L L T H$
 DGWRTV $H F I V Y D R V E G V D S L R G Q A L Y A W L L G T A L G R D Q N T D G W R L I$
WVYELNDQE $\square A E \square E E A L G H F K S \quad P Q R G R Q D N T D G K P A D$ SLPKMEELEENLEC $\square K L A L L A T V D Q F A F A Y D \square D N H G K \square M R$


## F G

 LGSDDNDRRYMVNGRK PRYAHYEDFDAGNDDEGHGGPLD ATFHMHDSGLESMERTALE DAYSFGDPRA PSHRRGP LID

FLAFASYFGS $\square$ FRPSKDNETGVPP

$G V A E A E A \| V S E \square G R \quad M G D L L G R R T T G R G G A D Q$ DTARFNDEEAVI AFAGVCAHDCPQRATDSYANQTLSH
$\square D G V L H T K T S$


$\square G S H D \square D \quad$ TRRR LLYYA $\square$ A VC $\square G A P T A \quad$ T DR $\square D R K V V / W$ RSNKDGHLVIH HLVALRGFTPPADATADDAYARTWGEVMEWP
 HLVH $\square Q D \square T S D A D D F V R F G T A \square G H L L G P G N H D A M S G T Y Y A R F$ $W A V V A D P P Q \square G D E E R V A A G L L A T L G R P F A F S \square D Q N G A L G W$ VGHVQPTFGQVEQ LGQEDEE WNPFFYG\ENDRDGDPLLWDVSNDGTVVQ D I ICN EPTTLYLSSRSQ LL $L$ SVNYRSFAFDI DNESKQUR NFSRLFGSGMDEPSARR』SHGHTER
ASEFGTPLPW KFG LL

WGDVLQPKGTFAA

$$
\mathrm{GN} \square \mathrm{~F} \mathrm{D} \square \mathrm{~K} \text { T E R D T A } \square \mathrm{P}
$$

F GPDEVSVGA
S $\square Y \mathrm{Y}$ AKRPRRMDHAQLSD DS NLD RFGALQRS!TVHREDTARRLKRDELSDLSNVDEKGERM $F G A \square D K \square N \square P P G S G \square K A R F E T D E L \quad$ QDQGNGGLDG

LG D $\square \mathrm{R} \square \mathrm{G}$ S A KRAADGKVLNEG

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UniRef90-UPI00037F2E4E
UniRef90_N10K17
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UniRef90-UP10003FE3DC3
UniRet90_A1ZVBO
UniRet90_S3C6G8
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UniRef90 G9PBZ5 UniRef90_A0A014PX88 UniRef90 G2WW83 UniRef90-H3HON1 UniRef90-F3S9Q0 UniRef90-UPI0003D3D6E3 UniRef90-ToG463 UniRef90-N4UUV8 UniRef90-B2JA93 UniRef90 KoKC97 UniRef90-J2P191
UniRef90_F6CSV7 UniRet90- ${ }^{-6 \mathrm{HJH}} \mathbf{3}$ UniRef90 W1LOU7 UniRef90_D1P014
 DTGRSYKDEA $\square P$ VS QTNAATGVHTDSSQRTDQPN LGGLCC ELDPTTPNRGFQSSYSTGPFPLHVDTAHWLTPCRYLILGC HVNYGEEGDVRRYRTSGNDDFHCDAA TSKTSPSAMHKRRAGSATPR\PATSRSF DPTSGTSLHS ADTRKPGYEALPYSQSMNGLGPHTEAPVYGPPPRYLALHC RVESKPDKAMPSFSEQSNDAPFHTDASYYPAPMKYLIFLS DLEVKADDATDSVSFSTKALPLHTDDPYCSPPPDYQFLYG HAAT HADPKDYVFTPGPVPYHWDGAFAEKTP HTPRFPENLISPIFNNHAQVFHSDUA DVPVENDAKHSRHSMDSLPFHTEATWTPODGLAWQT DVVPVSNAVGAGDYTGHGELTPHSDHHWTPQPSSGSLLYA
$F L V K H T D A S D S Y L R Q A Y R L$ HEKPDDHITFDNNY VPLHWDGMYKQVPEFQI FHC $I I S N V I E N G K P D G A D G D K E A E W H T D M S Y V A Q P P M A S V L Y S$
$N R Q P G W A S P R N N I T G Q A G P A S L H T D V P A A D D P D R Y I D M Y C$ NSVLKPDSPRSQYNKGNAL FHVDSSFNPRRASYSILKA EIKP SSNSDYDETHLHTDGAFNYDPPGDKLVQC ETYRPGNDHRAYSQSANTVLAHTEAPGWDPSPAYLALEC QLVPRATPNTYGDFGGGRFPLHTDLAHWLRPPPYLLLRC EVYDRGDRKTARYHQTKQGSYMHNDAVNDVDPDDYLLLSC VVLNHDKDLSLVVDKSLIGAPAYTADVFHTDSGDVVSLFA LVGNFKGGGATKSSHSGLALGAHTEAPYHNHSPAPSSLVL KKADGSAAGDLGDGEVNWHTDTWFVEHPPSAADLRA DLVPTSTPNTYSGNYGLGCFPFHTDLAHWRTPPRYLLLRC HVLSNRKENGKPVGAHNDGDGWHTDLNYTAQPVMCTMLHA EVRDRGVRPTVRYSDTRQGGHDHTDGIHRPEVPAYFALHC PSSPRALANRGNSL FHVDSSFNPRRAGYSLLLS EVYDRRIGRGVRYHQTRQGGDIHTDSVNEPRPFQHMLLGC EMRVHEKPENYDFTHGHVP FHWDGAFHREPSWLFFHC

VEQPDATDHTFANNYVPGHWDGMYLKTVPELQVFQC
GHLGSKEAYWHTDMCYTDVPPDASILYA NVMEMQAHEKPTYDFTHGHVPLHWDGAFHQVPRFLLFNC TLSPKEG VV QSRKKLRGHTDASFDPFIPNYVALLS YLVPTEQQRSLSARYGLSEFPWHTDGAHWTTPPRYLVVIGC DVVPVSNAVGQGDYTGHGELAPHADHQWTP $\square P S F G S L L Y A$ TRYSRTTGALEPHTDSSQQNHPHSTVIFGM DGKPDAVDSPRSHYGKGNGFFHVDSSFNPRRASYSLLRA DVVPVSNAVGQGDYTGHGELAPHADHQWTPLPSFGSLLYA RIGPIQERYHPTHYQYMQRLHNHTDHVSYNVPPRLQFLGC NVRRDWNKGNSL VISNDREGEAALGADPDGEDFWHFDRDHQKVPNKAGVLHS HLDPS $\square R G K V F V S A Q D T N A Q M Y H S D A G O S D V S L M A$ EFVDQAHPRSDSAGYGLNALLPHAERSCLDPKPCRYLMLGC DLVPDWAKDGLAGSKITAAMDFHSD RFSGDVLALH DARLMNQYSGTYGLEEFPDHSDDAHWYDPPRYLMLRC DVVPVSNAVGQGDYTGHGELTPHADHQWTPLPSFGSLLYA
DRGEVLKSDNRRRSSLSNRLWHTDASFNDPAGRYSMLSA DRGEVLKSDNRRRVSSLSNRLWHTDASFNDPAGRYSMLSA
NDFDVKTEVGTATAQTLEAMSFHYDGMFLGDPPVFMFFHC RFTVKNDDNSDSYGQAHRRMEGHNDGTYVNERTDFVLMMK USNVENGAGGLGSGDLIAWSDMTFQEEPPVGCVLNA NLRDSSLAKTY VATSNITHFMHTDGSFEMEPPKIVAMQC DIKVRPELVRSGGASTADEADFHTDTQYFPTPERYMLLYF OITPDLEGYPDYUATNNKALLDHTGTFEQDA DVRAHQDPEDHVFDTGGFMPLHWDGMYVEHVP HIRNEGGDYSRHTRRGHDAL RSASD VVKHTDNSDSYLRQAYRLFTMHTDGTFVSEATDWLFMMK DGGESSPERDRASFGGFGAQALHDDAPNVRQVPDYTSLLV DVVSKPPTEAENVAYTSVHLGLHQDLLYMNDSPRDQLLHC PNQRRWDHSLGNALWHTDSSFHQQRSKYSLLLS VVGNFKGGGAVGSSHSGLELGPHTEPPYNCHSPAPSALIL SSHSGDADGAHTEAPYHNHSPAPSSLVL
$N$ VLSAEWMPFHFDGLFLPNPPRFQLETAA EVKDRGADRGLNNVLSAEWMPFHFDGLFLPNPPRFQLFTA AQT DEAMSFHYDGMFLGDAPVFMFFHC NDGFAWHTDLSFLENPTAFTFLYA ESGKLLEPGDIRRLINLSNQLWHTDSSFKTPASASLLSA SADDKRRLLQKPARLWHSDNSFRSPPGLYTFLAA
NVLPSPKAHFNKVHDVQGNLLFHVDNSYHPQRVKYSLLRA GWHSDVTYEKNPPGTTFFAM SLDPKVNPEYARFLFGN KLWHMDGTYEPVPPFATLFTP KVRDNGRSDKMGNNVTSNEMPMHFDGMFVQHPPGYQFFTC $H \| A N T M K D G K P S G A M G N S E A T W H T D T W F Y E R P P A G A I L R A$
$T G R N Q L P F H A D G G V L L S P V D Q \| F L Y A$

|  |  |
| :---: | :---: |
| UniRef90-V9D915 | VVSAVHEALREREPGKLIA |
| UniRef90-E1PTI1 | LDE GDSGRDTVIVDFGNITKLTDKERS |
| UniRef90- 5 5 | LRAAKSGGQSRIVSSVAIFNAL |
| UniRef90-A8NAUO | ETAAEGGTSRISSGGRIYNELRPDLTKTLSEPWFGGTP |
| UniRet90-U7DTV9 | HQQATCGGGHTGLV |
| UniRet90_D4AMH9 | LSHTDGTGGETLLVDGFKAAR |
| UniRef90-F2JW51 | I TPASQGGENLILSH RRLLDSLRRE\\|ISULSQSEFPFSM |
| UniRef90-UPI00016A7FD1 | LRCAREQVGCTRFVDGWAVLSELR DASPDMFERLAHTRV |
| UniRef90-UP10003C7627B | VKAPARGGGRTTFCDTTMVLDTLPAEKRAQWEALTVTYRK |
| UniRef90-W7 | ATTGGSNSYASDPRIYNHL |
|  | AEGGKFIVASAYTAYNLLAPEVIHTLAKPDWP |
| UniRef90-UP100047s | KDGGATSWYNTV QAYADLDDDARQEI DQLQL |
| UniRef90-UP10001 | ANGGESLLASGVYNALAENRPDLVRVLAEDWPPGLI |
| UniRef90 DoJ4Y | QNAVGGESRFLHLLD WSELIDCFVQDPLGAKPLLLYKA |
| UniRef90-UPIO0016A6BED | APEEQGGRTTFSNTKALLERAEPQARALWDKVTGVYHR |
| UniRef90-A7HW30 | ITPSAGGD TSFANMYKALEELPADLRAAIETRMV |
| UniRef90-×5L6J1 | GGG |
| UniRef90-H6E | G |
|  | QTVSPGWEMIFVDGLALVVRIK S EAPQTLS |
| UniRef90- F2TZL3 |  |
| UniRef90-X5VAZ7 | $V \mathrm{RGFDD}$ D VPTLLVDGRSIVEAVTID\\|VQR |
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| UniRef90-UPI0002F9AD2E | NPLSEPTTVIPLQPILEKLNYLDLLALTTENFDFTR |
| UniRef90-A0A022FP39 | VEDPNEGGNTYFANMYAAYAALPESLKARLKGLKTHHQD |
| UniRet90_YgLLJ6 | VTGHPD VPTLLLDGQ |
| UniRef90_J3AG14 | PPEAGGQT |
| UniRef90_19C4Q0 | PPE GSDTLLADQC |
| UniRet90_U5YNY9 | VRQAAAGGALVLVHVADLVRELLAWEPESVAALREPVHFD |
|  | RGGGSTEFCDTRAAWDDLD |
| UniRef90-UPI000367E046 | A A QVGGETIVLRARDVAAELEKLDLDTLSRPFWF |
| UniRet90-E3F588 |  |
| UniRef90-LVET7 | VEAPMEKGGETLICNTELVWDKASKAEKARWQGKILAYKT |
| UniRet90_C6DAU7 | $\checkmark$ SAlGeg |
| UniRet90_11WRN8 | IEVPAR GGNTEFMNMYRVHDALPASLRRQIJAELRYGFDS |
| UniRef90-Q2T8R7 | E |
| UniRet90_K2CCD8 | APAN |
| UniRet90-Q7N4D6 | GSDVG TTVCHIEEILYHMNDDETCELSSPNYVFEW |
| UniRet90-M7T7N7 |  |
| - |  |
| UniRet90_A0A0092I |  |
| UniRet90_H3NSM8 |  |
| UniRef90 M2NJZ | CRLPPPGGGNTDFADSRTAFDTLPDELKQRLLDNHYAGCH |
|  | DGGQTS WI NTIKAYEALDEKTKAKIDQLQLIT Y NP |
|  | UQPDYDKQAYSTLVDGFKDAQVLRTQQPKFFELLTTEYVP |
| UniRef90-V5HW22 | HELPPKGGGNTEYADTRTAFEELPEDLKAELLSNDYMA A |
| UniRef90 A6F001 |  |
|  | SLPESGGESTVASSVYNHLAQHRPDILR |
| UP100036 |  |
| UniF | IEPGSPSAVTMLLD |
| UniRef90-E42NS5 | VRNGGGEGGEQFVVSFARTYNELGVSDPEAL |
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| UniRef90 N9BGU4 | GGQ |
| UniRet90-D5G853 | EVGGDTVFASTAEAYNRLSPGFQSMLEDLRATHSS |
| UniRef90-W2LCK7 | VEEDDPKNGNTI TTDTRRLLSALPETTVERLKKISLEYRT |
| UniRef9 | MDEKNMQMG |
| UniRef90-UPIO0035D6E20 | ETPDGGG |
| UniRet90_G6 | EVPSKTGGLSQL |
| UniRef90-G8AW82 | AQAAACGGGRSSLRDARCVRAALARWALDLLSQTALPFRD |
| UniRet90_G3Y5B5 |  |
| Ref90-D8G866 |  |
| niRet90-L8EY61 |  |
| UniRet90-UP10004 | 1 DPGDPNAPTML |
| UniRef90-UPI00037F2E4E | VRPARNGGE |
| UniRef90-N10 | LDGPVAGGD TLFCNMAVAYRRLSPEFQKRLHGLQAVHSG |
| UniRef90_Q471A5 |  |
| UniRet90_UPIO003FE3 | LRPDPAGGGVSLI GDLLQEALAHLTDAEQAMLRRAEVFEGR |
| UniRet90 A1ZVB0 | QPAPK |
| UniRet90_S3C6G8 | RNDCEGGESLIS SSMRAAVEM QLLRYPYYAMALAHF |
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|  | + |
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| UniRef90_ B2JA93 |  |
| UniRef90-K0KC97 |  |
| UniRef90-J2P | G D |
|  | GG |
| O-B6HJH3 | GNGYTLFASSRLFFRYLPLPWTAERLEKVTWAMD |
| UniRef90_W1LOU7 | SRAYDALPEEFRKAIIDGRQIIFFQN |
| UniRef90-D1P014 |  |

## UniRef90 V9D915 UniRef90-UPIOOO3758CD3 UniRef90- X5MLZO UniRef90-A8NAUO UniRef90-U7DTV9 UniRef90-D4AMH9 UniRef90_F2JW51 UniRef90-UPIO0016A7FD1 UniRef90_UPI0003C7627B UniRef90-W716V2 <br> UniRef90-L8FSZ9 <br> UniRef90_UPIOOO479E641 <br> UniRef90-UPI0001F2A271 <br> UniRef90-DOJ4Y7 <br> UniRef90-UPIO0016A6BED <br> UniRef90-A7HW30 <br> UniRef90-×5L6J1 <br> UniRef90-F4XY6 <br> UniRef90-QOSCF4 <br> UniRef90-F2TZL3

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UniRef90-M7T7N7 UniRef90-U9QM36 UniRef90_A0A009ZM26 UniRef90-H3NSM8
UniRef90 M2NJZ2 UniRet90-N8VHJ3 UniRef90-F4XZ81 UniRef90_V5HW22 UniRef90_A6F001 UniRef90-UPIOOO366CCA8 UniRef90-X6C9T9 UniRef90-E4ZNS5 UniRef90-UPIO00368A5D5 UniRef90-N9BGU4 UniRet90-V8QXS2 UniRef90-D5G853 UniRef90_W2LCK7 UniRef90-B8K738 UniRef90-UPIOO035D6E20 UniRet90 G6FPX6 UniRef90-G8AW82
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UniRef90_D1P014
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DV
FAADGTYTHTVCRQPVFFENARR SLYSSRKKAAPEYFKDVDVNNSGRMNLYI AAHMDHVENVS SYQYLRQDINLIASDPIVTLDSYDRLKRIRYNPKAQLAVA DGGVRTTMLDADDTGRTALRFSYNLLTASDYDPHHRLPLG VVRPRRPOGEMRARLENSTGHLRWDEDFLKAF EKRGMALSRETGFFRSPI RYYTPEGEPLVRYFRTYUEPAT ADNFENKQKFHQPSTPERVILQYARRIFTGYRSANLPPDT SETFTSGKGTGGGSKVSULEFNNDGIJLKYSYRFTANV RAIFLPRRPRSGTLELLLRLYESTSDGYCFRWDELFLKPAS DKVAHYGGEVRSPLLVHDPRDHEWVLRYCRHSLEYHGDEA
 SILHSKKDAAPEHFSNDEPADSGRMNLYLAKHDHHMEGLT GMSQGCFQAPDHAVVEQRHHFRYMRPYUEGHAVRTTPLS QKLAHYGGEDKVPMVQRHPISQ MKTFLRFAEPADDGHS SSTADAPIIEQHPYRTYPVIRFAGDKEFLNPSTYHFSGDE VVDVTCCPGSDHPVVRVHPVTQRPYLYLGRRDNAYVVGLD EKLAHYGGTITSPLVQQHPGHKNEMLLRFAEPVLPPMD SLMHSRKLGSPRFFDDVDPATSGRLNGYVGAHLHHIGEEGG FYASARG
RAQSNKGSGNYSRFKDQP LGHAYPHPLVRTHPELVNYDD
GKQPKPDVETRPDSDETRDSYYRRSLELGASLS SLHASRKRGSPEFFADLKPEDSDRMNLYTGAHLHHINGLS FVRFQSNKGGNAYAGNMPILGHAYPHPLVRTHPELVNYDD TGRRRLGVEEKETYHRQHVINDDETGYQIRHHETDRVPDE SLWHS RKVAAPETFKDDNPDDSGRMNLYVAAHVHH EGGLD

 ELKQK DKAPHLEPGPTLFFSNGKPMLDHRDPAMPRLT RRKSNGQKICPLPVFFQQGSWG RWDFLFLSPLN
 VYSRHKLPGAVHPGVRDIPRSGRKSLYLASHASHVVEWPV SLFRHNGRVHTSPVVDTHPITGE LVLRYHEPWGPEDD SVWGAPPSKNVGYTIEHPVFFDKNGKPHMLFDDQFAQPQN FDYPDT ITRGDQTGKRADFTEYEDRMFMCFRADAI VADP PATFTRTGSRDAVEVTFATVFGDKRPLDRFRTDTLEHDT TKAS AKVSHYGGLVVSPLIEPHP DAGFPVMRFDEPVPDGEH FDLREERTFAEPAWHCRP\LWRNRGHYDRRFDFDSQRHSD HIVRRDPVSNIHP\|VRTHPVTGEKNPQFTRRIDNFKKEES FVYKAPGSKNVSDTVERPVFFQNEFGLSMSFIVDQFVQPRN ADGLL GVGAPLLPFPMVTAATDGGWPWDRWAGKLLDPRN QVPYHYERNGNYYYNERPVFEMDNRNGSAVADPYGKRPLR WHSRRSPQAFAQPLENERAAEKSAYHRLVQDGPDGKKTLY SECFVSTHDSAPQWIVGHPVVVANRGDETLRYNSYRYEKAS SETETSGKGTGGSKVSILEFNNDGTIGGVYNSYRFTTNVH
 LLYHQPATVHTASAPERVVLQYARRYFVGFRSPHDPPDT SLEKHDGRVHTSPVVITHPVTGALAGRYVGYDPASSQKD FYSFDLDGIPPEWREMQPPVHGNRRSLYLASHDRSIEGMD GWSREQAPESVQPLVRFHPKSGRTSLYLSSHGRDVLGMSD SMWHSRKLASPDFFARRRLVQRHPDRTCLSVASHCFEVDG Y IERRPPSASDHPLVRTHPVTKKAGRAFIRQUIGLKQEES QAALFPAKRDCTPPQRVHPLVSGRRSLVLSTSGAWVEGMH
 VYDFREWNGVVHPLVRTHAETGRKALYGGGTAEGAWMPDD

## UniRef90 V9D915

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UniRef90_ITWRN8 UniRef90-Q2T8R7 UniRef90-K2CCD8 UniRef90_Q7N4D6
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UniRef90 F6CSV7 UniRef90-B6HJH3 UniRef90_W1L0U7
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 EAQAEALDADHFDAEKYTLGDNFQKGDDQYINS LGLLHAR PLARFAL L GEEYFIQHNTPVVIPDGCMLI WDNWRMI HAR GRWYQAAKKWNA LKKRPE DWLKLEPGTPLVFDNWRDLHGR TKKVYADEQLESHLAGFMRGEKLKAGQMLIVNNWRALHAR MPFFRAYHAFKARLVATMRSHVWSQGDMVVWDNRRVFHGR TGAEEFFADDRERLYDVMYEHAWEDGDYVITDNHALLHGR
 DQRGAALEKLRAHIPKYRYEHQWETGDIVYWDNQVTLHSR PAQVEALDALHFLAEKFHVAMDLKRGDMQFINNLKNMTALD DAEAEYL QNLSESMENSTRTVSLPAGDLVVLNNYFYVHGR DEADDFHRSLRAALYENFYAHAWQTGDVVI SDNYTLLHGR
 AESKELMEKLMAHATQEKYTLSIPPGDLII WDNTCVMHRR EQDQA ALK QFEAWVEEQSQHLSLNPGEMVLWDNWRVLHGG RAGRRLAHRVSDLFHELRTRVLIPENALLI WDNQRMLHAR SAQQHALDALTAVTDDPAFQFRFRQGELLFANDLQLFHGR PVGEVAFRKI REHLERVVVPVALDPGDTLIVDNWRMLHGR
 EAQAEALDALHYLGERFHLGLDVRQGDIQYVNNLALFHAR HAPQDALNRFNELINKSQYKIDLQPDTCIIINNTLALHCR MDQAEAKELLDELWARATEAAHWKPGDMVMWDNRCTLHRR
 AESAVLADDEL DDWVDRFVYRHKWQVGDVLVWDNRCTLH T G APQTRAMDRLDALLSRLRTCHRLEPGQVVVVNNRAVVHGR E QE LD ALDD TLDAVLETDQSRFMLEPGDVLVCDDTEVFHGR $K V G D T A D A Q U R D W L A K L S D A L D R P G D T L I A D N W R M L H A R$
$S E E V D A F V R E M K A W C K Y C Y T H R W K N N D L L I A D N D S L L H G R$ PEEQELLLSSLQQAPRVQYAHQWQSGDIVI ADNYSLLHGR VGESEAL DELWRYLDGVTWTQRWEVGDVMIWDNRCTMHRR


 QAGAKLI AELRQHLPEFRYQHQWETGDVVEWDNQVTLHAR QQQYA ALSAFDATGTRLKRSFRLEKGETLLINNHKVLHGR
 QDLIYA AYQAFTALAEAPEYEFLDAPGQVLVNDNWRLLHGR GKSKELFNKLYELCKQPKYSVEWEKGDLIL WDNTCVMHRA LIEEREAFGGWQWIAEQYSLETALQQGDIEWVNNLHHQHAR PRTVRHVEILRKVMDRHTMVLRLGKGQGFILDNTRWLHGR

 SEGSELIAALRTHDPEFRYEHHWETGDVVFWDNQVTLHSR DILLNFRLDDHITKGHDFQVRLSWKPKSVVIGDNRSTCHTA EVADFVTEALQKRLYEFCYWHRWVKGEFVI VDNVSQLHAR MQQGLYLHQMSESLDSNCFNVRVNVGSMLVVQNHCWLHGR PQVERAYNLIKNYVNDNQLIFQLQPHQIIILDNASVLHGR PEVRRALAGLQAELDNPARRLEMESDSLLAMNNHEALHGR DYLLKFLYDHIALSQDLQTRVRWRPGTVVVWDNRVVTH LELLKETFKLIKEY L KNKNQFIFKLQANQILITDNTRILHGR EAEAAELAABRDAAYRHVYVHAWQQDDIVI ADNYTLLHTR
 DHLLN FLYQHDALGADMQVRVKWEQGTVVVWDNRTTSH
REEAAFLNDLSTSMEASTKEVSLPVGGDLVVLNNYFYVHGR QRYLP ILERFAQALSGETRAIMLGRGQLLIDDQRRVAHGR $P Y T Y Q P Y N T L I D T A W S P P F Q G T F Q P M T Y V D H P D H R A S H G G$ LAA AAK LWELI DHCTQSKYVFWLEGGDMVWWDNRKSMHRA QLAARQAYWSLKDLLNQACYEFVLLPTSALLINNSQALHAR APQKDALNRFNELINNSQYK DNLQPNTCMI DNNTLALHCR PEVSDA REDDSLLHRVAYYHAWQKGDMLVSDNDLAMHTR $P R V A D A V D Y L S Q L A T E G S R T F P L C R G Q A L I F R N D K I S H G R$ EAQAEALDALHFLGDKYSVATDFEKGDMQYVNNDAVFHAR

| E |
| :--- |
| P |
| D |
| P |
| L |
| P | PEEGQKLIEARTTINGPVYSHEWQPGDLVI WDNRLMLHRA DEEKALDELMALATQQQYRHRWRVGDLVI WDNRTTMHRG

 PEESKLE QL RQHLNQPKYQHKWSVGDIVYWDNQATLHYR D A L L N LT D FLD HSVDDLQVRARWEPGSVVVWDNRRLLHSA AAESHDLLQRLMDKYTYRHKWQPGDLAIWDNTGCMHRA P M D A N A LE QL VK A M DE LCVNF K WQP G DV L WIN N H T V L H A R NELVKVVDDRI I Y D Y RVVCLRFAWEKGDLLVSDNTAMLHTR

|  | 310 |
| :---: | :---: |
| UniRef90_V9D915 | NAFEGKY KRDLIRRTTVHDDSSTA |
| UniRef90-UPI0003758CD3 | DEFVDTPEQK RVYTRVWI N |
| UniRef90-E1PTI1 | C EKKTEGTERTLYRVVV |
| UniRef90-X5MLZ0 | T A Y E D WPEP |
| UniRef90-A8NAU0 | D GFRDSPD |
| UniRef90-U7DTV9 | SRYTD PARNLT RYW |
| UniRef90-D4AMH9 | SAFT GKRRMCGGYSEYSRNT |
| UniRef90-F2JW51 | KAF GNEKRLLFRASVEAEL |
| UniRef90-UPI00016A7FD1 | GDF GAPGFARTLRGGYFKEGELRAREA |
| UniRef90-UP10003C7627B | TAFT QGSPRHLRRVHV |
| UniRef90-W716V2 | TAYADDPARSHRHLIRLFLRDEQPTPRELLLDWGRV |
| UniRef90-L8FSZ9 | SAFSASTTEPKRHLVRMRLRCPEKG |
| UniRef90_UPI000479E641 | TAF PAEQRRLLKRVSLAGNRP |
| UniRef90_UPI0001F2A271 | T R H D Q A L F ETTRRVL |
| UniRef90-D0J4Y7 | APFERNEQDHRELMR |
| UniRef90-UPI00016A6BED | EGFTS GAPRHLRRVHV |
| UniRef90_A7HW30 | ASFDGR ERRVMHRTQIKGDRPR |
| UniRef90-X5L6J1 | TAFRD TSRYLLR |
| UniRef90-H6BQ60 | AEGGSFAGKYRRDLRRTTVH DASSQAWGLNKPADKRPG |
| UniRef90-F4XYX6 | SAMDGNH HLAVCMSNMEDFHSRLLR |
| UniRef90-Q0SCF4 | SEYADR ARHLTRFW |
| UniRef90-F2TZL3 | T AFQPTYDPVNRLMQRNWVKT |
| UniRef90-X5VAZ7 | PADSA GRQDRRLERVYLGR |
| UniRef90-U5YRM4 | TAFYDRFAPRERYMFRMW |
| UniRef90-A1CSG4 | TEDKD PKRFLRRV |
| UniRef90-H0EEE2 | DGFVDTPEQ QRHLI RLWLRDPEH |
| UniRef90_UPI0002F9AD2E | DVIKDN R R L L R R I |
| UniRef90-A0A022FP39 | DPFDPN S $\mathrm{D}_{\text {PRLMHRTTVEGERP }}$ |
| UniRef90_U9LLJ6 | PLIPPPEY GNRKIQRIY L |
| UniRef90-J3AG14 | RAFTSQC TR HLQRVHLH GSPR |
| UniRef90-19C4Q0 | T LFDDT R Y $\square$ REALRRMWIKGDRP |
| UniRef90_U5YNY9 | T TFQDRPGGAGRLMLRTWI A A R S A R P A VPR |
| UniRef90-W9J9M9 | AVGGPFAFRYKRDMRRATVHDD STQA WGLNEHTDVRQGL |
| UniRef90-UPI000367E046 | TSFlDDGPTPDGRDMLRLWTRR |
| UniRef90-E3F5B8 | SPIPP GREDRSIERVYL |
| UniRef90_L7VXT7 | HAFGDF SPRFLRRIQI |
| UniRef90-C6DAU7 | ESYASQSG RHLRRVHI H |
| UniRef90-I1WRN8 | DAFDAN ARRLMWRTQI QADPARPL |
| UniRef90-Q2T8R7 | ERFTSR T GRHLRRVHIHGEPPLRNPH |
| UniRef90-K2CCD8 | NAFKNF SPRHLRRIQI |
| UniRef90-Q7N4D6 | EF $\square$ S EESFSRKLHRYYL |
| UniRef90-M7T7N7 | GAGT FEGKYKRDLRRTTV HDDSPTA |
| UniRef90-U9QM36 | TAATGN AKRKL $\mathrm{T}^{\text {R V V TV }}$ |
| UniRef90-A0A009ZM26 | EPF PADQRRLLKR\\|SLAGSRP |
| UniRef90-H3NSM8 | TAL $\quad$ AEESNRLMDRYRLRAD |
| UniRef90-M2NJZ2 | A A GGSYEGKYARDLRRTTVHDASSTAWGLNEQVDTRPGFN |
| UniRef90-N8VHJ3 | RPF PADQRRLLKRDSLAGSRP |
| UniRef90-F4XZ81 | TA $\square$ HNPQLRRVLLGAYMKPETFRSRRR |
| UniRef90-V5HW22 | TGFEGKF KRDMRRATVHDGSSTAWGFNEKSDKR |
| UniRef90-A6F001 | NDF NENERRLLKRVTV |
| UniRef90-F0XQF1 | RGFT EDVSKPRHLLRVWLRDNE |
| UniRef90-UPI000366CCA8 | RSFT GPRVMLRALGERHTCLPLERGFR |
| UniRef90-X6C9T9 | G PTDQGSGRRLARVLTD |
| UniRef90-E4ZNS5 | GAYRGTGGRPSRHL L R MFLRDPNSKPASYRHNFDD |
| UniRef90-UPI000368A5D5 | SAVP EGSMNRVI ERTYLNT |
| UniRef90-N9BGU4 | RPF PVVQRRLLKRISLAGGRP |
| UniRef90-V8QXS2 | LPPFDE K Y PRELRRT |
| UniRef90-D5G853 | TVDYDARSDKDRHMFRL |
| UniRef90-W2LCK7 | S K LGMGGRHMRRIHFS |
| UniRef90-B8K738 | DKFVAH EGLLKRELLR |
| UniRef90-UPI00035D6E20 | DAFDS GARRVLHRAQ $\mathrm{V}^{\text {R R }}$ |
| UniRef90-G6FPX6 | TSF PENEFRKLNRLHFN |
| UniRef90-G8AW82 | GAFAD PDRHALRIR $\square$ D D |
| UniRef90-G3Y5B5 | S ALLFDWEDGQRRHHARI |
| UniRef90-D8G866 | TSF PDYEVRKLNRLWF |
| UniRef90-L8EY61 | V PYR R G L PRHLRRVHVLGDPPLR |
| UniRef90_UPI0004766E73 | ASV NQGSGRRLGRILI D |
| UniRef90-UPI00037F2E4E | SAFTDEADSP RLALDRTWVA |
| UniRef90-N1QK17 | TA 1 LD WQDGSRRHLARLTPRAERPFE |
| UniRef90-Q471A5 | APFEKNPLLF RELMR |
| UniRef90_UPI0003FE3DC3 | TALGD PRSAATGLRRC |
| UniRef90-A1ZVB0 | TALE GNRFLKRYW $\mathrm{L}^{\text {L }}$ |
| UniRef90_S3C6G8 | D A WDATKDTGR |
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| UniRef90-G4ME04 | E EFQG |
| UniRef90-R0XGY3 |  |
| UniRef90-G9PBZ5 | SDFQ GGAERELWRIHFD |
| UniRef90-A0A014PX88 | RAFTDDPACPRTLLRGMFVDVP |
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| UniRef90-H3HON1 | S K $\square$ GMGGRHMRRIHFN |
| UniRef90-F3S9Q0 | T DYDKKA YRRLMYRVTVKGERP |
| UniRef90-UPI0003D3D6E3 | TKFDEKY RRAMRRATVQDTGPTVL |
| UniRef90-TOG463 | TPFP EDRYRRDMRRTSVEDD |
| UniRef90-N4UUV8 | RPLTGPF KRDLRRATILDEGPEAWSFDAEDYD |
| UniRef90-B2JA93 | QAFDPN ERRVLKRVSLAGSRP |
| UniRef90-K0KC97 | T F D WNSGEVRHCYRITPMAERPQ |
| UniRef90-J2P191 | MPFEA GSKREFHRCTLNGEEPVTAP |
| UniRef90-F6CSV7 | QP FEG |
| UniRef90-B6HJH3 | T GY $\square$ S D CD R E DWR $\square$ H C D |
| UniRef90-W1L0U7 | DSFDPN T\R\\|MHRTTTSGERP |
| UniRef90_D1P014 | E EFED DK■IR HLYR |

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A Q VP S VD C Q S F LDE T

】E A A Q A G
Q A Q VLKR S

RALHPTFGAECSGVDFS
$\square H M F \bigvee E E L A A \square G G P Q A T G A H S K A S W A A T E$

D P E WLA H D D A VA
F GAECRGVDFS

S RLAA GPLT Y S G S LD S Y E H F DVT S VI G R E

```
\(\square \mathrm{DVSVVP} \square S L L R E L F \square E H Q L V L L R G F K A F D Q A\)
RGVLLIRGLHLDDEAQV
\(\square N V E Q \square D L K M F A S G K A A A L E F A M M P L F D P V P S G A N \square\) QPVP EQT \(\square G E \square R A A M A R Y G V L V F R R T R \square D D A G H V\)
पDEVALLAAERGVLVFRDADVGFDRQKE【VRH
```


# EGLDLSRDMSEPTMRRLLALLF 


$P \vee A V E E \square R R A L L T$ FPGLQपNK】RD【A ILVSQRGVVFFRDQQUGIDDQK\｜LGQK


A $\square 1 \mathrm{RD} \square \mathrm{A} \square \mathrm{T} \square \mathrm{S}$ QRGVCDFKNDTVADQKLDPYTSG

L $\square$ S ITKEELSKE GFILFRNQALDDKDLIS LGKQ LDQLALLAAQRGVLVFRDQDFADDGTGRQ

WPRRPCAR $\square$ R $\square$ RPAGP $L \square G A E \square T$ GGAP $\square$ DEEAE $\square R D A L L$
$\square G \square Q R T$ DANLFADASAVSRDTATRRDPDAGPRTHGGATDG F $\square A F A S Y F G S \square F R P S K D N E T G V P P$
GDLIP W K F GYTH

EK $\square$ GVGFGYRDTEKGK $\square$
PF GE $\square \mathrm{Y}$ Q WQ F GP $\nabla \mathrm{H}$
VIIDDVPENEVDSTTLHAFVDDVLGQKDPCRDERNWKIV $\begin{array}{rl}K D Q G P A K M L E L G E H F G P L H T H Q F G D M V G Y A G L T A \\ Y & V \\ Y\end{array}$

$$
\square \text { G K P T G W }
$$

K F GLVL

YGTLHKHATTPV N $\square E Q D G S$ I

FGEPQRNEGPHKLE GAVRMGYVREIGGRTFS PMRKVRKDSANLSPVILRGFGTHMEEVFGRDTTWSENVIV LGEEIDDDEPGHHPVRGDYR

> AFAERDGKPVYPFVKSGENFP $\square L L L T G G E S \| G R C V A Y S D Y N Q$ S YVT

HTEK L A ER $\square$ S LIRET $\square \mathrm{Y}$


GRMWY

 NVIS DAMNDDPVI $\quad$ YMASRNQ LLSSVDYRSFAFD $\square D N C G M Q V R$
 NDKGPQFA $\square D F M N Y F G P \square H \square H P T S G S P E N F P Q M H \square$
YGPLHQHPTMGYPE GTGPEFHVVYADEKAGNL
TEDQH $\square \mathrm{A} \square \mathrm{ZV}$ K $\square \mathrm{G} \quad \mathrm{P} \square \mathrm{ST}$ T DEKDGRQFT $\square C E \square A E H V G S \square L E W$ KHHFGKVL
$D L I S G E D R Y D V L C L A A R N Q \square L L K \square A E A F A Y D M D N E G K \square V R$

## $\square A F G E L L G T P T L A H P T V R G R D N D$

ERGVVFFRDQEDS DQEQLQDARHFGPDTPVPREAGDEEVH DRGVVVIPGQTIDDAAYVRFASFFGTPLDFIPEHRNADFP $\square P R L L G K R Y G L E R L N C N M D A D$
$H$
$F G E V E Q E \square D D S K \square H F R V G G L S S V M R \square G N V R D E T G R L I S$ $\square G E \square D Y E P G H H P V S G \square Y R$
$F G E P D V S A \quad L D Y S S G F G R R D R L A P R N E L V D V G$
YGPLHQHPT MGYP EGTGPEFH

WF PDQPLTHDELEAFT LQ Q GPFGHDPF $\square$ APMEGRPH L AAFLSFASHFGKPAEYPFVRGПDGFP HKVIFFRGQHH DDDQQQLAFAR LLGTPVGHPAAGALAAKG LGELTGKPLTSGLHRH L A ALSNSKRGDAVDENGKLDD AFAKK GKP VYPFVKS LEDFP $F M R H F G K P Q P V S G T V R G H P G F$
$\square G E Y A A E G A D G A P S K \square T \square$

$$
\begin{array}{r}
\text { RFGT } \square \text { Y R WA F GEVV } \\
\text { QES F GRLL } \\
\hline
\end{array}
$$

$\square N \square H P \square N Q T E \square P D G T \square D A E \square T T \square A R D P K K K \square V Q Q A G F$ GELLGHLT GKPKESG

EWKVLFFRGRRVTGADQRRDAEVWGKVETFPFLSKGRSPD REAH $\square$ GDAD LVA LSRQLGDVVPMGGQQDFPE $\square$ S
$\overline{L V F} P D Q D \square T S E D \square M R \square G R Y F G Q \square T V H P F A E N S E K N P E L I$

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UniRef90 Q7N7U7

## DFAP DVVP

 WHTDSSFKQT RADSNAVGHGDYTGHGE SWHTDGYYNAPDGQVGALFC |VA RADPGEFERVF MSNAVGQGDVVKPEEKPHGFVHSEGKTPG SWHTDGY
APHADHO
DWH TDM HWOSYEEPVMCTMLYA KKADASSDSYDPEKRDNWHTVTFVLNPPQASSLRS DQHKKLADAHVAGNVSS N NWHTDMSYEDNTVGTTELMH ETHLLVFRGADDRTGETTNTI TWHSDVTFEKQPPGTTFLYV
 VIFTGENSPDLRALETPTFLD FHYDV EVKDQANTRGLNNVLSAEWMPWHSDGTYKTEPPGFQFFTS

VVIPVANDEGGFTGTGELSFHADHHWTPYPSSGSFLYA HKITLLDVKENPQSAEYKGSLYWHDDGT MNDVPDLASL VISNVKKEGKPTGILGDGEATWHSDMSYQDVPPKAGILYS $V V Y A D S A R K P D P T A F S K D E L W H S D V T Y E Q Q P P S L T S L K V V$
$K N S D S W Q G Q G S L F H V D C Y N P R A G F S V L R A$ DGSPRKQHQREQPSAAPTTNNLNSQAYREWSPGVQLLHC SILSNRVVDGKPLGAHNDGVGWHTDLSFKERPALCTLLYA KVRDSGRQDKQNNNKSNEAMPMHFDGMFRQDDPRYQFFTC GLYPVTDDKSKNSSAAY DRFDWHDDGPTGDEYPQMATVLS ETVTLDRSKNSADYLKATFY

RSASDTTAKDYFQERTNS SVDPQKKSESDSNDYTQDKHP FTSDFSRGDTAY TK KALDD
NVKNEQGA P $\quad$ GNDGDGEAVWHSDVM
QAQPADH ${ }^{\text {P }} \mathrm{F}$ S SY
VVSLDPAKSRSAEYLKGTMPLHWDGMFRPQVPEYQUFQC LVGNSKHHQAEMSSHAGVE NWH $\square D$ DTNDTPAKATMLTA S LTVQPDADHRGYDYSNRPDAWHTDMTWQKAPPKCSVL C
 TFRGASQDEDTAFAKNTNS SWHSDCSYSLNALQLTLFSC K NASASYLRATEDWH DDGPMKDEFPQKATVLS RNLLGPRTSYDL

## WHV FHT

Y $\square$ S N VH T D G R V P
N GELDF
SSEPMP
D $\square$ HSAPKGN
SNSQS
Y T D R P
LVANFKGGGKELSSHS GRPALSWHCDGYYNPPRDRAMLLHC

 NVLP DDSDYGKANS WHTDVTFVDRVPA I S L R R A VVYNDGSRRPDPSAFSKLELLWHSDVSYELQPPSTTSLKV
 VVYADETAGNDRTLLGPHTAYWHVDQTFTPNVPSTTFFWV MHTPDPPGGSAQYRAAERQPAWHTDSLYRRRPPVGSARYC

VTLDKSKNSSADYLKATFEWHMDGPLHGEPPQKATVLS


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 EVRKFYNDRYTAKSKKDGSL
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DVKENPAAAEYL
VVKPADQPQGVVHSGEKTPLL $D L V P H P T V P S L E G T Q A I L E$

## GKKEKKQSHSD

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Y S D R AKNWHT
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VVYADEKVGNDRT LLGTTRTSYWHDDQTFTPNTPGVTFFWV
EI TP ILLKREEDRSNFGGL WHSDTVYQQVPPMGTILYA

A $\square$ S $\square D P A Q S T \square A A Y R T G T \quad$ MDWHTDYSFRPRVSR $\square$ GFGLAA
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 H IVRRRDVVSNVHPGVRTHPVTGEKALFVNTQFTKRIVGFK FSRRRMDVPEPVEPERAPPFIGYEDRPSLRFSNNHLDPDS IEDVGECHNHMLGVGPVLNVYPWNKELYL
VEQANASRARGGUVRREPVI.NNEHPVVRTHPAFVNPQK AHNSAGDLRKGYSEVDNPTETPGARHPMVRPHAYDVGLED FEQAEASAARGGVVRRTPDATEHPLVRTLFDNAQFTRRUV EMEFYSSHAVSAVIARHP YRAYEVI RYAEPHFARFS CASQRLVHPDPTPTHESSLVWQRRDGRVIGATADHIIGMR HGFAGSRFDEHHPLVTVHDQYDPKGDFTMRYSSYLHNEAS ANQVDGE $N$ LRPARSGPVFSDAAPDGHDHMRYSRSDEWRAD
$M H S K K D A A P D Y D P F G R K L V Q L H E P S G R Y M A A H A H H D D G W T$ VITRREPETNUHPIVRVNPLTGKKHLYVNKFGRRDVLKK EASQRRVNPDPRPTHEHPLVWTHRSGRVLGASADYVVGMA ASAQKEAVSTTHPGVMKHPVTGKPSGFVNPTVARKVEGFD

 PMFDHSHLLH S PLI GSHPITRER VR VIRYHEPWSKNMT ELGYDGVYGDNEVSKQRSMRIRPSEKAREKQEHPLVKPHT ANVEDGVTLRAVSTGPVFSVDPGSGHLHMRYTARTRSRDE
SDSFDSGKGEGGRNVSVIVEFDDKVGFAARFNSYRFSVH D

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 A L PYGTKGDFPHPLVRTHPVTGRKALYVSPVYTVGDESMT AKADASKTEATHPVVRTHPETGRKALYVSVAHTAHFEGWT RYDYKQDFQTKHPVVVVHPETGERSLLAGNFVRSFVGGCS
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EESENLLDEI WKHATQEKYTWKWEKGDLLMWKNLNVLHKR GLKKEESDMLLKKLFDHQARLKWEEGSVVVWDNRVTAH G I E EQQ PEERELLDE LLAWQERFCYVHDWEPDDVVI WDNTGMLHGRA

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 ETGEKALLYLHQSKEEFVYRHKWEKDMLVV WDNRSVLHSA PVTRAAAQRI REILTEEVLRHRLAPGEGVICNN VLHAR YASKTAYAALCQAVGEATVEHTLTQESAMVDNNVRALHCR SARQETAAAFGALADRHRTTVRLRPGQLLVFDQLRWAHG EESRHLINMLNEHAPEFVFRHRWRGGDVVMWDNRCTSH

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$G M D E E V L E Q L F A V L Y E A Q Y E H V W R E G D L L V W D N G A V Q H A R$
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$E T A Q A L L M E L Y Q Y Q T Q E Q Y R H Q W Q P N M L V M W D N R S L L H A A$
$G L E H G A A R E L D D R L C R H Q V R F R W E P G S V A V W D N R A T Q H Y A$ PAAKELLQDLWSHAPADTYTHTWEPGDIVMWDQLGTDHAK A DESRALGDRLDDWAPRFALRHHWAPGDLVVWDNTGGLLHRA

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FPDVGVGEDDADLRNPDS
 $F P T L Q L S E \square R D L A D L V S Q R G V L F F R N Q D L T V D Q Q \quad M T L A$
 REAP T I R DVLERRGVVFFRGDD $\square G D E E Q V T$

ETLEELKQ\IGKYGVVSVRKLGPKSDDDLIAFGA
VPGA $\square$ LDALE
T Y G VLLFRGLH LDAETQVEFCRH
$\square G E E \square R D A R D Q L A D E D A R R G L V V F R \quad D Q Q E F \square D S G P E$ QEAAD $\square E$ A GMDKYA VLLIFRNQD $\square$ T DEQQ $\square$ AF A $\square$ N

LD DELRDALARFQ VIVFRDQPISHDAH

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100110
120
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GEPLP W
KFGLVL
$\square G E L T G K P E T S K L H R H$
$R \square G G K P F G Y V D S P R N R V V \sqrt{A}$

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AFCRKDGRVVS LRGRE $\square F T V S \square$
A A $\square G R V F G P P V A S \emptyset A K R R G V K A E$
F GRLDHDHPTSGAPRNHPELIT
AQDRAEDRDLLHRHGLLLFRGRLLSHPQQGAMECDGEVLH




DADYVAF GRQWGRP $\square$ MF $\square$ QS HRKDE $\frac{\square}{F} \frac{\mathrm{~V}}{\mathrm{P}}$


RFGE LDS $\square$ RPHKRAGRKMR $\square$ PQEE $\square \mathrm{FD} \square \mathrm{SN}$ D DNN

$\square G E \square D T S P G H H P V S G \square Y R$
GAPEGYPEV
$\mathrm{H} \boldsymbol{\mathrm { LV }} \mathrm{H}^{\mathrm{G}}$

DDGPAAQESFMRYFGKPNYQPDSGTVRNHFH $\underset{F}{V} H_{H}$


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A
Y L E F GRHFGR LH $\square$ HPTSGHPENYP FGNREKARGGT $\square$ TKKEDYR $\square$ T TG $\square$ ND $V \quad$ SN G VPRGFPD L H VT

H
$H \square D D \square R \square R T P A D D L G R \square A A \square F G T P \square H Y$ G G S D T


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| UniRef90-UPI000262A17F | DVF TSTEYPATEVISLHEMS |
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| UniRef90- UP100040D8B66 | DPSRNPTAEYGKGTGMESHHSDGTYDPTPVRTTALTA |
| UniRef90-J2G×46 | DVQPMNTGPYANAYYGT PWHADAT |
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| UniRefofo-18TAL4 | DGVGYTSTDASKGGLGTGELAFHSDLSFTPSPFQALSLHA |
| UniRef90-U7PLB9 UniRef90 K5X633 | EVSVISSEQNRKYYSSSKQLGWHADITGEERVPSDYALLKM |
| UniRef90-Gos9z8 | EISVISSEQNRRFYKEKYDRGWHADITFEHIPSDYATLKII |
| UniRef90-V6KA38 | MIS SNVVKDGKPDGVARVGNFWHQDSTYLPDPPEYTLLQG |
| UniRef90_wol3N8 | NLGPDGQPTRENDGLGSLEVVWHSDNSYUEQPPIUGSMLYA |
| W9Yxs0 | K |
| F6F139 | AAATPERYRDGAKF |
| UniRef90-Q2RKN1 | G |
| UniRet90 D3V1D1 ${ }^{\text {d }}$ | KGEKLGFSGNNTDFWHSDQEFRINPAS |
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| UniRef90_O6CIJ4 |  |
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| UniRef90-W9VT86 | EIVTTADAERTATAYGNAL WHADGTFNPRRTHLSML |
| UniRef90- UP100036FF | VSLDTAKNSSASYLRATFDWHDDGPADDAYPG |
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| UPI0004411999 | \VYRDPQEDRFAEYRGNSHLGWHSDVSYEKQPPGTTFFFM |
| UniRef90-B2J | PHRENGSSPFSPDAVWFCC |
| UniRef90-W2DYC9 | EAQDERKLYGPRDSGRWHTDTS WL |
| $\begin{aligned} & \text { UniRef90-NOARA9 } \\ & \text { UniRef90-LODU65 } \end{aligned}$ | KENTNYDSNDGGRANSWHTDVYYVDAYPQIA |
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| UniRef90-E3J9 | ITRDASKSNMAAYREAT FWWHFDGSTDTLPDK |
| UniRef90- X7YIE7 | WHTDVTFV |
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| Ree90 S8FF35 | HVHLVYRDANT |
| UniRef90-A7MRW6 | NVESSPQVSTVETKGNAPLEWHTDLTWREQPSKGAV |
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 EDERRKPVSNI HPLVRIHPVTGAKNRSFARRIVELKE EES
$P$ VDMGTDRLNERIPPAMPILAHPHTGEPILYHAARIEGUA QPNFVKDFKAEHPVVRTNPLFGAAHQVEAGWINGVSARES
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 ENVENGVVLREAQSGPVFSVDPETGRLHLRYERNVHWRDD E LCRKDPVVSLHPLVRVHPVTGEKS LIGVNDEWITGDQ EALQLRRNPNPRPQREHPLI WRHGSGRVLGATASHVVGWD YHNRKTANPDSPDFKDDEVLDHEPSGRHMLYVTSYAHSDE EMSYDEVAFWQKSPTKACPIQSGRKSLLLGATSDYVIGGLP
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 MYSRGSFKPVLQRLVRTHPVHRRKSLYLSSHAGAILGMSM $K A S Y A P R N L Q S H P L V H T H P E T G R E G F Y C L G Y V V G I V E R S D$
$K N A Y A P D A S Q M H D I I V R V H P E T G R E S V F G T A G Y I T G F D G M T$ $K N A Y A P D A S Q M H D I I R V H P E T G R E S V F G T A G Y I T G F D G M T$
$V D S P Q E Y N R G L I V S T Q P K L L Q L D D T G A L Q R Y N E V F R T P M$

 DMGYSRPSDNAAATQSHLIIFSHPETGTVGYMDGDEGLEG R PVRRDPVTTEHPLIRVNPVTGWKS LIFYSPGFVTAIS EATPARWQQTFGALARVA LRVGGLLRPYERDDGDFQGDVS $R F G N K P G T N P T H P L V L I H P L T G A P Q L F A F A G T A A G V V G M D$
$R F D Y A D S A E V E H P V V R V H P E T G E R V L L L G H F V K S F V G L K D$ VYRYERAQRDAVPPVDHPVVRTHPEKRALFVNAGFTSHDE AVLVRPDNSAMHPVVTVHPVTGEKGLIVVNSSYTERMGGWD RILRYRRSDDHLSEFSRRRAFCNS LLGPSVNYEPPRITWEN ASEGEEADNTVHPLVRKHPVTGKPSLFVNPTVARQVEGFML
 \PERVDDTDGVRAAQSGPVFSLDSSGLHMRYTARTRS IEW R $\square F$ LGDTEYDAAQRAA DPPRRHPGGRSSLF DGAHASRILD Y Y RVKKDYFTEHPLVRTHPVTGEKS GLEFSKGFVKSIG A ANVMYGSATLTHFMDLVCQHPVNGQEVLRFHEPTIRSKN A H S YPNPVT GEHPVVRVMPATGWKA HEQYREPITTDHPVVRVHPVTGWKSRSLETKKGDNVVPDIP I AVANDSIRNGGIFRRDPV ESIVMLVRYHPGFVTRID

 LKLFSWY LDTADKQNAFRSSYPVQRHPVVRIHPETVVGLD MHSRRRFPATHKKLVRRHPVSGRLSLLYLSGHASHVVGWPV
 EMSYE EDAFQKSPTKSCPMVWTHRSGRLLGATADYV DDDP

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



## 

## 

## E




 GWKKEETDWLDKYLMDHQVR LTTWKPRTVVLIFDNRSTCHTA


 EE E GI T L D R L F D Y A H N L Q QVRFRWETGGSVA I WDN R CT Q H F GYKQE ESDMLLLKFLY DHQARVVKWQEKTVVVWDNRVVTSH
 E LE KA DSDALLLQELYDYQFRHKWQPNMLVMWDNRSVLHMA



 ATTREAAARITTQMLESEDVPVRLAPGEGLLCNN VLHNR VEK K R A L A A LTE E A C QPVYTHKWHNGDDVAVWDNRCV L H R

 YESHVVLLELL QRTMPENTDRWNWEPGDVAI WDNRATAQHRA
 GLLKREESDTILLELLYSHHQARVVKWQPGTVVLWDNRVTAH


 EQESAF LLEFILEQSHDLQLRARWEPKTVVVWDNRNTGH
EA ES R A L L E R Y A T L P QL Q YR H R WQP H D MV FWDN R SVVMH L A

 D A I M A Y L D NVIV VAT QEDIHARYQWSPGMVAFWDN RTCNH SA



 P E E S D H L L S F LIK NHDRRFSCR VVK WE T G TVVVVVD QR T VVA H G $\emptyset P S E E S D A L L K F L F D H Q V R F Q W Q P H S I A F W D N R A V Q H$
 K QDAATLLAAVAALEADHVFKARLEPGMGLLCNN ILHDR MT LAA E GRMLLLLDDLLEHATYRHTVWP GD LVV I WDNRCTLLHRG PESSA LLNFLDAHINSTDFQVRAQHATVI AWDNRIVLHTA EAATDAEHAAE QAWDDFKYAHEWQAGDFVLSDNIAQLHSR FEQSEAQA ILQKLFQDTQVRFRWTPRSSALWDNRVSIH
 Q A E S A L L D Q L H E H V TVE Y V Y S HR WA A G D L V I WD NRATMH T A
 GLLK K E E S D A L L K F L Y D H Q VR AR H E P G S V I I WD N R V T EESSALLAMLYAHCQEFQCRVRWRAGDITMWDNRATWH A A ESEEL L R HLNDEVPEYQVVRFRWEPGSVADWDNRSTR H





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UniRef90_W9Z543

# A E Q A RE $\square E$ A A MDKYA VLVFH GQD $\square$ T DEQQMAFA $\square$ N 

DEVRA $\square R A A L I D Y K V I V L R G Q D \square D D A A H \square E$


SPE ECGSAMSK VIDE $\square R D E G G V L F R G D P D S S S E E F S R V V K$ LGTEVHGVLVDLDSDGRDQLALEVRGLIVFRDQH

LQDSSSDELAEVLQLVERAGLVIFRRQSLDD

KPLSQTDFAR $\quad$ HHRAHGDHH VLVFRDQRDTPDEQVAFSKR LLSGGAKVQE $\square R E \square L E R R G V I V F P E \square N L S D E E Q U A F T H T$

K DPDSDAK $\square R D \square A \square T \square S Q R G V V V F R N Q E \square T P Q E Q K D F T N R$ L VD K GVA D D A L A A LDE ET GV
$E L R R E L A D T \square S R R G V V F F R K Q D \quad D \square D N D L Q K V L A$ ELI R DLAA I I SRRGVVFFKNQEGSADEQKFVTDR

$$
\square \mathrm{QG} \square \mathrm{~V} \text { R D } \square \mathrm{DRYGFA} \mathrm{\square VR} \quad \mathrm{DE}
$$

$\square D E T Q V A A \square E \quad A A \square D R Y A V L \square F R D Q P \square T Q T Q Q L A \square A R S$

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

LTTH QRKAVED
AMDQHAVLIFRNQP LTQSQQDAFAKS
$\square G \nabla E V S A A R D D \square A L L V A R R G L V D F R N Q Q E F \square D S S P E A Y K E$


RDQD $\square$ S RAEHVAFARRFGE LEDHPVAGSDPEHPGLVR F GRRLGDLT T

GHPVW

D R $\|$ VRVVG GDP LDRYTERSTPRT
 $D \square F R \square A R R \square G P \square E E S S R K V C L S P D Y P A \square G Y \square S N D R$ ARRFGP $\square$ N $\square$ NRFF $\square$ AH

F G P


AFAQAFGAPMEYPQLKGLPECP
FSHRFGTPLPW KFGLLL

QR LGE $\square S G K P S T S K \square H \square H P V G R R \square G D Q \square S \square S S E Q A K E L Y S$ $\square G H L T G K P A T S G L H I H P V Y N A E R V G Q V V D E K G T Q N K D N E D$ AEHVGFA RRFGELED

RPFTYVDENDPGLAD
WRFDASDFERMAELYCLGPMYQSEFNRRMHTEGMSTRGVN



YAFASLLGEPTA PH
LIFARLLGTPVPHPT
AFAHLLGEPVAHPTVPVREGTR
TSK K HRHAVNNSKRNDTVNEGK DDDEDSVISSEEDNRKLYG LGPLDVGFKRV ARPHARLAHQELADDSNVD

## $\square A F A R R D G T P T T A H P T V T S R G H$

FAPGTVALEDFERLVALFGTLMNTPYTPETGKDGQL $\square G P \square D M G L R K L K G G P H R L E F A E L G A D \square S N V K V D G$

WGR

$$
\text { Y F G R } \square \mathrm{H} \square \mathrm{H} \text { P T S G H P E G H P E } \square \mathrm{H} L
$$

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140
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PAKFSL
160
EVTII
DWHSDMSCDEAPPMGSILY
GWHSDVTYEQQPPGTTFLYIT
WHQDVSYEDQPPGYVML G
$N \square L P D D A D Y S K A N S$ GAKADE WH WiDDVTFQPNPPVASILHA
VSLNPAVNSSAAYLRATFDWHDDGPTNGEPPQKATVLS
Y WHMDGMSYTVPVKATMLKC
WHTDVTFVDSPPLGSVLRA
QGGTDSPALGLHNDGAYRDPDEDYLLLMHC N■YロGPDNEYRSKRRSNTSTGYHSDVSYERQPPGITLTL AGTQEDGLHCENGNSPFWPDITWFYC DGKPLPRD HRAHLFNGGNCLWHSDSSFRAIPAKYSLLSA
 WHSDVTYEKQPPSYTSLKV
 TWHTDVTFVDRVPKASILRA VSN $\square K D A A G Q P \square G \square G D A G H Y W H S D L S Y K D K P S D G S L L H A$ SVTES $\square Y$ TSTEYPADQP $\square$ P E WHTDVS D
DHPEVRK
HADENSKHVAGEE DDFEYSASDQPPE VYRDANSSF VVYTGDNSSD ERYP DA GVGKEKEQKGNDGGGW IEPHNEHS
 MDTPVVK LEHERDNFGGV EVK DRQDARGLNNVL N PKKMDSKQTGVDGKURN
EDQRITRDASQSKLAASYREF

## DLFMKKQSGKE

 SVISSNLHRSLDVEPRSGA HPVVGSDPEHQIYKTPDKPDDWHCDATWREVPAMGCVLRC IVSNDMENGQSUGLGDAGKFWHSDASYKELPSMGSMLHA SQKPKKH GTPNSNSAPGLHQ QVGGLASGQHDVFNGTAGA
## RTDRKIVSNTANQL

## IVSNVTENGKP\GLGDAGH

$\qquad$ WHTDGSYDPDTDKTSILLC WH WH SD SS

EVITSDDPAETVLASYNTGTFHWHTDVT
 WH WHSDIS
PTVTSRGDQLLTDEGAAN
YSSTEYPAHQF
VPVKEDTQYNSDHGGRANSWHNEQA YLLELDGAEGQRANS
Y WHTDVTFVDAYPKASILRS DLVPHPTQGPVKGTASTLEDDWHTDVTFVDAYPKFSVLRG D RFKSSSHHLASEG DYAE 1 AVVKKDPDQQTN $\ G G D$

## R LDPDSRYDKANS

 WHTDHS$\mathrm{V} P \mathrm{QVS} \mathrm{V}$ IETTRGNAPMESY NAIDSSTKKTRMNYПWHMDT
EVADRQHAKIVGNVANQLTM
VYRDENSTFNFEREDSTSTGSWHS PLVHELDASRGGRAGAWHTD ETTKGNAPLESYWHTDLT

## S $\square \mathrm{HVIAFAE}$

LI S Y W I WRENPSKGAI L HA
ATNFGAGWHSDWSFQARPPAATHERS
HWHTDQSFDPAPAMASLEA
HWHTDQSFDPAPAMASILSA
EWHSDVSCDAEPPMGSULYM
DSKERSDDR $\square$ RKS WARKSP $\square Q F H V D Q S P E A Q P P G L T F F C M$ SHDRGDTEDRHPGFSTTAGQAWHVDGQ YTNRPDNWHTDGYY
KSSNDDQWHSDITF K GVQDREVIKSSNDDQWHSDITFERVPSDYAALR



UniRef90_A8TIS6
UniRef90_UPIO003B46157 UniRef90-V5FY47 UniRef90-E3BDC0 UniRef90_K9F7H9 UniRef90-G2P3W0 UniRef90_UPI00036631B8 UniRef90-IORK73 UniRef90-J2Q2M5 UniRef90_Q3M509 UniRef90_UPI0001FFF3D7 UniRef90-UPI00037475CF UniRef90-GOSFS0 UniRef90_UPI00041D7871 UniRef90-G2IKP0 UniRef90_UPI0004675B8F UniRef90-NOCMY9 UniRef90-I2BVP5 UniRef90_S3CQL7 UniRef90_A0A024JAW3 UniRef90_S6AIE0 UniRef90_H6N2F9 UniRef90_K0EZ92 UniRef90-J1EH64 UniRef90-K2RTR5 UniRef90-D2B1D2 UniRef90_V4KNN2 UniRef90_UPI0003731C56 UniRef90_L8G085 UniRef90_UPI00037E8818 UniRef90_C3YKB4 UniRef90-F8NKE6 UniRef90-B0Y8B5 UniRef90-UPIO00467789D UniRef90-Q0C3R1 UniRef90-C3Y9Z8 UniRef90_G4UZU2 UniRef90-R1CY78
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$F F G T R V D P P R G V P A T P R M V E Y T R G G R R A V R A S D Y A L P P R V$
 $K F V R R E P V A T L H P I V R V H P A T G Q K A$ TVSFNTSDDSUHPAIPVSPISQRPAGPSFNYEKPIIDTVS HDFTEDQLTNTHPAVRVHPVTGRKALFATSAYFKHFVGWN MYSRGEEKEMFKPVLQRLVRTHPAHRRYLSSHAGKVVGMS DYDYSTKFLTEHPVVRVHPETGERTLLLGNFVQRVAGLTG E Y DYAARKPDEHPVVVRVHPVSGEKTLLLGHFVKRLKGYSQ P D NVGGKELKKAVHPVVRTNPVTGWKSIVFVGGHISHINGDT KEQADDARRKGTHVRREPVITEHRVHPVTGYKAVFVNPES EASFGAAMDAE HPVVRRDHPETGERVLLFVNAFATHFTN Y HT QYDYAATVEDRHPVVRVHPETGERALLLGCFVKQUVGLSS


 RRRSTDPRLDDRQYEHVGPDFLLAEED GLDVTA DWDYSRRMD RLQYRPPMDTHHPAIRTHPVTGNVNLVYCTGFAELKKAES RLAF GRFDPAVHPVIRDHPVTGGRKILDVNFTSHINELPS
 GVVRREPVENVHPVVRKHPVTGHEALYVNKQFTRRIVGLK NMQAS DSRALGGTVVRREP TT TEHRTNPVTGWNSLPFNPES EPAHNHDNVPRVRVSHPALLVSPSSGKRCAYVSDNTDDFS
 PENVGE ILEA I HPVIRTNPV TGWRSVYAVGHHCQRDHGDD









 SPSFG IDD HP GVKKPVLWDNPSGRRLAYSSYGTKVAN RRRSTDPRLDQQYEHIGPVFHTGENGGDVTADWDYSRRAD
 P E NVVGS T L K A I I H P V V R T N P V T G WK S V F P V G G H V K H D N G L T LA R Y A R P N L T P E Q I A Q V K PVVVH P V V R T H L F V A Y D Y A T R T E T E H P V V R V V H P T G E R AL L L GH FVVK N FVVGLSA


 L Y D Y VGGE YETLLHPVVRVVHPETGERSSLLLGHFAKEFRGGKA EF DYARKRENEHPVVHIHPETGEKNLLLGHFVKQFVVGLSS


 VRSYGAGVNNGDPAHKMDVRTDDRAAYTLRFDGMTREES QFD Y A A DYDGRHPVVRDHPETGRRVLLLGHFDKQFVGLGV



 QHDY GLDRES DI D R FL E F R SVVE F E T E H P V V R I H P E T G E P L S


 E HTY $\square$ NT $\square$ NRGGTTFR L P V V R R E H P L V RYNPAFVIIHIA

 A N I E G GV E L R P Q Q S GP V F S V S A R G A L H M R Y TA R T R S K D D

UniRef90＿A8TIS6 UniRef90－UPIOOO3B46157 UniRef90－V5FY47 UniRef90－E3BDC0 UniRet90＿K9F7H9 UniRef90－G2P3W0 UniRef90＿UPIO0036631B8 UniRef90－10RK73 UniRef90－J2Q2M5 UniRef90＿Q3M509 UniRef90－UPI0001FFF3D7 UniRef90－UPIOOO37475CF UniRef90－GOSFSO UniRef90＿UPI00041D7871 UniRef90－G21KP0 UniRef90－UPI0004675B8F UniRef90－NOCMY9 UniRef90＿12BVP5 UniRef90－S3CQL7 UniRef90－A0AO24JAW3 UniRef90－S6AIE0 UniRef90－H6N2F9 UniRef90－K0EZ92 UniRef90－J1EH64 UniRef90－K2RTR5 UniRef90－D2B1D2 UniRef90－V4KNN2 UniRef90－UPI0003731C56 UniRef90－L8G085 UniRef90＿UPIOO037E8818 UniRet90－C3YKB4 UniRef90－F8NKE6 UniRef90－BOY8B5 UniRef90＿UPIOOO467789D UniRef90－Q0C3R1 UniRef90＿C3Y9z8 UniRef90－G4UZU2 UniRef90－R1CY78
UniRef90－R4WZG9 UniRef90－TolGN9 UniRef90 W2HK16 UniRef90－D3JH87 UniRef90－UP100035E80BC UniRet90＿N1SAU2 UniRef90－A0A016PZR8 UniRef90＿W6YWII UniRef90－A8L3J0 UniRef90－C7QCF2 UniRef90－U1HNF9 UniRef90－A8QC36 UniRef90－DoluT7 UniRef90－M4K5K3 UniRef90－R8BLL9 UniRef90－UPI0003B36397 UniRet90＿A1TTH8 UniRef90－UPIO003B4AA75 UniRef90－J3NPR6 UniRef90－UPIO00288D039 UniRef90－Q1LFS3 UniRef90－H6RCJ1 UniRef90－UPIo00373D89C UniRef90－GGYHV1 UniRef90＿S3BYT5
UniRef90
G1XUS9 UniRef90－W3RHG1 UniRef90－H5U5W0 UniRef90－14KJLL5 UniRef90－UPIo00366371D UniRet90＿Kow964 UniRef90－X5XJIO UniRef90－B8LUY6 UniRef90－AOKDU3 UniRef90－A3WAP4 UniRef90 E3HXC8 UniReffo－A1UFX5 UniRef90＿UPIOOO382D547 UniRef90－UPIo002F91369 UniRef90＿W1IPG7 UniRef90－G8LP66 UniRef90－D8PQ84 UniRef90－D3CX41 UniRef90－A8T9E7 UniRef90－B4RFR2
UniRef90 UPIOOO3B UniRef90－UPIOOO3B5B197 UniRef90－W3RMI6 UniRef90－B8MNB0
UniRef9O－A4TGX1 UniRef90－S3CVG2 UniRef90－E1CG30 UniRef90－11×534
UniRef90 W9Z543
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PEARMFTRD ${ }^{250}$ LHATQREYTYA ${ }^{260}$ RWRQYDLVIMWDNRAIVIMHRA ${ }^{280}$ A IESRALTYLYEHVQHPMFRFRWQPHSTAFWDNRCAQHS DSLLGFLLNHVGRGDDYQVRVRWAPKTVVVWDNRDTAH QAESRALDALYAHLPEHTIRHRWAPGDVGIWDNRATSHYA SETKWVMDFLMNHLHDFQVRVRWQPKTIVMFDNRSTDHSA RPESDALLQYHSESPRFNCRYRWQPGAVAMWDNRATQH TESAELFGLLQRRVTENTTRWQWQSGDVATWDNRATQHYA
PEELLADLLARATTEDRVYRHRWSVGDTVI WDNGGVLHRA

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 ELLESKALKWFSRLLHDLLQVRFKWQKNDI A I WWDNRSVVH
 A E S R G I LDD LL LYA H L


 DALLQFLTELIHSSDDHYVRWKWQPGS\｜ALWDNRSSLH


 EASSA LLMRLYAHAMDHAHRFKWQPGSVAFWDNRATWH D DE A EVLQQH R DVVWQVSMGFQMMQGGF LVLN NMYCQ HAR EESK H F L N WF VQLI H DLQVRLLKWQPNDVAI WDNRSVVYHAA


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PESSK R L L
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 P S Q S NL L R T F G D A V A R P E N T V R W Q T G D V A A W D N R ST Q H Y A ERHAEGSRGLLKELFPEHQVRFKWQKGSLADWDNRTTGHYA
 QLKRSESDALDEMLFR EEALLHTLNFLREHLHDLTVRWQWEAGSI ALDDNRVAVH DKESEALLGFHTTKPEFQVRWRWQQDDVAL WDNRVTQHYA




UniRef90 E0I7W0
UniRef90 W4L3S4
UniRef90_W6Q9Y3
UniRef90 G3AJF9
UniRef90 A3UCE1 UniRef90-M7T857 UniRef90-I9CGV6
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UniRef90 Q1GTZ5 UniRef90-G8PZB2 UniRef90_A0A024IAF4
UniRef90 UPI0002630739 UniRef90 UPI000471B8D2 UniRef90_UPI0003B5007B UniRef90-UPI000262B43F UniRef90 W5WCB5 UniRef90_UPI000288FA05 UniRef90_A3WC49
UniRef90_M4X0A9
UniRef90-UPI0004623E73
UniRef90_W9XWM4
UniRef90-A0A059F7H7
UniRef90 UPI0003780954 UniRef90-UPI00037E594B UniRef90_UPI0003B6D46C UniRef90 UPI00047E1AAF UniRef90 G4QGM2 UniRef90_L2GIG7 UniRef90_A0A031MGT3 UniRef90 X5WUE3 UniRef90 X6MLH9 UniRef90_M7SN87 UniRef90 U3QF70 UniRef90 A8L638 UniRef90-M0QFI4 UniRef90-D5VMM1 UniRef90 UPI00037F4B3D UniRef90 ${ }^{-}$K9WSD9 UniRef90_D3JH56 UniRef90_W3X6R8 UniRef90 UPI00047B0970 UniRef90_K9DE89 UniRef90_L2G6D4 UniRef90_11WUH0 UniRef90-17M7K1 UniRef90-W2EQ98 UniRef90_UPI0003830857 UniRef90 N9UUP5 UniRef90_J3F400
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UniRef90 Q4UR23
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UniRef90-UPI0003A325E7

A APNTADADSVLDVHPVAGR

A $\square$ S H P N P R A F $\square E N$ A T D $\square$ T P R

EFPNAS LKEWLEA

A A P D TESRPVPRVLAA QPDEGPAAWAADHRDA
EHGVLVFRGQHLQPAAQVAFARR

$$
\text { EEHS LLVWRDQP } \square \text { S DD } \square \text { QATFSRG }
$$

PNSDELLRD LIATVSQRGVVFFRRQN DLTSDLQKELV

VRAADAESGAVLLRGDGVRTAADV

$$
\text { GLI IT S LDDE G DVT A } \square
$$


$D D \square A L L V A R R G V V F F R G L D V D K Q R E L G R$

$\square P D A L V K E \square N D L L L \quad$ QHRV $\quad$ FFRGQDH $\square D D A E Q E R$

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UniRef90-W6Q9Y3
UniRef90-G3AJF9 UniRef90_A3UCE1 UniRef90-M7T857 UniRef90_I9CGV6 UniRef90-S8AWJ4 UniRef90-W9VL55 UniRef90-X2JYC1 UniRef90 QOKFN1 UniRef90 F3KSW7 UniRef90_S6BDX0 UniRef90_E5Z2V2 UniRef90-F8FLJ4 UniRef90-14BM44 UniRef90_D4QF25 UniRef90-IOWB26 UniRef90 Q1GTZ5 UniRef90-G8PZB2 UniRef90-A0A024IAF4 UniRef90-UPI0002630739 UniRef90-UPI000471B8D2 UniRef90_UPI0003B5007B UniRef90 UPIO00262B43F UniRef90 W5WCB5
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UniRef90-A3WC49
UniRef90- M4X0A9
UniRef90-UPI0004623E73
UniRef90-W9XWM4
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UniRef90-W2EQ98
UniRef90-UPIOO03830857
UniRef90 N9UUP5
UniRef90-J3F400
UniRef90-UPI0002D3BA1E
UniRef90-Q3BX99
UniRef90-D2C2H3 UniRef90_UPI0004414954
UniRef90-A0A021W3C6
UniRef90 F3JCH8
UniRef90-K5BB69
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UniRef90-M7SW90
UniRef90-UPI0003F49AD4
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UniRef90-M2V1W8
UniRef90 G9MY18 UniRef90-M3TM80 UniRef90-UPI00036F9002 UniRef90-M3B1Z0 UniRef90 E3QWJ5 UniRef90_UPI000317A3E6 UniRef90_C5AG79 UniRef90 M3UWW9 UniRef90-WOTPA1 UniRef90-A5EL19 UniRef90_I3AL61 UniRef90 ${ }^{-}$T114V2 UniRef90-D3X719 UniRef90_Q208A9 UniRef90 Q4UR23 UniRef90-A4JQ00
UniRef90_UPI0003A325E7

QEAFGRRLG

F G K LD F MP TVH $\square$ K FGPIHQSILDASRRRL
 $A D \frac{R L N D}{R} G N$

VFADLLGEPFAHPTVKTKEGSR AFARLLGEPVAHPT

AFAERपGEPLAHPT VP
AFARRFGD L E $\square H P A T P K G Q E D P$ $\square A F A S L L G T P T \square A H P T V P G Q G N A$

RDQD ${ }^{\text {D S RADHVAFARRFGEDEDHPVAGSDPKHPGLVR }}$ DF $\square \mathrm{DRGPDFYREW}$ GRYFGRLHDHPTSGHPEGLP $\square A F A Q R \square G D L Q E T N H P C S K G L H P$

AEARDALIAQRAGYKEKATPRTDFG

WGKPVQGNPLLKGLTEFPELAQV
REAH $\square$ S DS D LVS FSRLLGRVVLNPTEHERAE $\square$ A
F GPLELVKVGSV
GHGTFYSRMNN】GPDG L V H
DRMGK LS GKPATSGLH $\square$ HPVNNASRKMGGLDD

A A $V$ AEG $\square G \quad \square$ S A MTEREGFAPR
FRDQD $\square$ T PMEQQHFAAQFGD $\square E G H P \square A P S A D K L L M \square Y R$ QLRGHPEV TS DY LLNQ Q RTHGY LILRRGRHS $\square A D F S E R V R S T S S R \| L D$ QRE LVVVRS $\square A D T P Q Q Q \square E D A A R \square G R P D P F V L D K Y R H P E F$ $\square G N P N L K L H S W A P Q \square E T T T F G D D E V I P N G L P L D N H G E \| L Y$

$$
\begin{aligned}
& \text { GFARRFGETVAHPTVP } \\
& \text { YF GP L H THPVLAVPRRNG } \square D \\
& \text { F GELEDHPVAGSDPEHPGLVR }
\end{aligned}
$$

$\square \mathrm{WP}$ $G H \quad \mathrm{PV} W$
$\square T$ E $\square$ A GCPESS G $\square H \square H \square T E E G S E \square G D Q \square S V I Q K K G G G \square T H$
${ }^{1}{ }^{\top}$

| FAAR $\square \mathrm{GD} \square \mathrm{T}$ A | GHPVW |
| :--- | :--- |
| F A KR $\square \mathrm{GDLVPHPTV}$ | $G A \square K G$ |

R D R D A P VT
QLR G HPEV D T D QLYEQLAHSGVLIFRNFADTLDDFNRFVS LHSARVTF
 UniRef90-A0A024IAF4 UniRef90-UPI0002630739 UniRef90_UPI000471 B8D2 UniRef90_UPI0003B5007B UniRef90-UPIo00262B43F UniRef90 W5WCB5 UniRef90-UPIO00288FA05 UniRef90_A3WC49 UniRef90 M4X0A9 UniRef90-UPI0004623E73 UniRef90-W9xWM4 UniRef90-A0A059F7H7 UniRef90-UPIO003780954 UniRef90_UPI00037E594B UniRef90-UP10003BB6046C UniRef90_UPI00047E1AAF UniRef90 G4QGM2 UniRef90-L2GIG7 UniRef90-A0A031MGT3 UniRef90 X5WUE3 UniRet90-X6MLH9 UniRef90-M7SN87 UniRet90_U3QF70 UniRet90 A8L638 UniRef90-MOQFI4 UniRef90-D5VMM1 UniRef90 UPI00037F4B3D UniRet90-K9WSD9 UniRef90 D3JH56
UniRef90 W3X6R8 UniRef90-UPIO0047B0970 UniRef90-K9DE89
UniRef90-L2G6D4 UniRef90 I1WUHO UniRef90 17M7K1 UniRef90-W2EQ98 UniRef90-UPIOOO3830857 UniRef90 N9UUP5 UniRef90- J3F400 UniRef90-UPIO002D3BA1E UniRet90_Q3BX99 UniRef90 D2C2H3 UniRef90_UPIOO04414954 UniRef90-A0A021W3C6 UniRef90 F3JCH8 UniRef90-K5BB69 UniRef90-F4DXG4 UniRef90-UPI0002D3130A UniRef90 E1T5K1 UniRef90-M7SW90 UniRef90_UPI0003F49AD4 UniRet90 A9BT81 UniRef90 K2RG93 UniRef90-I8PE90 UniRef90-M2V1 W8 UniRet90_G9MY18 UniRet90_M3TM80 UniRef90-UPIOOO36F9002 UniRet90_M3B1Z0 UniRef90 E3QWJ5 UniRef90_UPIO00317A3E6 UniRef90-C5AG79 UniRef90 M3UWW9 UniRet90-WOTPA1 UniRef90-A5EL19 UniRef90_13AL61 UniRef90-T114V2 UniRef90-D3X719 UniRef90_Q208A9 UniRef90 Q4UR23
UniRef90-A4JQ00
UniRe90_UPIOOO3A325E7

130
140 140 WH ${ }^{150}$

160 VTNVEADGSVDHFGVRRATMWHTDATYEPKLPRLAMLYA RQSWAGRSPVQWHTDQSPEQQPPGTTFIAM SSTNSLSWHSDCSYSDNGDQ TT FSC

HWHSDWSFLAQPPKGTVLY WH SDMI EPDPSDYSLLR DLVPHPTVPSLAGTAGVLDLDWHTDVTFVPAFPADSILRA TREAMPFHYDGVFKTVPPLFQMFRN NTLSTNRF TSMSMKGNQL WHADMQYHPHRDKYSLLRG DDVKGNDKDATAPAYGDSNLLWHSDLTFRARPARDTLLSA $\square V S N \square K E N G Q P \square G \square G D A G H Y W H S D L S Y V E K P S L G S M L H A$
 TYPITLGKDKNSGHGGRADSWHTDVTFVADYPKASVLRA HTGEAQGWHTDGLLEDDGTVKTTLLY WHSDWSFQARPPAGTCLFG $\square V \mathrm{SNDENGQS} \mathrm{\square G} \mathrm{\square GDGKFWHSDLSYKEDPSDGSMLHA}$ GWHADSSYKPVTAAATMLWG VAPGSRFLLEDDKEGEAASAWHTDTTFDPAYPAASTLRA ElLRITHDETSKGHGREAWHSDVTWRPEPSLGSILRA VVSNIKEHGQPDGLGDAGHYWHSDLSYKPTPSLGSMLLA

WHKDFT
HTAATKREADETSTDFAENWHSDWSFDRKPPSGTCLMA I YKTPDLLPNDRYENA WHTDATWREVPPMGCVLRC ELLHLVYRDANTTYNFEQDERTWHSDVSYELQPPGLDTFFL ALLPLAADKDSKFAPGEA WHSDMCEEPYPPGYS LY SWH SDVT WREAPSGGSILRA EGVFSSTDLPAAQPDRLHNENSYTLDFPGVLLFGC SRHGGKANVWHTDGSGFMASYPSASLRAB SWHSDWSFKAVPPTGTCLFG SWSRKSPVQ FHVDQSPES
WHTDDTAQE VRNK WH DDWSCMDAYPK ${ }^{\text {WAVLRG }}$ VRNKVHGNVYTTNESDAK 1 PFHHEMAQTPNHPYYLDFYC WHSDSIYTEVPPK\|S\|LSA T■TLDPAKTDATAWYRKGNF पWHDDGATDQLPQKATL LT QVVPLRDMAMIVARANQL WHTDVTF VEAPSMGGVLR WH DSSFKRLPALASVLSA
IVTNLGADGNPSGKVAST GWHSDKSFRPRPSLATILHA
HI STISYEQRKMYGRTSAKEG | VVNIKENGRP| GLLGDAGVF WH SD WHTDL WHKDGS
WHKDGSFEQPGKNFLLSA
DLDYRGGQKVDRWHTDVTFVDRPPQASVLRA
TAHAPGLYSSSHWPSDEPMCMHHELSYAATVPGILVFGC NLDPSKPKSFV EKASRENLWHTDVTFKPAPPRGA RA VYSNGTRGNAPKESYWHTDLTWRSDPSKASLLHA LVVSNDKENGEPTGLGDAGHYWHSDLSYKQTPSLGSLLHA PARSFDGDTAQKVDAGYDKVGLHCENGNSPFWPDLCWFYC E TS SNEVRDNKP $\square$ G $\square$ ARVGNFWHQDSSFVANPAPYT LLHG DFCDKTQDEHANHTKGKGTSCWHTGDSEADNVETDNCLYA
 SHAGSADLLDLDSAHGARANSWHTDMTWQEAPPKCSVLSA WHSDITFEPVPSDYALLR
DVVVIYSDKDSRYAFSRVEL -YRTPEQPNDRYENS FHSDV WHCD WHTDTEEOAPADYCLHC WHTDVTFVDRTPKASILRA

DLLATERPANFRNPGGASR SWHTDVTFIDRSPKASILRA DLLATERPANFRNPGGASR WHTDLVHEHQPAGITHLHN DSGDVPDEVYELDSADNGFADWHTDVTFMPRPPMGSDLRP

QLS DVSRFASA
GRTAARAN VVSNVTTDGKPLGYPTPPFQLWHTDVTFVDRPPLGSILRA DSGADLPAEVYSLDSTDNGFAWHTDVTFMPRPPAASILRP TASILELDSGRGGGRADSWHTDVTFVDAYPKAAVLRG EVTRKADSDHPVFHTGAAQ GWH\|DGSFQEAPFSYGSLYH KGNMGWHADSTYMPVQAKGAVFSA LVVSN DPARKTSTENTAEDAGELEMGLHRENGNLPFTPDLQWFYC

UniRef90_EOI7W0
UniRef90_W4L3S4
UniRef90_W6Q9Y3
UniRef90_G3AJF9
UniRef90_A3UCE1
UniRef90_M7T857
UniRef90_I9CGV6
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UniRef90_W9VL55
UniRef90_X2JYC1
UniRef90_-Q0KFN1
UniRef90_F3KSW7
UniRef90_S6BDX0
UniRef90_E5Z2V2
UniRef90_F8FLJ4
UniRef90_I4BM44
UniRef90_D4QF25
UniRef90_I0WB26
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UniRef90_G8PZB2 UniRef90_A0A024IAF4 UniRef90_UPI0002630739 UniRef90_UPI000471B8D2 UniRef90-UPIO003B5007B
UniRef90-UPI000262B43F UniRef90-W5WCB5 UniRef90_UPIO00288FA05 UniRef90_A3WC49 UniRef90-M4X0A9 UniRef90_UPI0004623E73 UniRef90-W9XWM4 UniRef90_A0A059F7H7 UniRef90_UPI0003780954 UniRef90-UPIO0037E594B UniRef90_UP10003B6D46C UniRef90_UPI00047E1AAF UniRef90_G4QGM2 UniRef90_L2GIG7 UniRef90-A0A031MGT3 UniRef90_X5WUE3 UniRef90-X6MLH9 UniRef90-M7SN87 UniRef90-A8L638 UniRef90-M0QFI4 UniRef90-D5VMM1 UniRef90_UPI00037F4B3D UniRef90-K9WSD9 UniRef90-D3JH56
UniRef90 W3X6R8 UniRef90-UPI00047B0970 UniRef90_K9DE89 UniRef90-L2G6D4 UniRef90_I1WUH0 UniRef90-17M7K1
UniRef90-W2EQ98 UniRef90_UPIOOO3830857 UniRef90-N9UUP5 UniRef90-J3F400 UniRef90_UPIO002D3BA1E UniRef90-Q3BX99 UniRef90_D2C2H3 UniRef90_UPIOOO4414954 UniRef90-A0A021W3C6 UniRef90-F3JCH8 UniRef90-K5BB69 UniRef90-F4DXG4 UniRef90_UPIO002D3130A UniRef90_E1T5K1 UniRef90_M7SW90 UniRef90_UPI0003F49AD4 UniRef90-A9BT81 UniRef90_K2RG93 UniRef90-I8PE90 UniRef90-M2V1W8 UniRef90_G9MY18 UniRef90 M3TM80 UniRef90-UPIO0036F9002 UniRef90-M3B1Z0 UniRef90-E3QWJ5 UniRef90_UPI000317A3E6 UniRef90-C5AG79 UniRef90-M3UWW9 UniRef90_WOTPA1 UniRef90-A5EL19 UniRef90-I3AL61 UniRef90-T114V2
UniRef90-D3X719 UniRef90_Q208A9 UniRef90-Q4UR23
UniRef90_A4JQ00
UniRef90-A4JQ00

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220
230
240
A Y D Y A T AllE TEHPVVVRVHPETGERHLLLLGHFVKRF\|VGRS $N V G P A G G A D A F E D Q R H P A D L K H P H S G R S I L F N P A H T Y G F E$
 $V M G Y S E H V R F T H P L V P A H P E T G R R G L L S D G Y W D G F E G V D D$ $P$ S F S E P T E K V H P V I R T N P V T G WK S V Y A I G H H V K M I H GL H
 S L I H N R R T GAP DL Y KDVDPMS GRKNLYVTSYGYKIDGMSV DE ERRRQAPAVRHALLVRQHPDVSGRRSLLY S S SAS H V V G WP L L GYSRQGAYGEKDKGRSMA IRYSDSAHPIARKHPETGRTAD LCKYEELRARPEQDAKVPPHVHPVVRTHLFVSEHFTTRDE


 RAEFQSYFETEHPVVRVVHPET GERTLLLGHFVKSLVVGLS S





 $G V V R R D P V Q N V H P V I R K H P V T G D E A L V V N R Q F T R R I V G L K$
 GYEWLDEDTLRTRRQL RSADITTHPVTGEQVWFNFWNARS LD
 E LA DADESSEAWHPIL R PHPDTG RLGGVFFLTTPKRCABEVS G KLAYSPGNPDPELKSAMQPI DSSRARPLLITHPDNIIEGMQ

 Y VRHLP DSDDHSSPI GRSF LT DDKHEPAIRWDNRTAHDGS
 A A A QRRA APDRVPTRKHPLVWTRGNGRLLGATAGEVVGLP

.


 LAAK YE QA QI D E V K P V N H P V V R T H P E R K A L F V S E H F T T R L L A H A Y LD H DERA H P LVVRVHPAT GWKA LWVNRAMTBRDVGLDD TK S F PEKTRATHPSVAHPVVRTHPERKTLFVNEGFTTE』D


 EHSFGAQMPREHPVVLIBHETGEKNFEDIRYGQDFM





 HGFS GSRFDNE D I NAVVHHPDLHPETGKPALNVNEQFTRFDD



 E Y D Y A G V $V$ H A D E H P V V V R V $V$ H P E T G E K S Y L R H K R K G Q G N T W D G R E V T E L L V P V
 WGKQGPPAEYEVPVNEHPVVVRHPERKLLFVNRPYTSHIDP T F F H DE A R K A V H P V I R T N PVVT G WK SVVYVNK GFTKRDNGVT

 IPPNVVNGEE LIRGWSRGPVFMQQDD GLHMRYTRNDEWRDD AYDYAATRSREHPVVRVVHPETGERTVLEGNFVQRFVGDRK TKSFPEHKHLLDHVVRTHPVSGRQALFVNE GFTTR VDLA




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$G L P Q D E D A L L Q A L F A H S Y R H R O P H D V F W D N S V T H L A$

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EESRPVLEYLFSVASATTFRMRWAPGTLAI WDNRCTWH

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 $P$ Q E GA A L L S L VA RA T E H T Y $\operatorname{C}$ V H A WR P G D





 D V S E A VI


 $P$ I P D T L L A E M D D L C E S L T F D V G WQ Q G D V V L I D N T R V M H GR



k





 K A E S DV L N Y L F DVYYEK N Q LTR WK WT P GT S V L W D N R IT I H E E S R A I L D M L Y A H I P E H I V R H R WR A G D L V L W D N R N T L H Y A E L S V D E S N V V L N L L F D H Ql R F N WS IDN DMAA F WD N R C C M H


 EAES R LL D A F Y GHLLP E H V VR H S WS LG DVVVLWD NR STA H

 $P$ E Y R R I L K D I H E E F V




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| UniRef90-X2JYC1 | TPFESTEHRRERW |
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| UniRet90-O3BX99 | AG TPDHLRRRLNRTT\EGD |
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E VRDVEHQMDKKAVLVFRGQPLDQDQQ $\quad$ RAFARN A VIRDLACTDSQRGVVF LRDQEVTPEQMKQFCLR AE L R S LVAT DGAVLVRGLGVRTAANVSHTLI

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DQ $\square$ T A A RQE $\square R$ AR $\square R E H G A V L L R G F G H D G V D G F E Q T$
HRLLRWSGEALAPDDELAFMKL $\square$ PHDGSPGAAHGPQ $\square$ QDR $\square$ RE $\quad H G A \square L L R G M P A D \square T V F N Q V T E E$ $D E \square A L L V A E R G V V F F R N L P P R K Q K E \square G E Y W G$

FPT LQ Q $\square \mathrm{AK} \square \mathrm{RD} \mathrm{D} \mathrm{A} \square \mathrm{LV}$ V QRGVVFFRN $\square \mathrm{K} \square \mathrm{DDQK} \mathrm{\square LGQK} \mathrm{\square G}$

EAVKE $\square R$ QA LLK WK VVFFRGQN $\square$ DHTAQ $\square$ AFTAR

WA A Q Y R EVL
RT QVT E H G A LL I R G $\square G L R$ D T E QV G

A A LLDE $\square$ RTAVWEHGVA $\square$ FRDQDFGPQEH $\square$ AFARA
 RLI RDLAVTISQRGVVFLRNTPQQMREFMEKLTV

FAAV
REQ $\square A A D R G A \square N K W G V V Y F R D Q H D N H A Q H \square A F G R Q$ PS WVAE HREALRAQVTGHGALVVRGLGLRD\DQ

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GVPreeg Leevir

E $\square$ T GKPASSR $\square$ HRHA $\square S \quad$ NSKRG $\square$ A VDENGK $\square D D$

F GEVTYAHPHEDEPT
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A $V$ F S R $L T$ G GLLTERESFAPRQEF G
VY R

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GSHPD
F GDVTPGHPYEGD $\square$ AP S GFPE $\quad$ HTVSPQAYQ

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UniRef90 Q3SJY5 UniRef90_N6YFD8 UniRef90-Q745N5 UniRef90-S5VHYO UniRef90-UPIOOO36A7BD7 UniRef90-FOYG64 UniRef90-B5GZF7 UniRef90-T0M851 UniRef90-M1SRE8 UniRef90-L2FIM2 UniRef90-UPIO004773451 UniRef90-G9Z3T0 UniRef90-G8AXU3 UniRef90 UPIO00378B395 UniRef90 F4XWR9 UniRef90-UPIOOO2557065 UniRef90-P96312 UniRef90-N9HTA9 UniRef90-S3C3P8 UniRef90-S8B4M0 UniRef90-GoSAB0 UniRef90-J4SKF1 UniRef90-S5TKB4 UniRef90-U2B7C9 UniRef90-C4WXH7 UniRef90-R9V155
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UniRef90_V6KUHO

130
140
150
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 p TDSRRYAEQYGRKRTSYDSS SWHTDVTF | EVAY |
| :--- |
| VDR |
| LIN |
| 1 | RCDVLL RVQAEMTGETPKGGKTNNHFRYHTD

RCDVISLMS WHDD WSCMEAYPKMSVLRG DELTDSG LDNRAVPFSTRHCNWHTDATYYNHTDQALFLDC信 NVVPTDHRLALENKANQLRDWHTDSSFKRVPALASVLS S QGVYSSTAWPANQPMC

## ETTRFEKDANMKGQENN

EVNKESपAQHY TSTEYPAPFP

WHTDVSWRLE PSLGAVLDR
TGLHAQESTF HKKTATYGVLAAC EWHSDCCFEPVPADYSCHAC WHTDVTFLEKPAMGCVLSA WHSDIAFEPVPADYSSLR NLVPHPTVPDVDGRGERASSWHTDVTFVNTPPAGA\|LAA
 FHSDMSWRMNPSRASLC
KVADREARESVGNFANNQL AVDGTDFUFELDSQKGARANS Q $\square$ SDVRFASA

WHTDWTFQERPPAFTLLYG
 WH TD
QF
WHSD
WT WHADVT
ERGMYSSTKWPSDOPMCMHHESYLINPPSHSILRA
ERGMYSSTKWPSDQPMCMHHELSYVPEVPSVLAFTC A $\square W W H \square D G T F Q P A P F S Y S L Y H M$ DVATLVRHTGRARREWHSDVTFEPDPSDYTVLR VAQGSRYLLE पDSREGYAASSWHTDVTFVNAYPKGSILRG ST TKGQVYTSTDYPPSEEDFWHTDHSYDTEPALGSILVAC SDYTRMAAVWHSDTAFEKAPADFSSLR SDYTKMAAVWHSDISFEKAPADFSSLR
 FKNCDYGNFDRVRYGRMGNETWHTDLVHVRQPAGDTHLH SKDTLDPAESVLAAYRRGTFFWHDDGANDEDPQKATLLTA HELDSRHGGRANSWHTDVTFVDAYPKASILRA VVYSENNRRVRDPSQFSK पQ पWHSDVSYERQPPSTTSLKV IVSNTIEQGKPVGLGDAGKYWHSDMAYUPYPDVVMFC EVSVISSEQNRKYYSSSKQLGWHADITFERDPSDYALLKI WHTDVTCDETPPAIVALSG
ANVFTVDGGNGAFADHPELSREPWKPD\AFFGC
YEGRKSSHRHYGAAQWHSDIQREPVPADYTSLR
पRRSSYESRWHTDVTAVVNPPTLSILRA DLDTRRDREPKAGAGGARADQWHTDITFVEAYPRITILRS 1FADRFKARYGSSRGYDKANWHADVTAAVNPPAASLLRA

PGLYSSTAWPANQPMCMHHELSYTQEPPGLMLFAC
 DFTAGAVDNETKDNBTSVAN
DFTAGAVDNETKDNVTSVAK K
GTSGDGAD
GADGKY
WH S DMS
WHTD
RNNSAWELDEYGAEKNSS
SWHSD
A LLHDAKETRANS
SWHSDIQFEQYPADYTSLR WHTDVTFVANYPKISSLRG
WHTDTT WRENSLGAVLRC SWHTDLTFKVEQ SFASILV WOTDLVHERQPSGTHLHN
ELHLVYKDANKTFNFSDTSTSWHSDVSYEKQPPGLTALF YYKRPDQPNDRYENA WHTDATWREAPPMGCVLRC

YWHODGQFWO WH TDATW
AFPETAVVGKRADQTTNTGGGWHTDHSY DQTPAMGSI RC DPARVMVGGAAQVDAGRDAVGDHCENGNSPFWPDTTWFYC ETRTDSGANNVAGNG QL

SDTSRFASVGG SAHGGRANSWHTDVTFDVAYPQASVRA
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AVLPDNSDHGKANS


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$L$
 LDQPALGGD TLFLSQVEAYNRLSPAFKKRLEGLRAVHSA
 HILPPYGGDENLPASVREFVDGLDAEHTFEQRAARGGSRA IRPAPSGGASRVCSAIYNALDERDPELAHALTQPDDRDW VVIPPVGGDTMWSNTAAAYLDLPPALQRLADDLWAVHSF KRPALEGGSNKVLDHEVLYIHLRDKAPEALDVLMNRDCF VEVAKEDGGLTGFGDLAKAYDALDDDTKALLAKLEYSFSM LT APE QGGATAVADAEAVLGALCAACVVERFERERYCRER



 K ELPSTGGDTLWTS GDAAFEALSPPLQTMLSGLQAEHDF


V
L
L
 DIAA ETGGATMPA DSRAMY RLL LVVPPY GGETLIANSSAAYRDLPEPDRAFADTLRAEHTN $L D S I P N V G G D T L W A S G Y A A Y D K L S E E M K K F L D G K K A V Y E S$ $H Q V S D E G G D T E F A N T Y A A Y E A L S D A E K E Q F A K L R V V H S F$



 $Q H V P H C G G D T L W C S M T A V F R Q L$


V TVPH GGDTMWCNQCLLSYDRLL
 $\stackrel{L}{\mathrm{~L}}$
 QA LP PAGGG TGFADLRAARST L S RECPPVGGDTMWANMVLAYE



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UniRef90 ${ }^{-M 1 S R E 8}$ UniRef90-M1SIE
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 FTLYDKPRGNPHPIVRTNPVSGWKSIFPVGGHVKHUNGVT RKSFGEHQRWREAVAKHPPLLDHVVRTHLFVNEGFTTRDD VYDYVGDRETEHPLVHVHAETGERSLILGHFVQRIVGLPS QKGYDDVTNDVQATHPAVIKHPDTGVPLLYLNSNFTVSLE EMAYGVNARHNALLENMAI RYGSDTSAEVRINPAYTTGUP TDYSESQRNAMPPVSWPLVRTHAGSGRKFLFIGAHAGHIE EYDYGGPKQNEHPVVVVHPETGKKSLLLGHFFKRLVGFSQ AGFVRLAKERPHPVVRTNPVTGWKSIFA|GNFPVRVNERS PENVGEALEAI HPVIRTNPVTGWKSVFAVGHHVQRTYGLS
 EASFGAAMDAEHPVVRTHPETGEKVLFVNAFTYHSQDAN EASFGAFPDAEHPVVRTHPETGEKVLFVNAFATHFSNYHT
PENVGDKDEADHPVIRTNPVTGWKSVFAVGVHVAKVNDLS


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## T

UniRef90_V6KUH0

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UniRef90-F5XI27
UniRef90- XOP314
UniRef90-N9ASZ7
UniRef90-13U807
UniRef90_V6KUHO




Y D G D R L F E LFES H TQENTVR WK WN R G DVA IVWDNRATMHCA SEDAAARQVLESLIS DESAQVRLESGMGLI SNN VLHTR DES IIELLERLVAHTPEFLYYHQWRQGDMVLWDNWRAMHCA | A R ELL |  |  |  |
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| $P$ | $L$ | $A$ | $L$ |






## A




PEEQKWFARFEELLYAQTYSHRWEQGDFVFWNNLALQHAK EESTELLNRVFEQANRPVLCHSWTKGDVVIWDNFGVQHAB GRPVAEGRMLLAELLEEHAYRHRWKVGDLVMWDNRCVLHRG
SDSQLLFNILQEKVTRPENTVRWQEGDVVIWDNRSTQHYA
 EESKHFLNWFVQLIVENQVRYKWKVNDVAVWDNRSVYHAA
 PGASDLLRYLQAY!PEYQVRWRWQPNSVAIWDNRSTQH HEEYEALSKI NQDNGKY YVHKWEPGDFII SDNDAVGHFA PEAGELLRYLQAYDPEYQVRWRWKPNSIAI WDNRSTQH EEESHLLRWFVSLIVENQVRLRWEPNDLAI WDNRSVYHAA GLGQEESDELLTLLYRHQFRLRWRPDTVA】WDNRSTQH ADSARLFNDLQDHITRPEVRWRWQPGDVAFWDNQSTQHRA
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 RRESASLQWFHDMI HDLQVRFKWNPNDIAI WDNRSVFHTAA LLAGDELQLLVAKVLARGERSLKWTPGDFVVWDNRALLHSA
 GESRDILRLLQSYVPENVVRVSWEPNQLVLFDNRITAGHA PVESDVLNYLFDVYEKNQVRFNWKSGTSAI WDNRSTQH R DESRALLDRRLLEWSTRQR FR HHWHRGDDVI WDNTGMLHRA

 $A L K A S L A F M N D H Q V P H K W K P G D V M V V N N H A V L H S R$ E ESRQLLDELHSVRPEHTYRHVWRDHDLVFWDNRSLI HLDA A RESD ILKAFLQLIHDDQVRFRWNKNDLADWDNRSVFHTA



 RDDSNALAKLFAMAPEYQVRFKWQANSLADWDNRSTQHYA
$G \square S E Q R S R E L D D L L F A H S Y R H Q W Q P H D M V F W D N R S \square Q H \square A$ AESTALFQLFQNRITKLENTVRWELGDLAVWDNRATQHYA QEESTS LLNFDERGQDWHSRVHWKPGTVVVYDNRNTQHSA
 A E E S R PLLLDFHSSTSPD NVYRHMWWQ G DVVVMWDNRCTTMHYA

 P E RVVRYGQDFQA TIP E Y QV RWRWKPNSI AI WDNRSTMQHA PNESNALR DWLAN HMEF QI R WRWCANDVAMWDNRVTMHYA K A E S D A L N Y L F D V Y E K N QV R F K W T P N T S A L W D N R I T I I M
 EESENI L R FLY DHI D DCQARVKWS SNAVVLWDNRVTAH P Q A S DL L R Y L Q A YLP E Y QVR WR WK P N SVVAI WDNRST QH LLETAEAGKA L L S $\quad$ K Y A WDVG DV L V WDN T QV L H

 QLSADESSRALLDLLFKVACRVRWEPETVVFWDNRCVQH K D E S D V L L Q L V T Q N H DA QVR FK WN K N D L A I WD N R S T WH C A A D S E H L L L L L L D S Y V T R R L E N T V R WR A G D V A I WW N N R A T Q H Y


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UniRef90 UPI000464FDE8 UniRef90-UPI00046359D3 UniRef90_A9LFI2 UniRef90-UPI0003B7B6F9 UniRef90_Q3SJY5 UniRef90_N6YFD8 UniRef90_Q745N5 UniRef90_S5VHYO UniRef90_C6CTA3
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UniRef90-S8B4M0 UniRef90_G0SAB0 UniRef90-J4SKF1 UniRef90_S5TKB4 UniRef90-U2B7C9 UniRef90_C4WXH7 UniRef90-R9V155
UniRef90 B8NYF0 UniRef90_UPI000464C483 UniRef90_G2IPQ7 UniRef90-19L1K0
UniRef90-M9U8F5 UniRef90-G7XZG0 UniRef90_B8N772 UniRef90_F0Y4W4 UniRef90_D3JH82 UniRef90 R4SQW6 UniRef90-R4T0J4
UniRef90- I2K0F4 UniRef90-A8LCQ3 UniRef90- S4XUU1 UniRef90_E3GAA0 UniRef90_R7RWQ7 UniRef90 ${ }^{-}$D8TCB1 UniRef90_UPI00047DC288 UniRef90_S3BXT5 UniRef90_G8AVT5

T P D Y D A S K ER R HCVR L
A I D Y GDQH RVVRRVTVAGD
AIDD Y D GTEHRKLTRITLAGDDP
$\square P D A G H L G H D R V L Y R V T I E G D V P K G V D G R$
$T K D Y G D Q R R D V R R A T V E G E V P V S V D G R Y S V S R$
EK L V D S D DAHKRLLFRA

EPFTGE RRVLVGMAGPRRLDDG
SS D Y YPNRRVAERIVSILGDRP
TA DYSPARRIMHRATVLGD
D TFKGDRYHAVSWFGGLVKDRP
DPFTG
T Y D F WEMGDRHGCR
ASFD YGDFHR $\square$ MHRATVMGDKP

$\mathrm{NA} \quad \mathrm{D}$ Y L L P QRRI MHRATI LGDKPFYR
VD D Y DEQPRRVRRDVVTGEPPVAVDGRRSFLRSV
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ADY LGLRRMHRVVAHDDLRTERYVGETGD
PVADYHGMRREMYRTTVVGEVVPSR
$R G Y D I T$ ARRELRRAT TVVD
VN D Y G D Q H R V V R R $\square \mathrm{T}$ LA
T NDYDRLGDRAGHRA
TPDY $\square$ GEDLGER
$R D Y E \quad H \quad L E E R \square L H R \square T L V G D \square P F G P D G R R$
E P YKGSRE
HS S T P R S E VGLRVLHRTT $\square$
TGFGPRTGHR

E P Y N T G Y H GHRREMHR IT I
TGFGP
G N R A
TGFGPRSGNRA
TPNDGFSPEGLRLLHR】R LAGNL
EPFTGK
VD N Y D D L P R R L N R VT VA G D
$T V W$ D HE GLEPRHGTRV
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$V N D Y G D Q L R V V R R V T V D G D$
A MDYPACHRKMERAGIDMGDRP
T YDYGQATRHALRATPQGERPDSVEEYEKDGKD HPSKPPRRLL
TGCPPHL RRKLYRTT $L E G D L P$
T $\quad$ VNDY L P HSRLLMHATVLGDRP
TAIVDTAER
T
D Y FPHRRVMERVS ILGDVPR
AP QDLD H L E VERVLYRTTV KGDI RSQADEGEPFGDEVP $V N D Y G D Q H R V V R R V T I A G D V P V S V D G K R S V A R$

VIDD Y A DNPRKLHRVTV

RDFRVEEGTTKRHMLRITTPQAERP
E GWDSKHDRTVLH L

SAIVVDWTTGGDRRMHLARRITPQAERPYETPFIPEDGD

VM D YP P CHRKMNRAGIVVGDRP
V A D Y A P A L R S M N R $\quad$ TVVR D R R S
NASWDYEGNHPRHGTRVYFDSEAPTRREA
TNDYADHRQGNR
SAIVDYGETKER
RPFPYDNDGTNRK LYRT
VMDYPPCHRRMDRATVIGDRP
M N D Y Q G HARTMHR $\square T L T$
$E A \square V D$
T

T F D YEDQGDRFG $\quad \mathrm{R}$ V
$G \bigvee A D Y G D Q K R V L H R I T L A G D V P L S V D G$
$D P F R G D \quad R R \| V V A M G E P V A L A D C R$
$R D F E \quad H \square D V A R \square L H R \square T L V G D$
EAFTG

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## ANE DDNAYPAFDAQPRVNFPVIYTPSRKEDDG VRASTEPLNPTGALDKYDFVDVTPVIGRE

PVPEPPAVLGDCR<br>G R

D A L G E LT P A A P R D F L A V V T A P P S L
$\square S R S G D T \square A R \square R D Q H G A V L L R G F$

SPTAEREWDERNREELGEHGADHFKGFRLPATSAGLRDFC

DTMRLVVAEHGAVLVRGLGLRDANQVGAVFR

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

FGELTTGRARPQSGGAL DDFPQILT $\square$ SPQ DDL
$\square S V L A G C P E S S G L H \square H L T E E G S E L G D Q \square S V I V K R G G G L T H$ AFAAYFGEL

H $\square$ H Q MA G $\square$ IP D

SFFTQHPKSPLR
$G \square G R W F G D \square S S F F T Q H P K S P L R$
AFCRK LGELVQFPNYPNPNVM

SPHAFSKFMCELGYQFMTYEGGTAVRQSVEKN
 LIA SVF GEPILHPT】KAPHGPR

H GAVLVRRAVYDAETLNAVAAAVGGELLSYTERSTPR A QQGFARLF G S P LDD A D G L S A LA T A LS GS LLS Y N N R S T P R T

S A $\square P \quad L V P C A D P \square A S V G V R S L L S A P D G$

QEAFGK $\square W G$

QLT DK
LM S E R E A F A P R R

FGTP $\square$ S NYSSRSD $\quad \square A K D D P H P Q \square N R \square K Y$ GFASLFGTPVPHPTSRDG

DFNDVVEAF GFDEDPYVGGAA
PRTSVVGRVF GRPADYVEKATPRSAYGRGVF
H Q F H L A H

A LGGGERLTYENRSTPRT Q Q

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MKNRPNSTSEPKD $\square \mathrm{S}^{140}$ WH S DC $\square$ FEECPADFSFTR VEDGKH $\square$ GVYDGDNEEEWHADNSFKPQLTSATMLYS KYEKAHTPQAGDDVWEDYHADTS WERLVPTSWGAVLIRA GWHADIT FENVPSDYAILK SREGTRFLLELDGAEGRRANSWHTDVTFVEAYPKASULRS RVSTHWANGTWKGRHHSFGAYWHSDGDFW QPP LVNVLS\｜ GDRAD MWH HDESFDPSPPIVTMTHA
GLHCENGNSPFWPDLICWFYC SWHTDVSFVDRIDPKASILRA WHTDGTFLNAYPK】AVLRG DRFQQPV GAFSSKRQSGRDQWHSDDTFEPDPSDYALLRR R R DGHPDCLALHNGPDRRPGLDHWHTDNVGFVDPPSATVLYA ASKGGGRADSWHTDVTGKSHYPKDCIILRA SWHTDVTGDDRDPKAS LLRA
KYEKAHTPQAGDDTWDPYHTDTSWR LVPTWGAVLRA DAYGLDYEEHYRSRLHHGDGAWHTDMSHAVNPPAGSVLRA QLS DTSRYASV GWHTDDS F
 SDYTRMAAVWHSDIAFERAPADFSSLR
ASKGGGRADSWHTDVTFVDAFPK DS ILRGG D 1 YRVSNDKSE GLRAVGTAAFHTDCLYLPRLCSHAI YHM DVYRVSND DSEGLRAVGTGAWHSDCLYLPNLCSYSI FHV E $\square$ SFDPDNPNAKYFPSND YWHSDLSYKEKPSLGSLLHA TKILE DDATRGGGRADSWHTDVTFVDAFPK DS ILRS $\| V S N I V G D Q R R A Y G L G N Q L W H T D S S F R Q K S A T W S L L H A$ VITSAKNVFTASGHPPSVCDEPHNEMAYSHRFPSKDFLGC S REWHSDITFEPVPSDFALKK YTERP $\square T$ WHTDGYYNPP IVRALLLHC $\square V S N Q V E G K P V G L G D A G H F W H S D L S Y K E K P S L G S L L H A$ SQVSGNVYTSTEYPANQTUVQHNESAYSASYPLW LFFA DTVPHPQLLELDSQHGGRANSWHTDVTFDLAYPAVSVLRA YHTDTSWR LVVPTWGAVLR SWPD TLFFC N P P R GTMLYA WHNDGAFIP DTF SHSGYH】 WH T DVT F L E T P A LGA VLAA A WH N D GS F $\|$ P E T F SHS GY H I WHADVT F RER PALGAVLQ WHTDVSFLQTPALGAILAA
VYEAVNAE
SAHGARANSWHTDVTFVDAYPKVS ILRA S $\square$ S K T F $\square$ G $\square$ HNDVTY K $\square$ A APFAAFAC TWHSDI QFERFPADYTSLR EWHTDVVALVNPPAVSILRS WHSDAS WRKVPPMGCVLRC LHTDGTWRVNPSMGAVLRC GWHCDHGARIDPPAATVLRA
ELVAHPTVPVREGSGYLLELDWHTDVTADVAYPQASILRG WHADVTFIQRPPLGSILRA GWHSDITFEPVPSDYAVLR WHDDMAYMEAYPK LLVLRG VR】YKDVDSPPERFENAYHCDATWRENPPMGAVLRC GWHTDVTAAVNPPFASILRG RNANVPEMEMDVSDRDRPPANWHTDUSWKLNPPDGTAUQ TYADGVYSSRSWKGRSPDQFHSDQSAEPQTPGTTMLCM TVV G GT GA F A LAH P E
 YNSTEMPADRTDAAHNEKSYSASHPDLVLFC GWHAD $\square$ T F E N DP S D YA LL K
HELDASKGGRAGAWHTDVTFVVNPPA $\quad$ DVLIRG WHTDVTFLPTPALGAVLSA GWHCDHGAR DDPPAATILRA WH TE I AF ELVPADYTSLLRL YHSDGLWRSNPSMGAVLRC
KPKGQYVKQSVHYVGGEDRPHSARSWCTPRPAYFAMLM $T R F L L E D D S E H G G R A N S W H T D V T F D L A Y P Q V S V L I R G$
$V Q D Y K N P D S P D D R Y E N A W H A D G T W R E T P A G G C V L R C$

YTSTEYPAHQHIPLLHNEQAYTREWPMKIWFHC TANESPPDQKI PFHRGMAQVPEFPSKLFFYC
TATDVPARRRIRLHNENSYALSYPGLLVFAC
YGSTPYPEDRA LDFHNESSHLQKWPMK WFFC
HVVSNIVENGAPVGDGDAGKYWHSD\SYKPDPS GGSLLHA
 $R \square A A V D A A K Y E K R \square H R D V P P G Y H S D T S W R L V P T W G A V L R A$ WHTDVTALVNPPAATVLRA


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 $V K I P$ A Y G G D $T$ V WA N TA V A Y E R L P | $I$ | $N$ | $V$ | $S$ | $E$ | $A$ | $E$ | A F | $V$ | $P$ | $L$ | $S$ | $E$ | $L$ | $K$ |
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 EVRVDHPLIYSHPESNKKVLSLPTGAYVAFAWDTSDREGSET LADWARWVDREHP LVWTH VESGRKSLVFGAGASHLVGAE DY DYAATRRAEHPLVHVVPQTGGRSLLL GHFVVKRLVVGLPT LDARYAE LDQARNRWRVVHPIVVRTHPERKALASHASHVVGRPA YHHFPSGDPGAHSSWQQVFSTGNKHDVESNYDFEWTQNDS
$K T L Y D G E R G N P H P V I D T N P D T G W K N K N F T R R D L E L T K D E S ~$ NCGCNEKRFDADAQIVQQAFEGKLRHPVVQVHPDFDSGLDD
$G$ NDEGGLTRPATVGPVFSVNADGS LHMRYTARSRNVVW
 LI SDSMELAGHEYPUVSHKVVRTHRETGQKILWQPQULGUES





 PANSGKDLEAVHPVVRTNPVTGWKSIFAIGNFPQRDNELS
 EATFGRFPDAEHPVVRTHPETGEKILFVNAFATHFVNYHT
 TPRTARSF $\square$ TEHPVVRVHPETGERLLLLESKF










 EHSFGAAMDVEHPVVRTHPETGEKTLYVSSFTTHFANDKT


 Y VR WTEE GGAKT $\square$ MGP $\square P A I K F D K S R N R K V W F N S M V A A Y T$ WGHFGWHGDRLTTTQARSALIDRHPQTGDTSWFNHVAFWSE
WLENGRLRTRQHPHTQDLVFFNQLQLHHFSYIDDPNTQASS LAAK Y GQVVQEVAHP VVRTMPETGRMA
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DESRALLDELHSVRDEHLYRHRWRDHDLVFWDNRSLMHLDA DATLDYLFKLVNDNHDLQVR GFSRRESNVLIELLQRYVTRIHWEEGDVAIIWDTRATQ SEAAAPAAAAIRGLLDHIFEHVLEEGQGLVSNNP QHYA DESRALADEALSVRAEHLYRHAWRDHDLVVWDNRSLMHLA ADSAHLIAVLQGHVHRLENTVRWRAGDVAIWDNRATQHY SESRELLDEVLRQYKRVQARFSWRPGTVAFWDNRAAVHYA DEDAQLLAALADHTPEFVYRHQWQPGDLLMWDNCTVQH DEMKQLCHEYNDVLNAYAMEFEYQENDCVFDDNLAVAHRA


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 ENSQPLGKLLRTYLPEHAVRWRWAQGDVAFWDNRSTEHY EESKHLLNWFVTLIVENQVRHKWNPNDLATWDNRSVYHTA
 PRESEQLLQLHVIRPEYTVRFKWEPGSAAFWDNRSTAH EESDALLNFLFNHIDRFACRVRYDKGTVVVWDQRITCHSQ PDGEDVVQALNEVYEAHTVREPWRPGDLMLVDNDRCAHSR PVPEAWLQGLKATGDKLAVPDEWQRGDVLMLDNTRFMHGR $K D E S D A L L N Y L Y H L H D A Q V R Y Q W S K N D V A L W D N R T T T H C C$
$E L E P A E S D T L L R F L F A H S I R W R W Q E N D V A W W N R T T G H Y A$ GADRGAVDELRSALLAELREFAWRRGDVLLVDNRIALHGR EAESKALDWFLRLINENQVRFKWKANDMAI WDNRCVFH QSQSEALLNDFAEVPENQVRWHWNTGDVALWDNRATQHYA

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conf
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pssm

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sol5 sol0
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