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1
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 TKYAQ, NAFSDRPF GGNPAAVVCYLTEKKSDKWMQLVARE MPEYRVVDAFT DRPLAGNPAAVLVLDEAYS DDWAQGVAA E $M R E V Y H V D A F T N Q R F G G N P A G V V P D A T A G T T D D D M Q N$ I AR E


 YRUYQVDSFTKNKFHGNPAGVVPNANGLTDEQMQRIARE
 YKYY I CDVF TKKRFGGNPGAVLPEAEGLTDKKMQQIARE

Y S K Y TVVDVF T DTIF G GNQLAVVPDAEGLSSEDMQKI AAE
 FASKP $\begin{array}{llllllllll}N & P & A & A & V & C & P & L & E & A \\ N & W & L & D \\ N & A & A & V & C & P & L & D & N & W\end{array}$ D L M YQVDAFTQRPFEGNPAAVVPLEQWLDDALMQTIAAE $R R Y L T V D V F T D R R F G G N P L G V V F D A D G L D T D Q M Q A I A R E$ $Q M Y Q V D A F A G K L F G G N P A A V C P D T H W L D D E L M Q S I A A E$ MRKYTLVDVFTNQVFGGNQLAVFKDAEKLSSEEMQSIARE TP $\square Y$ QVDAFTNALFGGNPAAVMP LDQWLPDDRMQAIA LEE MTKTYIVDAFTMERFKGNPAAVCLIPEVLPDETYLKI AAE MKQY IVDAFTDK】FSGNPAAVCVLDNFPSEEDMQSIAAE QYSVVVAFTDTAFKGNPAAVCILEE ERDEEWLQAVARE $R V Y H V D A F T T E K F G G N A A G V V L D G E F D T E D D M Q S I A C E$ RVYHVDAFTQNPFEGNPAGVVPDASDLTLTQMQK ANE
M R
 $T V L R V D A F T T T V G K G N P A G V V L D G D R Y T T E E M Q N$ I AR RE

Y R L Y Y QViD S F T R E R F H G N P A G V V $\operatorname{Y}$ P N A D G L T D Y V Y Q V D S T REKFSGNPAGVVYHADGLTKRQMQQLARE EVV F Q V D A F S A EPF G GNPAAVID LD H WLP DAVLQRI A E E R 1 Y T V $V$ D S F T D Q F S K G N P A GVVCLI $M \square D V Y Q V D S F T T E R F K G N P A C V C V L D D K P D D S K N M L D N A R E$ EFHQVDAFSERPFAGNPAMVYRLESWLDDRLMQQDAAE RYYVVVDAFADEDFKGNPAGVVVLNEWLKDDVMQKIAABE K RMLQQI DAFS DRPLLGGNPAAVVFDADDLSTEIMQRI ARE

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## QUERY

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 V
 SNLSETAFF F V NNXSETAFFV NNLSETAFFV FN

## $\stackrel{L}{\mathrm{~L}}$



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 N NLLETAFAVKEGK





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| UniRef90-A3IAK2 | R P QVKS ${ }^{\text {a }}$ |
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Y V L Y $V$ A A I GKK T G $\quad 1$
 $H V L V S T G V I K T M H L Q T R S G \square L P V T \square D A T D P E A S W \square W L S D P$ $F V L H E G H T A G S I R F H A R S G A L T V T \quad Q N G A L L \quad T L N F P$

 WV I L N K L G A D I L R F S TRSGELRVRRSGTG
F V L F R F I E K D V L T F A T Q S G E L L V T K K R
$H V L Y E K G R P T \perp L K Q R T K A G L L K V Y L D V S Q G K L Q K V M M E Q A$ HVLWEEGREQEAIF DTKS GILKAFTNGE YI TLDFP

 F AL LE DPKNGKVIQDCKAGLVEI S $\square$ Y V I FT Y LDDN S NV K F H T M S G V L E V S H AL L E T A K E G K L V Q Q C G A Gll V A L T V Y V L Y E F Y T D PVVVFE TKGGRLFVDREAD
 YV LN YYE Q DEVVSFHTLSGELIV A HL REGLLEAGTYALETNVGELVIEVDK DNNRYV H L F Q E GK G N K I S F D S L S G S L F V K K E K S E
 AVLFHKGKNQTVTFVT $\square$ G GELKARQA
 HV L Y AL RERGEKTNLTTIETKA GILLPIQQGAHENGETFDKMRQA


 A $V$ V L FV I F Y Y D A D DI T F HTMMS | $Y$ | $V$ | $I$ | $Q$ | $R$ | $Y$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $L$ | $A$ | $G$ | $D$ | $T$ |  |  | HV L WE E PP EAVVARF QTR S GLLL T AK RE G VAVGLERGVR RLLRFETAMGTVPFEVEPNDDETVAVSMMRPP HVLWELLGDLE QARFHTRSGLLTAERQQD WI E L L NFP





| UniRef90_C2 | S Y DLLK PV |
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| UniRef90-Q9KBH7 | A PQLRAF |
| UniRef90-UPI0002F87B10 |  |
| UniRef90_V5TQ66 | A P F G E |
| UniRef90_E4PG57 |  |
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| UniRef90-R5AA18 |  |
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| UniRef90_I8SG60 | S |
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| UniRef90-UPI0002895DB | T A PLTEV |
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| UniRef90-M0D653 | A P E |
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| UniRef90-UPI0003B38 | P |
| UniRef90-K9FA71 | Q P |
| UniRef90-U1Q0P9 |  |
| UniRef90-G9WJH2 |  |
| UniRef90-B8HY67 | P CQF |
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| UniRef90-C9XQ77 | TPEFENL |
| UniRef90-N9GE89 |  |
| UniRef90-S6J3F2 | AK T P E |
| UniRef90-T0T7L4 |  |
| UniRef90-A6TXD8 |  |
| UniRef90_UPI0003A72F07 | L E VA E P V |
| UniRef90-M4AJZ8 |  |
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| UniRef90-M3INR2 | ■ |
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| UniRef90-UPI00036CB8C6 | IPRWR R F |
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| UniRef90-W6S4Z8 |  |
| UniRef90-W5MSE5 | $1 \mathrm{Y} K$ P |
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| UniRef90_V4TWX4 | T V P T T D F |

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MRSFETVVDVFTSTQFSGNPLAVVLDAEGLSSDQMQAIAAE $M \square K Q Y V V D A F T D E D L H G N P A A V C V L E D W L S E G L M Q D I A K E$


 Y QV D A F A S KVF G G NPAAVVPL S S WLEDK CLLQQI A ME
 $T P \square V W I D A F T S T P Y G G N P A A V C L L S S P K P D A W M Q A L A A E$ $R R F K Q V D V F S S H P A K G N P L A V I L D A D G L S D E Q M Q S I A H W$

M R


$Y Q V$ D AFTTELGFRGNPAAVLVLDDWLPDETMQNIAAAE $P \square W Q V D A F T E R A F G G N P A A D C L L D S A V D G E W M Q Q V A A E$
 Y IVDAFTDRPFAGNPAAVCLLDQPVGDEWMQRVAAE S Y SVOVF T D R KLA GNPGAVIFDGDDLSDEAMQAITRE

 DVFVVDAFTEDAFKGNPAGVVLLDEDRPAAWMQAVAAAE KLY QID T F T DT $\quad$ IF G G N P A A V CVV L T K W L S N E L M Q K I A A E
 $P L Y Q V D A F S D Q L F G G N P A A V V P L P Q F L P D E V M Q K I A A E$
 DFHILDVFATEKYAGNQLAVVEDADTQSDDQMATLAKE SVLHYDAFTEHPNQGNPAGGVLEGEKFNESEMQKIABEK YVVVDAFTETAFKGNPAAVCFLDEEKDVEWLQAVARE $P \square Y I V N A F S F G P F T G N P A A V V C P L D S W P A D D G L L Q S V A A A Q$ MK QY IVDAFTNRVFSGNPAAVCVMDKWPE EKLMMLII A E E YKVYQI DS F S DKKF LG NPAGVVYNADGLNEVDMQRIARE HPTY IVDAFTSERFAGNQAAVCLIPRVLRDEEYRKIAAAE

YPFYQVDAFANQPFEGNQACVMPMEAFLPDDILLII AAE RYFVVDAFADKLFQGNPAGVCVADGPLSEGLMQRIASE NYFMVDAFTESAFKGNAAAVCI LEEDHDDSWLQS LAA E

| $K$ | $Y$ | $Y$ | $V$ | $A$ | $D$ | $A$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |





M R WTVDAFAAEPFRGNPACVVPFDAWPADAWMQALAAE RVHRYAAFTTDPGAGNPAGVVLDASGLSDAEQLGIAAR RRYVIADVFTNTPF LGNPVAVVLDAEGMSSEQMQQVAVE WQVVDAFTDHAFGGNPAAV CWLEQEA ETAWMQSVAA E YPIF QI DAFAARALMGNPACVMPMDAYPDDEVLQAIAA E
 $P Y Q V D A F A E R A F Q G N P A A V L L L E E W L S E Q V M Q A I A N E$

T
 $F K Q V D V F T S S A F K G N P L A V I$ MDA QGLDSAQLAAA AR W $P \square Y Q V D A F T D S Q F S G N P A A V V I L D N W L P D D A L L S I A M E$ $K$ FY T L DVF T N QLF S G N Q L A V FPEVVEDL S DEVMQKI A DE F VCDAFTTQRFKGNSAAVVPVNDWLSDDLMLKI A A E K E F K QVVDVF T S VK F K G N P LDAVLF DA D DL T S E Q M S D I A T W Y NYFHVD AF DGEGLS GNPS GVYLL K K P L L A E Q M Q RI A A E MHAFKQVDVFTSAAFNGNPLAVIDMAQGLDDSSMAA I AR W HTLQKLAAFTSTPTGGNPAGVWIGETLPEPKEMQRIAAD

 $G V C E V D A F T E S A F K G N P A A V C L L E E D R D D Q W L Q A L A A E$ SVY HYDAFSLEANKGNPAGVVLDSEGLTDEDMQEVAKQ




## UniRef90 Q211N6 UniRef90-U2IKJ3 UniRef90-I7JZ43 UniRef90_U1KGU5 UniRef90-M7QIN9 UniRef90-T1IWX5

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F N|V|SETTEV ${ }^{50}$ P PKDPTHT 60
70
80 NRLSETAFVV KEEAGYQLRWFTPGGEDDLCGHATLATA
 NNLSETAFVKIIDSEN YEI RWFTPTVEVDFCGHATLASA NNLSETAFL KPIGNNHYEI RWFSPITEIDBCGHATLAAA


## 

## UniRef90 Q211N6

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$F V L|G R P| I E G D T|L T F E E Q A G| L V P V E V L R A G A T \| A G A R \mid L A S P$
FVLLNYYEKDEVSFQT LSGQLDVARKGD




 HVL F Q HE GFQGD $\square$ QM F P



 H L L
 $H V L D E Q R R N C P I R F Q T R S G E L V C Q Q 1 G G S B A L D F P$

 VALAE RTHGATVVLEENVGPVRCAVRLREGEASFAEFDLP

 $H V L G G D R$ F TLIFNYYGHPKNTDRFRSGELVRVVKNSNGS HALWAELGSEK LAAFDTRS G LLTAVRTEDG H I MFHS GGQQKMHFRTEAGTIVVT ANGAGSYSMMDFP F L F QEVVE GEY DEFETR ELLGT FYIRRQKEKVV M M M P

F

## H





 $F V V$ F N E L L E P D RVVAF H T R S G V L R RVGERR


 AVL F QKKKNPILTTFITLSSGELKARQAGDE YAL A Q N L D S CVL R M K T E V G I L P F E V I K E K D D Y H I VMT Q G HVLWRHRPEPRLAFETRSGRLYATRAG
 HALLEVKNPGKIVQECGDGLVTIVIISAEG ATLLFYMMKNPQLTFQTGSGDLFARREGD


 VAL A E REGPGEYVF LTP A GQVVPVGVERDDGEVLRATRTSV
 $H A L F D H M D G S K M I F E T R K A G E L I V Q K T E V G Y L$ H Y L R E $\square$ G A D QPLTFK T L S G DLII NFMGK TIDM D F P Y S L F R HQ P S N E F T DE T KA G L P P H DF F EA ER LV V TM M Q A $H V L A E Y N G Q G E M A F A T R V G E L R V S R W A G G Y Q L D L P C F P$ AVLFKENINPAVVFETLSGDLRVRRHD



HALLEAGWPGKIVQECGVGLVEVNDSDDG
FVMAE HLT DNPIVFQTRVG】ITVSHENS IVTMDLP F L L A K L G K F D E I I L R E G V G DV P V T I
 F SLLE KPKNGLI I QE CKA GLLVSI RVENDENDLSNVIFLSFT HVI FSMVNPGLHDIRFRSASGDLYVKRDAENFGRLSLDFP





 FVIDRFVPSERWHFHTRSGVLTVGCKENGQ FAMNFP


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| UniRef90-13Z7N8 | T D K $\square$ QQ $\downarrow$ |
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| UniRef90-H3B0G2 | LYP T T A |
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| UniRef90-Q0BX87 | S AP IRPV |
| UniRef90-E5Y2Z2 | RPE R VPPL |
| UniRef90-M4DL03 |  |
| UniRef90_E3PT82 | T |
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| UniRef90_S2DHT1 | K D ELLEK I |
| UniRef90_U313L3 |  |
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| UniRef90-B5G8K9 | M P R V ${ }^{\text {d }}$ I |
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| UniRef90_A6FCM8 | E P K F |
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MR
 $K K F M Q V D V F S H Q N F K G N P V A V F F D A D D M S S Y Q M Q T: A R W$
$P Y T V V D A F T S S V F S G N P A A V I V L D A N L P D A T L Q R I A R E ~$ PIVT DAFTDTPFCGNPAAICLLPGPLAEEGMQLIAAE RRFAQLDVFSDQPFGGNPLAVIVDAEGLSDEQMLRIAAW
 QVFVVDSFTRKVFSGNPAGVVLGGEGLGEARMRQ|ARE
M口 EFHTLDVFTATP
MK RULQUDDAFADTVFNGNPAAVCIMDSW:DDDLMLS:TRE HRYLLLDVFSGRPFAGNPLAVFPEAEGMDDSRMQAIA KE MR
 RVHHYDAFSEDVPHKGNPAGVVFDGDHMTEAEMQKVAYK
QIINAFADRPFSGNPAAVCYDPYPRSDKWMQVVAR MRKYSEVDVFSPTPY LGNPGAVVHDAEGLTGEEMQRFAKW MRQQYQVDAFANRVFEGNPAAVCPLDHWLEDRILQAMAEE HDFVQLDVFSTDAFTGNPLAVTNDADDLSDEQMQNIARW PFQQVDVFTSVPYQGNPVAVI LDGNHLSTEQMQAI ANW HRFAQVDVFSDDPY品GNPVAVILDADRLSDEQMGRIARW TSLIIVAFTDRAFSGNPAAVCLMDSNKDDAWMQSVAAE
H DRLTAFSSDPAGGNPAGVLLDARGLDDPELQSVAAE PIWLVDAFSDRNFGGNPAAVCELAQWLPDEQLLAMARE
HPFKQVDVFSKGGFNGNPVAVVENADDLSTDQMQKFAVW PYETVDVFADRPYTGNPLAVVLDAEDLSTEQMQAMARE $R F F V V D A F T D R A F A G N P A G V V L L D E P A D P T W M Q A D A A E$
$D(G Y Q I D A F T N T V F G G N P A C V V L T S W L P D D D L L K I T Q E$ DFYVVDVFAEKKYAGNPLAVVICPEPLPNPDMQSIARE

MR KYSVVDAFTDSAFKGNPAAVCFLEEDDDLWMQALATE $M V D A F S A R P L E G N P A A V L V L D E A Y T D G W A Q G V A A E$
$Y V V D A F T S K L F A G N A A V C P L D A W L D D A L L Q A I A M E ~$ QVYHVDAFTSQPFRGNSAGVVFPADNLSEAQMQLLARE
RMLVVDAFTDRPFVGNPAGVCLLDGPAEPGWMQRVAAE KYYIVDVFAEAKYTGNQLDAVFTNAGALTESQMQAIARE
MRK QYSIVDVFAERKY TGNQLAVFKDAGWLSDDKLMQAMAAE DVLHYAAFTTDPAGGNLAGVVLDAPGLDDAAMLAVAAE EVSQVDAFTETPFCGNPAGVVVDAADISTDTRQKIARE PFFQIDAFTSTRFKGNPAAVMVLPSFPSDTLLQTIAAE DVYTLNSFAKTKEGGNPAGVVMNADSLSEEEMRKIAAV RPRFIYDAFTKEKFGGNGAGLLEHAEELSTAEKQNLAKE
 TEVLRYTAFSADPAGGNPAGVVLDARGLDDAAMQR A A G ■HGVCEVDAFTNSAFKGNPAAVCLLEDERDDKWLQSVAAE QYVVVDAFTAEPFKGNPAAVCFLEDDGDGRWMQSVAVE
$Y$ YYFIVDVFTDQRGGNPLAVLPQAEGLSERQMQQLARE MKQY QVDAFTDAAYGGNPAAVCALPEARPDRWMQQVAQE MKQY IVDAFTKEVFKGNPAAICLDDWLPDETLQA:ALE
 RYAVVDAFATEPFKGNPAAVCLLEDDNDERWMQSVATE RQYQVDAFAERTFEGNPAAVVPLERWLGDDLLQALAEE
$R P G Q Q V D V F A V P Y G G P L A V V L N A S G L D D E A M Q R F A R W$ MRPFTQVDAFAEEAFGGNPAAVMPLPKWLDDDTMLA SFYLVDAFSDRNFGGNAAAVCPLSEWLPDETLLKMAQQ KVVYQVDAFTTEKFRGNPAGVVLNGDNLTDQEMQADARE
Y EUFQVDAFADRLFHGNPAAVDPKGEWPSDRDMDQVAAE AFSORFRGNAGVCLPDSABDDMQSVAAE $R L R I V D A F T D R P F A G N P A G V L L L D D F P P D P W M R R V A A E$
RPYHVLDVFTDTPLTGNPLAVVFGGESLSDARMQALAAE
HEFYIVDVFGEKKYAGNPLAVVRDAGDLSTEDMDEDARE
TPDLRYAAFTTTPAGGNPAGVVLDATGLDEADQQKDAAE $P L Y Q V D A F T D R V M R G N P A A V C P L P S W L P D G L M Q A I A W E ~$
$Y$

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 LNLSETVFVGAPTAANRFPVRDFTPSTELDPAGHPTVGTA NNDSETAFLV GGNGRYTLRWFTPEVEVNLCGHATLASA
 FNGAETAF LTPAAPADNEFDLRWFTPMTEVDLCGHATLASAA



 VGYSETAFLSPIDPAARRYLRFFSPLAEVAFCGHATIATA

 HNQSETAFFVR DAAGDGLRWFTTRGEVNLCGHATLATAA TNLSETTFVLKPTDPAHYKLRDFTPKKELPFAGHPTIGSC FNLSETTFVLPPGSGADYRVRIFTPGAELPFAGHPSVGTAA

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 FNLSQTCYLTLLTGGDHFNLRWFTPVAEVKLCGHATLAAA F NLSETAFARREDPEADFELRWFTPKVEVVACCGGAATAATA NNLSETAFFV PEGECFHLRWFTPAAEVKLCGHATLASA LGGSETAFLLHSDDSDVRIRYFTPTVEVPICGHATVAAH MKHSETAFVRP DEPDADFELRWFTPAAEVDLCGHATLATA
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 $Y M L Y M E E E D Q E I D F Q T K S G D L K V K M E G E E$ RAWGGRDMGEVLSFETLSGVLTVRRADDQ RAWGGRPMGEKIVQECAAGLVSVIRRDGERDAFAAPPDQRS
FVLFEADPADRSITFWAAAVGKVTATQEDGG RIVMTFP





## S


 HVLFNHHTGKSVTFDTRSGELTVEREDE FAWFTGTEKTEISQQCQAGVVPVR EEDGK $\square Y$ YAVLRHKTAGVLIQECGSGLITIFMEQE
$\qquad$
MI E L D F P
 HAWLENGGPGVIVQECAAGL VDVHHEPGAATPDWLTBP HLLRHELAKGPMKFFTRSGILTATAVD_AAICDDFP VALAERDGVGDLVFETPAGTIEVRTDKQDNTVASLT VALA AERDGVGDLVFETPAGTVEVRTDKQDNDVASLT
 AVVMERDE P E RVVFDTASGPLTVDRTPSGG
 HVL HCLKTDYPSNNDVFETVSGELLSVCVKR WII R HLYSPDEITLKVPAGNI PVTF SLMAEI DEKGVFKQETKAGDLDIEVLKDGGS GVLWMEQL F TLF HFFNGERIVFETRVGPI EVEKDRSG
 YTLFGLIDSDUIEFSTMSGlLTAKVKAANGDSFF DELNFP $H V L A E I G V S A P Y R F S T R S G V L T V V H D G D$
$H V L F T H M G G K Q T I T H T L S G A L C V E R T A K A T Y R L T M W M D F P$
$H$ YVRAKVLGNCTVWQTSLAGKHRVTDEKHHDGYRRISLEQG



 HVLGHVSPDQTI RFYTKNELLDAQRQGE
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## N

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 MNLSETTFVVPAKQPADYHVRIFTPDGELPFAGHPTLGTA VNFSETTFILSPQRQGGYDVRIFTPAKELPFAGHPTLGTA VNGSETAYAHPGPPDADWALRWFTPTTEVDMCGHATLATA TNFSETTFLCSPTDPADYRVRIFTPYEEFPFAGHPTLGSA FNLSETCYLIRSKK PPGFSLRWFTTVAEVELCGHATLAAA TN MNLSETCFLWRGSSFDRYKLRWFTPTVEVSLCGHATLACS FGYTETTFVFPPRDPSHTWVRDFTPSREIPFAGHPNIGTA MKHSETAFVVNSGEGAKKSLRWFTPTAEVALCGHATIAVT NNLAETAFFVL DQDDVYHIRWFTPTTEVDLCGHATLAAA TNLSETTFLLRPTTPASYRVRTFTPGGELPFAGHPTLGTA FNFSETVFVFPPTDQGSKKVRIFTPSTELPFAGHPTVGTA MRHSETAFVSKQNAHDCFNLRWFTPKNEVALCGHATLATA NRFSETAFAIR RDANHYDLRWFTPGGELDLCGHATLATA FNLSETTFVLPPEDPAHTRVRIFNRTYEMPFAGHPNVGTG TNLSETTFLLPPTSDADYRVRIFTPGAELAFAGHPTLGTC FGYSEVTFVLPPEDPANSRVRIFTPTMEIPFAGHPNVGTA TNLSETTFLCSPTDPADYRVRIWTTGGELPFAGHPTIGSA NNLAETAFVPWAGDEADFELRWFTPGVEVALCGHATLATG VGFNETAFPLKS NKADLRARFFTPGHEMNLCGHATMATL FNLAETAFLLRDSSAARFQLRWFTPAAEVELCGHATLASA TNLAETAFVLKPVPEADYRVRUFTTGKELPFAGHPTLGTA TNLSETAFLV GNQLRWFTPKVEVNLCGHGTLATA NNLSETAYIRPDPPSDNFDLRWFTPTVEVKLCGHATLASA TNLSETAFVCTPTDDADYRVRWFTPGGELPFAGHPTLGTA FNFSETTFVLLPEDPANTRVRIFNRTAEMPFAGHPSIGTG MNYSETTFVEPPDDPNTARVRAFNRTAEMPFAGGHPNVGTA VNLSETAFLV GHHIRWFTPKVEVTLCGHATLAAA MNLSETAFLW PEEDGYRLRWFTPKVEVKLCGHGTLASA FNLSETAFKKSAGHAGFGLRWFTPQREVDLCGHATLASA NNQAETAYLLRTGDPSRFGLRWFTPAMEVPLCGHATLASA VNLSETAFAHPLPEEADWALRWLTPATEVSMCGHATLATA

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 YALGLLQNKTDFT円ETNAGVLPIKПDNSSDAVY ITMQQS HFLFTSVLAEHDEFATKSGILTAEAAASGEGKLFIEDDFP HSWLQAGGKPVIVQECKVGLVKDRRDLGTQRLAFAAPPAP YALLQPKNAGYLVQECGVGLVQVKQLAYGGQAFSAPPAQM $F V L H Q S C Q D N P I T F T S L S G E L R V S H Q E \quad G D F T D D F A$ A AL WK C L GNPRLRFQTLSGELSVV
 YHLA G GQNGT
 $T V L F G K P V G D T V V F E E A D G L V G L K V V R D G G E A V G A V L T A P$ FVLNQVLEQDPLTFNSLSGDLVVTQNAQG





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 HAFGKPKTEGVVIQECAAGLVRVRTSE H A WGTPRDDDRVI QECDAGLITVVRRDALSREAPAADLAFA H A WLR A G G Q P R V V Q E C R VGGLVRI

 HAWGGVPQGEEVIQECEVGLVRIRRQGADLAFLA

 HV I F L N Y N K D S I L F T S A S G P L K V T F $\quad$ G HVLGQVK S GDSVVNKTMS GTLTALIDNES AV I F Q MY D N TEELS F S T L S G E L K A I H N K E D $H V L L R E L G A G P Q R F D T R A G M L E V S A T D E G$ R A WL N S S D K S ELLI QECGA GVLIPVVKVD G D G FVIMEEILGKAKEVELKKLRI GKI RVWKENDVLD WMRGA HAWHE QHPADR II QQCGAGLVEI RTIDND

 $\square A L A E R Q H G E V T V L A E K D G P V R C A V K L K P G A A S F A E F D L P$
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 Y QADAFADR DFQGNPAAVLI LEDWLPDEVMQAVANE $M R V L Y Q V D S F T T T A F T G N P A G V V L D A E G M T D A Q M L A V A R E$ RFKQVDVFTAVPMRGNPLAVIDFDADGLADADMQAIAHW RRACLVDAFTAEPYAGNAAGVVPDADDLTAAQMQAIARE Y A Y H L V NVFAETYFGGNPDAVFPQADGLTDQQMQLI ARQ MHKYTI I NS S GSELLFTGNPVAVGFYCDDLDDYHMQKLAAE SFTDSAFSGNPAGVVLLDAPAEVEWMQAVAAE $R \square R I V D A F T D Q P F A G N P A G V C L L E A W P A D S S M L Q Q I A A E$
 GLDEQMAAFARW RFHTVAVAVAVGEADGLDEATMAAFARW
 LV VAF STAPDA GNPAGVIPDDAE GLAADNQQRA AA E $R Y Y L L D V F T D T P L A G N P L A V F L D A G S M E A S D M Q A F A N E$
 R R FQQVVDVFHSGPFSGNPVAVVLDSKGLTTEDMQRITTRW
 $V V D A F T D T V F K G N S A A V V I T D N W L S D D L M Q S I A F E$
 Q $D H Q V D A F T D E R F T G N P A G V V L E A D E L T D A Q M L A D A R E$
 RNFAQVDVFAAEPYRGNPVAVVLDGDGIPDEAMAQFAAW RFKQVDVFTSVPFKGNPLAVVDFADALSDADMLADARW KFYLVDVFAENKHEGNQLAVEIPDGSIEKDEMQKIARE K E V Y L V NAFTYNDKGGNGAGVVPDAKGL STEMMQAI A KE Y D I Y V D A F TQAAQFKGNSSAAVVVPVNLWPEVSTMQQQIA A E
 $Y Q Y Y$ I TDVVFTREVFNGAQDAVFPHADGLD DRTMQKIANE HRY LQQLDVFAARAGSGNPLGVVFNAETLSSAQMQQIAAW RPFALVDAFTAEAYRGNPAVVELLPHWPADQQLLMVARE
 R T F A QV DV
$\qquad$
$K M Y Q V D A$
R P F MQI DVF M T

NFKQVDVFSSTPLKGNPVAVVFDADGLDDRQMALFANW

 SF Q Q V D A F T T E ØF K G N Q A A V C L L E N A LD E K T M L S I A K E MSRVYQVDAFTSTPFRGNPAGVVLCAEGLTDAQMLTVAR $N Y N G Y D V F T E T K M A G N P D A V M Y D A D G L D Q V T M Q A D A R E$ RAFAQVDVFTSVPAGGNPVAVVCDGDGLDDQTMAAFARW MPRFKQVDVFTKTKYLGNPVAVIVDCDNLTTKEMQKIARW $K \square F I V D A F T E K P F S G N P A G V V V L E E K I D E T F M Q N L A A E$ HSFHVDDVAEKKYQ GNQLAVFEHTGDLSTEHMLAI ARE $M \square A Y C E V S A F T D T P G Q G N R A G V V L E A G A L S E A E M Q A L A A F$
 HRYY LLDVVFTDTPFAGNPLAVVTEAETLDGATMARDAGE
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 NFKQVDVFPNEAFKGNPVAVI FDADDLTSESQMKDIAS W $R R F D Q L D V F S G K P L L G N P L A V V V D G D G L D D T T M Q A F A R W$
 K Y M Q V DVFANEFYKGNPVAVVFGADHLTDQQMKDIARW

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 MNQSETAFAV RRGDHFELLRWFTPADEVDLCGHATA AAA




 VGYA ETAFVVDAAVGGHVRVRYFSPAAEVVPFCGHATIATA

 LN N S E TA F V L P P A D G D D H D R




 TN N L S E T T F L L L P P T T P A D Y R

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 $F V L R K E \square T M K S V I L H F Q G S A E V T F H N D N G V L \quad W M K Q N$ H A WLEAGGKPRLVQECGVGLVEL RRDGRIAFAA WA WG GVPAGERIVQECGVGLI DVRLEGDRGAFAAPEL
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 FVLFNKNPHNCIKFSAKAVGILTIVQTDDGK HILFGSVDTNUI EFATLSGLLTAKRNDETEDGFY TAELDFP HAWLEPRDAGRIVQQCGAGLIPI RRDGERDAFA HVLSMRAGGTRTRQKSKAGIVEIEVRGRDTGR R $\square A \square R Q N$ Y L L AKKTGQDK\TLNLKVGQVPVIREAD
HAWLEAGGPGLLVQECGAGLVELRHTDESAAFRAPEL HAFAQPKAPGRLVQQCGAGLLVELAKRDGGWAFAA $H \| R N F K N S S E V M L N L Q V G Q I P V S F K D Q \quad Y A W M Q Q N$


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$\qquad$
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 CVFAESTGKGELVQECCGVGLLVRIGQREDR YLMKQLVNVGTYTLETLAGLLKVDIEVNGE VYLSA $F L R A G H Q S D Y P L I A K T G A G H L P V S I F G S S K E L L V K M T Q G$
 SAYSRRHGLDQFVFHTALGAVSISVEHHTETLSTVK】EVP HAALEI PRDDGLI QECGAGLLPI RVEGEG FALGILGEASSVKIETNVGVLPIQFSMDNNNHLLIKMKQD

 YAVLKPKHGQYLVQECQQGLVRIDVTDAG FAVLQNGTIPKLIQESGVGLVKIDIDQD KTFFSDP
 AALHARGEGDDFTLRTRSGLI PIT HVLWEFGRGAEAKFYTRSGLLRAARSDQ LISLYFP HALLARARQGELVQCAVGQI RLRVEAAD Y IIAKFHVPSTLTLEDAHSDIATMUAPNNDDTSDAMRQA HAWGQPRQSSHLVQECGVGLVSLKSVDGRWAFAAPPLQRQ HTLLGRDPAGVVRQECGAGVVAVEVDDDGARLL





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 CALHLRKGVERMRFSTRVGDLLVTPQGEGYRMDRPRFD AHLYGVIDAGTHTVETNVGVLDVEVEADG 1

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 H I L R A WLLE F GGK DV LVQECAA GLI TI F I I S K Y K P K E NI I L N L K H S Ni S I D L T S $\square$ ND DNSDF $\square M E Q A$

 $H V V R E A A G G D A L T L E F A A G I V P V Q A R G D T W T L T A P A S G A P$ KAFLDQFTNNTTVVQE CGLGGVVNLTVNED GTDSYKAAA


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


 A Qi F DDMHPERDVHFHTRS GWL A V SR G G DE F T L A K L DS S GCYYT QKTKA G LL S V S V S P N N A A L A A R Q G D G V F S L T $\quad$ L $N$ N Q A Q
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 WL L H K D GK LPR QR IWT KS G VVC GRLDAE GVGAEA QF E I T Q P A A A M REGDGRFS LKLNHAEI SVEGRKEGELDAASSQSP F T L F N QLA A GTYS QK TKA G LL N V T V S A D G V V M M Q T K A FLLQ F TKNTTMLQECGAGAIPLVI T E
 $F V I A M H Q G A A P L R L R A P A V G E I E V A K D A E S T F E L R F P N Q$

 Y V WQ Q $\quad$ Y G K D K T VQE C G L GLLV T I K R SVLQQRQGSENFVLNTRAKPV
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 H A WLLA A G GPGQ|VMQECG\|GLV|E|RQEGE

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MVDAF GAGPLAGNPAGVITGAGALSTEDMQRLTRW
MVOFIDVFAQEPLSGNPLALVVNAQDLSQETMQRIARE
$M V D T Y V V S A F S K$ PLS NKAGLVFDRPDLNSIDKMA ARE


RYRLVNVFAESLFGGNPLCVFEDARGMSDADMRALALQ
$R$ P
M
DVVKYAAFSDGTGMGGNPAGGVLDARGPAEDEMQR|AAE

RFTVLDAFTNMPFGGNPAAVILLDHKYPDSTLLGIAKE
YPFLLVDAFTETALGGNSCAVVLDADDLPPERMQQLARE




NQLAVFLCENGITDSEMQKIAKE
RRTLLVDAFADEPLAGNVAGVVPDAAGLNDGRMRRIADE
RFHLVDDVFATERYA GN QLLA VVESSRGRLA D DEMAA VAA E
$L I D D C V A S A F S K N N M G G N R A G I V L Q C P V L S K E E K T K I$ A Y Q C G
MKR LIYDVFCSEHAKGNPCGVVMLERWLDDSTLLALAARD

DFVTVDVFTTNRYEGNPLAVVFVPPSQTQEIKQRIARE
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MSAVTVVDVFTHEGRGGNPCPVVADAVGLDAEDMRADAAR
MRPYVQTSVFVDSPFGGNQLATFWHTDANDTVEMQSIA
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RQYTVHAFTREVFAGNPAAVCIMDEWIDDALMARIAKE

$D F D W V D A F A D V P F G G N G C A V V H G G A V L S D A T S M A Y V R E$
$D F F Q V D V A T R P L G N G L A V L L T D G W S A P T M Q G L T Q E ~$
YFVSAF
SYVT: DVF
KGNQAAVCFLEEDHDDSWLQSLAAE
$R$ HOLDAFSAQLFGGNPGAVVFDADNDTDKDMKN AAD
KVQKIJAAFSDGDVGGNPAGVAFCEVFPEAANMQGIAAG
FKQMDVFTSKPFKGNPVAVDISEDETSSETMLISI AA W
FKQMDVFTSKPFKGNPVAVDISEDETSSETMLSIANW
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DVLKVAFCDGNQGGNPAGVWVGDSLPEAEVMQRLABE
M DKAQVYDVFCDELAQGNPCGVVELNHWLSDSELDQUTHQ
RRFIQCDVFSPLATRGNGLAVVLDGEGLSDEAMQRFAAW
隹
PFMQVDVFTSRALGGNPLAVFYDPSSLDVHTMQGI ARE

PFVTLDVFTTTPYRGNPLAVVTLSPPPTQAQKQADARE
LSAFAAGDTGGNPAGVVISEHLPDAATMQAIAAD
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TVHIASGFSKNQTGGNKAGVVLLEQPLTPQQKDAVAKE
KVHLVSVFTASDTGGNLLPVVLDEASALSEEDMRRIARE
SFVTLDVFAK
SFVTLDVFTEKPFTGNPLLAIVPLSAALSQDQKQKI ARE

$\begin{array}{ll} \\ T D V L K & \text { A F A A E P G G G N P A G L L V L }\end{array}$

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 VGFSETVFFHPSDPGQARKVDIFTTDQELPFAGHPTVGAA FNAPMTAFLSRTTHPPRFHURWFSPVTEVTLCGHATLAAA

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| UniRef90-M6D526 |  |
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 $\frac{\mathrm{L}}{\mathrm{F}}$
V






 $F N D S E T T F L H E N A E G E D W T V D D F M T S R E D P F A G H P T V G T A$















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






F NLSESVFLHE QMQHDRHRIDDIFTAYAEVPFAGHPTVGTA












 $M N L S E T A F T R K L H P T D C F G L X W F T P A S E V P L C G H A T L A S A$




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UniRef90

V ${ }^{|L|} \mid$
90 QPQ G VT T 100

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120




 C Y I L G R VT Q E R Gl Q VS L L R GSAAHPVT ELVTKA GRIAADTRTSDDSASATV

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


 A GLVRSFGDGTFALALDNQAKISVVEGFR DGTNIAAALQSP FTLVECDKTEC】RFHT
H V
NALF NKYH QKEVIFHSSH GKIT
VF R R S Q G V E TLIA KA GKI E CQF GQD G S A RAA $\square$

 YVL GRTA QAQEAAFNLKAGPVRLQYD
WL L H R M GP SCMA R ITSTPS GVVEAAHDT GEGDTPL VEIS QP WAL R QWGRWTTARVETLSGIVAARW DEAAQRVWI SQP


$A A L L G R \square G P G S Y V Q E T P A G E \square G V D V A S D G \quad A \square T M H Q P$ $Y$ VLGRTARERG GEFNLKAGRVVLDE
$Y L V L H H L G W R R A T L R T G A G P I R V$
VALAE R GAPGALLAFQTNAGRVDVMTERADGHGFRATVTSV WI M H R T E T E T E I K F M T K S G LV STRRDRTT GEMVSVSVVSP
 S Y WCMS QQRS QUTT ETP LGGEVVKVRAQEKHERLDQVTVNQF


 A A L G A R M G A GVY D LTLNA GRI TVVEADPE GD GWAAALTS P A Y I F G C DD DQP Y T L LTT K A GP I T V
 F Y I


F V L A R
$A H L H G V I E A G E H T V E T N V G V H D V E V T P E G$

A VVF LQEASRTVLLNLNSKQVSVFCTMQ GAFYDCCMDQG A HL HE ES GPK EWVI NL N K K S VVNVKTKKTD KYFHASMA Q G


$N Y L L R L L Q D D$
L WL G E RGDLGGTFHQEDGGDVLP IELLQSS GGRVNGRMLQTP

 HVLTTATADAAATLLVKAGRIDI ERVGPAGPADLLVVRAA

 A A I I SKY K LDDSVL F S SKY GEV SI AKKNGAYTLEMPS W


 $V$ F LLS D H Y P
V A L A A R D G V G T V R F S T P VGE IVVIETS E HPD G G $\square$ R A A F T A P I F L A ALWNP ATLTTVKFHT LSSGDLIVQALDAN FFQMDFP



 $N Y L L R L L G N E S A R L Q A K A G R I G D A L N P A V D G V$ A AI I S K Y QLDNVVVFNSKHGGEVVITKRNGLYTLV
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SPKF

VA S VEE
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A GRTEPV
A
$P$ VQAS A L

A PR
$\square \mathrm{PK}$ F G

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QPSFGE
K AT LLP

P T R S R P
KNVLEAFG
FPEF
A PTY
A YK $L Q K V$
RAVVEEV

PAEFT
KPEF

T P D F $\square$ A
A
$\stackrel{L}{A} P$ EF

VP
$\square \mathrm{P}$ VF H A
A A A F G
APEF
$\square$ PEF
$\frac{L}{A} E P V V P D G$
A PR
GPV

$H P$ Q
LP S WE G $\square$

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UniRet90-F9FVT9 UniRef90_T2VHG8 UniRef90-L8P9B0 UniRef90-A0A024JW25 UniRef90-UPIO0016A5604 UniRef90 W9VQF3 UniRef90-UPIO003722DA7 UniRef90-T2AS37 UniRef90 UPI0003649CF2 UniRef90_UPI0003B32612 UniRef90-D6AY31 UniRef90-F2RJNO UniRef90-K6W9B6 UniRef90-S1SHN9
UniRef90- UPIO003FODCFF UniRef90-U5WVT7 UniRef90'UPI00036A676E UniRef90-J2JX10 UniRef90-A4ISE8 UniRef90_V6JZZ3 UniRef90 A4FJ83 UniRef90-UPIO002DB33C4 UniRef90_J4GC67 UniRef90 A9VAV1 UniRef90-UPIo00421EEOF UniRef90-A5EAA6 UniRef90-Q3IGC1 UniRef90 B515V4 UniRef90_UPIO00476F8A1 UniRef90-G7EEM1 UniRef90 E8WF82 UniRef90-M4B9F
UniRef90 C5All UniRef90-UP100036FCFC0 UniRef90_W6WHU8 UniRef90-W1 YVD6 UniRet90-O29511 UniRef90-Q4QEE6 UniRet90_B4WZ87 UniR Refo ETKD 52 UniRef90_U7G4P3 UniRef90-W5WM55 UniRef90-A0A059CRT9 UniRef90-N1U9K7 UniRef90_UPIo003693DE3 UniRef90-W6KQT3
UniRef90_UPlooo3719D4C

保
 MVLDATGLSDSDMAAFARW E पY $\square M K A F A N S P N G G N A A G V V L Y A D R \square P R D R K Q K \square A A T$ GGNKAGVVHVASFPSDRVMQAVAKV MRRFKQVDVFSRAPFKGNPLAVILDAEGLGDAQMQAIARW $N V Q T L N A F A E N G K G G N P A G V V L N A D E L S D K N K L E I S K K$ MPTLHVLKVFVGEGGGGNPLGVFLDGGEVPEGARQRVAAS

PFTTLDVFTTTRYEGNP【AVVHTPKQPSSDQLDQTAKE MNKAYILNVFTGEHAQGNPAAVVKLTAWLADTELQALSKN DVTVLRVFTDEGNHGNPGGVVDAATVQPGDRQR1ATE $F K K I D A F A T M K S A G N P A G Y I N L D S K E S E N E M Q Q I A R E$
$T F V T M G V F T A E K F Q G N P L A V S V H G N S L S Q E R K A L I A K E ~$


VIDVFATEPFEGSPDAVVLEADGLSEERDHGLAEW PVFTVDAFTNEAFRGNPAAVCLLENELDEDKHQKIARE VNVVDVFVDAAGAGNQLGIVW ASSSTRKREQA!AAD TFVTMVVFSPEKFQGNPLAVSVHGNADSQKRKAQFARE RSQAMDDTMTEEAFKGNPTPVFVLDEWPDDPVLQAVARE AGNPLGVVLDGASVLRADRQGVAAE HTFVVADVFTAKRYLGNQLAVSVRNNALSKTRKQRIAAGE YTIVDAFTATAFAGNPASVI ITDTPLQVEQMQLIARE MTDHEVLRVFCDGRF GNELGVVLDPAVATREERQAVAKQ RПEVVRVFTDATGRGNPGGTVYSAVENAD MRAIAAE VNVVSVFVDDEGQGNPLGIVW ASSWTRKNEQRIAAD
 H TFVLVDVFASERYLGNQLAVSVRSNALTYQQKHQAAKE TVRVLRVFAPDGAGGNPLGVVPDGGALPAEERQALAAR TFATMAVFTAEKFQGNPLAVSVHGNSLTQQRKSLIAKE PFHILDVFTTRPMSGNQLLVDRNDTLSTEAMQQIAAE
 MTDYDVLRVFCGPGGGGNELGVVRDGSVIPERDRQAMAAK $D V T V L R V F T D R D G N G N R G G V V D A S V A P A D R Q Q L A T Q$ LTVFSPEKFQGNPLAVSVHGNVLSQRRKARLTR DVSVVRVFTDQDGHGNPLGUVDAHDVPENERQALAHR TTLHTATVFGDGDTGGNELGVFLDRPGLPAETRQA|AAD
 TDDDVLRVFCSADGRGNALGVVRDARFHPDEARQALAKE TDYDVLRVFCADNGGGNELVVVRDGSVLSEERMQELARAK
 CKKTAQE FCRKSAWCNPDATIDVPSTVSDTQKHHI SRE MLSFQVVDAFVRAAYTGNPACVIVLEEKLTSFQMQALAVE MQRFFHISVFSYKKLSGSSALIVIYKTGLTSKMMQRIAAA AGSSALMVICETLPEAATMQAMAAD MTDYDVLRVFCAPNGGGNELGVVREGSVMPDDERQAFAAK MTALHVLRVFCGPDGRGNELGVVLDGPAVAAGQRQAVAAR VFSNKKGSGSSALIVIYKTGLTSKMMQQI AAA VLRVFCGPDGSGNALGVVRDGRRYPDDSRQALARK IIQVDAFTSEAFHGDPVAVVLLSSDGASKWMQRVTME VQAFTVNGERGNAAFVFATQAHERVDIDACI ASA RGLDVLRVFCSGDGHGNPLGVVRDGRPYPDQRRQELAAR FGRNDESGN AAIVVEDSALAEPERLKFAQR VF SSSQHAGSSALIVIYTQGLSTRVMQKTASN
AFTKMHGNGDFGVIVGEEKKRFVRAVCHRN DYS L DDVFAGAPFQGTQVPVT DDAANSSDASTA $\square$ AGE DYALLDVFAGAPFQGTQ TPVMLTGKSMDAQGKTATASE MLRVFCGPDGRGNPLGVVLDATVRGERARQDLAAR

VFNDVYEKGNTAGVLDGFTTPNDSELIKMAKM MAEVEVLRVFVPDGRGGNLLGVVRDGASVPGAQRRRLAAE FGASFLQTQQMSMI AS VVHACDRDGRGGSPTAV LDESPMPDAERRVVGR
UniRef90 I2JME7 UniRef90-UPIOOO440D521 UniRef90-10L9W0 UniRef90-H2JY17 UniRet90 HoHT85 UniRef90-W9XDE2 UniRef90-HOQUQ3 UniRef90_UPI00037E9F63 UniRef90-A0A024ULAO UniRef90 UPIO00344A085 UniRef90_UPI000255AFE9 UniRet90_Q1AUDO UniRef90_UPIOOO22B2276 UniRef90_F9XD96 UniRef90-UPIOOO30808B2 UniRef90-K5BFQ7 UniRef90-UP10001E2C6AC UniRef90-H6C501 UniRef90 X1V108
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UniRef90 A4ISE8
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UniRef90- N1 H9K7 UniRef90_N1U9K7 UniRef90-UPIo003693DE3 UniRef90-W6KQT3



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## L ,

INHPETVFVLDGKSTVSAELLKVFSPLSERAVGSHSVVAAA ${ }^{60}$ LGQPDTAF SQTDPEAEFGURFTVNREVPLCGHGALASA VGTSHTAFVDSSSAVPPRVRFFTAEGELRNCGHGTVAAQ VGYSETAFVTAADQDARRFVRYFSPLAEVAFCGHATVALA FNLSESVFLHEPTQQDRVRIDVFTTQAETPFAGHPAVGTA MGYSETVFVDVPTPGSTTHARHYTPQAEEPFAGHPAVGTA VGYSETAFVRRPDNSNNVYVRFFTPEGEVDLCGHATVATF TNLSETTFVPASDPAADYRVRITF $\checkmark G L S E T A F V S K S K T E D$ FKLDFFTPNKQTAHCGHATVATF LGFSETVFVD GDGRGELRDFTPQAELPFAGHPLVGTA RYWRHDMGSRFRGRWFTPTTEVDDCGHATVASA

## M

LDFAETTFLLQPDDTADYFVRDFTREREDPFAGHPTRGSA LPHEETVFVLSPTDSADFRTRAFRSKTEVRFAGMSTLAAA MNLSETAFIRKLHPTDDTAF LGF ETMF DAVEAGAATARDYTPAREDPFAGHPTVGLA

 LGYSETVFVEDPVDGEPARVRUYTPAEERPFSGQAVSVGTA LGYAETAF SESEI ABYKFEYFTPKEEVDLCGGAAT GSA LGFSETVFVEDSAARGVGDTYTPTGRLPFAGHPCVGTA VGFSETVVVGAPEN ERVKMRTYTPAVELPFAGHPSVGTA LGFSETVFIDGAFADGRATARIFPPAQELPFAGGPTVGLA VNDE TVFVRETSDDGAQMRVFSPGGEGRFAGSASLGAA FNHPTTAFLHDPHPYQPRKLELFSPKGERDFAADAVLGTA LGFSETVFVDDPDSGAGPRVDYTPGVRLPFAGHPLVGTA LGYAESAFVRSPTGGCAATVR:FTTDAELPAGHPLIGLS LGYSETVFVDRPAGSATAHATIYTPRTEDPFAGHPTVGAS LGFSETVFVDDP ERGVIDMYTPTLRLPFAGHPCVGAA LGYSETVFIDDPATGATGAHAMYTPRVEVPFAGHPCVGAA FNLSETAFLLPPTHPADYRVRHFTGDREMPFAGHPTLGSC
 LGYAETVFLEDP


FNLSETVFI EKPQVHD DFSLKWFTPHMEXPDCGHGTLASA
MNLSETCFL QPEGPDQFNIRWFTPGGEVRWACHTCGCS THHPATVFLNKANNKPMCQLRWFNQLDEVKRCGHGTLAAA DGYSETAFANAPDGDTWRVRYFAPQAEVDFCGHATVALG LGFSETVFVDDP DAERGVIDDYTPSARLAFAGYPCVGAA LGFSETVFVD NAGGTGTVDIYTPSVRLPFAGHPLVGVS LGFSETVFVDDP ERGTVDDRTPGLRLPFAGHPLVGAA TTLSDTAFVKTEDDVVEYHLRSFTPGTEVEGNVHATLSAA QLQSEVAWLRRDAGVPGLGLRFFTPGGEIAFCGHGVLASA QDASATVFVEADAAGDMQLDYYYPHARSPLCLHATLAAG SQHPASVFLNNEDASHRVCNDRWFNQTSEDKRCGHGTLAAA FGVGADGALFQPSQKADVRFRYFSDGSEAAMCGNGDRCSR FQQTETVFTEPGNSASPVTVWFNSKGRQLFGAHTILAAS FQQTETVYVNHLIKKYDYKLRIFTPRSELPFAGHPTIGSC LGGFSEVFVD DAAEGLVDLYTPSVRLLFAGHPLVGCS
 GNTANVRRPRRMYTQWFGLRWFTPMQEHVFCGQAA1AAA


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UniRef90_UPI0003719D40

APEF
APPYIRSG
$A P S Y T S L$
$L P D F$
A P K Y

| $A P P$ | $P$ | $F$ | $E$ | $H$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $L$ |  |  |  |  |  |
| $L$ | $P$ | $P$ | $T$ | $R$ |  |

PSWTA

H P Q
APKL

APPFE

K F D F R Q L
APAFT
A
K PDFYDV
ARTLREYG
T P
APSFE
APAFE

P E WA A

EFALHEFG
$K$ DEVS P
PEWGP

K P E WT P
$\frac{\mathrm{V}}{\mathrm{A}} \mathrm{P}$ V V
PEWAP
E P
PEWAP
APEL
APEFT
EPR L R
PEWS P

PTQTRAL
PRTFRQYG

R P E WA P
E
P P
C P A $\square$ T
K PKFG

MAD YES $\square$
R P E WA A
V

S P E
$P \square T V R P$

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UniRef90_UPI00035F23EF
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UniRef90-I3TIK1
UniRef90-F2AM61
UniRef90-ЕЗІЗВ5

FTKWQGCGNDF VLFDCLQDD $\square E D Y A S V A R K$ FTKMHGLGNSTYVNQFEEQLPEEKLSEI A DQ $D \square D V L R V F C D A A G H G N A L G V V R D G P R L P D A E R Q A L A A R$ FTKWHGQGNDFVIVNGFQEK IEDYAQAAVK
$\square A \square V N A C D R D G \square G G S P T A V L A E D P D \square S E D Q R R A V P V R$ VFDK LH GLGND Y I YVD $\quad$ D R FP $\quad$ DED DEGFARE MSEYDVLAVFCPDGRHGNELGVVRDGSRMPRDERQALAAK

MHDFHQ DDAFTHRPFSGNPAVVYRLDAWLLDS LMPYWAER MSRLFHVNAFSHHPFAGNPA VVVLGEARPDAELQTLAAE F TKMHGLGNDFILIEDFDKNNDANGAELAVR FTKMHGGGNDFIVVVGEKELDPADAAELLAVKW AFTKMHG IGNSUYLDLGQHNYKEDIFCELAQK FTKMQGI GND YVYI NCFEE VETPEKLAKK FHKMHGLGNDFVI IDERSGSFDLTPTR

AFCADGSGGNPA $L V Q \square G G \quad T E A R A R A L A Q R$
AFSH $\square$ S F K GNDFAVLANDFQLTADEASA $\square$ ARE



[^1]

| UniRef90_E8LET4 |  |
| :---: | :---: |
| UniRef90_S9Q535 | A ALRGRVSVGTYRQRGLA GTIGVTLAADG |
| UniRef90-UPI00047B87E2 | RYLF GLTKETRFTVETGAGILVPEIVLE G G QVKGIKVDMG |
| UniRef90-O32114 | AYEHKLVEETSFLIETLS GLVKAEVQVENGKVNVVTVDMG |
| UniRef90-D6M252 | WLLDLP ELLAPPAGRVE ARSDGESTWI TARAA |
| UniRef90-A1HMY7 | R YVYEYGDKTKDTLETLA GPI K P ELIFENGVLRTVRVDMG |
| UniRef90-X1INC0 |  |
| UniRef90-UPI000369E224 | A HLAAEAGTSEYTTMLRAGGRLFTGQAAAAGQYSATFDPG |
| UniRef90-UPI00036220B1 | KLLYERCQDNPMTTNTRSGEKILVLTDEDGKVTHARVDMG |
| UniRef90_UPI000476671B | WLLGARLDGEFSWIEARAEWAPPRTLRQYGS AAEI DAP |
| UniRef90-DONR86 | F ALHDAGHRQTFHFHTLSGVLVCRFEVQSESQVLVLI DFP |
| UniRef90-S6UG38 | A ALA A Q Q G GVFDLTLNQAQUTVEGHAQ GSLTSAALQS |
| UniRef90_UPIO0046AADE6 | WA ERLGKRQLRARQISARG |
| UniRef90-D5X7U3 |  |
| UniRef90-W4BNJ4 | KYVHGHVNQEQITI ET GA GVQPVSLNIRDGKVETVRVDMG |
| UniRef90-UPI000225B31A | A YEAGIVSSKQFTI ETRSGI VQAEVLEENHHVSEVTI DMG |
| UniRef90-D7WM24 | KYVFERHRQELITI ETKSGIMLAQVVVQDNRVIEV TVVDMG |
| UniRef90-D9R8C5 | VYDHGLVEKTEFNVETGAGI KHLKVSTEDGKAVRITVDMG |
| UniRef90-UPI00035F23EF | S L L GQERD T D S LTFETRNGLLK E V V |
| UniRef90-A6R6Y1 | HY F Q K LEAEDS |
| UniRef90-K3XKZ9 |  |
| UniRef90-I3TIK1 | VRLH GQARDRALVIA TAAGPQTVSPVPADHRPPGAA |
| UniRef90-F2AM61 | ATLA WQGGPG |
| UniRef90_E313B5 | A LVA A ELGRERVTIE TAAGVLDARIS GDG LVTVDMG |

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lupas_14
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jnet
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jhmm
jpssm


| UniRef90_E8LET4 | K P VFRA |
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| UniRef90_O32114 | E P R L T |
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| UniRef90-A1HMY7 | EPRLL |
| UniRef90-X1INC0 | EPQF |
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| UniRef90_UPI000476671B | V P P E G E |
| UniRef90-D0NR86 | EQPTTPAG |
| UniRef90-S6UG38 | P T F S |
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| UniRef90-D5X7U3 | E PE\E |
| UniRef90-W4BNJ4 | EPIL NGL |
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| UniRef90-D7WM24 | K P |
| UniRef90-D9R8C5 | VP E V T S |
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[^1]:    lupas_21
    lupas_14
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    jnet
    conf
    sol25
    sol5
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