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 L Y Y
 VNRLLYAIGGFDGNRLA SVECYHPENNEWSYLPSLNTG LGGFLYAlGGSDGQCLNTVERYDPRHNKWVAVSPMSTR GRLYVVGGFDGDTWNTVDCYDPEEDQWQPVASMETD GMI YVVGGSSGESLSVVEKYDSVSGKWNHVLPMSVQ GVLFAVGGMDTKGATSIERYELRTNTWTHVANMNGR $\nabla N N K I Y V I G G S N G K S L E S A E V Y D P E T N T W T M L P T M N Q A$ ERRASMPER
1 GNKLYAVGGYDGTS LATVESYDPVTNSWQPEVSMGTR PRLIPSILFAIGGWSGSPTNAIEAYDARADRWVNVTEEESP $\square N G K \square A A G G Y N R E C \square R T \nabla E C Y D P T E D R W T F \begin{aligned} & L \\ & \square\end{aligned}$
$\square P K \nabla M G \square R H S L P Y M E C F H P E E N D W \square R L R D L P M P$
 GVLF CVVGGRGGDPFRSIECYS $\square$ S R DSWFFGPEMNSR
ELNGRLIVAGGYNRECLRTVECYDPATDNWSFDAPMRTP LQNHIYLLGGFASNSINDVDMFDSSSKQWKHMPQMSRC
LNGFIYAMGGFDGTRLNTAERYEPETNQWTLISPMHEQ
NEYLVVIGGFDQDPSDSVEMFNPRTLEWNELPDDPDS EMQGLI YVI GGDSNE GDRSFEVYDPLSKRWSPLPPMATR



$\square N G L I Y V G G G F D G T C L S T V E R Y D P L V G V W T T V Q S M D H R$ KVLLVIGGQAPKAIRSVECYDLREEKWFQAAEMPNR
 EFLILIGGGRNQQTTRDVLLYNEKTSQWLSLAKDPVR

$K M L L V V G G Q A P K A D R S V E C D D L Q R D R W L Q L A E L P S R$ $D F L I L V G G R N Q Q T T R D V L L Y S A Q T G E W Q S L A Q L P A R$ $\square N D Y L Y I I G G Q N S E A T A C V R R Y D P R F D K W T R L A D M H V R$
LHGK $\square F / \mathrm{V}$ GGYDGECLRSVEEYDVEQGKWRNLANMKAE LHDKLLVCGGYDGECLRSVELYY PETNTWASLSPMLEA VQGII YAFGGNVGQSLSACEKYDPHLDRWTHTASMKHR


## SQGSWTMLAEPMKFA <br> $E \square N N L \square Y$ A $\square G G Y S S V L N A D M D V F D P A M N S W F P M Q P \square S \square P$

$\square A G L!Y A V G G \square N G D S \square N V V E V F D P \square A N R W E R C Q P M G S Q$ GKVLVAGGGNGDGSPAAAELYDPATGTWSTTGSMSAP $E L V F A V G G W H R D A V S G V E R Y N P L Q H E W R V L G S V S R P$
$M F V I G G F N N G A L N T V E Y L D F R G E W Y P A A P M A T R$ GRYLVCAGGRNSDA LKSALMDDS DTGEGFVLDEMHDA CGGRDSRALSCVERFDTFSQYWTTVSSSHHQA
$\square G N K \square Y \square F G G Y W S G Y N K E L L V Y D L A A N T W T T N S D N P S G$ DQFVFVVGGVNGSSSKSVSMLDVSSQSWDPLIEMSVS PRLSS ILYLVTGGYNGVTLSSLDSFSPKKDILVSLTMSMGSAA $D M L V V V G G R N E Q T S R E A D V F D E R S Q M W Q W L A K D P V R$ GLI YAVGGLNGDSLNVVEVFDPDGNFWERCQPMRTA
 $V D G K I F V 1$ GGF GD DS LSTVEMYDPKTDTWERKSDMPTA

SHLVIVGGEPSSRDRSVKFDDTGGSSWREVTAMERP QVPALIVFMGGSSRQPRSQVEVYDAVTDAWTPCKPMTTV

KThEVLGGETSKEVKSVERFDHERTEWLMSKPMSEA LIAEVIVVIGGCDRKGLPFADTYHPESRRWTPLPSLPYP QADKVILAVDGMDTKFSNGTEFFEPKMSRWHNGPEMITS LS KVIIMMFNQSDTSPKCYTECYDPATKMRENAPGLNECC GKLYAVGGRNNSDCASVDCYDPVTNAWSACADMSTP EVIVVVGGCGGFNLPYTECYDPVTGEWKALAKLPET $M D G F I$ Y A GGEDKHAVSSDNRYDPRFNTWGHAASMQHR GKSLFLAGGLTGNASSHFFSYNVEDKKWRELAPMPAP DDGYIYCVGGLDHRFFSSVTKFNLATKTWEEAGVMHEA
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UniRef90-W4Y6F6 UniReifo B4JHE7
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RYLHTATLLPGKVLIAGGA HRGAGVASLQNC:YAVGGF RSYSGVVVSDNKI FVMG RKQVSAAEADGIVYVAGGW $R C G L G V A V L G G M V Y A D G$
$R \square Y G G G V N N F L Y V F G G Q N D$ GLLYAVGGMDANKAGAT REEHTAVATNGKMYVFGGIDYYSGSVVYNKD WVYNARED RRLLGVGILNDCTYAVGGRDDTG GLUSVEVFDVSDK RSYASVAAMEGCIFVFG GGDGSSWYNTAECYNTRSN RAHHGAVTLDGFVYLTGGCNR LYKASYVALHSVLYVI GGLLTTNPKNSEVSRTVYTLSLKKN RSRAVGVAVVNGLLYAIGGY GNG DQSRLSTVYVYNPETD REGCAAVVFNGLVYVLGGRT
 DQV LVVGGIDPDS


RASFAVAVYDNKDYVIGGYRRG RSEFAACALRNNIYISGGHINSRD RKNPGLAVVDNLVFAVG GSTDHFEPLRSVDVLDLSSE RKLAGLGVIDQFVFAVGGVNESSSKSVCMLDVSLQSP RN RVGAAVLDGHLYAVGGSNGGYDGVSQLKSVERYDTEKD KSAYAVCALKNDILVSGGR\|NSRD KSEYAVCALRNDILVSGGRINSRD KSEYAVCALRNDLVVGGRLNSRD RTHFSLNACEGLLYAVGGRNAE RANLSVVTLNGFIYAMGGWN RCCCCSIIFTG YLYAVGRGTVRERD RCRCGVGELKDFVYAVGGFNGS


RSG $\square A S C V V Q G L F Y A \Pi G G R N N S P E G N Y D S A S C R Y N P M S D$ $R C R A A G V V V G G R V Y A V G G F N S S L R E R T \quad$ V D MYDGGRD $R C R A G V V Y M S G L V F A V G G F N G S \quad L R V R T V D S F D P V K N$ RRHVGVISVEGKVYAVG GHDGNEHLGSMEVFDPLTN MRSYIFAVG GGSGFAHHNECECYNPKTN RARFQMAVLMDQLYVIGGSNGHSDE LGCGETYNPNTD RGRGGVAVLNGMLYALGGF DCAVRLNSAERFDPKTN RSDASATTLHEKVYDCGGFNGGELDTAEAYNATTE YRYVAACSLGTCVYVIGGF DGNERLNTVYSLDDAQR RAYLGVAALNDCIYSI GGWNETQDA LHTVEKYSFEEE RSR I AVVALKGCLYAI G GGDGS RCRAGLAVLGDKVYAVG RYEFGICVLDQKVYVIGGDATNVRPR RSGLGAAVLDGKIYVAGGENDS
RAYHGAVFLGNFUYVLGGFDSAD $S R L N$
GRVKN
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RRYGRLEAHGDCTYAVG GHDGSNYDNTVERFDPREG RCRAGLSVLGDKVYAVGGFNGS
LAYHALVTHGRFVYVIGGFTT RNG GAALPQGQLYVIGGSNGHSDE LYKASSVSLHSNIYVLGRPINDNRSPLSCGERYDPLAD RSRVGVAMVNGLLYALGGFPINDNSPISDNIYIFSLKLN RSGHCVVTLDGFIYAAGGF GESESMIFAFVERFDPVCR RCRAGLALLDGRVFTVGGFNGGDDKVRVRTVDTYDPARD LYKASAVTLHRSVYVLGGMAVSGGKSLVSHSVYVSLKMN

RGRFDCTVQGGKVYAV RGRFNTAl LSGEVYAlAGCN RAGAAAVVVDKYIYVFGGF RSYHGMVALDNEI FIVGGFS REFFSVISAGDNIYLSG RCALGAAELDGKLVAAGYLAGGSEGGVMLA RQDHVAAVVNGKI YVIGGITYGAEVDV IVVAGYYKHS

AGSNGNNDLKSAEVYDPKTD RSRVGVAMVNGLLYAIGGF

80


 CS GL GACNLEGLYVVGGNLSLANTESNSLSAYNPNN RSGLGAAFLKGKFYAVGGRNNDGSSYOSDWVDRYAVSE
 atprctilagliyavgglnsaan RsaVgval Ho gkt YAllgaf rluofgaviodklyvg RSLMCCTDVGTVAVGGLT RTKPRKSTVGGSYVG GMDNKGATVEKYDLBNN bayhgaylngfyyiggrosvo raglegtael ngrlivaggynbo eect rtkprkstv galyavgat t





[^0] Dropalod K R


#### Abstract

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 GTQELSTVELF RSG $D N N \square P L K S A E L Y D L E R D$ GQVYLSSCCKFKPESD D D  TD T T S S V E E Y N P N T N

L D M L | $L$ | $D$ | $M$ | $L$ | $G$ | $Y$ | $N$ | $V$ | $D$ | $D$ | $K$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $L$ | $S$ | $T$ | $V$ | $E$ | $V$ | $Y$ | $N$ | $P$ | $E$ | $S$ |



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UniRef90_H0VFU4 UniRef90_UPI0003EAB3D1 UniRef90 UPI000359A68C UniRef90_E3MVP8 UniRef90_R4FK95 UniRef90 UPIO00265955A UniRef90_UPI00035A1D2A UniRef90_W5K022 UniRef90_UPI0001CBC14D UniRef90_D6MLX1 UniRef90-X1YFM7
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 QWAPVASMLSPRCSFGACACNGAIYVMGGWVGADIGSSVE QWKSLACLPFAVSKHGLVVSSMLYLAGGEFPDGSASREMW QWSQAPSMEARRSTDGVAVLNGQIYAVGGFDGSTGLNSAE QWRDGEPMLAARYSHRSTAHKNFIGVGGLGDRQELLGSME TWAPLPNLKTARCHNGCATDDNFDYCDGYRKVMDSLKCFE RWERVTSLPLSRSHTGVCAIDDLIYCIGGFNGQNVIKQCD EWTQVAPMSVARGGVGGAALGNRIYAVGGHDGTKYLESVE TWEPVTPMNTKRCYVGTAVLKGHIYAVGGYDGVYRLNSAE


 EWSCVAPMRESKRDVGLALELGDGKVLVSGGDNGGHLSKAE

 KWSTVGSMGGRRLQQ GVAADDRRLLVVGGRDGLKTLNSVE K WTKKK DAPAA RSRHEAVVVNGKMYVI GGCNDGNNATS I L
 H WRTAEPMLEP RFAHQSISYLGFIFALGGLGPDRRLLTSVE SWTRVSSMNSQRR
SWKD GPPMDTP R WCLGAAVLGEKDYAVGGSDPFSALNSVE Q WT EARP LIFEGQSEAGAAVVDGKIVVIGGHNWKERKDVRT
 SWF QTASMLESRTTDFHLAAAIGTQLFAVAGRNDADKMATVVE
 E WRKL GEMPEPRFGHEVAVLKGRLYVGGGKKYYGILNNVC

 S WVVPMV E WE P V A P M R SP R S A L L A V A L L L G G K

 QWTQIA PMEHRRADAAAATLHGKVY IFGGLLGNLALS SAE RFT MMEPMDTARAFHAVAEDGRKMYVIGGENDDGCLNSVE Y WT TVVS S L H Q A R C G L G V A V L G G MVV A I G G E K D S M I F D C T E VWLA AP PMDARRSTLGVAVID QLLIDAVGGFDGSTGLLS SAE


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UniRef90-V9KFA6
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CFNPVTKTWVVMPPMSTHRHGLGVATLEGPMYAVGGHDGW AYDVNDSRWYHVSDMPTRRCREGLAVVNGLVYAVGGFNGS RYDPEDDTWTMVCGMRTKRDGVGCAVINRMLYAVGGFDGQ AYNYKSNEWVYVASMNTRRSSVGVGVVDGKLYAVGGYDGA A Y NMKTNEWFHVSPMNTRRSSVGVGVVGGMLYAVGGYDGA RYD DESDQWSPVAPMNAPRGGVGSAALASHVYAVGGNDGV CYNPLTNEWDNITPMGTKRSCLGTCAFDGLLYVCGGYD AFDPVSQDWTNCAPLDTRRHQAAVCEDDGYLYVVGGAESW RYDPVRDVWEEVPSMQRSRSAAAAVCFAGKMFVTGGCDVV
 VYNPHSDTWTEI GNMDTSRC $V Y N P E Q N R W Q V I$ PSMTECRSAGGVVADEDGRDFADGGHSG MFDPKRQEWRLI AAMSTRRSSVGVGVVKGLLYAVGGYDGA KY DPK K R K WQPVAPMTTTRSCFAAAVLDGMI YAI GGYGPA KYNADIDHWCIVGKDPTPRFGMAVIEHQGLIVVIGGLSEM RYQPHTNQWSLI STMHEQRSDASATVLHGKVYIVGGFNGN
CYDFEEDRWDQI AEDPSRRCRAGVVFMAGHVYAVGGFNGS RFCPKTNSWQMI SNMGCRRTTHSLLQMHH
 VF DPVTKTWSNCAS LDN I RRHQAAVCE RYDSIYNTCENMANMPVAVLHPAVAAKEQRDYDFGGEDワM CYS
RY D A A D K WA RYDAAENRWVALDSMEPPRHSFGCCHMDGLIVVAGGLGVG
RYDPCFDSWLEMAPMNVARSELGLVMLDGYV FAVGGWEGR RYDPHTEEWTADAYMSTRRSSVGVGVLNGLLYAVGGYDGA RYDS ICNT WERMANMPVGVLHPAVAVKDQRLYLFGGED DM
 $R F D T S T D G A E D A A W E P \square A S M D Q A R Y Q A G V C T W R G L I I A A G$
$C Y D P S T D K W F S D A P L H T G R Y Q A G C C G F Q G N D W V V G G C D A W$ VYDP ILNTWSFAHPICRRRAGAGVTHC
$R H D K A S N Q W S F$
$R Y D T D M L Q Q Q R S D A G V A V$
$V$ RYDTDTNQWETVSPLPKPVHSAAATVCGGKIVVGGGVN $V Y D P V A N T W T S K A P M N V A T Y G H S A I G V G Q R I Y I M G G N P S T$ RYNPVTETWRPCSPMSVPRNRVGVVVMDE
CYSPEADKWAEVTPMSACRSASGVSVFEGRDYVSGGHD RYDPSEDRWCKVAPMASRRMGLGVAVLDGYLYAVGGSDGT RFDVHTQQWESMPP LSTGRSGLAVVVALNGLVYAGGGYDGR
FLNRTMQVWQQMAPMPHARSGARLLVLGDHLYAVGGFDGK $F L N R T M Q V W Q Q M A P M P H A R S G A R L A V L G D H L Y A V G G F D G$
$R F D P D E N K W E L V G N M A M S R Y Y F G C C E M Q G L I$
K VI GGUN SYDVRMKNWIPMATLKVPRSSAMVTHQNGSIYAIGGTNGE

 $M F D P F L G K W I C S P S M L Q P R F A L A A A E S S G V I Y V S G G F D G S$
$C Y K P E T D Q W T V V A R M N A Q R A A A S A A V L H G K V Y I C G G F Y Q T$ RYNSMFNLWESMAPMPEAVLHPAVAATNQRIYMFGGEDAM $\begin{array}{ll}W T V V T E M S A S R S A A G V & T V F D G R V V V S G G H D G L \\ W L P I S P M S C C R S S L G V A T V R G K L Y A V G G Y N T S\end{array}$ $V L D P S T D T W L P I S P M S C C R S S$
$C Y D P E T N E W E K A S E F P E A L T S V A C V C$
$V$
 $V D M D D L S S E S P C W K P T V Q M L N K R R W F G V G V I V D N G Y A V G G$
$R Y N P H K D E W T Y V A S D D E P V V S H A V C V D K G Y L V Y V G G Y N G S$ TFDVRRRLPEWRPAAKMDKPRSASGSCV
RYDPCENSWECDAEMQEKRSSFSVVVLNEKDYADGGHSDT RYSPRSERWQTVATMHRQRRRFALAVLDSRMYAVGGFD RYDPFSNTWAAAAPLPEAVSSAAVATCAGQLYVIGGARQD
 LFDLETEQWVDGATMQAGKSGHAAAVWRAPCLMH

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Clu
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 ESVMPRRDDSNDERHTESPQNPCGGRSQDICG\|TSNMQFH
S S $\square$ N S VETYSPETDKWTVVTPMSSNRSAAGVTVFEGR $\square Y$ V T DFASGEMYDSTDRQWRADAPMTTRRCR LG $\square T V L N G R V Y A$ SCLKSVECFDPHTNKWVHCAQMAKRRGGVGVATWNGFLYA GYLSSVEVYDPVINTWTTLASMNDARLDFTSVTVNNRIYA
S Y LATVERWDPQSRQWSFVSPMSMPRSTVGVTVMNGKLYA S CLINSVERYNPKTNTWESVAPMNDRRSTHDLVAMDGWLYA ECLFTAEFYTPETNQWTSUAPMRSRRSGVGVIAYGECVYA
 SYLNTVERWDPDGRQWNYVASMSTPRSTVGVVALNNRLYA LRVRTVE $\square Y$ PPATDQWTVTSSMEARRSTLGVGVLNGSVYA NRLASV RYHPENDE WCNTQPMHTARSGAVAL GNTIYA SRQCSVVVYDPVANQWCYVADMSTRRSGAGVGVLGGQLYA SRQCTVVEYNCNTNEWTYVAEMGTSRSGAGVGVLNNLLYA ASLSSVERYDPHLDKWTEVKAMGQRRAGNGVSELHGCLYV
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HLLNSMEAFDLHCGTWSVCKPMYMRRSGAGCT $\square Y$ VCGGYG
$\square P \square F A S V E C Y H R R G H Q M P L A S T \square S T P T A T P F T P G$
SRQCSVERYDPATDTWTPIAEMSARRSGAGVGVLDNILYA HMNSVERYDPSKDSWEMVASMADKRDHF GVGVMLGFIVVA

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 QNPVRLOVY QNPVR LIQVY HVSRNMWFRMETR VVKNVCAPAVV DGDQII
 S SELSSTASFDPRRQRWTWLPSLQRARSHVALCALGGRVY
SRLDSVECYNPHTNTWQFMESVKMAVTSPAVVSLDGLLYV SRQCSVERYDPKEEEWSLVADMSARRSGAGVGVLDGVLYA QNPVRLIDVYH【ARNTWFTMETRVVKNVCGPAVLLGERIV CGESVDSCSLDVYDPGQNMWDNGNPMSVARNRVGVAVLDN GCDRWTCM
N $\backslash L D S C E \square Y Y P Q K N T W S Y G P R P M H A R R G A G L A E F N N K \square Y M$
GRSAGVLQSYVPQTNAWSF $\square$ ESPMDDNKYAPAVTYDKMYV
A VD YFP WPETRAYDTVSNTWQ $\square$ GPPM $\square$ SYHEQHAMM
L L Y A VG G
SYLAKAEVYDPATGTWSAAGSMASPRCYQPATLLPSGKVL SPLYSVERYDPVEDTWSPCPPLGTCREDLGCATFQGKIYA KHVEVFDPQDNQWSTVASMRHARNGPAAVVQEHSNSVLVF

R LIK S VERYD LR KNE WELIT NGLLEVRSAGSACNYHNEVF■ C S F
YHYN $\square W E Y D P \square A N T W \square K K K D N P \square E V C G Q P A A V V L N N K M Y \square$ $Y$ LK S V EVY N PNNGVWSY $\square$ A DM H
$K Y$ Y Q A Q FKN LT NQGR
Y SLLPTAECYNPDTNDWT T $\square$ APMMCSRRGDGVIDAYKNQDYV HNPVRMTQVYHDARNMWSKMENRTVKNVSAPAVVMDEKUY Q $\square F N T V E Y Y N H H T N R W H P A A P M L N K R C R H G A A A L G S H M Y V$ $G P \square W T V N C$
E DD S Y DS NVEVFNPKTNQWRERTEMTAPKADHTASVIDGK SNNGGDSQDSAEVFDYKTQKWRMVSSMATRRSGDGVYVVG FQSTFQRYNLEVDRWENMTAMTTARGWHCMTSSHDRIYVFF DP $\square$ DSVERYCPSTNSWNFTSPLDLPLSGHVAKVSQGQUFll
GVNTDKVQCFNLKED QWSLRSPAPFSQRCLEAVSLE QTFDTVECYDPNIDTWTPVAKMCGRRRGFGVGVLNGVLYA NKA LDRSVEYYDPLDDKWTPVAKMS DCRYGAGVGILDGL LY

PDENSYSDKVQSYNPETNAWLLRASLPVAKSYDTAVSLN DTCSDKVQCYDPEADTWLDRANIPDAKRCITAVSSLNNLIYY WKPMAPMS $\square A R E H L T S G A V E G K M Y A \square G G R$
YK LIA S VEVYDPVSNQWMAAPSMTEPRSR\|VAGVINGY YY A Y A TRNCLDTVEDYEPRVNRWRSGPT LISKRSGAGVTVVGDRLL K ISSKVEYFDDDKGEWLPRKNLRIPRFFA LLLAHGDYDYT

## QUERY

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 ASYGARGCHNCESD $\square K A \square D D P M T A L R S \square K Y S A Q N N \square K K S R$
SGGHDGLQ $\square$ F NSVEHYNHHTATWHPAAGMLNKRCRHGAAS
CGGYDGTSFLSSVEFYDPCNNQWTNVASMTQRRSRVSTVT $\square G G H D T S R L S D C V E R Y D P K T D T W T A V A P M S I S R D A V G V C L$ $M G G G A G I P S S V E V Y D V V S N T W M K L A D M N T E R D G H N S V A$ GVSSLKTVEVYDPEKDVWTLLSNMLKHRSAAGVAF VGGRDGSSCLRSVE SYDPHTNKWSTCAPMSKRRGGVGVTV VGGNDGSSSLNSIEKYNPRTNKWVAASCMFTRRSSVGVA VGGFDGANRLRSAEAYSPLTNTWRTLPTMFNPRSNFGIEV
 I GGRDGSSCLKSMEFFDPHTNKWSLCAPMSKRRGGVGVAT VGGFDGTTGLNSAECYNVHGKSWRTIASMS DRRSSVGVGV VGGYDGHEQLNSVERFNVADGTWQQVARMKHRRSALAVTV VGGHDGPLVRKSVEMYDPTTNTWKKVANMNMCRRNAGVCA VGGFDDNSPLSSVERYDPRTNRWDQVAALTTPRGGVGIAT GASCLSSSVERYDPDT GVWTS CPAMSTRRRYCRVAVV

GAEGRGPSHLDTVEAYNTWLAQWTLVTSMNVPRCYVGACP
NRRVWCQVAPMDHRRCRHGVAV
VGGHDGPLVRKSVEAYDPVTNTWRPVGDMAFCRRNAGVVA VGGHNGVSHLSSI ERYDPHQNQWTVCRPMKEPRTGVGAAV



VGGHDGP LVRKSVEAYDPERNEWHSVAXXXXXXXXXXXXX LGGFNGLQRLGSVERYHPATKKWSTVNGMSHSRSNFAlTT AGGAESWNCLNSVERYNPENNTWTLVAPMNVARRGAGIAVV $\frac{A}{I V}$ GGYTRRIIAYDTKANKFVKCADMKDRRMHHGAAV $C G G Y D G S G F L S A A E V Y S S A S D Q W S L I T T M S T R R S R V S L V P B$
$A L G G W D D G A L D S V E V Y S P D E E C W Q E A P P M P C A R A G C A A V A$ A LGGWDDGALDSVEVYSPDEECWQEAPPMPCARAGCAAVA VGGHDGPVVRKSVECYHPESNSWSHVPDMTLARRNAGVVA VGGGGYTRRILKSVAYDPQSNKFVKCADMKDRRMNAGVVA AGQARSYSDVLVTECYCPASRQWTELSPMPVGHSQHGAAA MDYAVGGSDCGEQHKSAERDADPSDSEDMYCFNGNVSVVV VGGWDGNQS $\square$ S SVE $\square Y$ YPETNSWSYGPELTTPRAN LGVAV

CGGFNGMEC $\square$ RAVEDYDPHTDQWSAVTSMSQGRSGDGLVAA F ILGGAYARATT Y DPEKGNDKAGPNMNHSRQFCSAVV GTSSLASVECYDPKVDRWNQDASMSTPRANVGDAV
SSGFDGKTRDATVECYHPENNAWT LVPPMRYGRSGAGVAA G $\square$ Q I F NTVEYYNQHTAAWYPVSSMFNKRCRHGAAA VSGGTNGGYLATTEVYDPATNTWSAAGSMSSARNYHTATR VGGRDDDTELCSVERFDPVSNEWSPAMPMQSKRNKVKAAV GGESRHGARMNTSERMDDTSGTWSDADGFADCRSGHVAVG AGGFDSKHDLATVEKDDPKTNTWQLVAKMQKKRSGLALHVV VGGDN EG GELRSFEVYDPLSKRWSPLPPMGTRRAYLGVAA SGGYFNEDATNQLERWDPETGQWSYVAPMTTQRSTVGLAVV FSRYRPGVAV WSAERYDPREGFWVKLPSMKARRGCHAVAV GGT $\square$ NGYTP $\square R \square V E A Y N T \square T N R W R V L P S M R H P R S H F G I E V$ 11 GGYTRRMIAYDTKANRF IKCASDRERRMHHSATV AGGYDGSGF LS GAEVFSSASGQWSLLVAMNTRRSRVSLVS
$\square Y V I G G Y F T K D K E F K K \square S T \square E \square Y D P T T D H W V Q E S D M P M G K$ GHNYSSMSGLDTVECYHPSFDTWKPVAKMCVCRTDAGVGV CENGSGDRGVLQDECYDPSTQQWAKTSPMLCTKSEAGIAGV IGGHDGMS IFAGGERYDPHKKVWEEDAPMTSKRCRDGVAA TGGGNNDYLCVASLFDYHPETGSTYLANMASPRAHHCMEA


N LVYVAGGMTKAVYCYDPVEDHWMHVQDTFSPRENCGMAV VC GGLTK SVYCYDPSQDYWDHVVHTFTKLESCGMSV LGPQGERVDVMSVECYSPDTGQWSYMAPDPTGVSTAGVAL VVANTMTNLNVVEEYDVEKNVWRFRKPMPTARSGLAAAAV TNTVLS T GKRLSAERFSPELDQRWEEVEGMTYNQAYVAATF LGGWVGAEDGNTDERFDPDENKWEVVGNMAMSRYYFGCCE


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## पGSKMFVCGGYDGSGF■SDAEMYSSVADQWSLIVPMHTRR

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LDGE YACGGHDGLSUFDSVEKYNTATNTWSYVTPMLTKR CNGCLYA酉GGHQTSRQFDCVERYDPRSDTWTTVAAMNICR
VDDLLFVVGGFNGFTTTFNVECYDKNTDEWYDAHDMSTYR YDGKIFAVGGFDGTHALSCVESFDPAKNEWKMLGSMTSSR HAGKLFVVGGFDGSRALRCVEVYDPSRNEWKMLGSMTSSR HNGYLYVVGGHHCSRLSDCVERYDPKGDSWSTVAPDSVPR LNGMLYAVGGYDGRQCLSSVEQYNPTGDKWVMVAKMSAAR HNGKI FALGGYDGHDFLSSVEYYDPNKNDWKEVTNMSSGR VNGLLYVVGGDDGSCNLATVEYYNPTTDKWTVVSSMSTGR VMGRIFAVGGHNGNSYLNTV AFDPGLNRWELVGSMSHCR LDNCI YSLGGFDSSNYOSSVERFDPRVGSWTSVPSMTSRR VDGLLYAVGGFDGNEFLNTVEVYNPETNEWSPYTKDN
पAGK $\square Y$ YAAGYNGNSLLDTVESYDP $\square$ ENTWHEESRMNHER
$\square R G R D F A A G G Y G C H F R S V E V Y D P A S G W T E V A S D A T P R$ HNGMLYVVGGDDGПSNLASVEVYSRETDSWRTLPSMSTGR DDNYLYVVGGHSGSSYLNTVQKYDPDSDTWLDSAGMDYCR IVNGLLYVYGGRYYPDTTDSMECYDPSSNKWVQMSNMPSSR VEGKLYAVGGYDGRQCLSTVEQYNPATNEWAYVADMSTRR
$X X X X X Y V V G G D G T S N \square A S V E V Y P K T D S W R \square L P T M S T G R$ LI RKMYAVGGFNGTSTSNTVECYDDDKDEWTTVKNLVVGR IKNKLFVTGGRCLTTDSDSMDCYDPETNTWTPKGTLPHKL
 LGGKKYVIGGWHASTNTDKVECYDPKTNKWTMCAPMKERR MDGLLYVVGGDDGSSNLASVEVYSPKTK
MGDKLYVTGGRRLTTDCSSFDCYDPETDTWTSQGRLPHTL
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YGGCLYAVGGFDGSDRLSTVERFDPNTSQWTALQPMPHPR LDGKIYATGGIVSSEALGNMEAFDPCANAWTLQQSMPCPL VDGHUYAVGGFDGKNFLNTDEFYDPENNKWQQFVP
$\square H Q Y \Pi Y V V G G F D G T R Q A T V E R Y N T E Q Q C W E M V A P V R \square A R$ LGSQMYVCGGYDGSGFLSAAEVYSSASDQWSLITTMSTRR PNGKVLVSGGDHGSGYLATAEVFSP
ANGYLLAVGGFDGIVHVTTVEAFDPDTNRWRLFGNTQSCH FLKESFVFCSNKKDEYLDAVHRYDYLSKQWTLHSQMRAQR LNHKLCATGGYDGLKYLSAIVESYPRLDQWNLEHDLDPSRM
 LNNRLYAVGGRDGVSCLRTVEVYDP
LD GFLYVFGGERESSLVDTVEVYDPNTNTWTMETDSRDGV LGEVLYAIGGYDGDSMVSSVEDFDPRDNAWRMGDPMSNPR LSNKLYVINGHDVIEDSDAFECYDPKTDTWTSKGSLAPYKL


## WGHKTEVIDGQFGGSQSTSVEVYDPR

WDGVLYVVGGRGESNDHRSVETYRPSDGVWTSMGDMHDPR YEGK F YGGGWDRNEFSKSVECYLDEDDRWEKVADLPEPC LGECLYVAGGVTTDDTMTSCEVYSPVANCWTAFASLDPVPH LSGYLYAVGGANGRKSLNTVERYDPKAQTWTRVASMKHCR

CNSKTY\|LGGRQENEDTNT\|LCYDPETS\|ISGVTMMPKTV CNGKIFILGGRESGEATDTVCYDPATGUVMSUAAMPRPV LEGRLCLVGGWNGKRYQKCVQCYNPDLNEWVEDEDLPEAT VGGLI YVCGGESQVKTFGEVEAYDPDSDTWLKVAEMVTPR LEEKLYVVGGIDTQDTLCTVWCFDADKNQWNFVRDLGRPH LEKGKI YAVGKG HYS MQGLIYVIGGUSNEGLLRSFEVYDPLSKRWSPLPPMGTRR LDSNLFA GGDDGTSNLSSREVLNDSSLEWTHLSSDNQPR

| QUERY |  |
| :---: | :---: |
| UniRef90_Q1ECZ2 | S GMGVAVT |
| UniRef90-W4Y6F6 | S G A GVA V |
| UniRef90-UPI000457190B | S GMGVAV |
| UniRef90-B4JHE7 | SGHASAV |
| UniRef90_B4M5J0 |  |
| UniRef90-Q9VUU5 |  |
| UniRef90_UPI0003ACC432 | S R V S L V A S |
| UniRef90-UPI00034F2B24 |  |
| UniRef90-T2MHF2 | G GVGVGV |
| UniRef90-UPI0003EAB0B8 | A GACVVAV |
| UniRef90-D9SQW2 |  |
| UniRef90-K1RDN4 | $C R L G V V$ |
| UniRef90-UPI0001CBC08F | $D A \vee G \vee A V$ |
| UniRef90_UPI0003C4DA1F |  |
| UniRef90-UPI00045732ED | S A L S C CVV |
| UniRef90-V9KBV3 | S N A GVAVV |
| UniRef90-H2M153 | S NAGVAV |
| UniRef90_Q8BLJ6 | D A V A V C |
| UniRef90-T1J370 | S GAGVGV |
| UniRef90-H2ZP31 | SGCGSAV |
| UniRef90-H3CPM2 | T Y A GVA V |
| UniRef90-H9G3Z8 | S Y A GV |
| UniRef90_UPIOOO3319192 | A GA GV AV |
| UniRef90-X1Y3U4 | S S C GVA |
| UniRef90-V9KFA6 |  |
| UniRef90-E4WQC4 | GG V G V A |
| UniRef90_UPI000383247A |  |
| UniRef90-G4V6R2 | CD T GMCVV |
| UniRef90_G1PN11 |  |
| UniRef90-U61274 | S R VA L A A S |
| UniRef90-X1Y6Y5 | S Y A G V |
| UniRef90-Q9NXS3 | CNFGL |
| UniRef90-V4CRK3 | CEAGAVV |
| UniRef90-F7A8X8 | S A L S C ClV V |
| UniRef90-S9YKA6 | $S$ GAGVCAV |
| UniRef90-UPI0002659102 |  |
| UniRef90-T1GP85 | S Y A GV |
| UniRef90-V4B212 | S ATSACTV |
| UniRef90_H2SQD9 | S NA GLLA |
| UniRef90_UPI0003C2939D | F DHGC |
| UniRef90-V9LC97 | G GVG |
| UniRef90-S4RQ43 | T E A G L A |
| UniRef90-X1WD22 | Y R P GVA V V |
| UniRef90-A0A023GL11 |  |
| UniRef90-H0VFU4 | F D HAC |
| UniRef90_UPI0003EAB3D1 | $\checkmark G \vee A$ |
| UniRef90-UPI000359A68C | S GVGVAVV |
| UniRef90_E3MVP8 | A N T H A V V T |
| UniRef90_R4FK95 |  |
| UniRef90-UPI000265955A |  |
| UniRef90-UPI00035A1D2A | S NLTA VEVV |
| UniRef90-W5K022 | F R HGCVV |
| UniRef90-UPI0001CBC14D |  |
| UniRef90-D6MLX1 |  |
| UniRef90-X1YFM7 | S A L S LTV |
| UniRef90-V9KW11 | S RVSLV |
| UniRef90-Q09CB8 |  |
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| UniRef90-F6VXQ4 | A GMCVVAV |
| UniRef90-LOAYT0 | Y GHCTTV |
| UniRef90-T1HEB7 | G G Vid VA V |
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| UniRef90_UPI00046BB46D | $R A Y G G V V V$ |
| UniRef90-N1R500 | GYASAV |
| UniRef90-UPI0003EC1F9C | S GLS C CV |
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| UniRef90-UPI0003BD91E9 | G GVGV |
| UniRef90-G7YVS0 | S QF GLA V]S |
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| UniRef90-H3DTD2 | CRASLDAVT |
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| UniRef90-A7SS71 | G GVS I A |
| UniRef90-UPI00032B0638 | S SHGCV |
| UniRef90-X1X1N8 | TS GG\\|V |
| UniRef90-J9JV89 |  |
| UniRef90-B7Q0R8 |  |
| UniRef90-UPI00038C1E3B | S Y H G C V |
| UniRef90-H3DCV1 | SYHGCV |
| UniRef90-UPI000386FFC4 | VGVS C C |
| UniRef90-E6N4G9 | H GL G V A |
| UniRef90-H2MDW9 | GAVSCCLV |
| UniRef90-A0A016SZQ4 | F D Y P LVV |
| UniRef90-UPI0002C31EA5 | A Y $\square$ G V $A$ |
| UniRef90-A8QH97 | S Y A GVA |
| UniRef90-UPI0000E46E2C | T G ${ }^{\text {d G G C }}$ |
| UniRef90_UPI000350EF40 | S SVVGVA V |

UniRef90＿K1PMS1
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RCNEELYVFGGGSGSWYDTVESYNAGNNEWTLRPSMNKE EVLLAFGGSNDNLLANVQLYNDRSNCWRVVCDKSDC DKQIVIATVQAKSTSVVEYDPKRNEWSVVRKENYG SLILVVGGWNESPTRSSEVYQPRMKRWDPASRLQKP VYDPKDNEWRSVAPLREG SWTDIRCPFEK GNELYVCGGQHSDTLASVLRWAPGQGKWEELASMGQA GNEVVLGGWRSEATDQVWR VVNSRWVQLPPLGQP MDGFLYIAGGEDQNCSLTIFRYDPRFNTWIHLANMIQK L AVGGLNEKYLRVAERYDAATDTWHRISDMFWD GERLLFMGGEVSERSDDTCY号DKSEQWVKETPLDAR
 VD RVLVTVG

## GK VLATGGTLNNELLATTELYDPYNNTWTSTGSLSAS

VVLGGWSGDRTATDQVWRVVNSRWVALPPLMQP NQALVVI GGDGRKPTRGVWWFCCRTVEWGRLPTLPAP IFFLGGGYGASLSTLELYYDSRDMDKSLRAMRSV पPKDMUVVGGQAPKAZRSVECYDFEEDRWEQVAPMNTR VLVA LGDFDGGPLASMLRYEEMTERWFPLANNDPP RVLITVGGRTEKSLSRDILYRDPENGWSKLTEMPAK GSSMFVFGGYTGDIYNDLFEYKFATGQWTEWGRLPVA EVFM1 DGGCDERFVAEVTCDDPDRRSRDEVAKLPKK GDKLYUSGGYGVEDKKSLHCYDPATDQWDFKCPMNEP DHLVILGGRDNRICSDVWVADETGSCWRKMGEMCIP CVVGFGGDHSTPSDQAKYLNPLLGEWKHFTASLAP
$\prod Y$ VF GGDNGKTLNDLLRFDVKDCSWCRAGTPPAP EMNGKLIAAGGYNRECLRTVECYNPHTDHWSFLAPMRTP GKRIVLGGGFVQDAPRAVYVYEPAADTWSHELTMDPEG MDDMTFATGGHDGTCLSSAERFD GKEWVK乌ADMSTA VNNFVFLLGGEEFHASSKVFRYDPRQNSWLRMADMSVP GNSMFIFGGYTGDNKNDLFEYEFQRAEWKFSGKMEVG GGYQQNSLGALECLCPP HQWFRLADLACP ILAFTGQSKKVDVTFDYFNPDFNQWSSAKSSPGG LIANFMYVVGGQTSHSLATVYRYDPRDNTWVTLPTMMER DCKVYVIGGRAGNCLNSMYMYNTATKTDHTGRNMFNP l R T VE WEPLARLPEP LGSKDY DFGGQEGQFFNDLVAFDLASNRWELLPTVPPA REVERILNPDDAAWQYVAPLNQL GE $\square Y \square F G G L V Q N A V N D L Y V L N C A G G \| V H T S N L P S P$
TRNDLYVIGGQMKVVTNSVEKYSMEQGTWRTTAPLPVP LGGYLYVAGGDSSSPSDKVWRYDLLWSEEWLTVSRMKKP RLLFVGGEVSERCLDDTCYDDAKSEQWVKETPLPAR EVLCVFGGWGEGPRAAAQDFSPCSNSWTLWTDLQCP

MF VF G G D NGKT L N D LI R F GVK DK S WGRAGTPPAP K冋GGNTYISGGFSLERISKVYRYEIDSDSWHEETGMVTR LGSKIYVFGGQVEGFMNDLSAFDLNNNRWEILGKVPQP ECIVLVGGEDRRTRNMCPLYDANRQKWDELQPMSVA GF DEDASRTDCYDDEEEDAWRTLAAMPLE DVIYLVGGLDDMFCPSFSCFSPSLDVLIPMKPMPDEP GCHLYAIGGSNGTSLSSVEVYNTFTREWKELCPLPRK ■DNFVYVVGGRKRERVRELRYFSPSGQEWSELAPMPTG GFLFVMGGADENVLDSGEKYDPDSNTWTPIPPMLQT पDGKLTVIAGYAADHSDEVYQYDCFLNRWTALSKMNVA SRLYTSGGTDRDCVSSVYCFDVKSERWTQCAPLLNP EY UFVFSGFNERFLTSVEVFDVTRGDWREFKDSCPN HH LLTFGGFGGARRNYSLLLNHRSGLLTELTESPSP TYSFAAEEMEWVKKAPMPTA MGDFLFVAGGEVEHAVRTACRYDPRSNSWATMAMKNC GDIYLMGGLVDGSTGDLWMDENSGNNSTPVTEGPGP
 PTSSSWIDMTELRQG $\square G S K \square Y \square F G G Q E G F F M N D \square S A F D L N T N R W E D L P K M P A A$ EDLSRTICYDEENNTWKTLSCLPLA GKVLVTGGRYKFSNLASAELYDPETNTWSSTGSLATA VGNAFIVFGGDTKMDDSDVYLLNTSSRQWSRAAPPPAG GNF FVLGGESPSGSASVHRYDPRFHAWTEVPAMREA
 RYLEVGGG RAREAVTDVVAFDVYNHRWRSLTRLPAP

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RCHHCAVVS 50 DMYTAGGYNKENVVVNNVMRYERY ${ }^{60}$ ( ${ }^{80}$ RKTPVAAAYGNKILVLGEASGGVIGNKMYGATAAFDLGAN RNRLGVGVLGDFI YAVGASGGNFKNAVNSVEVFDVSIQ RTEVGVVTLNEK YVIGGFTPEGDADK

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 RYHHSAVVAGSSMFIFGGYTGDIHSNSNLTNYKFLSAMWV RAWHNMAAVGNKIFVLGGNEKNINGEQDLKLVECYNPSSR RTNHTMVTYGDKLYLFG GTNGYQWFNDVWSYDPVTN RLGHGVVAAEGFLFVMGGSGTDENGTVLDTGEKYDPDSN RAFAGGALVGNELYVIGGDSTSGPRNV AEDYDMRGD ASTAGVATLGNKLYIVGGVRGANKEVVELG FCYDPDSG RLFNSTVALDNRIFVLGGADHPYG SSIDAVCCYDTTSD LLPDCLADANFVFLLGGEELGPDGEFHASSVFRYDPRQN MRCHSTVTLHGVIYVLGGEDENVLMQRMLSNVYKY苗PKFD RSHHCVAVMGNFLFVVGGEVEHATGRTCVRTACRYDPRSN RDQFQLNVLCGMVYATGGRNRAGS RODGCAENGVYVAGGFGPSGDS
 RAKFQVQALNEEILIGGGKDEFGDQMDDVEDFGПKEMKAG $R V Y G T V A H Q D G H L L V L G G C G R A G B P L D T A E T L D M A S H$ RMGHTVTVVGHDI YVVGGRGGPSE ILNDVWVLESTKN RHTVSGLVYNDKIYVYG GTNGQGHLANLEMYDPETD REHFVLGAMDEYLYAVGGRN EDCQVLPTVERYCPKKN RVGHASLLVGNALVVYGGDTKDHDNDTLDDTLYFLNTSSR SEGPFSVA ASTFGMATLENKVYVVGGVYGASKQVVDSS FCYDADTN RSGHTATLLNGKVLVTGGYTSATSE RYDPATG RYGHTLNLLGSKUYLFGQVEGYFFNDLIAFDLVALQSPTN RAGAVGLALNDKDYVLG GESEVRVALTSCERYD DDDD


## UniRef90 K1PMS1

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90

110 SWNAL A QRPYKTHSHSAQVWNQRLY LFGG A GTSAGKVQ






 Q WQMKAPDEVARCCHSSS DIDDGKILVVGGYDNNAYSRSVC Q WQE LVVAGGCRQRPRAGRPEVVTATVMSYPDEADGREGA
 RFTVCANLKERKMHHSAIVLNNKLYITGGRYGTGDSNSFE

 TWASTGSSLSTERNFHTATTLLDSKKVLVVAGGSGKGGYRTTAE



 S WVSMVNT LVVYRRHLGVGILNNSVYAVGGENGNQSLNSVE
 CWEEI GEIPPSSCCNFPVVAVCRDKMFVVSSGQSGAKSLTASQE K WIQI E YLNDGRWRHKMVVLGGKVYVIGGF DGMQRIN N QWTTVSPMMRAGQEAGCCLLDDRKIVVVGGYNWHNVTS IV Q D WT T CPS FTHDK GSLAAAVSFNGKI YAYGGGDGNECFS DV E

 QWTE WGRL PVARSAHGATVYS DKLLWI FAGYDGNARLNDMW D W DP VP EL RTNRCNAGVCALN GKLLY VGGSDPYGQLKNCD QWSEGAP LPTAR GAHATVVLD GRRIHADGGRTHDRDVGAHE



 A WQRIA DLPTA DSHA GUA VAG NNIY LAGGYP QTAATTNEVW E WS K GAPMLIA RFGHGSAELENSLYVVGGHTPSDSLKQVE QWSFVAP YPV S AVAPA GAVFD GILLYI S G GYGGQYSNAVN L W DELA P L S KP KI NHGVLSAE GFLFVFGQDENKQTLLNSGE H WT S L A P L S E T K V G $\square$ S L A A L RWECLPDMNSPRDYFAAVCCGGKVFVGGNYDDMNCLDSVE E WE K L A C $\square$ P S P R E GHS A A LVVND T MY V F G R N E N GVVDQG D L
 E WT RVGPAPEGRYGHAASMVGSKFY FGGQKDDGGFMNDL SWATVGGCDDHRAHH GAVTVDGFVY DGGCNHETNDKTVQ
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 SWS P $\square W R A S P G L P V G L Q Q F G I A E L N G K L Y V S G$ TWSEFPSPHQP RYDVALVGYDGCLY AVGGEFQRTPMSSVE
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 E WGYACS LKRRTW WHAGASEGGRRYIGGYGISVEDKKALH TWKPQTSSMTMVRSRRRPVPRPPVPRRPRDLTVTSCRLLRLLHE
 VWEVVTK $\square$ V T P RY H A G I V L V D T K I Y F I G D TMMDDK Y T A N I E
 $\square W S N V G D D L R P R H R H A A A A V D H K L Y V F G G L S D D G D C S C M N$ KWYKLPSSSVGRENASFIENQGKFYAIGGKNRSGPTNDVE
 D WK DLAPMKTPRSMF GVAI HK GKIVI A G GVTE D GLSA S V E CWSKLA QMNLQRYSHGLAVLYGKVYAIGRGCSSSTLASVVE K WA Q $\$ GY $\square P A P R E G H A A A L V D D V M Y D F G R T E E G T D L G D L A A$


 E WS S IARMGVPRYFAGVAADGDGFYVFGGVGGCDEKDVVE RWT TVA P LDPKGAFA VA HEATTCN GELY VS G


UniRef90_K1PMS1 UniRef90-A9B2.J9 UniRef90-J9KX03
UniRef90-M1Z8G3 UniRef90_A0A022QFG2 UniRef90-H2M938 UniRef90-K7JKW3 UniRef90-H2Y1J9 UniRef90-F6XHP3 UniRef90-UPI0003599D6C UniRef90-F6RY91 UniRef90-A1T414 UniRef90-F6S5F7 UniRef90-A9VDV3 UniRef90-G5BJF1 UniRef90-H2LM53 UniRef90-B5GRG7 UniRef90-C3ZQP0 UniRef90-D8RQE7 UniRef90-Q1DBG0 UniRef90_Q3JEI6 UniRef90_IORHN5 UniRef90_UPI0003F0FC2B UniRef90_UPIO002B4209C UniRef90-M7CAE3 UniRef90-J9JMB9 UniRef90_UPI0003C88E51 UniRef90_UPI000332FC3E UniRef90_UPI0003C15774 UniRef90-HOUXAO UniRef90-W5UCL3 UniRef90-Q84S70 UniRef90_UPI000457461B UniRef90_UPI00027F46E1 UniRef90_N1TZB4 UniRef90_UPI0004626BCE UniRef90-Q6MZF3 UniRef90_UPIO0036D0498 UniRef90-UPIO003871BD1 UniRef90-E5T258 UniRef90_G9K7H9 UniRef90-F7DYA4 UniRef90_UPI0003C3979F UniRef90-B7PW91 UniRef90_K9XJ33 UniRef90-Q4T2F4 UniRef90-UPIO003F08934 UniRef90-UPIO00328B219 UniRef90-T1IS94 UniRef90-W5KPF0 UniRef90-R7YWP7 UniRef90-W6NEIO UniRef90-U5HIS1 UniRef90_UPI000393FA32 UniRef90_UPIO00383494C UniRef90-F6YTZ8 UniRef90_UPI00042C084A UniRef90_U6INH0 UniRef90-C1MN39 UniRef90-B4L3R0 UniRef90-C3XYT3 UniRef90-G0S1S1 UniRef90-M3ZVK0 UniRef90-A7HWV4 UniRef90_UPI00045E54BB UniRef90-W5CRC1 UniRef90-K9K9M8 UniRef90_Q25386 UniRef90-H2LAG0 UniRef90-F1P804 UniRef90-H3CFZ7 UniRef90-M8BHG8 UniRef90_UPI0003758F5D UniRef90-N6UA35 UniRef90-J9J344 UniRef90_F7H016 UniRef90-J3MLB2
UniRef9-U4WKV7 UniRef90-E9Q7Q2 UniRef90-E5R060 UniRef90_UPI000359D87C UniRef90_C3YX25 UniRef90-G0RMP9 UniRef90_UPIO003C296DF UniRef90-S9PGB2 UniRef90-W9XSD4 UniRef90-Q8N239
UniRef90 A7SAR8 UniRef90-W5UAQ3 UniRef90-M3WT49 UniRef90-M3WT49
UniRef90-UPIOO045E506E
 FNYNPTRKPSWTLLSPMKTPRAG
A Y DPAADT WT AMPALPEPRSDFGVAVT DARLVAVGGTAAG MYDPSMDSWQDKANLS
T DTPQRRQWLA LPSLGTPRGRHGCVADQGHVFVLGGVDVQ TYSPKTDSWSYVAGLPRFTYGHAGTIYKDFVYISGGHDYQ VYDSLTDSWTSAGSLPHKLFDHGSVTLT FHW VYDPESDNWSAGSPLPRSRHGFG
MYDPAKNEWTYVSNLLYPRCCHAGAVHGGLLYDGGGYDGG QYDPEGNVWSVLSKPMVKARAYHGGAVVGSRIFADGGRND VYDPTPGTWTATSSLSVGRNQATATLLPSGKVLMAGGRND
 TYNPELNVWRPAPELPAPCFAHAAAVLEGQLYVSGGCNEN $M \square D L Y L G R W D R T R S M L Q R R F A V G$
Y Y N P I T DKWT
$V F D V N L E E W R M V S S M A \square K R C D V G V G \| L N N L L Y A V G G F D \square S$ CYNPEQDAWNFVAPLPNPLAEFSACEC
CYAPA A N WWQPKAPLA QA RCCHASAVADGRVVVTGGYVGG QFEFKEKVWT RIPTEHLLRGSPPPPQRRYGHTMVAFD TYDPFHNCWSEVAPLLVHVSSFAATSHKKK $\square Y$ VIGGG VYNTEMDEWERDLHFPESFAGIAC
$V F D P A Y G K W D K N Q S M \square D K R F A L A G V E L N G A D Y A V G G F N G V$ EYKPVENKWQFAAPFPVAVADHAGAVHKAILYISGGFSAG RYDPATNCWAYVAPGKREVYAHAGATLEGKMYITCGRRGE
LYDPANGNWSFVAPMGHARALHAPVLLADGRVLVGGGEEN

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AYDSATDAWASDAPLPTPRNHHA
RYDLANDTWRRCQPLPMADCGHAACALDGADYVSGGCDEA
 VF DPHPSK RYCPKNNE WT YVCS DKRRTWGHAGATY DS GGYGVSVDDKK EFNFKTLTWRRI GNESVLRGVSSQPPSRRYGHTMVHHDRF CYDPDRN $W$ WFPVASMNSNRS GAGVLAVDGFVYA $\quad$ GGYD RYNTVQNKWFSMPSLPAARGSNGRLHFFGGVNANRDDQGN RYDPFGNKWDMMAPLRDGVSNAAVVSAKLKLFVFGGTNDH AYNPTTNTWEARMSMQTARAWHSM
KYDPDLNTWTT\PPMHEARHNFG\|VEDDGMLY\|LGGED
 AFRISS RRWYMFQNMGPSPSPRSGHSM
RFDVRRNEWDSVARMGSSRTSLSVSVLDGCLYATGGWDNG VWFDLQK LKAGSPKWTF DDYASG
RLDLSSSTWQLVTPMYNARCYVSVVVLNGCDYAMGGFNGE $\square 1$ YNPDGDFWRDGPPMPY
KYCPASNTWERKQPLIKPRFSAS DHSDHN
TYSPKTDSWSYVAGLPRFTYGHA GA YKDFVYDSGGHDYQ CYDFEVDSGWYCMYEKRYYVSVAYASNYDYALGGHNGENQ AYDPNADQWWGVKPLPAPRRDHGVAGDEHRRCV
T L N $\square$ T
QFDPARNEWR DCNHGLPEPLSGVGCCTMVFEKRWWQ
AFR $\square$ T T RRWYTF QNMGPSPSPRSGHSM
VFDPHFSTWKMQTSMTMMRKVGCYASMNKK $\square Y$ A $\prod G G G S Y G$ GYEAPQAGRPEFGAFGEILPPTTE


VFRPEENYWSFGPHLPKEDC
RYCPKRNKWMFVQAFDRSLSCHAGC
CYDPAADQWEFKAPMSEPRVLDAM
QKD DRHHASGSYGK $\square F D S V E C F D P K T Q$
$\square D V Y D T N S N A W G E F R N G C V M V T A H A V L G E K L F C D E W K N Q$ A YNPSNNTWATKTNMTTARWGGTSSVYNDKVYVFGGANAG YYDDEKRTWTVESKYPQDVWEHTCVTLCDPKYRDDM
FMTIDRNDDQQSQNDPQDTEMPSMI QLREEFALVDGPDQK $A F L M D E G R W E R R A T L P Q A A M G V A T V E R D G M V Y A L G G M G$
IMDDTESTQWNVISSDEKWPCARHSH
$V F D P V S N N W T S A Q S M P S P L F A A S A V S L D N T \square Y T F G G \square E R N$ $V Y E P N Q N K W \square S R S P M \square Q R R V Y H S M$
AFDLNAM NN
AFDLKTNKWEVMTEFPQ
VYDRSQNKWTEGVP LPQPRHCHAVAVLDTSDYVMGGFHQE AFRIT QRRWYTFQNMGPSPSARSGHSM
KYDVSSNTWT LLSDQPQPTAGAPCAQAMGRDFVCDWKPDD VYDPETGTWSPTGSTGVHRDDHTAPSGKVLVTGGATSSST VLGPEEQVWSKKAPMGTARFGHHM

KYDPKRDE WQECPYNNSRKKSTDMVALKSFDYRFDVNREQ T LGPGERAWSKRAPMSTARFGHHM

UniRef90 K1PMS1 UniRef90_A9B2J9 UniRef90-J9KX03 UniRef90-M1Z8G3 UniRef90 A0A022QFG2 UniRef90-H2M938 UniRef90-K7JKW3 UniRef90_H2Y1J9 UniRef90 F6XHP3 UniRef90_UPI0003599D6C UniRef90-F6RY91 UniRef90 A1T414 UniRef90-F6S5F7 UniRef90_A9VDV3 UniRef90-G5BJF1 UniRef90 ${ }^{-}$H2LM53 UniRef90-B5GRG7 UniRef90-C3ZQP0 UniRef90-D8RQE7 UniRef90-Q1DBG0 UniRef90_Q3JEI6 UniRef90-IORHN5 UniRef90_UPI0003F0FC2B UniRef90_UPI0002B4209C UniRef90-M7CAE3 UniRef90_J9JMB9 UniRef90_UPI0003C88E51 UniRef90_UPI000332FC3E UniRef90-UPI0003C15774 UniRef90 HOUXAO UniRef90-W5UCL3 UniRef90-Q84S70 UniRef90 UPIO00457461B UniRef90-UPI00027F46E1 UniRef90_N1TZB4 UniRef90-UPIO004626BCE UniRef90 Q6MZF3 UniRef90_UPI00036D0498 UniRef90_UPI0003871BD1 UniRef90 E5T258 UniRef90 G9K7H9 UniRef90-F7DYA4 UniRef90-UPI0003C3979F UniRef90 B7PW91 UniRef90-K9XJ33 UniRef90-Q4T2F4 UniRef90-UPI0003F08934 UniRef90- UPI000328B219 UniRef90-T1IS94 UniRef90-W5KPF0 UniRef90 R7YWP7 UniRef90-W6NEIO UniRef90-U5HIS1 UniRef90 UPIO00393FA32 UniRef90 UPI000383494C UniRef90-F6YTZ8 UniRef90_UPI00042C084A UniRef90_U6INH0 UniRef90_C1MN39 UniRef90-B4L3R0 UniRef90-C3XYT3 UniRef90 G0S1S1 UniRef90-M3ZVK0 UniRef90-A7HWV4 UniRef90-UPI00045E54BB UniRef90-W5CRC1 UniRef90-K9K9M8 UniRef90_Q25386 UniRef90-C3YKR2 UniRef90-H2LAG0
UniRef90-F1P804
UniRef90-H3CFZ7
UniRef90_M8BHG8
UniRef90_UPI0003758F5D UniRef90-N6UA35 UniRef90 J9J344 UniRef90_F7H016 UniRef90-J3MLB2 UniRef90-U4WKV7 UniRef90-E9Q7Q2 UniRef90-E5R060 UniRef90_UPI000359D87C UniRef90-C3YX25 UniRef90-G0RMP9
 NTSNYHAAYDPTANTWANLPNMPDARNGAAGGTDGHFFYY
FFRLKNTGAHEVYDPATDTWTEAADDPTPRDHLTVSVMNG TMAPCVEIYOTRLGGTM
EAQSSAECYNPETNQWTLIPHMEVARGAMGADAYKDQ $\square F V$ SDSEDVY LDT IEVVYD DKTNKWSKFEERMENK
QCVSSVEYFDTVSH QWS RVAPMQVPRSGLSVVAYKGSLVV
$R P L K T V T A L D L T T S T W S D L P D L G T A R R G A A V A A V G K S V V Y$ TPRGWHCSVTLGDRVYVMGGSQ GHPDASVERFSPTRNQWEVAAPMPAPRRDFGCVALEGY VY IGGPYRKNLLCYDHRTDVWEERRPMTTARGWHSMCSLGNSI

TYSRS L $\quad$ CYR $\quad$ S E DS W
TAF LSSETESFDQEVGWMASVPMMERRGAFSPVVVEGSTYA LVTAEVYNPGTGTWGSTGNPSTGRDEHTATLLTSGKVLVA WSPTVTAWVYDPPSNQWQTLTPGPEPRYAGDAVSMGDFIY $Q A L K S V V A L D L A T Q S W N G L P D L R T A R H G A A V A G V G K T V Y A$ S QYLATLLHYDPKLENSGMFPMGVPRAGHVMAALGGRLYV $A V E L N G V L Y A$

AREH $\square$ NSVECYDPWK LVAPMSKSRSNFG $\square G V L D G V \square Y A V G$ AYSRSVCAYDPASDSWQEDPGLSTPRGWHCAVA $\square G G R V Y V$ RHLYVFGGAADNTLPNELHCYDVDSQTWEVILPSPDSEMP PNGKLATDKTQCYDPLTNKWTLKSPMPVEAKC $\square$ NAVSFR
QY LS SAERLDPREPSWKRDPK LSTGKGCHTDAVLDDK TFS VTLKD $\quad$ Y DYLKETHCYDPGSNTWH
FNATFGAE $\square Y$ DPTQNTWSDT LPMTDARWATTATA $\square Q N G D A$ $\square T$ C WEE $\square$ K QT GE $\square$ PPSCCNF PVAVCKEKMFVFSGQS GAK K
$C Q C Q A S L L R Y \square P G A P A T L L A P M N G Q R A G H \square M E E A G G Q L Y Q$
RTQVVTNCWENKSKMNYARCFHKMDSYNGKLYVFGGVCVI S LHCYDPSVDQWEFKSPMNEPRVLHAMVGTKNR】YALGGR

H WVLP LNGSQWTS $\square$ AP LDPNPRSHMADAVVGGK LYADGGQV. RDKASKVQSYDPARDRWDFAAECPQPWRYTAAAVLGSQUF

DK WVTK DAMMVYDPSSDRWCATDTNVPFCPDEYFMVVWKQ $\square R C L P A D W H Y D P V Y G C S T L A P M S R H V M L A V G N Q L V V A G G L$
$\square Q N T V E R F D Q R V G K W E N V C P M \square T P R Y R H A S A A D H G K L Y A V$ AVVPPRRTGHTTVTHGDC $\quad$ VVFGGTDGQYHYNDTWC $\square S \square S S V E C Y K P E T D Q W T I V A R M N A Q R A A A S A T V L H G K V G G$
$\square G P Y R K N L L C Y D H R T D V W E E R R P M$
GRDDTAERYNLDENLWQP $\square A S M N R V R S D A A A A E L N S R V Y V$ HQWEEVEQLGDRPPTCCNFPVAVARDCMYVFSGQSGLQ\|T
$K \square F D S D E S F D P K T Q Q W T G D C P \square K E R R F G S V A C G V G Q E L Y Q$ $G G D T A Q T W \square Y D P Q \square G T W V N G P Q L P A A R A G H G A A V V D G K \square Y$

ETWSCAERLDPREPHWKM
STSKQVCVFDPSKEGTDEQRTRRTQVVTNCWENKSKMNYA

QWT G $\square C P \square K E R R F G S \nabla A C G \square G Q E L Y \nabla F G G \nabla R S Q E T Q N P E R$ KNVVEVYNPSNNSWT SKNSFST $\square$ NCGANS $\square$ TYNSK $\square Y \square$ $\square Y$ A $\square$ GGYNPQDGC $\square$ S S VEAFDFDK QQWE $\square \mathrm{V}$ T QM $\square \mathrm{P} D \mathrm{G} \square \mathrm{Y} \overline{\mathrm{V}}$

VEYTNLVYSFNPETNSWVSKRPMPFKGSAQAY $\square$ MNNS $\square Y$ V PGNKWEFLLRNSHDDGPPVGQVPPARTNHTMVTFNDK LY L FKATATVYRFSPGD $\square Q W Q S M R D M P S V D D E R \square G S W T A T V L N$ $T T \| \square Y E Y E T Q K D E W D P \square A D L K R P Q S Y G H C M V A H R D N \square Y \prod M$ PLATAE LYDPATGTWSPTSSLTTGRMNHTATLLPS GKVLV

UniRef90 K1PMS1 UniRef90_A9B2.J9 UniRef90-J9KX03 UniRef90-M1Z8G3 UniRef90 A0A022QFG2 UniRef90-H2M938 UniRef90-K7JKW3 UniRef90_H2Y1J9 UniRef90-F6XHP3 UniRef90-UPI0003599D6C UniRef90_F6RY91 UniRef90 A1T414 UniRef90-F6S5F7 UniRef90_A9VDV3 UniRef90-G5BJF1 UniRef90-H2LM53 UniRef90-B5GRG7 UniRef90-C3ZQP0 UniRef90-D8RQE7 UniRef90-Q1DBG0 UniRef90-Q3JEI6 UniRef90-IORHN5 UniRef90_UPI0003F0FC2B UniRef90_UPI0002B4209C UniRef90-M7CAE3 UniRef90-J9JMB9 UniRef90_UPI0003C88E51 UniRef90_UPI000332FC3E UniRef90_UPI0003C15774 UniRef90 HOUXAO UniRef90-W5UCL3 UniRef90-Q84S70 UniRef90 UPI000457461B UniRef90-UPI00027F46E1 UniRef90_N1TZB4 UniRef90_UPI0004626BCE UniRef90 Q6MZF3 UniRef90_UPI00036D0498 UniRef90_UPI0003871BD1 UniRef90 E5T258 UniRef90 G9K7H9 UniRef90-F7DYA4 UniRef90-UPI0003C3979F UniRef90 B7PW91 UniRef90-K9XJ33 UniRef90-Q4T2F4 UniRef90-UPI0003F08934 UniRef90- UPI000328B219 UniRef90-T1IS94 UniRef90-W5KPF0 UniRef90 R7YWP7 UniRef90-W6NEIO UniRef90-U5HIS1 UniRef90-UPI000393FA32 UniRef90 UPIO00383494C UniRef90-F6YTZ8 UniRef90-UPI00042C084A UniRef90_U6INH0 UniRef90_C1MN39 UniRef90-B4L3R0 UniRef90-C3XYT3 UniRef90 G0S1S1 UniRef90_M3ZVK0 UniRef90-A7HWV4 UniRef90_UPI00045E54BB UniRef90-W5CRC1 UniRef90-K9K9M8 UniRef90- C3YKR2 UniRef90-H2LAG0
UniRef90-F1P804
UniRef90 H3CFZ7
UniRef90 M8BHG8
UniRef90_UPI0003758F5D UniRef90-N6UA35 UniRef90-J9J344 UniRef90_F7H016
UniRef90-J3MLB2 UniRef90-U4WKV7 UniRef90_E9Q7Q2 UniRef90-E5R060 UniRef90_UPI000359D87C UniRef90 C3YX25 UniRef90-G0RMP9 UniRef90_UPI0003C296DF UniRef90- S9PGB2 UniRef90 W9XSD4 UniRef90-Q8N239 UniRef90-A7SAR8 UniRef90_W5UAQ3 UniRef90-M3WT49 UniRef90_UPI00045E506E

210
220
230
240
GGULQNSYATRELMSYNDERDTWTMLLPQMKEVRYDPGVTTT FGGRASGT ISNDLQ Y P PLT QTWPTIPPLPQARADDGQA 1 $\square G G F C D G K H L K R V E V Y R P S D G V W S S V A D M N L C R N R D G V S V$
$K L Y A L G G R N L D R N E A F D P K T G K W Q R L A P L P T K R S ~ G D T S Q A$

MGGYSNGMC $\square$ S NVDVYDPA $\square$ MVWRTAAHMKSCCCSFGDA RSTCAAAV LGGFDGRDRLNSVEVYDVINSRWDVMTSMMTKRSNFCACL TELCSAERFEPETNEWSPMMPLRSKRDKVNLAG
 AGGLGEGGDLLSFETYEPRTDTWMGLEPLPSPHVGAAGVS IGGSTGAGDGQATSSAEADKDAPRTPQPAAQWRSMMAYTV
 FSIGGSEDNVESMERYSPQCDQWTRVAPLLHANSESGVAV.

SDRTSMSQPRGPMNDQWTALSG LLSGVSTAGAAA FGGTDGN LYLDSAERFDPREGIWRSLPPMSSKRLWFQSAA GGYGSGEKHFATAELYYDPTGIWTSTGNDSAGRSTHTATV VVGGKGP SGRLLRYDPQQDSWDFLKGMHQRREHDRSVV $I G G A T G P G D T Q D T A R R P Q P A P E W R V L P D A P S A R L M T A W A V$
$A G G L G E T G D L L S F E A Y E P R T D S W T H L T P M P S P H V G A A S A V$ TGGFDGSDYLKSAERFD $\square$ RE HS WT QUASMNEKRGCHSLVT
GAN L LEGCNS VSVEAYRPSVGVWTPVADMLSGYTSCPVTT
MGPRGERVDVLAVEVYNPAARQWSYAAP $\square P \nabla G V S T A G A S A$ SGRDFHAAAVISDAMYDFGGTVDNNVRSGEMYRFQFSCYP DRIYVVGGAMRADYAYSPLEDSWSLVTQLSHERASCGDAP
TGGGYDAEAKTMVATVYEPRMPSWVMAEPMNYNRGYHSSAV VNSSSE WVVVNETEYYVPGTDQWTTLKVSPFNCCQFSTSV

GGNNNNSVS $\square$ NTAE $\square Y N S N D N S W T L L P P M R E S R H S H S A D L$ TNNLFQFEFKEK $\square$ WTRDPTEHLLRGSPPPPQRRYGHTMV/A
 $\square R A S F E S Q G C P S T E V Y N P E T D Q W T \square L A S M P \square G R S G H G V T V$ MDHVDRCFDVLAVEYYVPETDTWTTVIPMKAGQSEAGCCLL

GVSKLKSVERYDTEKDEWEPVAPMRSPRSALAVAL GKEHEGAQATVNIYHPETNTWKSAKSLPQASSHDSASTFV $\square M G G D T E F T A A S A Y R F D C D S N Q W T R V G D M T S K R S C H A V A S$

DEKELISMECYD $\square$ YSKT WT K QPD $\square T$ MVRK $\square G C Y A A$ Q $\square \mathrm{W}$ Q PMWMGFGDQLQCEAYDLLRNTWTP $\square P L L P R P H \square S P A A T C$ S GANKCSMDLSSAEKYDSRSNKWTSMAGMSREPDGFRLAA FDTNT G $\square$ WVELSCDGY $\square P$ P $T \square N G Y T P L R \| V E A Y N P \square T N R W R L L P S M H Y P R S H F G \square E V$

A G GFEGRRYHDSAEYYDSEANQWTLISRMHSPRGGDSLAS AGGYDGQRYLGDVDVFDPRANRWTSAAPLRTPRQLHGIAS NSLIFEFHFKSRTWRRISNEPVLRGATSAPPSRRYGHTMVH

RQMMTCKSEFYHDEMRRWMF DDDQN $\square C \square P A S S S F V Y G A V P$ T LGGRGSDAQRVLVYDPGSNRWSATGEAMPAPRVAAATVA

RCFHKM $\square$ SYNGK $\square Y$ VFGGVC
$\square$ P S M N T QRCFHT $\square$ A V

RQMMTCKSEFYHEEMRRWMVLDDQN LC $\square$ QTSSSF $\square Y$ GA $\square$ P FMVGSCPSQTTTVKEYDPSNDSWTSKTSAPTARSNAMLAL LGGYNGKEY LNTVQKYD $\square$ MTHKWQSMRGMNTSRGTFA LAA $P D T A P Q A Q V C V Y E P R R D C W L S L P S M P T P C Y G A S T F L$
$\square H N N Y N E E K L S \square Y$ YYDH $\quad$ QDSWTLVDE $\square L D R P A N S S F L$ FGGTNGVQWFNDVWAYDPRGNSWTQ $\square$ DYTPTPREGHAATL GN $\square Y \square A G V T \square Q S S \square Y C Y T P S E D W S E V A T G L L S G S D C G M T A$ $R N G P S D D F L R C V I D C F N D T T R Q W V A L P G Q F V N S K G A L F T A$ $T G G \square F D \ V I L A T A E L Y D P A T G T W S P T G S \square F E G R T Y H V A T L$

UniRef90 K1PMS1 UniRef90 A9B2.J9 UniRef90-J9KX03 UniRef90-M1Z8G3 UniRef90 A0A022QFG2 UniRef90-H2M938 UniRef90-K7JKW3 UniRef90_H2Y1J9 UniRef90-F6XHP3 UniRef90_UPI0003599D6C UniRef90_F6RY91 UniRef90 A1T414 UniRef90-F6S5F7 UniRef90_A9VDV3 UniRef90-G5BJF1 UniRef90 ${ }^{-}$H2LM53 UniRef90-B5GRG7 UniRef90-C3ZQP0 UniRef90-D8RQE7 UniRef90-Q1DBG0 UniRef90-Q3JEI6 UniRef90-IORHN5 UniRef90-UPI0003F0FC2B UniRef90_UPI0002B4209C UniRef90-M7CAE3 UniRef90_J9JMB9 UniRef90_UPI0003C88E51 UniRef90_UPI000332FC3E UniRef90_UPI0003C15774 UniRef90 HOUXAO UniRef90-W5UCL3 UniRef90-Q84S70 UniRef90 UPIO00457461B UniRef90-UPI00027F46E1 UniRef90_N1TZB4 UniRef90_UPIO004626BCE UniRef90 Q6MZF3 UniRef90_UPI00036D0498 UniRef90_UPI0003871BD1 UniRef90-E5T258 UniRef90 G9K7H9 UniRef90-F7DYA4 UniRef90-UPI0003C3979F UniRef90 B7PW91 UniRef90-K9XJ33 UniRef90-Q4T2F4 UniRef90-UPI0003F08934 UniRef90-UPI000328B219 UniRef90-T1IS94 UniRef90-W5KPF0 UniRef90 R7YWP7 UniRef90-W6NEIO UniRef90-U5HIS1 UniRef90-UPI000393FA32 UniRef90 UPI000383494C UniRef90-F6YTZ8 UniRef90_UPI00042C084A UniRef90_U6INH0 UniRef90_C1MN39 UniRef90-B4L3R0 UniRef90-C3XYT3 UniRef90 G0S1S1 UniRef90-M3ZVK0 UniRef90-A7HWV4 UniRef90-UPI00045E54BB UniRef90-W5CRC1 UniRef90-K9K9M8 UniRef90_Q25386 UniRef90 H2LAGO
UniRef90-F1P804
UniRef90-H3CFZ7
UniRef90 M8BHG8
UniRef90_UPI0003758F5D UniRef90-N6UA35 UniRef90 J9J344 UniRef90_F7H016
UniRef90-J3MLB2 UniRef90-U4WKV7 UniRef90_E9Q7Q2 UniRef90-E5R060 UniRef90_UPI000359D87C UniRef90 C3YX25 UniRef90-G0RMP9
 WYKEFYLLGGADQAGVSNRVDVYNPDTKSWRSVAPMPTAR LDGLLYVFGGETESSFVDTLETYNPNTNTWT $\forall \mathrm{V}$ GKIFVFGGEATEGTFDKNEAYDPGTNTWKTYKPMPNPC

LEDQLYVVGGFNSDEHLSAVWRYDVENTTWNVVGDQAVPH LNEKIYVCGGWYNEKALNFVEMFDTKLKRWKTVKPMNKAR MDGSIVVMGGFNSPSTCDVVEYFDDADDEWRHLAPMTVSR ANGYLLAIGGFDGVVHLTTVEAFDFEANRWRLFGNMKSRR





VGNKVYVCGGWSESTYLKAVQCYDVSRDEWSWAPEMGGPL WNNKVYVLGGHDGCDYLASVERFDPRAGKWETDKPLAGS R LS SGKVLVTGGQGNTYLATAEVYDPDTGDWTSIESMASGR FEDR VVVLGGRYQGGELGSVEIYDPATDTWREGPS LNTAR LGDEE WI AGGMREGETLDLVQSYHTATGTWQDRPPLPVPD $L Q G E L L V L G G Y S H R S Y A I S I$ HAYCPGLGRWLCLGTLPKPR L N DKLYALGGFDGRSMVSSVEVYDPRMESWIIGEPMKRMR

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LH GRAY LVGGWNEGEYKKCDQCFSPELNEWTEDDELPEAT KCTLHEDYGKLDENRQFCDVE
CNNRLY $\square$ TGGRDENEVIATVLCWDPESQK $\square$ TEECVLPRGV
$\square G G S \prod F A F G G V K G E G \| L D V V E R Y K E G C G W W V T E S R S \prod G R$


LNDGRLLVAGGNRSAYRDSME $\square Y$ DPRTNQWTF KKMSVPR FDRHLYVFGGAADNTLPNELHCYDVDSQTWEVISELPTGR
$\square G G E L L V L G G Y S H E T Y Q D T \square H A Y Q P G T R R W \square T R G T \square P H A Y$
LDK Q $\ M V L G G C Y N G H Y S D S U L T D P E E N K W K E Y P R M P C K L$ LDKKIYIVGGYNWHNVTS IVQVYNTETDEWERDLHFPESF

WGGK $\ Y$ Y $\square S G Y D G S S F L S T V E \square F D L E T E Q W V D G A T M Q A G K$ MDGKI IVAGGMADGKD SEVKAYDPLSNSWSTLSPDPAPR GNQAVRGGAATSGTQRCKTLDCYDPISGQ

MKKK $\square$ YAMSGGSYGK $\square$ FES $V E C Y D P R T Q Q W T A \square C P \square K E R F$
VDGQLYVLGGSSADSARDTVHRYDPRENCWDKLGMMPRPY
 VDDVMYVFGGRVDGKDLEDLAAFEDTNQRWFMFQNMPSGR $V N D Q L F V V G G Y G G Y H C M Y S V E R Y D G E A G W W Y S T S D \square A E S R$

HGGY\YA TGGNDGSARTRSTERYDPTSGKWE IVGQMNKRK A GDEVYVVGGFDGKEGLRSVEVYDMRADRWKELAPMSGVR HDRFLYVFGGSADSMLPNDLHCYDLDSQVWSVIQPVPSGR

TGASTYVVGDLDTGTSFDY REFRRSTGTWFRTKPMPSDGL $V G D R I Y V I G G L S N G V A T A R V D D F D T A S G R W Q S G P Q L P E A R$

$\square R G D \square Y V V G D \square D T G T H F D Y \square R E F R R S T G R W R T M P M L P S D L$ VDGKVSLI GGYTNDCSN $\square$ NEMYD DENDSWSTKSSMGYAR QNCNF TYA $\operatorname{CGGFNGQPDDHVERFDADKNQWEY\square APMKQKR~}$ HGNK $\square Y V L G G R Q G K L P V T A F E A F D L E A R T W T R H P S L P S R R$】Q NDK I IF Y S S S T $\square Y$ S Y D $\square K$ T K K $\square E T Y S L T T S \square R$ VG DVMYVF G GRTEEGVLGD LIAFR DS $\square$ RRWYSFHNMPSPR FRGKVY $\square L G G S D D D W T A N A V T C F D P D S Q S \square S R V G T M A K C M$
 $L N S G K V L V T F N \square D N G H L N S S E \square Y D P A T G T W S P T G N \square$

| UniRef90_K1PMS1 | $\mathrm{T} \subset \mathrm{~V}$ |
| :---: | :---: |
| UniRef90_A9B2J9 | Q |
| UniRef90_J9KX03 |  |
| UniRef90-M1Z8G3 | H G $\square$ G S A V V |
| UniRef90-A0A022QFG2 |  |
| UniRef90-H2M938 | GA IS C CVV |
| UniRef90-K7JKW3 | E Q FLV V |
| UniRef90-H2Y1J9 | SALSCCV |
| UniRef90-F6XHP3 | $P G G G V G V$ |
| UniRef90-UPI0003599D6C | VTVKK C A V |
| UniRef90-F6RY91 | AEMSACV |
| UniRef90-A1T414 | N HADA A T |
| UniRef90_F6S5F7 | VGVS C |
| UniRef90-A9VDV3 | S HLGMGMV |
| UniRef90-G5BJF1 |  |
| UniRef90-H2LM53 |  |
| UniRef90-B5GRG7 |  |
| UniRef90-C3ZQP0 | $\mathrm{V} \mathrm{A} \nabla \mathrm{S}$ A |
| UniRef90-D8RQE7 | AHGAAAVV |
| UniRef90-Q1DBG0 | $\square \mathrm{Y}$ H T A T |
| UniRef90-Q3JEI6 | GGHGAA V |
| UniRef90-IORHN5 | H HATA |
| UniRef90-UPI0003F0FC2B | A EMPACI |
| UniRef90_UPI0002B4209C | GYA A A GV |
| UniRef90-M7CAE3 |  |
| UniRef90-J9JMB9 |  |
| UniRef90-UPI0003C88E51 |  |
| UniRef90-UPI000332FC3E | VGVS C C |
| UniRef90-UPI0003C15774 |  |
| UniRef90-HOUXA0 | S H H G S V |
| UniRef90_W5UCL3 |  |
| UniRef90-Q84S70 | RCYCSA IV |
| UniRef90_UPI000457461B | MDHAAC |
| UniRef90-UPI00027F46E1 |  |
| UniRef90-N1TZB4 | SEFTM |
| UniRef90-UPIO004626BCE | $\square \mathrm{FHAAA} \square$ |
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| UniRef90-UPI00036D0498 |  |
| UniRef90_UP10003871BD1 | T DLLK A CV |
| UniRef90_E5T258 |  |
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| UniRef90-F7DYA4 |  |
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| UniRef90-K9XJ33 |  |
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| UniRef90_UPI0003F08934 |  |
| UniRef90-UPI000328B219 | G A V]A C G V |
| UniRef90-T1IS94 |  |
| UniRef90-W5KPF0 | A D L A A C |
| UniRef90-R7YWP7 |  |
| UniRef90-W6NEIO | VCH G V A V |
| UniRef90_U5HIS1 | S GHAMA |
| UniRef90-UPI000393FA32 | S G L S C CV |
| UniRef90-UPI000383494C |  |
| UniRef90-F6YTZ8 |  |
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| UniRef90-U6INH0 | S NLS SAV |
| UniRef90-C1MN39 | F GVGVA |
| UniRef90-B4L3R0 | VFHASAV] |
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| UniRef90-M3ZVK0 | SKTACA |
| UniRef90-A7HWV4 | S G HVAALV |
| UniRef90-UPI00045E54BB |  |
| UniRef90-W5CRC1 | A CHSSAV |
| UniRef90-K9K9M8 | S G H G VTV |
| UniRef90-Q25386 |  |
| UniRef90-C3YKR2 |  |
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| UniRef90-F1P804 |  |
| UniRef90-H3CFZ7 | S K P A C A |
| UniRef90-M8BHG8 |  |
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| UniRef90-N6UA35 |  |
| UniRef90-J9J344 | FMHAAC |
| UniRef90-F7H016 | AFAGCAM |
| UniRef90-J3MLB2 |  |
| UniRef90-U4WKV7 | S A F A Y G M V |
| UniRef90-E9Q7Q2 |  |
| UniRef90-E5R060 | S G H S M T |
| UniRef90-UPI000359D87C |  |
| UniRef90-C3YX25 | Y N $\square$ S C |
| UniRef90-G0RMP9 |  |
| UniRef90_UPI0003C296DF | R D H S VA |
| UniRef90-S9PGB2 |  |
| UniRef90-W9XSD4 |  |
| UniRef90-Q8N239 |  |
| UniRef90-A7SAR8 |  |
| UniRef90 ${ }^{-}$W5UAQ3 |  |
| UniRef90 ${ }^{-}$M3WT49 |  |
| UniRef90_UPI00045E506E | A G V]A C A S |


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| :---: | :---: |
| UniRet90-M4A6K4 |  |
| UniRef90-Q1J336 | DTNTDTYTPI ADQPYV |
| UniRef90-R7U895 | TDNQKWHPI QKPPAQ |
| UniRef90-S9QJ488 | GQVLVVGGWDGTtLATAELYDPATGTWRRVRSPLAS |
| UniRef90-M7BE45 | DPNRQLWDELAPMSDP |
| UniRei90-UPIo003B487A9 | A HIVMDPAAQTWSVAAPAPTA |
| UniRef90-G3VKB0 |  |
| UniRef90-F6SYH9 | DKLUWIFAGYDGNALNDMWTIDDRDTC C WE |
| iRef90-K7GIE1 | GTKTYDAGGMT ODVDTVGCFDPQTEKWEKLPPL KC |
| UniRef90-M3CYG6 UniRef90 E3N3UO | GTK |
| iRef90-UPIOO | MDGFLYCAGGWSEKLLAASYRYDPR |
| UniRef90-AOAO24MQV2 | GKI IVCGGYDGKCLESVEEYNLLKKNWRRLADMAQC |
| UniRef90 R4SLT2 | GRVLAAGGGDNRGAVTYADAYDPGSGQWAVTGS |
| UniRet90'H9k5N1 | RKSFAVG |
|  |  |
| A0AOS | DWLFVL TEGSENQWIAYDPEADRWHPIIPKMP |
| UniRef90-UPIOOO32B0D17 | $V G N D L Y V L G G Q M K$ KTNCVDKYSVEGDTWK |
| UniRef90-UP10003EBD866 | NQLYUGGLFVDEENYAYLLDPFSSDWI |
|  | MMGGLVDGSTAKGDLWMVENNGI |
| UniRef90-UP10003DEAD08 UniRef90-H9JAP1 | VVGGADSFAVGSVWSYDPTTRTW |
| iRef90-E6ZHA6 | GGYGKDTVDSSFCYNPESGVW |
| UniRef90-K7 | NGKLLVMAGYTAFASAEVYQYDSC |
| UniRef90 B6GZ19 | VFGGQEGFFFNDLIAFDLINANKWEV |
| UniRet90-UPIO00333C026 | LVVVGGRADEEDEEFAFYNTKARRW |
| UniRet90-X1X6M3 | DKVILVVSGNVGKYSDSTEWYDPKVNRWKL |
|  | NNTVIVAGEATATRLSEC |
| UniRef90-UPIo004420072 UniRef90-W5KAL2 | YNPK【OQW |
| UniRef90-E7BUK4 | NNFVFLDGGEEFHASSKVFRYDPRQNSWLRMADMSVP |
| UniRef90-M7NPRO | GDI YIFGGLVKEKVKDLWIIDSATMM |
| UniRef90-V9KXG88 | M |
| UniRef90 | RMNDRLYVMGGRTPQQTA |
| UniRef90-U2SMK4 | GKVLVVGGDFAAATTGTAEL |
| - | 㑑 |
| UniRee90-OPIOO046B9C9E | VGSKFYLLGGRGDRPVS UYDTQSGTWSKGPEPPI |
| UniRef90-R7UQ12 |  |

GEK $\square$ F $\square$ TGGCKGHCCRGVWCYCPASNNSS LVPAMKKP
GEVLVTGGSPDGQRSSTAERFAVPTPPWRATASLGAS TQDVVAFDVYNHRWRSLTR RLPTP पDGYLYATGG ECLNTVERYDPRLDRWDFTPPLPND VGSKMYLFGGRERRMVNDLYMFDLDTFVWERIPPLPRA VDSATYAI GGDNDAPSSTVSVLDRGSRTWREAPSMKME VSNCLLVI GGCYAPSVSSVMRFDPFKKEWRMVASMRTP

QLIDRMYLAGGYGTGSTSDLLVMDTTTQHWFRGGVVPSE MDNKDYUVGGVYGASKQVVECYDADTNAWSEFPSPHQL DNDI Yi AGGQVPRTVNSFYCFDAQQNAWIPKTPMDCA

 KDVGGGHSARTVCYLDETVNQWKVLTDLPGK ПKDLIVIFGGGNEGIVNELSVYNTLKNQWFVPADIPPG | $D D K L I V$ | $L$ |
| ---: | :--- | DT $\square Y \square I G G K K R E V V K E \square R Y F N P V D Q E W S E L A P M P V G$ GCY LYLFGGKDPGSMRRVVFYNARGNKWLRAPDMLQK GKKTLLIGGGKTEPASDSVWVFDTETECWSLDMGDDPVAB VGNRFFVIGGSYAPHTNEVMQFDPFKKQWTNVATMLTP P T A GMWYVL SPPPSM पGSNTFVFGGCDSRCFNE पYVLDADSFHWSSVGDVPAP HRWRRLPPVGAR LGNHLYLVGGFDGQRRNDVHRDNपDSENWDQLKDRFTP 1 KDLLTVFGGGNEG\VDELHVYNAANNQWQTSGDTPPG DPSRTICYLDEEERRWKKLTHLPDE WK SVDPMRVR GVIY $\square A G G \square Q S E A \square D \square V S A Y D T V R G Q W V S L P P M P A P$ पDGVTYATGGYDGNPYESYEYYDPSVDTWESVAPMSAR GTEMIIWGGYDVQAVKTGARYNPALDQWQTVANAPPA LRQFHSYDDKNDAWSRFTRLPAS VDKSVYLVGGYGTGNTSDLLVTDDAVQHWYRGGVVPSE

 LYVVGGYHWRPLAE HAWRPGQDAWSAGAALPRA

| UniRef90 W5BGA5 <br> UniRef90 M4A6X4 <br> UniRef90 Q1J336 <br> UniRef90 R7U895 <br> UniRef90 S9QJ48 <br> UniRef90 M7BE45 <br> UniRef90-Q4YSW3 <br> UniRef90_UPI0003B487A9 <br> UniRef90_G3VKB0 <br> UniRef90_F6SYH9 <br> UniRef90_K7GIE1 <br> UniRef90-M3CYG6 <br> UniRef90_E3N3U0 <br> UniRef90_UPI0003F07475 <br> UniRef90_A0A024MQV2 <br> UniRef90_R4SLT2 |  |
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UniRef90_UPI0002B8DA7D UniRef90_H9K5N1 UniRef90_J4GSM4 UniRef90-A0A059B6C8 UniRef90-M4ASL8 UniRef90_UPI00032B0D17 UniRef90_UPI0003EBD866 UniRef90_C0S8W8
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UniRef90_A4CK63
UniRef90_R7UQ12
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UniRef90 W5UKA3 UniRef90_R7T7S5 UniRef90_F1RY00 UniRef90_G1KS35 UniRef90_B6SS62 UniRef90_V7BS56 UniRef90_2DS64
UniRef90_M5XYF3 UniRef90_UPI0001CBC1E6 UniRef90_W3WQS4
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UniRef90_D2GY05 UniRef90_E1EY39 UniRef90_A0A026W2Z9 UniRef90_W5QC12

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RRDFACAEVDGT\|YAAGGFGCSGHS
L
F A K M V E R Y N T S L N LD GHA $\square$ AVTE GHVYVAGSMEPG FAKMVERYNTSLN

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

 L Y C T R C V A V A D K L Y V A G G V H T D D RQHVA GVVI GSKFYVLGGRTDGQLKDS N S DTV HEYSSFRG $R N Y I S S V V Y D D K \| Y V F G G Q N F R E L T R T R S R T G E V Y D P K T N$ $R C N F S L C V H N G K I Y A L G G Q T G T N E T N S K S Q S V E V Y T A H T N$ R GRF DA A V V G S K V Y A V A A A G S S G S V D L K TVVECY D S E S E R R L H S L TVV D G K V LA A G GF H G H P S S P N I L T S A E I F D P A T G
 $R$ VGHA SALVGSVLI VWGGDTKANPGDKQDD GLVGLDNLVSR




 RKNFGLVHKMALYA GGQDKK RYDF TLLGYNGRLYAVGGGEYQKR RYDFA CAEVVNGLVYAVVGGYGVNGDS $G T N G V Q W H S S A E V V Y D P D T D$ RAFHSSILHHDHHLYY $\quad$ GGHGGHHHLNSVETLDLNTL




 $R V G H A G L V I G N A F I V F G G D T K T S K N N V N D N S L Y L L N T T S K$

 RS GHTA TXL N GQVVLVLGGEDGTGG SALRTARLYMAAT G RRHHS LLYYNHHLVTVGGFDGN
 LHHF QPVVVEDRIYILGALTGGWPEETPVGHIYTYDTATN
 RTMHTSVMALNQLFVDGGKTKGAHY■KSLLDVESYNPLAK $R Y H H S V T V L E G R V V V A G G T A T G S S G V T G S A N A V$
 TFAHTATACAGEG F V T G G RNNHASAVVDRKIVIHG
$R Y F H S A D T W N N Q L V V F G G M S N$
RYFHSADTWNNQLVGGGMSNGPDGTTWLSDFFVFDTETS RFFAAANVFD GK I YVAGGGC ESEDCDDSSSNWMEVFDP KT K RTHFACCAVSGKVYVAGGRNLTHSRGDTSAEVVYDPVAD RKECSACAIGGCKVYVTGVVEGSENGASKDVWVDTLHE RYSHTVCAWGTHLLVFGGFSVTGKWMNDLHALHSPMMMWY $R Y$ V V R L V G H E G CLL Y A I G G G Y E K I S L K S V E R Y E V S S N $R 1 \mathrm{KP}$ S LVCCEGSI YAI G G DNVGGELNRRTVERYDCEKD
 RCYVAA TTGNHHVVAVGGYN GFRRLNSGEILDVEKN SSMAGVAVLDNNLYIVGGGVQGPHKQQVDSCFCYSVNSN CAAYGFVVDGTRMLMFGGMVEYGKYWNDLYELHASRWEWR

 RSHHCVAVMMGBVEVA GGEVEHASGRTCVRTACRYDPRSN
 RSGHTVVMANSVLILFG GEDAKRKKLNDLHMFDDKS

 L R A MT CTAVGKK LVVVGG G G G GPAYYNDVVVLDTVNF

 CAAYGLVVDNTRLLI FGGMVEYGKYSNELYELQASRWHWS
 RTGHTATALDGRVLVVGGSSTGDSAVVPTNTTELYT LAS N R DHA G GVTV GRKLVVVGGRD G GVLK DTVF VLDLDNRRS RS DLS A QTI GN LI YLTTGGCTSDATCPSITNSMEIYNPQTN
 $R G L H G A V W T G S E M L V W G G Y G A T L G T Y P N L G G G R Y N P A S N$

 LES S AVAALGARVFVSGGY RGERVEEALASVWVYSCEGD


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## UniRef90_W5BGA5 UniRef90-M4A6X4 UniRef90-Q1J336 UniRef90-S9QJ48 UniRef90-M7BE45 UniRef90 Q4YSW3 UniRef90_UPI0003B487A9 UniRef90_G3VKB0 UniRef90-G6SYH9 UniRef90-K7GIE1 UniRef90-E3N3U0 UniRef90-UPI0003F07475 UniRef90_A0A024MQV2 UniRef90-R4SLT2 UniRef90-UPIO002B8DA7D UniRef90-H9K5N1 UniRef90-J4GSM4 UniRef90_A0A059B6C8 UniRef90-M4ASL8 UniRef90_UPI00032B0D17 UniRef90-UPI0003EBD866 UniRef90-C0S8W8 UniRef90_UPI0003DEAD08 UniRef90-H9JAP1

 UniRef90-E6ZHA6 UniRef90-K7LS05 UniRef90-B6GZ19 UniRef90-R7TQ60 UniRef90-UPIO00333C026 UniRef90-X1 $\times 6 \mathrm{M} 3$ UniRef90-Q9D618 UniRef90_UPIO004420072 UniRef90-W5KAL2 UniRef90-E7BUK4 UniRef90-M7NPR0 UniRef90_V9KXG8UniRef90_H2UMT9 UniRef90-H2RYU8 UniRef90-U2SMK4 UniRef90-R7TAZ4 UniRef90_UPIO0046B9C9E UniRef90_A4CK63 UniRef90-R7UQ12
UniRef90- F6YEX8 UniRef90-H2SU71 UniRef90-L7UIQ7 UniRef90_UPIO003F18921 UniRef90_UPI0003F14F4B UniRef90-A0A024UI63 UniRef90-B0CVB1 UniRef90_V4KHP0 UniRef90-M4DJG3 UniRef90_Q4RUA8 UniRef90-X6N5V8 UniRef90_U3J7FO UniRef90-H3ASL9 UniRef90_C3YDG5 UniRef90_A0A016UD33 UniRef90-H2UWH7 UniRef90-EOVTG2 UniRef90-B5JN31
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UniRef90-M5XYF3 UniRef90_UPIO001CBC1E6 UniRef90-W3WQS4 UniRef90_UPIO00388B9C7 UniRef90_A0E576 UniRef90_J9K4T2 UniRef90-W5NN41
UniRef90-H8MJN3 UniRef90-CONPC1 UniRef90-D2VPVO UniRef90- X1WU14 UniRef90-B9XBJ1 UniRef90-X6LZU4 UniRef90-C5M0Q8 UniRef90_V6IOEO UniRef90-S4RYY9
UniRef90_D2GY05 UniRef90_E1EY39 UniRef90-A0A026W2Z9 UniRef90-W5QC12

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120 A WEDVSSLSTRKHSFGLTVKDVLYGVGGHGNFSPGFKDVT TWTPIARMPNRGATHAVADANWTGQVFGSKEVWRYNVASN RWNTLPPMPTARSHHSSLFHKGQFYVIG GRDDDNDDSVE TWSSVGSLHTSRMGHVALLLPSGRVWVTGGGDDPGASSE SWRSLPNCMGARHNFGLVEIDGULYILGGEDGEREGCSME KWKQUNLMHFSRSNFGGCTGDNNLYVLGGEGNQHVLKSVE SWWTQVARMMLQARAGPAKASMGDGALYVGGGEWFDGVYAQVW VWTRI P P P PQRRYGHTMVAFDRHLYVFGGAADNTLDN EMEH RWTQLPSMSTPRASHGFLSCSQKYAVGGWCRYEDYLDSAE RWTSTGSLHDMRSDCAAAVFDNQI YVCGGFNGDNVLSTVEE TWDYTNSLMAPMSCHAGVSYKDE YLSGVYVCGRPSNMLI T TWSPTGSMHTARCNHHA IALAD GRVLVMGGGSERPIAAAE


 EWTAVSSMQMPRSHFACCVISGKVYVAGGRNCPRGLTLAE KWTELAPMKYSKYRCSALVLNGEIFVIGRGQSRHCLSAVE RWSERAPMRYSKYRFSTAVVDGEIVVLGGIGCDGCLDVVE | EWREQAAMKTPRAMFGAVVIHNGKI IVVGGVNEEGLTASCE |
| :--- |
| QWSRAGPRPAGRYGHTLNI |

 SWSEVRPMNVARMAMGCLKYRDYIWVAGGMTGDKVSKVVE EWSFI KHAPRPVASAACAVARRRMFVCFWKPPAT TDIY KWALI ESMRRPRWGCFACGFEGKDYVMGGRSSFTDGNSKF




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| :---: | :---: |
| UniRef90_W5BGA5 | VY DPGRDRWEETKRGCVMATSHAVVGETDFCVEWK |
| UniRef90-M4A6X4 | VYKPEQDEWISLLEPAPKIVRDVKTVTVEDRYVYVMAR |
| UniRef90-Q1J336 | TYTRLPDLPVARAAGGLEYLNGKLHYFGGTNLSRQDVGD |
| UniRef90-R7U895 | SLDTKSLEWQQHPPMPRHLYLAGVVSFSGNIFVLGGYEAN |
| UniRef90-S9QJ48 | VFDPAAGTWSP AGRERDIAAAVVLPSGKV |
| UniRef90-M7BE45 | CYD $\square$ Y NKT WTKQPDLTMVRK】GCYAAMKKK\YAMGGGSYG |
| UniRef90-Q4YSW3 |  |
| UniRef90-UPI0003B487A9 | RYDPQTDA WT EMGRMPTPRHG |
| UniRef90-G3VK | CYDPRTDHWTSRAPDPAGTFPVAHEAVACRGD |
| UniRef90-F6SYH9 | CYDVDSQSWEVIQASPDSEVMYSTWTLVY\DRLQLYTLSP |
| UniRef90-K7GIE1 | CFDLVVRRWTPIARLPYTLSHFAATVLVNKLYLIGGVTDT |
| UniRef90-M3C | VF D TAANAWTSL |
| UniRef90-E3N3U0 |  |
| UniRef90_UPI0003F074 | TYNPKTGY ${ }^{\text {GCEKSPMKV}}$ |
| UniRef90-A0A024MQV2 |  |
| UniRef90_R4SLT2 | DPATGTWTETAPM |
| UniRef90_UPI0002B8[ | CYDPERDTWEKATDF |
| UniRef90-H9K5N1 |  |
| UniRef90_J4GSM4 | VF DLNSLRTKATWELVEPAEGSPRPAQRTGHVCVTHENKL |
| UniRef90-A0A059B6C8 | CYDPLSNKWEE |
| UniRef90-M4ASL8 | Y NPDGDYWK D G |
| UniRef90_UPI00032B0D17 | IY NPD G D WREGPPM |
| UniRef90-UPI0003E | AYDFATNKWEPFTEFPQ |
| UniRef90_COS8W8 | AFDLNALQ |
| UniRef90_UPI0003DEAD08 | CY D P $~$ K NLLA R F H P L K F P S CVVS P I F P IT W W K R S M Y RVY N |
| UniRef90-H9JAP1 | CYNSRTNEWTEDHNLRFPRCFTTLFSMNDKLYIVGGA |
| UniRef90-E6ZHA6 |  |
| UniRef90_K7LS05 | VDIYNPERHSWCEIKNGCVMVTA HAVLGKKLFClE WKNQ |
| UniRef90_B6GZ19 |  |
| UniRef90-R7TQ60 |  |
| UniRef90_UPIO00333C026 | RYDPFTDSWTPVSPALK YVSNFSAAGCQGRLYLVGSSACK |
| UniRef90-X1X6M3 | CYHPSFDAWRSVAEM |
| UniRef90_Q9D618 | QYDPSQDQWRERAPMRYSKY |
| UniRef90_UPI0004420072 |  |
| UniRef90-W5KAL2 |  |
| UniRef90-E7BUK4 | VFDPSKEGTIEQRTRRTQVVTNCWENKSKMNYARCFHKMI |
| UniRef90_M7NPR0 |  |
| UniRef90-V9KXG8 | CYNPEMDWWNFVASMPYPLVEFSACECKGMDYVMGGYT T R |
| UniRef90-H2UMT9 | DPSDNRWTVVVRRALMHDNYD |
| UniRef90-H2RYU8 | HYDPYNNTWNLTCPALLKYVTNFTATACHGKDYVIGSCAVK |
| UniRef90-U2SMK4 | VYDPATGLWTPAAPMAAPRAGHSATTLLTGKVLVDDISAT |
| UniRef90-R7TAZ4 | EF DSKQPA WRHRPPMPE |
| UniRef90_UPI00046B9C9E | VF DCRT QE WHMVASMSTERHNFGVGVGGVSYDYQWLNSVE |
| UniRef90_A4CK63 |  |
| UniRef90-R7UQ12 |  |
| UniRef90_F6YEX8 |  |
| UniRef90-H2SU71 |  |
| UniRef90-L7UIQ7 | VYDPARGVWEGTGGMT GVRSRHASGQVLLTGGRSAPSFGS |
| UniRef90-UPIO003F18921 |  |
| UniRef90_UPI0003F14F4B | SASTRLWYECATYRMPYPAAFQCAVVDNHIYCVGRQHT |
| UniRef90-A0A024UI63 | ILDLD T F W WIHPTVHGYHPAPRNAHTMS IVGASLFMFGGH |
| UniRef90-B0CVB1 | VY DLFAK W WVQRRDYPRHC |
| UniRef90-V4KHP0 | TFKPKEDK WEEMGSTHYDNDGGDMMSCCVIDNVVYRFQRS |
| UniRef90_M4DJG3 | VF NPLEMS WSTVEDIWPFSRAMQFAVQVMKNDRVYTIVDW |
| UniRef90-Q4RUA8 | NKWTLVAPLREGVINAAVVGAKNKADRLRGHQRE |
| UniRef90-X6N5V8 | D $\square$ REMRWSQSLF MGQAPSARAGHAMVAVDKCGHSMC |
| UniRef90-U3J7F0 | EYESQQDA WLPVTELKRQQSYGHCMVAHRDNLYVMRNGPS |
| UniRef90-H3ASL9 | CYFPRADTWVEMAMRQTSRC |
| UniRef90-C3YDG5 | MYTEDTNTWTICCPCPDVPMTVQACV |
| UniRef90_A0A016UD33 | MLD F ES Q CLLP QLKGLLGMVHQHDLLKRKKGGFLQVEVVLLR |
| UniRef90-H2UWH7 | MYDVTSARWEFAANLPQPAARPACTTAMNRDFVCLWKPME |
| UniRef90-E0VTG2 | EENPTPMY L N DLYTLKLCPDGSVMWDKPKTYGEPPSPRES |
| UniRef90_B5JN31 | D T D T D S WVTLP S SGAPPARQLAS GT WT GDELVVWGGS |
| UniRef90-W5UKA3 | NYNVSTDT WRFAA HLPRPASAVACTK TMGRDFI CLIWKPKD |
| UniRef90-R7T7S5 | A LDMRNLQ WNHLPPLPRKVFFAYLDAIVSDNLFVLGGCN |
| UniRef90_F1RY00 | RYCPKKNKWTFVQSFDRSLSCHAGYVADGLLWISSGRTCFM |
| UniRef90_G1KS35 | LYELQASRWLWKKMKPQHPSTGLPPCPRLGHSFSLYGNKC |
| UniRef90-B6SS62 |  |
| UniRef90-V7BS56 | SLDFETMAWSR】K $\square$ R GFHPSPRAGCCGVLCDTK WY |
| UniRef90-I2DS64 | LFNPTDGQWAVTA SMS ${ }^{\text {L }}$ GRRGHTATLLPNGKVLVVGGRMA |
| UniRef90-M5XYF3 | VFSPSDGTWRTVED $\square$ WPFSRAMQF |
| UniRef90_UPI0001CBC1E6 | LLD $\mathrm{L}_{\text {GK G K WS T CNSMAS }}$ |
| UniRef90-W3WQS4 | RLLDDADT |

RFNVKNNTFTQQGANPAKRTDHSLVEYCNGDY DFGGKGEN
 $K Y Q V S A G T W S F T S Q L P R P A A G A A C A K A M S R Q F V C D W K P M D$
$I V Y D G A N Q W T A V S P M P G G A R A T H A A V L L P S G K V L V T G G G F$ IY DVGANQWTAVSPIPGGARATHAAVLLPSGKVLVTGGGF $V$ V DTVNGNWT $\square H N A T L T S D C C S D S I A F V L K D S N G N E N \square Y L$ $V$
$D$
D
R P P
RYQPTNDTWTALPTVGAPANRTGHTAVWTGKEMVVWGGVN RYDPRDNSWVFVRNVPEGRTCYEPAVTCMGDDYVNCEDKD
 $V Y P E H R D A G Q Q L Q Q R L R H D G P A S P Q L Q R T L S K W I S S R V V P$
$R F L F P F D Q F H V C R W R T F Y Y R K A R C G F R L C$ RYDPLKREWTPDASMEHGVGNATACSFRDCIYVIGGHSGC
A DGVRAVTAEVHRYDPRFHAWTAVPAMREARAHFWCGAVG

SDDPKNNDPRYLNDLNYTLELLPNGQTAWDVPQTHGHAPP UniRef90_UPI00038EB97D

UniRef90 W5BGA5 UniRef90 M4A6X4 UniRef90-Q1J336 UniRef90 R7U895 UniRef90 S9QJ48 UniRef90-M7BE45 UniRef90-Q4YSW3 UniRef90 UPI0003B487As UniRef90 G3VKBO UniRef90_F6SYH9 UniRef90_K7GIE1 UniRef90 M3CYG6 UniRef90 E3N3UO UniRef90-UPIOOO3F07475 UniRef90 A0A024MQV2 UniRef90 ${ }^{\text {R4SLT2 }}$ UniRef90-UPI0002B8DA7D UniRef90-H9K5N1 UniRef90 J4GSM4 UniRef90- A0A059B6C8 UniRef90-M4ASL8 UniRef90_UPIO0032B0D17 UniRef90 UPI0003EBD866 UniRef90-COS8W8

DTDHDDGLSTVTMCYDTESHRWQDVHSपPLTDNYCSFQMA FVLDLAGGATSWTTAAPLPNPRNHLGAAVLGGKDYAVGGA YEVDVNEYDVTQRTWKQRSPMPEVCEGGSATSFGDHVYFV VLLEGRGAELYDPTTESWSPTGPMVRPRYRASMVLLPSGE KLFESVECYDPRDQQWTA $D C P$ LLKERRFGAVACGVASELYV GNYGKVHKSVEMLNLNEKNMKWKMCKSLK

F Y RLLK DCWAECPY
NMTKWLPYTLQPKQF THACSTIQYEWH
EYYNTUYYWEPGDHKW
QR $\square$ NK $\square$ WMWNRKGEWQ

ENATQS $\square$ DS $\square \mathrm{DVWDGNDYVWREHTNMS} \square$ ARHGHSTGS $\square G D$ ILFGGTDCQYHYNDTWVFDTTTNVWSELTCDGY $\square$

PSNKWEY L $\square$ RNSHDGGPPPGK $\square$ PPARTNHT VVFSDK $\square Y$ K C
SEKEKTPSSVGADDA WD WK ERA WK LETEMSMPRHGHA $\square$ A Y
DDF L R C $\square$ MDCYNITTGQWTAMPGHY
CMRFDPSSDQWQS
YNA LALDQCYNPTTDTWSVIASPFLPKYLSSPRCADLHGAL
RYMLLRYVGRTDTWKVSLTGGSQDRTTEMVSVDGFDYRFD YNALLTLQCYNPVIDGWS $\square$ CSPF $\square P K Y$ S S SPRSVSMDGVD SYN
 DRNMNILQYCPTSDTWTVFESCE $\square H \square R K Q Q M V S L E D T \square Y$
Y N A LTMQCYNPVIES W DA TCS PFMPRY LS S PCSVCMDGV V RS SELYDAASGVWVSAGNLMPADRAHHSATLLHSGEVLITT CMRFNPRNNVWTFLQRPQLNHGYGPSLMW
CYHPSLDKW
Y DLETGS WEVLSDAPRTRDHFQAVLADGLIYAVAGRNTGS GPQLPEEEEEEVEEFSDGDADSTGTPEEQEAAQFGWFDDL FNPSLDCFFKYNAETNQWCEDVAEFGQFFHATLIKAVPVN YDQSRGNEVWLERQAMCLARGWHCMASLLKHLI YAIGGSDN $\square L S S A E L F D P P S G T W R D T G A M N T R R V N H T A T P L S S G K V L V$ RAWSKRAPMGTARFGHHMAAGRGSV
SGAKHDRD $\square Y E F H T E T \square T W T H R G H T A N D K Q P K \square Y Y F G G Y D$
ER VVWYDSEKRYW
QRQAAQGAVLPPपPEPVVRAGRपPAADADHGGGGGGHPRG RDNQLLVFAGGYQQKDFNDLHMFDMDTYTW
DDFLRCVIDCFNLTS RQW
DT RYTSFWQSPDKTLTGSSVMRSVRTGVSAVTYDTNAVIV TTEDYEY IDPRKDEWQLVSTLIKQQSYGHFLVGHRDCLYVI HSAVGYTDKEGKSRLIIYGGMCGRRLGDVWSLDDETMTWS GAVLEFSGGNPASWTAMSSVDAPSSRSGHTAVWSGEEVLI TTELYEYVVDRDEWSLVTTLDRHQSYGHCMVAHRDNLYVM C WDD C
YLFGGDANESEDSNNNDPRY乌NDF YEDE KLRVYNREMGSWTRFIDTRHHM

GSNGDATAMAELFDPVKDTWVAVAPMRNARYGHSATLLRS
 NKMS WKLIS GPS S GSPSTDNKPKARGYHTANMVGSKLIDY KNKNDLFEYKFATGQWTEWKTEGRLPVARSAHGATVYSD $K Q \square F N D \square W K F K G Q W \square E L D H D Q Q D T G R F G H T A V S Y Q N S M F D$ AYTDSRGKCKLI IYGGMS GCRLGDGWTLDDDTMSWNRPVV
 PGGYYANYTTFQSGLVSDMNVKRGDSMTLTYNNKAYVIGG
GRFDPAANSWKTMAPFPYGGRSQHSADWTSSEM■VWGGLD SDTFWLHKYSPASNTWTADSELPTNRWRHCM
NGQKPLNDGFVFDTTTNTWKRPKANGTPPSPRGGHSMC SASAGISFKAWHWGSG】DCERF $\square G T R C S W H Q L L D K K R K M R$

HGGSS $\square G H V Q A H H A E R N Q W S S L T P C P H$
E GLLARRDRWTAAGALPRALHGHAGAVGDRGVVY $\square$ SGGKA
PRESHTGVAYTDRATGKSCLVIYGGMSGCRLGDLWFLDVD RLREGLFGDAGGHVSADAWSVIASPFRPKYLSSDRCAALH

UniRef90 W5BGA5 UniRef90-M4A6X4 UniRef90-Q1J336 UniRef90 R7U895 UniRef90 S9QJ48 UniRef90-M7BE45 UniRef90-Q4YSW3 UniRef90 UPI0003B487A9 UniRef90 G3VKBO UniRef90-F6SYH9 UniRef90_K7GIE1 UniRef90 M3CYG6 UniRef90-E3N3UO UniRef90-UPIOOO3F07475 UniRef90 A0A024MQV2 UniRef90 ${ }^{\text {R4SLT2 }}$ UniRef90-UPI0002B8DA7D UniRef90-H9K5N1 UniRef90 J4GSM4 UniRee90- АоАо59В6С8 UniRet90_M4ASL8 UniRef90 UPIO0032B0D17 UniRef90 UPI0003EBD866 UniRef90-C0S8W8 UniRef90-UPI0003DEAD08 UniRef90 H9JAP1 UniRef90 E6ZHA6 UniRef90-K7LS05 UniRef90 B6GZ19 UniRef90 R7TQ60 UniRef90-UPIO00333C026 UniRef90-X1х6M3 UniRef90 Q9D618 UniRef90-UPI0004420072 UniRef90_W5KAL2 UniRef90 E7BUK4 UniRef90 M7NPRO UniRef90-V9KXG8 UniRef90-H2UMT9 UniRef90 H2RYU8 UniRef90 U2SMK4 UniRef90-R7TAZ4 UniRef90_UPIo0046B9C9E UniRef90 A4CK63 UniRef90-R7UQ12 UniRef90-F6YEX8 UniRef90-H2SU71 UniRef90-L7UIQ7 UniRef90-UPIOO03F18921 UniRef90-UPI0003F14F4B UniRef90 A0A024U163 UniRef90-B0CVB1 UniRef90-V4KHPO UniRef90-M4DJG3 UniRef90 ${ }^{-}$Q4RUA8 UniRef90-X6N5V8 UniRef90-U3J7F0 UniRef90 H3ASL9 UniRef90 C3YDG5 UniRef90 ${ }^{-}$A0A016UD33 UniRef90-H2UWH7 UniRef90 EOVTG2 UniRef90-B5JN31 UniRef90-W5UKA3 UniRef90 R7T7S5 UniRef90 ${ }^{-}$F1RY00 UniRef90-G1KS35 UniRef90-B6SS62 UniRef90 V7BS56 UniRef90-I2DS64 UniRef90-M5XYF3 UniRef90_UP10001CBC1E6 UniRef90 ${ }^{-}$W3WOS4 UniRef90_UPIOOO388B9C7 UniRef90-A0E576 UniRef90 J9K4T2 UniRef90-W5NN41 UniRef90-H8MJN3 UniRef90-CONPC1 UniRef90-D2VPVO UniRef90-X1WU14 UniRef90_B9XBJ1 UniRef90 C3XZ09 UniRef90 X6LZU4 UniRef90-C5MOQ8 UniRef90 V610E0 UniRef90- S4RYY9 UniRef90-D2GY05 UniRef90-E1EY39 UniRef90 A0A026W2Z9 UniRef90 W5OC12
UniRef90-UPI00038EB970

VSSTTFYHTASCCPKSYKATFEAAQOKVSRNDMEGAADCF RGQDQNSVQQTAVHAYDPATNTWTAVASLPRGLSHNADTT GGRNRSCMQFDPREDTWCLLQRPLISHHFGFSAT ALVLGGDNDQAGAELYDPAANTWRSPASATLNRTAHTATL FEMVTCKSEFYHDEFKRWDYLNDQNLCIPASSSFVYGAVP PSPREGHAASL

FGGTNGLQWFNDVWCYDPRTNWTQDDYVAAREGHAAA五 LGT QLI I IGGGT
 LNQRMGDSVYRCSAKAKLWYECATHPMPFPP CFQCAV YLIADNTKKV Y $\square Y D P D A N \square W Q K \square Q F \square H K H E N G G L V V$ TNGTQWFNDVWVFDYKNDSWKE $\square$ ACNGC $\square$ PQPREGHSAAL

Y
GGTDGGEPY $\square R S A A \square Y D P V N A \square W S N T T M G T S R \square G H \square A A L$
SETPFGGT $\square$ GPVDAYH $\square$ ATDTWTT TPPP $\square P T E R A G T A A T F$ YVYDTSSNA NTLYTCDDSTYKVYSFCPETCVWKGEGSFECAGFNAGAVG HADTAERFD LLEVESFDPRCDQWTSVAPLLLPNSEAGLAV AGGTTPSGDTASAEDYDLHTGQWTPTGPMAGTRYGHAVVL FAF LGRYEPFSEDERYDPGSDQWTRLRPDPYDRFCYGLAV

GRGRSNELYपLNTQDMRWERPPESLSAGAPSGRQRHSACL


VGGFNGVRRDKSTEFYDHRVGDWYPDPDMEDTRSNFGDED RNGPSDDFLRCLIECYNLTTGQWSSLPGHFTNSKGSLFTA QPVLF GSVPLPRSLHTASLIGGKMFIFGGWVPLVDCHAVE FGGEDQGSLRDDGFTYDPESNSWSSGASTPSGRTDHAAVW
RNGPCDDFLRCMMDCYNLTSGQWTAMPGQYENSKGALFTA DHVYVVGGENRSCMRFNPRSDTWTSLQRPQFNHWRGPSLV
पQHGSG $\square$ T GWN $\square$ PVTKGVLPSPRESHTAVIYCRKDSGNAK
GKVLVVGGEDVKKAGDDTKRDDAAMAEVVKEKGSDFTSTD
MAGQTFYDDLHELDTVADNWKQVKCKGAVPCSRTAHTGVS GGSDGGECFNDVWVYDVDTH WKSVT ${ }^{\text {DIITFRRLSHTATI }}$ K WWIFAGYDGNARWTRIPTEHLLRGSPPPPQRRYGHTMVA FGGWDGTSCLDEMYEYSFVTNTFYERRRCPKARYRHEALV RNGPSDDFLRCMIDRFNDTTGQWTALAGQYVNSKGALFTA VALADGGFHRNVYDSNSPDGGWRLLSQRMGRGRNGHASTL

F $\square$ E D N F CKP $\square$ T TVEVYDSSTNKWT $\square$ T S P $\square S H E R A D G A A \square M$ TFDTGGSPYEKFSGRYDPAKDRWAVMDWDPPVRGNHVAVW $R Y$ R $C \square E C Y C A \square C G Q V L P \square T N S A Y R S \square R W P S A R A C H T \square S R$

GRGEGGASSLREVYALGPGERAWSKRAPMSTARFGHHDAV



UniRef90 W5BGA5 UniRef90 M4A6X4 UniRef90-Q1J336 UniRef90 R7U895 UniRef90 S9QJ48 UniRef90-M7BE45 UniRef90-Q4YSW3 UniRef90-UPI0003B487A9 UniRef90 G3VKBO UniRef90-F6SYH9 UniRef90_K7GIE1 UniRef90 M3CYG6 UniRef90-E3N3UO UniRef90_UPIOOO3F07475 UniRef90 A0A024MQV2 UniRef90 ${ }^{\text {R4SLT2 }}$ UniRef90-UPI0002B8DA7D UniRef90-H9K5N1 UniRef90 J4GSM4 UniRef90-A0A059B6C8 UniRef90-M4ASL8 UniRef90_UPIO0032B0D17 UniRef90 UPI0003EBD866 UniRef90- Cos8W8 UniRef90 H9JAP1 UniRef90 E6ZHA6 UniRef90-K7LS05 UniRef90 B6GZ19 UniRef90- B7TO60 UniRef90-UPI000333C026 UniRef90-X1X6M3 UniRef90 Q9D618 UniRef90-UPI0004420072 UniRef90_W5KAL2 UniRef90 E7BUK4 UniRef90 M7NPRO UniRef90-V9KXG8 UniRef90-H2UMT9 UniRef90 H2RYU8 UniRef90- U2SMK4 UniRef90-R7TAZ4 UniRef90-UPIOO046B9C9E UniRef90 A4CK63 UniRef90-R7UQ12 UniRef90-F6YEX8 UniRef90 H2SU71 UniRef90-L7UIQ7 UniRef90-UPIO003F18921 UniRef90-UPI0003F14F4B UniRef90 AоА024Ul63 UniRef90-BoCVB1 UniRef90-V4KHPO UniRef90-M4DJG3 UniRef90 ${ }^{-}$Q4RUA8 UniRef90-X6N5V8
UniRef90-U3J7F0 UniRef90 H3ASL9 UniRef90 C3YDG5 UniRef90 ${ }^{-}$A0A016UD33 UniRef90-H2UWH7 UniRef90 EOVTG2 UniRef90-B5JN31 UniRef90-W5UKA3 UniRet90 R7T7S5 UniRef90-F1RY00 UniRef90_G1KS35 UniRef90-B6SS62 UniRef90 V7BS56 UniRef90-I2DS64 UniRef90-M5XYF3 UniRef90 UP10001CBC1E6 UniRef90 ${ }^{-}$W3WOS4 UniRef90_UPIO00388B9C7 UniRef90_A0E576 UniRef90 J9K4T2 UniRef90-W5NN41 UniRef90-H8MJN3 UniRef90-CONPC1 UniRef90-D2VPVO UniRef90-X1WU14 UniRef90_B9XBJ1 UniRef90 C3XZ09 UniRef90- ${ }^{-1}$ LZU4 UniRef90_C5MOQ8 UniRef90 V610E0 UniRef90- S4RYY9 UniRef90-D2GY05 UniRef90-E1EY39 UniRef90 A0A026W2Z9 UniRef90 ${ }^{-}$W5OC12
UniRef90 UPIO0038EB97D

LGEDVFI IGGWRNSSSLDETYRYCADKKRWTLLPPDPQPR FVLGGRI IVEVAYNVSTRDVTAYNPATNTWTPLTPGPDGR LNKK IWI CGGNNEE AUEEYSPRTDKWT ILPKMPPGR LPS GQVLVAGGGSPGAVATAEDFDPATNAWSTTGGMATPR


KTLNSVECYCCDMGKWMKVSA历PHPV VDDVMYVYGGRVDGKDLGDLCAFK $\operatorname{V}$ VNQRWYMFQKMPSPR

VNDVMY $\square$ FS GRTEEGD $\square$ A D $\square$ AAFR $\square$ PTRRWYSFQNMPSAR $T \square Y$ MRA $\square$ N N $V E S Y C C E R G A W \square R V A A L P S P L$




■GSGEVLVAGGSPDGVLRTAERYVPPSGPWRATASMASSR
CNGQILIAGGPVQEKAHSEVEALDPKTGTWQAWPPLNEGR VNKYVVEGGRDCKGRRNDLHIFDTGSRKWKPLGRLPEPR IEDK Y GGGDYPDEDTDEVQVYHSNRSEWEEVSPMPRAL PGGKVLVAGGWGLGGALASAEVYDPAKDSWS GVADMAKRR VEETALLLGGVKWRDPTRNVVGYDDDGDRWEDUGADPWAW VRSKMY【IGGFDGFKWLEDTHVLD

SGNRLYVVGGYCGAQRCKTLDCYDPASDSWDSVTSVPYS

MNGC $\square Y$ Y ${ }^{\prime}$ GGFDGSRTTNTVERFDMRAYKWETDPSMS $\square P K$ $V V R G D S V F T L N R \quad$ STTLEYIIDRKSWKPRRQLRFPR NRDENQEWEHEKEWKCTNS GVVNLET LDRWDGENRPRPR TGSEMDIMGGQTGSGASASCYAYSESSDSWRSVSSAFVAR VVRGDSVFTVNRRATV EYT IEDNKWR IKKKEM
LNGNIVVFGGFND
D S $\square E E$ E S PLT D S WS S WT K MPQK P
MF $\square \mathrm{FGGMSGCR} \mathrm{\square ND} \mathrm{\square WE} \mathrm{\square D} \mathrm{\square ESMTWSKGGTP} \mathrm{\square PR}$
$\square A \square A \square A K D P G P Y R S \square A E \square Y D P V T N Q W P A G N \square N A A R$
पNNKLYTFGGMGRDSALDDLYVLDTGNFKWSKTGPPPPPR VGSYLFVDGGHDGNEYSNDVLLLNLVTMTWKVYGDPPSGR FDRHLYVFGGAADNTLPNELHCYDVDSQTWEVIQPNPDSE YNQNMFLFGGVDHQURYNDLHQYNFKKREWUKIGNTPSAR FVEEVKLP THEKEWKCTNQLACLNLETMTWEELDNMPRAR


VGSALFVLGGESKDKSCNDVEKFDTASGKWSDFVALPTAR TGSDMLVWGGYNGTAYपNTTYRYTP

RKTQLLVFAGGFLPKMLNDLLHMFDTLTYTWSRTGAVPSAR LINKKLYMFGGYDGQKCFNDMDVLDLETMTWDQCGQPPMAR
$\square R G A V F A F \square G R Y E P F E \square E R Y D P G T D Q W T \square R P \square P Y D R$ DDVK VATHEKEWKCTSTLACLN LET पT WEQLTNVPRAR DGDALYATGGPWQGKAGDEMEAYDRGRDAWVRLGAMPRLW


| UniRef90_W5BGA5 |  |
| :---: | :---: |
| UniRef90-M4A6X4 | CRAAAC |
| UniRef90-Q1J336 |  |
| UniRef90_R7U895 | S |
| UniRef90-S9QJ48 | REHTAT |
| UniRef90-M7BE45 | RRTGCA |
| UniRef90_Q4YSW3 | S N F V A |
| UniRef90_UPI0003B487A9 |  |
| UniRef90-G3VKB0 |  |
| UniRef90-F6SYH9 |  |
| UniRef90-K7GIE1 |  |
| UniRef90-M3CYG6 |  |
| UniRef90-E3N3U0 |  |
| UniRef90-UPI0003F07475 |  |
| UniRef90 A0A024MQV2 |  |
| UniRef90-R4SLT2 |  |
| UniRef90-UPI0002B8DA7D |  |
| UniRef90 H9K5N1 | S G H G T V |
| UniRef90_J4GSM4 | S GHAMA |
| UniRef90_A0A059B6C8 |  |
| UniRef90-M4ASL8 |  |
| UniRef90-UPI00032B0D17 |  |
| UniRef90-UPI0003EBD866 |  |
| UniRef90-C0S8W8 | S G H S M T |
| UniRef90-UPI0003DEAD08 |  |
| UniRef90-H9JAP1 | S G H G A V |
| UniRef90-E6ZHA6 |  |
| UniRef90-K7LS05 |  |
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| UniRef90-E0VTG2 | A GHCATVV |
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VFVAGGGSRHALSSVERYDLLHDRWS PLQSLQN I HKLIVFGGFYDRYYNDLHVFDLDQFKWQEI KPWPSA VNGKLLI A G GYSRVVSAEVYQYDSCDNSWSKLRNMNEA I K D L M V V F G G GNE GIVVDELHVYN TA TN QWMTK GDVPP G $V G S N I Y R I G G F D R E P S S K V S I L D C R S H T W R D G P R M R L N$
 GRYLYI S GGRNE DETDTLYVF DSVMNEWSQLDS MS DP $N Q L L L F G G Y F N G S L N D L M I Y Y D D R D E W R C V P N A P L P$ $\square K E L M V V F G G G N E G V V D E L L H V Y N T A T N Q W F V R G D D P P G$ RELYALGGSMDDRL SNKLFQYDPSQDQWTERAPMKYS D GRI LVQ G G S D A A AVS

VY D P A T D S F S R V Q D LK M A
 P E K D E L L L F G GE Y F NGQ Y N E L PRHGDKI IVVSRFDTNECDSTKFFEPKDNRWHNGPEMDTN P ER DE LI L FGGGEYFNGQYND LY YYH IRKNSWAK LP NPPPR

NDQIVY AF G G

 $V$ GK YMIVVGGGHGTCFLDADTHVLDDVSMTWMSVENSPSP $N N Q D Y A F G G Y T D E V Y N H V L R E D L T T M R W N G V G D D P G V$

 VQ D K L $L$ Y V V $V$ G G R N G R S L YFSCDLN NEWEAFDPKSKRWMHLPSMPHN
 QVGSDLIVLGGWDPTASNGLFDYNFVSATWRRGADMPVP

 D Y L VI IGGGFNSQ QYQDVYVIDTKNKTSKNIGT@RMP IG S DI YVI G GRGKK RILDDMTLIDCKFHKHRSLPRMKVA


 D GRIVI T G GTN A EVTS Q $\square \mathrm{K} N \mathrm{~L} \mathrm{~F} Y \mathrm{Y}$ FA GYGDYVHSHVDIFNFSDNTWGGRFDMPMG
 LD NKLYFIGGEDRENSHYVAIYDLVTRREVQVPLLLKD

D N QL Y Y V G GF D S GP A K S A WV Y S C P G E P WER E A NMN A P
$R$ L $\operatorname{T}$ L VFF L F G G R A S D D L G D A WF L S DI

 $\square G N S M Y I F G G Y F E R Y S Q E V Y$ A LDDLDTMHWTYVGSPP D Y



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| :---: | :---: |
| Ref90_R70IN8 |  |
|  | RSAHCSIVWEHYMYIFGG |
| D3A | WGHTMVSIDNHLLI FGGH |
| UniRef90-K7 | R Y G |
| UniRet90-H9G: | A |
|  | N |
| - | F |
| M7YYC7 | H |
|  |  |
|  |  |
|  | RVDPLVVLLS ${ }^{\text {L }}$ |
| UniRef90-H3E | RYGHTVVAYDGILAYLWGGRNDESGACDLLLHA FNPVDN |
| UniRef90-HOL |  |
| UniRef90-Q9V4C8-5 | CAAYGFVVEGTRMFVEGGMIEYGKYSNELYELQATKWEWR |
| iRef90-A9S4B | RAGCVGFVLADEFWVIGGYGGSRPVDEYYSDGEDMDLKTG |
| W1PZM4 |  |
| UniRef90 A0A059D8K2 | RRNFACAEVNG MVYAVGGYGAGGDIISSAEAYDPNTG |
| UniReef90-UP |  |
| UniRef90-Q1PE10 |  |
| UniRe990- 1 T90 |  |
|  | GF |
| UP | GFVAYAQRL |
| G2 |  |
| Q4 | TRLLVEGGMVEYGKYS |
| UniRet90_LLLLVZ0 | KYRFSTAVVNSELYVLGGIGDKGQVRKCLDVVEVYNPDGN |
|  |  |
|  |  |
| UniRef90 -6SCl4 | SAAIGDCLYVFGGEGDKGAEPVQDTQL |
| 11 |  |
|  | RCAHQAAVVGGQLWI FGFASPNGEQFYHYKDLWVLHLA TK |
| UniRef90-W4FTY2 | 俍 |
| UniRef90 | DCLYVFGVCCGDDDDIVESSD |
| UniRef90-UPIO000 |  |
| UniRe990-H2L |  |
| ef90_G3ST47 |  |
|  | ATLLDEHVLVLGGHGG |
| UniRef90-CONEZ4 | RMGHASLVGNKLVGGGGGEEHREYLSDVVI |
|  | VVGGQ WIFGGEFASPDGEQ |
|  |  |
| UniRef90-I1BJJ5 | RRAHTTCLWNQKI I VاGG GDGARALADVHALD |
|  |  |
|  |  |
|  |  |
| UniRef90-W9S4) | RSFFACAASDSDRMVF VAGGHDDQKNALRSAMAYDVARD |
| UniRef90 Q4 | LIMYHSANFYNKELFVFGGVNPSSGEKSCSGSLYIYNPEFQ |
|  | GKLYVFGGYDDKGYSNGLYFVNLRRSDGNY |
| UniRef90_A8QFA6 | DMM F G Gld |
| $\begin{aligned} & \text { UniR } \\ & \text { UniR } \end{aligned}$ | DNJYLVGGQGYNEEYYNDLHRLVK |
|  | RGSAADGVYGNDIYMAGGMRGPGGEQDTVDFVSAFNTKTS |
| UniRef90_W9S | RMRIVAKTVFDGKIVVVG WSAAVEESWIDVVDTVSE |
| UniRee90-Q54S48 | EYM |
|  | F |
| ef90 | ( ${ }^{\text {a }}$ SAA GNHLYVFGG GERGAQPVQDV |
| UniRef90 W6Z007 | RGYQTSATLDGRVFT G G GSFSGARGGKNGEVYDPRTN |
| C37027 | HSHLLVVTSDGRY YVGGQYGPQCRGPTA S |
| $90^{-}$- | KAMSIFVPYKEYLILHGGFAKSSPNPIMFSEIHMYDTMTN |
| UniRef90-UPI0001CBBABA | GVFSSVVSFQGKIYVFGVRSTHGDTYDSTSLI QCYNPNKK |
| UniRef90-C3YU05 | RARHVMQVLGDGMYVFGGASKGNG DVERFDVTSR |
| niRef90 A6LAU2 | LSGQACFSIGFGLWTFGGLDNTG KICDSLYVYSTSDN |
| niRef90 TORMXO | A |
|  |  |
| 促 |  |
| 900-UP10003F09AE6 | RHSHSSVSWNNKI SGGLSSELKAFNDLYLLHCEKPLEC |
|  |  |
|  | YI HAGCPEKGRL |
| niRef90_H2LMG3 | GQTLCPIDAQULIGGQGARMQFCKDPMWKLCTEDMSW |

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MYDPKTD DWTPDPDGPTPRDHT
CYDLLSDEW LDVTCWRWWKVTADTPGGRCAHS
KLDTSSMTWT
KYSDVKENWVLAGKTS $\square P M D A T A V I T K G D K T \square Y \| V T G R C \square$ VLDTLNFRWSKPRKSGEKDPS
 ALDFETMVWSRMRTHGHHPSPRAGCCGALCGTKWY
NQVCCKDLW
RL
$\frac{1}{Y}$ TPDTNTWSAAPS $\square$ TRARH
NTWSAAPS LTRARLHTATR DPDGRVLVVGGQDG (IF AYD DEDNKWTRKKDFPCDQ
$\square P K Y L N D L Y I L D T R G V H S H N G$
RYDVAAN WWIREAQLP
GF QLDNHRW
VYDPEKRAWCELKNGCVMVTAHAVLGTRDFCMEW
VPRYLLNDLUYTLDIDTSPVQWDIPIVTSGSSPPPRESHTGVA VYDPDEGKWNSVEEHWLI GYAIGSSNCVVDNULFYWDQGV SFDPVFDKWTKCCPLPSGRVVESFDPVFDKWTKCC DPKNNDPRYLNDLYTGELRPGSNVAGWDDPDTYGVLPP ADLWLY DTTSFVWHSP
$\square P R Y S K S H T D L V Q V L N F S F Q H \square E V V V L C F S V F R Y \square N D \square Y T$
KE ILDEDDPWENQWN
LTKDHE GDWREDNHAWDFSWRQGSVFQAGPSKKQHWYGTK SYNPVKRRWEYVAPMPTARCSSA
AFS LDTYQWTRLSPSGMGPTPRSGCQM
S $\square$ NTVTMK WEKLKVK GDVPAGCAAHSSDS $\square$ GK Y $\square Y \square F G G M$ VFDYNTQKWRMISSMPTRRVSFG
AFNLDSFTWS
SSSSVVRPESRTDH $\square M V L H D A N \square Y \square F G G Y N G S S R F N N M Y R$ Y LD L K TWT WSKTWSFVQRFDHSAWIW
EEMLGGSSQGSQEESEDDMEDEAGPEAGPDAEFRWFDDLF
 VPRYLNDFYELELQHGSGVVGWS
RLDLAQQTWERCPDEGCPSKRM
LLDDLCY LDDLKTWTWSRWWSFVARFDHTAWDW
AFS LDTFTWS
LTTDREGPWREDNHA WLYGWRNGSVF QA GPSKAMNWYSTN KLDLNTREWTQLKPNNLSCDLPEERYRHE DAHDGQR $\square Y$ YL 1 L DLLTNCWS Q
I L DLETMMWE
MYNYEDQTWSVLPEMNKRRKMCSGVFMDGKFYVIGGDGVG VFDTKAEAWRKLDAMRLPRHG
SAEPFDASTWQWGPVNEDFFEVGTCPRTCVSGDDGCLYMC VLDLDTNTWSSVPCPPLCSRPRAGH
CFDVHDAS WE EQIFWGWHNDVHVFDTKSQTWFQPEDKSGV $F L N L E T R H W E Q Q N V T G V I P C G R K N H S A W V Y R D K M Y U F G G C$
VYDTRMNFWH
VYDPKRGKWDSEPGLLNVLWNESYCVIDHLLFSDNP!LHF VF ILDLENPRSWDDNQRRQNAYSPRRCRFRHNRHQ

FDPATKTWEVFRSGVGSGLCWTTQDCEVNGVLYCAENHK SYDDANNQWVPMDMNNNNNI NNSKGGSNNKGKNSHDDGRG

C $\ D \square G D M S W Q K L G P T G T A P V G C A A H A A D A V G H H V Y V F G G M$ GD WRTDNHAWLFSWSNGSVFHAGPSKGMHWYGTTGSGSVQ H WS $\square A V K D G K A \square E E K W R K E V P \square P R G G P H$
$1 L D L G F M E Y T A V K H E N M P P D A R G F H$
VLDIT TK】WHIPSFENHKDESCG
VYDPKQKEWQPP $\square$ AGFPEARYYKDCSATVCNCK $\square Y \square M G G R$


WLF PWRD GTVFQAGPSKAMHWYYTDGEGGDS VPTASPEENTTNSNESGFSGLYSYHVPT GTWQKDACDISR TILDNLQTLTWKNYRLPLQDPKLPMMLHNHC
SFCPLTS TWR
IYNNGEWVNRTDTA SEARSNASVA IIDTKVIFFGGSKSD
VYTPETNSWESHSYEP
ILDT QT WR WS MVEVRPGSPQMDS DS $\square S L L M A D Y L V Q V$
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jnet
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sol25
sol5
sol0
jhmm
jpssm

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KMSWKLVSPPERAPPPGVRETRPKPRGYHTANMVGSKLI AEVLASAELYDPATQAWTAAAPASGARAAHAATLLPDGI/ A MFVFGGRCDIMGQYHSTRDVYDEQMRALNLKTNRWRVVET

KW WVPKTYGDSPPPRESHTG $\square$ SFATKSNGNDNLLIYG
 FKWY

PRESHTAVVYTEKTSKKSRLVIYGGMSGCRDGDLWT पD $\square \mathrm{D}$ VSSYWDYYEPFEPRATDQHCEHKYYVPH\|SAQFYNYS SVVGWD DP ${ }^{\text {VTYGVLPPPRESHTAVVYTDKASRKSRLIIYG }}$ GYGA\|VEAGTRDDVDAMCGTFVMYDATAGK!LTAGGAQDY

DTTGALNSMYKYH DERRCWM
YE DPAKSWRKVDAVGS保SGFGHTGAVHESSHRLIVFGG VY DTEKNQWEK $\square$ AF $\square$ KMHSPTPRAAHGMCAVGTN $\|$ LIFGG GDFLLCMMDCYNLSSGQW
PSPRESHTA $\square Y$ CKKDSGSPKMYVFGGMCGAR【DDLWQ $\square$

NGGSVSPGGVRTNVMDQMCGVNVMFDVGK\|LTAGGSQYT GGGTSWTAYSLNKLHAYNLETNAWEE DATKPH

EGNELKVMTCGEEFDGKTRRWEDPEMSPPRSNHGNMSA

PPQPRAAHTCAVLGNKGYVFGGRVLQTRMNDLHYपNLDT LQDESYHFGTDHEFDPKTSVW

NGDDP $\square \mathrm{N} \square \mathrm{Y} D \mathrm{SEHKT}$ WF
GMTKGFDERTGVWKVVEIVNNCGLLPDHSWTPWM
PCSRSRDRTVVYGNSLWCLGGWNRSCYYNDLWKFNLDTRQ
TATGALNTMYKYHTEKQHWT LQQFDS DAGПRDPEADAMCGVHVMFDIGR\|FSAGGSQSYTASPATS RATVVINDRLFVIGGQEGDFMAKPGSPDFKCSRRHEVVYA

ПDRDDAHDDVYTNKMYCYDPПHSПW
KADPS $\square E Y T T Q F W S T D K N A D A E K E A F P G R M L L C A \square A Y G$
PAGVRDPDNDAMCGVNVMYDVGKDFSAGGAHNYVGGDADS PSIQNVPS $\square$ RSRVGHSMLFHPGSRKLYMFAGQRGKEYLND

NQCSSK $\nabla \mathrm{D} \square \mathrm{Y}$ DSKAEKWTTHTVSEARENASVAVVDGKA $\square$ F CPANNLALLMTDYLVQVCPGYAGKHAGMRPSVP
7777710177777777777777777777777101764012
B B B B B B B B B B B B B B B B B B B B B B B B B B B B

NN $\square Y \square Y G G Y N P N T C S P Q P N \square Y T Y M V G H P Q \square H$
 WRLDVADTNKMS WKLVSAPTPSSVDDRTKPKARGYHTANI
YVI TGITHETRNYLYKYIVKEDKWIELYM Y F NHVGKMFVAC

FGGSDGGECFNDVWVYDVDA H GGHGAGGAVLASAEVYDPTTNTWAPAGNLGQGRERFTLTP K GS I P S GRRSHSAFAYS


SGTTPLPRSLHTSTLIGHRMFVFGGWVPVVADDVKTS
 PCAKPGFSPT ICFCLDSEGRFCGCPVPPLPENLESPGVVR GMS GCR पGD पWT पD $\square \mathrm{DT}$ TTWNKPSVSGTAP $\square$ PRS $\square H S A T$ DKSDGNTHAHDTTDGEPGTRSNVERGDMAFPRAFANTVV

WDGRDT LDDLHQYEFATNTWSPMVTSGRAPPHRYRHTAVI RDTQCRRNDLY LLDTESMKWDDVTSTGRQPEPRSFHTVTS $\square E T M S W S K P E T K G T V P \square P R S L H T A N V I G N K M Y \square F G G W V P Y$

D S D GTKATHLIT $\square$ TEPGVPATVET $\square P D M N F P R G F A N A D V L$ EK $\square$ GFPAARRCHSCVQ

A A MAPPLVAVVNDQLYAADHAGMAVRRYDKESRVWVKVAN

WT WS GR $\square$ S $\square$ K GENPRHRSWHT $\square$ TA

WS K $\square$ N S S FE $\square \mathrm{K}$ G $\square \mathrm{GQ}$ Y
PWPVM
RAHLITDTEAFKAATVERDPRMNDPRGFANVVVLPNGQVL DVYMLDDEMKWKVLPPMPKPNSHVECAWVILNDSIIITGG

NYVYGVDGDGY $\quad$ VWRYDPDSQNWSQKSQLPAANRSVHCMY区


 TSALDSALNLFSSMDCDLHWCPWDTLQTCTTPGSWHGSADV


## VLGGQRVSRVFQDDESVLTPELFDPATKTFRRDAPAAEPR TTEKNPLTKRMD LVGEVFQFHLDSMTWSVIGRLPYR

$\square \mathrm{DNY} \square \mathrm{Y} \square \mathrm{G} \square \mathrm{G} \quad \mathrm{NASNSLISYDPTWD}$
ПTGGQRVVAGDTDKESVLIPEDFDPKTKMFTEDAPAADPR ELGEDYVLSGKRDENVQNSFWVYNDKNNRWSCI
\VNKQA $\square \mathrm{FFGGNDQEYSKY} \mathrm{\square DVYDGADSWKFTGE} \mathrm{\square SRAH}$ SDTKFLIHGGYNGNNALGDAFDFD $\square$ ETNSWTELPQLSVPR


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| UniRef90-F4PX99 |  |
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| UniRef90-K7F2R7 |  |
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| UniRef90-G2Y236 | LS HTAT $\square$ V |
| UniRef90 P17371 |  |
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| UniRef90-V8P6P2 |  |
| UniRef90_L2FR77 | G Y H G T V |
| UniRef90-F8CH40 | WGHTT T |
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| UniRef90-Q9V4C8-5 | A GHCAV |
| UniRef90_A9S4B0 |  |
| UniRef90-W1PZM4 |  |
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| UniRef90_M4APP0 |  |
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| UniRef90-H0ZBB5 |  |
| UniRef90-W4FTY2 | T F H R A V V V |
| UniRef90_W9VKT3 |  |
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| UniRef90-L1JN24 |  |
| UniRef90-CONEZ4 |  |
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| UniRef90-L2FT65 | N Y H A V ${ }^{\text {a }}$ |
| UniRef90-G5BH80 | Y F HCAAVT |
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| UniRef90-M9WY14 | N N V S V ${ }^{\text {V }}$ V |
| UniRef90-B8M969 |  |
| UniRef90-H2LMG3 | A G H S |


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| lupas_28 |  |
| jnet |  |
| conf | 5 1 1 2 6 6 1 |
| sol25 | В В В В В В |
| sol5 | B $\mathrm{B}^{\text {B B B }}$ В |
| sol0 | B B |
| jhmm |  |
| jpssm |  |


[^0]:    

[^1]:    lupas_21
    lupas-14
    lupas 28
    jnet
    cont
    sol 25
    sol5
    jolmm
    jpssm

