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 GVWMVNVHAS GGERMMT A AREILEPYGADRMSQHDLADDG $G V W M V N V H A Q G G R R M M S A A A E A L Q R R G D A P L L I G V T V V L T S$ GAAMINVQASGGPAMMRAAAKQQAETAAASLNDPMNDTEWA $G \square W M V N V H A S G G R K M M E T T R E A L E A D P Q R P L L D A V T V L T S$ GPDVLNVHTAGGLRMMREARESLQRAGVTVLTTSMDTDDWA
 $G V W M V D L H A S G G L R M M E E A K K I L E P Y G K D S M E D L D L L Q D G$ $G V W M L N V H A S G G M E M M Q A A K Q A V D T S A S K P M N Q Q T L D Q U G$
 GADAVIV H GFVVGNDSVEA CLLESAEDH GK DVVFLLTEMSHPG



 $D V D M I N V H A A G G K Q M M E A A M N G I I D G T P Q L T S T T Q E A M R T$ GANAVISHGFVGRDVLEEDMKVAENYDGKVYVVTELTNEG GVWML NV V A L GGGLSMMQAAQEALAKTSSSRPMDQTALAAQDG GADAI I CQ GFVGKD SVKACVDVANKYGREVYVVTEMSHPG GVWMV DLHA S G G R Q M M E T A L E A L A N I S Q P P V L T S M T P T D L
 GADMMNVHAVGGKKMMQAAVEAAAK LGRPAPTSMDDE QFG GVWMVNVHCSGGLRMMTACREVLEQRGVTVLTSMEREDLA $G A D M L N V H A B G G L E M M R R A G E V V A E E A L R C G M Q D E W E R L G B$ $G V W M V N V H A A S G G L K M M Q T A K Q M L A E H S T Q P P T S M D H S D D L Q$


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



 $G V S M M N M H V Q G G E E M M K T A D V D V V E S A G D K R P L M E N H L S Q$ GVWMVNVHAS G GEKMMVACRERLESS GNDRMS DEDLDAG GG





 Y GDGIIV H G F VGGEDSVK AVRDV A K P L


 GFSAIIAQQFTGSDSVEACVETAHDYGGSCYVVSEMSHPG EVDMTNVHAAGGVEMMKAARRGLGNKAKLIDVTQLTSTTE




 GVDMTNV HA S G G I L MMMKA GLLE GLLS G G E HILPI LI DQRMMEE

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| UniRef90-13BNK | VI A Q N |
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| UniRet90-D1NYN3 | PALTLLQQ\| NQS:REL |
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| UniRef90-Q1H | P LATL DQ |
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| UniRef90-UPIOOO4 | PVGMLRRLNEEI GEL |
| UniRet90_Q9UZ355 | P R A A R |
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| iRet90_B5JRK4 | QALQS |
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| UniRet90_H3NG80 | PVQAYQQIKANWE |
| R5 |  |
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| UniRet90-B7CDN8 |  |
| UniRef90-P25971 | A Y K AVR D E WE G $\square$ |
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| UnRef90-R7PPU9 | A |
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| UniF |  |
|  | - |
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| O-S6GEE4 |  |
| UniRef90_C8WW65 | $A A L$ |







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PRQALLEQL
P $\mathrm{Pa}^{2}$ R R

| $P$ | $A$ | $A$ | $R$ | $C$ | $R$ | $E$ | $I$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :--- |
| $P$ | $A$ | $Q$ | $S$ |  |  |  |  |
| $P$ | $E$ | $A$ | $A$ | $Q$ | $R$ | $Q$ | $Q$ |

$P \vee A A F A R I C E E L$
PYNTYYEIEKTMR


PRAADEA DASVVEGL
PMQVLSAVNQSL
PAEAYENVKKEWSE
$P$ L A T L T A I NA
PVVA YQRClA
PAAAYQAIKKEFN
PYKAYQQIKNEWN
P $\square Q A Y Q T$ KNEWN
$\begin{array}{ll}P R Q A A E Q & \square E E M \\ P D R A D E Q & A\end{array}$
$P$
$P$
$P$
$V$$A_{A}^{R} A$
PSAA NQ L K EWN

PGAVLTAVNREDAD PKVAAKAlLDEM PVAAYERCIKE
PALTTLTEINDDLAS
PYKAYQNIKTDWND $\square$
PMVALEA! EAELE
PVEAYERCVRE

| $P E L$ |  |
| :--- | :--- | :--- |
| $P$ | E WK R |

PVASYHK】KESW
PGKAAHEFR
PVKSYQIIKESW

PNDAAGK VEEDES | $P K A A A E G M Q Q E$ | $A R$ |
| :--- | :--- | :--- | :--- |
| $P R A A A E A M Q A E E A R L$ |  |


PREAAQRAQAQ RDV KVAAAKLIIDEI
PKESAKHYKKLI
PVAA WER VCEEL

PRQAALGGQQTDREV
P
PLAALAR LEREL
$P K Q A L H D I L K G V R Q$
PFAAAQALADEM
PLATYHQI EAVME SKVTYDQI TADW PRK $\square C E K I L Q E \square$

 P

PVSAYRRIGHEWE
PYQAYQAI KSEWESF
PVSVYEAI CQS
PLEAYH IVCEQWE
GFFAYKDI YQEWK
PRDA 1 LS SKEL
PLKEYREIKK
PKAAAEAIVAEMK
PMEVLEAMNAEDR
$P \vee K A V K F I I E E \square$
$P \vee N A Y Q L V V E G F E E V$
PVSRYHEILQRWE
PVTADTEFSAA
PK
PQVAYEElLKDW
PKASAQAALAEMQGV
PYQSYLQ KKEWN
P LAA A A EMM L D E MR
PVAEVVARVVAEFQ


PAAVLRE
$P \vee A V L T S V N Q S L$
PVSAFMRIVDE
PKE\VEKILKE
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PRQAALNVLANMR

PREDCERILDQU

CLEKYLQQ KK

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UniRef90-UPIO003A45AFE UniRef90-UP10003BB3C9FF UniRef90-UPIooo34893DA UniRef90-R6MMA7 UniRef90_UPIO004790552 UniRef90-J1K050 UniRef90-A0A058ZM60 UniRef90-D1B3U1 UniRef90-EAU170 UniRef90-B5YA21 UniRef90-K4KHS9 UniRef90-G2SNP6
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UniRef90
C5ZYQ2 UniRef90_UPI0004638A6A UniRef90-N1ZXQ0 UniRef90-D4Z014 UniRef90-R2Q5D8 UniRet90_W9A9Z1 UniRef90-UPIOOO3FC7DFC UniRef90-A4EFV UniRef90-G2LMY5 UniRef90-O2RNS7
UniRef90-K8GDI8 UniRef90_13TFF4 UniRef90-S6RIP6 UniRef90-SOS7U0
UniRef90 SoASF UniRef90-H2N1Z7 UniRef90-DOLOEO UniRef90-F2E520
UniRef90 U5T5W4 UniRef90-Q5WFJ5 UniRef90_W5YDC8 UniRef90_UPIOOO4764813
 M E K K C C Y I A L $R$ T R L I A A L D T L N N L A T A Q Q WA S S L E G A V D A A QS P I V V A L D Y P T M A Q S I EMA K R L D P E Q C R V K V GKE L F T T
D P I I V A L D F P E E R K A L E V MAKPV FVVALDVDSKTK LDDSLLASLGPQDTTVKVGMELLFYH RTRLI AALDTASRSTAQDWADSLKNDVDAIMLGLEFTYA RTRRLIA A L D T Q D LD Q A R D WA E K L D N V V DA I K L G ME FTYA
 N P V I V $A \operatorname{L}$ L D F P A A E P A L A L A G R L DQ P SMCALKVGFELGVV M A A Q L MAGL


 $K V M V A L D K P D A E A A L R L A A Q L E G A G C W M K V G M E L F Y A$
 VR D K L I V A L D Y P S V A A A EAA A V A R L G D V V S F Y K V G L E L A V

S R L V V A L D L T D K D R A L E I A R S I G R QV F A I K I N WP L V L A KLCVVSLDLESSKENLALVEKIKDFDVWLKVGFRTYLR
 MTK K I Y L A L D F P T WK E A GRFL E END L H GVVP V K V GMELYYR MSESI YLALD FPTWNEASEFI ESHDFYGIDVVKVGMELYYR QDRLIVALDVESVE DARAMVAALGETVSFFKVGMELAYA
 MNKPLI I AMDFKDRTAAESFLDSFTGTPLFLKVGMELFYQ

$\qquad$ VK E

LIVALDFDSSEEAMSMVEKLDDTVVFYKLGLQLFMA
D RLIVALDVPNI IAGMDLVNKLGATVSFYKIGLGMLTG $\square R N$


 Q S QI I LA L DLPNKKK S F DIMMECHDLI DADKVNYPLI LT

 RSP I F VALDFPNWK QTEAFLNNNALQGVPVKVGMELFYK VQDRLIVALDFPT GQEARALVEELGDAVTFYKVGMELFYS

 K V $\operatorname{Cl} V A$

MK P N | Q | L | C | V | A |
| :--- | :--- | :--- | :--- | :--- |
| N | L | V | L | A |

WI
$M A D K$ LDP TKCRVKVGKEAFFAA



 MRGRLIVGLDVPTLAEAEKVVSALGDTVSFYKI GYQLAFA MSNPI YLALDLPRLDAAVALAQKVKGHVGGLLKGLEFBCA E K L I FA L D M G GL D DVMSWVR RLLA GHVVGVFKVVGKEAFTR
 $\square R D Q L I V G L D V P T V A E A E K V V E E L G D A A T F Y K I G Y Q L V F A$
 MERPMVAI DVDTKEAALKLFDQLAGHTPIVKI GMELYYA LSNPVFVALDTPDLKKAEKLATILRPHVGGIKLGLEFFMA R D R L L I F A
 MTS

K R PI I A L

 MNQSVYLALDFPNWEETKHFLHTNQLAGVPVKVGMELFYR

 K I I I A L D F C N K K S A M K L V N L L D P S I Y Y L K i G K E M F T

 QTPVIVVALDFPTREAAMRLADQLDPKLCRVKVGKELFTS

 QP QL Y V A LD FA DP KLVEPPFVD QL NPGECGLK VGKELET R




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UniRef90-V7IGA3 UniRef90-B5IFL9 UniRef90-D3FTA5 UniRef90-UPIOOO4794722 UniRef90_UPI0003B505ED UniRef90-A6CPS3 UniRef90-W0JKM3 UniRef90-UPI00047C6EAB UniRef90_R5G0Z9 UniRef90-UPI00045EAD62 UniRef90-074110 UniRef90-UPI00047B8658 UniRef90_UP100037ETF3E UniRef90 UPIIOOOOFBF5E2 UniRef90-UPIOOO225BE1A UniRef90-A6Q826 UniRef90 ${ }^{-E 0 X 503}$ UniRef90-UPI0003FDFF82 UniRef90-X2GIG2 UniRef90-R6QDG6 UniRef90-UPIO0034685D1 UniRef90 UPIOOO37EODE6 UniRef90 UPIIO003B3AB1C UniRef90-K9HHI2 UniRef90_UPIo00463149F UniRef90-A0A011T4U9 UniRet90-UPIOOO3019AD4 UniRef90-Q6NCYO UniRef90_UPI0003A45AFE UniRef90-UPIOOOOBB3CFFF UniRef90-UPIOOO34
UniRef90-R6MMA UniRe90_R6MMA UniRef90_J1K050 UniRef90_A0A058ZM60 UniRef90-DB3U1
UniRef90 E4U170 UniRef90 ${ }^{-}$b5YA21 UniRef90-K4KHS9 UniRef90-G2SNP6
UniRef90 O44843 UniRef90_UPIO004681AF2 UniRef90-UP10003B63A6E UniRef90-D7B1T2 UniRef90-Q2G8S2 UniRef90-Q2LQ82
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UniRef90 C5ZYQ2 UniRef90_UPIO004638A6A UniRef90-N1ZXQ0 UniRef90-D4Z014 UniRef90-W9A9Z1 UniRef90-UPIO003FC7DFC UniRef90-A4EFVO UniRef90-G2LMY5 UniRef90_O2RNS7
UniRef90_K8GDI8 UniRef90_13TFF4 UniRef90_S6RIP6 UniRef90_SOS7U0
UniRef90_SOASF2 UniRef90-H2N1Z7 UniRef90-DOLOEO UniRef90-F2E520
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$\qquad$ F S V F L D L K F H D 1



CGPGLVESLHGMGFDVFLDKKFHD


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H N GP QI L E E L K K L M N H R I F L D L K L H D | $Y$ | $G$ | $F$ | $K$ | $I$ | $I$ | $D$ | $Y$ | $L$ | $K$ | $S$ | $K$ | $D$ | $K$ | $K$ | $F$ | $F$ | $L$ | $D$ | $L$ | $K$ | $F$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $A$ | $F$ | $D$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $A$ | $G$ | $A$ | $V$ | $V$ | $R$ | $E$ | $L$ | $K$ | $A$ | $R$ | $G$ | $F$ | $K$ | $V$ | $F$ | $L$ | $D$ | $L$ | $K$ | $M$ | $H$ |
| $D$ | $D$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

 GS GSS I G E A A R V



## UniRef90 K2CFP3 UniRef90-UPIOOO3B74875 UniRef90OUPIOOO372BB84 UniRef90 UPIOOO2E8F4C5 UniRef90-A6W097

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UniRef90-UPIO003A45AFE UniRef90-UPIOOOOBB3CFFF UniRef90-UPIO0034893DA UniRef90-R6MMA7 UniRef90_UPIOOO4790552 UniRef90-J1K050 UniRef90-A0A058ZM60 UniRef90-D1B3U1 UniRefolo- 4 U170 UniRef90-K4KHS9 UniRef90-G2SNP6 UniRef90-Q44843 UniRef90_UPIO004681AF2 UniRef90 UPIO003B63A6E UniRef90-D7B1T2 UniRef90-Q2G8S2 UniRef90-Q2LQ82 UniRef90_19AJRO UniRef90-W6MEOO
UniRef90 M3KKC6 UniRef90-M3KKC6
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UniRef90
C5ZYQ2 UniRef90-UPI0004638A6A UniRef90-N1ZXQ0 UniRef90-D4Z014 UniRef90-R2Q5D8 UniRef90_W9A9Z1 UniRef90-UPIOOO3FC7DFC UniRef90-A4EFVO UniRef90-G2LMY5 UniRef90-O2RNS7
UniRef90-K8GDI8 UniRef90-K8GDI8
UniRef90-13TFF4 UniRef90_S6RIP6 UniRef90-SoS7U0 UniRef90-SOASF2 2 UniRef90-DOLOEO UniRef90-F2E520
UniRef90 U 5 T 5 W 4 UniRef90-O5WFJ5 UniRef90_W5YDC8 UniRef90_UPIO004764813
 P DVLLTVHALGGSDMLKAAVSGSKEAPYHPKILAITRLTS GVWMVNVHAGGGGRMMEAAKQRLVQHDLSTRLIAVTTSMG GVWMVNVHASGGRRMMEAALQKLPDNKTLLIAVTVLTSMD DPFMVTLH LGGEEMLRESVKLVSQYKESNKTEYPYRSWG GDEYTTVHALGGSQMKKAKDGLIEGTPAGRSVPKLLAVG RPALTT:HASGGSEM|AEALESAFPADTKRMNAEGLLDIG RPALTTVHASGGSEMLARGRETLEKLAVTVLTSMNAEGLA
GVWMVNVHAGGGRMEAARDALASFDNKPLIMAVGTS GVWLVNVHASGGDQMMQAAHEAVREVNDHTAVAHTLRETG GVWMVNVHASGGASMMRAACDALAGRENKPMAESDLAEVG GVWMVDMHTSGGRRMMEAAAEAVANHGVT LTSMEQADLN GAELLTLHCQGGERMCSEARDAADSYGFGVTALTSFGPGE GAMGI IVHGFVGRDSIKAAVDEAGK MKVYVVAEMSHPG EVDMINVHAAGGRKMMEAALEGLEAGKPANAPRPQEMLTD PLEMVNVHAAAGRRALEAARMAVDQSPFQPLDAPDLGE!G GLKTVNVHAAGGTEMMKRAGEAARETAAKAGVDAPWHDLD EVDLINVHAAGGIKMMERAMEGLVQGTPAGKVRQMKREQL GVDLFNVHGAGGVAMMAAAIVIVAVTQLTSTSQTTDNEEIG GADMLTMHADGGSAMMKAAKEGLEQLAITVLTSMSAEDLS GFD LTVHAYPMTMAAAARGAAGSKLGVTVLTSYDDADLA GAWGIISHSFTGLESLRSVVEA SGDTKVFSVVAMSHP GVDMFNVHASAGSHAMKSVMDRDKD\PNRPLVTSFDNESF GVSAVMAHGFDGPDALVELDEVAGEDLGDFVVTELTHPGG EVDLVNVHALGGSEMI QRAKDGLINGNPNFDTKLIAVTVL EVDMVNVHALGGSEMIAYAREGLVSGSSGFDTKLLAVTVL GVDFLTI HAFAPQTMAAAREGASSGALKLLAVTVMTSYD GVDMFNIHASAGAVAMKTVMERGSSYEKRPLVLAVTARMD NVDLITVHAAGGПRMMEAAREGLETGTPAADSVPDCMMOE GVNLLVNVHAGGRPMMEAALEGAVTQLTSTTEAQMQAEQK GVTTFSAHAAGGTKMMTTTVKVARETAKKFNMPAPTMEQN GATFATVHG NDKTLEAAVSEKGDDK LLAVTVLTSLDRK ELDFLTVHG DPNVVKAAKEGASDSNLKILAVTILTSLD GVNMLTLHCQGGERMCRAAVSGPRPLLFGVTVLTSFAPGE GVTFTTVHCDEGEGLLRSVVENNPSGTKDLAITVLTSLES GIDMFNVHASAGEKAMKEVMKRISKFEKRPLVLAVTAKKD GADMIMVHGFDGPDADFE\KKDAGDE MGVIVVTELTHPG GASFLTVHAY PQTMKAAVEARGSSKVKILAVTVLTSYD GVWLLNVHASGGLEMMQAAHAAVRETNDTTDVQTLREDGV EPAAVTVHASGGRAMMEDAKAAAPEGGVTMLTSLDESDID GVDIMNVHAVGGPKMMAEGMNAI REAAEKLCVSMDEAQWA GVHMITLHASSGREAMNEVVQRLKEDPNPPLVMAVTADTS GVDMLTLHAY PKAMRAAVDAAKGSNLCLLGVTILTSMD DLDFLTVHGDPYV VRAAKEGSGGKDMKILAVTILTSLD GVDMFNVHASSGIKAMKTVMERVNHLPQKPIVTSFDNASF GVDMFNVHASAGRDAMHEVMKRLSAYEKRPIVLAVTASHT YPDMTNVHALSGRDTLSAFKEALMEMADLYKKPIKADQML GVSMTTLHASGGSEMMKAAKNGLKEGAQSNTSTSPEMAKK GVSMLTLHAYPTVMKAAVAAAKLCLLGVTVLTSMDEADLH DLDFLTVHGDPHV VRAAKEGAAGTDLKILAVTVTSLD GVD LTVHMDAGRQAVRKTVEADEGGTKVFGVTVLTSHTR GVAMLTLHAYPKAMRAAVAAAEG SGLCLLGVTVLTSMD EPA IVTIHAGGGRAMMEDAKAAAGEHTKVVAVTVDDADMS GVAMFNVHALGGMSMMTETVESVKKMAGRRELPMPLQRGG GATFTTVHGNDPILKAAVSRNGAKILAVTVLTSFDESDMR GVSMLTLHAY PKAMRSAVEAAKGSDLCLLGVTVLTSMD GVDMFNVHAAGGAAMMARPAIIAVTQLTSTNVQVLNEEDG GVRYTTTHAAGGTEMLKAAKEGLVEGAHEAGLPEPNILKN PPAILTVHTEGGEAMMRAAKKAADKGGVTILTSLDQSDLG GVGMLTCHCDQMADFEGVDLGGTRLLGVTTLTSLGQEDMG GI WALTLHSAGGRAMLEEALLEGRDRAGSMMNEEMWQEVA GVSLTTTHANGGHEMLKAAKYGATTQपTSTDERMVKEEQL EPALVTVHAAGGRAMLEDAKAAAGIKTRVVAVTVLTSLDD DVEMVNVHALGGAEMIKRAKEGLTVGNSGKTKLIAVTILT DPRLVNVHAQGGPAMLEAAVEAVRAHRATSLDREALAALG GIWMLSVHASGGKKMLISAKKALKSFKTPPLLIAKEKELK APALLNVACGGRAMMIAAREAAQMDAVTVLTSMDDDDLG GVDLVTVHATAGKEALMAAQSAAETGAVEAGYPVPKDDLK GVWMVNVHCSGGLRMMAACREVLEQRTGPQMEREDLAGDG GADYVTVLGDTDDLT KGCVEQAQKQVRQVMVDLICVENF GGYGI ISHSFTGLNSLKAVVKSAGNMKVFSVV GVRRVNVHAMGGRAMMAAARRAVSESSGSPMNQSALLAEVG WADIVNAH I PGPGUVDGLKLKGLPKGRGLLLLAEMSSAG GVWMVNVHALGGPAMLAAAKTADGGRTGHRPTSHDQTTLD

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UniRef90-D4YSC0 UniRef90-Q5FNS8 UniRef90-UPIOOO4710ED0 UniRef90-G6XIT8 UniRef90-B7RYE4 UniRef90_D3S9M1 UniRef90-A0Z743 UniRef90-V7IGA3 UniRef90-B6WQA1 UniRef90-B5IFL9
UniRef90 D3FTA5 UniRef90-D3FTA5
UniRef90 UPIOOO4794722 UniRef90-UPIO003B505ED UniRet90_A6CPS3 UniRef90-W0.JKM3 UniRef90-UP100047C6EAB UniRef90_R5G0Z9 UniRef90-UP100045EAD62 UniRef90-O74110 UniRef90-UPI00047B8658 UniRef90 UPIO0037E7F3E UniRef90_UPIO003FBF8E2 UniRef90-UPIOOO225BE1A UniRef90 J7QSU UniRef90-A6Q826 UniRef90-E0xs03 UniRef90-UPIO003FDFF82 UniRet90_X2GIG2 UniRef90-R6QDG6 UniRef90-UPI00034685D1 UniRef90-UPIIOOO37EODE6 UniRef90 UPI0003B3AB1C UniRef90-K9HH12 UniRef90- X1G931

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UniRef90 E4U170 UniRef90-B5YA21 UniRef90-K4KHS9 UniRef90-G2SNP6 UniRef90-Q44843 UniRef90 UPIOOO4681AF2
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 TTQEQESLNDSVSRLAKLAYSAGADGTVSAVDEVPRIKAV
 QSDLTEDGTDHVKRLAALAKSSGMDGVVC IS RSLPEQVLFLAQLAQETGLDGVIA EL 1 HNTPREQQVIRRLGKLAMTAGAD GLLV ETGVDAPPREQVLRLGKLAMQAGADGLVC VQRSPEAQVRLLGNLDARAGLEGLV FHGAADGRVLDLAKLAENAGLDGVV
E LGGLTDPDADWASRWAALAQQSGLDGVVC ARDFMQKHTDDVVLMAKEVGAAGEDAPAT

 K T S M I Q T DV T D T V V R LA N VA K Q N D A D G V V C








 P G Y A K P GAE V LA AA A LA K E S G L



 NA GYK D S P K K L A F K R A E Q A R E A GM G G I V S
 QVGLLGPARDAVRRLAVLAVGAGARALVC





 TGVGLDKSVENYAKLAQNAGLDGVVGVC


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## UniRef90＿K2CFP3 UniRef90＿UPIooo3B74875 UniRef90－UPIOOO372BB84 UniRef90－A6W097

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UniRef90－UPIO0047C6EAB UniRef90－R5G0Z9 UniRef90－UPI00045EAD62 UniRef90－O74110 UniRef90＿UPIo0047B8658 UniRef90－UPIOO037E7F3E
UniRef90－UPIO003FBF8E2 UniRef90＿UPIO00225BE1A UniRef90－J7QSU6 UniRef90－AGO826
UniRefo－ $0 \times$ SO3 UniRef90－EOXSO3 UniRet90－UPIOOO3FDFF82 UniRef90－R6QDG6 UniRef90＿UPI00034685D1 UniRef90－UPIIOOO37EODE6 UniRef90 UPIIO003B3AB1C UniRef90－K9HHI2 UniRef90－X1G931 UniRef90－UPI000463149F UniRef90－A0A011T4U9 UniRet90－UPIOOO3019AD4 UniRet90＿Q6NCYO UniRef90－UPIO003A45AFE UniRef90－UPIIOOO3B3C9FF UniRef90－R6MMA UniRef90＿UP10004790552 UniRef90－J1K050 UniRef90 A0A058ZM60 UniRef90－D1B3U1
UniRef90 E4U170 UniRef90－B5YA21 UniRef90－K4KHS9 UniRef90－G2SNP6 UniRef90－Q44843 UniRe90 UPIO004681AF2 UniRef90 UPIO003B63A6E UniRef90－D7B1T2 UniRef90－Q2G8S2 UniRef90＿Q2LQ82 UniRef90－19AJRO UniRef90－M3KKC6 UniRef90－C6D525 UniRef90－C7XXT6 UniRef90＿C8WBY1 UniRef90－E1QKPO
UniRef90 C5ZYQ2 UniRef90－UPI0004638A6A UniRef90 N1ZXQO UniRef90－D4Z014 UniRef90－R2Q5D8 UniRef90＿W9A9Z1 UniRef90－UP10003FC7DFC UniRef90－A4EFVO UniRef90－G2LMY5

UniRef90－Q2RNS7 UniRef90－K8GDI8 UniRef90－13TFF4 UniRef90－SOSTU0 UniRefofo－SOASF2 2 UniRef90－H2N1Z7 UniRef90 DOLOEO | UniRef90－F2E520 |
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 RPAGSDQGDQKRISHYLVMGRPITQAND


 R L K G D A A G D QK RVA D Y LV M G R SI T A A A D










RPS GA DVGD QK RVA D Y IVV GRPI T R

RMKEQDRNDQKRVSDAIVVGRSI TSAEQ
$R L A G G B A H D Q K R I A T L I V V G R A V T G A Q D$





GS Q G G S F L N A DE GA D F CI I G R A I Y D S D S
RPA GA A A G D Q KR $\square A S Y$ S $V V G R P V L D A P D$



C

## －


WKNGFFVV PGLL

| $C$ | $G$ | $K$ | $D$ | $F$ | $V$ | $I$ | $V$ | $T$ | $P$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $G$ |  |  |  |  |  |  |  |  |
| $V$ | $G$ | $T$ | $D$ | $F$ | $L$ | $G$ | $I$ | $T$ | $P$ |
| $G$ | $G$ |  |  |  |  |  |  |  |  |

$\begin{array}{llllllll}I & G & P & D & M & A & V & V \\ C & P & G \\ C & G & T & S & F & Q & T & V \\ T & P & G\end{array}$


##  <br> S

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 R P G T N D N K A D $\quad$ K N GA

R P NLSVHDDQKRVSNGIVVGRPI


## C

 LG D D F L I T P G I R I A K DLLP Y D Q N N I I D Y V V I GR S I T M S K N
 A HPSLQLVTPGIRPAGSAQDDQ






## 210

PAEVLKKILNA

$P \square A V L T Q A N A D L$

PVLAARAMMEELAS
PAAVAAAI QSELAS
PARAAQAI MDELAS

P LGVVKRIL
PAAVLAEI NR
PAEAARAI QAEMK
PAKAAKALYDEL
PYQTYLEMKKEWEE
PELDALLRDWDEMRE PVDAARRIVAEV PEAAYRIVKSEWE PKQAAMAC! KMK PAAALNLILEEMTQ PGAAFDAIVKEL

 PREAALR PREAAYEQA\A E WE E PREAYEQAIAAEWEE

PKGKVEE I LKLI
KK【S AVQULDDIRQL
PWQTYQDMMKQWR
$P$ VA A Y K MVSELLWE
P I A A A N LI DDE DE Q $P$ YKAAQDFQAR AKV
PKAAAHNDTEINS
PLAMARQ TEEMAS
PEGAAQSIIA DL

RRAAAQA LDDMR
PRKAVQEFLDE
PKAAADA $\square V A E \square$
PAAA
PD DAA A A
PYETYMEVKKRWEE
PKAMVEQ LLKEL
$P$ LQ A AQQQL L E MEQ
PRGAAQA QAELDAS
P L G GVVQKI IENI
PAAVVEKI LARL
PQEAI RTLQERWEQL
PQQALNEILKE
PVEAYRLVSNLWRN
PLVATKKI LAEMAD
PAQAARDVLAE
PSSAAAKILDEMKE
$P$
PKSAAEAILREM
PVAAARA!
PVAAADDFCRE $\square$
PVKA Y QD DMSEWSN
PLA $\ V K G M Q E E \square$
RRASALA MLEEMRSV
PREALES I E E L
PVAAYQAIRQA
PAEVASAI ARQDR
PAQAARRVVQEMAQ

 | $R$ |  |  |
| :---: | :--- | :--- |
| $P$ | $V$ | $A$ |
| $P$ | $Y$ | $A$ |


P VKEARLI AEA $\square K$
PKMAYERVVKE WDN

PVAAAKEMKAALN
PLGTLEGFSSSLN N
RLKAAESYRQS
PAGVVSDDLAS $\square$ AS
PAETAREYR
$P P Q V V E S \square A N E D$
$P \square A \vee Y R E M N Q D W K$
P
$P \mid V N L V R N / L L Q E$

UniRef90_S6BS18 UniRef90-W6EJU9 UniRef90-UPI000477E327 UniRef90_Q0BQI6 UniRef90_S9QDA1 UniRef90-F2N9M9
UniRef90 C5R8W7 UniRef90-F216F6 UniRef90_C7LUR3 UniRef90_UPI000366124F UniRef90-EOY110 UniRef90-UPI00041C5074 UniRef90_UPI0004732B62 UniRef90-C8P4R7 UniRef90-C4L5W6 UniRef90-D4LR75 UniRef90-T5JS17 UniRef90-A0A059LRQ9 UniRef90_UPI0002490465 UniRef90_D8F9Q5 UniRef90_UPI00037AE8FE UniRef90-Q28K56 UniRef90_A0A017HLE1 UniRef90-A7HPD5 UniRef90_UPIO003764E15 UniRef90-E2SNS1 UniRef90-C1A4J5 UniRef90-T1XL05
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UniRef90-V7HYE0
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UniRef90-G2KMV2
UniRef90 GOTW07
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 $K L C V A L D L P S K E N A A L D Q K K S E D V W L K V G L R S F M R$
 DRLIVAI DLPNALAGLELSKQLGDSVSFYKI GLGMLTG QDKVMVALDCRS DQALALATALEGHARWMKVGITLIMD MTAKLQLALDD SSLEKGLELVKQVKDYIDIVEI GTPFMME $L V V A L D F P A A P A L A L A S R L Q G V V P W V K V G L E L Y L S$ $\square R D R L M V A L D M P D R K Q A L K I Y Q R I G D S G W F K V G L R L F V A$ DRLIVALDVPNLLDAGKIVDKLGRSVSFYKIGLGMLTG PI AVALDAPDLETAARWATLVTPHVSTVKVGLELYLR
 MRNLYLALDVETRDEAFHLLKRFSNRPAVKVGMELFYR KLQIALDDVTLEGALELVKKVRDY円DIIEIGTPFVYE KLQLALDDISLTDALLLAEKVRDYVDIFEIGSPFI DA QSNLSVAADVETPEQMLALADAVGPYVCVLKTHVDVFSS VALDVASEHQAEELLDQLAAEKPIIKTGMELFYS
LVFPLDVPDYDQAMGYVETLKESVGLEKVGMELETMS DRLTVALDVPNVVQGLALAEKLGDAVSFYKIGLGMLTG DRLIVALDLDDALSGLSLAEAL GDTVSFYKIGLGMLTG NPIFCALDTTDIGRAVALARDLKGSVGGAKLGMEFFNA RDHLADALDFAEERDAMQLVERLGQTCHWYKIGGELYYA MDSRTIVALDVPDRMGAEAVVHQLGDACGFYKVGLELEAA LIVALDC DRVRALELTDLLADHARWVKVGMTLEA LVALDCDRVRALELDLADHARWVKVGMLEYR DRLVALDVPNVLAGLDLVQKLGDSVSFYKVGLGMLTG MKRII LSLDTPVPVETF EERIVPHVGGVKVGWPLIS KKRLIFPLDAPDGKQARQLIRLLQNEVGLFKVGLELFVA KSTLCLAADLMSSEELLNLVERVGPYICLLKTHVDIVED
 RERLLVALDTPDLDAAVALATRLRGQVGGYKVGLESGA
 EKII LALDGLNKNEDINFAKK CPKGKWVKVGLELECR RERIIVALDC GREEALALARALSGHARWLKVGMTLYYA MKAPI ILAVDTADLETAQRWVSATEESVSVYKLGLEFFDT KSNLSVAADVNTARENKEALADATAPYCVAYKPNLAFYEA
 NPII CALDTHDIHKADRLTKMLYEKISMVKLGLEFFVA MAGDLIVGLDVGTRSEAEDMISRLLGIVDFYKI GYQLFYG
 PI AVALDTPDLDEASRWARLVEPHVSAVKVGLELFTR LCVGLDTDVFEFNRAIIDDATAPYCIDYKPNLAFYEA
$\qquad$ KTNLAL LS QSFLQLALDLVDIPEAKKVVQEVEAYIDIVEGGTPVVIN QTNLAFSVDVTTSSQVLELADAVDLACVLKTHVDFFEA DODRVVALDC TRERALELTDLLAGHARWVKVGMTLFYR LQDRIIVALDVDNELDAQEMVRRCESRTRYFKVGLQLFMA ERLIFALDVPNPTTARHLVETLGDAVCFYKIGLEMFMA DQ KTNLGVAVDVTTSAEVLEVVRNVAPAVCMVKTHDDVIS - IF PLDVSTRDEAVKYVTLLKDTVGLFKVGMELFYG
 RLIVALDVPSADQARAGVLQLGDAVRFYKDGLEDFEA QSLLCVGLDTPLFAFNKAIIEATHAFAVAYKPNTAFYEA MTQP IFA DTPDLDHAKHLVAADGPVTGGDKDGLEFFCT QSLLCVGGLDQDAAQEC\|KLIEATSDYAAAYKPNAAFFEC TNLCLSADVSEAEFSTRIIDATAPYCVAYKPNLAFYEA NLQIALDQNTLEDALGIVKQAGPAVDVVEAGTILQLD KSPLILANDYDKASKTLQNI RNLSRYICAIKMNFHVLLP

SKI 1 AS
KLQLATDLLDQKEAAKLAQEVEEFIDIVEDGTPIVIN QSNLCVSVDFNTKDSLLKMVEAVGPYVCMIKTHVDIISD $K L Q L A I D L V D T Q G A I K L V K E L E E Y I I D V V E T G T P V V I N$ QLVVALDLPSLEENLALARIIKRENILWLKVGLRAFIR KTNLCVSVDVTKSAEILDVVRQVAPYVCMVKTHUDIVED QSFLCI GLDVPMFSFNKALIDATHQFCVAYKPNTAFYEA


## UniRef90 S6BS18

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UniRef90-F216F6 UniRef90-C7LUR3 UniRef90-UPIooo366124F UniRef90-EOY110 UniRef90_UPI00041C5074 UniRef90-UPIO004732B62 UniRef90_C8P4R7 UniRef90-C4L5W6 UniRet90-D4LR75 UniRef90-T5JS17 UniRef90-A0A059LRQ9 UniRef90_UPIO002490465 UniRet90_D8F9Q5 UniRef90-UPIO0037AE8FE UniRef90_Q28K56 UniRef90-A0A017HLE1 UniRef90-A7HPD5
UniRef90-UPIOOO3764E15
UniRef90-E2SNS1
UniRef90_C1A4J5
UniRef90-T1XLL5 UniRef90- R5ZSX4 UniRef90-X6L660 UniRef90-F4FZB7 UniRef90-F2NEH8 UniRef90-BOW331
UniRef90_UP100038321E1 UniRef90_Q7VOD8 UniRef90-A9WDI3 UniRef90-UPIO0047638CF UniRef90-E3ID95
UniRef90-F1Z862 UniRef90-D5RKJ2 UniRef90 UPIOOO319E28B UniRef90-R5UFU9 UniRef90-UPI000344F8A3 UniRef90-UPIOOOO3777938 UniRef90-R5Q0T7 UniRef90-A9RSH8 UniRef90-Q01824
UniRef90_KGG3Z6 UniRef90_K6G3Z6
UniRef90-O5FHG2 UniRef90-UPI0003B38773 UniRet90-G4R7T8 UniRef90-O2GOK7 UniRef90_UPIo003598F52 UniRef90_AOLUF UniRef90-R5B1Y1 1 UniRef90-K2ABY9 UniRef90-UPIOOO373F32E UniRef90-F8FIZ2 UniRef90-UPIOOO478B016 UniRet90 W4XIB1 UniRef90-C8W6Z9 UniRef90-M1PLX1 UniRef90_Q3AZD9 UniRef90_QORUR0 UniRef90-J4UF38 UniRet90-V7HYEO UniRef90-D9PIY2
UniRef90-A5FHG4 UniRef90-F5RDX UniRef90-C7M8Y5 UniRef90-G2KMV2 UniRef90-G0TW07 UniRef90-F3XX98
UniRef90-D5EYM UniRef90_G3RTQ7 UniRef90_UPIOO02193708 UniRef90-V6AU50 UniRef90-D1C1H3 UniRef90-TOLKK8 UniRef90-A1KWY UniRef90-14Y6H3 UniRee90-UPIO00419256C UniRef90-V8CHB9 UniRef90-Q7Z7W9 UniRefefo-D5B153 UniRef90_K8E3H4
UniRef90_UP1000471578C
UniRef90_R2SHH8

50
 DGEALLHEIKADNPHFLFLDLKIHDIPNTMADAAESMVSL
 GGLALANELKDEHGKRIFLDMKLFDISATVEAAVRGLAQF
 YGMEAVRQVKAAVPEEVLCDAKIMDAGYLEA KETFDA AGQDLLARLKD MGFLVFLDLKFMDDPNTVQAATAQATRM E GPDLIRTLTRT HRVFLDLKFHDIPNTVAEAVTSAGDL GGLALASELKENGFKI FLDMKFFDI GATVEKAVYGIAQY Y GPDVVASVRGASRVQVFLDLKLHD

EGARFVEELVD YGMQAVRTMKEHFPKEILADMKIMDAGYYEA EGMHAVREFRRNFPKELLADTKIMDAGAYEAGDT EAGEA WS SEELQALADKHDFLI FEDRKFADDGNTVAMQYGGGDYK FGPSIVKMVQDR GFDVFLDLKLHDIPNTVKRAMTAIGKM QGPKIINAIRDVSSAGIFLDLKLHDIPVTVERAFRAASAH E GLHAVKAMKEAFPLKVLADLKIMDAGGYEDM KASEA GGLALANELKQDHGKRI FLDMKLFDISATVEAAVRGLAQF

 YGMEAVRVMKKEFPKELLADLKI MDAGDYEA EEALQA EGPATVAWLR A QGKEVFVDLKLHDDPNTVRGAARSVARH A GPSVVRSLV A GDKRVFLDLKLLEIPSSVAAAVSAAGQD Y GPGIVQEMKDR GFNVFLDLKVHDIPFQVHGAVRSASLS AGNNAVERMKKEFPKEVLADCK】MDGG Y LIETENAIKA GGLALANELKQEHGKRIVLDMKFFDIGATVEAAVRGMAQF EGPQFFRTMAAEAGTDFFLDLKLHDI PETMSRALKNLKS

VGVP Qi VSAMTAVGGSVFLDLKLHD
GGAPILAELRQR GARIFLDLKFHDIPNTMAGAVAAACNL E GLIRAVKEI KEEFPHKVLADLKIMDAAAYEVM KASEA HGHHGVHEIAK $\square G \square P I$ F LDLKLHDDPNTVAAAMQA IHVL E G L A AV HRVARHRPVVGDLKFHDIPNTVAGAVRSVCAA
 EGPSIVRAFRD $\square$ GFKVFLDLKFHDIPHQVRGAARSAALA F GQA GI RADQSETDADI FLDLKLHDIPHTVAGAARADAQL

-
Y
Y GPDAV A S V RGGS GLDVV LDD DK $D$ A D I
AVASVRGGSGLDVFLDLKLHDIPNTVAGAARAVARVV
 Y G P L L K T L K K Q H N F L I F E D R K F A D I G H TVVQLQ Y E K G I Y H
 FSATFDQDLAQKHNFLI FEDRKFADIGNTVQHQYSS GVYR


 A GPDLVREV KALGHDVFLDLKCHDIPHTVGQTMKVLGKL


 HGPD G DR RVMEAPNAALFLDLKFHDIPNTVAAALRTATRT F GK D G WE A L E K VI K H PVILDDAK R G DI A D T AV S Y A K S A F E H HGEK GWRSLKKTIDYFT A DAKRGDI GNTATMYAKAFRDM



 C GVE II D H L S K Y A K V I C D L K I A DI P Y T N E K $\square$ A G $\square$ A S S H Y GIK GI HYLKEHYPHHII ADAKRGDIGNTSRMYAKTGFEY


 C GLK G WQ A L Q K TID Y Y TIIA DAKRGDIGNTSKMMAKT L K D M

UniRef90 S6BS18 UniRef90-W6EJU9 UniRet90-UPI000477E327 UniRef90-Q0BQ16 UniRef90-S9QDA1 UniRef90-F2N9M9
UniRef90-C5R8W7 UniRef90-F216F6 UniRef90-C7LUR3 UniRef90-UPIo00366124F UniRef90-EOY110 UniRef90_UPI00041C5074 UniRef90-UP10004732B62 UniRef90-C8P4R7 UniRef90-C4L5W6 UniRet90-D4LR75 UniRef90-T5JS17 UniRef90-A0A059LRQ9 UniRef90_UPIO002490465 UniRet90_D8F9Q5 UniRef90-UPIO0037AE8FE UniRef90_Q28K56 UniRef90-A0A017HLE1 UniRef90-A7HPD5 UniRef90-UPIOOO3764E15 UniRef90-E2SNS 1 UniRef90_C1A4J5 UniRefe90-T1XLL5 UniRef90-B9CKK9
UniRef90-R5ZSX4 UniRef90-X6L660 UniRef90-F4FZB7 UniRef90-F2NEH8 UniRef90-BOW331
UniRef90_UP100038321E1 UniRef90_Q7VOD8 UniRef90-A9WDI3 UniRef90-UPIO0047638CF UniRef90-E31D95 UniRef90-F1Z862 UniRef90-D5RKJ2 UniRef90-UPIO00319E28B UniRef90-R5UFU9 UniRef90-UPIO00344F8A3 UniRef90-UPIOOOO3777938 UniRef90-R5Q0T7 UniRef90-A9RSH8 UniRef90-Q01824
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UniRef9O_A5FHG4 UniRef90-F5RDX UniRef90-C7M8Y5 UniRef90-G2KMV2
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UniRef9O_O7Z7W9 UniRef90-D5B153 UniRef90-K8E3H4 UniRef90_UPIOOO471578C
UniRef90_R2SHH8
 GVDMFNVHAASSGVVKAMRMVMERVNADPNPPVVTSFMNASF

 G A D L I TV H G A GS A Q ML R A C R R G A D E A A DV M M N E E E L A R V G

 GADMLTV I H ALGGGRAMCEASAAGRDRALAPGQTPPCWNPAA

 G V D $\ddagger$ I GVVDFTTV H A A G G S E MVVA A G A A G L R A G A A A A G L P A P H K E Q H

 GA D WT NAHLVVPGE GII Q GLDK QV GA P L G R GLLLL LAA EMS SA G


 R P A V VVVHA A G GAAMMRAAADAAREA GAARPDLIDDAS DL A GASLLTIHAGGGSAMMSAAAEAAAAPGSPR LTSMAANELAA $G A D Y V T V L G V T D \square L T V K G C V A A A N R H G K Q V V V D M D C V E D M$





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

 DVVDMCNV HAAA GTVVEMMKY ALLE GLLT R E DGT R P L T T S E ERMMRQ GADLLSVVHGLLGSGAMLAAAREAAAETGGERARLVADTVLT

 GAALDTVVHAALQAAQAAVVEGAQSTGQPVDTSWEEAR LQ
 NI A MLLTIHISSGGQEMMKRTMDVIFDSMLKII GVTVLTSIID DLDFLTVHG DPQVVRAAKQGAAGTNLKILGVTVLTSLD GATMLTLHAYPKAMAAAVKAAE LDCLLGVTVLGSMDQADD D GA DVIT TLGGVAE DASDKAADEEAAHKNN KQLLVDMDA VQDL
 RPTYLTVHAAGGRAMIRAAADAAPDVLI TAVTVVLTSLDDDG




 WS HITNAHSVAGPGTIS GLKAVGGAKNRACLLIGQMSSSG
 GATFTTVHG NDAILKAAVVAAQEIGGDLGDQADLDDDGG

 $G V D L T N V H A A G G Y E M M Q A A K E G L L D G A A G L Q Q V M V A E E Q K$


 KAHAI TVVSPYMGGDS LSPFDKYACKTSNRGSSEDQGLQLN QFDSVTVAPYMGRDSVEPFLAFENKSTVLLALTSNEGAFD




 DLD A L TVA P Y M G E D S V K P F L E Y E G K WV I L L A L T S N K G S Q D
 GA D I IT I LGAA E DA SIVK GAVE EA KK LGK Q L LV DM MA VK D $\square$

 GA D WMTVVICC A T LIA TMMEAA MK EVVK E LQQV ELL Y G GADFMTVICCCATIM TMQAAAQKEVKE LQVVEDYG
UniRef90 S6BS18 UniRef90_W6EJU9 UniRef90_UPI000477E327 UniRef90_Q0BQI6 UniRef90_S9QDA1 UniRef90-F2N9M9
UniRef90 C5R8W7 UniRef90_C5R8W7 UniRef90_C7LUR3 UniRef90_UPI000366124F UniRef90_E0Y110 UniRef90_UPI00041C5074 UniRef90_UPI0004732B62 UniRef90_C8P4R7 UniRef90-C4L5W6 UniRef90_D4LR75 UniRef90_T5JS17 UniRef90_A0A059LRQ9 UniRef90_UPI0002490465 UniRef90_D8F9Q5 UniRef90_UPI00037AE8FE UniRef90_Q28K56 UniRef90_A0A017HLE1 UniRef90-A7HPD5 UniRef90_UPI0003764E15 UniRef90_E2SNS1 UniRef90_C1A4J5 UniRef90-T1XL05 UniRef90_B9CKK9 UniRef90_R5ZSX4 UniRef90-X6L660 UniRef90_F4FZB7 UniRef90-F2NEH8 UniRef90_B0W331 UniRef90_UPI00038321E1 UniRef90_Q7V0D8 UniRef90-A9WDI3 UniRef90_UPI00047638CF UniRef90_E3ID95
UniRef90_F1Z862 UniRef90_D5RKJ2 UniRef90_UPIO00319E28B UniRef90_R5UFU9 UniRef90_UPI000344F8A3 UniRef90_UPI0003777938 UniRef90_R5Q0T7 UniRef90_A9RSH8 UniRef90_-Q01824
UniRef90_K6G3Z6
UniRef90_Q5FHG2 UniRef90_UPI0003B38773 UniRef90_G4R7T8 UniRef90_Q2G0K7 UniRef90_UPI0003598F52 UniRef90_A0LUF7 UniRef90-R5B1Y1
UniRef90-T1AAV3 UniRef90-K2ABY9 UniRef90_UPI000373F32E UniRef90-F8FIZ2 UniRef90_UPI000478B016 UniRef90_W4XIB1 UniRef90_C8W6Z9 UniRef90-M1PLX1 UniRef90_W6MC02
UniRef90_Q3AZD9 UniRef90_Q0RUR0 UniRef90_J4UF38 UniRef90_V7HYE0 UniRef90_D9PIY2
UniRef90_A5FHG4 UniRef90_F5RDX0 UniRef90-C7M8Y5 UniRef90_G2KMV2 UniRef90_F3XX98 UniRef90-D5EYM1 UniRef90_G3RTQ7 UniRef90_UPI0002193708 UniRef90_V6AU50 UniRef90-D1C1H3 UniRef90-TOLKQ8 UniRef90_A1KWY1 UniRef90-14Y6H3 UniRef90_UPI000419256C UniRef90_V8CHB9 UniRef90_Q7Z7W9 UniRef90_D5BI53 UniRef90_K8E3H4 UniRef90_UPIO00471578C
UniRef90_R2SHH8

130
140
$\square D V P \quad L N Q A V Q H|L A A \| A A Q A S D A D G| V \bar{V}$ 150 E A I Y K T P I A Q K A V D FA K D A Y E S G L N GV V C S V Y E S L N I K A H



 T D DELRRDLTVGHLARSAQNWKLDGVV C
 $R L G G E G P A P D A V R R D A V L A V E A G A Q A L V$


## 






 R A DL D EAMAEI TTERAARAMAAGAHGVIA
 $P K K \square A Q M E E D Q A H I V A D H V G A D Q Q A A G R E P$ R A Q


## VR DTVASEVERLAKLSYSAGADGLV

P A KVAELE EVGVDVLAVHTGADA QAVGRE

K D L LA A G ID PRYANPPREAKAAGCSGVVC








R
,

## 

F QGF GATVVDAVR RLAVLAVDAGARAVVC

F Q TiL L Y K E V L
F Q TLL YK E VL Q I S K S WK N S E NL M Y V V G A T K A E Y F K E I


|  | LAMG D Y TQ A T VKM A E E N G D FVV GF |  |  |
| :---: | :---: | :---: | :---: |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
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|  |  |  |  |
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Y A L S L Q A S V L NYA QL TR TA GLD G V VCSAHEAKLI REA
F Q T L L Y K QV L ETA KTWKNS QNLMMVVGA
NDEELYKKVLTRTSLTWQNSQNLMYVVGA
F QEALYKKVLRTSLNWKNSQQLMYVVGATK

G S
PK D L K V V R $\mathrm{Q} \frac{\mathrm{S}}{\mathrm{L}}$

AKVTYELPVDS QKKWA DKMQTDGIIVVGATFPEDVMFCKKK

SEKMLLNGNWQTMDKMAKVNGDYGGVAPANNQDLLDKIRKD $F$ QLIF T QRILFE RVLSSKS QE WGNLMYVVGAT QGAMFRDIRNDI
 S LAVGGDYTKASVAMAQRH K DFVIGGFA QEK LGGE



 YEQAAA WRE DGI K QA $I$ YHQSRDA LLSSGETWGEKDLSSKVQK


210

| UniRef90_S6BS18 | P V E A Y Q S I K K A We |
| :---: | :---: |
| UniRef90-W6EJU9 | P L G I V K K I I E N I |
| UniRef90-UPI000477E327 | PKA A A A I L S D M |
| UniRef90_Q0BQI6 | P A A VA S S I A A D I A GL |
| UniRef90_S9QDA1 | PRDAA Q A I LT ELL |
| UniRef90-F2N9M9 | P L A A F D AIV G ELL |
| UniRef90-C5R8W7 | P V VT Y E Q V V |
| UniRef90_F216F6 | P V Q A A K ELKEEQME |
| UniRef90_C7LUR3 | P V Q A A R N Y L K T |
| UniRef90_UPI000366124F |  |
| UniRef90-E0Y110 | P L D S VKVI L N E L N K I |
| UniRef90_UPI00041C5074 |  |
| UniRef90-UPI0004732B62 | P N K A L I E I LE S $\square \mathrm{N}$ S |
| UniRef90_C8P4R7 | P VK A Y R Q |
| UniRef90-C4L5W6 | P M A M Y D QFMKEWGQ |
| UniRef90-D4LR75 |  |
| UniRef90-T5JS17 | P V A T A K A L |
| UniRef90-A0A059LRQ9 | PAAAAREY |
| UniRef90_UPI0002490465 | $P$ VQA Y L D I K Q A |
| UniRef90_D8F9Q5 | PQNA A ERVADE!AS |
| UniRef90-UPI00037AE8FE | K A A A A S QI RELIA Q |
| UniRef90_Q28K56 | P R A A A Q M V VA DL |
| UniRef90_A0A017HLE1 | PRASARAI LAELL |
| UniRef90-A7HPD5 | PRAAADEIJNRSLL |
| UniRef90-UPI0003764E15 |  |
| UniRef90-E2SNS1 | PVREAER\YKAV |
| UniRef90_C1A4J5 | P V S A M G Q V H A S L R |
| UniRef90-T1XL05 | PAEAFAAMRAELSALL |
| UniRef90_B9CKK9 | PCATFEEIVNELL |
| UniRef90-R5ZSX4 | P V A E A K A I K A M |
| UniRef90-X6L660 | PRKAALDI VAEMAS |
| UniRef90-F4FZB7 | P V G A LEE EI YK TQEEV |
| UniRef90-F2NEH8 | SVA A A R MVVA E I |
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| UniRef90-Q7V0D8 | P NKAFLD I CES I |
| UniRef90_A9WDI3 | P VT A VARIL A ELE Q |
| UniRef90_UPI00047638CF | PAAAFARI CDEL N |
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| UniRef90_D5RKJ2 |  |
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| UniRef90_UPI0003777938 | MKAKARSI A A EI |
| UniRef90_R5Q0T7 | K A QKA CEIUQKEME |
| UniRef90-A9RSH8 | P A VA AKEYRKA |
| UniRef90-Q01824 | PS GAFA Q C C T A L |
| UniRef90_K6G3Z6 | $\square$ SQALQNFNNSIYE |
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| UniRef90-G4R7T8 | PRQSAQAVLAEMQ |
| UniRef90_Q2G0K7 | PVEA A K Q CRA A $\square \mathrm{E}$ |
| UniRef90_UPI0003598F52 | P TEAARQFQ |
| UniRef90_A0LUF7 |  |
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| UniRef90-T1AAV3 | P PQAA Q ALLQKEDT E |
| UniRef90_K2ABY9 | PLQEAKHYR N |
| UniRef90-UPI000373F32E | A ALLKA Q E L Q S M Q |
| UniRef90- F8FIZ2 | KKAAAA QMQQLIK |
| UniRef90-UPI000478B016 | GTNFAEKAREE |
| UniRef90-W4XIB1 | P GEVAK Q Y Q A A |
| UniRef90_C8W6Z9 | PVIAAFEA I I SELLK N |
| UniRef90-M1PLX1 | $P L$ KVLE EMQLDI Q |
| UniRef90-W6MC02 | P H A A AVA $\square$ QERI ARL |
| UniRef90-Q3AZD9 | PSAAFNACCRELR |
| UniRef90_Q0RUR0 | P A V A A K A L K D A L |
| UniRef90_J4UF38 | GREAAEKYREE |
| UniRef90-V7HYE0 | P Y Q T Y R Q $\square$ K K E WNQ |
| UniRef90_D9PIY2 | P A EAAAKTAKEDES |
| UniRef90-A5FHG4 | FAEKAREVVQQEMAEI |
| UniRef90-F5RDX0 | P VA A A WA MQA Q 1 A Q |
| UniRef90-C7M8Y5 | F AKVIG G K A E ELQQ |
| UniRef90-G2KMV2 | P A A A R T I LA TLLK |
| UniRef90_G0TW07 | PRAEAKKVCEDIN |
| UniRef90_F3XX98 | GAEKAQELQEEMKKL |
| UniRef90-D5EYM1 | EKQKAQELLQQQMAKI |
| UniRef90-G3RTQ7 | R L E A A EMYRKA |
| UniRef90_UPI0002193708 | P Y $\square$ A A K K L K D E $\square \mathrm{K}$ |
| UniRef90_V6AU50 | PK Q A A K SLF DLTK N |
| UniRef90-D1C1H3 | F AQAARRAA $\square E L R D$ |
| UniRef90-T0LKQ8 | P V E |
| UniRef90-D7N9B0 | F AEKAADSAKE LQQ |
| UniRef90-A1KWY1 | PKAAAKKCRD |
| UniRef90-14Y6H3 | YQKAAAEAQR |
| UniRef90-UPI000419256C | $\square \mathrm{K}$ A V A A Q M Q T M $\square \mathrm{K}$ Q |
| UniRef90-V8CHB9 | PKA A DE S A L M Qil |
| UniRef90-Q7Z7W9 | AVASAKRYQEA |
| UniRef90-D5BI53 | F AEVVAA K A E ILQQ |
| UniRef90-K8E3H4 |  |
| UniRef90-UPI000471578C | PELAAKEFQNEFK |
| UniRef90_R2SHH8 |  |

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UniRef90_UPIO003702062 UniRef90_D5KXY4 UniRef90-E2AMC4 UniRef90_U6SKJ3 UniRef90_UPIO00429EF38 UniRef90-H1B5B5 UniRef90-D7E6X5 UniRef90_I2HOS3 UniRef90_A7NS27 UniRef90_16WDS6 UniRef90-UPIO0029AAFFD UniRef90_S5ZF11 UniRef90_UPIO002E679EC UniRef90-V5XR80 UniRef90_R7IIM4
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 WADLVTVVHALPGQGDLKGA HAAERPLASRGVFLLAEMSTE NCDAVTVAPYMGEDSVKPFLEDKDKWT LLLALTSNSGAQD GVSALTVASWGGADMLARAKRAAKTLDLI TVLTS LDTHNED WSH TINAHTVPGEGDIKGLGEVGLPDGRGLLLLAEMSSKG RPRMLTLHAVGGAEMMKAARKACDELAVTVLTSMDDHALAA VVNAVTVAPYMGEDSVKPFLIYSERWVILLALTSNKGSHD GAD WMTVDCCATDPTMEAANKEVKSLQVELYG NFDSVTVAPYMGKDSVEPFLSFEDKHTILLAGTSNQGAFD D DD SLTV A P YMGEDSVVTPFFLSYEGKWVILLACTSNKGSHD QLDALTVAPYMGEDSVTPFLGYENKWVILLAGTSNKGSHD WSD TVNAHTVPGEGVIVGGLAQVGDPKGRGLLLLAEMSSQG
 WA D LV TVVHSVPG P GI I T G L K S A T A GVVQSPRGGILLLA EM S S WADLVNAHVVPGPGVVKGLSEVGMPMHRGCLLIAEMSSSG RPAMLT HASGGRAMI APAQARPLLLGVTVLTSMDEAALB GADAVTVNPYMGFDTUEPYQRHAGKGVIVLCLQFDNTAPS


 WSHITNAHLVPGPGUITGLASVGQPLGRGCLLLANMSSAD GADWMTCDCSATDPTMKAALKADKEEDQGEIQVELYGDWT WADLVTVVSLPGQG LLKGLKATISDKPATLRGVFLLAEMS




W
WADLI TSHMIGGAGLEASLDYGUNSGVIALLGMSSK AG DLDFLTVHG DPHVVRAAMEGASGSGMKLLAVTILTSLD DLDALTVAPYMGEDSI KPF LEEYRKWVVLLALTSNKGSHD GADAVTVSPYMGFDSVEPYMEWACRTSNAGGSDLQFGDVN DLDAVTVAPYMGEDSDKPFLEYDGKWVILLALTSNKGSSD WA FITNASCAAETSTLKQTIETSKNYPNKDVQVEMTTHFT
 TADAVTVAPYMGHDSVLPFFLNYA GKWVILLALDTSNPG GFDAVIANPDMGLDSLKNLVKSAHKNEKGVI TLCHMSAPE GADFTTVICAAETPTVIM KLVVNLSHEYSQKMI QVEMTNNFT
 GADVVTVLGLASDETFRAVLDVAHEHGGSVVGDLAGTESP
 NADWVTV DCCAD DNTAKGALDVAKEFNGDVQIELTGY WT

 NDRFLTVHATGGAKMLELAKEANCELDAETVGVTSHNSSKG WA HII NCA ILPGEG\|VEALADFKDANQRGLLI DAEMTSKG HVDAVTLSPYMGYDSVSPFTNQPNRWAILLALTTSNPGSAD SFDAI TIAPYMGSDSVLPFLSFPDKWVILLALTSNEGGKD DVDALTVAPYMGEDSVTPFLGYDGKWVVLLALTTSNKGSHD GADWTTVVCSADISTVVKGALE
 WADLI TAHPLAGPEMI THLFGDSSSDSRRTCGCVLALEMS
 QADAVTVSPYMGFDSMQPYLVHPCRTSNAGGSDVQFLETN GADIVSVLGGASRPTLEGVWKAARRWGRRWMVDTIDLPLG WA DFVTA ASLPGQGVLKGIKAGLAEENPKNVFLLAEMSCQ GADVMTVICCASDATMEAA

 WAH I NCS LLPGEGIVEAAKAADFPYGSERGLLIDAEMTS WADLITVHPISGASVI DALKKGMKNDTEPRGIFIAEMSSK GADITTVMAFAHDATVRDMVEVAKSYQKRVMVDLLGVD S GANWVSVVAGASMTTVEQVVKVANEFGGEVQIELGEH$Y D$
 WAHLVTVHGVPGSGILSGLNLAAEPQHRGALMLAQLSSKG WADLLVTAHTLPIVQGLKAALDGNDVAKERGVFLLAEMSAN GADAVTLSPYLGSDALEPFLRHADRGCFDLCKTSNPGSGD GADAVTVNPYMGFDSI EPYLEWSDRGGSDVQFDDVSVDGR
 GFDGALLHLD GADFMTVICCASLATMQAAQKKVKALQVELYGEWTMEQAK


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| :---: | :---: |
| UniRef90 D1B5M9 | A I A S R A |
| UniRef90-V5C2T7 | GCAKASADLGAQIVGVHTGLDAQAAGHTPFADLSD |
| UniRef90-A0A024FD06 | G |
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| UniRef90-14AIC | EMLGKKVYEEVVEKSQNWGTDMYVVGATKAEYIENIRKL |
| UniRef90-F81AB6 |  |
| UniRef90 A3J5G2 | - |
| UniRef90- P32431 | ALTKGSYTSESVEMARR NKDFVFGFITA HKMNEHDD |
| UniRef90- C7JEA4 | EVGVPDDTRTQVLRLADLAMKSGMDGLICSAHELKALREA |
| UniRef90-UPIO003 |  |
|  | QWRDAGLDQALIFHQSRDALFAGATWTESDNK |
| W2 | NSENDMYVVGATKAEYDGD |
| UniRef90-FOR607 | LTEDKEGERLFQEWANDQNMMYVVGATQGRMFED |
| UniRef90 R5NCP5 | TERLFEKVLRKSQEWGNDMYVVGATQG |
| J3PPM9 | DSYTVETVQMARKHRDVIGF SGVGAD |
| Ret90_A0A011N | VSDEWNESGQCGLVVGATFPREI ARVRELI |
|  | QVDEMGVDYICVHAGYDLQAVGKNPLDDLKRLKAV |
| UniRef90 R4XA |  |
| UniRet90-6PQQ12 | SLATGD |
| UniRef90-G21073 | 㑑 |
| UniRef90 B9LZK2 | EVGINLPVPEMVVKLAADAKKAGIDGVVASPQEVPLIREA |
| UniRef90-B3RJP1 | G |
| UniRef90-A4Y154 |  |
| Uni | R |
| UniRef90 A2U3V7 |  |
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| D3QD18 |  |
| UniRet90-X1Y070 |  |
| UniRef90_E6SV20 | DERLYEKVLRKSQKWADDN QMMYVVGATQGRAFEDIRK |
| UniRef90 UPIO004711 | KSQQWATP |
|  | NAENLM |
| (5D | , |
|  |  |
| UniRef90-_2YD3 |  |
| UniRet90_K2AUFO |  |
| UniRet90_UP10003759EA3 | ANVIGGVAQNALPEEMLLFTPG |
|  | DLIP ILVATRAGRAFDAGADGVIASPQEAALI RALPEA |
| UniRef90-H1HJK2 |  |
| UniRef90_UP100035EBE1B | GQPLYQ |
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| UniRet90-UPlooou243A | WE |
| UniRef90 H6C6Y4 | ARKYPRSVLGFVATKEKNSHSPDAA |
| UniRe $90-\mathrm{P} 15$ |  |
| UniRef90-UPIo0036F802D | SADFQRQSVDDREQTWADPEKLMFVVGATQAKELKRIRE\\| |
| UniRef90_Kobl |  |
| UniRef90-A0AO14NQD8 | QVQDWK A G |
| UniRef90 E1PRM4 | WDQVDDWAKVKVPQVVWHRSRDSQASGVKWGQKDITDAVAK |
| UniRef90-U2TIF1 | VARALELEVLGVGEVVVPSGL G/VDGNELSPTDDMPLRRL |
| UniRet90-D1VWJ4 | RLFEQWGTDENMMYVVGATQGKMFEDIRKV |
| UniRef90 A9N | QWREAGI GQVVYHRSRDAQAAGVA WGEADIT AlkR |
| UniRef90-D8J8Q5 | LQDLELASGEAVYELWNTNGNVGLLVGATAPEELESLREQ |
|  | K M Y V |
|  |  |
|  |  |
| 10652 |  |
| UniRef90-UP10003 | WPNNEQLMFV |
| C4106 | NLM |
| UniRet90-R5FSS 1 | MMYVVGATQGEMFQDI RKV |
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| 90 UP100041564CF | DEQIQELVKFEKAVFCAHVSKDEQEESGAKNLLGAKNDSLLL |
| UniRef90 F1T4U3 | EIGILEHSVANEVDRLGALAAA HGAHGMVCSAFEAHRMRELI |
| UniRee90-E9GRD4 |  |
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|  | GRPVYQVVAERARDAWNTSGQMGLVVGATFPQEI RRVREI |
| UniRef90-UPI00036A7A7B | SLEKMALLKELQPDFVGGLHLDPHDVVREEERAWQNVEFSSF |
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| iRe990_Q9HF68 | S |
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| UniRe990-H1E | VGYDVQNTGADPVEE |
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| f90 |  |
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| UniRef90 I2EY55 |  |



SEQFAQAARCAAQD|V|
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PSETAR DYRDRLWE

QVEAAKRYRQA
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FAQAAEKDQQQMKDi
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$P$ LAATDAYKEA
$P \vee R K L E E \| V R S Q E E V$
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FAQAARTCAKDLQ
FAAAAEEVQQEME

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AEKAS L KYK

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PELAAKELDDED
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GRAEARRLQAEMAE PVDAAKELQ
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UniRef90 A0AO24II UniRef90-A0A024IM14 UniRef90_QOYQP9 UniRef90-C5EG85
UniRef90_D9RAB7 QSNLCVSVDFTHSDTLLQLVDAVGPHVCMIKTHIDIICD QSNLCVSVDFTHSDTELGQVDAVGPHVCMLKTHVDCLCD QRI TVALDRPDAASALALVASIDPDL WVKVGLELFCS QTNLSVAADFTKKQEVLDFADKTGPYICTLKTHVDIIED MTKLQVA DDLLTTEAALELLAKVAPYVDI IELGTPLIK LGVGLDTPIFAFNKQIDNTADYAVAYKPNDAFYEA LQSMLCVGLDRPVLEFNRAII RATGEHAAAYKVNTAFYES KLQLALDLVDI AGAKAVVAEVAESTDIVEIGTPVVIN NLQUALDNLTIESAMEDAKKASKYLDVIEVGGTILI SS K SNLIASADVLTTQELLDLLADKVGPHVVALKTHIDLLTD KPNQUADPD DF AFKMVIDATAPYCVAYKPNLAFYEC
FEFCKAUVDATADLVCCFKPQUAYFAA TCLGLDTEKLRFCLNMVDAVEPYIAAVKVNENFVRD LCVGLDRPVLEFNRSVVRATEQYAVAFKVNTAFYES
 KTNLCASVDVPTTKEFLSSLDDKLGPFVCLVKTHDDVISD MTNGCVAVDVTSSSELLKIVDLVGPFVCLIKTHYDAVVD MATPVFVAVDTPDLEAATSMVGSLQMPGLGVKLGLEFFCA LQLADDFVDLSRALLVAEAMAAGADWLEAGTPLIK S QSNVVVSADVTTTSELLDLAER PYMVVLKTHDDIITD QSNLCVSVDVTNKASFLREVEAVGOHVCMLKTH|ADDFDQ


 LCVGGDPDLAFCRQUVEETADFAVAYKPNDAFFEA KLQVA। D DADTKEMLRLAEKDCHTADIIETGTPMDMK
K प Q $\square$ A DGDVLDFNKK DATAPHCIAFKPNLAFYEC


KLQva
KTNLCVAADVNTAKE
 a RKHLQVALDF DLLEAVKVAEKVDAGVDIVEVGTPLLKS

LCVGLDSPVFEFNKAIVEATASVTVAYKPNDAFYES RSNLCVSVDLSTSAELLEVVDAVGPSVCLIKTHMDUVED PVFEFNKQIIDDAKDLCVSYKDNTAFYEC
AADSVSIEENKRII QATSSYALAYKPNIJAFYEA

 MTNPVFVAVDMPDVAARALVAAVAPHVGGVKLGLEFFCA QTNLCLSADVESSVELLELAETLGPMLCAIKTHVDLVD KI QLA DDRFTIQEALE:AAKAEKALEWLEVGTSLIKE
 KLQLALDRLTKEACLHVISETKEIVDIUE GGTGVIKE KRVIVALD AADVEKLLG ARLACREGAGMKVGLPMLAL KTNLCASI DVRTTQELLDIVSKIGPNDCLLKTHVDDLED PLCVGLDPDMEHMLDVVDATSDVAAAYKDNTAFFEA LQVA D DTELTRALEVKEALAGGADWDEAGTPLIK S LCVGLDAPDFDFCRALVDAADLVCAFKPQAHFAA LCVGLDFANRSDA $\square R P Q L Q A D A S L A F N K V I D A T A P Y A V A Y K P N$ AFYEA पR P Q LQ La LD H RLDAALATTALLHPHVDIIEAGTILCDS LEFCRAVDATAPYACAFKPQDAYFSA $K T K Y Q V A D D S F S \square D C A A L D A T A D L V A F K P Q \square A Y F A A$
 LCVGADADFEFNKKVVDVYDLIPAVKPQ\|AMYEQ


LQTADDQTDLASAVNLAKSVAGYVDIIEVGT\|LAFA LCVGLDTPDFAFNRAI IDATAEYADAYKPNLAFYEC FQFCREIVDATAPYACSFKPQIAYFAA NLQVALDHSNRPDAVAAAVSVGHEVDIIEAGTVLLLE LQUALDLTSLEEVIRVLQQISDHI IYEVGTPLAKR पK SLLCVGLDNPVLEFNAAMVDATADLACAFKPQDAYFAA


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UniRef90_M7NLL2 UniRef90-H7FV8 UniRef90-UPIO003726884 UniRef90-Q8KG39 UniRef90-W4D7S4 UniRef90-Q98PX2 UniRef90-N1ZKK8 UniRef90-U2NNUO UniRet90 - NGYAD7
UniRef90-E6NAJ9 UniRef90-B4S390 UniRef90_UPI00038033F7 UniRef90-O42771 UniRef90-A0A023F7U3 UniRef90-C4LDP7 UniRef90-R1BBL9 UniRef90-B3QV60 UniRet90-F2NHC3 UniRef90-C5FPTO
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UniRef90-W6MSY3
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UniRef90 H2AZEO UniRef90-H2CISO UniRef90-H1YWW7 UniRef90-D2QA95 UniRef90-UPIO0031B8C11 UniRet90 14 WZCO UniRet90-C3XCU3 UniRef90_UPIO0036F274A UniRef90_R5IE28 UniRef90_C4SXT5 UniReffo-G2J960 UniRef90-A1WD37 UniRet90_KON836 UniReft90-WOVB24 UniRef90-A0A016XFP8 UniRef90-Q2S1S9 UniRef90_UPIO00409F670 UniRet90_-F2BVZ2 UniRef90-C4UFI3 UniRef90-W2C346 UniRef90-A916E7 UniRef90 W102W1
UniRef90 F2KNT UniRef90-F2KNT8
UniRef90 A0AO24II UniRef90-QOYQP9 UniRef90-C5EG85 UniRef90-D9RAB7

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70
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 FDDSFIKKLAEKHDFLI FEDRKFADI GKTVQLQYSSGDYK EGLSVVTAMKTAFPDKLIFADM KI ADTGFLEAEDAFKA LGPSGWESLQKTLDYFTUADAKRGDIGNTSKLYAKAFFEM EGLHAVKALKEAFPLTVLADLK MDAGGYEVM AKKAVEA EGKKAIKEIVKAFPDKIVVAD GKVADAGKIFGQMFFSQ FDPDPLKDLALKHNFLLMEDRKFGDIGNTQELQFSYGMYN GGQEVVKSFRALYPKIIVADTKCADAGGTVAMYKNCADA YGLKGI EYIKEFYPHFIIADAKRGDIGNTSTMYAKTFFEY
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 FSYEGLDELSKKHNFMI FEDRKFADI GNTVKLQYTSGVYK WGMYVESSIKEKHNFLIMEDRKFGDIGNTVKLQSKKVFSW HGAAGVRSVVEAAGSPLFLDDKFHDDPNTVAGAVRATVGL RG円RGFKDLEETKTCLTIADGKRGDIGNTSQMYAKAFYHW EGLNAVRELRRRFPHHCIVADM KI MDAGRIEVECAAKA FSPQTVAGLAEKHNFLLLEEDRKFVDIGNTVQKQYHGGSSE FTYDGLLALAKKHNFMIFEDRKFADIGNTVKLQYKGGVYQ FTFEGMVELAKKHDFMIFEDRKFADIGSTVKAQYAGGVYQ A GDAAVTAVKAAHPKQVFVDLKTADAGEDEAAL AFEA DGWRALREYAEGKGVPVLLDAKRGDIGNTARRYAEILL EGMVPVYEARKHFPNTILSDTKIVDGGSLEAAY A ACEA MGHKGIEELKQDESDPI L LDAKRSDIGNTAAAYAYYYFNV QGAEMALTQLCHYELPI LADVKRGD\GTTADHYAKEAFQY LGVDGMAILDKTVEHFII ADAKRGDTGNTARMYAKSLFTF SGSKGWESLQKTIEHFTIADAKRGDDGNTSGLYARTFFDP EGMNADRELKKHYGHKVLADMKTVDGATGALEVEMAAKS YGMYAVSRMRVCCPSALI FADLKTM DAGRDEVRILASEN DGWRALREYAHGKDVPVLLDAKRADTGNTARQYGHAANET
 SGIGGLKRLLEARGRAVLADTKTADAGDVEVQUAK RGVEGWQSLQQYPEDFLIADAKRGDI GNTSQMYAKAFLET FDQSVIDRLREKHDFLIFEDRKFAD:GNTVVQYSKGVHKD RGVAGWNSLIKTADYFSIADAKRGDIGNTSAMYADAFFNM
$R$ GAEIAHIHAKHPGDPVILDAKRGDI GSTAEQYVESFERF LGAPGLQALLELIPDEIPVDAKRGDIGATALAYERAVFGH AGLSAVTAI KEAHPDKLVFADMKTM DAGELEADDAFKA LGWKGLELIKQKTNVPI ILDAKRGDMGNTAKAYAEAYFEK
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 FSYSVVKKLVKKHNFVIFEDRKFADTGNTVKLQYSGGLYK
 FSFEPLKEMAAKHNFLIFEDRKFADIGNTVKLQYTSGVYK YGMAFVREDREKYPDKTILADMKTC DAGKHEAKQAFDA DGWRALREYAAGKGVPVLLDAKRADTGNTTRQYAEALKM GGSEAVSEAARLCGGLRVLDLKDADIGYVMRQAVESLAR FGAAGVTAMRKNSPALI TADAKRGDLQNTARFYARTFFDF EGMEAVRRLKAEFGTEVVADMKVAD LGBPAGICEYAKQQGLYVLGDVKRGDDGSTAAAYAHHCSPW
 HRAEDAHVHEKHPGQPVILDAKRGDIGSTAEQYAREAFER EGIQAVKTLRQLYPHHLVADLKVADAGATLA QQAFSA YRAE AY DHTQYPGVPVI DDAKRGDDGSTAA DYAREAFER FGVEGVKEYCKGKGLVVIGDDKRGDI GSTSEAYSKTYAGF HRAELMQHMRCNAPHPVI DDAKRGDIGSTAEQYAKEAFRY EGMHAVRRMDKEFPKEVLSDEK $\mathrm{S}_{\mathrm{S}} \mathrm{G}$ GGYHEADLGYQA QLEKDCRYVRDNYPHPLIDDAKRGD GATATQYAREAFRY FGUPGLMAYKKTLDYCVI GDAKRGDIGSTSTAYADGDAPD
 CGMEAVTTLRKNHPNHLLVCDLKTTDGTGALLSRMAFDA AGARGVRYLRGHHPDFLIADAKRGDDGNTSALYARTFFET HRAELCAHIRAAHPHPIVLDAKRGDIGTTAEHYARAYERY VGGEVVQTLRNGFPKIIVADTKCADAGGTVAMAKNVAKY YGAEVILKLREVKPNAFF DVLDLLKTLDTGNLEARMAADA RGMAGLQDMENTLGSMTIADAKRADIGNTSRKYARAFFEH


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UniRef9O_D9RAB

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## UniRef90_D6THI5 UniRef90_R9AH76 UniRef90_UPI00021A7E01 UniRef90_A3YVE4

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UniRef90-E6NAJ9 UniRef90_B4S390 UniRef90_UPI00038033F7
UniRef90_O42771 UniRef90_A0A023F7U3 UniRef90_C4LDP7 UniRef90_R1BBL9 UniRef90_B3QV60 UniRef90_F2NHC3 UniRef90_C5FPT0
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UniRef90- W0VB24 UniRef90_V2XZ21 UniRef90_A0A016XFP8 UniRef90_Q2S1S9 UniRef90_UPI000409F670 UniRef90_F2BVZ2 UniRef90_C4UFI3 UniRef90_W2C346 UniRef90-A916E7 UniRef90-W1Q2W1 UniRef90_F2KNT8 UniRef90_A0A024IM14
UniRef90_Q0YQP9
UniRef90_C5EG85
UniRef90_D9RAB7
V QRA A E V TA F GV A F VVE L H A G L D E Q T L A G Y S V Q T L I S E G R L











VT R A R QVEALGAD Y L TVVHVA IDD QMVGRDPFETLRQVS QA
SLATGEYTKLSSVEMARKHAGVMGFVATRSDGDVETEVARK



RELAVVDTPLDYAGQLATLAARAGLTGAVCSPDEVARDRAA


F E I L Y $L$ K







AERARAWRELGVGHVIVKRSRDREAAGDWGPDDLARDSEV

F
TLA Q GAYTDAALAMAREHADFVVGF $\square$ RAQ R R R L
$F Q F T Q N F \operatorname{L} F E K V L$ K K S Q E WA N D M Y V V G A T R G E A F L


AT RAREVVRALGAKFVVEMHAGLDEQAKP GFDLLTGLLRAGEE




$F Q M L T S Y V F E S V V R Q M A R L G S D M F V V G A T R G E S D A R D R A A$
SKGSLA H GEYTK GTVDDAKSD KDFVIGG DA QK DM GGRDEG







Unefo D9RAB7


UniRef90 D6THI5 UniRef90-R9AH76
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UniRef90_O42771 UniRef90 A0A023F7U3 UniRef90_C4LDP7 UniRef90_R1BBL9 UniRef90_B3QV60 UniRef90 F2NHC3 UniRef90-C5FPT0 UniRef90-E3LOA1 UniRef90-W6MSY3 UniRef90-14VJ93 UniRef90-H8WR54 UniRef90_K9P9W5 UniRef90_UPI000381B02B UniRef90-M0D418 UniRef90_UPIO004026A33 UniRef90_E2SP73 UniRef90- H2J4G2
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SVDY\KSAEQA LR
SLLA A TLLK Y K K E ELG

PAAAAKA $\square$ K E A $\square$ NS V
VRREAAK LD DD DKEV
MKATAAEMKR
PEQAAKDFQDE $\square R$
AESAALTYK
PLKTVNDFQAE $\square$
VAEKAEELQQEM FADAARQVA
PRQA\INMYNRTQED
EFASVEAFEEAV
P LGSAKMYREA
PEVEGKRYREA
GRATAEA LIKAE $\square \mathrm{N}$
PR
KFTS $\square$ DEFQRAVNE
PDQATRE $\square R R A \| D E$
PVEA $\square K Q Y Q K A$
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P VK EAERYKRYMK
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| $P$ |  |  |  |
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| $P$ |  |  |  |
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TEQFAVRAGEEARKL
AGKEAERYRKE
FAQVARAVQQQMAE
YADAARQAALETRD
PEAAAAALVSELNE
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$P$ VSA $\square R$ SVA G S $\square$ A E
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DRSTLKEAARA
VRKATEE $\square R K A \square D D$

Y A Q A A $\square \mathrm{K}$ TRDE $\square \mathrm{NRF}$

P $V$ ATATAFHHA $\square$ DA $\square$
FADASRQAVIDMKD
P VDEARK IREA 1 E
FADAARRVA
FAEAAREAVIDMKN
FAQAAR REAMK

PRHAAELINEEПRE
GQSTAQALRAE I

PAAAAREFKDK $\square$ RE $\square$
PAAAAREFKDKMR
VAEEAKK $\square$ Y D GMRR $\nabla$


## UniRef90_LOG366 UniRef90-Q25566 UniRef90 R6WLM UniRet90-C7NUU3 UniRe990_R9C401 UniRef90-E8U5Y1 UniRef90 G8JND2 UniRef90-Q5P5M2 UniRef90-LOHFH9 UniRef90-X1UQD2 UniRef90-E5WGS4 UniRef90-UPI00047B9AB5 UniRef90-UPIO003B5FE08 UniRet90-F8AJM9 UniRef90-H1LRU9 | UniRef90-R5BWG6 |
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50
E G|LISVI T A MKEAFPKKVVFADFKTADAGALEA
EMAFQA QPDE QL K ELAAKKHNFLIFEDRKLADDGQVVKQQYARGPFQ





 LGAELIAAHVHEHPGDPVILDDSKRGDDGSTARYY TEAAGRY $L G R D G R A V L E D V V D V L V I A D A K R G D L G N S A R F Y A Q S L F D D$


 T GI S GVKY I R K NYPEFII ADAKRGDIGNTSKMYARSVFDH

 $Y$ G V E G L R R Y ARDA GLLVI A D GKRNDI GSTAAFYADAFAAF
 LG WQ GMEMLA KEK G LIFV IA DIVK G D IG S TA TA Y A E G WL S F
 $F$ GERTI R GLAARRKHFVVFEDRKFGDUGNTVQQQYVGQQVR




 EGMNAVRTLRQQYPDHILVCDMKTTDGGGALAKMAFAA FGSRGVAVLARAAGALVVMDAKRGDDGSTMAAYAEAFLRK









 LGWRGYQEYAKSKGLLVIADAKRGDIDSTATAYAEAFLYG
 $\square G P A G V C E Y A Q Q Q G L Y V L G D D K R G D \square G S T A A A Y A K H F$ G D W $E G \square H G L L T L R E N H K D A I L A D T K T A D A G D V E A V I \quad A Y K G$
 LG S N GL SVFREVVDDKII I A DAKRGDISS TAE HYKKA FWD F EGMNAVKTLRHNHPEMLLVCDMKTTNG GADLARMAFEA


 Y GFQ GVVKYAQSKGLIVIADAKRNDDGSTAE GYSRAF LGD





F G I P G L V N Y C K E K GLLVV I G DVVKR G D I G S T S TA Y A N A H L GF
 EGKEKLGTLREMAP VVLDLKLADI SFTMIDNII RRL
MGAPVI KCLRKHSKAF FDLHMMVSKPEQWVDDMADA
 WD YARLNRLARRHGFLI FEDRKFGDI GNTVQLQYTAKIIDE

 YGFYGVKALAKEKGMFVITDGKRND\|GTTMEAYATAHLGF
 $F G \| P G L I A Y K K T V E Y C V I G B D K R G D I$ H GSAGFAA LL LRAS GTGVVADAKRGDI GSTMDAYANAWLGE UniRef90_R9LXR7

UniRef90 LoG366 UniRef90_Q25566
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UniRef90_R9LXR7

GADY\|T\|LGATGDAT\|SGAVVEAAKKYNRAVVVDTDGVKDR WSDLCNSHVSGGSATVKALKESLKEENDTPRGLLLIAQMS DEDFVNVNPYGGSAGVNALKLDVCKEEKKGDFVLVLTSNPS GADAI TVNPYMGRDSGEPFLAVLCRTSNPGGADLQGLEDQ GADDI TVMGTAPLDT ETCMEMARSYKKRVMDDFLNTSRE


 GAD MMTVMGFSHDSTVKQALEIANTANRRIMDDLDGVQ D GADAVTANPY LGRDSVQPFLDHADRGVVILCRTSNPGAGD GADAVTVAPYMGHDSVVTFGQQARTSNPGASDFQEACQCN



 TADABVVNADAPGATMNKADEEAHKTGIYAIMDTLNCDDP


 AAHADTLAPYMGKDSI DPFIVNMSEYPEKGCFVLCKTSNPS WAPIVNCHDFPGPAVITALSQAAQK
GADVV VVGSADDSTL $D$ DALRRSHKYGVRDMADLDSAPDP DEDFVTVNPYLGTDGVKPFVDVCKQYNKGI FVLVKTSNPS
 NEDFATVNP WTDMVTAHSLPGPGGLTALQQASRPEQAC
DEDFVTLNPYMGADSITTPGDVCKEEKKGLF LDVKTSNPS GA DWLTVVAAAHPATKAACKKVADEFNAEHPDIEDYGNWT




 DEDFVTVNPYLGSDGUTPRGDVCKEENKGLFILVKTSNPS

 DADCVTLNGYMGSDTLKPFLDACKANDKSMFVLVKTSNPG


 TADALVVSALAPDATLNKVIEEAHKTGDYVMDTLNTPDPD GADALTVNGYLGGDGGKPLVEVCQKGDKGUFVLVKTSNPS GADDLTVMGAASDATLQTTAAATAAAKKEMMIDLMEVDAT




 $G A D L L S V H G L G S G A M L A A C R E G A D Q A A E D R G N R M S Q D S D T$
$G A C C V I T H$ APRYVTVVAAGGAAMVRAAVDAADDAAVTVLTSLGGAEDA GADLVVTVLGVAGNATIVGAVKAAKAHGKGVVVDTIGAPDR DADALTVTPYLGYDGVKPFIEDCKKFGKGIFVLVKTSNRS
 WADLVNAHVVPGSGVVRGLSEVGLPLQRGC
 DADAITLGAYMGSGSLKPVVKRAAEYGAGLFVVVRSSNPD DSDALTVVPYLGYGSLTPAVADARKNGCGLFVLALTSNPE
 DEDMI TVNPYGGTDGVKPFVDVCKEEKKGUFVVVKTSNPS NVQYLTVHAAGGTKMLRQAVANKGKEMKLLAVTQEADMQA EFDAVIAHAFVGRKALLELREELNKQDKELYLVVAMSHKG GGDQFTFHLESTADPMALIRQQRAKNMKVGVAIKPNTPAE
 WS HITNVNMIPGKASVDSLAEAAARW
HEDAITVVNFLGYDGIHPFLQAAEKADKDDFVLCSTSNPS FSDAVTVSPYLGYGSLAPAVEAARAHGTGLFALADTSNPE GGDDLTVMGASSQATLDTTYQVTAKHAKQMMDDLLEVGNN GADALTVNGYLGTDGI KPLLKICEDSDKG\|FVLVKTSNPS

 VNAALFPGPAVIPALADAARRAILAHNTSMAELGPPPYFR

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UniRef90 R6M6LO UniRef90- F2L371 UniRef90-F8EAH5 UniRef90-M6VTE9 UniRef90-A9KLD9 UniRef90_BOKA34 UniRef90-D2RBF4 UniRef90_A0A016QL08 UniRef90_A6P0Z5 UniRef90_UPIO00376EB6F UniRef90-A6M2C5

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

SGDFQDQMVWGETCMGDDYSYVGAVVGATYPEMGKTLRKD LDDAKDWVALGVTAQAVYHRSRDELAGKGWTAEDVELMKQL GGEVQHAVATMLAHLAAENGSFGAVVGATLGDLSSYDLDİ
 DEHIYEKVAQCVNKWNEEYGAVGAVVGATYPEQAKVLRKG DDDFGEYLIFERVIRIDSQEWAGDMYVIGATQAPMLQQVRKD




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FMR QMRYMFE LV QE I CTTRAKNVGMVV GGLTNA SAADVLGR SADFQDLMVEDV A EKVVYE WGKVGGAVVGATGPEAAKRIREI
 S Q DIQD WI I E ETENSNEKYSNDGAVVGATHPTEMSQQRMS


G GT $\square$ Y Q HL G DLVESSWGRTYSRLGAVVGATHPEDGALL R R A
F DMMSQFI ADQLAAKKSAFSDSHGMVI GATQAEEAESVLSH
 E I GlV D A P VA DEAA R L A T LA Q GN Gli DGIVGS PMEAQAMRE L


S GELLQD QVYELMA HYVESWGAD GAVVGATYPAQAEVLRRL
 Q T LE LIE PVYERVAALAS DWGEDGLVVGATAPAELEAVRAA

SVQLQ D MVVEVMA D LVSEWGKD GAVVGATWPQELK KLRAR GILLQTARQGDDRTVKMGNGPCGAVVGATLDDADQVLERLD GGEVQQHAVAT LLSHLAAENGSFGAVVGATLGDLSSY
 S GEEF Q E LLV G E H VV A K WG E D C S E EV G A V V G A A T Y P E M M G K V L




S S QLQATVSQHLAELIELWGQDGAVVGATHPDRASDLRAR GAEVQRATATVLAHLKAENGSFGAVVGATLGRSVAGAGDD $K \square A E D Q N Y T N A \emptyset Y A L H H S V D R T \quad D D F Q P T D D V A D F K Q Q$ SGELLQDRVYATMGEMCENWGAVGSVVGATYPTQLGELRKS



UniRefi90 LoG366
UniRef90 Q25566 UniRef90-R6WLM7 UniRef90_C7NUU3 UniRef90_R9C401 UniRef90_G8JND2 UniRef90-Q5P5M2 UniRef90-LOHFH9
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MPQA $\square F \mathrm{FV} \quad \mathrm{PGYGAQGGGASDVKPCFNVVNSSRG} \mathrm{\|} \mathrm{\square FADG}$ FR DKIIISPGVGAQGAMDGDAICNADYEIIGGSIYESKD APEDPFLV PGVGAQNGDPEAAVKHGLVINSSRKVDFAGE

MPHTCFLV PGYGAQGGSAEDVAGAFDNNGFGADINASR PTSLILAPGIGAQGATMGRAAAKRTLPNVSRVAAAGP LDMGGALLAPGVGAQGATPADAA $\square P R V V P N V S R G V L R F G P$ MPNNFFLV PGYGAQGAKAEDLKDYFNIVNSSRGIIAAEA $M P K S Y I L V P G Y G A Q G G T A D S L R P Y F N I V N S S R G I I Y A D A$ RMDRFYV
WPR KVLSPGVGVQGRPCSAVKLGADAEIIGRTVTRNPS FPEMD EVVDGGVGVGAT DDACAKAGANMDVAGSSVYNAAD $N G P L L A P G L G A Q G A T P A D L P A V F G A A V V S R G V L R A P D$
$T Y F L P G Y G A Q G A G A A E L K Y C F N D \ I N S S R G 』 I$ MPYTYFLVPGYGAQGAGAAELKYCFND\|INSSRGIIAA


UniRef90 Log366 UniRef90－Q25566
UniRef90 R6WLM UniRef90 C7NUU3 UniRef90 R9C401 UniRef90－E8U5Y1 UniRef90－G8JND2 UniRef90－Q5P5M2 UniRef90－LOHFH9 UniRef90－X1UQD2 UniRef90 E5WGS4 UniRef90 UPI00047B9AB5 UniRef90－UPIOOO3B5FE08
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UniRef90－R9BUE2
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pGrVara IVNkLGD
FADASRAAVKDM
PFEN【KK【VNS $\square$ N
VRQUAEKF DEGLNN
PRDETKKFKGE
FKEAARNAADAMRD
PREAAHA $\square$ RDA $\square$ N
VTEAARK【RQSV

PSRMDRAF | NKM |
| :--- | VGEAARQAVFDMKE

 VRAAADRFAEERRAD
PARVSE
GLDFA $\square R A N Q E A E K \square$
FAEASRAAVEAM
FADASRQAVIDMRE

FQDAARAAAETMRD
YRAAAQTDRKKM
K DEKVKEFK
PEKGYAQKADEWAQ
FEKASKNIKESTN SREAARRLRDELN
VRGAADRFIEGLN

FAEAARREADRMRD PVATAQQFMEA $\square$ N
PTEVTKH【VN】N
GYQMAKNFKNA QN
ARQAAQAMKDALNQ
VAEAAKSMKQNLNQD
PFAALRTINKIIED
PGMAAARFVAGWR
YADAAKEACDDMKE
PVTETKKI E
TAAAAKQLKRR■N
S पMCAHK■QR
SRKAlREVVERLAD
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\VEAAQKFLEVI
KEEYAK
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RRRAAHEYRKQ
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UniRef90-L1MG65 UniRef90-A6LS57 UniReffo-QOYUO88 UniRef90-S3BQX6 UniRef90-R4G4P6 UniRet90-X0XJW4 UniRef90-V9XC75 UniRef90-P96076 UniRef90-A8LY20 UniRef90-U2J128 UniRef90_K2RYG3 UniRet90_F3PAR6 UniRef90-UPIO00381EAC2 UniRef90-R8W216 UniRef90-R9SHP7
UniRef90_H8LAP5 UniRef90-E8PKV7 UniRef90 H1LIZO UniRef90-Q9RSC5 UniRef90_UPI0003719EBC UniRef90-S1RQ18 UniRef90 E1RIE0
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1
 QTNLCLSADVETSAELLALVEDVGDSICVLKTHCDDVTD SNLCLSADVATARELLYFADKGGPSVVLKTHYDMVAG
$\square Q T R \square C V G \square D P R \square D A T \square D V E A T A P Y A A C I / K P Q L A F Y E A$
 QSNLLLSADVTTA

LAF KKALIDELCDLVPALKPQAAYYEM KSNLAVSVDVTTVKEVLDVVVS|VGTKVCCVKTHCDILQD LCVGLD DDKLDFNKSII DATRDIACAYKLNMAFYEV
 K $\square Q L A L D R M S U E A A A M V R T E P Y D D W I E V G T S L I K E ~$
 पQLADDHTTLDAADSTARQLHPHVDUDEAGTLLCDS

L
पQ $\square \mathrm{A} \square \mathrm{D} \mathrm{A} Q \mathrm{Y}$

DECDIVPALKPABYEN
पKSLLCVGLDTPVLEFNRSVIRATCDSAVSYKDNTAFYES P पc VGGDTYDLAGLKEFVAAFRDTVAVVKPQVAFYEA

MEA 【DQTA DDVTDSEKAGYDAKAVEAGADWELHTADYTL MMAPSULSADFARLEFEVRESVVVAPGVPAVKPQAAFFEE VEAFGQSVALVKPQVAFYEA FEFNKQlIDATWDVSACFKVQUAYYEA LSADFTDGESARABENAGAHCDCMDGNFVPNDT DVAGLEFSRTTVEALADRVAVLKPQAAFFER ILNADLSNLESQKMLDSGADHLDVMDGHFVPNDT DVDGLARFSELVEAFGDTVAVVKPQTPALIKSA LEELLEALAPRLAAAKFQLAFFEA DVHGLEFADTVVEALLGDRVAVVKPQSAFFER
RTNLCLSADVTTTARLLALAEEVGDSICLLKTHADVVSD RDFALRTVDAVAGRVAAVKPQSAFFEC MNSKLILAADFANLQRDIELINQSDAHIDMMGVFVPNIS LQVALDDDNLDAVKNIMNALLPQRERIIMAGTPLVKK ILSADFANLQRDDELVEKGGAHVDVMDGQFVPNUT
KTQVATDRKSLEEATHFVQLFDGRADIIEFGTSLIGD RTRLCVGLDYRDVAQLLDVLEASAPYAACVKPQLAFFEA MNSPLILAADFANLQKELELVNRSEADYLHFDVMDGLFTS MSK SVADFANLEKDVKMVEEFGAHDDVMDGQFVPNIT
 R LCVGDDDPVSAENKRUIDETLDVVACYKVQDAYYEA LCVGDDFPDKDFVREVVDAVESYVAVAYKPQLAYYEIV DVTGLEFALTAVEALGPRVAVLKPQSAFFER DSPSMSADFANLERDUKLVENGAHVDVMDGHFVPNDT DNPSULSADFARLEEADAVAGADWLHVDVMDNHFVPNLT $M S R V Q \nabla A \square D V V D E E R A \square R V A G A M G E G C L V V E A G T P L D K A$

REFSLRVVEALGGRAAAFKPQAAFFER


## UniRef90_G4T9V9 UniRef90-D2CPB2 UniRef90- J9MYB3 UniRef90-B9JVL3 UniRet90_C1CWV7 UniRef90-F4GOY8 UniRef90-R5HBV8 UniRef90-L71954 UniRef90_R7FE62 UniRef90 UPIO003 UniRef90_UPI0003F4A21F UniRef90-UP10003B70C44 UniRef90-M7TEQ5 UniRef90-Q1Q1G1 UniRef90- X5DLW6 UniRef90-UPI00046EB5CF UniRef90-W4V8W0 UniRef90_UPIO0047DE946 UniRef90-A8SKH2 UniRef90_H3RJE7 UniRef90_F8EXZ3 UniRef90_13IQY7 UniRef90-P44988 UniRef90_R7MJ14 UniRef90_A4SCF5 UniRef90-K0AV94 UniRef90-B1VDN2 UniRef90_UPIO0038158B1 UniRef90-B1C955 UniRef90_UPI0003EBFFC4

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UniRef90-X0XJW4 UniRef90-V9XC75 UniRef90-P96076 UniRef90-A8LY20
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 Y GWE GVRTLAEQKGMYVMTDGKRNDIGATMTAYATAHLPF
 LGADGVCRYAQEQGLYVDGDDKRADIGTSAAHYAHHLSPW YGWQGDWHYAKQKGLIVI GDVKRGDVPNTAAAYANAHIGG $\begin{array}{llll}F G S A G L A V L L R R A G T L V & A D A K R G D I G S T M A G Y A Q A W L S D \\ F G M A S V E A L K R E F P H K T: V A D M K T F I D N A K Y E F E L C Y G A ~\end{array}$
 Y GLK GLSA YKKT LE YI Sil ADDKRGDISRTAEMYAKAHFQG NGLEGLDRYLKEKGLLS GDVKRGDIASTAKEYAKAHFKF CGLPGLEAYRREQKGIVIADDKRGDDADTAKCYAKAHFEG YGYWGI WKYAKQKEGIVI GDIKRGDVPSTAEAYANAHSPG EGMRAVR LLRALYPNQVVDLKTTDAGATGA KMAFEA


 $L G M D G L N K Y I R E N D G U V I A D I K R G D I G S T A A M Y A D G H F K G$
$A F I Q K M Q A L A E K H N F L I F E D R K F A D I G N T V K H Q Y E G G L Y Q$
 -

81EAC2
$\stackrel{\rightharpoonup}{\square}$

## UniRef90 G4T9V9 UniRef90_D2CPB2 UniRef90_J9MYB3 UniRef90_B9JVL3 UniRef90_C1CWV7 UniRef90_F4G0Y8 UniRef90-R5HBV8 UniRef90_L71954 UniRef90_R7FE62 UniRef90_UPI0003F4A21F UniRef90_UPI0003B70C44 UniRef90-M7TEQ5 UniRef90_Q1Q1G1 UniRef90_X5DLW6 UniRef90_UPIO0046EB5CF UniRef90_W4V8W0 UniRef90_UPIO0047DE946 UniRef90_A8SKH2 UniRef90_H3RJE7 UniRef90_F8EXZ3 UniRef90-I3IQY7 UniRef90-I3IQY7 UniRef90-P44988 UniRef90_R7MJI4 UniRef90_A4SCF5 UniRef90_K0AV94 UniRef90_B1VDN2 UniRef90_UPI00038158B1 UniRef90_B1C955 UniRef90_UPI0003EBFFC4 UniRef90_FOYYI7 <br> 

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WA S WT NA H L L P GP A I V T A L H K A A
WA H DTNVNMVPGKA SVVTSLAAHAANRWLERYHY
GA DCLTVVNLMMPDDTLAPFVVAA QAYGK GLFVLCRTSNP G











 GADWLTVSAAAHPATKAACQKVAEEFNK QQPNLGVPKE DQ


 GAKNVTVTALCPD DTVVRETDE EGKKQGDDVTVDLFNVGDV


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 $F P S A L T V N P Y L G L D A L K P F F Q A A S R T G G G V V V L A K T S N P G$
 WAE $\square T S A H \square F P G P A V L T S L K E A A$
 GANMLTVVHYEACNHLHRSLQS I KQHKMQAGVALNPHTNVE

 $P$ GS ALTVNPY LGGDDTLTPFFQAARES QGAVFVLVKTSNPG GA N Y L





 F A D A L T A S P Y L G F G S L Q P L L D TAAAK H G C G V V FVVLA L T S S N P E



 D S D AV T L S P Y L G V G S L T P ALLELAK Q T GRGVVVLALTTSNPE

 GAGSVTFHVEAAAAPVRLAREDRALGARAAMALKPATP I E
 GAANVTFHAEAADDVAQTARSIMRAAGAVVGLDAVKPGTPDD


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

 GASSVTFHVEAAADPVGTARADRAAGARSAMALKPGTPFA
 GA D S V T T L S P Y LiG F E S


## UniRefi90 G4T9V9

 UniRef90_D2CPB2 UniRef90-J9MYB3 UniRef90_C1CWV7 UniRef90-F4GOY8 UniRef90-R5HBV8 UniRef90_L71954 UniRef90_R7FE62 UniRef90_UPI0003F4A21F UniRef90-UPIO003B70C44 UniRef90-M7TEQ5 UniRef90-Q1Q1G1 UniRef90-X5DLW6 UniRef90_UPI00046EB5CF UniRef90 ${ }^{-}$W4V8W0 UniRef90_UPIO0047DE946 UniRef90-A8SKH2 UniRef90-H3RJE7 UniRef90-F8EXZ3 UniRef90-13IQY7 UniRef90-P44988 UniRef90_R7MJI4 UniRef90-A4SCF5 UniRef90-KOAV94 UniRef90-B1VDN2 UniRef90_UPI00038158B1 UniRef90-B1C955 UniRef90_UPI0003EBFFC4 UniRef90-FOYYI7 UniRef90-UPIO0029AAEAF UniRef90-D5WP82 UniRef90 L1MG65 UniRef90-A6LS57 UniRef90-QOYU08 UniRef90-S3BQX6 UniRef90-R4G4P6 UniRef90-X0XJW4 UniRef90-V9XC75 UniRef90-P96076 UniRef90-A8LY20 UniRef90 K2RYG3 UniRef90-F3PAR6 UniRef90_UPI000381EAC2 UniRef90-R8W216 UniRef90-R9SHP7 UniRef90-H8LAP5 UniRef90-E8PKV7 UniRef90_H1LIZO UniRef90_Q9RSC5 UniRef90_UPIO003719EBC UniRef90-S1RQ18 UniRef90-E1RIE0UniRef90-Q0W644
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S GE DQDRVYE $\square M G E M C E K W G A V G A V V G A T Y P E Q L A E \square R A K$ $N D A T G Q Y T T A V Q M A R Q A G R G F V V G F D A M G N G N G Y G G D K$ ATQ QQDLQLVNGQHVYEHYGRLGAVVGATYPAQGRALRAR
 $T K K L H Q\|I A E K\| H T W T Y G Y S A D G A V V G A T Y P E D V L I L R K$
$G P Q F Q A Q T V V D W A A E H N A V H P G G G N V G V V V G A T V A E P P D L$ QQREQARHHGADHCLHV
S GQLQDS IYEVVAEYVESWGAVGAVVGATYPNQAK LRRK


## L

## L

 MRDFEYQELASGGRLYHEYGAFGVVVGCTEAEESETDRQT
 AKD Q ASSVQQAVCDRVAELNARPGNVGVVVGATVDDPPV

 VESARKYAAMGADYDMVHFGVD QKRENPDAAPDEMLKKV




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

$D Q A V A A G V V E G V T A S N A P A G S \square G L V V G A T V G E A V S H D E D L$ LLRDCDQDIDMVCLMSVNPGFGGQHFIERTFEKVKQLRRM SGEFQNRDMERVAEQFAKWGQVGAVVGATYPEEQKDIRSM
 $S G F L Q D L L V E G R P L Y L H E W S R V G M V V G A T Y P E V V L T V R E K$
$S E D Q D S Q U D N L S S A I Y L L H H N N D L G V P D Q A T S M A S K F K E A$ QQDLQER AVEIARLGDEEGLVGAVVGATHPGDLATFRALL


 AAD Y HVVGDK MKMGKEYHPLGGVIGCTHVEEGKELRKR AASFQDHRASFANQADGTYGAI GAVVGATYPQELADLRQR AASFQDHRASFANQADGTYGALGAVVGATYPQELADLRQR
$S G D L Q D V V A E Q V A Q L V H N Y A L I G A V V G A T Y P E E Q Q V F R E A$
$A E L Q Q K T F S E T G R T L Y R E V K N V G L V V G A T H P K E L L E D R K A ~$ $A E L Q Q K T F S E T G R T V Y R E V K N V G L V V G A T H P K E L L E D R K A$
$G P E V Q A V V L D H L A E V N A D A R P L G S I G A V V G A T V G E T G E D F$
 PYLDVLK K YDTLLVMSVEPGFGGQSFMPEVLDKVRTARR L

 GASDAQHARGENASCDQLHLGPAGUVIGATVGDAVQRLGDLC



 GYLDVLEDFDTLLVMTVEPGFGGQAFMPEVLDKVRRAREL
 AKDFEVLPVDGEEFFYKGFGPVGLVVGATHSEEVEKDRKR EI DDLLPYVDMVLVMSVEPGFGGQKFIESTLENVKGLKKE RLSDDNY RKALLNISLKNSKVIGTVAQRKVDNRLLLFTPG LEVLRSLAVLPDVVEMHRADDQEAERHNWEADAEVKRMAA AEDIEYDEAGHGKKVYDVVGS IGGGVVGCTHQEEAKEMRDK




UniRef90 G4T9V9 UniRef90-D2CPB2 UniRef90-_J9MYB3
UniRef90
BgJVL3 UniRef90-C1CWV7 UniRef90-F4GOY8 UniRef90-R5HBV8 UniRef90_L71954 UniRef90-R7FE62 UniRef90-UPI0003F4A21F UniRef90-UPIO003B70C44 UniRef90-M7TEQ5 UniRef90-Q1Q1G1 UniRef90-×5DLW6 UniRef90-UPIO0046EB5CF UniRef90_W4V8W0 UniRef90_UPIO0047DE946 UniRet90-A8SKH2 UniRef90-H3RJE7 UniRef90-F8EXZ3 UniRef90-131QY7
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| :--- |
| UniRefo - 82 H |
| 128 | UniRef90-K2RYG3 UniRef90-F3PAR6 UniRef90-UP1000381EAC2 UniRet90-R8W216 UniRef90-R9SHP7 UniRef90-H8LAP5

UniRet90 E8PKV7 UniRef90-H1LIZ0 UniRef90-Q9RSC5 UniRef90-UPIOOO3719EBC UniRef90-S1RQ18 UniRef90 E1RIE0
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W7SVC1 UniRef90-F8K501 UniRef90-UPIOOO36028EB UniRef90-A1RX51 UniRef90-D9QPJo UniRef90 U1SJUO UniRef90_UPIOOO36B7770 UniRef90_UPIO003ACF95B UniRef90 ${ }^{-}$A0A024JP52 UniRef90-UPIOOOO370E770 UniRef90-B6FYZ7 UniRef90-A0A022L5P2 UniRef90_UPI0003B6791B UniRef90_UPIOOO479B5C5
UniRet90_UPIOOO255EB16 UniRef90-JoDGM8 UniRef90-C7RH50 UniRef90-UP100037B3C87 UniRef90-R6PSR7 UniRef90-G8LQV2 UniRef90-G7WJX1 UniRef90-H2YTC2 UniRef90-Q0TRBO UniRef90 UPIIO003B40F05 UniRef90-C7MSJ7
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 M GKYGVVVVGGLTAK SVLGLLDDPDSDYVVGGADTKSHE

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LSEN\squarePYSFRG
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$M P H V P L P V P G Y G S Q G G G A S D V V A A F A N V I N N S R G I N F A F K$

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$Y S N M F F L I P G Y G A Q G G K A E D V A L Y G G V V N S S R G I L L A Y K$
$\Pi N P E L V I A D G G I T E D N A Q E V V S A G A D A L I A G T A F F K A A N$
$V D S G E L R V L V E I I N A D T A E Q A A A A G V D C F V A G S A V Y G A D D$
LAVNGPLLAPGIGAQGATPADLPAVFGPAVVSRGVLRHPD
YPNLNVEVDGGVGP NSTVECAKAGANMVVSGTAVTAADD
SDLHGPILMPGVGAQGGTADDVRRRAVVPNVGRDVLRAGP
APHAP LLLPGVGAQGGR PLKGEGLLFAASRALYY
AAVAPGLLAPGLGAQGASAADSALDAVLPAYSREVLAAGP
AAVNGPLLAPGLGAQGASAADSALPAVLPAYSREVGAAGP

ПHANGP LLAPGVGAQGESVFGAARRHVLASTSRGVLKA II EEENATTKDEVGVTDKNAEKVEDGADVLVAGSYVFKAEN IPKAYFLV PGYGAQGATAKDIANAFNIVNSSRGI MCAAD MDGGLVAVAGGUTPEKVEEATSKGADIVIAGRYIDGSKD NNWTYAIEVDGGIVPETAKDCKDAGADVFVAGSYIYGAEN APRAPFLLPG GAQG
HPNVRHIIAGG\|DLKAAEALKEQG\|VEVIVVGGSDTGDPN M
LISTALIEDDGGVGEQ NAQALVKAGAD LVVAGNSVFRSAD NNDDFDI QVDGGIVPETAKLCKEAGADVFVAGSYIYNATD V SLPI GAAGGLDAAGAAEAVMAGADILLVGSSITKAAD AGGKKLLVAVAGGVKVENVETAKGGADILVVGRSITNAKD FNSMFFLI PGYGAQGGKAEDVAMYGGVVNSSRGILLATD SNFSGPILAPGLGAQGATPGDLADTFLLPNSSRGVLGAGP MPKTPLLIPGYGAQGGGAGDVAQGLGAVNSSRGINFA MPYSLFLVPGYGTGGAKGKDITNAFNLISASRSIIFAKD HPDRIFLTPGYGAQGASLEEVI
ARVNGPLLAPGLGAQGATADDLRRVFGAAVTSRELLSAGP APKNLIIQVDGGINAETARDCTCYGANSLVAGNYIYKSDD VDTGHLTLVVE DGGGNDDTTEQADCFVAGSAVYGAKD IAKDLWLQVDGGVSERTIERCAEAGADVFVAGSAVYGADD
 PADKGAFLAPGVGAQGAGPVQVRQVFDAVLASRALGAGP
$\square K P W W Q V D G G S A E T P E R$ CADAGADVEVAGSAVYGADD YPDLDIQVDGGLAPDNI DDAAAA GANVIVAGTSVYKAES 1
1
$H D K H W G L Q D G G G V S A S T V E R C A E A G A D V F V A G S A V Y G A D D$
$F$
$F$ VNSGFIE DGGMGADTIEQA AEAGVDVFVAGSAMYSAD VESGHLTLFVGGIAADTIEQAAEAGADVFVAGSAVYGADD
 YDKMFFLIPGFGAQKADSMNVYKNGGVVNSSRAILK LNDAFD QVDGGDTEQNAQQVTAAGANVLVAGSAIVNSAD DHFSDSIKNYKGNNYHPNQAFIKKKCDFIIVGKA YQSDN SSDRKVLVAVAGGDRVDTVASALSSADVVVTGRAITGSKD
 $V R R D \| W V Q V D G G V A Q D T \square A R C A E A G A D V F V A G S A V Y G A D D$ DAVNGPVLAPGGGAQGATAEDLRAVFGEGVSSRDVLRHGP


UniRef90 G4T9V9 UniRef90－D2CPB2 UniRef90－D9MYB3 UniRef90 ${ }^{-} 1$ CWV7 UniRef90－F4GOY8 UniRet90－R5HBV8 UniRef90－L71954
UniRef90－R7FE62 UniRef90＿UPI0003F4A21F UniRef90 UPI0003B70C44 UniRef90 M7TEQ5 UniRef90－Q1Q1G1 1 1
UniRef90 $\times 5 D L W 6$ UniRef90 UPI00046EB5CF UniRef90 ${ }^{-}$W4V8W0 UniRef90＿UPIO0047DE946 UniRef90－A8SKH2 UniRef90＿H3RJE7 UniRef90－F8EXZZ
UniRef90
I31QY7
UniRef90 ${ }^{-}$P44988
UniRef90 ${ }^{-R 7 M J 14}$
UniRef90－A4SCF5
UniRef90－KOAV94 UniRef90 UP100038158B1
UniRef90－B1C955
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UniRef90 ${ }^{-F O Y Y 17}$
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UniRef90－D5WP82
UniRef90－L1MG65
UniRef90－A6LS57
UniRef90－Q0Y Y 08
UiRe90－8CXR
UniRef90－R4G4P6
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UniRef90 V9XC75
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UniRef90＿SIRQ18
UniRef90 E1RIE0
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UniRef90－FOSLYG
UniRef9－KILQ72
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dVGDLRrave
FEESARNAS $\square$ TMRD
G $\square$ ACATAFHRA $\square$
TREAIIKMNRELEED
GREDAEQLKKK】GQF
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VALIEARRDHEAVRKV
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KREEA $\square$ KMRDA $\square$ RE
PAETAAKlRA
PAQAVESLRAQ
PRDSAARFADEVR
PAEVIRKLRDSVNGV
AKKATQQUKKAMR
SVADLRA
DVAA LRAAADR

PKQTDTE $\square K K M \square N$
FMEAARAEATRMRD
PRRAADDFLA
PVGQDERLKEAL
PKEQLERF पH【IK
P TEATRRLKAS VKASIDALKEADE

ПEGESRRFDQAMK FADSAREMRDEER R

KSETFEQVQLS■
SVRALQDAAD
DKSAVKSLLA
PAEAVRKLRA
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SYLIA K NiEEWQTI
VVERTKEFL
YQEAAQAAVEYMRE SVAGLRD
paEavrklraqaee
PEAAIKTLRASVN
PAEAVRRLRAQAQAV TDAAVRELRESAK LMETISARAAEYREV pabevek LRDQar P
$M$ VKTTKVLKAE
DPSEIKKFKEDM
PKIVAENYRKA
VRDAAE QFLAELKK
PRKVITDLRNDI
FAECARKMRDSLRE VAGAVADLRR
TPEALRSAVEAARE
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UniRef90-P24220
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UniRef90-UP1000371B2A9
UniRef90 D3TNS
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UniRef90-G8ZZD1
UniRef90-D2NT52
UniRef90 R 5 ACI5
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UniRef90_R7K875
UniRef90_K9WV84

 LAADFANLESEVKMVNSSDAHYDDVMDGVFVPNDS TIIAPSTLAADFANANFCDACVKAATGRVPADKPQAAFFEM M【APS!LSADFARGACTQLIEKTSDFVCCFKLNVAFFEQ MARGLEAGTVVEALGDRVAVVKPQSAFFER

MLS SDFANLAEAQRMLDCGADHMDIMDGHFVPNLT ISPSMLAADFERLGDEDACVEKGGAHVDVMDGUFVPNDS REFSQRCVEAFAGHVALVKPQVAFFER MNK IIDAASFANDEST TKEDEEAGAHLDIMDGSFVPQ ADFSKRSMEAFGDLVPAlKPQVAFFEE MAK IILSADFSRLDEVKKVEDAGADHI DVMDGHFVPNIT QVALD TSLPKAIEEAEAVEAGIHVLEVGTPLIKA DSPSTLSADFANEEFNKMUIDKTLDVVPDYKLQIAYYEAA
 $R \square C V G \square D \square P H T A F S L R V V V E A L G G R V A V E K P Q S A F Y E R$ VLGGDLPHTAAGLRCVAAFSDTVAVVKPQVAFYEA
1 LAADFSR VEFNKGIIDATKDVVGIYKPQMAFYES
 ILASDFTRDEEDTVATADAAHVDVMDNHFVPNEAT RDFERVADAAGSSVAVVKPQSAFFER MNSKLILAADFGNLQRDVEMVNNSDAHVDVMDGHFVPNVS 1 CADLSCLDECRRMIHSGADHLDVMDGHFVPNLT

 MKHLILAADFSKMESQDE【INRSEAHLDUMDGVFVPNIS $M A K \square Q V A \square D L L T X A E A \square A \square A A K \square A P Y \prod D \square E \square G T P L I K N$

 TNPSILSADFANLEAELADSNADAAHVDVMDNHFVPNLT GASDFSKRFNQEIIDADCDIVPAIKPQAAYYEM
 !LAADFAC■ADEVRALEALASRHLAAVKFQLAFFEA !LSADFAHLARDLDRTSNADFHVDVMDGHFTGNLT ILSADFARLDEVEAVLEAGADHVDVMDGRFVPNTT LGVVGALGGRVGAFKPQSAFFER ILSTDFAHLSRTLAAVNESKAHVDVMDGVFVPNDS VIDGLEQFSEIVVEAFVGQVALVKPQVAFFEA ILSADFAKLGTVIQQLDGVAHHVDIMDGHFVPNLT PLCVGDDHPALLEALTVVEAMAGAAAILKPQVALYER ILAADFSKLGSDVKEVENGGAHVDVMDGHFVPNGS ILAADYANFASELKRDEETDAHMDMDGQFVPNIS MMKPS LSADFANLAQDVQTVELGGAHVDVMDGQFVPNI T MAPSILSADFSRLAEQVKLVEEAGAHVDIMDGHFVPNLT ILAADFAKLGEEVRNVTAAGAHLDVMDGHFVPNEA
 LKSLLCVGLD PDFDFCKEIINATASYAVAYKPNIAFFEV 1 IAPS!LSADFARLGEEDREAEKAGAHDDAMDGQFVPNLT
 $\square 1$ APSILASDFANLGECHKVINAGADHIDVMDGHFVPNAT PLCVGIDDEDSAAGLAAFTEAVAPFAAALKPQVALEER LAADFSALAEVKRVREAELLH LS A DFARGGEEVRMVEAAGAHVDVMDGHFVPNLT LSADFANLERDVKVEAGGAHVDVMDGQFVPNDT A WDLPATADGLACVQAYAGFAVVKPQVAFFEA LADDVDGLRFSLTVLEAVAGRVAAVKPQAAFFER ILNADLSQLEESQKLLEDNGAHLDDMDGTFVPNLT MTKIILSADFANLQDCIRLLQEGADHIDVMDGHFVPNIS LSADFVNLENELNA RSADDHVDVMDHHFVPNLT ILSGDFANMEKSCKNAKQWGADVLCDVMDGVFIT




UniRef90 UPIO003764270 UniRef90-A3XJF9 UniRefefo-B30LY8 UniRef90_UPI00035D987D UniRef90-U674699 UniRef90_W7IVT5 UniRef90- A9PIC8 UniRef9-AMPIC8 UniRef90 UPIOOO36F6D55 UniRef90-A0A059FNL2 UniRef90_S9VJ70 UniRef90-D8IAZ5 UniRef90_UPIO00299F383 UniRef90-A4FBG6 UniRef90_D9S318 UniRet90_Q8TYY8 UniRef90-I3DVJo UniRef90-M1Z5BO UniRef90-E6S885 UniRef90-Q9WYG7
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UniRef90 F6DM80 UniRef90-F6DM80
UniRef90 UPIOOO3 UniRef90-D4LE72 UniRef90-JOQSE5 UniRef90-B7A5Z3 UniRef90-S2WD10 UniRef90-R6ZNV9 UniRef90-UPI0003F80646 UniRef90-N6X2A9 UniRef90-UPIOOO40C3C20 UniRef90-E4WH17 UniRef90-D3R2M4 UniRef90 E1VWC3 UniRef90-UPloo037E236C UniRef90-M5UH49 UniRef90-G5K4×3 UniRef90-J3JCF7 UniRefofo-H5XYH6 UniRef90_L8DIK2 UniRef90_JTOGS
UniRef90 G9WGC UniRef90-UPIooo367E281 UniRef90_U5WX24 UniRef90-M31GV7 UniRef90-UPIO00371B2A9 UniRef90-D3TNSO UniRef90-L7WAX4 UniRef90-F7YWH4 UniRef 90 -G8ZZD1 UniRef90-D2NT52 UniRef90 R5ACI5
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UniRef90- UPIooot7AA18B UniRef90-D1PJM9 UniRef90-JoDGH4 UniRef90_R7K875

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2C3C20
7E236C TNEKGLTVDGGVTPDNAAQLI AA GATILVAGSAVVKAPD THNASTRIEDDGGVTDANAQELINCADVLVAGSYIFKASD MNPDMVIAVDGGGTEENAAQVVEAGADSLIAGTAFFRAAD LHQSPALI EVDGGVDNTITALAEAGADVFVAGTSVFKADD F PDLWFLSPGDGAQGGDLEATDKAGLIVNVGRAVSEAE

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SKLINGPDVAGLGAQGN






K
AARAGVPVS IAAGGVNNNVAEVIKAGADVAVAGAADYGAED
LV

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$V$ E G S G $V V \underset{V}{V} V A D Q V D G G V T A E N D A R A N V V V A G S S V V Y G K P S$
IGQRP IVDLEVDGGITN DTMGGVTKAGANVVVASRA M CA A E










SA Y S GPVLAP GLGAQ GATVADDAD DF LLPNSSRGVLDAAGP
1 GDRPIEE EVD GGVT DTAPAVAKAGGNVLVAGSAIVFKGS




MANAl HSLR
PVNTIENLKKLI
PMAAARKLK
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PAEA $\square$ RA $L K E$
PGRAVRA LREQ
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PKEAAK
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PAAAVEA 1 R SAAE
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$R G \square S A S D Y R Q L I$
LAAAlTDLRE
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PAAAAKALREA】
PNKA TQELRA
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YTAAVSELSDAM
LVVSQQTARTALDN
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SVTALRDAARRLRD
VETYRQADSALRN
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PATAVEA LRQRAR
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$R$ VAELRAAAERMRDV
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FGFPVLKSIRKATAKCLDVHLMIVEPERYVERFAQA
$1 G A P V V G A L R Q V T E L P L D V H L M I E N P D L Y I D D F A K A$


F GPSLIKQLRKDTKDPFDDHLMIMKPENYDEEFKKA
 $H G S R G V L A A A R A A G T L V V M D A K R G D D G S T M A A Y A D A Y D R D D$
$F G P P V V A K I R R H V D K P T R G T F D C H M M I A E P K K W V K E F K K A$
 HGAAGIAVLLRDAGALSLLDVKRGDIGSTMDAYAAAYLAD
r
$\stackrel{\rightharpoonup}{\mathrm{L}}$



 F G DP VVRDIRKHTKDT F DVVHLMEEPSKYVEQFVK S
FGHPVVKCLRPKDPN VCFEMHMMVQDPEKWVDPVADA
FGMPVIQAVRKVTEKPLDVHLMDEEPIRYLQEFKDA




 FGHPVVECLRKNLGPEPFFD MHMMVSRPEQWVQPMAAA FGAPVI KCLHKKLPDAFLD DVVHDMVTNPKDYVAPMKDA $\square G G \square P V V K S U R K V T K D P G D V H D M D D N P K K Y V E D F A S A$
FGMPVVKSI RKESSLY FDVHMMVKDPERYVEEFQSC FGSAGFAALCQAGGALVIADGKRGDIGSTMAAYARAWLDP LGMPVVESLAKA GVAQPLDCHLMIEDPDRWAPGYVEA FGPMVI EFVKKVTTKVCDVHLMDEEPSRYFEQFKKT HGSRGLAVLEDAAGALVLLDAKRGDDGSTMDAYADVLRPD L GPP VVQSLRRHTPAFLDC M L MVA QPARWVADFAAA FGPQVVKALRPYSTGPFDVHLMDQPADPYDEAFAKA FGFPVI DAVAKDCKK ■GPLVVEALRPVTAKPLDVHLMIVEPENYVADFAKA
FGAPII KAIRDRTDKVFDCHLMIAPADPYLAAAAFADA YGADGLWWYAMSKGLLVITDAKRGDGGDTAQAYADGHSSV HGSAGVAALCRQAGVPAIADVKRGDIGSTMDGYADAYDPL HGSAGMAVLEEDQSVLTVADAKRGDVGSTMAAYADAWLRD YGSAGI AVLERQAGALLLLDVKRGDI GSTMAAYTDAYLDAD YGSAGYAVLLRAAGVLVLADAKRGDIGTTMAAYATAWAGD


 $M G P P I I D S L R K E \emptyset P E T K A S F F D C H M M V S E P E K W V P E D A K A$
$Y G S A G F A V L L R D A G V L V L A D A K R G D I G S T M A A Y A Q A W A G D$ IG DNGVKAI RPHTEKVLLADAKRHDMVENPDRQVEAFAKA IGPDIVDAIRPYTQKPLDVHLDIVEPEKYVADFAKA
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UniRef90 C2CMP2 UniRef90-TOVH99 Unineftoo-AOQ114 UniRef90-FOK5X7 UniRef90-V4CL92 UniRef90-RKM
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 AGTLQHAVVD
$E Q L L P Y L E A D M V L I M S V E P G F G G Q A F Q P S T M D K V R F L R S R$



 GHTVQ
GATVQQAAVVNRSSNPDEPGYVGVVVGATVFEAPDDV $M \square K P V L Y M V D Q V L V M T V N P G F G G Q K F I P E T \| S K D K E L N R L$






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lupas_14
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DRDAARRTRDEIE

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