

QUERY
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UniRef90_A4BLN4 UniRef90_A8ZW58 UniRef90_E5WT22 UniRef90_C5VWY6


GRVRKAERWGPRTLDLDTMLFGNEVIDTERLTVPHYDMKN GRI RKDERWGPRTLDLDI LLEGQQI I DTPRLTVPHYDMHR

 GR V $\operatorname{RRK}$ K E R W GP R T L D L
 GRVRKDERWGPRTLDLDI LLEGKRRIDEPRLQVPHYHMHA


 G R V $V$ R K A E R W W P R T L


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## UniRef90_B0S108

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


| UniRet9 |  |
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| UniRei90-UP1000377A338 | - |
| UniRef90 ${ }^{-}$WC | RAFVLAPLAEIAPLLRIPGHGNVGDLLLRCADQQDEK |
| Unireiteo-R91 | RAFV |
| Uniferepo - 14.075 |  |
| UniRefe90-A8F946 |  |
| Unireielo-G1 $\times$ SC1 |  |
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| UiRetio-UP100047CE425 | RAFVIVPLHEVNPNLYLSNKEQTVEODYGEDKEGVKIDW |
| UniRe90 |  |
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| Uniret90 | RAFVLVPLSDIVPEGEISGLYTVHSSLSVLDKDGIQLW |
| Unireefo-E6Z | RaF |
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| UniRef90 | RDFVLKPLIDI DPDFVHPINKSLRDIYEDGKERSV |
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| UniRefopo-R71394 |  |
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| UniRef90-UP10002F16\% | RAFVVVPLLD ASKKKCPYSEKLIOAEAALLEKKGVKKW |
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| UniRefo-A0AO2X4B8 | GNCRSDELLKK ${ }^{\text {G }}$ |
| UniReifo-UPIooout8219F | v |
| UniReforo-J4G | REFVLRPLNDMVPYVHPKGKS RQLETELSCEQ |
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|  | RAF VLLPLAEIAPALALPGRGAVADWLPGVADQTVER |
| Unifer90-RNWG4 |  |
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| UniRef90_J0X1C6 | $\stackrel{\text { Ra }}{ }$ |
| Reito-M5GBE0 | Re |
| UniRef90- UPI00034AABE6 <br> R | Ra |
| Unireet90 | R |
| Uniref90 UPIOOO371DFCD | RAFV |
| Refi90-F32 |  |
| UniRer90-088 |  |
| Unireeto-Coilab | RCFVLKPLCDIASGVUPTEKTMEQLLLQTENN |
| Rei90-UP1000408F790 | REFVLKPLSEI CGNKVHPGKKRVFRLLEDIEKE EOMK |
| Refi90- पPlooontD1A3A | REFVLKPA ${ }^{\text {a }}$ |
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| CB6 | RGFVMMPLADFAPELLV HGAPVREWLAKAdVQGDE |
|  | AKQLL |
|  | TO HL |




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UniRef90 W7CX24

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KR
GR
A
G GREKPSDRWG
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 AR ERGEPGGPRII DLDLLLFGELVQTOGFLLDV GRTAKSSDYSDRIMDVDLELYDALIMETPQLVLP GRTRDCKKFSSRTLDLDLILYGDQVLQEGKLIALPKKAMLE GRVRK EKWEARPLDLDILTYGDLHSDDVRLVLPHPRAHE GRRRIDDK GPRTDDDI LYNQEHIQKPRLEIPHKLMLE GR VREEHWGDRTLDLDLI DVAGVELADERLVLPHPRAWQ GR ERGERWGPRTLDLDVI DYGRRTI AKDRLELPHPRAKD UniRef90G6XFJ3




100
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120

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UniRef90_W7QC13
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UniRef90-D2NQR5 UniRef90-D2NQR5

UniRef90 S2KP73

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H D L A $|V| D|L| L V|D M E G V T S D E P N C S| V \mid P W P S A H S$


 GRQVR ERWGPRE:DIDILMMQGVDIDTPTLTIPHPRLAQ


 GR RKTDRWGPRVIDIDILLFCRKI I NQTGLTVPHKEIQN LHRVKKFANGPRSIDLDI I LYDNLIVNTPBLNIPH DRMLE
 HR TRTQRWGPRTLDVDIVVYGDLRRDEPDLTVPHLLRAGT GREENGLRYGPRPLDLDILFYGKHKI ISDKLIIPHERDWE



 HRVRK RHWGERTLDLDLLLYGDLE I ATERLTIPHASLHE

 GRRKLI DK GPRNI DLDI L L Y N NERV SHPRLNI PHKL ML E
 GREERSVVPN A A R T L D D L




 GRNDPPEQRYGPRCIDLDLLLYEQETYNDKKLCLPHPRMLQ




 GRDRNGVTNGPRTLDVDLLLYDGEMLDTAEL KLPHPRMHE AR R A RTV R WG P R T L DVV DVI A L G T L R S D D P E I LI P H P R A H L GRRRR G V P P K F S P R T L D D L D D L



 GRRKK Li ID GR I I R R E E K W G P R T L









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 GRQRRPY R HAPRRPL D L D I L WF G D R VI A T P G L A V P H P R MA G
 H R V R





 HR ERLVRWGPRTLDI D
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| UniRef90_Q2JHT9 | R A FVLAPL GEI APDWRHPTGVGVKEALISLDQS WLE R |
| UniRef90_K7ST86 | R A FVLEPLAEIAPE RLIGGRRVADALAVLPPR |
| UniRef90_G3ANI5 | R T FVVLQPLCELLPDQ |
| UniRef90-A0A059DND4 | R RFVLDPLS |
| UniRef90-B2IXU6 | R A FVLVPL A EII A P D W I E PVGCVI K ELL L K EV D C S DV |
| UniRef90-H0C020 | RAFVLERPLADLAPERVEEAA WLQAVASQDI QR |
| UniRef90-UPI00047666DE |  |
| UniRef90-L0A4L2 | RAFVL APLAEIAPSWSHPLGTSVRVALGRLDAS GVK |
| UniRef90-B1GZJ7 |  |
| UniRef90_12JR98 | R TFVMLPLCELVPD MLHPVTEPLHSHLQQL |
| UniRef90_C4KAD7 | FALLPL A El DPAASIP G |
| UniRef90-W5VYV5 | R A TVLVPWLDVEPEAVLP G H GPVRAVLAGLGTE GV V R |
| UniRef90_UPI0003662364 | RAFVLVPWALMDPGATL E GRSVAELARRAED |
| UniRef90_Q1ENB6 | R P FVLAPLVDL |
| UniRef90-B2KCS1 | R NFVLGPLYEI APKAKHPLLES |
| UniRef90-K9XQ15 |  |
| UniRef90_UPI00034CCAF3 | R A FVLVPLAEI AS D WVEPS GRRI K E L V K DVDCTEVEL |
| UniRef90-Q2W4X2 | RHFAL APLAEIA GEVRRHPTGVSILLALLQ G |
| UniRef90_UPI0002559D4C |  |
| UniRef90_D8KBU4 | R A FVVYPLAEI AP H TVVVPGRGRVVALA H C C S P G GLQ |
| UniRef90-M4D3V3 | R S FVLAPLVDLLGTAVVPGGGI HQAWERLGGESL |
| UniRef90-F8NSG5 |  |
| UniRef90-Q1QEJ5 |  |
| UniRef90_B6QD40 | REFVL RPLCQLIP HERVPLLGTYLSAL |
| UniRef90_UPI000440D70D |  |
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| UniRef90_N1PD29 | REFVLRPLCE Y F V H P Q T S T A E H |
| UniRef90_W6SPW5 | R A FVLVPLAEDAPEWIDP ITSKK\A QLLETIDDQS GVQK |
| UniRef90_UPI00036D687B |  |
| UniRef90-R1CY03 | RRFVLEPLAEI D P A A R H |
| UniRef90-R6XBV6 | R E F V M V P L K E |
| UniRef90-UPI000370F655 |  |
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| UniRef90_S4EJX5 | R S FVLVPLRDVY |
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| UniRef90-UPI0003B3A8AE | R AFVLVPWLEADPDGELAGHGTLVDLVAGLDTS GVTR |
| UniRef90_UPI0003FB1452 | R AFVLVPWSLMDPNAVL K Q Q Q A DLARLAPDR G |
| UniRef90_UPI00037B6B3B | RAFVLVPWLDADPRATLRVSRPVADLVADLDRSGVRRW |
| UniRef90-F3QVC1 | RS FVVMEPLAEVAPKVVHPVLKT F R E L L A A L A D |
| UniRef90-G2PJZ1 |  |
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| UniRef90-I8QRV9 | $V \mathrm{C} V \mathrm{P}$ WLD V D P E A TLP G H G RVA DLVAR M T D A G |
| UniRef90-W5YNX1 | NAFVLLPLAEI APTAVHPVGERYQALVWQAYDRDQ K L W W |
| UniRef90_S3YDT1 | R AFVL APMLDINPEWSFPDGRQASDLVKVAP |
| UniRef90_UPI0003FDAC8C | R R FVL R P L A DIA P Q F Y H P I N K D T R NLL Q |
| UniRef90-F8EK20 | RRFTLVPLAEIA P D F M HPVHKTNQQLLCECTD |
| UniRef90-UPI000374DCB2 | RAFVLIP WLEVEP D A AL EGEAVAGIVEKLGA Q GVR R |
| UniRef90_UPI00037394C3 | RAFVL APWAQMDPDARLL GERLVRELAAEASD |
| UniRef90_K9UED0 |  |
| UniRef90-B6HW30 | R DFVL R PLSQLMPNECPP D K T Y S T HL K A |
| UniRef90_UPI00038296D2 | R DFVLAPWLDLDP GAVLM G H GRVADLLARI G D |
| UniRef90-B7K4N1 |  |
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| UniRef90_A4SZR5 |  |
| UniRef90_UPI0003B36DA9 |  |
| UniRef90-N0E1U7 | R GFVLVPWLDVDP D A RLR V G E AVA D RLD A V E T S GVR |
| UniRef90_UPI00037DA48C | R DFVLKP L L El NPNIVF |
| UniRef90_Q3Z650 | R AFVMLPLVELSAADFIYPG |
| UniRef90_G0EVS2 |  |
| UniRef90_U9UTP9 | F VL RPL CDI EK GFEH |
| UniRef90_K8CJI0 |  |
| UniRef90-E3EQD4 | $V L$ A PWLALDPA A R LP HGGEIA DLLHEADREDV HR |
| UniRef90-A9S7G1 |  |
| UniRef90-X0QJL3 | R NFVVL P L REL AS N L T $\square$ A G K S $\square$ G D Y S Q S R D W |
| UniRef90-W7QC13 | HAFVLQPLAELLPEVRHPDGRTYGELWASFDAPEQRLW |
| UniRef90-D5BR84 |  |
| UniRef90_UPI000373F6EF | RAFVLVPLA DVCP S S A TKELLAAVA DQPI ER |
| UniRef90_UPI000409B878 | R NFMLVPPLRELAPEDT |
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| UniRef90-A4SCZ6 |  |
| UniRef90-L1MJJ5 | R DFVL R P L VE EDPDGEYA GGGT F R Q L L D K L P P |
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| UniRef90_R7PA07 | $R$ L F V L Q P L Q |
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| UniRef90_UPI00047DA230 | R EFVLAPWLAVDPDATLPGLGRVDALLARL |
| UniRef90-A0A024H7H2 |  |
| UniRef90-H0QJJ1 | $V L F P W A Q M D P S A T L T M G Q P V G E L L R A A D F P D L K$ |
| UniRef90-H1LG97 | R R F V L IP I K E L |
| UniRef90_R2SGG9 |  |
| UniRef90-FOWF33 | R A FVLAPFCDIAPEYQHPSLQ S I Q KLYD DLK TE |
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RTAlLTPHEV ${ }^{70}$
${ }^{70} \mathrm{~L} A$
ATKQVEKE ${ }^{80}$



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 RAFVSIGSNQ NAARQIATALRRLEQTFGAVGQVS TVYFSLGANLGDSFNNLRQALQLLQKSRKIVAPYRISS TRAWUSAGSNV RAIILTGGNVGDVKTRLQNAQRLI SQS
RAIILTGGNVGDVKTRLQNAQRLINQHAGPVMRCSHRY RAVVAl GSNQGDRVDLFRRALRLLNA AGLVVERHSSLY VQAFVAI GANLGDARAAVTAAMDAI GTHERTVVTAR RSYIGLGSNLGDSQQILSEAVAKLATLGAVQV
N
VFVSIGSNI NRYQSVSASLDRLRLSFGELLT SR TRVVLI GGNLYDRMALIDQCRKLLADFLGPASKATA AVY GKGAVRAISPVY VRALALGSN VRAVLSIGSNVGDRLAHLQSVVDAL VYI AFGSNTGNQVQNITSAI DALNSLESTQVVGVSPVY VFLGLGSNTQRYQHMVKALDALAELF RAYVGLGANLGDPYDSLRRAAAALRARAGVSGWAASPPYY RAAI ALGANLGERFAVLTRAVRSLHRADGDEVKAISSWY RVYLSHGSN1HPRVKNUEAALADLRALIPTVQVVAVSNWY
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## \section*{}

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 AR VRE QRWGMRTLDLDLLDHGGAVLPDGQLILPBPRDQD GRYAPDRKGGP




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RAFVLVPWSQLDPQATLEGRTVAKLAAAQDVDGTNDW
RVFVLVPLQDIAPRWRHPVQKTAAEMLAE LPPEEV
NAFVLWPLALLAPDVMHPTGRSFAELWRESSDQQ QLW
HAFVLRPLADLAPDLEHPVKQTMAVLWAGFDD
RPFALLPLLEVWPQLR
RRFVLDPLLQLNPEIEDPGLGPAKNHL
RAFVLFPLAQSPDWRHPSGMS $\square W E A$ AAR LPSDD
RDFVVIPLMDLNPNLQ QQGHR
$\underset{R}{R \square F F V L D P D V E \square A P D Q Y H P \square G K T \square Q E \square R Q E \square ~}$
NAFVLWPMAEVAPDLLHPDARSYQA LWDEYDKTEQK $\square W$
RAFVLRPLQELAPALQLRQGTLPVLDQACSDQ
NAFVLWPLAEIAPELSHPVAQSYLHLWKQYEKSQQKDW RAFVLAPLADI APGWVVPGLQSVEALLGKLDTAGDR RDFVLAPGTDDLSAQWNHPTLRSLGQLCGALDEGGDR
RAFVLYPLRDVAPHWRHPDGEGLDELDSRLPEQGDR
 NAFVLWPLALIAPELMHPGGKTMGQLWAEAQ\KQV RLFVLEPWMEIAPDATLPAGSPVASLG
RAFVLVPWLDADPEATLR GTSYTECLAGDDQQE円EQ

RAFVMVPWLDVDPAAELPEGRPVAALLAGLP
RAFVLAPWLMADSSAQL DGVEVEKLFNDADKDGD
RAFVLLPWLDVEPDATLAVGRRVDDWLATLSAEE
RAFVLVPWLDLDAAWCVLGERTI AECVADVDEAEVR
RAFVLSPLLDIEPSWTHPINKSVLQLFEELPQQ
RSFVLVPLADVAPGWRHPLGLSVVQMLDRLP
RAFVLIPWLEAEPDAVL HGTTUAEHVDNLDPTD苞
RDFVMTPLNEI
RAFVLIPLADVAPEWRHPVGVSVQEMVDALPEN
RAFVLVPWLEADPGAVLEVSRPVRELLAAL
RAFVLVPLADVAPDWVHPVGRTVRQMLDDLPQAQ
YAFVLRPLVDIAAQTLHPTLDSFQQUWKSFD
RAFVLAPWLE: DPEAALPDG
NAFVLWPLAELAPDLVPPGQHTDGALWQAYDKTQQQLW
RAFVLAPVMDI APEWSHPAHGRARSVLESLPREGLS R
HSFVLKPLVDVAPDFVDPVGRTLAQLWAVHP
R
 RRFVLEPLCE $\backslash A P E L Y H P \bigsqcup K K T \sqcup S Q L F S D L$ RDSVLVPLA
R LF FLQPMADLQLDWVHPПKKNCQQLVQDCTDQ
YAFVLEPLAEIAGHLRHPVHRRYGEMWDLDEKSNDKQ RLFFMGPLAEIIAPEWVHPTAAKTAKVLAESCKVG RAF V L V P L A E I I A P D WR H P T D R T V R Q MCA A L P R
RLFVLLPMLDLKLEWQHPDQKSVPEMIKACED
RPFVLIPLGDVAPKWKHPUNKTSREMLNELAPE

RAFVLIPWLAADGGARLASGEGVAKRVAADD
RATVLIPWLEIDPAAEVPGRGS

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UniRef90-Q4UNG4
UniRef90-K6W541
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UniRef90_F211D5
UniRef90_E8T686
UniRef90_UPI00034D7FF7
UniRef90_UPIO004798619
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UniRef90-R7B405
UniRef90-X5JMH1
UniRef90-B6BN10
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UniRef90-X6KVU7
UniRef90_UPIO00237CA0E
UniRef90_B0T3G7 UniRef90_BOT3G7

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$\qquad$
 TALIG
 TAVVALGANLSDPVMRLADAVRRIGTLD

 $A V L G B R V L A S S A T Y$ RAVLSTGANMDRARENLTGV
ALLLSLGSNLDGEREQYLCRARTADAS R F VIVALGCNWSSCTEALEAARARFRS $\square V \vee L A L G S N C G S M L L N G K S A L N M L$

$\qquad$
 DLQSSVI L
 S H L
L
L
K A YLGLGSNI EPEKHLCALLQHLETTFG
AWI GL GANLGDRGAAMAQALQQLARSAGVAV
LI AL GANLPSPEDSVPKAMARLVERVGGP
AVLALGTNLGERETQLAAALASLAAAPGVEVASO



SVKKCS
RVKRTS
 TTVLLSLGSNV QPCRHLHAAVAALAERFGA $1 / F L S G T N V G D K N K N L D D A V N F L S S F G$
$R Y L I$ ALGSNMGDPHKVLRAALAALDK GKFEVEAVS
$1 \mathrm{~F} V \mathrm{GV}$ GS S I NRQDNI REGILLLKDTFGE
LVVGLGGSNVGAPRAVLRAAFAALDRGPGE
$\vee \mathrm{K}$ L ST
$T L I Y L G L G S N Q \quad D R D H H L G L A W D F L A A D$ LVDVQCSPVY AWVALGSNLGDRGAHLLAACRRLAAAPGVASLVRGPFR


$\qquad$ ALLVMGSNLGNRKENLKRG KLLVERFAGPGLRETPPVV
$\| V T \square G \square G G N \square G N T K N \square F D N L I L C L K K D S R F T L L M T S P L L$ $\checkmark \vee A G A L G G N L G D P \square A T L T A V R P L L R E L H G W A L L G W S P L G$ VLIGMGCNVEGK $\square$ A M $\square$ NKA $\square$ G D MCMLPD T Q $\square$ I D $\square$ AS Y Y
 Q V S LIL
RFF





UniRef90_A9Dws9 UniRef90-UPIOOO47EDF56 UniRef90-UPIO0046A3BDE UniRef90-FOYOB3
UniRef90 UPIO003B44C61 UniRef90-F4ARM6 UniRef90-K6F3N6 UniRef90 ${ }^{171 H X 3}$ UniRef90-B2UBN6 UniRef90-UPI0002E3B521 UniRef90 U2MPR2 UniRef90-IORRK2
UniRef90-V2TDC9 UniRef90 Q256K2 UniRef90 UPI0003B4FE4F UniRef90_UPI0003B58AB2 UniRef90 A5E2D5
 ATPPWGGVEQDDFLNAVLVVDVQEEPMALLRRCQRLEQAA DTAPQHVVDQPRFLNGVVVAATALPPRAVLRELKAVEAAL RTAPEEQE
NTAALEF
RSASVGFDGHP RSAPVE
EAVPVGFSGG

ETAPWGGVEQDPFLNAVVVADDPGADAAWLRRAHDFERAA

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S SVVAAGCVG DDFFNVVLDVGR
ETPALVLPGQPAYLNAA ARGRTDLTLDQLSDVLKRFEARY








KNPPF GFMGQDDF LNS II LLQVSMQPFTFLDYLHRVVEKK F
QTPCFPAGAGPDYINAALAVETDLEPEALLQVLHSVEAKF
RTAPGDDEPQPDYLNAVAVLRTDLHPRTLLAHLHR\|EADH



## UniRef90 A9DWS9

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UniRef90- $33 A 8 P 9$ UniRef90-S3A8P9 UniRet90_UPIO00372E022 UniRef90-UPIO0035D8260 UniRef90-UPI0003958137 UniRef90_Q28V33 UniRef90 UPIO0026297C6 UniRef90-E7G003 UniRef90-M3UL83 UniRef90_UPIO003B46E01 UniRef90-UPI00036BADAC UniRef90-FOS251 UniRef90-BgKGM4 UniRef90-ToUPY9
UniRef90-C3Y182
UniRef90-H9UJ86 UniRef90_- 3 AOU9
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R R R GRLKGSPKFSPRTLDVDLVSVGDLTGADPELLLPHPRARE GREDRG RHGPREVDLDVLFHGTTMVADADLEVPHPRAAR GR VRSERWGARTLDLDI DYQGVTSEDERLTLPHPRASQ
 GRTQVHEKWAPRVI DLDLLWDNLILNTPYLTIPHPEGMN GRERPGHNAPRTLDLDLLLYGDHVLTSPELTVPHPRVGQ GRERDAVKFRDRTLD:ADLEYGDRVQAEGPTLPRKDVYK ER VRDVRWGPRTLDVDLVCCREVLSTEPELTLPHPRAHE GRDLDAPVWSPRVLDDELYGDEICQQDHITIPHKR1LE GRTEKTDKFSPRTLDLDLLLHDQLIDAEDD VPRAEILK MSRRKEDNFGPRVIDVDLLEGQERSTDPHCLVPHPRLTVE RRVRLRHWGPRTLDLDLLLFDDRAI DMPRLVVPHPEMLN GRKKVIDK GPRNI DDELYGDEKI DHERLTVPHDGDHE GRADSYDKWSPRVIDLDLLEWSCHIDLDPDKIMHPELLN GRERR VRWGPRTLDLDLIAAGAYVVPDVSLTLPHPRLQD GRTDPPEYDGARVIDDLEYGSEHISAPDLIIPHKDVEN ARRVRDRHWGPRTLD DLVSVGVPVRSDGRWILPHPWAQE GRVRED HWGPRALDVDIVQI IDDISADSTLTLPHPWATE GR ERSVRNAPRTLDLDIAYGRLSGDVRGLILPHPRAAE GRFNNEYWSPRCIDIDI LWGDKVLDSQTLSIPHKHMQD GRDRTVPNAPRTLDLDLAYGREQGDCEGLILPHPRAAD DRIRKEEGHGPRTIDCDLLWVEGEEHAGKRLTLPHPRLGE GRRRDVPKFSDR ALDIDLLLYDDVICEQPIHLPRGEDLH GRNHTLRGYSARTVDADLLLYEGTQTAMPDLLLLAHKDMER GR TRAHRWEARVMDLDLI GLGDAGLPDDQLQLPHPRLAE ARRVRTVRWGPRTLDVDVITGEHRSADPVLTPHPRAHQ
 ERDVRDVRWGPRTLDVDVITVDVDVSDDPDLTLPHPRAQL
 GRYKTFRWGPRVVDVDLEKYENLFINTKSLKI PHPGLQH GRVRGLKKNAPRVIDLDLIAYERVILDGADGIIPHPRAAD

 DR RRGQPNAPRTLDLDLVAGRTV TEAGLVVPHPRAHE GRKATDRRYAPRTLDLDLLGFDNVIQSESPVLPRPEMLY KRQRSERKFAPRTLDLDLLYDNQAM SQPDELPRPEVLY ADRVREVRWGPRTLDVDIVDIEGYASDDPRLSVPHPRAHL ARRERLVRWGPRTLDVDVITYGDWSSRDETLTVPHPRAHE GRRKLIDKGGRNIDLDILGYGEVDRHDRLNVPHVGI AE GRNRSAQNKSEDTLDLDLLEYGNEVETEQPLSLPRGELTE GRKKTDRYGPRIIDIDIIFFKGEEIHQKDLTIPHYDWHN GRVRDPARNGPRTMDCDLLLYGDVRLEEPDLSVPHPRLRQ GRTPGDKKFSPRTLDRDVLLYDDLICDQPAQLPRDEESK GRPEKA $\square K Y A P R T L D L D L L Y D Q T \square D R T L D L P R A E D T K$ GRRRMGARWGARVLDLDVLWDGGAYAVSGLTIPHAAFRQ GRRRLGQAWGARVLDLDIVLWNGGAWASSDCIVPHPAFRT GRQRKDFKDAPRTLDIDIJAFNQVLRQNDLTLPHLKWSE
 GRVRK
GRAF SKANAPRPTDTDTLFYGDKVTKTSKLVIPHPGLAE ARVLAPRDVLP VDIDILDYGDFVGVYEHGVLPRSDLDD GRPAGSGRWAPRTVDLDLLEHGRSAASDARLTLPHPRWAR GRVRTADKYAPRTLDLDILDFDAVIGAENLVIPDPDTKK GRTRQDKKFSPRTLDLDLLFYDDVVCESP AQLPRDEVVK KK DKDGKYSPRTVDIDLLFWGKAILFEKQLRIPHKEVLN GRVRDPEQHGPRTI DCDLVFVEDEEHAGRKLTLPHAHLGE
 GRYPTYRWGPRVLDVDLALYEGVKRETEERKLPHPGLKE GR KRSFQDAPRTLDIDI LFFDNKKIDTKNLITPHKNWAN GR QRLEPWGPRSLDLDLLWCGNARCSSPQLELPHPCLRQ GRVRDLGRWGPRTLDLDLLERGEQLLDLPRLKVPHYHMQA GRVRKEHWGARTLDLDLILYNNLILDTPNLQIPHPRMGE
 GR VRERSWGPRTLDLDLDGAPRLESAGARLPHPGAGE GRVRHVRNGPRTLDLDLLLYDGLILDGDPALIVPHPRLHEL GRTRGGARWQARGLWRGLPPEEQPRHAPPELILPHPRMQD GRNRLRPKFGPREDDDILVWNEEVDD DYY

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UniRef90_UPI000237CA0E
UniRef90_B0T3G7

RAFVVLVPWADADPDASLDDGVSVADLIALLPAEDV
NAFVLLPLAEAF GDERHPSGRDYASLWHDFMAEGQRLW
R D F V L R P L R D
R A FVLLPWSLVAPTAELSGVGEVVVLADYAPDDGVK
NAFVLDQPLAEIAPEVEHPLKKSYFSLWQQYDKS QQQLW


R P F
R L L L P M A M L
RAFTLDPLLHE
FAFTLWPLAEDCPEQVIPDTQTYEQAWNAFSDEQ
RAFVLVPF LEEVCPEQVPTQTYEQAWNAFSDEQ
R A FVVLVPWLEVVEPDAALTVDGRVRELLAALARDDVHR
R D F V L L P L L D L
R P F L L SLL A S L CP T RK L
NAFVVQPL SELAP QLKHPDSQE IYQLWDKFPKQQQKLW
R A F V M R P L L D A P L
R T F V L Q P L C E L DP D Y I H P V S E P I H N HLL S QL L K A QV
RGFVMRPLADL
REFVLRPLTELDPNKS LPDRKLTQDYLNEDP
R P F LI HLI A GLLCPTNNFYNNK TFAE DA HELIEN Q G VIDR
RAFVVVPWL LADPAGEQARRAWAELSGE
RAFVLVPLMDIAPDWRHPVGLTVAEMHAEL
$R P F V M$ I $P$ QEVA
$R R F V L V P L L D E D L D L A L P D G T R L M E R L E R L P D E G V R R$

R A F V L V P WLDD A DP DAELL E GVVRVAAELVDDKLAPE DV
R A Y L HVLLA E
RRFVMGPIA EDAPSWVHPHGG
R D FVLVPL S DI HARFPHPVSK
RKFV MGPPLAEI A P D WVH PVGGKTADELLSVA
R D Y V LVPME DLMHD
HAFVLQPLAEIEPQRKHPVNKTYQELWQAFSKEQQKLW
YPFVVLYPL DELAPT LI HP LQQTLYELGERL
R A F V L A P L Q E L Q P A WV

RAFVLDPWHRARPEAELPGHG
$R E S V L D P L$
R A F V L V P P WLA VDP DA VLAGPRA VA DLISGLDAA GVR R
RAFVLIPSIGV


RAFVLVPLAEDAPDLVHPSGKTVKELAEGLEKQGVFKW R P Y V MMP L AVLAAPDGVHPVGKTYKATWLEFER D

NAFVLLPL QE I A A DFYHPTEKTIQE IYQGYHNPQQKLW
RYFTLLKPAVEI VP L L H H P DC K
R D Y VLVPMEDLMHD
$R R F V L A P L A E I A A G W R D P V G R R T R M L L H A V D R R R$


RESVI I P L
RAFVI GPLAA DDA QLVLPGG
R A F V L Y P L A DLAAP L L RLP D GRHLP E L LAA A CPFE G $\square E R$
R D F V V K

RESV M I PL MDI N
RAFVLVPVCDLAPDWQHP $\square G K T A \square E L C A A L P K T D L E$

RGFVLLAPLAEI APDWRHPLGLTVAQM
RAFVLGPLADIAA GWFHPLLRNVAQMLADLPPED

| $R$ | $A$ | $F$ | $G$ | $G$ | $L$ | $A$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $R$ | $D$ | L | Q | Q | L | S |
| R | L | I |  |  |  |  |

## UniRef90 D5VKT2 <br> UniRef90 E4TZX6 UniRef90-H8GV54 UniRef90-O87790 UniRef90_M4SDC3 UniRef90-Q977E8 UniRef90-K2KAZ9 UniRef90-G7CF19 UniRef90 ${ }^{-13 Z Z C 7}$ UniRef90-C5ZY37 UniRef90-F9Q786

 UniRe90-AFGZY2UniRef90-UPIOOO2EADOB8 UniRef90-UPI000372A297 UniRet90 WOBEW UniRef90-Q1NB32 UniRef90-C7D654 UniRef90-A0A059KPC3
UniRef90 J2LA54 UniRef90-UPIOO046CC548 UniRef90-M2U502 UniRef90-A3PGF1 UniRef90 K4RHG2 UniRef90-A4WVQ2 UniRef90_B9D5JO UniRef90-HOJIR9 UniRef90-R5B6W5
UniRef90 UPIOOO287C1BC UniRef90- B9KEW0 UniRef90-F3LG27 UniRef90-F3WU36 UniRef90_11GQE6 niRef90 UP10002003B58 UniRef90-F4YONO UniRef90-RYYAJG UniRef90-TOJ2R1 UniRef90-UPI000225FC39 UniRef90-T2BDP4 UniRef90- J9GFQ7 UniRef90-F8DVB1 UniRef90-R5RFX9 UniRef90-G4TE70
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UniRet90_K5Y514 UniRef90-H1HJD9 UniRef90_UPIo003634B8C UniRef90 S8FKY3 UniRef90 UPI00037DOA3 UniRef90-U2KU96 UniRef90-11XZC6 UniRef90 R6G8A7 UniRef90 Jgh2S9 UniRef90_N8W817 UniRef90_N9PLR5 UniRef90-C9MPY4
UniRef90
F8WX40 UniRef90-E1VGS4 UniRef90-R1HBC2
UniRef90 N9AFF7 UniRef90 UPIO003698CF3 UniRef90 UP100035D2F22 UniRet90-UPIO00468317D UniRef90_B6KBG5 UniRef90-R5AXV5 UniRet90 Q5QU58 UniRef90-R6KL39 UniRef90_U1GY70 UniRef90-TOZ814 UniRef90-J9Z9A7
$R A Y V G L G S N L D S P A E Q L R S A F Q A L D Q V E A T R L V A A S A L Y$ TSYAI ALGSNRGPPPRVIAAALDALEQAGVRVIARSPII
 $\square V L S$ G S N L G D R L A H L Q S V V D A L


AFVGLGGNIGNSARRFDRFIRALSNDRRFHIVECSPIL L A L G S NRATPRRLLVEATARIAQHGBRVADSPTI
 TRCYL GLGSNLNQPQRQLKQAI AKLQTLPRTEVTKLSSLY THVYLA L G S NRQSARRTPPKLVEEAAALIGARVIA ISP IV $R A V I G L G A N L G B L D A T L D A A C A A I$ A A LIPRSRWLGVS GRW SIGSNRPTPPRLAEAVRQIGALG
 PEGNVSEAISAVASAFQAPFRRVSRLI NSVVWGVGSNEGASGAVLERLWRWLAHHRMFSRLCSSP Y GFPE GTVREADA A VAKAFGANFQA SRLY NSVILGGLGGNDGDVKKRFCRLHFKLSRDGRFHVVENSALL




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

 N T A I L L L G S N I QPRGNI QKC $\quad$ RLL E D K II CI GSNY NRKENL F FARQKL A D LRFPS
$V V L \stackrel{A}{L} L G S N L_{G}^{G} E$ QKK

MTAAIAALDG
L I A L G S NI GAPARVLQAARVAL A S
I S I G S N KHRKDNLALARRRLSELR
$\square$
G
I GIGSNW DTQKNIAYATEELNKI FDKYVVVCFSVEE
LI SMGSNEG RAANMALARRRLAQLFA DI RFSAER
N K A
I S IG SN EHRTANVKEVMEIL T KHFP T

I RFSTER




## UniRef90 D5VKT2

 UniRef90-E4TZX6 UniRef90-H8GV54 UniRef90_O87790 UniRef90_M4SDC3 UniRef90-Q9Z7E8UniRef90 K2KAZ9 UniRef90-G7CF19 UniRef90-13ZZC7 UniRef90-C5ZY37 UniRef90-F9Q786 UniRef90 A7GZY2 UniRef90-UPIO002EADOB8 UniRef90-UPI000372A297 UniRef90-WOBEW1 UniRef90-Q1NB32 UniRef90-C7D654 UniRef90-A0А059KPC3 UniRef90 J2LA54 UniRef90-UPIO0046CC548 UniRef90-M2U502 UniRef90-A3PGF1 UniRef90_K4RHG2 UniRef90-A4WVQ2
UniRet90 - B9D5J0 UniRef90-B9D5J0 UniRef90-R5B6W5 UniRef90-UPI000287C1BC UniRef90-B9KEW0 UniRef90-F3LG27 UniRef90-F3WU36 UniRef90-I1GQE6 UniRet90_UPI0002003B58 UniRef90-F4YONO UniRef90-RYYAJ6 UniRef90-TOJ2R1
UniRef90- $55 F 2 K 4$ UniRef90-UPIO00225FC39 UniRef90-T2BDP4 UniRef90-J9GFQ7 UniRef90-F8DVB1 UniRef90-R5RFX9 UniRet90-G4TE70 UniRef90-R5VJC5 UniRef90-X1TEQ9 UniRef90_UPIO0046880D1 UniRef90-O3B0B6 UniRef90-D7W3U7 UniRef90_UPIO0026CA211 UniRef90-Q05QW9 UniRef90-UPI0002E92E84 UniRef90-E6SUR4 UniRef90-UPIO0046A6BD9 UniRef90_R5S9V1 UniRef90-F4KKE9 UniRef90-R5CTQ0
UniRef90 F3PMU0 UniRef90-UPI0001DD048A UniRef90-UP100026CD4E4 UniRef90-C2XN19 UniRef90-C8PFD6 UniRef90_N9CCK6
UniRef9O_R6MQ72 UniRef90-NgVGT1 UniRef90-K5Y514 UniRef90_H1HJD9 UniRef90-UPIOOO3634B8C UniRef90-S8FKY3 UniRef90 UPIIOOO37DOA31 UniRef90_U2KU96
UniRef90 $11 \times Z C 6$ UniRef90_J9GJX7 UniRef90-R6G8A7 UniReffo- $99 \mathrm{Hz2S} 9$ UniRef90-N8W817 UniRe990_N9PLR5
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UniRef90 N9AFF7 UniRee90-UPI0003698CF3 UniRef90-UPIOOO35D2F22 UniRef90_UPIO00468317D
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UniRef90_A4SHS2

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E


ПNEAFGFKAQKDFTNAAMLIQTNLHARA
KVL
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SSAPLEFAS
$\qquad$ ETPPGGPS SRRYANSAAIIRTPLLPDALLALLKRVEGGR ETEPLFLHHSYLFSNQVARFVSDCQAKEIISLLKAIEREA
 ETDPLCLDR R
LTE
LTMPEDA
WTNPVDRKS
ASAA GPA RRRF
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-RTHPFGDVASPAFLNRVVTGYS




 LKI IP F G F L D QP D F L N A V M L QTIP
 IT D A V G S T Y R S P F Y N QL A V F S T DLLP P E Y I HRRRCK K RS QP S GMK S GHSFWN GAVMMESRMD
 ETK P L C CKRTAP FAN QVARFRSDCP

 | $\mathrm{N} A$ | L |
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UniRef90_D5VKT2

## niRef90 E4TZX6

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UniRei90-UPIOOO225FC39 UniRef90_T2BDP4 UniRef90-J9GFQ7 UniRef90-F8DVB1 UniRef90-R5RFX9 UniRet90-G4TE70 UniRef90-R5VJC5 UniRet90_-X1TEQ9 UniRet90-UPI00046880D1 UniRef90-Q3B0B6 UniRef90-D7W3U7 UniRef90_UPIO0026CA211 UniRef90-Q05QW9 UniRef90 UPI0002E92E84 UniRef90-E6SUR4 UniRef90-UPIO0046A6BD9 UniRef90-R5S9V1 UniRef90-F4KKE9 UniRef90-R5CTQ0 UniRef90-F3PMUO UniRef90-UPI0001DD048A UniRef90-UP100026CD4E4 UniRef90-C2XN19 UniRef90-C8PFD6 UniRef90 NocCK6 UniRef90-RGMQ72
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UniRef90 U1GY70 UniRef90-ToZ814 UniRef90-J9z9A7

100
110
120


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R
RKFVHELL

$R \square S V I V P M$
$R D F V L T P$ TLYS $\square A P T W R D P S G L N D R H L R A R L Q K$
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RAFVLVPLADVAPEWRHPLGRTVLEMD
R\SVILLL
HDYVRGPVDEL
$R E F V L R P M L E L E P D W V H P S G K K V T Q M L A E L$
YSFVSEPLKEV
R 1 S VT T P P
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RAFVLVPWSQADPFAELAGH SVSELAENAPDRGGLRW
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$R G F V L V P \square A E V A P D W M H P R \square R T V A Q M L A A L P P G A L R$
R I SVILPL
$R L F V L V P M R D V C P D W H F P D G R S \square Q T L I A E V P E Q Q \square R \square$
RDFVLKPLLSIAGNW

R
VF $\square$ A $\square$ PAS E LDE P
REY MKGLEEL
RGFVLEPLL
RDFSRVLLKD
RDFVLAPL GVVAPDWRDPTGLTPRQLLARL
RSFVLEPLL
RDFVLRPASMLAPRWRDPTGLT LA QL
RDYIVRGLKQLSPD
K E Y I I E GLLKEI
RAYVRQGMEEL
$R P Y \vee V A G L E E L D$

R S F V L GPACA

RlSVVIPLGEM
A LDVKIPMYD $\square$ WEN
D S Y LDe A LLA ELCGEAVDPPGK
RPY R R QLLEEMN
RPY S $\quad$ IGLE HL
RDY I LE
HSYLLAPLSSL



A LDVKIP LYDLWQHADLAH LK S MQ
A L DVKIPLYDLWQHA

A $\square \mathrm{D} / \mathrm{VK}$ ПPMHE
WS H P
RDYVQQLL
$R P L V V G L L C$
HEYFLRGYNEL
$R D Y \square C R G \square K E \square E$
RPDLLRLL
$R P \quad V L Q L L L$



lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm



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