## QUERY UniRef90_K4G6V8 UniRef90_K7EHK5 UniRef90-UЗК2Р0 UniRef90 UPIO003C888F8 UniRef90 UPIOOO3C87A31 UniRef90 K7G259

 UniRef90-UPIOOO4404541 UniRef90-Q09JK0 UniRef90-G3WIB8 UniRef90-UPI0003F09C4B UniRef90_UPIOO045DBA38 UniRef90-FIOEJ5 UniRet90-Q2TAT7 UniRef90-B4H6NO UniRef90_O1W286UniRef90_UPIOOO329E93A UniRef90-B7PRC5 UniRef90-C1C3T1 UniRef90-B9ELX5 UniRef90-UPIO003F05D98 UniRe90-F6ZVY5 UniRef90-U5EWU3 UniRef90-UPIOOO359294A UniRef90-H9IUJ3 UniRef90-H2SU67 UniRefofo-C5P6NO UniRet90-D2A1S3 UniRef90-W5JIZO UniRef90-B5MOW3 UniRef90-K7ISD5 UniRef90-XOH416 UniRef90-UPIO003C1233B UniRef90-UPI0003C2847B UniRef90-C5FKE7 UniRef90-B3SBC7
UniRet90
T1JAA1 UniRef90-T1JAA1
UniRef90-T2MJ33 UniRef90-C1BT44 UniReffo-N1JPN5 UniRef90-D7NYL8
UniRef90 L2FGL9 UniRef90_J3S477 UniRef90-T1G6H9 UniRef90-R8BCK5 UniRef90_L8GAF9 UniRef90-X1X235 UniRef90-K1XK49 UniRef90-GOSEE22 UniRef90-M1W2R2 UniRef90-B6QWB3

UniRef90-D5GN58 UniRef90-A0A017S656 UniRef90-G4VIZ2 UniRef90-M7T7D8 | UniRef90-M7SCX4 |
| :--- |
| UniRef90 | UniRef90-W3X891

UniRef90-E2BC30 UniRef90-G1 $\times 821$ UniRef90-A0A026VUR9 UniRef90 R1FVP6 Unireigo-G4N4M7
UniRet90_UPIOOO38328C6 UniRef90-UPIO001F2AF3D UniRef90_J3P8R9 UniRef90-W2SOJ7
UniRef90 U4KZT1 UniRef90-S9X081 UniRef90-W9VZW1 UniRef90-W2S5M5 UniRef90-UPIOOO441F04A UniRet90_E9EH90 UniRef90-U7Q3K1 UniRef90_UPIo0026588BD UniRef90_R4WOF3 UniRef90_R7U2D6 UniRef90-UPIO0034F96F9 UniRef90 W7 TMN7 UniRef90 S8AHR44 UniRef90-A7S636 UniRef90-M2SDL3 UniRef90 D4AZY5 UniRef90-9WZ50 UniRet90-K2RH74 UniRet90-UPIO003F123AD



 KHFGNLARVRHVI TYSLSPFEQQAFPNVVSHGVPNVGRRF REF GHL MRMWHVI T Y S L S P F E QRTVP N Y F S K GII P NVLCR T HF G N L E R V R H V I REFGHLMRVWPVI

 REFGNLTRDRHVI $\begin{array}{llllllllll}H & F & G & N & A & K & V & R & H & V \\ H & I \\ H & G & D & L & A & V & R & H & I\end{array}$
 K H F G D L A TVRGIL $\begin{array}{llllll}H F F G N & L & A & K & V & H \\ H & G & V & V \\ H & G & L \\ l\end{array}$ HFGDLAKVRHVI RHFGDDLAKI R HVV I TYSLSPFEQRAFPNYFSKGIPNVWRRF REFGNLTRMWHVI $\begin{array}{lllllllllll}K & H & F & G & E & L & A & K & L & R & G \\ \text { Q H F } & \text { I } & E & L \\ \text { T } & K & A & R & G & I & V\end{array}$ QHFGELTKARGIVVSYTL KWGNMTS V R GLV M Y S L HFGNLARVRHMI HF GNLA RVRHMI DYS L S P F E QKAFANYLSKGIIPNVVWRRF


 $D F G N L A K I D R G$ K QR GIV Y F RLS PHEQKA FA GA I SHGVVPNMIRRF RHFGNLILVRRHII TFSSLSPFEQKAFPNYFTKGGI PNDWRRF E F GRLLAYVRHI ITYTLSPFEQRPFAKYFSVGLPNLWRRF WGNLTPMKGI TTYSLSQNRQRPTAGMLYNAFFNTYRRS
 K F GE L V K FKNV I EFGNLLTK DRGTTYYSLSPMEQRAFAGAFTNGLPNLFRRF NWGNL QKQK GVASYALSANRQRPFAGALNAAIFNTWRRF

 R H F G S L G K VN GL I Y Y S L S P H E QRAFA GYY T K T I P N T L R R D HFGGAK $\operatorname{H}$ GKGVVTFGLSANRQNPFAGAAHDAIFNTFRRT WGNFTKQRGVITYGIAPNRQNPVAGMAHDAVFNTWRRF
 DF GCP TP QK I STYALS PNRQRPFAGALYNAIFNTWRRS WGNLGTQKGI AS YALSANAQRP LAGTLHAAIFNTWRRF $F G G M P Q K G I V T Y G V A P N R Q K P L A G A M H D A M F N T W R R F$ D WG NMGKQKGIIHYGI SANRQNPMVGTFHDAIFNTFRRT GHDAREKGV ATYTLSPNRQRDFPNFWHTAI FNTFRRF
 K F GHLHYRR GVVITYSLSPYEQKAFAGF FKDGFPNLMRRF HFGGM KQRGII SYAMSPNRQNP LAGAAHAAVFNSWRRF NFGCVVLPQRGGITYSMSPNRQNPLAGAANAAVFNTWRRF WGNF GK QK GIV TY GLS SNRQNPVAGAAHDAI FNTWRRF


 A R Q K G F K DFGSLGS K DWG S F G K Q $K Q R G I V$
$F G N L F K \| R G V V V R T R$
 HF G N L G R V R GlVVVS A I S P Y E QRA M A GF L S R GFP NLI R R F K H D F G G Y A L Y A P NRQRPFA GAFHAAI YNTFRRC W SQRGGTYRLSANRLNPLAGTAHAAVFNTERRC
 WGNLGSQKNIV
 $V S Y Y L S P F E Q K L Y P S Y S R K$ I L L $\quad$ I T WRRF I H Y GLSANRQNPTAG』VHDAFFNTFRRT $F G G P G B Q R G$
L G C P T P Q R
$\begin{array}{ccccc}\text { D F G S Q P Q K G } & \mathrm{V} \\ \text { K E F G N L A K S K N } & \mathrm{I} & \mathrm{V}\end{array}$
WGNPY P GK G

 EWGEDCP Q S G I T Y GI A P N R L N PLA GAAHN A I F NVVWRR F D F G N L R R M L H $\mathrm{L} V \mathrm{I}$ T Y V L L P F Q Q R A F L AO15KQA2


UniRef90 A0AO23F9F5 UniRef90-E9CI68 UniRef90-Q0D014 UniRef90-U1P2G6
UniRef90_N1Q0M0 UniRef90-R7SA84
UniRef90 11 CE77 UniRef90-IICE77 UniRef90_UPIO00258E282 UniRef90_U4V0Q0 UniRef90 S7PWGO UniRef90_R9ARK5 UniRef90-I1G694
UniRef90_B6JUY1 UniRef90-R7Z634 UniRef90-M5FUU7 UniRef90-K2S527 UniRef90_G4TLP6 UniRef90_O45525 UniRef90-H9K6U8 UniRef90-J9VX83
UniRef90-W9X9Z4 UniRef90-A7TFI7 UniRef90-UPI00021A6597 UniRef90-S6F5S1 UniRef90-M5BTL6 UniRef90_M7NM75 UniRef90-F8NR51
UniRef90
UniRef90-J7RIK0
UniRef90-GOVKC0
UniRef90_UPIO00455F37C
UniRef90_E1ZZ88
UniRef90_Q4P7K0
UniRef90-W4WBW7
UniRef90-E3K4U5
UniRef90-B7Z4A1
UniRef90_J5QLX5
UniRef90_UPIO00441549E
UniRef90-A8PU23
UniRef90-C9S6K5
UniRef90-A0A023EB93
UniRef90-S8EBP6
UniRef90_UPI00044184BF
UniRef90-K5X1M9
UniRef90-G8ZRX4
UniRef90-M9LQJ6
UniRef90-Q6C387
UniRef90-T1GDV3
UniRef90_L8GXE4
UniRef90-H2Z1U3
UniRef90-A0A024JDM5
UniRef90-X1XVK4
UniRef90-UPIO00462386C
UniRef90- G8Y767
UniRef90_UPI000440DA5F
UniRef90-UPI000456076E
UniRef90_H8WZM7
UniRef90-J4GVQ6
UniRef90-KOKKK2
UniRef90-P49346
UniRef90-A3LU91
UniRef90_V4BIP1
UniRef90 U5H8U6
UniRef90_E9ID54
UniRef90-W4JW48
UniRef90-K911J5
UniRef90-UPIO0021A8942
UniRef90-F2UQJ0
UniRef90-B0D4N8
UniRef90-G7YEB3
UniRef90-E2B0Z1
UniRef90-D2HSB9
UniRef90-A8P0G7
UniRef90_W4ZFW5
UniRef90-V8NJ82
UniRef90-V2WUJ6
UniRef90-E5SRN8
UniRef90-G3BB06
UniRef90-UPI0003ACC7CD
UniRef90_UPI0004409C23
UniRef90_D8Q857
UniRef90-A0A026WPC7
UniRef90_I2JQG7
UniRef90-G6DM47
UniRef90-T5A624
UniRef90-K2SV03
UniRef90-Q54V76
UniRef90-D3B5W4
UniRef90_W7TKM2
UniRef90-K1P6H2
UniRef90_F4PC82

HFGELAYVRGLI ITYKLISPFEQKAFAGFF KSFGRTAFR10 $R V F G N L D K Y R H V V T Y S L S P Y E Q R P F A G G F S K S F G N M Y R R A$ KHFGNLGKMYGEYRFALAPNEQKVFKGFFDQAFVKVFRHV WGALGPQKGIVHYGLAQNRQNPLAGTASAAIFNTFRRT WGDMGKQKGVIQYSUSPFRQRATAGMLTGYLFNGFSRI WGAMGTQRGVTTYVLSPFEQKPFAGAAHAAVFNTARRV QFGNLAK ISRITFFRLSPYEQNPFAGMISDGLPNFVRRA

 WGALGKQKGIITYTVSPFQQRPMAGLLSSSFRNGFRTF WGSLGSQKGVVTYAVSPNRQRPLAGTLNAADFNTFRRT DF GG AKQKGIVQYGLSPFQQRAWGDAFSQTMFNGYRRI
 KHFGNLGKMYGEHRFALAPNEQKAYKGFFDQAFVKTFKYV KFGNLKKLS GVTFFRLSPYEQRAFAGVGEATGKMDKRL WGDMGKQRGVKTYGLSPYRQRPLAGMLRAYVFNGSRRT WGHLPAQRGVVTYLVSPNRQNPLARALHNAVFNTFRRT WGSLGKQKGI TSYAVSPYAQKPLNGSFYNAIFNTARRV
K R
WGHIG

| PQKGUTS |
| :--- |
| KQKGlVIS |

        WGCMG
                                    MKMK GIVITYSLSPRAQHPFAGALHSAI FNTSRRC
    
WGHMGKQKGVTSYSVSPYAQKPLAHSFENAFFNSFRRF
WGH $\$ GRQKGI TSYAVSPYAQKPLAG IFHNAYSNTFRRF
Q F

## E

## REF

 WGSMARQRGVITYYSVSPFRQRGSKDLITRNWVFNGYRRL FGNDTRMRHVI SY S WGAMGKQKGI YTYS: S$F G G P A$
$D W G N G G K Q R G$



TRQKGI WGHMGSQKGITSYAVSPYAQKP $\operatorname{T} A \operatorname{GA} A H N A V F N D F R R F$

HFGNLAKVRGI DT FGSLGTVDKQIV

 K KKGIVQYSMSPFKQRAVHNLFRSYIFNGYRRLL

 FGNL WKQKGLTQYSMSPMRQRATHNLFRNWI FNGYRRL
 WGNIGKQKFIVTIYTVSP WATKPFKGAAYNAVFNTFRRT
 KFGNLVRDHRIAYYGLSPLEQRAWAKSDTHGLPNLVNRA RQK GV DQYSVVSPFRQRASKNLIQQGYIFNGYRRL QF GELV R VIR K I VY Y T L C A TH QR F WA K S I S H G L P N F L R R S FGSLVRNHGLVTFQLTPFRQKAVSGFLTRGVANGAKEA KEFGNLLA EFENLTRMH

KF GNLAKFRGVITYTL KQFGNLMKTRHVVSYYLSPFEQKDFPNDPHKGPNTWRRF RPWGRMAKQKRVYSYT: SPPVQAKAAPNMDRSYLFNFYRRD WGRMAKIYGMYQFALSPFEQKAFGGYGGKEIRNLGSKA $R V S G N L T G L R H V I T Y S L S P D E Q R R L P A R R K E W D P C V I$

WGDMGKQKGI IQYAVSSTRQAPMRDAFKGYLFSGFWRII TIS P Y Q S K A A P N M I R T Y I F N A Y R R L WGHMGKQKY $V A Q Y T V S P Y A Q S P L K G S L N R A V F S T F S R F$ $K$ VF GNLAHVRGLLTYRLSPHELKPFAGAFSKGGPNVIPRT EWGELCPQRGAVTYRDAPNRVNPMAGALHAAI FNVGRRT I TYSVSPFQQKLFVNYFKNAIMHERRGV I T Y T L S P F R R Q R L F V V N Y F K N A A V P H I K R G V TRQNGLI K SLSPFEQRIISPMFDDAPN
RQFHNMKPNAGFVEYNLSPFEQRAFGGLFSKSFGNAADRH

UniRef90 A0AO23F9F5 UniRef90-E9CI68 UniRef90_QODOI4
UniRef90_U1P2G6 UniRef90-N1Q0M0 UniRef90-R7SA84
UniRef90-11CE77 UniRef90-UPI000258E282 UniRef90_U4V0Q0 UniRef90_S7PWG0 UniRef90_R9ARK5
UniRef90 I1G694
UniRef90-B6JUY1
UniRef90 R7Z634
UniRef90 ${ }^{-}$M5FUU7
UniRef90-K2S527
UniRef90_G4TLP6
UniRef90-O45525
UniRef90-H9K6U8
UniRef90-J9VX83
UniRef90 W9X9Z4
UniRef90-A7TFI7
UniRef90 UPI00021A6597
UniRef90-S6F5S1
UniRef90-M5BTL6
UniRef90_M7NM75
UniRef90-F8NR51
UniRef90-W6MI72
UniRef90- J7RIK0
UniRef90-GOVKC0
UniRef90_UPIO00455F37C
UniRef90-E1ZZ88
UniRef90-Q4P7K0
UniRef90-W4WBW7
UniRef90-E3K4U5
UniRef90-J5QLX5
UniRef90_UPIO00441549E
UniRef90-A8PU23
UniRef90_C9S6K5
UniRef90-A0A023EB93
UniRef90-S8EBP6 UniRef90_UPI00044184BF
UniRef90_K5X1M9 UniRef90-G8ZRX4
UniRef90-M9LQJ6 UniRef90-T1GDV3 UniRef90-L8GXE4 UniRef90-H2Z1U3 UniRef90_AOAO24JDM5
Uniralen UniRef90-X1XVK4 UniRef90_UPI000462386C UniRef90- G8Y767 UniRef90_UPIO00440DA5F UniRef90_UPI000456076E UniRef90_H8WZM7 UniRef90-J4GVQ6 UniRef90-KOKKK2 UniRef90-P49346 UniRef90-A3LU91 UniRef90_U5H8U6
UniRef90-E9ID54 UniRef90-W4JW48 UniRef90-K911J5 UniRef90_UPIO0021A8942
UniRef90_F2UQJO UniRef90-B0D4N8
UniRef90 G7YEB3
UniRef90-E2B0Z1
UniRef90-D2HSB9
UniRef90-A8POG7
UniRef90-V8NJ82
UniRef90-V2WUJ6
UniRef90-E5SRN8 UniRef90-UPI0003ACC7CD UniRef90_UPI0004409C23 UniRef90-D8Q857 UniRef90-A0A026WPC7 UniRef90_I2JQG7 UniRef90_G6DM47 UniRef90_T5A624 UniRef90_K2SV03 UniRef90-Q54V76 UniRef90-D3B5W4 UniRef90_W7TKM2 UniRef90_K1P6H2
 SEGFWNAGPALILGIVVYKWANDANAATHRKNP RHQVLYVVPPFVIAYSAMNWAVEKNEYDNSK WEDWYF YLPQGI GCYLIYDWAKKKNVELNRKNP RGQULYWAVPLLVGYQTMQWA IERNEYLNSK
 QE LLLKAGPMFLGGYMLMEWADAENAKMHRK QL NVVYMS PD LAVAY LVVYDGVVKA HKETMKK NP

 K SNALY LLDPMGSVFYLMHWANKKNEYDNSK RQQ\|LYWAPPMILAYSAMNWADER
VS QAPYFLIPFVAGYSDYTWANGYYHYLESK KAQULFWAPPLLAAYLLMRWANEKNTWLNSK GAQAPYFVPPFAVGYFVYTWAKAKDHYNNSK WD QWYYY IPQT IGAY LLYY WAKKTNVAANRKNP RSTILTAGPFFLLSYVIMEWATEENHKMHRKNP MQQLPYVAPPLMFFYGVYYWAKTKYDYYNSK $K N Q V L Y W V P P F V V A Y L L M D W A N R R$
K S QALYVLIPAGI YYYWWTNSRDYNEYLYTKD RAEFFFI TPPFLCTYLLMEWANAEYYKLQRKNP KSQALY LLPMTDYWAWWENGREYNEFLYTK AA QLPY FAlPFAGAYGVYVWANKRDAFLNSK
 K A QULYYVVI PGGVIVWNIWAKARDYNEYMYTK K S QVLY I Li PA Gl Y Y Y WWK NS SEYNE YL Y TK
 MQQAPYFVLPFGFGYGLI ${ }^{2}$ WAKGKNAYYNSK SRALPPMLPGCDMTVGVMTWAPAAHDRYTRKDP AAQVPYWIVPFGVAYGVDKWADADNHYRNTK
RESFFRVVP
A A QVPYFALPFAAGYATYVWGKNKYAWYNSK MK HLLP YWLL PVSIGYAVYSYGDSRYAYLQSK VKHMPYSGIPFLVGYFIYSWGNKEYNYVNSK RGSVLYVVPPLVVAYYAMDWADHRNEYLNSK RSQI FIVTPLFVXXYLVYNY
S GQVGYFIVPFA A GYATYSWGNKHYAYDNSK
AAQAPYFVIPFAAGYGDYAWARKYDEWQRSKD S GQAVYWI FPFALGYGTYTWAKKYDEWQNSK K S QVLY LIAIPAGUYWA WWVNSRDYNEY LYYK $M Q Q A P Y F A V P F A A G Y G L I A W A K S K N A Y Y N S K$ KNQALFVILPVSFFYYVWTQASEKNEWLYTK RSNVFTVL•P
KYNFPRVAPP ILAG $\square A \square Y$ TWGNWKHDQ $\square A R S H$ KESFLVVADPALLCYLSYDWGTKLQAKLDRKDP K A QLLYWAPPLIAGYYAMTWANE
KAQiFFVVFPVS $\quad$ YYYY $\square W K R A E A Y N H W \square Y T K$
RSQUFIVTP
SSQAVYWVIP FALGYGTYTWAKRYDAWQNSK KNQAFF IVVPFFIVGADWNKAEKYNEYLLYTK SKQF DFWSI PVAVGYSTYAWAKKTDA WMSSK MQQAPYFAI PFAVGYGDDAWGKKKNAYYNSK KNQFLYYA, PAAIVYTUFDKAESYNEYYYTK SGQMPYWIIPFAIGYGTYSWAKRYDAYLNSK
$K N Q I F F I V A P G \| I D W E W W A Q A R D Y N E Y L Y T K$
 KNQALYVILPFAIVWNDWTNARDYNEYLYYTK
 MGQAVYFVLPL GAGYGLLK WAIAADNHDRNSK
$M R A L P T V L P S F I M S A V V I K W S Y A A H D R Y T R K D P ~$ SAHFAYWAVPASLGYA YAWAKSRDAWHTSK SSELDFWVLPFGIGYGIYTWGKSRYDWQNTK
 SGELVFFGVPFVLGYSVYAWAKRVDEYQNSK
REKVVWIVAP
QACILGIVSPSVVFDLVHTWGTREFEKSKGKHP
GGELLFFGIPFAL GYATYAWAKKHDAYMNSK
RSKVFIVTPPFVVAYLIYSWGNAENAKSKRKN
SSSFFRVTPRSSIVLLAWFFTPEESH
S GEAVFFVLP FA FGYGVYTWGNKEYAYVNSK
FE YWWALLADPADYYLRDYGMKQEEKRLRKNP
KNQALFVIIPFSIVWSI WAQARDYNEFLYTK
A HC LLS LL LIAFVAFYLVYTWGTQEFEKSKRKNP A GHLDFVVPPFAIGYAIYAYAKKQDAWQTSK SGEAFFFVDPFAIGYGTYAWAKKYDAWQNSK
$\square Y A L P T V L P G F I M S A V I Y Y W S T A A H E Q Y I D K D P ~$ K S QVVFY WAVP CIVVYGFWAKARDYNA Y LYTK TS T L M T WLPVLITSILIVVTVVEESHKKSQRKNP KAQI FYWLLPTMVVGYYLLNWATERNEYLNSK RQQULYWG
KDNFFCSVPYFAALYYTVNWANETYHNEMKDH REHSLA IVVYFVALGVTVNWANHSYHEDRK KRWSTT L PAFVVTYSTVKWADWEFDQ DHREH
 WGSLGSQKGVTTYALSQNRQKPLGGAFHNAIFNTFRRT WGNMGGQKGI ITYSLSPRSQHPLAGMLHSAVFNTYRRC DWGSMGPQRGI I SYGI APNRQNPFAHAGHDAIFNSWRRV F GELHYRRGVITYSISPYEVNAFKGFFSQGFPNFVRRF RHFGNLYHVKNIVYFRLANFELDPFKNFWSTS WGSLGSQKY ITSYSVSPYAQKPLANDFHNALFNTFRR EFGKLGK $\square Y G Q Y K F T L A P N E Q K V F K G F W K D A V \square K V L K N T$ STFSLNAMKGALHSYVFYGFKR WGNVRKQAGVTTYTQSPNRQRPMAQAYHRADFNTFRRS GVI HCVP HALSCS PRPFEQRAFLTS SAAGSPSAALGP WGEAMKQKGVIVYGMSPYRQAPMRGAVTHALFSGVGRI WGHDGKQKYI AQYTVSPYAQSPGKGSLENAFFNTFRRT WGSMGKQKGI VQYAI SPYRQSPMKNVI SHSLFQGYRR
 WGDMGTQKG』SQYVVSPYEQRPVDYLIKSAPQKALRKV WGDMGTQKG■SQYVVSPFRQAPMRGAFSHYLHNGVRR


```
lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
9
```

R S
K
${ }_{R}^{R} H Q Q L Y$ YAPPF $\square$ I A Y A A M N WA $\square$ E K N H Y $\square$ N S K R
SRQVLYWAPTAVAGYFDMSWAFERNHYLNSK REKFLVVASPFIGTFSIIYWANVENARSKRK KGDFLRFGVFAVGAYAVVHLLADVVNERESRKKP
WD RWY LWWPQG LLFYFMTK LCDVMNYEAYRKKP MQQAPYFVLPFGVGYGLIA WAKSKNAYYNSK
K
A R $\underset{K}{R} R$ Y AF WPT T $\square A G \square A G$ K

A A DGPVALPG LVVLVGTMWANNEFEARKRKNP QENALVLVPSFFLLWGTVAWAKGENDRYHRTH

R E
APPFVVAYVVYTWGNQEFDRLKRKN


