
1
GSHMFMPS ${ }^{10}$
10 20

30
40
 GG
pivmpdorstercetvi
GETTSCFV
 GEK
GEK
GEK
GEQR
GER
GER
GER
GEK
GEE
GEKK
GEK
GE
GE
GQE
GER
GEE
GEE
GE

SRESSRDIGTVVI
PPPVENTPSNNECRMVELRGSKVAS
GSPGLVQTSSSSECKLVEVHGVKVAS
PPPVESTPQNNECRMVEMRGVKKVASAF
STPDVTSSELSTFHLFGEPLACLVLNEEY CLPQA







 GPP $\begin{gathered}G P \text { LVP } \\ \text { Li } \\ \text { SAP }\end{gathered}$ MPNDTS
PPLLTP SDSS LLAADA
SPQPQPHPK MTTPDPD

FMPSDRSTERGT
TVLEGET
TPSPRQHHVSTTMLYGVP पT QPDT

LS APDQDSGELLETVLIE QP
QP
Q
$S$
$S$
$V$
$V$
$V$
$H$ GKPVYTPSPQNNECKLVEVKGAKLAS APPQTDCKMVEVHGAQVASFTVKDTELICLPQA TPQNNECKMVELRGAKVAS $G V P C S R P S V D A T E C R L I D Y R G E K V V A A$
$G S P R L P D A L R S ~ G S V C R M V V H G V Q V A S$

PPPAENTPANNVCRMDDYGAKVAAFTVDGREVI PAVSANDP 1 ANECKLIDYRGAKVAAFVVGGETMLCLPQA GSNTLK P
$S P T T L T V K L V P F R G H S V A A$
$D A S A T D C R L I D Y G A K V A A$
DASATDCRLDDYGAKVAAFYVDGKEM
SAELSETQLEDQVTACFDTGGEKRLCLAQT
VPCNPENNVCKDEYRGAKI AAFVVDSRELICLPQV SLQNSVALSTEDEDENVAAFNVGGEKMLCWNSL
PNPVPNPENNQVHFLEYRAHLATFTVNGRDLICLPQA SPLLVPSDSTSQVQLLEYRGAQLAAFNVEGRPLICLPQA


EETMQGVRLGYLVI QGKQMFALSQV


ENNTCRLMDYRNQAVATFTVDGRDLICLPQA
I EYRGQKVAAFRTDMGTLI CLPQA
PAPDNLDVELNYRGQTVVGFDLRGTDMLCLPQV DEQSGQDC VRGEK AGFELQGRMLCLPQA niRef90 E1GCU5 UniRef90-S4R6A5 UniRef90-E3ML79 UniRef90 W5N8A7 UniRef90-UPI0003871C1F UniRef90-B7P937 UniRef90-J7HB84 UniRef90 A7S373 UniRef90-B3RQM8 UniRef90-S7PHA6 UniRef90 G1KUL7 UniRef90 S9XGJ2 UniRef90-W4YTQ0 UniRef90_ROM3I7 UniRef90_E5SPB0
UniRef90_M7BM63 UniRef90-F6WR59 UniRef90 U3HZW5 UniRef90-ROJWS0 UniRef90_UPI0000222359


| QUERY |  |
| :---: | :---: |
| UniRef90_UPI000359B1FD | LPSTAPSCGLITTKTDAERLCNALLHG |
| UniRef90-T1IV82 | LPFAAPSCGLIT K T D A ERLC S ALL Y |
| UniRef90_R7UQC4 | L P L S A P S C G L I T K T D A L R L C T A L L H G |
| UniRef90-J9K3K2 | LPVTAPS CGLMTK T NAERLCFALL H |
| UniRef90-H9KKV5 | LPRNAPSCGLIT Q T DAERLVSALL |
| UniRef90-B3DGU8 | LPPGTPSCGLIT LTT DA Q R L CNTLL H |
| UniRef90-K7J024 | L P R T A P S CGLL I T T D A ERLVSALL |
| UniRef90_W5UEY9 | $L P$ F N A P S C GL I T LTT D A Q R L CNA L L |
| UniRef90_G1KV32 | MP $\square$ S S R R C G M I T K R E A E R L C K S FL |
| UniRef90_U4U7G4 | LP SVVA GSCGLI T K T D A E RLC S ALLLF |
| UniRef90-T1K637 |  |
| UniRef90_F6TS32 | LP F NTT Q C G L I T K T D A ERLV V A L V Y |
| UniRef90_L7LZ67 | I PTSAPSCGLITTKSDAERLCAALLHG |
| UniRef90_UPI00046B3E33 | $L L F N A P S C G L I T L T D A Q R L C N A L L W$ |
| UniRef90-B4NHK8 | MPVVSSRRCGMIT R R E A E R L C K S FiL |
| UniRef90_H9JXE6 | LPRSAPSCGLIT Q T D A ERLCA A L L H A |
| UniRef90_UPI00026573DF | LPFSVVPSCGLI R R S D A ERVCS LLLL H |
| UniRef90_E2BLM9 | MPVSS SRRCGMI T R R E A E R L C K S Fil |
| UniRef90_Q7Q396 | $\square \mathrm{P}$ DTAKS CGLI T R T N A ERLLCS S L L H |
| UniRef90_K1QZD9 | MPV V S R R C GL I T K R E A ERLVK S FL |
| UniRef90_UPI0003C85A5E | LPFS APSCGLLITK T D A ERL CNA L L Y G |
| UniRef90_R7UAP4 | M A $\square$ S SRRCGMI T K R E A ERLV V S F F |
| UniRef90-B4KHH8 |  |
| UniRef90-W4YPE8 | $\bar{M} P$ V S S R R C GMI T K R E A E R L C K S FiL |
| UniRef90_R7T6N5 | MPISSSRRCGMIT K R EAERLLVKS FLL |
| UniRef90-UPI000273CA2E | $\\|$ I P P GVNRCKLI T R K D F E T L Y N |
| UniRef90-T1GPP1 | LPKDVKASGLIT LT DAERLCSALLH |
| UniRef90_Q9PU24 | LP F S APSCGLLITKT DAERLLCNALLYG |
| UniRef90_H2KRC9 |  |
| UniRef90_E9GL75 | LP RSAASCGLI T K T D A Q RLCS A L L |
| UniRef90_Q16V88 | MP A S S R R C GMi T R R E A ERLCKS FF |
| UniRef90-T1EGY0 | MPS S SRRCGMIT K R E A ERLV V H S F L |
| UniRef90_UPI0002B8D6C6 | I Q P GVNRCKLI T R K D F E IL Y |
| UniRef90_Q4SAZ1 | I Q P GVNRCKLI SRKDFETLY |
| UniRef90_UPI0003317B39 | I Q P GVNRCKLI T R R D F E T L F N |
| UniRef90_E4WYD5 | 1 QP GVVNRCKLI T R R D F E S L Y |
| UniRef90_U6I7A9 | M P L S SRRCGTI T K R E A Q RLVES C (L |
| UniRef90_G4VRU4 | MPASSSRRCGTIITYREAERLILKSFLL |
| UniRef90-B3S182 | IPP TSSRRCGMI T $\square$ R EAE R L CKS FLL |
| UniRef90_G3P640 | I QPGVNRCKLI S RQDFETLWN |
| UniRef90-H3CQ89 | 1 Q P GVNR CKL I T R A D FE T L Y R |
| UniRef90-W5K478 | I QPDKNDCKLI R K S N Y E T |
| UniRef90_UPI0002659963 | I QP GVNRCKLLA CKDFDVLYK |
| UniRef90_UPI000394572E | $\square Q P \mathrm{GV}$ V R CKLI S R P D F E T L Y |
| UniRef90_D0Z789 | MPVSSRRCGMIT R R E A ERLLCKS L L |
| UniRef90-Q719M0 | I Q P GVNRCKLLSKEEFDVLY |
| UniRef90_T1J4Q1 |  |
| UniRef90_UPI0003990DA9 | XXXXXXXXXXXXXXEAERLCKMS L |
| UniRef90_A8WK71 | IQ P GVNRCKLLET R D F E K L Y |
| UniRef90_B7PVC6 | I Q P GVV R CKLL L S CK D F D A L Y K |
| UniRef90-F6SGL3 | $L P$ F S APSCGLLIT K T D A ERLLCNAJLLY G |
| UniRef90_T1EGZ7 | I PANVLHCGLVTKSDAQRFCSVLL |
| UniRef90_V4ARZ8 | II QPGVNRCKLI S C K E F D L L Y |
| UniRef90_B3RZ69 | L P LS Q T H C S L I S K S D A A RLCSVLL |
| UniRef90_G4V5D7 | I Q P GVNRCKLI A P Q E F D I L Y A |
| UniRef90_U6HSL5 | 1 Q P GVNRCKLI A PREFD L L Y A |
| UniRef90-F1L467 | MPMTADSCGLVTKSDAERLVAKLL |
| UniRef90_G7YE50 | LP K A V S S C GL I R K S D A E RLLTK F I |
| UniRef90_UPI000454BE5A | MP DS SR |
| UniRef90_V8N098 | I Q P GVNR CKLIS R R D FE T L Y N |
| UniRef90-W5LRY1 | $V A F H A A K C T L I ~ S R E D V E A L Y V S$ |
| UniRef90_U6ILS7 | L P A EVT S C GL I R K S D A ERMLK C L |
| UniRef90_T2MGI2 | LPWTSSSSNLITTKSDSYRLI GAL |
| UniRef90-T1L426 | I QP GVNR CKLL S T K D F DVL F K |
| UniRef90_UPI0003C10967 | V P V R A V K C S L I S K E D L E A L Y T S |
| UniRef90_A0A023FSY9 | I P S S A P S CGLITTKS DAERLCAALLH |
| UniRef90-T1EIN5 | I Q P GVNRCKLI S P K E F DVLY |
| UniRef90-E5S0C5 | I QPGVNRCKLI S CHDFD TLLLK |
| UniRef90-A7S748 | I G QVVNRCKLI S K E D F N K I Y |
| UniRef90-W2SS53 | I QPGVNRCKLI A A S D F D R L Y |
| UniRef90_C3Y1X5 | V D H NAKSCSMI SKEDAEKLCQSF |
| UniRef90_E1GCU5 | I Q Q G V N R CKLI S Y T D F D Q L Y |
| UniRef90-S4R6A5 | 1 A F H S A K C TL I S R S D M L A L Y T S |
| UniRef90_E3ML79 | CTSTCTRPGRPSKRNFE |
| UniRef90-W5N8A7 | VPVR A VKCS LIA K E D L E A LC |
| UniRef90_UPI0003871C1F | $V P$ T R A V K C S L I S K A DL E |
| UniRef90_B7P937 | 1 Q P GVNRCKLLAACRDFDALYR |
| UniRef90-J7HB84 | I QP GVVR CKLLTCKEFD IL Y |
| UniRef90_A7S373 |  |
| UniRef90-B3RQM8 | LGGS T A T R T TLL P T DEVER L Y Y Y |
| UniRef90-S7PHA6 | A ERLCKS F L |
| UniRef90-G1KUL7 | VPPSRAVVKCSLIS K A D L E A L |
| UniRef90_S9XGJ2 | LPFSAPSCGLI T K T D A ERLCNALLLYG |
| UniRef90_W4YTQ0 | V P H R T S K C CLI S H D D L L K L C R S |
| UniRef90_R0M3I7 | L P D R A A R |
| UniRef90-E5SPB0 |  |
| UniRef90-M7BM63 | $\square \mathrm{P}$ H |

UniRef90_R0KZ40 UniRef90-A0A044VDH8 UniRef90-A7RHX4 UniRef90_C3Y6U9 UniRef90_UPI0002B4B1E6

10
20



lupas 21
lupas 21
lupas_14
lupas_14
lupas_28
lupas_28
jnet
jnet
conf
conf
sol25
sol25
sol
sol
solO
solO
jpssm
jpssm

UniRef90_ROKZ40
UniRef90 A0A044VDH8 UniRef90-A7RHX4 UniRef90-C3Y6U9 UniRef90_UPI0002B4B1E6

LS D【LFKD\P 50 $\qquad$ RTTDSKKMET ${ }^{60}$ 60 $K \square K$ K 70
$\square R T|L| K A \mid H S$ RALKALGA


lupas_21
lupas_14
lupas_14
lupas_28
lupas
conf
cont
sol25
sol5
solo
solo
jhmm


UniRef90_ROKZ40 $\quad V \mid P$ T R A V Q A Q 90100 UniRef90-A0A044VDH8 UniRef90-A7RHX4 UniRef90-C3Y6U9 UniRef90_UPI0002B4B1E6

I QHGVNRCKLISCKDFDQLY I H GS SADCTLI PEADVQ
I DRRSNHCYL I RGEDAELLHHSFD


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

