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KAR1

$\stackrel{\mathrm{H}}{\mathrm{F}}$
$\qquad$ PFR ML

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1
20
30
DWSNVLIGTV
N LS N L G TV S E

| $I$ | $H$ | $V$ | $F$ | $R$ | $N$ | $G$ | $D$ | $L$ | $S$ | $P$ | $A$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $I$ | $M$ | $R$ | $L$ |  |  |  |  |  |  |  |  |
| $H$ | $V$ | $F$ | $R$ | $N$ | $G$ | $D$ | $L$ | $S$ | $P$ | $A$ | $M$ | 1 | $N$ | $L$ | $Q$ | $L$ | $L$ | $S$ | $L$ |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $N$ | $L$ | $E$ | $Q$ | $L$ | $S$ | $L$ | $I$ |
| $N$ | $F$ | $N$ | $D$ | $L$ | $L$ | $N$ | $D$ |
|  | $L$ |  |  |  |  |  |  |
| $S$ | $F$ | $D$ | $H$ | $V$ | $L$ | $T$ | $A$ |
| $I$ |  |  |  |  |  |  |  | S E R R P R K V V R F Y V


 P S V I H V F R R N G DLL L C P P F R L I I P K N M L Q D W G S I L T M L T E PSVI HVFRNGDLLCPPFRLII PKNMLQDWGSILTMLT

SRHINVFTNGRLLIPPVVI I I PKFTLLMDWENVLAA
KARIVTLIRHGTKPRKVMRLLLNKRNAPSLEHAMEADTE KARIVTLIRRHGTKPRKVMRLLLNKRNAPSLEHAMEAITE

PCVI NVFRNGDLLSPPFRLLIVKNMLQNWEKVLTLVNE


 R RTVKVVKFYKNGDQYF Q GLLPMNI S DNRYRSMEALL NELTR RTSSR H V $N$ NV F T N G R L

## 


 E
TPRKLVVFKNGDPGIK HTLILNKKLKQSFEVLLDDMSE $P R R R L V V F R N G D P R$
$P R R G R V V A V S P R V T Q S F E A F L R H L A E ~$




TPKRLVVFRNGDPEEK
TPKRLVVFRNGDPEEK
S K K I I I F K N G D L G F K
S K K I I I F K N G DLLGFK RTPKRLTVYKNRDPSMK RTPKRLTVYKNRDPSMK
 H H F N L N K K T K Q S F D S F L L i Q $V$ A HHFNLNKKTKQSFDSFLDQVAE $R$ V I V L H R R I A P T F E A LL D Y L S Q

K A KII TLLI RHGTKPRKVVRLLLNKRNAPNLEHAMEAA TE
I NVFRNGDILSSAMRFIIPRNMLKNLEQILSLISE

 $R T S R Q I N V F T N G R L F \| P P V K I I I D P K F S L M E W N S V L A T V$


 R P K L V $\operatorname{T}$ TVI R N GV R P R K A V R V L L N H R T A R S F E Q V L D D I T


PCTINDIFTNGDLLIP PVVRLLI
PCTI NI F T N G DLL LIP P V R L LI P K Y I S Q D WN RV L A M V T E
I HV F R N G DLLSP P F S L KL S QAASED WEAVL K LLLK E

K K I $\quad$ T L L V K N G D I
RTPKRLMVIKNRDPSVK



 RTPKRLLVFRNGDPTVK HTVVVHKRTTPTEQSILEYISE RTPKRLLVFRNGDPTVK HTVVVHKRTTPTFQSILEYISE

R T P
$R$

$L$| $L$ | $V$ | $F$ | $R$ | $N$ | $G$ | $D$ | $A$ | $G$ | $V$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $K$ | $K$ |  |  |  |  |  |  |  |  |
| $Q$ | $F$ | $R$ | $N$ | $G$ | $D$ | $L$ | $L$ | $S$ | $P$ |

$P$ F
S V V L
P F

PKKLVVYKNRDPSTK RTIVLQRRTAPTFEALLD
 K PRNINVETNGDILIPPVVKILIPKFTLNNWNGVLGLVNE

 RHP K R $V V_{1}$ V K N N D P T $V$ V RSIIL


RIIP K K

QEPCTI FLI ANGDLINNAVRLFIPRKTLNQWDHVLEMVTE



|  | 100 |
| :---: | :---: |
| UniRef90_UPI0003314D96 | L D S F K HFS Y WK S P K V ${ }^{\text {d }}$ P |
| UniRef90_Q32PM1 | S ERFKKLPY |
| UniRef90-Q32PM1 | SERFKKLPY |
| UniRef90_K1QXR9 | FEGFK T IK Y G K A E LE P WS VGM |
| UniRef90_Q7PLI7 | T E R |
| UniRef90-Q7PLI7 | T E R |
| UniRef90_UPI00038BDCDF | E E EF K A LP Y M ELLVPS P S L |
| UniRef90-UPI00038BDCDF | E EEFKALPPMMELLVPSPSLS |
| UniRef90- J3KML0 | E E EFKALP Y M ELLVPSPSLS |
| UniRef90-J3KML0 | E EEFKALPPYMELLVPSPSLS |
| UniRef90-W5M356 | SEKFKKLIPYVELLVPK |
| UniRef90-W5M356 | SEKFKKL P Y V ELL L V P |
| UniRef90_UPI000443DBD3 | LEA F K Y FP Y WK S P KVP S EVQQ |
| UniRef90_UPI000443DBD3 | LEA F K Y F P Y WK S P K V P S EVQ |
| UniRef90-W4W102 | P EKFEESKYVQSFRRPWS |
| UniRef90-W4W102 | P EKFEESKYVQSFRRPWS |
| UniRef90-H3AVU5 | A EKYK D L P Y V ELLVPM K S S H |
| UniRef90-H3AVU5 |  |
| UniRef90_UPI000328D535 | LE T F K Y F P Y WK S SRVP S EVQ |
| UniRef90-UPI000328D535 | LE T F K Y F P Y WK S S RVP S EVQQ |
| UniRef90-UPI00044346C6 | P EKFR |
| UniRef90-UPI00044346C6 | P EKFR |
| UniRef90-B3RPN0 | F N S L S K $\quad$ E Y G K A A R P A WR P N |
| UniRef90_UPI0002C582A6 | LE T F K Y F P Y WK S S KVP S EVQ |
| UniRef90_UPI0002C582A6 | LE T F K Y F P Y WK S S K V P S EVQ |
| UniRef90-Q7ZWX4 | R E K F K L P Y S |
| UniRef90_Q7ZWX4 | REK F K K L P Y S |
| UniRef90_H3B3U8 | REPFKP G N Y |
| UniRef90_H3B3U8 | REPFKKPGNY |
| UniRef90_G3TP35 | REPFK P G N Y |
| UniRef90_G3TP35 | REPFKPGNY |
| UniRef90-F6VEQ1 | S EKYKCLP Y |
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| UniRef90-UPI0003B52CBB | TERFKKLPY |
| UniRef90 ${ }^{-}$UPI0003B52CBB | TERFKKLPY |
| UniRef90-W5LDV3 | REPFKRGNYDVQK P P T W |
| UniRef90-W5LDV3 | REPFKRGNYDVQK P P T W |
| UniRef90-Q6DCE2 | RESF\IYANYEPGRE |
| UniRef90-Q6DCE2 | RESFIYYANYEPGRE |
| UniRef90_E7F2C0 | NEPFR |
| UniRef90_E7F2C0 | N E P F R |
| UniRef90_UPI000258DEED | S E K |
| UniRef90_UPI000258DEED | S E K |
| UniRef90_UPI000440DB60 | T ERFKKLP Y |
| UniRef90_UPI000440DB60 | TERFKKLPY |
| UniRef90-D6X3L3 | NERF |
| UniRef90-D6X3L3 | NERF |
| UniRef90-UPI0003840B1E | LEAFKNFPYWK S P KVPS EVQ |
| UniRef90-UPI0003840B1E | LEAFKNFPYWK S P K V P S EVQQ |
| UniRef90-U5EQ26 | NERV |
| UniRef90-U5EQ26 | N ERVV |
| UniRef90-B7Q0U9 |  |
| UniRef90-B7Q0U9 |  |
| UniRef90_UPI0003991E6A | R E K L K K LP Y G |
| UniRef90_UPI0003991E6A | R E K L K K L P Y G |
| UniRef90-V9KLT3 | S EKFKKLP Y |
| UniRef90-V9KLT3 | S EKFKKLP Y |
| UniRef90-L8HXT8 | EDEFKALPYLELLVPSRSL |
| UniRef90_L8HXT8 | EDEFKALPYLELLLVPSRSL |
| UniRef90_UPI0003890A0D | REPFKPLVI ENSRKR |
| UniRef90_UPI0003890A0D | REPFKPLVIENSRKR |
| UniRef90_UPI0003EC5807 | NEPFRLANYSFHR |
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| UniRef90_UPI00044005CF | E D G S R P |
| UniRef90-UPI00044005CF | E D G S R P |
| UniRef90-UPI0003AEDF66 | EDEFKALP Y L E L L VPSPSL |
| UniRef90_UPI0003AEDF66 | EDEFKALP Y L ELL V P S P S L |
| UniRef90_E6ZJ57 | REPFRSANYNAQKSP |
| UniRef90-E6ZJ57 | REPFRSANYNAQKSP |
| UniRef90-UPI0003595D57 | K E K V |
| UniRef90-UPI0003595D57 | K E K V |
| UniRef90_G3NK82 | REPFRPANYNAQDSPAQSTS |
| UniRef90_G3NK82 | REPFRPANYNAQI SPAQSTS |
| UniRef90_UPI00044361BE | EDEYKALP Y L ELLVPNPSL |
| UniRef90_UPI00044361BE | E DEYKALP Y L ELL L V P N P S L |
| UniRef90-W5LFZ4 | NEPFWMGNYN |
| UniRef90-W5LFZ4 | NEPFWMGNYN |
| UniRef90_UPI0004421048 | K ERFQR LP Y WQ HPKVPENI |
| UniRef90-UPI0004421048 | KERFQRLP Y WQ HPKVPENI |
| UniRef90-B0WIS9 | N ERVV |
| UniRef90_B0WIS9 | N ERVV |
| UniRef90-UPI000440FE2F | REPFKPLLLENLRK |
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| UniRef90_UPI0003C903B6 | R D K K K L P Y S E |
| UniRef90-UPI0003C903B6 | R D K K K L P Y S E |
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| UniRef90-UPI00035038E9 | REPFKPVSMENLRK |
| UniRef90-E7F630 | REPFRPL |
| UniRef90_E7F630 | REPFRPL |
| UniRef90-UPI00042C1467 | R D R F K K L P Y G |
| UniRef90-UPI00042C1467 | RDRFKKLPYG |
| UniRef90_V8PIN6 | K ERFQ H\| ${ }^{\text {P }}$ Y WQ H P K V\|P E N |

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UniRef90 F7DGY9 UniRef90-F7DGY9
UniRef90-F7DGY9 UniRef90-V3ZYP2 UniRef90-V3ZYP2 UniRef90-W5JB49 UniRef90-W5JB49 UniRef90_M4A034 UniRef90-M4A034 UniRef90_UPI0003945688 UniRef90-UPI0003945688 UniRef90-T1EHS7 UniRef90-UPI0003EA7FF8 UniRef90-UPI0003EA7FF8 UniRef90-I3L5C8 UniRef90_UPIO002651BAF UniRef90-H3ALV2 UniRef90_UP10002B8ECA4 UniRef90_UPIO002B8ECA4 UniRef90-G1TBQ7 UniRef90-G1TBQ7 UniRef90-ROL1E4
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UniRef90_Q9BLH2 UniRef90-H2TZ41 UniRef90_H2TZ41
UniRef90_C3YBJO UniRef90-C3YBJO UniRef90_UPI0003ABA6DC UniRef90_UPI0003ABA6DC UniRef90_L9JE98
 KRQRRILLVVKNSEPGMR RSVVVLSRRTARSLRAFLDEEVSE


 Q S K K V L V Y C N G DP F F P G K N F V I T S R Y V A T F D S F L S E



| K |
| :--- |
| R |
| R |
| R |


 KVPKKLILIKNGDIGFR RSMLLGPKNTQNFKTFLDDASD RLSRQS SVFNGRLEPPVNDI PKFSRTEXNCTLAM RLSRQISVFTNGRLFIPPVNII I PKFSLTEXNCTLAM
 RTPKRITVFKNGDMRTRC TVLLSRKVTGSFEAFLDHATE RTPKRITVFKNGDMRTRCTVVLSRKVTQSFEAFLDHLTE
 RPGRKLIVFKNGISGGNRTLILNRKTVMNFDALLNHITE RPGRKLIVFKNG ISGGNRTLILNRKTVMNFDALLNHITE HVYRNGDFLNHPVKMLLPQKALHNWDMVLDMVT K VNGD N KKTLVKNGDPTVR RSIILNRTNGRNLRTFLEDASD Rap K
$P$ P
$P$
 RTPKRLVVERNGELRMVPARVRIPKHTLKSWDRVLSMVTH RTPKRLVVIRNRDPTVK RTLVLHRRLAPTFDALLDYLS ERFKRLDVFRNGDLLSPPFRMVLARSALQEWGMIL
 KTPKKIMLVKNGEADMR HTVVLNRRNTYTFKTFLDEVSD KTPKK1 MLVKNGEADMR HTVVLNRRNTYTFKTFLDEVSD ARTILVYRNGDEFYVGTKFVI NRKRVPNDEALMTQL KPKLVTVIRSGVKPRKAVRILLNKKTAHSFHQVLADITA KPKLVTVIRSGVKPRKAVRILLNKKTAHSFHQVLADITA



 RTPKKLVVVSNRDPMFK RTPKKLVVVSNRDPMFK RTPKKILVMKNGDPQHK RTPKKILVMKNGDPQHK

HVFLLNRRTAQSFENVLDDIAQ



| UniRef90_V8PIN6 | $K E R F Q H L D P Y W Q H P K\|V\| P E N \\|\left.\right\|^{90}$ |
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| UniRef90-H2T3P6 | REPFRPANY |
| UniRef90 J9K6R3 | S ER |
| UniRef90-J9K6R3 | S E R |
| UniRef90-I3J6V7 | S EK F K A L P Y Y Q N S WLP Y F I N |
| UniRef90-I3J6V7 | SEKFKALP Y Y Q S S WLP Y F IN |
| UniRef90_UPI0003833886 | K EKFKKLP Y G |
| UniRef90-UPI0003833886 | K EKFKKLPY G |
| UniRef90-V9KRZ1 | S DKFKRLPY S E |
| UniRef90-V9KRZ1 | S DKFKRLP Y S E |
| UniRef90-G1KVC9 | REPFKPM |
| UniRef90-G1KVC9 | R E P F K P M |
| UniRef90-F7DGY9 | R D R F K K L P Y S E |
| UniRef90-F7DGY9 | R DRFKKLPYSE |
| UniRef90-V3ZYP2 | Y E Q F |
| UniRef90 V3ZYP2 | Y E Q F |
| UniRef90_W5JB49 | NERVV |
| UniRef90_W5JB49 | N ERV |
| UniRef90-M4A034 | REA F S P $\$ NY $\$ R K T S  \hline UniRef90_M4A034 & REAFS PIN Y I R K T S  \hline UniRef90_UPI0003945688 & REAFS PL  \hline UniRef90-UPI0003945688 & REAFSPL  \hline UniRef90-T1EHS7 & FESFKPINYGEDIT T A WS NEV  \hline UniRef90_UPI0003EA7FF8 & T EK F K L L P Y F Q WVP S K  \hline UniRef90-UPI0003EA7FF8 & TEKFKLLP Y F Q WVP S K  \hline UniRef90-13L5C8 &  \hline UniRef90_UPI0002651BAF &   \hline UniRef90-H3ALV2 & TEGFKKLEFQDLR R N K W S V  \hline UniRef90-UPI0002B8ECA4 & T E R I K K I A Y G D I  \hline UniRef90_UPI0002B8ECA4 & T E R I K K I A Y G D I  \hline UniRef90_G1TBQ7 & R D K F K K P P Y E  \hline UniRef90_G1TBQ7 & R D K F K L P Y S E  \hline UniRef90_R0L1E4 &  \hline UniRef90_R0L1E4 &  \hline UniRef90_UPI00029897EA & RER F R R M P Y  \hline UniRef90_UPI00029897EA & RERFRRMPY  \hline UniRef90- W5MEH4 & REPFKPGSY  \hline UniRef90- W5MEH4 & REPFKPGSY  \hline UniRef90-UPI0003C15ADF & R D K F K K LP Y G  \hline UniRef90_UPI0003C15ADF & R DKFKKLP Y G  \hline UniRef90_UPI0004419CAA &  \hline UniRef90_UPI0004419CAA &  \hline UniRef90_U4TW52 & GEP F K K ViE Y S K T  \hline UniRef90_K7F544 & KEKFKSLP Y WRS SR  \hline UniRef90_K7F544 & K E K F K S LP Y WRS SR  \hline UniRef90-UPI000161C885 & K E K  \hline UniRef90_UPI000161C885 & K E K  \hline UniRef90_F7G9Y5 &  \hline UniRef90-F7G9Y5 &  \hline UniRef90-UPI0004433EB7 & QEPFRPVEHSRRHLPE  \hline UniRef90_UPI0004433EB7 & QEPFRPVEHSRRHLPE  \hline UniRef90_UPI0002C2E9B8 & LE A F Q Y F P Y WK S P K VP  \hline UniRef90-UPI0002C2E9B8 & LEAF QYFPYWKS PKVP  \hline UniRef90_G3WCL0 & QEPFRPVESSRRRLPE  \hline UniRef90_G3WCL0 & QEPFRPVESSRRRLPE  \hline UniRef90_F6VRX2 & REPFKPGHY  \hline UniRef90_F6VRX2 & R E P F K P G H Y  \hline UniRef90_UPI0004441C36 & P EKFR  \hline UniRef90-UPI0004441C36 & P EKFR  \hline UniRef90_UPI00045728D5 & R EVFK H R R Y  \hline UniRef90_UPI00045728D5 & REVFKHRRY  \hline UniRef90_UPI0001CB9E64 & $P \mathrm{CKFKRVP}$ Y G Q G Y Q S P |
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| UniRef90_UPI00034F4D03 | REPFKPIHLENVRKS |
| UniRef90-UPI00034F4D03 | REPFKPI HLENVRKS |
| UniRef90-H2YPY7 | F EKFQRIJ Y G M H K |
| UniRef90-M4A0N5 | P EKFKPLPYERK |
| UniRef90-M4A0N5 | P EKFKPLP Y ERK |
| UniRef90-G3PYG0 | SEPFR |
| UniRef90-G3PYG0 | SEPFR |
| UniRef90_V8NKT9 | LEK Y K D LP Y F ELLLVHP WS LK T |
| UniRef90_V8NKT9 | L E K Y K DLP Y F ELL L V HP WS LKK T |
| UniRef90-A0A023FH62 | V E K Y |
| UniRef90-A0A023FH62 | V E K Y |
| UniRef90-H3ABA8 | REPFKPV |
| UniRef90-H3ABA8 | REPFK P V |
| UniRef90-F7EUC1 | R ERFRKL |
| UniRef90-G3Q423 |  |
| UniRef90-G3Q423 |  |
| UniRef90-H3CBG1 | RESFSPI |
| UniRef90-H3CBG1 | RESFSPI |
| UniRef90_S4RZ61 | FEPFRSVDFSRNKQPQLSYN |
| UniRef90-Q9BLH2 | Y ERFKRAPYGER |
| UniRef90-Q9BLH2 | YERFKRAPYGER |
| UniRef90-H2TZ41 |  |
| UniRef90-H2TZ41 |  |
| UniRef90-C3YBJ0 |  |
| UniRef90_C3YBJ0 |  |
| UniRef90_UPI0003ABA6DC | LE T F K Y F P Y WK S P RVP S EVQ |
| UniRef90-UPI0003ABA6DC | LE T F K Y FP Y WK S PRVPS EVQQ |
| UniRef90-L9JE98 | E EQFKALPPYLELLVPSPAM |

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 KPKLVTVIRSGVKPRKAVRILLNKKTAHSFEQVLTDITE K P KLVTVVIRSGVKPRKAVRILLNKKTAHSFEQVLTDITE
 RPKVITI YRNGAAAHNKVKILFNPRTMQSYEAIVKDMAN RPKVITYRNGAAAHNKVKILFNPRTMQSYEAIVKDMAN AKTVFFYKEGDEYFTGVRVPVSKSRYRNFDSLLDDL AKTVYFYKEGDVFFTGIRVPVSQHRFKTMTTLMDELNQ PCTINVFANGDI LVPPARILLPKYTLNSWESVLAMVTE PCTLNVFANGDILVPPARILLPKYTLNSWESVLAMVTE VFRNGDLLSPPFRLLLSKSTLQEWDAL GGLLTE

 RGKTIYVTMNGDLQFKPIKVLVNNRTTPDIEHLYDEIGK KTIVVYKNGDAFFTGKKRVLNPRHLSTFDNFLTSLTE TAKNVTVYRNGDLYFPGRKFVVNEKQVRNFDSFLNQVTN KASRRIMLVKNTNPRCQ RTVLLSHRNTRSLPAFLSKASD KASRRIMLVKNTNPRCQ RTVLLSHRNTRSLPAFLSKASD AKTVFFYKEGDDYFAGLRVPVSKARYRTAESLDDL
 NVFRNGDSLTPATLVVFRGQPP I NVFRNGDSLTPATLVVFRRGQPP
KAPKRI KAPKRI VKNTDPRFQ KGPKKI TMIKNGDADTH KGPKKITMIKNGDADIH KAPRQLTLVKNGDPRCQ KAPRQLTLVKNGDPRCQ QTVVVSHRNTRSLKAFFSKASE RTVVLSHRNTRSTTAFLSKASD RTVVLSHRNTRSLTAFLSKASD



ATRI TVFNGDLLSPPFRLLLSKSTLQEWDALLGLLETE KASRRUTLVKNGDPQR QTVVLSHRNTRNGTAFLSKASD KASRRITLVKNGDPQLQ QTVVLSHRNTRNLTAFLSKASD

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KTVT
TPKKI JVMINGDPQTK HMMLLNRRTAQSFEDVLADISE KTPKKI VVMINGDPQTK HMMLLNRRTAQSFEDVLADISE KVPRKIKLIKNGDPRFQG TVVLSHGNTRNLAAFVSKASD
 RVPKKITVLKNGEPHVR HTILLNRKTSQSFEQVIEDMCQ TAKTVTVYKEGDGHFAGVRVPVSKQRYTTMANLMDDLNR RAPRRVTLVKNGDPRYQQVVVLSHRNTRNLTAFLSKASD KTPRRILLIKNTDPHLQ KTPRRILLIKNTDPHLQ KAPRRIMLVKNMDPRK KAPRRIMLVKNMDPRFK RARLVTFYKNGDPFFTGTVVLSHRNTRSLRAFLNKASD PRIITIRNGVKPRRVVRHLLNKRTARSFLQVIQDITA LFFKDGDPNFGVAVSVNQRKYQSDEKLLEEL
QRAVRVKFYRNGDKYFTGLLYPLNFSRYKDFETLLKDLSS KRVSFFKDGDVNFSGVNLTITERKFRTYEQLVTELNK RRMTLLKNGDPTCQ QTVVLSHRNTRNLAAFLRKASD RRMTLLKNGDPTCQQQTVVLSHRNTRNLAAFLRKASD
AKQLMFYRNGDRFFSGLKLAVSSERYKEFDSLLTELSA RTILVYRNGDDLYPGKKLLLDKRLLENMDTLLQYITD RIILVYRNGDDLYPGKKLLLDKRLLENMDTLLQYITD
KTPRRIMLVKNGDPRFQ KTPRRIMLVKNGDPRFQ

 SKVIYVFRNGDANSPAVKI LFTKFMLKNYDVVLNEVTR
SKVIYVFRNGDANSPAVKILFTKFMLKNYDVVLNEVTR KARRVVFYRNGDPFFPGVELRYRPGRVTSLDNLLD KAPRRIILVKNGDPRVQ QTVVLSHRNTRNLMAFLSKASS KAPRRILLVKNGDPRVQ QTVVLSHRNTRNLMAFLSKASS RAPRKILLVKNRDPRVQQM VTLSQRDTKTLAAFLSKASD RAPRKILLVKNRDPRVQQMVTLSQRDTKTLAAFLSKASD ALTIFVYRNGDDISPPKVVPLIKKDLRNWEVVLKRVSA ALTVFVYRNGDDISPPKVVPLIKKDLRNWEVVLKRVSA PRKIMLVKNGEPGSQ QTVTLSHRNTRSLTAFLSKASD PRKIMLVKNGEPGSQ UniRef90_UPIOOO3AEEOCA


| UniRe990_L9JE98 |  |
| :---: | :---: |
| UniRef90-UPI0002B4965A | $\begin{aligned} & \text { E EQFKALIPY } \\ & \text { SEKGQSD } \end{aligned}$ |
| UniRef90-UP10002B4965A | SEKFQQSDL |
| L5 |  |
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| UniRef90_UPI0003BC96A5 | SEKKFKALPY |
| UniRef90-B3S278 | EEALVPL |
| UniRet90-U6PSG5 | SKYSRGLNDS |
| UniRef90-E3LVE9 | SNPPKGVDLDKПQEKY |
| UniRef90 UPI000440F9AC | MEKFRHKPYVQN1 |
| UniRef90_UPI000440F9AC | MEKFRHKPYVQNI P |
| UniRef90-M7AZ72 | VEKYKNLPYFELLVPE |
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| UniRef90-F2TZ12 | RGRFKAL |
| UniRef90-F2TZ12 | RGRFKALPY |
| UniRef90-G3P2Y5 | NEKFKRLI |
| UniRet90-C3Y4R1 | FERFRKME |
| UniRef90-UP10003F05E12 | HESFRPL |
| UniRef90-UPI0003F05E12 | HES |
| UniRef90-A0A044U415 | K TPR |
| UniRef90-H2Z434 | TEQLKKLPYGE |
| UniRef90 C3ZYS | PERFKKVEY |
| UniRef90-C3ZYS2 | PERFKKVEY |
| UniRet90_UP100045D8954 |  |
| UniRef90_UP100045D8954 |  |
| UniRef90-UP1000 | HEPFKPVTYENLRRNP |
| UniRef90-UP10004573992 | HEPFKPVTYENLRRNP |
| UniRee90-UP10003599077 | NEAFRHLEMEN |
| UniRef90-UPIO0042BDFFE | VEKYKNLPYFELLVPE |
| UniRef90-UP100042BDFFE | VEKYKNLPYFELLVPE |
| UniRet90-A7RME3 | REAFKK |
| UniRef90 UPI000383F649 | LEPFRPL |
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| UniRef90-UP100042D071E | Lepfrpt VmedTrrk |
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| UniRet90_A7RQ95 | D |
| UniRet90_A7RQ95 | H |
| UniRef90 UPI0003835DE4 | GERLKKMDYNN |
| UnRef90-UPIO00265343B UniRef90 UPIOOO26534BB | TGSFKPAPYSDSSP |
| Unirefa | NEAFRPAPYSDS |
| UniRef90 L8YCR8 | NEAFRP |
| UniRet90_R7U4L2 | GDRYKPM |
| UniRef90_R7U4L2 | GD |
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| UniRef90-UPIO004401A52 | HEPFRPLAMEDVRR |
| UniRef90-UP10002743187 | HEAF |
| UniRet90-UP10002743187 |  |
| UniRet90_UP10002C440C9 | HESFRPPAMED |
| UniRef90-UP10002C440C9 | HESFRPPAMEDSRR |
| UniRef90-T1IJD2 | RRKFEPLINYTVDHKKMWNPHL |
| UniRef90-A0AO24MG53 | K EK |
| UniRef90-UPI0002B488AB | S SkTKKTDY SN |
| UniRef90-T1EINO | SNLFVPMDYNQTCNPKW |
| UniRet90_UP10002B42771 | RIKRLD |
| UniRef90_UP10003332A03 | AFRHPAV |
| UniRef90-UPIO003332A03 UniRef90-A7RVP9 | NEAFRHPAVENNQ |
| UniRet90-T2M385 | YKHFVKGIYLNESEP FNVST |
| UniRef90-T2M385 | YKHFVKGIYLNESEP FNVS |
| UniRe990-1 GSB4 | SKRFM |
| UniRet90_1G5B4 | SKRFMK |
| UniRef90_UP100034F312A | RDRFKKLPYS |
| UniRef90 UPIO0034F312A | RDRFKKLPYS |
| UniRef90-4NVX7 | FEPFKKVQY |
| UniRef90-UP100046B877B | HEPFRPLEGAK |
| UniRef90-UP100046B877B | HEPFRPLEGAK |
| UniRef90_- ${ }^{\text {dgJOL4 }}$ | YKSFKNANYGKKSGGW |
|  | SNPPKGVDLEKIDQEKY |
| UniRef90-W4XF47 | RENFKKVP |
| UniRef90-Q9VUl3 | FKAFKPASYGKK NGMW |
| UniRef90-F6QEK9 | HESFRPLAMEDA |
| UniRet90-F60EK9 |  |
| UniRet90-H0XXW6 | NEAFRPLA VEDAR |
| UniRef90 H0XXW6 | NEAFRPLAVEDARK |
| UniRef90-T1IVV1 | RENFKSVSYGMFNPPNWSL |
| UniRef90-L5L285 | HESFRPLAMEGARRK |
| UniRef90_L5L285 | Hestrplamegarrk |
| $\begin{aligned} & \text { UniRef90_UPIO003AEEOCA } \\ & \text { UniRef90_UPIO003AEEOCA } \end{aligned}$ | He |

## UniRef90 UPIO00333CE6F

 UniRef90_UPIooo333CE6F UniRef90-HOVOP1 UniRef90-HOVOP1 1 UniRef90-A7S1C2 UniRef90-B3S9X2 UniRef90_UPI00046C3952 UniRef90-TTMAO1 UniRef90-T2MA01 UniRef90-UPIOOO26596BA UniRef90-UPIO0026596BA UniRef90-G5C7L0 UniRef90_U1NKR6 UniRef90-U1NKR6 UniRet90-H3F6U9 UniRef90-H3F6U9 UniRef90-K1RG24UniRef90
U1RG24 UniRef90-K1RG24 UniRef90-E5SQE7 UniRef90-W4ZL21 UniRef90_W4ZL21 UniRef90-E2AASO
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UniRef90 -
UniRef90-B7PHI1 UniRef90-C3ZDR3 UniRef90-C3ZDR3 UniRef90-A0A016VCl8 UniRef90-T1HQX8 UniRef90-UPIOO03501E79 UniRet90- ВЗММ 06 UniRef90-M7BU19 UniRef90-T1FY10 UniRef90-T1FK86 UniRef90-K7GZl2 UniRet90_H3FB18 UniRef90_K1Q4M6 UniRef90-UPIO002C438BF UniRef90-B7Q5R5 UniRe90-F2U812 UniRef90-T1K9Y7 UniRef90-W5KZR1 UniRef90-W5KZR1 UniRef90-Q550F6 UniRef90-C550F6 UniRef90_S4RAE4 UniRef90-E4X3X6 UniRet90_B4JO17 UniRef90_K1RBJ8 UniRef90-K1RBJ8
UniRef90 Q7QFI4 UniRef90-T1GQ63 UniRef90_O8MZC6 UniRef90-J9EXR2
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KAPRB1 - 10
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KAPRILVKNTEPRFORTVVLSPRDTSSFAAFL
PRRVTLIRNGATGHQQMLLLSYRDARSRTAFLSRAS PRRVTLIRNGATGHQQM LLLSYRDARSRTAFLSRASD KHIVIYVNGDRSSVGTYLLLDCSRYHELDDLLRDLTY TSKTVIFYKNGDVFSK YPVTTTPRKYRSFDILLAEL HI HVYRNGDRFYKPRRFTVNPKQVRSFDALLSMVTN KARRVLFYKNGDPFFPG円EFRFKPGRIVSLESLLD KPKLVTVIRNGKPPQKKVTLLLNSKTAISLDQVLDQLSA KPKLVTVIRNGKPPQKKVTLLLNSKTAUSLDQVLDQLSA RPRLVRVLRAGNKPRKFVRLLLNKRTAHTIEQVLDDLSR RPRLVRVLRAGNKPRKFVRLLLNKRTAHTIEQVLDDLSR
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PRIITVIRNGIKPRRVVRHLLNKKTARTWMQVI NDLT
PRUTVIRNGUKPRRVVRHLLNKKTARTWMQVINDLT
RAKRITVAINNDDDDSHVVLIPAKKVNNLQAI I ET: DD RAKRITVAIJNNDDIDHSHVVLIPAKKVNNLQAM I ETIIDD RTVFFHKDGDKYFQAVKIPVSKARYRTVEALLDDLSK TPKKIIVMINGDPQTK HMMLLNRRTAQSFEDVLADISE
 KTVRVFKNGDPYHLGIKVVLNRRYVHDLDGLLN RAKRFKLYKNGDTQFSGKEFVLNRRRIRTWDSFLQAVTT KTTRVFKNGDPYHPGTKFVVNRRYVCDMEHLLN QPKKITCLKNGDPVVR HVVLINRRTAQTFEQILSDLSG QPKKปTCLKNGDPVVR HVVLI NRRTAQTFEQLLSDLSG KAPRKVVFVINGDEHYQSKSLLVNPKRYRNFDTFLDDATK KAPRKVVLVKNTDPRLL
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QPSKELVCLNGAGF
QAN VLVHRNATPTDKPRRYVISFKTASSMQQVCDSLTR QANIVLVHRNATPTDKPRRYVISFKTASSIQQVCDSLTR SRWVFMFLNGDEYFKPDRTLVNQRHYRSLESLLEKLTE $1 \begin{aligned} & \text { HFRNGDSHTPPSKLLFKKAWLQTWDVLLEMVQE } \\ & 1 \text { HFRNGDSLTPPSKLLFKKAWLQTWDVLLEMVQE }\end{aligned}$ KAVRVCFLRNGDPFFRGVMLSVSPCKYKDFGILLEDVTS AKTVFFYKEGDEYFTGVRVPISKSRYRNFDSLLDDL RARKVTFYKNGDPYFPGLEFRFRPGRVGTLEALLD RRITLVKNGDSRCH QTLLLSHRDTRSLTAFLSRASD RRITLVKNGDSRCH QTLLLSHRDTRSLTAFLSRASD KA LRVCFLRNNDPHFQGVCIAVSRFRFKDFQALLEGVTE AKRICFYKSGDPQFNGLKMVINNRSFKTFDALLDNLSK SKRLR円FKNGDDSFGGKQTVISQRATKSWDAFLAQVTN KPRLITVIRNGARPRKLVKVLLNKKTALSMEQALNEI NT KPRLITVIRNGARPRKLVKVLLNKKTALSMEQALNEINT

RKISIYKNGDRFHRGVKFVINPRVVKNMEPLLNQ
RRGKRVSFFRNGDKDFKGVNVCINPKQFLNFEALLVYL
AKQVVVYKNGDP RKALMGTFFANGDPFSSGDKVSITPGRFKTDEHLYDYLSE KPRKTRVYRNGDTHFPGRNILIRNPKV DFTVFLDVVTQ RPKLVNIIINGPKPREVIKLLLNKRSVHSYDQLLTDIQA RPKLVNVIINGPKPREVIKLLENKRSVHSYDQLLTDLQA
PCTIFIVANGDVLNPAVRLLVHSRLLGQFERILEMVTE KSARVILFRNGDRYHEGVHCLVHSSKFKTFDQLKLE KSARVILFRNGDRYHEGVHCLVHSSKFKTFDQLKLE AKRVYFYKSGDPQFGALPLVVSERSFRTFESLLDELSR KTLYDFANGDRYYSVIKLANNGKDMECFQKILNQIST KTLYUFANGDRYYSVIKLANNGKDMECFQK LNQ ST
 QPKKITVLKNGDPTYR HVVLLNRRTAQQYEQVLHDLSE KARRVLFYR
KKALRVCFDRNGDRHFQGVNLVISRAHFKDFPALDOGVT RGLRIKVYKNGDQYDEGTTVVICRKRFKHWLTFLDFLTK RAKKLVFYKNGDPFFPGLEFRFKPGRVGSLDGILD

TLWRNGDRYSEGVKIVVHPKNFKTYDQLKLEFSK QKADRVCLWRNGDRYSEGVKIVVHPKNFKTYDQLKLEFSK QRALRVCFLRNGDRHFNGVNMVISRAHFKDFHALLQGVTE KRGYRGDHYPGKSVILNKQFRTFESWLSELSN
 QTTRVIRVFRNGDMFDHGRILVVTRKQFKHWIVFLDALTD QTTRVIYVHQNGNAFHR HRLLIQGRAGNSLQNLLQELSF
 RKGNLVRFYRNGDPHFKGVTTAVSQKQYATFETLL
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AK $\mathrm{V}_{\mathrm{T}}$ TYYINGEPFRAGIVRVSIVPGRKDFHSYLTSLLYD UniRef90_UPI0003C8F98F


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K P R N|I $\mid$ N|V|FTNGEVLV|P PAKF|LI|PRFT|LIRNWDSV|ALLNE

K A $\square R$ A CF $\square R$ N MDQHFGG $\square S$
 L A V S K K R Y Q E F K A L L E A I T V I VVN E K R V C N F E T L L R E V T
 $\mathrm{R} \square \mathrm{I}$ S R H I N V

 E K G K VI HA A WR NA D K Y V E GVVRIVI H S T K Y K T Y D QL K V E

 P K S I W W Y R N G D K H H N GL L F F Fi I K S H
 K QIFALVNGDEDGVGVRVILRPRVLESWELVLQEITN



 K A I R VKFFKNRDALHKGIVLSISEKMFPSLDSLMNHLNN E K G K V L



K R I R V Y R N G D $\square$ F F K G L K

 EPPKLVWLYRNGDKH H DGVSFYI R P Y Y I R T MKTLLI EIGK

 K S R V CHF Y S D N N D K S G A C K IVVV N T K S F P N I D S L K S E L T K



K RVKIJYKNGDDSFEGIELIIDDTDQLKNMQAILD

HVFRNGDLLCPPFRF! IDPRSMQQDLEK\LSLVTE $R R A T T V E A L L E Q L T E$ PRKIVLVKNSDPSMR RT VLHRRSLRSLALFMDEVSE



 K A R R VVFYRNGDPFFPGVEL RYRPGRITS DDNLLDKIS S T A T T I L V A K N G E S H A P I I R I P P I P P L A A T T F E Q V L


V Y A N NDLDF K A K KFIVVNPRTSSSMDQVIDDALTE

SKVILVARNGESHAP TRVP\PQRGRPS $\square D$ RAKVI QALP AGDEDGVPQRIVIP PADDDNWERVLEDVVE
 $R \square S$
$R$ II L V Y R N G D D L Y P G K K L L L D K R L L E NMD T L L Q Y ITT D

 R H N K RVVLVKSSDPSVK
$\checkmark Y$ A N GDTA GP A QRVTMPWK GLLD RLEA LI NEVVD MD A L L D

## FRFKPGR\GSLEALLD

$K \square C T F Y Q S F E S$ QEPVLR $\ V I S E L R F R D M N D F L D E V S K$ $M L Q R R T T Y S F D A L L D H I S D$
$K R V L I Y R N G D P \quad K Q V T Y V W G \quad K N D E E L L A N S T S$ R P K T I FL F N N E K K Y D K G V Y F L V K S Y DK Ni K S L C Y E IT K KRAHTCRFYRNGDPQ V AHRVVGASMAELLDACTR
 K P S K Q I F F $\square R \mathrm{RG}$ G S K R Y R AVIVNPSKLPSMEKLLTEEVSE
K P K V VT I VR N G H K P R N N VK I L L N R R S VQS FE QLMA D $\square S E$ QKAVKI I A HKNGDGYRNGKLL VA

K VK K $\square$ Y VK K N G D $\square$ Y E K P K L F VWR Q WQ S P QKAVKI MAYRNGDGYRNGKLIVA A K R V W D $M$ L N G G R L E D G T Y A W G A K RVWI Y L N G GRLED G

T Y A WG

$T F P M L L T E C T E$ SLDLVLSEITE P RLLE QLL E DV RTBPMLLTECTK K T ITSELLNDCSS | $K$ | $T$ | $I$ | $S$ | $E$ | $L$ | $L$ | $N$ | $D$ | $C$ | $S$ |
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| UniRef90 UPI0003C285B5 | $\text { KEKFKHLLPY }{ }^{90} \text { CS PRIVJPPEVV\| }{ }^{100}$ |
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| UniRef90-G0P6B3 | TGPFDSVPYGQTR |
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| UniRef90-D3BKU22 |  |
| UniRet90 U6NUR5 | RGPFDDCNY |
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| UniRef90-F2UA77 | K |
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| UniRef90-G3WBW2 | LETEKPLPYWETQKVP |
| UniRef90-UP1000359BBF8 | TNKLQVGDLT SFRQLHPQ |
| UniRef90_T1FJU6 | D |
| UniRef90_86A9C1 | GEQPAPIEKLER |
| UniRe990-A7ATL8 | GEPPAPAHRLQKFMDEWV |
| UniRef90-K1P643 |  |
| UniRet90-FPLS |  |
| UniRef90-F4PLG5 | A EKL |
| UniRef90-U1MLT4 | TNVFTPLNYGQVRAPTSS |
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| UniRef90-E1GL03 | T DIFTPLFYG |
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| UniRet90-UPIOOO3C25E04 | KKYVKPVGISNASRR |
| UniRet90_UPIO003C25E04 | KKYVKPVGป ${ }^{\text {S }}$ NASR |
| UniRet90_G3P4G3 | TERFKK |
| UniRef90-F7IJ48 | RERFRELD |
| UniReef90-E7F542 | REPFHPL |
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| UniRet90-F2U469 |  |
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| UniRef90-A9V1M1 UniRef90 T1ERJ1 | TDPFK |
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| UniRef90-UP100033187C2 | NEPFRKVDYTKNUNPNWSVNป |
| UniRef90-F2U4P7 | R |
| UniRef90_A9V8V4 | L S |
| UniRef90-A9V8V4 | L |
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| UniRef90-F2U2M5 | E |
| UniRet90 GoNKA6 | R N |
| UniRe |  |
| UniRef90 H3FVA1 |  |
| UniRef90-F6ZUN9 | LEESFKYFPYWKSPNVPSEVQ |
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lupas_21
lupas_14
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sol0
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GEPFLP
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K EP

| K G |  |
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|  | P |

G N P F
S HFTPMSYG
R N SKKF LKVN GDRF $l_{\mathrm{V}}^{\mathrm{L}} \mathrm{P}$ P $\quad$ P N S S L $H$

GERFSP
NETFKY L P Y WE H P K VP
REKL
GQPF
GE P F

S DPFKK $\square H L L L M K K V T W T M N$ SNPFKK $\square H L L L M K N A T W T L N$

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lupas 21
lupas_14
lupas_28
jnet
conf
conf
sol5
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solo
sol0
jhmm


[^0]:    lupas_21
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    jpssm

