## QUERY

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 MKVWPPIGLKKYETLSYGPPLSDEALEKEIDDYLIRNKWIP






 MQVWPA YGNKKFETLSYYLP PL STEDDLDKQVDYLLRNGWI P
 MKVWPTQNMKRYETLSYLPPLTTDQLARQVDYLLNNKWVP



MQV WP P L GKK K F E T L S
$M K V W P P$ L

| $M$ | $Q$ | $W P$ | $P$ | $R$ | $N$ | $L$ | $K$ | $K$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $M$ | $E$ | $T$ | $L$ | $S$ |  |  |  |  |
| $M$ | $V$ | $W E$ | $P$ | $Y$ | $N$ | $N$ | $Q$ | $R$ |

MKVWPTEGLMKFETLSYLPPLNDEQLCKEVDYLLRMKWIP

$M$ M Q V WP P E G L K K K F E E T L M QVWP P IG K K K F E T L S Y L P P L T R D Q L L K E V E Y L L R K G WV P

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

$M K V W P T V N K K Y E ~$ MQIVCPLSNSRFETLS
MKTWNPINNKKFETKS
MLTWTPYNNPRFETLS
MQVWPPDGLKKFETLS
MMVWNPTNNKQF MQVWEPYNNLKFE MKTWNPFTNRRYEALSYYLPPRLSQDALAKQIDYVIKSGWAP MQVWTP RNNKMFETFSFLPPLTDGEISRQVDYVVRNGWTP MKVWNPVNNKKFETFSYLPPLSDAQLAKQVDMI AKGLSP MKVWNPVNNKKFETFSYLPPLSDAQ! AKQVDMI AKGLSP
 MKVWNPVNNKKFETFSYLPPLSDAQ1 AKQVDMI AKGLSP
 MLVWKPYDNKKFETLSYLPPLTNDQUAKQVEYMVRKGWTP
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 MQVWTPINNKMFETFSYLPPLTDAEISRQVDYUVNNGWTP MMVWRPHGNKMFETFSFLPPLSDAQLAKQVQYMLQQNLIP

 MMIWRPHGNKMFETFSFLPPLSDAEI AKQCQYLLNNGWTP MMI RPPDGKKKFETFSNVPPLNREQLARKVEYLLCMGWIR MMIVRPHGNKMFETFSFLPPLSDAE:CKQVQYLLNNGWTP



MLVWEPVDNKFFETFSYLPPLTDDQ:AKQVDYI:RQGWTP
YLPPLSTEALLKQVDYLIRSKWVP
EVVDPTNNARYETMSYLPDFNERDMENQVNYMI NNGLVP
MKVWNPVNNKFWETFSYLPP SSREDAKQVDMII AKGWIP YETGSYFPDLTDEQLFKEVEYLLNKGWVP SPEALLKQIDYLIRSGWIP
MQVWPPVGKKKFETLSHLPPFSREQLLKE
QAYSPFNGKKYETLSYLPPLTNEDI AKQTTFMTKNHWTP MKVWPPRGKKKLETLSYLPPLSDESLAKEIEYFIRKGWDP FSYLPPLTDEQISKQVDYILANSWTP KFETHSYLPQLTEEQLVKEVEYLERNKWVP MQTLPKE RRYETLSYLPPLTDAQTQKQLQYYEQGFIA





Unifiong

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90
100
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120

EV MAEVDACRSDYRDSYIRVVGFDNVKQCQVLSFIIHKP
 EVLNEVRECKAQYSDSYI RVI AFDNL RQCQTVSFIVHKPN EVLNEVVKACRSEYSSNFIRVVGFDNVKQCQVLSFIVHKPT


 E V L N E V R E C R T E Y S DCYYI R V I A F D N I K QCQTMMS F I V H K P N

 QV L D E V R E CR S E Y G D C Y I R V V A G F D N I K QC Q TVVS F V V R P QVLNEVNECAKAYPNT I KLLNQF
EVMAEVDACRSDYRDNYIRVVGFDNDKQCQVLSF\|IYKP
E V L S E V N A CR S S Y P G C F i R V I G F D N I R Q C Q TMMS F IV Y K P
 EVLNE V Q QCRSEYPNCYI RVI GF DNI KQCQTILSFIVMHPN
 Q V L K E L E E A K K A Y P K S F I R I I G F D N R R R V Q C I I F I A Y K P P
 KILAAEANACHKAHPTHHVRLVGYDNYKQSQGASMVIMRGP GVLQE I NECRKAYPNHYIRLNAYDASYGRQTISFIVHRPP DVLTEVVRACRDSYPKNFIVRVGFDNVRQCQTVSFIVYKP
 R V L A E I E A C R Q A N P G H H I R L L I G Y D N I K Q S Q G T S M V V H R A P
 RI LA EVVEACRKAHPNNHVRLI GYDNYAQSQGASMVI HR EVLQEVVNNCRNEYRNCFIRVVGAFDNDKQCQVASFIVNKPS
$V L N E V E E V K K E Y P D A Y V R V I G F D N L R Q V Q C V S F I B A R P P$
 RI L NEAELCHKANPGHHVRLI GYDNYKQSQGANMVVYRAP HI LKEAEACHKANPHNHVRLVGYDNFKQSQGAALVI YR $T V L A E E V E A C K K E N P G H L V R L I G Y D N Y A Q C Q G T S M L V H K$ VV L A E L L E E CR R A Y P D H L V R L V G Y D N Y T Q S Q G I A F V V Y R G Q A L LA E I EACKA ANPGNHVRLI GYDNI RQSQGANMLVMRAP
 TI LAECKACHDANPDNHVRLIGYDNYAQSQGASMVI YRGK A I L Y E VNECRKAYPNHYI RLNAYDPSRGRQRMSFIVNRPP


 E VLS EI I A CR QA YPD HLI RLVGYDNYTQCQGHNFVVYRPR R I L A E A E A C H K A H P K N H V R L V G Y D N Y A Q S K G A E MVVVG R G Q QI L NEAQLCHNLNPNHHVRLIGGDNYRQSQGASMVIYRAP QVLNEVGEC
AI MYEI NACRKAYPDRYIKVNAFDSNRWREALSFIVNRPA A I MYE I NECRKA YPKHYVRVVAADSKRGWERMSY IVNRPP RVLA EAEACHKAHPNNHVRLDGYDNYAQSQGAAMTVYR GALMEVNNCRKAFPSHYI RVVAFDDTHGVERDSFIVNRP
 AV MY EL NQCKEAYP HHYI RINAYDSSRQTTALSSFIVNRPP TIITTELEACHRAHPNHHVRLIGYDNYSQSQGSSFVVFR AVFQEVELCKTANPNNHVRLI GYDNFKQSQGTAMVVHR AVIA EL E ACRRAYP GHHVRLI GYDNFS QS QG IS F VVVFR AVLAAELEACHREFPDHMVRFVAYDNYAQSQGLAFVVYR GVMGEVKACREANPDCYI R LSAFDSTRGWERLAFIVMRPK GVMQEVANCRKAHSS $\square Y$ I KI NAFDNTRGVEVLSFLI NRPS

 GVLMELTECRKVYGDRYIRLSAFDSSHGWERLSFIVHRPK RVMAEI DACHQAYPTHHVRLIGYDNYTQSQGVSFVV | $V V$ | $L$ | $A$ | $E$ | $L$ | $A$ | $C$ | $R$ | $R$ | $E$ | $Y$ | $P$ | $N$ | $H$ | $H$ | $V$ | $R$ | $L$ | $G$ | $Y$ | $D$ | $N$ | $Y$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | TILAEVEACHKAHPKNHVRLLGFDNFAQSAGAAMVLYRGT TI MF EVVQECRK QFPNHYI KVLAFNSTNGDEADSFIVVRPA RIIAAEVEACHREHPGHHVRVIGYDNYSQSQGTAFVVYRGA GVVYEVNECRQAYPLYYI RVNAYDATRQTTALSFIVNRPP AVLTELLRACRTAYPNCYIRLNAYDRSRQTTALLSFIVGRPK GVLYEVNRCREAYPNHYVRVTAYDRSQQTTRLSSGVVQRPP GVLLEVNSCRSAHPNHYVRLNAYDARRQTTAFSFIVQRPA RIL GEAA ACHKAHPANHVKLVGYDNYAQSKGTEMVI YRGN GVMME LDECRKAHGDSYI R N NAFDSTRGWETMSFIVNRPK GVMQEVVKACRATFPQHYIKVNAFDSVRGFETMSFIVNRPA GI LLEVNACRKACPNMYVRVTAFDSTKGWERMSFIVNRPP AI L A EI E ECRTANPKHHVRLLGYDNFTQSQGANMVVHR GVMMELKECRKAHPEAYI RLNAFDSTRGFERMSFI ANRPK GVLMELNECRKDYGDRYIRMSAFDSSHGWES\|SFIVNRPK AVMFEI NACRKAHSNFYVKVTAFDNTRGVEALSFIVNRPS GVYGEVEACRTAHPGKYVRVNAFDSNRGWERLSFIVQRP GVLAEI DACRREHPENYVRVVAYDASRQTVALSFLVQRPS LVLAELEACHRANPGNHVRLDGYDNFSQSQGANMVI YRGR A L M Y E I A A C R K A K P N Y Y I K K V N A F F D N T R G V

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MA $\square$ QA YH DTKKYE FS F L P DLLT DEQI SRQVEYCI RKNWSV
 D Y Q T A Q T LE T F GF L P K L S Q D EVV H E Q I A Y II A Q G WT P


KYETFSYLPEMNADQVRRQDAYCDAQGWNP

FS
M Q D Y ESTPKYGT $T$
Q F R Q G SRKAFTF
MRTLPKE FSF

MMT NYGNR | $R R F E T$ |
| :--- |
| $R T$ |
| $L$ |

E $\square$ G D F Q T A Q T
Q T L
RKF ${ }^{\text {G }}$

F
QT D D Y R T K Y T L E

 TFS F L P D F N D D QI R T QVVQYCIDN G W A V
M QVWPVD GKKKFETLS
E MVD Y Q T A Q T LLE T F GF LP A LT Q DEEDDE Q DAY LLS Q G WT P

 F SFLLP PLTD DQIK T QVKKWALDH GWAV F S F L P D LT D A Q $\square$ T K QLQ Y A LR Q G W A V
$M Q \quad D Y K Q S \square K Y E T F S Y \square P P M N A E R \square R A Q \square K Y A \square A Q G W S P$ Y MCIF N F C I
TFSYLPDLTEAETRGQVEYCLRNGWAV

M M T $\mathrm{N} \square \mathrm{NQRQT}$ Q GQ F S F
F
T F
D Y Q T K Q T L E T GFLPD

F P P L E Y AV NK GWA I F S F LIP DLLTMD Q I SA Q L D Y CL G R D WA L QKYETFSYY
 V V D Y Q T VA T L E


TFSFDP DLT DEQTAK QTEYS IS Q D WAV $M Q L W P P L G \quad K K F E T L S Y L P D L T S G Q L G K E V D C L L R S H W U P$ S DRRPDRQAGRLLHS GWTP

VWQP $\square G$ K K FET L S Y LP N LD D A QLA K E VE Y L L R N G W $\square P$ F S F L P DL S N E QI K N QI N Y AI S K N WAV VWK P VN NK F FE TFS Y L P P L S G D Q I A R QV D Y IV L N G WT P MQVWPPYNNPKFETLSYLPRLTQEQLLK
 F S F L P E L N E R E L G L L Q L L Q H L L WN P I N N K K F E ALLS Y L T P L S D D S I A K E I D Y M V K K G WI P MMVWTPVNNKMFETFSYLPPLSDEQIAAQVDYIVANGWIP


 $M L V W T P T N N K F F E T F S Y L P P L S D G E I A K Q V E Y I V N N G Y V P$
 $R$ VWP RIIGKKKFE TPS Y L P P L T RE QL L K E D


 $M M T N H G N R D T Q G Q F S F L P D L T D E Q Q L A Q I K Y A L K N D W A V$ MMT NPT GRLTQGQFSF LPDLSDAEVSSLQLEYGLGRK GYAW | L | S A A | A | I | A | $Q$ |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| L | S A | $E$ | $A$ | I | A | $Q$ |
| L | S A | $E$ | $A$ | I | A | Q | LSPETI E LSPETI E LS P E T I E


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