## QUERY

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 $M \operatorname{V}$ S V N L R A K K I V D E M I V SVV A H S Q P I V KY LI T Y A D K L R L Q I D R L P N G C T V I D A GI

 $M \perp S V N E K G L Y I$ I DEMLD WEEELKIIESKELENGATI I DCGV $M \square S V N$ E M G S Y V I E E ML S L N QLA A P L V E QLV R E A Q A L R L S I SHQAN GTRIV DA GI
 $M V S V N E L G L D L E E E L V E N A D L D N V A M H E L D N G S R V V D C G D$

 $L S P N C Q A F P L V E E F D A R S E L L Q Q K A Y K$ Q N EVVTVIDCGV
 MAHLNRNAQRII DQIIADDERFGVAYGRGSLGEHLIDAGA
 M S I N E M G F E V F E E M L D L A D DL R V D V D E S V N A L A G A L V D R LV A GA A K Y R V S V ERGGLGELLLI DA GA

 ES MNI A A K KI A D K MV Q D A E K L K VVIAP S T L S N G T S I I D C G V

 $L \operatorname{S} V \mathrm{~N} A$
 SL N ALANPLVEKLVADAEALRLAVTT ENGARMVDAGA

 $L S V$ N A R S E A L V A QL V G D A A Y Y GVVAVVHTDD GTVIVVA GV V NT LVQPLI A S L L E RHAELGGI AVVRDAHGVTIVDA GI SINTLAAAQVDDLLARADAFGLAIERLDSGVTLID G GI $L$ QL N DLAS QLIE DI NESPE DYRI GRHDVENNGLLLD F GV


 $M L S V N E T A L D D V E E M I D D S E E F K I K A H T L D N G A T V I D C G V$ L S PNRLLAFQIVVEMVIVKELLQVHVHKQA EVTVIDCGV $M \perp N L N E S A F K R V K E M A D R S D E V G V S A F K A G C G A T V V D A B G$

MK TLNE GAYERVSEMIEKSHELGISSVIKTKTGSTVLDVGI L N D N A Q R I A D G M I R D A E R L R I A V S K GP L G E T L I D A G S





 MDS N R MA I E LVDEALDFA GELGVEGYELDSGTTVI DFGV
 L N L N K K N A V M L V K K M I

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

 $M \operatorname{L}$ L N QRAA WA A A Q A

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NVA GSFKA GELYT KVCLGG LA DVGTS IP GDLSEKFALPSV





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UniRef90_Q4JIN5 UniRef90_UPIO0045EAB27 UniRef90-C5CPW2 UniRef90_A2SJ24 UniRef90_B1Y0Z3 UniRef90-UPI00036BDFFB UniRef90_UPIO0037928FA UniRef90-F4COH5 UniRef90-H5XWY4 UniRef90-G8AVC7 UniRef90_UPIO003482C8C UniRef90-W6WQ55 UniRef90-N6YCQ4 UniRef90_UPI00029A03EA UniRef90-UPIO003009783 UniRef90-H1YX98 UniRef90-B8ITX3 UniRef90_G7WQH3 UniRef90-Q2Y4N8 UniRef90_G7WFT9 UniRef90_-14BWV1 UniRef90-J3A025 UniRef90-D3L4W7 UniRef90-HOHRA6 UniRef90-A0A022GX31 UniRef90_D5MJV5 UniRef90_Q2FT11 UniRef90-A3CS47 UniRef90-10HWH4 UniRef90_W0EEI3 UniRef90-MODDK3 UniRef90-E7QZW0 UniRef90-M5WKF6 UniRef90-R4WA57 UniRef90-M5DXY0 UniRef90-GZZAQ5 UniRef90_UPI00016C4EC7 UniRef90_14D918 UniRef90-A6CF70 UniRef90_UPIO003813BA1 UniRef90-J7ISY6 UniRef90_LOD9S7 UniRef90_A3ZXB8

100 110
K TK TDFPATSTLGAQKAGWSVSVGDFFALGSGPARALSLK KIKTSHPAIATLGAQKAGWAVKVGKYFAMGSGPARALAKK QVTTSDHPAVSTLAAQKAGWQVQVGDYFAMGSGPARALAKK NVHTSNPVI ACLGSQYAGWSLSHGEFYALGSGPARAMATK TVHTQTPVLSCLGSQYAGWSLSHKKFYALGSGPGRSLAGR EVTTDHPVIACMASQFAGWRISVNKFFGMGSGPARALSGN YEYTDFPAI ACLGSQKAGWAI KVDKYFAMGSGPARALALK

 AV STA QPVLACLGSQYAGWSLSHGEFFALGSGPGRALAGK

 KVHAMSPVVACLGSQYAGWALSHEKFFSLGSGPARALAQR
 QVITAKPPVLACCLGSQYAGWALSHEKFYALGSGAGRULAQK EVSTDFPSIACLGAQKAGWTVNVNKYFAMGSGPARALSGK SVRSTDPVIACCLASQYAGWALSHGEFFARGSGPGRALARK SVASSNPVTSCLASQYAGWSLHHGSFFALGSGPARALARG EVSAADPVLACLGSQYAGWSLAHGEFHALGSGPGRALAGK EVSTDFPAIACLGAQKAGWTVKVGNYFAMGSGPARALSLK TVTTADPVI ACLGSQYAGWSLSEGDFFALGSGPARALWAK
 VVSSNHPVI ACLGSQYAGWTITDEGFFALGSGPARALSR



 TVVHSSQPVLACLGSQYAGWRLSHEKYFAMGSGPARLLAR
 TVTSADPVVACMLSQQAGWSLGHEKFFALGSGPGRAQARA TVGAADPVLACLGSQYAGWSLSGEKFSALGSGPGRALAVK
 KVKTDFPALTTLGSQKAGWKI DVNGYYAMGSGPARTHKFK DVHSAQPVLACLASQYAGWSLSAKKFFALGSGPARALAGR TVWTDHPAASCMASQYAGWAINPEGFFAMGSGPDRAIARVV SVTTTDPVTACLASQYAGWSLSHGDFFALGSGPGRAMAA DVRSSQPVLACLGSQYAGWSLSAKKFFSLGSGPARALAVK



 TVVSAQPVLACLGSQYAGWSLSHGSFFALGSGPGRALARQ DVHTSSPVLACCGSQYAGWSLAAKKFFSLGSGPARALAVK DI A SAQPVLACLASQYAGWSLAAKKFFALGSGPARALACK EVASAQPVLACLGSQYAGWSLSASKFFSLGSGPARALACR AVETDAPVAACLFSQYAGWKINVGKFFAMGSGPMRAVAAK QVRSSQPVIACLAAQYAGWNLSIDDYFAMGSGPVRMLVC DLTDQHPPVACLGSQKAGWII KTDSYSAMASGPARALAKK TVHSTDPVLACLGSQYAGWSLADEGFFALGSGPGRAAAA QVATDHPAISCMASQCAMWQVKAGNYFAMGSGPARDLARK NVVTDHPCI AS LGAQTAGWQI YVGKYVAMGSGPARALAQK EVVTNHPVLACLASQYAGWPLKSGERIAMGSGPGRAILHK VVVKVNPSVACLASQYAGWALKGEGFYALGSGPARSLYG ELLSTDHPGIAALGSQKAGWELEEFEHEEGLGSGPARALVGQ TVQVANPAVACLASQYAGWALKEGDFFALGSGPARSLYC EVRSSQPVLACLGSQYAGWNLSNDDYFAMGSGPARALAR EASSGQPVVLACLLASQQYAGWSLSAKKFFAMGSGPARALAGK

 $Q V R S S L P V L A C L G S Q Y A G W S L A A K K F F A L G S G P A R A L A A K$
$Q V V T D H P L R A C M L S Q F A G W S V A R N F S A L G S G P G R A V A N R$ ELQTDHPALA LLCSQKAGWELDFEDFEGLGSGPARALVA ELSTDHPAVALLCSQKAGWELGVEGFEGLGSGPARALVA EVASANPVLACLGSQYAGWSLAAKKFFALGSGPARALAAK ELTTSDQPGLALLGAQKTGWEVSVDDYEALGSGPARALVA $N V S V D H A V L S L A G C D \square S G W E L K P G K F A P I V A G P G R T L G R K$ AVHSTDPVLACLGSQYAGWSLTHGSFFALGSGPGRAMARK QVTTMDPVVRACLASQYAGWQVKVGKFYANGSGPMRALSAR E V R T D Q P L R A C L A S Q Y A G WP I K N G N K V VM G S GP IR S I L H






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 DINCIKSGYGDAPIAPVVGNDVQCMGSTNDCVIYCGETNY PVEHIVDGMGTAPVCPPSPDFLVAMGRTNDAI LFGGRVHL PLEHVVDGAASAPLPPPAPDFLIGMGRTNDAILEGGHAHI PLKNIVDGSGSAPVPPPAPDFMTAMGRTNDAILFAGQVQL
 DTRHIVSAFGSAPI PPVKKDAAVAMGTTNDASI Y HGSVTLC PLERVI DGMGSAPLPPPAKDFVTAMGRTNDALLFGGQVQL PLQNLVDGIASAPLPSPSPDFLTGMGRTNDAILFGGFVQL DTKKITAGI GHAPI APVKKDGTKAMGSTNDATI YHGSIML
 DITTIKNGFGIIPI SPVVGDDTKCMGSTNDCIIYCGKTYY DLDRI QDGMGSAPLPPPSPDFVTAMGRTNDALLFGGQVHL DTRKIISGFGTAPI PPVRGPKL AMGVTNDATIYHGQISL PLDRVVDG DGSSPLPPPAPDFVAAMGRTNDATLYGGDVQL
 PLENILDGTGTTPI APPFPDFVKAMGRTNDAIIYGGRIHL DTTKIIAAAGTAPI PPVRGAKL AMGVTNDATIYHGQUNL
 DLGNIVDGYGVAPIAPPDPDFVKAMGRTNDAIIYGGRDHL DL NAIVDGYGVAPVPAPSPDFIVGMGRTNDAILFGGFVQL NLGKIVSGWGICPVPPVACDNLSALGRTNDAILYGSTVLY
 $P L D A I V D G T G C A P V P A P H P D F L Q A M G R T N D A I I Y G G L V Q L$

 PLDRVRDGVGCAPLPPPGRDFVQAMGRTNDAILFGGTVHL
 DVTKI TYAAGITPITPVDPDSLKAMGKTNDAI MFGGRAYY ALHDIVGGSASAPLPPPGADGGEAMGRTNDALLYGGRVQL DVTRVLSAAGTSPLPPTARSDMRA $\square$ GRTNDCILYGGQARY PLEHIVDGDGSAPVAPPSPDFLTAMGRTNDAVLYGGDVQL

DLAHIVDGSACAPLPAPVADGVLAMGRTNDAILYGGQVRL DLHKIVDGDGSAPLSPQHPDFIQAMGRTNDAIIYGGRVQL


PLDRVVDGПGMAPLPPPGGGFLTAMGRTNDGLYGSVLY PLDEVVEGSGCAPLPPPAPDGIEAMGRTNDAILYGGRVHL ALNDI GEGSASAPLPPPAQDPVEAMGRTNDAILYGGRVHL ALGDIVEGSACAPLPAPSPDGGDAMGRTNDAILYGGRVQL DVNRVRSAYGTAPLPPVANNDLEGDGRTNDAILYGARVTL PLDNIVDGVATAPVPAPHPDFLAAMGRTNDALIYGGTAQL
 DTRKI ERAVGTAPVAPVMLDEMRADGATNDSII YCGSVVL DLDKI DS GWGDCPLSPVAADTLKALGRSNDGILYGSTVLY DVSKVLHGFGTCPIPPLPEDFMTAMGWTNDAVLYGGKVWI
 DTTMLIHGYGDCPISPTPGDFMTAMGWTNDAVLYGGKVWF PLENIVDGMAAAPI PAPHPDFLAAMGRTNDAIIYGGLVQL
 D SNVVNAGRSPVAPVKRTFEQAMGVTNDCNYYGSVL DV $\cup R I S H A A G R S P I A P I K R T G I E A M G T T N D C N I Y Y G S V S L$ ALADVVDGVGWAPLPAPHPDGVEAMGRTNDATLYGGRVHLD D IT AVRTGWG $\square$ CPLPPVTPDAMQA $\square$ GRTNDAI RYGASVYF DPRNVLSAFGSAPLAPVSYDEGVAMGRTNDALAYGGEVHL DPDDI RSAMGSAPVAPVSYDEATADGRTNDALAYGGKVHL DPNNVISVSGSAPLAPVSYDESVAMGRTNDAVAYGGRVHM
 DLEKI ESAWG DCPVSPTADETLKA GGRTNDAVLYGGTAYY DLDTII QAQGFCVIPPC DDNELDAMGRLNDVLIYGGQATY
 DLGKI SSGLSTCPVPPVTGDNLQALARTNAAILYGSTVLF DVHRVQAGFGTAPLAPVAQDHLTGIGRTNDSILYGGSVTL DLAEVVEGSGSAPLPPPAPDGIAAMGRTNDAILYGGRVHL DLERI ESGWGTCPI PSVASSKRDALGRSNDGIFYGSTVLY


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TVK S D N VE $\begin{array}{llll}D & L & G & Y \\ E & \text { K K K M P } \\ \text { E } & L & \text { K N V P }\end{array}$ $F \vee V$ K G A D $\begin{array}{lllllll}E & F & E & D & F & V & K \\ A & K & T & P \\ E & Q & L & A & N & D & L \\ B & D & F & V & K & K & V\end{array}$
 $A \quad L E D F V K K V P$ $F V$ S G E G G



 TV $F V T G D D S D$ N

VNGSD
TMNAP
F VTGP A AKKLAAFLP

FVKGS ADDAKALAEQLP TVDYPDAEEARKLAEQLPASTSRDYGKPFKDIFAAVKGDF FLGGRD DABEELAERLPSSASRDYGRPFAEVFKAYDYDF
TMKAP E E I K K Y Y L E K I TVDGY SEELDAIA
VDGY SEELDAI A SCESSDYGRPFYEIFKDADYDF
YVTGP ASEAKDLAEKLPSSTAADYGKPFAEI FKEYEGDF
FVKGPDSDAKRLADNLPSNTCSAYGKPFAEI FADVNGDF
TMNAP EIVDYLEKIPSCSSNGYGKPFNDI FKEAGYDF
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FVRGTDEAAKKLADALPSNTCS $\square Y G K P F A E I$ FASVNGDF
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NLR DEENLDSLVKQVPSCASREYGRPFKEVYKDYGNF
TVAGDD DAARELANKLPSSTSRDYGRSFADIFRDYDYDF
YVDCED DAAADLAQKLPSSASRDYGRPFAEVFKEVKYDF
FVLGSAADARALAEELPSCRSRDYGQPFAEIFKKFNGDF

FVKGSAAAAKELAEKL-P

YI ESDENDDVEALCKALP YI EPDEGEDLEELAANLPS

FVRGS SEAAQDLAKRLP
TVRGDDAAARELARALBP

FVEADEAD AKQLAEQLPDSSGSRDHGRPFAEVFKAAEYDF
(TSADHAPFAEIFGRIVNGDF
YLEGYE TDEAEQLANGLPSSTSRDHGRPFGEDFAGYNYDF
$N L R D D D Q$ LLDALVKQVPSCSSKEYGRDFKDTYKDYG NF
HVTGPD DAAEDLAHRLPSAASRDHGRPFAEI FAAAKGDF
TVKHDAVA AKRLAAELPSSCSRDYGRPFAEVFKSFNYDF
TVTGSDEAARELARALPSSASKDFGRPFADVFKEYEYDF
AVSGSD EAAQRLAKALPSSNSRDYGRSFADI FRDYEYDF
WVMGDD ES S A EVVQRIPSMASASYGKPFLEIIFEAAGRDF
FVRGS SDDARDLAEKMPSGASRDYGRPFAEVFEHFKGDF
FVDAEDAD AKGLAEALPSTTSRDHGAPFAEIFARFNGDF
TVEYEPFDELLGYVKADPSDTSRDYGAPFYKTFKECGFDF
TTRGFE
NLRDED
H $\mathrm{H} / \mathrm{R}_{\mathrm{R}} \mathrm{R}$ D D
TVRAED EAGQARFDEVVV
TL CDKDSAI DS AEK PSSASRDYGTPFYDLFQRYGGDF AEKLPSASSKDYGLPFSELFKRYNYDF FVKGP VEAAMELADQLPSRVSRDYGQPFADIFKQFKGDF

 SVRGSDAE AERLARALPCRNSPDYGRSFAQTFRDAGFDF NVNDEDGYLQSIDKQVPTSSSPEYGHLFATVDDQYN DF TVTED ADVFDRVASTVGDEYGTPFQQLFEEADWDF
TVV HEDF AEEFDRFDELPSSASEEYGTTFETFFDDADWNF
TV HEDFDD FDSVDSTAGEEYGVPFEQVFEDAGWDF SVRGS VDAARDDAQRLPSTNSRDHGKPFAKLFADAGYDF

 LVDGPD DDAADLAKRLPSTESRDYGRPFAEVFAAVGCDF WVRADD EVLERMGPKVPSSSSKDHGKPFADVFTHYKGDF


 $T V K$ T D A A A KA LAA Q Q L PA S N S R D Y GRP FA E I F T S F N Y D F $N$ L R D E D $\quad$ E T L K D L V V G Q L P F F C A S Q H Y E R S F V | $Y$ | $R$ | $G$ | $D$ | $D$ | $A$ | $S$ | $L$ | $E$ | $A$ | $G A$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $W$ | $V$ | $A$ | $D$ | $E$ | $D$ | $E$ | $P$ | $S$ |  |  |



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MDSTLNRMALELVDEATDFADELNTRVSELDGETTVLDFGV MESLNRMAVELVDEAVDFADELAVEIDELDNGAMVIDDGGV MESI NRSAI ELVDEALDFADELGI A ARELGCGATVIDFGV
 MDSI NRTAI ELMDEALDDAGELDVVPRELDCGATVIDFGV MESLNRMALELVDEALDFADELGIAADELDNGTTVFDFGH



MESLNRTATDLVDEALDFADELNVAAHQLDSEALVVDFGV $M S L N D S A Q V C A D E L I R R A G D L R C A V S D I \quad G S A T L I D C G S$

 MESLNRMALELVEEALDFTDELGUEVRELDNEATLLDFGH
 $M H S D N D R A H Q L V Q T I V T D A S S L G A I V G T A E C G T Q V I D C G S$
 MESLNRMATELVDEALDFADELADEVYTLSGDGAVLDFGV MISVNENVTKYVDTLLDREEEYGIKSYYLENKATVI DCGV $M L N$ NAKAMKVVREI I EDADADGCKVIKMDCGVTLIDMGI MLSVNERAYQIVEDLMEFAEDYCVDVHELRNGATVVDCGV MDSLNRMATELVDEAIDFADELTI DVHALEGDAAVLDFGV MDQL NRLGTELVDEAI DFADELGIAEYRLDNETTVLDFGV

 $M E S I$ N RMAVELADEAVEFAGELDIGAFDLENGATVLDFGV MUGVVNERAVKGAK LLVVNDEEGYKVKVHRIA AGAYVI DCGV MDSLNRMALELVEEAI EFADELGIAIAELDNGATVLDFGH
 $\square S L \operatorname{LARAAVLADALIAEAPALRDGVSHGPGGETLIDCGH}$

M $\square$ S VNE Y GMDVFEEMMDNSEELQVGDAELGNGTT\IDAGV


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EEEGGFEAG $\square Y$ Y $V$ AR $\square$ CMAD $\square$ AD $\square$ KFSSFD $\quad \square G K L V V P A V$
DVPGSYEAGCR LVEACCGGCAAAR $\square \mathrm{E} \square \quad$ GEFGPYA $\square \mathrm{P}$ VL
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AGREGRFTAPAEAT $\square$ S D $\square R D G S \square R R F G S R D P T K \square L E H F G \square$ YK 1 D P
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