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$\frac{1}{\mathrm{~V}}$ VEISLCADTTRTGKQRTWTWGPCGQGADLLVNCDRDNLES

 I E E SLADVDADRDGKKASWTWGPDGHGA$I L L E V N C D R E D P W D$ $V$ NVSLDADTDRSGMVK SWMWGPDGQGAVLLVVNCDRDSPGA
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## QUERY

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 K H M D S A Y Q Y V Q S Y A D L Q D M S L M I L R $\square$ Q GP S A I F A D Y K L V L

 S S M DF K D D K V F D S K DL Q D M S L L T L

## 



RDRDNKN KEVVNNSKDLLCDMS S TLDD F E D DKMLD SK DL Q DMS LVTLLST





S $N A B D F E D D K$ SAKDYEDEEVQDSRDLQDMSRMT

 G GVDYSHSRLYSGADLQDMS
 R G L D L A S S K L R S LDD DL Q D M S P L V L T C G G P D QL F K S H K L V M
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 K K P D S E E N F V S K V S DL K D M S VMV L R T R G P V V K L P E G Y K L T M K K P D N E N S D I G K V S D D K D M S K M V L R T N G P S Q L P E GY K L S M



 K KLDSEQNYVVSGTDLKDMS LMVLRTTRGPAKLPEGYKLAM

 R E DLLH S S H L R S L E DLLQ DM S P MV L S C G GP D E LLFE S H K L V L


 QPEDKKTKKVIGFSEEVKNDSQMTLSVQGPSCILKKYRLVL

 V G T D $\quad$ S S Q V PKEDCSDEKVYSKE ATMDSEDDQVFGSKDLQDMS LVTTLRTNTPRDFFSSHQLVL


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8
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F F V E GRRRFPD E D F P G L V T I N L S L L E P S T P G F P E TP PI F T D T


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 LYVEGLSFPDAGFSGLI TFHVTLLDDSNQDFPESPI FTDT

 $F$ L V E G L S F P D S GF S GL I S F H V T L L D N S NED F S ETP I F T D T
 F F V E GL Q F P DE T F P GLL I S I HVVSLL E T L A E G I P L S P I F T D T $F$ Y A E G L
 F Y V E GLLA F P D T S F P GLL I S L R L S L L G T S S P D L P S V L V F Q D S







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F Y L E G L A F P D A S F R GLL I T LTV S L L D T
FFVEGLRFPDETFSGLVSIHVSLLEPLAE GIPPHALPI R R D S




F Y V E G L R F P D K D F E G L I S I N L S M L E P S S Q GF P E T P P P T D R
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F Y V E G L R F S D LD F N GLL I S I H L S L L E P IS S GFP E T PIIF T D T

|  | V VFRV |
| :---: | :---: |
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| UniRef90-F7D1N6 | $\checkmark$ V F R V |
| niRef90-UPI00046 |  |
| UniRef90-TONST6 | V V F R V |
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| niRef90-K7FP61 |  |
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| ef90-G3TVM1 | VTFRV |
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| iRef90-G3VER6 |  |
| niRef90_UPI00027FA47 | V VFR |
| niRef90-UPI0003332E9 |  |
| iRef90-UPI0003954DFF | $\checkmark$ VFRV |
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| niRef90-UPI00033476E1 | $\checkmark$ A F R |
| Ref90-UPI000 | V T F R 1 |
| niRef90-S6BNL5 | V VFRV |
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| ef90-UPI0004 | V T F R V |
| niRef90-Q9Z184 | A |
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| ef90-F1NP39 | V VFRM |
| niRef90-E1BCN3 | V V F R V |
| ef90-F7G020 |  |
| ef90_UPI0002C |  |
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| ef90-UPI00033 |  |
| niRef90_G3VQ98 | V VFRV |
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| ef90_F7CYE7 |  |
| niRef90-A6QLC1 | V AFRV |
| ef90_UPI000441CBD | L V F R V |
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| ef90-W5UTI4 | V |
| ef90-G3NLZ3 |  |
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| f90-UPI000333 |  |
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| UniRef90_V8NAF0 |  |
| niRef90-UPI000395E16D | V V F R V |
| niRef90-W5L |  |
| UniRef90-UPI0003ABA3B8 | V |
| niRef90-Q7ZWR3 | V |
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| UniRef90-G5BZN4 |  |
| UniRef90-G3T650 | $\checkmark \mathrm{V}$ F R V |
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| niRef90_UPI0003315451 | $\checkmark \mathrm{LFR} \mathrm{V}$ |
| f90_M3YXP7 |  |
| f90_UPI000333328 | $\vee A F R M$ |


$V$ D V S L D V V D R N R R D K R N WRWGPEGHGA|ILLV|NCDRDSSRS

 I E V S L Q A DVVYR D G Q K E K WVVWGP S G WG A I L L V N C S P A DV S I E L S L D







V Y I S L DVDAD R D GKKA S WSWGPD GHGAILLVNCDRDNLSA


 I SVVS L S A DISRTGKMKPWT WGPRGQGADLLVNCDRDNPD S
 $V E \square T L S A D D T R T G K V K T W T W G P$

$\square D V S L D V D T G R T G K K K T W R W G P E G Y G A V L L V N C D R D S R K F$ I E I S L E A D I Y R D G QK K K WMWGMNGWGAILLLVNC SPNA I DMA L E C DL NYE G R K R Q WVWGP G G Y G A V L L V V N C D R D D Q S C VIS DVDADRDGRKGSWTWGPDGQGAILLVNCDRETPWL $V D V S L D V D T D R D G K K K T W R W G P E G H G A I L L V N C D K D S D N S$

SWEWGPQGHGAVLLVNCDQESEGG
LS LDVDADRDGSKSRWEWGAGGTGADLLVNNDNDDVTT
L S L DVDCDRD GHKGTWEWGPRGHGAVLLVNNDNDDFEG $\square \mathrm{A}$
 $\square R$ VCDDVDDADRD GVK N DWK WGK D G Y G A I L L V N S D Q D N N G T


## VDIS LDVDDVS R N GRKAK WT WGPD GQGAVL LVNCDK D S P S T R L DVA D RDGHKGDWQWGINGHGAVLLVNSDRDFVHS VRICLDVDADRDGHKGDWQWGINGHGAVLLVNNDRGNYSD $V$ I S L S A D I T R T GKVK T WT WGPCGQGAI LLVNCDRDNPES $V$ V V D I 

VETS LSAD DSRTGKMKPWTWGPRGQGA LLLVNCDRDNPDS $V$ SVSLDADTYRQYSKDSEKQGPSWQGPVMLVNCSRNEYPP


VD DA LDC DLN Y E G R K G Q WVWGP G G Y G A L L L VNCD R D DLG C I GVSLDADIYRRGQKKNWAWGPNGWGAILLVNCNRDG $V Y \vee S L D A D G K R T G A K G S W S W G P N G T G A I L L V N C D R D R D G N$

MHVDADRD GKVK K WE P GKGKK GAVI LCN ND DEDSD
 DTNRDGEVQTWSW QQGAFMLFNSD DDD GN

 L R A DV NR D GRVVDT DTAGE D GWGAVMLPNIDDDSGRC L R V D T N R D G NV D T D T A GE N G W G A L M L P N I D D D T K R C $L H A D V N R D G K M R P T Q W S L S$ A GP L I L F N N D D D DRS D TNRDGQ DE QDEA GKE QWGALI LIFN DRNNDRG D T NRDGQQRPEQWSLS LGGPLILFNNDDDDVN D TNRDGKVDTDKS GRENWGALML FNNDDDN G D LRADVNRDGRVDSDTRGEDGRGAVYLPNDDDDSKRC
 L R A DVNRDGRVDSDTS GEDGWGAVVLPNID DDTKRC $V M L R A D T D R D G R A G R G A W S$ GARGAI ML PNLDDDRSRC

 D T NRDGQRQSWSW K K R GALLPFNHDDDNRN

 LRADVDRDGRVDEDTWTPT RGAVFLPNDDDDTKRC UniRef90 S4AUL3


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 $H \bigvee A K S E M D K V R V F R S R Y K V V L G P Q Q P S H A L E L P G G Q H S V D$ HTS E E E S K K A R V V Y WP T F D M MV L G P G Q H T Y T L A L L G N N L K E T
 H T S V E EA DKARVVYWPAF QUVLGM GHNSYTFSPGVNLGKET




H
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H H
H HTSSK E E A S K A K KV Y T S T Y Y EL V I G P G K P D H V L
 $H$ S L E S Q H A GVVHGTE SHSSLGP GK S S Y L FE YP GR G G E V N HTSKEEASKARVYLSQYKLVVGPNRPDHVLAPFENGGKET $H$ VAK S EMDKVRVVGARYRVVLGPQQPSHVLELPAGQHHTD HTSEEEAKKARVVWPT F QLLL GPDRNSYIVNPLVK LGGET Y I S M S D S D K V G VVF Y QR N RI T L S R D H L V V S S A S P T E L Y N P H
 $H V A K S E M D K V R V V$ Q S RYS A V L G P E R P S HLLLELDRGGRRS T H
 HVAKSEMDKVRCFPSRYGMVLGPRHPFHPLELQGGHHSTD HVAKSEMDKVRVF QASYQQVLDSAKASPPPDVQDSKHQLV $N V \operatorname{PFSD} \operatorname{S} K R V G V F C A R Y K Q V L G P Q H L S Y E V E R Q P G E Q K I N$ $H V S E S D A D K V R V F H A E Y K H V L G G E K L A Y A V K P S Q H Q E E S I$ HTSEEEAKKTRDVWSQYELVVGPNKPVYLLPTFENRRKEA CEAYRHVLGQDKVSYEVPRFHGDEER Y $\square$ S M S D S D K V G VF YD T R K EMAM T S P V S Q WL R D IK GF A K T P EAPWPDARRLRVFCAQGAFLLSGLLKPEEEPRLREGERAED QLYSP D WK HV GVVFHMQVNQSLGPGRPSYSFQYPGRGGEVN HVVPVS DA D K V G V F H A Q Y K HVVL GP Q K L S Y IVVEREP GE K ETT HTSSENA QRIGGIFHSNDHHVIGGPAELDDWKVNPTDNTMTYN

 QPSSSEAKWARVVHACYRHVLGQNKVSYRVPRFHGB EEX
 SVNRETAGRDRDYDENGGYEVLGGPSRQRTARDRDTARRE Q $K V S$ LD D S R RLLRVF C A R Y K QV L G P Y H Q E Y E V E R HP G E G N I R
 HVARSEMDKVRVFQAT
$H V A K S E M D K V R V F Q A S C E \quad L S R A V I S H P S R P R P G T A$ HTSSYDAERAQVFHVCGEFV WVSEENAPYLRIFDQYGHELVGHGHQQGNLIKQDDTKDIF
 HI S K A DD DKVGGSKA DEAK T QRRS LI IS Y DVK QNLGQVKTV. HVAKSEMDKVRVF QDNEKGAAGEG
SCSHPSRERPSMRGTRFS I IMGPNRPHYRFKYLRNQECRA $H \backslash K$ S V P Q G F L N F P
 $H \bigvee A K S E M D K V R V F Q A R Y R E V L G P K Q P C H P L E L P G G Q H S T D$ HTSGYDAQRD
YTSKKEEAKKARVYRPPETLV $Q \square P P P Q A T K L R V Y Q K$

DP F F G Q R Y I H L L G R R K L S H VVV Y T G G S A E LE
$E$ VS D E K K I R VF D K R GV E KI G P D K K A Y EI K L T P D E H E
SVEATGAEHVRIFSKAGTELVSPQKKTATLDAANDNPNLV D A D E K S R P Y I NI F Q K T Q S G WL GEK S L E Y
 $T A D T A A L R H V N V E Q K T W R V V D D S G K \quad E P L V F D R E M V$ KVTKGAAQS RVFDGAWKLVTSQTRL_KRAELRAGVE

 SVDEASRRRRDNMFQKT LLGGWKLSGA SPMEFSPTII


 RVV E N P A R Q H L R R I F KI T T G G K HAHLF LKKRGKWVLSTARLT AAELRSGAE L P D A R S R D K V R VV F V E R G T F V L G P







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| UniRef90-UPI0003332CB4 | V V F R |
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| UniRef90-F1N404 | V L F R |
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| UniRef90-S4RUK5 | V V F R V |
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| UniRef90-M3X493 |  |
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| UniRef90-A0YJ74 |  |
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lupas_14
lupas_2
jnet
\begin{array} { l } { \text { conf } } \\ { \text { sol25} } \\ { \text { sol5} } \end{array}
sol5
sol0
jhmm
jpssm
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lunet_
conf
sol25
sol5
sol0
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jpssm



| lupas_21 |  |
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| lupas_28 |  |
| jnet |  |
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| sol0 | B |
| jhmm |  |
| jpssm |  |

