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PA P G G P MVGEAA RAC P VQA I TV
E SVVGEDP DNLVEPSKNAAAS CPTGSVVVE
E QTVV V P H RL KLDDVID A A HDCP GECI YV R H H S
TPPTPA P E H QAAK A R K A A Y LLCC P A R A I D I R
LLD QPVPDEDQDAVDTAA YECPGQCI HVIEAP
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S
PEHHDDVRESAAVCPAAAI RLA
S Q S
P V
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 A V P D GEERTARLDA VANCPERAI E I AEQRAAVKEAAERCPTAA I RI A
A APPDSDRRQIQAAVRSCPTRALSIIEEK EVQKEFSSDRLASARRAADACPNRAATM A
P Y D GEVPRE LQQAAARDGELDACPERAI TV E VA P E EAESARTAVVANCPERA I S L R E
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TTE F DS PRLEHDVRAAADACPTAQAI SV
WQEHPPESADDDVRAAVRACPRQAISMAE AGV NKI MDAAMTCPTKAI IVED LYTPDVAPDDQRERVQRAVAACPVQAILVGEEAGAG $P$ VPV V Q E MLVVK Q A I E A CPRKAL S RE
 EVPEENEDSAQEAADNCPVSALTVE
$T \mathrm{~T} \square \mathrm{D} P \mathrm{~V}$ V S E R D R A DVVE Q A V R A C P P T Q A
R T
E L I Q E A $\square$ D S CPVNCIHWT

P G
$P \vee P$
NRKA I I EDLRA DLK A AVA A CPK Q A I
NRKA DEDENANCITEAANSCPSGAI ILEE GCWMI VP E GLE E EVVGEVVARACCDVQA
$E L L V P A T Q E D A A L S G A D A C P E N A$

## A

## PVSEVVPADQQD

SSAVPPADREEDVRTADAQCPRAA TGAADP EVA A GRLDAVRRSVALC
S SVIN PK GA GV N KI MN A A E TC P T K A

TV

IVVE E
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$T \mathrm{~T} T$
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R L $\quad$ T $\begin{array}{lll}\text { D }\end{array}$

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\hline UniRef90-W6WIA3 & AVDQDVCVGAGLCVLSTAEV \\
\hline & \(V\) DHPRCEGHGLCADQAPDV \\
\hline UniRef90-Q197 & 1 DHDKCDGAGQCALDAPEVFDQREDGLSVLLVEDP \\
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\hline UniRef90-G4HRC0 & QVDRDLCEGHALCV \\
\hline UniRef90-O8L176 & \(\checkmark\) dbercegrascv \\
\hline UniRef90-UPIO003 & C V \\
\hline & D \\
\hline UniRee900-W5 & KVVAHQDKCIGSGQCVLLADAVFDQRDDGIVEVLQENP \\
\hline UniRet90 A0A014P572 &  \\
\hline UniRef90-Q5JNF3 & FVDEFSCTGCKNCANVCSKVFEDEEDGRARVYNQSG \\
\hline UniRef90_UP10003 & EVCVGAGQCVLAAPEVFDQDEEDGLVRLLDDA \\
\hline UniRef90-A8LUX9 & A Torercligs acclvmapdv \\
\hline & 1 DRER \\
\hline UniRef90-Q49B & SVDQDKCCAAGHCALAAPEVFDQREEDGTVVLLDAR \\
\hline UniRet90 UPI0003B4A3BB & V \\
\hline &  \\
\hline Un &  \\
\hline UniRef90-G4HYS & \\
\hline UniReef90- UPIOOO3FC9627 & I ADDDKCQGHGVCNMSCPEVFDLEEDG \\
\hline  & VDHAACCRSGACSLAPDLFDQGDDGKV \\
\hline UniRef90-H81R & EVDWGLCESNGVCMGINPDIFELGDDD \\
\hline UniRef90-D90 & RIDRDNCDADMVCVSLCGDVFEMSDDGKSQ1 \(\mathrm{C}^{\text {d P P }}\) \\
\hline & \\
\hline & \\
\hline UniRef90_UP100047D & A \\
\hline & \\
\hline S5TG3 & R \\
\hline & RLVVDWTLCKGHGLCVDVLPDVVRLDADGF PA PA \\
\hline OL & \\
\hline & KVVVDENHCQGHGLLCFMTSPQVFALREDGHAYVLPGGD \\
\hline UniRef90-E9UWB9 & KVVD \\
\hline UniR & RVAVDADLCTGHGRCYSLAPEVFDADDVGHCVVLVADV \\
\hline UniR & KVVIDKAACCGYGVCAEICPEVYKDDANGWVYV \\
\hline UniRef90 UPIO004 & \\
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\hline & \\
\hline UniRef90_A4X8P3 & RIVVDYDRCDSHGVCADQAPEVFEIRDDD \\
\hline Uni &  \\
\hline UniR & KI TVDRDRCVGAGMCALLASAVFDQDAADGRVW \\
\hline UniRet90-D9WQJ2 & DDEKCCAAGTCVMVAPEVFDQREED \\
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\hline & ALF \\
\hline UniRef90-UPIO00237A89D
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\hline UniRef90-M3A1B2 & V VRHKCQGYANCVVASPDVFDLADDGKVALL \\
\hline & LIPERCDACGLCQTY \\
\hline UniRee90-UP1000237A579 & SDVGKC GVGQCVFA A A D F D D S \\
\hline UniRef90 W7TH29 UniRef90 W9S8R9 & DGNACLGCGECVHHASKTFVMDEAGFAMVKVQYG \\
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\hline UniR &  \\
\hline  & RTVCVGAGLCALTAPGVFDQDDD \\
\hline UniRef90-D6A955 & \(V\) DMSLCQDHGQCAIASPAVFRMDDEGRLV \\
\hline UniRef90-F6F1G2 & PERCVSSGQCVMLAPGVFDQDDDGVV \\
\hline UniRef90-C1/ & G \\
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\hline UniRef90-R7PKC3 & FVNECOC GCKDCCHAPKTFAMDDOG \\
\hline UniRef90-LOA9N6 & KVWIERENCIADMVCVSLCPDVFQMNEDGKAEIKEQGT \\
\hline UniRet90-G3BMLL & VD \\
\hline ef90_A3 & VITVDRSKCCGYTLCAAEGPDVYTIDDAGYAVA \\
\hline iRef90-G1C882 & HVN DAARCVGAGQCVRTDPTVFGQSDEGTVRLLR \\
\hline Uni & G \\
\hline 90- C1AA63 & RVDRALCTGCGMCVATAPELMALDDREQKAFPLLL \\
\hline 4YNT1 & \\
\hline Unil & \(V{ }^{\text {d }}\) GCDSCGLCEGTCSE \\
\hline e9foc & \\
\hline UnRef90-G2SYD3 & CGLCASVCPEVFRM \\
\hline UniRef90 UPIO00465526F & S A P ElL F DLIG D D D|VA T CIVQQ \\
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G

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G G
VP S
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\(G M P P A B D V T\)
\(T M P A P P D\)

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\(K \| V V V\)
\(V\) D F DQCEANGDCVGGUA P DV F E L D D D E DML H V
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\(R V I\) DDEDKCVGAGQCVLSAAEVFDQRDEDGIVALDDA T
K I IVHNDKCQQGHAMC WAMAPH I F DVLP
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\(K V R I D Y D L C M G D G N C H R V C P A V F D Y D D R N L R G V V K M D\) \(V\) DRDTCVGSGMCVSIAPDHFR \(\square\) DD A ATAE I DRERCAGHGRCYTVAPEDFEPDDEGFAVVTRTPG
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\(D R E I V M G A G V C V M T A E G T F D Q D D D G U V V L A F D R\)
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 AMV DE K ACDQCGLCAGLCPEVFALNSGEPARVTVD K V \begin{tabular}{c}
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\end{tabular} RVVVDLDVCQGHGMCEMEAPDVFEAGRD A VTLLDET \(K \square A Y V D K D N C T S C N Q C A D N D P K Y F Q M D D N D T S E T D G G D Q\)

 \(R\) VDVDSQRCHA Y GVCQSEAPQVFQLGDDG \(G\) VVTVLVD



 \(H V T A D R S V C V G A G D C A L T A P A V F D Q D D D G L V E V L\) HVEVDRSVCIGSAQCVHHAPDHFRLDSARQSHPLAPGT \(R V V A D R N R C A G N G Q C V L T D A A D F D Q D E E E G R V V V L N E R\) RVRIDVDRCQGHGRCEL \(\quad\) APDYFFVDDAGVGQVLRP


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 NKDAC IGCGQCVHRHPEY IVFDENGQAE
WHERALCQGAELCCEHAAAVEATDDEYVAYVKADVG
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\(R V H I D Q E K C C G A G S C V L S A P E V F D Q R E E D G \| V V L L D\)
\(R\) VI VVDLLNRCGYAQCAFLAPEVFFLRGDGKAELVSEAL
RV K DRDKCDGCGLCVSACHEGAVQLVGKAELVSDSY KIDEDKCTGCGQCVSPCAEGAIQIIDGKAKV KVDEKRCVGCGRCVKQCPDGNLEMKDGKARFLRGNN
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 RVEVDRDCLGAGNCVMTAPEVEDQGEDGLVTPVVDEN KVSVDRSLCYGSAECAHRAPDVFAF EDGYGVVRPGRE QMVYVDEVSCDGCTNCACTAQSTFFMGEHGRARVFQQWG
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\(K I V V I\) NEEKCTGCGLCARACHEGA I KMDEGKAHLISES Y


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\(Y V H L D R D L C V A C G R C V R M C D E V F A L T T A A G A B A V V A P G\)


 \(K \boxtimes S K I D E E K C T G C G D C T A T C H E G A L Q L V N G K A K L I D S A S Q\) \(R \square V L D R M R C E G H G L C E S S V A P D E V V H L D D D E G E V L V V D V E D\)
 V D WT R CR G R GLLCTELLLA GRLLSRRE WGYPDT T D G S G CVGCGLLC E RFSPNHFEIVDK KAKLLKY D DCEGGY GRCAEELAPEVFTVYDEPDFQTTVIRRP ID R D RCMECGRCCVENCP GTFRWE G D R V V



V D A T M CI GS GACA G S SAHFRMTQD GHAEPSEDVI
 D R P R C EG H GLC E E A A P E L M H L D D D G E LV L
Y V D
\(\mathrm{K} \quad \mathrm{V} \mathrm{R}\)
 V N V
 RQRC \(\square\) G CNACVEI AF D RWRMSKD GKAVL DEKK G


PKHAF VDEFSCDGCKNCANVAPEVFGDEEDGRARVYS QCG
 MLAPDVG DQRDEDGMVVLLDEA
VVD A DVCDS S GRCVAERPDVLRFDADELDAVVPGA H I K V D Y D K C I A C G T C V K K K C P
 \(E\)
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\(E\) \begin{tabular}{l|l}
L \\
F \\
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\end{tabular} \begin{tabular}{l|l|l}
\(D\) & \(Q\) & \(R\) \\
\(K\) & \(V\) & \(N\) \\
\(K\) & N & K \\
K
\end{tabular}

DED \(G V V M E A\)



 \(V\) S E D R C DT C GLLCV R V CP N V F D S D D N GLDPVIAR Q E D

P G K
VW W V
 V W

I VEPECTACDECTTLAP KT F A YND QKLAIVVIDNPKG



WID RTECDGSAVCVASAG
A Y F E MHG
H Q S R

\(V M L D R D R C I L C E L C V R A S R E V F A D T G R G G D T A H L V V N\)
RNKCI GCNYCVELAPS QF QMSKKDGKTVLLVAS
VDGKACLGSGMCAGARPDVFALDGAABRVLAD

Y V D D Q CDA CDA C I M EAEDFFFEMD DD GHAFVVKK QP S


 QKPVVVKEKCVGCGVCEDSCP VEKKAIVRVERK
 \(R F G A D S S S K N E A G R D A G\) HE GA I Q I D GKAR L
K I I E I D E D K C T GC G Q C VPP DCP E GA I Q I I D G K A RLI S D LIF

 D TE E C FGA GMCA LTA A P DLLF DQSD D GTVVVLLLRAAV


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\hline UniRet90-S7TXW9 & VDMDAC \\
\hline UniRef90-UPIO004720D9B & M \\
\hline UniRef90-UPIO00301481A & VKHDQERCDGCQMCATACP YEVPQFDTVKKKMDKC \\
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\hline UniRef90-U9WAT8 & FVDTS CIDCDTCRWMA \\
\hline UniRef90-E1X & \[
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\] \\
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UniRef90-FOT756
UniRef90_UPI00042B952C
UniRef90-U1NYY7
UniRef90-UPI00046A57C7 D
UniRef90-UPI0003634114
UniRef90 I2EPD3
UniRef90-B3E5H1
UniRef90_QOW0Z4

\begin{tabular}{|c|c|}
\hline UniRef90_NobGU3 & \({ }^{50} \mathrm{D}^{\text {c S ECCSCVEVVCPTGSIITV }}{ }^{60}\) \\
\hline UniRef90 Wo.JHB3 & \\
\hline  &  \\
\hline UniRef90 UP10003B6F22C &  \\
\hline UniRef90-R5BMV0 & CWG CMACDKECPVGA \\
\hline UniRet90-A9WB05 & CNFCPLCES \\
\hline UniRef90-C1FG83 & DG \\
\hline UniRef90-D0Z418 & DATAPVMCRHCEDAPCAA VCPVQA \\
\hline UniRet90-B5JMQ2 & TQ \\
\hline UniRef90 UPIOOO35E483C & PYGQSVPLDGATCIMMACEKVCPTEAIKFDDK \\
\hline UniRef90 - A4FWG1 & ECIGG TEKAKNCAKICPVNAIK \\
\hline UniRef90-H1Z2S8 &  \\
\hline UniRef90-UP1000237A743 & AESLHGSVREAATMCPAAAI ELGESS \\
\hline UniRef90-F5YNM4 & C \\
\hline UniRef90-E1YJ23
UniRef90 X1SEK6 & A\PNPYIIDFTSCTRACVKVCPTGA \\
\hline UniRef90- XOTZP4 & LGCGVSEDYCDGLGACIGHCPQDAITIEKQEFDEEATK \\
\hline UniRef90-D5E777 & KSVVSRPDDCTECEECVDACPADAI VL \\
\hline UniRef90-C6E8T3 &  \\
\hline UniRef90-D5ELK4 & HAQPKTAEDVELCDEALEEGCPVEAA \\
\hline UniRee90-D84412
UniRef90-UPIO0029AEFE5 & TGVAEVRPDWCIVDCGECMRACPVICAIGFVEQDDFD \\
\hline UniRef90-BOCN22 & APDG RLLEAAEFCPAEAI A \\
\hline UniRef90_C5ET288 & CFGCGLCESR \\
\hline UniRef90-A0A037ZDZ5 & TYNENI PE G EDRVPACVRACPTGA ETEEGFRA \\
\hline UniRef90-B8FIG7 & YS VDP违CEACLVCK \\
\hline UniRef90-19BUU0 & \GCG QCVAПCPQSALDNAKSPLIKQPLKE \\
\hline UniRe90--8C3V3 & \\
\hline UniRef90-UP100047237E5 & KGPEEVYPQQCIPACGHCVAVCPKGAI DNKRTPLANQAS \\
\hline UniRet90-G9RN96 & \\
\hline UniRef90 T2GDU2 & R C \\
\hline UniRef90_UPIO003126D31 & CGGQGVSMGLDSRCVIPECVQACPTGALSF \\
\hline UniRef90-KONTF4 & TGCGV CVTACPTDA \\
\hline UniRef90_D4JB34 & C DGLGDCL PACPADA \\
\hline UniRef90 13R0J8 &  \\
\hline UniRef90-K2AKA2 & C DGFGDCMGD CPTGALI \\
\hline UniRef90-D5U054 & SRKPVIDEELCAGCGLCASTCPFNA \\
\hline UniRef90-UP100040B1850 & LQDDVDEARREEMRQVVASCPRSALSU \\
\hline UniRef90-O2CKD7 & ( \({ }^{\text {a }}\) \\
\hline UniRet90-U7URFO & CVGCSV \\
\hline UniRet90-F4XG14 & \\
\hline UniRef90 UPI00037788F5 & CW DCAACVKE CP \\
\hline UniRet90 UPl0003B507F6 &  \\
\hline UniRef90-R5TEY7 & P PTMADRVRQASDDCAVAAIRIKK \\
\hline UniRef90 - 18164 & HVTEDDCTGCTLCYSVCPIEC: \\
\hline UniRei90-A5FSH7 & MCWNRVDEGMEPAC AATCPTGAI KFGEERLSNNPDKY \\
\hline UniRef90-S6AE23 & NCMVGG \\
\hline UniRef90-F3Z1E0 & MASPPSPDETCDLCKACARCCPQEAI \\
\hline UniRef90 A1HS35 & SGLTKEELLCDGAGFCLIGTCPTGALTLEETPFD \\
\hline UniRef90-V4HCT1 & LFSLEVPDDAELDAKFAARTCPVDAI RLY \\
\hline UniRef90-K2A547 & ALEKPLAETNCTSCGNCVEDCPTGALS \\
\hline UniRef90 K6SW26 & DGFGDCL \\
\hline UniRef90-A4SEA4
UniRef90
B5ILRO &  \\
\hline UniRef90-Q0AZWS & VYPQAVPGKFY|DAQNCEKLCPAKAIRFDDK \\
\hline UniRef90-UP10003FE600D & TNTFGITDDNCVGCNDCEITCPVDCITM DERSTGQP \\
\hline UniRef90 R7MDE8 & KFEAAVADNMDAVKEAADACPVAA E \\
\hline UniRet90- X7SC46 & I PSGWEGRAHNAIIANCPERAI HIVKES \\
\hline UniRef90-E3GW08 & TVT LLNPE LCEKCGTCVESCPVDAIRLEES \\
\hline UniRef90-R6V090 & OVKCSETCIIDCGSCVSACPVSAIS \\
\hline UniRef90-W0FMB4 & IQVKCSNCDAGKAAREACRNCPADAI H/V \\
\hline UniRef90-K4MDP1 & VDCG DCVDTCPVDAI S M \\
\hline UniRef90-R4KL01 & CLGCET CVSVCPSGAVTV \\
\hline UniRef90-FOSK92 &  \\
\hline UniReef90-M1 WM71 & PFPQAIP KKAVIDAEKVCPTKADRFEQQ \\
\hline UniRef90 UPIO003B31C21
UniRef90-M01ES1 & DFPLALPDDYCTKCGKCVEVCPTGAIA \\
\hline UniRet90-U1PE65 & EVEPEVPADAE罟DAKFAARSCPVDA \\
\hline UniRef90-E6U3W2 & CMECG \\
\hline UniRef90-X0V5L5 & (VSETYCDGLGACDGHCPQNA \\
\hline UniRef90-UPI000377C0D3 & PKKLEISENEDKSNKEAEDİCPVA \\
\hline UniRef90-V710H5 & C \\
\hline UniRet90-AORWN8 & P \(\square\) MAREPDCDFCLACEAV CPPKAIKIFEQ \\
\hline UniRet90-K4LUU5 & T ECETCVEECPEEAIT \\
\hline UniRef90-COQCA9 & YP \\
\hline UniRef90-K1YSA5
UniRef90-P84626 & GCTHLLDNDEEWTVPRCVDQCPTEALRFGEE \\
\hline UniRef90-V41059 & ARCHGCGMCAAE CPAKA \\
\hline UniRef90-R5C311 & VWHGRCLNCLA CYHYCPT \\
\hline UniRef90 X 0 TPK9 &  \\
\hline NiRef90_C8WLF0 & D G SUGVT H P PVID CVR C C T DllC P E G ALELLS D EVVF \\
\hline
\end{tabular}

lupas_21
lupas_14
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jhmm
jpssm


\footnotetext{
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sol5
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jpssm
}
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