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 RVRMVDVGQKPPTKRVAVAKGRVFMSPDTLTAIVDEKGNV RAHMVDVTDKQVTDRRAVAEGVVKMTPATLDLVREGRGDV NAAMVDVSAKAETERVATAEALVSMRPETFALLIESGKGDV QAHMVDVGTKNETHRSAIATGTVRMKPETLALIQSGKGDV RARMVDVGGKQDTHRDA 1 AEGEVDMKSETLALIRDAKGDV RASMVDVSDKPATVREARASAFVRMQPATLALI RENKGDV RAKMVDVSEKADTKRПGVASGRICMQPETFALITDGKGDV KASMVDVSEKPNTTRTAIARANIYVGSEVAQLI HSNNGDV RANMVDISSKAETTRVATAASSIEVNKETYDKI TSGKGDV AHMVDVGEKSTTHRSATAQGVIRMQPETFQVIASGKGDV ARMVDVSDKPSTTREALAEGQVVMAPETLALI QSGNGDV RAHMVDVGMKPDTCREALAGGEVLVSPEVLQK KDGKGDV RAKMVDVGGKQEDRTAA AHMVDVDKEDTRRRAVAEGWIRMEPDTLSRIKAGKGDV NAHMVDVGDKAATRRMAVAESSVTMTPETLALVVEOGKGDV AHMVDISAKADTDRTAVTEGFI EMSAATLQRVMNGKGDV HAHMVDVSDKAPTKRTATARGVLTMQPETLTKI DAGKGDV AHMVDVGEKTVTTRDARAEARISMLPETLKLIVEGKGDV ARMVDVGAKNPTERRAVAAASVWVGAETFRRIVDEKGDV QAKMVDVTAKDETDREAVACGTVRMQPATVRLI QEGKGDV AHMVDVSAKAETSREARAEAFVGMKPETLAMIRHHKGDV QAQMVDVSGKVATRRQA $\square A A A Q V R M Q T A T F E A I E A G N G D V$ QAHMVDVADKAETHRVARAQGRIRMLPATMALI ASGQGDV NARMVDITAKKETHRVAEARGEVVMAPATLQLI EQGKGDV QAHMVDVGGKAETRRTAVAEGWIRMQPATLARIREGKGDV RARMVNVGEKPVTARRAVASGEVRMRPETLEKI RTNKGDV RAKMVDISEKQATARTATARSSIVMNDHVYQAI RSQKGDV
QVRMVDVSGKQTSERTAVAEGRI RMSPAAYQQLLKNAKGEV QAHMVDVSSKDESIRRARAEAVIHMKPETLSIIQNHKGDV ANMVDVGDKAETVRITATASGCVTMQKQTLELLLSGNGDV NATMVDVSEKNVTERTATAKGKI YVNSEVMDAVLNQKGDV QAHMVDVGSKEDTRRSAVAAGTI RMQPATLALIISGNGDV NAVMVDVSGKNDTYRTAVATGEVHVGEADMEAVKEGKGDV QANMVDVSDKAVTSREARAEAWVLMAPQTLALI VNGRGDVI NAQMVDVTDKAVTQREARAAGSVIMAPTTLALI ASGKGDV KARMVDVSEKDDTERVAVAVGS: FLNEEAMQAVKIKKGDV ANMVDVSDKAVTVREATAQGYLYTSPEVIDQISNAKGDV QARMVDVTGKPVTERIATAEGIVKMKPETLKMI LNKKGDV QAHMVDVGDKAETQRRAIATGRILMEPATLALIRDGNGDV ARMVDVSDKAATVRQATAEGFVRVAPETFRLIVSGQGDV RAKMVDISDKGETVRTAVAKGSI QVNKETYDGI QQGKGDV AHMVDVSAKADTERTAIAQSRVELTPA:VSAITDNKGDL


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UniRef90_UPI0003A0399B UniRef90_M1LUN5 UniRef90_A0A031H015 UniRef90_R7CLQ2 UniRef90_UPIO003737489 UniRef90_H2FWIO UniRef90_12JME2
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K R VRTVEATVVTK A ETGVEMEAMTACAVAA LTTVYDMLKAAS S CVVHVVESRCRLA GRTGVEMEALTAVSVACLTLYDMCKAVD
 S R V Y I T A K A K TVVGK T G V E M E A L T A V S TAA A L T I Y D M C K A I D S A V E I E A R V R C Q G K T G V V E M E A L T T A V P G M R V Y A T C K L A A G Q T G GV E M E A P G Y R ll L A E E V R T K A A E T G G V E M E A A L T A N A L E I E A T V R C T G Q T G V E M E A L T A V

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


 S LI R A E A R A E T R G Q T GV E M E A L C A V C TA L L T I Y D M C K A V F SVVLVRSKVKCDGRTGVEMEALTAVSVAALTIIDMCKAVT C S I
 A QLVI NSTVKCDGKTGVEMEALTAVSVAALTVVDMCKGTN N R V R
 N S I TVVQA TVVSTM G K T G V E M E A L T A V V S V A A L T TV Y D M C K A V D

 G A V VI E A R V E T R G Q T G V









 S CII HI E A QV SLLTEKTGVEMEAMTAVSVAALTI YDMCKAYD
 P A V R I E A T V T L K G R T G V E M E A L TA V S V A A L T L Y D M C K A V D
 S S V I C R A R V E T Y G K T G V
 A EI I E A I A S V R T T G K T GI E ME AL H A V S A A L L T I Y D M C K A V D E MVVT L E A S V R C T G Q T G V E M E A L T A V S S V A A L TVV Y D M C K A V T


 S C C




 H R V DI R A E V K V G E I T L
PGYQI QASVT TKAETGV



 NNLI I QTEVKTVGGT GVEMEALTAAASITALTTIYDMCKAVD


 N Y I

 G GVVRIE S Y C K L A G Q T G V
 $P G V R I Q A T V K T T G P T G V E M E A L T A V S G A A L T L Y D M L K A A E$
 S QVK $\square K T T V K T T A Q T G V E M E A M V A T S L A S L T V Y D M C K A V D$ NAVECTATTQCTGRTGVEMEAMTAVSAGLLTVIMDMCKAVD

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UniRef90 O2W3A7 UniRef90-C4LOH9 UniRef90-E1X8G2 UniRef90-CON6B6 UniRet90 UPIO003823EE8 UniRef90 C9LWF1 UniRef90-B5JMX8 UniRef90 UP100035DF12C UniRe990 UPIOOO363DC25 UniRef90-A7C166 UniR Refo - B8KRP3 UniRef90-C8RO UniRef90-R6R9Z3 UniRef90_UPIO0046F93A9 UniRef90_UPIO003702931 UniRef90_N6W9A7 UniRef90-JoUXZO UniRef90_12G3P2 UniRef90_Q2RQ15
UniRef90 W8X5FO UniRef90-R6EU76 UniRef90_D3PLJ6 UniRef90-B9CZZ9 UniRef90_UPIO00418D243 UniRef90 R7UW66 UniRef90_A4EKGO
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UniRef90_D4YL53

 R A K MVVDVGGKAVTSRVAAAEGEVVRMEPDVLALVRDACGDV A HMVDVGAK GETRR』AVARGSIAMLE GTLALIREGRGDV Q A Q MVVDV S TK Q T S D RQAATA T G S V S M Q A K T L A A I Q S G N G DV A R M V QAHMVDVGSKPESARVAVAEGCIVMQPATFALVESGKGDV R A H MVVEVGNKEDTKRVAKAYGRIKMKRETDQLIKDGKGDV RASMVNIGTKHSTYRTATAFGKVHVGRQAFELVRTNKGDV NAVMVVVVSQKAETERTATAKGKIVVSREVFEKIQABKGDV RAHMVDVSDKEDTTRTAVAEGQITMLPATLDLVQABKGDV NARMVDVGEKAVTHRTAVAVGRVTMSPECFAAVAE GRGDV
 A HMVDVVDKPVTARVATARGHVTMAQETFAMISEGRGDV RARMVDVSAKERTQRVARAGGRVLMSPATLELVRTGKGDV HA HMVVDVSGKPVTDRTA DAE GCVVVMTPETLALVTEGRGDV H A NMV DVVSEKTVTTTREATAQAVVTMTTETLEMITVGKGDV K A QMVDVGGKSPTQRKATASATVVLGPVAFKLLRDNQGDA RGRMVDVTHKK DTARMALARGAI YMKPQTLEKIQMKKGDV
 $R G R M V D V S D K E \square T T R D A I A S G E I H M L P N T L E H I Q Q G K G D V$

 R A VMV DVVA DKD DTRRDA VA S GRIMHDP D DA R D
 A R MVVDV S S K N D S E R I A I A Q A IVVKMQP ETMMGKI R DGK G DV ASMVDVGDKSETVRVATAEGFVRMKPETLALIRDGQGDV

 A N M V $V$ D V
 RARMVVI GEKAATKRVAVAQGEIVMQAATVGMIKA GKGDV A A MVVDISTKADS QRLARAGALVQTRPEVI RLI EQAK GDVV R A R M V D V S D K N E TAARV A V A R G K I Q M K P D T L E R I R L L K K G D V
 R A NMVDI S EK S DT RRRVATARSSILVNKEDHEAIVEGKGDV K A K MV HVGGEKADTERLAVAT GKVVNAA ETGLQKI RE GR G DV
 NAVMVDVVSAKAETARVAVARGSVVMAPATLALLIAMKKGDV RARMVDVSDKPETTRTARARTSVVELSSELKQLI TDGKGDV
 A HMVDVVGEKAVTVRVAVATGTITMLPATFELIEQGGKGDV

 QPHMVDVTDKKVTRRSATARAIVRLTPEIMAQLQSKKGPVI A HMVDVSGKAVTERTAVAEGMVKMQATTLELLI RSGKGDV AS MVDVTEKDIT DRSALAESSICMSAEAFALLSEGKGDV A Q MV DVVGEK S STN R DA I A E G M I TMM Q S E T L K L I M E G K G D V $M V D V G D K A V T H R T A E A R A R V R M A P E T R A A I R M P K G D V V$
 A HMVDVVGEKVVTHRTATAMSRVTMNPQTLAMI RH HK G DVV
 RAKMVVITTEKGETLRTAHAKTSLIFLSKELVENI TNKKGDV K P K MVVDVSDK D NTTRVA DA S GVI EVVTP EAYEAVVNN KGPV
 ASMVDVSPKPTTLRSATATGRVYMPSSADTUIIRTGKGPV
 $M V D V G A K A P T V R S A V A E G R V R L N A H A W S L L A N A K G E V$

 ANMVDVSGKPATERVAI A E GRIVMRAETLEDALDSGKGDV K A SMVDVGHKDTSARVALASGVVHLPPEVYQLVSQNKGDV K A Y M V D V S D K P V T A R T A I A E G A V T M T V R A K MVVDV S EK N DTEEREAI A K G S I Y M K E E T L K RII N D G K G D V
 A S MVVDVSAKLSTSRSATAVGRVYMPHSAA!LLRSGKGPV
 A NMVDVVGDKAETTRTADAEGMI AMRPETLDLI LISGN GDV NALMVDVVSAKQETERFALAKGTITVNDAVMKAITDNKGDV RAKMSDVVSGKEQTKRTAVARAVVRMKPETLSAI QEGRGDV QAHMVVVVAKDVTHRVAVAEGHIEMQPATLQMIVAGKGDV $R V H M V D V S E K A A S V R R A V A S G R V R C L P E T L A A V R E P K G A V$ QAHMVDVGAKDETHRVAVATGCIRMQPATFTEVQSGKGDV



 RA Q MVEVGHKPMVARLATAQGQVRMSETTLQAIQGPKGNV QAHMVDVGHKPPTRRVAVAEGRIRVQASTLEKIRQGKGDV




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UniRef90_R6Q3Y1 UniRef90_UPI0004675572 UniRef90_A3SNU9 UniRef90_G5F1C8 UniRef90_V7EIN8 UniRef90_UPI000370C640 UniRef90_H3CU19 UniRef90 E3GLU3 UniRef90_UPI00037B6FDA UniRef90_UPI00047961CF UniRef90_UPI00037403CD UniRef90_UPIO0036C146F UniRef90_A9BF50 UniRef90_E8RF30 UniRef90-UPI00037C8804 UniRef90-Q47BG1 UniRef90_Q0AVU7 UniRef90-Q0FZ49
UniRef90 V6UXQ0 UniRef90_J3LYK3 UniRef90_A6FC39 UniRef90_A0LLI8 UniRef90-F2LU20 UniRef90-H3ZFK6 UniRef90_G2FYC0 UniRef90-Q7VLN2 UniRef90_UPI000362679D UniRef90_D3RRA2 UniRef90_Q2W3A7 UniRef90_C4LOH9 UniRef90_E1X8G2 UniRef90_CON6B6 UniRef90_UPIO003823EE8 UniRef90_B2V3T7 UniRef90_C9LWF1
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UniRef90-B9CZZ9 UniRef90_UPIO00418D243 UniRef90_R7UW66 UniRef90_A4EKG0
UniRef90 C6PV90 UniRef90_C6J562 UniRef90_Q4PII8 UniRef90-C4ZDB9 UniRefi90-UPIoooch7BE5E1 UniRef90_10XAX7 UniRef90_D5WXW8 UniRef90_UPI00037A8DDC UniRef90-Q0C1Y0 UniRef90_UPI00034AD245 UniRef90_W4Q157 UniRef90_M1RUX7 UniRef90-W6J0N4 UniRef90-C0QKG6 UniRef90-Q2JHZ1 UniRef90_UPI00036D31A2 UniRef90_Q21HG1 UniRef90_D4TVL7 UniRef90-C8W2M8


 SKIVVIRAEVKTCGQTGVEMEALTAVVVAALTVYDMCKAAS $P G V H C E V R V E T V G R T G V E M E A L T A V Q V G L L T I Y D M C K A V D$ $P G Y Q D Y$ A T V K T K S E T G V E M E A L T A V $V$ S
 S SVVRCQVTAETVGKTGVEMEALTAVNVALLTIVMMCKAVD D A I E I E S E V K T I G K T G V E M E A L T A A S I A A L T I Y D M C K A V D

 H SIIEAECTVRCEGQTGVEMEACTGVVVALLTVVYMCKAMD S S I K IVY S T CK S M GK T GVVEMEALNNS CS I A A L T I Y DMCK A V D P GVVEI E A TVVKTTGQTGVEMEALTADVSTAALTVYDMVKAVD D GI AL EASCRCCGETGVEMEAMTAASVVAALTIYDMCKAVQQ

 S CI HI E A E L R T T G K T GI E DE A L T A V S V A A L T I Y D M C K A V D




 S A V H C E V T A E C F G R T T G V




 QRVVRCRAKAETVVGATGVEMEALNAVQAALLTVVDMCKAVD G QI RIE AS CQLSSGSTGVEMEALTAASVVALTIYDMCKAVD

 | $N$ | $Q$ | $V$ | $R$ | $I$ | $E$ | $L$ | $C$ | $K$ | $L$ | $S$ | $G$ | $K$ | $T$ | $G$ | $V$ | $E$ | $M$ | $E$ | $A$ | $L$ | $T$ | $A$ | $V$ | $S$ | $V$ | $A$ | $A$ | $L$ | $T$ | $I$ | $Y$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $D$ | $D$ | $M$ | $C$ | $K$ | $A$ | $V$ | $Q$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $D$ | $Y$ | $R$ | $I$ | $E$ | $A$ | $T$ | $V$ | $K$ | $T$ | $E$ | $G$ | $S$ | $T$ | $G$ | $V$ | $E$ | $M$ | $E$ | $A$ | $L$ | $T$ | $A$ | $A$ | $S$ | $A$ | $C$ | $A$ | $L$ | $T$ | $V$ | $Y$ |
| $D$ | $M$ | $C$ | $K$ | $A$ | $I$ | $D$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |


 L I I E S F V K T K G D T G V E M E A L T A A S V A A L T V Y D M T K A V D


 S A V E A A R A E V

 H SVVHIT AF CRLA GRTGVEMEALTAASVVAALTIYDMCKAVD
 S E L Y I EATVVRTKGQTGVEMEALTAVSAAALTVYDMCKAAD
 N E L K K I D T F V K K T K G S T G V E M E A L T A A S P G F K L
 GWMSVECTARTA GQTGVVEMALTACMGACLTIWDMVKA I A

 A R V H $\quad$ T A T V K T K A E T G V E M E A L T A C A
 LRI T CEVVHSH GRTGI EMEALVVGVSVAAALTVYDMCKAVS $P$ GI R I T A T V K T G G Q T G V E M E A L T A V



 N Q


 D GYEMQAEVVSCK GNTGVVEMEACTTAVVAAALTFYDMCKAVD S S IT CQVVRAET T GPTGVEMEALTAVQVALLTDYDMAKAVD








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 KATMVDVTPKPDTVRTAKARGUVRVNYKTCDKI RDKKGDV QANMVDVADKAVT DRIAVAEGAVRMKAETVDLI LSSGNGDV AHMVDASAKADTVREARASAYVTMARATLAMIDDGQGDV NAHMVDVSEKRSTVRTADATGSITMNRQCYNAVKNGKGDV A HMVDVSDKAVTARMAVAEGYVKMAPETLALI TS GKGDV RPRMVDVGGKAPTQRTAWAEARVKLTPHDLDALLEGKGEP RAKMVDVGEKEKTKRDAKAFAKVKLNEETFNDVVKGKGDV NALMVDVGEKADTKREAVAKGSI FMSSECLKKVVEGKGDV A RMVDVSHKPATDRVAVAEGRVLMRPATLDLILSGKGDV RARMVDISAKADTEREAIATGRIRMAPETLARALTKKGDP



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 S RVVI I Q S R CKLA GQTGVVEMEALTAASVAALTIVDMACAV H WV RI D A VCRRLT G K T G V E M E A L T A A S V A A A T I I Y D M C K A V Q
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 C E I Q A S C TAR T T G K T G V E M E A L T G V

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 NGYQI DACVSCKGNTGVEMEALTAVSAAALTGYDMCKAVD






 SEI E GRCTVVCDGKTGVEMEALTGVSVALLTVVDMCKAVD

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 P GI RVVAEVKVVSGQTGVEMEALTAVSVACLTIYDMVKAAD GRVVTLTATARTRAQTGVEMEALTAASIAALTVYDMVKALE







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 K E I H C T C T V K V T G K T GV E M E A L T G V S
 H R V N A V VCTA T A E TVIG Q T G V E M E A L T A V Q V A L L L T I Y D M C K A V D





 NYYEI EVFVKTKGSTGVEMEALTAASASALTIYDMCKAVD


 H R $V$ V





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 R A K MVVDVSHKPETVVRTAAAACSSI QVNKE IYEAI QNDRGDV

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 A H M V D V G A K P H S K R $\quad$ VA $\quad$ IA T G I I S VRMV E V G DRPHTLRRAATAE GLI TMAPAVLQAVME GK GDV A H M V V NACMVDVS DKKISSKRDAVASAVVSTRPDVIELINNAKGDV NAKMVDVSAKNITTKRTAVAHSSIIVNHTIYEQIVNHKGNV K A N M V DVVGWK D D S R R V A I A R G F V RVVGPVI SNDI A E N N G D V H A VMVVDVGTKPATARQAVARGRVVSMRE ETVLDLI LDS GK G DV
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 $P R M V D I S E K T V T E R K A V A V A R V R L G A E L A E L L R T K K G P V$ $R T R M V D V G A K S K T R R L A I A G G E V R L S P K T M H L L S D P K G D A$ Q A H MVVDVGAKPNTHRIAAIAEGVI TMQPATMDIIAAAGKGDV $R M V D V G G K E P S R R V A R A G A V V R V S A A T L A L L A D P K G D A$ VHMVDVGSKPTSHREAVAEATVYMSLDTLRKIRQGNGSV
 NAVMVDISAKAETARTALAKARVLMSSETAKLI A HKKGDV $M V D V A D K A A T S R E A T A E G R V V M A D E T H K L V E A G K G D V$ HARMVVDVGPKPETERVAVARAEVRMKPETLTLI QS GKGDV
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 A HMVDVVAK QATAREAVAAGRFVTTAEVLKLLSDGKGDA $R \mathrm{~V} A \mathrm{MV} \mathrm{DV}$ S GKAETKRTATAHGFVAMSRSVLKALDNPKGDP $R G K M V D V S E K K S N A R V A D A K G A I A M K K E T L Q K I D D G Q G D V$
 A R MV DVV E K AVTKRSADA Q GQI RMLS QTLETI EA GN GDV QA WMVVDVSAKK ETHRVAVATGQI RMQPETLQRIVAGKGDV
 AVVMVDV G DKA DT T RDA EA E G H VVRMR P E T L A L L I M A G K G D V
 K AKMVDVVSKNETKRTATAKGSIISMKSGTIEIIMQGKGDV NAHMVDVGAKGETNRKAYAAGSISMNPEAYRLVKAGKGDV $R M V D V S E K A V T A R S A T A E G Y V R M Q P A T R E R I V A R K G D V$


 RARMVDVTPKEPTHRRALARCKVFMKPETTALVANNKGDV

 R A HMVDVVA K EVVTARTATAS GFVVRLSPECVATLRAGKGDAB K A S MV DVGGKAETKRVA $\quad$ KARG IIIQVDSNISKLI NENNGDV NANMVDI SAKAVTAREATAVGYVSMQASTLQKVASAKGDV
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 D AVVEI EATAKTTGQTGVEMEALTAVTVVAALTVYDMCKAIID



 RAFEIRAEVTCD GKTGVEMEALTAASVAALTLYDMAAALD



 HS I S CRVVQCETTGQTGVEMEALTAVQVGLLTIMDMCKAID




 D R V R I T T R C R L N G A T GVVELEAMTAASVVAALTVVYDMCKAV D
 NSIEIIFSILAKTES QTGI EMEALTAASISSALTIYDMCKAMD HRMHLRVTTETVGRTGVEMEALSGTMAGLLTIYDMLKAVD

 S GLRI QASVNTHARTGVEMEALTAVQVGLLTIVDMAKALD




 H QL NI E A T V ST T GK TGVVEMEALTAAASITTALTIIYDMTKAVD



 S CIE LE GEVVRTTYKTGVEMEALVATGQVAAATI YDMCKAVQ H T F




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 $P G V V V T A T A R T T G P T G V E M E A L T A D V S V A C L T I I Y D M T A A V D$ SRVVI EARVVTVGRTGVEMEALTACAAAALTI YDMAKAVD
 L S V V V V R A E I S C E G R T G V E M E A L T A V S V A L L T V Y D M C K A V Q P I V R A A A TVVK VT G E T G V E M E A L H A V
 D GI TI TASASTTAQTGVEMEALTAASVAALTLYDMTKALD S R I LI E A T V K N T G Q T G V E M E A L TA A V S V A A L T I Y D M C K A V D
 PGYHI QAEVITTAQTGVEMEALTAVSVTALTLYDMAKALE






 Y S I I K L G GV L V $K$ K C E G K T $\quad$ G V $D G V Y Y$ L

G GVVI EAKVQCTGQTGVEMEALTAVMGAALSVVDMCKAVD
 HRVEI T A EARCTGKTGVEMEALTAVTIAALLTVYDMCKASP



$R P V R \| R A R C R L A G Q T G V E M E A L T A A S V A A L T I Y D M C K A V D$

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 RARMVDVSHKDKTKRVGVASASIYMKKETLMKI KEGKGDV RAKMVDISEKEASVRTAAAVSSVSMNREVHEKIKNGKGDV RARMVDVGEKPVTVRTAEAECYLVVGARLLRLLRSPKGDA RARMVDVGDKSQTDRVAVARGYILMAEKTIETVKNGKGDV NAHMVDVGAKAETKRLARAVGKIRMKPETFALVASGKGDV RPQMVDVSKKEETLREAVAEGRVVLPQRVLEVIREGKGNV RALMVDVSGKQETVRVAVARGRVSIASEVARLLSSGKGDV NAVMVDVTGKNKTERVAUATGKVKTNKEIIDSRIKEGKGDV RARMVDVSDKAETERIATAMGEI QVSAETAQRIAEGKGDV RARMVDVSDKPVTSRSALAGSSIVVPEEVYRAVTQGKGDV HARMVDVSDKPDTRREALAEAWVRMKPETLALI CAGKGDV VHMTQITEKPETKRVATAACTVSFSNARPWEITTHKGDV HAHMVDVGDKPASKRSALAEGYI EMHADTLNMILEGKGDV RAKMVDI SEKNESKRTAVAKTSVEVLPEIYEKI QMGKGDV ARMVDVSGKDVTARTATASGRVLVSETVVGLLRGEKGDA ARMVDVSGKRETRRTATAVAQVRLDATATRLIAEDKGDV NARMVDVGEKKETVRVADAGGNI KMSARAYELVKSGKGDV RPKMVDVSEKNDTLRIAKASGKITMSKEAFEAVKTNKGPV ARMVDVTAKVVTEREARAEATISMSAKTLAMIVDGQGDV KANMVDVSEKAASTRDAKAEAYVSVSDSALEQI QDAKGDV KATMVNVGAKATTAREAVASARVYLGADAFALVRDNKGDV A HMVSVAEKAVTSRTAAAVCTVRFSSPVAAALVMAKGDV ARMVDVSAKAATRRTADAAGEVQMRPETLAAA AAGKGDV QPKMVDI GDKETTERDALASGRISMNKEAYDAIVNHKGPV RPHMVDVGEKADSKRTAVAESLVRMQKATRDAVVHQKGDV
 AHMVDVGEKTVTDRAALAVGEIVMAVATLECIRMGKGDV $V R M V D V G D R A V T K R T A T A V G E L L M L T S T L E A V L N G K G D V$ KAHMVDI GEKDDTVREAKAQAFI RLSEKTLNMIKDPKGDI HPKMVDVGAKDPTERMAKACGWIILPRSVYDVVCRGKGDV RAKMVDVSDKDSTARKAVARTEVAMHPDTLQRIKAGQGDV AHMVDVGNKDSTRRCAVAEGQI RMQPQTLAMI EAGKGDV
 MVDVSEKAETKRAA IAEGFVAMQPETLADI ESGKGDV

 $N V A M V D V S S K P G T L R T A R A E G R I S L H P D T L L Q L Q M P K G N V$ ARMVDVSEKDVTARTARATGRVLVSPQVVALLRGDKGDA RATQVDVSAKANTDRTA IAKGTIMLTPEDSRQVSENKGDV QA $\square M V D V S G K P E T S R E A Q A R A R L Q L P D A V V S A L R D E K G D V$ RAKMVDVGGKAETPRTAVATATVRLGERAFHLLRENQGDA NADMVDVSRKLDTERVATASGKITLSQDAYDRVKSGKGDVV RA QMVDVSEKA DTSRTA IA RGRLVCSSKTDDLVRHNRGSV
 A RMVDVSGKPVQHRDAVAQCEVRLSPETLELI QSGKGNV A HMVVDVSDKAVVTKRTARAEAVVVTMLPGVVQQLMEGRGEA AEMVDVSQKQDTERVA IAEADVYLPDDVILAI SDDKGDL KAVMVDVAGKDETKRIAVTHGFISMSAEAFLAVREGKGDV V HMTQIT LK PETERIATAACAVTFSNPRPWALLTHKGDV NAVMVDVSGKAQTRREAVAKGRITMRGTTRDMILSGKGDV NPKMVDVSLKDSTQREALASGKITMGKEAFGAIKEQRGAV
 RAFMVDVSEKSETRRTAVASGILYMGDDAFKAAISGKGNV
 A HMVDVGGKAATRREAVATGRIVMAAEAARAIVDAKGDV HSRMVNVGHKPVTERTATAEGFVTAHPETITRMAGGKGNV QA DMVDVSGKQPTDRTAVAAATVELKKETLSADIEGKGDVI KA QMVDVSVKETTKRFAEARATVLVGPKITRLI HTNNGDV HPTMVQVGAKAHTERRAVASGQI SMSQEAYNAIVEQKGPV RARMVDITEKKVTERTAVVQSRIVMKPETLLRIKEGRGDV A HMVDVSAKPETTRVARAQAVLHSTAEVLALLGTGKGDA RPHMVDVTDKNITTHRTASAEGFVEMSSDTKNVAQNAKGDV ARMVDVVGKQVTARTATAAGRVLMSATCVARALRRPKGDA MVDVGAKVPTQRTA IVRAVVEEVNDTLDLLKRPKGDV NAQMVDVVTEKSVTTREARAYAEVVMLPQTLALI A S GKGDV RAKMVDVTCKKAVTHRTAVAAGEVHVYQSTMTHMKNGKGDV ARMVDITAKDVTARTARASGRVLVAPRVVELLRGEKGDV AHMVDATEKGATRRTAVAAGFLRTSTEVVALISSGKGDA NVHMTKDSQKPVTERSATATCYVHFSNDRPWELDREKGDVI
 QAHMVDI GEKAETHRDADASGHISMLPATMALIQSGKGDV RAHMVDVTKKSETQRRAIAETTLHMEEATLTRIKEGQGDV ARMVDVGSKAQTARSATATGRI AMKPEALSAI RDGKGDV




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 S I L H I Q S NVK T K G S T G V E M E A L T S A S V C A L T V Y D M C K A A D GRVVRVTCEARATAKTGVEMEALTGCSIAALTLYDMCKSVD D RI WV E A K VR T T G K T GI E M E A L T A V

 D S V GAMHVVASVALCF Q C V R CL A K V NS L HI EVVTVVTTGKTGVEMEALTAASATALTVYDMCKAI D P S V A I R A T V K K T T D R T G V

 M S V H I R TVLCK L S G Q T GVE M E A L T A A S I A A L TVVY D M C K A V D


 $N W L R I E A Q V D T A H Q T G V E M E A L T A C A V A A L T V Y D M C K K I D$


 N GI LI S GI I R V T


 CGI HLTATCSLVGKTGVEMEALTAVSVAGLTVYDMCKAIDD






 P GFDILAAEAKTNGQTGVEMEALTAAASVAALTVLFDMLLKAVD


 N I L L




 | $G$ | $I$ | $A$ | $V$ | $V$ | $S$ | $T$ | $A$ | $K$ | $L$ | $K$ | $G$ | $Q$ | $T$ | $G$ | $V$ | $E$ | $M$ | $E$ | $A$ | $L$ | $T$ | $A$ | $A$ | $S$ | $V$ | $A$ | $A$ | $L$ | $T$ | $I$ | $Y$ | $D$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  | $M$ | $C$ | $K$ | $A$ | $I$ | $Q$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $S$ | $R$ | $L$ | $I$ | $T$ | $A$ | $E$ | $V$ | $K$ | $T$ | $T$ | $G$ | $K$ | $T$ | $G$ | $V$ | $E$ | $M$ | $E$ | $A$ | $L$ | $T$ | $A$ | $A$ | $A$ | $V$ | $A$ | $A$ | $L$ | $T$ | $V$ | $Y$ | $D$ |

 T L
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 D A V V V $\quad$ T A L L V A A $I R$ R T A A A E A L D R T G V E M E A MVA V S A A C L T I Y D M L K G DD





V E I T A T V R T T G RTGVVEMALTAVTTAALTVVDMVKAVD
$V$ V I T A T V
 N S V T S

 D D I V $\operatorname{F}$ A S K A S K T T G K K T G GV G GVVR R ATAATVA GTGVVMEAMTAATDAALTVYDMTKALD



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 RVRMVDVTEKGETKREAVAEGRVKMKPATVGLIRQGKGDV VHMVDVAAKPSTPRRAVAEGRLVTTPEVVNVRQHKGDV VHIVNVGEKAGTRRVAVAEGWIEMAPATLERLDAGKGDA AHMVDVSHKDVTSRTATARGDFCTTPQVISLSSGKGDV RARMVDVSAKVDTTRTADAAGEMHTTAEVVRLVQADKADV RPRMVDVSHKEATSREATAEGRVLLPDTMRDVLATGKGDVV RARMVDVGHKPETARSADAQSSILVNEDIYEKIVNQKGDV RASMVNVAAKKPTVRTAEASAQVVMSRAVIEALPNNPGDVV KARMVDISAKSATKRQAVCEGFIRMSAGARTAI AAGKGDV QAHMVDVGAKTATRREAKARAFVELSQEALSALDNPKGNP ASMVDVGDKAVTRRSATVTGEVKMHADTLALLLSGNGDV HAHMVDVGAKAPTRRQALARAEVRLAPETLVLLAEGKGDA VHMVDISEKNDTQRTALAYGEIHMLEATAEAIQTQKGEV

MVDVGDKDDTRRTAIVRTVVEVSSNTLDLLADPKGDV QPNMVDVTEKADTERSAVARSUVRFPAGVLDSLRHDKGPV NARMVDVSGKAWTMRAARAQATHWIGPEAFHLVAENQGDV HARMVDVSGKDETFRKAVAAADVHMHPSTLELIVSGKGDV RAAMVDVGGKPATERTAVASALVRLGPRAFALLRENRGDA RAAMVDVSGKAATVRAAMAGGQVRMLPETLEAILNPKGSA NVAMVDVSAKPGTMRSATASGAISLQPETLRALREPKGNV RPVMVDVSDKPSTKRVAVAQARVRMQSTTHDAIVHQKGDV QALMVDVSGKTCTLRTATAQARVLLKPATLAAL LEGKGDV ARMVDVSAKDDTVRTARAVGRVRVAPAVVELLRGPKGDA RARMVDVSAKADTTRVALAAGELRTTAEVIALVRADKADV AHMVDVGDKAVTRREAVATGHI AMSDEALGAI RAGKGDV RARMVDUSEKNTVRTARATTSVRVNELIURQUREGKGDV A HMVSISAKPPTRRASTARGRVVFSNPTARDLGNKKGDV RAKMVDISDKKDTVRTAI ARSSVTLTKEIYDKITRGKGDV NVVMVDVGDKADTRRRAVVRTKVLLNERTFDLLTRNKGDV VHMVDVGSKA TTERMARAQGVLLASPSTCQAVQEGRGDV AEMVDV SDKKVTQRFAHASGTVSTGSKVISGIKNNQGDV AYMVDVSGKDVTARTATARGRVDLSAEAVAALRGGKGDA ARMVDVSEKAPTVRVAVASGVLRTTREVVGLIAEGKGDA RARMVDVTAKEVTARTATATGRVLVSAEVIEALRGGKGDA NPKMVDVGEKKVTKRVATASGEIHMQKETKKAI KTKKGAV QASMVDVADKSATVREARACATVVMQPETLALI QLDKGDV A AMVDVSAKDVTDRSATATATVVTRPDVVARILDGKGEV RAHMVDVSEKQDTARVATAEGRLLCSAETLDIVERGKGAV ARMVDVGDKDTTRRRAVAAATFHTTTEVIDLLRDPKGDV ARMVDVSAKEVTARTATARGCLRVTPAVVDLLRGPKGDA VHMTQLTEKPITARTATASCLVHFSNRPHELRKGKGDV
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NPSMVDV
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 A Q M V D V




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 HAVHCQARTETVERTGVEMEALTAVQVALLTVVYDMCKAMD $N A V V V T A T A S T T G R T G V E M E A L T A V S I T G L T L H D M V K A V D$ DT IV E A T A K T K G P T G V
 Y T A I TA AVKTK GNTGVVEMEALTAVSAAALTVYDMAK A D
 $D G V R V E A S A A T T H$ GTGVVMEAMTAVTTALLTIVDMAKAVD G GVAI ET TA A TVVA G GVVEMEAMTAASDAALTVYDMTKALD
 $G G V V I$ EASAATTA QTGVEMEAMTAAGVAALALYDMVKGVD T C L N S I N I E A E A R T T S Q T GV E M E A L M A A Q T A A M T I Y D M C K A V Q
 H C V K V V E S E A V T R G P T G V E M E A L T A A A S V A C L T I I D M MVIK A V T
 GAVRVEATCRARGPTGVEMEALTAASLAALTLYDMCKAVS

 TVLVI EA QV DTA Y Q TGGVEMEALTAASVAALTVYMCBA D GELLR 1 D AVEI A A TVVRTTDRTGVEMEALTAVSVAALTVVDMVKAVD

I T I E A T AK T K GP T G V $N G I T A V A T V A T D G K T G V E M E A L T A V S V A L L T V Y D M A K A I D D$
 GYVDI CVTV R C E GK T G V EMEALTGVSVAALTVFDMCKAVD P GVVRI TALLARTTGKTGVEMEALTAVAVAALTVVDMVKAVE Y R L L I E V NVVK T E G S T GVV M E A L TAA A S A T A L TVV Y D M C K A V D


 D SVVI S A TVVRTADRTGI EMEALTCVVSVA ALALVDMIKAVD VA 1 T A T V R T T D R T GVVEMEALTAVAVA GLTLHDMVKAVD N GF K L $\quad$ DA T A A K T T S S K T G G
 D RVLI EVSVVRTTSRTGVVMEALTGASVAALTVVDMVKAVD












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 S T I H V H C S A T V T G R T G V E M M E A L T A G A S I A A L L C V Y Y D M C K A L

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 C A D







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| UniRef90-E317P2 | D C |
| UniRef90-H8G | EATLDGVRLVRKEGGKSGLWRR |
| UniRef90 W7BPI | RAMVIEQCLLIEKKGGKSGHFRK |
| UniRef90-F7YXI4 | KTMEICEIYLLEKSGGKSGEYRR |
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| UniRef90 UPIO0047EE5AD | KGIR REIELSKTGGKSGEWRR |
| UniRet90_UP100035D3B50 | RGME GR HLAEKLGGRSGHY |
| UniRef90 | HLDVIGDVKVLAKSGGKSGDWDR |
| UniRef90-E1QE44 | RAAELVSLRLLEKSGGKSGVWRR |
| UniRet90-F2MSS2 |  |
| UniRef90-UPI |  |
| UniRef90-A0A024UN44 | HDLI EETRLLSKTGGKAPFLHR |
| UniRef90_E9FU91 | REAESNLQLVSSGGTRGDFNR |
|  | M ${ }^{\text {d }}$ |
| UniRet90-UP10004 | RDMVVEEVRLISKTGGQRGDF |
| UniRet90 F6S6H6 UniRef0 - UPIOOO3488A13 | KDMVIEEVRLLSKIGGQRGD |
| UniRef90-B3E- | TSMEIGS |
| UniRef90-D4H1 | KSMVMGDIRLMKKTGGKSGTYLR |
| UniRef90-TOC | R |
| 俍ef90_B5EIK2 |  |
| 俍1000315 |  |
| UniRet90-K0F560 | DGG |
| UniRee90 UPI000386956C |  |
| UniRet90-UP1000475E7E9 | K |
| E8MY43 |  |
| UniRef90-UP100037C9336 | KGMII GETYL |
|  |  |
| UP10002ED53E |  |
| UniRet90_T1JP | K S MV |
| UniRet90-UP10002375FA4 | MSMHGVRVIQKRGGKSGDFE |
| UniRef90-UP | KLAVIGHVRVVAKSGGRSGDWVR |
| UniRef90- UPIO0034D8424 | PEAVVTDVRVEEKTGGKTGHWTR |
| UniRef90-UPIO004631CF4 | RSMEITIUHLDYKAGGKSGEFKR |
|  |  |
| UniRet90_A0A022LHO8 | RAAVITDVRVLEKHGGRSGDW |
| UniRef90_UPI000374764A |  |
| UniRef90-UP |  |
| UniRef90-L7KL | RRASTGDIRLLEKSGGRSGTWKR |
| UniRe90-A1D15 | AV ${ }^{\text {a }}$ |
| UniRef90-V4YV86 | RGMTMTDVKVLEKHGGKSGSF |
| UniRef90-B6QBY2 | KGUVIEGVRLLEKRGGKSG |
|  | KSMEl GSIKLETKTGGKS |
|  |  |
| UniRef90-UPI0002629C93 | RAAAI VDVEVVEKAGGRSGTWRR |
| UniRef90 UPIO003B6F2AA | NRAVISEVMVLAKAGGKSGDWSR |
| UniRef90-F2N138 | RSMVIEK1 RL |
|  |  |
|  | KRMTVGDIRLLSK |
| UniF | HD ${ }^{\text {K }}$ |
| UniRef90 UPIO003724074 | HDIVIKSTRL |
| UniRef90_UPI000470A0C4 | REMM\| TNVCLVEKSGGKSGHF |
| UniRef90-19C232 | RSMVI ANICLMKKEGGKSGLFER |
| UniRef90-UPI000203827E | RDMVIEEVKLLSKEGGQREDFHR |
| UniRef90-UPI0002D7F64B | KEISINNTLLLKKTGGKSGTYER |
| UniRef90-TOF |  |
| UniRef90 NoAU90 | KGMVI GKTFLVEKTGGKSGDFHR |
| UniRef90-UPI000455FD9F | KEMVI GDIMVNAKTGGKSGDFQR |
| UniRet90-UPIO00402CE57 | RDVAIENVVLLEKSGGRSGTWRR |
| G21997 |  |
| ef90_UP10004644D89 |  |
| UniRet90_UPIO0037 | K |
| UniRef90_D7N598 | K |
| UniRef90-D3SNG7 | D SMVIE |
| UniRef90-WOAKD8 8 | KAMR1 E |
| UniRef90-W6KAN5 |  |
| UniRef90- ${ }^{\text {8 }}$ J3 3 | QHMMIEGVCVSRKEGGVSGLFER |
| UniRet90-UPI00047C4132 | QDIVIGAIIQLEQKTGGKN DFQR |
| UniRet90_A5WB |  |
| UniRef90-G14 |  |
|  |  |
| UniRef90-E7AA73 | K |
| Ref90_UP | PAATMDGVRLERKEGGRSG[VWTR |
| UniRet90 UPI0004746D8A | G |
| UniRef90_E8T6Q9 | S SMV EGVRVVHKSGGKS |
| $990-\mathrm{B} 2$ <br> 90 | K |




UniRef90_T2G7N1 UniRef90-G2XWY5 UniRef90_G3XML6 UniRef90-E5XUP3 UniRef90-M5R9C0 UniRef90-Q2S3D8 UniRef90-UPI00037F857F UniRef90-L7U6V3 UniRef90-R9IUD7
UniRef90 D2B455 UniRef90-E3QR66 UniRef90-COQRN7 UniRef90_UPI00036C521F UniRef90_K0KR79 UniRef90-K5WB37 UniRef90-B4N433 UniRef90_C5P8D0 UniRef90_UPI0004229D87 UniRef90_B4J1P4 UniRef90-C0NEE8 UniRef90-K8F4B6 UniRef90_E5Y8C7
UniRef90_S4WBA9 UniRef90_UPI000380C8AD UniRef90_UPI00035EF629 UniRef90-F2U0U3 UniRef90_U5QG05 UniRef90-C7PD80
UniRef90-V4NHR5 UniRef90-UPI00036B1131 UniRef90-X0Z045 UniRef90_E2SDJ5 UniRef90-A5VB99 UniRef90-A0P4L7 UniRef90_C0QYT1
UniRef90 Q0RC12 UniRef90-M3B6U6 UniRef90-W4TBF1 UniRef90-A0A016PDP7 UniRef90-L1I9W9 UniRef90_C1HCQ4 UniRef90-D7W0Z9 UniRef90-H1Z2B8 UniRef90_V5GE25 UniRef90_V8D3K0 UniRef90-UPI00026C6C41 UniRef90-D1BSZ6 UniRef90_S3CUE4 UniRef90_D6RK51 UniRef90_B1ZXL5 UniRef90_UPI0003601E53 UniRef90-F2Q2E7 UniRef90_UPIO00414312B UniRef90-D5UTU9 UniRef90-B8I2G2 UniRef90_U2TD09 UniRef90_K1Y2Y3 UniRef90-J3C4D7 UniRef90_D5BGW7 UniRef90_UPIO0040E376A UniRef90-UPIO00440E446 UniRef90-X0RLM7 UniRef90-W7TE04 UniRef90_UPI00037CC94F UniRef90-UPI0003611DFA UniRef90_R7Z701 UniRef90-B0CRH2 UniRef90_UPIOOO3467734 UniRef90- W2EEM8 UniRef90_W2EEM8
UniRef90_A0A031FNN5 UniRef90_UPIO00402F35C UniRef90_E5SUZ7 UniRef90_UPI00037A6767 UniRef90_A0A023X314 UniRef90_13C203 UniRef90-W7IXI8 UniRef90-UPI0002659B9C UniRef90-W1Q703 UniRef90-G4UNP2 UniRef90-IOKC52 UniRef90_UPI0003C7F5A8 UniRef90_S7QKH0 UniRef90_C2GJ25 UniRef90_A9A057
UniRef90 H3G7B1 UniRef90-F9DRM8 UniRef90_UPI0004416E79 UniRef90_UPI00035FC56F

H A $|V| E|V| Q A E A S L S G P T G|V| E M E A|L| T A A A D V A|L| T|I V D M C K A| V \mid Q$ GSVVEVTATVSCDGKTGVEMEALTAASIDAALTIYDMCKAVD G G M R V VA S V S C E G R T G V E M E A M T A T M G A A L T T V Y D MLLK A V
 D GVRIIEAAAETTERTGVEMEALTAVAVAGLTLHDMVKAVD

 QGLTIRATVRTVDRTGVEMEALTSACAAALTVYDMCKSVD REI CCFCTVKVTGKTGVEMEALTGVNLALLTIYDMCKALD DGVEITARVKTADRTGVEMEALTAVSVAALALDDMVKAVD




 GSVVLITSTVHCFGRTGVVMEALTSVVGGALTVFDMCKAVD
 H C V L L V A T V R C N G Q T G V V
 P A V LI E S E AR T S S DRT GVVEMMEA I I A A QVVA A A T I Y D M C K G V S

 A AVFCSATVETRGQTGVEMEALMACQVALLTIVDMCKAVD

 AVV V R C T I K K T T G K T G G V E M M E A L

 D A V L V E A T V R S A D R T G V DGI RATATVATTYTTGIEMEALTAVTAALLTVYDMAKALD
 D GIVVIKSYCRCSYKTGIVEMEALTAVSVVAALTIWDMCKAVD D GVVEI TATVRTADRTGVEMEALTAVTVAGLTLHDMVKAVD GF I A I Q A R V


## 

 $\begin{array}{llllllllllllll}N & V & S & T & A & T & & S & C & H & G & R & T & G \\ N & V & V \\ N & E & Y & C & T & A & E & I & E & A & K & T & G & I\end{array}$


DRVEI TATVRTKGVTGVV GRVNITAATVTCDDGKTGVVMEACTAAASTASLTVYYMCKAVD VQTLCKA VKTRGVT GVEMEALTAVSVAALNLYDMFKAI D YMIECSSATVACEGKTGVEMEALTAVSVGLLTVWDMLLKAVA

G G
G G L L V T S $S$
A

## ,

 DGVRAFCRVRTSDKTDV A AVLCTARVETTGQTGV
## ,

## N

 N
N
 $D G V R I V A T V R T A$ D R T G $\quad$ T $V$

## N <br> N



## 

 CIVSTAVCSGKTGV
NCIKVNCEVHCNGKTGV GYI DI RATVSCYGKTGVEMEALTGATISLLTVYDMCKAVD SDVII ECTVSTEGKTGVEMEALVGASVAALTVYDMCKALS VEI AATVRTADRTGVEMEALTAVSVAGLAI IDMVKGID PSIACRATVNYEGKTGVEMEALTAVSVGLLTVWDMLKAVA DYVF BEATVRTADRTGVEMEALTAVSVTALAVDDMVKGVD SAI EIDAEVRTFGKTGVEDEAMTAAAIAALTIYDMCKSYD DAI HVECKVQVTHKTGVEMEALTGASVAALCVYDMCKADS YEVVIQAEVKTKGVTGVEMEALTAASAAALTIYDMCKAAG


| UniRef90-T2G7N1 | K D I R |
| :--- | :--- | :--- |

UniRef90 UPI00046F0911 UniRef90_C7HVU9 UniRef90_A0A023NU33 UniRef90_UPI0003B7625B UniRef90 J3P3P1 UniRef90_UPI00036362F1 UniRef90_Q1K2L3 UniRef90_F8EAU4 UniRef90_F4PX66 UniRef90_UPI0003B7AB11 UniRef90-E1RJR9 UniRef90_UPI0004798445 UniRef90_X1C202
UniRef90_G2QBK2 UniRef90_A1ZUU4 UniRef90_F0S3P2 UniRef90_UPI00047AE351 UniRef90_UPI000302465D UniRef90_Q1K1U0 UniRef90-W9YN46 UniRef90_UPI000472946C UniRef90_A0A017SRF9 UniRef90_K7RT96 UniRef90_A6DT47 UniRef90_H1XTX0 UniRef90_UPIO004574188 UniRef90_Q4FMK9 UniRef90_F7EXD1 UniRef90_Q54NM6 UniRef90_K7SDP6
UniRef90_UPI0003B79D2C UniRef90-B7PFI1
UniRef90_14F3P8
UniRef90-X5DI31
UniRef90- UPI000
UniRef90_UPI0003F9F69E UniRef90_H1Y0U3 UniRef90_UPI00047DD25F UniRef90_E1R5Z1
UniRef90_LOSZL4
UniRef90_C3XRN9
UniRef90_A7H7J1
UniRef90_UPIO00472F134 UniRef90-B9MQJ1
UniRef90_N1WD73
UniRef90_S8FQIO
UniRef90_UPI000255B00A
UniRef90_UPIO0047DB8C9 UniRef90_K0CBN1 UniRef90_A4BXK7 UniRef90_UPI0003B2E7B5 UniRef90 A0A015LXT4
UniRef90-C5GM29
UniRef90_V2TGN9
UniRef90_W9CNK6
UniRef90_B4SL66
UniRef90_R7QLV7
UniRef90_W6TXZ6
UniRef90_UPI000463D246 UniRef90-UPI0002559B26 UniRef90_UPI000329B502 UniRef90_B5Y5U8 UniRef90_G2DUF1
UniRef90_LOJYI4
UniRef90_D7BJX1
UniRef90_UPIO00472E0C0 UniRef90_A2ST56
UniRef90_G7UQW3
UniRef90_V9D173
UniRef90_D9QIB9
UniRef90_E2VZ36
UniRef90 U6EDF1
UniRef90_UPI000248E6D8 UniRef90_Q8TZX1 UniRef90_UPI000262CA37 UniRef90_S7W1Y1 UniRef90_G0EDB1 UniRef90-A1RWZ2
UniRef90-D9PX47 UniRef90_UPIO00349AF76 UniRef90_E5VK86 UniRef90_D5VSV6 UniRef90-N1PXH3 UniRef90-T2KHU3 UniRef90_J0RYQ1 UniRef90_UPI00021A4813 UniRef90_IOK1G8 UniRef90_UPI000477C300 UniRef90_N0E5S5 UniRef90_UPI00047C77D7 UniRef90_UPIO004016AED UniRef90_A3CW59 HARMVDVISAKPATHRKAVACGE\|L|MASRT|L|DM|IQSGKGD|V||

 A H M V Si S S K A A T S R VA TAA CTVVVF S S PTMRQNRMGK G DV ARMVDVA GKERGTRLAVATGTLRTTAEVMTRLRQPKGBAB

K A Y MVDVT EKPDVG$\begin{array}{lllll}R & A & V & A & Q \\ A & R & V & L & L \\ I & Y \\ R\end{array}$

R

R HMVSIA GKTPTARSATATSLLLFS

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

$\stackrel{\rightharpoonup}{\mathrm{V}}$

NPSMVVIV 1 D

$\qquad$ R A K M V DV | $K P D$ |
| :--- |
| $K$ |
| $S$ |
| $K$ |
| $K$ |
| $T$ |

 TVRHAHARATVRLD

Q A
NMIDV A A MVDVG $P R M V D V$

 | A R | $M$ | $V$ | $D$ | $V$ |
| :--- | :--- | :--- | :--- | :--- |
| $A$ | $N$ | $M$ | $V$ | $D$ |

 MRDIT HKQ $\square T L R T A R A \square G V I$ FCTPETIQLI KTDKGNL A RMVDVTGKAPTVRQARAEAFVACSPADVQALRAGKGDV
 P T M V $V$ D V S A K A V T A A RV K M DVGGAKPRTERVADARGFVAMSRETVARVERGKGDV RARMVVDVSDKPVQRRRAVASGRI LLDQAETVREVKENQGDV
PK $M$ V K A S MVDVVSTKRTTTLRYAEAEGYVVYK A MVDITTQKKNTYRTAA A QALVVKVSKETVTAMQNGKGNV AHMVDVSGKPVTKREARASAVLIRTPDVVAMIADGGMGB
 RPAMVDVSSKVATARTATAECRVRFPA VHMTS IS HKAET T RVATAMCRVT FS PKP YSLLTTAK G DV
 A HMVSISSSKQSTERTAVAVCSIHFSNNALPLIDCDNRGDV

 R P A





UniRef90 UPI00046F0911 UniRef90_C7HVU9 UniRef90-A0A023NU33 UniRef90_UP10003B7625B UniRef90- J3P3P1 UniRef90_UPIo0036362F1 UniRef90-Q1K2L3 UniRef90-F8EAU4 UniRef90-F4PX66 UniRef90-UPIO003B7AB11 UniRef90-E1RJR9 UniRef90-UPIOOO4798445 UniRef90-X1C202 UniRef90-G2QBK2 UniRef90-A1ZUU4 UniRef90-F0S3P2 UniRef90_UPIOOO47AE351 UniRef90_UPIO00302465D UniRef90-Q1K1U0 UniRef90 W9YN46 UniRef90_UPI000472946C UniRef90-A0A017SRF9 UniRef90-K7RT96 UniRef90-A6DT47 UniRef90-H1XTX0 UniRef90-UPIOO04574188 UniRet90-Q4FMK9 UniRef90-F7EXD1 1 UniRef90 O54NM6 UniRef90-UPI0003B79D2C UniRef90-B7PFI1 UniRef90-14F3P8 UniRef90 ${ }^{-} \times 5$ DI31 UniRef90_UPIO003F9F69E UniRef90-H1YOU3 UniRef90-UPIo0047DD25F UniRef90-E1R5Z1
UniRef90-LOSZL4 UniRef90-C3XRN9 UniRef90-A7H7J1 UniRef90_UPIOOO472F134 UniRef90-B9MQJ1 UniRef90_N1WD73 UniRef90-S8FQIO UniRei90_UPIO00255B00A UniRef90-UPIO0047DB8C9 UniRef90-K0CBN1 UniRef90-A4BXK7 UniRef90-UPI0003B2E7B5 UniRef90_A0A015LXT4 UniRef90-C5GM29 UniRef90-V2TGN9 UniRef90-W9CNK6 UniRef90-B4SL66 UniRef90-R7QLV7 UniRef90-W6TXZ6 UniRef90-UPIO00463D246 UniRef90_UPIOOO2559926
UniRef90_UPIOOO329B502 UniRef90-B5Y5U8 UniRef90-G2DUF1 UniRef90-LOJY14 UniRef90-D7BJX1 UniRef90-UPIOO0472EOCO UniRef90-A2ST56 UniRef90-G7UQW3 UniRef90_V9D173 UniRef90_D9QIB9 UniRef90-E2VZ36
UniRef90 U6EDF UniRef90-UPIO00248E6D8 UniRef90-Q8TZX1 UniRef90-UPIO00262CA37 UniRef90-S7W1Y1 UniRef90-GOEDB1 UniRef90-A1RWZ2 UniRef90-D9P X47 UniRef90-UPIo00349AF76 UniRef90-E5VK86 UniRef90-D5VSV66 UniRef90-N1PXH3 UniRef90-JoRYQ1 UniRef90-UPI00021A4813 UniRef90_10K1G8 UniRef90-UPIO00477C300 UniRet90-NoE5S5 UniRef90_UPI00047C77D7 UniRef9O-UPIIOOO4016AED UniRef90_A3CW59
 NLLFCEVKVKCQGKTGVEMEALTGVSAGLLTVYDMCKALD
 $R R V E V R A T V E C D G K T G V E M E A L T A A A A A A B T V Y D M C K A V A$ $V$ V I T A T $V$ V R T T D R T G V






 $N E V V I$ D CFVVRVEGKTGVVMEALTGASVAALTIVDMCKGLS D F I EVVEA EVVKGDWRTGYEVEAMNAVMMALLINADMCKGFD
 Y E V I I L A E A K T K GLLTGV E M E A LTMAA A ATA L T I Y D M CK A G G GTVEVVQATVRAYERTGVEMEAMVSASDAALTIYDMCKGSE

 GAMSVKATVGCLGRTGVEMEAMTATMGAALTVYDMLKAVD



 H A V E T W A S C Q A R G P T G V V $\left.\begin{array}{ll|l|llllllllllllll|llll|l|l|l|l|lllllllll}S & V & K & V & D & C & V & V & M & S & G & K & T & G & V & E & M & E & A & L & T & G & A & T & I & T & S & L & T & I & Y & D & M & C\end{array}\right)$

 N GI LVVK S L T K C $\quad$ DG Q T G V E M E A L T A V
 V RI E A S VR TADRT GVE MEALTAATVA GLAVVDMVK GVD




 N A I R I Q T E A K S $\square$ G K T G I E M E A L T G V T TV A A L V I Y D L L S PV LCRAAEVTC EGKTGVEMEALTAVSIGLLTVVDMLKAVA

G N E L R I E C T V RTVG R T GVV G S

 QAI RVWCECASEARTGVEMEALAGVNAALLTLYDLSKPVE N E V $V$ R V EA TA T T T P A R G V



 S R I K A T V T A T G N A K H S V E M D A L M G V N I A L L T I Y



D T L

 D R L S I A A T V T T V S S I E V T V
 D Y I EVVTCEVVRAIVKTGVEMEALTGVSVALLTVWDMVKAVE

 E E L R V $V R$ V
 K EIIK AVCLVVKT T GKTGVEMEALTGVQI ALLTDYDMCKAIDD
 $V \operatorname{H}$ H I A A N V G A I E A V V R V $\operatorname{R}$ R S Y G K T G $V$ V






## UniRef90 U1PCK3

 UniRef90-T1CCC3 UniRee90-UP10003FA1C12 UniRef90-D5EMF3 UniRef90_UPIOO0370740C UniRef90-LOKTM5 UniRef90_O46FJ4 UniRef90_L7IFS0 UniRef90 UPIOO0465FD03 UniRef90-B4D3W4 UniRef90-UPI00036A9D36 UniRef90- Q58535 UniRef90-A0A021VQ71 UniRef90 LOHGL6 UniRef90-NOBMH1 UniRef90-TOCM83 UniRef90-D7W1D2 UniRef90-L8B199 UniRef90-A0AO23BXQ0 UniRef90-D7GGM1 UniRef90- ${ }^{-} 7 \times K H 1$ UniRef90-UPI0002DC02F4 UniRef90-H2BW34 UniRef90-UPIO0047D4378 UniRef90 FOTAY8 UniRef90-A0A023EU57 UniRef90-D3RZJ5 UniRef90-E7QPU1 UniRef90-W7ZQT7 UniRef90-V4H198 UniRef90-L2F8X7 UniRef90-A0A024IIM4 UniRef90-A3DPW1 UniRef90-A0A024JJ81 UniRef90-F4BTH4 UniRef90_A6UP75 UniRef90-W9DXP1 UniRef90-Q18HS4 UniRef90-F4B6J8 UniRef90-F9EIH1 UniRef90-A8ABS6 UniRef90-MOCSCO UniRef90-I4B767UniRef90 D7EBA3 UniRef90_D7EBA3
UniRef90-UPIOOO422E617 UniRef90-R9Sk25 UniRef90- H2C924 UniRef90-D3DYY0 UniRef90-x1HBS5 UniRef90_UPI0003FE9001 UniRef90-Q11VG4 UniRefoto-G8T812 UniRef90-D7DSB8 UniRet90_Q2FT56 UniRef90-M0DIHO
UniRef90 F8IKK8 UniRef90-U1PFT6 UniRef90-UPIOOO4711417 UniRef90-MOM4Q4 UniRef90 B8D2Z2 UniRef90_N8TE71 UniRef90-1325P2
UniRef90 O4JAB2 UniRef90-UPIOOO419497A UniRef90-U1PLC5 UniRef90_UPIO0034FE252 UniRef90-C7NNH9 UniRef90_B8GEZ7 UniRef90_Q9UXF7 UniRef90-AOAO59LPY2 UniRef90-A0A031LMQ8 UniRef90_-Q6FB32 UniRef90-D9Q343 UniRef90-R4VW68 UniRef90-UPIO003B52994 UniRef90 UPIOOO37E783A UniReffo- G2MIM1 UniRef90-DЗТАН6 UniRet90_L8H770 UniRef90_UPIO00467D595 UniRef90-LOA943 UniRef90-12K384 UniRef90-C5KT89 UniRef90-EOSSF6 UniRef90-W5XAN2 UniRet90 X1GCV9 UniRef90-TOM513
UniRef90 06 L 056 UniRef90-D1TQD0 UniRef90-TOMY57
$\qquad$
${ }^{1}$ AQMVDVGDKPDSHRRAVAEGSTHLQPSTT10 ${ }^{30}$ EAII EANKGDV ${ }^{20}$
 KPTMVDVSEKAVTERIATAESIIVLGEATLAQLEDNNGPI PEMVDVGDKAITTRUAVAEATVVLGKTIMAELEGNKGSV RADMVDUSKDITERYATAVGEILLSDLTIERTKNGKGNV RAHMVD S EKREVPRLARAAGEIILSRETIEKI QTGNGNV AHMVSIAAKAITSRVATAACTVVFSPTAARLIRENQGDV MVDVSAKAVTARSASAVCAVRFPAEVAAQLRSAKGGI ARMVNVGHKPEQQRTAKAEGWLRCRPETLSALRAPKGDVV VKMVDISKKEDVERIGVAEGYIKLKPETIKLIKEQKGNV HARMVDVTHKQPTVRSATAEAMVRCSDAVVRVLRDGKGDV
 MVN■THKNNT पRKAMAEAVLSVSQETUDAUVNNKGNVI AHMVDVAAKDVTARTATAAARपNTTAEVTEALRGDKGDA MVDITHKTSTLRUATAQAVVKVSPETUAATEQGKGDV
 HARMVDVTAKQPTVRAARASGRVVCAPEVVDALRSGKGDV
 VRMVDVGDKADTKRSAKASGRIYLQEFTIAKIDKEKGNV KATMVDVGDKESTKREAKAQATVYVGGPLSSKI ENNKGNV KVRMVDVSEKDVVLRTARAEGF:KLKKETVEA:KKGKGNV RAKMVNVSQKAETERTATARTKVRLSATLYDAIHDQKGDP ARMVDVGEKPDTARRAVARGTVRLRESTARAVRDGKGNV $M V D \| A D K P T T A R T A T A T G K V V F A P N D Y T K I$ QTKKGSII MVDVSGKRVVFREAVAEGVIRLRPETVRRIREGRGDV AHMVNIADKPVSQRSATAAGRIMESCSSLHAANNKKGDV VKMVDVSTKKDVERSCTADGFI KLKPETIEKINNKKGDV RAVMVDISKKD\|IVRKADASGEIVLNDATIEKI RSGKGNVI AQMVDVGAKPDTNRRASARGEIELTQTTVDAVRDGKGDV ARMVDVSEKQPVLRIAVAEGYVKLKKETVDKLKRGKGDV MVDITEKDVVYREATAEGVIGLRKETLDRIYQNKGNV MNDITRKNASLRTATATATVHCSATTLRMI QENKGNLI RVQMVDTSKKDSVSRQAVASGKILLTEDTINNDQSEKGNV MVV D


ESAKGPV
KMDDTTDKDNПYREADARGCTRDRKET DERVDRGKGDV MWDVSDKTPTVRTARAYAILRMSPETALAVREGKGDP

$M \prod D \prod S E K E V V K R E A \prod A E G F \prod S D K K A T \prod N A \backslash L D G K G N V$

Unirefor
Un

UniRef90 U1PCK3 UniRef90-T1CCC3
UniRef90-UPIO003FA1C12 UniRef90-D5EMF3 UniRef90-UPI000370740C UniRef90-LOKTM5 UniRef90-Q46FJ4 UniRef90 L7IFSO UniRef90_UPIO00465FD03 UniRef90-B4D3W4 UniRef90-UPI00036A9D36 UniRef90-Q58535 UniRef90-A0A021VQ71 UniRef90_LOHGL6 UniRef90-NOBMH1 UniRef90-TOCM83 UniRef90-D7W1D2 UniRef90-L8B199 UniRef90_D3Q464 UniRef90-AOAO23BXQ0 UniReftoo-D7GGM1 UniRef90-F7XKH1 UniRef90-UPIO002DC02F4 UniRef90-H2BW34 UniRef90_UPIO0047D4378 UniRef90-FOTAY8 UniRef90-A0AO23EU57 UniRef90-D3RZJ5 UniRef90-E7QPU1 UniRef90-W7ZQT7 UniRef90-V4H198 UniRef90-L2F8X7 UniRef90-AоАо24IIM4 UniRef90-A3DPW1 UniRef90-A0A024JJ81 UniRef90-F4BTH4 UniRef90_A6UP75 UniRef90-W9DXP1 UniRet90-O18HS4 UniRef90-F4B6J8 UniRef90-F9EIH1
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UniRef90 W5XAN2 UniRef90-X1GCV9 UniRef90-TOM513 UniRef90-O6L056 UniRef90-TOMY57 UniRef90_XoVFG8

90
100
110
120
 TSMRVYCEVAACAKTGVEMEALAGATTALLTLYDLAKPVE LEMHI FCTVKKTVYKTGVEVEAMHGASVIALTMYDMLKPIVD SM KIRCTVKTAGRTGVEMEALHGASTAALTIYDMCKAMS GTTAATVEVRSVGRTGVEMEALTGVSIALLTVWDMVKSAE GMISAEIEVRTVGKTGVEMEALTGVSAALLTVWDMVKSVE VV EVSATVECDGKTGVEMEALTAASTAALTVYDMCKAVD ELAACAVKTMHRTGVEMEALTGATVAALTVYDMCKALS ETHELTAEVKTADRTGVEMEALTAVTVAGLALHDMVKAVD DKIKAICSVKTTYKTGIEMEALTGVSIALLTI WDMVKSAE VI EAVVVVRMTGRTGVEMEALTAAAVAGLAVVDMVKGLDD DHI KAMVCVKKSRGKTGVEMEALTGVTTALLTTI WDMVKSME DEIEVEAKVSTVGKTGVEMEALTAASVAMLTIYDMCKAVD ssiE DATTKLAGKTGVEMEALTAASVAALTVYDMCKAVD VDVTRTKTADRTGVEMEALTAAAVAGLTLDDMVKALD DHVDVSATVRTADRTGVEMEALTAVTVVALAVVDMMVKGVD TVR STVEVRSNARTGVEMEALNGVSTALLTVWDMVKSAE V V EATVRTADRTGVE

## E <br> 




 D R I R V V VT V R T T A Q T G V E M D A L T G V S I A L L N I W D M V K K Y E T G V


 VRISTNVRSADRTGVEMEALTAATVAALTVIDMVKGVD NRLKVRVTVKAVERTGVEMEALTAVSLALLNIWDMVKKYE DDVTLSVAVETTGKTGCEMEALQGVTTGLNVVWDMVKAAE EKARVVVKVQTVYKTGDEDEAMTAATVTALTVFDLLKPVD NY TTASVKVKSVGKTGVEMEAGNGVSTALLTIWDMVK SAE
 E GVRVRTRIKAHYKTGVEMEALTATSVALLTVWDMVKKYE
 I I Q T E I H T I Y K T G V E VIE A M Y A S S V VA I T M Y D M L K P V D $K$ HVVI R S EIIK SII G R T G I E IIE A LT G I S I AA A L T V Y D L L K N I D
 NTVVEA I CK V K S T Y K T G I E M E A LTGG V S V A L L T V W D MV K A I E
 D R I E L T V A V E T T G K T G C E M E A L E GVVT TG L N T V W D M M K A A E

 D A V A I T A A V K TVVS K T G V E M E A L T A V T T A A L L T I I F

 LIE I Y V L V



 I T A EVTVVTSYGRTGVEMEALTGVSVALLTIVDMVKSAE S GI R V R S K V K A H Y K T G V E M E A L V A T S I S L L T I M D M M K K Y E E V V $\operatorname{E}$ V $\operatorname{Q} A$ NFVVEI LTATV E T I G P T G V V E M E A L T A A S I A G L T L Y D M L K P H P
 V H V E L T V A V E T T G K T G C E M E A L E GV T T G L N V V W D M V K S A E
 N S L IV V T C I V K T T G K T G V E M E A L T G V S I A C L T I Y

 T G IV F CAA A T V


 D A I E I E T E TK T SA K T GVVE MEA LAAAS VA A A L T L Y D M L K Q L D S D I N V A V S V K S I G G K T G V E M D A L H G V S V A L L T I M W D M V K S V E

 D R V T V A C N V V K A Q Y K T G V



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UniRef90 F2L2K6
UniRef90_G4RLT1
UniRef90_G4QSV7
UniRef90_K2PT10
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lupas_21 lupas $14^{\text {lupas_28 }}$
jnet_
conf
sol25
sol5
sol0
jhmm
jpssm

1
V Q M|V|D|V|GAKPDTARRAV|ARGEI|RVQDST|AA|I|RDGKGD|V $V Q M V D V G E K P E S K R R A V A T G K I R I Q P S T V E A I R A G K G D V$ A VMVDVSGKAVTARTAVACGRTSMSRECYEAVRAGKGDV KMVDISEKESVYREAMATGFIKLKKETLELMKSGRGDV RMAMVDVGRKPDTERVAVASAVVLLGPVAFKLIQENQGDA PKMIDITAKADTVRSAKAEAFI CI DDYULYELDTPKGDV SAKPVQKREAVAVGRIILKHSTVEMIRKEKGDP

A HMVDVSAKAETVREARAEAFVEMSAETDSMTTEGKGDVG MVDI TAKHSMVRWAKARAQVVLSEDLLKII ADPKGEV ARMVDVSKEACFRKAQAEASLNI GDQALLQGADPKGDA RATMVDVGRKPDSRRSAVAGAVVLLGEKAFRMVRQNQGDV

MEDTSVNDSSLREACAEAVICVSKETDQAILDGRGNV R P RMVVVTVKSDTQREAVAKCLVRMRVTTLERLKKGNGDV
 MSDIS GVNAVWQHADAKSSVQDTTELYESLQTGPQSV AHMVDVSAKAETVREARAEAFVTMRSETLAMURHHKGDV
RAAMVDVGHKAYTRRTATATGRVYDPSHTTELIRQAKGPV AHMVDVTDKQVTEREARAEAFVAMAPETLTLI QHHKGDV $M V D V S K K Q P T V R T A D A Q S D Q Q N K E A F D Q V Q Q K Q G D A$
 $V K M \| D I T S K E P V Y R E A D A T G F L R V D E D T M G E L M K T G G N A$

$$
\square \mathrm{D} \square \mathrm{~S} \text { S M N A } \square \mathrm{K} \text { Q H A Y A K S S VQ } \square \mathrm{D} \text { K E } \square \mathrm{Y} \text { E N F Q N G H K K H } \mathrm{K}
$$

TA $\square A E G R \square E \square S A S L L A K D D A G E G E W$
VDTSEKKPPYCLDATAVSTVVVPPAANFLLENKKGPL
 $M F D V T T E P T Y Y G E A S A K G F I R L R D S T V E L I R Q G R G D V G$


PQMVDVTGKPDTQREAVAKCRVRMKASTDNRTKVAKGDP










[^0]| UniRef90_U2YUD9 |  |
| :---: | :---: |
| UniRef90-M0BC47 | DAVTLLTVTVETTGTTGCEMEALQGVTTGLTVVWDMVKAAE |
| UniRef90-UPI0003C144F2 | DGVTVTATARTAGQTGVEMEALTA ATAALLTVYY DMAKALD |
| UniRef90-S7HJN6 | CELEGRCTVKCNGKTGVEME |
| UniRef90-H9ZZM9 |  |
| UniRef90-Q9N1B5 | HAAVI QASCRARGPTGVE |
| UniRef90-Q5DGE0 |  |
| UniRef90-E6N933 | NY |
| UniRef90_V4ILB2 | KTVAITAEVAT RGKTGAEMEALTAVSVTALTI Y D M CKAVD |
| UniRef90_UPI0002C362EC | HAVLVRASCRARGPT GVEMEALTSAAVAALALYDMCKAVS |
| UniRef90_C0B1Z7 | N R V R I E SVCRLT G |
| UniRef90-H2KTE5 | GSVWI ESTSKAVAQT GVEMEALT S V S VA ALSSVYDMDKS FK |
| UniRef90-M1VEJ9 | LSVRI RVQVSATAKT GVEMEALTGAAAAALALYDVCKGGF |
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| UniRef90-UPI000423B451 | LEI HVLVKVRSVCKSNLEMEAMHGAS■T ALTIY DMLKPID |
| UniRef90-X1G1P0 | GTVE LTTTVKSLGKTG |
| UniRef90-E5ULX0 |  |
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| UniRef90-H4F0E7 |  |
| UniRef90_UPI00045615DB |  |
| UniRef90_UPIO0047E6674 | LQ |
| UniRef90-A8MA28 | D Y V GLRVGAKTVA Q T GVEMDALFGALT GLVTA WNVI |
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| UniRef90-W8A097 | WDLI I EVEAKAKHPLPI HTEAMAAASIAALTVYDLCQHDA |
| UniRef90-W6L418 | SVLYCFCTVATEAKTGVEMEALTGAMVAGLTLYDMLKAQE |
| UniRef90-TONWT8 |  |
| UniRef90-UPI0003B6E3CA | AAI I CTAKAETRGGNGADTEALSAVSAALLALYTHCKETS |
| UniRef90-Q4DTP2 | SVLV CFCTVASDDKA GVEMEALT GASVA GLTLY DMLLRTLE |
| UniRef90_UPIO003B5FC3D UniRef90 F0QSU1 | AEVSVDTRNVSNTGSAMEAV |
| UniRef90-X11QP8 | NE DKIKAEVGAVDRTGVEMEALTAVAVAALTIYDMCKAVD |
| UniRef90_R1EJ63 |  |
| UniRef90-X1MDP4 | S SVQVEATVKTRAQTGVEMEALVAASMALLTDWDMTKQYE |
| UniRef90-TOM0E0 | 1 IVTCRVKA |
| UniRef90-T1BIF5 |  |
| UniRef90-X1MM75 |  |
| UniRef90-B5Y838 |  |
| UniRef90_V4X9M1 |  |
| UniRef90_X1LZG8 |  |
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| UniRef90-G0V290 | SVIYCFCTVATEERSGVETEALAGATVAAVTLYDMLRAQE |
| UniRef90-A3MS38 | DAVEVRVEVKARDVSPAPEALFSAGVALLTI WDMLKKYE |
| UniRef90_F2L2K6 |  |
| UniRef90_G4RLT1 | NAGEI RAEAWTRWKTGVEMD |
| UniRef90-G4QSV7 | VALEAIDNKRSVG】ASGHSD |
| UniRef90_K2PT10 | LI Y QLQL K A I H K G $\square$ E T Q A L Y G $\square$ S VA GLS L |

[^1]

| UniRef90_U2YUD9 | K 140 |
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| UniRef90_S7HJN6 |  |
| UniRef90-H9ZZM9 | K D |
| UniRef90_Q9N1B5 |  |
| UniRef90-Q5DGE0 | K G V V E K I L L E K LGG |
| UniRef90-E6N933 | K D TA I T DI RVVVSK |
| UniRef90-V4ILB2 |  |
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| UniRef90_C0B1Z7 |  |
| UniRef90-H2KTE5 |  |
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| UniRef90-X1G1P0 |  |
| UniRef90-E5ULX0 | R N M M L S G $\square$ R LE S E T |
| UniRef90-K1XHR6 |  |
| UniRef90-W7YXQ7 | K S $\quad$ VLGP TY L S R K |
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| UniRef90-J91158 |  |
| UniRef90-A8MA28 |  |
| UniRef90-E1QSY5 | R T |
| UniRef90-UPI00037804CF | $R \mathrm{GMII} \mathrm{I}$ NVRLLEKLGGKS G H Y Q |
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| UniRef90-W6L418 | D GLAVGEAFILAKRGGRS DF TK |
| UniRef90-TONWT8 | KHVEI GSTRLLHKSGGKSDH |
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| UniRef90-Q4DTP2 | DGLS $\\|$ GESFVLAKRGGKS DFTK |
| UniRef90-UPI0003B5FC3D |  |
| UniRef90-FOQSU1 | K D T M I K E TKVL |
| UniRef90-X1IQP8 | K T TEISH $\downarrow$ R L M K K T G GRS G DF VR |
| UniRef90-R1EJ63 |  |
| UniRef90-X1MDP4 | K D A Q I Q $\$ I RVVRKVK  \hline UniRef90-TOM0E0 & KDTSI GNINVVYKRKGDS  \hline UniRef90-T1BIF5 & K D A ALGPVRVR K K K G  \hline UniRef90-X1MM75 &  \hline UniRef90-B5Y838 & P D A V I E D VG $\\|$ V |
| UniRef90-V4X9M1 |  |
| UniRef90-X1LZG8 |  |
| UniRef90-Q4Q7Z8 | D G LS LGEAFVLAKRGGRN DF T K |
| UniRef90_UPI00037F3BB1 | PDAII EDVSLL S |
| UniRef90-G0V290 | DGLSVGEAFVLTKRGHQ GDFTK |
| UniRef90-A3MS38 | K D |
| UniRef90-F2L2K6 | K D |

UniRef90-G4RLT1
UniRef90-G4QSV7
UniRef90-K2PT10

K
K DARTEDVRVVEKR
K GM\|IGDVRLLAKRGGKSGDWT
K D
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KDTAI TDI RVVSK
KA ITID NI RLLKKAGGKS GLYQR RD VLAELKLVSKTGGQRGDFHR

VGUVAQ Q LVEKHGGKS KTLCIQRITLLSKEKRK
$R T M K \prod G E \prod H L C S K T G G R S G$
KGIHIQQIKILEEPNEQS
R N M M L S G $\square$ RLESET
K S I VLGPTYLSRK
K T ME $\square$ GS $\square R$ V $\square E K T G G K S G P F R H$

R T
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E ALLRIA HIRLLDET
K D TMIKEПKVLK

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KDTSI GNI NVVYKRKGDS
K DTALGPVRVR $\square K E K G$
P D A V I E D VG\|V]S
DGLSLGEAFVLAKRGGRN DFTK PDALIEDVSLLS
K D
K D
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jnet
conf sol25
sol5
sol0
jhmm


[^0]:    lupas_21
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    lupas_28
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    jpssm

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    jpssm

