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G GRDELDDEQVLAVLQKMVKQRRDSIRAYTDAGRDELAABE RKRALDDSEVIDVLSREVKQRRDSLQDFETAGRTDLAEQA K GHD
 GHD GSPLTEDDENAVLSREYK GHD LSSDEEIAVLSRELKQRKDFLEE ERTTLDDEGILQVIVKEIKERKDANSEFKNAGRDEAVQNL RREADDDAVLAILNRMLKQRRDSIDQYRKGGREDLAERE GHD LTPEEELTVLSREVKQRHESLSEF

## E

$G Q D$ LD D P Q V L V V L D K ML K ER $\quad$ T L D D E S V L T V L H K M V K EHHDLS DEEVLGGVLTKETKKRRRE SLG

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 GH ELSQDDALTVLNRELKQRKDSLNEFEKANRDDLVSNL


 A D HKLLTDDQVNTIVMKEIKQQKESLEEFQKANREDLVTD Q GHD LTEDEEI AVLSRELK RRDLSDA KAR/VL GHD R EALD D A QVLLA A L $\operatorname{L}$ D K MV K ERVELDDSNVI AVI EKMLK GHD LLTSEE ELLVVLSREGKKQRKESSLACDFQKANRTQDADKE ERDTLDDAAVLAVIDKLVKQRKDSITQR
 ERDELTE G DVLAAVTKMVKQRKDAAQQFADA DRLDDLAD K E RTBELDDTTILAALD KMVKQRRESDRQYTAGGRADLAAAAE RRD L T E E ETI DVLAREVK QRRDS I AE YEKA GR S DAVEAL


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 KK ELNDEEVLEVI AREVKMRRDSIAEFQKGNRPDLVETL GQD LSSDEELSVLSSQVKQRKDSLAEFEKGDRADLAEQT
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## QUERY

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 MK N Q L M N D M K A A M K A K D K L K



 M S L K D QI T E S MK S A M R N K E K ERRLSA I R LI L A E V KR VVEV D $M A \operatorname{L}$ K E Q L L A D L K T A M K A K D K V R K S T I T M MRA A I L Q K E K D Q $L K T R L Q Q A V K D A M R A R D K T R L G V L R M V T A A V K Q R E V D$ MSLQERLLEDMKEAMKGRNKEKLSVI RMARAAIKDKEI NE

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 I KEKI QEDMKSAMRS QEKDRLAATIRLI LAAALKQREVD

 M S L

 $M S L L V T L K D A Q K D A M R A K D K M R L G A V R S V L A A B I K Q R E I D D$



 L K A R I Q D S V MSVYDKLLSDMKDAMKARDKVRLGVI RGIKAQVMNAKVAD

L R D D I I N N A V K E A M K A K D E R K L
 A L K D R L T Q A M K D A MR A Q D K P R L G V V R M A L A A I K Q DE V D
 $M \operatorname{S} L$ K H R I Q E D M K A A L L K G G D K S R



 L Q T R I N D A LDK TA MRA R E K A R VA V L R L V TA E F K R IVEVD LKTRI QDDMKAAMRAKDTARLGTVRMLLAAVKQREVD M S L K A R I N D D M K A A M R A R E A E R L G T V R L L L A A I K Q R E V D
 MS LK QQil NEDMK TAMRAKETARLGAI RLLLAAMKQREVD
 MALK D QLQ A DLLK TAMKA K D K V K K S T V T M I R A A $M S$ L R E T I N Q DVVK N A M K A K D T K K R D A L R L L T S A F K Q I E V D E
 MTLKKQKLQEDLKTSMKNKDTVRKSVI TLI RSSIVKQVEVD

 M S KRIQD D MK A LR A K D S A R
$M K N K D$
NMK E K L T R D MK E A
RI RLQ TI RMVLAS I K NVEI D
 L K Q R L T S E MK D A M R A K D K D R L G Til R L I L A A E L K R $\square$ E M S L L D N L K K D MVVA A M K A K D K D T L S V V R M L K A S V Q NE Q I N

 MSLKD TIT A NMKDAMRAKDAMRLGTI RMLLAAVKLKEID MRD RI N S A MK Q A M R D K E V L R L S T L R L V M A A I K D R D I A A

 M N L N E R L T E DMK A A L K A G P K A R L E T I R F L R A A V K N A E I E
 M S L K Q K L Q E D L K S S M K N K D N T K K S V V T L I R A S I K Q F E V D N

L K S T I S N A V K D A M R A K A K D R L G V L R M V M A E F K R $\square E V D$

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DGIISLLDDDAVIEVLIAREVKGRREAIIDEFEKGNRQDLLDDKA GND LSEDEELTVLSREMKORRESLAEFKDAGREDLVDQT RKEETESQVVDIIAKETKMRRDALEEYKKANRPEDVDKL ERDDVDDARVLAVLDKMLKQRRDSISQYDSAGRVDLADQE AGAEATDEDVLYVVQKEAKQRKDSI EQFQNAGRQDLVDKE GKAEASDEQETEVLVSMAKRRRDSVVQFTEGNRPDEAANE EKEALTDDEELSVLSRELKKRKDSVNEFHEAGRDDEADQT GKAEEVDEQELEVGISLAKKRKDSUQQYVDANRPELAETE RVDVLPETDI RAIISKQYKQRKDALDEFTKAGRDDLIEQT ERTELDDVQVLEVLTRMVKQRRESIAQYRDAGRDDLAAVE RKD LSDEEVIEVLSKLVKQNRDSISEYKKAGQDEKIEEI RA ELSDAEVLQVLSKMVKQRREALEQYEQAGRDDLAAKE ERVLDDTQVAVLDKMLKQRRDSISQFSAAGRQDLADKE ERVEVTDADVIAILTKMVKQRKDAASQFAQAGRMDLADNE ERIDVDDARCLAIIDKMSKQRRDAANQFVDGGRQDLADNE GAD TEEQEVAVLSREMKQRVEEDEGNQAAGRDDLAEEV EQ TTLSDADVLAVLTKMIKQRQDAAKQYDDAGREDLAATE ERVELDDAGUSVVDKMLKQRRDSVTQYEAAGRQDLADKE
 ERTELDDAAVLAVLEKMVKQRKDSVSQYAAAGREDLAA EE KRELSEEEVIEVLAREVKQRRDAIAEYERANRDDIANTL RAD LSDDDVIA LTKMGKQRKEALEQYEKAGREDLAS E AGAEITDGDVIKLIQKLIKQRKESAAMYAQGGRQDLADNE ERTEIDDQRLIAI MDKMIKQRRDSTAQYEAAGRQELADDE ERIVLADEHVIAILDKMLKQRRESITQYEAGNRPDLVQKE GKDLTEEEELTVLNREVKQRKDSLLEFENAGRNDLADKLL RAEGUDDPELLALLAKMVKQRRESARTYEEGGRLDLLAEAE EARELTDDEVTVLTRETK GSDGLSDEQAIKILTKMAKRRREAAEAFRSGGRPDSAEQE RKELSDEDVTTVLTKQVKQRRDSDEQFESANRQDLADAE ERDTLDEAAITSVIVKLVKQRRDSYTQYKDAGRDDLADVE RRELDDTEVLSIAEKLIKQRKDSASQFRAGNRPDLADKE DGVKLNDEDIIGVLAKEVKQRREALVEFEKGNRQDLVESA KREETLDDARVLALLDKMNKQRKDSUQQFTDGGRDDLAQUE KS LDDQRALAVLDKMVKQRRDAI EQFESAGRTDLADQE RQD MSDDDIIVVLTKMTKQRKDALSQFEQAGRDDLAVIE GNHDLTEDQI NDII MKETKQQKESLEEFQKADRKDLAEEQ RKPPLTDSDVLAVLQKMIKQRHESVELYEKGGRAELAASE EHD LTEEEETAVVSREMKQRKESLVEFENAGRDDLSEPL ERDELDARTLAVLEKLVKQRRESATAYEQGGRPELAAGE ERIEVDDTRFTAII SKMVKQRKESVRMYTEAGRTDLAEKE
 QITLDEAAITSVLVKLVKQRRDSIDQFEKAGRDDLAQTE GGATATEEDILFVVQKEAKQRRDSISEFEKAGRQELADKE SDGELHDDVALKILSKMAKQRRESAQDYTEQNRPDLABPE
 E eri Eldoanviaviermik GHD DLEEEVLTVLSRAKK AGEELDQDTEVKVLGKLVK RRD SSDEDILAVLDKMGK QQVELGDDQILEII AKQLK RK ELTDEDVIKII QTQVKRRNDALAEYKKARDDLQQA GKGELSEEQELEVVMGLAKRRRDADEQFTAGNRPDLAENE KRПELNDDDTIDIISKQLKQRNDSLEQFDDAGREDLVEET RPNPITADDVMAVIKKLVKQRKESIEQFSAGGRTDLAEAE ERVELDDAAVLAVLDKMVKQRRDSVSQYEGAGREDLAAVE ERDELDDADI QTTVEKLVKQRRDSASQYDAANRPDLAANE GKDGLTNDEELTVLSREVKQRKDSLQEFKNAGRSDLVEKA KQHPLSEEEVAGVQKEVKMRQDSLEQFSRGGREDEVEQT GR TLSEDEVLTILTRELKQRRESLHEFEKAGREELALKS ERDDVDDARVLSVLDKMSKQRRDSIAQFEAAGREDLAASE GHD LIPDEENALMAKEYKQRKDSMAEFEKGGRQDLVDAT RREDDDAEALRIVDKLIKQRKDSASQFDAGGRPDLAEKE KQRELSDDD LGVLSTEAKRRREAAVAFADGGRTEMAAKE DRVEVDDTMAIAIVDKLIKQRKDSIEAYVKAERPELAADE RVDGVDDDElLAILGKMIKQRKDSAAAYDSAGRDELAAQE AKEELTEEAEIKLLQRLVKQRKDSAADFTEQGRADLAEPE
 KHAPLSDDEILGIITKQVKQLRESLADFQRSGRQDLVEKT RKESLTETQEMDILARLAKQRRDSIEQYTQVGRQELADQE RVELDDSQVIDIIAKLLKQTKDSLNEFKKAGREDLATQA



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| :---: | :---: |
| UniRef90_U2DOD2 | M Q |
| UniRef90 U5SCX8 | KVMGVVMPLTKGKADGNEV |
| UniRef90-A4J5He | KLMGALMPKV |
| UniRef90 K2B817 | KVMKALMPKVKGKADGGTVS |
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| UniRet90_UP1000262CD57 | QVMGQLKSKVQGRADM |
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| UniRef90-E5APP | KVMALLKGRLAGRADMT |
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| UniRef90-G7UW42 | MAVLKPQLAGQAMG |
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| UniRef90- R6T | KVMGLATKKL |
| UniRef90-UP100037590DA | KVMG1 KKPQUQRADG |
| UniRef90-K2BMP3 | KVMGILKPKVQGRADİASV |
| UniRe990_UPIOOO30A | F |
| 0D6S |  |
| UniRet90_U9W712 |  |
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| Uni | MK |
|  | KVMGVATKRLAGQADG |
| UniRet90-UPIO00380D | KV $\$ GLLKPQMDGRADMGKV  \hline & MGVIKSQAEGRA  \hline 02 & LNSLKPRML  \hline UniRet90_-_OKD84 &  \hline 6 & AVMA  \hline Uni & MQAI MAAHKGQVDG  \hline & KVMGIVKPQAQGRADM  \hline UniRef90-11XF &  \hline UniRef90-4FUS0 & MGA MPK  \hline UniRef90 A4YMV8 & KVMAVLKAKY G ${ }^{\text {a }}$ |
| UniRef9 | KVMNLLRPMVAGRADVGA |
|  | KVMGVLKKTLAGKADMSE |
| UniRef90 A1S3 | KVMGALKPKVQGRADLGA1 |
| UniRee90 H5SD | KVMAKLKPQVQGRADLSQV |
| UniRet90-A4C780 | MGL KSQAEGKADİ |
|  | VMGA SKK |
| R5YA14 | MGAASKKLAGKADG |
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| UniRet90-G8M333 | KVMQSVLPKVKGRADGKM |
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| UniRef90- G8PD87 | KVMGIVIPQTKGQASGGQ |
| UniRef90-D5CMJ9 |  |
| UniRef90-U2H |  |
|  | VMA |
| UniRef90-B5JTU0 | KVMGQIKPKMQGRADM |
| UniRef90-H6 | KIMSALMPKVKGRADG |
| UniRet90-EOUULO | KVMGMASKELAGKADGKR |
| UniRef90-B3QM91 | KVMGLAMKALKGKADGGK |
| UniRef90-B6G1P7 | KIMSVTKPKTKGRADG |
| UniRef90-M4 | KVIKETQARSGG |
|  | KLMGVL |
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| UniRef90_UPI000375094E | RVMPQLKARLAGRADM |
| UniRef90-F7YZ22 | KVMGAVMPKVKGKADGTV |
| niRef90 O2RJ61 | KVMAALMPKIRGRADG |
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| UniRef90-L5 | M |
| UniRef90-A4BE37 | 硡 |
| UniRet90-C7XU00 | KVMGAI MPKVKGKADG |
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|  | KVMGEASKQLAGQADGKT门STLVKKLLS |
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UniRef90_J9FYY4 UniRef90_T4VXC6
UniRef90_K2J5C2 VA K S AVKYK EVE P MS LK DKLLEDYKTAMKEKDVVRKNVVGMVRAAILQFEKDN
 TLKE TLATATKNAMKAREKARLATLRLI NAEI KRVVED D L K A T L Q G D L T E A M R A Q D K V R A G T L R M A L T A I S T E E V A G M S L K D Q i S E E I K A A M K A K D K V R LiE A V R S I K K V L D E K E S E K MS L K D Q I S E D MK T A MRAK D TL R L G TI RLLLLSAI K QREVD L K S Q I T D A M K A A MRA K E K ERRLG T I R M L L A E L K R DE V D
 MS LK E QL F A D LIK T A MKEKD T $\square K K D T I Q L I R S G V L Q D E K D N$ MSIIK DMLNNDMKAALLKAGEKERLSVI RMAKSAILYAEKE M S L K E KI L S DMK E A MKNK DE L R L R V L R S DK T A I GY F EVE G
 L K Q Qi S T E MK A A MR A K D K A R L G A I R L I M S E I K R I E V D $M$ S L Q E R L T E D V K T A M K A R E K S R R L S V L R M V K A S I R N L E I D DI K A S LTTSAMK DAMRARDSVRRLGVI RMALAAFKQVEVD MEI R DKI S A DVKA A M I A K ESAKLGALRMLQAAIKNREI DM L Y D T I M T D I K E A M K S H D K E T L S T L R F L K S A I D L F K I N N


 MS TK Q QLTEDMKAAMRGGDKHKLGVVRLI LAAIIKQREVD
 MP K A RIIT E DMK S AMKAK DK QAL K A V R MII GA I K QK EI D MPIMERLNQDLKEAMKDKDSFRLSVVRMLKSSLKNEEIN MT L DE S L M K DMK A A MKA Q D K E T L T T


 MSVRE QI T Q DVVKTAMKAKDSLRVGTLRLI QTAI KDRDIAA M D L R T R I S T D L K Q A M K D K A V V D R L


 DLNT QL R D AVVAAMRAGDKPRLATVRMVSAAI KQKEVDE $M$ S L T T K V M E A L K E A M K A K D T V A L E S L R A I K S A I L L A K T E G
 TI K E RL QEDWK QA L K A K DKFKA GVL STAK S A I LLVVE K T

 SLRARFT TEMKEAMKAGDKDRLATIRMIQAALKDRDIEA MSLLKDREIDEDMKA AMKAKEKVRLSVI RMVRAAIIKNAEID

 MS LKAKLVEDMK TAMKAGEKDRGGVI RLVQADI KRREVD
 M S L L K A I E K D Y L S A Y K A K E DVVK V A V L R ML K T A I K N A S I E L
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GASVVLDDAGVMSVI|TGLI KKGRDSADQFKAANRPE|LAEKE K VVLDDNGVLSVIAKEIKKRKDSLPEYDKSGRQDLDDELL GK R EREALTEAQEMEVLVQ】AKQRRDSIEQYSKAGRQDLVEQE KRELDARILALLDKMTKQRRDSITQYEKAGRPELAEVE KHRTLGEDEVLRVLVKEAKKRREAAEAYTGAGRPELAARE
 ERIDELDDARLLTVLDKMLKQRRDSVSQREAAGRQELADVE E GKELSREQELAVLGKEKKQREESIAADFKKAGRDDLVAAT K VELDDEGVI EVISSKQLKSRRDSLPDYEKSGRQDLI EKLL K L H E L D D E EVVI E V L F K E V K K K R K N D I N E Y E R L G K A E VV V E S L EKREATDEDI QKII $\square K E I K K R Q E S I E A Y R Q A G R E D L A N A E$



 RTESSPSDDTVDEVVSKQVKTHKE SIVEEFKKA GRNDLVVENLL





 DRIELDDARVMAVI QKMVKQRKDSISQFKDAGRTDLVDVE RNKPLSEEEELFVLTRELKMRLDSLQEFERAGRKDLIDKA
 GR E L T E D R ERDELDD GQVI E AI E K MLK QRRRDS I A QYEAANRHDDLA DV E R R
GRTELT D D DVLLKVI AREI KKRRESAEDYRDNGRDELAADAE RAEDCEESEILLSILQKLVKQREDSAQTYEDAGRDDLSERE RAD GVGDSEVLAA L GKMAKQRLESARAYEEGGRLLDLAARE



 R S L E D A DVLAA DKM
 R K
 S K E E L
 RKEPI S DEEILLSLLQKMVKQRTESASVVE QGGRPELLAANE K K QEFS DE QVIEVVLAREVKMRRDAMDRFQKVARPDKVQELD
 E RIDEL D D V A VII AI L D K M V K Q R R R D S V S Q F E A A A R E D L A QV E
 E R DV A D D A V V L A I L E K A V K Q R K D S I S Q F EAA A A R E D L A A DE A GSEMS DAEEI K LI QK LVVKQRKD SAVIDFKEQGREDLA EPE

 SNGELTDEQAI KI I AKMAKSGHDQAKFFMDNNRPDLAEAE
 R R D L G D D E V L A V L D K ML K QRRRDAA QYEDA GRDDDLA DKE


 ANDTLTDAQALKILSKLAKQGRDTAKLYTEQGRPDLAEEE G H D L L S E E E E K S V L A T $M \mathrm{M}$ P L D D A GVVLA V V A T E $K Q \square Q L D D D G V I D V L A K E I K S R K D A I P E F E R G N R P D L V Q K \square$ $K Q R E L S D D D V V R V L T R E A K K R R E A A Q A F A D A G R T E Q A Q A E$

 RVVEAD D DKVI DTI S K QL K QRRRD S L V EF EKA QRE DLLV D Q T

 G A Q E L N D E QV I T L I K R G Y A K R T D A D Q M Y E K A N R T D L A E K E
 QRIE MDDAAVTAVLVRMVKQRKESI DQFQKADRLDLVAQE GKSPLSEEDEELTVL SRELK QRKDSLQEFENAGRSDLVVEV GA GELSA D DEELKKLLTKAAAKQRRESSADDYKTAQGRADDLLEKE

 AS DTMLTDADALKI I QKL SK Q GK DAAE DY DQQGRQDL ADNE




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| Ref90 E4Q164 |  |
|  | KVMKEVTPLVKGKADMSHV |
| UniRef90－D8G096 | $V M G A A M Q Q L$ |
| UniRef90 UPI0002559D48 | KVMALVKPQVQGRADMGA |
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|  | VMA |
| UniRef90－F3KC | KVMGLLKPQMQGRADMGEVSKLIKARLA |
| UniRef90 D6S5II | KVMKAlVPKITGRADGKEV |
| UniRef90－R5ABN | KVMGIVTAKAKGRADMK |
| UniRet90＇A7HL58 | KVMKEAMTRLKGSADGK |
| UniRef90 ${ }^{\text {W }}$－XX | QVMKTASEKAAGAVDGKR |
| UniRef90－E4U | RVMGAASKELGAQADG |
| UniRef90－UP100035C | KVMA I KPQlagrada |
| UniRef90＿UP100037C | KVMALLMPQVKGKADGK |
|  | VMGQLKPQLQGRADM |
|  |  |
| UniRef90 R5A962 |  |
| UniRefoo-F2NE | KVMK DAMPKFAGRADGKEV |
| UniRef90－UPIO003B5ECC3 | VMGALMPKVKGRADG |
| UniRef90－N9U2 | KVMGVLKPKI QGRADV |
|  | KVMGLASAKL |
| UniRet90＇B9NN08 | KVMGELKTRYTGQMDFGKV |
| UniRef90－B0SHG3 | KVMGKVMAKFKGQDDG |
| D1 | M ${ }^{\text {a }}$ |
| UniRef90－M1Y | KVMANLMPKVTGRADG |
| Uniref90－E3B |  |
| UniRef90－D3H |  |
| UniRet90 W7ZMW9 | 㑑 |
| Unire | KVMAA KPKVVGRADMGK |
| J2G | QVMKAANAKASGRADG |
| UniRet90＿UP100036 | KCMGALKTRFAGRMDFAKAGAEIKSLLG |
| UniRet90 UP1000 |  |
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| 仡 | K |
|  | KSITPSL |
| Uni | GMIKPK |
| UniRef90－U10003477FC8 | RVMALAKPQMQGRADM |
| iRef90－C7M5X1 | GVATKQLAGKADG |
| niRef90－UP100037B73BC | LMAVLKPMLAGKADM |
|  | VMGTATKELSSKADG |
| UniRet90 H7CY48 | K V |
| ， |  |
| UniRef90－B1LVD7 | K V |
| UniRef90＿FOSVE1 | K V |
| 1MIN5 |  |
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| 11 | MGPLKAKLAG |
|  | V |
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| UniRef90 UPI00037F11 | K V |
| UniRef90－UP1000384DC5B | V |
| $\begin{aligned} & \text { Unir } \\ & \text { UniR } \end{aligned}$ | GVMALLKPQMQGRADMANV |
| UniRef90－G5GCG7 | KVMGTATKRLAGKADGGAI |
| UniRet90－UPIo0047A8BF5 | KVMGAATAALGGKA |
|  |  |
| UniRe | K V M A |
| UniRet90＿R6Y318 | KVMGV |
| CR7Q1 |  |
| UniRef90 UPIO003 | VMGVLKPKLQG |
| UniRee90 C9LITS | VMGEASKRLAGKAD |
| UniRef90＿KOMVR2 | KVMKTLMPKVKGQADGSLV |
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| UniRef90－ 3 UR |  |
| UniRef90－F5RCX8 | KVMGPLKAKLAGRTDM |
| UniRef90－L8Y146 | KVMGMLKPQLEGKADMGV |
| UniRef90－D7D3D3 | KVMGAIMPKVKGRADGSLVNKLVQQQL |
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| UniRef90－UPI00037AB2BD |  |
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| UniRef90－T4VXC6 | KI MAAIKPKTKGV |
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10 K 20
30
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L K A RLK K D LT TAMKARDKVRTGTLRMVLAA I STEAAAG
 MSLEQKVMTAMKEAMKAKDTNALTSSLRAVKSAILDAQTEG


 $M \operatorname{N} L \operatorname{L}$ M S V S Q Q I N D D ITK K A M L A K D K K R L E S L R A I K S A I L L I A S E K
 MS L K E QL K S DL K D A M R S K E IVVKRD SI R A I N TMMIK Q DEVD E

 MS L L L DI N E GI K T A MK A K D TVVSLES L RAVK S AI L LIA QTE T MTLLK E KIT S DLKK E A M K A G E V K K R D T L R L L D S A I K N T E I E K
 SLKEQLGNAVKDAMRNKEKDRLVTLRMAQAAVKQ口EDDE




 M S L H D R L T E D L K S A MK S R D QL RMDVI RMI KA AV Q Y K E V E L M S L L D L L NK DLKK S A LIK A H D K Q R L S TVVRMLKA AV M NEK I K V M S L R E RII I T DMK T A MKA Q DK A R L S T L RILI S A A I K D R DI A A
 MS L K A RLTEDMKTAMRAKDTLALSTI RLANAEI KRYEVD M S L T S D I Q A A I I K A M K A Q D K E K L S V L R M L K A S I S N K Q I E L
 RVV
 $M N L F D Q I S N D I K N A M L A K D K L R L E T L R G I K K E F L E A K A A K$





MRERFTE ELK T A MKAGEKRRVETI RMI TA GL KDRDDEA


 M S L R M R I S D A L K Q A M K D K A A D R L $M A M Q E Q L V A D M K A A M K A G E K D R L S A I R M L R A A L K D K E D E L D$ K Q K L L R Q E MS LK DKLMEDLKSAMRDKDKLAKDTITLVRASIKQKEVD MS L K Q RI E A DI K Q A MLLAK DKARLQALRSIKSQILLAETKG L K D R I K E D M K A A M K G G D K A R L A V I R L I M A A
S L K D R I N D A LIK T A MR S R EK E R V A V L R L V M A E FK R I E V D


 MALKE QLLADLKASMKAKDTVKKSTVTMIRAAILQVEKDN

MR GK I A E S L K S A M K A Q D K R R L P T L R LI Q A A I H D R D I A N
 MS L L E K I D Q D I K K A ML A A K E EA T L R G L R A I K A A L L A K T E K G $M \quad \operatorname{L}$ L
 $M K L R Q K D T E D M K S A M R A G D V Q R R D A L R L L Q A A L K Q K E V D$ M S L K E R I S E D M K A A M R A K D S A K L
 M S
 M S L K E T L N N D MDMRDRISTALKGAMRDKATNRLSTLRLINAAIKDREIAA

 M S L E Q T $\operatorname{I}$ M Q D L K T A M K A K D Q A A MS LE T NI ME QMK A A MKEKNTVALEAL RAI K SELLLDA K TS G


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 RVVLDDVAVVAIVDKLMKQRKDS $\square E A F Q K A E R T D L A D K E$ S SKELTEDEEMKLLQKLVKQRKDSAEDYKQQGREDLADEPE SSRSLGDDETTRLLTREAKKRREAAEAFDKGDRPEQAAAE RRDQI GEEEVLEMLQKMDRQRRDSVEMYEKAGRSELAERE

GSA LSEDEEIELLARELKQRKESEVEFRQADHVELADNA DGM LSEDDEVKLVQKLVKQRKDSAADFSEQGREDLAKPE GNADLDDAAIMSVTRKQIKQRVDSVEQYGSAGREELAEVE K VEADDALADNI I NKMUKQRNDSITQFMDGGREDLAKQE AGSEVSDEDAITAMQKLVKQRNDAAADYHEQDRADMAEDE SRHELTMDEDALKKVIAREIKKRRESAEVYAENGRPEMAEEEE RK ELNDEDVIKLVQRGDKQREEASMQYKDAGRDDLAQVE A ARTLTDEDIIKVLDRERKKRDEAAEAFAAAGRQDLADRE SNDTLEDAQALKILAKLVKQGEESAATYRQAGREDLADEE GKEELSQDDEIKLLQRLVKQRKDSANDY IGQGGRDLADPE KKRELNDEEVLEVISKAVKQRQDS DKQFEEGGRPELAEGE
 RR ELGDDDVLKVLDKMLKQRRDAASQYEEAGRGELADKE
 GSETLSDAEELQULTKAAKQRRDSIEDFEKQGRKDLASGE EKHELTDDDMSVIKKQVKTRKTSMEEYLSYDRKDLADNL M

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G E R A EAD D A K I TAA ML G H E L S D E E V VA V L A S E V K S R R D S $\quad$ DN D F K K G K R D D L V T M T
 A NDTLT DADALLKI I QKLVKQGKDSAEDYTQQGRADD AEAE EKK K AT D D D V M S MI K K E V K S R K D S Y D QF M A G NREDDLA K K E
 GSDELSDD I AMKILVKMVKQRKDSAQDYDEQNRPELAESE
 K N P DLLD DA QVTSSLLQKEAAKRRRDTAR YYEAGKDERAA GE RT GTLLTE A DL I QI L S K MVVK QR Q E S A R A Y E E G G R L E L A A K E

 $R G K T V S D E D I L G L L Q K M V K S R Q E S V E I Y D K A G R T D L A T Q E$ $R S D G I D E A E I L S M L Q T M I K Q R G E S I M L Y E Q G G R L E L A E Q E$
 GKEELLTVEDEI KLL QR LVVKQRKDSA IIY DQQGRQDALADPE GRHDLTEEDVLKVIAREIKKRRESAEVYTDNDRPELAAEEE

 A GNELSSDAQAQQI MAKMVKQGKDAAADFTQQGRADLABEEE GT E E A T E D D GTDGGLSEDTELKLLTKAAKQRRESAEVYAQQQRPDLEQVE E R DIELLD N D Q II A V L D K M V K Q R R E S D DR Q Y S G A N R M D L A E V E E RI I E V D D T R AL A L L D K M V K Q R R D S E Q Q Y R N A GR D E L A A Q E R A DGI P D E EI L S ML Q GMVK QRRESDA LY EK G GRQD LVD K E
 $K V E L G D A E I$ QEI I A K QMKQRRDALDEFKKAERDDLI A Q T RKEPAS D DEELLQULAKMVK QREESAKAFDDGKRPEELAAQE K H REELSDDEVLAVIVKEAKKRREAADAYVGAGRTELAEKE A A D T L SEDTEIKVL QK QAK QRKESAD DYLTQNRPDLAK $\quad$ LE KAHELTTDDEVEKVLTREVRRKRREAADAYAGAGRAEQAARE ANDELSSDEAADQLLQQKMAKQRRDSAADYTTQNRAD LAENE GRD L T E D D QLTVVL N R E L K Q R K D S L Q E F E K A N R E D L V E K L ERTELDDGAVVAVIEKMLKQRRDSISQYEAAQRQDLADQE E R V
 REELDDARVLAVLEKQDKQRKES $\square S A F S G A G R D D L A A K E$ GQ Q G L T P DA EMK L L T K QA K QRRREAAQ T YNE QFR S D L E E V E KKEELNNAEEELTILLAREAKQRRESLAEFVKAGRDELVAKT RGGDGDGSEILTILGKMVKQRQESVRAYEEGGRLDLAESE
 RED GVVDEAEVLAA L GKMVK QRQESARAYEE GGRDDLA E QE R E T L T D D Q A $\quad$ A V L T K M V K K Q R R D S I A Q Y A A A G R D E L A A D
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K|V|MGMVSKE|L|AGQADGKT\|ISNTV|KAK|L|S KVMGAVKTRLAGKADMGQVSAAVKAALA KVMGASTARLAGRADGKTISAIVRKRLN QVMKVVNPKIA GRAEGARVAAEVKRQLA RVMGVLKERYAGKMDFGKASGLVKTKL KVMGMANAALTGKADGKTDSTIVKSKLS KVMGAVMKKVQGKADGKEVQQLVRERL KVMQTAVAKFKGQADGNAI QTVAKKYL KVMGMVSKEDAGQADGKTISSUVKDKLS $K V M P L V Q Q R T E G R A D G K T L S Q A V M Q A L S$ KVMGLLKPKLAGKADMGLVSKIVKESL KVMKGLMPKI KGRADGKVTSTIVREHL KVMGPLSGQLKGKADGK I S QLVKEELG NVMKVATAKAAGRADGKRLSTAVKAALN KVMGIAMKEDAGQTDGKVVQTLVKSLL KVMGTASKKFAGVADGKRINEMVKKLLA
 KVMGIASKELAGTADGKTISTVVKKSLA KVMGAAMGKMKGQDDGNVVRQI ASEILS KVMNALKERYPGQMDFAKASSIVKELLN AVMKEATARAAGRADGKALSALVRABLA NVMNE LRPQVTGRVDMGQLSKMVRAALA PVMAKVKEKLAGKADMAAVSKII KAKLA LVMKEVSAKGKGRADMSLVSSIIKNKLN KVMGMATKKLA GKADGKA I S QKVK S L L N MVDK A VSAK CGAAADMKKVSS IVVK EKL S RVMKA MMDSHKGRVDGKAVSELVKARLS KVMAEAKARHAGQMDFAKAGGMVKAR S KVMGAIKSKAEGRAD $\square G K \ S A I I K Q K L T$ QVMKAVMAKLA GQVDGKVVSDLVKAAL KVMKTVMPKLKGQADGKLVNQIVNSLL RCMGELKSRYAGRMDFAKAGAKVKTLLA KAMGILK P K LIA GRADMSRVSAMIKDKIN KVMGLVAAELAGKADGKTI STIVKKLLS KAMGVLKKRLAGQADMSDVSRLLKAAL KVMGQLSSRTKGRFDGSKLASLVKDKLG KVMGLLKPRLAGRADMGQVSALIKARLA KVMGVASKALAGKAEGRAISETVKRLLN KVMGALMGKVKGKADGGLVNKVVKELL KVMSLLKARMQGRADMSAVSNKIKAALS KVMAALKARYTGQMDFGKVGPMVKDRLG KVMGVASKKLAGRAEGKA I SAKVKELLA RVMASLKERHAGTMDFTKASA LTKKLLG VVMKPVTARVGGRFDGKAVSEIVRSRLA RVMAVLKERHAGQMDFGAAGGMVKARL KVMGVASKQLAGKADGKAIADKVKAILN $K V M G Q A M A Q M K G Q V D G N V V N K L V K E L L A$
 K V VIGLLKGKYAGRMDFGKASAVVKAKLG KVMAELKTRYAGQMDFAKVSGTVKQQLS $K V M G V L R G Q L A G R A D M G A V S S R I K T R L A$ QLMGLASKQLAGSADGKTI STIVKKLLA QVMKI ANEKAAGRADGKRLSSAVKAKL AVMKLVNPKVAGLAEGGRVAAEVRRQLA KVMGLLKERYTGQMDFGAVGPVIKDRLS KVMAIVKAKAEGRADMGKLSGIVKGRLG KVMGVATKKLMGRADGRAI SAVVKQLI KIMGVLMPKIKGKADGNLVSSIVKKELT KLMKNVMPKVSGRADGKLVSAVAGKLL KVMGVASRELAGQADGRAIISKAVGDLLN KVMGLLRNKMQGRADMS IV SAKIKAVLA KAMALI KPQVQGRADMGDVSKLLKAKLG KIMKAAMGRLAGKVQGKEVNEIAKRLLG RVMAELLKSRYAGMDFSKVSAAVKAQLG LVMKALNPKDAGRAEGGRVAAAVKSALA KLMKAVMPQVKGKADGNAVNKIARELLN KI MGALMPKVKGLADGKLVNQIVREKL KVMAALKEKYAGQMDFSKASGIVKSLL KVMGVVKPKDGEQAEGGR
KVMGAATKQLAGQADGK\|VSAVVKKLLS PAMKAVQAIVAGRADGGKVAGLVKARLT KVMGVATKALAGVAAGKAISETVKKLLS $K V M G A D M P K V K G K A D G G L V N R L V Q Q Q L S$ QI DALLKSRLAGRADMGRVSQLVKEKI A RVMGAAKTRLAGKAEMALVSAAVKQALA KLMAVLKPRLAGRADMTAVSALVKAALS KVMQAVLEAHKGQVDGKKASGLVRAKLS KVMNALRPKDAGRADASVVSGKIKARLG KVMGVAARELAGLADGRAI SQTVSHLLN KLMGAVMQELKGKADGNVIKEQVKAHLG KVMAALKARYTGQMDFGVVGPMVKDRLS LI MKNISPLVKGRADMSLVNKLIKERLG RVMGALKERYAGQMDFGKASGVLKDLL KVMGALKARYTGQMDFGAAGPMVKARLG KVMGALKPKVLGRADMAAI GAMIRAKL KVMGAASKAFAGKADGKAIISTKVKALLN KVMGVASKQLA GKADGKTI SEQVKKILS KVMGPLMGQLKGKADGSLVSKVVKEELG $K V M G V L K S A L A G S A D M G L V S K I V K D Q L A$




|  | PMMKA ${ }^{130} 140$ |
| :---: | :---: |
| UniRef90_W6 |  |
| UniRef90-B81405 | KVMQAVMPKTRGKADGKL |
| UniRef90-Q10 | SVMGI |
| UniRef90-14YF | KVVGALRAKYAGRMDFAKASG |
| UniRef90-V4RNVO | RTMSTLKERYPGQMDFGRASC |
| UniRef90-UPI00047 | KVMGLV |
| UniRef90-UPIOOO3E | KVMGALMPKVKG |
| UniRef90-K9E | KVMGAl MPKVKGR |
| UniRet90_E4RII | QVMAKIMPKIKGR |
| UniRef90-U4V6 | KVMGELKGKYTGQM |
| UniRef90-UPIO0039EBC85 | KVMPQVMKQGAGKI |
| UniRef90-C2M4M5 | $V M G E A N K E L A G K A$ |
| UniRet90-G5HB10 | $\checkmark$ MGATKK |
| Ref90-L1N | VMGVLKAKLAGKADMGEV |
| UniRef90-F6Dg | KVMALLKPQMQGRADMAKV |
| UniRef90 UPIO0036700922 | KVMAALMPKVKGRADGKL |
| UniRef90-UP10003670687 | KVMGLLKNAMQG |
| U5DE | KVMGPLVKELKGRADG |
| UniRet90_EONKU6 NiRet90 E5Y3G0 | EKVMKEVMPKVKGKADGKKVNS A |
| UniRef90-UP100034DEB | KVMGAVKARLAGKADMGL |
| UniRef90-UPIO | K\MGQLKQKYSDSПDFSKVN |
| UniRef90 ABTQ | RTMAALKERYPGRMDFSKVS |
| A0A023 | KLMGALKPKLAG |
| UniRef90-E3CWZ9 | KVMGRVKPLLKGRAEDFAKVSAKV |
| UniRef90- NO | KVMGVLKAKYAGKMD |
| UniRef90-J6UCM9 | , |
| U | $V \mathrm{MaAAKAALGGVAEMST}$ |
| UniRef90-R7 | KVMGAATKKLAGKADGKDI |
| UniRef90-B8 |  |
| UniRet90_LOFV83 | MGVATKKLAGKADG |
| UniRet90_UPIo0038 | MKVKPKVEGRAEG |
| UniRet90_Q0K865 | M GV |
| 77c1 | MT AVMPKVKGKADGN |
| UniRef90-AOAO10Z | MKAVQTAVAGRAQGGR |
| AbUz |  |
| - |  |
| 2A |  |
| UP10003 | GPATKSMAG |
|  | KVMG |
| UniRef90_FO | KVMGVATKELAGLA |
| UniRef90-B4D702 | AVMKVATERAAGRADGKAL |
| UniRef90_C8PVZ7 | AVMNALKVKTAG |
| UniRef90-F8E636 | QVMKAVMAEVGNKADGKVVN |
| UniRet90_R5N. |  |
|  |  |
|  | G |
| $\begin{aligned} & \text { Uni } \\ & \text { Uni } \end{aligned}$ | GAIMPKVKGKadgat |
| UniRef90-A4 | KVMGIVSSKLLGKADGQL |
| UniRef90 | RVMGELKKRHAGQ |
| UniRef90-D3FA | QVMKAAMARVGGRADGKRV |
|  |  |
|  | VMK |
|  | KIM |
|  | KVMGVASKQLAGKTEG |
| UniRef90-UP10002E9C6F1 | KVMGALMPKVKGKADGTEVN |
| $\begin{aligned} & \text { UniRef90-UPIOOO22! } \\ & \text { UniRef90- W5XX16 } \end{aligned}$ | RVMAELRSRYAGQMDFGAVGPMIV |
| UniRef90-G6E6R5 | KVMAELKARHGNQLDMGK |
| Uni | KV |
|  |  |
| iRet90_UP100037CD1CA | A $\mathrm{V}^{\text {a }}$ |
|  | P |
|  | KVMGLASQELAGKADGKTISTIVKRKLA |
| Ref90_D2PUP |  |
| Ref90_UP1000 |  |
| UniRef90-LOWD | KVMGVLKPQLQGRADN |
| UPIO0037626D1 | K |
| UniRee90-15C416 |  |
|  | K VMGALKARYPGQL |
| 俍iRef90-UP100047152A5 |  |
|  | KVMGAVMSKVKGRADG |
|  | KVMAELKERIQGRADMTQ |
| Unif | QVMKIVNPKVAGLAEGGR |
| UniRef90 UPI000421F2 | KVMGV |
|  | KVMGA |
|  |  |
| UniRef90-K2L5S7 | GQASKLIAGO |
| iRef90-A0RPP6 | KVAKEELGASCDG |
| UniRef90-UPIO004799FCE | KVMGA ${ }^{\text {a }}$ A ${ }^{\text {a }}$ |
|  |  |
|  |  |
| UniRef90-R5NKB3 | MeLl |
| UniRef90 G8THG4 | KVMGAATKQLAGKADG |
| UniRef90 UPIO0036EED54 |  |
|  |  |
|  |  |

UniRef90_UP100035FEFD9 UniRef90_R5Y7H1 UniRef90-R51AQ9 UniRef90-Q1AVV4 UniRef90-UPIO00465ACD2 UniRef90-A3SQM1 UniRef90-GoVS94 UniRef90-UPIIO002D6F2CB UniRef90-UP10003B30BC6 UniRef90-X5KC52 UniRef90-K1JW26 UniRef90-K2BT34 UniRef90-D7A215 UniRef90-UPIO00469B466 UniRet90-UPIOOO37ABA34 UniRef90-UPIOOO39A0711
UniRef90-UPIooo3A10F6C UniRef90-UPIOOO3AA10F6C UniRef90_E0XPI7 UniRef90_E2MYM3 UniRef90-UPIO0037C72F9 UniRet90_A5V3D6 UniRef90-F4C4W5 UniRef90- $\times 1$ J8A0 UniRef90_UPIOO04704020 UniRef90-D3ILY7 UniRef90-V2TBZ0 UniRef90-UPIO002DA19B0 UniRef90-UPI0003629F6D UniRef90-UPIO0036D8BB0 UniRef90_UPIO0039CB268 UniRef90-A0L5T3 UniRef90 UPIOOO47BB267 UniRef90_N0E128 UniRef90-E2SC83 UniRef90_UPIO003692AEF UniRet90_A3PH25 UniRef90-UPIO003B71BB6 UniRef90-UPIO0037F4166 UniRef90-UPIOOO46E5492 UniRef90-NGUQL7 UniRef90-A713Y3 UniRef90_U7USC7 UniRef90-A3JQ25
UniRef90_C0ZNB8 UniRef90-UPIO0035C61D2 UniRef90 UPIOOO31C2DC6 UniRef90-UPIOOO400B404 UniRef90-B9D460 UniRef90 F4H5D9 UniRef90-UPIO0046EFB4B UniRef90-D5BP40 UniRef90-R6DU87 UniRef90-B9J744 UniRef90-G2KU85
UniRef90 F1Z8Y6 UniRef90-D9QV93 UniRef90_V8CMH6
UniRef90-U2YMB5 UniRef90-B0K700 UniRef90 D7UZ85 UniRef90-UP5000363BA3C UniRef90_S5SRX8 UniRef 90 -AoZ6x9 UniRef90_M4SB17 UniRef90-Q1YMM6 UniRet90-E6S8P6 UniRef90-T2GD63
UniRef90- $\times 1$ MRK UniRef90- 1 MRK 7
UniRef90-E1QG36 UniRef90_UPIO0035F5989 UniRef90-D8LTS6 UniRef90-K2EN24 UniRef90_C2GG32 UniRef90-A7NRW6 UniRef90-G2KPT2
UniRef90-R9GWWO UniRef90-M1P3T4 UniRef90-C5CHN6 UniRef90-N9Y341 UniRe90-A8IFQ3
UniRef90_UP10003805881 UniRef90-A0A014MEA5 UniRef90-B8HHJ4 UniRef90 R7WQV3 UniRef90-D3LWD7 UniRef90-H2GCNO UniRef90-K2ANR4 UniRef90_S7V6J9

TLLKDKIISNATKDAMRARDSARLGTLRLLQAAIIKQREVID MS EQQUQQDDKAMKSKDKDTLNTLRSVKGAVQLEVINN MSRERLKEELNAMKAKDSQKVATLRLILAALKDRDITAA MSIAERVQRDIKQAMKERDRARLGALRMINAALENARIEA MREKVTEEVKAAMKAGDKSRLTTLRLI QAAAKDRDIAN MTLRERVNAALKQAMKDKAGARLATLRLINAA:KDQD:AA MSLKEELLQDMKAAMKAKEKTALSVIRMVRSA RNAEDDG MTLEKQLNNEDKAAMLAKEKVRLTALRAVKSEVLLJKTAD MSLEIQVMDAMKTAMKEKDKVALDALRAIKAQIILVKTDG
 SDTINQEMKTAMLAKDQATLRGLRAIKAALLLAKTKG MTIEEQVSKGDMAAMKAKDTDRLEVLRNIKKFIEAKSVAG Di KQQLRDDMKQAMKDKNTTKLGTURLLAAFQEEETRG MSLKARI QEDMKSAMKARETDRLGAI RLLMAATKQREVD NLKEDI TESMKSAMKARDKNRLKTIRLALSEIKKVEVDT
 MALENTINQDIKAAMLAKNEARLRGLRAIKSALLLAKTEK MSLKDKI QSNLNQALKRGDEITCSTLRMLLAALLSKEKEK MSLLEQINQD:KESMLAREKVRLEALRSVKKEFQEVTAKG NLKNQITDALKSAMRAKEMSTVTVIRGLQAASKOKAPG
 MSLKQRISDEMKAAMRAKAKARLGTIRMILAELKRIEVD MSMLHQLEDDVKDAGKNQDKAKVGVLRGLISKCKNKSIAT MALKQKIEGETKSAMMARDKVRLTALRAIKSMI LDEETKE MSLKARLQADLHDAMRARDKVRAGTLRMALTSVITAEVAG AMKDRLISDLTASMKARDADRSSTIRMVLAAIITAEVAG MRERFTADLKAAMKSGEKQKVETIRMITTAGLKDRDIEA MTLRERLQDAMKEAMRAKQPDRLSTLRLINAAIKDRDIAA MTLRDRLQSALKDAMRAREAERLSTLRLINAALKDREDAM MKEKNKDKLAVI RMVKASLQNEVISG
 MSLKEDLTRDMKDAMKAKEKTALSVIRMVRAAI RNAEIDG SMDRLSEAMK SAMRAKEAKRLSTLRLINAAAKDKDVDG MSLKSQI RSDLTAAMKAKDSDTTATLRMVLAAI QTAEVAG MSMKAKI NEDMK MAMKARDSAKVDALRMLNAALKDKDIEA MTIREKI DDDTKTAMKEKDNFRRDTLRLINSVIKQVEVD
 AMKAKDEHROVMLKAALQNEAIHQ LKETIRQDLKTAMKARDKGRTGTIRMLKAALQAEETTG STRDDKAGLVSAMKARDAEKTAAIRLIQAADKNRDIEA MSLKDKINEDLKEAMKSGDKVRGETVRSIRALIKNEFEKSA TLKDQLKADLTAAMRSRDQVRAGTiRMALTAVTTEEVAG MSLTQRUEQEYLGAYKAKQEVVLLTLRAVKTACKLKQVDG MARGSQ EADRKAALKRRDDLTVSCLRMARAALAGKAKDL MS LKEKLKGDVIVHMKAGNKLGLTTVRNVLGEIETREKSG MGVFDDVTAEMKASMKSGDKPKLEGLRMVRAAFLTETKAA MSLDETI QKSQLDERKNKNKERLSVMQVVLSVLKNESDA MSLKDRI RKEMTASMKARNKERTNTLRMLVSALGTEETQG MAlLQQLQNDLKAALKKGDRLRVET:RMAIAALKKAQMAQ MMLQEIIDKEDKTAMLARNNVRLRGLRAIKAAILLARTEK MTLKERIRADLKTAMKAKEKERTGTIRMLLAAIQAEETTG I KVRLQNDWKNAMKAKEKFKANVLSSAKAAAKNYLVKA LRDEI NTALLKEALKAQDKCRVISTLRLLNAAVKDRDTDA TMQERLTAEMKACMKAKNKERLVVVRSLIAAIKQVEVDS MTLKERLKEDVVAHMKAGHKTADTTVRNVLGEISTKEKAG SLEARLRSDMTDAMKARDKLRTATLRMLLAAVQKEAVSG MSLKEELDQDMKAAMKAKAKTADSVIRMVRSAVRNKEID
 MSLQQTI ESDFITAYKARQEIRVAVLRMLKTALKNRQVEL

UniRef90_UPIOOO35FEFD9 UniRef90_R5Y7H1
UniRef90-R5IAQ9 UniRef90-W6K747 UniRef90 ${ }^{-}$Q1AVV4 UniRef90-UPIO00465ACD2 UniRef90-A3SQM1 UniRef90 Govs94 UniRef90-UP10002D6F2CB UniRef90-UP10003B30BC6 UniRef90-×5KC52 UniRef90-K1JW26 UniRef90-K2BT34 UniRef90-D7A215 UniRef90-UPI000469B466 UniRet90-UPIOOO37A8A34 UniRef90_UPIOOO39A0711 UniRef90-UPIo003A10F6C UniRef90-E0XP17 UniRef90-Е2MYм3 UniRef90_UPIO0037C72F9 UniRef90_A5V3D6 UniRef90-F4C4W5 UniRef90- $\times 1$ J8A0 UniRef90-UPIO004704020 UniRef90-D31LY7 UniRef90-V2TBZ0 UniRef90-UPIO002DA19B0 UniRef90-UPI0003629F6D UniRet90-UPIOOO36D8BB0 UniRef90 UPIOOO39CB268 UniRef90-A0L5T3 UniRef90-UPIO0047BB267 UniRef90-NoE128 UniRef90-M7NPX6 UniRef90-E2SC83 UniRef90-UPIO003692AEF UniRef90-A3PH25 UniRef90-UP10003B7118B6 UniRef90-UPIOOO37F4166 UniRef90 UPIOOO46E5492
UniRef90 N9UOI UniRef90-NGUQL7 UniRef90-A73Y3 UniRef90_U7USC7 UniRef90-A3JQ25
UniRef90 COZNB8 UniRef90-UP100035C61D2 UniRef90-UPIOOO31C2DC6 UniRef90-UPIO00400B404 UniRef90-B9D460 UniRef90-F4H5D9 UniRef90-UPIO0046EFB4B UniRef90-D5BP40 UniRef90-R6DU87 UniRef90-B9J744 UniRef90-G2KU85
UniRet90 F1Z8Y6 UniRef90-D9QV93 UniRef90-V8CMH6
UniRet90 U2YMB5 UniRet90-BOK700 UniRef90_D7UZ85 UniRef90-UPIOOO363BA3C UniRef90-S5SRX8 UniRet90-A0Z6x9 UniRef90_M4SB17 UniRef90-Q1YMM6 UniRef90-E6S8P6 UniRef90-T2GD63
UniRef90- $\times 1$ MRK UniRef90-E1QG36 UniRef90_UPIOOO35F5989 UniRef90-D8LTS6 UniRef90-K2EN24 UniRef90-C2GG32 UniRef90-A7NRW6 UniRef90-G2KPT2
UniRef90- R9GWWO UniRef90-M1P3T4 UniRef90-C5CHN6 UniRef90-N9Y341 Unire90-A8IFQ3
UniRef90-UPIOOO3805881 UniRef90-A0A014MEA5 UniRef90-B8HHJ4 UniRef90 R7WQV3 UniRef90-D3LWD7 UniRef90-H2GCNO UniRef90-K2ANR4 UniRef90_S7VGJ9






 K GA DV T P E Q E I A I L Q R M V K Q R K D S M E Q F N A Q N R Q D L A E V E


 VK HELDATTVQQVLAREIKKRRESAADYA DNNRPELAEKE
 $R N E Q T D A Q I I T I L D K M V K Q R R E S I R Q F K \square G G R Q E L A A Q E$ S K H E L T D E E V L R V I E R E V K K R R E S A E M Y A E N G R Q E L A D A E



 ANDVLE DADALKI L QKLAKQGKESAATFVQQARQDLADAE
 K QRELLSDAEVVIAAVLMSREAKGRRGESIAEMYVAGNRAEELADAE ER R L L D DARVLATLDKMQKQRRDS DEQFNAASRDDLAD GK P L E D S EVVMK VL Q T A A K Q H K E S I K L Y K Q GER N DL V D Q E
 GKGEMTEDEEMKLLTKAAKQRKDSAD DYQQQNRAD L LEEVE





 K CELDDVGVGAVIVKEMKQRKESLAEFEKAGRTDLTTDRT R GEGVS D D GI LAA L GKMVK QRQESARAYEEA GRDELLAE GE K A RVVLT DEEII KVLAAKESKKRGESAEDYTENGRGELAAAKE KAHELSDDETVVKVLQKESKKRAEAAEVFADNGRAELLAAKE RGKTLSEEDVLAALQKMDK SRQES LDDIYEKAGRADLAADKE
 PVEDLGEDDVLAVLAREVKKRRESAEDYTGAGADDRAANE S DEGISSEDEI L QMLT TMVRQRKDSDKAYEE GGRDVDLAAA E
 RKE QASDDE ILLQL L A KMI K QREESVVKMYTD GDRPEL AQKE GH D L N D DEAAAVVNREIK QH LD S I EQFKA GAREDDVEQ Q
 RQ S L D D NAVLKI L K S A YK QREDAANAYKEAGRA D LYE QE RTATATMATI SSEVLQQKMAKQRRESDTMYEQQGRQELLADQE QK E LDD E GVIDNVI SKEIKQRKEVLPDYEKS GRQDLVDKA GK K E L S P E D E V N V L A K E L K Q R R D S V T E Y D K A G R T D L S D K V

 S GK T A L N E D E E I I K L L T S S A A K K R R E A V E Q Y K A A G R N E L A A E K E R R D PVVSDDEVLQQLSKMDK QR DESAKGFDETGQPALLADQE K R R ELTVD DVLGKVLAKEAKKRREAAEAYTTAGRTELADTE

 KTPELLDDLQVTAALLQKEAAKRRDTAATYSAAGHDARAQAE G G D K L P D EK C I A L L R K M S K QQQ E S D D M Y RK GK R D D L V E K E $K Q K E L S D V E V V E V L Q K Q V K Q L D D A M Q D F V K G N R Q D L V D Q T$ SKHELT D DQVLTTVVAREIKKRKESAEDYEQNGRPELAENE R H A T L T E A A E HEVVLTMEEVKRRRREAAEELYRK GGRTDDLA E K E R G E G I S E S E I L L S M L Q S M I K Q R E E S A K T Y T D A N R Q D L A D R E TKHEATDEDILKVIAREDKKRRESAEIVTVNGRQELABAE R E K G A T D D E DVLLL D K V V V D D A K A I E I L A K E V K Q R R E A V L E F E K G N R Q D L V D S T GAAVDE A AALDADVD KAMKQRRDSHQQFVDDADRSDLLA E QE EARELSDAEVEKI I AREAKKRREAAEAFEKGGRAARAERE KTPELDDVQVTSLLQKEAAKRRDTARDYTEAGQGRRAAAE K A R S L T D D EVVIG V L T R E S K K R G E A A E I Y T Q N G R G E L A A Q E
 SKHELTEDDVLKVIARE $\square$ KKRRRESAEVVYA A GRSELADAE GAD L GDGEILLDEIAKDAKRHRESDDAFKKAERSELVVSAE


UniRef90 UPI00035FEFD9 UniRef90＿R5Y7H1 UniRef90－R5IAQ9 UniRef90＿Q1AVV4 UniRef90＿UPI000465ACD2 UniRef90＿A3SQM1 UniRef90＿G0VS94 UniRef90＿UPI0002D6F2CB UniRef90＿UPI0003B30BC6 UniRef90－X5KC52 UniRef90＿K1JW26 UniRef90＿K2BT34 UniRef90＿D7A2I5 UniRef90＿UPI000469B466 UniRef90＿UPI00037A8A34 UniRef90＿UPI00039A0711
UniRef90－UPI0003A10F6C UniRef90－E0XPI7 UniRef90－E2MYM3 UniRef90＿UPI00037C72F9 UniRef90＿A5V3D6 UniRef90 F4C4W5 UniRef90－X1J8A0 UniRef90＿UPI0004704020 UniRef90＿D3ILY7 UniRef90＿V2TBZ0 UniRef90＿UPI0002DA19B0 UniRef90＿UPI0003629F6D UniRef90＿UPI00036D8BB0 UniRef90＿UPI00039CB268 UniRef90＿A0L5T3 UniRef90＿UPI00047BB267 UniRef90＿NOE128
UniRef90＿M7NPX6 UniRef90 E2SC83 UniRef90－UPI0003692AEF UniRef90＿A3PH25 UniRef90＿UPI0003B71BB6 UniRef90＿UPI00037F4166 UniRef90＿UPIO0046E5492 UniRef90＿N9UQL7 UniRef90＿A7I3Y3 UniRef90＿U7USC7 UniRef90＿A3JQ25 UniRef90＿C0ZNB8 UniRef90＿UPI00035C61D2 UniRef90＿UPI00031C2DC6 UniRef90＿UPI000400B404 UniRef90＿B9D460 UniRef90＿UPIO0046EFB4B UniRef90＿D5BP40 UniRef90＿R6DU87 UniRef90＿B9J744 UniRef90＿G2KU85
UniRef90＿F1Z8Y6 UniRef90＿D9QV93 UniRef90＿V8CMH6 UniRef90＿U2YMB5 UniRef90＿B0K700 UniRef90＿D7UZ85 UniRef90＿S5SRX8 UniRef90＿A0Z6X9 UniRef90＿M4SB17 UniRef90＿17A3K3 UniRef90＿Q1YMM6 UniRef90＿E6S8P6 UniRef90＿T2GD63
UniRef90－X1MRK7 UniRef90＿E1QG36 UniRef90＿UPI00035F5989 UniRef90＿D8LTS6 UniRef90－K2EN24 UniRef90＿C2GG32 UniRef90＿A7NRW6 UniRef90＿G2KPT2
UniRef90＿R9GWW0 UniRef90＿M1P3T4 UniRef90＿C5CHN6 UniRef90＿N9Y341 UniRef90＿A8IFQ3 UniRef90＿A0A014MEA5 UniRef90＿B8HHJ4 UniRef90＿R7WQV3 UniRef90＿D3LWD7 UniRef90＿H2GCN0 UniRef90＿K2ANR4 UniRef90＿S7V6J9

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

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| $D$ | $M$ | $G$ |  |  |  |  |  |
|  | $G$ | $G A$ | $K$ | $S$ | $K$ | $A$ | $D$ |

$\begin{array}{lll}\text { L } & \text { A } \\ \text { A A } \\ \text { A } \\ \text { D K }\end{array}$
AEVGA ${ }^{2}$ GMAAMG
QTTAAKTIKEMG$\begin{array}{llllll}L & D & K & M & Q & E\end{array} A_{1}$


RAA DALA ELGAASIKDMG$\begin{array}{llll}R & P & V & T \\ E & A & K \\ \text { K }\end{array}$$A Q T G A A T M M K M G$| L | D |
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| $\mathrm{A} L$ |  |$\begin{array}{ll}E M V & L \\ E & \text { L A A I Q Q A I I A }\end{array}$EVA E Al K A A I A E T G A A S I K D M$\begin{array}{llllllllll}S & V & K & Q & V & C & A & E & V & V \\ L & L & E & I & V & R & V & T & I\end{array}$S EVGATSKADMG

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| $V$ | $E$ | $I$ | $K$ | $V$ | $L$ | $E$ |
| Q | $E$ | $I$ | $A$ | $Q$ | $L$ | $T$ |
| E | $E$ | $I$ | $A$ | $V$ | $A$ |  ||  | $A$ | $Q$ | $V$ | $K$ | $I$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Q A | $E$ | $I$ | $E$ | $I$ | $L$ |
| $R$ | $S$ |  |  |  |  |
| A | $E$ | L | $V$ |  |  |$\begin{array}{llllllllll}H & A & E & G & R & V & I & D \\ Q & Q & E & L & L & V & I & K \\ T & A & E & L & N & I & V & E \\ E & A & E & A & A & I & L & Q \\ L & A & E & L & S & V & I & Q \\ E & A & E & L & T & I & L & E \\ A & A & E & L & R & V & I & E \\ R & D & E & A & A & I & L & A \\ R & A & E & I & A & V & I & T \\ R & A & E & I & G & V & I & E \\ L & N & E & I & K & V & I & E \\ R & I & E & S & A & V & I & A \\ K & Q & E & L & L & I & L & K\end{array}$

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KAMGATKPK|L|AGRADMSEVISKLL|KEK|L KVMKEITPRVKNRCDMSKLNSILREKI N KVMGVATKKLAGQADGRLI SAAVRKLLA KVMGVLKADYAGQMDFGKASAVVKAKFS AVMGRAMQDAGGRAEGREDAAMVRGRL KVMAGLREKFAGQMDFGKASGLVKGLLG KIMGALKAKYTGQMDFGAVGPVIKARLS DVMKLVMPKVKGKADGKLVSQIVREIL KVMGVATKQLAGRADGRAISEAVKKLL KLMGASVKALKGKADGNMIKEAATKVLN KVMGAASKALAGKSDGKSISEMAKKLLS KVMAIVKPKVTGRADMGKVSALVKAKL A IMA II KPKTQGRADMTKVSEKIKDKL RTMAALKERYTGVMDFGKASGTVKAKLT T KVMGLANKELAGKADGKLIAEVVKEKLA KVMGVATKELAG $\square$ A DGKMISA IVVKELA QI MKVATAQAAGRADGKRLSTAVRARL KI MADLKARLAGRADMGEVNKLVKSRMG KVMAVIKPQVIGRADMA I SKKI KSLLT QVMKVAKEKAAGQVDGKRLSEAVKAAL RIMKIVDPEFKGRADNGQIRNLVAECL RVMAALKERFAGQMDMAKASGLVKARLG KVMGLI NQRLAGKADGKT!AEVVKEQLS KVMAALMPKVKGKADGGLVSKIVKELLN $R V T G V L C K E L A G R A D G K L I G E V V Q V V L$ RVMGMASKQMAGLDADGGTI SABVVRLLA KVMNSLRP IIA GRADPS IASAKVKAKLN RVMAAVKERFAGKLDMSKASGLVKAALA
 KVMALVKPQVQGRADMGAISQLVKNRLN $K V M P Q V M K K G A G K \square D G G V A Q N L L K E L L S$ GVMAWLKSHSDDRADFSQLSAMVK SRLG KVMGA TKALAGKADGKAI ADKVKALLN AVMKVAQGEVAGRADGGRVAAAVRSALG KVMGAASKSMAGKADGKALADMVKSLLN AVMAVVQPQVKGRADGGVVAAEVKRQLA KVVAALKAKYTGR\DFGKASAAVKAALG KVMAELKTRYTGQMDFSAVGPMVKDRLG KVMGVLKGKFTGQMDFA IVGPRVKEMLS KCMNALKTQYPGQMDFTKASGIVKNML K VM S AVMPKVK GQADGSSVNKAVASLL KVMAAVKDRHGSQLDMSKASGWVKAALS EVMKLAKERIGTKVSGKRLSEAVKKYLA DVMKMVMPLIQGRADGKIVSKTVKEIL KVMGALKGKYTGQMDFGAVGPAVKGMLG QVDKAASALAKGKADGARISAAVKSRL QVMAAATKAAEGRADGKRLSAAVRAALS KVVAA LLKAKYTGRMDFGKASAAVKAALN K L M GVLK P QLA GKADMALVSK LVVKAKLG AVMKAAKEKIGARSDGKSISECAKRLLG AVMKEATARAGLLSADGKKLSALVRTALA KTMGALKSKYAGRMDFAKASALVKSELG QVMAS L K T NFA GQMDFSAVVSMVK S I L KCVAALRERYAGQMDFAKASALLKDLL KVMGAVMGK IKGKADGNVVKKAVNDEL RVVGALKASHGTQVDMAAASGLVKAAL KVMGA IIMPKVKGRADGSKVNELVRERL KVMQEAKS LSDVADGRRISTMAKSLL KVMAELKARFAGQMDFGKASGLVKA KVMGKVMP』VKGRADGNLVKDMVNKYL KVMSNIMPKVKGKADGSIVNQLVKKYLS SVMKVVQQKIGGRADGKVVSEIVKAELA QVMKEATGRAAGGVDGKRLSGAVKQRLA PLMAVLKPKMQGRANMGEVSKLVKAKLN RVMAAVKERFAGQLDMSKASGLVKGALA KLMPAAAKTDKGRAEGKLIKEMVEKFL LAMKAANAAVAGRAEGGRVAAIVRRVLA KVMQA I MAEHKGKVDGKALSALVKARL KVMPKLDAQLKGKADGREINAVTELLS NVMKAVMARLAGAADGKLVNQLVRQRM TVMKSVTPKIGGRFDGKAISEIVKARLA KVMGLLMKAHKTEMDGGLAQRLVSAQL KVMSGAMAKDKGRADGNTVGKVVKQVLT PAMKAAKAKAGGRVDGKRLSEAVRAELG $R$ VMPVLMMRDKGRADGRLI SQMARDLLS $K V M A T V K D R Y A G Q M D M G K V S G M V K Q R L A$ KVMGIANKEDAGKTDGKTISE IVKKELLS QVMKAATAKAAGRADGKRLSAAVKARLA KI MREDMPKVKGRANGKTVNRIVRELL KVMALVRPKTLGKADGKLVSQiVKDYLS RVMGVLKERHAGAIDDFGKASAWVKDALT KVMGLLKPTMQGRADMGVVSKLIKAKL AVMKUVNPK IAGRAEGGRVAAAVKRQLA AVMKPVTAKVAGRFDGKTVSEIVRGRLS MVMKAATAVVAGKADGKRVAKAVKDRL $D V M K A V M P Q V G G K A D G R V V S Q V V K E V L$ QVMKLATAQAAGRADGKRLSTAVRAALA KV DGAVMSRVKGQADGTQVSVIVKEKL


## UniRef90_W7IZF4 UniRef90-TOCJB5 UniRef90 S6CZ28 UniRef90-C1F186

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UniRef90- W8X425 UniRef90_UPI000344F39B UniRef90_UPIO003B4F4A1 UniRef90-K7RWKO UniRef90-R7N265 UniRef90_UPI00035FB8A2 UniRef90-B6GDV9
UniRef90_E7RXV55






 MALREDLNSKDKEAMLSKDKPRLAA L RLLLLSEVVKVEVD TLK T Q L K K DLT A A M K A K D E LAA K S T I R MA L A A F L N A E V S G $M$ L S R Q S I E Q A L K E A M R S N D E V A R R T L R M L L S A I K L A E V V $M \mathrm{~T}$ K E Q I L E D I K H Y M K E K D N DA LIN A V RMMLK S D I K N A E I A A
 TIIK E QI R A DLTTTAMKAKETVVTGTLRMVLAAIGAEEVSG MALE QEVMQKMKEAMKAKDTVALASYRSI KSEIKAKTASA MS L K E K L M S D L K E A M K N K D T I K M N T L R M L L T T L R N L E V E K
 MALLE QIQK DLVAAMKAKDEARLGTVRMI KTALKKHEI DS
 $\square K E Q \square R K D L T A A M K A R D K E R V A V L R M L Q S S V V V Y A R R E G$

 LK T K L Q D DL K E A MK TK DNFKRDVI R F L M S A L K Q IVEVDE
 TLKKTLLSDAMKQAMRAKDSARLATLRFLLAAVKQKEVDE MDEMKAAMKAKDTVALEALRAVVSALLLAKTKG MSMREDFTSELKVAMKAGDKVRVGAIRMITAALKDKDDEA
 I K L A M K E A M K S R D K E RLLA T I R L M Q A E FK R DE V D
 L K E K K L Ll

 MTMRDTINAALKGAMLAKDKKRTGTLRMIMAAIMKDRDIVA LLK D R L K S D L T A A MK A R D A V R L R T L R M A L T A V S N E E V A G


 MGLLKETIDDQEIRKAMLEKRKEELLALRRSIKSAILLATKTK

 $M T L Q Q R \square E R D T V A A M K E R A Q A R L D V L R M V K A A I K N K E I E$ M S L E K K E K L N D D I K Q A M R D K R R E DLLS L L R M L L S S L K N K K I D L MS L E T R I D D D WK A A MKA G DKAK K D A L S L L RA A I K Q K R V D L K T T L K A D MVVA A MK A R D D LT K G T L R MV L A A I T TAA E V A G MSI RENINAA I KTAMVNKDKVT LQ T L RILMSAAFK QDEV D MK E RLLTN DLLK A A M K E Q N K E L L S V V L R MV K G A D Q M E E I K V MRARFTEAMKEAMRAGDKPRLATVVRLI QAALKDKDDIEA
 MS LQEKVMAEMKSAMKAKDSVALESLRAVKSELLLATSAN
 MS $\square$ K D SIMADI KEAMKS GDSTKRDALRTLHSALKQVEID MRD DIIN R ALKKAAVA DCDKRRACTLIRLI HTAI KDRDQAA






 $M A L K D R D A D E M K A A L L G G N R F E G E T L R N L R A A M L D E E V V A Q$ T L K A K L K E D LTA A A I VRE R D E L R R S S T L R L T L
 $M \square L$
$M N I$ R E E V K N K K L K E A M F K K D V N L I I




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 UniRef90-T0CJB5 UniRef90-S6CZ28UniRef90-C1F186 UniRef90-UPI000382B347 UniRef90_A9H1P1 UniRef90_M9RM27 UniRef90_J2VEC6 UniRef90_B2ULC3 UniRef90_D5QH56 UniRef90_I3ZYK6 UniRef90_UPI0002555F9D UniRef90_W2BV41 UniRef90_E8N4U9 UniRef90_D3UIV5 UniRef90_V2QEE6
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EAVQLTVDEVLIKVLTREVVKRKEASTAFAGAGRAEQAQQE GH PLSSDDDVQSVI QKELKQRKDSLQAFQDANRTDLAETA R QE GLLNENEA DA AL R GMVKSRTEESAGMYRD GGRPELLAEKE KREPLT DAEAQQVLTTMIKQRRESDEQFQKGGRADLLAGKE KARELSDEEVRAVLSKEVKKRDESAAAFDSADRPDQAASE

 GGTRLLE EAEELAVVRKQIKQREDSAEQFRAAGRPELAEKE


 K G A S L D E T A LV A V L Q K E L K S R R E S I A D A E K A N R P D L A E A A
 K R A E L T D A E QSQQI L S T LI K QRRRESDDESFTK GNRPE L A E K E K A R E L T D E D VLLK L L A R ESKK K R A E S A S DF A E N D R E E L A A K E NKDDMSEAEELKLVQKLVKQRKDSAQTYKEQNREDLAEAE

 ERTELGBAEVTSIIEKQVKQRRESIQAFESAGRTESAEKE $M K P L D E A T E M Q V M S T$ LI KQRREAADLYRKGGREDLLAEKE $R G D G I D E A E D Q Q M L Q S M V K Q R H D S D E M Y E R G G R C E L A B E Q E$ E LIHEADNAEVQKVI AREIMKKRCESAT DYAEAGRAELAAAAE K K HE L D D NEVSTVVLK K QVK $\square R K D S L A E Y E K Y G K T D S V K Q L$ GRTELAADDDIVAALQRLIKQRQEAAEQYTAGGAAERAAEE GNDTI D D DKVI EVLLLKMAKQRRESDDMYEKGGRPELAAKE GASELT GEAEIVKVLQKLVKQRKESVEDY DAQNRPDLQQVE RK ELSDADIMKI I QKSLLKQRDDASTAFKEADRMDLY DKE




 SQRELTEDEVLGVLAREVKKRRESAQDYAAANAPERAATE

R R K D P VVGP E Q V V A ML R GMAK S R R E SVVEMYR QGNRPE L A A K E
 KRIVEGGDEDVVVI I A K QVKQRRDALDEFEKGGREDLVVDQA RTAEAT DVELI DLLAKMVKQRDESAKDYEDNGRPELDAEQE GARELADEDGVRLLTREAKKRREAAEAFAAGGRADKAADE G K E G L G D E E V E KV V A R E V K K R A E S
 G K QD DL TEQEEL DI L A REMK A GAEL S VDVVEI KLLTKAAAKQRKD G G G D L T T E Q E S K RK ELSDEDIIKII QKSVK K R A PLS DA EVL QTL TTSLI K QREEAAS QYKEGGREDLYEKE E L L $L$ D A P E


 EARELGGDEVLAALTREVRTRKDSAQAYTDGGRPELLADKE QRDEI T D D I AL RELVR QVKQRQDAAKQYRDAARDDLAEHE K H ELSSDDEVI A II GK QI K TRKK S IVVEFEKGGRNDLDEK T
 GASELSEQQEMQILMKQVRQRKESYELYQSQNRSDLABERE S K D GL T E E E E L K L L Q K L V K Q R K D S A A I Y T E Q GREDLLAA P E

 R D RGGLDDAEVAGLLVKMIEQRRESAQTFEAAGRDDLAEQE $P K B L D D E T A E M Q V L K S V I M Q R A D A A E M Y R N A G R G E Q A D K E$ RGAEI A DEDVVHTVIRRLIMQRREAAEQYAAGGARDRAEAE EARQLT DEEELAVI TKEQRNRLESAKTYADAGRDEDAAKE

 R P K Gll D E D E II I A ML K GMII K S R R E S V E M Y K Q A E R Q E L A A K E RTGDAD DMVVI E VLLQKMVK QRRESI AMYEQQGRQEELADAE GK DE LDE ES DFI GAL S S EAK KR K E A I E GYK R G K R E E L V E K E RKGDAS DDE ILLQILAK MVKQREESAKIYEENARPELAAAKE
 NKRDLS DQEMEKVIVREVKKRNESAKLYRDNNRPELAEPE TARELSDDEVQKLI TREAKKRREAAEAFAQGGRAAQAERE GAGNADDPDI ADVLTKMAK QRRESDAMYDEAGRTELDADKE $R$ VEP D DAAA LAA I EK QVK QRRESIAAAESAGRTDSAA QE E RVELDDDVAVLSVI DK LVVKQRKESIVVQFQKA DRLDLLAAKE N D S GI N D T E I I S L L Q T MI K Q R K S S I E I Y LE G K R D DL A K K E
 RGAGI KDEDVIVVLNKMLKQRRESLEIVKKASRNDLAEKE

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UniRef90＿C1F186
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M GLLIKE Q|I T E DMKSAMRAKEAGK|L|GT|IR|LII|AE|I|KRKE|V|D MS K ID E I R GE MVK A M K A K D K A R K DVL S L L L A ELLKNVEI N N
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 $M L A R L Q G D Q A A A R R E Q Q K D R V M L L G M I V S E V K N R E I E L$ A L K D QLLK K DLVVVAMKA HDETA KT TII RMAVAAIMNAEVA G MKSQDKLRTATLRMVLAAI QTEEVSG MEAQDT QHMDVA MKARDADRTGTILRLI KTALKN KLI E
$S \square K \square A \square S D A V K E A M R A K Q T A R \square G$


LKE T LKK K DEDA A M K A R D K A K V NV L R L V N A EI K A Y E V N N MS KIDDEVRSAMVTAMKA GDKETVETLSSMLLSALLKNKA I E K MALRD DFMDQMKTAMKSGDTARVAAI RLI I ARMKEQDI EA


$T L R L T L A A B T V E B V A G$
LK E K L LE D L K E S M K G K NV VR K NVV Q MVRAAI LQ DE K D $M L L H E R L N S D L K D A M R S G D K A R V E L I M R T T R A A L Q T A Q L E A$

 MTKVDVVRAEMVK A MKA GDKERKNALSMLLLSALKNATID K
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$\square R$ D G $\square$ K A A Q $\square$ Q A MK G G D K A R L A A V R L I LAA K L K D R D ELQQQE IK NAMKAK DKDRLS ILRRQVGEIVNDEVNE TLKDRLRADMTAHLKAGNKVELTTVRNLLGEI NTREKGG M S L Q E R V M T E M K S A M R A K D TVV K L E A L R A M K S S I DT R L K N D R K T F M K E K K Q P D L N V V K G L L S D F T Y Y T K S A




 $K D R T A E D L K T A M K A R E Q L R V D T L R S A L S G F T Y K R S E A$ $\square R D D I K A A L I T A M K G G D K A T T A T L R G V Q S A I K N R D D D G$ Y DELLK ELI K D A M R A K D K V R L S $\quad$ I L $M L I Q E Q L K S A D K E A M L A K D K A V L Q T L R M M S A A F K Q D E I$ D Q | $T$ | $L$ | $M$ | $K$ | $Q$ | $I$ | $G$ | $D$ | $A$ | $M$ | $K$ | $A$ | $H$ | $D$ | $A$ | $V$ | $R$ | $V$ | $S$ | $T$ | $L$ | $R$ | $G$ | $L$ | $S$ | $A$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $E$ | $L$ | $K$ | $N$ | $A$ | $K$ | $I$ | $A$ | $T$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $K$ | $I$ | $G$ | $D$ | $L$ | $K$ | $A$ | $A$ | $M$ | $R$ | $A$ | $K$ | $D$ | $Q$ | $A$ | $R$ | $L$ | $T$ | $V$ | $L$ | $R$ | $S$ | $I$ | $I$ | $S$ | $A$ |
| $T$ | $N$ | $N$ | $A$ | $A$ | $K$ | $T$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | MS I Q E RLLTNDLKEAMRAGDKVRVN


$R T R G R E E L K Q A M K A K D S F R S T T I X R S A L A E I T N A D B A N$
 MS I R E Q I LAA D I K E A M K A K D EF K R D T L R T L N A A L K QVVEV D
 $\square E Q L Q K D M M A A M K A B D K E R K D A V I S S L V S A V K K N A D D A$ LKNEVKVAMKAKDKLRLSVVKDILA QVLNA SKT
 T L K MS K T Q T I Q R A MM Q A L K E K D M Q R K D S L S M L L S A L K A K A K D
 KARLLK DMTTSMKARDALTTGTLRMLLAAVQAEEVAG

VI T M V RA S V K Q K E V D


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 KRGP TSAEFOQTLATMIKORRDSAEOFTKGNRPELAANE RRDVTDADVEAVLMKYLKQREDAKVQFTEAGRNDLUVEKE DRVELSDDQVLAIIEKQVKQRKESIAAFENAGRTETADAE QSESLSEDEAIELI AKEKKKRQDSLEEYQQAGKTDVVEDLL RAEDLSDENVIKIIEKSMKQNKEALEYAKQANNEEKIAEG RGETVDDTALQVMMRGMIKSRRESVTLYLQGNRPELAEKE KGEVNDDELVTDVLMKMAKQRKESIAMYRDGGRDELAAQE SDKKLTEADVLDVIKKQVKTHKESIEAFEKAGRTELADKE RKGPVENDELLQILAKMIKQREESAKDFSENGRPELAAQE KKRELSDDEVQKVITREAKKRREAADAFAQGGRPESAERE KKIEEVSDSIVEII AKEAKKRKDALEDYQKSGREDLIEQM AKAPLDDAAAVAVI IKEVKRRRDAAEDYHKAGREDEAASE KRDDLTEEEEVQVILKE:KQTKETLDTMTPADRTDU1 E E C

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 $M K$ SAT DE D ILLQI MAKEI KKRKES $\square E L Y L K G G R E D L A K A E$ K GTLIA DDNILSSLLQKSIARRTESASQFRSASRNDLLAEKE $K D H P I T E D E A N A V V K K E I R Q T Q E T H D D A P E D D R T D I R Q E A$ QRIEMTDEVVLPLLQKEVKKRADSVELYLKGAREDLAKKE EARELSDDEVLKVIAKEAKKRAESAEAFTAGGRAELAAQE RA QP V A D D DV L S V L QKMAK QRRES DEMYDA GGRTEELAA A E GRDAIP E D MV NSTI LIK E L K TVVQE Q I D T C P K D R T E L I A E Y K Q P I Q S D P QVYALL R S S I A K R E D S A K S F R A H D R L D L A E I E


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UniRef90 R9JRB7 UniRef90-R9JRB7
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 T $\square K E Q \square R T D \square T A A M K A R D E L V R T T L R S A L T A \square G T A E V A G$ FETLQKAMIAAMKAREKERKEAISVLVSATKKLAIGE
 NTKNNITSYDKEALKOKQTIGLSTLRLLLASTKEKE: N
 LLETLQKDMUAAMKAKDKEKKDSUATLVAAVKKAGIDA
$\square Y$ AK $\square K G D \square K \boxtimes A M R A K D A P R \square V V L R A V L A A V L N A B S T$ ALLDRLQGDLTAARKAQDKSLTLVLGTTIAEARNREIEL MDiKTLQKDMIAAMKNKDKPRKESISALIQAVKKMAIDE LLAKLRADLKTAMRAKDTVRLDVVRAII AEDNNSA KT MSLLAQLKKDSLLARKAADGVRATLLSTLIGEAEMVGKNA FAELQKQMI AAMKAKDKVRKEAISSLVSAAKKVAMDE MSKDEEVRSAMVSAMKAGDKETKESLSLLLSALKNKAIDK ALKARITDEMKAALLGRHRFRGDVLRNVKAALLNEEVSL LIMATLRTDLKTAMRAKDTTRLNVRALDSETNNAAKT LLQKLKGELKAAMRAKDAPRLSVLRSMMAANLNAESKT DEIIVSVLRMLLAAILNKEKEK




MK TDETTQAD DA TAMKDRDEHRLTTLRMTK LI LQNKVIE LLLQLRKDNMKAMKEHDTLTKGVLSLVISAUTLAEKEA

T $\square$ QKDMDAAMKAKDKERKAVISDMYSAAKKDA DDG RLQSDLKTALDRSKKTTLSVIRSLQAETINA SKT LKDQi SQEil TAAMKAKDKDRLNVLRYLKKLFIENDTSN MSYLLKKTKDMKKAMKNKDTNRLSVLIRSLLSQTLNA SKT MDTQKQUESDFKDAMRARDDDRKRTYRMVLSAIKLAEVD

QKLKGDLKTAMRAKDAARLTVLRSILAATLNA SKT MTLKERLSEDMKAAMKAKETARLAAGRLLLAAIVKKEVD LATLQKDMDAAMKAKDKPRKEAISALVSAVKKAGIDA mS $\square R E T \square K S E \square H A E T E G V E \square R A A T L R \square A L C A!R D R D I K A$ ALSMLLSALKNAQID ALRLMVSA RYVEVDT TYRMALAA: KFAEKEG LLSK $\square$ KADLKTAMRAKDTPRDTVIRSTMAA KNEEVAK LLSKLKADLKTAMRAKDTPRLTVIRSIMSANLNA SKT FTDLQNALKDAMKARDTDRKEAVQTLDAAVKKAADDA LLQKLKTDLKAAMRAKDAPRLSNVGGILSAFTNNASKT ПKTAVFEQLKTAMKEKDVLAKGVLTLVKSALDLAEKE MTLLFKKKSDLKDAMRARDTARLNVLRAD DSETNNAAKKT RIDELI REAMKAHETEKRDVLRLLKTEFLKYSKEG MRNKDKVTLTTVRMVDDRVQKKEKEM $\square E T \square R E Q M \square T A M K A G N K L K K E V L S S V L S T A K N M A D E K$ MEAMKAKDTVRLTTLRNVKKYIIEAKTAS LLGKLKGDLKSAMKAKDSNRLNVLRGLDAEVTNSA KT RLQSDLKTAMRSKNKPALNA RTLQAEI INA SKT KTRLKAELAKALRAKDEFTKSTIRMMLAAITVEEVAG MSFLDTGRKDKMEALKNKDTVKNGVCSLLISAGALKEKEG TLRTLSACFKQDEVD पMAK RRTDKTAMRAKDTARDNVLRALISETNNSQKT

पFEK LKGDपKSAMRSKDAPRDAVLRATMSANपNA SKT MSKIDEVRKAMVTAMKAGDKERKDSLSMLLSALKNKAIDDK LLVKLKGDLKAAMKAKDAPRLSVLRSVLAATLNA SKT TLNKRLMDELKDAMRNKYVMKKNIITLRAGLAAAEKE MKTQDKLRTATRRMLLAATQTEEVSG DMRERLQSAVKTAMKSKDTATSTTLRSILSEVYARDKGT EEINKMIMTSMKSGEKDKAAVYRLLKSEFLKFSTAK RARLTSELKNAMKNKDTFASTTLRSVLAEVQAADKQS TQURDGLKAAMKAGNNVEKLVLRNIISEVKNRNTNE ThKDRLDTDMRTAMKARDDMTTSTLRMALAAVGTAEVAG DLVKLRGDLKTAMKAKDKNRLTVLRSVMAATLNA SKT TLKDRLTVDMRTALKARDEVTTSTLRMALAAVGAAEVAG KK K LKKAMMAKDDLRKTTIRNLLSALKNKEIDN


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UniRef90_G4UJ68 UniRef90-E6X2L4 UniRef90-W0RJP4 UniRef90_R5YUF6
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UniRef90 Q3EKM7

R GRG|V|P D A DVV|RS|VLETM|VAQREVSAREHEEAGR\|EDADRE KRDNIDDE LVNQVI DK SLKTAKE QDDTCPD DRAE LKQEY $M$ G EAD DNDVVLQVI KQEVKKRRREA I EMYQKA GRTDDLLE QE EARELTDDEVRTVLTKETKRRAESAQAFADGGRTEQAARE GREDIPE ELVDDRAILKEDKSVKE QDDT CPA DRTDDKNEY


 GRE DIS E D MVVNQA L K E L K S V K E Q I D T C C P A D R T D L L E Q Y $S Q P \square E T D A Q L V A L L R K T A R T S Q E A A D Q F R A A G R G D L V V E K E$
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 GNRESS D DEV QQTI RKF LK N NQEALGQVIVDAGRRAV LE QE K G D L T P E E E T QVI L K E I K K Q T K E T L L


 RESELTNEEAI EVI S SEVKKRKEAI LIEFEKGERKDLVVEK E K DEKVVDSSTVVGI L RKAVERRTEAAADKFRAASRDDD A EK E


 L D D A QV L A V L E K M L K QR R D S L A Q F Q A A QRA DL A A Q E


 TKPDIT T D GAL Y S LI QK QUG GI NTAAIA EFETAKRDDLVVQKE K P I E S S P I N T D M Q M L A L L R K S A N A S R A A S E E F K A A GRE DUVE K E
 A NP $\emptyset$ QT DAQLVVALLRKTAKASEDAAAEFSGAGRADLADKE GRDDI K GE LVVDKVI LKKELKTAKE Q DDT CPA ERTDDLKEEY E QVT L D D A A I A A V I D K MLLK QR K D S I T Q Y E A A G R Q D L V D A E
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 STP P KT DVVQLV AA LIRKI QKGA QDAAA EAKAANRDDLLVQKE



 RGRGDTEADVRNVLETMIAQRETAAREHDEACRDEDAMRE A G K E M D E E K EM S I L K K MV A Q R H D A DE Q Y T K A N R T E LLA E K E

 S NPI K T DMQLL S L L RKRTAAAAKSA QEEFKAA GREDLVVEKE
 D K DIEL D D A G I L G I L A K E M K T R Q D S Lit E F E K A G R E D L I S HV





 A QPID T DVK LVVELLRKSARSAQDAVEEFKSAGRSDLAE K E



 $P$ GSVGTNNLKFVGMVRS LIDATREK SDE E Y QAANRSDDLVD K E AKRELGDDEVLAALLAKEAKKRREAAAAFAEAGRDE QAAKE ANPVVNTNAKVVALLMRKTAKSSQDAVAEFRQAGREDUAEQE SGGTASPSTVASSILRKATVRRMDAADEFKKASRSDLAAAKE


Unipodocosch

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 K L LK ELKKKNFFGRADMSFI SQEVHKRLN ALVVGKLMKAFRASVQADAVSKKAREMI QI MKTVMPELKGKADGKVIN QVVAKL KVMGVLKPQLQGRADMGKVSGLVRAKLA EVMKKL $\square$ GP $K V M A K A K E V I G G R L D G K L V A R V V K E M G$ AVMGKVMPQFKGRAEGGTI NA, AREELA MI MKTVMPEFKGKADGKVINQTVAKL AI MKAAFAP LNGKAEKGTVSKVAARLIS VVMGALKAKYGSGFDAKQANAWVKAALG QI MKAVMGDLKGKADGKVINATVKKL KI MKELMPKVKGKADGKLVNDIVLSFLN
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R
DVLKKVLGP LEGKVDRAEVARVVKR\|LG EVI GRVMGKVQGR
A L V K A V NAAAAGRAPGAEVAARVKAA $\square$
$\square L I K E T L A R Y P G K T D G K A V N Q A L A Q L L$ $M L M K E A K A L F G A S V D G K R L N E M V R K L L A$ KVMGAATKKLAGKADGKDI SDTVKRLLT SLLKALFAPGGADDGKEVAK IAKAAVS LELK

QVF GKFDWGKL PKQWR FLLKSLFSPGGGADDGKEVAR $\square$ AK KAVA VLMNALRPKLQGKADMA IVSAAVKAKLS DAMKRI SGALAGKVDKKQVVALVKEL $K \square M K V L M P K V K G \square A D G K L V N Q V L A A M M$ $D A D K R L D T P G G P L D G K D F N K A V M A Q$ KVTG ILMKDNKGKVDGSFAQEVIKKHFA
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DVIKVLVAP GGPLDGKD\|DRA
$K \ L G Q V F K A F Y G Q V D K S S V A D L V R K H$ $P A M K A A Q S A V A G R A A G G R V A A E V R R Q L A$ PNMP MK QVF GQ DN WKSIN SE WKA EVMKQLKERHGGQYDGKTASEVVRAVL

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 $\square Q K \square K G D \square K T A M R A K D A P R L S T V S S L I S A V K K A G \square D N$ LHSRIREQLKAAMRAKDTARLTVLRGTISEINNQAASG

 LFAKIK TDLKAAMRAKDKVRLDVLRGUISEVNNAAKT RQDLKTAMKAKDKEKLNVVKAILAEDSNAGMAA $M L L K \square R K D M K T A D Q A K D T P R L T V L R A L L A Q T L N A S S K T$ I DDFKKVKDTAMKNHDKDAVTALNAVI NKLMLAEKKA LLA Q
 $K K Q L Q E D M K T A L R A Q E K E R L G V I R L I L A V L K K A E I D E$ MS LKERIDREMKEALKSGDKTRLNTIRSIVAALLEKEVSG

MKSGKKTETAVLKSVMAD I YYMEKSS





 LKG GLKKAMDAKDEMKKTAI RSML SADKNKEIDLL
L E TI K A TRLLQARKDRNNAVASVLGVII GELD


 TLKKRDLKTAMMQKKAVEKNTVKSVIAAAKGAE DDG
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$L Y D R L K A D L L T A R K A R D T A T A T T V T T W V G A V E T A A K A P$ A TLKKGDLVKAAMRAKDAPRLAVLRSVISATLDASSKT TNTLKMLKGE GT !R Q A LRTALTTDAMRARDKTAMAALRSADAA DDNAEAEA


 AK $\square R S D \square K V A M R A K D T A R F N D Y T M N F T D Q Q N N A A K T$




RDEDFEELDAMGDKPSDAAS ILVVVLKGLK KEVS T $M S V R V R M R Q A L P Q A M R A R D K V A V S A L Q R A T A A L D N A E T E V$ SVLSEMYAAD KA
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 L
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 $K G E K L Q D G E V D K I D A K Q V Q Q H Q D S I E Q F T K G Q R Q E L V E K E$

 D GRPIE DADAVKIL KALRVTAEENKNA
QNASLT DGDTLVLI NKTIKELDEEYETYKKAGREEQASVI NRQTHE KVVHSALKKRLEAAKDSLESNRLEQAKQN DGKPLPDEEAVKVL KALKE DA LDE SKQ DEFA LFKTLSKMHKQRVQSASEYASQNRDDLAQVE ANPDK S DMQULLALLRKRKAASEAAAKEAEAASRPDLLAEKQ

 AQP IS T D A QLV A LL R RTARAS QDAAA E FRSAN RADDLA D K E


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 P $\square E N$ I S D E DI E E V LD K V A T R E I A K E A I P Q I L D Y I A R N P G



CDGE
VPVDNDSDEHDDEVFGLVAQGK VAKEA DPDVLKYDAEHPG PRRELSEDDIAAIVRREIDERRSAAAEYGRLGQSERQD DNLEDKHFIDVLDAEGGAAKEADDTLL RALACEPE





 D N $\square$ ARREETH@KDAFKLLHENK』AKEALE EI
ARRELSEHDTADIVRAEIAERLEAAAELTAPAHADRABRLD
A S S P




TQEAD I LAEYQPAQLDDALVAQAVEEVAAEHGDVTMKHMG
 KQKKLLL D F YL P A TMSKKEHTTELI KKLISEHNWTDLRQRG
 KSPKQDAEEKGLT LLDSEEEVER $\operatorname{V} V \mathrm{DEVI} Q Q V R E K G M G A M G$
$K Y Q L E V V K G Y A G Q V M D A E E V R E D D S V I A Q \square K Q D G K Q N \square G$
ANEI KILENYALDPVASREEVDARVVQLLTDLKESEPS
TRELEI L
QGEMDDIKKYMDPVSSE DDDDQNVKKLLDA $\square$ A GEKKVQ $\quad$ K
DEQMKTIQSYYDPKMLTEEEUKNEILSLLDALAGEKKDRSUP RGEMDI I KKY
TTENEVLESLLPDKLSESEDDAFVSDFVLSTGASTMRDMG

 DFEAEFLDRFLPKEMSEEELEAWI REHVD
QKE DAVI DELVDKVMGPEEMRKTVRQVIEKTTVSGGLKQG





K SPEQAAKDLNDTMLSEEDVESVIDDIISSVEERGMGAMG STVKEA $\operatorname{DEKLGLGAASLEEVQRVVDEVVEQLRSEGERVFG}$
LCAKDAAEKMG LGGS DDLS DVESMVEA $\square$ DREVKEKGMAAVG DVQVT ILEEYAGQTMSLEDVKEIVSQEFSKLKEADKKEVG LREAD FLTTSYLLPVASDKEVDEHVTKLAAEXLKSEG
MKLLDEVLDVAGLSKMSKEEVEAVI LDDIDNQVNEKGMGATG



RAEAEVL T RHL

RAEAAVLLAFL
LTA A E E AVVEEAGLSGVSEEEVREADAEVVEQVEQQGMGAFS
LKEAELLEEFLPPLLSQDQVDTHLREVIGGLAPEEKAAGP


| UniRef90 UPI00038266C9 | $\begin{aligned} 130 \\ E R Y N D D V Q A S G V V R S L S \\ \hline \end{aligned}$ |
| :---: | :---: |
| UniRef90－S6CD16 | RVMGELTKRTGGNFDKAGAAKLLGGKLS |
| UniRef90－JgVZU1 |  |
| UniRef90－GOS860 |  |
| UniRef90－K1Y105 | QAMRP\MNHFGSAADGNVV |
| UniReef90－UP100004449AC2 | KAMGLLFKTFYSKVDKSTVVDDLVKRR |
| UniRef90－S3DH20 UniRef90 $\times 1 \mathrm{R} 2 \mathrm{~A}$ | EVMKGVGERLEGRNDKGVVAGVVREVLG |
| UniRef90－K2RLM0 | KVMEKTMGADEGRMEKGDLAKVVKEALG |
| UniRef90－E1WXB8 UniRef90 ATTN35 | SLMGALSAKTKGRFDGKKLSQMVSASL |
| UniRef90－F9DSD9 | QA $\square \mathrm{GTVMKEVAGRAEGKTVSQAVKEY} \mathrm{\square}$ |
| Ref |  |
| UniRef90 W9WWS5 UniRef90－R6WCL7 | GGELDGKMLAELVREEL SVMRHFKAEYAGKCDMAEVNKVLKSL |
| UniRef90－R712W6 | QIMKAVMPSLKGKADGKVINQVVG |
| UniRef90－E9DUM1 | DVMKRLSGALEGKVDKKVVANMVK |
| UniRef90－R1G1R2 | PVMGKVMEKI GGALEGRMVAKVV |
| UniRet90－UPIOOO4 | SLDKETNASVKSRTSGKVVSEV |
| niRef90－J5SJY4 | QVMKAL |
| UniRef90－20222 | SVMA K IP OVKGK |
| UniRet90－G1 XSY6 | MI MRDATARLGGNASGAEDSAAA |
| UniRef90－K1X3D6 | EVLKKVFPEVLGEVEKGDVAR VKELM |
| UniRef90－R7G2P4 | AVMKHFKTEYAGKVDMRLVGAVL |
| UniRef90－A6GFC4 | RLMGLIMKSHRDEVDGDLARKAAEAMLS |
| UniRe |  |
| UniRef90 UPI0002S |  |
| UniRef90－O5XPX6 |  |
| UniRef90 V6V8L8 <br> UniRef90－X1QXW2 | QVMKIATAKAAGQADGKRLSTAVRAALA |
| UniRef90－F4NV53 | KVMKVANTELNSSVSMKLVSEVAKK |
| UniRef90＿K1 ${ }^{\text {d }}$ 42 2 | MKELMANYKGQVDGG |
| UniRef90＿K0NLD8 | QAMGNVMKHFGKLADGN |
| UniRef90－F8NTV | KNLGRVYKSFYSKVDKSMVDDA |
| UniRef90－F8AFO1 | LIMMGRAMAKLRGRADGKLVSQIVRRKD |
| UniReer90－w9 |  |
| UniRet90 S8ANH |  |
|  | （LIK QVF GK■DWK T LIP GELIK A |
| UniRef90－B3L | M GE |
| UniRef90－R7DPW8 | SVMKHFKENFAGKVDMGLVNR $\square$ ARS |
| UniRet90－R9TF25 | KपMGALKAT GKVDGGKASALFK |
| UniRef90－G2F |  |
| UniRet90＿D7BHX3 | V |
| UniRet90 R7GC89 UniRef9－UPIC001EAB351 | NVMGHFKTNFQGKCDMK |
| UniRef90－F6DGC8 |  |
| UniRet90－H6C677 | VVLKELLKPLADKLDKKVLADLVKDEDA |
| UniRef90－G7DSH4 |  |
| UniRei90－Wotbiche |  |
| UniRet90 M M WRZ | SLVKERVGERAES |
| UniRef90－FOXLF9 UniRef90 S90 S9044 | K TTTAAGK GLASEVMRRLLA |
| UniRef |  |
| niRef90－W2UAV2 |  |
| UniRef90－W2UAV2 |  |
| UniRef90－UP10003 |  |
| $\begin{aligned} & \text { UniRef90_D3PTB6 } \\ & \text { UniRef90_J1JAU9 } \end{aligned}$ | AATGIVTKALGPAAPGDRVKKVVEKLKM |
| UniRef90－E8U9 | QVMAHLKAAHPNGYDG |
| UniRet90－J3NNT5 | LLMAQLMKALAGKFDKKDLFGIVEKEL |
| UniRef90 A1RX39 | KLM ${ }^{\text {KVVMDKVRGRIDGSVVAKVLKEE }}$ |
| UniRee99－U7DI00035EA3B6 | KVMGNVMKTVRGKIDGRTVAEKVREKLS |
| UniRef90－I2FV43 |  |
| UniRet90＿U9T5G3 |  |
| UniRef90－F6D1L3 | ALMGKAMAKLKGKADGKLVNKLLRDK口 |
| UniRef90－G0E | K】MGRVMARLRGRADGRVVAE！VKKK】 |
| UniRef90－W9DSY3 |  |
| UniRet90－A1CDT4 | ALLKSLFAALDGKAERKEVARMAKE |
| UniRef90－12JSC2 |  |
| UniRef90 A6UPR3 | LLMGRCMAQLRGKADGKLINVTLQN |
| UniRef90－F3E8F7 | EAMKHLNGQYAGQFDKGLASRVAKQFLS |
| UniRef90－LOAAQO | MGRAMDKLRGKIDGKIVSEIIKEKL |
| UniRef90－Xoz4 | MGEVMKKVRGKUDGAVIS |
| UniRef90－A2BLB4 |  |
| UniRef90－C6A229 | MLMGRAMAKLRGKADGKLVNQLVRKKı |
| UniRef90 B5H7 | A |
| UniRef90－E2LID1 | K $\downarrow$ TGKDFKMFYGKVDKSLVSEMVKKRVG |
| UniRef90＿W9BLZ1 |  |
| UniRef90＿H1Z4 3 UniRef90 BOD8Y3 | VN |

RDRLRASLLAARKSRDTVSVTATRSALSADDNAETEV MRDTMRRD KTAMKARDRVRTVRTITAIPELRREG


MS LLEQLKQDQDALRKSTEK\K\NADTTLIGEAASPA MRASLRDGLKAALKTRDRVAITAHRSALAADDNAEAEA

MRADLRQDLTAALKTRDRVA $\square$ AA A LRSALGATDNAEAET $\square R D R L R A A L P V A L K A R D R A T A S T L R A T L A A I E N A E A E A$ T T A A GTLASTDTELRRDDVAV EVLRALSAA MEAADMPL

RAELRHRLITARKERDAASTSALRSTMSADDNAETPD

MS $\|$ VT QMKADR\|LARTTDKGAFALLTN I IGEFD LARTQK RARMRADLVTAMRERRRETVSALRTALAALDNAETEA A L R S LLRADLRAAMKARDREAVSALRTALAAIDNAEAEA

MNMYQRDRKEKVRALKEKDNVAKRLDPYVLSMANNKDGLV K A T $\square R$ A A $\square$ K E A MRARNPPAAA VLRET LAA $\square$ D NAEAEV

V I HELLGQLS QRHKSF


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PLTMGVVVMKEMRGR|VJDGKVIISEVLIKKEL PLMGMSMKQLKGKADGSTVNKIVKEE I
P LMGVVMKEFRGKVDGKLVSQ LLKDR $\square$
QVMGACKKAAQGKMDGA VVRK
MVMGRAMARLRGRADGKLVSS LVRKK $\square$ QVMGACKKAAQGKMDGALVRK


Y LM GQVMKKSQGKANPQEANKLVKEELA
GLMGECMGQLRGKADGEVVSELLREEI


A I DGAVMRATKGQADAKAVSK\|VMERПA $P L M G V V M Q E V R G S V D G K V V S E L L R K E I A^{A}$ $K A M G W V M K A S G G K A N P G A V N Q 1 L K Q K L G$ DMMKHLKAEYPNQYDGK LAST I AKE ILN A $\square$ MGEAMDA $\square R G K A D G E V V S D A L R E E I G$

MFMGEDMKKTKGKADPKVTNQLLREKLN $K \square M G V V M K E V R G K A D G Q L V S K L L Q K K I \quad$ $\begin{array}{ll}D A M K Q L S Q Q Y P G K F E K P M A S K & A R E M L \\ G L M G E C M G A L R G K A D G D L V S Q L L R E E I\end{array}$


 FFMGQIMKATKGKANPRVVSGMVMKKL

[^1]
[^0]:    

[^1]:    lupas_21
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