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& \text { N NOA } \\
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$K$
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 T R $R Q S L Q M D Q \mid R$

 $R Q G L S M R Q \square R F$ \begin{tabular}{ll|llllll}
$R$ \& $Q$ \& $S$ \& $L$ \& $R$ \& $R$ \& $R$ \& $R$ <br>
$L$ \& $Q$ \& $R$ \& $A$ <br>
$S$ \& $I$ \& $R$ \& $Q$ \& $i$ \& $R$ \& $F$

 $R$ T GIV $\operatorname{F}$ E T V $V$ R 

$Q$ \& $G$ \& $L$ \& $S$ \& $V$ \& $R$ \& $Q$ \& $R$ <br>
$P$ \& $S$ <br>
$R$ \& $G$ \& $L$ \& $R$ \& $M$ \& $R$ \& $Q$ \& $R$ <br>
$R$ \& $M$ \& $Q$ \& $V$ \& $R$ \& $R$ \& $F$
\end{tabular} $R Q^{R} G L E R T A F R F$ $R Q G K S M$

$R R G L L S$ | $R$ | $R$ | $G$ |
| :--- | :--- | :--- |
| $P$ | $Q$ | $S$ |
| $R$ | $X$ |  |
| $S$ | $R$ |  | $R Q G L S L R Q I R$


 RQ GK S M N M L R F L
 Q
 QQELSMRQI RFXFDGQSINETDTSAQL EMKDEDTTDIF
 $R Q G L S M R Q \| R F R F D G Q P I N E A D T P A Q$
$R$ QSVVEA DAI A F LIF DGRRL RADQTPEE LEMEDGDEDDAM $R$ Q GLS T R QI RF QF D GQPINEDHMPA QSEMENKDTIDDVF R L E I N T T S V R F LIWK G S R V QL S DTA A S L T F E D G E I F K V F R L E I N T T S V R R

| $R$ | $L$ | $E$ | $I$ | $N$ | $T$ | $T$ | $S$ | $V$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $R$ | $R$ | $F$ |  |  |  |  |  |  |
| $R$ | $I$ | $N$ | $T$ | $T$ | $S$ |  |  |  |
| $V$ | $R$ | $F$ |  |  |  |  |  |  |

RLEI NTTSVRF
$K V G A E K S S V R F$
$R$ Q G V P S N S L K F
RQGKS L N SLLRF R K GVVDL H S Y R F L F D G N RI N N E D D T P E K L G M E DMM S I D A M
 R T S V RKL R R $\begin{array}{llll}R & Q & G & S \\ R & M & Q & R\end{array}$
 $R \quad A Q V N$ A $H$ N V
 RQSVD FNSI A FLLFDGRRLRAEQTPDELEMED GDEIDDAM




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 LQ GL S M RQI RFRFD GQPI NETDTPA QL EMEDE DTI D

 RMSVAPDSI A F L LD GKRLREDQTPEELEMEDGDEI DAM
 RALLSMRQI RF
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 QQ GL SMRQSRFRFDSQPINET TPAQLEMEDEATLL RKSLLQPGAVRFLFDGQRINPTQTPQDLDMEDGDSIDAM
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 EYHKTKKMGQDSSEIHFKVKMTTHLKKLKESYCQ AKVETENHRLKVQGADGGSVEQLKMKRRTPRSELMMAYCGG TKNNDGINLRVAGHDG SVVQFKMKRYTPLSKLMKAYCE GNAP NHKTSPNGDEGYFKMKKSTKLGKLCAAYAE PAAQKKITLKVKTQQDGGEDVYKIGKNAHLKKLMDAYCIV ESTHVTLNVMGEDEEGVRVFKVRRDT PSDHLNLKVKAQDVN HENVRPST AAAADEYTRMRVGQDNNEVVHKVRPSTKFSKVFDAYCQ DVISVRLQSKDRNASQEFSIMRDTPLGSVFSQYGS VTVRLQSKDRDSSQEFSLHRDAPLGSVFSRYCT SSAELMTLRVIDEDGAEVYFTLKPTTPLKKLMHVYCN
 GASDSSVLNVRVKDQAGGEMV FKVKSHTRFQKILDOFCM AAGDQH KLKVIRQDMSEHHFKEKMTTHLKKLKKELYCQ AAADPKLVQVQFQSQVCTVKVKSTTQFKKIFEAAET AAADPNTLNIKITNTN NEEVFFKIKRTTKLNKLKSAYAD EAITIRVKDQSGEETFFKVKPNTKMDKIFTAYAD AAPSECTKLKVVGGQESSSEE H
 NSEVHFKi K DTTQLKRLKQAYAD PAPVEHLNTKVT DNNNEVFFKIKRSTQLKKLMDAFCE ASDENQYVTVKVRSPDGEQVLYRIKKRTRLQKLMNSYCQ SASTHVTLKVKGQDEKELRVFRMRRNAAMRKVMNCYSE TENNHQVNLKAAAKGWFQAQLKMKRQAADSKLMKAYWE PEKREKVLLKKVQNKTG TENNDHMNLKVVGQDGS QDSNGFKSIKRHTPLSKLMKAYF PEGGEQRKLKVIGQD SSEEQFKVKMTTHLNKLKTSHCQ PNEK $C \downarrow K V Q G K E K Q S H L S V M V G K V E P L Q S L M D Q Y Q A$ SPQKKTTLKVKAQQDG EYIKRQVTGQD PAPVEHLNTKVTGQDSSELLFKVKMTANLKNLKESYCQ PAPVEHAN ADVKAEA NAKSTDGEVNF LRLREGQEEK
GTERIDVVMVGQDKD KLKFVFQDK GSEKQFRIYMDDKFERLFKMYAD
 ERAKIVIS SQDKDEVKQFRVYKDEKFERLFKRYAD
 PTSERAKIVISTQNKDECKQFRVYMDDKFERLFSMYAD TENNDH■NFKVAGQGGSVVHFKINRHTPGNKLMKAYCE LKVVSEER VVRHAMKMTDKLQVIMDWYHK PENADPVHAKVTAQDGSVVQ VSPEQLNDKVKDAEGNEVFFKVKRTTKLAKLKRAYAE MTTHLKKKLKESYCQ AATGKGK LLKVQNKAENS QSDRTYTTDKFEKLFEVYAK PETSPHVTLKVKNQQGAEDLYKIGTHAHLKKLMSAYCT TENSDHMHVKVA DDGSVVLFEVKRQT SEPRKACCE TENNDHMNLKVEGQDGGSVVQFKSKRHMPLSKLTKACCE PPPSDREKLVIS DQDKDGLKQFRVYMDDKFERLFKMYAD


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| V2WT38 | DEKPKLNLTLTHEGTSIQVKVKASMTEKKIMEAYEK |
| UniRei90－UPIOOO3FOB261 | ENNDQTHVEVVGQDSSVVQFK |
| UniRef90－F4SAB4 | ESQSRIRFKVIGYEGN LVEDKMKRTTRFDR |
| UniRef90－C4QXR5 | PSEHINLKV SDGSSEVFFK |
| UniRef90－A0AO22RH12 | EIITLNUQYNEGGQKYSFSTFTDVPLKE |
| UniRef90 UPIOOO3ECOF47 | TNLKVAGQGGSGVPFKIKRHTPLSK |
| UniRef90－UPI0002BD1206 | NNLMRQD GSVVQFKIKRHTPLSKL |
| UniRef90－GOMXC4 | APMNNEN $\square$ I TVQGQ GNFNAVFR1K |
|  |  |
|  |  |
| UniRe | NIIVKL |
| UniRef90 A0AO24TXQ4 | KV |
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| UniRef90 UPI0004 | ESYKKVRVKGQDGSTVVYYKVGRKIVKL |
| UniRef90－R1E3E7 | － |
|  | AGNEHTQLK DGSEVYFKTKKKTKLEKLMTTYCS |
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| UniRef90 UPIIO00333CA79 | NSDHMNLKVMQDGS |
| UniRef90 UPIO0042BB8DA | DHVHLKVVGQDG SVVLFKIKRHSAFSKL |
| UniRef90＿UPIO00333376A <br> UniRef90－Q16EQ2 | NLKVEGQDG SVIQLKVKRHTPL |
| UniRef90－11GT49 | GRTRTKVQdLNG |
| UniRef90－11G7 | GR $\downarrow$ R |
| UniRet90＿D80 | PVTVKVKANMKFEK1 |
| UniRef90－K8 | K |
| UniRef90－H3DR |  |
| UniRef90－G3B0J2 | THTNKV SDGSAEIFFKDKRS |
| UniRef90－E1ZBV9 | DEGRUSLKLRSAHAGEKV MRMRRE |
| UniRef90 A7SL98 |  |
| UniRef90－R1ERG8 | ALS K |
| UniRef90－UP100042B1C | FLKVQGQKDC Y |
| UniRef90 UPI00042B1C93 | FLKVQGQKDC Y Li GRK |
| UniRee90－UP100020AD367 |  |
|  |  |
|  |  |
| P10002 | NDCI NLKVAGQDG |
| UniRef90－G100 | NQDK |
| UniRef90 K5WLW | KLNLTVLYE GESITVKVRPTMQFSKI |
| UniRef90－C5XCD1 | VTVKVQDTAGRTVKFTDVRTTQKLQVLMNAYAR |
|  |  |
| UniRef90＿R0KV34 |  |
|  | KVVDQEK |
|  | 俍 |
| UniRet90－K7KQE7 | DESVNL |
| UniRef90－S7XGE0 | H |
|  |  |
| UP10003599F24 | P |
| UniRefoto－${ }^{\text {G7 }}$ | HIVKKVQGQEG STVHFKIKKTTPMRKLMNAYCE |
| UniRef90－M7TNS6 | $\checkmark \mathrm{Cl}$ |
| UniRet90－U5H2M7 | $\checkmark$ |
| UniRet90＿R7SET5 |  |
|  |  |
|  | PT |
| UniRef90－＿88LCF9 | DRAKIVITIQDKDGQKTLRVFADEKFERV |
| UniF | N ${ }^{\text {N }}$ |
| UniRef90－W4JUZ2 UniRef90 B3MX | NLTGYEGKVVRFEGANMPGKKVI |
| UniRei90－UPIO0038BC636 | EYYKLKVIVGQDNSEIHFNM |
| UniRef90－H6BM59 | EPMHLRVR |
|  | EAKRKVR |
| UniRef90 M5FP57 | AKRKVRLTLMMDDGRSMQML L L S |
| UniRef90－N1PRU3 | TSOYVQVRVVDQFSNE FHVRMKHTTSMSVADKYYER |
| UniRei90－UPIO00441E4AC | NDHTNFKMAGMDG SLVHFMIKRHTAMSKLMK |
| UniRet90－G2Y7T3 | PKTVSTVVDQRGDE |
| UniRef90－J4GON5 | N |
| 7M | VT L NV |
|  | T K OTANKKQSL |
| UniRef90－R7QIH4 | AQTAAPVQLKVRS GQNQLKMRもRRSDPVLKM |
| ef90－Q3L |  |
| Ref90＿M7X6Q4 |  |
| UniRef90 K1Q4F | EK QLVVQSRN |
| ef90 ${ }^{-17}$ | RUNFSTRAQDGSRVFFKVNPDRY㑑 DPFKKYCQ |
| UniRef90－${ }^{\text {BODPJ }}$ | KIFEAAEK |
| UniRef90 UPIOOO32B0F42 | RLK R ${ }^{\text {R }}$ |
|  | S |
| UniRet90 E4 | S |
| UniRef90－R1E1D6 | DAA |
| UniRef90＿w9XQL6 | A HEP |


| UniRef90_L9LBI8 | RQKAPMNLLFRFLDEGQR\\|IAKNHTPKE|L|GMEEECMI|EVV |
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| UniRef90-A0A059D2B2 |  |
| UniRef90_V2WT | K F GKDPGTLRFTYDGERVHEYETPAQREMEDGDElQAF |
| UniRef90_UPI0003F0B261 | EXXQDMEDEDTTDVF |
| UniRef90-F4SAB4 | H T G LK N GTFCFRWDNQRLCGESSPEDLRMTDGDHVEV |
| UniRef90_C4QXR | $R Q G K T R E S \square R F L V D G Q R V$ |
| UniRef90-A0A022RH12 |  |
| UniRef90_UPI0003EC0F47 | NKENTPAQLEME E E D TV D |
| UniRef90-M0SMY8 | K VQVKLD NLVF S F D G D K $\square$ S T N A T P D S L G LE D D D I I |
| UniRef90_UPI0002BD1206 | $Q \mathrm{Q}$ |
| UniRef90-G0MXC4 | VA D\S EY G I R LF Y D G Q R I G E N D T A S I G LEENA\L EVY |
| UniRef90-G3UN99 | RQAVPVDSLSFLLEGHRIAADNHDPKELGMEEGDMIEVY |
| UniRef90_R1FG47 | T R GI S R S TLR FLLFDGERVNSHQTPRMLELEDGDCI DVM |
| UniRef90-M2XTS6 | RWGLSESNTVLYFDGRVVSSDSTAESLELENDDLI DV |
| UniRef90-A0A024TXQ4 | A K GIP VE T L R F F F D G T RLK G DVTVEESLGLESSDCRID CFS |
| UniRef90_L9JDX8 |  |
| UniRef90_UPI00042B9452 | RKQLDYRTVRFVHEGRHVPGQHTADKLKLEDGAEDFCM |
| UniRef90_M8C448 | T D GAS $\triangle$ LGGAFLFDGQRLHGRHTPAQLDMEVGDVVD |
| UniRef90-R1E3E7 | RQGKAEDEVRFVFDGERLRSDQTPAEVDMEDGDVID |
| UniRef90_L1LFL1 | R L G K S P D AVR FLF D G D RI K G S T P E ELG |
| UniRef90-M5C8T2 | QFRKAPKTFRFFYNGTRLKEDDTPKMHEMENND |
| UniRef90_UPI000333CA79 | RQ DTSAQLDMEDEDTMDMF |
| UniRef90_UPI00042BB8DA | Q Q QLEMEHKD\1 DVF |
| UniRef90-UPI000333376A | L M M DEDTTDMF |
| UniRef90-Q16EQ2 | R A GLLS M QVVRFRFD GQP $\square$ N E N D T P T TLLEMEEGD TIIEVY |
| UniRef90-11GT49 | SMDLDLNTGRFVLD GKRMQGWQTPSGFNMEDGDEVDFF |
| UniRef90-I1GT49 | SMDLDL |
| UniRef90-D8QHM4 | KFNKQAGTFKFTYDGTRVKPDDTPAGLGMEDGDQI DAF |
| UniRef90_B7G0Q9 | RKGVQASSLRFLLD GETI A P ESTPKMLELEDQDQIDCM |
| UniRef90-K8ZBL3 | K K GVVVATVVRFVFDGVTL S A E T T P EQLEMEDEDTVDVVYG |
| UniRef90-H3DRK9 | R NKVSID S FRLLFYMGELISSDD T P V T L G M K D G E EVEA |
| UniRef90-G3B0J2 | RQGKAMDTLRFLVDGTRVGPDNTP |
| UniRef90_E1ZBV9 | WA A EAGHALRFLSFDGDQLGPGQTPAS LELEGDECDDVY |
| UniRef90_A7SL98 | FRKLLPSSKLQFSFDGDVIKGSSTPAELELEDED |
| UniRef90-UPI0003338379 |  |
| UniRef90-R1ERG8 | $R$ QGMSQQGVRFLFDGERLNGNQTPAQMDMEDGDVIDVM |
| UniRef90-UPI00042B1C93 | R IG A A Y G S L R FLY D G S RI HS K E T A D DLQMK DED |
| UniRef90_UPI00042B1C93 | RIGGAAYGSLRFLY D G S RIIHSKETADDLQMKDED |
| UniRef90_UPI00020AD367 | CVNET DTPAQLEMEDEDTI DVFF |
| UniRef90_UPI0002739819 | LQ N T P APLEMEDEDTI D I F |
| UniRef90_UPI000444A3A6 | RFGKDPGT FKFVYDGERVNAQDTPLSRGMEDGDVID A |
| UniRef90-A0A022 | R L G V V S S $\square$ A F T F D GARIR E T Q T P R D L G L E N D L D A F N |
| UniRef90_UPI0002BCC8B8 | GQGLSS L EVEDEDAldVF |
| UniRef90-G1Q034 | R T K K |
| UniRef90-D6RQZ4 | KFGKEPGTFKFVVDGQRVNKDDTPAGLGMEDGDQVDAF |
| UniRef90-K5WLW8 | RFQKEPGTFRFTYDGQRVNANDTPGDLNMEEGDQI DA |
| UniRef90-C5XCD1 | VP DVTKGTAKF LY DGRQLKGEQTPAEIKMEGEDE |
| UniRef90-C5XCD1 | $V P D V T K G T A K F L Y D G R Q L K G E Q T P A E I K M E G E D E$ |
| UniRef90_R0KV34 | QVNKDPSELRLVVFNGKVLDLLESTPDFYNMEDNDEVEVVA |
| UniRef90-N1QZZ5 | VPNVTYGTSVFLYDGRRVRRNMTPVGLEMEDGDMLDFF. |
| UniRef90-A0A015JG82 |  |
| UniRef90-K0S1D4 | RKGCFPESLRFYVDGDTI QPDLT P A Q L ELNDGDQIDV |
| UniRef90-K7KQE7 | RQKLDYETLKF\\|YDGFNIKGKHTAKMLNMEDDAE |
| UniRef90-S7XGE0 | A T NKSPKELKVALR G K F L S LEQ T P N CVA M E D G S L E $\square \mathrm{MS}$ |
| UniRef90-R7T0P5 | RFGKEPGTFKFTFSGQRLRPEETPAEHNMEDGDTID A |
| UniRef90-UPI0003599F24 |  |
| UniRef90_B3MWI1 |  |
| UniRef90 ${ }^{-67 Y 510}$ | R M |
| UniRef90-M7TNS6 | $\square \mathrm{D}$ NVKP GEYRLLFE GQRLR D D D T P A WLEM G |
| UniRef90- U5H2M7 | RAGKSLSEVRFMFDGVKLRGDQNVASLDD D D D DEEEVM |
| UniRef90_R7SET5 | RFNKQPGTLRF@HDGNRLQPS DTPAGVGMEDEDVIEA |
| UniRef90_J9LUF9 | RSRVS SVVRFKYDGLVIWGT DTPLTHGLEDGDVI D A |
| UniRef90_S4NPX6 | TLLEVPLD K L K F EF D G DIV A G T S S PQQMGLEDGD CIV VM |
| UniRef90_Q8LCF9 | K AKLDPQNLVFDFDGD KI D P S T T P S ELGMEDHDMI EV |
| UniRef90_J9LUG0 | ACDLPLNGVRLFFGGRQVCRFDTASSLGDEHGDFIEA |
| UniRef90-W4JUZ2 | GLWHS I GTFKFVFEGERLNPVDTPAGLGMEDNDQI D A |
| UniRef90-B3MXJ2 | RLGLLARYEATF DYNGQAI K DD D T P K S L D M Q M D F I DVY |
| UniRef90_UPI00038BC636 | $R Q G A P V N S L I F L L D C Q R I A D N H T P K D L G M E E E D G T E A Y$ |
| UniRef90-H6BM59 | TKKLEENKTPWLV D GERLDPEATVEDVGLEDEDEVDV |
| UniRef90-M5FP57 | KFNI QR GIL R Y RYEDRPVGEA D T P D S G M D D D Hi d A |
| UniRef90_M5FP57 | KFNIGRGGL R Y RYEDRPVGEADTPDSLGMDDEDHI DA |
| UniRef90-N1PRU3 | $R M Q R E V K T M R F D F D G E R I N P N S T L H D L D V D D D C Q V E V F$ |
| UniRef90-H3EDA7 |  |
| UniRef90_UPI000441E4AC |  |
| UniRef90_G2Y7T3 |  |
| UniRef90_J4G0N5 | RFGKEPGTFKFIFEGQRVRPEMTPADLNMEDGDVIDA |
| UniRef90_D7MM59 | MRGVEWDTFRFLFEGSRI R E Y H T L |
| UniRef90-E2ATY4 | Q $\square$ GVKESSLKFYFDGEQI S P T D T P ELLDDLEEEACID |
| UniRef90_V6LFP8 | K NNVRKDELRFYFDGNKLK D T D S A KLV G L SENDTI EVV |
| UniRef90_R7QIH4 | KFDL NLPNAVMQFDGEQVEES DTPDTLELEEGMLI DV |
| UniRef90_Q3L8U9 | R A GVVRPGSVRFMFDGQAI GEKDTPSQLEMEDNDTI DVFF |
| UniRef90-M7X6Q4 | Q GKSEDS FTLS FEGHRI GKTETPGSLDFEEEEVI D |
| UniRef90-K1Q4F5 | QTKTDPSHYRLQFDGEDVLPQDTPADLELEDGDII E |
| UniRef90-F2EJ48 |  |
| UniRef90_G7LHV5 |  |
| UniRef90_B0DPJ1 | RFQKEPGTFKFTYDGNRINKEDTPASLGMEDGDQVDA |
| UniRef90_UPI00032B0F42 | A M G L C G K LS FFFDGTKLS GKELP G DLGMENGDLI EVVWS |
| UniRef90-C5XCD2 | $M V G A T R G A G R F V F D G K R L K G E S T P E D L G M V N G D K I D F F$ |
| UniRef90-E4YP91 | MENVSPDS I Q L I H K GQPVNGS DVP K M L D L Q S M I L EV |
| UniRef90-B8CFJ6 |  |
| UniRef90_R1E1D6 | $R Q G M S Q Q G V R F L T D G E R L N G N Q T P A E$ |
|  |  |

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 SAH NDKVKGQ YVTFTVKGQDGRKVF FKVNQDKFLDKAFRKYCQ PDTKPRITGRUGVTGREEGTVKAPSNKPLQRTFDAVCN


 GPETVEFKVKKNEALLDVMMSVSF EEERVFRMRRNVEMRKVMKRYGE
TKNNDHNNKVG
DYVRVTLRTREKNKTDTKKDAKMETFETVFQAFSE AEGSRKSTK TK $\square K A Q D$ DT CTHKKRNGMTLHKAFEAAEK SRDY SINFQCKFQKVKKNYKTNKYTSLQETFEKYAA EY:KLKVIGQ
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E LKKCQPGDTKLSFDGDPVALDSTPVDLELEGGEILD DNGLDEEKLTLVFDSERINLQETVSTLGUEDGDCI DVY
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 $H L E C D V Q D F K L F F D G D L L E P D D T P K D Q E M E G N E I I$
$R F G K E P G T F K F V H E G Q R L N A M D T P A Q R E M E D G D M I ~ D ~$ APDVTYGSGTFMFDGQRLRGSETPAEHGLQDDDVIDSY K $\square$ NKPLDRDKF $\square F D G Y!L S P N D S C Q S \square E L E N N F I I D V$ E LDCDVVHLVKLFFDGELLDSEDTPKDAEMENKDTI D QFGVKESSLKLYFDGEQI SPTDTPESLDLEEEACVD

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$K H S D D P K$ VLF DDEGRHRPAQTPDDVGLKDGDEDDD SVELNSIAFLFDGRRLRGEQTPDELEMEDGDEIDDAM QLNLEYETMHFMLEDYTI KGNQTPKMLNMENGDE】 KLGITAAELRFTYDGERI RGEDTPAGLGMLDDD $K L K \| P N D Q V T L M F D G E R L V P \square D T V A D C E L E D K D T L D V$
 KVDVTHGTGVFMIDGSKFSAKSTPDDLELEDGDLVDFF TRGVKWTTFVFILDDGTRIRESHTPDE KKSVELDNMRFVHNGRLVRPNLTPDQHEMESGDVIYAF FQFDGQPINETDTSAQLEMEDEDTI DVF


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1
PKDPNVL|E\|KFRNNEDGKPVITLIRDNKTSSMSLI|MEEYAK $\square R F R V R F D E H E V R K F R L K L T D T M S K V Y D K D A A$ $\square T$ LK L Q L E K RKEPL QLIRI EKT Q T M A V V I V K CA E
 TENNDHMNLEVAGQ GGSVVQFKI QRGTLPSKLMKAYCD P SKEFDDDISINESSSSNDRNTYKI CKTHSFEKLINAFCN T NNENVCTI KI QT T GKKNLTVSVKRDDDFK LLLEKCAQ
 $\square E L T M A G K D K K \quad P V T V R V G L S R Q F \| K L A E H Y A K$ I K A REGDKVRKFKI SMNDSMNKVFEAFCK ESEEVLRVALQGQD NKKVYVNVKPTTTFARMIEYYRT
 VAHYRITENVKMKRVKDAFRE

 DK $\quad$ K $\$ AFHG LD N K $V E V K L V G Q D A G S F$ SKK | $V$ | $P$ | $R$ | $R$ | $V$ | $D$ | $Q$ | $D$ | $G$ | $T$ | $T$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $V$ | $V$ |  |  |  |  |  |  |  |  |  |  |
| $V$ | $L$ | $V$ | $V$ | $Q$ | $D$ | $T$ | $K$ | $R$ | $R$ | $T$ | $L$ |




LKPTTKLRKI AETFAE
 S R TMRRTDKLQDLMDYYYM

 KLRVILRKGRADFGLTVNPHTTIAH\|ASAYKS T R K P K K F QL L K V Q E D R M K HP LI I P M K K T D T F N I L Y DQ C S E
 PAAAGLLNLTVRTKDKSRVELSVKPTTSTIRSILDHPLQ
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 D E Y I R V N L F S P D G LTT T I V S L K W S T R M I K L K E K H S Q
 I H L K A V T Q D GSET HFKMSMTH


 E G G L E H T F R I K PTTELQQKVVDMFRG E GGLLEHTFRIKPTTELLQKVVDMFRG G DA GVE Y $\square$ K L K VVGQ D SNEVVHFRVKNGTAMGKLKK S YA D LKI S S K D D FRGWVK K D T T F E H I T S A Y K S AEKEHMQLKVRSPDGSEVYFKIKRRTKLEKLMTAYCN $R \ D I K L$ R C VER R A V E F N M S T A M P MR K V M R A Y A D DDGNE LIVVVLLLGSDNKKVYVNVKPTTTFEKLAE HYRR K L C N L M L D Y C D


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GAAANRKIKFKI QSNLWKKP FTVEDNKTHDMRLVFDKCAE
 A VAD D S $\square$ K LVVR GAD GKEA RMKVAK TVTAHTVLDRYCK PSIISDMLTI HVRRSGASSHHTFRLGKKDQLSKMVSAYCR P S S I S D M

 DNSNGIKIKFQCQNDKKPLEVTVEANDKLSALAMIKAAAE



 E K $\operatorname{I}$ V L E $V$ V GN G K S I S I S D A N QKII K L WMQSMM GYRMMPCK V D E E T T V E DI MK KV G D

Y L T I K G S T D D G GRVVVTRPMRRTDELQRRLIDYYFA
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TKGYSTS DLL $\frac{50}{1 / F}$ DFDGDRILS ${ }^{60}$ KETPFELE\| ${ }^{70}$ D GSTI DV V DRAA AFKLLFDGQPVPRNTTPEDLGLEEDDLLDVVS HVRMRDGSDGFRYDDDRVRPQDTPEDLEMADGDVIVRVM ELKCKPTKI RLYFDGDMVNSNSKPDDLELEGDEVLDV KFGFAEDSLRFFYEDKRLSKEETPADVGLEDGDMIDA
 R V
RI GALPQERSFYYDTEADHPDDTAESLGM
RIGALPQERSFYYDTEAI HPDDTAESLGM
HRSLDMKALRVLLDGTRLELDRTPQELKMEDGDEDEVM RLGQS
RQGLS MS QMRFQFDGQP\NETDTANS DMEDEGTSDVF QTGUDKSQQTLMFDGDRLMPMDTVADYEMEDRDGDEV



 RYQAD $\quad$ RK $\square R F \square S H G V Q L S K T D T V T S A G L E D G D E I D V M$ KCDPT I ETMKVMFDDEYCINTQTCEEDGLEEADCIDI Y




 $M Q G V P M N S L R F L F E G Q R \perp A D N H T P K E L G M E E E D V D E V Y$ X K N
QAG DPTVVFVCNGHADRPGLTVAKAEMEDCGDVINDC QAG D DPTLVFVCNGHA LiR
 $R L G Q S T D S$
YYK LDLRNDYFKTRTLPDMEYDTAEFLNLHSGDVIEV





 | $M$ | $P T D E E H G D V V Y C G K Q$ | $D G E K T P A D Y E M E D G D Q L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $M$ | $P T D$ | $E$ | HLK L K P EQ DSLKFDGDDID DNSTPADLDLEGGEVFDC RRKLTGD MKFLFAGREVSPLDTPEVLNMRDVD

HKKLREEDCRFSFRAVPIGGEHTPAVLGM
EHHLT TMTLQHNGRRLDPTKSPQAEGLVSGDMLEV
 LQQGLPREAVQMALDGEPLPDTGTPESEDLDSGDIIEA



 $R Y$ Q T D L S K I $\quad$ R F I
 A S IVPS LS K M K A M F D D E Y C E N S Q T C K D L G L E D A D C
 $M V P T D D Q N G E W T Y G G R Q V G G E E T P A D Y E M E D G D Q L$
 $M V P A D M D A A B E M M Y$ C C R R V T G D RTPAAD Y D M E D G D E V S F F


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1 GTPP\| I E|V|E|V|R|LVGDSGSY

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SGGDCDTLRCDSQ GEEKK TDDEETISLVVGGEN
TDD YDIGASTPDRMLFNEYAE


SEQ PEESENGMIIGFFENSGGNRFNTKIVSNQPLKKVMDGFSN GPS

EDEHFML

PTETLSLTLQS
$\mathrm{Y} \square \mathrm{H} \square \mathrm{K}$ VT S
D GNE
 VKLVLQDTEGNQ DEYEI KRHDP LIGKL LEVYCK

 VVKDEEGRRLSRTMRRTDKLLDVLMDFYAM NQQLRI KACSLSGDHEFHFVTPSRAKVRKLLGSLSD TENSEKRIFLKAKNLDQVKASAKADTE SELVAAFRN ASANSTRI

40
 SKDKEGRSTLT NMEQPLSHLVEGFKS AHEK GAEIVSFRIKNTTRMSRLFKAYAS
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 DVIK K K L R L

TENDDGMNLKV $\forall Y V N \square R R N S R M R Q A D M E A D C E$ MATPMKRVFDTYAD $P \square G Y R \square H Q T Q T \square A R M F N H F A Q$ $\square T L K D R V E G G K A F M V T T T T G T K F S A F M E A F N E$ ANQSKT WLLSSNGHK LQQHVSTOKPGAALDKQYALD KYVK TTLADNEGNQ IE YKVKRHDPFGKIVELYAS
 MT A YCV

PNDENFVEVKCLFKDEKRPLLCSIHRNQPFSFVAEQCAT
DDE I I KKVQSSDGSS I H F RVNKKVK DNKLEDA T

PEKNDHSDLKVEGQDGSEVLGLSIKRHVPLSTLI EAHCE
 $\square G \square K F Q \square A S R K K P V E \square R V K \square E T T \prod D E L K D L L C A$ VRMRAKTKDNKEECTYYLDKGEALGGPMMDAFTS ETGNMDTVSFQLPNGDK FERRVGETWTFAK VGAWRE
 E T D Y

> EKVFDKVY LYOK EVVI FILRMTRTDTMARMMRVVEK


EESRSFACTVRRTDQLKGLMS FYLR
 GANYITVKVAHADGSEVHFLI KKS DKMKWMKEDFAK
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| UniRef90-B8CBI8 | EVSLKSLRFSYAGKTIVGNKTPMELGLADND |
| UniRe | ELAMDINKCFLFGEHFV |
| UniRef90-FOZ | KIGGTLPKIVLRFDGMAL |
| UniRef90 UPIO000162887 | KVGQQMSAFRFHCDG\\|RI K |
| UniRef90 FOZX |  |
| UniRef90 UPI00044133CF | KVPAKKKAVHLVFEGEKVAPDTTLAQLEVEDEDVLDVRG |
| UniRef90-A2W | MVPTDDQNGEWTYGG |
| UniRef90-A2 | MVPTDDQNGEWTYGG |
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| UniRef90-O4PHD1 | HASVHPHALKISFDGFAYTP |
| UniRef90-KORDA5 | KlGGTIKELK FDGQKLDL |
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|  | AVVFLDDGKK |
| 004 |  |
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| UniRef90-W2F | QRNIDKTKTC |
| UniRef90-QuUW |  |
| UniRet90-C1EAC2 | SDAGRPDQGRMVFDGDTIDMNHTPKILDMED |
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| 1 GT 45 | GV |
| 1 G | GYGVFLYHGRRIKCEETPAD |
| UniRef90-V5EY | D HiRFISNGUQLPKDLT A A |
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| UniRef90_KOTEC6 | RQHLDETRLCFKTAGLVVSSDDTAHSLNLOD |
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| UniRef90 A8N2Z4 | RMNPPKTEMMF LFRGRRIEPDQTPEELGMEEGD |
| UniRef90-B3N111 | SLRTRNSVVHFWYAGRIMPRRGTPASLGMEDRDLILV |
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| UniRef90-D8Q311 | , |
| UniRef90-D7G8L3 | KVGIPQERCVFKFDGDKLNPDGTPEGEDMEPEEII DA |
| UniRef90_B3NKD1 | N |
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| UniRef90-L2G | NKK A S QL |
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| UniRef90-T1HN10 | K1 |
| B8C | T SV |
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|  | AQLRMKHNDTI |
| UniRef90 Q1 | NSLKYYYDGUQLQDNDTPVSLIMMDEATMEAYS |
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| UniRef90 G2R071 |  |
|  | A QL |
| Ref90 l1a |  |

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 GRAD G SVVVQFKVKR QVP LSSELMTVCC E
$T H V S S G D N G R L S S F Q I W S R T R M L N V F D A Y A S$


GAAD Q E T L D L T L Q | T P |
| :--- |
| $H$ | RKDSLARLEVFCD




 P N E D I K L F L K G F E S A G D

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 G NPAPALMKDALLSAD NRRLYVKVHGGTPCSRLLEYYRM R E ELF FKI NRKTKLTRLFSTWES GYENLEMEVVDNARVV QLMKAFRH
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 E S N E H L S L K S R T

 DDPNKLVLILLREEGNSHKFKLGKDDTFEKLLTGDSK P VGPNLF V I G L K G K D N K R VE V NANDIMLLKDQS D LWEK R S C M V F F V S P R DR FK K A Y I A F R Y

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