## QUERY

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F A I P DVI Q AFKNGEFVVVLD DPSRENEADLIIDAESVTT F NTVEEAI A D IREGKMVIVVDDEDRENEGDLVMAAEKVTP

F N TV E E A I E DI K Q GRMVIVVVDDEDRENEEGDLVVMAA E KVVTP
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## QUERY

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 E II NFMATHAKGLI CVVPMSGELIDKAGLNQMVSHNTDNHE
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 E DI NFMDTYARGLLCVVPI TLDEARRLKLDLMVRESSDPHG ESSINFMTKYGRGLVCVPLTEEKAKQLELEDMVLHSTDPHG



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 E MIN N F MVIT H G R G L V C V P P T E E E H A T R L Q L A P M V N A N T D K Q G ETIN FMIKKHGRGLVCAPISEEDARTLNLVPMVNRNTDPHG ENVNFMAKHAKGLI CMPMHEELAKKKLKFNPMVKHNTDNHE EAVNFMATYGRGLI CMP LLGERLDELDDLPAMVNNNTDPNG EVI N F MAAK Y G R G L I C L A L A P P E WV D K L G L P M M A P K N T S R F E






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 VQPGHLFPMAQKGGVLHRAGHTEAGCDLARLAGLEPABV RRPGHVFPLDAKEGGVLRRAGHTEAAVDLAKLCGSQEVAV RRPGHVFPLRSRNGGVLRRTGHTEATTDLCRLAGLTPVGU RRPGHVFPLRTVEGGVLRRAGHTEATTDLARMAGLFPAGL RRPGHMFPLRAKEYGVLERNGHTEATVDLMKLANLKECGL VQPGHVFPLDAKGGVLRRAGHTEAAVDLARMAGLEPSGV VQPGHIFPLMAKSGGVLNRAGHTEAGCDLARLAGVEPAAV RTPGHMFPLKAKKGGVLERNGHTEATVDIVRLAGLKPVGL ARPGHVFPLRARKGGVLVRTGQTEGSVDLARLAGLKPAGV VQPGHIFPLRARKGGVLVRAGHTEASVDLAQLAGLTPAAV KRPGHTFPLDAKEGGVLRRAGHTEAAVDLSLLCGAKPGGV SRPGHVFPLRAAEGGVLRRVGQTEASVDMSRLAGLYPAGV VSPGHIFPLRAREGGVLVRTGQTEGSVDLARLAGLQSSAV RRPGHIFPLIAKSGGVLRRAGHTEAAVDLARMCGASPAGV KKPGHIFPLIGKKGGVLQRAGHTEAAIDLARLAGSKPAGV VSPGHVFPLVSKPGGVLVRAGHTEAAVDIARAGLYPAGV VVPGHVFPLKAKPGGVLERTGQTEASVDLARLAGLNPSGV RRPGHVFPLIAKEKGVLERNGHTEATVDLMRLAGLKECGV AMPGHIFPLMAKPGGVLSRAGHTEAGCDLARLAGFESAAV RRPGHIFPLDGKKGGVLKRAGHTEASLDLVKLAGLKEAGV GRPGHIFPLKAMERGVLRRTGHTEAAVDLARLAGLKPSGV IDSPGHIFPRIAWDGGVLTRAGHTEAAVDESRLAGLNDSAV RRPGHVFPLRYKEGGVLVRQGHTEASIDLCKLAGLYPAAA GRPGHINPLYAQDNGVLRRSGHTEAAVDLCRLAGLQPAGV NRPGHVFPLTAKTAGVLERTGHTEAAIDLARLADSKPVAV RRPGHMFPLVAKEGGVLVRNGHTEATVDLARLAGLKPAGL RRPGHIFPLVARKGGVLRRAGHTEAAVDLARLAGHAGAGV VTPGHVFPMMAKPGGVLERAGHTEAGCDLARLAGLEPASV RQPGHIFPLIAKEGGVLERVGHTEASVDLCKFAGLKDAAVJ TRPGHIVPLRARDGGVLVRAGHTEAAVDLARAAGLSPAGV ARPGHVNPLRARNRGVLRRAGHTEAAIDLARLAGLCPVGAA VQPGHIFPVRAVPGGVLVRAGHTEAGCDLTAMAGLTPAAV AMPGHVFPLRAREGGVLVRAGHTEAAVDVARLAGLYPAGV RRPGHNFPLDAKKGGVLTRNGHTEATVDLLRLAGLKQVGLI VMPGHVFPLAQDGGVLTRAGHTEAGCDLARLAGCEPAGV ARPGHVVPLRAKSGGVLRRPGHTEAAVDLAMLAGLRPAGV VSPGHVFPLRARKGGVLVRTGQTEGSVDLARLGGLKEAAV VKPGHIFPLRARAGGVLVRMGQTEASVDIARMSGLYPSGV VRPGHIFPLRARAGGVLERAGQTEGSVDLARLAGLTPAGV ARPGH1FPLKSQVGGVLRRAGOTEGSVDLARLAGLYPAGV VMPGHIFPLKAKSGGVLNRAGHTEAGCDLARLAGYEPAAV RRPGHVFPLTARHGGVLVRNGHTEATVDLCRLAGLKECGL ARPGHMFPLRAREGGVLVRAGQTEASVDLARLAGLTPAGV NRPGHVVPLRARDGGVLRRPGHTEAAVDLSRLAGLRPAGA RRPGHMFPLLAKENGVLERDGHTEATVDLMRLAGLKECGL VQPGHTFPI MAQPGGVLTRAGHTEAGCDLAALAGYEPSAV IVRPGHIFPLIAKKGGVLSRTGHTEGSVDLCKAGMTEAAV VQPGHIFPLMSDPGGVLSRAGHTEASCDLAALAGAEPAGV RRPGHMFPLIARDGGVLVRNGHTEATVDLMRLAGLKQVGL VSPGHIFPLLAQPGGVLVRAGHTEAGCDLAMLAGVMPAVV TRPGHVVPLRAVPGGVLARDGHTEAAVDLARIAGLRPAGV RRPGHMFPLVSKPMGVFERNGHTEATVDLMKLAGLKPCGL TQPGHDFPLTALPGGVLSRAGHTEAGCDLAALAGLEPAAV HRPGHIFPLRARLGGVLERPGHTEAAHDLAAMAGLQPVGV VQPGHIFPLMAQEGGVLIRAGHTEAGCDLARLAGHEPSAV RRPGHVFPLVAKNGGVLERRGHTEASVDLAKLAGFKGAAA VRPGHLFPLCARDGGVLVRAGQTEGSIDLLKMANMTPVSV VQPGHIFPLRYRPGGVLVRPGHTEAAVDLARLAGCPPAGV KTPGHMFPLVAKDGGVLVRNGHTEAAVDLAKIAGFSPVGV SRPGHDFPLRANRGGVLGRPGHTEAAVDLARLAGDAPAGV VQPGHIFPVMAQPGGVLTRAGHTEAGCDLARLAGFEPAAV RRPGHVFPLAAKKNGVLERTGHTEAAVDLAKLAGLKGAGV GRPGH1FPLDAKDGGVLRRAGHTEAAVDLAVLAGFEPAGL TRPGHIFPLRYSPGGVLVRPGHTEASLDLARLAGLRPSAV RRPGHMFPLLAKKNGVLERRGHTEATVDLCRLAGLKEAGL RRPGHMFPLLSKDGGVLVRKGHTEATVDLMRIAGLKECGL TRPGHTFPLTAKKGGVIERQGHTEAAVDLCKLAGLAPVGV RSPGHVFPLLARQGGVLRRAGHTEAAVDLAQMAKMLPGGV RRPGHVFPLAARGGVRVRPGHTEAAVDFCRLAGKAEAAA RRPGHVFPLRYREGGVLKRAGHTEAAVDLAILTGLLPAGV VQPGHIFPLMAREGGVLVRAGHTEAGCDFARMANCEPASV VMPGHMFPLRARPGGTLERGGQTEGAVDLSRLAGLRPAGV VQPGHVFPLKAMEGGVLSRAGHTEAACDLAKLAGFQSAGV RRPGHVLPLRSRPGGVRQRPGHTEAAVDFCRLAGKAHAAV NKPGHIFPLCAKEGGVLARPGHTEAA\DITKIAGCIPGGV VQPGHVFP MARPGGVLVRAGHTEAGCDLTLLAGLEPAAV VQPGHIFPLRAFEGGVLSRAGHTEAACDLARLAGLEEAGV HQPGHIFPLDAQPGGVLTRAGHTEAAVDMAMLAGLEPAGV VRPGHVFPLRAKAGGVLQRAGHTEAAVDLATLAGFVPAGVI HTPGHVFPLVGREGGLLVRAGHTEASIDLARMAGLKPSGV VQPGHIFPGQAEGGVLMRAGHTEAGCDLAGMAGCTPSSV


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A A DLI HYRSRTESLV
$T$ I A D L I N Y R DA N E Q TVV
TI KELLI AYRRKHDKLV
TVAALVAYRKKHEKMV
TI K DLI E YRKHTENFV

T I A D L I Q Y R I R HENTLL
T I A DLVQYRKEHEVLV
TVAADLV E Y RMRK E L L V
T I E DL I E YRSKTESLI

S $\begin{array}{llllll}\text { I } & \text { R D D } & \text { L } & \text { K Y R M K K E K }\end{array}$ T I K D D L I Q Y R N R R E K L V | $S$ | $V$ | $E$ | $Q$ | $L$ | $I$ | $R$ | $F$ | $R$ | $R$ | $E$ | $R$ | $E$ | $F$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $S$ | $V$ |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $S$ | $I$ | $A$ | $D$ | $I$ | $I$ | $K$ | $Y$ | $R$ | $M$ | $R$ | $H$ | $D$ | $C$ | $L$ |
| $V$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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



TVA D L I A Y R R K H D R L V

| $T$ | $A$ | $D$ | $L$ | $Q$ | $D$ | $Y$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $T$ | $C$ | $R$ | $Y$ | $H$ | $D$ | $K$ |
| $T$ | $A$ | $V$ |  |  |  |  |
| $T$ | $A$ | $D$ | $I$ | $H$ | $Y$ | $R$ |

T I K DL I A YRNQRE ILV

| $T$ | $K$ | $L$ | $L$ | $S$ | $F$ | $L$ | $F Q$ | $S$ | $E$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $T$ | $S$ | $L$ | $I$ |  |  |  |  |  |  |
| $I$ | $Q$ | $D$ | $L$ | $I$ | $A$ | $Y$ | $R$ | $I$ | $K$ |
| $N$ | $D$ | $I$ | $L$ | $I$ |  |  |  |  |  |


SVVEALVE YRKRHBDRLV
T I K

| $T$ | $Q$ | $E$ | $L$ | $I$ | $Q$ | $Y$ | $R$ | $K$ | $R$ | $Y$ | $D$ | $K$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $T$ | $L$ | $I$ |  |  |  |  |  |  |  |  |  |  |
| $I$ | $A$ | $Q$ | $L$ | $Q$ | $E$ | $Y$ | $R$ | $R$ | $K$ | $H$ | $D$ | $N$ |
| $L$ | $V$ |  |  |  |  |  |  |  |  |  |  |  |

S I A DLLIA YRLLQ D D G V
T V A D L I
TVAA QL I A Y R L
T I K DL I SYRRHREKLV
SI A GLI A WRRQHEVLV
S I E DL I A YRLK T D
T I S DL I E Y RLLKNES LI
TI A DLI Q YRSEHESIV

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

TVADLI E YRNSNETTI
SI A DL I A YRRRTE QLV

| $T$ | $K$ | $D$ | $L$ | $I$ | $A$ | $Y$ | $R$ | $R$ | $K$ | $T$ | $E$ | $S$ | $F$ |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $T$ | $A$ | $D$ | $L$ | $V$ | $A$ | $Y$ | $R$ | $L$ | $R$ | $H$ | $E$ | $S$ | $F$ | $V$ |


TIIK DL I H Y R MQRESMV
T I K A L I
T A DL E YRSMTEKTV

| $T$ | $I$ | $K$ | $D$ | $L$ | $Q$ | $D$ | $Y$ | $L$ | $R$ | $R$ | $Y$ | $E$ | $N$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

T I A D L I A Y R R R F E QQV
TI A AL QD Y RKKNDRLV
T I E DL I RYRLDNET TVV
S V S ELV E Y RLLKHESLI
TVA DLI QYRLQTERLV

T I S DL I Q Y R S QHE T LV
S I E QL I D WRRRHETQ

| T | $V$ | $A$ | $D$ | $L$ | $I$ | $T$ | $Y$ | $R$ | $K$ | $N$ | $H$ | $E$ | $K$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $S$ | $V$ |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $S$ | $A$ | $D$ | $L$ | $I$ | $R$ | $H$ | $R$ | $L$ | $E$ | $T$ | $E$ | $K$ | $T$ | $V$ |


T I A D L I EYRNTKETTV
T A A D L V K Y R T Q

| T | E D L V K Y R T Q |  |
| :--- | :--- | :--- | :--- | :--- |
| S | I Q | I I R Y R R A HE K L V |

T I E DLL Q Y R S E HE S MI
S I A DLVRYRRRHESLV
T I A DL I K Y R K $\square$ T E
TI D AL I E Y CRSRDTRV
T I A DL I A Y R V R N ERTV
T V K S L L A E Y R K A N E K I I

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

SI A DLVAYRVEHEG


T I K D L I


| S | S D D | $V$ | $R$ | $Y$ | $R$ | $R$ | $E$ | $K$ | $E$ | $K$ | $L$ | $V$ |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $T$ | $E$ | $D$ | $L$ | $I$ | $R$ | $Y$ | $R$ | $V$ | $E$ | $N$ | $E$ | $R$ | $T$ |

T $V$ E Q I A E Y R R R K E
T I A D L I D Y R L S S D S T V
TI A DLVAY I E K T E G KL
S I E DLL I K Y K M K Y K N

| T | I | A | D | L | H Y R S R H E T L I |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| S | I | E E | L I | E Y R K A N |  |



| $S$ | $I$ | $A$ | $D$ | $L$ | $I$ | $A$ | $Y$ | $R$ | $L$ | $A$ | $T$ | $E$ | $K$ | $T$ | $V$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $S$ | $I$ | $A$ | $D$ | $L$ | $I$ | $A$ | $Y$ | $R$ | $L$ | $K$ | $T$ | $D$ | $R$ | $T$ | $V$ |





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60
R E R CK Q|L|N|L|P ${ }^{70}$
80


 EAINFMAKYGRGLI CLLSMTGEKIDSLYGPDMVKNNTSMYQ E LVAFMVRYTSGYUCVPDPEDEADRGDLPDMFHTNQDARG





 EAINFMATYGRGLVCVPMEASRIHALELEQMVRENKESLK E NVNFMATYAKGLI CMPM SESSLAN QLMMSSPMVVENNTENNHK






 ENVNFMAKYARGLMCII PMTRDYTKKLGLSSQMSLYNTDEHT


 ENVNFMATYGKGLI CMPMSGDLCRKLGLTQMVADNTDNHE



 ESINFMAKQGKGLI CMPDEKKIAENLKFHPMVSNNTDNHE

 EMVNFMLEAK GMI CLAMTNEWANRLGLEMQVEKNTESMG



 A DINFMATHGRGLI CLTLT P K L L V D Q L A L P M MVVENKSPYG

 QV I N F M V V T E G R G L V C C L P I T A A E R A E E E NVV N L $\quad$ M A S R A K Gll D II N F M A R F A R G L V C L

 ENVNFMASYAK GLI CMPMEEE LCEEKLDDLE QMVKVNTND H C

 E AIN F M A K Y G R GLI C L S L VP E MVID R L R L P M M V S H N L S Q F Q EKMAF LVKHSSSGFVCVPLSTERADALDLQPMVPHNTDRHG
 EKVNFMATHAK GLI CVVSVTK ETANRLLQLNPMVVSNTSSSYE
 AKMAF L VR Y T S GLI CAP I S P E LTT T S L S L P QMVVVENA DP K G




 E D DN F M A R F G R G L I CLLTM
 E A I N F M A K Y A R GLI C L P L G P S L V D K L D L P L M T Q R N G S K F G
 D H L A F MVVR H TS GIV CMPMLA DRLD A LRRLPQMVADNNESHR E A I N F M A K Y GRGGLI CLT LTP ERCRRQLEL HPMVSRN GTP H G
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 A A I NFMAKHGRGGL CLLA L T GERV E QL GGLRLMAQSNASRHH



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UniRef90 E5Y4B1 UniRef90_UPI00037EAEF2 UniRef90_L7UA38 UniRef90-V2GSH8 UniRef90-K5ZMA3 UniRef90_R7J2A5
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SQPGH|I FPVVMAQPG|VLTRAGHTEAGCDFAR|LAGFEPAA|V VSPGHIFP:RARSGGVLVRAGHTEGSVDLARLSGLNPSGV
 VRPGHVFPLRAREGGVIVRSGQTEGSVDLARLAGLNPSGV SRPGHIVPLRAKSGGVLRRPGHTEASVIDLAVLAGCRPAGV KRPGHVFPLVAKRNGVLERPGHTEAAVDLAKACGADPAGI TKPGHIFPLRAKVGGVLRRPGHTEAAVDLARDAGDRPAGA SSPGHVFPLVAKPGGVLRRAGHTEAAVDLAVLAGASPAGV

 $V T P G H I F P L A A E P G G V L V R A G H T E A A V D L A T L A G C K P A G V$ VQPGHI FPLRAQAGGVLVRAGHTEAGCDLAELAGLTPASV VRPGHIFPLQAVRGGVLRRAGHTEASVDLARAAGLRPAAV
 NRPGHDFPLRYTQGGVLKRTGHTEASVDMCKLANLQPVGV RKPGHIFPLVAKRGGVLRRAGHTEAAVDLARLAGEPEVGV VSPGHVFPLVARDGGVLVRAGHTEAAVDIARLAGVNPAGV
 $V S P G H V F P L A A R D G G V L V R A G H T E A S D D I A R L A G L R P A A V$
 ARPGHVVPLRARDGGVLRRPGHTEAAVDLALLAGMRPSGV RKPGHIFPLDAKEKGVLERKGHTEAAVDLSRIAGFSEVGV KRPGHMFPLEAVDGGVLSRNGHTEATVDLMRLAGLKPVGLL ATPGHVFPLRARDGGVLVRAGHTEAAVDIARLAGLNPSGV VQPGHIFPLDSQNGGVLTRAGHTEAGCDLARLAGFEAASV $V Q P G H V F P I$ AARPGGVLVRAGHTEAGCDLAALAGLTPASV
 RRPGHMFPLTAVPGGTIERNGHTEATVDLCKVAGLIKPCGL NRPGHVFPLKYREGGVLKRAGHAEASVDLAVLAGLTPVGV VQPGHI FPLRAREGGVLTRAGHTEAGCDLARLAGLSPASV VSPGHVFPL $\square$ AREGGVL $\square$ RAGHTEAS DDLARLAGLNPAAV VMPGHVFPLKARKGGVLQRPGQTEAAVDLARLAGLKPAGV RRPGHVFPLVAKEDGVLERLGHTEAAVDLAKLSGFKGAGV TKPGHVVPLRAKDGGVLRRPGHTEASVDLAKLAGDRPAAV ARPGHI FPLRARQGGVLVRTGQTEGSVDLARMAGREPAAGV VSPGHVFPLVARDGGVLVRAGHTEAAVDISRLAGLAPAGV RVPGHIHPLRARDGGVLQRVGHTEAAVDLARLAGCRPAGV VRPGHVLPLQAREGGVLRRPGHTEAAVDLARMAGLPPAGA
 ARPGHVFPLRARKGGVLVRAGQTEASVDLARMAGLVPAGV $\square R P G H M F P L D A R E G G V L T R S G H T E A G V D L A K L A G L A P A G I$ NRPGHVVPLRARRGGVLVRQGHTEASVDLARAAGLRPAGV KRPGHVFPLDAQKGGVLKRAGHTEAAVDLARLAGLKPAGV VSPGHVFPLRAREGGVLCRTGQTEGSVDLARLSGATPAGV VTPGHVFPLAAKSGGVLVRAGHTEAAVDIARLAGLNASGV VRPGHI FPLRYREGGVLRRRGHTEAAVDLARLAGLAPAGV TRPGHIVPLRARAGGVLARDGHTEAAVDLSRTAGCAPVGV RRPGHMFPLIANTGGVLSRPGHTEAAIDLARLCGASPAGV

 TRPGHVFPLRAVDGGVLARPGHTEAADDLARMAGRYPAGA RRPGHMFPLKAKKAGVLERTGHTEATVDIVKLAGLKPCGLL RRPGHVFPLVARAGGVLRRAGHTEAAVDLARLAGLEPAGV QRPGHIFPLIAKKGGVLKRAGHTEAAVDLAKACGSQGAGV VSPGHVFPLRAKKGGVLVRTGQTEGSVDLARLAGMRPAGV LRPGHICPLRARPGLLRERVGHTEAAVQLCVLSGLQPAGA ARPGHVFPLRARKGGVLVRAGQTEGSVDLARLAGLKPAGV VRPGHIFPLDAKDGGVLVRTGHTEGSDDLCKLAGLNGEAV
 RRPGHMFPLIAKAGGVLVRNGHTEATVDLMRLSGLDECGLD ARPGHVCPLRARSKGVLRRAGHTEAAVDLARLAGLQPVAA RRPGHILPLQAKVGGVRERRGHTEATVDFCRLAGKFPAGV RRPGHVFPLRADEGGVRARRGHTEAADDRCRLAGKRPAAV
 TRPGHVFPLRARDGGVLVRVGHTEAAVDLTRAAGLEPAGA VQPGHI FPLMAQPGGVLTRAGHTEAGCDLARLAGVEPASV VVRPGHIFPLVARDGGVLMRSGHTEAAVDLARLAGLPPVGV
 LRPGHI FPLRYREGGVLRRAGHTEATVDLSRLAGLGPAGI VQPGHI FPLTAQPGGVLMRAGHTEAGCDLAACAGVTPAAV VSPGHIFPLMARDGGTLVRAGHTEAAVDIARLAGLIPAGV
 RRPGHILPLQAREGGVRARHGHTEAAVELCRLAGKQLAGV VQPGHVFPLRARPGGVLERAGHTEAAVDLATLAGLHPSGV
 TTPGHVFPLLAREGGVLVRAGHTEAAVDLARMAGLNPAGV RRPGHMFPLES REGGVLVRTGHTEATVDLAVLAGLIKPSGL


210
S|I E D L I $|R Y R V Q N E K T| V \mid$
TII E DI I K Y R TRYE S L V

| $T$ | $K$ | $D$ | $L$ | $I$ | $Q$ | $Y$ | $R$ | $H$ | $R$ | $K$ | $D$ | $K$ | $L$ | $V$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $T$ | $S$ | $D$ | 1 | 1 | $R$ | $Y$ | $K$ | $M$ | $K$ | $D$ | $G$ | $K$ | $L$ |  |


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



S I A D L V A Y R R R S E H H H
TI K QL I E Y R L Q H E S L
S I A DLV A YRRQR
TVADLI AF
S I E DL I A Y R R R VEP A V
T I A DL I R Y R L E RE H I V
TIAA L I EHRNNHNEKL V
T I E DL I R Y R NRS D S L I

| $T$ | $I$ | $K$ | $E$ | $L$ | $Q$ | $E$ | $Y$ | $R$ | $K$ | $V$ | $Y$ | $D$ | $Q$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $S$ | $V$ |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $S$ | $Q$ | $D$ | $L$ | $I$ | $T$ | $Y$ | $R$ | $I$ | $N$ | $H$ | $E$ | $T$ | $L$ | $I$ |


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

SI A DLI AFRKASEVLV
A I A DL I A Y R R Q H D R F V
T I G E L V N Y R R R T E K F I
T I A D L I A YRRRTERHV

S I A D L I A Y R K R F D K L
T I D DL I L Y R K N N E K L V

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

T I T D L I E Y R N N T E T T I
TI A DLI HYRREHESLV

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

TIAKLIQYRKEHE
TI A DLVRYRRKRDKLV

| $T$ | $A$ | $D$ | $L$ | $H$ | $Y$ | $R$ | $L$ | $S$ | $T$ | $E$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $S$ | $Q$ | $T$ | 1 |  |  |  |  |  |  |  |
| $S$ | $E$ | $D$ | $L$ | $A$ | $Y$ | $R$ | $L$ |  |  |  |
| $K$ | $N$ | $E$ | $R$ | $D$ | $V$ |  |  |  |  |  |


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

T I A D L V K Y R K E N
S I A DLL I E WRRKKHEK HV
T I A DL I A YRS LHEQS I
$S V A D I$ I R Y
TI A DLI E Y R R R S E S L V
T I A QL V A Y R L K K N E RLLV
T I A DL I A Y R R R F E K H I
S I E GL I A Y R R GQE
T I E DLV Q Y R L Q V E K K

| $T$ | $V$ | $A$ | $D$ | $L$ | $I$ | $R$ | $Y$ | $R$ | $L$ | $Q$ | $N$ | $E$ | $R$ | $Y$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $S$ | $I$ | $E$ | $D$ | $L$ | $I$ | $S$ | $Y$ | $R$ | $I$ | $R$ | $R$ | $E$ | $S$ | $F$ |


TI A DLI TYRQQRE
TVADLVEYRLRQDLLV

| $T$ | $I$ | $R$ | $D$ | $L$ | $I$ | $A$ | $W R$ | $R$ | $E$ | $H$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $S$ | $N$ | $N$ |  |  |  |  |  |  |  |  |
| $S$ | $I$ | $E$ | $Q$ | $L$ | $A$ | $E$ | $Y$ | $R$ | $R$ | $R$ |

S I A QL $\operatorname{l}$ I Y Y R R R T E P M V
S I Q A L I T Y L Q K N T S

|  | $Q$ | $A$ | $L$ | $Q$ | $D$ | $L$ | $R$ | $V$ | $N$ | $E$ | $K$ | $H$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $T$ | $V$ | $V$ |  |  |  |  |  |  |  |  |  |  |
|  | $A$ | $D$ | $L$ | $I$ | $A$ | $Y$ | $R$ | $R$ | $R$ | $T$ | $E$ | $R$ |


| T | I | A | D | L | 1 | $A$ | $Y$ | $R$ | $R$ | $R$ | $T$ | $E$ | $R$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| S | I | V |  |  |  |  |  |  |  |  |  |  |  |

T I A D L I A Y R R R T E R Q I

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

T I K D L I E Y R Y N

CI K HLL E Y M DEKK NLL

| $S$ | $V$ | $A$ | $D$ | $L$ | $S$ | $Y$ | $R$ | $M$ | $M$ | $K$ | $D$ | $T$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Y | $V$ |  |  |  |  |  |  |  |  |  |  |  |
| $Y$ | $S$ | $D$ | $L$ | $V$ | $E$ | $Y$ | $R$ | $L$ | $S$ | $H$ | $E$ | $K$ |
| $L$ | $V$ |  |  |  |  |  |  |  |  |  |  |  |


TI E DLVVE Y V E K T E G

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


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

T I E D M I A Y L N K T E G TVV

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


T I A DLL R C R L L H H E H T I

| $S$ | $A$ | $D$ | $L$ | $I$ | $A$ | $Y$ | $R$ | $Q$ | $R$ | $R$ | $T$ | $L$ | $V$ |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $A$ | $V$ | $R$ | $D$ | $L$ | $I$ | $R$ | $Y$ | $H$ | $L$ | $R$ | $H$ | $G$ | $Q$ | $L$ |

T I Q S L V E Y R R K H E K L V
TI A DLI E Y
T I A DL I HYRSRTE
TI A DLI AYRRTNERLV
SII R DLI H Y R L E HE R L V

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


| T | I | E | D | L | V | E | Y | V | E | $A$ | $K$ | $E$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| S | I | K | L |  |  |  |  |  |  |  |  |  |

TI A DLI AHRRRTESIV
T I K DLI R Y R M Q
TI A DLI AHRRRTER LV
TII A DLVRYRMDRNSLV



|  |  |
| :---: | :---: |
| UniRef90－DoZ2G2 |  |
| UniRef90 U2HW77 | EVAFMVRYS GYVCAPMLPEDLNRLGLPPMAAVNEDVRG |
| UniRef90－D2NTM2 | ELMGFMI RYTSGVVCAPLSNKRADEMKLPPMVTNNEDPKG |
| UniRef90－UP10003A28D57 | QMAFDVRHTSGI VCAPMTLAAAKRLRLDPMVSNNDAPGS |
| UniRef90 V5SER9 | DAMNFMAKHGRGLVCLLALTGARAEALELEFMMVQTKAARER |
| UniRef90－Q8KC35 | VNFITKEARGLLCVAIPMERARELQLEPMVQRNTSQHE |
| Ref90－R5B164 | ARGELCAPLTTKRCHELNLPHQVEDNTSMDG |
| UniRef90 $\mathrm{X1QJ}$ | GLI CLPMVGKRLDELDIPLMVRDNTSKFS |
| UniRef90 R7） |  |
| UniRef90－A0A059FVB2 | Q |
| UniRef90－F4S0B2 | MVENTDPHK |
|  |  |
|  | k |
| Uni | L A L MVA SNTDA G |
| Ref90 A5UR |  |
|  | G |
|  |  |
|  | C |
| 4 BOV |  |
| UniRef90 A6Q9D7 | E |
|  | 俍 |
| UniRef90－S2L7 | MATHARGLI CLTLSGARCEQLGLAPMVENNGASFA |
| UniRef90＿G4RBW5 | GIVCAPI TGERAAKLRLDPMVASNDSAHS |
| UniRef90－12FJ01 |  |
| P1000 | S |
|  | S |
| UniRef90－LOL | Q |
|  |  |
|  |  |
| 6M | MVDENTDNHS |
| M6 | － |
| UniRef90－Q9CGU7 | VNGMASAAKGLICMPMSAANVKNLGLEAMVEKNTDNHG |
|  | K |
| UniRef90－Q5HNE3 | G |
| UniRef90－A0A022LII9 | D |
| UP100036DFB |  |
| D8 |  |
|  |  |
|  |  |
|  |  |
| UniRef90－O5A | G |
| UniRef90－W3ANC． |  |
|  |  |
|  |  |
| UniRet90＿UPI0002D9E437 |  |
|  |  |
|  |  |
| UniRef90－UP10003670 | EAI NFMARHGRGLICLILTADRVDALGLKLMVSNNASRHE |
| UniRef90－FOGWQ0 |  |
| UniRet90＿UPIOOO39589F7 |  |
|  |  |
|  |  |
| UniRef90＿B9KYF8 | G |
| UniRet90－X2G |  |
|  |  |
| UniRef90－G9AGI | 俋 |
| UniRef90－E0XCR2 | DVVNFMARYARGLI CLALTPQRVSHLKLSAMAQSNDAGLQ |
|  | MATHGRGLI CTPITAKRAEELDLPLMVQKNNELHH |
|  | G |
| UniRef90－UP100034C46A4 | R |
| 003 | （ ${ }^{\text {a }}$ |
| UniRef90－R8ASH7 |  |
| UniRef90 D7VoY9 | LQPMTGHNTDKFG |
| UniRef90 ${ }^{\text {C } 1 \text { B7G7 }}$ |  |
| UniRef90－D3QJ42 |  |
| UniRef90－UPIO003B488 | － |
| UniRef90＿W9C | DWMAWTIRHSSGYLCAPMPGDVADRLELPLMVADNRDPLR |
| $118 k 50$ |  |
| 29 |  |
| 4P219 |  |
| P10004656 |  |
|  | VNFMTKYGRGLICVPDTEERALELDLHAMATNNTDTYG |
| UniRet90－D1 | GLMCVPMAPK AEKLQLSQMTSNNTDPFG |
| － |  |
| Ref90－B9NP32 |  |
| A5F159 |  |
| 隹ef90－A5F159 | M RECSGVCLCLTEAQADRLALPLMVVNNNSANQ |
| UniRef90＿V8D1H8 |  |
| Uni |  |
| Reef90－UPIO00370D443 | R |
|  |  |
| ef90－13DG80 | Q |
| T7 | （LASEARGLICVAVTKDLANRLELSPMVQRNDSAHE |
|  | EKMAFIDRHTSGIVCTPMPYTEANRLHLNDMVASNES\HS |
|  |  |





A|l| R D|LI A Y R|L|K Q E S M/V
TI EDLVVAYRLNQQELV
Sil EQMI QWRRRNEMQV
SI EDLI K Y
SVSDLI A WRQRTEKLI
T I E DLI A YRLLQHDQLL

T I K DLVA YRMQRSKLV
SI R DLI DYRLR
TI A DLI A YRYRHERLV
S I EGLVRYRRRHELHV
TI A DLIHWRRENDR
T I E DLYHYR LKKERQ

T I QDLI Q Q R R K Y D QL
A $A$ A DLI AYRRRQER
AI ADLI RYRRATEQLV
TIADLVEHVEKTEGKL

Yi S Di VEYRLLANEKLV
SVAALARYRRREEQHV

SVADLI A YRQRREKLV

SI AELTAWVRQH
TI EALIEYCREDDK
TIK K L V DYRKKT
Y 1 S D 1 V AYRMQSESLV
TIADLI KYRVKNDSIV

TI RELQRYRRQHDQFV
TI EDLIAHLQ
TI K SLVAFRKAVE
T I EAA QDWRRAHEVQV
S I DQMI E WRTKHD
TVDDLVAYRRQHET

NI A QLLVEYMLSK
TI KDLQTY YRDNEKHV
TI RDLIAYRLRRD
TIS DLIRYRFSRETVV
T I EDLQKYMKKH


TVKEIQEYRKNDE


HVADLIAYRLVHER
SI DALATYRRQH
SVEMLVEFRKNLEDKL
FI S DIV E YRLANERLV
TI KDLI A YVRRQES

TI K DLI DYKRK
SVAELI AYRMK
S V E QLA A Y R
T I EMLKRYREEKE
T A DLVVQYSLTES I I
TI EDLVAYREA
TI DDIVRYRQLEDTPV
SI A DLRAWRSQTEGTV
S:I KQU S E YRHQHDDQV



TI KDLVEYRIRH
TIKDLIKYRKDN
TVEDLVQYREK
TIKELQEYRK
SI E DLVAY
TI SDLI AYRSRNDNLV
SI EDII NYRQ
T: EDMVQYR DQFDLKL

SI E ELVTYLTANQEL

T:I K SLI EYYKEH
TI E DLVEYR $\quad$ KK Y N K
Y I S D
SVSSD S I DWRQREEHEI

UniRef90_C4K8P2 UniRef90_S5RPS5
UniRef90_F0XGB8 UniRef90_F9Y8Y2 UniRef90_UPI0003B3754B UniRef90_C4LDD2 UniRef90_UPI000373F834 UniRef90_UPI0002D9C478 UniRef90_D0LW49 UniRef90_W4K0K8 UniRef90_M2XUMO UniRef90-J7QIH6 UniRef90-IOWKR3
UniRef90-H5Y4L3
UniRef90-D4ZF24 UniRef90_D4ZF24 UniRef90_UPI000470D499 UniRef90_E4SYT5 UniRef90_U7D6U4 UniRef90_UPI00035E4894 UniRef90_P16448 UniRef90-A5DHJ1 UniRef90_V2TVS0 UniRef90_UPI0001FFE7A5 UniRef90_I4X775
UniRef90_D3HCD1
UniRef90_F9S6Z4 UniRef90-A0A059LN23 UniRef90-M3CHJ7 UniRef90_Q05SZ4 UniRef90_H6RJM9 UniRef90_UPI0003FCC08E UniRef90_UPI000262AEEE UniRef90-D3DYM1 UniRef90_UPI00041A7722 UniRef90_D5GB48 UniRef90_A0A024QHR1 UniRef90 F5XQP4 UniRef90-UPIO0036E40E0 UniRef90_UPI000345C717 UniRef90_C7LPD7 UniRef90_R5SWD6 UniRef90_UPIO0040D9628 UniRef90_UPI0004419240 UniRef90_F4H9Y6 UniRef90_K1ZGV9 UniRef90_D4H9F8 UniRef90_D2R1R5 UniRef90_Q6FQB7 UniRef90_C6XHT9 UniRef90_F2TVP0 UniRef90_Q5B1T3 UniRef90_UPI00047452BD UniRef90_UPI000413E06A UniRef90_UPI00035D9F4E UniRef90_D1BH22
UniRef90_UPIO00255E50D UniRef90_C1BB54 UniRef90_Q255Z7 UniRef90_U5YN28 UniRef90_F2BY89 UniRef90_M5QY48 UniRef90_Q7UIK1 UniRef90_UPIO00255CEAC UniRef90_UPIO00456012A UniRef90_UPI0003C7FA4A UniRef90_E5AL26
UniRef90_Q9Z734
UniRef90_K2BUI7
UniRef90_D1Y1F6
UniRef90_H4GJP6
UniRef90_D1CIT3
UniRef90_Z9JPT2
UniRef90_W8H573
UniRef90-A0A037XNM8 UniRef90_UPIO0035EBB43 UniRef90_A9UQU6 UniRef90-N1JKM7 UniRef90-R2SU14 UniRef90_A0A031FNE0 UniRef90_K6WBW2 UniRef90_UPIO003B404DE UniRef90_Q3A668 UniRef90_LOREN5 UniRef90_UPI0003B5BD2A UniRef90_UPI000477D32F UniRef90_A0A024J6X4 UniRef90_UPIO0030CAA53 UniRef90_V2HKK7 UniRef90-UPIO00467CE1D UniRef90_W0TFQ0 UniRef90_U6B4W6
UniRef90_W8K0W3

70
 N A $\square$ N F M S K Y A R G L I C M T L T E K H C D Q L K L D M M T K K N N S S F G






 EQMAMLI REGSGIVCLCLPEEKVQELGLPMMVADNQDABG
 DAVNF MATHARGLI CLLDLEAE QLDRLDDLPMMPRRGF DPRG E K I N N M T K H A R G L L C T S EKVNFMARYGRGLI CAACDAPVIDRLQLPMMTSNNTAYLE K KINFMMATHGRGLI CLAIDKNKAKALNLSLMPSRNSSRLQ
 EKMAFLVVRHSSGYVCAPLSTERADKLELHPMLKDQTDRHG E T M A QM R R D G S G V C L CL T E A LA D H L EL P PMV DD N S S Q F K EQMAFLVRHTTGIVCTPMSHERADTLDLPDMVSDNQDAHG
 D NVNFMTKHARGLI CAPVSKNIAERGLEVPMSAENTDAHG




 E QMA L LI I R E G S Gl V C L C L T Q DKA D A L E L P L M V E N N T S T Y G

 D L L G F V I R H H S S G L M V E WV A WTVVR WT S GF L C A P M P A D W A D R L D L P P P M V E N N E D A R G

 A LM G WT DR Y S S GVVVCVP LT GE RADA L G L P P MVVAVN Q D A K G EHINFMAKHARGLI CMPMTRERCETLLKLPDMAPRNGSGFG

 RWV GWMVRHTS GYLCAPMTE ERADQLDLPLMWPAS QDPLR
 EHIAFLVVRHSSGYVCTPMSNK』ADRLDLPLMRDNDDDRHG


 STTA WV DRHSS GYL CAPMTNERADAL ELDPVMVEQNQDSDR
 E WV A WT IIRHSS GYLCAPMPASRADALELDPLMVPQSQDPRR



 | $E$ | $N$ | $A$ | $R$ | $M$ | $A$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $E$ | $E$ | $A$ | $R$ | $G$ | $V$ | $C$ | $M$ | $P$ | $M$ | $D$ | $E$ | $K$ | $I$ | $V$ | $D$ | $K$ | $L$ | $R$ | $L$ | $R$ | $P$ | $M$ | $V$ | $A$ | $K$ | $N$ | $T$ | $D$ | $N$ | $H$ | $Q$ |  |
| $V$ | $N$ | $F$ | $M$ | $A$ | $L$ | $H$ | $G$ | $R$ | $G$ | $L$ | $I$ | $C$ | $T$ | $P$ | $V$ | $H$ | $A$ | $L$ | $I$ | $A$ | $K$ | $H$ | $L$ | $D$ | $L$ | $H$ | $P$ | $M$ | $V$ | $E$ | $R$ | $N$ | ELINF IL GGRGQLCVSVLPEVCKRLDETPVVPQNNAAD



 E K MT F L L Q H T T G V V C A A L S Q E R L L
 ENVNFMARFARGLICMPMSAAYAKRLGLPQMVESNTDNHC GKVNFMTKYARGLMCAPVGPE DAQRLALDPMMTADNTDPF G


 E WTA WTDRNTS GLLCAPMSGARADALELPPMVADNQDPKK Q NMAF LCRHSSGLLCAPMTAQRAKELELGPMVSDNTDRNQ
 E AVNFMTKYGRGLI CAPISEKIAYQLSLEEMTKNNTDTFG E WLA WT I R WS S GF L CAPMPA D WA DRLDDLP PMVEVNQDARS E WV A WT V R H T S G L L C A P M S E A R A D A L
 E QMA ML I R E C S Gl V C L C CL T E E K I K Q L E L P E W IA WMVRHTS GYLCAPMPNA DADRLALB LMTERSEDVRG


 ETVVTMVTHARGLLCAPMAPAVATRLGLHPMVAHGTDAFG A QMAFLVRYSS GYI CAPMSNEWADRMDLP LMMSNADDRHG


UniRef90_C4K8P2
UniRef90_S5RPS5
UniRef90_F0XGB8
UniRef90_F9Y8Y2
UniRef90_UPI0003B3754B
UniRef90_C4LDD2
UniRef90_UPI000373F834
UniRef90_UPI0002D9C478



 N R P GH V F P L R A R A G G V L TRRR G H T E A T I D L M K L A G L K P Y G V S R P GHVVVPLRARPGGVLARRKGHTEAAVDLAVLAAGABDAA


 R R P GHVVF P L R A R E GGGVLDRA G H T E A A A V D L L R L A G R T P V GV
 A R P GHVVY P L R A Q P G GV L T R R G H T E G T I D L M Q L A G L K P A G V




 R R P G H V F P L R A R D G GVVLVRA G H T E A T V D L L R L A G R E T V G V K R P G H I F P L I A K D G G V L D R T G H T E A A V D L A K L A A G S P P A G V HRPGHMFPLVGRSGGVLQRLGHTEASLDLARLAGSTAAAY ARPGHVFPLRARDGGVLTRRGHTEGTVDLMKLADLQPAGL

 VRP GHVVPLRY QP G GVVLCRPGHTEAA V DLARAA GVQPAAV

 HHP GHVVP L R A RP G GVVLERD GH T EA T I D L M RLA G L L N P C GV






 VSPGHIPFPLMAQPGGTLARAGHTEAACDLARMAGFEPSGV HRPGHI FPLRANDKGVLGRRGHTEASVDLAEMAGFKRAGV

 L K P G H I C P L RA K D G GVVITR Q GH T E A A V D L C R L S G L P E V G V
 $R R P G H I D P L Q A K A G G V R Q R K G H T E A A V E F C R L A G K A P A G V$




 VRPGHFFPLVGTPGGVLKRAGHTEAALDLMRLANMQPCGV

 VR P G H V Y P L L A K E G GV L R R A G H T E A A I D L S R M A G L A P V G V








 $\square R P$ GH V DP L R A R P G G V L E R P G H T E A A V D L C S L A GVVPA V G V




 $H R P G H V F P L R A R E G G V L E R E G H T E A T V D M M T L A G L N P C G V$








210
S I |E DLL I E Y R Q T H
T I S N L I C Y Y Y Y K Y E N I I
T I A DLVA Y LEQ T
S I H D A A E H RLLRHENLL
T I A D I V E Y R K DY D K L V
CI E D L V A Y LT ENAK
S I A D L I A Y R WR VE K L V
T I A DL I A Y RKA N
S I A D I I A Y R L Q R E R $\square$
$N V G M L V D W R R K$
S I E DL A Q H L R T R E T
SVSDLIAFRQAREKLV

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

TVVDDI I SYRKAREQ
TI E DIVEFR
T I E E I A D WCRA H
T I A ELQEYCR
SVA D I V R Y R R R T E T L I
R I E DL I A Y R L K K E S L I
T I E D I V D Y R
T 1
S I E E L V Q Y RLLR H
A I A D L V R Y R R A T E QL V
T I K D L V S Y Q Q EK S K
EVGD I ARYVSF QD S
T I E D I VQYRNQ
T I A DLVRYRE

S I E D L I Q Y R WL R E T L V
T I E ALLKEY I L KKK
T $\quad$ E QLL



| $T$ | $P$ | $Q$ | $L$ | $E$ | $Y$ | $R$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $T$ | $E$ | $V$ | $Y$ |  |  |  |
| $S$ | $E$ | $L$ | $V$ | $E$ | $Y$ | $L$ |


S $\quad$ G QL V E H R I K T E

| $T$ | $E$ | $L$ | $V$ | $A$ | $Y$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $S$ | $D$ | $E H$ |  |  |  |  |
| $S$ | $E$ | $D$ | $L$ | $E$ | $K$ | $Y$ |
| $R$ | $K$ |  |  |  |  |  |

S I E DLE EKYRK
T I D D D K E Y I L A
S I Q D L I E Y R K I HEKLI
S I A D L I I $H$ L L T TR D G
T i A D L I HYRMDHERTV
TI E DLVAYKLSH
A I H D L I A Y L K T R K T H
T I DQL AQWRQAHD
S I E QL I A HRRVSEKL V
T I Q S L I K Y $\square$ K E N
S V Q DLI A WRK K K E
T I A D L QVY VR D Q Q Q Q
T I E E L V Q F R K R N D Q I I
TI A DLVAFRRKS DK
K I D DL I A YR L N REK LI
T I E D L I A WRREHDPVV
T I D E L V A HR QRYD R
T:I TAD V R Y R R ERESSSVV
S I S DL I A Y R R L S E R L V
S I A DL I E Y LR

| $N$ | $Q$ | $D$ | $L$ | $E$ | $Y$ | $R$ | $K$ | $K$ | $H$ | $E$ | $K$ | $I$ | $I$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $T$ | $I$ | $E$ | $A$ | $L$ | $Q$ | $A$ | $Y$ | $\square$ | $N$ | $K$ | $Q$ | $T$ | $T$ |

SI E HLL A HRRVSEKLV
S I A D L V
TI E LLKKKYREEQE G
KI E DL I A Y R L K K E K L I
T I E E L V D F R R A L E R
P $V$ V
SI E DI I T Y R L C Q E NL I
TI RAVQEYRKRHETFV
$T V A B I Q T Y R R$
$T V Q E V A D A R$
SI E DLVAHRR
TI E ELVVNYRRHT
TIAADLI EYCRSADSL
TI E QL I N Y RLA H
$N V E$ QI I A F R R
CI E DLVA F VEA
T I D E L A K F L A K K E Q M
T I E QL 1 A HL L A S D G
TII A EL I A Y RRVG
T:I A GLI I GY L N E
S I E D L
TVV D D I I N Y R I Q
TVAALIDWLEQR
SI E D I R L Y RLAA HEK I I
T I E DLVKY DEAN
TVA DL I A Y RQRKE L L V
T I A ELVAWREQ
SVQQQRDYRYRH
S I E E L V D Y DQKH Q

UniRef90_G8ZU18 UniRef90-TOXWV1
UniRef90-R6CZM2 UniRef90- X0P9K6 UniRef90_C5DR87 UniRef90-A0A023D3E8 UniRef90-H5UKN1 UniRef90-G0S8Y7
UniRef90_A9G0X5 UniRet90_A9G0X5
UniRef90_UPI000237ABAC UniRef90-UPIO00364CA03 UniRef90-W1PE92 UniRef90-Q6AQE3 UniRef90-J9WAT8 UniRef90-R6G8G0
UniRef90-W4UTX9 UniRef90_UPI00029AFAA3 UniRef90-L0J1G5 UniRef90_LOPBV3 UniRef90-UPIO003B35A42 UniRef90_KONDM4 UniRef90-UPIO003776D5C UniRef90_X1KUK3
 UniRef90-J7LTA6 UniRef90_UPI0003B44E6E
UniRef90_UPI00037FE3E?
UniRef90-I2AWV5
UniRef90-D7GGI6
UniRef90-K9NGD8
UniRef90-R5G7T3
UniRef90_C7NJ20
UniRef90_UPIOOO2493229
UniRef90-M5EEA8
UniRef90-B8KNP7
UniRef90_G4EMM2
UniRef90-H1ZAQ1
UniRef90_Q9FN89
UniRef90-Q13BN8
UniRef90 S5DLR9
UniRef90-S5DLR9
UniRef90 G1Y2C7
UniRef90-D5QE12
UniRef90-W4T9E7
UniRef90-Q9L6K8
UniRef90-C7MEL3
UniRef90_G4HWG9
UniRef90-J2QDM6
UniRef90-LOLY48
UniRef90_-14YE89
UniRef90_G8JQ20
UniRef90-G7VS82
UniRef90-K9DH80
UniRef90-UPIO0047C2ABE
UniRef90- X5UZF4
UniRef90_A0A022PXK1
UniRef90_D2Z3Z7
UniRef90_UPI00047CA7C7
UniRef90_UPI00047B58A0
UniRef90-J5TIQ2
UniRef90_UPIO0047AF2A7
UniRef90-R6VRH6
UniRef90-19AMR1
UniRef90-TOKNF7
UniRef90 A1AYH4
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UniRef90-G9WA15
UniRef90_C4XL77
UniRef90_D3L918
UniRef90_A6C5C2
UniRef90-D4G8G8
UniRef90 V4UJN1
UniRef90-COR2Y0
UniRef90-D1B0K1
UniRef90-IOZ8H3
UniRef90-M4QPK3
UniRef90-K7VW96
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UniRef90-R9ALL1
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UniRef90_UPIO002F30900
UniRef90_UPI00035D5F5A
UniRef90-G8RIG3
UniRef90_W6MQ96
UniRef90-A0A024HKU8
UniRef90-X8ASK2
UniRef90-Q03XZ0
UniRef90-T2RFX5
UniRef90-F8DRK4
UniRef90_A0A034TPE7
UniRef90_A1TC77
SI EEAI ER円RNGKMII LSDDEDRENEGDFVIDAAFATPFM ${ }^{R}{ }^{R}$
 NQFVIVMDDEDRENEGDLI CAAAGI T T


 R V E R A L A E L L K A G K L I I I V AA D S V V D R E A E G DV I G LAA E K V S A
F

F
 LD S $\quad$ E A AL D D F R V GRF V I I M D D E T R E N E E RVVK N ALL L S L L R A G K P V V I V

 LADP T ALE ELLR R GKPVVVADDEGRENE

ENIGNADQALKQGKPVVVLDDYDRENE GDLBAAEAAT

 GRPVLVLDDEDRENE GDVI LAAAQTLGT

| $L$ |
| :--- |
| $F$ |
| $L$ |
| $L$ |
| $Y$ |

$T K V E N A D T E L K K$

$\square E R V E Q A 〕 K S V Q Q G N G V L L L$
FSAVERAVAADRAGTMVVVV MS R L E R A A A R A GTMVVVVD S D D R G GEGALVMAA QHVSA I



UniRef90_G8zU18 UniRef90-TOXWV1
UniRef90-R6CZM2 UniRef90- XoP9K6 UniRef90-C5DR87 UniRef90-A0AO23D3E8 UniRefefo-H5UKN1 UniRef90-G0S8Y7
UniRef90 A9G0X5 UniRef90-UPI000237ABAC UniRef90-UPIO00364CA03 UniRet90-W1PE92 UniRet90_- 6 AQE 3 UniRef90-J9WAT8 UniRef90-R6G8G0 UniRef90_W4UTX9
UniRef90 UPIOOO29 UniRef90-LOJ1G5 UniRef90-LOPBV3 UniRef90-UPIO003B35A42 UniRef90-KONDM4 UniRef90-UPIO003776D5C UniRef90-X1KUK3 UniRef90-J7LTA6 UniRef90-UPI0003B44E6E UniRef90_UPIO0037FE3E2 UniRef90-I2AWV5 UniRef90-D7GGI6 UniRef90-K9NGD8 UniRef90-R5G7T3 UniRef90-C7NJ20 UniRef90-UPIOOO2493229 UniRef90-M5EEA8 UniRef90-B8KNP7 UniRef90-G4EMM2 UniRef90-H1ZAQ1
UniRef90 O9FN89 UniRef90-Q13BN8 UniRef90-S5DLR9 UniRef90-G1Y2C7 UniRef90-D5QE12 UniReffo-W4T9E7 UniRef90-Q9L6K8
UniRef90 C7MEL3 UniRef90_G4HWG9 UniRef90-J2QDM6 UniRef90-G2EDB9 UniRef90-LOLY48
UniRef90 14 YE89 UniRef90-G8JQ20 UniRef90-G7VS82 UniRet90_K9DH80 UniRef90-UPI00047C2ABE UniRef90-X5UZF4 UniRef90-A0A022PXK1 UniRef90-D2Z3Z7 UniRef90-UP100047CA7C7 UniRef90-UPIO0047B58A0 UniRef90-J5TIQ2 UniRef90-UP100047AF2A7 UniRef90-R6VRH6 UniRef90-19AMR1 UniRef90-TOKNF7 UniRef90-A1AYH4 UniRef90-W1TUC9 UniRef90_G9WA15 UniRef90-C4XL77 UniRef90_D3L918 UniRef90-A6C5C2 UniRef90-D4G8G8
UniRef90 V4UJN1 UniRef90-COR2YO UniRef90-D1B0K1 UniReffol 1028 H 3 UniRef90-M4QPK3 UniRef90_UPIooo219386C UniRef90—15B2M9 UniRef90_10HSOO UniRef90-R9ALL1
UniRef90-D1XVN1 UniRef90-UPI0002F30900 UniRef90-UPIO0035D5F5A UniRet90-G8RIG3 UniRef90_W6MQ96 UniRef90-AOAO24HKU8 UniRef90 X8ASK2 UniRef90-OO3XZO UniRef90-T2RFX5 UniRef90-A0AO34TPE7 UniRef90_A1TC77






 A A I N FMATHGRGLI CLALTEDQVDRMGLPDMATRPGARRS






 EKMAFMVRYTS GLVCVVPLTAERLDLLDI PMMVACNTDKMK



 E LLL A A F M I
 A TVVGWMV R H T S G Y L C A P M T G E R A D H L G L P L
 Q SI A L M I R E C S GI I CL C L K P K K C Q E L N L P QMV Q H NT CVN N
 E TVVNKMI T H A R C L L C A P M T R R Y Y A D H L EQMAFLRRS


 EKMAF I R H T S GIVVCAPDTMMDARRLRLDDMDVANDSNH T D H DN F M I T F G K GLLVACA PI S S T DA K K L E L
E
 $\begin{array}{llll}\text { Q D M A L L } \\ \text { E Q M A L M } & \text { R E C } \\ \text { R S C }\end{array}$ ELIGFAVRMVGLCLTEDKADYL





A







 E Q M A L T I R H G S G I V C L C ITTE D R R K Q L $\left.\begin{array}{ll|lllllllllllllll|l|l|lll|l|llllllll}P & Q & M & A & M & L & I & R & E & C & S & G & V & V & C & L & C & L & T & E & E & K & A & R & Q & L & D & L & P & P & M \\ V & A & V & N & T & C & K & N & G \\ E & N & M & N & F & M & V & T & N & A & R & G & L & V & C & V & P & I & T & S & A & L & A & K & R & L & G & L & K & A & M\end{array}\right)$
 Q Q M A L T I R H G S G livell C I N E E K R K Q L K L P M MV E E N S S V F Q E A MA F IV R H G T GIVVCVM MK GE D LE R L E L P L M H K D N E E K L C E HMAF MV RYGTGVVCLAMTKFHMKRLGGNFMEKKNDGENH


 $\left.\begin{array}{llllllllllll|lll|l|lll|llllllll}E & Q & M & A & M & L & I & R & E & C & S & G & V & V & C & L & C & L & P & R & A & K & V & A & H & L & N\end{array}\right)$ E Q M A WM I




 S LVAFMVRYTS GYLCVPDDSA DCDRLGLLPMYAVNQDKRG
 EAI NFMAT YGRGLIDCMP DEKKA KVLNNLHPMVENNTDN HE

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



|  |  |
| :--- | :---: |
| UniRef90_G8ZU18 | L |
| UniRef90_T0XWV1 | V |
| UniRef90_R6CZM2 | A |
| UniRef90_X0P9K6 | Y |
| UniRef90_C5DR87 | L |
| UniRef90_A0A023D3E8 | S |
| UniRef90_H5UKN1 | V |
| UniRef90_G0S8Y7 | R |
| UniRef90_A9G0X5 | V |
| UniRef90_UPI000237ABAC | R |
| UniRef90_UPI000364CA03 | A |
| UniRef90_W1PE92 | R |
| UniRef90_Q6AQE3 | C |
| UniRef90_J9WAT8 | Y |
| UniRef90_R6G8G0 | R |
| UniRef90_W4UTX9 | S |
| UniRef90_UPI00029AFAA3 | V |

 R R P G HV L P L R A R P G G V R Q R R G H T E A A V VSPGHVVPLRARRDGVFEREGHTEGAVDLARLAGADPAAV RRPGHVFPLRARDGGVLARCGHTEAAVDLLSLAGREPVGV ARPGHMFPLRAHPGGVVLARAGHTEASLDDVVRMAGRAPAAV $R K P G H V F P L K Y R N G G V L K R A G H T E A S V D L V T L A G L K P L S A$
 $R M P G H M F P K V A R Q G G V L K R T G F T E A A V D L A V M A G L R P V G L$ SHPGHVFPLIA QENGVEERRGHTEGSIDLSRLAGLGDSAV
 NRPGHVLPLKAREGGVLVRQGHTEAAIDMCKLSGLHLGAA

 T R P G H HRPGHVLPLRARDGGVRERDGHTEAAVDLMKLAGLDPVAG ARPGHVLPLRARPGGVLARRGHTEAAVDLARLAGRRPAGV
 $V Q P G H I F P V Q A L P G G V M Q R A G H V E A A C D L T R L A G R Q P A A T$ V HPGHVFPLRAREGGVLERRGHTEGSIDIVSIAGLGETAV
 S R P GHMNP L R Y TP G GV L A R P GH T E A T I D L A K K L A G L P P A G L

 S K P G H $V$ I F P L R A K N G GVV L E R N G H T E G S V D A R P G H I $\quad$ F P L
 ARPGHVFPLRAHPGGLAARRGHTEATIVDLVRRAGRTPAGV
 A SPGHVVFPLDAKKGGVFERRGHTE GSVDLVKMANGGDDAD AKPGHVVPLRAKDGGVLTRRGHTEGTVDLMRLAELTPAGV $\square R P G H V L P L R A K A G G V L E R R G H T E A A V D L T R L A G L P A V G M$ SRPGHVVPI GARSGGVI ERDGRTEAAVDLVHLAGLLPVAV

 ARPGHUFPLRAHPEGVLGRPGHTEAAVDLARLAGLLTASGV
 RKPGHMFPLDARDGGVLKRAGHTEAAVDLARLCGSKPAGV VRPGHVFPLRATPGGVLARAGHTEGSVDLARLAGLQPAAV SKPGHIVFPLRARDNGVLERKGHTEGSVDLMKLANLDPEAV

 VSPGHVVPLRARPGGVLERRGHTE GSVDLAVLAGLDRPAAV HRPGHI FPLRAVEGGVLTRPGHTEAAVDLCRLAGCQPVGV TRPGHI MTLRYTPGGVRNRTGHTEAAVDLCYLADLPPAGL
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 VRPGH L LP L R A R S G GI F T R A GH T EA A V D L ME L A D L S P V A A NRPGHVFPLRAQAGGVLTRGGHTEATIDLMTLAGFKPAGV
 $V R P G H D H P L L A K Q G G I L R R A G H T E A T G D L L Q M A G L K P V G V$
 $N R P G H I F P L V Y R E G G V L K R A G H T E A S V D L A V L A G L D E P V A V$ ITPGHVFPV DAHKGGVAQRAGHTEASVEMAKLVGFDHSAV $V$ S P G HVVF P L R A RENGVLLE R E G H T E A S V D L M K L A G L S P Y A V RRPGHI NPLRRSQPGGVLDTPGHTEAAVDMCRLAGCQPAGA A QP GHLFPLRARPGLLSERRGHTEGCVEILKLAGMKQVGV R R P GHI F P L KYRNGGVLKRAGHTEASVVLVALAGLRPVVV

 NRPGHMVPL RCVVDGGTVNRQGHTESATDLADLABLDPAAGL
 $\square R P G H V Y P L D A H K D G L A A R G G H T E A G I A L A E L T G S Y P A A L$ RRPGHVVPVRAGDHGVLGQPGPPEAAVDLARLAGRRPAAA
 $\bar{V} S P G H V F P V R A D P G G V M S R A G H A E A A C D L A R L L A G L Q P A A A L$
 R R P GHI F PLIAKS G GVVLKRVGHTEAAI DL SRLA G NHPGHI QPLYAQPHGLRDRIGHTEAAI DLAYLAGKAPVAV ARPGHVFP L RARPGGVMTRRGHTEGTIDLMQMAGLQPAGV


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1 20 30

$P$ I A Q All A A L G I G Q RVVV
VRHVLAELAA GRPVVVVHGEE GEKLGDLVLPA QLCAT P IIEKAL EALKNGEDVLVFDSDNRERETDMIVAAEFMTP P I
 $\square$ N T I

V VDDERRENEG $V \vee V H D H A A Q G \quad Y L A A E A A T S$ $M N I V E K A M Q A L K N G K \| V L V Y D A D D R E G E T D M V V A S E K \square T S$ E E LIF S ELR Y GRPVLLDDNSAGSAKGLVVAAAELCTP S S I A K A
 FAPVVDKVVEAAA QGKAFVLLDDAERENEGBLVVLAADRVSA
 $R V R R A L T A M A A G R P V V I T G G S D R D H Q G W L A F A A E A A T A$
 FHTVEE




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## $\prod D D A T Q A L R K G Q V I L L Y D Y D N R E R E T D L V V P A E F T T P$

 IDDDA T TALCREGKMILLYOFDDDREGETMDFAGRSDAVTP ENVKRALESLRQGKMULLFDMEGREEETDFADPADSVNP

VEDALEAFRDGDPVLVHDFADREGETD【VYPAAAVGP
VGRAVDAFRDGQPVLVHDAADREGEVDLIYPAPAVTA EKLRKS LDEGKPIVLID EDREVEADLVYPAEDI TP SSAEQAI NEFAT GNPVLI HDAADREGETDIIYPAATVDA
 EESLRAFRKGSPVLIVDFEDREGETDIA $\square$ PA $\square H V G K$

## EE $\square R R A \square L E G K P V V L I D D R \quad R E F E A D L I Y P A E \square A S A$

E GEADLADPAQE VAA V V I A G D A L R G G G D $\quad$ DD $D$ DAFTADRQGEMVLLYDFDDRERETDFAMRSDMITP VDDA $\square$ TAFRDGEPVLIYDDADREGETDVVYPATAVDA KARLNGRPIVLVD ERREKEADLVYPAELATS I ERGGEPVLVVHDAABREGEVDLIVYHAADVVTA
 MT TLE QCLLE QLRA GKSI LVLDDENRQNEADLVMAAQFVTT D SVVRAI EAFRAGEPI CVVHDAD DREGETDILYPATAVDP

 $\square E E \square R N S F L S$ GRPAVLDDEE RENEADLVFPAE IATP
ITR QALEALAS GKCVAI LDDSESREGET DLFFPAATTTP D S V A A A I T A F R N G D P V L V H D F T D R E G E T D D D F S R|V K VA I KA F QERRF CII L S E E E D EA DLACPA D GI TA

 QLLAFMVRHTSGYVRDALPESECERLNLPPMCHRD

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 A DINFMAAQARGLVCLLATEERRKQLKLPWMA NGSRKR E H I R R M R K D A G GLI C C A I HP E I A N R L G I P Y MVVD DY E AP Y D



 E HI R $\square$ M R K D G G G LI C TAA H P E F C K K L GI P F MVVD $\square$ N D $\square P$ Y D

 E AVNN F M A K F G R GLI C L T L T T E E R C E R L L N L S M M T T R N G T S Y G

 E S I A F F L V

 A T MA L M I R E G S Gl V CLLCLTPA HA K A L G L R P MVVEVNRSAF S A A $\square$ N F MAREAR GLI CLLTLTDEHCQRLGGLEQMVPAN GSAFA QDAHFFVVAGSGLMYCPMSPK LLDRLRIQLMVREHGENEP EAMKFMRKNGGGLICTTMKET DAAKI GLPFIEDFYREHLG
 ENVNFMATYAKGLI CMPMSESLANQLMLSPMVENNTDNHK K WTA W I VR HS S GLL CAPDTADRADALGLP PMVWCGADRRH


 ES F T F L L T Q Q V C GF P A V P CAAP E V L R R R L E

 K DVVK WMRKDAGGLI CVAVDPVASKQLRLPFMAELVREASK H WTA WLVRRTSGLI CAALPARRAEELDLPTMARDDDSNVE
 E QMALT DR HGS GIV CLLCITEDRRK QL DL P MMVENNTSAY G AEVARMRNDA G GLVVCVALPD DVAETMGLPBMDDVLDHPY D
 EKMAFLVRYSS GYVCVP LS E ERANQLELPPMLANRSDRHG EDVARLRNDAGGLVCVALPESVCETWELPFAQQLLDHPYD D A V A RLLRNDAGGLVCAALSHEAADAMDLPFDLDDTIDDHPYD



Q $\quad V Y Q L R R D A G G L M C V A \prod D P V A C T K L G \prod P Y \| V D V G D \prod P Y D$ K DI LRMRKDGGGLICTAIDPVVAAERLGLPFASDEIPYDRK

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D A VA R M R T D A G G LI CVVA LG D A VA DA F A L P F $\quad$ AA D E LDD H P Y D QTLNFMLQ A R GML CLAA D E E EA L LRRGFFK L P S K DN E SAVA QLRQDAGGLI CTAVSASVAERMSLPFLHDELSHPAAA A LV H WL R R NA G GLLCFVTTREVGEALGLEFLSEYYGAPYG

 E V VN F MLS

ES I LFAARVAS GLLCLALTSAKLKELEDDSLPSRYRATN E A I NVMA T H GR GLL C CLA V T P GRAA QL G L S L V N NP GTA R Q T G
 $D A V A R L R N D A G G L V C V A L A D A V G E A F G L P F L Q D A I D B C P D$


 QDAA Y F L R H T S GFF CVVAMPA ERTRT L G L P L M V V DP P HP L G

 A A V A H M R N D A G G L I C V V A V G D P V V A D A F G L P F L A A A I D D A P Y D
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UniRef90＿XIVAR5
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VTPGHVFPI DADSGGITKRAGHTEASVETAKLAGATGAAV VSPGHVFPLRARNGGVLTRRGHTEGSVDLARLAGLRPAAV VRPGHVVPVQVATGGVLGRPGPAEAALDLARLAGCRAAAV TRPGHVLPARSVPGGVLEFRGPAEAAVDLMSVAGLHRTCA VQPGHIFPVATLNGGLLDRTGAAEAGVDLASLAGLTPAAV NRPGHVFPLRARAGGVLERDGHTE KKPGHIFPLVAKDG
VSPGHVFPLVARAGGVLERDGHTESAVD【AVLAG保PAGV VQPGHIFPLRAREGGV
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RRPGHMFPLIAKRWCPRKKWTHRS
TRPGHLLPLRVVPGGVLEFPGQAEAAVDLCRLARLPPVAL ARPGHVMLLGAHADGLIGRDGHTEAVVELCKLAGLYPGGV

 | KRPGHI |
| :---: |
| $\mathrm{K} S P G \mathrm{~F}$ |

LLPGHVFPLAARPGLLADRSGHTEATVALCTAAGLPPVGV YAPGHVP LGARDG RRWGHTELSMLLAKAAGLPPAVA TSPGHVHLLDS SGLEKRRGHTELSTALVSMAGLDSSAT RSPGHMPLLRAAPGLLKDRRGQTELSVVLARAANITPAMV TRPGHVHPRAHSDGVLGRRRSAEAVIDLMRAAGLREVGA VRPGHVLPVRVAGCGVLKRRGSAEATVDLCDVAGLPPVGLI RTPGHVALLRAADHLVHDRKGQTELS 1 A AKMADVTPAMV NRPGHV
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$R Y P G H L P L L G G L G L \quad N K R K G H T E A S L E L V E M A G F K R Y A L$ ARPGHVMLLGAHPDGLIGRNGHTEAVVKLCQLAGLYPGGI



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STVK DLLLSHZ NGEELINYYL
R VS DLVHFRLANECTV
NGEELIN Y YM

 SI D DVATYRRMAEPHM RVTDLVDYRLNHSRTV

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T VR A LIA D Y R R A R Q
K\ADLGRYMKKREKLV
EGKY!IDD
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HTDDI SHRL
T TGALAEFLR
EGKDIVA
K IDDELLQYCLLHEPLV
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D L A DLK A WL
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EGKDILD
EGKEVVDYFNREMAKV
SVQDIVNYRRSTEVHV
EGQEIVE
HIDSVVHHRLFH
EGQEIVDAYEQWEQ

D G D R L
T I D DLAAHLLRNKDLV
$S V E S G 1 \square R Y R Q M T E S L V$
EGSELIA
DGDQLVE
EGADLVA
EGSEVIE
EGSEIVEYWNRTKN
$S \square A D L \square R Y R R K T D Q L V$
EGTEV
EGREVLD
TGDEVI A

S I A KLI EYRLQRESQ■
EGEILVD
T V A DI I A YRMRNESFV
EGSDLVA
T $\square$ REVWKEVVKRKSFV
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RGEEV
EGSEVLERCR
DGRT IVEYRKFRE
TTDDVWKEFVRRKQLI
T IADLDHYRIHNEQTV
TVGALAEFVR
DIAALIE
EGSEVLDRWEK
EGRRLVD
T $\square$ RDV
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A GQEI
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 ELLHFABRHSSGLLHAAAPSALLDDRLRVPDQPVLGAEDSG

 K S I Y T LiRKEAGGLICYATSNSEAKTLGLNFMAEELKRHYG $K K \square A Y \square R K Y A G G Q \square C F V S G R \square F R E A \square D \square P F G Q D T R K P R Y G$ AYVTFMMNDCRGQVQ\|ALKK PRYG
$S P G N N$ DKI NAMDNLGKGlVSTCI TEKKAKELHDPDMYQESSSSVI KEIAFMMKNCDELVRALPWET VSQLGGNKFKFFGENSIVP ASVAFADRHSSGFDQDADPRRRCEQLLLLPPMDPDNTARFG A QLHFAISHSSGIVHAAMPSSLLDRLRIPDQPILASENSG

 DFVNFLAFHAKGLVAYGVSKDVQLRLLDLPVMNRDGTDRNK

 A RVRE LRRREAGGVICCASMPGELARRAGLLPFYTEVERPRYD
 STVA F LVVRHTSGFI SAALCSWQTMRRLLTIPMMSPDHELGRS



$S S D P G L T R A A G S R P T L V L T A R R A A A D K P G Q P D S S V E S D$
$E G L K Q M Q A M A G T R P V L S V T L R R A A V L G L A T G H D S D Q E A R$


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[^2]UniRef90 C9NQ09 UniRef90-M8CML6 UniRef90-M0D5Q6 UniRef90 ${ }^{-}$T1AC15 UniRef90 S6SYE1 UniRef90-H2J7K4
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jpssm

S VE D $\square$

RYSDL
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E G K D $\square$
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A V S

GR】DLVHAR

QVS D LIA
TVAGCLADPGRPEKT
A G P D L
E L S R L I A WR VA R T K L I

E G R T I I D

DAGDVF QY

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