

## QUERY

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## QUERY

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| UniRef90-G0VNI2 | L G GEVI A YV |
| UniRef90-U2FMI6 | I G GEVLA YV |
| UniRef90-E6SKY6 | VGGEVLC |
| UniRef90-A1S232 | M G GEVICY |
| UniRef90_Q08ZI4 | 1 GGEI L C TVV |
| UniRef90-E1SLU8 | L G GEI I CYV |
| UniRef90-L0B4Y5 | V G GEILCYV |
| UniRef90-E1VGM0 | V G GEVLC |
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| UniRef90-14ALV1 | V G GEVLCYV |
| UniRef90-B1CA29 | V G GEVLCY |
| UniRef90-G0HGS8 | VGGEVLAYV |
| UniRef90_C0VZ23 | V G GEVLA |
| UniRef90-C0QQN7 | V G GEVLCYV |
| UniRef90_UPI000370AC95 | VGGEVLCQ |
| UniRef90-UPI00036F07E5 | L G GEVLCYV |
| UniRef90-UPI000362165A | V G GEVLC |
| UniRef90-J3VRW7 | L G GEl VC |
| UniRef90_A3N371 | L G GEI I C Y V |
| UniRef90-A0A017RSG5 | I G GEVI CY |
| UniRef90-K9ULC9 | L G GEVLCYV |
| UniRef90-UPI0003A583AB | VGGEVLAY |
| UniRef90-R4KE65 | L G GEVVCYV |
| UniRef90-UPI000380CDB6 | L G GEVVAY |
| UniRef90_UPI00040DC549 | V G GEVLA Y V |
| UniRef90-Q82X77 | V G GELLCV |
| UniRef90-UPI0003B510CB | I G GEVLCYV |
| UniRef90_R7PN41 | L G GEVLAYV |
| UniRef90-Q0FA93 | VGGEVLCTV |
| UniRef90-Q605C6 | EGGEVLCVV |
| UniRef90-B5YDV7 | VGGELI CMV |
| UniRef90_R6XVW1 | V G GEVLAYV |
| UniRef90-B8D0D8 | I G GEVLCYV |
| UniRef90-M5DBR5 | L G GEVLC |
| UniRef90_UPI00036DACB2 | V G GEVLCQV |
| UniRef90-E6MHL2 | I G G EVVCYV |
| UniRef90-A0A059FCF1 | VGGEVLCRV |
| UniRef90-13YGB0 | HGGEVI A |
| UniRef90-R7IFG7 | 1 l G GEVLA Y |
| UniRef90-R1IAC9 | L G GEl I CYV |
| UniRef90-A4CFZ0 | VGGEI I GFV |
| UniRef90-UPI000317C56A | I G GEVLCYVY |
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| UniRef90-B8J874 | V G GELIC |
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| UniRef90-F9ZWZ5 | HGGEVICTVC |
| UniRef90-L1N230 | G GEVLCYI Y |
| UniRef90-D7B8L0 | V G GEVLA Y V |
| UniRef90-E4U9H1 | V G GEVVC |
| UniRef90-UPI000478C47E | $\checkmark \mathrm{GGEV}$ L A Y V |
| UniRef90-14EC58 | V G GEVLCTV |
| UniRef90-Q0All2 | V G GELLC |
| UniRef90-E3EZB9 | $V \mathrm{G}$ GEVLCTVF |
| UniRef90-K2KAQ7 | L G GEVI GFV |
| UniRef90-R4UA80 | L G GEVI A |
| UniRef90-A0LRN4 | I G GEVLA YV |
| UniRef90-A1AVL4 | I G GEVLCSVY |
| UniRef90-A1USQ8 | VGGELLCR |
| UniRef90-UPI00046EB1CD | VGGEVLCYVY |
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| UniRef90-B6YQ71 | G GEVLCYI Y |
| UniRef90-D2SH89 | V G GEVLAYV |
| UniRef90-UPIO0036A0EF9 | 1 G GEIVC C V |
| UniRef90-G9FI74 | I GGEILCY |
| UniRef90_UPI00036D6BC7 | G G EVLCF |
| UniRef90-K2FAD2 | G GEIV C S V Y |
| UniRef90-C9RR20 | VGGEVIAKV |
| UniRef90-R5S2Q9 | V G GEVVCYV Y |
| UniRef90-UPI00022E31FB | V G GEVLA Y V |
| UniRef90-G4RC25 | V G GEVLCRV |
| UniRef90-A6CGP3 | $V \mathrm{GGELL}$ C C |
| UniRef90-A5EXA4 | V G GEVI CMV |
| UniRef90-H1XVX8 | VGGEVLCY |
| UniRef90_D9QTG3 |  |

## UniRef90 EOMJQ4 UniRef90-R5IVQ5 UniRef90 06 A6PO UniRef90_V2Y9G1 UniRef90-CoO9V9 UniRef90 U5N4U4 UniRef90_G9ZCR5 UniRef90-WORYN2 UniRef90-E8N3N8 UniRef90-H1HT78

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UniRef90_F2NJC5 UniRef90-B4CUY7 UniRet90_B2S665 UniRef90-W1TRG3
UniRef90 A1TOC8 UniRef90-B0C1E6 UniRef90-S6GH57 UniRef90-K41C50 UniRef90-XOSRN2 UniRef90-F3KCL3 UniRef90-A0LIK4 UniRef90-A0A023HAX3 UniRef90 UPIO00414EE13 UniRef90-B5JJX4 UniRef90_R7F2S4 UniRef90_B5YG33 UniRef90-E3HZT8 UniRef90-D5EDZ4 UniRef90 DOLIB1 UniRef90-UPIO004683B3E UniRef90-G5ZX97 UniRef90-B8DW27 UniRef90-UPIOOO368DOC4 UniRef90-A0A023HB92 UniRef90_Q3J8S8 UniRef90-E3CUS1 UniRef90-UPIOOO377EA30 UniRef90-U5QAE3 UniRef90-B8DNBO UniRef90-J9YUK9
UniRet90 D8K1 A6 UniRef90-W5XFP6 UniRef90-J4WQR6 UniRef90 UPIOOO3B5AF13 UniRef90-H2CAPO UniRef90-TORRQ1 Unireato-upioion 746790 UniRef90-A8IAQ0 UniRef90-A8LC42
UniRef90-Z9.JKR1
UniRef90-FORJV2 UniRef90-A0AO23HBQ4
UniRef90-G8LRS3
UniRef90-XoSJ49 UniRef90-R5G6B9 UniRef90-D8JV29

## UniRef90 P59030

UniRef90-B2UQM4 UniRef90-UPIOOO1372CFA UniRef90-K1YWI5 UniRef90 UPIooou71BC44 UniRef90-B9XFL7 UniRef90_101MV1 UniRef90 O 083233 UniRef90-P06362 UniRef90-E7MKW6 UniRef90 O7VQD4 UniRef90-A4CJV5 UniRef90-F211H1 UniRef90-K2D0P7

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KLLIRGRTLDVLI ${ }^{40}$ VVSDPIADMLTRIRNANQLRYKEVAMPSSKMKEEIARILK
 TMTDPIADMLTRLRNANQAYHDQTSMPHSKIKAGI AGILK MSDPVADMLTRIRNGAKAEFAKVDIPGSKLKLELKAVVKK MSDPI ADLLTRIRNAQAVAKPTVTVPSSKLKIAGLKVLI
 VTDPIADMLTRIRNAGKAKHASVEMPASKLKTKKITADILK LTDPLADMLTRRNAGARFDKVDIPASRMKDSVARLEK LTDPMADFLTRLRNAGTAHKAEVVAPYSKMKAEVARYLK TMTDPIADMLTRLRNANAAHLDKVSMPSSKMKAGI AKIVE MQDP: SDMLTR1 RNGQAASKVSVKMPSSKQKVAIAAVLK MQDTLADMITRIRNGHMATKVAVSMPSSKLKVSLAKLLK MNDDPVADYLTRVRNAVLATHRVVEDPASNLKKEITKLLE MWSDPVADMLTRIRNAAHMHDDEVKIPASKLKAG! AEALK MMTDPIADMLTRIRNAVRVERPFVDIPASRVKRGLADVLK



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UniRef90＿EOMJQ4 UniRef90－R5IVQ5
UniRef90 B8FES UniRef90－Q6A6P0 UniRef90＿V2Y9G1 UniRef90＿Co09V9 UniRef90＿G9ZCR5 UniRef90 WORYN2 UniRef90－E8N3N8 UniRef90－R7D512
UniRef90－ 11 HT78 UniRef90＿UPIO0028860D8 UniRef90－UPIO0035CC313
UniRet90－A5GVX3 UniRef90＿Q6F1YO UniRef90－A0L5Y7 UniRef90－C5JBA2 UniRef90＿UPI0004745468 UniRef90－Q85AM2 UniRef90－O46907
UniRef90－K0P523 UniRe990－A82V71 UniRef90－B4CUY7 UniRef90－B2S665 UniRef90－W1TRG3 UniRef90－A1TOC8 UniRef90－BOC1E6 UniRef90＿S6GH57
UniRef90 K4IC50 UniRef90－XOSRN2 UniRef90－O7UNO6 UniRef90－AOLIK4 UniRef90－A0A023HAX3 UniRef90＿UPIO00414EE13 UniRef90－B5JJX4 UniRef90－R7F2S4 UniRef90－B5YG33 UniRef90 E E3HZT8 UniRef90－D3NS54 UniRef90－D5EDZ
UniRef90－DOLIB1 UniRef90＿UPIO004683B3E UniRef90－G5ZX97 UniRef90－B8DW27 UniRef9O－UP1000368DOC4 UniRef90－A0A023HB92 UniRet90－Q3J8S8 UniRef90－E3CUS1 UniRef90－UPIOOO377EA30 UniRef90 U5QAE3 UniRef90＿C7JFS3 Unirefgo－B8DNB0
UniRef9o＿JgYKK9 UniRef90－D8K1A6 UniRef90－J4WQR6 UniRef90－UPIO003B5AF13 UniRet90－UPIO003BB77585 UniRef90－H2CAPO UniRef90－TORRQ1 UniRef90－UPI0004746790 UniRef90－A8IAQ0 UniRef90＿A8LC42 UniRef90－Z9JKR1 UniRef90－Pr 14826
UniRef90
UORJV2 UniRef90－A0A023HBQ4 UniRef90－G8LRS3 UniRef90－XOSJ49 UniRef90－R5G6B9 UniRef90－D8JV29 UniRef90－K1ZEN3 UniRef90－P59030 UniRef90－B2UQM4 UniRef90－UPIO001372CFA UniRef90－K1YWI5 UniRef90 UPIOOO471BC44 UniRef90－B9XFL7 UniRef90－＿101MV1 UniRef90＿O83233 UniRef90 UPIOOO35ECD33 UniRef90－P06362 UniRef90 E7MKW6 Uniref90－OAVQD4
UniRef9－A4CIV5 UniRef90－F211H1 UniRef90－K2ETT6 UniRef90＿K2DOP7
UniRef9＿＿G7Q9V2




$1372 C F A$ ..... $471 B C 44$


soms
Ref90－G7Q9V2

AEGY\｜RGYSRTDDNGKADFEIIELKYFDGAPVI REITRISK
EEGYIVNYKVVKKDVQNELVLTLKYGKKQRVITGLKRISK
EEGYF VNYKVVKKDVQNELVLTKKYGKKKQRVMGGLKRUSK
SEGYI ADYKVNEEVGKTLTLTLKYGENRERSIAGVRRISK
REGYIKSFAINEVNGFKNIHIELKYDKNEKVINGLKRISK


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$\stackrel{\stackrel{1}{E}}{N}$ GVVEKEFVENKGFQDI RI TLLKYTKNDRILSGLKRISK


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RGYEIEYGG
RGWSEEELRE
RNYKVITNDPGYLEAVTLTDDDKQGVLTVRARYY

## UniRef90_EOMJQ4 UniRef90-R5IVQ5 UniRef90 06 A6PO UniRef90_V2Y9G1 UniRef90-CoO9V9 UniRef90 U5N4U4 UniRef90_G9ZCR5 UniRef90-WORYN2 UniRef90-E8N3N8 UniRef90-H1HT78

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UniRef90 Z9JKR1 UniRef90_P14826 UniRef90-FORJV2 UniRef90-AOAO23HBQ4 UniRef90-G8LRS3 UniRef90-XOSJ49 UniRef90 R5G6B9 UniRef90-D8JV29 UniRef90-P59030 UniRef90-B2UQM4 UniRef90-UPIO001372CFA UniRef90_K1YWIS UniRef90 UPIOOO471BC44 UniRef90-B9XFL7 UniRef90_101MV1 UniRef90-O83233 UniRef90-UPIOO035ECD33 UniRet90 E7MKW6 UniRef90-Q7VQD4 UniRef90-A4CJV5 UniRef90-K2ETT6 UniRef90-K2DOP7
UniRef90_G7Q9V2

PGRRIVYSSVK ${ }^{90}$ TMPRIVIANG|LGG||

${ }^{120}$
PGLRVYAHADETPSVLNGLGIAIVSTSEGVMTGRDAKKKS
PGRRVYDKAKDVKPVLHGMGSAILTTSQGVMTDREARDKN
PGDRVYAKSTALPKVLGGLGПAIISTSQGLDTDKQAHEKS
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PGRRIYTPKSEIPWVLSGMGIAILSTPKGVMTGQQARKLG
PGLRKYAGVKDLPRVRGGLGTAIVSTSKGVMTDRDCRANG
PGLRIYAGKEDMPKVLGGLGTAIISTNQGVITDKEARRLG
PGLRLYSKGKDCKHVLNGQG円SILSTSKGIMSDRQCRADN
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PGRREYVARDEIPSVYQGLGI AI L



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$P G L R K Y V K$ STQLPKVMGGLGVAILSTSSGLMTDRQAQDKG
PGLRMYKGANDLPKVMAGLGIAIISTSHGVMTDRAARKAS
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PGRRDYRGVDDLPKVLNGLGIAIISTSRGVLSDRRCREQN
PGRRLYSRSKELKPVLGGLGIRIISTSKGVISDREARRDK

PGLRVYSNADKLPKVLNNLGI AIISTSQGVMTNDNAKKLG
PGLRIYTGAQEIPEVHGGLGIAILSTPKGLLTGKDAKKQN
PGLRLYAKSTEIPRVLNGLGUCILTTPKGVMRDREARRQK
PGLRQYTGYKDMPRVLNGLGIAIISTSKGLMTNKEAAADK
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PGRRVYSSVQDLPTIANGLGVAILSTPKGVMSDTRARAEN
PGRRVYSKIADLPRVYSGLGLSILSTPRGVMSDNEARAAN
PGRRIYVGKDNLPKVMGGLGIAVISTSQGLKTDTEASQLG
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PGRRVYSGINKDLTRVYNGLGIAVLSTPQGVLSDNEARVAN PGRRVYVSSKTIPHVANGLGUSVLSTPKGVMADHAAREQN PGLRVYANTKKLPKVLNGLGIAIISTSKGIMTNLKAKELG
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PGRRVFVGTEELPKVMGGLGI ALVSTSHGMMTDAQARKQG

$P G L R Q Y V G V D Q M P R V L N G L G I A V I S T S K G M I T D K E A R E M N$
$P G R R V Y S K K K L P R V C A G L G V S I L S T P R G V L S D V E A R A N ~$
PGRRVYVGSTDIPKVQNGLGICILSTSSGVLAGTQARDRK
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PGLRI YVQRGEIPRVYGGLGVAVVSTSRGVMTGYQAWRQG
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SGLRKYCGKTKLPKVLGGLGVAI STSKGMTDAKAHEAG
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PGRR SVKSLPQRNGLG A STPSGVMSDHAARENN
PGLRIVSNHKE:PKVLGGMGIVILSTSRGLMTDREARQKK
PSLRVYKNKDMLPKVLSGMGVVVVSTSKGVMTDKKARKLN
P G L

PGRRVY A K $\square K D L K Q \operatorname{N} N G L G L V V L S T P K G V L S D G K A R E L N$


| UniRef90_EOMJQ4 | VGGEVLCRI |
| :---: | :---: |
| UniRef90-R5IVQ5 | LGGEVLAYV |
| UniRef90-B8FES1 | VGGEVI |
| UniRef90-Q6A6 | VGGEVL |
| UniRef90-V2Y9G1 | $\checkmark \mathrm{G}$ |
| UniRef90-Coogv9 | $\checkmark \mathrm{G}$ |
| UniRef90-U5N4U4 | LGGE1 |
| UniRef90-G9ZCR5 | 1 GGEll ${ }^{\text {c }}$ |
| UniRef90-W0RYN2 | 1 GGEVLC |
| UniRef90-E8N3N8 | VGGE1LC |
| UniRef90-R7D512 | V |
| UniRef90-H1HT | VGGEVLAF |
| UniRef90 UPIO0028860D8 | IGGEVLCTVC |
| UniRet90 UPIOOO35CC313 | VGGEVLAYV |
| UniRef90-A5GVX3 | VGGEVLCYVY |
| UniRef90_Coblich | VGGELLCTVY |
| UniRef90-C5J | $V G G E L C T V F$ |
| UniRef90-UP10004745468 | $V \mathrm{GGEVLCYVF}$ |
| UniRef90-085AM2 | VGGELLC |
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| Uniref90-KOP523 | $\checkmark$ GGEEVLCNV |
| UniRef90-F2NJC5 | VGGEVLC |
| UniRef90-B4CUY7 | 1 GGELLA |
| UniRef90-B2s | VGGELLC |
| UniRef90-W1TRG3 | VGGEVLA |
| UniRef90-A1TO | 1 GGEl C |
| UniRef90-BOC1 | $V \mathrm{GGEVLC}$ |
| UniRet90_S6GH57 | IGGEVICTVF |
| niRef90-K41C50 | VGGEILCYVY |
| XOSRN2 | I GGELLCTV |
| UniRef90-Q7UN UniRef90 F3KC | GGEVLCEV |
|  | GGa |
| UniReffo-A0LK A023 | $1{ }^{\text {GGGEVV}}$ |
| UniRee90-UPIO00414EE13 | $V \mathrm{GGEIL}$ A |
| UniRef90_B5JJX4 |  |
| UniRef90_R7F2S4 | E V |
| UniRef90 B5YG33 | VGGEVI |
| UniRef90-E3HZ38 |  |
| UniReigo-D3NS54 | VGGEVVCYV |
| UniRef90-DoLIB1 | VGGEVLCEV |
| UniRef90-UPI0004683B3E | I GGEVICYVY |
| UniRef90-G5ZX97 | $V \mathrm{GGEVLCQVF}$ |
|  |  |
| UniRet90-UPIO00368800C4 | VGGEILCRVF |
| UniRef90-A0A023HB92 | V |
| UniRef90-Q3J8 | EGGEVLC |
| E3Cus1 | LGGEVVCFV |
| iRef90_UPIO00377EA30 |  |
| U50 |  |
|  | VLCRVF |
| UniRef90-B8DNB0 | VGGELL |
| UniRef90 JgYut | VGGE CKVF |
| UniRet90_D8K1A6 | VGGELL |
| Ret90_W5XFP6 |  |
| Ref90_J4WQR6 | VGGEILCEVF |
| UP10003 | VGGEVI |
| UP10003B77585 |  |
| UniRef90-H2CAPO | VGGEIL L R V |
| UniRef90-TORRQ1 | VGGEVL |
| UniRef90-UPIO004746790 | VGGEIL |
| A8IACO | GGEVL |
| A8LC42 |  |
| UniRef90 Z9JKR1 | VGGEVLCFV |
| UniRef90-P148; | L |
| UniRef90-FOR | VGGEVICVI |
| A0AO23HBQ4 |  |
| G8LR |  |
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| UniRet90_R5G6B9 | GGEVMAYV |
| UniRef90 D8JV | GGEVICSIF |
| UniRef90-K1ZEN3 |  |
| UniRef90-P59030 | LGGEVICYV |
| UniRef90_B2UQN | IGGELL |
| UniRef90-UP10001372CFA | LGGEVL |
| UniRe990_k1YW | VGGEVLCEI |
| UniRet90_UPIO00471BC44 | GGELVCQV |
| UniRef90 B9XFL7 |  |
| UniRet90-1010 | V |
| UniRef90_O83 | VGGELICKV |
| UniRet90 UP100035ECD33 |  |
| UniRef90-P06362 |  |
| UniRet90_ETMKW6 |  |
| UniRef90_Q7VQD4 |  |
| UniRef90-A4C |  |
| F211H1 |  |
| T6 | VGGEVLCSVF |
| Ref90-K2Dop7 | GGEV |
| UniRef90 G709v2 | VGGELLCE |

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UniRef90_A8PNP0
UniRef90_G3XH92
UniRef90_A6H5L7
UniRef90_F8EX36
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UniRef90_Q1LTC4
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| UniRef90_D5E4X0 | VGGEVIA |
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|  | VGGEILC |
| UniRet90_UPIOOO46E6771 | VGGEIL |
| UniRef90-G2LPZ2 | 1 GGEV |
| UniRef90-EORQ95 | VGGELI |
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| UniRet90-A5XB | I GGEIL |
| UniRef90-B1W0 | VGGEVL |
| UniRef90-E8V7K4 | $\checkmark \mathrm{G}$ |
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| UniRef90-B0SA33 | VGGEVLCKVF |
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| UniRef90-ToZ770 | LGGEVL |
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| UniRef90-K2E820 | LGGEIVC |
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| UniRef90-U7D896 | VGGEILGKI |
| UniRef90-LOD8G1 | $V \mathrm{GGEVL}$ |
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| UniRet90_O89,998 | $\checkmark$ G |
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| UniRet90-H0E8Q4 | VGGEVW |
| UniRef90-Q2GL45 | VGGEI |
| UniRef90-87T498 | $\cdots \mathrm{M}$ |
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| UniRef90-UPIOOO3B50469 | VGGEII A |
| UniRef90-A6YGD0 | 1 GGELL |
| UniRef90-M1K3Q6 | L G |
| UniRef90-B3QY |  |
| UniRef90-E4L |  |
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| UniRet90-A5CCJ8 | VGGEVICK |
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| UniRef90-K2AXJ2 | $V$ Well |
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| UniRef90-D2VMU8 |  |
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|  | $v$ |
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| UniRef90-Q824N8 | G |
| UniRef90-B5Y974 | VGGQ1 |
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| Uni |  |
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UniRef90_UPI0003EDDB3B UniRef90_UPI0003F0E951 UniRef90_C0JWQ6 UniRef90_W2UYW8 UniRef90-D5MAQ3 UniRef90_B9VL96 UniRef90_Q977V
UniRef90_D2HYG4 D PI A D LLTRI R N A Y K A M H S TVVI T P S RTREALLKILLN
$\Sigma$


 VRMNVLADCLKTLVNAEKRGRRQVLIPSSSVIIIKFLQCMQ

 MSQDTI STMMT PI R NASTGRKTTVRIPATNTTRSIGRI SLL



 V V D PI A D M L T RII R N A H L A L L Q K EVVVVPRSKAKKA I A E I L Q




 (
 MI T D P V S D F L DQ I K N GY M A R K N Q V V M P H S K M K E S L A K L L N





 VCAD P V A D M L A R L R N A H Q GLLHA H V N V P V VRASVLNDCLKSMSNAEKQGKRQVMIPSSKVIIDKFLTVMQ VRMSVLADCLKT ITNNAEKRGRRQVLIPSSKVVIKFLQYMQ MQNDPL S D AL S RI NNAA MA GRREVVI I PA SKLI GRVL KIMQ
 VRRNVLA DALKRI N NAKNRGKRQVFLRCSKVII RFLTVTM

MD TI A D MFS AI K N A $\square$ S R R K D Y V DVVPS S K I K EA I L E L L K VR V SVLNDCLLNNINNAEKR GKRQVMVPC MLLDPLADAMSTIKNAENVGKPECII PA QNPI A AMSA AKNAGDGGKAVTV $M V N D T I S D M L T R I R N A C L V K K R T V L I T Y$ VRMSVIADSLKSI DNAEKAGKRQVLLPTS
 DPI A D MFVRMKNADSRKYYEVTLPHS $M D S L$ S D L F T R I R N A QL A G H H T V R


 VLLDPDLANALSTI KNAED DGKQSCTIPASKLI GNVLVVMK

 VLMDPLANALSVIKNAETTGKTDCVIPASK\|IGNVLKVMQ MK D P I A D F L G QL R D A N A A L R P E A E F R T S K I K E N I A K L L K $M L N D R L A N M L S T M K N A Y A D S K P S V E M A H S K Q M E E V A K V L E$
 LMDPLADALTNI RNNEQVKDSCVISPASKLI GEVLSTMQ
 MSVVDTLSNAMSAI K N A E R V G K S K C E EI PA S KLI G NVLLRVMK
 $M \mathrm{R} V \mathrm{~N} V \mathrm{~V}$ L A D A L K S

 TMTDPI A DMLTRL RNAN QAYHDQTSMPHSK』VRSIA GV
 VHMNDLEDALVSI NNAEKRGKCQVLFPCSKVII QFLTVVMK MQTDPLADLCSALQNAKRASKPEVVLPYS
 NDPLADALS GLDNAGRVGKLLLTVPAS

 $M N$ I L A A A L K N TNN A EN R GK R QV L I P C S K V I A Q V L T V M V

 M NKDMI GNMFTLL RNADMNRKRII PI PFT MS D S I S NLLFTSI R NASLVRCQTVTVPK DQDNQKI GKVLL


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UniRef90 K2DKR4 UniRef90-16U4K3 UniRef90_C7LKI3 UniRef90-A1RWS0 UniRef90_Q9TL24 UniRef90_UPI000273CF2E UniRef90_L9LBS7 UniRef90-E3KHHO UniRef90_UPI0002C3532F UniRef90-Q4GX14 UniRef90-S7V7L0 UniRef90-O80646 UniRef90_LOHJR0 UniRef90_C5KE39 UniRef90-H2PDB5 UniRef90_D3DH74
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UniRef90_D2HYG4 HW4

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## $\qquad$

K K GY\| GEFEVVDDHRSGK\| VVF LINGRDNKCGIV DSPRFDVP EEGYI NGYALENDA LVNLKYHENKAVVAGLKRNSK
 KYGYi GEFEFIDDGRAGVYRVQLLGKDNKAGADKPRFPVK



 DKGYi ESFNVVEDGVKKTINVVLKYDKGRTVINEVKRVSK


 EENFVNSFQVLDKDPKRILIILRYTNAGEPVI QGDQRISK TEGYIKNFKVQDDNGHTVIRIFLKYDDFNKVI HGMRKIST
 REGFLENVRKHYENGNYFLVLTLRHQKTKKGILNDKQISR KHAYI GEFE VVDDRAGKIVVNLNGRMNKCGVISPRYDVA $K E G Y V G E F E Y I D D G R W G K I K V Q L L G R N K I G V V K P R H P V S Y ~$

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

## 



## K

## D




 D L G Y I G E F E F I D D GK S G M F KV K L L G R I N R C GlV I K P R F A I K


## K

K
K



 D Q GY V GE F E F V D N GK A G Q L K V K L I G K
 A K G F I E S Y K V ID K D G K Q S I N V V L K Y D K G R S Vi S E IVKRIS K




KEKVVSKVTKKSTKDKPEDEDELIYEGRKPKVWQ R R I SK HGGKI GKFKDTD DHRAGKIVVNLMGRLNKCGVMGPRRVSK E E GYLE K F EVVVSVREG V RQLRLLLLREVALAQKARRIISR
 D R G Y 1 D GF E F V






120

90
100
110 P GRR IV VGAK S I P S VQN G L GIVI L S T S K GVL E G K Q A A E IG


$\qquad$
P S LRIIYS S Y E DMPR\|LGGRG\|VII
P




| $L$ |
| :--- | :--- | :--- | :--- | :--- |





$P G S R V Y A T A E Q M P K V P N G L G V A L V$


$\begin{array}{ll}P S L R Q Y C K Y K K I P R V I N G G L G I & A \\ K & L \\ \text { K }\end{array}$
S GCRVVYVSAKEVVKVLGGMGTAI I

F GDAEFTPTSWLP
PGCRDYVSAONIP Q RR YNSFIVL

## 

G $V$ V
DDEME
R D EME


PGRRIV VPKHSMPYVQK GLGGAIL

## 

VA E L E K W ERRRFLPARNFGVLIL
VE DLE SWE L RY LP G K

| S WE I | $R Y L P G K$ |
| :--- | :--- | K NFEK

 <br> \section*{B5A3} <br> \section*{B5A3}

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UniRef90_UPIO0038EF2B5 UniRef90_U4QRH6 UniRef90 X1Y627 UniRef90_UPI0002A49354 UniRef90_K2A9H0 UniRef90_UPI0001DEACAD UniRef90_UPI0003653358 UniRef90_H8ZXD6 UniRef90_B3E0J8 UniRef90_MOMEE1 UniRef90_G0QF32 UniRef90_UPI0003EDDB3B UniRef90_UPI0003F0E951 UniRef90_C0JWQ6 UniRef90_W2UYW8 UniRef90_D5MAQ3 UniRef90_B9VL96 UniRef90_Q977V0 UniRef90-V4Z659 niRef90 ${ }^{-}$K 4 K 969 Ret90-E4잔 UniRef90_UPIOOO3FOE251 UniRef90_M4VSE0 Refo_QossGo UniRef90-B0V117
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$\stackrel{\rightharpoonup}{\mathrm{L}} \mathrm{K}$

UniRef90 UPIo00265974A UniRef90-C7LU38
UniRef90-O98458
 UniRef90-A5XB84 Refo

AYGIMDHEEARRKH
SRGI MSHEEARAKN STSRGI MTDREARLER SKGVLPNDKAFELG SHGLVTDREARQKK SAGI MDHEEARRKH SKG| MTGKDAKTNH SKGI LTDREARFRG SSGIMVHESARRKH SSGVTVGKKASEK SKGIVDGEKAKQMH DKGMDHEEARKHN SSGIMDHEEDRRKH PQGVMSHKEAVEKK SKGIMTNREARLKG SKGL MTDEEARNSH TPSGLMSDREARARK
TSAGIMTVKGCLNEK SKG KTDAQARLSK SKGVMTDRKARALG SLGLLTDREARKKG SKGGMTDKEALAKN PKGVMTHREAKEKG SKGI MTDREARNHR SAGIVDHEEARRKH SVGIVDHEEARWKH SAG MDHEEARWKH SAG MDHEEARRKH SRGLEGNRAATEK MDHEEARKKN MDHEEARRKH PYGIVMDHEEARRKH
NKGVMTHTDAKKMG PYGI MDHEEARRKH SAGITDHEEARRKH DAGVDTDHQARKDG SAGGVMTDKVARLKK
SAGIIMDHNEARQKH MDHNEARQKH
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 SLG| MDHEEARARN SKGVMSHYDAAKMG SSGLMTDRQALKDE SSGLMTDRQALKDE
SRGI MSDSDAKKRK SKGVDGNEEAYKAN TPEGIMTHYEAKERG TSKGLMTDRLDAKNK TQGVMSQKEADEKG SKGVDSHETARHEG TSRGMMTDREARGKR
TSAGIVMDHEEVRRKH TSAGVMDHEEVRRKH TSGGlMDHEEARRKH TSQGLDTDKQAHEKS TPNGVMTGSEAKAKN TSAGITDHEEARQKH PKGBEBARAK者 THGD DDRTARFNK
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| UniRef90_O98458 | I G G El I CYV |
| UniRef90_I3IM73 | V G GELLCVVV |
| UniRef90-Q9V1V0 | I G G R L I A Y V Y |
| UniRef90-A5XB84 | I G G E L L C Y I C |
| UniRef90-U5YGU9 | I G GEI L C Y I |
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| UniRef90_V4Z659 | T G G K I L G Y F |
| UniRef90 R4XIX3 | T G G K V L G |
| UniRef90-K4K969 | $\square \mathrm{I}$ G E I L C Y |
| UniRef90-E4TXV8 | V G G EV L C |
| UniRef90_UPI0004785087 | 1 G G E I S C |
| UniRef90_UPI0003F0E251 | TGGGKIL L F F |
| UniRef90-M4VSE0 | LG GELLCLLV |
| UniRef90-Q06SG0 | I G G EVLCSV |
| UniRef90-K3VNI3 | $V$ S GKıl GF FY |
| UniRef90-B0V117 | $V G G E Y$ Y CKV |
| UniRef90_F2NTX1 | $V \mathrm{G}$ GELICCKV |
| UniRef90_C8X461 | V G GEL M C |
| UniRef90-A2DLW4 | A G G K I L G M FF |
| UniRef90_A7M931 | $\square \mathrm{G}$ GEI L C |
| UniRef90_A0MQ87 | TGGGKI L C Y L F |
| UniRef90-D5U1Y5 | TGGVVLLA Y CY |
| UniRef90-H6T372 | \ G G EI L C Y I |
| UniRef90_R9TEW3 | L G G K I L G F FF |
| UniRef90_A0A023HHW4 | L G GELVCSI |
| UniRef90_B2X2C6 | L G G EL L C S V |
| UniRef90_V2PWN9 | $\vee G G E Y$ ¢ C Q V |
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| UniRef90_K8FHJ6 | I G G EVLCKII |
| UniRef90-K2DKR4 | I G G EV I C K I |
| UniRef90-16U4K3 | I G G EVLA Y I |
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| UniRef90_A1RWS0 | L G GVL L A Y V Y |
| UniRef90_Q9TL24 | LGG EV I CLI |
| UniRef90_UPI000273CF2E | T G G K I L G |
| UniRef90_L9LBS7 | TGGKILLGFFF |
| UniRef90-E3KHH0 | VA GKIL G Y VF |
| UniRef90_UPI0002C3532F | TGGGKIL G F F |
| UniRef90-Q4GX14 | L G G E I L G Y I |
| UniRef90_S7V7L0 | V G GELLC |
| UniRef90-O80646 | V G G K V L G F F Y |
| UniRef90_K6UJR5 | TGGKVLGFFF |
| UniRef90_LOHJR0 | VG G K L L A Y VY |
| UniRef90-C5KE39 | T G G K V V G F F F |
| UniRef90-H2PDB5 | T G G K I L G S FF |
| UniRef90-D3DH74 | K G G EVI A Y I |
| UniRef90_Q50304 | 1 IG GEI L A Y V |
| UniRef90-I1BKR6 | $V G G N$ I L GFFY |
| UniRef90_A0B9V5 | I G G HL L A Y VY |
| UniRef90_E1Z901 | $V G G K V L G F F Y$ |
| UniRef90_A2SPL7 | $V \mathrm{G}$ GELL L Y V V |
| UniRef90_B2X1Z8 | I G GELLCSV |
| UniRef90_J91JL5 | I G G KV L G Y F Y |
| UniRef90-S4TBA3 | I G G E ML CH\Y |
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MS MD HLS NMLS SIIKNASMANNAFVET円HTKELEEDAKTLK V H M N V L A D A L K S I N NVK K R D K H QV LI R C S RVII QFP T VMK
 $M R$ V S V L A D C L K S I L H A E R M G K K Q V L I P V

 MS N S LI A D A V A RI R N A Q S A R L R E VVVI Y Y S RLL L V D V A S L L L



 T RLDPLAD A M S TLT T NGSMLGKREVVINASKLIGGVLKVLK

 VHMND ALK SMANAS RKGKRRVLLDSSSKVLVKFLLTVMQ


 MDQIANMINMIKNGS GRGHESISVP
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 M Q F D PL S DA F VRRMYNA E QA GHYEEV SLLPA S K L L D N MLL K M Q
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 $V R M N I L A D A L K S G S N A E K R G K P G \quad Y S K V I V V R G L T V M M$
$T V I N T L S N A L S S L Y N N E M R R K Q A D I M P S S K L I V N V L R V M Q$ $M V N D P V$ G D F I DQLK N A G MVGRK DV CI P Y S K L K H S I A D A L V $V$ S M NVLA D A L E S I H N A E K R S K G QVV L $V$ P C P K V I
 MQSDTL NDAMCVIKNASLSGKAFCEIPSSKLIGHVI K MMM IL N D A LRTIVVNAEKRGKASVVELPVSTVMSS FLLKIMM
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 MS DKLA QACTTINNANQNQARQVIIRNDNVVRNFLNIMQ MFTHLLPNNLSKI RNAFSTKKKEVVIVGLSNTVSDVRLDK MRNNVLSDALYRLSNAEKKNKKEVVTLPSSKIIIGKFLRIMQ MT D PI A D M F T R I R N A Q A V G K A A V K M P A S K A K A A I A D L L K


 $M L M G V L A D V F K G L S D A E K R G K H Q V L F R C S T V T D Q F L T V G M$
 MKLA I A DI LK
VLRNALTALVNAERDGRRQVLIPVSKVVLKFLLVMQ M S D P

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









CKADN NANRRGKKTVLIRANKYTRAFDEKMQ




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 $P G L R V Y A K K D E D P R V L G G L G D S I I S T S K G V D T G R N A R K D G$
$G K D D E K W E K R F L P A R D Y G A L V V T T S H G V M S H Y E A R E K G$ LNGDEDFTT Y

 NSCRVYKGVKDDKPVRNGFGMMVLTTPKGMLTDKEARKEM

 LK DTETWMRNLLPS RQFGYIVLTTSGGI MDHEEARRKH PGWRVYRKKREVKPVMQGMGVTVLSSTSRGVV PGKRVYASAKDLLPVQSGVGIVVLSTSKGVISDSVARKDE RA EFDKWESRYLPARDFGLLIMTTNDGVMHHYDAKDKK LAADFEKWTNNILPSRQFGNVVLTTTYGILTHEECRKRH NS ElEKWVTSLLPS R R LIGGHLVITTSQGVMDHVEAQKKQ LK DLEEKKRQNNLLSSRQLGFIVLTTMVGUMDHEEARRKH AND I EKWVVVNLLPS R RLFGHIILTTTSQGIMDHDEAQHRQ
 $P G L R Q Y K S S D D L P K V R G G L G V S I V S T S K G V M T D R A A R A A G$
$R E M I S L P D Y I D R Y L P S K E U G V I I V S T P K G V M T H K E A A R Q R$
 LKDLETWQNNLFPS RQSGFIALTSSAGUMDHEEARWKH GIRDDEKWTEKLLPSRQFGYVVLTTSGGIMDHEEARRKH



 $P G L R Q Y K S S D D L P K V R G G$
K VNDDTFESRYLPAQDFGDLIVTTTKGVMSHVEARKHG LDEMEYW EQLYLPSKNDGMLMISTSKGVMGHHDARRNG PGLRVYAK】H
$P G L R V Y V Q Q K E \square P R V Y G G \square G \square A \| V S T P K G V L T G Q Q A W R Q G$ PGKRLYVKNKD LY $\quad$ KKKKGFY L STS $\square$ GULITDDQAKKDN DGE\|E KRYRQSILPARQFGHLIVSTSKGULDHRECUVKG
 $S G L R V Y R G K G A L P K V L N G L G$
HRELERYESRFLPAQDFGLLVVSTSRGVLTQRQAREQK GKKSTFLSLPQLWKDDSELK LY Y L STNKGGFLSGRSSRKKK
L KALE QWQNNLLPFHQFGFIVMTTSTGIIMDHEEVGQKH PSQRDHYSSKQDWKLDSSKTFVIFSTNQGLKSDNECKKDR LKDVEKWQNN LDSHQFGFIVL TSAGULDHEEAR PGLRIYTKRDE\|PQVRGGLGLSILSTPKGILAGHEAWREH ØGRKQ PGLRVYAGKENM
NHKKPY $\square S_{S}^{L} K N L W K D D S S D R L I D A S T T K G F D S G K N \square R K K K$
 TDDEEFNNWEQQYLPAYDRGMLLVTTNQGVMSHHEATQKG $P G L R D Y S D Y Q Q \ P K L L G G D G D V I L S T$


PGKRIYYSVSENQLENNKTTDYDLSTPKGVCSSKKADDF LD SELEKYEKRYLPAL N NFGRLI LSTSKGLITNREAKEQK
 A KDDILKYEMRYVPS KDFGTLIISTPEGVLTSKELKAKN GVKE!EGWTARLLPSRQFGYIVLTTSAGIMDHEEARRKN FNDVENYRSK LLPARQFGHLILSTDKGIDDHNEATNHN

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| UniRef90-Q2EEW4 | $\square \mathrm{GGELL}$ C |
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| UniRef90-K8EY86 | VGGKVL GFFY |
| UniRef90-X0X188 | I G GEVI CEIV |
| UniRef90-Q8ZVW0 | 1 G GVLL A Y V Y |
| UniRef90-V7Q0Q3 | $V \mathrm{GGEAL}$ |
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| UniRef90-J7G5Y6 | GGK】L |
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VRMNVLADALKS $\square$ NNAEKRGKRQVLIPCSKVIVRF $\quad$ VTVMM
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 I H S L I S N I K Q GQK N N L S N I N VI Y S K L N I Di L N VL I T N M CS HL QNASRARLLGLTS L PNTK YN L A L A L A A L H

 L A HVCSHLLN A T K A R L G L T SII P N TK M H L S L S L A L Q

$T$ L A H T C A H L Q Q N C T R R V R L





CMNALADALKNDNTGRGGKHQULTRDCSKVIIGFDTVMM LA NFCSHI KNVTNVHVATTSVPFSRLHLQVALGLY LSNMCSHLNNVSKARLGLTSIVDTKMHRNLILAMQ

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KEGFDEAFEESGEMKF DSITLKYKGVKQKPYI TGLKR I SK KEGLI KSYKVS KKKKNII YI Y LKK YKNNDSII SKKIDRISK
 KHGY ISSLSFVQSLNKEKALVGDNGRDTKCGADCPRFMYA HKRTRERDYKQULKRISAR KHGY $\square$ GEFE $\square \square D D H R A G K \square V V N L T G R D N K M A V Y D R N W V D M$ QEGFDESFEEDKHNDLSKKKLYEKYIKQEPYITNIKRVSK KMGFLDEVKKE KGVLTARLTFKDKKPRLMDIKLISK ACGYLERVSVLRHSRHAELVAELAYVAGEPILKKLTQUSK KHGYI GEFAI IDDHRAGKSVVNLTGRLNKCGEISPRFDVH




## EYRFVEEYK

$\qquad$
IDDHRSGK
$\qquad$ TEGKIL VI ELI GRDNKCGVISPRFDVT EEGYI S DFEDKKNDNKD I SVRDKYYNN





## K

 N S G F $\quad$ S TVVVR G G P TPP P P R L W L G L



K

## K

## \section*{R}

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Q
K H G Y I G E F E I I D D H R A V K I V V N N L T S R F N K Y GVI I S P R F D A Q






 RAGFI ETPSSPA EFMNQRRI WADLMKRNDRPVMERMQLI SM

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HREDERYESRFDPAQDFGLLVLSTNRGVITHQQAREDK $P G R H L Y A R K H Q D P R V M A G L G I A I L S T S Q G V M S D S E A R R R G$ NND LRDLEKRQNNLLP SRSAGIMDCEGARQKR CQLRDMEKWQTALLPSRQFG
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 TNCREDVCW
$P G L R \square Y S K G K D C K P V L N G Q G \| S I L S T S K G \prod M S D R Q C R A D D$ PSLRRYSSYKNDKKVLGGIGVVAVFAKRKMLIVNRKAKSKK
 LK DLEKWQNSLLPSRQCG
PTRRINLNVEELRRVVRGHESLYLSTDRGVLEARECVEKK PKRMVTLPLADLERVARGFECLFVSTDRGVLEVREALEKK C G L R QYIGYSGI PKVFNGMGIAI
PGRRQWMSASNLA LLTRQMGCLFDQTRKGVMEDREADGDN PGFKKYDTVA LKELQUSQPNFIVVSTVNGUMSHDSAIQQN KEELEKYEK KASLCASGFGILLVVTNKGI KTNEECKREK
 $P N L R I H L S H N E M K K L C S G \square G E L L I L V R S G D V I D I N E A V L K K$
SSRRVQCKLPGLEKLIRGFDHDFVGTSCGVLEAREAVEKR PTRRINLDLRALRRVVNGEGILYLSTDRGI MEARECVEKK PSLKINLDPHDMRKLCSGNSVILVRCGNEIMDINDAIAKK PSVVRIHLNSEEMKKLYDGTTILI LVRNAGVMEIGEAVQKK PNKRVFAKPK LRQ $\square$ NPPK $\square G V M F I R T K E G V L E L Q E A A Q K H$ LK D

Y T T NK T TY K H Q N G DG LLVLS T S K G $\square$ M T N Y T S S K $\square K$ PKRRDNLDVPGLRQIIRRGEKCLFLSTDRGULEARECVEKK PTRRIWMDVTGLLKQLVLGKDCIYVSTDRGULEARECVEQK
 AKD E A YSLRTLPTRQWGYVVI TTPEGULDHEEAMKRN PSKRVTMEPSEIMMLCTGLGGIAVVKTTSTWLEAREALRRG

PS $\square K \ Y$ LSSHNDLKK LLCTGTSVILVRTDDAVVEDNEAVAKR PKRPINVTVQDLERIVRGFECLYVSTDRGVLEAREALSRK PSRRVTVRPEELARVVRGFECLFLDTTEGVLEAREALAKK PA $\quad$ L
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PSNKRY $\quad$ KNKY L KK $\square E F N N G \quad L I I S T N \square G L L T \square R E C L K \square K$ PSRKLTMDKDELLRFATGMGDGIVDCGKGWWEVRDA $\square R R G$ A K D\|EA YR
PSKRIFMDVAEI RRDCTGRRDAVVHTKHEWVEARDALRDN PSKKIDLTTEEIKALASGLKCIFIKHDKD ILEVQEAAKKG K S
PS L RVYHDRS LLNKFVDQ $\square G\|C\| V R S V D G \square W E A R E A L K N H$ AMEI EKYRTRMLPTRQACYQLIF
PTKRIWLSSRDLANVVRGSNIMAVSTDRGDMEARECVERR PSRKVVLDKDEI RRFVKGSRVAVVANERGIFEGRDAI RQG PSKRI FCEWDDLYRPMMFGEI AVVQTKDGWMEDRDAVRAK PSKRIFMDVSDLRRDCTGRRVAVVRTTHEWDEAREALMMK


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