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40 MS D TKK LGGS W पN WFFGFNQ PTNEDSS TYMKSVLTCAK MS DIKK K G Q S WT F NWFF GFGEIPTDEDCCIYMKSVLCCAK
 T N I K K L G T F WL F K E K F GF N Q IP LDD DA Y E A Y Y K S L L I CA N T D A ELS L L A R R WV F K Q E WD F D D T P T E G D DG A S WF FY Q T Y GVDKK $\square$ NTQQK LIHY L RLLLACAK MSNTKEDPASEFDKKNDGI SEDPDVEAYLNYGYALLADAG


 MF GFFENEQTARKVKS H L M N L A A L A A K

F M N SEKRKKQK SHI KNLLII A A
 E ERGAYLAAVATIA S MFNFFESEQVKKVKNHLLNLGELAK HE H Y T D D Q I Q A WL R G L LT I A W MFSFFESEAEKKLLKSHI TNLGALAK T Q THKSHI MNLVQLAK $T N E Q \square S V W L R G L L T V A W$ THRRNLAHFAAI ATLAA $G V \mathrm{~V} Q \mathrm{~S}$ P NAE Q $\square \mathrm{Y} V \mathrm{~W} \mathrm{~L} R \mathrm{GL} \mathrm{L} T$ I A W GYSQDFNQMGGFSGFFTSQDFHALFSVMGHIAK

FNSGFG GGPSQAERQEEEFFKAAFA VAK S Y S D GQ DT A WLR G L L T I A W
MSFSELFDSEF Q D E Q $\square$ S A WL R GLLTLAW
MS $\square$ S D LDF D NEF RRNLAHFAA LATLAS M S $\square$ S D L F D S GF K DRNKGHFAASIVRVAM HKKNLGHFASIVTLAA
SSS E QL
T VT Q S P $\square \mathrm{Y}$ D S QIVA WL R GLYTI A W T DEQRQLY L K AL 1 A V A R FTHSPTAEQ DTA WLRGLETVVA W
MS F S DLF D S E F
VH S P Y S GYSRDFNQMGGFSRFFTSQDQADFFHALES I AK TKEQ】SAWLRGLLTLAW GFSTSGFGNGPSAERQEEFFKSAFAVAK
 FKDLYGNSQ HRKNVAHFASI ASLLAS VVK S P S S E Q I A A WLR GLLTI A W
 KRMANSGFTFQTGGASQTEQAEFFHAAFAVMGHVAK GYSQNFNQLGGFGRYFSNQQQAVFFHALFSISK SY T REQS LAWMRGLLTMAW SDDEK I I F L K V L T R LAA R
 $S R E Q V A A W L R G L L T A B$ RNESHFAAIVRVAM D R SQQVWLRGLLAI A W
 S SEEQI T A WLL R GLLTI A W
 QK LDD D T $\square$ TA W L R GLL TVA Y TPEQTA $\quad$ WI K GLL SVAC

1 VQ S P T
$Q \square P$ F G V V P K R R V $V$ Q D S N Y LK GLLI I TA K KNMAHFATLASLAA
 SGGFRRFFANNERLQNSTFHALFACL GHIAK F GQNRTSSAEQQAAFFHAMGHVAK

F E WRS S K EKKSA $\square \mathrm{KN} \square \mathrm{V}$ K $\square \mathrm{MM}$
MS I S D L F D S
G F Q K R N Q D
HFAA VKVAM
 S S E Q $\square$ S A WL R G L L T I A W GSKS TFTADQTSTWL R G L MTI A W $R N L S H F A S I V N L A A$ NTKEKLAYLQLVI FIAF UniRef90＿UPI0003125D91 UniRef90＿A0A017T7C9 UniRef90＿K9X395 UniRef90 B2IX81 UniRef90＿B5H2S8 UniRef90＿W8AAS2 UniRef90 C4SF90 UniRef90＿UPI0002EBDF11 UniRef90＿F4Y2T0 UniRef90－UPIO004123459 UniRef90 UPI00036CD9F5 UniRef90＿UPI000375BA03 UniRef90＿W8F3V2 UniRef90＿UPI000371810B UniRef90＿UPI000401CD83 UniRef90＿UPIO0040E7E38 UniRef90＿D2QVY6 UniRef90＿UPI00047AA07C UniRef90＿UPIO00428FC87 UniRef90＿UPI00037A5EF3 UniRef90＿J1FKX5 UniRef90Q11WK4 UniRef90＿UPI0002E7A538 UniRef90＿UPI0004235E31 UniRef90＿K9TQ27 UniRef90＿F4AQI2 UniRef90＿UPIO0036D38AF UniRef90＿B1XN93 UniRef90＿Q11YJ5 UniRef90＿U0EPY7 UniRef90＿K9PXK4
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A D GVIS PEEKD WALGFCASWGVAD WVIEDLKTYEA DEALE GD GTLSPEEKNWAVGFCASWGVADWVI E ELLKAYEA DE DLAA
 GD GT L A D A E R D WV I GY A S A Y N R D P A I I E K L K V Y K A D E D L E
 AD GE LA A
 ID GHLDPSEMDFIVGIGKKHGMPDEVRDLVSSVKASSS A D DELLA EAEMNWLDD FA GMLLNVPEDFDIE EI KKFDYKAANL




 A D GKI S K S E S G L L I KI G E R NGVS A E EVV FE MVD A S D A DREASAPEEGEFLLQQLVSHQAGLVSGSATQQVAAKDANN QTV ADGHFDAEEQELI T RLT QDELAPHSSLGDLEPIT G E EL A


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LDKQLNQT

## $\rightarrow$


$\begin{array}{lllll}A & K & G R V & T & K \\ A & E \\ A & D & G & \\ V & D & E & E\end{array}$
SDG\｜ITEFEKAF DDRपARRपD\SENDYKEAK VDGSFDPQEQEAI EGLIQRKLTPEDETR

## QUERY

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EVIARSPQV ${ }^{90}$ MA QR
100 100 w

120 VI EV ARSPQVS
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 D F KLLNPNAKKSDLDALLYSAMQVCAADGTYSTEEVNAVRK
 E E ITKLPTNDSERFDQUYDLVEMMLAADGVVDENEMDFCIN
 QRVLDVLKKSQLRFSF:TDDI SFAKADGQYTPDEQKRUQE ELGEDHHT SLQKCLDVLKESRFSFI TDDI SLAKADGQYAAQEQQRMEE SLQKCLDLLKQSRFSLITDI I SFAKADGQYTPDEQNHIES FKHHVPDNDSERFDQIYDLVEMMLADGIVDDNEMEFCVD ALGNDHHTAEN
AVKPQLPSNDTERFD
DFFYKKPETDEQRFD ATGGHDSQMAEN QMY LLVEMMLANGGIVDESEMEVVNS

NPPTSSEERDE FLRTAVMMALANGVYSVEESNVING

AVLGNEP\IDEN RLYDLFKII FADAYIE EEEHSLI TK DILLELKESCHG F D I L ELKESCHGRRDILQVLI QAAYVDGRLDKAEQKVLET KNNLDALRGSDLRFSLVVDLI SFARADGAYSNTEEEMVNK KYGERND R R TAVMMAIADGVYSIVEADQIKA KYLNALKGSDGLRFSLI TVIVSFARSDGRYTADEEEKIKN $L K A A L G E D E V T R E N F L R T A V M M A D A D G V Y S V V E A D K I K E$ SHPVNPPTMYNERLDRLYDLTRMVYADHDLGPKQTVMLER P Y Y L DVLK Q S ELDRFSLITD TI ISFAKSDGQYTADEQEKIKG $K G L G K D P K T A E N$ F NPPY $\square Y$ VERLERLYDLGRMVHVDHHLGDKQERLLVR DSTPDSEKRLERLYDLGRUVYSDHEIDDEERULI KK
NPPNNSGERLE
TALGSDPNTGEN
 AALGHNKHTAEN ALGKDPETAEN D I SGlPPMRNAAGAL A ALGKNTATAEN $\qquad$



NPPYLHAQRLE
VLGKNTPVAEN GRRD DILGDDPNTGEN QVLNKVRDSSGGRFD EALGDELDTKEN F
 VLGKNTPVGEN TVLGRGTPAAEN EVLGPNPILAEN RETLQKDRS】TGGRYF Q L SEFRESCHGRRDF
 THLGKGTEMAEN LGLRTAVMVALADGDYSVCEDDLMHQ $T V L G E G T P \square A E N$ $\qquad$ YDILARMVHK $\stackrel{F}{V}$ FL R TAVV Q A A FV
 FLRTAVMVABADGTYSKSEDYLLHE FMRTAVMVALAD G IYYSVCEDDLLHQ


$\qquad$ FLRTAVMVAI ADGTYSKSEDYL LHQ NPPVSYDLRLE

$\qquad$ RLYDLVVRMI HVDTIKGDAEMMLLKK



ATLAADPVLSE H NAPSLY TSLVELDGSDEERGRLLAMAWSVAGADGDLHEFEEALVWR ELGDDV EVVENFLRTAVMMAIANGVYSQAEADSVHS
$\qquad$
ILGKGTPVAENN
AT I DGKGTPAAE
 NPPYLYAQRLERLYDLARIVNVDHVLGDNQEVMLKK SEEPDKFSDNKDAESFVNDAIKLACADGNVTDSEKNWIKK




 $E V L A Q A P T L D N G R R A D I V A A I G A C A A D A E Y H P D E Q A S V H K$
$N$
SSLASDHKQAEN
VLGKGTPAAEN
DGLGDNPKVAEN
QFMQHCGNSVNDRQVL




 K FLL RMIVVVVACADGEINNEERASVKE

 GVYSATEASVLQG

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UniRef90-U5QJ12 UniRef90_UPI000362A1E1 UniRef90_Q7NGT0 UniRef90_V6SN94 UniRef90-A9VXD1 UniRef90_K9YJ47 UniRef90_Q8DILS UniRef90_UPI00034CFBBD UniRef90-UPI00034C7CE6 UniRef90 H7FPV0 UniRef90-IOAN81 UniRef90_UPIO003B46651 UniRef90-G2PIH6 UniRef90-D8PIU3 UniRef90_U5DIR9 UniRef90-UPIO000E0E6CA UniRef90 F2PG72 UniRef90-UPIOOO3824611 UniRef90-F4XTF6 UniRef90_UPI00047078E0 UniRef90 B8HVL9 UniRef90-K9WVK4 UniRef90_B0C479 UniRef90_C0N4D1 UniRef90-UPI0004167324

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140
MATVLGTKEEVVDQLE
 GAKKLNI SEDEFNKI
GAKALNI
A A A A G O D K K

A

MAAKLGFKKS\|VGVLVRKL
SAEFLDVP $\square$ Y L AKTLEGLVNTEKS $\square E A T R R S \square F$
GAAGLGDAREVVEEI RGUVEDEHALRRRRYA
MAEKLGFRKDUVQVLVRKISQ
MADYLGVDQKQYSLLEQFVNKADEAQQQ
FANALGFKAQVVDVIVEDI $\quad$ DAA $\square K K Q K R D E \square F$
FGRAL G I D D S ALQ SLE
MAAYLQVSQEQFSLLNQFVNKAGEAQQQ
$\square A N Y L E I N Q K Q F S L L D Q F V N K A N D A Q Q K$
MAVKL GFRKA VVGVLVKI
F LDA L GLEVEALKSLEHTLYKQHKDKAK
MAVRLGFKKS IVGVLVRKI

YA DGLGYKSSDAETI DK
FCHAL GQNSKVLEALRHTDWDGRSSQ
AA $\square H L G F K Q N E L L Y L L S V Y E A E \square R F R Q R$
$\square S Q Y L G \cap N Q Q Q Q N T L E Q V V D Q A A$
FGKAL GVDLSALHNLEKTLYD


1 SVAL GFTPSNVDYII A K K L S L VDKKVD
LGI GLGFSPENVAYVVHKADM
C C R L D ${ }^{T}$ DE QTGVLNNLVEEKSSAL
FSEALDVKVEALQYLEHT
FGLALGFTPGNVGYI VNKALTLLDKKVDL
YAI GLGFTGEKADSII ER

Y CAALEDEVTALEYLEDVVEGAQTQYHPHPDLLHP
AAGAFGFDVSVADELDDWTLAS $\square K \square E Q R E R E I M$
FCEALGLQI EALNALRHTLYD
FSQALNLELEALKSLENTLYRERDAKQTRLDVLHP
$\square G K A M Q F S A E E N E F D D W A M G L Q W Q L K S A S L L Y A Q P S P$
FCQALELKADDLDALE

LCCAL GEPEDGLEALRQLIVKEPT, HSLGLVAPHAPP
A A HHLGFKQHELDYL LSMYEAE $\square R F R$
YSEALGLKGEALESLEHT
VASGLGFSADQLERRDRMHEAAFR
FQEALGLD\EALKSLE

YADGLGYSNESADKVI
FCQALGEPADILQALSHTLEDKEQA
LCKALGEPENLLEALCRHTLE
FCEALGLQQVKVLDSLRHTLED
VAEELGFSAAQLE KRLKMQEAAFR
VAEYLGFRQNELRYLQSMFEAEVRFRQA

FCQALDLDDQVLKSLRHTLEEAQQAQTSQGETDKPGGEGH
FAEKYGFSQGTLEGLDDQV IVEEKM
LCKALGKPENTLEALRQ

YCAA L G QKVEALE E S L R S V
LCKA L GAP ENLL Q A L R H T
FCDALGHRCEVLSGLR
$F V L A L G F T P G N A N L I \quad V E K A D S L L M L H V D L$
LGKLLGFDEPA GTAARDRSFREPA
F C SA L G L L D



$\square A T K L G F S P Q S F E Q L L M M D R A Q S Q F$
YAVGLGFSPKTAAQQIDKSIGK
FAAALQVTAPEVANLRHVVKRE $\quad$ LFH L R L DD
FGRALDLDMRALKSLEHLCEAEVAVQPGAGDGFGPGVSPH IS LDEL GFTHKDLERLERRFEAELRFRQRQEAVFK I ARYLGFSEAQLEQ RLRMQEAAFR
IAEAFGFNREQALDTKEIMUQEAAF


FAEALGLE $\square P A / L K L L G M T L Q E E D K L$

FAQALR VQQLA AVDSLGRLTLDGEAL
VANQL GYSTAEFNRILDMVLGQAHF
YA $\backslash G L G F S S Q A S E G I L E R S I Q$

TNEQVRDWLLRG|LLITI|AW

$R N L S H F A A I V N L A A$
QRKQHLRNLVVMAF
MS DHEVLE $\square$ S DFGREAYGLS SAP A A A MVNYGKAL LV DA G QS GF GGFQRGANPAQQAEFFQAAFSVMGHVAK TE $\square$ PS NTQ QTA WLR GLMSIIA W

F T A TFSVMGHIAAK
FESGEHKRNLGHFA SIA NMA A
VHS P Y T D A Q I A A WLR GLLT I A W
FDSSFGNGPNQQERQSEFFKSAFAVMK
Y R A Y GA GA $\square$ NSAQRQTDF LETVVF DLA K
NKEQTTAWLLRGLMTIAY
RRNLAHFAAI AS LAA
RNLGHFASIVHLAA
$\square R D Q E V D A \square A R G L Y A V A H$
TFGESEKLT D DHRLLAAAALLIFHVTG
ERAKK Y F Q N L F L V A
LG HF A S V V I A K
$T Q Q K K L A F F Q N L V L V A A$
$F S V M G A L C K$
F SVMGHMAK
Q D L A $\quad$ L L K S L V S VA W QAEFFNACFATMGHMAK $\square G K \square A Q A Q D Q F L A F A V M G C V C K$ F Q ATFTVMGKI AK F Y EN $\square$ KKSTK L N HFA NLVTLAA
 L A K GEKEEVQDA $\backslash$ A VFS $K G L S L E E R L L Y Q Q G L A L V M \stackrel{L}{L}$ GESYNPGDQQQMAFFTATFAVAK
 MS F S E L ESGFKKRNED FASIVRVAM ERNRDHFASIVRVAM FAVLGHIAK E D D Y R VA A V A L L V H V A D $G L A G \square E K D S M G G S R A E Q E R \square Q S A F F T A T F S V A K$ F T L M GHLAK $M \cap A$ A K EALGVGHDEVVDDTHLAATALLVVAR
 DRSFDDGD YRLA ATALLVVVS LK QDFDKAGGFS GLFKNERQALFFSSMGHIAK $G F V N N A A A Q E K F L Y F A V M G H I A K$ A G G DNP LQNALRQGVF LTMFILAK


GFGE DDHRLAAAAALLH
A WGF VKDARQEFLYATFATMGHLAK
FRVMGCIAK

| F A V | $M G A$ | $L$ | $C$ |
| ---: | :--- | :--- | :--- | :--- | :--- |
| $S$ | $L I$ | $Y$ | $C M G$ |

$F R$ V M GRIAK
QAEFFHAGFAVMGHLAK
 GLK Q DF NKA G GFDNSSVSEK QALEFFAVMGHI A K $N Q A W T F S S T N S V A Q Q V F F F L V M G H 1 A B$

E DEARS T WLLA A L
T TQKKLSFFQNLILI AA
$N R W L Y N L L L G E G \quad S P Q A L F F K A T F G V M G K V A C H$
F A V M G C L A K
GMNPFNAARRQS $\quad$ P LETVF I L A K



$F S \square M$ G H L $\quad$ V A K
$K \square D D V D L I A W^{F} G V V Q V A A$
S QTEDDALLF L R TMVAAAA

## UniRef90＿B0JWF8 UniRef90 ${ }^{13 C 216}$

 UniRef90－UPI0003077FF7 UniRef90－D5BEU8 UniRef90－M2BOU8 UniRef90－W7IUZ7UniRef90
V5HEY1 UniRef90－K9SKK0 UniRef90－C7R7T5 UniRef90－A6ELT3 UniRef90－K9SA17 UniRef90＿E3BLY9 UniRef90－F9TKB2
UniRef90－Q2YAM6 UniRef90－Q10XA2 UniRet90－A4CH38 UniRef90－H2BWM6
UniRef90 DOLVK9 UniRef90－DoLVK9 UniRef90－A1ZDG6 UniRef90－UPIOOO3F7EBE4 UniRef90－A3Y8K7 UniRef90＿UPIIOOO3B4741B UniRef90－N6WY90 UniRef90－A6F6D8 UniRef90－A0A017TI88 UniRef90－W9AA88 UniRef90－UPIO0035F0337 UniRef90－A4BAJ4 UniRef90－K4IJF0 UniRef90－W5ZOP7 UniRef90－R5R7T7 UniRef90－F5SZY8 UniRef90 KOCE42 UniRef90－COBGZ8 UniRef90－UP100040C4D13 UniRef90－UPI00047CF9CC UniRefoc－K9VX99 UniRet90＿J5VNV1 UniRef90－A8UF48 UniRef90＿W2UKJ7 UniRef90－R9PUD1 UniRef90－UPLOOO381F8AE UniRef90－WOTJM7 UniRef90－B3PLJ2
UniRef90 L8JWX8 UniRef90＿M7YWT2 UniRef90－Q47VK2 UniRef90－A0A011PWP5 UniRef90－U1IGC6 UniRef90 ${ }^{-} \mathbf{Z 5 X V C 6}$ UniRef90－UPIOOO40CD083 UniRef90－A0A01 1 NS45 UniRef90－UPI0002881E96 UniRef90－UP100037926D9 UniRef90－U7G1F3 UniRef90－H2FZ15 UniRef90－M5DPK1 UniRef90－M7CV43 UniRefolo－bilV 23 UniRef90－R4YKJ7 UniRef90－L8J737 UniRef90－A1ZX90 UniRef90－U1M9S7 UniRef90－A8PL21 UniRef90－R4VCW8 UniRef90－Q01A11 UniRef90－M1FEF3 UniRef90－UP10003F65D8D UniRef90－S6GHT9 UniRef90－S2KKG8 UniRef90－F8GFN9 UniRef90－K0E6E6 UniRef90－Q31P48 UniRef90－F4AVD2
UniRef90－UPIO00363FFC9 UniRef90－R11JX9 UniRef90－UPI00037EA8CE UniRef90＿UPIOOO3717179 UniRef90＿AOY993 UniRef90－A3ZZH5 UniRef90－14YTI1 UniRet90－E9AWA9 UniRef90－B8IDX3 UniRef90－W11BZ1 UniRef90－B8EM04
UniRef90－UPIOOO3B55451 UniRef90＿BOBRT5 UniRef90－A5GKUO UniRef90－H1XRW4




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70
SDGDYSTSEQESIIARFAHELELLDDHV LLYQSTSPEETAA
 ADGSLSHREVHLIAERCEELGLHESELEAALAFGISDSAK ADGEVSRAESDWPRTHQRKFGATDEVIAEYETFDHRTADL
 ADGRVTDVEDRHAEEVMRRMGLDQTARKLAVDLKNQDFDL SDGDFDSHERDLIAADTQDELAPKVSDETFEPDGAQD LA AKGQVTREETELASTMMERMNLHGEQRRAAQEAQSGFPLE AKGQVTKEE1QLATTMMERMNLHGEQRRAAQDASSDFPLE ADGHISQEEINHVENFMQKLGMSPEHRQVAKQGAAPG VDGAVNPAEKEI LDRFAQKLNDTDAEYKEVMKKENKYP VDGTVNAEEQVVGERFASKLNGSEDEFKKILENPVVGPI ADGEVHPGELALIAEFYASCTSNPADFAALAMGASDDEA ADGKLATEERELVGVADRMGLS DRRDSATIMRNDTQDE
 ADGNLDAAEADFLLQMGNRLGLAA AKEEVQPIADNTGVL
 ADGHVTEAEIHVATQLMDRMKLTGETRRAAQASEADFPLEE AKGRVTENERRVATVMDRMGQGESRRQAQNAKEDNFPL
 ADGRIDDKERALAHELARLYDVAGGSEVLKNPQPKSMLL ADGQVSRTEEQHAEAVMARMQLNPEQRRAANDCASDFPLD

$\stackrel{1}{1}$



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 VDGVLD GAESERLCRLVEGRYAAEA LIDARAASVDSQTRYM



 $D G E T D A A E R Q R L R T L A Q R F G L D A A R R A E A S D R D A V D F Y Q$



## UniRef90_B0JWF8



UniRef90-I3C216
UniRef90_UPI0003077FF7 UniRef90-D5BEU8 UniRef90-M2B0U8 UniRef90_W7IUZ7
UniRef90-V5HEY1 UniRef90-K9SKK0 UniRef90-C7R7T5 UniRef90-A6ELT3 UniRef90_K9SAI7 UniRef90_E3BLY9 UniRef90_F9TKB2
UniRef90_Q2YAM6 UniRef90_Q10XA2 UniRef90-A4CH38 UniRef90_H2BWM6 UniRef90-D0LVK9 UniRef90-F2J2X0 UniRef90_A1ZDG6
UniRef90_UPI0003F7EBE4 UniRef90-A3Y8K7 UniRef90-UPIO003B4741B UniRef90-N6WY90 UniRef90-A6F6D8 UniRef90-A0A017TI88 UniRef90-W9AA88 UniRef90_UPIO0035F0337 UniRef90-A4BAJ4 UniRef90-K4IJF0 UniRef90-W5ZOP7 UniRef90-R5R7T7 UniRef90-F5SZY8 UniRef90_KOCE42
UniRef90_COBGZ8 UniRef90_UPI00040C4D13 UniRef90-UPI00047CF9CC UniRef90_K9VX99 UniRef90_J5VNV1 UniRef90_A8UF48 UniRef90-W2UKJ7 UniRef90-R9PUD1 UniRef90_UPIOOO381F8AE UniRef90-W0TJM7 UniRef90-B3PLJ2
UniRef90 L8JWXX8 UniRef90-M7YWT2 UniRef90-Q47VK2 UniRef90_A0A011PWP5 UniRef90_U1IGC6 UniRef90-Z5XVC6 UniRef90_UPI00040CD083 UniRef90-A0A011NS45 UniRef90_UPI0002881E96 UniRef90_UPIO0037926D9 UniRef90-U7G1F3 UniRef90_H2FZ15 UniRef90-M5DPK1 UniRef90-M7CV43 UniRef90-B8IV23 UniRef90_R4YKJ7 UniRef90-L8J737 UniRef90_A1ZX90 UniRef90_U1M9S7 UniRef90 A8PL21 UniRef90-R4VCW8 UniRef90-QOIAl1 UniRef90-M1FEF3 UniRef90-UPIO003F65D8D UniRef90_S6GHT9
UniRef90_U7G747 UniRef90-S2KKG8 UniRef90-F8GFN9 UniRef90-K0E6E6 UniRef90-Q31P48 UniRef90-F4AVD2 UniRef90_UPIO00363FFC9 UniRef90-R1IJX9 UniRef90-UPI00037EA8CE UniRef90_UPIO003717179 UniRef90-AOY993 UniRef90_A3ZZH5 UniRef90_I4YTI1 UniRef90-E9AWA9 UniRef90-B8IDX3 UniRef90-W1IBZ1 UniRef90_B8EM04
UniRef90_UPIO003B55451 UniRef90-B0BRT5 UniRef90-A5GKU0 UniRef90_H1XRW4
UniRef90_K8P568

ASFGHDPKTI ${ }^{90}$ EN AFPVNPPSLYNARLERLRTAVMVADADGDYSPAEAQLLRS
 $\square Q$ QPTEPD $\qquad$ RESLLKDLL $\quad$ RMMAADGQFVEAEKRLFAK AGILAGTSTDVETDHALIDDEKAAH DVLNRVRE $V$ S RGRHDLLEDQQSAAFADGSDHPKERDVLHD EAFGDDADMAEN FLRTAVMMAMVDGEYSDSEDDLIQE D GVLEQFKRECHRRRNLMQMISMAMADGVVHERERAVLHD NPPNDADRRLERMHDLFEMITFADHEIDADERALVEK AEDGHDHLTAEN FVVRTADMVALADGVYTDPEDKLLQD TVLERVRUSSGGRHDLLQLQUSAAFADGELDPSEREILYD
 FMIVCGHTRNGGQMLLVY LLIVMAVADGHMDAAEESLLERED A PFE

 AVVLKRKTDAEERLKIVEMMWEIVYADGHVHEFEDNTI WR FHIDPDTEEQQMLHLSDVVKVMMDDKEI HEKEYELCLG $N P P D S Y D D R D E R L Y R L T K M V F A D K E V T E S E M L L M R K$ $D V L S S V G E K S V L T R T L I E D L D V S A Y A D G D F S G Q E K S L V S Q$


 EATLNRVRSRAGRADLLQLQUQAAFADGQLHPKERELLHV
 AVLTVDAEVIGRRVTLLEVVQLQAAYADGQLTVNEKDVLHT $D A E L Q H F L R V S G R Q P A L L Q M V S A V A A D G V V H P A E H E M L V R$
$N E M K A L A G N R K K A M L L L R E L I I A H I D D D F D E K E M S F V E E ~$
 ATVVEFRQR $\square R H R R H L V L V L L Q T C L A D G E L K P E E E R I L D R$
 AEVLRQFRVECHRRTHLVRMI QAAFADGVYDAKEEKL LDD ELAAAFANDSEGAENFLRTAVLVAAADGGYSYLEDKLLYK QA ADAGQELTSSEEQEYLLSSEYKNSLADDGAIDSERERKRLYNR NPPVLYDARLERLYDI GRMVYVDHIEGPNQHWLLEK NPPVLYDARLERLYDIGRMVYVDHI ADDDEMRIMIR
 DEVLQQFRRECRRRTTLI QMIQAA WADGRMDTAEEQMLDH QTLAQFQQSPNLSQMLLVY LVNLAMADGQLDEQEARVLRH ASLVQDPDTHDQKMNQLYDLVIMVYADGVVEESEVEFCED D RLVKFKRAMAGRRHDLLTMAQVQVAAADGHVDEFEEAGVER FTIDSTGHTRHDKQVLLVYLISMATADGACNSAEEKVLAD Y H FTSVIVNEEGRLRIV EMMWELVYADGQVSEFEDNVVWR ETVHDFKERFARRHDLLQLQDQMAFSDGHLAEQEKQLLHE QHLREFTEAVGRRRDLLQMFLEDAFADGVIDPNEDRILEK RFMSVCGHTRHLKQVLLVYVIAMATADGPI HPAEEGVLAD FTSLLKTRLDEVDREQI IAMMWLVYADGRLTEFEDNVI WR




 SVLKDFRDRFSGRYDLI QLQUQMAFSDGELSDKERDLLKQ KLAHACHRNKVLLRLFVEIQMQTAFAEGHLTSKKQHVLQK
 $D E L Q R F M R V S G G Q P A L L Q M Q V S A V A A D G V V H P A E H D M L V K$ SFII RPEDGLQKTMEL QTLVQFMLEDGHLHDREYVLCQE
 AEALAVVRRDAGGQRALLQVFLQVIAAADGVLHPAEHEMLLR
 $D L G D D P$ ERRENYLRTAVMVALADGVYTQTEATLLRQ
 ALLVEMMGHESERARLLSMAWSVAGADGTVHEFEEALVWR


S P
S $\rightarrow$ T
ELAG VNDPDKAAQVYAAARLAIDDDTI QEREFLHQ
 EFNAATATSPNLLKQMLMIY LLLRVAVADGGKLHQNETSLMMD FTSVLKRLDDDGRRRIVEMMWEI ACADGEIHEFEDNTIWR $R F A T A S A R A P V F R Q L F L Q V Q V S A I A A D G Q T H P A E H A M L D R$
$Q Q D A A Q V G N N P A L A A Q V Y L A A R V V C A D$



| UniRef90 B0JWF8 | $\text { Y R D A F G\|L\|E\|IV A\|L\|S A\|L\|E H T\|\| }\left.\right\|^{130} 150$ |
| :---: | :---: |
| UniRef90-I3C2I6 | LG $\quad$ GGLGFNPANVDFI N K K A M D |
| UniRef90_UPI0003077FF7 | LCEAL NLQETVLASVRST |
| UniRef90-D5BEU8 | Y A $\square \mathrm{GLGG} \mathrm{L}$ S S Q ASEK S I K R S VQ |
| UniRef90-M2B0U8 | A A AKMGLT G Q R L Q L I Q S VQLEL |
| UniRef90_W7IUZ7 |  |
| UniRef90-V5HEY1 | VA EVLGFSA A Q L E R R L K M Q E A A Y |
| UniRef90_K9SKK0 | YCEAL GQEDQAI A Q LRK A DQ A S P DEEQHPNLLEP |
| UniRef90_C7R7T5 | VGKSLGFPVFMIDDQLIKMVQA Q Q R F Y Q |
| UniRef90-A6ELT3 |  |
| UniRef90-K9SAI7 | Y C TA L DVQ T LALQ SL R S T L Y D |
| UniRef90-E3BLY9 | IA RGLGFSSAQLDQ R L RMQEAA |
| UniRef90_F9TKB2 | I A Q GLGFS S Q Q L Q Q RLQMQEA A |
| UniRef90_Q2YAM6 | V A R Y L GY P P A F R QLLD MVLS Q S H F |
| UniRef90_Q10XA2 | YCEAL G L K |
| UniRef90_A4CH38 |  |
| UniRef90_H2BWM6 | Y V I GLGGFSS A LAEET I DKR S $\square$ Q |
| UniRef90_D0LVK9 | F A A A M GMDK DAVAEI DS QVK D |
| UniRef90-F2J2X0 | VAELLGGVSSRDRLA L R Q K VARDQA |
| UniRef90_A1ZDG6 | YA I KI G Q S E A M L Q E I I E |
| UniRef90_UPI0003F7EBE4 | IA 1 GL S FPTENVE |
| UniRef90_A3Y8K7 | V C A HL G $\square$ S VAEFE Q L H L Q $\square \mathrm{K}$ Q Q A Q F R Q |
| UniRef90_UPI0003B4741B | YAMRI G Y S K D L D D MV S |
| UniRef90-N6WY90 | I A R KL G IPPEAQVEQLEAM |
| UniRef90-A6F6D8 | I GA\LGVVNSQDMDNLLQMMEAEDR |
| UniRef90-A0A017TI88 | LSTHLGLAEDEARQIVREAAEQRAQA |
| UniRef90-W9AA88 | I A R Y L GFSEAQLEQ R L Q MQEAAFR |
| UniRef90_UPI00035F0337 |  |
| UniRef90-A4BAJ4 |  |
| UniRef90_K4IJF0 | YAVVGL GYS E DLAARSIVNKSK K |
| UniRef90_W5Z0P7 | $\square$ A R GL GLP E A QVDQL EAMLRGA HAGQ |
| UniRef90_R5R7T7 | AA RALEIDERLVLELNQLI LD Y K L L Q VR A G K $\square$ M |
| UniRef90_F5SZY8 | V S S QL GYS RAEFNRILDMVLSQANF |
| UniRef90-K0CE42 | $V A N G L G V P P D Q F R Q I L N M L L A Q A R$ |
| UniRef90_C0BGZ8 | L I I G L GFP S D K A NEII EKS |
| UniRef90_UPI00040C4D13 | L A F Q FEVA K G $\square$ Y S DI F D LF |
| UniRef90_UPI00047CF9CC | IC A QLGVSRFEYQII K G QVQ A Q HRFQQ |
| UniRef90-K9VX99 | FA QAL GKEA I A LEALRHTLYE |
| UniRef90_J5VNV1 | LA M A L G $\square$ S E E R V K E L E |
| UniRef90-A8UF48 | LCVGLGFNSANVKYIADSALL |
| UniRef90-W2UKJ7 | L A I GL GF T A A NAEFIVKK A M |
| UniRef90_R9PUD1 | $V A K A L G F S E A E L Q A M I S R W E A E L K F$ |
| UniRef90-UPI000381F8AE | V A ELLGVSNRDRVLLR Q K V A A E |
| UniRef90-W0TJM7 | I CRQL GIP E F LIF RQLERMI R A Q Q A |
| UniRef90_B3PLJ2 | $V A G Q L G F S G F A F E Q L L R M L N A Q H A F R$ |
| UniRef90_L8JWX8 | LMEQFGF RKD V V WMID MFDK |
| UniRef90-M7YWT2 | LGRLLGFD D A A I A A A R R |
| UniRef90-Q47VK2 | I A KLL GYSA GELLDKLLEMII A GANFHQQ |
| UniRef90_A0A011PWP5 | $\square G A R L G F D Q A T F K Q L I D M V L N Q S H F A A$ |
| UniRef90_U1IGC6 |  |
| UniRef90-Z5XVC6 | VSKQLGISSRTQFSFLLKRYQAEFAFR |
| UniRef90_UPI00040CD083 | V A S AL GFS Q A ELKMMI R R WEAEVNFHRQR |
| UniRef90-A0A011NS45 | I ANRLGFDPTAFRQLID MVLNQAHFA A |
| UniRef90_UPI0002881E96 | I A GAFRDNQRDFESI KAMFFKEA |
| UniRef90_UPI00037926D9 | V A D L L GV S G R A R L R L K K I V Q |
| UniRef90_U7G1F3 | I A RKL GLIPES QVDQLEAM |
| UniRef90_H2FZ15 | I A VEL GFSEQELEQLLAFAEA QLH M Y |
| UniRef90-M5DPK1 | I CKALGVGAFQFEWI HNRVRAGARSQQ |
| UniRef90-M7CV43 | I A R RLL G P D S QVD QLEAM |
| UniRef90-B8IV23 | FA QAFGLTESDL |
| UniRef90-R4YKJ7 | IICR D L G I S A F QFEW |
| UniRef90_L8J737 | I A R GI GFS DRQLEQ R L HMHEAAFR |
| UniRef90_A1ZX90 | FAKKI GRNEVIL Q R I I D K V SKEM S |
| UniRef90-U1M9S7 | V S K Y I G $\square$ NT THFKFIL K R Y $\square$ A EFEF |
| UniRef90-A8PL21 | I CHYLGFAPLNFAFFEHLDNFEHAFRQQ |
| UniRef90-R4VCW8 | I A L G G G L E EDYARLE |
| UniRef90-Q0IAI1 | WAEAL GVVKREI S S L V |
| UniRef90_M1FEF3 | $\square$ D R GL G L P E S QV D QL EAM |
| UniRef90_UPI0003F65D8D | YAHRI GYGKEILDDMIK |
| UniRef90_S6GHT9 | VCTFLKMSQQEMNELLTRLQAQQSF |
| UniRef90_U7G747 | $V A E G L G V P P Q Q F R Q I L N M L L A Q A Q F S G A R$ |
| UniRef90_S2KKG8 | V ARGLGCSEAEVAQI EAM |
| UniRef90-F8GFN9 | V A GRLGYS PAAFKQLLDMILNQMHF |
| UniRef90-K0E6E6 |  |
| UniRef90_Q31P48 | FAAALSMKTDVIDALEHRCDREAAA |
| UniRef90_F4AVD2 | LS $\square_{\text {l }} \mathrm{L}$ G F |
| UniRef90_UPI000363FFC9 |  |
| UniRef90-R1IJX9 | I A S T L GF S |
| UniRef90-UPI00037EA8CE | $V C G L L Q M S Q A E M A A L M A R M Q S Q F S Y Q Q$ |
| UniRef90_UPI0003717179 | $V A E L L G V S T R E R V E L R R E F R E A A$ |
| UniRef90_A0Y993 | TAGFLGI GNRQFEQLLAMLTAQQSF |
| UniRef90_A3ZZH5 | TGKRI GLS D Y DFARLLELLYRQAKELQEQRKA |
| UniRef90_14YTI1 | LA EALDLDP S IR SQI D D TAE |
| UniRef90-E9AWA9 |  |
| UniRef90-B8IDX3 | $L G Q L L G F E E A Q \square T$ TARAVALLA A LP SREA |
| UniRef90-W1IBZ1 | I ARQL GYSEQQFAQLMAMIQGQDQF |
| UniRef90-B8EM04 | $V A E L L G V S S R D R V L L R Q Q V A A E T A A$ |
| UniRef90-UPI0003B55451 | I ARGLGMSAHDVAMFEAM |
| UniRef90-B0BRT5 | LA EALGLDD A LVVERLEQQA |
| UniRef90-A5GKU0 | WA DLLGCDQSALKK L |
| UniRef90-H1XRW4 | VAEI FGLLS P I E F E Q R A LFVK |
| UniRef90_K8P568 |  |

## UniRef90 B0JWF

UniRef90 ${ }^{-13 C 216}$
UniRef90-UPI0003077FF7
UniRef90 D5BEU8 UniRef90 M2B0U8 UniRef90-W7IUZ7
UniRef90-V5HEY
UniRef90 K9SKK0
UniRef90 C7R7T5
UniRef90-A6ELT3
UniRef90 K9SAl7
UniRef90- E3BLYs
UniRef90 F9TKB2
UniRef90-Q2YAM6
UniRef90 Q10XA2
UniRef90 ${ }^{-} 4 \mathrm{CH} 38$
UniRef90-H2BWM6
UniRef90-DOLVKS
UniRef90 F2J2X0
UniRef90 A1ZDG6
UniRef90_UPI0003F7EBE4
UniRef90 A3Y8K7
UniRef90 UPI0003B4741B
UniRef90-N6WY90
UniRef90-A6F6D8
UniRef90 A0A017TI88
UniRef90-W9AA88
UniRef90-UPI00035F0337
UniRef90 A4BAJ4
UniRef90 K4IJF0
UniRef90-W5Z0P7
UniRef90-R5R7T7
UniRef90 F5SZY8
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UniRef90_C0BGZ8
UniRef90 UPI00040C4D13
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UniRef90-J5VNV1
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UniRef90_L8JWX8
UniRef90_M7YWT2
UniRef90-Q47VK2
UniRef90-A0A011PWP5
UniRef90_U1IGC6
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UniRef90-A0A011NS45
UniRef90 UPI0002881E96
UniRef90 UPI00037926D9
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UniRef90 M5DPK
UniRef90-M7CV43
UniRef90-B8IV23
UniRef90_R4YKJ
UniRef90 L8J737
UniRef90_A1ZX90
UniRef90-U1M9S7
UniRef90 A8PL2
UniRef90-R4VCW8
UniRef90-QOIAl1
UniRef90 M1FEF3
UniRef90 UPI0003F65D8D
UniRef90-S6GHT9
UniRef90-U7G747
UniRef90 S2KKG8
UniRef90 F8GFN9
UniRef90-K0E6E6
UniRef90 Q31P48
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UniRef90 UPIO0037EA8CE
UniRef90-UPI0003717179
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UniRef90 A3ZZH!
UniRef90 I4YTI
UniRef90-E9AWA9
UniRef90_B8IDX3
UniRef90 W1IBZ
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UniRef90-BOBRT5
UniRef90 A5GKU0
UniRef90-H1XRW4
UniRef90 K8P568

ERERLLY $\stackrel{L}{M} \xrightarrow[M A S]{L} A A$
REAAAFDE
T D Y R L A A A A L L V HV V S E D Q Q A LLLI RAMI AAAN QERQR L L Y M MAA $A$ A A EDDPLVAAAALLFHVGE S RVQED DPRVAAAALLIHVMA LQAMIMAAR F Q I L GHLTTK F A DRLN NQQRQADFDLAVMLAY F QI L GHLTK QEGF LEESIF S V MG
FKEKGGFS GLDSPSSKLIFFHSLFSIAK
F D K VG GF F K G E E V S E R Q A L F S VM G H I A K

|  |  |
| :---: | :---: |
| UniRef90-UPI00037CE9DE |  |
| UniRef90-N6WMS5 | ADGHIDADERALL |
| UniRef90-W1NDA4 | ADGQVSGHERQV |
| UniRet90-K7A0 | SDGIVSQEEDQV |
| UniRef90-H8W | ADGHIDA |
| UniRef90-EOW | AK |
| UniRef90-R5 | VD |
| UniRef90-UPIooo3b46AA1 | SNGRVNEMHTRAATQFMDEMGLSGEDKREAAGKEADFSMN |
| UniRef90-U1LAY5 | SNGRVSEDHI QAASAFMSEMGLQGEERKEAQDFSTKEAVT |
| UniRet90-U2EMSO |  |
|  |  |
| UniRe |  |
| UniRef90_UPIO002FB2 | ADGTIDKEEMELIFGMMDLEGMSEKGKRLCLSFIIEAPPF |
|  |  |
| UniRef9-UPIO00364F343 | VKG |
| UniRef90-G7G3E9 | SNGRVSEMHDKAANLFMDEMGLKGEERREAQQFSLKETVH |
|  | DGEVDEEERRKLRALSEQYHLDDEETEALRDLEAVDLYT |
| UniRef90-UPIO |  |
| UniRef90_L8JK | - |
| UniRet90_O26GC7 |  |
| UniRef90-A1VLB3 | ADGEIDNEEDGHLLSVLGGKDQNQALLDNAVKYRRKNS |
| UniRef90-AOAO24K |  |
| UniR | ADGRVSEAEVAQTEQLMTQMGLTAEQRREAKEFDPKPTMA |
| Un |  |
| UniRef90-H5V | A |
| UniRe990-UPI0002E7 |  |
| $\begin{aligned} & \text { UniRef90-UPIOOO } \\ & \text { UniRefon-F1V4D } \end{aligned}$ |  |
| UniRef90 ${ }^{-}$W0Q5G5 | AKGRV |
| UniRef90-UPI000417A | A |
|  | S |
| Q3 | SNGR1SEVUH KAATLFMDEMGLGEERREAQHAFQSGKEND |
|  |  |
| UniRef90 U7D5Y6 | CNDELHENEKDFIIDAATGLGLNDHKKEELYAVMYRGFKR |
| UniRef90-UPI0003B36 | VDGHVSRDEDDAFKRVGEAKNVGRDFDMAKASPDGFEPYA |
| UniRef90-M5RSB | ADGSLGERELNLVADRCVDLGLDEELQKATEFGLGDQATL |
|  | SDGVLDNRERDL VQEG GNEPELQQWLEQE】ANPDSV |
| UniRef90_U2TU | ADGEVTAAERK |
| UniRef90 Q11VL0 | ADGWVPNETRMAESLMARMOLSPERRRAADNFPDDEVID |
| UniRef90-H8YXY9 | SDGEVSGDEIQRILGKAQQSGVG |
| UniRef90-R5R9J2 | $\downarrow$ |
|  |  |
| UniRef90 B7S2K9 | ADGRISQQEIDQTESHISQMGLDAQQRKRAISLFQQGSAQ |
| UniRef90-UP100035FB22B | ADGRVT |
| UniRef90-17ZA84 | ADGRVSAEEILRAVEALFDQLRLSGEAREAAKVFDLDAEVA |
| UniR |  |
| UniRef90-UP10003B | ADGRVCEMEVQQAEAIFTQLGLSGERRRQAIAFELETCVS |
| - |  |
|  | ADGKI DTKEMAM |
| UniRet90-B9QUH1 |  |
| UniRef90 UPI00040F3258 |  |
|  |  |
|  |  |
| UniRet90 UPI000346DFD4 <br> UniRef90 E1SVX |  |
| UniRef90- J2T6W9 | CDDDFSPLELKMLYKTAEERGUSAKNLDELLNPINSKSLI |
|  | ADGETDDRERQMI NGETSKHTDDPQLQQWFDTEVAKPLVA |
| UniRef90 A0AO17SWH7 |  |
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|  | ADGVVNREEID A K RAFRVPPGDMAAVHSPDGYEAYA |
|  |  |
|  |  |
| 1004671902 | ADGVRGADEAEALRR A A A R R S GDELDRLAERDAVDLYA |
| $\begin{aligned} & \text { niRef90_HOH } \\ & \text { niRef90 } \end{aligned}$ |  |
| UniRet90-C9F |  |
| UniRef90 UPI000423CCBF |  |
| UniRef90-COBNL7 | ADGQVSPAEKEF |
| UniRef90-UPIO002ED60B3 |  |
|  |  |
|  |  |
| UniRef90 H8NOF5 | ADGDVSNAERRLLLKLCAERWSVSWANVEMALINAGPQLFE |
|  | DGVI EESESSKLRELINNYDLEELIAAAKQRDAVDLYG |
| f90 |  |
| f90 | , |
| UniRef90_Q1D5Y5 |  |
| UniRef90 UPIOOO364C53E | A DGT |
|  | A A GM |
|  |  |
| UniRef90-UPIO00381EA1A |  |
| UniRef90 ${ }^{-} 8$ | SKGRVTETDIQLASNLMDRMQLHGETRKAAQQAEPDFPLR |
|  |  |
|  |  |
| 71BBOE | S |
|  | K |
| ef90_R5 |  |



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| :---: | :---: |
| UniRef9- UPIo0037CE9DE | VA ELLGVT |
| UniRef90-N6WMS5 | LAGALNLPPEMVLELDRQL |
| UniRef90-W1NDA4 | VARGLGCSPAEI EQ |
| UniRet90-K7AOS3 | 1 AKTLGFRRVELDFLIDTFEAEQRFRTGR |
| UniRef90-H8W888 | LAGALKTEPNLARELEQQV |
| UniRef90-EOWS55 | 1 AEELGISSAQFEQLINTMEGG |
| UniRef90-R5Q729 | VGLTLIPTIEKMEQI SSWVIRGDEWEEEGADपF |
| UniRef90-UP10003B46AA1 | VAKGLGVSKTHFNF LKRYQAEFA |
| UniRef90-U1LAY5 | VSKYLGFAETHFLFLLKRYQAEFEFRRSQAS |
| UniRet90_U2EMS0 | VARGLGLSEME |
| UniRet90-U1KK34 | VSQLLGVSNTHFSFILKRYQA |
| UniRef90-R5XZZ88 | IGdalinl epaklugal SSWVID RITWLEQEALIF |
| UniRef90-UP10002FB2697 | TQKKFNITNEQVVAI SKFVKQV |
| UniRef90-A4SR00 |  |
| UniRet90-E1W3U2 | VAEELGLSRMQFEQMLAMEDAARQFTQGRFYRQYQQGS |
| UniRef90-UP1000364F343 | VSELLGVSSRDRDALRQKVAR |
| UniRef90-G7G3E9 | VSKQLGISKTHFAFVLKRYQAEFNFRK |
| UniRef90-V4RL08 | VAELLGVSARDRMLLRKQVTDE |
| UniRef90-UP100041B001A | AADLLGl S SRDRIDLKHLVAGRRSAEA |
| UniRef90-L8JKW1 | VLKKLGYDEDALLFDLVST |
| UniRef90-Q26GC7 | TA GGYNDVDAKYLVDRSVE |
| UniRef90-A1VLB3 | FLQAFGMAEERFRPFFEV |
| UniRef90 A0A024KIL3 | A ALL GVSTRDRNULR |
| UniRef90-UP100035E65A6 | 1 AAGLGINGFAFEQLIKMDKAQNSF |
| UniRef90-UPIO00415EF00 | $\square C D R L Q S R F L F H D 1 K A R F E T A$ |
| UniRef90-H5VA56 | YAKEMGVSTQKVDQLKDWVVKNFMLYQEALELL |
| UniRef90-UP10002E7D751 | LASALNLSPDIVAELEHQA |
| UniRef90-UPIOOO36B977E |  |
| UniRet90-W0Q5G5 | AETMGMSRFQFEQMIAMIMAAQQFR |
| UniRef90-UPI000417AAB2 | AGFLGVYardFESlKamFFK |
| UniRet90-W11UY9 | IAEELGISRRQFEQFLAMM |
| UniRef90-Q31FD7 | VSKQLGVSRAHFAFVLKRYQAEFSFR |
| UniRef90-J4UWH4 | ETMGISRFQFEQMI AMVMAAQQFR |
| UniRet90 Aozzz3 | SLLGMPTQAVDRVVAML |
| UniRef90-U7D5Y6 | LAEELNTPKNAVDKIEEWILEGUEWNKKGEYLL |
| UniRef90 UPIOOO3B36280 |  |
| UniRef90-M5RSB5 | AAVKMELT ENDVNEI ITRTVKNQS |
| UniRef90-C9PMa6 | LAA QALNLDDALVEQL |
| UniRef90-U2TUL5 | AAAKLGIRMAVAGVLVKK\VDGTKTNKSHETL |
| UniRef90-D5C3B3 | IFARLGISRREFEALL |
| UniRet90-H8YXY9 |  |
| UniRet90-R5R9J2 | GMNDGI KEDKLNDFF 乌WA EEGDEWQDAGVKLVEED |
| UniRef90-UP10001E89D46 | DYENFKTW |
| UniRef90_B7S2K9 | QLLQ QMLRMA |
| UniRef90_UP100035FB22B | RVSRFDYERLI QLRAQYRFFGQGRQ |
| UniRef90 Q2BK19 | VCRLLDFGDVSVEEVIARVKAQRDFYQ |
| UniRef90-10WH 4 | LGTGLGFTPANVEFITKKA |
| UniRef90-UPI0003B6B912 | HFLGFNSARFEQLLNMTRAQHH |
| UniRef90-S2KYQ2 | LAQAL GLEPAMTTELERQAL |
| UniRef90_K2BPA3 | M Q |
| UniRef90_B9QUH1 | AELLGVSSRDRMTLRHKVAKTA |
| UniRef90-UPIO0040F3258 | LAQALGI PADVAGDLERALTDRDEATPARD |
| UniRef90-UPI00037A171F |  |
| UniRef90-UP1000346DFD4 | QTKLELSEPTVKKLVTLVEEAQKF |
| UniRef90 E1SVX1 | IAGALGFSPVQVEQ |
| UniRef90-J2TGW9 |  |
| UniRet90_W6VGX2 | LAAALQIDPQLQVHLEAQAKGQA |
| UniRef90_A0A017SWH7 |  |
| UniRef90-H6SNV3 |  |
| UniRef90-W0DQ31 | I A QKLGLDPELLLAIEKWVRQGFDWLHEGEQLL |
| UniRef90-F2KU81 | VARYLGLSPQDVDSMLNL |
| UniRef90-UP10004671902 |  |
| UniRef90-HOHLE7 | VAELI GVDRRERVLA |
| UniRef90-Q7MIE4 | K QL QLA |
| UniRef90-C9PNG5 | EELGLSRFQFEQMLAMEFAARQF |
| UniRef90-UP10000423CCBF | LEMGLNPSAVKRVLE पMKKA |
| UniRef90-COBNL7 |  |
| UniRef90-1484J0 | AATANGDD ${ }^{\text {a }}$ |
| UniRef90-M7N242 | VASRLGYKSGVVRALS SHUYSDPSDTADRLML |
| UniRef90 H8N0F5 | Q HL GLEE |
| UniRef90-A0P041 | VAELLGVSTRDRMNLRHKVAQTA |
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| UniRet90-Q1D5Y5 | AA AHLGL QDRLESMLD |
| UniRef90-UPIO00364C53E | VAELLGVS |
| UniRef90-011D55 | VAELGIDTRTRVNMRQSVQAEDR |
| UniRef90-H1G6K8 | LA A ALALPKDVADELERELGRDQVA |
| UniRef90-UPIO00381EA1A | \\| AQKLGLNEELFMRIEKWVRE |
| UniRef90-K8WRP6 | 1 AEELGISKIQFEKFLSMLQGSQRF |
| UniRef90-G9EC87 | VARGVGCSDA |
| UniRef90-A4YK14 |  |
| UnRef90-UPIO003718B0E UniRef90 A4C9A2 | AGKLSFDKTLLDQL |
| UniRef90_A4C9A2 | A AKTLGFSSSHFAFILKRYQAEFKF MAERLNIENEKIKQINKWVLDKIVL |

## UniRet90 UPIOOO37CE9DE

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UniRef90 UPIOOO2FB2697 UniRef90_A4SR00 UniRef90 E1W3U2 UniRef90-UPIOOO364F343 UniRe90-G7 UniRef90-UPI00041B001A UniRef90 O26GC7 UniRef90-A1VLB3 UniRef90-A0A024KIL3
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U UniRef90-J4UWH4 UniRefo-UniRef90-UPI0003B36280 UniRef90-M5RSB5 UniRef90- U2TUL5 UniRef90-Q11VLO UniRef90_D5C3B3 UniRef90-R5R9J2 UniRef90-UPI0001 E89D46 UniRergo B7S2K. UniRef90_UPI00035FB22B UniRef90-Q2BK19 UniRef90-10wH UniRef90-UPI0003B6B912 UniRef90-K2BPA UniRef90 B9QUH1 UniRef90_UPIO0040F3258 Unine ol UniRef90-E1SVX , UniRef90-A0A017SWH7 Uni eefo-bJVC UniRef90 ${ }^{-}$W0DQ3 UniRef90-F2KU81 90 UPI0004671902 nirefo HOHLE UniRef90-C9PNG5 UniRet90 UPI000423CCBF UniRef90 COBNL UniRef90-UPIO002ED60B3 UniRei90_4B4J0 Unef9 M7242 UniRef90 ${ }^{-}$AOP041
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UniRef90-R5YLX7

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TEQEK LLLLRRLMICVGH D R SI L A R ML M A V A R
GEARPDDARVAVVALCY QVME
EMFTPTQRRWFARMVVAMVQ FREVLGQAKNRQA IFFNTTFAVMGHVAK Q F GVQS S P DNIR A R R LI Q A L V F A A K L R A MI S A A K
PQTERLMIKAMITAAK
Y G A QPSPVDKRTE RLI L A LVGFAA K E N L K A H FL L L Y Q M A I SPED F ELHLLTLLS S I MK

PEHK $\square A F M R \square A R L L A G G$
GLLE P QT DEEQQAVLRAMDNATK
FAVMGHVAK
 Q Y G Q Q VA P $\square D Q R$ VQRLVMALVFAAK $\square L I L I E L A T$ L $\mathrm{Y} \stackrel{\mathrm{R}}{\mathrm{R}} \mathrm{M} \mathrm{V} \mathrm{M}$
GFFANNQSRQLLFFFQVMGHITK FFKELPGFDQTFSDEDPRLAAAALMFVDE DTEQRNSFLVSSLAVMK LQ TKE QKETF L E L A HLV A G E QP N Q Q T Q N TH $\square K$ A M M A A A K F AVLGHLSK $F \quad L L M G Y \vee \underset{V}{V} K$
GK T P T A SPNLA $\quad$ AAS L LCEVAG
D D Y RV A A A A L L
K F D ND DPRLAAAALLFHIMD
$\square$ F N S M G G K K Q S V S P G D F EL N L L S L S S I VK
K F A E D D K R LIA A A A L L F H L V D
F S K K $\square$ T R Q S M Q T T F A V L G H L S K
FAVLGNLSK

MGLFDMFKSDSGDQMTP
HLAFATSLLYMDA F E V $V$ M G N L T K FAVMGH1AK
EFAPDDPRVAFVALCFQVME
T TEK I Y S HL I HLLY QLA K SERD $\square F A T S S E S E L L A F Y G S L A B A$ A A A $A F Q V M G H L A K$
TPADFEMHLI SLA 1 V $\square K$
GADESTRPN DARVAA $V \underset{V}{V} A$ I T A L V F A A K
GPDASDPDVAAVALEYVIG
G G S GRRPRDDDPRVAASALLYYVVM
DHSKLAFFTAMGHIAK
FCVSS RPEQRLEREYMRGLVACAK
SPGDF ELNLLSLASVI K NENGGFSSFSNSRQFELNLLSLCTVI R GFSTAPSNDFALSLVRAMIAAAR GVIHET F D P D D S V LI L K A M I GA A K


M A K
 PN Y TQQRQRQLLRN N V VMAL MTNLDMLAFMEATKEPSAFENHP
 $F R \vee M G F \vee A K$ NF $\square$ NT L S NGERF IF L K I I C G TVA

NQQA T T LI K A MLL N A A K
PETDARLALSALLVR $\square A R$
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IVQKPSKNAKELGL LLI GIA W
RPYEEARNSF|LFSMLVV口K

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UniRef90_G6AF92

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 A D GRVVDLHERAFVVHSAI QLLDS DHDE I L D L E E Y V L H S K C P E


A
, AK GRVTAE D I QLANMFMDRMQLDEAHRQLAKAAEADFPDR A D G K V N Q T E L D Y V R Q Y F VR A Y GK E R A N A TFRTTFNE I I K NR
 AD G H V



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## A

A D G R V $V$ K K Q E K H L L L D Q F V


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ADGNUSDQEQQKFRDLRERYDLSEDRLKALIEVGHQAGSE ID NRFVKEEKRYLYALGRKNGVAEKEVDEII ADGSVDIDEEDVLFKTINLDKFSDSAKTQUQSYTATPPSLD ADGSVNQTELNYVRQYFRANNIFRTFNTVIKDREDSAQRV ADGVVSESEQKRLRELMESYGLHGAGLEDLDTAEAVDFYR SDGQVSVEEDQRIVGKVEAAGMGEWLMTELREPLNLDAFV ADGVVDEAEAEALKTMIAEEYADSGEAGEAADRESVDLYS VDGVRQDAEWERFKALGESHSLSGAEDDELADREAVDLYA ADGRVTKNEVDLAKDLMHQWNLDSDDRKFARTLFRQGRDD HDTQ TKDELMRFVDVAASLGGSHSEVLSAGKMGGESGMS ADGKVSQTELDYVRAYFVQAYGKERANEVIKNREDSGQRIG
ANGQVTQAELDFVRQQFVSLYGKERANAVFRTFNDSAERV ADGHIDDAERQHILGKVQQAGVGAEAEAFFERELANPVDV ADGHVDEEEMARIEQALTDMGADEHVRQLVQQELNKPLDP VDGRLSSEEKAHIESLRESLGGDDAEFARLEDTEGDKRDL ADGKVSQSELDYVRQYFVQAYGKDRANEVIKKRDVSAQRII ADGHFHESERNADDRVQQAVGLTEDVAEVRLNETNPERLE SNGRVSEVHVVAATELMRRLNLSSTEKKKAQDFPLKDAVD
 ADGSIGGREVALLADRCVELGLGQAELQAALEFGLGDDAA
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9 I
UniRef90 U7D599
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I A Q E L GYGRAQLDELLKRWQAEFRFH Q
L A A S L K I P Q DVVR Q S I
L A A K L K L D P A AVVTYMHQAV
$L$
$L$
$G$


LA A GLGLT PQLTER IQQMD
AKAL GLSSQDLDALLQRWQAE
$V$ A E EL GYSRMQFEQMLAMMYAARQFSQ

I A Q K L GYK K K SVVA ELS K S I Y S D P S $\square T$ S D REEL
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YALMYGIKEEEDENLTD F L-LT N A K
I A E L I G V D Q E Q R DG I K R VA E R A R S M R D A
IS A TL GI S R D E S ESVVFAMFD K
A A D L L A V S Tr D R
ICNQMGI GNNDFES IQAMF

I A D L G V T A D D L R Q A Q Q L A P Q S A
I G GLL GYS A Q AV E E F L RMATAQEQFHQQPG HPDTP
1 A DTLGVKPEELHKARQ
A A ELLYVD
VA Q $L L G Y S R T Q Q L D E L L K R W Q A E$
I A G Y L Q i G S R D F E S I K A M F F K S
V A E LL G V S S R D R M L L R R K V
I A EELGLSRFQFDQMLLAMEMAARQFTQ
FGEKNNF AFQFLQMAMEMARRQF
A A EVNDLD A EDV
A A DL L A I S S R DR $\quad \mathrm{LE}$ LK H R V
L A T A L K L L Q P E L L T A E L E R R Q A K Q A
A GYFRIN H Q DFES SK NMFVKK A
LAAALRLDPK
FADELGVTREQFELFMR

I A E E L G $\square$ S RMQFD QF L RMME
ARELGFS FQLDELLKRWQAELRFQQA
I A E RMGLDRGLV
AK K MLAVVSDLQLQAMQEF DADMK Q $\square R E A A$
ITE QL GIARLQFEALHTLERAQR



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

VA QEL GFSAS QLDE LLKR WQAEFNFH Q

I SAHLNLMMRDFE SIIKAMFFKSA
I A Y Y L RLERSDYESI K A MF
L A G R L G L P D A LVVD HI E A T V

A A G Y L S I Q S A D F S S $\quad$ IK K A M F F K

L S Q Y L L $K$

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

AAAHMNIVGERLQEI ITSVVEKQS
ICRRLEVFGFDYNQFEQRFRAE
I A A A M HI E P E R VKE IN A VVNE Y LAAVS QKACILL
LA QA L G L P Q TV V GL H Q
I A P LL GI H DRDSNLARQRVEDRRGLR
L G D AL K $\square P Q D V R D G \square Q Q D L E A E K S$
LA DA
I A S

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EKK LLLY I Y GMlV IVVA
FKNFS $\square$ SKES $\square Q R S E \square G \square F \square A L V A K V A K$

A $\square$ K DFFRSELQSSPHETNEQNLACAALLLEVVAD
FSDFTRQK

F S VMGHMAK
$M A Q D L L$
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F QVMGHL
YGVFKAGKDARF L RF $\square H Y$ YLLVME N
K VM A A A
QSKEKFSFLQLAHYAAA
ELKSHFLRLYQMAF
LIFDNMFN SVPTEKKYEAYAVVLYCCAN
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FNTEQAQDFLTMFSLLALMAK
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fs la GHIAK
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FAVLGHLSK

ARQKAILVEVLAGLAV
FQVMGHLT K
KA ALKA LVAAAR


DSYRSALIGLAFVAH
SNGPADTHAMVILAALVSAAK
FTATESVMGHVAR
EDQSRIILRAMIIAAAA
D QSR I LRAMIAAAA
PRDG

$R \square A A$

Q S ViS P A D F E L

                                    \(L\)\begin{tabular}{ll|l|l}
    $Q$ \& $A$ \& $M$ \& $M A A A R$ <br>
\hline
\end{tabular}

                                    PDDEQNLGQLRVMLAAAR
                                    \(E \square L N E Q Q K T W F A V A V C H A A K\)
                                    \(P Q Q V F A \square A L \frac{1}{I}\) I \(T\) L A K
                                    QAMIAAAK
                                    \(\begin{array}{ccccccc}F Q V & M & H & \square & K & K \\ A & L & V & F & A & A & K\end{array}\)
                                    LK A M I NAAK
    
$\begin{array}{lllllll} & Q & A & L & V & F & A\end{array} A$
AAMAGSAALIAM


$\square F S$ S QE LP LVLR S LV TVVA
F Q D Q K GEVSS G D F E L
$F \square Q H \square N D E Q Q A A B L Y Y F S$ K E M I A A
KHNRGFFTDQQTRQFRTTFQVMGHLTK
$F G F V N T E A A E Q A E L M L K A M V A A A Q$
GF GELLQTPVDQRALVTALVAFAAK
DFE $\square$ S LVLADVVK
$G R \square D D A G F A A A L I A L S A L A K$
ETYQEK ISLLQEMI AFAKL
DREQMLFFVGLARIA S
D A R LAALC A LLLV RVA A
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F LQ N L S L I E K K S F L A A V A H H
A Y A M S L L A $V$ M K
$D Q V$ VLLQUAASMA W
QEFELSMAALLSCAAS
$P S D \square Y$ K A A F LTTVGMLVA K
Q QQRQGLDFRTTF QVVMK
MY HV 1 R
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in
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ADGRSDQREDYVRAQFVGMYGKDRANQAFKGFKNISQQE

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SDGHIDERERELEGEFTRLDSDGEQQWLHAELHKPLDP ANGNVDKDEVKYLMCFQNAFELEGEITSYLNKVDIDQEKV ADGVRQDVEWERFKQLAQSYSVSGDELDALAAAEADDLYA
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A AD GHi DADERALIVEQMQQLGAD

 A D G K IV V K S E EL L



 AD GLLVTRA
 VTAFREVFS IPP
 A D GHI D DAERARIMEKVR ISSGLDDEAEAFLEKELADPBVDL SKGRVTETD DQLATTLMDRMQLHGEARAAAQAAENDFPLR


 A K G VV HE R D $\square D L A N R V M N Q L R L P E A L R S E A R K F S V S D L V L$ D D GMI DNKERDI LERYRTRFGISSARAKELE $\stackrel{V}{V} \mathrm{~N}$ F
 ADGKV QKEMDYVRLYFVQSYGKERANA FR FNDVIK D R
 A D G K V $\operatorname{H}$ H P A E L E E T L
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 S D G K L D Q T E K Q
 A D GK V L R T E LIE YV K K Y F VQ S F GH E S A E E A L KQ HV V VR DVA IDD N DIV




## UniRef90 U7D6N2 UniRef90-E1SLK3 UniRef90-Q30TK3 UniRef90-C5BLR9 UniRef90_H8YYI8

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UniRef90

90
100
110
120
SEEVASFLLEENRYYFMLEAIITVJAYIDDEY|IHENEIJQ\| I ED RLKGALSWRRDLARVFLEIQIQAALADGDLNPRERQUAR TQLVNEFCTDEEKYLLIRGMWS A AYADGSLDKYEEYYIRK DMGSAGPPSRTASEEHLKTLIRLALADGNLSREELKSIEH KVLSEFAQMVRGDRNVLQMQVQVAYSDGTLHDNEKNDLYT DKMRQLRSVCFGRFDLLAMMQGTAGADGGSLHPKERDVLYE EFAQMVRGDRNVLQMFLGDQIQVAFSDGA:DESEKALLYU TEVVRVNVGYDSRVQLLHLLFGLAKADGQLNAVEVQMQQR TKLRELRSACFGRFDLIRMQI QAAFADGSLHPNERQVLYV QEIAKAAKKPTEARAVIQTGIVIAGADGYUEPSEQQVIHE QLKPSLASITSDNEKEQLLSGCWGLALCDGS DDAEREMFIK QENAAAAGDDRVLASELYLAARVVCDGELDRKEUVFLHE NQSVIPEDLDTKDEYLLFDLSQMIIADGVITEDEKNALKK QDVAARLQDDDARRLAYEMAVCVCEADGSISEAERAFLTE ELLEGGSINVKENLRPQLFYCCDVFLADGVVTEEEKKILEN KVQGSEDQRTTHFYKLMLLMNVDHETHDKEVAMI RN N ATQFNSLIFRNERRNLLTMMLRLAYSDGVFHENEERLIDK FTQTAANLTYEERLQLLVFLVETAKSDGHVCNEEDEALKE ETVKEFKQYCFGRRDFLAVQLQAALANGQLHHNAES ILTK EDVVAG VRDQETAEQVYVASELAVEDGR AERNYLAY TVIRRFRTECMGQRTLLQMQLQAAYINGEPSDAKRAVLEQ ATLQRVRQDCAGRRDLLQMQLQAAFADGQLHPNERKMLF KDhEQ
 AEVARAAQTPEMAAEMYLASVMMVDQENFM MEERAYLDE NEFMEFDEEENLKYNFLLDGLMLI GVDGELKEDKVNDVAE FTSVLKRHLDEARKAFLGLMWEVVYADGELHELEDNTVWR CTFLTQRTRYEVRLQLLHFLEGIAQADGS:SNPEDSKLRE VDYSVFKENFDESLAMVALDMIAAAANDDGNFHVTEKMFIVKN DAQALARQADSPQAAREI YLASAAVIDGEQNAMERAWLDE QFRKECHRRYALLRDFLEIQLEAAFADGPVNQAEERVLDD QALAQAVNGNAALAAEVYLAARIVCAD LDRKELIFLQ PEALHT KKIEYLYDLTRIIWADGKITDDELNMLRK QQVCRQDSANNSKVQLVHMLFGVANADGAIPASEQDVIRL TDVSVSAT DPA AAAEMYLASVMLVND QGEAERAYLDE CQQLRFQMPEASKVQLLYFLFGIAKADGTVSTAEDGLEEN AALVRD VPPGLQAQVYTM SLMADDLDD HQTEAQYLDQ CNFMVQRTRYEVRLQMLHFRFGLAQSDGQVSKAEDQKLRE QALAQTADSPQAAREVYYLVSATVVDDQNPMERAWLDQ
 KLDKFPLATRELLEKKLIGELALI TTADDVISTREDDFLMN QQIAQUYRNNSAVLDEVINGYYAEADGKVSNSEDAMIRN KKLQQLRGDCLGRVDLIKMQFQAAFSDGDLHPNERQVLYV KRLAQDVKSEEEALELYFDSCAADDTDHFM ERSYLDA QQL $\cap A A V G G R P D V A A Q V Y A A L F A I I E V D$ TPGEKEYLNQ DPI LLAKDVKNEEEALEVYFLSCAVIDVD HFMEKSYLDA
 DTLGKMKSNAEASRLLVRMVIAIASADGNFDASEKFVAIK EVKKQFПAFPNFQRMFFDICLSAAILDGRIIDSEKSIIRD QAMASSTLTPEEQEY VNEYKAALCDGVLNERDRRILSR DELGSLFELQHQKVALMLELIGVAYADETYQDSEKAVIGH EEYLRPRVRYEVRLQLHFLFNISNADGHVSESELQVLLS YEVYAKQVGDMFREELLAGLFH1AKADGVVHPAEVTFLRG TLYNLPHEQKKALAD LDE
 KVWLAADVKNEEEALELLELLIASCAADDVDHFMERSYLSAB CLQDRQHMPHSSRLQLI HFLFGMAKSDGMVSESEVEEIRK KIVARKFRARPAALEDVMDLFHIALADGVLSAPEMEFLQK KVVIKDEISRICQFYRLALLMHVDGVLHEKENKKI NE VQFYQNFSHASNDLQLMIDDFRVAAADGQISQREEDMIRR ALVDAVPRGLEEQVYLDMSLMAIDLDAQAEAQYLHD VNKVATFRRQVARRDLLQQVLILALHDGKLEQAEYDVLLR SVSVYEFTSTKQRYELLIESMWCVAYADGVI DPSEEALIRQ SLRSRLSELDTGQRQS GDAVRVASSDGSHHRAEDALLEK ELRSVCFGRDDLIRMFLEDQLQAAFADGQLHPNERAVLYV $Y K F T S V L R M M E D R V H F V E L Q W E L V Y S D G E R H E L E D N V V W R$
$S E T A K L A V S P E H G T E I V$ CEIVASDFVNEKALRFLEMADGMAIIADGRLDPSENHILIKF

| UniRef90 U7D6N2 | $\text { FFRLLKMNK } 130 \mathrm{KKK} \text { KFD } 14 \mathrm{H}^{140} \quad \text { CLRKKQFK }$ |
| :---: | :---: |
| UniRef90-E1SLK3 | $\square A S Q L G F S A E E L A Q L V A M W Q G Q R G A Q R Q G F S$ |
| UniRef90_Q30TK3 | I AEALEFDPN】YHAMFDKFEQ |
| UniRef90_C5BLR9 | VAELI Y VS HSQF |
| UniRef90-H8YY18 | AGKRLGYDQKRTARLTQQVLQ |
| UniRef90-UPI00037D1907 | IA ELLGGFSRFELDRLLQMFE |
| UniRef90-UPI000365B947 | I A GYLRVGRNDFESIKAMFDKSA |
| UniRef90-A7MIA9 | I GEELGISRMQFDQFLRMMQGGAQF |
| UniRef90-M4U2U6 | I AEQLGFSRFELDRLLLQMVE |
| UniRef90-K2CMU8 | LA QHL GYSTADVTRVIKSEEKRRFAEQRE |
| UniRef90-UPI00029B4223 | $\square$ S GLLGGVSSTDYQAVLNMFYDNVEAAYKVLED |
| UniRef90-K6FJJ2 | YSKNIGLTKEQFSKMLKEAESA |
| UniRef90-D4GJP4 | $\square \mathrm{GEELGI}$ SQSQFDQFLRMME |
| UniRef90-D9WQK5 | ACAALGIPPTEF |
| UniRef90-K2BRH9 | $F G Q E L N V S A G Q L T R \prod Q Q K M E A Q L A$ |
| UniRef90_G9ZJ45 | LATALKLDDGUVAQLEQQA |
| UniRef90-G2HX25 | IS ${ }^{\text {S S G G D D D DVN D Y S Q W }}$ |
| UniRef90_UPIO0046701E7 | YCKKFGFLEENLEELT E Y L |
| UniRef90-E7RWJ2 | ARQALQLDTASAEA TVQQAEALA QAPLA |
| UniRef90-UPI00035C6FE2 |  |
| UniRef90-FOLVN6 |  |
| UniRef90-A6ETA9 | FGVKMGI R P DVID QM |
| UniRef90-T2KGC6 | $\square S N Y \square G I R A D D F E S \square K A M F$ |
| UniRef90-K2C378 | AKKIFNISDYEYESFKAR |
| UniRef90-UPIOOO2558358 | LAVG ${ }^{\text {L }}$ GFPLDTHEKVVDVAVE |
| UniRef90-R7EM11 | V A M M M L S VKEVES ML NL |
| UniRef90-UPI00030E42BD | I GKTLGFNPAEVATYISQAKAS |
| UniRef90_B6IWL6 | L A D RLRLP ESRVEELKRIA |
| UniRef90-V4JB65 | I R S GLSIPRLI F D Q E ENLVRLQAQF |
| UniRef90-B4F2H8 | 1 D D ELGFSRARFEHILAMMQAGQSF |
| UniRef90-S6EWA8 | $V A E E L G L S S F Q F Q Q 1 \square \square M A E \square A A R Q$ |
| UniRef90-R615W5 |  |
| UniRef90_Q08Y09 | L A A ALGVPEAELHRLL |
| UniRef90_Q2NVX2 | I A EELGI SRGQFDQFLSMMEGGAQF |
| UniRef90_UPI00037BC119 | I AF $\\|$ FGLSQNQYESIKETRKSSDKL |
| UniRef90-S2KAR9 | $L A R Q L R L D P A L R Q E L E N Q V R \square A$ |
| UniRef90-U5MZ47 | FAET F NVESEE\EFLCEVAMSULEENAKKFN\\|L |
| UniRef90-X6JDI4 | VAELIGVERQDRVE |
| UniRef90-UPI000479D251 | I A G Y R R V G L R D F ES $\square \mathrm{MAMFDKSA}$ |
| UniRef90-S9S307 | 1 YKAL GLD PA |
| UniRef90_I1DMU2 | V VKMI GFDENDLNELLE |
| UniRef90-M5ITX9 | L A RLL SLP S L RESLDNQVQA |
| UniRef90-W1N543 | LA S AL GLEEGVCRELER |
| UniRef90_Q60CQ6 | I CDRLRI SRFEYHAMKGR $\square$ D A A L R F |
| UniRef90-G2DRU6 | LAQALNLDNTLVDHLEQQA |
| UniRef90-J0RVB2 | YCRKFDFVEENINDLS C Y LID |
| UniRef90-W7YF32 | I A S GLGLS T R DFESVMNMYVKS |
| UniRef90-J3ES38 | L A A ALKI EPEDQVHLEQRAKGGAA |
| UniRef90-F9ZBY1 |  |
| UniRef90-Q21DA3 | A A DLLAVSARDRDNLKRQVAK |
| UniRef90-C8S2L1 | LARGLGLDKAAVNS |
| UniRef90-G2PQF4 | I A GYFRVNQHDFESIMAMFDKS |
| UniRef90_UPI00036ABAEA | LA GALGLP S EVKKALERQVE |
| UniRef90-UPI000381B2A2 | FAQKLGLDS GLVAHLDATAAQAKQ |
| UniRef90- X6L3Y2 | VAELFGMSETRFRAI RARF |
| UniRef90-UPI0002626766 | VGRILGFGREFAK IL 1 R WASEGII WRNK |
| UniRef90-UPI00037B3B27 | I A KVFGLSENQFEGI KESRKSSDKL |
| UniRef90-C4WH96 | L A GRLGLPDALVVD HIEATV |
| UniRef90-C4K7L0 | I SEELGISQRQFHQFLDMMESGSQFGHK |
| UniRef90-G9Z8G1 | L GDALNI PRAVREEIEQDIQRQKQA |
| UniRef90-A0LJX4 | LEAGLGLTPEVTQQI REFV |
| UniRef90_K4FJQ2 |  |
| UniRef90_A0A059GCA5 | I GAPREFEDAAHAKAAS $\square$ T A A Y A Q $\square$ R T ERGLLVRPD |
| UniRef90-UPI00034B91B6 | I CKELG $\square$ PPAEFE |
| UniRef90-UPI000377D74B | LFPLTGARPEDFDDFDGQFEQGAAFGQER |
| UniRef90-S2VMX3 | L A GFLKLS DKRVAELEEK |
| UniRef90-UPI0003F8F2DE |  |
| UniRef90-B8HZ45 | LARALSVHEQGLQVLQE |
| UniRef90-K4ITG6 | I SQNLRVANSDFESIIKAMFFKSA |
| UniRef90-W6K7U5 | VARVFGFTDTQFEQMRETRL |
| UniRef90-D0M3J5 |  |
| UniRef90_UPI00047B03DC | TF ${ }^{\text {a }}$ NI GLGEE |
| UniRef90-E9CM80 | TAEEL GIS HVQFDQFLS M M |
| UniRef90-UPI00025597A9 | L A D RLGVSDQAA QVV |
| UniRef90-G7UED8 | L GDALKIPQDVRDGI Q Q D L Q Q |
| UniRef90-DOZOB0 | I ARHLGFSEAQLEQTLRMQEAAFRFQQ |
| UniRef90-UPI00041D0C42 |  |
| UniRef90-UPI00036D7DAE | TSDIFGFSDREFNRLKASHMGRAA |
| UniRef90-UPI0003FF4C2B | $\square \mathrm{I}$ INMGLNPYAMKRVLHLMKK |
| UniRef90-FORZU4 | AS Q If HLPESFVDMLCSRY |
| UniRef90-A6E0H2 | VASLLGI T DQESARARQRVM |
| UniRef90-UPI0003B5A7AC | LA TALGLNQNLVNQ\HDQAGA QR |
| UniRef90-UPI0003FD53F4 | ITQALGFRREQLDVWLQMAQASQRFR |
| UniRef90-UPI000368930B | MVKDFNLS EEVINIYA Q WGK S M $\square$ A LM S Q A N S L ILK |
| UniRef90-X1FS48 | I A SYlGI S T K DKNSIK |
| UniRef90-UPI00034868A8 | LVS LL DLA P D R $\square$ Q A I E A EVK A Q Lir |
| UniRef90-UPI0002FE5F65 | $\checkmark$ A D L |
| UniRef90-C5B084 | AFRQMGLDQDRL |
| UniRef90-DOZC50 | $\square A E E L G F S R A Q F D Q F \square G M M E G G R Q F$ |
| UniRef90-UPI00038062A2 | I SELLLGVDGSDRVAMRQRVQR |
| UniRef90-A6D2T8 | L A NQL GLEEGLVAQLNA QIT Q |
| UniRef90-A1U306 |  |

UniRef90 U2RR95 UniRef90－W6RDDo UniRef90－J1JVG1 UniRef90－UPI00047BB585 UniRef90 Q3JCD7 UniRef90－C5B914 UniRef90－E4TN59 UniRef90 A7HTT2 UniRef90 P33218 UniRef90－B9JCH3 UniRef90 S9QHW9 UniRef90 UPI00047B5771 UniRef90 ${ }^{\text {K1X8L }}$ UniRef90－UPIO004651E15 UniRef90 UPI00047D05AO UniRef90－I3DBL3 UniRef90－UPIO0047109F2 UniRef90－UPI0003600DFF UniRef90 W6TNJ7 UniRef90－M3ЈТМ4 UniRef90－JoQTV3 UniRef90 UPIO0046D082A UniRef90－W2C8U6 UniRef90－A2TUD9 UniRef90 FOQ4L9 UniRef90－UPI000287C677 UniRef90－D5BL54 UniRef90－F4AZS3 UniRef90－UPIOO04635159 UniRef90＿I8ZUDO UniRef90－D6X680 UniRef90－R5TUC3 UniRef90－G9Y9V0 UniRef90－UPI0003B34646 UniRef90 UPIO00370C96D UniRef90－V3T123 UniRef90－Q0C5A3 UniRef90 A6GRWO UniRef90 ${ }^{-}$KoPMDO UniRef90－UPIO00469CC61 UniRef90－A4WP17 UniRef90 D4DQ05 UniRef90－B7VIT3 UniRef90－B9KFP5 UniRef90 UPIOOO3499883 UniRef90＿LOMHT2 UniRef90＿A3UEC2 UniRef90 Q0FSR8 UniRef90－K2JFQ0 UniRef90－O28LV6 UniRet90＿U1SR80 UniRef90 ${ }^{-26 \times 9 \times 5}$ UniRef90－L1PN10 UniRef90－S6ACB7 UniRe99 A№c3 UniRef90－UPI0004705376 UniRef90－K6ZML8
UniRef90 B2VJ74
UniRef90 UPI00035DD5EC
UniRef90-Q7MJZ1
UniRef90_V8QNFO
UniRef90 C5AVH7
UniRef90 UPIOOO2899153
UniRef90-G2ECL5
UniRef90_K2N7F6
UniRef90 14GH35
UniRef90-W9VC82
UniRef90_K2JNG1
UniRef90 UPIOOO36F1B92
UniRef90- BOUJE2
UniRef90-UPIOOO381783D
UniRef90-UPI0003B47663
UniRef90 UPI00035D3697
UniRef90-UPI000403174B
UniRef90-х0MY19
UniRef90 A0A017HRB
UniRef90 UPI00034D7607
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UniRef90_D31FX3
UniRef90 F3PRXC
UniRef90-UPI0003B70007
UniRef90-K2C4H9
UniRef90 $\mathrm{S6C026}$
UniRef90- UPIOO047058C7
UniRef90-UPIO0035C7E45
UniRef90-UPI000373BD3C
UniRef90 X7FFF3
UniRef90_UPI00047D4BFA
UniRef90_UPI000225FC2 EGDANYFSRHNAVRKVAEDPATAAELLLLIAAAGK EKLRNSEYGLIVALLSKLAQ MALS WLIFNEVSTNGKNETKRNKDFLEGVIAVAY QYGQQSAPPDARARRLVQALVFAAK K M L L L K VI A S A A H QF GAQS TPLDERTARLI LALLVFAAK
 TEDSAGLM』RAM』MAAR MAAVMK MMY।AK
SEQKQRADAALLIEVGT FLDEELEKKKLAFLELAGMIAR GNSSVTEKEFTQSEHSSADVSKVILQTMIAAAA
 ELQSHFLRLYQI AC KFADDDPRLAAAALMFHIMD

 QPEQTRAVMTLALMAAF
 NSENLQL I SDMLLMAK EARRNVAFTVAMIAMAK NYGQQHSPLDVRTERLILALVFAAK A L V A A A L V A A
QQEAFAGПAVALAG
QFGAQVSPDDTRTKRLIQAIVFAAK KKKVWG FOVMGHLTK
$P N D D G F T A A V V G L G A M A M$
PQVEQHQAILRALIGAAK
KGFAPDDPRIAVAALMQVME FDKLRSPPERSVAFTIAVIMAK

MAK
R I ILRTMDAAAS
FSQGFKQGYHEER DDGFKRR LINY A LLAAK $\square$ AK
QF GMQST TEAEK $\|$ SLLLEMI AFST GRAVDDAEFAMALIGGLGAMAK LPDADARLALTALLVRVAR TDARRALAALLVRVAR FGRDRTPPERTVAFTVAVIMAK HAVLRALI AAAK
QRNSFMFSLLVII ${ }_{K}^{T}$
EREDLLF VLLGRLAK
SQSNTLSPNMALACLLCEVAG SEAPQSQYSNNQ VSAPEDSQEFQLTLKAMIGAAK QF GEQSTPVDRRAERLI EA LVFAAK

நNQLPADQQSKALISTAMCEAAG REGAPFGPTPRDVLFTTGLVAMAAMAK ELLEDD
F E G D P H L R
D FEEVSLLLVLAS I V K K
EGDPHLRRRVAFSIAIIAMAK
DKFQSAFElLYILSC
GSAADDRKAELI IKGMINIAK
TEQENQA $\square$ MT $\square$ A VMAAF
SDDDANLFLRABMVAATV
PTRDQELAALRAMVQAAM
STEE DRALITVCLDASY
THQEKLSLLAEMUAFS I
EDRAHTILI AMVAAAK
DREAGASLNVLVLTAQ
$\square T D K D K Q L$ FKILCSAAW
QQGERNSFAFSLLVIIRR
THATK $\square$ NLLSEMUAFSI
DEAPDDERHLACAVLLFEVAR
MGHISR


LRAMI QAAK
FNRYKSQDVLEAVVAACALVSM
E LIFNEALATGDAPTPEQNALALRAM川QAAK

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| :---: | :---: |
|  |  |
| UniRef90- JIJVG1 | ADGEHSARETAVFSQIAEQFNI |
| UniRef90-UP100047BE | SDGKVCELEDELMENLQSA |
| UniRef90-Q3J | ADGVVK |
| UniRef90-C5B | S |
| UniRef90-E4TN59 | ANQUIEREERNMFFTFLRSSNLSKAQSKQAKEAFRDGITL |
| UniRef90-A7HTT2 | SDANFGDEERAA RRUDSFGLPPEEVTELIAAAEGEEAE |
| UniRef90--P33218 | SDGHDDAKERAA DQQLRGAGV EEQGRVLIEQADEQP酎 |
| UniRef90-B9JCH3 | ADGKI |
| UniRef90-S90HW9 |  |
| UniRef90-UP100047E | SDGRVLKSELEYVKLLLTM |
| UniRef90 K1X8L3 | ADGGVDSVELRLLK |
| UniRef90-UP100047D05AC |  |
| UniRef90 - 3 DBL 3 | ADGAITEEEKQAILSHA GEDPEVQQWIQQEMYQPATV |
| UniRef90-UPIO0047109F2 |  |
| UniRet90-UPIOO | SDSQYDKSEVETTKKLMEQFEMPEEKAAEQLEQEAPDTVR |
| UniRet90-W | SDENFDVLEMKQLYKFAEERGVDTEHLNNILTNPVQRMEVV |
| UniRef90_M3 | ADGDAREVERAKLSTLSQKYALKGDALEEADQESISLSDF |
| UniRef90-EOQTV |  |
| UniRef90-UP100046DO | ADGE |
| UniRet90-W2C8 | IDFDFSQEEKDF |
| UniRef90-A2TUD9 |  |
|  | ADDHKDEREREHIRELIASSLGAAADLMKTYQDVLLGRARL |
| UniRef90_UPIO002 | SDDNFDVLELNMLYHFAEERGIPK SEDQKLLNPVHHESSI |
| UniRef90-D5BL54 | ADNHLHEREYDFILMVAERMGISKEEVVRLVKSDRDKM |
| UniRet90 | ADGVVTHDEVVAFYDLFEMPAGEEGNVARLQDVAGFETYA |
| UniRef90-UP1000463 | SDGHIDDRERQATEQQLREAGVEQQGRALIQQATEQPLDP |
| UniRef90-18ZUD0 | ADGTIDPAERQRV |
|  | $V{ }^{\text {d }}$ PAERQH |
| UniRef90-R5TUC3 | ADGNI ATSEWDGIVNYI RRLRIYDKLFDKLFTILKKDGAA |
|  |  |
| UniRef90-UPI000370C96D | QDDHLDEREYHA |
| UniRef90-V3T123 |  |
| UniRef90-Q0C | ADGQVTDRE |
|  |  |
| UniRef90 KOPMDO | ADGQVKDSETKRLRKLLDQYGLDRKQLDALMAQEAESDAV |
| UniRef90 UPI000469CC61 | ADGVVTRDEVAFREVRVAEGDTEGAARVQDVAGFDDYA |
| UniRef90-D4DQ05 | SDGLIDEAEKQMTAKESSA |
| UniRef90-B7VIT3 | ADGHVDEEEMAKIEQAVENMGDTKLVSEELHKPDDPSETA |
| UniR | SDGRVSENEANMISQLD YNAKDSREREFLKQSFNEVAK |
| UniR | GDFSAKEVRILLERI RKSFGISDDRAAELEKKVCSDTTL |
| UniRef90 | A DDSLTQLQI GEEAQAWVQQALEQPLTP |
| UniRef90-A3U |  |
| UniRef90-Q0FSR8 |  |
|  |  |
|  |  |
|  |  |
| UniRef90-R6X9X5 | ADGKIMHSEMELVRRFLRQNFGEEEQQKRIGMAEYRTVIQ |
| UniRef90 L1PN10 | ANGRVTQTELDFVRLQ |
|  |  |
| UniRef90 A7NOC3 |  |
| UniRef90 K6ZML8 | SDGHIDEEEQKR |
|  |  |
| UniRef90-UPIO0035DD5EC | A |
| UniRef90-O7MJZ1 | A |
|  |  |
|  | SDGVVTESEVQAFGRVVQRAGVQRLFDLIAKATTDGFEAYA |
| UniRet90 | A |
| Re |  |
| UniRef90-14GI | A |
| UniRet90 W9VC82 |  |
| UniRef90-UPIOOO36F1B92 |  |
| UniRef90-B0UJE2 | ADGMTDAQERARLDAALDEAGLDAPARSAFEGLDREPPDV |
| UniRef90-UP10003 |  |
|  |  |
| UniRef90-UP | ADGAKHDREREQ $\mathrm{R}^{\text {dVAQGLAQDQQVLPSLYQDVLVRRVQ }}$ |
| UniRef90-UP100040317 | VDGRLHEREYQFLYLVACELKIEKAEFNDL |
|  |  |
| $017 \mathrm{~F}$ |  |
| UniRef90_UPIO0034D7607 | A |
| UniRef90-UPIO00466FB63 UniRef90-D3IF33 |  |
|  |  |
| UniRef90-UP10003B70007 |  |
| UniRef90-K2C4H9 | DGQLEPAEQELLKKLKAALNVPDQLFMKMFNNVRRQLAG |
|  |  |
| ef90_UPI00047058C7 | NVSQEELDF |
| Ref9_UP100035C7E45 |  |
| UniRef90-X7FFF3 |  |
| niRet90_UPIOOO47D | ADGHLDASERQKMLEFV |
| ef90_UPI000225FC21 |  |

UniRef90_U2RR95 UniRef90-W6RDDo UniRef90-J1JVG1 UniRef90-UPI00047BB585 UniRef90_Q3JCD7 UniRef90-C5B914 UniRef90-E4TN59 UniRef90-A7HTT2 UniRef90-P33218
UniRef90-_9JJCH3 UniRef90-S9QHWg UniRef90-UPI00047B5771 UniRef90-K1X8L3 UniRef90-UPIOO04651E15 UniRef90-UPI00047D05AC UniRef90-I3DBL3
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UniRef90-D5BL54
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UniRef90-D6X680 UniRef90-R5TUC3
UniRef90-G9Y9V0
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UniRef90-V3T123
UniRef90-Q0С5A3
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UniRef90-D4DQ05
UniRef90-B7VIT3
UniRef90-B9KFP5
UniRef90-G8UK22 UniRef90-UPIOOO3499883 UniRef90-LOMHT2 UniRef90-Q0FSR8 UniRef90-K2JFQ0 Uniinefono 28LLV6 UniRef90-U1SR80 UniRef90-R6X9X5 UniRef90 L1PN10
UniRef90 S6ACB7
UniRef90-A7NOC3
UniRef90-UPIO004705376
UniRef90-K6ZML8
UniRef90-B2VJ74
UniRef90-UP100035DD5EC UniRef90_OTMJZ1 1
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UniRef90-G2ECL5
UniRef90-K2N7F6
UniRet90_14GH35
UniRef90-W9VC82
UniRef90
K2JNG1
UniRef90_UPIo0036F1B92 UniRef90-BOUJE2 UniRef90_UPIOOO381783D UniRef90-UPIO003B47663 UniRef90-UPIO0035D3697 UniRef90 UPIOOO403174B UniRef90-X0MY19
UniRef90-A0A017HRB1 UniRef90 UPIOOO34D7607 UniRef90-UPIOO00466FB63 UniRef90-D31FX3 UniRef90-F3PRX0 UniRef90-UP10003B70007 UniRef90-K2C4H9 UniRef90- S6C026 UniRef90-UPI00047058C7 UniRef90-UPIOOO35C7E45 UniRef90-UP1000373BD3C UniRef90-X7FFF3
UniRef90 UPIO0047D4BFA
UniRef90_UPIOO0225FC21
 DALVAAAVT EEQRVELYTASRLTIEPD SRAERGYLDL TTTGQADMAPERRISLIENLMAIAAADRHDDADEVALIQR ESLTQKKGQYKSRLKMVEYLLSLAYADGELGNNERELIDD QAVSKVKKKEGEARLLVRVCCAIGASDGDFDDAERKTVSK DPHLLSREVQDEEEALEIYAVSCTVIDDVD HFMERSYLDA DQLLRQADTWLLKKYVLELALLMI WADKVVSTEERAFLNK TLDLKASYSEEDRVGLIEKMWEVVYADGVLDDYEANLLRR PQRLATGVRNEEEALEYFLSCAAIIDHFM ERSYLNA FTSDLKRHLNSEQRLELLGLLWIVYADGERSEMEDHA WR DAAALARDTPDGMETQVYSMSVMADEPD HPAEAKYLHE DVCHQVRVNYNSRVQLI HLLFGLGKADGALTANEVQTIHT HEFNIQFGDNEKRILIVLLYQIAQVDAHIKETEQKQIDK ATSLHQFTSDNEKYELVKAMWEVAYADGELDKYEEALI RK EETLTEFKSERSKYIVLTEDFQLTYSDGVFHDHESEFVHI QEIAEQVGDNPALATQVYLAARVVCSN LERKEIVFLAN
 FTRALKKNTPENRRQVIQGLWQVALADGSRDSEEDAVI RL TTVLKRHDDYHARLDFALMWDUVADGIASEVEVDVMWR DALVHDVQTDT QKTELYVASRMALDPDK PKERDYLNQ ADVVPRLSSSEARQLAYEMAVCVCEADGQTSAAEQAFLAR DALCRDVARRATRLLLVECLI DVARADGHVHPAEEAVLRR DDFNRLRGNVLYATSSLESLIAVVKVDNVVRPAEKIYLFK EDAVAALETPAQRLDAFEMAVGVCDADGVCNAQEKAFLER KEVT T

VYK ARI EYLYOLAFMILADGVITEDERNTLKK SKLSVLFADDETTRTDVLDLFYIAKADGLIDEREDAYLSR KRIAQGDQNEEEADEVYFLSCAADDDDHFM ERSYLNA QDi GKTKKKPAEARAVDQIG VIGGADGTFDKSEQAVVRE ALVKASAESDDLKLTAFACAVDIALADGVLEEE $D L L V K D D K N E D E A L E V Y Y L S C V V I D D D H F M$
$F T R Q I T D M D A D D R A G V E A M W V A Y A D E D R A B$ HQFTAPLISTQERTAGI RQLWLIAMSDGTTDADEESLI RLL TRLRKLRDVCIGRFDLVRMQLQVAFVDGALHPSERRLLYV RRIGRRYSHRPCLLEGVLDLFQVAGADGVITQPELQYMLT DYYLKRHDNTEQRLELLGVLWDIVYADGERSEMEDDAGWR RKIKRMFRDDDQLLADLELLFHI AVADGHYHPDEDAFLSE GEIAQADGGNQALAAETYLAARMVC GDLERKEDVFLAQ QLATSPQQASERTNTVLASLIVADEQNFMEKAYLKE ELDKEVPRPQQERTNILNVLVAMALDDGELNSTKKDVLKA DADAFGVKSEFQRDQQFYRLALVMYCDGULHEKEAKALQQ RRLGRRFKDHPAVLEDVLDLFHIAKADGRVTKDEDDFLAQ FTRADKDAVDYDHRLGVIEALWVVLADGVRDAEEDALLRLD FRVDGKPGADSVLCDLMEGLFHIATADGEYHPAEDAFLTR ADFSELAG DPAVAAEVYLASVMMVDDQQ DAERNYLDE DSCHQ1RSNYEQRLQLLNFLVMIAQADQVVSPEEMAALKE
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 GQLAATFGEEPALLEDVLDLFHVATADGADHEGEERYLRS
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## V

## D


 E K M K A L C V V S C E K N N C P I L E D I V D D A K A D



 R K G GR F F F D Q P E M L E H V L D LiF VI A S A D G L L H E A E L D Y L K S $F$ T S V L K R H LID EA R K A F I GILDMWDI V Y A D G E L H E L E D N T V WR

 Q A L G R M K S N A E A A R L L M R M I I A l A A S D G I I D V N E R K V A V


 GY L R R L S A Q P H A A E GV L R A CWRM I WA D G RAG SA E R E L I R Q



 Q A LY K A L E N D E H K R Q R M M E L V N L S Y DD G T L S H S E E T M L H Q

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PNKESVIAFTAFAMFMSG
FEGDPETRRQVAFSVSLIAMAK
MME IALL $A$ $\mathrm{L} \vee \mathrm{A} A$
QRNSFMFSLLVLAK F DRQLADHPVRKDEDRRLLARILVAVAS GVAGTEEERHAVAFTAA! VAMAK $\square K \|$ L I GA W $F Q \| L G H M T K$
$\square P D P D A R \square A D T A L L V R V A R$ FFSTQQQRQSLFFFEVMGHLTK SGRPA LDADDELLF VMMGRLAK A $\square$ T S $\square F K$ QLLD $\square G Q R S N T N P N L A \square A C L L R E V A G$ FTAAFSMLAKVCK
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 A DGKFEQSEHDY L HELLKRDFDQAPEAAEEVIN RDAAS L QE

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 K LF D Q A K R M DEERLLQLLA F LAAEDAK SDGNVCAAEDNAL K E



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 GSLAA DAGSPE EAAKVYLAA YLA I DA D TADERA WLD D
 A ALAAARVRDPEEGR DLYRLSSRAVVNVDNFE $T Q V S T L T L Q P G D R V A F$
R K I K GMFAE DSTVL C D L M E LIF H DA MAD GFY HP GENEF LEE
 E T L S L T K G Q Y K S R L K L V E Y L L S L A Y A D G I L G E K E R E VI L D


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IA \(\| D M G L N P G A T K R V L Q M M Q E S P N A M \square D A K A L L\)
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$V A G$
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TYEEK $\square$ S L I S E M I A FA V
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A DSNLA I ACLLCEVA G
D D G D A RLALLTALLVIAR
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$\stackrel{V}{\mathrm{~V}}$
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## A




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F E GDPE T R R R V





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TYEEKK S L L LEM ALAFS T GEAPSTPEQLN L R $\square A A S M A W$ A L VA A
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$K$
$K$
$F$
$V$
$F$ L GGY L I A M
FGMDALPT TARFSAMLRALAVLAAS P D S R L A I A S LL C A $V$ A $Y$
 F H T S FA V MGHLAK QP DETRA ILTLCLLAS F


RPTTTRFSALLRALAVLAA
PTKALQRASAMLLMEVCR TETETRAIVSLSLLAA F
LF N Q MVD T S ERHTADSNLA I AA L L C QV S Q T NKEK I A F I S L S H T S N
QQAYAHSNRSYEGQRNSFMFSLLVIIDK
$P D S H Q L A V A A T A L M V L S R$
KEDNKEEGI AF DNLV SIA D LTEEEGVISAGADDRDALLLI EAMI FAAR

NQQAMQLIRTMINAAK FEPDRARYLAAFAY LLSRVAR FEGDPETRRRVSFSVAI DAMAK
$R Q M N L L R A V A S M A W$ DPEK TVAFAA I A V I A M A K
 QVATALRGGAIVAT $Q R N S F L L F S M L V M A K$
FEGDPETRRKVAFSVA I A MAK
$\square P D T D A R L A L T A L L V R V A R$ K L A A A S ML L E V VF


N NKP T NASK QL L K K L I GAA W QLP QPNAQLALGALLVRVAF
$A R S \vee A \backslash A F$
$K \square S T D E L Q L A T A A L L I$ E $V$ A T T P K K T KA L L K L L G A A W $R L D A L M R A M I A A A N$ $F$ L L G G L A K
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QELPKLPKKTGEARQQQFYRLALLLGNDGGVLDHKKESVVAVKE
ETLVAKLKNFGEKERVLRLSYEI QTIGKVAKKPGEARAVIQIGGVIGGADGDFDASERAVVRE DDVAALFPPASRKACYVLSGTTTVAALDGLSEDERTTCLE KEYLGDRPSTEDCQNLI EAUSGLIYSDGEVATEEARLLTK SYLRGLQRQPDMGEDLLRACWRMAWADGKASRVERELIGV D LGKLKSNNEAARLLMRMIIADASSDGNFDLSEKKVAVR EALKKMESNAAAARLIMRMVIS!AGSDGDFDDYEKRMAVR IS VMOK
DTLAGKGRDNRERVQLERDVWSVARTNGKTDRDEQAFFYR EALLSPHLAPAGRESILLQGARIALLADGPYSPAEREVLAT Q IIRDSHMNSSQCLQLLSFLVEVSKADGRVDPNELNALRN
 A DVQERLRSAEAKQLGYEMAVCVCDADGTLLDAEQRFLAR Q YSUDYTLFRKEKGVNLMTGLLSSI ALADGFIHPAEKIYLEE K F NLIFVARTENDRMARLVARYCDAYADGNFDNNEKQMVAD ARLAG VSAGFADTVVLMCLMTAYADGHLSAAERACVQT AELLAPHLADLLGRASLLLRAAGDALADGPYTPAERDVLTM PGVAAQLTSPDSRLLAYEMAVCVCDADGAQSVPEQRFLAE FTDKLRDLEHQQRFEL MQSMWQVAYADDHLDPDEEA IGK R R DVIAAFKESDVQHKKILLETLGLVHSDSDFDTDEKEFVNN
 QIFLQKPDDPRSKRUSYEELVGLSLVDGEYEDKEVDFLEN AFIRSVPPSMGKQUYLL SMLMADLDTNTEAKYLDQ TREFNKDATFEQKLALLDCDFRVAAAEDLISTVEDNEIRQ KNLAGMCRTCDELEDI DALFHIAKADGLVHEKEDDFLAR EELDPLLPSPEERELVLRLGYEVIASSAAINAEEAEAYKR R RIKSMYGEDTEPLDLLEGLLFHIAMADGLYHPNEDVFLHE ESYLGDNPSPEDYQDLLTSSTSTLIYSDDDVDDQEAKLLTK RDSVKVIKDEHHRIMQFYRLALLMHSDGILHEREIQAI NE NMVGLKARVESLKDDETEFIVSI ALADGSVEVSEVRQLEK FQQIAANLSYEERQLLAFLANIAKSDGHVCTAELEALKE EKLSGLCSMGGEMLENVLDLFHIAKADGALHENEMVFLAE

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 F DFTNG NAEEQKQQLLLAMWQLAYA DGQLSQYEDQQRR EEYFGGYPTQEDYENLIDADSSGLDYSDGEMASEEAKLLTE AKILREEVDYAHRLALGEAMWSVALADGHRHEQEE\|QLLA Q I L L K DP I L K D NP L V I I Q D L L S F S L K D GHY DARARVII C H EAAVA GLGEANLR QLAFELAVGVCEADGGLDAREKDFLER QEDAKAKKKENEARAVIDQGIVVI GGADGDFDATERAAVRE FQFTQLINDDEEKYKLACELWTVAYADGTLDKHEEHTVRR EEYLGDRPSQDDYQSLLEAISALVYSDGSIEVEEAKLLNH PLVRRLLKREPERAAELLDCCWMALADGVLGAQERELLDE AAVARSAKTPEMAAEMYLASLLVV DEESYMERAYLDE GEATSPEQAAEVYMTALL A DAD TTSERVFLAR ELRQWVGMRRDHAFPVLDVVIETVLAEGNPPPEKMAILRQ EAAGRTLSTLGGDRRKVLEMVAAVSSDEEDDLAEDRYLRR LUEYKTKLK LSEQAVNVVMFLLNLAYTDGEFNSAEKETLNE TLLEKALSTDEKEATLI ALWRVVFADGVRRDEENKLLHR EAVVRGADTPEHAAEIYAASLVADEAD TATERAYLDA DELVPK MKSQADRILQFHRLVLLMNVDNKQDLLEEMSRIUN SFGAL SNDQKFEYLYSCIDLMLIDEKIFDSEIIFCID ELYLLAE LEQNEKALVYQLAEAASDGEVADSEQAMLEQ SEI ALA VSHKEQAAEVYLASLLVVDD $A V L E K D H Y G Y D D R V E L V R L M W S L A Y A D G Q D D P D E E H R D R R$
$A M I L S C K V T S G E R D G L V S A L W K V V D S D G Q R H A E D Q V V A D$


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ATQTFGMSPESAAALR
MAEGLDVP DA K VVQA|LE Q H L

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#### Abstract

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M R
A V
 GQAPTISEQLKVLRIVASLAW GGRPAVHDDELLFVLLGRLAK



SWFDKQAVGMQEDLQADQRNSFLFSMLVMAR A $L V A A$
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FTGAETAEERSLSAVLLVEAAL
YNEAGEATALPLDRAHREQAFAIAVIAK A HMQAALLVAT QRNSFLIFSLVMAR E EREAFLE LANLIAA
 PDRSLAMAVLLLETAR
 DSKQRNWLAVMVG ITT
 A $\square$ S DFF QRS $\square A Q P E Q R E N Q T E L A T A A L L C E E V R$ K QLLFAVFQQPSMQEKTAVAALLIEVMR

PELRRRVAFSIAMI AMAK
 QLATAVLAFDVAK
QRNSFLFAMLVMAR LPEPDEKLALGALMVRVAK


EDKRKEIK L M I Y L $\square K$
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MFLAAY
QQSQAKAMFVVLLGRAAK
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Q VMVAAA
 TDAESGPVLRAMVQMAR
FEGDPETRRKVAFSVASIAMAK
QKAVAALLMEVML
DEDARLALTALLVIAR
TFNEVGMALRLGAMVAK

| $\square$ A D T P S FE $\square$ E $\square$ T A A V $\square$ A YE $\square$ AR <br> ARTQRLF LGAMGHDAK <br> LR A VAA MA W <br> $\begin{array}{lllll}\text { M } & \text { A A A } \\ \text { M } \\ \text { F A }\end{array}$ <br> TDQE LYMKAMIFAAK <br> GGRATMRNDELLFVLLGRLAK <br> SD DK NVAAFLATADW <br> FMQLVKNLAN <br>  |
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 D A VVA A AKTDAQKVEDLYTASRIA DDPDTRAERGYDDL AEAVRAGFNAAERREVLTMLWEVAYADGDLERLEERLVS ATVI ND H A D A N DK Y T MVV L M W WV A HA D G E I S K Y E E HLLI R R

 AEVVARLA YSTEMAAQLYLA S LVVMVDTQ S SMERFYL DE $N$ L GLLS Q Q D $\square$ N R A RMQ Y L R QVI R I A L S S D S V L S E E E I I E D I N R $K$ QI A D QF GEDRA LLLE DVLDA L E I A KA D G A V H ER E L A Y L S D E ALT A G ITT D P S V A K T M Y ML A V A A DEVVD TEAERA WL D T QA AASALLGDPMQRQLA YEMAVVCVCDVVDGRQTAAARADFLAT E EYFGENHSAEDYQELLEKDS GLVYSDGYVDVREA K LI E T


 APDTKDAVP YEDRLSVVVKALWEVVLADGARAQEEDALVRM




 D YKRFA K GLLA E GQKD GV MQAA LVVAAA DSFMD DREKADFI GN KADAKFKSKPEVGRVIVGVCSAI GAADGNFDDQERRVVAE ARI RDMF GA GHQALDL L E GLDFYIAVAD GRYHPNENVFLE E SVVSDNKNYTKENKI SSLLKKLMWQTA YA DGKLDDVDEE RLII R R
 E EVVP H I K S I E D R K M T L Y QVI Q A S R R N P N I N L E A A A Y Q R RF A Q N P A Q A S E L Y L A S L L I A A D E Q N F ME K A Y L N E
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V A A Y MGG S E K EVVE S MLLNL
I A D L L Y I S
I A E L I K I
LA DLL HVS
I AVALGFDPADF

CNTGLSAG
$V A \operatorname{A} M \mathrm{M} V \mathrm{~T} A \mathrm{G} E \mathrm{~V} D A G E A V V L K K P R A T R S R K K$
LVGLLEFDRETVARLEAEVE
WGMWL GWTEPQQEAL

AR S A OESTQRVDAQ
V
LKQLLGCDTKNFQKL
LANKLSLPRELVTHLDHQADHAR
VADLLGVSDRDRILARQKAAERA
LQEALKISDKRAQTLIDEVF
L
LACEFNTSKDKQQDFLDYFKK
VA LIA MELSAGEVDSMLNL
ACFALDLPPHEFD
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LA P LLGGSDRDRAEARH
VARLFGLDRAVLDRL
LFSRLGLEDSAL
V A LS M NLIS A S EVVESMLNL
$\frac{1}{W} K Y F G F D S N E F A S F K D W \square I G \square K E \square$

$L^{T}$ Q A L R $\square$ S EMELLMAL
WGTWL G L S VNANEA $\square R$ A GAGTQPSMYQQA LRLL
LSHALEASE
VGHRLGLPDKALEK LWKTARREME
$\square Y K A \square G V D A D V Y S D \square H S T V F R$
LA DLL Y V S
V A GL
VA D I FS
L R HALALDDVQQSAAYTRQAEADAAD
LYTMLGLDKSVLSDLHQYGSQKKSDRD
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ARETMGLSHADSDAARSLAESQ
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LA HRLKLPPGLAEHLDR
L F R L M G L D Q
LIKLLDLDEVVNRLE
LAGRLSLPDALVEHUEETV
GQQLDIDAE GVD
VAELI YVS
LA S A L NLDPGLKA QL
A A R A L E V P DA
WGKWL GWTPQQLKALAADYTPERK
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V A E V L E I D Q GTVSRMDS
VASUFGFGEADFRRIAARHVAA

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I S ELL
$V T \underset{N}{N} L G \square S D R D S A L V R Q D \square N P Q A$
L Y T SLLGLDKALVSS
$V$ SSSFPVSSEELHLLEETFL
VA DLL
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WGLGMGLPP S A DE Q
WGK WLDWPAEQVEAL
LA A M M D
L GRALKMDVRRVGDLYRD!L
ICTVLGLNPGEF
V A R I FGVQSRDFVNMRARF
V A DLI KI K D DE V
LA R QL GI D D S LKQH $\square Q R$ QAAA
VWRQVGVS QA D LDA


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 AD GAVRASERRKMRELI KS YKLLD DAALNALAESEADDFYR A D G DI DA DEKAK LLDDALQ D DGDPS DMEVV QK LIAEPVSA
 S D GQil K TEEELDTMSAFLMDKSFDMEAMKQAS DKVSQQYYA
 AD ASMDAAERNMVRALRERFSLADDE DEELADVTAKSAYD DGAVDP TEGRHLEE QLEALHLLASDEKTRLRSFPGMNGIK G VD N Q E D E R E L K T I V SDGH $\quad$ D A K ERAAI EHQLRESGVVE E QGRVVFIEKAI EQP LDP VD GEKHERERAEI KRDAEGLS QADNLPTLYQDVLMKRVS L


A

## S

S








D S DA
 S S GRVS EA H DEAARSEMRRLQLTSSTA QRAADDAAS GEGLR
 S D D KI C P LIE K QLL D E I L S D M A A E S K N P KL S S V E LDDE L C E
 D GHVD D RERQLI E E ELGGKLA QDAELQA WLHTELNKP LDP


AD GDVFS A H E DE H L G R E I D A A WS S L S P A D H K R L R A L S Q A P I T L

A D G H I D E N E R Q T


## S

A D GVVSSQAEVQYQDQVTRLYNLAKQDVAGYEAYAAA LA
CD G R VVE Q H I R Q A R Q EMVRLD L A EA R L R A DA AFA GK DRLG LD RYLSEHEKDALVAFAERSGL PRATVVERL
V D GRFS RKE E E LL R RA LLA HE GL S A GA I EAV TALE GKLPS $\square$


A DNELQDDEQQALLNNTLKKFSLSDE EVLELVEGASKNLDE A D GVI R P S QLCAFE QVCQQF GLKAEDMEQL HSPQGQS SEA

A D HRHDDA

ERGKI DDKVGLSSGLGA
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 A D GS I NEAERAELLTAHAAAMRLGAEVVES LIDDEGRNGRF
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 F E A Y A GRVVA H R WR E DVL D GLDF H DA KA D GA IT G DE DE Y L E R DNAAKKVLNAPQRETAFELADKTALADQEVAQQERDYVSA E L N R A CL GRPH L K RVFVVELQMRAALA GNDL E GPVRPMLAS



 H E CGA Q L A A N E Q R L Q L L L D F L V N I A K S D G S VVC S E E DA A L K E <br> \section*{ <br> \section*{ <br> ,}

Q A I V N N H T D D V VE R I I E I V V Q L L
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 RQI YLLS S S Y E T RLQMMLYFLFGI ANAD Y SI DQVEVDTIK R D Y L GNS P K TEDYQKL LEA I SAVYSDGDID DQEAK LL S R
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 E

## D

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-
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A
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## ,

## 


 A A KVVK E LVCY E ERSA IVVA EVVWNVVVMADGVERNE EKCLETA




 HR D Y L A A L V K I A A WA D GVI T E D E R A D L I S HEQELDRCYREERARVVRLLIQLAAADGAPTEAERAEI ER A A GK QA A L A D $\square$ AK R GRVTEAAAVVLVDGEFVASERAVVRE



 DVV QL S I L E DEHKY LI I Q Y L K A I S E T
D A L A A A AKT
D P LA $\square$ A R L A R SEQ GAE I Y LAASSLLS DD
GYL RHFRTQPHAAE GLL RACWRMAWAN GRATQVEQQYLDR

 F E K G N P V L C D AALRARLDDVRMREAADELAVRLVAADGVIHESEHALLVE D V L L

 ATI GK L R NKPD QA RAVI QLG IIII GGAD GNFDTRRER GA V R D



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