## QUERY

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RIEVRGTVQGVGFRPFTYNLAAKYNLAGWINNTS
RIRVRGLVQGVGFRPTVWRLARECGLIGDVCNDG STKRVRLAVTGVVQGVGFRPFVYRWATELGLLGLTENHS TTRRRLRICVHGVVQGVGFRPFVYASAAALGLSGSVRNDT PKAILVRIKGRVQGVGFRPFVYQLAKKYGLKGTVQNNM SEVIRVDVQVKGIVQGVGFRPFVYRLAHQHDLKGWVTNDA DDLVRRKFTVSGQVQGVGFRPFVYRIAADHALTGTVSNTA RREFHIDGIVQGVGFRPFVYGLALRHGLAGYVLNDA

 AAERARVRVRGAVGVGFRPVYLAKRGGGSVNG RRRVSVRGLVQGVGFRPFVHALATELGLSGHVTNTG MVASRVIVRGVVQGVGFRPFVHATATELGLSGSVGNSA MPGRATRVRGIVQGVGFRPTIWRLARQHRLTGEVWNDG RKRLRVELKGAVQGVGFRPFVYRLAKELRASGFVINDS RRVCGTVQGVGFRPTVYRLAKVCGLKGNVCNDG QTTSGVEI RVKGKVQGVGFRPYVWQIAHRLGAKGSVLNDG ALDLQVKGVQGVGFRPFVYRMAKKYLINGWVLNAT MKRLFLKVEGVVQGVGFRPFVYNEALALDLKGWINNNS GAVQGVGFRPFVYNLADRYGLSGFVQNDG FYGRVQGVGFRYTTQHEAQRLGLTGYAKNMD RRKVLVKGIVQGVGFRPFVYNLAESKGLSGFVTNSA AVKLTVDGVVQGVGFRPFVYREALSHHTGWVLNTT REALDIVVHGIVQGVGFRPFVYRAAKHNLIDGWVLNGT STMQALRVRVAGIVQGVGFRPHVYRLAVRHGLKGYVLNLG MTGYRTIKGGVGFRPFIHKLVQNYNLSGWVFNSN TRLSITVRGAVQGVGFRPFIYRLATELQQNGWVNNSA MMAKT VKG VQGVGFRPFVFRLAHQLLLGSVLNNH MMAKK LTQGVVGVGFRPYVYRLAKDLNLNGYVRNLG AVKILINGIVQGVGFRPFIFKLARELDKGWVNNFS MQRQRLLINGIVQGVGFRPFVYRLATEHELTGFIRNTA DPVRRVGVRIEGVVQGVGFRPFVHGLAERFGLTGHVSNDA KNGIQLRIKGKVQGVGFRPYVWQLAHQCAFKGDVCNDG PVRLHLCIQGCVQGVGFRPHVHRLAQSLELTGWVRNQA SMUCQN RVSGVVQGVGFRPFVWRLARELGCGWVRNDS ARQIIIKGUVQGVGFRPFVYNLALKHSLSGIVYNTS AAARRRITVRGVQGVGFRPFVHGLATELGLSGHVSNTG TGRRRVRUDVRGVVQGVGFRPFVYTRATALGLSGSVRNDS WVHGLVQGVGFRYSTQREALQLGLTGYARNMD ARERRAFRVSGIVQGVGFRPFVYRLAAKYDLSGWVLNDS TKAATDFRVRGLVQGVGFRPTVYRIALELGGLSGTVWNDA $R$ RRLHVRGAVQGVGFRPYVYGLATRYRLGGFVANDP ARARIHCFISGRVQGVAYRAYTQREATQLGLTGWVRNCP



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 QKAVN TVKGRVQGVGFRPFIFALAMRHKVKGTVQNNM DELRTKGKVQGVGFRPFVWLLANQYGLKGDVNNDG ARERWRLVVGGVQGVGFRPFVAALARRLSLAGTVGNTP RIDRVQVEGIVQGVGFRPFVYRLARRHQLGWVRNTS DVAQRRRITVRGTVQGVGFRPFVYTLATELGLAGHVTNTG SQALEFRVRGRVQGVGFRPTVWRMARELGAGEVLNDA AEKALKIQLKGIVQGVGFRPFVYRTAADLGGGWVGNTG APVRWRVQIHGLVQGVGFRPFVYRLATGLGLSGWVSNTP MKRMLI EVNGIVQGVGFRPFIHKLVKDSGLNGWVKNST NQLKRVHIVVSGRVQGVGFRFQTQWLAKQYDI RGWVKNTH $M K K A R L V Q G I V Q G V G F R P N V Y R U A K A Q G$ NGYVRNLG VRAHLRIVGRVQGVGFRWSMQREARKLGVNGWVRNLP AVKIVVGRVQGVGFRPFVYRTAAEEKLSGTVQNNM RTRLRVRVSGAVQGVGFRPYVYGLARRYGLAGFVVNGP WVYGMVQGVGFRYSTQREARRLGLCGYARNLD RTRVRTRVEGLVQGVGFRPHVHSLARRLALSGWVGNDS $A V Q T V E V R V R G R V Q G V G F R P T V W R L A Q D H G L D G D V C N D G$ TLNAKKIYLNGTVQGVGFRPFVFKLAEELDIKGWVNNSS MUAKFFRINGLVQGVGFRPTVYR1ATELGLKGEVFNDA

GRRपRTRGVVQGVGF



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 TVSVIAWVYGMVQGVGFRYHTQLQARQLGVWGYVRNCD RIRRRVTVEGVVQGVGFRPHVHRLATALGLAGLVGNEA MKSFRALLKGYVQGVGFRYYAMRMAQRFG KGFI RNLP MKRVAYSIKGQVQGVGFRPFVYKMALELDLVGFVKNSQ TDSKVVKVRI SGRVQGVSFRVWTRMRARRLGGKGWVRNED MKRAEIVVNGLVQGVGFRYYVLRHAQKLGLKGYVKNLF

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K

## K

## D

A D G R V EAA V F E G S E S A V D A M C H E G S PAAA R V D E V E V T H E E P Q G





 A $G \operatorname{V}$

 D G V L I

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 G C V V A E V

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| UniRef90-UPIO003188143 | A Q ${ }_{\text {P }}$ |
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| UniRef90-R7KGZ5 | Y ${ }^{\text {c }}$ |
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| UniRef90 X1LWV1 |  |
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| UniRef90_UPI00047D397C <br> UniRef90 LoLQ31 | LEETEFEI |
| UniRef90-S4Z | A C S |
| UniRef90-Q9AGW5 | NNFVI |
| UniRef90 M M Y |  |
| UniRef90-I2QDP7 | LPGQFV |
| UniRef90-UPIOOO3799721 | G D |
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| UniRef90_K0C2 |  |
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| UniRef90-Q97ZLO | E |
| UniRef90-A0, |  |
| UniRet90-Xows20 |  |
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| UniRef90-B9KGD4 |  |
| UniRef90-C55638 | SFTNF |
| UniRef90-A3PLN2 |  |
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| UniRet90_X5DCB2 | SYT |
| UniRet90-C6CQ90 | D |
|  | D D |
| UniRef90 UPIIOOO37D1941 | QYRD |
| UnRee $90-\mathrm{Q} 300$ |  |
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| UniRe90 U3TVDD |  |



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| UniRef90-W5YFI3 | GRVEVVAEGTEEQLQQWCEDGPSAARVDSVEVSEQEASG |
| UniRef90 UPY0003B6BB7D | DGRVEVVAEGDEEKLERLLREGPFFADVKDVKYSYSNYRG |
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| UniRef90-G4T303 |  |
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| UniRef90-14C7 | V |
| UniRef90-UP10004 | DGSVEVLAVGPRKALEEWLADGPRMARVDAVEAEELPPPD |
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| Q08N |  |
| ef90_-x1ZZ3 |  |
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| UniRet90-UPIO0047B5 |  |
|  | G |
| UniRef90-F2NE |  |
| Konh |  |
| C4SZM1 |  |
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| UniRef90-E7QY |  |
| UniRef90-M775D6 | F |
| UniRet90-W4V5F7 | K |
| Uniref90- WON844 | E |
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|  |  |
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| U5 |  |
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|  |  |
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| UniRef90-Q9YBK7 |  |
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| UniRef90-C5QSD9 |  |


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| :---: | :---: |
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| UniRef90-C9KK63 | PYADFAI |
| UniRef90-U5EJM5 | SPTSFEI |
| UniRef90-S5ZKH9 | DETKFRI |
| UniRef90-R5BWL7 |  |
| UniRef90-C5F0N3 | FSDFEI |
| UniRef90_A8FX69 | $\square \mathrm{Y} \mathrm{L}^{\text {D F S I }}$ |
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 MPRLVALIKGRVQGVGYRAFAQKKALELGLSGYAENLP MQRLNLRVYGRVQGVGFRAYVLNKARELGLAGFVKNMP A Q DCVHALVSGRVQGVWFRHFTREQAQASGLTGWVRNDE QAVRLSI QGRVQGVWYRAWTVREAQALGLRGWVRNRR MIGRHLRITGRVQGVGYRYWFLGHAEALGLTGWVRNRA ADKSVDAKVGGKVQGVGFRKSAKQKADEGGGMGWIRNNP ATQCVAAYISGCVQGVGFRYATQRQAVALGVTGYALNDD MKRVK SVQGKVQGVCYRRYTLSKAKALGLTGYVSNDD RVRRRVAVEGVVQGVGFRPHVHRLATALGLTGVGNEA VTKQIRVYGIVQGVGFRPTVSRHAATHQRGSVSNKG QTDERWG RYTGIVQGVGFRPLVSMWAHSLGLTGFVYNDS YRLTVKGIVQGVGFRPFVYRLAKSMGLKGYVKNTG MEAVFLKIYGHVQGVGFRYFTYRIAHRLGVKGYVRNAE STSYRFRVRGRVQGVFFRQSTRERADALGLSGWVENRP
VRRHMRFTGRVQGVGFRYRAKYAANGMG TGWAKNEW TKTCYQ川FПTG\|VQGVGFRPFDYKLAQELNLKGWVNNSV RVRYRLTVKGTVQGVGFRPFVYHLADKYGLKGFVRNDA

 MTVSGVVQGVGFRPF $\square W H L A T H F K L L G E V Y N N S$ SQKAAHVRIDGHVQGVGFRWQAMLLARSLNDDGWIRNCQ MQKKRFLVYGRVQGVGFRYFTWNEAQKIGVLGFVRNLW VRVIVYGCVQGVFFRAFASRRARELGLTGYVCNLP
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| :---: |
| $R V V V G V Q G V G F$ | $M K T E R V C V V G D V Q G V G F$

$K F I V T G R Q G V G F$ VRLTAWVHGKVQGVGFRYTAHQGLKLGLTGYAKNLA SEIRAHVFVSGRVQGVAYRAWTRSRALELGLSGYAANQA NSVARHLLVI HGHVQGVFYRNWMVTTARRLGUTGWVRNRM VRCHAFVRGRVQGVFYRKYAHKTAEELGLRGWVQNLP DERTRAHVFVTGRVQGVYYRASTRDAARERNLDGWVKNLD
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 DGVEAQLRGGDRALMLDWLHHGPPEARVDTVETEREDODT DYSVIHVKGDU1 THIDKLKKGPTPSARVTKKETTWDUEPP DGSVSALISGADDAVASMLWQGPRGANVRSVVPETADPTD
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TVRLSAR VK 1 QV TTVAMKARVTGRVGVAFLTARKA KRDAFEAYGLVQGVCFRDFTQKRANSYGVTGWCRNTT SNKAIKAVIEGRLQGVGYRASTQQQATKLNIKGYVRN S

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 RISGRVQGVGFRAWTQGQARELGAGWCMNER MLQYRDIVDGRVQGVGFRYFVQMEADKRKLAGWVKNRD
 GปT $\square Y V Y G R V Q G V G F R Y Q T F H W A K F N K L T G Y V C N L H$

KAWVYGKVQGVGFRYSTQAMANDLGVQGYAHNLE NKTCRRCFVSGRVQGVAFRYSTRQEAQSLNVNGWARNLA STKR $\mathbb{C S Y T V K G E V Q G V N F R S F T Q K Q A R S I G V T G F V T N A S ~}$

KCMKFKVCGRVQGVGFRYSTAYHGLKLGVTGYAKNLY TTERWRFFVEGKVQGVGFRQGCCRRAMDLGLSGWVRNLP ARYAIVVHGRVQSVGFRYFAQYEARRRGLTGWVKNCD
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ARMHLRITGRVQGVGYRASTRERARSLEGSGWVRNTD
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MIQRRFTVYGCVQGVGFRFFTAREANKLGUQGYVKNQA STKTVRVVVKGRVQGVFYRNWTDDNANELGLKGWVRNRR QQPVRLSAWVHGLVQGVGFRWWTRSRALELGLTGHATNAR DAAVRMTAHVHGQVQGVGFRWWTRARALLELLVGSATNLA
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## UniRef90 V4Y364

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$1 \quad P V R K H|I \quad L V| S G R|V| Q G|V| G R^{20} Y R T Y Y|L| A Q N N^{30} G / L T G W|V| Q N|L| D$ SDVRLTAWVHGQVQGVGFRWWTRSRALELVLTGFAANKP
 $D G Q V K I T A Q I T G Q V Q G V G F R F S T Q Q A A Q E L G V G G L V R N E S$ K Y K L L K V V Q GVVFFR K S T Q E K A Q E I G V K G WV K N E P $M \square N Y H L L V A G R V Q G V G F R W A T \square E \square A N E L G L V G W V K N R A$
 DPDARLTAWVHGNVQGVGFRWWTRCRADELGLTGYAANQA
 $S K V A R F V V K G H V Q G V G F R W A T R K Q A L Q Q G I C G W V Q N C S$ GVRVLVGGRVQGVGFRWSTLHRAEALGLTGWVRNLP $M Q T K H F F V F G E V Q G V G F R F F T L Q E A S K I G L N G T V R N D I$ $M E S R M M I V D G R V Q G V G F R F S V K R D A C D E G V T G Y A K N V Q$ MEAVVVLVSGTVQGVGFRATCRRAAASAGVTGWVRNLD $V R A A I R G R V Q G V G F R A W T R D E A T R L G L S G H V R N C P$ $M P R S R F R V T G R V Q G V G F R S W T G R T A R A L R L A G W V R N L P$ $F E V F G R V Q G V F F R K Y T E K Q A N Q L G V R G W C M N T R$
$M \square R A V I R V N G \square V Q G V G F R P F \square N K L I Q N F N L K G W V K N T S$ $R K A V R V R V Q G K V Q G V W Y R G W T V D A A G R L G L T G W V R N R S$ $S$ QK S FKFSSVK GKVVQGVGFRFHTAHEADIKLGGLTGYARNQQQ $P \vee R \vee R V F V S G L V Q G V G Y R Y S T M N Q A K Y F G L G G W V R N D P$ $T R V A R R L T I T G Q V Q G V W Y R A W A V E T A Q G L G L T G W V R N R S$

 $T T M V A K R \square H F T G V V Q G V Y F R A H T V S A A N R H A L T G W V R N L D$ D RKRAVQARVMGKVQGVGYRMWARGEAMELDRSGWVRNER $M R V E G T V Q G V G F R P F V H E L A G T Y G L S G F V G N D A$ $S A R T V T V R V R G R V Q G V G F R Y W T Q E E A E R L G L F G W V R N E P$

 | $M \square R$ | $R$ |
| ---: | :--- |
| $V$ | $V$ |
| $V$ | $L$ |
| $V$ | $H$ |


V R L D A RVLGMVQ $G \vee G F$

- A WV R GRVV

 $V \vee K G V Q G V G F R P F V Y S L A E K Y N I S G S V Q N L G$ $M M K K D K M N V Q G R V Q G V G F R Y M T K \| V A D Q L G I T G T V K N E E$
 $K \square R S T V I V R G R V Q G V A F R H H T A R T A Q E R Q V T G W V R N L F$ KSVDYEVFGRVQGVCFRMYTEDEARKLGVVGWVKNTR TSLLK TVVDFEVVGRVQQKVFFRKCTQEHGKQLGLRRGWCRNTP

 $M L R Y$ Y L Q V G GRVQ GVGFRYTAA QLARAYAL T GWARNCY $M R C Y$ I WGRVVQGVWYRAATKEAQAEKDLGVTGWARNDP
 $T Q Q \| A F H A R D T G R V Q G V A F R A W V Q A E A E G R G L A G W V R N E A$ ACDFEVFGGVQGVFFRKHTQKYASSLGVRGWCKNTAA
 SKRDSFKVEGVVQGVNFRSWTEQKANGLNVTGWVKNAAA $M K R Y Y G I V S G R V Q G V G F R Y F C Q Y N A L R L D L T G S V K N L S$ MEKLRMNVQGRVQGVGFRYMTKMVADQLGVSGSVKNED $M K A V D V L I S G R V Q K V G Y R A F T R K N A L L L G I K G Y V E N M P$ $M \backslash R R H I \quad I \quad F Y G H V Q G V G F R Y Y C V H K A R Q L G L T G W V K N K Y$

 S D RVVRAHVVVS GTVQGVGYRANTRDAAREASVDGWVKNLD

 V H V TI T G T V Q G V G Y R H A TVVR R A H M L G A K G WV Q NL

 AKQIVVRGRVQGVGFRWATKMIAANLDI SGTIIENRA $A L K S D E F S V S G L V Q G V G Y R Y F V V G V A R A E G L V G W V K N D P$ $K V R \square H Y I F H G T V Q G V G F R Y K A C Y S A K N R G V T G W V R N C S$



 $M S A K H V L I S G V V Q G V G Y R A W L R S R A E A L G L S G W V R N R L$ $Q V R L I A H V H G R V Q G V G F R W W T R S R A L E L G L S G Y A A N Q P$ SAKTVNVRVKGVVQGVFYRKWTAENAKELGLKGWVRNRR $V N I Q I S G R V Q G V Y F R R F T K N K A Q D L G V K G T V R N R E$ $M H V F F S G R V Q G V F F R A F T K E N A D R L G V N G W V R N L H$
 $M V S Y Q \| N V Y G R V Q G V G F R W F T Q Q A A E R H H I S G W V R N K A$
$A R L T A W V H G R V Q G V G F R W W T R S R A L E L G L V G S A T N L A$


## UniRef90 N9WZ66 UniRef90_A4TE55

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DGRVEVACGETDAVLGEWLWQGPDGARVTHVTFEVLDDYH DGSVSVVAEGPERQLLEWLNSGSTPGRVERVDGATSRAGG EGVVAEVEGAPAAFCEHLAADAPPLAVVDAVDHHEVPVAG QGTVRGMEGARDARVNEWLLEGKGSPKSRIVDKAVPRWGEYRG DGRVEACAWGPEPALIDWAHQGPAHARVDRVVVGNVPDGG SEVRVVACGDFDSFGSEVGKGTPLSKIDSVDVLDYSGAA DGRVEVVAEGSRESCERLLRSGKTPGHVDSVDERWARPGG
 DGSVLVAQGEPNAFREDLEARAPERSAVEKVLRESEDAR GGVEIVADGDEDAFVNELKTSSPSGSIVDNVSLEYLVEPEG DGSVRIVAEGEEEFCEDLKAEDEPGIRIDSLSVTESASEG DGRVEVFACGEDKQLEQWLKQGPERAQVDECTRENLSWCE DSVEMEAQGTEEQIYRLLKMNKDSYDRIDKDETDKLPVEN DGVTALIEGPPDAVREMLLHQGPDRARVERVETVPTEPEG DGTVKGI EGEEKAFKHWLQTKGSPSSRIDKVFNVPKELTA DGSVLIVAEGADRAVHELASWLGSAARVNDVDGSYGAPTGG
$D G V E A V L E G S D A V V L A W L R E G P P G A W V R D V V V T Y S P P A$ DGTVVGEAQGDQSALEKFVQHGPQPAKVKKVDQKDDDTKD DGSVIAPEDIMETFIKKIKDSPSPAGRVTYVDIQEDPLLE DGKVHAVLEGDDHQIDELLRQGPVVSQVRDIGVTEDERA DGTVEAEVQGLEEQUDQLIQYLNSYILITNMDVKKLPVIG DGVEALAAGEVDAVLVRWARQGPAGARVDAVDVNETAADD DGTVVMEDQGREPMVHKLMEGLNRFASVDWVDSKDVPTV DGRVEAVFEGAEDDVEEWCHSGSPAAEVESVEADYGEPE DGTVTMEVQGRETLINKLLVGLNQFISIEWIDTREDPDEE DGRVEAVFEGAERDMVAWCETGSEAAAVEDVDAEYGEPEG NGVEALVQGTADQVMLEWLRRGPPGASVEEITTRREYTDK DGSVEALVQGEADVVDRLAQDGPPAAKVARIEATNAPVEA DSVEIVVQDTPEAFVDRVKTSPPPYAKIRSSTLEDIENEP AGHVIGMAQGDGTAVETLKREGPQHAKVTKVEVETSIDRL SGDVEVIACGTEEQI AAWLEEGPRTATVDSVTQESVSYK DGVEMEAEGDDAAVIRELDEHGSWGNIERIESEN:PLEG GGSVMEVQGMNDSVILFIVKKGNRFAKVEDVVCMEVEPIN KGTVTGQVQGPEAMKAWLSKVGSPSSRIDRTDFSNEKPKLL DGSVEVIEGEAVNSVIKWLWNGPPNAKVTHVEVEGAEWR DGTVEGPLGPLNEMKHWLQTEGSPCSKVEKVDFSQTDESD DGRVEALIAGDLAAVEELCRTGPSAARVDRIVEEHLDTDP $D G R V L V V A E G P R R E V Q A L L R S G Q T P G R V S L V V E R L D L P R G$
$D G T V E A V F S G D P Q V V D M C K R G P P A A V V G L E S S P S Q E V L$ DGRVEAVFEGPRDKVEKLCRYEHPHARVDDVEVHEEEPEN TSVFIEAQGTVEAFITDVLATLPPLAHVDDRTDTSLPDSE DGVEMAT QGEVDRFDA ITAAGPGAYSHVTQLVKTPGAPFE


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DTLISVDYELFGKVQGVFFRKYTQAEGKKLGLVGWVQNTD KRYKLRFYGAVQGVGFRYTATHAANMYRLTGYVTNEY NAQRVR\|IVRGRVQGVWFRESTKQTAVALGLVGTVRNLM KKRLRAIYSGRVQGVGFRATVARDARKLPLEGLVWNRR VQARDYGNVQGVGFRAWARDEAAGLGLAGWVCNEA VRYFGRATGRVQGVGFRMFVQQHASELGLTGWI RNME MAA $\square K Y V F Y G T V Q G I$ GFRAHIKKKALDDLGVSGWVKNMP KFTVSGTVQGVGFRYHTSYKGMSLNLTGYAKNLN PARARIYVEGDVQGVGYRPYLRSRARVLGLTGYARNLP $R L T A V V H G S V Q G V G F R W W T A R H A E R L G L H G S A V N N A$ SNLKTVRVVIKGRVQGVSYRGWTVDNVTELGGSGWVRNKK TDRTVQVRIYGKVQGVSYRVWVRREASALGLAGWVRNEV FQVIGKVQGVFFRKFTKEQGTNGGVGWVENQK VQVFGKVQGVYFRQSTHWKATELGMNGVKNEP METRKLVVSGLVQGVGFRWSTQMLANKMGIPGTVRNNS QANDRQDARVSGMVQAVGFRFRTMGQAEDLGLSGEVKNDD MRARKUYAVGRVQGVGFRYYTQCEAERLGVSGYARNLP KQSFKIVKGVVQGIGFRPFIYKLAKNYNFNGFVKNTK KRTLITVWGEVQGVNFRVMVKMKAEKLNTKGWVANLG IDRAHLNFKGYVQGVGFRYTAYHDATMYGLTGWVKNEW MKADDVIVSGRVQAVGFRAFTRRNAVMLGVRGYVENLE DNKRYYIIVEGRVQGVGFRYFVQSUAAGYGLTGWVRNLE IRCYVSGKVQGVFYRASTRKQADRLGLCGYVRNDP TTGTHLWITGRVQGVSYRAAAKAEADDLGLDGWVRNTA
 SIVCRKFLLSGRVQMVGFRYHTAHEGLKLGLTGYAKNLN NDAVRLTAWVRGRVHQVGFRWWTRANALEI GGDYVSNLS METWQFLAHGIVQGVGFRWSVQLLAQKLGLPGTVRNNP VDFRVKGKVQGVFFRVFAKNAAQELGVVGWVKNDP STTKTEKVVIKGRVQGVWYRNWTVDNAKELGLNGWVRNRR PVRLVAWVHGHVQGVGFRWWTRSRALELGLVGYAANKP MVRYQVEVKGHVQGVGFRAFVSETAKKYQVTGTVMNRA AQTAVLLVIAGRVQGVGFRYWTMREAVRLGGVGWVGRNRR MKALVRVTGAVQGVGYRPFVAELASKYALSGEVKNCG VSLYYEVFGKVQGVWFRKYTKDKVNELKLVGYVKNTE TKVYKMRIWGTVQGVGFRPFVHRMAKEHNLGGFVSNDG KTRRHYFSGTVQGVGFRYRAMYAARSGGTGWVRNDW MKTYRFLVSGKVQGVWYRKFVSENAKKHNFKGYVKNLE MKRYGNFTGKVQGVGFRYFCQMNALLKYSLGGAKNLD MVRKHIFFSGWVQGVGFRYRALYAARAMGLTGWVQNLW YRFVVTGRVQGVGFRVATRRKAQALGLDGWVRNCP MERRKYLFKGRVQGVGFRFRCFSTANELKLTGFVKNEY RHMFVSGKVQGVFYRKHTQRAAVQYGVTGWVRNTA VHVIVKGVVQGVGYRHATVRRAHMLGVTGWVQNME
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 EGVEAWI E GDPDAFVAR ARRGPPFIR DNIERKICD





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 DGRVEAVFEGTDEQVTEMCHEGSPAASVEAVEVEREPPEG DGSVEI IAAEGPREALEVWARRGPDAAHVEEMEVVYGDAVG

$\stackrel{D}{\mathrm{~N}} \mathrm{G}$
 DGTVGVIAEGPRHAVRDLLKGGTPGA VMKVDSHYGPATG $D G V E A M F S G S P E K V L E R R C W V G P P A A K V T G V D V N D C D E D G D$
$G G G V E A V L E G E R R Q V G E L L K S G P S G S V V L G M E L S E D E A K G$
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E GVVKL N F S G E E A S F L L A E E L Y E K L P A L A A R I D D
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 | $D G S V E M E A E G R S A D I$ |
| :---: |
| $T$ |
| $T$ | DGNVEVMACGSESGVDEWLKQGPRTASVESCIPSEAEFK

 GGDVLGTAQGDEESLNKFKKKGPEHANVTGVEFTNEAPLE $D G S V E A L F S G S P D A V Q E M C R R G P R D A V V T G L E V F P C D N D D$
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 DGVEMEVQGD EASI S RTVERLHRFDRIVERMETEVIPVIK DGSVMEACGEDEQFIQRVKESPSPAGSVSNVQVEDDPSIK DGAVEAF LIA GPEASMREWMWEGPDSAQVTQLDVDTGDHEA DESVILA QGSEDAFDARREKGPTRAANVTHLVISSENGSV
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 ALDDFELGGRVQGVFFRKHTSHEAKRLGVRGWCMNTR QKTVEVNTGVVQGVGFRPFLFNLARSLNLTGUVGNRG KKRVAMRI HGRVQGVFFRASTQGKADELGLYGFVQNEP NKQSVHLLISGKVQGVGYRKWLLKQAQSRRLKGWVRNKK 1 K 1 RVKAVQGVGFRPFIJETATKYG KGNVKNDG VDYEISGRVQGVFFRKYTQAEGKKLGLVGWVQNTG QAVRLKVYGLVQGVGFRWATRRLAVQLGIVGFVINET DATVRREIRLRGRVQGVGMRPFVFGLAERLGLVGFVCNDA VHVMLRGRVQGVGYRAWCARTAEARDLKGFVRNBR
MFRVNILLKGRVQGVGFRYYAKQTADAMNI AGKVWNNY AVRLVASGRVQGVGFRWQARQQARALGUGWVKNRG VHVVISGMVQGVGYRAWVAQLADSYELSGWVRNRL KVRVVISGRVQVWFRGWTVDEAABNGYONTP MKAAKFEVFGAVQGVGFRPFVYKLAVDLGLKGEVYNDG NS IIRRHYRFTGUVQGVGFRVEVWKRAVDLGLVGWVKNNY ASKR $\square A F K V H G T V Q G V G F R D F T Q K C A T K D K M S G W V R N T T$

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 D GS SVVEV L D C G P K Q M M L G W L E H G P R T A A D GVVVLVEGDEEPVLAAWLERGPADAQVTAVE LEE QPLQG H D T V Q GV IE GVA ELVVNWLQKVGSPQSKITKFTNERSITHS D GVTVI A E GDPDALLEALRS GRTPG HVVHVDAEYS QAR G
 Y G V EAA V L C G P P GADVA A M L V R R GPDVA A R V D DV R G GKVVVVVA E GP GRACEKLLRSSGDTPGTVVHVAEQWS QPR G D GRVVEVVAEGERRSCDLLLTAPGRPGQVTGVAVRWDAPRG


 S G E V

 D

N TVVVGQVQ
D GVYLEAE GKSEALLEEWAHQGPDRARVEKVEVE EKE G L R

A
 E GVAI EVE GADDAFAAALAAEAPPDARIDAVERRPLPPRQG

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T GEVVEAVVFSGPSEVVAEMCRKGPP GSEVVTSVSVQD
E GHVA GAALGGSDEDI E K L L G K GP S DA QV TGV I LQKE E TVE D GTVEEAVLE GVP EAVDAMCRTGPPAARVVHVE

D GVVE EL Q G S QE K M D H L VA S K K $\square P \mathrm{R} \square \mathrm{H} \square \mathrm{E}$ S I S VH Q IP L K Q CGVEGEVQGPEPSVQEFLKQKGPRHAHVVKLEKRELDVKE $R N T T G Q I Q G Y E E A M R D W L E H T G S P T S R I D K C D T T N D I Q E F$





 D GRVE IVVAE Q I K KF ENLLKKNGNRYSNI ENI EKK T LDDEK Y

 A GVVI EAEGP
 D GRRVLVV A E GA R E S V D A L L R S G N TP G R V D A V DER F D D VR G E G F V E A V F A G P A D A V E A M C R A G P L G A R V E A I E E R Y D D L A P G G





 D G A V E A V F S G E A T V V D A A M C S A G P R L A A R V D A V D D D

 D G SVV V $V$ V D GVEVVMAH GTVVK
 D GRVVEN A Q GERVAVEALLDREDPRPGRVDGVVVQWHQVRE





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MVR FT ARVAGLVQGVGFRDYVRTRGRRLGLVGSATNDP HRI HGKVQGVYYRDNTVAMARAAGVAGWVRNRS AKRYVISGKVQNVGYRDWAENQAVRQGLHGYVKNLK MKRYHIIFKGRVQGVGFRFQVK ILADRIGLTGSVRNLY VNVK KGMVQGVFYRNWTMDTAKQLGI NGWVRNRK DRAHFLISGHVQGVGYRYATVDT TQMGLSAWVRNLP RVVVHVSGRVQGVGFRWWTRARALELGLNGYARNTD VEFEVFGHVQGCYFTKYTRDLCKKAGITGWVKNSK MKTVHVTISGLVQGVGYRAWTEREAVLRNLSGWVRNRR QPQVRLTAWCHGRVQGVGFRWWVAGQAKALGLTGSATNYP WVRGEVQGVGFRWFTRAAVLRIGGVGYVSNDD TEVKSMMVSVTGRVQGVGFREWTRREATRRGVVGWVRNER YRVYGRVQGVFFRKYTKQEADKLGI RGFVKNDN TDRRHYTFRGRVQGVGFRYRASYAASMYGVTGWVCNRD VTVRVLFRGQVQGVGFRWNARNCANDLGLCGWI RNEW YQYLI SGKVQGVGFRAFTEQ TANKDE KGFVKNLD MNRYGLIVEGRVQGVGFRAFVEQTGRHHNMTGYVQNLA KITISGTVQGVGYRWWLKELCDANNVNGWVLNKK $M E T R K L I C S G L V Q G V G F R W S T M A L A N K M G I P G T V K N N A$
$Q V S R R F F I S G K Q G V S F R A S T D R K A R E L G A T G W V R N L S$ ARKAVRVVVKGSVTGVGFRDWTASTAESLGLAGWVRNRR KKQLKAYFSGFVQGVGFRATAKRTAQRYALGGLVRNLK
 QFEVFGIVQGVSFRMYTLRRAQKLGVRGWCKNTN MTNRRYRVEGVVQGVWFRKSTYEFVLKHTITGYVKNDK DPNVSVEFEVFGKVQGCSFTKYCKDLCEELNVGGWIKNTK MKRVMIKVKGKVQGVSYRQNTLVQANALGVTGYVSNLS QVRVRFEVFGRVGGVNFRRHTLRKARILGLRGWCMNSG VRYYACAAGRVQGVGFRMFVRQQALDAHEI AGWVKNMP MKT KMNVQGCVQGVAFRYTTKMKADERNVHGYAKNLN MKTIETRISGRVQGVGFRACVRKTATDGGLGEVMNLP MVTQHFLVTGQVQGVGFRWSAARLAQQLGUTGTVQNLP

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 VRGVVQGVNFRRWTAKQAGALGLVGWVRNTP WVHGHVQGVGFRWWTLQQAKELDI AGYAKNMV
 VARRVMVSGHVQGVGFRRFVQMKAMGMGLRGFVRNVG MITQHIRVTGVVQGVGFRPFVWRLAQQLGTGWVRNDA DQSMTLKIYAYGLVQGVGFRPLVYHMAKNEGISGTVRNVG MKRVQV ADGYVQRVGYRDFVQKETFCRDVTGYVKNLD TDVAATRLIVRGRVQGVGYRAWLAREAERRGLRGWVRNRR RHLLIHGRVQGVGFRAWAQDTAEGLGVEGWVRNRR RHVTISGRVQGVGYRAWVDEQANARALEGWVRNRR M/RKH1DAHGRVQGVGLRFTVTGFAKKYNVTGWVRNDY RVRRIVRVTGRVQGVGFRMDAASAAARCGVGGTVRNLL MRKVKMIASGRVQGVGFRWSVQFLATEDGIYGRVWNNE K $\square R E A D S F Y G R V Q G V G F R Y K L G Y L A Q M Y S V T G W A R N E Y$
SPVRWGLHYTGTVQGVGFRWTTQNIARERHLTGWVINRE KQTMELFSGRVQKVGFRACVRNAALNLGLCGEVENLS AFDYEIYGDVQGVFFRKYTEEQGRKLGLAGWVRNTP VNVLRGRVQGVGFRYYAKKCADEMKIAGKI WNNY VDFEIFGNVQGVCFRMYTEDQGRALGLGGWVKNTR MESKYFKVGGKVQGVYFRKTAKDEANKLN KGWIRNDE FVVSGRVQCVGFRYQTSRQAQALSISGYAKNLN TTAVTES IVSGHVHGVGYRAFVLSHADRLGLWGKVRNQE VKVVISGRVQGVGFRAWTRGEAARRGLSGHVRNRP $K \square R K H L I F K G R V Q G V G F R F V A R H S A E A I G L T G W V R N C W$
 $T R R V R A V V H G R V Q G V G F R W S V L E A A R R A G A A G W V R N R S$ VHVIISGQVQSVFYRKWTIENATKLCLNGWVRNCK ARKTVIMRVTGMVQGVGFRYTTKHLAYKMNISGDVKNLQ MKWVMFRVHGKVQHVFFRRDTKLLADSLGLFGHVKNES EFEVYGKVQGVYFRHHAMIKAKTMGLRGWCMNTA
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DGRVEVLAVGESQQTEAWLNDGPSSATVDNV
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TVARRRIVTGRVQGVNFRPHVYRLASGLGLTGFVGNDS
 FTQQRNANSYGLLTGWEWNTK A K T A F K GY L S G LVVQ GVGMRYSVV QVAKEDGVSGYVRNDR

 G V CF RMY TE GEAK K I G VVG WVV K NTN $V T Y R L V I C G L V Q G V F Y R G S M V S R A N A L G L R G W V R N R L$


$F V I S G V V Q C V G F R Y H T S R Q A Q K L A B I S G Y A K N L N$
D R T V $\quad$ Y R R L L I I

 $F E L F G R V Q G V C D R K Q T R D L A T M N Q V R G W V M N T$

 K S V D Y EVVFGRVQQGVCFRMYTEDEARKMGIVGWVKNTR

 I H K L V K N Y N L S G WV L N S N A E $\square$ A A K VTVVR GKVQ GVGYRA YV QEKAA GA HVVRGWV RNAE $M Q A \nabla K Y V$ G GRVQGVGY QRWVAKIANKLKLHGFVKNLS MQAVK L I I S GTVVQKVGHRNWFEVQAVELELKGYVQNLP

VCFRMYTEGEAKKI GVVGWVKNTS

 A EVVAMRMTATGKVQGVGYRDYLQTEGAKRHVRGWVRNAA $F E D F G K V Q G V R L R R E T R E L A T L N N V R G W V M N T D$ AK QVQIS GRVQGVS YRAWA QRAARRRGI K G WV R NMP GYRLS T QEEAVK LGLLTGWVKNLS $T R R L G L V F R G E V Q G V G F R W T S Q H V A G E S G C T G W V R N E D$



 $V Q V D F E L F G D V E G F N F R A Y T K E K A L Q L G V T G W M C S R K$
 N R Y R F R R Y L Y Y V N GVF F P K F C S D QA K T L G L K G WV R N T R SKMRRRTNFK GRVQGVVGFRWNTEKAVKNFYVTGYVMNDP MK SYTC VVEGKVTG GKF QS WVLS TA QRLELKGWVRNIN

LA QQF GL DGTVCNDG

QREARKLGVSGWVRNLP
Y T QK QA TSLGGKGWCMNTR
Y A R DKA L S L D L K G WVR NLP


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


A K K N NV S G WV K N L K
Y TEEEARKLGVVGWVKNTS
VFFRKYTEE Q GR KLLGLA G WV R NTP
$A V Q L L I S G S V I G V G F R S W D Q K K A H L N G L D C L V F P R S$
YELVI YGKVQHVGFRDRVENDGRGLGIVDVVYNHK
 $T V V S V D Y E S F G K V Q G V F C R K Y T Q A E G Q R L G S V G W V Q N P S$ K R A NEQGIT GWVKNDP M GLTGYAKN L $\underset{N}{N}$ N
A AVRTLI IS GEVVGVGYPGWLQRRARLNGLQSVAVN KG $R L G G K G W V R N E E$ $R R R V V A L V S G S V Q G V G Y R W F V R G R A A A A G L A G S A T N L D$ $R L I I K G R V Q G V N Y R E K A C V I A R R M G I K G D T K N L D$ KKAQEYGVTGWCRNTA

GLD C W
$T M V V V H A K A T G N V Q Q V M F R Q T \| I R A M T K R G \square T G G A T N D R$ T T IVKNK II I G KVV DVGYR VFLLNRALQS GLDGFSAFNH


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KGTVTGRAQGPEEMKSRLSNAGSPSSHTDHFSNEET $\square S K \square$ NGVEVLVCGQADKVEDLWLK $\quad$ GGPRTAYVTSV DGVEIMAEGE

 $N G V Q \| V V A G N V K K M R S I L E S E S P L K A V V K N V K E Q N W E$




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,

D R RVIIVVAE GHEADLERFLRIKNTLIDVEEIKADFSEANGHTVVGQLQQGDKDDMAK WLAA QGAPGAKVSRLELRHWQD DDNGVELLLEGNSGEVLKAEKSVE KRMGYWTERESEEVL GD HD G S V E AV I E G E R E RVVEAWA H Q G P D F A R V T R V E V K WE E P K G| D G T | $V$ | $K$ | $G$ | $Q M$ | $E$ | $G$ | $E$ | $A$ | $K$ | $P$ | $I$ | $N$ | $W$ | $L$ | $Q$ | $N$ | $K$ | $G$ | $S$ | $P$ | $T$ | $S$ | $R$ | $I$ | $D$ | $K$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $A$ | $V$ | $F$ | $G$ | $E$ | $L$ | $I$ | $P$ | $K$ | $Y$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $D$ | $G$ | $R$ | $E$ | $I$ | $V$ | $A$ | $E$ | $G$ | $K$ | $E$ | $E$ | $K$ | $I$ | $A$ | $L$ | $F$ | $L$ | $R$ | $T$ | $G$ | $P$ | $S$ | $S$ | $A$ | $R$ | $V$ |
| $T$ | $D$ | $L$ | $Q$ | $V$ | $D$ | $W$ | $T$ | $T$ | $L$ | $Q$ | $A$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $D$ | $Q$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| D | $T$ | $V$ | $E$ | $I$ | $L$ | $C$ | $E$ | $C$ | $K$ | $D$ | $E$ | $F$ | $I$ | $N$ | $K$ | $L$ | $K$ | $I$ |
| $K$ | $G$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

N D T $V$ V $\operatorname{E}$ GEA Q G S E D V M Q K F F D K G P S H S N V T K V V K E D R D V V

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




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| UniRef90-G0RDI2 | G D S F E VR |
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