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| QUERY | VVRGLDSPKR ${ }^{130}$ |
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UniRet90
S8EYW8 UniRef90－UPI0002B42EA3 UniRef90－U1GD57 UniRef90－M4ZGY8
UniRef90＿B8MP13 LLSGELRERQTALQWLFWQVAGFGPMLGQNHHFNHFAPQA LLPAEPAARTETLNWLFWQMGSAPYLGGGFGHFYAYAPEK FLPEGEKARSQALQWLMFQMSGDGPVMGQAMYFQRDAEPQ LPKEDHKRTEVMNWLFWQTGSGPYVGGGFGHFFNYAPEK GRDPRAHDDVLQWLMWQVGGDGPMLGQNHHFTRYAPEK FMPAEPAKRAQCLSWLFWQMGSGPFLGGGFGHFYAYAPEK LIPKDVSLYWETVEWMWQMGGPGPILGQDGHFVKFNPGK LLPPDPAGRAEALSWLF LGMTDLTPAMVGHFRFAVLAAEK FLPSNGSARSQTFNWLFWAQGSAPFAGGGFGHFYAYADEK LISTNPEKRAKVLEWLMFQMGGMGPMMGQANVFFRYFPEK LLP GAPAERAEVLSWTYWQTGGLGPILGQYNHFS FLPKDPAKRTEALNWLFWQMGSAPYLGGGFGHFYAYAPFK FLAPSGAARFKALEWLHWQVGGLGPMLGQLGYFAVRAPEK FLPEQGASRTEVMNWVFWQMGSAPYLGGGFGHFYAYAPEK FYGRTERERDAVDQWLMWQMGGVGPMAGQAHHFLRYAPQM DAPSGP QRTETLNWLFWQMGSAPYDGGGFGHFYAYAPEK FYPADERARVEVDQWLFWQMGGLGPMAGQTHHFRQYAPSF EYVEELSWLMFQMGGVGPMQGQANHFRLIFAGAR
 LLPDDVCARTEVWNWLAFGVSDVGPTSVDMFRFAVRAPEK俍 F पPKEHRARTECLNWLFWQMGSAPYLGGGFGHFYAYAPMK YGETERDRVNVDQWLMWQMGGLGPMAGQAHHFLKYAPSM FQGRTLRERTEVNQWLMWQMAGLGPMTGQYGHFTVYAPEK FLPTIPHERYTV IQWLMWQMGGLGPMMGQLGWWALSAPEP FLSSAPREKDKTLEWLFWQMGGFGPMLGQNHHFTLYAPEK

PEDRAELLS WMMFIASGLGPYSGQSVHFRHAAPAG A S G A REGAARHHTIDWLMWQMGGFGPTLG

LLPSDPY GGFGFYAYAPEP品KAQARFWADFVDKKIYDAARKD PKGTREWFEMNNWLFFQNAGVGPMQGQANHFTRYAPEH LWPDDPQVRATADMWMDWQQTLCAPMMRPDFWGLVRTPPE FFPTDKFEQAQVMQWMFFEQYSHEPYIATSRYWISIVGKP
 FLPQDRFTRAQLVQWQFFEQYSHEPYTAVARFDSGYGGLP YPEGTLDYYKSIEWLFFQNAGVGPMQGQANHFKDYAPEK LFGQTLLQRSEIMQWLMWQMGGVGPMFGQADHFQY円AAEG F $\square P A A P A E R T E C L N W L F W Q V A G A G F L G G G F G H F Y A Y A P E K$ SDKQKYADYLSWSMWQMASAPYVGGGFGHF FNYAP FCGETERARDAVDQWLMWQMGGLGPMAGQAHHFDRYAPPP LLPAEGSGRARVFEHLFFHASGLSPAFGNAGFFKRSSPEP FLPTEPRLRTQVLQWQFFEQYSHEPYDAVARF TEFY LGGLP LLLPTYFEGRTECLSWLFWQMGSAPY LGGGFGHFYKYAPKK TESDAYSEQLQWIFFTHGGVGPMQGQAGHFYRFAPEK F Y GADERA WLAVDQWLMWQMGGLGPMAGQAHHF DKYAPED KEKYTLIQWLFFQSSGQGPYFGQAFWFLKFHSEQ LIPADPYMKAKMYQWMFFEQYSHEPFDAVARFINKYGGDP $\square A P T D P Q E H A D A D R W M D W Q Q T T T L P \Pi M T P D F W G L V R T P V A$ LYPRTSREQDAVEEWLDMWMGGLGPMAGQAHHFLKYAPAM DASNRPEMLSWLFWQMGSAPYLGGGFGHFYAYAPEP F $\square P Q D D K G R T E V L N W I F W Q M A N L G P S M G N D Y H F L V Y A P E K$ LLSQDPAQRYQTLQWLMFQMGGUGPMFGQVGFFHFFAGKE PEKWY LKQYLHFQMSGQGPYYGQTFWFHFFHKEQ LLPSDPYQRAQARFWADY DDKKП PKTFEGKITQLQWLLFQASGQGPYFGQAVWFIDRSHPEK DYYAQLQWLYFQASGQGPYFGQVGWFTFYHPEK F TPTGRRERARMLQWMFFEQYSHEPY ATEEDRFRQLQWLFFQASGQGPYFGQAAWFSFFHPEK PIDGTKEYHLTQQWLHFQMSGQGPYFGQWYWFQNYHDEK LLPAFGAPRARVFEQLFFHGTMGPAFGNAGYFQKFAPER LLGKTDEERGLVEQWLEVEAHNYYPPTYNLVMHVLVHPYK L WIEAPAERAQAEKWMDWSNSTLSPRHRTILMGYVRTPPG LLPDDPKKRA LLLPNDPLDKAEVTKWLFWEQYSHEPNUASVRFWLTHNAMT MSHETRERAATLQWLFWQVGGLGPMLGQNHHFNHAAP
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P KDEKEAAALLTWLEVESHHFNPPASKLVYEVYLKPKL



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UniRef90＿B8MP13

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120 I A DP WYGA LVEVYGAAEF VA A B MA TYP WA RA $\quad$ Y Y WA K V V S V D G L N N L Q A WF D R I $\begin{array}{ll}\square & A \\ M & C\end{array}$

 I S HWGWVAAA $A$ GWA GVNI DEFP HLKA WEERMAARPG | $I$ | $A$ | $V$ | $F$ | $P$ | $F$ | $D$ | $D$ | $A$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $M$ | $A$ | $I$ | $W$ | $P$ | $W$ | $G$ | $G$ | $L$ | MA I WP WY G NLVVKLLY DAA E F LLEVVA TVYENVVVRWAK QI E S R E A IA NWC WVV T $\quad$ HK WS GV SI D G L E HL G R WK D A MY E K P G

 MA DWP WYGNLAA IYNDSATTFLDEAHTYTNNVVARWQKQI AT R DP


 $M A C W P W V \quad V P W R N Q G V Q I E A F P H L K A W F D R V G E R A G$ IA N Y S WV R S A PV V A L G I D L A E WP ALLKK WK E E I E K R D A
 I A I WS WY G RLA QWDKAG IF LDVKEYK HL QA WTEKI ANRPA
 I A L F P WH D A A I Q Y Y L P P G T Y D L A E A P P H V N A WY K M M L E R R P S
 $M A A W G W A S L W W E G Q Q Q Q T L D D K P H L K R W L E V V G Q R P A$ MA $\square$ WP WY G GVVATVYEAAEFGLEHSYTHVLRWAEEVGQRAA MA AYPWIN PY T K APLDLEPYPDLRRWHASIAARPA
 VS A WG WID K APF VLGE E G LI EPYPNLKRWFNAINTRPA I A HF GWL WRREFAGVDLE QAPNVARWYGEVEGRPA






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TTYGWVRSA
L S F F A WQR WVPE $\square$
G D S E F P ELD K WLTTRLLD DP E
I A A WP WL L A K Y Y N Y K A GE DL Y Y K F P HVVGA WF R RME ER PA MAIWWPWYGELVRVYQAAEFLDAQSYRNVLRWAEA IGRRPA
 $M A I F P W A R L W$ W Q R Q DQGI ESFPHMKRWLDGLEARPA IA HFGWL WRRAFPGVTLDARPNLSRWYDQIA TRPA




I A $\square$ WP WA S L W
L S F I P WH Y G A I K ILDD E

 K E G G D DEK D DYPA A F Y A WH QK L LAAR D A AFFT WQHTA EPRDP DEEFN Q G G DY P H VV K K WLLD N MLLA R P S
 MANWAWYGQLARQYNAGTF LQVESYEHVQRWAKEI DARPA

I A $\quad$ PF P WVR N L V E
 VALVT FSCWFYAYETFGNFS I EAECP KLI A WTKRCMERES
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T E R A Y QL

VQKGLN
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VQRGYHVPR
VEKGRHVPA VQrgmavpa $V Q R G G V V N K$
$M L K G K V P$ VAKAKR】PD VKKGLM
VKRGRIVNRRS
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VLK GVDVPKR
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VKRGLEVEY
VKRG
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FKRGRMV
VQRGRAVAAE
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VQRAVA
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VKRGYGVPH
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VMKGFDLMKSG
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WREAMRTRDR
VERGMAVPK
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UniRef90 M5WIY7 UniRef90-W2DB28 UniRefe90-W W8GG7 UniRef90 J3CET2
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GTKEEEQEAGKKEFDEALLKQLEGELGDEPYFEGESFGF $\square_{D}^{80}$ FQDPQRIAAGVRGWNDKMGLLEQRLIDTAYVAGDDFTLAD ERDQAALDASCKECDALFALLDAELAKVKWFSGDEFGVGD KQDHAAKEKGLQTCCKLFAMVDETLALQPYDSGEQFGLGD TTKGEEQEAAKKDFDECLKVLEGALGEKPFFGGDNFGFVD PAEQARRPGLVKWADRALGGLEEWLSARPYLVGEDFTVAD NNKGEEQEKGKKEFDDSLKVLEAELGDKSYFGGETFGYVD DDRLDEYAAKQLDGHHALDVMEQQLLRTPYLVGEHYSIAD EERKEEYASLKKGGHQALQLMDNQLANTHYLVGETHT:AD $\square$ STKGEEQEAAKKEFMEIGKVLDRSELKDKDWLVGDKYSIAD DDDP DAKQRY ETRRTDYESKQVGGNKALAVMEAQLDETPYLTGEKLTTAD KQDQVAl RQNEEKLLKKVLDVYEERLSESRFLAGDEFTLAD DRYAEVIKFKRQKAYAALEVTEKQLSQNPFLVGNQYTIAD QRNDALI AASVAATEPLLAMLDAHLARQPFMAGEQFTMAD PGNKGEAVAAMEKLDKVLEVYEKQLSRTKYLAGDEFTLAD TTKGEEQEVAKKELDDSLKLLEGELGDKPFFGGEKLGLVD FD RDQTHADEDWMERGYAALQVMENHLRTNDFFAAGRLTIAD EARLLEYQKLQPKGHKVLAILEQALDGHHYLLGEEVSLAD KQPKEVIGFMQGRLSAAYAVLNDHLNGRDWIVGDGITNAD PGDEALVDASKAEVSKALDVIEKALAGHEYLAGSSYSLAD VPDQTVANTNLLEKLCKVLDUYEARLSKTKYLAGDFFSLAD RERTHDTDRWLE EGYAALGVMDRHLQRRPFFTDGTMTIAD SPDPKVIEESEAKLVKVFNIYEERLSKNKYLAGDFFSLAD HQDSAALANGDAQWSRNMAILDRQLQKTAYVSGEAFSLAD VPS AVERYQNEDKRVLGVLDSVLREREWLVGDKMTVAD KQDWHADHAGRQACIDALQTVEQALAGQPYLSGDAFGMGD KARMDEHASLQEGGNKALQLMENQLSETQYLVGDEMTIAD DATPERLALTLERGNKALGVMNKHLAGSAFFAGEAGSVAD LRDPQAI EKSLSLCDQYFELLDQVLSEQPFLGGERLSLAD LP YALSRYMDETKRLYGVLEDRKSQRDWLAKGAYSIIAD KEREAEYHAKQDGGHKALSVMEKHLVENQFFLGASATIAD STDEAAVEMNVEKLKKVLDIYEERLSKSKYLAGDFFSLAD QRDTARVEQSIAQCAQYFRVLDTVLAGQPFLAGDA臬TLAD MA WT GQDEGKEEVAKEELDESLKLLEGELGDKPFFGGKRLGFVD QRDEALIJKALQTCGELLRVPDQTLAGQPWLSGERFGMGD TTKGDEQEAAKKEFDEALKLDEGELGNKPYFGGESMGYVD KRDPEDKALAREEFMAMAAYLDKGMDGREFIVGDKITIVAD TTNDAVVQEYEAKLGELLDVYEARLKGSNYLAADTFTLAD AERLDEYHSLQAGGHKALKLMDQQLGKSAFLVGDTMTVAD PSDPKIIQESEAKLGKVLDIYEERLSKSKYLAGDFFSLAD KRDMALVQKGIAECERLFDIVDTVLANQPWLSGEQFGVGD RGNQKVVDESAEKLKKVLEVYEARLSQSTYLAGDFVSFAD EDDP DAKQRYDEQIARVVEVLDNDLKGKQYLDNEKFTYAD TTDAKMVEVSI GKLKKVLDVYEAQLSKHRYLAGDLVSGAD QQDWVQI NGAIKTVQGLLVVVDEALASQPWLSGDEFGMGD RDKMHAI EGWTESGYGALGVMEEHLETNRFFAADRYTIAD
 ADRVEQYEALHAKGYKALDVMELQLSKSNFLVGDAVTI AD DERKQMLPGKQEAGRKALKVMDSHLQGRHWLVADQYTHAD FE YPINRYAMEVKRQLDVLDKQLANNTYIAGEEYTIAD QRDWVAINAAHKQCAQLLAALAESLANQPYLSGDQDGMGD MGESPVTEFLRARADAAFDIVEKHLAKRSFMVGDTPTIAD PDPAVLQFLRQRCEGAWSVLDAHLSGRAYVLGERLTIAD AERRAEHEANLIPKGYRALGVVMEDHLRTNEWFGAEQVSI AD
 ПPS AVVRYRNELKRVLGVLEMIFERKEYLVDNRCTMAD ERDHNATDAARDKTFALWSLLEGSLVSSDWIVGHAPSLAD TTDEAVVESNAEKLSRVLDVYEDRLSKSKYLAGDWFSLAD DRDMAQLAAAASEVDKLWRVVDTHLKGRDY VAGDLLT AD LRPSAAQQRYKNEIKRVLGVLNTEEKKREYLVGGKLLTIAD PQDNAVIAENEKKLQQVLNVYEDILSKNEYLAGDEFTLAD FADPAQUSASARAWNANMGLLERQLAATGYAVGETFTLAD GD PPEKMKKLEESYEYLNKFLENQDFVAGDSLTVAD LDPS ADDHYVKEVGRVTGVWEKVLSEKPWLVGGKYSVAD ARDLSLLQASMKRTAEAFAMLDAHLRDRDFVAGDRLSMGD

ARDLSLLQASMKRTAEAFAMLDAHLRDRDFVAGDRLTMGD
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## UniRef90_HoFovo

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UniRef90 A4XTLO UniRef90-M9W2Y8 UniRef90-B8M5R0 UniRef90-A0A023XJW7 UniRef90-B8QZVO UniRef90-G6CX96 UniRef90-K9LHE2 UniRef90-B4RE14 UniRef90_BOLB16
UniRef90_B1xW58


$\qquad$ as
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LAP

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WEQFQWL VF QVASHSPLQGQAHH
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LPRDPVGAARVQRWLSVAAGDVAFGPAAARLGVLF LLP QSPRERAKVEQWMDWQLGDLNNAWRYAFMSLARHSPA SPESAAKVDVWLEVEAHQHQTPAGTVVMQCILTPGC LYPTDPTARAKVDSLLYFDMGTLSSR LLPADRFRRAKVMQWLFFEQYNVEPVIGSRRFWTDTGRLL LLGAGSLEHAMVDVWLEVEAHQLHPAAGGVVVECVFAPGR MP
LLPSDPY ARARAKFWAHFQVNGLGPPDRKLGYGAGRAPEK LYPVEARARAPVDQWIDWQASDLNSAWRYAFLSLVRRSPQ
 HRFGEYYYPDY LPEAPVEEAAVQRWLSVAAGEI AYGPAAARLIVTVFGASY LKPADPSSRLQYRYWMHYAEGSLMPGLVMKLIFGRLGKPP $L M P T D P V G R A R T Q T W M F A A L S S I E P H I Q N L S M I D I F H T N E ~$
$L Y P A D R G E A A V Q R W L S V A A G E L A Y G P A A A R L V V F G A K R$ LIMKDPKVRALVDQRLYFDMGVFYHRFGLVYYPVMLKGAT LIPTDLKALGLFEQGASTETSYFDPNVGGLAFFKGMFGGG $L L P K D P K K Q A L V N Q R L Q F D V S T M Y P A F S D Q Y Y P W M E A G V P$ LLPRDANAQARADTWMFAALNTIEPPDLELVNAKLDESDK LLGKDVLIERASVEQWLLRHEEHAFDPP SRALFCHLAFPFP DDPFEFAQMQSFNSYVVSTVHVNHSHKGRGYRWTDDA LYGRDARDRASAEKWMDWATSSMAEPFKAVFDGLVRTPPE WMEAEAHQFEQPASKLNWEIVYFFKIL LYGEDAQQRARVRWLEKYADYELAPGCTFTVFRNRVMGQP LAPVGTDARYQTLEWLNYVATELHKGFTPL MAGYEYANHFFRYAP D H P DFA QF LY WF HFANGTLQAGMGRLMDLNRL
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PQAAGAILRDKLGKRVALLETTLQRQAYLLGDQFSVAD HQAPERVAQLLDGGHKALAVMETQLSKTRFI AGDDYTVAD TGETPVTEFLRTQADASFAVVEDHLNRQPFLVGDRPTIAD PTDPAAVE DDEDEP SLMAKGRRALGVMELQLTRTDWIVGDTFTLAD
 $\square P \quad Y G K S R Y V T E T K R L Y Q V L D S R L K H H D W L V G D K Y S I A D$ HS DPDLLAGSIS E WNRLMEIVELQLQRSNYILGERFTLAD ERDQTAADENAAK LTTKLFDVYEARLSASRYLVAGDSLS L A D KADPEQLKKVHEALGWLNGYLDGHTWAASNTMTVAD K $\square R G D A R A Q A R A E I V Q V V R N L D G E L G D K A F F G G E A F G F V D$ ERNHAMVAGKREAGARTLAALDRSLGKTPFLTGDDLTIAD ARNQAAIDENLGKGKKVLEVYEARLSQSRYLAGDFLSVAD EAQEEAKRNMMEYLGLLEGALDELSGGMPYFGGEKFGYMD A AKKEFIETLKLLEGELKSKPYFGGEKLGFLD $\square P$ L YQDSQALRAACMQWSHCMGILERQQAAGGYVAGPHFSLAD KTDYKVVNETEAKLEKVLDIYEERLKNSSFLASNSFTMAD WYE QRLPFDDERI RERLGELSGRLGNADW LDGAFSAGD
 HAD AADPEVIARAHRILKLI DEELAGHAFIAGETATIA D MP WLIR QNYIIDKQLATHAAYI EDHLTKNAWFAGETFSAAD EWAKLRRPGAVAMVQQRLQELATCLGDREY LEGRFTAGD DP EEVIGRAHTLLRRLDTHLAGRDWLVGAGPTDAD K $\square$ DESAM K D L E GALD FLETFLGQNKYAACDHLTIAD QRNWPADETALARCEQHFAKLERLLESNPFLLGETLSFAD APDEARVKLLTQKLTQALDVYEKILAKQEYIGGGNFTLAD K S DDK EKKI HDALGFLDIFLGSSTWAAGDSVTVAD PWNKERMPLLRNRVRDRLKQLSVYLGESNW LDGAFSAGD DEDMSDDDREKRKLEEVLEVYEQRLGESKFLAGNKFTAAD PYNKKNVEDASKAALKKLGVLNTHLTANTYLVGERDTLAD QQDKVKIA QGMT QLNTLMAVADQALEKQAYLSGEKFGIGD CDEEAAVQENEATLLTKVLDVYESRLAQSKYLACGCFTLAD PEDYKPIAR AQLEKKDHY円DESLKEKQWLSGHRFTMAD
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 $P \vee$

10

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LFPSDPYSKAQALFWADFGVKKVGDGGRQWW $M M R$
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SARGRAEVNRWLAFINS DLEPLGFRPVFRPERFDDDE $L Y P K D P A Q R R E V D A R L Y F D C G H L F P$
$L I$
$L$
 $\begin{array}{ll}G R D E A E R D R L A E W L S W L A D V L L P V Q R A & R A V R K F \\ D D G R G E A E L D R W S S F F T G D V H P S F Y P V F M A D R Y T T D T\end{array}$ LVPHNSFNRAKMFEWMFFEQYSHEPAVAVRIVHTYKSRNP LYPKEPKVRALVDQRLYFDMGVLYQKFGLVYYPVIMGGAT YP T D LK ERARVDEMI DY LDN S DFYRDWGYNMDYPQLFPHH

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 L
 ARYRLMEWDNF LGTEI HKGFDPLLY
LY P K DAKKRA IVVDQRLYFD DGTLFPRDRQCFLALLRSGGKP LYPK DP QQRALI NQRLYFDMGTLNNA FFEYF IPQF FLPSDPY LDAQARFWADFVNKKVGDVGGRDWAGKKEEHEE LWPQAPKERARAVWFDKFGDTELGPPFAERVVKPVLMGKP LVGSSAYEKALVEQWDDFATMEIDVNAGGWVYPRLGFGDY $L L P D D A N A R A R A D A W M F A A D N T V E P P D L E F S T A W L F E R D K$

 $L W \square E N P A K R A Q A E K W M D W V S T T I A G B F R D V M M H L I D R L P A K$ PS FPVNAAKVMQWLDTVANEVGRGPAALRAHYKFGRKD | $L L P$ | $T$ |
| ---: | :--- |
| $L$ | $D$ |
| $W$ | $L$ | LP S D A VGGA A A V Q R R WL S V A A G Q I A F G P A VA R L V V V F G A K K LWP EDPRGEAACAEWLA WLAS TVVHVAYAHVRRAERYAGEE


 L L P K G EVGGRAKAL E WL L F A NATMHPAYSKMFFAMAADE DE
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 D Q A L A V KKAQRVLA ALLEARLESSRDWLALDRPTI A D NE KVEEANTARLERSLACLETHLKDRTWFVNEKPSLAD $\mathrm{V} Y \mathrm{~L} P \mathrm{P}$ A E E A T I A GLLKRSLAALNSHLATNTY LVGHS DTLAD E E Y K EAA IE QKRESGYA AL K L MENHL Q SHNFFFVGERYTIA D

 NK QAVVANAKNELLKNVFQQLNQYLLTRTY LVGEEITMLAD F GA GEVVPDRDAYLQKAYDGLEHCL AEGDYLVGDKLTIAD PFNAKDTQKAKENLKKTLTTLNTHLQSRSFLVGPRVSLAD YNDKNA $\square A Q G \square V A W N Q C I A D V E Q Q L A T G A W V A G E T F T L A D$ H Y N K Q A T E V A K E E V R R V L G V L




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 $R P$ A A K K M L A M F A Q H L R Y L E S E L A T R D WF TGGSE TAA D AS ARDPV RVVERGHAALALMDRHLAVSPFLVDDRCS LAAD K DMKANSKLSKESLLRDLK』LDSMLHTRTYLVGER\|TLAD
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YAE
YKRAYDA
YEEA
$\square$ GKEGEL
RKRAL
$V Q E A \square$
$\square$ QKA $\square$ A
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VRRGV
VAKAFSEERK
VREAFGAPE
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VQRVLA
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VSASLPDKEK
$\forall \mathrm{V} A A^{-1} \mathrm{M}$
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F $\bar{V} G G \square E \nabla P D A A$
AKRQMALMPQ
VQKVLAEEDAA
VQEAMKA
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$\stackrel{V}{\text { V K EAF }}$ K

WQ
YEAGMAAFKK
VKNVI
YQK
FKSVL
F
FKAVL
FRAMMD
VARVLE
VQAALAA
VSKSLAAEKE
$\mathrm{F} V \mathrm{~T} A \square A A P$
FK
YQRAFAA
VVESIPDADK
YRAAVMTP
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V QRVFA
$V R E A L$
MARAMEKEQAA
FQRAFAA
FARALAA
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YENVNA
VRRVL
$\stackrel{V}{F} Q R A L A$
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VAHR $\square$ AEDKK
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VKEVMPDPAK
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$\checkmark$ VEAMKA
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E D P LLT A A HJI QR W|L S VVAA G Q|V|AF GPAAAR|LTTVFGASF
 L HP E D A LT K A KHRSWI E F GSNLLT K IA G

 MPS TP $\square G E A N V Q R W L T L A A G E V A F G S C A A R L I T V F G A P D$ LA P A N S FE R Y HLL Q Q WL N FIS T E L H K NF SPPLFNPAASE D WR
 L HP A DPLKRAEHRAWMEF

 LLPLDPQKRTEVLNWLFWQTGAAPF LGGGFGHFFHYAPEK $L$ Y P K D L L K K R A V V N L R L F F D A C Y L F P K F G A Y H A P T LLY S G

 P L G DVRRRA KY L Y WL F F A P S CI E P A MVVQLA T K I
( LP E T P LAA A A QVVQA WL S K A A GEEVRY G PA S C RILIA Q F S V P E
 NTADRYEIILSWMNFDAS EIIHKA YSPFFF N N N


L LP A D P R A A LLEVRMLD R F F D N Y I S T P Q Q KVVV D S LR P E A L I P P NGRERAEVKCWEALAD G VA DA A MLLRRLEHTLRPAE PNGTWDRNRLQEWLNFISTEI HGGFGPLFNRAL $L Y P K D \square A D R A K V N Q R L F Y D \| G T L M R S V T T Y Y H P I L M G G E G$



 LR GATPELAARVLQWVSFADSEIVPPASTWVFPTWGIMQY ME IVE K H E FD P VA S K L V WE QV L K Y G M LLPTDPAGRARTDAWMFSAASTLEPVIVEREVAVLLEGDK $\square L P S D A F E R A K V C Q W L F F E A D Y V Q A T 』 A S L R Y W N G T G K N$ LLPADPYDRAMVRFWADFMDK
$L$ HP T D P L E R A RHR GWMEYGS S ILS DLDWG F E T YPES PQQQQAE $\square Q R F L S T A A G P V A F G P A R A R \square K H V F N H$ $\begin{array}{rl}L L P E & D \\ D & E \\ \text { L G A A R V V }\end{array}$
 L YP K D L A K R A L V N Q R LLY F DA TV L FM S L K N $\square$ SAP F F L R NV I P A DA QARALVNQWULFANSTLANGL FIP P GAK NYADFLLFYYHLTTNGTLQPAIG RVMALRTAGL LAPRDTMDRYR LLSRRLSFLGS EFHKAFVPLFTPGTSDEAK
 L I P D DP K A A L E VVR L M D R F F D N Y V Q T P L Q KV VF D S I R A P E F WP K D A R HRAQI D R WA E WA K $\square$ NIA MN F GPVFWRVVRTAAA NSQK QAVVSNWDDVEDHKFEPPALDELILLTKPGNGLL $L L P K D L E A Y G L F E Q A A S V E V H N F N P Y A S K A V A E N V F Y R G L$ T S P E E R A A A Q WT L F A NA T L G P G D
GAEAK QQSQVWWQWLS FADNEELTPVACAVVF PMMGMT LPA DPYERALHRFWASYVDDKLNPSGAALSKAQTEAAKV L L G R T P S E RLLEVLLQWMFW SGEQWR DFSTLLLFNEWKWM GK
 L L P S D P H E R A VA R F WA A Y I D E K L F S S WMMVG
 $M P D T$ LEE Q A Q V Q WV $\mathcal{L}$ F A N A T L A P G IV T L LP K A GLAA H A RA

 L L P S D P Y Q R A Q A R F WA D F V

N P
PA GTSARYRLLQE WL NFVVSTEFHK QYSPD FNPSV
 $L Y P K E L L L K R A D V D Q R D L H E S G G I A F P R M L Q D A G P Q L R K G K T$



Q T P Q D R A I A A QWVLFANATLGPGL

LP S DP Y QRALARFWSKFIDD K I VGAA WNAVF TV




| UniRef90_UPI00025574AC | F |
| :---: | :---: |
| UniRef90 F4X6G0 |  |
| UniRef90-K6YGV8 | F |
| UniRef90 L7U5D5 | WK K V |
| UniRef90-L8N1W8 | V Q Q A V D |
| UniRef90-V4QVX8 | Y MRAFAA |
| UniRef90-F4XTD2 | Y 1 A |
| UniRef90-M3CP86 | Y K A V |
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| UniRef90_C5WUK0 | AK A V L P DVEK |
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| UniRef90_K9VK98 | F K S A $\square$ |
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| UniRef90_W5QNU0 |  |
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| UniRef90-T0Y7Z3 | $\checkmark$ Q K A FA A |
| UniRef90-19CLI8 | Y R Q A LE |
| UniRef90-G8XRK7 | $\square \mathrm{K}$ A T |
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| UniRef90_G7ZB71 | Y K P Q Y E L M P S A |
| UniRef90-T0J532 | F A R AVEEARR |
| UniRef90-UPI0003B6EA6B | FAS】1 A A P |
| UniRef90-UPI0003B61055 |  |
| UniRef90-X5MHA2 | $F \quad R S V D L P$ |
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| UniRef90_UPI00037B79D6 | V A A A L K |
| UniRef90-J1TBE8 | $1 \mathrm{I}^{\text {a }}$ A L |
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| UniRef90-F4P5W5 | FKAVL |
| UniRef90- Q2J477 | Y K R AL E |

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UniRef90_UPIO0036AA513 UniRef90 W5L479 UniRef90-UPIOOO429EEA7 UniRef90_R4XLG9 UniRef90-UPIOOO465E24D UniRef90-M1 W011 UniRef90-G8M5Q4 UniRef90-JOKFP9
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MWTVWAAAEVEPHTVKIVLTYDNELEN LLPPEDDRALQVRLWRFFDHYVQAPM QTIVSNRRRPDG

DDAFAFAEVQSFNSYDCSTVHVAHAHRVRGSRWASEE
DPEDPASLAAVQRWLSVAAGELAFGPAAARLVTVFGSRH LYPAEAKARARVDQWMDWQASDFNRSWSYAFMSLVRQSAA PEFARMQAFNGWLA SSLHPADGKALF GSP PLVQAQVQQWLSFADNEILPASCAWVFPGLGDMPQ LKPESVEDKLQYRFWLHYAE HKAIFSCHSFKSYWLAD LLP ESPEEKADVEKWMDWQATELNSAWRAAFMLVRKNDSF PADADGADRYRQYMHYAEGSMMPPLLALLIVGKLGLLG ADPKTRALIDQWACFAEQELGMMHLLLPVRMTLFKII LLPGDPVDRADARFWADFVDHKVGFGAQVRFLESKGEEK LMPTDARSRAETVNRWIAFVNADLHPTFKPLFGSTAYLQED LMPTDTKADATVRMVELVTDNELLPPTDRLTSQALGVLEN

LDPGDGYQRALARFWTNFVITKTGLLIMKRV
LFGRNAKEKALVEMWNRRADFNLMFAVGMCFQHVSGFFKD MPASLERQAEVGQWVLFGNATLGPGI L
LTPENKAELALMYQRM FEGLSLFDKDRQSLFYDRFVPEG LPEAPAAAAAVQRWLSVAAGDAFGPARARLATLFNAPV LLPDDPLHRAYARFWADFVDNKV FGTEMSLFK LLGSNDKEAALIDQWVSFADSEVALHTTLIFQLVKGII LWPKSDDRYDILRWQYWETAHWTPALSPF DSRHUFG DDPFAFARMQELASYLASTAHVAHAHKRRGARWADDP LIPDCPAEQALMYQRM FESLTLGQKMGDVDYYNWKFPEG LYPKDLAEQAKVNAALYFDCGVLMPRARLRFITEQULMG LVPADPGAADTVRMWRFFDHYVQVPM QKVVADALRPEG FWPDDVPARAQI DKWAEWAKLNIWLNFGPVFWQIVRVPEA GYPRDYFKRALVDQRLHFESGVLFQGCIDRNIMAPLFYKNK L LPDDVEAETRVVETLAFVVGTVHQGFARIFATPTFTRNE LYPGSAAQRAQVRLLISYSDTVI GPALRGQLFEKRAKPEA LLPRDAPDRARVLSWSVAADNT EPLLLQFQLLNMADHRK TDLVAQGEAMSRLVFCSSQL HPLVSRDASPQRTCDLS
 LWPSDSRGRARVRELAMAVACDIHPLGNLRVLQRLEAQFG PDDAEAALRYRYFLGYAEGSLMPPVVMKLVLGRVPLFG GADLDDERLQAEWLYWDFDRLASPLYKVRVVKAGFRQA LIPAEPRARAMTI WWDESANTKKLPCMAKMFFGKPLTGAA LIPAEPRARAMTL WWDEIADTKFVPCMAKMFFCPLFLKQE NTFERYQVLA WMNFDAAEI HKAYSPFFHESYGEESK LLPQDPHDRAEARFWAKFGDDKVDPSMWAIL
LIPTEAKARARTD WFEEFGDTIAQAAGQKLFFNRVVAKM WPDRALDRARHRAWAEFASTVI ADVFG LLGDTEARADFLRWMAFLDS ALYPAVLRRYYAPRYTADP L LGDTVEQTAQVRWLEKYADYELAPLVFQQRVINLGMQKV LVSDDRKKQALIAVWSEVESHPFDAAADGLSLIVKPMFGG PADEAGALKYRQFLHYAEGSVMPVIFAKLVVSRVPLLG DDPFAFARMQEFHGYLAATVHVAHAHRRRGSRWADEA YPADLQKRARVNEYLSWQHSAMRPHGSKMFWLKLMDPKV AGTPERLRYTYWLHYAEGSAMPPLAPMPFFAKPVARK
 YPKDLRQRALTNSWLFWEAFGWFRYVYLVENVMKPLRAQ DGMARYRLLQSWLTFIGTELHKNFSPFF GAAGRADMLSWLMLVATGLGPFTGQAVHFTHYAPEP LLPKCPKKKAVINQRLYFDMGTLYKSFADYYYPQDFAKAP LKPSDPYKAAKMREAMYYLASTMHVNHAHKLRGARWADKE LFGNSPDERARVMWQRDI ELOGLMVGFQFRNDGOY

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A D S DK 50 60
Q E G V Q I H DNLKFLETFLD GQKYLA GNNLTIAD
 ANEQSAQRRGDKRLYETWKVI DDQI GDNEWVLGERFSAVD IS A NVKKQF IRPPQLNHMDYIEHSLRQHNWFVDDEFSAAD
 E ETEAQAEARKMNGEEAKGDLDGALKGKDYLLGDAYCLAD A WY A Q R L P MLDDERVRTRLAQLSTWLARTTWDLDGEFSVGB REHDDGGDRWRAALDTAYALL NERMRDREWVAGD FGLAD A A LE SMKAKVPQTMGESFELI EATMFKGPWVMGDSYTVAD LDQSVLDAAIPKAKAHLALLLDKTLSTNNYLTGSQASLAD EY HKELUHE WLLKKRQYQSFECL ENHLLASHGYLVGDRILTI A D
 HARETAFTAAAEATNSLWQVVEQQLAGRDYLGGERVSAAD D RLLQEAKENTARALETAYAWLEKRLDGRE WAAGDNFS LAAD QGEVRAMF QATLFKRFAVLVQTLERQDYLLGAQYSVAD SEGQQTIAVACRSLRRPLAVLEGHLADRQWIVGRRFTVAD A S L A DMKA KVP Q TMGECFELI E HGLLDGPWVLGTAYSVAD


 $H Q D P E S L A Q G C R E W A R H M A D L D R Q L D T T A Y V G G C E F S$ LI A D PLEGEAKDEAVRDALEKYDLAENHLLTGPWVMGEDHSLAD
 WLE GEEQK GFLKE TKENLALLEAQLGGKRFFAGDSIGYGD IQ Y P ELIA K S T DE WNSKMLLLE A ELEKNNF DNGKQFTVAD RPARPTVQRM LDDDHLDWLESELASSRPYFAGDEFTAAD D H EAAKARAHRLFHMMEAHLTGRTWLVAERPTLAD P F DEARYDQCAANFERALKRLDALQGGKKFLVGDQLTFAD EPDEKLAEKYTANLNAKLEGYERILSKQKYLVGDNFTLAD DELVEQLKRLEEVL
$T Q D A Q V F A A K R E A L T A K F A R V E A A L G E G P Y F A G A P F S L V D$ ALIQQRSHEDARTKLRTLYTRVDAHLQGRNWLAGDTHTGAD A P Q K VE K A H QQV LTV LD FF E S L L G D S P YFA S E F LT L G D R K P E V P E D R DE LVVRTA Y R L L E D D S L A D D F VA G P QL T I A D ET D Q SVVVKENEASLEKVVLNV YEKRLGGESRFLACNTESLVD
 $R M N V Y P E$ E D A GK R AL K F M S V L N D H F S D S E Y L V G D Y F S V A D ERHDSAKQRFA GQLK DEI K L WE GYMAT GPYLAGKS FS L A D D G D D A
SKGEEEKEAA K E ELIVRLGQLEEVLGDQRFFSGDEFGFLD QMA A D L L T A A T Q Q VA R Y A A V $\operatorname{V}$ L A A HAAMQAKVP QSMTACAA YLDS QUVG P WAAGEHYSVVD ERHDSAVKRNKENLITELKLWEGQKASGSFVAGKDFSLAD GSEDPA EKA A YVVS A Y QLLLE D A LTT D D F I A G N S LTTIA D $M P D K T N Q \square F \square G P M I K T H L D F V E S Q L A K N T W F L G E Q L S A A B$ SEDPF GVAEARETLDASYVTLDDRLAGDPWAAGBAFSMAD
 A DHEAVRAF GRELVEKCFA ILNDQLGAKDYVVGGQFSLAD ERHDS AVKRNRAEVK LWWEGYLEKV KGDYLVASSSFTMA D

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 P Y NK K QV DESSEFDEKVI GIIFEDRLANYTYLVSERLTGA D
 SP VTAMMAAEREKAAGVI EAHLATYPYFAGDRFTAA D


 C D E S L V V K LA M N E Q L P P HF D YL E GVVL G H N D Y F V G N A L
 $K R A B R K Q V Q P M D D H L D Y V E Q L D S G P W F A G E T M T A A D$ EAD A A M QRKV P A N MA E C F G VI E Q HYM G S P WVMM GERY S VA D $M G V E V P Q E K M D A A D E D L N G S L E N F L Q D R P F I A G D Q D S L A D$ IA ATLQSSF IDPQLKLHLGYIEKELGKSQWFAGDEFTAAD

 A ASSDWKAAAMANLERRLGYVAQQVDDKQFLLGNEFSI GD
 A D P E L F K K DE D A F ELL L T F L E G H D Y V A G D S L S L A D A S WD DMRAKVPETMTACCAYVEENIVVGPYVLGETFSIAD $F$ F RLQENVVARLGYI ATRLSDRDYLLGDQFTVAD K D R E N C V E A $\bar{W} R Q R\|I D F L P T\| D Q Q L A K S S Y V A S D N F T \| A D$

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PYLFTIA
Y $\qquad$ Es
$\qquad$ IIMACNLSHGFRYTMTKGFVDLA I IMACNLSHGFRYDMTKSFT KEFPHVERYFWTVVNQPN IPIGLSVNRWFETPLTH PQFPAVSAY GYLLVFTRWAR QAGLLDKARFPKLNAHLDLVQSRPA QVVFCTLLHLYEHVLDSSVRSAYGNLNRWFVTILNQPQ I QMSFPAMAL 1
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1 AGYSYMAHAPE


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 11-FFPGVAYLFHF SCGSTVSTAMGLIP
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VKA VRA
FQRSLAA

VIA A L A A
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FARALD
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WK MACD
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VQSA $\square$ LAPD
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VK S T LP DEEE
LK DVF
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V Q R
FQGAVEDPA
YQRALE

| $V Q R$ | R |
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| V RE | D |

$Y \mathrm{Q}$
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 LMPNSADGRYEVRRLVMWFDSEVTSNLLYERVNKKLMGQG $L L P E D P E E N A V A R Q W I E D A E T N D R G G L R E V A Y K F L R E T$
$G T P A R A L Y K W L M W L T N T L Q T S L V Y F Y P E R W V D A D$ GTPARAQLYK WLM WLTNTGQTSGIVYFYPERWVDAD冋HPADPDARARHRAWDEF GAGANAIGRFYS L PTEKFGKNDIIQDUDWCSSTDHPDTRMDRMPMRFNRSG LLPADPYDRAVARFWATYVNDTFFPSWRPL

| $L$ | $R$ | $A$ | $T$ |
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 QPANLELYRKMNEGLELLNSTSQFVAGDVLTIAD EGKAEVVRKGVESCRPLWQEVNDRLSASPWALGDTYSVVD VDPQQKLA WYNHWUVVGFEALESMLETTKYSFGDQDTLAD GYNKKTVDEAAKVALKALSALETDLLTANTYLVGERGTLAD WQCAEWGNKQKEIASATMAYLDSVLADNEFLVGDSFSVAD EAKKAALQGADEGLNLLEDAFLKCSNGGKFFGGDKDGYLD EVRAMFLATLFKRFAVLVQT LERQDYLLGSAYSVAD DATHAERDKARKLLVKHFATI AGQLGDRPFLVGDRMTIAD MGRPDDVKHATDTTTKLLNII DRHLANRQWLVADKLSIAD CGAQAI ASQQERRGTQKFTLLDAELADKKYLLGDQFSVCD
 PWFDARQPALE QEVRRRLEDLSDRGLGDAEW DDGPFSVGGD PYNKKAVDTADEEVAKIVDVFESRLKEYTYLVTEKDSLAD NQAMDGY DRDQRPLDVVPRLNKLISHEEQTLKSRWFAGDTFTAAD DRDQELI LPTEGP I ATAHALLAVMEAHLQGQSWLLGDQVSLAD ARNEHVAAAARRDLQELADILEKALEKREYLVGGAFSFAD KP ADPENFKK DDAAFELFNTLLEGQLYAALNK DT DAD K LE DPAVVAAWGSTTQTFDVLDQALEKGPWLLGDDFSAAD GKSDIPEDR VEYVQKSYELLEDTLVD DFVAGPTMTDAD RGMV GYGCFEDAMAALETAVGGKTYVAGDRFSAAD QTDEAQVDAAKPQAALFLKEI GRLLDGANYFGGTNVSLAD VKDVVKEKFYKRLDNLDATLSRKDY LDHDEFGVAD KTNEELVKKYIDTGNAKVEGYERDLSKQKYLAGNTFTLAD ICEGVKKQFVQSRLKDHI QF VEDHLSQHEYFA GRFSFAD D GATAQAKGRHALELLDATLADHRWLAQERPS IAD DFNPKTVALC 1 KQDKAGQETAKEAFMKNLETLTGAMSKQPYFFGANFGFVD GDQPAVTPEQLASDESSYATLELYLERSRFVAADHLTDAD $S P V H K A F A D G E V P$ G $\quad$ G $L G L L D K H L A D R E F I L G D K F Q A P D$ DKRNWSVRTDEGRVAKAVKGLSDQLGAGPFLVGGQLTLAD ERSQAWI DRQLVKVNDDGLKSMSQGLGDKPYCSGDHLSLSD QFNKQNVERAKSDLVAALRLLDAHLLTRTFLATERVSLAD
 EKRMKWSHHWDSRGLQGVEKDMDKYSG KFCVGDEVSMAD EEHNRVKDAAKAGDISSLK\|ADNHLKDREY LIDDQUCIAD GDKAREDFRQKLAKRLAFVDKQLERQDYLQGAQFGVAD PALIRPVARMDAQLGRHLQFMEDELGRGGWFAGVAFSAAD HRDAFGVAEARKQLETAYAWLEQTLAGREWAAGSDFTLAD WKEGEEKEKADESAMESFAMLEEQUKGKKFFNGEQDGYLDD RPARKPVQGM LDVHLDWLETELAERDWFVGDCFTAAD VAS AVTRYRNETKRVLGVLERILQDKDYLVADKYTDAD VPK GAQKAY LINPQLETHARFIDGHLANHPWFAGEQLSMAD MTDEAKSGWYHHWUHEGFGALEQQLEKHRFCFGDSVTFVD D QEAVIEASHQMLS II DGLLEGKAWMVGERASIAD MPFFAKPDAKAIDIASHLSYMESELGKSEWFAGDEFSGAD EQQEKA INDNLQTLRIIEE EHGLGEQKFLSGDRIGLAD DANGAHKAF I GPQLKTHLDYMEAELEKSPWWAGDSFSAAD D AA CKTVAERVLGKLEAHLEGRDFLVGTTPTIAAD A $A P D D H P R D E$
 F A AHEA IKAAVPERVAPFLQRMDNHLASRTWYMDEHQSIVD MPDSRAVKEGLKAIKEHIDYMSGLLETRRWLA GNMMSLAD DKAEAMKQTFVAVEALEGALRECSKGEGGFFGGDSVGLVD KTDPFGVEQARDQLRNSYAI DEQDMHTK $\square W A M G D T F T M A D$ QRSASALDKAKADUADCLKMLEGGGLEGKSFLLGD YS LDAD AGSEADLDAAEKALYAKFARLENTVVGPFFAGEKFSNVD YPDSTRIKNGAKAIKYHLDYMGWLLDQRRWLAGDALTLAD TKDADKLAS LAQALVAKLDELEQTLGKYPGPYFSSFSLVD NASGAKQVQTHAKVATLLDQLEAQSSKGPWLLGQQYTVLD RRDPVVLGQAQRLLNNALKPVNEALEGREYLI GD FSAAD APTEAAFLAESEALSAMFDRLEAELAAGPWFAGERFSAVD DTDGD DSLGKEYYKP L L K QLSDRFSSSKYWYGDKWSII D EQRAEAFENVLPQAEALERAFRECSKGKAFFGGDAVGIVD


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| UniRef90 B6T033 | V $\mathrm{Q}^{\text {T V }} \mathrm{M}$ P D |
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| UniRef90_B0T6Q4 | I Q HVR |
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| UniRef90-A3YAI5 | Y $\square \mathrm{K} \mathrm{A}$ |
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| UniRef90_UPI000466E5F0 | Y |
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| UniRef90 S9VMH2 | V A A T L K |
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| UniRef90-D4ZIK8 | F 1 Q A M |
| UniRef90-R9PSA6 | F V A M Q ${ }^{\text {T P }}$ |
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| UniRef90_D2X9S7 | $\square \mathrm{K}$ |
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 LHPMNALT RAQHRAWIEFASATLGDAWG $L Y$ G A T P F E S S QQVDM WL D FA S S E L D $\qquad$ F L L
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PRNTT G H WRV LE A L A Y I S T E I H K S F K PF FMP G



LP S D P L
GT T P E T R G T L A QWVVSFA NA T L G P G L L N

 LLP QDAYERARCRLWWDD ISSRRVVPA FYRFIQHT

 L L G K T K Q D Y A S I L K WA S FF F T EAALPN L G A WY NP L L G K K
 PSEGEEKAQYDYWMHDSEGS MMPFLWAVFFFMRFDIDDLD $\square P S D P Y D R A M A R F W A A Y \square D$ E K WF VA L R G FLLK LYP K D HP E Y G D Y L N W L F H S D A T L T F P Q T L V L R Y S QL E P P E LIPKDPKAALPVRMMRFFDNYVMTPM QKLVYNYMRE K V M

 $L L P A D P$ L R A V E V R M L D R F F D N Y V S TP Q Q KVVF D A L R G E G $L L P V D P R G R A R V R A L L A Q T A C D D H P D V L Q A L E A R E G A T E A$ | A A E R G R Y F R WM F FAA G P M E M AV T N R ALLGFEDIP TE R |
| :--- | :--- | :--- | :--- | LIP DDKAYALYE QAASVESFNFDPFASKAVYENVSVEKQ L I P Q D P K L L A L E V V R M


 $L P P A G T D E Y L R Y R Y W M H Y A E G S A M P D L G Q V P F F D R P V A R M$

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 L LP A G HV A R A T CR A L A LDD IA C D $\square$ H P L N N L R V L K H L T G S L S
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 LLPS D P LDRAVVARFWAS YIDD KVIRMFGADRMMQLFSAWK

 $L L P N T P A E R A H V E A L A Q S I A V D L H P N L S V A R F G V A Q S G G S$ $L L P K D L A A R A T V R T L T A D I A A D D V Q P I T N L S V L N R V E A D G G$
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 A S DQQ T AL GK SAAL RGKLERFDGEMSDGPYFAGQRLSMVD FAG G DPAAESAMATLEESLAGLELWLETRTFLVGERMTVAD ATDADKA NAREF L LDKRLGYLDEKK E GHE F LVVGDTFS V A D TCDQQKVE EN LIE KLKNVLQVYEARLSKCKYLVGDF DSLAD LS E D D KL R WY R H WV E S GLLA T L D A QL A QAP YACGD QPGLV D
 R R NL LV AT DYAK WFLLGRDRAVEAATANAET LCAGRFTAAD ES L R E K EAP PRLGGAVE TVLA QHPYLA GQEDLVA D QDETQQVLA WC GE WDSK GFDA L E KLL Q Q DTF CYGNTA T L A D K R D P R V T E R AT K GL QRP L QVL DAA AL D G R D WL L G D A F S V A D
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 VT DEVK DA WY H H WI ELGG A S LIERGGKA GRFCFGDTP TA AD

 Q R M
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 LQMGDWMRQF $\square$ GPGLAAAFDALLNRWDEAPYCTGDRPGLAD K DD HP VLDDAT FRDLDDAVFARLLSEALDDGQPY LLGGEDYS AVVD DKADWAREDMAQGLDA YEAVVVDTAGGTFSVGDEDSMAD ATS QA AYE EAFAELLFDELDTLEKQLGERRY LAAGEYLTEA D QRS QA W DD RQMVKI HA ALK SMS QGLGDKPFCSSGHFS LS D
 ERHESALLKRNKE ELKLREGYLQKLGSGS YLAGPSFTLAD NK QQTEKAKETLKAVLGFLNEYLKTRTTVLVGERVVTAD QAAYEEAVTELGESLDQWETVLSKQRYLDGDRLTEAAD NAAAA GQDKAHAEAK IAGLLDQMQAHLEKSGGPWFLGEQ



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$\square \mathrm{L} H \square \mathrm{P}$ LTTN Y A $\quad 9$
KA 100
110
K A GENDLLWSKRPN|V|SRWWKN|I ISERES IQMY V VAA AYALVFALDW IMMMQFS VD F V L VRELLPG T K I S L S VTMT T I D AL $V$ CLVPQVFNARRFE AVYYGPVFRYE DTFE A FMLTMLMRWSRNMPR $\qquad$
CDMSECQH NKWMKK IK MQAVS TWGSAFK LLLGEEF $F G \square^{P}$

PAL QAHAQRMKARPA

 I Q M S F P LIE A A T S R A T P G | A | $E$ | $F$ | $T$ | $R$ | $V$ | $K$ | $Q$ | $W$ | $K$ | $H$ | $A$ | $L$ | $K$ | $E$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $P$ | $R$ | $E$ | $S$ |  |  |  |  |  |  |  |  |  |  |  |
| $P$ | $K$ | $R$ | $P$ | $F$ | $V$ | $A$ | $A$ | $F$ | $L$ | $D$ | $R$ | $I$ | $H$ | $S$ |
| $R$ | $P$ | $A$ |  |  |  |  |  |  |  |  |  |  |  |  | I A MAPVFRYFD LLGFASNHPLFDGLS RVAEWRRALAKHPS


CNHIAMTLCDFATPHAS $C \vee L V P Q V F N A Q R F A$
LLMADVLRV
 PK V VRA F G D R P A TEA A Y V T R R T T D R P A
$L A K D \frac{D}{F} \stackrel{V}{G}$
$\stackrel{V}{\mathrm{G}}$
VD $\mathrm{L}^{\mathrm{D}} \mathrm{P}_{\mathrm{Y}}^{\mathrm{P}}$
$P$ T Q A $\square Y$ A N CLLQLPA
$V$ A V G A T L A Y M QL $V Y \operatorname{L} D P Q V Y$ S A K R F L N V A S I MLA P WA K R LIFLI DHYKPGVDEE IWK RWE EWYKAVT ERES AA FAP LFMRRMEILLHALDRPLDPRWESSLGK LLRRWTALLLMELLP E L M A DE E L M H P V G I Y V G S H I G W


\section*{| $L$ | $Y$ | $F$ | $L$ | $Y$ | $S$ | $V$ | $P$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $I$ | $A$ | $R$ | $A$ | $V$ | $A$ |  |  |  |} GFT LDQQPK RQRWL QVLIMARPA


 I S VF A TMIDAQNAFMP CAAAPSLFYADWVYA CCLVPQVANA ERMGCDLPS $\begin{array}{lll}F & P & C \\ H & T & L \\ Y & P & R\end{array}$ GLLDLS S Q F A N L L M A

1 C L I P QL Y N A VR W

| $V$ | $Y$ | $V$ | $G$ | $S$ | $H$ | $V$ | $G$ | $W G$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $L$ | $L$ | $N$ | $F$ | $G$ |  |  |  |  |
| $C$ | $L$ | $V$ | $P$ | $Q$ | $V$ | $A$ | $N$ | $A$ |








 A Y L V P I L F Y L R N TP E G G S Alla GR P S L T V Y L E D R L T R P S








 | $V$ | $A$ | $L$ | $P$ | $W V$ |
| :--- | :--- | :--- | :--- | :--- |
| $V$ | $H$ | $A$ | $M$ | $E$ |
| $V$ | $A$ | $Q V$ | $L$ | $L$ |
| $V$ | $L$ | $L$ | $H$ | $F$ |


I C L $\mathrm{V} A \mathrm{Q} \mathrm{V} A \mathrm{~N} N \mathrm{ARF}$ A
I CL MP QL Y NARRWE L L L S S P FHWLDP

## V CLVPAMWGAERF


V A V G C A L G Y L D F R F P A $\square$ D
L F L A P Q I HAAFNRFH
$G G R D V$
$\qquad$ DAATTP $V \vee V F P T V G T V F R F$ $V V$ F P G G TVFRF G GLLSPERYP KL GE YHNLLLKE RP S




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LAAGAADSVLDYL

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 $L Y G S T P F E Q S Q V D S W V D F S T T E D D A A T D P A F F$
$L P K S P A D R A R V R M D E D V M D T Q F E A G L G E L N F F R R A E G A K$ LFPSDTTDRAKVYQRM FETSNDSTNVMELFVQYKMKNKD

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## L L P A N

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$S D L K A Y T E F Q Q A L S D E L S Y F D P N T T R D T F F K K A L N G G$
YPPD $\square Q T R A R V D E Y L A W Q H Q T L R R N C L R A L W H K V M F P A F$
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## LfGtGa Lararvmea LS SVMSY Depa

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NEDTFKTAKND DNDKDKQDEGHFKNSPYLDGDKDTDA SGKGEDQEEAKKEFLE IFKTLEGELGNKTYFGGDNLGFVD HCLDVVADDLKATAREGLSWLEGQLGERPFDAGETLSVAD EEKAEAMKETFAAVANGEEAFRECSKGKPFFGGDAVGYVD DPKS SRE MMLRLFTGFDRRLKESDYDA GSYSDAD PGLVRPDVKSDAQLRAHVGFWEDELGRSEWFAGDQFTAAD SDS AKEKIAPQLEKNIAGFARLTTFSPFLAGDEFTLAD QQSPEWDKRQWSKVEASLRAMAEGLGEKPFCVGNHYTLAD AETEQDMEDHLASALAGLRRLEGQLGDGPWFNGADFSLVD GDDSKKAEWARQW円ANGFNGLEKLLEDHKYCVGDEDSFAD PYDEARYNFHVAAVERALKRIEHELKDRKFLVGGQLTLAD GNTLIAHEKLDEWKKSURLAETFLGDKKFLASDHVTLAD GPDVELYQRQRDRALRGMRYFDSVLGERPFVAGEKFSMAD QPDRATIDAAVPEVAKALDVLERELGEKQWFVGDGPTLAD QSDTLQSSFVDPQLARMFDYVNDALTKTGWFVGDRFSAAD A QEGDRQRE WATQLSAHDRFLERKTSEGPFWLGDRVSLVD RSIVT LEDHHDKPVQEAYDCLEVYLTNSKFVACDQLTVAD E LDEALKTRFRNQVGKRDAQTAPALEHSSHLLGEGFSVAD
$A P S H A A F F L R Q A G L N D A A A V I D R R V A E Q D F M A G D Q F S M A D$ $M H G D P A S E Q T V A S L E E S L S G L E D W L E T R T F L V G E R D T D A D$ KEEMEAKARTQAEAKFLKVLEGYLGDREWFNGASFGWGD S IDDQVLLKEKKDKAHVEDGHWENYLKQTGFVATKEFTMAD GASEEAKAAWDAHWHALEADLARDATRGRFCVGDSPTMAD ADDEATAEWFRHWVSEGFAALEARLARDPFCHGDRVGLAD ADEKAFAAHWNARGLTALEAMVQETAG TYCDGEQVSFAD GKKKV TAAVETLEGALRECSKGKPFFGGDSAGYDD ARDPLGVAEARTRLRTSYAMLEAELPSDGWAMGDHFTLAD
 AFTQQVYEAAVLDLYKSLNHLETHLAHHRYLCGSFLTEAD $P A D E A K V A E Y V A D L E S A F A V Y E K D L S K Q G Y L G G N E V T L A D D$
$Q D Q Q K Q I V K T Q E L R D A M E K L L E A A H P K G P F F M G P Q M S L V D$ SGQAENLLAGWMQQRFERLEAVLETREWLAATCFTVAD YPDSKTVKEGLGADKYHDDYMAWLLDSRRWLA GDVMTLAD PPDEDVVKAKLEDLDKSLQGYERULSKQKYLAGDNDTLAD QGMV GYGNYDTVVNTLEKAVSHHPYITGDRFTAAD LGEQVA $\square$ A $A$ A TGAELDVSLQLLEKFL KADEQLQAYYQQEI
 KYFNFLETHFSEHQFMVGDYYSIAD RADLDAEARPFFEKMATGRLI EAQNGDAGYLVGDSFTVAD TTGEEQEKAKKETMELLRTDEEHAGKKRFFGGDSDGUVD A P L H PRDTDELHNHFSYMDSLV ADHDNVRAFGRELVEKCFG LDDQLAGKDYLVQGTFSDAD A D DNAKLT WYRHWVTEGFTALEAALAGGDFCHGDTPTLAD EAGQDAVRRAIPAALAELEKVEAVLAGHDALVAGDLSVAD
 EEKQKALRQTI EAMEKIEGELE APSAEAASRLLGYVTEMLDVLEAMDGDNTFDAGSEPTVAD
 GRDGLVEF DEALDAELVFWWDGYLKDKEYLVGDDFGLAD QGFEQMAELHRQRSANAFSLCEKFLTTTPFLAGDTLTLAD MPDSKNVMNGKRKIKYHDDYMTYLLERRRWLAGNSMTLAD PKEESLVAFAEGKI RAAAKVLDRHLEGRKFMVGNALDTAD HRAQEMLEAATARLLRAYGLI DRLGAGHGWLDPDHPSVLC EWDQGRURRGTRGFLSGLPALEMALRDENFLDGNWPTLAE

TGEEQVKA KKEAQESLG LLEEHGGNKKFFGGDEDGLAD
QAPDEEKMKAMEAKFEFMEKHLFKGAY LSGDAPS A A D TTDEAVVAEEEAKGAKVLDVYARLKEKKYLAGETF E DAEKLRQAKEKLATVLAFLERQLGERPYFGAEHDTLAD EATDAVKDNFRALTPARLELI EAALGTQAYGVDDAWSVAD DKEKEEAETARGELDRLLGVLDKGLEGREYLLERGYTLAD

90
VTLTRTMA FF 100
100
110
$D V T L I V R\|A P F F\| L L I D E K T R K S Y P S L L M K W F T A V S E L P Q$ VALVPFTSWFYSYETFANF


## ITLVVSVSNFP

YFVGPLVAVVGMFPEGKQLM SERPQLGRHLGQLMALDS RWPAI ADFLQRIHARDA AFKNLGAYLRKLAKRDV
$\qquad$
$\square \mathrm{P}$ AEYTRLHQWWQAMQARPS
LTYAPWFERWSALSHYRG $\square K$

AYLVTVL


CCLVPQLEAARRF
$\begin{array}{llllllllll}1 & C & L & A & A & Q & T & T & \\ \mathrm{~L} & \mathrm{~F} & \mathrm{~L} & \mathrm{~V} & \mathrm{P} & \mathrm{Q} & \mathrm{L} & \mathrm{Y} & \mathrm{G} & \mathrm{A}\end{array} \mathrm{R} R \mathrm{Y}$
UniRef90_A0DHI4
UniRef90_Q6XX15

## 3FA9E8C

UniRef90_F5R9T0
UniRef90-B4WBT8 UniRef90- J3C4F2 UniRef90_W8L850 UniRef90_FOZFT6 UniRef90-F6WRW7 UniRef90_UPI0003FCE134 UniRef90_F4X6G4
UniRef90_A6FXJ2
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UniRef90-P46422 UniRef90_P46422
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 CAALPALFYAEKVEPFGG

3





$\qquad$

 S F PAEI AMRGGDGAAKYPALAAGFVEMIQARPA ICLIDPQVYNAERFE WADSAYPTIQRDAANCRALPA I RLFTTLLRFDPVYHGHFKCNLREYPALWGFTRETAQRPG LRLYPVLRFFWRAWIVVEKKQRDRFPAI DGWCGRI EALPG VCLVPQVFNAKRY


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| $\begin{array}{cl} C \\ \square \\ \square \end{array}$ |

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 ELAKVA Y LARLKARS


| UniRef90_A0DHI4 | F K K |
| :---: | :---: |
| UniRef90 Q6XX15 |  |
| UniRef90_H0Q1L3 |  |
| UniRef90_UPI0003EA9E8C | A R A V L P D T S R |
| UniRef90_F5R9T0 | T R R GL |
| UniRef90_B4WBT8 | Y R R A L E |
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| UniRef90-I3IFT2 | VK S V C E |
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| UniRef90_B9VX79 | 1 V K T M |
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| UniRef90_A0A024FZ19 | I Q K S VD |
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| UniRef90_UPI00036EEBC0 | Y |
| UniRef90_UPI0004650E42 | V Q Q A L K |
| UniRef90_UPI0002C3614B | I K ENLP D H D R |
| UniRef90_J2F7J5 | V Q Q WR A MVE R G |
| UniRef90_B7RI45 | YA R A |
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| UniRef90_UPI0003B40DA2 | F A D TV |
| UniRef90_B4N8U9 | F |
| UniRef90_C6HQT9 | F K |
| UniRef90_UPI00042B734B | 】K |
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| UniRef90_UPI00034615FA | $\mathrm{F} \square \mathrm{D}$ T A P P Q G |
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| UniRef90_B1T3M1 | VQ R G L N V |
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| UniRef90_A3WDZ6 | Y G E A K A $\square$ D A K |
| UniRef90-M5W4B1 | $\square \mathrm{KESSL}$ P D R S |
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| UniRef90-I1I5K9 | VE AVM P D |
| UniRef90_UPI00037AD5C5 | WQKTHPTPE |
| UniRef90_A6GFV3 | VQRLL L ( D D R |
| UniRef90_J4KQF3 | L K |


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| sol0 |  |
| jhmm | - |
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[^0]:    lupas_21
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