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PEESEHWMQQALQQAEQALAAGEVPVGAVVV RR MLNAHDEKWMQRA\|ELAKHAAL:GEVPVVGAIIVVND MTENRDLHWMQLAMEMAQKAEALGEVPVGAVLV K SMAT DDEKFMHEALKEAHKAELEKDEVPVGAIVVC E EQD

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 GRVLGRGHNMRFQKGSATLHGEDSVLENCGRLSATYYRA NRLIASGWNRSIDHNPTAHEDMALQQAGQVLSNYRLLDT GIALARAHNGREGTKDPTAHAEDAIRSAAS SVGDWRLTDT GRII GRGHNKRVQEGSVVLHGEMDALENAGRQPASVYRDC
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 ELFVTLEPCAMCAGAIMHSRI ARVVYGARDPKTGFAVDQL





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NK|I I T R A HNQKEELLQDPTA HAE\|LAD QQAAKYLGSWHED GKI I SRAHNLTET LHDVTAHEMQAITAAADS LGGKY LPDC $\begin{array}{clll}G K & S R A H N L D\end{array}$

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 GTI I ARAHNRRE LDEDPSAHAEFLAMMMAARTGRWRLS GC


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 $R I$ I ARGYNKRNSKGCVLEHEISAI KKACKK TGDWRLLDC

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UniRef90－N1ZJU1
UniRef90－H5TRG1
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UniRef90－W6K9M7
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UniRef90－N2A2L5
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UniRef90 M2W3F9 UniRef90－V5A619 UniRef90－UPIOOO37EDDOB UniRef90－B8GRT9 UniRet90＿D9SS95 UniRef90－AOAO24PYN4 UniRef90 ${ }^{-}$WYYCZ9
UniRef90 C6PY UniRef90－C6PYX8 UniRef90－DOYP31 UniRef90＿A4QAL9

FMQMADDQAQLAQADGEVPII GCLIVVIDNT
FMRDALEEANKAYLKGEVPIGAVAVLGR

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KKDQYWMRQAYEQALLAQTEGEVPVGAILVSNEN
KKDLYYMQFALEEAKQAYKEKEIPIGAIIVCKD
 TRGMTASDDTTLLEDAYAEARAGLAEGGIP：GAALGFAAD TRGMTA
$S D T T H D V Y M R Q A T T D A D N A E Q E G E V P V G A V V V Y Q$
KSHSEWMGLIALQLARQAGAEGEVPVGALVV GAD
HWMKRALELARSAGEAGEVPVGAVII NPQ
HQKWMNHALELAQVAGDAGEVPVGAVIVDAAD NPEHDKYMKKAYAQALHAYENGDVP：GCVIVHRE P VTKFDQ WMTRAVAQAQTGLLAEGGIPVGAALEFSAD TRNEQFMLKALRQAELAFSKGEAAVGAVIV KD ETHHRWMT】AYEQAVIAGTAGETPIGAVIVHQ

DTHWMQHALQLAERAERDDEIPVGAVLI DAE DAAFMARAMELARAAAQAGEPIGAVIVDPES （LTQEKKHFFMNEALKEAHKALALAEVPIGAIVVLND MRHAMTLAAKAEGMGEIPVGAVLVLGD DRDEHWMQHALVLAGRAEREDEIPVGAVLVGAQ MCSDSAQYWMEQALLHANASAERNEVPVGAVVVLQ
MPEPDDTHWMRHALDLADRAREDDEIPVGA LVLGPD
EAMDLALAEAHKAGASGEVPVGATLVSGDG
PMNQTKDEKLMMMAVEQAQDALDVGEVPVGCVFYHEPS MERAFLEAEKAASRGEVPVGAVIVDGES MKEATYEAQKAAEVGEVPIGCVVVV
MRロDE DRKYMARALELAVRGMTRPNPMVGAVIV APTEPGAHAYWMDVALAQAERAAEVGEVPVGAVLV KD


TEQDMMYMRRALELAERGRTSPNPMVGAVIVR MALALEQARLAAEQGEVPVGAVDVLDAT DTHRRWMRQLAVAREAGLLGDVGVED DTHRRWMQQAFREAERAYEADEVPVGAVVVRGGR ME DALQEARDAAARGEVPVGAVVVTDAA D LMNKFMAEALKEAKKAYLKNEVPIGAVI EKD DEAWMARALELAAQAASVGEVPVGAIVVL D NQDDQYYMARALHLAERGGTDPNPRVGCVIVDRD PEAHDFWMARALEQATHAADAGEVPVGAVLVYAAD MA $\square Q S D E F Y M A H A L A D A R R G R T M P N P N V G C V I V R D$

QDKVFMQAALEEARLAAAAGEVPIGAVAVLG QQRDAHWMHQALLEAKKAAALGEIPVGAVIV RD HAFWMKVALGHAERAAEVGEVPVGAVLVDAEG AAAPASARDVHFMRLALAAAEEARAAGEVPVGAVLV RG MEIALDEAQSAEKKGEIPVGAVIVHGKT DDAVWMKEALLEADKGRNLGEVPVGAVVV KD QHEDYMRQALMLAREGRTSPNPLVGAVIVGKE SLDERFMRLALAEAHSAGGRGEVPI GAVLVRGE MELAAAEAEHARGSADVPI GAVVV DAG
DEKY

RFMQAALQEARKAAARGEVPI GAVVVL D


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FSQQDHQFMALAI ELIKKGRCTPNPAVGCVLV
AERDRRFMRLALAAADAARAAGEVPVGAVLV RG QHEYFMR】ALELAKQSFYQGEVPIGAILVDAK DSEYMRMALEYAKRGFTAPNPMVGAVIV KD


 DAQDRYFMMLAI EQAKRGLTRPNAVGCVIVQAD MSPPDDDAHMRAALALARRGLGNPNPAVGCVLVNRD MSNHRDFQRMRLALTQARRALQQLGEVPIGCII FSEN QDEDYMARALKLAQRGRTHPNPRVGCVIVN D
 QEEEYMKLALALAAKGQTSPNPLVGAVIVGKD MKNFMREADKEAEKSLVLGEVPVGVVIVKKD

RIKDDERRMRHADDIARQTPEGDVPVGAVIVAP

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UniRef90_FOBHD9 UniRef90-UP10003A5D6AD UniRef90_K6VT75 UniRef90-G4L606 UniRef90-R1HD42 UniRef90-UPIO002D993DA UniRef90-s6HZJ7 UniRef90_UPI000417FF5F UniRef90_UPIO0026579BF UniRef90-J9F2H0 UniRef90-W6K9M7 UniRef90_UPIO0024904FD UniRef90-R7CRL6 UniRef90-D3S9X0 UniRef90_UPIO004658E15 UniRef90-UPIO004678918 UniRef90-UPIooo363C72B UniRef90-W8WXC2
UniRef90-UPIO00478B29D UniRef90-I6XSZ9 UniRef90-UPIO003B4B84C UniRef90-D5RLH3 UniRef90-A0A031JJP1 UniRef90-R5TBE3 UniRef90_W5YFF7
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UniRef90-loDSDO
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UniRef90 C5AEY8
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SEIIATGFN 50 REQTODATKHAETTATEKACOKVGSWRLE 80 QVI GRGHNLRESLNDSTAHAEMLALREAARFIGDWRNEV QA Q
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 GEVVGEGWNRSMTSHDACAHELMAIRAAGEHLQNYRLLDT GKIIGSGSNAPI GNNDPSAHAEILARQAAQAVQNYRLVDA GALLAEGWNRNILEHDPSAHAEIVALRRAGAALGNHRTGC RLRVT TGNSVEQATNPCAHAEMRALQQGAAGSGAKYLTDH D K V I A K S H N L T N Q T K N A T T H H C E II N C I GKIVGRGHNLREHSQDATMHAEELALIREANAFCKSWRPDA GRVIGEGWHEQYGGPHAEVNAENNCTEDPKRATLYVSREP GTLLGRGHNRRVQEGDPSVHG ETDAFRKAGRQRSYRDT GRVVGEGYHQ KAGTPHAEDHALNQAGERARGATLYVTL GHLLATGHNRTLLDRDPTAHAEVVARAAARRLDNYRLTGA
 VVGRGHNRVERLQDPTAHAEVIAITAACDTLGTKFLTDC $G R V L G R A G N R V E Q D H D A S A H A E M L A L R Q A A A A L G S P R P G C$
$G R I G G E G E R N R R D N P T A H A E V V A L T A A T L L G D F R T G C$ GVVIAKAHNLRESKNTADSHAEILCLEKACRKLKSWRDGC GREVGAGFNAPITGCDPTAHEDRALRDAAARVGNYRLSGA GILAADHNRCEATFDPTS
GQIVGEGYHH KAGEPHA GQII ARGQNRVLRDVDPTAHAEIVALRAAAYATANYRLDC EQVIARAHNRRELDQDAMAHAEVLCIQQACRVNSWRLSGC HCLAAAHNAPISEHDATAHAEIRVLRAAGQRCSNYRLTDT
DEVLARGFNHPIDGHDPSAHAEMAARMAAQHLQNYRMPGC IIARAGNYTKDPHDPTGHAEDR A RRMACRAFQNERDPDC GEIIARAGNRTREFNDVTAHAELLTIRQAGEMLGSERIDC GQUIARACNQPDSSCNPVAHAELLALQSAARAIGNYRVDC KVIAKAGNQVEEFQDATAHAELLATRAAEAGGEKVLPGS GEV:GRGHNEREATGDPTAHAEVLALRAAARHVGEWRTGC GQVLGVGHNERELTADPTAHAEIVAVRRAARALGEWRAGC GKMI AAAGNRTREDNDDTAHAEIVADRHAAAAVGDERSGA ERMIGQGWHERYGSPHAERNALAACTEPPQGAVMYETLEP GEIVGEGYHQ KAGEPHAEVHALRMAGEKAKGATAYVTL GVI GEGYHH RAGEPHAEVYAMRMAGDKAEGATAYVTL GAVI GRGSNKKNSGKSALNHAEDIDEDASSKDGDWRLDE GQVLGAGYNRTDTDSDPTAHAEIVALRAAARRLGNYRPGV GE:VGKGYHREKAGEPHAEVMAMREAGEKANGATAYVTV DQVIARGFNHPDSGHDPSAHAEMAAREAAHTLGNYRLPGC GRVIGQGWHEKYGEPHAERNALASCTESPEGAVMYVTLEP GKIGEG WHKKYGELHAERTAFAYCDENGDDCTGA GAMVGSGGNAP GACDPTAHAEIVALREAAARVGNYRTGA GTTLAAEHNQPITLSDPSAHETMAMRSAGAVLGNYRLEGC GKI GEGYHRKAGEPHAEVNA NSVKDESRLREATLYVNL GNVLARAHNRTEELKDASAHAELLAREAAKVLGDWRLEGC QIVGQGFH PKAGEPHAEVFALKEA GAVVGRGWTQ PGGRPHAETEALARAGEAARGATAYVTL GRLISQGYNQRQARADPLSHAE EARAAGQVKGDWNLAGC GEIVGEGFHY RAGEPHAEVHALRMAGDRARGGTAYVTLL GEVVASAGNRTRERNDVTAHAEIEADRAGCSVIGDERPGA GQVLGEGFH VRAGEPHAEDLALRQAGEAARGATVYVTD GFIVGTGAHFKAGTPHAEDHADQAA GQLLARAGNRVEEWGDPSAHEMQAMRMASVRRGGQRLADC NDI ARAHNLRETLQDTLAHAEGLADKEASQYTNNWRSGC
 GEILLATATNRRERDPTAHAE I AILRRAARRFSDGWRLLSDC

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UniRef90_A4QAL
 ILYSTMEPCAMCSGALVQFRVKLLVYGAPDVKFGAVDARF TLAVTMEPCPMCAGAMVNAKLGRLIFGSYDAKMGAASKFL TLYVTVEPCDMCAGALGWSQMKRIVFGCDDDKRGYAPKAL TLYSTLSPCDMCGGAALLYKMPRLVVGENQTFQGBEEYV


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 MTVVTLEPCTMCAGALLQARVPRVVFGAWDEKAGAADRRL QLYVTLEPCPMCAGALI QARLGQLYYAADDPKAGAIRSLL TLYVTLEPCAMCAMAMIHARIARVVFAASDPKTGAADPRH
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 TMYVTLEPCSMCAGAMIHARVERVVYSTTDPRTGAAGSALL
 TLYVTLEPCPMCSGAIINSRLDRVVYGAKDDKAGCAGSVF TLYVTLEPCSMCAGAMIHARVGRLVFAASDPRAGGAMDLL
 DLYVTLEPCAMCAAAAS SARARRLYYGASDPKGGGl| EPTC
 THYVTLEPCPMCYGAMLEAQVSRLVYGMENLKAGAFTVYL DMYVTLEPCCHCTGAAVEHGQUNVYIGSDDPVAGKGDIDQ
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 SLYVTLEPCVMCAGAMLHARLARVVYGAADPKTGAAVVRL EPCSHYGRTPPCAKGLIEAGVKRVVAAPNPQVAGRGLKML DLYVTLEPCTMCAAAI SFARIRRLYYGASNPKGGAGIEFY ELYVTLEPCLMCSGALMHARVARVVYGAADPKGGAANPQL CCHYGKQPCPCVEAVIEARLQRVVVGPNPLVSGKG1R L DMYVTLEPCCHCTDAVIEHGUKRVFIGONPMVSGKGVKIL



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UniRef90_N1ZDC4 UniRef90-ROGZT5 UniRef90-UPIO0037C44DF UniRef90-F5ZCA3 UniRef90-W9UWM5 UniRef90-T1BFE1 UniRef90_UPIO004232572 UniRef90_S4G8R7 UniRef90_S6FAI2
UniRef90_I3VSV2

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GNII I GE GWN QVIQLADPSAHAEMLLADRQAGKDVNNYRLGC

 A AV AAS GNRTRE LNDVVTAHAE DDAI RMACEK LGQERLLAGA DQVGRGHNLREHTEMGTEHAEIVAIEEACANKSWRLNDC GKIVVGEGYNTRE EVVPDVGHAEVVMALREAGKREGRWRLDDA GRII GRGRNRRVQDNDPVLHAEI DCLRNAGRDQSYAGC

 GEVVGEGFH $D R A G G P H A E V H A L R A A G D K A R G A T A Y V V G$ NII I GE GYHQRYGEPHAEPNAINNAVEPDVGATLYCNLEP

 GQVVGEGWH VVA GEPHAEVVALRQAGDRARGATAYVTL GHILARTGNAPVRRHDPTAHAEILARRAGGAARGNYRAGC GEII A E T F N Q K E T L N DVT A H A E I L A I R E A E Q K L G R WR D D C
 GSVVI GE GYHMQCGGPHA E V N A I I AAAVVS D P S L L L S R S T L Y V N L
 GVLISAGRNR RELGGNAYHAELEADDGACKALGGWRLWQC GTVLATATNRREQDADPHAEVLAALRQAVRADGDSWRLERC
 NK GEGWNQP IH HDPSAHEDMALRQAGQQQKNYRLPDA GAVLGTGRNEREATGDPTAHAEVVLALRAAARARGEWRGGC GHI AGEGWNTREVDGDPLAHAEVLA MREAAEHGWNLADC NKI I A RA H NLRESK QSAIAAHAEI LDA DEKACNDIGS WREDC GKII G EGYHKKYGELJAERNA GASLTE SAE GA GEII GRGFNQVILKNS IS SHE INADNQASQFIIKNYR LKG C GRVVARAHNLTETLCDVTAHEMQADTAAANMLGGKYLPEC GVILGRGYHKEYGKAHAEVNAFLDAKEDDTGATMYVI LEP DRI I GE GYH $\quad$ RQYYGQAHAEVVNCDNSVKE EDRHLLI EK S GRI I G EGYHHKCGLLAHAERDAFEDCKEDTKGA GKIVGEGFH PRAGEPHAEVFALKAAGTDARGAT $\square Y V$ V L GKVI S C Q S N S N $\square K N C D P T A H A E V L D \square R H A C \| V L S T H L L N Q$
 CVGEGWNRSIGHHDATAHAEDMALR QAGAHLGNYRLLEC DRIVGE GWH ERA GTPHAE I HALLRAA GEAARGATA YV T L GMVI GK GWHRKVVGGAHAEVNAIDDA
GQII GE GWHRKAGEPHAEVHAINSVKDTSLLKEAT IVVSL GTILGRGTNRRET DHNPHAE IMAITQACTQRGDGWRLTDC DEII A EGRNRREARKNALCHAEDEADDAACRAHGWRL WEC $N Q V I$ GE GYHQRFGGPHAEVHADRDAGDARGATAYVTLEPC $N V L A V G R N Y R E E R S D P F S H A E I E A M R A V A G D R G T W N L E D C$ D QVI GQ GFH $\square$ QA G GPHAEVVHALRQAAGNTHGATA YVTG GRII AA D GNRTRELLHDPTAHAEVLARAACRAVGSERTIGH

 GEVIATAHNGPRDCHDPTAHAEDLA $\square$ RAAAKALGADRDDC GRVVGG RGWTQPGGRPHAETEALAMAGALARGG



 GTIVARGHNQRDQNGDPT SHGETQCDRNPGRRRDWREL GNIVGRGYHKFYGGPHAEVYALKEA GDKAAGG GDVI A T GRNEREALTDPTAHAEVVALREAGEALGDWQTGC $G V V I G E G Y H \quad$ EKYGGLHAERNALKNCKKSPKGATMYVTL SNII GKGYH EKFGSNHAEVNAINSAKQSLKDSTVYVNL GRII G Y HVVRC GE G H A E V N A F A S VVRP E D E V L L L K E S S TVV Y V S L

 D RVVGE GF HERYGGPHAEVNALASVSDASLLPSSTLYVNL GELVAE GWHR $\quad$ CA GEPHAEVVHA L QAA G GRAR RATA Y V T
 IVGTGY H QRA GEPHAEVYALLREAGDKARGATA YVT LEPCA




 $G K I V G$ GQ $\quad$ G R G WN R P $P$
 NEVLG GNI GRGANDRGMAHLKAGEAHAEVHALTMAGDKAKGA




|  | NHFLLEIIRGGIVLAEDCSOKT ${ }^{130} \mathrm{~S}^{140} \mathrm{AFFO} \quad 150$ |
| :---: | :---: |
| UniRef90-C4GFM9 | 㑑 |
|  | KTS KGGVMADEAAALMP |
| Rete-A0AOHU |  |
| 90- |  |
|  | OVVY |
| UniRef90-17LLz8 | HGVEVLDLDLDVCKTMMHAFDEAHPDLWYEDDG |
| UniRefi90-288122 |  |
| Ref9 |  |
| UniRei90 ${ }^{\text {M }}$ | NHKLIVIGGI |
| UniRetao- E1 | EAAGI |
| Unireiot-111N6 |  |
| Unirei90-U7UuM0 | G |
| UniRet90-C8W |  |
|  |  |
| Unireepo-al |  |
| UniRefoto-A6GPE | N |
|  |  |
|  |  |
| UniRefi90-M3TD79 | VHAPCEVLGGGLEAECAVL |
| UniRef90-R6N2B9 | NHKPQVISGVLEEACAE |
| UniRefoto--31VV |  |
| Unifereto |  |
| UniReito-G4 |  |
| UniRefo-D7B188 | NHRPEVVPPDLDRCSDLCSRFFARRR |
| UniRef90-U5FAX5 | NHYPETMGGIL DEEECGALL |
| UniReto ${ }^{\text {Un }}$ |  |
| Unirefolokgath | NAKVITVSAGVLEEECRQLMKDFFSGLRE |
| Refo-L10KE3 | SGVTVGVEEEBKLN |
| Uniret90 UPP000776CCFB | EKAGIEVIGVLESECKEMNKP |
| UniRetoo-Upiod | RAAGI EVVGVEEEACKKLNEGFAHR |
|  | HSVPEVYGVG |
| UniRefoe-EoNTZ4 | - |
| UniRete ${ }^{\text {a }}$ - 2 FXP2 2 | LADACSAQLSDFFRRRAE |
| Unirefi90-STTIJ2 | RARGVVVIGL MEDEALRL |
|  | KNAGVEVVGVLEKECQALNK |
| UniRefi90-UPIOOOO376830F | NHHPQLVSGVLREECSEVDTEFQRLRD |
| UniReito-UTRE55 | a Av |
|  | EEAGIEETALCDEHEARAL |
| Unirefolvo vit ${ }^{\text {U2 }}$ | HHQPEV DGGVEETAASFLLKDFFTSKR |
|  |  |
| Unireteiobecinol |  |
| Unirete90-V6F2822 | QAAGLVVTGVMAEEAAEL |
| UniRef90-M1WP73 | OAAGVDV' |
| Unirefere-UP10004667058 | KDANIVVVGVLEEEAKRLNE |
| Unietiol EoukB | KEAGIVVAGLEEEACRRLNEGFDHR |
| UniReifo-A5MZ85 |  |
| UniRef90_UPIO003B44A75 | NHRPEVVIAGVREAECGQLETDFFASRR |
|  | KDNNIDVGGly |
| Unirefo-Loser | NHATAVFDGSSLLNDCSY MKNFFYNDRR |
| UniRef90_W7OFV5 |  |
| UniRefo- K2KY | KAAGIVVSGVQSAAAERLNGGFCARMRRPWLR |
| UniRef90-J2IGV5 | QOAGLSVHGLLTEEARALNPGFLRQRPYLYLK |
| UniRef90-UPTOOO2DAB19D | RDAGTVVGLMREARELNGFFSERGRPW |
| UniRefi90-LOA568 | dhrpritrgurabeasallhsfalldrranpqe |
| Unireeto-Toayl | RAAGIU L |
| UniRefo-C7DA10 | RDAGICVIJGL CESEA |
| Unireteo-Rogzat | KDAG\|EVTGVEEELCKKMNEGFTHRM |
| $\begin{aligned} & \text { UniRef90-UPIOOO37C44DF } \\ & \text { UniRef90_FZCA3 } \end{aligned}$ | RSRGVIVEVLGDPRCIIEMMREFLDENPTLWNEDGG |
|  |  |
| UniRer90-UP10004232572 | VVGVCEA |
| UniRef90-S6FA12 |  |
| Unifectoliolivive |  |



## UniRef90 B8NZ33

 UniRef90-V6SAL8 UniRef90-S6CFG9 UniRef90-N8S093UniRef90 K 1 Y8N5 UniRef90-UPIOOO262B272 UniRef90-H8Z8L2 UniRef90-C5D3N2 UniRef90-M7Z5C7 UniRef90-Q9VEMO UniRef90-UPIO0047AA822 UniRef90-W1TWH2 UniRet90_B7VJA8

## UniRef90-Q492D4

UniRef90-X2HC85
UniRef90 KOC7F1 UniRef90-UPIO0047C707D UniRee90-UPIO0047715C3 UniRef90-V5PUV5 UniRef90-T1FWA2 UniRef90-V8BVG9 UniRef90_G4EMM4 UniRef90_E8LL07 UniRef90-G7DWB6 UniRef90-R5IDU5 UniRef90-H3АОК1 UniRef90-UPI00046D0079 UniRef90-A0A023EHU2 UniRef90_G7GM49 UniRef90-E6TYL5 UniRef90-UPIO004751DE5 UniRef90-E8WHQ4 UniRef90-B2T572 UniRef90-K9YGY3 UniRef90-FoWVZ7 UniRef90-UPlooo360037F UniRet90 C7PYR7 UniRef90-UPIO004073F28 UniRef90-K7HG48 UniRef90-F5LKC6 UniRef90-Q3SJI8 UniRef90-R9JTL2 UniRef90-R8BRS0 UniRef90_AOLZ18 UniRef90_F2IAW6 UniRef90-UPI00046A33DO UniRef90-W1YYL2 UniRef90-D1AT62 UniRef90-R5ZTD4
UniRef90-R2R847 UniRef90-G9RPB0 UniRef90-H8MTU1 UniRef90-UPI000478F7D7 UniRef90-R6TUJ3 UniRef90-UPIO003183EAC UniRef90-M5PAJ1 UniRef90-H1HK12 UniRef90-V9LC14 UniRef90-UPI00034BAC88 UniRef90-A3V3G9 UniRef90-UPI000255C122 UniRef90_10AMA2 UniRef90-FOY172
UniRef90
R5COM3 UniRef90-G5LJV9 UniRef90-D2QKC3 UniRef90-M4ATQ3 UniRef90_I3C935 UniRef90_N9QVI6 UniRef90_C6XOY6 UniRef90-UPI0003473C88 UniRef90-UPIO0034683C4 UniRef90-C4K845 UniRefoto-K1LFI7 UniRef90_B1KJK1 UniRef90_C7LSH8 UniRef90-UPI00037CODFE niRet90_E1VSW0 UniRet90_K9H067 UniRef90-C4XU60 UniRef90-UPIOOO47EE2CF UniRef90-H5SSN4 UniRef90_14Y6B8 UniRef90-B8ZTA6 UniRef90-UPIOOO41C4C28 UniRef90-G2LNF9 UniRef90-Kов3V7 UniRef90-S5SRJ9 UniRef90_G4QG69 UniRef90_UPIo00360311D

NQUVSGMNDTNRMNGTRHAEFTADERMLRNYPKSLDRST
 GELVGEGWHRARAGEPHAERVALAAAGERAHGATAYVTL GRTIAKGYHKKAGTPHAEVNADRQASEDVV GAVIGAGRNVREAVPDPTGHAEVIADREAAAARGSRVDGC GEI A ADAWHQRTGEPHAEPLALRQAGEQARGATAYVTLEP GEIVG $F$ GA H L K A GELHA E VHA DR MA GEK A K G S GSVLAVAHNQPRLLRDPTAHAELDADRAACAAGAERLVGC NKIIGEGWHKKAGEPHAEVHAINSVKNKLLLSKATIYVSLL HTIVG EGWHQKAGGPHAEDWALQDAGEAARDA
GQIVG EGFHAKAGEAHAEVHAMRMAGDKAKGA
GKLISYGWNSS CHDP
GivGQGWHK KAGE GEILARAGNRTGADRDPTAHAEMLADRGAAERGSERLVGA REVGAGRNEREAAGDPTAHAEVLALRAAARRLGGWRLAGC ERVTGEG FTQPAGQDHAEVQAMKDARARGETLRGA GQVVGRGKNRTNATKNATKHAEVVADDEVRDWCRKMFKDS GRII GEGYHDRFGEGHAEVNCFASVKPADEHLLSQ
DKII GEGFHEYFGKEHAEINAFNKLTESCENATMYVTLEP GMII G EGYHHKAGEPHAEMMAMRSAGSSVAGA NKVVASGRNRTNELRNATKHAEFDMPLEVDGEGQTSMKDY DRIVGRGRNRREKGKTALAHAEEATGEACRTLGGWRLWQC EILGQGRNEVNETKNATRHAEMVADDQVLEWCHQNGRDH GRLVGRGFH PRAGEPHAEVFALEQAGPAARGAHMYVT GEIIANGCNLVNETKFDCDDQVLEYCKTRADKHEDVFREV GVELARAANHREADGDPTAHAEVLALRAAAAAFGDGWPGC NQIVGFGAH DKAGEHHAEKHAIEMAKDKTEGATDYVTL GRVIAEGRNTREATHDPTGHAETEARCAAAS $\square G S W N L E G H$ GEVVGKGWHKKAGTPHAEVHALRAA EVIATGFNHPIGGHDPSAHAEMAALLRAAQAVENYRPGC GQLVGRGFHPRAGSPHAEVFALKEAGEGAR NQ1 I SFASNRTNELCNATKHAEDDYUVSNYNNTRADFQET AQIVAEGWHR KAGKSHAE $\square A A L D V A G D L A H G A D L Y V N \square$ GTVIAQGRNTREAEGDPTGHHTKAAQTDPKAPPTWRLTDC RLI GEGYHQKYGSPHAEVNADHSVKNQDLLPEATVYVTL GKEIGRGRNRVNETGDPTRHAEMVAVMEMWKKYGTECEQV
 NKTIGEGWHKKAGEPHAEVNADNSVKDQ Q I GEGYHQKYGEAHAEVNAVNSVKDKSLLSESTLYVTL GE VAQAGNRTRELHDPTAHAEVLA】RAACTTVGSERVGY DQII GEGFHDRAGEPHAEVHAL GSIVG RGWTAMGGRPHAEVVALRHAGEAAAGS NRI GEGYHAVCGKGHAEVNADASVRAADRALLC GEIIGRGHNLREHSQDATSHEMFAIQAACKFLGNWR EKC GEPVAVAHNTRETGKNATHHAEVLABAGAKARGADRYTQC
 DVVI AKAYNKKEKYGCVTGHAETLAVEKASKKNNWRLNGC GKIVGEGYHPKAGEPHAEVFALREAGENACGATAYVSLEC GQVVG $M$ MAHLKYGEAHAEVHA ${ }^{\text {GQMAGRHAEGA }}$ GHII GEGYHMHFGGPHAEVNAFTSV KPEDNSLLPEA NEILGRGRNQVNETKNATRHAELVAVDEVLEWCARNNRQR GEILAAAHNAPVAGHDPCAHEIQALRAAGRAQGNYRDDGC GAGIAQAGNRTRELDDPTAHAEMLADRAACAALGQERTGC
 GAVVAAAGNADEATQDASAHAELLALRRAAAARGNWRANC GRIIGEGYHVRCGQAHAEVNADRSVKDPALLKESTDYVS L IVGEGYHHRAGEPHAEVHALRMAGAKAKGATAYVTLE C SRIGGWHKRYGDWHAEVNAVNSVLPEHQQLLSEATVYVT GKIIGEGYTSPAGKNHAEVNAIQAVKDTTLLKEATIYVTL DQMI GRGATAPV GGSHAEVFALREASDRAEGATAYVTL GEVIGEG FTQPAGQDHAEDRADKDARSRGNDPRGA GRCVGKGFH KPGEPHAETIALLREAGDLAAGATLYVNL
G

GAI GEGYHEVY
GQILGEGGNRELDPTAAEILVIREACQTFADERPGC GEVVAEGWHTACGQPAGGPHAEVHALAMANSDSNLGAKGA GREI ATGVNRREANNDPTAHAEVEATRAAAEALGTWRDGC GEVLATGRNEREAGNDPTAHAEVVAIRNKGEDDGWRLSDC GHVVGRGFTQ PGGRPHAEPLALAMAGEAAHGADVYVSL GELLARAGNAP PGGRPHAE GKIIGEGYTSP TTNDPTAHEMRVLRQAAA PGAGOPHAEVFALKOAGPQAKATLY
 GRMLAKSRNRTNRNATLHAELEALGEDLRTSDDKKLLERT GKVAGMGAHDKAGEKHAEDHALTMAGTKAENSTDYVTLEP NIIVGEGWHK QPGTNHAENALIMAGEKAKGATAYITL ESIIGEGYHGFYGGDHAEDNALKNSTESVE
GRELGWGTNRREADSDPTAHAEVVADRRAVAEYGDGWRDC





UniRef90 Q54JE5 UniRef90-UPIooo3A7F6C4 UniRef90-K1Z024 UniRef90-X1DT07 UniRef90_K2FLU3 UniRef90-BOC6Z UniRef90_UPIOOOOEOE137 UniRef90-UPI0003B3ВА97 UniRef90-Q12Q46 UniRef90-S9Q811 UniRef90-UPIO003758A7A UniRef90-U5E155 UniRef90-K2Cs02 UniRef90-UPIOOO35DA0A8 UniRef90-UPIo003A472D1 UniRef90-E8M7N3 UniRef90_UPlooo3491B82 UniRef90-A2CA80
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UniRef90_E6W2U4

50
60
70
 GKIVGEGWHK KYGDSHAEVYALEMAGKEAEGAVLYITL NKI LA T GYHHRF GAA HAEVDALKK DNF QAK GATGYCNLE P NQVI GK GWHREFGGPHAEINALEDC KTEGVNPRGA NQIVGTGVVH VKA GEPHAEVHADNMAGTHAEDAEDYVTG
 GEI I GE GHHQQAGTAHAEVNALWQVNEDIAQGKATQLEKA GSVLGEG HTQPAGQAHAEVMALDDAHAQGRDVRGA $G I K L A E G Y H Q K A G F G H A E V N A L A A L \quad K S A N L S A D G A$ $R V V A E A G N R T R E L S D P T A H A E I L A A L R A A C A D S G S E R E P G H$ GHIVGEGWH E RAGEPHAEVHALLRAAGEAARGATA YVTG GRELARAANAREALGDPTAHVIALRAAAAVHGDGWRLEGA NSMI GQGFHH KAGHPHAE I EAL NNLTEDPTGAT LYVNL GAELASAHNSREALGDPTAHAEILA LRAAAARLGDGWRGC GEVVGEGWH VRPGEAHAEVVALQQAGEKARHGELYVTV EEVVGEGFHY RAGEPHAEVVALVRMGEQSVGATAYVTL
 $\begin{array}{llll}\text { GR C } & \text { G H G S N Q R H R GR D P L G H A E A }\end{array}$
 GVELARAANARES LGGPTAHAEVLRAAAAAVHGDGWRLEGA S QIL GRSYKTMDSNH LDNAEMNLDFHQVFEGDYAFSRADNL $G R \mid V G$ $M G A H L K A G E P H A E V H A D R M A G A A A Y G A$ GEVVAKGYHK RAGDPHAE IIALNKAGSKARGADVYVNL GVVLARAGNRREALADPTAHAEVLA $\square R E A A T R F G D G W R G C$ GSVLAAAGNEVEARGDPTAHAEILARAAAQRRGGKF LQQGC $R V V G G \quad R G F T S A G G R P H A E V N A L A Q A G N A A R G G$ GREVGAGLHW KAGEVHAEVNALQAAGEAVQGATA YVTGL VVGE GWHRRAGEAHAERIALAA GK IVGRGWTQPGGRPHAETEALAEAGDAARGATGYVT GAR GQCV GQ GFNRSDLNPTYH GEMVADNDCAVRHCAEDWRGF GEIVGGTGYHHKAGTPHAEVWALREAGERAKGA

 GSVVAEGYHRGAGTPHAEADAL DRAGEAARGT NEVVGKGRNEVNQTKNATRHAEMVADDQVLDWCRQVFEHT GAVI A A AHNAPRGQNDPTAHAEILAL RHAAQTLGQEREGC GTIVAQAGNRTRELSDPTAHAETLVIRAACAAAGSERPDH GRRVGEGFHQRAGGPHAEDHALREA G GHARGG GEIVGEGFH FKAGQPHAERVADAQAGEKAKGATAYVVTL D GPRIV GR GVTA GSII ARAGNRVREMKDATAHAEVLVRQAGRMLGSERLTGA GQLLASG STQQAGGPHAEVMALRQAAERGVNVAGA GRLV GE GFHS GAGNPHAEIEALAQAGKKALDGTIVVTLEP $N K V I G E G Y H K K Y G G A H A E V N A L N N C K K F G S K K G K Q L L R D S$ LKVLGTGG FTQHAGGAHAEVMALRDAAARGHDVRGA GQIVGE GWHHRPGEAHAEVMALQQA
 GAAV LVGRGVTSRPGMAHAEVNALNQAGDRAKGATAY VTL
 $G R \vee L A E G W$ HRGAGGTSHA EVVDALSQLDPEGAAAQGA
 GI A V GAAR Q GT T L L D R A F F S E I D D H A E I R A L K Q
 GEVVATGANRVVPNNDPTAHEVMAADRAACAKDGTFMLDGB GRII GEGYHRAF GGPHAEVVHADAAVRDR DLLDRRSTVYVVTL GKLI ASAHNGP■ALDDPTAHAEVLCLDRRAASALNNYRPGT GNI I GQGYHHQYGGPHAEVYALQEAGTEAKDATDYVTLEP
NRIG GEGY
HKKYGE
GRELAAATNRREADGDP L
GQVVGEGFHAYAGGPHAEAHAEILRQAAGELRDGWRLEDC
$\vee \vee A L R A G E R A R \quad G G$
 $N R L I A R G W T Q A G G R P H A E A M A L S Q A \quad Q E S L R G A$ QIVGQGFH VKAGEPHAEVHALRQAGEMARGATAYVTL

 GMLI GEG Y T QPAGHDHAEVRAMKDARSRGHELRGA
 AVVATS GNRTRELSDPSAHAEMLVIDRAAARLGSERLIGH GRIV GE GYHPRA GLP HAEVFARQAGEAARGATVVYVTVLEPC QRII I E GYHQR YGEAHAEVYCDREALKNDAALI PGA RELGAGHT QPAGQAHAEVMALRDAAARGHDVRGATAVVTLD D AVVGE GWHQRAGGPHAEVFALLRAAGERARGA GEVLSSTGHHR GAGTFHAERDADDSFARGHPAPA DLS GA
 GKIVARGSNRTNQSRNGTRHAEFEAADALLAAAHAGDFGRC


 NRIIA GGYNGSVVGGAHCDDDGCYVVDNHCDRTIHATEGS NQVI GRGATSPPYGPHDHALREAETTAAVGADLYTTLEPC KI I GEGFHRKYGQPHAEVNAVDSVEDKSESTVYVTLEPC GA\|V|GMGYHAKAGMAHAEVVALLKAGEKAR

UniRef90_Q54JE5 UniRef90-UPIooo3A7F6C4 UniRef90-K1Z024 UniRef90-X1DT07 UniRef90_K2FLU3 UniRef90-B0C6z9 UniRef90_UPIOOOOEOE137 UniRef90-UPI0003B3BA97 UniRef90-Q12Q46 UniRef90-S9Q811 UniRef90 UPI0003758A7A UniRef90 U5E155 UniRef90-K2Cs02 UniRef90-UPI00035DA0A8 UniRef90_UPIO003A472D1 UniRef90-E8M7N3 UniRef90-UPIo003491B82 UniRef90-A2CA80
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UniRef90 $\mathrm{J4X561}$ UniRef90-H0C1Y3 UniRef90_UPI00036E656A UniRef90-P47058 UniRef90-UPIO00381630A UniRet90_U7FHP2 UniRef90-B6JGI1 UniRef90_U2RBK1 UniRef90-FOQBLO UniRef90 UPIO001850898 UniRef90-KONCQO
UniRet90 A4SF60 UniRef90-W3RE54 UniRef90-C9RMC0 UniRef90-W2C2D3 UniRef90-UPIIO0037A45E6 UniRef90_I3DAF3 UniRef90-14AKH6 UniRef90-UPIOOO299F794 UniRef90-D2B6M6 UniRef90_12GLD3 UniRef90-STOJ42 UniRef90-C6M740 UniRef90-UPIOOO374B674 UniRef90 UPIOOO3788C7A UniRef90-A8FSR1 UniRef90-UPIOOO4751A83 UniRef90-UPIO003F164EE UniRef90_UPIO003C77021 UniRef90-UPI00037FC172 UniRet90_F2NKC7 UniRef90_UPIO003629B22 UniRef90-UPIOOOO4245316 UniRef90-UPI000349FEAF UniRef90-A0A010NG91 UniRef90-UP10003B55FAB niree90-7LBE8 UniRef90-AOA059LMI3
UniRef90 E6SJ49 UniRef90-E6SJ49 UniRef90-D8S6F7 UniRet90-F8KZQ6 UniRef90-W4QNU9 UniRef90-D6U2S2 UniRef90-E4RRG6
UniRef90-E6W2U4

I3
$D \quad$ YYVTVEPC LDMCSVALLQFCKIIKR|V|FFGCNDKFGGNGSVY|L EPCSHYGKTPPCVKKIVDSGIKKCVLDPNPLVSGKGIKYL

 EPCNHFGRTPPCSEALVKAGVATVVVGPDPRVSGKGDERLL
 TAYVTLEPCAHCCDALI AAGVGRVVVAPNPLVNGQGLARL
 EPCSHHGRTPPCADALLAAGVSRVVAAPNPLVSGRGLDRDR EDCSNFGRTPPCTEAAI LKHGI KKVVVCAPNPENRGKGILKKL T LAVTVEPCTMCAGAAVLSRVARVVFGAWEPKTGAVDRRLC EPCAAHGRTPACTDADLSAGIRHVVFASSDPVMAGGADML EPCSHYGRTPPCAEGLI KAKVAKVICAPNPQVAGRGDKML EPCSHWGKTPPCANLLIEKGIKEVVVDSNPGVAGGGLQLL TLAVTLEPCTMCAGALVMARVAKVVFGAWEPKTGAVDRRL TAYVTLEPCSHCADALVAAGI ARAVVASDPRVSGRGIARLL $T L A V T V$
$T$
$L$



 TAYVTLEPCCHCTQALI EAGVATVHCAPNPLVFGQGLAALL

 EPCSHYGKTPPCADLI I SKGIKRCVCGCVDPFAGRGDQRM




 TFYVTVLEPCSHCAAAAALARVKRVVWGADDAKCGALKSRM



COHYGRTPPCAKALIEAGVKRVVVGPNPRVAGRGVAML


 CSHYGKTP PCADAIVAAGVARVVSAPNPDVGGRGHERG TVYTS CEPCPMCLSALVWARVKRI CY ANTKVDAAA IEFD

 TVVYV T L E P C S H C A D ALL I K A H V K K VVV I A T L D D P D A G R GU Q K L $T L V V T L E P C T M C A G A A V A A R V G R I V F G A W E P R T G A C D R R L$ $T A Y V T L E P C D H C A L A L L E A G I A R V V V A P N P A A A G G A D R L T$

 EPCSHYGRTPPCAEALI GSGVSRVVAAPNPLVAGKGLAML T A Y V V T L E P C S H C A D A L I A S G I A R V V V D P D E R V A G R G V V M L
 TA Y VT LE P C S H C A K GLLVEA GI A TVV V A A P N P QVVS GR G Y A M L
 $D L Y V T L E P C P M C A A V I S S F A R I R R L Y Y$ A A P DPKGGGSHATC $N H H G R T P P C T T A D L E A G V A R V V V A A R D P N P K A Q G G G L E R A$ $T$ L L V V S L E P C A H C A DLI I R R H R I P T V V V V G C R D S F N G K GI E K L






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| :---: | :---: |
| UniRef90 - X5Juc5 |  |
| iRef90 ${ }^{\text {G4CPP6 }}$ | QIVGQGFH IRAGSPHAEVYALQQAG |
| UniRef90 UP | NQ\\|VSEGFT |
| UniRef90-UPIO | GKIIGEGF |
| UniRef90 A6AP | GE |
| UniRef90-10KG |  |
| UniRe | GYHRGAGTPHAEA LQVMALSRLGTGDPAAAQAA |
| UniRee90 UPI000364B502 | GRIIGEGW HKQYGDWHAEVNAVRSVRAQDTHLLAEA |
| UniRef90-I4VSIO | VVGTGFHQRAGEPHAEVFALREAGGSARGATAYVTLEPCA |
| UniRef90-UPIood | GQALGQGFTQQAGGPHAEVMALRDAAAQGHDVR |
| UniRef90 A9LH | EVIVAEGVNRSSKNPTLHAEDDV |
| UniRef90_U6PZY1 | GRNEVNRTKDPTAHAEM |
| UniRef90-J11WH0 | GTSIVGYGVTADHGSPHAEVQALQMAGTLAQGA |
| UniRef90-I1C1B9 | RNRPNETCNATR |
| UniR | GQiLARARNEREATGDP |
| UniRef90-U1Z |  |
| UniRef90 Q5DA |  |
|  |  |
|  |  |
| UPI |  |
| K2 |  |
|  |  |
|  | R ${ }^{\text {a }}$ |
| UniRef90-A9BBM7 | KLLIGEGFHS |
| P1700374 |  |
|  | GWNR |
| UniRef90_UPIO00375B7CE | EGGFHVIUGAPHAEVHALRQAAHL |
| UniRef90-UP10003B534E8 |  |
|  | , |
| UP1000 |  |
| UP100047 |  |
| 析 |  |
| UniRef90 K1JK69 |  |
| PIO0034 | GTVLFEDRNRVAGGDPTQHPEFALARWSTTHLLSPDERSAA |
|  | V |
| UniRef90-L7W 1 Z8 | HVAVGRAHAEVDALRRLSEAGGDPRGK |
| UniRet90-UPI000308CA5E |  |
| UniRef90-UP1000471FD61 | GRIVGIGAH K M GERAERIAVEMAGENAFGSDVYVTL |
| UniRef90-A5DUU5 |  |
| P10003 |  |
|  |  |
|  |  |
| UniRef90-UP10004 |  |
| - |  |
| , |  |
| IRet90-E6XB18 | GE |
|  | NKLISGGYHAFFGGPHAEVEAL SRAGGRAKGA |
|  |  |
|  |  |
| 8LYM8 | GNIMGECGDNRKNMFLDHCCFAG RNQSERMNMQYACTDY |
| 0037 |  |
|  | W |
|  |  |
|  | KRIIAGGYNGSIAGGDHCIDKGCYVIDNHCVRTIHAEMGS |
| UniRet90 ${ }^{\text {dig }}$ | RCIGRGVNRRN NKDPLGHAEIMALRQASLIKNDWRFNEC |
|  | GA A GMNA |
|  |  |
|  |  |
| - | GRVAASRNQVAEYHDAVA |
| UniRef90 UPIOOO | E |
|  |  |
| UniRef90-X0 | GLVVGMGYTQ PAGSDHAEVMALRQAGDRTQGATMYVTL |
| Q30 | GKVI AKAHNRVLKLINATAHAEIEAITRKASKKLLTYDSEC |
| UniRet90-_OZEFF |  |
| UniRef90_A0A024Q0 |  |
| UniRef90_K4L5V7 |  |
|  |  |
|  |  |
|  |  |
| UniRef90-Q1LU82 |  |
| UniRef90-UPI0002D5877D | DEIVAVAYNTVNRDSDPSAHEINAIRSLTGULKTPNLEGY |
| UniRef90-W0H016 | GRLVGEGFHA RAGD |
| UniRef90-A0AO26WJD | G $T$ |
|  |  |
| UniRef90-Q4881 | A |
| UniRee90_S9XHD8 |  |
| 相 |  |
| Ref90_S3B7U | GRTVGEGWHQ RAGGPHAEVHALAEAGADAAGGTAVVTL |
| ef90 | GNLAATGFHPGAGSPHAEVNALAAARAAGDDLSK |
|  |  |
|  |  |
| --17KKM4 | I IAQG HQDNFGQDHLTKRLISSLDSAQLQGATLYTNF |
|  |  |

## UniRef90 X5JUC5 UniRef90－F9D2B2 UniRef90 G4CPP6

 UniRef90＿UPI0002F64C45 UniRef90－UPIOOO4754084 UniRef90－A6APJ7 Uniref90－lokak UniRef90－K6UBK3 UniRef90＿M7MKY7 UniRef90－UPIOOO364B502 UniRef90－14VSIO2 13

QLYTSCEPCPMCLGAI YWSRVDRIVYYA
E 1 YCCSCEPCPMCLGAIYWARLDRIYY ANDRKAAAGDGFD EPCSHHGRTPPCAEALDKAKVKRVVAAPNPGVSGKGLTLD
 CSFVGRTPA CAKTLVTCGUKKVVVAPDVRNAGRGUDGL EPCSHWGKTPPCADLLI QKQLGRVVCDPNPLVAGKGFEKL TMVVSLEPCNHCSRASI TVYVTLEPCSHCADLL H HG A A Y VT DEPCAHCADAALIAAGI ARVV A TVYTTAEPCPMCMSALLWSGVKSIVYGPNPLVAGQGFARLL VLYVT LEPCDMCAS GLYE D L Y V TVVEPC MMCASALRQ RGIRHVYFGCNDKFGGNGSVF $E P C C H Y G N T P P C V N L L T K H K V S T V Y V A P D S R V A G K G V A S G$
$T L V V T L E P C T M C A G A A V L A R V D R V V Y A A R D P K T G A A D R R L G$
$V$ VVYASGQPCPMCLAAMHQCGVSRVVFAAS
DLYVTVEPCDMCTAA DRFAHLKSITYGANERFGGCGSVLS TFYVTLEPCSHCANALIQHQVSRVVIAPNPLVGGQGVNRL EPCAHHGKTPPCADALIAAGISRCVVAVEDRVQGRGLSRM A LLVT LEPCGMCARALMEFGUDRMYYILDDPVNGAAKSM TLIVTLEPCQMCAGALIQARMGRVIFGAYDFKRGGLGGTL
 SMYTTHEPCDMCSYMURHHRISEIVYGSAVPLVGGLSSQF TLYASSEPCPMCLSAAYWARIERIVFANSRAEAAA
 TMYTSAEPCAMCAGAAYWAGIGRVVYGASEKVFGAG
ILYSSCEPCPMCLGA IYYARI PTVYFAA DRKDAAS $\square H F D$ DLYVTREPCVMCAMALVHSRIQRVFYGAPSPDGALGTRFL TVYTSGEPCCPMCALAAHGWAGLLGRVVABDPN

DLYVTVEPCVMCASALKQYRVRNKVYATS | T | L | Y | V | T | L | E |
| :---: | :--- | :--- | :--- | :--- | :--- | :--- |
| T | P |  |  |  |  |  |
| I | Y | V | T | L | E | P |

| E PCAHHGRTAPCADFLI EKGVRKVYVAPNPLVSGRGIEK |  |  |
| :---: | :---: | :---: |
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TLYVTVEPCDMCASYLRQLGGLKNVYYGCNDRFGGAGPKKP TLYSTLQPCGMCTMASVWSKVGRVVYGAGRYFEARHVNTL EPCSHWGRTPPCSGRJVEAGIARVVSAPDPRVGGRGHAMM CCHYGKTP DLYVTREPCVMCAMA

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 VVYASGQPCPMCLA

UniRef90 X5JUC5 UniRef90_F9D2B2 UniRet90-G4CPP6 UniRef90-UPIO002F64C45 UniRef90- UPIOOO4754084 UniRef90-A6APJ7 UniRef90-10KGX5 UniRef90-K6UBK3 UniRef90 M7MKY7 UniRef90-UPIO00364B502 UniRet90_I4VSIO UniRef90'UPIO00462EC13 UniRef90-A9LH54 UniRef90-UCPZY1 UniRef90- J1IWHO UniRef90-I1C1B9 UniRef90-O821P3 UniRef90_UPIO00366C094 UniRef90 U1ZRZ1 UniRef90-Q5DAP8 UniRef90-V8FSD7 UniRef90 D4YRD3 UniRef90 UPIO0036EB634 UniRef90-K2AV18 UniRef90-Q7VBQ6 UniRef90 F5HKI6 UniRef90-A9BBM7 UniRet90-UPI000374AD7D UniRef90 Q47FA3 UniRef90- UPIO00375B7CE UniRef90-F2PCZ5 UniRef90-UPI0003B534E8 UniRef90 UPI0001E895A8 UniRef90- UPIO0032AEE83 UniRef90_UPIOO047AC81E UniRef90_B9WAJ7
UniRef90 K1JK69 UniRef90-UPIO0034C99F5 UniRef90-B6H2X2 UniRef90 D2Q4P8 UniRef90 L7W1Z8 UniRef90-UPIOOO308CA5E UniRef90-UPI000471FD61 UniRef90 A5DUU5 UniRef90 UPI0003B5C852 UniRef90-V4QU14 UniRef90 A0A024HXA8 UniRef90 UPI00045E4B53 UniRef90-R7F2M6 UniRef90 R5Y9K0
UniRef90 E6XB18 UniRef90 ${ }^{-}$B0EU53 UniRef90-UPIOOO3B754C0 UniRef90 UPI000402F001
UniRef90- J5L204
UniRef90-D8LYM8 UniRef90-UPI0003757C97 UniRef90-E8R1S3 UniRef90-F2UCZ6 UniRef90-NOAYB\& UniRef90 B9P1T2 UniRef90 I0DS66 UniRef90-K1XPB3
UniRef90-17JHP1
UniRef90 - 10G8X8
UniRef90- UPIO004706477
UniRef90-Y5P8U3 UniRef90_F9EGA7 UniRef90 XoVHzo UniRef90-Q30PH6 UniRef90-TOZEF1 UniRet90 A0A024QOI3 UniRef90 ${ }^{-}$K4L5V7 UniRef90-FORKF6 UniRet90 A3W5W2 UniRef90 C9Z359 UniRef90-R5XKS4 UniRef90-Q1LU82 UniRef90 WOH016 UniRef90-A0AO26GJJ4 UniRef90_M5PEG2 UniRef90 Q488N4 UniRef90-S9XHD8 UniRef90-R6QQR8 UniRef90 S3B7U1

DDFПYEEПG
TQSGIQTEGLDEQKARLLNRGFDSR
TDAGIDVEGVCQREVSEFISPY
REGIEVIVGVEEEECLKLNEAFFHR
KEGGVEVEGLCGEEVSAFLTPY
RDAGLEVTGLLTDEGRLLNARFFNDNK
RSAGLNVHGLLEAEARDLNHRWFTAR
RTAGITVEGVLAGKGRALNARFFAQKR
RAAGIMVETSLQREARELNAGFFSR
RAAGVAVEGPGAAESRELN $\square G F F S R R G Q P W$
QTSCEVIPGVLVSECDALFR
NSSKYNVKGVDPDRSVNLGKSFYDR
RAAG\|VVEGILAEEAFAAL
KEAG $\square R V E G L G K K E A E E S L K S Y \square H Q R$ NHRPEVVPHVLAGPATALLTAFFRDTP

VHNSPCVPGVEAETAVKLLKRFYAQENENAPEEDRK
REAGDQVDVATQEQALAI NPGF DSRKGKPW
KENGI QV TGILANEARKLNETYFYETNQPW
REAGIVVEGLCRQEAEDLNAGFFTRDR
RGVFI EKVENPEYDHLMA GWAEDHRKKY
HHKMIVKGGVMKKE IKKQEIEEWFS LRR
SATVPIRGGVRDAEAMELLKEFYK

IGFCDDELYSELNRHF
QDAGDQQAGLLA
EQAGVEVEGLCENE
QREVEVI GPLLEEESAQMHVGF
DEFI YREVQLD
NHRFQVFRGVDEAQCRQDHPD
DHFDYQEDEVNPADRQIPMVSFDREESELWKE
NATYSSIGGI CRTEG QLLRNFY!QQNE
RDAGIEVEGVRSKEGWLSNRGFLTRM
EEWGVPPAPVRA
DPSYPVYGGLFEKEA $\square$ MLLRRRFY DQENE
RSKNVHVEGLLRAEAEAVNHVWLHSVR
RQAGLSVVGI EEAACRWQNRGYLRWLR
E EAGIVVIGVLEETSKKMNEVF
RNAGVEVEGI NKEAADTLYRPFFH
HKPLTCIDGICRTEA $\square$ QL $\square R N F Y \square Q E N E K K N K D \square$
RDD VIEGGCLREECAAL
REAGI EVSGLLADEAERANRGFLTRDR
KSHGIVTIGI KNEACERLDRVF

NKKNI RIN K LLDDIYGYETLSAFFKDKRK

RARGEVVTGDLSKEAAVQNEVFFK
K EAGVDTEKV
S YA GI EAVGLLAEKAEWLNRGFLKRMR
NHHFRVFRGVMEAQCRQL
EEVREVVAGYYR
RAAGVEVHGGEETAARRLNAAY $\operatorname{V}$ K $Q$
VATCETPDGLMRTRA $\square \mathrm{NLLLK} \mathrm{L} F \mathrm{~F}$
STANVHVEQV
HHKMEIIGGLLEDECSK $\square$ Q Q $\square$ WFKK $\square R$
NGDYEVYGGWLREEA VVMLRRFYVQENERAPEPRGK
QHAGIEVEFRHNTEAEDLYKDFFISKSKE
RDDLLS EGGVLRDDCARL
QQAGIVVIGVMAEQATSLNPGF $\square K R M$
EKAGI EVVEQYSEEAFALYEDFFKAK
RKAGVRVSGLCRREAERLNRAW
NEAGTKTHGAYQQEAYEI NEAY IK
EKDFLELKNDQRAECLELEEMWQKK
REQGVQVEGLLAPEAHALNEGFFKRMRRPW
SESGVKTVKV
QDAGIVETGLLAEKARK DNEPF DKA
RAAGI AVTGVLEAQAVRQQAGFRARM
RAAGIEVTGVLADVAGRDLAGF
RRTG』VQ $\square A L S A H E V A A A A R T F Y$
NHNDT LCPNDLEACSLQLSTFFKRKR
R VVKGVLREDCLKLFT
REAGEVIS GVLREEARQQNRAFLHRDR

## EKA G $\square$ TVS GLLEQS A R LLNVGF $\square$ HKM

A A A GVDVGGLLADEAAA
RERGVTVEKYDDESAEQLNARWFRAKRE
AEAGVEVEGVLSREARWLNRGFDSERGRPW QEGPALEEEARKAVEGYY
LDKKTNVVGILEKEARQLNQHF
RRAGI EVSGUGEDAAARDLAGFFTELGRPW


## UniRef90 E7RM72

 UniRef90-UPIO00478C0CF UniRef90-K9ZJYo UniRet90-A8UMY6 UniRef90_-ORB32 UniRef90-E017G8 UniRef90_UPI0002E2CBE3 UniRef90_W2DU55 UniRef90-J2AW59 UniRef90_UOFQ18 UniRef90-17KL56 UniRef90-W9H442 UniRef90-UPIOOO471242A UniRef90-UPI0002038676 UniRef90-K0Z239 UniRef90-X5XHV6 UniRef90-E3B707UniRef90-A6VYT8 UniRef90-A0A031HNW6 UniRef90-H8KWR6 UniRef90_UPIO00366D2CE UniRef90-HODGA1 UniRef90_UPIO00378F7AE UniRef90-UPIO0036B9650 UniRef90-V4JYZ4 UniRef90-R4X0C1 UniRef90-R5BGW5 UniRef90-A6FQ43 UniRef90-A1K9B4 UniRef90-A3XP18 UniRef90-L2GM75 UniRef90-UPIO004657597 UniRef90-B6BP17 UniRef90-W9GHT7 UniRef90-UPIO00360A32C UniRef90 ${ }^{-}$F1YGD7 UniRef90-UPIO003B52D9D UniRef90-LOJRB9 UniRef90-XOPCN4 UniRef90-H5TW60 UniRef90-X7F515 UniRef90-D9WR10 UniRef90_UPIO0040B8834 UniRef90-A0AO31J416 UniRef90-V4PFY2 UniRef90-UPI00021A3FDB UniRef90-MOEL63 UniRef90 R7LEB4
UniRef90 A5GMF3 UniRef90 G8AMP9 UniRet90-L1JSX3 UniRef90-M7N7G1 UniRef90_M1Z8L1 UniRef90-W6WY86
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UniRef90 V2HTY5 UniRef90-UPIO003683F21 UniRef90_UPIo003046A4A UniRef90-ROOOSO
UniRef90-R6SII37
UniRef90-B9KEV5 UniRef90 UPIOOO473519C UniRef90-MOPCU5 UniRef90-Q6MA46 UniRef90-A4BT15 UniRef90-UPIOOO255F851 UniRef90-V7CAW7 UniRef90-S4ZUT2 UniRef90-B5H1C0 UniRef90-T1JP38 UniRef90-UPIO004751F8E UniRef90_H8X9T4 UniRef90-A0AO23X2V0
UniRef90-AGEFIS UniRef90-A6EFI5
UniRefo - 995573 UniRef90-H6LKP0 UniRef90-G2LHX1 UniRef90- J3CJB8 UniRee90_UPI0003B66117 UniRef90-S4CWD7
UniRef90_UPI00037160BC

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60
70
 VVAV A Y N T V K R D S D P S A HA E I N A A R S LIT S K L Q S S S L E G Y




 GEVVAEGYTQSID GNHAEVQALESYSASNEGVTAYVTLEP

 NEVI GKGKNEVNETKNATRHAEMVAI DQAIDWCHKQKKRM GRLLAAATNRREADGDPTAHAEVLALRAAAARLGDGWRGC
 $N V L M T Q V N G Y L P D F D M T G H A E R K \square M T R A S K A Y R P D F L A K C$ $G R V V G R G W T Q P G G R P H A E A M A L A A A G P A A R G G C A Y V T L E P$ GKIV GRGNNQVTANDDP TAHAEIVADR DACRNDGTFRQDC GR GEGWHRKA GEPHAEVLADARSVNDQSLLSSSSTVYVTL

 GKVI A SGRNRTNETRNATRHAEMEALDELVGQWRKRFSKC
 NKILS S GYNGMEFAWGRDADHDNKYFY UVHNYRGGSLEGS

 SRVIVVKSHNLTNTLSDPLAHAEYLCDVKMLIDESKMPLDDLD GEVV GEGWHQ R R Q G GPHAEVFALLREAGERARGATA YVTLL DKII S QAHNQVLKSNDPTAHEVNAIRKASEVLETFDELSGC
 GEIAGVGRTQPPGGPHAEVMALRAA
 EVV RTAENTTTLT DDDVVAHPEVKLLARWAARELLEPSERAAAC GEI DA Q A HN QVLVVDHDPTAHEDTADRQATRKGGTHDDLGA
 GTVLA EDHNQVA GGDHTRHPEFALLARWAAAR LTPAERAAA GSIISGGKHCVDE GCYVIDNHCVRTDHAEMNALLQCSKF GV
 GKIVGIGYNSMPKDKEFYAYVVHAAVNADLNKTRESDKGC GEVVGEARNETRTEDDVAAHPETLAR WAARELDADELADC
 VGCVIVRGGVVVGRGWTQPGGRPHAETEALARAGGATHGA GRVV GKGYH PRRAGMPHAEVYALYMAGKEAAGATAYVTL GRIIAARGTNQVTALHDPTAHEVIADRNACRELESFQLEGC GS I A G DEHCDDVGCHCDRTDHAEQNADMQCAKFGDPTDGA

 CKVI GHDLRSRHPLWHAAMVAVDLVARQQGGGVYQYCTGY GR V V

MGAHLKRGEAHAEDHALNMAGSEAAGA $G R I V A E G W$ H L GAGTPHAETAALAQLPAEWRARAGEL DKVISS GFSRELDPGNTHAEQVALQKLDFDAANATVYTTME K QVAE G $\square$ NE L LHQRFDVT AHAE Q Q AMRKAQKMMHSHELKNY $N V I$ VTA GNNSMPPEGDPTQHADEVAAARAA KLLTPA QADC GVTL FEDHNRDSDGDNTRHPEFEIAKWAAKNLNEDERKNA GEVI S $G D N T R H P E F E \| A K W A A K N L N E D E R K N A$
$K G T$
$K$ DEIVRTAENTTLT DDD DAAHPFKLARWAAMELEPA DRAAC
 GRQVGEGWHQRAGGPHAEVHALAEA E IVVSCHNMVLKNKDPTAAHAEMIDA DREACKK LDNK DK LS E C


GEIVGEGHNETRTGDDDAAHPMTLARWAARELDPDERAEC GQILAVTHNTVLKDQDPTCHAEMNCDREAARRLKTHMSGY GCVVAEGWNRVWSAMDPTAHAEVVA\|RRACRILETYQADC GEVLVEDHNHVVGGDHTQHPEFAIARWAAQHLSPEDRAAS GEIV AS CHNMVLRNTDPTAHEVTADREACKKLNQDELTDC GQVVSRAHNRVLVDHDPTAHEITAI RKAGQALLGTHDLS GC GEI A GTGY H E R A GGP HAEV HA L RAAGTRAR G GTA YVT L GEVVLGE DHNRVSSSGDAT QHPEFA I ARDAAQNMSPEERAQA NRVVAT GYNGTPRHLTNCNQGGCLRCNKGHGSRDRIRDDS


NILSSTGYNGMPKGCTKYAYVCHAELNAILNSDGRSLAGA
 GEVVATNNSMPPEGDPTQHAELAAAAQAARLLDTPGQLDERC $G R \| \vee G$ $A G V T A E G G R P H A E Q \square A D D D A G B D L A K G G G$ G A V S G DVHCT DE GCYVVDGHCLRTDHA EMNALLQCSK E GA


UniRef90 E7RM72 UniRef90_UPI000478C0CF UniRef90_K9ZJY0 UniRef90_A8UMY UniRef90_U7PDS5 UniRef90_E0I7G8 UniRef90_UPI0002E2CBE3 UniRef90 ${ }^{-}$W2DU55 UniRef90_J2AW59 UniRef90_U0FQ18 UniRef90 17KL56 UniRef90-W9H442 UniRef90_UPI000471242A UniRef90 UPI0002038676
UniRef90-K0Z239
UniRef90_X5XHV6
UniRef90_E3B707
UniRef90-A6VY18
UniRef90 A0A031HNW6
UniRef90-A0A031H
UniRef90-H8KWR6 UniRef90 UPI000366D2CE
UniRef90 H0DGA1
UniRef90_UPI000378F7AE UniRef90_UPI00036B9650 UniRef90 V4JYZ4 UniRef90_R4X0C1 UniRef90_R5BGW5 UniRef90_A6FQ43 UniRef90 A1K9B4 UniRef90_A3XP18 UniRef90_L2GM75 UniRef90 UPI0004657597 UniRef90-B6BP17 UniRef90_W9GHT7 UniRef90 UPI000360A32C UniRef90 F1YGD7 UniRef90_UPI0003B52D9D UniRef90_LOJRB9 UniRef90 X0PCN4 UniRef90_H5TW60 UniRef90_X7F5I5 UniRef90_D9WR10 UniRef90 UPI00040B8834 UniRef90_A0A031J416 UniRef90-V4PFY2 UniRef90 UPI00021A3FDB UniRef90 M0EL63 UniRef90_R7LEB4 UniRef90_A5GMF3 UniRef90 G8AMP9 UniRef90_L1JSX3
UniRef90_M7N7G1
UniRef90_M1Z8L1
UniRef90 W6WY86
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UniRef90_UPI000248C812
UniRef90_UPI00037C2D93 UniRef90 K3XAD7
UniRef90 UPI00026273C8
UniRef90_L2ECV4
UniRef90_G4L4Q7
UniRef90 Q5QZV7
UniRef90_M0CRC3
UniRef90_-V2HTY5
UniRef90_UPI0003683F21
UniRef90 UPI0003046A4A
UniRef90_ROIOS0
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UniRef90_MOPCU5
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UniRef90_UPI000255F851
UniRef90_V7CAW7
UniRef90_S4ZUT2
UniRef90-B5H1C0
UniRef90_-T1JP38
UniRef90_UPI0004751F8E
UniRef90 H8X9T4
UniRef90_A0A023X2V0
UniRef90_A6EFI5
UniRef90_S9S5Z3
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UniRef90_G2LHX1
UniRef90_J3CJB8
UniRef90 UPI0003B66117
UniRef90 S4CWD7
UniRef90_UPI00037160BC

D D F
T DTCEE I I GVLREECDELFK
FRNDKVTKGILKNECLLELFAQ
KAS GCKVTGVLEAECKTHHKRFFKKRP
TE A G $\square E \mathrm{~V}$ E Y Q H D A Q A E A MY T D F F K A K
SARTIAAGGVLTE E CQQLFHNWNRSR

Q T GAR VTVDDE E EAA E VHKA F
$R Q A G V S V V G L C A E Q V S T F L E P Y$
K D C GVVYEQI
D P R R R H P $\square \mathrm{D}$ V D A
K D
T D T GEC $\square$ A GYRSEEA VEMLK $\square F Y R Q$ RDRPEVRGGVLAEEAARPLRGFFSK
R A A G VVVEKVLAAEEAAEQMAGYLKKRPE
$R E A G V A V E Q V L A A A S R D L N A D W$
QRQVEVI GPCLE EEAAKLHEG
$R A A G I V V T D V A G D A A R R S M V G F L T R R E R$
D D F
DAANRVTVGVCEEECEELNKRFFTFHRK
KEHGDEVEFRYQEAAMRLYEDFFFAKR
A D GSREVTVVLEDEAADPHRGFWH LH GYKCRGGIMAEEADSLFKCFYEQ
$R T A G V Q T T$
R S A GI EVVTGVLAEEAMRDLGGF LRR
R A A G $\square$ D THGLLESEARELN $L$ G F $\square$ SRRGRP W
NKNCGKC VNDKRCVE ILKKFYE
RAAGVEVAGLMEA QARALNRAYLSERGRPWLR
VPD D AVVE GP VLE A EVVK G L H E A F
D S F I Y E ELELKKE D
R A A GVDVH GVLESEAR
D S WGl
D A D T SVA GPVLE DE G L A LHE A Y F S E
D A GVDVVESGRDDVEAR
RAA GEVVTG GGADEAARDHAGFF
E Q A G
RNDLVLEGGCLRAECAAL
DD A GIJTVE GLLDEDEVAAHLDAP F
$R D A G V E V S G V L E A E A A H Q N D A F V Y R D R R P W$
RAAGI AVTGVCEDAAWTLNEGFFRR
LR N GV
DQH【YEE
$E K A G V E T$ T R $\square R \square D \quad \square E K Y \square S A L P K E$
DAVPEVRGGVAEYESQRLIHSFFSDLRR
N H H Y EVYS GLLA H Q CLAAL
RASGIEVTGMLEREANALNEAF
RAA GVVEGGVLPGEARIVLDGPWARQ
Q D A GVEVELLLEEECLAPNR
QRQV Q V LGPMLEDEAAAPH $\quad$ GF
KK WNEEMGV
$T A G G V K V E V G L \quad C A E L V A Q F$
RAD GIVEGPMLVEEGLAVVEDFF
$R D A G L D V R G L L E K E A R D L D \square G F V S R M$
A A $A G V E V E G$
K K A N I E I VY I N K DE
K S K Gl K V I GI CEKRAKELLKP F L K
HHKMEII GGI LEDECS QNLQLWFKKLR
D GDTTVVEGP ATEAAMS LHRSHY GE Q
D D AFF YE QLL LPP EKREVLAT F
DSF $\quad \mathrm{V}$ YDELA L P L $\mathrm{N} Q R R \square P$ T RRLLGNE
$R A A G V R V E G L L G P E A E A V N A A W L T S V R$
NHHFEV
SEANI
REA GUEVEVLGEP VFEVQNERFFWRKR
R K A G $\square \mathrm{E}$ VT G VLDAE EA A R D H A G F
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 GVVRRE ERNRERSVDATCHPEFALLAKWA GANLSPDERRDS G GVLAE GFH ERKGGPHAEAAALAAARSRGITSEQMAEA GTVLA EDHNRVAS GDRTRHPEFELAARWAAARMPPAERAAA
 GQTL GEGW $N K I V G D G Y N G M P N G C T K Y P Y V C H A E L N A I M N N N S A D V K G C$ $R$ VI LA GIG Y N GFPRGCKYPYVCHAEVNAILNKNHASASGQ GMPI GCNDDDMPWENTKYMYVCHSELNAILNSPHNDLTGA

 DLIVARGRNATNRERHALAHAEFHHNDKSEGNSLVSLSDY
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$N \square I E S \square G Y N G F P K G C T K Y A Y V V H G E L N A \square L N C K G K D L T G C$ GQUDA EAVTADGGRPHAERQAL E D E IVTEGANSVAT S GDVTEHAELDADTTACSEGNADRDVGG NKIVG I GYNGMPNGCTKYPYVCHAELDNAMMNKNSADVKGC GQLLHVGHHRGAGTPHAEVDVLQQARAARTP LE NEVIA SARNRVNELNDLAHPEI ELDAHWAAKHVSPEERKQU GSVVGDVHCLDDGCHCVRCVHAEANA VQQCAKFGASTEGT GEILLA EDRNRVAS GDRTRHPEFELLARWSAAHLSPRERAAA






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 GTVL F E D R N RVA G G D Q T RHP E F E I A R WA A A HLLP L G Q R A VA
 GKVI SQA GNNSMPPEGDPTQHAELVAVAHAAKSAQE LSRC GEIIGGSGTNLVESSACDPSAHAELLAAIREACTTAQTDLDLDSC
 $N R V L S V G Y N G F E F L E T K Y P Y V V H A E L N A D L N N R G V S L E G A$ EVVVARGRNRVGEDQTAEMVGGASVAHAEMDVFFAKNPGKD GKIVASAHNEVLKKTNDPTAHEVNADRKAAAILNKFDLSDC Q L K E D R N R $\square V T$ G N D $\square$ S L H P ELTTLAT WAYKNLPPNVRASA GGVVGE GFHQ RAGGPHAEVFALRAAGERARGATAYVTL NRIL LAT GYNGTPR GVTNCNE GGCIIRCNRGAA GENS F S CLLC


 GNVIAE GNNRVLCDLDPTAHAEVTTDREACKKLRTYDSNY

 GEVLAE GHSREVVD AVNHAEEAABGKLPAGDPRPRAA
 GKVIAT GVNRMQADCDPTAHAELLARAAGKTLQSPLLDGC GRVFEGVNRVTLDNDPTAHAEVVAIRAAAAGTANFNLQGA GQQVA QAVNEIMTTNDPTAHAELLADRAASQHGSASQLAGC $K$ RIV S T GYN GYP R R D R K L S R TV HA E M N A I L H A R E P T E G L T


 GKVI ATGGVNDETGDPTTHAELQAIRVASHVLGSPRLDGC



 RMMI SDGYNGTPTGFENFCEDEE GYTKWYVLHSTQSCKDA
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RNHNI EI EQISDCE
K EGGVLV
DTCKVKYKQT ECKE I
SHRGLE $\square R G L L R E E A V A V F D L Y R Q K G G E \square Y N$
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REKEVE LMHLP DEEVKQ
RD D G TP L S P V
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K E A Q $\square \mathrm{ECDEVEDDQS}$

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R E
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UniRef90_R4UXG2
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Unefo 7 LL64
UniRef90-14VYPO
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ASQSKPSHEQFMEAAVLEATTGVKKEGFPFGACIVRNKD SGPQAFASPEERVRFTIELARDNVEKTGGPFGAAVFESRS T WDEYFMGVA KLAAMRSKDPSTQVGACIVSG D

DGFYDR RCVELARKAYTSPNPLVGCVIV K D SWDQYFMGVA KLSAMRSKDPSTQVGSCIIESKT
ASNENQTHATF LDRADALAALENVQAGGGPFGAVIV RE
SWDDYFMA $\square A F L S A E R S$ K P PNRQVGACLVCSDD Y LEKSTQQAQEALENGEVVPVGCLMVY N N
TRYDKAYLKIAREWGSLSYCERKGKVGAAVIV R R D


EYAVELABLQQAAAGRTSPNPPVGAVVV R $\square R P S W D S Y F M A L A S L A A R R C N C M K R A V G C V L V D A V L$ S WDQYFMGIALLSAERS KDPSTQVGACIVGDDN MASENELDAMRRA I DAARRSSCDPNPQVGCVGVLGAD $M Q L A 1 Y$ Y Lis RGENNSNPKVGAILVYND
S WDEYFMGVAMMSGMRS KDPNSQVGACIVESED MRKDWDNYF DDDA ARLRPSWDQYFMRLA SLAAQRSNCMKRRVGCVLVREKN RPSWDEYFI HLAFEVAKRSTCLR RAVGAAIVV KD $P M K T K$ ELLMK AVETAMQTMEQNGGPFGAALVDGEG KKDIIYMNKAI KYSKLSYCK NKKVGAIIV KN
S WD DYFMG ${ }^{2} \mathrm{~A}$ L $L A G K R S K D P S T Q V G A C I V S A K N$
 RPDWDSYFMMLALVAATRSTCLRRR VGAVIV R H

P WDDYFMATAILSSKRS KDPSTQVGACVVDN H AAEQDLAAVVIANDAAERGTTSPNPPVGAVILDTDD ATEKDLACUDVVIAEANAAMDAGKAGVGAMLTWRGD ADDDEKMADAIELSKQNVLRGGGPFGSAIFDCSS S WNEYFMGDAL LS GKRSKDPTTQVGACII DED QDRDHKF LTQAVEEAYQGVECGGGPFGAVVVRNDE RPSDDEYFLEIATVVAKRSTCLRNR VGAVI $\quad$ GARD

SWDEYFMGIAF LGSMRSKDPSTQVGACII TAAQSETADEACLVIQRRGVENGKQPFAAVLVASDN SETLRQWMKSVVTKT DEGVAMGEHPFGAGVFTESG $T V S \square D A D D V E A W L A E C V R D A E K N V A D G G G P F G A L V V G K D$

TDSEGRRREREALAEA $\square$ TLSR $\square G V T T P N P P V G A V V L D N D$ SWDEYFMGVAM LS GMRSKDPSTQVGCCIVVSQD
 S WDEYFMGVAM LSGMRSKDPHSQVGACIV SED EKHQRFMDRADEAAAMGVSSPNPPVGAVIVAAD DEHHKFLQRCHELALQAGRSGNTPVGAVIV RE S WEDYFMATAV LAAKRSKDPCSQVGACIV NDD $N E S H D R F \square R \square A L A E A E K C \square P T P A F C V G C V L V Y N P S$




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| UniRef90-A1BJA9 |
| UniRef90-R6ZLU9 |
| UniRef90-V7AN99 |
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| UniRef90_17LL6 |
| UniRef90- A6G9U4 |
| UniRef90-14VYPC |
| UniRef90-UPI0003611 |


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| $\begin{aligned} & \text { lupas_21 } \\ & \text { lupas_14 } \end{aligned}$ |
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| lupas_28 |
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| cont |
| solis |
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| jpssn |



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UniRef90-R6ZLU9
UniRef90-V7AN99
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140
150

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AYANIPVRQI
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QPAGIEV
RSAGV
AAG $\square D L E T G V L A D E A A P L N H A W$ REGGVEVSGLLEEQCKAVAK $\square$ FMTN $\quad$ GRRPY

RDAG $\square$ TVIGLLPEEGHRALEAY
KEGGV
SETD\LIRSVDE
K K S K I I 】 H K L
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E QAGVVTEQFPKEKYDH L L S
D AVGI
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$A D A G \prod E V V R \square V Q R E A A A$
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K EAGVE
RSRGIVVTHYPVAE $\quad$ TTEFYK IDEPECMSGYYAKEAVELLKAFYRQ
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R A A GVRVT G
DHSKLPYEQ■

K DAGワED $\quad$ WVLEEECLKVARR
RQKHVSLKQV
R RAGLEVEGVCGDQARS $\square$ HAHY $\square \mathrm{H}$
$R R F G V T V E R Y V V E E$

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lupas 21
lupas_14
lupas_28
jnet
conf
sol25
sol5
solo
jhmm
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