SNA 10203030
SNA $\square$ RPT T GGQQMETGDQRFGDLVFRQLAPNVWQHTSYDDM SS GEYPTVSEDPVGEVRLYQIADGVWSHIATQSF

YRSETLVLTQVSENTFIHTSFLQT
NNDI QLEQLADSVYVHVTWHQS
 AFAAAQSADLPVEQLDAGVWMHTSYRDL

H A Q S D K L K
 PTVGLS DVTGEAELGQRVWRPI SK DA WL IRSVSP
 ■QTAQAAN KLTQLSENAYVFLGTEDY
MQAEQVAPHSYFVQGETALL VRKVTENVYVI E
MTLKKVEENLYMVRGNDGL TLKELSPGIYGVFGVYES
 LKPEKI ADDTWVLIGSTED







T\S\QEVAPGVFYHQGK\DD SQSAVAGRFDYELRPRQVAPDTWLVEGRRES

LKPRQIAAETWLLEGSTDN PAQATGPFEVVNHASNVPMHHLRGNM QTMWASAVEVRFEPVADGVYAYVGDIGG NTPI K VTKLRENLFLLQG


A VaPF LSK DT ARAET PMSFTEVASGVFVHQGRYEL
AAAPPTEPPLPVAEVAPGVFVFRGVHEE
 Q Q LP Q Q S S T K K V S E HVVYSA
A E T E A T D Y P $\square$ T A A AEG $\square Y$ FHQGAHET
 EKLGEGVYAYYAKELE
 D F

QPTCAPRPPPTLAFEQ\APGVFVHDGLDAE
 EHTVTSGTFSLD
KT L A FEE $\square V \mathrm{~V}$ GVHVHQGR $\square \mathrm{DD}$
$N \square K P Q K V S E D V W C F F G K T E \underset{N}{V}$ LK PRQIARDTWLLEGSTDN


SAAWRPAFATRSEVSPESF
VAE円APGVYAHRGQDAL $\square$ LLEAVAEGVHVFRAPYEL
$R \square E Q L S A R V V R V L G C N P G$ $\square T A E L V A E N T W V L Q G K L E D$

RDEQLSARVVRVLGCNPG LIAEKLDNGVYAYYPSNAK


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 DG AVYPSNGLIVRDGDELLLI DTAWGAKNTAALLAEIEK ERFGRVSTNGLIVEDGETSGLVDTGWDARQGAMLFDWARD NDFGNVPCNGLVVTDGKEALVFDTPTDVAASEELDQWDTK DEFGRFPSNGMLVVRNGEALMVDTPMDDGKTEKLTRYLKD NG HRVSANGLVVKEGDTLFIVDSAWGDANTEILDDMIER
 $D N V S$ FPSNGLI I STKSGAILI DTA WGNEQTVQVGQWI KE
 ESFGRVACNGMIVVNNGEAIVFDTPTNNMVSKELI DWL D ESFGKVGCNGMVIIHDKEAII FDSPATGEVTSELI GLLRD EGWGDVESNAVLVAGAAESVLIDTPATEAQTAPVLAWAAD GNTNVPSNGLIVKTNKGVWII DTAWDDDQTKQI I GWVKK NG EAVPSNGLVLTTSKGLVLVDSSWDDKLTKELIEMVEK GGKEYSANSVYLV TQKGVVLFDVPWEKVQYQSLMDTI QK SANNSYGANAGLIIGDKSVLVIDTQDSSLRAQEFIQAIRE ASNRGFNSNAAFVVTGDGVVVI DALGTPALGRALVRAI RK GSNQNFDSNAGFVVTDSSVVVIDALGSPPLAERLLQEIRR
 PKNRGFISNAYFIITRDGVIVFDATSPELSEEFLNLLKK ALSKLGKELVETIQT


 RSADNLGNNCTFVVTBQGVLLVDPGGSAKGAAAIEAAIRT $N V G V L R T E E G A V V V D T M T F R M Q G Q H I Q S R A E A$
 ALLGSGGSGVIGDDSVLIVDTTATPAMAQDLIARIRA
 SVLE GS G GNVAVLTGADGKVLI DGGDTASR PRILEALAG


 LFTTDSGANITVVVGDESVAVIDTGGSRRAGEAIVQAIRD
 FAKANGGNNVAFIVTEAGVVVIDTGPSRRYGEALRQAIAS $P M T \quad L Q G T N T Y L V G T G L R R \| L I D T G E P A P E Y \square G C L K Q A L S$ Y A LE GS G G N ITVV S GP DGKFLVDAGDALSRTRRDRKDDAD RTVANQGANLGLVLTS GGAVLIDDSGSTFQTARAI HEAVRR VGNMLAQTGPDGTLLI DSSASTA APHI REALQG FAQANGGNNTGFIVGDAGVLVIDSGPSKRYGEALRQAIAR
 QSPENKGANASFVIGSDAVAVIDTLGSAKVGRELRSAI KA GGNDTVLSGKEGKF LVDA G IGK S K QKMRAALEK ATAAN

G G WC L $N$ GIVST
N G G E D ALLI

 QRNAI R N
 $N K G L P V A T S G G F I V G E K G V M I I D T M L N E R L N K Q V Q D M V K T$
 R V V G $\quad N R G$
$G P Q G Q$ GGNMAAVSGPE GLLLVDDGIAVSK DKMRTALRG P DAANGGANDSFIVGQSSI AVI DAGASRADGEQVYLAIRA NG E A VIPSNGLILNTSKGLVLVDSSWDDKLTKELIDEMAE K GQTFEVDNNVWVI GDDRECVVVDAPHDVEALLELVA LFTAQFGANVTFIVGETSVALI DSGGSRRAGEMI YTADRA


 NSAVI I G D D A I A VVV T Q V N EA LAERLV R A I A D ■DDGYQGCNASFIVGSKGVAVIDTGGSFKVGKQLREAIRK
 Y A P A NEGSNAGFIVGREAVAVIDTGGSARDGARLHQAIRS PSNDGA $\square A N M T$ LIVGDEAAAVI DTGNSYRAGALMRAAVRG
 MT LQGTNTYLVGTGPRRILIDTGEPAPEYDGCLKQALN FSKR N G GNNTGFIV T GEGVIVI DTGPS LDRYGKAMRALI ES $P M T \quad L Q G T N T Y L V G T$ GRRRRVLIDDTGEPAPEYDSALDKALD $E Q G L P V A T S G G F I V G E K G V L I I D T M L N E R L N K Q V Q G M V K K$ YEANCY LVIDDDKECGII DPGGDAERLK S I I N S L K
E VGTN C Y I V E D S K D A A V I D P
$\begin{array}{lllllllll}A & D & R & G & D & L & I & A & S \\ E & Y & I & E \\ E & G & D & L & L & & K & E & R \\ I & R \\ I & A & I\end{array}$

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E $\square \mathrm{NLDPVADAVVTHAHQDKMGGMDALHAAGlATYANALSNQ}$ QI GLPVTRAVSTHFHDDRVGGVDVLRAAGVATYASPSTRR


 KLMSDIKAFVPTHFHQDCVGGLEEFQNNYUPTYASKQTDA E GK PVKLVVITHSHEDRTAGLPVTKAAGAAS DGDNKTAQ

 TQDITVKALVATHFHDDCVGGLGKTHE RGIDPSYANQETIR S LAA RI TAMVATHFHADCVAGLSQDDEAGUEDYAHSRTVE TLRRPVRHLVVTHWHADRMGGI GGARPRGURTYADGKTRA K KKKRV的 KHNMPV $\quad$ AVVFATHAHADR $\quad$ GGUTTTLKERGIKAHSTALTAE
 VTRQPI RRVI LTHYHADHVYGLGALEAAGAEVWASAEGRA IT DKPVSHVLVTHYHADHVYGLQAFKRAGATVVAQRRSLE
 KTKKPIKYLIISHYHTDHFYGAKAFKEKGAIIIAHPYA DE RTRKPI RYVINTHGHPDHVFGNAAFVAEGTSFVGHSKLPQ VTDQPIKRVLVTHYHADHFYGLQAFKAEGADVWAHRAGRE VTDKPVVRVENTHHHPDHF LGNQAYADVPDAALPATRAAD
 LSGGTVRAVINTHYHADHAHGNPGFTLGTPVI ATERTRHH TIKKPILYVVNTHYHPDHCFGNAAFEDGQIISSAQTANNM VPGGPDFVVNTHFHGDHTFGNGQFAPRAVVIVAHEGTRA
 RTDKPIRRYVI NTHAHPDHVIGGNAAFQAEGAASFVGAKNGUSR LGKQPI SHLI NTHWHFDHTDGNAWDNAEGAADLAHENTCK ENNLLEIKYI I DTHGHDDHLMSVDEVRKKTGAEVDHEKDAD VTDQPVRWII NTHHHPDHVFGNQAFEGAEDSALPATRAAA RTA LLPI RYYVVNTHMHPDHVLGDVAFREEGATVVGHAKLAR
 ITMDKPVVLVINSHAHPDHFLGNQAFADVSDGALSGTTTAT
 1 GKQSVKYVVNTHWHWDHADGNGWLRDGGAAVDATPQTLK VTQQPVRWVI NTGGQDHRWDGNGYFKAQGAELIAHAAAAA LNAPPLKLLVNTHWHYDHTDGNAALHDTGVFI AHENTRR VTDKPVSKLLLTHHHPDHALGNQAFAD VPIAADAATTE VTDKPVVAI FASHYHGDHYLSAHAYFEAFLPFYAHPFTKE EGDKPLABLLTHAHFDHDGAVDAVREAFIPVYVHKEEAE VTDKPIRYVI NSHMHPDHVFGNAAFKEDNPQFVGHHKLAR LGPSPLKYVVNTHWHWDHTDGNAWMHEAGATIVAHRNTAK RTTQPVRWVI NTHFHPDHADGNAAFAGPFTTVVGHANLPR $\square N P Q A I T Y L I N T H Y H F D H T G G N E N D A K \square G V K I I A H D N V S K$

 LGNEPITHLVNTHWHFDHADGNEWVHSAGAKII AHENTQK EAGKPIVYAVNTSFHGDHSYGNMYLPKETKII QHQVTQNY RSD DPI RALI LTHMHPDHSFGADLFREAGAPRLAAGDEAR EFDTAI QEILVTHWHCDHAGGDVDICENDSNGLNTTYC DK
 VGKGPLRYAI NTHWHWDHTDGNGWAREDGA IVVAHANTAR QSPGPVSHLILTHMHPDHVLGAEPLREAGAQVLGHTYTTN
 VT P LDPI RYVINTHVHPDHNFGNQAFLAEKPEFVAHFRTGY DEKLKVKLI I NTHGHFDHVGANKRLKEATAPDLDHEGDAS
 HQLNPV AVVLTHGH $\square \mathrm{DHI}$ A GVSALRGRFIKVYIHMLDAE
 VTPDLPV DYVINTHVHPDHDYGNAAF LDNDKPQFIGHDKLAN N
 VT VTPKPLRYVI NTHMHPDHTLGNAAFDGEGVRFVAHHKMPR
 DFNISI QEILVTHWHADHTGGISD』CKNDGK GSKFCDS
 QFNAGIQEIVVTHWHRDHTGGVEDICRNVTGSEDRVSKDP EAGKPIDYAVNTSFHGDHSYGNMYLPKEYIQTHFEHDTQF

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QUERY
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LA P QE GMVVAA QHSLTTFAANGWVEPATAPNF GPLKVFYPGP

 VGDRT $\frac{V L V}{F N}$ KHYGE


 LCKEHNEKQAEFYFDN
 QLLA K E A E DP Q N G FA D F T E L LAARRHGLVVPERELRPEERLVLAGVVKVET RTVK S GLDPSPQPVLKKSQVI DCGNNNLEDFSPGWG $L A K K S G Y E E P L G D L Q T D T S L K F G N T K V E T F \quad Y P G K$
 YMKK WS QDQA Q GTRITYYPDMTFQDK LVIDLLGKPEI DFHTH Y LE S EAP WFDA GNPLLPADRWLDADAAFELGGVRFEVVRP

 Y L G S DEA QRMFNARLGVLGKDDMKGTVVQGGERFEIIHHWCK ALATRGPFYLDNFRRIMPT LVVQDTLTLDLGSRRLTLRAW Y I R D L D P WVD A NT R L VAA DVVWLEGDTSFRMGBDTFEYLGP $N M Y R M A G D W A S G T E P Q V A Q Q D V Q P G R L T V G G H E F E L I A L E$ RLQESEKE ER G F P P EK TDE E D Y ELLSLPD DNNLII HVHN
 LATKSSAYRDEAAQRFDPNTTFEHEHTMTDGGKTDQYGGR
 $D T E E A G L G L R Q Q W P D V A W G E T P L T L D T W T F R R V E L L D H V G P$ H VERGEADMKSEIERFPRLFAGVETVPGLTWPNVMHLGA
 HL M SVVRVVEDWDYEFPRPPLAAVPSETVGDEMSLKKHHPN KLTDPNLNDPVGRKCKAADRLLKDGEVITVGGDFE\|IHTP


 $N$ L Y R MVG D WM R G T E V V L P T E VV L E P G L R S F G N H D L R L L A L T









 $\square D T H F E H D T Q F M M Q N F G K G R G \square E D \square T P T D A D \square V D I M M D F G F$ AASWMESYPPQVGRMALPDRGTADERLELGGATHLRAVAT



 YLQRLNAPWFEGTTPVAATWLDDTSTQFDLGNRRITLLTPH


 Y L LM D G K M M A M G TV E DS A D IL L D D G D EIIS F G DIA E I I H T P
 A MEDR HEAYAQASELVKPTMTVKTTGLLDLGDRKLTLTAH



 DMMLNWDVMDGGEKYIVEDVQIIDDDTIILEGMNFKVYETPB K LP P T P P REEI I GRGEQK YL Y L K D G DV KTEGATDRVLT T P







## QUERY

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210
220
230
240
HYAASARAFGAAFPKASMIVMSHSAPDSRAATTHTARMAD EWPTSTERDQQHYPEAQFVIPGHGLPGGLDLLKHTTNVVK A WPA SLARARQRFPEAKVVVPGHGEVGGPELLSHTEALLR TWSGTVEAVKKGFPETKIVVPGHGKHGGDELLDYTHKLFQ EWDKTVGKVLAAYPEAEIVIPGHGSWGNKELLTHTIKLAK HWDDAMERVLKTFSEAETVVPGHGAVGGPELLTHTRDLAL QWSKTVEKIKSKYPHVKLVIPGHGQLGGSDLIDYTGNLF EWPKMHRSLEKSYSNAKFVIPGHEAWGGPEAFRRTLELGR A WPKTIEAVKQKFKNAKVIIPGHDEWDMTGHIENTERILS EWPKTVSKIKSKYPNTSIVVPGHGNYGDGGLLDYT1ALEK AWSETVEKDALKYPQDNKVIPGHGDTGDSSLLTYTIEMFE LWKKGLLKVQSKFKEVETVVPGHQDWGDGRLITHTMDLLD EWSVSIGNVLKRYKNMNSVVPGHGDVGDKG
QWPKTVNKLKSKYSKASLVVPGHDEWKGGGHVKHTDELLN
 RWIASLDGLLRF VW K K GWL ECLDKLKEFD DARMLLGGHNYPMNKDAIDWTYNYTK
 RWLSTMEQLLAMKPG TLVTGHGPASTARDGGMTDYIA GYปAAQKKVLSTDNEETKDVPGHGPLGSYDDLAAYDPMLE WADTLRQLSALRHRYEFLVPGHGEPMSDAEVKAMA A WATTLDRVLEL EFDRVIPGHGQTADREAVRAFQRFIQ AWDDVLESLKKYK DQYVVPGHGPVSGESCIEEMKKYLL GSFQALDRLRSRRPEVVVPGHGPVGGVELDATEAYLR EWPATLEALRALDDPVALIPGRGPATDPELLDYTRDFVS GWI ADIVGALAGHAAD RVVPGHGPVSPPLALLADERRYLN TLLDSIKNKLMKLDDNVVVYPGHGEPTT
IWREQLGQLRAL QFKTLVPGHGPVSDGSPWEETLDYDD
$\qquad$ PAARIVPGHGPAFAPEALGPQRRYFD DDTVVYSGHGPATT PYQRV TPGHGSTVGKNAFAKQTQY口 DYRLLIPGHGPLDDRQA PWTLVVPGHGPITDAQPFEQMRDYLT

GTMAVDSRLIGMSDDQTVIVPGHGPVATRADLIAFRDMLK AWVEALLAALAQWNP KRIVPGHGRITDKTAKAQSHDYLQ

 GWLALIEQLEQRK AARVIPGHGP GAI K WANKAIARTTDHTIVIPGHGPVGTRAQLIAFRDML! GWLDADAGLR REAGDRRVVPGHGPASTPDALDDEERYLR GMI SAVDQI LPLCNEETLIIPGHGNLSNCQELGKYQEMLK GSLRALDLLRSLGDAPTVVPGHGRVTDPSAYDTTERYLR KLTNSTEEKIFSLPDNTTFYPGHGA VIVESDRNVVFNLPGETKVYPGHGAETTDGAEAARID GT AACDACLAMAGNDTIIIPGHGPVSNKAEMKDYRDMLA ETLDSLKKVKAFLPDDANVVPGHGSPMTPADIDQWHDDYLE GWLAWLD EPRPEVRRIVAGHGPPLPPDGAEATRTYLE YMNSLKDLKKK ANTIYPGHGPV QIIHSIREKLLILPPAVRVYPGHGMTTS GMIQAADASIAMSGPRTLVVPGHGPVGGREDLIAYRDMLS

## VITESTSERDFTLPPDTTVCPGHGPTTT五A

GWL NVMDELDQL PYQRVVPGHGAVSERSAFAHQRHYDE QLI ASVRMKLFSLDDETKVYCGHGPATS
GTLKAIDLIESFNWD TLVAGHGKDTDKTADEHTKNYFT WLADIATLQGL PWTQVVPGHGPVSDRQPFEQMRDYDS QLLKSI REKLFI LPDETKVYPGHGPITTTAH
 GLITEVQKLK NSPAKQVVPGHGPVT
DWPATLDRLQAMQPQ KLVPGRGDALQQEA $\square Q G T R D F \square N$ QUIDDSTKKLLVLPDETUVYPGHGKST
GWMAVLDTLTKEP TQRVVPGHGGPSMPAPLRHYपQTAD GWLDLLDQLAGRA VQRAVPGHGPVAWPEASDAERRYLA
 AMIQSLSKTKQFTFDAD VVPGHGP
EYMKSLERLLQTK AVLIYPGHGPV
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DYMRSLQVLLD SQADVIYPGHGPVVQDAATRHYПDHRE ETLDSLKKVMAFLPEDATVVPGHGSPMKREDIQWHVDYLQ ETLKSIKEKLLILGEDIEVYPGHGPVST SLMKSIKTKILPLPDDVEIYPGHGGMTTDADEKRY DLISSI HNKLLTLPEHTICYPGHGNPTTPE VIMESURDRLFTLPPETVVHTGHGDSTTUGAEAPHLD


T T DMAEKA TSFSETGPDLYAFTAEGDP TLKKPGVSAETHCFFGLDEVV

L LK QVAE GVWVHES
$K$ L Q K L S N NVV VVPGR
A QNKEVVI T $\quad$ VV T D GVVYV A RS FSM
SDQDSGVPEQLEPLVARLLAPGVSAFTST
KAPQTALYDYP $\square$ KVSERVYSA $\square G A T Q P$
SKETESRWREVGPQTW $\backslash R G Y R \square N$
ENVVTS GT F S LDD
 AVCQAA GGALAVEEVAPGVFVHVGRDEE

QLT Q $\square \mathrm{DARTY} \quad$ AFMHL
K P VADVA P T WVF E GTREH


DRVVTSGTFELD
MT F CQ $\square$ S D N $\square \mathrm{WQV} \mathrm{H}$ A
FALD


$P$ L K P G V VEEVR P G VR R VLCD N P S
HVVTS GQFS LD
$\square R$ QVAE GVLVHES
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IQAGSPKFI INTHYHGDHTGGNAHFGSAGTDMAHHNVLKKR
 K E 11 GDFKVVAILATHGHYDHVGQVATLKERYAPFYMHKEDEF IGDSRVVAI ACTHTHRDHSPAAAPLKALTGASIIGCAALV E

 QVS EA L L THGHFDHMMAVDELRQKYQVKVYLGKDDS
 VTSKPIRFLVNTSYHGDHAYGNYLFPDSTV VIQHPATKR KDDKPQAIMITHAHFDHIGADDDIRDEFIPAYDHEKEAK GDRTDKAVVCTHAHDDHVRFAPEVADATGAP LLDNPEDR VGGRQVRAVVCTHGHNDHVAGAKALATRYGVPVEGPAEDE
 DTPKPVTTVILTHSDGDHVNGLAAFKVIAQENNKKEQETA GRTVKAIVLTHGHNDHINASDELAAATGAPRLLHPADR VGDRNVTAIL CTHSHNDHVNAAPALSKADDAPILLNPEDR RQGLTIAHI NTHGHFDHI GANRALKERFSANLMIHAADR STDKKIKAAVVTNYHDDRLYGASYYAQHHDPVIAHRNIVE FGKGPARYVVNTHWHFDHSGGNAALGKGGAVIVAHDNVRK ATAKP
I C Y C
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 L

GRE
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V HA H N D H I T V A P E LS Q I F GA D I Y V H P A D R $N \mathrm{~L}$ L K P | S | L | N | L | K | I | R | A | V | N |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| I | T | D | K | P | I | K | A | L | V | HGH D D H I I G A V E M VKK E K Y C P V Y A C K K E Q A LTA A P I E L V VV NTH H S D A D H T G G L D A V L E K G D D V R P P VRA I MITTH T HR D H S P G S R P LA A A T GA P I VGA A L LA


 E H RLLK P VA V L LTH G H DD H WS V A P V C G A K DV P A Y V H P D D R D
 RENA IVVTRQALLTHWHLDHVTGS RDLLRK

## 

 $N$ E L V L D A I L L T H G H F D H I I G A V



 G D R R V L A V L C T H A A H D D D H V V R K A P E L L A D A V G A P I V GY K S E L K Y $\operatorname{G}$ V L L AENAVI HKI I ITTHWHHD HIIEGGVPNVIDKNGKC VGGRRKVVGIV C T H G H N D H V T V A P E L S E K L D A P I Y L N P A D D $\mathrm{K} N \mathrm{~N}$ LK P L
 HA HFDHIGAVNVVREAY IVVYI HK QEEK $\mathrm{N} G \mathrm{~L}$ L $\mathrm{N} P \mathrm{P}$ VT P $\operatorname{L}$




 $\frac{E}{V} G$ VGEARI A A I MCT V D GRTVKAIVLT

 VT D K P V K F I V L T HYHAVRVMGASAFPEVQA II AS QGT T D EELHP QAI LLTTHGHFDHILADPALREKY DPL YAAEAERK
 WF GQEIVAVINT





LYEGAD LAAARAGLDPKPPLPVRPDEEGMRDFGFQVLHDP
160 TLLELAAKSAQKEASPAPTRFLEDGMKLEFGKRTIELHTP AMSVVRGDYYVQKAPDVPPDVAVVNSEALD VKWKPYFGQDWPEHK ILDPNQLV DDSVVNLDGLDYSFRDA PMLNDLSKMVYKK DQCSAADDLLNGGDILYFGKYA IEVL LENALDWPEGSTEHPKRPNVMVEDDKKLDLGSVTI RHVGS LASDKQTTPEALPVITYDHGITVH FNGDALKVRHMGP FLLDAGYGMEFEESPKPDFYI DEK LDLQVGNSKLKFIFTP
 LLNDELFPGFS DYLNPKPDVYDKDGDKLS $\square$ ANVDIEIIHT LDDDGPRADASFDAGYKPDRVLADGEALTGGWTLRGVATP L $\operatorname{L}$ ENQSKTYTEGYVFTKAQYVKDGQMLNLIGGYDFQVI HTP ELIDKNPMEMFGKPMSTQADELVQDGQULSLGFEIKVLATP

 YMEESFEDDRCFMDSLMADITVPDMDSVDLGSREVRHFGF WLIDPFMDGKMVRMKPADHILTSEGKMSVGDFSFNVYETP | $V L W D M T H P E R$ |  |
| :--- | :--- |
| $R F W \square E Q L P M Q S Q R F G F P P D G D L T D G Q V I$ | $E D G G T$ | $P L W Q L T H P G V S Y R N L A D G Q R \quad I P V A G T D D Q V L H A P$ GLKDPEDNYSKREYSITPDVLLSHGDTISVGALQEVIHTP LAAGGRGAPPSDHLPTQMDTKSKETLMI EGEKLDLYHWAP MLWDAEFPDA APD VVWNLTHP D D DEPDGQLEDGETFTIGUDLKAIHTP AAD AK AYG 1 PGENSPQPDTCLEDGME DSFGKAMTVLHTP DIIKKNPGKYERLKHULSPDRYVIQGSKRKVELLKLTPVSE RLASDQVIAAFKLKFPPSTPEALPVVTFADGLSLHVHVAN ALAARRDGFAEGSGSAAPT LLVSDRETLDLGNRRLSLQAW $R L Q R F G H F G F G G D T V R N A D Q T F E R Q L T V E G G R R V E L D N P$ MIVERGQQDWESEFGRFPRLFRGHESIPGGTWPTIWSPGK LEDAGPRADAAFDTSYVPDRVLVDGESVTGGWTLTAVATP


 LIEERGQQDWDSEFGRFPRLFQDAESUPGLTWPT TVFEGE

 PFDERPVLEPLY LFGSFPGVPVRDLDDLRREVGFEAMPDP QLPSSKVPNFTFTAVHPTHTFDKELTVNDAGVKDQLRHTP LAMARYVSGMDAPFAFEHVQLRFPGETFTGERIERGEVGP LDDDGURSDASFDRDYAADRI LADGEVTGDGWTLTALATP ELLDEKGFEFAEDTELVNFDITFDDRYEVDLGDVIAKEYGS MADDAGPHTA $D H P A N K V V D G G P V D L D L G G Q S V T L F H L G A$ LLDPGLSLGAGQQLF GGLELSEPDDVKELGLSFTVDHAP ML WNDTHPDVGHGDLADGQEIEVAGTALTI FERVSPSTRYYKNSPDDGQEDIHDGQVESVGASVRALYTP WLGDPGRHDDIADVIVSPAEYEFEMKTYTLGNMSFRVVPT LLLHDSKANFEKPFTVKSPDIGKDKRMKDGNFEDSWLHLP MHQVTGGADLPKRLPRLPDHTFSDTEDIEVGGRGAHLRNF A LD SMGHATGDMAVPEQPRPVADGDTDDIAGVEFTAFHMP KAEGQGMTENMYRLVGDWMRGTEPGSTVVFGAHRRLIPDE $P$ PLQMMEMQAGWLGVPTPDVAPPDASAEDAQYPAQLLHTP VLWN LVHPDRRPDREFADGQVVEVG PLWKLTHGDAVT WDADLADGDR
 EVKLLFNMVSKPYPADALCDDTFDHSGTLRFNDETIKHLPN LVKFKRPDFETLSSNDDSDEF LK DGDVIEDGASLKVYHTP VLWQMTHPGVHHLALEDGQR WLSRPNYPSLPDYRMKDADVLLTDEKTLEDGFKMD SFHTP
 VLWDMTHPDR GPD GELVDGETFEVGTELTVTHTP
 MLKYFGPMDGMEVKDVTPDVI LK DGDEITVGEMNFKVLHT LIRERCSICMAGSRVTVPDQTINGTTEI ESGGRKDQHFGP RMENRDFIFGEAPMGDNVVHVKENDELVFDSGKFRVIETP KMNLSSYMGCGFTQPAADVELRGDENLQIGDI LLEVI WTP SMRMF GNH LP HGEHINDGIGPHDGDTVNIAGLQIELVHAP KNMETMAELEGLKNLTYPNLAFDTKVELTLGGYELRHPGP LMA QS GAM GEVGKYLQRSFGAFDFGGVEKVGDKDVKLDEP VLANLVHAELPWPTRSYVRRAFGAFAFADTGVRLPTDTFP ELMRENAF IGGY $\square P E N C H I V N \square S D G D E L N F G N S F K V D S T P$ ASRPRYESEKHNPESGADREFAPDDVIEGAGWRDEAVATP LADDGPRADEAFDTTYAPDRVLADGERVSGGWTIEAVATP MLWDQTYPDS TPDGDLADGQKISVGTDLVVLNTP LLETE $\square A G Q V P L E L L G L V T G L P A E T T I P W Q G P Q V R I I E H Q$ LLTDPGKGLSLATRQQFVRELADGATLELAGLEUTVDHAP WV HSRGQADFDSEVGRFPRLFAGVEEVPGLTRPTLSFERE MLNMSGRDPEDNVEIQDFTALLRDGEELEFLGKKWKVLSTP YADMFRGLSPAVAAELDGVHFVDPEVTYTGEAEVDREVGP AGLMDDRASAASVFGQSAPGLTPD DTYTEGDLIS INIHTP


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UniRef90 $12 G N Q 6$ UniRef90-Q39S82 UniRef90-G7DKH7 UniRef90-I3EAG2 UniRef90-UP1000401DCCA UniRef90-A2W5X4 UniRef90_UPI00046342B8 UniRef90-A6TKP6 UniRef90-UPIo003807BDO
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ELSKSLKK FSQLPKDTHVICGHYQDTSLEH
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K LIRSI HDRLLVLPGKTRVVPGHGPATTIE
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QL LKSI HDKLLTLPEETYVLSGHGAVTT
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AYMQSLARLQERS DRIYYPAHGP
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$D W L G T L D A V R A L H P$ RTLVPGHGQGACAEADDLTQAFDR
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ERVVTS GS FE $\underset{F}{D}$
AS QLVP $\square R E V E R L S S N V I R \| L G G N P$

$$
\text { K P VEVIP HVWSA } \square \text { G A T A P }
$$

$\square S P$ L VGRVLAP NPS MGPRTWWLRAG WSFMKYQ!I
$\square E D \square G N G C F A Y \square Q P A G T$

| K P V E V 1 P $\mathrm{H} V \mathrm{~F}$ SA! GATAP <br>  |
| :---: |
|  |  |
|  |  |

MK F R M VKKN $\square$ F $\square \mathrm{L} T \mathrm{G}$
$R E \prod A P D T L V \frac{1 L}{P N}$
P VA P GIVERMT VNNP
$\square Q E V A P S V A Y L D$
$E \square 1 T \prod T D R V R \prod A V G W G H$


Y K I I
GEY LIESQGSR $\square P P \square P \square E R \square T P R V V R V L A G N P$

FTELLPNLYFVEGEL

QRVTPHVFTSTTDR

$\square S R \square S N R \square I R L G C N P G$

EVERLSASVVRVLG GN $\frac{\square}{P}$
DNVVTSGLFK LD



V
$E \square M Q V A D G V W V R Q S$


$$
\text { D H A VT A G T F S } \square \text { D }
$$


PALAVTEIAPGVFVHVGA $\square$ A E


## UniRef90_B1ZY98 UniRef90-L1NHL6 UniRef90- I5B5D7 UniRef90_R6CGA5 UniRef90_W9CWG7 UniRef90_A0A024JIN4 UniRef90_B0UDZ6 UniRef90_UPI0004229FB4 UniRef90_I0DY35 UniRef90-M5A3M2 UniRef90_C7NK64 UniRef90_UPI00035F8FB6 UniRef90_S3CL85

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UniRef90_W6ZWD0
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UniRef90_D7JCF3


 S LGIIIISAI FLTHWHHDHVNGVEPLLQH PELGHCDNRD


 R
 KENATVGQAV TTHWHHDHTGGDKHLLEYSPST】
EK LTP PIA LLTHGHFDHAGGAEELAKHFIKIYAEEHEKE $\square T$ DQLVK LVFNEN GQGHAMLGNSYWSEQGVIVVAHVDAAA

 I A GRKVVAI L CTHTHRDHSPAA QP L GEAT GAP I I GAAP L T



 SG RNLLTY L L NTHHHYDHTGGNLELK DRY
 $V$ DQEVKLVLLENGQGHAMLGSNYWAEQGVKVVAHEAAAR
 ERDLK VEKI LLTHAH DDH DGLQWAHDTYKVPVVLHPEEEE $\square F K T K V K Y I V S T H Y F S D H M A A F P L F P E S K I I A H K D Y L H T F$ SGGKNLTAI YLTHGHGDHVFGVGSILEHFIRAQVSPTS LE EPEK VAK GRRLY LT TT
 LKGREVTHI FVSHTHRDHSPLAKRLKEATGALTVGQGPHR VPHAHVRTLVNTHADGDHTFGNSVVRAPEVVMTERAARDA QQLK P V H L I A THG H DD HNFGNN T I Y E Q Y GL M P E V H K E D E $L N P N A P E F V I$ NTHHHGDHTGGNEVFAQSGAHVIAHHNVHK

 S E ELLT PVVHLLAATHGHGDHFGNVMVYK E Y GLLKVEVHENDK S N N DLLT LEAA F L T H G H Y D H I G A V D Y L Y N L T K C K I Y A H DG D Q E T GCK L V R V VLTH G H LDD HVGAARVLA DAHKV S I DGP QRED
 K GWKP QAVLLTHHGHFDHAMAAKEL AEMFDE DYAHEREKD SG KRLTTTLYISHGDPDYYFGLATLQDAFVAHIQATAAGK


E G


 $\square G A V P S R I L L T H G H G D H I A G A A D L X A A Y P D A L L C C P A A D$
 DENATVHQALITHWHHDHVGG■P EKNFVI D I L L THGHFDHI A GAEELKK LSAK LYCHEKEMA



 N

## UniRef90 B1ZY98 UniRef90-L1NHL6 UniRef90-15B5D7 UniRef90_R6CGA5 UniRef90_W9CWG7 UniRef90_A0A024JII UniRef90_B0UDZ6 UniRef90-UPI0004229FB4 UniRef90_I0DY35 UniRef90_M5A3M2 UniRef90 C7NK64

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UniRef90 R6W1G3 UniRef90-R5T4D1 UniRef90_UPI0003B6B565 UniRef90_Q6C173 UniRef90_R7CJM7 UniRef90_R5IBZ6 UniRef90-E6MM38 UniRef90_R5VBJ7 UniRef90_UPI0003664C34 UniRef90_L7VJT8 UniRef90_A0A017SPR5 UniRef90_R9J0H4 UniRef90_UPI0002DEF88B UniRef90_E4KTZ6
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UniRef90_D7JCF3
LP A A ERF D 130 NARPLIALK 140
150
60
LPA A ERFDYGANARPLALKPVKDGE DIDLGGRQLEVVITTP MLMENLSRQAESLLGVSLDYELPPDTICFGNHTFTLIHTP
 LSSS SYKHTPSKTQQPILDGQIFKVEGGATVRAVHSP A I Y K Y K LP G D D K L Y P WKV QP F A D G Q T F K G D G F S I T G Y H T P




 $\square Y K H Q P S D G Q E D \square E D G Q Q F K V E$
 EFENHGKERAESTSVVLPTETFTDEYTVEMGDFRIRYQGP






 GAKVIGGSAMDK DRDP GIDDMA LIKD GDKWMFA GHEVVMVMMDTP KRDRTDNMYGDEHLFEAFDAWRGPDVVFDSHTEI DHHFGA GMRAYAGEQGEGTE\|HLPDESFSDEYIVEMGEMR\RYLGP




 A HEPPGG $\square R M F$ QR LM GGAR GWPWARTRRAFVA DMLQPF DFR


 F LLS GMKE QASMF GMQLPDEP $\square P \square G H Y \square D E G Y T \square R T I A V P$






 FMITTDPF DATNNMGKVHDLRRFVDKEVLDDAGEEFIVRHAP WKLPRSTGDPGGEQDEESAGAWSPLNDEQLGANLRRMETP

 $R L$ GDD GRGY G I E G R P F EP DRWLD D G D Q V T V G DLLV DV I M C P LL RILCPEVVT IYKHQPGEGQVDIQDGQVFQVGATLRAAHTP


 QATLF GFSLD Y QPI DAN H Y L N E G D T DPVFGNDTDRILSTA
 LGQLLKRAS GMA QSFVVVP DGFFVKEG D EILEL

 AFWIDDQLPAQTERFGFTPERWLDEGDTVQFGDETMEVRFC
 LAEQARERAQAMAA QSAAGVPDLDPDPADGSPDPGEVVIE HR




 L L T D N Q S L T Y T N GY T FA GA K T V A K D G D V L T
 DATAKGMKAHGSEVTPATKELKFSGDSFTFGDETIVVYDS


## UniRef90_B1ZY98

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UniRef90_E8U909 UniRef90_R6W1G3 UniRef90 R5T4D1 UniRef90_UPI0003B6B565 UniRef90-Q6C173 UniRef90-R7CJM7 UniRef90_R5IBZ6 UniRef90-E6MM38 UniRef90-R5VBJ7 UniRef90_UPIO003664C34 UniRef90_L7VJT8 UniRef90_A0A017SPR5 UniRef90-R9JOH4
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UniRef90_D7JCF3

 ALLHNAVCTRLDTLPSETVVYPGHGEHTT
WMAALRKMQTY NCIKGYPAHGTVVDDLQAKTGDELSQ

 A LIAA SI KNKVLPLGDDYQFIPGHGPMSDLGHERKT T I A A S I RNVLLELPDHTVVHTGHGDTTTIGA QTVATMQRLLQLPDNVTVYPGHGQETTAGAERAWDTQL Q1 QSITDQLLVLPQDTKVLTGHGDATI GA E L L L N G I R R K K L F A Y K S L N RMKGAFKG RAYPGHGPVID DWLETWDAEFEPLGAATYVIPGHGHPTNMDQVRYTKGYDE RLL R S I REK LLTLRPDQTLVLPGHGPATTDGRERTTNEWIR $T L V R S V K E K L L S L P E D V K V Y P G H G E A T S$ HYLESLERLQAREQD SVYYSAHGDP
AYMRSMQRLADR DDAIYYPAHGEPVDN
$D W I R T L G K G A A L D D D Y D V F V P G H G N P V G V E F V T A Q L$ QLI NSI RTKLLPDGDDMTFIPGHGPMSTLGHERQT

 QMLA SLQ Q I T SLLPDDT SIYCGH
YLESLRGMREALPEDETVVPGHGPDGDPRAVAALIEYDE DWI ETWETAFEPL G ATYVIPGHGHPTNMAQVRYTRDYLV





 A WVD SLERI RSYPADA LLPGHMPVLGRERDSEVLNYQE $G U L A A V E Q V M T Q Q D D S T Q V I P G H G P M S N K A G L Q R Y Y Q L L S$
$A Y M K S L E G M R K R A D G Q F Q I F P G H G P V I D N G$

 QMIQSLRMDCQLPDTTRVYPGHGPETTDGA QMLQS L RMLCQLIPDTTRVYPGHGP





EMLDSLKRLHDLPGDFTVYPGHEAFTTREHNNYMREAVN QWV GALDVI GSSLEVVDTVVGHGPVTTPDY LATQRAVL NWINACDRIDAM DVDVIVPGHGPITDKQGVA QVKGYLA DYMASLDRLI AR EDGLLLPGHGGP
AMQESLRNVVLSDDDALHLLPGHGPATTMRA
DYL ISLKKI LRQDAKLIYPGHGPV
ALLRSI HTRLMTLPEHTLVVPGHGE
RLLKSVRVTLMSLPGETRILSGHGPASTD ILQKTRN
TI A SUI R DHLVGLPPETVVHPGHGESTTVAEVAEHDD


T 1 E S L QKRVVLDLPAETVVRTGHGEHTTVGAEAHDEEWDK
DLI DGI RTKLLVLPDETQAFPGHGPSTTIGHEKRHNPYLK

DLKRSI TGQLYTLPDDYTVYPGHMDPTTIGH

LLLRESLEKLKKLLP
RYMDSLLRDMASLG GCRIGYPAHGAV
KLVKSIKEKLMTLPDET IVYPGHNERTT

RWLAA CDLLLGLADADTVVPGHGPAVTTRQTVREDRDY DE
AYESALDLLEEAAAHADVVVPGHGALAGGSEVTARRAY A QLLA SI ARKLLVLGDETVVLPGHG
QMHTALNETLANLPDDTKIYPGH
AFVDSLTVIRDALPKDTLVLPAHGLPFRNALVDHHSQQLE GWLDAFAELEALDDPAHVIPGHGMAADMARSRATGDYLA S WVGVLGRLGA
A Y A A A A AYPAALDRLEEAARQADVLVPGHGAVAGPEVAARFRAYLE TLDRSIKEKLLVLPENTVVYPGHMAATT


GYEDNLAF IKAK EWTYFSGGHGNDGSKADFTFMQEYVA
GWQAVLETMRAEPHD

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UniRef90 L1NHL6
UniRef90-15B5D7
UniRef90 R6CGA5
UniRef90 W9CWG7
UniRef90-A0AO24JIN4
$\mathrm{K} \square \mathrm{R}$
H
UniRef90-B0UDZ6
UniRef90 UPI0004229FB4
UniRef90-IODY35
UniRef90-M5A3M2
UniRef90 D1C6J2
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UniRef90-A6E4M0 HLR

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UniRef90-A9FSS3
UniRef90 G4LC35
$Y 贝 R$
A L
$R$
$Y$
$Y \operatorname{R}$
WL
$\stackrel{R}{\mathrm{D}} \stackrel{\mathrm{L}}{\mathrm{F}} \mathrm{N}$
$E \square R$
F L
A $\square \mathrm{R}$ QVK
UniRef90-Q9SID3
UniRef90-D3PU32
UniRef90 A3SQX
UniRef90-R611D1
UniRef90-A4FGQ1
UniRef90-R9CT52

| UniRef90_UPIO0047CC14C | $\begin{aligned} & \mathrm{R}[ \\ & \mathrm{D} \end{aligned}$ |
| :---: | :---: |
| UniRef90-K2H195 |  |
| UniRef90-D8HRT0 | E L R |
| UniRef90-B9JAU2 |  |
| UniRef90-E8U909 | F L |
| UniRef90-R6W1G3 |  |
| UniRef90-R5T4D1 | A |
| UniRef90_UPI0003B6B565 | K A K |
| UniRef90-Q6C17 |  |
| UniRef90-R7CJM7 | QVK |

UniRef90_R7CJM7
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UniRef90 L7VJT8
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UniRef90 UPI0002DD7C4E DLK
UniRef90-X7F982
UniRef90_D7JCF3

$G P G V L R L T V N N P S$

EHLVTS GTFSLD
MT $\square$ EP $\square$ S HDPVVDTG $\frac{V 1 P N}{F R L D}$
$M K \ E K V T S G V F R D$
D
SEATWREVAPGVHVRR
 $R \square Y E L L P G A Y \quad A W V Q P$
$\square K D \square G N G \square Y A W L Q P D G G$
F S L D
YR I I

ERSSPLTRRLLAPN


$$
\begin{aligned}
& \text { VAP G VLWLR } L^{F} P \stackrel{Q V V}{L} P \\
& \text { DHADTSGTFSLD } \\
& \text { M T LT K LT G S VY VF Q G }
\end{aligned}
$$

QVAPGNYVIRTENYL $E Y \square E G Q E A Q \square P Q \square R V E D V T D R V V R \| M G G G P$


GDLTEKKTTFTEDGRGDYAFTAEGDP FT T D RVDDNTY \ISEYRHW
 EELGWERLADGD GRCRL

MKAEQIS DHUWSLKT
N A LIP R E G Y R S L E R $\square \mathrm{S}$ T N Q S WY S VY R $\square \mathrm{D}$



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K K N L S S YF GP GLLT L K K A D L L L S D G QE L M DGKE QLKIV I A T P R F WI D K L P EWC K M A NFPP DR WLAA G DTVTVVGEQTRVVFHCP
 WLSNPRHDDIANIIVVQPAEHEFKLT DYEI GGMKFSVVPTP A A RMA Q GYGEFDPS GWEPPDRWLDAGTVPLRHPLRVIPTP Y LL L F S S M T GQPFTGCQPADHLFTEEVELEIGPFDFKVVHT VSRFKKSSEAGGDLT FKPDVVKLADGDVVEGGWADQAVATP E IN K Q N L I N V E E K K Y E DE N R O

 ALPQQQSMMF GFPTKQFTPDRWLNE GDEVSVGEETQVLHCP
 $\square S D N V N E F T R L F G V P D D V P P T Y K D G D V L D V G D M Q Q K I Q T P$

 $M L W R E \square H P D D T F F H P V T D H Q V L T V A G \square D L H A L H T P$
 FLK DTK K N GA DK F K QFGG P K S LS E GSA D DA GF K F DVL H T P

 FLWQNVYGE LLDPDFELEDGAAF R W VAGTEVLTTRHTP LL E DCP P A KVVCKY DGE G D E LLN NE D G QVFTVGATLRTDHTP



 $\square A A V D L P L A D G Q R L E V$ PARPLRIGETNPLDASADTDFKPDLTLKDDGWELRAI HTP | $L$ | $A$ | $T$ | $G A G Y$ |
| :--- | :--- | :--- | :--- |
| $F$ | $L$ | $G M$ | $M$ | PLWRMRHP

DLMLDWHAVHPDGPA
 $M M S D P G M P L L G G L T I G E P D D V R E L T D G A R L G L E L T V A H A P$ $P$ LWE ETNGNAAYTPLRRDQQF $G L R R T G E H Q R Q Q V V D H L P F Y L I E D D T A L D L G G R T V Q Y A G R$ A MYRLLNNDWMRGTELVVLPGRPI TAGREEFGGRRLRLLALS

 $L P F W Q P V P D W G P V T R R L P D V T T S A G L T V H V G D R R V E L M H P$
 YMEKDNSVFGT LPP KAS GY LKE GDVVKLGREIKVI ETP $P Y L K G E K T Y R R E I E P V D V E \square E L N D G D E I E G G L R V I H S P$
 WLGNPEHHGFPPDTARPADFLLELKTYELNGDRFKVVATP $V L W R R T Y P D F D Y$ AP L A D G D L
 $P$ LI R Y P QLLE P T ML L G GA NP WK D M G GP Y T V C G R Q L Q Q R L T W G P Y G E D D N A K K V EMQCRMFGVPYVPAPPPDYWLKDEERLAM GELEGIALHTP MLWDVVHPNS
 F L V D P K K N I S GK IEE GP K A D RL L T E G D EIIS C G KWE E V I H T P RMLGNTSPMLLDMMSPPADMTVKDGDTITVGK MSKVI HTP






 E L A S V A Y L F G Q Q A P E Y K V D E T L K E G MV L D i G E WK L E VM E T

 MVEERGAEDWDSEFGRFPRLFEGHEEI PGLTWPTTTFKDK
 $N L A K Q G E A Y G F P A K P V T P D R W L D E G E T V T V G H S F D V L H C P$ VAY $\square$ E K S H A P K L A Y WGP I L K D N A P E R T D S L T LE G QRL QL I SLLQGY H P GYTYASD VVESVA IVQD GD LLQV GEFFQCI ETS AFFGKPEVGQYFPPSPPPDRLVQDRDTIELGS KKEVI HTP TGGREE LRRLDAVRHGLPADDAEEAVDTLAAGAPRHPVVGP GAKVIGSEIDKER\|PG\|D』Y L S S G DNWMFAGHEVHULATP LT GHAVWHRKGVVAMPQTYHRLFDGDTDEDGSRRWQI VGH



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 TDTDDTAALWVPTDGLVVAGDAVYNNTHPFLGESSQEARS
AHTAGDIVAYVPDENVMFTGDIVEYHSA CYCGDGHFA AHTAGDVVAYVPDENVMFTGDDVEYHSA


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 GHSSP GHVVVLYYHEKKDQVVLLAGDRENSKKGKFRPPMFTPYME


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NWITALDKI I NQFDNDTLFIWWGHPDTNKADVKAY AYEK
 DWPMTLEEI RAFDLDA

 TLVDSI RDRLLTLPPETVVRTGHGDSTTIGA VLQESI HTKLLVLHPDTIVVFGHGP
 D

## D

 QMLA S LQRLASSLPDDYMRSLDALLAR DDQLLLPGHGGPVTR
$R W I A V M E R L A A A R P$ R R R TVVPGHGHDGGPRLLADVRDYLR WIMKSI DD RILP LIGEEVTI YPGHG
TI IE SI RGRLLTLPPETVVRTGHGETTT■GAEAPHLD
 $R W I A V M R R L I A T V P \quad K V V V P G H G E V S G P R L L A D V R D Y L E$




 GALAAVD WLAGLGP AVLVPGHGPVLTGAD■ERVLD

 E I I S S I K NKL LPLGGDDVEVYPGHGP
 S LVVH SI RQKL F PLLGDDI A FI P GHGPMSTFGHERKT DWLRSLAALKERLPGDLLALPAHGEP
MLI ES S T RELFTLPD DTVVYP GHREAT T $\square$ KHEKDTNPYFN A I I E S I R S GL L T L P A A T V V H T G H G P
EMLE S L A RVVCLPLDNSTVVLS GHGPQTTDGQERATNPYLR D Y L N T L D K L VESBHCD WFV P
 A I EQSI RERLYTLDEQTAVVTGHGPETEGGRERET TILLS SITGRLMSLPAGTVVRTGHGD
A I M C S L S K L A K K T L P P D TVVCDT G H G D S T T M A
VLMES I QE KLLPLLADE LEVVFPGHGPKGK LGE DKA QMFRS REKL LTLPD DTQVLPGH
 $D$ LI R S I R T R L W W L GE D VT FI

 QL L D GVRKKLLILPDDTRVFPGHGEETS
$D W V E T L Q R D S S L R H Q Y D V L V P G H G Q T V S D A F V R S M W E$
VYMRSLDSMVAQGCAS G
TS $\backslash A$ SAEKLQQ LVDVTEDACGHGPVKSMSDFD ELVRS I QRLTELDVKVMYPGHMDITSSQ


 ALI GAI K TKLLDPLDDDYAFIPGHGPVSSDGAERR








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$N \square R$
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A $\square \mathrm{N}$
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Y Q 1
QVT ERAFCVLAPNPG
GDTAEKNVSFSQ $\square G E G \square Y A F T A E G D P$

QVS PR】RRLDAPNPS
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PNVRRVVAPNPS
$P L L R P T T S G \square N M A T Q \square P P D P E V E R \square A V G C D R \| L G G N P$
$P E A R R P R L V Y P F E Q T P E P G S G Q A V E V A P G V L W L R Q P L G G$

E VR A VIA P G V G W $\square R$ M P LIP F

SHVVESPVQYQLT A APL
$K P V E V I P B V W S A D G A T A P$

Y K I I

DFPDAPGVVDEVVPGVRRVLCNNPS SAEVEFRQVTPGVYAYVGPLTT

EVAPGVLWDR\PDPM $G D G R W V E V$
$Q W L E A G V L A R R Y E G L D$
$A$
$H Q \vee G D R V W A W T L P D G G$
TPTTRVIADNAKLLTMRFAWERLTPSVYRCR
$R \vee A P G V Y R \square{ }^{R} \quad P L P L$

R WTEVADGVLVRR

E E LYP P $\square \mathrm{Y} R \square \mathrm{Q} \square \mathrm{P} \square \mathrm{PE}$

E V A P G V L W L R M P M P L

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$R R \nabla S P R \square R R V V A N N$
$A P R \square N A L L A P N P G$


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| UniRet90_UPI0003F |  |
| UniRef90-COGI | VDLKDIL |
| UniRef90-D781 | VHGGESVVAVVVTHGHMDHVNSADLCARHVPVHLHAAD |
|  | - |
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| UniRe90-G2 6 ¢Y 2 |  |
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| UniRef90-I2J5M6 | R |
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| UniRef90-UP10001E2C6CE | NNDK NYI I L ThGHIDHDYYADSLREQT |
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| UniRef90 B2B554 |  |
| NiRe90 |  |
| UniRef90 ${ }^{\text {S }}$ SY2 21 |  |
| UniRet90-A6L981 |  |
| UniRet90_Q0A6L1 | G T |
| UniRef90-U5034 | NNLKPVKQLITHGHFDHMGNAFVVKTWGV |
| UniRe | ENGLTLKAI WLTHGHL |
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| F4C | AGLP VRR |
| M2 | ¢ |
| 8 | Q QLNVQKLLI HGHLLDHMMAVDRLRKHFNVDVFGSHQND |
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| UniRef90-G7XG11 | GLEL |
| Q67L15 | OT |
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| UniRef90 J5J783 |  |
| UniRef90-B5FD | VDVVHMVLTHGHLDHVGGTEDLAADTNATIVGPHKED |
|  | VLT HCHYDHTAAAAV |
| UniRet90_M1Q1Z6 | 咗 |
| UniRet90_R6GXY7 | A |
| Ref90 E4SU29 |  |
| UniRet90_J2EUM5 | GD |
| UniRet90-F8GM | SGPLALTRLFVTHMH |
| UniRef90-H5XJO | EHDLTPVAVLAT HGH |
| UniRef90_UP100034CBD2E | HGDPDYYFGLDTLPQAVVDHINATVAGK |
| UniRet90_E1Q | HGHGDHVGGVKALREITGGSYIHAADAE |
| UniRef90 R4WA58 | AHGGDLDAVVLTHTH |
| eef90_UP1000471 | GHPA |
| UniRe990-558970 | R |
| UniRet90_W4HLJ7 |  |
| UniRef90_E6S | VLTLLTHGH |
| UniRef90-G7LN37 |  |
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| UniRee90-A0A024 |  |
| UniRef90-U3AZ32 | AEGETVSHVLT |
| UniRef90-E6SHH7 | GLLTLLTHS |
| UniRef90-D1A854 | G |
| iRef90_A9BMIT | QLRQATGAQVWGP |
| UniRef90 D1PLD1 | ENAQ LTHILLTHGHYDHVGAVAALRKATGCKVYMDPVDA |

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 QF WDD GMASQS RMFSFTPDRWLEQ G DTVVSLGNVEEVVLHCP
$T$ QWQDTSFAPDVELA GGERFELPGPNGGGTTTMLRAI HTP


 PLLWQCRMFGVVPYVPAPPPDHWLTDDERVVTVGREGVAVHTP QFWLD MLP Q QAAMFQFHPKRWLVEGDTVKVGALSAVYHCP GVFNSTWEARFPDQDYRPFTLAQPLSSKSGGRWEFKADEC WLYTP HD DMA DVVI QPAEK FVLHQTYQLAGFEFTVRPTP
 GAV SNWDETAQTCERFGFTGT DAPGATVRLGADWQVLGAP
 LAA A IINADATHWEAMRIF TMTGGFPPDGDQFPFGDFQFCIKTP

 WPGVPVFKRHPEPGQRD』ADGQTFAVEGACVRAVHTP
 A S WLY T PVD NLS GLP RHDDMYVFHQEYQDE EFHFTVLPTP WGPRWF DGF WAPRFP GQ Q D DR HVVA QPLAA DGLVELEGER TARSASTFTPDRALQHRETLLSGQGPDGETTTHTLLKALHT P
 LA GHA $\quad$ WN QMPVPALPSSYHRLFDGSVLRDGDNDWRIVGY
 $L L S$ WRPA QQLLHVPQGGETLQVGGLTVRFMPTP LP I G GRDCAHVTKTPAHNETFT@GENIKV KALHTP GMQGYNRDRAE GTEVVVPNLSFSDREVVEIGGVTLEHLGP



 LPL L Q R DET QA A S Y GUS P D Q WL E D G DK V SF G D H F E VV Y C P
 T QKKMFTQLQASVARKVPALJKGMKMKTADVVSMQLNFYGD DAVDHGLTA GESVR L GDGDYDVVHTP R L H QQF GTAATWAEPTNVVEDTDGTRRLTLAGMEFDALHAP WA GAGDQYMLLAPVEG IHTVKEGD TIPFGGATDQVLHTP GA DVIDGPRADVARIP DMETCLDGE GETDSF GS LAAAQVFFVP
 LTARMNFAD VVAPLPDGFTRIKQDDTIQMGGRTWEIHMGN AMASDGRQALDQLLVTDTAELNVGGRAVLL R R R F GP
 MMSDP EA G IGGRS IGGMP LL GEL TVGEPS DVAGLDFSVAHAP D A L G Y GA DAA E I D R A DA A LDRPPRRGLYDAVR DVRVTAPGR
 QPLF E QLP N DC Q S Y G F L P D HWL N A G D K I Q I G A L T F H I R Y P
EATGKEQQQKWARHYREPDRLVDDGAELDLGGRVVRHFGP $M L R R F G L P S T A Y E G \square K P D \square L A K E G T Q D Q V G G L T V T W L H T P$ LEGQSQMF GFPLTEAFEPHQWLDEGDTVTFGNQTAVLHTP



 E GIN D D Y $\square F$ GERAP E VR P T DT YE E G DKI D DGNGEYVI H T P $\square I D N W Q G F D P M \square E Y W M P A L D K D D D G Q R L T E G D Y T T C I Q T P$




 | $L$ | $A R H A$ |
| ---: | :--- | $\square$ NEKVT QKKADPVITY DKGLK I H

 FARMFNFA DVVVHPMPGDGFRRVRQGDTVRMGGRDWDVVHIGN A F WLLE GLPA QSRMFGGDDPSRWLLK E G DQV K D K K L F A S DTMKRFT L K Y V K H G D K V R C WD T D A QQC QR FVVCDA TV I A P G DV L I L G E E WQVL G A P ETHAS GAALDEA EDQTFRPDVIL S DGD RI A GD WTLETMLATP





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A F
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Q V
A L R

ANVGFVEVADRVLVARYPQW
PDGELVELAQGVFWARMPMPM
PEARLFAQQAQEFMEPAVAD $\square$ PA QQ $\square$ SKHVWM $\square Y S P D G F$

V I E VT D G V/F VA V]G Y S

T W L E LDED DR WLRMPLPF

EEFGWERLGDGV GRRRL

E K E $\square \mathrm{Y} \square \mathrm{K}$ Q $\square \mathrm{R}$ P Y $\square \mathrm{Y} ~ \square \mathrm{MDEAHE}$
$R F \operatorname{VKDSKHVYGYEEDRQP}$
GDMSEKK DTFDE IGKDLWAFTAEGDP
$H P \nabla A D G V Y R \square P \square T L^{E} P \frac{V}{Q}$
$S \square A R \square S E R V V R V L G Q N P$ WERLAAGV GRCRL

E $V A E G V L W M R \square P \square P M$


VE VY R $\square$ R D H VY G L F T $\square$ S A D


EIT P GVLWIRMPLPQ


SPNPVSFPGQNST $D G \| L Q V K V P L P F$



AEPPAFSRDAPAPGRVEAVSPLIRRLVCPNGG

QAAPPVELLVLRAPN
$\boxed{V}$ K LT A D T Y A $\frac{\square}{\mathrm{W}}$ T A P S GK EHLVTSGTFSLD

MK $\square$ T R $\square$ A P A $V$ F A A P $\square$ T $\square$ D T
$\square S P S S \square R D \square G D G \square Y \square W N P P R R G$


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UniRef90_D1B2P7 UniRef90-W9J9L7 UniRef90-UPIOOO4634D67 UniRef90-UPIOOO47D7757 UniRef90-UP10003B5BCA5 UniRef90_UPIOOO4 UniRef90-L1QAK9 UniRef90-UPI00047EC92A UniRef90-UPIO00364D30C UniRef90-101IG6
UniRef90-W2C150


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 AL E A D P EPS P EYGYTR GP DRTFGRSATDDDLGDRFVTYAGR


 LMERWTNQSTDGTKVVIPNTAVQHGQVIQFGDVRMHHYGT PGHCHGGGVPLV HGEVI QAAGLEIVVLATP $R L G G E G L A$
 LD L L E A LEK QAQMFNAVPDRWLEEDDTDAFGAHEFVVHCP QLE GRVT P H T R A GFLPPNRTFNGEA QTIGVGMQLI HTP
 $\vee \mathrm{S} Y \mathrm{D} M \mathrm{G} V \mathrm{RY}$ P T V K A F K NI E F L E D

S

## T

 LQFWGP ILGESAPNK】IVPK $\square$ FDHHEFSLEGDKDEVVELN

 GVPEREAAEAVDALVVPHDEVRGELTLDLGGGRRVLLADP FAEVVAGEDTTVISSGDGTIMIAKMIVKYMSLP FAKMPEFVCEKHGFKMPPFKEIKGGDVIDLGGKTEVYELP MLRSLLMGPPPFMPRQPSHYQRIHPGEVLQIGERRWRIVGE $R A$ A P LD HVLVDGEAARLGETAFDVVSP LKRDSAAATAGRTVVVPPTAMTGSEQTDDLGTTQVRFLGR MVVER GQEDWDSEFQRFPRLFEGHES DPGLTYPTTTFSDN $T A Y L Q D P E N N D S A W I G Q P G T L A G G T T T R A A G L D W A I L A T P$ S I L N S S R E L Y GRD DVIVPD DVWVS DY DRDQVGDMELLTVET A YALTVDEPFDLA DWETPDGWLSPGMLPLAGRNDEAVHTP VAD QAAQF GMGEAKPVSPDKWMQEGDVLTMGREFDVLHCP $L T$ GA HL H D LSSDGQTLTTADGSATLQVLHTP
 REELLRTDAVRNGLYARYPRHLISDEWTLPLGDDRQVLVGP ER $\square P G \square D \square V L N D G D K W M F A S H Q V L V M S T$
 MMSMP LMGELTVGEPDDVHELTDGTQVELAGLSFGVDHAP R P L LDNLENQA QRFNCVPDRFLSEGDKVSFGEHEFELHCP QAMTS LWHEEPESRRRRHEWQTQWGT LMMGQQA WH LHA GY AF WLETLD Q Q S K HF GF LPVAAFEPGDRVTVGEQTEVLHCP
 PEYS YK A S L R A Y ME E T A E Y E LEG GDE E GEIFGRRLE TVVFT P $M$ M WE E T H G DLLK HE E LVD G QR F D I A G T E L I V

 LA Y WR P I L K D NAPAS I IVPRPLDGDTVSVDGEKLRIVGLD RLLRDPPRFQKVE ILDP TLTFS GERMVLGHGGDLLTLELLDTP
 $M L S D P G M G \square G S S M S S D I G D L E F D D L A Q G D V L K L A D D E F A V$ P F $\square K$ S S K $\square$ N C A RMF ELLK V D M V L K D G D E I D L G D V K R V I H T P


L AT DTGREASMDAT

## $$
\frac{L}{n}
$$

 ELLA GASMMMDRQF VTMAAAPDRLIDEDGDRRLDLGWDLRAAI WTP LLA EKK QEPRF QAVE LVVAPNDTFA GETMALLHGGDLITIHTP





 LIEL K L K K H K LL R NTELIDEI NAESKI NFDQLSSLTFFKT L ALQQGKMFGFA HVQTFTPTRWLNDGDTVVEGHSTVTVRHC A A R A V R G G E R T I D R D H G P DVVA L A D G E R I D G G WT L V A V A T P $K D W L V T P E L N L S G G S R H D D M F D L Q Q Q P Y N L E G F E F T V V P T P$
 RFWDDGFPVQA QMFPFVPTRWLAD GDTVTVGKVTDVVMCP LLGMQS LPTARPHSEFTPDLELSNGEEGEITHTLEVIMTP
 $V L W D Q T H P A R R P D A D L A D G R Y Q Q T V G T T Q T V L G T P$




|  |  |
| :---: | :---: |
| UniRef90_K4RM4C | AVFLGDLVE |
| UniRef90-UPI0003661280 | , |
|  | GHSPEHACLYCDSD |
| UniRef90-C7B118 | GPAADRTFVWV |
| UniRet90_UPIO0047725E0 |  |
| UniRef90-UP10002E1DE69 |  |
| UniRet90-UPIO00360936E | GHTSDSVCFHLPADGDHLTGDTVLGRGTTVLDY PDGT |
| UniRef90-V6L587 | GHTADSLSFHLPADGAVLTGDTVLGRGTTMVAH PDGR |
| UniRet90-UPIO0038250 | GHSWGGVSF FPKE |
| UniRef90-UPIO0036EE011 | GHAPGHVIFYNEAAAFAHVGDVLFAGS |
| UniRef90-S5SF | GESAEN AVWDPRKGVLLPGD |
| UniRef90_D1Z1N0 | G H |
| UniRet90_C5CUH6 | G |
| UniRef90 C5VTY8 |  |
| Ret90_R5LRJO |  |
| UniRet90-UPIOOO3 | PGSVAFALPGAGVLETGDLLEAGSIGRT DFP |
|  | PEHASLYCAEQGVLISGDMLLPK |
| UniRef90-UPIO0024831BC | THQA YLWVPSEKTI |
| UniRef90-89L7B2 |  |
| 182P7 |  |
| UniRef90_w9.9L7 |  |
| UniRef90_UPIOOO4634 | GHSGHDLAVLVPGSAVVLCGDLVEESGEPQAG PDAVVS |
| UniRet90_UP100047D7 | GHAANHLCLVLVEDGLLFSGDHILNGSTTVVNPPDGEMT |
| UniRef90 UPIOO | GHTSDSVVYEI GN MFTGDUV LSAGEIGSTNSSYSE |
| UniRef90 Do | GHSPEHACLYCEEDGLLLAGD |
| UniRef90-L1Q | GHTLGHV |
| UniRe990-UPI00047E | AHIGGD |
| UniRet90_UP1000364D | $A G$ |
| UniRef90_101196 | P G G |
|  | EGG |
| UniRef90 UPIO0046405B7 | GHTKGHVVFHD ${ }^{\text {GHS }}$ |
| UniRef90-D8PU26 | GHTTDSIALYITQDGALYTAD |
| UniRef90-G8RIJ7 | GHTDGSIAIHLPRHGVLFTGDTIANVGTVM |
| UniRet90_UP10003998 |  |
|  | TRGHISFYFPGS |
| UniRef90_Q0FG | GHAPEHATLWSRDDNL |
| UniRef90-D6B | K |
| UniRet90-AOAOM | P |
| UniRef90-LOWCM9 | GHTPCNUVFYSEADKLAWVGDVLFK |
| UniRet90- X1EYH4 | GHSPGSLCFYTKDDGlIFSGDLIFRRSGGRSDFGGGN |
| UniRef90-R9JOK5 | GHTKDCLCLI |
| UniRef90 Q8FSQ1 | P G |
| UniRet90 W7SRG8 | LJADRHYLWQPEDGVILGGVLLFQREH |
| G51E10 | K GHAMFL |
| UniRe90-M10004624 | AANGHVWMADTQT |
| в98995 |  |
| 2A | TPDHVAV WIP ELRVCLAVDAVE |
|  | KLNAIMGGV |
| UniRef90_131HN1 | F |
| UniRef90-UPI000465FFE1 | DHTPGHTMVETEQGDVQLTGDTLFAGSUGR SDLPGGDHD |
| UniRet90 UPIOOO47 |  |
| O |  |
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| 3E | CHTRGHICYAVTEDKIVFTGDTLIIAGC GGKFEGTGD |
| UniRef90_E6SM47 | GQ |
|  | GHTSDSVCFWLRAQQAMFTGD |
| UniRef90-UP10002F0793A | GHTAGHIAFWAQPAG |
| UniRef90 UPIO0046 | P EHACLYCPALR |
| W2EM48 | SPGML |
| Ref90_U2EGD1 |  |
| UniRet90 UPI0003688 | V |
|  | G |
|  | - |
| UniRef90-F8FN | GHIIFFRPETGIMFCGD |
| UniRef90-C5A | GHTAGSACLYLEEGK MFTGDTVFNGTVGRVODPTGNGW |
| UniRet90-M2BP53 |  |
| UniRet90 U2WUG6 | AEGADNVVMWLPEQKVLLSGD |
| UniRef90 UPI0004763F63 | G D |
|  | GPLJARPYVWVPALQAIVGNV |
| UniRet90_UPI000364EAB8 | GHTDGSIAVHLPCHGVLFTGD |
| X | SHSPDCIV |
| UniRet90_Q222375 | PHTPGHVV |
| UniRet90_BOUNR5 | ${ }_{\Delta}^{G}$ |
| iRef90_JOK139 | NHLCLLLEEDGLLFSGDHILNGSTTVIJ DPPDGNMA |
| UniRef90 UPIO00361FA73 | GHSUGGVSFVFEQENCVLTGDALFRESMGR |
| UniRef90_K5B8 | PHTRGSVVFRVDAGGLVFTGDTLFRRSVGR |
| UniRet90-A0A022KYD9 | GHTADSVGLLLQGGR MLTGDILLGGSSTV |
| UniRe90--5RGZ3 | TPGHVFVDRARLAQVGDVLFAGSUGRTDFPRGNHG |
|  | GHAPGOMCLD |
| UniRef90-XOSNZ1 | , |
| Unirso |  |
|  | D |
| iRef90 UPI0003B52FB7 |  |
| UniRef90-D2ZCG9 | GVSWGLHVWTADTQTASRQ |
| ef90 L9PA18 | GC GRLLFEGTPA |
| Ref90_S3B1Z6 | G D IVIF A S T P E S P G D HA A G P [\|E |



UniRef90 K4RM40
UniRef90 W9GFL2
UniRef90-UPIO003661280
UniRef90 N6Y9D5
UniRef90 C7Bl18
UniRef90-UPI00047725E0
UniRef90-UPIO002E1DE69
UniRef90-UPI000360936E
UniRef90- V6L587
Q R
UniRef90_UPI0003825082
UniRef90-UPI00036EE011
UniRef90 S5SFA6
UniRef90-D1Z1N0
UniRef90_C5CUH6
UniRef90_C5VTY\&
UniRef90_R5LRJ0
UniRef90_UPI000349F491
UniRef90- UPI000478F465
UniRef90 UPIO0024831BC
UniRef90-B9L7B2
UniRef90-D1B2P7
UniRef90 W9J9L7
UniRef90- UPI0004634D67
UniRef90-UPI00047D7757
UniRef90-UPI0003B5BCA5
UniRef90 UPI00047C5EE4
UniRef90-D0J3A3
UniRef90-L1QAK9
UniRef90 UPI00047EC92A
UniRef90 UPIO00364D30C
UniRef90_IollG6
UniRef90-W2C150
UniRef90 UPI00046405B7
UniRef90-B9R280
UniRef90-D8PU26
UniRef90-G8RIJ7
UniRef90 UPI00039989A1
UniRef90_A0A022RQ76
UniRef90-Q0FGU8
UniRef90 D6B979
UniRef90-A0A011UE39
UniRef90-LOWCM9
UniRef90-A3QF87
UniRef90 X1EYH4
UniRef90-R9JQK5
UniRef90-Q8FSQ1
UniRef90 W7SRG8
$R$ L
T F
UniRef90 G5IEIO
UniRef90_UPI000462D833
UniRef90_B9B9M5
UniRef90 J2AN62
UniRef90-B4EUS6
$A F$
$K$
$K$
UniRef90-I3IHN1
UniRef90_UPI000465FFE
UniRef90-UPI000478147F
UniRef90-Q0W7P0
SAR
GF R
UniRo-H3EES
UniRef90 E6SM47
UniRef90-T1WA16
UniRef90 UPI0002F0793A
$\mathrm{Q} V \mathrm{R}$
UniRef90 UPI0004634B7E
$R \square R$
UniRef90-W2EM48
UniRef90-U2EGD1
UniRef90 UPIO00368813D
$R \quad L R$
UniRef90-B0ELX7
UniRef90_G9P1Ho
UniRef90 F8FNV
UniRef90 C5A648
UniRef90-M2BP53
UniRef90_G7SBS2
UniRef90 U2WUG6
UniRef90-UPI0004763F63
UniRef90-A9BM62
R F
UniRef90 UPI000364EAB8
UniRef90 F2F0J3
UniRef90-Q222X7
UniRef90-B0UNR5
UniRef90 JOKI3
UniRef90-UPI000361FA73
UniRef90_K5B8L8
UniRef90-A0A022KYD9
$\mathrm{G} \operatorname{LV}_{R}$
UniRef90 F5RGZ3
UniRef90-UPI000467075F
UniRef90-X0SNZ
UniRef90 W9X3Z?
D F
UniRef90 D6B6Z0
UniRef90-14DZ52
UniRef90-UPI0003B52FB7 T F
UniRef90 D2ZCG9
Q F
UniRef90_L9PA18
FAR
HFSTH【
 $\square D \square T E V A E D T Y Q C T S F$

El AP GLRWVRMRLP F
$Q L L E \vee A P G V R W I R M P L P F$
EKVS GLIYQLRDFMPM GDGADKEQTGEVAADGVYALTAEGDP


$$
\mathrm{MH} \square \mathrm{Q} \mathrm{~S} \square \mathrm{P} \mathrm{M}
$$

VNDRV KHRFEGDW $P$ VEQVRPGLWS $\square P T V F P N$ PRALAD GVF WVA GSGGA DATLVEVAPGAH S $\quad 1 R \mathrm{R} F$ $M F \square A Y$ F Vit $\square R P R A \square A A G \square E A F A A R T P T$

FTMDQ TDTDTY I S E YRHW S DLARFRLAPN

TP WE QPPAQGEA $\square E \square A D G V L W M R Q P \square P M$


FTLD
$\square K$ D S $\square$ VR K $\square$ T A P $\underset{N}{N}$
$R \square P T L E \square S H V S K R V V R \square L G G N P$ QNEDRKDNDTKDKGNTFFDKG

MKLEK K I E GRGYRVGVPVP F




S $\square$ F S L

P WE QHPGPKEVVEVRPGVLWAR DK LP F PGVRLHGPQENW LGNGCWGYLVPDGS


|  |  |
| :---: | :---: |
| UniRef90-U2GT75 |  |
| UniRef90-H6BMZ3 | AQSLNLTAAIMNTHHHWDHAGGNKKL |
| UniRef90-×5M8B2 | KKGITVEAI WDTHGHFDHVGAAMQ |
| UniRef90-F9CU50 | RNNLKIKYVINTHHHFD |
| UniRef90-UPIO003604A7E | H |
| UniRef90-E4NV83 | HTDSPVH |
| UniRef90_C4ZIY8 | ADGRPLR |
| UniRef90-M2ZTKS | GPDKAVNRLVATHFHPDHMGLAGWLCDRDDVDL |
| UniRef90-UPIO0035DE3A4 | EQGGRVQAGLLTHRHPDHADSAQYL |
| UniRet90-FOOY | IS NCRLSTLFITHMHDDHTGLANEL |
| UniRef90-T2RN21 | HTDKPVKYLVLSHYHAVR |
| UniRef90_D81Y36 | QRGRPL |
| UniRef90-B8KPG5 | AGDGRIRYLCTHTHPDHSPAWKAVADAT |
| Un | DNMRLVGAVLTHYHFDHTGGTPA |
| UP100047D1BA8 | D ${ }^{\text {den }}$ |
| UniRef90_ 44 D 6 P 0 | KGYRVSTLLLTHGHUDHVWD |
|  | RRLTY Y T THGHGDHWFGL |
| Unil | HP QAILLTHHHNDHVGGV |
| UniRef90-K1Y3 | GK NLT VNTHHHWDHAGGNNKM |
| UniRef90-G413Z2 | ENRLTPAAVLLTHGHIDHMWSAQK |
| UniRef90-R7LGK0 | VGDRPTDYLIVNHMEPDHSGALALI |
| UniRef90 UPIOOO381 | AGWSD |
| UniRet90_C4B7 |  |
| UniRef90_10HW |  |
| UniRef90_D5 | LDLINTHLHSD |
| UniRef90-UP100037B5AF9 | ATGGPVRLAVNTHQHGDHTYGNHLLKARDGVLADPFFSDV |
| UniRef90-D76 | QRDFQLAG L |
| UniRef90 C7N8G4 | GWYSCQAI VLTHGHADHVLALPEVAEETAPVWAHGSEAD |
| UniRee90-UPI00041 | L LPATTDRVIVTHANGDH |
| UniRef90-A0A01 | KQVT |
|  |  |
| UniRef90-C4R5K2 | HYDHSGGN |
| UniRet90_KotKZ 6 |  |
| UniRef90_10KW14 | RHGLTPEAVVLTHGHMDHTWDVVPVC |
| UniRet90-HoC3 | HLGVQLKAILVTHHHADHVGGVDALRSATGA |
| UniRef90-UPIO0034636DC | G ELLKAVLLTHGHSDHVGGLKKI DNHTLPVYSHDLD |
| - | RVVEV |
| UniRer90-4 | 隹 |
| UniRef90-UPIO003703882 | VAGRRVVAVVCTHAHNDHVNAAVEVAEATGAPTLLHPDDR |
| UniRef90_JKG990 | K |
| UniRet90_UP10003B3C9E3 | NW |
| UniRef90_C5F | THNLELSYVLLTHWHGDHTGGVPDLLAH |
| UniRef90-r8F9K7 | QGANOVRY |
| UniRef90-C9XK65 | NKV |
| UniRef90 U5WB3 | MGRSPIRGLVLTHGDTDHDGFAERLRDHGVPV |
| UniRef90_J8TWQ2 | TTPTDIKTIYLTHFHPDHSGLCGWMQEDTGAKV |
| UniRef90_Q163D5 | LQGKPI TRV |
| UniRet90 CPIO0047C6 | NQDK KALIVTHGHED |
| UniRef90_UPI00035E2816 | LGRADIHAVLLTHGHPDHTGLARPLQEAGTDLWIHAGDAA |
| UniRef90 - 4 A603 | S GDLKRTD |
| W48831 |  |
| UniRef90-Q582988 | VAGRKVSHV NTHCHRDHAPADRPFAEAVGEPP EDGEVK |
|  | VPNRKLS |
| Unil | R\GKP\AR\\|VLTHAHGDHVGALDALKRA |
| UniF | MGAKPTKILLTHAHDDHAGGTAALAKQL |
| UniRef90-UPI00036DF728 | LGKDRVSHLVLTHRHFDHVGGAAALSAAL |
| UniRet90_UP100046 | RGKPVGRVILTHYHPDHVGMVGWLMERFGAEHWTTRTAY |
| UniRef90-C7QHM5 | SVSEVRGVLVTHHHPDHHGCWVALHEEDAKVVEMVRTAE |
| UniRet90-V61WF7 | CGGPL |
| UniRef90-V1DB02 |  |
| UniRef90-E5WM17 | NRDKIRGLVTHGHEDHI |
| UniRef90-Q6P963 | HGVK LKTVLTTHHHWDHAGGNEK |
| UniRet90-N8QEK4 | Y |
| UniRef90-G7M5 | G |
| UniRef90-UP10004 | R |
| Unil | AVPAKIGGLVTHADGDHTFGNQLVKGARDPKKFGRSGEF |
|  | ПGFRTVRRVVLTHFHEDHAGGAAETARPAPPPRFTDQERV |
| UniRef90-K | EGLKDVNLVIITHSHLDHYRNIGMFPEAKNDEYWGDWDGQ |
| UniRees9-K2 |  |
| UniRef90-A5UUW7 | A QRQLRAII STHHHADHIG |
| UniRef90-D2AVC9 | GDRPISKI I TTHQHGDHWQALEQVAAATGATVIAHPLDA |
| UniRet90_B0 | GWK LDLI L NTHWH |
|  | SSI TTHHHYDHAGGNKKMLKKYKDIIVYGGSN |
| UniRef90-UP10003610074 | HHHPDHAEGAAPLAERVSAPVRAFDAR |
| UniRef90 C1E812 |  |
| UniRef90-Q0SD76 | G KTLTTI YVTHAHPDHY |
| UniRef90-D9WFG8 | LLPERIGRVIVTHANGDHLWGAEVVRGAD |
| UniRef90- A0A024N | D |
|  | AGPRPLLAV ATHVHFDHSGGLQHFEEEAVTWLSEREVAR |
| UniRet90_W6AB31 | NNNKVKALFITHGHEDHDGGIPYLLKQVN】P\\|IMAPELA |
|  | HRPEDKK VGTHGHRDHSMGAVELERAYPHFAEGGGFE |

UniRef90 U2GT75 UniRef90_E0MPF2 UniRef90-H6BMZ3 UniRef90_X5M8B2 UniRef90_F9CU50 UniRef90_UPI0003604A7E UniRef90-E4NV83
UniRef90_C4ZIY8 UniRef90_M2ZTK9 UniRef90_UPI00035DE3A4 UniRef90_F0QYU4 UniRef90_T2RN21 UniRef90_D8IY36
UniRef90_B8KPG5 UniRef90-A9S3V5 UniRef90_UPI00047D1BA8 UniRef90_B4D6P0 UniRef90_K2RJE5
UniRef90_UPI000237D43C
UniRef90_K1Y353
UniRef90_H6Q5I8
UniRef90-G4I3Z2
UniRef90-R7LGK0
UniRef90_UPI00038105E3
UniRef90-C4B7T2
UniRef90_IOHWK8
UniRef90_D5WAI4
UniRef90_UPI00037B5AF9
UniRef90_D7GDS4
UniRef90 S4Y841
UniRef90_C7N8G4
UniRef90_UPI0004120817
UniRef90_A0A011AZH7
UniRef90_A0JXY7
UniRef90_C4R5K2
UniRef90_K0TKZ6
UniRef90_IOKW14
UniRef90_V9VR90
UniRef90-H0C390
UniRef90_UPI00034636DC
UniRef90_B4R8S8
UniRef90_V4H9Q9
UniRef90_B2KBA7
UniRef90_UPI0003703882
UniRef90_J5KG90
UniRef90_UPIO003B3C9E3
UniRef90_C5FM60
UniRef90_F8F9K7
UniRef90_C9XK65
UniRef90_K5E716
UniRef90_U5WB35
UniRef90_J8TWQ2
UniRef90_Q163D5
UniRef90_UPI00047C6289
UniRef90_UPI00035E2816
UniRef90-I4A603
UniRef90_W4B831
UniRef90_Q58298
UniRef90_F4R270
UniRef90_L2G607
UniRef90_UPI000408180D
UniRef90-M5DWF8
UniRef90_UPI00036DF728
UniRef90_UPI0004675AB5
UniRef90_C7QHM5
UniRef90_-V6IWF7
UniRef90_V1DB02
UniRef90_G9ZZR3
UniRef90_E5WM17
UniRef90_Q6P963
UniRef90-N8QEK4
UniRef90_G7DM54
UniRef90_UPI00045E944C
UniRef90_UPI00035FB446
UniRef90_UPI00047D7AB4
UniRef90_UPI0003745DE9
UniRef90_K2FZU8
UniRef90-A9KTT9
UniRef90-A5UUW7
UniRef90_A5UUW7
UniRef90_D2AVC9
UniRef90_B0T5F7
UniRef90_L0P838
UniRef90_UPI0003610074
UniRef90_F0U7U8
UniRef90_C1E812
UniRef90_Q0SD76
UniRef90_D9WFG8
UniRef90_A0A024M3K7
UniRef90_H0YQZ2
UniRef90-W6AB31
UniRef90_F2NF39
UniRef90_-Q0FHV3

140
150
160
PA $\square P$ GN $\square$ D A A RPTNALDAS GDTDFVPDVKVAHGDIVEGGWTAKALFTP
 R P K H D $\square \mathrm{A} V \mathrm{~K} D \mathrm{GDVI} \mathrm{E}$ F G N SK TVVLHT P L L R A C G A P H E R DMP WQ FPD SWL D DGE RV R LG A V E DV L A T P


 L I AER GKQDWESEF GRMPREFKEPESSIPGGTWPSVVRHC GR EKVRHWDEDAQRCARFTATQT LRSGEVVRMGEDWQVLAAP
 V V N S N G VP S A NL NL L D D A DV


$\begin{array}{ll}\text { S S } \square \text { A G } \\ Y & \text { GA }\end{array}$
EFQ GKP II G GKDCE GVT QTPKNGE GFKI GE IAVITI T P
 NKKTFEMVQGYYGACSEND IVV TDGDSLDDLGHHKLARFYPM


 PRIWWEPMPDWSDAVLDRPPELLTFRESSLTV HLGGRRRAEVRHP $L M T H Q M A G Q L H Q L I G Q A P L H E P R D D R T F E A G V P V R C A G F E$ $R L R D V P \square A R R L S D R E V V R L D G P A P T A L R V L$ H T P
 DLP E GY DVNA Y K F F Q GMP T R I L K D G D I I DL GRK I TVVLHT P


 PAKGLPDTFPRHVLAGHPNAEPADEEIRHAGLTLVARHCA
 HMEGKEPFPGRKPGIVKPLQQNEDGSLEPVGSLVPYHTPG LALD T GREAPEVALRFFYKAAGWDEDALDQGGHDWEVVVGS
 $V L W D M T H P D R A P D G A L A D \quad G Q S V E V A G T E L T V L H T P$ KFSNYQDTSFKPDFSF D DKMEF DFEDSNIVIHTP
 LADKIVKNCPDAGQNPITDGQIF SVNGATVRAVFTP AVYMMGRECDFY GFSA PGLHRLEDEDTELWIGTPVRCYLTP
 LTYQNVRGARQA GFRLDPEQRINNGTINVAGDELELVAAP F $\square$ WY ASRKGGLDRTTYLTEVTEVGDGMVLDLPGAPRII GLP EMMEHVWGEDANHVHPLPTVQSIDEHI SWNEQEWAVI HTP LF S RMNFADVVAPMP L GFTRLLKQ GDVI EF G GRHWDIVHGN



## H

 LVVEGSARGTEATMFGESLAPLDVEELRGGHELQVIHTP
 Y MEGDPYPRRKKAQASVAKGL ANPLSEDEQGRFEKPYFAP

 L MPGLTVYGG D D RVGALTQKVTHYNTVKVGSMNVKCLFTP V S G Y K

 LH QELGAHLLPPAPACRVDRELDDGDVIGFGGGARVIHTP KA DE WKEQFTED $\square R \square 1$ I TP GHNY DG L
 AA LDPVPVDLDEVEHGDRITVGAAVAEVI H L R
 LCLGGGDPLAPDDVVRAAGLALRVLHTP $L L K M C P E A G V Y K K H D G R E G R L T$
$I$ YAE QFGQMFGDTVVTGNALPDPFDGDTFFVDGSPLKIDEV




|  |  |
| :---: | :---: |
| UniRet90－E0MPF | G｜V｜P F VIGD FMLSGD |
| UniRef90－H6BI | CHTQDSICWYMEDERVVFTGDTLF |
|  | GHSPGHVI |
| UniRef90－F9Cu50 | GHSKDSM |
| UniRef90－UPI0003604A7E | V |
| UniRef90 E4NV83 | GETDDHTWLYCPDRDV |
| UniRef90－C4ZIY8 | GHAPEHASLYCAELG |
| UniRet90－M2ZTK9 | GHSPEHACLYEEAGL |
| UniRef90－UPI00035DE3A4 | GHTDDSVCFLLEADGALLTGDTVLGHGTTVID GDDGLA |
| UniRef90 FOQ | PPGH1SILLDEYKLAFTGDLILPTITTHVGLTPGNPLR |
| UniRef90－D81Y36 |  |
|  | GHVSN |
|  | GHTPGSQCIYIPQQD\｜LTSGDTLFTGSCGRL DFPDCDVK |
| UniRef90 UPI00047D1BA8 | NTSNAYLWV PSTKTALGGVAVYGGVHVWMAD |
| UniRef90－B41 | GHPA |
|  | D ${ }^{\text {d }}$ |
| UniRet90＿UPI000237D43C | GHTSGHL |
| K1 | QDS CWFMEDGKY FTGD |
| UniRet90－H60518 | GHSRGSVAFRVDRAGLAFTGDTLFKQSVGA |
| UniRef90－R7LGK0 | WPETMMTYCETDKILFSGDAFGCFGA |
| UniRef90－UPI0003 | GHTPGHVCFFDAERNVMLTGDHVLPRTTPNTSPLPDDVLG |
|  | G T |
| UniRef90－10HWK8 | GHAPGDVALWDPARRVLFAGGLVENGRV |
| UniRef90 D5WAl4 | DPHSLMLYCADERLL |
| UniRef90 UPIOOO37B5 | （ |
| UniRet90 D7GDS 4 | FHTPGSVLLGLEGDEVFTGDV |
| UniRee900－S4Y84 | GHAPDHL |
|  | AHTTGDLMVHLPAOSAVFSGDTIFSSTPGOPGDEPAGP |
| UniRef90－A0A011AZH7 | GHSPGHLCFWEPQRGYLFTGDLVV |
| UniRet90＿A0J＞ | GHTSDSLCFHLPGD |
| UniRet90＿C4R5K2 |  |
| UniRef90－K0TKZ | VGHAFHFNQK |
| UniRef90＿10KW14 | D |
| UniRet90＿V9VR90 | GHAPEHATFWSRDDNLVITGD |
| UniRei90 UPIooo34636DC | SPGHVS |
| UniRef90－B4R8S8 | G |
| UniRet90－V4H9Q9 |  |
| UniRet90＿B2KBA |  |
| UniRef90＿UP10003703 | GHAPGAVCLYAPALGALFSGDTLFQGGPGATGRSY SDFP |
|  | NHFCFYUKQSGCLITGDHUMSGST |
| UniRet90＿UPIO003B3C9E3 | GHTLGHVCFYMVDEKCLFSGDTMFYLGC GRVFEGT |
| UniRet90－C5FM | GHS |
| F8F9K7 |  |
| 俍90－C9XK65 |  |
| ef90＿K5E716 | R |
| 15 | AVDAVFVGD |
|  | GD |
| UniRef90－Q163D5 | GHAPEHATFWSRDDNLVAGDQLLPSUSPN】GVYATEPMA |
| UniRei90 UPIO00355E2816 |  |
| $\begin{aligned} & \text { UniRef90_UPA000 } \\ & \text { UniRef90_I4A603 } \end{aligned}$ |  |
| UniRet90－W4B831 | GHSPGH】ALFDPSRGYLFTGD |
| Q58 |  |
| UniRef90－F4R270 | GHASNHMAFVLRQENALFSGDHVMGWSTTVVAP PDGDMA |
|  | DVVYGQVHQMLYEANTAKRE |
| UniRef90－UPI000408180D | GHTPGSMSFFDTRSRALIAGDAMQTRGGVAVPWFPFPAMA |
| UniRef90 M5DW |  |
| UP1 | TAGGISLFDARSKALLSGD |
| et90－ |  |
| UniRef90＿C70HM5 | SGALLTGD |
|  | GDLFKNGKLRRPMAMFTGDMA |
| UniRet90－V1DB02 | DTLFNSSVGRTDFYG GSME |
| UniRet90－G9ZZR3 | GHTPGHVAFVSTALGVALVGDVIFRGSVGRT DFPYGDHA |
| UniRef90－E5WM17 | PDC VFPPGNVVHTGD |
| UniRef90－Q6P963 | CHS |
| UniRef90 N8QEK4 UniRef90 G7DM54 | GHTSGTSCFLV GDKLFTGDTLFIEGCG |
| UniRef90－G7DM54 | DQVMLYCAGDKLFLSADQVLSKDSPNVSEPDQNS |
| UniRef90 UPIOOO45E944C | DGTVALLP GGVMLAGDTLEDP |
|  | SHSLGDALTYVPEDKVLYTGDILFSAGP AWYGPDGR A |
| UniRei90－UPIOOO3745DE9 | GSTAVHLPEQGVLFTGD |
| UniRef90－K2FZU8 |  |
| UniRef90＿A9KTT9 | GHTPGHI ALFSAQSKLAWVGDULFRSSIGRT DFPQSNHQ |
| UniRet90＿A5UUW7 | GHSUGQ GVAV DGVCFAADGFFGPEVISKHG\｜PYADVA |
| UniRet90＿D2AVC9 | GSIALHHP GHLFTGDSLEPGGVGNTNKDPERFAR |
| UniRef90－BOT5F7 | GHTLGHI AYHDAADHIAFVGDTLFALGC GRLFEGTAE |
| UniRe90－LOP838 | （RDS |
| UniRef90 UPIOOO36 | TADSVTLCFTHDDRTHTGDTVLGRGTTVL SDLG |
|  | GHTAGHVVYHFPTEKKVFVGDTMFAMGC |
| UniRe90－61E812 |  |
| UniRei90＿QOSD76 |  |
|  |  |
| UniRef90－A0A024M3K7 |  |
| iRef90＿HOYQZ2 | M DDWLPYSSVS |
| ef90＿W6AB31 |  |
| iRef90＿F2NF39 | KTVITGDTSLPHAMAKPDENAGGRLD |
|  | LIT PGHFHLSFA WDDMLFSGDVVM GWASSLVSPPDGDLT |



A A LA A LDRLDFLTAD LVLPGHGEPFTEGMRAATRQARE N F I A A S L D R $D L V N S L E R I$ AD $\square D G V V R I Y G A H N T D G D P V L L D E V R A A V Q$ QLRNSIN LLLIANERNIDKLYPGHGEIGDRMAFSY

| E WIR A |
| :---: |
|  |  |

 QLL E S I REKLF PLGDNVEFVCGHGP
 D WL E S CERL TRRLAREDHLVLGGH

 | $E$ | $A$ | $V$ | $R$ | $S$ | $A$ | $A$ | $V$ | $D$ | $R$ | $L$ | $K$ | $P$ | $A$ | $R$ | $L$ | $E$ | $V$ | $C$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $T$ | $L$ | $T$ | $K$ | $S$ | $I$ | $R$ | $E$ | $K$ | $L$ | $F$ | $V$ | $L$ | $D$ | $D$ | $D$ | $V$ | $K$ | $V$ |

ALDA A I Q D K L L PL G DE I R F L C G H G P
E M Y K A L IE VLGR LP PE T R VY C G H QMYQSI QFLRSVI PDNVLVYPGH MYKE QLAK P F S Y L K A LA SLASLTTTLP YDLLVLPGHGVP AHLEGLKRLAAL GATRILPCHGAPEGPALIDATRLYVE
 EMLRS F R RLA GVV DARLACVGHGAP
$K L K E S R Q R V L A L$ L A D YVI PGHGA

LIFTDVSERVFDRLPDETWVYPGHGK
 HYLASLRAL RALPAGALGLPGHGPATARAYAEHREQRLD LY LS T L EKMMRNLL GAGRGYPGHGAVIETEYDDHRRQRE E QMWSSI QKDTAMPPDTE VFCAH
DWLGTVDVVENLKP RMIVAGHRRPDGDDMDQQTRSYDK SVIA A CERVLD T GAQT VVPGHGPVLDREGVRGH』GYLE ELAE SVA KLAATGAQDA GF GHGEP $D Y$ Y $\square$ S C QR L ME LVD R V E K VLDPGHFN $\square F G A E R L$

| UniRef90_U2GT75 |  |
| :---: | :---: |
| UniRef90-E0MPF2 |  |
| UniRef90-H6BMZ3 | F L K |
| UniRef90 ${ }^{\text {X5M8B2 }}$ |  |
| UniRef90-F9CU50 |  |
| UniRef90-UPI0003604A7E |  |
| UniRef90-E4NV83 | Y L |
| UniRef90-C4ZIY8 |  |
| UniRef90-M2ZTK9 | K |
| UniRef90-UPI00035DE3A4 |  |
| UniRef90-F0QYU4 |  |
| UniRef90-T2RN21 |  |
| UniRef90-D8IY36 | $Y$ ¢ |
| UniRef90_B8KPG5 |  |
| UniRef90-A9S3V5 |  |
| UniRef90-UPI00047D1BA8 | R F |
| UniRef90_B4D6P0 |  |
| UniRef90-K2RJE5 | D F |
| UniRef90-UPI000237D43C | E L R |
| UniRef90-K1Y353 |  |
| UniRef90-H6Q518 |  |
| UniRef90-G4I3Z2 | G L |
| UniRef90_R7LGK0 |  |
| UniRef90_UPI00038105E3 |  |
| UniRef90-C4B7T2 |  |
| UniRef90-10HWK8 |  |
| UniRef90-D5WAI4 |  |
| UniRef90-UPI00037B5AF9 | Q A R |
| UniRef90_D7GDS4 |  |
| UniRef90-S4Y841 |  |
| UniRef90-C7N8G4 |  |
| UniRef90-UPI0004120817 | Y VR |
| UniRef90-A0A011AZH7 | QL K |
| UniRef90-A0JXY7 | Q1 |
| UniRef90-C4R5K2 |  |
| UniRef90-K0TKZ6 | Y |
| UniRef90-10KW14 |  |
| UniRef90-V9VR90 |  |
| UniRef90-H0C390 | F A R |
| UniRef90_UPI00034636DC |  |
| UniRef90-B4R8S8 |  |
| UniRef90-V4H9Q9 |  |
| UniRef90-B2KBA7 |  |
| UniRef90-UPI0003703882 |  |
| UniRef90-J5KG90 |  |
| UniRef90-UPI0003B3C9E3 |  |
| UniRef90-C5FM60 | H |
| UniRef90-F8F9K7 |  |
| UniRef90_C9XK65 | Q $\square \mathrm{R}$ |
| UniRef90-K5E716 |  |
| UniRef90_U5WB35 |  |
| UniRef90-J8TWQ2 | K $\square$ |
| UniRef90-Q163D5 |  |
| UniRef90_UPI00047C6289 |  |
| UniRef90_UPI00035E2816 |  |
| UniRef90-14A603 | E L |
| UniRef90-W4B831 | A L |
| UniRef90_Q58298 |  |
| UniRef90-F4R270 | A Y R |
| UniRef90-L2G607 |  |
| UniRef90_UPI000408180D |  |
| UniRef90-M5DWF8 |  |
| UniRef90-UPI00036DF728 | Y L |
| UniRef90_UPI0004675AB5 |  |
| UniRef90-C7QHM5 | Q |
| UniRef90-V6IWF7 |  |
| UniRef90-V1DB02 |  |
| UniRef90-G9ZZR3 |  |
| UniRef90-E5WM17 |  |
| UniRef90-Q6P963 | F A R |
| UniRef90-N8QEK4 |  |
| UniRef90-G7DM54 |  |
| UniRef90-UPI00045E944C | K L |
| UniRef90_UPI00035FB446 |  |
| UniRef90-UPI00047D7AB4 | Q VR |
| UniRef90-UPI0003745DE9 |  |
| UniRef90-K2FZU8 |  |
| UniRef90-A9KTT9 |  |
| UniRef90-A5UUW7 |  |
| UniRef90-D2AVC9 |  |
| UniRef90-B0T5F7 |  |
| UniRef90-L0P838 | F A K |
| UniRef90-UPIO003610074 | Q V R |
| UniRef90-F0U7U8 | EV |
| UniRef90-C1E812 |  |
| UniRef90-Q0SD76 |  |
| UniRef90-D9WFG8 | $\mathrm{H} \square \mathrm{R}$ |
| UniRef90-A0A024M3K7 |  |
| UniRef90-HOYQZ2 |  |
| UniRef90-W6AB31 |  |
| UniRef90-F2NF39 |  |
| UniRef90_Q0FHV3 | D L L |



D MYSMKDSEGVER\DG
F T $\square \mathrm{NQ}$ Q E A D TY I S E Y R H W

M $\triangle$ VREVDGVVLLSHAHV
PRAVADGVFWVLFEALW
DQS GLD $\square$ T L N E L A P GVV VVVGPSH

V
QQAA WGRRELPP $\quad$ VEK L AGGVWSV PVPI
S VMAL
S $\square$ F A L
M V VR K $\square$ T E R $\square$ F S $\square$ G T $\square \mathrm{D} \mathrm{W} \square$

H VGN N $\square \mathrm{Y}$ W $\square R \square S M P F$

MTGHPAYAEPREVTEFATVVLQHNNP
F
$\square \mathrm{P}$ L
$R \square S P G \square R R V L A P N P S$

ADMSAKTQT DE TLADGVYALTAEGDP PRTAELEPLVTRVLAPN

MKFENLIMNVYTDTGYSG■

FT $\square \mathrm{DR}$ R D A D T H $\square$ I S E Y RHW VLP PRGS GQERSMAKLVNVRPER $\square$ ADGVWVVR

$R P \square A P G V V_{F P H V I D M N M}^{M}$


WPDV
FTVTEDDESTYADSEYGHW



ENVTEH【IR\|VSPCQV
KKVELSEVS GVQMVNGNVAF HA A G GL ${ }^{\prime}$ $\square R Q V T P T A S V H A A G G L D$
Unifelouldel

|  |  |
| :---: | :---: |
|  |  |
| AOA | F |
|  |  |
| UniRef90-UPIO0036EC49D | LTo |
| UniRef90-Q9HLY7 | NGTKPLDYVIVTHHHADHVGGLKELSERFNPEIVVPDLEM |
| UniRef90-FORU0 | D H |
| UniRef90-UPI000467CAB2 |  |
| UniRef90-F4BTS7 | Y I VQHAEQDHTGSL |
| UniRef90-X2 | D |
|  | EGWRDVCAIVLTHHHPD |
|  | RGWGDVKALVLT |
| UniRef90-F2L5: | VGDLRVK |
| UniRef90-H1PU32 | NG LTLKYLVLTHGHGDHIAGMNKLIEEYPNVEVYITGKED |
| UniRef90-O08N15 | KP RYV A SHFHSDH |
| UniRet90-O31ND6 | LTLTAILNTHHHDHV |
| iRef90_14BL |  |
|  | GA |
| UniRet90-UP | PAPLTTVFVTHSHWDH |
| iRef90 K6D6 | NKEK VKAL VVGGHEDHIGGV |
|  | NVKA YVSHGDPD |
| UniRet90_UP10003B5484 |  |
| UniRef90 | G KPLTRIVLTHVHDDHVGALDALKAQEVPV |
|  |  |
| UniRef90_J1ELH4 | GGKALKTILIS SADPDYYFGAEALQALFAQEIUREHLQEK |
| UniRef90-UPIOOO4 | NKEK RALIVTHGHED |
|  |  |
|  | Q |
| et90_UP10003C14D01 |  |
| UniRef90_UPI000368B6BD | VLQRP |
| UniRef90-A6WXW3 | K |
| UniRef90-UP10003B67ECA | SRGLVLDAILITHHHPD |
| UniRef90_S5AX | NQGKPITRIICTHGHPDHIGLVGWLLEECEPSVPRDQLINE |
|  |  |
| 7 C |  |
| niRef90 UP1000 | GA |
| UniRef90 V5 | WEELTY |
| UniRef90' D5P8V5 | RVVTLVLISHRHGDHTDGIDKLVERTGATVRS |
| E8N669 | Q |
| DKAJ4 |  |
| C7 |  |
| A0 |  |
| UniRef90_UPI0003B3 | RISHILVTHSHILDHPLAAPMAQALLGVQVYAYGPTSA |
| A8FQZ | KGGKKLNC F Th |
| UniRef90- UPI000478 |  |
| UniRef90-UPIO00479BF30 | RCAGV |
| UniRef90-M4BILO | HGVREISDLLVTHGHLDHAGGMLQLRQRFPKMKVWKYLP |
| -0J |  |
| UniRef90 A0A023BPH |  |
| K2REC | D |
| A0A031K5 | KGWQ |
|  | NRDKP |
| UniRef90 D3FCN7 | G IRRIVLGHGHPDH |
| UniRef90-V9WHR3 | RGWG LDQILLTHHHWDH |
|  | LQGRPLDLLVNTHLHSDHCGGNALLQQHYDCRTVIPASEA |
|  | KLDVDIKEVVOTHLHADHSGLASELYQRGAKILMSKVEED |
| UniRef90 T1E |  |
| UniRef90-D87/ | LPKK LFVFLTHHHLDHTEGLPAVKRA |
|  |  |
| W5 |  |
| UniRef90 c9 <br>  |  |
| A0 | HQLTLSAILLTHHHADHTGGVPELLQHFAVPV |
| KOJ | RA LSAHVVTHAHPDH |
| UniRef90 FOSMI2 | MD |
| UPI | HA P P |
| UniRef90-F21: | NLSLDFILNTHHHGDHV |
|  | W |
|  | SKE』DLQYVLTTHHHYDHAGGNGAILTAFPS |
| UniRef90-UPIO0037064C0 | - |
| UniRet90-Q0 | TG KTLTTIYVTHAHADHYLGIIGPLMERFPDAKCVALPHV |
| ef90_Q2 | R |
| UniRef90-Q6 | Dil |
|  | VGSSPVAAVLITHAHND |
|  | A V |
| UniRe990-G4k | CILNTHANAD |
| et90 - 3 |  |
|  |  |
| UniRef90-D5P135 | VSHGHLDHMWSAQKVSDTYC |
| UniRef90 M8JDE8 <br> UniRef90 |  |
| UniRef90-S2XH30 |  |
| UniRef90-X6FVA7 | TG KTLTTIYVSQSDPDYYFGLKPIKEGFPQARVIAAAET |
| LRD |  |
|  | TG K TLKTILVSNADPDYYFGVEVLKEMFPPAVLE HIK AK |

UniRef90_U2TFE3
UniRef90-A0A059GC60
UniRef90_R0GT51
UniRef90_R5XSS5
UniRef90_UPI00036EC49D
UniRef90_Q9HLY7
UniRef90_F0RU01
UniRef90_UPI000467CAB2
UniRef90_F4BTS7
UniRef90_X2GWR9
UniRef90_UPI00040A1BEC
UniRef90_UPI00034DDD79
UniRef90_F2L5S3
UniRef90_H1PU32
UniRef90_Q08NI5
UniRef90_Q31ND6
UniRef90-I4BLF2

LS E S F GEP LT LTS HVDY LVVD GT I I S L LTE E T P S F QLLK LI I T P V E A Q GAK Y GIT D GKNVTPTRY L HD GDE LELGGGTKFGVAHC

 A A CLLT NLMKY DT GVVFVVFNGEFHTVVEGDMVGEFKVLDTP HTLVPDRLARNPVPVTVEGVKTLKVLDDGVHSVEAHRIQS $R D R \| P G Q T V$ LLEAGDRLQUCGQTAEVLFVP PEFDFMGVADGQRHSLGDVTLLEFRHTPGHTPESMSIVVY IIES WK GF DAMDAYWVPGDNILDDDGQEDTC GDYRFCL ETP





 L ME QQF GRRSTWTEPEDVVELLSDAQD LQDAGQRIGVAHAP

L I G H L L S $\square P$ A GRVQVVK T
$\stackrel{L}{L} \mathrm{~S}$
A ALI ES WDEQK LS F LA $P$ LD R K V V H EAML M WGA DSSSMD RALDPAR FRPQRPGS ECVL GDRPWQHAAP LKVWGPQLK DNGPQKLSDVVIPEAS DVKGL NR RWMPVQTA V VYGPRAESAK $\quad$ K GLTVLLD DGDQVSLRSLGVSLNVL AVA

 $C$ L

G G GTA L S D G E R V D A A G L D D E V V L H T P

## 

 LLEVVKLGRNAGHGS LKA DLRTVVQAGETVVQDGPFQVVEFYHV LVAHVKTRHHIDGWSGNYTPVSGGENIYVNGHKLTVIFAP K $\|$ F GI L N P I I S R R S S K M F G T A L P EE DV I NVG $\square G P$ Y F F H A P APF $\triangle$ NKTMKD GEMLHF GQQ K DQALHTPGHTQESTCF L GRSPQMQALLADTGLDFTPDVWLADGETVAHGDWSTATHTP GLPSAPTARAAS QFTPDRVLQNDELDGQTTTHTLQVIHTP
 A A ATAAVAGEA GRVLAPGDRLDRLAGTTLDDV VVAP VE GKQGDGDGDRRLRLKNDESRRLE DRPLVDKQQFKMYTP A RYGRADRFRDATGUEPDRTFTPGTEDPL GEERRVLDAP Y S G Y Y A P R LE G $\square N \square T P$ WS $\square G Q \square Q \square E P \square F T P G$ E GDEDVLLLATMFGKTMEKMEVSRKLNEGDKDHDFEVLLTP
 $E L P E G Y D V N K Y E F F Q G T P A R V L K D G D K I D I G R C D Q V L H T P$
 GKVRDWDEDAQQQCARF GF DATLSAGQTDRLGBMDWQLGAP
 I F Q NCKSVIS K HTSA QA QKYIDD GDVI EFGKFKECLSTP
 APTPGWRASEFRVQAVRPTRVLQEGDVINLGBRQSVLHMP
 $F G P R N E A \square T A D T E P D A E G D V A H V P E L G L Q M N V I D V P$ EA DRTSTPPVPAPGRIPK LLSRRLKTPDPHPVARGFTVLDVP



 LQQVFGGKMAQAVTHTPKDRETFKVGEVVEV V I L R D GPRSALRHAKPERSMLPYTVQQLDEVPGAPQAVLLP V EA MKESMELQR QQWAMLF GDACVVSDA L PDPDDDN TLYV V L GI K G L P DE Q $\square$ Y T P F R GEPS GT LQ D GD TVVGCDSRPVI Y H T P YLTGKYFPNESTDLSGHDHTLPEDGTVPGMEGWRWVH TP
 $F \operatorname{L} L T D P M G A L D R N G I S Q Q F L H A F G K E K F K A G M Q I T S I M A P$

 MLLKDPDYAGAFFREPK QVVELDRDGDKLDDLGSVTVVND H T HCTNDRRFFDVCPFRMQSYRNIDEGMDFDLGDVCKTIALDP

 $L$ H GNGAALVDGEVIVAA GLRRMQVLHTA $L P F K$ VE F WGPKMGANAPRNPVVPAALVGNFGEKLEVRGMQ



| $\begin{aligned} & \text { UniRe } \end{aligned}$ | U2TFE3 | D |
| :---: | :---: | :---: |
| UniRetg |  | E TR |
| UniRei90 | R5XSS5 |  |
| UniRef90- | UP100036EC49D |  |
| UniRef90- | Q9HLY7 |  |
| UniRef90 | FORU01 | D |
| UniRef90 | UPIOO |  |
|  | 4BTS7 |  |
| UniRef90- | X2GWR9 |  |
| UniRef90 | UPIO0040A1BEC |  |
| UniRet90 | UP100034DDD79 |  |
| UniRef90 | F2L5S3 | $\square \mathrm{Y}$ |
| UniRef90 | H1PU32 |  |
| UniRef90 | Q08N15 |  |
| UniRe | Q31ND6 | F |
| UniRef90 | I4BLF2 |  |
| UniRet90 | STTEQ0 | E L |
| UniRef90- | UPI00046F28EB | D LR |
| UniRef90 | K6D6Y0 |  |
| UniRef90 | UPI00028A2CDC | F Y |
| UniRef9 | UP10003B54847 |  |
| UniRet90 | A0A010ZW98 | E $\square$ |
| UniRef90 | C6J6Y3 |  |
| UniRet90 | F8FAH7 |  |
| UniRef90- | J1ELH4 | D F |
| UniRef90- | UPIO004088AE5 |  |
| UniRef90 | UP1000255E988 |  |
| UniRef90- | Q2FUB |  |
| UniRet90 | UP10003C14D01 |  |
| UniRef90 | UP1000368B6BD | GL |
| UniRef90 | D3EKK1 |  |
| UniRet90 | A6WX |  |
| UniRef90- | UP10003B67ECA |  |
| UniRef90 | 54X |  |
| UniRef90 | W4BG99 |  |
| UniRet90 | U7FQA |  |
| UniRef90 | UP1000369C9E9 | QVR |
| UniRet90 | V5CO |  |
| UniRef90 | V5PQK2 |  |
| UniRef90- | D5P8V5 | QVR |
| UniRef90 | E8N669 |  |
| UniRet90 | D7KAJ4 |  |
| UniRef90 | K6FCC7 |  |
| UniRef90 | A0E922 |  |
| UniRef90 | UP10003B38924 |  |
| UniRet90- | A8FQZ4 | Q F |
| UniRef90 | AlWJ34 |  |
| UniRef90 | UPI00047BAE9F |  |
| UniRef90- | UP1000479BF30 |  |
| UniRet90 | M4BILO |  |
| UniRet90 | LoJRZ7 | R [ |
| UniRet90 | A0AO23BPH1 |  |
| UniRef90 | K2REC5 |  |
| UniRef90 | A0A031K5F5 |  |
| UniRet90 | G7WG | Q LQ |
| UniRef90 | U4WO |  |
| UniRef90 | D3FCN7 | Q |
| UniRef90 | V9WHR3 |  |
| UniRef90 | F1W107 |  |
| UniRet90 | A6TSCO | E $\square$ |
| UniRef90 | T1EG80 |  |
| UniRef90 | D877B0 |  |
| UniRef90- | E5xUW5 | A $\square$ |
| UniRef90 | W5M131 |  |
| UniRet90 | C9REF6 |  |
| UniRet90 | UPI00046AFEC4 |  |
| UniRet90 | A0A031GJNo |  |
| UniRef90 | KOJQL5 |  |
| UniRet90 | FOSMI2 |  |
| UniRef90 | UP100035F86F2 | DAR |
| UniRet90 | TOSVP2 |  |
| UniRet90 | F213K8 |  |
| UniRef90 | A1B8N5 | GQR |
| UniRef90- | -S9X7D9 |  |
| UniRef90 | UP100037064C0 |  |
| UniRef90 | Q0SDA9 |  |
| UniRef90 | Q2LPQ6 |  |
| UniRer90 | Q65MJ7 | HLK |
| UniRef90 | K4RGY4 |  |
| UniRet90 | UPI000364FA83 |  |
| UniRef90 | G4KP06 |  |
| UniRef90 | C3AK63 |  |
| UniRef90 | X0UK72 | S L |
| UniRet90 | D5P13 |  |
| UniRef90 | M8JDE8 | E $\square$ |
| UniRer90- | UP100035C |  |
| UniRer90- | S2XH30 X6FVA7 | ELQ |
| UniRei90 | -860.67 |  |
| UniRei90 | Q2SMR4 | RF |

ETLS QQWSDEGVYPVSEGV HRDPLPL
$S \square I Q L C P N \square W T A V G Y$ A A S


RELKKPNTYAVGADDWI
VR QVA D G 1 H L VRGSN
MPLTSVK S GVVCKYAKGVY

ELIQAAEHTYY $\square$ QCPAKM
VGVFA $\frac{L}{T}$




PVTPFRQNCS L WEHTRHALVVDPGGD
CLK D N Y GWL LRCPKTGTLVDTP
A Y L I GDTGDAVLVDPAYS
 QNGNQMAVHAALLWGTDHLVLVDTGV PGQLDVIREGLE TTS T L I E T N E SLLIV I DP T WLP E E I A TI R R DVVEL
 R R DVVS Y L A D A E A TREGSANVWI I GDDRGAIVIDPAHDP NCWLLDDGDGVALI DTGMNTTDARDAWKTLWE D NY $\square W M V Q K N G R A L V V D P G E P G P$ VG NPLKALDNSYLI TGERNLLI DTGFNEETCRKAMMVEELDD

 $P M T F W \quad G T N T Y V L G T \quad R Q L A V I D P G$

IQVQK IGKGC L L E DESELY AVVDPFNG DK AA E
NDPFQCHPYLI KNGDESSLLIDP GSMDEF DETVRKVVKTL $N V G A I E A E D F L I$ AFEARATPRAASDWLNELRK
$D$
$S K T E G S P S$
$G T$ NNVLF E GDEAALIDS GYVTHAGQTVALLEHA GTPDGY TNTY LI LTTDERNLLVDPGVSHEASYEVLRSALV F F D P K NTYYI ENENDVYLI DS GND Q $L$ ETPARII AV DA QYA
SYL I GDEGRAVVVDP
EMDNNVYLLHDDTEGLLI DAAAD
D NYMYLVVDEKEAAVVDP
$A \square$

VEPATVVKAVKD

 G GL G E I G R N M NVI E Y N G H L L L I D C G L F P E E E QP G V D L I L Q NCYFVT
I S M F A V PIPAFNDNY IWMLHDERRAAVVA P GVP H
$N Y \square W M L H D E R R A L V V D P G$
 HAKAMVKEIK S



SYVIF DKKK A IV V D P GRT
LGPVQTNVFVAYNKEECLIVDP S E E GVEK IVANY I K
 SVNIGYVKNETGGLLI DSGLDDAAAKKVMKVI KE



GTNTWVLRGPDEMDVIDPGPDDKD

# D 

$E H \square E R L A A$ D NY $\square W L L S D G R T A A C V D P G$
G $\square \mathrm{W}$
(APVLDFLNA GLW W
 FGEYQTNCY CKFPQGEIVVDAGIGATQ
 S REETVVVVD $P K N S T K \square I T Y, ~$ CLS DNYGFLVHDSDETACIDT P A Q A EPVQVALAE D A EAYLREANA D A A PVLAAARD P M D A LT A VNVVY VE TEA G LTVV D G G WNLD A S R A MF E R A L A SANSVLLLGP RAILVDTGFGSGVA DLEQWLHA TQHMDVGANS VTIVDTSESTKAAENVLAEFRK



T NCWVLA DS GQA LVLDP GDEPEAVRAAVEGLE
NF Y AV T E RKA V T L V D C GF D GHR R Y L A A WL E Q $P L P D G T S Y N A Y L V R G S E K T A L I D T V D P T D T D V L V R N L E D$
 $G L T V Q I V N V Y F I M N S S G E A V L I D C G M$ PKSASFIVMKEAEK P KNPLRALNCYFIKNGENILVVDSGFDHEESEKAFFNALD


R R D I E E YLA DARA
 GGMGEDGKNTYAI EYQDEIVVIDAGDKFPEDELLI DYV LV WMPRLGPVNCYIVEEEKDLTLIDAGMPFSLDEGILRTAE


UniRef90_UPIOOO36C064C UniRef90_C4WVB1
UniRef90_R5EFB3 UniRef90_UPI0003742F3E UniRef90-UPIo0047187DD UniRef90-C5KBA7 UniRef90_V5X8S1 UniRef90-R9LRY1 UniRef90_U1M1U2 UniRef90_UPIOO04768306 UniRef90-R9F3Z2 UniRef90-UPI00028804F4 UniRef90-W8XA47 UniRef90-G4Q6G87 UniRef90-G9NFP7 UniRef90-O5YXS2
UniRef90-B6AOH3 UniRef90-MOGQ62 UniRef90-A3VXBO UniRef90-Q1GVB7
UniRef9O-A0A058ZQ25 UniRef90-TотЗТ4 UniRef90-F3KKD2 UniRef90-Q30P17 UniRef90-UPIOOO4770E4C UniRef90-C7RQF1 UniRef90-F8E1C1 UniRef90-R7FFN9 UniRef90-F7UYA2 UniRef90-UPIOOO3732D0B UniRef90-H1PT28
UniRef90 E2C1H5 UniRet90-D4YPT8 UniRef90-L7EVY9 UniRef90-M5AT83 UniRef90-UPIOOO362D003 UniRef90_A0A023F949 UniRef90-S9TOKO UniRef90-D9Q0VO UniRef90-UPIOOO34D711A UniRef90 EONNK4 UniRef90 E3D711
UniRef90 -H 8 FXD 1 UniRef90-UPIO002D2945B UniRef90_K2CX79 UniRef90-HOE614 UniRef90-W5WXS4 UniRef90_-U2WE52
UniRef90_G2DQZ5 UniRef90-B8FMC7 UniRef90-UPIo002D99F17 UniRef90-W2VEJ88
UniRef90 $\mathrm{S} 3 \times X L 7$ UniRef90-S3XXL7
UniRef90 UPIOOO47CA765 UniRef90-AOA059DU80 UniRef90-NOBJR9 UniRef90-M1E6V8 UniRef90-M5E342 UniRef90-F8J885 UniRef90-UPIOOO464C750 UniRef90-F2BFV6 UniRef90-R6TJR9 UniRef90-A0AO59E6T8 UniRef90-G6EPU4 UniRef90_17GTR8 UniRef90-A71596 UniRef90_UPIOO03147B18 UniRef90-Q2G808 UniRef90-G7UQX6 UniRef90_W5TEF3
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UniRef90 - X7YOS UniRef90-D1JAS8 UniRef90-H2C3U7 UniRef90-UPIOOO28846F8 UniRef90-M5P812 UniRef90-C3WXH6 UniRef90-A7GVW7
UniRef90-F8EBSO UniRef90-F4FG63 UniRef90-R9LVT2 UniRef90-A6VNK4
UniRef90 B9EBO2 UniRef90-UPIO00471DF89 UniRef90_D0CPY9
UniRef90_A6QCU2

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VGDR 90
VGDRKVIKGIIIATHGHNDHTDAAPRLLTELLVDAP\|Y化HPAD RLGLNLLYCANTHVHADHVTGTGELKK
DSNDELKADI QRGLTVDALLTHAHLDHMGGIPTFTSRYGTPVYTGAEEA
NFNGRADYVLNTHHHWDHTGGNNELKAASVDVHVNSDEAE DGMSRSGVLVSHHHPDHVGGTELLERVSVPVHVNSLEAE RRRGKKLYVIYTHQHYDHI DGAYAFPDATVTDASSQLDED QGARTEGVINTHFHADFIAGHLELAAKTGAWMGYGSRAE LGDRELMAVVCTHAHESHVNAAETLADLTSAPLLLHPADLL DGPI LEATLITHHHGDHVGGVRALQQRT
A TTNKRVTHVIYSHAHADHDGSAYLFKNAT HI AHSDTKD IGRRDVRAVVLTHAHFDHVGSARRDHRDWQDPIRTHTAER DATKPVLAV ATHVHVDHVGSFHEFDAHYFRTQPECVARA
 RGWA TDD WNTHWHPDHTGGNAAIKEAAKAWGGCTDTGP RGW NLSQ VLTHHHWDHVQGVDELKAATGAQVGGAKADA KQGFQI DKVIDTHQHADHVSAAKDLAKA MDMKDIKYII LHHQDPDLAAAVPEDEKLINRDDLLIVTHS HTTKPIKYLVLSHYHAVRVLGASAFSAESI DTHENTRF LAGRRLTRLLNTHSHSDHIGGNAAVTAAFGCRVIVPEGDD ELGVELKDVLTHQHADHRALSEVLQKTGARHHAPRKDAE AGFRPPDFVALTHSHWDHCFGLGALADPSDACDQTRQSDE
 ELGLVLKFALNTHMHADHITGTGRLK HGNGTLEAVLTTHSHPDHVQSLAE TARMFDARTGA पG KPIDRLVITHAHPDHFHGAARFGAHALPAVRDQDAAQ AG LT ELIIETHFHADFLSGHLERAAATGATHAYSSDA RAGVSI NYVLTHRHADHVGALVAVLERTGATHLASFLDA EGVK TKK LTTHHHWDHAGGNKKMVKADPVPVYGGDDRD G KPITR L LTHAHGDHDGALDALKQEHAKVMISARDAK VDMDKVKYVVVNHLEPDHQGSLEELRRARNAKVLISAVGA NNKNK KGLV LTHGHEDH: GAVPYLKERDMPNYGTPKTAG NRLDKVDALVLTHGHEDHIGGVPYLLKMRIPLIGSKLTMA DTDKP VWALQTHNHWDHSSGGQVFLDQGAKLLAHKDAAK HG LTLESVLVTHHGDHTGGVDALRQGTGAQVYGPAAER MVHLRVRQVVITHAHVDHCGQTPVVLRSGADVWCHPDHGH
 KNELNLEWVLETHAHADHISGAPFFKKVFGAKIGGGEHDK

 MGW HiTDLIFNTHWHPDHAGGNDKIGKATEDTIYG NHK KISGIFNTHSHADHFGGNSY LKKVDARVYATSDES RLNVRVDYVISNHAEQDHSGSDGDVLNLNPDAMVVTNSR VGVEKIDYYSNHAEQDHSGTIPLLLEKFPEAEVLCS
 HG LALAQI WITHHHGDHTGGVAELKRRFPKC QGWVTLTC LNTHANADHNGGNALLQQRHVPAYAPGDDAA

 VLKRKIKTVVLTHFHDDHVGGASELKKLSGAKVADHKKDA RGWRITQI WNTHWHPDHAGGNEALKAATGCTVIAPAAEA RTGLRPAAILLTHHHDDHIIGGVAGLLAQWPHILPVISADDA


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TGRRDVIEAVALT T LG円KDIAYVI ANHGADHVGFAERLRRKGIPVYLHDADAA LG RGVLRLRAVVETHSHGDHDGGAPELGEKVPLLTHEDGEK EGDVRLKAIILTHGHFDHVGALEELLEKWVPVFIHSEEMP ELGAKVTDMFLTHLHADHSGLALKFKKYQGKVYCSQDDTD
IDKKK KGGILTHAHEDHIGAVVYFYKEFKFPIYATPLPL RFGRGVSALLLTHGHFDHVGSLVDLLKTWVPVWAHPLELG RG LTIDGVINTHFHADFLAGHLEVAAATGAWIGYGHRAE QGW RLTALLNTHANADHNGGNALLQQRDGAPAFAPGDDA ENKERIKGLFITHGHEDHIGGVPFLKQLNVPTYGGPDADG


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| UniRef90 ${ }^{\text {C4WVB1 }}$ |  |
| UniRef90-R5EFB3 L |  |
|  | R REYLQQITPGEMLGQCRHPR |
| UniRef90-UPI00047187DD LLS S $\$ VEQARHFGLPGTVDRYTQDGERLELGRSFLVRHTP} \hline \multicolumn{2}{\|l|}{} \hline \multicolumn{2}{\|l|}{\multirow[b]{2}{*}{}} \hline & \hline \multicolumn{2}{\|l|}{\multirow[b]{2}{*}{UniRef90-UP10004768306 AEYPIDKLTDGERIVLGDVVLEDMETPGHTPESISVLVY}} \hline & \hline & \hline \multicolumn{2}{\|l|}{\multirow[t]{2}{*}{}} \hline & \hline \multicolumn{2}{\|l|}{UniRet90-G4Q6G8 $\quad$ MRNLKDPAFWDKRYEKCVQNGFTKEEHYGGVDLEAIWTP |  |
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|  |  |
| UniRef90-M0GQ62 A AFTTAT |  |
| UniRef90-A3VXB0 | AGRSPVMQHEGVDVTFTPDQLLFDGEVVGDGWQITPHWTP |
| UniRe990Q1GVB7 AAEHER】P HRD |  |
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| UniRef90-F3KKD2 ${ }^{\text {2 }}$ |  |
|  |  |
| UniRef90-UPI0004770E4C LIDERGMDDWESEFRRMPRLLIREPEGDPGLTHPDUVFCGR |  |
|  | ATIA EWDEEAQSATRFRHDAT AAGDEVELGGNW |
|  |  |
|  | PDPTSRIVLPTVFSGAMTLD |
| UniRef90-UPIO003732DOB HAQMMWGKDQEATAAMDRLLSHHGMD R |  |
|  |  |
| UniRef90-E2C1H5 L L |  |
| UniRef90-D4YPT8 | GLYDVSEIIESQTGIEEDDEQLANDDLLEFDGFRLRAVHLK |
| UniRef90-L7EVY9 GDGQDPTGTPDPVADVTPTVEIIPGTEVIDGVFVFEAVSG |  |
|  |  |
| UiRef90-UP1000362D003 P A |  |
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| RMIR |  |
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|  | AL |
| UniRef90-EONNK4 LLENKLK EHR |  |
| UniRef90-E3D711 | FVEAKCAEHRDNPKM1HVEGR |
| UniRef90 H8FXD1 ${ }^{\text {a }}$ A ASDLNRAFTGQPQVGPGRLLETFTGEERLGGAEVRVIHTP |  |
| UniRef90 H0E |  |
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| UniRet90-W5WXS4 |  |
| UniRef90 G2DOZ55 |  |
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| UniRef90 UP100047CA765 A MM YPKLLEPLYLTQGNEDTKVKPGKQKLGA |  |
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| UniRef90 NOBJR9 <br> G |  |
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| UniRef90-M5E342 |  |
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| UniRef90-UPI000464C750 MP |  |
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| UniRef90-UPI0003147B18 A M ${ }^{\text {a }}$ |  |
|  |  |
| UniRef90-G7L |  |
| GARQLIPGWRQWLKEQPTESETWPDPTAWLADDEFII ATP |  |
| UniRef90-A3JTU8 $\quad$ QRVSLGCGPGERPMEGMGAGHDAPTQMDDDGVQTDLIMAP |  |
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| UniRef90-14WPJ7 TA |  |
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| UniRef90-DoCPY9 |  |
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UniRef90－UPI000366B7CB
UniRef90－C0Z4M5 UniRef90 UPIO00464A24E UniRef90－C5FLA7 UniRef90＿S2Y2NO


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K D｜V｜P ERNAEIKYI FETHFHADFVSGHLDLQKATGAPD
AGNDKLKAVVNTHHHYDHAGGNKQLRAA GAPI AGGADI RRFLITHVHRDHYSLAVAMRREHGTPVAPVVDAL DGATDKYVFETHFHADFVSGHLDLAAKTGATIVFGPTAQ ENLPMPSLAVLTHWHWDHVFG LRELRTPAVAHTRTYE QG VSDRWII ETHAHADHITSAAALAEHTGAH KGWNITHILLTHHHPDHVNGLPDILAKHRPDVIGAKSDA MDDAPLEYVILTHWHWDHDFGVKTMDRTTDSHHDTKKKVA EDGLRLEVVVVTHRHGDHTDGIDHLRAFTTAPVRAVEER AGASDVGVVATHVHPDHHGLSARLREESGWIMHPAERD AGASD TGGVATHMPD KGGLPLSHLDSHGHPDHYTGMSWLLKTFWMESVGWLDAE NEGLPVDRVLVTHMHPDHDGLAHWLCERWNAPLWMTMTDY T DGKKVTYVAPTHHHRDHSGGVADYVHAGAK【II PAE HPGWMLSDILITHHHFDHVGGIETLKKASGARVLGPAAEK HNLNPKLI NTHSNADHIGGNAYLKNQTKCKLATILESA RGW SLDLIVLTHHHDDHI QATAELVAKT
LAGKPVTRVIVTHHHPDHVGLAGWFVAQGAELHMPRTGWL最
 RKDQVRALLVTHGHEDHIGGUPYLKQDPVPVYATRLTMG VTDQPVKLV NENGQGHAMLGNSYWADQGVEDVAHVDAAT EGW RLTDLLDTHHHADHTDGDAELKAKYKCRVVG ECFQDVRVVLLTHHHPDHYGLAGFFEGLGARVFLHEEELS LGMKRIELVIETHFHADFVSGHLEVAEATGASIVYSSVAQ

 HQDRDH：GSLPEV KEGSVQVVAHEVAI P ATGRGADHVVVT


 LGHRDLRGVLITHAHVDHIGAGLPELRRHPAPVYAHPDEVA
H A H V VKWDPI QKLVLTHGHVDHTGCGRWLVEQYHVDTYLSKEDE
HHHTD H V E G N L A L K E Q F RGW Til SHILTTHHHTDHVEGNDALKEQF RQRSGLDLLLNTHDHSDHCGANAALQARYRCRTLIPAGEA QGVLVEG WLTHGHLDHAGGVEELKTAGPDRRDQFLMDS LGFTHKFALNTH DKGVIVESTWITHGHDDHVGAAMQAKEADDDQIIGSHRND
 NKEK VKAVLLTHGHEDHI GGMPYFLKQFVPVYGTRDTDG RGWQPLSDILITHHHGDHVEGVAGLRTDDVRVIGAAADA RAPEISAHALTHAHFDHYGGSHAVCAQLGLPLWCGANDV EG DSLAALVVT NRDK VKAVLVTHGHEDHVGALPYLREDDVPDYGTK■TDG
KGWRRTAIFNTHHHWDHVNGNLELKQQTGCTIIGGYEDR VGFGKLKAVILTHQDVDHDGCLPELLQECDTVYAHELDKP APTKTLKYLYATHVHGDHTGGMEAI NEFDKDYDSPGDTV DRLDDVVGLVLTHGHEDHDGAVPYLHKKDDPLIGSQLTVA LDNVNLDYI ANHAEQDYSGSIPAVLER N ELDDLRGIFVTHTHYDHDYGLNRLCEEFPAYGKEGLYSD LEGQPLARILNTHLHSDHCGGNAALQQAYPQVQTFRNWDE

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H M H A D B V T G T G Y L V Q
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\mathrm{HHHHDHTGG} \mathrm{C}, \mathrm{D} A \mathrm{~L} \mathrm{~V} K \mathrm{R} Y \mathrm{SPR} \mathrm{C}
$$ RLSAKLVAI FNTHHHYDHIGANLQLDEKFP MSPPAALLTHHHADHCAGVPELLERW KVKGVVLTHAHHDHAMGAFIILERADPKV

QG TISKVLTTHKHHDHAGGNNA ARR
EG LTLNGVLVTHHHNDHDGGDRTLDEHFP EQH SHILVT QLWSQ KQUTHYHPDHYGMAGWMAERSGAVWMSPDEQQ


VTERDLDAVGASHTHFDH｜GCHHEFECRAVPYVTDEDGDA
DRLEDVAAIVLTHGHEDHIGAVPFLLRLRTPIVGSRFTLA
ENKQKLKGIFVTHGHEDHVGAIPYFLKNVDTNYCSKLTKG
GDRRLDALLLTHYHSDHTAGADALKQAYGAMDYGPDNVA
TLPATLKHFIATHAHGDHFFGFPVLKEFFVESQYAPELYE
EHFTDEQTVLTHHHPDHYGLAGWVQEQSGAPVWLSPEGS
VIPAKI DYI SSHVEPDHSGADPFMMKHCPAPVAQAKII
DNRWK RALFDTHGHEDHDGGAPFLQNVHDPVIYAPKLAA
INGRTVSHITVTHSHLDHSPLARPLADLTGAPVNSRAGRS
NEGRPVTRMLATHFHYDHVGLAGYMCERWQAPLLMSRTEY
DEGLPVLRVIVTHMHPDHIGLAHWLCERWSAPLWMTMTDF

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UniRef90_19C2M4

V Y GPKTETNFPIHLAKDGESFPLGKSIEVLHTP
 VAAF GS LPP QDWSLWERPDHWLTPGE IDRTGGRHLDVVHTP

 Y L K T L K WD D A S LDD A RVE P FCRDAAPLVT DGDDDEVIHAAGVDITVLGTP LS W I A NVT G $\square$ A E S EF TLLPQRLAAS QREHRDGTADWLRVLGLVBVEGRTLRAVWTP PTPKEFNPEDYTPFTGKPTAL LSD GDD D DLLGDRLS I FHTP $P L L K P K S E K N P N G F D Y L N N \square H V L P T N T L T M N G G G E L K L N T$ A ARPGDKKYLQKF LHVVPPKYCKPLEAPGNSVADQMYHTP
 MA VD Y WS S VP GA QF DT F NQTHPYVHRDN KIQA WF NWADQA $\square P A R D V D L K D N D E D I D V L G Q R F Q V M A V P$ $F L Y$ G G Y P S K A L K N K F L L A KE S E V D Y I I P SN G K I V D TI S L P GAKVVA GNGADAHRDPPDDDT LAP G GTLEDCDETADDLDDVS MARMFNFADCVAPLPLGYQRLQHGGTMQMGGRIWDIRMGD


 P Y E K G V R $\square D G L D V H V K E G D T V K V G N V A R V F E T P$ RGHRFWREPQAFEEASWRLFLDHGTPKEALGKRLRAVWTP PEFDFVAVDDAQRYSLGEVTVEFARQTGHTPESMSUVVY LA K LLF VKNA NLTFKRFE D YHVVNAETEDEFGDSTVSFFKT $Y L A G E T P L I B S G V L P V K V D H A V Q D G D V L P Y C G G I Q V I Y T P$ A ALILKDRLKENKLTGATIVNDYLADDVWKSANLRVSFAAL






 L PP E P Y C S T C Y A VKK A P A T R L L E D G DVV D L G D R Q F EVVV H T
L L V S A K CREHRQQPDV L R QV A E G A S A S WK VHFPS V TAVK G GEQLT FA GVKIVVL STP $A L W K V H F P S A E A G T G M P A E R A E F P S N E V D L D G H L V K L Y D V$ LQQVEAMWKGDGPTNQETVRLFLLHGLEPALDHSWAMVHTP HCHGGEPLRDGEVIQAAGVR\EVLATP
TSLP N GAK G L K A H Y G D L P Y Q GVVK A G D S L S I G S RTMLQ F T P M

 $K M M Q T L A A S G V M G G G E G V D L D F A P D V E I A D G B V I D G G I W Q$
 LLENKFKEHGLNPNRDKMVNVNNTVKVGDLDSAEFIVRSHS





 A AV E A GK Q $\square G L G G R M A P G L G A Q A H P V A R A L R R T G F T I L D T P$

 A KLRE Y $\square$ Q G EK D GHLLE N


 | $M$ | $P$ | $A$ | $N$ | $V$ | $K$ | $D$ | $F$ | K G E | $L$ | $Y$ | $L$ |  |  |
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| $V$ | $A$ | $H$ | $S$ | $Q$ | $G$ | $Q$ | $L$ | $E$ | $P$ | $E$ | $K$ | $F$ | $D$ |

 EALPV $F V H K L D T T Y D A S R F G Q N L V T V E D G D L I$ ETELGPYKVIWTP
 A AVSD $\square$ GGGEG $\square$ DAEFIPDDRPLTHGET\|AGDDWTLSV SVQRA WY QP LDPDAADHLADFFELHGMPNDLNRQDWQHTMP $K L N L S R Y H S E Q F V L Q T N N V M V L Q S G Q S L K L V D N E I L N V Y E$ A ALSSYAPTGQECPRFA ITGLLDQPGSTIGLSSGRDQQIAAP


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| UniRef90-A9SSM2 UniRef90 G8TIP7 | GHTVESTCYLLRDENA |
|  | CHTQDS ${ }^{\text {COWFMQDGDD }}$ |
|  | VHWPETMVAYDEEDR\LFSCD |
| UniRef90-10UZ | GHTAGHVVFDDSAEGLLFTGDHVLPHITPSVGA |
| UniRef90_12GP1 | GHTAESATYETGKETAIFTGDTLFIGDVGRPDDLSREDLA |
| UniRef90-O9K | DHAPDSSVYYLEEEKVLIVLIGQALYPNGGGLYARNPEYTVN |
| UniRei90 U4UVR8 | GHTDGHMAVHFAEQDTVFTAD SLMALGCGRLFEGSAE |
| UniRef90-A0A024PNK3 | EHARDSSIVYTPEEKIMFLADCLYQD |
| iRef90-E6 | GHTADSVSLEVRPAGAGFTGD |
| UniRef90 W5TDL | G |
| UniRef90-H5X | GHTPGHLCLQEPDARVLLTGDHVLPRDTPNIGMHPDAPLR |
| UniRef90_UP100047A5E4A |  |
| UniRef90_A8FQZ5 |  |
| Ref90-UPI00025 |  |
| 4GM | DMV |
| Unil | GHTKGHMVFHDLERDVSFTGD |
| UniRef90-X0CQ19 | PHAADWTYVMVTEQCFVFEADTWEAGLSVDLGNGQQQMR |
| - |  |
| T3GUB4 |  |
| iRet90_S5YOH8 |  |
| 俍ef90_A3V4Z3 |  |
| UniRef90_37AA | GHADGHVAFFLEEEGVLLAGDALLERVSPNVGYTRENP |
| UniRef90-C4L6K1 |  |
| UniRef90-W8YSG | GSTPDCMVFDTPQGT TVHTGDFKFDEMSPVSGPYPDLSRM |
| UniRef90-UPIO004687E46 |  |
| UniRef90_B6JA10 |  |
| f90-UP10003 | A |
|  | ERADDTVPYGVLTGDTLFDGDV |
| UniRef90 UPIOOO366B7CB | THSUPEIVLSTPKGNIVYTGDFKFDQAASPLYQTDFA |
| UniRet90_C |  |
| UniRef90 C5FLA7 |  |
| UniRef90-S2Y2NO | GHTPGHVCLHLEEQGRLFSGDHLLPEDTPHIGGLYEDPDLG |
| UniRef90-UPIOOC | G |
|  | H A M SDEPVIFCGD |
| UniRef90 C3IRC | GHTPGSMAFLDTRNDALIVGDAFQTRGGLPFPMEGTW |
| UniRe90-M01892 | , |
| K0V332 | TVGDA A M PLGVLYAGDL |
| O2J512 | KHSADCTSGDLPADAGAVLTGDASGGSGPQLLAPAFFDGA |
| UniRef90-J1H5B4 | GHTPGCLASYIFP VEEDGDIHMAALWGGTTPPWEKD |
| UniRef90-LOLM | GHTAGHVCYHFADDKLLEAAD |
| UniRef90-J3C07 | GHDPHSVMLYCASEGILVSADAFWRDGFGVVFPEGEAGFD |
|  | TPGHUVLVHPA FAFVGDVLFQGSV |
| UniRef90-AOALH5 | THSPDTVVVKTPSGNIVATGDFKFD |
| UniRef90-UPIO003660735 | NHSTPDVAISTPAGTVLHTGD |
| UniRef90-C2BDG | A |
| UniRef90-UP100035CE156 | GHAEGHVSYVQPDVPALFTGDVLFSGGC GRLIDGTAA |
| UniRef90-C7Z12 | PHTHANSFVHLPELGLVVAGDLVYNGDHQWLGEAATHDRA |
| UniRet90_UPI0002887FC5 | GHAWGH |
| 既90-N1VOD3 |  |
| UniRef90_10GF | LHWPDSMVTYCPEEKILFSNDAFGEHLIATSQRFDDEVDLIA |
| UniRef90-RGREAO |  |
| UniRet9o-9hI | VHTPGHFHLCFLWWDAAFTGDHMM GWASSLVSPPDGDM |
| G92xa | GHAPEMVCLYCAELGVLIGADQULPRDSPYUGEMEGDPLS |
| UniRet90-B6W82 | AlAVKSPIGTILFTGD |
| UniRef90-EЗНРАЗ | APEHASLFSPDLGVLISGD |
| UniRef90_UPI00037A | GHSLGGVSLFRDNDGVLIAGDAFVTVKQEYLYRVFTPDWD |
| UniRef90-W5JLL-9 | GHTNGCMTFVVEEQGCAFTGDTLLTRGCGRT DFQEGD |
| UniF |  |
|  |  |

## UniRef90-A3X7U4

UniRef90_Q3ACY2
UniRef90_Q2CFI1
UniRef90-D3FAY5
UniRef90-A0A023X3C2
UniRef90_Q1QW62 UniRef90_D7CM71 UniR Ref90-X5JSE6 UniRee90-UPI00037CF7B0 UniRet90_W8THV1 UniRef90-UP100030C9DAF UniRef90-UPIO00468BDOD UniRef90-B8N324 UniRef90_UPIo002D5A81F UniRef90_WOJJY1 UniRef90_L8TLD2 UniRet90 - X1VH65 UniRet90-D7FGS8 UniRef90-R11S13

| UniRef90_A9SSM2 | $\text { Q M Y Q S LC K T\|L\|A S LTP LE T QV\| }{ }^{220} \text { C G H } \quad 230 \quad \text { E Y T QK N LDE }$ |
| :---: | :---: |
| UniRef90-G8TIP7 | K Y F D L T QKi A T LPD DVVVYP A HGP |
| UniRef90-J3NGX4 | EMHKALNLKLGALPDDTRVFPGH |
| UniRef90-F2NCX2 | Y F A E $\square$ M N NLEK L KP D $\square$ Q M I APSHGQ |
| UniRef90-I0UZR3 | D Y LA S S L RLLLSSRPDRRVLPA HGPVSPSELLCHHERRFD |
| UniRef90-I2GPE9 | GYLDSLHTKIMTLPDDVIVYPGHGAACGKNMSRETFDTLG |
| UniRef90-Q9KFK3 |  |
| UniRef90_UPI00037EC9BD | A L Y R S L T EV L F R LP D A T TVVWP G H D |
| UniRef90_U4UVR8 | QMWS SLS L L RAL P DTT TVVSGHEYTLANARFAVTVD |
| UniRef90-A0A024PNK3 | EVQTLLLAKIKKY DVEHYVLGGHPPKTHAELWNFLDDLV |
| UniRef90-E6J998 | D YLG SMDLLAARADGV I GIP GHGPNTGRALGQHRRDRLVE |
| UniRef90-W5TDL8 | A MFRSLRNLAELLKGDP VIVPGH |
| UniRef90_H5X6P9 | RFLES L D R TAGYDDHAALPA H |
| UniRef90_UPI00047A5E4A |  |
| UniRef90_A8FQZ5 | NWRA QLKEFKSEYSKRNRVYPGHGKPAD T L L F D Th Ve Yi d |
| UniRef90_UPI0002554FA9 | LLANSI S L L K K Pr F T L VCP S H G N P M T REKLLPLIEEQL |
| UniRef90_F4GMU8 |  |
| UniRef90_T5I3F4 | A Y L R S L EMMLD D R D R M MMPA H G G T GAGLHARCRELL |
| UniRef90-X0CQ19 |  |
| UniRef90-A0A028VD64 | QMHQSLS RLA ALLPASTLVYCTH E Y T L S N LR |
| UniRef90_T3GUB4 | SQFK TLEKL R ML E A D F FVP S H |
| UniRef90_S5Y0H8 | MMWESLTRLNAL P GET L I CS GHD |
| UniRef90-A3V4Z3 | D WMASCTGFQSFAQPDQLVLGGH |
| UniRef90_B7AA40 | DFLASLERLAELP PAKVAHAGHGP |
| UniRef90_C4L6K1 | A A IG Q R GVLALL S D S T |
| UniRef90_O34769 | EMFDSTQRILKSEVSPHVRVYP G H |
| UniRef90-W8YSG2 |  |
| UniRef90_UPI0004687E46 | D WIE T WDTAFEPLG A T Y VIP P G G H P T N M A QVRYTR D Y L I |
| UniRef90-B6JA10 | M M WES L L K L A L P N T R V Y C G H |
| UniRef90-UPI0003B6666C |  |
| UniRef90-X5L757 | K L Y H S L H D R L M TLP D A T RVYP A H G A |
| UniRef90_UPI000366B7CB | EIGR E GVLALLA D |
| UniRef90_C0Z4M5 |  |
| UniRef90_UPI000464A24E |  |
| UniRef90_C5FLA7 | T Y M S S L K M G GHASANGRGYPGHGAV |
| UniRef90_S2Y2N0 | D Y LD S L E RVGRLAPAE VLP A H Q Y VFPRELLA H HESRL |
| UniRef90_UPI000399BFAC | GWPAALDRLLAEGGPGAVYVPGHGAVVDAAFVGAQRDAL |
| UniRef90-W5YFP2 | QMRHSLQTLRAL P DRTAVYCA |
| UniRef90_C3IRC5 | V S LA S A Q K L E Y K P S L LA T G H GKM |
| UniRef90-M0IB92 | QVKTS 1 Q S L L R R G D R F THACPGHGPP |
| UniRef90-K0V3J2 | NWIKALERIRRAF GAQKVVAGHGPVLVDEADNAA |
| UniRef90-Q2J512 | D Y L D SLRLL REL GETTVLPGHGPAAGRAALAHRHNRLD |
| UniRef90_UPI000345E4A7 | ASLAALDALR GLL GADTVVPGHGPV |
| UniRef90_J1H5B4 | Q Y L K S L P Y A A MRK NVDVVLS N H T A I D G LER R $\square$ A Y S R K R L S |
| UniRef90_LOLMQ5 |  |
| UniRef90-J3C079 | EVRATLELIRTVAP R R L V I P G H GAPFDDPALARAFSRLD |
| UniRef90_W6I1W4 | ELLNSIH T K L L PLG DEVAFLCGHGP |
| UniRef90_A0A021X2A9 | D YLA S MERLLLTL PVRLVHGGHFPSFGGDRYRQLIK |
| UniRef90_E6LHH5 |  |
| UniRef90_UPI0003660735 |  |
| UniRef90_C2BDG1 | ELGK K GVLALLFADS T NV |
| UniRef90_UPI00035CE156 | EMFASL R L Y D PLP D N T L V C A G H |
| UniRef90-C7ZIZ0 |  |
| UniRef90_UPI0002887FC5 | S Y L S S L E G M K F $\quad$ D GY TVVPPGHRDP |
| UniRef90-N1V0D3 | P Y L D S A R LERLGPAA V LPA H G G T LPREYTSHRQQRLD |
| UniRef90-I0GPE0 | T L M Y E CQK L M L Y G D $\square \mathrm{K}$ L I A T G H G |
| UniRef90-R6REA0 |  |
| UniRef90-F9HIJ0 | Q A LA S G Q A I LQ A Y P E A V LSVC H G |
| UniRef90-M9RFR7 | DFMASSASLAAT PMTRAYSAHGAP |
| UniRef90-G9ZXG0 | DFLASNHGFLDL P E D T L V L S HGDP |
| UniRef90-B6W826 |  |
| UniRef90-E3HPA3 | LY LR S LD GYA DL PRDTLVLPSHGRP |
| UniRef90-UPI00037AF055 | TA WESVVKKLESLKPE VVVTGHGDPMEGEELSRNLEKL |
| UniRef90_W5JLL9 | T L Y R SV H D RIF TL P D NFRLFPAHD F K G N M E |
| UniRef90_E6YGM4 |  |
| UniRef90-R5XVN7 |  |
| UniRef90-A3X7U4 | M WAE $\square$ A K G $\square$ K A L I C D S N VFPGRSESEDP DE $\square$ R R L I |
| UniRef90 Q3ACY2 |  |
| UniRef90-Q2CFI1 | Q M WHS LLKLRAL PEDTVICSGHEYTAANARFAQT】D |
| UniRef90_D3FAY5 | R NRMSARRLAALEP A A L L F GHGPP |
| UniRef90-A0A023X3C2 | RAMESVERLRELK VEWACSGHGP |
| UniRef90_Q1QW62 |  |
| UniRef90-D7CM71 |  |
| UniRef90-X5JSE6 | QMVDS LQKLAT\L P D S T R TWCA H E Y T LK NLQ |
| UniRef90_UPI00037CF7B0 | QMWHSLQKLKVL P GDTRIYCTH |
| UniRef90_W8THV1 |  |
| UniRef90_UPI00030C9DAF | QMHDSLQR LAALL PDQTLV CCGHEEPGNPALVRRHAE |
| UniRef90_UPI000468BD0D |  |
| UniRef90-B8N324 | E WLR A LD T I E S LKP H I V VA G H |
| UniRef90 UPI0002D5A81F |  |
| UniRef90-W0JJY1 | $N \square Q K N \square Q K V E E \square N P \quad S M \ L P G H G$ |
| UniRef90_L8TLD2 | LLS S V TER L F GTYP DAAVV HPGHGKPT T L GAERPHLE |
| UniRef90-X1VH65 | SII IE SLK KLSEL E V D I MLP G H GP P |
| UniRef90-D7FGS8 |  |
| UniRef90-R1IS13 | QMHQSLTHLASL P D D T L VFCA |
| UniRef90_A3SYE8 | DFMASCAELQK NDWRVFYPGHGAVTDPAA |
| UniRef90-A9B110 | $D Y L A S L N E F A A D L D R L A L A G H R K P$ |
| UniRef90_A0A016B4B0 | QALD S L E W I V L S $\square$ G CN I Y P G H G D |
| UniRef90_D0J894 | EVAA T L DVI E RLLE P RLV DP G H G |
| UniRef90_TOLXI1 | K A L S S I Q TL SE EKEATVFP G H G K P |
| UniRef90-A6VZS0 UniRef90_19C2M4 | A WKA QLQEMLA LK P T TVVPGHGTELT A D N $\square$ T F S L |


| UniRef90_A9SSM2 | F |
| :---: | :---: |
| $\begin{aligned} & \text { UniRef90_G8TIP7 } \\ & \text { UniRef90_J3NGX4 } \end{aligned}$ |  |
|  |  |
| UniRef90_F2NCX2 |  |
| UniRef90-IOUZR3 | E |
| UniRef90-I2GPE9 | NQK |
| UniRef90_Q9KFK3 |  |
| UniRef90-UPIO0037EC9BD |  |
| UniRef90-U4UVR8 |  |
| UniRef90-A0A024PNK3 | A |
| UniRef90-E6J998 | Q1 |
| UniRef90-W5TDL8UniRef90 H5X6P9 |  |
|  |  |
| UniRef90_UPI00047A5E4A | $E \square R$ |
| UniRef90-A8FQZ5 | D F N |
| UniRef90-UPIO002554FA9 |  |
| UniRef90-F4GMU8 |  |
| UniRef90-T5I3F4UniRef90XOCQ19 |  |
|  |  |
| UniRef90-A0A028VD64 | F |
| UniRef90-T3GUB4 |  |
| UniRef90_S5Y0H8 |  |
| UniRef90_A3V4Z3 |  |
| UniRef90-B7AA40 |  |
|  |  |
|  |  |
| $\begin{aligned} & \text { UniRef90_O34769 } \\ & \text { UniRef90_W8YSG2 } \end{aligned}$ |  |
| UniRef90-UPI0004687E46 | $Y$ L R |
| UniRef90_B6JA10 |  |
| UniRef90_UPI0003B6666C | E L K |
| UniRef90-X5L757 |  |
| UniRef90-UPIO00366B7CB |  |
| UniRef90-C0Z4M5 | K |
| UniRef90-UPI000464A24E |  |
| UniRef90-C5FLA7 |  |
| UniRef90_S2Y2N0 | D L R |
| UniRef90-UPI000399BFAC |  |
| UniRef90-W5YFP2 | F A R |
| UniRef90-C3IRC5 A E |  |
| UniRef90_M0IB92 |  |
| UniRef90-K0V3J2 |  |
| UniRef90_Q2J512 | Q V R |
| UniRef90_UPI000345E4A7 |  |
| UniRef90-J1H5B4UniRef90 LOLMQ5 |  |
|  |  |
| UniRef90-J3C079 Y L Q |  |
| UniRef90-W611W4 |  |
| UniRef90-A0A021X2A9 |  |
| UniRef90_E6LHH5 |  |
| UniRef90_UPI0003660735 |  |
|  |  |
| UniRef90_UPI00035CE156 |  |
| UniRef90 UPI0002887FC5 |  |
|  |  |
| UniRef90-N1V0D3 | Q $\square \mathrm{R}$ |
| UniRef90-I0GPE0 |  |
| UniRef90-R6REA0 |  |
| UniRef90-F9HIJO |  |
| UniRef90-M9RFR7 |  |
| UniRef90-G9ZXG0 |  |
| UniRef90-B6W826 |  |
| UniRef90-Е3НРА3 |  |
| UniRef90_UPI00037AF055 |  |
| UniRef90_W5JLL9 |  |
| UniRef90-E6YGM4 |  |
| UniRef90_R5XVN7 |  |
| UniRef90-A3X7U4 |  |
| UniRef90-Q3ACY2 |  |
| UniRef90-Q2CFI1 |  |
| UniRef90-D3FAY5 |  |
|  |  |
| UniRef90-Q1QW62 | F A Q |
| UniRef90-D7CM71 A |  |
| UniRef90-X5JSE6 |  |
| UniRef90-UPI00037CF7B0 |  |
| UniRef90-W8THV1 |  |
| UniRef90-UPI00030C9DAF |  |
|  |  |
| UniRef90 ${ }^{-}$B8N324 |  |
| UniRef90-UPI0002D5A81F |  |
| UniRef90_W0JJY1 |  |
| UniRef90-L8TLD2 |  |
| UniRef90-X1VH65 |  |
| UniRef90-D7FGS8 |  |
|  |  |
| UniRef90-A3SYE8 |  |
| UniRef90_A9B110 |  |
| UniRef90-A0A016B4B0 |  |
| UniRef90-D0J894 |  |
| UniRef90-TOLXI1 |  |
| UniRef90_A6VZS0 | D F Q |
| UniRef90 I9C2M4 |  |





[^1]

[^2]


[^3]


| UniRef90 UPI0004775153 UniRef90-T1PER7 |  |
| :---: | :---: |
| UniRef90_UPI00036D9873 | F A R |
| UniRef90 W1SBD8 |  |
| UniRef90_E6TUN9 |  |
| UniRef90_UPI0004704DE0 | $R$ L |
| UniRef90 F2F0T6 |  |
| UniRef90_E4KZX6 | $\mathrm{K} L \mathrm{R}$ |
| UniRef90-I3CJW0 | R F R |
| UniRef90_V8QME0 | W A R |
| UniRef90 D0CVP8 |  |
| UniRef90_L0EU99 |  |
| UniRef90_UPI0002ECDAC0 |  |
| UniRef90-N9VML7 |  |
| UniRef90-I3U9V0 | W A R |
| UniRef90_K7YJ49 |  |
| UniRef90_U2DKB3 |  |
| UniRef90-UPI0002E6E4F7 |  |
| UniRef90_Q0U746 |  |
| UniRef90-T0E7Z5 |  |
| UniRef90 I0R8Y2 | W A K |
| UniRef90-R5N9A4 |  |
| UniRef90-D2AXC5 |  |
| UniRef90 T0L1U9 | N Y K |
| UniRef90-UPI0003B3160E |  |
| UniRef90_K9Q5E7 | WY R |
| UniRef90_U1KVV3 |  |
| lupas_21 |  |
| lupas_14 |  |
| lupas_28 |  |
| jnet |  |
| conf | 51 |
| sol25 | B |
| sol5 |  |
| sol0 |  |
| jhmm |  |
| jpssm |  |


[^0]:    

[^1]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    jhmm
    jpssm

[^2]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    sol0
    jhmm
    jpssm

[^3]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    sol0
    jhmm
    jpssm

