 K GDQDCDGYHANNSTEQVDTIMEKNVTVTHAQDILEKTHN GDRICIGYQANQNNQTVNTLLEQNVPVTGAQE\|LETNHN
RADK DCLGHHAVSNGTKVDTLTEKGDEVVNATETVEQTND ADTLCI GYHANNSTDTVDTVLEKNVTVTHSVNLLEDKHN K S DK A DTLCDGYHANNSTDTVDTVLEKNVTVTHSVNLLEDKHN DK $I$ CLGHHAVPNGT IVKTLTNEMEEVTNATETVESKSLD TITNDQDEVTNATELVQSSST GDQTClGYHSNNSTQTVNTLLESNVPVTSSHSILEKEHN

KADT $\square$ CVGYHANNSTDTVDTVLEKNITVTHSVNLLEDSHN
VLEKNVTVTHSVNLLEDRHN

EKNVPVTHAKELLHTWQY
T $\square C \square G H H A V P N G T \square V K T \square T D D Q \| E V T N A T E L V Q S S S T$ GDTDC IGGYHANSTDTVDTVLEKNVTVTHSVNLLEDSHN

T LCLGHHAVPNGT LVKTDTDDQDEVTNATELVQSSST RSDKICI GYHANNSTTQVDTI LEKNVTVTHSDELLENQKE K GDQICIGYHANNSTEQVDTIMEKNVTVTHAQDILEKEHN

A N N S T D T VD TVLEKNVTVTHSVNLLEDKHN

TLCQGHHAVPNGTLVKTITDDQWEVTNATELVQSSST A DT IC $\square$ GYHXNNSTDXVDTVLEKNVTMTHSVNLLEDSHN

MGHHAVANGTMVKTLTDDQVEVVTAQELVESQNL RADKDCLGHHAVSNGTKVDTLTEKGIEVVNATETVEQKNI

DKICLGHHAVANGTIVKTLTNEQEVVTNATETIENTSLL

DKDCTGYQTNNSTDTVNTLIEQNVPVTHSVELLENQKE KSDQUCUGYHANNSTEQVDTUMEKNVTVTHAQDVLEKTHN

D T $\square \mathrm{C} \square \mathrm{G}$ Y H A N N S T D T VD T VLEKNVTVTHSVNLLEDSHN
 A DR $\square \mathrm{CTG}$ GTSSNSPHVVKTATQGEVNVTHFANDKVKETR



HANYSTDTVDTVLEKNVTVTHSVNLLEDSHN


 GKLCGLNGVKPDLULRDCSVAGWLLGNPMCDEFLMVPEWSY


 GKLCDLDGVKPLILRDCSVAG
GSFCSINGKQP SL GDCSFAGWILGNPMCDELIGKTSWSY

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DLGQC
GKTCNNPYRDLDGRDCTLIDALIGDPHCDPFQDETWDL GKLCDLDGVKPLILRDCSVAGWLLGNPMCDEFPNVSEWSY GKLCSLNGVPPLDLQSCTLAGWLLGNPNCDSLLEAEEWSY PK C K KGKQTVDLGQCGLLGTVI GPPQCDQFLEFSANLI


 GLLCKDKGKADLDLIDCSLPAWLMGNPKCDELLTASEWAY DELLCPLPRKLVDGQDCHLVNGALGSPGCDRELSDTYWDV GKLCKMRGVAPLHLGKCNIAGWLLGNPECESLSTASSWSY


N P MCDDEFLDVVPE WS Y




GK $\square C N$ NPHR LLDGRDCTLIDALLGDPHCDVF QDETWDL ERFCKILNKAPLDLRGCTIEGWILGNPQCDLLLGDQRWSY GKDCSLKGVRPLILKDCSVAGWLLGNPMCDEFLNVPEWSY GMLCATNLGAPLQL GNCSVAGWILGNPECELLISSKESWSY GMLCATNLGHPLILDTCTI EGLVYGNPSCDLLLGGKEWSY ICN NSYRVLDGRNCTLIDAMLGDPHCDVF QYENWDL
GRDCDSPHQ』LDGKNCTLIDALLGDPHCDDFQN KEWDL GELCKLRGVAPLHLGKCNIAGWILGNPECESLSTASSWSY LGSPGCD HLDNAEWDV
GK CICNSPHQ L D GKNCT LID ALLGDPHCDDFQN SEWDL $G K L C L L K G \square A P L Q L G N C S V A G W I L G N P E C E V L I S K E S W S Y$
$P E L C P \quad S P L R L V D G Q T C D I I N G A L G S P G C D \quad H L N G A E W D V$ $P K I C S K G K Q T I D L G Q C G L L G T T I G P P Q C D Q F L E F S A N L I$


ERFCK DSNKAP LDDLRDCTLEGWILGNPRCGULLADQSWSY P ILCSTELGSPLVLDDCSLEGLILGNPKCDLYLNGREWSY GKLCDLDGVKPLILDRDCSVAGWLLGNPMCGEFPNVSEWSY

GK LCR $\square K G \square A P \square Q L G K C N \square A G W L L G N P E C D P L L P V G S W S Y$
DK L C MKSRNYKD $\square$ GNCHP $\square G M \square I G T P A C D \square H \square T G T W D T$ GK $\square C P K \quad C P N C T D \square D V A \square G R P K C T G K \square P S A R V S \frac{\square}{T}$ GSFCS $\square$ NGKQP $\square$ S $\square$ GDCSFAGW $\square$ LGNPMCDGLIGKTSWS Y GG $\square$ CD SPHQ LLDGENCT LIDALLGDPQCDGFQN KKWDL $G K \square C K L N G \square P P \square E L G D C S \prod A G W L L G N P E C D R L L S V P E W S Y$ GK $\square$ CD NPHR LQDGGKCNIAGWLLGNPECDLLLTASSWSY

GKПCDGdGVKPLIRDCSVAGWLLGNPMCDEFGNVPEWSY $G G I C D S P H Q D L D G E N C T L I D A L L G D P Q C D G F Q N$ KK WDL

## QUERY

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UniRef90 G3M3R0 UniRef90-B7SH86 UniRef90-H8PCX1
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 IERRE GDD DCYPGKFDNEETLRRQLRKSGGワKKENM
 IV E R P D A R N G I C Y P G T L N E V E E L K A L I G S G E R V E R F E M F P IV E R T K E M E GI C Y P G S I E N Q E E L R S L F S S $\square V E K \square N P A N D L C Y P G N F N N Y E E L K H L L S R \| N R F E K \square K \square 1 P$ TVETPNSENGTCYPGDFTDYEELREQLSSVSSFERFKTFP LI DERREGTEVCYPGKFTNEESLRQULRGSGGIDKESM LIERDNS A YCYPGATVNEEALRQKIMESGGIDKMS TG
 IVEKPNPTNGUCYPGTLENEEELRLKFSGVLEFSKFEVFT FVERSKAYSN CYPYDVPDYASGRSLVASSGTGEFNN E
TMEKENPRNGLCYPGSFNDYEELKHLLSSVTHFEKDK DLP IVETSNSENGTCYPGDFDDYEELREQLSSVSSFEKFEIFP FVERSKAFSN CYPYDVPDYASGRSLVASSGTGEFDN FE
$\square A E T P N S E N G T C Y P G Y F A D Y E E \square R E Q L S S V S S F E R F E \square F P$
$\square V E K \Pi N P A N D \square C Y P G N F D Y E E \square K H \square L S R D N H E K \Pi Q \square D$
FVERSKAYSN CYPYDVPDYAXXXSLVASSGTLEFNN E

UniRef90_K4P0×3 UniRef90-O531X6 UniRef90_K0FE69 UniRet90_H8PCY1 UniRef90 - $88 P C W 9$
UniRet90 V5SLB8 UniRef90-D4NW12 UniRef90-LOCQU1 UniRef90-DOEOB4 UniRef90-P04661 UniRef90-D1LQ57 UniRef90-GOKPC2 UniRef90_11Z266 UniRef90-J9R5Z2 UniRef90-P13101
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UniRef90

Q9DXE3 UniRef90-G1UJA5 UniRef90-M9YW55 | UniRef90 BoZsso |
| :--- |
| UniRet90 E2DK | UniRef90-A0A024B8C6 UniRef90-Q7TDD3 UniRef90-Q1MVB9 UniRef90-Q99119 UniRef90_S4V7M6

UniRef9_C7A866 UniRef90-G2TUL7 UniRef90-G5DR96 UniRef90-K9NXR9

K DRWTQHTT ${ }^{130}$ GGSRACAVSGN 140
150
160
SRFRMVWLTKGSMV KRSWPNHTTRGVTAACPHAMKSSFYKNLVWLTEANGSYPN RTSWPNHETTGTTAACSHSGARSFYRNLLWIVKKGNSYPK
KESWPNHTATGVSASCSHNGERSFYRNLL WLTVKNGYYN RNSWPQHDTSGVTAACPFNGKSSFFRNMVWLTKKNNEYDT KSSWSSHEASGVSSACPYQGKSSFFRNVVWLIKKNSTYPT KSSWPNHDTNGVTAACPYAGANSFYRNLIWLVKKGNSYPK

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PTSWGAVNDGVUSACQDRGASSFYRNLVWFVERGKQYPV GFNWTGVTQSGGSYACKRGSGNSFFSRLNWLYQSENKYPA FTKW NVTYTGTSKACNNTSNQSFYRSMRWLTKKSGQFPV
 GFTYSGIRTNGATSACRRSG SSFYAEMKWLLSNSDNFPQ RSSWSNHNSSGVSSACSYNGRSAFFRNVVWLVKKNNAYPT KSSWPDHEASGVSSACPYQGGPSFYRNVVXXXXXXXXXX PQSMTGVTTNNVDQTCPFEGKPSFYRNLNWLTQQGNSGLP GFTYTGVRTNGETSAC RRSRSSFYAEMKWLLSSTDNFPQ KNSWPYHDTNGVTTXCPYAGAKSFYRNLDWLIKKGNSYPK EFQWSTVKQNGDSGTCKRGNVNGFFRQLNWLTKSNGAYPLD
GFRYSGIRTDGATSACKRTVSSFYSEMKWLSSSMNNFPQ KSSWPSHEASGVSAACPYQGKSSFFRNVVWLIKKNNTYPT KTSWPNHDSXGVTXXCPHAGAKGFYKXLIWLXKKGNSYPK FTYESSTNPTGTTKACMRNGVSSFYAELRWLVSKGQNFPQ SFNWTGVTQNGTSSACDRRSNNSFFSRLNWLTHDNFKYPA MTRFSDVTTNNVDSACPYTNGASFYRNLNWVQQNKGKQ QFTWNGVKVDGSSSACDRGGRNSFFSRLNWLTKTNGNYGP KTSWPNHDSNGVTAACPHAGAKSFYKNLIWLVKKGNSYPK RNSWPNHETTGVTAACSYSGASSFYRNLLWIIKKGTSYPK KNSWPNHDTXGVTAACPHAGANSFYRNLXWLVKKGNSYPK KTSWPNHETTGATAACSHSGALSFYRNLLWVVKKGNSYPK RDFWSVHDSSGVSSACPYNKKSSFFRNVVWLIKKDDAYPT GFTWTGVTQNGGSSACKRGPTNGFFSR LNWLTKSGSAYPL KTSWPNHDSNGVTAACPHAGAKSFYKNLTWLVKKGNSYPK KESWPNHTXTGVSASCSHNGKSSFYRNLLWLTGKNGLYPN KSSWSSHEASGVSSACPYQGKSSFFRNVVWLTKKNSTYPT KSTWTGVDTSGVTKACPYNSGSSFYRNLLWITKKSXXXXX RSSWSNHDSSGVSSACPYNGRSSFFRNVVWLIKKNNAYPT KKSWPNHTVTGVSASCSHNGENSFYRNLLWLTGKNGLYPN
 GFTWTGVTQNGRSGACKRGSADSFFSRWNWLTKSGNSYPT KSSWPNHETNGVTAACPYAGANSFYRNLIWLVKKENSYPK KTSWPNHDSNGVTAACPHAGAKSFYKNLDWLVKKGNSYPK EFPWKTVKQNGKSGACKRANVDDFFNRLNWLTKSGDAYPL KESWPNHTATGVSASCSHNGERSFYRNL WWLTVKNGLYPN KESWPHHTVTGVSASCSHNGKSSFYRNLLWLTGKNGLYPN SSWPNHDSNGVTAACPHAGSKSFYKNLIWLVKKGNSYPK EFQWTTVKQNGKSGACKRANVNDFFNRLNWLVKSGGNYPG FTYGSSINSAGTTKACMRNGGNSFYAELKWLVSKGQNFPQ NFNWTGVAQDGSSYACRRNSVNSFFSRLNWLHKLDYKYPA SFNWTGVTQNGTSSACDRRSNNSFFSRLNWLTHLNFKYPA KSTWAGVDTNGVSSACPLGNGPSFYRNLLWLIKHTTSYPV KSSWPDHEASGVSSACDYQGGPSFYRNVVWLDKKNNTYPI KESWPDHNTNGVTAACSHEGKNSFYRNLLWLTKKESSYPE GFTYSGMRTNGATSACRRSGSSFYAEMKWLLSNSDNFPQ DT TW NVTYTGTSKSCS DSFYRNMRWLTQKNGLYPV HNVINAESAPGGPYKIGTSGSCGFFATMAWAVPKNDNPLT VTYGSSINSAGTTKACMRNGGNSFYAELKWLVSKSKNFPQ SNGWGAVNSAGVTAACKFGSSNSFFRNMVWLIHQSGTYPV KTSWPNYDSNGVTAACPHAGAKSFYKNLIWLVKKGNSYPK SFNWTGVTQNGTSSACKRRSNNSFFSRLNWLTHDKFKYPA NGRSSFFRNVVWLTKKNNAYPT
RNEWTQHTTTGGSRACAVFGNPSFFRNMVWLTKKGSNYPV KTSWPNHETTGVTAACSYAGASSFYRNLLWLTKKGSSYPK GFNWTGVTQNGGSSACKRGPDNGFFSRLNWLYKSGSTYPV KESWPKHNTTEVSSACPFNGRSSFFRNVVWLDKKDNVYRT KESWPKHNTTEVTASCSHKGKSSFYRNLLWLTEKNCSYPN
KSSWSDHESSGVSSACPYQGRSSFFRNVVWLIKKNDAYPT SFNWTGVTQNGTSSACKRRSNNSFFSRLNWLTHLKFKYPA


## QUERY

UniRef90_K4P0X3
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UniRef90 OOZFU1 UniRef90-Q7TH52 UniRef90-B2YFL6 UniRef90-A8WOK4 UniRef90-Q306V5 UniRef90_U5PET1 UniRef90-GOKIK8 UniRef90-V5R385 UniRef90- F8IW59 UniRef90_W5R5M5 UniRef90_B2KWG4 UniRef90-G2U2Y6 UniRef90-14DX17 UniRef90-W5S2NO UniRef90 K4ERE5 UniRef90_F8WTR2 UniRef90-R9Z7U9
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VGTSRYSKKFKPETADRPKVRDQEGRMNYYWTLIEPGDKП V STKRSQQTVVPN GSRPRVRDDPSRMSUYWTVVKPGDGL

VGSSKYNRRFTPEDAARPK IRGQAGRMNYYWTLLEPG $V$ STKRSQQTVIPNVGSRPWVRGLSSRVSDYWTIVKP GDDL $V$ T T E D D N R T F K P VI G P R P P V V G Q Q GR I D VGTSTLNQRS $\square P T \| A T R P Q V N G Q R G R M E F F W T I L K S N D S U$
VGS SKYNRRFTPE $\square$ AARPK VRGQAGRMNYYWTLLDQGDT $V G T S T L N Q$


## QUERY

UniRef90＿K4POX3
UniRef90－Q531X6 UniRef90－H8PCY1 UniRef90－H8PCW9 UniRef90－V5SLB8 UniRef90－D4NW12 UniRef90－LOCQU1 UniRef90－DOEOB4 UniRef90－P04661 UniRef90－D1LQ57 UniRef90－GOKPC2 UniRef90＿11Z266 UniRef90＿J9R5Z2 UniRef90－P13101 UniRef90－F2Q6Q2 UniRef90－P03456 UniRef90－P03446 UniRefefo－G3M3RO UniRef90－H8PCX1 UniRef90－DOUEC8 UniRef90－G7WV76 UniRef90－K7T8N9 UniRef90－H6QM73 UniRef90－F6N5W2 UniRef90－P26101 UniRef90－Q67119 UniRef90－A0A024D5z3 UniRef90 F2NZ68 UniRef90－D3YPQ4 UniRef90－A0A024D7E4 UniRef90＿R4MRD2 UniRet90＿U5N1D3 UniRef90－P26136 UniRef90－C5MSG5 UniRef90－G0KPA1 UniRef90－F8ISS7 UniRef90－Q4EW18 8 UniRef90 C7F6B9 UniRet90＿K7ZJE6 UniRef90－R9WP79 UniRef90－F8IW25 UniRef90－O5G953
UniRef90＿M1V8K4 UniRef90－L7YB85 UniRef90－G1CB10 UniRef90－D3G3M5 UniReffo－＿OZZFU1 UniRef90＿Q7TH52 UniRef90－B2YFLG
UniRef9O－A8WOK4 UniRef90－Q306V5 UniRef90＿U5PET1 UniRef90－G0KIK8 UniRef90－V5R385 UniRef90 F8IW59 UniRef90－W5R5M5 UniRef90－B2KWG4 UniRef90－G2U2Y6 UniRef90－14DX17 UniRef90－W5S2NO UniRef90－K4ERE5 UniRef90－F8WTR2 UniRef90－R9Z7U9 UniRef90－K7TCW0 UniRef90＿I2CSI2 UniRef90＿H2KIY3 UniRef90－GOKIG9 UniRef90－R4P5D2
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UniRef90 A0A024B8C6 UniRef90－Q7TDD3 UniRef90－Q1MVB9 UniRef90－Q99119 UniRet90－S4V7M6 UniRef90＿C7A866
UniRef90 G2TUL7 UniRef90－G5DR96 UniRef90－K9NXR9 UniRef90＿A0ZT63

| GNFIAPEYAYKIIKKGDSA GNLVAPWYAFALNKGSNG GNLIAPWYAFALNKGSDSG GKLLAPRYGYIIEEYGKGR GNLIAPRGYFKI HAGESS |  |  |
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TFXATGNLVVPRYAFAXKRGSGSGIIISDASVHDCNTTCQ TFEATGNLI APWYAFALNKGSGSGIMMSDAQVHNCTTKCQ RIRSNGNLI APWYGHLLVSGESHGRIMKKTDLEKGNCNVKCQ VINSNGNLIAPRGYFKMRTGKSSIMKSDAPMDTCDSECD TFEATGNLVVPRYAFAMERTAGSG1 IDSDTPVHDCNTTCQ NFESNGNF：APEYAYKIVKKGDSTUMKSELEYGNCDTKCQ VINSNGNLIAPRGYFKMRTGKSSDMRQ
NIESNGNLIAPWYAYKFSTNNKGAVFKSNपP DENCDATCQ
ПFEANGNL！APRYAFALSRGFGSG\｜！NSNAPMDKCDAKCQ RIRSNGNLI APWYGH【LSGESHGRILKTDLNSGNCVVQCQ RVRSNGNLI APW
M I N S N G NL I APRGYFK LK T G K S SVMRSDAPDD DCVSEC I


VFNTПGNTIAPRGHYKWNSQKKSTILNTAVP TGSCASKCH IFEANGNLIAPWYAFTLSRGLGSGIITSNAPMGECDSKCQ LTNSTGNLIAPR

TFEATGN VVPRYAFAMERNAGSGDISDTPVHDCNTTCQ VFNT TGNLIIAPRGHYKLNNQKKSTULNTADPIGGCVS TFSFNGAFI APDRASFLRGKSLG
TFSHNGGLIAPSRVSKLDGR GLGTQSEAP DDNNCESKCF LINSTGNLIAPRGYFKIKSG KSSIMRSDAPIDNCNSECT LI NSTGNLI APRGYFKi RSGKSSIMRSDAPIGKCNSACI NVESNGNLIIAPWYA
K $\downarrow$ R S
M $\square$ NSNGN पIAPRGYFKMRTG KSS $\square$ MRSDAP $\square \mathrm{DTCVSEC} \mathrm{\square}$
TFTFNGAF APDRASFF RGGS $\square G Q Q S D V P D D S G C E G D C F$ TFSHNGGLI APSRVSKL
RTRSNGNLI APWYGHVLSGESHGRTLKTDLNNGNCVVQCQ TITYQRG LDPQKVWCASGR SKVIKESLPLIGEAYFQQ TFLHNGGLIAPSRVSKLIGGR GLGUQSDAP DDNDCKSKCF

T FEAT GNLVVPRYAFAMERNAGSGII ISDTPVHDCNTTCQ LIDSTGNLIAPRGYFKMERSGKSSYMRSDAPGGKCNSECD M M M SFESNGNFIAPEYAYK VKRGDSA IMKSELEYGNCDTKCQ

VINSNGNLIAPRGYYKMRTGK
RVRSNGNLI APWYGHILSGESHGRILKTDDSSGNCVVQCQ FFESTGNFIAPEYAYK』DKRGKSA】MKSELDYGNCNARCQ
TFEATGNLIAPWYAFALNKGSDSG■ITSDAPQHNCDTRCQ



TDRGS TS T TKPFQNDSR DS DGDCPKYVKQGSLK LATGMRN YSGGTINSPGPFQNIDSRAVGKCPRYVKQSSLPLALGMKN TPMGAINSSMPF

WK GGSTNTK LIPFQNLSPRTVGQCPKYVNKKSLLLATGMKN TPNGSIPNDKPFQNVNRDTYGACPRYVKQSTLKLATGMRN TK $\square$ GAI NSTLPFQNIHQNADGDCPKYVKAQELVLATGLRN TDKGSI QSDKPFQNVSRMA GNCPKYVKQGSLMLATGMRN TPKGA

T P
TPHGALNSNLPFQNVHPDTDGECPKYVKSTQLRMATGLRN TPVGAINSSMPFHNIHPLTIGECPKYVKSDRLVLATGLRN TEKGGLNTTLPFQNVSKYAFGNCSKYIGDKSGKLAVGLRN $T P N G S I P N D K P F Q N V N K \square T Y G A C P K Y V K Q S T L K L A T G M R N$ T P

T PMGA $\square$ NS SMPFHN $\square H$ P $\square T \square G E C P K Y V K S N R L V L A T G \square R N$
$T \square A G V L R T N K T F Q N V S P$
T PQG
TEKGGLNTTLPFHNVSKYAFGN
T PNGSTPNDKPFQNVNKVTYGKCPKYワRQNTLKLATG
TPKGAI NTS LPFQNIHPVT DGECPKYVKSTKLRMATGLRN TPNGSUPNDKPFQNVNRITYGACPRYVKQN
 $T P Q G A I N S S L P F Q N V H P V T I G E C P K Y V R S A K L R M A T G L R N$


## W

TPNGSTPNGKPFQNVNRTTYGACPRYVKQNTLKLATGMRN TPNGSIPNDKPFQNVNRITYGACPRYVKQNTLKLATGMRN
 HS GGT $\square V S S \square P F Q N \square N P R T V G K C P R Y V K Q T S L L L A T G M R N$

TEKGGLNSTLPFHNDSKYAFGTCPKY $\quad$ GGVKS $L K L A \square G \square R N$ EEYGGLNKSKSYYTEHAKADGDCP DWVKTP LKLANKTKY WRGGSINTKLPFQNLSPRTVGQCPKYVNKKSLMLATGMRN

TPEGA $\square$ NTS $\square$ PF
TPMGA $\square$ NSSMPFHNVHP $\square T \square G E C P K Y$ VKS DK LVLATGLRN
 TPLGA INSSLPFHNVHPFTVGECPRYVKSKKLVLATGLRN
TPHGA $\square$ NS S $\square P$ F QN $V H P \square T \square G E C P K Y V K S T K \square R M A T G L R N$

| QUERY | VP Q |
| :---: | :---: |
| UniRef90_K4P0X3 | 1 P S |
| UniRef90-Q531X6 | V P S V |
| UniRef90-K0FE69 | 1 P S I |
| UniRef90-H8PCY1 | 1 P Q 1 |
| UniRef90_H8PCW9 | TP S 1 |
| UniRef90-V5SLB8 | 11 PS I |
| UniRef90-D4NW12 | $\checkmark \mathrm{P}$ Q |
| UniRef90-LOCQU1 | 1 P S I |
| UniRef90-D0E0B4 | VP QV |
| UniRef90-Q194U6 | SPQ |
| UniRef90-P04661 | V P A 1 |
| UniRef90-D1LQ57 | V P |
| UniRef90-G0KPC2 |  |
| UniRef90-I1Z266 | VP S $\square$ |
| UniRef90-J9R5Z2 |  |
| UniRef90-P13101 | VP A $\square$ |
| UniRef90-F2Q6Q2 | 1 P E |
| UniRef90-P03456 | TP S V |
| UniRef90-P03446 | VP QV |
| UniRef90-G3M3R0 | V P A |
| UniRef90-B7SH86 | $\checkmark \mathrm{P}$ |
| UniRef90-H8PCX1 | V P E |
| UniRef90-D0UEC8 | V P Q |
| UniRef90-G7WV76 | P |
| UniRef90-K7T8N9 | SPQ |
| UniRef90-H6QM73 | N P Q M |
| UniRef90-F6N5W2 | SP Q |
| UniRef90-P26101 | V P E |
| UniRef90-F8IVY7 |  |
| UniRef90-Q67119 | 1 P E |
| UniRef90-A0A024D5Z3 | V P E |
| UniRef90-F2NZ68 |  |
| UniRef90-D3YPQ4 |  |
| UniRef90_A0A024D7E4 | VP EV |
| UniRef90_R4MRD2 | V P E |
| UniRef90_U5N1D3 | $\mathrm{N} P$ |
| UniRef90-P26136 | $\square \mathrm{P}$ |
| UniRef90-C5MSG5 |  |
| UniRef90-G0KPA1 |  |
| UniRef90-F8ISS7 |  |
| UniRef90-Q4EW18 | VP S $\square$ |
| UniRef90_G0KTQ6 | $\mathrm{V} P \mathrm{P}$ |
| UniRef90_C7F6B9 | $\checkmark \mathrm{P}$ |
| UniRef90_K7ZJE6 | V P E |
| UniRef90-R9WP79 |  |
| UniRef90-F8IW25 |  |
| UniRef90-Q5G953 | S P Q |
| UniRef90-M1V8X4 |  |
| UniRef90-L7YB85 |  |
| UniRef90 G1CB10 |  |
| UniRef90-D3G3M5 |  |
| UniRef90-Q0ZFU1 |  |
| UniRef90-Q7TH52 |  |
| UniRef90-B2YFL6 |  |
| UniRef90_A8W0K4 | $\square$ P S $\square$ |
| UniRef90-Q306V5 |  |
| UniRef90-U5PET1 |  |
| UniRef90-G0KIK8 | $\square \mathrm{P}$ |
| UniRef90-V5R385 | IP S $\square$ |
| UniRef90-D5LT97 |  |
| UniRef90-F8IW59 |  |
| UniRef90-W5R5M5 | VP S $\square$ |
| UniRef90-B2KWG4 |  |
| UniRef90-G2U2Y6 |  |
| UniRef90-14DXI7 |  |
| UniRef90-W5S2N0 | VP E |
| UniRef90_K4ERE5 | V P E |
| UniRef90-F8WTR2 |  |
| UniRef90-R9Z7U9 |  |
| UniRef90-K7TCW0 |  |
| UniRef90-I2CSI2 | VP E |
| UniRef90-H2KIY3 |  |
| UniRef90-G0KIG9 | V]P E |
| UniRef90-R4P5D2 |  |
| UniRef90-B7SB80 | VP |
| UniRef90_G4Y905 |  |
| UniRef90-Q9DXE3 | V]P E I |
| UniRef90-G1UJA5 |  |
| UniRef90-M9YW55 |  |
| UniRef90-B0ZSQ0 |  |
| UniRef90-E2DK93 | VP Q |
| UniRef90-A0A024B8C6 |  |
| UniRef90-Q7TDD3 |  |
| UniRef90-Q1MVB9 |  |
| UniRef90-Q99119 | VP A V |
| UniRef90-S4V7M6 | V P Q |
| UniRef90-C7A866 |  |
| UniRef90-G2TUL7 | VP S $\square$ |
| UniRef90-G5DR96 |  |
| UniRef90-K9NXR9 |  |
| UniRef90_A0ZT63 | V]P Q I |

# K NVTVTHSVNLLEDSHN 

T K S Y F A N L K G T K T R
$\square$ C T G $\square$ T S S N S P HVVK T A T Q GEVNVTHFANDKGTETR


LVQSSST

DK $\square$ C $\square$ GHHAVANGT $\|$ VKT LTTNEQEEVTNATETVESASL $\square \mathrm{C} \square \mathrm{GHHADPNGTMVKTLTDDQ} \mathrm{\square EVVTAQELVESQHL}$
$\square$ T S S N S P H VVK T A T Q GEVNDT YF A N LK G T K T R
TT S S NSPHVVKTATQGEVNVTHFANLKGTKTR A DR $\square$ CTGUTSSNSPHVVKTATQGEVNVTYFANLKGTRTR
lupas 21
lupas_14
lupas_28
jnet conf sol25 sol5 sol0 jhmm


GK LCLLKG $\square$ AP $L$ Q $L G N C S V A G W \square L G N P E C E L L I S R E S W S Y$ GK LCP $\quad D C L N C T D \square D V A L G R P M C V G T T P S A K A S T$

MKGRSHKDLGNCHPTGMLIGTPACDLHLTGTWDT GK LCPK CLDNCTDLDVALGRPKCTGNIPSARVSI GE $\square C D \quad$ SPHQ LLDGKNCTLIDALLGDPQCDGFQN KKWDL GK $\square$ CN NPHR $\quad$ LDGRDCTLIDALLGDPHCDVF QDETWDL






$\square$

UniRef90 A9YYG4 UniRef90 G2U1T3 UniRef90-B2BSV2 UniRef90-D1LRG7 UniRef90 Q91II6 UniRef90 K4N776 UniRef90-Q5QE67 UniRef90-Q66VS2 UniRef90 B2KWG2 UniRef90_C0M556 UniRef90-I6T0X9 UniRef90-D7SFD4 UniRef90 C7A883 UniRef90_G1CB80 UniRef90-Q4ZIM9 UniRef90 Q30B91 UniRef90-D1MXC7 UniRef90-Q515P7 UniRef90 D2KLA5 UniRef90 R9WQA0 UniRef90_GOKTV3 UniRef90-Q1AN71 UniRef90-D8VNT1 UniRef90-12F8V3 UniRef90-Q50DH7 UniRef90-12F8V4 UniRef90 S4SNH4 UniRef90-Q8QR08 UniRef90-M9YVU3 UniRef90_R9WPN7
 SVNSFFSRLNWLHNLDYKYPA KESWPNHTTTGVSASCSHNGKSSFYKNLLWLTGKNGLYPN

QNVIDAEKAPGGPYSCPNATSKSFFATMAWAVPKDNNKNA GFTYSG $\square R T N G A T S A C R R S G S S F Y A E M K W L L S S T D N F P Q$ DFNWTGTTQNGGSSACKRGPNNSFFSRLNWLYKSGNTYPVV FTYGSS $\square$ NSAGTTKACMRNGGNSFYAELKWLVSKSKNFPQ HNVINAENAPGGPYSCPNTNGNGFFATMAWAVPKNNNKTT EFQWSTVKQNGKSGACKRANVNDFFNRDNWLVKSDGNYPD SFNWTGVTQNGTSSACDRRSKNSFFSRLNWLTHLNFKYPA DFNWTGVAQSGDSYACKRGSVKSFFSRLNWLHESEYKYPA GFTWTGVTQNGGSNACKRGPTSGFFSRLNWLTKSGSAYPV
 DT $\square \mathrm{W}$ NVSYSGTSKACS DSFYRSMRWLTQKNNAYP FTYGSSINSAGTTKACMRNGGNSFYAELKWLVSKSKNFPQ SFNWTGVTQNGTSSAC $\square$ RRSNSSFFSRLNWLTHDNFKYPA EFQWNTVKQNGKSGACKRANANDFFNRLNWLTKSDGNYPAL QNVIDAEKAPGGPYSCPNTSKSGFFATMAWAVPKDNNKNA QNVIDAEKAPGGPYSCPNATSKSFFATMAWAVPKDNNKNA TNGNGFFATMAWAVPKXDNNKT HNVINAEKAPGGPYSCPNTNGNGFFATMAWAVPKNDNNKT QNVI DAEKAPGGPYSCPNATSKSFFATMAWAVPKDNNKNA QNVI NAEKAPGGPYSCPNATSKSFFATMAWAVPRDNNKTT QNVI DAEKAPGGPYSCPNATSKSFFATMAWAVPRENNKTA QNVIDAEKAPGGPYRDGTASK DGFFATMA WAVPQDNNPGT

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lupas_21

lupas_14
lupas 28

jnet

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sol25

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solo

jhmm

ssm



UniRef90_A9YYG4 UniRef90 G2U1T3 UniRef90-B2BSV2 UniRef90-D1LRG7 UniRef90 Q91116 UniRef90-K4N776 UniRef90-O5QE67 UniRef90- Q66VS2 UniRef90 B2KWG2 UniRef90-COM556 UniRef90-16T0X9 UniRef90-D7SFD4 UniRef90 C7A883 UniRef90-G1CB80 UniRef90-Q4ZIM9 UniRef90 Q30B91 UniRef90-D1MXC7 UniRef90-O515P7 UniRef90-D2KLA5 UniRef90 R9WQAO UniRef90-G0KTV3 UniRef90-Q1AN71 UniRef90-D8VNT1 UniRef90-12F8V3 UniRef90-Q50DH7 UniRef90-12F8V4 UniRef90 S4SNH4 UniRef90-Q8QR08 UniRef90-M9YVU3 UniRef90_R9WPN7

VGSSNYQQSFVPSPGARPQVNGQSGRDDFHWLILNPNDTV VVSSHYSRRFTPEVKRPKVRDREGRINYYWTLLEPGDTL TSSANVTTHYVSQUGGFPDQTEQSGRIVVDYMMQKPGKTG VGSSNYQQSFVPSPGARPQVNGQSGRIDFHWLMLNPNDTV
 TSSANVTTHYVSQIGGFPNQTEQSGRIVVDYMVQKSGKTG VSTKTSQTSVVPNUGSRPWVRGQSGR\|SFYWTIVEPGDLI
VSTKRSQQTVIPNDGSRPWVRGLS SRTSTYWTUVKPGDUL VGSSKYQQSFTPSPGARPQVXGQSGR』DFHWLLLDPNDTV V SRRSQQTIIPNT
VTTENLDRTFKPVIGPRPLVNGLDGRTNYYWSVLKPGQTL VSTKRSQQTVIPNGGSRPRVRNUPSR』SDYWTIVKPGDIL VSTKRSQQAVIPN $\square$ GSRPR $\square R N \square P S R \square S \square Y W T\|V K P G D\| L$
TSSANVTTHYVSQTGGFPDQTEQSGRIVVDYMVQKPGKTG TSSANVTTHYVSQI GGFPDQTDDGGLPQSGRGVVDYM TSSANVTTHYVSQ| GGFPNQTEQSGRIVVDYMVQKSGKTG TSSANVTTRXVSQlV
TSSAN
TSSANTTTHYVSQTGGFPDQTEQSGRVVVDYMVKPGKTG TSSANVTTHYVSQUGDFPDQTEQSGRVVVDYMVQKPGKTG

UniRef90_A9YYG4 UniRef90 G2U1T3 UniRef90-B2BSV2 UniRef90-D1LRG7 UniRef90_Q91II6 UniRef90 K4N776 UniRef90-Q5QE67 UniRef90-Q66VS2 UniRef90-B2KWG2 UniRef90_C0M556
UniRef90-I6T0X9
UniRef90-D7SFD4 UniRef90 C7A883 UniRef90_G1CB80 UniRef90 Q4ZIM9 UniRef90 Q30B91 UniRef90-D1MXC7 UniRef90_Q5I5P7 UniRef90-D2KLA5 UniRef90 R9WQA0 UniRef90_GOKTV3 UniRef90-Q1AN71 UniRef90-D8VNT1 UniRef90-12F8V3 UniRef90-Q50DH7 UniRef90-I2F8V4 UniRef90-S4SNH4 UniRef90-Q8QR08 UniRef90-M9YVU3 UniRef90-R9WPN7

TFEANGNLI 25
250 260
$260 \quad 270$
270
280 L I N S TGNLIAPRGYFKGQSG KSSUMRSDAP【GNCNSEC【
TFSFNGAFVAPDRVSFF KGKSTGDQSEVPVDANCEGECY IFEANGNLIAP WYAFALSSRGFGSGI ITTSNAPMDECDAKCQ TVVYQRGVLDPQKVWCASGR SKVIKGSLPLDGEADCDH TFSFNGAFI APDRASFL RGKSMGIQSGVQVDANCEGDCY IINSNGNLI APRGYFKVHTG KSSIMRSDAPDDTCNSECI TFSHNGGLI APSRVSKLIGRGLG TDTYQRGILLPQKVWCASGR SKVIKGS VFNT IGGNLI APRGHYKLNSQKKSTILNTATPDGSCVSKCH
$\overline{L I}$ NSTGNLIAPRGYFK $\square R T G K S S \prod M R S D A P D G T C S S E$ TFTFNGAFUAPDRASF FRGGES LGVQSDVPLDSGCEGECF $R$ RRSNGNLIAPWYGHVLSGESHGRILKTNDNSGNCVVQCQ LINSTGNLIAPRGYFK RSGKSSUMRSDAPDGKCNSEC $\square$

L $\square$ N S T G N L I A PRGYFK $\square$ RS GKS S $\square \mathrm{M}$
$T \| V Y Q R G V L L P Q K \nabla W C A S G R S K$
T $\square$ T Y QRG L L LP QK VWCASGR SKVIKGS LP LIGEADC LH

T VVYQRGDLLPQKVWCASGR SKVIK GSDPLIGEADC
SKVIKGSLPLIGE
lupas 21
lupas_14
lupas_28
jnet conf sol25 sol5 sol0 jhmm

T IVYQRGVLLPQKVWCASGR TIVYQRGILVPQKVGCAS



 HSGGTDTSNLPFQNVNSRAVGKCPRYVKQKSLLLATGMKN $T P Q G A I N S S L P F Q N V H P Q T I G E C P K Y V R S A K L R M V T G L R N$ EKYGGLNKSKPYYTEHAKA IGNCP | KWV |
| :--- | HS G G T TPNGS $\square$ PNDKP

TDKGS $\square$ STTKPFQN $\square \mathrm{SR} \square \mathrm{A} \square \mathrm{GDC}$

HS G GT $\square$ VS S LPFQN $\square$ NPRTVGKCPRYVKQTSLLLGTGMRN
 TPNGSIPNDKT

EKYGG $\square$ NK S K P Y Y TEHAKA $\square$ GNCP $\square$ WVKTP $\quad \square K \square A N G T K Y$


UniRef90_A9YYG4 UniRef90 G2U1T3 UniRef90_B2BSV2 UniRef90_D1LRG7 UniRef90-Q91II6 UniRef90 K4N776 UniRef90_Q5QE67 UniRef90-Q66VS2 UniRef90 B2KWG2 UniRef90_C0M556 UniRef90_16T0X9 UniRef90-D7SFD4 UniRef90 C7A883 UniRef90_G1CB80 UniRef90_Q4ZIM9 UniRef90 Q30B91 UniRef90-D1MXC7 UniRef90_Q5I5P7
UniRef90-D2KLA5 UniRef90_R9WQA0 UniRef90_GOKTV3 UniRef90_Q1AN71 UniRef90-D8VNT1 UniRef90 - I2F8V3 UniRef90-Q50DH7 UniRef90_I2F8V4 UniRef90 S4SNH4 UniRef90_Q8QR08 UniRef90_M9YVU3 UniRef90_R9WPN7

V P E
$\mathrm{V} P \mathrm{P}$

VP E
VP A

R P

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    lupas_14
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    conf
    sol25
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    jhmm
    jpssm

