

**Figure 1 - figure supplement 1**

|                      | SH2-like   |    |
|----------------------|--|----|
| Ce-COMP-1            | -MTLVESKHDFFEMTEKSMENDDDIKDAI----FNNVPIITFIEAFVLKNPGDFFSMSKSLDG--AAYLSIVPGNNKMKKET | 73 |
| <i>C. briggsae</i>   | -MTLVESKSNVEITTKRSMDDDEIKDAL---FVNVSIPFIENFVLKNPGDFCVSTNLEG--ILYLSIVAHNPNTKKEGP    | 73 |
| <i>C. sinica</i>     | -MTLVESKSDFIITKKSLEDNEEVEDAL---FLNVTLPFIESFVFNKPGDFCVSRTLDD--IAYLSIVAHNPKNKKEGP    | 73 |
| <i>C. tropicalis</i> | -MTLVESKHEFETTKKLIENDRDITESM---FSNVTIPFIETFVLKNPGDYCVYKTIDG--VTYLSIVAKPNKNKKGTP    | 73 |
| <i>C. remanei</i>    | MTTLVESKAEFETTKRSMEDSEIKDAV---FYNVTVPFVETFVLKNPGDFCISRTIDG--AAYLSIAANK-KDKKGEV     | 73 |
| <i>C. japonica</i>   | -MTSLFASTQNSLETTVPRPDMFDDHFENATIFDVTFEFTFVLQKPGDFCVSQTLKG--QLFLSMLAES--AKDGD       | 74 |
| <i>C. angaria</i>    | -MASVKNSAEIDEKQMIYIDVPLNCIQL-----FVLQKPGECITQSKTDKTMFLFTIMLESEHGELILT              | 64 |
| <i>H. contortus</i>  | -MAAVECRVTE-RNADAELDADLLTMNINRVSLGNIPEDFI-SFILKKPGDFCISTNSFA--SYVLSIQSDK-----D     | 68 |
| <i>N. americanus</i> | -----MNTICKESNDRFQMDVNKVCLEVPDSFI-SFILDKCGDFCISTNALN--SYVFSIKSDG-----Q             | 59 |
| <i>A. ceylanicum</i> | MLATVASSEVAEKRRADAELDADLLTMNVNKKVCLGEIPDSFV-SFILERPGDFCISTNALN--SYVFSIKSDE-----H   | 70 |

|                      |   |     |
|----------------------|---|-----|
| Ce-COMP-1            | R-AIHLRIDHSENEYAIQGMFLFARSQTLEQLVYHLKNDFTDILGGVLDENISMNRLGLSSTNVHNICTGKRICKDKKIQ  | 152 |
| <i>C. briggsae</i>   | R-VINLRIEQSGKEYVIPGLIFARASSMRKLIYQKLNENIDILCGVLDENLSMDCLLGQSSTVMHNIHLTDKLTITNQSL  | 152 |
| <i>C. sinica</i>     | R-IINLVIEATGKDVGVPGLI FARAEIVGKLIYQKLNENTDILSGVLEEKLSLNRLLGPGSSTVMHNIHTGKLVSNQKML | 152 |
| <i>C. tropicalis</i> | Q-MVHLPIETSKKEVEIKGMLFASAKSIGQLIYQLRHEHIDILSGVLDKISMNHFLDTNSTVMHNIHWKGNIVKDKMHH   | 152 |
| <i>C. remanei</i>    | R-VVNLRVDDLEKEVGIPGMFFARADTLPOLIYQKLNENMDILSGVLEEKLTMRLLGPQVTAMHNILQGTGKSVKQVKRL  | 152 |
| <i>C. japonica</i>   | R-IVHLQVRAYDDGYGFRGMLFARGKTLGOLIFQL-HENIDILCGVLEKQLRFAHMMTASSIEVHNIHFEEKVKEVKVI-  | 151 |
| <i>C. angaria</i>    | RLNIQKILENDMKLYEQGIIFSKSSITHGMINKITSISINILSGILEQNIELNKLIIINTSLAQNNIYENEIEIRNKII   | 144 |
| <i>H. contortus</i>  | K-IFHLTLENTEDGFRIRSMFLFATGATIGELIYNIRDSSLDVLSGVLCGPVYPRMIKDVLGQFRFEAEHIS-KKLV     | 146 |
| <i>N. americanus</i> | K-TFHLTLETLRGGRIRGMLFATGATIGELIYNIRDSSLDVLSGVLCGRVYPRRLITKRIILPSFQIGEDCIVS-KRLT   | 137 |
| <i>A. ceylanicum</i> | K-TFHLTLEKLKRGYIRGMLFATGATIGELIYNIRDSSLDVLSGVLCRAYPRRLITKEVLPCFRISYDECIIS-KRLS    | 148 |

|                      | gk1149 deletion  | kinase-like |
|----------------------|--|-------------|
| Ce-COMP-1            | SQDFHHLVYTGEMKFADGKIKKALFEEHLNPT--ISDLKVIFYENLVEGKALAAARNLPIRLPIGAIL--NPPTLIYEHQEN | 228         |
| <i>C. briggsae</i>   | YRDIQTMITYTGEMKFADGKIKEAIFEQILHCRPGSTDHKVFFFEKIVNGKALSNKNLPIRLPIGAIL--TPPTLIYEN-KV | 229         |
| <i>C. sinica</i>     | SVDIDLTIYTGEMKFADGKIKEALFEQITHPDMSISERKVLFEKLVNGKNLANKNLPIRLPIGAIL--SPPTLIYENNKV   | 230         |
| <i>C. tropicalis</i> | FQDVFITITYTGEMKFADGKIKEVLFEEITSPD--KTKYKVFFFEKLVNGKALSTKNLPIRLPIGAIL--NPPTLIFEQNGT | 228         |
| <i>C. remanei</i>    | SQDTASPIYIGEMKFSDGKIKEGVFEFPGGGQNPTLEKTFEKLVSNSKSLRGKNLPIRIPIGAIM--NPPTLIYENNKL    | 230         |
| <i>C. japonica</i>   | DRSLHFTKYTGEMKFADGRVKEAMFEEAKNVD--NEYMEKFFSKMVTVAALIEKHLPVRLPIAAFI--SPPTLIYDLQKE   | 227         |
| <i>C. angaria</i>    | ANDHKMTMYKGEITLFDGTKQVEIVEPSPAM---DSDDFRKKIFEFERFKMRQLPVRLPIAAVL--STPALMFPA--      | 216         |
| <i>H. contortus</i>  | NEDSRFKYYESQVLM-NDTYTNVLLKGSRRMS-PAEWREQMYDELRSVSVARELHLPMTVHGILRA-ENGVIYIDNK--    | 221         |
| <i>N. americanus</i> | HEBDFRYSHANII-DOKFINVILKENKRLN-ETNQMHMYDELRSVSYLAKELHLPVRIILGLIRARNEQYIYIDNN--     | 213         |
| <i>A. ceylanicum</i> | YEDVDFRYFRGNIFI-NQEFDTVILKENKRLT-DANWKMHMYDELRSVSYLAKELHLPVRIIIGLIRANNGYIYIDSN--   | 223         |

|                      |  |     |
|----------------------|--|-----|
| Ce-COMP-1            | QVGCSLKDFLKNFDTHTLDLAQRIKLCSSAVRILSELHHRFDIYHGASKVDNFYV--LGYKNEKTMNYELVFNAGSGLLYEG | 306 |
| <i>C. briggsae</i>   | ELGSLLESFLKTRQSELDLTQRIKFCSSAVRILSELHQCDIYHGASQMENFYVEFAGFKPKTMKNYELVFSGANGLLIQ    | 309 |
| <i>C. sinica</i>     | ELGNTLEKFLKNREEQLDLTQRIKFCSSAVRILSELHQSDIYHGASQMENFYVEFAGLKPCKTMKNYELIFNGANGLLVQ   | 310 |
| <i>C. tropicalis</i> | ETGCSLEHFLKNFYIDLDLSQRIKLCSSVVRILSELHMDIYHGASRIENFYVEQNGNKNSTKTNFELVFNAGNLIQ       | 308 |
| <i>C. remanei</i>    | EVGCNLEDFLFFHQNRDLDTQRIKFCSSAVRILSELHADIYHGASQLEHFFYVDFVGFKNEDIKNYELVFNAGSLIREG    | 310 |
| <i>C. japonica</i>   | NSGFPLSYILKHHNLLDLTQRVKLCSSAVRVMSELHQADIFHGALIAKNFNLNFI--NDGVKEYELVFNAGSGLLFLG     | 306 |
| <i>C. angaria</i>    | -KGYNLCYILCNVQHSLEDFVQRIKICSSICRVSEVLADDFYHGGILAEHFYCOQIDSESGVKTMLMFASADGLVDS-     | 294 |
| <i>H. contortus</i>  | -PGCEFSRFLBEEYDDKLDLGTRIKLCRALASVMSGLYNADIYCGAVKLDNFYAYYV GALPYS--RIQLVFTGADLTPL-  | 297 |
| <i>N. americanus</i> | -PGCDFSRFMEENADRFDGCVKIKLCRALASVMSGLYNADIYCGTVMENFFVYYVDAVPCG--QIQIVFAEGRDLTPV-    | 289 |
| <i>A. ceylanicum</i> | -PGCDFARFMEENGDRMDCGLKIKLCRALASVMSGLFNADIYCGAVKMFHVVYYVAQRGLR--KRLRKSSLFIFPEQL-    | 299 |

|                      |   |     |
|----------------------|---|-----|
| Ce-COMP-1            | KSDNTVTMVDYDSNAPEVAFTRKLSKESGVFTLGRLEQILESEILKSYSEPPQEEPRVLNDRRLIGRATRANPSORPT  | 386 |
| <i>C. briggsae</i>   | KSDNTVHVVDYDSTAPEVAFTRKLTKEGVSFNLGRLEQILKPDLIQSYKEES-EEPRALNEMRHLSRTTHPNPTRRPT  | 388 |
| <i>C. sinica</i>     | KSDNTVRVVDYDSTAPEVAFTRKLTKEGVSFNLGRLEQILRPDLIKSYKDC-QEEPRSLNEMRHVARATHPNPTRRPT  | 389 |
| <i>C. tropicalis</i> | ITDNTVSIVDYDSNAPEVAFTRKLTKEGVSFNLGRLEQILKPDLIKAYKQDQ--EPRALEEMRHVARATHPNPSRRPT  | 386 |
| <i>C. remanei</i>    | KSDNSVSVIDYDSTAPEVAFTRKLTKEGVSFNLGRLEQILKPDLFKSYSENEGSPESLTEMRRILSRATHPNPTRRPT  | 390 |
| <i>C. japonica</i>   | KSDCSVSLIDYDLNAPELAFTRKLTKEGVSFNLGRLEQILKTEILKTYQKNAPEDPALREMRQMTARATHPNPYHRT   | 386 |
| <i>C. angaria</i>    | RIEKRNTMIDYDQYAPVFSFTRILNRPSTGVNTGKLFARILQPDVLKBEKS---WPGALKAMKVLIDKSVRPNPYDRPT | 370 |
| <i>H. contortus</i>  | EKTKPIDSGDFSQMAPEVSWTRLLTPEAGVHSMGLVLRRLVGHLPPLPSQDPN--ASLLPRINALISKCLHPRPSPERS | 374 |
| <i>N. americanus</i> | DQLRPVDSGDFTRMAPEVTWTRILTPAGVFSMGLLLREVLEFGPRLSKDPN--FELVTRVEALIRKCMHSRPSERPS   | 366 |
| <i>A. ceylanicum</i> | SQLRPVESGDFTRMAPEVTWTRILTPAGVFSMGLVLRVAVLESVGRPSKDPN--FEMLTRVEALIQKCTHSPKSPERS  | 376 |

**me69: G389R**

|                      |                                      |     |
|----------------------|--------------------------------------|-----|
| Ce-COMP-1            | MNGIVMLIRELLMALPKSTSPINV---VHYDQFQRK | 419 |
| <i>C. briggsae</i>   | MHGIVMMIRDILQKNTQSTSPINI---VHFDQFTKN | 421 |
| <i>C. sinica</i>     | MHGIVMIVRDILQKAPQSTSPINV---VHFDQFTKN | 422 |
| <i>C. tropicalis</i> | MHGIIIMIRDVLLLTDPSSSSVNI---VHFNQFSTE | 419 |
| <i>C. remanei</i>    | MHGIVMMIRDVLLKAPKSNSHICM---VHFDQFTN  | 422 |
| <i>C. japonica</i>   | TNGIVMMIRETLKILPPSSAPVNF---VHYDQFAI  | 418 |
| <i>C. angaria</i>    | IDGMVIMCRHILTLLELSPKSDCKNFVHYNOYD    | 404 |
| <i>H. contortus</i>  | MNGIFLELDNAAGS-----VRHTRQPRWTPI      | 400 |
| <i>N. americanus</i> | VHGIFIELDSIASFIK-----QTRHFWQPV       | 392 |
| <i>A. ceylanicum</i> | VHGIFIELDAITKHLK-----QTKYQFWQPL      | 402 |