Supplementary material

Calmodulin disruption impacts growth and motility in juvenile liver fluke

Erin M. McCammick [a], Paul McVeigh [a], Paul McCusker [a], David J. Timson [a], Russell M. Morphew [b], Peter M. Brophy [b], Nikki J. Marks [a], Angela Mousley [a], Aaron G. Maule [a,*]

*Address correspondence to A G Maule, a.maule@qub.ac.uk

```
FhCaM1_scaff210         -ADQLTEEQIAEFKEAFSLFDKDGDGTITTKELGTVMRSLGQNPTEAELQDMINEVDADG
FhCaM1_scaff932_1       MADQLTEEQIAEFKEAFFLFDKDGDGTITTKELGTVMRSLGQNPTEAELQDMINEVDAD-
FhCaM1_scaff932_2       ------------------LFDKDGDGTITTKELGTVMRSLGQNPTEAELQDMINEVDAD-
FhCaM2_scaff2277        -VHHLSQDDIEVLRRAFSMYDQNGDGEIDATELKGVMWRLGCKPSDAEVREMIRKVDFD-
FhCaM3_scaff1560        MA---DFDMDHQLKEAFRNIDKNGDGFLSQDEISECLEMFGFKKNQSEYFMTLYDT---N
                                          *::*** :   *:   :  :* : .::*    : ..
                                    <      Linker Helix      >
FhCaM1_scaff932_1       GNGTIDFPEFLTMMARKMKDTDS-EEEIREAFRVFDKDGNGFISAAEL-RHVMTNLGEKL
FhCaM1_scaff932_2       GNGTIDFPEFLTMMARKMKDTDS-EEEIREAFRVFDKDGNGFISAAEL-RHVMTNLGEKL
FhCaM1_scaff210         GNGTIDFPEFLTMMARKMKDTDS-EEEIREAFRVFDKDGNGFISAAELRRHVMTNLGEKL
FhCaM2_scaff2277        DSGTINFPEFISMMVQKKRHAET-DANLRIAFQFFDRNGDGYISPEELRSVL-HKYRGNL
FhCaM3_scaff1560        NDGKISLDEFIKTTKRRVSDRDTTCALLRNTFRTIDQDHSGKITASELHKFFN-SSMGIV
                         .*.*.: **:.   ::  . ::    :* :*: :*:: .* *:  **   .  .    :

FhCaM1_scaff932_1       TDEEVDEMIREADIDGDGQVNYEEFVKMMTAK-
FhCaM1_scaff932_2       TDEEVDEMIREADIDGDGQVNYEEFVKMMTAK-
FhCaM1_scaff210         TDEEVDEMIREADIDGDGQVNYE----------
FhCaM2_scaff2277        DNNETEAIIKTVDTDRDGKLNYEEFLTLLRNQ-
FhCaM3_scaff1560        VPTTVEQWIEDHDKDGDNALSFEEFLEFAYEYL
                            .:  *.  * * *  :.:*
```

Supplementary Figure 1

Multiple amino acid sequence alignment of the *F. hepatica* calmodulin proteins encoded in the genome. An asterisk (*) indicates fully conserved/identical amino acids, a colon (:) indicates conservation between strongly similar amino acids, and a period (.) indicates conservation between weakly similar amino acids. Gray shading indicates the EF-hand domains (Ca-binding sites) and the brackets enclose the alpha-helix linker domain. These proteins are coded for at the following (inclusive) locations: FhCaM1_Scaff932_1, 149aa, coded at positions 97899-98345; FhCaM1_Scaff932_2, 131aa, coded at positions 98778-99170; FhCaM1_Scaff210, 139aa, coded at positions 222587-222763, 222801-222938, 227165-227266; FhCaM2_Scaff 2277, 148aa, coded at positions 89419-89246, 89207-89067, 74404-74303, 73311-73285; FhCaM3_Scaff1560, 146aa, coded at positions 175743-175609, 169742-169644, 168552-168394, 167886-167842. Note FhCaM2 and FhCaM3 are coded on the reverse strand of their respective scaffolds and the positions presented represent the complement strand.