**The Schistosome and Snail Resource (SSR) – Maximising snail and cercariae production by investigating snail-schistosome compatibility.**

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Introduction:
The Schistosome Snail Resource (SSR) is a Wellcome Trust funded centralised schistosomiasis resource, run through a partnership between the Natural History Museum (NHM) and the London School of Hygiene and Tropical Medicine (LSHTM) in London, UK. Schistosomiasis is a parasitic disease caused by schistosomes and transmitted by freshwater snails. It is one of the most common, of the neglected tropical diseases but the complexity of its lifecycle means few laboratories maintain it, which is a barrier to research. Moreover, schistosome strains maintained in laboratories lack genetic heterogeneity present in natural populations. The NHM's and LSHTM's purpose-built facilities have been working together for over two years providing UK and international researchers with material necessary for conducting research on schistosomiasis. Among other strains, SSR maintains and provides research material from the widely used *S. mansoni-B. glabrata* NMRI system. As the demand for this standard material increased, so did our need to optimize material production so that we could standardise snail infection rates and also enable highly productive infections leading to the reduction in the numbers of snails needed to be bred and maintained.

Methods:
The NHM snail lab has been maintaining different strains of *Biomphalaria glabrata* snails for many years. Although, all these strains have been selected for their compatibility to infections with *Schistosoma mansoni*, we have observed differences in infection efficiency. In order to streamline our culturing efforts and to limit potential bias in future experiments we compared infection rates, cercarial production, shell growth rate and mortality for four strains of *Biomphalaria glabrata* maintained in our facility in order to identify the best host.

Results:
We found significant differences in infection rate and in numbers of cercariae produced by different strains. Infected snails also grew much faster, indicating relocation of material for growth. Notably, the highly inbred melanistic strain of *B. glabrata* that was recently derived from one individual snail showed the highest level of infection rate as well as the highest cercarial output.

Conclusions:
We decided to focus with our *S. mansoni* infections on the highly inbred strain which in short time resulted in higher infection rates and lowered workload necessary to maintain snail cultures. Our experiment shows the necessity of constant assessment of snail/schistosomes compatibility as the infection rate can easily increase or decrease by random selection of alleles impacting transmission.