BIOMEDICAL RESEARCH INSTITUTE
9410 Key West Avenue
Rockville, MD 20850
Ph 301-329-0412
www.afbr-bri.org

B. glabrata growth conditions following exposure to *Schistosoma*

Introduction

The length of the prepatent phase of *S. mansoni* in *B. glabrata* is highly dependent on 4 critical maintenance conditions: water quality, temperature, light, and food. In the weeks following their exposure to *Schistosoma* miracidia, it is critical to grow the snails as large as possible so that they can sustain themselves as well as the parasites they harbor.

Guidelines for *B. glabrata* housing following exposure to *Schistosoma* miracidia:

- low density aquaria, preferably N $\leq$ 50 per 5-6L of water for a large container, or N $\leq$ 25 per 1.5-2L water for small aquaria (pans/trays)
- use artificial pond water (https://www.afbr-bri.org/schistosomiasis/standard-operating-procedures/artificial-pond-water/); in the absence of APW, commercial spring water can be used. Check the water daily to ensure there is no contaminant overgrowth. If the water has fouled, or the snails are out of the water (water rejection behavior), gently transfer the snails to a new container with fresh water
- room should be low light or dark; overlay the aquarium with a dark cover if your snails are maintained in an illuminated workspace
- room temperature: ideal at 27-30°C; aquaria water temperature: ideal at 26-28°C
- *B. glabrata* infected with *S. mansoni* (NMRI or PR1) will begin to liberate (shed) cercariae 28-30 days following exposure to miracidia

Note: It is best to split your snails into multiple containers, this ensures less competition for food and prevents total loss if the water fouls from contaminants.

Equipment

Incubator or modified room that can hold a steady temperature; low or controlled lighting

Materials and reagents

- Suitable pans for maintaining snails (examples: hydroponic pans, food storage containers)
- Lettuce e.g., romaine (avoid a tender lettuce e.g., butter lettuce)
- Artificial Pond Water or commercial spring water

Procedure

- Maintain *B. glabrata* spp. in a container at low density: about 10-15 snails per liter of water
- For a food source, use fresh lettuce, algae, gel snail food, or a combination

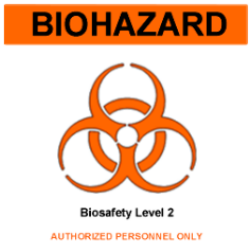
- Be careful not to overfeed, give the snails enough food that can be cleared in 2 days.
- Change the aquarium water if it becomes cloudy, snails are clinging to the perimeter at the water's edge, or a foul odor is detected.

Recommendations

The greatest amount of cercarial shedding typically occurs 1-2 weeks after initial shedding, but absolute numbers of cercariae vary between snails and are dependent upon many factors.

Caution

Schistosoma spp. cercariae are infectious to humans and can penetrate exposed skin. For Biosafety Level 2 pathogens, always use personal protective equipment (lab-coat, gloves, plastic sleeve covers, and face shield) when working with cercariae. If exposed, immediately wash the skin with 70% EtOH and monitor for irritation. Report the exposure to your supervisor.



References

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2. Standen, O. D. 1952. Experimental infection of *Australorbis glabratus* with *Schistosoma mansoni*. I. Individual and mass infection of snails, and the relationship of infection to temperature and season. Annals of Tropical Medicine and Parasitology 46: 48-53.
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4. Tucker, M. S., Karunaratne, L. B., Lewis, F. A., Frietas, T. C., and Liang, Y-S. 2013. Schistosomiasis, in *Current Protocols in Immunology* 19.1.1-19.1.57.

For questions about this protocol, contact the SRC: E-mail mmentinkkane@afbr-bri.org