

***Schistosoma mansoni*, Strain PR-1, Liver from Exposed Swiss Webster Mice**

Catalog No. NR-59614

This reagent is the property of the U.S. Government.

For research use only. Not for use in humans.

Contributor and Manufacturer:

Margaret Mentink-Kane, Principal Investigator, Schistosomiasis Resource Center, Biomedical Research Institute, Rockville, Maryland, USA (NIH-NIAID Contract HHSN2700014I)

Product Description:

Flatworm Classification: *Schistosomatidae*, *Schistosoma*

Species: *Schistosoma mansoni*

Strain: PR-1

Host: *Mus musculus* (mouse)

Original Source: *Schistosoma mansoni* (*S. mansoni*), strain PR-1 was collected from infected snails in Arecibo, Puerto Rico in 1950.¹

Comments: Strain PR-1 was maintained by NIH/NIAID until 1978 when it was brought to the Biomedical Research Institute.¹

S. mansoni is a species of trematode worm that causes the chronic parasitic disease schistosomiasis. Worldwide, more than 200 million people are infected, and nearly 700 million are at risk, primarily in areas with poor sanitation that lack access to safe drinking water.²

Infection occurs through contact with larval-stage schistosomes (cercariae) that are released by freshwater snails. Upon exposure to infested water, these larvae penetrate human skin and travel through blood vessels to the liver where they mature and deposit eggs. Some of these eggs are then passed through human feces into water to re-infect the snail host and continue the parasite's life cycle. Schistosome eggs that remain in the human body cause an immune response and damage to internal organs.²

Material Provided:

NR-59614 consists of liver(s) from female Swiss Webster mice (Taconic Biosciences or Charles River Laboratories) that were exposed to ~ 200 cercariae of *S. mansoni*, strain PR-1, and euthanized at 7 weeks post-infection. Livers are collected following mouse perfusion.

Packaging/Storage:

Liver(s) are placed in a 50cc tube with cold saline and shipped in an insulated shipper with cold packs. Upon arrival the livers should be processed to isolate parasite eggs.

Collection of *Schistosoma* Eggs:³

1. Place the livers in cold 1.2% NaCl.
2. Homogenize in a laboratory blender for 30 seconds until the liver is a smooth consistency.

3. Place the homogenate in the top tier (420 µm) of stainless-steel sieves and allow it to pass through the tier of stacked sieves, from the largest pore size on top to the smallest pore size (45 µm) on the bottom tier while rinsing the tissue continuously on the top sieve with a spray apparatus containing 1.2% NaCl. Agitate the sieves throughout the entire process to ensure that most of the eggs will pass through to the lowest sieve.
4. For best results, re-homogenize the homogenate trapped on the top sieve in a laboratory blender and pass the homogenate through the sieves again, using the technique described.
5. Remove the upper three sieves; the fluid remaining in the lowest sieve (45 µm pore size) will contain the eggs.
6. Pour the suspension into a glass petri dish and add 1.2% cold NaCl so that the dish is about ½ full. The egg suspension will contain eggs of several stages of maturation. Cold NaCl will keep most of the eggs from hatching into miracidia; keep eggs on ice in between swirling. To enrich the population for mature eggs, gently swirl the dish over a light box (for better visibility). Mature eggs will concentrate in the center of the vortex. These can be withdrawn with a Pasteur pipette and placed in a 15 mL test tube on ice. Keeping the volume of the egg suspension in the petri dish constant by adding fresh cold 1.2% NaCl as needed, continue to swirl the dish and collect eggs from the center until no more can be seen concentrating in the center. After 3-4 complete cycles, the resulting egg population will be highly enriched in mature eggs.^{4,5}
7. Centrifuge eggs for 5 minutes at 100 × g. If freezing the eggs, pour off supernatant and freeze eggs as a "dry" pellet.

Citation:

Acknowledgment for publications should read "The following reagent was provided by the Schistosomiasis Resource Center of the Biomedical Research Institute through NIH-NIAID Contract HHSN272201700014I for distribution through BEI Resources, NIAID, NIH: *Schistosoma mansoni*, Strain PR-1, Liver from Exposed Swiss Webster Mice, NR-59614."

Biosafety Level: 1

Appropriate safety procedures should always be used with this material. Laboratory safety is discussed in the following publication: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, and National Institutes of Health. [Biosafety in Microbiological and Biomedical Laboratories \(BMBL\)](#). 6th ed. Washington, DC: U.S. Government Printing Office, 2020.

Disclaimers:

You are authorized to use this product for research use only. It is not intended for human use.

Use of this product is subject to the terms and conditions of the BEI Resources Material Transfer Agreement (MTA). The MTA is available on our Web site at www.beiresources.org.

While BEI Resources uses reasonable efforts to include accurate and up-to-date information on this product sheet, neither ATCC® nor the U.S. Government makes any warranties or representations as to its accuracy. Citations from scientific literature and patents are provided for informational purposes only. Neither ATCC® nor the U.S. Government warrants that such information has been confirmed to be accurate.

This product is sent with the condition that you are responsible for its safe storage, handling, use and disposal. ATCC® and the U.S. Government are not liable for any damages or injuries arising from receipt and/or use of this product. While reasonable effort is made to ensure authenticity and reliability of materials on deposit, the U.S. Government, ATCC®, their suppliers and contributors to BEI Resources are not liable for damages arising from the misidentification or misrepresentation of products.

Use Restrictions:

This material is distributed for internal research, non-commercial purposes only. This material, its product or its derivatives may not be distributed to third parties. Except as performed under a U.S. Government contract, individuals contemplating commercial use of the material, its products or its derivatives must contact the contributor to determine if a license is required. U.S. Government contractors may need a license before first commercial sale. This material may be subject to third party patent rights.

References:

1. Lewis, F. A., et al. "Large-Scale Laboratory Maintenance of *Schistosoma mansoni*, with Observations on Three Schistosome/Snail Host Combinations." J. Parasitol. 72 (1986): 813-829. PubMed: 3546654.
2. Verjee, M. A. "Schistosomiasis: Still a Cause of Significant Morbidity and Mortality." Res. Rep. Trop. Med. 10 (2019): 153-163. PubMed: 32099508.
3. Tucker, M. S., et al. "Schistosomiasis." Curr. Protoc. Immunol. 103 (2013): 19.1.1-19.1.58. PubMed: 24510597.
4. Blouin, M. S., S. R. Bollmann and J. A. Tennessen. "PTC2 Region Genotypes Counteract *Biomphalaria glabrata* Population Differences Between M-Line and BS90 in Resistance to Infection by *Schistosoma mansoni*." PeerJ. 10 (2022): 13971. PubMed: 36117535.
5. Marquez, J., et al. "Molecular Characterization of Thioester-Containing Proteins in *Biomphalaria glabrata* and Their Differential Gene Expression upon *Schistosoma mansoni* Exposure." Front. Immunol. 13 (2022): 903158. PubMed: 35967434.

ATCC® is a trademark of the American Type Culture Collection.

