

***Schistosoma mansoni*, Strain NMRI, Newly Exposed Swiss Webster Mice**

**Catalog No. NR-21963**

**For research use only. Not for use in humans.**

**Contributor and Manufacturer:**

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**Product Description:**

Flatworm Classification: *Schistosomatidae*, *Schistosoma*

Species: *Schistosoma mansoni*

Strain: NMRI

Host: *Mus musculus* (mouse)

Original Source: *Schistosoma mansoni* (*S. mansoni*), strain NMRI was isolated in the 1940s from *S. mansoni* eggs obtained from infected Puerto Rican school children.<sup>1</sup>

Comment: Strain NMRI was brought to the Naval Medical Research Institute (NMRI) in 1945, where it was maintained until 1971, at which time it was transferred to the Biomedical Research Institute.<sup>2</sup>

*S. mansoni* is a species of trematode worm which 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.<sup>3</sup>

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.<sup>3</sup>

**Material Provided:**

NR-21963 consists of female Swiss-Webster mice obtained from Taconic or Charles River Laboratory and newly exposed to *S. mansoni*, strain NMRI.

**Packaging/Storage:**

*S. mansoni*, strain NMRI, newly exposed Swiss Webster mice are placed in transfer cages with adequate food and water sources and shipped overnight. Upon arrival they should be immediately placed in cages at the recipient institute's animal facility.

**Collection of *Schistosoma* miracidia:<sup>4</sup>**

1. Euthanize mouse by intraperitoneal injection of 0.3 mL sodium pentobarbital (65 mg/mL) with heparin (10000 units/mL).

2. Remove liver and small and large intestines. Rinse tissues in 1.2% NaCl. If using intestines, remove and wash with 1.2% NaCl repeatedly.
3. Blend liver/intestines in filtered tap water that has been aerated for 2 to 3 days (conditioned water) for 20 seconds in a Waring blender. Centrifuge homogenate for 5 minutes (300 x g) at room temperature.
4. Pour off supernatant. Add 5 mL conditioned water and shake tube vigorously for several seconds. Dilute suspension at least 100-fold in conditioned water. For optimal hatching, use conditioned water between 26°C and 28°C.
5. Place suspension in darkened side-arm flask. Make sure that water fills the unpainted sidearm.
6. Direct a light source at exposed unpainted part of side arm. Miracidia will swim to this area after hatching and collect within the unpainted side arm within 10 to 20 minutes.
7. Remove miracidia from the side arm using a fine-tipped Pasteur pipette and place in a Petri dish that contains conditioned water.

**Citation:**

Acknowledgment for publications should read "The following reagent was provided by the NIAID Schistosomiasis Resource Center for distribution through BEI Resources, NIAID, NIH: *Schistosoma mansoni*, Strain NMRI, Newly Exposed Swiss Webster Mice, NR-21963."

**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.

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**References:**

1. Mentink-Kane, M., Personal Communication.
2. 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.
3. Carvalho E. M. and A. A. M. Lima. "Schistosomiasis (Bilharziasis)." In: Goldman L, Ausiello D, eds. *Cecil Medicine*. 23rd ed. Philadelphia, Pa: Saunders Elsevier; 2007: Chap 376.
4. Lewis, F. "Schistosomiasis." Curr. Protoc. Immunol. Chapter 19: (2001): Unit 19.1. PubMed: 18432750.

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