

***Dirofilaria immitis*, Strain Missouri, Microfilariae in Dog Blood (Live)**

**Catalog No. NR-48907**

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**Contributor:**

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**Manufacturer:**

Filariasis Research Reagent Resource Center supported by Contract HHSN2722010000301, NIH-NIAID Animal Models of Infectious Disease Program

**Product Description:**

Classification: *Onchocercidae, Dirofilaria*

Species: *Dirofilaria immitis*

Strain: Missouri

Original Source: *Dirofilaria immitis* (*D. immitis*), strain Missouri was originally obtained from TRS Laboratories in Athens, Georgia, USA.<sup>1</sup>

*D. immitis* is a filarial nematode that causes cardiopulmonary dirofilariasis in wild and domesticated canines and felines, and is the causative parasite of human pulmonary dirofilariasis.<sup>2</sup> *D. immitis* is commonly known as heartworm disease.

*D. immitis* is a mosquito-borne filarial worm. In the case of canines for which *D. immitis* is best adapted, mosquitos deposit infective third stage larvae (L3) on the skin which penetrate the host. Maturation from stage L3 to L4 occurs between 3 and 12 days post-infection followed by a subsequent molt producing juvenile adult worms between 50 and 70 days post-infection. The first juvenile adult worms arrive in the pulmonary artery and right ventricle of the heart between 70 and 85 days post-infection and reach sexual maturity approximately 120 days post-infection. Adult females are able to produce and release microfilariae between 6 and 9 months post-infection, which can be taken up by mosquitos during a blood meal.<sup>3</sup>

Humans and felines are much less suitable hosts. In humans, *D. immitis* may be able to reach a branch of the human pulmonary artery, but would trigger an immune response that destroys the immature nematodes; this infrequently results in pulmonary nodules.<sup>3</sup> In felines, cardiopulmonary dirofilariasis follows a similar life cycle as in canines, but is often asymptomatic, and there is a marked reduction in nematode

fertility and viability.<sup>3</sup>

**Material Provided:**

NR-48907 consists of up to 20 mL of microfilaremic dog blood. If more material is required for your intended use, please contact BEI Customer Services at [contact@beiresources.org](mailto:contact@beiresources.org), to request the additional material.

**Packaging/Storage:**

NR-48907 was packaged in 50 mL conical tubes. The product is provided at room temperature and can be stored at room temperature for up to 3 days. After 3 days the material should be frozen and stored at -20°C or colder. Note: Freezing will kill the microfilariae, please consider your application prior to freezing this material.

**Citation:**

Acknowledgment for publications should read “The following reagent was provided by the NIH/NIAID Filariasis Research Reagent Resource Center for distribution by BEI Resources, NIAID, NIH: *Dirofilaria immitis*, Strain Missouri, Microfilariae in Dog Blood (Live), NR-48907.”

**Biosafety Level: 2**

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. 5th ed. Washington, DC: U.S. Government Printing Office, 2009; see [www.cdc.gov/biosafety/publications/bmb15/index.htm](http://www.cdc.gov/biosafety/publications/bmb15/index.htm).

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**References:**

1. Michalski, M. L., et al. "The NIH-NIAID Filariasis Research Reagent Resource Center." *PLoS Negl. Trop. Dis.* 5 (2011): e1261. PubMed: 22140585.
2. Morchon R., et al. "Heartworm Disease (*Dirofilaria immitis*) and Their Vectors in Europe – New Distribution Trends." *Front. Physiol.* 3 (2012): e00196. PubMed: 22701433.
3. Simón, F., et al. "Human and Animal Dirofilariasis: the Emergence of a Zoonotic Mosaic." *Clin. Microbiol. Rev.* 25 (2012): 507-544. PubMed: 22763636.

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