

Stage L3 *Dirofilaria immitis*, Strain JYD-27, Infective Larvae (Live)

Catalog No. NR-49170

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Contributor:

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Manufacturer:

Filariasis Research Reagent Resource Center supported by Contract HHSN272201000030I, NIH-NIAID Animal Models of Infectious Disease Program

Product Description:

Classification: *Onchocercidae, Dirofilaria*

Species: *Dirofilaria immitis*

Strain: JYD-27

Comment: *Dirofilaria immitis* (*D. immitis*), strain JYD-27 is a subsequent passage of strain JYD-34. Dogs inoculated with JYD-27 infective larvae (L3) have not received any macrocyclic lactone drugs. This strain cannot be definitively categorized as a resistant strain.¹

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.² *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, mosquitoes 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 mosquitoes during a blood meal.³

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.³ 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.³

Material Provided:

NR-49170 consists of up to 1000 stage L3 *D. immitis* infective larvae. If more material is required for your intended use, please contact BEI Customer Services at contact@beiresources.org, to request the additional material.

Packaging/Storage:

NR-49170 was packaged in 50 mL conical tubes. The product is provided at room temperature and should be placed in an incubator, used immediately, or frozen and stored at -20°C or colder. Note: Freezing will kill the larvae, 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: Stage L3 *Dirofilaria immitis*, Strain JYD-27, Infective Larvae (Live), NR-49170.”

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.

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References:

1. Moorhead, A. R., Personal Communication.
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. Simonsen, P. E. and M. E. Mwakitalu. "Urban Lymphatic Filariasis." Parasitol. Res. 112 (2013): 35-44. PubMed: 23239094.

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