

Genomic DNA from Adult Female *Dirofilaria immitis*, Strain Missouri 2005

Catalog No. NR-44348

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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:

NR-44348 is a preparation of genomic DNA extracted from adult female *Dirofilaria immitis* (*D. immitis*), strain Missouri 2005. *D. immitis*, strain Missouri 2005 was originally obtained from TRS labs in Athens, Georgia, USA.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 and transmission relies on mosquitos as a vector. 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 pre-adult stage L5 worms between 50 and 70 days post-infection. The first L5 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.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:

Each vial of NR-44348 contains approximately 0.25 µg of RNase A treated genomic DNA in TE buffer (1 mM Tris-HCl, 0.1 mM EDTA, pH ~ 8). The concentration is shown on the

Certificate of Analysis. The vial should be centrifuged prior to opening.

Packaging/Storage:

NR-44348 was packaged in plastic vials. The product is provided frozen and should be stored at -20°C or colder upon arrival. Freeze-thaw cycles should be minimized.

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: Genomic DNA from Adult Female *Dirofilaria immitis*, Strain Missouri 2005, NR-44348."

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](#). 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. 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 *Dirofilaria immitis*: The Emergence of a Zoonotic Mosaic." Clin. Microbiol. Rev. 25 (2012): 507-544. PubMed: 22763636.

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