

## ***Coccidioides immitis*, Strain 2395**

**Catalog No. NR-48938**

**For research use only. Not for human use.**

### **Contributor:**

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### **Manufacturer:**

BEI Resources

### **Product Description:**

Classification: *Onygenales, Coccidioides*

Species: *Coccidioides immitis*

Strain/Isolate: 2395 (also referred to as RMSCC 2395 and CBS 113851)<sup>1,2</sup>

Original Source: *Coccidioides immitis* (*C. immitis*), strain 2395 was isolated in the 1990s from a human in San Diego, California, USA.<sup>1,2</sup>

*C. immitis* is a dimorphic fungal pathogen and causative agent of coccidioidomycosis, also known as San Joaquin Valley fever, in both immunocompetent and immunocompromised humans, as well as in mammals, primarily in arid regions of North and South America.<sup>3</sup> Transmission occurs through inhalation of the infectious airborne arthroconidia from soil, which undergo an asexual life cycle and enlarge to form parasitic spherules that eventually rupture to release endospores, leading to a potentially fatal, disseminated disease.<sup>3-5</sup> While transmission between hosts has not been established, infection through transplanted tissues has occurred.<sup>6</sup> The original classification as a single species with two distinct geographic populations, California and non-California *C. immitis*, has evolved, with the non-California isolates established as a new species, *C. posadasii*, in 2002.<sup>4,7,8</sup> The current geographic distribution of *C. immitis* isolates includes Central and Southern California, Arizona, Utah, Washington, the Baja California region of Mexico, and Colombia.<sup>4,6,9</sup> Analysis of hybrid genotypes suggests the two species may co-exist in nature and undergo sexual reproduction, with predominant gene flow from *C. posadasii* to *C. immitis*.<sup>4,10,11</sup>

### **Material Provided:**

Each vial of NR-48938 contains approximately 0.7 mL of fungal culture containing 20% glycerol.

### **Packaging/Storage:**

NR-48938 was packaged aseptically in cryovials and is provided frozen on dry ice. The product should be stored at -70°C or colder.

### **Growth Conditions:**

Media:

Emmons' Modified Sabouraud Dextrose broth or Yeast Mold (YM) broth or equivalent

Emmons' Modified Sabouraud Dextrose agar or equivalent

Incubation:

Temperature: 37°C

Atmosphere: Aerobic

Propagation:

1. Keep vial frozen until ready for use; thaw rapidly in a water bath at 25°C to 30°C. Typically, this takes less than 5 minutes.
2. Transfer the entire contents of the vial into Emmons' Modified Sabouraud Dextrose broth.
3. Incubate at 37°C for 6 to 12 days.

### **Citation:**

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: *Coccidioides immitis*, Strain 2395, NR-48938."

### **Biosafety Level: 3**

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/bmbl5/index.htm](http://www.cdc.gov/biosafety/publications/bmbl5/index.htm).

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**References:**

1. Barker, B. M., Personal Communication.
2. Tintelnot, K., et al. "Taxonomic and Diagnostic Markers for Identification of *Coccidioides immitis* and *Coccidioides posadasii*." Med. Mycol. 45 (2007): 385-393. PubMed: 17654264.
3. Whiston, E., et al. "Comparative Transcriptomics of the Saprobic and Parasitic Growth Phases in *Coccidioides* spp." PLoS One 7 (2012): e41034. PubMed: 22911737.
4. Teixeira, M. M. and B. M. Barker. "Use of Population Genetics to Assess the Ecology, Evolution, and Population Structure of *Coccidioides*." Emerg. Infect. Dis. 22 (2016): 1022-1030. PubMed: 27191589.
5. Lewis, E. R., J. R. Bowers and B. M. Barker. "Dust Devil: The Life and Times of the Fungus that Causes Valley Fever." PLoS Pathog. 11 (2015): e1004762. PubMed: 25973899.
6. Luna-Isaac, J. A., et al. "Genetic Analysis of the Endemic Fungal Pathogens *Coccidioides posadasii* and *Coccidioides immitis* in Mexico." Med. Mycol. 52 (2014): 156-166. PubMed: 24577001.
7. Sano, A., et al. "Reexamination of *Coccidioides* spp. Reserved in the Research Center for Pathogenic Fungi and Microbial Toxicoses, Chiba University, Based on a Multiple Gene Analysis." Nihon Ishinkin Gakkai Zasshi 47 (2006): 113-117. PubMed: 16699492.
8. Fisher, M. C., et al. "Molecular and Phenotypic Description of *Coccidioides posadasii* sp. nov., Previously Recognized as the Non-California Population of *Coccidioides immitis*." Mycologia 94 (2002): 73-84. PubMed: 21156479.
9. Litvintseva, A. P., et al. "Valley Fever: Finding New Places for an Old Disease: *Coccidioides immitis* Found in Washington State Soil Associated with Recent Human Infection." Clin. Infect. Dis. 60 (2015): e1-e3. PubMed: 25165087.
10. Neafsey, D. E., et al. "Population Genomic Sequencing of *Coccidioides* Fungi Reveals Recent Hybridization and Transposon Control." Genome Res. 20 (2010): 938-946. PubMed: 20516208.
11. Koufopanou, V., A. Burt and J. W. Taylor. "Concordance of Gene Genealogies Reveals Reproductive Isolation in the Pathogenic Fungus *Coccidioides immitis*." Proc. Natl. Acad. Sci. USA 94 (1997): 5478-5482. PubMed: 9144263.

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