

***Coccidioides posadasii*, Strain CPA0001**

Catalog No. NR-50072

For research use only. Not for human use.

Contributor and Manufacturer:

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Product Description:

Classification: *Mitosporic Onygenales, Coccidioides*

Species: *Coccidioides posadasii*

Strain/Isolate: CPA0001

Original Source: *Coccidioides posadasii* (*C. posadasii*), strain CPA0001 is an environmental isolate collected in 2004 from soil in Tucson, Arizona, USA.¹

Comment: The complete genome for *C. posadasii*, strain CPA0001 has been sequenced (GenBank: [ABFO00000000](https://www.ncbi.nlm.nih.gov/nuclseq/ABFO00000000)).

C. posadasii and *C. immitis* are dimorphic fungal pathogens and causative agents 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.² 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.²⁻⁴ While transmission between hosts has not been established, infection through transplanted tissues has occurred.⁵

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.^{3,6,7} Genotypic analysis indicates multiple distinct subpopulations of each genus with limited gene flow: *C. immitis* is divided into two subpopulations, Central and Southern California, and *C. posadasii* into three subpopulations, Arizona, Mexico and Texas/South America.³ The current geographic distribution of *C. immitis* isolates includes Central and Southern California, Arizona, Utah, Washington, Colombia and the Baja California region of Mexico, while *C. posadasii* has been isolated from Arizona, Texas, Utah, Mexico and Central and South America.^{2,3,5,8} 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*.^{3,9,10}

Material Provided:

Each vial of NR-50072 contains approximately 0.7 mL of fungal culture in 20% glycerol.

Packaging/Storage:

NR-50072 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 with 5% CO₂

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 posadasii*, Strain CPA0001, NR-50072."

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/bmb15/index.htm.

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References:

1. Barker, B. M., Personal Communication.
2. Whiston, E., et al. "Comparative Transcriptomics of the Saprobiic and Parasitic Growth Phases in *Coccidioides* spp." PLoS One 7 (2012): e41034. PubMed: 22911737.
3. 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.
4. Lewis, E. R., J. R. Bowers and B. M. Barker. "Dust Devil: The Life and Times of the Fungus that Causes Valley Fever." PLoS Pathogen 11 (2015): e1004762. PubMed: 25973899.
5. 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.
6. 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.
7. 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.
8. 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): e1-3. PubMed: 25165087.
9. 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.
10. 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.