

***Cryptococcus neoformans*, Strain NIH9hi90**

Catalog No. NR-50335

For research use only. Not for human use.

Contributor:

Kyung J. Kwon-Chung, Ph.D., Chief Investigator, Molecular Microbiology Section, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, Maryland, USA

Manufacturer:

BEI Resources

Product Description:

Classification: *Filobasidiaceae*, *Cryptococcus*

Species: *Cryptococcus neoformans*

Strain: NIH9hi90

Serotype: A (var. *grubii*)²

Original Source: *Cryptococcus neoformans* (*C. neoformans*), strain NIH9hi90 was derived from strain NIH 9, a clinical isolate which was originally isolated in 1963 in Sassamanville, Pennsylvania, USA.¹⁻³

Comments: *C. neoformans*, strain NIH9hi90 is a laboratory derived strain that has been modified to overexpress heat shock protein 90 (HSP90). *C. neoformans*, strain NIH9hi90 was deposited as susceptible to fluconazole and with a high level of heteroresistance to fluconazole (LHF) developing.²

There are currently two species, *C. neoformans* and *C. gattii*, in the *Cryptococcus* species complex. These species are best recognized as the agents of cryptococcosis, an AIDS-defining illness. *C. neoformans* has been widely associated with avian excreta.⁴ *C. neoformans* is divided into two varieties, *C. neoformans* var. *grubii* (serotype A) and *C. neoformans* var. *neoformans* (serotype D).⁴ In the current classification scheme, there are five distinct lineages recognized, named VNI, VNII, VNB, VNIII and VNIV.⁴ The two varieties (*neoformans* and *grubii*) are able to recombine and produce diploid or aneuploid intervarietal AD hybrids.⁴

Material Provided:

Each vial contains approximately 0.5 mL of *C. neoformans* in 20% glycerol.

Packaging/Storage:

NR-50335 was packaged aseptically in cryovials and is provided frozen on dry ice. The product should be stored at cryogenic temperature (-130°C or colder), preferably in the vapor phase of a liquid nitrogen freezer. If liquid nitrogen storage facilities are not available, frozen cryovials may be stored at -70°C or colder for approximately one week.

Growth Conditions:

Media:

Yeast Mold broth or equivalent

Yeast Mold agar or equivalent

Incubation:

Temperature: 25°C to 30°C

Atmosphere: Aerobic

Propagation:

1. Keep vial frozen until ready for use; thaw rapidly in a waterbath at 25°C to 30°C. Typically, this takes less than 5 minutes.
2. Immediately after thawing, inoculate an agar plate with approximately 40 µL of thawed culture and/or transfer the entire thawed aliquot into a single tube of broth.
3. Incubate the plate and/or tube at 25°C to 30°C for 2 to 4 days.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: *Cryptococcus neoformans*, Strain NIH9hi90, NR-50335."

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/bmbl5/index.htm.

Disclaimers:

You are authorized to use this product for research use only. It is not intended for human use.

Use of this product is subject to the terms and conditions of the BEI Resources Material Transfer Agreement (MTA). The MTA is available on our Web site at www.beiresources.org.

While BEI Resources uses reasonable efforts to include accurate and up-to-date information on this product sheet, neither ATCC® nor the U.S. Government makes any warranties or representations as to its accuracy. Citations from scientific literature and patents are provided for informational purposes only. Neither ATCC® nor the U.S. Government warrants that such information has been confirmed to be accurate.

This product is sent with the condition that you are responsible for its safe storage, handling, use and disposal. ATCC® and the U.S. Government are not liable for any damages or injuries arising from receipt and/or use of this product. While reasonable effort is made to ensure authenticity and reliability of materials on deposit, the U.S. Government, ATCC®, their suppliers and contributors to BEI Resources are not liable for damages arising from the misidentification or misrepresentation of products.

Use Restrictions:

This material is distributed for internal research, non-commercial purposes only. This material, its product or its derivatives may not be distributed to third parties. Except as performed under a U.S. Government contract, individuals contemplating commercial use of the material, its products or its derivatives must contact the contributor to determine if a license is required. U.S. Government contractors may need a license before first commercial sale.

References:

1. Kwon-Chung, K. J., Personal Communication.
2. Sionov, E., Y. C. Chang and K. J. Kwon-Chung. "Azole Heteroresistance in *Cryptococcus neoformans*: Emergence of Resistant Clones with Chromosomal Disomy in the Mouse Brain during Fluconazole Treatment." Antimicrob. Agents and Chemother. 57 (2013): 5127-5130. PubMed: 23836187
3. Sionov, E., et al. "Heteroresistance to Fluconazole in *Cryptococcus neoformans* is Intrinsic and Associated with Virulence." Antimicrob. Agents Chemother. 53 (2009): 2804-2815. PubMed: 19414582.
4. Cogliati, M. "Global Molecular Epidemiology of *Cryptococcus neoformans* and *Cryptococcus gattii*: An Atlas of the Molecular Types." Scientifica 2013; 2013.675213. PubMed: 24278784.

ATCC® is a trademark of the American Type Culture Collection.

