

Cryptococcus neoformans var. grubii, Strain YL99a

Catalog No. NR-48777

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Contributor:

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Manufacturer:

BEI Resources

Product Description:

Classification: Filobasidiaceae, Cryptococcus

Species: Cryptococcus neoformans var. grubii

Strain: YL99a

Mating Type: a¹

Serotype: A¹

Original Source: Cryptococcus neoformans (C. neoformans) var. grubii, strain YL99a was derived from strain H99O (BEI Resources NR-48767), after passage in the rabbit model of central nervous system infection.² C. neoformans, strain H99 was isolated from the cerebrospinal fluid of a human male who had been treated for Hodgkin's disease in North Carolina, USA on February 14, 1978.¹ After an unknown number of passages, strain H99 was reported to lose virulence and was subsequently passaged through the rabbit model of infection to increase its virulence. It was renamed as H99O and frozen in 1994.¹

Comments: C. neoformans var. grubii, strain H99O (H99) was sequenced in 2014 through a collaboration between Duke University and the Broad Institute² (NCBI BioProject: [PRJNA411](#)). Strain H99O is the progenitor of nine phenotypic variants that display either increased or decreased mating ability, melanization and virulence.¹

BEI Resources Number	Strain Name	Mating ability/ Melanization/ Virulence
NR-48767	H99O	N/A
NR-48768	KN99a	Increased
NR-48769	KN99α	Increased
NR-48770	H99F	Increased
NR-48771	H99C	Decreased
NR-48772	H99S	Increased
NR-48773	H99W	Decreased
NR-48774	H99ED	Decreased
NR-48775	H99E	Decreased
NR-48776	YL99α	Increased
NR-48777	YL99a	Increased

C. neoformans var. grubii, strain YL99a was derived from strain H99O concurrently with the congenic strain YL99α (BEI Resources NR-48776). The congenic pair was created by backcrossing strain H99F with strain KN99a (BEI Resources NR-48768).¹

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.^{1,3} C. neoformans is divided into two varieties, C. neoformans var. grubii (serotype A) and C. neoformans var. neoformans (serotype D).³ In the current classification scheme, there are five distinct lineages recognized, named VNI, VNII, VNB, VNIII and VNIV.³ The two varieties (neoformans and grubii) are able to recombine and produce diploid or aneuploid intervarietal AD hybrids.³

Material Provided:

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

Packaging/Storage:

NR-48777 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 var. grubii, strain YL99a, NR-48777."

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. Janbon, G., et al. "Analysis of the Genome and Transcriptome of *Cryptococcus neoformans* var. *grubii* Reveals Complex RNA Expression and Microevolution Leading to Virulence Attenuation." *PLoS Genet.* 10 (2014): e1004261. PubMed: 24743168.
2. Heitman, J., Personal Communication.
3. Cogliati, M. "Global Molecular Epidemiology of *Cryptococcus neoformans* and *Cryptococcus gattii*: An Atlas of the Molecular Types." *Scientifica* 2013; 2013.675213. PubMed: 24278784.

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