

***Aspergillus fumigatus*, Strain OS-0121**

Catalog No. NR-45107

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Contributor:

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Manufacturer:

BEI Resources

Product Description:

Classification: *Aspergillaceae*, *Aspergillus*

Species: *Aspergillus fumigatus*

Strain: OS-0121

Original Source: *Aspergillus fumigatus* (*A. fumigatus*), strain OS-0121, was isolated in 2010 from a 46-year-old male patient with invasive aspergillosis in Belgium.^{1,2}

Comment: *A. fumigatus*, strain OS-0121 was deposited as an azole resistant strain.^{1,2} Strains with this mutation often result in invasive infections that are not susceptible to antimicrobial therapy.^{3,4}

A. fumigatus is a saprophytic fungus commonly found in the soil.⁵ Inhalation of conidia by immunocompetent individuals rarely has any adverse effect, since the conidia are eliminated relatively efficiently by innate immune mechanisms. However, due to the increase in the number of immunosuppressed individuals and the degree of severity of modern immunosuppressive therapies, *A. fumigatus* has become a prevalent airborne fungal pathogen, causing severe and often fatal invasive infections in immunocompromised hosts.⁵

Azole resistance is an emerging problem in patients with *Aspergillus*-related diseases. It has been hypothesized that azole resistance is increasing due to exposure of these organisms to azole fungicides in the environment. The fungicides, known as DMIs (14 α -demethylase inhibitors), inhibit Cyp51A activity and are used for crop protection and material preservation. Some DMIs are structurally similar to clinically licensed triazoles that are utilized in the treatment of noninvasive *Aspergillus* diseases and invasive aspergillosis.^{3,4}

Material Provided:

Each vial of NR-45107 contains approximately 0.5 mL of cells in 20% glycerol.

Packaging/Storage:

NR-45107 was packaged aseptically in cryovials and is provided frozen on dry ice. The product should be stored at -60°C or colder. For long term storage, cryogenic temperature (-130°C or colder), preferably in the vapor phase of a liquid nitrogen freezer, is recommended.

Growth Conditions:

Media:

Yeast Mold broth or Modified Sabouraud Dextrose broth or equivalent

Yeast Mold agar or Modified Sabouraud Dextrose agar or Potato Dextrose agar or equivalent

Incubation:

Temperature: 25°C

Atmosphere: Aerobic

Propagation:

1. Keep vial frozen until ready for use; thaw rapidly in a water bath at 25°C to 30°C.
2. Immediately after thawing, inoculate an agar plate with approximately 40 μ L of thawed culture or transfer the entire thawed aliquot into a single tube of broth.
3. Incubate the plate or tube at 25°C for 2 to 9 days.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: *Aspergillus fumigatus*, Strain OS-0121, NR-45107."

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.

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References:

1. Lagrou, K., Personal Communication.
2. Jeurissen, A., et al. "Invasive Pulmonary Aspergillosis Due to a Multi-Azole Resistant *Aspergillus fumigatus*." Acta Clin. Belg. 67 (2012): 46-48. PubMed: 22480040.
3. Verweij, P. E., et al. "International Expert Opinion on the Management of Infection Caused by Azole-Resistant *Aspergillus fumigatus*." Drug Resist. Updat. 21-22 (2015): 30-40. PubMed: 26282594.
4. van der Linden, J. W. M., et al. "Aspergillosis Due to Voriconazole Highly Resistant *Aspergillus fumigatus* and Recovery of Genetically Related Resistant Isolates from Domiciles." Clin. Infect. Dis. 57 (2013): 513-520. PubMed: 23667263.
5. Latge, J-P. "*Aspergillus fumigatus* and Aspergillosis." Clin. Microbiol. Rev. 12 (1999): 310-350. PubMed: 10194462.

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