Product Information Sheet for NR-45108

Aspergillus fumigatus, Strain ASFU-2263

Catalog No. NR-45108

For research use only. Not for human use.

Contributor:
Katrien Lagrou, Professor, Department of Microbiology and Immunology, Universitaire Ziekenhuizen Leuven, Belgium

Manufacturer:
BEI Resources

Product Description:
Classification: *Aspergillaceae, Aspergillus*
Species: *Aspergillus fumigatus*
Strain: ASFU-2263
Original Source: *Aspergillus fumigatus (A. fumigatus),* strain ASFU-2263 was isolated in July 2012 from sputum obtained from a fatal case of invasive aspergillosis in Belgium.[1]
Comment: *A. fumigatus*, strain ASFU-2263 was deposited as an azole resistant strain due to a mutation in the *cyp51A* gene (TR46/Y121F/T289A).[1] Strains with this mutation often result in invasive infections that are not susceptible to antimicrobial therapy.[2-4]

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 (14α-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-45108 contains approximately 0.5 mL of cells in 20% glycerol.

Packaging/Storage:
NR-45108 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 equivalent
Incubation:
Temperature: 25°C
Atmosphere: Aerobic
Propagation:
1. Keep vial frozen until ready for use; thaw rapidly in a water bath at 30°C.
2. Immediately after thawing, inoculate an agar plate with approximately 40 µL 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 ASFU-2263, NR-45108."

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. Lagrou, K., Personal Communication.
2. Vermeulen, E., et al. "Azole-Resistant *Aspergillus fumigatus* due to TR46/Y121F/T289A Mutation Emerging in Belgium, July 2012." Euro. Surveill. 17 (2012): pii=20326. PubMed: 23218390.
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.

Support Provided by NIAID