

***Mycobacterium abscessus* subsp. *abscessus*, Strain 4530**

Catalog No. NR-44274

For research use only. Not for use in humans.

Contributor:

Diane Ordway, Assistant Professor, Department of Microbiology, Immunology and Pathology, Colorado State University, Fort Collins, Colorado, USA and University of Texas Health Science Center at Tyler, Tyler, Texas, USA

Manufacturer:

BEI Resources

Product Description:

Bacteria Classification: *Mycobacteriaceae*, *Mycobacterium*
Species: *Mycobacterium abscessus* subsp. *abscessus* (also referred to as *Mycobacteroides abscessus* subsp. *abscessus*)^{1,2,3} [NR-44274 was deposited to BEI Resources as *Mycobacterium xenopi*; however, digital DNA-DNA hybridization (dDDH) testing, performed at BEI Resources, resulted in reclassification to *Mycobacterium abscessus* subsp. *abscessus*.]

Strain: 4530

Original Source: *Mycobacterium abscessus* (*M. abscessus*) subsp. *abscessus*, strain 4530 was isolated between 2009 and 2013 from human sputum in Texas, USA.⁴

M. abscessus is an acid-fast, Gram-positive, non-motile, non-pigmenting, rod-shaped, rapidly growing mycobacterium.^{5,6} It is highly resistant to a number of antimicrobials, as well as commonly used disinfectants, particularly chlorine.^{5,6,7} *M. abscessus* is associated with chronic pneumonia in patients with chronic lung disease and with soft-tissue and post-surgical infections in both community and healthcare settings. This organism has been isolated from human, animal and environmental sources, including soil, bioaerosols and water.⁷ *M. abscessus* is subspeciated into *M. abscessus* subsp. *abscessus*, *M. abscessus* subsp. *bolletii* and *M. abscessus* subsp. *massiliense* based on the functionality of an inducible erythromycin methylase (*erm*) gene, with *M. abscessus* subsp. *massiliense* lacking a functional *erm*.^{8,9}

Reclassification of *M. abscessus* to the novel genera *Mycobacteroides* has been proposed following a comprehensive phylogenomic analysis of the genus *Mycobacterium*, and is currently under debate.^{1,2,3} This analysis identified 51 highly specific molecular signatures, in the form of conserved signature indels and conserved signature proteins, unique to the *Abscessus-Chelonae* clade.¹

Material Provided:

Each vial contains approximately 0.5 mL of bacterial culture in Middlebrook 7H9 broth with ADC enrichment supplemented with 10% glycerol.

Note: If homogeneity is required for your intended use, please purify prior to initiating work.

Packaging/Storage:

NR-44274 was packaged aseptically in screw-capped plastic cryovials. The product is provided frozen and should be stored at -60°C or colder immediately upon arrival. For long-term storage, the vapor phase of a liquid nitrogen freezer is recommended. Freeze-thaw cycles should be avoided.

Growth Conditions:

Media:

Middlebrook 7H9 broth with Middlebrook ADC enrichment or equivalent

Middlebrook 7H10 agar with Middlebrook OADC enrichment or Lowenstein-Jensen agar or equivalent

Incubation:

Temperature: 37°C

Atmosphere: Aerobic with 5% CO₂

Propagation:

1. Keep vial frozen until ready for use; then thaw.
2. Transfer the entire thawed aliquot into a single tube of broth.
3. Use several drops of the suspension to inoculate an agar slant and/or plate.
4. Incubate the tube, slant and/or plate at 37°C for 5 to 14 days.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: *Mycobacterium abscessus* subsp. *abscessus*, Strain 4530, NR-44274."

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. 6th ed. Washington, DC: U.S. Government Printing Office, 2020; 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. Gupta, R. S., B. Lo and J. Son. "Phylogenomics and Comparative Genomic Studies Robustly Support Division of the Genus *Mycobacterium* into an Emended Genus *Mycobacterium* and Four Novel Genera." Front. Microbiol. 9 (2018): 67. PubMed: 29497402.
2. Nouioui, I., et al. "Genome-Based Taxonomic Classification of the Phylum *Actinobacteria*." Front. Microbiol. 9 (2018): 2007. PubMed: 30186281.
3. Gupta, R. S. "Commentary: Genome-Based Taxonomic Classification of the Phylum *Actinobacteria*." 10 (2019): 206. PubMed: 30853945.
4. Ordway, D., Personal Communication.
5. Adékambi, T., et al. "*rpoB* Gene Sequence-Based Characterization of Emerging Non-Tuberculous Mycobacteria with Descriptions of *Mycobacterium bolletii* sp. nov., *Mycobacterium phocaicum* sp. nov. and *Mycobacterium aubagnense* sp. nov." Int. J. Syst. Evol. Microbiol. 56 (2006): 133-143. PubMed: 16403878.
6. Adékambi, T. and M. Drancourt. "Dissection of Phylogenetic Relationships Among 19 Rapidly Growing *Mycobacterium* Species by 16S rRNA, *hsp65*, *sodA*, *recA* and *rpoB* Gene Sequencing." Int. J. Syst. Evol. Microbiol. 54 (2004): 2095-2105. PubMed: 15545441.
7. Brown-Elliott, B. A. and R. J. Wallace, Jr. "Clinical and Taxonomic Status of Pathogenic Nonpigmented or Late-Pigmenting Rapidly Growing Mycobacteria." Clin. Microbiol. Rev. 15 (2002): 716-746. PubMed: 12364376.
8. Nessar, R., et al. "*Mycobacterium abscessus*: A New Antibiotic Nightmare." J. Antimicrob. Chemother. 67 (2012): 810-818. PubMed: 22290346.
9. Griffith, D. E. "*Mycobacterium abscessus* subsp *abscessus* Lung Disease: 'Trouble Ahead, Trouble Behind...'" F1000Prime Rep. 6 (2014): 107. PubMed: 25580261.

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

