

# Product Information Sheet for NR-49248

***Mycobacterium canettii*, Strain  
NLA000017120**

**Catalog No. NR-49248**

**For research use only. Not for human use.**

**Contributor:**

Professor Dick van Soolingen, Tuberculosis Reference Laboratory, National Institute of Public Health and the Environment (RIVM), Bilthoven, the Netherlands

**Manufacturer:**

BEI Resources

**Product Description:**

Bacteria Classification: *Mycobacteriaceae*, *Mycobacterium*

Species: *Mycobacterium canettii*

Strain: NLA000017120

Original Source: *Mycobacterium canettii* (*M. canettii*), strain NLA000017120 was isolated in May 1993 from a human in the Netherlands.<sup>1</sup>

*M. canettii* is an acid-fast, Gram-positive, non-motile, rod-shaped aerobic bacterium characterized as a smooth-variant subspecies of *Mycobacterium tuberculosis* (*M. tuberculosis*).<sup>2-5</sup> The smooth phenotype is associated with increased lipooligosaccharides present in the cell wall, and has been shown to switch irreversibly to the rough colony type, with a loss in cell wall lipooligosaccharide composition.<sup>4,5</sup> *M. canettii* has been effectively published, though not validly published, as its own species within the *M. tuberculosis* complex, consisting of *M. tuberculosis*, *M. africanum*, *M. bovis*, *M. caprae*, *M. microti* and *M. pinnipedii*, in which *M. canettii* is considered the most phenotypically distinct.<sup>4</sup> *M. canettii* is a human pathogen causing pulmonary and extra-pulmonary tuberculosis, and is typically isolated from patients associated with the Republic of Djibouti and neighboring countries in the Horn of Africa region.<sup>6-10</sup> Transmission of *M. canettii* is thought to occur through aerosols from environmental sources, including water and soil, rather than by human-to-human exposure, though a definitive reservoir is not yet defined.<sup>7-10</sup>

**Material Provided:**

Each vial contains approximately 0.7 mL of bacterial culture in Middlebrook 7H9 broth with ADC enrichment with 10% glycerol.

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

**Packaging/Storage:**

NR-49248 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 ADC enrichment or equivalent

Middlebrook 7H10 agar with OADC enrichment or equivalent

Incubation:

Temperature: 37°C

Atmosphere: Aerobic (with or without 5% CO<sub>2</sub>)

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 2 to 6 weeks.

**Citation:**

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: *Mycobacterium canettii*, Strain NLA000017120, NR-49248."

**Biosafety Level: 3**

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](http://www.cdc.gov/biosafety/publications/bmbl5/index.htm).

This publication recommends that practices with this agent include the use of respiratory protection and the implementation of specific procedures and use of specialized equipment to prevent and contain aerosols.

**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](http://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. van Soolingen, D., Personal Communication.
2. van Soolingen, D., et al. "A New Evolutionary Scenario for the *Mycobacterium tuberculosis* Complex." Proc. Natl. Acad. Sci. USA 99 (2000): 3684-3689. PubMed: 11891304.
3. Pfyffer, G. E., et al. "*Mycobacterium canettii*, the Smooth Variant of *M. tuberculosis*, Isolated from a Swiss Patient Exposed in Africa." Emerg. Infect. Dis. 4 (1998): 631-634. PubMed: 9866740.
4. Reddington, K., et al. "Novel Multiplex Real-Time PCR Diagnostic Assay for Identification and Differentiation of *Mycobacterium tuberculosis*, *Mycobacterium canettii*, and *Mycobacterium tuberculosis* Complex Strains." J. Clin. Microbiol. 49 (2011): 651-657. PubMed: 21123525.
5. Goh, K. S., et al. "Rapid Differentiation of "*Mycobacterium canettii*" from Other *Mycobacterium tuberculosis* Complex Organisms by PCR-Restriction Analysis of the *hsp65* Gene." J. Clin. Microbiol. 39 (2001): 3705-3708. PubMed: 11574597.
6. Miltgen, J., et al. "Two Cases of Pulmonary Tuberculosis caused by *Mycobacterium tuberculosis* subsp. *canettii*." Emerg. Infect. Dis. 8 (2002): 1350-1352. PubMed: 12453369.
7. Blouin, Y., et al. "Progenitor "*Mycobacterium canettii*" Clone Responsible for Lymph Node Tuberculosis Epidemic, Djibouti." Emerg Infect. Dis. 20 (2014): 21-28. PubMed: 24520560.
8. Koeck, J. L., et al. "Clinical Characteristics of the Smooth Tubercle Bacilli "*Mycobacterium canettii*" Infection Suggest the Existence of an Environmental Reservoir." Clin. Microbiol. Infect. 17 (2011): 1013-1019. PubMed: 20831613.
9. Fabre, M., et al. "Molecular Characteristics of "*Mycobacterium canettii*" the Smooth *Mycobacterium tuberculosis* Bacilli." Infect. Genet. Evol. 10 (2010): 1165-1173. PubMed: 20692377.
10. Aboubaker, O. D., E. Garnotel and M. Drancourt. "Dry-Heat Inactivation of '*Mycobacterium canettii*'." BMC Res. Notes 10 (2017): 201. PubMed: 28599677.

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

