

Mycobacterium tuberculosis, Strain 11949-0

Catalog No. NR-48757

For research use only. Not for human use.

Contributor:

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Manufacturer:

BEI Resources

Product Description:

Bacteria Classification: *Mycobacteriaceae*; *Mycobacterium*

Species: *Mycobacterium tuberculosis*

Strain: 11949-0

Original Source: *Mycobacterium tuberculosis* (*M. tuberculosis*), strain 11949-0 was isolated in October 2012 from a subculture of a strain originally isolated from a patient with pulmonary tuberculosis in the Republic of South Africa.¹

Comments: *M. tuberculosis*, strain 11949-0 was deposited as a multidrug-resistant (MDR) strain with resistance to amikacin, capreomycin, ethambutol, ethionamide, isoniazid, kanamycin, pyrazinamide, rifampin and streptomycin, and is part of the [Preserving Effective TB Treatment Study \(PETTS\)](#) at the Broad Institute.¹ PETTS is a multi-national epidemiological study focusing on the frequency and risk factors of acquired resistance to second-line drugs among patients with multidrug-resistant (MDR) *M. tuberculosis*.²⁻⁴

M. tuberculosis is an acid-fast, Gram-positive, non-motile, rod-shaped aerobic bacterium. It is the causative agent of tuberculosis and is responsible for more morbidity in humans than any other bacterial disease. *M. tuberculosis* is a slow-growing pathogen with a thick, lipid-rich cell wall, lending the bacilli an unusual propensity to shut down their metabolism in the face of adverse conditions and enter a latent phase in which they display phenotypic resistance to antibiotic therapy. The primary focus of infection is the lungs, with tuberculosis being spread by infectious aerosols produced by coughing. The spread of multi-drug resistant (MDR) and extensively drug-resistant (XDR) tuberculosis is a major medical and public health concern.⁵⁻⁹

Material Provided:

Each vial contains approximately 0.7 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-48757 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 equivalent

Incubation:

Temperature: 37°C

Atmosphere: Aerobic (with or without 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 tubes and plate at 37°C for 2 to 6 weeks.

Citation:

Acknowledgment for publications, presentations, patent applications, or other disclosure of data or results should read "The following reagent was obtained through BEI Resources, NIAID, NIH as part of the Preserving Effective TB Treatment Study (PETTS): *Mycobacterium tuberculosis*, Strain 11949-0, NR-48757."

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.

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:

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References:

1. Cegielski, J. P., Personal Communication.
2. Dalton, T., et al. "Prevalence of and Risk Factors for Resistance to Second-Line Drugs in People with Multidrug-Resistant Tuberculosis in Eight Countries: A Prospective Cohort Study." Lancet 380 (2012): 1406-1417. PubMed: 22938757.
3. Cegielski, J. P., et al. "Extensive Drug Resistance Acquired during Treatment of Multidrug-Resistant Tuberculosis." Clin. Infect. Dis. 59 (2014): 1049-1063. PubMed: 25057101.
4. Kurbatova, E. V., et al. "Additional Drug Resistance of Multidrug-Resistant Tuberculosis in Patients in Nine Countries." Emerg. Infect. Dis. 21 (2015): 977-983. PubMed: 25988299.
5. Cole, S. T., et al. "Deciphering the Biology of *Mycobacterium tuberculosis* from the Complete Genome Sequence." Nature 393 (1998): 537-544. PubMed: 9634230.
6. Dye, C. "Doomsday Postponed? Preventing and Reversing Epidemics of Drug-Resistant Tuberculosis." Nat. Rev. Microbiol. 7 (2009): 81-87. PubMed: 19079354.
7. Chan, E. D. and M. D. Iseman. "Multidrug-Resistant and Extensively Drug-Resistant Tuberculosis: A Review." Curr. Opin. Infect. Dis. 21 (2008): 587-595. PubMed: 18978526.
8. Balganesh, T. S., P. M. Alzari and S. T. Cole. "Rising Standards for Tuberculosis Drug Development." Trends Pharmacol. Sci. 29 (2008): 576-581. PubMed: 18799223.
9. Murphy, D. J. and J. R. Brown. "Novel Drug Target Strategies against *Mycobacterium tuberculosis*." Curr. Opin. Microbiol. 11 (2008): 422-427. PubMed: 18801459.

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