

***Mycobacterium tuberculosis* subsp. *tuberculosis*, Strain H37Ra**

Catalog No. NR-122

(Derived from ATCC® 25177™)

For research use only. Not for use in humans.

Contributor:

ATCC®

Manufacturer:

BEI Resources

Product Description:

Bacteria Classification: *Mycobacteriaceae*, *Mycobacterium*

Species: *Mycobacterium tuberculosis* subsp. *tuberculosis*¹

Strain: H37Ra

Source: *Mycobacterium tuberculosis* (*M. tuberculosis*) subsp. *tuberculosis*, strain H37Ra is an attenuated strain derived from the virulent parent strain H37. Strain H37 was isolated in 1905 from the sputum of a patient with chronic pulmonary tuberculosis.²

Comments: *M. tuberculosis*, subsp. *tuberculosis*, strain H37Ra was deposited to ATCC® in 1969 by Carl L. Larson, M.D., Stella Duncan Institute, University of Montana, Missoula, Montana, USA. The complete genome of *M. tuberculosis*, strain H37Ra has been sequenced (GenBank: [CP000611](https://www.ncbi.nlm.nih.gov/nuclseq/CP000611)).³

M. tuberculosis is an acid-fast, Gram-positive, non-motile, rod-shaped aerobic bacterium. It is the causative agent of tuberculosis (TB) 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 bacilli the unusual propensity to shut down its metabolism in the face of adverse conditions and enter a latent phase in which it displays phenotypic resistance to antibiotic therapy. The primary focus of infection is the lungs, with TB being spread by infectious aerosols produced by coughing. The spread of multidrug-resistant (MDR) and extensively drug-resistant (XDR) TB is a major medical and public health concern.^{3,4,5,6,7,8}

Material Provided:

Each vial contains approximately 0.5 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-122 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% 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 2 to 6 weeks.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: *Mycobacterium tuberculosis* subsp. *tuberculosis*, Strain H37Ra, NR-122."

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 \(BMBL\)](#), 6th ed. Washington, DC: U.S. Government Printing Office, 2020.

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. Benator, D., et al. "Rifapentine and Isoniazid Once a Week Versus Rifampicin and Isoniazid Twice a Week for Treatment of Drug-Susceptible Pulmonary Tuberculosis in HIV-Negative Patients: A Randomized Clinical Trial." Lancet 360 (2002): 528-534. PubMed: 12241657.
2. Mac Kenzie, W. R., Personal Communication.
3. Cole, S. T., et al. "Deciphering the Biology of *Mycobacterium tuberculosis* from the Complete Genome Sequence." Nature 393 (1998): 537-544. PubMed: 9634230.
4. Young, D. B., et al. "Confronting the Scientific Obstacles to Global Control of Tuberculosis." J. Clin. Invest. 118 (2008): 1255-1265. PubMed: 18382738.
5. Dye, C. "Doomsday Postponed? Preventing and Reversing Epidemics of Drug-Resistant Tuberculosis." Nat. Rev. Microbiol. 7 (2009): 81-87. PubMed: 19079354.
6. 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.
7. 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.
8. 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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