

***Mycobacterium tuberculosis*, Strain HN878**

Catalog No. NR-13647

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Contributor:

NIH - TB Vaccine Testing and Research Materials Contract

Manufacturer:

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Product Description:

Bacteria Classification: *Mycobacteriaceae*, *Mycobacterium*

Species: *Mycobacterium tuberculosis*

Strain: HN878

Original Source: *Mycobacterium tuberculosis* (*M. tuberculosis*), strain HN878 is a clinical isolate that exhibited high levels of infectivity and virulence during a tuberculosis outbreak that occurred in Houston, Texas, from 1995 to 1998.¹

Comments: The complete genome of *M. tuberculosis*, strain HN878 has been sequenced (GenBank: [ADNF01000000.1](http://www.ncbi.nlm.nih.gov/GenBank/ADNF01000000.1)).

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. Therefore, persons infected with *M. tuberculosis* can develop active disease within months of infection or can remain latently infected and develop disease later in life. The primary focus of infection is the lungs, with TB being spread by infectious aerosols produced by coughing. The spread of multidrug-resistant and extensively drug-resistant TB is a major medical and public health concern for the world.²⁻⁷

Material Provided:

Each vial contains approximately 0.5 mL of bacterial culture in Middlebrook 7H9 broth with ADC enrichment supplemented with 10% glycerol. Each vial of lot 05.HN878.6.8.4.WS contains approximately 1 mL of bacterial culture in glycerol-alanine-salts medium with 20% glycerol.

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

Packaging/Storage:

NR-13647 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:

Lowenstein-Jensen agar slants

Middlebrook 7H9 broth with ADC enrichment

Middlebrook 7H10 agar with OADC enrichment

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 4 weeks.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: *Mycobacterium tuberculosis*, Strain HN878, NR-13647."

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.

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References:

1. Manca, C., et al. "Mycobacterium tuberculosis CDC1551 Induces a More Vigorous Host Response In Vivo and In Vitro, but is Not More Virulent Than Other More Clinical Isolates." J. Immunol. 162 (1999): 6740-6746. PubMed: 10352293.
2. Dye, C. "Doomsday Postponed? Preventing and Reversing Epidemics of Drug-resistant Tuberculosis." Nat. Rev. Microbiol. 7 (2009): 81-87. PubMed: 19079354.
3. 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.
4. 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.
5. Grandjean, L. and D. A. Moore. "Tuberculosis in the Developing World: Recent Advances in Diagnosis with Special Consideration of Extensively Drug-Resistant Tuberculosis." Curr. Opin. Infect. Dis. 21 (2008): 454-461. PubMed: 18725793.
6. Murphy, D. J. and J. R. Brown. "Novel Drug Target Strategies against *Mycobacterium tuberculosis*." Curr. Opin. Microbiol. 11 (2008): 422-427. PubMed: 18801459.
7. Hoft, D. F. "Tuberculosis Vaccine Development: Goals, Immunological Design, and Evaluation." Lancet 372 (2008): 164-175. PubMed: 18620952.

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