

***Mycobacterium tuberculosis*, Strain 96-3136**

Catalog No. NR-30712

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Product Description: *Mycobacterium tuberculosis* (*M. tuberculosis*), strain 96-3136 was isolated between 1995 and 2000 from human sputum from an HIV-negative patient infected with pulmonary tuberculosis in North America. Strain 96-3136 was deposited as a multi-drug sensitive (MDS) strain of tuberculosis with sensitivity to rifampicin and isoniazid.

Lot¹: 64121855

Manufacturing Date: 03MAY2016

TEST	SPECIFICATIONS	RESULTS
Phenotypic Analysis² Cellular morphology Colony morphology ³ Growth rate Growth at 26°C Growth at 37°C Acid-fast stain Pigmentation in the dark (Scotochromogen) Photoinduction for 1 hour (Photochromogen) Nonchromogen (no pigment) Biochemical tests Niacin production ⁴ Nitrate reduction Pyrazinamidase	Gram-positive rods Report results ≥ 7 days Negative Positive Positive (red colonies) Negative (no pigment) Negative (no pigment) Positive (no pigment) Positive Positive Positive	Gram-positive rods Irregular, slight peaked, undulate, rough and cream (Figure 1) 23 days Negative Positive Positive (red colonies) Negative (no pigment) Negative (no pigment) Positive (no pigment) Positive Positive Positive
Genotypic Analysis Sequencing of Heat Shock Protein 65 gene (~ 440 base pairs)	≥ 99% sequence identity to <i>M. tuberculosis</i> type strain (GenBank: AL123456)	100% sequence identity to <i>M. tuberculosis</i> type strain (GenBank: AL123456) ⁵
Purity (post-freeze) Middlebrook 7H10 agar with OADC enrichment ⁶ Tryptic Soy agar (TSA) ⁷	Consistent with expected colony morphology No Growth	Consistent with expected colony morphology No Growth
Viability (post-freeze)³	Growth	Growth

¹NR-30712 was produced by inoculation of the deposited material into Middlebrook 7H9 broth with ADC enrichment. Broth inoculum was added to Middlebrook 7H10 agar with OADC enrichment kolles, which were grown for 49 days at 37°C in an aerobic atmosphere with 5% CO₂ to produce this lot.

²Information on Mycobacterium testing is available from Ribón, W. "Biochemical Isolation and Identification of Mycobacteria." *Biochemical Testing*. (2012) Jose C. Jimenez-Lopez (Ed.), InTech, <http://www.intechopen.com/books/biochemical-testing/biochemical-isolation-and-identification-of-mycobacteria> and Lévy-Frébault, V. V. and F. Portaels. "Proposed Minimal Standards for the Genus *Mycobacterium* and for Description of New Slowly Growing *Mycobacterium* Species." *Int. J. Syst. Bacteriol.* 42 (1992): 315-323. PubMed: 1581193.

³23 days at 37°C in an aerobic atmosphere with 5% CO₂ on Middlebrook 7H10 agar with OADC enrichment

⁴All mycobacteria produce niacin but only *M. tuberculosis* accumulates it, resulting in a positive test for *M. tuberculosis*.

⁵Also consistent with *M. africanum*, *M. bovis*, *M. canettii* and *M. microti*

⁶Purity of this lot was assessed for 49 days at 37°C in an aerobic atmosphere with 5% CO₂ on Middlebrook 7H10 agar with OADC enrichment.

⁷Purity of this lot was assessed for 23 days at 37°C in an aerobic atmosphere with 5% CO₂ on Tryptic Soy agar plates.

Figure 1: Colony Morphology



Date: 08 DEC 2016

Signature:

A handwritten signature in black ink, appearing to read "David C. Cook". The signature is written in a cursive, flowing style.

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