

***Mycobacterium tuberculosis*, Strain 95-2461**

**Catalog No. NR-30605**

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**Product Description:** *Mycobacterium tuberculosis* (*M. tuberculosis*), strain 95-2461 was isolated between 1995 and 2000 from human sputum from an HIV-negative patient infected with pulmonary tuberculosis in North America. Strain 95-2461 was deposited as a multi-drug sensitive (MDS) strain of tuberculosis with sensitivity to rifampicin and isoniazid.

**Lot<sup>1</sup>: 61255111**

**Manufacturing Date: 20NOV2012**

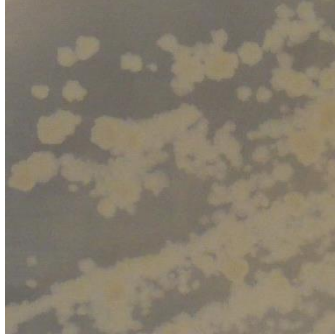
TEST	SPECIFICATIONS	RESULTS
<b>Phenotypic Analysis<sup>2</sup></b> Cellular morphology Colony morphology <sup>3</sup>  Growth on Brain Heart Infusion agar Growth on MacConkey agar (without crystal violet) Growth rate Growth at 26°C Growth at 37°C Growth at 45°C Growth at 55°C Acid-fast stain Pigmentation in the dark (Scotochromogen) Photoinduction for 1 hour (Photochromogen) Nonchromogen (no pigment) Biochemical tests Niacin production <sup>4</sup> Nitrate reduction Pyrazinamidase Urease <sup>5</sup> Aryl sulfate (3 days) Aryl sulfate (14 days) Catalase Iron uptake Tween 80 hydrolysis Growth in the presence of 5% sodium chloride Growth in the presence of thiophene-2-carboxylic acid hydrazide (TCH)	Gram-positive rods Report results  Report results No growth ≥ 7 days Negative Positive Negative Negative Positive (red colonies) Negative (no pigment) Negative (no pigment) Positive (no pigment)  Positive Positive Positive Report results Negative Positive Positive Negative Negative Report results Negative Positive	Gram-positive rods Circular, peaked, rough and white (Figure 1) No Growth No growth 21 days Negative Positive Negative Negative Positive (red colonies) Negative (no pigment) Negative (no pigment) Positive (no pigment)  Positive Positive Positive Positive Negative Negative <sup>6</sup> Positive Negative Negative Negative Positive
<b>Genotypic Analysis</b> Sequencing of Heat Shock Protein 65 gene (~ 420 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) <sup>7</sup>
<b>Purity (post-freeze)<sup>8,9</sup></b>	Growth consistent with expected colony morphology	Growth consistent with expected colony morphology
<b>Viability (post-freeze)<sup>3</sup></b>	Growth	Growth

<sup>1</sup>NR-30605 was produced by inoculation of the deposited material into Middlebrook 7H9 broth with ADC enrichment and grown for 16 days at 37°C in an aerobic atmosphere with 5% CO<sub>2</sub>. Broth inoculum was added to Middlebrook 7H10 agar with OADC enrichment kolles, which were grown for 20 days at 37°C in an aerobic atmosphere with 5% CO<sub>2</sub> to produce this lot.

<sup>2</sup>Information 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.
- <sup>3</sup>21 days at 37°C in an aerobic atmosphere with 5% CO<sub>2</sub> on Middlebrook 7H10 agar with OADC enrichment
- <sup>4</sup>All mycobacteria produce niacin but only *M. tuberculosis* accumulates it, resulting in a positive test for *M. tuberculosis*.
- <sup>5</sup>>85% of *M. tuberculosis* strains are positive for urease activity.
- <sup>6</sup>Most slow-growing *M. tuberculosis* test positive for aryl sulfate after 14 days, but very slow growers may still show a negative result.
- <sup>7</sup>Also consistent with *M. africanum*, *M. bovis* and *M. microti*
- <sup>8</sup>Purity of this lot was assessed for 28 days at 37°C in an aerobic atmosphere with 5% CO<sub>2</sub> on Middlebrook 7H10 agar.
- <sup>9</sup>Middlebrook 7H10 agar with OADC enrichment contains malachite green, which may inhibit growth of contaminating microorganisms.

Figure 1: Colony Morphology



Date: 08 DEC 2016

Signature:

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