

***Mycobacterium tuberculosis*, Strain HN4140**

Catalog No. NR-19013

Product Description: *Mycobacterium tuberculosis* (*M. tuberculosis*), strain HN4140 was isolated in 2004 from human pulmonary tissue in Texas, USA. Strain HN4140 was deposited as a non-drug-resistant strain.

Lot¹: 63344551

Manufacturing Date: 27APR2015

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, opaque, rough and cream (Figure 1) 30 days Negative Positive Positive (red colonies) Negative (no pigment) Negative (no pigment) Positive (no pigment) Positive Positive Positive
Antibiotic Susceptibility Profile Sensititre™ System ^{5,6} Amikacin Cycloserine Ethambutol Ethionamide Isoniazid Kanamycin Moxifloxacin Ofloxacin Para-aminosalicylic acid Rifabutin Rifampin Streptomycin	Report results Report results Report results Report results Report results Report results Report results Report results Report results Report results Report results Report results	≤ 0.12 µg/mL = 8 µg/mL ≤ 1 µg/mL = 1.2 µg/mL ≤ 0.03 µg/mL ≤ 0.6 µg/mL = 0.12 µg/mL ≤ 0.25 µg/mL ≤ 0.5 µg/mL ≤ 0.12 µg/mL ≤ 0.12 µg/mL ≤ 0.25 µg/mL
Genotypic Analysis Sequencing of Heat Shock Protein 65 gene (~ 430 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) ⁷
Purity (post-freeze) Middlebrook 7H10 agar with OADC enrichment ⁸ Tryptic Soy agar ⁹	Consistent with expected colony morphology No Growth	Consistent with expected colony morphology No Growth
Viability (post-freeze)³	Growth	Growth

¹NR-19013 was produced by inoculation of the deposited material into Middlebrook 7H9 broth with ADC enrichment and grown for 27 days at 37°C in an aerobic atmosphere with 5% CO₂. Broth inoculum was added to Middlebrook 7H10 agar with OADC enrichment kolles which were grown for 25 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.

³30 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*.

⁵Sensititre™ System *Mycobacterium tuberculosis* MIC Plate, Thermo Scientific™, catalog number MYCOTB

⁶No interpretations of the Sensititre™ System data for *M. tuberculosis* are currently available.

⁷Also consistent with *M. africanum*, *M. bovis* and *M. microti*

⁸Purity of this lot was assessed for 40 days at 37°C in an aerobic atmosphere with 5% CO₂ on Middlebrook 7H10 agar with OADC enrichment.

⁹Purity of this lot was assessed for 40 days at 37°C in an aerobic atmosphere with 5% CO₂ on Tryptic Soy agar plates.

Figure 1: Colony Morphology



Date: 30 NOV 2016

Signature:

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