

Certificate of Analysis for NR-30764

Mycobacterium tuberculosis, Strain 97-2321

Catalog No. NR-30764

This reagent is the tangible property of the U.S. Government.

Product Description: *Mycobacterium tuberculosis* (*M. tuberculosis*), strain 97-2321 was isolated between 1995 and 2000 from human sputum from an HIV-negative patient infected with pulmonary tuberculosis in North America.

Lot¹: 64496417 Manufacturing Date: 13SEP2016

TEST	SPECIFICATIONS	RESULTS
Phenotypic Analysis ²		
Cellular morphology	Gram-positive rods	Gram-positive rods
Colony morphology ³	Report results	Irregular, slight peaked, undulate, rough and cream (Figure 1)
Growth rate	≥ 7 days	21 days
Growth at 26°C	Negative	Negative
Growth at 37°C	Positive	Positive
Acid-fast stain	Positive (red colonies)	Positive (red colonies)
Pigmentation in the dark (Scotochromogen)	Negative (no pigment)	Negative (no pigment)
Photoinduction for 1 hour (Photochromogen)	Negative (no pigment)	Negative (no pigment)
Nonchromogen (no pigment)	Positive (no pigment)	Positive (no pigment)
Biochemical tests		
Niacin production ⁴	Positive	Positive
Nitrate reduction	Positive	Positive
Pyrazinamidase	Positive	Positive
Genotypic Analysis		
Sequencing of Heat Shock Protein 65 gene (430 base pairs)	≥ 99% sequence identity to M. tuberculosis type strain (GenBank: AL123456)	100% sequence identity to M. tuberculosis type strain (GenBank: AL123456) ⁵
Purity (post-freeze)		
Middlebrook 7H10 agar with OADC enrichment ⁶	Growth consistent with expected colony morphology	Growth consistent with expected colony morphology
Tryptic Soy agar ⁷	Report results	No growth
Viability (post-freeze) ³	Growth	Growth

¹NR-30764 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 29 days at 37°C in an aerobic atmosphere with 5% CO₂ to produce this lot.

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²Information on Mycobacterium testing is available from Ribón, W. "Biochemical Isolation and Identification of Mycobacteria." <u>Biochemical Testing.</u> (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." <a href="https://example.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." https://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." <a href="https://example.com/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing/biochemical-testing

³21 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, M. caprae and M. microti.

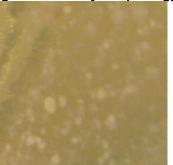
⁶Purity of this lot was assessed for 46 days at 37°C in an aerobic atmosphere with 5% CO₂.

⁷Purity of this lot was assessed for 21 days at 37°C in an aerobic atmosphere with 5% CO₂.



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Figure 1: Colony Morphology



Date: 30 AUG 2017

Signature:

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