SUPPORTING INFECTIOUS DISEASE RESEARCH

Mycobacterium tuberculosis, Strain HN4707

Catalog No. NR-19053

Product Description: *Mycobacterium tuberculosis (M. tuberculosis)*, strain HN4707 was isolated in 1998 in Harris, Texas, USA. Strain HN4707 was deposited as a multidrug-resistant (MDR) strain of tuberculosis with resistance to rifampicin, rifabutin and isoniazid.

Lot¹: 63383556

Manufacturing Date: 14JUL2015

TEST	SPECIFICATIONS	RESULTS
Phenotypic Analysis ²		
Cellular morphology	Gram-positive rods	Gram-positive rods
Colony morphology ³	Report results	Irregular, slight peaked, undulate, rough, opaque and cream (Figure 1)
Growth rate	≥ 7 days	30 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) Biochemical tests	Positive (no pigment)	Positive (no pigment)
Niacin production ⁴	Positive	Positive
Nitrate reduction	Positive	Positive
Pyrazinamidase	Positive	Positive
Antibiotic Susceptibility Profile Sensititre [™] System ^{5,6}		
Amikacin	Report results	≤ 0.12 μg/mL
Cycloserine	Report results	32 µg/mĹ
Ethambutol	Report results	4 μg/mL ⁷ _
Ethionamide	Report results	$1.2 \mu g/mL^7$
Isoniazid	Resistant	0.06 µg/mL
Kanamycin	Report results	≤ 0.6 µg/mL
Moxifloxacin	Report results	0.12 µg/mL
Ofloxacin	Report results	≤ 0.25 µg/mL
Para-aminosalicylic acid	Report results	$\leq 0.5 \mu g/mL^7$
Rifabutin	Resistant	$2 \mu g/mL^7$
Rifampin Streptomycin	Resistant	16 μg/mL ≤ 0.25 μg/mL ⁷
	Report results	S 0.25 μg/mL
Genotypic Analysis		
Sequencing of Heat Shock Protein 65 gene	≥ 99% sequence identity to	100% sequence identity to
(420 base pairs)	M. tuberculosis type strain	M. tuberculosis type strain
	(GenBank: AL123456)	(GenBank: AL123456) ⁸
Purity (post-freeze)		
Middlebrook 7H10 agar with OADC enrichment9	Growth consistent with expected	Growth consistent with expected
	colony morphology	colony morphology
Tryptic Soy agar ⁹	Report results	No growth
Viability (post-freeze) ³	Growth	Growth

¹NR-19053 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 41 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." <u>Biochemical Testing</u>. (2012) Jose C. Jimenez-Lopez (Ed.), InTech, <u>http://www.intechopen.com/books/biochemical-testing/biochemical-isolation-and-identification-of-</u>

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Certificate of Analysis for NR-19053

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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*.

⁵SensititreTM System *Mycobacterium tuberculosis* MIC Plate, Thermo ScientificTM, catalog number MYCOTB

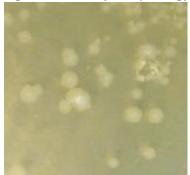
⁶Minimum Inhibitory Concentration (MIC); No Clinical & Laboratory Standards Institute (CLSI) interpretations of the Sensititre[™] System data for *M. tuberculosis* are currently available

⁷For streptomycin, ethionamide, para-aminosalicylic acid, rifabutin and ethambutol, the endpoint for these drugs is determined by the well with approximately 80% inhibition of growth compared to the positive control well with no drug.

⁸Also consistent with *M. africanum*, *M. bovis*, *M. canettii*, *M. caprae* and *M. microti*

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

Figure 1: Colony Morphology



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Program Manager or designee, ATCC Federal Solutions

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