b|e|i RESOURCES
SUPPORTING INFECTIOUS DISEASE RESEARCH

Certificate of Analysis for NR-49068

Mycobacterium africanum, Strain FI-10067

Catalog No. NR-49068

Product Description: *Mycobacterium africanum* (*M. africanum*), strain FI-10067 was isolated in 2010 from the sputum of a Senegalese patient in Italy.

Lot[1]: 63453265 **Manufacturing Date: 07JUL2015**

TEST	SPECIFICATIONS	RESULTS
Phenotypic Analysis[2,3]		
Cellular morphology	Gram-positive rods	Gram-positive rods
Colony morphology[4]	Report results	Irregular, slight peaked, undulate, rough and cream (Figure 1)
Growth rate	≥ 7 days	21 days
Growth at 26°C	Report results	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[5]	Report results	Positive
Nitrate reduction	Report results	Positive
Pyrazinamidase	Report results	Positive
Genotypic Analysis		
Sequencing of Heat Shock Protein 65 gene (~ 430 base pairs)	≥ 99% sequence identity to *M. africanum* type strain (GenBank: FJ617583.1)	99.5% sequence identity to *M. africanum* type strain (GenBank: FJ617583.1)[6]
Purity (post-freeze)		
Middlebrook 7H10 agar with OADC enrichment[7]	Growth consistent with expected colony morphology	Growth consistent with expected colony morphology
Tryptic Soy agar[8]	Report results	Growth consistent with expected colony morphology
Viability (post-freeze)[4]	Growth	Growth

[1]NR-49068 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 54 days at 37°C in an aerobic atmosphere with 5% CO_2 to produce this lot.

[2]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.

[3]Phenotypic characterization of *M. africanum* was performed following: Aranaz, A., et al. "*Mycobacterium tuberculosis* subsp. *caprae* subsp. nov.: A Taxonomic Study of a New Member of the *Mycobacterium tuberculosis* Complex Isolated from Goats in Spain." Int. J. Syst. Bacteriol. 49 (1999): 1263-1273. PubMed: 10425790 and Frothingham, R., et al. "Phenotypic and Genotypic Characterization of *Mycobacterium africanum* Isolates from West Africa." J. Clin. Microbiol. 37 (1999): 1921-1926. PubMed: 10325347.

[4]21 days at 37°C in an aerobic atmosphere with 5% CO_2 on Middlebrook 7H10 agar with OADC enrichment

[5]While a positive niacin result has traditionally been used to differentiate *M. tuberculosis* from other *Mycobacteria,* both positive and negative niacin results for *M. africanum* have been reported in the literature.

[6]Also consistent with *M. bovis, M. canettii, M. caprae, M. microti* and *M. tuberculosis*

[7]Purity of this lot was assessed for 35 days at 37°C in an aerobic atmosphere with 5% CO_2.

[8]Purity of this lot was assessed for 21 days at 37°C in an aerobic atmosphere with 5% CO_2.

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Figure 1: Colony Morphology

Date: 18 SEP 2017

Signature:

BEI Resources Authentication

ATCC®, on behalf of BEI Resources, hereby represents and warrants that the material provided under this certificate has been subjected to the tests and procedures specified and that the results described, along with any other data provided in this certificate, are true and accurate to the best of ATCC®'s knowledge.

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