

## ***Mycobacterium africanum*, Strain FI-10067**

**Catalog No. NR-49068**

**For research use only. Not for human use.**

### **Contributor:**

Dr. Enrico Tortoli, Senior Scientist, Emerging Bacterial Pathogens Unit, San Raffaele Scientific Hospital, Milan, Italy

### **Manufacturer:**

BEI Resources

### **Product Description:**

Bacteria Classification: *Mycobacteriaceae*, *Mycobacterium*

Species: *Mycobacterium africanum*

Strain: FI-10067

Original Source: *Mycobacterium africanum* (*M. africanum*), strain FI-10067 was isolated in 2010 from the sputum of a Senegalese patient in Italy.<sup>1</sup>

*M. africanum* is an acid-fast, Gram-positive, rod-shaped, nonchromogenic bacterium comprising two phylogenetic lineages within the *M. tuberculosis* complex: *M. africanum* West African type I (lineage 5) and *M. africanum* West African type II (lineage 6).<sup>2,3,4,5</sup> It is the causative agent of nearly 50% of all human tuberculosis cases in West Africa, where it appears to be geographically restricted, though cases in Europe, South America and the United States have occurred and are attributed to patients originating in the West Africa region.<sup>4,5,6,7,8</sup> Isolation from animal sources is sporadic and suggests a possible unknown animal reservoir.<sup>5</sup> *M. africanum* occurs at a higher rate than *M. tuberculosis* in patients with HIV infections, suggesting it is more of an opportunistic pathogen in immunocompromised patients.<sup>8</sup>

Due to a high phenotypic heterogeneity, the taxonomy of *M. africanum* has evolved with improved genotypic tools, resulting in the reclassification of some early *M. africanum* isolates as *M. tuberculosis* or *M. bovis*.<sup>4,6,9,10,11,12,13</sup> Genotypic analysis differentiates *M. africanum* from the *M. tuberculosis* complex by a distinct restriction fragment length polymorphism (RFLP) pattern associated with insertion sequence (IS) 6110 and unique spoligotyping patterns of the direct repeat region, with *M. africanum* West African type I lacking spacers 8 through 12 and 37 through 39 and *M. africanum* West African type II lacking spacers 7 through 9 and 39.<sup>4,5,6,12,13</sup>

### **Material Provided:**

Each vial contains approximately 0.7 mL of bacterial culture in Middlebrook 7H9 broth with ADC enrichment supplemented with 10% glycerol.

Note: If homogeneity is required for your intended use, please purify prior to initiating work.

### **Packaging/Storage:**

NR-49068 was packaged aseptically in screw-capped plastic cryovials. The product is provided frozen and should be stored

at -60°C or colder immediately upon arrival. For long-term storage, the vapor phase of a liquid nitrogen freezer is recommended. Freeze-thaw cycles should be avoided.

### **Growth Conditions:**

#### Media:

Middlebrook 7H9 broth with Middlebrook ADC enrichment or equivalent

Middlebrook 7H10 agar with Middlebrook OADC enrichment or equivalent

#### Incubation:

Temperature: 37°C

Atmosphere: Aerobic (with or without 5% CO<sub>2</sub>)

#### Propagation:

1. Keep vial frozen until ready for use; then thaw.
2. Transfer the entire thawed aliquot into a single tube of broth.
3. Use several drops of the suspension to inoculate an agar slant and/or plate.
4. Incubate the tubes and plate at 37°C for 2 to 6 weeks.

### **Citation:**

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: *Mycobacterium africanum*, Strain FI-10067, NR-49068."

### **Biosafety Level: 3**

Appropriate safety procedures should always be used with this material. Laboratory safety is discussed in the following publication: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, and National Institutes of Health. Biosafety in Microbiological and Biomedical Laboratories. 5th ed. Washington, DC: U.S. Government Printing Office, 2009; see [www.cdc.gov/biosafety/publications/bmb15/index.htm](http://www.cdc.gov/biosafety/publications/bmb15/index.htm).

This publication recommends that practices with this agent include the use of respiratory protection and the implementation of specific procedures and use of specialized equipment to prevent and contain aerosols.

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### References:

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3. Sharma, A., et al. "Tuberculosis Caused by *Mycobacterium africanum*, United States, 2004-2013." *Emerg. Infect. Dis.* 22 (2016): 396-403. PubMed: 26886258.
4. de Jong, B. C., M. Antonio and S. Gagneux. "*Mycobacterium africanum* – Review of an Important Cause of Human Tuberculosis in West Africa." *PLoS Negl. Trop. Dis.* 4 (2010): e744. PubMed: 20927191.
5. Winglee, K., et al. "Whole Genome Sequencing of *Mycobacterium africanum* Strains from Mali Provides Insights into the Mechanisms of Geographic Restriction." *PLoS Negl. Trop. Dis.* 10 (2016): e0004332. PubMed: 26751217.
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