

***Mycobacterium ulcerans*, Strain S4018**

Catalog No. NR-51701

Product Description:

Mycobacterium ulcerans (*M. ulcerans*), strain S4018 was isolated in December 2006 from the cutaneous lesion of an active Buruli ulcer on a male child in Benin. NR-51701 was produced by the depositor and was harvested and vialled at ATCC®.

Lot: 70029957

Manufacturing Date: 30SEP2019

TEST	SPECIFICATIONS	RESULTS
Phenotypic Analysis¹ Cellular Morphology (pre-vial) Colony morphology 28 days at 30°C in an aerobic atmosphere on Lowenstein-Jensen agar Motility (wet mount) Growth rate Growth at 45°C Growth at 55°C Acid-fast stain Pigmentation in the dark (Scotochromogen) Photoinduction for 1 hour (Photochromogen) Nonchromogen (no pigment) Biochemical tests ^{3,4} Catalase Catalase (semiquantitative) Catalase (68°C) Iron uptake Nitrate reduction Tween 80 Urease Growth in the presence of 5% sodium chloride Growth in the presence of thiophene-2-carboxylic acid hydrazide (TCH)	Report results Report results Report results ≥ 7 days Negative Negative Positive (red colonies) Negative (no pigment) Negative Positive Report results Report results Report results Report results Negative Negative Report results Negative Negative	Gram-positive rods Irregular, raised, undulate, rough and yellow (Figure 1) ² Non-motile 28 days Negative Negative Positive (red colonies) Negative (no pigment) Negative Positive Positive ⁵ Negative Positive ⁵ Negative Negative Negative Negative Negative ⁶ Negative Negative
Genotypic Analysis Sequencing of 16S ribosomal RNA gene (~ 1430 base pairs) Sequencing of Heat Shock Protein 65 gene (~ 440 base pairs)	≥ 99% sequence identity to <i>M. ulcerans</i> , strain S4018 (GenBank: MDUB01000259.1) ≥ 99% sequence identity to <i>M. ulcerans</i> , strain S4018 (GenBank: MDUB01000482.1)	99.5% sequence identity to <i>M. ulcerans</i> , strain S4018 (GenBank: MDUB01000259.1) ⁷ 99.8% sequence identity to <i>M. ulcerans</i> , strain S4018 (GenBank: MDUB01000482.1)
Purity (post-freeze) Middlebrook 7H10 agar with OADC enrichment 28 days at 30°C in an aerobic atmosphere Tryptic Soy agar 28 days at 37°C in an aerobic atmosphere with 5% CO ₂	Growth consistent with expected colony morphology Report results	Growth consistent with expected colony morphology No growth
Viability 28 days at 30°C in an aerobic atmosphere on Middlebrook 7H10 agar with OADC enrichment	Growth	Growth

¹Information on *Mycobacterium* testing is available from Ribón, W. "Biochemical Isolation and Identification of Mycobacteria, Biochemical Testing" *Biochemical Testing*. (2012) Jose C. Jimenez-Lopez (Ed.), InTech, Available from: <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.

²Yellow colonies indicate the presence of the virulence plasmid expressing the toxin mycolactone. Repeated passaging may result in white colonies, indicating the loss of the virulence plasmid. For more information, please see Nakanaga, K., et al. "Naturally Occurring Loss of a Giant Plasmid from *Mycobacterium ulcerans* subsp. *shinshuense* Makes it Non-Pathogenic." *Sci. Rep.* 8 (2018): 8218. PubMed: 29844323.

³Negative tests are observed for >7 days.

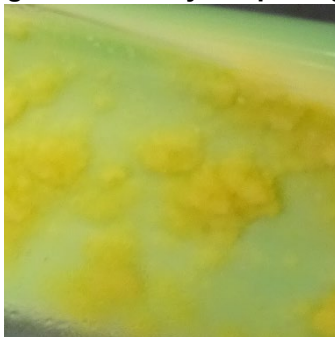
⁴Biochemical test results rule out *M. marinum*, *M. pseudoshottsii* and *M. shottsii*.

⁵Most strains of *Mycobacterium ulcerans* are negative for this test; however, up to 15% of strains are positive.

⁶Most strains of *Mycobacterium ulcerans* are negative for this test; however, 15% to 49% of strains are positive.

⁷Also consistent with *M. basiliense*, *M. liflandii*, *M. marinum*, *M. pseudoshottsii* and *M. shottsii*

Figure 1: Colony Morphology



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13 AUG 2020

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