

***Mycobacterium xenopi*, Strain 3993**

Catalog No. NR-44271

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Product Description:

Mycobacterium xenopi (*M. xenopi*), strain 3993 was isolated between 2009 and 2013 from human sputum at the University of Texas Health Science Center at Tyler, Tyler, Texas, USA. NR-44271 was produced by inoculation of the deposited material into Middlebrook 7H9 broth with ADC enrichment and grown for 14 days at 37°C in an aerobic atmosphere with 5% CO₂. Broth inoculum was added to Middlebrook 7H10 (M7H10) agar with OADC enrichment kolles, which were grown for 13 days at 37°C in an aerobic atmosphere with 5% CO₂ to produce this lot.

Lot: 64446904

Manufacturing Date: 15AUG2016

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TEST	SPECIFICATIONS	RESULTS
Phenotypic Analysis¹ Colony morphology 21 days at 37°C in an aerobic atmosphere with 5% CO ₂ on M7H10 agar with OADC enrichment Motility (wet mount) Growth rate Growth at 37°C 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 ² Catalase Catalase (68°C) Iron uptake Nitrate reduction Tween 80 hydrolysis Urease Growth in the presence of 5% sodium chloride Growth in the presence of thiophene-2-carboxylic acid hydrazide (TCH)	Report results Report results ≥ 7 days Positive Positive Report results Positive (red colonies) Positive (pigment) Negative Negative Positive Positive Report results Negative Negative Negative Negative Negative Positive	Punctiform Non-motile 21 days Positive Positive Negative Positive (red colonies) Positive (pigment) Negative Negative Negative ³ Negative ³ Negative Negative Negative Negative Positive ³ Positive
Genotypic Analysis Digital DNA-DNA hybridization (dDDH) ^{4,5}	≥ 70% for species identification	<i>M. xenopi</i> (96%)
Purity (post-freeze) M7H10 agar with OADC enrichment ⁶ 21 days at 37°C in an aerobic atmosphere with 5% CO ₂ Tryptic Soy agar with 5% defibrinated sheep blood 21 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 Growth consistent with expected colony morphology
Viability 21 days at 37°C in an aerobic atmosphere with 5% CO ₂ on M7H10 agar with OADC enrichment	Growth	Growth

¹Information on *Mycobacterium* testing is available from Ribón, W. "Biochemical Isolation and Identification of Mycobacteria." *Biochemical Testing*. (2012) Jose C. Jimenez-Lopez (Ed.), InTech, Available from: [Biochemical Isolation and Identification of Mycobacteria](#), 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, and Magee, J. G. and A. C. Ward. "Family III. *Mycobacteriaceae* Chester 1897, 63^{AL}." *Bergey's® Manual of Systematic Bacteriology, Volume 5.* (2012) Goodfellow, M., et al. (Ed.), Springer.

²Most negative tests are observed for > 7 days.

³Species-level identification and characterization of *Mycobacterium* spp. through biochemical testing has been shown to produce inconsistent or nonreproducible results. The use of whole genome sequencing and digital DNA-DNA hybridization (dDDH) provides quantitative species-level identification that is accurate, precise, and reproducible. BEI Resources will be discontinuing the use of biochemical testing to identify *Mycobacterium* spp. in favor of WGS/dDDH. For more information, refer to Forbes, B. A., et al. "Practical Guidance for Clinical Microbiology Laboratories: Mycobacteria." *Clin. Microbiol. Rev.* 31 (2018): e00038-17. PubMed: 29386234.

⁴The whole genome of *M. xenopi*, strain 3993 (contig total length approximately 4.8 megabase pairs) was sequenced using the Illumina® NextSeq® system.

⁵Relatedness between bacterial strains has traditionally been determined using DDH. For additional information refer to Auch, A.F., et al. "Digital DNA-DNA Hybridization for Microbial Species Delineation by Means of Genome-to-Genome Sequence Comparison." *Stand. Genomic Sci.* 2 (2010): 117-134. PubMed: 21304684.

⁶M7H10 agar with OADC enrichment contains malachite green, which may inhibit the growth of contaminating microorganisms.

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