

**Staphylococcus aureus, Strain AJUL5**

**Catalog No. NR-55219**

**Product Description:**

*Staphylococcus aureus* (*S. aureus*), strain AJUL5 is deposited as a kanamycin-, neomycin- and tobramycin-resistant strain derived from *S. aureus*, strain SH1000 through introduction of plasmid pSK5487M containing the gene *aph*(3')-IIIa (encoding aminoglycoside O-phosphotransferase) and a chloramphenicol resistance gene (*cat*) for selection. NR-55219 was produced by resuspension of a lyophilized vial of deposited material in Tryptic Soy broth. Broth inoculum was added to Tryptic Soy broth containing 25 µg per mL chloramphenicol and grown for 1 day at 37°C in an aerobic atmosphere. The material from the initial growth was added to Tryptic Soy agar containing 25 µg per mL chloramphenicol kolles, which was grown for 1 day at 37°C in an aerobic atmosphere to produce this lot. Quality control testing was completed under propagation conditions unless otherwise noted.

**Lot: 70052530**

**Manufacturing Date: 05MAY2022**

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TEST	SPECIFICATIONS	RESULTS
<b>Phenotypic Analysis</b> Cellular morphology Colony morphology  Motility (wet mount) Hemolysis Catalase VITEK® MS (MALDI-TOF)	Gram-positive cocci Report results  Report results Report results Positive <i>S. aureus</i>	Gram-positive cocci Circular, convex, entire, smooth and yellow Non-motile β-hemolytic Positive <i>S. aureus</i> (99.9%)
<b>Antibiotic Susceptibility Profile<sup>1</sup></b> Etest® antibiotic test strips 1 day at 35°C in an aerobic atmosphere on Mueller Hinton agar Kanamycin Tobramycin  Thermo Scientific™ Susceptibility Test Disc 1 day at 35°C in an aerobic atmosphere on Mueller Hinton agar Neomycin	Resistant Resistant  Resistant	Resistant (≥ 256 µg per mL) Sensitive (0.09 µg per mL) <sup>2</sup>  76 mm <sup>3</sup>
<b>Genotypic Analysis</b> Digital DNA-DNA hybridization (dDDH) <sup>4</sup> Next-Generation Sequencing (NGS) analysis for antimicrobial resistance genes <sup>6</sup> Kanamycin Neomycin Tobramycin	≥ 70% for species identification  Resistant Resistant Resistant	<i>S. aureus</i> (99.4%) <sup>5</sup>  Resistant Resistant Inconclusive <sup>7</sup>
<b>Purity (post-freeze)</b> 8 days at 37°C in an aerobic atmosphere with and without 5% CO <sub>2</sub> on Tryptic Soy agar with 5% defibrinated sheep blood	Growth consistent with expected colony morphology	Growth consistent with expected colony morphology
<b>Viability (post-freeze)</b>	Growth	Growth

<sup>1</sup>Minimum Inhibitory Concentration (MIC); Clinical & Laboratory Standards Institute (CLSI) M100-S28 (2018) or European Committee on Antimicrobial Susceptibility Testing (EUCAST) (2023)

<sup>2</sup>*S. aureus*, strain AJUL5 was deposited as resistant to tobramycin, but showed a MIC of 0.09 µg per mL (interpreted as sensitive) for this antibiotic during QC testing.

<sup>3</sup>No CLSI or EUCAST interpretations of this antibiotic for *S. aureus* are currently available.

<sup>4</sup>Relatedness 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.

<sup>5</sup>The whole genome of *S. aureus*, strain AJUL5 (contig total length approximately 2.66 megabase pairs) was sequenced using the Illumina<sup>®</sup> MiSeq<sup>®</sup> system.

<sup>6</sup>*In silico* analysis of NGS data for antimicrobial resistance genes was performed using the Bacterial and Viral Bioinformatics Resource Center (BV-BRC), ResFinder and Pathogenwatch genome analysis tools.

<sup>7</sup>*S. aureus*, strain AJUL5 was deposited as resistant to tobramycin. *In silico* analysis determined the predicted phenotype of this antibiotic as sensitive and resistant, respectively. No data for this antibiotic is available in the BV-BRC.

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30 JAN 2023

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