

**Staphylococcus aureus, Strain MN-040**

**Catalog No. NR-46227**

**Product Description:** *Staphylococcus aureus* (*S. aureus*), strain MN-040 was isolated in 2005 from the pleural fluid of a 59-year-old male patient with empyema and pneumonia in Minnesota, USA. *S. aureus*, strain MN-040 is a clinically-associated methicillin-resistant *S. aureus* (MRSA) strain.

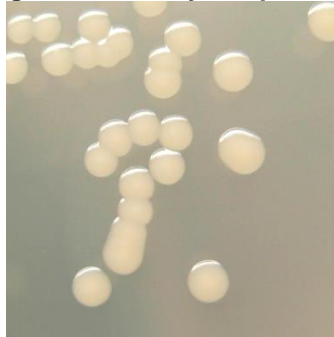
**Lot<sup>1</sup>: 2153**

**Manufacturing Date: 02NOV2016**

TEST	SPECIFICATIONS	RESULTS
<b>Phenotypic Analysis</b> Cellular morphology Colony morphology <sup>2</sup>  Motility (wet mount) Hemolysis <sup>3</sup> Biochemical characterization Catalase Coagulase <sup>4</sup> VITEK <sup>®</sup> 2 Compact (GP card)	Gram-positive cocci Report results  Report results Report results  Positive Report results ≥ 90% probability of being <i>S. aureus</i>	Gram-positive cocci Circular, convex, entire, smooth and cream (Figure 1) Non-motile β-hemolytic  Positive Positive <i>S. aureus</i> (99% probability) <sup>5</sup>
<b>Antibiotic Susceptibility Profile</b> VITEK <sup>®</sup> (AST-GP71 card) <sup>6</sup> Beta-lactamase <sup>7</sup> Cefoxitin screen Benzylpenicillin Oxacillin Gentamicin Ciprofloxacin Levofloxacin Moxifloxacin Clindamycin (inducible resistance) Erythromycin Clindamycin Quinupristin/dalfopristin Linezolid Daptomycin Vancomycin Minocycline Tetracycline Tigecycline Nitrofurantoin Rifampicin Trimethoprim/sulfamethoxazole Etest <sup>®</sup> antibiotic test strips <sup>9</sup> Chloramphenicol <sup>10</sup> Teicoplanin <sup>10</sup>	Report results Report results Report results Resistant Sensitive Report results Resistant Report results Report results Resistant Resistant Resistant Report results Report results Resistant Resistant Report results Sensitive Sensitive Sensitive Sensitive Report results Sensitive Sensitive Report results Report results Sensitive Sensitive	Positive Positive Resistant (≥ 0.5 µg/mL) Resistant (≥ 4 µg/mL) Sensitive (≤ 0.5 µg/mL) Resistant (≥ 8 µg/mL) Resistant (≥ 8 µg/mL) Resistant (= 4 µg/mL) Negative Resistant (≥ 8 µg/mL) Resistant (≥ 8 µg/mL) Sensitive (≤ 0.25 µg/mL) Sensitive (= 2 µg/mL) Sensitive (= 0.25 µg/mL) Sensitive (= 1 µg/mL) Sensitive (≤ 0.5 µg/mL) Sensitive (≤ 1 µg/mL) Sensitive (≤ 0.12 µg/mL) <sup>8</sup> Sensitive (≤ 16 µg/mL) Sensitive (≤ 0.5 µg/mL) Sensitive (≤ 10 µg/mL)  Sensitive (= 4-6 µg/mL) <sup>11</sup> Sensitive (= 1 µg/mL)
<b>Genotypic Analysis</b> Sequencing of 16S ribosomal RNA gene (~ 1490 base pairs)	≥ 99% sequence identity to <i>S. aureus</i> type strain (GenBank: L37597)	100% sequence identity to <i>S. aureus</i> type strain (GenBank: L37597)
<b>Purity (post-freeze)<sup>12</sup></b>	Consistent with expected colony morphology	Consistent with expected colony morphology
<b>Viability (post-freeze)<sup>2</sup></b>	Growth	Growth

- <sup>1</sup>*S. aureus*, strain MN-040 was deposited to BEI Resources as part of the NARSA collection. NR-46227 was produced by inoculation of the deposited material into Tryptic Soy broth and grown 1 day at 37°C in an aerobic atmosphere. Broth inoculum was added to Tryptic Soy agar kolles which were grown 1 day at 37°C in an aerobic atmosphere to produce this lot.
- <sup>2</sup>1 day at 37°C in an aerobic atmosphere on Tryptic Soy agar
- <sup>3</sup>1 day at 37°C in an aerobic atmosphere on Tryptic Soy agar with 5% defibrinated sheep blood
- <sup>4</sup>4 hours at 37°C in rabbit serum with 0.15% EDTA (Coagulase Plasma BBL™ 240827)
- <sup>5</sup>Percent probabilities above 90% indicate a close match to the typical biochemical pattern for the given organism, with a percent probability of 99% being a perfect match between the test reaction pattern and the unique biochemical pattern of the given organism or organism group. For additional information, please refer to O'Hara, C.M. and J. M. Miller. "Evaluation of the VITEK 2 ID-GNB Assay for Identification of Members of the Family Enterobacteriaceae and Other Nonenteric Gram-Negative Bacilli and Comparison with the VITEK GNI+ Card." *J. Clin. Microbiol.* 41 (2003): 2096-2101. PubMed: 12734254.
- <sup>6</sup>Minimum Inhibitory Concentration (MIC); MIC Interpretation Guideline: CLSI M100-S22 (2012)
- <sup>7</sup>The production of beta-lactamase was detected using a Cefinase™ Paper Disc (BBL™ 231650).
- <sup>8</sup>MIC Interpretation Guideline: EUCAST Version 4.0 (2014)
- <sup>9</sup>1 day at 37°C in an aerobic atmosphere on Mueller Hinton agar
- <sup>10</sup>For both chloramphenicol (bioMérieux Etest® 412308) and teicoplanin (bioMérieux Etest® 412459), a MIC ≤ 8 µg/mL is sensitive, a MIC = 16 µg/mL is intermediate and a MIC ≥ 32 µg/mL is resistant.
- <sup>11</sup>*S. aureus*, strain MN-040 was deposited as having an intermediate resistance to chloramphenicol. Antibiotic susceptibility testing performed in duplicate determined that strain MN-040 is sensitive to chloramphenicol.
- <sup>12</sup>Purity of this lot was assessed for 7 days at 37°C in an aerobic atmosphere with 5% CO<sub>2</sub> on Tryptic Soy agar with 5% defibrinated sheep blood.

Figure 1: Colony Morphology



Date: 31 JAN 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.

ATCC® is a trademark of the American Type Culture Collection.

You are authorized to use this product for research use only. It is not intended for human use.

