

**Staphylococcus aureus, Strain MN-082**

**Catalog No. NR-46230**

**Product Description:** *Staphylococcus aureus* (*S. aureus*), strain MN-082 was isolated in 2006 from the blood of a 73-year-old male with an infection of a surgical incision in Minnesota, USA. *S. aureus*, strain MN-082 is a clinically-associated methicillin-resistant *S. aureus* (MRSA) strain.

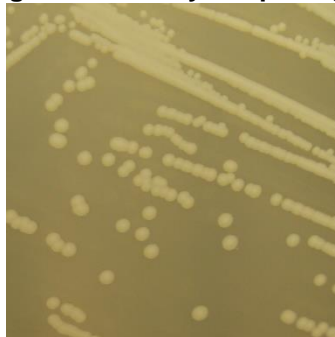
**Lot<sup>1</sup>: 64044901**

**Manufacturing Date: 26FEB2016**

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® 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 Non-hemolytic  Positive Positive <i>S. aureus</i> (94% probability) <sup>5</sup>
<b>Antibiotic Susceptibility Profile</b> VITEK® (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® antibiotic test strips <sup>10</sup> Chloramphenicol <sup>11</sup> Teicoplanin <sup>11</sup>	Report results Report results Report results Resistant Sensitive Report results Resistant Report results Report results Resistant Resistant Report results Sensitive Sensitive Sensitive Sensitive Report results Sensitive Report results Report results Sensitive Sensitive  Report results Report results	Positive Positive Resistant (0.12 µg/mL) <sup>8</sup> Resistant (≥ 4 µg/mL) Sensitive (≤ 0.5 µg/mL) Resistant (≥ 8 µg/mL) Resistant (= 4 µg/mL) Intermediate (= 1 µg/mL) Negative Resistant (≥ 8 µg/mL) Resistant (≥ 8 µg/mL) Sensitive (≤ 0.25 µg/mL) Sensitive (= 1 µg/mL) Sensitive (= 0.25 µg/mL) Sensitive (≤ 0.5 µg/mL) Sensitive (≤ 0.5 µg/mL) Sensitive (≤ 1 µg/mL) Sensitive (≤ 0.12 µg/mL) <sup>9</sup> Sensitive (≤ 16 µg/mL) Sensitive (≤ 0.5 µg/mL) Sensitive (≤ 10 µg/mL)  Sensitive (= 6 µg/mL) <sup>12</sup> Sensitive (= 1 µg/mL)
<b>Genotypic Analysis</b> Sequencing of 16S ribosomal RNA gene (~ 1450 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>13</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-082 was deposited to BEI Resources as part of the NARSA collection. The deposited material was inoculated into Tryptic Soy broth and grown 1 day at 37°C in an aerobic atmosphere. Broth inoculum was added to a Tryptic Soy agar with 5% defibrinated sheep blood plate which was grown 1 day at 37°C in an aerobic atmosphere. The growth material was passaged once on Tryptic Soy agar with 5% defibrinated sheep blood plates. Colonies were then suspended in Tryptic Soy broth and preserved in 10% glycerol. NR-46230 was produced by inoculation of the preserved material into Tryptic Soy broth and grown 1 day at 37°C in an aerobic atmosphere. Broth inoculum was added to Tryptic Soy agar with 5% defibrinated sheep blood 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>Antibiotic susceptibility performed in duplicate determined that strain MN-082 has a benzylpenicillin MIC of 0.12 µg/mL, which is considered susceptible. However, this strain was deposited as a *mecA*-positive MRSA strain that that tested positive for beta-lactamase production and is resistant to oxacillin and ceftioxin, indicating that strain MN-082 is also resistant to benzylpenicillin.
- <sup>9</sup>MIC Interpretation Guideline: EUCAST Version 4.0 (2014)
- <sup>10</sup>1 day at 37°C in an aerobic atmosphere on Mueller Hinton agar
- <sup>11</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>12</sup>*S. aureus*, strain MN-082 was deposited as having an intermediate susceptibility to chloramphenicol. Antibiotic susceptibility performed in duplicate determined that strain MN-082 is susceptible to chloramphenicol
- <sup>13</sup>Purity of this lot was assessed for 7 days at 37°C in an aerobic atmosphere on Tryptic Soy agar with 5% defibrinated sheep blood.

Figure 1: Colony Morphology



Date: 12 JUL 2016

Signature:

BEI Resources Authentication

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