

Staphylococcus aureus, Strain MN-095

Catalog No. NR-46232

For research use only. Not for human use.

Contributor:

Centers for Disease Control and Prevention, Atlanta, Georgia, USA

Manufacturer:

BEI Resources

Product Description:

Bacteria Classification: *Staphylococcaceae*, *Staphylococcus*

Species: *Staphylococcus aureus*

Strain: MN-095

NARSA Catalog Number: NRS703

Original Source: *Staphylococcus aureus* (*S. aureus*), strain MN-095 was isolated in 2006 from the blood of a 48-year-old female with cellulitis and/or a bloodstream infection in Minnesota, USA.¹

Comments: *S. aureus*, strain MN-095 is a methicillin-resistant *S. aureus* (MRSA) strain. Strain MN-095 was deposited as positive for *mec* (subtype IV) and PVL; negative for *tst*; pulsed-field type 300.¹ *S. aureus*, strain MN-095 is a USA300 isolate. USA300 isolates have a common MLST profile (ST 8), SCC*mec* type (subtype IV), *spa* motif (MBQBLO) and *agr* group (I), typically carry the PVL and arginine catabolic mobile element (ACME) genes and are usually resistant to both erythromycin and β -lactams.²⁻⁷ USA300 is the most common cause of community-associated MRSA infection and an increasing cause of hospital-acquired infections.⁷ Note: Methicillin is no longer clinically used; however, the term methicillin-resistant *Staphylococcus aureus* (MRSA) continues to be used to describe *S. aureus* strains resistant to all penicillins.

S. aureus is a Gram-positive, cluster-forming coccus that normally inhabits human nasal passages, skin and mucus membranes. It is also a human pathogen and causes a variety of pus-forming infections as well as food-poisoning and toxic shock syndrome. In 1961, two years after the introduction of methicillin, a penicillinase-resistant penicillin, *S. aureus* developed methicillin-resistance due to acquisition of the *mecA* gene. For the last forty-five years hospital-acquired (HA) MRSA strains have disseminated worldwide. More recently, MRSA strains have been isolated that are not hospital acquired and are referred to as community-associated (CA) MRSA. These CA-MRSA strains differ phenotypically and genotypically from HA-MRSA strains and they are more frequently recovered from skin and soft tissue sources rather than post-operative wounds.^{8,9}

Material Provided:

Each vial contains approximately 0.5 mL of bacterial culture in Tryptic Soy broth supplemented with 10% glycerol. Each vial

of NR-46232 lot 63693272 contains approximately 0.5 mL of bacterial culture in Tryptic Soy broth supplemented with 5% DMSO.

Note: If homogeneity is required for your intended use, please purify prior to initiating work.

Packaging/Storage:

NR-46232 was packaged aseptically in cryovials. The product is provided frozen and should be stored at -60°C or colder immediately upon arrival. For long-term storage, the vapor phase of a liquid nitrogen freezer is recommended. Freeze-thaw cycles should be avoided.

Growth Conditions:

Media:

Brain Heart Infusion broth or Tryptic Soy broth or equivalent
Brain Heart Infusion agar or Tryptic Soy agar with 5% defibrinated sheep blood or equivalent

Incubation:

Temperature: 37°C
Atmosphere: Aerobic

Propagation:

1. Keep vial frozen until ready for use, then thaw.
2. Transfer the entire thawed aliquot into a single tube of broth.
3. Use several drops of the suspension to inoculate an agar slant and/or plate.
4. Incubate the tube, slant and/or plate at 37°C for 18 to 24 hours.

Citation:

Acknowledgment for publications should read "The following reagent was provided by the Network on Antimicrobial Resistance in *Staphylococcus aureus* (NARSA) for distribution by BEI Resources, NIAID, NIH: *Staphylococcus aureus*, Strain MN-095, NR-46232."

Biosafety Level: 2

Appropriate safety procedures should always be used with this material. Laboratory safety is discussed in the following publication: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, and National Institutes of Health. Biosafety in Microbiological and Biomedical Laboratories. 5th ed. Washington, DC: U.S. Government Printing Office, 2009; see www.cdc.gov/biosafety/publications/bmbl5/index.htm.

Disclaimers:

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

Use of this product is subject to the terms and conditions of the BEI Resources Material Transfer Agreement (MTA). The MTA is available on our Web site at www.beiresources.org.

While BEI Resources uses reasonable efforts to include accurate and up-to-date information on this product sheet,

neither ATCC® nor the U.S. Government makes any warranties or representations as to its accuracy. Citations from scientific literature and patents are provided for informational purposes only. Neither ATCC® nor the U.S. Government warrants that such information has been confirmed to be accurate.

This product is sent with the condition that you are responsible for its safe storage, handling, use and disposal. ATCC® and the U.S. Government are not liable for any damages or injuries arising from receipt and/or use of this product. While reasonable effort is made to ensure authenticity and reliability of materials on deposit, the U.S. Government, ATCC®, their suppliers and contributors to BEI Resources are not liable for damages arising from the misidentification or misrepresentation of products.

Use Restrictions:

This material is distributed for internal research, non-commercial purposes only. This material, its product or its derivatives may not be distributed to third parties. Except as performed under a U.S. Government contract, individuals contemplating commercial use of the material, its products or its derivatives must contact the contributor to determine if a license is required. U.S. Government contractors may need a license before first commercial sale.

References:

1. NARSA, NRS703
2. McDougal, L. K., et al. "Pulsed-Field Gel Electrophoresis Typing of Oxacillin-Resistant *Staphylococcus aureus* Isolates from the United States: Establishing a National Database." *J. Clin. Microbiol.* 41 (2003): 5113-5120. PubMed: 14605147.
3. Hudson, L. O., et al. "Differences in Methicillin-Resistant *Staphylococcus aureus* Strains Isolated from Pediatric and Adult Patients from Hospitals in a Large County in California." *J. Clin. Microbiol.* 50 (2012): 573-579. PubMed: 22205805.
4. Liu, C., et al. "A Population-Based Study of the Incidence and Molecular Epidemiology of Methicillin-Resistant *Staphylococcus aureus* Disease in San Francisco, 2004–2005." *Clin. Infect. Dis.* 46 (2008): 1637-1646. PubMed: 18433335.
5. Hiramatsu, K., et al. "Genomic Basis for Methicillin Resistance in *Staphylococcus aureus*." *Infect. Chemother.* 45 (2013): 117-136. PubMed: 24265961.
6. Diep, B. A., et al. "Roles of 34 Virulence Genes in the Evolution of Hospital- and Community-Associated Strains of Methicillin-Resistant *Staphylococcus aureus*." *J. Infect. Dis.* 193 (2006): 1495-1503. PubMed: 16652276.
7. Diekema, D. J., et al. "Continued Emergence of USA300 Methicillin-Resistant *Staphylococcus aureus* in the United States: Results from a Nationwide Surveillance Study." *Infect. Control Hosp. Epidemiol.* 35 (2014): 285-292. PubMed: 24521595.
8. Deurenberg, R. H. and E. E. Stobberingh. "The Evolution

of *Staphylococcus aureus*." *Infect. Genet. Evol.* 8 (2008): 747-763. PubMed: 18718557.

9. Davis, S. L., et al. "Epidemiology and Outcomes of Community-Associated Methicillin-Resistant *Staphylococcus aureus* Infection." *J. Clin. Microbiol.* 45 (2007): 1705-1711. PubMed: 17392441.

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

