

## Staphylococcus aureus, Strain GA-298

Catalog No. NR-46212

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: GA-298

NARSA Catalog Number: NRS683

Original Source: *Staphylococcus aureus* (*S. aureus*), strain GA-298 was isolated in 2005 from the blood of a 46-year-old male with a spinal abscess in Georgia, USA.<sup>1</sup>

Comments: *S. aureus*, strain GA-298 is a methicillin-resistant *S. aureus* (MRSA) strain. Strain GA-298 was deposited as positive for *mec* (subtype IV) and PVL; negative for *tsst*, and pulsed-field type 300.<sup>1</sup> *S. aureus*, strain GA-298 is a USA300 isolate. USA300 isolates have a common MLST profile (ST 8), SCCmec type (subtype IV), *spa* motif (MBQBLO) and *agr* group (I), carry the PVL and arginine catabolic mobile element (ACME) genes and are usually resistant to both erythromycin and  $\beta$ -lactams.<sup>2,7</sup> USA300 is the most common cause of community-associated MRSA infection and an increasing cause of hospital-acquired infections.<sup>7</sup> 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.<sup>8,9</sup>

### Material Provided:

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

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

### Packaging/Storage:

NR-46212 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 GA-298, NR-46212."

### 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](http://www.cdc.gov/biosafety/publications/bmbl5/index.htm).

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#### References:

1. NARSA, NRS683
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.
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*Staphylococcus aureus* Infection." *J. Clin. Microbiol.* 45 (2007): 1705-1711. PubMed: 17392441.

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