

***Staphylococcus aureus*, Strain CA-347**

**Catalog No. NR-46177**

**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: CA-347

NARSA Catalog Number: NRS648

Original Source: *Staphylococcus aureus* (*S. aureus*), strain CA-347 was isolated in December 2005 from the blood of a 57-year-old male in California, USA.<sup>1,2</sup>

Comments: *S. aureus*, strain CA-347 is a methicillin-resistant *S. aureus* (MRSA) strain. Strain CA-347 was deposited as positive for *mec* (subtype II); negative for PVL and *tsst*, pulsed-field type USA600.<sup>1</sup> *S. aureus*, strain CA-347 is a USA600 representative isolate.<sup>2</sup> USA600 isolates have the same MLST profile (ST 45), *SCCmec* (subtype II or IV) and *spa* repeats (A2AKEEMBKB) and resistant to erythromycin and clindamycin.<sup>3,4</sup> Isolates are predominantly found in nares of healthy individuals and in bloodstream infections.<sup>2</sup> These isolates are associated with a higher rate of clinical failure and mortality, particularly those with a heterogeneous vancomycin-intermediate *S. aureus* (hVISA) phenotype. While USA600 isolates are uncommon in the United States, the clonally-related Berlin strain is widespread throughout Germany, the Netherlands, and Ontario, Canada.<sup>3</sup> The complete genome sequence of *S. aureus*, strain CA-347 is available (Genbank: [CP006044](http://CP006044)). 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>5,6</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-46177 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 CA-347, NR-46177."

**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/bmbli5/index.htm](http://www.cdc.gov/biosafety/publications/bmbli5/index.htm).

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**References:**

1. NARSA, NRS648
2. Stegger, M., et al. "Genome Sequence of *Staphylococcus aureus* Strain CA-347, an USA600 Methicillin-Resistant Isolate." Genome Announc. 1 (2013): e00517-13. PubMed: 23887918.
3. 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.
4. Moore, C. L., et al. "USA600 (ST45) Methicillin-Resistant *Staphylococcus aureus* Bloodstream Infections in Urban Detroit." J. Clin. Microbiol. 48 (2010): 2307-2310. PubMed: 20335422.
5. Deurenberg, R. H. and E. E. Stobberingh. "The Evolution of *Staphylococcus aureus*." Infect. Genet. Evol. 8 (2008): 747-763. PubMed: 18718557.
6. 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.

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