

***Staphylococcus aureus*, Strain CA-513**

Catalog No. NR-46182

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-513

NARSA Catalog Number: NRS653

Original Source: *Staphylococcus aureus* (*S. aureus*), strain CA-513 was isolated in November 2006 from peritoneal fluid of a 40-year-old male in California, USA.¹

Comments: *S. aureus*, strain CA-513 is a methicillin-resistant *S. aureus* (MRSA) strain. Strain CA-513 was deposited as positive for *mec* (subtype IV); negative for PVL and *tsst*; pulsed-field type USA800.¹ *S. aureus*, strain CA-513 is a USA800/Pediatric isolate. USA800 isolates have the same MLST profile (ST 5), *agr* group (II), *SCCmec* subtype (IV), *spa* motif (MDMGMK) and *Ridom spa* types (t002 and related) and are positive for *sem* and *seo* toxin genes. USA 800 isolates are resistant to β -lactams with some isolates being resistant to additional antibiotics.²⁻⁵ While first isolated in pediatric patients, USA800 strains recently have been isolated in adults.^{6,7} 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.

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

Packaging/Storage:

NR-46182 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-513, NR-46182."

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/bmb15/index.htm.

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References:

1. NARSA, NRS653.
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4. Dauwalder, O., et al. "Epidemiology of Invasive Methicillin-Resistant *Staphylococcus aureus* Clones Collected in France in 2006 and 2007." J. Clin. Microbiol. 46 (2008): 3454-3458. PubMed: 18667599.
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6. Sousa-Junior, F. C., et al. "Genotyping of Methicillin-Resistant *Staphylococcus aureus* Isolates Obtained in the Northeast Region of Brazil." J. Clin. Microbiol. 42 (2009): 877-881. Pubmed: 19787144
7. de Miranda, O. P., et al. "Emergence in Brazil of Methicillin-Resistant *Staphylococcus aureus* Isolates Carrying SCC_{mecIV} that are Related Genetically to the USA800 Clone." Clin. Microbiol. Infect. 13 (2007): 1165-1172. PubMed: 17956574.
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.

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