

Staphylococcus aureus, Strain S0385 (MRSA)

Catalog No. NR-28983

For research use only. Not for use in humans.

Contributor:

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Manufacturer:

BEI Resources

Product Description:

Bacteria Classification: *Staphylococcaceae*, *Staphylococcus*

Species: *Staphylococcus aureus*

Strain: S0385

Original Source: *Staphylococcus aureus* (*S. aureus*), strain S0385 was isolated in 2006 in the Netherlands from a blood sample of a 63-year-old female patient with endocarditis who had a history of renal transplantation and immunosuppressive therapy.^{1,2}

Comments: *S. aureus*, strain S0385 is a methicillin-resistant *S. aureus* (MRSA) strain.^{1,2} Strain S0385 was deposited as resistant to methicillin, ciprofloxacin and tetracycline; SCCmec type V; Ridom *spa* type t011 and a non-typeable pulsed-field type. The SCCmec cassette of this strain appears to be composed of gene clusters that have been previously described for other SCC elements, including a second copy of the site-specific recombinase *ccrC*, the copper resistance gene *copA* previously only found in a *S. epidermidis* isolate and a truncated metallo-hydrolase gene complex similar to *S. hominis* SCC12263. *S. aureus*, strain S0385 is a MRSA Sequence Type (ST) 398 isolate.² ST398 is a new community-associated MRSA lineage that emerged in 2003 and has rapidly spread worldwide. It has been associated with animal colonization in livestock farming and can cause acute infections including skin and soft tissue infections, respiratory tract infection, bacteremia and endocarditis.^{2,3,4} The complete genome sequence of parent strain *S. aureus*, strain ST398 is available (GenBank: [AM990992](#)). Note: Methicillin is no longer clinically used, however, the term methicillin-resistant *Staphylococcus aureus* (MRSA) continues to be used to describe *Staphylococcus 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. 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.^{5,6}

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-28983 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:

Tryptic Soy broth or Brain Heart Infusion broth or equivalent
Tryptic Soy agar with 5% defibrinated sheep blood or Brain Heart Infusion agar 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 1 day.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: *Staphylococcus aureus*, Strain S0385 (MRSA), NR-28983."

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 \(BMBL\)](#). 6th ed. Washington, DC: U.S. Government Printing Office, 2020.

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References:

1. van Schaik, W., Personal Communication.
2. Schijffelen, M. J., et al. "Whole Genome Analysis of a Livestock-Associated Methicillin-Resistant *Staphylococcus aureus* ST398 Isolate from a Case of Human Endocarditis." *BMC Genomics* 11 (2010): 376-385. PubMed: 20546576.
3. Witte, W., et al. "Methicillin-Resistant *Staphylococcus aureus* ST398 in Humans and Animals, Central Europe." *Emerg. Infect. Dis.* 13 (2007): 255-258. PubMed: 17479888.
4. van Loo, I., et al. "Emergence of Methicillin-Resistant *Staphylococcus aureus* of Animal Origin in Humans." *Emerg. Infect. Dis.* 13 (2007): 1834-1839. PubMed: 18258032.
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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