

***Staphylococcus aureus*, Strain 917 (BR-VSSA)**

**Catalog No. NR-49121**

**For research use only. Not for human use.**

**Contributor:**

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**Manufacturer:**

BEI Resources

**Product Description:**

Bacteria Classification: *Staphylococcaceae*, *Staphylococcus*  
Species: *Staphylococcus aureus*  
Strain: 917 (BR-VSSA)

**Note:** The strain designation on the vial label for lot 63885494 is incorrect. The correct strain designation is Strain 917 (BR-VSSA).

Original Source: *Staphylococcus aureus* (*S. aureus*), strain 917 (BR-VSSA) was isolated in 2012 in Sao Paulo, Brazil, from the blood of a 35-year-old male patient with recurrent skin and soft tissue infections (SSTI), which were treated with numerous antibiotics, including vancomycin and teicoplanin. The patient had a history of mycosis fungoides, cocaine addiction and diabetes mellitus.<sup>1-3</sup>

Comments: *S. aureus*, strain 917 (BR-VSSA) ([HMP ID 2111](#)) is a methicillin-resistant *S. aureus* (MRSA), vancomycin-sensitive *S. aureus* (VSSA) strain. *S. aureus*, strain 917 (BR-VSSA) was deposited as positive for *mec* (subtype IV) and the *bsa* operon (for bacteriocin production); susceptible to vancomycin and gentamicin; MLST (ST) 8; *spa* repeats YGMBQBLO; Ridom *spa* type t292; pulsed-field type USA300-related.<sup>2,3</sup> Strain 917 (BR-VSSA) was co-isolated with vancomycin-resistant *S. aureus* (VRSA), strain 880 (BR-VRSA) ([HMP ID 1625](#)) and vancomycin-resistant *Enterococcus faecalis* (VREF), strain 918 ([HMP ID 2097](#)). Based on SNP-analysis, strain 917 (BR-VSSA) or a strain closely resembling strain 917 (BR-VSSA) is believed to be the origin of strain 880 (BR-VRSA).<sup>3</sup> *S. aureus*, strain 917 (BR-VSSA) is a reference genome for [The Human Microbiome Project](#) (HMP). HMP is an initiative to identify and characterize human microbial flora. The complete genome of *S. aureus*, strain 917 (BR-VSSA) has been sequenced (GenBank: [JXBU00000000](#)).

*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 septicemia and endocarditis. *S. aureus* infections are difficult to treat due to resistance to numerous antibiotics. The development and dissemination of MRSA strains has proven to be particularly

difficult to contain and treat.<sup>4</sup> Vancomycin has been the preferred antibiotic of choice for the treatment of MRSA infections, however, there have now been MRSA strains isolated that are also resistant to vancomycin.<sup>5,6</sup> It is believed that this resistance results from either mutations that ultimately lead to a reduction of vancomycin at its site of action or from the acquisition of the vancomycin resistance gene, *vanA*, from *Enterococcus*.<sup>5-7</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-49121 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 1 day.

**Citation:**

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH as part of the Human Microbiome Project: *Staphylococcus aureus*, Strain 917 (BR-VSSA), NR-49121."

**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/bmbI5/index.htm](http://www.cdc.gov/biosafety/publications/bmbI5/index.htm).

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**References:**

1. [HMP ID 2111](#) [*S. aureus*, strain 917 (BR-VSSA)]
2. Arias, C. A., Personal Communication.
3. Rossi, F., et al. "Transferable Vancomycin Resistance in a Community-Associated MRSA Lineage." *N. Engl. J. Med.* 370 (2014): 1524-1531. PubMed: 24738669.
4. Deurenberg, R. H. and E. E. Stobberingh. "The Evolution of *Staphylococcus aureus*." *Infect. Genet. Evol.* 8 (2008): 747-763. PubMed: 18718557.
5. Howden, B. P., et al. "Reduced Vancomycin Susceptibility in *Staphylococcus aureus*, Including Vancomycin-Intermediate and Heterogeneous Vancomycin-Intermediate Strains: Resistance Mechanisms, Laboratory Detection, and Clinical Implications." *Clin. Microbiol. Rev.* 23 (2010): 99-139. PubMed: 20065327.
6. Courvalin P. "Vancomycin-Resistance in Gram-Positive Cocci." *Clin. Infect. Dis.* 42 (2006): S25-34. PubMed: 16323116.
7. Severin, A., et al. "High Level Oxacillin and Vancomycin Resistance and Altered Cell Wall Composition in *Staphylococcus aureus* Carrying the Staphylococcal *mecA* and the Enterococcal *vanA* Gene Complex." *J. Biol. Chem.* 30 (2004): 3398-3407. PubMed: 14613936.

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