

**Staphylococcus aureus, Strain P1V44**

**Catalog No. NR-46063**

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

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**Manufacturer:**

BEI Resources

**Product Description:**

Bacteria Classification: *Staphylococcaceae, Staphylococcus*

Species: *Staphylococcus aureus*

Strain: P1V44

NARSA Catalog Number: NRS272

Original Source: *Staphylococcus aureus* (*S. aureus*), strain P1V44 was isolated in Belgium in 1999 from a sputum sample of an 18-year-old female cystic fibrosis patient with a history of methicillin-resistant *S. aureus* (MRSA) colonization and pulmonary exacerbations due to MRSA and *Pseudomonas aeruginosa*.<sup>1,2</sup>

Comments: *S. aureus*, strain P1V44 is a borderline MRSA, vancomycin-intermediate *S. aureus* (VISA) strain. *S. aureus*, strain P1V44 was deposited as resistant to penicillin, erythromycin and amikacin; positive for *mec* (subtype IV); negative for *vanA, vanB, vanC1, vanC2, vanD* and *vanE*; MLST sequencing type (ST) 247; eGenomic *spa* type 927, eGenomic *spa* repeats YHFHFGFMBQBLO; Ridom *spa* type t770.<sup>1,2</sup> Like other VISA strains, strain P1V44 is reported to have a thickened cell wall, irregular cell shape and abnormal septation. It is believed that P1V44 was derived from the highly methicillin-resistant, vancomycin-sensitive strain P39575, which was isolated from the same patient.<sup>2</sup>

*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. Subsequently, MRSA infections have become widespread in both hospital and community settings.<sup>3</sup> Vancomycin has been the preferred antibiotic of choice for the treatment of MRSA infections.<sup>4</sup> However, there have now been MRSA strains isolated that also have reduced susceptibility or resistance to vancomycin.<sup>5,6</sup> It is believed that this decreased sensitivity primarily arises through mutations affecting the production of peptidoglycans, resulting in a thickened cell wall and a reduction of vancomycin at its site of action.<sup>7</sup> While much rarer, resistance can also occur

through the acquisition of the vancomycin resistance gene, *vanA*, from *Enterococcus faecalis*.<sup>5,7,8</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-46063 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 P1V44, NR-46063."

**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, NRS272
2. Denis O., et al. "Emergence of Vancomycin-Intermediate *Staphylococcus aureus* in a Belgian Hospital: Microbiological and Clinical Features." J. Antimicrob. Chemother. 50 (2002): 383-391. PubMed: 12205063.
3. Deurenberg, R. H. and E. E. Stobberingh. "The Evolution of *Staphylococcus aureus*." Infect. Genet. Evol. 8 (2008): 747-763. PubMed: 18718557.
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5. Hiramatsu, K., et al. "Methicillin-Resistant *Staphylococcus aureus* Clinical Strain with Reduced Vancomycin Susceptibility." J. Antimicrob. Chemother. 40 (1997): 135-136. Pubmed: 9249217.
6. Hanaki, H., et al. "Activated Cell-Wall Synthesis is Associated with Vancomycin Resistance in Methicillin-Resistant *Staphylococcus aureus* Clinical Strains Mu3 and Mu50." J. Antimicrob. Chemother. 42 (1998): 199-209. Pubmed: 9738837.
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