

***Staphylococcus aureus*, Strain BR 5**

Catalog No. NR-45890

For research use only. Not for human use.

Contributor:

NARSA

Manufacturer:

BEI Resources

Product Description:

Bacteria Classification: *Staphylococcaceae*, *Staphylococcus*

Species: *Staphylococcus aureus*

Strain: BR 5

NARSA Catalog Number: NRS56

Original Source: *Staphylococcus aureus* (*S. aureus*), strain BR 5 was isolated in 1999 from a wound of an 11-year-old female burn patient in Brazil.¹

Comments: *S. aureus*, strain BR 5 is a methicillin-resistant *S. aureus* (MRSA) strain and a vancomycin-intermediate *S. aureus* (VISA) strain. It is also reported to be resistant to a number of other antibiotics.¹ *S. aureus*, strain BR 5 was deposited as positive for *mec* (subtype III); negative for the vancomycin resistance genes; MLST sequencing type (ST) 239; eGenomic *spa* type 3, eGenomic *spa* repeats WGKAOMQ; Ridom *spa* type t037.¹ Based on MLST sequencing and the SCC*mec* type, *S. aureus*, strain BR 5 is most likely an isolate of the Brazilian Endemic Clone (BEC) which is reported to represent almost 80% of MRSA isolates in Brazil.^{2,3} 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. Subsequently, MRSA infections have become widespread in both hospital and community settings.⁴ Vancomycin has been the preferred antibiotic of choice for the treatment of MRSA infections.⁵ However, there have now been MRSA strains isolated that also have reduced susceptibility or resistance to vancomycin.^{6,7} 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.⁸ While much rarer, resistance can also occur through the acquisition of the vancomycin resistance gene, *vanA*, from *Enterococcus faecalis*.^{6,8,9}

Material Provided:

Each vial contains approximately 0.5 mL of bacterial culture in 0.5X 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-45890 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 BR 5, NR-45890."

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:

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