Product Information Sheet for NR-45889

Staphylococcus aureus, Strain BR 15

Catalog No. NR-45889

For research use only. Not for human use.

Contributor:
Network on Antimicrobial Resistance in *Staphylococcus aureus* (NARSA), NIAID, NIH

Manufacturer:
BEI Resources

Product Description:
Bacteria Classification: *Staphylococcaceae, Staphylococcus*
Species: *Staphylococcus aureus*
Strain: BR 15
NARSA Catalog Number: NRS54
Original Source: *Staphylococcus aureus* (*S. aureus*), strain BR 15 was isolated in 1998 from a wound of an 8-year-old male burn patient in Brazil.[1]
Comments: *S. aureus*, strain BR 15 is a vancomycin-intermediate *S. aureus* (VISA) strain.[1] *S. aureus,* strain BR 15 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 type and the SCC*mec* type, *S. aureus,* strain BR 15 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 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-45889 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 15, NR-45889."

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.

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References:

1. NARSA, NRS54
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4. Deurenberg, R. H. and E. E. Stobberingh. "The Evolution of *Staphylococcus aureus*." Infect. Genet. Evol. 8 (2008): 747-763. PubMed: 18718557.
5. Hiramatsu K. "Vancomycin-Resistant *Staphylococcus aureus*: a New Model of Antibiotic Resistance." Lancet Infect. Dis. 1 (2001): 147-155. PubMed: 11871491.
6. Hiramatsu, K., et al. "Methicillin-Resistant *Staphylococcus aureus* Clinical Strain with Reduced Vancomycin Susceptibility." J. Antimicrob. Chemother. 40 (1997): 135-136. Pubmed: 9249217.
7. 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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