**Staphylococcus aureus, Strain LIM 3**

**Catalog No. NR-45882**

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

**Manufacturer:**
BEI Resources

**Product Description:**

**Bacteria Classification:** Staphylococcaceae, Staphylococcus

**Species:** *Staphylococcus aureus*

**Strain:** LIM 3

**NARSA Catalog Number:** NRS37

**Original Source:** *Staphylococcus aureus (S. aureus)*, strain LIM 3 was isolated in 1995 from purulent discharge of a 2-year-old female patient with leukemia in France.1,2

**Comments:** S. aureus, strain LIM 3 is a methicillin-resistant *S. aureus* (MRSA) and a vancomycin-intermediate *S. aureus* (VISA) strain.1,2 S. aureus, strain LIM 3 was deposited as positive for mec (subtype I); negative for vanA, vanB, vanC1, vanC2, vanD, and vanE; MLST sequence type (ST) 247, eGenomic spa repeats YHFGMBQBLO; Ridom spa type t051.1 Strain LIM 3 was the third MRSA isolate recovered from this patient. During the course of treatment, which included the use of glycopeptides, three additional MRSA strains, LIM 1 (NRS35), LIM 2 (NRS36) and LIM 4, were isolated. LIM 1 was the first strain isolated from the patient and has a vancomycin-sensitive *S. aureus* (VSSA) phenotype whereas LIM 2 and LIM 4 have a VISA phenotype. Results from pulsed-field gel electrophoresis suggest that the three VISA strains were selected from LIM 1.2 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.3 Vancomycin has been the preferred antibiotic of choice for the treatment of MRSA infections.4 However, there have now been MRSA strains isolated that also have reduced susceptibility or resistance to vancomycin.5,6 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.7 While much rarer, resistance can also occur through the acquisition of the vancomycin resistance gene, *vanA*, from *Enterococcus faecalis*.5,7,8

**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-45882 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 LIM 3, NR-45882.”

**Biosafety Level:** 2


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References:
1. NARSA, NRS37

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