Staphylococcus aureus, Strain LY-1999 0620-02

Catalog No. NR-45894

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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: LY-1999 0620-02
NARSA Catalog Number: NRS64
Original Source: *Staphylococcus aureus* (*S. aureus*), strain LY-1999 0620-02 was isolated in Oman in 1998 from blood of a 50-year-old female patient with septicemia who had a history of diabetes mellitus, chronic renal failure, renal transplant with subsequent rejection, wound and catheter infections and extended treatment with glycopeptides.[1]
Comments: *S. aureus*, strain LY-1999 0620-02 is a glycopeptide-sensitive *S. aureus* (GSSA) strain.[2] *S. aureus,* strain LY-1999 0620-02 was deposited as positive for *mec* (subtype III); negative for *vanA*, *vanB*, *vanC1*, *vanC2*, *vanD* and *vanE*; MLST sequencing type (ST) 372; eGenomic *spa* type 3, eGenomic *spa* repeats WGKAOMQ; Ridom *spa* type t037.[2] Strains LY-1999 0620-02 and LY-1999 0620-03 (NRS65) were isolated on the same day from the patient and are related by pulsed-field gel electrophoresis (PFGE).[2]

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-45894 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 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 provided by the Network on Antimicrobial Resistance in *Staphylococcus aureus* (NARSA) for distribution by BEI Resources, NIAID, NIH: *Staphylococcus aureus*, Strain LY-1999 0620-02, NR-45894."

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:

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2. NARSA, NRS64
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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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