Product Information Sheet for NR-45938

Staphylococcus aureus, Strain RN0451

Catalog No. NR-45938

For research use only. Not for human use.

Contributor:
Richard P. Novick, M.D., Departments of Microbiology, Medicine and Molecular Pathogenesis, New York University School of Medicine, New York, New York, USA

Manufacturer:
BEI Resources

Product Description:
Bacteria Classification: *Staphylococcaceae, Staphylococcus*
Species: *Staphylococcus aureus*
Strain: RN0451
NARSA Catalog Number: NRS136
Original Source: *Staphylococcus aureus* (*S. aureus*), strain RN0451 is lysogenic for phage Φ11 and was derived from *S. aureus*, strain RN0450 (NRS135). In turn, strain RN0450 was derived from successive cycles of UV treatment of *S. aureus*, strain NCTC8325 (NRS77).[1-3]
Comments: *S. aureus*, strain RN0451 is a methicillin-sensitive *S. aureus* (MSSA) strain developed for research purposes. It was deposited as lysogenized with phage Φ11; negative for *mec, rsbU,* and *agr*; MLST sequence type (ST) 8; eGenomic *spa* type 59, eGenomic *spa* repeats YHGGFMBQBLO; Ridom *spa* type t211.[3] The presence of phage Φ11 is known to induce competence in *S. aureus.*[4,5] Note: Methicillin is no longer clinically used, however, the terms methicillin-resistant *Staphylococcus aureus* (MRSA) and methicillin-sensitive *Staphylococcus aureus* (MSSA) continue to be used to describe the susceptibility of *S.aureus* strains to the 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.[6] As compared to MSSA infections, MRSA infections tend to have more complications such as a higher recurrence rate and higher mortality.[7-9]

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-45938 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 RN0451, NR-45938."

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. Novick, R. "Properties of a Cryptic High-Frequency Transducing Phage in *Staphyloccoccus aureus.*" Virology 33 (1967): 155-166. PubMed: 4227577.
2. Herbert, S., et al. "Repair of Global Regulators in *Staphylococcus aureus* 8325 and Comparative Analysis with Other Clinical Isolates." Infect. Immun. 78 (2010): 2877-2889. Pubmed: 20212089.
3. NARSA, NRS136
4. Sjostrom, J. E., M. Lindberg and L. Philipson. "Competence for Transfection in *Staphylococcus aureus*." J. Bacteriol. 113 (1973): 576-585. Pubmed: 4266172.
5. Sjostrom, J. E. and L. Philipson. "Role of the ϕ11 Phage Genome in Competence of *Staphylococcus aureus*." J. Bacteriol. 119 (1974): 19-32. Pubmed: 4276055.
6. Deurenberg, R. H. and E. E. Stobberingh. "The Evolution of *Staphylococcus aureus*." Infect. Genet. Evol. 8 (2008): 747-763. PubMed: 18718557.
7. Park, D. A., et al. "Impact of Methicillin-Resistance on Mortality in Children and Neonates with *Staphylococcus aureus* Bacteremia: A Meta-Analysis." Infect. Chemother. 45 (2013): 202-210. PubMed: 24265968.
8. Porto, J. P., et al. "Active Surveillance to Determine the Impact of Methicillin-Resistance on Mortality in Patients with Bacteremia and Influences of the Use of Antibiotics on the Development of MRSA Infections." Rev. Soc. Bras. Med. Trop. 46 (2013): 713-718. PubMed: 24474012.
9. Inoue, S., et al. "Comparison of Clinical Features and Outcomes of *Staphylococcus aureus* Vertebral Osteomyelitis Caused by Methicillin-Resistant and Methicillin-Sensitive Strains." SpringerPlus 2 (2013): 283. PubMed: 23853753.

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E-mail: contact@beiresources.org
Tel: 800-359-7370
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