

## Staphylococcus aureus, Strain RN0450

Catalog No. NR-45937

For research use only. Not for human use.

### Contributor:

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### Manufacturer:

BEI Resources

### Product Description:

Bacteria Classification: *Staphylococcaceae*, *Staphylococcus*

Species: *Staphylococcus aureus*

Strain: RN0450 (also referred to as NCTC8325-4)<sup>1</sup>

NARSA Catalog Number: NRS135

Original Source: *Staphylococcus aureus* (*S. aureus*), strain RN0450 was derived from successive cycles of UV treatment of *S. aureus*, strain NCTC8325 (NRS77), curing it of phages  $\Phi$ 11,  $\Phi$ 12 and  $\Phi$ 13.<sup>1-3</sup>

Comments: *S. aureus*, strain RN0450 is a non-pigmented, methicillin-sensitive *S. aureus* (MSSA) strain developed for research purposes. It was deposited as negative for *mec*; MLST sequence type (ST) 8; eGenomic *spa* type 59, eGenomic *spa* repeats YHGGFMBQBLO; Ridom *spa* type t211.<sup>3</sup> Strain RN0450 is reported to have an 11 base pair deletion in *rsbU* and to be partially *agr*-defective.<sup>1,3</sup> 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.<sup>4</sup> As compared to MSSA infections, MRSA infections tend to have more complications such as a higher recurrence rate and higher mortality.<sup>5-7</sup>

### 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-45937 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 RN0450, NR-45937."

### 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](http://www.cdc.gov/biosafety/publications/bmbl5/index.htm).

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#### References:

1. 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.
2. Novick, R. "Properties of a Cryptic High-Frequency Transducing Phage in *Staphylococcus aureus*." *Virology* 33 (1967): 155-166. PubMed: 4227577.
3. NARSA, NRS135
4. Deurenberg, R. H. and E. E. Stobberingh. "The Evolution of *Staphylococcus aureus*." *Infect. Genet. Evol.* 8 (2008): 747-763. PubMed: 18718557.
5. 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.
6. 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.
7. 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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