

**Staphylococcus aureus, Strain RN9120**

**Catalog No. NR-45957**

**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: RN9120 (also referred to as 502A)

NARSA Catalog Number: NRS155

Original Source: *Staphylococcus aureus* (*S. aureus*), strain RN9120 is an *accessory gene regulator (agr)* null derivative of *S. aureus*, strain 502A (NRS144) in which *agr* has been replaced with the tetracycline resistance gene (*tetM*).<sup>1,2</sup>

Comments: *S. aureus*, strain RN9120 is a methicillin-sensitive *S. aureus* (MSSA) strain developed for research purposes.<sup>1</sup> *S. aureus*, strain RN9120 was deposited as *agr::tetM* and resistant to tetracycline; negative for *mec*; MLST sequence type (ST) 5; eGenomic *spa* type 230, eGenomic *spa* repeats TMBMDMGMK; Ridom *spa* type t010.<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-45957 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 RN9120, NR-45957."

**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/bmb15/index.htm](http://www.cdc.gov/biosafety/publications/bmb15/index.htm).

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**References:**

1. Lyon, G. J., et al. "Rational Design of a Global Inhibitor of the Virulence Response in *Staphylococcus aureus*, Based in Part on Localization of the Site of Inhibition to the Receptor-Histidine Kinase, AgrC." Proc. Natl. Acad. Sci. USA 97 (2000): 13330-13335. PubMed: 11087872.
2. Sakoulas, G., et al. "Reduced Susceptibility of *Staphylococcus aureus* to Vancomycin and Platelet Microbicidal Protein Correlates with Defective Autolysis and Loss of Accessory Gene Regulator (*agr*) Function." Antimicrob. Agents Chemother. 49 (2005): 2687-2692. PubMed: 15980337.
3. NARSA, NRS155
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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