Product Information Sheet for NR-45904

Staphylococcus aureus, Strain RN1

Catalog No. NR-45904

For research use only. Not for human use.

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Manufacturer:
BEI Resources

Product Description:
Bacteria Classification: *Staphylococcaceae, Staphylococcus*
Species: *Staphylococcus aureus*
Strain: RN1 (also referred to as NCTC 8325 and PS47[1])
NARSA Catalog Number: NRS77
Original Source: *Staphylococcus aureus* (*S. aureus*), strain RN1 was isolated in 1960 in the United Kingdom.[2,3]
Comments: *S. aureus*, strain RN1 was originally used for typing phage 47 and is considered to be the original strain for most *S. aureus* genetic research.[2-3] *S. aureus,* strain RN1 was deposited as negative for *mec*, *rsbU* and *sak;* MLST sequence type (ST) 8; eGenomic *spa* type 59, eGenomic *spa* repeats YHGGFMBQBLO; Ridom *spa* type t211; *agr* group I.[2,4] It also has a large variety of virulence factors.[4] Due to the integration of Φ13 in *hlb*, this strain does not produce beta-hemolysin, but does produce alpha, delta and gamma-hemolysins.[5] The complete genome sequence of *S. aureus*, strain RN1 is available (GenBank: CP000253.1) and is the reference genome for *S. aureus.* 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-45904 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 RN1, NR-45904."

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. Nair, D., et al. "Whole-Genome Sequencing of *Staphylococcus aureus* strain RN4220, a Key Laboratory Strain Used in Virulence Research, Identifies Mutations That Affect Not Only Virulence Factors but Also the Fitness of the Strain." J. Bacteriol. 193 (2011): 2332-2335. PubMed: 21378186.
2. NARSA, NRS77.
3. Novick, R. "Properties of a Cryptic High-Frequency Transducing Phage in *Staphyloccoccus aureus.*" Virology 33 (1967): 155-166. PubMed: 4227577.
4. Cassat, J. E., et al. "Comparative Genomics of *Staphylococcus aureus* Musculoskeletal Isolates." J. Bacteriol. 187 (2005): 576-92. PubMed: 15629929.
5. 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.
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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