Product Information Sheet for NR-45913

Staphylococcus aureus, Strain RN4220/pG0400

Catalog No. NR-45913

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: RN4220/pG0400 (also referred to as G0400)[1]
NARSA Catalog Number: NRS107
Original Source: *Staphylococcus aureus* (*S. aureus)*, strain RN4220/pG0400 contains the plasmid pG0400 and is a transconjugant of mating between *S. aureus,* strain G03221 containing the plasmid pG0400 and *S. aureus*, strain RN4220NR.[1] Strain G03221 was isolated in 1991 during an outbreak of mupirocin-resistant *S. aureus* on a dermatology ward of a university hospital in Connecticut, USA.[1,2]
Comments: Plasmid pG0400 is a 33.8 kilobase plasmid that encodes resistance to mupirocin.[1,2] *S. aureus*, strain RN4220/pG0400 is a methicillin-sensitive *S. aureus* (MSSA) strain. It was deposited as containing the plasmid pG0400; resistant to mupirocin, rifampicin and novobiocin; negative for *mec*; MLST sequence type (ST) 8; eGenomic *spa* type 59, eGenomic *spa* repeats YHGGFMBQBLO; Ridom *spa* type t211.[1,3] 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.[4] As compared to MSSA infections, MRSA infections tend to have more complications such as a higher recurrence rate and higher mortality.[5-7]

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-45913 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:
Note: For stability purposes, it is recommended that the strain is subcultured in the presence of 20 µg/mL mupirocin.[1]
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 RN4220/pG0400, NR-45913."

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. Morton, T. M., et al. "Characterization of a Conjugative Staphylococcal Mupirocin Resistance Plasmid." Antimicrob. Agents Chemother. (1995): 1272-1280. PubMed: 7574515.
2. Layton, M. C., and J. E. Patterson. "Mupirocin Resistance among Consecutive Isolates of Oxacillin-Resistant and Borderline Oxacillin-Resistant *Staphylococcus aureus* at a University Hospital." Antimicrob. Agents Chemother. 38 (1994): 1664-1667. PubMed: 7979305.
3. NARSA, NRS107
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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