

Staphylococcus aureus, Strain MN8

Catalog No. NR-45918

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Contributor:

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Manufacturer:

BEI Resources

Product Description:

Bacteria Classification: *Staphylococcaceae*, *Staphylococcus*

Species: *Staphylococcus aureus*

Strain: MN8

NARSA Catalog Number: NRS112

Original Source: *Staphylococcus aureus* (*S. aureus*), strain MN8 was isolated in 1980 from a patient with toxic shock syndrome-1 in Minnesota, USA.^{1,2}

Comments: *S. aureus*, strain MN8 is a methicillin-sensitive *S. aureus* (MSSA) strain. Strain MN8 was deposited as positive for *tsst*, *ica* and *hla*; negative for *mec* and PVL; MLST sequence type (ST) 30; pulsed-field type USA200; eGenomic *spa* type 33, eGenomic *spa* repeats WGKAKAOMQQ; Ridom *spa* type t012.¹⁻⁴ *S. aureus*, strain MN8 has a mutation in *agr* that results in the attenuation of RNA III, reducing its virulence.¹ It also has a mutation in the α -toxin gene, *hla*, leading to a large reduction in α -toxin produced.^{2,5} The absence of the wild-type α -toxin inhibits biofilm production, however, this strain is still able to grow to a high density and remains proinflammatory. Therefore, this strain has been termed a high density pathogenic variant (HDPV).³ The complete genome sequence of *S. aureus*, strain MN8 is available (GenBank: [ACJA02000001](https://www.ncbi.nlm.nih.gov/nuclseq/ACJA02000001)). 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-45918 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 MN8, NR-45918."

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:

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3. Anderson, M. J., et al. "Alpha-Toxin Promotes *Staphylococcus aureus* Mucosal Biofilm Formation." Front. Cell. Infect. Microbiol. 2 (2012): 64. PubMed: 22919655.
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