

***Staphylococcus aureus*, Strain 71080**

**Catalog No. NR-46418**

**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: 71080 (also referred to as VRSA-8)

NARSA Catalog Number: VRSA8

Original Source: *Staphylococcus aureus* (*S. aureus*), strain 71080 was isolated in 2007 in Michigan, USA from a toe wound of a 48-year-old female who had recently received a 7-month course of vancomycin and ceftriaxone to treat osteomyelitis of the right metatarsals.<sup>1</sup>

Comments: *S. aureus*, strain 71080 is a vancomycin-resistant *S. aureus* (VRSA) strain.<sup>1</sup> *S. aureus*, strain 71080 was deposited as positive for *mec* and *vanA*; negative for *vanB*, *vanC1*, *vanC2*, *vanD*, *vanE*, PVL and arginine catabolic mobile element (ACME); pulsed-field type USA100; *spa* repeats TJBMDMGMK; Ridom *spa* type t002.<sup>1-5</sup> *S. aureus*, strain 71080 is a USA100 isolate. USA100 isolates have the same MLST profile (ST 5), SCC*mec* (subtype II) and *spa* motif (MDMGMK) and are usually resistant to erythromycin and spectinomycin as well as being multiresistant to other commonly used therapeutic agents. USA100 is the most prevalent U.S health care-associated pulse-field type and is endemic in many U.S. hospitals.<sup>5</sup> The complete genome sequence of *S. aureus*, strain 71080 is available (GenBank: [AHBR00000000](http://AHBR00000000)).

*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 septicemia and endocarditis. *S. aureus* infections are difficult to treat due to resistance to numerous antibiotics. The development and dissemination of methicillin-resistant *S.aureus* (MRSA) strains has proven to be particularly difficult to contain and treat.<sup>6</sup> Vancomycin has been the preferred antibiotic of choice for the treatment of MRSA infections, however, there have now been MRSA strains isolated that are also resistant to vancomycin.<sup>6,7</sup> It is believed that this resistance results from either mutations that ultimately lead to a reduction of vancomycin at its site of action or from the acquisition of the vancomycin resistance gene, *vanA*, from *Enterococcus faecalis*.<sup>6-8</sup> The *vanA* gene is carried by the Tn1546 transposon that resides on a plasmid in all VRSA strains.<sup>7</sup>

For VRSA strains carrying both *mecA* and *vanA*,  $\beta$ -lactams and glycopeptides seem to have a synergistic effect against these strains, both *in vitro* and in an animal model.<sup>8,9</sup> Combination therapy, therefore, may be a more effective treatment option for VRSA infections than monotherapy with either antibiotic.<sup>8,9</sup>

**Material Provided:**

Each vial contains approximately 0.5 mL of bacterial culture in Brain Heart Infusion broth supplemented with 6  $\mu$ g/mL vancomycin and 10% glycerol.

Note: If homogeneity is required for your intended use, please purify prior to initiating work.

**Packaging/Storage:**

NR-46418 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 vancomycin.

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 71080, NR-46418."

**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:**

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