

***Staphylococcus aureus*, Strain 1202582**

Catalog No. NR-46424

For research use only. Not for use in humans.

Contributor:

Network on Antimicrobial Resistance in *Staphylococcus aureus* (NARSA), NIAID, NIH, USA

Manufacturer:

BEI Resources

Product Description:

Bacteria Classification: *Staphylococcaceae*, *Staphylococcus*

Species: *Staphylococcus aureus*

Strain: 1202582

NARSA Catalog Number: VRS13

Original Source: *Staphylococcus aureus* (*S. aureus*), strain 1202582 was isolated in 2012 in Delaware, USA, from a chronic foot wound of a 70-year-old male with possible osteomyelitis who had recently received a 6-week course of vancomycin therapy.^{1,2}

Comments: *S. aureus*, strain 1202582 is a vancomycin-resistant *S. aureus* (VRSA) strain and is reported to be resistant to a number of other antimicrobial agents.^{1,2} *S. aureus*, strain 1202582 was deposited as positive for *mec* (subtype IV) and *vanA*; negative for PVL and arginine catabolic mobile element (ACME); pulsed-field type USA1100; *spa* repeats XKAKAOMQ; Ridom *spa* type t019.^{1,2} This strain is from the clonal complex (CC) 30 lineage which is typically associated with community settings.^{1,2} This is the first VRSA strain to be from a background that is typically found in community settings; however, based on the patient's history, it is possible that this is nosocomial infection.²

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 MRSA strains has proven to be particularly difficult to contain and treat. 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.³ 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*.^{4,5}

Material Provided:

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

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

Packaging/Storage:

NR-46424 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 with 6µg/mL vancomycin

Brain Heart Infusion agar or Tryptic Soy agar or Tryptic Soy agar with 5% defibrinated sheep blood or equivalent with 6µg/mL vancomycin

Incubation:

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 1 day.

Citation:

Acknowledgment for publications should read "The following reagent was provided by the Network on Antimicrobial Resistance in *Staphylococcus aureus* (NARSA) for distribution through BEI Resources, NIAID, NIH: *Staphylococcus aureus*, Strain 1202582, NR-46424."

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. 6th ed. Washington, DC: U.S. Government Printing Office, 2020; see www.cdc.gov/biosafety/publications/bmb15/index.htm.

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References:

1. NARSA, VRS13
2. Limbago, B. M., et al. "Report of the 13th Vancomycin-Resistant *Staphylococcus aureus* Isolate from the United States." J. Clin. Microbiol. 52 (2014): 998-1002. PubMed: 24371243.
3. Howden, B. P., et al. "Reduced Vancomycin Susceptibility in *Staphylococcus aureus*, Including Vancomycin-Intermediate and Heterogeneous Vancomycin-Intermediate Strains: Resistance Mechanisms, Laboratory Detection, and Clinical Implications." Clin. Microbiol. Rev. 23 (2010): 99-139. PubMed: 20065327.
4. Courvalin P. "Vancomycin-Resistance in Gram-Positive Cocci." Clin. Infect. Dis. 42 (2006): S25-34. PubMed: 16323116.
5. Severin, A., et al. "High Level Oxacillin and Vancomycin Resistance and Altered Cell Wall Composition in *Staphylococcus aureus* Carrying the *Staphylococcal mecA* and the *Enterococcal vanA* Gene Complex." J. Biol. Chem. 30 (2004): 3398-3407. PubMed: 14613936.

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