**Staphylococcus aureus**, Strain AIS 1000505

**Catalog No. NR-46420**

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:** AIS 1000505 (also referred to as VRSA-10)

**NARSA Catalog Number:** VRS10

**Original Source:** Staphylococcus aureus (S. aureus), strain AIS 1000505 was isolated in 2009 from a plantar foot wound of a 53-year-old female in Michigan, USA.

**Comments:** S. aureus, strain AIS 1000505 is a vancomycin-resistant S. aureus (VRSA) strain. S. aureus, strain AIS 1000505 was deposited as positive for mec and vanA; negative for vanB, PVL and arginine catabolic mobile element (ACME); pulsed-field type USA100; spa repeats TJBMDMGMK; Ridom spa type t002.1 S. aureus, strain AIS 1000505 is a USA100 isolate. USA100 isolates have the same MLST profile (ST 5), SCCmec (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. healthcare-associated pulsed-field type and is endemic in many U.S. hospitals. Unlike other VRSA strains which typically are co-isolated with only Enterococcus faecalis, a number of Enterococcus species were co-isolated along with strain AIS 1000505.1 It is suspected that Enterococcus gallinarum was the donor of the vanA gene.6 The complete genome sequence of S. aureus, strain AIS1000505 is available (GenBank: AHBT00000000).

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.7 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.7,8 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.7,9 The vanA gene is carried by the Tn1546 transposon that resides on a plasmid in all VRSA strains.9 For VRSA strains carrying both mecA and vanA, β-lactams and glycopeptides seem to have a synergistic effect against these strains, both in vitro and in an animal model.9,10 Combination therapy, therefore, may be a more effective treatment option for VRSA infections than monotherapy with either antibiotic.9,10

**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-46420 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 be 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 AIS 1000505, NR-46420.”

**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.
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References:
3. NARSA, VRS10

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