

***Staphylococcus epidermidis*, Strain NRS34**

Catalog No. NR-45879

For research use only. Not for human use.

Contributor:

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

Manufacturer:

BEI Resources

Product Description:

Bacteria Classification: *Staphylococcaceae*, *Staphylococcus*

Species: *Staphylococcus epidermidis*

Strain: NRS34

NARSA Catalog Number: NRS34

Original Source: *Staphylococcus epidermidis* (*S. epidermidis*), strain NRS34 was isolated in October 2000 from a catheter tip of an 83-year-old male ICU inpatient in California, USA.¹

Comments: *S. epidermidis*, strain NRS34 is a vancomycin-intermediate *S. epidermidis* (VISE) strain and was deposited as positive for *mec*; negative for *vanA*, *vanB*, *vanC*, *vanD* and *vanE*; resistant to penicillin, oxacillin, ciprofloxacin, trimethoprim/sulfamethoxazole and gentamicin; and sensitive to quinupristin/dalfopristin, tetracycline and teicoplanin.¹

S. epidermidis is a Gram-positive, cluster-forming, coagulase-negative coccus which is part of the normal flora of the skin and nostrils. Recently, it has become a common cause of hospital-acquired infections, particularly infections on implanted medical devices.² A number of factors, such as biofilm formation, small colony variants and a reduced susceptibility to a number of antibiotics, contribute to its success as a cause of nosocomial infections.³⁻⁷ Approximately 75% to 90% of hospital isolates are methicillin-resistant *S. epidermidis* (MRSE) and an increasing number of isolates have reduced susceptibility to vancomycin.² Similar to *S. aureus*, methicillin resistance is conferred by the *mecA* gene, whereas the reduced susceptibility to vancomycin is due to cell wall alterations including altered cross-linking and thickening of the wall.^{2,8-10} It is believed that *S. epidermidis* can serve as a reservoir for antibiotic resistant genes and other genomic islands for *S. aureus* which can acquire the genes through unidirectional horizontal gene transfer.²

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-45879 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 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 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 by BEI Resources, NIAID, NIH: *Staphylococcus epidermidis*, Strain NRS34, NR-45879."

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.

Disclaimers:

You are authorized to use this product for research use only. It is not intended for human use.

Use of this product is subject to the terms and conditions of the BEI Resources Material Transfer Agreement (MTA). The MTA is available on our Web site at www.beiresources.org.

While BEI Resources uses reasonable efforts to include accurate and up-to-date information on this product sheet, neither ATCC® nor the U.S. Government makes any warranties or representations as to its accuracy. Citations from scientific literature and patents are provided for informational purposes only. Neither ATCC® nor the U.S. Government warrants that such information has been confirmed to be accurate.

This product is sent with the condition that you are responsible for its safe storage, handling, use and disposal. ATCC® and the U.S. Government are not liable for any damages or injuries arising from receipt and/or use of this product. While reasonable effort is made to ensure authenticity and reliability of materials on deposit, the U.S. Government, ATCC®, their

suppliers and contributors to BEI Resources are not liable for damages arising from the misidentification or misrepresentation of products.

Use Restrictions:

This material is distributed for internal research, non-commercial purposes only. This material, its product or its derivatives may not be distributed to third parties. Except as performed under a U.S. Government contract, individuals contemplating commercial use of the material, its products or its derivatives must contact the contributor to determine if a license is required. U.S. Government contractors may need a license before first commercial sale.

References:

1. NARSA, NRS34
2. Otto, M. "*Staphylococcus epidermidis* - The 'Accidental' Pathogen." Nat. Rev. Microbiology 7 (2009): 555-567. PubMed: 19609257.
3. Gazzola, S. and P. S. Cocconcelli. "Vancomycin Heteroresistance and Biofilm Formation in *Staphylococcus epidermidis* from Food." Microbiology 154 (2008): 3224-3231. PubMed: 18832327.
4. Qin, Z., et al. "Formation and Properties of *in vitro* Biofilms of *ica*-Negative *Staphylococcus epidermidis* Clinical Isolates." J. Med. Microbiol. 56 (2007): 83-93. PubMed: 17172522.
5. Wu, M. et al. "Vancomycin and Daptomycin Pharmacodynamics Differ against a Site-Directed *Staphylococcus epidermidis* Mutant Displaying the Small-Colony-Variant Phenotype." Antimicrob. Agents Chemother. 53 (2009): 3992-3995. PubMed: 19564372.
6. Al Laham, N., et al. "Augmented Expression of Polysaccharide Intercellular Adhesin in a Defined *Staphylococcus epidermidis* Mutant with the Small-Colony-Variant Phenotype." J. Bacteriol. 189 (2007): 4494-4501. PubMed: 17449620.
7. von Eiff, C., et al. "Bloodstream Infections Caused by Small-Colony Variants of Coagulase-Negative *Staphylococci* Following Pacemaker Implantation." Clin. Infect. Dis. 29 (1999): 932-934. PubMed: 10589914.
8. Sujatha, S. and I. Praharaj. "Glycopeptide Resistance in Gram-Positive Cocci: A Review." Interdiscip. Perspect. Infect. Dis. 2012 (2012): 781679. PubMed: 22778729.
9. Srinivasan, A., J. D. Dick and T. M. Perl. "Vancomycin Resistance in *Staphylococci*." Clin. Microbiol. Rev. 15 (2002): 430-438. PubMed: 12097250.
10. Sanyal, D., and D. Greenwood. "An Electronmicroscope Study of Glycopeptide Antibiotic-Resistant Strains of *Staphylococcus epidermidis*." J. Med. Microbiol. 39 (1993): 204-210. PubMed: 8366519.

ATCC® is a trademark of the American Type Culture Collection.

