Product Information Sheet for NR-45860

Staphylococcus epidermidis, Strain HIP04645

Catalog No. NR-45860

For research use only. Not for human use.

Contributor:
Centers for Disease Control and Prevention, Atlanta, Georgia, USA

Manufacturer:
BEI Resources

Product Description:
Bacteria Classification: *Staphylococcaceae, Staphylococcus*
Species: *Staphylococcus epidermidis*
Strain: HIP04645 (also known as 759)[1]
NARSA Catalog Number: NRS6
Original Source: *Staphylococcus epidermidis* (*S. epidermidis*), strain HIP04645 was isolated in November 1999 from blood of a patient in Wisconsin, USA.[1,2]
Comments: *S. epidermidis*, strain HIP04645 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, clindamycin, erythromycin and gentamicin and sensitive to trimethoprim/sulfamethoxazole, quinupristin/dalfopristin, ciprofloxacin and tetracycline.[1,2]

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.[3] 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.[4-8] Approximately 75% to 90% of hospital isolates are methicillin-resistant *S. epidermidis* (MRSE) and an increasing number of isolates have reduced susceptibility to vancomycin.[3] 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.[3,9-11] 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 uni-directional horizontal gene transfer.[3]

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-45860 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 through BEI Resources, NIAID, NIH: *Staphylococcus epidermidis*, Strain HIP04645, NR-45860."

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:

1. NARSA, NRS6
2. Tenover, F. C., et al. "Characterization of Staphylococci with Reduced Susceptibilities to Vancomycin and Other Glycopeptides." J. Clin. Microbiol. 36 (1998): 1020-1027. PubMed: 9542929.
3. Otto, M. "*Staphylococcus epidermidis* - The 'Accidental' Pathogen." Nat. Rev. Microbiology 7 (2009): 555-567. PubMed: 19609257.
4. Gazzola, S. and P. S. Cocconcelli. "Vancomycin Heteroresistance and Biofilm Formation in *Staphylococcus epidermidis* from Food." Microbiology 154 (2008): 3224-3231. PubMed: 18832327.
5. 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.
6. 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.
7. 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.
8. 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.
9. Sujatha, S. and I. Praharaj. "Glycopeptide Resistance in Gram-Positive Cocci: A Review." Interdiscip. Perspect. Infect. Dis. 2012 (2012): 781679. PubMed: 22778729.
10. Srinivasan, A., J. D. Dick and T. M. Perl. "Vancomycin Resistance in Staphylococci." Clin. Microbiol. Rev. 15 (2002): 430-438. PubMed: 12097250.
11. 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.

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