b|e|i RESOURCES
SUPPORTING INFECTIOUS DISEASE RESEARCH

Certificate of Analysis for NR-45860

Staphylococcus epidermidis, Strain HIP04645

Catalog No. NR-45860

Product Description: *Staphylococcus epidermidis* (*S. epidermidis*), strain HIP04645 was isolated in November 1999 from blood of a patient in Wisconsin, USA. *S. epidermidis*, strain HIP04645 is a vancomycin-intermediate *S. epidermidis* (VISE) strain and was deposited as resistant to penicillin, oxacillin, clindamycin, erythromycin and gentamicin; and sensitive to trimethoprim/sulfamethoxazole, quinupristin/dalfopristin, ciprofloxacin and tetracycline.

Lot[1]: 63822406 **Manufacturing Date: 21OCT2015**

TEST	SPECIFICATIONS	RESULTS
Phenotypic Analysis		
Cellular morphology	Gram-positive cocci	Gram-positive cocci
Colony morphology[2]	Report results	Circular, slight peaked, entire, smooth and white (Figure 1)
Motility (wet mount)	Report results	Non-motile
Hemolysis[2]	Report results	Non-hemolytic
Biochemical characterization		
Catalase	Positive	Positive
Coagulase[3]	Report results	Negative
VITEK® 2 Compact (GP Card)	≥ 90% probability of being *S. epidermidis*	*S. epidermidis* (99% probability)[4]
Antibiotic Susceptibility Profile		
VITEK® (AST-GP71 card)[5]		
Beta-lactamase[6]	Report results	Positive
Cefoxitin screen	Report results	Positive
Benzylpenicillin	Report results	Resistant (≥ 0.5 µg/mL)
Oxacillin	Resistant	Resistant (≥ 4 µg/mL)
Gentamicin	Resistant	Resistant (≥ 16 µg/mL)
Ciprofloxacin	Sensitive	Sensitive (≤ 0.5 µg/mL)
Levofloxacin	Report results	Sensitive (≤ 0.12 µg/mL)
Moxifloxacin	Report results	Sensitive (≤ 0.25 µg/mL)
Clindamycin (inducible resistance)	Report results	Negative
Erythromycin	Report results	Resistant (≥ 8 µg/mL)
Clindamycin	Report results	Resistant (≥ 8 µg/mL)
Quinupristin/dalfopristin	Sensitive	Sensitive (≤ 0.25 µg/mL)
Linezolid	Report results	Sensitive (= 2 µg/mL)
Daptomycin	Report results	Non-susceptible (≥ 8 µg/mL)
Minocycline	Report results	Sensitive (≤ 0.5 µg/mL)
Tetracycline	Sensitive	Sensitive (= 2 µg/mL)
Tigecycline	Report results	Sensitive (= 0.25-0.5 µg/mL)[7]
Nitrofurantoin	Report results	Sensitive (≤ 16 µg/mL)
Rifampicin	Report results	Sensitive (≤ 0.5 µg/mL)
Trimethoprim/sulfamethoxazole	Sensitive	Sensitive (≤ 10 µg/mL)
Etest® antibiotic test strips[8]		
Chloramphenicol[9]	Report results	Sensitive (= 8 µg/mL)
Teicoplanin[9]	Report results	Resistant (= 32 µg/mL)[10]
Vancomycin[9]	Intermediate	Intermediate (= 12 µg/mL)
Genotypic Analysis		
Sequencing of 16S ribosomal RNA gene (~ 1390 base pairs)	≥ 99% sequence identity to *S. epidermidis* type strain	99.7% sequence identity to L37605[11]

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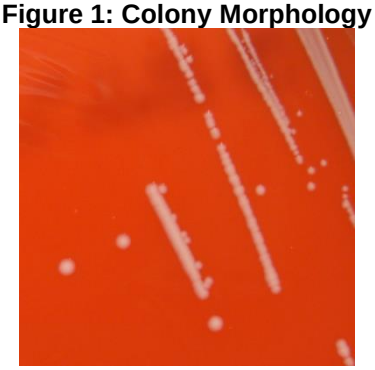
TEST	SPECIFICATIONS	RESULTS
Purity (post freeze)[12]	Growth consistent with expected colony morphology	Growth consistent with expected colony morphology
Viability (post-freeze)[2]	Growth	Growth

[1]*S. epidermidis*, strain HIP04645 was deposited to BEI Resources as part of the NARSA collection. NR-45860 was produced by inoculation of the deposited material into Tryptic Soy broth and grown 1 day at 37°C in an aerobic atmosphere. Broth inoculum was added to Tryptic Soy agar with 5% defibrinated sheep blood kolles which were grown 1 day at 37°C in an aerobic atmosphere to produce this lot.
[2]1 day at 37°C in an aerobic atmosphere on Tryptic Soy agar with 5% defibrinated sheep blood
[3]1 day at 37°C in rabbit serum with 0.15% EDTA (Coagulase Plasma BBL™ 240827)
[4]Percent probabilities above 90% indicate a close match to the typical biochemical pattern for the given organism, with a percent probability of 99% being a perfect match between the test reaction pattern and the unique biochemical pattern of the given organism or organism group. For additional information, please refer to O'Hara, C.M. and J. M. Miller. "Evaluation of the Vitek 2 ID-GNB Assay for Identification of Members of the Family Enterobacteriaceae and Other Nonenteric Gram-Negative Bacilli and Comparison with the Vitek GNI+ Card." J. Clin. Microbiol. 41 (2003): 2096-2101. PubMed: 12734254.
[5]Minimum Inhibitory Concentration (MIC); MIC Interpretation Guideline: CLSI M100-S22 (2012)
[6]The production of beta-lactamase was detected using a Cefinase™ Paper Disc (BBL™ 231650).
[7]MIC Interpretation Guideline: EUCAST Version 4.0 (2014)
[8]2 days at 37°C in an aerobic atmosphere on Mueller Hinton agar
[9]For both chloramphenicol (bioMérieux Etest® 412308) and teicoplanin (bioMérieux Etest® 412459), a MIC ≤ 8 µg/mL is sensitive, a MIC = 16 µg/mL is intermediate, and a MIC ≥ 32 µg/mL is resistant. For vancomycin (bioMérieux Etest® 412486), a MIC ≤ 4 µg/mL is sensitive, a MIC = 8-16 µg/mL is intermediate, and a MIC ≥ 32 µg/mL is resistant.
[10]*S. epidermidis*, strain HIP04645 was deposited as having an intermediate resistance to teicoplanin. Antibiotic susceptibility testing performed in duplicate determined that *S. epidermidis*, strain HIP04645 is resistant to teicoplanin.
[11]Also consistent with other *Staphylococcus* species
[12]Purity of this lot was assessed for 10 days at 37°C in an aerobic atmosphere on Tryptic Soy agar with 5% defibrinated sheep blood.

Figure 1: Colony Morphology



Date: 08 FEB 2016

Signature:

BEI Resources Authentication

ATCC®, on behalf of BEI Resources, hereby represents and warrants that the material provided under this certificate has been subjected to the tests and procedures specified and that the results described, along with any other data provided in this certificate, are true and accurate to the best of ATCC®'s knowledge.

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