Certificate of Analysis for NR-46415

Staphylococcus aureus, Strain HIP15178

Catalog No. NR-46415

Product Description: *Staphylococcus aureus* (*S. aureus*), strain HIP15178 was isolated in 2005 in Michigan, USA from a surgical site infection of a 58-year-old female who was recently treated with an eight-week course of vancomycin. *S. aureus*, strain HIP15178 is a vancomycin-resistant *S. aureus* strain.

Lot[1]: 62436149 **Manufacturing Date: 12MAR2014**

TEST	SPECIFICATIONS	RESULTS
Phenotypic Analysis		
Cellular morphology	Gram-positive cocci	Gram-positive cocci
Colony morphology[2]	Report results	Circular, convex, entire, smooth and cream (Figure 1)
Motility (wet mount)	Report results	Non-motile
Hemolysis[3]	Report results	β-hemolytic
Biochemical Characterization		
Catalase	Positive	Positive
Coagulase[4]	Report results	Positive
VITEK® 2 Compact (GP card)	Consistent with *S. aureus*	Consistent with *S. aureus*
Antibiotic Susceptibility Profile		
VITEK® (AST-GP71 card)[5]		
Beta-lactamase[6]	Report results	Negative
Cefoxitin screen	Report results	Positive
Benzylpenicillin	Report results	Resistant (= 0.12 µg/mL)[7]
Oxacillin	Resistant	Resistant (≥ 4 µg/mL)
Gentamicin	Sensitive	Sensitive (≤ 0.5 µg/mL)
Ciprofloxacin	Resistant	Resistant (≥ 8 µg/mL)
Levofloxacin	Report results	Resistant (≥ 8 µg/mL)
Moxifloxacin	Report results	Resistant (= 4 µg/mL)
Clindamycin (inducible resistance)	Report results	Negative
Erythromycin	Resistant	Resistant (≥ 8 µg/mL)
Clindamycin	Resistant	Resistant (≥ 8 µg/mL)
Quinupristin/dalfopristin	Sensitive	Sensitive (≤ 0.25 µg/mL)
Linezolid	Sensitive	Sensitive (= 2 µg/mL)
Daptomycin	Report results	Sensitive (= 0.25 µg/mL)
Vancomycin	Resistant	Resistant (≥ 32 µg/mL)
Minocycline	Report results	Sensitive (≤ 0.5 µg/mL)
Tetracycline	Report results	Sensitive (≤ 1 µg/mL)
Tigecycline	Report results	Sensitive (≤ 0.12 µg/mL)
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 (= 4 µg/mL)
Teicoplanin[9]	Resistant	Resistant (= 64 µg/mL)
Genotypic Analysis		
Sequencing of 16S ribosomal RNA gene (~ 1500 base pairs)	Consistent with *S. aureus*	Consistent with *S. aureus*
Viability (post-freeze)[2]	Growth	Growth

[1] *S. aureus*, strain HIP15178 was deposited to BEI Resources as part of the NARSA collection. NR-46415 was produced by inoculation of the deposited material into Brain Heart Infusion broth with 6 µg/mL vancomycin and grown 24 hours at 37°C in an aerobic atmosphere. Broth inoculum was added to Brain Heart Infusion agar with 6 µg/mL vancomycin kolles which were grown 24 hours at 37°C in an aerobic atmosphere

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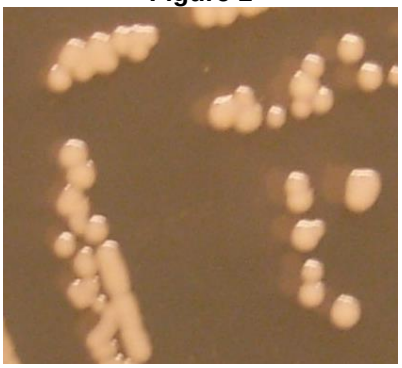
to produce this lot. Purity of this lot was assessed for 7 days under propagation conditions.
[2]21 hours at 37°C in an aerobic atmosphere on Brain Heart Infusion agar with 6 µg/mL vancomycin
[3]21 hours at 37°C in an aerobic atmosphere on Tryptic Soy agar with 5% defibrinated sheep blood
[4]4 hours at 37°C in rabbit serum with 0.15% EDTA (Coagulase Plasma BBL™ 240827)
[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]According to CLSI M100-S22 (2012) MIC Interpretation Guidelines an isolate with a penicillin MIC ≤ 0.12 µg/mL is sensitive. However, for oxacillin-resistant *Staphylococci,* penicillin is to be reported as resistant regardless of the MIC.
[8]24 hours 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.

Figure 1



Date: 08 MAY 2014 **Signature:**

Title: Technical Manager, BEI Authentication or designee

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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