Certificate of Analysis for NR-31040

Pseudomonas aeruginosa, Strain Stone No. 130

Catalog No. NR-31040

Product Description:

Pseudomonas aeruginosa (*P. aeruginosa*), strain Stone no. 130 was isolated in or before 1971 from a burn patient at Grady Memorial Hospital in Atlanta, Georgia, USA. NR-31040 was produced by the inoculation of BEI Resources seed lot 70002168 into Nutrient broth and incubated for 1 day at 37°C in an aerobic atmosphere. Broth inoculum was added to Nutrient agar kolles, which were grown for 1 day at 37°C in an aerobic atmosphere to produce this lot. Quality control testing was completed under propagation conditions unless otherwise noted.

Lot: 70061800 **Manufacturing Date: 29JUN2023**

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TEST	SPECIFICATIONS	RESULTS
Phenotypic Analysis		
Cellular morphology	Gram-negative rods	Gram-negative rods
Colony morphology[1]	Report results	Colony type 1: Circular, convex, undulate, smooth and cream (Figure 1) Colony type 2: Circular, convex, entire, smooth and cream (Figure 1)
Motility (wet mount)	Report results	Motile
VITEK® MS (MALDI-TOF)	*P. aeruginosa*	*P. aeruginosa* (99.9%)
Antibiotic Susceptibility Profile		
VITEK® (AST-GN81 Card)[2]		
Ampicillin	Resistant	Resistant (≥ 32 µg/mL)
Amoxicillin/Clavulanic Acid	Resistant	Resistant (≥ 32 µg/mL)
Piperacillin/Tazobactam	Sensitive	Sensitive (≤ 4 µg/mL)
Cefazolin	Resistant	Resistant (≥ 64 µg/mL)
Cefoxitin	Resistant	Resistant (≥ 64 µg/mL)
Ceftazidime	Sensitive	Sensitive (≤ 1 µg/mL)
Ceftriaxone	Resistant	Resistant (16 µg/mL)
Cefepime	Sensitive	Sensitive (2 µg/mL)
Meropenem	Sensitive	Sensitive (1 µg/mL)
Amikacin	Sensitive	Sensitive (4 µg/mL)
Gentamicin	Resistant	Resistant (≥ 16 µg/mL)
Tobramycin	Sensitive	Sensitive (≤ 1 µg/mL)
Ciprofloxacin	Sensitive	Sensitive (≤ 0.25 µg/mL)
Levofloxacin	Sensitive	Sensitive (2 µg/mL)
Tetracycline	Resistant	Resistant (≥ 16 µg/mL)
Nitrofurantoin	Resistant	Resistant (≥ 512 µg/mL)
Trimethoprim/Sulfamethoxazole	Resistant	Resistant (≥ 320 µg/mL)
Etest® antibiotic test strips[3]		
Gentamicin[4]	Resistant	Resistant (≥ 32 µg/mL)
Ofloxacin[4]	Sensitive	Sensitive (1 µg/mL)
Rifampin[5]	Sensitive	> 32 µg/mL
Streptomycin[6]	Resistant	> 1024 µg/mL
Trimethoprim/Sulfamethoxazole[7]	Resistant	> 32 µg/mL[8]
Ceftriaxone[9]	Resistant	6 to 8 µg/mL
Genotypic Analysis Sequencing of 16S ribosomal RNA gene (~ 1470 base pairs)	≥ 99% sequence identity to *P. aeruginosa*, strain Stone no. 130 (GenBank: AQFN01000045.1)	100% sequence identity to *P. aeruginosa*, strain Stone no. 130 (GenBank: AQFN01000045.1)

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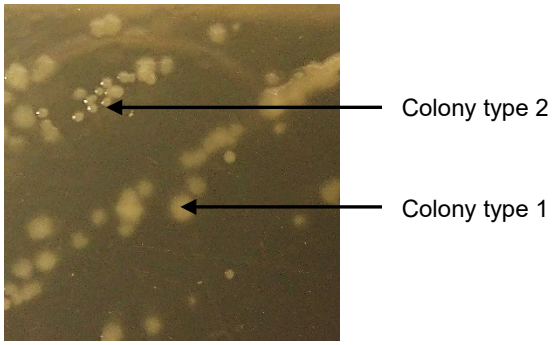
TEST	SPECIFICATIONS	RESULTS
Purity 7 days at 37°C in an aerobic atmosphere with and without 5% CO_2 on Nutrient agar	Growth consistent with expected colony morphology	Growth consistent with expected colony morphology
Viability	Growth	Growth

[1]Two colony types were observed. VITEK® MS (MALDI-TOF) analysis identified cells from both colony types as *P. aeruginosa*.
[2]Minimum Inhibitory Concentration (MIC); MIC interpretation was determined using VITEK® 2 software version 09.01 combined with the bioMérieux Advanced Expert System™ (AES) software using the interpretation standard CLSI M100-S28 (2018) and the interpretation guideline "Natural Resistance." For more information, please refer to Sanders, C. C. et al. "Potential Impact of the VITEK 2 System and the Advanced Expert System on the Clinical Laboratory of a University-Based Hospital." J. Clin. Microbiol. 39 (2001): 2379-2385. PubMed: 11427542.
[3]1 day at 35°C in an aerobic atmosphere on Mueller Hinton agar
[4]Minimum Inhibitory Concentration (MIC); MIC interpretation guidelines CLSI M100-S28 (2018)
[5]Rifampin MIC interpretive standards are not available for *P. aeruginosa*. Strain Stone no. 130 is reported to be rifampin-sensitive and does not grow in media containing rifampin at a concentration of 100 µg/mL. For more information, please refer to Jacoby, G. A. "Properties of R plasmids Determining Gentamicin Resistance by Acetylation in *Pseudomonas aeruginosa*." Antimicrob. Agents Chemother. 6 (1974): 239-252. PubMed: 15830469.
[6]Streptomycin MIC interpretive standards are not available for *P. aeruginosa*. Strain Stone no. 130 contains IncP-2 plasmid pMG2, which confers resistance toward gentamicin, streptomycin and sulfonamides. Using an agar dilution method, the depositor determined that strains containing pMG2 have a MIC of 5000 µg/mL. Although strain Stone no. 130 can grow in the presence of a high level of streptomycin, BEI Resources did not confirm the presence of pMG2 by molecular methods. For more information, please refer to Jacoby, G. A. "Properties of R plasmids Determining Gentamicin Resistance by Acetylation in *Pseudomonas aeruginosa*." Antimicrob. Agents Chemother. 6 (1974): 239-252. PubMed: 15830469.
[7]Trimethoprim/sulfamethoxazole MIC interpretive standards are not available for *P. aeruginosa*; however most clinical isolates are resistant to trimethoprim/sulfamethoxazole. Strain Stone no. 130 contains IncP-2 plasmid pMG2, which confers resistance toward gentamicin, streptomycin and sulfonamides. Although strain Stone no. 130 can grow in the presence of a high level of trimethoprim/sulfamethoxazole, BEI Resources did not confirm the presence of pMG2 by molecular methods. For more information, please refer to Jacoby, G. A. "Properties of R plasmids Determining Gentamicin Resistance by Acetylation in *Pseudomonas aeruginosa*." Antimicrob. Agents Chemother. 6 (1974): 239-252. PubMed: 15830469 and Sanders, C. C. et al. "Potential Impact of the VITEK 2 System and the Advanced Expert System on the Clinical Laboratory of a University-Based Hospital." J. Clin. Microbiol. 39 (2001): 2379-2385. PubMed: 11427542.
[8]MIC result is based on the trimethoprim component of the test strip.
[9]Ceftriaxone MIC interpretive standards are not available for *P. aeruginosa*; however, most of the strains are resistant to ceftriaxone. For more information, please refer to Watanakunakorn, C. "*In vitro* Activity of Ceftriaxone Alone and in Combination with Gentamicin, Tobramycin, and Amikacin against *Pseudomonas aeruginosa*." Antimicrob. Agents Chemother 24 (1983): 305-306. PubMed: 6314890.

Figure 1: Colony Morphology



/Sonia Bjorum Brower/
Sonia Bjorum Brower 19 DEC 2023
Technical Manager or designee, ATCC Federal Solutions

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Support Provided by NIAID

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