

***Klebsiella pneumoniae*, Strain MRSN 6778**

**Catalog No. NR-55512**

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**Product Description:**

*Klebsiella pneumoniae* (*K. pneumoniae*), strain MRSN 6778 was isolated in 2011 from a human urine sample in North America as part of a global surveillance program. NR-55512 was deposited as a multidrug-resistant strain, sensitive to amikacin, ceftazidime/avibactam, ertapenem, imipenem, meropenem, tetracycline and tigecycline, intermediately resistant to levofloxacin and piperacillin/tazobactam and resistant to ampicillin/sulbactam, aztreonam, cefepime, ceftazidime, ceftriaxone, ceftolozane/tazobactam, ciprofloxacin, gentamicin, tobramycin and trimethoprim/sulfamethoxazole. NR-55512 was produced by inoculation of the deposited material into Tryptic Soy broth and grown for 1 day at 37°C in an aerobic atmosphere. Broth inoculum was added to Tryptic Soy 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.

**Note:** Strain MRSN 6778 has been found to lose the plasmid carrying the *bla*<sub>CTX-M-15</sub> gene when not grown in the presence of cefepime. It is recommended that strain MRSN 6778 be maintained in medium containing 8 µg/mL cefepime to select for the gene conferring resistance to cefepime. The whole genome sequences of both the sensitive and resistant genotypes are available upon request.

**Lot: 70049659**

**Manufacturing Date: 14JAN2022**

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TEST	SPECIFICATIONS	RESULTS
<b>Phenotypic Analysis</b>		
Cellular morphology	Gram-negative rods	Gram-negative rods
Colony morphology	Report results	Circular, convex, entire, smooth, mucoid and cream (Figure 1)
Motility (wet mount)	Report results	Non-motile
VITEK® 2 (GN card)	<i>K. pneumoniae</i> (≥ 89%)	<i>K. pneumoniae</i> (99%)
<b>Antibiotic Susceptibility Profile<sup>1,2</sup></b>		
Amikacin	Sensitive	Sensitive (≤ 2 µg/mL)
Ampicillin/sulbactam	Resistant	Resistant (≥ 32 µg/mL)
Aztreonam	Resistant	Sensitive (0.064 to 0.19 µg/mL) <sup>3</sup>
Cefepime	Resistant	Sensitive (0.25 µg/mL) <sup>4</sup>
Ceftazidime	Resistant	Sensitive (0.19 to 0.38 µg/mL) <sup>5</sup>
Ceftazidime/avibactam	Sensitive	Sensitive (0.25 µg/mL)
Ceftolozane/tazobactam	Resistant	Sensitive (0.25 µg/mL) <sup>6</sup>
Ceftriaxone	Resistant	Sensitive (0.094 to 0.125 µg/mL) <sup>7</sup>
Ciprofloxacin	Resistant	Resistant (4 to 6 µg/mL)
Ertapenem	Sensitive	Sensitive (≤ 0.5 µg/mL)
Gentamicin	Resistant	Sensitive (0.5 µg/mL) <sup>8</sup>
Imipenem	Sensitive	Sensitive (0.25 µg/mL)
Levofloxacin	Resistant	Sensitive (0.75 to 1 µg/mL) <sup>9</sup>
Meropenem	Sensitive	Sensitive (≤ 0.25 µg/mL)
Piperacillin/tazobactam	Intermediate	Intermediate (24 to 34 µg/mL)
Tetracycline	Sensitive	Resistant (≥ 256 µg/mL) <sup>10</sup>
Tigecycline	Sensitive	Sensitive (1 µg/mL) <sup>11</sup>
Tobramycin	Resistant	Intermediate (6 µg/mL) <sup>12</sup>
Trimethoprim/sulfamethoxazole	Resistant	Resistant (≥ 320 µg/mL)

TEST	SPECIFICATIONS	RESULTS
<b>Genotypic Analysis</b> Sequencing of 16S ribosomal RNA gene (~ 1470 base pairs)	≥ 99% sequence identity to <i>K. pneumoniae</i> , strain MRSN 6778 (GenBank: JAGYEU010000114.1)	99.4% sequence identity to <i>K. pneumoniae</i> , strain MRSN 6778 (GenBank: JAGYEU010000114.1) <sup>14</sup>
<b>Purity</b> 7 days at 37°C in an aerobic atmosphere with 5% CO <sub>2</sub> on Tryptic Soy agar with 5% defibrinated sheep blood	Growth consistent with expected colony morphology	Growth consistent with expected colony morphology
<b>Viability</b>	Growth	Growth

<sup>1</sup>Minimum Inhibitory Concentration (MIC); MIC Interpretation Guideline: CLSI M100-S28 (2018)

<sup>2</sup>Antibiotic susceptibility was tested using a combination of bioMérieux VITEK®2 GN74 and ETEST®.

<sup>3</sup>*K. pneumoniae*, strain MRSN 6778 was deposited as resistant to aztreonam, but showed a MIC of 0.064 µg/mL to 0.19 µg/mL (interpreted as sensitive) for this antibiotic during QC testing. Testing was performed in duplicate.

<sup>4</sup>*K. pneumoniae*, strain MRSN 6778 was deposited as resistant to cefepime, but showed a MIC of 0.25 µg/mL (interpreted as sensitive) for this antibiotic during QC testing. Testing was performed in duplicate.

<sup>5</sup>*K. pneumoniae*, strain MRSN 6778 was deposited as resistant to ceftazidime, but showed a MIC of 0.19 µg/mL to 0.38 µg/mL (interpreted as sensitive) for this antibiotic during QC testing. Testing was performed in duplicate.

<sup>6</sup>*K. pneumoniae*, strain MRSN 6778 was deposited as resistant to ceftolozane/tazobactam, but showed a MIC of 0.25 µg/mL (interpreted as sensitive) for this antibiotic during QC testing. Testing was performed in duplicate.

<sup>7</sup>*K. pneumoniae*, strain MRSN 6778 was deposited as resistant to ceftriaxone, but showed a MIC of 0.094 µg/mL to 0.125 µg/mL (interpreted as sensitive) for this antibiotic during QC testing. Testing was performed in duplicate.

<sup>8</sup>*K. pneumoniae*, strain MRSN 6778 was deposited as resistant to gentamicin, but showed a MIC of 0.5 µg/mL (interpreted as sensitive) for this antibiotic during QC testing. Testing was performed in duplicate.

<sup>9</sup>*K. pneumoniae*, strain MRSN 6778 was deposited as resistant to levofloxacin, but showed a MIC of 0.75 µg/mL to 1 µg/mL (interpreted as sensitive) for this antibiotic during QC testing. Testing was performed in duplicate.

<sup>10</sup>*K. pneumoniae*, strain MRSN 6778 was deposited as sensitive to tetracycline, but showed a MIC of ≥ 256 µg/mL (interpreted as resistant) for this antibiotic during QC testing. Testing was performed in duplicate.

<sup>11</sup>MIC Interpretation Guideline: EUCAST Version 8.0 (2018)

<sup>12</sup>*K. pneumoniae*, strain MRSN 6778 was deposited as resistant to tobramycin, but showed a MIC of 6 µg/mL (interpreted as intermediately resistant) for this antibiotic during QC testing. Testing was performed in duplicate.

<sup>13</sup>Also consistent with other *Klebsiella* species

Figure 1: Colony Morphology



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26 MAR 2026

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