

**Antimicrobial Resistance Panel 13:
Pseudomonas aeruginosa
Fluoroquinolone Resistance Pathway
Mutants**

Catalog No. NR-55652

For research use only. Not for use in humans.

Contributor:

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Manufacturer:

BEI Resources

Product Description:

NR-55652 consists of a 2-member panel of *Pseudomonas aeruginosa* (*P. aeruginosa*) PAO1 mutant strains. NB52023 is an efflux deficient mutant lacking *mexXY* operon genes: *mexB* and *mexX* ($\Delta mexB \Delta mexX$).¹ NB52023-CDK0006 is derived from NB52023 by site-directed mutagenesis and contains mutations resulting in amino acid substitutions in DNA gyrase [*gyrA* (T83I)] and topoisomerase IV [*parC* (S87L)].² This panel is ideal for investigations involving fluoroquinolone resistance in an efflux-deficient background.

Table 1: Mutant Strains

Item No.	Strain	Description
NR-51969	<i>P. aeruginosa</i> , NB52023	$\Delta mexB \Delta mexX$
NR-51866	<i>P. aeruginosa</i> , NB52023-CDK0006	$\Delta mexB \Delta mexX$ <i>gyrA</i> (T83I) <i>parC</i> (S87L)

Detailed information for each mutant strain, including antibiotic susceptibility profile, is available on the Certificate of Analysis.

Material Provided:

Each panel contains one vial of each *P. aeruginosa* strain listed in table 1 for a total of 2 vials. 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:

Each isolate 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:

Tryptic Soy broth or Brain Heart Infusion broth or Nutrient broth or equivalent

Tryptic Soy agar or Tryptic Soy agar with 5% defibrinated sheep blood or Brain Heart Infusion agar or Nutrient agar 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 obtained through BEI Resources, NIAID, NIH: Antimicrobial Resistance Panel 13: *Pseudomonas aeruginosa* Fluoroquinolone Resistance Pathway Mutants, NR-55652."

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 \(BMBL\)](#), 6th ed. Washington, DC: U.S. Government Printing Office, 2020.

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References:

1. Caughlan, R. E., et al. "Fmt Bypass in *Pseudomonas aeruginosa* Causes Induction of MexXY Efflux Pump Expression." *Antimicrob. Agents Chemother.* 53 (2009): 5015-5021. PubMed: 19786597.
2. Skepper, C. K., et al. "Topoisomerase Inhibitors Addressing Fluoroquinolone Resistance in Gram-Negative Bacteria." *J. Med. Chem.* 63 (2020): 7773-7816. PubMed: 32634310.

