

**Antimicrobial Resistance Panel 8:
Pseudomonas aeruginosa LpxC Inhibitor
Resistant Mutants**

Catalog No. NR-55647

For research use only. Not for use in humans.

Contributor:

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Manufacturer:

BEI Resources

Product Description:

NR-55647 consists of a 16-member panel of *Pseudomonas aeruginosa* (*P. aeruginosa*) strains containing mutations in the genes involved in the LpxC pathway. These strains were generated by selection on a growth medium containing an LpxC inhibitor or by introducing targeted mutations in the gene of interest. These strains exhibit decreased susceptibility to LpxC inhibitors such as CHIR-090 and several newer LpxC inhibitor scaffolds.^{1,2}

Material Provided:

Each panel contains one vial of each *P. aeruginosa* strain listed in Table 1 for a total of 16 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:

NR-55647 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 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 8: *Pseudomonas aeruginosa* LpxC Inhibitor Resistant Mutants, NR-55647.”

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

Disclaimers:

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References:

1. Jones, A. K., et al. “Mutations Reducing *in vitro* Susceptibility to Novel LpxC Inhibitors in *Pseudomonas aeruginosa* and Interplay of Efflux and Nonefflux Mechanisms.” *Antimicrob. Agents Chemother.* 64. (2019): e01490-19. PubMed: 31658970.

2. Coughlan, R. E., et al. "Mechanisms Decreasing *in vitro* Susceptibility to the LpxC Inhibitor CHIR-090 in the Gram-Negative Pathogen *Pseudomonas aeruginosa*." *Antimicrob. Agents Chemother.* 56 (2012): 17-27. PubMed: 22024823.

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Table 1: Mutant Strains

| Item Number | Strain | Description |
|-------------|---------------------------------|---|
| NR-51885 | NB52019-CDA0033 | <i>P. aeruginosa</i> PAO1, strain K767 with a mutation in <i>nfxB</i> , MexCD-OprJ upregulated |
| NR-51886 | NB52019-LpxCG208S | <i>P. aeruginosa</i> PAO1, strain K767 engineered to encode LpxCG208S |
| NR-51887 | NB52019-CDJ0037 | <i>P. aeruginosa</i> PAO1, strain K767 with a mutation in <i>lpxC</i> (LpxCA214V) |
| NR-51888 | NB52217-P2 | <i>P. aeruginosa</i> PAO1, strain K2732 with a mutation in <i>fabF1</i> (FabF1 _{T306A}), selected on CHIR-090, passage 2 |
| NR-51889 | NB52217-P6 | <i>P. aeruginosa</i> PAO1, strain K2732 with mutations in: <i>nfxB</i> (<i>nfxB</i> stopTGA-Cys), <i>fabG</i> (FabG _{D190G}), and hypothetical gene PA4465 (PA4465 _{N193T}), selected on CHIR-090, passage 6 |
| NR-51890 | NB52217-P13 | <i>P. aeruginosa</i> PAO1, strain K2732 with mutations in: <i>mexR</i> (MexR _{T130P}), <i>nfxB</i> (<i>nfxB</i> stopTGA-Cys), <i>fabG</i> (FabG _{D190G}) and PA4465 (PA4465 _{N193T}), selected on CHIR-090, passage 13 |
| NR-51891 | NB52217-PA4465 _{N193T} | <i>P. aeruginosa</i> PAO1, strain K2732 engineered to encode PA4465 _{N193T} |
| NR-51892 | NB52200-P6a (NC) | <i>P. aeruginosa</i> PAO1, strain K2733 (K2733 Δ <i>mexB</i> , Δ <i>mexX</i> , Δ <i>mexCD-oprJ</i> , Δ <i>mexEF-oprN</i>) with a mutation in PA4465 (PA4465 _{N193T}), selected on CHIR-090, passage 6, normal colony size (NC) |
| NR-51893 | NB52200-P6b (SC) | <i>P. aeruginosa</i> PAO1, strain K2733 with a mutation in <i>fabG</i> (FabG _{A159V}), selected on CHIR-090, passage 6, small colony size (SC) |
| NR-51894 | NB52200-P13a (NC) | <i>P. aeruginosa</i> PAO1, strain K2733 with a mutation in <i>fabG</i> (FabG _{A167V}) and PA4465 (PA4465 _{N193T}), selected on CHIR-090, passage 13, normal colony size (NC) |
| NR-51895 | NB52200-P13b (SC) | <i>P. aeruginosa</i> PAO1, strain K2733 with a mutation in <i>fabG</i> (FabG _{A167V}) and PA4465 (PA4465 _{N193T}), selected on CHIR-090, passage 13, small colony size (SC) |
| NR-51896 | NB52042-CDJ0042 | <i>P. aeruginosa</i> PAO1, strain PAO1V with a mutation in <i>lpxC</i> (LpxCA214V) |
| NR-51898 | NB52019-CDR0026 | <i>P. aeruginosa</i> PAO1, strain K767 overexpressing LpxC |
| NR-51899 | NB52019-CDR0061 | <i>P. aeruginosa</i> PAO1, strain K767 with a mutation in <i>fabG</i> (FabG _{C494T}) |
| NR-51900 | NB52019-CDJ0011 | <i>P. aeruginosa</i> PAO1, strain K767 engineered to encode LpxCL18V |
| NR-51902 | NB52203-CDB0011 | <i>P. aeruginosa</i> , serotype 06 clinical isolate, engineered to encode LpxCL18V |