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

Catalog No. NR-55647

For research use only. Not for use in humans.

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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. Caughlan, 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.

Support Provided by NIAID

Table 1: Mutant Strains

Item Number	Strain	Description
NR-51885	NB52019-CDA0033	*P. aeruginosa* PAO1, strain K767 with a mutation in *nfxB*, MexCD-OprJ upregulated
NR-51886	NB52019-LpxC$_{G208S}$	*P. aeruginosa* PAO1, strain K767 engineered to encode LpxC$_{G208S}$
NR-51887	NB52019-CDJ0037	*P. aeruginosa* PAO1, strain K767 with a mutation in *lpxC* (LpxC$_{A214V}$)
NR-51888	NB52217-P2	*P. aeruginosa* PAO1, strain K2732 with a mutation in *fabF1*(FabF1$_{T306A}$), selected on CHIR-090, passage 2
NR-51889	NB52217-P6	*P. aeruginosa* PAO1, strain K2732 with mutations in: *nfxB (nfxB* stopTGA-Cys), fabG (FabG$_{D190G}$), and hypothetical gene PA4465 (PA4465$_{N193T}$), selected on CHIR-090, passage 6
NR-51890	NB52217-P13	*P. aeruginosa* PAO1, strain K2732 with mutations in: *mexR* (MexR$_{T130P}$), *nfxB* (*nfxB* stopTGA-Cys), *fabG* (FabG$_{D190G}$) and PA4465 (PA4465$_{N193T}$), selected on CHIR-090, passage 13
NR-51891	NB52217-PA4465$_{N193T}$	*P. aeruginosa* PAO1, strain K2732 engineered to encode PA4465$_{N193T}$
NR-51892	NB52200-P6a (NC)	*P. aeruginosa* PAO1, strain K2733 (K2732 Δ*mexB*, Δ*mexX*, Δ*mexCD-oprJ,* Δ*mexEF-oprN*) with a mutation in PA4465 (PA4465$_{N193T}$), selected on CHIR-090, passage 6, normal colony size (NC)
NR-51893	NB52200-P6b (SC)	*P. aeruginosa* PAO1, strain K2733 with a mutation in *fabG* (FabG$_{A159V}$), selected on CHIR-090, passage 6, small colony size (SC)
NR-51894	NB52200-P13a (NC)	*P. aeruginosa* PAO1, strain K2733 with a mutation in *fabG* (FabG$_{A167V}$) and PA4465 (PA4465$_{N193T}$), selected on CHIR-090, passage 13, normal colony size (NC)
NR-51895	NB52200-P13b (SC)	*P. aeruginosa* PAO1, strain K2733 with a mutation in *fabG* (FabG$_{A167V}$) and PA4465 (PA4465$_{N193T}$), selected on CHIR-090, passage 13, small colony size (SC)
NR-51896	NB52042-CDJ0042	*P. aeruginosa* PAO1, strain PAO1V with a mutation in *lpxC* (LpxC$_{A214V}$)
NR-51898	NB52019-CDR0026	*P. aeruginosa* PAO1, strain K767 overexpressing LpxC
NR-51899	NB52019-CDR0061	*P. aeruginosa* PAO1, strain K767 with a mutation in *fabG* (FabG$_{C494T}$)
NR-51900	NB52019-CDJ0011	*P. aeruginosa* PAO1, strain K767 engineered to encode LpxC$_{L18V}$
NR-51902	NB52203-CDB0011	*P. aeruginosa,* serotype 06 clinical isolate, engineered to encode LpxC$_{L18V}$

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