Antimicrobial Resistance Panel 10: *Escherichia coli mrdA* Mutants

Catalog No. NR-55649

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Manufacturer:

BEI Resources

Product Description:

NR-55649 consists of a 2-member panel of *Escherichia coli* (*E. coli*), strain BW25113 derivatives harboring clinically relevant mutations in *mrdA*, which encodes for penicillin-binding protein 2 (PBP2).[1] These mutant strains were produced through recombination with PCR-amplified mutant *mrdA*.[1] *E. coli*, strain NB27079-CDK0001 was created by the introduction of PCR amplified *mrdA* genomic sequence from drug-resistant *E. coli* clinical isolate ATCC® BAA-2471™. *E. coli*, strain NB27079-CDK0004 was created by the introduction of PCR amplified *mrdA* genomic sequence from *E. coli* clinical isolate IHMA.[1,2]

Table 1: Mutant Strains

Item No.	Description	Point mutation
NR-51873	*E. coli*, NB27079-CDK0001	PBP2 L573Q
NR-51874	*E. coli*, NB27079-CDK0004	PBP2 V5221

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

Material Provided:

Each panel contains one vial each of the bacterial strain in the panel. 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 equivalent
Tryptic Soy 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 10: *Escherichia coli mrdA* Mutants, NR-55649."

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; see www.cdc.gov/biosafety/publications/bmbl5/index.htm.

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References:

1. Srijan, R., et al. "Identification of Mutations in the *mrdA* Gene Encoding PBP2 that Reduce Carbapenem and Diazabicyclooctane Susceptibility of *Escherichia coli* Clinical Isolates with Mutations in *fts*I (PBP3) and which Carry *bla* $_{NDM-1}$." mSphere 4 (2019). PubMed: 31270174.
2. Datsenko, K. A. and B. L. Wanner. "One-Step Inactivation of Chromosomal Genes in *Escherichia coli* K-12 Using PCR Products." Proc. Natl. Acad. Sci. USA. 97 (2000): 6640-5. PubMed: 10829079.

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