Product Information Sheet for NR-55640

Antimicrobial Resistance Panel 1: *Acinetobacter baumannii* Lipid A/Fatty Acid Pathway

Catalog No. NR-55640

For research use only. Not for use in humans.

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Manufacturer:
BEI Resources

Product Description:
NR-55640 consists of a 2-member panel of laboratory generated deletion mutant strains of *Acinetobacter baumannii (A. baumannii)*, strain ATCC® 19606™, which are defective in lipid A biosynthesis or lipopolysaccharide (LPS) transport to the outer cell wall.[1] Both strains exhibit impaired *in vitro* growth, altered membrane permeability, reduced sensitivity to polymixin B and enhanced sensitivity to hydrophobic antibiotics. These hypermeable mutant strains may be used to study specific pathways involved in outer membrane synthesis in addition to their use in identification of potential antimicrobial drug targets.[2,3,4] The panel contains the strains listed in Table 1.

Table 1: Mutant Strains

Item No.	Description	Genotype
NR-51929	*Acinetobacter baumannii* NB48062-TMT0028	*lptD*::Km^R
NR-51938	*Acinetobacter baumannii* NB48062-LMD0007	*lpxC*::Km^R

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

Material Provided:
Each panel contains one vial each of NB48062-LMD0007 and NB48062-TMT0028. 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:
Nutrient broth or Tryptic Soy broth or equivalent
Nutrient agar or Tryptic Soy agar or Tryptic Soy agar with 5% defibrinated sheep blood 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 1: *Acinetobacter baumannii* Lipid A/Fatty Acid Pathway, NR-55640."

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. Bojkovic, J., et al. "Characterization of an *Acinetobacter baumannii lptD* Deletion Strain: Permeability Defects and Response to Inhibition of Lipopolysaccharide and Fatty Acid Biosynthesis." J. Bacteriol. 198 (2015): 731-41. PubMed: 26668262.
2. Richie, D. L., et al. "A Pathway-Directed Positive Growth Restoration Assay to Facilitate the Discovery of Lipid A and Fatty Acid Biosynthesis Inhibitors in *Acinetobacter baumannii*." PloS One 13 (2018): e0193851. PubMed: 29505586.
3. Lehman, K. M. and M. Grabowicz. "Countering Gram-Negative Antibiotic Resistance: Recent Progress in Disrupting the Outer Membrane with Novel Therapeutics." Antibiotics 8 (2019): 163. PubMed: 31554212.
4. Zhou, P. and J. Hong. "Structure- and Ligand-Dynamics-Based Design of Novel Antibiotics Targeting Lipid A Enzymes LpxC and LpxH in Gram-Negative Bacteria." Accounts of Chem. Res. 54 (2021): 1623-1634. PubMed: 33720682.

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