

**Antimicrobial Resistance Panel 5:  
*Staphylococcus aureus* Quinolone  
Resistance Determining Region (QRDR)  
Mutants**

**Catalog No. NR-55644**

**For research use only. Not for use in humans.**

**Contributor:**

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**Manufacturer:**

BEI Resources

**Product Description:**

NR-55644 consists of a 13-member panel of *Staphylococcus aureus* (*S. aureus*) mutant strains encoding characterized quinolone resistance determining region (QRDR) substitutions in the DNA gyrase and topoisomerase IV subunit genes. The mutant strains were generated by single-step mutation selection using *S. aureus* ATCC® 29213™, followed by sequencing to identify strains with mutations in the QRDR.<sup>1</sup> This panel is ideal for screening inhibitors against *S. aureus* DNA gyrase and topoisomerase IV, as well as research investigations related to drug resistance mechanisms.

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

**Material Provided:**

Each panel contains one vial of each *S. aureus* strain listed in Table 1 for a total of 13 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 equivalent Tryptic Soy agar or Tryptic Soy agar with 5% defibrinated sheep blood or Brain Heart Infusion 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 5: *Staphylococcus aureus* Quinolone Resistance Determining Region (QRDR) Mutants, NR-55644."

**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.

**Disclaimers:**

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**References:**

1. Blais, J., et al. "In vitro and in vivo Properties of CUO246, a Novel Bacterial DNA Gyrase/Topoisomerase IV Inhibitor." *Antimicrob. Agents and Chemother.* 66 (2022): e0092122. PubMed: 36448795.

**Table 1: Mutant Strains**

| Item No. | Strain                             | Description   |
|----------|------------------------------------|---|
| NR-51867 | <i>S. aureus</i> , NB01001-DLR0080 | <i>grlA</i> (R519C); <i>gyrB</i> (E477G)  |
| NR-51868 | <i>S. aureus</i> , NB01001-DLR0100 | <i>grlA</i> (R519C); <i>grlB</i> (E472A); <i>gyrB</i> (E477G)                     |
| NR-51869 | <i>S. aureus</i> , NB01001-DLR0118 | <i>grlA</i> (R519C); <i>grlB</i> (E472A); <i>gyrA</i> (S84L); <i>gyrB</i> (E477G) |
| NR-51870 | <i>S. aureus</i> , NB01001-DLR0122 | <i>grlA</i> (R519C); <i>grlB</i> (E472A); <i>gyrA</i> (S84L); <i>gyrB</i> (E477G) |
| NR-51871 | <i>S. aureus</i> , NB01001-DLR0127 | <i>grlA</i> (R519C); <i>grlB</i> (E472A); <i>gyrA</i> (S84L); <i>gyrB</i> (E477G) |
| NR-51872 | <i>S. aureus</i> , NB01001-DLR0131 | <i>grlA</i> (R519C); <i>grlB</i> (E472A); <i>gyrA</i> (S84L); <i>gyrB</i> (E477G) |
| NR-51875 | <i>S. aureus</i> , NB01001-DLR0024 | <i>gyrA</i> (S84L)  |
| NR-51876 | <i>S. aureus</i> , NB01001-DLR0027 | <i>grlA</i> (S80Y)  |
| NR-51877 | <i>S. aureus</i> , NB01001-DLR0056 | <i>grlA</i> (S80F); <i>gyrA</i> (S84L)  |
| NR-51879 | <i>S. aureus</i> , NB01001-DLR0133 | <i>grlA</i> (E84L)  |
| NR-51880 | <i>S. aureus</i> , NB01001-DLR0028 | <i>grlA</i> (S80F)  |
| NR-51881 | <i>S. aureus</i> , NB01001-DLR0060 | <i>grlA</i> (S80Y); <i>gyrA</i> (S84L)  |
| NR-51882 | <i>S. aureus</i> , NB01001-DLR0064 | <i>gyrA</i> (S84L); <i>grlA</i> (E84L)  |