

***Acinetobacter baumannii*, Strain MRSN 423159**

**Catalog No. NR-52243**

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**Contributor:**

Multidrug-Resistant Organism Repository and Surveillance Network (MRSN), Bacterial Disease Branch, Walter Reed Army Institute of Research, Silver Spring, Maryland, USA

**Manufacturer:**

BEI Resources

**Product Description:**

Bacteria Classification: *Moraxellaceae, Acinetobacter*

Species: *Acinetobacter baumannii*

Strain: MRSN 423159

Original Source: *Acinetobacter baumannii* (*A. baumannii*), strain MRSN 423159 was isolated in 2016 from a human respiratory sample in the United States as part of a global surveillance program.<sup>1,2</sup>

Comments: *A. baumannii*, strain MRSN 423159 was deposited as part of the MRSN *Acinetobacter baumannii* Diversity Panel available from BEI Resources as NR-52248. NR-52243 was deposited as multi-locus sequence type (MLST) ST 2, resistant to ampicillin/sulbactam, ceftazidime, ceftriaxone, ciprofloxacin, gentamicin, imipenem, levofloxacin, meropenem, tobramycin and trimethoprim/sulfamethoxazole, sensitive to colistin and tetracycline, and intermediately resistant to amikacin and cefepime.<sup>1</sup> Strain MRSN 423159 is reported to have three aminoglycoside transferase genes [*aac(3)-I*, *aadA1* and *ant(2'')-Ia*; conferring resistance to various aminoglycosides], three beta-lactamase genes (*bla<sub>ADC-25</sub>*, *bla<sub>OXA-23</sub>* and *bla<sub>OXA-82</sub>*; conferring resistance to beta-lactams), one sulfonamide resistance gene (*sul1*; conferring resistance to sulfonamides), one chloramphenicol acetyltransferase gene (*catB3*; conferring resistance to chloramphenicol), one dihydrofolate reductase gene (*dhfrA19*; conferring resistance to trimethoprim), one macrolide phosphotransferase gene [*mph(E)*; conferring resistance to macrolides] and one ABC-F type ribosomal protection protein/ABC-F subfamily protein [*msr(E)*; conferring resistance to erythromycin and streptogramin B antibiotics].<sup>1</sup> The complete genome of *A. baumannii*, strain MRSN 423159 is available (GenBank: [VHES00000000](https://www.ncbi.nlm.nih.gov/nuccore/VHES00000000)).

*A. baumannii* is an aerobic, Gram-negative bacillus that exhibits the ability to rapidly develop antibiotic resistance and is a major cause of hospital-acquired infection.<sup>3</sup> The genomes of multidrug resistant strains of *A. baumannii* contain resistance "islands" that can contain up to 45 resistance genes. Acquisition of these antibiotic resistance genes occurs through genetic exchange of plasmids, transposons and integrons with *Pseudomonas*, *Salmonella* and *Escherichia* species.<sup>4,5</sup>

**Material Provided:**

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-52243 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: *Acinetobacter baumannii*, Strain MRSN 423159, NR-52243. This strain is part of the *Acinetobacter baumannii* Diversity Panel provided by the Multidrug-Resistant Organism Repository and Surveillance Network (MRSN) at the Walter Reed Army Institute of Research (WRAIR)."

**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](https://www.cdc.gov/biosafety/publications/bmbL5/index.htm).

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**References:**

1. McGann, P., Personal Communication.
2. Galac, M. R., et al. "A Diverse Panel of Clinical *Acinetobacter baumannii* for Research and Development." Antimicrob. Agents Chemother. 64 (2020): e00840-20. PubMed: 32718956.
3. Howard, A., et al. "*Acinetobacter baumannii*: An Emerging Opportunistic Pathogen." Virulence 3 (2012): 243-250. PubMed: 22546906.
4. Fournier, P.-E., et al. "Comparative Genomics of Multidrug Resistance in *Acinetobacter baumannii*." PLoS Genet. 2 (2006): e7. PubMed: 16415984.
5. Imperi, F., et al. "The Genomics of *Acinetobacter baumannii*: Insights into Genome Plasticity, Antimicrobial Resistance and Pathogenicity." IUBMB Life 63 (2011): 1068-1074. PubMed: 22034231.

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