Acinetobacter baumannii, Strain MRSN 4943

Catalog No. NR-52166

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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 4943
Original Source: *Acinetobacter baumannii (A. baumannii)*, strain MRSN 4943 was isolated in 2011 from a human respiratory sample in the USA as part of a global surveillance program.[1,2]
Comments: *A. baumannii*, strain MRSN 4943 was deposited as part of the MRSN *Acinetobacter baumannii* Diversity Panel available from BEI Resources as NR-52248. NR-52166 was deposited as multi-locus sequence type (MLST) ST 2, sensitive to colistin, imipenem and meropenem, intermediately resistant to amikacin and tobramycin, and resistant to ampicillin/sulbactam, cefepime, ceftazidime, ceftriaxone, ciprofloxacin, gentamicin, levofloxacin, tetracycline and trimethoprim/sulfamethoxazole. Strain MRSN 4943 is reported to have five aminoglycoside transferase genes [*aac*(3)-Ia, *aad*A1, *aph*(3")-Ib, *aph*(3')-Ia and *aph*(6)-Id; conferring resistance to various aminoglycosides], three beta-lactamase genes (bla_{ADC-25}, bla_{OXA-66}, and bla_{TEM-1D}; conferring resistance to beta-lactams), one chloramphenicol acetyltransferase gene (*cat*A1; conferring resistance to chloramphenicol), two sulfonamide resistance genes (*sul*1 and *sul*2; conferring resistance to sulfonamides) and one tetracycline resistance gene [*tet*(B); conferring resistance to tetracycline].[1] The complete genome of *A. baumannii*, strain MRSN 4943 is available (GenBank: VHEM00000000).

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.[3] 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.[4,5]

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-52166 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 4943, NR-52166. 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.

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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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