

Product Information Sheet for NR-52206

Acinetobacter baumannii, Strain MRSN 22112

Catalog No. NR-52206

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For research use only. Not for use in humans.

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 22112

Original Source: *Acinetobacter baumannii* (*A. baumannii*), strain MRSN 22112 was isolated in 2013 from a human blood sample in South America as part of a global surveillance program.^{1,2}

Comments: *A. baumannii*, strain MRSN 22112 was deposited as part of the MRSN *Acinetobacter baumannii* Diversity Panel available from BEI Resources as NR-52248. NR-52206 was deposited as multi-locus sequence type (MLST) ST 193, sensitive to ampicillin/sulbactam, ciprofloxacin, colistin and levofloxacin, intermediately resistant to amikacin and tobramycin, and resistant to ceftazidime, ceftioxone, cefepime, gentamicin, imipenem, tetracycline, meropenem and trimethoprim/sulfamethoxazole. Strain MRSN 22112 is reported to have six aminoglycoside transferase genes [*aac*(3)-IIa, *aac*(6)-Ib3, *aadA1*, *aph*(3')-Ib, *aph*(3')-VIa and *aph*(6)-Id; conferring resistance to various aminoglycosides], one rifampin ADP-ribosyltransferase gene (*arr-3*; conferring resistance to rifampin), five beta-lactamase genes (*bla*_{ADC-25}, *bla*_{IMP-16}, *bla*_{OXA-120}, *bla*_{TEM-1B} and *bla*_{VEB-1}; conferring resistance to beta-lactams), a dihydrofolate reductase gene (*dhfrA1*; conferring resistance to trimethoprim), a chloramphenicol exporter gene (*floR*; conferring resistance to chloramphenicol), a macrolide phosphotransferase gene [*mph*(E); conferring resistance to macrolides], an ABC-F type ribosomal protection protein gene [*msr*(E); conferring resistance to erythromycin and streptogramin B], a sulfonamide resistance gene (*sul1*; conferring resistance to sulfonamides) and a tetracycline resistance gene [*tet*(X); conferring resistance to tetracycline].¹ The complete genome of *A. baumannii*, strain MRSN 22112 is available (GenBank: [VH000000000](https://www.ncbi.nlm.nih.gov/nuccore/VH000000000)).

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-52206 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 22112, NR-52206. 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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