

Bacillus anthracis, Strain UM23-1

Catalog No. NR-10352

For research use only. Not for human use.

Contributor:

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Product Description:

Bacteria Classification: *Bacillaceae*, *Bacillus*, *Bacillus cereus* group

Species: *Bacillus anthracis*

Strain: UM23-1

Source: *Bacillus anthracis* (*B. anthracis*), strain UM23-1 is a uracil minus (Ura⁻), streptomycin-resistant (str^R) derivative of strain UM23, which contains the toxigenic pXO1 plasmid and lacks the pXO2 capsule plasmid.¹⁻³

B. anthracis is an aerobic, Gram-positive, spore-forming, rod-shaped bacillus that causes the acute infectious disease anthrax. Herbivores are the natural hosts and become infected by consuming soil. Humans are incidentally infected by coming into contact with infected animals or their products. *B. anthracis* virulence is dependent on the possession of two large plasmids, pXO1 and pXO2, which are responsible for the expression of an extracellular toxin and a poly-γ-D-glutamic acid capsule, respectively.⁴ The extracellular toxin is composed of three proteins: lethal factor, edema factor, and protective antigen.⁵

The presence of pXO1 and absence of pXO2 in NR-10352 has been confirmed by PCR amplification of plasmid-specific sequences from extracted DNA.

Material Provided:

Each vial contains approximately 0.5 mL of bacterial culture in 0.5X 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-10352 was packaged aseptically, in screw-capped plastic 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 equivalent

Tryptic Soy Agar with 5% sheep blood, or equivalent

Incubation:

Temperature: 35°C to 37°C

Atmosphere: Ambient

Propagation:

1. Keep vial frozen until ready for use; thaw slowly.
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 tubes and plate at 35°C to 37°C for 24 hours.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through the NIH Biodefense and Emerging Infections Research Resources Repository, NIAID, NIH: *Bacillus anthracis*, Strain UM23-1, NR-10352."

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*. 5th ed. Washington, DC: U.S. Government Printing Office, 2007; see www.cdc.gov/od/ohs/biosfty/bmbl5/bmbl5toc.htm. This publication recommends that all persons working in or entering laboratory or animal care areas where frequent activities with clinical specimens or diagnostic cultures of *Bacillus anthracis* are being conducted should have documented evidence of satisfactory vaccination.

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References:

1. Battisti, L., B. D. Green and C. B. Thorne. "Mating System for Transfer of Plasmids Among *Bacillus anthracis*, *Bacillus cereus*, and *Bacillus thuringiensis*." J. Bacteriol. 162 (1985): 543-550. PubMed: 3988702.
2. Hoffmaster, A. R. and T. M. Koehler. "The Anthrax Toxin Activator Gene *atxA* is Associated with CO₂-Enhanced Non-Toxin Gene Expression in *Bacillus anthracis*." Infect. Immun. 65 (1997): 3091-3099. PubMed: 9234759.
3. Ivins, B. E., et al. "Immunization Against Anthrax with Aromatic Compound-Dependent (Aro-) Mutants of *Bacillus anthracis* and with Recombinant Strains of *Bacillus subtilis* that Produce Anthrax Protective Antigen." 58 (1990): 303-308. PubMed: 2105269.
4. Oncü, S., S. Oncü, and S. Sakarya. "Anthrax-An Overview." Med. Sci. Monit. 9 (2003): RA276-RA283. PubMed: 14586293.
5. Pomerantsev, A. P., et al. "Genome Engineering in *Bacillus anthracis* using Cre Recombinase." Infect. Immun. 74 (2006): 682-693. PubMed: 16369025.
6. Spencer, R. C. "*Bacillus anthracis*." J. Clin. Pathol. 56 (2003): 182-187. PubMed: 12610093.

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