

Bacillus anthracis*, Strain Sterne Δ *cyxA

Catalog No. NR-10007

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Contributor:

Philip Hanna, Associate Professor, Department of Microbiology and Immunology, University of Michigan Medical School, Ann Arbor, Michigan

Product Description:

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

Species: *Bacillus anthracis*

Strain: Δ *cyxA*

Source: *Bacillus anthracis* (*B. anthracis*), strain Sterne Δ *cyxA* is a markerless, nonpolar, deletion mutant of the toxigenic acapsulate original Sterne strain (34F2).^{1,2} The mutant allele replaces the entire open reading frame except for the initial ATG codon and terminal stop codon and includes the recognition site for the restriction endonuclease *MfeI*.

Comment: This mutant allele also exists in the Sterne background strain 7702 and is available from BEI Resources as NR-9398. Additional information is available at the [Resource Center for Biodefense Proteomics Research \(BPRC\)](#).

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 polysaccharide capsule, respectively. The extracellular toxin is composed of three proteins: lethal factor, edema factor, and protective antigen.³

The presence of pXO1 and absence of pXO2 in NR-10007 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-10007 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: Aerobic

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 contributed by P. Hanna, University of Michigan for distribution by the NIH Biodefense and Emerging Infections Research Resources Repository, NIAID, NIH: *Bacillus anthracis*, Strain Sterne Δ *cyxA*, NR-10007."

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. http://pir.georgetown.edu/cgi-bin/textsearch_cat_ra.pl?datatype=bacteria&search=1&field0=ID&query0=NR-10007
2. Sterne, M. "The Immunization of Laboratory Animals against Anthrax." *Onderstepoort J. Vet. Sci. Anim. Ind.* 13 (1939): 313-317.
3. Oncü, S., S. Oncü, and S. Sakarya. "Anthrax-An Overview." *Med. Sci. Monit.* 9 (2003): RA276-RA283. PubMed: 14586293.
4. Janes, B. K. and S. Stibitz. "Routine Markerless Gene Replacement in *Bacillus anthracis*." *Infect. Immun.* 74 (2006): 1949-1953. PubMed: 16495572.
5. Passalacqua, K. D., et al. "Comparative Transcriptional Profiling of *Bacillus cereus* Sensu Lato Strains during Growth in CO₂-Bicarbonate and Aerobic Atmospheres." *PLoS One* 4 (2009): e4904. PubMed: 19295911.
6. Spencer, R. C. "*Bacillus anthracis*." *J. Clin. Pathol.* 56 (2003): 182-187. PubMed: 12610093.

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