

**Formalin-Inactivated *Bacillus anthracis*, Strain Sterne BAP708**

**Catalog No. NR-51402**

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**Contributor:**

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**Manufacturer:**

United States Army Medical Research Institute of Infectious Diseases (USAMRIID)

**Product Description:**

NR-51402 was developed to provide a non-virulent, genetically attenuated, formalin-inactivated *Bacillus anthracis* (*B. anthracis*) strain for use as a substitute for wild type *B. anthracis* in rapid detection assays.<sup>1,2</sup> *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.<sup>3</sup> *B. anthracis*, strain Sterne BAP708, lacks the pXO2 plasmid and has had the genes that make up the toxin deleted from the pXO1 plasmid. Additionally, a synthetic construct containing 5 signature sequences (small sequences from both pXO1 and pXO2) was inserted into the pXO1 plasmid backbone to provide nucleic acid assay targets, allowing the strain to substitute for the fully virulent *B. anthracis* in molecular testing.<sup>2</sup>

Formalin-inactivated *B. anthracis*, strain Sterne BAP708 is functional in PCR and lateral flow immunoassays (LFI).<sup>2</sup>

**Material Provided:**

Each vial contains approximately 1 mL of formalin-inactivated *B. anthracis*, strain Sterne BAP708 in Tryptic Soy broth supplemented with 12.5% glycerol.

**Packaging/Storage:**

NR-51402 was packaged aseptically, in screw-capped plastic cryovials. The product is provided frozen and should be stored at -70°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.

**Citation:**

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: Formalin-Inactivated *Bacillus anthracis*, Strain Sterne BAP708, NR-51402."

**Biosafety Level: 1**

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, 2009; see [www.cdc.gov/biosafety/publications/bmbL5/index.htm](http://www.cdc.gov/biosafety/publications/bmbL5/index.htm).

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**References:**

1. Hanna, P., Personal Communication.
2. Plaut, R. D., et al. "Avirulent *Bacillus anthracis* Strain with Molecular Assay Targets as Surrogate for Irradiation-Inactivated Virulent Spores." Emerg. Infect. Dis. 24 (2018):691-699. PubMed: 29553922.
3. Oncü, S., S. Oncü and S. Sakarya. "Anthrax-An Overview." Med. Sci. Monit. 9 (2003): RA276-RA283. PubMed: 14586293.

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