

**Anthrax Protective Antigen (PA),
Recombinant from *Escherichia coli***

Catalog No. NR-3780

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For research use only. Not for human use.

Contributor:

U.S. Department of Defense Joint Vaccine Acquisition Program

Manufacturer:

DynPort Vaccine Company LLC

Product Description:

Recombinant anthrax protective antigen (PA) was produced in *Escherichia coli* and purified using conventional chromatographic techniques.

In vivo, recombinant PA (83 kDa) binds to surface receptors on the mammalian cell membrane, and is cleaved by a cellular protease to a 63 kDa protein. When combined with recombinant lethal factor (LF) or edema factor (EF), the cleaved PA binds the toxin enzyme component and mediates its transportation into the cytosol where it exerts its pathogenic effect.

Material Provided:

Each vial contains approximately 0.50 mL of NR-3780 in 20 mM sodium phosphate buffer (pH 8.32) and 150 mM NaCl. Please see the Certificate of Analysis for lot-specific concentration.

Packaging and Storage:

This product was packaged aseptically in cryovials. The product is provided frozen on dry ice and should be stored at -80°C or colder immediately upon arrival.

For optimal long-term storage, aliquoting and freezing the material at -80°C or colder is recommended. Repeated freeze-thaw cycles should be avoided.

Concentration:

Protein concentration was determined by a modification of the method of Bradford,¹ using bovine serum albumin as the standard.

Activation:

In certain systems, this product may require trypsinization to generate the active C-terminal 63 kDa fragment.²

Tissue Culture Application:

Tissue culture media containing glutamate must be fresh.

Ammonium ion released when glutamate breaks down may prevent acidification of the endosome thereby inhibiting translocation of LF or EF into the cytosol.³ A stable form of glutamate may be used.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: Anthrax Protective Antigen (PA), Recombinant from *Escherichia coli*, NR-3780."

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/bmb15/index.htm.

Disclaimers:

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References:

1. Bradford, M. M. "A Rapid and Sensitive Method for the Quantitation of Microgram Quantities of Protein Utilizing the Principle of Protein-Dye Binding." Anal. Biochem. 72 (1976): 248–254. PubMed: 942051.
2. Bhatnagar, R., Y. Singh, S. H. Leppla, and A. M. Friedlander. "Calcium is Required for the Expression of Anthrax Lethal Toxin Activity in the Macrophagelike Cell Line J774A.1." Infect. Immun. 57 (1989): 2107–2114. PubMed: 2499545.
3. Stephen Little, personal communication.

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