

**Fraction 1 Capsular Antigen (F1) from *Yersinia pestis* with N-terminal Histidine Tag, Expressed in *Escherichia coli***

**Catalog No. NR-15771**

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**For research use only. Not for human use.**

**Contributor and Manufacturer:**

BEI Resources

**Product Description:**

NR-15771 is a recombinant form of the *Yersinia pestis* (*Y. pestis*) fraction 1 capsular antigen (F1). F1 is a plasmid (pFra)-encoded proteinaceous capsule synthesized in large quantities by *Y. pestis* and reported to confer antiphagocytic properties on the pathogen by interfering with complement-mediated opsonization.<sup>1</sup> The protein is highly immunogenic and has been indirectly associated with eliciting a protective immune response in humans.<sup>2</sup> The amino acid sequence is shown in Table 1. The recombinant protein lacks the native signal sequence but includes an N-terminal hexa-histidine tag, a thrombin cleavage site, and amino acid residues 22 to 170 of F1 from *Y. pestis* (GenPept: [AAS58714](#)).<sup>3,4</sup> The protein was expressed in *Escherichia coli* and purified by nickel affinity chromatography. NR-15771 has a theoretical molecular weight of 17,858 daltons.

**Material Provided:**

Each vial contains approximately 300 µg of NR-15771 in phosphate-buffered saline. The concentration, expressed as mg per mL, is shown on the Certificate of Analysis.

**Packaging/Storage:**

NR-15771 was packaged in cryovials. The product is provided frozen on dry ice and should be stored at -80°C or colder immediately upon arrival. Freeze-thaw cycles should be avoided.

**Functional Activity:**

NR-15771 reacts with monoclonal antibody to *Y. pestis* F1 antigen in ELISA and Western blot assays.

**Citation:**

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: Fraction 1 Capsular Antigen (F1) from *Yersinia pestis* with N-terminal Histidine Tag, Expressed in *Escherichia coli*, NR-15771."

**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](http://www.cdc.gov/biosafety/publications/bmb15/index.htm).

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**References:**

1. Williams, R. C. Jr., et al. "Effects of Fraction I from *Yersinia pestis* on Phagocytosis *In Vitro*." [J. Infect. Dis.](#) 126 (1972): 235-241. PubMed: 4559742.
2. Meyer, K. F., et al. "Plague Immunization. VI. Vaccination with the Fraction I Antigen of *Yersinia pestis*." [J. Infect. Dis.](#) 129 (1974): Suppl: S41-S45. PubMed: 4825248.
3. Simpson, W. J., et al. "Recombinant Capsular Antigen (Fraction 1) from *Yersinia pestis* Induces a Protective Antibody Response in BALB/c Mice." [Am. J. Trop. Med. Hyg.](#) 43 (1990): 389-396. PubMed: 2240367.

4. Andrews, G. P., et al. "Fraction 1 Capsular Antigen (F1) Purification from *Yersinia pestis* CO92 and from an *Escherichia coli* Recombinant Strain and Efficacy against Lethal Plague Challenge." Infect. Immun. 64 (1996): 2180-2187. PubMed: 8675324.

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Table 1 - Predicted Protein Sequence					
1	<u>M</u> GSSHHHHH	<u>S</u> SGLVPRGSH	<u>M</u> ADLTASTTA	TATLVEPARI	TLTYKEGAPI
51	TIMDNGNIDT	ELLVGTTLTG	GYKTGTTSTS	VNFTDAAGDP	MYLTFTSQDG
101	NNHQFTTKVI	GKDSRDFDIS	PKVNGENLVG	DDVVLATGSQ	DFFVRSIGSK
151	GGKLAAGKYT	DAVTVTVSNQ			

Non-F1 residues are underlined.