Yersinia pestis LcrV Protein, Recombinant from *Escherichia coli*

Catalog No. NR-3832

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Contributor:

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Product Description:

Yersinia pestis (Y. pestis), the causative agent of the plague, secretes massive amounts of LcrV (low-calcium-response V or V antigen) during infection. Mutations that abrogate the expression of LcrV render *Y. pestis* avirulent.[1] LcrV is a multifunctional protein that is central to the activity of the type III secretion apparatus of *Y. pestis*. It has no known catalytic function, and its biological activity is dependent on interactions with other proteins.[2] Injection of LcrV into animals stimulates humoral responses that offer protection against plague infection.[1] The amino acid sequence for LcrV from *Y. pestis* has been reported by 2 groups in the NCBI protein database (AAC62574 and AAC69799).[3,4] The crystal structure for LcrV from *Y. pestis* has been solved at 2.17 Å resolution (PDB: 1R6F).[2]

Recombinant LcrV protein (*Y. pestis*, strain KIM5) was expressed in *Escherichia coli* BL21 cells as described.[1] The N-terminal deca-histidine tagged protein was purified via nickel-NTA and gel filtration chromatography. Cleavage with Factor Xa resulted in a protein with one extra histidine at the amino acid terminus. The protein preparation was treated with Triton X-114 to reduce endotoxin contamination.

Material Provided:

Each vial contains approximately 1 mg of recombinant LcrV protein in PBS, pH 7.4.

Packaging/Storage:

NR-3832 was packaged in screw cap cryovials. It is provided frozen and the contributor recommends that it be stored at -80°C immediately upon arrival, rather than -20°C as the label indicates. Freeze-thaw cycles should be avoided.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through the NIH Biodefense and Emerging Infections Research Resources Repository, NIAID, NIH: *Yersinia pestis* LcrV Protein, Recombinant from *Escherichia coli,* NR-3832."

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, 2007; see www.cdc.gov/od/ohs/biosfty/bmbl5/bmbl5toc.htm.

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References:

1. Overheim, K. A., et al. "LcrV Plague Vaccine with Altered Immunomodulatory Properties." Infect. Immun. 73 (2005): 5152–5159. PubMed: 16041032.
2. Derewenda, U., et al. "The Structure of *Yersinia pestis* V-Antigen, an Essential Virulence Factor and Mediator of Immunity Against Plague." Structure 12 (2004): 301–306. PubMed: 14962390.
3. Hu, P., et al. "Structural Organization of Virulence-Associated Plasmids of *Yersinia pestis*." J. Bacteriol. 180 (1998): 5192–5202. PubMed: 9748454. GenPept: AAC62574/
4. Perry, R. D., et al. "DNA Sequencing and Analysis of the Low-Ca^{2+}-Response Plasmid pCD1 of *Yersinia pestis* KIM5." Infect. Immun. 66 (1998): 4611–4623. PubMed: 9746557. GenPept: AAC69799.
5. Huang, X. Z., M. P. Nikolich, and L. E. Lindler. "Current Trends in Plague Research: From Genomics to Virulence." Clin. Med. Res. 4 (2006): 189–199. PubMed: 16988099.

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