Bacillus anthracis Collagen-like Protein BclA with N-terminal Histidine Tag, Recombinant from *Escherichia coli*

Catalog No. NR-50655

For research use only. Not for human use.

Contributor and Manufacturer:
BEI Resources

Product Description:
NR-50655 is a recombinant form of the *Bacillus anthracis (B. anthracis)* collagen-like protein (BclA), a major component of the exosporium.[1-3] The amino acid sequence includes 1) an N-terminal hexa-histidine tag, 2) a thrombin cleavage site and 3) the complete coding sequence of BclA from the Sterne strain (GenPept: AAT53453).[4] The recombinant protein was expressed in *Escherichia coli*, using an amplified BclA region of the *B. anthracis* genome (BEI Resources NR-10310), and purified by nickel affinity chromatography. NR-50655 has a theoretical molecular weight of approximately 39 kilodaltons. The structure of BclA has been solved (PDB: 1WCK; 2R6Q).[5,6] The predicted amino acid sequence of NR-50655 is shown below in Table 1. The collagen-like region of the BclA protein is known to be highly polymorphic, with a variable number of GXX triplet motifs, including one to eight copies of the 21 amino acid sequence $(GPT)_5GDTGTT$, named the BclA repeat.[7]

Material Provided:
Each vial contains approximately 80 µg to 120 µg of NR-50655 in PBS, pH 7.4. The concentration, expressed as mg per mL, is shown on the Certificate of Analysis.

Packaging/Storage:
NR-50655 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. Freeze-thaw cycles should be avoided.

Functional Activity:[1]
NR-50655 reacts with rabbit polyclonal antibody to *B. anthracis* BclA (BEI Resources NR-9578) and anti-His monoclonal antibody as shown by western blot analysis.

Citation:
Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: *Bacillus anthracis* Collagen-like Protein BclA with N-terminal Histidine Tag, Recombinant from *Escherichia coli*, NR-50655."

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/BMBL.

Disclaimers:
You are authorized to use this product for research use only. It is not intended for human use.

Use of this product is subject to the terms and conditions of the BEI Resources Material Transfer Agreement (MTA). The MTA is available on our Web site at www.beiresources.org.

While BEI Resources uses reasonable efforts to include accurate and up-to-date information on this product sheet, neither ATCC® nor the U.S. Government makes any warranties or representations as to its accuracy. Citations from scientific literature and patents are provided for informational purposes only. Neither ATCC® nor the U.S. Government warrants that such information has been confirmed to be accurate.

This product is sent with the condition that you are responsible for its safe storage, handling, use and disposal. ATCC® and the U.S. Government are not liable for any damages or injuries arising from receipt and/or use of this product. While reasonable effort is made to ensure authenticity and reliability of materials on deposit, the U.S. Government, ATCC®, their suppliers and contributors to BEI Resources are not liable for damages arising from the misidentification or misrepresentation of products.

Use Restrictions:
This material is distributed for internal research, non-commercial purposes only. This material, its product or its derivatives may not be distributed to third parties. Except as performed under a U.S. Government contract, individuals contemplating commercial use of the material, its products or its derivatives must contact the contributor to determine if a license is required. U.S. Government contractors may need a license before first commercial sale.

References:
1. Sylvestre, P., E. Couture-Tosi and M. Mock. "A Collagen-Like Surface Glycoprotein Is a Structural Component of the *Bacillus anthracis* Exosporium." Mol. Microbiol. 45 (2002): 169-178. PubMed: 12100557.
2. Brahmbhatt, T. N., et al. "*Bacillus anthracis* Exosporium Protein BclA Affects Spore Germination, Interaction with Extracellular Matrix Proteins, and Hydrophobicity." Infect. Immun. 75 (2007): 5233-5239. PubMed: 17709408.
3. Brahmbhatt, T. N., et al. "Recombinant Exosporium Protein BclA of *Bacillus anthracis* Is Effective as a Booster for Mice Primed with Suboptimal Amounts of Protective

BEI Resources
www.beiresources.org
E-mail: contact@beiresources.org
Tel: 800-359-7370
Fax: 703-365-2898

Antigen." Infect. Immun. 75 (2007): 5240-5247. PubMed: 17785478.
4. Brettin, T. S., et al. "Complete Genome Sequence of *Bacillus anthracis* Sterne." Direct Submission (2004). GenPept: AAT53453.
5. Réty, S., et al. "The Crystal Structure of the *Bacillus anthracis* Spore Surface Protein BclA Shows Remarkable Similarity to Mammalian Proteins." J. Biol. Chem. 280 (2005): 43073-43078. PubMed: 16249180. PDB: 1WCK.
6. Han, B. W., et al. "Crystal Structure of BclA Island Construct." Direct Submission (2007). PDB: 2R6Q.
7. Sylvestre, P., E. Couture-Tosi and M. Mock. "Polymorphism in the Collagen-Like Region of the *Bacillus anthracis* BclA Protein Leads to Variation in Exosporium Filament Length." J. Bacteriol. 185 (2003): 1555-1563. PubMed: 12591872.

Support Provided by NIAID

Table 1 - Predicted Protein Sequence

1	MGSSHHHHHH	SSGLVPRGSH	MSNNNYSNGL	NPDESLSASA	FDPNLVGPTL
51	PPIPPFTLPT	GPTGPTGPTG	PTGPTGPTGP	TGDTGTTGPT	GPTGPTGPTG
101	PTGDTGTTGP	TGPTGPTGPT	GPTGDTGTTG	PTGPTGPTGP	TGPTGPTGPT
151	GPTGPTGPTG	DTGTTGPTGP	TGPTGPTGPT	GDTGTTGPTG	PTGPTGPTGP
201	TGPTGPTGPT	GPTGPTGPTG	PTGPTGDTGT	TGPTGPTGPT	GPTGPTGDTG
251	TTGPTGPTGP	TGPTGPTGPT	GPTGATGLTG	PTGPTGPSGL	GLPAGLYAFN
301	SGGISLDLGI	NDPVPFNTVG	SQFGTAISQL	DADTFVISET	GFYKITVIAN
351	TATASVLGGL	TIQVNGVPVP	GTGSSLISLG	APIVIQAITQ	ITTTPSLVEV
401	IVTGLGLSLA	LGTSASIIIE	KVA		

Non-BclA residues are underlined.

BEI Resources
www.beiresources.org
E-mail: contact@beiresources.org
Tel: 800-359-7370
Fax: 703-365-2898