

Bacillus anthracis* Superoxide Dismutase SODA-1 (Locus_Tag: BA_4499) with N-terminal Histidine Tag, Recombinant from *Escherichia coli

Catalog No. NR-10505

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Contributor and Manufacturer:

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Product Description:

NR-10505 is a recombinant form of the *Bacillus anthracis* (*B. anthracis*) superoxide dismutase SODA-1 (locus_tag: [BA_4499](#)). SODA-1 is one of the superoxide dismutases present in the outermost layers of the spore and helps to provide *B. anthracis* protection against oxidative stress and enhance pathogenicity in the lung.^{1,2} The amino acid sequence includes 1) an N-terminal hexa-histidine tag 2) a thrombin cleavage site and 3) amino acid residues 1 to 203 of SODA-1 from the Ames strain of *B. anthracis* (GenPept: AAP28210).³ The recombinant protein was expressed in *Escherichia coli* and purified by nickel affinity chromatography. NR-10505 has a theoretical molecular weight of approximately 25 kilodaltons. The predicted amino acid sequence of NR-10505 is shown below in Table 1.

Material Provided:

Each vial contains approximately 0.3 mg of NR-10505 in PBS. The concentration, expressed as mg per mL, is shown on the Certificate of Analysis.

Packaging/Storage:

NR-10505 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:

NR-10505 reacts with rabbit polyclonal antibody to *B. anthracis* SODA-1 (BEI Resources NR-10506) as shown by Western blot analysis.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through the NIH Biodefense and Emerging Infections Research Resources Repository, NIAID, NIH: *Bacillus anthracis* Superoxide Dismutase SODA-1

(Locus_Tag: BA_4499) with N-terminal Histidine Tag, Recombinant from *Escherichia coli*, NR-10505."

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.

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References:

1. Cybulski, R. J., et al. "Four Superoxide Dismutases Contribute to *Bacillus anthracis* Virulence and Provide Spores with Redundant Protection from Oxidative Stress." [Infect. Immun.](#) 77 (2009): 274-285. PubMed: 18955476.

2. Cybulski, R. J., et al. "Recombinant *Bacillus anthracis* Spore Proteins Enhance Protection of Mice Primed with Suboptimal Amounts of Protective Antigen." *Vaccine* 26 (2008): 4927-4939. PubMed: 18657585.
3. Read, T. D., et al. "The Genome Sequence of *Bacillus anthracis* Ames and Comparison to Closely Related Bacteria." *Nature* 423 (2003): 81-86. PubMed: 12721629. GenPept: [AAP28210](#).
4. Boucher, I. W., et al. "Structures of Two Separate Superoxide Dismutases from *Bacillus anthracis* Reveal a Novel Active Centre." *Acta Crystallogr. Sect. F Struct. Biol. Cryst. Commun.* 61 (2005): 621-624. PubMed: 16511113. PDB: [1XUQ](#).

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Table 1 - Predicted Protein Sequence					
1	<u>MGSSHHHHHH</u>	<u>SSGLVPRGSH</u>	MAKHELPLNP	YAYDALEPHF	DKETMNIHHT
51	KHHNTYITNL	NAALEGHAEL	ADKSVEELVA	NLNEVPEAIR	TAVRNNGGGH
101	ANHTFFWTIL	SPNGGGQPVG	ELATAIEAKF	GSFDAFKEEF	AKAGATRFGS
151	GWAWLVVNG	ELEVSTPNQ	DSPLTEGKTP	VIGLDVWEHA	YYLNYQNRRP
201	DYIGAFWNVV	DWNAAEKRYQ	E A K		

Non-SODA-1 residues are underlined.