

## Coli Surface Protein 1 (CS1) from Enterotoxigenic *Escherichia coli* (1 mg)

### Catalog No. NR-50689

This reagent is the property of the U.S. Government.

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

#### Contributor:

National Institutes of Allergy and Infectious Diseases (NIAID),  
National Institutes of Health (NIH)

#### Manufacturer:

Robert Kaminski, Department Chief, Department of Subunit Enteric Vaccines and Immunology (SEVI), Bacterial Diseases Branch, Walter Reed Army Institute of Research, Silver Spring, Maryland, USA

#### Product Description:

NR-50689 is a preparation of coli surface protein 1 (CS1) purified from enterotoxigenic *Escherichia coli* (*E. coli*) (ETEC).<sup>1</sup> CS1 is a virulence factor responsible for adhesion of bacterial cells to intestinal epithelial cells.<sup>2</sup>

NR-50689 was obtained from *E. coli*, strain 60R75, grown in DME/F-12 (Dulbecco's Modified Eagle's medium and F-12 serum-free medium) broth in a fermenter. The protein was purified from the culture supernatant by ammonium sulfate precipitation. NR-50689 has an approximate molecular weight of 15 kilodaltons.<sup>1</sup>

The ETEC infectious process is initiated by the organism adhering to the host intestinal epithelial cells via interactions between bacterial adhesions, colonization factors [including colonization factor antigens (CFAs), coli surface (CS), and putative colonization factors (PCFs)] and host receptors.<sup>2</sup> ETEC then causes secretory diarrhea by expressing heat-labile enterotoxin and heat-stable enterotoxin.<sup>3</sup>

#### Material Provided:

Each vial of NR-50689 contains approximately 1 mg of CS1 in PBS, pH 7.4. The concentration, expressed as mg per mL, is shown on the Certificate of Analysis.

#### Packaging/Storage:

NR-50689 was packaged aseptically in cryovials. The product is provided frozen on dry ice and should be stored at -80°C ± 10°C immediately upon arrival. Freeze-thaw cycles should be avoided.

#### Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: Coli Surface Protein 1 (CS1) from Enterotoxigenic *Escherichia coli* (1 mg), NR-50689."

#### 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/index.htm](http://www.cdc.gov/biosafety/publications/bmbl5/index.htm).

#### 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](http://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. This material may be subject to third party rights (U.S. Patent 7,217,541, U.S. Provisional Patent Application No. 60/453,956).

#### References:

1. Kaminski, R., Personal Communication.
2. Beachey, E. H. "Bacterial Adherence: Adhesin-Receptor Interactions Mediating the Attachment of Bacteria to Mucosal Surface." *J. Infect. Dis.* 143 (1981): 325-345. PubMed: 7014727.
3. Yamamoto, T. and T. Yokota. "Plasmids of Enterotoxigenic *Escherichia coli* H10407: Evidence for Two Heat-Stable Enterotoxin Genes and a Conjugal

Transfer System." J. Bacteriol. 153 (1983): 1352-1360.  
PubMed: 6298182.

ATCC® is a trademark of the American Type Culture Collection.

