

**β-Cyclodextrin Derivative IB301 (NPβCD)**

**Catalog No. NR-33153**

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

**Contributor:**

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**Manufacturer:**

Innovative Biologics, Inc.

**Product Description:**

β-Cyclodextrin (β-CD) is a cyclic molecule comprising of seven D-glucose units and having seven-fold symmetry. Persubstituted β-CD derivatives are small molecules with a seven-fold symmetry that mirrors the heptameric, pore-forming toxins that are essential in the mechanism of action of several bacterial pathogens.<sup>1,2</sup> Persubstituted β-CD derivatives can be utilized in a strategy to inhibit pore-forming toxins, which is based on the blocking of the target pore with molecules having the same symmetry as the pore itself.<sup>1,2</sup>

NR-33153 is a hepta-6-substituted β-CD derivative [per-6-(*n*-pentylamino)-β-CD (NPβCD); IB301] designed to target pore-forming toxins. NR-33153 has a theoretical molecular weight of approximately 1,618 g/mol. The structure of NR-33153 is shown below (Figure 1).

**Material Provided:**

Each vial contains approximately 0.5 mg of NR-33153 in dimethylsulfoxide (DMSO).

Note: Once product is thawed, vortex to ensure homogeneity.

**Packaging/Storage:**

NR-33153 was packaged aseptically in screw-capped plastic cryovials. The product is provided frozen and should be stored at -20°C or colder immediately upon arrival. Excessive freeze-thaw cycles should be avoided.

**Functional Activity:**

NPβCD protects against cytotoxicity caused by *Clostridium perfringens* ε-toxin and anthrax toxins.<sup>3</sup>

**Citation:**

Acknowledgment for publications should read “The following reagent was obtained through BEI Resources, NIAID, NIH: β-Cyclodextrin Derivative IB301 (NPβCD), NR-33153.”

**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).

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**References:**

1. [Innovative Biologics, Inc.](http://www.innovativebiologics.com)
2. Karginov, V. A., et al. “Blocking Anthrax Lethal Toxin at the Protective Antigen Channel by Using Structure-inspired Drug Design.” Proc. Natl. Acad. Sci. U.S.A. 102 (2005): 15075-15080. PubMed: 16214885.
3. Dr. V. Karginov, personal communication.

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**Figure 1**

