

# PRODUCT INFORMATION



## Pertussis Toxin (islet-activating protein)

Item No. 19546

### Overview and Properties

CAS Registry No.: 70323-44-3

Storage: 2-8°C (as supplied)

Stability: ≥2 years

Purity: ≥90% estimated by SDS-PAGE

Supplied in: Each vial, when reconstituted to 500 µl with water, contains 50 µg of pertussis toxin in 0.01 M sodium phosphate, 0.05 M sodium chloride, pH 7.0

Special Conditions: Handle gently; do not vortex; do not freeze

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Description

Pertussis toxin (islet-activating protein) is a toxin, first isolated from *B. pertussis*, that is used to study G protein-coupled receptor signaling in cells and experimental autoimmune encephalomyelitis (EAE) in animals. Pertussis toxin catalyzes the transfer of the ADP-ribose moiety of NAD to the  $\alpha$  subunits of heterotrimeric  $G_{i/o}$  proteins, resulting in the receptors being uncoupled from  $G_{i/o}$  proteins.<sup>1,2</sup> Pertussis toxin is also used as an adjuvant, given with specific antigens, to immunize animals and induce EAE, an animal model of multiple sclerosis.<sup>3,4</sup> Pertussis toxin was first described as an islet-activating protein because it caused a sustained potentiation of the secretory response of pancreatic islet cells to various stimuli that stimulate  $G_i$ -linked  $\alpha$ -adrenergic receptors.<sup>5,6</sup>

### References

1. Kaslow, H.R. and Burns, D.L. Pertussis toxin and target eukaryotic cells: Binding, entry, and activation. *FEBS J.* **6(9)**, 2684-2690 (1992).
2. Ui, M. Islet-activating protein, pertussis toxin: A probe for functions of the inhibitory guanine nucleotide regulatory component of adenylate cyclase. *Trends Pharmacol. Sci.* **5**, 277-279 (1984).
3. Hofstetter, H.H., Shive, C.L., and Forsthuber, T.G. Pertussis toxin modulates the immune response to neuroantigens injected in incomplete Freund's adjuvant: Induction of Th1 cells and experimental autoimmune encephalomyelitis in the presence of high frequencies of Th2 cells. *J. Immunol.* **169(1)**, 117-125 (2002).
4. Ronchi, F., Basso, C., Preite, S., *et al.* Experimental priming of encephalitogenic Th1/Th17 cells requires pertussis toxin-driven IL-1 $\beta$  production by myeloid cells. *Nat. Commun.* **7:11541**, (2016).
5. Heyworth, C.M., Grey, A.-M., Wilson, S.R., *et al.* The action of islet activating protein (pertussis toxin) on insulin's ability to inhibit adenylate cyclase and activate cyclic AMP phosphodiesterases in hepatocytes. *Biochem. J.* **235(1)**, 145-149 (1986).
6. Katada, T. and Michio, U. Slow interaction of islet-activating protein with pancreatic islets during primary culture to cause reversal of  $\alpha$ -adrenergic inhibition of insulin secretion. *J. Biol. Chem.* **255(20)**, 9580-9588 (1980).

WARNING  
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA  
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

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