# 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:** ≥95% estimated by SDS-PAGE
**Supplied in:** Each vial, when reconstituted to 500 µl with water, contains 50 µg of pertussis toxin in 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 α subunits of heterotrimeric $G_{i/o}$ proteins, resulting in the receptors being uncoupled from $G_{i/o}$ proteins.[1,2] Pertussis toxin is also used as an adjuvant, given with specific antigens, to immunize animals and induce EAE, an animal model of multiple sclerosis.[3,4] 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 α-adrenergic receptors.[5,6]

### 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-1β 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 α-adrenergic inhibition of insulin secretion. *J. Biol. Chem.* **255(20)**, 9580-9588 (1980).





CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM