Certificate of Analysis

Product Name: **Pertussis Toxin** **Catalog No.: 3097** **Batch No.: 20**

CAS Number: 70323-44-3

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Weight:	~105,700 Daltons
Physical Appearance:	White lyophilised solid
Solubility:	Each vial, when reconstituted to 500µl with sterile distilled water, contains 50µg of protein in 0.01M sodium phosphate buffer, pH 7.2, with 0.05M sodium chloride. The resulting suspension should be made uniform by gentle mixing prior to use. Do not sterile filter as this will result in loss of material.
Storage:	Store at +4°C (do not freeze)
Biological Assay:	CHO cell assay: When examined in a CHO cell assay as described by Hewlett *et al* (1983), the lowest concentration of toxin at which a positive response (clustered growth pattern) was obtained was 120 pg/ml Adenylate cyclase assay: The adenylate cyclase activity of this lot is 5.9 pmole/min/µg in the presence of 1µM calmodulin when assayed by the method of Wolff *et al* (1980)
Purity:	Isolated from *Bordatella pertussis*, this preparation migrates as five distinct bands, as described by Tamura *et al* (1982), when run on polyacrylamide SDS-urea gels. >98% by SDS PAGE.
Activation:	Please note that this product is not activated. While cells will activate the pertussis toxin if working in an intact system, in a cell free system, activation is required. This can be achieved by pre-incubation of the toxin with high concentrations of dithiothreitol (DTT), see Kaslow *et al* (1987) for suggested conditions or contact Technical Support for further information.

2. REFERENCES

Wolff *et al* (1980) Calmodulin activates prokaryotic adenylate cyclase. Proc.Natl.Acad.Sci.USA ***77*** 3841. PMID: 6253992.

Tamura *et al* (1982) Subunit structure of isletactivating protein, pertussis toxin, in conformity with the A-B model. Biochemistry ***21*** 5516. PMID: 6293544.

Hewlett *et al* (1983) Induction of a novel morphological response in Chinese Hamster Ovary cells by pertussis toxin. Infect.Immunol. ***40*** 123.

Kaslow *et al* (1987) Structure-activity analysis of the activation of pertussis toxin Biochem. ***26*** 123.

bio-techne.com
info@bio-techne.com
techsupport@bio-techne.com

North America
Tel: (800) 343 7475

China
info.cn@bio-techne.com
Tel: +86 (21) 52380373

Europe Middle East Africa
Tel: +44 (0)1235 529449

Rest of World
www.tocris.com/distributors
Tel:+1 612 379 2956

Product Name: **Pertussis Toxin** **Catalog No.: 3097** **20**

CAS Number: 70323-44-3

Description:

Bacterial toxin that catalyses ADP-ribosylation of G-proteins Gi, Go and Gt. Impairs G protein heterotrimer interaction with receptors, blocking receptor coupling.

Protein toxin produced by Bordatella pertussis; has a molecular weight of ~105,700 Daltons and is composed of 5 subunits (S-1, S-2, S-3, S-4 and S-5) in a 1:1:1:2:1 ratio. Arranged in an A-B structure, the A protomer (S1) functions as a catalytic subunit while the B oligomer (S2, S3, S4 & S5) forms the receptor binding element.

Physical and Chemical Properties:

Batch Molecular Weight: ~105,700 Daltons

Physical Appearance: White lyophilised solid

Storage: Store the lyophilised solid at +4°C. Once reconstituted store at +4°C. Long term storage of this product in solution is not recommended.

Solubility & Usage Info:

Each vial, when reconstituted to 500µl with sterile distilled water, contains 50µg of protein (0.1µg/µl) in 0.01M sodium phosphate buffer, pH 7.0, with 0.05M sodium chloride. The resulting suspension should be made uniform by gentle mixing prior to use. Do not sterile filter as this will result in loss of material.

Stability and Solubility Advice:

This product should not be frozen. Pertussis toxin can be permanently inactivated by boiling at 100oC for 15-30 minutes.

Other Information:

Please note that this product is not activated. While cells will activate the pertussis toxin if working in an intact system, in a cell free system, activation is required. This can be achieved by pre-incubation of the toxin with high concentrations of dithiothreitol (DTT), see Kaslow *et al* (1987) for suggested conditions.

If inactivated, this product is not considered hazardous by ingestion; pertussis toxin is degraded by the low pH in the gut and is not absorbed. Take special care when working in conjunction with hypodermic needles. If i.v. or i.m. injection should occur, consult a physician.

References:

Bokoch *et al* (1983) Indentification of the predominant substrate for ADP-ribosylation by islet activating protein. J.Biol.Chem. ***258*** 2072. PMID: 6296122.

Barbieri and Cortina (1988) ADP-ribosyltransferase mutations in the catalytic S-1 subunit of pertussis toxin. Infect.Immun. ***56*** 1934. PMID: 3135265.

Casey *et al* (1989) G protein βγ subunits from bovine brain and retina: equivalent catalytic support of ADP-ribosylation of a subunits by pertussis toxin but differential interactions with G_{sa}. Biochemistry ***28*** 611. PMID: 2496748.

Wolff *et al* (1980) Calmodulin activates prokaryotic adenylate cyclase. Proc.Natl.Acad.Sci.USA ***77*** 3841. PMID: 6253992.

Tamura *et al* (1982) Subunit structure of isletactivating protein, pertussis toxin, in conformity with the A-B model. Biochemistry ***21*** 5516. PMID: 6293544.

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