Tocris Bioscience
16144 Westwoods Business Park,
Ellisville,
Missouri 63021, USA
Phone: 800-421-3701
Fax: 800-483-1993

Tocris Bioscience
Tocris House, IO Centre
Moorend Farm Avenue,
Bristol, BS11 0QL, UK
Phone: + 44(0)117 916 3333
Fax: + 44(0)117 916 3344

Material Safety Data Sheet

MSDS Preparation Date: 24/07/2008
MSDS Revision Date: 25/07/2011

Pertussis Toxin	Cat. No: 3097	Batch No: 3

1. COMPOSITION/INFORMATION ON INGREDIENTS
For batch specific information, please see Product Information sheet.

2. PHYSICAL AND CHEMICAL PROPERTIES
For batch specific information, please see Product Information sheet.

3. HANDLING AND STORAGE
Use in a chemical fume hood, with air supplied by an independent system. Avoid inhalation, contact with eyes, skin and clothing. Avoid prolonged or repeated exposure.

Material should be stored in a tightly sealed container under the storage condition stated on the Product Information sheet and on the vial label.

4. STABILITY AND REACTIVITY
Stability: Stable under normal handling conditions.

Conditions to avoid: Not applicable for this product

Hazardous Combustion/Decomposition of Product: May emit toxic gases such as carbon dioxide, carbon monoxide and nitrogen oxide upon thermal decomposition.

5. HAZARDS IDENTIFICATION
Exposure may cause irritation to eyes, mucous membranes, upper respiratory tract and skin.

6. TOXICOLOGICAL INFORMATION
To the best of our knowledge, the chemical, physical and toxicological properties have not been fully investigated.

RTECS No:	XW5883750
Target Organs:	Eyes, Respiratory system, Skin
Toxicity Data:	IVN-RAT LD50: 114ug/kg; IPR-MUS LD50: 17ug/kg; IVN-MUS LD50: 127ug/kg; ICE-MUS TDLo: 200ng/kg.

Only selected Registry of Toxic Effects of Chemical Substances (RTECS) data is presented above. See actual entry in RTECS for complete information.

7. REGULATORY INFORMATION
Classification: Toxic. May be harmful or fatal if inhaled, swallowed or absorbed through skin

Safety Phrases:	S22 - Do not breathe dust S24/25 - Avoid contact with skin and eyes S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection
Risk Phrases:	R23/24/25 - Toxic by inhilation, in contact with skin and if swallowed

8. EXPOSURE CONTROLS/PERSONAL PROTECTION
Wear appropriate chemical resistant gloves, safety goggles and other protective clothing to prevent contact with eyes and skin. Laboratory should be equipped with a safety shower and eye wash station. Avoid prolonged or repeated exposure. Do not breathe dust. Do not get in eyes, on skin or on clothing. Wash thoroughly after handling.

9. FIRST-AID MEASURES
In cases of SKIN CONTACT: Wash with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes and wash before wearing. In case of eye contact, flush with copious amounts of water for at least 15 minutes.

In cases of INHALATION: Remove to fresh air and monitor breathing. If breathing becomes difficult, give oxygen. If breathing stops, give artificial respiration.

In cases of INGESTION: If swallowed, rinse mouth out with water, contact local poison centre and call a physician.

10. FIRE-FIGHTING MEASURES
Extinguishing Media: Material is non-combustible. Use extinguishing media appropriate to surrounding fire conditions.

Unusual Fire and Explosive Hazards: May emit toxic gases upon thermal decomposition.

Special Fire-Fighting Procedures: Wear protective clothing to prevent contact with skin and eyes.

11. ACCIDENTAL RELEASE MEASURES
Wear appropriate protective clothing. Cover spillage with suitable absorbent material. Using non-spark tools, sweep up material and place in an appropriate container. Decontaminate spill site with with 10% caustic solution and ventilate area until after disposal is complete. Hold all material for appropriate disposal as described under DISPOSAL CONDITIONS.

12. ECOLOGICAL INFORMATION
Data not yet available - treat as potentially toxic if released into the environment.

13. DISPOSAL CONDITIONS
As specific country, federal, state and local environmental regulations are varied and change frequently, we recommend that you contact your local department for Health Services for information on the correct disposal of this product.

14. TRANSPORT INFORMATION
U.N.Number: UN2811
Proper Shipping Name: Toxins extracted from living sources, solid, n.o.s.
IATA Class: 6.1
IATA Packing Group: I

15. OTHER INFORMATION
Due to the nature of this material. It must only be handled by suitably qualified experienced scientists in appropriately equipped and authorised facilities. The above information is believed to be correct but does not purport to be all inclusive and should be used as a guide only for experienced personnel. Always consult your safety advisor and follow appropriate local and national safety legislature. The absence of warning must not, under any circumstance, be taken to mean that no hazard exists.

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Product Information

Pertussis Toxin	Cat.No: 3097	Batch No: 3

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.

Description:

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

Physical and Chemical Properties:

CAS Number: [70323-44-3] Physical Appearance: White lyophilised solid

Storage:

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

Solubility:

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:

Wolff *et al* (1980) Calmodulin activates prokaryotic adenylate cyclase. Proc.Natl.Acad.Sci.USA **77** 3841. **Tamura** *et al* (1982) Subunit structure of islet-activating protein, pertussis toxin, in conformity with the A-B model. Biochemistry **21** 551**6. 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.