

Tetrodotoxin (citrate free) (TTX)

Cat. #: T-500

Origin: *Tetraodon pardalis* (puffer fish).

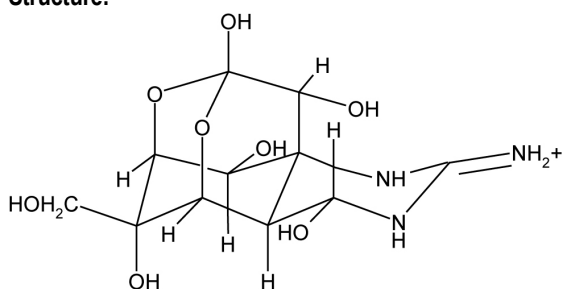
Source description: Natural.

M.W.: 319.28 daltons.

Purity: >98%.

Effective concentration: 100 nM - 1 μ M.

Structure:



Chemical name: Octahydro-12-(hydroxymethyl)-2-imino-5,9:7,10a-dimethan o-10aH-[1,3]dioxocino[6,5-d]pyrimidine-4,7,10,11,12-pentol.

Molecular formula: C₁₁H₁₇N₃O₈.

CAS No.: 4368-28-9.

Activity: Tetrodotoxin is a potent and selective blocker of a subclass of Na_v channels¹, and is often used to define subclasses of Na_v channels².

References:

- Narahashi, T. *et al.* (1964) *J. Gen. Physiol.* **47**, 965.
- Hille, B. (2001) *Ion Channels in Excitable Membranes* (Third Edition) Chapter 3.

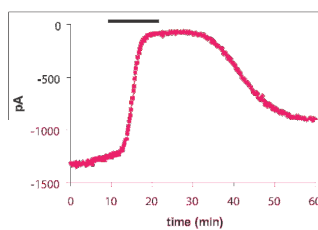
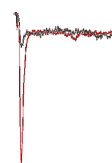
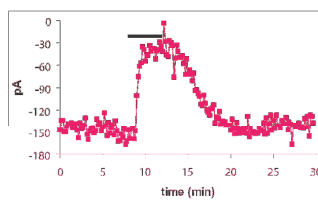
Sizes: 1 mg or 5 x 1 mg lyophilized powder.

Storage before reconstitution: Lyophilized powder can be stored intact at room temperature for several weeks. For longer periods, it should be stored at 4°C.

Reconstitution: Acidic buffer (pH 4.8). Centrifuge all product preparations before use (10000 x g 5 min).

Storage and stability after reconstitution: Up to one week at 4°C or six months at -20°C.

Bioassay: Tetrodotoxin (citrate free) inhibits native Na_v currents in ND7-23 and PC-12 cells.



Tetrodotoxin (citrate free) (#T-500) inhibits PC-12 (top) and ND7-23 (bottom) cells at a concentration of 60 nM. Left graphs show the time course of inward current amplitude upon bath application (marked by the horizontal bars) and wash of Tetrodotoxin (citrate free). Membrane potential was clamped to -120 mV and currents were elicited by 20 ms test pulses to -10 or -20 mV (upper and lower graphs respectively), delivered every 10 sec. Right graphs show the superimposed traces of control current (red) and during perfusion of Tetrodotoxin (citrate free), (black).

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Headquarters: Alomone Labs Ltd.
Har Hotzvim Hi-Tech Park P.O. Box 4287, Jerusalem 91042, Israel.
Tel: +972-2-587 2202 Fax: +972-2-587 1101 or +972-2-642 6975
email: techsupport@alomone.com <http://www.alomone.com>

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MATERIAL SAFETY DATA SHEET

Section 1 - Product Information

Product Name: Tetrodotoxin (with citrate) or (citrate free).
Cat. #: T-550/T-500.
Molecular Formula: C₁₁H₁₇N₃O₈.
Molecular Weight: 319.28 daltons.
CAS No.: 4368-28-9.
Chemical Name: Octahydro-12-(hydroxymethyl)-2-5,9;7,10a-dimethanol-10aH-[1,3]dioxocino[6,5-d]pyrimidine-4,7,10,11,12-pentol.

Section 2 - Physical and Chemical Characteristics

Appearance: Colorless Solid.
Solubility: Soluble in acidic buffer (pH 4.8) or Methanol.

Section 3 - Physical Hazards

Flash Point: Not determined.
Classification: Not determined.
Extinguishing Fire: Use carbon dioxide, dry chemical extinguishers or water. An approved self-contained breathing apparatus and protective clothing are recommended.

Section 4 - Reactivity Data and Storage Conditions

Stability: Stable. Not a significant hazard in milligram quantities.
Storage Conditions: Freezer storage recommended.

Section 5 - Health Hazard Information

Routes of Entry: May enter the body through inhalation, ingestion, and eye and skin contact.
RTECS No.: IO1450000
Exposure limits: Not determined.
Toxicity: LD50; 334 µg/kg, oral, mouse; LD50: 7.3 µg/kg, intravenous, mouse.
Health Hazards: See Toxicity above and Potential Hazards.
Potential Hazards: Highly Toxic.
Carcinogenicity: Not listed by NTP, IARC or OSHA.
Exposure Symptoms: Unknown. Handle with care.
First Aid: Potentially harmful; avoid prolonged or repeated exposure. Wash thoroughly after handling. If eye or skin contact occurs, wash affected areas with water for 15 minutes and seek medical advice. If inhaled, move individual to fresh air and seek medical advice. If swallowed, seek medical advice.

Section 6 - Precautions for Safe Handling, Use and Control Measures

Ventilation: Mechanical and respiratory protection are recommended.
Handling: Gloves, protective clothing and eyewear should be worn and safe laboratory practices followed.

In Case of Spill: Use appropriate protective equipment and methods to clean up spilled substance promptly. Absorb spill onto an appropriate material. Collect and dispose of all waste in accordance with applicable laws.

Clean up: Wash with soap and water.

Disclaimer: The information provided is believed to be correct to our best knowledge, but does not purport to be all inclusive, and shall be used only as a guide. This material is sold for research purposes only and is not required to appear on the TSCA inventory. It is not intended for food, drug, household, agricultural or cosmetic use. Its use must be supervised by a technically qualified individual, experienced in handling potentially hazardous chemicals. Alomone Labs shall not be held liable for any damage resulting from handling or contact with the above product.

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