



# LKT Laboratories, Inc.

## Tetrodotoxin Citrate

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### Product Information

**Product ID** T1878

**CAS No.** 18660-81-6

**Chemical Name** (1R,5R,6R,7S,9S,11R,13S)-3-Amino-14-(hydroxymethyl)-8,10-dioxo-2,4-diazatetracyclo[7.3.1.1.7,11.01,6]tetradec-2-ene-5,9,12,13,14-pentol

**Synonym** TTX

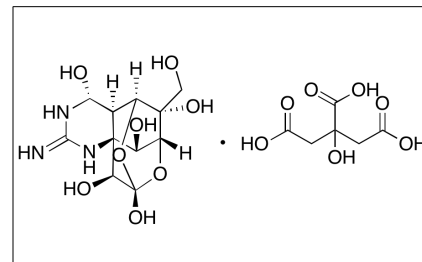
**Formula**  $C_{11}H_{17}N_3O_8 \cdot C_6H_8O_7$

**Formula Wt.** 511.39

**Melting Point**

**Purity**  $\geq 99\%$

**Solubility** Soluble in water.



### Pricing and Availability

**Bulk quantities available upon request**

Product ID	Size	List Price
T1878	1 mg	\$251.50

**Store Temp** 4°C

**Ship Temp** Ambient

**Description** Tetrodotoxin (TTX) is a neurotoxin used in research models that inhibits neuronal voltage-gated Na<sup>+</sup> channels at site 1. TTX can be found in Tetraodontiformes fish such as the puffer fish and ocean sunfish; it exhibits neuromodulatory and analgesic activities. In subjects experiencing cancer pain, TTX decreases reported pain levels. This compound is primarily used to study neuronal transmission and analgesia.

**References** Matson DJ, Hamamoto DT, Bregman H, et al. Inhibition of Inactive States of Tetrodotoxin-Sensitive Sodium Channels Reduces Spontaneous Firing of C-Fiber Nociceptors and Produces Analgesia in Formalin and Complete Freund's Adjuvant Models of Pain. *PLoS One*. 2015 Sep 17;10(9):e0138140. PMID: 26379236.

Eberhardt E, Havlicek S, Schmidt D, et al. Pattern of Functional TTX-Resistant Sodium Channels Reveals a Developmental Stage of Human iPSC- and ESC-Derived Nociceptors. *Stem Cell Reports*. 2015 Sep 8;5(3):305-13. PMID: 26321143.

Puilingi CG, Kudo Y, Cho Y, et al. Tetrodotoxin and Its Analogues in the Pufferfish *Arothron hispidus* and *A. nigropunctatus* from the Solomon Islands: A Comparison of Their Toxin Profiles with the Same Species from Okinawa, Japan. *Toxins (Basel)*. 2015 Aug 26;7(9):3436-54. PMID: 26343722.

Hagen NA, Lapointe B, Ong-Lam M, et al. A multicentre open-label safety and efficacy study of tetrodotoxin for cancer pain. *Curr Oncol*. 2011 Jun;18(3):e109-16. PMID: 21655148.

**Caution:** This product is intended for laboratory and research use only. It is not for human or drug use.