

## DATASHEET

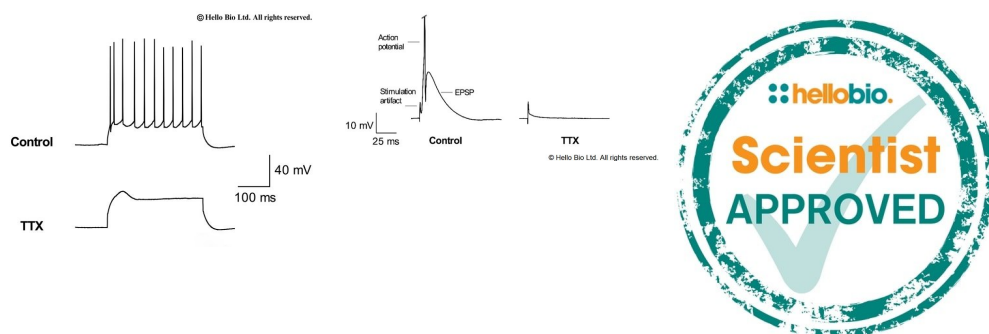
Tetrodotoxin (citrate free)

### Product overview

<b>Name</b>	Tetrodotoxin (citrate free)
<b>Cat No</b>	HB1034
<b>Alternative names</b>	TTX
<b>Biological action</b>	Blocker
<b>Purity</b>	>99%
<b>Special requirements</b>	As this product is a toxin, customers are required to complete a short end user declaration when ordering. Our customer care team will be happy to help you with this.

<b>Customer comments</b>	<p>This is a home office notifiable schedule 5 toxin.</p> <p><i>Just washed the Tetrodotoxin (TTX) on and it works as expected (it inhibits the fibre volley at 1 <math>\mu</math>M).</i> <b>Verified customer, The University of Bristol</b></p>
<b>Description</b>	<p><i>Tetrodotoxin (citrate free) is a wonderful product. Very efficient and very effective in blocking sodium channels.</i> <b>Verified customer, Drexel University College of Medicine</b></p> <p>Potent, selective, use-dependent Na<sup>+</sup> channel blocker. Citrate free.</p>

### Images



### Biological Data

<b>Biological description</b>	Potent, selective and reversible, voltage dependent Na <sup>+</sup> channel blocker. Use dependent. Commonly used in electrophysiological preparations to block or reduce excitability. Water soluble, <b>Tetrodotoxin citrate</b> also available.
<b>Application notes</b>	Tetrodotoxin is commonly used in electrophysiology to block excitability by inhibiting action potential firing within neurons. It is commonly applied at concentrations of 1 $\mu$ M. Tetrodotoxin from Hello Bio works as expected and blocks action potential firing (see Fig 1 and 2 above).

#### #Protocol 1: Effect of TTX citrate on action potentials in mouse cortical neurons

- Whole cell voltage clamp recordings were obtained from layer V pyramidal neurons of the mouse prefrontal cortex brain slice.
- Neurons were held at the resting membrane potential (~ -70 mV) and injected with a 500 pA 300 ms current step to induce action potential firing.
- TTX was bath applied for 10 min first at 100 nM then 300 nM, 1  $\mu$ M and 2  $\mu$ M. After

each drug application a current step was recorded to assess action potential blockade.

#### **#Protocol 2: Effect of TTX citrate on EPSPs and action potential firing in mouse cortical neurons**

- Whole cell voltage clamp recordings were obtained from layer V pyramidal neurons of the mouse prelimbic cortex brain slice.
- Neurons were held at the resting membrane potential (~ -70 mV) and EPSP were evoked by placing a stimulating electrode close to the recorded the neuron in layer II/III.
- EPSPs and action potentials were evoked by single square (150  $\mu$ s) pulse every 10 sec with an intensity that produced both an EPSP and action potential.
- TTX was bath applied for 10 min first at 100 nM then 300 nM, 1  $\mu$ M and 2  $\mu$ M whilst continually evoking and recording EPSP/A.Ps.

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## Solubility & Handling

### Storage instructions Solubility overview Handling

-20°C (desiccate)  
Soluble in acidic buffer (pH 4.8) to 3mM  
This product is soluble to 3mM in an acidic buffer (pH 4.8), e.g. a 0.1M citrate or acetate buffer. Therefore, you can make a buffer solution by dissolving either sodium citrate or sodium acetate in water to a final concentration of 0.1M. You can then adjust the pH via the addition of citric acid, acetic acid or sodium hydroxide to pH 4.8.

### Important

This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not for human or veterinary use

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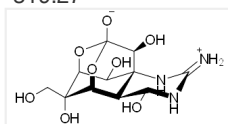
## Chemical Data

### Chemical name

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

### Molecular Weight Chemical structure

319.27



### Molecular Formula

C<sub>11</sub>H<sub>17</sub>N<sub>3</sub>O<sub>8</sub>

### CAS Number

4368-28-9

### PubChem identifier

4490623

### SMILES

C(C1(C2C3C(N=C(NC34C(C1OC(C4O)(O2)O)O)N)O)O)O

### Source

Extracted from fugu

### InChi

InChI=1S/C11H17N3O8/c12-8-13-6(17)2-4-9(19,1-15)5-3(16)10(2,14-8)7(18)11(20,21-4)22-5/h2-7,15-20H,1H2,(H3,12,13,14)

### InChiKey

CFMYXEVDLSLAX-UHFFFAOYSA-N

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## References

### The protective action of tetrodotoxin and (+/-)-kavain on anaerobic glycolysis, ATP content and intracellular Na<sup>+</sup> and Ca<sup>2+</sup> of anoxic brain vesicles.

Gleitz J *et al* (1996) Neuropharmacology 35(12)

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Ono T *et al* (2013) J Nippon Med Sch 80(5)

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### Tetrodotoxin: chemistry, toxicity, source, distribution and detection.

Bane V *et al* (2014) Toxins (Basel) 6(2)

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**PubMedID**

**18243639**

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