

DATASHEET

Tetrodotoxin (citrate free)

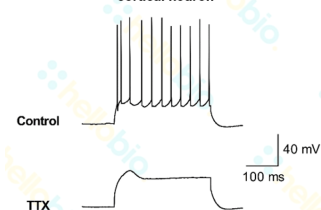
Product overview

Name	Tetrodotoxin (citrate free)
Cat No	HB1034
Description	Potent, selective, use-dependent Na ⁺ channel blocker. Citrate free.
Alternative names	TTX
Biological action	Blocker
Purity	>99%
Special requirements	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.
Customer comments	<i>Just washed the Tetrodotoxin (TTX) on and it works as expected (it inhibits the fibre volley at 1 μM).</i> Verified customer, The University of Bristol

Tetrodotoxin (citrate free) is a wonderful product. Very efficient and very effective in blocking sodium channels. **Verified customer, Drexel University College of Medicine**

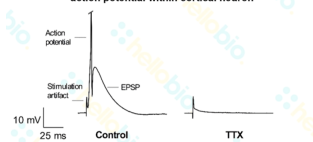
Images

Fig 1: TTX mediated inhibition of action potential firing upon post synaptic current injection in cortical neuron



Tetrodotoxin is commonly used in electrophysiology to block excitability by inhibiting action potential firing within neurons. It is commonly applied at concentrations of 1 μM. Tetrodotoxin from Hello Bio works as expected and blocks action potential firing.
For assay protocol, see #Protocol 1 in Application Notes below.

Fig 2: TTX mediated inhibition of electrically evoked EPSP and action potential within cortical neuron



Tetrodotoxin is commonly used in electrophysiology to block excitability by inhibiting action potential firing within neurons. It is commonly applied at concentrations of 1 μM. Tetrodotoxin from Hello Bio works as expected and blocks action potential firing.
For assay protocol, see #Protocol 2 in Application Notes below.



Biological Data

Biological description

Potent, selective and reversible, voltage dependent Na⁺ channel blocker. Use dependent. Commonly used in electrophysiological preparations to block or reduce excitability. Water soluble, **Tetrodotoxin citrate** also available.

Application notes

Tetrodotoxin is commonly used in electrophysiology to block excitability by inhibiting action potential firing within neurons. It is commonly applied at concentrations of 1 μM. 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 prelimbic 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 μM and 2 μM. After each drug application a current step was recorded to assess action potential

blockade.

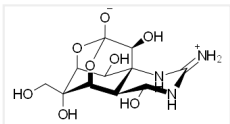
#Protocol 2: Effect of TTX citrate on EPSPs and action potential firing in mouse cortical neurons

- 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 μ 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 μ M and 2 μ M whilst continually evoking and recording EPSP/A.Ps.

Solubility & Handling

Storage instructions	-20°C (desiccate)
Solubility overview	Soluble in acidic buffer (pH 4.8) to 3mM
Important	This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not for human or veterinary use.

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	319.27
Chemical structure	
Molecular Formula	C ₁₁ H ₁₇ N ₃ O ₈
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	CFMYXEVDWDSLAX-UHFFFAOYSA-N

References

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