



## **List of Tetrodotoxins Reference Materials Commercially Available**

European Union Reference Laboratory for Monitoring of Marine Biotoxins (EURLMB)  
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## 9. TETRODOTOXINS

<b>National Research Council Canada, NRC-CNRC</b> 1411 Oxford Street. Halifax, Nova Scotia B3H 3Z1 Canada Tel.: 1-902 426-8281 / Fax: 1-902 426-5426 Email: <a href="mailto:CRM-MRCBiotoxin-Biotoxines@nrc-cnrc.gc.ca">CRM-MRCBiotoxin-Biotoxines@nrc-cnrc.gc.ca</a> // <a href="mailto:CRM-MRCHalifax@nrc-cnrc.gc.ca">CRM-MRCHalifax@nrc-cnrc.gc.ca</a> Website: <a href="https://nrc.canada.ca/en/certifications-evaluations-standards/certified-reference-materials/list">https://nrc.canada.ca/en/certifications-evaluations-standards/certified-reference-materials/list</a>				
Name	Sales Name	Concentration	Amount	Comments
Tetrodotoxin	CRM-TTX	[TTX] = $(6.75 \pm 0.24) \mu\text{g/g}$	0.5 mL	Certified calibration solution of TTX in aqueous 1 mM acetic acid.

<b>Sigma Aldrich</b> Web page: <a href="http://www.sigmaaldrich.com">http://www.sigmaaldrich.com</a>				
Name	Sales Name	Concentration	Amount	Comments
Tetrodotoxin	T8024	Purity (HPLC) $\geq 98\%$	----	White. Powder. Not certified. Soluble in dilute citrate or acetate buffer: 1 mg/mL (dissolve at pH 4-5. Aqueous solutions, pH 4-5, are stable if stored frozen.). Check availability at their website
Tetrodotoxin with citrate buffer	T5651	Purity (HPLC) $\geq 98\%$	Vial contains 1 mg of tetrodotoxin and approx. 5 mg citrate buffer, pH 4.8	Powder. Not certified. Check availability at their website. (pH 4.8)

<b>Enzo Life Sciences</b> Web page: <a href="http://www.enzolifesciences.com">http://www.enzolifesciences.com</a>				
Name	Sales Name	Concentration	Amount	Comments
Tetrodotoxin	BML-NA120-0001	Purity $\geq 98\%$ (HPLC)	1 mg	Soluble in dilute acetic acid (e.g. 1mg/ ml in 10mM HOAc or 10mg/ml in 0.1M HOAc) or in citric acid/sodium citrate buffer, pH 4.8 (e.g. 1mg/ml in 20mM buffer). Do not use alkaline solution.

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<b>Laboratorio Cifga S.A.</b>				
Web page: <a href="https://cifga.com">https://cifga.com</a>				
Name	Sales Name	Concentration	Amount	Comments
Tetrodotoxin, 4,9-anhydro tetrodotoxin and 4-epi tetrodotoxin	CRM-03-TTXs Lote:20-001	[TTX] = (21.0 ± 1.3) µg/g, [4,9-anhTTX] = (5.44 ± 0.40) µg/g, [4epiTTX] = (1.67 ± 0.15) µg/g Purity >97%	13 µg	Amber glass vial (approx. 0.5 ml) Liquid. Aqueous [AcOH] = 1 mM

<b>HelloBio EU Office</b>				
Dunshaughlin Business Park Dunshaughlin, County Meath Republic of Ireland Tel +44(0)117 318 0505 e-mail: <a href="mailto:hello@helloworld.com">hello@helloworld.com</a> Web page: <a href="https://helloworld.com/">https://helloworld.com/</a>				
Name	Sales Name	Concentration	Amount	Comments
Tetrodotoxin	HB1034	Purity ≥99%	1 mg	Soluble in acidic buffer (pH 4.8) to 3mM
Tetrodotoxin citrate	HB1035	Purity ≥99%	1 mg	White or colourless solid. Soluble in water (1 mg/ml)

<b>Fisher scientific</b>				
C/ Anabel Segura, 16. Edif.2. Planta 3 Centro Empresarial Vega Norte 28108 - Alcobendas (Madrid), ESPAÑA Tel :+34 913806710 Website: <a href="https://www.fishersci.es/es/es/home.html">https://www.fishersci.es/es/es/home.html</a>				
Name	Sales Name	Concentration	Amount	Comments
Tetrodotoxin	13187663	Purity ≥99%	1 mg	Soluble in diluted acetic acid, slightly soluble in dry alcohol and ether, practically insoluble in most other common, organic solvents, soluble in acetone

<b>Cayman Europe OÜ</b>				
Akadeemia tee 21/5 12618 Tallinn, Estonia Phone: 372 670 37 37 ; 372 670 32 32 e-Mail: <a href="mailto:info@caymaneuropa.com">info@caymaneuropa.com</a> Web page: <a href="https://www.caymanchem.com/">https://www.caymanchem.com/</a>				
Name	Sales Name	Concentration	Amount	Comments
TTX citrate	14964	Purity ≥98%		Citrate Buffer (pH 4.8): 30 mg/ml (100 mM)

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<b>Carl Roth</b> Phone: +49 721 5606 - 0 E-Mail: <a href="mailto:info@carloth.com">info@carloth.com</a> Web page: <a href="https://www.carloth.com/com/en">https://www.carloth.com/com/en</a>				
Name	Sales Name	Concentration	Amount	Comments
Tetrodotoxin	6973.1	Purity ≥99% citrate-free	1 mg	

<b>Bio-Techne Ltd</b> 19 Barton Lane Abingdon Science Park Abingdon OX14 3NB United Kingdom Phone 1:0800 37 34 15 (free phone) Phone 2:+44 1235 529449 Email: <a href="mailto:info.emea@bio-techne.com">info.emea@bio-techne.com</a> Web page: <a href="https://www.bio-techne.com">https://www.bio-techne.com</a>				
Name	Sales Name	Concentration	Amount	Comments
Tetrodotoxin citrate	1069/1	Purity ≥98% (HPLC)	1 mg	

<b>Biosynth</b> Phone: +44 (0)1635 578444 Email: <a href="mailto:sales@biosynth.com">sales@biosynth.com</a> Web page: <a href="https://www.biosynth.com">https://www.biosynth.com</a>				
Name	Sales Name	Concentration	Amount	Comments
Tetrodotoxin citrate free	FT29063	Purity ≥95%	1 mg	

<b>Biomol GmbH</b> Kieler Straße 303a 22525 Hamburg Germany Phone: +49 (0)40 8532600 0800 2466651 Toll-free in Germany Email: <a href="mailto:info@biomol.com">info@biomol.com</a> Website: <a href="https://www.biomol.com/">https://www.biomol.com/</a>				
Name	Sales Name	Concentration	Amount	Comments
Tetrodotoxin (citrate free)	Cay14963-1	≥98%	1 mg	Is supplied as a solid. TTX is soluble in citrate buffer pH 4.8 at a concentration of approximately 3mM.
4,9-Anhydrotetrodotoxin	Cay19084-100	≥98%	100µg	Is supplied as a solid. Is soluble in organic solvents such as ethanol. It is also soluble in water. The solubility in ethanol and water is approximately 5 and 1 mg/ml.