

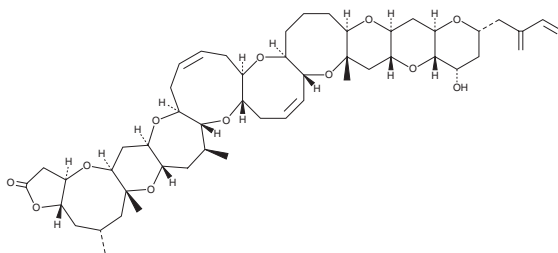
PRODUCT INFORMATION



Brevetoxin A

Item No. 45073

CAS Registry No.: 98112-41-5
Synonyms: GB-1 Toxin, PbTx-1, *Ptychodiscus brevis* Toxin 1
MF: $C_{49}H_{70}O_{13}$
FW: 867.1
Purity: $\geq 95\%$
Supplied as: A film
Storage: -20°C
Stability: ≥ 4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Brevetoxin A is supplied as a film. A stock solution may be made by dissolving the brevetoxin A in the solvent of choice, which should be purged with an inert gas. Brevetoxin A is soluble in methanol, ethanol, and DMSO.

Description

Brevetoxin A is a neurotoxin produced by the dinoflagellate *K. brevis*.¹ It has been found in water samples collected during red tide blooms.^{1,2} Brevetoxin A is an activator of voltage-gated sodium channels (Na_v) that binds to neurotoxin site 5 on the α subunit of the channel.² Brevetoxins reduce the activation potential required to open the channel, increase the mean open time of the channel, and slow inactivation of the channel.³ It increases intracellular calcium levels in primary rat cerebellar granule cells ($\text{EC}_{50} = 19.6 \text{ nM}$).² Brevetoxin A induces the release of lactate dehydrogenase (LDH), L-glutamate, and L-aspartate from primary rat cerebellar granule neurons ($\text{EC}_{50}\text{s} = 8.65, 7.57, \text{ and } 7.91 \text{ nM}$, respectively).⁴ It is lethal to fish ($\text{LC}_{100} = 4 \text{ ng/ml}$ in guppies) and mice ($\text{LD}_{50} = 0.5 \text{ mg/kg}$, i.p.).^{1,5}

References

1. Pierce, R.H. and Henry, M.S. Harmful algal toxins of the Florida red tide (*Karenia brevis*): Natural chemical stressors in South Florida coastal ecosystems. *Ecotoxicology* **17**(7), 623-631 (2008).
2. LePage, K.T., Baden, D.G., and Murray, T.F. Brevetoxin derivatives act as partial agonists at neurotoxin site 5 on the voltage-gated Na^+ channel. *Brain Res.* **959**(1), 120-127 (2003).
3. Stevens, M., Peigneur, S., and Tytgat, J. Neurotoxins and their binding areas on voltage-gated sodium channels. *Front. Pharmacol.* **2**, 71 (2011).
4. Berman, F.W. and Murray, T.F. Brevetoxins cause acute excitotoxicity in primary cultures of rat cerebellar granule neurons. *J. Pharmacol. Exp. Ther.* **290**(1), 439-444 (1999).
5. Shimizu, Y., Chou, H.N., Bando, H., et al. Structure of brevetoxin A (GB-1 toxin), the most potent toxin in the Florida red tide organism *Gymnodinium breve* (*Ptychodiscus brevis*). *J. Am. Chem. Soc.* **108**(3), 514-515 (1986).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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