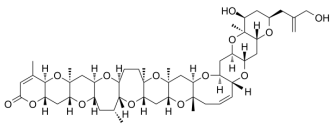
Brevetoxin-3

Cat. No.:	HY-12545
CAS No.:	85079-48-7
Molecular Formula:	$C_{50}H_{72}O_{14}$
Molecular Weight:	897.1
Target:	Sodium Channel
Pathway:	Membrane Transporter/Ion Channel
Storage:	Powder -20°C 3 years In solvent -80°C 6 months -20°C 1 month



BIOLOGICAL ACTIVITY

Description	Brevetoxin-3 (PbTx-3) is a potent allosteric voltage-gated Na^+ channel activator and has multiple active centers (A-ring lactone, C-42 of R side chain)[1]. Brevetoxin-3 (PbTx-3) has a high affinity to site 5 of the voltage-sensitive Na^+ channels, inhibits the inactivation of Na^+ channels and prolongs the mean open time of these channels. Brevetoxin-3 (PbTx-3) repeated exposures can lead to prolonged airway hyperresponsiveness (AHR) and lung inflammation[2].
IC_{50} & Target	IC50: voltage-gated Na^+ channel[1]
In Vitro	Brevetoxin-3 (PbTx-3)(30-500 nM) produces a shift in activation to more negative membrane potentials whereby single-channel activity is observed under steady-state conditions (maintained depolarization at -50 mV)[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Brevetoxin-3 (PbTx-3)(intratracheal instillation; 2.8 μg/kg; gestational days 15-18) radioactivity is detected in placentas and fetuses within 0.5 hours. Concentrations of brevetoxin equivalents in fetuses are approximately 0.3 ng/g throughout the 48-h post-dosing, resulting in a calculated dose to fetuses of 19 ng/gh. Following brevetoxin infusion, concentration of brevetoxin equivalents in fetuses is 0.1 ng/g, lower than that present in most maternal tissues[3]. . MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Pregnant CD-1 mice[3]
Dosage:	2.8 μg/kg
Administration:	Intratracheal instillation; 2.8 μg/kg; gestational days 15–18
Result:	Demonstrated placental transport of brevetoxin or its metabolites following maternal acute exposure.

REFERENCES

[1]. Jeglitsch G,et al. Brevetoxin-3 (PbTx-3) and its derivatives modulate single tetrodotoxin-sensitive sodium channels in rat sensory neurons.J Pharmacol Exp Ther. 1998 Feb;284(2):516-25.

[2]. Zaias J,et al. Repeated exposure to aerosolized brevetoxin-3 induces prolonged airway hyperresponsiveness and lung inflammation in sheep.Inhal Toxicol. 2011 Mar;23(4):205-11.

[3]. Benson JM, et al. Placental transport of brevetoxin-3 in CD-1 mice.Toxicon. 2006 Dec 15;48(8):1018-26. Epub 2006 Aug 18.

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