ProTx-III

Cat. No.:	HY-P5153
Molecular Formula:	$C_{162}H_{246}N_{52}O_{43}S_6$
Molecular Weight:	3802.4
Sequence:	Asp-Cys-Leu-Lys-Phe-Gly-Trp-Lys-Cys-Asn-Pro-Arg-Asn-Asp-Lys-Cys-Cys-Ser-Gly-Leu-Lys-Cys-Gly-Ser-Asn-His-Asn-Trp-Cys-Lys-Leu-His-Ile-NH2 (Disulfide bonds: Cys2-Cys17, Cys9-Cys22, Cys16-Cys29)
Sequence Shortening:	DCLKFGWKCNPRNDKCCSGLKCGSNHNWCKLHI (Disulfide bonds: Cys2-Cys17, Cys9-Cys22, Cys16-Cys29)
Target:	Sodium Channel
Pathway:	Membrane Transporter/Ion Channel
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.

BIOLOGICAL ACTIVITY

Description	ProTx-III is a selective and potent inhibitor of voltage-gated sodium channel $Na_v1.7$, with an IC_{50} of 2.1 nM. ProTx-III is a spider venom peptide isolated from the venom of the Peruvian green velvet tarantella. ProTx-III has a typical inhibitor cystine knot motif (ICK). ProTx-III is able to reverse the pain response. ProTx-III can be used to study diseases such as chronic pain, epilepsy, and arrhythmia[1].
IC_{50} & Target	$Na_v1.7$ 2.1 nM (IC_{50})
In Vitro	ProTx-III in native, recombinant and synthetic C-terminal acid and amide forms inhibit hNaV1.7 with IC_{50}s of 2.1, 9.5, 11.5 and 2.5 nM, respectively[1]. .ProTx-III inhibits hNav1.7 without significantly altering the voltage dependence of activation or inactivation[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	ProTx-III (0.01-1 μM; intraplantar injection) can proves to be analgesic by reversing spontaneous pain induces in mice by intraplantar injection in OD1 in mouse model[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	OD1-induced mouse model of pain(300Nm; intraplantar injection)[1]
Dosage:	100 nM, 300 nM, 1μM
Administration:	intraplantar injection
Result:	Showed at 1 μM (40 pmoles in a 40 μl injection) and 300 nM (12 pmoles in a 40 μl injection) significantly reduced spontaneous pain behaviour in a concentration dependent manner and this reduction in pain behaviour persisted for 25 min after injection of the highest concentration.

REFERENCES

[1]. Cardoso FC, et al. Identification and Characterization of ProTx-III [μ-TRTX-Tp1a], a New Voltage-Gated Sodium Channel Inhibitor from Venom of the Tarantula Thrixopelma pruriens. Mol Pharmacol. 2015 Aug;88(2):291-303.

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