

# Neosaxitoxin as a local anesthetic: Preliminary observations from a first human trial

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**BACKGROUND:** Neosaxitoxin is a phycotoxin that reversibly blocks the voltage-gated sodium channels at the neuronal level. Its activity results in blocking the axonal conduction, stopping the propagation of the nerve impulse. The objective of the present work was to evaluate neosaxitoxin as a local anesthetic in a human trial. **METHODS:** The authors conducted a randomized, double-blind, placebo-controlled trial with 10 healthy volunteers. Subcutaneous injections were made in the middle posterior skin of the calf: one leg received 50  $\mu$ g neosaxitoxin, and the contra-lateral leg received placebo. The anesthetic effect was evaluated using a standardized human sensory and pain model. TSA II Neurosensory Analyzer (Medoc Ltd, Minneapolis, MN) and von Frey technique were used to evaluate five parameters: sensory threshold for warm and cold, pain thresholds for heat and cold, and mechanical touch perception threshold. Measurements were made 0, 1, 3, 6, 9, 12, 16, 24, and 48 h after the injections.