



Oct 18, 2021

🌐 Recordings of cervical vagus nerve activity

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dx.doi.org/10.17504/protocols.io.yxhfxj6**SPARC**Tech. support email: info@neuinfo.org

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The goal of this work is to evaluate laterality of vagus nerve efference evoked by unilateral auricular branch of the vagus nerve (ABVN) stimulation by performing bilateral recordings of cervical vagus nerve activity (CVNA).

DOI

dx.doi.org/10.17504/protocols.io.yxhfxj6

Vitaly Napadow, Ilknur Ay, Catherine Morello 2021. Recordings of cervical vagus nerve activity. **protocols.io**

<https://dx.doi.org/10.17504/protocols.io.yxhfxj6>

electrophysiology, vagus nerve, Wistar rat, stimulation

 protocol ,

Mar 07, 2019

Oct 18, 2021

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These experiments were performed using hook electrodes, which were fabricated in-house. These electrodes consisted of a twisted pair of 150- μ m Diamel-insulated nichrome microwires. A portion of uninsulated electrode, that formed each hook, was secured in place around the de-sheathed vagus nerve and the entire assembly was embedded with Kwik-Sil. Leads from the microwire electrode assembly were connected to Microdot Mininoise coaxial shielded cables, which were then fed to a DAM50 WPI pre-amplifier wherein the signal was amplified and bandpass filtered (100 Hz – 1 kHz). Data was recorded using a PowerLab 4/35 16/30 (ADInstruments) at a rate of 200 kS/s and processed offline using LabChart (v. 8) software.

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- 1 Ten-to-12 week old male and female Wistar rats ranging in weight from 232-400g were anesthetized.
- 2 Stimulation was delivered to cymba and cavum conchae using a Grass S48 stimulator in conjunction with a Grass stimulus isolation unit and constant current unit stimulator.
- 3 CVNA was recorded using hook electrodes from the right and/or left cervical vagus nerve in response to left auricular vagus nerve stimulation.

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- 4 ABVN stimulation protocol was as follows: three 0.5mA trains of stimulation (1Hz, 0.5ms) repeated at every 5min followed by three 1mA trains of stimulation (1Hz, 0.5ms) repeated at every 5 min. Parameters for ABVN stimulation included a series of 5 stimulus pulse trains, with each pulse consisting of a 0.5 mA current intensity, 0.5 ms pulse width, and delivered at a frequency of 20Hz.