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VTA and PnO Viral Injections With Optic Fiber Implantation



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We use this protocol and it's working



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Abstract

This protocol describes stereotaxic viral injections into VTA and/or PnO followed by implantation of optical fibers in the same surgical session. Implants are fixed using dental cement. No skull screws are used for the fiber implant headcap.

Materials

- All materials listed in the injections-only protocol.
- Optical fibers and ferrules appropriate for the experiment (e.g., 200 μm NA 0.39 or 400 μm NA 0.66).
- Dental cement for implant fixation (no skull screws).
- Patch cords and mating sleeves for later behavioral and recording sessions.

Step-by-Step Procedure

- 1 Induce and maintain isoflurane anesthesia (3–4% induction; 1.0–1.5% maintenance). Place the mouse in the stereotaxic frame on a 37 C heating pad.
- 2 Expose and level the skull. Drill craniotomies for VTA and/or PnO injections and for the planned implant target(s).
- 3 Perform viral injections into VTA and/or PnO at the specified coordinates using slow infusion and a brief post-injection dwell time before retraction.
- 4 Prepare optical fiber(s) for implantation.
- 5 Implant the fiber(s) to the target depth: either bilateral PnO fibers using a 15 degree lateral approach (DV -4.25 mm) or a VTA fiber above VTA (DV -4.00 mm), depending on the experiment.
- 6 Verify implant position and stability.
- 7 Fix the fiber implant(s) using dental cement (no skull screws) and allow cement to fully cure.
- 8 Close any remaining exposed scalp margins around the implant base as appropriate.
- 9 Monitor until recovery from anesthesia and provide post-operative care.