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Validating Responsiveness of AAV-DIO-hM3Dq-DREADD

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ABSTRACT

To confirm responsiveness of AAV-DIO-hM3Dq-DREADD in DAT^{IRESCre} mice. Activation of DREADD receptors in dopamine neurons with CNO should induce a robust increase in locomotion.

MATERIALS

- DAT^{IRESCre} mice bilaterally injected in the midbrain with AAV-DIO-hM3Dq-DREADD
- Med Associates wireless activity wheels (ENV-047)
- Med Associates Hub (DIG-807)
- Med Associates software (SOF-860)
- Clozapine-n-oxide (CNO; Tocris 4936-MTO)
- Sterile saline

OPEN ACCESS



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We use this protocol and it's working

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Preparation

- 1 Mice should be at least two-weeks post-surgery.
- 2 Habituate mice to wireless running wheels in individually-housed cages.
 - 2.1 See Victoria Vance, Katerina Rademacher, Ken Nakamura 2023. Behavior Tracking with Running Wheels. protocols.io <https://protocols.io/view/behavior-tracking-with-running-wheels-cymrxu56>
- 3 Prepare CNO for IP injection.
 - 3.1 0.5mg/kg CNO dissolved in sterile saline, 500μL volume per mouse.
 - 3.2 Prepared fresh the day of injection.

Procedure

- 4** Note: All injections should be performed at the same time of day, at least 2–3 hours before the dark cycle.
- 5** Day 1: IP inject mice with 500 μ L of sterile saline.
- 6** Day 2: IP inject mice with 500 μ L CNO.
- 7** Day 3 or 4: IP inject mice again with 500 μ L CNO.
- 8** Responders increase their running wheel activity in the 10-60min following IP injection of CNO. Exclude mice that do not respond to IP CNO from further analysis.