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Rating of levodopa-induced dyskinesia in 6-OHDA lesioned mice

 Forked from [Levodopa-induced dyskinesia mouse model](#)

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Protocol status: Working

We use this protocol and it's working



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Abstract

This protocol describes scoring of abnormal involuntary movements (AIMs), the behavioral manifestation of levodopa-induced dyskinesia, in 6-OHDA lesioned mice.

Materials

Video camera

Clean cage bottoms

L-3,4-Dihydroxyphenylalanine methyl ester hydrochloride (levodopa) (Sigma Aldrich)

Benserazide hydrochloride (Sigma Aldrich)

Sterile insulin syringes

Timer

Before start

Generate unilateral 6-OHDA lesioned mice and verify the success of lesioning with the cylinder test.



Dyskinesia: Abnormal Involuntary Movements (AIMs) score

2h 43m

- 1 Dyskinesia is assessed using the Abnormal Involuntary Movement score (AIMs) (Cenci and Lundblad, 2007).

Citation

Cenci MA, Lundblad M (2007)

. Ratings of L-DOPA-induced dyskinesia in the unilateral 6-OHDA lesion model of Parkinson's disease in rats and mice.

<https://doi.org/10.1002/0471142301.ns0925s41>

[LINK](#)

- 2 Set up behavior room:
 - Place empty, clean cage bottoms (without bedding material) with at least 30 cm in between.
 - Set up video camera.
- 3 Habituate the mice by bringing their home cage(s) to the behavior room and leaving it undisturbed for at least 30 minutes.
- 4 Prepare fresh levodopa solution by dissolving 6 mg or 12 mg levodopa (L-3,4-Dihydroxyphenylalanine methyl ester hydrochloride) and 12 mg benserazide hydrochloride in 10 ml sterile saline. This solution is to be used within 40 min.
- 5 Weigh the first mouse.
- 6 Perform intraperitoneal (i.p.) injection of levodopa (6.0 mg/kg for the first two sessions and 12.0 mg/kg for later sessions) plus 12 mg/kg of benserazide in the first mouse. Place the mouse in a clean cage bottom labeled with its ID. Start the timer. 1m
- 7 After 1 min, inject the second mouse and place it in its labeled cage bottom. Repeat until all mice are injected.
- 8 00:20:00 after the first injection, videotape and score the first mouse for 21m
 00:01:00 . Repeat for all the mice.
Score for each of the three body segments: axial, limb, and orolingual AIMs. The AIM scale ranges from 0 to 4 for each body segment during a 1-minute period.



For each segment:

- 0 = normal movement.
- 1 = abnormal movement for <50% of the time.
- 2 = abnormal movement for >50% of the time.
- 3 = abnormal movement for the entire period but can be interrupted by external stimuli (e.g. tapping on the cage wall).
- 4 = continuous, unsuppressible abnormal movement.

Half scores (e.g. 1.5, 2.5, 3.5) are possible.

- 9 Repeat Step 8 every  00:20:00 for a total period of  02:00:00 (There must be videos recorded at 20 min, 40 min, 60 min, 80 min, 100 min and 120 min time points for each mouse).

2h 20m

- 10 Return the mice to their home cage(s).

- 11 AIM scoring is performed every other day for a total of five sessions.

Protocol references

Cenci, M.A. & Lundblad, M. Ratings of L-DOPA-induced dyskinesia in the unilateral 6-OHDA lesion model of Parkinson's disease in rats and mice. *Curr Protoc Neurosci* **Chapter 9**, Unit 9 25, doi:10.1002/0471142301.ns0925s41 (2007).

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Citations

Step 1

Cenci MA, Lundblad M. Ratings of L-DOPA-induced dyskinesia in the unilateral 6-OHDA lesion model of Parkinson's disease in rats and mice.

<https://doi.org/10.1002/0471142301.ns0925s41>