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Amphetamine-Induced Rotational Behavior Assay in Mice

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SOX6 mDA differentiation

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Protocol status: Working
We use this protocol and it's working

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Abstract

This protocol was used to assess hemiparkinsonism on mice for further grafting.

Protocol materials

D-amphetamine hemisulphate **Cayman Chemical Company** **Catalog #**26204

Troubleshooting

Drug Preparation

1 Prepare fresh **d-amphetamine solution** [M] 0.5 mg/mL

D-amphetamine hemisulphate **Cayman Chemical Company** **Catalog #**26204 in sterile saline at a concentration appropriate for a **5 mg/kg dose** based on mouse body weight. Keep On ice until use.

Intraperitoneal Injection

2 Inject each mouse **intraperitoneally (IP)** with **5 mg/kg d-amphetamine solution**. Use standard sterile technique and ensure accurate dosing.

Behavioral Recording

40m

3 Allow the mouse to rest for **10 minutes post-injection** in its home cage or a holding cage.

10m

4 After the 10-minute wait, place the mouse into a 15 cm-wide cylindrical arena, under **dark or dim-light** conditions and **quiet environment** to minimize stimuli.

5 Track and analyze behavior using EthoVision XT 17 for **30 minutes**:

30m

- Define active movement as body center velocity >0.5 cm/s.
- Define the pipeline to capture number of clockwise and counterclockwise rotation, and time of active movement. *Using active movement reduces the chance of false negatives due to lack of movement.*

Data Analysis

6 Calculate **net ipsilateral rotations per minute** by substracting contralateral from ipsilateral rotational count and dividing per time of active movement.

7 Record each mouse's ID, weight, injection time, and behavioral results in a logbook or digital database for longitudinal tracking.