

## TEST OF WAITING ABILITY IN A T-MAZE IN JUVENILE RATS

Key-words: Attention Deficit/Hyperactivity Disorder (ADHD), Impulsivity, Juvenile, Children

The test of waiting ability in a T-maze measures **impulsive-related behavior** in rats <sup>(1,2)</sup>.

**Rationale** – Attention Deficit/Hyperactivity Disorder (ADHD) is a neurobehavioral disorder affecting mainly children. Impulsivity is a core symptom of ADHD. In the present test, impulsivity is assessed by juvenile animals' tolerance to a delay of reward. A drug which increases the tolerance to delay may decrease impulsivity in ADHD.

**Method** – Juvenile male Wistar rats are subjected to 5-trials sessions in a T-maze during which they are allowed to choose between a small reward (1 food pellet) delivered immediately and a large-but-30-s delayed reward (5 pellets). Testing is conducted over six sessions. Placebo is administered before the first two sessions and before the last two sessions (control sessions) and the drug studied is administered before the two intermediate sessions (drug sessions).

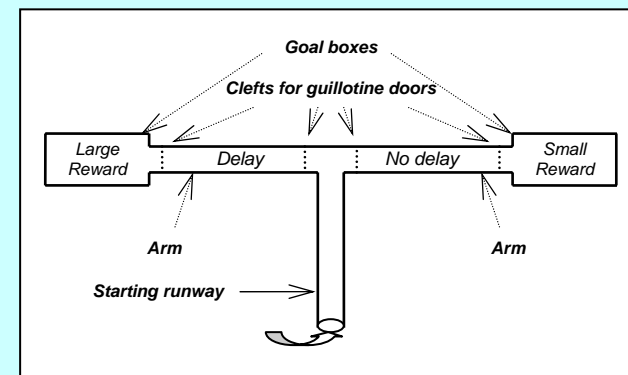
- **The index of impulsivity** is the percentage of choice of the large-but-delayed reward. An increase in the percentage of choice of the large-but-delayed reward indicates a decrease in impulsivity.

### Example

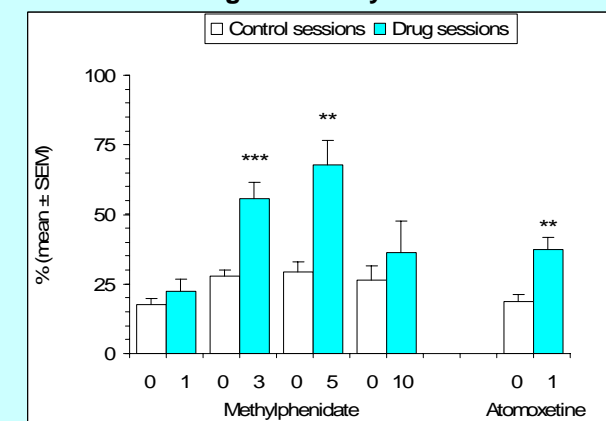
**Methylphenidate and atomoxetine, two reference compounds for the treatment of ADHD, increase the percentage of choice of the large-but-delayed reward, i.e. decrease impulsivity.**

- References;**
1. Bizot et al, J. Pharmacol Exp. Ther. 246:1144-1151, 1988
  2. Bizot et al, Psychopharmacology in press, 2007

Schema of the T-maze



Effects of methylphenidate and atomoxetine (doses in mg/kg) on the percentage of choice of the large-but-delayed reward



Difference vs. Control session: \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$