

Introduction

Harvard Medical School (HMS) and Brigham and Women's Hospital (BWH) have established a state-of-the-art Mouse Behavior Core (MBC) available to all members of the research community. The MBC is outfitted with multiple rooms of equipment for behavioral testing in mice. Available assays include models of anxiety, depression, learning and memory, attention, social interaction, motor activity and coordination, and a 24 hr/day system that monitors locomotor activity, food intake, and metabolic measures. The surgical suite is outfitted with two stereotaxic frames. Housing is available in an adjacent vivarium.

Behavioral Tests

Anxiety-Related Behavior

Elevated Plus Maze
Light Dark Exploration
Novelty Suppressed Feeding
Open Field

Depression/Stress

Forced Swim
Tail suspension

Motor Function

Locomotor Activity
Rotarod
Grip Strength
Pole Climbing
Wire Hanging
GaitScan (TreadScan and RunwayScan)

Learning and Memory

Operant Learning
Radial Arm Maze
Morris Water Maze
Water T-Maze
Contextual and Cued Fear Conditioning
Y-Maze Spontaneous Alternation
Spatial Novelty Y Maze
Novel Object Recognition

Sensorimotor Gating

Acoustic Startle/Prepulse Inhibition

Physiological Tests

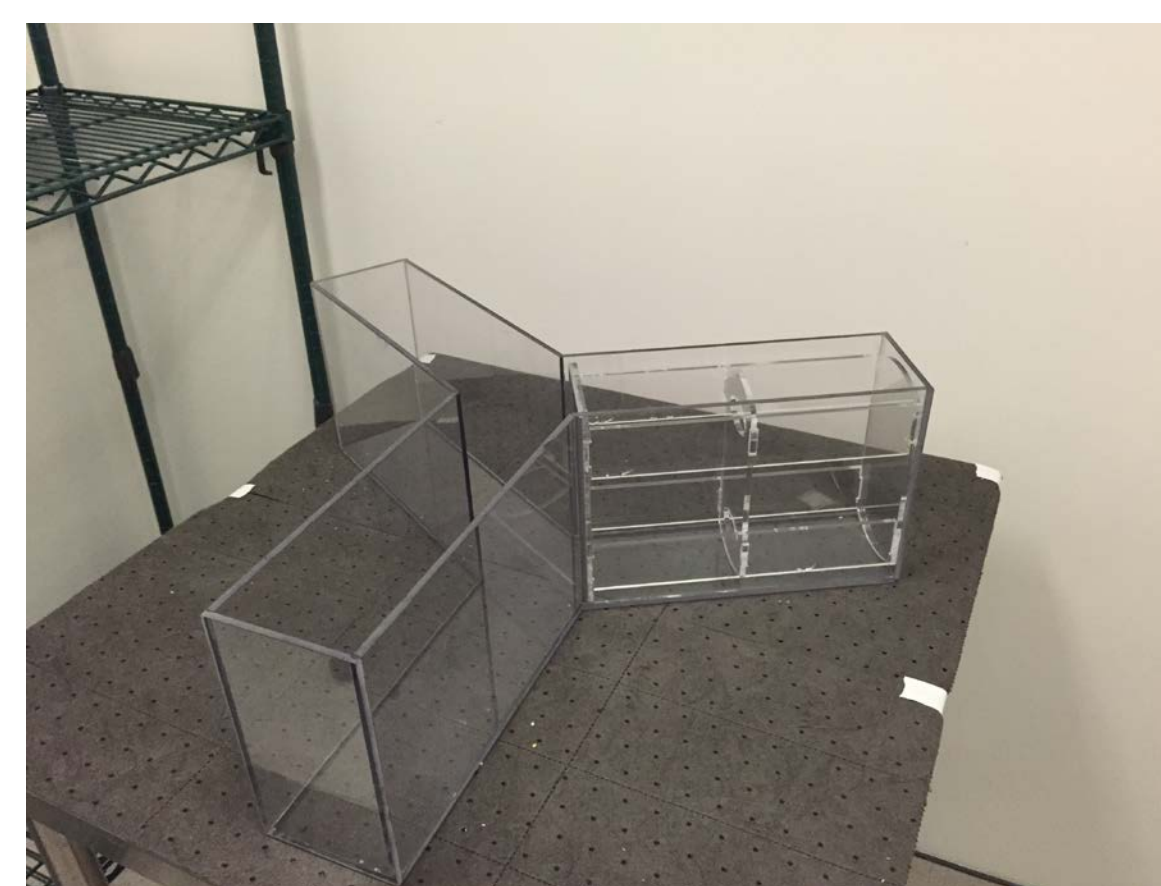
CLAMS

Social Behavior

3-Chamber Social Interaction
Tube Test of Social Dominance

Examples of Assays in the MBC

Spatial Novelty Y Maze



Contextual and Cued Fear Conditioning



Morris Water Maze



Water T Maze



Locomotor Activity



Rotarod



Grip Strength



TreadScan



CLAMS



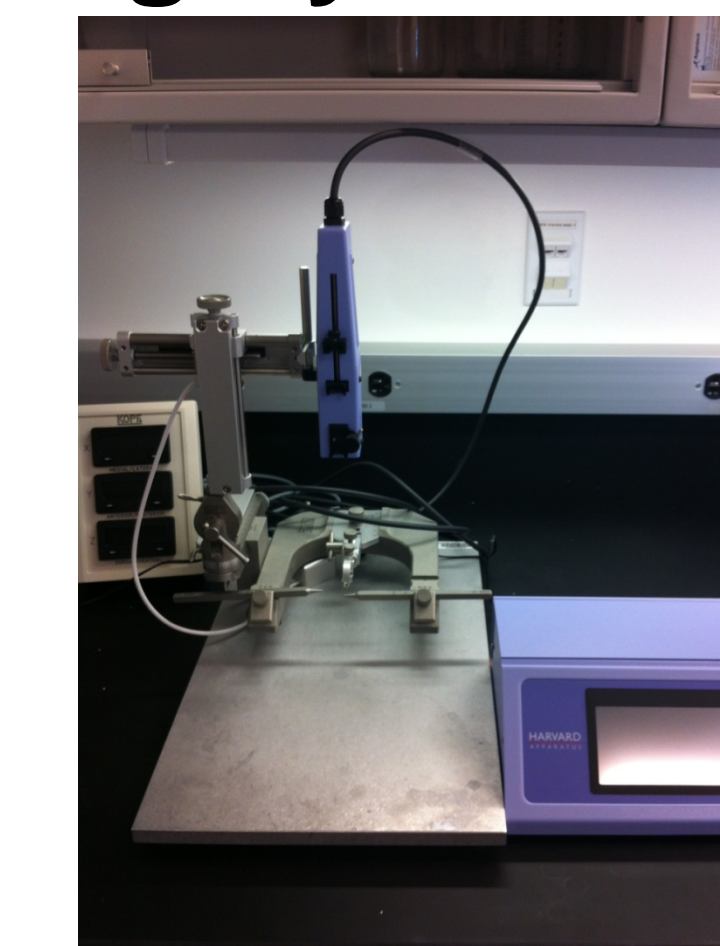
Elevated Plus Maze



3 chamber social interaction



Surgery/Necropsy



Working with the MBC

The MBC provides:

- Consultation services for the design and analysis of behavioral studies
- Training in the operation of equipment for investigators who perform their own studies
- Full service with studies and data analyses performed by the MBC staff
- Assistance in developing new behavioral tests

The following is required to work in the MBC:

1. Consultation with the MBC director regarding the goals and scope of the study
2. Completed AALAS training, Occupational Health clearance, and IACUC approval for each behavioral test
3. A PO or fund number for billing
4. Approval for internal and external mouse transfers
5. Access to the MBC facility
6. Training with MBC staff
7. Room reservations for behavioral testing

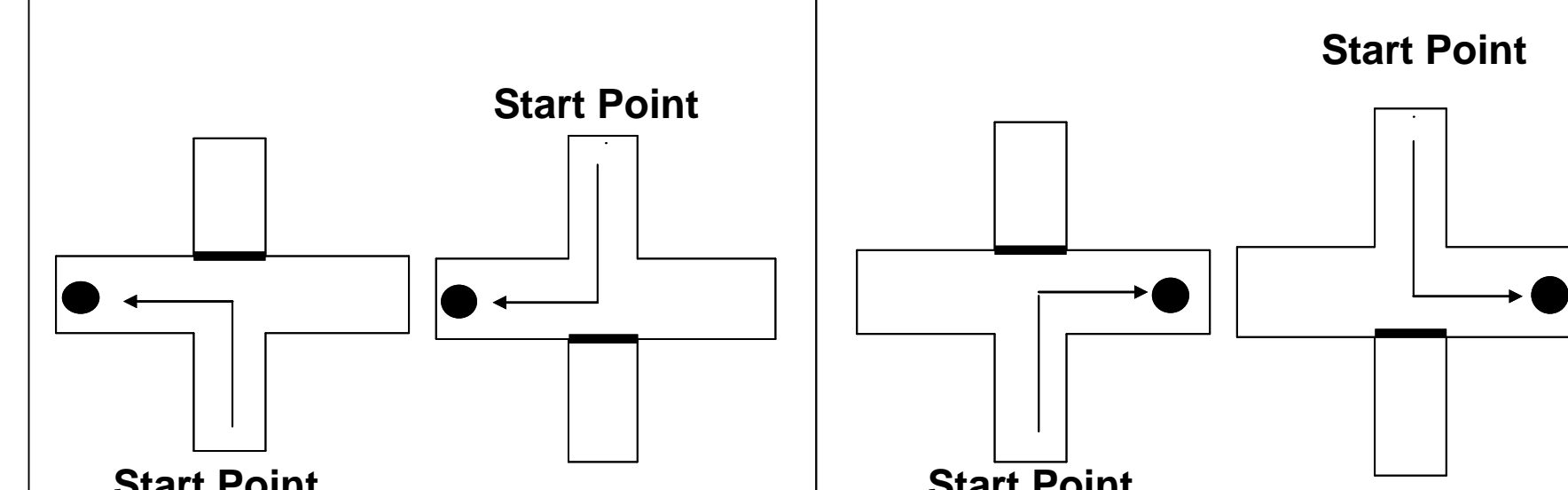
J20 Mouse Model of Alzheimer's Disease Shows Impaired Spatial Learning and Memory in the Water T Maze

Spatial Learning and Memory in the Water T-Maze

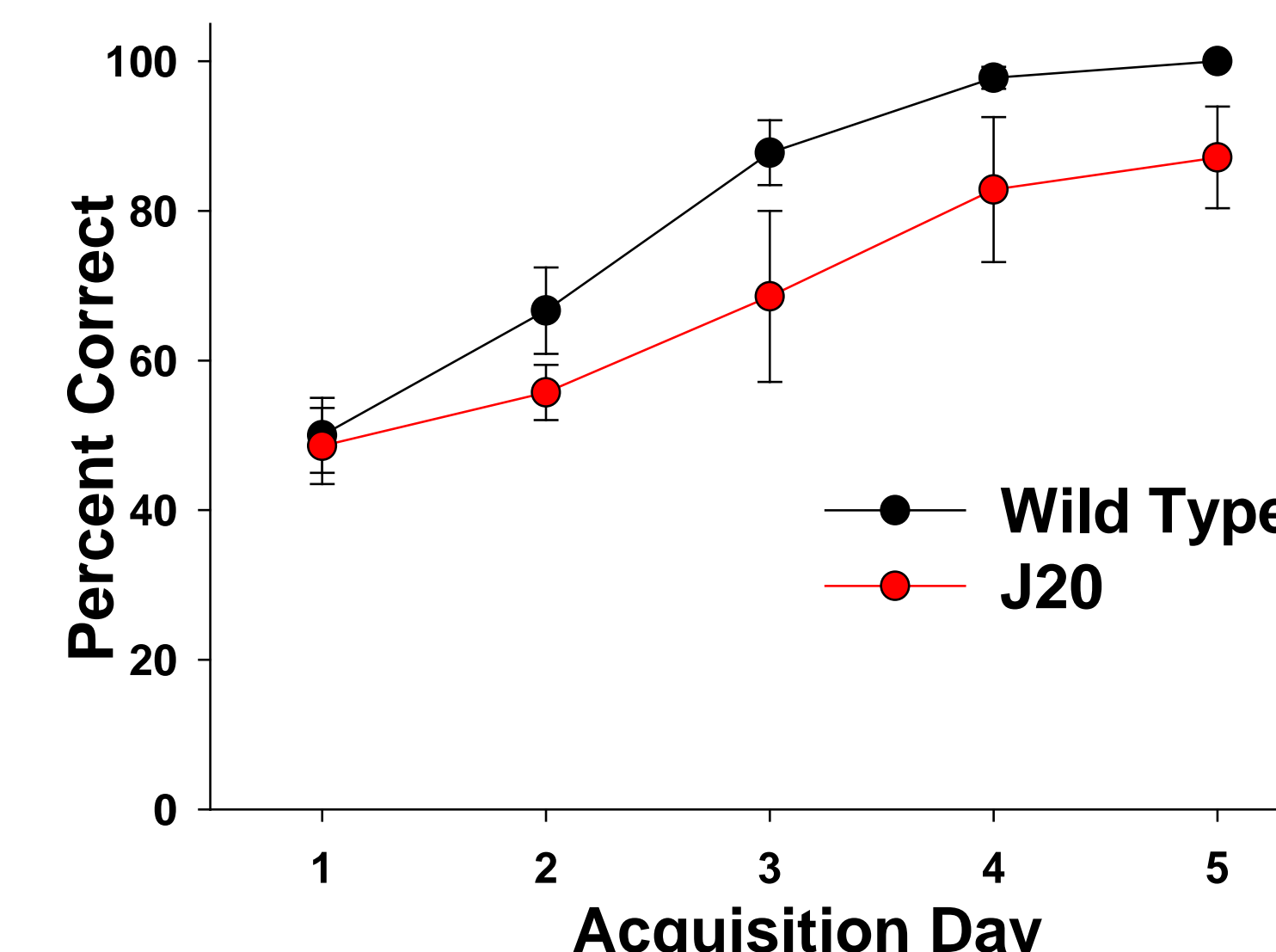
Mouse must find hidden platform submerged in water relative to visible cues in the room

Acquisition:
• platform remains in same location
• 2 start points
• 10 trials/day
• percent correct responses averaged over 10 trials

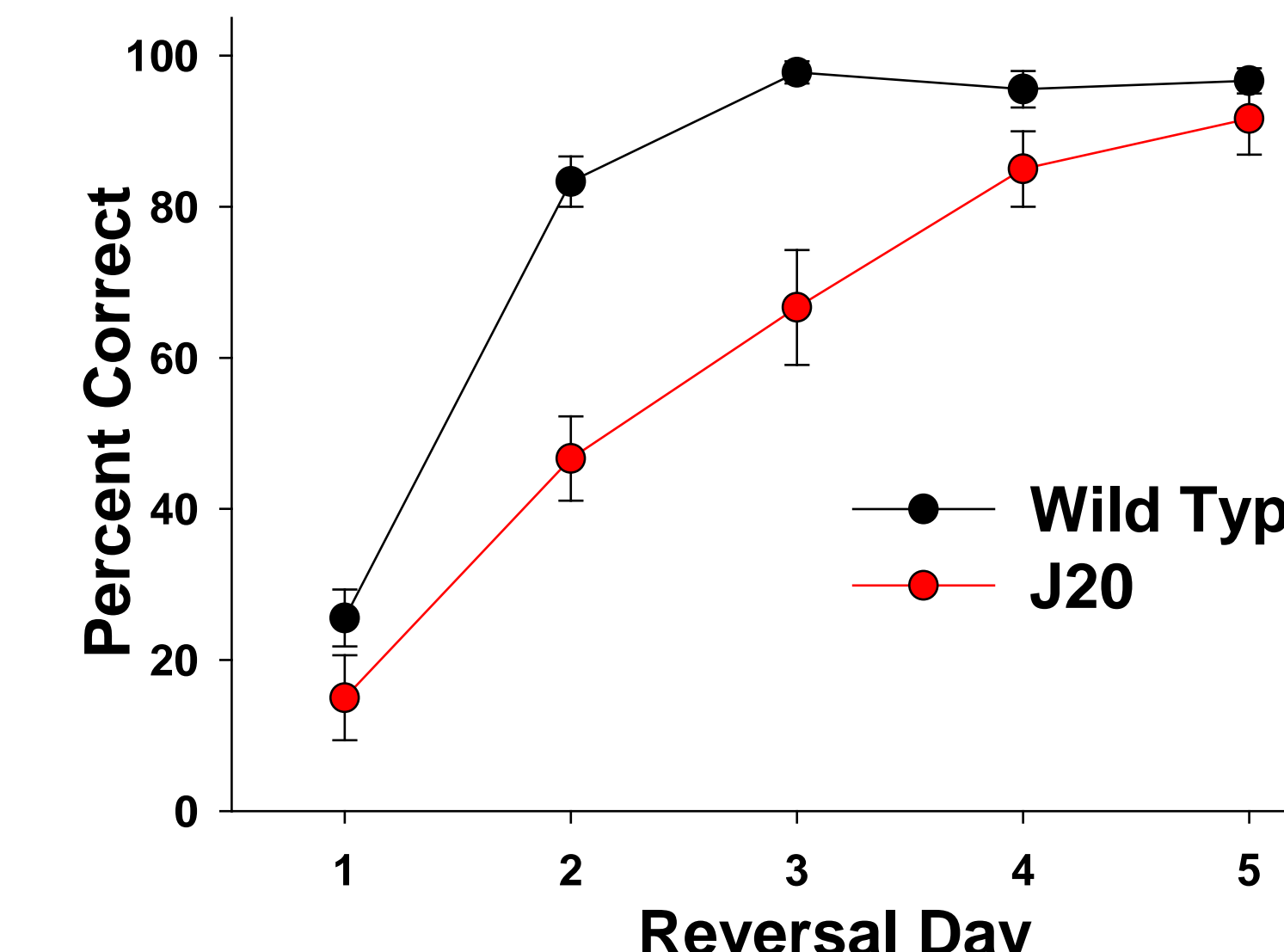
Reversal:
• platform moved to opposite location
• 2 start points
• 10 trials/day
• percent correct responses averaged over 10 trials



Acquisition



Reversal



Contact the MBC for additional information

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