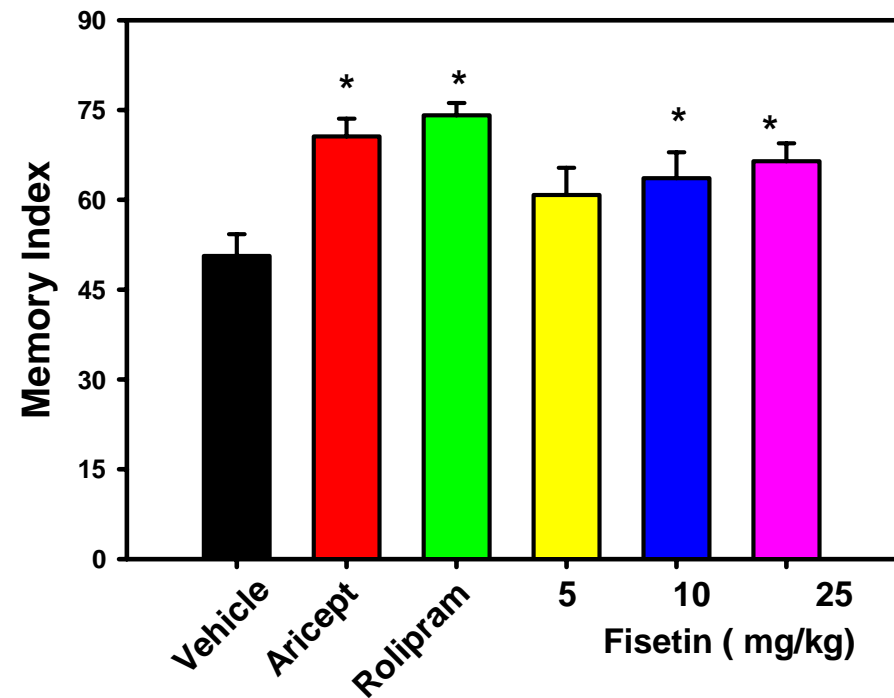
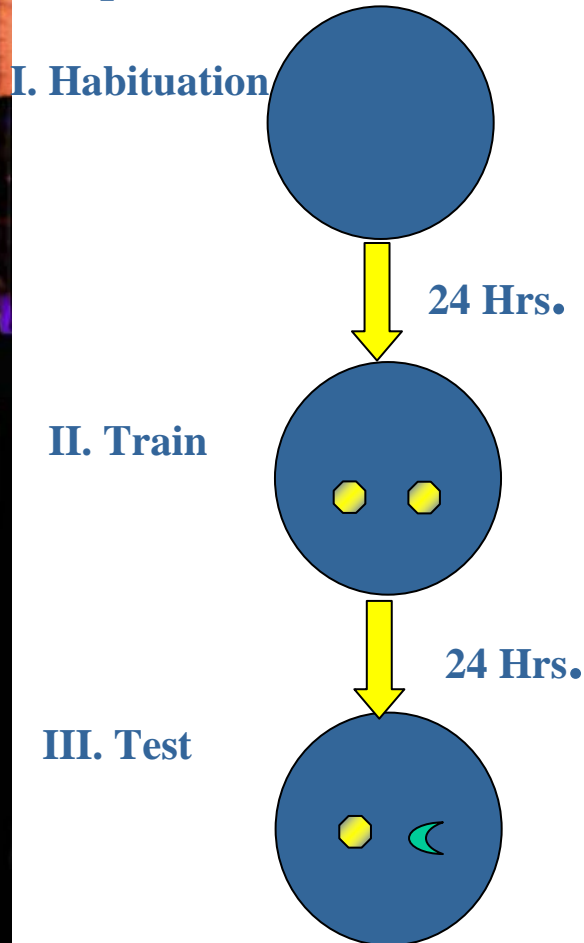


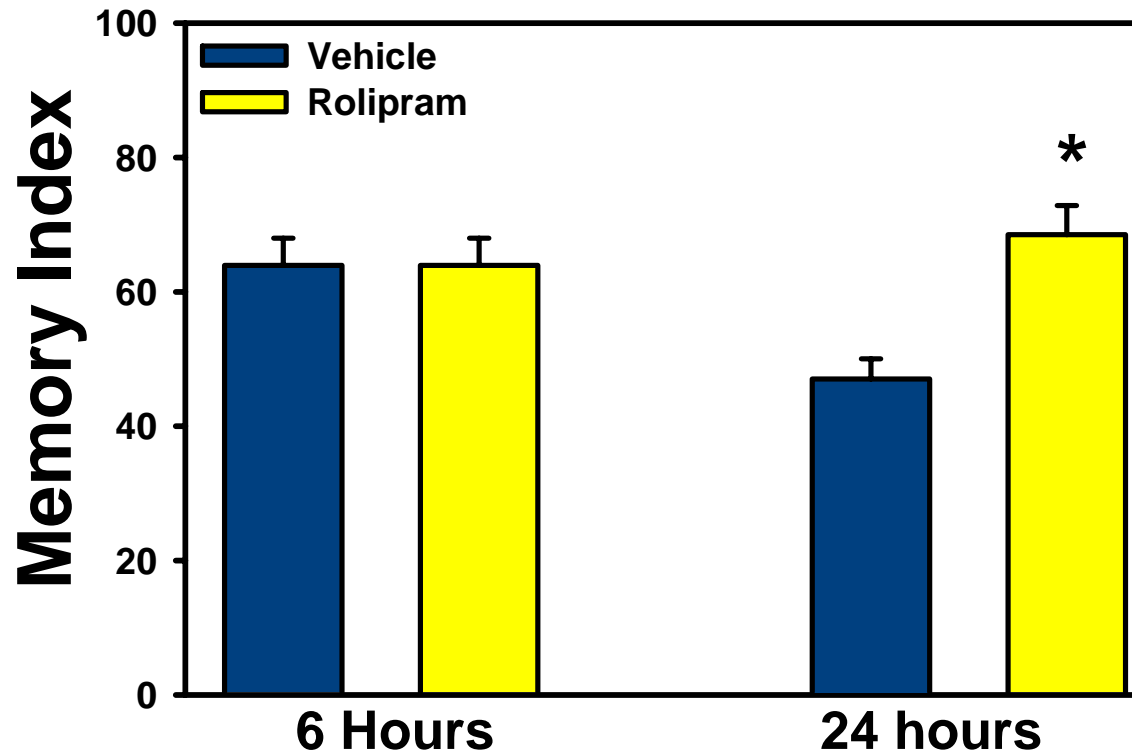
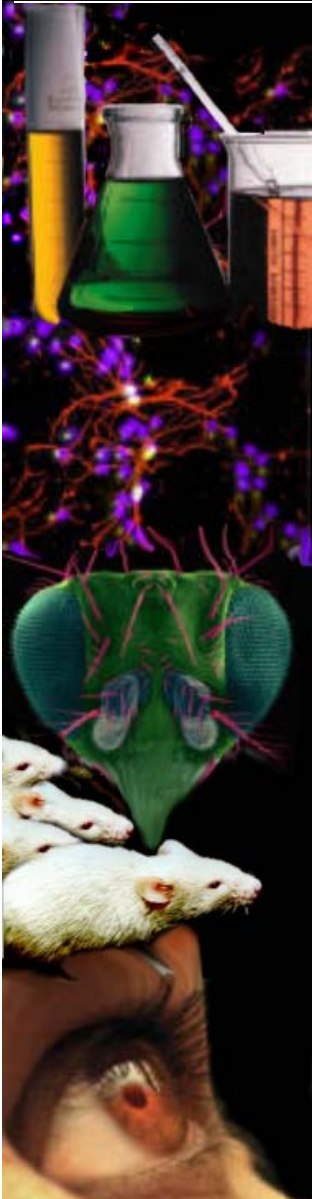
Behavior Paradigms for Cognition/ADHD

Novel Object Recognition (NOR)

NOR utilizes the natural tendency of mice to explore a novel object rather than a familiar object when both are presented simultaneously. Phosphodiesterase IV and cholinesterase inhibitors will increase the exploration time of the novel object.

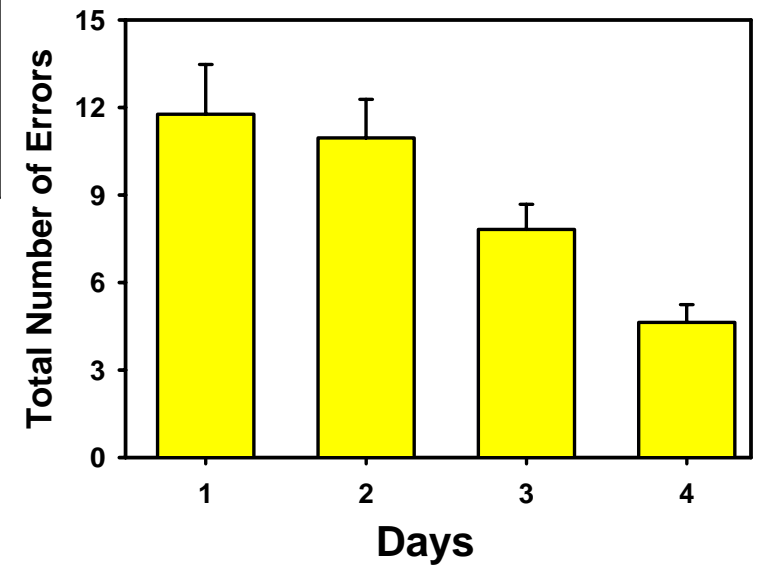
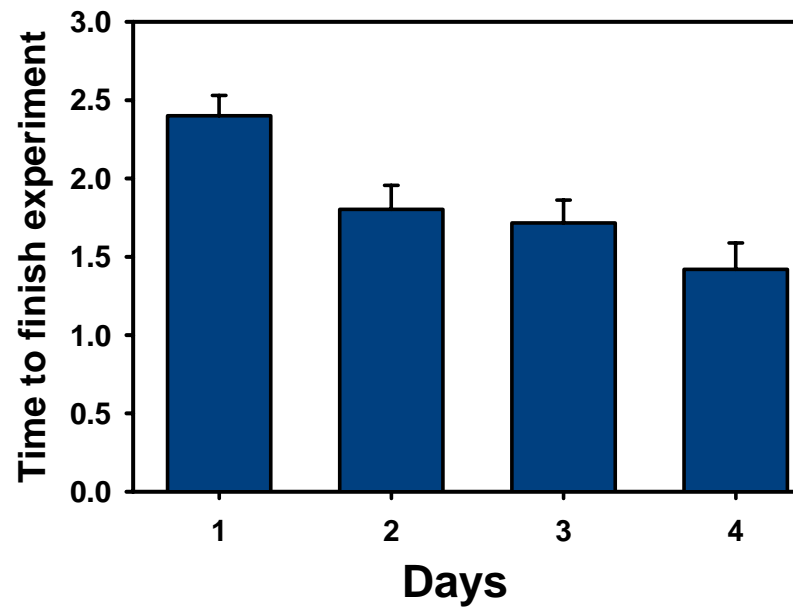
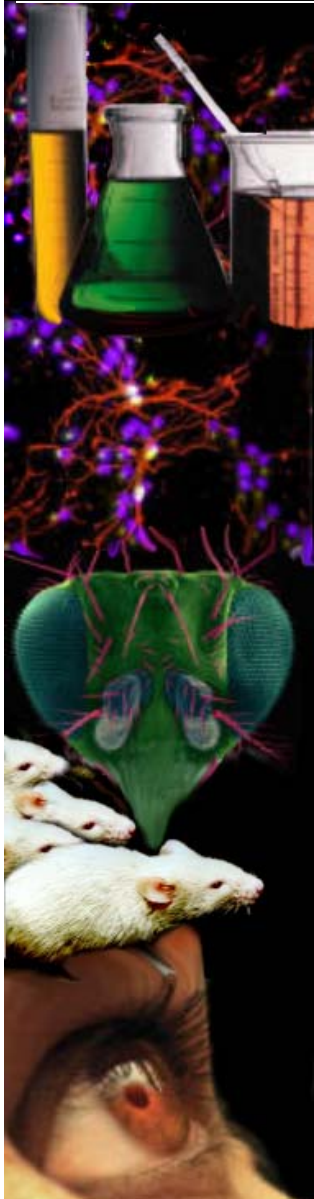


Time course for the effects of Rolipram on memory index in the NOR test.

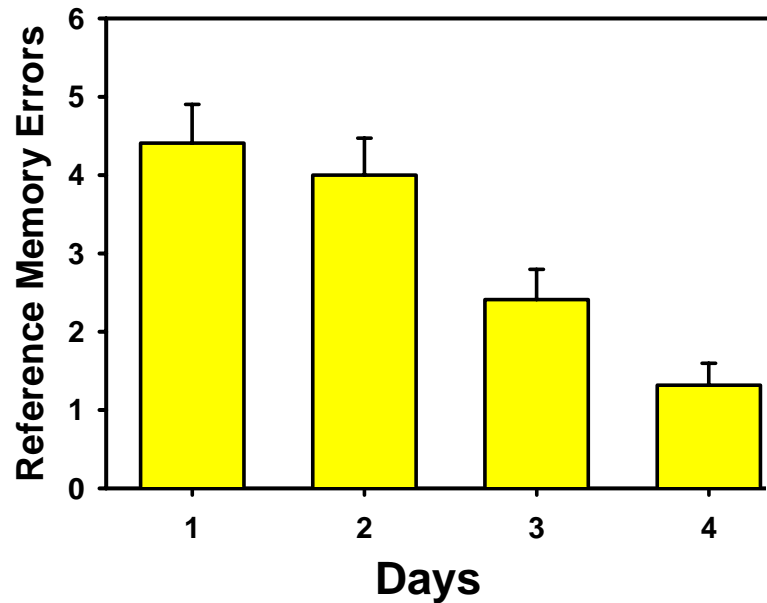
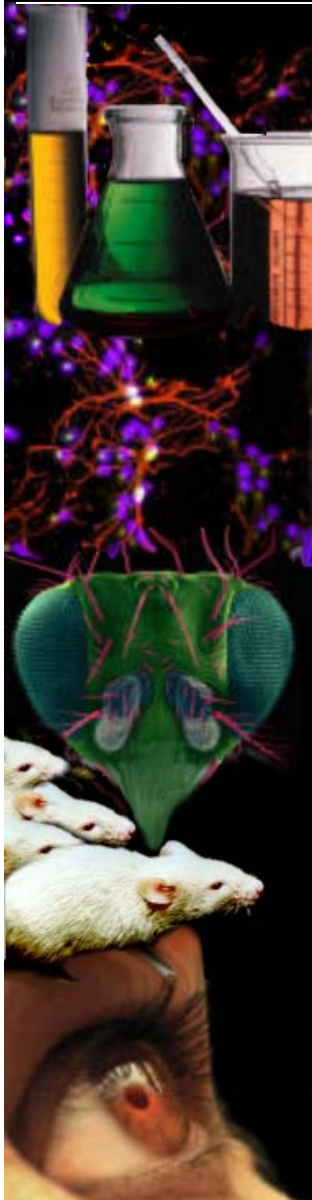


Holeboard

Holeboard measures a mouse's ability to remember the location of 4 baited holes in a 16 hole chamber. This is used to assess both reference memory and spatial working memory performances.

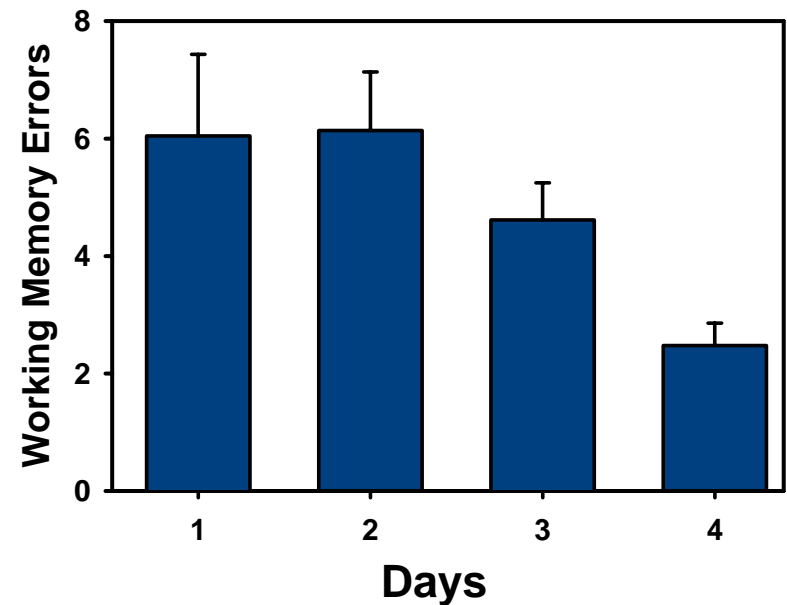


Decrease in reference and working memory errors across days



Entries into non-baited holes

Total re-entries



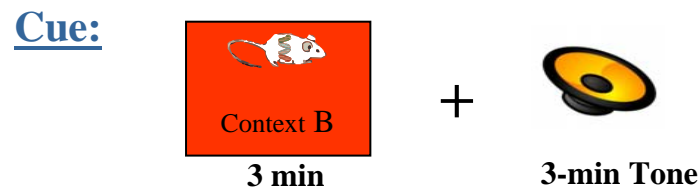
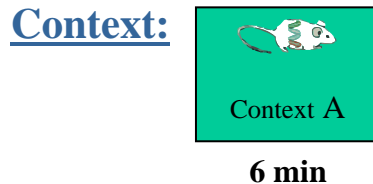
Fear Conditioning

Mice who receive an aversive stimulus paired to a tone in a context will freeze upon re-presentation of the context (Contextual Fear Conditioning) or the tone (Cued Fear Conditioning).

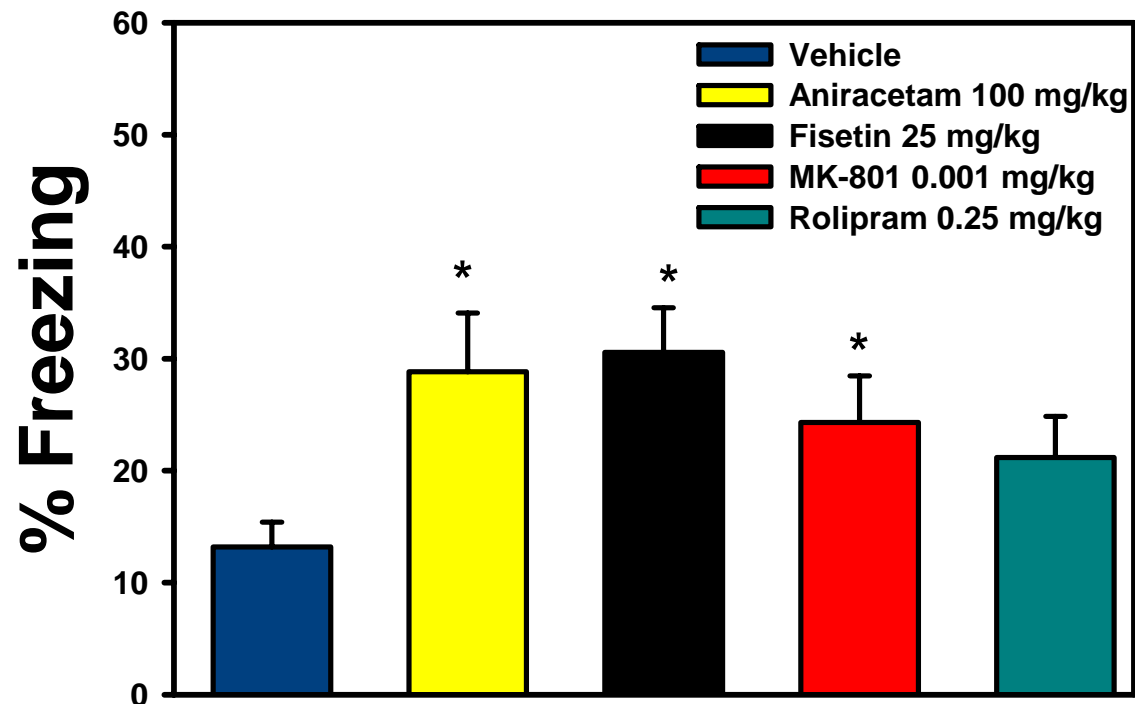
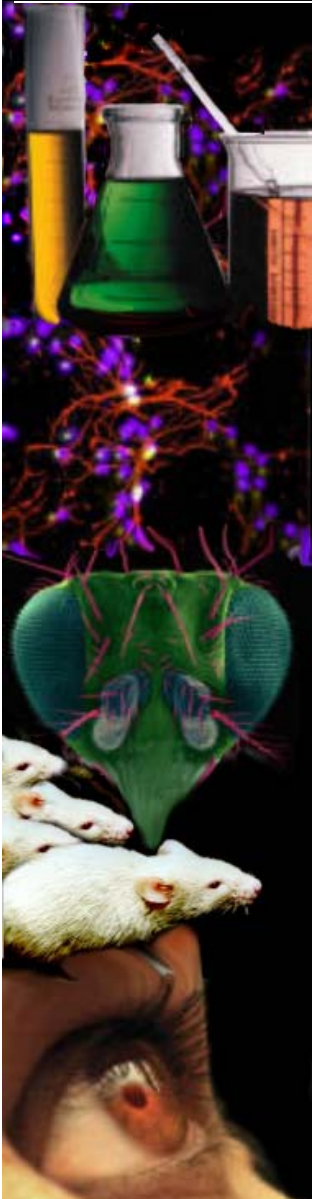
Training:



Testing (after 24 hrs):



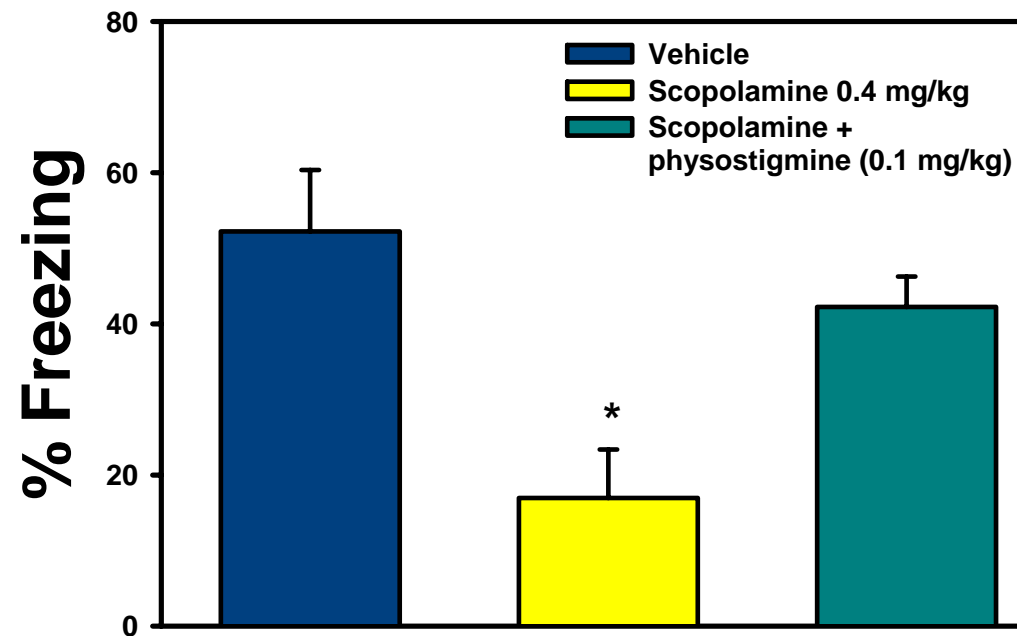
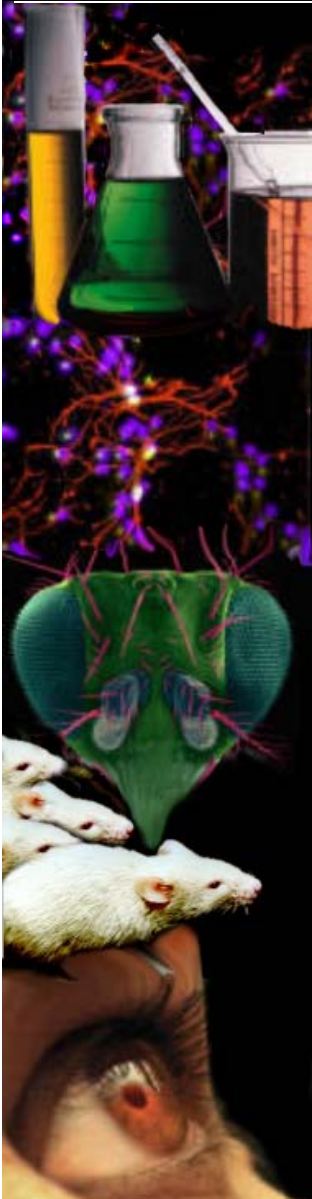
Effect of an array of compounds on Contextual Fear Conditioning





PsychoGenics

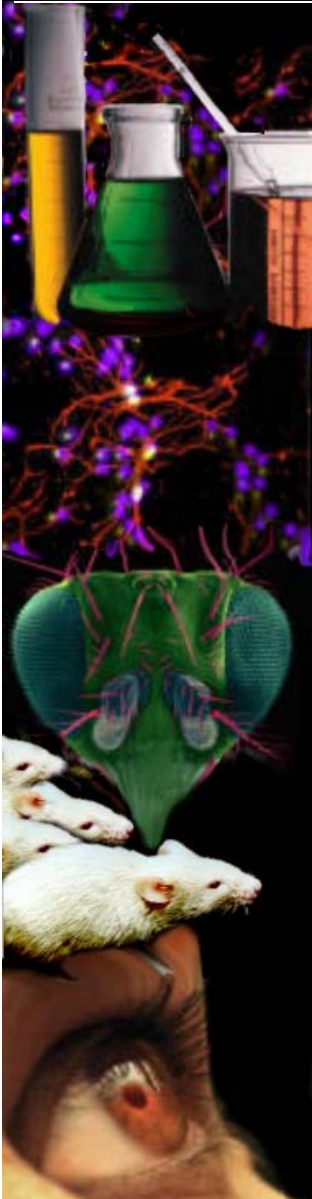
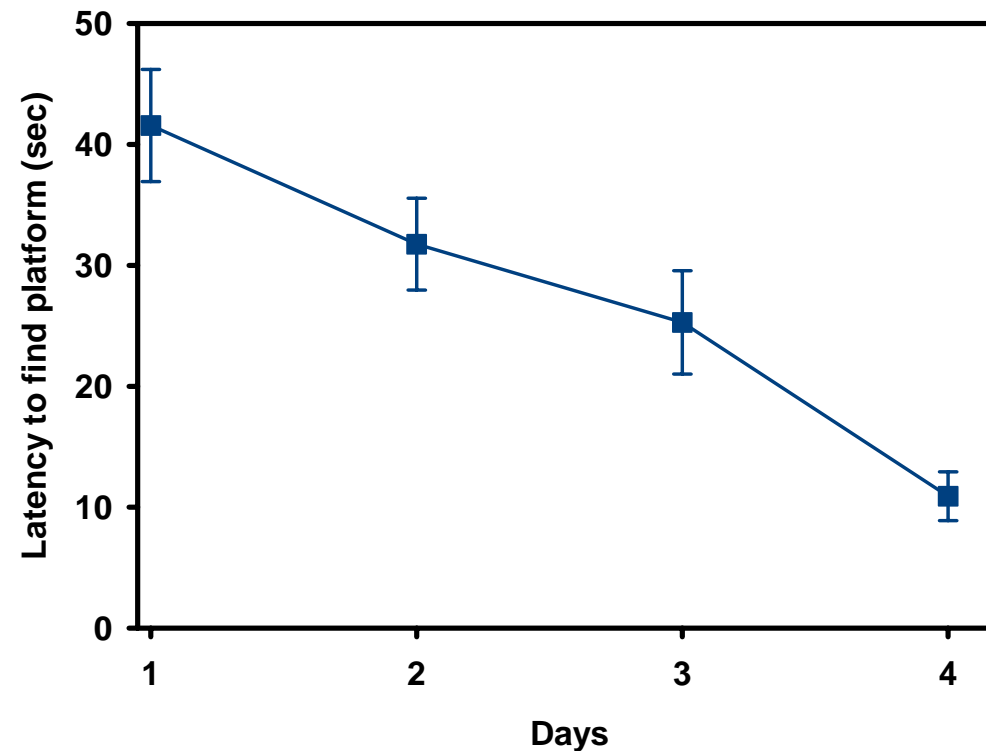
Physostigmine reverses scopolamine-induced impairment in freezing behavior



confidential

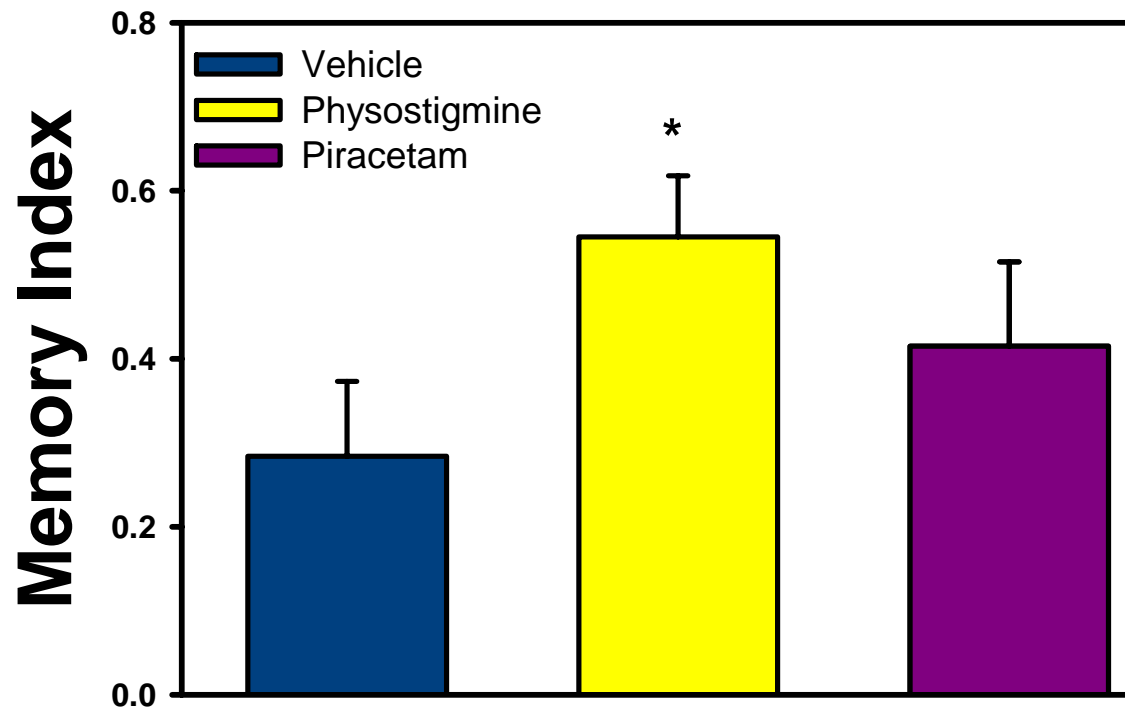
Morris Water Maze (MWM)

MWM is a spatial navigation task that measures learning and memory in rodents. Using visual cues, mice learn over the course of days to find the hidden platform and escape from the water.

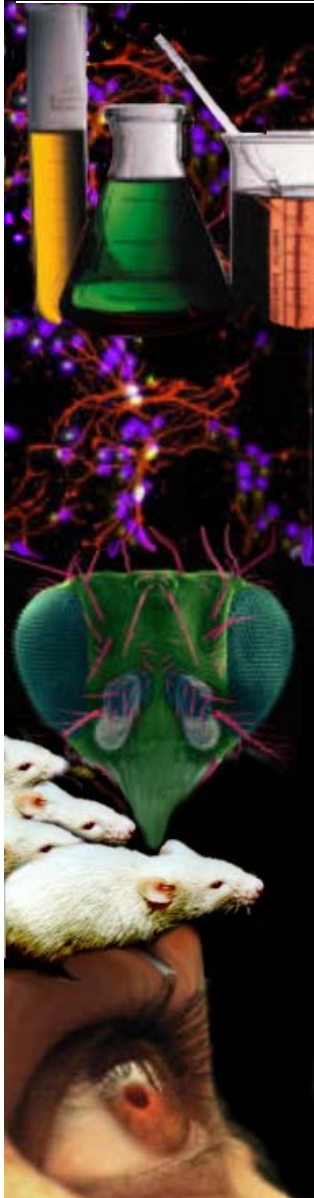


Physostigmine, but not piracetam increases memory index in the MWM task in mice

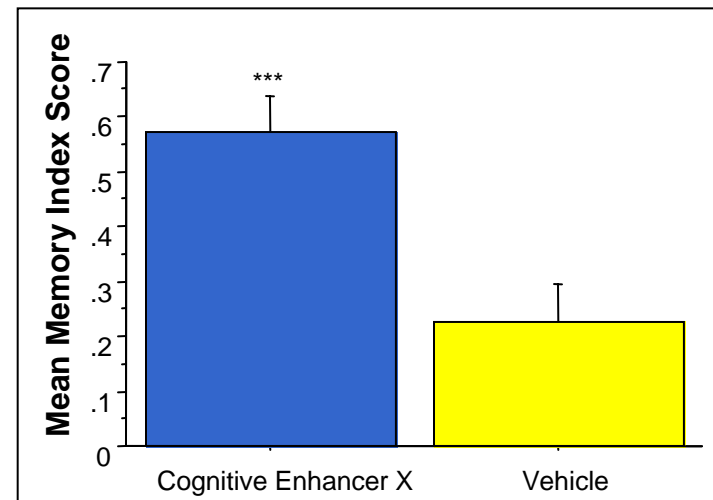
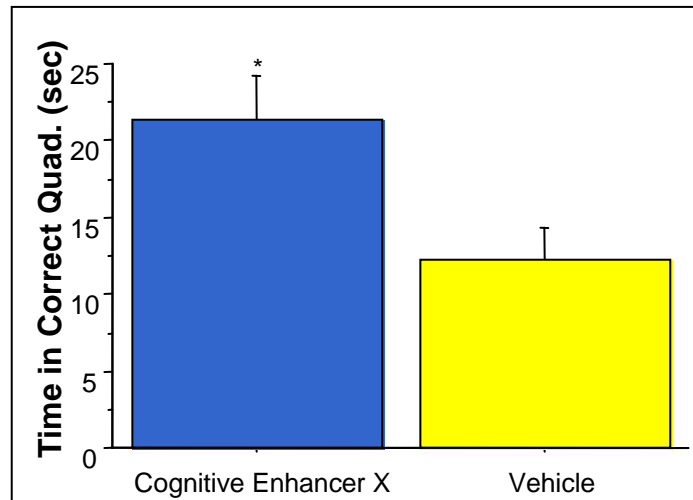
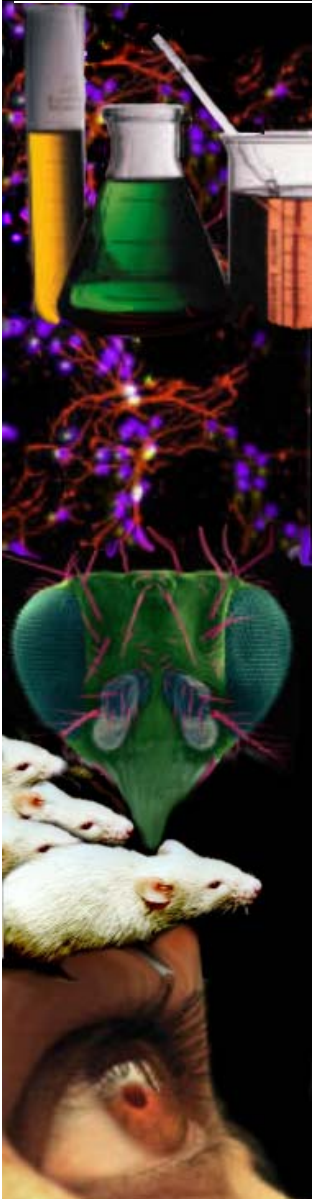
Following training for 4 – 6 days mice are given a probe trial when the platform is removed.

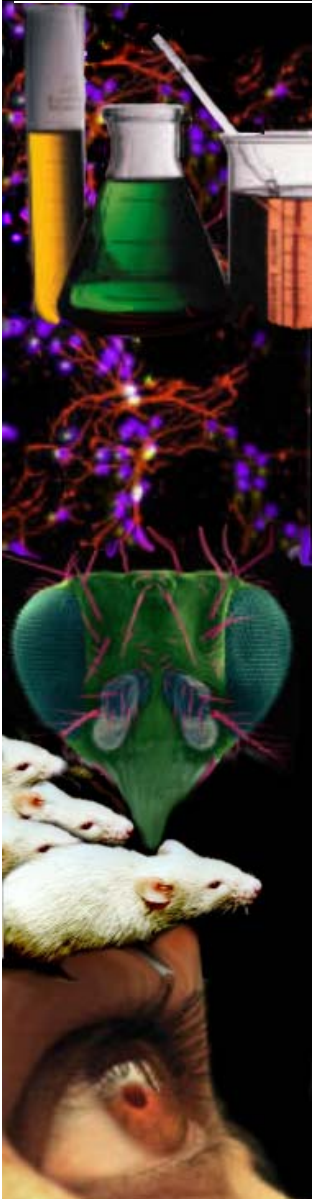


Memory index is measured by quantifying the time spent in the correct quadrant during the probe test



Effect of a putative cognitive enhancer on memory index in the MWM

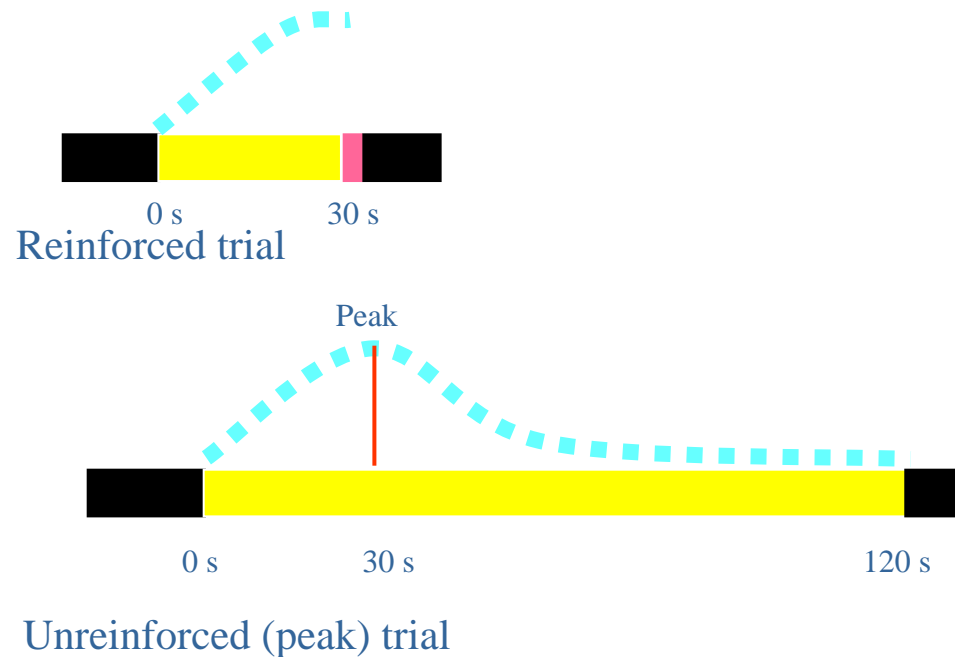




Behavioral models for ADHD

Peak Procedure (Time Perception)

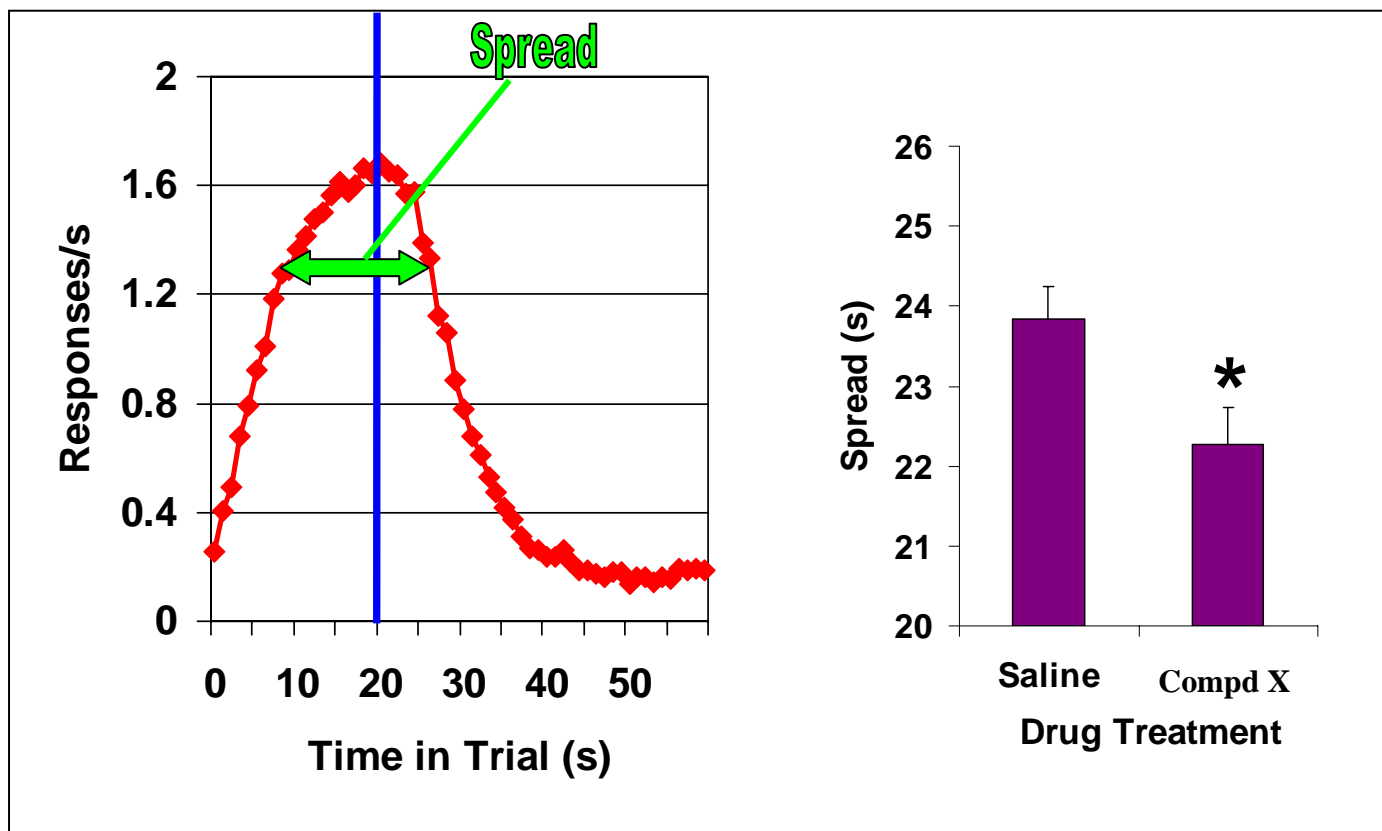
Mice are trained to press a lever at 30sec for a food reward. This assesses impulsivity, attention and timing perception, deficits that are reported in humans with ADHD



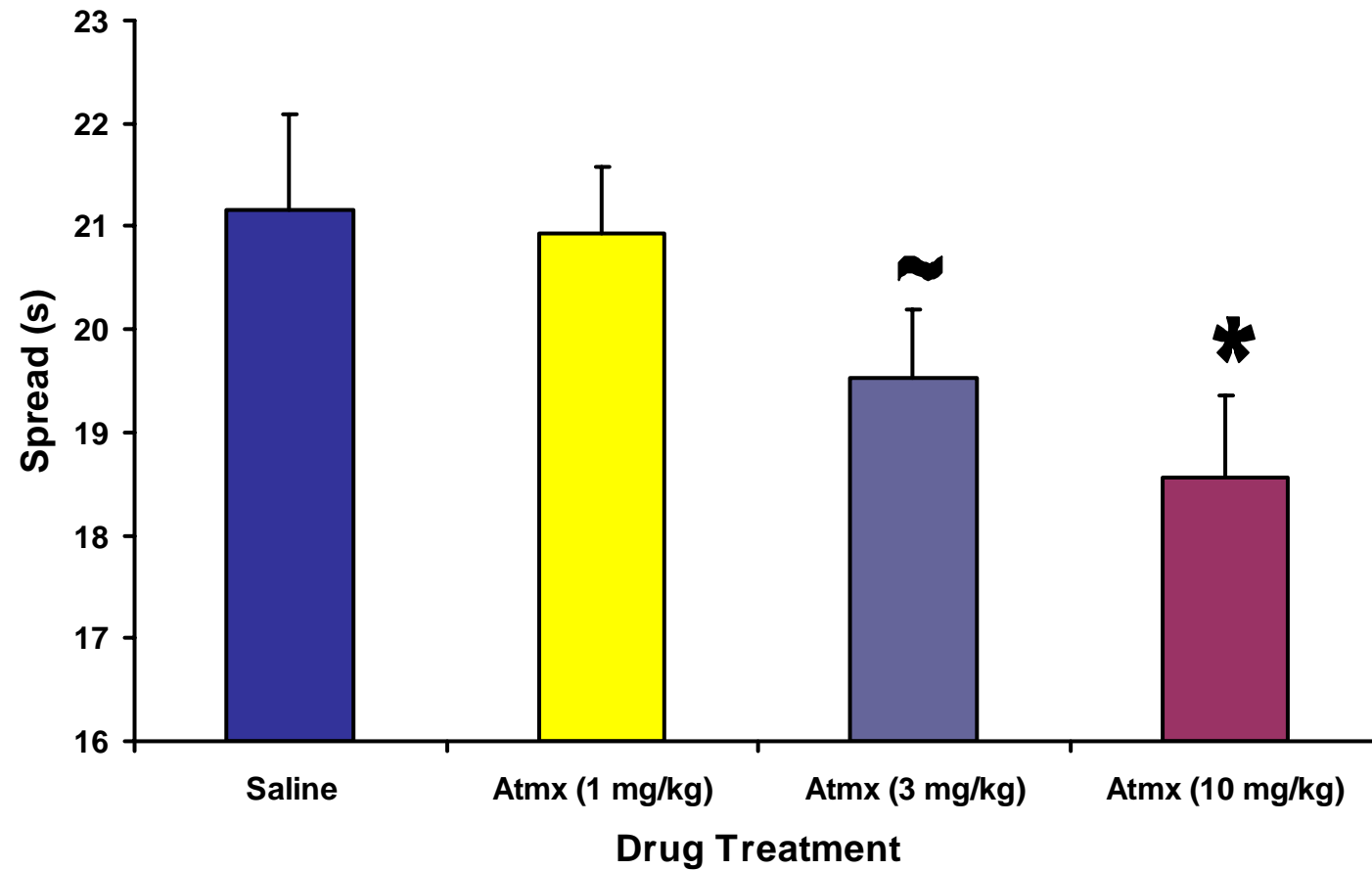
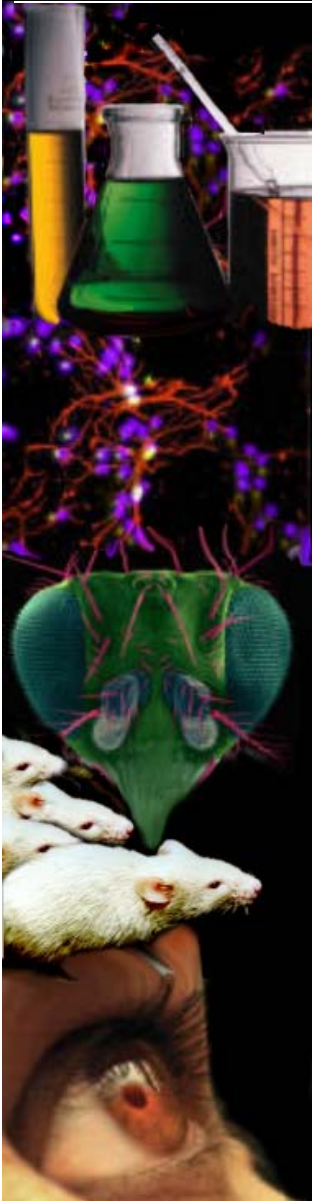
No reward is given in an unreinforced trial.

Compound X enhances the performance of mice in the peak procedure

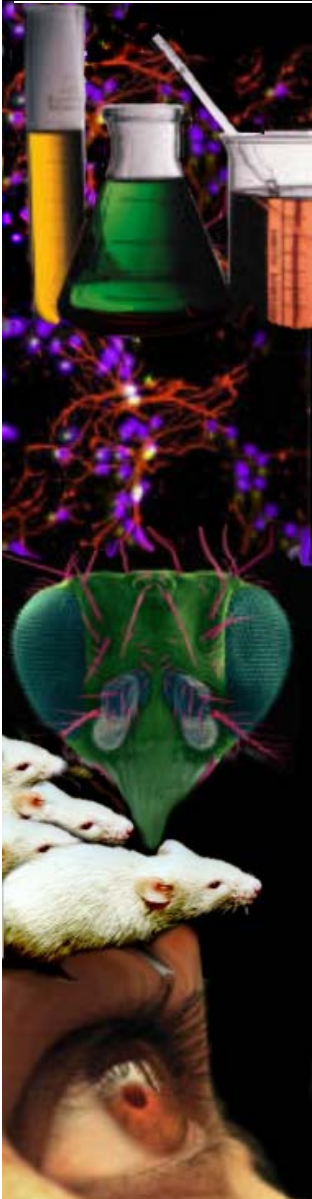
The height and spread of the peak in an unreinforced trial is recorded. The narrower the spread the better the performance in the tasks.



Atomoxetine enhances the performance of mice in the peak procedure

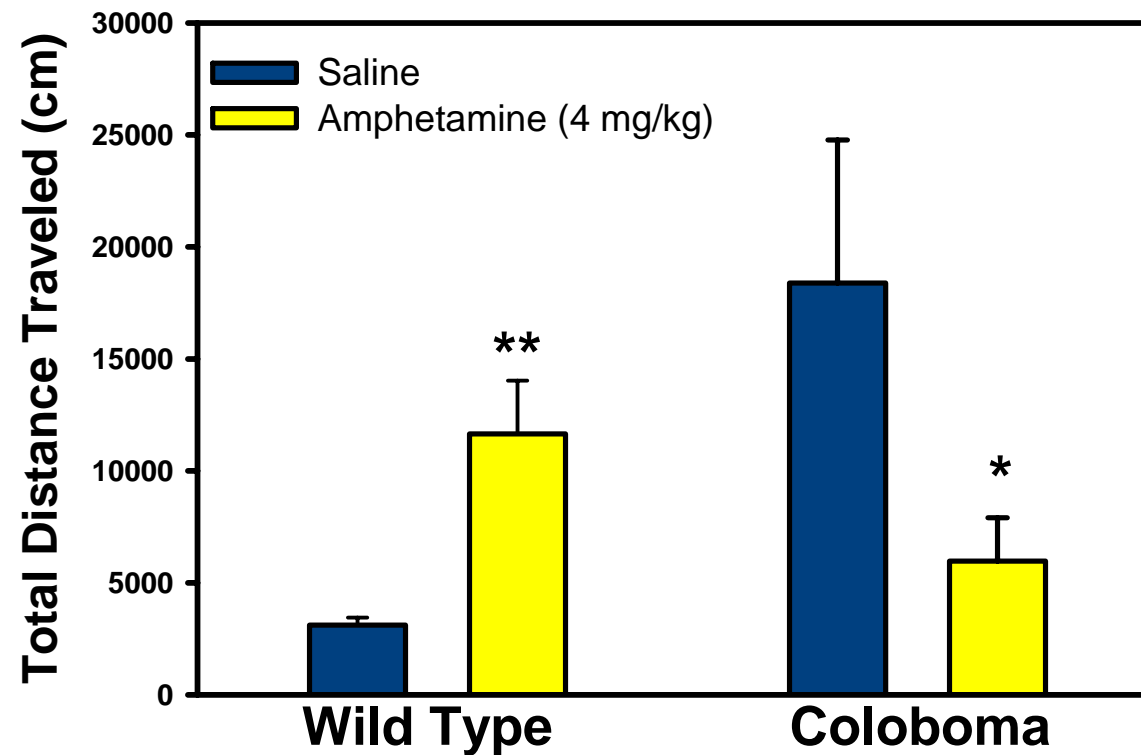
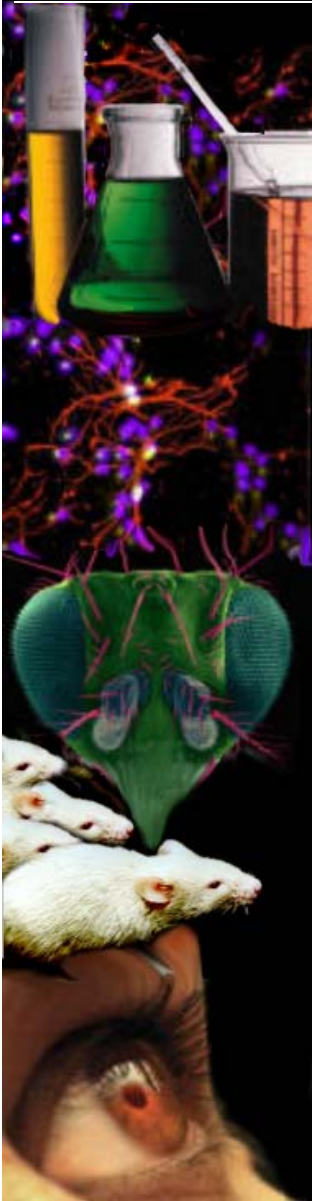


Coloboma mice: animal model for ADHD



- Coloboma mice have a spontaneous mutation that involves the deletion of SNAP-25 gene.
- These mice are hyperactive and display a variety of behavioral and neurophysiological deficits that can be seen in ADHD patients.
- Studies also found an association between polymorphisms in ADHD and SNAP 25 gene
- The model has predictive validity as hyperactivity in these mice is normalized by anti-ADHD compounds.

Amphetamine normalizes the hyperactivity of Coloboma mice



Compound X normalizes the hyperactivity of Coloboma mice

