

# Compensation, Learning and Psychopharmacology (CLP) Laboratory

The Compensation, Learning, and Psychopharmacology lab is interested in the relationship between drug use (including alcohol and illegal drugs) and learning abilities in a variety of tasks.

We look at both:

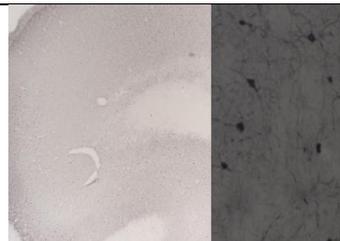
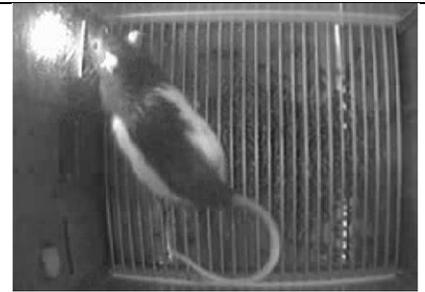
- potential neurotoxic effects that drugs might have on the brain and behavior (ex: drug exposure altering the brain and behavior)
- comparisons of effects of drug exposure with those of directly damaging the nervous system with neurotoxins
- whether the brain can alter its activity to utilize other brain areas and circuits to maintain behavior if the brain areas normally responsible for a task are damaged through drug exposure or direct damage with neurotoxins

## **Behavioral testing after drug or alcohol exposure in rats**

We provide rats with exposure to alcohol or other addictive drugs during adolescence and examine the effects of this exposure on:

- Reward seeking
- Decision-making

We also examine whether the effects of drugs mimic effects of brain damage due to neurotoxin injections into the brain



## **Examination of brain tissue in rats previously exposed to drugs or given brain lesions**

In rats exposed to drugs and/or given brain lesions, we examine whether there are changes in the brain using immunohistochemistry:

- Certain excitatory or inhibitory cell types (parvalbumin and ChAT)
- Changes in neuronal activity (Fos or Arc)

## **Testing of cognitive abilities in humans (with future plans to correlate this with nicotine/alcohol use)**

We test people in tasks related to those used in rats to determine if:

- Personality traits related to drug use are associated with people's performance in the tasks
- Use of legal drugs is correlated with performance in our tasks
- We can develop better learning tasks for humans to test cognitive abilities



Academic credit is available for participation. Several previous undergraduate lab members have won undergraduate research awards to do projects in the lab. Also, undergraduates in the lab have gone on to medical school or PhD programs at places like Columbia University, Boston College, Washington University (St. Louis), University of California-Irvine, Ohio State, Oklahoma State, and the University of Kansas.

We are recruiting student research assistants. Please contact Dr. Charles Pickens ([pickens@ksu.edu](mailto:pickens@ksu.edu)) with the name of one-two references if you would like to apply.