

The Barker Lab is part of the [Department of Psychology](#) and the [Brain Health Institute](#) at [Rutgers University](#). The goal of the lab is to anatomically and functionally characterize brain circuits that are involved in drug addiction as well as in comorbid disorders such as depression, anxiety, post-traumatic stress, or pain, to name a few. The goal of this work is to understand how the brain changes over time when an individual engages in drug-taking behavior, but also to determine how certain risk factors that have already changed the brain might contribute to the propensity for drug addiction. Overall, the hope is that these insights might advance more effective treatment strategies. To conduct this work, the lab applies anatomical techniques to define the types of neurons that comprise specific brain pathways, calcium imaging and electrophysiological techniques to record the types of information encoded by these circuits, and optogenetic or chemogenetic technologies to manipulate circuit-level activity.

Students should have a major in Psychology, Biology, Neuroscience, Engineering or a related field with a GPA of 3.0 or greater. Students should be able to commit a minimum of 2 (preferably 3) credits to research each semester and students interested in advanced research (495/496) should plan on spending multiple semesters in the lab. The time requirements per credit are standardized across all students and can be discussed with Dr. Barker. For more information on the work we do, or if you are interested in joining the lab, please visit [www.thebarkerlab.com](http://www.thebarkerlab.com) for more details.