"Neural basis of motivation and maladaptive decision making"

A major focus of the lab is to understand the neural mechanisms of individual differences in decision making—that is, why do behavioral responses vary even when given the same experience. For example, although a large portion of the population will be exposed to alcohol, only some will go on to develop an alcohol use disorder.

We develop behavioral procedures in rodents to model these phenomena, allowing us to determine the pre-existing differences that may contribute to individual differences as well as how they change with experience.

By combining these models with various techniques for observing and manipulating neuronal activity, we dissect the circuitry of maladaptive decision making.

Key Publications


"Dopamine enhances signal-to-noise ratio in cortical-brainstem encoding of aversive stimuli," Nature, 563(7731):397-401, 2018

"Amphetamine reverses escalated cocaine intake via restoration of dopamine transporter conformation," Journal of Neuroscience, 38(2):484-497, 2018