

## ***Delay Discounting and Nicotine Self-Administration in Rats***

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Delay discounting – the tendency to choose a smaller immediate reward over a larger reward delayed in time – has been extensively linked with tobacco smoking. However, the causal direction and underlying mechanisms remain unclear. The primary aim of this project is to test the hypothesis that delay discounting represents a behavioral marker for an underlying neurobiological vulnerability to nicotine self-administration. Specifically, we will test the hypothesis that impulsive choice and nicotine self-administration are related to each other through the influence of a common neurobiological substrate. To address this question, we will assess the degree to which natural variation in delay discounting rates among outbred rats predicts subsequent patterns of nicotine self-administration. This approach has the advantage of assessing naturally occurring variation prior to any drug exposure, and establishing a behavioral framework for further exploration of specific neurobiological pathways. We hypothesize that rats with steeper discounting rates will self-administer more nicotine, and acquire this behavior more rapidly, than rats with lower discounting rates.