

IGNITE Team Presentation



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Professor of Psychology*

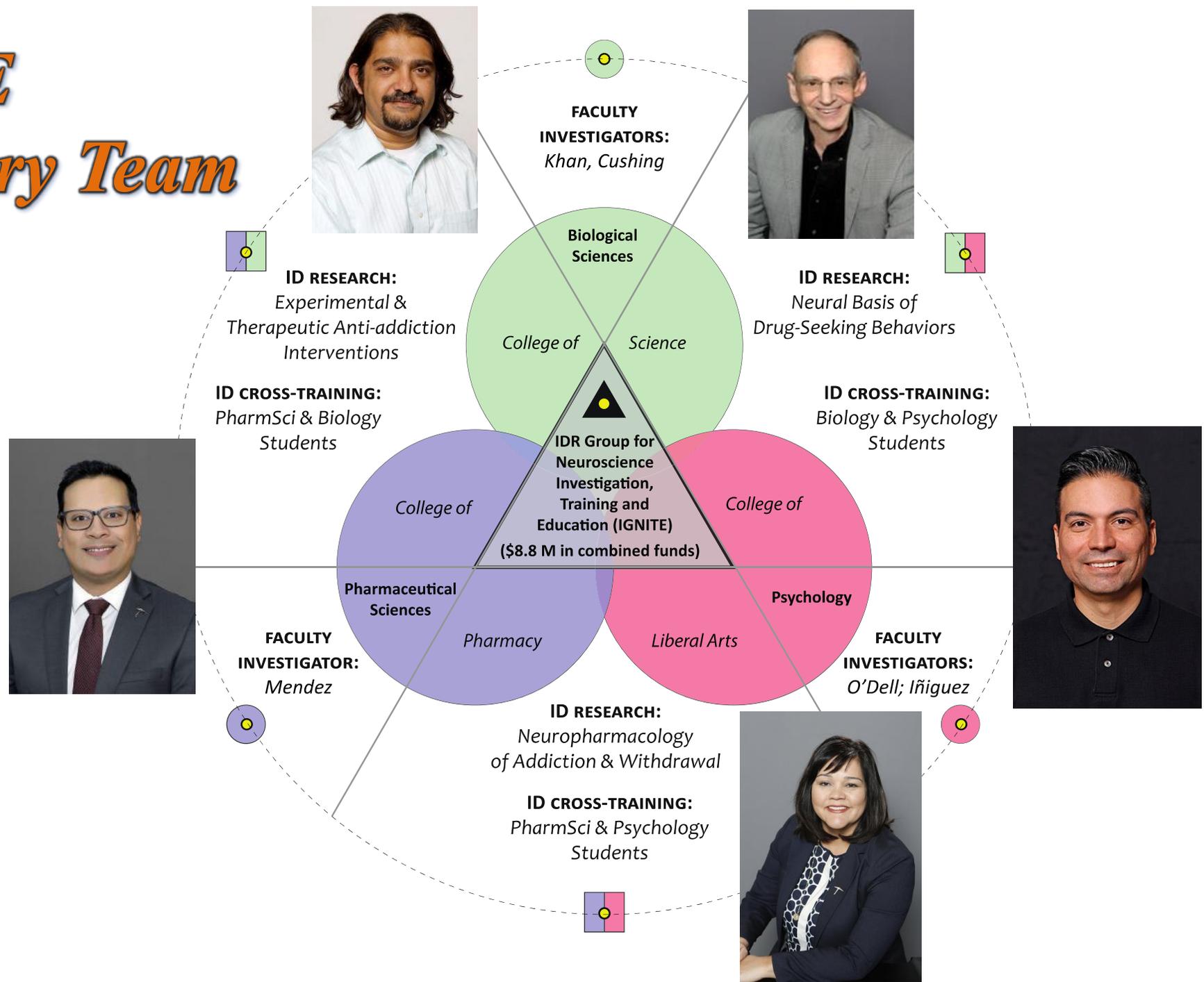


- 1) IGNITE mission and members
- 2) Broad objectives
- 3) Approach
- 4) Outputs and impact

Mission statement: To combine innovative approaches in an environment that is fully integrated and focused on compulsive behaviors that disproportionately impact our border community. Our long-term goal is to help develop more effective treatments for addiction in vulnerable populations in the context of training programs that promote diversity.

IGNITE

Interdisciplinary Team



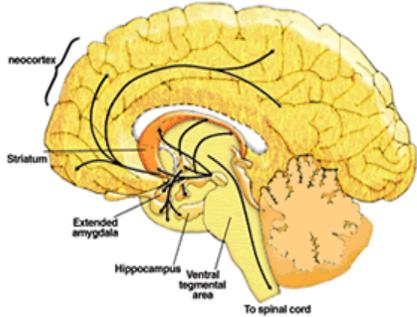
Broad research objectives:

Focus on addiction

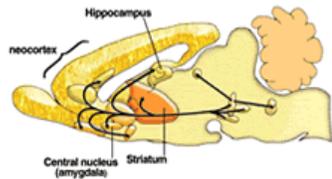
- High rates of substance abuse among Hispanics disproportionately fuels health disparities in our border region.
- Solving the complex problem of addiction requires the integration of interdisciplinary teams working at the forefront of their disciplines.
- Our primary project focuses on nicotine. During abstinence, women experience greater anxiety, depression, craving, and cortisol release. Also, women display lower quit rates and pharmacological approaches that target withdrawal are less effective in women.
- Our work in rodents has shown that during withdrawal, female rats display greater stress responses. *However, there is a knowledge gap in our understanding of the mechanisms that enhance withdrawal in females versus males.*

Behavioral neuroscience approach

Human brain



Rat brain



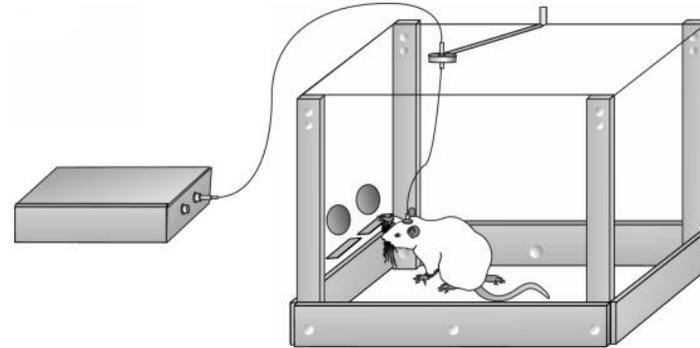
Texas Tech

- Brain imaging
- Brain bank

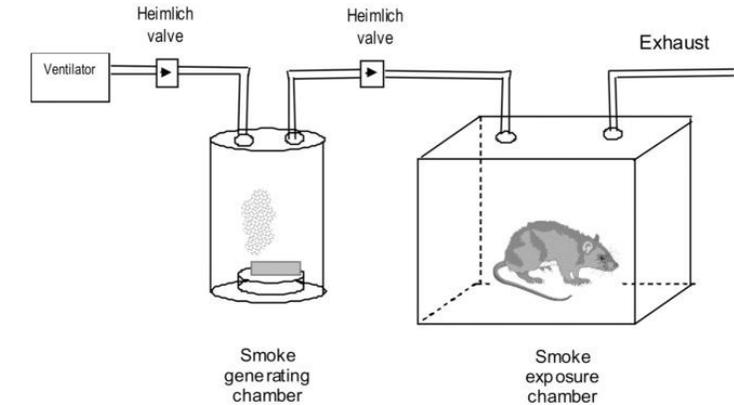
- **Behavior:**
 - Self-administration
 - Place preference
 - Nicotine dependence

- **Biological changes:**
 - Neural mapping
 - Optogenetics
 - Neurochemistry
 - Gene expression
 - Protein markers

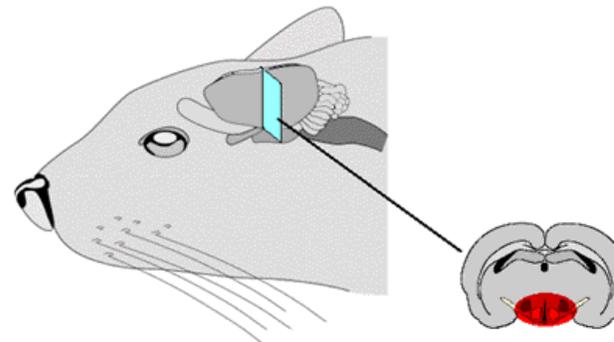
Nicotine reward:



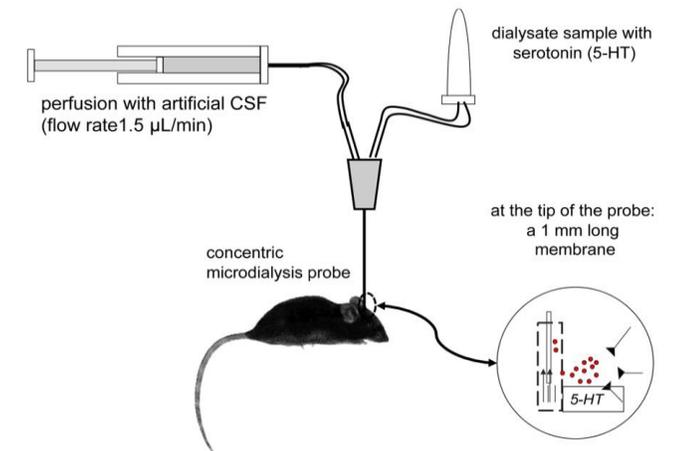
Nicotine withdrawal:



Genetic or protein changes:



Neurotransmitter levels:



Major outputs: R01 project



Team: O'Dell, Khan, Mendez

Post-docs, Graduate Students, Undergraduates

Technologies:

Behavior: Nicotine Vapor

Self-administration

Anxiety-like behavior

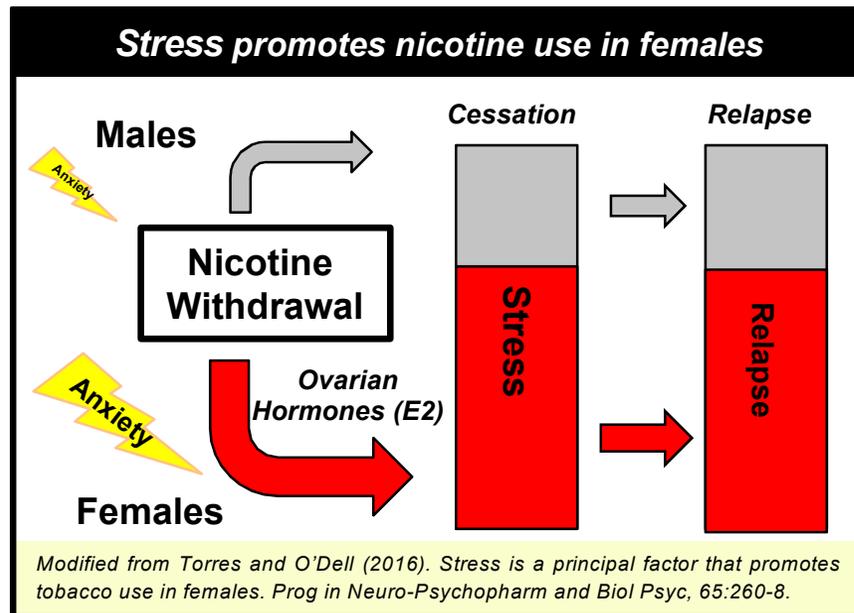
Neuroscience: Neural Mapping

Neurochemistry

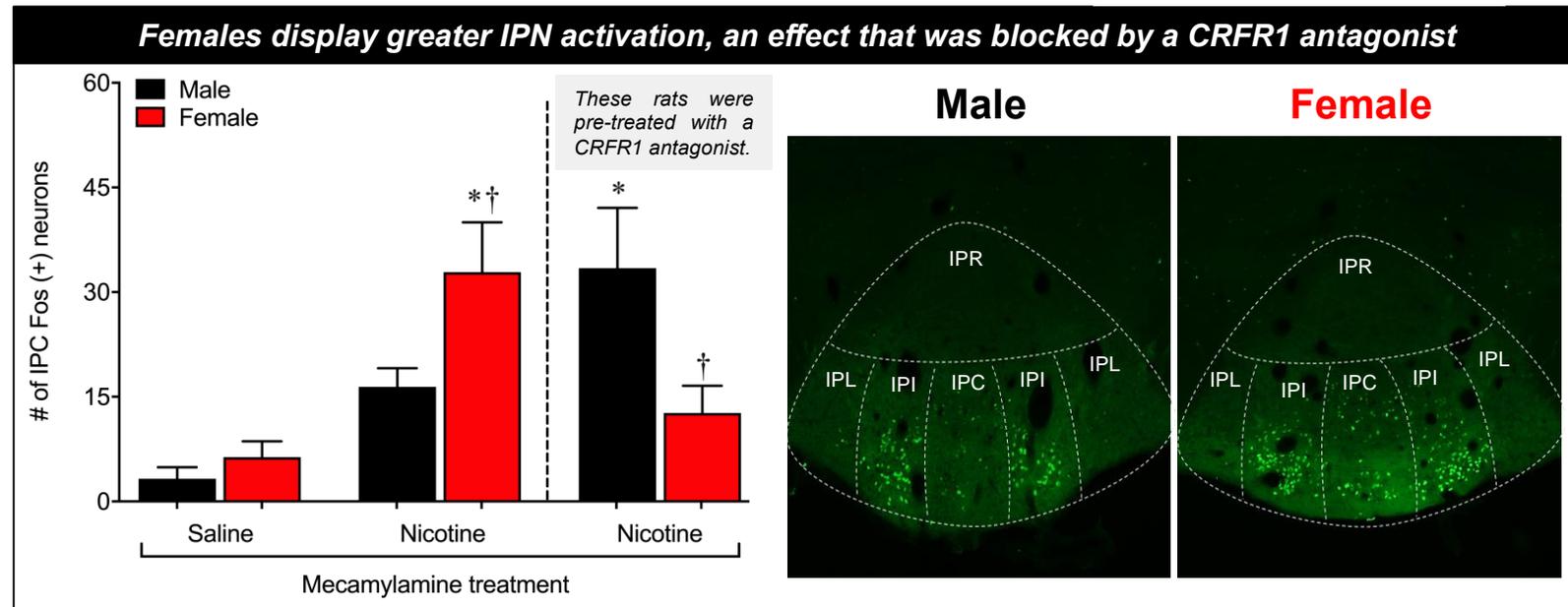
Gene transfer technology



Scientific Premise:



Key Data:



Major outputs: Vole project

Vole social defeat: A preclinical model to study the neurobiology of depression

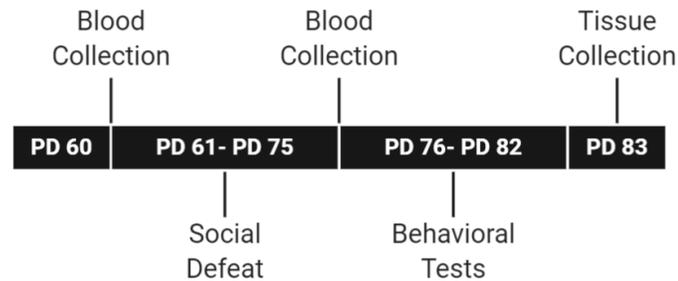
Stress is a risk factor for mood-related illnesses, wherein women represent the majority of those afflicted with depression. To address this issue at the preclinical level, we modified the traditional *social defeat model of stress* to include female and male prairie voles – since they display human-like social bonding behavior. This approach will generate a translational model that will allow us to study the sexually dimorphic nature of mood-related illnesses, and the development of more effective pharmacological treatments.



Sam Castillo
Graduate Student



Social defeat test



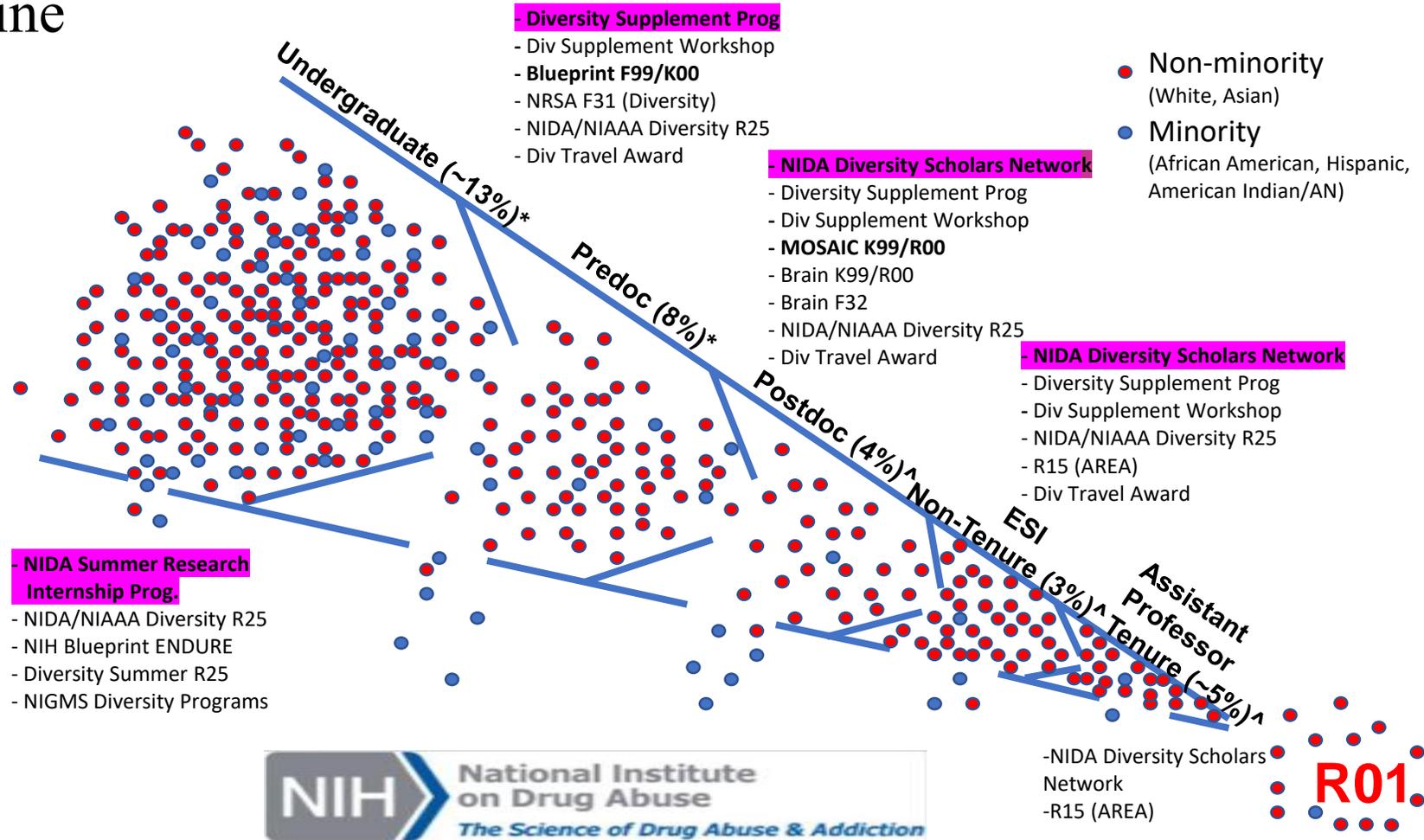
Post-social defeat test

- Open Field Test
- Light/Dark Box
- Elevated Plus Maze
- Social Interaction
- Forced Swim Test
- Tail Suspension Test
- Splash Test
- Novelty Suppressed Feeding



Major outputs: Training diversity

- Leaky pipeline



Major outputs: Training diversity

- All research is supported by training grants:

SMART:MINDS-Undergraduate Training Program

VIDA:CARTT-Post-doctoral Fellowship Program

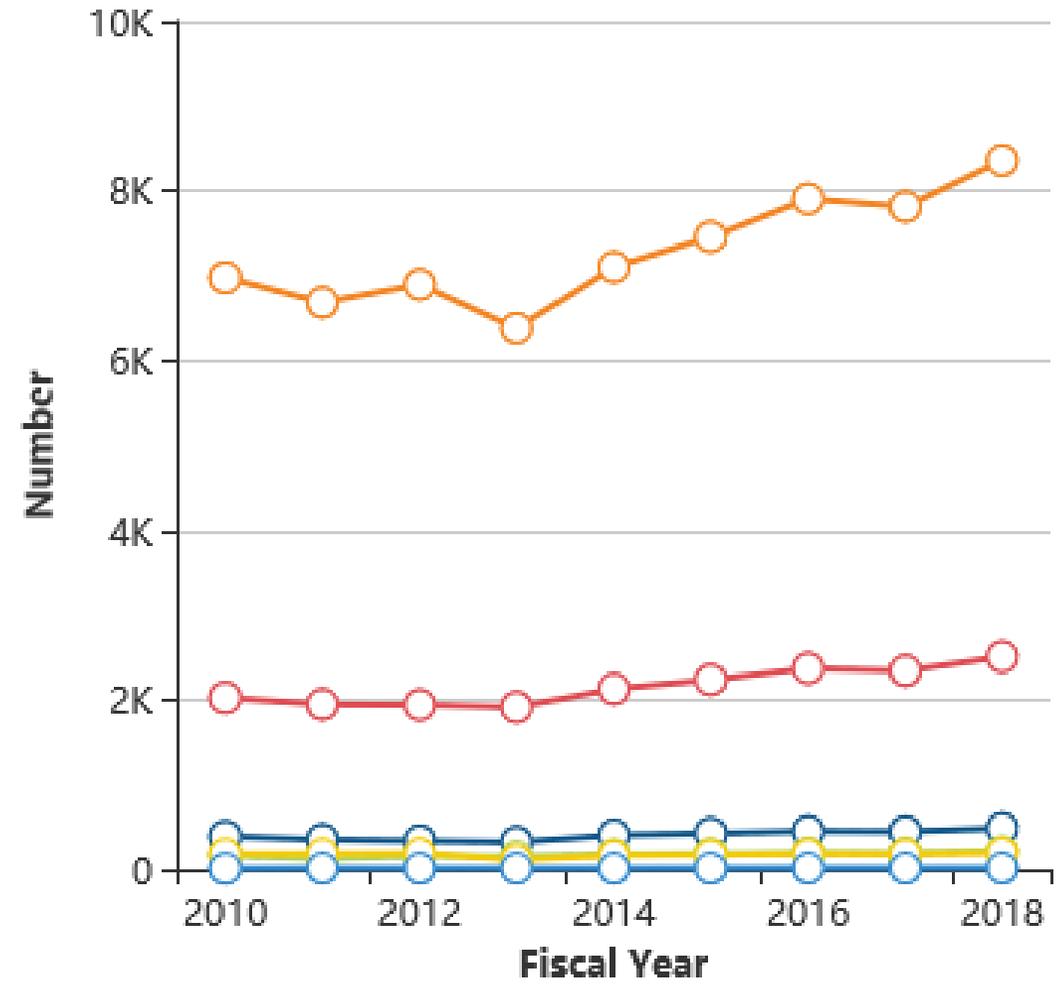
- We anticipate new training grants that foster graduate student training

RPG Awardees By Race



FY 2010-2018 | All Degrees

Asian Hispanic Black Other/Unknown
White AI/AN



What is the percentage of awardees from Latinx background in NIH grant awards?

2010

Asian:	2,024
Hispanic:	389
Black:	162
Other/Unknown:	184
White:	6,979
AI/AN:	12

2018

Asian:	2,505
Hispanic:	485
Black:	214
Other/Unknown:	195
White:	8,360
AI/AN:	18

Systemic approach to enhancing diversity in addiction

