

# WHAT CAN ANIMAL RESEARCH TEACH US ABOUT SUBSTANCE ABUSE AND THE OPIOID EPIDEMIC?

- At least 20.3 million adults struggle with substance abuse.
- On average, 130 Americans die each day from prescription abuse or opioid overdose.
- Animal research is critical for advancing our understanding of changes in the brain that cause substance abuse and for revealing new treatments to prevent overdose and abuse.

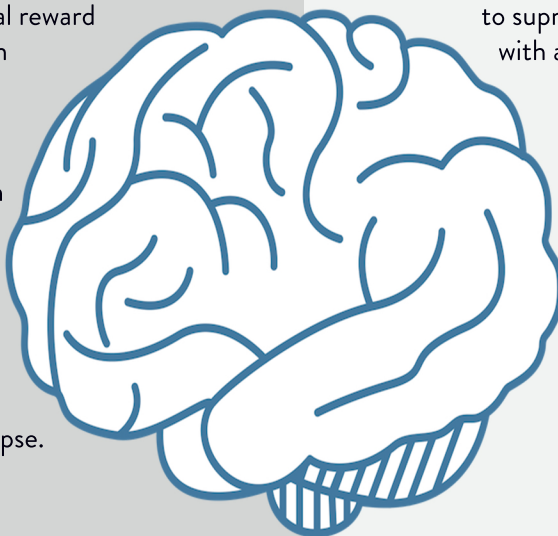


## SUBSTANCE USE REWIRES THE BRAIN'S REWARD CIRCUITRY

Studies in humans and animals have demonstrated that substance use alters the brain's natural reward circuitry by dramatically altering brain chemistry, particularly the release of dopamine.

Addiction results in impaired function of the brain's reward circuitry. This leads to increased drug use in order to reach the same level of pleasure.

Researchers are striving to reveal novel treatment strategies to prevent drug abuse and reduce the risk of relapse.



## DEVELOPING EFFECTIVE OPIOIDS WITHOUT THE RISK OF ADDICTION

Opioids target our natural neural opioid receptor systems to suppress pain. The misuse of opioids often begins with a pain medicine prescription for a legitimate health problem.

Studies with rodents and rhesus macaque monkeys have now identified new opioid compounds that effectively reduce pain, while reducing the risk of misuse.

Additional animal studies are necessary for expanding this progress and reducing the burden of opioid overdose.

## BIOMEDICAL RESEARCH IS HIGHLY REGULATED

- ✓ All research involving animals must first be approved by an ethics committee called an Institutional Animal Care and Use Committee.
- ✓ Animals involved in research are cared for by veterinarians and other well-trained specialists.
- ✓ Laws, regulations and institutional policies are in place to safeguard the welfare of research animals.



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