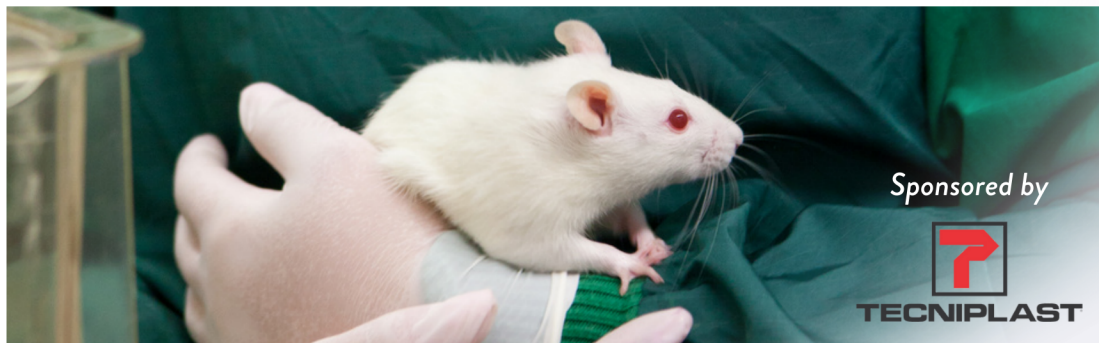




Xylazine

(aka tranq)

A veterinary tranquilizer not approved for human use that has been linked to an increasing number of overdose deaths





Role of Animals in Xylazine Research



Because xylazine is not approved for human use, animal research is critical to better understand the drug properties, interactions, effects, and abuse liability.

Due to the increase in human exposure to xylazine, rats and mice have recently been involved in studies to assess how xylazine use may alter consumption of other drugs such as fentanyl.

Animal research allows scientists to study various drugs in the hope of identifying or developing an effective antidote to xylazine overdose that may be used in humans.

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Human Impact

The adulteration of the illicit opioid supply with xylazine is a critical and emerging public health concern.

There is no specific antidote and xylazine toxicity has a heightened risk of overdose and death.

Xylazine toxicity is associated with:

- *severe respiratory and central nervous system depression*
- *significant cardiovascular effects*
- *potentially disfiguring and life-threatening skin ulcers*

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Fentanyl

A powerful synthetic opioid that is FDA-approved to treat severe pain related to surgery or complex pain conditions



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Role of Animals in Fentanyl Research



Animal studies are underway to explore the possibility of a fentanyl-specific vaccine that could prevent overdose and be administered alongside other medications used to treat opioid use disorder.

After promising results in nonhuman primates, scientists are studying a drug that may reverse and prevent opioid overdoses for 2 weeks following administration.

Animal studies are critical for learning more about the impact of fentanyl-analogs that have no medical or clinical use, such as carfentanil, which is 100 times more potent than fentanyl. These studies inform clinicians on how to prevent or treat overdose.

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Human Impact

Fentanyl is a synthetic opioid 50-100 times more potent than morphine.

The presence of illicitly manufactured fentanyl in the drug supply increased dramatically in the past decade.

Consumption, intentional or unintentional, has contributed significantly to the devastating overdose deaths in the U.S.

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Psilocybin

(aka magic mushrooms)

*A psychedelic chemical in certain
types of mushrooms that grow on
nearly every continent*





Role of Animals in Psilocybin Research



Animals have been involved in psilocybin research since the 1960s and continue to help scientists uncover the therapeutic potential and consequences of human use.

Both rats and nonhuman primates have provided insight about the ability of psilocybin to treat mental health conditions.

The impact of psilocybin on decision-making, motivation, performance, and stress has been studied in rats.

Human Impact

Recently, there is increased interest in using psilocybin as a therapeutic for mental health conditions, such as depression, obsessive-compulsive disorder, and anxiety.

Psilocybin has been used recreationally and as part of religious and indigenous cultures for many years. While adverse effects do occur, such as seizures, panic attacks, and paranoia, overdose death is extremely rare.

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Cannabis

(aka marijuana)

The plant that contain the mind-altering chemical THC and other similar compounds





Role of Animals in Cannabis Research



The effects of cannabis alone and when combined with illicit drugs have been studied in animals.

Self-administration studies in rats allow scientists to evaluate the impact of diet and environment on drug use.

Nonhuman primates have been used to investigate if THC and CBD found in cannabis impact the use of other drugs and whether they have medical value for mitigating symptoms associated with opioid withdrawal.

Human Impact

There is increasing debate surrounding the legalization of cannabis for medical and recreational use.

Scientists continue to explore the question of whether the therapeutic benefits outweigh the known and potential health risks.

Early-life cannabis use may impact both short- and long-term memory and learning.

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