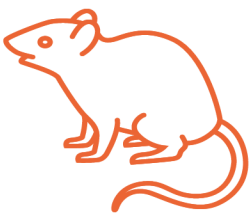
From Animals to Patients:

The Drug Development Pipeline

Animals play an important role in evaluating potential new medications and treatments before they are given to humans.

The first step in developing a new medication is identifying how it works in the body, such as the type of cells it interacts with.

Once the target is known, it is studied in animals to identify how it affects an organism and the safest dose for humans.



In Phase I clinical trials, the medication is given to healthy volunteers to ensure there are no adverse effects in humans.

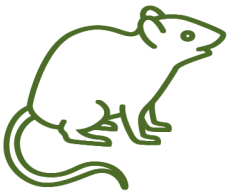
In Phase II-III clinical trials, the medication is given to volunteers who have the disease or illness it is intended to treat.

The FDA evaluates all studies related to a new medication and makes a final decision on its approval for use.

From Animals to Patients:

Substance Use Disorder

Substance use disorder (SUD) can affect people of all ages and backgrounds.



Rodents have been used to study molecular and cellular mechanisms, such as dopamine signaling, that contribute to SUD.

Because of their similarities to humans, canines are used to study how SUD medications affect heart and respiratory health.

Monkeys naturally live in social groups, allowing scientists to investigate how social experiences, such as stress, affect drug use.

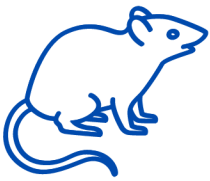
All stages of SUD, such as drug initiation, long-term use, withdrawal and abstinence, can be studied in animals.

All FDA-approved medications for substance use disorder have been examined in animals.

From Animals to Patients:

D-amphetamine

D-amphetamine is FDA-approved for treating attention deficit and hyperactivity disorder (ADHD) and narcolepsy. It is the 4th most prescribed psychiatric medication in the U.S.



The effects of d-amphetamine in adolescence were studied in rodents.

Canine studies provided insight on the effects of d-amphetamine on the heart and other organ systems.

Monkeys have been critical in understanding the effects of d-amphetamine on attention and potential abuse liability.

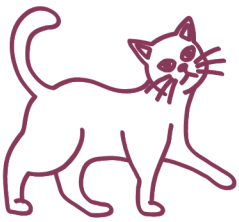
Human studies indicated approximately 75% of ADHD patients taking d-amphetamine had symptoms improve.

D-amphetamine was FDA-approved in 2002 and is prescribed to more than 40 million adolescents and adults in the U.S.

From Animals to Patients:

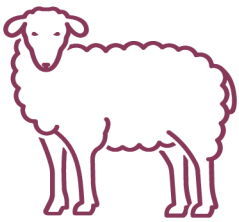
Cochlear Implants

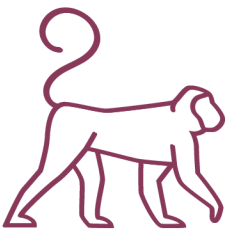
Cochlear implants are electronic devices that help provide a sense of sound to people who are hard of hearing or deaf.



Cats with congenital deafness have contributed to advancements in understanding how cochlear implants enhance hearing.

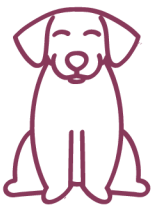
Sheep have similar cochlear anatomy to humans and allow examination of the use of cochlear implants across various life stages.





The way the brain receives auditory signals from cochlear implants has been studied in monkeys.

Hearing loss in dogs can also be corrected using cochlear implants designed for humans.



Cochlear implants can improve hearing and the ability to understand speech by 6-7 times.

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