



Lab Animal Medicine

UIUC Open House 2020

What is a Laboratory Animal Veterinarian?

These veterinarians work with any animals that are used in a research environment. Here are a few things that they can do at their job:

- Treat sick animals
- Help researchers plan their experiments
- Make sure animals are well taken care of
- Train researchers on proper animal handling
- Work on their own research

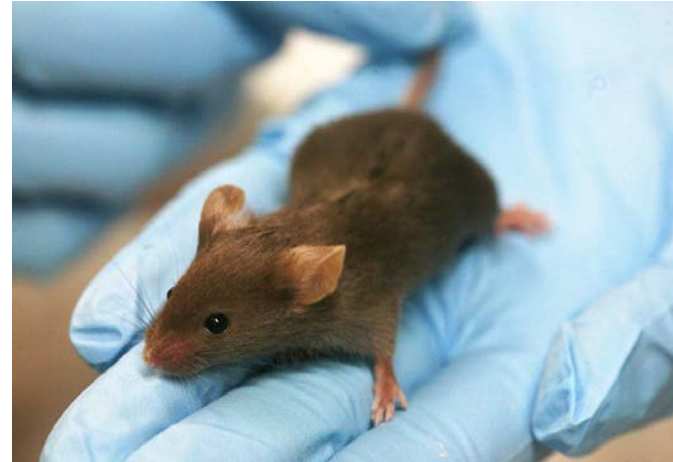


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What animals do they work with?

Lab animal veterinarians can work with a variety of animals including:

- Mice
- Rats
- Birds
- Rabbits
- Guinea Pigs
- Hamsters
- Pigs
- Sheep
- Dogs
- Primates
- Cats
- Frogs
- Fish

What animals do they work with?



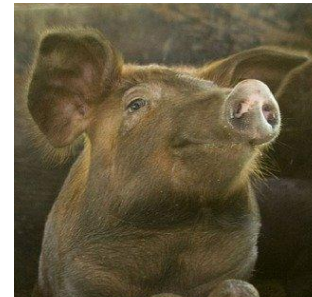
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PIGS



“If [something] works in the pig, then it has a high possibility of working in the human.”
- Michael Swindle, DVM

Research Areas

Aging
Cardiology
Dermatology
Diabetes
Imaging
Kidney disease
Liver disease
Organ transplants
Thyroid disease

Nobel Prize Winning Breakthroughs

Development of CT scans
Discoveries concerning MRI
Discovery of the role of bacteria in peptic ulcers
Peptide hormone production related to endocrine disorders

DOGS



Dog studies helped scientists discover the role of insulin in diabetes.

Research Areas

Cancer
Cardiology
Genetic diseases
Neuroscience
Rabies
Spinal injuries

Nobel Prize Winning Breakthroughs

Characterization of the central nervous system
Surgical advancements for repairing blood vessels
Advancements in treating serious allergic reactions
Discoveries related to brain cell function
Discovery of insulin for treating diabetes
Organ transplantation

Common myths!

MYTH: Laboratory animals suffer great pain and distress.

FACT: Most biomedical research does not result in pain or significant distress to the animals. In 58 percent of all animal research, the animals are not subjected to any pain. The remaining studies use pain-killers in their research for the animals. Very few receive approval without them.

MYTH: Researchers are indifferent to the well-being of their animal subjects.

FACT: Scientists have chosen their profession to try and end disease and suffering – not cause it. Humane animal care is a basic necessity in medical research, not only for ethical reasons, but because scientists cannot obtain valid results from mis-treated animals. In the rare cases where actual abuses have occurred, the Public Health Service has taken a variety of corrective actions.

Quick question!

What animal is used the most in research?

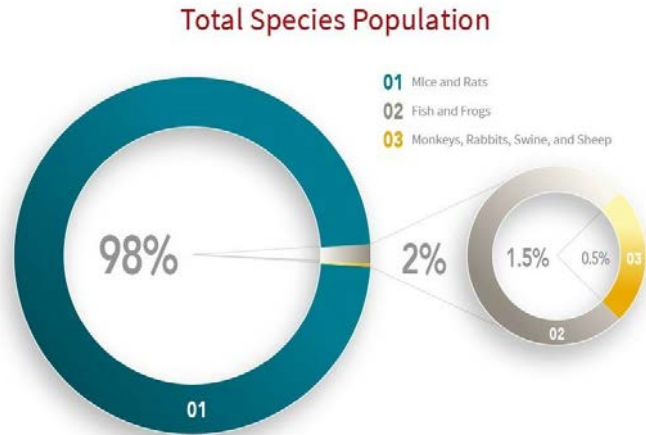
- a) Dogs
- b) Fish
- c) Mice
- d) Monkeys



Answer

C) Mice

Mice, rats, and other rodents are the most commonly used animals in research. They make up over 95% of all research animals. Dogs, cats, and monkeys only make up 1%!



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Another myth!

MYTH: There are alternative research methods that can replace the use of animals.

FACT: Scientists have developed many valuable non-animal research models which are useful in some types of research. These methods, however, cannot completely mirror the complicated processes that occur in the living animal and for that reason cannot be used in the vast majority of research. In fact, all studies must prove there are no alternative models available before they are approved. They follow the 3R model which is Replacement, Reduction, and Refinement.

Fun Facts!

- Humans and mice share 85% of their protein encoding DNA.
- Animals have been important in developing many vaccines like polio, tuberculosis, and diphtheria.
- Cattle specifically were used in the development of the smallpox vaccine
- Dogs have helped us develop hip replacement surgery, kidney transplants, and even pacemakers!
- 88% of Nobel Prizes in Physiology or Medicine have been dependent on research using animals.

How has
animal research
helped your dog?



Melanoma is the most common form of oral cancer in dogs and it can spread rapidly throughout the body. Mouse studies have led to a vaccine that can target these melanoma cells and save dogs' lives.

Lyme Borreliosis is a tick-borne disease that can cripple infected dogs and may even lead to kidney failure. Mouse research has led to the creation of a more effective vaccine to help prevent this disease in pets.

Canine parvovirus is a highly contagious infectious disease that primarily affects unvaccinated puppies. Thanks to studies in rats, an anti-oxidant therapy is now available to combat the disease.



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How has
animal research
helped your cat?



Up to 15% of cats are infected with Feline Immunodeficiency Virus (FIV), a disease very similar to Human Immunodeficiency Virus (HIV), which causes AIDS. Learning more about how FIV progresses in cats will hopefully lead to breakthroughs that benefit felines and people alike.

Keeping your cat from becoming obese is essential for the prevention of type 2 diabetes. Just like cats and people, monkeys can also develop diabetes. It is hoped that nonhuman primate studies will lead to new and improved feline and human treatments.

High blood pressure is a common problem for cats with diseases such as hyperthyroidism and kidney dysfunction. Studies in pigs have revealed important information about why hypertension occurs. It's believed that continued research can be used to develop new feline treatments.



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Acknowledgments

Thank you to BRAD for their coloring pages and fun facts about lab animal veterinarians. (<https://www.bradglobal.org/>)

Common myths and their facts from
<http://mismr.org/facts-myths-about-animal-research/> and
<https://med.stanford.edu/animalresearch/facts-and-myths.html>