

Animal Research FAQ The Top 10 Questions

1. How do we learn from biomedical research using animals?

Each species in the animal kingdom is unique. But just as there are differences, there are also key similarities. This is what comparative medicine is about: researchers use both similarities and differences to gain insight into the many complex human biological systems.

Researchers often work with animal models that have biological systems similar to that of a human. For instance, swine and humans share similar cardiovascular and skin systems. By working with swine, researchers are better able to develop and study new heart medicines and treatments for skin diseases.

To study genetic disorders such as Down Syndrome or Parkinson's Disease, researchers might study a mouse model which shares 94% of its DNA with humans. Organisms that look very different can be very similar genetically. Chimpanzees share 98.7% of their DNA with humans. Zebrafish share 75 - 80% of their DNA with humans. Bananas share 50%.

The differences exhibited in a research model can also provide great insights. For instance, sharks rarely get cancer, cockroaches can regenerate damaged nerves, and some amphibians can regrow lost limbs. By studying these animals we may learn how they accomplish these remarkable feats and apply the principles to human medicine.

2. Who cares for animals in research?

One of the most important, but unknown facts about biomedical research is that just like at your pet's veterinarian's office, there are research veterinarians, husbandry specialists and animal health technicians – people who care deeply for animals – ensuring that animals in research receive the highest quality of care. These well-trained professionals work directly with researchers to minimize discomfort or distress, two factors that affect the well-being of animals as well as the quality of the data collected in the study.

Most research animals do not experience procedures that are any more invasive than what most people face during an annual physical examination. When potentially uncomfortable procedures are involved, anesthetics and analgesics are used to relieve discomfort.

Regulatory laws and guidelines, such as those listed in the [U.S. Animal Welfare Act \(AWA\)](#), which excludes rats, mice and birds, and in the [Public Health Service \(PHS\) Policy](#), which covers all vertebrate animals in federally-funded research, mandate high-quality nutrition, housing and veterinary care for research animals.

Research institutions are required to have an Institutional Animal Care and Use Committee (IACUC). IACUCs approve and review research protocols, ensure that anesthesia and postoperative medications are used when appropriate, and that alternatives to animals are sought out and integrated into studies whenever possible.

Most institutions go above and beyond regulatory requirements by volunteering to have their programs reviewed every three years by the [Association for Assessment and Accreditation of Laboratory Animal Care International \(AAALAC\)](#). This accreditation process is very stringent and institutions with AAALAC accreditation are known for their commitment to excellence and humane animal care.

3. How do laboratory animal science professionals feel about their work?

Laboratory animal science professionals know that animal-based research leads to treatments and cures for both people and animals. By caring for animals in research, they provide hope for you and your loved ones, including your pets, and they feel very passionate about their work.

4. What happens to the animals?

Most research questions can only be answered by harvesting the organ or tissue of interest and examining it at the microscopic and molecular level and animals must be euthanized for this reason. The [American Veterinary Medical Association \(AVMA\) Guidelines on Euthanasia](#) ensure that euthanasia is performed as humanely as possible. Several research institutions have adoption programs for animals in studies that do not require euthanasia.

5. Why are there increasing numbers of mice and fish used in research?

It's estimated that rodents and fish comprise well over 95% of all animals used in research. The numbers of mice and zebrafish have increased due to the ongoing development of genetic research tools. These methods allow researchers to modify the genome in animals to model common diseases in order to study potential cures. For example, scientists have been able to insert the human genes responsible for a type of Alzheimer's disease into rodents, resulting in the rodents' developing the cognitive dysfunction and memory loss that people experience.

6. Why can't alternatives like computers replace research animals?

In many cases they have, but while computers provide terrific resources for researchers all over the world, they do have limitations. For instance, computers are only able to provide information or models of known "phenomena." Because research consistently seeks answers to unknowns, a computer is unable to simulate how a particular cell might interact or react with a medical compound, or how a complex biological system such as the circulatory system will react to a new drug directed to improve organ function.

A single living cell is many times more complex than even the most sophisticated computer program. There are an estimated 50 -100 *trillion* cells in the human body, all of which communicate and interact using a complicated biochemical language – a language researchers have only just begun to learn. Studies using isolated cells or tissues almost always precede animal-based research, but researchers must study whole living systems to understand the effectiveness of treatments and, their potential benefits and dangers.

[Federal law](#) requires that all new drugs, medical devices and procedures first be evaluated in animals for safety and efficacy before clinical (human) trials can begin.

7. What is our true moral obligation?

As living beings with a conscience, we cannot ignore either human or animal discomfort. Laboratory animal care professionals provide research animals with clean and enriched environments, proper nutrition, and specialized veterinary care, to minimize distress and discomfort.

Not only humans, but also animals - pets, livestock and wildlife - benefit from animal-based research. Almost every discovery (antibiotics, anesthetics, surgical techniques, imaging modalities, etc.) developed through studies with animals also has a positive effect on veterinary medicine.

Researchers have a moral obligation to use all tools available to enhance our ability to prevent, diagnose, and treat disease in people and animals. The use of animals in medical research is not the only resource available: computers, molecular models, in-vitro tissue cultures, epidemiology, and other processes are all part of the quest for treatments and cures. The use of animals is but one link in the research chain, but it is a vital link.

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8. Are researchers in it for the money?

Doctors, scientists and laboratory animal care professionals are involved in research because they recognize the limitations in our current ability to prevent, diagnose, and cure disease in humans and animals. Biomedical research is a noble profession. Many in the field could make more money following other career paths.

Animal-based research is *extremely* expensive and it requires a tremendous investment in well-trained people and special facilities. It is also heavily regulated: an institution must spend a significant amount of time and money to ensure that all applicable regulations and guidelines are met. Conducting animal-based research is not something that institutions undertake without a great deal of deliberation and preparation.

9. Why use animals to screen consumer products for safety when “cruelty free” products are available?

[The law](#) requires that all new chemical compounds be screened for safety using a living system.

It is important to understand what “cruelty free” labels really mean. By definition anyone can use “cruelty free” labels if:

1 - as the distributing manufacturer they have not directly evaluated the product in animals.

A company can still use the "cruelty-free" label if they send their product to another company for screening in animals.

2 - some (but not all) components of the product have been screened with animals.

In some cases, products that have been previously evaluated and found safe may be used by other companies and marketed as "cruelty free." For example, if compound A was safe for animals and compound B was also safe, companies can combine compound A and B into compound C and, without further screening with animals, sell it labeled as "cruelty free" and "not tested on animals."

10. How can we be sure lost or stolen pets are not used in research?

Over 99% of the animals used in today's research are “purpose bred” (i.e., bred specifically for research purposes). Those not specifically created for research come from licensed Class B animal dealers that are regulated and inspected by the USDA. Pets do become lost and may never be found but that does not mean that they end up in research laboratories. Pet owners have a responsibility to make sure their animals can be easily identified and returned if lost – through collars with tags, tattoos and/or microchips.