

**2012 PSBR High School Essay Contest  
Grand Essayist**

**Simran P.**  
Fox Chapel Area High School  
Pittsburgh, PA

The mice scurry about in their optimally sized cages, while dedicated researchers observe them constantly. They have been given proper nutrition, as well as comfortable bedding. In fact, they do not even know that they are being tested right now due to the painkiller that has been provided for them; the scientists wanted to eliminate as much pain as possible.

The debate about using animals in research has been an ongoing battle for decades. Despite the claims made by animals-rights activists, it is undeniable that these animals have been well-provided for, and that they have played a huge role in the progress of medicine and science. Animals are used in biomedical research, because animal models have saved thousands of lives, they cannot be effectively substituted for alternate models, and without them, the advances made in science and medicine would be drastically hindered.

"These scientists, veterinarians, physicians, surgeons and others who do research in animal labs are as much concerned about the care of the animals as anyone can be. Their respect for the dignity of life and compassion for the sick and disabled, in fact, is what motivated them to search for ways of relieving the pain and suffering caused by diseases," according to the esteemed Dr. Michael DeBakey, chancellor emeritus of the Baylor College of Medicine and Director of the DeBakey Heart Center. It is indisputable that animals have alleviated that very suffering, and thus, saved thousands of lives. However, it should be noted that animal research has not just saved human lives, but also that of the animals. This concept is called, "One Health, One Medicine," and focuses on the convergence of human and animal health. That is to say, that all species are interrelated. This idea has been embraced by many agencies, including the Animal Veterinary Medical Association. By studying animals, researchers find out what causes diseases, and how to cure or prevent them in animals as well. For example, in 1921, Frederick Banting and Charles Best isolated insulin from the pancreas of a dog, showing that the insulin injections could eliminate the symptoms of diabetes. Banting was given the Nobel Prize for Medicine in 1923. His findings also helped dogs, since they suffer from diabetes as well. As a result of animal testing in biomedical research, a scientist can also understand how animals adapt to different animals, helping threatened or endangered species. In summarization, "We can benefit animals by applying our understanding of human disease to the treatment of animal disease," explains UCLA Vice Chancellor James Economou. Humans have a moral duty to save the lives of animals and themselves, which cannot occur without using animals as research models.

Animal systems provide extensive insights into the human system, because of the similarities between their physiological systems. Animal models have helped us understand microorganism structures, which is essential for designing vaccines to improve the quality of life. Since the human body is so complex, biomedical researchers need tools to mimic this level of intricacy. A researcher cannot just test the effect of a drug on a single organ, but rather, its consequences on the whole living system. In addition, they have many biological similarities. For example, chimpanzees share more than 99% of DNA with humans and mice share more than

98% DNA with humans. This provides evidence for the fact that animals are susceptible to many of the same diseases as humans. With shorter life cycles than humans, animals can be observed throughout their whole life span or across several generations. Also, scientists can easily control the environment around animals (diet, enrichment, temperature, lighting), which would be harder to control with humans.

Every Nobel Prize in Medicine awarded since 1984 has been dependent on data from animal models. This demonstrates the significant amount of contributions animal research has made at the international level. In fact, it is widely believed that halting animal research would actually make science advancements go backwards. Scientists only use animal research when it is absolutely justifiable and necessary. As an alternative, they use cell and tissue cultures, computer models, and epidemiological studies, but the results from these models are a poor simulation and are rather limited. Perhaps one day there will be a model that can provide a true representation of the human body. Until then, it is undeniable that animal research is absolutely necessary for the advancement of science.