

2014 PSBR High School Essay Contest
Grand Essayist

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Imagine a little, white mouse at the local pet store running on its wheel. Although this rodent appears innocent and whimsical, closer examination reveals that this tiny creature is carrying the lives of millions upon its back. To scientists, this little savior is a modern day Superman saving innocent civilians from suffering life-threatening diseases. At first glance, this idea may seem absurd. However, the use of animals in biomedical research has facilitated myriad advances in the medical field. Some of these achievements include developing new surgical procedures, collecting new data on life-threatening illnesses, and discovering cures to these fatal diseases. These medical advances have changed healthcare as we know it, providing treatments we never could have established without the affiliation of animals. Essentially, that one little mouse may turn out to be one large hero.

Animals are a vital component in biomedical research. Without their contributions to science, there may not be any feasible solutions to major health issues such as polio, diabetes, cancer, HIV/AIDS, and many more. One may argue that scientists should use alternatives, like cell cultures and computerized models, for medical research. However, these options do not always yield the information needed to solve the problem at hand. For instance, tissue cultures do not show how an illness may affect an entire organism, as the culture is only a small portion of the organism. Furthermore, it simply is not possible to test certain variables like blindness and blood pressure on a small, cell sample ("CBRA"). Second, a large multitude of animals share corresponding biological structures and physiological functions to those of humans. In fact, about 99% of the human genome is similar to that of the common mouse ("The Animal"). Therefore, it is not aberrant for animals and humans to share connate health issues. Essentially, this facilitates the study of structures and diseases in the test model allowing new discoveries to be applied to the human race. Another reason animal usage is necessary in research is because animals in the testing domain generally have shorter life spans than that of humans. This allows scientists to see how a disease affects an entire organism throughout its life cycle. In addition, some life cycles may be so short that scientists can study generations of a species, which provides further medical insight ("Why"). In essence, using animals in research provides a more stable parallel to how humans may respond to certain diseases.

Although the benefits of biomedical research are obvious, the use of animals in laboratories is still a very polemical topic. While it is natural to assume the animals are suffering from intoxicating chemicals and invasive procedures, this is not the case. In fact, many of the scientists are very passionate about the moral obligations of their work and its benefits for society. Under the "One Health Initiative," the goal of all medical personnel is not to harm the animals, but discover new cures and techniques for both humans *and* animals through the collaboration of medical doctors and veterinarians alike ("Mission"). Therefore, any new medical breakthrough could also be applied to members of the animal kingdom where needed. In addition, animal welfare is further safeguarded by extensive laws and regulations against animal

cruelty. The "three R's: reduce, refine, and replace" are used to refer to how scientists pursue the most humane alternatives for animal experimentation. For instance, reduction refers to limiting the amount of animals used for the experiment. Refinement is the attempt to reduce pain throughout the duration of the experiment. Finally, replacement ensures that animals are substituted in the experiment wherever it is appropriate ("Alternatives"). Needless to say, the welfare of these laboratory animals is indeed humane. Not only are the necessities provided, but scientists genuinely take time to make the animals feel "at home."

All in all, to think one small mouse, ignorant to all realities of human life, just might be a savior to millions of lives worldwide is truly remarkable. The influence animals have had on biomedical research is irreplaceable. It is because of animals, like the common mouse, that scientists have achieved greater medical discoveries than we ever could have imagined. Each animal drives researchers to find new problems and new solutions to fix fatal illnesses, thus saving thousands of people and animals who suffer from such issues. Biomedical research is here to stay. It has changed lives, and will continue to thrive for years to come.

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