The Importance of Animal Models in Research

The importance of animal models for biomedical research cannot be overstated. These models are a critical part of the discovery and evaluation of new therapeutics before they go to human and veterinary clinical trials. SfN and its members around the world support the responsible use of animals in research. It is important to note animal models are currently the best way researchers have to advance life-saving medicines and treatments.[1]

Regulation, Policies, and Principles

In the United States, animal model use in scientific research is already heavily regulated, including requiring the use of as few animals as possible to achieve reliable results. There are three main regulatory bodies overseeing animal research:

National Institutes of Health (NIH)[2]
- Reviews the institution's program for the humane care and use of animals
- Inspects the institution's animal facilities (including satellite facilities)
- Reviews animal welfare concerns

United States Department of Agriculture (USDA)[3]
- Enforces the Animal Welfare Act (AWA), which regulates the treatment of certain species of vertebrate animals
- Conducts unannounced inspections at least once a year; posts inspection reports publicly

Public Health Service (PHS)[4]
- Requires institutions to ensure the appropriate care and use of all animals involved in research conducted or supported by PHS
- Requires institutions to adhere to the Institute for Laboratory Animal Research (ILAR) Guide for the Care and Use of Laboratory Animals
- Incorporates the U.S. Government Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research, and Training

Notable Advancements

Development of Deep Brain Stimulation

Researchers pioneering the application of high frequency stimulation, named deep brain stimulation, of the subthalamic nucleus in patients suffering from Parkinson's disease relied on the non-human primate model in the discovery of this neurosurgical therapy, now regarded as the current therapeutic gold standard of the disease.[5]

Advancements in Addiction Research

Neuroimaging has been used effectively in non-human primates to advance scientific understanding of how addiction, and its intervention, effects neural networks. Collectively, the results of these studies of non-human primates have enhanced our understanding of the neurobiological basis of stimulant addiction and should have a significant impact on efforts to develop medications to treat stimulant abuse.[6]
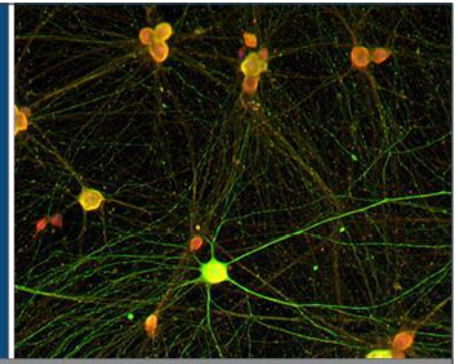
Vaccine for COVID-19

Scientists worked diligently to develop a vaccine for SARS-CoV-2, better known as the coronavirus "COVID-19." First appearing in December 2019, the disease created a global pandemic. Several vaccines have now been created, thanks in large part to a variety of animal models used from testing antibodies to completing vaccines in trial.[7]

In Conclusion

A choice to turn away from animal research would have immediate and dire consequences. The United States would lose essential avenues for discovery. We would fail to realize continued progress in understanding the neural, behavioral, cognitive, developmental, physiological, genetic, and biological processes which contribute to human and animal health and disease. Assessment of the safety and efficacy of new medications would also be severely compromised.

Animals in Research

Sources

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The Society for Neuroscience (SfN) is a nonprofit membership organization of around 30,000 scientists and physicians who study the brain and nervous system. Visit SfN.org or email advocacy@sfn.org to learn more.