The Importance of Animals in Research

Research involving laboratory animals is necessary to ensure and enhance human and animal health to the protect the environment.

In the absence of human data, research with experimental animals (in concert with relevant in vitro data) is the most reliable methodology to detect important toxic properties of chemical substances and to estimate risks to human and environmental health.

In the European Union and the United States, as well as many other countries, research institutions are required by law to establish an animal research oversight committee, and researchers must justify the need, procedures, and protocols for all studies involving animals. Currently, 95 percent of the animals used in research are rats and mice. Research animals must be used in a responsible manner and under the approval of institutional animal care and use committees.

Animal research is not the only source of data in studies. Research is also conducted with epidemiological studies, computer modeling, tissue and cell cultures, and human trials.

Scientifically valid research designed to reduce, refine, or replace the need for laboratory animals is encouraged.

The Role of the Toxicologist

Toxicology is the study of the adverse effects of chemical, physical, or biological agents on people, animals, and the environment. Toxicologists are scientists trained to investigate, interpret, and communicate the nature of those effects. Toxicologists conduct their work through:

- Basic Research: Understanding mechanisms of disease and injury to organisms and the environment.
- Environmental Safety: Hazard identification and determination of health risk due to environmental exposures to toxins.
- Safe Products and Medicines: Discovery, development, and safety assessment of new products and medicines.

Animal Welfare Oversight

Globally, research using animals is strictly governed by animal welfare laws, policies, and regulations such as the European Animal Welfare Directive (Council Directive 86/609/EEC), the United States Federal Animal Welfare Act (AWA) (PL. 89-544), and the United States Health Research Extension Act (PL. 99-158). Many organizations also participate in voluntary accreditation programs, which require adherence to best practice standards based on guidelines published in the National Research Council/Institute of Laboratory Animal Resources (NRC/ILAR) Guide for the Care and Use of Laboratory Animals.

SOT’s Educational Activities

Since 1983, SOT has featured sessions at the SOT Annual Meeting to provide education on the use of animals in research and the development of alternatives to the use of animals in research.

Sample sessions include:
- 2010—The Tox21st Community and the Future of Toxicology Testing
- 2007—Animal Rights Extremism and the Responsible Use of Animals in Research: The Past, Present, and Future
- 2003—In Vivo Toxicity Models to Minimize Animal Use

The 3Rs: Reduce, Refine, Replace

Whenever possible toxicologists seek to reduce, refine, and replace animals used in research.

**Reduction:** Minimization of the number of animals used to achieve specific scientific objectives.

**Refinement:** Continual review of improvements in experimental design, techniques, and husbandry to minimize adverse effects and improve welfare.

**Replacement:** Use of absolute replacement techniques that avoid the use of animals; relative techniques include substituting nonvertebrate species.

The Use of Animals in Research

The Society of Toxicology’s Position on the Use of Animals in Research

The SOT has established various committees and task forces since 1983 to ensure that SOT scientists using animals are doing so in accordance with all federal laws. In addition, the Code of Ethics for the Society states that each member shall observe the spirit as well as the letter of the laws, regulations, and ethical standards with regard to the welfare of humans and animals involved in any experimental procedures. In 1999, SOT adopted a position statement to address the use of animals in toxicology. The Society of Toxicology is dedicated to the acquisition and dissemination of knowledge that improves the health and safety of humans and animals and the protection of the environment.

To fulfill this objective, the Society is committed to:

- The design and conduct of the best possible scientific research;
- The responsible use of laboratory animals in toxicological research and testing as necessary and vital to ensure and enhance the quality of human, animal health, and the environment;
- The development and use of alternatives to the use of animals;
- The use of research designs that employ less painful or stressful procedures and improve animal care; and
- A reduction in the number of animals used for research and testing when this is scientifically appropriate and valid.