

Animal Models

1 Criteria for Choosing an Animal Model

- Species availability
- Proper facilities
- Comparative biology
- Genetic characteristics
- Life span
- Husbandry and technical expertise
- Space and caging
- Special environmental or nutritional requirements
- Biohazard controls
- Other considerations

2 Advantages and Disadvantages

There are advantages and disadvantages to using various animal models and the researcher must take this into consideration prior to planning a research project. For additional help in determining the best model for a particular study, a consultation with one of the laboratory animal veterinarians is helpful.

- **Advantages of animal models**
 - They are predictable and reproducible.
 - Genetic control is easily accomplished.
 - The environment can be standardized.
 - The life span of animals is conducive to experimentation (many species produce multiple generations in a single year).
- **Disadvantages of animal models**
 - They are not exact.
 - Extrapolation to man may not always be possible.
 - There may be anatomical and physiological variations.
 - Results may be limited to standardized conditions of the experiment.

Use of Laboratory Animals in Research and Education

- They generally involve induced states of change, which may differ from the spontaneous condition.

3 Summary

Criteria For Choosing Animal Models

The decision of choosing which laboratory animal species to use in a scientific study can be difficult and should be based on more than precedent. Today, if a scientist is interested in a rodent model, there are hundreds of genetic constructs and mutants from which to choose, as well as the more traditional outbred and inbred stocks. PIs should take their time in making final choices, as they can impact the data generated and the results obtained.

Advantages and Disadvantages

There are advantages and disadvantages to using various animal models, and the researcher must take this into consideration prior to planning a research project. For additional help in determining the best model for study, a consultation with one of the laboratory animal veterinarians is helpful.