

## IMPORTANCE OF ANIMALS IN BIOMEDICAL RESEARCH

Laboratory animals play a crucial role in the preclinical development of drugs by enabling the discovery of new medicines and a way to test their efficacy and safety.

### ***Impacting Science and Human Health***

Knowledge gained from laboratory animal research has contributed to advances in virtually all biomedical disciplines (1), including the diagnosis, prevention, and treatment of various cancers, infectious diseases (e.g., HIV/AIDS), cardiovascular disease, neurological/ neurodegenerative, respiratory, and metabolic diseases, and surgical procedures (e.g., organ transplantation) to name but a few (2). The vast majority (192 of 229 as of May 2025) of Nobel Prize in Medicine or Physiology-winning research used animal models (3).

### ***A Mutual Benefit***

Moreover, animals directly benefit from animal research. Vaccines, antibiotics, anesthetics, surgical procedures, and other clinical interventions developed in animals for humans are commonly employed throughout veterinary medicine. Pets, livestock, and animals in zoos live longer, more comfortable, and healthier lives because of animal research.

#### **References**

1. Animal Testing & Research Achievements: Foundation for Biomedical Research; <https://fbresearch.org/medical-advances/animal-research-achievements>.
2. Mukherjee P, Roy S, Ghosh D, Nandi SK. Role of animal models in biomedical research: a review. *Laboratory Animal Research*. 2022;38(1):18.

### ***From Discovery to the Clinic***

Preclinical development of the AAV-based gene therapy Luxturna® for Leber's Congenital Amaurosis (LCA), a type of inherited blindness, involved naturally occurring retinal pigment epithelium 65/RPE65-deficient Swedish Briard dogs (4), mice, and NHPs. As the first gene therapy approved for use in the United States in 2017, Luxturna® provides sustained visual improvements in LCA patients who otherwise would have lost their sight.

Mouse models and NHPs were also crucial in the preclinical development of Hemgenix® for Hemophilia B, the first gene therapy approved for treatment of hemophilia of the United States in 2022. These animal studies allowed researchers to make key determinations about dosage, efficacy, and safety before moving into clinical trials in humans (5).

### ***Conclusion***

Ultimately, animals play a vital role in biomedical research. Preclinical research involving animals will continue to provide key data supporting our greater understanding of all manner of diseases and the development of new treatments. Franklin Biolabs is steadfastly committed to the ethical treatment and care of research animals and deeply appreciative of the essential role they play in advancing human health.

3. Nobel Prizes in Physiology or Medicine: Foundation for Biomedical Research; <https://fbresearch.org/medical-advances/nobel-prizes>.
4. <https://hopeinfocus.org/dr-jean-bennett-seeing-the-light-with-retinal-gene-therapy/>
5. Anguela XM, High KA. Hemophilia B and gene therapy: a new chapter with etranacogene dezaparvovec. *Blood Adv*. 2024 Apr 9;8(7):1796-1803.

