

Animal Models in Biomedicine: Past, Present, and Future Directions

*Professor Rachel A. Ankeny**

School of Humanities
Napier Bldg 7th floor
University of Adelaide
Adelaide SA 5005 Australia
rachel.ankeney@adelaide.edu.au

Use of animal models is a fundamental part of contemporary biomedical research, and are commonly used to study the genesis, development, and progression of diseases and to test new therapies before they are given to humans. Many non-human animal models are well-established and in common use across a range of subfields in medicine, such as particular strains of mice and rats, whereas others are preferred for investigation of particular physiological or other processes. Model choice requires a series of well-recognised trade-offs, which are closely tied to the historical and sociological factors associated with the choice, development, and use of these models. This address provides an analysis of currently popular and emerging animal models to explore their power and limitations in comparison with each other and with non-living model systems. It explores the translational gaps inherent in certain animal models and the broader systems within which they are used, and the special challenges facing those working in nanomedicine including communicating with broader communities about the potential benefits and risks of animal modelling and of nano-based techniques more generally. Transparency and reflective practice in association with use of non-human animal models is essential in order to counter hype and promote realistic expectations for nanomedicine into the future.