Book Review: The Minipig in Biomedical Research

Editors: Peter A. McNaul, Anthony D. Dayan, Niels-Christian Gudemand, and Kenneth L. Hastings
Publisher: CRC Press, Hardcover, $195.00
Reviewer: Kristy Conn

I was excited to review this textbook because of the relative paucity of books on the use of minipigs in research. Minipigs appear to be currently underutilized as animal models primarily because of unfamiliarity with them. As scientists come to realize the benefits of minipigs such as their small size, ease of handling, and their numerous anatomical and physiological similarities to humans it is likely that their use and numbers will increase along with the growing awareness. There is a great need for reference texts concerning the use of minipigs in biomedical research and this textbook clearly aims to help fill the void.

This book has a particularly heavy emphasis on the use of minipigs in pharmacological and toxicological studies which is not surprising considering the editors’ prominent backgrounds in pharmacology and toxicology. However, the breadth and scope of this book extends into other disciplines by exploring minipigs as a disease model for a myriad of conditions including diabetes mellitus, osteoporosis, atherosclerosis, and oral disease. Wound healing, xenotransplantation, and immunology issues are covered thoroughly as well. The text does an excellent job of explaining what is currently known, while also highlighting areas where standard protocols are lacking and areas where more research is needed, such as characterizing and sequencing the porcine genome. This may spur further investigations into the biology of minipigs by increasing researcher confidence and comfort level working with this species in the future.

This book is the result of the contributions of over 80 people who are clearly experts in their fields and well versed in the use of minipigs in their research. The reader benefits from their experience and expertise but the book suffers from dissonance by having so many contributors. At times it feels as if one is reading the collected proceedings from a minipig symposium. The level of detail varies greatly from chapter to chapter, which is clearly evident in the wonderfully thorough chapter on ophthalmology versus the barebones summary of common minipig diseases. Reading from chapter to chapter is disconcerting at times because of the different voices; it is not unusual for one chapter to have a heavily British tone followed by a lyrical chapter seemingly penned by a Southern writer. This effect is heightened by variations of the style of in-text citations from chapter to chapter and even minor variations in how the ends of chapter references are stylized. Stronger editing, preferably from one primary editor instead of this book’s quartet of editors, and utilizing a standardized set of submission guidelines for the contributors, akin to those found for scientific journals, would go a long way in making this book more cohesive and consistent.

There are numerous images throughout the book that help visually reinforce what each chapter is trying to convey. However, the black and white photographs are low-quality images with black and white streaks obscuring the fine details of the photograph. This appears to be a result of the printing process that CRC Press used. There is a 24-page color insert in the middle of the book with color versions of most, but not all of the black and white photographs, and there they appear to be high-quality with vivid detail. I especially enjoyed the histological comparison of human and porcine skin; the similarities are indeed striking. It is unfortunate that not all photographs could receive this glossy color treatment. Due to the large number of contributors the quality of the illustrations varies greatly. A small number of them are somewhat amateurish and future versions of this book would greatly benefit by bringing in a scientific illustrator to improve the quality of some of the illustrations and to simplify some of the more cluttered diagrams.

This book is primarily directed to researchers who are interested in or considering the use of minipigs in their research. It does an excellent job of this by exploring a multitude of ways that minipigs are proving themselves as a versatile, relevant, and convenient animal model. It includes helpful contact information and useful links to various organizations that breed and sell minipigs. It is not an ideal textbook for laboratory animal practitioners since it is more focused on the research applications of minipigs than veterinary care of these animals. I would recommend The Laboratory Swine by Peter Bollen and Swine in the Laboratory: Surgery, Anesthesia, Imaging, and Experimental Techniques, 2nd edition by M. Michael Swindle for practitioners seeking information on the biology, husbandry, and veterinary care, and to use The Minipig in Biomedical Research as a supplemental text to stay current on the status of this increasingly utilized research animal.