ANIMAL MODELS

The Minipig in Biomedical Research

'The Minipig in Biomedical Research' is an extensive and relatively comprehensive overview of this increasingly popular experimental model in research. The book is organised into 41 chapters, divided into 8 sections. The first covers the Origin and Management of the Minipig, including husbandry and diseases, as well as issues with transportation. Subsequent sections describe Welfare and Experimental Usage, Pharmacology and ADME, Safety Assessment, Genetics and Immunology, Disease models, Regulatory Perspectives, and New Horizons and Perspectives. For this review I have chosen to concentrate mainly on the content in relation to safety assessment and toxicology.

The only previous significant stand-alone scientific publication on the minipig seems to be the proceedings of a symposium at the 1997 EUROTOX meeting entitled 'The Minipig in Toxicology' published by the Scandinavian Journal of Laboratory Animal Science. As this is no longer in print, this book at first sight appears to fill an existing gap in the literature, and indeed on the back cover claims, amongst other things, to cover 'all areas of toxicity testing'. Although, as will be discussed below, this is possibly overstating its scope, the book still provides a valuable overview of this species.

The minipig's main use as an experimental model in toxicology is probably in the field of dermal toxicity, and the chapter by Makin et al is indeed a good overview, with background on skin anatomy, penetration or absorption by xenobiotics, and pharmacokinetics, before detailing the four main areas of testing – skin irritation, allergic contact dermatitis, phototoxicity and dermal drugs with systemic exposure. Methods are described in reasonable detail, and even the risks of cross contamination are discussed. However, this is the only dose route that is covered here, with the ensuing chapters in the Safety Assessment section organised by target organs/ systems, including the GI tract, heart, CNS, kidney, endocrine system, skeletal system and reproductive organs. For other dose routes such as oral, intravenous and inhalation dosing, there are more generic technical descriptions in an earlier chapter (8 - Dosing Methods), but their relevance to toxicology studies is not discussed. Another missed opportunity I feel was not to include some background data, for example on clinical pathology parameters, as this would have added valuable and interesting data for toxicologists. The figures and tables in the book are very clear and helpful, and there are numerous colour photos, including some histopathology slides of common lesions. The list of authors is truly international, with expert contributors from USA, Europe, China, Japan and New Zealand, and the editors are also well respected in the field.

Overall, this book will be a very useful reference source on the minipig for anyone involved with this species in biomedical research. It has elements that will also be of value to toxicologists, and what information is not covered in the book can probably be found through the references provided.

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