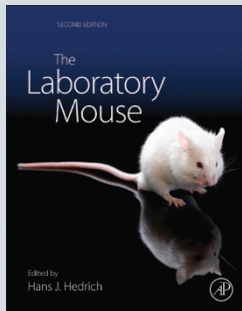


A valuable handbook for mouse researchers

Reviewed by Vera Baumans, DVM, PhD, DipECLAM



THE LABORATORY MOUSE SECOND EDITION

Edited by Hans J. Hedrich

Elsevier, London, 2012

Price: \$243.95

Hardcover, 868 pages

ISBN: 978-0-12-382008-2

This handbook has been extensively revised and updated since publication of the first edition in 2004. The chapters have been reorganized and some have been rewritten. Many pictures are now in full color. Still much emphasis is put on mouse genomics, the generation of mouse mutants and the genetic map of the mouse. Although this information is useful the topic may be a bit over-represented. The references are now in numerical rather than alphabetical order, making it less easy to find a reference. The book is divided into six sections.

The first section on history and genetics has been thoroughly revised and includes updated references. Some chapters were written by new authors.

The second section is on anatomy and normative biology. The anatomy subsection consists of a series of drawings, followed by useful short descriptions of the histology of organs, now grouped by system instead of alphabetical order. The pictures are excellent. It is a pity that Latin names are now omitted. New to this edition is a chapter on 'Development and Disease of Mouse Muscular and Skeletal System' with many recent references. The chapter on studying immunology is also new and worth reading. 'Behaviour of the House Mouse' is a new chapter. The chapter on biological rhythms has been transformed, highlighting the consequences of husbandry procedures and experimental work during the light (resting) period of mice.

Part 3 on 'Neoplasms and Infectious Diseases' includes updated chapters about neoplasms and viral infections. New and colorfully illustrated are the chapters on bacterial and parasitic infections.

The fourth section, 'Husbandry and Maintenance,' includes an updated chapter on housing and maintenance that specifically

addresses 'Refinement of housing and environmental enrichment.' It is a pity that more emphasis has been put on the risk of an increase in variation due to the provision of environmental enrichment and that many authors stating the opposite are left out. A new chapter on mouse enrichment has been added to this edition. Although it could have been written a bit more crisply, it is a useful chapter ending with the very true remark that communication between personnel and research teams in implementing environmental enrichment is essential. Chapters on nutrition, health management and genetic monitoring of inbred strains are very informative and updated. The chapter on 'Cryopreservation of Preimplantation Embryos and Gametes,' though updated, does not address the possibilities of using older virgin females for superovulation and mating. In the part on vasectomy in the male, the need for post-operative pain relief is not discussed. It is also stated that isoflurane has no analgesic properties, which is not confirmed in the later chapter on anesthesia.

In the fifth section on procedures, most chapters have been updated and mistakes from the first edition corrected. The chapter on 'Routes of Administration' could have benefitted from a reference update. The chapter on 'Collection of Body Fluids' has regrettably not been updated. To include a description of the etherjar for induction of anesthesia for heart puncture and maintenance by ether-soaked cotton is rather obsolete! Also the use of pentobarbital anesthesia and the use of pins through the paws for total bleeding from the femoral artery seem outdated, as does the inclusion of blood collection from the retro-orbital venous plexus under light pentobarbital anesthesia. It should also have been mentioned that the tail veins are always accompanied by arteries. Puncture of the maxillary vein should have been discussed, as this is now widely used. In the chapter on anesthesia, analgesia and euthanasia, the use of ether is at least discussed. The part on anesthesia in neonates has been expanded. It should have been mentioned that the use of carbon dioxide for euthanasia is still under debate. The use of the home cage in carbon dioxide euthanasia should have also been discussed. The chapter on imaging has been thoroughly revised with great pictures. In 'Necropsy Methods,' it is stated that decapitation of adult mice should be avoided, which is not in line with statements in chapters 5.3 and 5.4. When done properly, decapitation is generally accepted as a good method. Also here it should have been mentioned that after cervical dislocation, as with other physical euthanasia methods, death should be confirmed by exsanguination.

The section on 'Laws, Guidelines and Policies Governing the Use of Mice in Research' has now been placed at the end of the book and has been completely revised to include international regulations.

In general, *The Laboratory Mouse* is well-written and easy to read. It is a useful resource for inexperienced as well as experienced scientists who use mice as experimental animals.

Baumans is Professor emeritus in Laboratory Animal Science at Karolinska Institutet, Stockholm, Sweden, and is affiliated with the Department of Animals in Science and Society, Division of Laboratory Animal Science, Utrecht University, The Netherlands.