

Book Review

The Sperm Cell. Production, Maturation, Fertilization, Regeneration

Edited by Christopher De Jonge & Christopher Barratt
359 pp., Cambridge University Press; 2006. ISBN 0-521-85397-4. Cost: \$95.00

Type of Book: Multi-authored, edited volume

Scope of Book: Comprehensive review of the biology of the sperm cell: the focus is on human sperm with relevant non-human mammalian sperm data included. In addition to the areas denoted in the title, chapters on the genetics, epigenetic modifications, and genetic aberrations leading to male infertility are presented.

Comments: The book contains 12 chapters, spanning spermatogenesis to DAZ genes and development from embryonic stem cells. There are 25 contributors from Australia, Canada, Germany, Netherlands, South Africa, United Kingdom and United States. The first chapter provides a detailed account of spermatogenesis with emphasis on structure and biogenesis of the many components of the cell. From this auspicious beginning, the book then proceeds to cover the unique structure of sperm chromatin, the development and use of genomic and proteomic technologies in human sperm assessment, sperm maturation in the epididymis, regulation of sperm motility, interaction of sperm with reactive oxygen species, interaction of sperm with the egg zona pellucida and its clinical applications, basic genetics applicable to sperm biogenesis, sex chromosome abnormalities with consequences for male infertility, epigenetic patterning in male germ cells with focus on DNA methylation (usually omitted from this type of review), and germ cell development from embryonic stem cells that includes an account of the DAZ gene family and the consequences for male infertility from its disruption. The book thus provides a rather complete sweep of the most recent research into all aspects of the human sperm cell. This is most welcome, as nearly a decade has passed since such a treatment has been published. The choice of contributors is admirable: the most active and productive in the field are represented. There is a good mix of basic biology and of clinically useful lore in the book, which is itself sturdily constructed and so can withstand constant use in the andrology laboratory as well as on an investigator's desk. One aesthetic and illuminating feature is the inclusion in a center section of color plates as companions to the black and white figures in the text itself.

Strengths: All chapters are clearly written, the figures presented are large enough to be readily appreciated and the figure legends are comprehensive. The editors deserve credit for this show of quality control. A particularly useful aspect of each chapter is the comprehensive list of references; the book thus serves as a large portal to the current literature in the field. The chapters on the genetics relevant to sperm structure and function are welcome.

Deficiencies: Inevitably there is some overlap of material between chapters, but this is hardly a problem. The Index is a bit sparse, but is sufficient to find desired topics.

Recommended Readership: Andrologists, students of and investigators in reproductive biology, laboratory directors in infertility services, basic scientists in biology and physiology

Overall Grading: ***** - outstanding