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BOOK REVIEW

Olmo E, Redi CA, editors. Chromosomes Today. Volume 13. Basel: Birkhäuser Verlag; 2000. 320 pages; ISBN 3-7643-5799-1; price: DEM 238.00

Field of medicine: Cytogenetics, molecular biology.

Format: Hardcover book.

Audience: Researchers in the fields of biological and medical sciences, especially cytogeneticists and chromosome researchers.

Purpose: Volume 13 of the *Chromosomes Today* series contains invited lectures given at the 13th International Chromosomes Conference held in Ancona and Numana, Italy, September 8-12, 1998.

Content: The book opens with Ernesto Capanna's historical overview of cytogenetics in the 20th century. The first part of the book, divided in four chapters, deals with chromosome organization. Knowing that in 1958 scientists were still arguing whether DNA extended from end to end of a chromosome as a single long molecule or as several smaller molecules, it is interesting to learn about the dilemmas on chromosome organization researchers face today. These questions mostly address the distribution of different DNA fractions in genomes, as well as biological function of extensive amounts of non-coding DNA.

Proper chromosome organization is important but not sufficient for their function and behavior. The second part of the book, divided in three chapters, deals with this topic, introducing the reader to the complicated and not completely understood system of checkpoints and error controls that chromosomes must obey. Dramatic effects of altered gene expression are seen in the example of insulin-like growth factor 2 (Igf2) gene imprinting, described in this chapter.

The following two sections are devoted to meiosis and evolutionary genetics. Medical cytogeneticists may find useful the first section focused on different tools for probing chromosome organization and behavior.

"Medical and cancer cytogenetics", subdivided in three chapters, is probably the most interesting section of the book for the health care professionals. It starts with the description of chromosome and gene alterations in human cancers and during aging. The application of molecular biology and cytogenetical techniques in clinical diagnosis is illustrated with the example of Xp contiguous gene syndrome, an association of up to six X-linked diseases. The chapter is concluded with an overview of genetic and cytogenetic studies of the Li-Fraumeni syndrome.

Chromosome research stretches current technology to its limits. Some of the innovative approaches are presented in the sixth part, entitled "Mapping and new methods".

The last chapter, "The future of chromosomes", is written by Herbert C. Macgregor. It was interesting to read what an expert, who spent over 40 years in the field, thinks about the future directions of chromosome research. In addition, he raised important questions about the training of good teaching scientists.

Highlights: This book is an excellent overview intended for the chromosome researchers and scientists in related areas. A number of graphs, pictures, and color plates make it both interesting and easy-to-read. It is also a very good source of references for those seeking a more detailed insight in particular topic. I particularly enjoyed reading about experimental models devised by founders of genetic and chromosome science. Furthermore, I believe that this text also provides very good source of information for clinicians wishing to better understand molecular mechanisms of various diseases.

Limitations: Some sections of the book are focused on plant models, which might be of little relevance to the physicians involved in the chromosome research.

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