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**BOOK REVIEW**

# Chromosomes Today

**(E. Olmo and C. Redi, eds., Birkhäuser Verlag, Basel-Boston-Berlin, Vol. 13, 2000, ISBN 3-7643-5799-1)**

"Chromosomes Today" is based on the materials of 13th International Conference (Ankona, Italy) on various aspects of organization of eukaryotic chromosomes. The introduction (E. Copana, University of Rome) analyzes in detail the history of the main developments in classical period of cytogenetics. Subsequent articles are divided into six sections corresponding to the sections of the conference: chromosomal organization, properties and functions of chromosomes, meiosis, evolution of chromosomes, medical and cancer cytogenetics, and mapping and new methods.

The first section contains new and interesting data on genetics of heterochromatin in *Drosophila* and on distribution of specific repeat DNA sequences in mitotic chromosomes of humans and certain plants.

The second section analyzes data on alternative interaction of chromosomes with mitotic spindle elements and considers genetic control of B-chromosome distribution in plants. The modern review of the data on certain properties of the *Igf2* gene are of particular interest; this gene plays a key role in cell proliferation, normal development, induction of apoptosis, and a number of pathological processes.

The third section compares the structural organization of synaptenimal complexes of meiotic chromosomes of multicellular eukaryotes and yeast and distribution of subdomains of chromosomes (centromere and telomere) in pachitenal stages. Sex chromosomes of *Drosophila* are described as a model of specific DNA sites important for pairing and segregation of meiotic chromosomes.

The fourth section is devoted to various aspects of genome evolution in the *Triticeae* family and to the problem of karyotypic evolution of fish. A separate chapter recommends the use of DNA repeats as instruments to study phylogenies of homoeothermic vertebrates. A review of recent advances in human and other mammal chromosome mapping is also of interest.

The fifth section describes detection of chromosomal aberrations associated with aging and malignancy. Data on clinical and genetic aspects of mutations in the pseudoautosomal region of the human X chromosome are of special interest as well as data on genetic and cytogenetic analysis of the TP53 gene because its mutations dramatically increase the occurrence of malignancies (Li-Flaumeni syndrome).

The sixth section describes new approaches to studies of chromosomes and their subdomains using various chromosomal markers.

The final section (H. C. Macgregor, England) contains certain considerations of perspectives of modern cytogenetics.

In general, the book includes interesting and new data on several key problems of organization of eukaryotic chromosomes. During the several years after the conference, a number of new data have appeared in the field; however, the major problem of cytogenetics, i.e., chromosomal structure, is still unsolved. The main feature of most of the sections of the book is detailed explanation of goals of particular directions in chromosome studies and the perspectives of these studies. The introductory section contains an aphorism: "The future begins yesterday". This is a point of complete agreement with the authors. Thus, the book can be recommended for experts in various fields of modern biology.

*V. Yu. Polyakov*

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