

Cell Biology. Channarayappa. Universities Press (India) Pvt Ltd, 3-6-747/1/A and 3-6-754/1, Himayatnagar, Hyderabad 500 029. 2010. xii + 594 pp. Price not mentioned.

Cell biology is one of the interesting areas of rapid development in recent times. Understanding the life processes of a cell paves the way for understanding the dynamics of the cell from unicellular to multicellular organisms.

This book has focused on the organization of the cell in the evolutionary scale, changes in the cell structure and membrane from unicellular to multicellular organisms, prokaryotes to eukaryotes.

Cell biology can be broadly categorized into cell division, cell maintenance and cell death. The author has done an excellent job for providing enormous

amount of information in a simple and clear fashion for the purpose of understanding of the student. The diagrammatic representations of various signalling pathways and transport are the highlight of the book. It takes the reader gradually from the origin of the biological system to the most important aspects of cell biology, cell motility, cell division and cell death, and ends up with tools for the study of the cell.

Though fundamentally most of the cell biology books start with the cell theory and cell structure, the first chapter explains about the origin of life and the evolution from abiotic atmosphere into the multicellular form and the complexity involved in the process, which is a prelude for the student to understand the dynamics of the cell and its function. The various environments where the bacteria have adapted to live will certainly depend on the physical barriers to keep the components intact. The cell wall structure and cell membrane composition will help the reader appreciate the importance of the same. The author discusses in detail about nanobacteria and their biomineralization and potential role in serious health problems.

The next few chapters give a comprehensive coverage of cell structure, and organelle structure and function. The dynamics of the cell involves in the functioning of various organelles and the

individual functions that they carry out. The powerhouse of the cell, mitochondria and chloroplast have been explained well; its organization from the molecular to functional level and localization of metabolic machinery. The importance of the individual organelles and biogenesis would help the student understand the interdependence of the organelles for carrying out various processes like protein secretion and sorting out in the endoplasmic reticulum, Golgi body and lysosomes, and the fusion of copI and copII vesicles. These aspects are important, but have somehow escaped the author's notice. Vesicular fusion should have been covered in more detail, whether it is the fusion from RER or endolysosome or vesicles at synapses.

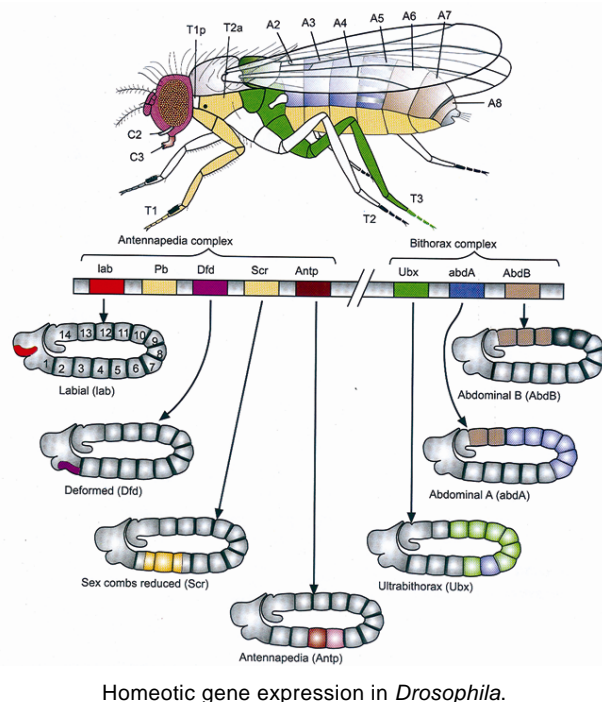
The turnover of the cell involves both division as well as cell death. The author has covered more extensively cell death and the various pathways involved in it, but cell-cycle and stages of cell-cycle, cyclins and cell cycle check-points have not been mentioned. They are not only important, but are also interesting from the student's point of view. Mere mention of the cdk and cyclins in the cell cycle will make it difficult for the reader to correlate. The abnormal proliferation of the cells, cancer, should have been dealt in more detail, which would have made the student understand more about cell death and control of check-points involved in it.

The beauty of the cell and its dynamic internal milieu can only be fully appreciated by visualization and many changes involved in it. The application of sophisticated techniques and fluorescent microscopes as well as imaging has helped the reader to understand the cell and its organelles better. The author has covered the principles of most of the techniques involved in the concluding chapter.

In my opinion this is one of the good cell biology textbooks available, with lot of information given in a simple manner. The chapters conclude with multiple-choice questions, with explanations and references to relevant sections in the book.

HEMALATHA REDDY

Department of Biochemistry,
Sri Venkateswara College,
University of Delhi,
Dhaura Kuan,
New Delhi 110 021, India
e-mail: reddy.hl@bio-svc.ac.in



Homeotic gene expression in *Drosophila*.