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Book Review

Cell Biology. A Laboratory Handbook **(4-volume set), 2nd edition, Vol. 1: 564 pages, Vol. 2: 534 pages, Vol. 3: 526 pages, Vol. 4: 674 pages; J.E. Celis (Ed.); Academic Press, San Diego, 1997, ISBN 0-12-164725-0, US$149.95**

The second edition of this highly praised handbook brings together more than 240 new, revised, concisely written and beautifully illustrated chapters in an attractive four-volume set, providing an easy-to-use source of current and classic protocols, presented in a clear format.

Volume 1 (62 chapters, plus 2 appendices)

Part 1) *Cell and tissue culture and associated techniques*:
General techniques. Primary cultures from embryonic and newborn tissues. Culture of specific cell types (Epithelial cells, Mesenchymal cells, Neuroectodermal cells, hemopoietic cells, gonads). Cell separation techniques. Model systems to study differentiation. Cell cycle analysis. Assays of tumorigenicity, invasion, and others. Cytotoxic and cell growth assays. Senescence and apoptosis. Electrophysiological methods. Histocultures and organ cultures. Other cell types and organisms (insect cells, caenorhabditis elegans, protozoa, fungi, plants).

Part 2) *Viruses*.

Volume 2(62 chapters plus 1 appendix)

Part 3) *Organelles and cellular structures*:
Plasma membrane and cytoplasmic organelles. Nucleus and nuclear structures. Proteins. RNA.

Part 4) *Assays*:
Endocytic and exocytic pathways. Mitochondria and chloroplasts. Peroxisomes. Nuclear transport. Motility assays for motor proteins and other motility models.

Part 5) *Antibodies*:
Production of antibodies. Purification of immunoglobulins. Antibody specificity.

Part 6) *Immunocytochemistry*.

Part 7) *Vital staining of cells*.

Volume 3 (53 chapters)

Part 8) *Light microscopy and contrast generation*:
Light microscopy. Video and digital fluorescence microscopy. Confocal microscopy. Digital image processing and display. Histology and histochemistry.

Part 9) *Electron microscopy*.

Part 10) *Intracellular measurements*.

Part 11) *Cytogenetics and in situ hybridization*:
Cytogenetics. Somatic cell hybrids. *In situ* hybridization.

Part 12) *Transgenic and gene knockouts*.

Volume 4 (65 chapters plus 1 appendix, list of suppliers, and Subject Index for Volumes 1–4)

Part 13) *Transfer of macromolecules and small molecules*:
Microinjection using glass capillaries. Syringe loading. Electroporation. Pore-forming toxins and other procedures. Liposomes and lipofection. Microprojectile bombardment. Transformation of plant cells.

Part 14) *Expression systems*:
Cell-free systems. Eukaryotic expression systems. Expression of cDNAs in *E. coli*. Expression systems for cytoskeletal studies.

Part 15) *Differential gene expression*.

Part 16) *Proteins*:
Protein determination and amino acid analysis. Preparation of tagged proteins. Gel electrophoresis. Labeling of cells. Gel staining. Overlay techniques and others. Techniques to reveal interacting proteins. Peptide microsequencing. Mass spectrometry.

This 4-volume laboratory handbook would be useful for laboratories working in biochemistry, molecular biology, biophysics, and microbiology, as well as for advanced students.

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