all free-living amoebae. However, the author may be referring only to small freeliving amoebae since the methods described are not to the reviewer's knowledge easily applied to the large amoebae.

Despite the shortcomings noted, the volume is a valuable reference that is comprehensive in its coverage of a wide range of living materials. Collecting the expertise of the authors into one ease-to-use manual designed for direct laboratory application is attractive. The volume offers easy access to a variety of useful protocols without the need for a cumbersome search of the voluminous and scattered literature on low-temperature preservation, as the editors aptly point out.

Frank P. Simione

Human Basophils and Mast Cells: Biological Aspects; Chemical Immunology, Vol 61; Edited by G. Marone, Karger, Basel, xi + 242 pp. $ 228.00. ISBN 3-8055-6127-X

This volume is one of two; the other deals with clinical aspects of mast cells and basophils. There are a number of recent publications dealing with both basic and clinical aspects of these cell types. Although unlike the present volume, most represent conference proceedings, this account differs in one important way; it attempts to deal with mast cells in a wide range of organs and systems of the body, areas often neglected in other treatises.

The first chapter on ultrastructural morphology of human mast cells and basophils describes results using a modified immunogold technique for localising enzymes involved in the eicosanoid pathways and histamine secretion. This, together with a chapter on the portfolio of cytokine and other receptors expressed by mast cells and basophils by P. Valent provide a useful structural and molecular basis to the functional studies which come later. One of the major advances in understanding of the growth and differentiation of mast cells and basophils and the importance of the micro environment in the phenotype of mast cells had been the discovery of the role of Stem cell Factor (SCF) (C-kit ligand) derived from fibroblasts and certain other cell types. The importance of synergy of SCF with other cytokines in enabling culture of mast cells in vitro is mentioned although the important role of interleukin-6 (IL-6) and of TH1 and TH2 cytokines might have received more emphasis.

The present state of knowledge on signal transduction following FCεRI cross-linking in mast cells and basophils is well reviewed by Scharenberg, Kinet and MacGlashan. However the opportunities for therapeutic intervention offered by insights into the stimulus - secretion coupling events seem limited. The human mast cell as a source of immuno regulatory cytokines is well reviewed by M. Church and colleagues. Students of the pathogenesis of human disease in which mast cells appear to be involved (asthma, psoriasis, atopic eczema chronic arthritis) may well feel that the pathogenetic importance of these cells in the aforesaid diseases has received insufficient attention. The authors also make the important point that the tissue micro environment of the mast cells may have a major influence on the pattern of cytokines produced by mast cells. Whilst the arachidonate transformation pathways in mast cells and basophils are quite well covered in the chapter by Marone and colleagues, the reader is left wondering about the role of cytokines as described in earlier chapters and including IL-10, on modulation of these important pathways as previously described elsewhere by Austen and colleagues.

One of the two most important chapters in the book is that by Grant and Alam dealing with histamine releasing factors. Although the chemokines as histamine releasing factors are described in some detail, presumably because the authors themselves have been involved in their evaluation, there is a surprising omission of mention of other workers' findings in this field including histamine releasing cytokines (Claveau and colleagues (Quebec) and anti FCεRI auto antibodies (discovered by Hide and colleagues (London). The modulating role of stem cell factor on mast cell activation is also not discussed.

The second important chapter is on the neuro immune connection. Most people believe there is an important functional relationship between the nervous system and the tissue mast cells but no one seems to have a clear idea of exactly how it works. Bienenstock makes a worthy attempt to clarify this fascinating area beginning with evidence on the close relationship between tissue mast cells and peripheral nerve endings. He also emphasises the role of neuropeptides and nerve growth factor in mast cell regulation; the former acting via the axon reflex flare and the latter leading to mast cell proliferation. However the crucial pathways whereby information from higher centers can feed down to tissue mast cell populations, leading to activation remains to be elucidated.

Overall this book can claim to be the most comprehensive treatise currently available on the rapidly developing topics of the biology of mast cells and basophils. Individual chapters integrate together well enough to give the reader a feeling of a continuous and logical journey through this complex field. The volume should form an excellent introduction to the more clinically oriented second volume.

Malcolm W. Greaves

Oncogenes (2nd. edn.); Edited by G.M. Cooper. Jones and Barlett Publishers, Boston, 1995. xiv + 384 pp. $ 52.50. ISBN 0-86720- 937-2.

The author was one of the pioneers in isolating activated oncogenes from human cancers in the early 80ies. He presents an overview mainly aimed at advanced undergraduates, medical student, doctors and scientists. Out of the vast literature he has selected what he considers as highlights and has concentrated this in short descriptive chapters follow by an extensive list of references. These are organized after topic making it easy to find relevant papers.

In a brief introduction basic concepts of cancer research are presented in order to create a background for the following chapters. Thereafter follow a description of tumorvirus where the general theme for DNA tumor virus is the interference between viral proteins and p53 and pRb disturbing the control of the cell cycle. In contrast to these stand the retrovirus where the understanding of retroviral oncogenes gave the first understanding of disorders in cell proliferation related to cancer as summarized in chapter 4.

Chapters 5 to 8 relate to the cellular oncogenes. How they were identified showing that all of those isolated from cancer cells carried mutations in contrast to their normal counterpart the protooncogenes. How they could become targets for viral integration or insertional mutagenesis. Finally how many of these were involved in chromosomal translocation or amplifications in tumors. In each chapter clear tables help to provide the overview out of which comes the general picture that several of the oncogenes have been activated by several different mechanisms in different tumors and therefore show a gain of function in tumors.

The tumor suppressor genes are exemplified by the discovery of the retinoblastoma gene. It started with somatic cell hybridization where the normal counterpart dominated over the tumorigenic cell. This was followed by the recognition that when hybrids lost some chromosomes they regained tumorigenicity. Combined with the occasional loss of chromosome 13 in retinoblastomas lead step by step to the identification and cloning of the retinoblastoma gene. This in turn showed loss of function in many common types of tumors and not only in the rare hereditary disease in children. This has lead to the general concept that tumor suppressor genes show loss of functions in cancer. Table 10.1 and 10.2 give a summary of the most common tumor