immunization. The chapter gives a critical and well balanced overview about the many algorithms in current use to predict B cell and T cell epitopes. A new algorithm, developed in the authors' own laboratory and based on the apparent preponderance of β-turns in protein epitopes, is presented. In spite of all their sophistication, the success rate of the prediction methods remains modest.

The ever increasing use of peptide antigens has been fostered by tremendous improvements in automated solid-phase peptide synthesis and by new and ingenious methods to rapidly and simultaneously synthesize large numbers of peptides in small amounts and in forms suitable for different immunological applications. Three chapters are related to the chemical synthesis of peptides. In chapter 3, B. Walker gives a concise and clear presentation of current synthetic procedures, covering the pros and cons of Boc and Fmoc protection strategies as well as of the attention that has to be given to the proper choice of side chain protection. Peptides are generally poor immunogens and a recurrent task is to render them immunogenic, which in the past has been achieved mainly by coupling the peptides to a high molecular weight carrier that helps to improve immunogenicity and to enhance T cell help. A purely synthetic approach has been taken by J.P. Tam. His multiple-antigen peptide system is presented in chapter 4 and discussed together with the more traditional carrier approach.

Also dealing with new methods of peptide synthesis is chapter 7 on 'Epitope mapping using synthetic peptides' (J. Worthington and K. Morgan). Practical aspects of Geysen's 'Pepscan' technology in which hundreds to thousands of short peptides are synthesised onto plastic pins and directly used in immunoassays are surveyed and the use of this astonishingly simple method for the mapping of B cell and T cell epitopes is illustrated by examples from the authors' own work. Multiple peptide synthesis has had a strong influence on the way epitopes are conceived by many researchers. This is unfortunate as epitope mapping with peptides is necessarily limited to the detection of sequential epitopes, that is, epitopes of proteins that can be successfully mimicked by a short synthetic peptide. Although I do not share the minority view of those who doubt that peptides are at all useful for epitope mapping, I find that the problems with the peptide approach of epitope mapping have not been sufficiently considered in this chapter. The allusion given that all possible epitopes of a particular protein can be identified by the peptide approach is a misconception of what epitopes are and of the very disparate nature of epitopes: Epitopes are not an intrinsic property of a protein per se but exist only by virtue of a connection with complementary antibodies, hence it is conceptually impossible to identify 'all possible epitopes' (p. 81), not even all possible sequential epitopes. The reaction of antisera with peptides cannot disclose the majority of epitopes on a native protein as these are mostly discontinuous and often cannot be mimicked by short peptides. The situation is simpler for monoclonal antibodies, but also here the peptide mapping approach is restricted. The same applies to 'Epitope mapping using libraries of random peptides displayed on phage', the title given to the chapter by W.J. Dower and S.E. Cwirla. Unfortunately, I also could not find a reference of caution about the limits of this otherwise most elegant and highly proficient technique. Chapters on the use of peptides for preparative immunoaffinity chromatography (M.R. Price and K. Beyzavi) and on the different immunoassay procedures currently in use to analyze anti-protein and anti-peptide antibodies round up this useful small volume which deserves to become a good companion to the scientist at the bench.

Hans Rudolf Bosshard

Immunocytochemical Methods and Protocols. Methods in Molecular Biology, Vol. 34; Edited by L.C. Javois, The Humana Press; Totowa, 1994; xiv + 435 pp. $64.50. ISBN 0 89603 285x

Immunocytochemistry is important to many disciplines that need to evaluate the distribution and cellular heterogeneity of antigens. A vast number of techniques are available today and the novice will need guidance through the many complicated steps involving cell and tissue fixation, pretreatment, staining and evaluation.

Immunocytochemical Methods and Protocols consists of 48 chapters divided into sections dealing with antibody preparation, tissue preparation for light microscopy, light microscopic immunocytochemical detection systems, fluorescence-activated cell sorting (FACS), colloidal gold detection systems for electron microscopy, photomicrography, and special applications including immunocytochemical detection of non-radioactive in situ hybridizations, confocal microscopy and laser microbeam applications. This volume, hence, has a big scope and guides the reader through many different techniques in many chapters. A few of these, like some of the FACS chapters, have nothing to do with immunocytochemistry but nevertheless represent fascinating reading.

The book contains some outstanding contributions. Particularly chapter 8 by Melissa A. Melan gives a competent and critical overview of cell fixation and permeabilization which successfully balances the subsequent chapters 9–11. These chapters take the everyday problems of a pathology department as their starting point, including the practical compromises that are necessary in such a setting. They may therefore not be entirely relevant to a more experimental setting. Mark C. Willingham has contributed two excellent treatises on immunocytochemistry of tissue culture cells and Lorette Javois writes about the important aspects of whole-mount stainings. Gary Bratthauer describes well the use of different immunoenzymatic detection procedures and Robbert Cunningham and associates treats the important aspects of immunofluorescence and FACS. Good descriptions of colloidal gold methods are provided by Constance Oliver and Liana Harvath provides a nice overview of confocal microscopy. Treatment of non-radioactive in situ hybridization (unfortunately termed 'nucleic acid immunocytochemistry') is restricted to chromosomal hybridizations. This is a pity as many workers today want to combine mRNA in situ hybridization and immunocytochemistry. Information about these methods will have to be sought in specialized volumes on in situ hybridization methods.

Although generally good, there are some sad omissions from this volume. First and foremost one lacks an overview of the limitations and pitfalls of immunocytochemistry as well as an in-depth discussion of the necessary control procedures. The short chapter 1 on overview of antibody use in immunocytochemistry is too brief and ignores many of the major pitfalls. Other omissions include lack of descriptions of double- and triple-staining methods as well as the vast area of quantitation, model systems and auxiliary techniques like Western blotting. Perhaps these omissions can be rectified in forthcoming updates. This book is a useful, sometimes beautiful, compilation of protocols and methods, which, however, lacks the critical overview that allows it to stand by itself as the text on immunocytochemistry.

Lars-Inge Larsson

Guidebook to Cytokines and Their Receptors; Edited by N.A. Nicola, Oxford University Press; New York, 1994; xx + 261 pp. £22.50. ISBN 0 19 859946 3

In the field of cytokines a guide is as important as on the way to the Matterhorn. Guides should show the way and prevent false steps (which are much more frequent, but less deadly in the cytokine field).

The book begins with color diagrams of the 3D structure of prototypic cytokines and schemes of cytokine receptors, and two introductions (to cytokines and cytokine receptors), which are very useful as they emphasize common structural and functional features, and ends with tables listing the chromosomal location of the

Immunocytochemical Methods and Protocols (Methods in Molecular Biology) by Lorette C. Javois Humana Press | September 1, 1994 | English | ISBN: 089603285X | 414 pages | PDF |2 4 MB. Lorette Javois' timely new 2nd edition of Immunocytochemistry Methods revises and updates her widely acclaimed collection of step-by-step immunocytochemical methods, one that is now used in many biological and biomedical research programs. The methods are designed for researchers and clinicians who wish to visualize molecules in plant or animal embryos, tissue sections, cells, or organelles.Â In addition to cutting-edge protocols for purifying and preparing antibodies, light DNA Arrays: Methods and Protocols, edited by Jang B. Rampal, 2001 169. Neurotrophin Protocols, edited by Robert A. Rush, 2001 168. Protein Structure, Stability, and Folding, edited by Kenneth. P. Murphy, 2001 167. DNA Sequencing Protocols, Second Edition, edited by Colin. A. Graham and Alison J. M. Hill, 2001 166.Â From: Methods in Molecular Biology, vol. 184: Biostatistical Methods Edited by: S. W. Looney Â© Humana Press Inc., Totowa, NJ. 1. 2 Lazaridis and Bloom. historically focused on the interface of applied mathematics and molecular biology. As described in the following paragraphs, there are substantive reasons to differentiate statistical applications from these, as increased attention is paid to the stochastic nature of data.