Monoclonal Antibodies. Production Engineering and Clinical Applications; Edited by M.A. Ritter and H.M. Ladyman, Cambridge University Press; Cambridge, 1995; xv + 480 pp. $39.95. ISBN 0521 42503 4

The generation of hybridomas and monoclonal antibodies is certainly one of the most powerful inventions of the past 20 years. Monoclonal antibodies are useful reagents for the identification and purification of molecules and cells, both in basic research and in many areas of clincial medicine. Among numerous other applications, they have raised new hopes for Paul Ehrlich's old idea that targeted antibodies can be used as 'magic bullets' against infectious diseases and cancer. For inventing monoclonal antibodies, Georges Köhler (1946–1995) and César Milstein received the Nobel Prize in Physiology and Medicine in 1984. Monoclonal antibodies have an important and wide-ranging role in most areas of biomedical research and this volume is among the first to attempt to combine both the technical and clinical aspects of the subject. Monoclonal antibodies have continued to provide highly specific and versatile reagents with which to identify, analyze, quantitate and manipulate molecules, both in solution and in the solid phase, as for instance on the cell surface. The aim of the book is to provide a unique source of information concerning the production of antibodies, both by hybridoma and other cellular techniques, as well as by more recent techniques based on molecular biology. These technical descriptions are followed by discussions of the different analytic, diagnostic and therapeutic applications in clinical medicine including histopathology, oncology, transplantation, infectious diseases, rheumatology, haematology and dermatology. The initial chapters include a brief introduction to the basic aspects of the immune response to generate antibodies (Chapter 1 by M.A. Ritter), the use of cellular and molecular techniques for the generation of mouse and human monoclonal antibodies (Chapter 2 by H.M. Ladyman and M.A. Ritter; Chapter 5 by A. Sa'adu and A. Zumla) as well as the production of antibodies by phage display techniques (Chapter 7 by A.J.T. George), genetic manipulation of monoclonal antibodies (Chapter 8 by N.S. Courtenay-Luck), the generation and applications of bispecific monoclonal antibodies (Chapter 6 by S. Songsivilai and P.J. Lachman), mapping of epitopes recognized by antibodies and the generation of peptide antibodies (Chapter 4 by K.M. Price), and the use of monoclonal antibodies in novel and enhanced diagnostic immunoassay systems (Chapter 9 by D.B. Cook and C.H. Self). To complete this aspect of the book, Chapter 3 by R.J. Morris provides an important and 'user-friendly' introduction to antigen–antibody interactions and how affinity and kinetics affect assay design and antibody selection procedures. The second part of the book contains a series of chapters (Chapters 10 to 16) covering most of the many clinical areas in which monoclonal antibodies are currently used, both for routine applications as well as for experimental purposes. Chapters 10A (by A. Colfor and P.A. Hall) and 10B (by A. Bamias and A.A. Epenetos) discuss the uses of monoclonal antibodies in oncology, in diagnostic pathology and for in vivo targeting for immunoscintigraphy and therapy of human malignancies. As pointed out before, the idea of targeting human tumors with antibodies is by no means a new one, and monoclonal antibodies have already now been tested in connection with diagnosis and/or therapy in vivo for more than 15 years but due to limited success have so far not been established as a routine in the clinic. Several more recent developments, especially in the recombinant DNA area and in the generation of human antibodies, might raise new hopes that after all the 'magic bullets' might be within reach in a foreseeable future. Chapters 11A (by T.G. Wreghitt and J.J. Gray) and 11B (by J. Cohen) discuss the applications of monoclonal antibodies in the important area of infectious diseases, for diagnosis and in prophylaxis and therapy, respectively. Monoclonal antibodies have already found important applications for diagnosis of infectious diseases, but similarly to the cancer area in vivo applications have been more problematic as exemplified by the variable results obtained in treatment of Gram-negative sepsis with monoclonal antibodies. A further important application area is the use of monoclonal antibodies in connection with transplantation and for immunosuppression, where the immunohistological applications are discussed in Chapter 12A (by M.L. Rose), the experimental uses of monoclonal antibodies in Chapter 12B (by N.M. Parish and A. Cooke), prophylaxis and treatment og graft-versus-host disease after bone marrow transplantation in Chapter 12C (by L. Boström and O. Ringdén), and the clinical uses in organ transplantation in Chapter 12D (by M. Giral et al.). The use of monoclonal antibodies in further clinical areas are discussed in the following three chapters: monoclonal antibodies and the skin (Chapter 13 by A.C. Chu and E. Tsele), monoclonal antibodies in endocrinology (Chapter 14 by E. Hillhouse and C.H. Self), and finally a discussion of monoclonal antibodies in rheumatology (Chapter 15 by J.D. Isaacs). A final technical appendix (Chapter 16 by H.M. Ladyman and M.A. Ritter) summarizes the basic methods and recipes used in the generation, production and characterization of mouse monoclonal antibodies (introduced in Chapter 2) and in addition gives a number of practical hints which are useful for the beginner in this field. A similar technical appendix containing the basic protocols for conjugation of peptide antigens is included separately in Chapter 4.

All these chapters include extensive bibliographies which makes this book an excellent source for primary reference material.

All in all the editors and the individual authors have succeeded in realizing their intentions in producing yet another volume on the principles, methods and uses of monoclonal antibodies as well as recombinant antibodies. The book is extremely well suited as an introduction to monoclonal antibodies for clinicians from different areas of clinical medicine. After reading the book, it should be possible for even beginners in the field to raise their own monoclonal antibodies and to obtain some appreciation of the advantages and disadvantages of these reagents. Even if some readers do not go on to produce their own antibodies, nearly everybody in some area of biomedical science are confronted with monoclonal antibodies as reagents and for this reason it is highly relevant with a single source for information on the advantages and potential pitfalls of using these unique reagents. The book is well organized though it is necessary for the reader to get acquainted with how its put together to use it to its full advantage. A final plea is caused by the abbreviation 'mabs' for monoclonal antibodies which is used throughout this volume: it is high time for a consensus in this area, we already have 'MAbs' and 'mAbs', what is next?

Jesper Zeuthen

Peptide Antigens. A Practical Approach; Edited by G.B. Wisdom, Oxford University Press; New York, 1994; xix + 252 pp. $50.00. ISBN 019 963452 1

This volume is another fine addition to The Practical Approach Series (series editors D. Rickwood and B.D. Hames). The book lives up to the consistently high quality of this series whose place is in the laboratory rather than in the library. The specificity by which antibodies recognize and bind to proteins and peptides has been a major subject of immunochemical research and the use of peptides to produce antibodies, to affinity-purify antibodies, and to map epitopes has been essential in advancing our comprehension of antigen-antibody reactions. The topics covered span a wide range of techniques helpful to the use of peptides in the study of antibodies. After a short introductory resumé (G.B. Wisdom) of the application of peptides as antigens and immunogens follows the only chapter of the book which is of a more theoretical nature: 'Epitope prediction from the primary structure of proteins' (J.-L. Pellequer, E. Westhof, M.H.V. van Regenmortel). The large body of information about epitopes on proteins of known three-dimensional structure combined with results from epitope mapping with peptides have been used to develop prediction methods for antigenic sites on proteins. The prediction algorithms are valuable to design peptides having a higher probability of inducing protein-reactive antibodies and, thus, are useful in the production of antibodies against proteins whose sequence has been derived only from DNA or which are otherwise unavailable for