suppressor genes indentified in tumors. Most of these are both involved in rare hereditary cancer syndromes as well as sporadic occurring tumors.

The concept of multistep carcinogenesis was originally based on statistical evidence from cancer registration and later supported by evidence from chemical carcinogenesis in animals. The identification of the genes involved in tumorigenesis has substantiated this hypothesis and current research are now directed against the functional aspects of the individual mutations. This is therefore dealt with in the second half of the book. In individual chapters the following topics are treated in relation to malignant growth and disease. Growth factors and protein tyrosine kinases including growth factor receptors. Guanine nucleotide binding proteins and serine/threonine kinases. Transcription factors, mitogenic signals and regulation of cell cycle.

Consistent with the normal functions controlled by oncogenes and tumor suppressor genes the development, differentiation and programmed cell death has also in recent years been shown to be affected. This has also led into insight in non malignant diseases such as Hirschprungs disease where mutation in one protooncogene lead to defective development of the enteric nervous system.

In the last chapter the author deals with new prospects for cancer prevention and treatment. He points rightly at the fact that our present rather detailed understanding of processes driving tumorigenesis have not yet guided us to specific treatments. But he lists a number of possibilities including prevention and possibilities for specific treatment directed against the now recognized somatic mutations causing the cancers.

All in all a very good overview of a rapidly expanding research area.

Jes Forchhammer

Peptide Synthesis Protocols. Methods in Molecular Biology, Vol 35; Edited by M.W. Pennington and B.M. Dunn, The Humana Press; Totowa, New Jersey, 1994. xii + 321 pp. $ 64.50. ISBN 0-896-03273-6

This monograph forms part of a series aimed at providing a range of practical guides for molecular biologists. However, those expecting to find a logical approach to presenting the various steps associated with peptide synthesis will probably be disappointed. Somewhat surprisingly, for example, there is no chapter dedicated to standard procedures against which the various modifications discussed within this book can be judged. The book comprises 15 chapters that cover topics such as procedures to improve difficult couplings, effect of solvent compositions on solid phase peptide synthesis and cleavage of protecting groups (both Fmoc/t-butyl and Boc/benzyl strategies), through to the more specialised areas of site specific modification, phosphorylation, disulphide bridge formation, fragment synthesis and condensation strategies and asymmetric chemical synthesis of conformationally constrained amino acids. Attention is focused mainly on the solid phase approach with both Fmoc/t-butyl and Boc/benzyl methodologies being covered.

The opening chapter discusses problem couplings. These arise through the association of peptide chains, via the formation of β-sheet type structures, within the peptide-polymer matrix. Significant advances have been made in this area in the last 3 years and it is unfortunate that these are not included within this chapter. The contribution to secondary structure formation from amino acid composition, side chain protecting groups and solvent composition are now more widely understood. The approaches advocated in this chapter to improve such difficult couplings, elevation of temperature, addition of excess tertiary amine or the use of more powerful carboxyl activation, should be viewed with caution as side reactions may also be promoted. In particular, the generation of epimerized products from the incautious use of tertiary base may lead to disastrous consequences for the unwary and should only be considered if all else fails. The development and application (1993) of a reversible protecting group for backbone amide bonds is likely to provide a general solution to the problem of aggregating sequences.

The next four chapters form the main peptide synthesis content of the book. Methods for removal of the Fmoc group (both solid phase and in solution) are extensively covered by G. Fields and includes sections on monitoring and useful comments on side reactions. The subsequent chapter (G. Fields and C.G. Fields) discusses the effects of solvent composition on peptide-polymer solvation, particularly relevant to the discussion on difficult sequences of the first chapter. Extensive, detailed instructions for the use of the hazardous hydrogen fluoride, for final deprotection and peptide-polymer cleavage in the Boc/benzyl methodology, are presented by M.W. Pennington. This includes both the standard protocol and the 'low-high' procedure developed by Tam. In comparison, a much shorter presentation follows, by F. Dick, on trifluoroacetic acid based deprotection and peptide-polymer cleavage conditions as the final step in Fmoc/t-butyl synthesis, with useful description of scavengers employed to prevent side reactions at sensitive residues. The only significant omission is the use of tert-butoxycarbonyl protection for the indole side chain of tryptophan that has had a significant impact on the ease of synthesis of peptides containing this potentially troublesome amino acid.

The remaining 10 chapters include detailed experimental procedures for preparing modified peptide structures, in particular the chapter, by G. Barany, F. Albericio and co-workers, on disulphide bridged peptides is outstanding. The chapter, consisting of almost a quarter of the whole book, gives a wide-ranging discussion on the strategy for preparation of intra and inter (both symmetrical and unsymmetrical) disulphide-bridged species. The extensive literature cited (over 350 references) illustrates the different chemical approaches possible. The final chapters on preparation of peptide fragments (M. Mergler) and fragment condensation (R. Nyefler) describe the situation up to about 1993). Since then, significant advance has been made through the use backbone amide bond protection. This technique eliminates the unpredictable insolubility problems associated with protected peptide fragments leading to dramatically improved procedures for preparation, purification, analysis and their subsequent use in assembly of small proteins. Equally, protein synthesis can also be effected through site-specific ligation of fully deprotected peptides. Significant protein targets have been prepared from this technique by Kent and co-workers.

On the whole this is a good laboratory manual containing experimental protocols for a range of useful peptide techniques. Though some of the chapters are suitable for a more general audience, many will be appreciated more by peptide chemists.

Tony Johnson

From: Methods in Molecular Biology, Vol. 115: Immunocytochemical Methods and Protocols Edited by: L. C. Javois Â© Humana Press Inc., Totowa, NJ. 3. 4 Mao, Javois, and Kent. the preparations are not permanent.Â (In addition, under the auspices of the National Institute of Child Health and Human Development, a Development Studies Hybridoma Bank is maintained by the Department of Biological Sciences at the University of Iowa.) Ascites fluid contains approx 1â€“10 mg/mL of immunoglobulins. The majority of these anti-bodies (approx 90%) should be the desired monoclonal antibody. From: Methods in Molecular Biology, vol. 416: Microbial Gene Essentiality. Edited by: A. L. Osterman and S. Y. Gerdes Â© Humana Press Inc., Totowa, NJ. 7. Generating a Collection of Insertion Mutations in the.Â Puriï¬ cation Kit. The following method is modiï¬ ed from the protocol of the manufacturer (Promega). Nuclei Lysis Solution and Protein Precipitation Solution are purchased from Promega. 1. Collect cells from 1.5 to 3 mL culture (step 14, Section 3.2) in an Eppendorf tube by cen 35. Peptide Synthesis Protocols, edited by Michael W. Pennington a n d Ben M. Dunn, 1994. 34. Immunocytochemical Methods and Protocols, edited by Lorette C. Javois, 1994. 33. In S i t u Hybridization Protocols, edited by K. H. Andy Choo, 1994 32. Basic Protein and Peptide Protocols, edited by John M. Walker, 1994 31.Â edited by Christopher Jones, Barbara Mulloy, a n d A d r i a n H. Thomas, 1994 21. Protocols in Molecular Parasitology, edited by John E. Hyde, 1993 20. Protocols for Oligonucleotides and Analogs, edited by S u d h i r Agrawal, 1993 19. Biomembrane Protocols: I. Isolation and Analysis, edited by John M. Graham and Joan A. Higgins, 1993 18. Transgenesis Techniques, edited by David Murphy and David A. Carter, 1993 17.