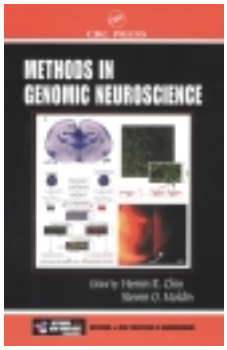
physicians keeping an open mind regarding treatment practices: homeopathy, herbal medicine and dietary supplements. On an optimistic note, Hamilton-Miller said: 'We can beat bacteria…we have the brains and the technology'.

S. Amyes (Medical School, University of Edinburgh; http://www.edinburgh.ac.uk) examined whether we are doing enough to stop the increase in resistance. New antibiotics will come either from serendipity, as with penicillin, by the modification of old drugs, or by novel techniques such as genomics.

Finally, the conference was summarized in a session led by Richard Wise (City Hospital, Birmingham, UK). Governments had addressed this issue 30 years ago but since then only one new class of antimicrobials has been introduced. The output from genomics is slow, with a 10–12 year lead-time for new drugs. The barrier to going forwards in this fight is the resistance itself.

Reference

1 House of Lords Science and Technology – Seventh Report (1998) *Resistance to Antibiotics and Other Antimicrobial Agents.* (Available online at http://www.parliament.the-stationery-office.co.uk/pa/ld199798/ldselect/ldsctech/081vii/st0701.htm)



Methods in Genomic Neuroscience

Edited by Hemin R. Chin and Steven O. Moldin
CRC Press, 2001,
Price: $119.95,
ISBN 0-8493-2397-5

Over the past two decades, advances in molecular genetics have increased exponentially, leading to an enormous wealth of genomic information resulting in the publication of the complete genome of several organisms including *Caenorhabiditis elegans* and *Drosophila melanogaster.*

The arrival of the first working drafts of the human genome, hailed as the 'book of life', has, in particular, created major excitement. Novel ways of using this new information are emerging, with the hope that many unsolved problems in basic and clinical science can be more fully explored, no more so than in the field of neuroscience.

Methods in Genomic Neuroscience, edited by Hemin Chin and Steven Moldin, both eminent scientists in genetics as applied to neurobiology, is part of the *Methods and New Frontiers in Neuroscience* series of books that attempts to present new and exciting experimental techniques and concepts to the neuroscientist. This particular volume explores the application of molecular genetic techniques to neuroscience and contains chapters contributed to by 46 experts in the field.

The first section of the book introduces the basic concepts of inheritance, mutations and genetic manipulation in a clear and simple way that is easily understood by the novice molecular biologist. In particular, the various types of transgenic mice and methods of generating them are clearly described in the chapter by Mark Mayford and Eric Kandel, with some interesting case studies to illustrate the points.

The next section covers the application of genome-wide mutagenesis strategies such as *N*-ethyl-*N*-nitrosurea (ENU) and telomeric repeat amplification protocol (TRAP), and how these techniques can be used to enhance our understanding of several aspects of neuroscience, from brain development and axon projections to complex behaviours. The chapter by Mitchell *et al.*, is accompanied by beautiful illustrations of the effects of various mutations in developmental genes in mice, such as ADAM 23 and KST27, as well as axon guidance defects in EphA4 mutants.

The development of high-throughput systems to measure expression profiles of the entire genome in a global fashion, namely cDNA arrays, has been a major technological advance in the field of molecular biology. This book adequately acknowledges the power of this emerging technology and describes it in a detailed and thoughtful way, covering all aspects from constructing the arrays to analyzing the enormous amount of data that is generated, and pointing out the many pitfalls along the way! cDNA expression arrays have already been used to analyze the gene expression differences in patients with schizophrenia as described by Mirnics, Lewis and Levitt, and no doubt will be an important technique in the study of a variety of other neurological diseases with some genetic susceptibility such as multiple sclerosis as demonstrated recently by Lock *et al.* [1].

The following section (Section Four) contains an eclectic collection of topics ranging from methods of delivering genes to neural tissue to the use of neural stem cells in genetic analysis and brain repair. Although the majority of chapters in this book contain limited methodological descriptions, the chapter by Hida *et al.* consists almost entirely of an experimental protocol for the generation of a full-length cDNA library, making it stand out from the rest. The book concludes with two interesting chapters, which look at identification of disease susceptibility genes and the analysis of individual genetic variation in complex traits, which could provide a foundation for the development of individually tailored drug targets and interventions, so called 'pharmacogenomics'.

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Methods in Genomic Neuroscience draws together a wide range of state-of-the-art techniques in molecular biology, covering manipulations of both single genes and the entire genome. The chapters discuss the methods in both a theoretical and practical way, illustrated effectively by the authors' own research in many cases. However, the book is not intended to be a 'methods' book and, although the level of experimental detail does vary quite significantly between chapters, readers will still need to refer to other sources for more detailed methodology in most cases. This volume of the *Methods and New Frontiers in Neuroscience* series will appeal to neuroscientists with all levels of expertise in molecular biology techniques; it is easy to read, and undoubtedly will be a useful resource from which new discoveries will grow resulting in major advances in diagnosis and treatment of neurological disorders. This book therefore comes at an exciting time in molecular genetics.

Reference

1 Lock, C. *et al.* (2002) Gene-microarray analysis of multiple sclerosis lesions yields new targets validated in autoimmune encephalomyelitis. *Nat. Med.* 8, 500–508

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