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Book reviews

Antisense Strategies. Renato Baserga and David T. Denhardt (eds). The New York Academy of Sciences, New York. Pp. 353. Price £114.00, hardback. ISBN 0 89766 747 6.

Suddenly antisense technology is in vogue. Suddenly books are appearing and articles proliferating. A journal on antisense has been produced. As a tool for suppressing gene activity and as part of the armoury for a new approach to therapeutics, there are high hopes.

The book has some 56 articles describing various successes with a whole range of antisense DNA or RNA molecules, including ribozymes ('catalytic' RNA molecules) and RNA sequences produced within the cell by various genetic constructs. A summary by one of the authors neatly sums up the state-of-the-art in 1992 but things have moved on and *in vivo* experiments are certainly being described almost weekly with startling physiological effects.

The problems of the technique, despite the successes, are highlighted. Poor uptake, cross reactions with several targets (nucleic acids or proteins), stability and repeatability are all addressed. Despite the failure to understand the mechanism(s) of action, the results are impressive. Very few genes fail to respond to anti-sense attack – glial cell proteins, viral proteins, p34 cdc2 kinases, oncoproteins, muscle, cells, proteins etc. are all reduced quantitatively by exposure to antisense molecules – DNA or RNA.

I suspect the reader will be somewhat bewildered by the number of articles but if you wish for a review of the work of Birnsteil's group (and their approach to forcing gene constructs into cells) or that of Gewirtz and Calabretta on leukaemia (and the potential for selecting out the genetically abnormal cells) or a review of triple helix formation as a nuclear 'anti-gene' approach to gene suppression by Hélène, then you could do worse than start here. If you are a virologist and concerned with HIV or EBV then the potential new therapies are described, following success *in vivo* and *in vitro* when certain sequences are targeted in the viral genome. As I write, scepticism is diluted by the sheer volume of the success stories. Readers of *Heredity* should look for their favourit gene and ask, 'shall I give up sense and make anti-sense instead'?

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Chromosome Analysis Protocols; Methods in Molecular Biology (Vol. 29). John R. Gosden (ed.). Humana Press Inc. 1994. Pp. 508. Prices: £46.00, comb-bound, ISBN 0 896 03243 4; £63.00, hardback, ISBN 0 896 03289 2.

It is indeed a reflection on the recent advances in molecular biology and their application to cytology that such a manual can be written in a 'Methods in Molecular Biology' series. Cytology, for many years restricted to a handful of Victorian stains, is experiencing a tremendous renaissance in both interest and in what can be accomplished. This manual adequately reflects these developments, with a range of schedules from established banding techniques to the very latest developments in the field. I do, however, have a slight quibble with the title, since I don't feel that the term chromosome implies only animal chromosomes, much less only Human, the main concern of the text. Though I suppose we plant cytologists must be grateful for the many spin-offs that we receive from human cytogenetics, and many of these techniques can, with a little modification be applied to plant chromosomes. A chapter on the preparation of air-dried squashes of plant material would be a very useful adjunct to this book.

The manual comprises 27 separately authored chapters, cross-referenced where appropriate, and a limited index. Contributions follow a standard pattern with an introduction giving the essential background, and a materials section listing reagents and equipment, and in many cases suppliers, plus instructions for making commercially unavailable pieces of small equipment. This is followed by the methods, which are clearly laid out and divided into subsections with numbered steps. Probably the most valuable section is the notes, listing all those tips and hints which don't appear in the published paper and all too often make the difference between success and failure. Equally valuable are the comments on how to alter the various steps of a protocol in order to accommodate different material. There are very extensive references and the text is well illustrated with chromosome preparations, gels and interpretative drawings.

Whatever the molecular expertise of a researcher they must 'first catch their chromosomes', and five chapters deal with the conversion of blood or pieces of tissue into chromosome squashes on a microscope slide. Three more go through the standard banding techniques required for the identification of individual chromosomes, and a further two are on immuno-fluorescence. There is a very substantial piece on Automatic Karyotype analysis, written in refreshingly 'user friendly' terms. The whole gamut of *in situ* hybridization is featured, including the state-of-the-art PRINS techniques. The manual doesn't stop at chromosome squash technology and has sections on Pulsed Field Electrophoretic Karyotyping, flow-sorting of chromosomes, the microdissection and manipulation of chromosomes plus construction of chromosome-specific YAC libraries.

Molecular Biologists will feel very at home with this book, and it will be particularly useful to researchers lacking a cytological background but wishing to participate in the increasingly fruitful conjunction of cytology and molecular biology.

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