Book reviews


When first asked to review this book, which is part of a series, in which previous titles included Science Parks: An Experiment in High Technology (Oxford and Inward Investment), I have to confess that I was not filled with overwhelming enthusiasm for the task ahead!

Nevertheless, Scientific Deception by Lesley Grayson is worthy of more than a passing glance, being published at a time when scientific fraud is rare only of the headlines. The most notable example recently was the Malcolm Pearce case. Pearce claimed to have reversed an ectopic pregnancy by reimplanting the embryo in the uterus. He published two papers on his supposed success in The British Journal of Obstetrics and Gynaecology. The subsequent discovery of his fraudulent work, resulted not only in Pearce being struck off the medical register, but also implicated his Head of Department who had innocently put his name to the paper. He in turn was eventually forced to step down as Editor of the Journal and as President of the Royal College of Obstetricians and Gynaecologists.

This is a prime example of scientific deception at its highest level and shows the terrible ramifications that behaviour of this kind has, not only on those directly involved with the publication of scientific papers, but also the credibility of respected journals and their government bodies.

Lesley Grayson sets the scene very well at the beginning of the book, stressing that she has deliberately chosen the term "deception" above possible alternatives, such as misconduct or fraud. In her view, deception can cover both conscious and unconscious actions. What is clear through the many cases cited is that deception attempts to hide both scientific and analytical research in and subsequent publication, scientists are just as likely to be influenced by external factors, and that they are in short, subject to normal human failings in influencing their work.

Having accepted this premise, the author examines the various mechanisms put into place to try and correct the inbuilt weaknesses in the system. Her conclusion is that protective measures such as peer review and experimental replication are still open to exploitation. While the laws of fraud, defamation and misrepresentation of copyright give guidance on blatant criminal activities, there is difficulty in applying all these criteria to areas of scientific deception. For example, plagiarism is generally unacceptable to the scientific community but as Lesley Grayson clearly points out "...it is not always possible to distinguish between outright theft and the normal process of absorbing the ideas of one's intellectual peers or predecessors...".

The question of multi-authored papers is addressed. Very few authors of multi-authored scientific papers take full responsibility for every word and thought included; yet this is the definition adhered to by the international committee of medical journal editors–the Vancouver group. Recent studies have shown that the Vancouver group’s definition is commonly ignored. Yet, surely these are questions that every author must have considered at some time during the submission and publication of papers bearing their name.

Having shown the complexity and the scale of the problem, the faults in the monitoring systems and the impact of deception on scientific research, part II of this book is devoted to a summary of over 200 core publications on scientific deception. These entries are interspersed with enlightening commentary on why scientists deceive, their behaviour and its ramifications that include personality factors, the pressure to publish, and what is termed the academic rat race! Finally, there is an excellent review of the various responses and policy implications put into place by national and international bodies in answer to these issues.

Far from finding this book heavy reading, I would recommend it as a salutary and fascinating review for all those involved in the publication of scientific material from authors through to publishers and learned societies.

JOHN A HARRISON


Heat shock (stress) proteins (Hsps) constitute a large, heterogeneous group of molecules with a variety of functions that are classified according to their molecular mass. Thus, 4.5, 70, 90, 80 and 60 kDa families are routinely mentioned in the literature. There are also larger and smaller (for example, > 100 and ≤ 30 kDa) Hsps, the latter being referred to as small Hsps.

The book Stress Proteins in Medicine focuses on Hsps 70 and 60. It comprises 36 chapters (about 600 pages) organized into four sections: Overview (five chapters), Stress Proteins and Specific Immune Responses (15 chapters), Stress Proteins and Expression in Diseased Tissue (12 chapters), and Stress Proteins and Interactions with Proteins or Cells in Immunity (four chapters).

The Overview section contains chapters explaining the roles of Hsps in infections (protective or detrimental roles) and some clinical aspects of the heat shock (stress) response. This section also includes chapters on the participation of Hsp 60 in experimental arthritis, and in the regulation of function.

The second section covers a variety of topics including the involvement of Hsps in the following: reactive and rheumatoid arthritis; Lyme disease; systemic lupus erythematosus; Crohn's disease; multiple sclerosis and other disorders of the central nervous system; insulin-dependent diabetes mellitus; mycobacterial, fungal and parasitic (leishmaniasis) infections; infertility; and transplantation.

The third section includes chapters that focus on specific organs or tissues rather than on diseases. These chapters are of interest to immunopathologists and cover tissue lesions and Hsps in systemic lupus erythematosus, sarcoidosis, amyloidosis, leprosy (Myco- bacterium leprae), coeliac disease, atherogenesis, myocardial protection, and Duchenne and other neuromuscular disorders.

The fourth section concentrates on Hsps in cancer treatment and prevention, and in the preparation of vaccines, using Hsps (which are potent immunogens) as carriers of less immunogenic antigens or haptens.

The book has a detailed table of contents, an index, and a short biographical note about the two editors but, unfortunately, the postal or electronic addresses of the authors are not provided. The chapters are, in general, well illustrated with data in tables and figures, and some contain diagrams to enhance the understanding of the Hsps' functions and interactions with other molecules and/or with cells in health or disease. This book presents the reader with an insight into how Hsps might be involved in pathogenesis. Also, most chapters have an extensive reference list. The quality of the paper and printing is very good, but the illustrations (that is, black and white prints of cell preparations, and tissue sections) are less impressive. There are also five illustrations in colour, in the third section. It is obvious that the publisher has made an effort to present a final product of good quality, easy to read and to handle. The volume is rather small in size (9 × 6 × 1¼ inches) in comparison with the average textbook, which will be appreciated by those who like to read while travelling, or have little room available in the bookcase.

To derive the most benefit and enjoyment from reading this book, the prospective reader ought to become acquainted with Hsps beforehand. For this purpose, introductory reviews in the journal and books as consulted as they usually contain updated information and ideas. Armed with this priming knowledge, the reader will navigate through the book with ease using the table of contents and the index, and will be able to recognize what is most useful to him/her. It must be borne in mind, however, that the book deals with Hsps 70 and 60, with little or no information on the medical aspects of other Hsps, excepting the group of Hsps found in lupus erythematosus and Duchenne muscular dystrophy, which also refer to Hsp 90. It is also pertinent to note that the chapters focus on Hsps and the immune system, thus restricting their scope to areas of interest to immunologists.

Positive aspects of the book, in addition to those already mentioned, are: it probably is the only one of its kind available at present (although other volumes contain chapters that overlap some of those in this book; and there are comprehensive reviews on similar topics in journals); and it covers a wide array of medical disorders.

The main problem of the book is the potential lack of a wide readership. Medical students will not be able to afford it, or will not find time to read it because, for them, the topic will not be high priority. Consequently, professors will not consider the book a necessary complement to their set of teaching materials. The vast array of topics covered will most likely make this book unappealing to any given specialist. Why, after all, buy a book with 36 chapters of which only one, perhaps two, are relevant to a potential reader? Practitioners will not find much information in this book that would be directly useful to their medical practice. Last, but not least, as for all books released nowadays, this volume will be somewhat outdated even before it reaches the bookstores and libraries. In summary, this book is a contribution of interest to immunologists, and to researchers interested in autoimmune and immunity of infections.

The editors must be commended for having assembled a considerable number of topics encompassing a variety of medical conditions into a single volume, and for having recruited a large number of distinguished authors from various countries, who for the most part, have contributed well documented chapters.

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