Epidemiol. Infect. (2000), **125**, 225–226. Printed in the United Kingdom

Book Reviews

Septic Shock Methods and Protocols. Ed. T. J. Evans. Humana Press 2000. Pp. 208. US $89.50.

The problems of dissecting out the multiple events that occur in the host during septic shock have undoubtedly prevented a significant reduction in mortality. This complexity in clinical management is reflected in the laboratory, where an understanding of the key players is hindered by poor models and assays. It is only right then that a book on the methods and protocols for laboratory studies of septic shock should be considered. The back cover of this latest publication in the Methods in Molecular Medicine series (number 36), collects together a series of 'cutting edge' methods that are related to bacterial and host immune products involved in sepsis. Split into 5 parts, 18 chapters cover LPS/endotoxin and other bacterial products (Parts. 1, 2), cytokines (Part 3), nitric oxide and related species (Part 4) and cell culture techniques (Part 5). All chapters are quite brief, with short introductions, step-by-step method protocols qualified with notes as a separate section. The target audience appears to be both 'experimental and clinical experimentors' and this may offer a clue as to why the book falters. Despite contributions from some key workers in certain fields, the overall collection does not present any particular area of sepsis research in any detail. If, for example, your interest was LPS/endotoxin, chapter 1 describes the chromogenic Limulus assay (published 1978), complete with solutions given in Normals. Chapter 2 describes the purification of smooth (hot phenol) and rough LPS (phenol-chloroform-ether) described in 1952 and 1969 respectively. Chapter 3 covers the assay of anti-LPS antibodies using an enzyme immunoassay. Shifting to the host, chapters 4 and 5 detail the purification of neutrophil bactericidal/permeability-increasing protein and LPS-binding protein respectively. Chapters 6 and 7 deal with purification of streptococcal pyrogenic toxin A, two assays for bacterial superantigens using sandwich ELISA and a bioassay of superantigen stimulated tritiated thymidine uptake in proliferating human T lymphocytes.

Part 3 is titled cytokines and contains chapters on a bioassay for TNF (α and β) as determined by cytotoxicity on murine L929 cell lines, an ELISA for human plasma soluble TNF receptor and 'whole-blood assays for cytokine production'. Cytokines are a growth industry in terms of research and books. In a book published under a banner of 'Molecular Medicine' it is strange to see a method for a simple cytotoxicity assay using crystal violet to stain cells that remain attached following exposure to TNF. This cytotoxic mechanism of TNF is not discussed and details of MTT assays or detection of apoptosis are therefore absent. Whilst the introduction is clear on the need for bioassays in measuring active cytokine, the specificity of this technique depends on a neutralizing effect of species specific antibodies to TNF and no other techniques are detailed. Chapter 10 is remarkable. No assays for cytokines are presented but instead, a protocol for drawing blood (from what?) into heparinized syringes, the addition of agonists to stimulate your cytokine of choice (LPS, PHA and zymosan), incubation at 37 °C and collection of plasma … (I could go on). The cytokine assays are for you, dear reader, to decide and perform. The chapter chooses not to pursue this area. For those interested in discussions on structure and assays for the expanding cytokine families of interferons, interleukins and growth factors you will need to consult dedicated texts elsewhere.

Part 4 tackles nitric oxide and related radicals. As an exception to the format of the other chapters, nitric oxide synthase inhibitors are dealt with as an essay. The emphasis is their use in animal models, referencing 60 papers. The following chapter on electrochemical method for NO detection *in situ* cites 8 references, all of the author's own publications. Those familiar with such instrumentation will doubtless enjoy the chapter but the rest of us will be left outside the experimental door, left to dream of detecting NO in single cells. The next chapter on immunochemical and immunofluorescent detection of NOS in paraformaldehyde fixed cryostat sections is nicely detailed but likely to be very familiar. The photomicrographs are surprisingly lacking in details such as size and developing secondary label. Much of the same reappears in the following chapter only this time the target is nitrotyrosine. The detection of peroxynitrite in chapter 15 rounds off this section. This chapter clearly details the oxidation of dihyroxyrhodamine to the fluorescent rhodamine 123 by peroxynitrite in tissue fluids along with an ELISA for quantification of nitrotyrosine. Both methods require 'judicious use of inhibitors and a number of controls'.

The final part deals mostly with the business of isolating cells from endothelia, bronchial and renal tubular epithelia as cell cultures. Details of the source of these organs and tissues are not explicit but appear to be rats, human lung transplant, and human nephrectomies respectively. The latter two chapters deal with isolating the epithelia from the tissues but give no methods for suitable assays of interest to those buying books on septic shock. For such a morphological procedure, pictures are conspicuous by their

absence. Only with the endothelial preparations are we given brief outlines of RNA extraction for RT-PCR purposes and, in more detail, measurement of calcium transients in single cells using microspectrofluorimetry (with Indo-1).

A book called 'Septic shock: methods and protocols' (what is the difference?) is always going to have a conflict of interest between critical reviews of topics and bench top manuals. Surely such books should thoroughly introduce the techniques and their value before giving the nitty-gritty detail, otherwise you might as well order a copy of the original papers, at great savings to the budget. This book is a collection of methods, many of which will be viewed as too basic for a book that is aimed at people researching aspects of septic shock in the laboratory. Such a large topic would have benefited from a focussing on fewer areas whereas here the angle taken by the editor is not at all clear to this reader. The fact that molecular biology is almost excluded in place of cell culture methods and little space is given to comparative reviews of any method or topic is disappointing. Are those researching septic shock in need of LPS purification, cell culture and immunohistochemistry? More important needs can be addressed with $89 of any research budget.

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Mandell, Douglas and Bennett's Principles and Practice of Infectious Diseases, 5 edn. Eds. G. L. Mandell, J. E. Bennett and R. Dolin. Churchill Livingstone 2000. Pp. 3264. £230. ISBN 0443 07593 X.

The new millennium brings us the fifth edition of Mandell, which for many people is the 'bible' among text books of infectious diseases.

So what's new? This fifth edition is a redecorated rather than reconstructed version of the previous edition (of 1995); the basic framework is unchanged. New additions include chapters on human genetics and infection; new and emerging infectious diseases; antimicrobial management and cost containment; biological warfare and bioterrorism; and the infectious diseases physician and the internet. The section on HIV infection has had a major overhaul: there are now separate chapters on the manifestations of HIV infection for each major organ system, and an expanded section on antiretroviral therapy to accommodate the protease inhibitors.

Mandell's strengths are its comprehensive coverage, and in particular that it is very well referenced. Finding one's way around is easy, and the indexing seems to work well. However, the perspective is definitely North American, with the great majority of authors from North American centres. Those looking for detailed coverage of diseases of tropical and developing countries will need to look to a more specifically tropical textbook.

Who should buy this book? Libraries: definitely; medical students; definitely not (any considering it should get out more). Infectious diseases physicians have several choices of tome to weigh down their shelf. In comparison with the new infectious diseases text edited by Armstrong and Cohen, Mandell is perhaps less well illustrated. More maps to illustrate geographical distribution would be welcome, and some colour would brighten things up but would doubtless also elevate the price. However, these are minor criticisms, and I would definitely recommend this book. The comprehensive referencing makes it particularly useful for those who are research-orientated.

For those whose shelves are groaning and who have a computer with a CD drive, the suppliers say that Mandell will also be available on CD-ROM at the same price; too bad that the CD does not come free with the hard copy.

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