BOOKS RECEIVED

DNA probes for infectious diseases

Edited by F. C. TENOVER, 1989, CRC Press, Inc., Boca Raton, Fla., Pp. 286.

CRC Press states that it has been supplying the world scientific community since 1901 with concise critical evaluations of the newest concepts, methods, data and literature on defined topics of immediate interest and importance and written by recognised experts. This, most recent, treatise is no exception and, clearly, has been written with these aims in mind, with 20 chapters compiled by 36 highly regarded contributors from throughout the world.

The aim and scope of the book are summarised in its Introduction: "The use of hybridisation technology for the detection and identification of pathogenic microorganisms is still a novel idea and is far from being accepted by clinical microbiologists and infectious disease specialists. Yet, fast and accurate recognition of pathogenic microorganisms directly in tissues or secretions is an important goal if infectious diseases are to be controlled and ultimately eliminated. DNA probes may be the answer." Divided into seven defined sections, it starts with an excellent review of general principles and definitions, covering such topics as probe development, choice of probes, hybridisation formats and detection systems. It also assesses the advantages and disadvantages of the different approaches applied to various organisms and types of clinical samples. The sections on the impact of probes on clinical microbiology and their use in food technology critically review, and suggest, procedures in which DNA probes can be incorporated in a laboratory work flow and discuss the fate of routine culture. A review of several commercially available DNA probes is included, but the rapid development of DNA probes for continuously expanding numbers of organisms necessarily means that this is already out of date, especially in parasitology where DNA probes for trypanosomes, schistosomes and filarial parasites have recently already been used in field trials.

The main body of the text describes the use of probes for: (i) diarrhoeal pathogens, *Escherichia coli*, *Salmonella*, *Yersinia*, *Campylobacter*, vibrios and rotavirus; (ii) respi-

ratory pathogens, *Legionella*, *Mycoplasma*, *Mycobacterium tuberculosis* complex, adenovirus and EBV; (iii) viral pathogens, cytomegalovirus, papillomavirus, hepatitis B, HIV, varicella, herpes simplex, enteric adenovirus and parvovirus, and the chlamydiae; and (iv) parasitic agents, the hemotrophic parasites, *Plasmodium* and *Babesia*, as well as *Bartonella* and a chapter on *Leishmania*. Some of these chapters review the use of probes for detection purposes and assess their sensitivity, while others, such as the chapter on human cytomegalovirus, explore their use to investigate epidemiology, molecular biology and the pathology of infection, as well as the evaluation of antiviral agents. A final section deals with future directions for DNA probes in antimicrobial susceptibility testing, based on detection of genes coding for resistance markers, such as β -lactamase genes.

Each chapter has a clear format and comprehensive literature list with titles and there is a full reference index at the end of the book. There are clear introductions outlining the biology and pathology of each organism covered, and the results of conventional methods are clearly and simply displayed in tables, along with an abundance of photographs of in-situ hybridisations, dot blot and restriction fragment length polymorphism hybridisations. In short, this book is a concise and comprehensive, critical evaluation of the use of DNA probes for infectious diseases and will substantially promote the acceptance and implementation of these powerful diagnostic and epidemiological reagents within the context of a clinical microbiology laboratory. The book is not a D-I-Y manual, but adequately covers the principles and basic steps involved in the use of different hybridisation formats and will be an extremely valuable reference book for every pathology laboratory thinking of using DNA probes.

It is a pity that such an excellent book has already been overtaken by the rapid advances made in gene amplification technology, based on the polymerase chain reaction and ever more sensitive probe detection systems, and contains only passing mentions of this ultimately powerful DNA-based methodology. Such methods will have a revolutionary impact on infectious disease diagnosis and presumably will be the subject of the next in the series of CRC Press reference volumes on Microbiology.

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