

HIV infections have expanded rapidly into a pandemic of devastating efficiency with repercussions into many aspects of life beyond the physico-medical sphere. A review of procedures to recognise the infection early and to monitor the emergence of ever new variants of this highly mutable RNA virus is, therefore, timely and topical.

The introductory chapter (J. L. Melnick and J. S. Butel) contains a very short description of the virology of HIV, of virus-host cell relationships, host immune responses and clinical consequences. This chapter would perhaps have benefited from a broader description of viral replication and of the epidemiological aspects. A review of virus isolation from various tissues and cells by N. C. Khan covers the early work well but fails to mention some important papers. Expressions such as “medium supplemented with 10% interleukin-2” (page 10) should be replaced by more precise terms.

The chapter by G. H. Keller and M. M. Manak is well planned and contains methods to detect proviral DNA genomes in clinical specimens by polymerase chain reaction (PCR) and hybridisation techniques, applying radioactive and non-radioactive probes. The PCR findings and the importance of PCR in diagnosis of HIV infection are discussed in this useful section, although one might take issue with some of the authors’ statements. The technology of PCR progresses so rapidly that recent improvements, e.g. the use of “nested primers”, have not been included. A standard protocol for PCR (including the use of betaglobin gene primers) is described and the dangers of carry-overs and the measures to prevent them are described appropriately. PCR to detect genomic and messenger RNA is mentioned but not described in detail. An elegant double-sandwich hybridisation test with a capture probe and a biotinylated detection probe complementary to different parts of the amplified sequence is described in detail. Other methods to identify amplified DNA are not discussed.

A. Kraemer and co-authors review the evidence for CD4+ cell counts, neopterin levels and β-2-microglobulin levels as predictors of progression of HIV infection. The data is interesting, but the relative and cumulative significance of these non-specific markers for progression of HIV infection are not discussed.

Experiments with peptide epitopes delineated from p17, the membrane portion of the gag proteins, for diagnostic assays are described by P. H. Naylor and co-workers. This chapter is, on the whole, inconclusive and the claim of a positive correlation between titres of p17-specific antibodies and CD4+ cell numbers is somewhat tenuous.

A fascinating chapter by B. K. Felber and co-authors describes the functional activity of products of the proviral genome (tat, env) in infected cells. By recombinant retroviral transfer, the reporter gene CAT, located downstream of an HIV LTR, is introduced into susceptible cells which, on infection with HIV, replicate the virus and, by its tat gene products, activate transcription of the reported gene followed by mRNA translation which can be simply measured. Application of the system to measure antiviral drugs and cd4+ product-CD4 receptor interaction is demonstrated.

S. G. Devare and co-authors review specific diagnostic assays for the detection of HIV-1 and HIV-2 infection. The test systems used are described in principle, but there is no comparison of their specificity and sensitivity which would have been instructive. The development of peptide-based immunoblot assays has recently been added to the array of diagnostic tests, and, in this, the review is already out of date.

Isolation and titration of HIV from peripheral blood mononuclear cells in microcultures are described by D. H. Dimitrov and co-authors. This assay is very sensitive and allows quantitation of infectivity. The interesting observation that higher dilutions of clinical specimens can yield higher levels of antigen suggests that lower dilutions contain inhibitory factors, possibly suppressor T cells. This method is useful for isolating sub-populations of HIV which are viable in vitro.

In summary, the book presents a number of techniques useful in isolating and characterising HIV and in describing the host immune reaction. It is mainly of interest to the specialist, whose number, however, is by now considerable. For its size the price of the book is rather high.

U. DIESSELBERGER

The 4-Quinolones: Anti-Bacterial Agents In Vitro


The 4-quinolone antibacterial drugs have enjoyed remarkable interest over the last few years. It is relatively rare nowadays for antibacterial drugs to induce high passion but the 4-quinolones can still raise the blood pressure of proponents and opponents when they become locked in combat. Dr Crumplin conceived the brilliant idea to collect many of the best researchers in the field for a meeting and then to commit their results to paper to form this book. It was a brave notion to concentrate the whole book on the in-vitro aspects of the subject; as the title implies, there are no clinical results. This should not suggest to the clinician that there is nothing in this book for him because there is a wealth of results and conclusions that would help any caring clinician who believes that there is more to the in-vitro aspects of prescribing antibacterial drugs than MIC results.

For those interested in the interference of 4-quinolone action by concurrent therapy containing metal cations, there is an excellent article by Professor Johnty Smith from London, written in his own spirited style. Indeed, Professor Smith is author of four chapters in this book—reflecting his dominating role in this subject. Another area he addresses is the mutation to 4-quinolone resistance which is a potential problem, perceived by many, in future clinical practice. Professor Smith’s coherent and logical account dispels much of the previous folklore associated with this area. Plasmid-determined resistance is taken up by Professor Courvalin from Paris, who argues against the role of these extrachromosomal elements in the spread of resistance to these drugs. Although he speculates that 4-quinolones oppose plasmids, he realistically acknowledges that bacteria are still able to surprise us and, as with glycopeptides, plasmids may yet be found that confer resistance. The theme of resistance is continued by an interesting paper on the effect of anaerobiosis on 4-quinolone resistance in staphylococci. Dr Crumplin has further strengthened his book by enlisting Dr Wolson and Dr Hooper from Boston who not only give a concise account of the bactericidal action of 4-quinolones but have also written a separate excellent chapter outlining the mechanisms of resistance. I could go on . . .

If you wish to know about the scientific basis for the action of and resistance to 4-quinolones this book will surely find its way on to your shelf.

S. G. B. AMYES