



Book review

HIV and the Pathogenesis of AIDS

Jay A Levy

ASM Press: 1995. 373pp. \$49.00. ISBN

It would be difficult to think of a more challenging assignment than cogently to review all human immunodeficiency virus pathogenesis and biological aspects of disease, as demonstrated in the literature since the beginning of the world-wide pandemic of AIDS. The field has grown, and I would suggest will continue to grow, at a geometric rate. Thus, Dr Jay Levy's undertaking in critically reviewing HIV cellular and molecular biology and the data beginning to describe the *in vivo* pathogenesis of the acquired immune deficiency syndrome, is clearly a Herculean task. Few fields move as quickly, and therefore, lead to out-of-date publications at such a rapid rate as the field of human retrovirology in general, and AIDS in particular.

Nevertheless, Jay Levy accomplishes this task in a wonderfully concise and yet thorough manner. This relatively short book of only 340 pages is a clear guide through the quagmire of the HIV literature. It will certainly be useful to both scientists who are newly beginning their forays into human retrovirology, as well as a wonderful reference text for established investigators in the field. When graduate students or new post-doctoral fellows come to my laboratories, I have often struggled with how to educate them on the extraordinarily large basis of information already acquired on HIV. Dr Levy's book has helped in this regard and will be a standard presentation to new members of the laboratories in the foreseeable future.

The book is divided into 13 relatively concise chapters. The chapters are logically organized for a book on HIV pathogenesis, with significant details in molecular biology. Nevertheless, this is not a brute-force retrovirological text, and for in-depth evaluation of retroviral structural and regulatory gene products, other resources will be necessary.

The first chapter is an interesting but brief description of the history of human retrovirology, and gives some timely information regarding the basic nature of human immunodeficiency viruses. The next four chapters move in an orderly trend from subjects dealing with transmission, to early steps in the viral life-cycle, through intracellular replicative steps of HIV and a chapter on theories regarding the *in vivo* and *in vitro* cytopathogenesis regarding this virus. Transmission is clearly a difficult issue, which can be dealt with in a macroscopic or microscopic form. This book takes a reasonable middle approach by addressing a variety of critical issues, important for both clinical medicine and basic evaluations. The intracellular chapter is somewhat weak in its treatment of viral transactivating regulatory proteins. With the exception of HIV Nef, some further detail might have been helpful for more advanced readers.

The next four chapters deal with a variety of issues involved with *in vivo* infection and the response of the human host. One chapter on viral heterogeneity is extremely well written and understandable. As this sub-field many times requires significant mathematical expertise, Dr Levy does an extremely nice job in making this a readable chapter for a wide audience. The chapter on viral regions and their effects on HIV growth is interesting, but somewhat general. In particular, this chapter overly stresses the gp120 of HIV viruses, with some lack of detail regarding other viral regions. The next two chapters on HIV replication in various human tissues and organs, as well as a chapter on cell-mediated immunity and humoral immunity to HIV, are both concise and quite readable. These remain difficult and very large and dense areas of the field which are nicely summarized and readable in a relatively short period of time.

The chapter on HIV and cancer is, overall, well written and interesting, but this clearly shows how fast the field is moving. Data on the newly described herpes virus which may be involved with the Kaposi's sarcoma have not been included and would be important for future updates of this book. In addition, the chapter on HIV pathogenesis and long-term survivors is flawed by the lack of recent data regarding long-term non-progressors. This is certainly no fault of the author's as, once again, the field moves extremely rapidly. Of note, some further discussion of some viral and host parameters, in addition to CD8-positive lymphocytes, would have been helpful in this chapter. The second to last chapter and antiviral strategies is somewhat more abbreviated than other chapters, but this is probably reasonable for a book that highlights HIV pathogenesis. Nevertheless, it would have been helpful to have separated out vaccines from antivirals into separate, complete chapters. As well, further discussion on gene therapeutic or intracellular immunization strategies might have been useful.

In summary, I was extremely pleased with this short book on HIV pathogenesis. It is an undertaking that was long overdue and, with close to 2000 references, I would predict that it will become a standard text in the field for both young and old scientists interested in basic pathogenesis and clinically-oriented studies in human retrovirology. I strongly recommend this excellent monograph to all members of the HIV research community.

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