

Fields VIROLOGY

Second Edition

Volume 2

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Preface

Like the First Edition, this Second Edition is divided into two sections. The first part, Chapters 1 to 19, presents the general concepts of basic and medical virology while the second part, Chapters 20 to 81, describes the replication and biological and medical properties of the viruses. An enormous explosion in the information about viruses has occurred in the five years since the First Edition was prepared. In addition to updating all chapters, we have included new chapters on virus evolution, latency and persistence, virus-cell interactions, and cell transformation; a new section on retroviruses including human retroviruses such as HIV and HTLV; a new section on herpes viruses including new chapters on human herpesvirus 6 and B virus and on molecular biology of cytomegalovirus and Epstein-Barr virus; a new section on hepadnaviruses; a new chapter on the biochemistry of agents causing spongiform encephalopathies; and important new information on viruses causing hepatitis. The main emphasis continues to be viruses of medical interest although other viruses have been described in specific cases where more is known about their mechanisms of replication.

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Preface to the First Edition

The last decade has seen the coming of age of the revolution of biology initiated by the discovery of the role and importance of DNA in heredity. Because of their simplicity, bacterial viruses played a focal role in many of the important developments emerging during the early phase of this period. More recently, animal viruses have had an equally powerful impact on the study of eukaryotic molecular genetics. In parallel with these fundamental discoveries, the natural history of infectious diseases has seen equally remarkable changes. Smallpox has disappeared and AIDS has appeared. With the increasing use of immunosuppression, many indigenous or "latent" viruses have taken on increasing importance. In addition, many "classic" viral infections have been controlled, in part, by effective vaccines (polio, measles, rubella) while others have resisted effective preventatives (respiratory syncytial virus). With the striking new insights in molecular biology, some important new insights into fundamental features of viruses as infectious agents have resulted. Not only are there new ways to make vaccines, but the biochemistry of viruses has begun to answer classic questions about epidemiology and pathogenesis. The goal of this book is to bring together basic and medical aspects of virology in a more comprehensive presentation than provided by general textbooks. Thus, this book was planned as a reference book for medical and graduate students as well as scientists, physicians, and investigators interested in viruses as they are represented in the biological sciences.

The book is essentially divided into two sections. The first part, Chapters 1 to 18, presents the general concepts of basic and medical virology while the second part, Chapters 19 to 63, describes the replication and biological and medical properties of the viruses. Chapters 19 to 31 describe the DNA viruses, and Chapters 32 to 62 describe mostly RNA viruses. The only exceptions to this last statement are the chapters on hepatitis, in which both a DNA virus and an RNA virus are described. The final chapter describes the unconventional infectious agents that cause slow, progressive diseases. The main emphasis is on viruses of medical interest although other viruses have been described in specific cases where more is known about their mechanisms of replication.

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