

Preface

Alphaviruses are small, enveloped, single-stranded positive-sense RNA viruses that are typically transmitted by arthropods, especially mosquitoes. A number of alphaviruses are known as clinically important human pathogens (e.g. Venezuelan equine encephalitis virus, chikungunya virus). Key areas of alphavirus research are focused on treatment and prevention of disease, but there is also considerable potential for harnessing alphaviruses as vaccine vectors and in gene therapy (e.g. Semliki Forest virus). In addition, alphaviruses have also been very valuable model systems for a wide range of basic studies in diverse areas such as cell biology, virology and immunology.

The book presents the current status of alphavirus research across a wide range of disciplines, but has a particular focus on molecular biology, pathogenesis and host interactions. The book, which is the first of its kind to focus specifically on alphaviruses, has been written in response to a

clear need within the alphavirus research community for a comprehensive and up-to-date overview of the field.

Each chapter has been written by leaders in that particular research field. Chapter topics covered include genome structure and replication; viral evolution; laboratory diagnosis and detection; interaction with the interferon system; antiviral responses in mosquitoes; animal models of alphavirus-induced inflammatory disease; clinical manifestations of arthritogenic alphaviruses; encephalitic alphaviruses; the application of alphavirus vectors for gene therapy; and chikungunya virus pathogenesis and the development of control strategies.

Finally, we thank all contributors for their hard work in providing chapters describing the latest developments in their fields of expertise and for their patience while waiting for the book to be published.

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