

Preface

The group B coxsackieviruses have a long and colorful history, dating to the early days of virology as we now know it. In the late 1940s, ultracentrifugation and electron microscopy were new, high-tech tools and suckling mice were supplanting monkeys as the virus isolation vessel of choice. Viruses were, often as not, still referred to as “filterable agents.” The rampage of paralytic poliomyelitis epidemics in the previous 20 or so years had spurred national investment in infectious disease research, resulting in an unprecedented period of virus discovery, eclipsed only a few years later once cell culture became the preferred method to isolate and identify mammalian viruses. The coxsackieviruses were isolated from feces of patients with paralytic poliomyelitis and nonparalytic poliomyelitis (aseptic meningitis), causing disease in suckling mice, but not in adult mice or monkeys. They were considered to be related to the polioviruses on the basis of their physical properties, such as virion size, acid and ether resistance, and temperature stability in 50% glycerol, and were classified into groups A and B by the nature of the disease induced in mice: flaccid paralysis by group A viruses and spastic paralysis by those of group B.

Our knowledge of the group B coxsackieviruses has progressed dramatically in the past 60 years. Some of the most recent advances include the identification of the coxsackievirus–adenovirus receptor, the dissection of genetic elements linked to virulence/attenuation, examination of the impact of recombination in virus evolution and diversity, and analysis of the role of viral proteins in regulating host-cell macromolecule synthesis and trafficking. The first edition of this work, published in 1997, described the molecular biology of coxsackie B viruses, as well as clinical, epidemiological, and immunological aspects of group B coxsackievirus disease. Much has been accomplished in the past 10 years, including determination of the crystal structure of a virus–receptor complex, significant advances in understanding the molecular details of virus–host interaction within the cell, and deeper insights into the systemic effects of virus infection and the host response. This second edition summarizes the current state of knowledge in group B coxsackievirus genomics and replication, receptor structure and function, host-cell interactions, the host immune response and immunopathology,

viral virulence and pathogenesis, and the role of this important group of viruses in acute and chronic disease in humans.

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