

Preface

Science has led us to find out things that give us what we have today. A world without science would mean that we would still be living in a very different way to that of what we live today. Life sciences one of the major interests of human kind nowadays regarding infectious and chronic diseases. Located within the heart of life sciences, biology is an important area of study as it reveals the facts and has taken us where we are today. All the other fields of study are dependent on the facts that are revealed by the studies that are carried out in the field of biology. Despite the fact that viruses belong to life sciences study, they consider not living organism and obligatory parasites, since the absence of actual cell components and real metabolism processes. Instead of having systems to metabolize energy and other living processes, viruses must attack living cells and hijack their systems in order to reproduce and survive. Viruses are one of the most archaic forms in science; however, there is still much research to be done.

In basic and applied virology aspects, more complicated viruses, such as human immunodeficiency virus (HIV) are much faster changing and replicating than current researchers can understand so far. The more we understand viruses and the advantages of their structure and function, the more opportunities will be for medical advances.

The idea of writing this book regarding emerging and reemerging viral pathogens originated from my experience of teaching and researches in molecular, applied virology, and oncovirology since three decades. I needed a text that was comprehensive enough to cover all major aspects in the field, technical enough for a practical researcher level, and sufficiently up to date to include most current topics while at the same time being logical and easy to understand. To benefit a larger audience, I decided to assemble all related subjects, as well as my experience and interpretation of virology, into a book. This book comes as a special addition of this field and aims to provide a brief, accurate and up-to-date presentation of those aspects of general virology, medical virology that is of particular significance to the fields of endemic disease in the world today. *Emerging and Reemerging Viral Pathogens*, first volume entitled *Fundamental and Basic Virology Aspects of Human, Animal, and Plant Pathogens*, provides a comprehensive analysis of basic virology from essential structures to clinical application. This book contains a timely and comprehensive collection of fully up-to-date reviews on

emerging and reemerging viral pathogens and covers the latest advances in many different areas of basic virology, ranging from basic aspects technologies to virus–medicine relationship and written at the verbal and technical levels that can be understood by scientists as well as researcher in the field of concern.

The central theme of the book is basic virology approaches related to the human, animal, and environmental pathogens, written by an elite of researchers who had a long sleeve in virology researches. This volume covers a wide range of current basic virology aspects studied and widely required. This book is aimed at graduate and researchers in basic virology, who has no background in virus studies but wishes to understand the fundamental principles of viral diseases and use this knowledge to tackle his or her own research problems. This volume is organized into 48 chapters in total, each of which is relatively independent. Each chapter includes definitions and key concepts as well as wide description of the subject. An abstract is also provided. Scientific material of the chapters were concentrated on human reemerging arboviral diseases of the late 21st century, viral emerging pathogen evolution, ecoepidemiology of arenaviridae, alphaviruses and flaviviruses, coronaviridae, coronavirus, hepatitis C virus and human herpesvirus 8, HIV, ebola and marburg virus, chikungunya virus, cytomegalovirus, orthobunyavirus, dengue virus, noroviruses, sapoviruses, aichi viruses, capripoxvirus viral nervous necrosis disease, viral hemorrhagic septicemia disease, white spot syndrome virus, koi herpesvirus disease, avian coronavirus, aviadenovirus, equine influenza viruses, mosquito-borne flaviviruses, poliovirus. Correlation between viruses' role in common human tumors, relations between vitamin D deficiency and viral etiology have been discussed. Hope to be a humanitarian scientific participation leads to great expectations of the readers around the globe in the fields of basic virology.

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