

Preface

The whole book, regarding emerging and reemerging viral pathogens, originally consists of two volumes: Volume 1 concerns the fundamental and basic virology aspects of human, animal, and plant pathogens. As completion of the abovementioned fundamentals of viral pathogens, Volume 2 comes to share applied topics of viral pathogens and its complications. The main theme of Volume 2 is applied virology approaches related to human, animal, and environmental pathogens. The topics cover most emerging viral disease in human, animal, and plant; provide the most recent advanced tools and techniques in molecular virology and in computational and modeling viruses; create awareness that the manifestation of new transmissible pathogens is a global risk; and highlight the need to adopt shared policies for the prevention and control of infectious diseases. And it also concerns researchers in virology, micromolecular biology, and pharmaceutical sciences. Volume 2 entitled "Applied virology approaches related human, animal, and environmental pathogens" is organized into 18 chapters; each chapter includes definitions and key concepts as well as wide description of the subject. An abstract is also provided for each chapter. The contents of each chapter are supported by schematic figures and tables that are needed. The editor starts with general introduction explaining the phenomena of emergences and reemergence of the diseases: evolution of the concepts, risk factors, and state of the art. Subjects of the contents reported are viral dynamics in human immunodeficiency virus as emergent viral infection, CRISPR/Cas9 genome-editing technology against emerging and reemerging virus, infectious bronchitis virus in poultry, biological databases in virology, mathematical modeling in virology, scientific advances in the diagnosis of emerging and reemerging viral human pathogens, computational and bioinformatics tools in virology, roles of long noncoding RNAs in the molecular mechanisms of emerging and reemerging viral infections, designing antiviral substances targeting the Ebola virus vp24 protein, application of nanodiagnosics in viral infectious diseases, baculovirus-derived vectors for immunization and therapeutic applications, biotechnology of recombinant veterinary vaccines against rabies, epidemiology and ecology of emerging viruses in two freshwater lakes of the Northern Hemisphere, epidemiology and genetic variability of rabies and norovirus, and

finally risk assessment and biosecurity considerations in control of emergent plant viruses. Hope we covered main applied virology domains that will impact the quality of life of coming generations.

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