Non-Human Primate Models: A key To Understanding The Pathophysiology Of Emerging Infectious Diseases

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Abstract
The evolutionary dynamics of emerging infectious diseases is dependent on mutual interactions between the environment, the pathogen, and the host. During the last century, globalization and human-driven environmental modifications have increased the risk of pandemics due to emerging infectious diseases. In this context, non-human primate (NHP) models can often be challenged directly with human pathogens, an essential prerequisite to develop new diagnostic and therapeutic strategies. During this lecture, I will present three models of infectious diseases: HIV/SIV (Human or Simian immunodeficiency virus), Zika virus and malaria (Plasmodium species). For these etiologic agents, the NHP models can bridge the gap between mouse models and the wide spectrum of clinical complications seen in humans. I will describe the cellular mechanisms involved in the pathophysiology and the consequences for the host. Many zoonotic agents cause little or no signs of disease in their natural hosts, but humans and experimentally infected NHPs may present a large range of disease symptoms.

Selected Publications for Reference