

*Session 1: Update on Virology and Pharmacology of Antiviral Agents***Influenza A 2009 H1N1****Prasert Auewarakul**

Department of Microbiology, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand.

***Abstract***

Although most cases of influenza A 2009 H1N1 were mild and self-limited, many cases developed severe pneumonia leading to acute respiratory distress syndrome (ARDS) and death. It is not clear what determined the disease severity in these cases. Host factors including pregnancy, obesity, and chronic illnesses are certainly contributing factors, but other unknown host and viral factors may also play pivotal roles. The pandemic influenza A 2009 H1N1 virus has been shown to induce more severe lung pathology in ferrets and monkeys than seasonal influenza viruses. This may be a result of receptor-binding property of the virus, as the pandemic virus binds not only to  $\alpha$ 2,6-linked sialic acid, expressed mainly in upper airway, but also with a lower affinity to  $\alpha$ 2,3-linked sialic acid, expressed in alveoli. The ability of this virus to infect alveolar epithelial cells may play a crucial role in pneumonia and ARDS. On the other hand, evidences are pointing to host innate responses as major determinants of disease outcome. Therapeutic approaches aiming at modifying innate inflammatory responses have been proposed but not yet fully explored. Both mechanistic studies and clinical trials addressing these alternative treatments are needed for a better pandemic influenza preparedness.

**Keywords:** influenza, pandemic, H1N1, pathogenesis, tissue tropism, innate responses.