



Department of Infectious Diseases and Public Health

Studying Infection and Immunity to Tackle Unmet Needs of Human and Animal Infectious Diseases

By

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Date: 18 December 2018 (Tuesday)
Time: 10:45am – 11:45am
Venue: Room 1B-G04, G/F, Block 1B, To Yuen Building

Abstract

The primary objective of this seminar is to highlight my diverse educational and research experience and to present my vision to utilize the knowledge and experience that I gained to build strong research and educational program at the City University of Hong Kong, Jockey Club College of Veterinary Medicine and Life Sciences. My research training and experience have been focused on studying the host immune response to infectious agents (bacteria and viruses), virus-host interactions, the discovery of novel therapeutics, and the development of vaccine adjuvants. The initial research was focused on studying the role of IFN- γ against experimental infection of *Lawsonia intracellularis* in mice. The PhD dissertation research was focused intensively on molecular virology, specifically with respect to equine arteritis virus (EAV), the causal agent of equine viral arteritis (EVA). The project included basic, applied, and translational research and used both classical and contemporary molecular techniques to unravel host-virus interactions. These studies demonstrated that EAV carrier status in stallions correlates with possession of a subpopulation of CD3+ T lymphocytes that is susceptible to EAV infection. Subsequently, single nucleotide polymorphism genome-wide analysis (GWAS) coupled with next-generation whole genome sequencing techniques was used to identify the equine gene responsible for the establishment of persistent EAV infection in stallions. These studies identified the *EqCXCL16* gene is responsible for the establishment of persistent infection in the stallion, and it also acts as one of the cellular receptors for EAV.

Furthermore, studies were also aimed at characterizing the equine humoral antibody response to structural and nonstructural proteins of EAV and elucidating specific antiviral mechanisms that were employed by the host to combat viral infection such as the identification of new effectors of innate immunity and mechanisms by which viruses evade the innate response. My postdoctoral studies and my current work have been focused on the development and screening of antiviral agents for Biosafety level (BSL)-2 and BSL-3 pathogens. These studies were focused on the development of drug screening platforms to identify candidates for antivirals and vaccine adjuvants for treatment and prevention of infectious diseases that are likely to cause public health emergency. As a result, several candidate molecules were identified as potential antivirals for highly contagious diseases such as Middle East Respiratory Syndrome, and diseases caused by arboviruses, such as dengue, Zika, and Chikungunya. Also, a small molecule with a broad spectrum antiviral activity and enhanced immunostimulatory activity against flaviviruses was identified. This molecule is currently being evaluated for its potential use as a universal vaccine adjuvant in different species.

In conclusion, the research experience gained throughout my career will be used to develop a robust multidisciplinary research program involving basic, applied and translational research. A better understanding of the relationships between infection and host genetics, pathogen receptor genes, cytokines or other immune responses will provide the basis for the development of new control and prevention strategies for animal and human infectious diseases.

Biography

Dr. Yun Young Go earned her D.V.M. degree (2000) and M.Sc. degree (2002) with an emphasis in Veterinary Immunology from the School of Veterinary Medicine, Konkuk University, Seoul, South Korea. Following completion of M.Sc. degree, she was employed by Korea Racing Authority, the sole Thoroughbred horse racing authority in Korea, as an equine clinician where she gained ample knowledge and experience in equine medicine. In 2005, Dr. Go joined the graduate program at Maxwell H. Gluck Equine Research Center, University of Kentucky, KY, USA. Her PhD research was focused on characterization of the host immune response and host-virus interactions of equine arteritis virus, the causative agent of equine viral arteritis.

In 2012, she joined the Center for Vaccine Research, University of Pittsburgh, PA as a postdoctoral scholar working on the antiviral immune response of Chikungunya and Yellow fever viruses using genetically engineered mice as a model in biosafety level (BSL)-3 and animal BSL-3 facilities. In December 2012, Dr. Go moved back to South Korea and took a Senior Research Scientist position at the Korea Research Institute of Chemical Technology, where she established a productive research program on the development of antivirals against emerging and re-emerging infectious disease agents that are of global public health importance. Recently, she has expanded her research interests to the discovery and development of small molecule adjuvants that improve the effectiveness of vaccines used in humans and animals.

Dr. Go is a Diplomate of American College of Veterinary Microbiologists since 2011. She is currently giving graduate course lectures and training graduate students as an Adjunct Professor at the University of Science and Technology, Daejeon, South Korea.

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