SEMINAR

ALL ARE WELCOME

TEMASEK LIFESCIENCES LABORATORY

23 January 2017 (Monday), 11am

The Auditorium (Level 1)

Hosted by: Dr Mookkan Prabakaran

Enhancing Vaccine Efficacy Through Novel Vaccines and Delivery Technology

Dr. Lorne A. Babiuk
University of Alberta, Canada



Dr. Lorne Babiuk is an internationally recognized leader in Canadian vaccine research who has devoted his career to Canadian-based research aimed at safeguarding the health of people and animals at home and abroad. The vaccines that he was involved in developing have had a significant impact on the economy as well as reduced mortality and morbidity caused by infectious diseases. He specializes in immunology, pathogenesis, virology, molecular virology, and vaccinology, and is a world expert in infectious diseases and their control, specifically by vaccination. He has published over 500 manuscripts, awarded 42 patents, and trained over 100 PhD and post-doctoral fellows who have gone on to successful careers in academia, industry, and government. Among his many honours, he is an Officer of the Order of Canada, a Fellow of the Infectious Disease Society of America, a Fellow of the Royal Society of Canada, and a Member of the European Academy of Sciences. Dr. Babiuk was also honoured to receive the Saskatchewan Order of Merit and to be inducted into the Saskatchewan Agricultural Hall of Fame. Dr. Babiuk was awarded the 2012 Canada Gairdner Wightman Award, the Killam Prize in health sciences in 2013, and the GCHERA World Agriculture Prize 2016. Before taking up his position at the University of Alberta, Dr. Babiuk was the Director of the Vaccine and Infectious Disease Organization (VIDO). During his time at VIDO, Dr. Babiuk built the organization into an international powerhouse carrying out major research in immunology, pathogenesis, virology, molecular virology, and vaccinology.

Vaccines have saved more lives than all other therapies for infectious diseases. This is especially true in today's environment where vaccines are having a major impact on the health of humans and animals as well as enhancing food security, especially in the developing world. New vaccine design, such as live recombinant vaccines and new formulations and delivery methods for killed or subunit vaccines will be described. For example, novel adjuvants based on their ability to modulate both the magnitude and quality (immune balance) of the immune response have been developed. These adjuvants can also act as delivery vehicles to provide mucosal immunity and eliminate the use of needles for delivery. These adjuvants are based on our understanding of the role of innate immunity and how innate immunity drives specific immune responses. Secondly, our ability to develop viral vectors that are thermostable and can carry genes from multiple pathogens provides an opportunity to control multiple diseases with a single immunization. These approaches are creating opportunity to reduce both economic losses and disease transmission between species, especially animal-human transmissions, will be described.

Recent Publications:

1. Backes, S., Jäger, C., Dembek, C.J., Kosinska, A.D., Bauer, T., Stephan, A-S., Dišlers, A., Mutwiri, G., Busch, D.H., **Babiuk, L.A.**, Gasteiger, G., Protzer, U. Protein-prime/modified vaccinia virus Ankara vector-boost vaccination overcomes tolerance in high-antigenemic HBV-transgenic mice. Vaccine 34(7):923-932. February 10, 2016
2. Boshra, H., Truong, T., Nfon, C., Bowden, T., Gerdts, V., Tikoo, S., **Babiuk, L.**, Kara, P., Mather, A. A lumpy skin disease virus deficient of an IL-10 gene homologue provides protective immunity against virulent capripoxvirus challenge in sheep and goats. Antiviral Research (2015) 123:39-49.
3. **Babiuk, L. A.** Controlling Infectious Diseases through Vaccination. Clin Invest Med 2014; 37(6):E409-E413. December 6, 2014.