



BME COVID-19 SEMINAR SERIES

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Date: Monday, September 28th, 2020

Time: 1:30 p.m.

Location: Virtual – Zoom

Faculty Host: Jamie Spangler, PhD

Systems Biologics: Large-Scale Engineering of Modulators of Protein Networks

Abstract: Over the past two decades, genomics technologies have revolutionized basic research and are also having a significant impact on understanding, predicting and diagnosing disease. Over the same period, the biologics revolution, lead by therapeutic antibodies, has greatly expanded our ability to target proteins that drive cancer and other diseases. To date, however, the academic genomics revolution and the industrial biologics revolutions have not been combined, so that the vast amounts of data generated by genomics technology have not been effectively translated to drug development, which remains a slow, case-by-case process. In the Donnelly Centre at the University of Toronto, we have established the Toronto Recombinant Antibody Centre (TRAC) to combine large-scale systems biology approaches with the discovery and development of new antibody drugs. Moreover, we have established the Accelerator Centre for Donnelly Collaborations (AcDC) to enable rapid and efficient development of therapeutic biologics through a collaborative network of industrial partners and financiers. The efficient pipeline exemplified by the basic research of the Donnelly Centre, connected to the translational science of the TRAC, and the commercialization of the AcDC, constitutes a new model for research and drug development, which we have termed “Systems Biologics”. Through this model, cutting-edge systems biology basic research can be seamlessly translated into systems biologics: novel, multi-functional drugs and diagnostics that take advantage of the complexities of human biology revealed by genomics data.

Bio: Dr Sidhu is a Professor in the Department of Molecular Genetics and the Donnelly Centre at the University of Toronto. Dr Sidhu is also the founder of the Toronto Recombinant Antibody Centre (TRAC) and the Centre for Commercialization of Antibodies and Biologics (CCAB). Dr. Sidhu joined the Donnelly Centre for Cellular & Biomolecular Research in 2008 after ten years as a Principal Investigator in the Department of Protein Engineering at Genentech. He returned to academia after a distinguished career at Genentech where he led the development of its phage display technology. Dr. Sidhu's research is primarily focused in the field of protein engineering and technologies that explore and shape protein and antibody structure and function, with the aim of crafting better therapies for cancer and other diseases. He has a wealth of experience in commercial antibody discovery. He has published more than 200 scientific papers and is a co-inventor on more than 50 patents granted or filed with the US patent office. Dr. Sidhu was the recipient of the 2015 Christian B. Anfinsen Award of the Protein Society for significant technological achievements in protein research.