INFORMAL SEMINAR
MOLECULAR STRUCTURE AND FUNCTION PROGRAM

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Head Hunting – Targeting the Influenza Hemagglutinin Receptor Binding Site

Abstract: Influenza viruses are a persistent threat to human health and are a source of major economic burden each year. Vaccines are available annually to prevent influenza infections; yet, since the virus rapidly mutates, these vaccines need to be updated almost every year. However, in the last five years, the discovery of broadly neutralizing antibodies (bnAbs) against influenza virus has inspired hope that a broad-spectrum, long-lasting vaccine may be possible if similar antibody responses can be elicited. These bnAbs target functionally conserved surfaces on the hemagglutinin (HA), the major surface glycoprotein on the virus, such as the receptor binding site. Crystal structures of bnAbs S139/1, 5J8, and F045-092 in complex with the HA reveal that they all insert into the receptor binding site, using aspects of receptor mimicry, to prevent viral-host interactions. They all also use avidity to enhance their affinity to bind and thus neutralize divergent HA strains. Altogether, the structural details and binding features of these bnAb-HA complexes, and others, have provided valuable insight into the recognition of HA and are now the source of inspiration for design of improved immunogens for vaccines as well as novel therapeutics in the form of small molecules and peptides to combat the flu.

Date : Thursday, August 28, 2014
Time : 11:00 am – 12:00 pm
Location : Room 02.9310, Event Rooms 2a/2b, PGCRL
Peter Gilgan Centre for Research and Learning, 686 Bay Street

Host: Dr. Jean-Philippe Julien

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