

MOLECULAR STRUCTURE AND FUNCTION PROGRAM SEMINAR

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Dr. Bui is a candidate for a staff position in the Molecular Structure & Function Program

Integrated Structural Analysis of the Human Nuclear Pore Complex Scaffold

Abstract: Nuclear pore complexes (NPC) are large protein complexes that cross the nuclear envelope of eukaryotic cells. They control the transport of small molecules and proteins in and out of the nucleus in a highly selective manner. It is assembled from multiple copies of about 30 nucleoporins, which are organized as repetitive modules, called subcomplexes. Despite their importance, structure determination of NPCs is a considerable challenge, primarily due to their sheer size. In order to elucidate the scaffold structure of the NPC, we have used an integrated approach based on electron tomography, single-particle electron microscopy, and crosslinking mass spectrometry to determine the structure of a major scaffold motif of the human NPC, the Nup107 subcomplex, in both isolation and integrated into the NPC. In doing so, we reveal that 32 copies of the Nup107 subcomplex assemble into two reticulated rings, one each at the cytoplasmic and nuclear face of the NPC. This arrangement provides insights into the assembly of the NPC and may explain how changes of the diameter are realized that would accommodate transport of huge cargoes.

Date : Monday, January 20, 2014

Time : 1:00 - 2:00 pm

Location : Room 02.9310 (Event Room 2, 2nd Floor)

SickKids Peter Gilgan Centre for Research and Learning (PGCRL),
686 Bay Street

Host: Dr. P. Lynne Howell

Pizza Lunch will be provided

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