UNIVERSITY of GUELPH

2014 - 2015
MCB Distinguished Speaker Series

MOLECULAR and Cellular Biology

Dr. Pierre Thibault

CRC and Principal Investigator, Proteomics and Bioanalytical Mass Spectrometry, Institute for Research in Immunology and Cancer;
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"Unraveling protein functions through dynamic phosphoproteomics"

Wed. Feb. 11, 2015
MACN 113 @ 1pm

Recent advances in affinity chromatography and mass spectrometry have facilitated the large-scale identification and profiling of protein phosphorylation with thousands of sites typically identified per study. However, the function of the large majority of these modifications remains unknown, and appropriate follow-up experiments are required to determine the biological significance of identified phosphorylation sites. The profiling of dynamic changes in protein phosphorylation is a promising approach to dissect signaling events and correlate interactions between kinases, phosphatases and their substrates. Many protein phosphorylation/dephosphorylation events take place rapidly in response to environmental perturbation and thus require special sample handling techniques. This presentation will describe a novel approach to analyze phosphorylation dynamics in yeast and human cells with sub-minute temporal resolution. Time-resolved phosphoproteomics of yeast following osmotic stress identified more than 5500 high quality temporal profiles, of which approximately 10% were dynamically regulated. Extensive changes in phosphorylation of proteins implicated in cytoskeletal and mitotic spindle dynamics suggest multiple regulatory functions of osmoregulation in cell cycle and morphogenesis. Dynamic phosphoproteomics analyses will also be presented for colon cancer cells to unravel paradoxical effects of RAF inhibition and to identify unsuspected MAPK substrates.

Winter 2015 seminars to be held
on the following Wednesdays in MACN 113, starting promptly at 1:00 pm

Jan 28	Jan. 28, Dr. Rowan Sage, University of Toronto (Host: J. Colasanti)
Feb. 11	**Feb. 11, Dr. Pierre Thibault, Université de Montreal (Host: J. Yankulov)**
Feb. 25	Feb 25, Dr. Michael Gold, UBC Life Sciences Centre (Host: C. Whitfield)
Mar. 11	Mar 11, Dr. Michael Ohh, University of Toronto (Host: N. Jones)
Apr. 1	Apr. 1, Dr. Lindsay Eltis, UBC Life Sciences Centre (Host: S. Seah)

For more information, please visit the MCB website http://www.uoguelph.ca/mcb

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