UNIVERSITY of GUELPH

2016-17
MCB Distinguished Speaker Series

MOLECULAR and Cellular Biology

Dr. Harry Brumer

Professor, Michael Smith Laboratories
University of British Columbia

"Polysaccharide Utilization Loci: Fuelling microbial communities in the human gut and beyond"

(Faculty Host: Dr. Chris Whitfield)

Wed. March 29th, 2017
SSC 2315 @ 10:30 am

The composition and physiology of the human gut microbiota, which forms a cornerstone of our health, is strongly dependent on the influx of complex glycans from our diet. Members of the Bacteroidetes, a dominant phylum in the human gut, possess an arsenal of complex Polysaccharide Utilization Loci (PUL) to target a range of structurally diverse plant and animal saccharides. PULs encode cohorts of highly specific carbohydrate-active enzymes, binding proteins, transporters, and sensor/regulators for the coordinated capture and saccharification of their cognate substrates [1-3]. We have illuminated the detailed molecular mechanism by which a common human gut symbiont, *Bacteroides ovatus*, utilizes the ubiquitous and abundant vegetable polysaccharide xyloglucan, through combined genetic, biochemical, and structural characterization. Recent advances in the characterization of xyloglucan utilization loci (XyGUL) in human gut and environmental bacteria will be presented, together with the extension of this holistic approach to characterize PULs directed toward other key dietary carbohydrates.

1. Grondin, Tamura, Déjean, Abbott, Brumer (2017) *J. Bacteriol.*, in press. DOI:10.1128/JB.00860-16
2. Martens, Kelly, Tauzin, Brumer (2014) *J. Mol. Biol.*, 426, 3851–3865
3. Koropatkin, Cameron, Martens (2012) *Nat. Rev. Microbiol.*, 11, 323-335.

"A GREAT OPPORTUNITY TO HEAR LEADING RESEARCHERS IN THE SCIENTIFIC COMMUNITY DISCUSS THEIR WORK"

*** ALL WELCOME TO ATTEND *** *** COFFEE, TEA AND TIMBITS ***

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