



UNIVERSITY OF SASKATCHEWAN
College of Medicine
DEPARTMENT OF BIOCHEMISTRY,
MICROBIOLOGY AND IMMUNOLOGY
MEDICINE.USASK.CA

Proteomics Research in Interactions

PRISM
and Structure of Macromolecules

COMBINED SEMINAR SERIES

Department of Biochemistry,
Microbiology & Immunology and
PRISM Research Centre

Thursday, November 19th
11:30 am – 12:30 pm

(WebEx)



Dr. Carmen Buchrieser

Head

Biology of Intracellular Bacteria
Department of Microbiology
Institut Pasteur

“Intracellular parasitism, the driving force of the evolution of virulence of *Legionella pneumophila* and the genus *Legionella*”

Legionella pneumophila is the etiological agent of Legionnaire's disease, a Gram-negative bacterium present in fresh and artificial water environments that replicates in protozoan hosts. When aerosolized bacteria are inhaled, they are able to colonize the respiratory tract, invade alveolar macrophages and replicate therein causing the disease. *L. pneumophila* is part of a large genus comprising 65 species. Using functional and comparative genomics to deconstruct the entire bacterial genus we reveal the surprising parallel evolutionary trajectories that have led to the emergence of human pathogenic *Legionella*. An unexpectedly large and unique repository of secreted proteins (>18,000) containing eukaryotic-like proteins acquired from all domains of life (plant, animal, fungal, archaea) is contrasting with a highly conserved type 4 secretion system. I will give examples of our functional analyses of these eukaryotic-like proteins show that *Legionella* uses molecular mimicry as virulence strategy and show our evolutionary analyses that suggest that reshuffling and gene -acquisition from environmental eukaryotic hosts, may allow for the emergence of human pathogens.

WebEx Details:

Meeting link: <https://usask.webex.com/usask/j.php?MTID=m0ad6240607392310e7b519c117ce87e6>

Meeting number: 145 235 3236

Password: jnPckuVk433

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Everyone Welcome