

Department of Molecular and Cellular Biology
Graduate Seminar MCB*7500



Friday, March 17, 2017 in SSC 1511 @ 12 noon

presented by:

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Characterization and strain diversity of *Flavobacterium branchiophilum*, the etiological agent of bacterial gill disease, in Ontario freshwater fish

Flavobacterial infections cause production-limiting disease in aquaculture. *F. psychrophilum* the cause of cold-water disease and *F. columnare*, the cause of columnaris disease are well studied, easily maintained in culture and in freezer stocks. In contrast, *F. branchiophilum*, the cause of bacterial gill disease (BGD) is a slow-growing, fastidious and difficult to maintain in culture. Our lab has recently improved both culture and recovery of frozen stocks making possible the study of specific isolates. *F. branchiophilum* forms dense mats/biofilms on fish gills suggesting specific tropism to this environment. There is little known of the virulence mechanisms, the role of specific bacterial components during infection, and of strain variations including serotype differences. Immunoprecipitation approaches identified antigenic differences, but the specific antigens or correlation between serotype and fish hosts are not known. *F. branchiophilum* genome sequence was recently published generating a starting point for studies on the genetic properties relevant to BGD. My research objectives are to, characterize the serotypes of *F. branchiophilum* strains in the Ontario aquaculture; sequence the genomes of isolates having different serotypes and identify sequences that can be used for pathogen typing and identification. Historical cultures in the Ontario Fish Health Lab will be used. The hypotheses of the study are that *F. branchiophilum* isolates from different geographical sources and fish species have serological and genotypic differences. This study will contribute to better understanding of the BGD bacterium in aquaculture.