

Title of Program: Use of Systems Biology Tools in Biomarker and Drug Target Discovery in Human Diseases

Dept / Center / Lab: Therapeutic Research and Development – Cannon Research Center

Principal Mentor: [Jean-Luc Mougeot, PhD](#)
Research Group Director, Carolinas Medical Center
Adjunct Professor and Associate Graduate Faculty, UNC-Charlotte

Summary Description: The PI's research revolves around the use of computational systems biology tools to understand underlying causes of human diseases, the discovery of drug targets and biomarkers of disease diagnosis, progression and response to drugs. The research typically involves molecular pathway analyses, generates new hypotheses, and supports the design of new research strategies or approaches in functional genomics/proteomics to develop better treatments/therapies or diagnostic/prognostic tools. PubMed PMIDs of the PI's relevant research articles are: [23541936], [22027401], [19332388], and [16503337].

Expectations and Role of Student:

The successful student will be expected to have minimal working knowledge in computational biology. The student will participate in the design of data mining strategies involving the use of available tools (*e.g.* BIND, Cytoscape, Metacore, KEGG, etc.). The student will also be required to acquire theoretical basic knowledge in the understanding of algorithms that determine the output of computational biology tools. The student will attend biweekly lab meetings, present oral and written summaries of research and will be required to prepare and present an abstract and a paper summarizing findings. Student with bioinformatics training preferred.