Computational Genomics Laboratory - Duan Lab

@ Queen's University. Botterell Hall, Room 530 - 18 Stuart St, Kingston, ON K7L3N6. Goodwin Hall, Room 756 - 25 Union St West, Kingston, ON K7L 3N9
www.duanlab.ca

My research projects fall into several areas including **MICR, PHGY and REPD**.
Given I have several projects available, I prefer to speak with the students directly about my research but can provide a short summary of my research program if that is helpful. Students may also refer to my lab website: www.duanlab.ca

Here is an overview of my research program:

The overarching goal of my research program is to generate new hypotheses for the mechanisms underlying multifactorial traits including asthma, chronic obstructive pulmonary disease (COPD) and drug response outcomes. My laboratory includes a data analytics core with established analysis pipelines for multiple types of omics data including genomics, epigenomics, transcriptomics, metabolomics and microbiome. In addition, I have established a molecular biology and genomics laboratory, which support the processing of biospecimens for DNA/RNA/protein extractions, quantification, genotyping and other basic molecular experiments. Thus, my research program is both translational and multi-disciplinary by integrating dry-lab and wet-lab methods, allowing for original and innovative research. In fact, my research program is unique in both of my home departments (DBMS and QSC) and helps to bridge the gap between these two traditionally distinct units. My current trainees have backgrounds spanning computer science, life science, biochemistry, biology and mathematics. I have ongoing collaborations with basic and clinical scientists at Queen's and beyond. In addition to leading the genetic analysis of the Canadian CHILD Cohort Study, I am a member of other national research networks such as the Canadian Respiratory Research Network (CRRN), the Allergy, Genes and Environment Network (AllerGEN), and the pan-Canadian core for microbiome research (IMPACTT).