clsa élcv
Canadian Longitudinal Study on Aging
Étude longitudinale canadienne sur le vieillissement

CLSA Approved Project

Applicant
Dr. Christina Castellani, Schulich School of Medicine and Dentistry, Western University
Trainee: Amanda Morin

E-mail Address
christina.castellani@schulich.uwo.ca

Project Title
Association between mitochondrial DNA copy number and nuclear DNA methylation in cardiovascular disease and aging

Project Summary
Cardiovascular diseases (CVDs) continue to be the largest global health-related cause of mortality. Certain environmental stressors able to modify biochemical pathways and mechanisms in the body have been identified as risk factors for CVD(1). Recent publications have provided strong evidence that mitochondrial DNA (mtDNA) copy number is heavily influenced by environmental factors, with the effects translating into different patterns of nuclear DNA methylation through changes in the availability of certain metabolites. We will use CLSA data to explore the association between mtDNA copy number changes and modifications of the metabolome and the epigenome in the context of CVD and other aging-related phenotypes. Defining these relationships is a crucial step towards discovering targeted preventative and therapeutic measures for complex disease.

Keywords
Epigenetics, mtDNA-CN, Metabolomics, Cardiovascular disease