

Applicant

Dr. Marie Pigeyre, McMaster University
Trainee: Mason Kadem

E-mail Address

pigeyrem@mcmaster.ca

Project Title

Investigating the links between cardiovascular risk factors, retinal vascular changes, and cardiovascular events in the CLSA

Project Summary

Studying retinal vascular changes is advantageous for assessing individual's small vessel health for multiple reasons: (1) retinal vasculature is an observable part of small vessel health through the eye fundus; (2) retinal vascular health is affected by risk factors for cardiovascular diseases; and (3) retinal vascular changes can predict cardiovascular and cerebrovascular events.

The overarching aim of this study is to investigate the causal relationships between risk factors (i.e., glycemia, blood pressure, lipids, bodyweight, smoking), retinal vessel changes, and occurrence of cardiovascular and cerebrovascular diseases, as well as to dissect underlying biological mechanisms using genetics and blood biomarkers. Such investigations will provide insights into the pathways linking cardiometabolic risk factors, small vessel health and cardiovascular and cerebrovascular diseases, and thus, will help develop targeted preventive and therapeutic interventions on newly identified causal mechanisms.

Keywords

retinal images, cardiovascular diseases, risk factors, predictive models, machine learning