

**Applicant**

Dr. Sayem Borhan, McMaster University

**E-mail Address**

[borhana@mcmaster.ca](mailto:borhana@mcmaster.ca)

**Project Title**

Investigation of the aging process - a multi-omics approach

**Project Summary**

The rate of aging varies from individual to individual due to several factors, including genetic, epigenetic, metabolites, and environmental stressors. "Omics" platforms have enhanced the opportunities to assess biological mechanisms of the aging process. Genomics and epigenomics are the most studied, and metabolomics is the least studied "omics" platforms. Also, most of the studies are focused on one of these "omics" and aging. There are interdependencies between and within these "omics" and need to be accounted for. The core objective of this project is to understand the aging process through "omics" platforms. This objective will be accomplished by adopting a multi-omics approach, i.e., by assessing the individual and integrated effects of genomics, epigenomics, and metabolomics.

**Keywords**

multi-omics, aging, metabolomics, genomics, epigenomics, machine learning