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Project Title

Degenerative protein modifications (DPMs) as molecular mediators connecting socio-demographic profile to the onset of age-related diseases

Project Summary

We have identified a set of degenerative protein modifications (DPMs) in patients' tissues, resulting from spontaneous chemical reactions like oxidation, glycation, and deamidation. These DPMs play crucial roles in human health and disease. We hypothesize that an individual's socio-demographic profile interacts with their genome, epigenome, proteome, and metabolome, leading to the formation of harmful DPMs. Consequently, DPMs act as molecular mediators connecting socio-demographic profiles to age-related diseases. We have also identified candidate markers including genes, epigenetic targets, and blood metabolites associated with DPMs accumulation in tissues. In this project, we aim to leverage baseline and first/second follow-up datasets from the Canadian Longitudinal Study on Aging, along with genomics, epigenomics, and metabolomics datasets. Our objective is to investigate the association of the candidate markers at baseline with the clinical outcomes at follow-ups.

Keywords

DPMs, CVD, GWAS, epigenomics, metabolomics