

Title: The role of Advanced glycation end products in inducing senescence in adipocytes.

Introduction:

The Kapahi lab focuses on identifying and characterizing the mechanisms by which nutrient signaling pathways modulate aging and age-related diseases. This is being achieved by using an interdisciplinary approach combining genetic, pharmacological, biochemical, and genomic approaches in different models, including mammalian cell culture system. The broader significance of this research is to help uncover the role of metabolites in the etiology of age-related human diseases.

Research project:

Our laboratory is dedicated to unraveling the intricate relationship between methylglyoxal (MGO) and advanced glycation end products (AGEs), shedding light on their profound impact on obesity, insulin signaling, and senescence accumulation. MGO, a reactive alpha dicarbonyl, is a key player in the formation of AGEs, which are pivotal molecules implicated in various metabolic processes. This research seeks to demystify the mechanisms through which different concentrations of MGO can induce obesity and impair insulin signaling.

Key strategy Senescence Induction in Adipocytes: We will explore whether AGE-RAGE interactions trigger senescence in adipocytes, potentially contributing to inflammation and metabolic dysfunction in obesity. Markers of senescence will be assayed to determine if AGEs are associated with the promotion of cellular aging processes.

By advancing our understanding of how AGEs contribute to obesity and insulin resistance, we aspire to identify novel therapeutic targets. Our research seeks to unravel the intricate web of mechanisms by which AGEs impair insulin signaling and provoke senescence in the context of obesity. Ultimately, we aim to pinpoint strategies to mitigate AGE accumulation and enhance metabolic health, potentially offering new avenues for treating and preventing metabolic disorders.

Desired Skills or Experience: Curiosity and craving to learn something new is the most important thing, other than that basic biology coursework with a good background of biochemistry will be helpful to excel in the process.

To learn more about the Kapahi lab, click [HERE](#).

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