

The focus of the Kapahi Laboratory is to identify and characterize the mechanisms by which nutrients modulate aging and age-related diseases. This is being achieved by using an interdisciplinary approach combining genetic, pharmacological, biochemical, and genomic approaches in invertebrate model systems *C. elegans*, *D. melanogaster*, and mammalian cells. The broader significance of this research is to help uncover the role of nutrition in the etiology of age-related human diseases like diabetes, obesity, and neurodegeneration. You will join a highly collaborative group and the ability to be a collaborative team member is a key expectation.

Research project:

Food consumption is a necessary aspect of everyday life, but how does what we eat influence the aging process? Research has shown that dietary restriction is the most robust way to extend lifespan and improve health. In particular, it has been shown to improve memory and potentially protect against age-related neurodegenerative diseases such as eye aging, but how diet can impact neuronal protection is still unknown. In our lab, we are interested in understanding the mechanisms by which diet influences brain aging and health. One approach we used was to find genes which respond to diet.

The position involves using *genetic approaches from flies and humans to study the role of circadian clocks and nutrient-responsive pathways that influence eye and neuronal degeneration using flies and conserved orthologs from humans.*

Publications

1. **Longitudinal fundus imaging and its genome-wide association analysis provide evidence for a human retinal aging clock.** Sara Ahadi, Kenneth A Wilson Jr, Boris Babenko, Cory Y McLean, Drew Bryant, Orion Pritchard, Ajay Kumar, Enrique M Carrera, Ricardo Lamy, Jay M Stewart, Avinash Varadarajan, Marc Berndt, **Pankaj Kapahi**, Ali Bashir. Elife. 2023 Mar 28; <https://elifesciences.org/articles/82364>
2. **Dietary restriction and clock delay eye aging to extend lifespan in *D. melanogaster*.** Hodge BA, Meyerhof GT, Katewa SD, Lian T, Lau C, Bar S, Leung NY, Li M, Li-Kroeger D, Melov S, Schilling B, Montell C, **Kapahi P**. Nat Commun. 2022 Jun 7. <https://www.nature.com/articles/s41467-022-30975-4>

Desired Skills or Experience: Completed coursework in biology, biochemistry, chemistry, genetics, and neuroscience preferred but not necessary. We welcome students with intriguing scientific questions and curiosity in pursuing challenging ideas.

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

To apply to the Kapahi lab, return to the [Internships Homepage](#).