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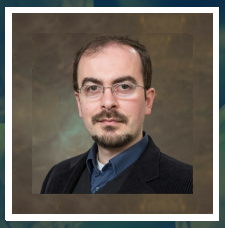
Cellular Aging and Rejuvenation



Murat Acar

Assistant Professor, Molecular Cellular & Developmental BiologyAssistant Professor, Physics

CURRENT RESEARCH

Watching the aging and evolution of individual cells in real time

Several cell types in our tissues grow and divide for a finite number of times before they die. The total number of division events a cell undergoes is termed as replicative lifespan. When genetically identical cells are followed under the microscope, they often display differences in their lifespan. Scientists led by Dr. Murat Acar, of Yale University, have developed and are using a state-of-the-art microfluidics platform to automatically monitor the aging of single cells to understand how cells sharing the same environment can be different in terms of their lifespan and other key phenotypes that they display.

Using the baker's yeast *Saccharomyces cerevisiae* as their model organism, Dr. Acar and his interdisciplinary team of scientists are applying a combination of experimental and computational tools in their research. Yeast is a single-cell organism that divides as fast as every 90 minutes. Since a number of genetic and cell-biological processes are commonly shared between yeast and human cells, many results from Dr. Acar's studies will be translatable to human cells.

The specific goals of Dr. Acar's research program is to:

- explore the molecular, genetic, and cell-biological mechanisms of cellular aging
- elucidate principles governing the evolution of genes and gene networks that are tasked with processing environmental signals
- quantitatively study how epigenetic variability is built and controlled among genetically-identical cells

Typically, laboratories in life sciences are either experimentally or computationally oriented. The Acar laboratory possesses a rarely-seen, hybrid quality due to its...

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AFFILIATION

Yale University

EDUCATION

- Postdoc in Biology 2011,California Institute of Technology
- Ph.D. in Physics 2007, Massachusetts Institute of Technology
- B.S. in Physics 2000,Bogazici University in Turkey

AWARDS

- NIH Director's New Innovator Award, by the National Institutes of Health, 2014
- New Scholar in Aging Award, by the Ellison Medical Foundation, 2013
- CBCD Fellow, by the Caltech Center for Biological Circuit Design, 2007
- Bio-X Fellow, by Stanford University, 2007
- Synthetic Biology 2.0 Conference Travel Grant, 2006
- and 1 more...

RESEARCH AREAS

Health & Wellness, Longevity, Immortality Research

FUNDING REQUEST

Your contributions will support the continued research of Dr. Murat Acar and his laboratory at Yale University as they explore cellular aging and evolution with the goals of understanding, elongating, and strengthening cellular health and lifespan. Donations will help fund the annual $500K for Dr. Acar's highly collaborative team of researchers and research equipments. By donating, you can be part of this groundbreaking research that will contribute greatly to boost cells' lifespan and rejuvenation capacity!