The 2023 Harvard / Paul F. Glenn

Virtual Symposium on Aging

May 22, 2023

GLENN FOUNDATION
FOR MEDICAL RESEARCH

BLAVATNIK INSTITUTE
HARVARD MEDICAL SCHOOL

The Paul F. Glenn Center for the Biology of Aging Research

The Paul F. Glenn Center for the Biology of Aging

Welcome to the Annual Harvard/Paul F. Glenn Symposium on Aging. Each year, the Paul F. Glenn Center for Biology of Aging Research hosts the Harvard Symposium on Aging with a mission to present new advances in aging research and to stimulate collaborative research in this area. The symposium has grown to be a significant forum for aging research at Harvard Medical School over the years.

We wish to acknowledge the generosity and vision of Paul F. Glenn, Leonard Judson, and Mark Collins for their unwavering support of aging research. Thanks to their help, we now have a vibrant community of researchers who study aging and age-related diseases at Harvard Medical School.

The reasons for accelerating research into the molecular biology of aging are clear. First, the number of aged individuals in developed countries is increasing dramatically, which will place unprecedented burdens on medical care and economic infrastructure. A major goal is to extend the healthy lifespan through a greater understanding of age-related diseases. A study by the RAND Corporation concluded that advances in medicine arising from aging research would be one of the most cost-effective approaches to age-related disease. Indeed, extending healthy lifespan by one year has been calculated to be worth $86T in the USA alone. Advances in our understanding why aging occurs and the discovery of potential interventions have shown that it is possible to extend the healthy lifespan of laboratory animals and reduce their risk of and treat major age-related diseases, such as diabetes, cancer, Alzheimer's, and heart disease. With dozens of human clinical trials in progress testing the efficacy of these interventions, there has never been a more exciting time for the field.

On behalf of The Paul F. Glenn Center for Biology of Aging Research and Harvard Medical School, we welcome you to the 2023 virtual Annual Harvard/Paul F. Glenn Symposium on Aging.

Marcia Haigis, David Sinclair and Bruce Yankner

Co-Directors, Paul F. Glenn Center for Biology of Aging Research

Symposium on Aging
Agenda

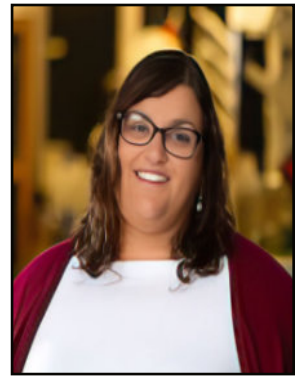
May 22, 2023
1:00 PM - 6:00 PM

1:00 PM to 1:10 PM	Glenn Foundation Welcome
1:10 PM to 1:15 PM	Speaker Introduction Harvard Medical School
1:15 PM to 2:00 PM	William Mair, Ph.D.
2:00 PM to 2:30 PM	Ana Gomes, Ph.D.
2:30 PM to 3:15 PM	Marcia Haigis, Ph.D.
3:15 PM to 3:45 PM	Cristina Aguayo-Mazzucato, M.D., Ph.D.
3:45 PM to 4:30 PM	Irina Conboy, Ph.D.
4:30 PM to 5:00 PM	Jason Buenrostro, Ph.D.
5:00 PM to 5:45 PM	Tony Wyss-Coray, Ph.D.

William Mair, Ph.D.

William Mair, PhD, obtained a BS in genetics from University College London and a PhD in biology from the UCL Center for Healthy Aging in London. He then went on to pursue his postdoctoral research at the Salk Institute for Biological Studies in La Jolla, California, before joining the Harvard T.H. Chan School of Public Health as assistant professor of genetics and complex diseases in 2011. Dr. Mair's career has focused on leveraging molecular and genetic tools in model species to reveal mechanisms by which dietary restriction promotes healthy aging. By uniquely focusing on energetics and metabolism during aging, Dr. Mair's work aims to maximize health impact by reducing systemic disease risk in patients. The Mair Lab uses a combination of genetics, molecular biology, and biochemical approaches to identify novel therapeutic targets that might increase health in the elderly.

Ana P. Gomes, Ph.D.



Ana P. Gomes is an Assistant Member of the Department of Molecular Oncology at the Moffitt Cancer Center. She received a PhD in Cell and Molecular Biology from the University of Coimbra (Portugal) and did her PhD work under the supervision of Dr. David Sinclair at Harvard Medical School studying the role of NAD+ in skeletal muscle aging. Ana subsequently completed her postdoctoral training with Dr. John Blenis at Weill Cornell Medicine, studying the influence of age-driven metabolic and epigenetic reprogramming in tumor progression. Her laboratory aims to define how aging and other aspects of host physiology shape the tumorigenic process by taking a multidisciplinary approach, which encompasses cancer cell autonomous and non-autonomous mechanisms of tumor progression spanning from signaling paradigms to epigenetic reprogramming and metabolic rewiring. Ana has previously received a K99/R00 Pathway to Independence award from the National Institutes of Cancer, a New Innovator Award (DP2) from the office of the NIH director, an Innovator Award from the American Lung Association, a Research Scholar Award from the American Cancer Society, the Tri-Institutional Breakout Prize for Junior Investigators and was selected as a Forbeck Scholar, a NCI Rising Scholar, a STAT Wunderkind and a Rising Star in Cancer Metabolism and Signaling by the New York Academy of Sciences.

Metabolic Flexibility and Healthy Aging

Metabolic Reprogramming: A bridge between aging and tumorigenesis

Marcia C. Haigis, Ph.D.

Marcia C. Haigis is a Professor in the Department of Cell Biology, co-Director of the Paul F. Glenn Center for the Biology of Aging Research, and the Director of Gender Equity for Faculty in Science at Harvard Medical School. She obtained her Ph.D. in Biochemistry from the University of Wisconsin and performed postdoctoral studies at MIT studying mitochondrial metabolism. Dr. Haigis is an active member of the Dana Farber/ Harvard Cancer Center and the Ludwig Center at Harvard Medical School. Her research has made fundamental contributions to our understanding of how mitochondria contribute to human health and diseases of aging, including cancer. Her studies identified numerous nodes of metabolic vulnerability important for tumor growth. Most recently, her work has shed light on our understanding of how age, diet, and environmental factors regulate anti-tumor immunity. She is the recipient of numerous honors and awards, including the Brookdale Leadership in Aging Award, the Ellison Medical Foundation New Scholar Award, the American Cancer Society Research Scholar Award, and the National Academy of Medicine Emerging Leaders in Health and Medicine Program.

Cristina Aguayo-Mazzucato, M.D., Ph.D.

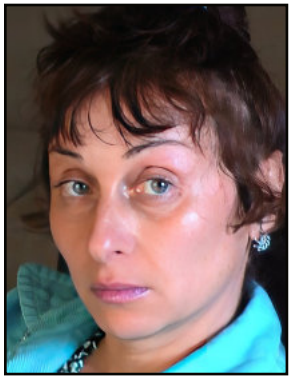
Dr. Aguayo-Mazzucato is an Assistant Investigator at Joslin Diabetes Center in Boston and Assistant Professor at Harvard Medical School. She received her MD and PhD degrees from the National Autonomous University of Mexico and joined Joslin in 2007 as a postdoctoral fellow in the laboratory of Susan Bonner-Weir. During that period, she worked on beta-cell development and derived effective in vitro strategies to enhance their functional maturation for beta-cell replacement therapies.

She became an independent investigator in 2019 and her laboratory focuses on understanding the role of beta cell aging, senescence in particular, in the development of diabetes. The long term aim of the Beta Cell Aging Lab is to identify effective strategies that can prevent, delay or reverse the onset of the disease.

Aging and Cancer: Metabolites in the tumor niche

Pancreatic beta-cell senescence and SASP in type 2 diabetes

Irina Conboy, Ph.D.



Irina Conboy (PhD, Stanford Univ.) is Professor of Bioengineering, UC Berkeley, QB3 investigator (UCB/UCSF/UCSC), Executive Committee member of UCB/UCSF Graduate Program and Editor in Chief of Rejuvenation Research. Her laboratory focuses on understanding age-imposed and pathological changes in circulatory milieu and their impact on signaling pathways that regulate tissue maintenance and repair. Prof. Conboy received numerous awards for her work, including Good Ventures Foundation, Silicon Valley Foundation, Open Philanthropy, Packer endowment, Raymond and Beverly Sackler, Calico, Bridging the Gap, SENS and Life Extension Foundations, W.M. Keck Foundation, Glenn, Ellison's Medical Foundation, and National Research Service Award.

Jason D. Buenrostro, Ph.D.

Jason Buenrostro is an associate member of the Broad Institute of MIT and Harvard and an assistant professor at Harvard University in the Department of Stem Cell and Regenerative Biology. Buenrostro looks to understand how cells acquire and reverse epigenetic changes and how these changes lead to disease. To do this, Buenrostro is developing new approaches for measuring gene regulation dynamics at single-cell resolution. He also co-leads the Gene Regulation Observatory at the Broad.

Buenrostro earned a B.S. in general engineering and a B.S. in biology at Santa Clara University. He did his doctoral work at Stanford University in the Department of Genetics with William Greenleaf and Howard Chang.

Rejuvenation by dilution, or blood and biological age

Single-cell Epigenomics and the regulatory controls of aging

Tony Wyss-Coray, Ph.D.

Tony Wyss-Coray is the D. H. Chen Distinguished Professor of Neurology and Neurological Sciences at Stanford University, Associate Director of the Paul F. Glenn Center for the Biology of Aging, and the Director of the Stanford Alzheimer's Disease Research Center Biomarker Core. His lab studies brain aging and neurodegeneration with a focus on age-related cognitive decline and Alzheimer's disease. The Wyss-Coray research team is following up on earlier discoveries which showed circulatory blood factors can modulate brain structure and function and factors from young organisms can rejuvenate old brains. These findings were voted 2nd place Breakthrough of the Year in 2014 by Science Magazine and presented in talks at Global TED, the World Economic Forum, Google Zeitgeist, and Tencent's WE Summit in China. Wyss-Coray is the co-founder of Alkahest, a company developing plasma-based therapies to counter age-related diseases including Alzheimer's. Current studies in his lab focus on understanding how the immune system and the organism as a whole age and communicate with the brain. Putting humans at the center of his studies Wyss-Coray integrates genetic, cell biology, and proteomics approaches and models them in the short-lived killifish and in mice. Ultimately, he tries to understand brain aging and disease at an individual level to develop tailored diagnostic and therapeutic tools.

Notes

Young blood for old brains