Virtual Event: Brown University 2021 Colloquium

BIOLOGY OF HUMAN AGING

Thursday, May 6th, 2021

9:30 a.m.

BESS FROST

University of Texas Health Science Center

Transposable element activation in neurodegenerative tauopathy

10:30 a.m.

JUAN CARLOS IZPISUA BELMONTE

Salk Institute

Aging and tissue regeneration

11:45 a.m.

JENNIFER ELISSEEFF

Johns Hopkins University

Can we still repair when old?
Regenerative medicine strategies in aging

2 p.m.

VERA GORBUNOVA

University of Rochester

Mechanisms of longevity and cancer resistance

3 p.m

RUDY TANZI

Massachusetts General Hospital

The emerging role of innate immunity in Alzheimer's Disease

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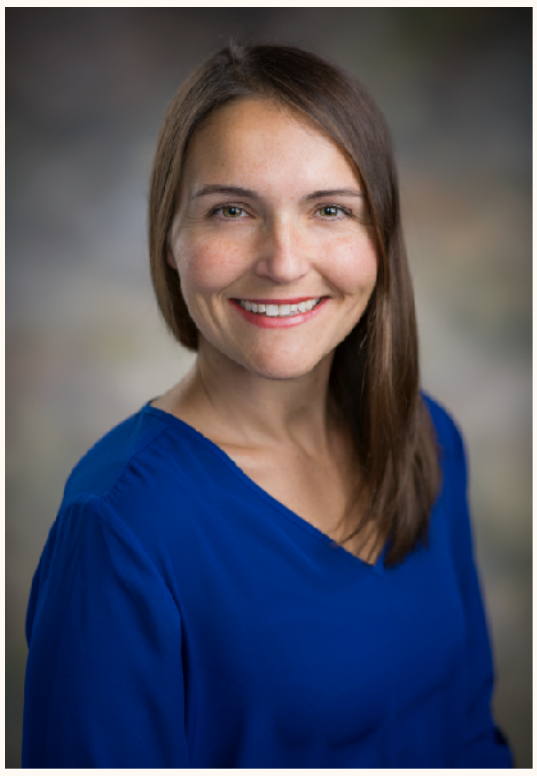
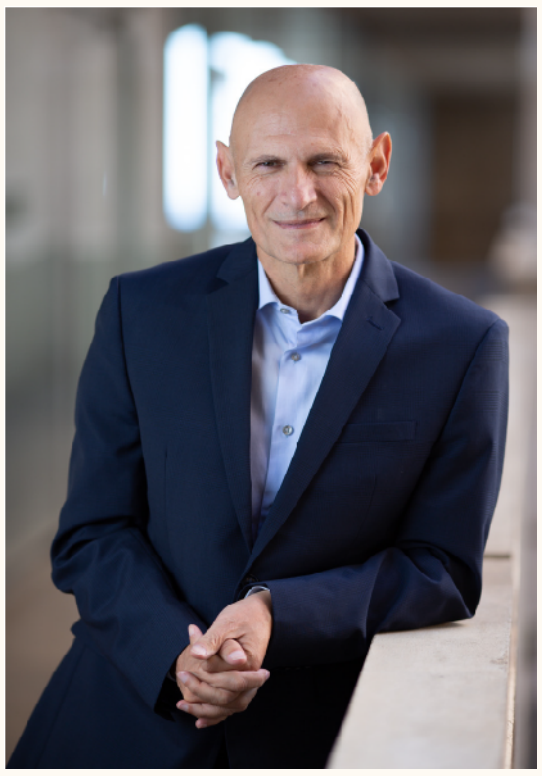


Bess Frost is Associate Professor at the Barshop Institute for Longevity and Aging Studies, the Glenn Biggs Institute for Alzheimer's and Neurodegenerative Disorders, and the Department of Cell Systems and Anatomy at the University of Texas Health San Antonio. The research focus of her laboratory revolves around the basic neurobiology that connects toxic forms of tau to neuronal death and dysfunction. Her contributions to neurodegenerative disease research have recently earned her an O'Donnell Award in Medicine from The Academy of Medicine, Engineering and Science of Texas as well as a Standout Achievement Award from CurePSP. Bess's laboratory discovered that the detrimental effects of pathogenic tau on nuclear and genomic architecture activate retrotransposons and alter RNA trafficking. Through this work, they have identified multiple new targets for therapeutic development, as well as compounds that interfere with these processes and suppress tau-induced neurotoxicity. Based on these findings, Bess and her team have recently initiated a Phase IIa clinical trial in which they are testing the brain penetrance, target engagement, and effects on neurodegeneration and inflammation of the reverse transcriptase inhibitor drug Lamivudine in patients with early Alzheimer's disease.



Juan Carlos Izpisua Belmonte was born in Hellin, Spain, and educated at the University of Valencia, Spain. He received his Ph.D. in Biochemistry and Pharmacology jointly from the University of Bologna, Italy and University of Valencia, Spain. He conducted his postdoctoral training in the laboratories of Dr. Denis Duboule at the European Molecular Biology Laboratories (EMBL) in Heidelberg, Germany, and of Dr. Eddy de Robertis at the University of California, Los Angeles (UCLA), where he focused on developmental biology. In 1993 he joined the Salk Institute for Biological Studies in La Jolla, California where he currently is the Roger Guillemin Chair, and Professor at the Gene Expression Laboratory. His scientific interest lies in the understanding of embryonic development, organ differentiation, tissue and organ regeneration and aging. His recent work is focused on methodologies for inducing exogenous and endogenous in vivo regenerative responses to promote tissue and organ regeneration, and delay aging and aging associated diseases. He has over 500 publications describing this corpus of work.

Jennifer Elisseeff is the Morton Goldberg Professor and Director of the Translational Tissue Engineering Center at Johns Hopkins Department of Biomedical Engineering and the Wilmer Eye Institute, with appointments in Chemical and Biological Engineering, Materials Science and Orthopedic Surgery. Jennifer received her B.S. in chemistry from Carnegie Mellon University and her Ph.D. in medical engineering from the Harvard–MIT Division of Health Sciences and Technology. She performed postdoctoral work as a Pharmacology Research Associate Fellow at the National Institute of Dental and Craniofacial Research before joining the Johns Hopkins faculty in 2001. Her laboratory initially focused on the development of biomaterials for studying stem cells and designing regenerative medicine technologies for applications in orthopedics, plastic and reconstructive surgery, and ophthalmology. To enable clinical translation of these technologies her research group recognized the importance of the immune response in regenerative medicine technologies, leading to a significant shift in research efforts. Her laboratory demonstrated the causative role of senescent cells in post-traumatic arthritis and defined interactions of senescent cells with the immune system. She is now working to map the immune and stromal responses in healing and non-healing wounds in young and aged organisms with the help of biomaterials, developing the concept of biomaterials-directed regenerative immunology. Jennifer is a Fellow of the American Institute of Medical and Biological Engineering, the National Academy of Inventors, and the National Academies of Engineering and Medicine. In 2019 she received the NIH Directors Pioneer Award.

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Vera Gorbunova is the Doris Johns Cherry Professor of Biology and Medicine at the University of Rochester, and a Co-Director of the Rochester Aging Research Center. Her research is focused on understanding the mechanisms of longevity and genome stability, and in particular exploiting research on exceptionally long-lived mammals. Vera earned her B.Sc. degree at Saint Petersburg State University, Russia and her Ph.D. at the Weizmann Institute of Science, Israel. She has pioneered a comparative biology approach to the study of aging. Her group investigates some of the longest-lived mammalian species, such as naked mole rats, the blind mole rat and the bowhead whale. Vera also studies the role of Sirtuin 6 protein in longevity. Recently she demonstrated that LINE-1 elements trigger innate immune responses that drive age-related sterile inflammation. She has over 100 publications, many in high profile journals such as Nature, Science and Cell. She has received awards of from the Ellison Medical Foundation, the Glenn Foundation, the American Federation for Aging Research, and from the National Institutes of Health. Her work was recognized by the Cozzarelli Prize from Proceedings of the National Academy of Sciences USA, a prize for research on aging from ADPS/Alianz, France, the Prince Hitachi Prize in Comparative Oncology, Japan, and the Davey prize from the Rochester Wilmot Cancer Center.

Rudolph Tanzi is the Joseph P. and Rose F. Kennedy Professor of Neurology at Harvard Medical School. He serves as the Vice-Chair of Neurology, Director of the Genetics and Aging Research Unit, Co-Director of the Henry and Allison McCance Center for Brain Health, and Co-Director of the Massachusetts General Hospital Institute for Neurodegenerative Diseases. He received his B.S. in microbiology) and B.A. in history from the University of Rochester in 1980, and his Ph.D. in neurobiology from Harvard Medical School in 1990. Rudy discovered the first Alzheimer's disease (AD) gene, the amyloid precursor protein (APP), and co-discovered two other early-onset familial AD genes, presenilin 1 and presenilin 2. As the leader of the Cure Alzheimer's Fund Alzheimer's Genome Project, he identified several other AD genes, including CD33, the first AD gene shown to regulate neuroinflammation. Rudy's team was the first to use human stem cells to create three-dimensional neural-glial organoids, dubbed "Alzheimer's-in-a-Dish". This model was the first to recapitulate all three key AD pathological hallmarks in vitro, and first to definitively show that amyloid plaques directly cause neurofibrillary tangles. His team has developed several novel therapies for AD including gamma secretase modulators (Phase 1 clinical trial planned 2021) and AMX0035 (Phase 2 clinical trial readout in 2021), which was already successful in a clinical trial of ALS. They also discovered that beta-amyloid plays a functional role in the brain as an anti-microbial peptide. Rudy has published over 600 research papers and has received the highest awards in his field, including the Metropolitan Life Foundation Award, Potamkin Prize, Ronald Reagan Award, Silver Innovator Award, the Smithsonian American Ingenuity Award, and the Brain Research Foundation Award.

For any questions, please contact:
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