

Young blood for old brains and the quest to slow brain aging

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Festive Hall, Austrian Academy of Sciences
Dr.-Ignaz-Seipel-Platz 2, 1010 Vienna

Welcome by Giulio Superti-Furga, CeMM Scientific Director
Denise P. Barlow Award Ceremony
Lecture by Tony Wyss-Coray
Cocktail reception

RSVP latest by 4 May 2025

Registration at: <https://cemm.at/landsteiner-lecture-2025>

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Abstract

Aging leads to the degradation of function in nearly all tissues and organs. This process is marked by significant shifts in gene expression and changes in concentrations of all types of biological molecules. Recent technological progress has allowed biologists to measure an unprecedented number of these molecules throughout an organism, providing unique insights into the physiological and pathological conditions of cells and organs, including the aging process.

Large scale proteomic studies in humans demonstrate dramatic shifts in the composition of the blood and cerebrospinal fluid proteomes with age allowing us to estimate brain age and identify proteins linked to cognitive decline, neurodegeneration, and dementia. While brain cell- and tissue-intrinsic factors are likely essential in driving the aging process we find blood borne factors from young humans and mice are sufficient to counteract aspects of brain aging and improve cognitive function in old mice while blood plasma from old organisms is detrimental to young mice and impairs their cognition. These findings open opportunities to identify biomarkers and regulators of aging in general and for brain and other organs specifically.

CV

Tony Wyss-Coray is the D.H. Chen Distinguished Professor of Neurology and Neurological Sciences and the Director of the Phil and Penny Knight Initiative for Brain Resilience at Stanford University. His lab studies brain aging and neurodegeneration with a focus on age-related cognitive decline and Alzheimer's disease. The Wyss-Coray research team discovered that circulatory blood factors can modulate brain structure and function and factors from young organisms can rejuvenate old brains. Current studies focus on the molecular basis of the systemic communication with the brain by employing a combination of genetic, cell biology, and -omics approaches in mice, and humans. Wyss-Coray has presented his ideas at Global TED, the Tencent WE Summit, the World Economic Forum, and he was voted Time Magazine's "The Health Care 50" most influential people transforming health care in 2018. He co-founded Alkahest Inc. and several other companies targeting Alzheimer's and neurodegeneration and has been the recipient of an NIH Director's Pioneer Award, a Zenith Award from the Alzheimer's Association, and a NOMIS Foundation Award.

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