With its outstanding research results the FLI plays an important role within the cooperative science community of the Leibniz Association, e.g. in the Research Alliance Healthy Ageing.

Prof. Matthias Kleiner, President of the Leibniz Association

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**Scientific Director**
Prof. K. Lenhard Rudolph

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Our Profile
“Demographic change is one of the great challenges of our time but it offers great opportunities as well.”
Prof. Dr. K. Lenhard Rudolph

Research Aim
The main aim of our research at the FLI is to delineate how aging leads to the development of tissue dysfunction and diseases in the elderly. Through the establishment of international research groups and the provision of state-of-the-art laboratories and innovative technologies, we built a science platform allowing us to determine basic molecular and genetic mechanisms underlying the aging process.

We aim to create a knowledge basis for the future development of new therapies designed to improve organ maintenance and health during aging.

Our Focus of Research
To provide a rational basis for the development of therapies aiming to improve health in the elderly, research at the Leibniz Institute on Aging – Fritz Lipmann Institute (FLI) in Jena is focused on two areas:

I. Stem Cell Aging and Organ Maintenance
II. Accumulation of Molecular Damsages and (Epi)Genetics of Aging

Identification of causative mechanisms of aging to enable aging in good health

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Research foci, project areas and core facilities at the FLI

Stem Cell Aging and Organ Maintenance (I)
Organ maintenance (homeostasis) and regenerative capacity decrease during aging. This leads to impairments in organ function and to an increased risk of disease development. One reason for this is the reduced performance of adult stem cells which are responsible for the live-long self-renewal and regeneration of organs and tissues. We investigate the causes of this aging-associated inhibition of stem cell function and its effects on organ maintenance.

Accumulation of Molecular Damsages & (Epi)Genetics of Aging (II)
A central phenomenon of aging is the accumulation of damages in the cells’ molecular building blocks. This also applies to proteins and the genetic information, DNA. There is growing evidence that the impairment of proteins and DNA contributes to the malfunctions of stem cells and tissue maintenance. But the causes of the aging-associated accumulation of protein and DNA damages are still largely unknown. Additionally, the question rises which genetic factors have an influence on the velocity of aging in molecular components. To address these questions, we are conducting comparative analyses and are making selected changes to genomes and transcriptomes in short- and long-lived model organisms to learn more about the genetic factors influencing the aging process also in humans.

FLI’s overall aim is to extend the healthy lifespan