



Leibniz Institute for Age Research
Fritz Lipmann Institute (FLI)



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Presentation of the FLI

Since the middle of the last century a dramatic demographic shift has taken place in the developed industrial nations that has led to nearly a doubling in the average life expectancy. The downside of this basically positive development is the fact that more and more people suffer from the biological consequences of ageing and the development of age-associated diseases.

The age-dependent decline in organ homeostasis and regenerative ability are main causes for the dysfunction of various organ systems in old age. At the same time the cancer risk increases exponentially during the ageing process. Adult stem cells, which can be detected in almost all tissues, are of special importance for both processes. Current treatment options for cancer and organ dysfunction in old age are very limited, since the causes are not sufficiently understood.

The Leibniz Institute for Age Research – Fritz Lipmann Institute (FLI) makes a significant contribution to this medically and socially relevant core problem. The institute's main focus is the investigation of molecular mechanisms that, in the course of ageing:

- lead to the decline of the regenerative ability and the self-preservation of organs/tissues,
- contribute to the development of age-associated diseases,
- cause an increased rate of cancer development.

Cancer in old age and age-associated dysfunctions of organs considerably impair the quality of life. FLI's main goal is to explore the molecular causes of the ageing of cells – stem cells in particular – and tissues. Scientists of the FLI examine model systems of ageing and human tissue biopsies, in order to decipher fundamental mechanisms of human ageing in a close collaboration with biologists, health care professionals and mathematicians. These findings are supposed to lay the rational groundwork to develop molecular therapies that aim to improve health and quality of life in old age.