

A close-up photograph of two hands. The hand on the left is significantly older, with deeply wrinkled, thin, and yellowish skin. The hand on the right is younger, with smooth, pinkish skin. The hands are positioned as if one is holding or supporting the other. The background is a warm, out-of-focus light, possibly from a window.

Leibniz ScienceCampus
Regenerative Aging

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The human body is able to regenerate itself and its organs amazingly well. It owes this to adult stem cells that provide the necessary cells for replacement. Adult stem cells have the potential throughout their whole life to develop into certain specialised tissue types.

In the course of biological aging, however, the ability of tissues to form correctly differentiated tissue decreases continuously. For example, connective tissue cells instead of muscle cells can form within muscle tissue. As a consequence, fewer and fewer correctly differentiated muscle cells are available, which causes the functionality of the entire muscle to be impaired.

This process can be observed in all aging human tissues. This results in a constantly evolving loss of function of organs – an important trigger for age-related dysfunction and disease. The molecular mechanism of disturbed cell differentiation during tissue aging has not yet been adequately researched. The Leibniz ScienceCampus Jena “Regenerative Aging” is devoted to this research. A key to tissue preservation in aging organs would be found if one could influence stem cells so that errors during differentiation are minimised or avoided completely.

KOOPERATIONSPARTNER

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