

Press Release

November 26, 2021

## **New Leibniz Research Alliance “Resilient Ageing”: Healthy Aging by Strengthening Adaptive Capacity**

**As people age, they become more susceptible to disease – and because of the aging of society, increasing numbers will be affected in the future. Researchers from 15 institutions of the Leibniz Association want to investigate ways to mitigate the consequences for individuals and for society as a whole from a biological, psychological, social, economic and political perspective and to identify adaptation strategies. With this aim, they have founded the research alliance “Resilient Ageing.” The alliance is coordinated by the Leibniz Institute on Aging – Fritz Lipmann Institute (FLI), Jena, and the Leibniz Institute for Resilience Research (LIR), Mainz.**

**Jena/Mainz.** Over the past 150 years, life expectancy in Germany has nearly doubled. Statistically speaking, a child born today can be expected to reach an average age of 78.6 (for men) or 83.4 (for women). This rapid increase in life expectancy is not unique to Europe and North America but is a global development, although it began in Asia and Africa only in the 20th century. The United Nations has thus declared the years 2021–2030 to be the decade of healthy aging. After all, even more important than the maximum age is the question: How do people spend these extra years of life – healthy or frail, lonely or as part of a community? And what are the factors that determine this?

Scientists from 15 research institutes of the Leibniz Association have joined forces in the research alliance “Resilient Ageing” to study aging from a comprehensive perspective. They are taking a look at the individual biological aging process in connection with lifestyle, nutrition, education and other socioeconomic and sociopolitical factors. The aim of the research is to develop strategies at all levels so that more people can grow old in good health and society is not overwhelmed by rising healthcare costs.

### **Paradigm Shift in Research on Aging**

To this end, the concept of resilience, originally developed in psychosocial research, was extended to biological research on aging. In this context, resilience means that people essentially have the resources – both biological and social – to remain healthy, despite the internal and external stress factors that can accompany aging. Funding for the new research alliance was approved by the Senate of the Leibniz Association on November 17, 2021, for an initial period of four years, beginning in 2022.

“We think there is a real paradigm shift in how we look at aging,” says the biologist Prof. Dr. Helen Morrison, who studies the molecular basis of the aging and regeneration of nerve cells at the Leibniz Institute on Aging – Fritz Lipmann Institute (FLI) in Jena and is a spokesperson of the alliance. “Instead of focusing on what fails when the organism ages, we see evidence that individuals show resilience.”

Thus, for example, studies have shown that certain older people can maintain their cognitive abilities even when the beta-amyloid plaques associated with dementia have been detected in their brains. “There are mechanisms of resilience not only in the brain but in all organs, and

we want to understand them and harness them for healthy aging,” explains Prof. Dr. Oliver Tüscher, of the Leibniz Institute for Resilience Research (LIR) in Mainz, who is a co-spokesperson of the research alliance.

### Using the Adaptive Capacity of the Body

Whether or not someone is one of the elderly who, despite biological aging characteristics, experience virtually no deterioration in cognitive abilities, i.e., are resilient to brain aging – as in the example above – depends on many influencing factors. Operating from the hypothesis that not only the brain but also the human body in principle possesses these adaptive capacities, biologists, psychologists, ecologists, physicians, epidemiologists, nutritionists, social scientists and economists want to investigate these factors. These include genetic dispositions, health issues, diet and lifestyle, and also environmental influences, as well as income and education, the role of social status and recognition in society.

### Combining Medical, Biological and Social Data

“Through the cooperation of the 15 Leibniz institutes, we can get closer to the goal of understanding why certain people age significantly slower than others and use this knowledge for the prevention of aging-associated diseases,” says Dr. Lieb, Scientific Director of the LIR. This holistic approach is possible because the 15 Leibniz institutes are contributing their findings and research methods to the new research network at the microscopic and macroscopic levels: from biological interactions at the molecular level in cell cultures and animal models to medical data, such as that available from Germany’s largest health study, NAKO, and the European EPIC study, as well as data from surveys conducted by the Socio-Economic Panel (SOEP), the largest and longest-running multidisciplinary long-term study in Germany. Due to the quantity and heterogeneity of the data, one focus of the group’s work is data analysis and data integration using machine learning methods.

### Identifying Tipping Points

“Using this data, we want to find out which genetic and molecular factors contribute to wellbeing in the aging population, how they interact and which tipping points determine whether one follows the healthy or unhealthy aging trajectory,” says FLI-Prof. Morrison, summarizing the research agenda. “We want to predict and influence these tipping points in order to specifically promote resilient aging,” adds Prof. Jean Krutmann, co-spokesperson of the Leibniz Research Alliance and Scientific director of the IUF – Leibniz Research Institute for Environmental Medicine in Düsseldorf.

### Member Institutions of the Leibniz Research Alliance “Resilient Ageing”

BIPS – Leibniz Institute for Prevention Research and Epidemiology, Bremen

DDZ – German Diabetes Center, Düsseldorf

DIFE – German Institute of Human Nutrition, Potsdam

DIW – German Institute for Economic Research, Berlin

FLI – Leibniz Institute on Aging – Fritz-Lipmann Institute, Jena

IfADo – Leibniz Research Centre for Working Environment and Human Factors, Dortmund

IfW – Kiel Institute for the World Economy

IGB – Leibniz-Institute of Freshwater Ecology and Inland Fisheries, Berlin  
IUF – Leibniz Research Institute for Environmental Medicine, Düsseldorf  
IZW – Leibniz Institute of Zoo and Wildlife Research, Berlin  
LIN – Leibniz Institute for Neurobiology, Magdeburg  
LIR – Leibniz Institute for Resilience Research, Mainz  
SGN – Leibniz Institute for Biodiversity and Earth System Research, Frankfurt am Main  
SOEP – Socio-Economic Panel at the German Institute for Economic Research, Berlin  
WZB – Berlin Social Science Center, Berlin

### Spokespersons of the Research Alliance “Resilient Ageing”

Prof. Dr. Helen Morrison  
Leader of the Research Group Nerve Regeneration  
Leibniz Institute on Aging – Fritz Lipmann Institute (FLI)  
Tel. +49 3641 65-6139  
Email: [helen.morrison@leibniz-fli.de](mailto:helen.morrison@leibniz-fli.de)

Prof. Dr. Klaus Lieb  
Scientific Director  
Leibniz Institute for Resilience Research (LIR)  
Tel.: +49 6131 89448-24  
Email: [klaus.lieb@lir-mainz.de](mailto:klaus.lieb@lir-mainz.de)

### Contact

Kristina Vaillant  
Communications Manager  
Tel.: 03641-65-6373  
Email: [presse@leibniz-fli.de](mailto:presse@leibniz-fli.de)

### Background information

The **Leibniz Institute on Aging – Fritz Lipmann Institute (FLI)** – upon its inauguration in 2004 – was the first German research organization dedicated to research on the process of aging. More than 350 employees from around 40 nations explore the molecular mechanisms underlying aging processes and age-associated diseases. For more information, please visit [www.leibniz-fli.de](http://www.leibniz-fli.de).

The **Leibniz Association** connects 96 independent research institutions that range in focus from the natural, engineering and environmental sciences via economics, spatial and social sciences to the humanities. Leibniz Institutes address issues of social, economic and ecological relevance. They conduct knowledge-driven and applied basic research, maintain scientific infrastructure and provide research-based services. The Leibniz Association identifies focus areas for knowledge transfer to policy-makers, academia, business and the public. Leibniz Institutes collaborate intensively with universities – in the form of “WissenschaftsCampi” (thematic partnerships between university and non-university research institutes), for example – as well as with industry and other partners at home and abroad. They are subject to an independent evaluation procedure that is unparalleled in its transparency. Due to the institutes’ importance for the country as a whole they are funded jointly by the Federation and the Länder, employing some 20,500 individuals, nearly half of whom are researchers. The entire budget of all the institutes is approximately 2 billion EUR. See [www.leibniz-gemeinschaft.de/en/](http://www.leibniz-gemeinschaft.de/en/) for more information.