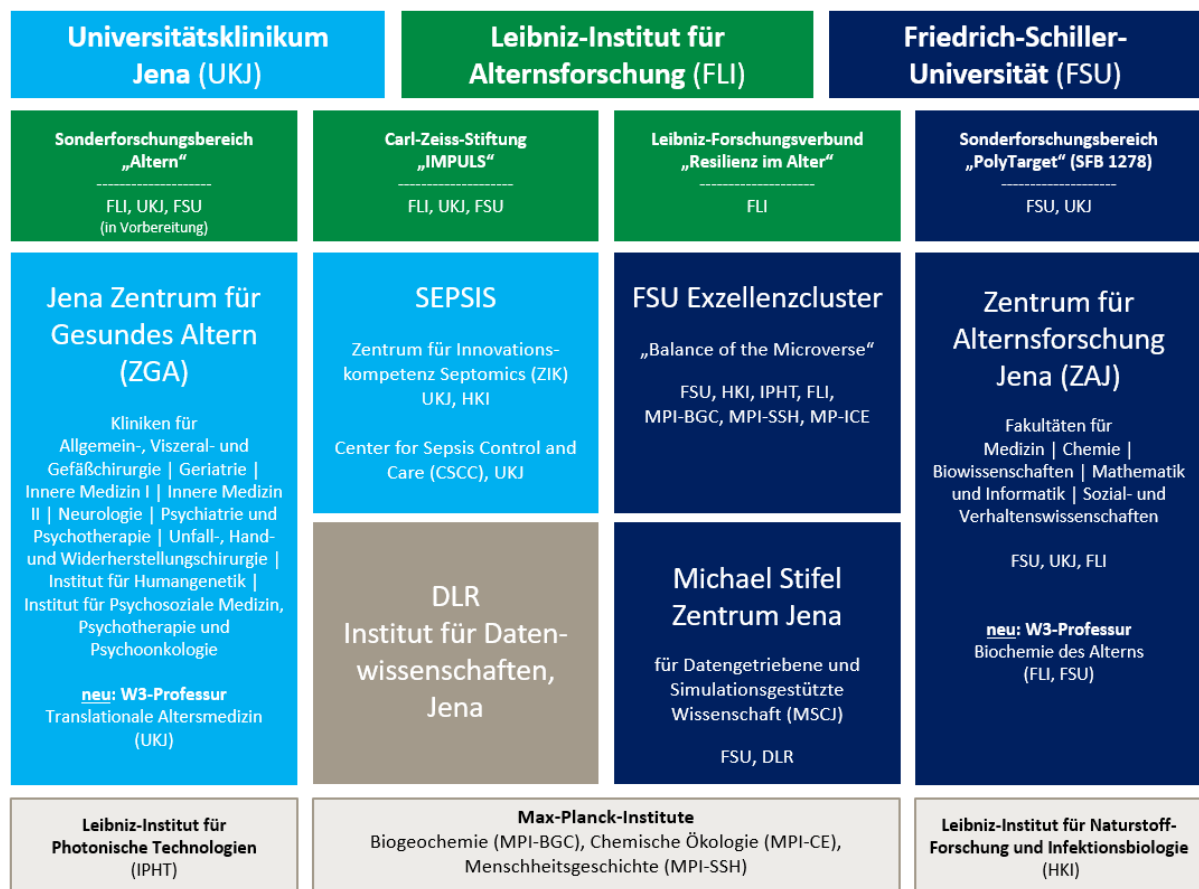


## Brief Profile “Aging Research and Geriatric Medicine in Jena”

Research into aging and geriatric medicine at the Jena site is supported by three pillars:

- (i) Leibniz Institute on Aging – Fritz Lipmann Institute (FLI)
- (ii) Jena University Hospital (UKJ) with the Jena Centre for Healthy Ageing (CHA)
- (iii) Friedrich Schiller University (FSU) with the Aging Research Center (ARC)

The diverse scientific interactions of these three areas with each other, as well as with other university structures and non-university institutes in the research center of Jena, are shown in the figure below.



**Illustration: Networked partners in aging research at the Jena site.**

**(i) Leibniz Institute on Aging – Fritz Lipmann Institute (FLI)** (<https://www.leibniz-fli.de>). Aging is a multifactorial process that is affected by genetic factors, environmental influences, and individual behavior. Changes in stem cell activities and reduced regeneration of organ functions determine the aging process. The aim of research at the FLI is to clarify the molecular relationships of this physiological interplay and to pave new ways for the prevention, diagnosis, and therapy of aging-associated diseases.

The FLI has a prominent position worldwide in the development of animal models (mouse, fish, worm) for aging research, in particular the use of the short-lived killifish. Animal models

enable the detection and testing of molecular mechanisms, diagnostic procedures, and potential aging-relevant interventions. Since 2021, the FLI portfolio has been complemented by an innovative microbiome focus that investigates the influence of microorganisms on aging processes. The support from central analysis units (Core Facilities) enables researchers to perform comprehensive and state-of-the-art molecular characterization of their models. For the evaluation and integration of data obtained from clinical research (e.g. cohort studies) and laboratory analytics (e.g. genome, epigenome, or proteome research), the FLI is also active in the development of computational methods, for example in the field of artificial intelligence (AI).

With about 340 employees from 30 nations, the FLI enjoys excellent regional, national, and international networking. In addition to the Friedrich Schiller University Jena (FSU) and the University Hospital Jena (UKJ), the FLI, which consists of about 20 research groups, is active in some 300 national and international cooperations and associations in 27 countries around the world.

To ensure a socially relevant transfer of research results, the FLI coordinates pioneering collaborations that bring together scientists from the life and social sciences – from psychology to bioinformatics. Examples include the IMPULS consortium and the national research alliances of the Leibniz Association on the topics of “Healthy Ageing” and “Resilient Ageing.” This positioning allows the FLI and its cooperation partners to translate research results into clinical and social everyday life.

**(ii) Jena University Hospital (UKJ) and Centre for Healthy Ageing (ZGA)** (<https://www.uniklinikum-jena.de/zga/>). Thematically, geriatric medicine is a focus of the Jena University Hospital (UKJ), both in research and teaching as well as in patient care. “Aging and age-related diseases” is a substantive and formally designated research focus of the Medical Faculty. The UKJ invests strategically in this area: thus, a number of professorships for this area have been filled or are in preparation. Several collaborative projects reinforce this focus: the Research Training Groups RTG 1715 (Adaptive Stress Responses) and RTG 2155 (Protein Modification: A Key Mechanism for Ageing; ProMoAge), the Else Kröner Research School (EKFK) AntiAge, the Jena School for Ageing Medicine, and the DFG-funded Clinician Scientist Program OrganAge. A direct link to the FLI exists via joint appointments (Microbiome and Aging, Stem Cell Aging).

The UKJ has also invested structurally in geriatric medicine: next year, for example, the construction of a new research building with space for research into geriatric medicine (Center for Translational Medicine, CeTraMed) will be completed. A Department of Geriatrics with 40 beds and a geriatric outpatient clinic have been established in the new hospital. In addition, interdisciplinary clinical areas for geriatric medicine have been established in other clinics (neurogeriatrics, geriatric traumatology, gerontopsychiatry). The geriatric clinic, the geriatric medicine departments of the other clinics, a professorship for patient care research with the same focus, as well as numerous basic science and translational research groups are brought together in the Centre for Healthy Ageing. The Centre is further strengthened by an Interdisciplinary Memory Center. These activities are supported by a clinical study center (<http://www.zks.uniklinikum-jena.de>).

**(iii) Friedrich Schiller University (FSU) and Aging Research Center Jena (ARC)** (<https://www.zaj.uni-jena.de>). The research concept of the Friedrich Schiller University Jena is concentrated into three profile lines: LIGHT, LIFE, and LIBERTY. Research on aging is one of the current focal points, with many activities in this area assigned, but not limited, to the LIFE profile line. The Aging Research Center Jena (ARC; founded in 2013) provides a structural basis for interests in aging research that span diverse faculties, including the Faculties of Life Sciences, Social and Behavioral Sciences, Mathematics and Computer Science, and the Faculty of Medicine. The ARC works in close cooperation with the University Hospital Jena and the Leibniz Institute on Aging – Fritz Lipmann Institute (FLI).

The goal of the ARC is to promote interdisciplinary research and teaching in the field of aging research. The ARC aims to expand the existing research network, to increase the international visibility of aging research in Jena, to increase joint publications, and to establish research networks in the field of aging research. Another central concern of the center is the joint promotion of young scientists, e.g. within the framework of structured graduate programs. These include the *Leibniz Graduate School on Aging* (LGSA) of the FLI and the DFG Research Training Group 2155 *ProMoAge*, which guarantee structured doctoral training in the field of aging research under the umbrella of the *Jena School of Molecular Medicine* (JSMM).

Currently, members of the ARC are collaborating in the IMPULS research consortium, which received 4.5 million euros in funding for five years from the Carl Zeiss Foundation in 2021 and includes researchers from biomedicine, psychology, epidemiology, nutrition science, pharmacy, medicine, and ethics (<https://www.impuls.uni-jena.de>). IMPULS links different disciplines of university and non-university aging research. The focus is on the interaction between the psychological and molecular parameters of aging.

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