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HUMAN & BIOTECHNOLOGY

Fields of Expertise TU Graz



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Source: Lunghammer – TU Graz

The Field of Expertise (FoE) Human & Biotechnology at TU Graz stands for pioneering research at the interface of technology, biosciences and medicine.

With a clear focus on interdisciplinary cooperation, this FoE combines expertise from biomedical engineering and biotechnology with the aim of sustainably improving people's health and quality of life. This is made possible by the close combination of engineering and scientific expertise with the challenges of the life sciences – an interplay that makes Graz internationally visible in the field of human and biotechnology.

The good response to the call for proposals for the initial funding programme in spring 2025, in which three outstanding projects were selected, was particularly pleasing.

Sahar Ghorbanpour (Institute of Health Care Engineering) will pursue novel approaches in tissue engineering with the aim of developing functional mini-organs and reproducing their natural tissue environments as precisely as possible. The title of the planned project is "Mini-placenta: a bioengineered human platform to decipher and treat pre-eclampsia."

Kerstin Lenk (Institute of Neurotechnology) is further expanding her research into neurophysiological questions – with a view to personalised therapeutic approaches. The aim of the planned project is to understand the mechanistic links between TRPC1/TRPC3 mutations in neurons and astrocytes and the development of neurodevelopmental disorders, in particular Alzheimer's disease.

Martin Thonhofer (Institute of Chemistry and Technology of Biobased Systems) is planning a new project entitled "Glycomimetic-bisphosphonate hybrids: helping lysosomal enzymes and bones". These projects reflect the scientific diversity and innovative strength of the FoE and impressively demonstrate how basic research and clinical or biotechnological application merge with each other.

While the Faculty of Technical Chemistry, Chemical and Process Engineering and Biotechnology hosted the Science Day in June, a special highlight awaited us in autumn. The FoE Human & Biotechnology Day took place on 3 November 2025 and gave a glimpse into current research topics and future developments.

Two keynote lectures provided an academic framework for the event. Senior Scientist Sahar Ghorbanpour presented the first results and visions of her newly founded research group in the field of tissue engineering with a focus on bioengineered LifeStage models and regenerative medicine.

Assistant Professor Debkalpa Goswami, new at TU Graz since 1 July 2025, presented his research on soft robotic medical devices and implants – an innovative field at the interface of flexible electronics, robotics and biocompatibility.

Following the lecture programme, the Institute of Health Care Engineering cordially invited all participants to a tour of the institute. This not only offered technical insights, but also demonstrated the clear commitment of the TU Graz institutes to excellent research infrastructure.

Looking ahead to the coming years, the FoE Human & Biotechnology stands for growth, openness and scientific exchange. We look forward to establishing new networks, promoting innovative ideas and attracting international talent to our research. Together, we are shaping the medicine and biotechnology of the future that puts people at the centre.