



HUMAN & BIOTECHNOLOGY

FIELDS OF EXPERTISE TU GRAZ

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Gabriele Berg,
Human & Biotechnology

Source: Lunghammer – TU Graz

The Fields of Expertise of Graz University of Technology have new leading teams, and therefore I can introduce myself today as a new management board member in the FoE Human & Biotechnology. Bernd Nidetzky, Gernot Müller-Putz and I will manage and further expand the interdisciplinary and international focus of the FoE Human & Biotechnology.

Our contribution to this issue of TU Graz research comes from the field of bioinformatics – an area that especially connects and represents our FoE. Leila Taher is the new head of the Institute of Biomedical Informatics at TU Graz, and her research expertise is in genomics. She is unraveling the mammalian genome not only to understand genome evolution but also to find answers for human health issues.

Bioinformatics is also one key to my own research field, which focuses on understanding and exploiting microbiomes. Diversity and balance within interconnected microbiomes is crucial to avoid outbreaks of diseases. The networking and importance of microbiomes has led to the one health approach of the World Health Organization (WHO).

Some words also on the novel coronavirus. In the Anthropocene, our current epoch, pandemics are becoming

more frequent. Globalisation, urbanisation, overpopulation and intensive agriculture – all these factors have drastically reduced global biodiversity including microbial diversity, which acts as a “health insurance” against outbreaks. Here, a rethink is urgently needed to bring our planet into balance again, and the only sustainable solution for avoiding further pandemics. However, we also need novel solutions for the acute fight against pathogens because our old protection shield of antibiotics and hygiene is no longer efficient enough. Here, the Field of Expertise Human & Biotechnology can contribute to new solutions, e.g. in the fields of microbiome biotechnology or drug discovery. Again, both are strongly boosted by bioinformatics.

Stay healthy and stay interested!

Leila Taher:

Cracking the Code within Us: Bioinformatics of the Human Genome

Improving our understanding of genome structure and function is central to biology and medicine. My research group uses computational models to study the functional potential of each of the three billion pairs of chemical bases in the human genome. Ultimately, we are paving the way to designing personalized interventions against disease, which technological advancements are finally pushing toward reality.



Leila Taher is head of and professor at the Institute of Biomedical Informatics

Source: Baustädter – TU Graz

THE RISE OF BIOINFORMATICS

According to the U.S. National Center for Biotechnology Information (NCBI), bioinformatics “is the field of science in which biology, computer science, and information technology merge into a single discipline”. The origins of bioinformatics can be traced back to the work of Margaret Oakley Dayhoff (1925-1983), >