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Continued excellence in DNA repair and genome stability research: German Research Foundation (DFG) renews Collaborative Research Center 1361 at Johannes Gutenberg University Mainz

Mainz, Nov. 25, 2022 - The German Research Foundation (DFG) announced the prolongation of the Collaborative Research Centre (CRC) 1361: "Regulation of DNA Repair and Genome Stability" for an additional four years. The consortium was established in 2019 at Johannes Gutenberg University Mainz (JGU) in collaboration with the Institute of Molecular Biology Mainz (IMB), the Technical University of Darmstadt, Goethe University Frankfurt, and Ludwig Maximilian University Munich. It comprises 18 research projects, three technology platforms, and an integrated graduate program. It aims to elucidate the mechanisms by which cells safeguard their genetic information. As deficiencies in genome maintenance result in a variety of disorders including cancer and accelerated ageing, a better understanding of DNA repair is key to promoting human health.

During its first funding period, the CRC 1361 made groundbreaking advances in characterizing the components of DNA repair and DNA damage signaling pathways that act as decision-makers in the regulation of genome maintenance. Structural studies have provided insight into the mechanisms of DNA damage signaling at DNA double-strand breaks, and genomic approaches have revealed the origins of oncogenic chromosome aberrations resulting from such lesions. Overall, the research has highlighted the relevance of endogenous factors as sources of genome instability.

Enhanced focus on systems-wide aspects of DNA repair

In its second four-year funding period, the CRC will receive approximately EUR 10.6 million to deepen its mechanistic analysis of genome maintenance systems and intensify its efforts to draw functional connections between individual repair pathways in order to integrate them into larger regulatory networks. This will involve enhanced systems-level approaches to determine the genome-wide distribution of lesions. The researchers will focus their investigation primarily on various endogenous sources of genome instability, how they are perceived by cellular signaling pathways and processed by dedicated or overlapping DNA repair pathways, and their implications for cell fate.

Professor Helle Ulrich, a Scientific Director at IMB, Professor in the Faculty of Biology of Mainz University, and the CRC's spokesperson, is excited about the DFG's decision to continue funding the CRC. "Over the past four years, we have managed to establish a highly collaborative environment for our research", she says. "Our enhanced focus on systems-wide aspects of DNA repair will now allow us to tackle even more ambitious questions about how these important cellular surveillance systems act in a physiological context."

Consolidation of Mainz as a hub of genome stability research

With its focus on genome stability, the CRC complements and strengthens ongoing research activities in Mainz and the Rhine-Main area, in fields ranging from RNA biology, epigenetics, and gene regulation to protein homeostasis and quality control. Professor Stefan Müller-Stach, JGU's Vice President for Research and Early Career Academics, comments: "The interdisciplinary nature of the CRC contributes to the consolidation of Mainz as a hub of genome stability research and ensures a high-quality

education for the next generation of scientists in the field." He sees the CRC as a critical pillar in the emerging priority area of ageing, senescence, and longevity research in Mainz, a crosscutting initiative that unites fundamental biological science with clinical and applied research in cancer, immunology, neurobiology, and human physiology.

Successful Rhine-Main Universities collaboration

The continued funding of CRC 1361 is also a great success for the strategic alliance of the Rhine-Main Universities (RMU), formed by Goethe University Frankfurt, Johannes Gutenberg University Mainz, and the Technical University of Darmstadt. As outstanding research universities having collaborated with each other for many years, they joined together to form the strategic RMU alliance in 2015 to promote strong collaboration in science and research, to offer joint degree programs for their students, and to strengthen knowledge transfer and exchange with society and business.

The DFG's funding of CRCs supports long-term research collaborations lasting up to 12 years in which scientists work together within the framework of an interdisciplinary research program. The aim is to create an institutional focus by working on innovative, demanding, complex, and long-term research projects through the coordination and concentration of people and resources in the applicant universities.

For more information on the CRC 1361, please visit www.sfb1361.de

About the Institute of Molecular Biology gGmbH (IMB)

The Institute of Molecular Biology gGmbH (IMB) is a center of excellence in the life sciences that was established in 2011 on the campus of Johannes Gutenberg University Mainz (JGU). Research at IMB focuses on the cutting-edge fields of epigenetics, genome stability, ageing, and RNA biology. The institute is a prime example of successful collaboration between a private foundation and government: The Boehringer Ingelheim Foundation has committed EUR 154 million to be disbursed from 2009 until 2027 to cover the operating costs of research at IMB. The State of Rhineland-Palatinate has provided approximately EUR 50 million for the construction of a state-of-the-art building and is giving a further EUR 52 million in core funding from 2020 until 2027. For more information about IMB, please visit: www.imb.de

About Johannes Gutenberg University Mainz

Johannes Gutenberg University Mainz (JGU) is a globally recognized research-driven university with around 31,000 students from over 120 nations. Its core research areas are in particle and hadron physics, the materials sciences, and translational medicine. JGU's success in Germany's Excellence Strategy program has confirmed its academic excellence: In 2018, the research network PRISMA⁺ (Precision Physics, Fundamental Interactions and Structure of Matter) was recognized as a Cluster of Excellence – building on its forerunner, PRISMA. Moreover, excellent placings in national and international rankings as well as numerous honors and awards demonstrate the research and teaching quality of Mainz-based researchers and academics. For more information about Mainz University, please visit: www.uni-mainz.de/eng

Boehringer Ingelheim Foundation

The Boehringer Ingelheim Foundation is an independent, non-profit organization that is committed to the promotion of the medical, biological, chemical, and pharmaceutical sciences. It was established in 1977 by Hubertus Liebrecht (1931–1991), a member of the shareholder family of the Boehringer Ingelheim company. Through its Perspectives Programme Plus 3 and its Exploration Grants, the Foundation supports independent junior group leaders. It also endows the international Heinrich Wieland Prize, as well as awards for up-and-coming scientists in Germany. In addition, the Foundation funds institutional projects in Germany, such as the Institute of Molecular Biology (IMB), the department of life sciences at the University of Mainz, and the European Molecular Biology Laboratory (EMBL) in Heidelberg. For more information about the Boehringer Ingelheim Foundation, please visit: www.bistiftung.de

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