PRESS RELEASE

Humboldt Professor Peter Baumann joins IMB as Adjunct Director

29 March 2018. *The Institute of Molecular Biology (IMB) in Mainz, Germany is pleased to welcome the renowned scientist and former HHMI Investigator Professor Peter Baumann as a new Adjunct Director. Prof. Baumann, one of the leading researchers in his field worldwide, is returning to his native Germany following the award of a highly prestigious Humboldt Professorship last year. Humboldt Professorships are Germany's most valuable international research prizes, worth €5 million. Prof. Baumann's appointment is made jointly with Johannes Gutenberg University Mainz (JGU), where he was appointed as a Professor of Molecular Biology in October 2017. Prof. Baumann's Adjunct Directorship at IMB will come into effect in April 2018 and his group will continue their work on telomeres and chromosomal organisation. This outstanding recruitment highlights the successful cooperation between IMB and JGU in transforming the life sciences in Mainz, which was made possible through the generous donations from the Boehringer Ingelheim Foundation; €100 million to IMB in 2009 and €50 million to JGU in 2013.*

Whiptail lizard. Image credit Peter Baumann

Just to remain functional, our cells must deal with and overcome all sorts of adversities on a daily basis. Some challenges are brought on by external forces, such as invading microbes or injury to the host, but many stem from the nature of the cell itself. One challenge in particular, is the fact that the DNA in our cells is linear and not circular (such as it is in many bacteria for example). This means it has ends which tend to fray like an old rope if not properly protected. Furthermore, as cells divide, information is lost from the ends of each chromosome (the hereditary units of DNA) as a side effect of normal replication. To overcome such issues that would otherwise stop life in its nascent form, cells have devised an ingenious way of protecting their chromosomal ends: long stretches of repetitive DNA called telomeres, which are bound by special proteins to keep them protected and stable. In most cells in our body, telomeres themselves shorten each time the cells divide. Eventually, telomeres reach a critical length at which point the cells stop dividing. This constitutes a powerful mechanism to prevent uncontrolled division of cancer cells. Unfortunately, some cells overcome this block by activating telomerase, an enzyme that replenishes telomeres and allows the cells to continue dividing. Inhibition of telomerase is considered a promising avenue for the treatment of cancer. In addition, numerous diseases are associated with a failure to maintain telomere integrity including premature ageing syndromes and diseases associated with the premature depletion of rapidly dividing cell populations like stem cells.

During his post-doctoral studies, Prof. Baumann began work on identifying core components of the telomere maintenance machinery and discovered a brand new gene responsible for telomere protection, *pot1*. This work was published in *Science* in 2001 and created a platform for his subsequent

research as a group leader at the Stowers Institute in Missouri, USA. Here, Prof. Baumann's group identified the RNA subunit of telomerase – the critical template component – TER1 in fission yeast. As Prof. Baumann explains "our isolation of TER1 provided a key tool to study the enzyme telomerase in a genetically tractable organism." At IMB and JGU, Prof. Baumann and his lab will continue to elucidate the mechanisms associated with telomerase biogenesis and look for agents that modify telomere length. If found, these agents could provide an entry into clinical studies. Prof. Baumann explains "such reagents may have therapeutic use either to limit the lifespan of tumour cells or to boost the proliferative potential of desired cell types."

Not content with breakthroughs in the realm of telomere biology, Prof. Baumann also translated his love of field biology into a new avenue of expanding research. Prof. Baumann went out to the New Mexico desert to capture whiptail lizards that are exclusively female and reproduce through parthenogenesis (reproduction without fertilisation). These lizards have provided fascinating insights into the plasticity of reproduction and have allowed his lab to explore the cellular basis of parthenogenesis as well as the genetic consequences of hybridization and ploidy changes. As Prof. Baumann explains, his lab will continue this work in Mainz and focus on "elucidating the molecular basis of unisexual reproduction and the effects of hybridization and ploidy changes." In addition, his lab will utilise the state-of-the-art genomics and bioinformatics facilities at IMB to further strengthen the genomic resources needed to study this largely unexplored area of biology. In recognition of his work Prof. Baumann will be inducted as a Fellow of the Gutenberg Research Council (www.gfk.uni-mainz.de/eng/200.php) in May 2018.

About the Institute of Molecular Biology gGmbH

The Institute of Molecular Biology gGmbH (IMB) is a centre of excellence in the life sciences that was established in 2011 on the campus of Johannes Gutenberg University Mainz (JGU). Research at IMB concentrates on three cutting-edge areas: epigenetics, developmental biology, and genome stability. The institute is a prime example of a successful collaboration between public authorities and a private foundation. The Boehringer Ingelheim Foundation has dedicated 100 million euros for a period of 10 years to cover the operating costs for research at IMB, while the state of Rhineland-Palatinate provided approximately 50 million euros for the construction of a state-of-the-art building. For more information about IMB, please visit: www.imb.de.

About Johannes Gutenberg University Mainz

Johannes Gutenberg University Mainz (JGU) is a globally renowned research university with about 32,500 students. With its PRISMA Cluster of Excellence and the MAINZ Graduate School of Excellence, JGU has successfully demonstrated its research capacity in the latest German Excellence Initiative. Thanks to its outstanding researchers and the establishment of vibrant research networks specifically in the fields of particle and hadron physics, materials sciences, the life sciences as well as translational medicine, Mainz University is in the international top league of research and maintains close ties with regional, national, and international partners in the scientific, cultural, and business sectors.

About the Boehringer Ingelheim Foundation

The Boehringer Ingelheim Foundation is an independent, non-Profit organisation 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 company Boehringer Ingelheim. With the PLUS 3 Perspectives Programme and the Exploration Grants, the foundation supports independent junior group leaders. It also endows the internationally renowned Heinrich Wieland Prize as well as awards for up-and-coming scientists. In addition, the foundation pledged to donate a total of 100 million euros to finance the scientific running of the IMB at Johannes Gutenberg University Mainz over ten years and a further 50 million euros for the development of the life sciences.

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