

Stefan Legewie Receives 1.14 Million Euro to Model Biological Networks

Mainz, July 2012. *Dr Stefan Legewie, a Group Leader at IMB, has been awarded 1.14 Million Euro by the BMBF to investigate how intracellular signalling networks manage to function precisely in the face of constantly changing environments. The project will allow Dr Legewie's group to develop mathematical models that will aid research into diseases such as cancer.*

In the past the study of how complex signalling networks function correctly in changing environments has often been purely descriptive, giving little quantitative insight. Dr Legewie will address this problem by analysing the robustness of biological networks using a systems biology approach. Through this, his group will produce mathematical models that quantitatively describe the dynamics of intracellular processes. These will be validated and optimised in close collaboration with a number of lab-based researchers, making this a highly interdisciplinary project.

Specific topics being investigated are:

- How chromosomes segregate – a process essential for correct cell division and genomic stability
- The mechanisms underlying precise decision making in the yeast mating pathway; this is a pathway similar to a mammalian one that is linked to tumorigenesis
- How random fluctuations in gene expression give rise to molecular and cellular heterogeneity

The proposed research will thus provide insights into genomic stability and the development of cancers and will help guide future experiments in these areas.

Further details

Further information about Dr Legewie's research can be found at www.imb-mainz.de/research-at-imb/legewie. The grant awarded is from the "e:Bio - Innovations Competition Systems Biology" programme of the German Federal Ministry of Education and Research (BMBF) and is entitled "Präzision und Dynamik molekularer Netzwerke". Funding is for a five year period and the project starts in July 2012. More information about the funding programme can be found at www.bmbf.de/foerderungen/15679.php.

Institute for Molecular Biology gGmbH (IMB)

The Institute of Molecular Biology gGmbH (IMB) is a new centre of excellence in the life sciences which was established in March 2011. Research at IMB concentrates on three cutting-edge areas: epigenetics, developmental biology and DNA repair. 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 Euro 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 Euro for the construction of a state-of-the-art building. For more information about IMB please visit: www.imb-mainz.de.

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, a member of the shareholder family of the company Boehringer Ingelheim. For more information about the foundation and its programmes, please visit www.boehringer-ingelheim-stiftung.de.

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