

New Group Leader at IMB shines a light on circadian clock proteins

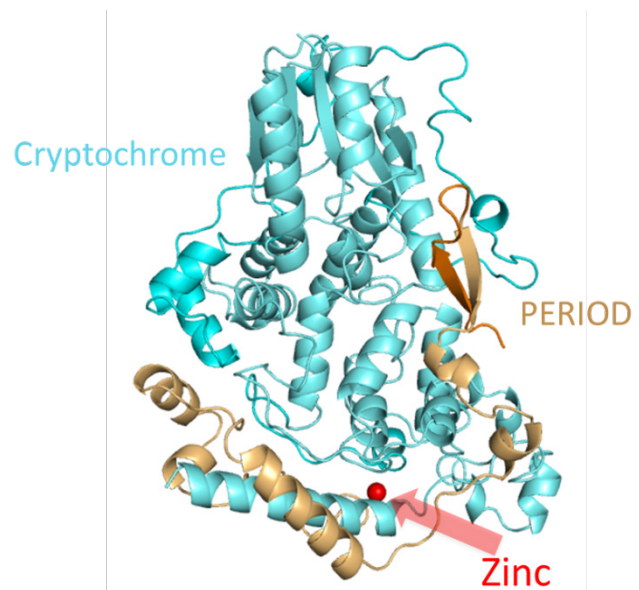
Eva Wolf has been jointly appointed as Professor at Johannes Gutenberg University Mainz (JGU), Germany, and Adjunct Director at the Institute of Molecular Biology (IMB). Prof. Wolf studies how day/night cycles affect gene regulation, a field known as chronobiology.

Many organisms, including humans, depend on a regular day/night cycle to function properly. Disruptions to the normal 24-hour cycle are noticeable with shift work or jetlag from travelling. Mutations can also change normal physiology and contribute to cancer and diabetes in those affected by irregular circadian patterns. Eva Wolf's research provides insights into these processes at the molecular level. Using a variety of structural biology approaches, her group studies how gene regulation controls organisms' internal circadian clocks.

The ultimate goal of Prof. Wolf's work is to understand how physiology, metabolism and behaviour are affected by the environment's light/dark cycles. The basis for circadian synchronization and regulation lies in clock proteins, which Prof. Wolf's group studies using biochemical and biophysical methods as well as X-ray crystallography. These techniques have allowed researchers to determine the atomic structure of clock proteins, yielding insight into how minute changes in protein interactions can alter normal physiological processes like sleep or metabolism. This in turn could catalyse the development of probes and novel metabolic and circadian modulators.

Recently, Eva Wolf's group has analysed the structure and function of cryptochromes, proteins that are sensitive to blue light in the fruit fly, but regulate gene transcription activity and glucose homeostasis in mammals.

Her latest research paper, [published in Cell in May 2014](#), reports the structure of the complex containing the clock proteins Cryptochrome and PERIOD (CRY-PER), which critically regulates and determines the pace of the mammalian circadian clock (see figure).



*Crystal structure of the mouse Cryptochrome/PERIOD complex.
The complex is stabilized by a jointly coordinated zinc ion.*

Eva Wolf previously held positions as a Group Leader at Ludwig Maximilian University Munich and as Research Group Leader at the Max Planck Institute for Biochemistry, Munich, Germany. From 2000 to 2009 she was a Group Leader at the Max Planck Institute for Molecular Physiology in Dortmund. In addition to joining IMB as an Adjunct Director, Prof. Wolf has also been appointed Professor in the Faculty of Biology at Johannes Gutenberg University Mainz.

Further information about Eva Wolf's research can be found at www.imb.de/wolf.

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. 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 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 for the construction of a state-of-the-art building. For more information about IMB please visit www.imb.de

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. Through its PLUS 3 Perspectives Programme and Exploration Grants, the foundation supports independent group leaders; it also endows the internationally renowned Heinrich Wieland Prize as well as awards for up-and-coming scientists. The foundation has granted € 100 million over a period of ten years to finance the scientific activities of the Institute of Molecular Biology (IMB). For more information about the foundation and its programmes, please visit www.boehringer-ingelheim-stiftung.de

Press contact for further information

Dr Ralf Dahm, Director of Scientific Management
Institute of Molecular Biology gGmbH (IMB)
Ackermannweg 4, 55128 Mainz, Germany
Phone: +49 (0) 6131 392 1455
Fax: +49 (0) 6131 392 1421
Email: press@imb.de