Hadding Award Ceremony, December 2, 2016

Laureate: Dr. rer. nat. Andreas Müller-Schiffmann

Dr. Müller-Schiffmann is focussed on innovative approaches applicable for d
therapy of neurodegenerative diseases. In this respect he isolated an antibody derived small peptide that specifically recognized the misfolded and highly toxic conformation of the Creutzfeldt-Jakob disease associated prion protein. This peptide was patented and is currently being analysed for its applicability in a blood test.

His current research deals with the specific elimination, detection and characterization of toxic Abeta oligomers, which play a causal role in the development of Alzheimer´s disease (AD). In an interdisciplinary project founded by the VW foundation he generated hybrid compounds that specifically break up the misfolded structures of toxic Abeta oligomers (Müller-Schiffmann et al., Angewandte Chemie IE, 2010).

The lack of reliable in vitro and in vivo models of Abeta oligomers for functional characterization, led Dr. Müller-Schiffmann to stabilize functional and highly toxic dimers of Abeta abundant conformer of Abeta in brain tissue of AD patients, by using protein engineering. He went on to generate a corresponding mouse model termed tgDimer and demonstrated for the first time a causal role of Abeta dimers in the cognitive impairment which is observed in early phases of AD (Müller-Schiffmann et al., Brain, 2016). So far, this Abeta dimer model is the only in vitro and in vivo model available that produces high amounts of exclusively soluble synaptotoxic Abeta dimers. Currently, this model is being used to generate conformation specific antibodies against dimeric Abeta and to identify cellular receptors that are specifically targeted by Abeta dimers.

- Dr. Müller-Schiffmann was born in 1972 and is married with four children.
- He studied in Cologne as biologist with a focus on genetics and biochemistry, and did his PhD in 2003 on virus-host interaction and the lifecycle of carcinogenic papillomaviruses.
- After finishing a follow-up project funded by the Wilhelm-Sander Foundation, he moved to the University of Düsseldorf in 2006 and joined the group of Prof. Carsten Korth at the Institute of Neuropathology.
- Here, he was involved in several projects founded by the BMBF and the European Union: „clinical NEUroPROteomics of neurodegenerative diseases“ (cNEUPRO); Kompetenznetz Degenerative Demenzen (KNDD); Protecting Europe´s food chain from prions (Priority).