

We propose Professor Martin J. Lohse as a candidate to receive the Poulsson prize in basic pharmacology 2016. Professor Martin J. Lohse is a German physician and pharmacologist currently working as a Scientific Director at the Max Delbrück Center for Molecular Medicine, Berlin, Germany. Lohse studied medicine and philosophy in Göttingen, London and Paris and obtained his PhD in neurology at the Max Planck Institute for Biophysical Chemistry, Göttingen, Germany in 1981. After this he has done his research at the University of Heidelberg (Germany), Duke University (Durham, USA), University of Munich and University of Würzburg (Germany). In 1993 he became Professor and Director of the Institute for Pharmacology and Toxicology at the University of Würzburg. From 2001 to 2015 he has been chair for the Rudolf Virchow Center, the DFG research center for Experimental Biomedicine of the University of Würzburg. In April 2016 Professor Lohse became Chair of the Board of Directors and Scientific Director at the Max Delbrück Center for Molecular Medicine, Berlin, Germany.

His research focuses on the mechanisms of cellular signaling and drug effect on receptors, especially with the focus on the role of receptors in heart failure and on the mechanism of their activation and inactivation. Working as a post doc with Robert Lefkowitz at Duke University, Lohse discovered beta-arrestins, proteins that regulate the function of certain cell surface receptors. In his early career, he discovered that beta-1 adrenergic receptors and their regulatory G-protein-coupled receptor kinases are dysregulated in heart failure. This and the observation that long-term beta-1 adrenergic signaling was not beneficial contributed to the use of beta-blockers in heart failure patients.

Lohse has been a pioneer in using optical techniques to study where and how receptors are activated by hormones and neurotransmitters. His group has developed fluorescent methods to visualize receptor signaling at various levels by fluorescence microscopy – from receptor-ligand binding to the accumulation of second messengers as cyclic nucleotides. This technique allows imaging of receptor-triggered signals in intact cells.

Lohse has been an important scientific mentor and advisor for research networks and researchers in Norway in the fields of G-protein-coupled receptor signaling and heart research. He currently has a collaboration involving fluorescence-technology with a research group led by Professor Finn Olav Levy at the Department of Pharmacology, University of Oslo, Norway.