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# GRK 2576 Guest Lecture

**Title:** **The role of adipocyte eNOS in high-fat diet-induced hypertension and fatty liver disease**

**Speaker:** **Huige Li, MD**

Deputy Head of the Department of Pharmacology, University Medical Center, Johannes Gutenberg University, Mainz, Germany

**Date:** **21. February 2024**
**Time:** **14:00 h CET**
**Location:** **Oskar Minkowski-Hall & Paul Langerhans-Hall, DDZ**

**Zoom:**
https://us06web.zoom.us/j/85828674239?pwd=H6ZZkEIaMpGiribRj4uLsawpCGbXs4.1
Meeting-ID: 858 2867 4239; Kenncode: 220054

## Biography

**Huige Li** studied medicine at the Tongji Medical University in Wuhan, China. He moved to Germany in 1995 and received his doctoral degree from the Johannes Gutenberg University of Mainz in 1997. After his habilitation in 2007, he received an offer from the University of Southern Denmark as Professor of Molecular Pharmacology in 2009, which he declined. Since 2011, Huige Li is Professor for Vascular Pharmacology at the University Medical Center Mainz.
His team has been investigating the role of nitric oxide and oxidative stress in the pathogenesis of cardiovascular disease, the fetal programming mechanisms of hypertension, and the role of B lymphocytes in vascular dysfunction and liver pathology. A recent focus of his group is on the role of endothelial nitric oxide synthase (eNOS or NOS3) in adipocytes, since this “endothelial” enzyme is also expressed in other cell types where its function is less understood.
For more insights please see:
https://www.unimedizin-mainz.de/pharmakologie/forschung/huigelislab.html

## Selected recent publications


Karl M, Hasselwander S, Zhou Y, Reifenberg G, Kim YO, Park KS, Ridder DA, Wang X, Seidel E, Hovelmeyer N, Straub BK, **Li H***, Schuppan D*, Xia N*. Dual roles of B lymphocytes in mouse models of diet-induced nonalcoholic fatty liver disease. **Hepatology**. 2022; 76(4): 1135-49. PMID: 35218234.

Man AWC, Zhou Y, Lam UDP, Reifenberg G, Werner A, Habermeier A, Closs EI, Daiber A, Munzel T, Xia N*, **Li H***. L-Citrulline ameliorates pathophysiology in a rat model of superimposed preeclampsia. **Br J Pharmacol.** 2022; 179(12): 3007-23. PMID: 34935131.

Man AWC, Chen M, Wu Z, Reifenberg G, Daiber A, Munzel T, Xia N*, **Li H***. Renal Effects of Fetal Reprogramming With Pentaerythritol Tetranitrate in Spontaneously Hypertensive Rats. **Front Pharmacol.** 2020; 11: 454. PMID: 32410988.

Forstermann U, Xia N, **Li H**. Roles of Vascular Oxidative Stress and Nitric Oxide in the Pathogenesis of Atherosclerosis. **Circ Res.** 2017; 120(4): 713-35. PMID: 28209797.

Xia N, Horke S, Habermeier A, Closs EI, Reifenberg G, Gericke A, Mikhed Y, Munzel T, Daiber A, Forstermann U, **Li H**. Uncoupling of Endothelial Nitric Oxide Synthase in Perivascular Adipose Tissue of Diet-Induced Obese Mice. **Arterioscler Thromb Vasc Biol.** 2016; 36(1): 78-85. PMID: 26586660.

Wu Z, Siuda D, Xia N, Reifenberg G, Daiber A, Munzel T, Forstermann U, **Li H**. Maternal treatment of spontaneously hypertensive rats with pentaerythritol tetranitrate reduces blood pressure in female offspring. **Hypertension.** 2015; 65(1): 232-7 ("DZHK-Paper of the month" - January 2015). PMID: 25385760.


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DZD Deutsches Zentrum für Diabetesforschung
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## Talk teaser

### Guest lecture with Prof. Dr. Huige Li

### *The role of adipocyte eNOS in high-fat diet-induced hypertension and fatty liver disease*

The enzyme endothelial nitric oxide synthase (eNOS or NOS3) is named after the cell type in which it was first discovered. Studies using global eNOS-deficient mice have shown that eNOS has antihypertensive, antithrombotic and anti-atherosclerotic effects. To date, the protective effects of eNOS have been attributed mainly to endothelium-derived nitric oxide (NO). However, recent studies have shown that not only endothelial cells, but also adipocytes express eNOS. Our previous study demonstrated that perivascular adipose tissue (PVAT) eNOS may even play a more important role than endothelial eNOS in vascular dysfunction under certain conditions. To further investigate the role of adipocyte eNOS, our laboratory has generated a conditional adipocyte-specific eNOS knockout mouse model (A-Nos3 KO) using adiponectin promoter-specific tamoxifen-induced Cre-based gene inactivation. In the first part of my talk, I will present our recent findings on how adipocyte-selective eNOS deletion potentiates high-fat diet-induced hypertension. In the second part, the surprising liver phenotype of these mice will be discussed.