DBMR Research Conference

Langhans Hörsaal Pathologie
Murtenstrasse 31, 3008 Bern

Date  June 4, 2018, 5 pm – 6 pm
Title  Secretin, a gastrointestinal hormone with important renal implications
Speaker  Prof. Dr. Jens Georg Leipziger, Department of Biomedicine, Physiology and Biophysics, Aarhus University, DK

Biosketch
Jens Leipziger studied Medicine at the University of Freiburg/Germany. After one year of clinical training at the Department of Nephrology/University of Freiburg he moved to the group of Rainer Greger at the Institute of Physiology/Freiburg, and later also stayed with Gerhard Giebisch at the Department of Cellular and Molecular Physiology at Yale/New Haven/USA. Since 2005, he has been working as Prof. of Renal Physiology at the University of Aarhus/Denmark. His work has addressed the molecular, regulatory and integrative aspects of renal tubular transport with respect to ion, water and acid base transport and homeostasis.

Abstract
The mechanism underlying secretin-induced urinary HCO3- excretion and post-prandial urinary alkalisation remains enigmatic. Here, we show that secretin elicits urinary alkalisation, increases urinary [HCO3-] and urinary HCO3- excretion rates in anaesthetized mice. This effect is present in multiple mouse models corroborating data from older studies in healthy humans, thus proving mice to be a reliable animal model to study the molecular mechanism of the secretin effect in the kidney. Importantly, we identified that the secretin effect is completely absent in mice lacking the apical Cl-/HCO3- exchanger pendrin, which is exclusively expressed in the apical membrane of β-IC of the CD. Moreover, we have shown that the secretin effect on urinary pH is dramatically diminished in mice with either global knock-out of CFTR or renal tubule-specific knock-out of CFTR. The effect on urinary [HCO3-] and urinary HCO3- excretion is completely abolished in both CF animal models, corroborating early data from Prof. Hadorn in children suffering from cystic fibrosis. This study therefore has defined the molecular mechanism of secretin-induce urinary HCO3- excretion as a function of the specific activation of the β-IC of the collecting duct. In close similarity to the established mechanism of secretin in the exocrine pancreas, an analogous mechanism was identified in the kidney.

Prof. Dr. Jens Georg Leipziger has been invited by Prof. Dr. med. Bruno Vogt, Nephrology and Hypertension Research Group, DBMR, University of Bern.

July 2, 2018
“Uncovering the function of prostate cancer driver mutations”
Prof. Jean-Philippe Theurillat, MD, Institute of Oncology Research, Bellinzona

The DBMR Research Conference takes place from 5 pm – 6 pm and will be followed by an apéro.

Everybody is welcome!