



DEPARTMENT
OF PHARMACEUTICAL SCIENCES

Seminars on Drug Sciences (SDS)

Lecture of

PD Dr. Achim Lothar

Interdisciplinary Medical Intensive Care, Medical
Center / Institute of Experimental and Clinical
Pharmacology and Toxicology, University of
Freiburg, Germany

Decoding Mineralocorticoid Receptor Signaling: Pathways to Precision Therapy

The mineralocorticoid receptor (MR) is a nuclear transcription factor and the primary mediator of aldosterone signaling. MR antagonists are a cornerstone of therapy for chronic heart failure, yet their clinical use is limited by side effects such as hyperkalemia, due to blockade of MR in renal epithelial cells that maintain fluid and electrolyte homeostasis. Experimental studies using cell type-specific gene targeting have revealed that MR activation in cardiovascular and immune cells drives tissue fibrosis and inflammation, highlighting the therapeutic potential of cell- or organ-selective MR modulation. Recent development of non-steroidal MR antagonists offers the possibility of modulating receptor function beyond classical competitive antagonism, including interference with MR co-regulator interactions. Complementary transcriptomic and epigenomic analyses in cardiac cells have mapped MR-chromatin interactions and identified downstream gene targets, providing insights into the mechanisms underlying MR-mediated pathophysiology and guiding the design of more selective therapeutic strategies.

Wednesday, March 18, 2026

17:15 - 18:15

Lecture Hall 1, Pharmacenter, Klingelbergstrasse, 50, Basel

Host: Prof. A. Odermatt
Molecular & Systems Toxicology



University
of Basel