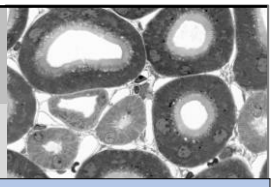
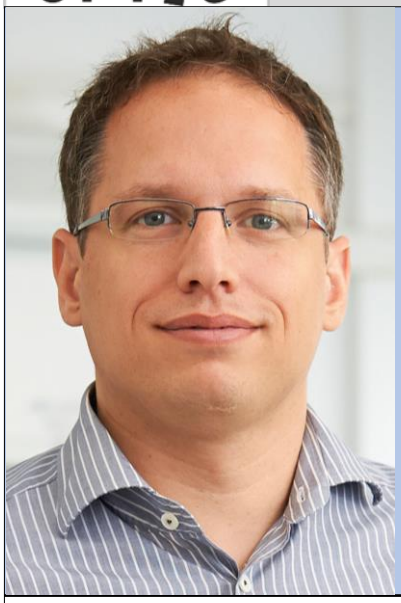
TRR 374

Tubular system and interstitium of the kidney:
(Patho-) physiology and crosstalk

Seminar





Prof. Dr. rer. nat. Dipl. Ing. Felix B. Engel

Experimentelle Nieren- und Herzkreislaufforschung
Nephropathologie, Universitätsklinikum Erlangen

Elucidating function and signaling of Gpr126 in kidney development and disease development and disease

Acute kidney injury (AKI) and chronic kidney disease (CKD) represent together the fastest-growing pathology worldwide. The prevalence of CKD is in many countries > 10%. As currently no effective therapies exist to restore kidney function, it is important to establish diagnostic markers/therapies that prevent, reduce, or even reverse kidney damage.

Adhesion G protein-coupled receptors (aGPCRs) represent the second largest class of the GPCR superfamily, but they are poorly understood. GPCRs are involved in many human diseases and are currently targeted by ~34% of all approved drugs by the US Food and Drug Administration. Therefore, uncovering the function of understudied GPCRs provides a wealth of untapped therapeutic potential.

Our data show that the aGPCR Gpr126 is expressed in zebrafish, mice, rats, and humans in the kidney and becomes enriched in epithelial cells during development. In the adult kidney, Gpr126 is expressed in juxtaglomerular cells, parietal epithelial cells (PECs), and the collecting duct epithelial cells, as well as the urothelium.

In addition, analysis of the kidneys of Gpr126 knockout mice utilizing explant cultures shows that Gpr126 is required for proper ureteric bud branching.

Furthermore, the analysis of two zebrafish mutants revealed that gpr126 is required for tubular morphogenesis and specification of tubular segments.

Finally, the analysis of Gpr126 expression changes in injured/diseased kidneys from animal models as well as patients shows that Gpr126 is markedly upregulated in collecting duct epithelial cells and/or PECs. Collectively, our data identify Gpr126 as a potential target to treat kidney disease.

Time: **Monday, 22 April 2024, 16:30h**
Location: **Pathologie Universitätsklinikum Erlangen**
Krankenhausstr. 8 - 10
Oberer Hörsaal, Raum A 2.150
and **Zoom**

To get the Zoom link please contact:
michaela.kritzenberger@ur.de

Universität Regensburg

Friedrich-Alexander-Universität Erlangen-Nürnberg