

DFG Research Training Group "TJ-Train", GRK 2318
Program of the Winter School, November 20-21, 2020



November 20, 2020

09:00 – 09:10 Welcome by **Jörg Schulzke**

Chair: Hannes Gonschior and Izabela Kowalczyk

- 09:10 – 09:40 **A1 Roman Mannweiler** *Resolving the barrier composition of stratified Epithelia with electrical impedance spectroscopy*
Saeed Khomejani Farahani *Advancing impedance spectroscopy and underlying electrical models to resolve barrier components of simple and stratified epithelia*
- 09:40 – 10:00 **Caroline Hempel:** *Claudin assembly into TJ strands: oligomerization and channel-independent polymerization of Cldn-3 and -10*
- 10:10 – 10:40 **A2 Structure-directed design of Clostridium perfringens enterotoxin-based biologicals for the diagnosis and treatment of claudin-overexpressing tumors or TJ modulation**
Laura-Sophie Beier, Ayk Waldow
- 10:40 – 11:10 **A3 Bicellular and tricellular TJs are involved in paracellular water permeability**
Carlos Ayala-Torres: *Tricellulin and angulin-1 are involved in transepithelial water transport in tight epithelial cells*
Fabián Martínez-Perafán: *Effect of the claudin-2/claudin-3 interaction on the paracellular water transport*
- 11:10 – 11:30 **Coffee break**

Chair: Carlos Ayala-Torres and Caroline Hempel

- 11:30 – 12:00 **A4 Resolving the nanoscale structure of tight junctions**
Hannes Gonschior: *Nanoscale segregation of channel and barrier claudins enable paracellular ion flux*
Rozemarijn van der Veen: *The role of occludin in TJ architecture and function*
- 12:00 – 12:30 **B1**
Izabela Kowalczyk *Integrity of the stem cell niche in the developing brain – mechanisms shaping the neural tube*
Sher Min Mak *The endocytic receptor LRP2 serves as a central hub for dynamic cellular remodelling in neuronal stem cells and neural crest cells*
- 12:30 – 13:00 **C4 Macromolecule uptake across the mucosa in HIV infection**
Carolin Grünhagen, Valerie Masete
- 13:00 – 13:15 **Introduction of candidates for the Steering Committee**
- 13:15 – 14:00 **Lunch break**

Chair: Murat Seker and Fabia Lobo

14:00 – 15:00 **1st Plenary lecture by Alan Yu**

15:00 – 15:30 **B3**

Murat Seker *The role of Cnnm2 in the regulation of transepithelial magnesium transport*

Amr Al-Shebel *Claudins of the thick ascending limb and nephrocalcinosis*

15:30 – 16:00 **B4 Tight junction assembly in renal epithelial cells**

Janna Leiz *The transcription factor Tfp2a in the renal collecting duct*

Shuang Cao *Understanding regional and cell type-specific TJ biogenesis in the kidney by using snRNA-seq*

16:00 – 16:25 **Coffee break**

Chair: Praveen Natramparasu and Roman Mannweiler

16:25 – 16:40 **Marjann Schäfer:** *Biological function, occurrence and evolution of Lipoxygenases_In vivo study considering Alox-15b mice*

16:40 – 17:00 **Fabia Lobo** *Strengthening the intestinal barrier in Campylobacter jejuni infection*

17:00 – 18:00 **2nd Plenary lecture by Maria Balda**

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November 21, 2020

Chair: Janna Leiz and Laura-Sophie Beier

- 09:00 – 09:30 **C1 Toxin effects on paracellular intestinal barrier function**
 Praveen Natramilarasu *Zonula occludens toxin (ZOT)-positive Campylobacter concisus induce colonic epithelial barrier dysfunction via ENaC dysfunction and TJ changes*
 Martina Schneemann *Paracellular intestinal barrier dysfunction by Clostridium difficile toxins*
- 09:30 – 10:00 **C2 Role of the tricellular tight junction in inflammatory bowel diseases**
 Jia-Chen Hu, Lena Voges
- 10:00 – 10:15 **Franziska Weiß** *Interplay of the impaired TJ and the subjacent immune cells in IBD*
- 10:15 – 10:30 **Jakob Wiese:** *tDCS for chronic, IBD-associated abdominal pain and the relation of pain perception and the intestinal epithelial barrier*
- 10:30 – 11:00 **B2 Epithelial reprogramming in colitis-associated carcinoma**
 Danielle Cardoso da Silva, Subhakankha Manna
- 11:00– 11:30 **Coffee break**

Chair: Danielle Cardoso da Silva and Jia-Chen Hu

- 11:30 – 12:00 **C3 Deborah Delbue da Silva** *IL-22 induces polarity defects and modulation of barrier function*
 Violaine Dony *Can microorganisms trigger celiac disease by inducing a polarity defect in epithelial cells?*
- 12:00 – 13:00 **3rd Plenary lecture Michael Schumann** *Research on epithelial function in small intestinal enteropathies*
- 13:00 – 13:15 **Introduction of candidates for the Steering Committee**
- 13:15 – 14:00 **Lunch break**

Chair: Deborah Delbue da Silva and Carolin Grünhagen

- 14:00 – 14:15 **Florian Reisch** *Studies on the occurrence, biological function and evolution of lipooxygenases. Functional characterization of genetically modified mice with humanized reaction specificity*
- 14:15 – 14:35 **Ahmad Mouna** *Total tamoxifen-induced claudin-10b knock-down in adult mice*
- 14:35 – 15:35 **4th Plenary lecture by Markus Bleich**

End of the Winter School 2020