



**International conference  
Tight junctions and their proteins**

**Berlin, September 8 – 10, 2016**

**Harnack House of the Max-Planck-Gesellschaft  
Innstraße 16-20, 14195 Berlin, Germany**



**Organizers: Jörg-Dieter Schulzke,  
Dorothee Günzel, Michael Fromm**



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# Program

Thursday, September 8, 2016

Time	Duration		
14:00	10	Jörg Schulzke	Opening
	10	Britta Siegmund	Welcome address
14:20		<b>Session A</b> Chairs: Jim Anderson, Udo Heinemann, Sebastian Bachmann	<b>Protein structure of the tight junction</b>
	20	Hiroshi Suzuki (New York, NY, USA)	Crystal structures of claudins: insights into their intermolecular interactions
	20	Sachiko Tsukita (Osaka, Japan)	The tight junction apical complex regulates epithelial barrier
	20	Gerd Krause (Berlin, Germany)	Modelling of claudin structure and interactions
	20	Markus Bleich (Kiel, Germany)	Interaction of tight junction proteins and kidney function
		<b>Poster Introductions № 1-5</b>	
	4	Tetsuhisa Otani (Okazaki, Japan)	ZO-1 and ZO-2 are required for epithelial polarity in MDCK II cells
	4	Jan Richter (Jena, Germany)	Visualizing macromolecule passage through epithelia
	4	Christian Zoschke (FU Berlin, Germany)	Fluorescence lifetime imaging microscopy tracks nanocarrier penetration into human cell-based non-melanoma skin cancer models
	4	Priscila Schilrreff (Buenos Aires, Argentina and Berlin)	Structure-controlled G5G2.5 tecto-dendrimers: transient perturbation on Caco-2 cellular barrier
	4	Olga Breitzkreutz-Korff (FMP Berlin, Germany)	Transient opening of the blood-brain barrier <i>in vitro</i> and <i>in vivo</i> by a small molecule
16:00		Coffee break	
16.30		<b>Poster Introductions № 6-9</b>	
	4	Anna Piontek (Berlin, Germany)	Claudin subtype targeting by structure-guided modifications of <i>Clostridium perfringens</i> enterotoxin (CPE)
	4	Miriam Eichner (Berlin, Germany)	The Yin and Yang of <i>Clostridium perfringens</i> enterotoxin: Pathomechanism and use for targeting claudin-overexpressing tumors
	4	Shikha Nangia (New York, NY, USA)	Computational microscopy of tight junction self-assembly

	20	Christina van Itallie (Bethesda, MD, USA)	Claudin fibrildynamics are regulated by interactions with ZO-1 and occludin
	20	Dorothee Günzel (Berlin, Germany)	Using FRET to Investigate cis-Interactions of claudins
	20	Charles Parkos (Ann Arbor, MI, USA)	Role of JAMs in tight junction biology
		<b>Poster Introductions № 10-13</b>	
	4	Jörg Piontek (Berlin, Germany)	Probing the arrangement of claudin protomers in tight junction strands
	4	Susanne Milatz (Kiel, Germany)	Claudins of the TAL: Why interaction matters
	4	Shinsaku Tokuda (Kyoto, Japan)	Effects of claudin-2 and claudin-4 knockouts in MDCK II cells
	4	Nora Gehne (Berlin, Germany)	Tight junction remodeling by autophagy
<b>18:30</b>		<b>Get-together dinner buffet @ Harnack House</b>	

## Friday, September 9, 2016

Friday, September 9, 2016			
9:00		<b>Session B</b> Chairs: Alastair Watson, Geoffrey Sandle, Jörg Schulzke	<b>Tight junction-related diseases</b>
	20	Johanna Brandner (Hamburg, Germany)	Epidermal tight junctions in diabetes mellitus
	20	Roland Bücker (Berlin, Germany)	Tight junctions in gastrointestinal infectious diseases
	20	Bruce McClane (Pittsburgh, PA, USA)	Clostridium perfringens enterotoxin and barrier function
	20	Gail Hecht (Chicago, IL, USA)	E. coli infection and tight junction
	20	Josef Neu (Gainesville, FL, USA)	Intestinal barrier, diet, and bacteria
<b>10:40</b>		Coffee break	
<b>11:10</b>		<b>Poster Introductions № 14-17</b>	
	4	Todd Alexander (Edmonton, Canada)	Claudin-12 mediates paracellular flux across distal small bowel
	4	Katharina Mießler (FU Berlin, Germany)	Effects of hydrostatic pressure on barrier function of epithelial cells
	4	Gabriele Greco (FU Berlin, Germany)	Comparison of the effects of insulin and IGF-1 on the epithelial barrier of sheep rumen
	4	Judith Radloff (FU Berlin, Germany)	Characterization of claudin expression within follicle-associated epithelium of porcine Peyer's patches
	20	Alessio Fasano (Boston, MA, USA)	Gut microbiota, intestinal permeability and metabolic disorders: the zonulin paradigm
	20	Michael Schumann (Berlin, Germany)	Tight junction polarity: lessons from celiac disease
	20	Declan McCole (Riverside, CA, USA)	Tight junction modulation by IBD candidate genes
		<b>Poster Introductions № 18-21</b>	
	4	Madhusudan Grover (Rochester, MN, USA)	Duodenal and colonic mucosal barrier function and bacterial translocation in females with constipation predominant irritable bowel syndrome
	4	Johannes Reiner (Rostock, Germany)	NOD2 deficiency impairs the intestinal tight junction barrier in a murine short bowel model
	4	Nina Hering (Berlin, Germany)	Lactoferrin protects against intestinal epithelial barrier dysfunction caused by inflammation or infection
	4	Marie Friedrich (Berlin, Germany)	HDAC as versatile regulators of the intestinal epithelial barrier in inflammation
<b>13:00</b>		Poster-lunch buffet	

<b>14:30</b>		<b>Session C</b> Chairs: Werner Franke, Kim Barrett, Dorothee Günzel	<b>Modulated barrier and channel function</b>
		<b>Poster Introductions № 22-24</b>	
	4	Anna De Benedetto (Gainesville, FL, USA)	Histamine reduces epidermal tight junction function
	4	Yakuto Kaneko (Sapporo, Japan)	Dysregulation of junctional adhesion molecule-A via p63/GATA-3 in head and neck squamous cell carcinoma
	4	Sophie Dithmer (FMP Berlin, Germany)	Claudin peptidomimetics to modulate the blood-brain barrier for enhanced drug delivery
	20	Asma Nusrat (Ann Arbor, MI, USA)	Regulation of epithelial tight junction proteins in health and during mucosal inflammation
	20	Andrei Ivanov (Richmond, VA, USA)	Roles of actin motors in the regulation of epithelial junctions
	20	Heike Rittner (Würzburg, Germany)	Altering the perineural barrier in pain therapy
	20	Masuo Kondoh (Osaka, Japan)	Recent advances in tight junction binder platforms and their contribution to drug development
		<b>Poster Introductions № 25-28</b>	
	4	Asa Keita (Linköping, Sweden)	Increased paracellular permeability induced by adherent invasive <i>E. coli</i> LF82 in human follicle-associated epithelium is inhibited by blocking the CEACAM6 receptor
	4	Silke Zakrzewski (Berlin, Germany)	Establishing an intra-species Peyer's patch epithelium model for the analysis of tight junctions
	4	Katja Bäsler (Hamburg, Germany)	Epidermal tight junctions are strengthened by short-term Staphylococcal challenge in an agr-dependent manner
	4	Constanze Vitzthum (FU Berlin, Germany)	Introducing the <i>Xenopus laevis</i> oocyte for tight junction protein analysis
<b>16:30</b>		Coffee break	
<b>17:00</b>	20	Atsushi Tamura (Osaka, Japan)	Bile flow and gallstone diseases induced by the deficiency of claudin family proteins
	20	Rita Rosenthal (Berlin, Germany)	Water channels and barriers formed by claudins
	20	Kai Schmidt-Ott (Berlin, Germany)	Grainyhead transcription factors: coordinating junction formation and morphogenesis
	20	Maria Balda (London, United Kingdom)	Tight junction signaling during epithelial differentiation
	20	Jerrold R. Turner (Boston, MA, USA)	Link between intestinal inflammation, barrier function and inflammatory mediators
<b>19:00</b>		<b>Dinner @ Harnack House</b>	

## Saturday, September 10, 2016

<b>Saturday, September 10, 2016</b>			
<b>9:00</b>		<b>Session D</b> Chairs: Sachiko Tsukita, Klaus Beyenbach	<b>Occluding junctions in invertebrates</b>
	20	Ingolf Blasig (Berlin, Germany)	Redox regulation of tight junctions
	20	Yasushi Izumi (Okazaki, Japan)	Identification and characterization of novel smooth septate junction proteins in <i>Drosophila</i>
	20	Sylvie Tambutté (Monaco, Monaco)	Septate junctions in corals and their role in biomineralization
		<b>Poster Introductions № 29-33</b>	
	4	Philippe Ganot (Monaco, Monaco)	Molecular components of septate junctions in Cnidarians delineate evolution of cell-cell occluding junctions in eukaryotes
	4	Allison Johnson (Ann Arbor, MI, USA)	Role of Cx43 gap junction intracellular communication in the pathogenesis of cerebral cavernous malformations
	4	Kinga Blecharz-Lang (Berlin, Germany)	Moyamoya disease: VEGF signaling inhibition contributes to restoration of claudin-5- and VE-cadherin-related endothelial malfunction
	4	Ekaterina Vasileva (Genf, Switzerland)	Distinct molecular landscapes in the cytoplasmic regions of zonular junctions in epithelial versus endothelial cells
	4	Katalin Szaszi (Toronto, Canada)	Differential role for claudins 1-4 and 7 in tumor necrosis factor-induced permeability and migration changes in tubular epithelial cells
<b>10.20</b>		Coffee break	
<b>10:50</b>		<b>Session E</b> Chairs: Dietmar Vestweber, Michael Fromm	<b>The tricellular tight junction</b>
		<b>Poster Introductions № 34-36</b>	
	4	Susanne Jennek (Jena, Germany)	Tricellulin is a target of the E3 ubiquitin-protein ligase Itch
	4	Takayuki Kohno (Sapporo, Japan)	Dynamic subcellular localization of LSR in Sawano cells
	4	Jochen Weigle (Baltimore, MD, USA)	Understanding the molecular network of tricellulin in the inner ear
	20	Udo Heinemann (Berlin, Germany)	Structure of the TAMP C- and N-terminus
	20	Susanne Krug (Berlin, Germany)	Modulation of the tricellular junction in inflammatory bowel diseases
	20	Mikio Furuse (Okazaki, Japan)	Tricellular tight junctions and their associated proteins
	20	Saima Riazuddin (Cincinnati, USA)	Tight junction structure and functional significance in hearing

		<b>Poster Introductions № 37-39</b>	
	4	Jimmi Cording (Berlin, Germany)	Development of tricellulin derived peptidomimetics to modulate tissue barriers
	4	Otmar Huber (Jena, Germany)	SUMO modification alters intracellular localization of ZO-2
	4	Philipp Berndt (FMP Berlin, Germany)	Quantification of claudins and TAMPs in the human and mouse brain endothelium
<b>12:40</b>		Poster-lunch buffet	

<b>14:00</b>		<b>Session F</b> Chairs: Alan Yu, Jörg Aschenbach	<b>Tight junction and organ function</b>
	20	Sandra Citi (Genf, Switzerland)	Autoinhibitory folding of ZO proteins and cytoskeletal tension control the sequestration of DbpA at tight junctions
	20	Lorenza Gonzalez-Mariscal (Mexico City, Mexico)	ZO-2 as a regulator of the cytoarchitecture of epithelial cells
	20	Michael Koval (Atlanta, GA, USA)	Tight junction function in the lung
	20	Tetsuichiro Inai (Fukuoka, Japan)	Assembly and disassembly of tight junction proteins in keratinocytes
	20	Takashi Kojima (Sapporo, Japan)	Claudin-4 junction in the epidermis
<b>15.40</b>		Coffee break	
<b>16.10</b>	20	Anuska Andjelkovic (Ann Arbor, MI, USA)	Post-endocytotic sorting and trafficking of tight junction proteins
	20	Salah Amasheh (Berlin, Germany)	Milk components and intestinal barrier
	20	Tilman Breiderhoff (Berlin, Germany)	Claudin-10 and claudin-16 knock-out: effects on kidney function
	20	Alan Yu (Kansas City, KS, USA)	Role of claudin in the proximal renal tubule
	10	Jörg Schulzke	Closing remarks
<b>17:40</b>		Official end	

## Posters by numbers

No	Presenter	Title
<b>Presence at poster: <u>Friday</u> lunch buffet</b>		
1	Tetsuhisa Otani (Okazaki, Japan)	ZO-1 and ZO-2 are required for epithelial polarity in MDCK II cells
2	Jan Richter (Jena, Germany)	Visualizing macromolecule passage through epithelia
3	Christian Zoschke (FU Berlin, Germany)	Fluorescence lifetime imaging microscopy tracks nanocarrier penetration into human cell-based non-melanoma skin cancer models
4	Priscila Schilrreff (Buenos Aires, Argentina and Berlin)	Structure-controlled G5G2.5 tecto-dendrimers: transient perturbation on Caco-2 cellular barrier
5	Olga Breitzkreutz-Korff (FMP Berlin, Germany)	Transient opening of the blood-brain barrier <i>in vitro</i> and <i>in vivo</i> by a small molecule
6	Jonas Protze (FMP Berlin, Germany)	Claudin subtype targeting: Impact by structure-homologous molecular models
7	Anna Piontek (Berlin, Germany)	Claudin subtype targeting by structure-guided modifications of <i>Clostridium perfringens</i> enterotoxin (CPE)
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