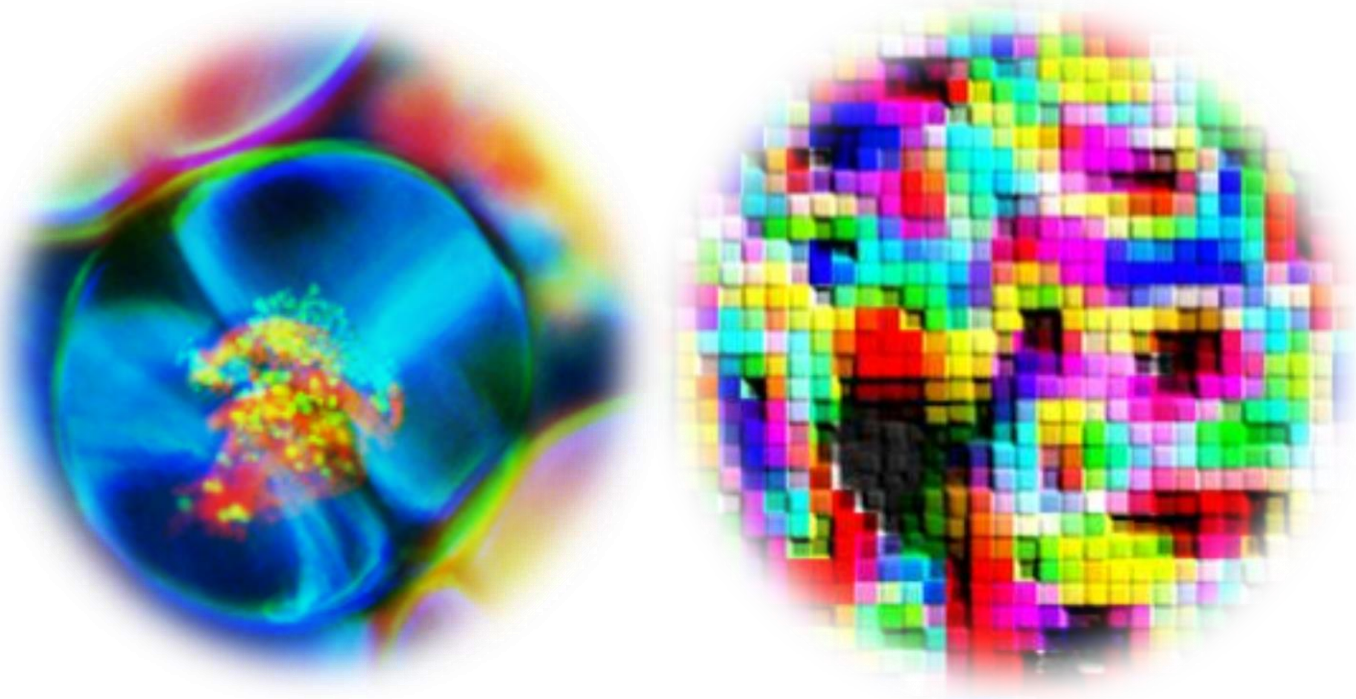
DGZ International Meeting 2021

Life in between

The cell biology of interfaces

27 - 29 September 2021
Schloss (virtual), Münster, Germany



https://dgz.orgalution.de

Organization and contacts

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Life in between - The cell biology of interfaces

From whole habitats to subcellular compartments - biological interfaces are everywhere and their importance cannot be overstated. Wherever different spheres touch or overlap there is friction that counteracts stagnation. The zones between water and land, for example, are teeming with life. And at the borders of different habitats micro-climate effects have been observed. Even life itself might originate from an interface between liquid and gaseous phases, as has been recently proposed. And the cell as basic unit of life? A multitude of subcellular compartments keep cellular processes separate and yet are tightly connected. Membranes help but are not always needed: We now know of membraneless organelles as transient products of phase separation in the cytosol or nucleus of the cell. At the interface between different cells a multitude of physical and biochemical signals are integrated to mediate collective and emergent behaviors that lie at the core of cellular and tissue self-organization. This meeting will highlight current work on cellular interfaces in biology and neighboring disciplines like medicine, chemistry, physics, computational sciences and mathematics. Several sessions will be hosted by prominent national research consortia that focus on the topic of the conference. The international meetings of the German Society for Cell Biology (DGZ) aim to highlight the cutting edge of cell biological research, and we are looking forward to a stimulating meeting on many of today’s most exciting and multifaceted scientific topics.

Speakers

Affolter	Markus	Basel
Barnett	Samuel	Singapore
Bassereau	Patricia	Paris
Bauer	Petra	Düsseldorf
Bellaïche	Yohanns	Paris
Bieling	Peter	Dortmund
Bohnert	Maria	Münster
Busch	Karin	Münster
Chan	Chii Jou	Singapore
Coskun	Ünal	Dresden
del Campo	Aránzazu	Saarbrücken
Dersch	Petra	Münster
Fröhlich	Florian	Osnabrück
Garner	Zev	San Francisco
Geli	María Isabel	Barcelona
Gotta	Monica	Geneva
Grosse	Robert	Freiburg
Han	Tee Yee	Singapore
Hegemann	Johannes	Düsseldorf
Hilbi	Hubert	Zürich
Holle	Andrew	Singapore
Honigmann	Alf	Dresden
Hoogenboom	Bart	London
Kleanthous	Colin	Oxford
Klotz	Luisa	Münster
Kutay	Ulrike	Zürich
Lammerding	Jan	Ithaca
Lecuit	Marc	Paris
Lee	Hyun Kate	Toronto
Lemke	Edward	Mainz
Luschnig	Stefan	Münster
Mayor	Satyajit	Bangalore
Mellmann	Alexander	Münster
Meyer	Tobias	Stanford
Miller	Ann	Ann Arbor
Nickel	Walter	Heidelberg
Niessen	Carien	Cologne
Pappu	Rohit V.	St. Louis
Pfanner	Nikolaus	Freiburg
Pfeffer	Suzanne	Stanford
Riedel-Kruse	Ingmar	Tucson
Rizzoli	Silvio	Göttingen
Roux	Aurélien	Geneva
Rumpf	Sebastian	Münster
Schmidt	Gudula	Freiburg
Schuck	Sebastian	Heidelberg
Schuldiner	Maya	Rehovot
Tijore	Ajay	Singapore
Trappmann	Britta	Münster
Vincent	Jean-Paul	London
Wachten	Dagmar	Bonn
Wang	Haiyang	Singapore
Weber	Wilfried	Freiburg
Wegner	Seraphine	Münster
Young	Jennifer	Singapore
Ziegler	Christine	Regensburg

Program Overview

Time	Monday 27.9.2021		Tuesday 28.9.2021		Wednesday 29.9.2021	
12:20	**Greeting**					
12:30 - 14:40	**A1** Cell-Pathogen Interface	**B1** CRC 1348 Cellular Interfaces	**A3** CRC 1009 Breaking Barriers	**B3** CRC 1190 Contact Sites	**A5** Reconstituting Interfaces	**B5** CRC 944 Organelle Identity
14:45 - 16:45	**MBI**		Posters 1 Industry		Posters 2 Industry	
16:55 - 19:05	**A2** TRR 83 Lipid-Protein Interactions	**B2** Cell-Cell Junctions	**A4** SPP 2191 Phase Separation	**B4** Nuclear Interfaces	**A6** Cell Material Interface	**B6** CRC 1208 Membrane Dynamics

Program

Monday, 27.09.2021

12:20 Welcome Roland Wedlich-Söldner

Session 1: 12:30 -14:40 (UTC)

A1	**Cell-Pathogen Interfaces** Chair Petra Dersch	**B1**	**CRC 1348** **Cellular Interfaces**
12:30	Marc Lecuit *Outsmarting the host: Listeria interplay with host cells and tissues*	**12:30**	Christian Klämbt Introduction CRC 1348
12:55	Petra Dersch *Remodelling of cell functions by Yersinia virulence factors*	**12:35**	Carien Niessen *Integrating adhesion, mechanics and signaling in making, maintaining and breaking epithelial barriers in 3D*
13:20	Pia Brinkert *Endocytic vacuole formation by WASH-mediated endocytosis*	**13:00**	Sebastian Rumpf *Tissue context determines mechanical neurite rupture during developmental pruning*
13:35	Hubert Hilbi *Formation of the ER-associated* Legionella*-containing vacuole*	13:25	Oleg Mikhajlov *Dynamics of early stages of cell adhesion on fluid substrates*
14:00	Gudula Schmidt *Photorhabdus Toxin Complex (PTC) as variable protein injection machinery*	**13:40**	Britta Trappmann *Regulation of angiogenic sprouting by the extracellular matrix.*
14:25	Marcus J. Taylor *The Super-molecular machines of the innate immune system: Myddosome assembly and the induction of inflammation*	**14:00**	Jean-Paul Vincent *Morphogen gradient formation at the surface of epithelia*
		14:25	Daniel Haase *The role of tetraspanners in yeast plasma membrane organization*

MBI – Focus on Mechanobiology: 14:45-16:45 (UTC)

14:45	Andrew Holle *Confinement mechanobiology in stem cells*
15:05	Ajay Tijore *Mechanical Force-Induced Selective Killing of Cancer Cells*
15:20	Tee Yee Han *Actin polymerization and crosslinking drive left-right asymmetry in single cell and cell collectives*
15:35	Jennifer Young *Nanoscale extracellular matrix properties regulate cardiac function*

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15:55	Samuel Barnett *Optogenetic control of talin-based adhesion*
16:10	Haiyang Wang *Hydrodynamics Forces in Asymmetric Meiotic Cell Division in Mouse Oocytes*
16:25	Chii Jou Chan *Tissue hydraulics in early mammalian development*

Session 2: 16:55 - 19:05 (UTC)

A2	**TR 83** **Lipid-Protein Interactions**	**B2**	**Cell-Cell Junctions** Chair Stefan Luschnig
16:55	Thomas Söllner Introduction TR 83	**16:55**	Yohanns Bellaïche *Sensing size at cell-cell junction*
17:00	Ünal Coskun *Lipids directly regulating RTK transmembrane and downstream signaling*	**17:20**	Stefan Luschnig *Dynamic remodeling of epithelial tricellular junctions controls paracellular transport*
17:25	Tobias Meyer *How cells direct the front and bridge matrix gaps during cell migration*	**17:45**	Eleanor Martin *Characterisation of Pals1 dynamics during epithelial polarity development*
17:45	Adrian Hodel *Perforin pore formation and lipid specificity*	**18:00**	Markus Affolter *Asymmetric requirement of Dpp/BMP morphogen dispersal in the Drosophila wing disc*
18:00	Dagmar Wachten *Shedding light on ciliary signaling and function*	**18:25**	Liam Hallada *The molecular specificity of JAM-C adhesive recognition directs neuron migration in a mouse model for cerebellar development*
18:25	Suzanne Pfeffer *Spatial control of Rab GTPase phosphorylation regulates primary cilia formation*	**18:40**	Ann Miller *Maintenance and remodeling of epithelial cell-cell junctions during cell shape changes*
18:50	Daniel Kümmel *Membrane binding via phosphatidylinositol-phosphates and oligomerization of TSC1 are required for mTORC1 regulation*		

Program

Tuesday, 28.09.2021

Session 3: 12:30 - 14:40 (UTC)

A3	CRC 1009 **Breaking Barriers**	B3	CRC 1190 **Contact Sites**
12:30	Johannes Roth Introduction CRC 1009	**12:30**	Peter Rehling Introduction CRC 1190
12:35	Walter Nickel *The stunning capabilities of FGF2: how to exit cells without a signal peptide at hand?*	**12:35**	Maya Schuldiner *Systematic analysis of contact site proteomes reveals novel players in cellular homeostasis*
13:00	Luisa Klotz *Modulation of CNS autoimmunity via the gut-brain-axis*	**13:00**	Silvio Rizzoli *A novel view for the extracellular matrix dynamics in the brain*
13:20	Parisa Kakanj *Autophagy suppression by TORC1maintains epithelial plasma membrane integrity*	**13:20**	David Kovacs *OSBP proximity proteome reveals secretory cargoes depending on ER-trans Golgi membrane contact sites*
13:35	Alexander Mellmann *Enterohemorrhagic* Escherichia coli *outer membrane vesicle-host interaction*	**13:35**	Maria Bohnert *Systematic approaches to uncover new players in lipid droplet biology*
14:00	Yuting Lou *Tissue can generate long-range forces on weakly adhesive substrate*	**14:00**	Klaus Pfanner *Biogenesis and Architecture of Mitochondria*
14:25	Roland Knorr *Organization of cells by wetting of phase-separated compartments on membrane-bound organelles*	**14:25**	Kathrin Funck *Structural and functional explorations of the MICOS complex*

Poster session 1 14:45-16:45 (UTC)

Program

Session 4: 16:55 - 19:05 (UTC)

A4	**SPP 2191 Phase Separation** Chair Edward Lemke	**B4**	**Nuclear Interfaces** Chair Robert Grosse
16:55	Monica Gotta *Stress granules and cell division*	**16:55**	Ulrike Kutay *Taking apart the nuclear envelope for open mitosis*
17:20	Edward Lemke *Multiple Film-like Designer Organelles Enable Orthogonal Translation in Eukaryotes with Three Genetic Codes*	**17:20**	Robert Grosse *Nuclear actin reorganisation in mitosis*
17:45	Maximilian Schilling *TOR signaling regulates liquid phase separation of the SMN complex governing snRNP biogenesis*	**17:45**	Jörg Renkawitz *Microenvironment-Cell Interface: Nuclear Positioning During Immune Surveillance and Locomotion*
18:00	Rohit V. Pappu *Stickers and spacers framework for phase transitions of multivalent proteins*	**18:00**	Bart Hoogenboom *Minimal physical models to capture condensation and phase separation in the nuclear pore complex*
18:25	Hyun Kate Lee *Multiple stress granule disassembly mechanisms maintain internal dynamics and prevent aggregation*	**18:25**	Elisa Dultz *Single particle tracking of individual nuclear pore complexes in budding yeast*
18:50	Stefanie Schmieder *Mechanisms of sphingolipid sorting by ceramide structure*	**18:40**	Jan Lammerding *Mechanically induced DNA damage and chromatin modification during confined migration*

Program

Wednesday, 29.09.2021

Session 5: 12:30 - 14:40 (UTC)

A5	**Reconstitution of Interfaces** Chair Peter Bieling	**B5**	**CRC 944** **Organelle Identity and Dynamics**
12:30	Satyayit Mayor *The cellular interface: an active actin membrane composite*	**12:30**	Christian Ungermann Introduction CRC 944
12:55	Peter Bieling *The end is the beginning - How capping protein stimulates filament nucleation in branched actin networks*	**12:35**	Sebastian Schuck *Control of Endoplasmic Reticulum Membrane Biogenesis by the Lipin Switch*
13:20	Kristina Ganzinger *Studying cytoskeletal protein reorganisation in response to membrane deformations using microfluidic traps for giant vesicles*	**13:00**	Maria Isabel Geli *The role of the ER Sterol Exit Sites (ERSES) in the asymmetric control of sterol-dependent endocytosis*
13:35	Aurélien Roux *Self-morphogenesis of myoblastic tissues into cellular tornadoes*	**13:25**	Florian Fröhlich *All roads lead to the lysosome - Proteomic mapping of endo-lysosomal trafficking in* S. cerevisiae
14:00	Michal Skruzny *Mechanobiology of actin-driven endocytic membrane reshaping analyzed by FRET rulers and dynamometers*	**13:45**	Alf Honigmann *Structure and Function of the Apical Junctional Complex*
		14:10	Karin Busch *Dynamic ATP synthase bridging two mitochondrial compartments*
14:15	Patricia Bassereau *Interface between membrane and cytoskeleton in cell protrusions*		
		14:30	Felix Campelo *The biophysics of procollagen export from the endoplasmic reticulum*

Poster session 2 14:45-16:45 (UTC)

Program

Session 6: 16:55 - 19:05 (UTC)			
A6	**Cell-Material Interfaces** Chair Seraphine V. Wegner	**B6**	**CRC 1208** **Membrane Dynamics**
16:55	Wilfried Weber *Optogenetics for Engineering the Cell-Material Interface*	**16:55**	Lutz Schmitt Introduction CRC 1208
17:20	Seraphine Wegner *Building tissue cell by cell using light*	**17:00**	Petra Bauer *The uptake of the micronutrient iron into the Arabidopsis root epidermis cell and its regulation at the membrane*
17:45	Jacopo Di Russo *Integrin alpha 5 beta 1 nano-presentation regulates collective keratinocyte migration independent of substrate rigidity*	**17:20**	Colin Kleanthous *Through the eye of a needle: How protein antibiotics translocate across the bacterial outer membrane*
18:00	Ingmar Riedel-Kruse *Engineering Multicellular Interfaces and Patterns with Bacterial Synthetic Adhesins*	**17:45**	Daniel Serwas *Actin force generation in vesicle formation: mechanistic insights from in situ cryo-electron tomography*
18:25	Aránzazu del Campo *Force application to cells with light-driven synthetic molecular motors*	**18:00**	Johannes Hegemann *Plasma membrane under attack: how* Chlamydiae *enter host cells*
18:50	Fazil Emre Uslu *Wireless micro actuators to apply spatiotemporally controlled mechanical forces to cells on engineered fiber network*	**18:25**	Zev Garner *Building tissues to understand how tissues build themselves*
		18:50	Christine Ziegler *Structural and functional impact of cholesterol binding to TRP channels*