

4th Core-to-Core International Symposium "3D Lab-Exchange Program"

University of Bonn, Waseda University Tokyo, CBBC-OIL Tokyo,
WABIOS Singapore, Istituto Italiano di Tecnologia Pisa
**Interaction of Nano-Biotechnology, Chemical and
Medical Biology and Robotics**



**WASEDA Bioscience Research
Institute in Singapore (WABIOS)**



Bonn, Germany, 06 - 08 March, 2018
"Festsaal" of the Main Building of the University of Bonn,
Entrance: Am Hof/Fürstenstraße, 53113 Bonn, Germany

Sponsorships:

- LIMES, Bonn
- Three Dimensional Development of Lab-Exchange type Biomedical Science Research Consortium
- AIST-Waseda University Computational Bio Big-Data Open Innovation Laboratory (CBBC-OIL)

Participating Institutes:**Bonn, Germany:**

University of Bonn, Life & Medical Sciences Institute (LIMES)
University of Bonn, Department of Life Science Informatics at the B-IT
University of Bonn, Humanoid Robots Lab
University of Bonn, Photogrammetry, IGG

Tokyo, Japan:

Waseda University, TWIns, Dep. of Life Science and Medical Bioscience
Waseda University, Graduate School of Advanced Science and Engineering, Electrical Engineering and Bioscience
Waseda University, Laboratory for Intelligent Dynamics and Representation
AIST-Waseda University Computational Bio Big-Data Open Innovation Laboratory (CBBC-OIL)

Okinawa, Japan:

OIST, Okinawa Institute of Science and Technology Graduate University

Osaka, Japan:

Osaka University, Institute for Protein Research

Singapore:

WABIOS, Waseda Bioscience Research Institute, Singapore
A*STAR, Agency for Science, Technology and Research, Singapore
Singapore Polytechnic, Center for Biomedical and Life Sciences

Pisa, Italy:

IIT, Italian Institute of Technology, Pisa

Hong Kong, China:

The University of Hong Kong, School of Biomedical Sciences

Lübeck, Germany:

Institute of Biomedical Optics, University of Luebeck

DAY 1, Tuesday, 6 March 2018

08:15	Registration and Poster Mounting	
08:50	Opening	Waldemar Kolanus (LIMES)
	<i>Keynote Session</i>	<i>Chair: Takafumi Inoue</i>
09:00	Keynote Speech 1	Shinji Takeoka (Waseda): "Development of Nanomaterials Functionalized by 3D Collaboration"
09:25	Keynote Speech 2	Virgilio Mattoli (IIT): "Ultraconformable (bio)-electronic technologies"
09:50	Coffee Break	
	<i>Chemical/Synthetic Biology Session 1</i>	<i>Chair: Thorsten Lang</i>
10:20		Daisuke Kiga (Waseda): "Design of biosystems by synthetic biology"
10:38		Michael Famulok (LIMES): "A bio-hybrid DNA rotor/stator nano engine that moves along predefined tracks"
10:56		Amir Nasiri (LIMES, Günter Mayer lab): "An automated platform for aptamer selection"
11:09		Toru Asahi (Waseda): <i>TBD</i>
	<i>Life Sciences Session 1</i>	<i>Chair: Toru Asahi</i>
11:27		Thorsten Lang (LIMES): „Amyloid precursor protein dynamics and organisation in the cell membrane"
11:45		Chen-han Yu (Hong Kong Univ.): "Functional role of Myosin-1e in phosphatidylinositol signaling and podosome assembly"
12:03		Andreas Schlitzer (LIMES): "Mechanisms of functional specialisation of human and mouse monocytes"
12:16	Welcome	Michael Hoch , Rector of the University of Bonn
12:29	Lunch	
	<i>Robotics/Informatics Session 1</i>	<i>Chair: Jürgen Bajorath</i>
13:29		Cyrril Stachniss (Bonn Univ., Photogrammetry): "Autonomous Robots Operating in the Real World - From Cultural Heritage Preservation to Urban Navigation and Sustainable Agriculture"
13:47		Sachiyo Aburatani (CBBB-OIL, Waseda): "Network inference of AP pattern formation system in <i>D. melanogaster</i> by structural equation modeling"
14:05		Arturo Magana Mora (CBBB-OIL, Waseda): "Machine learning for the recognition of genomic signals and regions"

<i>Life Sciences & Biomaterials Chair: Shinji Takeoka</i>		
<i>Session 1</i>		
14:18		Yoko Miura (Biomedical Optics, Lübeck) "Fluorescence lifetime imaging of the ocular fundus tissues"
14:36		Shivani Sathish (OIST, Okinawa) "Microcontact printing: a powerful surface patterning tool for bioassays"
14:49		Emanuela Del Dottore (IIT) "Moving by growing: a new paradigm in bioinspired robotics"
15:07	Coffee Break	
<i>Life Sciences Session 2 Chair: Toshiyuki Okano</i>		
15:37		Shigenobu Shibata (Waseda): "Chrono-nutrition and chrono-exercise from mouse to human"
15:55		Haruko Takeyama (Waseda): "Bacteria single cell analysis for useful function screening"
<i>Teaser Session Chair: Michael Famulok</i>		
16:13	Teaser Poster Part I	15 x 1 min
16:38	Poster Session	
18:10	Dinner on-site	

POSTER SESSION, DAY 1, Tuesday, 6 March:

1. **Hiroyuki Sasaki** (Waseda University, Shibata lab): "Effect of exercise timing on mouse intestinal microflora under inulin feeding"
2. **Jieyan He** (Waseda University, Takeoka lab): "Structural impact of amino-type cationic lipid composing liposomes on the NLRP3 inflammasome activation"
3. **Keigo Ide** (Waseda University, Takeyama lab): "Marine environmental analysis for revealing microbial dynamics in coral reef ocean"
4. **Kosuke Kataoka** (Waseda University, Asahi lab): "Cannabinoid receptor 1 deletion leads to reduction in phosphorylated ubiquitin in hippocampal pyramidal cell layer"
5. **Dr. Bettina Jux** (LIMES, Kolanus lab): „The role of Cytohesins in metabolism and heart protection“
6. **Dr. Julia Sellin/Dr. Margret Bülow** (LIMES, Hoch lab): "Exploring the impact of organelle dysfunction on lipid metabolism"
7. **Lorenz Fülle** (LIMES, Förster lab): „Inflammation-dependent upregulation of CCL17 in hippocampal neurons and its influence on neuro-immune interactions“
8. **Marieangela Sociale** (LIMES, Hoch lab): „Ceramide Synthase Schlank Is a Transcriptional Regulator Adapting Gene Expression to Energy Requirements“
9. **Kota Miura** (Waseda University, Okano lab): "Analyses and biochemical application of thermosensitive antigen-antibody interaction"
10. **Mai Sakamoto** (Waseda University, Semba lab): "Identification and functional analysis of TBX2 as a novel oncogene"
11. **Masao Maruyama** (Waseda University, Takeda lab): "Paper-based perfusion culture system with porous polymeric microfibers for effective myotube formation"
12. **Masato Kogawa** (Waseda University, Takeyama lab): "Cross-reference genome analysis using singlecell genome data acquired by droplet-based genome amplification method"
13. **Miki Yamazaki** (Waseda University, Takeyama lab): "Evaluation of tissue fixation method for spatial transcriptome analysis"
14. **Mitsuya Yamamoto** (Waseda University, Takeda lab): "Design of photo-responsive soft interface for dynamically controlling cell adhesion properties by changing wettability"
15. **Nana Kokubo** (Waseda University, Takeoka lab): "Fully Inkjet Printed Neural Electrodes Processed on Flexible Polymer Nanosheets"

DAY 2, Wednesday, 7 March

08:00	Poster Mounting	
	Keynote Session	Chair: Irmgard Förster
08:30	Keynote Speech 1	Waldemar Kolanus (LIMES) "Biological memory and cell migration"
08:55	Keynote Speech 2	Tetsuya Ogata (Waseda) "Behavior generation with deep predictive learning - Neurorobotics study"
	Life Sciences Session 3	Chair: Shigenobu Shibata
09:20		Kentaro Semba (Waseda) "Oncogenes in breast cancer"
09:38		Satoshi Arai (WABIOS) "Thermodynamic control of single-cell functions using an organic dye-based nanoheater"
09:51	Coffee Break	
	Life Sciences Session 4	Chair: Virgilio Mattoli
10:21		Takafumi Inoue (Waseda) "Molecular dynamics revealed by FCS in the neuron"
10:39		Nobuhito Goda (Waseda) "Pathological role of HIF-1 in T cells in drug-induced liver injury"
10:57		Hisashi Anbutsu (CBBD-OIL, Waseda) "Symbiotic bacteria underlie beetle hardness and color"
	Life Sciences & Biomaterials Session 2	Chair: Michael Pankratz
11:10		Naoya Takeda (Waseda): "Thixotropic cellulose nanofiber gel scaffold for 3D cell culture in tissue engineering application"
11:28		Keiichi Imato (Waseda): "Photo-switching surface morphology of polymer scaffolds for controlling cell behavior"
11:41		Gerhild van Echten-Deckert (LIMES) "Sphingosine 1-phosphate lyase and neurodegeneration"
11:54	Lunch	
	Life Sciences Session 5	Chair: Toru Asahi
12:54		Sven Burgdorf (LIMES) Molecular mechanisms regulating antigen presentation"
13:12		Kanami Orihara (Waseda) "NMDA receptor-mediated reactions in type 2 inflammation"
13:25		Naoya Sawamura (Waseda) "Molecular mechanism of thalidomide against ischemic stroke"
	Robotics/Informatics Session 2	Chair: Sachiyo Aburatani
13:38	Keynote Speech 3	Maren Bennewitz (Bonn Univ., Humanoid Robots) "Perception and Motion Planning for Humanoid Robots"
14:03		Jürgen Bajorath (LIMES/BIT) "Learning from Emerging 'Big Data' - View of Kinase Drug Discovery"

14:21	Pui Shan Wong (CBBB-OIL, Waseda) "Elucidation of the sequential transcriptional activity in Escherichia coli using time-series RNA-Seq data"
14:34	Masaki Takahashi (WABIOS) "The relationships between lifestyle habit and clock gene expression in human"
14:47	Coffee Break
<i>Life Sciences Session 6</i> <i>Chair: Madoka Suzuki</i>	
15:17	Irmgard Förster (LIMES) "Diet, Microbiome and Immunity"
15:35	Hideaki Fujita (WABIOS) "Waseda Research Institute in Singapore"
15:48	Keitaro Sou (WABIOS) "Temperature sensing using fluorescent liposomes"
16:01	Thomas Ulas (LIMES, Joachim Schultze lab) "Co-expression network analysis: an additional layer of information"
<i>Teaser Session</i> <i>Chair: Kanami Orihara</i>	
16:14	Teaser Poster Part 2 15 x 1 min
16:39	Poster Session
18:10	end of this day's program
19:30 Dinner - by invitation only	

POSTER SESSION, DAY 2, Wednesday, 7 March:

- Ainash Garifullina** (OIST): "Novel nanoplasmonic platform for biosensing applications"
- Kei Funakoshi/Shivani Sathish** (OIST): "Syringe based blood plasma separation"
- Kevin Baßler** (LIMES, Schultze lab): "Unraveling cellular heterogeneity using single cell mRNA-Seq"
- Mohamed Ibrahim** (LIMES, Schlitzer lab): "Regulation of dendritic cell development during high fat diet induced inflammation"
- Oliver Schanz** (LIMES, Förster lab): „Dietary AhR ligands have a profound influence on AhR signaling and immune function in barrier organs“
- Dr. Thomas Quast** (LIMES, Kolanus lab): „Time and Space in Leukocyte Migration“
- Rieka Chijiwa** (Waseda University, Takeyama lab): "Effects of dietary fiber inulin on mice gut microbiota with chrono-nutrition analysis"
- Ryohei Nakaguro** (Waseda University, Takeyama lab): "Identification of Drosophila melanogaster associated microbiota with whole genome amplification technique"
- Shunpei Horii** (Waseda University, Takeyama lab): "In situ monitoring of molecular change during degradation of pork meat using Raman spectroscopy"
- Takashi Yamazaki** (Waseda University, Goda lab): "Methodology for PHD-mediated prolinehydroxylated peptides using mass spectrometer"
- Takuya Taniguchi** (Waseda University, Asahi lab): "Bending and locomotion of azobenzene crystals"
- Tomoro Kawatani** (Waseda University, Asahi lab): "Molecular analysis of the C391R mutant cereblon, identified in a family of severe mental retardation"
- Wataru Onodera** (Waseda University, Asahi lab): "Molecular evolution of mammalian cereblon contributes to E3 ubiquitin ligase activity"
- Yohei Nishikawa** (Waseda University, Takeyama lab): "Droplet microfluidics for massively parallel and accurate whole genome amplification of single-cells"
- Yuya Saratani** (Waseda University, Okano lab): "Circadian/photoc regulation of locomotor activity and Per/Cry gene expression in Japanese loach, Misgurnus anguillicaudatus"

DAY 3, Thursday, March 8

	<i>Keynote Session</i>	<i>Chair: Haruko Takeyama</i>
09:00	Keynote Speech 1	Amy Shen (OIST, Okinawa) "Novel Micro/Nanofluidic platforms for biotechnology applications"
09:25	Keynote Speech 2	Michael Pankratz (LIMES) "Constructing the brain"
	<i>Chemical/Synthetic Biology Session 2</i>	<i>Chair: Sven Burgdorf</i>
09:50		Sung Jin Park (A*Star) "Alzheimer disease brain imaging by multi-spectral optoacoustic tomography"
10:08		Masahito Hosokawa (Waseda) "Microfabricated tools for single-cell microbiology and spatial tissue analysis"
10:21	Coffee Break	
	<i>Life Sciences Session 7</i>	<i>Chair: Nobuhito Goda</i>
10:51		Ken Lee (Singapore Polytech) "Rapid on-site water pathogens detection system based on recombinant polymerase amplification"
11:09		Madoka Suzuki (Osaka Univ.) "Thermal responses of Ca ²⁺ channels in malignant hyperthermia"
11:27		Gianni Ciofani (IIT) "Smart nanotools for the development of multifunctional biomedical platforms"
11:40		Elvira Mass (LIMES) "Is neurodegeneration a kind of cancer?"
11:53		Toshiyuki Okano (Waseda) "Quantum biology of light-driven geomagnetoreceptors"
12:11	Lunch on-site	
13:11	End of conference	

14:00 Transfer to "Haus der Geschichte"

14:30 Guided Tours "Haus der Geschichte"

16:15 Transfer back to Main Building Bonn University

16:30 Special Reception by the Rector Michael Hoch - by invitation only