Program

Biofabrication for Hierarchical in Vitro Tissue Models

June 5 - 9, 2017

Schloss Hernstein
Hernstein, Austria

Conference Chairs

Jürgen Groll
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Engineering Conferences International (ECI) is a not-for-profit global engineering conferences program, originally established in 1962, that provides opportunities for the exploration of problems and issues of concern to engineers and scientists from many disciplines.

Monday, June 5, 2017

14:30 – 15:30	Conference Check-in
17:30 – 19:30	Wine Tasting Reception
19:30 – 21:00	Dinner

NOTES

- Technical Sessions will be in the Studio.
- Poster Session will be in the Hof Suite
- Audiotaping, videotaping and photography of presentations are prohibited.
- Speakers – Please leave at least 5 minutes for questions and discussion.
- Speakers – Pleasure ensure your talk adheres to your given time allotment. Talks that exceed their allotment reduce time for valuable discussion and can disrupt the conference program.
- Turn your cellular phones to vibrate or off during technical sessions.
- After the conference, ECI will send an updated participant list to all participants. Please check your listing now and if it needs updating, you may correct it at any time by logging into your ECI account.
- Please do not smoke at any conference functions.
- Please write your name in the front of his program so it can be returned if misplaced.

Tuesday, June 6, 2017

07:30 – 09:00	Breakfast
09:00 – 09:10	Opening and Introduction Co-Chairs: Jürgen Groll and Jos Malda ECI Technical Liaison: Aldo Boccaccini
09:10 – 09:50	**Biofabrication: Status quo of the field** Jos Malda, University Medical Centre Utrecht, The Netherlands
10:00 – 12:30	**Morning Session: Fabrication of tissue models**
10:00 – 10:30	**Biofabrication of 3D hard-soft and composite constructs for bone regeneration** Aldo R. Boccaccini, University of Erlangen-Nuremberg, Germany; Tobias Zehnder, Rainer Detsch, University of Erlangen-Nuremberg, Germany
10:30 – 11:00	Coffee Break
11:00 – 11:30	**Extrusion-based bioprinting in musculoskeletal tissue engineering** Wojciech Swieszkowski, Warsaw University of Technology, Poland; Marco Costantini, Università Campus Bio-Medico di Roma, Italy; Joanna Idaszek, Alicja Kosik, Warsaw University of Technology, Poland
11:30 – 12:00	**Landmarks from kidney primordia for organ printing strategies** Seppo Vainio, Biocenter Oulu & InfoTech Oulu, Oulu University, Finland
12:00 – 12:30	**Integrating cell sheets for kidney-on-a-chip applications** William Loewenhardt, University of Manchester, United Kingdom; Sahithi Kuravi, Rachel E. Saunders, Rachel Lennon, Brian Derby, University of Manchester, United Kingdom
12:30 – 14:00	Lunch
14:00 – 16:00	**Afternoon Session: Fabrication technologies**
14:00 – 14:30	**Development of injet printing technology for the biofabrication of in vitro 3D tissues** Waka Lin, Shigeo Hatada, Aino Hasegawa, Shiomoto Shusaku, Shunpei Kamono, Daisuke Takegi, Ricoh Company, Ltd.
14:30 – 15:00	**Multiphoton lithography of 3D hydrogel structures within microfluidic chips** Aleksandr Ovsianikov, Vienna University of Technology, Austria
15:00 – 15:30	**Laser printing of biomaterials and living cells** Boris Chichkov, Leibniz University Hannover and Laser Zentrum Hannover e.V., Germany
15:30 – 16:00	**Melt electrospinning writing and the biofabrication of voluminous tissues and organs** Paul Dalton, University of Wurzburg, Germany
16:00 – 16:30	Coffee break and networking

<u>Tuesday, June 6, 2017</u> (continued)

16:30 - 17:00	**Biofabrication for TERM – A FET flagship initiative** Jos Malda, University Medical Centre Utrecht, The Netherlands
17:00 – 18:00	**Plenary discussion: European perspectives on biofabrication, TE and RM: Societies, networks and common preparation of funding opportunities**
18:00 – 19:00	Networking
19:00	Dinner followed by social period

Wednesday, June 7, 2017

07:30 – 09:00	Breakfast
09:00 – 12:00	**Morning Session: Bioinks**
09:00 – 09:30	**Intelligent hydrogel design: Towards more performing hydrogel processing** Sandra Van Vlierberghe, Ghent University, Belgium; Annemie Houben, Jasper Van Hoorick, Heidi Declercq, Peter Dubruel, Ghent University, Belgium; Aleksandr Ovsianikov, Peter Gruber, Marica Markovic, Vienna University of Technology, Austria; Penny Martens, The University of New South Wales, Australia; Patrice Roose, Hugues Van Den Bergen, Dirk Bontinck, Allnex, Belgium
09:30 – 10:00	**Biofabrication using recombinant spider silk proteins as a biomaterial** Tamara B. Aigner, University of Bayreuth, Germany; Elise K. DeSimone, Thomas Scheibel, University of Bayreuth, Germany
10:00 – 10:30	**Medical adhesives for 3D printing** Malgorzata K. Wlodarczyk-Biegun, Leibniz Institute for New Materials, Saarbrucken, Germany; Julieta Paez, Maria Villiou, Aranzazu del Campo, Leibniz Institute for New Materials, Saarbrucken, Germany
10:30 – 11:00	Coffee Break
11:00 – 11:30	**Control of cross-linking density in bioinks and integration of nanotechnology** Jürgen Groll, University of Würzburg, Germany
11:30 – 12:00	**A self-assembly based supramolecular bioink with hierarchical control As a new bioprinting tool** Clara L. Hedegaard, Queen Mary University of London, United Kingdom; Estelle Collin, Carlos Redondo-Gomez, J. Rafael Castrejón-Pita, Alvaro Mata, Queen Mary University of London, United Kingdom; Kee Woei Ng, Nanyang Technological University, Singapore, Alfonso A. Castrejón-Pita, University of Oxford, United Kingdom
12:00 – 12:30	Discussion/Networking
12:30 - 14:00	Lunch
14:00 – 15:00	Tour of historic Schloss Hernstein – conducted by Peter Glaser (Please meet at lobby reception at 14:00)
15:00 --15:30	Networking
15:30 - 16:00	Afternoon Coffee
16:00 - 17:30	**Afternoon Session: Bioink Assessment**

Wednesday, June 7, 2017 (continued)

16:00 – 16:30	**Tensiometric estimation of material properties of tissue spheroids** Vladimir Mironov, 3D Bioprinting Solutions, Russia; Karalkin P., Bulanova E., Koudan E., Pereira F., Gryadunova A., Knyaseva A., Hesuani Yu., Mironov V.0, 3D Bioprinting Solutions, Russia; Kasyanov V, Riga Stradins University & Riga Technical University, Latvia; Chernikov V, Institute of Human Morphology of Russian Academy of Science, Russia; Korneva J., I. D. Papanin Institute for Biology of Inland Waters of Russian Academy of Science, Russia
16:30 – 17:00	**Two-step screening process to evaluate printability of inks for extrusion-based bioprinting** Tomasz Jüngst, University of Würzburg, Germany; Naomi Paxton, Willi Smolan, Jürgen Groll, University of Würzburg, Germany
17:00 – 17:30	**Evaluation of bioink printability with quantitative methods to aid material development** Lotte Groen, Alexandre Ribeiro, University Medical Center Utrecht, The Netherlands; Maarten Blokzijl, Wim Hennink, Tina Vermonden, Utrecht University, The Netherlands; Riccardo Levato, Miguel Castilho, Jos Malda, University Medical Center Utrecht, The Netherlands
17:30 – 19:00	Poster presentations
19:00 – 19:30	Free time for networking
19:30	Dinner followed by social period

Thursday, June 8, 2017

07:30 – 09:00	Breakfast
09:00 – 11:45	**Morning Session: In Vitro Tissue Models**
09:00 – 09:45	**Complex and patient-specific scaffolds and tissue engineering constructs by extrusion-based 3D (bio) printing** Michael Gelinsky, Technische Universität Dresden, Germany
09:45 – 10:15	**Bioprinting of vascularized bone tissue equivalents** Petra J. Kluger, Fraunhofer Institute for Interfacial Engineering and Biotechnology and Reutlingen University, Germany; Annika Wenz, University of Stuttgart, Germany ; Iva Tjoeng, Julia Rogal, Kirsten Borchers, Fraunhofer Institute for Interfacial Engineering and Biotechnology, Germany
10:15 – 10:45	Coffee Break
10:45 – 11:15	**Suspended manufacture of biological structures** Megan Cooke, University of Birmingham, United Kingdom; Samuel Moxon, University of Manchester, United Kingdom; Sophie Cox, Simon Jones, Liam Grover, University of Birmingham, United Kingdom; Martyn Snow, Lee Jeys, Royal Orthopaedic Hospital, United Kingdom; Alan Smith, University of Huddersfield, United Kingdom
11:15 – 11:45	**Application of different cell populations in hydrogel bioinks for zonal Cartilage biofabrication** Iris Otto, University Medical Center Utrecht, The Netherlands; Riccardo Levato, University Medical Center Utrecht, The Netherlands; Richard Webb, Ilyas Khan, Swansea University, United Kingdom; René van Weeren, Utrecht University, The Netherlands; Jos Malda, University Medical Center Utrecht and Utrecht University, The Netherlands
12:00	Pick up boxed lunches and maps of Vienna in hotel reception (No served lunch today)
12:15 – 18:00	Excursion to Vienna
18:30 - 19:30	Poster session (with afternoon coffee)
20:00	Dinner followed by social hour

Friday, June 9, 2017

07:30 - 09:00	Breakfast
09:00 – 12:00	**Morning Session: New Technologies and Outlook**
09:00 – 09:30	**3D-microfibers improve the shear modulus of hydrogel composites** Mylène de Ruijter, University Medical Center Utrecht, The Netherlands; Andrei Hrynevich, Jodie N. Haigh, Gernot Hochleitner, Jürgen Groll, Paul D. Dalton, University of Würzburg, Germany; Miguel D. Castilho, Jos Malda, University Medical Center Utrecht, The Netherlands
09:30 – 10:00	**Changing the diameter of 3D printed tissue engineering scaffolds made via melt electrospinning writing** Andrei Hrynevich, University of Würzburg, Germany; B. Şen Elçi, G. Hochleitner, Jodie N. Haigh, J. Groll, P. D. Dalton, University of Würzburg, Germany
10:00 – 10:30	Coffee break
10:30 – 10:45	Bring luggage to storage area by hotel reception
10:45 – 11:15	**A multiangular approach towards biofabrication of an auricular cartilage implant** Iris Otto, University Medical Center Utrecht, The Netherlands; Riccardo Levato, Corstiaan Breugem, Moshe Kon, University Medical Center Utrecht, The Netherlands; Jos Malda, University Medical Center Utrecht and Utrecht University, The Netherlands.
11:15 – 11:45	**Visions for the field by a pioneer** Vladimir Mironov, 3D Bioprinting Solutions, Russia
11:45 – 12:00	**Closing discussion and review of conference** Jürgen Groll, University of Würzburg, Germany
12:00	Lunch and departures

Poster Presentations List

1. **Fabrication and characterization of alginate-keratin based composite microspheres containing bioactive glass for tissue engineering applications**
   Supachai Reakasame, University of Erlangen-Nuremberg, Germany
   Daniela Trapani, Rainer Detsch, Aldo R. Boccaccini, University of Erlangen-Nuremberg, Germany

2. **Laser-based 3D printing of hydrogel barrier models for microfludic applications**
   Aleksandr Ovsianikov, Vienna University of Technology, Austria
   Denise Mandt, Peter Gruber, Marica Markovic, Maximilian Tromayer, Sebastian Kratz, Mario Rothbauer, Peter Ertl, Robert Liska, Vienna University of Technology, Austria; Jasper Van Hoorick, Peter Dubruel, Sandra Van Vlierberghe, Ghent University, Belgium

3. **Suspended manufacture of biological structures**
   Megan E. Cooke, University of Birmingham, United Kingdom
   Samuel Moxon, University of Manchester, United Kingdom; Sophie Cox, Simon Jones, Liam Grover, University of Birmingham, United Kingdom; Martyn Snow, Lee Jeys Royal Orthopaedic Hospital, United Kingdom; Alan Smith, University of Huddersfield, United Kingdom

4. **Biocompatible micropatterning of o-nitrobenzyl crosslinked hydrogels by sensitized two-photon cleavage**
   Peter Gruber, Technische Universität Wien, Austria
   Markus Lunzer, Robert Liska, Katja Hölzl, Marica Markovic, Aleksandr Ovsianikov, Technische Universität Wien, Austria; Dmitri Ossipov, Uppsala University, Sweden

5. **Inkjet printing technology and bio-ink development for the biofabrication of in vitro 3D tissues**
   Waka Lin, Ricoh Company, Ltd., Japan
   Shigeo Hatada, Aino Hasegawa, Shiomoto Shusaku, Shunpei Kamono, Daisuke Takagi, Ricoh Company, Ltd., Japan

6. **Chondrogenic potential of chondrocytes in hyaluronic acid/PEG-based hydrogels is dependent on the hyaluronic acid concentration**
   Lotte Groen, UMC Utrecht, The Netherlands; V. H. M. Mouser, R. Levato, University Medical Center Utrecht, The Netherlands; A. Abbadessa, W.E. Hennink, T. Vermonden, Utrecht University, The Netherlands; D. Gawlitta, University Medical Center Utrecht, The Netherlands; J. Malda, University Medical Center Utrecht and Utrecht University, The Netherlands

7. **Convergence of printing technologies to engineer an interface between bone and cartilage**
   Paweena Diloksumpan, Utrecht University, The Netherlands; Miguel Castilho, Riccardo Levato, University Medical Center Utrecht, The Netherlands; Tina Vermonden, P. René van Weeren, Jos Malda, Utrecht University, The Netherlands