

RSC Publishing-iCeMS Joint International Symposium *Cell-Material Integration and Biomaterials Science*

18–19 March 2013, Shiran Kaikan, Kyoto University

Sunday 17 March

17:00–19:00 Pre-Conference Informal Welcome, Kyoto Royal Hotel & Spa

Monday 18 March | *Biomaterials Science Kick-Off*

(all Day 1 presentations: 30 minutes each)

08:15 Bus departs from Kyoto Royal Hotel & Spa

09:00–09:10 Welcome Remarks: **Liz Dunn**, Biomaterials Science Managing Editor, RSC
Norio Nakatsuji, iCeMS & BiomatSci Co-Editor-in-Chief

09:10–10:40 Session 1, chaired by Matthias Lutolf & Norio Nakatsuji

- **Phillip Messersmith**, Northwestern University, USA
Native chemical ligation & related reactions for polymer hydrogel cross-linking & drug delivery
- **Matthias Lutolf**, Ecole Polytechnique Fédérale de Lausanne, Switzerland
Systems biology of 3D stem cell-niche interactions
- **Hiroshi Sugiyama**, iCeMS, Japan
Chemical biology that controls DNA structure & function: DNA origami & artificial genetic switch

10:40–10:50 Break

10:50–12:20 Session 2, chaired by Matthias Lutolf & Norio Nakatsuji

- **Akihiro Kusumi**, iCeMS, Japan
First steps to raft formation as revealed by single-molecule tracking: transient GPI-anchored protein homodimer rafts are basic units for raft organization and function
- **Patrick Stayton**, University of Washington, USA
Opening the intracellular target universe to biologic drugs
- **Jun Wang**, University of Science and Technology of China
Targeting tumor microenvironment with nanoparticle-based drug delivery systems for cancer therapy

12:20–13:30 Lunch

13:30–13:40 Remarks by the WPI Program Director: **Toshio Kuroki**, WPI Program Director and Senior Adviser, JSPS Research Center for Science Systems

13:40–15:10 Session 3, chaired by Phillip Messersmith & Hiroshi Sugiyama

- **Mark Haw**, University of Strathclyde, UK
From materials to biology and back again: force response and directed transport
- **Susumu Kitagawa**, iCeMS, Japan
Gas science and technology by porous coordination polymers/metal-organic frameworks
- **Nobuhiro Nishiyama**, Tokyo Institute of Technology, Japan
Development of polymeric micellar nanocarriers for cancer diagnosis and therapy

15:10–15:40 Group Photo & Break

15:40–17:10 Session 4, chaired by Phillip Messersmith & Hiroshi Sugiyama

- **Teruo Okano**, Tokyo Women's Medical University, Japan
Cell sheet tissue engineering and its clinical applications
- **Sarah Heilshorn**, Stanford University, USA
Protein engineering of hydrogels for stem cell transplantation
- **Norio Nakatsuji**, iCeMS, Japan
Multidisciplinary research of human pluripotent stem cells: chemical control of cardiomyocyte differentiation and novel 3D culture system for large-scale production

17:10–17:25 Break

17:25–18:30 Poster Briefings

18:30–20:30 Reception, Shiran Kaikan

20:30 Bus departs for Kyoto Royal Hotel & Spa

Tuesday 19 March | Integration of Cell Biology and Materials

08:15 Bus departs from Kyoto Royal Hotel & Spa

08:55–09:00 Opening Remarks: **Susumu Kitagawa**, iCeMS, Japan

09:00–11:30 Session 1: *From Molecules to Cells* (Chair: Peter Carlton)

- **Sanjay Tyagi**, New Jersey Medical School, USA (30 min)

Single-molecule imaging of intracellular RNA trafficking and processing

- **Dan Ohtan Wang**, iCeMS, Japan (20 min)

Imaging RNA in space and time with fluorescent oligonucleotide probes

09:50–10:10 Break

- **Ichiro Hiratani**, National Institute of Genetics, Japan (30 min)

Developmental regulation of nuclear genome organization

- **Takeshi Matsui**, iCeMS, Japan (20 min)

Mammalian skin-specific retroviral-like aspartic protease, SASPase is a key modulator of skin moisturization and evolution

- **Fiona Watt**, University of Cambridge, UK (30 min)

Studying human epidermal stem cells at single cell resolution

11:30–12:50 Lunch

12:50–14:30 Session 2: *Nano/Meso-Structures Toward Biological Applications*
(Chair: Franklin Kim)

- **Jackie Ying**, Inst. of Bioengineering & Nanotechnology, Singapore (30 min)

Design and synthesis of nanostructured biomaterials

- **Itaru Hamachi**, iCeMS, Japan (20 min)

Self-assembled nanopores for selective protein imaging

- **Dal-Hee Min**, Seoul National University, Korea (30 min)

Biomedical application of graphene oxide

- **Shinpei Yamamoto**, iCeMS, Japan (20 min)

Surface-modified α -Fe@SiO₂ nanoparticles: towards a versatile platform for biomedical application

14:30–16:00 Poster Session & Break

16:00–18:10 Session 3: *Integration of Cell Biology and Materials*
(Chairs: Tastuya Murakami and Kaoru Sugimura)

- **Tastuya Murakami**, iCeMS, Japan (20 min)

Light-harvesting carbon nanomaterials for cell biology and therapy

- **Xavier Trepas**, University of Barcelona, Spain (30 min)

Integrating forces at cell-cell and cell matrix adhesion during collective cell migration

16:50–17:00 Break

- **Ken-ichiro Kamei**, iCeMS, Japan (20 min)

Gelatin nanofibrous scaffold to maintain human ES/iPS cells in a feeder-free culture condition for long-term period

- **Kohki Okabe**, University of Tokyo, Japan (30 min)

Imaging of temperature in a living cell

- **Shuhei Furukawa**, iCeMS, Japan (20 min)

Localized cell-stimulation by nitric oxide using a photoactive porous coordination polymer platform

18:10–18:25 Closing Remarks & Poster Award Ceremony

18:30 Bus departs for Kyoto Royal Hotel & Spa

(as of 13.3.14 / updates)