3rd International Symposium on Nanoarchitectonics for Mechanobiology

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March 7th – 8th, 2019

Venue: WPI-MANA Auditorium, NIMS, Namiki, Tsukuba

March 7th, 2019

Opening

13:00-13:05 Opening address
Koichiro Uto, Independent Scientist, MANA, NIMS

13:05- 13:10 Welcome address
Takayoshi Sasaki, Director-General, MANA, NIMS

13:10-13:15 Scope
Jun Nakanishi, Group Leader, MANA, NIMS

Session1: Mechanobiology and Medicine — Chair: C. DeForest

13:15-14:00 *Improving Cardiovascular "Diseases-in-a-dish" with Mechanobiology (Plenary)*
Adam Engler, UCSD

14:00-14:30 *Mechano-responses to the extracellular environment in migratory neurons (Invited)*
Naotaka Nakazawa, Assistant Professor, Kyoto University

14:30-14:55 *Biophysical and Biomolecular Interactions of Malaria-Infected Erythrocytes in Engineered Capillaries*
Christopher Arakawa, JSPS Fellow, University of Washington

14:55-15:10 **Coffee**

Session 2: Material-based Mechanobiology (Nanoarchitectonics) — Chair: A. Engler

15:10-15:40 *New Developments in the Mechanobiology of Exosomes (MANA Satellite PI)*
James Gimzewski, Professor, UCLA, MANA Satellite PI

15:40-16:10 *Actin stress fiber as a platform for mechanosignaling (Invited)*
Hiroaki Hirata, Designated Associate Professor, Nagoya Univ.

16:10-16:35 *Flocculation of Cells by Cellulose Nanofibers Modified with Concentrated Polymer Brushes*
Chiaki Yoshikawa, MANA Scientist, MANA, NIMS

16:35-16:45 **Break**

16:45-17:15 *Stimuli-responsive biomaterials for nanomedicine (Invited)*
Masaya Yamamoto, Professor, Tohoku University

17:15-17:40 *Regulation of Mesenchymal Stem Cell Functions by Micro-Nano Hybrid Patterns*
Gouping Chen, Group Leader, MANA, NIMS

17:50-19:30 **Symposium Banquet**

At the Melting Pot Café, WPI-MANA building NIMS

March 8th, 2019

Session 3: Material-based Mechanobiology (Dynamic Systems) **Chair: J. Nakanishi**

9:00 – 9:45 *Cyclic and Dynamically Patterned Biomaterials for 4D Mechanobiology (Plenary)*
Cole DeForest, Assistant Professor, Univ. Washington

Poster Session with Coffee

10:00-11:00 **Poster Session**

11:00-11:30 *Cellular behaviors on concave cylindrical surface (Invited)*
Tadahiro Yamashita, Lecturer, Keio Univ.

11:30-11:55 *Dynamic nanotopography modulates cell functions*
Koichiro Uto, Independent Scientist, MANA, NIMS

11:55 -13:15 **Lunch**

Session 4: New Methodology for Mechanobiology **Chair: M. Ebara**

13:15-14:00 *TBA (Plenary)*
Kahlid Salaita, Associate Professor, Emory Univ.

14:00-14:30 *"Functions of DNA aptamers discovered by improved SELEX" (Invited)*
Keitaro Yoshimoto, Associate Professor, University of Tokyo

14:30-15:00 *Lipid control by optogenetics*
Yoshibumi Ueda, AMED Researcher, University of Tokyo

15:00-15:25 *Material-based elucidation of chemomechanical control of collective cell migration*
Jun Nakanishi, Group Leader, MANA, NIMS

15:25-15:40 **Coffee Break**

Session 5: Dissipative Mechanobiology **Chair: K. Salaita**

15:40-16:05 *Mechanical tuning of molecular receptor at dynamic interface*
Katsuhiko Ariga, PI, MANA, NIMS

16:05-16:30 *Block copolymer self-assembly supported by dissipative structure: A novel platform for biomimetic material*
Takeshi Ueki, MANA Scientist, MANA, NIMS

16:30-16:55 *Material-induced Senescence (MIS): How Does Fluidity affects Cancer Cell Death?*
Mitsuhiro Ebara, MANA Associate PI, MANA, NIMS

16:55-17:00 **Closing**
Cole DeForest, Assistant Professor, Univ. Washington