
The 97th iCeMS SEMINAR

**Fri 16 Dec 2011
10:30-12:00**

Microfluidic Assembly for Biomedical Applications

Lecturer: **Assoc. Prof. Shoji Takeuchi**
Center for International Research on Micronano Mechatronics (CIRMM)
Institute of Industrial Science, The University of Tokyo

Venue: 2nd floor Seminar Room (#A207)
iCeMS Complex 1, Kyoto University

In this presentation, I am planning to talk about several MEMS/Microfluidic-based approaches for the rapid and reproducible construction of biomaterials such as lipids, cells and hydrogels.

Fluorescent hydrogels hold great promise for in vivo continuous glucose monitoring with wireless transdermal transmission and long-lasting activity. We synthesized a highly-sensitive fluorescent monomer, and then fabricated injectable-sized fluorescent polyacrylamide hydrogel beads and fibers with high uniformity and high throughput. We find that the fluorescent beads provide sufficient intensity to transdermally monitor glucose concentrations in vivo.

Large-scale 3D tissue architectures that mimic microscopic tissue structures in vivo are very important for not only in tissue engineering but also drug development without animal experiments. We demonstrated a construction method of 3D tissue structures by stacking the "cellular beads" in a 3D mold. We believe that various 3D shapes can be possible by changing the mold, and this method is useful to create more complex structures with multiple types of cells that functions as a living organism.

Contact: iCeMS Kitagawa Lab at kitagawa-g@icems.kyoto-u.ac.jp
Hosted by: iCeMS (Institute for Integrated Cell-Material Sciences), Kyoto University
Co-hosted by: Center for Frontier Medicine, Global COE Program, Kyoto University

