

# Organic Biomaterials

## 1. Staffs and Students (April, 2010)

Professor	Nobuhiko YUI	
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	Kimiko OKAZAKI,	Satoshi KOSUGE

## 2. Purpose of Education

Courses: Biomaterials, Advanced Medical Materials, Advanced Organic Materials

## 3. Research Subjects

- 1) Design of Dynamic Biomaterials Surfaces
- 2) Modulation of Cellular Functions by Dynamic Ligand-Polymers
- 3) Design of Intracellularly Functionalizing Biomaterials
- 4) Design of Liposomal Device and Hybrid Nanomaterials

## 4. Clinical Services

## 5. Publications

### Original Article

1. Yui N. Supramolecular Surfaces Modulating Cellular Response. *Adv. Sci. Tech.*, 76:10-15, 2010.
2. Nagahama K, Ohmura J, Sakaue H, Ouchi T, Ohya Y, Yui N. Preparation of nano-aggregates through self-assembly of amphiphilic polyrotaxane composed of PLLA-PEG-PLLA triblock copolymer and  $\alpha$ -cyclodextrin. *Chem. Lett.*, 39:250-251, 2010.
3. Yamada Y, Nomura T, Harashima H, Yamashita A, Katoono R, Yui N. Intranuclear DNA release is a determinant of transfection activity for a non-viral vector: biocleavable polyrotaxane as a supramolecularly dissociative condenser for efficient intracellular DNA release. *Bio. Pharm. Bull.*, 33:1218-1222, 2010.
4. Shaheen S. M., Akita H, Yamashita A, Katoono R, Yui N, Biju V, Ishikawa M, Harashima H. Quantitative analysis of condensation/decondensation status of pDNA in the nuclear sub-domains by QD-FRET. *Nucleic Acid Res.* in press, 2010.
5. Katoono R, Kobayashi Y, Yui N. Preparation of loose-fit polyrotaxane composed of  $\beta$ -cyclodextrin and poly(ethylene glycol) derivatives through the slipping-expanding protocol. *Chem. Lett.*, 39:892-893, 2010.
6. Fukuda T, Matsumoto E, Yui N, Miura Y. Peculiar wettability based on orientational change of self-assembled hemispherical PAMAM dendrimer layer. *Chem. Lett.*, 39:923-925, 2010.
7. Sasaki Y, Akiyoshi K. Development of an Artificial Chaperone System Based on Cyclodextrin. *Curr. Pharm. Biotechnol.*, 11:300-305, 2010.
8. Sasaki Y, Shioyama Y, Tian WJ, Kikuchi JI, Hiyama S, Moritani Y, Suda T. A nanosensory device fabricated on a liposome for detection of chemical signals. *Biotechnol. Bioeng.*, 105:37-43, 2010.
9. Sasaki Y, Nomura Y, Sawada S, Akiyoshi K. Polysaccharide Nanogel-Cyclodextrin System as An Artificial Chaperone for In Vitro Protein Synthesis of Green Fluorescent Protein. *Polymer J.*, 42:823, 2010.
10. Yasuhara K, Wang Z, Ishikawa T, Kikuchi J, Sasaki Y, Hiyama S, Moritani Y, Suda T. Specific delivery of transport vesicles mediated by complementary recognition of DNA signals with membrane-bound oligonucleotide lipids. *Supramol. Chem.*, 2010. in press
11. Sasaki Y, Akiyoshi K. Nanogel Engineering for New NanoBiomaterials: From Chaperoning Engineering to

Biomedical Applications. Chem. Rec., 10:366-376, 2010.

#### Review Articles

1. Yui N. Controlling molecular mobility as nanobio-interfaces. *Nanobio-Interfaces in Relation to Molecular Mobility*, 1-6, 2010.
2. Sasaki Y, Abe K, Akiyoshi K. Construction of a 3D-liposomal array for Biochip Applications. *Nanobio-Interfaces in Relation to Molecular Mobility*, 97-102, 2010.