THE UNIVERSITY OF TOKYO

COINS Seminar #3

Modular Polymer Nanoparticles for Biomedical Applications

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Time: 3:00PM – 4:00PM
Venue: Room #56, Engineering building #5,
The University of Tokyo

—Abstract—

Though combinations of cytotoxic agents are frequently used in the clinic as first- and second-line therapeutic regimens for cancer therapy, multi-drug conjugated nanoparticles for targeted cancer drug delivery have received limited attention in the drug delivery community. We suggest that multi-drug conjugated nanoparticles with tunable drug ratios and release kinetics will have advantageous properties for treatment of particularly aggressive cancers. Currently, the synthesis of such systems remains a major challenge. To address this limitation, we have developed modular synthetic strategies for the preparation of multifunctional polymer nanoparticles directly from densely functionalized monomers. Specifically, two techniques –"graft-through" and "brush-first" ring-opening metathesis polymerization– have enabled the rapid synthesis of nanoparticles with tunable sizes and functionality. This talk will discuss the details of these synthetic approaches as well as various applications of the resulting nanoparticles in combination cancer therapy and imaging.

* Organizer: Center of Innovation (COI program)
Kensuke Osada, Associate Professor, Graduate School of Engineering, The University of Tokyo

* Cooperation: International Core Research Center for NanoBio (C2CNB), The University of Tokyo

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