
The 112th iCeMS SEMINAR

Mon 25 Jun 2012
15:00-16:00

**Applications of Metal Nanoparticles for
Biomolecule Delivery and CT/MR Molecular Imaging**

Lecturer: **Prof. Chia-Chun Chen**

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Venue: 2nd floor Seminar Room (#A207)
iCeMS Main Building (#71), Kyoto University

The controlled growth of Au and FePt nanoparticles has been performed. In particular, the water-solvable FePt nanoparticles with different diameters were applied as a dual modality contrast agent for CT/MRI molecular imaging. Anti-Her2 antibody conjugated FePt nanoparticles demonstrated molecular expression dependent CT/MRI dual imaging contrast effect in MBT2 cell line and its Her-2/neu gene knock out counterpart. Selective contrast enhancement of Her2/neu overexpression cancer lesions in both CT and MRI was found in tumor bearing animal after tail vein injection of FePt nanoparticle. Furthermore, the potentials using FePt nanoparticles for cancer therapeutics under radiative irradiation will be also discussed here. Besides FePt nanoparticles, gold nanorods conjugated with DNA or anti-cancer drug have been prepared. The conjugates of DNA (or drug) and gold nanorods were developed to investigate gene (or drug) delivering capability in cellular systems. By using near IR irradiation, we are able to remotely and locally activate the DNA expression after the conjugates entered the cells. The advantages of using nanomaterials for the drug delivery applications will be also discussed.

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