



Biomedical Engineering Seminar Series

1st Semester, Academic Year 2015

Date: August 25, 2015

Time: 10.00-11.00 AM

**Room R-114, 1st level, Building 1,
Department of Biomedical Engineering,
Faculty of Engineering;
Mahidol University**



Prof. Agata A. Exner, Ph.D.

**Professor of Radiology and Biomedical Engineering
Case Center of Imaging Research
Department of Radiology
Case Western Reserve University, USA**

“Ultrasound-Guided Drug Delivery for Cancer Therapy”

Systemic chemotherapy is frequently utilized in management of a wide range of cancers. While numerous promising therapeutic drugs have been developed over the last century, the outcomes of cancer chemotherapy remain below expectations. The reasons for this are complex, but one factor is the persistent challenge of drug delivery to the heterogeneous tumor environment. Research in our group focuses on tackling this challenge using imaging and image-guided drug delivery, which have helped drive significant recent advancements in cancer detection and cancer chemotherapy. Specifically, our research takes advantage of clinical ultrasound, a powerful yet widely accessible and safe imaging modality, to advance two primary directions: 1) development of nanoscale contrast agents for ultrasound molecular imaging and ultrasound-mediated cancer therapy, and 2) development of local, ultrasound-guided, injectable drug delivery systems for primary or adjuvant treatment of unresectable liver cancer. The goal of this seminar will be to provide an overview of these projects and illustrate how ultrasound can facilitate rational design and implementation of more efficient and less invasive drug delivery systems for cancer treatment.

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