学際物質科学研究センター(TIMS)セミナー

題目： **『ABC Micelles for Nanoscale Drug Delivery』**

講演者： **Professor Glen S. Kwon**
Division of Pharmaceutical Sciences
School of Pharmacy, University of Wisconsin
777 Highland Avenue, Madison, WI 53705, USA

日時： **7 月 2 日（土曜日） 12:00-13:00**

場所： **総合研究棟 B 0110 公開講義室**

概要：

Amphiphilic block copolymer (ABC) micelles have attracted considerable interest in drug delivery, owing to nanoscopic dimensions, structural stability, and high capacity for poorly water-soluble compounds, which are widespread in clinical practice and drug development. Several examples have entered clinical trials, attesting to the biocompatibility of ABCs and advantages for drug delivery, e.g. low toxicity relative to Cremophor® EL, a surfactant widely used for drug solubilization. Several ABC micelles traverse the vascular system without excessive drug loss and preferentially accumulate at disease sites. Coupled with novel strategies toward controlled release of drug, ABC micelles have tremendous potential for the targeting of drugs used to treat life-threatening diseases, many of which are poorly water soluble and possess dose-limiting toxicity. Polyene antibiotics are membrane-active drugs, used widely in the treatment of systemic fungal diseases (4th major cause of nosocomial infection). However, polyene antibiotics, such as amphotericin B (AmB), are poorly water-soluble and toxic (dose-limiting kidney toxicity). Surfactants commonly used for intravenous administration of poorly water-soluble drugs readily solubilize polyene antibiotics and in some cases lower *in vitro* toxicity. However, the acute toxicity of polyene antibiotics solubilized by conventional surfactants is high, pointing to the requirement of sustained or controlled drug release in blood. PEG-*block*-poly(L-amino acid) modified with acyl chains readily solubilize AmB and gradually release the drug, acting as a nanoscale drug depot in blood, perhaps decreasing toxicity *in vivo* for AmB and allowing for efforts in targeted drug delivery.

世話人： **学際物質科学研究センター・物質工学系**
長崎幸夫 (Tel: 853-5749)