THE UNIVERSITY OF TOKYO

COINS Seminar #5

Block Copolypept(o)ides: Introducing PeptoMicelles, NanoPeptoGels, PeptoSomes and PeptoPlexes

Matthias Barz

Junior Research Group Leader, Institut für Organische Chemie, Johannes Gutenberg-University Mainz Germany

Date: Thursday, November 20, 2014
Time: 5:00PM – 6:00PM
Venue: Room #56, Engineering building #5, The University of Tokyo

—Abstract—

Polypept(o)ides combine the multifunctionality of polypeptides with the shielding properties of the polypeptoide polysarcosine (poly(N-methyl glycine)). Unlike other materials under evaluation for drug delivery applications, these systems are not only biocompatible but biodegradable by proteases. Since only endogenous amino acids are used in the synthesis of polypept(o)ides non-toxic metabolites, amino acids, are likely to occur.

Block copolypept(o)ides posses the ability to self-assemble into core-shell structures by hydrophobic interactions (PeptoMicelles) or complex formation (PeptoPlexes), where PSar exposes targeting moieties and shields the cargo, which can be either physically entrapped or covalently attached to the peptidic block. Furthermore a novel class of cystein derivatives enables core-cross linking of micelles by disulfide bond formation in a highly controlled manner. Thus, PeptoMicelles, NaonoPeptoGels, PeptoSomes and PeptoPlexes are able to act as a novel generation of nano drug delivery systems for hydrophobic drugs, proteins, pDNA or siRNA.

＊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

＊For Further Information Contact: COINS Research Support Office
E-mail: jimukyoku@coins.t.u-tokyo.ac.jp Web: http://www.kawasaki-net.ne.jp/coins/

COINS Center of Open Innovation Network for Smart Health

Core-to-Core Program