



演題: **Carbohydrate-based block copolymer nanoparticles**

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※ビデオ会議システム「Google Meet」によるオンライン開催

要旨:



Among the bottom-up strategies, self-assembly of block copolymer systems is an incredibly powerful concept in macromolecular engineering that offers an invaluable tool for the preparation of 2D and 3D discrete nanostructures, ranging from materials science to molecular biology, which are often not accessible by any other fabrication process. During several decades, block copolymers (BCP) systems have received considerable attention as a promising platform for preparing nanometer-scale structures and materials due to their self-assembling nature into periodic domains whether in solution (nanoparticles) or solid states. To date, numerous studies have been focused on the self-assembly of petroleum-based BCPs for potential applications in multidisciplinary fields, such as nanoparticles for drug delivery, or nano-organized films for biosensors, or nanolithography, etc. Such materials are derived from fossil resources that are being rapidly depleted and have negative environmental impacts. In contrast, carbohydrates constitute a sustainable source of materials that have attracted a growing interest due to their “green” aspects, biocompatibility, biodegradability, and bio-recognition properties. This is currently attracting much interest in various sectors and their industrial applications at the nanoscale level will have to expand quickly in response to the transition to a bio-based economy. This talk will focus on the design and the nanofabrication of functional materials based on novel oligosaccharide-based block copolymers (glycopolymers) leading to new functionalized glyco-nanoparticles for encapsulation and energy devices. These new biomaterials, produced with environmentally friendly techniques, develop economically valuable uses for biomass and, at the same time, address important socio-economic problems. We will describe how the concept of self-assembly of carbohydrate BCP systems has enabled the practical realization of some nanofabrication objectives by reference to recent examples (nanoparticle/ encapsulation). This is a real challenge, strongly motivated by the potentials offered by mimicking Nature and by exploiting, at the nanoscale level, the potential of carbohydrate-based materials towards the developments of novel nanoparticles not expected in shape and applications.

参加方法:

参加をご希望の方は、氏名・所属・学年(職名)を明記の上、9月3日(木)までに FCC 事務局 (mc104@eng.hokudai.ac.jp) までメールでお申し込み下さい。

出席確認方法:

Google Meet 入室時に(学生は学生番号および)氏名をチャットで記入してください。

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