レゾナンスバイオセミナー　ResonanceBio Seminar

日時: **2019 年 3 月 27 日（水）10:30～**

場所: 東京大学本郷キャンパス・医学部教育研究棟 13 階　第 6 セミナー室（S1304A）

Date and Time: March. 27th (Wed), 2019, 10:30-

Room: S1304A at Faculty of Medicine, Experimental Research Bldg 13F, The Univ. of Tokyo

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“Biocompatible Probes for Imaging of Cellular Structures”

The ideal fluorescent probe for bioimaging is bright, absorbs light at long wavelengths (>600 nm) and can be flexibly implemented in living cells and in vivo. Typically, such probe consists of a fluorophore connected via a linker to a targeting moiety. The availability of targeting ligands is assured by a large number of studies aiming at the development of inhibitors for a wide range of biomolecules. However, the design of synthetic, highly biocompatible fluorophores has proven to be extremely difficult and is lagging behind. Recently, silicon-rhodamine was identified as a far red dye that can be specifically coupled to proteins, lipids and nucleic acids using different techniques. Importantly, its high permeability and fluorogenic character permit imaging of proteins in living cells and tissues, while its brightness and photostability make it ideally suited for live cell super-resolution microscopy. Further investigations resulted in identification of cell permeable fluorophores spanning the whole visible spectrum.

One of the most intriguing and challenging structures to image in the cell is chromatin. This biopolymer, composed of DNA, RNA and proteins, contains all information of the functional cell. Super-resolution fluorescence microscopy has the resolving power to provide information about spatial chromatin organization in living cells. Currently, limited tools are available for sequence specific DNA labelling without denaturation step. I foresee the creation of probes highlighting chromatin by combining newly developed fluorophores, available chromatin-interacting small molecules and enzymes acting on DNA. In particular, polyamides, benzimidazoles and DNA methyltransferases seem to be adequate choice for the generation biocompatible fluorescent probes highlighting DNA. I will present the first steps towards this direction.

連絡先：神谷真子（東大院医)

hosted by Dr. Mako Kamiya

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共鳴誘導で革新するバイオイメージング
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