



第 314 回 つくば分子生命科学セミナー

TSUKUBA MOLECULAR LIFE SCIENCE SEMINAR

演題 : **Towards Biomedical Applications
of Fluorescent Nanodiamonds**

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日時 : 2010 年 6 月 9 日 (水) 14:00-15:00

会場 : 医学学群棟 4 階 4 A 4 1 1 室

要旨 : Gene therapy through siRNA delivery is regarded as a promising therapeutic modality for many diseases, nevertheless, the criteria for an efficient delivery strategy remain poorly understood. We investigated whether fluorescent nano-diamonds (FNDs) may facilitate siRNA delivery into cells; FNDs are type Ib diamonds that can emit no photobleaching fluorescence from their nitrogen vacancies. We found that 35nm FNDs display excellent biocompatibility and readily enter into cells during normal culture conditions. Cellular uptake of these FNDs occurs partly via active endocytosis, while a mild centrifugation process can permit FND internalization even under conditions when endocytosis is inhibited. Analyzing the knockdown efficiency of siRNAs against endogenous or reporter firefly luciferase genes, our data indicate that FNDs can enhance polycation mediated delivery of siRNAs, in a faster and more prolonged kinetics as compared to standard transfection processes. The possible mechanism involved and potential applications of FND in nucleotides delivery are discussed.

連絡先 : 人間総合科学研究科 入江 賢児 (内線 3066)

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