第266回 IBBセミナー

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Next-Generation Therapeutic Delivery: Nonviral Protein Cage Engineering

演者: Dr. Mikail D. Levasseur

Institute of Pharmaceutical Sciences (Molecular Medicine group), Department of Chemistry and Applied Biosciences, ETH Zurich

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講演概要

Throughout history, humanity has developed an array of therapeutic agents for treating diseases. Their effectiveness relies on their ability to persist long enough in the circulatory system to target the relevant tissue, while simultaneously avoiding off-target uptake, binding to or degradation by host proteins. Molecular systems designed to transport, protect, and deliver active drug molecules in a targeted manner can enhance their efficacy. Notably, the success of nucleic acid vaccines against SARS-CoV-2 benefited from specialized delivery platforms like viral vectors and lipid nanoparticles. With numerous untreated diseases and ongoing threats from various pathogens, there is a pressing need for adaptable and robust delivery platforms. Nonviral protein cages have many desirable characteristics for delivery applications. They come in a range of scaffold sizes and symmetries, are amenable to engineering of packaging and targeting properties, often exhibit high physical stability, and can be produced easily and cheaply. This presentation focuses on the engineering of an icosahedrally symmetric protein cage, AaLS-13, for enhanced delivery properties.

お問い合わせ：有機生体材料学分野 松元 亮 (内線：8020)
E-mail: matsumoto.bsr@tmd.ac.jp