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GTR Seminar

Topics in Advanced Biological Science

大学院理学研究科アドバンス生命理学特論

GTR Transformative Chem-Bio Research Nagoya University

Cryo-EM structure of a functional monomeric Photosystem I from Thermosynechococcus elongatus reveals 'red' chlorophyll cluster

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日　時：2月5日（金）17:00 ～18:00

場　所：理学部A館 2階　222号室

A high-resolution structure of trimeric cyanobacterial Photosystem I (PSI) from *Thermosynechococcus elongatus* was reported as the first atomic model of PSI almost 20 years ago. However, the monomeric PSI structure has not yet been reported despite long-standing interest in its structure and extensive spectroscopic characterization of the loss of 'red' chlorophylls upon monomerization. Here, we describe the structure of monomeric PSI from *Thermosynechoccocus elongatus* BP-1. Comparison with the trimer structure gave detailed insights into monomerization-induced changes in both the central trimerization domain and the peripheral regions of the complex. Monomerization-induced loss of 'red' chlorophylls is assigned to a cluster of chlorophylls adjacent to PsaX. Based on our findings, we propose a role of PsaX in the stabilization of 'red' chlorophylls and that lipids of the surrounding membrane present a major source of thermal energy for uphill excitation energy transfer from 'red' chlorophylls to P700.

Gerle博士は電子顕微鏡を用いた膜蛋白質の構造解析がご専門で、これまでミトコンドリアATP合成酵素の解析を進めてこられました。今回はクライオ電顕による光化学系I(PSI)の構造解析について、最新の研究成果をご講演いただきます

本セミナーは対面とzoomによるオンラインのハイブリッドで開催いたします。

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