分子細胞生物学研究所セミナー

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演題 **Synthetic and structural biology of molecule machines involved in transcription**

日時 8 月 25 日 （木） 15:00～16:30

場所 東京大学分子細胞生物学研究所
生命科学総合研究棟　B　3 階　301 会議室

主催 東京大学分子細胞生物学研究所
後援 公益財団法人 応用微生物学・ 分子細胞生物学研究奨励会
幹事 ゲノム情報解析分野

Eukaryotic transcription by DNA-dependent RNA polymerase II (Pol II) is driven by a series of multi-subunit protein complexes, or “molecular machines”, which include chromatin modelers and modifying enzymes, co-activator complexes such as Mediator, Pol II and general transcription factors (GTFs) such as TFIIH. To understand the functions of these molecular machines, an ability to generate molecular machines in recombinant forms is invaluable. However, assembly of multi-protein complexes is inherently difficult. In particular, large subunits (usually proteins with molecular mass over 100 kilodaltons) are difficult or often impossible to express even in eukaryotic cells. To address this challenge, we have developed novel protein expression technology. Application of this technology enables us to generate the 25-subunit Mediator complex with molecular mass over 1.4 megadaltons, enabling us to perform new functional and structural studies to understand how Mediator functions during transcription. Application of our technology has further been extended to other protein complexes as well as other difficult-to-express proteins, demonstrating overall effectiveness of our protein expression technology.