東京大学 グローバル COE 特別セミナー

東京大学大学院 理学系研究科 生物化学専攻

演者：Anne-Catherine DOCK-BREGEON 博士
Institute of Genetics and Molecular and Cellular Biology

演題：

HEXIM1 targets a repeated GAUC motif in the riboregulator of transcription 7SK and promotes base-pair rearrangements

日時：平成 23 年 3 月 2 日（水）15:00ー16:00

場所：東京大学理学部 3 号館 3F 303 号室

7SK snRNA, an abundant RNA discovered in human nucleus, regulates transcription by RNA polymerase II (RNAPII). It sequesters and inhibits the transcription elongation factor P-TEFb which, by phosphorylation of RNAPII, switches transcription from initiation to processive elongation and relieves pauses of transcription. This regulation process depends on the association between 7SK and a HEXIM protein, neither isolated partner being able to inhibit P-TEFb alone.
In this work, we used a combined NMR and biochemical approach to determine 7SK and HEXIM1elements that define their binding properties. Our results demonstrate that a repeated GAUC motif
located in the upper part of a hairpin on the 5'-end of 7SK is essential for specific HEXIM1 recognition. Binding of a peptide comprising the HEXIM Arginine Rich Motif (ARM) induces an opening of the GAUC motif and stabilization of an internal loop. A conserved proline-serine
sequence in the middle of the ARM is shown to be essential for the binding specificity and the conformational change of the RNA. This work provides evidences for a recognition mechanism involving a first event of induced fit, suggesting that 7SK plasticity is involved in the transcription regulation.

世話人：理学系研究科　濡木　理（内線 24392）