

私立大学戦略的研究基盤形成  
支援事業「タンパク質の生成  
と管理」セミナー



第19回  
生命科学  
セミナー

## 演題: Retrofiring RNA polymerase, role of PPI and pause

演者: 今清水 正彦 博士

米国国立癌研究所 (NCI-Frederick)

要旨:

Pausing of RNA polymerase II (RNAP II) by backtracking along DNA is a major mechanism for regulation of transcription elongation. The mechanism making the enzyme vulnerable to backtracking is poorly understood. Here, we demonstrated that the hindered forward translocation of RNAP II is an essential step in development of the biologically significant backtracked pauses. To analyze the pausing mechanism, we employed a cleavage-deficient mutated TFIIS (TFIIS-AA) protein altering RNAP II active center in the backtracked complex (Cheung & Cramer, 2011). We found that TFIIS-AA stimulates RNAP II backtracking in vitro at DNA sequences imposing an intrinsic translocation barrier, which induces the short-lived pre-translocation pauses. Expression of TFIIS-AA in yeast cells is dominant lethal (Sigurdsson et al, 2010). The lethality in vivo and the backtracked pauses in vitro are suppressed by the rpb1-T1095G mutation favoring the active center closure limiting its accessibility to TFIIS-AA. These findings offer an attractive system allowing targeted control of transcription in eukaryotic cells at the post-initiation level.

日時: 2012年5月22日(火)

午後4時30分～5時30分

場所: 15号館1階 15102セミナー室

世話人: 生命システム学科

嶋本伸雄 (075-705-3078)

共催: 京都産業大学総合生命科学部

私立大学戦略的研究基盤形成支援事業「タンパク質の生成と管理」