



第 230 回 つくば分子生命科学セミナー

TSUKUBA MOLECULAR LIFE SCIENCE SEMINAR

演題 : Histone interacting proteins in the Regulation of Transcription and Chromatin Organization.

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日時 : 2006 年 7 月 11 日 (火) 16:30-18:30

会場 : 筑波大学医学系学系棟 4B482 会議室

要旨 :

Eukaryotic genome is packed into a highly dynamic nucleoprotein structure, chromatin, the unit of which is the nucleosome comprises of 1.7 turn of DNA wrapped around the four different histones octamer core. The nucleosomal surface is the interaction sites for several nonhistone proteins which confer the dynamic regulatory nature of the chromatin fiber. These chromatin interacting proteins include histone chaperones and transcriptional regulators. In the present talk role of human histone chaperone NPM1 (B23) and transcriptional coactivator PC4 in transcription regulation and chromatin organization will be discussed. Both NPM1 and PC4 interact with core histones having unique specificity. Interestingly, (though by different mechanisms) PC4 and NPM1 enhance p53 function. Recently we have shown that NPM1 enhances the acetylation dependent chromatin transcription and it becomes acetylated both in vitro and in vivo. The highly abundant multifunctional nuclear protein PC4 has been shown to interact with core histones H3 and H2B which is essential for PC4-mediated chromatin condensation as documented by MNase accessibility, CD spectroscopy and atomic force microscopy (AFM). Silencing of PC4 expression in the HeLa cells results in chromatin decompaction which up regulates several genes. These results establish PC4 as a new member of Chromatin Associate Protein (CAP) family which play an important role in chromatin organization.

参考文献

Swaminathan V, Kishore AH, Febitha KK, Kundu TK.* (2005) Human histone chaperone nucleophosmin enhances acetylation-dependent chromatin transcription. *Mol.Cell.Biol*; 25(17): 7534-45.

Banerjee, S., Kumar, P. B. R. and Kundu, T.K.* (2004). General Transcriptional coactivator PC4 activates p53 function. *Mol. Cell. Biol.* 24 (5): 2052-62.

Kundu T. K., Palhan V.B., Wang Z., An W., Cole P. A., and Roeder R. G. (2000). Activator dependent transcription from chromatin template in vitro involving targeted histone acetylation by p300. *Mol Cell.* 6(3): 551-561

連絡先: 人間総合科学研究科 奥脇 暢 (内線 3472)

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