第 388 回つくば分子生命科学セミナー

TSUKUBA MOLECULAR LIFE SCIENCE SEMINAR

演題：Epigenetic Control of Chromatin-Dependent Transcription
- Lessons from p53, AP-1, Brd4 and HPV

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日時：2013年12月5日（木）17:00-18:30

会場：イノベーション棟 8 階講堂（This seminar will be held in English）

要旨：Transcription in higher eukaryotes is controlled by an array of transcription factors, including the general transcription machinery, general cofactors, and gene-specific activators and repressors. The complexity of gene regulation is further conferred by the existence of multiple protein family members recognizing consensus or non-canonical DNA-binding sequences. The chromatin structure in the human genome and posttranslational modification on protein molecules provide an additional level of control in modulating gene activity. In this lecture, I will review these control mechanisms using human papillomavirus (HPV) E6 and E2 proteins as examples to illustrate how DNA tumor virus-encoded transcriptional regulators are able to reprogram cellular activities by targeting p53 tumor suppressor protein and activator protein-1 (AP-1), respectively, via recruitment of distinct coregulators, such as p300 histone acetyltransferase and the chromatin adaptor bromodomain-containing protein 4 (Brd4). The interplay among these viral and cellular proteins and the crosstalk between different posttranslational modifications regulate gene activity in response to various environmental stresses.

参考文献

1. Thomas, M.C. and C.-M. Chiang. (2005) E6 oncoprotein represses p53-dependent gene activation via inhibition of protein acetylation independently of inducing p53 degradation. ***Mol. Cell*** 17: 251-264.
2. Wu, S.-Y., A.Y. Lee, S.Y. Hou, J.K. Kemper, H. Erdjument-Bromage, P. Tempst, and C.-M. Chiang. (2006) Brd4 links chromatin targeting to HPV transcriptional silencing. ***Genes Dev.*** 20: 2383-2396.
3. Wu, S.-Y., A-Y. Lee, H.-T. Lai, H. Zhang, and C.-M. Chiang. 2013. Phospho switch triggers Brd4 chromatin binding and activator recruitment for gene-specific targeting. ***Mol. Cell*** 49: 843-857.

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