東京医科歯科大学

Global COE Program

グローバルCOEプログラム

歯と骨の分子疾患科学の国際教育研究拠点
ーデント・メドミクスのインテリジェンスハブー

第16回GCOE海外研究者招聘講演会

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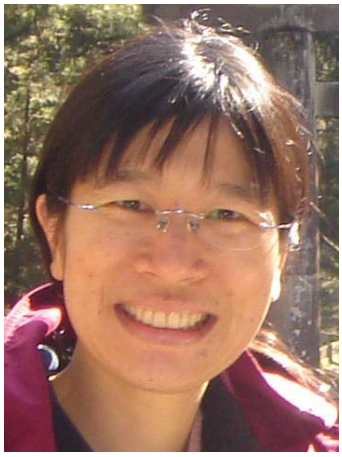

日時:平成21年9月18日(金) 10:30〜
場所:歯科外来事務棟4階 演習室

演題:*IL1B* Gene Expression Control and IL-1 Signaling : A Molecular Overview and Mapping of Novel Modes of Protein-Protein Interaction

Interleukin 1β (IL-1β) is a multifunctional cytokine possessing a wide spectrum of biologic properties with significant involvement in the inflammatory response and bone resorption. It is produced primarily by activated macrophages in response to a broad range of stimuli and affects many cell types. The expression of *IL1B* gene is controlled by both upstream enhancer and promoter elements. An array of transcription factors participate in the regulation of *IL1B* expression. Among those, the ETS family transcription factor Spi-1/Pu.1 (Spi-1) plays a crucial role in *IL1B* expression. Furthermore, the IL-1 signaling is critical for innate immunity and ultimately results in the activation/repression of specific transcription factors that regulate genes responsible for cellular activities. TRAF6 is the primary mediator of IL-1 signaling.

In this seminar, a molecular overview of the regulation of *IL1B* gene expression will be presented. Using a combination of approaches, it has been shown that a single residue on the surface of the Spi-1 ETS domain essential for nuclear localization and DNA binding is also utilized for interaction with the C/EBPβ carboxyl-terminal bZIP domain, resulting in the activation of *IL1B* transcription. These findings suggest new mechanisms of protein-protein and protein-DNA interactions for transcription factors. Moreover, a summary of IL-1 signaling will be presented in this seminar. The bimolecular fluorescence complementation (BiFC) technique was used to investigate a TRAF6-Src interaction in living cells. The polyproline sequence of TRAF6 and the SH3 domain of Src were shown to be required for interaction between these two proteins, which occurred within the cytoplasm, and not in either the cell membrane or cytoplasmic sequestosomes.

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