



中法生命科学和基因组研究中心

Pôle Sino-Français de Recherches en Sciences du Vivant et Génomique

## THURSDAY SEMINAR AT THE POLE SINO - FRANCAIS

Dr CHEN Jin Ke (程金科) from Jiao Tong University School of Medicine

will give a seminar on thursday, july 9<sup>th</sup> at 2:00 pm

(Meeting room 1104)

报告的题目为:

SUMO-specific protease 2 and PcG regulation

The products of the Polycomb group (PcG) of genes act as transcriptional repressors involved in the maintenance of homeotic gene expression patterns throughout development, from flies to mammals. Several mammalian PcG proteins have been shown to be modified by a small ubiquitin-modifier (SUMO); however, the significance of SUMOylation in the regulation of mammalian PcG biological activity is unknown. Our data show that Sentrin/SUMO-specific protease 2 (SENP2) plays an essential role in regulating the repressive activity of polycomb repressive complex 1 (PRC1) in mammalian cells. Deletion of the SENP2 gene in the mouse embryo causes an accumulation of SUMOylated Pc2 and silencing of PcG target genes. SUMOylation is essential for binding of Pc2 to trimethylated histone H3 at K27 (H3K27me3). Consequently, the PRC1 occupancy on the promoter of PcG target genes is increased and the expression of PcG target genes is suppressed. Our results reveal a critical role for SUMOylation in the regulation of PcG target gene expression through a novel mechanism.

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