Session II: Histone deacetylases

II-3

Epigenetic regulation of osteogenesis and adipogenesis of mesenchymal stem cell

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Differentiation of mesenchymal stem cells (MSCs) into adipocytes and osteoblasts requires sophisticate coordination between genetic and epigenetic processes. Many enzymes, transcriptional factors and epigenetic factors for histone modifications are known to involve in adipocyte and osteobalst differentiation; however, the causative molecular events in the regulation of the differentiation between adipocytes and osteoblasts still remain unclear. In addition, it has been reported that polycomb proteins, such as EZH2, play important roles in regulation of pluripotency and differentiation of ES cells. Thus, we elucidate the potential roles of EZH2 in differentiation of MSCs into adipocytes and osteoblasts. We have identified 250 and 30 EZH2-targeted genes based on the ChIP-on-Chip assay for adipocytes and osteoblasts differentiation, respectively. The preliminary studies of EZH2-targeted genes involving in osteogenesis and adipogenesis will be presented. [This work was supported by grant from National Science Council NSC 96-3111-B-039-004 and NSC 97-3111-B-039-004 (to LYL)].

△ ~~miRNA~~ miR-290 5p

△ Dnmt3L only expresses in ES & germ cells. but Dnmt3a, 3b express everywhere