

Abstract (บทคัดย่อ)

Project Code: MRG5980176

Project Title: Regulation of hematopoietic stem cell proliferation by miR-144 microRNA

(ชื่อโครงการ) การควบคุมการเพิ่มจำนวนของเซลล์ต้นกำเนิดเม็ดเลือดโดยไมโครอาร์เอ็นเอ miR-144

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MicroRNAs (miRNAs) are conserved class of small non-coding RNAs that have functions as post-transcriptional regulators of gene expression and involve in many biological processes. MiRNAs suppress protein synthesis by inhibiting translation and/or stability of specific target mRNAs. Hematopoietic stem cell (HSC) is capable both of self-renewal and differentiation into all mature blood cells. HSCs expand rapidly in the fetal liver, whereas most adult HSCs are quiescent and divide rarely to maintain an appropriate quantity of differential blood cells.

This project examines how ‘stemness’ of HSCs can be established and maintained with aim to define the newly discovered class of genetic material, termed microRNA as a key components that support expansion of HSCs. By manipulating the expression of miR-144 in various hematopoietic cells, we found that bone morphogenetic protein 4 (BMP4), a member transforming growth factor- β superfamily, and its receptor, bone morphogenetic protein receptor type 1B (BMPRI1B), are potential miR-144 mRNA targets and might regulate erythropoiesis.

Keywords: microRNA (miRNA); hematopoietic stem cell (HSC); proliferation