School of Integrative and Global Majors
Ph.D. Program in Human Biology (HBP)

論文概要

Dissertation Abstract

Title of Doctor Dissertation: **Contribution to understanding Maf family transcription factors' functions in macrophages in normal and pathological conditions**
(正常および病理学的状態におけるマクロファージにおける Maf ファミリー転写因子の機能の理解への貢献)

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Abstract

Purpose: The expression patterns of MafB and c-Maf in macrophage subtypes and tissue-resident macrophages have not been fully analyzed. On the other hand, macrophages are the main actor in many pathological cases, so we checked these proteins expression in ischemia renal disease (IRD).
Materials and methods: wild type tissue-resident macrophages were subjected to immunohistochemistry using anti-MafB and anti-c-Maf. Data was confirmed by Flow cytometry (FACS) using Mafb/GFP knock-in heterozygous mice then in vitro analysis. Next, we induced acute kidney injury (AKI) by IRD and assessed by CRE/BUN level and histological analysis.
Result and discussion: Both MafB and c-Maf signals were observed in lymph node macrophages. In the splenic macrophages the MafB signal was detected, but the c-Maf signal was not. No expression of c-Maf or MafB was detected in macrophages in the lung and kidney. FACS analysis confirmed similar pattern. In vitro study showed that MafB expression was induced by IL-10 or IL-4 with IL-13 and was reduced by LPS or GM-CSF. But c-Maf expression was induced by IL-10 and reduced by IL-4 with IL-13 or GM-CSF. These results indicate that MafB and c-Maf have different expression patterns suggesting different functions in macrophages. This part of the thesis was published in March 2016 in BBRC journal. Whereas Previous reports did not show an obvious effect of MafB or c-Maf in ischemia renal disease (IRD), we found that kidney macrophages started to express MafB and c-Maf after 48h of IRD. More interestingly, the MafB cKO mice present high rate of loss of brush border and lack of macrophages and died after 48h from dIRD. This part of the thesis will be published as soon as it finishes (at maximum by April 2018).