学 位 論 文 の 要 旨

三 重 大 学

所 属	三重大学大学院医学系研究科 甲 生命医科学専攻 病態解明医学講座 新生児医学分野	氏 名	須 麗清

主論文の題名

Cord blood $CD4^+CD25^+$ regulatory T cells fail to inhibit cord blood NK cell functions due to insufficient production and expression of TGF-beta 1

主論文の要旨

Although $CD4^+CD25^+$ Treg (Treg) cells are known to modulate NK cell functions, the modulation mechanism of these cells in cord blood has not been fully clarified. The purpose of this study was to clarify the mechanism whereby cord blood Treg cells modulate cord NK cells. The immunoregulatory function of cord blood Treg cells, adult $CD4^+CD25^+$ Treg cells and soluble TGF-beta1 to NK cells were evaluated. By performing various cultures of purified NK cells with or without autologous Treg cells, diminished inhibitory effects of cord Treg cells towards cord NK cell functions, including activation, cytokine production, and cytotoxicity, were observed. Since the $FoxP3^+CD4^+CD25^+$ Treg cells are thought to have suppressive function, the relative percentage of $FoxP3^+$ Treg cells in $CD4^+CD25^+$ Treg cells was analyzed. Our results showed that cord $CD4^+CD25^+$ Treg cells had relatively higher percentage of $FOXP3^+$ Treg cells and revealed that the absolute number of functional $FOXP3^+$ Treg cells in cord $CD4^+CD25^+$ Treg cells were higher than in adult $CD4^+CD25^+$ Treg cells. We also observed lower secretion of soluble TGF-beta1 and lower expression of membrane TGF-beta1 by cord Treg cells than by adult Treg cells. These data revealed the capability of adult Treg cells to suppress rhIL-2-stimulated NK cell function by TGF-beta1, both membrane-bound and soluble types. The reduced inhibitory capabilities of cord Treg cells compared with adult Treg cells is thought to be due to insufficient expression of TGF-beta1.