ImmunoTools IT-Box-Cy55M-Award 2013

Manuel Coutaz

PhD Supervisor: Prof. Dr. Fabienne Tacchini-Cottier

Quartier UNIL-Epalinges,
Ch. des Boveresses 155, CH-1066 Epalinges, Switzerland

Role of Notch receptor signaling in $CD4^+$ T helper 17 cell differentiation

$CD4^+$ T helper cells (T_H) are involved in host defense to pathogens and in the maintenance of immune homeostasis. Upon antigen-specific recognition, naive $CD4^+$ T cells receive signals to differentiate into several functionally distinct subsets of $CD4^+$ T_H cells characterized by the secretion of a specific pattern of effector cytokines. Inside these different effector $CD4^+$ T helper subset, T_H17 cells have been described on the basis of their secretion of specific cytokines (IL-17A, IL-17F) and their dependence of specific transcription factors (RORγt, RORα). Among the different factors contributing to the differentiation of naive $CD4^+$ T cells towards a given T_H cell subset, Notch receptor signaling has been reported to influence either the differentiation and/or the function of $CD4^+$ T_H cells. However, the mechanisms involved in this control are not defined. To investigate the mechanims of Notch signaling in the control of T_H17 cell function, mice carrying a T cell specific deletion of both Notch1 and Notch2 ($N1N2^{\Delta CD4Cre}$) were infected with different infection models that preferentially induce a T_H17 cell response *in vivo*. For this project, we are currently defining an *in vitro* T_H17 cell differentiation model that is highly dependent on the presence of different murine cytokines. The important plasticity inside the T_H17 cell subset was reported to be correlated to the cytokine environment and to be critical in inflammation process. We want therefore investigate the involvement of Notch receptor in either the T_H17 cell differentation and also in the T_H17 cell plasticity *in vitro* by using the different variety of cytokines that are present in IT-Box-Cy55M from ImmunoTools.

ImmunoTools IT-Box-Cy55M for **Manuel Coutaz**

includes 55 recombinant mouse cytokines

rm EGF, rm Eotaxin / CCL11, rm FGF-a / FGF-1, rm FGF-b / FGF-2, rm FGF-8, rm Flt3L / CD135, rm G-CSF, rm GM-CSF, rm GRO-a / CXCL1, rm GRO-b / CXCL2, rm IFNgamma, rm IL-1alpha, rm IL-1beta, rm IL-2, rmIL-3, rm IL-4, rm IL-5, rm IL-6, rm IL-7, rm IL-9, rm IL-10, rm IL-11, rm IL-13, rm IL-15, rm IL-16, rm IL-17A, rm IL-17C, rm IL-17F, rm IL-19, rm IL-20, rm IL-21, rm IL-22, rm IL-25 / IL-17E, rm IL-27, rm IL-31, rm IL-33, rm IP-10 / CXCL10, rm LIF, rm MCP1 / CCL2, rm M-CSF, rm MIP-1α/ CCL3, rm MIP-1β / CCL4, rm MIP3α / CCL20, rm MIP3β / CCL19, rm NGF-beta, rm PDGF-AA, rm PDGF-BB, rm RANTES / CCL5, rm sCD40L / CD154, rm SCF, rm SDF-1α / CXCL12a, rm SDF-1β / CXCL12b, rm TNFα, rm TPO, rm VEGF DETAILS