ImmunoTools IT-Box-139 Award 2013

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Disruption of T Cell Homeostasis in Autoimmune Polyendocrinopathy – Candidiasis – Ectodermal Dystrophy (APECED)

Autoimmune polyendocrinopathy-candidiasis-ectodermal dystrophy (APECED) is a rare, recessively inherited human autoimmune syndrome, characterized by mucocutaneous candidiasis and autoimmunity targeting various endocrine organs. The prevalence of APECED is elevated in some genetically isolated populations such as Finns, Sardinians and Iranian Jews. This monogenic autoimmune syndrome is caused by mutations in the Autoimmune Regulator (AIRE) gene. AIRE is a transcriptional factor that orchestrates presentation of ectopic tissue-specific antigens in the thymus. In the absence of AIRE the negative selection of developing thymocytes fails and autoreactive T cells reach the periphery causing autoimmune damage. Due to its well-characterized genetic background, APECED offers a unique model to study human autoimmunity.

A major aim of the study is to comprehensively describe APECED patients' peripheral blood T cell populations, their phenotype and subpopulation frequencies with flow cytometric analysis. We are also investigating T cell responses to different stimulations such as homeostatic cytokines and T cell receptor stimulation. My PhD project especially concentrates on CD4$^+$ T cells, the key regulators of adaptive immunity. Recently, the characteristics of B cells and iNKT cells in APECED have also raised our interest. Naïve, effector and memory subsets of helper T cell and cytotoxic T cell populations will be classified with CD4 or CD8, CD62L and CD45RA or CD45RO antibodies. CD69 and CD5 antibodies will be used as markers of activation. T cells, B cells, iNKT cells and monocytes will be distinguished with CD3, CD16 and CD19 antibodies. ImmunoTools *IT-Box-139* would provide a unique opportunity for extensive characterization of lymphocyte populations in APECED.

ImmunoTools *IT-Box-139.3* for **Nelli Heikkilä** includes 100 antibodies

FITC - conjugated anti-human CD1a, CD2, CD3, CD4, CD5, CD6, CD7, CD8, CD9, CD11a, CD11b, CD14, CD15, CD16, CD18, CD19, CD21, CD25, CD29, CD36, CD41a, CD43, CD45, CD45RA, CD46, CD52, CD53, CD54, CD58, CD62p, CD63, CD69, CD71, CD80, CD86, CD95, CD235a, HLA-ABC, HLA-DR, IL-6, Control-IgG1, Control-IgG2a, Control-IgG2b, Annexin V

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PE - conjugated anti-human CD2, CD3, CD4, CD8, CD11b, CD14, CD15, CD18, CD19, CD20, CD21, CD22, CD27, CD33, CD34, CD37, CD38, CD40, CD42b, CD45, CD45RB, CD50, CD72, CD95, CD105, CD147, CD177, Control-IgG1, Control-IgG2a, Control-IgG2b, Annexin V

PE/Dy647 -tandem conjugated anti-human CD45

APC -conjugated anti-human CD3, CD4, CD7, CD8, CD10, CD11c, CD14, CD16, CD19, CD27, CD37, CD40, CD44, CD56, CD59, CD61, CD62L, CD62P, CD69, IL-6, Control-IgG1, Control-IgG2a, Control-IgG2b, Annexin V   DETAILS

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