ImmunoTools IT-Box-139 Award 2012

Federica Sala

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Multiparameter flow cytometric analysis of $CD4^+$ and $CD8^+$ T cell subsets in dyslipidemic conditions

Adaptive immunity is causally involved in the initiation and progression of atherosclerosis. Central memory T cells (TCM) and effector memory T cells (TEM), which develop from naïve T cells (TN) following the presentation of the antigen by cells in lymphoid organs, constitute relevant T-cell subsets to control infective and autoimmune processes. TEM expansion represents a general feature of the immune response associated with atherosclerotic disease. Levels of TEM subset (identified by $CD3^+CD4^+CD45RA^-CD45RO^+CCR7^-$) and related TEM subpopulations best correlated with the extent of atherosclerosis in carotid and coronary districts as demonstrated by our group in recent studies. One of the major risk factor for atherosclerosis and cardiovascular disease is dyslipidemia; in particular we are now evaluating the immune arrangement of a group of patients characterized by genetically elevated LDL cholesterol levels (familial hypercholesterolemia - FH) compared to healthy control subjects.

Cytofluorimetric analysis of T naïve ($CD45RA^+$,$CD45RO^-$,$CCR7^+$), T central memory ($CD45RA^-$,$CD45RO^+$,$CCR7^+$) and T effector memory ($CD45RA^-$,$CD45RO^+$,$CCR7^-$) cells has revealed, beside a variation in memory cells, the presence of a subset of cells called Terminally Differentiated Effector Memory T cells – TEMRA - ($CD45RA^+$,$CCR7^-$); strikingly $CD45RA^+$,$CCR7^-$ T cell population is present only in FH patients but not in control subjects leading us to better understand this evidence. The aim of project is to characterize TEMRA subpopulations in FH patients in order to understand if they could have a causative role in the development of pathological conditions and early atherosclerosis.

Using the antibodies provided by ImmunoTools IT-Box-139 we could distinguish different TEMRA cell subpopulations according to their differentiation status (CD27, CD28, CD57, KLRG-1) correlating them with biochemical data and plasma lipids profile of FH patients. Finally, after sorted TEMRA T cells, a gene expression analysis will be performed to investigate major inflammation marker genes.

ImmunoTools IT-Box-139 for Federica Sala includes 100 antibodies

FITC - conjugated anti-human CD1a, CD3, CD4, CD5, CD6, CD7, CD8, CD14, CD15, CD16, CD19, CD21, CD25, CD29, CD35, CD36, CD41a, CD42b, CD45, CD45RA, CD45RB, CD45RO, CD49d, CD53, CD57, CD61, CD63, CD80, CD86, HLA-DR, IL-6, Control-IgG1, Control-IgG2a, Control-IgG2b, Annexin V

PE - conjugated anti-human CD3, CD4, CD8, CD11b, CD15, CD14, CD18, CD19, CD20, CD21, CD22, CD31, CD33, CD38, CD40, CD45, CD45RB, CD50, CD52, CD56, CD58, CD62p, CD72, CD95, CD105, CD147, CD177, CD235a, HLA-ABC, IL-6, Control-IgG1, Control-IgG2a, Control-IgG2b, Annexin V

PE/Dy647 -tandem conjugated anti-human CD3, CD4, CD8, CD14, CD19, CD20, CD25, CD54

APC -conjugated anti-human CD2, CD3, CD4, CD8, CD10, CD11a, CD11c, CD14, CD16, CD27, CD37, CD42b, CD44, CD45, CD59, CD62L, CD69, CD71, IL-6, Control-IgG1, Control-IgG2a, Control-IgG2b, Annexin V

DETAILS