ImmunoTools IT-Box-139 Award 2013

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ASSESSMENT OF SELECTED FUNCTIONAL PARAMETERS OF DENDRITIC CELLS FOLLOWING EXPOSURE TO SOME CONSTITUENTS OF BEAUTY PRODUCTS

Dendritic cells (DCs) are unique antigen presenting cells (APCs) since they are the only cells that are able to induce primary immune response. They can endocytose tumor cell debris and apoptotic vesicles, and after intracellular processing of the antigens, present the peptides derived from tumor-associated-antigens in complex with MHC class I molecules to T cells. Without the stimulation by danger-associated molecular patterns (DAMPs), DCs remain immature in a hostile immunosuppressive milieu and anergize $CD4^+$ T cells and cytotoxic T cells (CTLs) resulting in peripheral tolerance. Eventually these lymphocytes undergo apoptosis in a process termed cross-tolerance which is a major hurdle for the generation of potent CTL immune responses against self-antigens as seen in various tumors where immature DCs mostly lacking costimulatory receptors are not able to elicit T-cell responses. The release of inflammatory factors and the appearance of DAMPs lead to activation of DCs (inflammatory DCs) which subsequently upregulate costimulatory molecules of the B7 family (CD80, CD87). Inflammatory DCs are able to activate naïve CTLs through MHC I tumor peptide/TCR and B7/CD28 crosslinking. Furthermore, inflammatory DCs can activate naïve $CD4^+$ T cells after MHC class II tumor peptide/TCR and B7/CD28 crosslinking. DCs at the different stage of differentiation might also activate macrophages, eosinophils and natural killer (NK) cells and natural killer T (NKT) cells in both direct cell-cell interactions (e.g. through CD1) and indirect cytokine-mediated interactions (e.g. through the release of IFN-γ, IL-12, IL-15, IL-18) leading to enhanced antiviral and antitumor activity of NK/NKT cells. Hence, it seems that any potential adverse influence of a xenobiotic on DCs may result in a situation seriously favoring tumor development.

In our studies we will assess the effects of selected underarm cosmetics constituents on functional parameters of immature and mature DCs generated from human peripheral blood mononuclear cells. ImmunoTools antibodies from the *IT-Box-139* will allow us to assess cell separation efficacy of particular subsets of leukocytes (technique with magnetic beads) using flow cytometry. Moreover, the antibodies will be used for assessment of influence of test substances on maturation and activation of DCs by analysis of specific surface antigens expression, e.g. CD86, CD83, HLA-DR, CD54, CD1a by flow cytometry.

home

ImmunoTools *IT-Box-139.2* for **Sylwia Gajda** 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