

ImmunoTools IT-Box-139 Award 2012



Andrea Sass

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Intra-operative application of precursor cells to improve bone defect healing

I started my PhD-thesis with the title “Intra-operative application of precursor cells to improve bone defect healing” in the beginning of this year.

The aim of the study is to characterize cell populations that bare regenerative potential in answer to inflammatory cytokine release in bone healing processes. Mononuclear cells from bone marrow or blood can be classified into defined subpopulations via specific surface marker combinations. It has previously been shown that peripheral blood and bone marrow contain mesenchymal, endothelial and hematopoietic precursor cells that are able to differentiate into osteoblasts, endothelial cells, chondrocytes and osteoclasts, respectively. Hence these cells are considered to be involved in bone regenerative processes.

Within my project I study multiple subpopulations of human peripheral blood cells obtained from specific patient cohorts, e.g. patients that show pathological phenotypes in osteogenesis and fracture repair. The cells are examined regarding their bone regenerative capacity and function.

Additionally I am planning to quantify the composition of these specific cell populations within the peripheral blood during fracture healing. Therefore, I am planning to investigate the overlapping expression of CD14, CD31, CD34, CD44, CD105 and CD133 in particular. Together with our own CD34- and CD133-antibodies the IT-Box-139 offers ideal conjugation sets for multicolor flow cytometry stainings, which will enable me to analyze the different CD-panels and monitor inflammatory responses of the blood cells. Besides investigating the occurrence of distinct cell

populations in the blood during regeneration, the IT-Box-139 will give me the possibility to isolate specific cell populations by fluorescence activated cell sorting. Cell characteristics can thus be further studied and alterations in their gene expression in response to inflammatory processes during fracture healing can be detected.

ImmunoTools IT-Box-139 for Andrea Sass include 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

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