ImmunoTools IT-Box-139 Award 2013

Thibaud Andre

PhD Supervisor: Dr. Laurence Lagneaux

Laboratory of Clinical Cell Therapy
ULB - Jules Bordet Institute, Brussels, Belgium

Characterization of bone-marrow mesenchymal stromal cells from multiple myeloma patients: link with the response to treatments.

The multiple myeloma is a malignant disorder of post-germinal center B-cell characterized by a monoclonal expansion of secreting plasma cells in the bone marrow compartment. It is now well established that the bone marrow constitutes a microenvironment required by the multiple myeloma cell clone to growth and escape immune response.

Among the actors of this microenvironment, the bone marrow mesenchymal stromal cells strongly support multiple myeloma cell growth and are also described to possess anti-inflammatory and immunomodulatory properties that can affect multiple arms of the immune. Thus, mesenchymal stromal cells by modulating the local immune response may favor MM progression and evasion.

Previous studies have suggested that direct and indirect interactions between multiple myeloma plasma cells and bone marrow mesenchymal stromal cells result in constitutive abnormalities in bone marrow mesenchymal stromal cells. Our study further analyzed these abnormalities by demonstrating that multiple myeloma bone marrow mesenchymal stromal cells presented alterations in their immunomodulatory activities compared to healthy donor counterparts (1). These alterations consist in a reduced capacity to inhibit T-cell proliferation in a Mixed Lymphocyte Reaction (MLR) experiment. In order to determine the mechanism behind these alterations, we, first, measure the production of inflammatory cytokines by myeloma mesenchymal stromal cells (IL-6, IL-10, TGF-β, HGF, etc) in constitutive and MLR conditions. Secondly, The ImmunoTools antibodies from the *IT-box-139* will be used to evaluate the expression of T-cell activation actors present on the myeloma mesenchymal stromal cell surface (CD40, CD80, CD86, CD58, HLA-ABC, etc). We will compare the expression of these proteins between myeloma and healthy donor mesenchymal stromal cells in constitutive and inflammatory conditions. Finally, we will also evaluate these productions and expressions in mesenchymal stromal cells from myeloma patients treated by immunomodulatory drugs (Thalidomide and Lenalidomide).

(1) Evidences of early senescence in multiple myeloma bone marrow mesenchymal stromal cells. Thibaud André, Nathalie Meuleman, Basile Stamatopoulos, Cécile De Bruyn, Karlien Pieters, Dominique Bron, Laurence Lagneaux. Submitted to PlosOne (in revision).

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ImmunoTools *IT-Box-139.2* for **Thibaud Andre** 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