

ImmunoTools IT-Box-139 Award 2013



David Pires

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Interference of *Mycobacterium tuberculosis* with the endocytic/ antigen presentation pathways on macrophages and dendritic cells

The AIDS pandemic and appearance of multi-drug resistant *Mycobacterium tuberculosis* (Mtb) triggered tuberculosis re-emergence. In spite of the global research effort no effective antibiotics or vaccines have been produced in the last decades. Crucial for the pathogenesis of tuberculosis are macrophages and dendritic cells. These cells come in contact with Mtb in the early stages of infection and phagocytise the bacteria. However, Mtb bacilli impair bactericidal and antigen presentation activities of the phagocytes. Manipulation of the endocytic pathways by the bacteria inhibits the acidification of the phagosome and fusion with lysosomes enabling their survival and replication inside the host cell.

In this project we address the role of lysosomal proteases during infection with Mtb and their importance on the killing of the pathogen and presentation of its antigens to T-lymphocytes. Our first results have shown that Mtb manipulates the expression and activity of several proteases in a distinct fashion in each cell type. This manipulation is necessary for increasing its intracellular survival and also inhibiting the antigen processing machinery and presentation to lymphocytes.

For this project **ImmunoTools** antibodies are essential for flow cytometry analysis of the surface expression of macrophages and dendritic cells differentiation markers such as CD14, CD36, HLA-DR, CD86, CD11c, Cd11b and CD1a. We will also need them for studying the antigen presentation process between macrophages, dendritic cells and T-lymphocytes and their proliferation and activation by measuring the surface expression of CD3, CD4, CD8 and CD69.

ImmunoTools IT-Box-139.2 for **David Pires** 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

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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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