ImmunoTools IT-Box-139 Award 2012

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Studies of inflammasome proteins in the immune response

The immune response to viral infections is determined by complex interactions between the pathogen and the host. Healthy cells express receptors to detect viral infection. Recognition by these receptors triggers an array of anti-viral immune responses through the induction of type I interferons and the assembly of inflammasome complexes, leading to production of inflammatory cytokines, such as interleukin-1β and interleukin-18.

One of the stimuli that activates these receptors after infection with viruses is the release of DNA into the cytoplasm of cells and the recognition of this DNA mediated by specific sensors, including AIM2 and IFI16.

The discovery of the role of these molecules in recognition of DNA is very recent and our knowledge of their function is still limited.

Thus, the aim of our work is to study various aspects of the cell biology and biochemistry of AIM2 and IFI16. In particular, we have begun to investigate the hypothesis that activation of AIM2 and IFI16 could also have a role in the induction of ligands of activating receptors of the innate immune system, such as NKG2D. In this way recognition of DNA by these sensors would not only signal recruitment of immune cells via cytokine production, but would also mark the infected cell for immune destruction. Given that the expression and function of these inflammasome proteins is implicated in cancer, senescence, autofagy and autoimmunity increased knowledge of their biology is likely to be highly relevant for our understanding of the pathogenesis of multiple diseases.

The ImmunoTools IT-Box 139 would be used to analyze the immune populations present in blood and able to respond, or not, to the production of cytokines and interferons as well as the changes in cell surface phenotype of the infected cells.

ImmunoTools IT-Box-139 for Miriam Agundez Llaca 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