ImmunoTools IT-Box-Cy55M-Award 2013

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The role of Flt3L-dependent DC in arthritis

Dendritic cells (DCs) are key players in the induction and maintenance of adaptive immunity. Interestingly, although the role of T and B lymphocytes in autoimmunity is well described in both human and mice, and indeed biologics targeting these cell lineages are currently used in the treatment of rheumatoid arthritis (RA) and systemic lupus erythematosus (SLE), far less is known about the specific involvement of DCs in autoimmune disease. In this respect it is widely assumed that due to the fundamental role of DCs in initiating T cell responses, DCs might play an essential pathologic role in autoimmune disease by presenting self-antigens to autoreactive T cells. Primary immune responses are initiated in the periphery where DCs capture and process antigens, increase expression of lymphocyte co-stimulatory molecules, migrate to lymphoid organs and secrete cytokines which differentiate naïve T cells. However DCs do not only activate lymphocytes, but are also capable of tolerizing T cells to self or innocuous antigens, thereby minimizing autoimmune reactions. These dual functions of DCs depend on DC maturation status, cytokine profile and DC subset. DCs are a very heterogeneous population of cells, and different subsets can have very distinct functions. The goal of my PhD project is to understand the role of the different DC subsets in the initiation and maintenance of arthritis in humans and collagen induced arthritis (CIA), in mice. We took advantage of using animals with targeted deletion of Flt3L to provide more insight into the role of the Flt3L-dependent DCs in the pathogenesis of collagen-induced arthritis (CIA). Recombinant proteins are an essential tool in ex vivo studies. Culturing and differentiating cells entail a wide range of recombinant proteins for example, for the generation of BMDC for in vitro experiments we use both Flt3L and GM-CSF recombinant proteins and for T cell expansion IL2. Besides antigen presentation, the production of chemokines and cytokines by DCs is crucial in modulating immune responses. To study how a specific DC chemokine and/or cytokine is important for a determined cell type of interest we use various immuno-modulatory experiments in which we stimulate immune cells

with specific recombinant cytokines and measure cellular responses. The ImmunoTools *IT-Box-Cy55M* would be of great value to better understand how different chemokines and cytokines produced by the different DC subsets could shape the immune response, and maybe help to identify possible new therapeutical targets for autoimmune diseases.

ImmunoTools *IT-Box-Cy55M* for **Ines Pascoal Martins Ramos**
includes 55 recombinant mouse cytokines

rm EGF, rm Eotaxin / CCL11, rm FGF-a / FGF-1, rm FGF-b / FGF-2, rm FGF-8, rm Flt3L / CD135, rm G-CSF, rm GM-CSF, rm GRO-a / CXCL1, rm GRO-b / CXCL2, rm IFNgamma, rm IL-1alpha, rm IL-1beta, rm IL-2, rmIL-3, rm IL-4, rm IL-5, rm IL-6, rm IL-7, rm IL-9, rm IL-10, rm IL-11, rm IL-13, rm IL-15, rm IL-16, rm IL-17A, rm IL-17C, rm IL-17F, rm IL-19, rm IL-20, rm IL-21, rm IL-22, rm IL-25 / IL-17E, rm IL-27, rm IL-31, rm IL-33, rm IP-10 / CXCL10, rm LIF, rm MCP1 / CCL2, rm M-CSF, rm MIP-1α/ CCL3, rm MIP-1β / CCL4, rm MIP3α / CCL20, rm MIP3β / CCL19, rm NGF-beta, rm PDGF-AA, rm PDGF-BB, rm RANTES / CCL5, rm sCD40L / CD154, rm SCF, rm SDF-1α / CXCL12a, rm SDF-1β / CXCL12b, rm TNFα, rm TPO, rm VEGF DETAILS.