ImmunoTools IT-Box-Cy55M-Award 2013

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Characterization of the PIX/GIT-complex and its role in actin dynamics and inside-out signaling in T cells

The PIX family proteins belong to RhoGEFs (guanine exchange factors) which form large protein complexes with GIT ArfGAP proteins. This complex is involved in cytoskeletal reorganization required for migration, adhesion, vesicle transport and proliferation.

Our group investigates diverse mouse knockout models for the role of RhoGefs in development and activation of T and B cells as well as dendritic cells (DCs), macrophages or microglia. Cytokines play fundamental roles in both processes. In particular, cytoskeletal rearrangements induced by chemokines are essential for coordinated migration, adhesion and proper localization of these cells during development and immune responses. A broad panel of pro- or anti-inflammatory cytokines such as IFNgamma, IL-4, IL-2 or IL-10 further modify signalling pathways (e.g. induced by antigen receptors on T and B cells) to the cytoskeleton, and thus alter their capacity of targeted migration to inflamed tissue or specific interactions with stimulatory or infected cells.

For the analysis of the specific role of the PIX/GIT signalling module in immune cells, we need to stimulate cells of our knockout mice with a whole panel of cytokines in order to drive certain differentiation programs, e.g. for the commitment of T cells towards the TH1 (IL-2, IFNgamma), TH2 (IL-2, IL-4), TH17 (IL-6, IL-1ß) or Treg (IL-10) lineage. Similarly, different cytokine cocktails including GM-CFS, M-CFS, TNFalpha, IL-1b, IL-6, IL-4, IFNgamma, IFNalpha, IL-15 or others) are required for the in vitro differentiation/maturation of antigen presenting cells such as DCs, B cells, macrophages or microglia capable to interact with and stimulate other immune cells in coculture experiments. Finally, since the PIX/GIT complex might have specific roles in signalling from diverse chemokine receptors, we are interested in the biochemical (complex structure, activity and localization of enzymes), morphological (cell shape and protein distribution) and migratory (chemokinesis, haptokinesis, chemotaxis) responses of our RhoGEF deficient cells to a large set of chemokines such as CXCL12, CCL19, CCL2, CXCL10 and others.

Therefore the supply of ImmunoTools *IT-Box-Cy55M* recombinant cytokines would be a great help for us to analyze an important signalling module in immune cells.

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ImmunoTools *IT-Box-Cy55M* for **Dejan Mamula**
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

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