ImmunoTools IT-Box-Cy55M-Award 2013

For PhD-students working in Berlin **only**

Submission deadline: 31st of January 2013

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Key role of IL-27 in immunopathology during influenza virus infection

Infection with influenza viruses is associated with increased pro-inflammatory chemokine and cytokine production leading to an influx of innate and adaptive immune cells in the respiratory tract, accompanied by immunopathology. We found that during influenza virus infection, signaling through IL-27Ra was required for survival by limiting immunopathology. In addition to the substantial contribution of adaptive immune response to lung injury, the pro-inflammatory cross-talk between endothelial/epitheilal cells and innate cells (e.g monocytes) significantly contributes to this pathology. Using macrophages, endothelial or epithelial cells, we plan to investigate the mechanisms by which IL-27 suppresses inflammatory responses by these cells after influenza virus infection *in vitro*. In line with this, we plan to infect these cells with influenza virus and measure a wide array of chemokines and cytokines in the presence of absence of rmIL-27 or rmIL-10, an IL-27-induced anti-inflammatory cytokine. Ultimately, we will determine whether IL-27 can suppress IL-6, TNF-a, IL-17, IFN-g and IL-1a/b-induced adhesion molecules in endothelial cells *in vitro*. To this effect, the ImmunoTools cytokines from the IT-Box-Cy55M would be extremely useful for this project.

ImmunoTools IT-Box-Cy55M for Francesca Diane Liu includes 55 recombinant 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