ImmunoTools IT-Box-139 Award 2012

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NK cells

Throughout my PhD project, the status of the natural killer (NK) cells during bacterial sepsis was investigated. NK cells contribute to inflammatory processes by the production of numerous cytokines, especially IFN-γ and GM-CSF. In mice and human we revealed that the protein expression of TLR2 and TLR4 in naive NK cells was predominantly intracellular, similar to TLR9. In contrast, purified murine NK cells after *in vivo* polymicrobial sepsis showed a dramatic reduction in their responsiveness to TLR ligands. *In vivo* experiments using Treg depleted, *il10* $^{-/-}$ mice, and mice inhibited for TGFβR function demonstrated that the tolerization mechanism of NK cells is predominantly via TGFβ-expressing Tregs.* In intensive care patients diagnosed with systemic inflammatory response syndrome (SIRS) and sepsis, the IFN-γ responsiveness to TLR stimulation was significantly decreased in contrast to healthy donors. This study indicates that NK cells undergo tolerance in response to TLR agonists during SIRS or sepsis, as already described for monocytes in these respective pathologies.**

ImmunoTools antibodies from the IT-Box-139, are intended to be used on this project for further characterization of the immune status of human NK cell status during SIRS and sepsis circumstances: e.g.: 1 – CD25-PE/Dy647, 2 – CD50-PE/Dy647, 3 - CD52-PE/Dy647, and 4 - CD69-PE/Dy647 (to measure NK cell activation status); 5 – AnnexinV-PE/Dy647 (to measure NK cell apoptosis level); 6 – CD3-PE and 7 – CD56-FITC to allow the NK cell gating ($CD3^{neg}CD56^{bright\ or\ dim}$); 8, 9 and 10 - isotype IgG controls FITC, PE and PE/Dy647, respectively (to qualify the negative stain from the analysed markers.

*References: * Souza-Fonseca-Guimaraes F, et al. Mol Med, 2012, 18(1), 270-85.*
*** Souza-Fonseca-Guimaraes F, et al. J Immunol, 2012, 188: 5850-8.*

ImmunoTools IT-Box-139 for Ferando Souza-Fonseca-Guimarae include 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