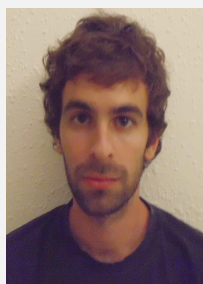


# ImmunoTools IT-Box-139 Award 2012



**Xavier Rovira Clavé**

PhD Supervisor: Dr. Enric Espel, Dr. Manuel Reina

Department of Physiology & Immunology & CELLTEC-UB,  
Department of Cellular Biology, University of Barcelona  
Av. Diagonal 645, Barcelona, Spain

## Role of Erk5 in T-cell biology

Erk5 (MAPK7) is a MAPK necessary for normal vascular development. It is widely expressed and controls the cellular responses to growth factors and stress. Signaling through Erk5 regulates several cellular processes including proliferation and apoptosis (Díaz-Rodríguez E, Pandiella A. Multisite phosphorylation of Erk5 in mitosis. *J Cell Sci.* 2010 Sep. 15;123(Pt 18):3146–3156) (Le N-T, Takei Y, Shishido T, Woo C-H, Chang E, Heo K-S, et al. p90RSK targets the ERK5-CHIP ubiquitin E3 ligase activity in diabetic hearts and promotes cardiac apoptosis and dysfunction. *Circ Res.* 2012 Feb. 17;110(4):536–550). Erk5 has been reported to control T-cell quiescence through the transcriptional expression of Klf (Sohn SJ, Li D, Lee LK, Winoto A. Transcriptional regulation of tissue-specific genes by the ERK5 mitogen-activated protein kinase. *Mol Cell Biol.* 2005 Oct. 1;25(19):8553–8566).

In this work we have down-regulated Erk5 in Jurkat T cells to study the biology of these cells during T-cell activation. We plan to activate these cells with different stimuli including plate-bound anti-CD3/CD28. The activation state of the cells will be monitored through the analysis of : CD25, CD69, CD62L. Similarly, the capacity of Jurkat T cells with down-regulated Erk5 to adhere to and migrate through endothelial Huvec cells will be assessed. It will be important to determine, the expression of adhesion molecules such as CD11a, CD11c, CD29, CD31, CD44, CD49d, CD50, CD54, CD58... and correlate these values with the endothelial adhesion and migration properties of the cells.

As down-regulation of Erk5 increases the apoptosis of leukemic cells (Garaude J, Cherni S, Kaminski S, Delepine E, Chable-Bessia C, Benkirane M, et al. ERK5 activates NF-kappaB in leukemic T cells and is essential for their growth in vivo. *J Immunol.* 2006 Dec. 1;177(11):7607–7617), we will control the viability of cells by Annexin-V determination.

**ImmunoTools** IT-Box-139 for Xavier Rovira Clavé 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](#)