ImmunoTools IT-Box-139 Award 2012

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Human Endogenous Retroviruses as immune modulators in healthy and impaired human pregnancies

Human endogenous retroviruses (HERV) comprise about 8% of the human genome. About 25 million years ago, exogenous retrovirus entered the human genome and became thereby integrated.

Recurrent pregnancy loss is likely to be a major cause for unexplained infertility, and it has been proposed that alterations in distribution and/or function of immune cells localized within the endometrium participate in this complication.
HERV specific proteins were found expressed within the placenta and might be important for successful placentation, yet also for pathological conditions, and it has been suggested that HERV envelope (env) glycoproteins (gp) on trophoblast cells are involved. Although HERVs have immunomodulatory activity, it is still not known whether env proteins could target immune cells within human endometrium, especially uterine dendritic cells (uDC). The project focuses on HERV subtypes which are expressed by different placenta cells and identification of uterine cells expressing functional HERV env-proteins and env-specific receptors on their cells surface during healthy pregnancy or in pathological conditions with the goal to evaluate if and to what extent HERV-envs would contribute to induction immune tolerance. To this end, I will generate expression clones for suitable for transgenic expression of different HERV env genes whose activity will first be assessed in membrane fusion assays. In addition, the ability of HERV-env transfectants to modulate phenotypic maturation and cytokine release of monocyte-derived dendritic cells (moDCs) per se or upon stimulation with LPS or TNFa/IL-1ß will be analyzed.

The ImmunoTools antibodies CD11c-APC, CD4-FITC, CD8-FITC and CD56-PE will be used to characterize maternal uterine immune cells. The phenotypic maturation of moDC will be analyzed through CD80-FITC, CD86-FITC, HLA-DR-FITC and HLA-ABC-PE and their cytokine profile through IL-6-APC. Fusion of throphoblasts will be visualized through a CD63-FITC membrane fusion assay.

ImmunoTools IT-Box-139 for Jonas Hummel 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