GESINAS - ImmunoTools Award 2014

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Role of prostaglandin E2 receptor EP4 in experimental glomerulonephritis

The lipid molecule and Cyclooxygenase (COX) product Prostaglandin E_2 (PGE_2) acts on four different G-coupled receptors namely EP1-4. EP4 is expressed on different immune cells, resident kidney cells and endothelial cells. These cells play a crucial role in the pathophysiology of glomerulonephritis (GN). Prostanoids are potent modulators of inflammatory cells. Nevertheless the role of PGE_2 in inflammation is still unclear, showing both pro- and anti-inflammatory reactions depending on the cell type and receptor. On the one hand they limit proinflammatory cytokine production and activation of macrophages and neutrophils. On the other hand, they have also the potential to activate TH17 cells and to increase the expression of CCR7 thereby improving the recruitment of T cells.

The progressive glomerulonephritis (ANCA-Vaskulitis, Goodpasture's disease and nephritis in systemic Lupus erythematodes) leads in many cases to an end stage kidney disease. In these autoimmune diseases autoantibodies are activating an inflammatory process which leads to destruction of the kidney parenchyma. The experimental mouse model of glomerulonephritis is a perfect model to exermine these diseases and test new therapeutic strategies.

Our aim is to characterize the role of PGE_2 and its receptor EP4 in different immune cell populations in the in vivo mouse model of glomerulonephritis. To this end, a glomerulonephritis mouse model is used. The mice were treated with the EP4-receptor agonist and antagonist.

To evaluate the effect of PGE_2 and EP4 receptor-selective agonist and antagonists on the activation of different cell populations in the kidney, inguinal and para-aortal lymph nodes and the spleen, assays of cytokine release, expression of adhesion molecules and expression of chemokine receptors, will be used. Furthermore, using immunohistochemistry and flow cytometry of the kidney and secondary lymphoid tissues, we will assess which cells express EP4 receptor in our animal models.

Therefore, the effect of PGE_2 on T cell, macrophage and neutrophil activation will be determined. To this end the ImmunoTools anti mouse antibodies for flow cytometry antibodies will be used to characterize different forms of T cell population and to

identify the phenotype that is induced by an EP_4 receptor antagonist and agonist. Since I also would like to identify the cytokines released or blocked by the treatment ImmunoTools recombinant mouse cytokines will be beneficial during this study. Moreover the effect of the EP4 receptor Antagonist on the cytokine IL-6 will be evaluated with the ImmunoTools mouse ELISA-set IL6.

Since I have initiated and organized the International student congress (ISC) of the Medical University of Graz I would like to apply for the GESINAS-ImmunoTools-Award.

From 4th to 6th of June 2015 the International Student Congress (ISC) will enter the third round. It will again take place at the Medical University of Graz, Austria.

During the last two year the ISC became a great opportunity for students from all over the world (more than 40 countries) to acquire scientific research skills, get experience in presenting their work and projects as well as connecting with researchers at their age and educational level. This congress is organized by a team of voluntary students, which makes it a unique opportunity to represent the interests of young researchers, most of them still in education.

The ISC offers 3 days of keynote-sessions, workshops and presentations. The program will predominately be designed for students and young researchers. It will be a unique possibility to give a presentation or present a poster in front of other students. Also, a thorough social program will be offered, including a city tour through Graz, a visit to the city hall etc. Further information can be found in the attachment or on our homepage: www.medunigraz.at/isc

GESINAS ImmunoTools AWARD for

Ida Aringer includes 46 reagents

FITC - conjugated anti-mouse CD4, CD9, CD11b, CD19, CD44, CD45, CD45R, CD45RC, CD62L, CD81, CD90, CD117, CD134, CD247, Erythroid cells, Gr-1, NK-cells,

PE - conjugated anti- mouse CD3e, CD4, CD8a, CD11b, CD19, CD25, CD29, CD34, CD44,

APC - conjugated anti-mouse CD3e, CD4, CD8a, CD11a, CD11b, CD19, Gr-1, NK-cells,

mouse IL-6 ELISA-set for 96 wells (contains 3+1 reagents),

recombinant mouse cytokines: rm IFNgamma, rm IL-6, rm IL-9, rm MCP1 / CCL2, rm M-CSF, rm MIP-1a/ CCL3, rm MIP-1b / CCL4, rm MIP3a / CCL20, rm MIP3b

DETAILS more AWARDS