

# International Congress on **Neuroimmunology and Therapeutics**

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## **The influence of glucocorticoids on the day/night changes of thymus-deriving natural regulatory T cells development and function**

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Natural CD4<sup>+</sup>CD25<sup>+</sup>Foxp3<sup>+</sup> regulatory T (nTreg) cells develop in the thymus and migrate in the periphery as a mature population of T lymphocytes with suppressive activity. They play a crucial role in the maintenance self-tolerance and immune homeostasis. Furthermore, nTregs have significant therapeutic potential in suppressing autoreactive T cells and protecting from autoimmune diseases and chronic inflammation. Currently, the mechanisms regulating nTregs development are still unclear. One of the factors, but still little explored, affecting their development and regulation of immune function are glucocorticoids. It is known that glucocorticoids are produced mainly by the adrenal cortex under the control of HPA axis. The treatment of mice with a synthetic glucocorticoid hormone, dexamethasone (Dex) induces the increase of Foxp3 expression in CD4<sup>+</sup>CD25<sup>+</sup> thymocytes and their suppressive function. Considering the important role of HPA axis and glucocorticoids as effector molecules in the regulation of the immune response we aimed to determine the content and function of thymic nTregs in males and females C57BL/6 mice after treatment with Dex (25mg/kg/body weight) in a day/night dependent fashion. Results indicated that glucocorticoids play a role in the survival and development of thymocytes, thus, influencing the distribution of thymocyte subsets. Their concentration in the thymus deriving from endogenous synthesis and exogenous supplementation in accordance with the circadian rhythm of their synthesis correlate with the content and function of CD4<sup>+</sup>CD25<sup>+</sup>Foxp3<sup>+</sup> cells.

### **Biography**

Ewelina Kiernożek has completed individual PhD studies on the Faculty of Biology at the University of Warsaw. She manages the Laboratory of Cytometry in Department of Immunology at Faculty of Biology UW. She co-operates with other scientific units, for example Department of Organic Food Faculty of Human Nutrition and Consumer Science SGGW (Warsaw), Department of Biochemistry (Medical University of Warsaw) or Department of Molecular Biology (Centre of Oncology in Warsaw). She also works in Institute of Genetic Analysis – INAGEN which deals with analysis of selected fragments of the genome of the athletes that determine innate predisposition to the development of physical characteristics relevant in professional sports.

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