Teresa PREGLEJ

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Current academic degree:	M.Sc.
Previous University:	University of Natural Resources and Life Sciences, Vienna, Vienna
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Project title:	The role of HDAC2 in T cells

Project description:

The interplay of histone acetylation and deacetylation serves as a key regulatory mechanism in T cell development and function by modulating cellular gene expression. The dynamic changes in the acetylation of core histones are mediated through the activity of two large families of antagonistic proteins, namely histone acetyltransferases (HATs) and histone deacetylases (HDACs), which modify chromatin structure through transfer of acetyl-groups to and from lysine residues of histones, respectively. Moreover, HATs and HDACs also act on non-histone targets regulating protein activity, stability, localization and protein-protein interaction. The application of HDAC inhibitors (HDACi) revealed important immunological processes and T cell functions that are dependent on the activity of HDACs. To date, 18 individual HDACs have been identified that act in numerous cellular pathways, frequently through their repressive influence on gene transcription. However, the specific roles of individual HDAC family members in T cells are still subject of ongoing research.

Our group previously demonstrated that HDAC1 controls the magnitude of a Th2-type inflammatory response by modulating cytokine expression in effector T cells. During the last years we showed that conditional deletion of HDAC1 in T cells leads to enhanced airway inflammation and increased Th2 cytokine production and that HDAC1 controls antiviral immune responses. However, the role of the highly HDAC1-related HDAC2

protein in T cells is only poorly understood. The aim of my PhD thesis is to elucidate the role of HDAC2 in T cells.