A murine model to study the in vivo T helper cell polarizing capacity of pollen-associated lipid mediators (PALMs) during primary sensitization [Abstract]

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179 A Murine Model to Study the *In Vivo* T Helper Cell Polarizing Capacity of Pollen-Associated Lipid Mediators (PALMs) During Primary Sensitization

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RATIONALE: Pollen grains not only function as allergen carriers, but also release bioactive lipid mediators (PALMs) upon contact with the aqueous phase. PALMs modulate human dendritic cells function in a fashion that results in a Th2 polarization of human naïve T cells *in vitro*. To address, whether PALMs show similar effects *in vivo*, we analyzed events of early T cell polarization during primary sensitization in mice.

METHODS: To overcome the low frequency of naïve antigen-specific T cells in wild type mice, we established a DO11.10/BALB/c chimera using adoptive transfer, thus ensuring a defined number of OVA-peptide-specific CD4 cells in regional lymph nodes. 48 hours after intranasal instillation of OVA-peptide alone or OVA-peptide plus aqueous birch pollen extract (APE) to DO11.10/BALB/c chimeras, cells were obtained from draining lymph nodes, restimulated with peptide *in vitro* and on day 6 intracellular IL-4 and IFN-γ were analyzed by flow cytometry.

RESULTS: Transfer of $5x10^6$ T cells led to 1-2% of OVA-peptide TCR transgenic T Cells in regional lymph nodes. 48 hours after intranasal instillation of OVA-peptide, proliferation of antigen specific T cells was detected in draining, but not in non-draining lymph nodes. In comparison to exposure with OVA-peptide alone, intranasal instillation of OVA-peptide plus APE lead to an increase in IL-4 - and a decrease of IFN-γ producing antigen specific T cells, as determined after peptide restimulation.

CONCLUSIONS: PALMs appear to exert immunomodulatory activities on the early phase of primary sensitization *in vivo*, that result in a bias towards Th2 polarization.

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