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Titel des Beitrags:
The pollen enigma: modulation of the allergic immune response by non-allergenic, pollen-derived compounds.

Abstract:
The question what makes an allergen an allergen puzzled generations of researchers. Pollen grains of anemophilous plants are the most important allergen carriers in ambient air, and pollinosis is a highly prevalent multi-organ disease in civilized countries. In the past, research on the allergenicity of pollen has mainly focused on elucidating genetic predisposing factors and on defining certain structural characteristics of pollen derived allergens. Recently, studies extended to the analysis of non-allergenic, adjuvant mediators co-released from pollen. Besides active proteases and oxidases, extracts of pollen contain low molecular weight molecules like pollen-associated lipid mediators or adenosine exhibiting a potential to stimulate and modulate cultured human immune cells. This article reviews our current knowledge on non-allergenic, protein and non-protein compounds from pollen and their in vitro and in vivo effects on the allergic immune response. To ultimately judge the physiological relevance of these compounds, a systematic approach will be needed comparing their releasability, content and activity in different, allergenic and non-allergenic, pollen species. System biology such as proteome and metabolome analysis will be a useful future approach to better understand pollen biology.

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