chemisch
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Gegründet im Jahre 1869 von H. Hlasiwetz, J. Loschmidt, J. Petzval und J. Stefan

EINLADUNG

zum **virtuellen Vortrag**

von

Prof. Dr. Ruth Birner-Grünberger

TU Wien, Institute of Chemical Technologies and Analytics

Functional proteomics of tree pollen allergens and allergy contributing protein factors

Tuesday, 11th January 2022, at 5:30 pm

Zoom-Meeting:
https://tuwien.zoom.us/j/95629820993?pwd=cU1hWDZteUdYeUk3MGEzTDcrQ2pzUT09
Meeting-ID: 956 2982 0993
Passwort: DVZ3YWM5

Abstract

Allergic respiratory diseases, such as asthma and allergic rhinitis, represent a major health care burden and are the most common chronic diseases among young adults, with more than 20% of the overall adult population in the northern hemisphere estimated to be affected by pollen allergies with numbers rising. Trees of the *Fagales* order (e.g. birch) are leading in the number of allergenic species officially recognized by the World Health Organization and International Union of Immunological Societies (WHO/IUIS) and are the main cause of spring pollinosis in the northern hemisphere. Disruption of the epithelial barrier has been linked to pathogenesis of asthma, chronic rhinosinusitis and allergic rhinitis among other autoimmune diseases; and the recent increase in prevalence of allergic and autoimmune diseases has been argued to be due to industrialization, urbanization and a westernized lifestyle affecting the epithelial barrier of the skin, upper and lower airways, and gut mucosa. For example, the extensive use of detergents has been correlated to occupational allergic respiratory diseases. Not all *Fagales* species, such as birch, hazel and alder, cause the same degree and type of allergic reaction. This is, on the one hand, to some extent due to the physical properties of pollen and the potency of the lead allergen. On the other hand, different allergenic properties of pollen can also be due to different profiles of other non-allergenic constituents of pollen, in particular enzymes that can mediate the allergic response. Different types of pollen proteases (cysteine and serine proteases) that are normally anchored to the pollen wall are known to be able to disrupt the tight junctions of respiratory epithelial cells, which is supposed to enhance sensitization to pollen allergens. However, the individual pollen enzymes responsible for degradation of the epithelial barrier still await their identification. This has become only possible now by our recent elucidation of *Fagales* pollen proteomes and our functional proteomics approaches currently underway.