

LECTURE SERIES & WORKSHOPS

# INFECTION & IMMUNITY

# 02

**FEB. 2017**

Thursday

## LECTURE

*Lycée Technique  
d'Esch/Alzette*  
Salle de Projection \*

**11.00 - 12.00 pm**

## MEET & EAT \*

**light lunch provided**

*House of BioHealth,  
Room Françoise  
Barré-Sinoussi*

**12.30 - 2.00 pm**



\*Please register sending a mail to  
[florence.henry@lih.lu](mailto:florence.henry@lih.lu)



### SPEAKER

## Dr. BARBARA BOHLE

Head of Department, Medical University of Vienna, Department of Pathophysiology and Allergy Research Center for Pathophysiology, Infectiology and Immunology

### HOST:

**Department of Infection  
and Immunity**

### RESPONSIBLE LIH SCIENTIST:

**Dr. Markus OLLERT**  
([markus.ollert@lih.lu](mailto:markus.ollert@lih.lu))

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## APPLES CAN DRIVE BIRCH POLLEN-ALLERGIC PATIENTS NUTS! NOVEL INSIGHTS INTO CROSS-REACTIVITY OF ALLERGENS

### ABSTRACT

A large number of birch pollen-allergic patients develops food allergy in addition to respiratory symptoms. Clinical and immunological observations strongly indicate that birch pollen-related food allergy results from initial respiratory sensitization to the major birch pollen allergen, Bet v 1, and subsequent immunological cross-reactivity with structurally related food allergens. In addition to Bet v 1-specific IgE antibodies, Bet v 1-specific T lymphocytes cross-react with Bet v 1-homologous proteins in various foods. This cellular cross-reactivity results from the high amino acid sequence similarity of relevant T cell-activating regions in these proteins. In general, the major birch pollen allergen dominates the humoral and cellular response to its homologous food allergens. However, some Bet v 1-related food allergens, e.g. in hazelnut and carrot, repre-

sent exceptions and may bear sensitizing capacity themselves. As birch pollen-related food allergy results from the strong cross-reactivity of Bet v 1, one would expect that successful allergen-specific immunotherapy (AIT) which alters the immune response to Bet v 1 concomitantly alters the immune response to Bet v 1-related food allergens. However, this is not the case in all AIT-treated individuals. For example, birch pollen AIT often fails to induce cross-reactive IgG4 antibodies or peripheral tolerance of food-specific T lymphocytes. These immunological insights make this disorder an interesting model to assess the clinical consequences of cross-reactivity among allergens and are important for the development of efficient therapeutic interventions for birch pollen-related food allergy.

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