

## **The allergic cascade: review of the most important molecules in the asthmatic lung.**

*Immunology Letters 113 (2007) 6–18*

Karolien Bloemen<sup>1\*</sup>, Sandra Verstraelen<sup>1\*</sup>, Rosette Van Den Heuvel<sup>1</sup>, Hilda Witters<sup>1</sup>,  
Inge Nelissen<sup>1</sup>, Greet Schoeters<sup>1</sup>

<sup>1</sup>Centre of Expertise in Environmental Toxicology, Flemish Institute for Technological Research (VITO), B-2400 Mol, Belgium

\* These authors have the same contribution to this review

### **Abstract**

Asthma is the most common chronic inflammatory disorder of the airways among children. It is a complex clinical disease characterized by airway obstruction, airway inflammation and airway hyperresponsiveness to a variety of stimuli. The development of allergic asthma exists of three phases, namely the induction phase, the early-phase asthmatic reaction (EAR) and the late-phase asthmatic reaction (LAR). Each phase is characterized by the production and interplay of various cell-derived mediators. In the induction phase, T helper cytokines are important in the development of asthma. Most important mediators in the EAR are preformed mediators, newly synthesized lipid mediators and cytokines that are produced by mast cells. During the LAR, inflammatory molecules are produced by various cell types, such as eosinophils, neutrophils, T cells, macrophages, dendritic cells, and structural cells. Chronical inflammation leads to structural changes of the airway architecture. In this review, the most important mediators involved in the induction phase, the early-phase and late-phase asthmatic reaction are discussed.