



## Roles of IL-18 in Basophils and Mast Cells

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Basophils and mast cells are effector cells in allergen/IgE-mediated immune responses. They induce type 1 immediate immune response in airway or other organ, resulting in bronchial asthma and other allergic diseases. However, they also play a critical role in host defense against infection with helminthes. Upon linkage of FcεRI with a complex of allergen and IgE, basophils and mast cells release a large amount of Th2 cytokines and chemical mediators. Therefore these responses are "acquired allergic responses" and induce allergic diseases, such as bronchial asthma. However, basophils and mast cells derived from cultured bone marrow cells with IL-3 for 10 days express IL-18Rα chain and produce Th2 cytokines in response to the stimulation with IL-3 and IL-18 without FcεRI cross-linkage. Furthermore, they produce Th2 cytokines upon stimulation with several TLR ligands, such as LPS. This finding may suggest the presence of allergen/IgE-independent allergic responses, which we would like to designate as "innate allergic response". However, in vivo treatment with IL-18 and IL-2 protects against gastrointestinal nematode infection by activating intestinal mucosal mast cells in STAT6-independent manner, suggesting the importance of innate allergic response against helminth infection. Here we discuss the functional role of IL-18-induced "innate allergic response" in disease and host defense.

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