Mast Cells and Their Signaling Molecules — Approaches for Novel Therapies Forallergic Diseases —

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A marked recent increase in the worldwide prevalence of allergic diseases, such as allergic asthma, dermatitis, and rhinitis, calls for the development of effective therapies for these diseases. Mast cells play a central role in allergic diseases: cross-linking of the IgE receptors on the surface of mast cells by the antigen leads to massive release of proinflammatory mediators, such as histamine, prostaglandins, leukotrienes, and several cytokines. Although it is essential to understand the function of mast cells for the establishment of therapeutic approaches for allergy, many questions remain to be answered. How is mast cell activation regulated? How are mast cells differentiated from hematopoietic stem cells? How is the diversity of tissue mast cells involved in specific allergic diseases? The speakers will present recent advances in mast cell research, which are focused on the differentiation of mast cells and the signaling molecules in mast cells, such as membrane receptors, kinases, and adaptor proteins. Our objective in this session is to provide insights into the function of mast cells localized in various tissues, which will contribute to improved therapy for allergic diseases.