

Foreword

The Amazing Mast Cell



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Consulting Editor

The mast cell represents one of the early innate immune cells that emerged before the adaptive immune cells. It expresses a variety of pathogen recognition receptors/sensors that explain its involvement in innate immune response.¹ The expression of the high-affinity IgE receptor made the mast cell an extraordinary effector cell of the adaptive immune system. Because of its secretion of histamine, leukotriene, and other vasoactive mediators, the mast cell is traditionally considered an effector cell of an immediate hypersensitivity reaction. However, the function of the mast cell goes beyond the immediate hypersensitivity reaction. The mast cell is involved in other types of hypersensitivity reactions including delayed hypersensitivity reaction and in innate immune response against bacteria and parasites.¹ In addition to allergic diseases and host defense, the mast cell has been implicated in the pathogenesis of such diverse diseases as rheumatoid arthritis, lupus, multiple sclerosis, pulmonary fibrosis, pain, atherosclerosis, and vascular diseases of the brain.² There is a growing body of evidence that suggests a close functional link between mast cells and neuronal cells.³ This link might explain the CNS symptoms that many allergy sufferers experience during the allergy season. While under certain circumstances the mast cell promotes inflammation, in other situations it actually prevents inflammation and promotes healing. An example of the homeostatic function is its role in the inactivation of snake venom.⁴

Tremendous progress has been made in understanding the mechanism of mast cell activation and the various ligands that activate mast cells. Ligand (antigen)-independent activation of mast cells through the IgE receptor is a fascinating area. This might explain the beneficial effect of the anti-IgE antibody Omalizumab in chronic spontaneous urticaria. Mast cell activation syndrome is another condition that generates exciting basic science questions. It is unclear what activates mast cells in this condition. The various forms of mastocytosis remain a clinical challenge. I have invited Dr Cem Akin, a leader in the field, to update us on mast cells and mast cell disorders.

Supported by NIH Grants RO1 AI091614 and N01 HHSN272200700048C.

Immunol Allergy Clin N Am ■ (2014) ■■

<http://dx.doi.org/10.1016/j.iac.2014.02.002>

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He has brought together an outstanding group of experts and topics for this issue. Hope you enjoy them.

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