

Network of cytokines in immune system is controlling key of allergic asthma

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 Seyyede Masoume Athari,¹ Seyyed Shamsadin Athari²
¹Department of Biology, Faculty of Basic Sciences, Maragheh University, Maragheh, Iran

²Department of Immunology, Faculty of Medicine, Zanjan University of Medical Sciences, Zanjan, Iran

Correspondence: Seyyed Shamsadin Athari, Department of Immunology, Faculty of Medicine, Zanjan University of Medical Sciences, Zanjan, Iran, Tel +989143044606, Email SS.Athari@zums.ac.ir

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Opinion

Asthma is a complicated inflammatory airways disease that affects 334million people worldwide according to the Global asthma report 2014. Asthma is defined by shortness of breath, wheezing and cough. The asthma physiological hallmarks are air flow limitation and airway hyper responsiveness to broncho constrictor stimuli. The asthma standard therapy is potent anti-inflammatory glucocorticoids and bronchodilation agents.^{1,2} It is a chronic disease associated with immune system-biased inflammation. Profiles of airway fluid and blood cytokines are major effectors molecules of inflammation and allergy in asthma. T helper 2 lymphocytes (Th2), eosinophils and mast cells are main orchestrate of allergic asthma. Cytokines network is main regulator of immune system and allergy mechanism. Patterns of cytokine can control molecular pathways which leads pulmonary function regulation in asthmatic patients.

For example, IL-4 over expression gene leads to enhancing of IL-4 levels that can shift immunoglobulin production to IgE, IL-5 and Eotaxin over expression lead to eosinophils migration and accumulation in lung (inflammation), IL-9 over expression leads mast cells activation, IL-13 over expression leads mucus production and obstruction of airway, IL-25 over expression leads Th2 activation, IL-33 over expression leads Th2 and basophils activation and IL-35 has effect on Th2 and Th17 activation. The redundancy and pleiotropism of the cytokines within this network play functional role in the pathophysiology of asthma.³⁻⁵ Dynamic diseases such as asthma could enter different states based on environmental triggers and recognition of cytokines network can be more effective help to treatment and prevention approaches to asthmatic patients. Cytokines are at the core of asthma therapies. Therefore, cytokines as immune system control key, can process asthma pathophysiology and give new possibilities for asthma management. Monoclonal antibodies as strong tools to Interference of cytokines network for asthma control.

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Conflicts of interest

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