

Network of Cytokines in Immune System is Controlling Key of Allergic Asthma

Opinion

Asthma is a complicated inflammatory airways disease that affects 334 million 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.

Opinion

Volume 4 Issue 2 - 2017

Seyyede Masoume Athari¹ and Seyyed Shamsadin Athari^{2*}

¹Department of Biology, Faculty of Basic Sciences, Maragheh University, Maragheh, Iran.

²Department of Immunology, Faculty of Medicine, Zanzan University of Medical Sciences, Zanzan, Iran.

***Corresponding author:** Seyyed Shamsadin Athari, Department of Immunology, Faculty of Medicine, Zanzan University of Medical Sciences, Zanzan, Iran, Tel: +989143044606; Email: SS.Athari@zums.ac.ir

Received: February 02, 2017 | **Published:** March 28, 2017

References

1. Athari SS, Pourpak Z, Folkerts G, Garssen J, Moin M, et al. (2016) Conjugated Alpha-Alumina nanoparticle with vasoactive intestinal peptide as a Nano-drug in treatment of allergic asthma in mice. *Eur J Pharmacol* 791: 811-820.
2. Chaparzadeh N, Yavari B, Athari SS (2016) Benefit Non-Enzymatic Antioxidant Effects on Allergic Asthma. *Advances in Bioresearch* 7(4): 1-11.
3. Athari SS, Seyyed MA (2014) The importance of eosinophil, platelet and dendritic cell in asthma. *Asian Pac J Trop Dis* 4(Suppl 1): 41-47.
4. Mahajan S, Mehta A (2006) Role of Cytokines in Pathophysiology of Asthma. *Iranian Journal of Pharmacology & Therapeutics* 5(1): 1-14.
5. Donya N, Khosravi A, Athari SS, Ownagh A, Taghavi M (2015) T Helper 2 Cytokine Analysis of Bronchoalveolar Lavage in the Murine Model of Allergic Broncho Pulmonary Aspergillosis. *International Journal of Medical Laboratory* 2(3): 151-157.