

## Immunomodulatory effect of Levamisole Nanoparticles as ADAM10 Inhibitor in Allergic Asthma

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**A**sthma is a common chronic respiratory system disease without complete treatment. Hypersensitivity reactions and type 2 allergic-immune responses are responsible for asthma pathophysiology. ADAM10 as a metalloproteinase transmembrane protein is important for development of Th2 responses, and levamisole as an anthelmintic drug has immunomodulatory effects that can regulate ADAM10 activity and suppress neutrophil production in bone marrow. Therefore, levamisole delivery by nanoparticles system may reduce bone marrow suppression that was studied in allergic asthma. Asthmatic mice were produced and treated with PLGA-levamisole nanoparticles. Then, AHR, BALF, and blood cell counts, levels of allergic immunoglobulins, levels of cytokines, gene expression of ADAM10, and lung pathology were studied. PLGA-levamisole nanoparticles could control AHR, levels of immunoglobulins, levels of type 2 cytokines, eosinophilic inflammation, and also modulate the ADAM10 activity and had no effect on the number of neutrophils in the bloodstream. PLGA-levamisole nanoparticles had no side effect on neutrophils production in bone marrow and could control allergic asthma pathophysiology.

### Biography

Dr. Seyyed Shamsadin Athari (MPH, Ph.D.) as assistant professor of Immunology in department of Immunology, School of medicine, Zanjan university of medical sciences, Zanjan, Iran, has allergy and asthma toxicology Postdoc and asthma management and controlling network fellowship. He published more than 110 manuscripts on the international journals in Immunology, Allergy and Asthma fields and more than 30 books. He is also editorial board of more than 70 international journals in medical sciences and has some inventions in medical sciences and has been recorded some gene sequences in gene bank. Dr. Athari has been invited as top speaker in more than 40 international congress and symposium and has received some scientific awards from different scientific society as young top researcher and young scientist.

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