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Subsets of regulatory T-cells and their roles in allergy

Huiyun Zhang and Shaoheng He

Allergy and Clinical Immunology Research Centre, China

Since accumulated information indicate that there are several distinctive subtypes of regulatory T-cells (Tregs) in man and each of them seems to play different role in controlling immune system, which complicates the involvement of Tregs in allergy. After introduction of the six subsets of Tregs as well as the corresponding characteristics in our published paper, the roles of the individual subsets of these Tregs were studied. And the results showed that Tregs consist of a small proportion of CD4⁺ T-cells, including 5.3% of CD4⁺CD25⁺FOXP3⁺ T-cells and 0.1% of CD4⁺CD25⁺FOXP3 T-cells (Tr1 cells) in HC peripheral blood; IL-10⁺ Tregs are major population of Tregs (up to 75.2%), whereas IL-10⁺ TGF- β 1⁺ Tregs (iTregs) only occupy approximately 3% Tregs in peripheral blood; Down-regulation of Tregs in allergy is mainly a consequence of reduced number of IL-10⁺ Tregs in peripheral blood; Not only allergic conditions, but also eczema showed down-regulation of Tregs; Approximately 55.5% Tregs are CD127⁺ in peripheral blood and this cell population was dramatically enhanced by up to 90% in allergic conditions; CD8⁺Tregs (CD8⁺FOXP3⁺IL-10⁺) exhibit a small proportion (1.2%) of CD8⁺ cells in peripheral blood, and they are decreased under allergic conditions; IL-17⁺Tregs (CD4⁺CCR6⁺FOXP3⁺IL-17⁺) rarely exist in peripheral blood. Therefore it is proposed that there may be a novel balance between IL-10⁺ Tregs and CD127⁺Tregs which suggests that targeting Treg therapy should be focused on these two cell populations.

Biography

Huiyun Zhang has completed her PhD in Pathophysiology from Shantou University Medical School in 2007 and Postdoctoral studies from the McMaster University in 2014. She is the Director of Pathophysiology Department, Liaoning Medical University, the Associate Director of Allergy and Clinical Immunology Research Centre, the First Affiliated Hospital of Liaoning Medical University and the Associate Director of Translational Medicine Research Institute, Liaoning Medical University. She has published more than 26 papers in reputed journals and has been serving as an Editorial Board Member of repute.

zhanghuiyun2003@126.com

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