Mice Min-Chao Duan, J Pulm Respir Med 2016, 6:4(Suppl)
http://dx.doi.org/10.4172/2161-105X.C1.013

Th17 cell enhances CD8 T-cell cytotoxicity via IL-21 production in Emphysema

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Emphysema is a T-cell mediated autoimmune disease caused predominantly by cigarette smoking. Th17 cells and related cytokines may contribute to this disorder. However, the possible implication of Th17 cells in regulating inflammatory response in emphysema remains to be elucidated. In the current study, we tested the protein levels of IL-17 and IL-21 in peripheral blood and lung tissues from cigarette-smoke- (CS-) exposed mice and air-exposed mice, analyzed the frequencies of CD4+IL-17+(Th17) cells, IL-21+Th17 cells, and CD8+IL-21R+ T cells in peripheral blood and lung tissues of mice, and their relationship with emphysematous lesions, and explored the impact of IL-21 on cytotoxic CD8+ T cells function in vitro. It was found that the frequencies of Th17, IL-21+Th17, and CD8+IL-21R+ T cells and the levels of IL-17 and IL-21 of CS-exposed mice were much higher than those of the air-exposed mice and correlated with emphysematous lesions. Additionally, the number of IL-21+Th17 cells positively correlated with the number of CD8+IL-21R+ T cells. The *in vitro* experiments showed that IL-21 significantly augmented the secretion of performing and granzyme B in CD8+ T cells from CS-exposed mice. These data indirectly provide evidence that Th17 cells could be involved in the control of the local and system inflammatory response in emphysema by regulating CD8+ cytotoxic T-cell function.

Biography

Min-Chao Duan is working in Department of Respiratory Medicine, at the Eighth People's Hospital of Nanning, China. He is researching on non-small cell lung cancer (NSCLC) by Th17/Treg cells. The objective of this study was to investigate the variation of Th17 and Treg cells in the peripheral blood of patients with NSCLC.

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