Stimulation of bacterial biofilms on Th17 immune cells

G.Q. Wang¹, L. Wang¹, H.L. Zhang¹, Y.Q. Dong¹ and Y.X. Yang²

¹Clinical Laboratory of the First Affiliated Hospital, XinXiang Medical University, Henan Weihui, China
²Department of Ophthalmology, The First Affiliated Hospital, Xinxiang Medical University, Henan Weihui, China

Corresponding author: G.Q. Wang
E-mail: wgqiang345@163.com

Received October 21, 2014
Accepted April 24, 2015
Published July 13, 2015
DOI http://dx.doi.org/10.4238/2015.July.13.18

ABSTRACT. We investigated the role of bacterial biofilms in stimulating T helper 17 (Th17) cells in infected organisms. The formation of bacterial biofilms isolated from clinical lavage fluid samples was measured. Th17 cells and interleukin 17 (IL-17) levels in the peripheral blood of healthy individuals, people infected by biofilm bacteria, people infected by non-biofilm bacteria, and in the lavage fluid from people infected by bacteria were determined. Differences in those data were tested using the SPSS 17.0 statistical software. Th17 cells and IL-17 levels in the peripheral blood of biofilm bacteria-infected people, non-biofilm bacteria-infected people, and healthy controls were 0.59 ± 0.18% and 108.8 ± 20.5 pg/mL; 0.58 ± 0.18% and 100.1 ± 20.7 pg/mL; and 0.55 ± 0.17% and 100.0 ± 21.4 pg/mL, respectively; there were no statistically significant differences (P > 0.05). Th17 cells and IL-17 levels in the lavage fluid of biofilm bacteria-infected people and non-biofilm bacteria-infected people were 1.37 ± 0.34% and 157.4 ± 30.8 pg/mL; and 1.11 ± 0.21% and 136.2 ± 24.3 mg/mL, respectively; the differences were statistically significant (P < 0.05). Bacterial biofilms can increase the expression
levels of Th17 cells and IL-17 in local infections; this may be the mechanism by which chronic injuries are caused by biofilm infections.

**Key words:** Biofilm; Bacteria; T helper 17 cells; Interleukin 17