



Associations between tumor necrosis factor- α polymorphisms and susceptibility to pulmonary tuberculosis: meta-analysis

Y.H. Lee and G.G. Song

Division of Rheumatology, Department of Internal Medicine,
Korea University College of Medicine, Seoul, Korea

Corresponding author: Y.H. Lee
E-mail: lyhcggh@korea.ac.kr

Genet. Mol. Res. 14 (3): 8602-8612 (2015)

Received September 3, 2014

Accepted April 6, 2015

Published July 31, 2015

DOI <http://dx.doi.org/10.4238/2015.July.31.8>

ABSTRACT. The aim of this study was to determine whether tumor necrosis factor- α (*TNF- α*) polymorphisms are associated with susceptibility to pulmonary tuberculosis (PTB) in different ethnic populations. MEDLINE and Embase databases and manual searches were employed to identify articles in which *TNF- α* polymorphisms were determined in patients with PTB and controls. A meta-analysis was conducted on the associations of the *TNF- α* -308A/G, -238A/G, and -857T/C polymorphisms with PTB susceptibility. A total of 13 studies met the inclusion criteria, including 12, 6, and 4 studies on *TNF- α* -308A/G, -238A/G, and -857T/C polymorphisms, respectively. Meta-analysis showed no association between the *TNF- α* -308A allele and PTB susceptibility in all study subjects (odds ratio, OR = 1.182, 95%CI = 0.989-1.411, P = 0.066). After stratification by ethnicity, *TNF- α* -308A was not found to be associated with PTB in the European, Asian, or Middle East populations. No association was identified between PTB susceptibility and the *TNF- α* -238A allele in all study subjects (OR = 1.031, 95%CI = 0.741-1.436, P = 0.855), or in the European and Asian populations. However, *TNF- α* -857T was significantly associated

with PTB susceptibility specifically in Asians (OR = 0.682, 95%CI = 0.550-0.846, P = 4.8×10^{-5}). Meta-analysis using the dominant model, recessive model, or homozygote contrast showed the same pattern of results as for the *TNF- α* -857T allele. Overall, no correlation was noted between the *TNF- α* -308A/G and -238A/G polymorphisms and PTB susceptibility. However, the *TNF- α* -857T/C polymorphism was found to be associated with PTB susceptibility in the Asian population.

Key words: Tumor necrosis factor; Polymorphism; Meta-analysis; Pulmonary tuberculosis