



# Association of -238G/A and -863C/A polymorphisms in the TNF- $\alpha$ gene with chronic obstructive pulmonary disease based on a meta-analysis

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**ABSTRACT.** Chronic obstructive pulmonary disease (COPD) is a chronic systemic inflammatory disease; increasing evidence indicates that the TNF- $\alpha$  polymorphism is associated with progression of this disease. Few studies have focused upon association between TNF- $\alpha$  -238G/A or -863C/A polymorphism and COPD risk. Reported associations have been controversial because of small sample size and varied study design among the different studies. We performed a meta-analysis to assess the correlation of these two polymorphisms in the TNF- $\alpha$  gene with COPD risk. A comprehensive search was conducted to identify all published articles on the association between TNF- $\alpha$  -238G/A or -863C/A polymorphism and COPD risk from different databases. Pooled odds ratios (ORs) with 95% confidence intervals (CI) were calculated, and the heterogeneity and publication bias were assessed. Eight articles with 10 eligible studies met our inclusion criteria; six studies were of the -238G/A polymorphism and the others involved the -863C/A polymorphism. In the case of the -863C/A

polymorphism, significant association was detected only in Asians in the A allele carriers (GA+AA versus GG genotype) and allele (A versus G allele) model (OR = 0.505, 95%CI = 0.321-0.795 and OR = 0.560, 95%CI = 0.368-0.851, respectively). However, no significant association was detected for the -238G/A polymorphism. No evidence of between-study heterogeneity and publication bias was detected. We suggest a potentially protective role of the A allele in the TNF- $\alpha$  -863C/A polymorphism against developing COPD in Asians. This hypothesis needs further studies for confirmation.

**Key words:** Chronic obstructive pulmonary disease; Meta-analysis; Tumor necrosis factor-alpha; Polymorphism