Independent and joint effects of the \textit{IL-6} and \textit{IL-10} gene polymorphisms in pulmonary tuberculosis among the Chinese Han population

F.M. Feng\textsuperscript{1}, X.X. Liu\textsuperscript{1}, Y.H. Sun\textsuperscript{1}, P. Zhang\textsuperscript{2}, S.F. Sun\textsuperscript{3}, B. Zhang\textsuperscript{1},
X.T. Wang\textsuperscript{1} and L.J. Lu\textsuperscript{1}

\textsuperscript{1}Key Laboratory of Occupational Health and Safety, School of Public Health, Hebei United University, Tangshan, China
\textsuperscript{2}Tangshan Tuberculosis Hospital, Tangshan, China
\textsuperscript{3}College of Nursing and Rehabilitation, Hebei United University, Tangshan, China

Corresponding author: F.M. Feng
E-mail: fm_feng@sina.com

Received July 27, 2013
Accepted February 7, 2014
Published September 26, 2014

\textbf{ABSTRACT.} We investigated the association between interleukin (IL)-6 and IL-10 gene polymorphisms and the susceptibility to pulmonary tuberculosis (PTB). DNA samples were obtained from 191 Han Chinese patients with PTB and 191 healthy control subjects. \textit{IL-6} (-572, -174, -597) and \textit{IL-10} (-1082, -819) polymorphisms were analyzed using polymerase chain reaction-restriction fragment length polymorphism. The \textit{IL-6} -572 C/C and \textit{IL-10} -819 T/T genotypes were observed less frequently in the case group than in the control group, with crude odds ratios of 0.591 [95\% confidence interval (CI) = 0.381-0.917] and 0.401 (95\%CI = 0.257-0.627), respectively. A significant association remained after adjusting for environmental factors in multivariate logistic analysis. The homozygote genotypes
of \textit{IL-6} -572 and \textit{IL-10} -819 had an adjusted OR of 0.565 (95\%CI = 0.356-0.898) and 0.341 (95\%CI = 0.210-0.553), respectively. These results indicate that the mutant heterozygote \textit{IL-10} -1082 A/G+G/G genotype and the homozygote \textit{IL-10} -819 T/T genotype have a combined effect on PTB. These results suggest that the \textit{IL-6} -572 C/C and \textit{IL-10} -819 T/T genotype polymorphisms are protective factors against PTB.

**Key words:** Genetic polymorphism; Interleukin-6; Interleukin-10; Pulmonary tuberculosis