Transforming Growth Factor-Beta 1 Gene Polymorphism in Tuberculosis Patients

Vijay Kumar, Rajiv Khosla, Ajay Kumar, Vikas Gupta and B.C. Sarin1

Department of Molecular Biology and Biochemistry, Guru Nanak Dev University, Amritsar, Punjab, India
1Department of TB and Chest, Sri Guru Ram Das Institute of Medical Sciences and Research, Amritsar 1 43 002, Punjab, India

KEYWORDS TGF-β1; tuberculosis; single nucleotide polymorphism; ARMS-PCR; cytokine

ABSTRACT Tuberculosis (TB) is a curable infectious disease that kills around half million individuals every year in India. Cytokines play a vital role in the pathogenesis of this deadly disease. Transforming growth factor-beta 1 (TGF-β1) is one of the important anti-inflammatory cytokine found to be elevated in TB patients. Single nucleotide polymorphisms (SNP) in the promoter of TGF-β1 cytokine gene are known to alter the production of this important cytokine. Given its immunosuppressive nature increased production of this cytokine is implicated towards susceptibility to TB. The C/T polymorphism in TGF-β1 promoter at -509 site is strongly associated with circulating levels of this cytokine and T allele is shown to be associated with its high production. Thus, in the present study we looked for association of TGF-β1 (C-509T) SNP with TB. A total of 245 subjects (145 TB patients and 100 normal healthy controls) were recruited for study. The -509 polymorphism was studied using Amplification Refractory Mutation System- Polymerase Chain Reaction (ARMS-PCR). The distribution of C/T alleles in TB patients and normal healthy controls did not reveal any statistically significant association of this polymorphism with TB ($\chi^2 = 0.04; p = 0.85$).