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## **Association of IL-10 gene polymorphism with recurrent pulmonary tuberculosis**

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**Background and objective:** To study association of IL-10 gene polymorphism with recurrent pulmonary tuberculosis (RPTB).

**Methods:** The study comprised 130 individuals in Kharkiv region of Ukraine including 100 patients with RPTB (group 1) and 30 healthy donors (group 2). Serum levels of IL-10 were evaluated by ELISA. Investigations of gene polymorphisms of these cytokines were performed using restriction analysis of the amplification products of specific regions of the genome. Polymorphic variants were examined: promoter region G1082A gene IL-10.

**Results:** In the 1<sup>st</sup> group the levels of IL-10 were  $40.04 \pm 0.74$  pg/L, while in 2<sup>nd</sup> group these values were  $50.25 \pm 1.26$  pg/L ( $p < 0.05$ ). Among patients with RPTB the heterozygous GA genotype was most prevalent:  $64.00 \pm 4.80\%$  ( $N=64$ ) for IL-10 ( $p < 0.05$ ). The homozygous AA genotype was accordingly less common:  $23.00 \pm 4.21\%$  ( $N=23$ ) and remaining had homozygous GG genotype, i.e.,  $13.00 \pm 3.36\%$  ( $N=13$ ) for IL-10. In contrast, most of healthy donors had homozygous GG genotype with  $56.67 \pm 9.05\%$  ( $N=17$ ) with low frequency of mutations:  $20.00 \pm 7.30\%$  ( $N=6$ ) and heterozygous GA genotype  $23.33 \pm 7.72\%$  ( $N=7$ ) for IL-10 genes ( $p < 0.05$ ).

**Conclusion:** Compared to healthy controls patients with RPTB had significantly lower levels of serum IL-10. This coincided with greater frequency of heterozygous GA polymorphism G1082A genes of IL-10. Further studies are warranted whether higher rate of recurrent TB has a causal immunogenetic relationship to polymorphism of genes encoding for IL-10.