

DISERTASI

**HUBUNGAN POLIMORFISME PROMOTOR GEN TNF- α DAN IL-10
DENGAN KADAR TNF- α DAN IL-10 SERUM SERTA
KERENTANAN TUBERKULOSIS PARU
PADA ETNIS MINANGKABAU**



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ABSTRACT

RELATIONSHIP OF POLYMORPHISM PROMOTERS OF THE TNF- α AND IL-10 GENES WITH SERUM TNF- α AND IL-10 LEVELS AND PULMONARY TUBERCULOSIS SUSCEPTIBILITY IN MINANGKABAU ETHNICITY

Debie Anggraini

The promotor polymorphism of the TNF- α and IL-10 genes is thought to affect transcription activity with respect to TB susceptibility, the polymorphism of the TNF- α gene (rs361525) has been shown to increase the risk of active TB as it substantially affects TNF- α production levels. The promotor polymorphism of the IL-10 gene (rs 1800896) can affect the levels and function of secreted IL-10 cytokines, thereby affecting TB susceptibility.

Research with a case control study design, research samples were obtained at the West Sumatra Lung Hospital and polymorphism analysis of promoters of the TNF- α gene and IL-10 genes as well as cytokine levels of TNF- α and IL-10 were carried out at the Biomedical Laboratory of Andalas University. The study sample consisted of case and control groups, which meet inclusion criteria and difference in the proportions of the two groups using Chi square test SPSS 25.0.

The results of the study obtained the presence of polymorphism promotor the TNF- α gene (rs361525) in Minangkabau ethnic pulmonary TB patients, namely 100% Wildtype homozygous. The gene-promotor polymorphism of IL-10 (rs1800896) pulmonary TB patients of Minangkabau ethnicity was 97.62% Wildtype homozygous and 2.38% mutant homozygous. The promotor polymorphism of the IL-10 gene (1800896 hospital) has no relationship with serum IL-10 levels in pulmonary TB patients ($p>0.05$). Analysis of pulmonary TB susceptibility based on serum TNF- α levels had no association with the incidence of pulmonary TB ($p>0.05$). Susceptibility to pulmonary TB based on serum IL-10 levels has a significant relationship with the incidence of pulmonary TB in Minangkabau ethnicity ($p<0.05$).

This study concluded that no polymorphism promotor the TNF- α gene (rs361525) was found but a small amount of polymorphism promotor the mutant homozygous IL-10 (rs1800896) gene in Minangkabau ethnic pulmonary TB patients was found. Susceptibility of pulmonary TB based on serum IL-10 levels has a significant relationship with the incidence of pulmonary TB with an Odds Ratio (OR) of 4.25. IK of 95%.

Keywords : TNF- α Gene Polymorphism, IL-10 Gene Polymorphism, Pulmonary Tuberculosis Susceptibility, Minangkabau Ethnicity

ABSTRAK

HUBUNGAN POLIMORFISME PROMOTOR GEN TNF- α DAN IL-10 DENGAN KADAR TNF- α DAN IL-10 SERUM SERTA KERENTANAN TUBERKULOSIS PARU PADA ETNIS MINANGKABAU

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Polimorfisme promotor gen TNF- α dan IL-10 diperkirakan memengaruhi aktivitas transkripsi sehubungan dengan kerentanan TB, polimorfisme gen TNF- α (rs361525) terbukti meningkatkan risiko TB aktif karena secara substansial memengaruhi kadar produksi TNF- α . Polimorfisme promotor gen IL-10 (rs 1800896) dapat memengaruhi kadar dan fungsi sitokin IL-10 yang disekresikan, sehingga berpengaruh terhadap kerentanan TB.

Penelitian dengan desain *case control study*, sampel penelitian diperoleh di RS Paru Sumatera Barat dan analisis polimorfisme promotor gen TNF- α dan gen IL-10 serta kadar sitokin TNF- α dan IL-10 dilakukan di Laboratorium Biomedik Universitas Andalas. Sampel penelitian terdiri dari kelompok kasus dan kontrol, memenuhi kriteria inklusi dan perbedaan proporsi dua kelompok menggunakan uji *Chi square* SPSS 25.0

Hasil penelitian diperoleh adanya polimorfisme promotor gen TNF- α (rs361525) pada pasien TB paru etnis Minangkabau yaitu 100% homozigot *Wildtype*. Polimorfisme promotor gen IL-10 (rs1800896) pasien TB paru etnis Minangkabau 97.62% homozigot *Wildtype* dan 2.38% homozigot mutan. Polimorfisme promotor gen IL-10 (rs 1800896) tidak memiliki hubungan dengan kadar IL-10 serum pada pasien TB paru ($p>0.05$). Analisis kerentanan TB paru berdasarkan kadar TNF- α serum tidak memiliki hubungan dengan kejadian TB paru ($p>0.05$). Kerentanan TB paru berdasarkan kadar IL-10 serum memiliki hubungan signifikan dengan kejadian TB paru pada etnis Minangkabau ($p<0.05$).

Penelitian ini disimpulkan bahwa tidak ditemukan polimorfisme promotor gen TNF- α (rs361525) tetapi ditemukan sejumlah kecil polimorfisme promotor gen IL-10 (rs1800896) homozigot mutan pada pasien TB paru etnis Minangkabau. Kerentanan TB paru berdasarkan kadar IL-10 serum memiliki hubungan signifikan dengan kejadian TB paru dengan *Odds Ratio* (OR) yaitu sebesar 4.25, IK 95%.

Kata kunci : Polimorfisme Gen TNF- α , Polimorfisme Gen IL-10, Kerentanan Tuberkulosis Paru, Etnis Minangkabau

