

DETEKSI VARIAN RS9939609 DAN RS1421085 GEN *FAT* MASS AND OBESITY (*FTO*) PADA PASIEN DENGAN OBESITAS

Luisa Ramyahastri Paramatatya

20/458291/BI/10524

Dosen Pembimbing: Dr. Niken Satuti Nur Handayani, M.Sc.

INTISARI

Obesitas adalah keadaan di mana seseorang melebihi berat badannya secara relatif, akibat penumpukan gizi terutama karbohidrat, protein, dan lemak. Sebanyak 13,5% orang dewasa berusia 18 tahun ke atas di Indonesia mengalami kelebihan berat badan atau *overweight*, dan 28,7% mengalami obesitas. Beberapa varian gen *FTO* dapat meningkatkan risiko terjadinya obesitas, yakni varian rs9939609 dan rs1421085. Oleh karena itu, penelitian ini bertujuan untuk mengetahui apakah ada varian rs9939609 dan rs1421085 gen *FTO* pada pasien obesitas di Rumah Sakit Panti Rapih Yogyakarta. Selain itu, penelitian ini dilaksanakan untuk menentukan prevalensi varian rs9939609 dan rs1421085 gen *FTO* pada populasi Rumah Sakit Panti Rapih Yogyakarta. Subjek dalam penelitian ini adalah pasien obesitas yang memenuhi kriteria inklusi dan bersedia mengikuti penelitian. Deteksi varian rs9939609 dan rs1421085 gen *FTO* dilakukan dengan metode Tetra-ARMS PCR. Hasil ekstraksi DNA diperoleh dari sampel *saliva* pasien. Analisis dari penelitian ini dilakukan dengan observasi pita DNA hasil amplifikasi dengan PCR. Hasil dari penelitian ini menunjukkan bahwa varian rs9939609 dan rs1421085 gen *FTO* dapat dideteksi pada pasien obesitas di Rumah Sakit Panti Rapih Yogyakarta. Prevalensi dari varian rs9939609 dan rs1421085 gen *FTO* yang diperoleh adalah 50% dari total 10 subjek penelitian. Hasil dari penelitian ini menunjukkan potensi varian rs9939609 dan rs1421085 gen *FTO* sebagai biomarker untuk memprediksi risiko obesitas.

Kata kunci: gen *FTO*, obesitas, rs1421085, rs9939609

DETECTION OF RS9939609 AND RS1421085 VARIANTS OF *FAT MASS AND OBESITY (FTO)* GENE IN PATIENTS WITH OBESITY

Luisa Ramyahastri Paramatatya

20/458291/BI/10524

Supervisor: Dr. Niken Satuti Nur Handayani, M.Sc.

ABSTRACT

Obesity is a condition in which nutrients, particularly carbs, protein, as well as fat, accumulate in excess of a person's proportional body weight. About 13,5% of adults aged 18 years and older are overweight in Indonesia, while 28,7% are obese. Particularly, variants rs9939609 and rs1421085 of the *FTO* gene have been shown to raise the risk of obesity. Therefore, the purpose of the study is to ascertain whether obese patients at Panti Rapih Hospital Yogyakarta harbor the *FTO* gene variants rs9939609 and rs1421085. Furthermore, the prevalence of the *FTO* gene variants rs9939609 and rs1421085 at Panti Rapih Hospital Yogyakarta was investigated in this study. Patients who were willing to engage in this study and who fulfilled the inclusion criteria for the study were chosen as subjects. The Tetra-ARMS PCR technique was used to identify the *FTO* gene variants rs9939609 and rs1421085. DNA extracts were extracted from the saliva samples of the chosen subjects. This study's analysis was carried out by observing the DNA band resulting from amplification by PCR. The outcomes of this study indicate that obese individuals at Panti Rapih Hospital Yogyakarta have the *FTO* gene variants rs9939609 and rs1421085. Among all ten subjects in this study, 50% were found to have the *FTO* gene variants rs9939609 and rs1421085 prevalent. This study's findings suggest that the *FTO* gene rs9939609 and rs1421085 variants may be used as potential biomarkers to estimate the risk of obesity.

Keywords: *FTO* gene, obesity, rs1421085, rs9939609