

**DISERTASI**

**HUBUNGAN INDEKS ATEROGENIK PLASMA, EKSPRESI mRNA FAM19A5,  
DAN KADAR FAM19A5 DENGAN GAMBARAN HISTOPATOLOGIS  
ARTERI KORONER PADA TIKUS MODEL OBESITAS**



Oleh  
**PRIMA ADELIN**  
2230312004

**Pembimbing:**

1. **Dr. dr. Efrida, Sp.PK, SubSp.IK(K), M. Kes**
2. **dr. Rauza Sukma Rita, PhD**
3. **Dr. dr. Eka Fithra Elfi, Sp.JP(K), FIHA**

**PROGRAM STUDI ILMU BIOMEDIS PROGRAM DOKTOR  
FAKULTAS KEDOKTERAN  
UNIVERSITAS ANDALAS  
2026**

## ABSTRACT

### ***THE RELATIONSHIP OF PLASMA ATHEROGENIC INDEX, FAM19A5 mRNA EXPRESSION, AND FAM19A5 LEVELS WITH THE CORONARY ARTERY HISTOPATHOLOGY IN DIET INDUCED OBESITY RATS***

**Background:** Subclinical atherosclerosis in obesity is often not detected early. FAM19A5 is a novel atheroprotective adipokine that plays a role in inhibiting the proliferation and migration of vascular smooth muscle cells, but its expression in adipose tissue and its relationship to vascular lesions still needs further investigation. Plasma atherogenic index (IAP) is also a predictive indicator of cardiovascular risk, but its association with coronary histopathological changes has not been extensively evaluated experimentally.

**Objective:** to analyze the relationship between IAP values, mRNA expression FAM19A5 adipose tissue, and circulating FAM19A5 levels with a histopathological picture of coronary arteries in obesity model mice induced by a high-fat, high-fructose diet (DTLF).

**Methods:** Fourteen male Sprague-dawley mice were divided into a control group and an obesity model. Examination of circulatory FAM19A5 levels (ELISA), expression of mRNA FAM19A5 in adipose tissue (qRT-PCR), plasma lipid levels, IAP calculations, and histopathological examination of coronary arteries with HE staining have been performed. The results of the histopathological picture were classified into a score of 0-3. Statistical analysis was conducted using SPSS version 25, and the  $p < 0.05$  value was considered statistically significant.

**Results:** There was an increase in IAP and differences in coronary artery histopathological picture scores between the obesity model group and the control ( $p < 0.05$ ). There was an increase in FAM19A5 in the obesity model group but it was not statistically significant. The expression of mRNA was FAM19A5 not detected in the adipose tissues of both groups. There was no significant difference in the value of IAP based on the histopathological picture score of the coronary arteries. There is a significant difference in FAM19A5 levels based on the score of the histopathological picture of the coronary arteries.

**Conclusions:** Obesity model mice exhibited significantly increased IAP and histopathological changes of coronary arteries compared to controls; mRNA expression was FAM19A5 not detected in adipose tissue, and only significantly different circulatory FAM19A5 levels based on coronary artery histopathological scores

**Keywords:** coronary arteries, FAM19A5, histopathological, IAP, obesity