

## **The expression level of IL-17A, IL-17F, MAPK, and USP25 in the lung tissue of obese male and female ovalbumin-sensitized rats**

### **Abstract**

**Background:** The association between asthma and obesity have shown but its exact mechanism is unclear.

**Aim:** The present study aimed to evaluate the gene expression levels of IL-17//MAPK/USP25 axis in the lung tissue of obese Ovalbumin (OVA)-sensitized female and male Wistar rats.

**Methods and material:** The animals were divided into eight groups (n=5 per group) as follows: 1) Female rat with the normal diet (Female-ND), 2) Male rat with the normal diet (Male-ND), 3) Female OVA-sensitized rats with the normal diet (Female-SND), 4) Male OVA-sensitized rats with the normal diet (Male-SND), 5) Female rats with the high-fat diet (Female-HFD), 6) Male rats with the high-fat diet (Male-HFD), 7) Female OVA-sensitized rats with the high-fat diet (Female-SHFD), 8) Male OVA-sensitized rats with the high-fat diet (Male-SHFD). At the end of the study, tracheal responsiveness to methacholine and IL-17//MAPK/USP25 axis expression in the lung tissue were determined.

**Results:** In both sexes, in obese OVA-sensitized rats, the curve of methacholine concentration-response shifted to the left and EC<sub>50</sub> methacholine was decreased. An elevated IL-17/MAPK axis genes and a decrease in USP25 gene expression were observed in obese OVA-sensitized groups, which was more pronounced in female rats.

**Conclusion:** The results indicate that in obese OVA-sensitized rats, the IL-17 axis was involved in the pathogenesis of the disease and can be considered as therapeutic targets in patients with obesity-related asthma.

**Keywords:** Asthma, Obesity, IL-17, USP25, MAPK.