

## **Abstract**

Adipose tissue plays an important role in energy and glucose homeostasis. Adipose tissue metabolism includes lipolysis and lipogenesis processes which control lipid mobilization, storage and distribution in the body. In addition to that adipose tissue is recognized as an endocrine organ which generates cytokines and adipokines for communication with other organs and tissues. The major process of lipogenesis is triacylglycerol synthesis which comprises such enzymes as monoacylglycerol acyltransferase and diglyceride acyltransferase for triacylglycerol storage in a form of lipid droplets. The other way around main enzymes of lipolysis adipose triglyceride lipase and hormone-sensitive lipase produce sufficient amount of energy for other tissues. Lipid combustion in brown adipose tissue produces heat in the body through the function of uncoupling protein 1. Signaling pathways of lipolysis and thermogenesis comprise adrenergic receptors. Study of thermogenic function of uncoupling protein and adipose tissue metabolism can be useful for the treatment of obesity and metabolic disorders.