

Abstract

Brown adipose tissue (BAT) is activated under the influence of the adrenergic system and thyroid hormones in response to a cold stimulus. It's main task is to cover the body heat loss and maintain the stability of the internal environment . BAT is in most cases found in new-borns accounting for 5% of the whole body. Cells found in BAT contain a high number of mitochondria with high respiratory capacity but low ATP-synthase activity which allows the production of heat instead of ATP in process of glucose oxidation. The result is non-shivering thermogenesis. The task of my work is to summarize the current knowledge about the development of BAT and to point out the markers for its characterization. The work will also include differences in adipose tissue maturation in selected model organisms.

Key words: brown adipose tissue, white adipose tissue, beige adipose tissue, non-shivering thermogenesis, uncoupling protein 1