

Abstrakt AJ

The thesis deals with the task of futile metabolic cycling, mainly on the cycle including lipolysis and fatty acid re-esterification, which takes place in white adipose tissue. This cycle plays some essential roles in organism, including regulation of important metabolic pathways in lipid metabolism and also exhibit certain influence on the whole body energy metabolism.

First part of the thesis is focused on general properties of futile metabolic cycles and shows some examples of their functions in organism. Next part presents detail view on single steps making the whole lipolysis/re-esterification cycle. Considerable part deals with the ways of regulation of futile cycle activity. This approach may increase an impact of futile cycling on processes under its influence.

Physiological relevance of futile metabolic cycle based on lipolysis and fatty acid re-esterification in white adipose tissue was described in numerous studies. This thesis shows their results for a purpose to provide a summary of functions of this system in physiology of mammals.

Key words

futile metabolic cycle, lipolysis, re-esterification, fatty acids, adipose tissue