Abstract

In recent years the prevalence of obesity has significantly increased, pursued by multiplication of patients with type 2 diabetes, cardiological problems and premature death. Between the most dangerous forms of obesity belongs its monogenic type as it is a disease caused by single causal mutation with typical phenotype of severe obesity and hyperphagia. The aspiration of this thesis is to summarise the most important genes, mutation of which may cause monogenic type of obesity. The first chapters outline general genetic causes of obesity and importance of Leptin-melanocortin pathway in terms of its role in energy homeostasis. Subsequent sections identify genes involved in monogenic obesity, e.g. *MC4R, LEP, LEPR, SIM1* and *BDNF*. Finally, the thesis summarizes possible new treatments, including new drug "Setmelanotide".

Key words:

Genetics, Obesity, Monogenic obesity, Leptin-Melanocortin pathway, MC4R, Setmelanotide