

Abstract

N6-Methyladenosine is the most common post-transcriptional modification of RNA. It has been recently found that this ubiquitous modification can significantly affect further processing, transport and degradation of RNA and it is a significant epigenetic regulatory factor overall. N6-methyladenosine is an *in vivo* substrate for RNA-demethylase FTO, the function of which is on molecular level manifested by demethylation of N6-methyladenosine. RNA-demethylase FTO has an important regulatory function in tissues and in the body in the control of metabolism and in the maintenance of energy homeostasis. Dysbalance in the levels of RNA-demethylase FTO may be the cause of various pathophysiological conditions, such as obesity. The aim of this thesis is to review the main findings in this field.