Abstract

The modification of mRNA by m^6A methylation was first discovered in the 1970s and current studies show its role in various physiological processes. One of the studied functions of m^6A methylation is its role in regulation of the circadian system and clock genes. The m^6A methylation is catalysed by m^6A methylases. This methylation can be reversed by m^6A demethylases. The demethylase ALKBH5 plays a role in spermatogenesis, cancer, the brain development and major depressive disorder. Here, we study the effect of ALKBH5 inhibiton in the central regulatory component of the circadian system, the suprachiasmatic nucleus of rats and PER2::LUC mice. We studied what effect ALKBH5 inhibition has on the expression of clock genes *Per2*, *Bmal1*, *Nr1d1* and also genes *Socs3*, *Stat3*, *Gfap* and *Fto.*

Keywords: circadian system, m^6A methylation, ALKBH5, SCN, clock genes