

Abstract

The ability to sense 24-hour cycles in external environment and to adapt to them is present in a great array of species living on the Earth. Mammals possess internal time-keeping system which is composed of circadian clocks located in the suprachiasmatic nuclei (SCN) of the hypothalamus and peripheral clocks in various tissues and organs of the body. These clocks are adapting to the changes of external environment, such as light and dark cycles or feeding cycles. Peripheral clocks in the organs of the digestive system are synchronized with the signals derived from the central clock in the SCN and also with signals from food intake. Discordance between these signals may result in development of various diseases of the gastrointestinal tract (GIT) related to insufficient digestion or even in higher risk of developing a cancer. This bachelor thesis is generally aimed at circadian rhythms in the body, with the focus on rhythms in the GIT. It will deal with the importance of the circadian rhythms for correct GIT functions. Furthermore, the thesis is focused on connection between the desynchronization of the circadian clock and GIT disease development, namely of obesity and cancer.