

Abstract

The circadian rhythm is a biological cycle in the human body lasting approximately 24 hours that regulates many bodily functions, including cognitive ones. This cycle is managed at the molecular level by transcription-translation feedback loops composed of the circadian genes *CLOCK*, *BMAL1*, *PER* and *CRY*. Cognitive functions such as memory, attention, and executive functions are strongly influenced by these circadian rhythms through the regulation of body temperature, regulation of hormone secretion, and regulation of the sleep-wake cycle. Variations in clock genes, known as polymorphisms, result in distinct chronotypes that manifest as individual differences in the internal timing of biological processes. However, these specific polymorphisms in clock genes can also modify an individual's sensitivity to disruptions in circadian rhythms, resulting in an impact on cognitive performance. This work focuses on the molecular mechanisms by which circadian rhythms and genetic polymorphisms affect cognitive function.

Keywords

Circadian rhythm, clock genes, chronotype, polymorphism, cognitive functions