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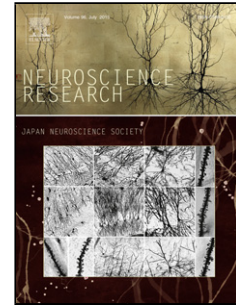
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Hypothalamic regulation of the sleep/wake cycle

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Highlights

- Orexin neurons are involved in maintenance of arousal state.
- Input and output pathways to orexin neurons.
- Manipulation and recording of neural activity of orexin neurons in vivo.
- MCH neurons play an important role in sleep/wakefulness regulation.
- Central circadian clock, suprachiasmatic nucleus, and sleep/wakefulness regulation.

Abstract

Sleep is one of the most important physiological functions in mammals. It is regulated by not only homeostatic regulation but also circadian clock. Several neuropeptide-producing neurons located in the hypothalamus are implicated in the regulation of sleep/wakefulness. Among them, orexin/hypocretin-producing neurons (orexin neurons) are a crucial component for maintenance of wakefulness, because lack of orexin function results in narcolepsy, which is a sleep disorder. Recent findings have identified substances that excite or inhibit neural activity of orexin neurons. Furthermore neural projections of the neurons

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