# The 55th Frontier Brain Science Seminar

Sponsored by Research Center for Idling Brain Science (RCIBS)

## Rapid eye movement sleep is initiated by basolateral amygdala dopamine signaling in mice


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場所: 富山大学附属病院2階 臨床講義室1


## Abstract

The sleep cycle is characterized by alternating non–rapid eye movement (NREM) and rapid eye movement (REM) sleeps. The mechanisms by which this cycle is generated are incompletely understood. We found that a transient increase of dopamine (DA) in the basolateral amygdala (BLA) during NREM sleep terminates NREM sleep and initiates REM sleep. DA acts on dopamine receptor D2 (Drd2)–expressing neurons in the BLA to induce the NREM-to-REM transition. This mechanism also plays a role in cataplectic attacks—a pathological intrusion of REM sleep into wakefulness—in narcoleptics. These results show a critical role of DA signaling in the BLA in initiating REM sleep and provide a neuronal basis for sleep cycle generation.



### References

Emi Hasegawa, Ai Miyasaka, Katsuyasu Sakurai, Yoan Cherasse, Yulong Li, Takeshi Sakurai. Rapid eye movement sleep is initiated by basolateral amygdala dopamine signaling in mice. Science. 2022 Mar 4;375(6584):994-1000.


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