演題詳細

Oral Sessions

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刺激と興奮
Stimulation and Excitation

開催日	2018/7/27
時間	17:00 - 18:00
会場	Room 10 (3B, 3F, No.2 Building, Kobe International Exhibition Hall)
Chairpersons	神谷 温之 / Haruyuki Kamiya (北海道大学大学院医学研究院神経生物学教室 / Department of Neurobiology, Hokkaido University Graduate School of Medicine) 安村 美里 / Misato Yasumura (大阪大学　大学院医学系研究科　解剖学講座(神経機能形態学) / Dept of Anat and Neurosci, Grad Sch of Med, Osaka Univ)

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2O-10e2-3 **Time: 17:30 - 17:45**

High-frequency deep brain stimulation of the lateral hypothalamic area prevents morphine reinforcement

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Deep brain stimulation (DBS) is a neurosurgical procedure that involves passing an electric current through leads implanted into certain areas of the brain. DBS is a safe and efficacious intervention in the management of patients with Parkinson's disease, essential tremor, and dystonia. It has been proposed as a promising intervention for patients with intractable substance use disorder. Therefore, we investigated if high-frequency stimulation of the lateral hypothalamic area (LHA) could affect morphine reward. Male Wistar rats were bilaterally implanted with bipolar stimulation electrodes in the LHA and trained to the morphine conditioned place preference (CPP). DBS with monophasic square pulses, 130 Hz, 100 µs pulse duration, and 150 µA was applied during the morphine-pairing sessions(30 min/day, four days) or drug-free postconditioning test (15 min) to determine its effect on the acquisition or expression of morphine reward, respectively. LHA DBS during morphine-conditioning prevented development of morphine-induced CPP. On the other hand, DBS during the postconditioning test failed to inhibit expression of morphine CPP. LHA DBS had no effect on sucrose reward, body weight, locomotor activity, and anxiety-like behavior. In conclusion, our results suggest that LHA DBS can prevent development of morphine reward without diminishing the motivation for natural rewards. Therefore, the LHA could be a potential target for research in the field of DBS-based treatment of treatment-refractory substance use disorder. Further studies will be necessary to assess the translatability of these findings to the clinic.

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