

Poster Sessions

本能と情動行動

Instinct and Emotional Behavior

開催日	2010年09月02日(木)
時間	13:00 - 14:00
会場	Poster Room 2

ラットの不安に伴うあくび反応における扁桃体の関与

Involvements of amygdala on yawning responses induced by fear conditioning in rats

演題番号 : P1-k20

久保田 なつこ / Natsuko Kubota:1 雨宮 誠一郎 / Seiichiro Amemiya:1 大塚 友実 / Tomomi Otsuka:1
西島 壮 / Takeshi Nisijima:1 北 一郎 / Ichiro Kita:1

1:首都大院・人間健康・行動生理 / Department of Human Health Science, Tokyo Metropolitan University

Previous studies have shown that yawning responses were frequently observed by administration of anxiogenics, as well as anxiety-like behavior such as freezing, grooming, and scratching. Although anxiety-like behavior is suggested to be involved in emotion and stress responses, the neural mechanisms underlying yawning responses accompanied with anxiety-like behavior are unclear. We have previously reported that activation of not only oxytocin (OT) neurons but also corticotropin-releasing factor (CRF) neurons in the hypothalamic paraventricular nucleus (PVN) are responsible for yawning responses. CRF neurons are generally known to play a critical role in various stress responses related to anxiety or fear. Furthermore, emotional processing produced states of anxiety and fear could be mediated by activity of amygdala. Thus, it is possible that yawning in the state of anxiety or fear might be involved in neuronal activities in the amygdala as well as the PVN. In this study, we examined the involvements of neuronal activities in both the amygdala and the PVN on yawning responses induced by fear conditioning with c-Fos immunohistochemistry in freely moving rats. For the fear conditioning, rats were placed in a conditioning box with electrical foot-shock (0.8 mA, 3 sec, 5 times) once 1 day before the experiment. We counted the number of yawning by direct observation for 60 min in the open-field box after a placement of rat in the same conditioning box without foot-shock. In the fear-conditioned rats, the number of yawning as well as fear- or anxiety-like behavior was significantly higher than control rats, i.e., no fear conditioning. The behavioral observation seemed to associate with c-Fos expression in the central nucleus of amygdala and PVN OT neurons. These findings suggest that amygdala might be involved in the induction of yawning responses by fear conditioning.



Date : September 2(Thu)>4(Sat), 2010
Venue : Kobe Convention Center

The 33rd annual Meeting of the JNS
Mitsuo Kawato, Ph.D. (Director/ATR Fellow, ATR
Computational Neuroscience Laboratories)

The 53rd Annual Meeting of JSN
Kazuhide Inoue, Ph.D. (Professor, Graduate School of
Pharmaceutical Sciences, Kyushu University)

The 20th Annual Meeting of JNNS
Shin Ishii, Ph.D.(Professor, Graduate School of
Informatics, Kyoto University)

Neuro2010