
Rodent Behaviour – Session 2

Oxytocin regulates aggressive behavior in nucleus accumbens in great long-tailed hamsters

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Human and animal aggressive behavior has been an important research topic in psychology and sociology. Mounting evidence suggests that oxytocin (OXT) and OXT receptor (OXTR) maybe crucial mediators of aggressive behavior. OXT modulates the social behavior within several brain regions including the amygdala, septum, nucleus accumbens (NAcc) hypothalamic paraventricular nucleus (PVN) and supraoptic nucleus (SON). Our study showed that OXT and OXTR are present in high level in NAcc of the great long-tailed hamsters, which maybe contribute to their aggressive behaviors. We proposed that OXT expression and the activation of the OXT receptor (OTR) in NAcc are associated with levels of aggression behaviors of the hamster. To test this hypothesis, we increased OXT level of great long-tailed hamsters in NAcc by infusing exogenous OXT chronically and examined whether hamsters would show a decreased level of aggressive behavior. We found that the hamster group with exogenous OXT infused into the NAcc showed elevated social explorative behaviors. Moreover, both the duration of active attack behavior and the active attacks frequency of the OXT infused hamster group decreased significantly. Immunohistochemistry results showed that the numbers of c-fos-positive cells were significantly decreased in neurons of the NAcc region in the hamster group infused with OXT compared with the hamster group infused with the vehicle only (Cerebro-Spinal Fluid, CSF). In summary, we proved that the elevated OXT level within a certain range in the NAcc region of the great long-tailed hamster could decrease their aggressive behaviors significantly.

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6th International Conference of Rodent
Biology and Management
and
16th Rodens et Spatium

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Book of Abstracts



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