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学位論文題目	Evaluation of <i>Pax6</i> mutant rat as a model for autism (<i>Pax6</i> 変異ラットの自閉症様行動異常についての解析)
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論文内容要旨

Autism is a highly variable neural developmental disorder that has a strong genetic basis. *Pax6* is a pivotal player in both brain development, postnatal neurogenesis and maturation of astrocytes, and functions in highly context-dependent manners. It is expressed in embryonic and adult neural stem cells, in astrocytes in the entire central nervous system, and in neurons in the olfactory bulb, amygdala, thalamus, and cerebellum. Maekawa and her colleagues have recently reported that *Pax6* heterozygous mutant (*rSey^{2/+}*) rats with a spontaneous mutation in the *Pax6* gene show impaired prepulse inhibition (PPI). In the present study, the behaviors of *rSey^{2/+}* rats were examined and it is found that they exhibit abnormalities in measures of social interaction (higher degrees of aggression and withdrawal) in addition to impairment in rearing activity and fear-conditioned memory. Ultrasonic vocalizations (USV) of *rSey^{2/+}* rat pups were normal in males but abnormal in females. Moreover, treatment with clozapine successfully treated the defects in sensorimotor gating function but not in fear-conditioned memory. These data, taken together with human genetic data and results from the literature, suggest that *rSey^{2/+}* rats likely have some phenotypic components of autism.

