

Evaluation of emotional behavior characteristics of stress-adaptive and -maladaptive mice

Kazuya Miyagawa, Minoru Tsuji, Kazuhiro Kurokawa, Atsumi Mochida-Saito, Kohei Takahashi, Hiroshi Takeda

Dept. Pharmacol., Sch. Pharm., Int. Univ. Health and Welfare

In order to evaluate the emotional characteristics of mice, it is necessary to create an appropriate model and to adopt a useful behavior experiment device. The automatic hole-board test is an experimental method that can serve as a useful tool for evaluating the changes in various emotional states of mice. Especially, because the treatment with anxiolytics or anxiogenics and exposure to acute restraint stress affect head-dipping behavior, these behavioral changes may reflect the anxiogenic and/or anxiolytic state of mice. In addition, we created stress-adaptive and -maladaptive models in mice. A single exposure to restraint stress for 60 min produced a decrease in head-dipping behaviors of mice in the hole-board test, and these acute emotional responses were recovered by exposure to repeated restraint stress for 60 min/day for 7 or 14 days. However, mice that had been exposed to repeated restraint stress for 240 min/day for 7 or 14 days continued to show a decrease in head-dipping behavior in the hole-board test. Applying these models, we have recently found that prenatal stress exposure induces stress vulnerability and that histone deacetylase inhibitors can develop stress adaptation. In this symposium, we will introduce and discuss our recent findings.