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Testing cognitive functions in rodent disease models: present pitfalls and future perspectives

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Abstract

Testing of cognitive functions in rodent disease models constitutes a substantial sector of behavioral neuroscience. It is most often needed in phenotyping genetically modified new rodent (usually mouse) lines or in preclinical testing of cognitive effects of new CNS drugs. This review concerns present pitfalls and future perspectives in this large field, with an emphasis on memory testing in CNS disease models and their preclinical drug testing. It is important to realize that no behavioral test is specific for a single cognitive domain. There are numerous noncognitive factors that may lead to impaired performance in most widely applied memory tasks. It is important to rule these out by applying a battery of test that should include at least tests for motor functions, spontaneous activity and anxiety besides cognitive aspects. In addition, considering and reporting all task-relavant details will help to resolve the common problem that certain behavioral findings cannot be reproduced by other laboratories. More collaboration between molecular and behavioral neuroscience laboratories and systematic training of young neuroscientist on behavioral techniques will help ensure quality of behavioral studies in the future.

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