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Assessment of cognitive functions in animal models of schizophrenia.

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Abstract

Impaired cognitive functioning is recognized as an integral feature of schizophrenia. These deficits have emerged not only as an important predictor of clinical and social outcomes but also as a target for schizophrenia therapeutics. Several cognitive functions have been identified as being commonly deficient in schizophrenia patients, including attention, working memory, reasoning and problem solving, visual learning and memory or social cognition. The selected neuropsychological tests measuring these specific domains were included in the MATRICS Consensus Cognitive Battery (MCCB) and in the Cambridge Neuropsychological Test Automated Battery (CANTAB). While the MCCB and the CANTAB are used in clinical trials of cognition-enhancing drugs for schizophrenia, there is a growing need for a translational test battery that can be used in animal models. To reduce the translational gap between preclinical and clinical studies, the Cognitive Neuroscience Treatment Research to Improve Cognition in Schizophrenia (CINTRICS) programme has recommended animal tasks with construct validity for the evaluation of cognitive domains that are affected in schizophrenia. This review will overview rodent tests that are widely used to identify schizophrenia-like cognitive impairments, including CINTRICS's recommendations and novel touchscreen-based procedures.

Keywords: cognition; schizophrenia; translation; neurocognitive tests; rodent models