The cognitive function of the mice with an exonic deletion of RELN is impaired in touchscreen-based visual discrimination task

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Touchscreen-based cognitive tasks have been developed for rodents to provide a better translational approach across species for further understanding of the cognitive impairment observed in various neuropsychiatric disorders. Reelin protein (RELN), an extracellular matrix protein, plays an important role in embryonic neuronal migration and the development of the laminar structure of the cerebral cortex. In the present study, we aimed to explore the performance of RELN-deletion (include exons 52 to 58) mice, using a touchscreen-based visual discrimination (VD) task. Mice were initially trained to discriminate between a pair of stimuli simultaneously displayed on the screen and received a liquid reward. The cognitive function was impaired in RELN deletion mice as demonstrated by the increased total, total errors, total correction trials and total sessions in complex VD task and complex reversal learning. We demonstrated that cognitive function is impaired in RELN-deletion mice.