

## **A behavioral analysis of the parvalbumin knockout mouse**

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Parvalbumin (PV) is a cytosolic calcium-binding protein (CaBP) of the EF-hand family. Previous observations that patients suffering from schizophrenia and bi-polar disorder have a reduced number of PV-immunoreactive neurons and/or PV expression levels, and some unusual behavior traits observed in PV<sup>-/-</sup> mice in metabolic cages prompted us to carry out a more detailed behavioral analysis of the knockout mice. Young adult C57Bl/6 PV<sup>-/-</sup> mice (9-11 week-old) and age and sex-matched wild-type controls (also C57Bl/6) were subjected to several tests: open field, elevated-O, light-dark box, emergence test and object exploration on consecutive days. In addition the mice were screened in acoustic startle-response (SR) and pre-pulse inhibition (PPI) assays. RESULTS: In the assays to detect anxiety-like behavior, the PV<sup>-/-</sup> mice showed no gross abnormal behavior compared to the controls. However, minor differences were noted in their mode of locomotion in the open-field arena; their bouts of locomotion were less structured and more linear than controls and the estimated number of vertical movements was reduced, indicative of decreased exploratory activity. PV<sup>-/-</sup> mice were characterized by a reduced startle response at higher signal amplitudes, and although they also showed a tendency to slightly lower PPI, it was statistically insignificant compared to controls. Overall, PV<sup>-/-</sup> mice displayed no overt increased anxiety-like behavior, yet the minor discrepancies observed in the open-field and SR assay may point towards a mild stereotypic behavior pattern.

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