

Prenatal valproate treatment produces autistic-like behavior and increases metabotropic glutamate receptor 1A-immunoreactivity in the hippocampus of juvenile rats

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Resumen

Autism spectrum disorder (ASD) is a heterogeneous neurodevelopmental disorder characterized by deficits in social communication and social interaction, and repetitive and stereotypical patterns of behavior. Previously, a common physiopathological pathway, involving the control of synaptic protein synthesis, was proposed as a convergence point in ASD. In particular, a role for local mRNA translation activated by class I metabotropic glutamate receptor type 5 (mGluR5) was suggested in genetic syndromes with autistic signs and in the prenatal exposition to the valproate model of autism. However, the role of the other members of class I metabotropic glutamate receptors, including mGluR1, has been poorly studied. The present study analyzed the immunoreactivity for mGluR1a in the hippocampus of rats prenatally treated with valproate. Pregnant dams (embryonic day 12.5) were injected with valproate (450 mg/kg) and subsequently, the behavior and mGluR1a were evaluated at postnatal day 30. Experimental rats exhibited social deficit, repetitive conduct and anxious behaviors compared with that of the control animals. Additionally, the present study observed an increased level of mGluR1a-immunoreactivity in the hilus of dentate gyrus and in the CA1 alveus region of the hippocampus. These results suggested an over-functioning of mGluR1a signaling in the hippocampus, induced in the valproate model of autism, which may serve a role in cognitive and behavioral signs of ASD.

Palabras clave

Palabras clave de autor: metabotropic glutamate receptor

1A; autism; valproate; prenatal; hippocampus; alveus; hilus

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