

Plastic and Neuroprotective Mechanisms Involved in the Therapeutic Effects of Cannabidiol in Psychiatric Disorders.

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Abstract

Beneficial effects of cannabidiol (CBD) have been described for a wide range of psychiatric disorders, including anxiety, psychosis, and depression. The mechanisms responsible for these effects, however, are still poorly understood. Similar to clinical antidepressant or atypical antipsychotic drugs, recent findings clearly indicate that CBD, either acutely or repeatedly administered, induces plastic changes. For example, CBD attenuates the decrease in hippocampal neurogenesis and dendrite spines density induced by chronic stress and prevents microglia activation and the decrease in the number of parvalbumin-positive GABA neurons in a pharmacological model of schizophrenia. More recently, it was found that CBD modulates cell fate regulatory pathways such as autophagy and others critical pathways for neuronal survival in neurodegenerative experimental models, suggesting the potential benefit of CBD treatment for psychiatric/cognitive symptoms associated with neurodegeneration. These changes and their possible association with CBD beneficial effects in psychiatric disorders are reviewed here.