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[Review](#) [Int J Mol Sci.](#) 2021 Feb 13;22(4):1863. doi: 10.3390/ijms22041863.

# Cannabidiol as a Potential Treatment for Anxiety and Mood Disorders: Molecular Targets and Epigenetic Insights from Preclinical Research

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## Abstract

Cannabidiol (CBD) is the most abundant non-psychoactive component of cannabis; it displays a very low affinity for cannabinoid receptors, facilitates endocannabinoid signaling by inhibiting the hydrolysis of anandamide, and stimulates both transient receptor potential vanilloid 1 and 2 and serotonin type 1A receptors. Since CBD interacts with a wide variety of molecular targets in the brain, its therapeutic potential has been investigated in a number of neuropsychiatric diseases, including anxiety and mood disorders. Specifically, CBD has received growing attention due to its anxiolytic and antidepressant properties. As a consequence, and given its safety profile, CBD is considered a promising new agent in the treatment of anxiety and mood disorders. However, the exact molecular mechanism of action of CBD still remains unknown. In the present preclinical review, we provide a summary of animal-based studies that support the use of CBD as an anxiolytic- and antidepressant-like compound. Next, we describe neuropharmacological evidence that links the molecular pharmacology of CBD to its behavioral effects. Finally, by taking into consideration the effects of CBD on DNA methylation, histone modifications, and microRNAs, we elaborate on the putative role of epigenetic mechanisms in mediating CBD's therapeutic outcomes.

**Keywords:** 5-HT1A receptors; CB1 receptors; DNA methylation; TRPV1 receptors; anxiety; cannabidiol; depression; epigenetics; histone modifications; miRNA.

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