

PubMed

U.S. National Library of Medicine
National Institutes of Health



Display Settings: Abstract

[Mol Cancer Ther. 2010 Jan;9\(1\):180-9. Epub 2010 Jan 6.](#)

Cannabidiol enhances the inhibitory effects of Delta9-tetrahydrocannabinol on human glioblastoma cell proliferation and survival.

Marcu JP, Christian RT, Lau D, Zielinski AJ, Horowitz MP, Lee J, Pakdel A, Allison J, Limbad C, Moore DH, Yount GL, Desprez PY, McAllister SD.

California Pacific Medical Center Research Institute, San Francisco, California 94107, USA.

The cannabinoid 1 (CB(1)) and cannabinoid 2 (CB(2)) receptor agonist Delta(9)-tetrahydrocannabinol (THC) has been shown to be a broad-range inhibitor of cancer in culture and in vivo, and is currently being used in a clinical trial for the treatment of glioblastoma. It has been suggested that other plant-derived cannabinoids, which do not interact efficiently with CB(1) and CB(2) receptors, can modulate the actions of Delta(9)-THC. There are conflicting reports, however, as to what extent other cannabinoids can modulate Delta(9)-THC activity, and most importantly, it is not clear whether other cannabinoid compounds can either potentiate or inhibit the actions of Delta(9)-THC. We therefore tested cannabidiol, the second most abundant plant-derived cannabinoid, in combination with Delta(9)-THC. In the U251 and SF126 glioblastoma cell lines, Delta(9)-THC and cannabidiol acted synergistically to inhibit cell proliferation. The treatment of glioblastoma cells with both compounds led to significant modulations of the cell cycle and induction of reactive oxygen species and apoptosis as well as specific modulations of extracellular signal-regulated kinase and caspase activities. These specific changes were not observed with either compound individually, indicating that the signal transduction pathways affected by the combination treatment were unique. Our results suggest that the addition of cannabidiol to Delta(9)-THC may improve the overall effectiveness of Delta(9)-THC in the treatment of glioblastoma in cancer patients.

PMID: 20053780 [PubMed - in process]

PMCID: PMC2806496 [Available on 2011/1/6]

Publication Types, Grant Support

LinkOut - more resources