

Profound Inhibitory and Apoptotic Effects of Histone Deacetylase Inhibitor Valproic Acid on Different Cancers

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Abstract

Objectives: Histone acetylation is determined by a balance between the activities of the enzymes that are involved in the histone modifications, including histone deacetylases (HDACs) and histone acetyltransferases which affect gene expression and play a significant role in carcinogens. Valproic acid (VPA) belongs to the HDAC inhibitor family which inhibits HDAC activity and regulate biological events such as apoptosis in various cancers. The current review summarized various pathways by which VPA affects different types of cancers.

Methods: For this review, an online search of different sources such as ISI, PubMed, and Scopus resulted in finding the articles correlated with mechanisms and pathways of VPA in different cancers.

Results: Based on these results, VPA may be a suitable agent and a good candidate for cancer treatment with multiple mechanisms of apoptosis induction.

Conclusions: Overall, VPA can protect against cancer by regulating histone modification and tumor suppressor gene reactivation.