ABSTRACT

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Study Program : Biomedicine

Title : Elucidating the Use of Epigenetic Drugs towards Breast Cancer

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Epigenetic modulator or epigenetic drug has shown promising potential as cancer therapeutic agents. In prostate cancer, inhibition of a histone methyltransferase (HMT) is able to induce IFN-JAK-STAT-mediated cell death. Previous RNA microarray data has shown that I3, an HMT inhibitor, and TSA, an HDAC inhibitor, treatment can upregulate various IFN-related genes. I3 and TSA were treated to various breast cancer cell lines for qPCR analysis. IFN-γ was then treated to the cells to observe the activation of its downstream signals through qPCR and cell viability analysis. Results showed that I3 and TSA treatment is able to upregulate IFNGR1 in HER2-positive cell line. Thus, upon IFN-γ stimulation, robust IFN-γ signaling is activated, leading to cell death in HER2-positive breast cancer cell lines. This implies that I3 and TSA hold a potential as an immunotherapy for HER2-positive breast cancer.

Keywords: Epigenetic, epigenetic modulator, HER2-positive breast cancer, IFN-γ, IFN-γ signaling