MECHANISMS OF ANTITUMOR ACTIVITY BY MELANOXOIN ON HUMAN NON-SMALL CELL LUNG CANCER CELLS

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Cancer is a leading cause of death worldwide. The standard treatments of cancer include surgery, chemotherapy, radiation therapy and the newer targeted therapy. Till now, there are various anticancer drugs, which derived from natural products. In this study, we screened a serious of compounds isolated from *Pterocarpus santalinus* to identify their cell cytotoxicity. We performed the MTT assay to evaluate the cytotoxic effects of test compounds against several human cancer cell lines. Among them, melanoxoin showed the highest cytotoxic effects with a IC_{50} of 1.98 μg/ml in the human non-small cell lung cancer H1299 cells. We next used Human OneArray® v5 to comprehensive analysis the DNA transcription of H1299 cells. It showed that melanoxoin regulated the transcription of several cell cycle regulators in the H1299 cells. Cell cycle analysis by flow cytometry revealed melanoxoin causes G2/M arrest and then increased tumor cell apoptosis. The neutral comet assay revealed that the treatment with melanoxoin induced significant DNA damage in H1299 cells. Therefore, we are interested in the development the molanoxoin as a new source of anti-cancer drug.

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