The Effects of Antioxidants on Mouse Osteoblastic Cancer Cells: Comparative Analysis of Effectiveness of Apoptosis

Shabbir, Saad (School: Little Rock Central High School)

As there are more than a million cases in the United States annually and over 500,000 Americans die each year, cancer can be characterized as the continual unregulated rapid increase in the number of abnormal cells. The use of mouse model cancer cells serves the utmost significance in the field of research as the causal link to carcinogenesis and cancer genes can be used to test and develop new therapies. Chemotherapy is the most common approach when looking at cancer treatment, where cancer cells are killed using chemicals that are toxic to living cells. Antioxidants maintain homeostasis and the maintenance of cell integrity in human immune systems and have shown to increase the life quality of the patients. The purpose of the experiment was to determine which antioxidant will be the most effective at different volumes of the antioxidant to promote apoptosis in mouse cancer cells. The hypothesis was that as the volume of antioxidant solution increases, then the apoptosis of mouse osteoblastic cancer cells will increase. The experiment was conducted as MC3T3 cells were first grown for 24 hours, then antioxidants such as Lycopene, Resveratrol, and Vitamin C were then added to the cells. The cells were once again grown for 24 hours, and after the 24 hours, cell viability was measured through MTT assay. After the collection of the data, the cell viability of Lycopene at 100uL was 27%, it was the most effective in promoting apoptosis. The hypothesis was supported to the extent that Lycopene and Resveratrol were successful in promoting apoptosis at certain volumes. This experiment can be applied to help cancer patients by offering another treatment or in combination with chemotherapy to increase the life quality of the patient.