|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | | | | | | |  | | |  | |  | | |  | |  | | | |  |
|  | |  | |  | | |  | | | |  |
|  | | | | | | | | | |  |
|  | | | | | | |  |
|  |  |  |  | |  |  | |  |  | |  | | | | | |  |
|  | |  |  | |  | |  | | |  |
|  |  |  |  |
|  |  |  |
|  |  | |  |  |
|  |  | |  | |  | |  |

**ABSTRACT**

Some adjunct cancer therapies recommend the use of soy to suppress cancer growth. It has been suggested that isoflavones in soy are responsible for this effect due to their structural similarities to estradiol, the innate hormone that binds to estrogen receptors to stimulate cell proliferation. The goal of this experiment was to investigate such claim. The effects of various concentrations of soy and the isoflavone diadzein on the growth of estrogen receptor positive MCF-7 and estrogen receptor negative MDA-MB-231 breast cancer cells were examined. These cells were compared to MCF-7 and MDA-MB-231 cells with no treatment, and MCF-7 and MDA-MB-231 cells treated with 10-9 M estradiol to observe the difference in proliferation.

The MTS cell proliferation assay was implemented to measure cell proliferation. The assay uses Owen's reagent, which is converted by metabolically active cells into a colored product that can be read by the spectrophotometer. One plate of MCF-7 and MDA-MB-231 were measured every 24 hours, for an overall span of 96 hours. The results indicated that MCF-7 cells treated with soy and diadzein exhibited significantly lower percent proliferation relative to the control, while minimal effects were observed in MDA-MB-231.

From this study we conclude that soy has the ability to inhibit proliferation in cancer cells. Isoflavones such as diadzein are responsible for soy’s ability to inhibit breast caner cell proliferation. Finally, the isoflavones in soy suppress cancer growth by competitively inhibiting estradiol from binding to estrogen receptors.