

Poster #37

The Influence of Alternative Herbal Menopause Treatments on the Proliferation of MCF-7 Breast Cancer Cells.

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A link between life time estrogen exposure and breast cancer is well known. Recent studies have also shown that pharmaceutical hormone replacement therapies may not provide health benefits, and may even increase risk for breast cancer. Thus, in an effort to avoid pharmaceutical estrogens, many women are now using herbal supplements to treat post menopausal symptoms. The goal of this project is to use in vitro cell assays to define the estrogen activity of 6 herbal preparations sold in the US for the purpose of relieving post menopausal symptoms. Herbal supplements that are reported to contain phytoestrogens or to have hormone activity include Natrol Soy Isoflavones, Nature Made Soy 50, Promensil, Estroven, Nature's Resource Black Cohosh, and Remiferin. Tables from each product were extracted with 80% methanol. Multiple concentrations of DMSO treatments of each extract was then used to dose MCF-7 E3 breast cancer cells in a 7 day proliferation assay with estradiol-17 β as positive control. The extracts containing soy (Natrol Soy Isoflavones, Estroven, and Nature Made Soy 50) and red clover (Promensil) displayed estrogenic cell proliferation effects sometimes above the levels observed with estradiol. The estrogen antagonist ICI182,780 suppressed supplement induced cell proliferation, suggesting an estrogen receptor mediated signaling pathway was involved. While these same supplement extracts produced no anti-estrogen effects in MCF-7 cells, the effect of combined treatment with estradiol-17 β was additive resulting in increased proliferative activity. Black Cohosh, and Remiferin failed to induce estrogen proliferative or anti-estrogen responses in MCF-7 cells. Thus, herbal products such as Natrol Soy Isoflavone, Estroven, Nature Made Soy 50, and Promensil containing soy isoflavones, and/or redcohos may produce estrogenic effects that could relieve post menopausal symptoms. However, their additive effect when combined with endogenous estrogens may also excessively stimulate the proliferation of breast cancer cells. On the other hand, supplements containing black cohosh (Nature's Resource Black Cohosh and Remiferin) may not produce proliferative effects on estrogen sensitive breast cancer cells. These results show that while some herbals do have estrogen activity in breast cancer cell assays, their activity is different than steroidal estrogens. Thus, it is not clear if these supplements will consistently and effectively relieve post menopausal symptoms or if they are appropriate for women at risk for breast cancer.

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