MOLECULAR ANALYSIS OF ISOFLAVONOID GENOTOXICITY

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Abstract

Overall goal of this research project is to study the genotoxic effects of genistein (GSTN), the major isoflavone in soy. GSTN has been shown to have potential health benefits, but there is some concern for the potential genotoxic effects of soy and soy isoflavones. This project aims to investigate the genotoxic potential of GSTN in an in vitro cell culture model.

Methods

1. Cell Culture: The cell line used in this study was MCF-7 breast cancer cells.
2. GSTN Treatment: The cells were treated with different concentrations of GSTN (0, 50, 100, 200, 500, 1000, and 2000 μg/mL) for 24 hours.
3. DNA Damage Assay: The cells were harvested and DNA was isolated using a DNA isolation kit. The DNA was then subjected to a comet assay to assess DNA damage.

Results

- Cells treated with GSTN showed a dose-dependent increase in DNA damage as assessed by the comet assay.
- Treatment with 2000 μg/mL GSTN resulted in a significant increase in DNA damage compared to the control group.

Discussion

The results of this study suggest that GSTN may have genotoxic effects in breast cancer cells. Further studies are needed to determine the mechanisms of DNA damage induced by GSTN.

References