



Natural Health Research Institute: Scientific Symposium

# The Effectiveness of Natural Products for Women's Health



8th Annual **NHRI**  
Scientific Symposium

Presented by:

**UIC** COLLEGE OF  
PHARMACY



# Isoflavones & Breast Cancer Growth and Progression: Insights from preclinical models

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# **Chemo-Prevention of NMU-Induced Mammary Cancer by Pretreatment with 17b-Estradiol and Progesterone**

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**J. Natl. Cancer Inst. 74: 927 (1985)**

# Neonatal DES Chemo-Prevents Mammary Adenocarcinomas in Rats

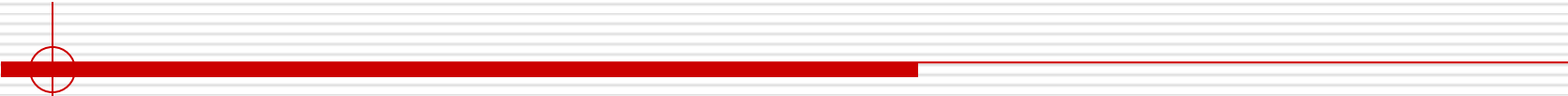
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**Proc. Amer. Assoc. Can. Res., 33: 167(1992)**

# Genistein Suppresses Mammary Cancer in Rats

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**Carcinogenesis, 16: 283 (1995)**



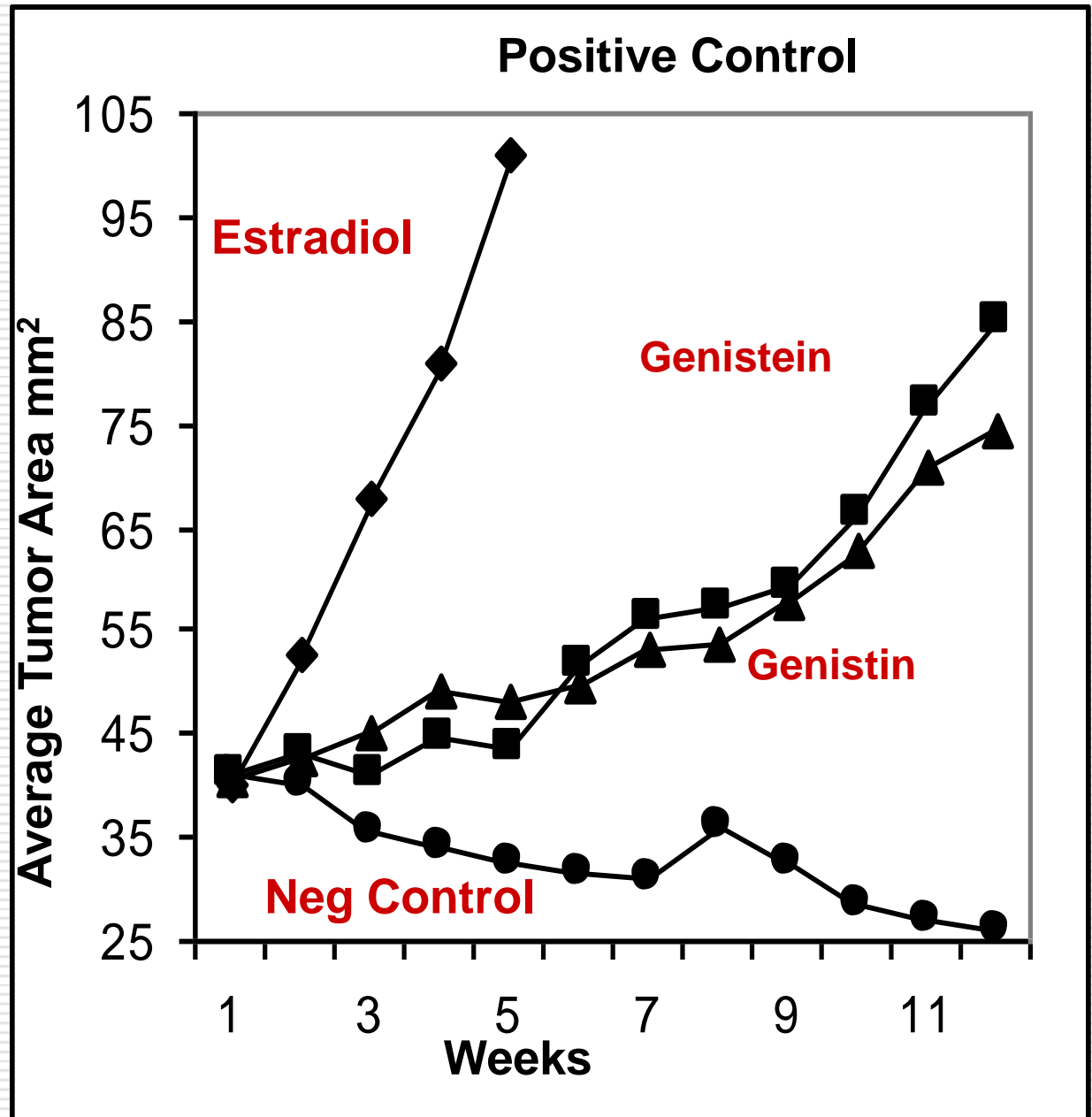
Genistein induces changes in the mammary gland; such as increased mammary gland development and differentiation which **makes the gland less sensitive to the effects of estrogen**

# Genistein and the Glycoside, Genistin, Stimulate E-dependent Tumor Growth

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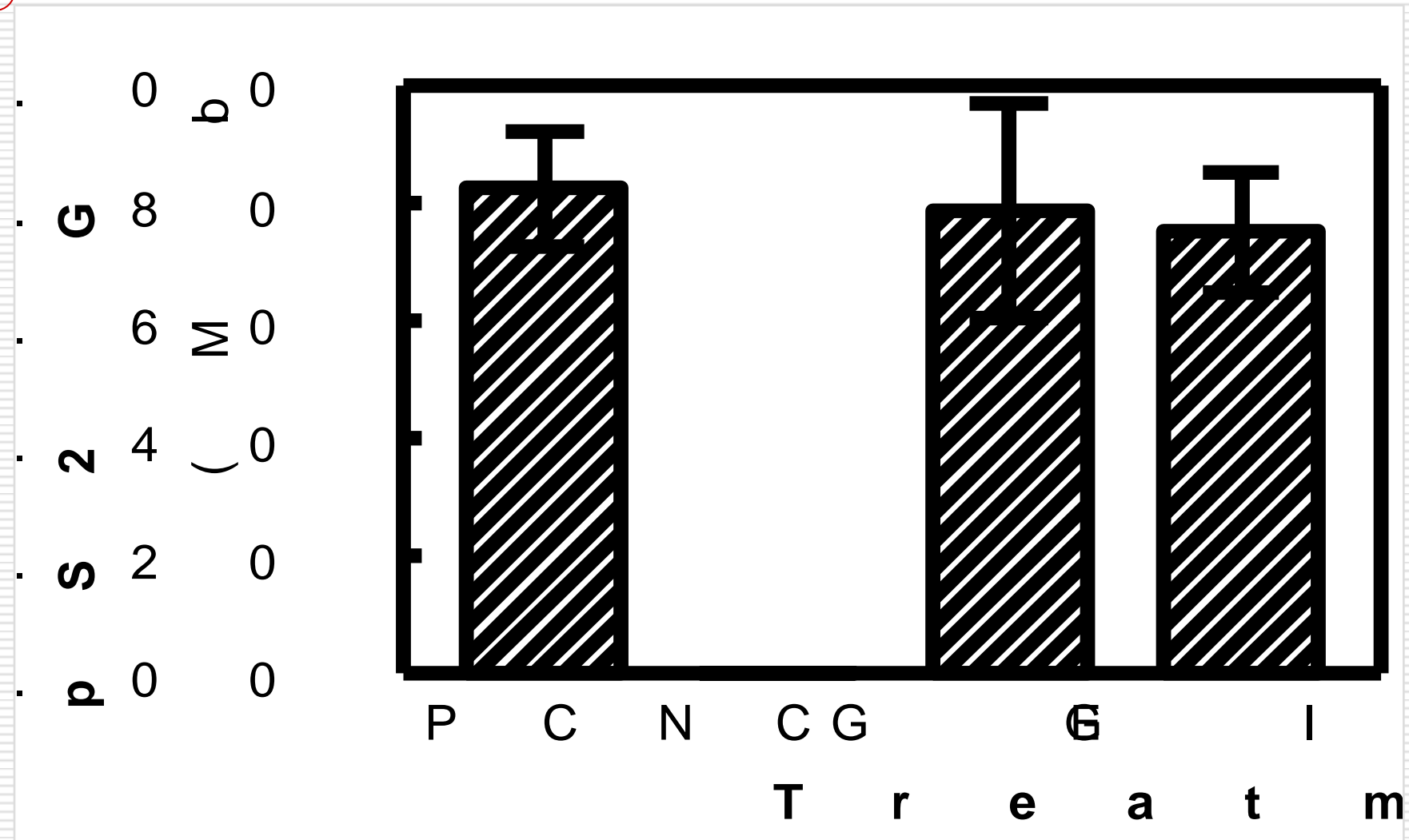
- ❑ Genistin Requires Conversion to Genistein
- ❑ Dietary supplements contain mostly genistin
- ❑ Soy Isoflavone-containing foods (protein isolates) contain mostly genistin
- ❑ Is there a difference in activity?

# Genistein & Genistin Stimulates Tumor Growth

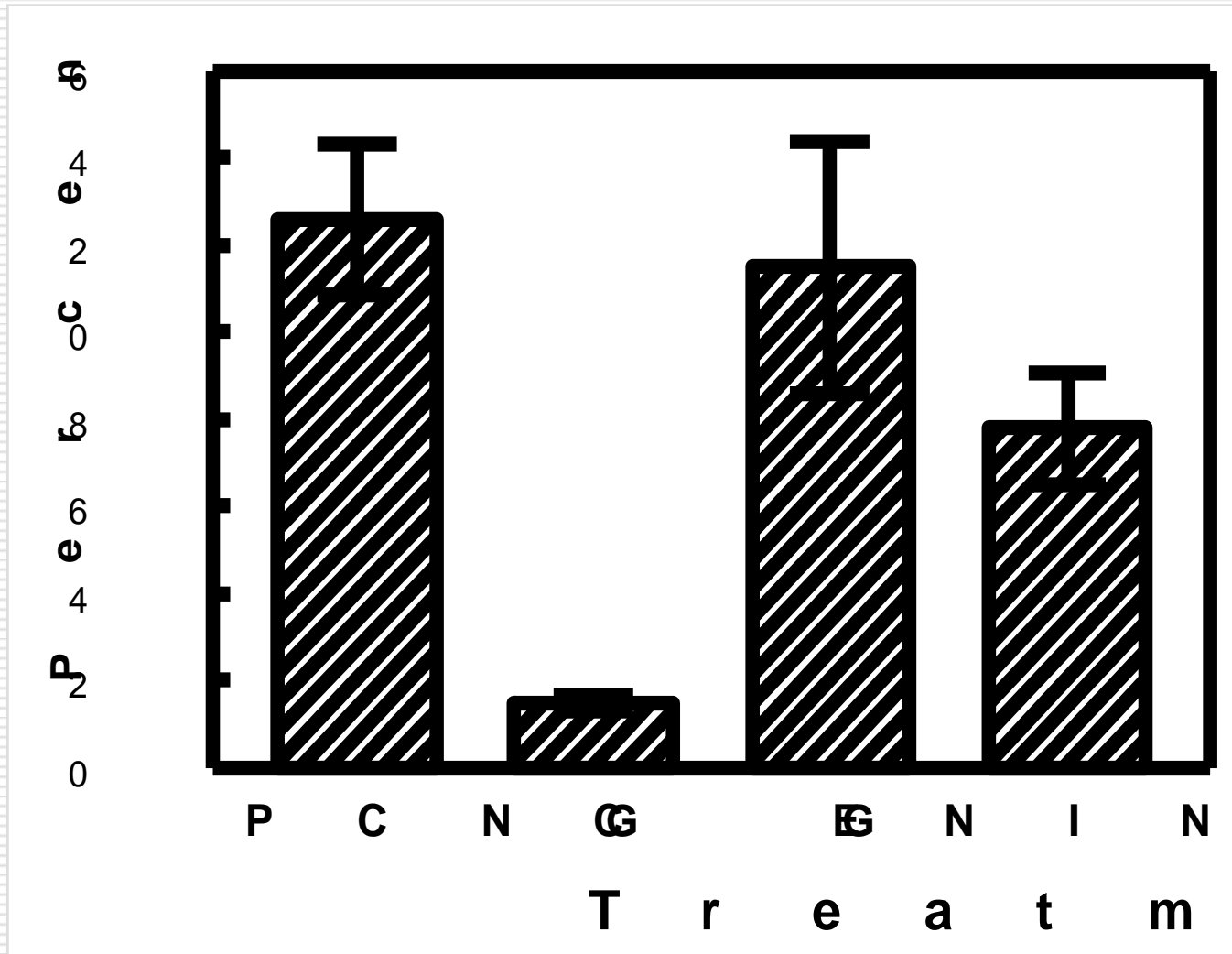




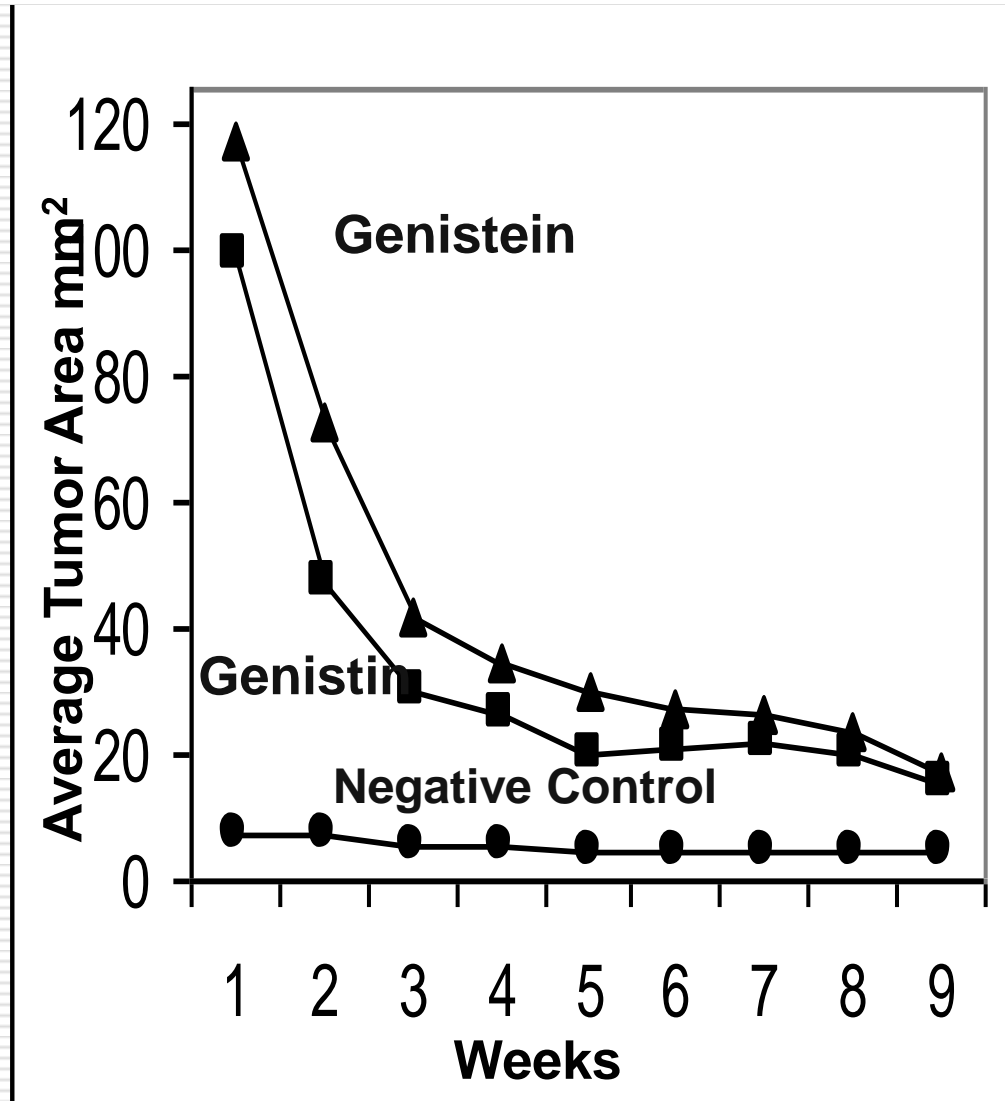
# Genistein Induces pS2 Expression



# Genistein & Genistin Induce Cell Proliferation



# Genistein W/D Causes Rapid Regression

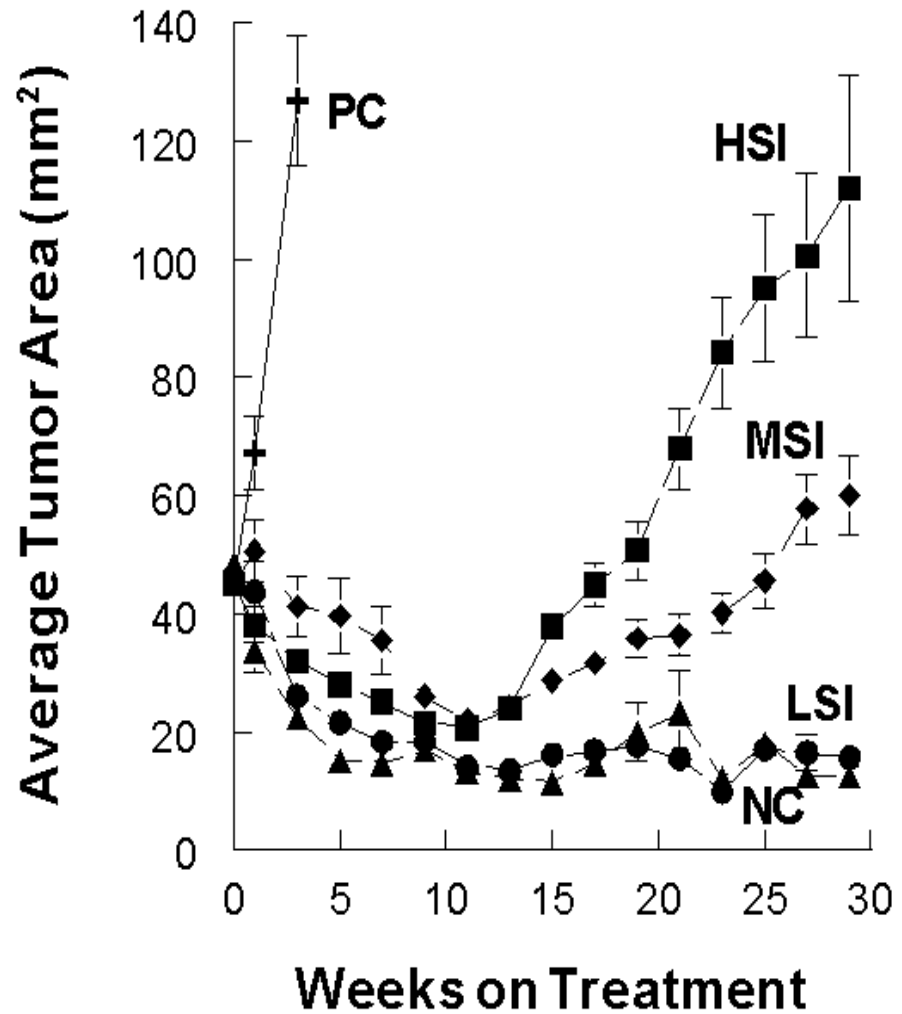


# Soy Protein Isolates Contain Genistin

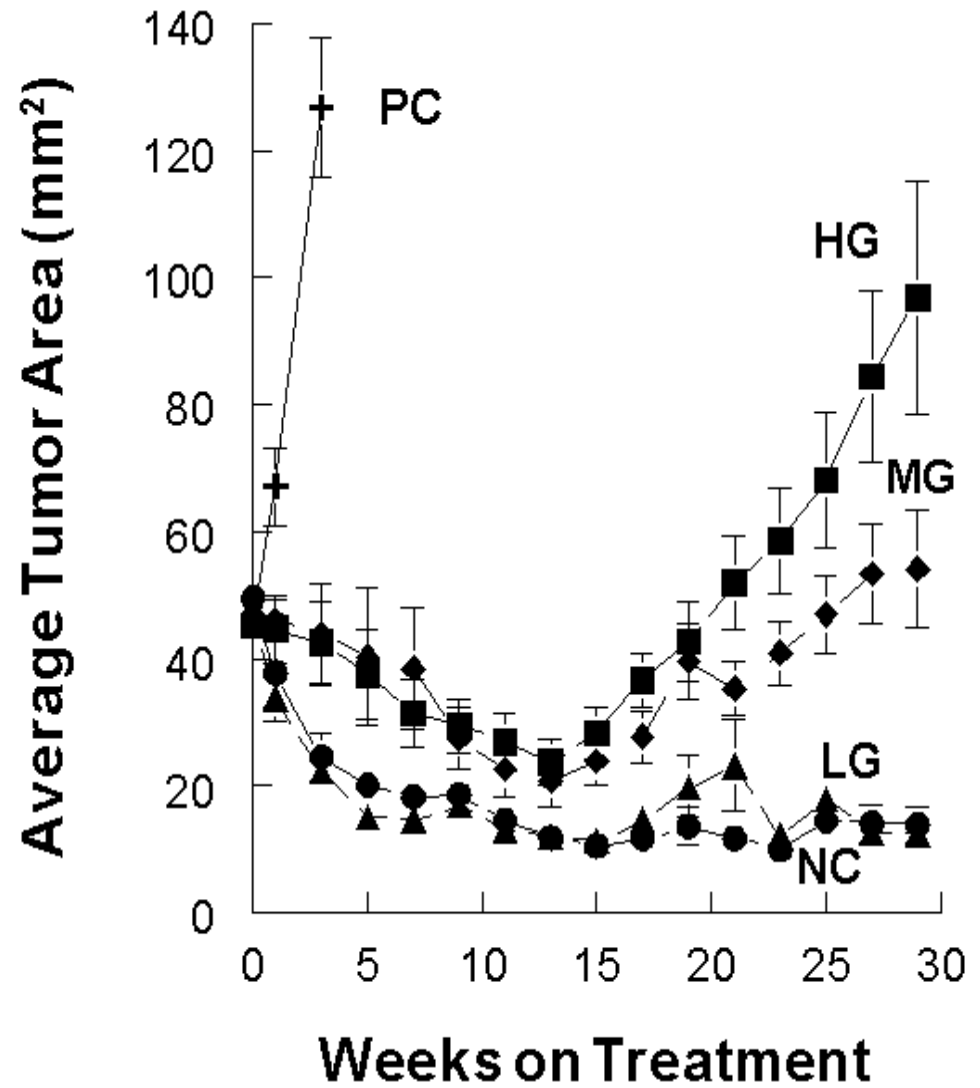
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Do Soy Protein Isolates Containing Genistin  
Stimulate Estrogen-Dependent Tumor Growth?

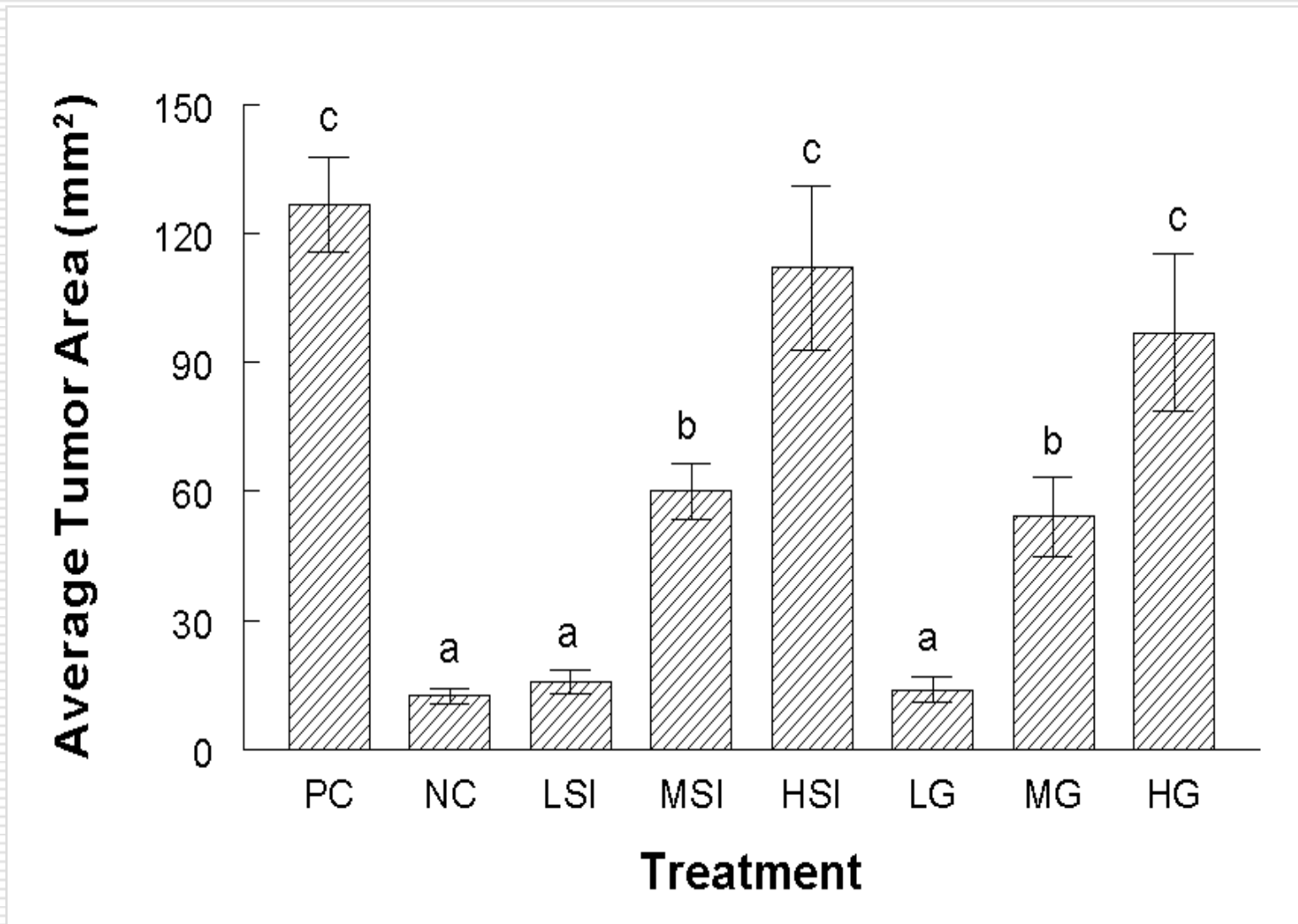
# SPI Stimulate Tumor Growth Based on Gen Content



# Genistein Stimulates Tumor Growth in a Dose Dependent Manner



# Tumor Size at Completion of the Study

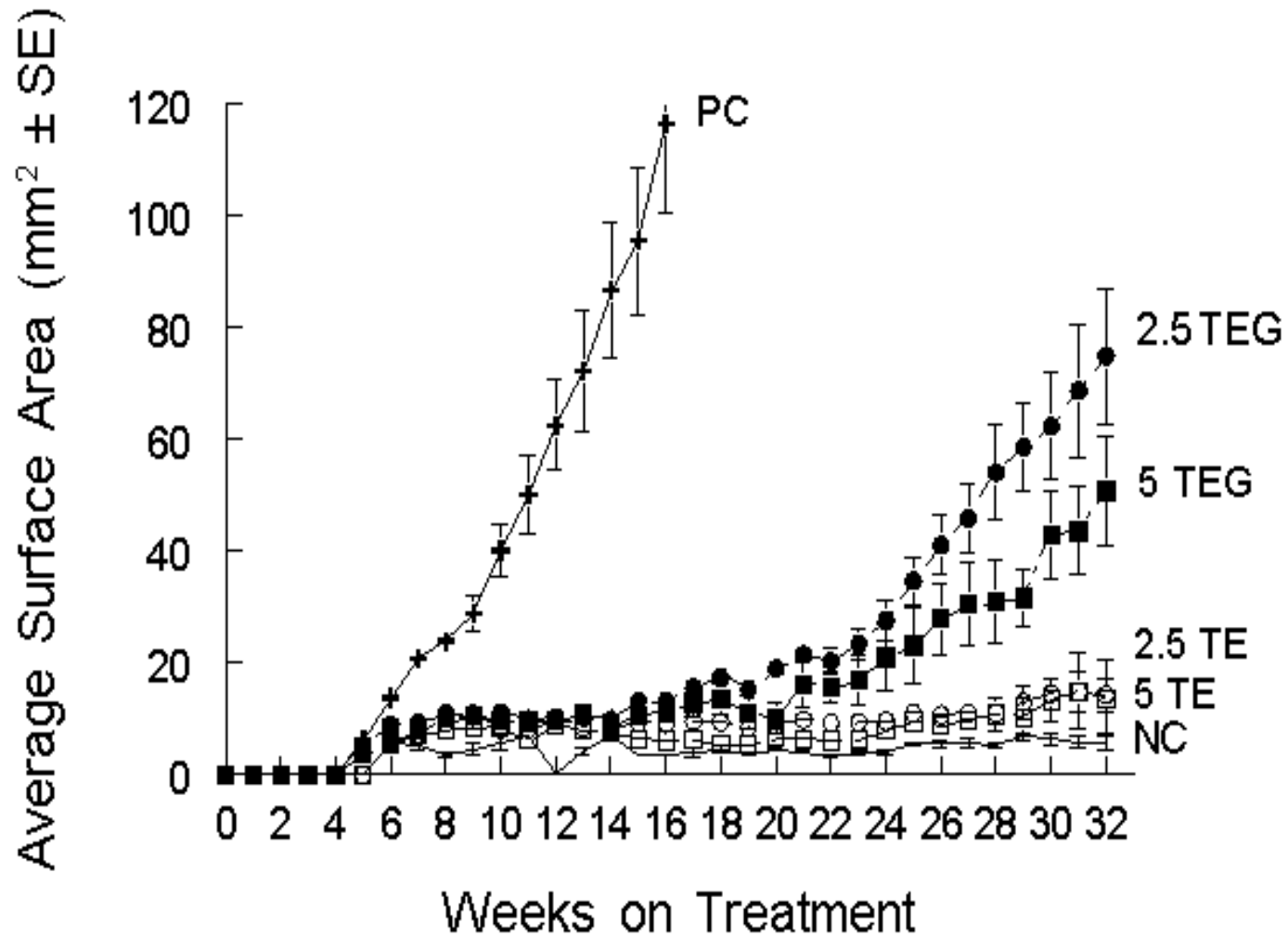


# Does dietary Genistein interact with current breast cancer therapies such as Tamoxifen and Aromatase Inhibitors?

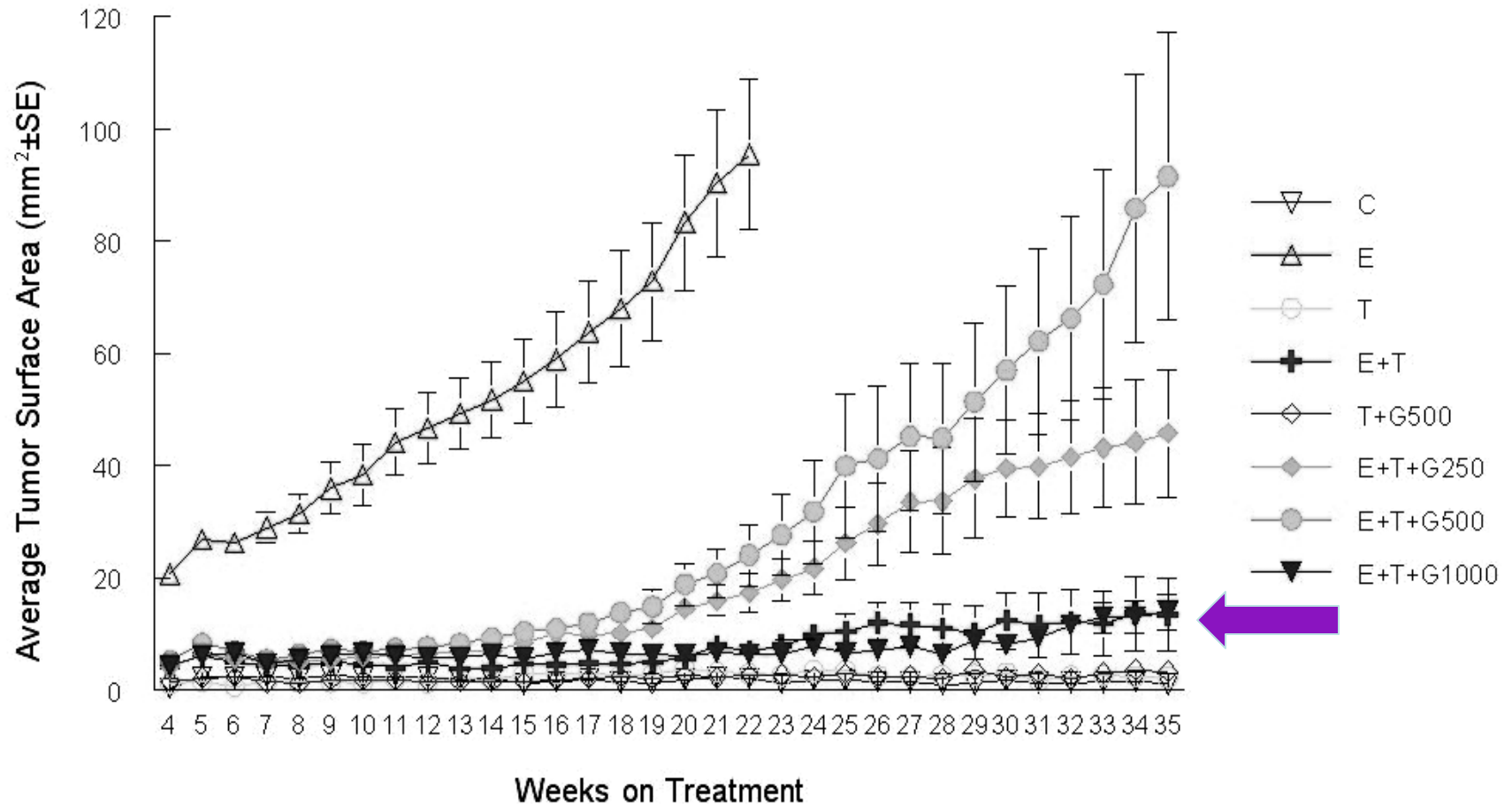
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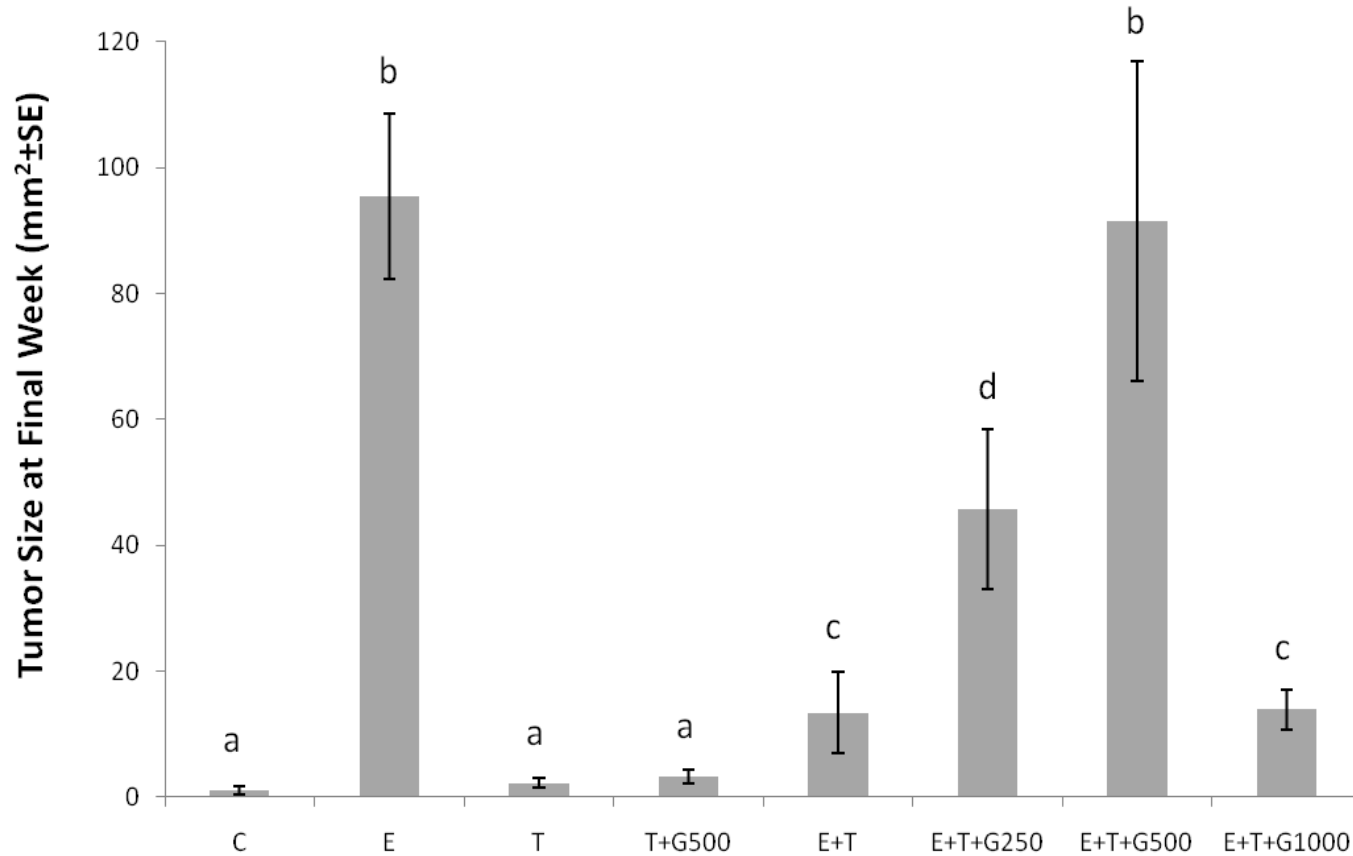
# Genistein Negates the Inhibitory Effect of Tamoxifen



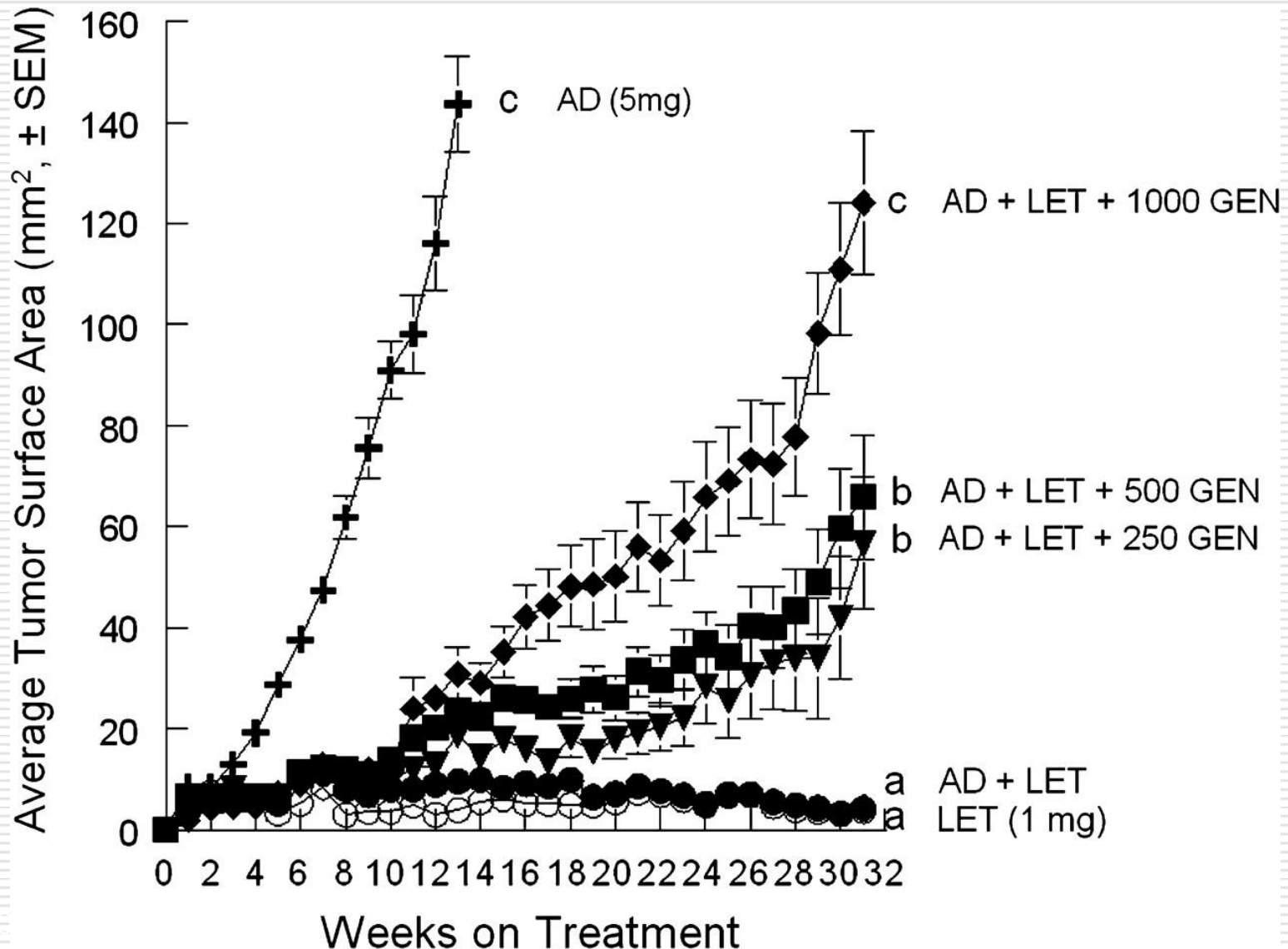
# Low Levels of Genistein Negates the Inhibitory Effect of Tamoxifen



# Tumor Size at the End of the Study (35wks)



# Genistein Stimulates MCF-7 Tumor Growth and Reverses Letrozole Inhibition



# Summary

- ❑ Genistein is estrogenic & stimulates tumor growth
- ❑ SPI with Genistein stimulate growth in a dose dependent manner
- ❑ Effects are observed in several BC models
- ❑ The matrix in which genistein is presented is important – **Soy Component Profile is Critical**
- ❑ Genistein negates the effects of TAM and Letrozole