

Plant-based compound slows breast cancer in a mouse model

August 2 2012

The natural plant compound phenethyl isothiocyanate (PEITC) hinders the development of mammary tumors in a mouse model with similarities to human breast cancer progression, according to a study published August 2 in the *Journal of the National Cancer Institute*.

Edible plants are gaining ground as chemopreventative agents. PEITC has shown to be effective as a chemopreventative agent in mice for colon, intestinal, and prostate cancer, by inducing apoptosis.

In order to determine the efficacy of PEITC in [mammary tumors](#) in mice, Shivendra V. Singh, Ph.D., of the University of Pittsburgh Cancer Institute and colleagues, placed mice on two diets: a [control diet](#), and a diet supplemented with PEITC for 29 weeks. The researchers performed histopathological assessments, and measured the incidence and size of the mammary tumors, along with [cell proliferation](#), apoptosis, and neoangiogenesis, which were determined in tumor sections.

The researchers found that administering PEITC for 29 weeks was linked with a 56.3% reduction in mammary carcinoma lesions greater than 2mm. "Although PEITC administration does not confer complete protection against mammary carcinogenesis, mice placed on the PEITC-supplemented diet, compared with mice placed on the control diet, clearly exhibited suppression of carcinoma progression," the authors write. PEITC was also well-tolerated. Since chemoprevention trials are both expensive and time-consuming and necessitate years of follow-up, the authors feel that, "The discovery of biomarker(s) associated with

exposure and activity is critical for clinical development of promising cancer chemopreventative agents." This study was able to identify certain biomarkers that may be useful in future clinical investigations.

The authors also point out certain limitations of their study, namely that the results may be different in humans than in mice; also both the relevance of other altered proteins from PEITC and the mechanism by which PEITC causes apoptosis are unclear.

Provided by Journal of the National Cancer Institute

Citation: Plant-based compound slows breast cancer in a mouse model (2012, August 2) retrieved 20 April 2024 from

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