

# **Ingredient found in green tea significantly inhibits breast cancer growth in female mice**

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Green tea is high in the antioxidant EGCG (epigallocatechin-3- gallate) which helps prevent the body's cells from becoming damaged and prematurely aged. Studies have suggested that the combination of green tea and EGCG may also be beneficial by providing protection against certain types of cancers, including breast cancer.

A new study conducted by researchers at the University of Mississippi researchers now finds that consuming EGCG significantly inhibits breast tumor growth in female mice. These results bring us one step closer to better understanding the disease and potentially new and naturally occurring therapies.

The study was conducted by Jian-Wei Gu, Emily Young, Jordan Covington, James Wes Johnson, and Wei Tan, all of the Department of Physiology & Biophysics, University of Mississippi Medical Center, Jackson, MS. Dr. Gu will present his team's findings, entitled, Oral Administration of EGCG, an Antioxidant Found in Green Tea, Inhibits Tumor Angiogenesis and Growth of Breast Cancer in Female Mice, at the 121st Annual Meeting of the American Physiological Society, part of the Experimental Biology 2008 scientific conference.

Epidemiological studies suggest that green tea and its major constituent, EGCG, can provide some protection against cancer. Because these studies were very limited, the anti-cancer mechanism of green tea and EGCG was not clear. As a result, the researchers examined whether drinking EGCG (just the antioxidant infused in water) inhibited the

following: expression of VEGF (vascular endothelial growth factor, which is found in variety of breast cancer types); tumor angiogenesis (thought to help tumors to expand by supplying them with nutrients); and the growth of breast cancer in female mice.

Seven week old female mice were given EGCG (25 mg/50 ml) in drinking water for five weeks (approximately 50-100 mg/kg/day.) The control mice received regular drinking water. In the second week of the study mouse breast cancer cells were injected in the left fourth mammary glands of the mice. Tumor size was monitored by measuring the tumor cross section area (TCSA). Tumors were eventually isolated and measured for tumor weight, intratumoral microvessel (IM) density (using staining), and VEGF protein levels (using ELISA).

At the end of the five week period the researchers found that oral consumption of EGCG caused significant decreases in TCSA (66%), tumor weight (68%), IM density  $155 \pm 6$  vs.  $111 \pm 20$  IM/mm<sup>2</sup>) and VEGF protein levels ( $59.0 \pm 3.7$  vs.  $45.7 \pm 1.4$  pg/mg) in the breast tumors vs. the control mice, respectively (N=8; P

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