

May 17, 2005

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Life Extension Update Exclusive

Researchers find green tea cancer prevention mechanism

Researchers at the University of Rochester Medical Center have discovered an anticancer mechanism for epigallocatechin gallate (EGCG), a flavonoid in green tea found to be associated with many of its benefits. Although green tea flavonoids appear to be protective against cancer, their mechanism of action had not been completely defined.

The report, which was published in the April 5 2005 issue of the journal *Biochemistry* (<http://pubs.acs.org/journals/bichaw/index.html>), was authored by Christine Palermo of the University of Rochester's School of Medicine and Dentistry, Claire Westlake and Thomas A. Gasiewicz, PhD, who is the director of Rochester's Environmental Health Science Center and is an authority on dioxin, a well known carcinogen.

Dr Gasiewicz's earlier work had found that EGCG blocks the aryl hydrocarbon (AH) receptor, which is affected by dioxin and other chemicals such as cigarette smoke, and can activate harmful genes. In the current research, his team found that EGCG exerts its cancer protecting ability not by binding to this receptor, but to a protein called HSP90. HSP90 is known as a promiscuous chaperone protein because it binds to a number of different cells and receptors, which helps maintain their stability. Research has shown that cancerous cells have higher levels of HSP90 than healthy cells, and that levels of proteins that encourage cancer cell growth are reduced when HSP90 is blocked.

When EGCG binds to HSP90, HSP90 no longer activates the AH receptor and the events leading to the undesirable gene activation are prevented. Dr Gasiewicz noted, "We initially hypothesized that EGCG would work in the same way as other AH antagonists, by binding directly to it. We were completely surprised that this isn't the case."

"It's important to find out the source of green tea's protective effects," Dr Gasiewicz stated. "What is exciting here is that a completely new mechanism has been found that very well could be responsible for its protective effects, and that could help us find a compound that is much more potent."

Protocol

Cancer adjuvant therapy

Mayo Clinic researchers showed that green tea consumption inhibited cancer growth (Paschka et al. 1998). They identified the green tea polyphenol EGCG (epigallocatechin gallate) as the most potent inhibitor of cancer cell proliferation. Japanese researchers pinpointed the types of cancer most responsive to green tea (breast, esophageal, liver, lung, skin, and stomach) by surveying cancer-free individuals who consumed 4-6 cups of green tea a day.

The odds ratio of stomach cancer decreased to 0.69 with a high intake of green tea (7 cups or more a day) (Inoue et al. 1998). Another study conducted in Yangzhong (a region in China with a high incidence of chronic gastritis and gastric cancer) showed the amount and duration of green tea consumption governed the rate of stomach cancer. Frequent long-term green tea drinkers had approximately 50% less risk of developing gastric cancer compared to individuals consuming little or no tea (Setiawan et al. 2001). Green tea reduces the damaging effects of nitrites in the acidic environment of the stomach with greater efficiency than vitamin C.

The growth of non-Hodgkin's lymphoma cells, transplanted in mice, was reduced by 50% when green tea was a part of the animal's diet. Cyclophosphamide, a chemotherapeutic drug, administered at the maximum tolerable dose, was unable to replicate similar benefits (Bertolini et al. 2000). Part of green tea's anticancer profile includes an antimutagenic factor that helps DNA replicate accurately (Uhlenbruck et al. 1998).

Cigarette smokers who drink green tea have a 45% lower risk of lung cancer compared to non-tea drinkers. Even though Japan has one of the highest numbers of smokers in the world, they have one of the lowest rates of lung cancer of any developed nation, a protection thought to be delivered by green tea.

<http://www.lef.org/protocols/prtcl-027.shtml>

Featured Products

Mega Green Tea Extract

Mega Green Tea Extract capsules contain an unprecedented 725 mg of either lightly caffeinated or decaffeinated 93% standardized green tea extracts, which makes it easy to obtain super-potent doses by taking only one of these low-cost capsules per day. Each Mega Green Tea Extract capsule provides 246.5 mg of EGCG...about ten times more than what is being put into commercial multivitamin supplements today.

<http://www.lef.org/newshop/items/item00753.html>



Mega Green Tea Extract Decaffeinated

EGCG, a polyphenol that occurs in green tea, functions as an antioxidant that is about 25-100 times more potent than vitamins C and E. One cup of green tea may provide 10-40 mg of polyphenols and has antioxidant effects that are greater than a serving of broccoli, spinach, carrots, or strawberries.

<http://www.lef.org/newshop/items/item00754.html>



Register now for the National Conference on Prostate Cancer 2005!

The conference will be held June 16-19, 2005 at the Omni Shoreham Hotel, Washington, D.C.

This year's theme is "Exploring New Pathways – Sharing the Journey," and will focus many of the lecture discussions on the "new pathways" for diagnosing, staging and treating prostate cancer. These are planned to include:

- The UPM3 test for diagnosing prostate cancer
- The use of Combidx MRI to locate cancer in lymph nodes
- Robotic laparoscopic radical prostatectomy
- New treatment regimens for advanced prostate cancer
- The most promising treatments in the research pipeline

Dr. Charles "Snuffy" Myers will be the Moderator for this exciting and informative program. He will be joined by over 20 speakers who are all experts in the various areas of prostate cancer.

Who Should Attend?

- Prostate Cancer patients and survivors.
- Spouses, partners and family members (especially sons)
- Medical professionals who desire to learn more about prostate cancer and to obtain CME credits.

Call PCRI at 310-743-2117 for details, visit <http://prostate-cancer.org/>

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