

## Breast Cancer and Green Tea-Mushroom

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A link between green tea consumption and protection from different types of cancer has been well documented. The same holds true for the medicinal mushroom *Ganoderma lucidum*; evidence suggests that consuming it can help prevent some cancers.

Scientists from Methodist Research Institute's Cancer Research Laboratory wanted to know what would happen when extracts of these two compounds were combined and introduced to highly invasive breast cancer cells.

Their research\* yielded some compelling new findings.

### Synergy and signaling

The study was fairly straightforward – and for periods of 24 and 48 hours, the team exposed the metastatic breast cancer cells to green tea extract (GTE) and extract of *G. lucidum* extract (GLE), an oriental medicinal mushroom – and the findings can be summed up just as succinctly:

The GTE-GLE combination significantly slowed both individual cell growth and colony formation among the breast cancer cells. Additionally, the effects of the pairing were greater than the sum of the individual effects of each compound. In other words, each compound appears to boost the cancer-inhibiting effects of the other.

Who knew that something so important could be going on behind the molecular scenes of simple green tea and mushrooms?

It's all about disrupting the "communication" among cancer cells – the sooner, the better – and that's what the active ingredients in these compounds appear to do, says lead author Daniel Sliva, PhD.

"Abnormal signaling is directly responsible for the invasiveness of cancer cells, so we look for signaling in cells that shouldn't be there," he says. "The goal is to stop the growth and invasive behavior of cancer cells by preventing abnormal signaling proteins from being produced. When we can do that, we can stop cancer metastasis."

### **"Define your future by what you're doing now"**

Metastasis, the spreading of cancer throughout the body, "is, of course, the larger problem with all types of cancer," says Sliva. "Because this study focused on specific cell-signaling mechanisms, our findings are applicable to other types of cancers, as well."

Although much additional research is needed, Sliva recommends that people with breast cancer or who are at risk for the disease speak with their doctors if they're thinking about integrating green tea or *G. lucidum* into their diets.

Both are generally harmless to most people, he says, which underscores the growing body of evidence that toxicity and side effects don't have to be part of effective cancer treatment.

Sliva's overall advice about cancer prevention and management?

"Don't smoke, get plenty of exercise, eat a lot of fruits and vegetables, and try to use natural products whenever you can," he says. "Define your future by what you're doing now."

\* *Thyagarajan A, Zhu J, Sliva D. Combined Effect of Green Tea and Ganoderma lucidum on Invasive Behavior of Breast Cancer Cells, International Journal of Oncology. 2007 Apr;30(4):963-9.*