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A Bright Outlook for Soy and Cancer

An AICR grantee is studying soy's ability to make radiation therapy more effective while it also protects healthy cells.

Gilda Hillman, PhD, first discovered soy is effective in enhancing radiation therapy used to treat men with prostate cancer. She has now found similar results in animals with of lung cancer, and hopes to proceed with human lung cancer studies.

Dr. Hillman, Professor of Radiation Oncology at Wayne State University's School of Medicine and the Barbara Ann Karmanos Cancer Institute, found that soybean phytochemicals called isoflavones increase the ability of radiation to kill cancer cells in prostate tumors by blocking their DNA repair mechanisms. Isoflavones also reduce damage caused by radiation to healthy cells.



She hopes these double benefits prove to be as effective with radiation treatments for lung cancer. Radiation damages normal lung tissue in addition to killing cancer cells. This scars the lungs, which makes it difficult for patients to breathe. That's why doctors often limit the radiation aimed at a lung tumor, decreasing the therapy's effectiveness.

"It's very hard to stop the progression of scarring in the lungs," Dr. Hillman notes. "If we could reduce scarring by giving patients soy, it would be a major advance in radiation treatment of lung cancer and improve quality of life."

Positive Findings So Far

Using mice with lung cancer, Dr. Hillman found soy protects normal lung tissue from radiation damage and scarring. "We are very excited by these findings," she says, "and are now trying to understand the mechanism by which soy increases the effect of radiation on tumors while at the same time protecting normal tissue from radiation."

Dr. Hillman emphasizes that soy supplements cannot be substitutes for conventional cancer treatment. "It is important to understand that cancer patients need traditional therapy," she says. "Soy alone is not enough." If human trials are successful, doses of soy will have to be administered by a doctor in combination with conventional cancer treatments.

Breast Cancer Survivors Can Enjoy Soy

Health experts once thought that soy might be harmful for breast cancer survivors. Soy isoflavones are similar to estrogen, a hormone that fuels the growth of breast cancer.

But recently scientists have found that animals used in studies of this risk break down isoflavones differently than humans do, explains Mark Messina, PhD, MS, Adjunct Associate Professor at Loma Linda University and the Executive Director of the Soy Nutrition Institute. Now, he says, the consensus among experts is that soy is safe for women with breast cancer, but more research is needed.

An analysis of studies found that eating moderate amounts of soy foods does not increase a breast cancer survivor's risk of recurrence or death. A moderate amount is 1-2 standard half-cup servings daily of whole soy foods, such as tofu or edamame (green soybeans) or 1 cup of soy milk.



Published on August 20, 2013

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