

Study finds common component of fruits, vegetables kills prostate cancer cells

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A new University of Georgia study finds that pectin, a type of fiber found in fruits and vegetables and used in making jams and other foods, kills prostate cancer cells.

The study, published in the August issue of the journal *Glycobiology*, found that exposing prostate cancer cells to pectin under laboratory conditions reduced the number of cells by up to 40 percent. UGA Cancer Center researcher Debra Mohnen and her colleagues at UGA, along with Vijay Kumar, chief of research and development at the VA Medical Center in Augusta, found that the cells literally self-destructed in a process known as apoptosis. Pectin even killed cells that aren't sensitive to hormone therapy and therefore are difficult to treat with current medications.

“What this paper shows is that if you take human prostate cancer cells and add pectin, you can induce programmed cell death,” said Mohnen, a professor of biochemistry and molecular biology. “If you do the same with non-cancerous cells, cell death doesn't occur.”

Mohnen's study adds to the growing body of evidence on the health benefits of pectin, which has been shown to lower cholesterol and glucose levels in humans. Cancer studies using rats and cell cultures have found that pectin can reduce metastasis and prevent lung and colon tumors. Another study found that pectin induces apoptosis in colon cancer cells. Mohnen's is the first to show that pectin induces apoptosis in prostate cancer cells and brings scientists closer to understanding what

makes the common component of plants an effective cancer fighter.

In her lab at UGA's Complex Carbohydrate Research Center, Mohnen and her team analyzed three different types of commercially available pectin and found large differences in anti-cancer activity. They found that treatment under mild base conditions decreased the anti-cancer properties of pectin while heat treatment significantly increased anti-cancer activity.

Pectin is one of nature's most complex molecules and has the potential to bind to several sites on cells and to elicit several different cellular responses at the same time. Mohnen and her team are working to identify the smallest structure within pectin that can induce apoptosis with the ultimate goal of developing pectin-based pharmaceuticals or foods with enhanced health benefits.

Mohnen said that more evidence is needed to support the use of specific pectin supplements, but said that most Americans would do well to increase their intake of fruits and vegetables.

“Even though we hear constantly that we're supposed to eat lots of fruits and vegetables, it wasn't until we started working on these studies that it finally hit home how really important that was,” she said. “By simply increasing your intake of fruits of vegetables, you're going to get a lot of pectin and you're going to get all of the other beneficial phytochemicals at the same time.”

Source: University of Georgia

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