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Press Releases

Lozenges May Offer Bite-Sized Cancer Prevention Posted 12/28/2004

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COLUMBUS, Ohio – Scientists liken them to Life Savers or Sucrets; they sure look like candy, and taste like it, too. But in reality, the tiny, dark purple lozenges are something quite different – they're the latest cancer prevention strategy under study at The Ohio State University Comprehensive Cancer Center.

Surprisingly, they are nothing more than freeze-dried black raspberries.

Scientists at Ohio State have been studying the cancer-fighting properties of black raspberries for years, and have discovered they can slow the growth of oral, esophageal and colon cancers in animals. But now, thanks to a two-year, \$365,000 grant from the National Institute of Dental and Craniofacial Research, a branch of the National Institutes of Health, scientists here will be able to launch the first study of the berries in humans.

Dr. Chris Weghorst, an associate professor in The OSU School of Public Health and a member of the OSU Comprehensive Cancer Center's Molecular Carcinogenesis and Chemoprevention Program, is specifically interested in the berries' impact on patients with oral tumors.

Earlier research from Weghorst's laboratory showed that an extract of black raspberries reduced the growth rate of human oral cancer cells cultured in Petri dishes by 40 percent in just one week. As a part of those studies, researchers identified 54 key genes that appear to be altered by the extract – alterations they believe are responsible for inhibiting the growth of the tumor cells. No one has yet been able to identify exactly which chemical compounds in the berries are responsible for the inhibitory effect, but Weghorst says simply understanding the pathways involved – the complicated chain of signals proteins and enzymes use to control cell growth or death – may help them find new ways to fight cancer.

"If we can identify these pathways, then maybe we can find ways to manipulate them and make their beneficial effects even stronger."

Weghorst is teaming up with physicians at the Arthur G. James Cancer Hospital and Richard J. Solove Research Institute to identify patients with oral cancer who will help them evaluate the lozenges as a possible way of slowing tumor growth.

As part of the study, clinicians will biopsy participants' tumors at the point of initial diagnosis and identify their molecular and biological profiles. During the one to three weeks before surgery to remove the tumors, patients will take two of the berry lozenges after each meal and at bedtime daily, holding them in their mouths until they dissolve. After surgery, researchers will conduct a second biopsy to see if there were any changes in the 54 genes identified earlier as "berry responsive."

The lozenges may be only the first of many forms the novel cancer prevention strategy could take. Researchers are already tinkering with another version of the berries, a configuration that may appear even more enticing. Engineered by a local compounding pharmacy, the berry extract on a stick looks just like a lollipop!

Weghorst says the resemblance is not problematic; in fact, he says it may be ideal. He says the berry extract is perfectly safe and healthful, and besides, lollipops, like the lozenges, merge form and function.

“As researchers, we are just as interested in how people use the berry delivery system as we are in defining its cancer prevention properties,” says Weghorst. “Lollipops and lozenges both can extend the berries’ contact time with oral tumors, and that’s something we want to happen.”

Researchers have tried the lozenges themselves and observed how they and others have responded to them. Weghorst, for example, knows that it takes approximately 15 minutes for one of the lozenges to dissolve, and admits that he, at least, has to fight the urge to chew them, rather than let them melt away. That’s important behavioral information to know in designing any new cancer prevention strategy.

The study may be especially meaningful for the 30,000 Americans who are expected to develop some form of oral cancer this year. Oral cancer can be very stubborn and aggressive. Statistics show that 20 percent of the patients diagnosed with the disease this year will see their cancers recur within 18 months after surgery, and with current treatments, only about half the people diagnosed with oral cancer today will be alive in five years.

The Ohio State University Comprehensive Cancer Center is a network of interdisciplinary research programs with over 200 investigators in 13 colleges across the OSU campus, the Arthur G. James Cancer Hospital and Richard J. Solove Research Institute and Children’s Hospital, in Columbus. OSUCCC members conduct research on the prevention, detection, diagnosis and treatment of cancer, generating over \$95 million annually in external funding.

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