

[Ohio State University Medical Center](#)

Press Releases

Black Raspberries Yield Possible Skin Cancer Treatment Posted 4/17/2007

COLUMBUS, Ohio – It may seem improbable, but one of the best allies against sunburn and skin cancer could be growing in your own back yard.

Researchers at the Ohio State University Medical Center say a topical compound made of black raspberries significantly slows the growth of squamous cell carcinomas of the skin in mice exposed to ultraviolet B (UVB) radiation, the most dangerous light in the solar spectrum.

“In terms of shutting down the inflammatory response, we’ve never seen anything like it,” says Dr. Anne VanBuskirk, an assistant professor of surgery in Ohio State’s College of Medicine and senior author of the study, presented today at the annual meeting of the American Association of Cancer Research.

UVB radiation inflames the skin, resulting in sunburn. Scientists have long believed that UVB light causes most of the non-melanoma skin cancers diagnosed in the United States each year.

VanBuskirk has spent years researching the development of non-melanoma skin cancers among patients who have undergone solid organ transplants.

“These patients are exquisitely sensitive to sunlight and are at extremely high risk of developing squamous cell carcinoma. It’s been estimated that 5 to 10 percent of them will get the disease within five years of their transplant, and half of them will develop it by 10 years out. Anything we can do to reduce those numbers would be helpful.”

Squamous cell carcinoma is not as virulent as malignant melanoma, but in certain people at high risk of the disease – transplant recipients, HIV positive individuals or anyone with a suppressed immune system – it can be deadly.

Squamous cell carcinoma of the skin is the second most common cancer in the United States, with an estimated 250,000 new cases each year.

VanBuskirk and others who study the development of squamous cell carcinoma believe the disease may be due, in part, to an inflammatory response that’s “stuck in overdrive.”

Many studies have demonstrated a link between inflammation and cancer. Normally, inflammation – the reddened area from a sunburn, for example – is tightly managed by a complex network of repair and growth factor mechanisms. VanBuskirk and others say that when these signals are mistakenly left on or shut off, perhaps as a result of DNA damage or oxidative stress, cancer can take root and grow.

She says an extract of black raspberries (freeze-dried, ground up and suspended in KY jelly in their experiment) may be a good countermeasure because they contain anthocyanins, powerful antioxidants that give the fruit its rich, dark color. “In our experiments, the black raspberry treatment significantly reduced inflammatory damage and reduced tumor growth and spread.”

Researchers, including F Jason Duncan (name is correct, no period after “F”), a graduate student in VanBuskirk’s laboratory and lead author of the study, exposed mice to acute and chronic UVB exposure. In each setting, they treated the mice with either the gel alone or the

gel with the berry powder added, and compared them to controls.

They measured the amount of swelling, neutrophil infiltration (cells that move in quickly when there is sunburn) and levels of an enzyme called myeloperoxidase, a marker of neutrophil activity.

In the acute setting, the UVB rays produced significant edema and increased skin thickening by 67 percent in the mice treated with the gel alone. The myeloperoxidase levels rose 500 percent in that group.

In the mice treated with the black raspberry gel, the scientists found that the skin thickened only 20 percent, and myeloperoxidase levels rose only 37 percent.

Since the risk of cancer goes up with increasing exposure to sunlight, the researchers wanted to see if the berries would inhibit tumor growth in animals exposed to UVB rays for longer periods of time.

They exposed mice to UVB light three times weekly for 25 weeks, and, as before, treated one group with gel alone and another group with the gel containing the black raspberry powder, and compared them to controls.

Beginning about halfway through the treatment period, they began measuring tumor growth. They discovered that black raspberry gel significantly reduced the size and number of tumors. It was less clear if the berry gel had any impact on the progression of the disease. Outside evaluation by a veterinary pathologist determined that the preparation seemed to slow cancer progression only slightly.

“These results are provocative,” says VanBuskirk, a member of the Ohio State University Comprehensive Cancer Center. “If repeated studies bear out these findings, it could mean that one day we may be seeing a topical gel that could be used after you get sunburned – one that not only eases pain, but also lessens any sun damage you might have already suffered.”

She says the treatment comes with other benefits. “The berry extract is a natural product – it had no discernible side effects.” And not to worry about purple skin, either. VanBuskirk says the amount of raspberry extract needed for therapeutic benefit is so small it didn’t even stain the animals’ skin.

The study was supported, in part, by the U.S. Department of Agriculture.

Other researchers contributing to the study include Sam Shin, Jason Martin, Kathleen Tober, Gary Stoner and Tatiana Oberszyn, from Ohio State; and Steven Hecht, from the University of Minnesota.

###

Related links:

- [Click here for a jpeg of Dr. VanBuskirk](#)

Michelle Gailiun
Medical Center Communications
614.293.3737
michelle.gailiun@osumc.edu

[More News](#)



©2007 Ohio State University Medical Center.

410 W. 10th Avenue, Columbus, Ohio 43210
1-800-293-5123

The content of this Web site is for informational purposes only. It does not replace the advice of a physician. All material is the property of Ohio State University Medical Center. All rights reserved. Please see our disclaimer for more detail.

<http://medicalcenter.osu.edu/mediaroom/press/article.cfm>