

NEW MEXICO

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**RANGE  
ROVER**

# Cancer researchers dig through spice cabinet for prostate cure

BY DENNIS DOMRZALSKI | NMBW STAFF

When it came to fighting prostate cancer, researchers at the University of New Mexico Cancer Center decided to look at the spice turmeric. Used in Indian and Asian dishes, turmeric has long been known for its anti-inflammatory and therapeutic qualities.

UNM researchers found that a compound in turmeric called curcumin could stop the growth of prostate cancer cells in laboratory tests. But the natural compound can't be absorbed by the body in great enough concentrations to slow or stop the growth of cancer. So the researchers developed a synthetic version of curcumin, which they call ca27. They believe it could lead to prostate cancer-fighting drugs in the future.

"Curcumin has anti-inflammatory and antitumor properties, but it is quickly absorbed in the body and has a low effect" against cancer cells, said Alexandra Fajardo, a UNM biomedical sciences graduate student with a specialty in toxicology and biochemistry.

That's where researcher Marco Bisoffi and others came in. They developed a synthetic version of curcumin that initial tests have shown can kill or slow the development of prostate cancer cells.

"Curcumin is the major ingredient in turmeric. We modified the structure of the natural product and created a library of different molecules, and we screened a bunch of them," said Bisoffi, a UNM cancer researcher and assistant professor of biochemistry and molecular chemistry at the university.

Bisoffi and others screened the synthetic curcumin to test its effects in regulating what is called the androgen receptor.

Androgens are compounds that help regulate male characteristics. They include hormones such as testosterone, Bisoffi explained.

Androgen receptors absorb hormones and other compounds, and help with the development and the function of the prostate. They also play a key role in the formation and progression of prostate cancer, Bisoffi added.

Current prostate cancer treatments work to limit the androgen receptors' ability to take in androgens. However, the drugs don't kill those receptors, and, over time, they can become immune to the drugs, Bisoffi explained.

Radiation and chemotherapy treatments kill healthy tissue around cancer cells and can have negative side effects, Bisoffi said.

The synthetic curcumin, however, can actually kill the androgen receptor.

"We were thinking, 'Let's get rid of the androgen receptor.' We have found that the ca27 gets rid of the androgen receptor within hours, and works at low concentrations and concentrations that should be

achievable in an animal model or in humans," Bisoffi said.

The research is in its preliminary stages, and researchers will first have to test it on animals before going into clinical trials with humans, Bisoffi explained.

The research could prove valuable in fighting prostate cancer, which is expected to kill nearly 34,000 men in the U.S. in 2011, according to the National Cancer Institute.

The Cancer Institute estimates that there will be 241,000 new prostate cancer cases in the U.S. this year. Of those, 1,312



will be in New Mexico, and 198 men in the state are projected to die from the disease this year.

More than 2 million Americans have the disease. The five-year survival rates for early stage prostate cancers are high, the Cancer Institute said.

"This study pretty much begins to identify a potential mechanism to regulate the androgen receptor. It is giving us insight into how to regulate it and how to develop new targets for those pathways," Fajardo said.

"It opens up a Pandora's box for us in that it has a lot of potential and some interesting avenues that it can go in."

Bisoffi said future research will look at finding more synthetic curcumin compounds that can kill androgen receptors, rather than limit their ability to absorb hormones.

"We have to address the question of whether it does kill cancer cells and whether it does anything to normal cells," Bisoffi added. "With conventional chemotherapies, the side effects are sometimes harder than the disease itself. The magic bullet would be to find something" that can kill the androgen receptor, he said.

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