Study may lead to new treatments for prostate cancer

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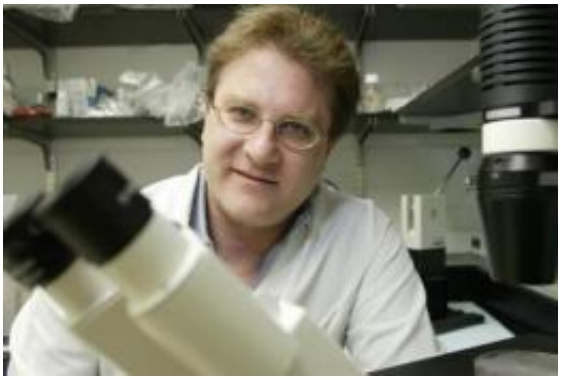

Research in the lab of Marshall University's Dr. Pier Paolo Claudio focuses on understanding the molecular mechanisms governing malignant transformation in order to tailor novel therapeutic strategies. Credit: Photo courtesy Marshall University

A recent study conducted at Marshall University may eventually help scientists develop new treatments for prostate cancer, the most common malignancy in American men.

The study, which focused on the effects of cadmium on the prostate, was conducted by Dr. Pier Paolo Claudio, an associate professor in the Biomedical Sciences Graduate Program and Department of Biochemistry and Microbiology at the university's Joan C. Edwards School of Medicine, and an international team of colleagues from the University of L'Aquila and the National Cancer Institute in Italy, and the

University of Colorado Denver and the National Institute of Environmental Health Sciences in the United States.

An extremely toxic metal found in industrial workplaces, cadmium is commonly used in electroplating and is a key component in batteries and some paints. It is also found in cigarettes and some food supplies.

According to Claudio, scientists believe the prostate may be a target for cancer caused by cadmium, although the underlying mechanisms have been unclear.

"In our study, we investigated the effects of cadmium exposure in normal and in tumor cells derived from human prostate tissue," he said. "We were able to demonstrate the molecular mechanisms cadmium uses to induce carcinogenesis in the prostate."

Claudio, who said he has spent the last 15 years conducting research to understand the crosstalk between the factors that contribute to cancer progression versus those that protect from it, says this study is important because once those molecular mechanisms are understood, new therapies can be tailored to treat prostate cancer.

He added, "The focus of work in our laboratory is to understand the molecular mechanisms governing malignant transformation in order to tailor novel therapeutic strategies. To effectively design novel biological drugs, a thorough understanding of the mechanism of cancer pathogenesis is required. Our study will contribute to the body of knowledge available to science and may lead to exciting new treatments for this common cancer."

More information: The research was published today in the journal *PLoS ONE*. The full article, "Cadmium Induces p53-Dependent Apoptosis in Human Prostate Epithelial Cells," is available online at

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