

Researchers develop new drug to target tumor cells and blood vessels

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Researchers at the University of Southern California have identified a new drug compound that appears to target tumor cells and surrounding blood vessels without the negative side effects typically associated with Cox-2 inhibitors.

The compound 2.5-dimethyl-celecoxib (DMC) appears to have a strong anti-tumor effect while also attacking the vasculature that provides the blood supply necessary for <u>tumor</u> growth, according to data presented at the AACR 100th Annual Meeting 2009.

"If left behind, the <u>blood vessels</u> within the tumor will help the <u>tumor</u> <u>cells</u> to survive and re-grow," says Florence M. Hofman, Ph.D., professor of pathology at the Keck School of Medicine of USC. "We believe that DMC will be particularly useful for treating brain tumors such as gliomas, which are highly vascular. It also appears very promising for long-term treatment because it does not have the negative cardiovascular effects associated with Cox-2 inhibitors."

Cox-2 inhibitors are most commonly used as <u>anti-inflammatory drugs</u> and have been shown to be effective in treating certain kinds of cancer. However, long-term use has also been associated with increased risk of <u>heart attack</u> and stroke, Hofman explains. DMC, however, retains antitumor activity without inhibition of Cox-2 and the associated increased risk of cardiovascular complications.

Hofman and colleagues from the Keck School of Medicine tested the



effectiveness of the DMC compound by isolating endothelial cells—the cells that line the interior surface of blood vessels—from human nonmalignant brain and glioma tissues and treating them with DMC.

They found that the drug was cytotoxic to tumor-associated endothelial cells and suppressed cell proliferation and migration without apparent toxic effects to normal tissues. Drug therapy in animal studies also showed smaller tumors and fewer blood vessels in the tumors, with a 35 to 40 percent reduction in blood vessel density.

"While our research focused on <u>brain tumors</u>, we believe this drug may work in a number of different tumors that are dependent on blood vessels," Hofman says. "Further research will help us to understand its full potential."

<u>More information</u>: Jenilyn J. Virrey, Adel Kardosh, Encouse Golden, Stan Louie, Nicos Petasis, Axel H. Schönthal, Thomas C. Chen, and Florence M. Hofman. "2, 5-Dimethyl-Celecoxib Exerts Antiangiogenic Effects on the Tumor Vasculature."

Source: University of Southern California (<u>news</u> : <u>web</u>)

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