

Continued smoking can spread cancer

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(Medical Xpress) -- Cigarette smoke not only can cause cancer, but it's also responsible for the spread of it, according to research by UC Merced biochemistry professor Henry Jay Forman.

Forman discovered [tobacco smoke](#) activates an enzyme — called Src — that causes [cancer cells](#) to spread to other parts of the body. The study will appear in the April 15 edition of *Free Radical Biology and Medicine*.

[Cigarette smoke](#) is the major cause of [lung cancer](#), Forman said, but nearly half of lung cancer patients remain active smokers. Nonetheless, researchers haven't understood how cigarette smoke causes cancer to metastasize.

The lab was also able to prevent cigarette smoke from activating the enzyme by introducing an antioxidant. Forman's discovery could prove useful in the fight against cancer, as it creates more understanding on how it spreads and how antioxidants can help combat this.

Forman will present his findings on April 21 at the Experimental Biology 2012 conference in San Diego.

Forman coauthored the paper with a professor from the University of Padova in Italy. Forman served as a visiting professor during the summer while also conducting research.

In another paper, recently published in the Journal of Biological Chemistry, Forman collaborated with investigators at USC who are

experts in looking at how cells maintain themselves using proteasome, which degrades old and damaged proteins. When cells are under oxidative stress, the proteasomes work faster to remove damaged proteins.

However, the lab discovered the signal used to increase a cell's defenses doesn't happen in old age, causing cells to die and turn malignant. The findings offer more insight into age-related problems, such as Alzheimer's disease. Both studies were supported by the National Institutes of Health.

Forman will continue his research this summer, focusing on three projects: understanding how differences in the expression of a particular enzyme increases human susceptibility to air pollution; studying how people with sickle cell trait may have a sickle cell crisis when doing severe exercise; and studying how cigarette smoke activates an enzyme that regulates changes in lung cancer cells that promote metastasis. The three projects are funded by the National Institutes of Health.

Provided by UC Merced

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