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### Smoking, Genetics, and Lung Cancer

Cincinnati--Seven percent of all smokers die of lung cancer. But why only seven percent, and which seven out of a hundred are at risk? Scientists at the University of Cincinnati (UC) Medical Center may have found a clue in DNA.

A research team led by Daniel W. Nebert, MD, UC Environmental Health, have discovered that two human genes, on chromosome 15, are linked to enzymes that react with procarcinogens found in the blood of all smokers. This lethal chemical reaction between the enzymes and the procarcinogens creates toxic carcinogens that cause cancer. Humans normally have 23 pairs of chromosomes or long chains of genes. "A particular difference in either gene can lead to greater intensity of action or toxicity in one individual but not another," says Nebert.

Smokers with these two genes are more likely to develop cancer, but can protect themselves by quitting smoking. Future blood tests could tell us who has a predisposition for a specific type of cancer. But a person with bad genes isn't necessarily doomed. In other words, the person can avoid the procarcinogens by choosing not to smoke. The body chemistry of each person is somewhat unique. "Each of us is different with regard to drug-metabolizing capabilities," says Nebert.

Diet, the immune system, aging, and environment, all play important roles in the cancer process and diet and environment are within the individual's power to control. If you eat a high fiber, low-fat diet, get plenty of exercise, quit smoking, and eat foods such as broccoli, cauliflower, and other sources of beta carotene, a

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