

# Celebrex might prevent lung cancer in former smokers, early studies suggest

By Thomas H. Maugh II, Los Angeles Times / For the Booster Shots blog

9:23 AM PDT, July 6, 2011

The Cox-2 inhibitor celecoxib, better known under the brand name Celebrex, might be able to prevent lung cancer in former smokers, researchers said Wednesday. Studies in a small group of people suggest that the drug, which is normally used to treat arthritis and some other inflammatory diseases, prevents a proliferation of cells that is normally a precursor of lung cancer, the [researchers reported](#) in the journal Cancer Prevention Research. But a great deal more research will be necessary to show that the drug actually prevents the initiation of cancer and then that it prevents deaths, experts said.

Lung cancer is the leading cause of cancer deaths in the United States and the world, with about 1.3 million deaths every year worldwide. In the U.S. alone, about 222,500 cases of lung cancer are diagnosed each year, resulting in 157,300 deaths. The bulk of those cases result directly from smoking. Stopping smoking sharply reduces the risk of contracting lung cancer, but the ex-smoker's risk still remains well above normal. Scientists have thus sought drugs that might block development of lung cancer in ex-smokers. Among the potential agents have been: beta-carotene, alpha-tocopherol, retinol, retinyl palmitate, N-acetylcysteine, isotretinoin, selenium and vitamin E. None of those has proved effective, and some have even been found, paradoxically, to accelerate the growth of tumors.

A variety of research has shown that the naturally occurring enzyme cyclooxygenase-2 (Cox-2) plays a role in the development of lung tumors. Researchers thus decided to determine whether inhibitors of the enzyme, such as celecoxib, might inhibit tumor growth. To shorten the time needed for preliminary studies, Dr. Jenny T. Mao of the University of New Mexico and her colleagues chose an assay of potential tumor growth called Ki-67. Ki-67 is a biomarker indicating that cells are proliferating rapidly. In a [report last year](#) in the same journal, the team found that celecoxib significantly reduced Ki-67 levels in 20 heavy smokers. The drug also reduced levels of prostaglandin E2, which is also involved in tumor formation. That study had no control group, however.

In the new study, the team enrolled 137 former smokers who were over the age of 45, had at least 30 pack-years of smoking and had been abstinent for at least a year. Half received 400 milligrams of celecoxib twice daily for six months and half a placebo. Although some dropped out, 101 subjects completed the regimen and underwent bronchoscopies at the beginning of the study and after six months. The team found that those who received celecoxib had a 34% reduction in Ki-67 levels at the second bronchoscopy, while the control group had an average 3.8% increase in Ki-67 levels. These results suggest that the drug is effective, and they warrant a larger phase 3 clinical trial, the authors said.

One potential problem is that celecoxib increases the [risk of cardiovascular disease and stroke](#).

The phase 3 trials should thus be conducted in patients who have no cardiovascular risk factors other than smoking, the team said.

Copyright © 2011, [Los Angeles Times](#)