

# Metformin may protect against lung cancer

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Metformin, a drug commonly used to treat type 2 diabetes, shows potential in the prevention of tobacco-induced lung tumors, according to early research conducted at the National Cancer Institute (NCI).

Metformin, a drug commonly used to treat [type 2 diabetes](#), shows potential in the prevention of tobacco-induced lung tumors and possibly colorectal tumors, according to two studies published in Cancer Prevention Research.

The [first study](#), conducted by researchers at the NCI, showed that metformin significantly decreased [lung tumor](#) burden in mice exposed to a nicotine-derived nitrosamine called NNK, which is the most prevalent [carcinogen](#) in tobacco. Researchers treated the mice with metformin either orally or by injection. Those treated orally had between 40 and 50 percent fewer tumors, while those mice treated with injection had 72 percent fewer tumors. Based on these findings, clinical trials of metformin are being considered to determine if this compound could be used as an effective chemoprevention agent for smokers at high risk of developing lung cancer.

A [second study](#), conducted by researchers in Japan, showed, non-diabetics taking metformin had a significantly lower rate of rectal aberrant crypt foci, a surrogate marker of colorectal cancer. Patients in the treatment group had a mean of 5.11 foci compared with 7.56 in the control group.

Results of these studies were discussed at a teleconference hosted by

Scott Lippman, M.D., editor-in-chief of Cancer Prevention Research, and professor and chair in the department of thoracic head and neck [medical oncology](#) at the University of Texas M. D. Anderson Cancer Center on Wednesday, Sept. 1, 2010.

Metformin significantly decreased lung tumor burden in mice exposed to a nicotine-derived nitrosamine called NNK, which is the most prevalent carcinogen in tobacco. [Metformin](#) has been previously shown to activate an enzyme called AMP-activated protein kinase that is known to inhibit mTOR, a protein that regulates cell growth and survival in tobacco carcinogen-induced lung tumors.

Provided by American Association for Cancer Research

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