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**EMBARGOED UNTIL 2 P.M. CDT, THURSDAY, SEPT. 14, 2006**

## **Airborne metal particles from pollution may lead to lung cancer, UT Southwestern research team concludes**

DALLAS – Sept. 15, 2006 – Inhaling metal particles from air pollution may lead to the development of lung cancer, researchers at UT Southwestern Medical Center have found.

The ecological study, published today in the *Journal of Thoracic Oncology*, is the first study of its kind in a large population that compared incidence rates of lung cancer for all 254 Texas counties from 1995 to 2000 with industrial air releases of metals reported to the U.S. Environmental Protection Agency in the previous eight- to 13-year period (1988-2000).

The researchers from the Harold C. Simmons Comprehensive Cancer Center at UT Southwestern found that the lung cancer rates were highest in counties with the highest level of industrialization. These counties were primarily located in the Houston area and the contiguous Gulf Coast counties and in the Dallas-Fort Worth metropolitan area, where there were also higher industrial emissions of zinc, chromium and copper.

The study's findings point to potential root causes for lung cancer in the estimated 10 percent to 15 percent of lung cancer patients who never smoked, said Dr. Yvonne Coyle, associate professor of internal medicine and the study's senior author.

"There is concern that other environmental carcinogens may be interacting with cigarette smoking or alone may be influencing the current trends for lung cancer incidence and mortality," Dr. Coyle said.

Explaining the cancer-causing effect of airborne metals, Dr. Coyle said, "There is some evidence that metals can interfere with a biochemical process called methylation that inactivates genes that normally suppress tumor growth.

"Although the study is not conclusive, it provides new information suggesting that airborne metals, including those that are essential human nutrients, such as zinc and copper, play an important

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## **Lung-cancer study – 2**

role in lung carcinogenesis.”

The researchers acknowledged that although this study provides evidence that metals in air pollution are associated with lung-cancer risk in a large population or a group of individuals, it will be important for future studies to determine whether individuals with lung cancer have actually had previous high exposures to airborne metals.

Other UT Southwestern contributors to the study were Dr. John Minna, director of the Nancy B. and Jake L. Hamon Center for Therapeutic Oncology Research and the W.A. “Tex” and Deborah Moncrief Jr. Center for Cancer Genetics; Dr. Abu Minhajuddin, assistant professor of clinical sciences and family and community medicine; and Dr. Linda Hynan, associate professor of clinical sciences and psychiatry.

The research was supported by the National Cancer Institute’s Specialized Program of Research Excellence in Lung Cancer at UT Southwestern and the Clay Weed Memorial Trust Fund.

The UT Southwestern Harold C. Simmons Comprehensive Cancer Center combines the highest standards of individual care with innovative programs for cancer diagnosis, treatment and prevention based on UT Southwestern’s internationally recognized research coupled with the most sophisticated equipment and advanced technologies available. The expertise of the physicians in the Simmons Comprehensive Cancer Center extends to virtually every cancer in every age group, from breast, urologic, gynecologic, lung, gastrointestinal, head and neck, brain, and skin to lymphomas, leukemia, and bone marrow transplantation.

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