

When Genes Cooperate, Lung Cancer Grows and Spreads

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(PhysOrg.com) -- The combined expression of three specific genes in lung cancer tumors may predict both cancer growth and a poorer prognosis, according to a study led by researchers in the Duke Institute for Genome Sciences & Policy and the Duke Comprehensive Cancer Center.

"Previous work had shown that three <u>genes</u> -- TTF-1, NKX2-8 and PAX9 -- were amplified in early stage <u>lung cancer</u> tumors," said David Hsu, MD, a medical oncologist at Duke and lead investigator on this study.

"Our study showed that these genes actually work together to provide an environment conductive to the growth and proliferation of cancer cells."

The researchers published their findings in the March 9, 2009 online edition of the <u>Proceedings of the National Academy of Sciences</u>.

The study was funded by the Emilene Brown Cancer Research Fund, the Jimmy V Foundation, the American Cancer Society, the Burroughs Wellcome Fund, Joan's Legacy Foundation and the National Institutes of Health.

The researchers looked at 91 early stage lung cancer tumors and examined them for co-expression of the three genes, which they hypothesized led to a greater proliferation of tumor growth and spread.



They correlated their findings with survival data on the <u>patients</u> from whom the tumors came, and found that patients whose tumors demonstrated co-expression of the NKX2-8 and TTF-1 genes had survival patterns consistent with patients with advanced disease.

In addition, that same cohort of patients appeared to be resistant to platinum-based chemotherapy, which is typically given to lung cancer patients as a first-line therapy, suggesting that there is need for more targeted therapeutics, Hsu said.

"Clinically, most patients with non-small cell lung cancer are treated with a platinum- based therapy, but I think that many people agree that targeted therapeutics represent the future of lung cancer therapy," Hsu said. "This study demonstrates that these three lung-specific genes are biologically important in the initiation and proliferation of lung cancer and could have implications for how patients are treated."

More than 180,000 people are diagnosed each year in the United States with non-small-cell lung cancer, and 150,000 patients die of the disease each year.

Provided by Duke University

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