

## Could lung cancer in smokers vs. 'never-smokers' be different diseases?

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Lung tumors in those who smoke and those who never smoked have different DNA alterations in the tumor genomes, according to results of a pilot study presented at the Ninth Annual AACR Frontiers in Cancer Prevention Research Conference, held Nov. 7-10, 2010, in Philadelphia.

Based on the results of this study, Kelsie Thu, a Ph.D. candidate at the BC Cancer Research Center in Vancouver, Canada, suggested that "[lung cancer](#) in never-smokers should be studied as a separate group," and that lung cancers in smokers and never-smokers may represent two different diseases.

Thu and colleagues investigated the biology of lung cancer to determine how it is different in 30 patients who never smoked vs. 53 patients who were current or former smokers. The goal: to improve the current understanding of lung cancer development.

"A better understanding of the biology underlying lung [cancer development](#) will lead to improved detection and therapeutic strategies, and ultimately, will result in improved patient prognosis," she said.

Using genomic technologies, the researchers found regions of DNA that were altered in both the smoker and never-smoker groups, as well as regions of DNA altered preferentially in one group.

Besides having more [epidermal growth factor receptor](#) (EGFR) mutations, which is typical, never-smoker tumor genomes had more

DNA alterations than [smokers](#) altogether. This suggests there may be more genomic instability in never-smoker lung tumors and that they could develop through different molecular mechanisms, according to Thu.

"Hopefully, our findings will stimulate the research community to further investigate the differences between lung cancer in these two cohorts, which could ultimately lead to the discovery of novel molecular targets for the diagnosis and treatment of lung cancer in never-smokers," Thu said.

Provided by American Association for Cancer Research

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