



Gene Variant Linked with Reduced Lung Cancer Risk

A variant in a gene involved with inflammation and the immune response is linked with a decreased risk of lung cancer. That is the finding of an analysis published early online in *CANCER*, a peer-reviewed journal of the American Cancer Society. The results add to the growing body of literature implicating these processes in the development of lung cancer.

Meredith Shiels, PhD, MHS and Anil Chaturvedi, PhD, of the National Cancer Institute in Rockville, MD, and their colleagues analyzed 1,429 variants in inflammation- and immunity-related genes from 378 patients with lung cancer and 450 healthy controls from the Prostate, Lung, Colorectal and Ovarian (PLCO) cancer screening trial. The investigators observed a significant link between lung cancer and 81 single nucleotide polymorphisms (SNPs) located in 44 genes.

They then compared these results with observed or imputed data from four recently completed genome-wide association studies (GWAS) that included 5,739 lung cancer cases and 5,848 controls. Of the 81 SNPs, one in particular -- named rs4648127 and located within the *NFKB1* gene -- was associated with lung cancer in both analyses. This SNP was linked with an estimated 44% reduced risk of lung cancer in the cancer screening trial and a 21% reduced risk in the combined GWAS analysis.

The NF- κ B, or nuclear factor kappa B, protein that is produced in part from the *NFKB1* gene is known to play an important role in immunity and inflammation by regulating gene expression, cell death, and cell proliferation. Also, previous research has shown that immunity and inflammation may affect the development of lung cancer. "Our study provides further evidence that inflammation may be associated with lung cancer risk," said Dr. Shiels. She added that future studies should further examine the *NFKB1* gene and its relationship with lung cancer risk.

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