

# Smokers' COPD risk is genetic

March 11 2009

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It's well known that puffing on cigarettes can eventually leave you out of puff. But why do a quarter of long-term smokers develop serious breathing problems, when others do not? New research published BioMed Central's open access journal *Respiratory Research* has found that the answers may lie in a smoker's genetics, which affect their chances of developing chronic obstructive pulmonary disease (COPD) in later life.

US-based researchers Alireza Sadeghnejad, Jill Ohar, Eugene Bleecker and colleagues from the Wake Forest School of Medicine and Saint Louis University, looked at a disintegrin and metalloprotease (ADAM) gene known as ADAM33 in 880 long-term heavy [smokers](#). Located on chromosome 20, ADAM33 has been linked with asthma in previous studies. This new study is unique in comparing long-term smokers with COPD versus a control group of long-term smokers without COPD.

The researchers found five single nucleotide polymorphisms (SNPs) - [human DNA sequence](#) variations - in ADAM33 that were more frequent in the COPD group than in the group of smokers without COPD. One SNP, known as S1, had a particularly strong link to lung abnormalities. "Functional studies will be needed to evaluate the biologic significance of these polymorphisms in the pathogenesis of COPD," according to the authors.

COPD is characterized by progressive decline in lung function, and encompasses [chronic bronchitis](#) and emphysema. Almost 90% of COPD is caused by long-term cigarette smoking, yet only 25% of chronic

[tobacco smokers](#) will go on to develop COPD.

More information: Adam33 polymorphisms are associated with COPD and lung function in long term tobacco smokers, Alireza Sadeghnejad, Jill A Ohar, Siqun L Zheng, David A Sterling, Gregory A Hawkins, Deborah A Meyers and Eugene R Bleeker, *Respiratory Research* (in press), [respiratory-research.com/](http://respiratory-research.com/)

Source: BioMed Central

Citation: Smokers' COPD risk is genetic (2009, March 11) retrieved 17 April 2024 from <https://medicalxpress.com/news/2009-03-smokers-copd-genetic.html>

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