

World's largest respiratory genetics study launches on World COPD Day

14 November 2012

Researchers from the Universities of Nottingham and Leicester are leading the largest ever study of the genetics relating to lung disease.

The project will investigate what determines an individual's [lung](#) health and why smoking harms the lungs of some people more than others and will use health information held by UK Biobank, a major national resource holding health information from half a million volunteers.

The study, funded by the Medical Research Council (MRC) and also involving scientists at St George's, University of London, is aiming to shed light on why some people are genetically more prone to suffer from lung disease, particularly [chronic obstructive pulmonary disease \(COPD\)](#).

COPD includes conditions such as [chronic bronchitis](#) and [emphysema](#) and is the sixth most common cause of death in the UK (around 30,000 deaths per year). It affects approximately 900,000 people in the UK and costs the NHS £150m every year. At present, avoiding taking up smoking or, for those who already smoke, stopping smoking remain the most effective ways to prevent COPD.

The [World Health Organisation](#) (WHO) estimates that COPD is the 4th leading cause of death worldwide but it is predicted to move into 3rd place in the near future. The new project is being launched on Wednesday November 14, which is World COPD Day.

The research aims to discover the genes which affect lung function and also those which may affect the chances of developing lung disease for both smokers and non-smokers. It will also investigate whether genes play a part in the ability, or failure, to maintain good lung health for smokers and non-smokers. The researchers will also be able to investigate [genetic factors](#) that may affect the likelihood of an individual becoming addicted to smoking.

The study, which is called UK BiLEVE (UK Biobank Lung Exome Variant Evaluation), will be one of the first projects to make use of UK Biobank, the world's largest resource of its kind.

All UK Biobank participants have already had their lung function measured and given information about their smoking habits, past and present. In this study, researchers will use anonymous data from 50,000 of these participants to determine genetic variants associated with susceptibility to COPD. They will look at both rare and common single nucleotide polymorphisms (tiny variations in genes) in the participants' DNA and the [lung function](#) of those who are heavy smokers and those who have never smoked.

Leading the research is Professor Ian Hall, Dean of The University of Nottingham's Medical School. He said: "We currently know very little about why there is such a wide difference in lung health, even among smokers. We believe genetic factors play an important role so we're extremely excited about using the unique resource of Biobank to test this theory in detail. This study couldn't be done anywhere else in the world."

Professor David Lomas, Chair of the MRC Population and Systems Medicine Board, said: "We know that smoking is unhealthy for anyone but we know little about why the lungs of most smokers are seriously affected, while those of some seem to stay relatively healthy. If we knew more about the genetics that cause this variation we would be better able to direct treatments to those who are most at risk and have an increased chance of developing drugs to target this type of [lung disease](#)."

Professor Sir Rory Collins, UK Biobank Principal Investigator, said: "We are extremely grateful to the half a million people throughout Britain who went out of their way to join UK Biobank. Their commitment will provide key insights into a wide

range of illnesses that kill and cause pain and suffering. Last week we heard of plans to use the resource to study dementia. This week UK Biobank helps scientists tackle a serious lung condition. UK Biobank will become a key resource to improve health in the 21st century. We are grateful to the MRC, Wellcome Trust and Department of Health for having the vision to back such an initiative."

Provided by University of Nottingham

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