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New genes for lung disease discovered

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(PhysOrg.com) -- Scientists have discovered five genetic variants that are associated with the health of the human lung. The research by an international consortium of 96 scientists from 63 centres in Europe and Australia sheds new light on the molecular basis of lung diseases.

The new findings provide hope for better treatment for lung diseases like Chronic Obstructive Pulmonary Disease (COPD) and asthma. In the past it has been difficult to develop new treatments because the molecular pathways that affect the health of the lung are not completely understood. It's hoped the new pathways discovered could in the future be targeted by drugs.

The ground-breaking research involved a genetic study of 2.5 million sites across the human genome involving samples from 20,000 people across the world. The consortium was led by Dr Martin Tobin from the University of Leicester and Professor Ian Hall from The University of Nottingham.

The research, part-funded by the Medical Research Council (MRC) and Asthma UK, is published today in Nature Genetics. It represents a significant advance because it is the first time that these five common genetic variations have been definitely linked with lung function.

The scientists said: "This work is important because until now we have known very little about the genetic factors that determine an individual's lung function. By identifying the genes important in determining lung function, we can start to unravel the underlying mechanisms which

control both lung development and lung damage. This will lead to a better understanding of diseases such as chronic obstructive pulmonary disease (COPD) and asthma. Crucially, it could open up new opportunities to manage and treat patients with lung conditions".

The authors added: "A large reduction in lung function occurs in chronic obstructive pulmonary disease (COPD), which affects around 1 in 10 adults above the age of 40 and is thought to be the fourth most common cause of death worldwide. Smoking is the major risk factor for development of COPD. Lung function and COPD cluster within families, indicating that variations in genes also predispose individuals to reduced lung function.

"The scientists of the SpiroMeta consortium compared genetic variants at each of 2.5 million sites across the human genome in over 20,000 individuals of European ancestry with their lung function measures. In five different locations in the human genome, genetic variants resulted in alterations in lung function. The scientists showed that these were real findings by checking the effects of the same variants in over 33,000 additional individuals. They also compared their results to those of a second consortium, CHARGE, which has published a paper in the same issue of the journal.

The scientists emphasise that they do not expect these findings to lead to immediately to genetic tests to predict who will develop lung disease. What is more important, they say, is that the findings will help understand the underlying causes of lung diseases and thus may indicate new ways of treating the condition.

"The research would not have been possible without the generous support of the participants of the contributing studies from the UK, Europe and Australia, to whom we offer our thanks."

Source: University of Leicester (news : web)