Gene linked to peanut allergy

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A picture of peanuts, taken during National Food Allergy and Intolerance Week. Credit: sweenpole2001 on Flickr.

An international collaboration led by researchers at the University of Dundee has discovered a genetic link to peanut allergy. It has been known for some time that peanut allergy can be inherited, but this study marks the first robust evidence pinpointing a specific gene.

Peanut allergy affects one to two per cent of children in the UK and may result in a severe or life-threatening allergic reaction. The number of people affected by peanut allergy has increased dramatically over the past 30 years, but the causes of the disease are unknown.

Dr Sara Brown, Wellcome Trust Intermediate Clinical Fellow in the Division of Molecular Medicine at Dundee, explains: "Allergic conditions often run in families, which tells us that inherited genetic factors are important. In addition to that, changes in the environment and our exposure to peanuts are thought to have been responsible for the recent increase in peanut allergy seen in the western world in particular."

The researchers were particularly interested in a gene called Filaggrin. Mutations in this gene that cause it to stop functioning had been linked previously with eczema and asthma.

The Filaggrin gene codes for a protein that helps to make the skin a good barrier against irritants and allergens. Changes in the gene decrease the effectiveness of this 'barrier', allowing substances to enter the body and leading to a range of allergic conditions.

In an initial study of 71 people with peanut allergies in England, Ireland and the Netherlands, the team identified defects in the Filaggrin gene in around one in five patients. A separate, larger-scale replication of the study in 390 people with peanut allergies in Canada confirmed the findings.

"Now, for the first time, we have a genetic change that can be firmly linked to peanut allergy," said Dr Brown.

The researchers only looked for the most common mutations in the Filaggrin gene, so they say it's likely that their findings have underestimated the total significance of this gene in causing peanut allergy.

The gene accounts for only one in five patients, however, and further work will be needed to fully understand the genetic risk factors for this complex disease.

Professor Irwin McLean from the University of Dundee commented: "We don't know enough about the causes of peanut allergy but this is an important step forward. The Filaggrin defect is not THE cause of peanut allergy but we have established it as a factor in many cases."

Nevertheless, this is the first time that any genetic association with

peanut allergy has been demonstrated in more than one population, making it more likely to be a genuine risk factor.

The findings are published today in the '*Journal of Allergy and Clinical Immunology*'.

More information: Brown SJ et al. Loss-of-function variants in the filaggrin gene are a significant risk factor for peanut allergy. J Allergy Clin Immunol 2011;127(3):661-667. www.jacionline.org/article/S00 … (11)00120-5/abstract

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