

For immediate release

New genetic clue to peanut allergy

HAMILTON, ON (10 October 2017) – Canadian researchers have pinpointed a new gene associated with peanut allergy, offering further evidence that genes play a role in the development of food allergies and opening the door to future research, improved diagnostics and new treatment options.

The gene, called *c11orf30/EMSY* (EMSY), is already known to play a role in other allergy-related conditions, such as eczema, asthma, and allergic rhinitis. This study is the first to associate the *EMSY* locus with food allergy, and these findings suggest that the gene plays an important role in the development of not just food allergy but also general allergic predisposition. The findings were [published today](#) in The Journal of Allergy and Clinical Immunology.

AllerGen researchers Drs Denise Daley (Associate Professor, The University of British Columbia, Centre for Heart Lung Innovation at St. Paul's Hospital, Vancouver, BC) and Ann Clarke (Professor, University of Calgary, Cumming School of Medicine, Calgary, AB; Adjunct Professor, McGill University, Montreal, QC) led the research.

“Food allergy is the result of both genetic and environmental factors, but there are surprisingly few data regarding the genetic basis of this condition,” says Dr. Daley, a Tier II Canada Research Chair at St. Paul's in the genetic epidemiology of common complex diseases. “The discovery of this genetic link gives us a fuller picture of the causes of food allergies, and this could eventually help doctors identify children at risk.”

Peanut allergy develops in early life and is rarely outgrown. Roughly 1% of Canadian adults and between 2-3% of Canadian children are affected, and the symptoms can be severe and even life threatening.

For their study, the researchers analyzed DNA from 850 individuals with a peanut allergy recruited from the Canadian Peanut Allergy Registry (CanPAR) and nearly 1,000 individuals without a peanut allergy. The team scanned over 7.5 million genetic markers across the DNA through a genome-wide association study (GWAS) searching for clues as to which genes might contribute to an increased risk of developing food allergies. The team also analyzed results from six other genetic studies from American, Australian, German and Dutch populations.

What they found was that *EMSY* was associated with an increased risk of both peanut allergy and food allergy, and five other gene locations are also suspected to be involved.

Dr. Yuka Asai, an AllerGen investigator and Assistant Professor at Queen's University, and AllerGen trainee Dr. Aida Eslami, a postdoctoral fellow at The University of British Columbia, were co-first authors on the paper.

“Our team had previously published findings that a defect in the filaggrin gene can increase the risk of a child developing an allergy to peanuts,” says Dr. Asai. Yet, mutations in the filaggrin gene were only present in 20% of the allergic cases, she points out, which means that “this GWAS study was critical to shedding more light on the specific genetic mechanisms at play.”

“One of the hurdles in developing new treatments for food allergies is identifying the specific genes and pathways we need to target,” adds Dr. Eslami. “These results suggest that *EMSY* could be a useful target for predicting and managing food allergy treatments in the future.”

About the Canadian Peanut Allergy Registry (CanPAR)

Originating at McGill University, the Canadian Peanut Allergy Registry was founded in partnership with Food Allergy Canada, the Allergy/Asthma Information Association, and Allergies Québec. CanPAR has expanded to recruit peanut allergic patients from Western Canada at the University of Calgary and The University of British Columbia.

About AllerGen NCE

[AllerGen NCE Inc.](#), the Allergy, Genes and Environment Network (est. 2004), is a national research network dedicated to improving the quality of life of people suffering from allergic and related immune diseases. Funded by Innovation, Science and Economic Development Canada through the federal Networks of Centres of Excellence (NCE) Program, the Network is hosted at McMaster University in Hamilton, ON. Visit allergen-nce.ca for more information.

About The University of British Columbia

The University of British Columbia is a global centre for research and teaching, consistently ranked among the top 20 public universities in the world. Since 1915, UBC’s entrepreneurial spirit has embraced innovation and challenged the status quo. UBC encourages its students, staff and faculty to challenge convention, lead discovery and explore new ways of learning. At UBC, bold thinking is given a place to develop into ideas that can change the world.

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Founded in Montreal, Quebec, in 1821, McGill is a leading Canadian post-secondary institution. It has two campuses, 11 faculties, 11 professional schools, 300 programs of study and some 40,000 students, including more than 9,400 graduate students. McGill attracts students from nearly 150 countries around the world, its 10,900 international students making up 27% per cent of the

student body. Over half of McGill students claim a first language other than English, including approximately 20% of our students who say French is their mother tongue.

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