



Canadian Food Allergy Strategic Team **BACKGROUND**

CANADIAN FOOD ALLERGY STRATEGIC TEAM (CanFAST) LEGACY PROJECT

Research Leaders: Drs Ann Clarke and Jean Marshall

OBJECTIVE

AllerGen's Canadian Food Allergy Strategic Team (CanFAST) Legacy Project is a national, multi-centred, trans-disciplinary food allergy research consortium with unique research expertise in food allergy and health. CanFAST is the first multi-disciplinary team to measure the prevalence and socio-economic impacts of food allergies among Canadians. In partnership with the food industry, government regulators, policy makers, technology developers, clinicians and patient advocacy organizations,

CanFAST translates knowledge of food allergies into clinical and public health practices.

From 2012 to 2019, this innovative team aims to improve the clinical management of food allergies and to identify food safety thresholds that inform public health standards, regulations and food industry guidelines. This, in turn, will help prevent life-threatening anaphylactic reactions and provide the foundation for a national food allergy strategy.

NEED FOR RESEARCH

Food allergy is a major and growing concern for Canadians. Severe allergic reactions threaten the lives and health of a substantial number of individuals, while many more are indirectly affected. In 2010, a nationwide AllerGen-supported study revealed that approximately 2.6 million Canadians, or 7.5% of the population, suffer from a self-reported food allergy.

Food allergy can have a range of impacts on health, quality of life, and the economy (e.g., healthcare, the food industry, government regulatory agencies and consumers), and is also a primary policy issue for public spaces, particularly schools, daycares, sports facilities and other institutional settings.

Although substantial progress has been made, a national food allergy strategy is needed—and this is a Network legacy goal for the second and final cycle of NCE support.

There are still many questions to answer to provide a firm basis for policy in this area. These include questions about temporal trends in the prevalence and the determinants of food allergy, and improved understanding of optimal food allergy prevention and management strategies.

The proposed research and implementation strategies build on existing links with multiple partners across programmatic boundaries to optimize the combined contributions of scientists, clinicians, caregivers and receptor groups.

CanFAST will build on its relationships with funding partners and receptor groups to effectively disseminate new knowledge and the novel approaches developed as part of this research.

Canadian Food Allergy Strategic Team (CanFAST) Projects

12CanFAST1 - Surveying the Prevalence of Food Allergy in All Canadian Environments - Trends Over Time (SPAACE to SPAACE)

(PIs: Clarke and Elliott)

This research team works on: providing the first data on temporal trends in food allergy prevalence in Canada and its associated social and economic burden; the development and implementation of public health and population measures for tracking the burden of illness associated with food allergy; and, ultimately, influencing policy development. While most policy related to food allergy in Canada is food industry-focused, there is an urgent need to address food allergy in other venues that affect the lives of vulnerable populations (e.g., food banks, immigrant reception centres, etc.).

12CanFAST2 - Causes and Prevention: Identifying the genetic basis of peanut allergy

(PIs: Clarke and Sandford)

Certain genetic factors are more frequently found in individuals with peanut allergy than in those without. These factors may include mutations or variations in the genes for immune, gastrointestinal or epithelial proteins. This project aims to uncover new genes and novel pathways involved in the development of peanut allergy.

12CanFAST3 - A Cross-Canada Anaphylaxis Registry (C-CARE)

(PIs: Ben Shoshan, Clarke, and Waserman)

Data is being collected on the symptoms, triggers, and management of the anaphylactic reactions; patients are being followed longitudinally to determine future risk. This research will provide the first reliable estimate of anaphylaxis rates in Canada using prospectively collected data from several sources. By characterizing current diagnostic and treatment practices for anaphylaxis, the C-CARE initiative will identify related gaps and inform the development of more comprehensive and effective management strategies.

12CanFAST4 - Disease Modulation Clinical Tolerance Study

(PI: Mazer and Ben Shoshan)

Milk allergy is the most common food allergy in children. Milk-free diets pose significant nutritional problems for growing children. Moreover, foods containing dairy ingredients frequently provoke severe allergic reactions and anaphylaxis. Treatment is currently based on strict avoidance, which is difficult due to the ubiquitous nature of dairy in Canadian dietary products. Treatment with oral immunotherapy (OIT) has been performed in the USA and Europe, but there have been few rigorous, blinded clinical

trials with adequate controls and outcomes. This project will constitute the first Canadian study of OIT for cow's milk allergy. Outcomes of this study will provide the basis for other pan-Canadian trials in high-prevalence food allergies, such as egg and peanut allergy.

12CanFAST5 - Strategies for enhancing tolerance induction: Preclinical studies and CHILD-linked project development

(PI: Marshall, McNaghy, Scott)

Food allergy is an increasing problem that most often develops in childhood. To better prevent and treat food allergy, this research team is analyzing the signals that cause the body to respond inappropriately to foods. Recent studies have shown that bacteria and fungi produce substances that contaminate foods such as peanuts and increase the risk of developing food allergies, while other studies have demonstrated that some bacteria can reduce this risk. This research will be of interest to parents, healthcare providers, regulatory agencies and the pharmaceutical and food industries. It will also provide new knowledge in the field of immune regulation. This study will contribute data to, and further its insights by using information from, the CHILD Study.

12CanFAST6 - Preventing Severe Reactions—Preclinical Studies

(PI: Gordon, Befus, Jordana, and Cockcroft)

This study aims to identify a non-steroidal anti-inflammatory agent that is effective in reducing the pathology associated with food allergen-induced anaphylaxis. The research team also seeks to identify a method by which the allergen-sensitivity of food-allergic individuals can be reversed and replaced by *bona fide* allergen tolerance. These treatments are not symptom-oriented, but rather switch the fundamental immunologic sensitivity of the individual to that of a non-allergic (tolerant) person.

12CanFAST7 - Disease Management: Canadian peanut thresholds study

(PI: Waserman and Jordana)

This study aims to develop strategies that prevent severe reactions to peanut using the principle of a threshold dose (e.g., a dose below which most peanut allergic individuals will not react) to inform public policy and the food industry on food allergy prevention and management. Knowledge of threshold doses of peanut is important for patient awareness and management, and useful for defining industry food safety standards and medical research protocols. Patients, health professionals and the food industry will benefit, as food labels would only list peanut if the amount exceeds the recognized threshold.