



Allergy, Genes and Environment Network
Le réseau des allergies, des gènes et de l'environnement

About AllerGen NCE Inc.

AllerGen NCE Inc. (AllerGen), the Allergy, Genes and Environment Network, is a national research network funded by Industry Canada through the Networks of Centres of Excellence (NCE) Program.

AllerGen was established in response to the fact that one in three Canadians is living with allergic disease. AllerGen supports excellence in research and fosters commercialization, social innovation and knowledge mobilization that will enable Canadians to better prevent, treat and manage allergic diseases and asthma. This national network is made up of leading Canadian allergy, asthma, anaphylaxis and immune diseases experts with research expertise across the spectrum of biomedical, social and natural sciences. AllerGen researchers work in trans-disciplinary and multi-sectoral teams, with national and international collaborators and stakeholder and research partner organizations. They address gaps in knowledge and seize new opportunities in diagnostics, therapeutics, health care, public health, ethics, policy, clinical care and patient education.

AllerGen also trains the next generation of researchers, innovators and clinician-scientists and works collaboratively to reduce the morbidity, mortality and socio-economic impacts of allergy, asthma, anaphylaxis and related immune diseases.

AllerGen's Vision:

To create an enduring network of allergy and immune disease experts whose discovery and development efforts contribute to reductions in the impact of allergic and related immune diseases nationally and globally.

AllerGen's Mission:

To catalyze and support discovery, development, networking, capacity building, commercialization and knowledge translation to reduce the morbidity, mortality and socio-economic burden of allergy, asthma and anaphylaxis for the benefit of Canadians and the global community.

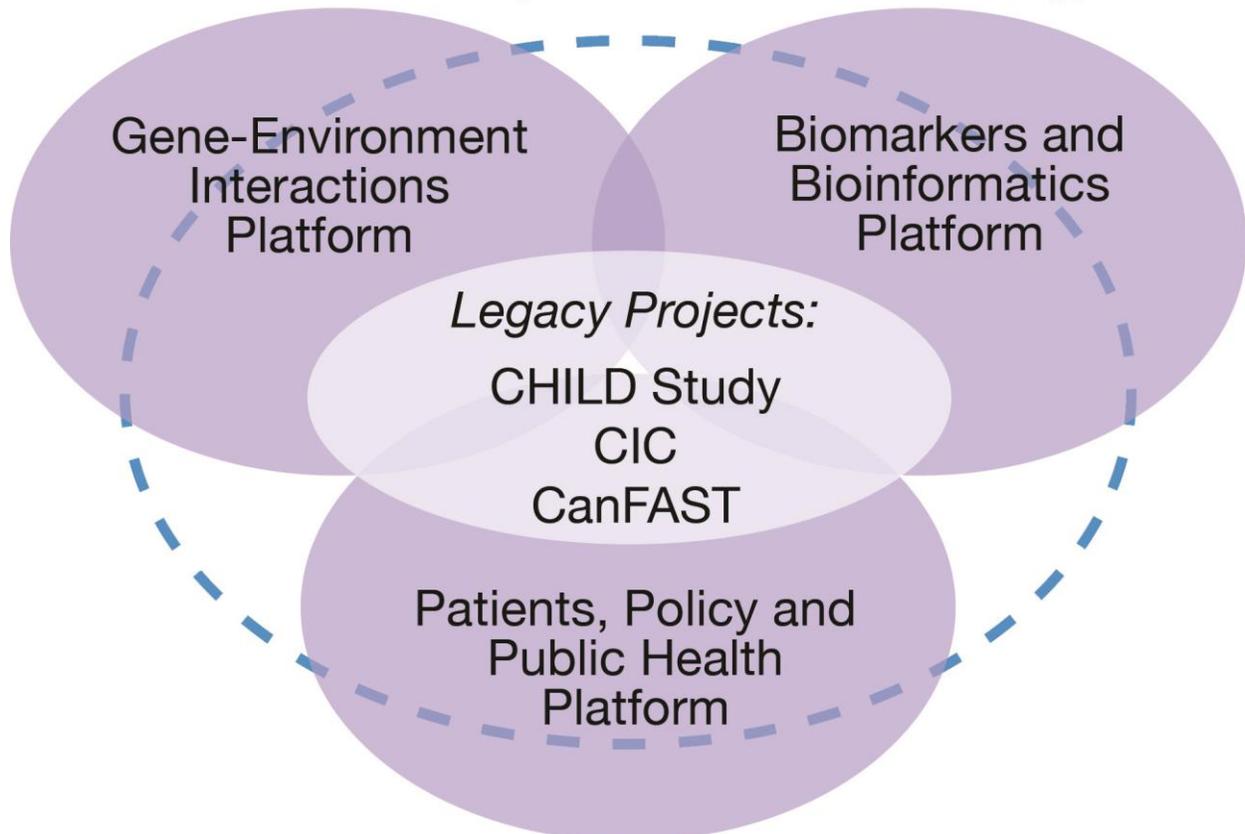
AllerGen invests in:

- ➔ Research undertaken by leading Canadian investigators aimed at generating new knowledge about the causes, treatment and prevention of allergic disease, asthma and anaphylaxis;
- ➔ Translation, application and mobilization of AllerGen research results that reduce the economic and social burden of allergic disease, asthma and anaphylaxis for Canadians and increase economic activity and quality of life;
- ➔ National and international networking and partnership activities to develop increased communication and collaboration between researchers, patients, industry, health care providers and non-profit organizations; and the
- ➔ Development of the next generation of researchers and innovators by creating unique, advanced research and capacity building opportunities in a multidisciplinary and multi-sectoral environment.

AllerGen's Strategic Goals aim to:

1. Catalyze and support **innovative research** to **discover** causes, prevention and treatments for allergic and related immune diseases
2. Contribute to development, translation, mobilization, commercialization and policy use of research that **accelerates Canadian innovation, productivity and economic competitiveness**
3. Develop and maintain **networking and partnerships** rooted in strong, mutually beneficial relationships with relevant communities and organizations
4. Create "value-added" opportunities for the **training, education and professional development** of highly qualified personnel (HQP), students, new professionals and the public that strengthen Canada's knowledge base, innovative capacity and work-force productivity
5. Leave an **enduring network of relationships and capacity** that sustains AllerGen-fostered research partnerships, commercialization and knowledge mobilization into the future, as a legacy benefiting Canadians nationally and globally

AllerGen's Integrated Research Strategy



Three Legacy Projects:

- **Canadian Healthy Infant Longitudinal Development (CHILD) Study**, led by Dr. Malcolm Sears, McMaster University, is the largest multidisciplinary, longitudinal, population-based birth cohort study in Canada and is designed to be one of the most informative studies of its kind in the world. The CHILD Study continues collecting data to generate important new findings on maternal and infant health and will serve as a national resource for multiple research endeavours. The CHILD Study will enable and inform many scientific constituencies and stakeholders within and outside of AllerGen, in Canada and globally, for decades to come
- **Clinical Investigator Collaborative (CIC)**, led by Dr. Paul O'Byrne, McMaster University, is a national, multi-centred clinical trials consortium established to fast track early-stage potential asthma drug candidates, study the pathobiology of asthma and discover new drugs for asthma. The CIC will continue clinical trials in Canada and Sweden, as well as expand to undertake studies of Severe Asthma and Allergic Rhinitis. With new international sites launching in the Netherlands and the UK, the CIC is a global resource for the development of novel diagnostics and therapeutics in allergy and asthma in Canada as well as internationally
- **Canadian Food Allergy Strategic Team (CanFAST)**, led by Dr. Jean Marshall, Dalhousie University and Dr. Ann Clarke, University of Calgary, is a highly innovative, cross-network approach to studying food allergy and anaphylaxis. CanFAST incorporates biomedical, clinical, population and psychosocial information in order to translate an understanding of food allergy into disease management and public health measures. Within this mandate, CanFAST will position Canada to develop a national food allergy strategy along with key partners and stakeholder groups

Three Enabling Platforms:

- **Gene-Environment Interactions**, led by Dr. Andrew Sandford, University of British Columbia and Dr. Jeffrey Brook, Environment Canada, involves well-established teams of AllerGen investigators working nationally and globally to apply genetic and environmental research innovation and new knowledge on nature and nurture, including epigenetics, maternal-child interactions, lifestyle and stress. Two main goals are discovering novel therapies and diagnostics, as well as implementing novel public health interventions and policies across AllerGen's Legacy Projects
- **Biomarkers and Bioinformatics**, led by Dr. Kelly McNagny, University of British Columbia, and Dr. John Gordon, University of Saskatchewan, brings together successful members of AllerGen's diagnostics and biomarkers research, new partners with various 'omics' capabilities, biological sampling standard operating protocols (SOPs) and animal models into an integrated, world-leading systems-biology and bioinformatics approach from development to commercialization across AllerGen's Legacy Projects
- **Patients, Policy and Public Health** focuses on benefits for patients, policy and public health across Legacy Projects. This team integrates expertise in the social sciences, including psychology, sociology, medical geography, ethics, law and health economics and aims to inform evidence-based public health policy

AllerGen's Integrated Research Strategy

AllerGen Legacy Projects			
Enabling Platforms	CHILD Study	CIC	CanFAST
Gene X Environment Interactions	<ul style="list-style-type: none"> International GWAS (GABRIEL) & GWIS (TAG) Environmental exposure assessment & monitoring Epigenetics: Stress & social determinants Early determinants of health 	<ul style="list-style-type: none"> Functional genomics Pharmaco-genomics Genetics of asthmatic response Environmental interventions Immunotherapy 	<ul style="list-style-type: none"> Genetics of peanut allergy Pharmacogenetic targets Environmental triggers of food allergy
Biomarkers & Bioinformatics	<ul style="list-style-type: none"> Metabolomics/Proteomics Innate/Adaptive Immunity Environmental toxicants The Microbiome Markers of stress 	<ul style="list-style-type: none"> Urine Metabolomics Innate/Adaptive Immunity: micro-arrays Sputum cytology, flow cytometry & proteomics 	<ul style="list-style-type: none"> Oral desensitisation & tolerance markers Diagnostic algorithms Component testing & thresholds
Patients, Policy & Public Health	<ul style="list-style-type: none"> Safe foods & product standards Mother/child health care Planning & safety of the built environment Enhanced quality of life Evidence-based public health strategies Public/private partnerships 	<ul style="list-style-type: none"> Development of new therapies Management guidelines Decreased burden of disease Enhanced quality of life Evidence-based public health strategies Public/private partnerships 	<ul style="list-style-type: none"> Burden of disease across populations Evidence-based public health strategies and the foundation for a National food allergy strategy Enhanced quality of life Public/private partnerships
Education, awareness, empowerment across a range of stakeholder groups (from patients through professionals to the public).			

2012-2019 Integrated Research Strategy: *Legacy Projects and enabling platforms*

The lifetime risk of being diagnosed with asthma is comparable to that of diabetes or cancer (any type), but while these other chronic diseases tend to develop in older people, asthma is more likely to develop in the young and last a lifetime (To, 2007).

AllerGen Fast Facts

Legacy Projects and Associated Initiatives:	12
<i>Canadian Healthy Infant Longitudinal Development (CHILD) Study</i>	2
<i>Clinical Investigator Collaborative (CIC)</i>	3
<i>Canadian Food Allergy Strategic Team (CanFAST)</i>	7
Enabling Platform Projects:	18
<i>Gene-Environment Interactions</i>	5
<i>Biomarkers and Bioinformatics</i>	8
<i>Patients, Policy & Public Health</i>	5
Strategic Initiatives:	3
<i>Knowledge Mobilization</i>	3
<i>Intellectual Property and Commercialization</i>	0
Total Network Publications:	3,294
<i>Publications</i>	2,647
<i>Scientific Posters</i>	647
Principal Investigators and Co-Investigators:	93
Total Highly Qualified Personnel (HQP) Participated in the Network since 2005:	1,236
<i>Current HQP working on Network research</i>	279
<i>Current other participating students & new professionals</i>	82
<i>Past HQP that have participated in the Network</i>	875
Current Full-time Equivalent Network Research Participants:	97
Participating Network Research Partners Across Sectors:	136
Canadian Hospitals/Health Centres:	11
Research Institutes	6
Other Networks	2
Canadian Academic Research Partners:	25
International Academic Research Partners:	19
Global Reach:	
<i>Canadian provinces</i>	8
<i>International collaborating countries</i>	12

Last update: September 2014

www.allergen-nce.ca

Innovation from cell to society



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AllerGen NCE Inc. is supported by the Government of Canada through the Networks of Centres of Excellence program.