AllerGen

A Canadian Network
of Centres of Excellence

Annual Report
2005–2006

AllerGen NCE Inc.
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Our Vision

To be an internationally recognized leader in basic and applied research, knowledge mobilization and commercialization with respect to allergic and immune disease.

Our Mission

To support research, networking, commercialization and capacity building activities that contribute to reducing the morbidity, mortality, cultural and socio-economic impacts of allergic disease.

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Networks of Centres of Excellence
Réseaux de centres d'excellence

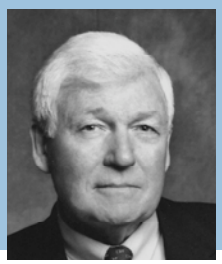
Canada

McMaster University

AllerGen NCE Inc., the Allergy, Genes and Environment Network, is dedicated to improving the quality of life for people suffering from allergic and immune disease.

AllerGen NCE Inc. is made possible through funding from Networks of Centres of Excellence Canada. Networks of Centres of Excellence Canada is a joint initiative of the Natural Sciences and Engineering Research Council (NSERC), The Canadian Institutes of Health Research (CIHR), the Social Sciences and Humanities Research Council (SSHRC), and Industry Canada.

Board of Directors 2005-06



Mr. Lynton R. Wilson
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Chairman of the Board,
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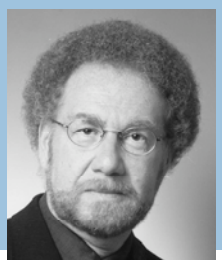
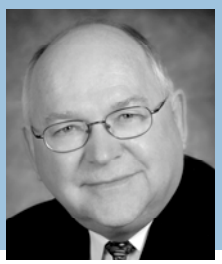


Dr. Judah Denburg
Scientific Director and CEO
AllerGen NCE Inc. at
McMaster University



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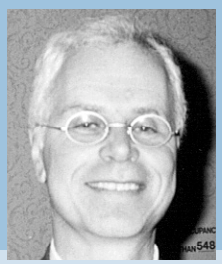
Dr. Kazimierz Borkowski
Vice-President, Medical Affairs,
AstraZeneca Canada Inc.



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Immunologist

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and Genetics,
GlaxoSmithKline Inc.

Dr. Peter George
President,
McMaster University

Dr. Chaviva Hošek
President and CEO, The
Canadian Institute for
Advanced Research

Dr. Eric Leith
Chair, Canadian Allergy,
Asthma and Immunology
Foundation

Mr. John MacNaughton
Chair, Comprehensive Care International
to May 12, 2006

Dr. Redwan Moqbel
Professor and Director,
Pulmonary Research Group,
University of Alberta

Dr. Simon Pimstone
President and Chief
Operating Officer,
Xenon Pharmaceuticals Inc.

Dr. Claude Roy
Gastroenterologist and
Professor Emeritus,
Hôpital Ste-Justine

Dr. Terry Sullivan
President and CEO,
Cancer Care Ontario

Dr. Aubrey Tingle
President and CEO, Michael
Smith Foundation for
Health Research

Photo by R. Siemens, University of Alberta

Dr. Lorne Tyrrell
Professor and GSK
Chair in Virology,
Medical Microbiology
and Immunology,
University of Alberta

Dr. Elinor Wilson
Chief Executive Officer,
Canadian Public Health
Association

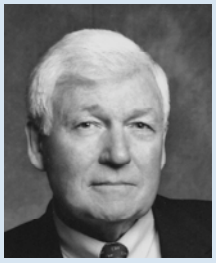
Dr. Diana Royce
Managing Director
ex officio

Ms. Diane Allan
NCE Program Officer
ex officio

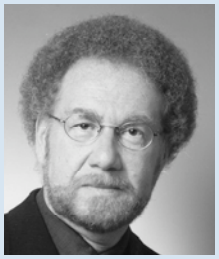
About Networks of Centres of Excellence

Networks of Centres of Excellence are unique partnerships among universities, industry, government and not-for-profit organizations, aimed at turning Canadian research and entrepreneurial talent into economic and social benefits for Canadians. An integral part of the federal government's innovation strategy, these nation-wide, multi-disciplinary and multi-sectoral research partnerships connect excellent research with industrial know-how and strategic investment.

A Message *from the Chair and the*



Mr. Lynton R. Wilson
Chair
AllerGen NCE Inc.
Board of Directors



Dr. Judah Denburg
Scientific Director
and CEO
AllerGen NCE Inc.

AllerGen NCE Inc. (AllerGen) was selected for support in the 2004 round of applications for new Networks of Centres of Excellence (NCEs). Since fall 2004, AllerGen has been engaged in a wide range of start-up activities, including the appointment of an outstanding board of directors and related committees, the evaluation and funding of Network supported research projects, the recruitment of researchers, trainees and Administrative Centre staff and the identification of performance indicators. We are grateful for the work of the Board and Senior Management Team, and acknowledge the contribution of a valued Board member, Mr. John MacNaughton, who passed away May 12, 2006.

In its first full year of operation, April 1, 2005 to March 31, 2006, the Network focused on building a national collaborative, multi-disciplinary research team supported by research partners from the private, public and non-profit sectors. Numerous AllerGen workshops, national meetings and an internationally attended conference in Toronto in October 2005 served to unite what was previously a disparate community of Canadian allergic and immune disease researchers into a national team of unparalleled expertise and potential for action. Notable is that the Network's five research themes, which guided the initial program launch, were, by the end of the first year, consolidated into three programmatic thrusts—gene-environment interactions; diagnostics and therapeutics; and public health, policy and society. In addition to launching a self-sustaining national clinical trials consortium—the AllerGen Clinical Investigator Collaborative (CIC)—AllerGen is catalyzing a national birth cohort study, which has emerged as an overarching and unifying focus for the full spectrum of Network-supported research.

A series of Network-wide research workshops and consultations with private, public and not-for-profit partner organizations resulted in strategic calls for additional investigative proposals in order to round out the Network's research portfolio. These efforts also resulted in the identification of new research partnership opportunities which have served to strengthen the links between Network research and research users.

Given the early results arising from AllerGen-supported genetics, biomarkers and mechanisms research investments and the overall volume and potential commercial value of network investigation during the first year, AllerGen hired a business development officer six months ahead of schedule. This ensured support for new and emerging technologies in collaboration with university–industry liaison offices at the universities hosting Network-supported investigators participating in Network research.

Due to the enthusiastic reception that AllerGen received from both the national and international research community, the Network has been represented at many presti-

Scientific Director/CEO

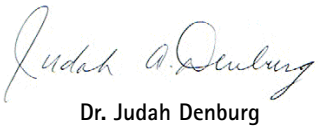
gious research conferences and meetings throughout the past year, including the Allergy Expo–Professional Forum in Toronto; Canada-Holland Business Day in Rotterdam; the joint XIX World Allergy Organization Congress/XXIV Congress of European Academy of Allergology and Clinical Immunology in Munich; and the European Respiratory Society's 15th Annual Congress in Copenhagen. In addition, AllerGen has forged collaborative partnerships with a range of international research teams, including the Global Allergy and Asthma European Network (GA^{2}LEN), the Global Alliance Against Chronic Respiratory Disease (GARD) and related initiatives supported by the World Health Organization (WHO).

Building upon the public's keen interest in allergic and immune disease research, treatment and prevention, AllerGen research has been featured in numerous national media reports on allergic disease throughout the year including *Chatelaine Magazine, The Toronto Star* and *The Globe and Mail*.

The involvement of trainees in all aspects of Network research has been a priority for AllerGen over the past year. To date, more than 80 students have been recruited into AllerGen's CAIDATI program to work on Network-supported research and development initiatives. Network trainees have actively participated in adjudicated research poster and presentation competitions at a number of Network-supported events, including the national research conference in October 2005. In addition, AllerGen, in partnership with Bayer Inc. and the Canadian Allergy, Asthma and Immunology Foundation, established a joint two-year research fellowship valued at $110,000 to promote the development of Canadian clinician-scientists working in the area of allergic disease.

Looking ahead, AllerGen investigators and trainees, with continued support from research, knowledge mobilization and commercialization partners, enthusiastically embrace the opportunity afforded them by the NCE program to contribute through their research, networking and partnerships to reducing the prevalence and impact of allergic disease for the benefit of Canadians.

Mr. Lynton R. Wilson
Chair, Board of Directors
AllerGen NCE Inc.



Dr. Judah Denburg
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Improving the of

Allergic disease

Asthma is a chronic inflammatory respiratory disease. Symptoms include wheezing, laboured breathing and coughing. Most asthma is due to reactions to airborne allergens.

Allergic rhinitis is inflammation of the mucous membrane lining the nasal passage. It is also caused by an allergic reaction. According to statistical data, as many as 80% of asthma sufferers also experience rhinitis. Hay fever, a common form of allergic rhinitis, is caused by grass and plant pollens floating in the air.

Atopic dermatitis or eczema is an allergic condition of the skin that primarily affects young children, is difficult to treat, and often leads to asthma and rhinitis.

Anaphylaxis is the life-threatening allergic reaction people have to things such as latex, insect bites and certain foods (e.g., peanuts, shellfish). Although it accounts for 1-2% of all allergic disease, preventable deaths caused by this illness, and specifically by food allergies, are on the rise.

Millions of Canadians suffer from allergic disease, making it one of the fastest growing health problems we face today. Asthma, allergic rhinitis, hay fever, eczema, anaphylaxis—they all exact a toll on the social and economic well-being of the population. According to international studies conducted with thousands of children and adults, hay fever affects 30-40% of people from developed Western nations (including Canada), and as much as 20% of the population is affected by asthma.

The cost of these maladies to the Canadian economy is staggering. Canadian data estimate allergic and immune diseases have cost our economy $15 billion in hospitalization, ambulatory care, emergency room visits, and medications over the past several years. Productivity in school and the workplace is also reduced by allergic and immune disease.

AllerGen's results-oriented research program has three primary thrusts: gene-environment interactions; diagnostics and therapeutics; and public health, policy and society. These foci provide the intellectual platform from which a national birth cohort study is being launched.

Gene-Environment Interactions

Using the Saguenay-Lac St. Jean Quebec Founder Cohort and data from birth cohort studies in British Columbia, Manitoba, the United States, the European Union and Australia, AllerGen researchers have begun to identify and validate genes associated with susceptibility to allergic and immune disease. These genes will be studied in the context of gene-environment interactions. Researchers have also validated a diagnostic tool ("AllerChip") that can rapidly identify the genes associated with allergic and immune diseases. This research enables the development of individual-specific susceptibility factors, prevention strategies and the identification of novel therapeutic targets.

By studying the effects of environmental triggers on people with genes that have already been linked to allergy, health care workers will be able to better identify individuals susceptible to allergic disease and develop personalized prevention strategies for them. Network research about environmental interactions will also prove valuable to policy makers when dealing with vulnerable populations and specific environments such as schools and the workplace.

Diagnostics and Therapeutics

AllerGen researchers are investigating the role of pathogen-host interactions in the development of allergy/asthma; the molecular pathology of allergy/asthma and the role of infections in allergic disease; therapeutic opportunities arising from research on initi-

lives Canadians

ation, induction and expression of the allergic cascade; and novel neuroimmune (mind-body) interactions in allergy/asthma.

This research will lead to new and improved diagnostic tools and tests, new therapeutics and more effective use of existing therapeutics, evidence-based policies and practices for food avoidance and pollution control, allergic disease prevention strategies, novel psychosocial interventions and the development of new technical research platforms.

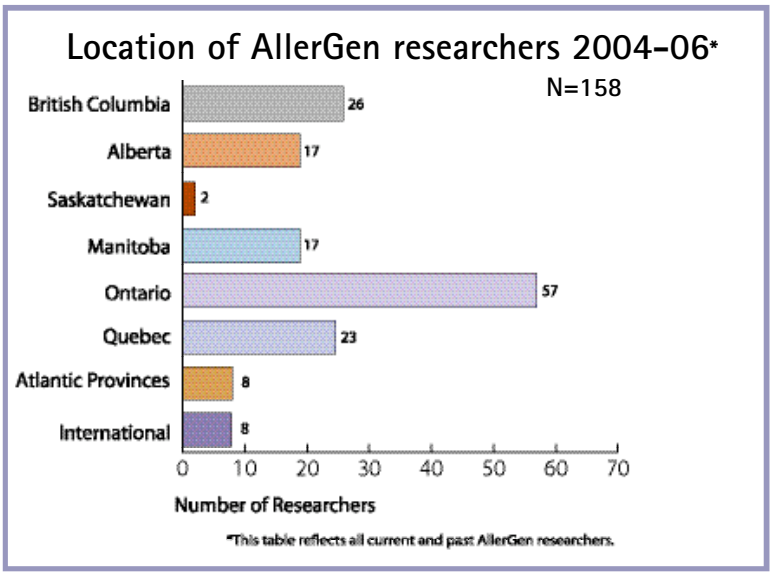
A national clinical trials consortium—the AllerGen Clinical Investigator Collaborative (CIC)—consists of four research centres that evaluate the potential effectiveness of new molecules proposed to treat airway inflammation and simultaneously study the mechanics of allergic disease. AllerGen's CIC provides rapid testing of new molecules for other researchers within the Network. The pharmaceutical industry is taking advantage of this opportunity by purchasing services from the CIC to efficiently evaluate compounds and their mechanisms of action in early-stage research. AllerGen's CIC provides a cost-effective way of identifying the most effective drugs for further development.

Public Health, Policy and Society

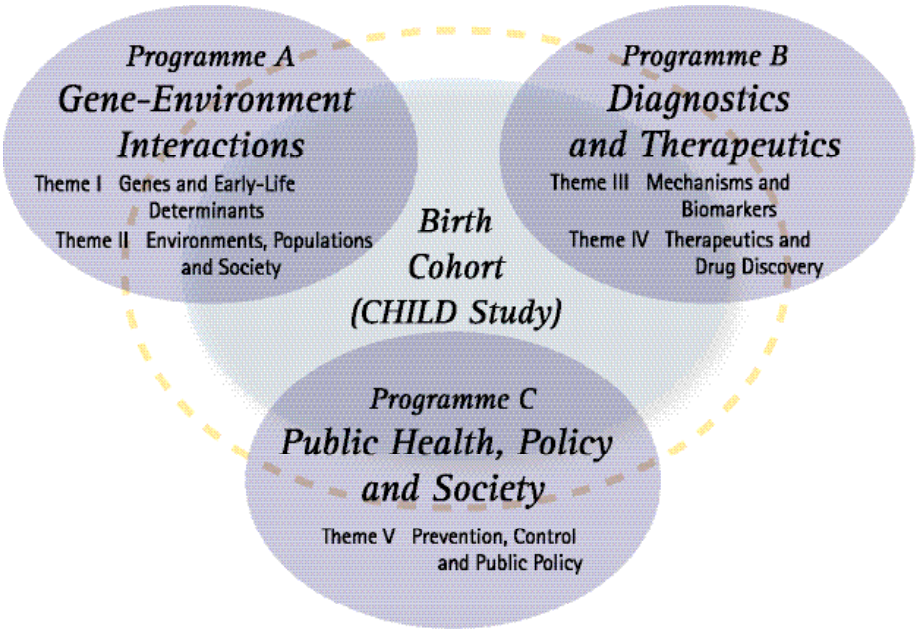
AllerGen is supporting a range of research, the results of which will have positive impacts on public health, policy and society. For example, a Financial Barrier Risk Index is being developed that illustrates the effects of financial barriers on 900 asthmatic children. Factors such as lack of a drug plan or low socioeconomic status have been shown to directly affect health outcomes. AllerGen researchers are providing new insights to health policy makers that will improve child health and enable health care system decision-makers to better target services.

Network Facts 2004–06

Research Projects:	34
Researchers:	158
Academic/Research Institutions:	23
Trainees:	83
Partners:	169
Industry:	*41*
University:	*30*
Federal/Provincial Agencies:	*28*
Hospitals, Research Institutes, Not-For-Profits:	*70*
Professional Development Workshops/Meetings:	19



The AllerGen Network supports 34 research projects across three programmatic thrusts, from which a national birth cohort, the Canadian Healthy Infant Longitudinal Development (CHILD) Study, is emerging.



The Canadian Healthy Infant Longitudinal Development (CHILD) Study

AllerGen is promoting the development of a national birth cohort, the largest of its kind, to study the root causes and track the development of asthma and allergy from birth through to adulthood. This collaborative initiative will bring together experts from AllerGen's research program and the public and private sectors at seven recruitment centres across Canada. Researchers will endeavour to understand why early allergen sensitization is a dominant risk factor for childhood asthma that persists into adult life, and why the loss of lung function appears to be established very early in childhood. CHILD proposes to track a population-based cohort of 10,000 Canadian infants from conception through early childhood, with prospective collection of data on multiple risk factors for allergy and asthma including indoor and outdoor environmental exposures, infections, nutrition, and immunologic responses, and their interactions with genetic and individual host factors. This study aims to examine these interactions in a population with diverse geography, ethnicity, socioeconomic status and environmental exposures. The results will inform all aspects of allergic and immune disease diagnosis, treatment and policy.

Investigation

2005-06 Research Projects and their Principal Investigators

Gene–Environment Interactions

Validation of genetic associations in asthma and allergy in Cdn. families
T. Hudson, McGill University; P. Paré, University of British Columbia

AllerChip: Development, validation and implementation of a microarray genotyping tool for allergy and asthma research
S. Tebbutt, University of British Columbia

Gender-related biologic and sociologic impact of obesity
A. Becker, University of Manitoba

Is the prevalence of peanut allergy increasing? A five-year follow-up study on the prevalence of peanut allergy in Montreal school children, aged 5-9
A. Clarke, McGill University

A feasibility study to develop an exposure model for indoor air contaminants and to collect genetic data on an asthmatic cohort
C. Infante-Rivard, McGill University

Maternal stress in early childhood and the development of asthma
A. Kozyrskyj, University of Manitoba

Antenatal steroid therapy for fetal lung maturation: Is there an association with childhood asthma?
C. Mustard, University of Toronto

Cardiopulmonary consequences of air pollution in a murine model of allergic asthma
J. Scott, University of Toronto

Planning a Canadian longitudinal birth cohort study of asthma and allergy in childhood
M. Sears, McMaster University

Allergic asthma: Air pollution and allergen interactions
F. Silverman, University of Toronto

Development of objective measurement of airway inflammation and lung function in infants
P. Subbarao, University of Toronto

Diagnostics and Therapeutics

Diagnosing the various phenotypes of asthma: The use of urine NMR
D. Adamko, University of Alberta

Neuroendocrine regulation of allergic reactions in animal models: Translation to humans
D. Befus, University of Alberta

Effects of probiotics on murine model of asthma
J. Bienenstock, McMaster University

The link between upper and lower airway inflammation
L-P. Boulet, Université Laval

Progenitors in atopy development
J. Denburg, McMaster University

TLR function in human neonates
K. HayGlass, University of Manitoba

Modulation of exocytosis in allergic inflammation
P. Lacy, University of Alberta

Functional consequences of innate immune receptor polymorphisms
J. Marshall, Dalhousie University

IDO, glutamate receptors and allergic inflammation
R. Moqbel, University of Alberta

Predicting peanut allergy
S. Waserman, McMaster University

Host environment interaction: Educating TLR-4+T lymphocytes in childhood
Q. Hamid, McGill University

Regulation of lung mucosal immune responses by heterologous exposure to multiple infectious and allergic agents
Z. Xing, McMaster University

Environmental impact on the epithelial immune barrier in asthma
T. Bai, University of British Columbia

Role of mast cells and eosinophils in allergic inflammation and fibrosis of the lung
K. McNagny, University of British Columbia

Study of the pathogenesis and reversibility of airway damage and repair during chronic mucosal immune responses to environmental allergens
J-P. Lavoie, Université de Montréal

Clinical Investigator Collaborative
P. O'Byrne, McMaster University
L-P. Boulet, Université Laval
D. Cockcroft, University of Saskatchewan
M. Fitzgerald, University of British Columbia

Public Health, Policy and Society

Surveillance of occupational asthma
N. Cherry, University of Alberta

Workplace sensitizers: skin and lung exposure, responses and prevention
D. L. Holness, University of Toronto

Asthma and BC workers
M. Koehoorn, University of British Columbia

Financial barriers to medication use in children with asthma: Effect on health outcomes
W. Ungar, Hospital for Sick Children

Impacting Canadian

Allergic disease is reaching epidemic levels in Canada. AllerGen research will aid policy makers in decisions that will affect the future of all Canadians.

Influencing school and workplace policy

Anaphylaxis is a sudden, and sometimes deadly, reaction to an allergic disease trigger. AllerGen research is looking at many aspects of peanut allergy—its prevalence, the accuracy of its diagnosis, and the education of patients, their families and caregivers.

- AllerGen research that measures the increase in the prevalence of peanut allergy from 2000 to 2007—the first study of its kind—will aid school boards, day cares and government agencies in creating effective policies to keep all children safe. Investigators are also looking at the impact this allergy has on the individual and his/her family in terms of stress, stigma and lifestyle.
- AllerGen researchers are developing a new tool to better predict peanut allergy that will improve the lives of those individuals who receive a false positive from skin tests and may help to save the lives of individuals who test negative in a skin test, but are allergic to peanuts and thus, at risk of life-threatening anaphylaxis.
- AllerGen investigators are studying the practices of health care providers, patients and caregivers in the management and control of asthma and anaphylaxis to help reduce anaphylaxis fatalities. These practices include the use of epinephrine injections, management of food allergy, and the development of strategies to avoid allergens.

In addition to effecting change in food allergy policies in schools and workplaces, research results will influence food labelling and the manufacture of allergen-free foods.

Examining current medical practice

As the incidence of asthma has increased over the past 15 years, so too, has the use of corticosteroid therapy—a treatment administered during labour and delivery to stimulate lung maturity in infants. AllerGen researchers are looking at the possibility of a link between the two which could lead to changes in delivery room practices.

policy

Examining gene-environment interactions

Determining what genes in human DNA are likely to interact with environmental triggers to cause allergies and asthma is vital to understanding why some people develop disease while others do not. AllerGen researchers across several projects are exchanging ideas and information towards identifying gene-environment interactions that may lead to the development of allergic and immune disease. Already, researchers have confirmed a number of genes that play a role in susceptibility to allergy and asthma and they continue to work towards the identification of additional genes.

Research from these projects will enable health care providers to identify people who may develop allergic disease, and create a sound prevention strategy to help them control their symptoms. Research results may also lead to new policies for schools and workplaces to better protect those at risk of allergic disease.

Modelling support services to families

AllerGen research is looking at a correlation between a mother's post-partum depression and the development of asthma in children. Information from this study will be shared with Healthy Child Manitoba's Family First program—a family support program extending from pregnancy to preschool. Healthy Child Manitoba will use results from this study to strengthen its program and improve outcomes for families. Study results could potentially affect delivery and outcomes of similar services across the country.

Changing pollution controls

AllerGen researchers are studying a number of environmental factors on allergic and immune disease—everything from particulate matter levels on "bad air" days to cardiopulmonary response to air pollutants. Findings arising from AllerGen research programs will be instrumental in creating and implementing air quality standards, influencing law makers in strategies to reduce specific allergens, and developing prevention strategies for patients.

Investing in the future

CAIDATI Initiatives

- Adjudicated a poster contest for trainees at AllerGen's First Annual Conference, *Innovation from Cell to Society*, October 2006.
- Established a jointly funded research fellowship aimed at increasing the level of expertise and the number of specialists practicing in allergy and clinical immunology in Canada. The fellowship is funded by AllerGen, Bayer Inc. and the Canadian Allergy, Asthma and Immunology Foundation, November 2005.
- Collaborated with CIHR Strategic Training Initiatives in Health Research and provincial health agencies to jointly fund training for MDs and PhDs, March 2006.
- Established a national trainee exchange program, exposing students to new methodologies and techniques used by investigators across the network.
- Hosted Trainee Workshops featuring speakers from academic, private and public sectors, encouraging an exchange of ideas and opportunities.

Creating a robust professional training program to support the development of highly qualified Canadian personnel in the area of allergic and immune disease research, innovation and health care is one of AllerGen's priorities.

Key objectives for training highly qualified personnel include:

- Doubling the number of clinical and research trainees produced in Canada each year;
- Increasing the capacity to train clinical and research specialists by 25 per cent per year;
- Leveraging the investment in highly qualified personnel (HQP) with existing training initiatives provided by Network partners;
- Involving AllerGen trainees in unique multi-disciplinary research teams where they deal with complex technical, social and ethical issues; and
- Integrating trainees into the national and international network of leaders in academe, health care, industry, public policy and patient advocacy.

The Canadian Allergy and Immune Diseases Advanced Training Initiative (CAIDATI), AllerGen's innovative training and research program, is leveraging existing academic, government and private sector resources to build national training capacity in allergic and immune disease. Initiatives include:

- Linking with four CIHR Strategic Training Initiatives in Health Research (STIHR). The STIHRs involve academic institutions across the country—University of British Columbia, University of Calgary, University of Manitoba and McGill University—spanning multiple disciplines in allergic and immune disease research;
- Hosting jointly held symposia to encourage exchange in investigative methodolologies and training in laboratory skills and techniques. AllerGen has partnered with the Canadian Society of Allergy and Clinical Immunology (CSACI) and continues to seek out new partners to increase Network capacity; and
- Promoting research collaboration through the Network's newsletters and web site, workshops and annual conference.

Through CAIDATI, specific education and training opportunities with partners in industry and policy sectors have been created for students and professionals in allergic disease. Linkage and exchange with these non-academic partners creates opportunity to alert industry and policy sectors about graduating students, possible collaborative opportunities, and encourages them to partner on innovative research within the Network.

Sharing knowledge

Delivering social and economic benefits to Canadians

Another AllerGen priority is to create new linkages among academic institutions, health care providers and hospitals, industry and capital for knowledge and technology transfer. Over the past year, the Network has partnered with more than 80 organizations spanning multiple jurisdictions including Canada, the United States, Australia, the United Kingdom and Europe. AllerGen has also successfully hosted numerous key networking events and workshops, such as:

- The first Annual Research Conference, *Innovation from Cell to Society*, October 2005, brought together over 120 representatives from universities, hospitals, pharmaceutical and life-sciences companies to showcase Network-funded research and promote partnerships with industry, governments, academic institutions and other non-profit organizations.
- Birth Cohort Development Workshops helped researchers strategically plan how to examine and collect data on multiple risk factors for allergy and asthma in childhood.
- AllerGen/Gage Occupational and Environmental Health Unit Allergy and Asthma Workshop allowed participants to address several key research questions on basic mechanisms, routes of exposure, exposure assessment, and clinical manifestations of occupationally acquired allergy or asthma.
- AllerGen/Canadian Asthma, Allergy and Immunology Foundation Non-Profit Summit provided an opportunity for representatives from non-profit organizations to share information and best practices.

AllerGen encourages investigators to seek patent protection on innovations discovered in their research laboratories. An "intellectual property scan" of the research funded by the Network identified many early-stage breakthrough technologies that have commercial potential, including new diagnostic tests for allergy and asthma (allergy/asthma gene chips); bio-analytic tests for airborne pollutants and allergens; new food products; and clinical trial methodologies that fast-track new allergy and asthma drug candidates.

AllerGen also supports the research efforts of company founders like Dr. Dean Befus of SalPep Biotechnologies Inc. Salpep is a privately owned Calgary company developing a series of unique compounds for the treatment of inflammatory disorders. AllerGen is currently co-supporting work on new peptide therapeutics as alternatives to steroids for chronic asthma therapy.

Looking forward, AllerGen will continue to identify new opportunities and facilitate knowledge and technology transfer to Canadian researchers, the private sector, governments and global partners. Through these efforts, Canada will be positioned at the forefront of allergic and immune disease therapy, diagnosis, training and public education.

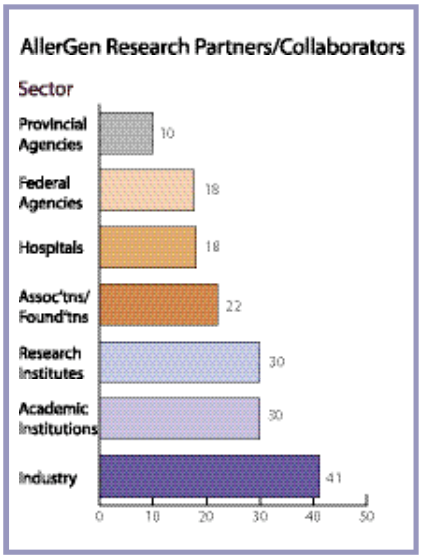
Partnering for the future

Building a network to encourage excellent research and innovation

To meet the numerous complex challenges in treating, preventing and finding a cure for allergic and immune disease, AllerGen continues to build new partnerships and develop linkages with multiple organizations and medical disciplines. This networking will aid in the development and mobilization of knowledge for those who can generate new goods and services that help treat and prevent allergic disease.

AllerGen is the only university-based, multi-disciplinary research organization in the world to directly partner with health care providers, policy makers, patient advocacy and lay groups, and private sector organizations. As such, AllerGen has multiple roles in the fight against allergic and immune disease. AllerGen is:

- A nexus for coordination, interaction and cross-sector linkages;
- A mechanism for identifying and funding multi-disciplinary research to advance Canada's capacity in the field of allergic and immune disease; and
- A national catalyst to expand clinical expertise of professionals and trainees in allergic disease, helping meet the needs of the public and private sectors in creating research-based products and services.



As a result of the creation of AllerGen, representatives from immunology, genetics and genomics, epidemiology, toxicology, biochemistry, biotherapeutics, environmental sciences, psychosocial health, occupational and workplace health, public policy and administration, economics, ethics, business and commerce are united in basic and applied research directed towards solving complex problems surrounding allergic and immune disease.

A global focus

To extend the reach and impact of AllerGen research, the Network is initiating new linkages with international academic, private and public sector organizations. These partnerships and collaborations ensure that AllerGen research does not duplicate research being undertaken elsewhere in the world. AllerGen's collaborative efforts with organizations like GA²LEN and the World Health Organization ensure that Network investigations will be used to impact the lives of people worldwide, putting Canada at the forefront of excellent research in allergic and immune disease. International partners are representative of several countries—the United States, the United Kingdom, Sweden, Australia and a number of countries within the European Union.

Research partners and collaborators

Academic Institutions

Dalhousie University
Grant MacEwan College
Harvard School of Public Health
Karolinska Institute
McGill University
McMaster University
Michigan State University
Mt. Sinai School of Medicine
Northwestern University
Northern Ontario School of Medicine
Queen's University
Simon Fraser University
Sherbrooke University
St. Mary's University
Université de Montreal
Université du Québec à Chicoutimi
University of Alberta
University of Arizona
University of British Columbia
University of Calgary
University of Manitoba
University of Munich
University of Ottawa
University of Saskatchewan
University of Toronto
University of Victoria
University of Western Australia–Telethon Institute for Child Health Research
University of Western Ontario
Université Laval
Wilfrid Laurier University

Hospitals

Alberta Children's Hospital
Capital Health
Centre hospitalier universitaire de Sherbrooke
Children's Hospital of Winnipeg
Hospital For Sick Children
Great Ormond St. Hospital
Hôpital du Sacré-Coeur de Montréal
Hôpital Laval
Hôpital Sainte-Justine
IWK Health Centre
London Health Sciences Centre
Montreal Children's Hospital
Montreal General Hospital
Queen Elizabeth II Health Sciences Centre
St. Michael's Hospital
Sunnybrook Health Sciences Centre
Vienna General Hospital
Women's College Hospital

Industry

3M
Alimentary Health
Allergy and Digestive Health Consulting
Altana Pharma Inc.
AstraZeneca Canada Inc.
Bayer Inc.
Biolipox AB
Boehringer Ingelheim
CAE Inc.
Carestream Medical
Chenomx Inc.
Comprehensive Care International
Dynavax Technologies
Effem Inc.
Food and Consumer Products Manufacturers of Canada
Gennum Corporation
GlaxoSmithKline
Health Care Systems Strategies
IBM
ID Biomedical Corporation of Quebec
Indoor Biotechnologies Inc.
InflaZyme Pharmaceuticals Ltd.
Isodiagnostika Inc.
IVAX Research Inc.
MDS
Merck Frosst Canada Inc.
Milestone Medica Corporation
Nestlé Canada Inc.
Novartis Pharmaceuticals Canada Inc.
Protein Fractionation Inc.
Riverdale Partners
Salpep Biotechnology Inc.
Schering Canada Inc.
Somagen Diagnostics Inc.
Syreon Corporation
Topigen Pharmaceuticals Inc.
Tranzyme Pharma
Tripos
Trudell Medical International
University Medical Discoveries Inc.
Xenon Pharmaceuticals Inc.

Federal Agencies

Advanced Foods and Materials Network (AFMNet)
Agriculture and Agri-Food Canada
Canadian Food Inspection Agency
Canadian Institute for Health Research (CIHR)
Canada Mortgage and Housing Corporation
CIHR STIHR, Allergy and Asthma from Molecular Regulation to Population Health, University of Manitoba
CIHR STIHR, Training Program in Diseases of Immunopathogenesis and Inflammation, University of Calgary
CIHR STIHR, Training Centre in Integrative Biology of Infectious Diseases and Autoimmunity, McGill University
CIHR STIHR, Integrated and Mentored Pulmonary and Cardiovascular Training, University of British Columbia
CIHR STIHR, Quebec respiratory health training program, Université Laval
Environment Canada
Health Canada, Bureau of Chemical Safety
Health Canada, Environmental Health Science Bureau
Health Canada, Food Directorate
Health Canada, Growth and Development Section
National Research Council, Institute for Research in Construction
Natural Resources Canada
Statistics Canada

Provincial Agencies

Alberta Human Resources and Employment
Cancer Care Ontario
Calgary Health Region
Manitoba Institute of Child Health
Manitoba Health
Ministry of Health and Long-Term Care
Vancouver Coastal Health
Workers' Compensation Board of Alberta
Workers' Compensation Board of BC
Workplace Safety and Insurance Board

Research Institutes

Alberta Transplant Institute
Applied Geomatics Research Group, Nova Scotia Community College
Asthma in the Workplace Centre
Atlantic Research Centre
Canadian Institute for Advanced Research
Centre for Functional Microbial Genomics
Centre for Research Expertise in Occupational Disease
Centre for Aboriginal Health Research
CIHR Institute of Infection and Immunity
Environmental Health Research Network, Fonds de la recherche en santé du Quebec
Firestone Institute for Respiratory Health
Gage Occupational and Environmental Health Unit
Genome Quebec Innovation Centre
Indigenous Health Research Development Program
Institut de recherche Robert-Sauvé en santé et sécurité au travail
Institute for Biomolecular Design
Institute for Clinical Evaluative Sciences
Institute of Health Economics
Laboratory of Clinical Immunology
Lawson Health Research Institute
Manitoba Centre for Health Policy
Meakins Christie Laboratories
Michael Smith Foundation for Health Research
National Center for Genome Resources
National Heart and Lung Institute
National High Field Nuclear Magnetic Resonance Centre

Southern Ontario Centre for Atmospheric Aerosol Research
The Skin Care Centre–Vancouver Hospital and Science Centre
Telethon Institute for Child Health Research
Zentrum Allergie Und Umwelt Technische Universitat Munchen

Associations/Foundations

Anaphylaxis Canada
Association of Allergists and Immunologists of Quebec
Association des allergies alimentaires
Asthma/Allergy Information Association
Asthma Society of Canada
Canadian Allergy, Asthma and Immunology Foundation
Canadian Contact Dermatitis Group
Canadian Network for Asthma Care
Canadian Pharmacists' Association
Canadian Public Health Association
Canadian Society of Allergy and Clinical Immunology
Canadian Society of Respiratory Therapists
CUPE 4400
Food and Consumer Products Manufacturers of Canada
Greater Edmonton Child and Family Resource Association
Immunology Foundation
Lung Association of New Brunswick
Lung Association of Nova Scotia
MedicAlert
National Sanitarium Association
Ontario Respiratory Care Society
The Canadian Lung Association

Financial Statements

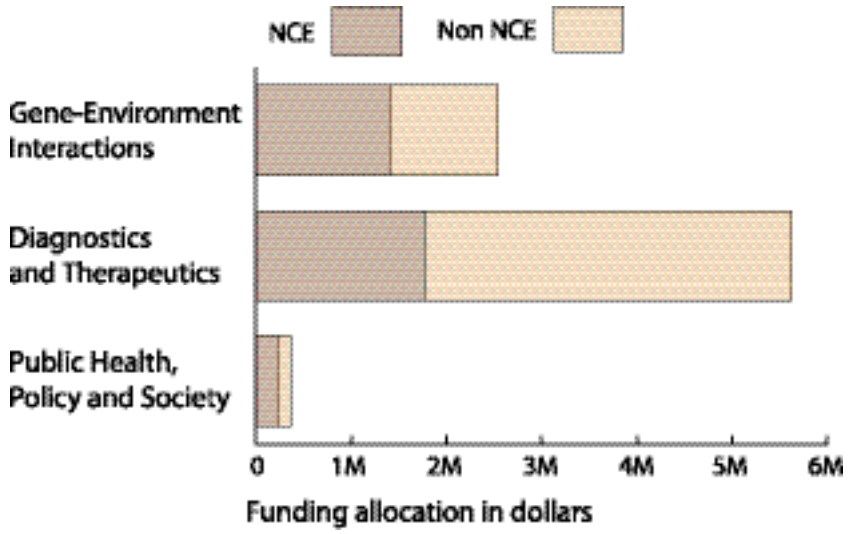
AllerGen has established numerous partnerships and collaborations resulting in cash and in-kind contributions to Network research and knowledge translation and dissemination.

AllerGen NCE Inc. Financial Summary 2004-06[1]

	2004-05 (Year 0)	2005-06 (Year 1)
REVENUES (Cash and In-Kind)		
NCE Award	$500,000.00	$5,023,000.00
Non-NCE Funds (includes in-kind contributions)	275,274.00	5,194,206.28
Total Revenues	$775,274.00	$10,217,206.28
Expenditures (Cash)		
Research Programs/Committed		3,389,405.23
Networking		290,532.74
Strategic Initiatives and Training		13,071.61
Communications		11,159.00
Administration	427,365.66	696,537.53
Total Expenditures	$427,365.66	$4,400,706.11
Cash reserved for future research	$72,634.34	$987,011.02

1 An audited administrative centre financial statement is available from the AllerGen Administrative Centre.

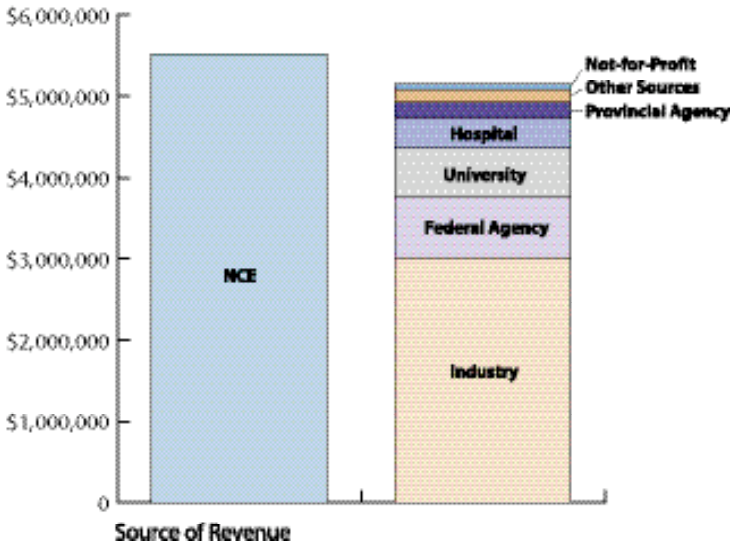
AllerGen Research Program Funding 2005-06



Allocation of NCE Funds by Institution 2005-06

Dalhousie University	$83,333.00
Firestone Institute	$132,500.00
Hôpital Ste. Justine	$46,000.00
Hospital for Sick Children Research Institute	$216,300.00
McGill University	$100,000.00
McGill University Health Centre	$395,615.50
McMaster University	$507,307.73
St. Michael's Hospital	$207,500.00
Université de Montréal	$10,000.00
Université du Québec â Chicoutimi	$15,787.00
Université Laval	$251,515.00
University of Alberta	$489,633.00
University of British Columbia	$193,023.50
University of Calgary	$71,248.00
University of Manitoba	$404,927.50
University of Saskatchewan	$120,291.00
University of Toronto	$144,424.00

Revenue Sources (Cash and In-Kind) 2004-06



Revenue Distribution by Programmatic Thrust 2005-06

	NCE FUNDS	CASH/IN-KIND	TOTAL
Gene-Environment Interactions	$1,400,763.50	$1,145,630.00	**$2,546,393.50**
Diagnostics and Therapeutics	$1,762,744.73	$3,857,598.00	**$5,620,342.73**
Public Health, Policy and Society	$225,897.00	$134,290.00	**$360,187.00**

Revenue Sources (Cash and In-Kind) 2004-06

	CASH	IN-KIND	TOTAL
NCE	$5,523,000.00	——	$5,523,000.00
Industry	$2,925,827.00	$80,600.00	$3,006,427.00
Federal	$617,671.00	$133,000.00	$750,671.00
University	$172,000.00	$476,404.00	$648,404.00
Other Sources	$119,937.28	$90,250.00	$210,187.28
Provincial	$95,000.00	$92,000.00	$187,000.00
Not-For-Profit	$50,000.00	$15,000.00	$65,000.00
Hospital	$22,751.00	$579,040.00	$601,791.00
Total	**$9,526,186.28**	**$1,466,294.00**	**$10,992,480.28**

ALLERGEN NCE INC. / ALLERGEN-RCE INC.

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Ex Officio/D'office:
Diane Allan
NCE/RCE
Diana Royce
AllerGen NCE Inc.

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AllerGen NCE Inc./ AllerGen-RCE Inc.
Diane Allan
NCE Program Officer/Agente de programmes des RCE

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James Hogg iCAPTURE Centre
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University of Michigan
Juha Kere
Karolinska Institute
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Northwestern University
Scott Weiss
Harvard University
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AllerGen NCE Inc. Personnel administratif

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Zsolt Molnar
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Amber Bernard
Communications and Program Coordinator/ Coordonnatrice des communications et des programmes
Rosemary Watters
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Harvard School of Public Health
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Ling Liu

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Felix Ratjen
James Scott
Jeremy Scott
Frances Silverman
Susan Tarlo

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Cecilia Benoit

University of Western Australia
Patrick Holt
Susan Prescott
Peter Sly

University of Western Ontario
Sanjay Mehta

Work Safe BC
Terry Bogyo

Network Trainees/Stagiaires du Réseau

Reshma Amin
Farnam Ajamian
Amal Al-Garawi
Junle Ayinmode
Philippe Begin
Yohan Bossé
John Brannan
Gen Clarke
Sebastian Claveau
Shannon Cope
Olga Cravetchi
Denise Daley
Beth Davis
Francis Davoine
Renée Douville
Jessica D'Souza
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MyLinh Duong
Ahmed El-Karamalawy
Anne Ellis
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Pierre-Olivier Fiset
Katie Fraser
Nichole Garzia
Loie Goronfolah
R. Gosens
Na Guo
Tillie Hackett
Muhannad Hassan
JianQing He
Sherry Herbert
Huang Hong
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Sazzadul Khan
Nivedita Khanna
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