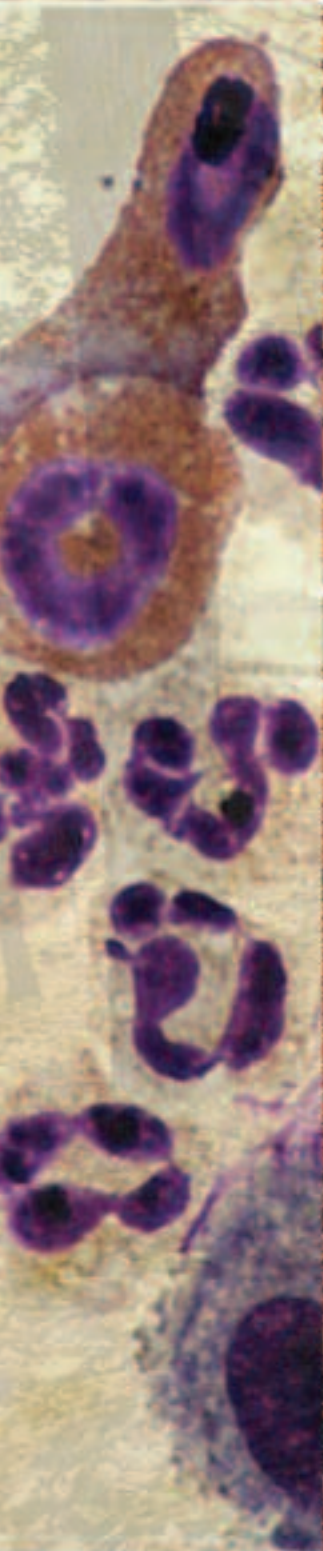




AllerGen



Networks of Centres
of Excellence

Annual Report 2007-2008

AllerGen's Vision

To create an enduring network of allergy and immune disease experts whose discovery and development efforts contribute to reducing 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 that contribute to reducing the morbidity, mortality and socio-economic burden of allergic and related immune diseases.

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Special thanks to TOPIGEN Pharmaceuticals Inc. for the use of their photograph on the cover of the AllerGen Annual Report. The photo shows eosinophils present in a broncho-alveolar lavage in a rodent asthma model.

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NCE Programme Officer
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Message from the Chair and Scientific Director



Graham Scott, CM, QC
Chair
CEO, Graham Scott
Strategies Inc.



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

AllerGen NCE Inc. is now entering its fourth year of operation as Canada's Network of Centres of Excellence in discovery, development and capacity building to reduce the impact of allergic and related immune diseases. We are proud to present herein AllerGen's third annual report for the period April 1, 2007 to March 31, 2008, highlighting a year remarkable for its achievements in each of the Network's strategic priority areas. Led and implemented by Canada's leading life, environment, applied, social and clinical scientists, the allergy and asthma research and development efforts showcased in this report are driven by cross-cutting collaborations and partnerships within a programmatic research framework. In addition to investments in strategic research priorities, AllerGen's highly qualified personnel (HQP) training programme is strengthening Canada's competitive advantage through investments in people.

A major accomplishment for AllerGen in this reporting period has been precedent-setting partnerships with the Canadian Institutes of Health Research, and with policy makers and patient organizations, culminating in the official launch of the Canadian Healthy Infant Longitudinal Development (CHILD) Study of gene-environment interactions contributing to the development of asthma and allergy in early childhood. The launch of the CHILD study responds directly to a key recommendation by Dr. Kellie Leitch, Advisor to the federal Minister of Health on Healthy Children and Youth, in her March 2008 report *Reaching for the Top*. CHILD study research will lead to clinical and environmental innovations that will improve the respiratory health of Canadian children and youth. Moreover, the CHILD study positions Canada as an international leader and partner with other major studies underway in Europe, India and the USA that are investigating the genetic, environmental and socio-economic factors leading to the development of asthma and allergic disease.

Allergy and asthma gene association studies launched in 2005 have been completed, and these results are guiding the analysis of data in the CHILD Study. In addition, AllerGen datasets are being shared with a European-based global genetics consortium (GABRIEL), where they will be included as part of major international genome-wide association studies. The AllerGen-GABRIEL partnership is one of the newest additions to AllerGen's highly successful International Partnership Initiative (IPI), supported by the NCE Programme as well as by the International Development Research Centre (IDRC). With IPI support, AllerGen has leveraged cutting-edge research, capacity building and development opportunities in genetics, respiratory disease surveillance, environmental exposure assessment, clinical trials and birth cohort studies for Network investigators and trainees, positioning Canada as a global leader in asthma and allergic disease research.

AllerGen's Clinical Investigator Collaborative is expanding the range of research and clinical trial collaborations globally, testing novel therapies using Standard Operating Procedures (SOPs) developed and licensed with AllerGen support. With backing from the NCE IPI programme, additional European sites are planned that will license AllerGen SOPs, expanding AllerGen's clinical trial research and development capacity.

In the area of developing HQP, AllerGen, in collaboration with the Canadian Society of Allergy and Clinical Immunology, has launched a national initiative to increase the number of Clinical Immunology and Allergy sub-specialists, addressing a critical gap for the ultimate benefit of Canadians. AllerGen has also expanded traineeships nationally and internationally in partnership with Canadian biopharmaceutical companies and not-for-profit partners including Topigen Inc., the Canadian Lung Association, the Canadian Thoracic Society, and the Canadian Allergy, Asthma and Immunology Foundation. Many of AllerGen's trainees are moving rapidly into key positions nationally and internationally in clinical care, academe, health research, policy development and programme management.

As AllerGen investigators complete their research projects, intellectual property disclosures are increasing and Network investigators are providing policy and content leadership to national initiatives in the area of asthma management, anaphylaxis and lung health in partnership with the Asthma Society of Canada, Anaphylaxis Canada and the Canadian Lung Association.

Network staff is working with researchers and partner organizations to enable development of a range of tools to help patients and healthcare providers use the best available evidence to better manage their allergies and asthma. As highlighted in this report, AllerGen's knowledge translation and policy development efforts in the area of food allergies and anaphylaxis in particular, have been singled out by the Minister of Health in a recent announcement heralded by the national media.

Finally, all of AllerGen's achievements are facilitated by a highly engaged and experienced Board of Directors, excellent Network management and a dedicated and professional administrative centre team.


All in all, we are pleased to report that AllerGen is well networked, well-functioning, producing significant deliverables, building enduring legacies and doing so with increasing national and international renown.

These achievements place AllerGen in a strong position for its Mid-Term Review by the Government of Canada's Networks of Centres of Excellence Programme in October 2008, and thus to contribute to achieving its ultimate goal - improving the quality of life for allergy and asthma sufferers.

Graham Scott
Chair, Board of Directors



Judah Denburg
Scientific Director and CEO



Highlights 2007-08



- ✓ **National Birth Cohort Study Launched on the Impact of Genes and Environment on the Origins of Allergic Disease and Asthma:**
Member of Parliament for Burlington, Ontario, Mike Wallace, representing federal Health Minister Tony Clement, officially launched the Canadian Healthy Infant Longitudinal Development (CHILD) Study on June 6, 2008, at McMaster University. AllerGen spearheaded this initiative and facilitated the associated networking that resulted in the launch of this groundbreaking, multi-million dollar, multi-site birth cohort study of the impact of early life experience and environmental exposures on the origins of allergic disease and asthma in Canadian children. The CHILD Study involves 5,000 Canadian families and a 54 person team including investigators, research coordinators and technicians. It is supported by AllerGen, the Canadian Institutes of Health Research (CIHR), policy, health and patient stakeholder organizations.
- ✓ **Nationally Networked Food Allergy Research Programmes Launched:**
On July 23, 2008, the federal Minister of Health, Tony Clement, announced new regulations with respect to labelling allergenic foods by Canadian food manufacturers and distributors as well as an AllerGen-Health Canada partnered food allergy prevalence study. This study will inform consumer protection and food labelling policies as well as patient information and disease management tools used by healthcare providers and patient advocacy groups. Within AllerGen's food allergy programme, researchers have also developed a clinical assessment algorithmic tool based on the measurements of certain blood immune markers to more accurately predict peanut allergy in sensitized children and adults.
- ✓ **AllerGen's Nationally Networked Clinical Trials Group—the Clinical Investigator Collaborative—Expands Internationally:**
AllerGen's globally unique, multi-centred, pan-Canadian Phase II clinical trials consortium has translated its proprietary Standard Operating Procedures (SOPs) and know-how into collaborative research initiatives valued at over \$6.3 million in partnership with Canadian and international biopharmaceutical companies. In addition to eight new studies in development, the Clinical Investigator Collaborative (CIC) is in the process of establishing collaborating sites with international partners in order to expand capacity to offer the CIC's rapid testing of promising new therapeutics and early stage compounds in allergic asthma globally. These clinical trials enable partner organizations to assess the merit of further research and development in new therapeutics, while providing unique research opportunities on the mechanisms of action of a variety of innovative compounds.

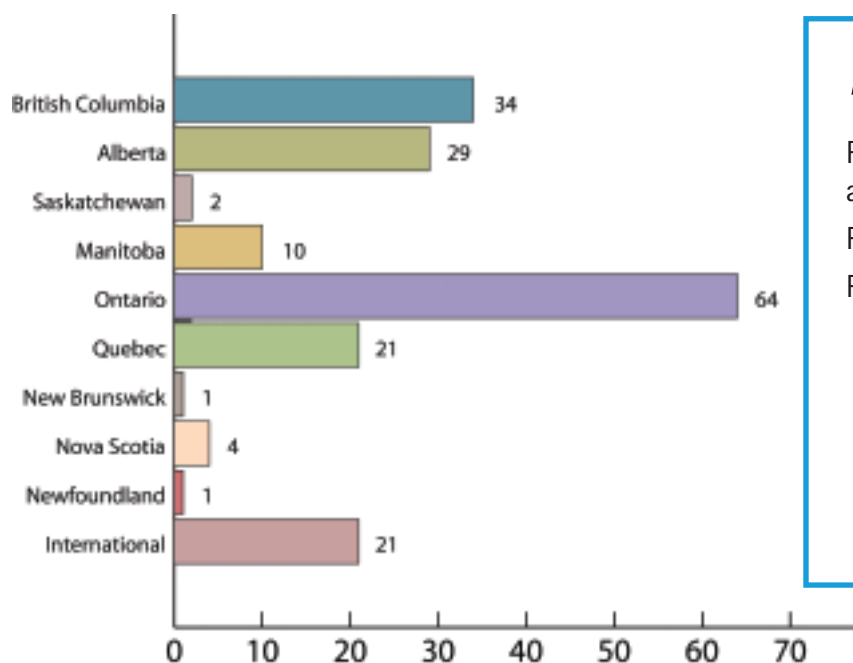
✓ **International Research Partnerships Leverage Millions for Allergy and Asthma Research:**

In early 2007, Allergan was awarded networking funding to foster collaborative research partnerships and capacity building initiatives with five international allergic disease research organizations, including the Global Allergy and Asthma European Network (GA²LEN) and the Global Alliance Against Chronic Respiratory Disease (GARD).

The Allergan - GA²LEN collaboration has enabled Allergan's genetics and environment researchers to partner with a pan-European asthma and allergy consortium called GABRIEL. Through this partnership, three Canadian cohorts from British Columbia, Manitoba and Quebec comprising Allergan's genetic association studies, have been included in an international research study funded by the Wellcome Trust involving over 150 European scientists from 14 countries. This initiative will constitute the largest study ever undertaken of genetic associations for asthma. Participation in this study is positioning Canadian researchers at the forefront of international developments in this field.

Allergan's partnership with GARD enabled Allergan's leadership in the establishment of the Respiratory Global Research And Training (GReAT) Network in Toronto at The Hospital for Sick Children. Launched by Allergan at the American Thoracic Society (ATS) conference in Toronto in May 2008, this international Network will act as a data repository for international respiratory disease surveillance, outcomes monitoring and program evaluation, and as a research and training resource for respiratory researchers involved in the collection, processing and analysis of global trends, gaps and solutions to improve respiratory care.

Researchers by Province N=187



Network Facts 07-08

Research Projects
and Strategic Initiatives: 39

Researchers: 187

Partner Organizations

Industry: 35

University: 28

Federal/Provincial Agencies: 24

Hospitals: 23

Research Institutions: 26

Not-For-Profits/NGOs: 40

Discovery & Development



AllerGen is dedicated to improving the quality of life for people suffering from allergic and related immune disease.

The Network strives to meet its mandate by supporting innovative research that leads to the discovery of the causes of allergic disease and the development and commercialization of new therapies, tools and services to more effectively diagnose, prevent and manage allergies and asthma.

In 2007, AllerGen integrated its five original research themes into three cross-cutting programmes of research—Programme A: Gene-Environment Interactions, Programme B: Diagnostics and Therapeutics, and Programme C: Public Health, Ethics, Policy and Society. Six nationally networked programmatic research thrusts have emerged within this programme structure. They are:

- Genetics and Gene-Environment Interactions in Allergy and Asthma
- The Canadian Healthy Infant Longitudinal Development Study
- Biomarkers, Immune Monitoring and Drug Discovery
- Food Allergy and Anaphylaxis
- Mind-Body Interactions and Allergic Disease
- Occupational Asthma

In addition, AllerGen provides seed funding for strategic initiatives to catalyze new investigative teams and programmes of research and development. These projects are directly aligned with its knowledge translation and exchange (KTE) priorities. AllerGen's strategic initiatives have been catalyzing the development of public policy and supporting the development of patient education and allergic disease management tools.

Arising from AllerGen's investment in a series of strategic initiatives and networking activities, a research thrust in Allergic Disease Management and Surveillance is emerging.

AllerGen's Goal: To catalyze and support innovative research that contributes to the discovery of the causes of, and ways to prevent, control or eliminate allergic and related immune diseases.

AllerGen Research Leaders

Programme A Gene-Environment Interactions



Jeff Brook
Environment Canada



Peter Paré
University
of British Columbia



Dean Befus
University of Alberta



Paul O'Byrne
McMaster University

Programme B Diagnostics and Therapeutics

Programme C Public Health, Ethics, Policy and Society



Allan Becker
University of Manitoba



Susan Elliott
McMaster University

AllerGen's integrated research programme is led by six internationally recognized research leaders who coordinate the identification and completion of strategically important research opportunities undertaken by AllerGen in collaboration with research partners from across sectors. Research results from these unique R&D relationships aim to improve the health of Canadians and reduce the socio-economic burden of allergic and related immune diseases.

Examining the genetics of allergic disease

AllerGen's Genetics and Gene-Environment Interactions teams are looking at the effects of the environment on a person's genetic makeup and the associated development of allergic disease and asthma.

- Working on the guiding principles of collaborative research, Programme A investigators have created a platform to share data nationally and internationally and contribute to our understanding of the genetic basis of allergic disease and asthma. Principal investigators Drs Peter Paré and Tom Hudson have led teams, expanded since 2005 to include many new investigators across the country, that are now incorporating genetic data from three Canadian and one Australian cohort studies to aid in the discovery of genes linked to asthma and allergy. Their work has aided in the identification of new gene associations and has also rigorously validated several previously identified genes.
- Principal Investigators Drs Denise Daley, and Scott Tebbutt, have worked together on the development of a database and a website that enable research, clinical and lay audiences to learn about genetics through three-dimensional online animations. Daley's team collected data from Network-supported research projects, analyzing and cross-referencing the information with seven additional electronic databases. The resulting dataset provides a summary of information that will enhance our understanding of the genetics of asthma. The database (www.genapha.ca) has the potential to enhance future research by facilitating virtual experiments where users can identify and test multiple hypotheses using AllerGen resources.

Programmatic Project: Genetics and Gene-Environment Interactions in Allergy and Asthma

Develop and implement an allergen-gene environment database resource
D Daley, University of British Columbia

Validation of genetic associations in asthma and allergy in Canadian families
P Paré, University of British Columbia

Environmental effects on allergic airway disease
Jeremy Scott, University of Toronto

Strategic Initiative:

AllerGen Animations
S Tebbutt, University of British Columbia

Pan-Canadian study of gene-environment interactions in the etiology of occupational asthma
N Cherry, University of Alberta

The Canadian Healthy Infant Longitudinal Development Study

Understanding the causes of allergy and asthma

On June 6, 2008, AllerGen, in partnership with CIHR, launched the Canadian Healthy Infant Longitudinal Development Study.

Led by Dr. Malcolm Sears, CHILD Study Director, and Deputy Director Dr. PJ Subbarao, a team of principal investigators from across multiple disciplines and spanning the Network's three programmes of research will investigate the genetic and environmental factors that influence the development of asthma and allergies in children.

Specifically, AllerGen researchers will look at the roles of pre-natal and early post-natal indoor and outdoor environmental exposures; viral infections; chronic family stress in the early years of life; genetics; diet in early life; early life lung development and growth; maternal smoking; and socio-economic status in the development of asthma and allergic disease. The CHILD Study will examine whether breast feeding leads to, or protects children from the onset of asthma and allergy. Gender-specific issues will also be studied to understand why boys are more likely to suffer from asthma as children, but girls are more likely to develop asthma as they enter their teens and adulthood. The first of 5,000 recruits for the CHILD Study was born in Vancouver, BC on August 29, 2008. Recruits will be followed for five years during this national six-year study.

Results from this national study will provide a better understanding of why allergy and asthma are an increasingly common problem in children, and will lead to the development of new therapies, medications, prevention and management

strategies to control these chronic illnesses. CHILD Study results will also fill a knowledge gap by supplying relevant evidence-based data that legislative and regulatory decision-makers can use to support new health and environment policies, programmes and regulations, as well as regulations governing home and building construction. As a longitudinal study, AllerGen investigators also have an opportunity to build upon and expand the CHILD Study to answer questions about other immune-related diseases.

CHILD Study funding

To date, AllerGen support has been used to leverage more than \$6 million in additional funding. To fully realize the potential of the study and fully analyze the collected data, CHILD investigators are seeking additional partners. Contributors thus far include:

AllerGen NCE Inc.: \$6 million

Canadian Institutes of Health Research: \$6 million

Canada Mortgage and Housing Corporation: \$250,000

Childhood Asthma Foundation: \$250,000

Health Canada and Environment Canada have contributed expertise from their respective agencies to the development of this study.

AllerGen representatives are actively meeting with potential partners from government, non-profit and industry sectors to secure additional funding.



Malcolm Sears, MB, ChB,
FRACP, FRCP(C)

Director, CHILD Study



PJ Subbarao, MD, MSc,
FRCP(C)

Deputy Director, CHILD Study

Mini-CHILD: AllerGen seed funds pilot birth cohort project

In 2007, eight AllerGen investigators located in Ontario and British Columbia pooled their expertise across several disciplines—immunology, environment, psychosocial, epigenetics and genetics—to initiate the Mini-CHILD project. This project addressed specific questions about the onset and development of allergic and related immune diseases that has provided much of the groundwork for the launch of the CHILD Study. The Mini-CHILD project has piloted recruitment procedures, use of new diagnostic tools, indoor environment inspections, psychosocial assessments and traffic-related air pollution models, resulting in the testing and refinement of effective protocols and methods to be implemented in the CHILD Study.

Mini-CHILD has recruited 97 infants and their families at Vancouver hospitals and will follow them for one year.

Approximately 1/5 of the families enrolled in Mini-CHILD will be offered the opportunity to enrol in the CHILD Study.

Canadian Healthy Infant Longitudinal Development Study

A Canadian longitudinal birth cohort study of asthma and allergy in childhood

M Sears, McMaster University

CHILD Study Site Leaders

PJ Subbarao, Ontario The Hospital for Sick Children, recruiting at Mount Sinai Hospital

A Becker, Manitoba University of Manitoba, recruiting at St. Boniface General Hospital and Winnipeg Health Sciences Centre

P Mandhane, Alberta University of Alberta, recruiting at Grey Nuns Community Hospital, Misericordia Community Hospital, Royal Alexandra Hospital, and the Sturgeon Community Hospital

S Turvey, British Columbia University of British Columbia, recruiting at BC Women's Hospital & Health Centre and the BC Children's Hospital



Mini-CHILD: A pilot programme

Recruitment

T Kollmann, University of British Columbia

S Turvey, University of British Columbia

Development of objective measurement of airway inflammation and lung function in infants

P Subbarao, Hospital for Sick Children, Toronto

Genetics: AllerChip: Development, validation and implementation of a microarray genotyping tool for allergy and asthma research

S Tebbutt, University of British Columbia

Environmental assessment of home environment in Mini-CHILD participants

T Takaro, Simon Fraser University

Environmental assessment of land use regression models for NO2 exposure

R Allen, Simon Fraser University

M Brauer, University of British Columbia

Environmental assessment of molecular genetic characterization of microbes in outdoor and indoor air and dust

J Scott, University of Toronto

Psychosocial Assessment

E Chen, University of British Columbia

M Kobor, University of British Columbia

G Miller, University of British Columbia

Clinical trials consortium attracts international clients

AllerGen's Clinical Investigator Collaborative (CIC) continues to expand Canada's global leadership in allergic asthma drug testing and discovery.

Led by Canadian clinician-scientists, the CIC undertakes research in partnership with pharmaceutical companies to enhance understanding of the mechanisms of action of never-before-tested compounds and new combinations of anti-inflammatories under evaluation for the treatment of asthma and allergic disease. Located at five sites across Canada, the CIC has developed proprietary Phase II trial protocols that efficiently determine at a very early stage in clinical development, if a molecule merits continued development and testing in later phase trials. At the same time, this research provides AllerGen investigators with the opportunity to examine the causes, onset and persistence

of allergic asthma. CIC investigators are looking to expand their trials under license to additional sites in Sweden and the Netherlands, thanks to relationships fostered through AllerGen's International Partnership Initiative.

To date, the CIC has undertaken seven studies with a value of over \$6.3 million, with eight new trials pending or under development. Pharmaceutical and biotechnology companies partnering with the CIC include:

- Alexion Pharmaceuticals, U.S.
- Boehringer Ingelheim, Canada
- Genentech Inc., U.S.
- IVAX Research Inc., U.S.
- MedImmune Inc., U.S.
- Schering Plough, U.S.
- TOPIGEN Pharmaceuticals Inc., Canada
- Wyeth Pharmaceuticals Inc., U.S.

Clinical Investigator Collaborative

Principal Investigators

P O'Byrne and G Gauvreau, McMaster University

L-P Boulet, Université Laval

D Cockcroft, University of Saskatchewan

M FitzGerald, University of British Columbia

I Mayers, University of Alberta

AllerGen's Goal: To catalyze and facilitate the development of new research platforms, tools, processes, products and services arising from discoveries, and promote their commercialization, their use and their influence on public policy.

AllerGen

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2007-2008

Examining indicators leading to asthma and allergy

Biological indicators asthma and allergy: An AllerGen Research Platform

Establishing indicators of asthma and allergic disease, developing methods to effectively monitor the severity of asthma and developing new medications to treat disease are priorities for AllerGen's Biomarkers, Immune Monitoring and Drug Discovery team. This platform includes nine Network projects.

Principal Investigator Dr. Stuart Turvey, leads the biomarkers research team and notes that AllerGen investigators are initially taking a broad approach to biomarker discovery, examining different traits of genes, blood and urine as possible indicators of disease.

"We can't easily take lung samples to test for asthma. We must gain insight into the processes of the body from accessible and relatively non-invasive means, like a urine or blood test so we have cast a broad net to see what are likely to be the most robust and reproducible biomarkers of allergic disease," said Turvey.

Once identified, AllerGen's integrated approach to research will allow these potential biomarkers of allergic disease to be tested in AllerGen's flagship research projects, the Clinical Investigator Collaborative and the CHILD study.

What is a biomarker of disease?

A biomarker is something that can be measured and used as an indicator of an individual's health. Diagnostic biomarkers can be a characteristic of someone's anatomy, genes, cellular and molecular processes, proteins or metabolites.

Biomarkers can be used to:

- diagnose presence, severity and prognosis of disease,
- determine an individual's potential to develop a disease,
- an individual's response to therapies and medicines to treat disease
- monitor the effectiveness or predict the toxicity of therapeutics



Programmatic Project: Biomarkers, Immune Monitoring and Drug Discovery

Development of an adaptive immune phenotyping platform for identification of biomarkers correlating with the development of allergic disease and clinical efficacy following therapeutic intervention
M Larché, McMaster University

Ontogeny and genetic polymorphisms of the innate immune system intersecting in atopy
T Kollmann, University of British Columbia
S Turvey, University of British Columbia

Biomarkers: Intracellular Cytokine Production
B Mazer, McGill University

Hemopoietic stem cells as biomarkers of atopy, airways inflammation, and sources of 'epigenetic' memory
J Denburg, McMaster University

Non-invasive diagnostics: Metabolomics for the various phenotypes of asthma
D Adamko, University of Alberta

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

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

Regulation of lung mucosal immune responses by heterologous exposure to multiple infectious and allergic agents
M Jordana, McMaster University

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

Studying new ways to diagnose and treat food allergies

Food allergy is a major international health problem. Canadian data reveals that about 1.5% of Canadian school-aged children suffer from peanut allergy. AllerGen's commitment to addressing the serious and prevalent problem of food allergy resulted in the development of AllerGen's Food Allergy and Anaphylaxis programmatic projects, which examine the clinical and social implications of these conditions.

- Principal Co-Investigators Drs. Ann Clarke and Susan Elliott, are leading the Surveying Canadians to Assess the prevalence of common food Allergies and Attitudes towards food labelling and Risk (SCAAALAR) team, which is surveying 3,000 households across Canada to determine the percentage of Canadians directly or indirectly affected by peanut, tree, fish, shellfish and sesame allergies. The study will also examine the effectiveness of labelling policies by the food industry, looking at such things as whether people avoid foods carrying warnings or understand precautionary labelling on foods. Results from the study will provide data that will assist policy makers to assess the need for health and education resources for the prevention, diagnosis and management of allergic diseases. Research findings will also help industry develop clear and safe food labelling practices. Results from the SCAAALAR study are expected in 2009.
- The Canadian Group on Food Allergy Research (CanGoFAR), led by Dr. Jean Marshall, is a nationally networked, interdisciplinary team of world class Canadian allergy researchers aiming to develop better methods to prevent, diagnose and treat food allergies.

Covering the full spectrum of food allergy research, from the genetics of food allergy through to clinical management, CanGoFAR investigators are focusing on understanding fundamental issues that determine how food allergies develop and on finding new ways to prevent sensitization to foods and induce food tolerance. CanGoFAR researchers are also examining methods to accurately and safely diagnose food allergy and determine the potential allergenicity of foods, functional foods and nutraceuticals.

AllerGen's networking opportunities have enabled Canada's scientific and clinical experts to engage in this coast-to-coast collaboration, involving both private and public sector partners. This initiative is a unique opportunity for Canadian researchers to aid industry and policy makers by providing evidence to support the establishment and implementation of effective guidelines for food labelling that protect consumers with food allergies and sensitivities.

- Using data from AllerGen's CanGoFAR study, Principal Co-Investigators Drs Catherine Laprise and Andrew Sandford are focusing on the identification of genetic risk factors for peanut allergy and the individual traits that lead to peanut sensitization. Their project, Identifying Genetic Risk Factors of Peanut Allergy, aims to develop novel therapeutic approaches that will advance understanding of the molecular nature of this condition. This research aims to fill a knowledge gap leading to a global breakthrough in the development of personalized medicine with respect to food allergy diagnosis. Sabrina's Law was enacted in Ontario in January 2006 and requires every school board in the province to establish and maintain an anaphylaxis policy. While Ontario chose to take a legislative path, other provinces— British Columbia, Alberta, Quebec and Newfoundland—have chosen alternative modes of regulation. Spearheaded by Dr. Lisa Cicutto, AllerGen's Sabrina's Law project aims to investigate perceptions and experiences of students with anaphylaxis and their parents, regarding 'school' as a safe place and of the necessary steps to create 'safe' schools. This project is undertaken in partnership with Anaphylaxis Canada, the Universities of Toronto and Alberta, and McGill, McMaster and Memorial Universities.

Programmatic Project:

Food Allergy and Anaphylaxis

Identification of genetic predictors of peanut allergy

C Laprise, Université du Québec à Chicoutimi

A Sandford, University of British Columbia

Canadian Group on Food and Allergy Research

J Marshall, Dalhousie University

Surveying Canadians to assess the prevalence of common food allergies and attitudes towards food labelling and risk

A Clarke, McGill University Health Centre

S Elliott, McMaster University

Evaluation of the implementation and effectiveness of statutory and regulatory school-based policies for anaphylaxis risk reduction

L Cicutto, University of Toronto

Building continuity of support for allergic children with asthma and/or anaphylaxis and their families

M Stewart, University of Alberta

Managing allergic disease

AllerGen-supported training centre builds global capacity to monitor and improve respiratory health

Supported by AllerGen's International Partnership Initiative (IPI), a program to enhance Canadian allergy and asthma researchers' global collaborations, AllerGen Principal Investigator Teresa To has applied her extensive experience in designing respiratory disease surveillance systems to launch the Respiratory Global Research and Training (GReAT) Network, located at the Research Institute of the Hospital for Sick Children in Toronto. The GReAT Network is an international repository for chronic respiratory disease prevalence data. Dr. To has also designed and launched a training programme to help national and international health decision-makers use this information to monitor and improve respiratory health.

Canada is a leader on the global stage when it comes to effective disease surveillance and thanks to AllerGen, To will build on Canadian leadership in the collection and analyses of international data, as well as educating individuals, especially those from developing countries, about standardized methods of data collection.

More than 50 nations worldwide are interested in participating in the GReAT Network, which has been endorsed by the World Health Organization's (WHO) Global Alliance Against Chronic Respiratory Diseases (GARD). To credits AllerGen for providing the seed funding necessary to secure WHO and GARD support. "The GReAT Network is unique," said To. "Its strength is in monitoring disease and measuring outcomes. Our data will help determine where improvements in disease diagnosis, management and treatment are needed so that we can improve the lives of patients."

After spending three months at the WHO in 2007, To understands the limitations of international data distributed by that organization. The WHO focuses on distributing information about disease symptoms and risk factors. The GReAT Network will fill a knowledge gap by translating surveillance data into useable information for decision makers, enabling officials from developing nations to identify areas to spend their chronic respiratory disease management dollars, resulting in the greatest possible impact on their affected populations. To is using the expertise she gained through the creation of the Ontario Asthma Surveillance Information System (OASIS) to develop knowledge translation tools in the form of report cards to distribute the results of the GReAT Network's analysis.

Measuring the impact of chronic respiratory diseases worldwide requires that standard methods of data collection and management be used. Initially, the GReAT Network will 'clean' submitted data so that it is useable, but training international researchers and healthcare workers to standardize their data before submission will enable the Network to provide more timely analysis of global trends. International trainees will have the opportunity to attend one- to three-month data collection training sessions in Toronto. Currently, health agencies and researchers in Turkey, Georgia, China, Mexico and Brazil are planning to attend training sessions in Canada offered by the GReAT Network.

Research conducted across AllerGen's emerging team of allergic disease management and surveillance tools researchers includes:

The Roaring Adventures of Puff: A school-based asthma education program

A Becker, University of Manitoba

The development, implementation and evaluation of strategies to promote well-being of children and youth with allergies and/or asthma

L Cicutto, University of Toronto

A Clarke, McGill University Health Centre

M Stewart, University of Alberta

S Wasserman, McMaster University

Changing practice for prevention and early detection of occupational asthma and allergic diseases in the primary care setting

D Lougheed, Queens University

Strategic Initiative:

AllerGen e-learning: An e-learning certificate course on food allergy and anaphylaxis geared toward teachers and K-12 school staff

A Levinson, McMaster University

Strategic Initiative:

The Respiratory Global Research and Training Network (GReAT Network)

T To, Hospital for Sick Children, Toronto

Strategic Initiative:

Severe Asthma Network

D Vetharayagam, University of Alberta



(left to right) Christine Hampson, President, Asthma Society of Canada; Diana Royce, Managing Director, AllerGen; Teresa To, Director, GReAT Network; Nancy Garvey, Asthma Program Coordinator, Ministry of Health and Long-Term Care (Ontario); Jean Bousquet, Chair, Global Alliance Against Chronic Respiratory Disease; Diane Lougheed, AllerGen PI (Queen's University); Alvaro Cruz, Chronic Respiratory Diseases Department, World Health Organization

Connecting the mind and body

AllerGen investigators examine interactions among the nervous, endocrine and immune systems during allergic responses

Throughout history, primitive and advanced cultures the world over have linked individuals' mental health to their physical state. Investigators in AllerGen's Mind-Body Interactions and Allergic Disease research programme are examining the connection between brain activity and its potential to trigger asthma and allergies. Research suggests that stress, depression, psycho-social state and socio-economic status can potentially cause the onset of asthma or trigger a relapse in affected individuals.

AllerGen Research Leader and Principal Investigator Dr. Dean Befus leads the Mind-Body research team, which encompasses six projects cutting across two of AllerGen's three programmes of research.

What is a Mind-Body connection?

To study how the mind and body interact, one must understand that the body is an integrated system made up of organs and smaller systems that are in constant communication through different bi-directional pathways.

Scientists examine the effects of different chronic and acute stressors at various times during life—from the womb through to adulthood—to determine if and how those stressors affect the physical well-being of an individual. AllerGen investigators are looking at multiple pathways that, once stimulated, may result in the onset of allergic disease or trigger an attack.

For example, AllerGen investigators studying Neuroendocrine regulation of allergic reactions in animal models and their translation to humans have identified a nerve pathway in an animal model that uses a hormone to reduce the effects of an asthma attack. Working closely with AllerGen's Clinical Investigator Collaborative, this team, led by Befus, is hoping to identify this same pathway in humans and potentially reproduce the asthma-reducing response through drug therapy.

Programmatic Project:

The Mind-Body Interactions and Allergic Disease

Perinatal stress and programming of allergic responses

J Bienenstock, McMaster University
P Arck, McMaster University

Neuroimaging and environmental suggestibility in asthma

G MacQueen, McMaster University

Stress allostatic load and risk of allergies and asthma in children of immigrants

C Soares, McMaster University

Stress, asthma and atopy socio-spatial investigations

A Kozyrskyj, University of Manitoba

Neuroendocrine regulation of allergic reactions in animal models: Translation to humans

D Befus, University of Alberta



Knowledge to action

Partnering for impact

Over the past year, Allergen has had the opportunity to position Canada as a world leader in the battle against allergic disease through the creation of new partnerships with international allergy, asthma and respiratory health research networks and teams. Grants from the Networks of Centres of Excellence programme, Canada's Department of Foreign Affairs and International Trade and the International Development Research Centre have enabled new collaborative opportunities worldwide with partner organizations in Europe, Latin America, India and Taiwan, raising Allergen's profile on the global stage.

Highlights from Allergen's IPI

Highlights from Allergen's International Partnerships Initiatives

- Allergen investigators have established an important collaboration with the European Asthma and Allergy Consortium, GABRIEL, a study examining genetic factors associated with asthma in 40,000 child and adult asthmatics. Allergen investigators have successfully leveraged funds from the Wellcome Trust to genotype Canadian samples within the GABRIEL study, enabling Allergen's investigators to gather further evidence to support genetic associations that predispose certain people to developing asthma.
- A joint Allergen-GA²LEN workshop in Amsterdam, November 2007, resulted in research collaborations leading to new proposals and protocols for data sharing among Canadian and European birth cohort studies.
- The World Health Organization's Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines—a document targeting specialists, family practitioners and other healthcare professionals to enable them to provide updated quality healthcare to patients worldwide—were developed with input from Allergen investigators.
- Collaboration between Allergen's Clinical Investigator Collaborative and Sweden's Karolinska Institute has resulted in plans for the addition of an international clinical trial site in 2009. Canadian and Swedish investigators are currently exchanging Standard Operating Procedures and jointly training their teams in their respective methods of allergen challenge.
- On March 27-28, 2008 Allergen co-hosted a two-day Global Lung Health Symposium and workshop at the University of Alberta in collaboration with IPI partner The International Union Against Tuberculosis and Lung Disease. With assistance from partners including the Alberta Heritage Foundation for Medical Research, the University of Alberta, the CIHR Institute for Circulatory and Respiratory Health and the World Health Organization, the event brought together 77 participants from around the world to assist implementation teams from project partner sites in El Salvador, Mexico and Canadian First Nations communities to refine their plans to implement globally validated approaches to improving lung health in communities with limited healthcare services.

Canada-India collaboration examines role of nutrition in onset of allergy

Allergen investigators led by Dr. Allan Becker, are working with investigators at St. John's Research Institute in Bangalore, India, to examine the impact of nutrition in the development of chronic diseases, including allergy and asthma, in an environment where allergic disease is not yet a major health problem but is becoming increasingly common.

The NCE International Partnerships Initiative and Canada's International Development Research Centre co-fund this collaboration, enabling researchers and trainees from Allergen and the St. John's Research Institute in Bangalore to align their respective birth cohort research projects. Workshops in Bangalore and in Banff, Alberta, facilitated the development of a plan that has enabled data sharing and the development of shared Standard Operating Procedures among Allergen and Indian birth cohort investigators, with potential to incorporate European investigators from the GA²LEN into this collaboration, positioning Canada as the centre for global initiatives, especially cohort studies, focused on allergic disease.

Allergen's Goal: To develop and maintain networking and partnership arrangements that enable knowledge and technology exchange and exploitation (KTEE) and position Canada at the forefront of innovation.

AllerGen's Annual Research Conference attracts international audience

AllerGen's third Annual Research Conference, *Innovation from Cell to Society*³, showcased Network research to a national and international audience in Banff, Alberta, February 12-14, 2008. More than 200 Canadian and international delegates representing academe, healthcare, industry, not-for-profit and government sectors came together to examine the causes, treatments and prevention of allergic disease and asthma, with an emphasis on the role that the environment plays in the development of these diseases.

Three keynote addresses and 12 symposia and panel discussions spanned the full range of AllerGen research programme and stakeholder issues. Birth cohort studies in Canada and abroad were the subject of three symposia and discussion panels. Investigators working on AllerGen's CHILD Study presented findings on infant lung function assessment and its potential to identify early markers of lung dysfunction, the significance of gender in the diagnosis and treatment of asthma, and progress made and challenges overcome by AllerGen's Mini-CHILD study team.

Representatives from the GA²LEN discussed collaborative efforts in Europe to pool data from 12 birth cohort studies, leading to improved methodologies and identifying new questions in allergy and asthma research.

A symposium and panel discussion examined Canada's shortage of clinical specialists practicing in allergy and immunology, highlighting the need for AllerGen to continue to facilitate action to increase national capacity through additional training and retention programmes, and by attracting Canadian-trained physicians practicing abroad to return to Canada.

A conference symposium focused on health policies and their impact on health outcomes for Canadians suffering from allergic disease reviewed AllerGen researchers' development of an online support system for children and youth with anaphylaxis. This session highlighted the importance of educating healthcare workers and patients in the treatment and management of anaphylaxis and food allergy.

Other symposia focused on the need for expanded research into the incidence of occupational disease; outcomes and future studies planned for AllerGen's Clinical Investigator Collaborative; and research focusing on the diagnosis and management of allergic disease leading to new and improved diagnostic tools and tests, such as a non-invasive urine test.

Bob McDonald, a well known Canadian science writer, broadcaster and educator, concluded the conference with a keynote presentation on communicating science to the public.

Third Annual Research Conference **Innovation** *from Cell to Society*³



Dr. Stephanie London (left), a senior investigator at the U.S. National Institute of Environmental Health Sciences, speaks with Dr. Diane Gold, Associate Professor at the Harvard Medical School, and conference keynote speaker, Dr. Burt Brunekreef, Professor of Environmental Epidemiology at University of Utrecht, the Netherlands. These international experts were part of a research symposium and panel discussion of the results of AllerGen's pre-conference environmental exposure assessments workshop.

This invitational workshop examined challenges faced by researchers when assessing environmental exposure and its impact on the development of allergic and related immune diseases. Discussion focused on the need for improved assessment methods; for greater emphasis on diet and its role in the development of disease; and on ways to build upon the strong foundation for environmental exposure assessment that has been laid by AllerGen's CHILD Study protocols.

Network partners and collaborators

Academic Institutions

University of Alberta
University of Arizona
Athabasca University
University of British Columbia
University Children's Hospital, Munich, Germany
University of Calgary
Dalhousie University
University of Guelph
Karolinska Institutet
Université Laval
University of Manitoba
McGill University
McMaster University
Memorial University
Université de Montréal
Mount Sinai School of Medicine
University of North Carolina
University of New Brunswick
University of Ottawa
Université du Québec à Chicoutimi
Queen's University
University of Saskatchewan
Université de Sherbrooke
Simon Fraser University
University of Toronto
University of Washington
University of Western Australia, Telethon Institute for Child Health Research
University of Western Ontario

Hospitals

Alberta Children's Hospital, Calgary
BC Children's Hospital, Vancouver
BC Women's Hospital and Health Centre, Vancouver
Children's Hospital of Winnipeg
Grey Nuns Community Hospital, Edmonton
Hamilton Health Sciences
Hôpital Sainte-Justine, Montreal
Hospital for Sick Children, Toronto
IWK Health Centre, Halifax
Misericordia Community Hospital, Edmonton
Montreal Children's Hospital
Mount Sinai Hospital, Toronto
Queen Elizabeth II, Health Sciences Centre, Halifax
Royal Alexandra Hospital, Edmonton
St. Boniface General Hospital, Winnipeg
St. Joseph's Healthcare, Hamilton
St. Michael's Hospital, Toronto
St. Paul's Hospital, Vancouver
Sturgeon Community Hospital, St. Albert, Alberta
Sunnybrook Health Sciences Centre, Toronto
Vancouver Hospital and Health Sciences Centre
West Elgin Community Health Centre
Winnipeg Health Sciences Centre

Industry

3M Canada
Aerobiology Associates
Aerobiology Research Laboratories
AIM Therapeutics
Alexion Pharmaceuticals Inc.
Alimentary Health
Applied Biosystems
Arkitek Studios
AstraZeneca
Bayer Canada Inc.
Boehringer Ingelheim
Ception Therapeutics
Circassia Ltd.
CLR Media
Genentech Inc.

GlaxoSmithKline Inc.
Indoor Biotechnologies
IVAX Research Inc.
King Pharmaceuticals
Longwoods Publishing
Lumira Capital
Maple Leaf Foods
Medimmune Inc.
Merck Canada Inc.
Merck Frosst Inc.
Metro-Richelieu Inc.
Novartis Pharmaceuticals Canada Inc.
Nycomed Canada
Paladin Laboratories Inc.
Schering Plough Inc.
Sporometrics Inc.
Topigen Pharmaceuticals Inc.
Tripos International
Trudell Medical
Wyeth Pharmaceuticals Inc.

Federal Agencies

Agriculture and Agri-Food Canada
Canada Mortgage and Housing Corporation
Canada Research Chairs Secretariat
Canadian Institutes of Health Research
Canadian Institutes of Health Research, Institute of Human Development, Child and Youth Health
Canadian institutes of Health Research, Institute of Infection and Immunity
Canadian Institutes of Health Research, Institute of Circulatory and Respiratory Health
Environment Canada
Foreign Affairs and International Trade Canada, Going Global Programme
Health Canada, Bureau of Chemical Safety
Health Canada, Food Directorate
Health Canada, Indoor Air Quality Section
International Development Research Centre
Natural Resources Canada
Western Economic Diversification Canada

Provincial Agencies

Alberta Health and Wellness
Alberta Human Resources and Employment
Healthy Child Manitoba
Fonds de la recherche en santé du Québec
Ministère de la Santé et des Services sociaux, Québec
Institut de recherche Robert-Sauvé en santé et en sécurité du travail, Québec
Ministry of Health and Long-Term Care, Ontario
Workplace Safety and Insurance Board, Ontario
Workers' Compensation Board, British Columbia

Research Institutes and Networks

Alberta Asthma Centre
Alberta Strategy to Help Manage Asthma and Chronic Obstructive Pulmonary Disease
Brain-Body Institute (St. Joseph's Healthcare, Hamilton)
British Columbia Centre of Excellence for Women's Health
Busselton Population Cohort, Sir Charles Gairdner Hospital, Western Australia
Canadian Institute for Advanced Research
Centre for Research Expertise in Occupational Disease, Toronto
Firestone Institute for Health Research, McMaster University
Gage Occupational and Environmental Health Unit, University of Toronto
GA²LEN (Global Allergy and Asthma European Network)
Hospital for Sick Children Research Institute, Toronto

Human Early Learning Partnership, British Columbia
James Hogg iCAPTURE, University of British Columbia
Johns Hopkins University Asthma and Allergy Centre
Manitoba Centre for Health Policy
Manitoba Institute of Child Health
McGill University Health Centre Research Institute
MITACS-NCE (Mathematics of Information Technology and Complex Systems Network)
Nakatsu Laboratory
National Health and Medical Research Council, Australia
National High Field Nuclear Magnetic Resonance Centre (NANUC), University of Alberta
National Institutes of Health, United States
Northern Alberta Institute of Technology
Respiratory Global Research and Training Network (GREaT), Hospital for Sick Children, Toronto
St. John's Research Institute, Bangalore, India
Sun Centre of Excellence for Visual Genomics

Associations/Foundations/Other Bodies

Assembly of First Nations
Inuit Tapiriit Kanatami
Alberta Heritage Medical Research Foundation
Alberta and NWT Lung Association
American Thoracic Society
Anaphylaxis Canada
Association des allergologues et immunologues du Québec
Association québécoise des allergies alimentaires
Asthma/Allergy Information Association
Asthma Society of Canada
British Columbia Lung Association
Canada Foundation for Innovation
Canadian Allergy, Asthma and Immunology Foundation
Canadian Association for Population Therapeutics
Canadian Cystic Fibrosis Foundation
Canadian Lung Association
Canadian Network for Asthma Care
Canadian Nurses Association
Canadian Pharmacists Association
Canadian Society of Allergy and Clinical Immunology
Canadian Society of Respiratory Therapists
Canadian Society for Epidemiology and Biostatistics
Canadian Thoracic Society
Childhood Asthma Foundation
Eva Lillian Cope Graduate Research Scholarship, McMaster University
Golden Horseshoe Biosciences Network
Hamilton Police Service
Healthway (Western Australian Health Promotion Foundation)
International Eosinophil Society
International Union against Tuberculosis and Lung Disease
Ireland Canada University Foundation
Michael Smith Foundation for Health Research, British Columbia
National Sanitarium Association of Canada
Nova Scotia Health Research Foundation
Ontario Lung Association/Ontario Respiratory Care Society
Royal College of Physicians of Physicians and Surgeons of Canada
Strauss Foundation
Wellcome Trust
World Health Organization, Global Alliance against Chronic Respiratory Disease
World Health Organization, Collaborating Centre for Asthma and Rhinitis

Patients follow the circle of care to better asthma management

Patients, asthma educators and clinicians are using a new asthma management tool, *Taking Control of Asthma: Follow the Circle of Care*. This educational pamphlet helps asthma sufferers recognize asthma triggers and exert more effective control of their disease through proper use of medications and implementation of an action plan.

In collaboration with AstraZeneca and with patient advocacy and professional organizations, Allergan was instrumental in the development and dissemination of this guideline-based information tool, founded on principles of effective knowledge translation and exchange. The initial dissemination of 15,000 copies of *Taking Control of Asthma: Follow the Circle of Care* was followed by an additional 10,000 copies, which have been disseminated primarily to asthma clinics, asthma educators and family health teams for use in patient education programs.



The Circle of Care is a user-friendly guide that considers literacy level and cultural sensitivities in its design and messaging. This guide is a result of collaboration among 12 industry, non-profit and professional organizations from across Canada representing patients, healthcare providers, researchers, research funding organizations and industry.

Going Global

Fostering new relationships in Asia

Allergan's Scientific Director, Dr. Judah Denburg, Programme A Research Leader Drs. Peter Paré and Brian Underdown, Managing Director, Lumira Capital and member of the Allergan's Research Management and Network-Supported Intellectual Property Advisory Committees, met with representatives of Taiwan's medical, research and business communities in Taipei in November 2007.

An information sharing workshop that attracted 50 Taiwanese delegates—47 representing industry—provided Allergan representatives with an opportunity to speak to the allergic disease epidemic in Canada and the potential return on R&D investments in allergic disease.

Allergan delegates also met with prominent Taiwanese academics to discuss research and clinical progress in Taiwan. Working collaboratively with Vitagenomics, a Taiwanese company focused on developing new genetic tests for various diseases, Allergan's genetics research team is working with Dr. Jiu-Yao Wang, Professor of Pediatrics and Director of Allergy and Clinical Immunology and Rheumatology at the National Cheng-Kung University, to link with his study of 1,600 asthmatic children in Taiwan. Dr. Wang has met with Allergan researchers in British Columbia and attended the Network's Annual Research Conference in Banff in February 2008.

Knowledge Transfer 2007-08

Publications:	42
Posters:	76
Oral Presentations:	28
Disclosures:	2
Patent Pending:	1

Allergan in the News

Translating research into a user-friendly form of information to be understood and used by Canadians is an important aspect of Allergan's communications mandate.

Over the past year, Allergan and its investigators were featured in 140 media reports in print, online and in television and radio broadcasts.

Special Announcements

On June 6, 2008, at McMaster University in Hamilton, Ontario, Mike Wallace, Member of Parliament for Burlington, represented Health Minister Tony Clement to announce Allergan's and CIHR's joint support of the CHILD Study.

On July 23, 2008, in Ottawa, Ontario, Minister Clement announced an Allergan-Health Canada partnership on SCAAALAR, a national study to determine the prevalence of food allergy in Canada and the effectiveness of food labelling in warning allergic Canadians about potential allergen content.

Developing Highly Qualified Personnel

Through the Canadian Allergy and Immune Diseases Advanced Training Initiative (CAIDATI), a national multisectoral programme within the Network's (Highly Qualified Personnel) programme, AllerGen partners with academic, healthcare and industry in the development and delivery of new training opportunities across sectors and disciplines.

AllerGen Fellowships and Awards

- ✓ AllerGen trainees Larisa Lotoski, Helen Muleme and Stephanie MacPherson, received funding through AllerGen's collaboration with the Canadian Institutes of Health Research (CIHR) Strategic Training Initiatives in Health Research (STIHR) in Allergy and Asthma: From Molecular Regulation to Population Health, at the University of Manitoba.
- ✓ AllerGen, in partnership with other professional associations and industry, has established two international clinician-scientists awards, enabling international clinician scientists to study clinical methods with leading Network investigators.

AllerGen in partnership with the Canadian Allergy, Asthma and Immunology Foundation and Merck Frosst established an International Clinician-Scientist and Post-Doctoral Research Fellowship which was awarded to Dr. Eduardo José Campos Alberto. He will study at the University of Alberta.

AllerGen, in partnership with Allergists for Israel, established the AllerGen International Clinician-Scientist and Post Doctoral Research Fellowship which was awarded to Dr. Ilan Asher. He will study at McMaster University.
- ✓ AllerGen has partnered with Topigen, a Canadian pharmaceutical company headquartered in Montreal, Quebec, to establish the AllerGen-Topigen Industrial Research and Development Fellowship, a programme focused on delivering real-world biopharmaceutical-based research and development experience to trainees.
- ✓ AllerGen has established, in partnership with the Canadian Thoracic Society (CTS) and Canadian Lung Association (CLA) the CTS/CLA/AllerGen Asthma Clinician-Scientist Research Fellowship which focuses on promoting excellence in lung health and asthma research.

CAIDATI activities delivered over the past year include:

- The second annual AllerGen Trainee Symposium, Your Entrepreneurial Future, was held in May 2007 in King City, Ontario simultaneously with the release of Canada's science and technology strategy, *Advantage Canada*. This annual symposium provides professional development opportunities that complement the academic and scientific work being completed by AllerGen trainees, and offers unique networking opportunities and discussion among current and future research, healthcare and industry professionals. Thirty trainees representing 10 universities across Canada attended the two-day event which also included a poster competition featuring research results from 12 Network-supported projects. Leaders from the biotechnology and commercialization industry, and from academic, policy and non-profit sectors, highlighted the many career opportunities beyond academe. Other presentations focused on entrepreneurship and the challenges and rewards associated with developing new research-based products and services that benefit Canadians socially and economically.
- Two trainees supported through AllerGen's International Partnership Initiative, attended an International Union Against Tuberculosis and Lung Disease-AllerGen meeting in Edmonton, Alberta in January 2008, focusing on the development and implementation of lung health strategies that will impact the health of populations in rural communities in Mexico and El Salvador and Canadian Aboriginal communities.
- Four trainees took part in an AllerGen-St. John's Research Institute workshop held in conjunction with AllerGen's annual research conference, *Innovation from Cell to Society*³, in Banff, Alberta, February 2008. The workshop focused on the continued development of a Canadian-Indian collaboration examining maternal nutrition in the development of allergic disease.
- Thirty-seven trainees from nine universities—Université du Québec à Chicoutimi, Université Laval, Université de Montréal, McGill University, University of Toronto, McMaster University, University of Manitoba, University of Alberta and University of British Columbia—submitted 38 abstracts to AllerGen's Trainee Poster Competition at *Innovation from Cell to Society*³, a 65% increase in the number of submissions over the previous year.

AllerGen's Goal: To create new opportunities for the training of HQP in allergy research, patient care, innovation and the health system, and advance professional and lay knowledge about allergic and related immune diseases.

Highly Qualified Personnel: 07-08

Trainees: 213

Training Locations: 76

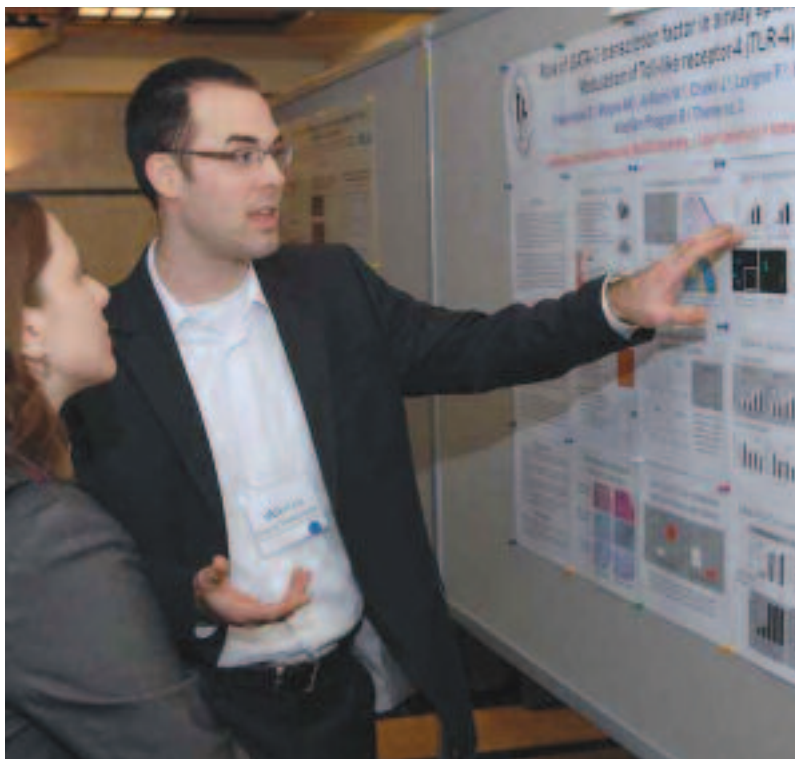
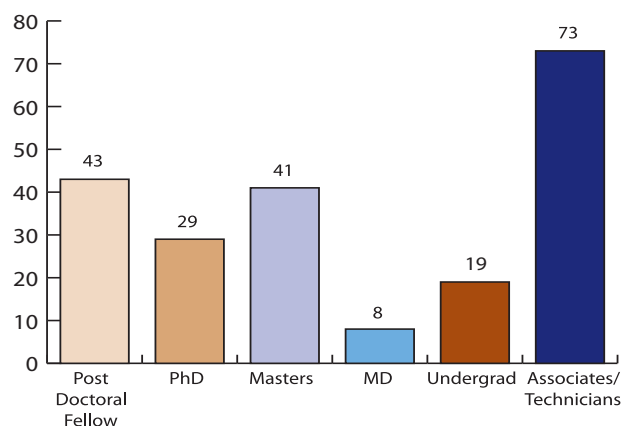
Trainee Travel Grants Awarded: 37

Network Graduates

Since the launch of AllerGen's HQP programme in March 2005, 76 trainees have graduated from the Network. Of that number, 30 individuals (39%) are now working in industry, academic, government and the public sector, including:

- Kadria Asaly, a former University of British Columbia post-doctoral student under the supervision of AllerGen Principal Investigator Dr. Mark FitzGerald, is now working as a study coordinator at Tuberculosis Control-BC Centre for Disease Control in Vancouver.
- Shannon Cope, a former University of Toronto MSc student under the supervision of AllerGen investigator Dr. Wendy Ungar, is now working as a research consultant evaluating the health and economic benefits of drugs and new technologies at Mapi Values in the Netherlands.
- Dr. Anne Ellis, former ASNPN president, has secured an Allergist, Clinician-Scientist position and Assistant Professorship at Queen's University. Dr. Ellis's experience as an AllerGen trainee has provided unique technical skill and leadership development opportunities that she is applying to the establishment of a new laboratory and to supervision of the Environmental Exposure Unit at Queen's.
- Piush Mandhane, a former McMaster University PhD student under the supervision of AllerGen Principal Investigator Dr. Malcolm Sears, is now an Associate Professor at the University of Alberta and regional site leader for AllerGen's CHILD Study in Edmonton, Alberta.
- Jason Pole, a former University of Toronto PhD student under the supervision of former AllerGen research Theme Leader, Dr. Cameron Mustard, is a Scientist at the Pediatric Oncology Group of Ontario and Assistant Professor at the Dalla Lane School of Public Health at the University of Toronto.
- Jaim Sutton, a former Masters student working at the James Hogg iCAPTURE (University of British Columbia) under the supervision of Drs Peter Paré (BC) and Tom Hudson (McGill), is Manager of the EUDRAGENE Project at the London School of Hygiene and Tropical Medicine at the University of London in England.

AllerGen Trainees by Level of Education N=213



Jennifer Protudjer (University of Manitoba) and David Préfontaine (McGill University) reviewing a trainee poster at the 3rd Annual Scientific Conference of AllerGen (February 2008, in Banff).

AllerGen

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2007-2008

AllerGen Student and New Professionals Network (ASNPN) 2007 - 2008

Anne Ellis, President, McMaster University
Michelle North, Vice-President, University of Toronto
Victoria Arrandale, University of Toronto
Steven Maltby, University of British Columbia
Katherine Morris, University of Alberta
Jennifer Protudjer, University of Manitoba
Marie-Claire Rousseau, Université Laval
Pawan Sharma, University of Manitoba

AllerGen Student and New Professionals Network (ASNPN) 2008 - 2009

Michelle North, President, University of Toronto
Jennifer Protudjer, Vice President, University of Manitoba
Anne Ellis, Past President, McMaster University
Victoria Arrandale, University of Toronto
Steven Maltby, University of British Columbia
Marie-Claire Rousseau, Université Laval
Pawan Sharma, University of Manitoba
Chris Taplin, University of British Columbia

Looking to ensure the future of allergy and clinical immunology care in Canada

Allergic and related immune diseases are rising in epidemic proportion in developed nations. Currently, Canada is experiencing a nation-wide shortage of specialists in allergic disease research and clinical practice. According to the 2006 census, Canada provides one allergist per 225,813 Canadians. As the population increases, this ratio is expected to increase. To address the shortage of allergists/immunologist, and the resulting increase in patient wait times, lack of development of new preventions and therapies to treat allergic disease and asthma, and growing economic burden on Canadian productivity—AllerGen, in partnership with the Canadian Society of Allergy and Clinical Immunology (CSACI), is developing strategies and tactics to attract and retain students and new professionals in allergy and clinical immunology programmes, as well as to increase Canadian capacity to train students in this medical sub-specialty.

In May 2008, AllerGen partnered with CSACI to host a two-day strategic planning workshop on the theme *The Future of the Specialty*, in Alton, Ontario. The workshop focused on developing new strategies to combat the increasing shortage of research and clinical specialists in allergy and immunology.

AllerGen Principal Investigator Dr. Susan Waserman, McMaster University, and CSACI President Dr. Charles Frankish led a diverse group of 22 participants including allergists, clinical immunologists, respirologists, specialty



David Préfontaine (McGill University), Marie-Claire Rousseau (Université Laval), Karine Tremblay (Université du Québec à Chicoutimi)

programme directors and a representative of the Royal College of Physicians and Surgeons of Canada, through a review and assessment of Canada's current and emerging allergy and clinical immunology training programmes, strengths and weaknesses of the programmes, and identified areas of opportunity to grow national capacity and attract new trainees.

Four priority actions resulting from the workshop will be followed up by AllerGen in partnership with CSACI, including the development of:

- a clear value proposition for the allergy and clinical immunology sub-specialty
- new models to attract and recruit trainees and academic staff
- innovative training models that enhance career development and patient care; and
- an effective communications plan targeted at trainees and healthcare professionals.

Financial summary

AllerGen NCE Inc. Financial Summary 2006-08¹

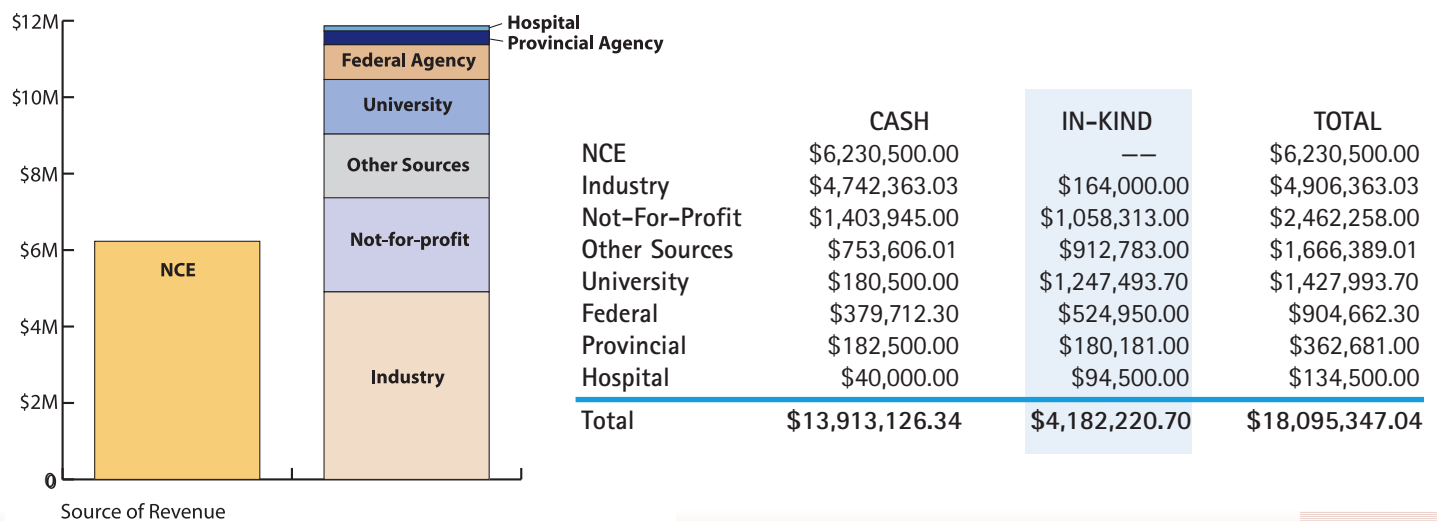
	2006-07 (Year 2)		2007-08 (Year 3)	
REVENUES (Cash and In-Kind)				
NCE Award	\$5,272,000.00	43.4%	\$5,264,000.00	29.1%
International Partnership Initiative Award	N/A		828,000.00	4.6%
IDRC ² Award- St. John's Institute	N/A		138,500.00	0.8%
Non-NCE Funds to Administrative Centre*	430,421.00	3.5%	2,174,848.01	12.0%
Non-NCE Funds to Research Projects*	6,447,809.86	53.1%	9,689,999.03	53.5%
Total Revenues	\$12,150,230.86	100.0%	\$18,095,347.04	100.0%
* includes cash and in-kind contributions				
EXPENDITURES (Expended/committed cash from the Administrative Centre)				
Research Programs/Committed	3,432,426.43	71.9%	2,529,717.89	53.3%
Networking	374,089.60	7.8%	557,414.47	13.1%
Strategic Initiatives and Training	90,428.09	1.9%	220,813.59	5.2%
Communications	41,949.91	0.9%	14,487.06	0.3%
Administration	838,092.26	17.5%	942,410.53	22.1%
Total Expenditures	\$4,776,986.29	100.0%	\$4,264,843.54	100.0%
<i>Committed Funds for Future Research</i>			\$1,932,961.10	
<i>Cash reserved for future research</i>	\$1,837,628.80		\$2,306,292.67	

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

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

² International Development Research Centre

Revenue Sources (Cash and In-Kind) 2007-08



AllerGen's Goal: To provide responsible, cost effective and accountable management, administration and support to all aspects of AllerGen's activities.

Committees/Comités

Research Management Committee/ Comité de gestion de la recherche

Judah A. Denburg, Committee Chair/Président du comité,
McMaster University
Allan Becker, University of Manitoba
Dean Befus, University of Alberta
Jeff Brook, Environment Canada/Environnement Canada
Tim Caulfield, University of Alberta
Susan Elliott, McMaster University
Patricia Lorenz, University of Guelph
Paul O'Byrne, McMaster University
Peter Paré, University of British Columbia
Mark Raizenne, Health Canada/Santé Canada
Malcolm Sears, McMaster University
David B. Shindler, McMaster University
Brian Underdown, Lumira Capital
Frances Silverman, ex officio/membre d'office,
University of Toronto
Louis-Philippe Boulet, ex officio/membre d'office,
Université Laval
Diana Royce ex officio/membre d'office, AllerGen NCE
Inc./AllerGen-RCE Inc.
Danielle Arsenault, ex officio/membre d'office, NCE Programmes
Officer/Agente de programmes des RCE

Advanced Education-Training Opportunities Advisory Committee/Comité consultatif sur les possibilités d'études supérieures et de formation spécialisée

Chris Mody, Chair/Président du comité, University of Calgary
Judah Denburg, AllerGen NCE Inc./AllerGen-RCE Inc.
Thomas Issekutz, Dalhousie University
Oxana Latycheva, Asthma Society of Canada/Société canadienne de l'Asthme
Irvin Mayers, University of Alberta
Michelle North, University of Toronto & President,
ASNPN/Présidente de l'AENPA
Danuta Radzioch, Montreal General Hospital/
Hôpital général de Montréal
Susan Wasserman, McMaster University
Diana Royce, AllerGen NCE Inc./AllerGen-RCE Inc.

Network-Supported Intellectual Property Advisory Committee/

Diana Royce, Committee Chair/Présidente du comité, AllerGen
NCE Inc./AllerGen-RCE Inc.
Dean Befus, University of Alberta
Terry Delovitch, Robarts Research Institute
Judah Denburg, McMaster University
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David Shindler, BioDiscovery Toronto
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