



Dr. Sonia Anand
McMaster University

Understanding the impact of maternal and infant nutrition in the first 5 years of life

Dr. Sonia Anand, AllerGen Principal Investigator and Professor of Medicine at McMaster University, together with a team of maternal/child health researchers from across Canada, recently received a \$2 million grant to investigate the role of maternal and infant nutrition in the development of obesity, type 2 diabetes, cardio-metabolic disorders, allergies and asthma.

The project, titled “Understanding the impact of maternal and infant nutrition on infant/child health in the first 5 years of life,” was ranked second in the competition and awarded a five-year grant through a Programmatic Grant Program in Food and Health sponsored by the CIHR Institute of Nutrition,

Metabolism and Diabetes (INMD). The study will explore how maternal nutrition interacts with genetic factors of the mother and fetus, and the potential impacts of this interaction on the infant’s susceptibility to adverse health outcomes, including excess body fat, abnormal blood lipids and blood sugar, allergies and asthma.

Using data from four birth cohorts, including AllerGen’s Canadian Healthy Infant Longitudinal Development (CHILD) Study, the project aims to improve infant health outcomes in diverse Canadian populations, including Caucasians, South Asians, and Aboriginal people.



First findings published from Cross-Canada Anaphylaxis Registry (C-CARE)

Early findings from the Cross-Canada Anaphylaxis Registry (C-CARE) initiative—the first-ever prospective study on anaphylaxis—have been published in the September 2013 issue of *The Journal of Allergy and Clinical Immunology* (JACI).

Led by Dr. Moshe Ben-Shoshan, an AllerGen investigator and a pediatric allergist and immunologist at the Montréal Children's Hospital, C-CARE establishes a registry of anaphylaxis cases throughout Canada. C-CARE tracks episodes of anaphylaxis and assesses the rate, triggers and management of the condition in emergency medical services, emergency departments and medical clinics across the country.

"We wanted data that more accurately represented the rate of anaphylaxis and its causes in Canada, given that it is the most severe manifestation of an allergic reaction," said Dr. Ben-Shoshan.

"That is why we decided to start C-CARE. Canada is the first country to develop a country-wide anaphylaxis registry."

Findings from the first year of the study revealed that among 168 children with anaphylaxis admitted to the Montréal Children's Hospital, food triggered an anaphylactic reaction in 84.5% of cases (with peanut or tree nut as the major culprit); 50% of milk- and peanut-induced anaphylaxis was attributable to inadvertent exposure to a known allergen; and epinephrine was under-used in treatment.

Read about the C-CARE findings in the September 2013 issue of *The Journal of Allergy and Clinical Immunology* (JACI).



AllerGen researchers publish in world's leading allergy journal

The July and August 2013 issues of *The Journal of Allergy and Clinical Immunology* (JACI) featured five articles authored or co-authored by AllerGen Network members, including an AllerGen trainee. JACI is the most-cited journal in the field of allergy and clinical immunology.

The July 2013 issue contained the following articles by AllerGen researchers:

- "Comparative outcomes of leukotriene receptor antagonists and long-acting β -agonists as add-on therapy in asthmatic patients: A population-based study," co-authored by Drs Larry Lynd, Carlo Marra and Mark FitzGerald, among others;
- "Asthma in the real world," by Dr. Paul O'Byrne;
- "What is an 'eosinophilic phenotype' of asthma?" by Dr. Parameswaran Nair; and

- "Filaggrin gene mutation associations with peanut allergy persist despite variations in peanut allergy diagnostic criteria or asthma status," co-authored by Drs Celia Greenwood, Peter R. Hull, Moshe Ben-Shoshan and Ann Clarke, among others.

The August 2013 issue featured the article "Childhood allergic rhinitis, traffic-related air pollution, and variability in the GSTP1, TNF, TLR2, and TLR4 genes: Results from the TAG Study." The article was co-authored by Elaine Fuertes, a PhD candidate at The University of British Columbia and a member of the AllerGen Student and New Professionals Network (ASNPN), and by AllerGen researchers Drs Moira Chan-Yeung, Anita Kozyrskyj and Chris Carlsten, among others.

Click here to download the **July 2013** and **August 2013** issues of JACI.

AllerGen *Success Stories*: Summer 2013

The sixth issue of AllerGen's *Success Stories* is now available in print and electronically on the AllerGen website at www.allergen-nce.ca.

This popular publication showcases Network-supported research and the accomplishments of leading Canadian allergy, asthma, anaphylaxis, genetics, environment and education researchers, their students and partners.

This issue features current AllerGen-supported research projects and profiles the achievements of a Network trainee. Feature stories explore:

- how diesel exhaust can change our genes;
- why some people are allergic to peanuts and others are not;
- a new way of thinking about the nose and lungs;
- the challenge of measuring indoor exposure to phthalates; and
- one of Canada's 'rising stars' in allergy research.

In sharing these stories, AllerGen aims to accelerate the dissemination, discussion and mobilization of Network research results.



[Click here to read *Success Stories* 6](#)

We hope you enjoy reading this latest issue!



The economics of asthma



Asthma and allergies have a profound impact on both individual and economic health. These illnesses cost the Canadian economy over \$15 billion per year and are a leading source of workplace absenteeism, diminished on-the-job productivity, hospital admissions and emergency visits.

With several decades' experience with treatment and policy, is there any indication that improved asthma and allergy policy can both enhance individual quality of life and improve the health of nations?

In July 2013, AllerGen hosted an international group of academics, policymakers and health advocates for the 2nd International Symposium on the Economics of Asthma and Asthma Care in Sydney, Australia, to debate this question. The Symposium was a pre-conference event affiliated with the International Health Economics Association (iHEA) 9th World Congress on Health Economics.

Keynote speakers included:

- **Larry Lynd**, PhD, AllerGen investigator; Associate Director, Collaboration of Outcomes Research and Evaluation (CORE), Faculty of Pharmaceutical Sciences, The University of British Columbia
- **Richard Loh**, MD, President, Australasian Society of Clinical Immunology and Allergy (ASCI), Subiaco, Western Australia
- **Wendy Ungar**, PhD, AllerGen investigator; Senior Scientist, Child Health Evaluative Sciences, The Hospital for Sick Children

Symposium participants discussed important lessons learned from the Australian Anaphylaxis Strategy, identified strategies, tactics and stakeholder groups essential for the development and implementation of a national asthma strategy, and discussed country- and culture-specific barriers facing coordinated asthma care and ways to overcome them.



AllerGen raises awareness about asthma and allergies at 2013 International Children's Games

AllerGen raised awareness for asthma, allergies and anaphylaxis at the 47th annual International Children's Games, which attracted over 1,500 young athletes from around the world to Windsor, Ontario, in August.

AllerGen partnered with The Sandbox Project—a national charity devoted to improving the health outcomes of Canadian children—beside the world's largest sandbox, installed on site at the Games to promote The Sandbox Project's mission of making Canada the healthiest place in the world for children and youth.



AllerGen knowledge mobilization booth at the 47th annual International Children's Games

AllerGen distributed Network materials targeted to the lay public and disseminated patient education materials on behalf of two of its partner organizations, The Asthma Society of Canada and Anaphylaxis Canada, in order to enhance awareness of information about asthma and allergies among international youth, their coaches and families.



WINDSOR ESSEX 2013



AllerGen trainees receive prestigious Banting Postdoctoral Fellowships



Two early career researchers from the AllerGen Network have been named 2013 Banting Postdoctoral Fellows. The fellowships, each valued at \$70,000 per year for two years, are Canada's most prestigious awards for post-doctoral research.

Drs Meghan Azad from the University of Alberta and **Jeremy Hirota** from The University of British Columbia are among an elite group of researchers being recognized for both research excellence and leadership in their fields of study. The announcement

was made on September 23, 2013, by The Honourable Greg Rickford, Minister of State (Science and Technology), at Université Laval.

"Drs Azad and Hirota are exceptional early career scientists that are making substantial contributions to our understanding of the genetic and environmental influences of allergy and asthma," said **Dr. Judah Denburg**, Scientific Director and CEO of AllerGen.



Meghan Azad studies the role of gut bacteria in childhood asthma and allergies. Trillions of intestinal microbes (known as the gut microbiota) are essential for stimulating

immune system development. Disruption of the infant gut microbiota is a suspected cause of immune disorders that develop later in childhood, including asthma and allergies. Dr. Azad's research uses information and biological samples from AllerGen's Canadian Healthy Infant Longitudinal Development (CHILD) Study to investigate the impact of antibiotics and environmental factors on infant gut microbiota and the subsequent development of allergic disease.

Dr. Azad holds a PhD in Biochemistry and Medical Genetics from the University of Manitoba. She joined the University of Alberta as a Killam Postdoctoral Fellow in 2011 under the supervision of AllerGen researcher **Dr. Anita Kozyrskyj**, Associate Professor, Department of Pediatrics, and Research Chair, Women's and Children's Health Research Institute.



Jeremy Hirota's research is focused on understanding the contribution of environmental exposures to asthma development and exacerbations. Dr. Hirota examines how air pollution

interacts with airway epithelial cells by collecting samples from subjects, with or without asthma, who have been exposed to diesel exhaust. His research will demonstrate how the body responds to air pollution to influence asthma, provide biological data to support public health initiatives aimed at protecting vulnerable populations from air pollution, and help to identify new targets for the development of drugs for the treatment of asthma.

Dr. Hirota completed his B.Sc. and PhD at McMaster University specializing in asthma and is now a postdoctoral fellow at The University of British Columbia, under the supervision of AllerGen researcher **Dr. Chris Carlsten**, who is an Associate Professor of Medicine and Chair in Occupational and Environmental Lung Disease.



Students pitch research at Trainee Poster Competition

Eight AllerGen trainees, including three undergraduate students, took top honours at AllerGen's annual Trainee Poster Competition, where students pitched research findings to a panel of judges, *Dragon's Den* style.

AllerGen hosted the competition in partnership with the Canadian Society of Allergy and Clinical Immunology (CSACI) at the 2013 CSACI Annual Scientific Meeting from October 3-6 in Toronto, Ontario.

In the lightning round phase of the competition, trainees were allotted one minute to highlight their research findings to a panel of 12 judges. The judges and members of the general audience, comprising clinicians, researchers and allied health professionals, were invited to ask questions following each presentation. During the poster viewing phase of the event, trainees gave 10-minute detailed presentations of their posters to a pair of judges.

The 2013 competition attracted more than 30 research posters on projects undertaken within the context of AllerGen's research platforms: Gene-Environment Interactions; Biomarkers and Bioinformatics; and Patients, Policy and Public Health.

Poster competition winners received \$500 for a first-place finish and \$300 for second place. The winners were:

Gene-Environment Interactions:

First Place: Dr. Elinor Simons, University of Toronto (Supervised by Dr. Teresa To, The Hospital for Sick Children)

Second Place: Dr. Michelle North, Queen's University (Supervised by Dr. Anne Ellis)

Honourable Mention: Sami Shariff, University of Calgary (Supervised by Dr. Richard Leigh)

Biomarkers and Bioinformatics:

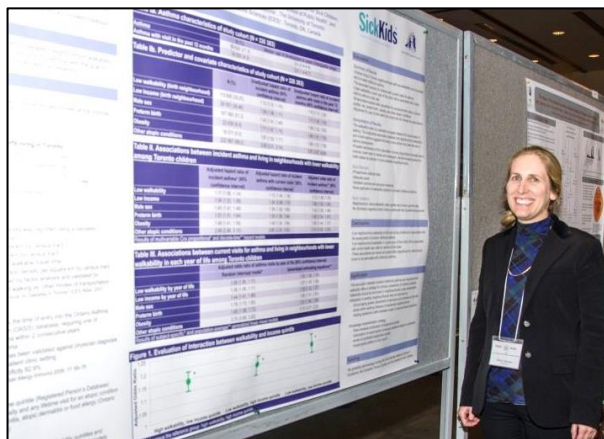
First Place: Amrit Singh, The University of British Columbia (Supervised by Dr. Scott Tebbutt)

Second Place: Claudia Hui, McMaster University (Supervised by Dr. Judah Denburg)

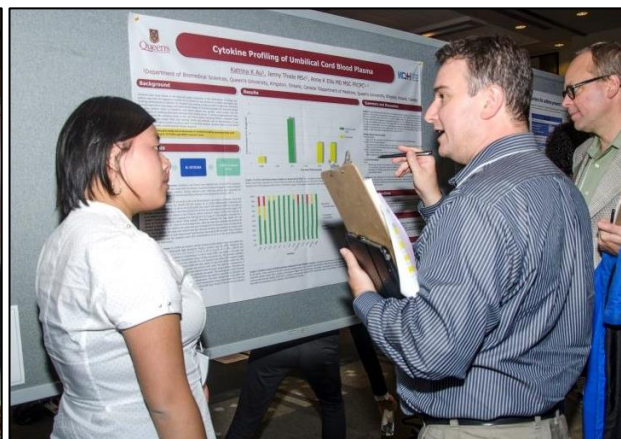
Honourable Mention: Jenny Thiele, Queen's University (Supervised by Dr. Anne Ellis)

Patients, Policy and Public Health:

First Place: Linda Warner, The University of British Columbia (Supervised by Dr. Stuart Turvey)



Dr. Elinor Simons, The Hospital for Sick Children stands beside her winning poster



Katrina Au, Queens University, speaks with **Dr. Joseph Macri**

Patients, Policy and Public Health, cont.

Second Place: Laura Feldman, University of Toronto (Supervised by Dr. Teresa To, The Hospital for Sick Children)

Honourable Mention: Timothy Chung, University of Toronto (Supervised by Dr. Brian Rowe, University of Alberta)

Undergraduate Honours:

Timothy Chung, University of Toronto (Supervised by Dr. Brian Rowe, University of Alberta)

Ayanna Boyce, University of Waterloo (Supervised by Dr. Padmaja Subbarao, The Hospital for Sick Children)

Amrit Singh, a Master's student at The University of British Columbia who won in the Biomarkers and Bioinformatics section, found the multidisciplinary focus of the competition rewarding. "The CSACI/AllerGen meeting was a unique experience for me, as I had the opportunity to present my research findings to both clinical and basic science researchers," Singh said. "I received some

very useful advice that I can take back and apply to my research."

Ayanna Boyce, a fourth-year Health Studies student at the University of Waterloo, was one of three undergraduates honoured at the competition. Her poster "Are known biomarkers for asthma present in early infancy?" evaluated the association between known asthma risk factors and exhaled nitric oxide—a biomarker for airway inflammation—among a subset of infants participating in AllerGen's Canadian Healthy Infant Longitudinal Development (CHILD) Study. Boyce participated in the project during an eight-month co-operative placement at The Hospital for Sick Children under the supervision of **Dr. Padmaja Subbarao**.

"Presenting my project alongside graduate students and post-doctoral fellows allowed me to see options for next steps in my education and to appreciate the scope and calibre of research being conducted by young Canadian scientists in the fields of allergies and asthma," Boyce said. "The one-minute 'lightning round' oral presentations were challenging, but it was valuable to learn how to communicate key scientific messages in just 60 seconds!"

Young Canadians Roundtable on Health includes AllerGen trainees

AllerGen trainees **Timothy Chung** from the University of Toronto and **Ryan Persaud** from the University of Manitoba are among a select group of 17- to 26-year-olds from across Canada chosen for The Sandbox Project's inaugural Young Canadians Roundtable on Health (YCRH).

The YCRH brings together motivated young Canadians from coast-to-coast-to-coast in order to positively transform the health prospects of children and youth. The group will provide leadership in research, public debate and education on topics related to the present and future health of Canadian youth, including: injury prevention; mental health; growing, healthy bodies; and the environment.

Chung and Persaud both held AllerGen Summer Studentships in 2013. Timothy Chung worked with **Dr. Brian Rowe**, Professor, Department of Emergency Medicine at the University of Alberta on the management of acute asthma in an urban Emergency Medical Service.



Timothy Chung
University of Toronto

Young Canadians
Roundtable on Health



Ryan Persaud
University of Manitoba

Under the supervision of **Dr. Anita Kozyrskyj**, Associate Professor, Department of Pediatrics and Research Chair, Women's and Children's Health Research Institute at the University of Alberta, Ryan Persaud researched the impact of perinatal infant antibiotic exposures on allergic outcomes in the Winnipeg cohort of AllerGen's Canadian Healthy Infant Longitudinal Development (CHILD) Study.

Read more about the Young Canadians Roundtable on Health at:

<https://www.facebook.com/YoungCanadiansRoundtableOnHealth?ref=stream>



Dr. Redwan Moqbel

A fond remembrance of an asthma and allergy pioneer

Dr. Redwan Moqbel, an internationally renowned authority on the pathophysiology of asthma, passed away on October 9, 2013, in Winnipeg, Manitoba, after a protracted battle with cancer. Dr. Moqbel was best known for his work to elucidate the immunobiology of human eosinophils and their potential role in airway disease. He received his PhD from the University of London in 1976 and was among the first to identify the immunological cell types that regulate asthma and allergy.

In 1995, Dr. Moqbel joined the Department of Medicine at the University of Alberta as a Full Professor. There, he served as the Director of the Pulmonary Research Group and received numerous prestigious awards, such as Alberta Heritage Medical Senior Scholar, Heritage Scientist and Heritage Senior Investigator. In 2008, Dr. Moqbel became Professor and Head of the Department of Immunology at the University of Manitoba and Professor Emeritus at the University of Alberta.

Dr. Moqbel provided vision and leadership to the AllerGen Network since its inception. In 2005-2006, during the Network's first full year of operation, Dr. Moqbel sat on the

Board of Directors and served as a joint Theme Leader for the Diagnostics and Therapeutics research area. He also served on the Research Management Committee and acted as a Principal Investigator and Co-Investigator on numerous AllerGen research projects. Dr. Moqbel has been a Co-Investigator on the Canadian Healthy Infant Longitudinal Development (CHILD) Study since 2007.

Known as an outstanding teacher and mentor, Dr. Moqbel touched the lives of many young biomedical scientists, students and AllerGen trainees. Throughout his life and career, he promoted the ideals of 'oneness' and unity in diversity, and in January 2013, Dr. Moqbel was honoured with the Lieutenant Governor of Manitoba's Award for the Advancement of Inter-religious Understanding.

Dr. Moqbel leaves behind his wife, Shar Mitchell, as well as children, grandchildren, family, friends, and a scientific community in Canada and abroad who are saddened by his passing. A video tribute can be viewed at <http://youtu.be/eEeFVMB3yd8>.



Dr. Douglas Barber

AllerGen Board of Directors member Dr. H. Douglas Barber honoured by City of Hamilton

Dr. Douglas Barber, a leading Canadian businessman and entrepreneur, and a founding member of AllerGen's Board of Directors, has been named to Hamilton's Gallery of Distinction.

Dr. Barber co-founded Linear Technology Inc. in 1973 and developed the Burlington-based company into Gennum Corporation, a world leader in hearing aid microtechnology. Dr. Barber served as President and CEO of Gennum Corp. until his retirement in 2000.

Dr. Barber has contributed significantly to the economic success and prosperity of the City of Hamilton and the Province of Ontario, and to the social and economic advancement of Canadians as a whole.

He is an Honorary member of the Board of Governors and Professor-in-Residence at McMaster University, a founding member of the Hamilton Civic Coalition and was named an Officer of the Order of Canada in 2007.

Dr. Barber was also a recipient of the Queen Elizabeth II Diamond Jubilee Medal in 2012.

The Hamilton Gallery of Distinction was founded in 1984 for the purpose of recognizing outstanding citizens who have left an indelible mark upon the city of Hamilton through their leadership, dedication and talent. Dr. Barber and six other distinguished community leaders will be inducted into the Gallery of Distinction in a ceremony to be held on November 12, 2013.