Major Milestone Reached in the Canadian Healthy Infant Longitudinal Development (CHILD) Study

On December 3, 2008 Dr. Malcolm Sears, Director of the CHILD Study, reported that each of the four recruitment centres - Vancouver, Edmonton, Winnipeg and Toronto - has met its pilot phase recruitment target of 50 mothers.

The CHILD Study is a longitudinal birth cohort study involving a team of 37 investigators from multiple disciplines spanning the Network's three programmes of research. The CHILD Study team is undertaking a groundbreaking investigation of the genetic and environmental factors that influence the development of asthma and allergies in children from conception to age five.

Next steps include completion of interviews with parents and entering data into the project's "HealthDiary" so that researchers can undertake an evaluation of the pilot study from many perspectives. This evaluation will assess not only the ease with which recruitment occurred and identify potential problems in recruitment biases, but will also assess the ease with which the questionnaires were completed, identification of issues that were unclear, assessment of the length of time required to undertake interviews with the study participants and other related factors with the aim of streamlining the recruitment process.

The team will then refine their methods and instruments, make changes to questionnaires and procedures, obtain updated ethics approval for these modifications and continue towards realizing the full recruitment target of 5,000 mothers using refined questionnaires and procedures. Full recruitment will begin in February 2009.

(Links to Asthma: Continued from page 3)

MacQueen stated that this study could have implications for future clinical trials, particularly those containing placebos.

"If we can identify," said MacQueen, "the highly suggestible patients who can alter results of a study, we can create standard behavioural interventions to break that association and block their responses to cues. We hope to have this study completed within a year. There are two phases to this study and the first is the screening of numerous asthma patients, that we have access to thanks to Dr. Paul O'Byrne."

Dr. Paul O'Byrne is one of the leaders of AllerGen's Programme B, Diagnostics and Therapeutics and also the leader of AllerGen's Clinical Investigator Collaborative, a nationally networked clinical trials group launched in 2005.

Once MacQueen's patients have been screened and determined highly suggestible or suggestion-resistant, they are then scanned in the fMRI.

"We hope," said MacQueen, "to find out if the brain of a highly suggestible person activates differently to these cues than the brain of a suggestion-resistant person."

MacQueen is interested in patients who don't have well controlled asthma despite efforts from a physician.

"The results," she said, "may be able to help that group of asthma patients who receive appropriate physician care but still have severe asthma, possibly due to triggers such as stress or environment factors.

"This is the kind of work that crosses the mental health and respiratory research fields, and is the kind of project that everyone says they want, however it has been challenging to identify funders for this important research thrust.

"AllerGen has been critical in providing support for this multi-disciplinary study, which will have numerous implications and benefits for asthma research."

AllerGen's Fourth Annual Research Conference, February 15-17, Ottawa

AllerGen NCE Inc. will hold its Fourth Annual Research Conference *Innovation from Cell to Society*[4] at the majestic Fairmont Chateau Laurier in the nation's capital Ottawa from February 15 to 17, 2009.

The conference will feature:

- Engaging scientific presentations/panel discussions
- Keynote addresses by internationally renowned experts
- Networking opportunities
- Trainee research posters and awards, and a
- Gala Dinner.

This year's conference will bring together allergic and related immune disease researchers, trainees and international experts from a wide range of disciplines, as well as industry, government, academic and not-for-profit organizations.

Photo courtesy of Ottawa Tourism

The AllerGen trainee poster competition will be held on the morning of Sunday February 15, 2009 and the best submissions will be recognized at the Gala Dinner on Monday February 16, 2009. AllerGen will also honour retiring Board members at this time.

Following the opening ceremony and reception on the afternoon of Sunday February 15, 2009 there will be an opportunity to enjoy the Winterlude festivities on the Ottawa canal, so don't forget to bring your skates!

Sponsorship opportunities and meeting space are still available. For more information please contact Jessie Ielati at 905-525-9140 ext. 26641 or ielati@mcmaster.ca. To register for the conference please visit AllerGen's website www.allergen-nce.ca.

AllerGen *re*Action

Volume 5, Issue 1
Winter 2009

www.allergen-nce.ca

In this issue:

- AllerGen's funding renewal
- Annual Report 2007-2008
- Fourth Annual Conference February 2009
- Challenges of asthma diagnosis
- International collaborations
- Research on asthma triggers
- CHILD Study update

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Canada

AllerGen is supported by the Government of Canada through the Networks of Centres of Excellence Programme

AllerGen's funding renewed to 2012

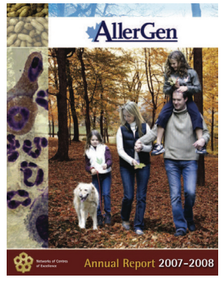
AllerGen NCE Inc. has been successful in securing the balance of its initial seven years of Networks of Centres of Excellence (NCE) funding for the period 2009-2012!

As a result of the positive outcome of AllerGen's mid-term review, AllerGen will continue to build upon its research investments and efforts to improve the prevention, control and treatment of allergic and related immune diseases.

AllerGen has successfully established a range of national and international partnerships with research, industry, health care and not-for-profit organizations. These partnerships have enabled translation of AllerGen's research into economic and social benefits for Canadians.

Thanks goes out to everyone who contributed to the mid-term review, which took place on October 23, 2998 in Hamilton, as well as to Industry Canada and the Networks of Centres of Excellence Program.

Continued Government of Canada funding is recognition of AllerGen's collective efforts and exemplary accomplishments in the field of asthma and allergic disease research and knowledge and technology exchange and exploitation.



Annual Report 2007 - 2008 Now Available

AllerGen is pleased to announce that its 2007-2008 Annual Report is now available online at www.allergen-nce.ca.

AllerGen's fourth annual report highlights Network outcomes and accomplishments over its past year of operation as Canada's Network of Centres of Excellence focusing on allergy, genes and the environment research.

AllerGen NCE Inc. is dedicated to creating 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 in Canada and around the world.

International Partnership Promotes Progress

AllerGen has successfully attracted international researcher Dr. Petra Arck, Canada Research Chair in Neuroimmunology and Associate Professor at the Department of Medicine at McMaster University, who is strengthening AllerGen's Mind-Body research team and facilitating new international collaborations between AllerGen and the Alexander von Humboldt Foundation in Germany, from which Prof Arck recently received a grant as part of the Trans Co-op programme.

The Alexander von Humboldt Foundation provides financial support to German scientists who are studying abroad. In this case Dr. Arck, along with Drs. Judah Denburg and Malcolm Sears, received support to facilitate collaboration between German and Canadian researchers who are engaged in projects dealing with prenatal environmental factors in the context of children's health and atopic disease.

Dr. Arck came to Canada to join the AllerGen research network and continue her studies into perinatal stress and programming of allergic responses, which falls under AllerGen's Mind-Body Interaction and Allergic Disease research thrust.

Dr. Petra Arck

"One reason why I joined McMaster University," said Arck, "was that my research profile aligned well with AllerGen's priorities. The research I was doing in Germany is directly related to AllerGen's overall goals. As a result of the Alexander von Humboldt Foundation funding, exchange of scientific excellence between Canadian and German researchers will be facilitated and new ideas can emerge."

"This partnership," continued Arck, "will provide mutual benefit to both countries; we will be able to bring different research teams together. In turn, scientific approaches can be discussed and harmonized, i.e., by using the same techniques and questionnaires. Databases are being generated that allow a direct comparison of results between the two countries."

Arck hopes that her current study will identify the link between psychosocial stress challenge during pregnancy and childrens' increased susceptibility towards allergic disease later in life.

"Our aim," said Arck, "is to identify women at risk to give birth to a child prone to develop allergic diseases, as this early identification may allow primary prevention of allergies during pregnancy. To date, we have identified hormonal changes in pregnant mothers in response to stress during pregnancy, such as a decrease of progesterone, which is known to challenge placental development. We expect that if we supplement pregnant mothers with progesterone, this will lead to an improved placental function and fetal development, ultimately preventing the child from prenatal challenges and allergic diseases in later life. Initially, we will address this aim in our mouse models."

AllerGen Updates Strategic Plan 2009-2012

As part of its recent application for continued NCE support, AllerGen recently updated its strategic plan 2009-2012. The 2009 plan is based on AllerGen's original 2004 proposal to the NCE program and will guide AllerGen's investments in research and development through to the end of its first of two seven year funding cycles.

AllerGen research is organized 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.

Within these three programme areas are strategic research thrusts and new initiatives in emerging areas of priority. These thrusts, which include both mature and emerging nationally networked teams, are:

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

In early 2009, AllerGen will be issuing a call for proposals to strengthen and extend the outcomes and impacts of its research programme through networked, programmatically linked research projects, aligned with its strategic priorities.

Asthma Reality: Over and Under Diagnosed

Asthma is one of the most common respiratory diseases in Canada, yet many cases remain undiagnosed.

The prevalence of asthma among Canadians is considered to be as high as 10 per cent of the population.

AllerGen Principal Investigator Dr. Louis-Philippe Boulet from Laval University was involved in a study recently profiled in the Canadian Medical Association Journal (CMAJ, 18 November 2008, Volume 179, Issue 11) that compared misdiagnosis of asthma in obese versus non-obese patients with primary care physicians' diagnoses of asthma.

"This study," said Boulet, "showed that about one-third of both groups did not have asthma after about eight months of follow-up and weaning off medication based on negative methacholine test results."

The study was developed due to the incidence and prevalence of obesity increasing concurrently with the incidence and prevalence of asthma, which indicated a possible link between obesity and asthma. The underlying hypothesis was that some respiratory symptoms associated with obesity could be misinterpreted as asthma.

"Although this study indicates that asthma is often over-diagnosed," continued Boulet, "the possibility remains that it is also undiagnosed in a significant number of individuals. This issue, therefore, needs to be further explored. We think there are possibly just as many undiagnosed as there are misdiagnosed patients."

Boulet also observed that, "This study points out that one of the major care gaps in asthma and pulmonary obstructive diseases globally is the insufficient use of objective measures of airway function to confirm asthma diagnosis - either spirometry, or other methods of assessment of pulmonary function, including bronchoprovocation tests are needed to ensure accurate diagnoses."

Allergen Principal Investigator Dr. Allan Becker, University of Manitoba, Department of Pediatrics said that while asthma is over diagnosed in adults, it remains underdiagnosed in children.

"We need to consider," said Becker, "whether it is a wheezing syndrome of asthma or if treatment is appropriate. In adults, a normal spirometry test does not rule out asthma, whereas the issue in children is a lack of biologic gold standard tests. However, the presence of atopy or a parent/sibling with asthma greatly increases the likelihood that an asthma diagnosis is correct."

AllerGen is currently conducting numerous studies looking at the diagnosis and treatment of asthma, with the ultimate goal of reducing the social and economic burden posed by the increasing prevalence of asthma, allergy and related disease in Canadian society.

AllerGen Researcher Aims to Identify Emotional Links to Asthma

AllerGen Principal Investigator Dr. Glenda MacQueen is exploring behavioural and emotional factors to determine whether or not they influence the onset and severity of asthma.

Dr. MacQueen, Head of the Department of Psychiatry, Alberta Health Services and the University of Calgary, said the main aim of the study 'Neuroimaging and environmental suggestibility in asthma' is to identify a portion of people with asthma who are susceptible to psychological triggers and asthma-related cues.

This study was undertaken with support from AllerGen Programme B: Diagnostics and Therapeutics as part of the Network's investment in Mind-Body Interactions and Allergic Disease research.

"We will be comparing people," said MacQueen, "with moderate asthma who rated as highly suggestible based on a Creative Imagination Scale, with those who rated as suggestion-resistant."

Dr. Glenda MacQueen

These patients will have their brain activity examined using functional magnetic resonance imaging (fMRI) while asthma related, emotionally negative and emotionally neutral words are presented to them.

MacQueen added, "It is reasonable to predict that suggestible patients exposed to asthma-associated words might have a different pattern of brain activity than those who are suggestion resistant. In a previous study, five out of eight suggestible subjects compared with one in nine suggestion resistant subjects had a fall in respiratory volume in response to inhaled saline and a suggestion that they would experience tightening in their airways."

The trigger may be in the head but MacQueen said the physiological effects are real.

Very few studies have examined activity in the central nervous system using neuroimaging techniques in people who have asthma.

"It is possible," she said, "that a portion of patients with asthma are particularly sensitive to asthma-related cures and that this property of the central nervous system contributes to a decrease in asthma control in that group."

(Continued on page 4: Links to Asthma)