

For immediate release

Early-life shifts in gut microbes can increase susceptibility to inflammatory lung disease

HAMILTON, ON (18 August 2014)

Allergy researchers at The University of British Columbia (UBC) have found that antibiotic use in early life alters gut bacteria and enhances future susceptibility to inflammatory lung disease.

The study, led by Dr. Kelly McNagny, a professor in the Department of Medical Genetics at UBC, and Dr. Brett Finlay, a professor in the Departments of Biochemistry and Molecular Biology, and Microbiology and Immunology, was published today in the [*Journal of Allergy and Clinical Immunology*](#) (JACI). It concluded that mice treated with the antibiotic streptomycin (but not vancomycin) early in life experienced a change in the composition of their intestinal microbiota leading to an increased susceptibility to hypersensitivity pneumonitis (HP)—a disease in which the lungs become inflamed from breathing in substances such as moulds, dusts, and chemicals.

In a [previous study](#), the authors found that infant mice treated with low doses of vancomycin (but not streptomycin) developed an increased susceptibility to allergic asthma-like disease as adults.

“This work shows that altering the natural colonization of our gut with microbes early in life can have a long-term influence on the immune system and increase our chances of developing future allergic disease,” says Dr. McNagny. “More importantly, we are beginning to get hints as to which types of bacteria are helpful and which are harmful in dampening susceptibility to allergic disease.”

Dr. McNagny is an AllerGen NCE-funded investigator and co-first authors Shannon Russell and Matthew Gold are graduate students in the AllerGen Network. The research was supported by a Canadian Institutes of Health Research (CIHR) team grant.

The study’s findings will help researchers to better understand the potential impact of antibiotic use on the gut microbiota and on future susceptibility to lung inflammation. The findings may also lead to the identification of probiotics that could lower the risk of developing allergic disease.

About AllerGen NCE

[AllerGen NCE Inc.](#), the Allergy, Genes and Environment Network (est. 2004), is a national research network dedicated to improving the quality of life of people suffering from allergic and related immune diseases. Funded by Industry Canada through the federal Networks of Centres of Excellence (NCE) Program, the Network is hosted at McMaster University in Hamilton. Visit www.allergen-nce.ca for more information.

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