

## Breastmilk sugars may help prevent food allergies

WINNIPEG, MB (July 3, 2018)

The unique composition of a mother's breastmilk may help to reduce food sensitization in her infant, according to new findings from the [CHILD Study](#).

[The research](#), published in the June issue of *Allergy*, found that a specific profile of complex sugars in human milk is associated with a lower rate of food sensitization in babies at one year of age. The findings offer further insight into the benefits of breastmilk for strengthening a baby's immune system and reducing the risk of allergies later on.

In addition to lactose, which serves as an energy source, human milk contains more complex sugar molecules known as human milk oligosaccharides (HMOs).

"Our research has identified a 'beneficial' HMO profile that was associated with a lower rate of food sensitization in children at one year of age," says lead researcher [Dr. Meghan Azad](#), Canada Research Chair in Developmental Origins of Chronic Disease at the University of Manitoba, and research scientist at the Children's Hospital Research Institute of Manitoba (CHRIM).

"To our knowledge, this is the largest study to examine the association of HMOs and allergy development in infants, and the first to evaluate overall HMO profiles."

The amount and composition of HMOs are highly variable between women, changing across different settings and populations. For the study, the researchers analyzed data from 421 infants and their mothers who are participating in AllerGen's CHILD Study—a national birth cohort study collecting a wide range of health, lifestyle and environmental exposure information from nearly 3,500 mothers and children from pregnancy to school age.

At one year of age, the children underwent skin prick tests to check for allergic sensitization to common allergens, including certain foods. A positive skin prick test indicated "sensitization," which can be an early sign of a future food allergy. Breast milk samples were analyzed in the [Bode laboratory](#) at the Larsson-Rosenquist Foundation Mother-Milk-Infant Center of Research Excellence (LRF MoMI CoRE) at the University of California San Diego School of Medicine using high-performance liquid chromatography.

The researchers found that 14% of infants were sensitized to one or more food allergens at one year of age. Although no individual HMO was associated with food sensitization, the overall HMO composition appeared to play a protective role. "This suggests that particular combinations of multiple HMOs are important for infant development," said Dr. Kozeta Miliku, an AllerGen trainee and first author of the study.

There are several possible mechanisms by which HMOs may influence food sensitization, according to co-author Dr. Lars Bode, associate professor of pediatrics and Director of the LRF MoMI CoRE. "HMOs are bioactive molecules that feed good bacteria in the gut, helping to

shape the infant gut microbiome,” he says. “Additionally, HMOs can boost the immune system and prevent harmful bacteria and toxins from adhering to the infant gut.”

“These findings are helping us to better understand the important functional properties of breastmilk,” adds Dr. Azad. “Our hope is that this study will guide future research to identify the maternal and environmental factors that promote a ‘beneficial’ HMO profile and to determine how these bioactive components in human milk contribute to the developmental programming and prevention of allergic disease.”

**About the CHILD Study:** Launched in 2008 by AllerGen NCE and CIHR, the [CHILD Study](#) is tracking thousands of Canadian families and their infants over early childhood to help determine the root causes of chronic diseases, such as asthma, allergies and obesity, among other conditions. With its National Coordinating Centre based at St. Joseph’s Healthcare Hamilton, the CHILD Study relies upon the world-recognized expertise in birth cohorts, and in allergy and asthma treatment, care and training, of McMaster University and its Faculty of Health Sciences, together with their affiliated teaching hospitals, Hamilton Health Sciences and St. Joseph’s Healthcare. The CHILD Study spans four provinces, involving over 140 multidisciplinary researchers, students and research staff. [Watch the CHILD Study videos.](#)

**About the Children’s Hospital Research Institute of Manitoba:** The Children’s Hospital Research Institute of Manitoba was established in 2001. [CHRIM](#) is the research division of the Children’s Hospital Foundation of Manitoba. At the Institute, more than 270 world-class pediatric medical researchers, technical staff, students and support staff are involved in over \$10 million of research and clinical trial activity each year.

**About University of California San Diego School of Medicine and the Larsson-Rosenquist Foundation Mother-Milk-Infant Center of Research Excellence:** The Larsson-Rosenquist Foundation Mother-Milk-Infant Center of Research Excellence ([LRF MoMI CoRE](#)) was established in 2016 at [UC San Diego School of Medicine](#) to create an engine of discovery focused on understanding human milk by fostering collaborative investigation across research, education, and clinical practice to improve optimal health and development for infants, mothers, and society as a whole.

- 30 -

*Media Contacts:*

Ilana Simon  
Rady Faculty of Health Sciences  
University of Manitoba  
Tel: (204) 789-3427  
[ilana.simon@umanitoba](mailto:ilana.simon@umanitoba)

Rebecca Rallo  
Children’s Hospital Research Institute of  
Manitoba  
Tel: (204) 272-3135  
[rrallo@chrim.ca](mailto:rrallo@chrim.ca)

Kim Wright  
AllerGen NCE Inc.  
Tel: (905) 525-9140 ext. 26641  
[kimwright@allergen-nce.ca](mailto:kimwright@allergen-nce.ca)

Scott LaFee  
UC San Diego Health  
Tel: (858) 249-0456  
[slafee@ucsd.edu](mailto:slafee@ucsd.edu)