



Episode 112 – Interview with Mehakpreet Thind: Neutrophils and Immunometabolism July 12, 2024

Mehakpreet Thind, MSc, PhD Candidate

Mehak Thind is a third year PhD candidate in the Department of Nutritional Sciences at the University of Toronto. In 2019, she received her undergraduate degree from McMaster University. Soon after, she completed her Master of Science degree from University of Toronto in the Department of Nutritional Sciences. Her current work in Dr. Robert Bandsma's lab at the Hospital for Sick Children aims to identify dysregulations in neutrophil biology in a mouse model of severe malnutrition. Additionally, she aims to aid in the development of therapeutic interventions to improve disease outcomes in children with malnutrition in low-and-middle income countries.

Research

A metabolic perspective of the neutrophil life cycle: New avenues in immunometabolism

Background

Neutrophils are the most abundant innate immune cells. Multiple mechanisms allow them to engage a wide range of activities, such as antimicrobial activity, inflammation, and tissue repair. [Thind et al. \(2024\)](#) conducted a comprehensive review on neutrophil development and functions, including how macronutrient and micronutrient excess and deficiency affects their function and host health. [1]

Research team

Researcher	Affiliation
Mehakpreet Thind	Department of Nutritional Sciences, Faculty of Medicine, University of Toronto, Toronto, ON, Canada Translational Medicine Program, Hospital for Sick Children, Toronto, ON, Canada The Childhood Acute Illness & Nutrition Network (CHAIN), Nairobi, Kenya
Holm Uhlig	Translational Gastroenterology Unit, Experimental Medicine, University of Oxford, John Radcliffe Hospital, Oxford, United Kingdom Department of Paediatrics, University of Oxford, Oxford, United Kingdom Biomedical Research Centre, University of Oxford, Oxford, United Kingdom
Michael Glogauer	Faculty of Dentistry, University of Toronto, Toronto, ON, Canada Department of Dental Oncology and Maxillofacial Prosthetics, Princess Margaret Cancer Centre, University Health Network, Toronto, ON, Canada
Nades Palaniyar	Translational Medicine Program, Hospital for Sick Children, Toronto, ON, Canada Laboratory Medicine and Pathobiology, Faculty of Medicine, University of Toronto, Toronto, ON, Canada

Researcher	Affiliation
	Institute of Medical Sciences, Faculty of Medicine, University of Toronto, Toronto, ON, Canada
Celine Bourdon	Translational Medicine Program, Hospital for Sick Children, Toronto, ON, Canada The Childhood Acute Illness & Nutrition Network (CHAIN), Nairobi, Kenya
Agnes Gwela	The Childhood Acute Illness & Nutrition Network (CHAIN), Nairobi, Kenya Kenya Medical Research Institute (KEMRI)/Wellcome Trust Research Programme, Centre for Geographic Medicine Research, Kilifi, Kenya
Christina Lancioni	The Childhood Acute Illness & Nutrition Network (CHAIN), Nairobi, Kenya Department of Pediatrics, Oregon Health and Science University, Portland, OR, United States
James Berkley	The Childhood Acute Illness & Nutrition Network (CHAIN), Nairobi, Kenya Kenya Medical Research Institute (KEMRI)/Wellcome Trust Research Programme, Centre for Geographic Medicine Research, Kilifi, Kenya Centre for Tropical Medicine and Global Health, University of Oxford, Oxford, United Kingdom
Robert Bandsma	Department of Nutritional Sciences, Faculty of Medicine, University of Toronto, Toronto, ON, Canada Translational Medicine Program, Hospital for Sick Children, Toronto, ON, Canada The Childhood Acute Illness & Nutrition Network (CHAIN), Nairobi, Kenya Laboratory of Pediatrics, Center for Liver, Digestive, and Metabolic Diseases, University of Groningen, University Medical Center Groningen, Groningen, Netherlands Division of Gastroenterology, Hepatology, and Nutrition, Hospital for Sick Children, Toronto, ON, Canada
Amber Farooqui	Translational Medicine Program, Hospital for Sick Children, Toronto, ON, Canada The Childhood Acute Illness & Nutrition Network (CHAIN), Nairobi, Kenya Omega Laboratories Inc, Mississauga, ON, Canada

References

- [1] M. Thind, H. Uhlig, M. Glogauer, et al., "A metabolic perspective of the neutrophil life cycle: New avenues in immunometabolism," *Frontiers in Immunology*, vol. 14, pp. 1-22, 2023.

Additional Resources

A metabolic perspective of the neutrophil life cycle: New avenues in immunometabolism, Thind, M; Uhlig, H; Glogauer, M; et al. *Frontiers in Immunology*, Volume 14, January 7, 2024, p 1-22

<https://www.frontiersin.org/journals/immunology/articles/10.3389/fimmu.2023.1334205/full>

Micronutrient status in children aged 6–59 months with severe wasting and/or nutritional edema: Implications for nutritional rehabilitation formulations, Vresk, L; Flanagan, M; Daniel, A; Potani, I; Bourdon, C; Spiegel-Feld, C; Thind, M; et al. *Nutrition Reviews*, nuad165, February 13, 2024, p 1-34

<https://academic.oup.com/nutritionreviews/advance-article/doi/10.1093/nutrit/nuad165/7607218>

Rebalancing of mitochondrial homeostasis through an NAD⁺-SIRT1 pathway preserves intestinal barrier function in severe malnutrition, Ling, C; Versloot, C; Kvissberg, M; Hu, G; Swain, N; Horcas-Nieto, J; Miraglia, E; Thind, M; et al. *eBioMedicine*, Volume 96, October 2023, p 1-21

[https://www.thelancet.com/journals/ebiom/article/PIIS2352-3964\(23\)00375-4/fulltext](https://www.thelancet.com/journals/ebiom/article/PIIS2352-3964(23)00375-4/fulltext)

The role of the tryptophan-NAD⁺ pathway in a mouse model of severe malnutrition induced liver dysfunction, Hu, G; Ling, C; Chi, L; Thind, M; et al. *Nature Communications*, Volume 13, Article 7576, December 8, 2022, p 1-16

<https://www.nature.com/articles/s41467-022-35317-y>