

06 Nov  
2025

Thursday

LECTURE

MEET \*

10:30 - 11:30 + 30 min. Q&amp;A

12:30 - 14:00



# Optimizing Dietary Fiber Nutritional Strategies Considering the Gut Microbiome



## BIOGRAPHY

Adequate dietary fiber intake from plant foods is critical for the prevention of non-communicable chronic diseases (NCDs), yet intake across industrialized populations remains below established recommendations. This shortfall has increased reliance on fiber-containing processed foods and supplements, although their effectiveness relative to whole-plant sources is less consistently demonstrated. In this presentation, I evaluate nutritional strategies to optimize fiber intake, spanning whole-plant foods, fiber-enriched foods, and isolated fiber supplements. Drawing on evidence from our own human intervention trials, I examine how distinct fiber types influence the composition and function of the gut microbiome, as well as immunometabolic risk factors relevant to NCDs. Particular attention is given to the structural and physicochemical properties of fiber, which condition microbial utilization and physiological responses in the host. I further consider plausible mechanisms through which fiber-microbiome interactions may relate to changes in NCD risk markers. Building on this evidence from human intervention studies, I critically discuss the strengths and limitations of these strategies and propose a framework for the more effective and systematic integration of fiber into nutrition and food science.

## SPEAKER

### Jens Walter

Professor of Ecology, Food, and the Microbiome  
School of Microbiology, Department of Medicine  
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University College Cork - National University of Ireland

## HOST:

Lecture series organized within the framework of the MICRO-PATH Doctoral Training Unit, coordinated by the Luxembourg Institute of Health, the University of Luxembourg, and the Luxembourg Institute of Science and Technology

## RESPONSIBLE SCIENTIST:

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\* Please note that registration is mandatory for meeting after presentation by sending an email to [michelle.roderes@lih.lu](mailto:michelle.roderes@lih.lu)

## Location:

House of BioHealth  
Big conference room at the ground floor  
29, rue Henri Koch,  
L-4354 Esch-sur-Alzette