



The effect of gluten on the host-microbial metabolism assessed by urinary metabolomics

Roager, Henrik Munch; Frandsen, Henrik Lauritz; Gøbel, Rikke Juul; Pedersen, Oluf; Granato Villas-Boas, Silas; Licht, Tine Rask

Publication date:
2015

Document Version
Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

Citation (APA):
Roager, H. M., Frandsen, H. L., Gøbel, R. J., Pedersen, O., Granato Villas-Boas, S., & Licht, T. R. (2015). *The effect of gluten on the host-microbial metabolism assessed by urinary metabolomics*. Abstract from EMBL Conference 2015, Heidelberg, Germany.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Abstract for EMBL Conference – The Human Microbiome

June 10-12, 2015

EMBL Heidelberg, Germany

The effect of gluten on the host-microbial metabolism assessed by urinary metabolomics

Henrik M. Roager^{1*}, Henrik L. Frandsen¹, Rikke J. Gøbel², Oluf Pedersen², Silas G. Villas-Boas³, Tine R. Licht¹

¹National Food Institute, Technical University of Denmark. ²The Novo Nordisk Foundation Center for Basic Metabolic Research, University of Copenhagen. ³School of Biological Sciences, University of Auckland.

*hemro@food.dtu.dk

A gluten-free diet clearly improves the life of patients with celiac disease, but the scientific evidence supporting possible health benefits of a gluten-free diet for non-celiac adults is limited. Therefore, as urine reflects the host and gut microbial metabolism, the study aimed to assess the long-term metabolic effect of gluten on the urine metabolome of non-celiac individuals by a cross-over intervention study (gluten-poor and gluten rich, respectively) using a non-targeted metabolomics approach. Fifty-one non-celiac adult participants (30 female, 21 male) were randomized to either a gluten-rich (21.6±5.7g/day) or a gluten-poor (~1g/day) diet for 8 weeks, crossing over to the other diet after 6 weeks washout. Urine samples were standardised collected at the beginning and end of each diet intervention period and were analysed by gas chromatography mass spectrometry (GC-MS) and liquid chromatography mass spectrometry (LC-MS). Several urinary microbial metabolites were found to be significantly affected by the gluten intake, suggesting that dietary gluten affects the composition and activity of the gut microbiota, which ultimately affects the circulating metabolites. Identification of the affected metabolites as well as integration of the metabolomics data with gut microbiota metagenomics data is ongoing hereby understanding how the metabolite changes are related to the gut microbiota.