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THE PLACE FOR SCIENTIFIC DEBATE

The Gut Microbiota For Health Newsletter #52

March 5, 2015

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Edito

Dear Friends,

The final countdown to the Fourth Gut Summit is on!

In just over a week, all the action will begin. The plenary sessions of the event will be broadcasted live from Barcelona. We bring you the updated program of the event and the timeline of the live sessions on gutmicrobiotaforhealth.com.

Already in 2015, some important gut microbiota research has been published. This newsletter brings you an interview with Dr. Mimi Tang of Australia on a promising treatment for peanut allergy. We also feature two updates from the GMFH board of experts:

Elena Verdú (our nutrition expert) describes her current understanding of how the gut microbiota are related to celiac disease

Patrice Cani (our expert on metabolic conditions) explains an advance in understanding host-microbe crosstalk; his lab group found that MyD88, deleted specifically from the intestinal epithelial cells, partially protected mice from diet-induced obesity

The GMFH publishing team

#GMFH2015: Get ready for the Live Stream!

GUT MICROBIOTA FOR HEALTH

World Summit 2015

**Barcelona
SPAIN**

**March
14 - 15
2015**



If you can't make it to this year's summit, the Gut Microbiota for Health team is happy to provide you with a live video stream of the event plenary sessions on gutmicrobiotaforhealth.com.

Along with the live coverage on Twitter – #GMFH2015 is the hashtag to follow! – this will make the fourth edition of the Gut Summit another interactive experience for the Gut Microbiota for Health community.

Please note that online registration is now closed but on site registration is open during the event.

[Click here to know more on the live video stream!](#)

Dr. Mimi Tang, on Treating Peanut Allergy with Oral Immunotherapy and a Bacterial Adjuvant

Tang and colleagues recently published a study on co-administration of a probiotic with peanut oral immunotherapy (in which gradually-increasing amounts of peanut are introduced to the allergic patient). In this double-blind, placebo-controlled randomized trial, children between the ages of 1 and 10 with peanut allergy were treated with a combination of peanut oral immunotherapy and *Lactobacillus rhamnosus* CGMCC 1.3724.



[Read more](#)

Written by K. Campbell



Gut Microbiota, Immune System Development, and Celiac Disease

Genes contribute to the risk of celiac disease (CD), but the role of environmental factors, including perturbations in gut microbiota, is so far unclear. We recently published a review article focusing on the role of the gut microbiota in oral tolerance to food antigens. The article discusses the potential mechanisms by which the microbiota might contribute to CD.



[Read more](#)

Written by E. Verdú



Deletion of MyD88 in Intestinal Epithelial Cells Partially Protects Against Diet-Induced Obesity

In this paper, the first aim we had with Dr. Amandine Everard, was to investigate whether some key molecules involved in the innate immune system, mainly MyD88 [myeloid differentiation primary response gene 88], may contribute to the development of obesity, diabetes and low grade inflammation.

[Read more](#)

Written by P. Cani



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ARTICLE

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Intestinal epithelial MyD88 is a sensor switching host metabolism towards obesity according to nutritional status

Amandine Everard¹, Lucie Geurts¹, Robert Casaz^{2,3}, Matthias Van Hul¹, Sébastien Matamoros¹, Thibaut Duparc¹, Raphaël G.P. Dieris⁴, Perrine Cochez², Florian Piaras¹, Julien Castel⁴, Laure B. Bindels¹, Hubert Plovier¹, Sylvie Robine⁵, Giulio G. Muccioli¹, Jean-Christophe Renauld⁶, Laure Dumoutier⁶, Nathalie M. Delzenne¹, Serge Luquet¹, Frédéric Bachard^{2,3} & Patrice D. Cani¹

Obesity is associated with a cluster of metabolic disorders, low-grade inflammation and altered gut microbiota. Whether host metabolism is controlled by intestinal innate immune system and the gut microbiota is unknown. Here we report that inducible intestinal epithelial cell-specific deletion of MyD88 partially protects against diet-induced obesity, diabetes and inflammation. This is associated with increased energy expenditure, an improved glucose homeostasis, reduced hepatic steatosis, fat mass and inflammation. Protection is transferred following gut microbiota transplantation to germ-free recipients. We also demonstrate that intestinal epithelial MyD88 deletion increases anti-inflammatory monocytes/macrophages, reduces enterotoxin peptides production and increases intestinal regulatory T cells during diet-induced obesity. Targeting MyD88 after the onset of obesity reduces fat mass and inflammation. Our work thus identifies intestinal epithelial MyD88 as a sensor changing host metabolism according to the nutritional status and we show that targeting intestinal epithelial MyD88 constitutes a positive therapeutic target for obesity and related disorders.

The Gut Microbiota For Health Experts Exchange is a medium to share news, innovation and information between experts on the topics of Gut Microbiota for Health.

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