

3rd International Conference and Exhibition on **Probiotics, Functional & Baby Foods** September 23-25, 2014 Hotel Royal Continental, Naples, Italy

***Lactobacillus rhamnosus* GG expands gut immunoregulatory bacteria in children with cow's milk allergy**

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Cow's milk allergy (CMA) is the most common food allergy in early childhood with an estimated prevalence of 2-3% worldwide. We have demonstrated that treatment with an extensively hydrolyzed casein formula (EHCF) containing the probiotic *Lactobacillus rhamnosus* GG (LGG) results in a higher rate of tolerance acquisition in infants with CMA. The mechanistic basis for this effect is certainly multifactorial and not completely defined. *Lactobacillus rhamnosus* GG could contribute to oral tolerance acquisition through a modulation of gut permeability and the expression of cytokines involved in IgE- or non-IgE-mediated CMA. At the same time LGG could act as modulator of selective component of gut microbiota composition. Treatment with EHCF plus LGG does not restore the Lactobacillales-predominant microbiota characteristic of the healthy neonatal infant gut. However, it expands bacterial populations associated with homeostatic immunoregulatory function. We showed that dietary management with an LGG-supplemented EHCF leads to an expansion of bacterial genera in the order Clostridiales (*Faecalibacterium*, *Blautia*, *Roseburia*, and *Coproccoccus*) with a concomitant increase in levels of fecal butyrate. Moreover, a protective role for butyrate was confirmed in a murine model of CMA. Our findings open the light on a new opportunity for effective preventive and therapeutic strategies against food allergy.

Biography

Roberto Berni Canani completed his PhD in Pediatric Sciences at University of Naples "Federico II", Italy. Chief of the Pediatric Food Allergy Unit at the Department of Translational Medical Science at the University of Naples Federico II. Author of 170 scientific publications. Member of main national and international scientific societies. He obtained several scientific prizes for the research activity. Associate editor of Journal of Pediatric Gastroenterology and Nutrition (2005-2010) and of World Journal of Gastroenterology (from 2010). Member of the Dietetic products, Nutrition and Allergies Panel of the European Food Safety Authority. Visiting Professor at the Division of Pediatric Gastroenterology, Mass General Hospital, Harvard Medical School, Boston Massachusetts, USA (2012). Visiting Professor at the Division of Pediatric Digestive Diseases, Chicago Children's Hospital, Chicago University, Chicago Illinois USA (2014).

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