

## Plenary 3: Dairy Foods and Health

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### **Probiotics and prebiotics for the primary prevention of allergy**

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The prevalence of atopic disease has increased markedly in the Developed World over the last half century. A growing body of epidemiological and experimental evidence has prompted the hypothesis that the type and level of our contact with microbial antigens early in life plays a central role in this phenomenon. Together with our exposure to exogenous pathogens, the so-called "hygiene hypothesis", there is an emerging recognition that the development of an appropriate indigenous intestinal microbiota is important in driving healthy maturation of our immune systems. Hence, dietary interventions to augment the intestinal microbiota of infants using probiotics and prebiotics have been explored as a means of decreasing the risk of developing allergic diseases. A number of randomized controlled trials of probiotic and prebiotic interventions have now reported reduced incidence and severity of atopic dermatitis in infants with a heritable risk of developing atopy. Concurrently, experiments in animal models of sensitization and allergy have started to illuminate potential mechanisms. However, not all trials of probiotics have proved successful, and there remains much to be learned about the effects of different probiotic strains; modes, doses and timing of delivery; and the benefits of supplementing both mothers and infants. While it remains too early to provide clear recommendations for the use of pre- or probiotics for the primary prevention of allergies, the hypothesis remains entirely plausible, and they represent a promising approach worthy of further investigation.