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Gut bacteria and metabolism: Examining host-microbe cross talk in the disease state

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Our co-evolved gut microbiota confers beneficial mutualistic relationships both to the microbial residents and to human health. Microbes can alter human produced metabolites and indeed produce and excrete their own compounds to act locally or indeed systemically to elicit a response. In doing so, microbes can influence many different host processes including immune function and signalling to impact human health. Two examples of such processes include the catabolism of fatty acids and bile acid modification. The liver is the site for bile acid synthesis and conjugation, however, the gut microbiota is responsible for the range of diversity of bile moieties. Bile acids, released into the GI tract, are MI cellular components, emulsifiers of fat, liberators of fat soluble vitamins and they also influence microbial populations temporally and spatially depending on the gut region, the pH and oxygen levels. Here, we have examined the microbial, metabolic and gut hormonal hallmarks of an Irish cohort of IBD to include Crohn's disease and ulcerative colitis (n=182). Our data indicate microbial and metabolic adjustments of different severity between disease states relative to healthy volunteers and also points to altered gut function and signalling.

Biography

Susan Joyce graduated with a B.Sc from NUI Maynooth in Biology and Mathematics and a research PhD in host-microbe interactions. She was awarded a Marie Curie Fellowship to examine cis and trans acting factors affecting mRNA synthesis and microbial gene expression at the Ecole Normal Supérieure, Paris which included a stint at the Max Planck Institute, Berlin. Before returning to University College Cork, She was a postdoctoral scientist at Trinity College Dublin and the University of Bath, UK. Her main interest is in microbial genetic and biochemical systems that alter eukaryotic host signalling. Susan is currently a Lecturer in the School of Biochemistry and Cell Biology and a funded Investigator in the APC Microbiome Institute as part of the Spoke 4 Host- Microbe Dialogue.

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