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The role of microbial modification of bile acids for host-microbe cross talk in a cohort of Crohn's disease and ulcerative colitis

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The GI tract is recognised as a super organ where co-evolved mutualistic relationship benefits both the microbial residents and human health. For instance, while the liver is responsible for bile acid synthesis and conjugation, the gut microbiota is responsible for the diversity of bile moieties. Bile moieties are more than just emulsifiers of lipid and liberators of vitamins from dietary components. They act as signalling molecules that can exert their effects both locally and systemically, the most potent signalling molecules are those generated through microbial conversion. Here, we have examined an Irish cohort of inflammatory bowel disease (IBD) to include Crohn's disease and ulcerative colitis (n=182). We have stratified based on volunteer demographics and analysed a range of metabolites, including bile moieties, hormones and cytokines in these patients. Here we link bile modifications with bile acid signalling and the incidence of bile acid diarrhoea (BAD) in these patients. We show that BAD is elevated in incidence of Crohn's disease irrespective of BMI and that this incidence is due to increased levels of microbial produced secondary bile acids and to aberrant hormonal signalling.

Biography

Susan Joyce graduated with a B.Sc from NUI Maynooth in Biology and Mathematics and a research PhD in host-miocrobe 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 Superieure, Paris which included a stint at the Max Planck Institute, Berlin. Before returning to UCC, Dr Joyce was a postdoctoral scientist at Trinity College Dublin and the Univerity of Bath, UK. Dr Joyces's main interest is in microbial genetic and biochemical systems that alter eukaryotic host signaling. 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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