**Dr Marcus Claesson (http://orcid.org/0000-0002-5712-0623)**

Marcus Claesson is a Lecturer in the School of Microbiology, University College Cork. Marcus did his BSc in Chemical Engineering and MSc in Bioinformatics at Chalmers University of Technology in Gothenburg, Sweden. After his MSc Thesis project at AstraZeneca Mölndal, he worked at the start-up biotechnology company AngioGenetics. This was interrupted by the opportunity to start a PhD at the Microbiology Department at University College Cork, where the main part of the project was dedicated to sequence and analyse a commensal Lactobacillus strain. Once completed in Oct 2006, Marcus worked for at the campus-based biotechnology company Alimentary Health, data mining bifidobacteria for beneficial probiotic traits. This was followed by a longer postdoctoral position in Prof. Paul O’Toole’s lab in the Microbiology Department, focusing on the bioinformatics involved in the ELDERMET metagenomics project aiming to sequence the gut-bacteria of hundreds of elderly Irish citizens. Since 2012 Marcus is a Principal Investigator at UCC, as well as a Funded Investigator at the APC managing the BioIT platform. His main research interests in the role of microbiota in inflammatory bowel disease, and methods development for various ‘omics’ technologies. He is also coordinating the MSc programme in Bioinformatics and Computational Biology, and lectures on the subject to MSc and 4th year Microbiology and Genetics students. Between 2005-2015 Marcus has published 40 peer-reviewed papers, which as of Oct 1st 2015 resulted in over 2500 citations and an ISI H-index of 20.

**Research interests**: Marcus’ main research interests are the development of bioinformatics methods of “omics” technologies for application on particularly, but not exclusively, human microbiological systems. These technologies include compositional microbiota analysis, metagenomics and metatranscriptomics. I also have a particular interest in exploring the gut microbiomes involved in inflammatory bowel disease patients using the aforementioned methods. This work has been funded by both a Postdoctoral Fellowship award from the Health Research Board, and a Starting Investigator Research Grant from Science Foundation Ireland.

His research focus up to recently has been on microbiota analysis as part of the ELDERMET project, which aims to use metagenomic and metabolomic approaches to determine the composition and function of the gut microbiome in elderly Irish subjects. He has analysed microbiota composition of over 300 subjects, as well as developed analysis methods to be applied on these systems. In our latest study we reveal novel relationships between microbiota, diet and health status within the elderly population.

Previous research included comparative analysis of sequenced genomes of beneficial commensal Lactobacillus and Bifidobacterium species. After sequencing the first genome in Ireland, that of Lactobacillus salivarius UCC118, he discovered a so-called mega-plasmid, which was the first one of its kind in Lactic Acid Bacteria. Although not essential for survival, it showed probiotic properties and appeared to increase the metabolic flexibility and competitiveness of the strain.

**Summary:**

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| **Field of expertise related to the topic:** * The role of the gut microbiome in inflammatory and bowel diseases and other gastrointestinal conditions
* Integration of host ‘omics’ data (e.g. transcriptome, epigenome, genetics) with the microbiome
* Development of bioinformatics methods for “omics” technologies for application on particularly, but not exclusively, human microbiological systems
* Development of Machine Learning approaches for classification and prediction of disease, outcome and drug response
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| **Potential Contribution to the project** :* To provide high-quality microbiome analysis, interpretation and presentation in conjunction with additional ‘omics’ data, clinical and dietary information.
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