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## ENGINEERING THE MICROBIOME TO PREVENT AND TREAT A MEDICAL CONDITION

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**T**he human and animal microbiome is an incredible diverse and agile complex of microbial species with an important impact on the host. In humans and animals this relation is relevant for health and wellness. The microbiome of any living organism catalyzes biochemical reactions influencing the bioavailability and metabolism of bioactive molecules like nutraceuticals, pharmaceuticals, and feed and/or food additives. Consumption of food and these (bioactive) components changes the microbiome in that the growth of certain microbial species will be (dis) favored. Since the discovery of the different antibiotics that all have wide range antimicrobial impact, the research focus has been on the avoidance of communicable diseases. Almost all important bacterial infections are becoming resistant to antibiotics and to revert this phenomenon has become a major challenge. The smart use of antibiotics and new strategies to control microbial growth are key to controlling the spread of resistance. Every living organism has to deal with the reality that we live in a co-evolved symbiotic relationship with environmental microbes. There are now many examples showing a correlation between the microbiome, health and disease. The gastro-intestinal microbial species of the microbiome have been correlated with conditions like Inflammatory Bowel Disease, metabolic disorders, colorectal cancer, allergy and autism. The microbiological, nutritional and nutraceutical interventions facilitate a promising and underexplored opportunity to 'engineer' the Microbiome to prevent or treat a medical conditions.



### Biography

Rob te Biesebeke has his PhD from the Wageningen University (NL), a MSc from the Utrecht University (NL). He is a Laboratory Engineer in Saxion Polytechnics (NL) with a track record of achievements in Microbial Biotechnology, Food technology, Nutrition, Dietary Fibers, Digestive Enzymes, Probiotics, Antimicrobials and Microbiology. He is a Technology and Science Officer at HNM Engineering. He was a former Microbial Biochemistry Researcher of the Ecole Polytechnique I'X (Paris, France), former Probiotics Taskforce for ILSI Life Sciences (Brussels, Belgium) and External Expert for the World Health Organization (Geneva, Switzerland).

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