Universität Basel

# Research Project

## Multidimensional Biomarker Development for Personalized Probiotic Treatment Outcome in Depression

### Third-party funded project

**Project title** Multidimensional Biomarker Development for Personalized Probiotic Treatment Outcome in Depression
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**Organisation / Research unit**
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**Project start** 01.01.2020
**Probable end** 31.12.2020
**Status** Completed

Advances in understanding the role of the gut microbiota in mental health are at the forefront of medical research and hold the potential to have a direct impact on precision medicine approaches. It has been shown that changes in the composition of the gut microbiota influence normal physiology and contribute to diseases ranging from obesity to psychiatric diseases such as major depressive disorder (MDD). Emerging evidence indicate that the gut microbiota communicates with the central nervous system via endocrine, immune and neural pathways and thereby influences brain function and behaviour. Elucidating the pathways linking gut-microbiota and the brain may allow detecting potential biomarkers that could be used in psychiatry. There is a particular need in patients with MDD to identify biomarkers that can stratify patients into more homogeneous groups to achieve better treatment outcomes. This is of great importance as almost two thirds of MDD patients do not respond to current treatment approaches. ă

This project seeks to identify multidimensional biomarkers for probiotic treatment response in patients with MDD. In particular, the present proposal investigates the effect of short-term probiotic augmentation on immunological, inflammatory, microbial, genetic and neural markers along the brain-gut axis in patients with depression and whether baseline expression of these potential biomarkers predicts the individual clinical response to probiotic treatment. In line with the concept of personalized medicine, such predictive biomarkers allow patient stratification by targeting those individuals who are actually going to benefit from probiotic augmentation. Moreover, identifying biological targets that are associated with the clinical response to probiotic treatment further enables the development of novel and more effective nutrition-based interventions for patients with MDD. ă

**Keywords** probiotic supplementation, depression, biomarker, personalised psychiatry
**Financed by**
University of Basel

**Add publication**

**Add documents**

**Specify cooperation partners**