



## **PhD project title Quantitative Analysis of Microbial Dynamics in Organ-on-Chip Models**

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### **Abstract:**

Microbial consortia of the human gut are extremely diverse, individualized and essential for host health and fitness. However, gut microbiomes also contain opportunistic pathogens, such as the fungus *Candida albicans*, which can cause disease when the microbiome is disturbed. Choice of diet and antibiotic use, removing the protective microbiome, can enrich *C. albicans* and cause overgrowth, predisposing individuals for systemic infections. In fact, the gut is the main source of life-threatening *C. albicans* infections.

In this project, which is part of embedded research area C – C.1.1 “Quantitative data analysis and predictive modelling”, we support the experimental dissection of host microbiomes in a gut-on-chip model as proposed in RA-B - B.4 “Experimental dissection of host microbiomes”. The processes and dynamics of interactions of *C. albicans* with antagonistic bacteria and human intestinal epithelial cells will be quantitatively investigated thereby providing the basis to elucidate the principles of balances and dysbalances of gut microbial communities containing opportunistic pathogenic fungi.