Title: **Organ-on-a-chip Technologies: *in vitro veritas*?**

Abstract:

Organ-on-a-chip systems contain three-dimensional human living cell cultures that are grown in a dynamic microenvironment under controlled measurement conditions. These microphysiological systems allow biological, chemical and physical manipulation and analysis of minimal functional units of human organs and tissues. Consequently, the reliable establishment of human tissue structures on a common chip platform has shown the potential to reduce and replace animal testing in basic and applied research as well as industrial QC measures. Additionally, organ-on-a-chip systems are used to establish personalized disease models with the aim of providing clinical-relevant information from a patient's own cells. In this presentation the current state-of-the-art and selected applications in personalized medicine will be discussed.