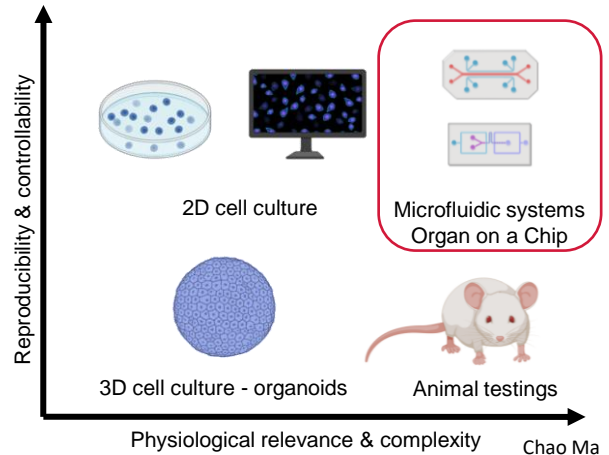




## INTRODUCTION

Organ-on-a-chip experiments are performed by culturing human cells or tissue fragments inside a microfluidic chip that is perfused with cell culture medium, simulating capillary shear forces to create a vascularised human tissue. The use of Organs-on-Chips (OoC) to replace animal testing leads to faster results within a few days, results that are much closer to human physiology by using human 3D cell culture in a vascularised environment. In addition, the reduction in animal testing results in much more cost-effective and ethical research. This substitution has been made possible by the FDA Transformation Act 2.0 and its European equivalents.

The problem with OoC is that DESPITE the great interest and many benefits, hardly any scientists are using the technology because there is a fundamental lack of a standardised solution that meets all the needs of scientists.



## PRODUCT

VitrofluidiX has developed an easy-to-use, fully integrated and adaptive organ-on-a-chip device. Organ-on-a-Chip experiments are run with our device by cultivating human cells or tissue fragments inside a **microfluidic chip (right)** which is combined with our **device (left)**, which recreates human physiology microenvironment with an artificial blood flow, simulating the capillary shear forces, respiration, i.e. oxygen supply and body temperature.

### Fully integrated

First simulation of human organs with a **single platform device**.

Contains gas- & heat-incubation as well as two flowlines for double- and monolayer-flow experiments



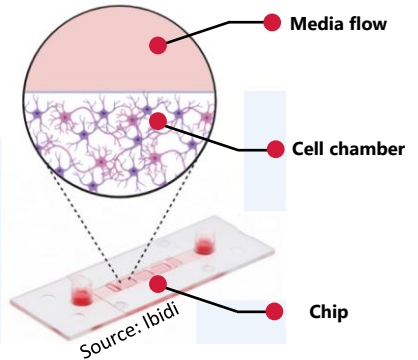
### Easy to use

Intuitive operation & with **IN/ON-Line** evaluation of the pH and automated medium exchange.

**Live-microscopy** with any conventional microscope

### Adaptive

Various **cells & chips** and their material possible at your individual settings.



## HOW TO COLLABORATE

We offer the possibility to rent VitroFlow.Bio as our pilot customer: We support you in establishing your individual model and during the integration into your lab work flow at every step.

### TEST VITROFLOW.BIO

- **One chip** can be controlled with VitroFlow.Bio.
- Up to **four organs** can be connected and simulated.
- Parameters are personalisable and **disease states** can be simulated.
- Planned versions with higher throughput

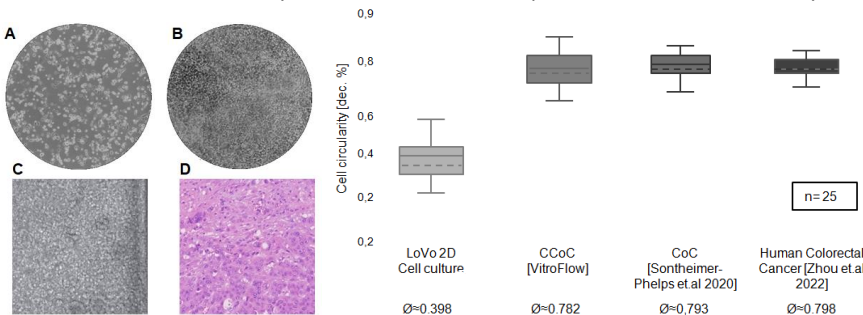
### TYPICAL COLLABORATION

Test VitroFlow.Bio ~4 weeks FREE OF CHARGE → Rent VitroFlow.Bio 5.000€/6 months → Sale / Extend renting period

*At the same time, we support you from both the technical and biological side.*

## USE CASE

We were able to successfully create a cancer-on-a-chip model whose cell circularity comes closer to a human tissue than 2D cell culture.



### Other projects:

#### CMMC (Start 01.07.2024)

- Bone-marrow-on-a-Chip, Leukaemia research

#### University of Cologne (Start 01.02.2024)

- Beetle-gut-on-a-chip, kidney-on-a-chip

**Microscopic images:** **A** LoVo 2D cell culture **B** Proof of concept: Colorectal-Cancer-on-a-chip (CCoC) **C** Colon-on-a-Chip model [A. Sontheimer-Phelps, Ingber et.al 2020] **D** Histological cut of a human colorectal cancer [P. Zhou et.al 2022]. **Boxplot:** Cell circularity of LoVo 2D cell culture, different C/CoC models and human colorectal cancer