UNLOOC PROJECT: Unlocking the data content of Organ-on-Chips

Rosa Monge[1], Beatriz Sanz[1], Sandra González, Lara Pancorbo[1], María Sainz[1], Claudia Olaizola [1], Inês Pereira[1], Luis E. Serrano[1]

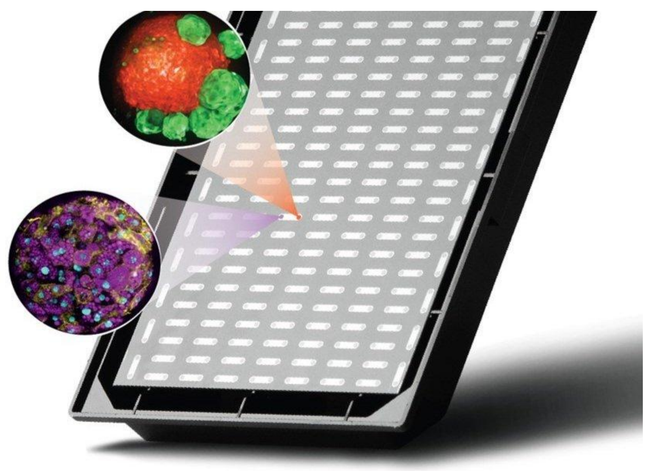
[1]Beonchip S.L., Zaragoza, Spain

INTRODUCTION

UNLOOC is a 3-year project tackling the challenge inherent in animal testing of drugs. It brings together 51 organisations from 10 European countries. The consortium aims to demonstrate through its five novel use cases how the groundbreaking methods using Organ-on-a-Chip (OOC) technology enable the development of more effective treatments, leaving animal subjects out of the equation. The OOC technology to be developed in the UNLOOC project will not only enable controlled drug testing, but also the modelling of disease pathophysiology.

www.unlooc.eu

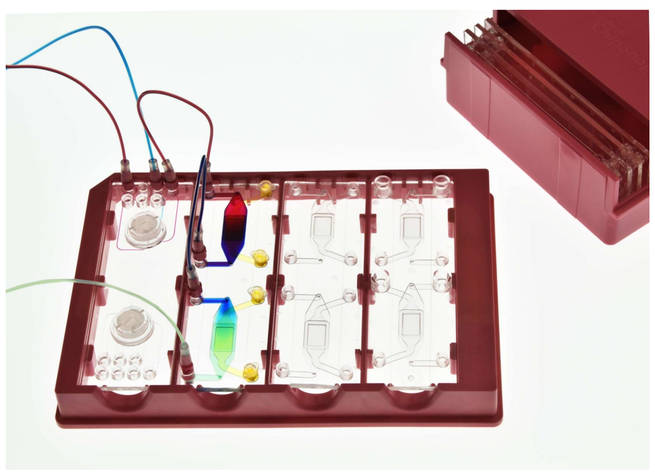
THE USE CASES



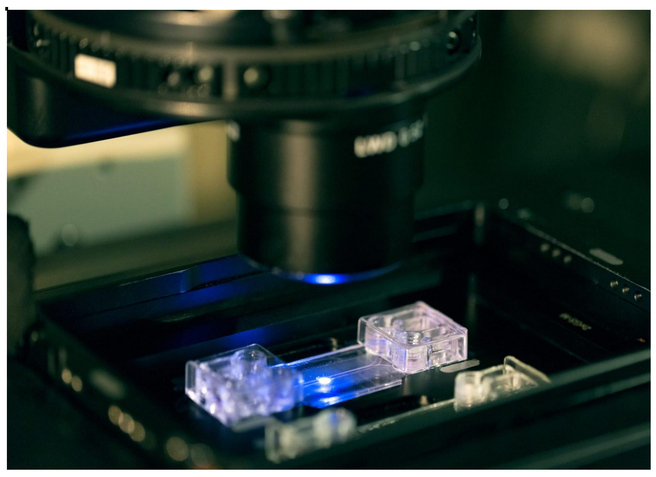
Use case 1: Human diversity panel
Developing human OOC diversity panels and demonstrating the impact in the drug efficacy and safety testing using advanced multi-parametric AI-based analysis.

Use case 2a: SOMP for epithelium-on-chip
Standardized Single-Organ Smart OOC Multi-well Plate (SOMP) evaluated with epithelium-on-chip and cancer-on-chip.

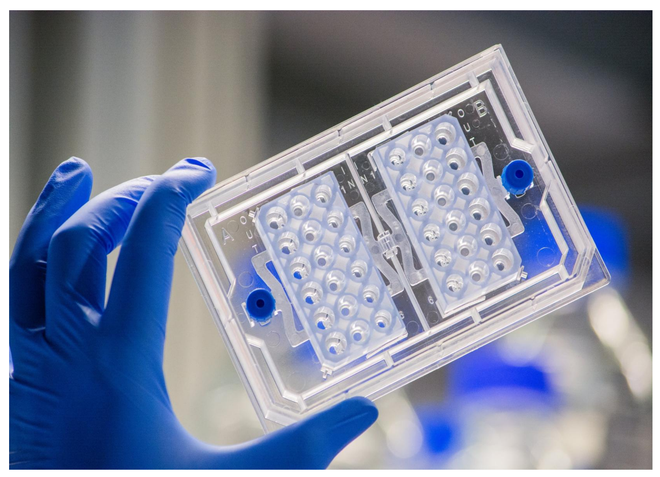
Use case 2b: Multi-organ multi-well plate
Standardized Multi-Organ Multi-well Plate (MOMP) with integrated non-invasive sensing to enable the prediction of oral drug absorption.



Use case 3: Skin-on-Chip
Skin-on-Chip for Pharma Applications and Chemical Compound Testing: Designing a skin-on-chip-system to assess transdermal drug delivery, skin penetration, absorbance, and toxicity validated in a toxicity and drug delivery scenario.



Use case 4: BBB-on-Chip
Integrated fluidic control, sensing, and incubation system for the BBB-on-Chip: Designing a blood brain barrier (BBB) platform that is affordable for biomedical research labs and scalable for contract research organizations (CROs).



Use case 5: Lung-on-Chip
Developing an advanced lung-on-a-chip platform to better assess the safety of new drug candidates.

THE SPANISH PARTICIPANTS

The Spanish consortium is composed by 12 partners (1 large Enterprise, 5 SMEs and 6 research and technologies organizations) who contribute to the different use cases. It is the second most represented country and represents 10% of the total budget.

Co-funded by the European Union

This project is supported by the Chips Joint Undertaking (Grant Agreement No. 101140192) and its members including the top-up funding of Belgium, Germany, Hungary, Ireland, Italy, the Netherlands, Portugal, Romania and Spain. This work has received funding from the Swiss State Secretariat for Education, Research and Innovation (SERI).

Project funded by

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs, Education and Research EAER
State Secretariat for Education, Research and Innovation SERI