

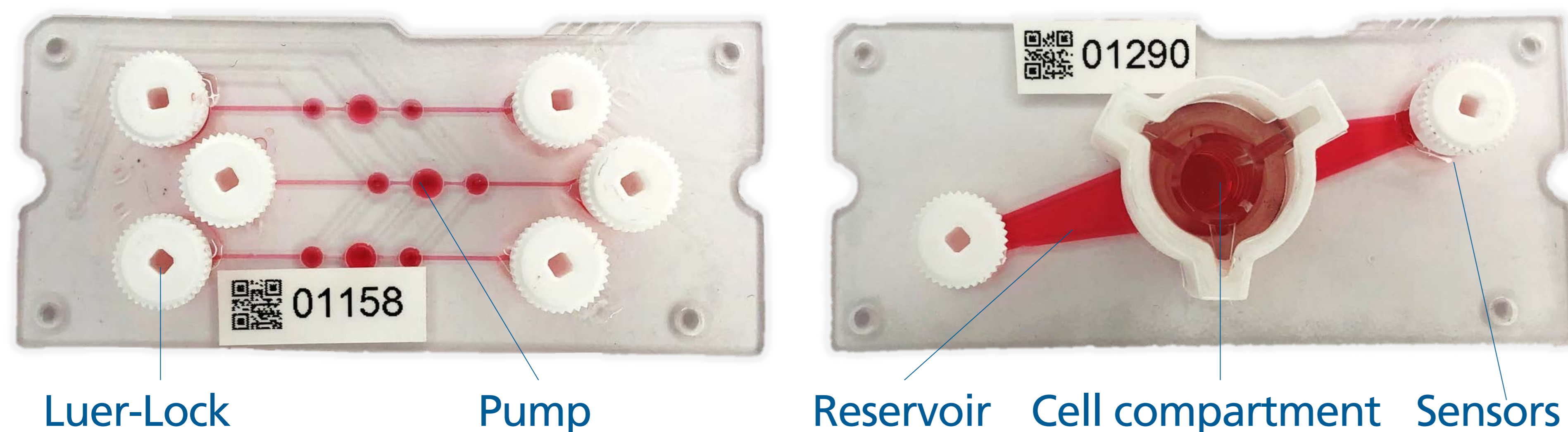
Introduction and modular approach

INTRODUCTION

- The design of MPS is an interdisciplinary challenge. At the beginning of development, many parameters and boundary conditions (geometries, volumes, flow rates, interfaces, and coatings) are often still unknown.
- The probability that the first draft will work is therefore very low. A large number of design cycles is necessary to develop a miniaturized MPS with a high functional density.

MODULAR APPROACH

- We designed a modular plug&play construction kit for the development of MPS.
- The modular system provides a large number of functional, miniaturized modules such as pumps, oxygenators, reservoirs, sensors and cell culture compartments.
- Fluidic interfaces comply with the Luer-Lock standard. This allows a quick and easy combination of modules with each other, according to the intended application.

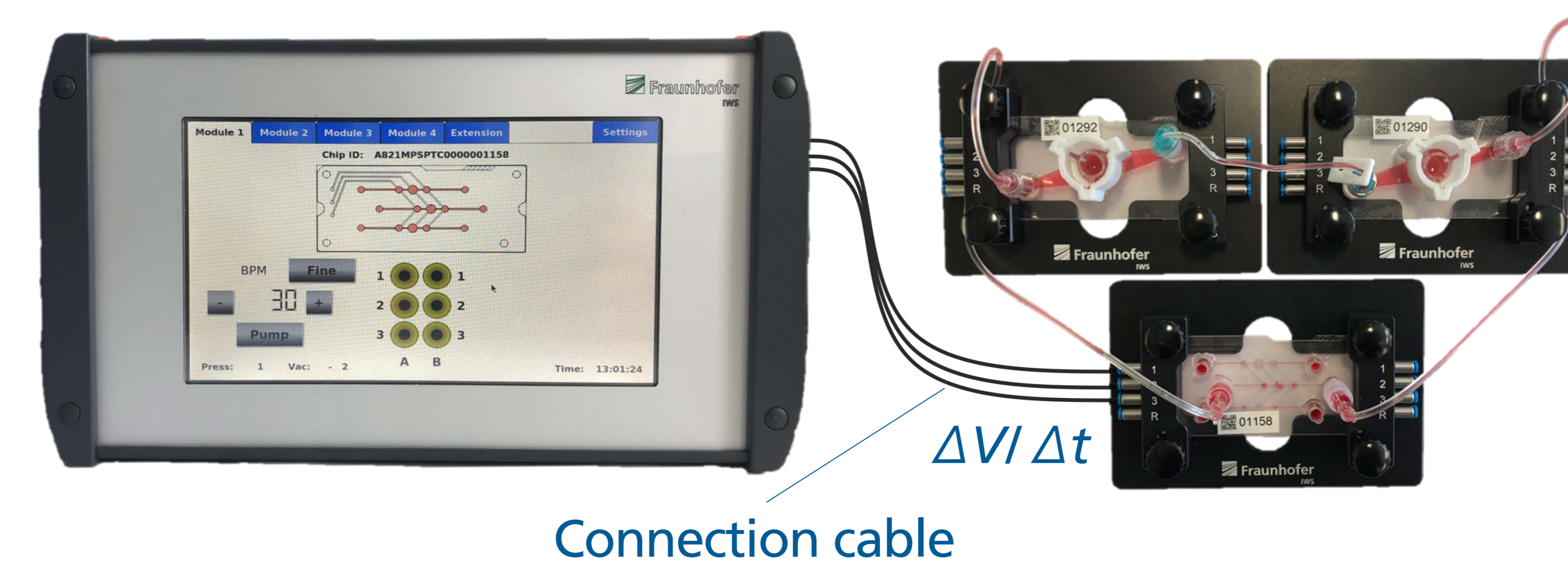


Results and conclusion

RESULTS

- By using the modular plug&play construction kit, the successful creation of different MPS setups can be achieved in the shortest time and with minimal effort.
- A quick and easy integration of microfluidic components, pumps and sensors from third party suppliers is possible.

Control module



CONCLUSION

- With the help of the modular plug&play construction kit, a drastic reduction of financial and time expenditure of an MPS development is possible.
- Once an application-specific setup has been successfully determined, it is possible to derive a compact MPS using simulation aided design.