

Development of thermal microtransducers for integration in Organ-on-a-chips

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The integration of microtransducers in an organ-on-a-chip platform is essential to real-time monitoring the physicochemical properties of the organ model and keep a well-controlled microenvironment to provide optimal conditions for cultured cells, mimicking the human body [1]. Moreover, it will add essential information for the screening of new drugs, by assessing the dynamic responses of the organ-on-a-chip to pharmaceutical compounds for long-term studies, providing an accurate prediction of human organs reactions. Here we discuss the design, fabrication and characterization of temperature and heating microsensors directly on the cell models [2], as well as in the microfluidic system to monitor the feed fluid, enabling the determination of the toxicological and/or therapeutic effect in three-dimensional (3D) models of human organs.

REFERENCES

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- [2] Sousa, P.J.; Pinto, V.C.; Magalhães, V.H.; Rodrigues, R.O.; Sousa, P.C.; Minas, G. Development of Highly Sensitive Temperature Microsensors for Localized Measurements. *Appl. Sci.* 2021, 11, 3864.

FIGURES

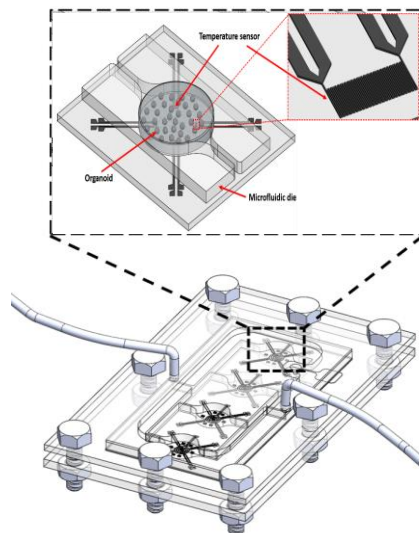


Figure 1: Schematic representation of the microsensors integrated in the organ-on-a-chip