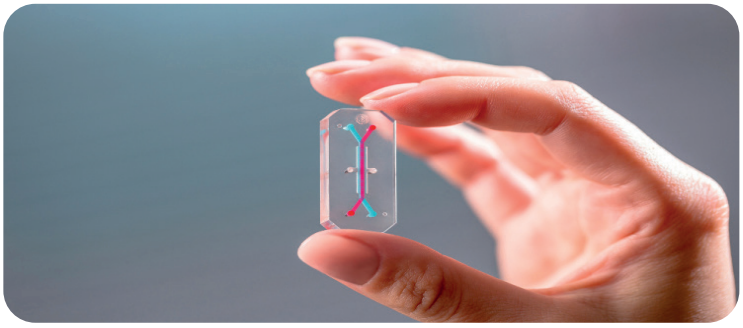
Harnessing “Organs-On-Chips” technologyfor biomedical research

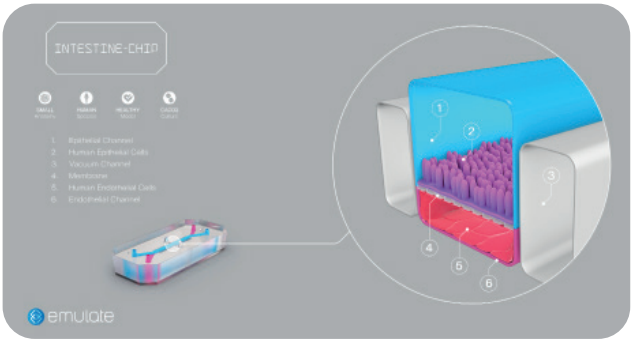
Organs-On-Chips technology is viewed as revolutionary for biomedical research and involves recreating the function of tissues and organs in vitro within a miniaturised system.
It provides a good model for studying basic mechanisms and pathophysiological processes while reducing the need for animal experiments. There are numerous potential industrial applications: search for drug candidates, development of therapeutic products, regenerative medicine, research into metabolic pathways and nutrition, etc.

Carnot Pasteur MS Institute

Scientific / technological breakthrough

Carnot Pasteur MS Institute’s Biomaterials and Microfluidics platform has teamed up with Emulate (Boston, USA) to provide the scientific community with unique access to Organs-On-Chips technology, enabling its deployment in a number of research projects focused on infectious diseases, oncology, biophysics, etc.
To faithfully reproduce the physiological characteristics of various target organs studied (i.e., intestines, pulmonary alveoli, liver, etc.), the Biomaterials and Microfluidics platform has acquired unique know-how in adapting microfluidic chips to each scientific conundrum. Scientists are able to recreate cellular micro-environments with specific mechanical and biochemical priorities that mimic the physiological functions of a given organ.





Competitive advantage for the economic stakeholders

The key advantage of Organs-On-Chips technology is that it provides suitable models for studying certain infections that only affect human cells and for which no animal model exists. It also makes it possible to use less animals in biomedical research, particularly for validating drugs or testing their effectiveness. Lastly, it is a powerful tool for understanding the intricacies of biology. Microfluidic chips can be used on cells in biological tests to obtain a direct response that is as close as possible to an organ’s physiological response.

Partnership

- **EMULATE - www.emulatebio.com**

Contact
Carnot Pasteur MS Institute - Héloïse MARY - heloise.mary@pasteur.fr
Emulate - support@emulatebio.com