DEPARTMENT OF BIOMEDICAL SCIENCES
PRESENTS A SEMINAR

香港城市大學
City University of Hong Kong

Organ on Chip Development from Basic Research to Clinical Applications

Dr. Stéphanie Descroix
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DATE: 21 October 2024 (Monday)
TIME: 04:00 pm - 05:30 pm
VENUE: Senate Room, 19/F, Lau Ming Wai Academic Building, CityU

Biography:

Stéphanie Descroix holds a master's degree in life sciences which she completed with a PhD in analytical chemistry in 2002. She then obtained a position as a CNRS researcher at ESPCI Paris where she worked on miniaturized bioanalytical devices in particular for allergy diagnosis. In 2011, she joined the Institut Curie to benefit from this unique interdisciplinary and clinical environment. She is the team leader of the MMBM team at the Institut Curie Paris and the Institut Pierre Gilles De Gennes. Her team focuses on the development of microfluidic devices and concepts for fundamental biology, biophysics and clinics, with a strong focus on organs-on-a-chip. She successfully co-launched in 2016 the company Inorevia, which develops droplet-based tests for biology. Since 2021, she is deputy director of the Institut Pierre Gilles de Gennes.

Abstract

The development of a new generation of *in vitro* models is of interest in different fields such as basic research in life science to decipher physiological and patho-physiological mechanisms or in pharma companies to drastically improve drug screening process. In the last decade, basic research showed how our understanding of the behavior of physiological and patho-physiological systems can be greatly increased thanks to a rational simplification of the human body in artificial microsystems. Among these different models, organ on chips are considered today as key technologies.

I will first discuss how microfluidics and microfabrication can be used to develop new relevant *in vitro* models in particular a gut on chip model that allows the study of for the first time the interplay between stromal and epithelial cells and disentangle the role of mechanical forces at play.

As a critical problem in the development and deployment of effective anti-cancer treatments remains the lack of adequate *in-vitro* model systems, in a second part, I will focus on tumor on chip development recapitulating *in vitro* the complexity of the tumor-microenvironment. We will especially discuss how these new models can be used in a next future to decipher cancer mechanisms or to help clinicians.

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All are Welcome!