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Development of a “ metastasis-on-a-chip ” to monitor extravasation during metastatic process in breast cancer

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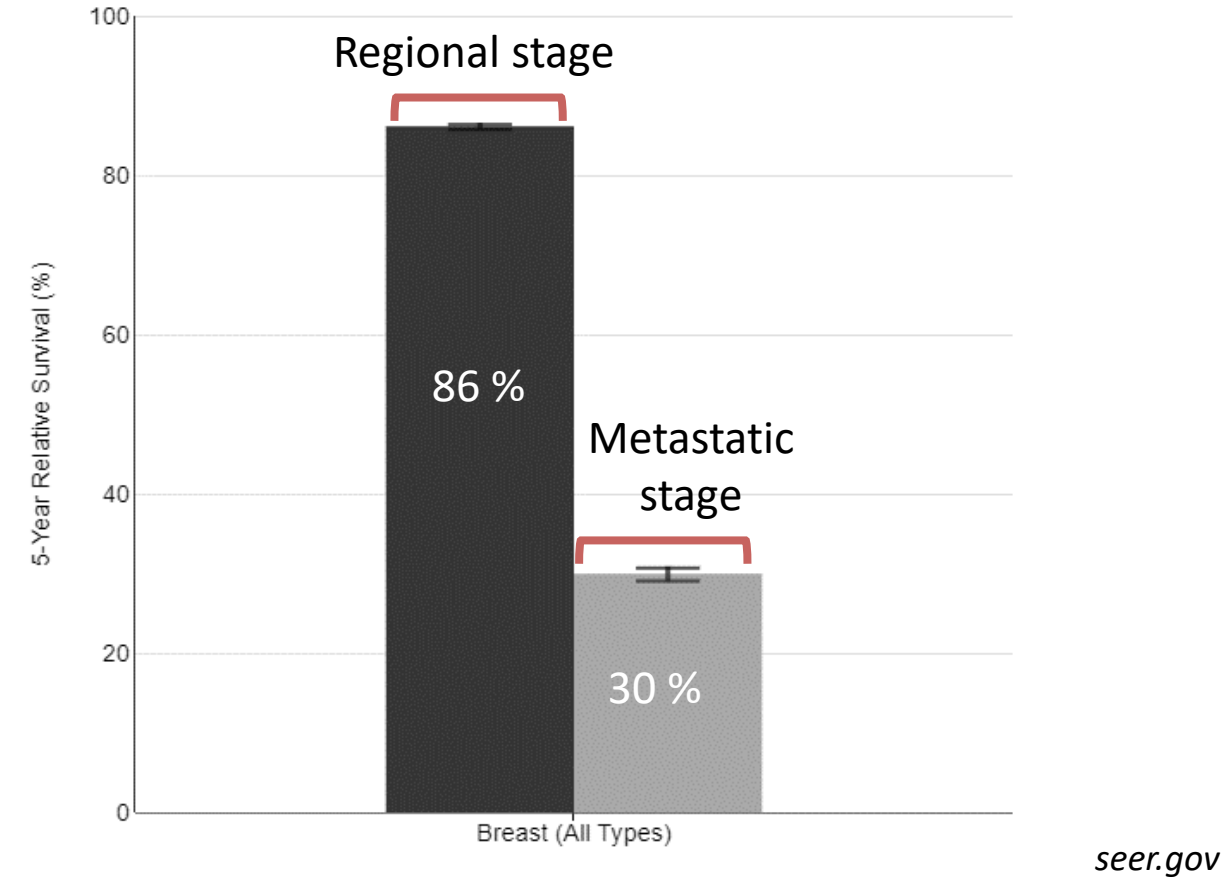
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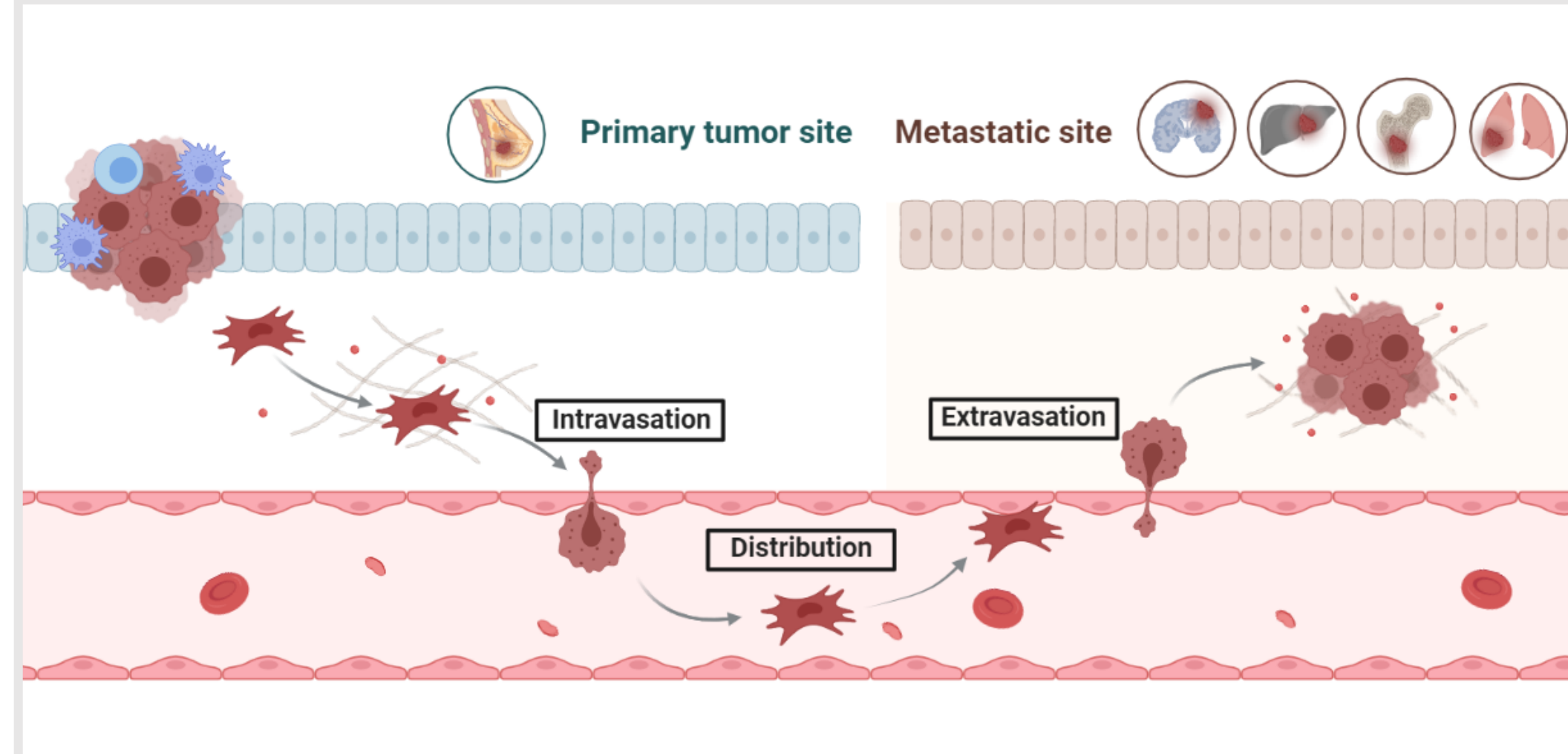
Introduction

Metastasis is responsible for 90% of breast cancer mortality

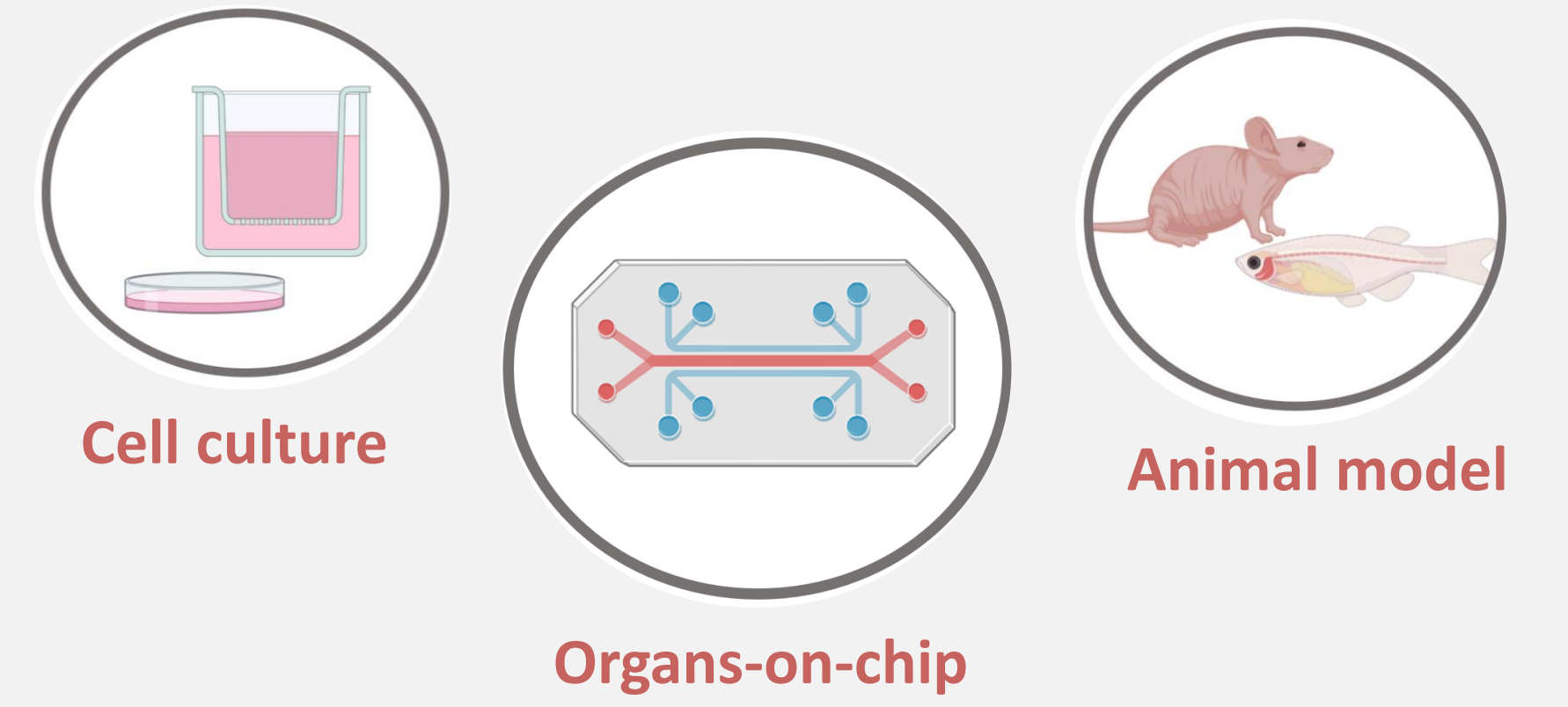
5-year survival for a regional VS metastatic breast cancer



Metastasis is a dynamic process



How to study metastatic process & characterise metastatic cells ?

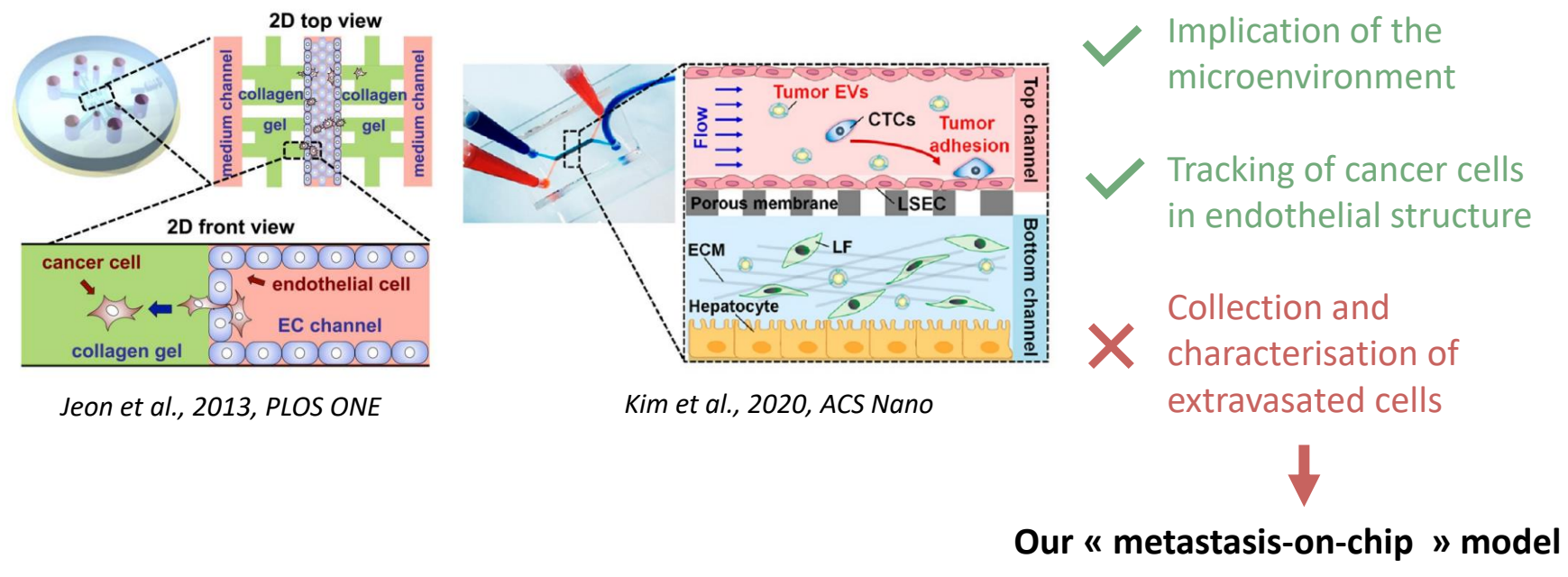


Organs-on-chip

An interesting tool to...

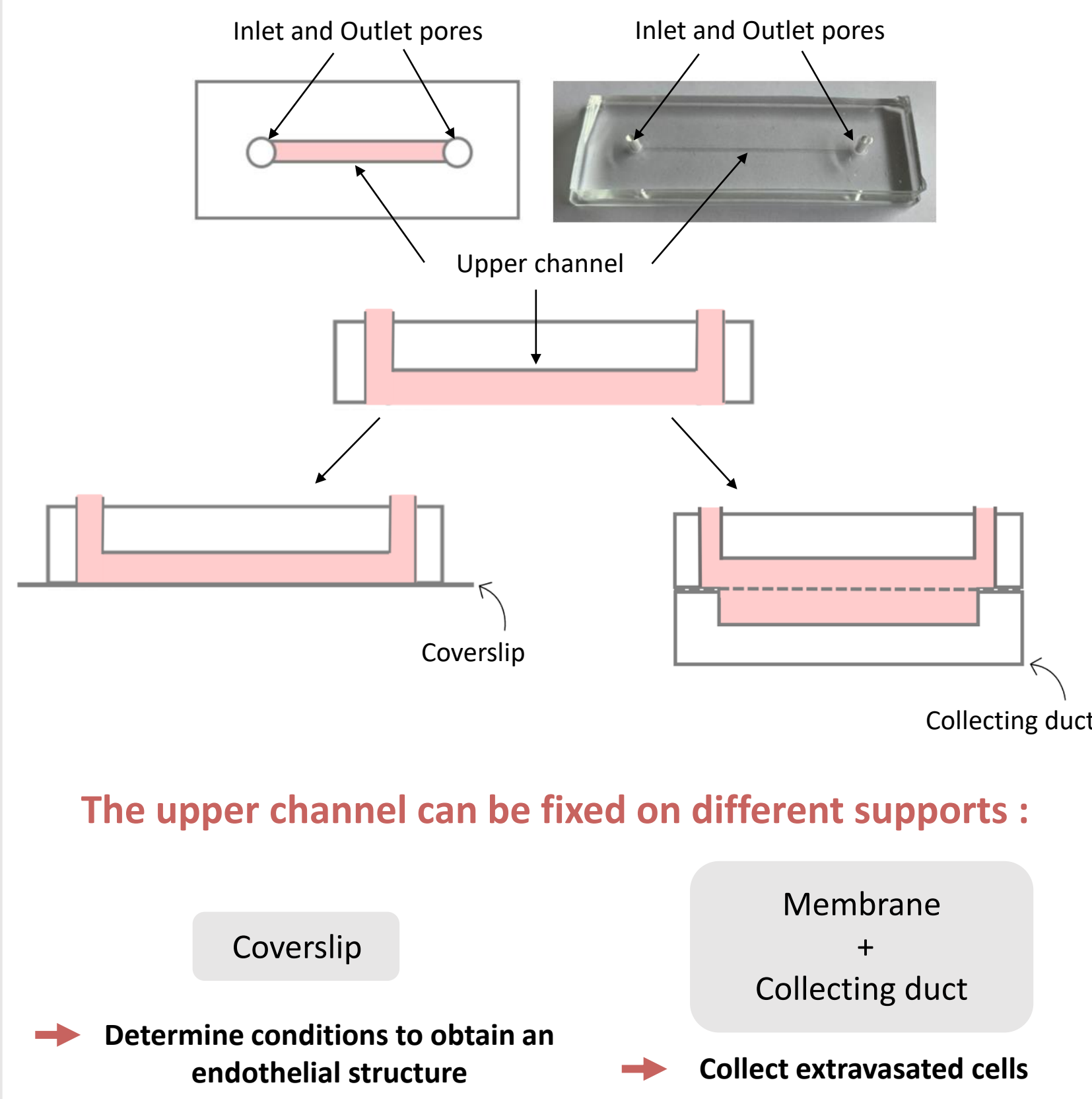
- ...co-culture different cell subtypes
- ...mimic *in vitro* physiological conditions
- ...control the microenvironment
- ...realize time lapse microscopy
- ...reduce animal testing

Organs-on-chip to study metastasis

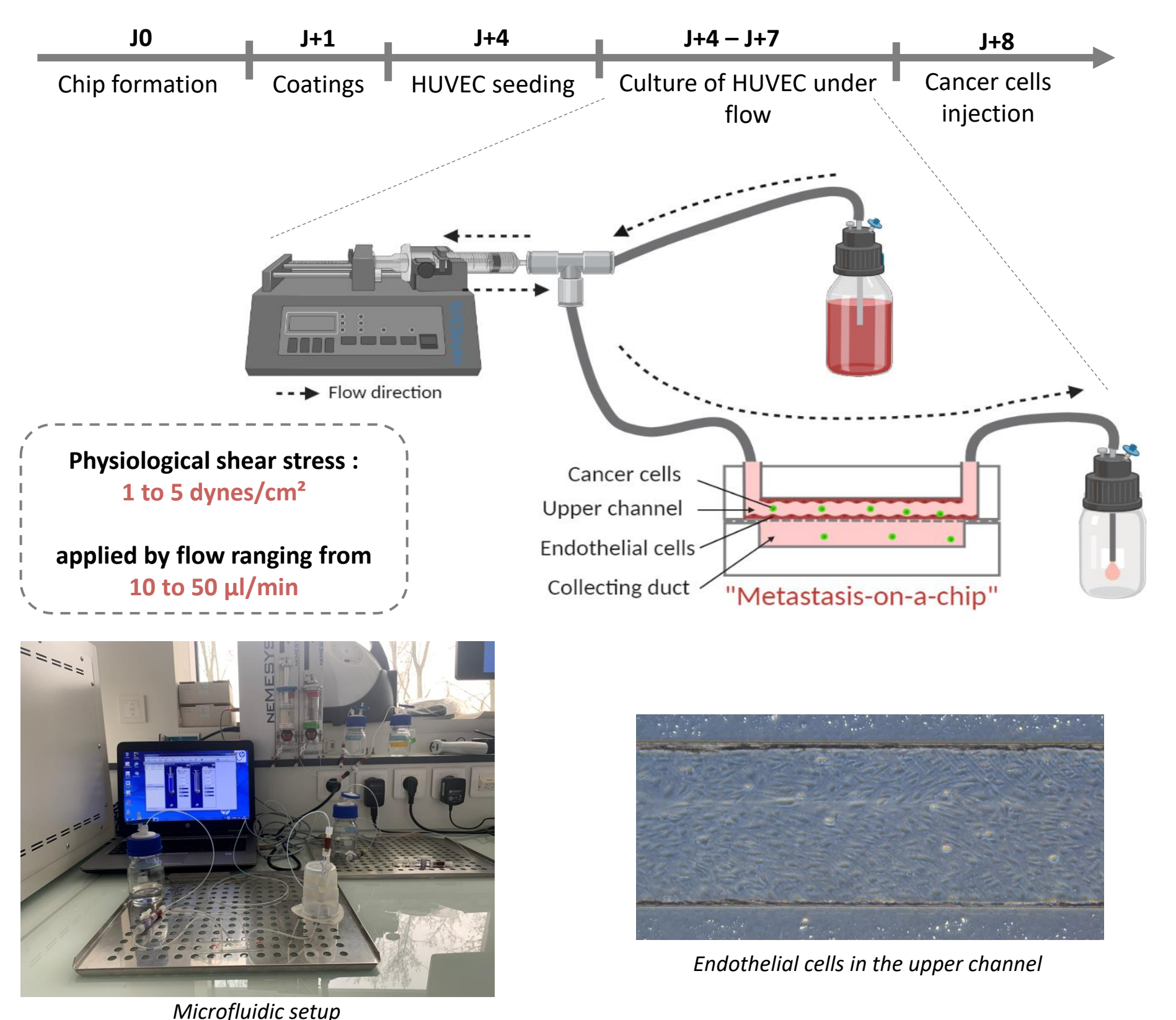


Materials & Methods

An innovative chip design

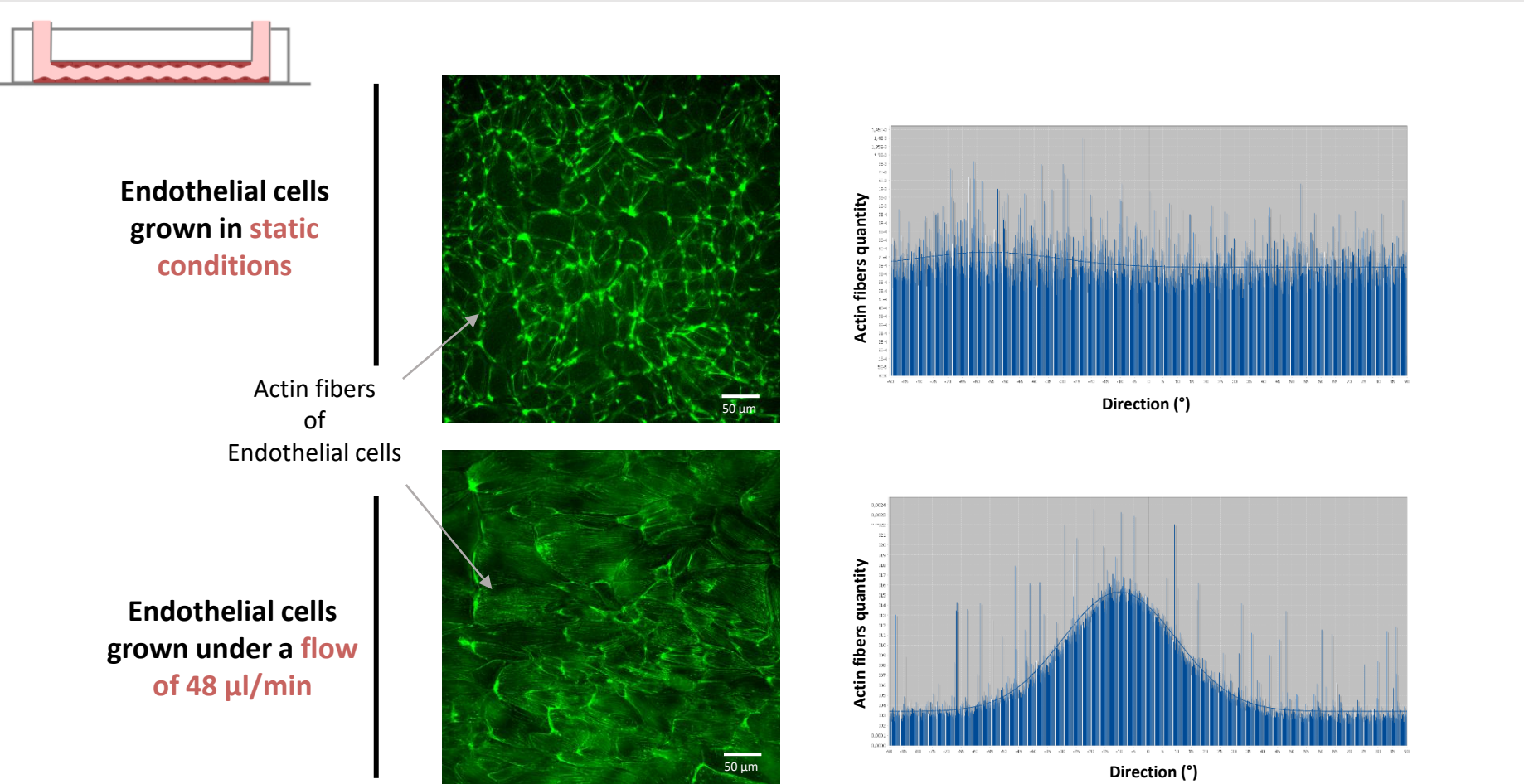


Culture of endothelial cells under flow

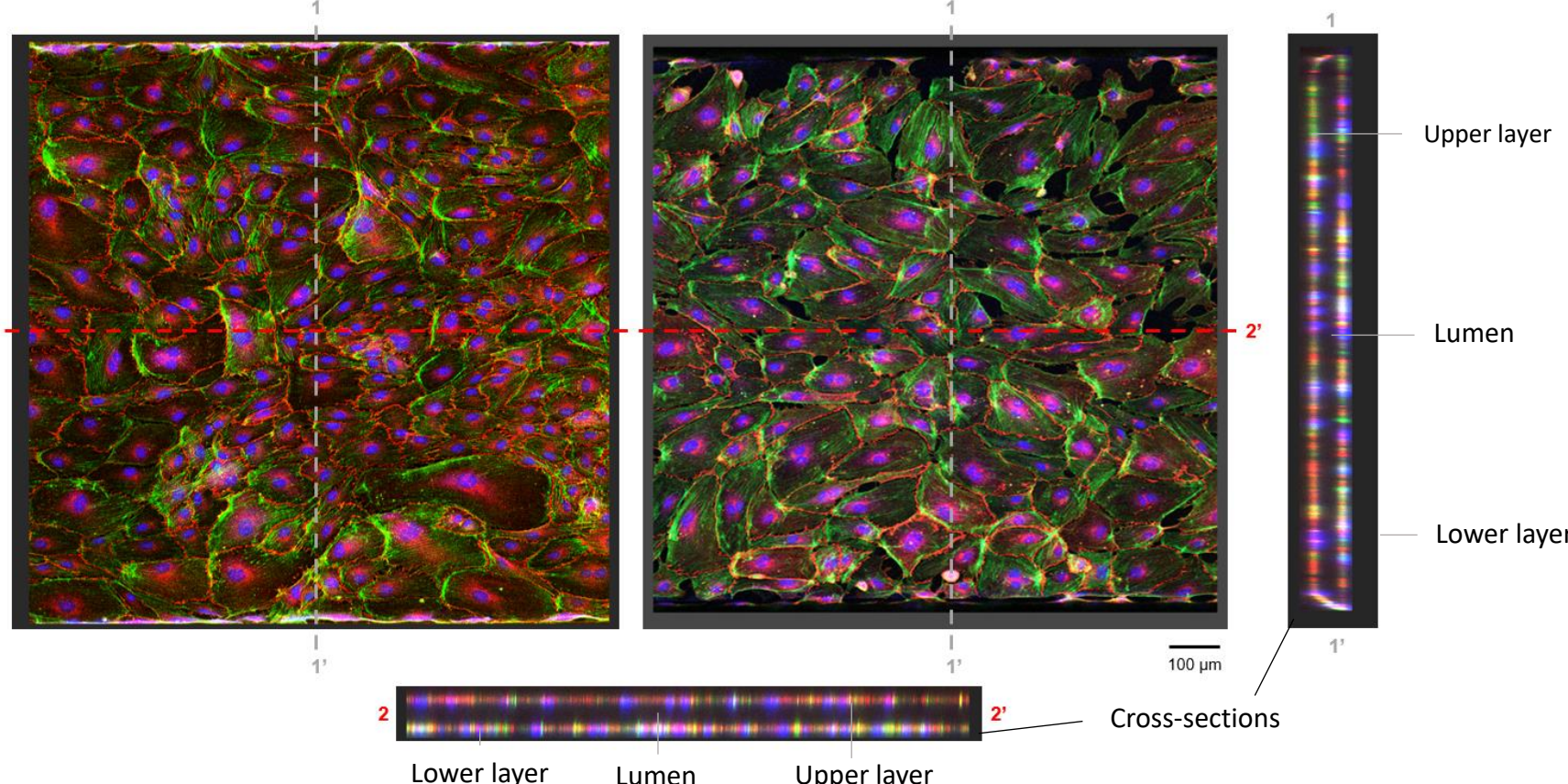


Results

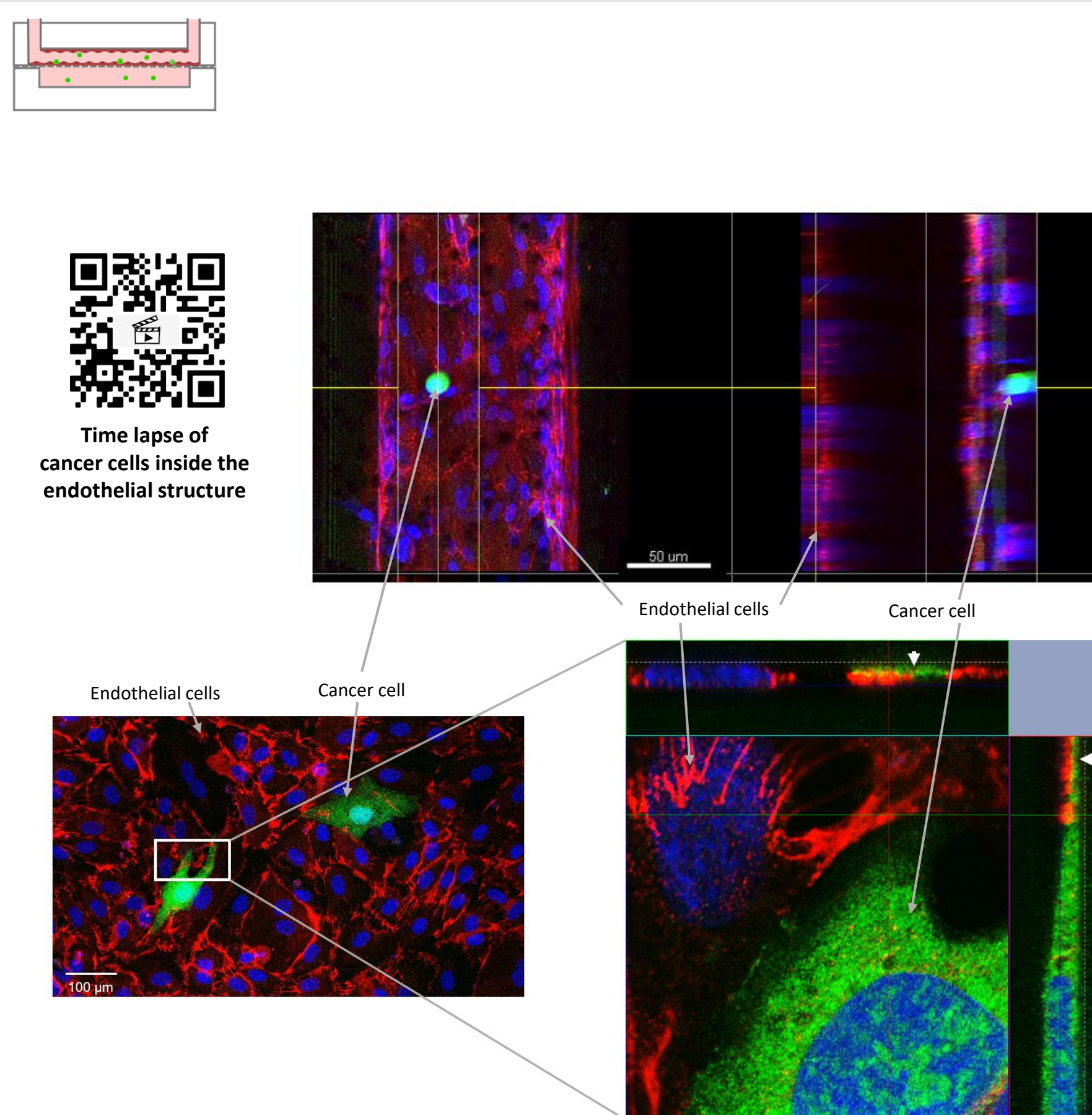
Analysis of the endothelial structure



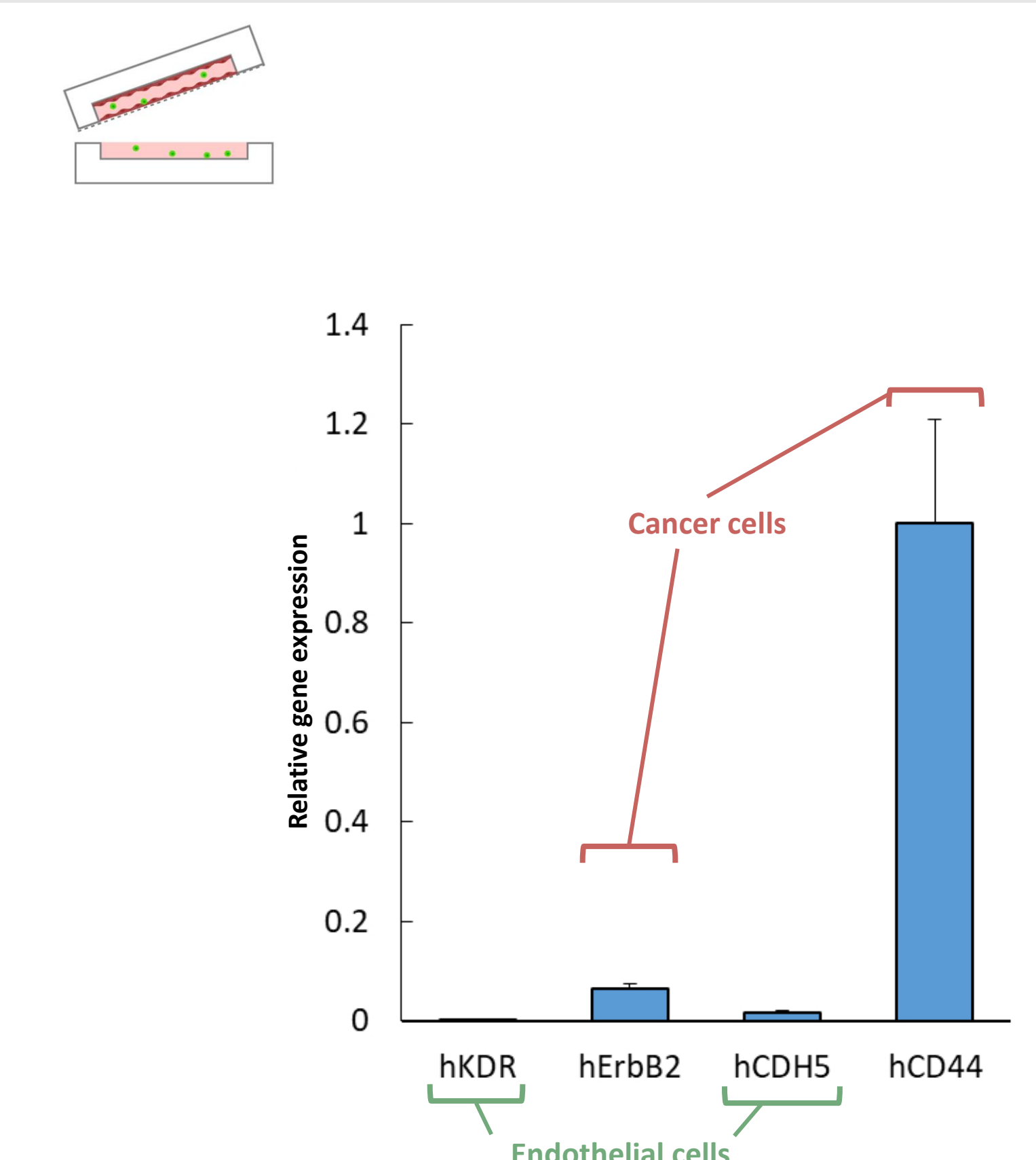
Obtention of a complete, confluent & 3D endothelium-like structure



Monitoring the extravasation



Characterisation of extravasated cells



Conclusion

Development of an **innovative adaptative** design of chip combined with **microfluidic tool** to study **metastasis** *in vitro* under more physiological conditions

Perspectives

Analyse extravasated cells
Improve the collecting duct to mimic a metastatic niche

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