

Design considerations for multi-organ microphysiological systems (*New - Winter 2019*)

Faculty advisor: Prof. Edmond Young

Organ-on-a-chip (OOC) systems are microfabricated devices that combine living cells, biomaterials, and other biological elements together with microscale feature geometries and microfluidics to mimic the structure, function, and physiology of real tissues and organs. OOCs are quickly emerging as a powerful technology with significant advantages over traditional experimental models, with researchers actively studying ways to further integrate and connect multiple OOCs to create multi-organ microphysiological systems (MPSs). The objective of this project is to apply engineering principles and scaling laws to develop design considerations and guidelines for developing such multi-organ MPSs.

Contact: Prof. Young eyoung@mie.utoronto.ca

Research Area: Microfluidics; biofluid mechanics; microscale cell-based systems; cellular microenvironments; microfabrication; cell biology; cell imaging and microscopy; biomedical engineering; and cancer.