

Guiding organoid morphogenesis with bioprinting

Aim To explore the organoid production in a liquid-bath

During this project, the student will learn how to work with various biofabrication tools available in our labs in order to engineer and characterize highly controlled organoid models. The subject can be adjusted to the student preferences.

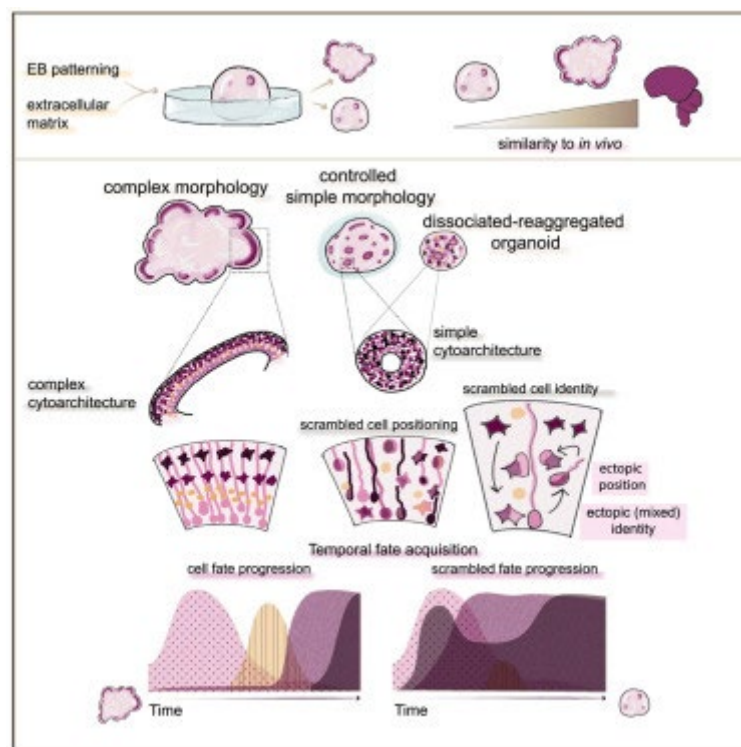


Figure 1 Influence of organoid morphology on cell fate. Chiaradia, I, et al., (2023) Tissue morphology influences the temporal program of human brain organoid development. *Cell Stem Cell* <https://doi.org/10.1016/j.stem.2023.09.003>

The student will acquire cross-disciplinary skills in cell culture, biofabrication, material characterization and microscopy. Notably, Laser induced forward transfer (LIFT) will be used, which is a state-of-the-art bioprinting tool. In brief, a laser is used to irradiate a thin layer of ink (donor), which generates a jet that is deposited onto a receiver plate placed in front the donor. This direct writing technique will be used to micropattern cells or hydrogel with high spatial control.

The student will work independently in the laboratory after a training period. They will be expected to take initiatives in the conceptualization and design of the experiments as well as the data analysis.

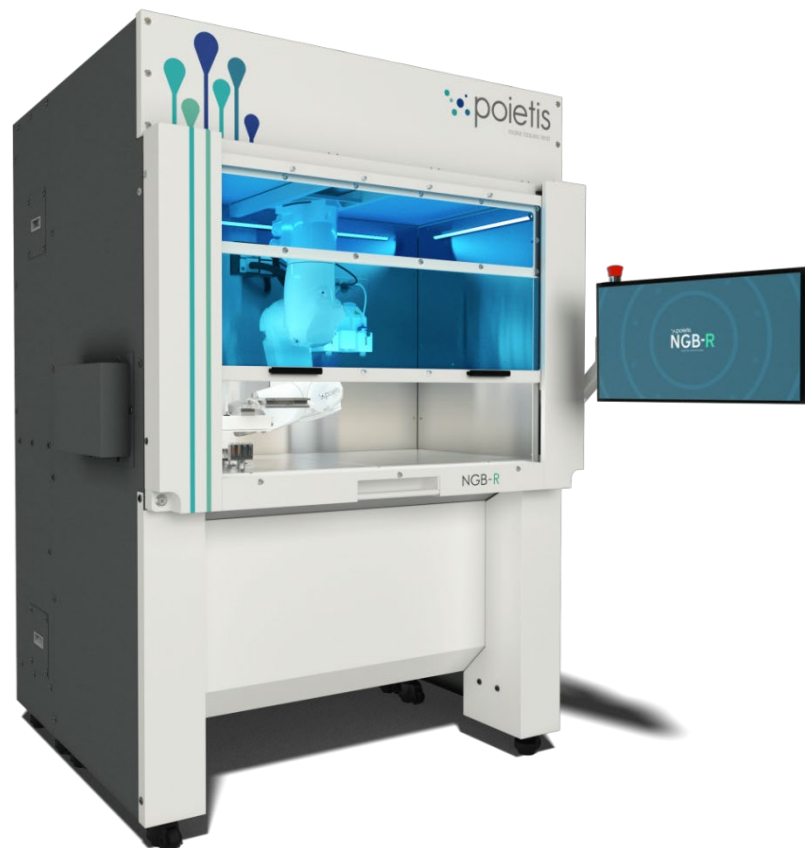


Figure 2 LIFT bioprinter

Daily supervisor

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