

Master student project

Subject: Development of printed gradient scaffolds for tissue engineering

Introduction: **3D bioprinting** is an additive manufacturing technology with a wide range of applications from drug screening, cosmetic testing to tissue engineering. The 3D bioprinted constructs are characterized by a well-controlled spatial organization. This allows obtaining 3D cell culture scaffolds that can mimic the structure of native tissues, which make them superior to the conventional 2D culture systems. The fabrication of 3D bioprinted models is a challenging task and requires an optimal **bioink**. Bioink is a formulation comprising biomaterials and living cells. Printability, biodegradability, biocompatibility, and mechanical stability after printing are some of the main requirements that an ideal bioink should possess.

My research focuses on the fabrication and evaluation of 3D bioprinted hydrogel systems for the reconstruction of gradient tissues (e.g. bone-tendon connection). I am looking for an enthusiastic student with a genuine interest to learn the bioprinting and testing of cell-material interactions, to work with me on the development of a new 3D bioprinted hydrogel system. The candidate will acquire hands-on training in hydrogel preparation, 3D printing, and routine cell culture activities.

Group: The biofabrication and bio-instructive materials group is a new, international team working at the Biotechnology Centre. Only **highly motivated, creative students, with fluency in English**, will be considered for the project.

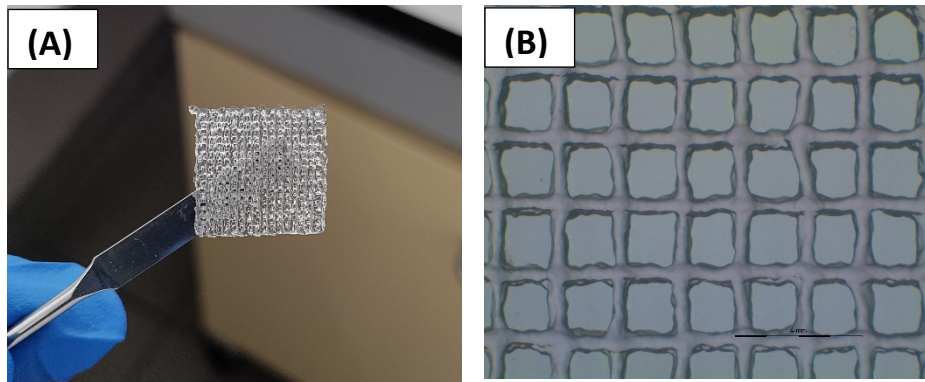


Fig (A) and Fig (B) is the camera and microscopic image of printed hydrogel based-construct, respectively.

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