



**Università
di Genova**

Dottorato di Ricerca in Biotecnologie in Medicina Traslazionale
Coordinatore: Prof. Paolo Malatesta

SEMINARIO

3D Bioprinting. One word, many technologies, and applications?

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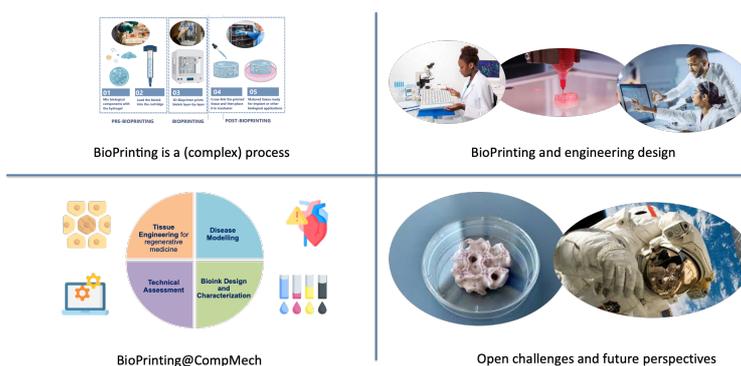
3D bioprinting is a class of additive manufacturing (AM) techniques that incorporate bioinks, made up of cells and biocompatible materials. Applications of bioprinting comprise the production of constructs for 3D tissue engineering, biological modeling, drug discovery, regenerative medicine, or other areas where the use of living materials is crucial.

Thanks to its unique features, the field and the related market is growing fast. Nevertheless, the success of this promising technology is still hampered by the lack of standard protocols. Bioprinting is a complex process, composed by several steps (i.e., from bioink preparation to the incubation of printed model) where several process variables intervene in the manufacturing process and their optimal setting highly varies case by case. Hence, the definition of standard universal protocols is not possible and, to date, costly and noneffective trial-and-error procedures are employed in the laboratory practice.

The main challenge in the definition of the optimal settings of bioprinting process variables is that these are affected by mechanisms at the junction of mechanics, chemistry, and biology, occurring at very different length and time scales.

A delicate balance between technological engineering constraints and mechanobiological demands has to be found.

Given such considerations, the talk will first propose a brief introduction about the main steps of bioP process and then will propose a survey about the state-of-art of the bioprinting techniques and bioink materials considering the main BioP applications. Pros and cons of the current approach will be highlighted, reporting our experience in this field.



14 Marzo 2023 – H. 15.00

Aula Maestrale

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