



Cristina Colosi

Hydrogels for bioprinting: chemical and mechanical aspects

Venerdì 3 febbraio, ore 15:00

Abstract

Bioprinting is an emerging tool in life science research that consists in the use of 3D-printing technologies for the creation of living artificial constructs. This is realized by the simultaneous deposition of living cells and hydrogels, used to mimic the extracellular matrix (ECM). The role of ECM, both in native or artificial tissues, is not only that of mechanically supporting cells in creating 3D structures, but it also bio-chemically influence cellular behavior in terms of adhesion, migration and protein expression; additionally, it participate in regulating the diffusion of nutrients and waste products in and out of tissues. Accordingly, the choice of appropriate hydrogel systems becomes crucial in the successful design of a bioprinting process. Here, we discuss the evidences emerged during our experience concerning the influence of chemical and mechanical properties of hydrogels in affecting the behavior of bio-printed cells.

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Short BIO



Cristina Colosi works at the Italian Institute of Technology since 2016, where she had been in charge of the setting up of a bioprinting facility at the Center for Life and Nanoscience (CLNS – iit@Sapienza) in Rome. Here, she starts a post-doctoral fellowship in 2017 for the implementation of 3D-printed tissue models in the research projects of the institute. Her experience in hydrogel 3D printing starts during her PhD in Sapienza Università di Roma, at the Biopolymers and Biomaterials laboratories of the Department of Chemistry. In 2014, she joins the group of Prof. Ali Khademhosseini at the Harvard-MIT Health and Science Technology Division in Cambridge (MA, USA), where she leads her firsts experiments in 3D-Bioprinting.

Actually, her research focuses on the application of bioprinting and, more generally, digital fabrication in the creation of engineered cell culture platforms.

