## 3D Bioprinted tissue models by click chemistry approaches

Laura Russo

University of Milan Bicocca, Italy
e-mail: laura.russo@unimib.it

The last advances in 3D printing and bioprinting technologies allows the development of 3D tissue models suitable for tissue engineering and animal free personalized drug screening [1]. To this purpose hydrogels mimicking the Extracellular matrix (ECM) in terms of morphology and biochemical components must be generated. ECM has a key role in the induction of different cell fate modulation and is mediated by specific interactions with cell receptors. These interactions include post translational modification of proteins that are involved in the modulation of cell processes indispensable for the correct functional and structural organs development [2]. The opportunity to mimic in 3D both the physical and the biomolecular features of tissues and organs is leading to the development of 3D tissue mimetics for cell biology studies and drug screening applications. However, the generation of multifunctional polymers employable in the design of functional organ-like constructs still represents an open challenge in the field. Here in this talk, the generation of smart multifunctional biomaterials and their application in tissue engineering applications will be presented.
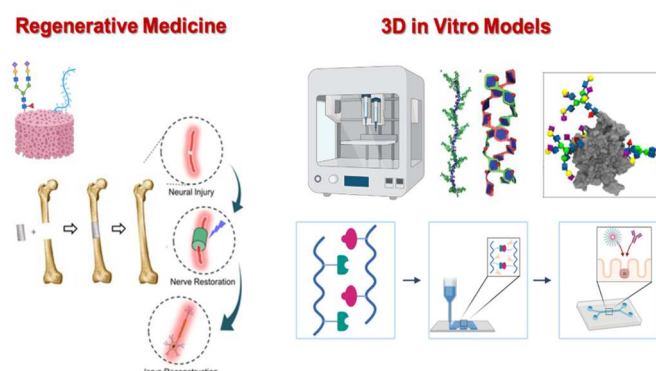
REFERENCES:

1. J. Nicolas, S. Magli, L. Rabacchin, S. Sampaolesi, F. Nicotra, L. Russo. *3D Extracellular Matrix Mimics: Fundamental Concepts and Role of Materials Chemistry to Influence Stem Cell Fate.* Biomacromolecules 2020, 21, 1968-1994

2. A.L. Rebelo, J. Bizeau, L. Russo, A. Pandit. *Glycan-functionalized collagen hydrogels modulate the glycoenvironment of a neuronal primary culture.* Biomacromolecules. 2020, 21, **7**, 2681–2694