GENERATION OF ECM MIMETICS FOR LUNG CANCER MODELS

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Despite the rapid progress in modern medicine, cancer remains one of the deadliest diseases worldwide. However, the deadliest cancer in 2020 was lung cancer, accounting for 1.8 million deaths in the world[1], and is the most common form of cancer, representing 12.3% of all cancers[2].
The extracellular matrix (ECM) of lung cancer has a specific fingerprint and a characteristic structure that can change in according to cancer grades. The fibrous protein and glycosaminoglycans (GAGs) play a critical role in the composition of pathological tissue[3]. To replicate lung cancer tissue models able to mimic the *in vivo* microenvironment, is important to consider the key components involved in cell-ECM crosstalk, such as protein and GAGs[4]. So, in this work, biomaterials-based ECM mimics have been produced using chemoselective ligation approaches and multiarms linkers on different biopolymers to control printability. Concurrently, biomaterials characterization has been conducted by NMR and FT-IR analysis and morphological characteristics have been investigated to compare with decellularized ECM.
Optimal biomaterials and their formulation in combination with bioprinting protocol validated, allow to generate 3D in vitro lung advanced models employable for drug screening; additionally, it will be possible to produce a patient-derived platform.

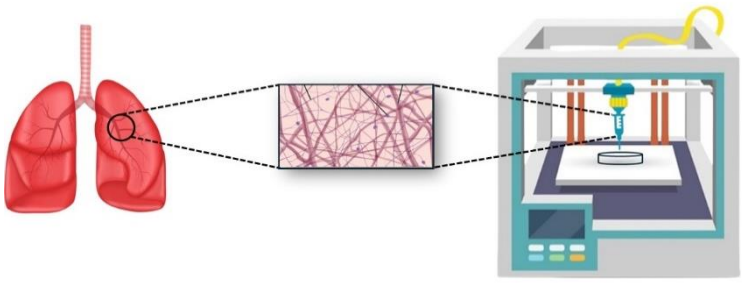

Figure 1 3D bioprinting of ECM- lung model

Key words: cancer model, biomimetics, biomaterials, characterization, hydrogel.

Acknowledgments: Ministero della Salute, RF-2021-12371959 Tackling immunomodulatory properties of stromal cells to improve therapeutic strategies in lung cancer.

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