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Special Issue Reprint

Multi-Functional Collagen-Based Biomaterials for Biomedical Applications

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Polymeric biomaterials represent an essential tool in the biomedical field. Their high biocompatibility and ability to provide adequate regenerative support are fundamental for the development of new therapeutic devices. In particular, biomaterials derived from living organisms can exhibit not only structural roles but also several non-structural functions implicated in cellular growth, migration, and differentiation. Among them, type I collagen, a ubiquitous structural protein present in the mammalian body, plays a dominant role in maintaining the biological and structural integrity of various tissues. In recent years, with the goal of developing multi-functional collagen-based devices able to better promote the functional recovery of damaged tissues, numerous studies have focused on novel techniques and methods for the development and characterization of innovative and advanced high-performance formulations. The ability to control, modify, and tune collagen-based biomaterials performance by optimizing their architecture, besides modifying their chemistry, blending with other materials/therapeutics, or developing stimuli-responsive formulations, is an extremely important knowledge to acquire when specific multi-functionalities are sought.
The present Special Issue collected 12 peer-reviewed interdisciplinary contributions on the broad topic of multi-functional collagen-based biomaterials.

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