

COLLAGEN-BASED BIOMATERIALS AND THEIR APPLICATION IN REPRODUCTIVE MEDICINE

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Abstract: Collagen, as the most abundant protein in mammals and the main component of the extracellular matrix (ECM), is widely used in the preparation of biomaterials and the treatment of various diseases. High biocompatibility makes collagen the perfect biomaterial for implantable medical products and scaffolds. In recent years, the application of collagen-based biomaterials in reproductive medicine has attracted increasing attention, providing innovative approaches in the treatment and regeneration of reproductive organs. Furthermore, collagen-based biomaterials such as collagen hydrogels, decellularized extracellular matrix (dECM), and bioengineering techniques, including collagen-based three-dimensional (3D) bioprinting, facilitate reproductive tissue engineering. Taking all this into account, the aim of this review was to highlight the recent progress and possibilities of collagen-based biomaterials for reproductive tissue engineering as well as their application in reproductive medicine. The integration of collagen-based biomaterials in reproductive medicine is promising, opening the way to more effective treatments, reducing complications and improving the quality of life of reproductive health patients.

Keywords: collagen, collagen-based biomaterials, reproductive medicine.