# Investigating the influence of bioactive glass 92S6 P123 on 3D-Printed scaffold fabrication

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The use of additive manufacturing techniques for scaffold fabrication has shown remarkable potential in tissue engineering and regenerative medicine (1). In this study, a novel approach involving a composite material of bioactive glass 92S6 P123 (2) with polylactic acid (PLA) was explored to create intricate three-dimensional (3D) scaffolds. The main objective was to analyze the impact of incorporating bioactive glass 92S6 P123 on the structural properties of 3D-printed scaffolds, subsequently optimizing the architectural design (grid versus gyroïd), pore size, and porosity in order to obtain the best compromise between mechanical properties and porosity for sufficient and efficient cell colonisation. The selected scaffold architecture, the gyroid, was carefully tailored to accommodate optimal mechanical support and cell proliferation. The outcomes of this study shed light on the significance of incorporating bioactive glass 92S6 P123 within the 3D-printed scaffolds. The findings highlight the enhanced potential for osteogenesis and osseointegration owing to the bioactivity of the glass component. Moreover, the tailored scaffold architecture exhibited promising results in terms of mechanical stability and cellular response. This research contributes to the evolving field of scaffold design for tissue engineering applications, offering insights into the interplay between scaffold composition, architecture, and in vivo performance. (3)

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