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Fabricator

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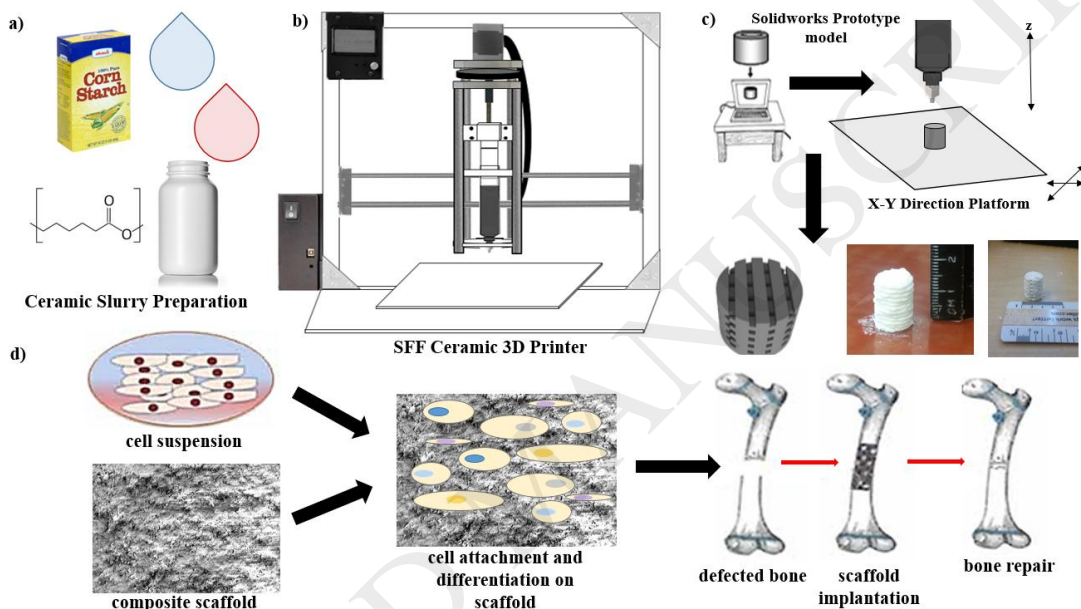
Starch-Hydroxyapatite Composite Bone Scaffold Fabrication Utilizing a Slurry Extrusion-Based Solid Freeform Fabricator

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Graphical abstract: a) Ceramic slurry preparation of starch and hydroxyapatite (HA) utilized for fabrication of bone scaffolds without the need for post processing. b) Schematic of Solid Freeform Fabricator. c) Representation of scaffold model utilizing solidworks file and CURA program and final scaffold prints d) In vitro cell work regarding the proliferation of osteoblast cells utilizing starch based composite HA scaffolds, ultimately acquiring sufficient mechanical integrity and enhanced biactivity to be utilized in bone repair.

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Abstract

Significant efforts have been made to treat bone disorders through the development of composite scaffolds utilizing calcium phosphate (CaP) through additive manufacturing techniques.

However, the incorporation of natural polymers with CaP during 3D printing is difficult and remains a formidable challenge in bone and tissue engineering applications. The objective of this study is to understand the use of a natural polymer binder system in ceramic composite scaffolds using a ceramic slurry-based solid freeform fabricator (SFF). This was achieved through the

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