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# Functionalization of PHB scaffolds with bacterial cellulose and osteogenic growth peptide

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Three-dimensional porous structures (scaffolds) have been considered in reconstruction of bone defects. The development of new biomaterials and techniques for obtaining this type of material has provided relevant results and promising for tissue engineering. The objective of this study was to develop three-dimensional polyhydroxybutyrate structures from rapid prototyping and functionalized with bacterial cellulose (BC) + osteogenic growth peptide (OGP) for bone regeneration. The scaffolds were produced by selective laser sintering with pores of 700 μm and 2-mm thickness. Afterwards samples were covered by BC in static culture. Subsequently to the BC purification, the OGP peptide was incorporated to the scaffolds. The scaffolds were characterized by scanning electron microscopy (SEM), thermogravimetric analysis (TG/DTA), Raman Scattering and mechanical tests. In vitro assays evaluated cellular morphology, cell viability, alkaline phosphatase activity (ALP) and mineralized matrix formation. The OGP peptide influenced osteogenic cell proliferation and favored the mineralization process, conferring osteoinductive property to PHB/BC scaffolds. The results suggest that scaffolds are potential material for bone tissue engineering/regeneration.

## Biography

Sybele Saska is dentistry and has completed her Ph.D at the age of 30 years from Univ. Estadual Paulista-UNESP, Institute of Chemistry (Araraquara/Brazil) with emphasis in biotechnology and postdoctoral studies from Univ. Estadual Paulista-UNESP, Institute of Chemistry in the research line tissue engineering. She has published more than 15 papers in journals and has 2 patents.

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