

## Accepted Manuscript

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PII: S0167-577X(18)30584-6  
DOI: <https://doi.org/10.1016/j.matlet.2018.03.202>  
Reference: MLBLUE 24163

To appear in: *Materials Letters*

Received Date: 23 November 2017  
Revised Date: 15 March 2018  
Accepted Date: 31 March 2018

Please cite this article as: D. Ye, W. Tang, Z. Xu, X. Zhao, G. Wang, Application of MBG as a coating material on mechanically stronger but less degradable ceramic scaffolds for enhanced osteogenesis, *Materials Letters* (2018), doi: <https://doi.org/10.1016/j.matlet.2018.03.202>

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# Application of MBG as a coating material on mechanically stronger but less degradable ceramic scaffolds for enhanced osteogenesis

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**Abstract:** Improving the mechanical properties and maintaining the desired degradability of the bioceramic scaffold is always being a contradiction in the field of bone tissue engineering. To resolve this conflict, highly degradable mesoporous bioactive glass (MBG) was homogenously coated on the mechanically stronger hardystonite ( $\text{Ca}_2\text{ZnSi}_2\text{O}_7$ , HT) scaffolds. The presence of MBG on the scaffold covers the shortage of the bioactive ions released from the underlying HT scaffold in the initial stage and provides a better platform for cellular adhesion. Results proved that the HT scaffold coated with MBG (HT/M) exhibits appealing biological properties, pointing out their potential application in bone tissue engineering.

**Keywords:** hardystonite scaffold; mesoporous bioactive glass; mechanical strength; bioactive ions; osteogenesis; ceramic

## 1. Introduction

An ideal bone scaffold is required to have enough mechanical strength to maintain its structure for the cells and tissues ingrowth at the early stage of bone healing and be replaceable by the newly formed

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