Mechanical properties of α-tricalcium phosphate-based bone cements incorporating regenerative biomaterials for filling bone defects exposed to low mechanical loads


Published in: Journal of Biomedical Materials Research - Part B: Applied Biomaterials

Document Version: Peer reviewed version

Queen's University Belfast - Research Portal: Link to publication record in Queen's University Belfast Research Portal

Publisher rights
© 2015 Wiley Periodicals, Inc.
This is the accepted version of the following article: Harrison R, Criss ZK, Feller L, Modi SP, Hardy JG, Schmidt CE, Suggs LJ, Murphy MB. 2015. Mechanical properties of a-tricalcium phosphate-based bone cements incorporating regenerative biomaterials for filling bone defects exposed to low mechanical loads. J Biomed Mater Res Part B 2015:00B:000–000., which has been published in final form at DOI: 10.1002/jbm.b.33362.

General rights
Copyright for the publications made accessible via the Queen's University Belfast Research Portal is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy
The Research Portal is Queen's institutional repository that provides access to Queen's research output. Every effort has been made to ensure that content in the Research Portal does not infringe any person's rights, or applicable UK laws. If you discover content in the Research Portal that you believe breaches copyright or violates any law, please contact openaccess@qub.ac.uk.
Supplementary information

Mechanical properties of α-tricalcium phosphate-based bone cements incorporating regenerative biomaterials for filling bone defects exposed to low mechanical loads.

Authors: Reed Harrison,¹ Zachary K. Criss,¹† Lacie Feller,¹† Shan P. Modi,¹† John G. Hardy,¹,²* Christine E. Schmidt,¹,²* Laura J. Suggs¹* and Matthew B. Murphy¹* 

Affiliations: 1) Department of Biomedical Engineering, The University of Texas at Austin, Austin, TX 78712. 2) J. Crayton Pruitt Family Department of Biomedical Engineering, University of Florida, Biomedical Sciences Building JG-53, P.O. Box 116131, Gainesville, FL 32611-6131.

Figure S1. α-TCP powder. A) Photograph of the solid isolated from the furnace. Image width = 5 cm. B) Photograph of the powder obtained after using the Mixer Mill MM 300 for 30 minutes. Image width = 5 cm.
Figure S2. $\alpha$-TCP powder particle surface area distribution.
Figure S3. Visual representation of the results of Tukey multiple comparison analysis of the mechanical properties of the CPC formulations described here. A) Compressive modulus. B) Strength. C) Modulus of resilience.
Figure S4. In Vitro Degradation Study. Black bars represent formulation 1. Dark grey bars represent formulation 5 with PGA sutures. Light grey bars represent formulation 8 with Monofyl® sutures.