

4th International Conference on Tissue Engineering

(ICTE2015)

Procedia Engineering Volume 10

**Lisbon, Portugal
25-27 June 2015**

Editors:

Paulo R. Fernandes

Paulo Bartolo

ISBN: 978-1-5108-0964-2

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© by Elsevier B.V.
All rights reserved.

Printed by Curran Associates, Inc. (2015)

For permission requests, please contact Elsevier B.V.
at the address below.

Elsevier B.V.
Radarweg 29
Amsterdam 1043 NX
The Netherlands

Phone: +31 20 485 3911
Fax: +31 20 485 2457

<http://www.elsevierpublishingsolutions.com/contact.asp>

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

Preface	1
<i>Paulo R. Fernandes, Paulo Bárto</i>	
Fibre Reinforcement in Living Cells: A Preliminary Study of the F-actin Filaments.....	2
<i>Joao Ferreira, Marco Parente, Renato Natal</i>	
Assessment of Trabecular Bones Microarchitectures and Crystal Structure of Hydroxyapatite in Bone Osteoporosis with Application of the Rietveld Method.....	8
<i>J. M. D. A. Rollo, R. S. Boffa, R. Cesari, D. C. Schwab, T. P. Leivas</i>	
Approaches to Corneal Tissue Engineering: Top-down or Bottom-up?	15
<i>Che J. Connon</i>	
On Different Approaches to Simulate the Mechanical Behavior of Scaffolds during Degradation.....	21
<i>André C. Vieira, Rui M. Guedes, Volnei Tita</i>	
Stiffness of Extracellular Matrix Components Modulates the Phenotype of Human Smooth Muscle Cells in Vitro and Allows for the Control of Properties of Engineered Tissues	29
<i>Sara B. H. Timraz, Rachid Rezgui, Selwa M. Boulaaraoui, Jeremy C. M. Teo</i>	
The Elasto-plastic Response of the Bone Tissue Due to the Insertion of Dental Implants.....	37
<i>C. S. S. Tavares, J. Belinha, L. M. J. S. Dinis, R. M. Natal Jorge</i>	
Incidence of Temperature and Indenter Diameter on the Mechanical Response of Skin during Indentation Test.....	45
<i>Jesica Isaza, Juan Ramirez</i>	
The Meshless Methods in the Bone Tissue Remodelling Analysis	51
<i>J. Belinha, L. M. J. S. Dinis, R. M. Natal Jorge</i>	
Osteogenic Differentiation of Adipose-derived Mesenchymal Stem Cells into Polycaprolactone (PCL) Scaffold.....	59
<i>Guilherme Ferreira Caetano, Paulo Jorge Bárto, Marco Domingos, Carolina Caliari Oliveira, Marcel Nani Leite, Marco Andrey Cipriani Frade</i>	
Ex vivo Model of Human Skin (hOSEC) as Alternative to Animal use for Cosmetic Tests	67
<i>T. A. Andrade, A. F. Aguiar, F. A. Guedes, M. N. Leite, G. F. Caetano, E. B. Coelho, P. K. Das, M. A. Frade</i>	
Methodology for Mechanical Characterization of Soft Biological Tissues: Arteries	74
<i>A. I. G. Arroyave, R. G. Lima, P. A. L. S. Martins, N. Ramiao, R. M. N. Jorge</i>	
A Biomechanical Approach for Bone Regeneration inside Scaffolds	82
<i>Carolina Gorri, Frederico Ribeiro, José M. Guedes, Paulo R. Fernandes</i>	
Mesenchymal Stem Cells and Biomaterials Systems – Perspectives for Skeletal Muscle Tissue Repair and Regeneration	90
<i>A. R. Caseiro, T. Pereira, P. J. Bárto, J. D. Santos, A. L. Luís, A. C. Maurício</i>	
Design and Validation of an Open-Hardware Print-Head for Bioprinting Application.....	98
<i>Carmelo De Maria, Laura Ferrari, Francesca Montemurro, Federico Vozzi, Ilenia Guerrazzi, Thomas Boland, Giovanni Vozzi</i>	
Neuro-muscular Regeneration Using Scaffolds with Mesenchymal Stem Cells (MSCs) Isolated from Human Umbilical Cord Wharton's Jelly: Functional and Morphological Analysis Using Rat Sciatic Nerve Neurotmesis Injury Model	106
<i>Ana Rita Caseiro, Tiago Pereira, Jorge Ribeiro, Irina Amorim, Fátima Faria, Paulo Jorge Bárto, Paulo Armada, Ana Lúcia Luís, Ana Colette Maurício</i>	
The Study of Differentiation of Oral Fibroblast According to the Cultivating Space	114
<i>Hyun-Seon Jang, Mi-Sa Lee</i>	
The Study of Media Effect on Differentiation of Gingival Fibroblast	118
<i>Il-Kwon Lee, Hyun-Seon Jang</i>	
Combination of 3D Extruded-based Poly (ε-caprolactone) Scaffolds with Mesenchymal Stem/Stromal Cells: Strategy Optimization.....	122
<i>Carla Sofia Moura, Cláudia Lobato Da Silva, Paulo Jorge Bárto, Frederico Castelo Ferreira</i>	
Hybrid Fabrication of a 3D Printed Geometry Embedded with PCL Nanofibers for Tissue Engineering Applications	128
<i>Christian Mendoza-Buenrostro, Hernan Lara, Ciro Rodriguez</i>	
Assessment of the Biocompatibility of the PLLA-PLCL Scaffold Obtained by Electrospinning.....	135
<i>Helena T. T. Oyama, Lucas R. X. Cortella, Isabela N. S. Rosa, Leonardo E. R. Filho, Wang S. Hui, Ismar N. Cestari, Idágene A. Cestari</i>	

Investigation of Chitosan-glycol/glyoxal as an Injectable Biomaterial for Vocal Fold Tissue Engineering	143
<i>Hossein K. Heris, Neda Latifi, Hojattolah Vali, Nicole Li, Luc Mongeau</i>	
Organ Printing as an Information Technology	151
<i>Rodrigo A. Rezende, Vladimir Kasyanov, Vladimir Mironov, Jorge Vicente Lopes Da Silva</i>	
Combined Elastic and Shear Stress Solicitations for Topological Optimisation of Micro-CT Based Scaffolds	159
<i>Henrique A. Almeida, Paulo J. Bárto</i>	
Tensile and Shear Stress Evaluation of Schwartz Surfaces for Scaffold Design	167
<i>Henrique A. Almeida, Paulo J. Bárto</i>	
Processing and Characterization of 3D Dense Chitosan Pieces, for Orthopedic Applications, by Adding Plasticizers	175
<i>Lígia Figueiredo, Carla Moura, Luís F. V. Pinto, Frederico Castelo Ferreira, Alexandra Rodrigues</i>	
Development of a Spinal Fusion Cage by Multiscale Modelling: Application to the Human Cervical Spine	183
<i>Pedro G. Coelho, Paula C. Fernandes, J. Folgado, Paulo R. Fernandes</i>	
Author Index	