

Accepted Manuscript

Three-dimensional scaffolds of fetal decellularized hearts exhibit enhanced potential to support cardiac cells in comparison to the adult

A.C. Silva, S.C. Rodrigues, J. Caldeira, A.M. Nunes, V. Sampaio-Pinto, T.P. Resende, M.J. Oliveira, M.A. Barbosa, S. Thorsteinsdóttir, D.S. Nascimento, P. Pinto-do-Ó

PII: S0142-9612(16)30322-2

DOI: [10.1016/j.biomaterials.2016.06.062](https://doi.org/10.1016/j.biomaterials.2016.06.062)

Reference: JBMT 17601

To appear in: *Biomaterials*

Received Date: 15 April 2016

Revised Date: 25 June 2016

Accepted Date: 28 June 2016

Please cite this article as: Silva AC, Rodrigues SC, Caldeira J, Nunes AM, Sampaio-Pinto V, Resende TP, Oliveira MJ, Barbosa MA, Thorsteinsdóttir S, Nascimento DS, Pinto-do-Ó P, Three-dimensional scaffolds of fetal decellularized hearts exhibit enhanced potential to support cardiac cells in comparison to the adult, *Biomaterials* (2016), doi: 10.1016/j.biomaterials.2016.06.062.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



THREE-DIMENSIONAL SCAFFOLDS OF FETAL DECELLULARIZED HEARTS EXHIBIT ENHANCED POTENTIAL TO SUPPORT CARDIAC CELLS IN COMPARISON TO THE ADULT

A.C. Silva^{1,2,3,4}, S.C. Rodrigues^{1,2,§}, J. Caldeira^{1,2,§}, A.M. Nunes^{5,§}, V. Sampaio-Pinto^{1,2,3}, T.P. Resende^{1,2}, M.J. Oliveira^{1,2,6}, M.A. Barbosa^{1,2,3}, S. Thorsteinsdóttir⁵, D.S. Nascimento^{1,2,*,#} and P. Pinto-do-Ó^{1,2,3,7,*,#}

¹ i3S - Instituto de Investigação e Inovação em Saúde, Universidade do Porto, Porto 4200-135, Portugal

² INEB - Instituto de Engenharia Biomédica, Universidade do Porto, Porto 4200-135, Portugal

³ Instituto de Ciências Biomédicas Abel Salazar (ICBAS), Universidade do Porto, Porto 4050-313, Portugal

⁴ Gladstone Institutes, University of California San Francisco, San Francisco 94158, United States of America

⁵ Centre for Ecology, Evolution and Environmental Change, Departamento de Biologia Animal, Faculdade de Ciências, Universidade de Lisboa, Lisboa 1749-016, Portugal;

⁶ Faculty of Medicine, University of Porto, Porto, 4200–319, Portugal

⁷ Unit for Lymphopoiesis, Immunology Department, INSERM U668, University Paris Diderot, Sorbonne Paris Cité, Cellule Pasteur. Institut Pasteur, Paris, France

[§] Equal contribution

[#] Equal contribution of senior authors

* Corresponding authors (**Perpetua Pinto-do-Ó** - Email: perpetua@ineb.up.pt; Phone: +351 220 408 800; Address: Rua Alfredo Allen, 208; 4200-135 Porto, Portugal and **Diana Santos Nascimento** - Email: dsn@ineb.up.pt; Phone: +351 220 408 800; Address: Rua Alfredo Allen, 208; 4200-135 Porto, Portugal)

ABSTRACT

A main challenge in cardiac tissue engineering is the limited data on microenvironmental cues that sustain survival, proliferation and functional proficiency of cardiac cells. The aim of our study was to evaluate the potential of fetal (E18) and adult myocardial extracellular matrix (ECM) to support cardiac cells. Acellular three-dimensional (3D) bioscaffolds were obtained by parallel decellularization of fetal- and adult-heart explants thereby ensuring

Download English Version:

<https://daneshyari.com/en/article/6484822>

Download Persian Version:

<https://daneshyari.com/article/6484822>

[Daneshyari.com](https://daneshyari.com)