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## Chitosan-collagen scaffolds can regulate the biological activities of adipose mesenchymal stem cells for tissue engineering

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Scaffolds of chitosan and collagen can offer a biological niche for the growth of adipose derived stem cells (ADSC). The objective of this work was to characterize the physico-chemical properties of the scaffolds and the ADSC, as well as their interactions to direct influences of the scaffolds on the behavior of ADSC. The methodology included an enzymatic treatment of fat obtained by liposuction by collagenase, ADSC immunophenotyping, cell growth kinetics, biocompatibility studies of the scaffolds analyzed by the activity of alkaline phosphatase (AP), nitric oxide (NO) determination by the Griess-Saltzman reaction, and images of both optical and scanning electron microscopy of the matrices. The extent of the crosslinking of genipin and glutaraldehyde was evaluated by ninhydrin assays, solubility tests and degradation of the matrices. The results showed that the matrices are biocompatible, exhibit physical and chemical properties needed to house cells *in vivo* and are strong stimulators of signaling proteins (AP) and other molecules (NO) which are important in tissue healing. Therefore, the matrices provide a biological niche for ADSC adhesion, proliferation and cells activities.

### Biography

Idiberto José Zotarelli Filho has received his Ph.D. from UNESP University in the field of Regenerative Medicine and Tissue Engineering. Currently, he is working as Researcher in the Institute of Cardiovascular Diseases and UNESP University. He has successfully completed his Administrative Responsibilities as Researcher. He has received several awards and honors, such as the International Symposium of extracellular matrix-Buzios/Brazil, International Congress of Hematology - Albert Einstein Hospital-Sao Paulo/Brazil and the International Congress of cell therapy stem cells in São Paulo/Brazil. He has published more than 100 peer-reviewed in journals and is an author of 2 books. Also actively participated in the training program in research-Research Coaching Program-Durham-Duke University -USA under the auspices of the Brazilian Cardiology Society-SBC and is a member of the Research Ethics Committee-Institute of Cardiovascular Diseases (IMC).

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