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cell behaviour

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Statement of the Problem: Mesenchymal stem cells (MSCs) are becoming increasingly important due to the broad spectrum of trophic and immunomodulatory factors they secrete. The MSC secretome plays a role in angiogenesis and revascularization, immune modulation and tissue repair; however, there is a lack of methods suitable for controlling this effect. Evidence exists to show cell substrates influence MSC behaviour. Therefore, manipulating the cell substrate could provide improved methods for controlling the secretome for new therapies but there is currently a lack of cell substrates suitable for implantation.

Methodology & Theoretical Orientation: The effect of implantable substrates consisting of biodegradable microparticles with hierarchical topographical features was investigated on MSC behaviour and secretome. Poly(DL-lactide-co-glycolide) microparticles were fabricated via the thermally-induced phase separation technique (TIPS). Three different polymer compositions of lactide/glycolide were studied. Microparticles were characterized in terms of surface topography and porosity. Human adipose-derived MSCs (ADMSCs) were attached to the surface of the microparticles and cultured for 16 days in xeno-free medium. Cell growth on the microparticles was evaluated at different time-points and compared with cells cultured on osi (ys in)TJ -0.9ukycys ibs(p)-5 1a13 (en)19 ((e s)5 (ur)6 (er)1i (o)11 (p1)-5 (d c0 (en)19 (((en)19 e)-4.9 (e di O2141.9

