

### **233i Evaluation of the Effect of the Chemistry of Biodegradable Polycarbonate Polymers Containing Iodine and Peg on Cellular Responses of Vascular Cell Lines**

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Biomaterials for cardiovascular applications must meet several design criteria including hemocompatibility, good mechanical strength and flexibility, as well as show X-ray visibility. Poly(DTE carbonate) has been demonstrated as a potential biodegradable polymeric material for cardiovascular applications. The properties of the poly(DTE carbonate) family of polymers can be systematically modified through changes in the polymer chemistry in the following three ways: 1) To improve hemocompatibility, varying amounts of poly(ethylene glycol) (PEG) can be incorporated. 2) X-ray visibility can be achieved via iodination of the tyrosine ring. 3) To increase the rate of degradation, desaminotyrosyl (DT) units can be introduced. However addition of these components to the polymer backbone also changes the physical properties of the polymer. For instance PEG increases the hydrophilicity while decreasing the mechanical stiffness of the polymer. Conversely, iodination increases the hydrophobicity. This study investigates effects of the interplay of these chemical modifications on the cellular responses of cardiovascular cell lines. Smooth muscle cells, endothelial cells and fibroblasts have been evaluated for cell attachment, proliferation, and morphology.