NEW PERSPECTIVES ON SMART BIODEGRADABLE SURFACES FOR BIOMEDICAL APPLICATIONS

João F. Mano¹²

¹³B’s Research Group - Biomaterials, Biodegradables and Biomimetics, Dept. of Polymer Engineering, Campus de Gualtar, 4710-057 Braga, Portugal
²IBB- Institute for Biotechnology and Bioengineering, Braga, Portugal

The response of living tissues and cells to biomaterials involves mainly interface interactions that can be controlled by adequate surface physico-chemical modification of the medical devices. A further step involves the development of surfaces that can respond to external stimuli, such as temperature, pH or biochemical, which extend the applicability of such biomaterials in areas such as tissue engineering / regenerative medicine and drug delivery. Examples are presented where topographic features may influence cellular response (adhesion and morphology) and stimuli responsive biodegradable surfaces that enable the control of cell adhesion and biomineralization.