INVESTIGATION OF CELL ADHESION TO ORMOCOMP SURFACES

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Ormocomp, a member of an Ormocer family (Micro Resist Technology GmbH), is a noncytotoxic, biocompatible, UV curable material widely used for two photon photopolymerisation of microstructures employed in MicroElectroMechanical Systems and lab-on-chip devices. For proper functioning of such devices, interaction of polymeric constituents with biological components needs to be precisely understood. In this work, we investigate the capability of cells to adhere to Ormocomp hybrid material surfaces. For this purpose, established mammalian adherent cell lines and UV cured Ormocomp spincoated thin films as surfaces on glass coverslips were used. Poor adhesion capability of the used cell lines was found for native – untreated Ormocomp surfaces. With the intention to improve the cell adhesion to Ormocomp, multiple washing procedures of the polymer coatings were tested. Treatment of Ormocomp coatings with some cationic solutions lead to reproducible increase of cells attached to polymer surfaces. Possible relation between surface charge of Ormocomp coatings and adherent capability of the cells was considered. In this work we discuss approaches for improvement of cell adhesion to Ormocomp by cationization of polymer surfaces. Supported by APVV-14-0716, VEGA 1/0070/16, APVV-14-0858, FPPV-52-2017.