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Sulfobetainized biocomposite mats with improved biocompatibility and antifouling property

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Abstract

Sulfobetaine precursor of poly(BMA-co-DMAEMA) copolymer was first prepared by free radical polymerization of butyl methacrylate(BMA) and N,N-dimethylamino-2-ethyl methacrylate (DMAEMA) monomers. Then, the copolymer was coelectrospun with polyurethane to afford polyurethane/poly(BMA-co-DMAEMA) composite mats. The resultant mats were subsequently sulfobetainized to form zwitterions. The structure and morphology of mats were evaluated by ATR-FTIR, XPS, and SEM. The hemocompatibility and antifouling property of mats were preliminarily investigated by protein adsorption, platelet adhesion, and bacterial adhesion. The results indicated that the zwitterionic biocomposite mats could suppress protein adsorption, platelet adhesion, antibacterial adhesion as well as non-cytotoxicity.

Keywords: Electrospinning, Sulfobetaine, Hemocompatibility, Antifouling

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