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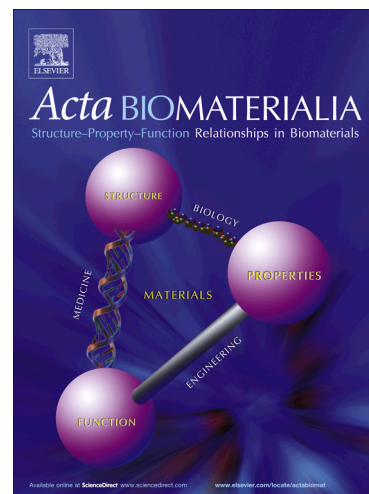
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Abstract

Polyetheretherketone (PEEK) has excellent mechanical properties, biocompatibility, chemical resistance and radiolucency, making it suitable for use as orthopedic implants. However, its surface is hydrophobic and bioinert, and surface modification is required to improve its bioactivity. In this work, we showed that grafting phosphonate groups via diazonium chemistry enhances the bioactivity of PEEK. Decreased contact angle indicated reduced hydrophobicity as a result of the treatment and X-ray photoelectron spectroscopy (XPS) confirmed the attachment of phosphonate groups to the surface. The surface treatment not only accelerated hydroxyapatite (HA) deposition after immersion in simulated body fluid but also significantly increased the adhesion strength of HA

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