

Biomimetic Growth of Bone-Like Apatite Via Simulated Body Fluid On Hydroxyethyl Cellulose/Polyvinyl Alcohol Electrospun Nanofibers

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ABSTRACT

In this study, randomly oriented hydroxyethyl cellulose/polyvinyl alcohol (HEC/PVA) nanofibers were fabricated by electrospinning. The blend solutions of HEC/PVA with different weight ratio of HEC to PVA were prepared using water as solvent to fabricate nanofibers. These nanofibrous scaffolds were coated with bone-like apatite by immersing into 10x simulated body fluid (SBF) for different time periods. The morphology and structure of the nanofibers were characterized by SEM, FTIR and DSC. FESEM-EDS and FTIR analysis were used to confirm the deposition of apatite on the surface of nanofibers. The results of this study suggest that this apatite coated nanofibrous scaffolds could be a suitable biomaterial for bone tissue engineering.

KEYWORDS: Hydroxyethyl cellulose, electrospinning, bone-like apatite, simulated body fluid, bone tissue engineering

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