

研究業績 英文表記

和文	
表題	骨再生のための FGF-2 ロード性エレクトロスピンング水性ポリウレタン繊維膜の開発
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英文	
Title	Development of FGF-2-loaded electrospun waterborne polyurethane fibrous membranes for bone regeneration
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Abstract	<p>Guided bone regeneration (GBR) membrane has been used to improve functional outcomes for periodontal regeneration. However, few studies have focused on the biomimetic membrane mimicking the vascularization of the periodontal membrane. This study aimed to fabricate waterborne polyurethane (WPU) fibrous membranes loaded fibroblast growth factor-2 (FGF-2) via emulsion electrospinning, which can promote regeneration of periodontal tissue via the vascularization of the biomimetic GBR membrane. A biodegradable WPU was synthesized by using lysine and dimethylpropionic acid as chain extenders according to the rule of green chemical synthesis technology. The WPU fibers with FGF-2 was fabricated via emulsion electrospinning. The results confirmed that controlled properties of the fibrous membrane had been achieved with controlled degradation, suitable mechanical properties and sustained release of the factor. The immunohistochemical expression of angiogenic-related factors was positive, meaning that FGF-2 loaded in fibers can significantly promote cell vascularization. The fiber scaffold loaded FGF-2 has the potential to be used as a functional GBR membrane to promote the formation of extraosseous blood vessels during periodontal repairing.</p>
keyword	Waterborne polyurethane, Fibroblast growth factor-2, Emulsion electrospinning, Vascularization, GBR membrane

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