

Accepted Manuscript

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PII: S0169-409X(17)30310-1
DOI: <https://doi.org/10.1016/j.addr.2017.12.007>
Reference: ADR 13225
To appear in: *Advanced Drug Delivery Reviews*
Received date: 10 August 2017
Revised date: 24 October 2017
Accepted date: 9 December 2017

Please cite this article as: P. Heher, S. Mühleder, R. Mittermayr, H. Redl, P. Slezak , Fibrin-based delivery strategies for acute and chronic wound healing. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. *Adr*(2017), <https://doi.org/10.1016/j.addr.2017.12.007>

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Fibrin-based delivery strategies for acute and chronic wound healing

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Abstract

Fibrin, a natural hydrogel, is the end product of the physiological blood coagulation cascade and naturally involved in wound healing. Beyond its role in hemostasis, it acts as a local reservoir for growth factors and as a provisional matrix for invading cells that drive the regenerative process. Its unique intrinsic features do not only promote wound healing directly via modulation of cell behavior but it can also be fine-tuned to evolve into a delivery system for sustained release of therapeutic biomolecules, cells and gene vectors. To further augment tissue regeneration potential, current strategies exploit and modify the chemical and physical characteristics of fibrin to employ combined incorporation of several factors and their timed release. In this work we show advanced therapeutic approaches employing fibrin matrices in wound healing and cover the many possibilities fibrin offers to the field of regenerative medicine.

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