

Thermoresponsive Cell Adhesive Bioresorbable Dressing for Wound Healing Applications

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Technology description

Novel citrate-based thermoresponsive gel dressing that fosters cell adhesion to improve wound healing. Northwestern scientists have developed a polymer composite for wound dressing that facilitates cell recruitment and infiltration into the wound bed without the need for soluble factors. This novel bioresorbable dressing is functionalized with two peptides that attract specific cell populations into the wound to speed healing. Cell recruitment combined with the intrinsic antioxidant properties of the hydrogel dressing has the potential to alter treatment of both acute and chronic wounds (e.g. diabetic foot ulcers or bedsores). Importantly, this cell recruitment strategy does not depend on soluble factors, which are unstable and lose effectiveness over time, in other wound dressings. In laboratory studies with a mouse model for diabetic wound healing, this novel material significantly outperforms the non-functionalized polymer dressing. Finally, this new polymer composite can also be functionalized with other peptides to recruit specific cell populations for purposes of bone or vascular regeneration.

Application area

Wound healing (e.g. diabetic wound healing, bed sores)

Localized delivery of cell-based therapies

Bone or vascular regeneration

Advantages

Intrinsic antioxidant properties

Increased wound closure rate

Versatile

Institution

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