



NYU



Novel Wound Healing Hydrogels

Relatively cheap and easy-to-produce fibers help stabilize this novel class of wound healing hydrogel and increase efficacy.

Technology Overview

A researcher has developed a novel class of wound healing hydrogels. These are composed of a variant (Q) of the coiled-coil region of complex oligomeric matrix protein (COMPcc). The hydrogel consists of wound healing agents, exosomes (vesicles) from stromal cells, embedded in Q fibers. Small molecules used as wound healing agents can also interact with the hydrophobic core of Q and stabilize the hydrogels, as seen by increase in elastic modulus. The wound healing agents can be triterpenoids, for example.

The author has demonstrated proof-of-concept (POC) when mice with diabetic ulcers were treated with Exosome-Q or triterpenoid hydrogels and their wounds healed significantly faster than control treatment, bringing closure time within the range of physiologic or normal wounds.

Background

Chronic patients, notably those with diabetes, often develop wounds that do not heal easily. Medically caring for these wounds can include debridement, antibiotics, weight off-loading and dressings. The financial burden caused by diabetic wounds is substantial and estimated at a \$28 billion socio-economic impact in the US. It is estimated that 14-24% of patients with foot ulcers will undergo amputation.

There is only one FDA-approved wound healing drug on the market, Regranex, a platelet-derived growth factor gel. However, Regranex has side effects when used frequently and is expensive. Therefore, new therapeutics for wound healing are necessary to improve the quality of life for millions of patients.

Benefits

- Relatively cheap and easy-to-produce fibers help stabilize the hydrogel and increase efficacy
- The hydrogel requires single or few applications to achieve results and is less likely to cause side effects
- Wound healing agents may be added before or during gelation, which can be an advantage in formulation and manufacturing

Applications

Healing wounds (e.g. diabetic ulcers) by applying the hydrogel to the wound site.

Patents

[17/490,156](#)

Category

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