Washington University in St. Louis
Office of Technology Management

OXYGEN-RELEASING HYDROGEL FOR RAPID WOUND HEALING

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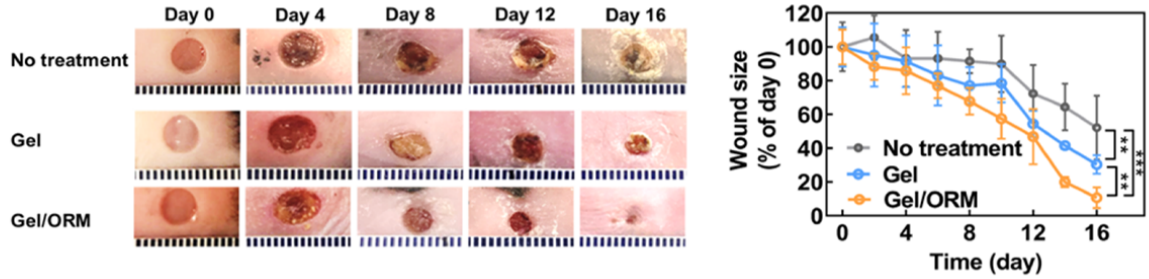
Technology Description

Researchers in Jianjun Guan's lab at Washington University have developed an oxygen-releasing hydrogel that accelerates wound healing. The biodegradable hydrogel is loaded with oxygen release microspheres (ORM) that slowly release oxygen into the surrounding tissue to increase angiogenesis and decrease inflammation.

While oxygen is known to speed up wound healing, current hyperbaric oxygen therapy (HBOT) is expensive and potentially toxic. This gel could simplify and accelerate wound healing for diabetics and others with ischemic wounds.



Stage of Research

The researchers have validated the hydrogel delivery system in mice, as seen above. Current experiments involve testing in larger animals.

Publications

- Guan Y, Niu H, Liu Z, Dang Y, … Guan J. (2021). Sustained oxygenation accelerates diabetic wound healing by promoting epithelialization and angiogenesis and decreasing inflammation. *Science Advances*, 7(35).

Applications

- Wound healing, particularly in diabetics

Key Advantages

- Increases epithelialization
- Promotes angiogenesis
- Decreases inflammation

Patents: Pending

Related Web Links: Guan Profile & Lab