Chronic wound healing using β3AR agonists

Medical technology and devices

> Pre-Clinical

Problem
Chronic wounds affect 6.7 million people globally, representing a market of around US$11 billion. Ischemia is a major factor underlying chronic wounds, particularly for those with diabetes, as it causes microvascular dysfunction and disrupted blood flow. There are currently no pharmacological therapeutics on the market aimed at improving diabetic ulcer healing, and current treatments include moist wound dressings or amputation.

Solution
Our researchers found that simulation of the β3 adrenoreceptor in blood vessels increases vessel growth and blood flow to injured tissue, improving healing capacity in mouse models. Topical application of the β3AR agonist was found to be notably effective, and so our researchers further developed a lipogel which dissolves and successfully delivers the hydrophobic small molecule through the skin to the dermis. Repurposing of the approved β3AR agonist Mirabegron and a research program close to clinical trials may dramatically reduce the time to market.

Potential Commercial Applications
— Diabetic foot ulcers
— Scleroderma
— Pressure sores
— Peripheral arterial disease

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Scientific Data
Additional data and information is available at: https://doi.org/10.3389/fphar.2021.666334

Wound healing was significantly improved in a diabetic mouse model by using topical Mirabegron when compared with the vehicle.

Intellectual Property Status
This technology is protected by a method-of-use patent application which captures the use of β3AR agonists to promote wound healing (WO 2022/174309 in US, EU, AU).

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