

# Chronic wound healing using $\beta$ 3AR agonists



THE UNIVERSITY OF SYDNEY

[2021-007]

## 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  $\beta$ 3 adrenoreceptor in blood vessels increases vessel growth and blood flow to injured tissue, improving healing capacity in mouse models. Topical application of the  $\beta$ 3AR 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  $\beta$ 3AR agonist Mirabegron and a research program close to clinical trials may dramatically reduce the time to market.

### Intellectual Property Status

This technology is protected by a method-of-use patent application which captures the use of  $\beta$ 3AR agonists to promote wound healing (WO 2022/174309 in US, EU, AU).

### Potential Commercial Applications

- Diabetic foot ulcers
- Scleroderma
- Pressure sores
- Peripheral arterial disease

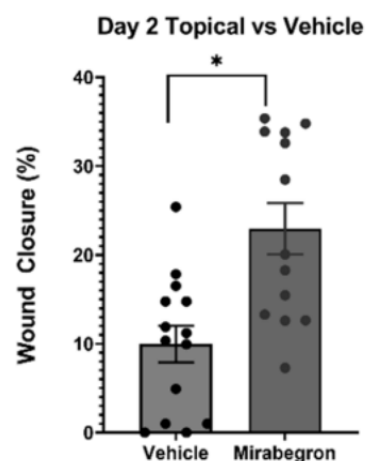
### Inventors

Gemma Alexandra Figtree, Kristen Bubb, Belinda Di Bartolo

### 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.**



### Contact Commercialisation Office

Name: Dr Taylor Syme  
Position: Commercialisation Manager (Medicine & Health)  
Email: [taylor.syme@sydney.edu.au](mailto:taylor.syme@sydney.edu.au) | Phone: +61 468 517 473  
[sydney.edu.au/innovation-and-enterprise](http://sydney.edu.au/innovation-and-enterprise)