

Use of Capsaicin/TRPV1 agonists for prevention of diabetic foot ulcers

The technology relates to the topical use of Capsaicin or TRPV 1 agonists for the **prevention of diabetic ulcers** in a patient suffering from **diabetic peripheral neuropathy (DPN)**.

Proposed use

- Repeated topical administration of a capsaicinoid or TRPV1 agonist to one or more areas of the skin, for the prevention of diabetic foot ulcers.
- Use of a capsaicinoid or TRPV1 agonist to induce or enhance the regeneration of small sensory nerve fibres in patients with both painful and non-painful DPN.

Problem addressed

Diabetic Peripheral Neuropathy (DPN) refers to peripheral neuropathy (whether painful or non-painful) induced by diabetes mellitus. The underlying mechanisms are diverse, yet progressive loss of small sensory nerve fibres has been found to occur in diabetic patients, playing a major role in the development of diabetic foot ulcers. Among the diabetic population, there exists a significant lifetime risk of 25% for developing diabetic foot ulceration. Tragically, a majority of these cases will require amputation within four years of initial diagnosis. Such complications are directly linked to a higher mortality risk. **Currently, there is no approved treatment available to prevent nerve fibre loss or promote nerve regeneration in DPN.** However, the topical administration of a patch containing Capsaicin, or an equivalent TRPV1 agonist to the skin of a patient, holds promising potential to address this issue by inducing nerve regeneration.

Technology overview

The key features of this technology include:

- The topical administration of a capsaicinoid or TRPV1 agonist to one or more areas of the skin, for the prevention of diabetic foot ulcers.
- A kit, comprising: a cutaneous patch; and a leaflet, where the cutaneous patch contains capsaicin or a capsaicinoid or a TRPV1 agonist, and the leaflet provides instructions for a method of preventing diabetic ulcers.

Intellectual property information

An International PCT application (WO2022/053820) has been filed.

Link to published paper(s)

Anand P, Privitera R, Donatien P, et al. Reversing painful and non-painful diabetic neuropathy with the capsaicin 8% patch: Clinical evidence for pain relief and restoration of function via nerve fiber regeneration. *Front Neurol.* 2022;13:998904. Published 2022 Oct 26. Link: <https://www.frontiersin.org/articles/10.3389/fneur.2022.998904/full>

Benefits

- Prevents development of foot ulcers in diabetic patients
- Promotes nerve regeneration in DPN.
- Reduces the burden of Diabetic Foot Syndrome on patients, carers and financial resources.

Inventor information

Professor Praveen Anand and his team are based at the **Division of Clinical Neurology, Faculty of Medicine, at Imperial College London and Imperial Healthcare NHS Trust.** Their translational approach has guided the success of 3 novel drugs from the laboratory to Phase II trials for chronic neuropathic pain, and one for chronic itch. They have over 250 peer-reviewed publications in journals including *Nature*, *Nature Medicine*, *Nature Genetics*, *Science* and *The Lancet*.

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