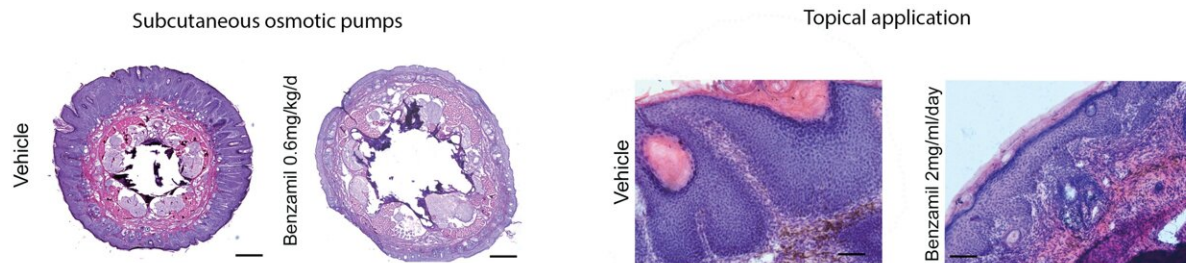


# Repurposed drug blocks key inflammatory pathways in psoriasis mouse models

December 12 2024, by Bob Yirka



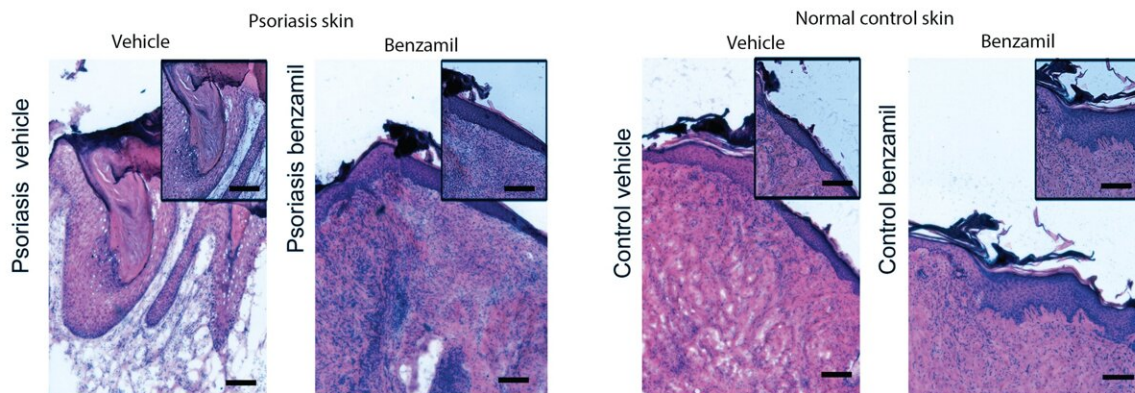
Both systemic and topical benzamil treats inflamed mouse skin. Credit: Adapted from *Science Translational Medicine* (2024). DOI: 10.1126/scitranslmed.ade5915

A team of skin disease specialists has found that a derivative of the diuretic drug benzamil can be used to block key inflammatory pathways in psoriasis mouse models. In their paper [published](#) in the journal *Science Translational Medicine*, the group describes how they discovered the effectiveness of the drug while they were screening candidates to treat psoriasis that would not require immune suppression.

Psoriasis is a [chronic skin condition](#) characterized by raised, inflamed red plaques. It is an autoimmune disease that arises when the immune system overresponds to [skin irritation](#), resulting in [skin cells](#) overmultiplying. Treatments typically involve the use of topical creams, ointments, pills, injections and the application of light.

Such treatments generally have a number of anti-inflammatory properties meant to calm the [immune response](#), but most also come with unpleasant side effects and can be expensive. That led the team to try to find a better [treatment](#) for the disease.

The team conducted a computational analysis of gene expression profiles that came from the work of other researchers looking for treatments for [psoriasis](#). They compared what they found with expression profiles from psoriasis patients' cells and then used the results to search for drugs known to have associated profiles. They found one, benzamil, a derivative of the diuretic drug amiloride, that appeared to be a reasonable candidate for treating psoriasis.



Treatment of human psoriasis skin grafts reduce thickening without thinning unaffected skin. Credit: Adapted from *Science Translational Medicine* (2024). DOI: 10.1126/scitranslmed.ade5915

The researchers note that the drug is a sodium channel inhibitor, rather than an anti-inflammatory agent, and that amiloride has already been approved for use as a diuretic drug.

To find out if the drug would work as hoped, the researchers collected skin cells from psoriasis patients and grafted them onto test mice and once healing had occurred, they applied benzamil. They found that the drug was effective in limiting epidermal inflammation and psoriasiform hyperplasia. Continued application of the drug prevented excess cell growth—the ultimate goal of psoriasis treatment.

The research team plans to further tweak the benzamil molecule, hoping to produce an even more effective drug before asking for approval from the FDA for its use on psoriasis patients.

**More information:** Mårten C. G. Winge et al, Repurposing an epithelial sodium channel inhibitor as a therapy for murine and human skin inflammation, *Science Translational Medicine* (2024). [DOI: 10.1126/scitranslmed.ade5915](https://doi.org/10.1126/scitranslmed.ade5915)

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