MEK Inhibition for Treating Darier Disease and Skin Fragility Disorders

A novel therapeutic approach utilizing MEK inhibitors to treat Darier disease and other skin fragility disorders by targeting the underlying molecular pathways.

What is the Problem?

Darier disease is a genetic skin disorder caused by mutations in the ATP2A2 gene, leading to a deficiency in the SERCA2 protein. This results in weakened intercellular adhesion and defective skin differentiation, causing recurrent skin blistering, erosions, and infections. Current treatments are limited and often have significant side effects. Similarly, other skin fragility disorders, characterized by compromised skin integrity, lack effective targeted therapies.

What is the Solution?

This technology offers MEK inhibitors as a novel treatment for Darier disease and other skin fragility disorders. Inhibiting MEK in the MAP kinase signaling pathway can restore the integrity of skin cells affected by SERCA2 deficiency. The MEK inhibitors can rescue adhesive protein expression and improve keratinocyte sheet integrity. This approach offers a promising therapeutic strategy not only for Darier disease but also for other skin fragility disorders that involve similar molecular pathways. To treat blistering skin disorders, the MEK inhibitors can be applied either topically or systemically.

What is the Competitive Advantage?

Targeted Therapy: MEK inhibitors specifically address the molecular defects caused by SERCA2 deficiency, offering a more precise treatment option.

Broad Applicability: This therapeutic strategy can potentially be applied to various skin fragility disorders beyond Darier disease.

Improved Safety Profile: Compared to current treatments, MEK inhibitors may offer a better safety profile with fewer side effects. Additionally, one of the MEK inhibitors has already been FDA-approved for other uses.

Preclinical Validation: The efficacy of MEK inhibitors has been demonstrated in a human tissue model, providing a strong foundation for further clinical development.

Technology ID

BDP 8802

Category

Selection of Available Technologies

Therapeutics/Other

Authors

Cory Simpson

Learn more

Patent Information:

US20240299394A1

References

1. Zaver, S. A., Sarkar, M. K., Egolf, S., Zou, J., Tiwaa, A., Capell, B. C., Gudjonsson, J. E., Simpson, C. L.(2023) , https://pmc.ncbi.nlm.nih.gov/articles/PMC10561730/, https://insight.jci.org/, 8, e170739