Filaggrin to treat dermatological disorders

Icthyosis vulgaris and atopic dermatitis are common skin diseases characterized by itchy, scaly and often inflamed skin. These diseases are often associated with a lack of filaggrin (FLG) protein. In healthy patients, the FLG protein is expressed in the cytoplasm of epithelial cells and plays an essential role for proper keratinization and squamification of epithelial cells, formation of epidermal barrier, and hydration.

There are currently no therapies that treat the underlying cause of these dermatological disorders. Instead, treatment is generally limited to controlling skin scaling and increasing skin moisture. Vitamin A analogues are occasionally prescribed for severe cases. Neither approach is considered particularly effective. The present technology, developed by Drs. Tim Stout, Binoy Appukuttan and Trevor McFarland at Oregon Health & Science University, is the first to target the underlying etiology, employing recombinant filaggrin combined with a cell importation signal such as arginine methionine repeats (“rFLG-RMR”). Studies conducted by Dr. Stout and his colleagues using a flaky-tail mouse model show that rFLG-RMR, formulated in a dermal cream, is internalized by epithelial cells and, somewhat surprisingly, restores regular epithelial cell function.

Applications

- Skin cream containing rFLG-RMR for topical application to treat icthyosis vulgaris, atopic dermatitis, and dry skin disorders

Development stage

- Pre-clinical studies ongoing
- In vivo tests on human and mouse keratinocyte cell lines
- Proof of concept on a mouse model using rFLG-RMR formulated in a dermal cream. Image: Scanning EM of ft/ft skin after FLG-RMR treatment. SEM photos of ft/ft tail skin after a 14 day treatment of either 50µg FLG-RMR/day or vehicle only. Treated mice tails displayed a more uniform scale formation and an overall smoother appearance when compared to untreated controls.


Available for licensing or partnering

For more information, please contact our business development unit:
Dr. Alexandra Richardson  +41-76-342-7147  arichardson@claytonbiotech.com

©2012 Clayton Biotechnologies Inc. – www.claytonbiotech.com