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Office of Technology Management

DIAGNOSTIC AND BIOMARKER FOR TREATING ATOPIC DERMATITIS (AD)

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Value Proposition: *IL-15 superagonist that utilizes a companion diagnostic to treat atopic dermatitis.*

Technology Description

Researchers at Washington University in St. Louis have developed a treatment strategy for atopic dermatitis that uses an IL-15 superagonist, along with a companion diagnostic to identify potential responders. Atopic dermatitis is a chronic, non-contagious condition caused by itching and dry, inflamed skin. It often flares due to allergens, stress or irritation and is caused by a combination of genetic skin barrier weakness and immune system overreaction. Current therapies for atopic dermatitis currently available or in development involve shutting down type 2 inflammation. However, patients with atopic dermatitis have a deficiency in type 1 immunity and NK cells.

This technology employs existing IL-15 superagonists known to boost NK cell function to treat atopic dermatitis and other allergic disorders in an entirely novel manner.

Stage of Research

NK cell diagnostic in humans was validated by comparing 25 AD patients and 363 controls. The IL-15 superagonist reduced the clinical score in a proof-of-concept experiment in an AD mouse model. Ongoing work involves refining the IL-15 superagonist and further validating its activity *in vivo*.

Publications

Mack MR, Brestoff JR, Berrien-Elliott MM, Trier AM, … Kim BS. (2020). Blood natural killer cell deficiency reveals an immunotherapy strategy for atopic dermatitis. *Science Translational Medicine*, 12(532).

Applications

- Atopic dermatitis therapeutic and companion diagnostic

Key Advantages

- Treatment replenishes depleted NK cells and restores normal immune function
- Companion diagnostic seeking NK cell deficiency identifies potential responders

Patents

US application filed

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