



## MICROFLUIDIC DEVICE AND METHOD FOR GENERATING A SKIN CONSTRUCT

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### Overview

Research into new therapies for skin diseases is challenging for a number of reasons. As is known, skin cells are exposed to both atmospheric air and liquids within the body. However, conventional cell culture models do not accurately mimic the in vivo conditions necessary for insuring the reliability, validity, and transferability of the research. As such, dermatology and pulmonary researchers have turned to air-liquid interface systems to allow the researchers to more accurately mimic in vivo conditions

### The Invention

UW-Madison researchers have designed a microfluidic device capable of recapitulating the human skin structure in a physiologically relevant manner. The new device provides superior performance and is inexpensive relative to existing tools. The device allows for generation of a stratified human skin construct via the inclusion of an air-liquid interface, which is required for normal skin cell growth. Additionally, nutrient supplementation is achieved via the inclusion of a synthetic blood vessel. The microfluidic device generates an optically transparent skin construct that allows the user to visualize cellular processes in real time without using destructive techniques. Additionally, the device does not rely on porous membranes to mimic the skin layers, offering a faster and more cost-effective fabrication.

### Additional Information

#### For More Information About the Inventors

- [Vijayasradhi Setaluri](#)

#### Tech Fields

- [Analytical Instrumentation, Methods & Materials : Microfluidics](#)
- [Research Tools : Other research tools](#)

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