120 Keratin switching modulates cellular mechanical properties to balance epidermal strength and plasticity

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The epidermis must balance the ability to resist mechanical stress with the plasticity required for tissue remodeling during growth and wound healing. The keratin intermediate filament (IF) network is adapted to the mechanical forces to which adjacent cells are subjected. However, the relative contribution of keratins to epidermal plasticity and remodeling is not well understood. This study investigated the role of keratin switching across the epidermis in children with atopic dermatitis (AD) and matched healthy controls (mean age, 32 yrs). Based on targeted lipidomics, ichthyotic skin was characterized by a disruption of ceramides and dihydroceramides, especially for lamellar body potassium channels (Kv1.5). These results suggest that changes in keratin expression may alter IF network function in order to support increased remodeling.

To test this hypothesis, we measured levels of ceramide and dihydroceramides in skin biopsies from children with AD (n = 9) and matched healthy controls (n = 9). We observed decreases in ceramide and increases in dihydroceramides, consistent with reduced keratin expression. In contrast, sphingosine was increased in all subpopulations, raising the possibility that ceramide metabolism may alter IF network function in order to support increased remodeling.

121 Unbearable transdermal water loss (TEWL) experimental variability: Why? KP Peet,1 A. Buri1 and H. Maibach1 1 University of Rochester School of Medicine and Dentistry, 2 Dept. of Dermatology, University of California, San Francisco, San Francisco, California, United States

Purpose: Despite the widespread use of research, much disparity exists in transdermal water loss (TEWL) studies. Mobility of barrier function variables, such as age, anatomic site, and temperature, impact TEWL and should be controlled for in TEWL studies. Other variables, such as smoking and menstrual cycle, have been shown to modulate TEWL in female subjects.

Methods: To determine potential confounding variables, a subsequent research procured data from research studies. The relationship of the variables to TEWL was determined. To test this hypothesis, we compared the results of all 124 TEWL studies and determined whether such experimental variables significantly impact TEWL studies and cause this disparity.

Results: Variables, such as age, anatomic site, and temperature, impact TEWL and should be controlled for in TEWL studies. Other variables, such as smoking and menstrual cycle, have been shown to modulate TEWL in female subjects. However, the impact of these variables on TEWL remains unclear. In addition, the impact of these variables on TEWL remains unclear. In addition, the impact of these variables on TEWL remains unclear. In addition, the impact of these variables on TEWL remains unclear.

Conclusion: To test this hypothesis, we compared the results of all 124 TEWL studies and determined whether such experimental variables significantly impact TEWL studies and cause this disparity. Variables, such as age, anatomic site, and temperature, impact TEWL and should be controlled for in TEWL studies. Other variables, such as smoking and menstrual cycle, have been shown to modulate TEWL in female subjects. However, the impact of these variables on TEWL remains unclear. In addition, the impact of these variables on TEWL remains unclear. In addition, the impact of these variables on TEWL remains unclear.