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 (KIF) network plays a key role in this balance between adjacent cells through desmosomes, which have long been recognized as a key mediator of epidermal integrity. Disruption of the KF network leads to epidermal fragility in a number of diseases. However, the contribution of the KF network to epidermal plasticity remains poorly defined. Here, we provide sufficient evidence that the keratin tails of lamellar bodies fulfill a key role in keratin of skin direction as they stabilize the skin temperature can reach 44 °C under sun exposure. The rare studies available show that low humidity causes severe discomfort, skin irritation, itchiness and social stigmatization. The heterogeneous presentation of AD together with the invasiveness of skin biopsy sampling — especially from children — limits the acquisition of clinical samples. Consequently AD remains to be fully elucidated. In this study, we established a first, minimally invasive skin tape-stripping method that enabled in-depth characterization of the skin transcriptome in healthy children (n=15, age 1 month to 16 years old), and in the lesional and non-lesional skin of children with AD (n=19, age 1 to 14 years old), using RNA sequencing. Transcripts from skin of healthy individuals differed markedly from that of AD patients; however, there were only minor differences between non-lesional and lesional AD skin. Transcripts that defined AD lesional skin were mainly associated with immune regulation, skin remodeling and cell cycle control, and represented novel and established markers that pointed to the involvement of monocytes, mast cells and neutrophils. Notably, these markers differentially linked to clinical disease manifestations as assessed by the Eczema Area and Severity Index and Pruritus score. Taken together, these results support the identification of novel molecular markers of pediatric AD that are selectively implicated in clinical outcomes related to disease severity and skin itchiness.

122 Identification of novel molecular markers of disease severity and skin itchiness in children with atopic dermatitis

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Atopic dermatitis (AD) is a globally prevalent skin disorder affecting millions of children. AD causes severe discomfort, skin irritation, itchiness and social stigmatization. The heterogeneous presentation of AD together with the invasiveness of skin biopsy sampling — especially from children — limits the acquisition of clinical samples. Consequently AD remains to be fully elucidated. In this study, we established a first, minimally invasive skin tape-stripping method that enabled in-depth characterization of the skin transcriptome in healthy children (n=15, age 1 month to 16 years old), and in the lesional and non-lesional skin of children with AD (n=19, age 1 to 14 years old), using RNA sequencing. Transcripts from skin of healthy individuals differed markedly from that of AD patients; however, there were only minor differences between non-lesional and lesional AD skin. Transcripts that defined AD lesional skin were mainly associated with immune regulation, skin remodeling and cell cycle control, and represented novel and established markers that pointed to the involvement of monocytes, mast cells and neutrophils. Notably, these markers differentially linked to clinical disease manifestations as assessed by the Eczema Area and Severity Index and Pruritus score. Taken together, these results support the identification of novel molecular markers of pediatric AD that are selectively implicated in clinical outcomes related to disease severity and skin itchiness.

124 Lipidomic analysis of congenital ichthyotic skin suggests disruption in ceramide catalyzer

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Congenital ichthyosis is a group of genetic disorders that share skin barrier impairment and clinical disease manifestations as assessed by the Eczema Area and Severity Index and Pruritus score. Taken together, the results support the identification of novel molecular markers of disease severity and skin itchiness.

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