

# Non-invasive skin immune biomarker test helps predict development of eczema in babies, new study finds

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Researchers have identified an immune biomarker in newborns that can predict the subsequent onset and severity of pediatric atopic eczema, a

new study presented at the 31<sup>st</sup> European Academy of Dermatology and Venereology (EADV) Congress has shown.

The Barrier dysfunction in Atopic newBorns (BABY) study analyzed a cohort of 450 [babies](#) (300 term and 150 preterm newborns) to examine whether skin barrier and immune biomarkers could predict the onset and severity of [eczema](#) during the first 2 years of life.

Both term and [preterm babies](#) with elevated levels of TARC (Thymus and Activation-Regulated Chemokine) at 2 months were found to be more than twice as likely to develop eczema by the age of 2 years. This increased risk was still prevalent after adjusting for parental atopy (where the [immune system](#) is more sensitive to [allergic diseases](#)) and filaggrin gene mutations, which is a major predisposing factor for eczema. The study found a [positive association](#) between the level of TARC and the severity of eczema.

Researchers used tape strips to painlessly and non-invasively collect skin cells from the back babies' hands at 0-3 days and 2 months in term children and from the skin between the shoulder blades at 2 months of age in [preterm children](#). The strips were analyzed for immune biomarkers and babies were followed up for the next 2 years.

First author and co-researcher Dr. Anne-Sofie Halling, from the Bispebjerg Hospital at the University of Copenhagen, commented "To our knowledge, this is the first to show that non-invasively collected skin biomarkers can be used to predict the subsequent onset and severity of pediatric atopic eczema."

"The study will help us investigate and create future preventative strategies for children with elevated TARC levels to help stop the development of this common and debilitating disease, which is an exciting prospect."

Eczema affects up to 20% of the pediatric population and diagnoses continue to rise. 60% of children with the disease are predisposed to develop one or more atopic comorbidities, such as asthma, allergic rhinitis or food allergies. The condition causes dry, red, cracked and itchy skin, which can weep, bleed and become infected causing distress and sleep disturbance in children.

"The test is painless and easy to perform and can help us to identify [skin](#) changes that occur prior to the development of eczema, particularly for the most severe forms of the disease. This provides a window of opportunity to develop targeted trials and prevent cases of eczema from occurring", concluded Dr. Anne-Sofie Halling.

Two other biomarkers—interleukin (IL)-8 and IL-18—were also associated with moderate-to-severe eczema in the study.

**More information:** kin biomarker changes precede the development of atopic dermatitis during the first 2 years of life, presented at EADV Congress 2022

Provided by European Academy of Dermatology and Venereology

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