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Neurodermatitis genes influence other allergies

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There's a typical "career" for some allergic people, and it starts very early on the skin: babies develop atopic dermatitis, food allergies may follow, then comes asthma and later on hay fever. A group of scientists led by Ingo Marenholz and Young-Ae Lee at the Max Delbrück Center for Molecular Medicine in the Helmholtz Association (MDC), working with colleagues from several institutions, has now identified seven genetic risk loci for this course of disease. Two of these loci were previously unknown and mainly influence the connection between atopic dermatitis and asthma. According to the study, the regions that determine the risk for atopic dermatitis are mainly those that also determine the risk for the further development of the typical allergic career. This course of disease is also called the "atopic march."

The scientists analyzed data from nearly 20,000 people and published their findings in the journal *Nature Communications*.

For their meta-analysis, the researchers concentrated on cases where atopic dermatitis preceded asthma. They included 12 studies with 2,428 patients and 17,034 healthy people. All of these studies were genome-wide association studies (GWAS) based on millions of genetic variants called Single Nucleotide Polymorphisms (SNPs).

It is the first GWAS for the atopic march and showed for the first time that there are specific genetic loci influencing the march's unfortunate course. "Seen from a physician's perspective, the prominent role of atopic dermatitis genes for later-onset of asthma is very interesting," says

Young-Ae Lee. The pediatrician leads a research group at the MDC and is also head of a university outpatient clinic for pediatric allergology and atopic dermatitis on the Berlin-Buch campus. "Our findings suggest that prevention or consequent therapeutic interventions in cases of pediatric atopic dermatitis may stop the further development of the atopic march."

More information: Ingo Mahrenholz et al.: "Meta-analysis identifies seven susceptibility loci involved in the atopic march" *Nature Communications*, DOI: 10.1038/ncomms9804

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