

Press release

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MAX-DELBRÜCK-CENTRUM
FÜR MOLEKULARE MEDIZIN
IN DER HELMHOLTZ-GEMEINSCHAFT**Ten new Genetic Risk Loci for Eczema Discovered – International Study with 50,000 Eczema Patients**

Researchers in Europe, Australia, Asia, and America have now discovered ten new risk loci for the chronic inflammatory skin disease eczema. Among the new candidate genes for eczema, the researchers came upon genes that are important for the innate immune system and for the development and function of T-cells which play an important role in specific immune responses. This emphasizes the importance of the immune system in the onset and progression of eczema. With the newly identified risk regions, a total of 31 risk regions for eczema are now known (Nature Genetics, doi:10.1038/ng3424) .

In a genome-wide association study over 15 million genetic variants across all chromosomes were examined for their role in eczema susceptibility. The frequency of each variant was compared in almost 21,400 eczema patients and 95,000 healthy controls from Europe, Africa, Japan, and Latin America in the first part of the study. An additional 260,000 participants were examined to confirm the results. Geneticist and pediatrician Prof. Young-Ae Lee from the Max Delbrück Center for Molecular Medicine in the Helmholtz Association (MDC) and Charité – Universitätsmedizin Berlin coordinated the study for Berlin.

Eczema, also called atopic dermatitis, is a chronic inflammatory skin disorder affecting about 15-30 percent of children and 5-10 percent of adults in industrialized countries. Researchers estimate that genetic factors account for about two-thirds of the disease risk. Onset of eczema typically occurs within the first few years of life. It usually presents in recurrent flares that are characterized by itchy, inflammatory skin lesions. Although eczema often improves or resolves with age, children with eczema carry a high risk of developing other allergic disorders such as fever and asthma in subsequent years.

The newly identified genetic regions show a strong correlation with known risk loci for asthma, allergies, and other chronic inflammatory diseases like Crohn's disease and psoriasis, as well as with autoimmune disorders. The study also confirmed known hereditary risk factors that impair the barrier function of the skin. Genes in these genetic locations play an important role in the detection and defense against microbes and in the development and activation of T-cells. Overall, the study emphasizes the importance of the immune system in the development and progression of eczema.

 Multi-ancestry genome-wide association study of 21,000 cases and 95,000 controls identifies new risk loci for atopic dermatitis

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