

Large multi-ethnic genome-wide association study of asthma identifies novel associations

April 16 2019

A large, multi-ethnic genome-wide association study (GWAS) of asthma identified novel associations with potential relevance for asthma susceptibility in older adults of diverse racial backgrounds. The study, "Large-scale, multi-ethnic genome wide association study identifies novel loci contributing to asthma susceptibility in adults," appears in the April issue of the *Journal of Allergy and Clinical Immunology*.

Asthma affects over 300 million persons globally and susceptibility to asthma is influenced by environmental and genetic risk factors.

"Identifying the genetic variants associated with asthma through GWAS is crucial for determining the genetic basis of asthma" said co-first author Joanne Sordillo, ScD, MS, Research Scientist at the Harvard Pilgrim Health Care Institute. "It's also necessary to understand how genetic heterogeneity underlying asthma risk may be influenced by [ethnic background](#), using large, multi-racial patient populations."

Researchers conducted an asthma GWAS in the Kaiser Permanente Northern California Genetic Epidemiology Research in Adult Health and Aging (GERA) cohort, using a total of 68,623 asthma cases and non-asthmatic controls. Study results found a novel potential mechanism for [asthma susceptibility](#) by the gene, IL1RL1. Study investigators believe this could be associated with asthma susceptibility through introduction of a new binding site for micro RNA, a small non-coding RNA molecule, that regulates expression of this locus. The study also replicated 16 novel associations with asthma susceptibility in the non-Hispanic white populations, all of which were annotated to either HLA-

DQA1, a major histocompatibility complex gene, or IL18R1/IL1RL1. Study results showed no overlap in genome-wide asthma associations across the four [ethnic groups](#), suggesting that unique biological pathways may contribute to asthma susceptibility within older adults of different ethnicities.

"This study contributes novel and unique associations with asthma within four major human ethnic groups and represents one of the largest GWAS of [asthma](#) conducted to date" said senior author Ann Chen Wu, MD, MPH, Associate Professor of Population Medicine at the Harvard Pilgrim Health Care Institute and Harvard Medical School.

More information: Amber Dahlin et al, Large-scale, multiethnic genome-wide association study identifies novel loci contributing to asthma susceptibility in adults, *Journal of Allergy and Clinical Immunology* (2018). DOI: [10.1016/j.jaci.2018.11.037](https://doi.org/10.1016/j.jaci.2018.11.037)

Provided by Harvard Pilgrim Health Care Institute

Citation: Large multi-ethnic genome-wide association study of asthma identifies novel associations (2019, April 16) retrieved 4 May 2024 from <https://medicalxpress.com/news/2019-04-large-multi-ethnic-genome-wide-association-asthma.html>

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