

Scientists link genetics to risk of high blood pressure among blacks

July 3 2019



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Variants in the gene *ARMC5* may be associated with high blood pressure among blacks, according to a National Institutes of Health study led by researchers at the *Eunice Kennedy Shriver National Institute of Child*

Health and Human Development (NICHD). The study team identified 17 variants in the *ARMC5* gene that were associated with high blood pressure by analyzing genetic research databases that include those of African descent. The study is published in the July 3, 2019, issue of the *Journal of the American Heart Association*.

"High blood pressure increases a person's risk for [heart disease](#) and stroke," said Constantine A. Stratakis, M.D., D. Sc., NICHD Scientific Director and the study's senior author. "The condition is more common among blacks, who also tend to get it at a younger age than whites do, and we are studying the underlying causes of this health disparity."

Earlier work by the NICHD group linked some variants of *ARMC5* to primary aldosteronism, a hormonal disorder that causes [high blood pressure](#), among black patients. In the current study, the researchers analyzed datasets containing genetic information from large numbers of people, including NIH's Minority Health Genomics and Translational Research Bio-Repository Database and the Genomics, Environmental Factors and Social Determinants of Cardiovascular Disease in African-Americans Study, which are based in the United States, as well as the UK Biobank.

The researchers identified 17 variants of *ARMC5* that were associated with blood pressure among blacks. One variant, called *rs116201073*, was "protective" and associated with lower blood pressure. It was more common than the others, and it appeared limited to people of African descent, as it is found only in Africans in the international 1000 Genomes Project.

The researchers also reconstructed the *rs116201073* variant in [cell lines](#) and found that it was more active than other variants of the *ARMC5* gene. However, the exact function of the *ARMC5* gene is unclear, and more work is needed to understand what the gene does and how variants

may protect or predispose a person to high blood pressure.

"Collectively, our research suggests that *ARMC5* may play an important role in regulating blood pressure in blacks," said Mihail Zilbermint, M.D., one of the lead authors of the study. "Because the gene is linked to primary aldosteronism, *ARMC5* may be involved in how the adrenal glands function and with the hormones that are important for regulating blood pressure."

More information: Zilbermint M, Gaye A, Berthon A, Hannah-Shmouni F, Fauz FR, Lodish MB, Davis AR, Gibbons GH, and Stratakis CA. *ARMC5* variants and risk of hypertension in blacks: MHGRID study. *Journal of the American Heart Association* DOI: [10.1161/JAHA.119.012508](https://doi.org/10.1161/JAHA.119.012508) (2019)

Provided by National Institutes of Health

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