

Study finds novel pathway may open doors for new blood pressure treatments

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Researchers have found that increasing certain proteins in the blood vessels of mice, relaxed the vessels, lowering the animal's blood pressure. The study provides new avenues for research that may lead to new treatments for hypertension.

"The paper demonstrates that cytochrome P450 plays an important role in the management of [high blood pressure](#), a disease of enormous public health concern," said Darryl Zeldin, M.D., acting clinical director of the National Institute of Environmental Health Sciences (NIEHS) and senior author on the paper.

According to the [Centers for Disease Control and Prevention](#), about 1 in 3 adults in the United States has high blood pressure, which increases the risk for heart disease and stroke, the first and third leading causes of death in the United States.

The study, published online in *The* [FASEB Journal](#), was conducted by researchers at NIEHS who teamed with investigators at the University of North Carolina at Chapel Hill (UNC), Medical College of Wisconsin, Milwaukee, and Oregon Health and Science University, Portland.

The researchers created animal models that had a human cytochrome P450 (CYP450 or P450) in the cells that line their [blood vessels](#). The mice with the P450 generated more substances called epoxyeicosatrienoic acids or EETs, known for their role in protecting the cardiovascular system. EETs relax and dilate the blood vessels and fight

inflammation.

"We found that when the animals were exposed to substances known to increase blood pressure, the animals with the P450 had lower blood pressure and less damage to the kidneys compared to normal mice," said Craig R. Lee, Pharm.D., Ph.D., assistant professor at UNC and lead author on the paper. "We hope that these studies will advance the development of new treatments for high blood pressure."

"This is a great example of a basic finding that improves our understanding of a [metabolic pathway](#) that can be used to develop improved treatments for those suffering from a common disease like hypertension," said Linda Birnbaum, Ph.D., director of the NIEHS and the National Toxicology Program.

Provided by National Institutes of Health

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