

Better cholesterol drugs may follow SLU researcher's breakthrough

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Thanks to a discovery by a Saint Louis University researcher, scientists have identified an important microRNA that may allow us to better control cholesterol levels in blood.

Led by Angel Baldan, Ph.D., assistant professor of biochemistry and molecular biology at Saint Louis University and published in a recent issue of [Proceedings of the National Academy of Sciences](#), the study found that the [microRNA](#) miR-33, may be key to controlling HDL, or "good" [cholesterol levels](#).

In the U.S., heart attack, stroke, and [peripheral artery disease](#) collectively account for more than 30 percent of all deaths in the last decade. Atherosclerosis, the fatty build-up in arteries that causes these illnesses, is tied to cholesterol levels, a waxy substance found in the blood.

Statins, drugs frequently prescribed by doctors to manage cholesterol levels, work by lowering LDL, or "bad" cholesterol levels; however, their role in HDL cholesterol is still obscure. Importantly, HDL has been found to have a protective benefit against cardiovascular disease.

"Atherosclerosis costs lives and takes an enormous toll on our health," said Baldan. "If the discovery that miR-33 can be used to raise HDL levels leads to better medications, it will have an enormous impact on our ability to treat heart disease."

The study, which was funded by the National Institutes of Health, Saint Louis University Center for Cardiovascular Research and the Doisy Department of Biochemistry and Molecular Biology at Saint Louis University, examined SREBP-2, an important gene in the body, and zeroed in on the microRNA miR-33, which is expressed within SREBP-2.

Increasing the levels of miR-33 in the liver, scientists discovered, resulted in lower HDL cholesterol levels in an animal model; conversely, turning off miR-33, researchers found, had the effect of raising HDL levels.

Paralleling these results, four separate studies reported similar findings, adding to investigators' hope that better medications may be on the horizon for managing atherosclerosis. Scientists hope that future medications may prove to be more effective than statins alone by not only lowering LDL-cholesterol levels, but also increasing HDL levels.

Provided by Saint Louis University

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