

Study identifies new pathway to combat primary cause of cardiovascular disease

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Research led by the University of Minnesota Medical School identified a new pathway to combat cardiovascular disease. The study was recently published in [Nature Cardiovascular Research](#).

The research team's work identifies a molecule called TREM2 as a unique and therapeutically relevant pathway for the treatment of atherosclerosis—a common condition that develops when plaque builds up inside arteries—in preclinical models. Atherosclerosis is a primary cause of cardiovascular diseases, which are the number one cause of death and disability globally, according to the Centers for Disease Control and Prevention.

"This is a highly impactful study that may inform future approaches to treat atherosclerosis," said Jesse Williams, Ph.D., an assistant professor at the U of M Medical School. "Current approaches almost exclusively target lowering LDL cholesterol, but we've known for decades that inflammation also contributes to atherosclerotic plaque build-up in the arteries. This study reveals a new pathway for the prevention of [cardiovascular disease](#)."

Using [preclinical models](#) of atherosclerosis, the research team found that the disease was dramatically inhibited when the TREM2 gene was deleted in macrophages—[white blood cells](#) that are integral to the immune system—during [disease progression](#). They also found that targeted deletion of the TREM2 pathways was effective at reducing pre-existing atherosclerotic disease. This shows TREM2 as a potential immunotherapeutic target for future studies of cardiovascular disease risk.

This research will continue through a collaboration with Alektor, Inc—a pharmaceutical company—to perform preclinical testing of TREM2-targeted antibodies to combat the progression of atherosclerosis.

More information: Michael T. Patterson et al, Trem2 promotes foamy macrophage lipid uptake and survival in atherosclerosis, *Nature Cardiovascular Research* (2023). [DOI: 10.1038/s44161-023-00354-3](https://doi.org/10.1038/s44161-023-00354-3)

Provided by University of Minnesota Medical School

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