

Promoting regulatory T cell production may help control atherosclerosis

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In atherosclerosis, the buildup of cholesterol deposits in arteries poses a major risk for cardiovascular diseases like heart attack and stroke. As cholesterol accumulates, it triggers an inflammatory response that recruits several types of immune cells, including T cells, leading to the formation of atherosclerotic lesions. Although pro-inflammatory T cells are associated with the worsening of lesions, regulatory T cells play a protective role against disease development.

This month in the *JCI*, work led by Catherine Hedrick at the La Jolla Institute for Allergy and Immunology uncovered a pathway that controls the balance between pro-inflammatory and regulatory T cells and may influence the progression of atherosclerosis. They focused on the role of the ATP-binding cassette transporter G1 (ABCG1), which is known to increase cholesterol accumulation in arteries.

Because this transporter is also present at high levels on [immune cells](#), Hedrick and colleagues hypothesized that it may also influence the proliferation T cells. In mice, removing ABCG1 from T cells increased the number of regulatory T cells and decreased the number of pro-inflammatory T cells in the bloodstream. Atherosclerosis-prone mice also developed fewer lesions when ABCG1 was removed from T cells.

These findings suggest that therapies targeting ABCG1 could potentially increase the production of regulatory T cells and protect against the progression of atherosclerosis.

More information: Hsin-Yuan Cheng et al, Loss of ABCG1 influences regulatory T cell differentiation and atherosclerosis, *Journal of Clinical Investigation* (2016). [DOI: 10.1172/JCI83136](https://doi.org/10.1172/JCI83136)

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