

## Macrophages in Atherosclerosis: Sources, Functions, Phenotypes, and Therapeutic Strategies

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### Introduction

Atherosclerosis is a chronic inflammatory disease characterized by the accumulation of lipids and immune cells in the arterial wall. Macrophages play a central role in this process, contributing to the formation and progression of atherosclerotic plaques. This review discusses the sources, functions, and phenotypes of macrophages in atherosclerosis, as well as potential therapeutic strategies.

### Macrophages in atherosclerosis:

Macrophages are highly heterogeneous cells that can be derived from various sources, including bone marrow, circulating monocytes, and tissue-resident precursors. In atherosclerosis, macrophages are recruited to the site of injury and differentiate into different phenotypes based on the local microenvironment. These phenotypes include classically activated (M1) macrophages, which are pro-inflammatory and promote plaque progression, and alternatively activated (M2) macrophages, which are anti-inflammatory and promote plaque resolution. The balance between these two phenotypes is crucial for the outcome of atherosclerosis. Therapeutic strategies aimed at modulating macrophage function and phenotype are being explored as potential treatments for atherosclerosis.

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