Targeting monocyte function to reverse atherosclerosis

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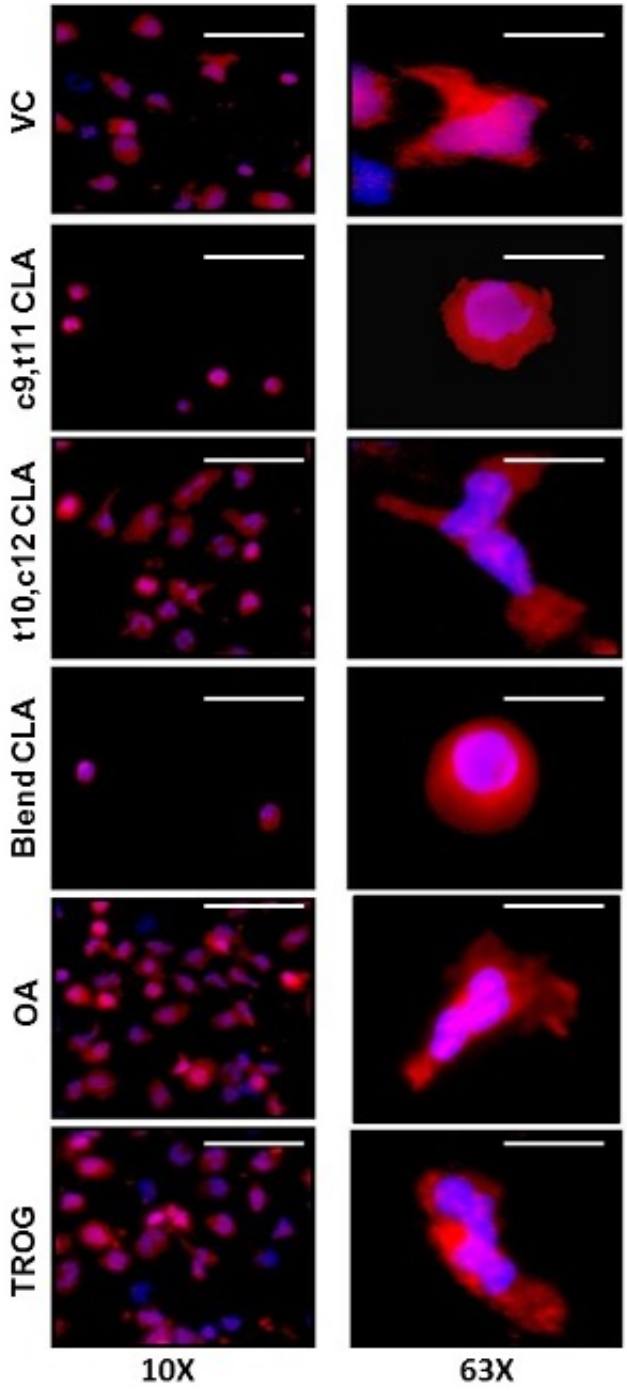

CLA inhibits polarisation of monocytes to pro-migratory phenotype. Confocal microscopy of human peripheral blood monocytes treated with CLA isomers, vehicle (VC), control lipids (OA) and positive control (TROG). CLA inhibts migratory response of HPBMCs.

(Medical Xpress)—The Belton group recently published findings describing a novel mechanism through which a dietary fatty acid alters monocyte function inducing regression of pre-established atherosclerosis.

Atherosclerosis, the underlying cause of heart disease and stroke, is a complex progressive disease involving multiple genetic and environmental factors.

One of the contributing factors to the development of the atherosclerotic plaque is the continual recruitment of circulating pro-inflammatory monocytes to the damaged blood vessel and their subsequent migration through the activated endothelial where they rapidly differentiate into macrophages

The recruitment of monocytes is a highly orchestrated process. Transmembrane proteins called integrins play a central role in this by mediating rolling and adhesion of leukocytes essentially causing them to adhere to the developing plaque.

The Belton group have previously shown in a murine model of atherosclerosis that conjugated linoleic acid (CLA), alters monocyte/macrophage function causing regression of the disease.

Dr Orina Belton said, "We are trying to define the mechanisms through which CLA mediates its atheroprotective effect so as to identify novel pathways that limit or ultimately reverse atherosclerosis.

In this study, we have been able to clearly demonstrate that CLA targets integrin gene expression so as to suppress the ability of monocytes to adhere to endothelial cells. We also show that CLA modulates monocytes toward an anti-inflammatory phenoype resulting in impaired monocyte migration "

The data presented by the Belton group describe a novel functional role for CLA in the regulation of monocyte adhesion, polarisation, and migration.

More information: "Conjugated Linoleic Acid Targets b2 Integrin Expression To Suppress Monocyte Adhesion." de Gaetano, M; Dempsey E et al. *Journal of Immunology*, 2013, 191: 4326–4336.

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