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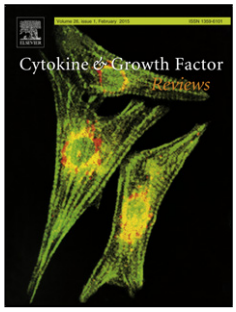

Title: Fractalkine and placental growth factor: A duet of inflammation and angiogenesis in cardiovascular disorders

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Mini Review

Fractalkine and placental growth factor: a duet of inflammation and angiogenesis in cardiovascular disorders.

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Highlights

- Inflammation and angiogenesis are key processes in the atherosclerotic plaque development
- Placental growth factor and fractalkine normally redundant, become overexpressed after vascular injury
- PlGF as a key angiogenic factor promotes extravasation of leucocytes and creation of plaque *vasa vasorum*
- Fractalkine mediates leukocyte migration in an integrin-independent manner
- Concentration of PlGF and CX3CL1 chemokine can be used as a diagnostic tool in the assessment of the vascular healing stage after PCI

Abstract

Inflammation and angiogenesis are two interdependent processes underlying pathogenesis of cardiovascular disorders. The initiation and progression of atherosclerosis strongly depends on specific patterns of cytokine expression. In this review, we analyze correlation between expression of two members of the cytokine family and the processes of inflammation and angiogenesis related to atherosclerosis. Placental growth factor and chemokine CX3XL1 (fractalkine) promote inflammatory cell infiltration, angiogenesis and plaque rupture. Because these cytokines share similar roles during atherosclerotic development, their combined value as a predictor or indicator of inflammation and vascular healing may be extremely useful.

Abbreviations:

ACS, acute coronary syndrome; CAD, coronary artery disease; CVD, cardiovascular disease; ECs, endothelial cells; SMCs, smooth muscle cells; PlGF, placental growth factor; VEGFs, vascular endothelial growth factors; FLT1, fms-like tyrosine kinase 1; FLK1, fetal liver kinase 1; CX3CL1, C-X3-C motif chemokine ligand 1; CX3CR1, C-X3-C motif chemokine receptor 1; NF-κB, nuclear factor kappa-light-chain-enhancer of activated B cells; CRP, c-reactive protein; hsCRP, high-sensitivity reactive protein; CD40L (CD154), cluster of differentiation 40 ligand; MCP-1, monocyte chemoattractant protein 1; VCAM-1, vascular cell adhesion protein 1; ADAM 10, a disintegrin and metalloproteinase domain-containing protein 10; ADAM 17 (TACE), a disintegrin and