

# The current status of mechanosensitive molecular interactions in atherogenic regions of the arteries: development of atherosclerosis

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**Motivation and Aim:** A terrible disease of the cardiovascular system – atherosclerosis, develops in the areas of bends and branches of arteries, where the direction and modulus of the blood flow velocity vector changes and, consequently, the mechanical effect on endothelial cells in contact with the blood flow [1]. The aim of this work focuses on topical researches on the development of atherosclerosis – mechanobiochemical events that transform the pro-atherogenic mechanical stimulus of blood flow – low and low/oscillatory arterial wall shear stress in the chains of biochemical reactions in endothelial cells, leading to the expression of specific proteins that cause the progression of the pathological process.

**Results:** The stages of atherogenesis, systemic risk factors for atherogenesis and its important hemodynamic factor – low and low/oscillatory wall shear stress exerted by blood flow on the endothelial cells lining the arterial walls, interactions of cell adhesion molecules responsible for the development of atherosclerosis under low and low/oscillatory wall shear stress conditions, activation of the regulator of the expression of cell adhesion molecules, the transcription factor *NF-κB* and the factors regulating its activation under these conditions, mechanosensitive signaling pathways leading to the expression of *NF-κB* in endothelial cells have been analyzed [2].

**Conclusion:** Studies of the mechanobiochemical signaling pathways and interactions involved in the progression of atherosclerosis provide valuable information for the development of approaches that delay or block the development of this disease.

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## References

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