

Review Article

## Vascular Endothelium Dysfunction and Hypertension: Insight on Molecular Basics

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### Abstract

Vascular endothelium dysfunction is the hallmark of hypertension. Vascular endothelium regulates the vascular tone, maintains free flow of blood in vessels and plays a critical role in the mechanics of blood flow, regulation of coagulation, vascular smooth muscle cell growth, inflammation and immune functions. Vascular endothelium dysfunction is characterized by the shifts of endothelial actions towards reduced vasodilatation, pro-inflammatory and pro-thrombotic state that contributes to excessive cell proliferation, impaired apoptosis leading to structural remodeling and hypertension. The considerable progress in understanding of molecular mechanisms of hypertension is not well studied. The contribution of vascular endothelium is essential to discern the molecular interventions. Thus in this review article the molecular pathogenesis of vascular endothelial dysfunction is delineated to provide potential therapeutics to prevent hypertension.

**Keywords:** Endothelium, vascular endothelium dysfunction, hypertension, oxidative stress

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