

ROLE OF TRANSCRIPTION FACTOR MEF 2A GENE IN CORONARY ARTERY DISEASE

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ABSTRACT

Coronary artery disease (CAD), the most common form of heart disease is attributed to atherosclerotic plaque buildup in the walls of the epicardial coronary arteries. The atheroma accumulation limits the blood flow to the myocardium, which results in symptoms of ischemia and myocardial infarction. In India the prevalence of CAD in young men is between 20-40 years and in women between 20-50 years. Many risk factors for CAD and MI have been identified such as family history, hypertension, hypercholesterolemia, obesity, smoking, and diabetes. The Myocyte enhancer factor-2A plays an important role in morphogenesis and myogenesis of skeletal, cardiac, and smooth muscle cells. In humans Myocyte enhancer factor 2A protein is encoded by the *MEF2A* gene and located on chromosome 15q26 which is a DNA-binding transcription factor that activates many muscle-specific, growth factor-induced, and stress-induced genes.

The encoded protein acts as a homodimer or as a heterodimer and is involved in several cellular processes, including muscle development, neuronal differentiation, cell growth control, and apoptosis. Recent studies suggest that MEF2 proteins also regulate vascular morphogenesis, including endothelial function and development, defects in this gene could be a cause of autosomal dominant coronary artery disease with myocardial infarction (ADCAD1). The article mainly discusses about the mechanism and molecular pathways by which MEF2A gets activated and its role in CAD.

KEYWORDS: Coronary Artery Disease (CAD), Myocyte Enhancer Factor-2, Atherosclerosis, Risk Factors, Endothelium