

Chromatin remodeling in cardiovascular development and physiology.

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Public Summary:

This article reviews the epigenetic regulation in cardiovascular development and physiology.

Scientific Abstract:

Chromatin regulation provides an important means for controlling cardiac gene expression under different physiological and pathological conditions. Processes that direct the development of normal embryonic hearts and pathology of stressed adult hearts may share general mechanisms that govern cardiac gene expression by chromatin-regulating factors. These common mechanisms may provide a framework for us to investigate the interactions among diverse chromatin remodelers/modifiers and various transcription factors in the fine regulation of gene expression, essential for all aspects of cardiovascular biology. Aberrant cardiac gene expression, triggered by a variety of pathological insults, can cause heart diseases in both animals and humans. The severity of cardiomyopathy and heart failure correlates strongly with abnormal cardiac gene expression. Therefore, controlling cardiac gene expression presents a promising approach to the treatment of human cardiomyopathy. This review focuses on the roles of ATP-dependent chromatin-remodeling factors and chromatin-modifying enzymes in the control of gene expression during cardiovascular development and disease.

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