Exercise-induced cardiac adaptation

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The heart is the primary pump that circulates blood through the entire cardiovascular system, serving many important functions in the body. Exercise training provides favorable anatomical and physiological changes that reduce the risk of heart disease and failure. Compared with pathological cardiac hypertrophy, exercise-induced physiological cardiac hypertrophy leads to an improvement in heart function. Exercise-induced cardiac remodeling is associated with gene regulatory mechanisms and cellular signaling pathways underlying cellular, molecular, and metabolic adaptations. We found that aerobic exercise training decreased cereblon (CRBN), a substrate recognition protein in the E3-ligase ubiquitin complex. The binding target of CRBN varies according to tissues and cells, and the protein regulates various biological functions by regulating tissue-specific targets. As new endogenous targets of CRBN have been identified over the past decade, the physiological and pathological functions of CRBN and its potential as a therapeutic target in various diseases have greatly expanded. Here, I will present a cellular and molecular signaling pathway of CRBN to understand the exercise-induced cardiac adaptation.