

Cardiomyocyte death: Mechanisms and translational implications

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Cardiovascular disease (CVD) is the leading cause of morbidity and mortality worldwide. Although treatments have improved, development of novel therapies for patients with CVD remains a major research goal. Apoptosis, necrosis, and autophagy occur in cardiac myocytes, and both gradual and acute cell death are hallmarks of cardiac pathology, including heart failure, myocardial infarction, and ischemia/reperfusion. Pharmacological and genetic inhibition of autophagy, apoptosis, or necrosis diminishes infarct size and improves cardiac function in these disorders. Here, we review recent progress in the fields of autophagy, apoptosis, and necrosis. In addition, we highlight the involvement of these mechanisms in cardiac pathology and discuss potential translational implications. © 2011 Macmillan Publishers Limited. All rights reserved.