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Abstract:

Heart disease is the most significant cause of morbidity and mortality in the industrialized world, accounting for nearly 33% of all deaths in 2008 within the United States alone. While the use of human induced pluripotent stem cell (iPSCs) in regenerative medicine is a long-term goal, a growing body of studies has shown promising results in the fields of drug discovery, development, and toxicity screening. Specifically, recent technological advancement has enabled the generation of patient-specific and disease-specific human induced pluripotent stem cell-derived cardiomyocytes (iPSC-CMs) in vitro. These iPSC-CMs carry all the genetic information from the individuals from whom they are derived and hence may be an ideal platform for elucidating disease modeling, drug screening, and cell therapy. Here I will discuss recent advances in this technology in the cardiovascular field.