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Sommario/riassunto	Even today, cardiovascular diseases are the main cause of death worldwide, and therapeutic approaches are very restricted. Due to the limited regenerative capabilities of terminally differentiated cardiomyocytes post injury, new strategies to treat cardiac patients are urgently needed. Post myocardial injury, resident fibroblasts begin to generate the extracellular matrix, resulting in fibrosis, and finally, cardiac failure. Recently, preclinical investigations and clinical trials raised hope in stem cell-based approaches, to be an effective therapy option for these diseases. So far, several types of stem cells have been identified to be promising candidates to be applied for treatment: cardiac progenitor cells, bone marrow derived stem cells, embryonic and induced pluripotent stem cells, as well as their descendants.

Furthermore, the innovative techniques of direct cardiac reprogramming of cells offered promising options for cardiovascular research, *in vitro* and *in vivo*. Hereby, the investigation of underlying and associated mechanisms triggering the therapeutic effects of stem cell application is of particular importance to improve approaches for heart patients. This Special Issue of Cells provides the latest update in the rapidly developing field of regenerative medicine in cardiology.

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