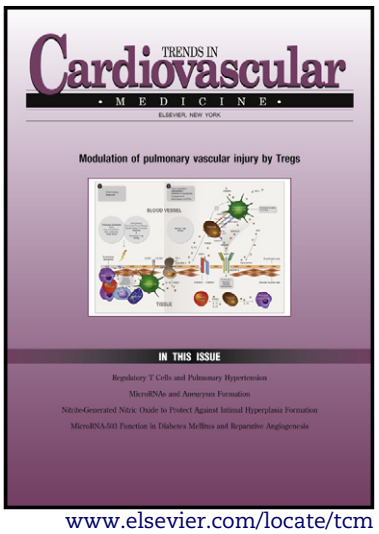

Stem Cell Therapy for Heart Failure: Ensuring Regenerative Proficiency

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STEM CELL THERAPY FOR HEART FAILURE: ENSURING REGENERATIVE PROFICIENCY

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Short Title: Next-generation regenerative solution

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A B S T R A C T

Patient-derived stem cells enable promising regenerative strategies but display heterogenous cardiac reparative proficiency, leading to unpredictable therapeutic outcomes impeding practice adoption. Means to establish and certify the regenerative potency of emerging biotherapies are thus warranted. In this era of clinomics, deconvolution of variant cytoreparative performance in clinical trials offers an unprecedented opportunity to map pathways that segregate regenerative from non-regenerative states informing the evolution of cardioregenerative quality systems. A maiden example of this approach is cardiopoiesis-mediated lineage-specification developed to ensure regenerative performance. Successfully tested in pre-clinical and early clinical studies, the safety and efficacy of the cardiopoietic stem cell phenotype is undergoing validation in pivotal trials for chronic ischemic cardiomyopathy offering the prospect of a next-generation regenerative solution for heart failure.