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**Sulfiredoxin-1 Enhances Cardiac Progenitor Cell Survival against Oxidative Stress via the  
Upregulation of the ERK/NRF2 Signal Pathway**

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**Abstract**

Cardiac stem/progenitor cells (CPCs) have recently emerged as a potentially transformative regenerative medicine to repair the infarcted heart. However, the limited survival of donor cells is one of the major challenges for CPC therapy. Our recent research effort on preconditioning human CPCs (hCPCs) with cobalt protoporphyrin (CoPP) indicated that sulfiredoxin-1 (SRXN1) is upregulated upon preconditioning aldehyde dehydrogenase bright hCPCs (ALDH<sup>br</sup>-hCPCs) with CoPP. Further studies demonstrated that overexpressing SRXN1 enhanced the survival capacity for ALDH<sup>br</sup>-hCPCs. This was associated with the up-regulation of anti-apoptotic factors, including BCL2 and BCL-xL. Meanwhile, overexpressing SRXN1 decreased the ROS generation and mitochondrial membrane potential, concomitant with the up-regulated primary antioxidant systems, such as PRDX1, PRDX3, TXNRD1,

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