

S.H. BAEK

Pivotal cytoprotective mediators and promising therapeutic strategies for EPC-based cardiovascular regeneration

Key words: cardiovascular regeneration, cytoprotective mediators

Endothelial progenitor cell (EPC) would be one of potent therapeutic neovascular modulators in ischemic cardiovascular tissues. In response to ischemic injury signals, EPCs located in a bone marrow niche migrate to injury sites and form new vessels by secreting various vasculogenic factors including VEGF, SDF-1, and FGF, as well as by directly differentiating into endothelial cells. Nonetheless, most of engrafted EPCs do not survive under harsh ischemic conditions and nutrient depletion in ischemic tissues. Therefore, an understanding of diverse EPC-related cytoprotective mediators underlying EPC homeostasis in ischemic tissues may help to overcome current obstacles for EPC-mediated cell therapy. Additionally, to enhance EPC's functional capacity at ischemic sites, multiple strategies for cell survival should be considered, that is, preconditioning of EPCs with function-targeting drugs including natural compounds and hormones, virus mediated genetic modification, combined therapy with other stem/progenitor cells, and conglomeration with biomaterials.

Here, I will discuss multiple important cytoprotective mediators and promising therapeutic strategies for EPC-Based Cardiovascular Regeneration.

* BAEK Sang Hong – Professor, Director of Heart Failure and Transplantation and Preventive Cardiology (Division of Cardiovascular Medicine, Seoul St. Mary's Hospital, The Catholic University of Korea School of Medicine, Seoul, Republic of Korea). *E-mail: whitesh@catholic.ac.kr