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ANGIOTENSINII PRECONDITIONING PROMOTES ANGIOGENESIS IN VITRO VIA ERKS PHOSPHORYLATION

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Objectives AngiotensinII (AngII) is involved in not only the formation of cardiac hypertrophy but also the development of cardiac remodelling both of which are associated with myocardial angiogenesis. This study was therefore performed to clarify the effects of AngII on the formation of vasculatures

Methods Cardiac microvascular endothelial cells (CMVECs) were cultured for 18 h stimulated with or without the AngII preconditioning. Capillary-like tubes were analysed.

Results Incubation with AngII for 18 h significantly impaired the formation of capillary-like tubes comparing to that without AngII. CMVECs with AngII pretreatment for 5 and 10 min formed more capillary-like tubes than those without AngII pretreatment, suggesting that preconditioning with AngII at a lower dose for a short period could prevent the further damage of CMVECs by a higher

concentration of AngII. Moreover, AngII (10^{-7} mM) stimulation for 5 and 10 min significantly induced the increase in extracellular signal-regulated protein kinases (ERKs) phosphorylation, and an ERKs inhibitor, pD98059, abrogated the increase in the formation of capillary-like tubes induced by the AngII-pretreatment.

Conclusions In conclusion, preconditioning with a lower concentration of AngII for a short period prevents the subsequent impairment of CMVECs by a higher dose of AngII, at least in part, through the increase in ERKs phosphorylation.