

## 허혈/재관류에 의한 급성신부전에 있어 isocitrate dehydrogenase의 역할

경북대학교 의과대학 해부학교실 BK 사업단

박권무 · 김진우 · 김기영

### Role of Cytosolic NADP<sup>+</sup>-dependent Isocitrate Dehydrogenases (IDPc) on Ischemia/Reperfusion Injury in Kidneys

Kwon Moo Park, Jinu Kim, Ki Young Kim

Department of Anatomy and Brain Korea 21 Project  
Kyungpook National University School of Medicine, Daegu 700-422, Korea

Cytosolic NADP<sup>+</sup>-dependent isocitrate dehydrogenase (IDPc), which of isocitrate dehydrogenase (ICDH) family requires NADP<sup>+</sup> to produce NADPH and catalyzes oxidative decarboxylation of isocitrate to  $\alpha$ -ketoglutarate, is an important antioxidant. However, role of IDPc in kidney ischemia/reperfusion injury remains to be defined. We explored the profiles of IDPc expression and activity after transient ischemic injury in kidneys. IDPc expressed in the cytosol of the tubular epithelial cells and IDPc activity significantly decreased after ischemia. Over-expression of IDPc by IDPc-DNA in LLC-PK1 significantly reduced the cells mortality to H<sub>2</sub>O<sub>2</sub> injury, whereas under-expression by IDPc-siRNA transfection increased the cells susceptibility to H<sub>2</sub>O<sub>2</sub> injury. These results demonstrate that IDPc is associated with I/R injury and increases of IDPc expression protected cells from oxidative stress. It suggests that IDPc may be a target protein to develop the therapeutics of acute renal failure induced by ischemia/reperfusion injury.

**Key Words :** 허혈/재관류, IDPc, 산화적 스트레스  
Ischemia/reperfusion, IDPc, Oxidative stress