

## Different Cell Death Mechanisms in Acute Ischemic Kidney Injury

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### Different Cell Death Mechanisms in Acute Ischemic Kidney Injury

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Renal ischemic injury results in morphological damages primarily in the outer medullary region. There are three different tubular segments in the outer medulla: the proximal tubule (S3 segment), the thick ascending limb, and the collecting duct. The purpose of this study was to examine whether the effects of ischemic injury is different in those three tubular segments in the rat kidney. Ischemia-reperfusion injury was induced by clamping renal pedicles for 30 min and animal were sacrificed at 6hr after the reperfusion. To identify outer medullary tubules, specific marker proteins such as AQP1, NKCC2, H<sub>+</sub>-ATPase, and AQP2 were used. In the ischemic kidneys, many collecting duct cells as well as proximal tubule cells were TUNEL-positive and extruded into tubule lumen. Interestingly, caspase-3 staining was observed only in the proximal tubule, but not in the collecting duct. There were no detectable damages in the thick ascending limb. These results demonstrate that different cell death mechanisms are involved in the pathogenesis of acute ischemic kidney injury.

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Kidney, Ischemia, Cell death, Caspase-3