

## 발생중인 생쥐콩팥에서 헨레고리의 가는오름세관의 형성시 Prox1의 발현

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### An Essential Role for Prox1 in Transformation of the Ascending Limb of Henle

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Prox1, prospero-related homeobox1 transcription factor, is known to be expressed in the lymphatic endothelial cells and plays an essential role in embryonic lymphangiogenesis. And it is also expressed in various internal organs and is related to those differentiations. We found that Prox1 was additionally expressed in the ascending limb (AL) of Henle's loop in developing mouse kidney. Kidneys from 18-day-old fetuses, 1-, 4-, -7, -14, and 21-day-old pups, and adult C57BL/6 mice were examined using immunohistochemistry method. Segments of ascending thin limb (ATL), descending thin limb (DTL), thick ascending limb (TAL), collecting duct (CD), and blood vessel were identified with antibodies against CIC-K1, AQP1, BSC1 or THP, AQP2, and CD31, respectively. In renal cortex, Prox1 was expressed only in differentiating lymphatic endothelial cells, but not in renal tubules including cortical TAL in all ages. In medulla, however, Prox1 was expressed only in some tubular profiles during mouse kidney development. We confirmed that these Prox1-positive tubules were CIC-K1-positive ATL and/or BSC1-positive TAL. There was no Prox1 immunoreactivity in AQP1-positive DTL, AQP2-positive CD, and CD31-positive blood vessel. In fetal kidney, there was weak Prox1 immunoreactivity in medullary TAL (mTAL). In postnatal kidney, Prox1 was weakly expressed in the initial part, but it was strongly expressed in the terminal part of the mTAL. At 4 to 21-day old pups, Prox1 was expressed strongly in cuboidal epithelium of the TAL, while weakly in squamous epithelium of the ATL. By then, Prox1 was expressed mainly in the nucleus where it co-localization with PCNA, but not with apoptotic cell. In adult kidney, the immunoreactivity for Prox1 in ATL was week in initial part, but not in terminal part of renal papilla. Our studies provide evidence that prox1 plays a key role in the development of the ATL by transformation of the cuboidal epithelium of the TAL into the squamous epithelium of the ATL of Henle's loop.

**Key Words :** Prox1, 헨레고리, 콩팥발생

Prox1, Loop of Henle, Mouse kidney