

Electron microscopic study of the innervation of the renal tubules and urinary bladder epithelium in *Rana catesbeiana* and *Necturus maculosus*

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The fine structure of the kidney and the bladder of the bullfrog (*Rana catesbeiana*), the bullfrog tadpole, and the mudpuppy (*Necturus maculosus*) were studied with special attention to the innervation of renal tubule cells and bladder epithelial cells. In the bullfrog kidney, nerve terminals and varicosities were frequently associated with the tubule cells, apparently in an increasing order from the proximal tubule to the connecting tubule. Although these terminals and varicosities did not directly contact the tubular cell membrane, an aggregation of synaptic vesicles on the side facing the tubule was considered as morphological evidence that neurotransmitter can be released here and can affect the transport activity of the tubule cells. The association of nerve varicosities with canaliculi cells in the connecting tubule was also demonstrated. In the bullfrog tadpoles, renal tubule cells were occasionally innervated. In the mudpuppy, renal tubule cells were only poorly innervated.

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