F-B3

Localization of E-cadherin along the Nephron Segments in the Rat Kidney

In-A Hwang[1], Su-Youn Lee[2], Jung-Min Lee[1]
Myung-Sun Kim[2], Hunjoo Ha[1], Ki-Hwan Han[2]

[1]College of Pharmacy and [2]Department of Anatomy, College of Medicine, Ewha Womans University

E-cadherin is a cell adhesion molecule that is abundantly expressed in the kidney. However, the expression pattern in various renal epithelial cells is not well established. The purpose of this study was to determine the cellular localization along the nephron segments in the rat kidney. Kidneys from adult Sprague-Dawley rats were fixed in 4% paraformaldehyde and processed for immunohistochemistry. Bumetanide-sensitive $Na^+/K^+/2Cl^-$ cotransporter (BSC1), thiazide-sensitive Na^+/Cl^- cotransporter (TSC), calbindinD28k, and H^+-ATPase were used to identify the thick ascending, distal convoluted tubule, connecting tubule, and collecting duct, respectively. In the rat kidney, E-cadherin was expressed mainly in the basolateral domain of the collecting duct and papillary surface epithelial cells. The expression level of E-cadherin was gradually changed in the connecting tubule and became moderate in the distal convoluted tubule, thick ascending limb, and loop of Henle. The S1 and S2 segment of the proximal tubule showed weak immunoreactivity. However, E-cadherin was not expressed in the S3 segment of the proximal tubule in the rat kidney. These results suggest that E-cadherin may be a major adhesion molecule in the collecting duct and papillary surface epithelium and play a critical role in maintaining epithelial polarity of these nephron segments.