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마우스신장에서의 유기양이온수송체 유사단백질의 동정

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Identification of a Kidney Specific Mouse Organic Cation Transporter Like-1

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Organic ion transporters are expressed in various tissues that transport endogenous and exogenous compounds including their metabolites. There are organic anion transporter (OAT), organic cation transporter (OCT), organic anion transporter like protein (OATLP) and organic cation transporter like (OCTL). Considering the variety of charged organic ionic compounds, the existence of other isoforms of organic ion transporters can be assumed. In this connection, we have searched for a new isoform in the expressed sequence tag (EST) database using hOAT4 amino acid sequence as a "query." We found a candidate clone (BC021449) from the mouse kidney cDNA library. This clone was identified ortholog of ORCTL3 or OCTL- 1. The mOCTL1 cDNA consisted of 2016 base pairs encoding 551 amino acid residues with 12 putative transmembrane domains. The deduced amino acid sequence of mOCTL1 showed 35 to 40% identity to those of the other members of the OATs and OCTs. According to the tissue distribution, examined by performing Northern blot analysis, about a 2.4 kb transcript of mOCTL1 was observed in the kidney. About a 90- kDa band was detected when Western blot analysis in the mouse kidney was done by using antibody against synthesized oligopeptide mOCTL1. The immunohistochemical result showed mOCTL1 was stained at the glomerulus (the parietal epithelial cells and podocytes), pars recta of proximal tubule, distal convoluted tubules, connecting tubules and collecting tubules. From these results, mOCTL1 may be a candidate for an organic ion transporter isoform in the mouse kidney.

Key Words : 유기양이온수송체, 신장, 클로닝
Organic cation transporter, Kidney, Cloning