

ラット腎尿細管におけるカテプシンDの局在部位  
(免疫細胞化学的方法)

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**Immunocytochemical Localization of Cathepsin D in Lysosomes  
of Cortical Collecting Tubule Cells of the Rat Kidney**

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**ABSTRACT** Immunocytochemical localization of cathepsin D in rat renal tubules was investigated by means of indirect immunoenzyme and protein A-gold techniques. By light microscopy, fine granular staining was seen in the mesangial cell of glomeruli. Heavy reaction deposits were present in the cortical tubular segments and some of the medullary collecting tubules. The proximal tubules contained a few positive granules. Other segments were negative for cathepsin D. By electron microscopy, gold particles representing the antigenic sites for cathepsin D were present in cytoplasmic granules and multivesicular bodies of the segment of the cortical collecting tubule. These cytoplasmic granules were presumed to be digestive vacuoles (secondary lysosomes) from their morphological profile. The proximal tubule cells contained the very weakly labeled secondary lysosomes. No specific labeling was noted in other segments of the nephron. Control experiments confirmed the specificity of the immunostaining. Quantitative analysis of the labeling density in each subcellular compartment also confirmed that the main subcellular sites for cathepsin D are the secondary lysosomes and multivesicular bodies. The labeling density in these granules of the lysosomal system varied widely with the individual granules, suggesting that there is a considerable heterogeneity of enzyme content among the granules of the lysosomal system. The prominent presence of cathepsin D in the cortical collecting tubule suggests a certain segment-specific function of this proteinase.

**KEY WORDS:** Cathepsin D, Lysosomes; Multivesicular bodies; Rat kidney; Cortical collecting tubule; Protein A-gold, Lowicary K4M embedding.

抄録 ラット腎尿細管におけるカテプシンDの局在部位について免疫細胞化学的方法を用い検討した。カテプシンDは皮質集合管のリソゾームに豊富に見られるが、近位尿細管には少量しか含まれていないことが明らかとなった。この結果はこの酵素が皮質集合管において、何らかの特殊な機能を持っていると推察される。

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