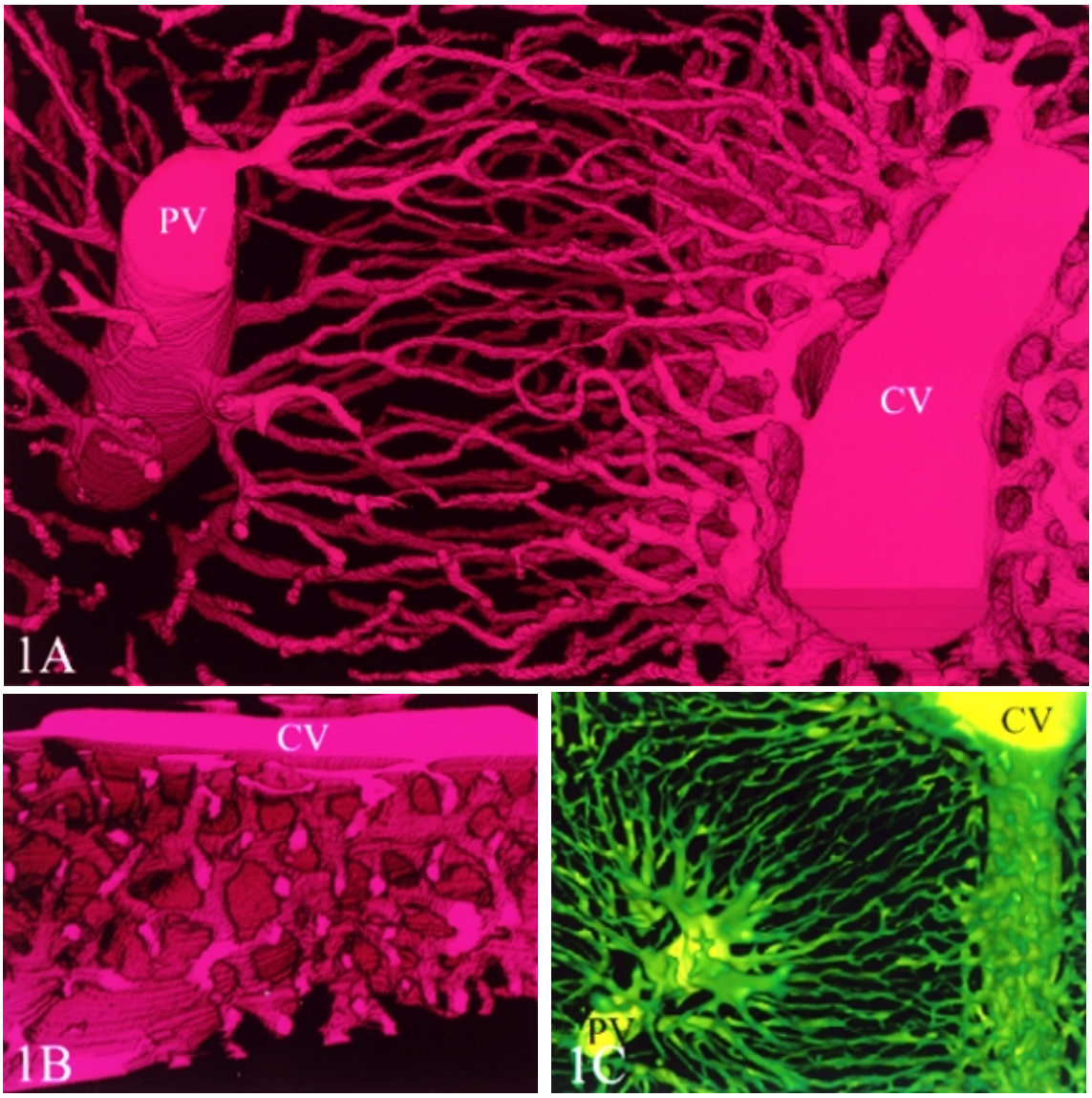
—Photogravure—

Three-Dimensional Observations of Histological Architectures
Hepatic Sinusoids and Juxtaglomerular Complex

Tomoko Ishikawa, Miki Mori, Yoshiko Abe and Kazuo Yamashita
Department of Anatomy, Nippon Medical School



Computer aided three-dimensional (3D) reconstruction from serial sections is a useful technique to observe the spatial arrangement and relationship of histological structures. The present images have been reconstructed with a volume rendering method with Voxel View software (Vital Images, Inc.,USA). Using this method, we can obtain interesting 3D findings, which have not been confirmed with general microscopic observations.

Fig. 1 Hepatic microvasculature of house musk shrews (*Suncus murinus*) reconstructed from serial epon sections (A, B) and from optical slices under a confocal laser scanning microscope (CLSM) (C). CV: central vein, PV: portal vein. Sinusoids branching out from the PV ramify a few times regularly, then anastomose each other and form a characteristic capillary network in the vicinity of the CV (A). In B, a side view of the network shows that it forms a unique capillary mesh sheet around the CV just before the sinusoids flow into the CV. Microvasculature filled with FITC-labeled gelatin in C also supports the above 3D findings.

e-mail: tomoko@nms. ac. jp
Journal Website (http://www.nms.ac.jp/jnms/)

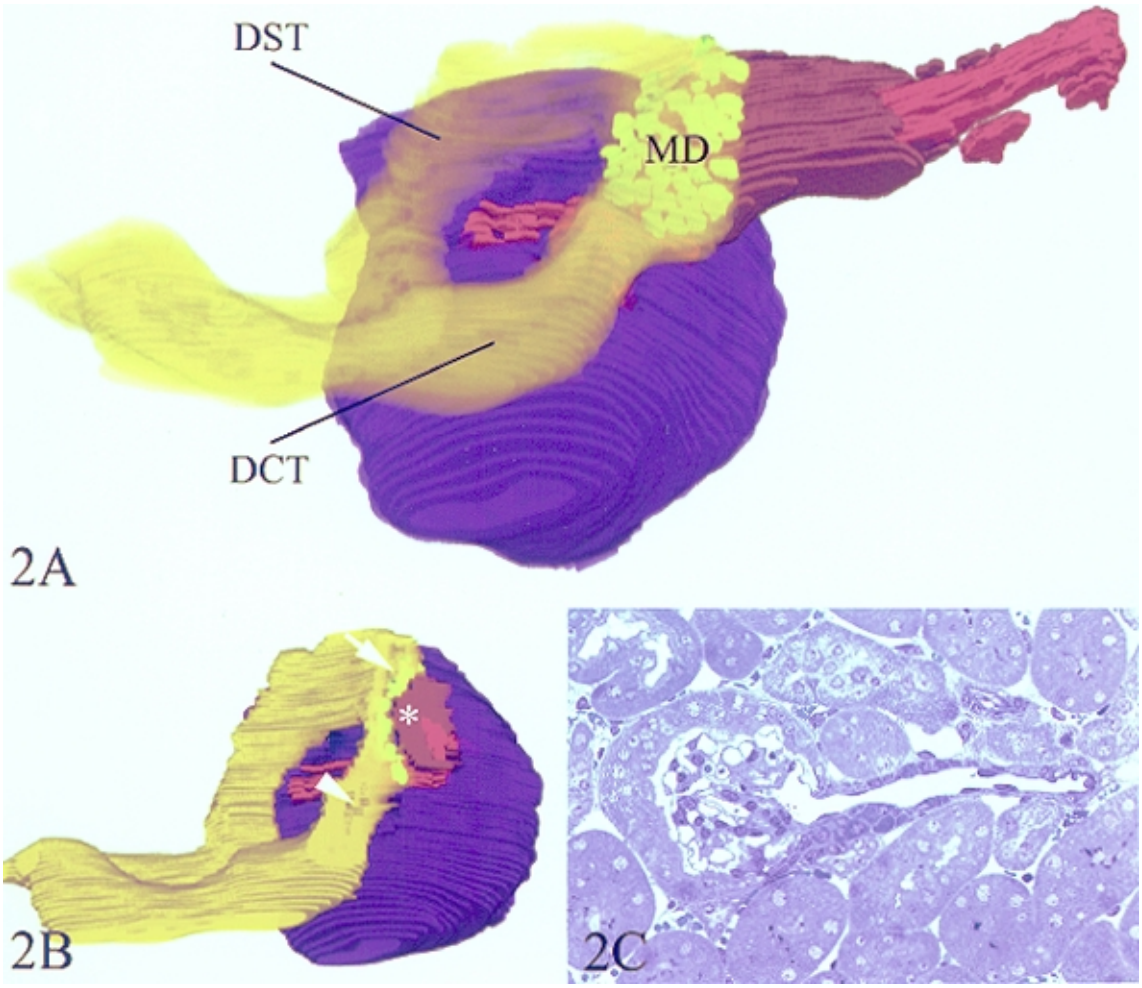


Fig. 2 Spatial arrangement of mouse juxtaglomerular (JG) complex and renal corpuscle reconstructed from serial epon sections. DCT: distal convoluted tubule, DST: distal straight tubule, MD: macula densa. In A, JG cells (brown) surround an afferent vessel (red), and contact with the MD (green yellow: nuclei of MD cells) at the vascular pole. On a cutting view (B), the MD is flat and exists along the JG cells. The layer of the JG cells is thick at the side of the MD (asterisk). This layer has been verified as two – or three-cells thick by observing the serial sections used for the 3D reconstruction (C). In B, it is interesting that the distal tubule (yellow) becomes flat and narrow toward the MD (arrow), and then broad after the MD (arrowhead).

解説：コンピュータを用いた連続切片再構築法により，スンクス肝類洞走行を門脈（PV）から中心静脈（CV）まで明瞭に追跡し，中心静脈周囲を特徴的に取り囲む類洞の網状構造を見いだした（**図 1**）．マウス糸球体傍装置の立体観察からは，糸球体傍細胞層は緻密斑（MD）側で肥厚すること，遠位尿細管は緻密斑部では糸球体傍細胞層に沿った細く扁平な管となることがわかった（**図 2**）．

References

1. Ishikawa T, Mori M, Ichikawa Y, Yamashita K: Three-dimensional observations of hepatic microvasculature (in Japanese). Mebio 1998; 15 (11): 103—105.
2. Ishikawa T, Mori M, Ichikawa Y, Kitoh J, Yamashita K: Three-dimensional observations of spatial arrangement of hepatic zonation and vein system in mice and house musk shrews. Anat Rec 2000; 260 (3): 228—237.