LETTER

THE PARTICULAR GRANULES APPEARING IN THE SUB- ENDOTHELIAL SPACE IN ADRENAL CORTEX OF RATS STRESSED BY SNAKE TOXIN

To the Editors:

The morphological evidence of the release of steroid hormone has not been established. This letter deals with the demonstration of transportation of the particular granules through the intercellular and subendothelial space of the blood capillaries. There have been presumably no reports pointing out the existence of the granular elements there.

The used animals were 36 adult male Wistar-Imamichi rats, 90 to 110 days of age. The experiment was carried out in 2 groups, intact and hypophysectomized. The snake toxin powder of *Trimeresurus flavoviridis* was prepared in the Infection Disease Institute, Tokyo University. The non-hypophysectomized animals were administered subcutaneously with 200 mg/kg snake toxin solution and sacrificed 30 mins., 1, 3, and 6 hrs. respectively after a single injection. The hypophysectomized rats were administered at the 5th and 7th postoperative day under the same condition and sacrificed within 6 hrs.

The particular granules appeared in the subendothelial space communicated with the intercellular one in the adrenal cortex of non-hypophysectomized rats, while in the hypophysectomized rats they no longer occurred. They were not yet present within 30 and 60 mins., but began to appear within 3 hrs., and the population density of them became highest within 6 hrs. These granules (arrows), approximately 200 m μ in diameter, were round in contour and of high electron density (Figs. 1, 2 and 3). It was found that the granules were frequently accumulated in the subendothelial space in which the microvilli were interdigitated (Fig. 2) and that the granules were sometimes eliminated into the lumen of capillary (Fig. 1). The derivation of the granules was not answered, because the concerned cortex cells did not contain any dense granules. The increasing number of the mitochondria (M) and loss of lipid droplets (L) were common changes in fasciculata cells to the stressed rats. There was no evidence that the microvilli could perform the microapocrine secretion involved in the isolation of dense granules. The occurrence of the granules was the particular event exclusively in the adrenal cortex, because they were not recognized in the medulla. It suggests the participation of ACTH that the hypophysectomy prevented the granules to draw out. The vesicles in the cytoplasm of the fasciculata cells increased both in size and in number by the injection of the snake toxin (Fig. 3). It is tentative that the content of large vesicles adhesive to the plasmamembrane might be released out by a mode of selective permeability and some factors of snake toxin except the

proteolytic enzymes might enable the released substance to be visualized in a form of granule.

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Regend for Figures

All photomicrographs (Figs. 1, 2 and 3) show the fasciculate cells of rats administered with snake toxin, 6 hrs. after a single injection. N, nucleus; M, mitochondria; G, Golgi lamellae; E, endothelial cell; Mv, microvilli; ER, endoplasmic reticulum. Arrows indicate the particular granules either accumulated in the subendothelial space or entering the capillary lumen.