Ca Sensitivity of the Contraction of Portal Vein Circular Muscle from Hypertensive Rats. Li-Bo Zou, Keiichi Shimamura*, Kazuo Yamamoto*, Kyoko Matsuda, Fumiko Sekiguchi, and Satoru Sunano. Faculty of Pharmaceutical Sciences, *Research Institute of Hypertension, Kinki University, Higashi-osaka 577.

We have previously reported on abnormality in spontaneous contraction of longitudinal muscle layer in hypertensive rat portal vein. Contraction of smooth muscle is regulated by intracellular Ca. In the present study we examined on Ca sensitivity of circular muscle layer in hypertensive rat portal vein.

Portal vein was extracted from 16 week old normotensive Wistar Kyoto rats (WKY) and stroke-prone spontaneously hypertensive rats (SHRSP) and endothelium-removed circular muscle preparations were made. Isometric contraction was recorded in Tyrode's solution at 37°C. For skinned fiber experiment, a thin preparation was treated with β -escin and isometric contraction was induced by Ca-buffered solution at room temperature.

The circular muscle did not exhibit spontaneous contraction in contrast to longitudinal muscle. Intact preparation from WKY and SHRSP contracted concentration-dependently when K concentration of Tyrode's solution was increased. There was no remarkable difference in the depolarization-induced contraction between WKY and SHRSP. High K-depolarized preparations contracted concentration-dependently when Ca concentration of the high K Tyrode' solution was increased from nominally Ca free to 5 mM. There was no remarkable difference in the response to extracellular Ca between WKY and SHRSP. Contractile response to known intracellular Ca concentration was examined in the β -escin skinned fiber. The preparation contracted concentration dependently when free Ca concentration of the relaxing solution was elevated. There was no remarkable difference between WKY and SHRSP.

These results indicates that Ca influx by depolarization and regulation of the contraction by Ca does not differ remarkably between WKY and SHRSP in the circular muscle of portal vein.