Immunological Impairment in Spontaneously Hypertensive Rat.  
M. Kimura¹, T. Yamakawa¹, S-i. Tanaka¹, F. Isoda³, K. Ukawa¹, K-i. Sekigawa¹, A. Sugiyama¹, M. Ishihara¹, K. Tamura², S. Umemura², M. Ishii², and H. Sekihara¹  

It has been suggested that the immune system might be impaired in Spontaneously Hypertensive Rat (SHR). Thymic allograft from the Wistar Kyoto rat (WKY) can attenuate, at least transiently, hypertension in SHR. In this study, we investigated whether the cellular immunity in SHR may be impaired after the onset of hypertension.  

【Material and Methods】  
Male SHR and the matched WKY were killed by decapitation at 8 and 14 weeks old of age. Lymphocytes subsets in spleen and thymus were analyzed by EPICS-ELITE flow cytometer. Antibodies used to stain cells were: W3/25 (anti-CD4), OX8 (anti-CD8), OX19 (anti-CD5), R73 (anti-TCRαβ) and OX6 (anti-B cell). After splenocytes were cultured with SEB (1000ng/ml) for 72hrs, intracellular incorporation of thymidine were measured. Peripheral blood lymphocytes (PBLs) were also investigated.  

【Result】  
Systolic blood pressure was significantly higher in SHR than in WKY at 14 weeks, but not at 8 weeks of age. Although lymphocytes subset(%) of SHR were not significantly different in either spleen or thymus, both CD4+ and CD8+ PBLs were significantly less in SHR from WKY at 14 weeks, but not at 8 weeks of age 14wk: CD4±30.8±0.7 vs 20.9±9.8, CD8±12.2±0.7 vs 7.9±0.9, 8wk: CD4±25.6±2.2 vs 25.8±3.3, CD8±12.3±1.4 vs 9.1±1.6, (WKY vs SHR). Proliferative responses of splenocytes stimulated with SEB were also significantly reduced in SHR at 14 weeks, but restored by in vitro rIL-2 treatment.  

【Discussion】  
Both CD4+ and CD8+ PBLs were reduced and proliferative response of splenocytes to SEB suppressed after the onset of hypertension in SHR. The immunological abnormalities were only found in peripheral blood and spleen, but not in thymus. The suppression of proliferative response of splenocytes may be attributable to the impaired IL-2 production. To clarify the mechanisms by which cellular immunity were impaired in SHR, further investigations are likely to be required.