Comparison of the Genetic Background among WKY and SHR (SP) Using Microsatellite Markers. Tomoko Tamada, Yasuo Nara*, Tomoji Mashimo, Chiho Matsumoto, Katsumi Ikeda*, Makoto Sawamura, and Yukio Yamori. Graduate School of Human and Environmental Studies, *Otsuka Department of International Preventive Nutritional Medicine, Kyoto University, Kyoto-fu 606.

Spontaneously hypertensive rats (SHR), separated from normotensive Wistar Kyoto rats (WKY), spontaneously develop hypertension around 200mmHg, and are regarded as useful models for essential hypertension. Stroke-prone SHR (SHRSP), selectively bred from SHR, develop severer hypertension than SHR and die with stroke, and therefore are unique models for human hypertensive diseases. SHR and SHRSP were distributed on request from Kyoto University to outside breeders mostly after 12 sib-matings, and after over 20 sib-matings, respectively. In contrast, WKY were kept as a closed colony for a long time till 1970 and were distributed in the world. Consequently, some WKY strains are different in histocompatibility antigen, RT-1 : SHR and SHRSP have k type, while some WKY strains have l type. To assign genetic background, we investigated microsatellite polymorphisms among WKY/Izm, SHRB/Izm and SHRSPA_{3b}/Izm which have the same histocompatibility antigen on 342 microsatellite regions .

Materials and methods : WKY/Izm, SHRB/Izm and SHRSPA_{3b}/Izm have been bred by ourselves. Genomic DNA was extracted from the frozen liver by the standard method using phenol-chloroform. Primers were purchased from Research Genetics Inc. (Jacob et al.: *Nature Genet.* 9: 63-69,1995). DNA samples were amplified by PCR method concerning 342 microsatellite regions, then electrophoresed on acrylamide gel, and stained with ethidium bromide.

Results : In 342 microsatellite regions, the ratio of polymorphisms were 38.6% between WKY and SHR, 42.7% between WKY and SHRSP, and 15.2% between SHR and SHRSP. Jacob et al. reported that lower ratio of the polymorphisms observed between WKY from Heidelberg (HWKY) and SHRSP/H was 36%, but they noted higher ratio, 23%, between their SHR and SHRSP. Based on these data, such analyses on genetic backgrounds among WKY, SHR and SHRSP from other breeders may hopefully contribute to the more detailed comparison of physiological and biochemical data obtained from different strains. Further, microsatellite markers which have polymorphisms between hypertensive and normotensive strains will be useful for linkage analysis to find hypertensive genes. This study was supported by the Ministry of Education, Culture, Science and Sports.