13) Analysis of Serum Protein in SHR.

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INTRODUCTION Previous reports from our laboratory and others have indicated that an unidentified serum protein is increased in SHR, suggesting that there may be some relationship between such an increase in serum protein and hypertension or hypertensive diseases. If SHR have such a characteristic serum protein as is strain specific or quantitatively different, it is not only a genetic marker of this strain but also may have some biological implication. Therefore, serum protein of SHR was further analyzed to clarify whether or not there is any SHR specific serum protein.

MATERIALS AND METHODS Male stroke-prone SHR (SHRSP) and Wistar-Kyoto rats (WKY) at various ages, 5 in each group, were used for the characterization of serum protein by polyacrylamide gel electrophoresis (PAG). The pooled plasma from SHR and WKY were used for immunological studies. Male SHRSP and WKY at the age of one month, 7 in each group were used for the measurement of relative quantity of a serum protein fraction by the single radial immunodiffusion. The anti-serum of a fraction of SHR serum protein was prepared by Dr. K. Moriwaki, National Genetic Institute, Mishima, Japan.

RESULTS a) Identification : A fraction of serum protein in α -globulin region was obviously increased in SHRSP which showed symptoms of cerebrovascular lesions, and this fraction was increased already in one-month old SHRSP which showed no definite increase in blood pressure levels.

b) Characterization : The antiserum reacted with the plasma of SHR, WKY, Wistar and of Donryu Rat by the technique of double diffusion, and the reaction fused between anti-rat whole serum and the antiserum of the fraction. It was also confirmed that the protein fraction was increased in SHRSP at the age of one-month, by single radial immunodiffusion as shown in the following table.

CONCLUSION A fraction of α -globulin region which was not strain specific in SHR but one component of serum protein in the rat, was increased in SHRSP, suggesting that this protein fraction may be somewhat related to the characteristics of SHRSP. Therefore, it is necessary to study further the physiological and pathological implication of this protein fraction in relation to hypertension and/or hypertensive vascular diseases.

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	No. of Rats	Diffusion Area (mm)	PAG Pattern	Double Diffusion
SHRSP	7	29.2 $\pm$ 2.8*	+	+
WKY	7	22.0 $\pm$ 1.0	-	+

* : Significant difference from WKY ($p < 0.05$)