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Short Communication

ALPHA-2-HS-GLYCOPROTEIN (A2HS) POLYMORPHISM IN A JAPANESE POPULATION: EXISTENCE OF TWO NEW VARIANTS

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Summary The alpha-2-HS-glycoprotein (A2HS) polymorphism was studied in a Japanese population using polyacrylamide gel isoelectric focusing, followed by immunoblotting. Two new alleles, designated *A2HS*7* and *A2HS*8*, were observed.

INTRODUCTION

Since Anderson and Anderson (1979) first described the two common alleles of alpha-2-HS-glycoprotein (A2HS), the six rare alleles have been reported: *A2HS*3* (Cox and Andrews, 1983), *A2HS*4* (Weidinger *et al.*, 1984), *A2HS*5* (Umetsu *et al.*, 1984), *A2HS*V*^{Gifu} (Ohya *et al.*, 1985), *A2HS*B* (Cox *et al.*, 1986; Weidinger, 1986) and *A2HS*11* (Westwood *et al.*, submitted for publication). This report describes two new variants of A2HS found in Japanese.

MATERIALS AND METHODS

ACD-plasma samples were prepared from unrelated healthy individuals ($n=400$) living in Aomori prefecture, a northern area of Honshu island of Japan. Polyacrylamide gel (5%T, 3%C, $110\times120\times0.5$ mm) was prepared containing 0.48% w/v Pharmalyte pH 4.2–4.9 (Pharmacia) and 1.92% w/v Pharmalyte pH 4.5–5.4. The catholyte and anolyte were 0.2 M NaOH and 0.5 M H_3PO_4, respectively. The gel was prerun at 10°C for 30 min at a constant power of 5 W and after sample (3.5 μl) application, focusing was continued for 3 hr at a constant power of 10 W. A2HS patterns were developed by immunoblotting (Yuasa *et al.*, 1985). The plasma

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specimens desialyzed with the method described by Umetsu *et al.* (1986) were also phenotyped.

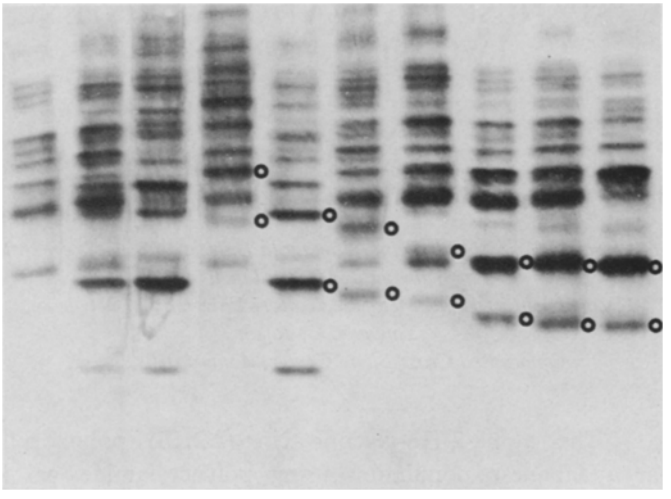

Fig. 1. Various A2HS band patterns revealed by isoelectric focusing of native plasma samples. Anode is at the top. Phenotypes from left to right: 1, 2-1, 2, 4-1, 8-2, 5-1, VGifu-1, 7-1, 11-1, and B-1. Empty circles indicate main A2HS variant bands.

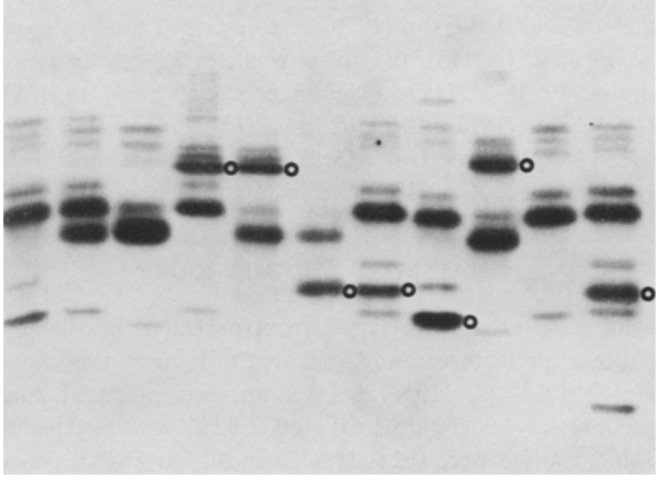

Fig. 2. Various A2HS band patterns revealed by isoelectric focusing of desialyzed plasma samples. Anode is at the top. Phenotypes from left to right: 1, 2-1, 2, 4-1, 4-2, 5-2, VGifu-1, 7-1, 8-2, B-1, and 11-1. Empty circle indicates main A2HS variant band.

Table 1. Distribution of phenotypes and allele frequencies of A2HS types among unrelated 400 Japanese subjects.

Phenotypes	Observed No.		%	Expected No.	χ^2
1	217		54.3	222.0	0.1126
2-1	158		39.5	147.5	0.7475
2	19		4.8	24.5	1.2347
7-1	4				
7-2	1	(6)	1.5	6.0	0.0000
8-2	1				
Others	0				
Total	400		100.1	400.0	2.0948

Allele frequencies: *A2HS*1*=0.74500, *A2HS*2*=0.24750, *A2HS*7*=0.00625, *A2HS*8*=0.00125; $0.1<p<0.2$ (df=1).

RESULTS AND DISCUSSION

In 400 Japanese subjects A2HS patterns were classified into three common (1, 2-1, 2) and three rare types. Three new rare types were considered to be controlled by two rare alleles and these alleles were designated *A2HS*7* and *A2HS*8*, respectively. In the native plasma specimens, the A2HS 7 bands are located between A2HS V^{Gifu} and A2HS 11 bands, and A2HS 8 bands appear between A2HS 1 and A2HS 5 bands (Fig. 1). On the other hand, in the desialyzed plasma samples, A2HS 7 band comes out in the cathodal side of A2HS 11 band, and A2HS 8 band appears in the anodal side of A2HS 4 band (Fig. 2). In the desialyzed samples, the sequence of A2HS on the basis of their isoelectric point is as follows; in the direction of cathode, A2HS 8, A2HS 4, A2HS 1, A2HS 2, A2HS V^{Gifu}, A2HS 5, A2HS 11, and A2HS 7. The sequence of A2HS B band was not determined because it was undetectable in the desialyzed samples.

The results of the population study for A2HS in unrelated 400 Japanese subjects are presented in Table 1. The distribution of phenotypes fitted the Hardy-Weinberg equilibrium.

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