

# Distribution of Twelve Human Salivary Polymorphisms in Japanese Population

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## Introduction

This report presents the data on the gene frequencies of twelve polymorphic systems in human salivary protein [salivary acid protein(Pa), parotid basic proteins(Pb), proline-rich proteins (Pr), double-band proteins(Db), parotid middle-band protein (PmF), parotid isoelectric focusing variant(PIF), parotid heavy protein(Ph)] parotid and whole salivary enzymes [parotid salivary acid phosphatase(s-Acp), salivary amylase(Amy<sub>1</sub>)] The blood groups of whole saliva [secretor character(se), Lewis type(Le<sup>a</sup>)] and the RFLP(human amylase cDNA) were studied in Japanese population.

## Experimental materials and methods

Examination of Se, Lewis and Amy<sub>1</sub> systems: Whole saliva was used. Examination of Pa, Pb, Pr, Db, PmF, Ph, PIF and s-Acp systems: Parotid saliva was used, samples were collected with double-chamber cup of Curby type. Se, Lewis and Amy<sub>1</sub> typings of whole saliva were performed according to the methods of Ikemoto and Merritt. Pa, Pb, Pr, Db, PmF, Ph, PIF and s-Acp typings of parotid saliva were performed according to the methods of Azen, Friedman, and Ikemoto. RFLP of human salivary  $\alpha$ -amylase after cleavage with restriction endonucleases *Pst* I and *Bam* HI was examined according to the methods of Ishizaka and Tsuchida.

## Gene frequencies of Japanese population

The gene frequencies of Se and Lewis blood groups observed were 0.516 for se and 0.455 for Le<sup>a</sup>, respectively. The gene frequencies

of salivary amylase( $Amy_1$ ) and salivary acid phosphatase( $s-Acp$ ) observed were 0.011 for  $Amy_1$  and 0.217 for  $s-Acp^A$ , respectively. The gene frequencies of parotid salivary polymorphisms observed were 0.214 for  $Pa^+$ , 1.000 for  $Pb^1$ , 0.753 for  $Db^+$ , 0.394 for  $PmF^+$ , 0.028 for  $Ph^+$ , 0.733 for  $PIF^+$ , respectively. The *Pst* I and *Bam* HI restriction site polymorphism was studied. Distribution of allele frequencies were 0.487 for 5.7 Kpb fragment and 0.531 for 6.5 Kpb fragment. Comparison of gene frequencies of genetic markers in parotid saliva of Japanese with those of other racial groups. The frequency of  $Pa^+$  allele in Japanese was higher than those in Negroes and lower than those of other Orientals. The  $Pb^2$  and  $Db^+$  alleles in Negroes were higher than those in Caucasians and Orientals. The  $PIF^+$  allele in Japanese was somewhat higher than that in Caucasians and the frequency of the  $PIF^+$  allele in Negroes was much lower than that of the other racial groups. Furthermore, the  $PmF^+$  allele in Orientals was higher than that of Caucasians. The frequency of the  $Ph^+$  allele in Japanese was lower than that of Malays and Chinese, and somewhat higher than that of Indians. The frequency of the  $Amy_1^V$  allele in Japanese was similar to that in Caucasians, but much lower than that in Negroes. In the salivary protein and enzyme polymorphisms there were differences within the Japanese population, and the salivary polymorphisms appear to be a valuable personal identification and anthropological markers.

## References

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