

## **Two Independent Genetic Origins of $\beta^+$ -Thalassemia Due to -31 A to G Mutation in Thai and Japanese Populations**

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**ABSTRACT** Haplotype associated with the -31 (A-G)  $\beta^+$ -thalassemia gene in seven Thai individuals were examined and compared with that described originally in Japanese. Seven polymorphic restriction sites within  $\beta$ -globin gene cluster were determined using allele specific polymerase chain reaction (ASPCR) methods newly developed for rapid  $\beta$ -globin haplotyping. A concordant result of DNA polymorphisms examined using ASPCR and conventional PCR-restriction fragment length polymorphism (PCR-RFLP) method was observed. It was found that all these seven Thai  $\beta^+$ -thalassemia alleles were associated with the  $\beta$ -globin haplotype (+ - - - - +), which is different from that described for a Japanese subject (- + + - + + -). This indicates two independent origins. As compared to the PCR-RFLP method,  $\beta$ -globin haplotyping using ASPCR developed is easier, rapid, less time-consuming and requires no restriction digestion. The methods should also prove useful in population genetic study and linkage analysis of  $\beta$ -hemoglobinopathy.