

Frequency of single nucleotide polymorphisms of cytochrome P450 CYP2C9 in an Iranian population using TaqMan genotyping assay

F. Dalily^{1,*}, A. Ramazani²

¹Student Research Committee, Zanjan University Of Medical Sciences, Zanjan, Iran

²Biotechnology Departments, School of Pharmacy, Zanjan University of Medical Sciences, Zanjan, Iran

Background and Aims: One of the major challenges in the near future is the identification of genes that affect the metabolism of different drugs. Large scale association studies that utilise single nucleotide polymorphisms (SNPs) have been considered a valuable tool for this purpose. cytochrome P450 2C9 gene, was found to be involved in the majority of hepatically cleared drugs. We examined the distribution of major allelic variants of CYP2C9 in Iranian population.

Methods: The polymorphisms of CYP2C9 (including the CYP2C9*2 and CYP2C9*3 alleles) was analyzed in 400 healthy unrelated Iranian subjects. Primers and probes were designed using PrimerExpress (Version 3.0) software. Genomic DNA was prepared from blood samples with standard salting out method. Mutation analysis of CYP2C9 alleles was performed by means of real time PCR method (TaqMan assay). 1.5 % agarose electrophoresis gel were used to confirm amplicon fragment size of target. Data were analyzed by SPSS that connect with Real-time PCR device at the end.

Results: The frequencies of each polymorphism in Iranian population were found as 0.26 and 0.1 for CYP2C9*2 (8633C>T), CYP2C9*3 (47639A>C) respectively.

Conclusions: This is the first report of CYP2C9 allele frequency form Iran by real time PCR technique. From this study was found that Real-time PCR is a robust and sensitive technique than common PCR for SNP genotyping. The results of this study will be useful for understanding clinical pharmacokinetics and drug dosage recommendations for Iranians.

Keywords: SNP; CYP2C9; Real time PCR