

## Frequencies of clinically important single nucleotide polymorphisms of cytochrome p450 cyp1a2 in healthy Iranian population using taqman genotyping assay

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**Background and Aims:** Cytochrome P450 (CYP) 1A2 gene is involved in the metabolic activation of several carcinogens and altered metabolization of some clinically used drugs. Several single nucleotide polymorphisms of cytochrome P450 enzyme 1A2 gene have been reported. The present study was designed to explore the allelic and genotypic frequencies of CYP1A2 gene polymorphisms (CYP1A2\*1C and CYP1A2\*1F) in healthy Iranian population.

**Methods:** The study was conducted in 200 unrelated healthy human volunteers. Blood samples of healthy volunteers were collected from different regions of Iran and then their DNA extracted with standard salting out method. Primers and probes for these alleles were designed by the PrimerExpress (Version 3.0) software. Mutation analysis of CYP1A2 alleles (CYP1A2\*1C and CYP1A2\*1F) 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 0.05 and 0.3 for CYP1A2\*1C (-3860 G>A) and CYP1A2\*1F (-163 C>A) respectively.

**Conclusions:** This is the first report of CYP1A2 allele frequency from Iran. From this study was found that Real-time PCR is a robust and sensitive technique than common PCR for SNP genotyping. It might be screened to determine the relationship between CYP1A2\*1C and CYP1A2\*1F related drug metabolisms in associated groups.

**Keywords:** SNP; CYP1A2; Real time PCR