# Prevalence of the UGT1A1*6 (c.211G>A) polymorphism and irinotecan toxicity in Iranian populations of different ethnicities


## ABSTRACT

Background: Pharmacogenetic studies on irinotecan treatment in patients with metastatic colorectal cancer have indicated that genetic polymorphisms in UGT1A1*6 can lead to decreased enzyme activity and accumulation of the toxic metabolite SN-38. Here, we compared the prevalence of UGT1A1*6 in an Iranian population of different ethnicities with those of other populations. Materials and Methods: A total of 300 healthy people of different ethnic groups including Persian, Azari, Lure, Kurdish, Arab, Baluch and Caspian in the Iranian population were enrolled. Genotyping of the UGT1A1*6 alleles (G/G, A/G, A/A) was performed by polymerase chain reaction-restriction fragment length polymorphism and direct genomic DNA sequencing. Result: The most predictive genotype among the Iranian ethnic groups, especially Persian, was the G/G genotype (wild-type genotype). The frequency of the A/G genotype among the Persian, Azari, Lure, Kurdish, Arab, Baluch and Caspian ethnicities were 15.69% (n = 27), 11.11% (n = 8), 5.88% (n = 1), 9.09% (n = 1), 10% (n = 1), 20% (n = 1) and 0% (n = 0), respectively. Only one person with Persian ethnicity was homozygous for the mutation in UGT1A1*6 (0.58%). Additionally, the frequency of the A and G alleles in Iranians was 6.83 and 93.16%, respectively. Conclusion: The identification of the UGT1A1*6 alleles is necessary among the different Iranian ethnic groups before irinotecan therapy, suggesting that genotyping would be helpful for clinicians to optimize chemotherapy or identify individuals at risk of adverse drug reactions before clinical trials.



**Keyword:** UGT1A1*6 polymorphism; Irinotecan toxicity; Iranian ethnic groups