Abstract
Introduction: Transferrin (Tf) exerts a crucial function in the maintenance of systemic iron homeostasis. The expression of the Tf gene is controlled by transcriptional mechanism, although little is known about genetic factors influence. Objective: To study the role of rs3811647 in Tf expression using an in-vitro assay on hepatoma cells. Design and Methods: Hep3B cells were co-transfected with constructs containing A (VarA-Tf-luc) and G (VarG-Tf-luc) variants of rs3811647, using luciferase as a surrogate reporter of Tf expression. Results: Luciferase assays showed a higher intrinsic enhancer activity (p < 0.05) in the A compared with the G variant. In silico analysis of SNP rs3811647 showed that the A allele might constitute a binding site for the transcription factor glucocorticoid receptor (GR). Conclusion: The A allele of SNP rs3811647 increases Tf expression in a manner that might underlie inter-individual variation in serum transferrin levels observed in different population groups.

Keywords
Transferrin gene, SNP rs3811647, Serum transferrin, Iron metabolism, Gene expression.