

# Association of gastric inhibitory polypeptide receptor (GIPR) gene polymorphism with type 2 diabetes mellitus in Iranian patients

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## Abstract

**Introduction:** Gastric inhibitory polypeptide receptor (GIPR) encodes a G-protein coupled receptor for gastric inhibitory polypeptide (GIP), which was demonstrated to stimulate insulin secretion. Relation of GIPR gene variation to impaired insulin response has been suggested in previous studies. However, little information is available regarding GIPR polymorphisms and type 2 diabetes mellitus (T2DM). Hence, the aim of the study was to investigate single nucleotide polymorphisms (SNPs) in the promoter and coding regions of GIPR in Iranian T2DM patients.

**Materials and methods:** Two hundred subjects including 100 healthy and 100 T2DM patients were recruited in the study. Genotypes and allele frequency of rs34125392, rs4380143 and rs1800437 in the promoter, 5' UTR and coding region of GIPR were investigated by RFLP-PCR and Nested-PCR.

**Results:** Our finding indicated that rs34125392 genotype distribution was statistically different between T2DM and healthy groups ( $P = 0.043$ ). In addition, distribution of T/- + -/- versus TT was significantly different between the both groups ( $P = 0.021$ ). Moreover, rs34125392 T/- genotype increased the risk of T2DM (OR = 2.68, 95%CI = 1.203–5.653,  $P = 0.015$ ). However, allele frequency and genotype distributions of rs4380143 and rs1800437 were not statistically different between the groups ( $P > 0.05$ ). Multivariate analysis showed that the tested polymorphisms had no effect on biochemical variables.

**Conclusion:** We concluded that GIPR gene polymorphism is associated with T2DM. In addition; rs34125392 heterozygote genotype may increase the risk of T2DM. More studies with large sample size in other populations are recommended to show the ethnical relation of these polymorphisms to T2DM.

**Keywords:** Gastric inhibitory polypeptide receptor, Polymorphism, Type 2 diabetes mellitus, Middle East